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

SURFACE WATER RECORDS OF INDIANA

1964

Prepared in cooperation with

Indiana Flood Control and Water Resources Commission
State Department of Conservation, Division of Water Resources
State Highway Commission
State Board of Health
Corps of Engineers, U. S. Army

Copies of this report may be obtained from
District Chief, Water Resources Division
U. S. Geological Survey
Room 516, 611 North Park Avenue
Indianapolis, Indiana 46204

CALENDAR FOR WATER YEAR 1964

OCTOBER 1963

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
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NOVEMBER 1963

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JANUARY 1964

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FEBRUARY 1964

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MARCH 1964

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JUNE 1964

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JULY 1964

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AUGUST 1964

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SEPTEMBER 1964

S	M	T	W	T	F	S
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SURFACE WATER RECORDS OF INDIANA, 1964

INTRODUCTION

The surface-water records for the 1964 water year for gaging stations, partial-record stations, and miscellaneous sites within the State of Indiana 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 Malcolm D. Hale, district chief, Water Resources Division.

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 Indiana were contained in Parts 3A, 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 Indiana for the systematic collection of streamflow records began in 1930. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

> State Department of Conservation, John E. Mitchell, director, through Division of Water Resources, C. H. Bechert, director; State Highway Commission, Robert S. Whitehead, chairman, Martin L. Hayes, executive director, and F. L. Ashbaucher, chief engineer; State Board of Health, A. C. Offutt, commissioner, and B. A. Poole, director, Bureau of Environmental Sanitation; Indiana Flood Control and Water Resources Commission, Joe H. Nixon, chairman, J. I. Perrey, chief engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U. S. Army, in collecting records for 44 gaging stations published in this report.

The following organizations aided in collecting records:

> The city of Indianapolis, through its Board of Public Works and Sanitation and its Flood Control Board; cities of Anderson, Bloomington, Muncie, North Vernon, Richmond, and Jasper; Indianapolis Water Co.; Indianapolis Power and Light Co.; Public Service Co. of Indiana; Container Corporation of America; Continental Steel Co.; city of Ft. Wayne Filtration Plant; Indiana and Michigan Electric Co.; Sanitary District of Chicago; and city of Hammond.

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.

DEFINITION OF TERMS AND ABBREVIATIONS

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, 1.983471 acre-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 idention 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 3-3355.00, includes the part number "3" 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 3-3355.00 would appear as 3-3355, 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. Records of stage are obtained from a water-stage recorder that gives a continuous chart of the fluctuations (for digital recorders, a tape punched at 15-, 30-, or 60-minute intervals) 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. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the 1964 water year is shown on page 11 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."

EXPLANATION OF DATA

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 the 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 digital recorders, the daily mean discharge is always the average of the discharges at each punched reading. 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 is expressed in cubic feet per second per square mile (line headed "Cfsm"), and in inches (line headed "In").

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.

Subsequent to July 27, 1961, all stations east of the new time-zone boundary line between Eastern Standard and Central Standard time have been operated on Eastern Standard time. Peak discharges and their times of occurrence and corresponding gage heights 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 subjected 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.

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 diversions, 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.

GPO 820-311-2

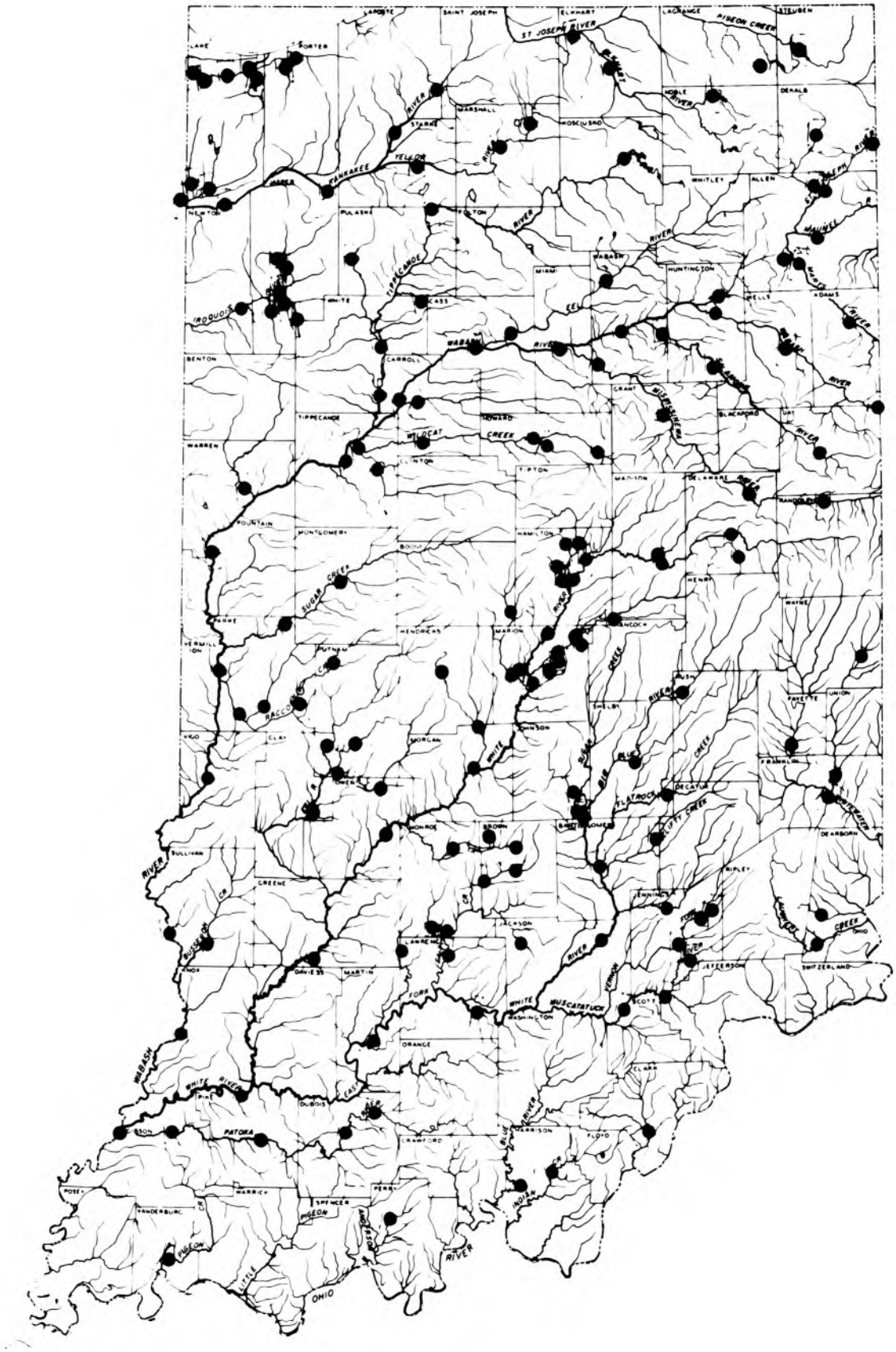
SUPPLEMENTAL DATA

Data collected at partial-record stations and at miscellaneous sites are given at the end of this report. The data 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 discharge measurements at miscellaneous sites. Data on records available on lakes in Indiana are given in a third table.

A compilation of records for the area covered by this report through September 1950 has been published as Water-Supply Papers 1305(3A), 1307(4), and 1308(5). These reports contain a summary of monthly and annual discharges for all previously published records as well as some records not contained in the annual series of water-supply papers. All records were re-examined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical.

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. Most gaging-station records in the State through 1959 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.

MAP SHOWING LOCATION OF GAGING STATIONS IN INDIANA



MIAMI RIVER BASIN

3-2750. Whitewater River near Alpine, Ind.

Location.--Lat 39°34'23", long 85°09'27", in sec. 14, T. 13 N., R. 12 E., on right bank, 500 ft downstream from highway bridge, 0.4 mile downstream from Wilson Creek, 1.6 miles northeast of Alpine, and 4.7 miles upstream from Bear Creek.

Drainage area.--539 sq mi.

Records available.--October 1928 to September 1964. Prior to October 1936, published as West Fork Whitewater River near Alpine.

Gage.--Water-stage recorder. Datum of gage is 750.19 ft above mean sea level, datum of 1929. Prior to Nov. 9, 1928, staff gage at same site and datum.

Average discharge.--36 years, 535 cfs.

Extremes.--Maximum discharge during year, 13,100 cfs Apr. 21 (gage height, 13.17 ft); minimum, 48 cfs Oct. 7; minimum gage height, 2.64 ft Sept. 15, 16, 17.
1928-64: Maximum discharge, 37,100 cfs Jan. 14, 1937 (gage height, 16.61 ft); minimum, 14 cfs Sept. 22, 1931; minimum daily, 30 cfs Aug. 6, 1934.

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

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

Oct. 1 to Jan. 19		Jan. 20 to Sept. 30			
2.7	46	2.6	51	5.0	980
3.0	82	2.8	78	6.0	1,750
		3.2	150	8.0	3,950
		3.6	260	10.0	6,800
		4.0	410	13.0	12,600
		4.5	660		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 55	72	67	58	108	92	350	1,260	230	168	108	77
2	*a 56	70	68	60	103	102	435	1,120	292	146	105	72
3	a 55	68	68	65	102	130	2,500	980	390	137	103	71
4	a 54	68	68	65	100	635	2,350	840	278	139	102	71
5	a 54	70	68	64	100	2,870	1,260	750	245	130	98	67
6	a 53	72	68	65	128	1,120	3,180	690	260	130	92	63
7	49	72	67	68	160	635	2,870	635	260	336	92	61
8	60	70	69	68	137	485	1,420	610	295	510	89	61
9	53	68	69	78	122	5,380	1,050	560	245	295	85	61
10	53	68	70	81	114	11,300	810	510	215	215	86	63
11	53	68	69	76	110	4,070	660	485	200	175	99	61
12	52	68	70	69	105	2,990	585	510	192	182	95	59
13	50	68	69	64	105	2,150	560	560	278	198	91	58
14	52	69	68	69	102	1,750	485	485	229	170	88	59
15	* 54	69	64	73	100	1,950	410	435	260	200	85	58
16	54	68	60	72	102	1,260	390	410	198	192	84	58
17	54	67	59	70	100	980	350	350	185	168	84	58
18	54	* 69	58	69	98	780	350	370	200	155	81	61
19	56	70	58	70	98	635	3,300	370	215	143	81	75
20	56	70	58	215	97	585	9,600	350	192	141	78	74
21	* 58	70	58	178	95	690	*11,700	330	200	135	85	71
22	58	70	59	*158	94	690	3,500	312	200	130	91	67
23	58	72	61	146	91	610	3,470	312	190	126	85	*71
24	58	72	62	148	91	535	2,550	295	* 178	124	84	67
25	58	70	62	192	91	*510	1,850	278	165	118	81	64
26	58	69	* 64	152	92	780	1,340	* 260	158	130	*78	61
27	57	69	65	139	94	635	1,500	278	150	141	78	63
28	58	68	64	126	* 94	535	3,230	260	143	* 139	83	65
29	58	68	62	118	91	460	2,150	245	139	128	85	67
30	59	67	60	116	------	410	1,580	230	143	118	81	67
31	63	------	59	112	------	390	------	230	------	112	78	------
Total	1,720	2,079	1,991	3,104	3,024	46,144	70,785	15,310	6,525	5,331	2,735	1,951
Mean	55.5	69.3	64.2	100	104	1,489	2,360	494	218	172	88.2	65.0
Cfsm	0.103	0.129	0.119	0.186	0.193	2.76	4.38	0.917	0.404	0.319	0.164	0.121
In.	0.12	0.14	0.14	0.21	0.21	3.18	4.89	1.06	0.45	0.37	0.19	0.14

Calendar year 1963: Max 26,300 Min 49 Mean 410 Cfsm 0.761 In. 10.34
Water year 1963-64: Max 11,700 Min 49 Mean 439 Cfsm 0.814 In. 11.10

Peak discharge (base, 6,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1700	12.85	12,200				
4-21	0830	13.17	13,100				

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 15-24, 30, 31, Jan. 1, 2, 11-14.

3-2755. East Fork Whitewater River at Richmond, Ind.

Location.--Lat 38°48'24", long 84°54'26", in SE¼ sec. 7, T. 13 N., R. 1 W., on left bank, 50 ft downstream from highway bridge, three-quarters of a mile south of Richmond, and 2 miles upstream from Short Creek.
Drainage area.--123 sq mi.
Records available.--April 1949 to September 1964.
Gage.--Water-stage recorder (digital). Datum of gage is 854.01 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 27, 1949, wire-weight gage at same site and datum.
Average discharge.--15 years, 119 cfs.
Extremes.--Maximum discharge during year, 5,830 cfs Mar. 10 (gage height, 9.11 ft); minimum, 3.6 cfs Dec. 14 (gage height, 0.14 ft).
1949-64: Maximum discharge, 14,100 cfs Jan. 21, 1959 (gage height, 12.44 ft), from rating curve extended above 5,000 cfs on basis of contracted-opening measurement of peak flow; maximum gage height, 12.49 ft Jan. 15, 1950; minimum discharge, 0.6 cfs Sept. 21, 1955; minimum gage height, -0.12 ft Sept. 16, 1959.
Maximum stage known, 15.0 ft in March 1913, from floodmarks (discharge not determined).
Remarks.--Records good except those for periods of ice effect, which are fair. Some regulation at low flow by powerplant above station. During periods of low flow, the City of Richmond diverts a small amount of water for municipal supply which is returned at the sewage plant below the gage.

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

Oct. 1 to Mar. 9

0.1	2.2	1.0	123
.2	6.3	1.5	275
.3	12	2.0	460
.4	20	2.5	660
.6	43	4.0	1,340
.8	77	6.0	2,660

Mar. 10 to June 24

0.7	24
.8	39
1.0	82
1.5	245
2.0	430
2.5	630
4.0	1,340
6.0	2,660
7.0	3,450

June 24 to Sept. 30

0.5	6.0
.6	13
.7	24

Note.--Same as preceding table above 0.7 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	9.9	27	8.5	b 7.6	13	14	56	230	40	32	12	12
2	10	13	9.6	8.3	12	23	104	212	149	26	11	12
3	8.5	12	11	19	12	24	811	185	88	28	12	10
4	9.4	13	10	11	11	320	428	163	53	24	16	9.7
5	8.0	16	10	8.8	11	468	269	146	48	20	16	9.3
6	7.7	15	9.1	10	63	162	608	123	56	30	14	8.4
7	8.5	15	8.6	9.8	29	100	433	116	85	122	11	8.2
8	9.2	14	13	8.8	20	98	262	111	256	54	12	8.8
9	9.7	11	10	28	17	2,210	185	102	121	34	10	8.0
10	8.0	11	9.7	12	16	2,890	140	93	79	26	11	11
11	8.9	12	10	9.5	14	681	111	90	65	21	14	7.7
12	7.4	14	12	b 8.5	13	565	94	121	77	32	13	7.6
13	7.5	14	8.4	b 8.0	14	404	94	115	86	29	12	7.5
14	8.1	15	5.8	b 8.0	13	399	77	101	54	27	12	8.2
15	8.7	13	5.4	8.1	13	473	61	82	56	31	10	8.8
16	9.3	11	b5.2	8.7	18	274	52	75	44	24	10	8.8
17	9.4	10	b5.2	8.8	15	192	48	71	34	21	13	10
18	10	12	b5.2	8.0	15	134	64	67	46	23	15	13
19	8.5	13	b5.2	18	17	104	776	63	39	23	17	19
20	8.7	* 13	b5.2	61	15	102	2,760	55	41	26	16	8.9
21	*11	12	b5.3	37	14	171	* 1,900	51	85	35	21	9.0
22	12	14	b5.4	* 29	13	150	1,260	51	52	59	15	10
23	12	16	b5.6	24	12	112	575	51	40	35	10	* 18
24	12	9.3	b5.8	40	12	89	449	54	* 31	71	9.8	9.3
25	12	9.7	b6.0	68	12	*102	330	37	27	33	* 11	9.5
26	11	11	9.7	33	15	198	272	64	28	25	10	8.6
27	9.4	12	*8.9	27	* 13	139	364	* 48	27	25	9.7	8.9
28	10	8.8	7.9	18	14	107	500	40	28	* 23	25	9.2
29	11	6.6	6.7	15	13	89	338	37	27	21	15	10
30	12	9.2	b6.7	14	------	75	268	34	54	19	9.9	8.5
31	12	------	b7.0	14	------	65	------	34	------	15	12	------
TOTAL	299.8	362.6	240.1	588.9	469	10,934	13,689	2,822	1,916	1,014	405.4	297.9
MEAN	9.67	12.8	7.81	19.0	16.2	353	456	91.0	63.9	32.7	13.1	9.93
CFSM	.079	.104	.064	.155	.132	2.87	3.71	.740	.520	.266	.107	.081
IN	.09	.12	.07	.18	.14	3.31	4.14	.85	.58	.31	.14	.09

CALENDAR YEAR 1963 MAX 4,380 MIN 5.2 MEAN 95.3 CFSM .775 INCHES 10.52
WATER YEAR 1963-64 MAX 2,890 MIN 5.2 MEAN 90.3 CFSM .734 INCHES 10.00

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0115	9.11	5,830				
4-20	1700	7.96	4,370				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-2760. East Fork Whitewater River at Brookville, Ind.

Location.--Lat 39°26'00", long 85°00'11", in NE¼NE¼ sec. 20, T. 9 N., R. 2 W., on right bank, 65 ft downstream from bridge on State Highway 101, 0.9 mile northeast of Brookville, and 1.8 miles upstream from mouth.

Drainage area.--382 sq mi.

Records available.--March 1954 to September 1964. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder. Datum of gage is 623.76 ft above mean sea level, datum of 1929. Prior to May 22, 1954, wire-weight gage at site, 65 ft upstream at same datum.

Average discharge.--10 years, 368 cfs.

Extremes.--Maximum discharge during year, 10,900 cfs Mar. 9 (gage height, 8.07 ft); minimum, 15 cfs Sept. 10 (gage height, -0.53 ft).
1954-64: Maximum discharge, 36,100 cfs Jan. 21, 1959 (gage height, 16.50 ft); minimum, that of Sept. 10, 1964.

Remarks.--Records good except those for periods of ice effect and 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 Apr. 19				Apr. 20 to Sept. 30			
-0.35	24	1.0	420	-0.60	7	.7	337
- .3	27	1.5	720	- .50	19	1.2	600
- .2	36	2.0	1,100	- .40	32	2.3	1,380
.0	70	3.0	2,070	- .30	45	3.5	2,650
.2	110	5.0	4,800	- .20	61	5.0	4,800
.4	165	8.0	10,700	0.00	102	7.0	8,540
.8	320			.2	152		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	41	36	31	65	64	223	750	117	102	45	32
2	27	54	34	33	62	68	416	630	122	69	44	29
3	27	39	34	36	58	68	2,680	570	337	56	38	29
4	26	36	36	37	55	590	1,670	510	196	56	37	27
5	26	36	36	39	52	1,800	900	430	155	53	40	27
6	26	39	35	39	80	650	1,530	406	142	50	37	24
7	27	39	35	40	130	370	1,460	360	152	87	40	24
8	26	39	39	42	105	370	900	360	430	360	37	22
9	26	39	41	48	90	4,670	650	337	276	142	35	19
10	26	36	41	56	80	9,820	530	284	164	102	32	17
11	27	36	39	56	70	2,840	445	264	130	84	37	17
12	29	35	41	42	70	1,850	395	268	114	72	37	19
13	27	36	42	38	70	1,270	395	292	288	98	37	20
14	27	36	41	42	70	1,050	345	268	179	84	33	19
15	27	36	35	45	65	1,180	280	238	140	87	35	19
16	28	38	32	43	70	900	254	217	124	91	31	19
17	29	36	31	42	70	650	238	210	107	72	28	22
18	29	35	30	41	75	500	223	199	95	65	27	23
19	29	35	30	41	75	380	2,880	182	114	69	26	32
20	30	*38	31	150	75	380	7,540	167	102	76	29	40
21	31	39	32	150	70	650	6,600	155	114	56	27	41
22	*31	42	33	130	70	560	3,580	147	134	65	35	28
23	31	42	34	*110	65	430	1,920	142	*104	76	47	27
24	32	44	35	100	60	350	*1,470	142	93	89	40	*37
25	33	39	36	165	60	330	1,060	164	78	89	*32	35
26	34	36	36	140	*60	*600	920	152	69	69	31	29
27	33	35	*36	110	60	650	920	*196	63	61	29	29
28	33	35	36	90	60	430	1,220	147	61	55	24	31
29	31	35	35	75	60	320	1,220	127	74	*55	45	29
30	32	35	33	70	------	266	885	122	63	51	45	27
31	32	------	31	68	-----	246	-----	117	------	48	32	-------
Total	899	1,141	1,096	2,149	2,052	34,302	43,749	9,543	4,337	2,589	1,092	793
Mean	29.0	38.0	35.4	69.3	70.8	1,107	1,458	276	145	83.5	35.2	26.4
Cfsm	0.076	0.099	0.093	0.181	0.185	2.90	3.82	0.723	0.380	0.219	0.092	0.069
In.	0.09	0.11	0.11	0.21	0.20	3.34	4.26	0.83	0.42	0.25	0.11	0.08

Calendar year 1963 : Max 16,400 Min 26 Mean 298 Cfsm 0.780 In. 10.60
Water year 1963-64 : Max 9,820 Min 17 Mean 281 Cfsm 0.736 In. 10.01

Peak discharge (base, 4,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	2300	8.07	10,900				
4-20	1530	7.20	8,940				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 15-22, Jan. 3-23. No gage-height record Dec. 23 to Jan. 2, Jan. 25 to Mar. 1, Mar. 6-8, 14, 16-28. Discharge computed from twice-daily wire-weight gage readings Oct. 1 to Dec. 22, Jan. 3-24, Mar. 2-4, Mar. 29 to Apr. 3, Apr. 5, 8-19, Apr. 25 to Sept. 30.

3-2765. Whitewater River at Brookville, Ind.

Location.--Lat 39°24'24", long 85°00'45", in NW¼ sec. 32, T. 9 N., R. 2 W., on right bank at downstream side of highway bridge, 0.3 mile downstream from East Fork and 1.1 miles south of Brookville.

Drainage area.--1,239 sq mi.

Records available.--June 1915 to September 1917, October 1917 to May 1920 (gage heights only), and July 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 595.71 ft above mean sea level, datum of 1929. July 1923 to Sept. 27, 1928, chain gage at same site and datum. Prior to July 1923, chain gage at same site at datum 1.5 ft higher.

Average discharge.--43 years (1915-17, 1923-64), 1,260 cfs.

Extremes.--Maximum discharge during year, 46,000 cfs Mar. 10 (gage height, 21.20 ft); minimum, 92 cfs Oct. 4-9 (gage height, 0.42 ft).
1915-20, 1923-64: Maximum discharge, 81,800 cfs Jan. 21, 1959 (gage height, 27.78 ft); from rating curve extended above 45,000 cfs on basis of contracted-opening measurement of peak flow; minimum, 49 cfs Jan. 5, 1935; minimum gage height, 0.12 ft Sept. 21, 1955.
Maximum stage known, 39.0 ft Mar. 25, 1913 (present datum), from floodmarks (discharge not determined).

Remarks.--Records good except those for periods of ice effect, no gage height or doubtful 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 Apr. 2

0.4	88	4.0	2,370
.7	159	6.0	4,800
1.0	260	10.0	11,700
1.5	470	14.0	21,700
2.0	760	18.0	33,900
3.0	1,510	19.0	37,400

Apr. 3 to Sept. 30

0.3	96	1.5	510
.5	141	2.0	780
1.0	300	3.0	1,510

Note.--Same as preceding table above 3.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	118	120	b 100	208	181	900	2,280	420	369	198	124
2	101	127	120	105	208	194	1,670	1,920	458	300	192	124
3	101	123	120	114	190	239	10,600	1,670	660	265	183	124
4	96	120	120	120	178	2,900	5,080	1,510	535	248	177	122
5	92	120	123	125	171	3,430	2,760	1,350	460	248	174	122
6	92	125	123	125	238	2,050	4,500	1,190	460	230	168	119
7	92	127	120	127	425	1,280	5,080	1,110	460	380	163	119
8	92	125	127	130	320	1,010	2,760	1,040	660	970	157	119
9	a98	123	130	146	280	19,900	2,100	970	560	610	152	119
10	101	123	130	b 180	260	35,400	1,670	870	460	573	152	119
11	98	120	130	b 180	225	10,800	1,510	840	420	400	160	122
12	98	116	132	b 130	225	6,160	1,350	840	390	360	168	122
13	101	118	132	b 120	225	4,070	1,350	900	585	400	163	122
14	103	120	127	b 135	225	3,290	1,190	810	460	360	154	119
15	98	123	b 110	148	208	3,650	1,040	750	440	340	149	119
16	101	123	b 100	146	225	2,560	970	690	400	340	144	119
17	103	120	b 95	135	225	2,040	870	660	360	300	141	122
18	103	120	b 95	132	242	1,670	840	635	360	300	139	122
19	103	120	b 95	135	242	1,450	6,940	585	400	282	134	124
20	105	*123	b 96	483	242	1,350	18,900	560	360	248	134	127
21	105	127	b 98	495	225	1,530	22,200	535	360	265	136	124
22	*103	130	103	380	225	1,570	14,200	510	400	282	152	a 120
23	105	135	109	*340	208	1,380	7,140	510	*360	248	160	a 115
24	107	135	111	340	190	1,240	*4,660	485	340	248	144	*a 107
25	109	132	114	545	187	1,170	3,340	535	300	230	*136	a 105
26	109	125	118	425	*190	1,880	2,560	485	300	230	131	a 100
27	109	123	118	340	190	*1,560	2,860	*510	282	a230	129	a 102
28	109	125	118	280	190	1,310	4,660	460	282	a320	129	a 106
29	105	123	114	242	187	1,160	3,460	440	265	*400	139	a 110
30	103	120	b 105	225	------	1,030	2,760	420	265	248	149	a 110
31	107	------	*b 100	225	------	970	------	420	------	214	131	------
Total	3,150	3,709	3,553	6,853	6,554	121,424	139,920	26,490	12,462	10,438	4,738	3,528
Mean	102	124	115	221	226	3,917	4,664	855	415	337	153	118
Cfsm	0.082	0.100	0.093	0.178	0.182	3.16	3.76	0.690	0.335	0.272	0.123	0.095
In.	0.09	0.11	0.11	0.21	0.20	3.64	4.20	0.80	0.37	0.31	0.14	0.11

Calendar year 1963: Max 52,000 Min 92 Mean 964 Cfsm 0.778 In. 10.57
Water year 1963-64: Max 35,400 Min 92 Mean 937 Cfsm 0.756 In. 10.29

Peak discharge (base, 12,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0100	10.44	12,700	4-21	0230	16.61	29,200
3-10	0600	21.20	46,000				
4-3	1530	12.44	17,500				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Doubtful gage-height record June 25 to July 26.

3-2767. South Hogan Creek near Dillsboro, Ind.

Location.--Lat 38°01'47", long 85°02'17", in NW¼ sec. 7, T. 4 N., R. 2 W., on left downstream abutment of bridge on county road at Dillsboro station, 1¼ miles northeast of Dillsboro, and 1½ miles downstream from Whitaker Creek.

Drainage area.--38.2 sq mi.

Records available.--July 1961 to September 1964. Occasional low-flow measurements, water year 1960.

Gage.--Water-stage recorder. Datum of gage is 571.00 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 7,220 cfs Mar. 4 (gage height, 10.08 ft); no flow for many days.
1961-64: Maximum discharge, 8,630 cfs Mar. 4, 1963 (gage height, 10.82 ft); no flow at times each year.
Flood of Jan. 21, 1959, reached a stage of 14.00 ft (discharge, 16,300 cfs, computed from contracted-opening).

Remarks.--Records fair.

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

Oct. 1 to Apr. 3

1.2	0	2.5	109
1.3	.4	2.8	180
1.4	1.1	3.0	230
1.5	2.2	3.5	380
1.6	4.3	4.0	590
1.7	7.9	5.0	1,110
1.8	14	6.0	1,780
2.0	27	7.0	2,710
2.2	50	8.0	3,940

Apr. 4 to Sept. 30

1.14	0	2.0	30
1.2	.1	2.2	55
1.3	.5	2.5	109
1.4	1.4	3.0	230
1.5	2.8	3.5	380
1.6	5.3	4.0	590
1.7	8.8	5.0	1,110
1.8	14		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	1.9	2.6	9.4	22	0.3	0.2	0.3	
2			0	.1	1.7	2.7	21	17	1.3	.1	.2	
3			0	.2	1.5	10	600	13	3.2	.1	.1	
4			0	.3	1.4	1,520	100	11	2.3	.1	.1	
5			0	.5	1.3	566	53	9.3	1.4	.1	.1	
6			0	.7	14	43	303	7.6	9.1	.1	.1	
7			0	1.5	g 29	23	85	6.6	5.3	1.4	.1	
8			0	.7	g 21	33	41	5.9	4.4	5.3	.1	
9			0	1.2	g 11	*3,460	27	5	1.4	33		
10			0	1.2	g 5.4	944	21	3.7	.5	43		
11			0	.9	g 3.4	114	16	3	.5	10		
12			0	.6	g 2.9	62	15	2.8	.3	6.2	.1	
13			.3	.5	g 2.9	35	17	3	.4	g 4.4	0	
14			.4	.4	g 2.9	106	16	2.8	.9	g 2.5	0	
15			.3	.3	g 2.9	104	12	2.3	1.1	g 1.5	0	
16			.3	.3	g 5.8	34	9.3	1.9	1.1	g .9	0	
17			.2	.3	*g 5.8	22	8.4	1.5	.6	g .7	0	
18			.2	.3	5.6	17	11	1.2	211	g 6	0	
19		*	.2	1.4	5.6	15	131	1.0	44	g 2.3	0	
20			.2	35	7.0	15	188	.8	12	1.5	0	
21			.2	* 14	5.4	17	293	.6	5.9	22	0	
22	*		.1	11	4.3	16	820	.6	*3.4	4.7	0	*
23			.1	.9	3.6	15	88	.5	2.6	1.9	0	
24			.1	.8	3.1	12	44	.8	1.9	1.2	0	
25			.1	15	2.7	28	* 29	.8	1.2	.9	0	
26			.1	8.4	2.7	104	30	* .6	1	g .5	* 0	
27			.1	5.8	2.7	29	98	.7	.6	*g .2	0	
28			.1	3.8	2.7	22	97	.6	.5	.2	0	
29			0	2.9	2.6	16	42	.6	.3	.5	0	
30			* 0	2.4	- - - - - -	*14	30	.4	.2	1.0	0	
31		- - - - - -	0	2.2	- - - - - -	12	- - - - - -	.3	- - - - - -	.5	0	- - - - - -
Total	0	0	3.0	113.6	162.8	7,413.3	3,255.1	128.0	318.7	159.0	1.2	0
Mean	0	0	0.10	3.66	5.61	239	108	4.13	10.6	5.13	0.04	0
Cfsm	0	0	0.0026	0.096	0.147	6.26	2.83	0.108	0.277	0.134	0.0010	0
In.	0	0	0.003	0.11	0.16	7.22	3.16	0.12	0.31	0.15	0.001	0

Calendar year : Max 2,180 Min 0 Mean 27.5 Cfsm 0.720 In. 9.82
Water year 1963-64: Max 3,460 Min 0 Mean 31.5 Cfsm 0.827 In. 11.23

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	2100	10.08	7,220				
3-9	2200	9.21	5,750				

* Discharge measurement made on this day.
g Computed from twice-daily wire-weight gage readings.
Note.--Stage-discharge relation affected by ice Dec. 17 to Jan. 5, Jan. 11-24, Feb. 1-3, 16-19, 26.

3-2770. Laughery Creek near Farmers Retreat, Ind.

Location.--Lat 38°57'05", long 85°04'22", in sec. 2, T. 4 N., R. 3 W., on right bank, 2 miles southeast of Farmers Retreat and 3 3/4 miles downstream from Bear Creek.
Drainage area.--248 sq mi.
Records available.--October 1940 to September 1964.
Gage.--Water-stage recorder. Altitude of gage is 526 ft (by barometer). Prior to Apr. 16, 1941, staff gage at same site and datum.
Average discharge.--24 years, 274 cfs.
Extremes.--Maximum discharge during year, 19,100 cfs Mar. 9 (gage height, 14.25 ft); no flow for many days.
1940-64: Maximum discharge, 47,800 cfs Jan. 21, 1959 (gage height, 21.13 ft), from rating curve extended above 14,000 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some regulation at low flow by mill above the station.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6, Nov. 6-19, Aug. 10 to Sept. 10)

Oct. 1 to Mar. 4				Mar. 4 to Apr. 2		Apr. 3 to Sept. 30			
0.11	0.0	1.2	44	1.6	108	0.1	0.2	.8	14
.2	.5	1.5	89	2.0	207	.2	.5	1.0	26
.3	1.2	2.0	213	3.0	530	.3	1.0	1.2	44
.4	2.3	3.0	490	4.0	1,000	.4	2.0	1.5	86
.5	4.0	4.0	825	5.0	1,640	.5	3.5	2.0	185
.6	6.4	5.0	1,260	6.0	2,520	.6	6.0	3.0	510
.7	9.4	6.0	1,880	8.0	5,040	.7	9.2	4.0	1,000
.8	14	8.0	4,000	12.0	13,100				
.9	19	9.0	5,410			Note.--Same as preceding table above 4.0 ft.			
1.0	26								

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	0.3	a 0.2	19	17	99	255	7.8	d6.8	7.1	0.5
2	.1	.1	.3	a .2	16	16	125	198	11	d6.0	6.0	.5
3	.1	0	.3	a1.3	15	31	2,690	143	20	d5.4	4.9	.4
4	.1	0	.3	a3.5	12	4,060	3,260	115	15	d5.4	3.7	.4
5	0	.1	.3	a9	11	5,500	730	93	16	d4.9	3.2	.4
6	0	.1	.3	a 35	45	1,250	1,640	77	77	d4.6	2.6	.4
7	0	.7	.3	a 70	58	335	1,500	63	38	d11	2.0	.3
8	0	1.2	.4	a 32	37	316	550	60	24	d225	2.6	.3
9	0	.9	.5	a 40	30	*11,200	315	52	18	850	1.4	.3
10	0	.8	.5	a 40	b 28	12,700	210	46	14	d 1,220	1.2	26
11	0	.6	.5	a 23	b 26	* 5,680	163	40	10	d175	.8	121
12	0	.5	.7	a 15	b 25	1,100	141	38	8.5	d118	.8	129
13	0	.4	.6	a 11	24	845	143	37	8.8	d124	.7	125
14	0	.4	.6	a 8.0	23	785	153	35	14	d 58	.6	111
15	0	.3	.5	a 6.2	23	1,220	163	31	24	a 35	.6	76
16	0	.3	.4	a 5.5	32	626	119	27	11	a 21	.4	66
17	0	.3	.4	a 4.7	32	335	94	24	12	a 16	.5	55
18	0	.3	.4	b 4.3	31	226	94	21	1,560	a150	.4	24
19	0	* .3	.3	5.3	31	172	257	20	252	a120	.4	16
20	0	.4	.3	b 80	38	153	2,680	16	91	a100	.3	10
21	0	.4	.3	*b 35	39	191	2,090	15	52	d 56	.4	6.3
22	*0	.4	.3	236	34	207	4,090	13	*129	d 36	.7	* 3.9
23	0	.4	.2	117	31	218	1,620	13	49	d 28	.6	2.4
24	0	.4	.2	74	29	166	530	13	34	d 68	.6	2.1
25	0	.4	.2	b 60	*24	143	* 330	* 12	24	d 38	.5	6.2
26	0	.4	.2	50	24	488	255	13	18	26	* .5	4.4
27	0	.4	.2	b 45	22	466	416	12	15	*17	.5	3.0
28	.1	.4	.2	b 37	21	273	1,010	11	12	14	.5	3.0
29	.1	.4	.2	b 33	17	191	618	10	d 9.2	13	.6	3.0
30	.1	.4	.2	b 28	------	* 148	348	10	d 7.8	11	.6	2.6
31	.1	------	* .2	24	------	116	-----	9.2	-----	8.1	.6	------
Total	0.8	11.8	10.6	1,133.2	797	49,174	26,433	1,522.2	2,582.1	3,571.2	46.3	799.4
Mean	0.03	0.39	0.34	36.6	27.5	1,586	881	49.1	86.1	115	1.49	26.6
Cfsm	0.00012	0.0016	0.0014	0.148	0.111	6.40	3.55	0.198	0.347	0.464	0.0060	0.107
In.	0.0001	0.002	0.002	0.17	0.12	7.38	3.96	0.23	0.39	0.53	0.007	0.12

Calendar year 1963 : Max 8,960 Min 0 Mean 180 Cfsm 0.726 In. 9.87
Water year 1963-64 : Max 12,700 Min 0 Mean 235 Cfsm 0.948 In. 12.91

Peak discharge (base, 6,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	2300	13.35	16,600				
3-9	2300	14.25	19,100				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record.

3-2940. Silver Creek near Sellersburg, Ind.

Location.--Lat 38°22'15", long 85°43'35", in SW¼ lot 68, Clark Military Grant, on upstream side of Straws Mill bridge on Watson Road, 0.3 mile downstream from Pleasant Run, 2.4 miles southeast of Sellersburg, and 11.9 miles upstream from mouth.

Drainage area.--188 sq mi.

Records available.--October 1954 to September 1964.

Gage.--Wire-weight gage read twice daily. Crest-stage gage since May 11, 1959. Altitude of gage is 430 ft (from topographic map).

Average discharge.--10 years, 219 cfs.

Extremes.--Maximum discharge during year, 15,600 cfs Mar. 10 (gage height, 30.40 ft); minimum discharge, 0.1 cfs Oct. 4-7; minimum gage height, 3.16 ft Sept. 11.
1954-64: Maximum discharge, 19,600 cfs Jan. 22, 1959 (gage height, 30.89 ft from floodmarks), from rating curve extended above 6,300 cfs on basis of contracted-opening measurements of peak flow, at site 5.2 miles upstream, (drainage area, 164 sq mi), adjusted to gage site; no flow at times in most years.

Remarks.--Records fair above 1.0 cfs and poor below.

Rating table, except periods of ice effect, indefinite stage-discharge relation and backwater from Ohio River (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-15, Nov. 6 to Dec. 15, Jan. 3-6, Sept. 28-30)

3.5	0	4.2	12	14.0	2,100
3.6	.2	4.5	28	18.0	3,800
3.7	.7	5.0	71	22.0	6,600
3.8	1.6	5.5	134	26.0	10,400
3.9	3.1	6.0	221	30.0	15,100
4.0	5.1	8.0	635		
4.1	7.9	10.0	1,090		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.4	0.7	0.5	6.0	20	88	221	9.2	16	7.9	0.9
2	.2	.2	.7	.5	6.0	23	76	157	6.7	17	5.9	.7
3	.2	.2	.7	1.5	6.2	56	76	120	10	10	5.1	*.5
4	.1	.2	.8	10	6.4	3,410	76	100	10	9.6	6.1	.5
5	.1	.4	.7	10	7.0	*13,800	71	82	10	9.6	5.1	.4
6	.1	* .8	.7	43	60	8,070	230	65	10	8.6	3.6	.4
7	.1	.8	.7	82	168	1,100	256	57	33	6.7	2.3	.3
8	.2	.8	.7	38	63	1,010	142	*48	27	48	1.5	.3
9	* .2	.8	.6	* 48	40	7,490	*100	47	9.2	40	1.0	.2
10	.2	.5	.5	48	33	15,100	88	39	7.3	18	*.7	.2
11	.2	.5	.7	28	30	* 9,480	76	31	5.9	14	.6	.2
12	.2	.5	* .8	18	28	c 3,040	69	27	4.2	8.9	.5	.2
13	.2	.7	.9	13	27	c 1,290	88	40	5.2	7.3	.4	.2
14	.2	.7	.9	10	*40	c 844	71	39	95	* 10	.3	.2
15	.2	.7	.8	7.9	44	*c 1,120	57	29	94	9.6	.2	.2
16	.3	.5	.7	7.2	100	c 688	48	20	34	8.6	.2	.2
17	.5	.5	.7	6.5	94	*c 410	46	14	*18	12	.2	.3
18	.5	.7	.6	6.1	76	c 304	40	19	709	11	.2	.6
19	.5	.7	.6	8.9	114	c 258	59	14	1,370	64	.2	1.1
20	.5	.7	.5	330	120	c 225	173	14	172	28	.2	2.2
21	.3	.7	.5	134	88	227	178	10	88	24	.2	1.3
22	.2	.7	.5	70	61	166	1,450	10	235	12	.7	.7
23	.2	.7	.4	45	42	140	550	10	140	7.9	5.1	.4
24	.2	.7	.4	36	36	126	281	10	58	5.1	3.8	1.8
25	.2	.7	.4	38	30	182	181	10	38	4.9	2.7	2.6
26	.2	.7	.4	31	27	513	261	10	31	4.2	5.1	2.2
27	.5	.7	.4	24	24	240	591	10	24	3.8	3.5	1.3
28	.5	.7	.4	18	23	157	791	11	19	3.1	2.2	2.9
29	1.1	.7	.4	9.2	20	126	421	16	18	2.7	2.6	4.2
30	.8	.7	.4	6.7	------	106	281	19	14	4.0	2.1	3.6
31	.5	------	.5	6.0	-----	90	-----	14	-----	12	1.6	-------
Total	9.6	18.3	18.7	1,135.0	1,419.6	69,811	6,915	1,313	3,304.7	440.6	71.8	30.8
Mean	0.31	0.61	0.60	36.6	49.0	2,252	230	42.4	110	14.2	2.32	1.03
Cfsm	0.0016	0.0032	0.0032	0.195	0.261	11.98	1.22	0.226	0.585	0.076	0.012	0.0055
In.	0.002	0.004	0.004	0.22	0.28	13.81	1.36	0.26	0.65	0.09	0.01	0.006

Calendar year 1963 : Max 4,640 Min 0.1 Mean 107 Cfsm 0.569 In. 7.71
Water year 1963-64 : Max 15,100 Min 0.1 Mean 234 Cfsm 1.23 In. 16.70

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	1200	29.76	14,800				
3-10	0800	30.40	15,600				

* Discharge measurement made on this day.
c Backwater from the Ohio River.
Note.--Stage-discharge relation affected by ice Dec. 16 to Jan. 2, Jan. 13, 14, 16, 17, Jan. 31 to Feb. 4, Feb. 11, 25-27. Stage-discharge relation indefinite Oct. 16 to Nov. 5, Aug. 7-22, Sept. 2-27.

3-3025. Indian Creek near Corydon, Ind.

Location.--Lat 38°16'35", long 86°06'35", in SE¼ sec. 6, T. 3 S., R. 4 E., on upstream side of bridge on State Highway 335, 0.6 mile upstream from Raccoon Branch and 4½ miles north of Corydon.

Drainage area.--129 sq mi.

Records available.--October 1943 to September 1964. Prior to October 1961, published as Big Indian Creek near Corydon.

Gage.--Water-stage recorder. Datum of gage is 577.12 ft above mean sea level, datum of 1929. Dec. 9, 1948 to June 12, 1952, recorder records for stages above 6.3 ft. Prior to Dec. 9, 1948, wire-weight gage at same site and datum.

Average discharge.--21 years, 171 cfs.

Extremes.--Maximum discharge during year, 26,700 cfs Mar. 5 (gage height, 22.64 ft); minimum daily, 0.1 cfs many days; minimum gage height, 4.10 ft Aug. 20, 21.
1943-64: Maximum discharge, that of Mar. 5, 1964; no flow at times during 1943-44, 1951-54, 1959, minimum gage height, that of Aug. 20, 21, 1964.

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 Oct. 1 to Dec. 11, Jan. 23 to Feb. 6, Feb. 8-15, 24 to Mar. 2, May 7 to June 9, 15-17)

Oct. 1 to Mar. 4

4.0	0	6.2	225
4.1	1.7	6.8	410
4.3	6.7	8.0	940
4.5	13	10.0	2,050
4.8	26	13.0	4,500
5.2	57	15.4	6,840
5.6	106		

Mar. 4 to Sept. 30

4.11	0.1	6.0	218
4.2	1.0	6.8	442
4.3	3.8	8.5	1,190
4.4	8.0	11.0	2,760
4.6	21	15.0	6,600
5.0	63	18.6	11,600
5.5	125		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.4	1.7	b 0.7	15	25	101	178	12	6.7	4.2	9.2
2	.6	1.1	1.5	b 1.0	15	26	93	158	10	6.3	3.8	6.7
3	.4	1.5	1.5	b 4.0	14	46	95	110	8.6	7.2	3.8	5.1
4	.6	1.3	1.7	b 60	13	6,840	95	91	7.6	7.6	3.4	3.4
5	.4	1.3	1.7	b 38	12	*11,500	85	80	6.7	6.3	3.4	2.2
6	.4	1.3	1.7	27	17	849	160	67	6.3	6.7	2.8	1.9
7	.4	1.3	1.7	89	58	496	164	58	6.3	8.0	2.8	2.2
8	.4	1.3	1.7	41	50	1,210	130	55	6.7	31	2.8	2.2
9	.3	1.3	1.7	31	37	*11,200	107	52	6.3	42	1.9	1.7
10	.3	1.1	1.7	b 50	32	*9,450	97	43	5.9	24	.8	1.4
11	.3	1.5	2.2	b 24	30	1,260	89	38	5.1	12	.5	.8
12	.3	* 1.5	b 2.4	b 15	22	737	83	36	4.6	10	.5	.5
13	.1	1.3	b 2.4	12	23	482	82	36	4.2	9.2	.5	.4
14	.3	1.1	b 2.4	10	28	600	78	36	7.5	7.2	.5	.3
15	.3	1.1	b 2.2	8.5	33	598	73	36	40	6.3	.4	.2
16	.3	.9	*b 1.9	8.0	84	374	66	29	14	5.1	.4	.1
17	.1	.9	b 1.5	7.4	*114	273	61	20	50	4.6	.3	.1
18	.1	.9	b 1.3	7.0	a 100	211	58	19	187	22	.2	.1
19	.1	.9	b 1.0	9.2	a 90	174	58	18	178	a 9.0	.1	.1
20	.1	.9	b .8	180	a 120	162	*71	17	52	5.1	.1	.1
21	1	.9	b .6	140	a 140	179	83	*16	31	2.8	* .1	* .1
22	*.3	.9	b .5	71	a 90	152	413	14	108	2.2	.7	.2
23	.3	1.7	b .4	45	63	132	218	13	61	1.7	1.0	.7
24	.4	1.7	b .4	37	53	121	146	13	32	* 1.7	1.0	.3
25	.3	1.7	.4	33	45	*144	112	10	21	1.9	1.2	.2
26	.3	1.9	b .5	33	40	700	110	9.0	*15	12	4.6	.1
27	.1	1.9	.6	* 27	37	261	300	9.0	13	15	3.8	.2
28	.3	1.9	.9	22	31	188	544	10	10	12	3.1	1.7
29	.1	1.7	1.1	18	29	147	329	13	8.6	9.8	11	2.2
30	.3	1.7	b .9	16	------	122	240	15	7.2	7.2	21	1.7
31	.1	------	b .7	15	------	110	------	15	------	5.1	16	-------
Total	9.0	38.9	41.7	1,079.8	1,435	41,769	4,341	1,314	925.6	307.7	96.7	46.1
Mean	0.29	1.30	1.35	34.8	49.5	1,573	145	42.4	30.9	9.93	3.12	1.54
Cfsm	0.0022	0.010	0.010	0.270	0.384	12.2	1.12	0.329	0.240	0.077	0.024	0.012
In.	0.003	0.01	0.01	0.31	0.41	14.1	1.25	0.38	0.27	0.09	0.03	0.01

Calendar year 1963: Max 3,750 Min 0.1 Mean 96.0 Cfsm 0.744 In. 10.10
Water year 1963-64: Max 11,500 Min 0.1 Mean 160 Cfsm 1.24 In. 16.87

Peak discharge (base, 4,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0230	22.64	26,400				
3-9	2200	21.13	18,000				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3030. Blue River near White Cloud, Ind.

Location.--Lat 38°14'15", long 86°13'50", in NW¼ SE¼ sec. 19, T. 3 S., R. 3 E., on left bank, 400 ft downstream from Spring Creek, 0.2 mile upstream from bridge on State Highway 62, and three-quarters of a mile north of White Cloud.

Drainage area.--461 sq mi.

Records available.--October 1930 to September 1964. Monthly figures only for some periods, published in WSP 1305.

Gage.--Water-stage recorder (digital starting Apr. 22). Datum of gage is 434.30 ft above mean sea level, datum of 1929. Prior to Nov. 16, 1938, staff gage at same site and datum.

Average discharge.--34 years, 607 cfs.

Extremes.--Maximum discharge, 28,400 cfs Mar. 10 (gage height, 23.03 ft), minimum daily, 13 cfs Dec. 22, minimum gage height, 1.57 ft Sept. 13-16.

1930-64: Maximum discharge, 28,500 cfs Jan. 22, 1959 (gage height, 23.07 ft), minimum 9.2 cfs Oct. 1, 1941, minimum gage height, 1.40 ft Sept. 20, 1940, Sept. 30, 1941.

Remarks.--Records good.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 12 to Jan. 2)

1.5	12	4.0	930
1.7	29	6.0	2,460
1.9	53	10.0	6,900
2.1	90	20.0	22,300
2.5	190	23.0	28,300
3.0	370		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	24	19	20	16	63	117	465	1,110	101	140	45	36
2	24	18	19	15	56	110	460	880	110	136	4[illegible]	32
3	24	22	18	b 40	46	124	440	745	100	120	[illegible]	32
4	24	22	19	b 30	53	4,040	510	624	96	142	38	27
5	23	21	18	b 200	50	14,[illegible]	408	524	92	108	34	24
6	21	21	17	b 160	63	[illegible]	990	461	85	105	31	21
7	20	20	17	b 140	92	2,430	1,200	416	64	134	30	19
8	20	19	18	b 120	112	[illegible]	960	381	74	466	29	17
9	19	19	19	b 150	167	14,[illegible]	750	355	63	527	27	19
10	18	18	20	b 140	155	*28,[illegible]	630	328	58	241	27	18
11	18	18	20	b 120	120	20,400	570	301	79	172	28	17
12	19	*19	22	b 100	11[illegible]	5,450	510	289	71	150	29	16
13	18	19	24	b 75	113	3,550	460	305	58	127	28	15
14	17	18	23	b 65	108	3,020	438	315	74	112	28	14
15	16	18	20	b 55	125	3,870	393	287	87	130	27	14
16	16	18	* 20	b 51	170	2,630	370	239	115	101	25	15
17	16	19	18	50	* 200	1,940	350	213	130	88	24	22
18	15	19	18	40	253	1,540	330	197	395	88	24	18
19	15	18	17	54	265	1,250	310	184	7,290	167	24	19
20	15	18	15	144	272	1,1[illegible]	1,010	172	1,640	225	23	15
21	14	18	14	267	255	1,[illegible]20	* 870	* 161	726	171	*21	*19
22	*14	20	13	250	255	993	1,450	152	1,420	145	28	21
23	14	23	14	170	200	786	1,990	133	1,370	*107	30	23
24	16	24	14	163	205	705	1,170	121	636	76	24	23
25	16	23	14	140	184	* 664	863	112	414	66	23	22
26	16	23	14	130	172	810	743	117	*309	88	44	20
27	15	21	17	*120	155	967	1,330	152	249	84	32	21
28	18	23	17	104	142	755	2,760	139	210	70	25	28
29	18	24	17	84	13[illegible]	677	2,210	164	161	77	41	31
30	18	24	15	74	------	594	1,470	141	159	59	29	27
31	18	------	15	70	------	531	------	129	------	53	26	------
TOTAL	558	601	545	3,460	4,367	125,812	26,555	9,860	16,599	4,482	923	657
MEAN	18.0	20.0	17.6	112	151	4,058	885	318	553	145	29.8	21.9
CFSM	.039	.043	.038	.243	.328	8.80	1.92	.690	1.20	.315	.065	.048
IN	.05	.05	.04	.28	.35	10.15	2.14	.80	1.34	.36	.07	.05

CALENDAR YEAR 1963 MAX 3,750 MIN 13 MEAN 356 CFSM .772 INCHES 10.49
WATER YEAR 1963-64 MAX 28,400 MIN 13 MEAN 531 CFSM 1.15 INCHES 15.69

Peak discharge (base, 7,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-6	0130	16.40	16,300				
3-10	2130	23.03	28,400				
6-19	1530	11.90	9,470				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3033. Middle Fork Anderson River at Bristow, Ind.

Location.--Lat 38°08'19", long 86°43'16", in E½ sec. 27, T. 4 S., R. 3 W., at bridge on State Highway 145 at Bristow, 2.0 miles downstream from Coon Branch, and 6.0 miles upstream from Sulphur Fork Creek.

Drainage area.--41.9 sq mi.

Records available.--August 1961 to September 1964. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder (digital). Datum of gage is 395.00 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 6,360 cfs Mar. 9; maximum gage height, 19.33 ft Mar. 4; no flow Oct 3 to Jan. 2, Aug. 9 to Sept. 30.
1961-64: Maximum discharge, that of Mar. 9, 1964; maximum gage height, that of Mar. 4, 1965; no flow on many days each year. Flood of Jan. 21, 1959, reached a stage of 20.0 ft (from floodmark), discharge 15,000 cfs (from rating curve extended above 7,000 cfs on basis of logarithmic plotting). This is the maximum flood since 1905, from information by local resident.

Remarks.--Records good.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.1			0	2.2	4.1	20	63	15	0.3	0.7	
2	.1			0	2.1	4.5	19	48	11	.2	.6	
3	0			.3	1.7	10	26	37	7.5	9.0	.4	
4	0			.7	1.5	* 2,050	40	29	5.2	6.5	.4	
5	0			.4	1.6	* 903	81	24	4.0	1.3	.3	
6	0			.3	2.5	120	524	19	3.4	.8	.2	
7	0			.3	3.2	64	138	17	2.9	17	.2	
8	0			.3	3.5	520	73	19	2.6	105	.1	
9	0			1.4	3.2	4,870	50	14	2.4	26	0	
10	0			4.9	3.3	*2,330	40	11	1.8	9.5	0	
11	0			3.1	3.4	* 226	33	9.0	1.5	4.8	0	
12	0	*		2.2	3.0	113	30	8.0	1.3	4.4	0	
13	0			b 1.3	4.2	71	80	15	1.3	3.7	0	
14	0			b .9	9.6	118	58	17	1.3	2.4	0	
15	0			b .6	13	121	41	11	1.2	1.8	0	
16	0		*	b .5	28	64	33	7.0	.9	1.3	0	
17	0			b .5	* 18	46	28	5.2	.8	1.0	0	
18	0			.6	15	34	29	4.0	1.6	.9	0	
19	0			1.2	18	28	272	3.4	7.0	.9	0	
20	0			17	19	35	481	2.9	2.4	.8	* 0	
21	0			10	15	34	* 152	*2.4	1.5	.6	0	*
22	* 0			6.2	11	26	348	2.2	.9	.5	0	
23	0			4.5	8.9	22	137	2.0	.8	*.4	0	
24	0			4.1	8.1	* 20	82	1.8	.5	.3	0	
25	0			5.2	6.9	33	56	1.6	*.5	.2	0	
26	0			5.9	6.6	135	707	2.0	.4	.2	0	
27	0			4.2	5.7	55	515	158	.4	.1	0	
28	0			* 3.2	5.1	42	341	65	.3	16	0	
29	0			2.5	4.5	32	138	85	.3	8.0	0	
30	0			2.0	------	26	88	29	.3	2.0	0	
31	0	------		2.0	------	23	------	20	------	1.0	0	------
TOTAL	.2	0	0	86.3	227.8	12,179.6	4,660	752.5	81.1	226.9	2.9	0
MEAN	.006	0	0	2.78	7.86	393	155	24.3	2.70	7.32	.09	0
CFSM	.0001	0	0	.066	.188	9.38	3.70	.580	.064	.175	.0022	0
IN.	0	0	0	.08	.20	10.81	4.14	.67	.07	.20	0	0

CALENDAR YEAR 1963 MAX 1,580 MIN 0 MEAN 32.8 CFSM .783 INCHES 10.61
WATER YEAR 1963-64 MAX 4,870 MIN 0 MEAN 49.8 CFSM 1.19 INCHES 16.17

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1915	19.33	5,460				
3-9	0830	19.18	6,400				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3221. Pigeon Creek at Evansville, Ind.

Location.--Lat 37°59'45", long 87°31'30", in SW¼ sec. 15, T. 6 S., R. 10 W., on left bank at downstream side of Oak Hill Road bridge at Evansville and 7.1 miles upstream from mouth.

Drainage area.--326 sq mi.

Records available.--October 1960 to September 1964.

Gage.--Water-stage recorder (digital since Apr. 9). Datum of gage is 352.24 ft above mean sea level, datum of 1929. Auxiliary water-stage recorder 1.3 miles downstream.

Extremes.--Maximum discharge during year, 8,250 cfs Mar. 12, maximum gage height, 26.30 ft Mar. 12, minimum daily discharge (unaffected by backwater), 1 cfs Aug. 30 to Sept. 1, reverse flow may have occurred during extreme stages on the Ohio River.
1960-64: Maximum discharge, 12,100 cfs May 10, 1961 (gage height, 27.94 ft), minimum daily (unaffected by backwater), that of Aug. 30 to Sept. 1, 1964, reverse flow occurs at times due to extreme stages on the Ohio River.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	4.5	7.7	b 3.7	e 2.8	1.1	68	7	36	4	5	1
2	2.4	3.8	7.2	b 4.0	e 2.6	1.3	81	44	25	5	4	6
3	2.4	3.0	7.2	b 4.2	e 2.5	1.8	79	59	20	4	3	5
4	2.4	3.6	6.8	b 4.5	e 2.4	1,230	82	150	15	4	3	3
5	2.4	8.5	6.8	b 5.0	e 2.3	*2,430	305	95	13	4	3	2
6	2.2	5.4	7.2	6.3	5.9	1,450	1,540	46	12	7	3	2
7	2.0	4.5	8.6	12	2.8	1,070	1,070	41	81	7	3	2
8	2.0	4.2	12	14	2.2	1,170	*1,150	34	300	60	3	2
9	2.2	3.8	11	17	2.6	* 3,470	937	31	100	180	2	2
10	2.0	3.6	10	12	3.8	* 6,820	286	28	44	72	2	2
11	2.0	3.6	11	9.1	3.6	* 7,850	91	24	37	66	5	3
12	2.4	3.6	13	12	2.4	*7,970	69	22	23	42	4	3
13	2.2	3.3	13	17	3.6	* 5,520	117	25	34	13	2	2
14	1.8	3.3	12	11	3.8	* 5,040	191	24	91	9	2	2
15	1.8	* 3.0	b 10	*7.2	3.8	* 3,750	149	21	48	* 7	2	3
16	2.0	2.8	b 8.0	4.5	8.2	2,640	149	19	22	6	2	3
17	2.0	2.6	b 6.0	3.3	11	1,670	121	14	12	5	2	4
18	2.0	2.6	b 4.5	3.0	14	1,040	63	14	139	7	* 2	20
19	2.0	2.6	*b 3.5	5.3	16	* 1,170	516	13	149	169	2	11
20	1.8	2.6	b 3.2	22	*12	1,370	1,410	* 12	50	444	2	4
21	1.5	2.8	b 3.0	52	7.2	1,520	1,110	12	18	134	3	9
22	1.5	5.9	b 3.0	69	6.8	1,280	1,540	12	12	47	9	7
23	1.6	13	b 3.0	24	5.0	1,110	1,100	11	9	24	44	*18
24	2.0	* 8.6	b 3.0	30	3.6	581	868	10	* 8	13	22	14
25	* 2.6	12	b 3.2	91	2.8	525	* 174	10	7	9	9	7
26	2.6	18	5.0	47	2.2	854	0	11	6	7	5	4
27	2.8	15	5.9	26	1.8	406	0	80	6	6	3	10
28	2.6	12	5.0	12	1.6	242	133	260	4	5	2	8
29	2.6	10	4.2	5.2	1.5	184	116	370	4	23	2	4
30	2.6	8.6	3.5	2.6	----------	132	8	136	5	15	1	3
31	2.8	----------	3.5	3.0	----------	85	----------	57	----------	7	1	----------
Total	67.6	180.8	211.0	538.9	140.8	63,583.2	13,523	1,692	1,330	1,405	157	166
Mean	2.18	6.03	6.81	17.4	4.86	2,051	451	54.6	44.3	45.3	5.06	5.53
Cfsm	0.0067	0.018	0.021	0.053	0.015	6.29	1.38	0.167	0.136	0.139	0.016	0.017
In.	0.01	0.02	0.02	0.06	0.02	7.25	1.54	0.19	0.15	0.16	0.02	0.02

Calendar year 1963: Max 3,830 Min 1.5 Mean 221 Cfsm 0.678 In. 9.18
Water year 1963-64: Max 7,970 Min 0 Mean 227 Cfsm 0.696 In. 9.46

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
e Stage-discharge relation indefinite.

3-3225. Wabash River near New Corydon, Ind.

Location.--Lat 40°32'50", long 84°48'10", in SE¼ sec. 3, T. 24 N., R. 15 E., first principal meridian, on left bank, 10 ft downstream from county bridge on Indiana-Ohio State line road, 2 miles east of New Corydon and 2 3/4 miles downstream from Beaver Creek, and at mile 465.6.

Drainage area.--258 sq mi.

Records available.--April 1951 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 830.10 ft above mean sea level, datum of 1929. Prior to June 23, 1953, wire-weight gage at same site and datum.

Average discharge.--13 years, 185 cfs.

Extremes.--Maximum discharge during year, 6,030 cfs Apr. 21 (gage height, 19.04 ft), minimum daily, 0.8 cfs Dec. 22, 23.
1951-64: Maximum discharge, 8,720 cfs Jan. 22, 1959 (gage height, 20.47 ft, from floodmarks); minimum, 0.7 cfs Sept. 13, 1954; minimum gage height, 5.40 ft Aug. 18, 1951.

Remarks.--Records fair except those for periods of ice effect, which are poor. Flow slightly affected by regulation of Grand Lake Reservoir, diversion from or into St. Marys River basin, and into Miami and Erie Canal.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 3-6, 9-16, Apr. 2-14, 19-23, May 5 to July 25, Sept. 9-30)

6.5	0.5	12.0	500
6.6	4.5	13.0	730
7.0	22.5	14.0	1,080
7.5	47	16.0	2,230
8.5	107	18.0	4,350
9.5	179	19.0	5,850
11.0	340		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	4.1	8.1	5.0	2.5	16	86	56	430	32	9.9	13	11
2	4.5	10	5.0	3.0	15	28	1,350	368	28	*11	12	12
3	5.4	6.8	5.4	3.5	13	183	4,110	354	21	11	12	10
4	4.5	6.3	7.2	4.5	9.0	366	2,700	316	16	11	13	9.5
5	5.4	5.4	7.2	6.0	9.4	1,010	1,030	304	15	16	14	9.6
6	5.8	6.3	6.8	7.0	13	*326	1,630	293	17	11	12	9.0
7	6.3	6.3	5.4	8.0	23	101	1,580	282	18	12	13	8.3
8	6.8	5.8	7.6	8.6	17	77	730	227	16	22	12	5.7
9	8.6	5.4	8.1	9.9	12	2,460	482	197	15	19	12	6.3
10	9.0	6.3	6.8	9.5	9.9	3,000	398	188	14	14	12	8.0
11	10	5.8	6.3	8.5	9.4	1,600	328	188	13	11	11	7.1
12	10	5.4	6.3	7.6	9.4	1,040	293	197	14	10	16	9.1
13	7.6	6.3	6.3	8.0	9.0	1,090	282	207	18	9.4	16	8.4
14	* 5.4	5.8	5.8	5.0	8.1	1,820	260	107	17	8.6	14	7.7
15	2.9	5.0	3.3	4.0	7.6	1,050	170	71	18	9.4	12	5.6
16	4.1	5.4	1.9	3.5	6.8	*423	146	65	26	10	12	7.9
17	5.0	5.8	.9	5.0	8.1	188	139	62	21	12	10	8.0
18	4.5	6.3	.9	5.5	8.1	125	139	59	17	13	11	7.5
19	3.7	6.3	.9	6.0	7.6	89	198	56	14	11	11	17
20	5.0	* 5.8	.9	15	7.2	74	2,250	53	17	9.4	12	16
21	5.0	5.8	.9	25	6.8	188	5,850	* 53	42	9.4	14	8.1
22	3.3	8.1	.8	35	5.8	207	4,950	50	34	9.4	18	5.0
23	5.0	9.9	.8	40	5.4	125	2,930	47	22	9.0	19	8.1
24	4.1	9.9	1.0	* 41	4.5	101	*1,580	42	16	9.0	17	8.0
25	4.1	7.2	1.2	60	4.5	95	855	37	13	8.1	*13	6.4
26	5.0	5.4	3.0	35	5.4	139	630	40	12	55	12	4.8
27	5.4	6.8	* 5.0	25	6.8	101	738	44	11	24	12	5.0
28	5.0	6.8	4.5	20	6.3	77	1,120	40	9.9	17	11	4.8
29	3.7	7.2	3.0	16	5.8	65	730	37	9.0	15	14	3.3
30	3.7	5.4	2.5	15	------	56	540	37	11	*14	15	4.0
31	4.5	------	2.0	15	------	62	------	34	------	14	15	------
Total	167.4	197.1	122.7	457.6	269.9	15,274.6	32,244	4,485	546.9	424.6	410	241.2
Mean	5.40	6.57	3.96	14.8	9.31	525	1,275	145	18.2	13.7	13.2	8.04
Cfsm	0.021	0.025	0.015	0.057	0.036	2.03	4.94	0.562	0.071	0.053	0.051	0.031
In.	0.02	0.03	0.02	0.07	0.04	2.34	5.51	0.65	0.08	0.06	0.06	0.03

Calendar year 1963 : Max 4,700 Min 0.8 Mean 80.4 Cfsm 0.312 In. 4.23
Water year 1963-64 : Max 5,850 Min 0.8 Mean 169 Cfsm 0.655 In. 8.91

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0930	16.83	3,420	4-21	1000	19.04	6,030
3-15	0400	15.34	2,010				
4-3	1600	17.92	4,650				
4-6	1800	16.04	2,600				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 18 to Jan. 7, Jan. 10, 11, Jan. 13-29.

3-3230. Wabash River at Bluffton, Ind.

Location.--Lat 40°44', long 85°11', in sec. 4, T. 26 N., R. 12 E., on downstream side of left abutment of Main Street Bridge in Bluffton, 2 miles downstream from Sixmile Creek and at mile 434.5.

Drainage area.--506 sq mi.

Records available.--October 1930 to September 1964. Gage-height records collected at same site since December 1910 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 793.01 ft above mean sea level, datum of 1929. Prior to Mar. 31, 1934, chain gage at same site and datum. Mar. 31 to Dec. 5, 1934, staff gage at nearby site at same datum.

Average discharge.--34 years, 394 cfs.

Extremes.--Maximum discharge during year, 8,620 cfs Apr. 22 (gage height, 14.23 ft); minimum, 5.6 cfs Sept. 13, 14 (gage height, 0.83 ft).

1930-64: Maximum discharge, 11,800 cfs Feb. 15, 1950 (gage height, 16.07 ft); minimum, 3.9 cfs July 18, 1936; minimum gage height, that of Sept. 13, 14, 1964.

Maximum stage known, about 21.0 ft Mar. 25, 26, 1913, on basis of gage readings published in newspapers (discharge, 25,000 cfs, from rating curve extended above 11,700 cfs on basis of a rainfall-runoff relation).

Remarks.--Records good except those for periods of ice effect, which are poor. Occasional regulation by Grand Lake Reservoir, diversion from or into St. Marys River basin, and into Miami and Erie Canal.

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 Dec. 11, Aug. 20 to Sept. 22, Sept. 24-30)

0.8	5.2	2.0	149
.9	9.6	2.5	265
1.0	13	3.0	410
1.1	18	6.0	1,560
1.3	35	10.0	3,800
1.5	59	12.0	5,390
1.7	89	14.0	8,300

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	8.7	8.2	9.0	25	15	204	1,440	53	*135	16	7.0
2	7.0	8.7	8.2	9.0	22	30	510	920	52	380	15	7.0
3	7.0	8.2	8.0	9.0	20	150	3,450	685	52	139	15	7.0
4	6.8	8.0	8.2	9.0	18	747	4,620	545	46	51	13	7.2
5	6.8	10	8.2	9.5	17	1,800	5,640	510	41	30	13	7.0
6	7.2	8.7	8.4	10	17	1,660	4,650	440	37	26	12	6.8
7	6.8	8.4	8.4	11	17	1,480	3,680	410	35	36	11	6.6
8	6.6	8.0	9.6	13	17	685	3,510	380	59	54	10	6.8
9	6.4	8.0	9.9	15	19	1,720	2,810	350	134	107	10	6.4
10	6.6	7.6	10	15	20	2,700	1,750	292	69	65	9.9	6.2
11	6.8	7.6	10	14	19	3,680	1,040	265	42	45	10	6.0
12	6.8	7.6	10	13	18	4,230	685	265	33	39	9.6	6.0
13	6.6	7.8	9.0	12	17	* 3,630	580	292	29	37	9.0	5.6
14	6.8	7.4	9.0	11	16	3,630	510	306	26	32	8.7	5.6
15	6.8	7.4	8.0	11	15	3,680	410	215	34	30	8.4	6.0
16	7.0	7.4	8.0	11	15	3,450	350	202	41	25	8.2	5.8
17	7.4	7.4	7.5	11	15	2,580	306	296	79	21	8.2	5.8
18	7.4	7.8	7.5	12	15	*960	292	160	67	19	7.8	6.6
19	*7.4	7.6	7.5	13	15	475	380	123	49	19	7.4	8.3
20	7.6	8.0	7.5	18	15	336	2,020	*103	42	19	6.8	7.8
21	7.8	* 8.0	7.5	25	14	292	4,880	93	181	19	7.2	8.0
22	7.8	11	7.5	35	14	475	7,980	87	182	32	7.2	7.8
23	10	10	8.0	50	14	475	3,140	86	123	26	7.4	9.6
24	9.0	9.6	8.0	*75	14	350	* 5,900	78	78	21	7.8	8.7
25	8.0	9.6	9.6	95	13	409	4,030	72	53	19	* 7.4	8.2
26	7.6	9.3	*10	100	13	920	2,760	69	37	20	8.2	7.8
27	7.4	9.0	9.9	80	13	580	1,960	73	30	52	8.2	7.8
28	7.4	9.0	9.5	60	13	380	2,350	62	25	45	8.8	* 7.2
29	7.6	8.4	9.5	40	13	306	2,300	63	22	34	7.8	7.2
30	7.4	8.0	9.0	35	------	252	2,020	58	21	* 24	7.4	7.0
31	8.4	------	9.0	30	------	215	------	54	------	18	7.0	------
Total	227.2	252.2	268.6	860.5	473	42,292	79,717	7,994	1,772	1,619	293.4	210.8
Mean	7.33	8.41	8.66	27.8	16.3	1,364	2,657	290	59.1	52.2	9.46	7.03
Cfsm	0.014	0.017	0.017	0.055	0.032	2.70	5.25	0.573	0.117	0.103	0.019	0.014
In.	0.02	0.02	0.02	0.06	0.03	3.11	5.86	0.66	0.13	0.12	0.02	0.02

Calendar year 1963 : Max 7,000 Min 6.4 Mean 193 Cfsm 0.381 In. 5.17
Water year 1963-64 : Max 8,140 Min 5.6 Mean 374 Cfsm 0.739 In. 10.07

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-12	0700	10.87	4,380				
4-5	0700	12.40	5,900				
4-22	2000	14.23	8,620				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12-24, Dec. 28 to Mar. 3. Gage heights computed from once daily wire-weight gage readings Apr. 2-25.

3-3235. Wabash River at Huntington, Ind.

Location.--Lat 40°51'20", long 85°29'53", in S½NE¼ sec. 27, T. 28 N., R. 9 E., on right bank at the Huntington Water and Light Plant, 2 miles south of Huntington, 3½ miles upstream from Little River, and at mile 409.

Drainage area.--710 sq mi.

Records available.--January 1951 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 700.04 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 5, 1951, staff gage at same site and datum.

Average discharge.--13 years, 584 cfs.

Extremes.--Maximum discharge during year, 9,760 cfs Apr. 23 (gage height, 17.55 ft); minimum, 2.8 cfs Oct. 2 (gage height, 8.90 ft).
1951-64: Maximum discharge, 14,900 cfs Feb. 10, 1959; maximum gage height, 23.20 ft Feb. 10, 1959 (backwater from ice); minimum, that of Oct. 2, 1963.
Flood in March 1913 reached a stage of 22.7 ft (from high-water mark by Corps of Engineers).

Remarks.--Records good above 100 cfs and fair below, 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. 6-15)

8.9	2.8	9.7	223
9.0	9.0	10.0	430
9.1	20	13.0	3,420
9.3	59	15.0	5,870
9.5	126	18.0	10,400

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	13	15	11	40	18	400	1,990	76	44	29	13
2	5.9	14	15	11	35	70	810	1,310	74	190	26	10
3	9.0	14	15	12	33	150	4,840	980	76	288	29	9.0
4	9.0	14	14	12	32	*490	5,870	780	74	137	23	9.0
5	11	18	13	13	31	1,990	6,570	690	68	79	22	6.7
6	5.2	19	19	14	29	2,080	6,570	600	74	54	16	11
7	5.9	22	15	17	28	1,810	5,090	540	68	160	16	10
8	5.2	16	15	19	27	1,260	4,120	532	74	382	19	6.7
9	5.2	19	14	22	26	1,720	3,420	481	108	341	18	8.2
10	5.2	16	13	25	25	2,980	2,270	408	157	242	16	6.7
11	5.2	15	13	26	25	3,640	1,420	355	104	157	14	6.7
12	5.2	22	12	25	24	4,600	980	355	76	115	16	10
13	5.2	15	11	21	23	4,480	780	385	68	108	15	12
14	5.2	15	11	19	23	4,840	690	408	59	97	15	7.4
15	*5.9	16	10	16	22	5,350	645	378	65	94	18	5.9
16	5.2	16	10	16	22	4,720	549	268	*119	79	18	5.9
17	5.2	15	10	16	21	3,640	438	401	97	59	14	5.9
18	5.2	13	10	18	21	*1,990	400	335	101	47	*14	11
19	5.2	20	10	20	20	930	516	223	97	42	12	16
20	11	14	10	25	20	600	2,740	*157	94	*36	13	16
21	9.0	*14	10	40	19	524	7,000	157	112	34	15	15
22	9.0	15	10	59	19	540	*8,050	126	525	36	15	16
23	9.0	20	11	*74	19	735	9,440	115	307	40	20	*16
24	11	16	*12	86	19	600	8,350	108	196	49	16	16
25	9.0	18	12	85	18	625	5,870	101	139	42	15	15
26	9.0	22	13	85	18	2,080	3,760	113	97	34	13	15
27	15	23	13	85	18	1,520	2,470	229	76	31	12	18
28	11	22	12	70	18	980	3,530	139	65	44	13	16
29	13	14	12	55	18	690	3,200	104	62	59	16	15
30	13	13	11	50	------	540	2,670	94	49	51	15	14
31	13	------	11	45	------	456	------	86	------	40	15	------
Total	254.1	503	382	1,092	693	56,648	103,458	12,948	3,357	3,211	528	343.1
Mean	8.20	16.8	12.3	35.2	23.8	1,827	3,449	418	112	104	17.0	11.4
Cfsm	0.012	0.024	0.017	0.050	0.033	2.57	4.86	0.589	0.158	0.146	0.024	0.016
In.	0.01	0.03	0.02	0.06	0.04	2.96	5.42	0.68	0.18	0.17	0.03	0.02

Calendar year 1963 : Max 8,500 Min 5.2 Mean 273 Cfsm 0.385 In. 5.22
Water year 1963-64 : Max 9,440 Min 5.2 Mean 501 Cfsm 0.706 In. 9.62

Peak discharge (base, 5,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-15	0100	14.79	5,610				
4-5	2130	15.72	6,850				
4-23	1300	17.55	9,760				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11-23, 25, Dec. 27 to Jan. 20, Jan. 25 to Mar. 3. Discharge computed from twice-daily gage readings Oct. 1-29.

GPO 820-811-3

3-3240. Little River near Huntington, Ind.

Location.--Lat 40°54'14", long 85°24'22", in NE¼NW¼ sec. 9, T. 28 N., R. 10 E., on right bank on upstream side of highway bridge, 5 miles east of Huntington.

Drainage area.--266 sq mi.

Records available.--October 1943 to September 1964. Prior to January 1944 monthly discharge only, published in WSP 1305. Published as Little River at Huntington, January 1944 to September 1948, Little River near Huntington, October 1948 to September 1956, and Little Wabash River near Huntington, October 1956 to September 1961.

Gage.--Water-stage recorder (digital). Datum of gage is 728.10 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1948, wire-weight gage 4 miles downstream at datum 8.79 ft lower. Oct. 1, 1948, to Sept. 5, 1950, wire-weight gage at present site and datum.

Average discharge.--21 years, 227 cfs.

Extremes.--Maximum discharge during year, 2,620 cfs Apr. 21 (gage height, 13.29 ft); minimum, 3.8 cfs Oct. 2, 3; minimum gage height, 1.44 ft Sept. 7-10.
1943-64: Maximum discharge, 5,990 cfs Jan. 4, 1950; maximum gage height, 18.43 ft Feb. 11, 1959; minimum discharge, 1.0 cfs Oct. 8, 1946, site and datum then in use; minimum gage height since October 1948, 1.30 ft Oct. 1, 1949.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 16)

Oct. 1 to Mar. 1		Mar. 2 to Sept. 30			
1.5	4.9	1.4	4.1	3.0	109
1.7	11	1.5	7.2	4.0	242
2.0	23	1.7	15	7.0	832
2.5	54	2.0	30	10.0	1,590
3.0	98	2.5	61	13.0	2,520

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	6.1	10	10	8.5	30	20	132	405	58	26	10	7.6
2	5.8	11	9.7	8.5	25	40	291	268	50	25	12	9.0
3	5.8	10	9.4	9.0	25	80	1,450	202	49	23	19	7.2
4	6.1	9.4	9.4	9.5	23	*167	1,050	153	46	22	14	6.9
5	6.4	11	9.4	10	22	597	469	125	39	20	11	6.6
6	6.4	13	9.4	11	22	236	1,060	101	43	19	10	6.0
7	6.6	11	9.4	13	21	118	1,130	83	43	192	9.4	5.7
8	6.6	9.7	11	16	21	88	546	80	82	664	9.0	5.7
9	6.9	9.0	12	20	20	614	308	75	53	238	8.3	5.7
10	6.9	8.7	10	20	19	374	220	64	41	105	8.6	5.7
11	6.6	8.7	9.5	20	18	223	167	56	31	63	12	5.7
12	6.9	9.0	9.5	17	18	183	137	55	33	47	16	5.7
13	6.9	9.4	9.0	15	18	205	119	79	36	47	12	6.0
14	7.2	10	8.5	14	17	1,180	99	197	33	39	10	6.3
15	*7.5	9.7	8.0	14	16	1,690	80	130	286	32	9.0	6.6
16	7.2	9.4	7.5	14	15	803	70	88	*574	32	8.3	6.6
17	7.8	9.4	7.5	15	15	371	67	116	241	31	8.3	6.6
18	7.8	11	7.5	15	15	*214	63	84	109	24	* 8.3	7.9
19	8.1	10	7.5	17	15	143	80	67	72	22	9.0	14
20	7.8	9.7	7.5	25	14	117	715	67	339	*19	8.3	13
21	8.1	*11	7.5	50	14	131	2,400	56	254	20	11	10
22	8.4	12	8.0	55	14	191	2,380	*47	306	30	13	8.6
23	8.7	14	8.5	60	13	151	1,520	44	153	21	11	*12
24	15	15	9.0	* 70	13	124	656	40	86	17	9.0	12
25	13	12	9.5	80	13	200	374	37	57	16	8.3	9.0
26	8.7	10	*9.5	70	13	1,580	251	337	44	16	7.9	6.9
27	7.8	10	9.5	60	13	1,110	500	1,220	41	15	7.6	6.9
28	8.1	9.7	9.0	50	13	464	1,650	401	37	14	7.6	6.6
29	7.8	9.4	8.5	40	13	334	1,240	171	31	13	8.3	6.3
30	8.1	10	8.0	35	------	22	669	97	28	12	8.6	6.6
31	9.7	------	8.0	35	------	160	------	71	------	11	7.9	------
TOTAL	239.8	312.2	276.7	896.5	505	12,720	19,893	5,021	3,294	1,875	312.7	229.4
MEAN	7.74	10.4	8.93	28.9	17.9	388	663	162	110	60.5	10.1	7.65
CFSM	.029	.039	.034	.109	.066	1.46	2.49	.609	.414	.227	.038	.029
IN	.03	.04	.04	.13	.07	1.67	2.78	.70	.46	.26	.04	.03

CALENDAR YEAR 1963 MAX 2,100 MIN 4.0 MEAN 68.1 CFSM .256 INCHES 3.47
WATER YEAR 1963-64 MAX 2,400 MIN 5.7 MEAN 123 CFSM .462 INCHES 6.28

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Mar. 3.

3-3242. Salamonie River at Portland, Ind.

Location.--Lat 40°25'40", long 85°02'20", in SE¼ sec. 23, T. 23 N., R. 13 E., on right bank at downstream side of county road bridge, 2.4 miles downstream from Butternut Creek, 3.2 miles west of Portland, and 3.7 miles downstream from Little Salamonie River.

Drainage area.--86.0 sq mi.

Records available.--September 1959 to September 1964.

Gage.--Water-stage recorder from July 5, 1960 to date. Datum of gage is 877.59 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct. 1, 1960, wire-weight gage at site, 1.4 miles upstream at 6.43 ft higher datum.

Average discharge.--5 years, 65.6 cfs.

Extremes.--Maximum discharge during year, 3,100 cfs Apr. 21 (gage height, 15.94 ft); minimum, 0.4 cfs Oct. 14 (gage height, 1.46 ft). 1959-64: Maximum discharge, 3,460 cfs Mar. 5, 1963 (gage height, 16.96 ft); minimum, that of Oct. 14, 1963; minimum gage height, 1.30 ft Oct. 31, 1960.

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

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 17, 18, 21-23, 26, 27)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
1.4	0.6	2.0	21	1.4	1.0	4.0	196
1.5	1.8	3.0	83	1.5	2.8	6.0	506
1.6	3.7	4.0	196	1.7	8.5	9.0	1,100
1.7	6.2	5.0	346	2.0	23	15.0	2,820
1.8	10			3.0	95		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.1	5.4	1.8	2.0	2.5	5.6	29	132	4.0	* 17	2.2	2.2
2	2.5	2.8	1.5	2.3	2.5	17	489	57	4.7	16	2.2	2.2
3	2.5	1.5	2.0	3.0	2.5	83	1,770	41	4.4	11	2.2	2.2
4	2.8	.6	2.3	3.3	2.5	269	559	30	4.4	31	2.2	2.4
5	2.6	2.8	1.8	3.5	3.0	747	162	25	4.4	6.2	2.2	1.5
6	2.6	3.5	1.8	3.2	3.5	* 137	748	20	5.6	4.7	1.8	1.0
7	1.1	3.0	1.8	2.7	3.5	74	412	17	4.4	35	3.0	.9
8	2.5	2.0	2.0	2.7	3.0	65	132	14	6.2	64	2.4	1.0
9	3.0	1.3	1.6	3.5	3.0	1,890	82	14	5.0	19	2.0	1.6
10	2.5	1.0	2.0	4.5	2.5	1,660	60	9.2	4.7	9.6	1.6	2.4
11	2.8	.8	2.0	4.0	2.5	476	46	8.5	4.2	6.5	2.8	2.0
12	2.5	1.1	2.0	3.0	2.5	394	40	11	4.8	5.9	3.7	2.0
13	2.1	2.0	1.8	3.0	2.5	550	37	11	9.5	5.9	2.8	1.6
14	* .7	2.5	1.6	2.5	2.5	990	30	9.2	6.0	5.9	2.4	1.5
15	1.6	1.8	1.4	2.2	2.5	354	26	7.4	36	4.4	1.8	1.8
16	2.8	1.6	1.3	2.2	3.0	* 127	22	6.8	45	4.0	1.6	1.6
17	3.0	1.2	1.3	2.5	3.0	74	21	22	13	3.6	1.6	2.0
18	2.6	1.6	1.3	2.5	3.0	50	24	12	8.5	3.3	2.0	3.7
19	2.6	2.3	1.3	3.5	2.5	40	233	7.4	7.8	2.8	2.0	5.0
20	2.1	* 2.0	1.3	6.0	2.5	37	1,880	6.5	56	2.8	2.0	2.4
21	1.3	2.5	1.3	6.0	2.5	57	2,640	* 5.6	118	13	2.2	2.0
22	2.1	3.3	1.5	5.0	2.3	71	1,420	5.6	50	11	6.8	2.0
23	2.3	5.5	1.8	6.0	2.1	50	402	5.3	20	5.9	4.4	5.6
24	2.5	1.8	2.4	* 8.0	2.1	42	152	4.4	9.6	3.7	* 2.0	2.2
25	2.5	2.1	2.8	8.0	2.1	46	* 86	4.7	7.1	3.3	2.2	* 2.2
26	2.6	2.6	3.1	8.0	2.5	71	60	5.0	5.9	3.0	2.0	2.0
27	1.8	2.5	* 3.2	8.0	2.5	50	357	5.3	4.7	3.6	2.0	1.5
28	1.3	2.3	3.2	6.0	2.5	40	754	4.7	4.2	3.6	2.4	1.0
29	2.6	1.8	3.0	4.0	2.5	33	252	4.4	4.2	* 3.3	3.0	2.4
30	2.5	2.3	2.5	3.5	- - - - -	30	147	4.0	4.0	4.2	1.6	2.2
31	2.6	- - - - -	1.7	3.0	- - - - -	30	- - - - -	3.6	- - ----	3.0	1.6	- - - - - -
Total	71.1	67.7	60.4	127.6	76.1	9,559.6	13,072	513.6	466.3	316.2	74.7	64.1
Mean	2.29	2.26	1.95	4.12	2.62	2.76	436	16.6	15.5	10.2	2.41	2.14
Cfsm	0.027	0.026	0.023	0.048	0.030	3.21	5.07	0.193	0.180	0.119	0.028	0.025
In.	0.03	0.03	0.03	0.06	0.03	3.70	5.66	0.22	0.20	0.14	0.03	0.03

Calendar year 1963: Max 3,140 Min 0.7 Mean 48.1 Cfsm 0.559 In. 7.60
Water year 1963-64: Max 2,640 Min 0.7 Mean 64.1 Cfsm 0.745 In. 10.16

Peak discharge (base, 1,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	1400	13.40	2,310				
4-3	1300	12.42	2,010				
4-21	0130	15.94	3,100				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11 to Mar. 3. Computed from twice-daily wire-weight gage readings Nov. 8, 9, Dec. 2-13, 16-20, 25-27, Jan. 2, 3, 5-20, 22, 23, Jan. 28 to Feb. 5, Feb. 7 to Mar. 2, May 8-20, June 21-30, Aug. 15-22, 24, Sept. 9, 11-24.

3-3243. Salamonie River near Warren, Ind.

Location.--Lat 40°42'45", long 85°27'13", in SW¼ sec. 12, T. 26 N., R. 9 E., on right downstream side of county road bridge, 1,700 ft downstream from unnamed tributaries entering from the right and left, 4,000 ft upstream from abandoned concrete and stone dam, and 2.4 miles northwest of Warren.

Drainage area.--422 sq. mi.

Records available.--March 1957 to September 1964. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder. Datum of gage is 784.75 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 28, 1960, wire-weight gage at same site and datum.

Average discharge.--7 years, 381 cfs.

Extremes.--Maximum discharge during year, 8,300 cfs Apr. 21 (gage height, 14.18 ft); minimum daily, 7.0 cfs Oct. 10-13; minimum gage height, 5.28 ft Dec. 22.
1957-64: Maximum discharge, 13,200 cfs Feb. 10, 1959 (gage height, 17.05 ft); minimum, 5.0 cfs Sept. 18, 19, 1959; minimum gage height, that of Dec. 22, 1963.

Remarks.--Records good above 60 cfs and poor below.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	13	12	11	25	50	160	758	32	47	13	13
2	8.0	12	12	11	25	b100	1,830	448	38	51	13	12
3	7.5	11	12	11	25	b300	5,460	295	41	86	13	11
4	7.5	11	12	11	25	*1,000	4,620	216	36	62	13	10
5	8.5	15	12	12	25	2,650	3,860	160	38	56	13	9.5
6	8.0	17	13	12	23	2,320	2,430	137	41	65	12	9.0
7	8.0	15	14	13	22	914	2,760	110	50	342	11	9.0
8	8.0	13	14	15	22	472	2,200	98	80	858	11	8.5
9	7.5	12	14	25	21	2,400	908	90	90	507	12	8.0
10	7.0	11	13	25	21	3,750	516	77	71	248	12	8.0
11	7.0	10	12	24	20	4,190	332	68	53	128	12	8.0
12	7.0	10	12	21	20	3,860	243	68	47	98	13	8.5
13	7.0	10	11	18	20	2,200	194	77	44	102	12	8.5
14	7.5	10	10	16	19	4,300	146	90	41	83	11	9.0
15	8.0	10	10	15	18	5,140	119	80	53	65	11	9.0
16	7.5	13	10	15	18	2,980	98	68	292	53	10	9.5
17	7.5	18	10	15	17	1,060	83	94	248	44	9.0	9.5
18	8.0	17	10	15	17	* 569	77	113	128	38	9.0	10
19	* 8.0	16	10	17	16	340	601	94	90	36	8.5	22
20	8.5	15	10	30	16	254	4,100	* 80	83	30	8.0	15
21	8.5	*15	10	b 45	16	232	7,700	65	578	26	9.0	11
22	8.5	15	10	b 60	15	232	7,150	71	758	22	11	11
23	8.5	17	10	b 60	15	226	6,420	56	295	16	10	15
24	8.5	18	11	*b 60	15	177	*4,300	47	160	26	10	12
25	8.5	17	11	b 50	15	527	1,320	47	106	36	10	11
26	8.5	16	*11	b 45	15	1,630	658	47	90	32	*14	14
27	8.5	15	12	b 40	15	808	1,000	44	62	20	17	13
28	9.0	14	12	b 35	15	432	2,870	44	59	11	18	*12
29	9.0	13	12	30	20	301	2,870	41	50	9.0	17	11
30	10	12	12	30	------	216	1,390	36	* 47	* 13	16	11
31	11	------	12	30	------	188	------	30	------	14	14	------
Total	252.0	411	356	817	556	43,818	66,415	3,749	3,801	3,224.0	372.5	328.0
Mean	8.13	13.7	11.5	26.4	19.2	1,413	2,214	121	127	104	12.0	10.9
Cfsm	0.019	0.032	0.027	0.063	0.045	3.35	5.25	0.287	0.301	0.246	0.028	0.026
In.	0.02	0.04	0.03	0.07	0.05	3.86	5.86	0.33	0.34	0.28	0.03	0.03

Calendar year 1963 : Max 6,200 Min 6.5 Mean 199 Cfsm 0.472 In. 6.39
Water year 1963-64 : Max 7,700 Min 7.0 Mean 339 Cfsm 0.803 In. 10.94

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	2230	10.81	4,300	4-21	1200	14.18	8,300
3-15	0030	12.44	5,980	4-28	2400	9.75	3,200
4-3	1400	12.30	5,880				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Stage-discharge relation indefinite Oct. 1 to Jan. 20, Jan. 29 to Mar. 1, Aug. 1 to Sept. 30.

3-3245. Salamonie River at Dora, Ind.

Location.--Lat 40°48'42", long 85°41'02", in NE¼ sec. 12, T. 27 N., R. 7 E., on right bank, 1½ miles northwest of Dora, and 3 miles upstream from mouth.

Drainage area.--553 sq mi.

Records available.--November 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 673.96 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct. 1, 1951, wire-weight or chain gage at site 1.5 miles upstream at datum 688.59 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Oct. 1, 1951 to Oct. 8, 1961, water-stage recorder located on left bank, 2,000 ft upstream at datum 679.77 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--40 years (1924-64), 504 cfs.

Extremes.--Maximum discharge during year, 9,010 cfs Apr. 22 (gage height, 11.89 ft); minimum, 15 cfs Sept. 12 (gage height, 2.23 ft); minimum gage height, 2.12 ft Jan. 3.
1923-64: Maximum discharge, 16,500 cfs May 18, 1943 (gage height, 14.75 ft, from graph based on gage readings, site and datum then in use); minimum observed, 8.2 cfs Aug. 3, 1934 (gage height, 1.11 ft, site and datum then in use).

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

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 11)

Oct. 1 to Mar. 15				Mar. 16 to Sept. 30			
2.1	16	3.5	345	2.2	13	3.5	327
2.2	24	4.0	600	2.3	21	4.0	555
2.5	60	8.0	3,980	2.5	46	5.0	1,180
2.9	138	10.0	6,200	2.7	80	8.0	3,980
				3.0	152	12.0	9,160

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	24	29	26	90	40	307	1,180	60	59	29	24
2	19	23	27	26	80	100	1,670	760	60	52	29	22
3	18	23	27	26	70	*300	5,920	530	60	49	30	20
4	18	25	27	27	65	902	5,920	410	57	75	29	19
5	17	28	27	28	60	2,960	4,680	347	59	82	28	19
6	18	27	28	29	60	3,040	3,680	287	62	64	26	18
7	18	26	27	31	60	1,940	3,180	252	66	930	25	18
8	18	26	31	33	60	755	3,180	214	64	2,480	24	17
9	18	25	31	45	55	2,200	1,400	189	93	1,320	23	16
10	18	24	30	60	55	3,880	850	164	138	760	23	17
11	18	23	30	60	50	4,280	582	144	101	432	24	16
12	17	22	30	50	50	4,480	432	128	82	307	28	15
13	18	22	28	45	50	3,300	367	128	78	327	25	16
14	18	22	25	40	50	4,080	307	130	69	252	23	16
15	18	22	24	35	45	5,200	252	136	75	189	22	17
16	18	22	24	35	45	4,580	214	123	*108	130	22	17
17	18	22	24	35	45	1,810	186	118	485	97	21	17
18	18	25	24	36	40	910	173	144	327	78	*21	20
19	*17	30	24	40	40	582	245	161	203	69	20	42
20	17	25	24	60	40	* 432	1,860	136	176	60	19	25
21	17	25	25	90	40	388	7,500	101	301	* 56	24	20
22	17	26	26	120	40	367	3,410	97	1,320	52	25	19
23	18	*30	* 27	*130	35	367	7,810	88	760	48	23	30
24	18	29	28	130	35	327	5,920	80	432	42	22	*22
25	18	30	29	140	35	428	* 2,580	*76	252	39	21	29
26	18	31	29	150	35	2,880	1,040	76	167	48	20	26
27	19	33	29	160	35	1,480	1,040	78	118	46	19	25
28	19	30	29	160	35	790	3,280	71	95	40	21	23
29	19	30	28	140	35	582	3,780	67	76	36	26	21
30	19	29	27	120	------	432	2,380	66	66	32	24	19
31	20	------	27	100	------	347	------	62	------	30	26	------
Total	560	779	845	2,207	1,435	55,159	79,145	6,543	6,010	3,281	742	625
Mean	18.1	26.0	27.3	71.2	49.5	1,779	2,638	211	200	267	23.9	20.8
Cfsm	0.033	0.047	0.049	0.129	0.090	3.22	4.77	0.382	0.362	0.483	0.043	0.038
In.	0.04	0.05	0.06	0.15	0.10	3.71	5.32	0.44	0.40	0.56	0.05	0.04

Calendar year 1963 : Max 6,620 Min 17 Mean 279 Cfsm 0.505 In. 6.84
Water year 1963-64 : Max 8,410 Min 15 Mean 444 Cfsm 0.803 In. 10.92

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-12	1000	8.56	4,580				
3-15	1600	10.26	6,620				
4-4	0030	10.36	6,760				
4-22	0300	11.89	9,010				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Mar. 3.

3-3250. Wabash River at Wabash, Ind.

Location.--Lat 40°47'25", long 85°49'13", in sec. 14, T. 27 N., R. 6 E., on right bank on upstream side of Wabash Street bridge in Wabash, 7 miles downstream from Salamonie River, and at mile 387.2.

Drainage area.--1,733 sq mi.

Records available.--August 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 642.66 ft above mean sea level, datum of 1929. Prior to Jan. 16, 1934, chain gage, and Jan. 16, 1934, to Sept. 30, 1954, wire-weight gage at same site and datum.

Average discharge.--41 years, 1,464 cfs.

Extremes.--Maximum discharge during year, 20,800 cfs Apr. 22 (gage height, 19.56 ft); minimum, 26 cfs Oct. 5, 11; minimum gage height, 1.81 ft Oct. 5.

1923-64: Maximum discharge, 49,600 cfs May 18, 1943; maximum gage height, 24.44 ft Feb. 11, 1959, (ice jam); minimum discharge observed, 17 cfs Aug. 4, 5, 9, 1934, July 21, 22, 1936; minimum gage height, 1.66 ft Aug. 4, 5, 9, 1934.

Maximum stage known, 28.7 ft Mar. 26, 1913, from floodmark, determined by Corps of Engineers (discharge, 90,000 cfs, from rating curve extended above 49,000 cfs).

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 2 to July 5)

1.8	26	5.0	1,150
2.1	62	8.0	3,630
2.5	138	13.0	9,130
3.0	275	17.0	15,200
4.0	650	20.0	22,300

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	56	59	52	180	100	920	4,300	245	143	98	61
2	31	56	61	52	170	200	2,160	3,000	216	131	91	58
3	30	54	62	52	160	500	10,500	2,030	202	304	89	51
4	30	58	61	54	150	1,280	13,500	1,570	202	305	92	47
5	27	70	61	58	140	4,430	11,500	1,290	188	216	89	43
6	27	76	61	62	140	5,420	11,600	1,080	188	165	80	42
7	27	70	64	70	140	4,100	10,800	920	188	2,790	72	40
8	27	75	72	80	130	2,470	8,500	830	180	5,520	67	40
9	27	64	73	100	130	3,620	5,740	785	245	2,640	67	38
10	27	64	68	120	120	6,910	4,010	695	290	1,360	65	35
11	26	59	65	120	120	7,490	2,730	605	260	830	68	35
12	27	54	60	110	120	8,620	1,790	560	188	605	83	33
13	28	59	55	100	120	*8,240	1,430	605	183	605	76	31
14	28	62	55	85	110	9,260	1,150	740	162	460	73	33
15	28	58	50	70	100	13,600	970	740	216	388	67	35
16	30	56	45	70	100	11,800	875	560	*695	320	65	34
17	30	58	45	70	100	6,800	740	500	830	260	65	33
18	*31	61	* 45	70	100	3,920	695	650	560	216	62	43
19	32	67	45	80	100	2,120	875	500	405	185	*56	134
20	31	65	45	200	95	*1,360	5,730	422	422	165	55	82
21	32	67	47	300	90	1,080	16,500	370	405	*155	65	62
22	32	67	49	*370	90	1,020	20,200	320	1,620	145	73	56
23	32	*85	51	380	85	1,220	19,300	290	1,290	143	72	78
24	33	85	54	380	85	1,150	* 17,400	275	740	136	68	*78
25	35	73	56	400	85	1,080	11,200	* 260	500	131	70	65
26	42	75	57	410	85	6,310	6,050	245	352	123	62	65
27	46	80	57	400	85	5,090	4,300	1,380	275	116	58	62
28	44	75	56	350	85	2,820	3,370	964	216	106	55	59
29	43	70	54	250	85	1,950	9,260	500	188	112	61	56
30	41	65	52	220	------	1,430	6,690	352	162	116	67	54
31	47	------	52	200	------	1,080	------	275	------	110	64	------
Total	1,002	1,984	1,737	5,335	3,300	126,470	215,485	27,613	11,813	19,001	2,195	1,583
Mean	32.3	66.1	56.0	172	114	4,080	7,183	891	394	613	70.8	52.8
Cfsm	0.019	0.038	0.032	0.099	0.066	2.35	4.14	0.514	0.227	0.354	0.041	0.030
In.	0.02	0.04	0.04	0.11	0.07	2.71	4.62	0.59	0.25	0.41	0.05	0.03

Calendar year 1963: Max 17,000 Min 26 Mean 645 Cfsm 0.372 In. 5.04
Water year 1963-64: Max 20,200 Min 26 Mean 1,141 Cfsm 0.658 In. 8.94

Peak discharge (base, 11,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-15	1730	16.46	14,300				
4-4	0800	16.22	13,800				
4-22	0600	19.56	20,800				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12 to Mar. 3.

3-3255. Mississinewa River near Ridgeville, Ind.

Location.--Lat 40°17', long 85°00', on line between secs. 7 and 8, T. 21 N., R. 14 E., on right bank, 10 ft downstream from highway bridge, 0.8 mile downstream from Mud Creek, and 2 miles east of Ridgeville.

Drainage area.--130 sq mi.

Records available.--August 1946 to September 1964.

Gage.--Water-stage recorder (digital since Apr. 25). Datum of gage is 965.28 ft above mean sea level, datum of 1929, (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct. 4, 1950, wire-weight gage at same site and datum then in use.

Average discharge.--18 years, 131 cfs.

Extremes.--Maximum discharge during year, 7,960 cfs Apr. 20 (gage height, 14.28 ft); minimum, 0.9 cfs Oct. 9; minimum gage height, 2.23 ft Sept. 9, 10.
1946-64: Maximum discharge, 13,900 cfs June 10, 1958 (gage height, 16.25 ft), from rating curve extended above 5,000 cfs on basis of contracted-opening measurement of peak flow; minimum, 0.1 cfs Oct. 24, 1946; minimum gage height, 1.65 ft Sept. 11, 1953.

Remarks.--Records good 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 Oct. 1-14)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
2.6	1.4	3.1	43	2.16	2.0	4.0	198
2.7	4.7	3.5	102	2.2	2.5	6.0	632
2.8	9.0	5.0	404	2.3	4.5	9.0	1,420
2.9	18			2.4	7.8	11.0	2,350
				2.7	23	13.0	4,740
				3.0	49	14.0	7,100
				3.5	109		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.8	8.1	3.4	2.0	6.0	6.0	52	206	11	13	4.5	3.2
2	2.1	6.8	*4.0	2.2	5.5	20	519	152	11	13	4.3	3.4
3	2.1	4.4	3.1	2.5	5.5	60	1,980	117	11	11	3.8	3.4
4	2.4	3.4	3.4	3.0	5.0	250	694	96	11	12	4.0	3.2
5	2.8	3.7	4.0	3.5	5.0	681	338	82	9.8	10	4.5	3.0
6	2.8	5.1	3.7	4.0	5.5	*159	1,260	70	12	8.2	4.3	3.0
7	2.1	4.4	4.0	4.0	7.0	95	721	62	33	*15	4.3	2.8
8	1.4	4.0	4.7	4.0	6.5	78	298	57	98	32	4.3	2.5
9	1.4	4.0	4.7	5.0	5.5	2,250	168	50	44	17	4.3	2.0
10	2.8	4.0	4.0	6.0	4.5	2,700	124	42	22	12	4.0	2.5
11	2.8	4.0	4.0	5.5	4.5	948	95	36	15	10	3.8	2.8
12	2.8	2.8	4.0	3.5	4.5	854	82	44	21	9.4	4.0	3.0
13	3.1	2.4	3.5	3.0	5.0	680	76	41	29	9.4	4.3	3.0
14	*2.4	4.4	2.5	2.7	5.0	656	63	34	66	9.0	4.5	2.8
15	1.8	5.1	1.5	2.5	4.5	470	56	28	159	9.8	4.5	2.6
16	2.8	4.7	1.0	2.7	4.5	*238	51	25	95	11	4.3	2.8
17	3.7	4.7	1.0	3.0	4.5	159	49	41	49	8.2	3.8	3.0
18	4.4	4.7	1.0	3.5	5.0	109	53	27	33	7.0	3.6	3.0
19	4.7	4.4	1.0	4.0	5.5	88	514	23	27	6.7	3.4	3.8
20	5.1	*4.4	1.0	6.0	5.5	82	3,760	21	56	6.0	3.6	5.1
21	4.4	4.0	1.0	9.0	5.0	168	6,040	*19	362	6.3	3.8	3.4
22	3.4	5.1	1.0	14	4.5	150	3,320	18	143	13	5.1	2.6
23	3.7	6.0	1.0	20	4.0	109	1,060	17	78	8.2	5.1	3.2
24	4.4	6.0	1.0	*20	3.5	95	536	15	51	6.7	*3.8	3.2
25	4.4	3.7	1.0	20	4.0	88	*278	14	33	6.7	3.4	*3.0
26	4.4	3.4	2.8	17	4.5	102	198	14	25	14	3.8	3.0
27	4.4	3.7	*3.1	10	5.0	76	450	20	21	12	3.8	2.6
28	3.7	4.0	2.8	7.0	5.0	68	752	15	17	7.0	3.8	2.8
29	2.8	4.0	2.8	5.5	5.0	61	406	13	14	11	4.3	2.6
30	2.8	3.1	3.1	5.5	------	56	298	12	13	5.4	4.3	2.8
31	4.4	------	2.1	6.0	------	56	------	11	------	4.8	3.8	------
TOTAL	98.1	132.5	81.2	206.6	145.0	11,612.0	24,291	1,422	1,569.8	324.8	127.1	90.1
MEAN	3.17	4.42	2.62	6.67	5.00	375	810	45.9	52.3	10.5	4.10	3.00
CFSM	.024	.034	.020	.051	.039	2.88	6.23	.353	.402	.081	.032	.023
IN	.03	.04	.02	.06	.04	3.32	6.95	.41	.45	.09	.04	.03

CALENDAR YEAR 1963 MAX 4,500 MIN 1.0 MEAN 65.7 CFSM .505 INCHES 6.86
WATER YEAR 1963-64 MAX 6,040 MIN 1.0 MEAN 110 CFSM .846 INCHES 11.47

Peak discharge (base, 2,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0700	11.94	3,180				
4-3	1400	11.20	2,500				
4-20	1900	14.28	7,960				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12-25, Jan. 1 to Mar. 3.

3-3260. Mississinewa River near Eaton, Ind.

Location.--Lat 40°20', long 85°19', in NE¼ sec. 31, T. 22 N., R. 11 E., on right bank at downstream side of bridge, 1½ miles upstream from Estey Creek and 2½ miles southeast of Eaton.

Drainage area.--304 sq mi.

Records available.--March 1952 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 880.60 ft above mean sea level, datum of 1929. Prior to Sept. 24, 1954, wire-weight gage at same site and datum.

Average discharge.--12 years, 280 cfs.

Extremes.--Maximum discharge during year, 12,200 cfs Apr. 21 (gage height, 16.55 ft); minimum, 2.6 cfs Oct. 6 (gage height, 2.27 ft). 1952-64: Maximum discharge, 19,400 cfs June 10, 1958 (gage height, 18.53 ft) from rating curve extended above 6,000 cfs on basis of contracted-opening measurement of peak flow; minimum, 2.0 cfs Sept. 23, 27, 1954 (gage height, 2.23 ft).

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)
(Shifting-control method used Sept. 13-30)

2.2	2.1	4.0	246
2.3	4.8	5.0	550
2.4	8.6	6.0	980
2.6	20	7.0	1,530
2.9	47	13.0	6,410
3.3	100	16.0	10,700

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.2	9.6	7.8	12	17	15	*107	585	28	29	11	6.2
2	3.9	9.6	*7.8	12	16	35	280	420	28	* 30	11	6.9
3	4.8	11	8.6	12	15	100	2,610	302	27	44	10	7.3
4	4.8	17	8.6	12	15	336	3,680	233	26	89	13	7.8
5	3.3	15	8.2	13	15	1,460	1,480	185	26	59	13	7.8
6	2.8	12	8.2	14	16	1,180	1,280	154	28	36	12	5.4
7	2.8	10	8.2	15	18	390	2,320	135	28	91	9.6	3.6
8	3.1	9.1	10	17	20	274	1,260	115	57	302	7.8	3.3
9	3.3	8.6	12	20	20	3,080	550	102	154	174	7.3	2.8
10	3.3	9.6	11	20	19	5,290	375	87	73	81	7.3	3.1
11	3.6	9.6	10	16	17	4,640	274	74	42	52	6.9	2.8
12	4.2	8.6	10	14	16	2,480	208	71	32	43	6.9	3.1
13	4.8	9.1	10	13	16	2,080	185	77	55	40	7.3	3.9
14	4.5	9.1	9.5	12	15	2,010	154	73	220	35	7.3	4.5
15	4.2	9.1	9.0	12	15	1,530	126	65	225	35	6.5	4.5
16	4.2	8.2	8.0	12	15	935	108	58	302	31	6.5	4.2
17	4.8	7.8	7.5	12	15	550	98	55	154	28	6.9	3.9
18	5.8	9.1	7.0	12	15	360	100	59	87	26	6.5	5.4
19	6.9	9.6	7.0	14	15	260	460	57	63	22	6.9	7.8
20	7.3	11	7.0	15	15	208	4,110	48	77	20	6.5	8.2
21	6.9	11	7.0	20	15	208	10,500	44	536	19	6.9	6.9
22	6.5	12	7.5	30	15	330	9,100	41	680	18	9.1	7.8
23	6.2	18	9.0	30	14	274	4,880	39	274	17	8.2	8.6
24	6.9	15	12	30	15	220	1,660	37	154	23	* 6.9	9.1
25	7.3	11	14	35	15	196	845	33	97	20	7.8	* 8.2
26	8.2	10	* 15	50	15	233	550	32	68	17	9.6	6.2
27	7.8	11	15	40	* 15	196	588	*33	54	15	8.2	5.8
28	7.3	10	15	30	13	154	*2,060	34	45	17	6.9	5.4
29	6.9	9.1	14	* 21	15	135	1,740	36	37	* 20	6.2	5.4
30	*6.9	8.2	13	19	------	117	890	32	33	17	6.2	5.1
31	7.3	------	12	18	------	110	------	28	------	13	6.9	------
Total	166.8	318.0	308.9	602	457	29,386	51,578	3,344	3,710	1,463	253.1	171.0
Mean	5.38	10.6	9.96	19.4	15.8	948	1,719	108	124	47.2	8.16	5.70
Cfsm	0.018	0.035	0.033	0.064	0.052	3.12	5.65	0.355	0.408	0.155	0.027	0.019
In.	0.02	0.04	0.04	0.07	0.06	3.60	6.30	0.41	0.46	0.18	0.03	0.02

Calendar year 1963 : Max 8,000 Min 2.8 Mean 178 Cfsm 0.586 In. 7.94
Water year 1963-64 : Max 10,500 Min 2.8 Mean 251 Cfsm 0.826 In. 11.23

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1800	12.45	5,830				
4-4	1000	10.04	3,840				
4-21	1130	16.55	12,200				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Feb. 21, Mar. 1-3.

3-3265. Mississinewa River at Marion, Ind.

Location.--Lat 40°34', long 85°40', in sec. 31, T. 25 N., R. 8 E., on left bank, 12 ft downstream from Highland Avenue Bridge in Marion, 1 mile upstream from Hummels Creek, and 4 miles downstream from Lugar Creek.

Drainage area.--677 sq mi.

Records available.--September 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 774.56 ft above mean sea level, datum of 1929. Prior to Dec. 9, 1933, chain gage at same site and datum.

Average discharge.--41 years, 640 cfs.

Extremes.--Maximum discharge during year, 17,600 cfs Apr. 22 (gage height, 14.30 ft); minimum, 7.9 cfs Apr. 16, May 9 (gage height, 0.63 ft), caused by taintor gates above gage being temporarily closed.
1923-64: Maximum discharge, 25,000 cfs Mar. 21, 1927 (gage height, 17.4 ft from graph based on gage readings), from rating curve extended above 18,000 cfs; minimum, 1.1 cfs Apr. 17, 1959; minimum daily, 3.8 cfs Oct. 23, 1940, Oct. 9, 1943; minimum gage height, -0.27 ft Sept. 25, 1935.
Flood of March 1913 reached a stage of 19.2 ft, from information by Indiana Flood Control and Water Resources Commission.

Remarks.--Records good except those for periods of ice effect, which are poor. Flow periodically regulated by dam above station.

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

Oct. 1 to Mar. 1		Mar. 2 to Sept. 30			
0.8	28	0.9	36	2.0	602
0.9	41	1.0	55	5.0	3,400
1.0	56	1.2	116	8.0	7,100
1.1	80	1.5	266	14.0	17,000

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	53	34	35	63	47	406	1,610	116	109	65	48
2	33	47	34	35	56	b100	1,720	1,070	116	102	63	46
3	32	46	35	b 35	53	b300	5,990	996	116	95	58	48
4	33	52	35	b 35	50	1,060	5,730	712	112	88	55	46
5	30	61	35	b 36	47	3,400	4,120	602	112	112	52	44
6	30	50	38	b 38	b 50	2,700	3,000	530	120	201	55	41
7	34	54	37	b 40	b 60	1,430	4,120	460	125	1,180	55	39
8	37	52	38	b 45	b 70	790	3,500	419	116	2,500	52	39
9	37	47	40	b 80	b 68	4,560	1,620	80	125	1,150	50	41
10	37	44	40	b 70	b 60	7,520	1,120	268	210	750	52	39
11	37	44	b 40	b 60	b 55	7,940	830	303	199	495	50	39
12	40	44	b 40	b 50	53	5,730	712	309	146	346	52	36
13	35	46	b 39	b 45	53	3,600	602	346	125	290	52	36
14	38	47	b 38	b 45	53	7,660	530	353	116	284	52	36
15	41	46	b 36	b 45	52	6,540	460	290	330	209	50	37
16	41	46	b 35	b 45	53	3,200	450	272	392	179	48	39
17	41	42	b 34	b 45	52	1,850	287	238	446	159	50	41
18	40	65	b 34	b 45	52	1,250	346	220	309	138	52	54
19	40	49	b 34	b 45	53	910	1,040	204	218	116	52	55
20	40	40	b 34	b 60	52	750	10,100	199	315	109	55	46
21	41	41	b 34	b 90	50	675	15,200	179	830	102	76	46
22	44	41	34	b110	48	602	16,400	169	1,250	98	63	44
23	44	54	35	b100	46	675	11,100	159	830	88	55	46
24	44	52	37	b100	44	566	5,090	159	495	81	52	39
25	44	50	37	b120	44	766	2,400	146	340	78	50	37
26	48	* 46	40	b100	* 47	1,620	1,610	* 150	255	78	50	36
27	47	41	* 41	b 90	47	*692	1,850	150	199	81	50	37
28	* 46	37	40	b 80	46	675	* 4,230	138	174	* 76	* 69	*41
29	47	34	40	b 75	46	566	3,900	129	* 142	71	58	41
30	46	33	38	* 70	------	495	2,500	125	120	65	46	41
31	50	------	37	70	------	440	------	120	------	68	50	------
Total	1,230	1,404	1,143	1,939	1,523	69,109	110,963	11,105	8,499	9,498	1,689	1,258
Mean	39.7	46.8	36.9	62.5	52.5	2,229	3,699	358	283	306	54.5	41.9
Cfsm	0.059	0.069	0.055	0.092	0.078	3.29	5.46	0.529	0.418	0.452	0.081	0.062
In.	0.07	0.08	0.06	0.11	0.08	3.79	6.09	0.61	0.47	0.52	0.09	0.07

Calendar year 1963 : Max 13,600 Min 11 Mean 383 Cfsm 0.566 In. 7.67
Water year 1963-64 : Max 16,400 Min 30 Mean 599 Cfsm 0.885 In. 12.04

Peak discharge (base, 5,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	1030	8.70	8,080	4-3	0930	7.68	6,680
3-14	2030	10.34	10,500	4-22	0500	14.30	17,600

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3270. Mississinewa River at Peoria, Ind.

Location.--Lat 40°42'24", long 85°57'27", in SW¼ sec. 3, T. 26 N., R. 5 E., on right bank, at Peoria, 3,000 ft downstream from flood control dam, upstream from mouth and 6½ miles southeast of Peru.

Drainage area.--810 sq mi.

Records available.--October 1952 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 660.00 ft above mean sea level, datum of 1929. Prior to Oct. 7, 1954, wire-weight gage and crest-stage gage on highway bridge, 2,500 ft upstream at same datum. Oct. 7, 1954 to Sept. 30, 1962, recorder on right bank at site 2,500 ft upstream at same datum.

Average discharge.--12 years, 707 cfs.

Extremes.--Maximum discharge during year, 17,000 cfs Apr. 22 (gage height, 15.13 ft); minimum, 39 cfs Oct. 8 (gage height, 0.68 ft). 1952-64: Maximum discharge, 28,000 cfs June 11, 1958 (gage height, 19.26 ft, site then in use); minimum, 13 cfs Mar. 15, 1960; minimum daily, 24 cfs Mar. 14, 1960.

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)
(Shifting-control method used Mar. 10 to Apr. 20)

0.6	36	3.0	780
1.0	81	4.0	1,380
1.5	167	6.0	3,060
2.0	295	8.0	5,370
2.5	510	15.0	16,800

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	63	62	60	110	85	438	1,900	157	147	91	63
2	42	74	62	60	100	200	1,410	1,450	157	138	91	66
3	43	58	61	60	95	520	6,740	1,020	157	128	89	62
4	44	56	61	60	90	895	6,100	1,020	147	119	85	62
5	45	60	61	65	85	3,130	4,960	780	147	110	84	61
6	45	74	62	65	85	3,060	3,060	670	157	131	80	58
7	43	68	62	70	90	1,980	3,760	588	157	2,090	78	55
8	41	64	68	70	100	1,020	3,870	510	147	4,210	82	53
9	42	66	69	90	110	2,900	2,030	460	147	2,000	81	53
10	44	63	67	140	110	7,210	1,260	302	138	1,260	78	56
11	44	58	66	110	100	7,860	1,020	328	188	895	76	54
12	45	55	65	95	100	6,900	780	330	200	615	84	53
13	44	57	65	85	95	3,870	670	350	178	485	76	53
14	45	60	60	80	90	6,100	560	392	157	370	73	51
15	43	61	60	80	90	8,900	485	370	*169	330	74	50
16	42	61	55	80	95	3,870	502	312	387	250	71	52
17	45	60	55	75	95	2,160	324	350	460	211	68	54
18	*45	61	*55	75	*92	1,380	273	280	438	188	67	61
19	47	66	55	80	92	1,020	648	264	295	167	*68	82
20	48	77	55	120	92	*835	6,080	236	330	157	68	94
21	47	72	55	180	86	780	15,400	236	573	147	74	68
22	45	72	60	*188	82	670	*16,500	224	1,260	*147	89	62
23	47	*76	60	178	80	642	13,900	211	1,260	128	84	*73
24	49	85	65	167	76	615	7,390	200	780	128	78	66
25	50	81	65	190	76	670	2,960	*200	510	119	68	63
26	52	80	65	210	80	2,180	1,980	188	350	119	68	60
27	54	77	65	170	80	1,200	1,590	188	250	110	67	60
28	56	73	65	150	80	835	3,980	188	211	110	67	58
29	54	69	65	140	80	698	4,450	178	178	102	78	58
30	51	63	65	130	------	560	2,960	167	157	95	87	60
31	54	------	60	120	------	485	------	157	------	92	69	------
Total	1,437	2,010	1,916	3,443	2,636	73,230	116,080	14,049	9,842	15,298	2,393	1,821
Mean	46.4	67.0	61.8	111	90.9	2,362	3,869	453	328	493	77.2	60.7
Cfsm	0.057	0.083	0.076	0.137	0.112	2.92	4.78	0.560	0.405	0.609	0.095	0.075
In.	0.07	0.09	0.09	0.16	0.12	3.37	5.33	0.65	0.45	0.70	0.11	0.08

Calendar year 1963: Max 15,600 Min 35 Mean 445 Cfsm 0.550 In. 7.45
Water year 1963-64: Max 16,500 Min 41 Mean 667 Cfsm 0.824 In. 11.22

Peak discharge (base, 6,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	2400	10.01	8,180	4-22	1630	15.13	17,000
3-15	0700	11.57	10,700	7-8	0200	8.71	6,420
4-3	1500	9.69	7,700				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 21, Jan. 25 to Feb. 16, Feb. 21 to Mar. 1.

3-3275. Wabash River at Peru, Ind.

Location.--Lat 40°44'35", long 86°05'45", in sec. 32, T. 27 N., R. 4 E., on right bank at upstream side of bridge on U.S. Highway 31, half a mile southwest of Peru, 4.3 miles downstream from Mississinewa River, and at mile 370.5.

Drainage area.--2,655 sq mi.

Records available.--August 1943 to September 1964. Discharge measurements only during May and July 1943.

Gage.--Water-stage recorder. Datum of gage is 617.94 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 20, 1961, wire-weight gage at same site and datum.

Average discharge.--21 years, 2,370 cfs.

Extremes.--Maximum discharge during year, 35,800 cfs Apr. 23 (gage height, 19.45 ft); minimum, 105 cfs Oct. 12, 13, 16; minimum gage height, 1.84 ft Sept. 8.
1943-64: Maximum discharge, 68,000 cfs May 18, 1943 (gage height, 24.46 ft, from floodmark); minimum, 62 cfs Sept. 19, 1945; minimum gage height, 1.70 ft Oct. 5, 26, 1946.
Flood of Mar. 26, 1913, reached a stage of 28.1 ft (discharge, about 115,000 cfs, from rating curve extended above 63,000 cfs).

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

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

Oct. 1 to Mar. 2		Mar. 3 to Sept. 30			
1.8	90	1.8	117	6.0	3,650
2.2	225	2.1	207	10.0	9,890
2.5	375	2.5	374	14.0	18,900
3.0	715	3.0	633	19.0	34,300
		4.0	1,440		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	123	138	157	130	400	200	1,620	5,650	g 470	352	249	158
2	120	144	154	130	360	350	2,640	4,860	g 446	329	245	155
3	120	147	154	130	330	500	g 11,500	3,530	g 446	356	234	149
4	117	138	157	140	310	2,340	g 16,300	2,930	g 421	521	230	143
5	114	147	157	150	300	3,390	g 15,600	2,340	g 421	421	226	140
6	117	157	154	160	290	4,090	g 13,800	2,010	g 398	374	222	138
7	117	174	150	170	280	5,200	g 13,800	1,810	g 398	3,840	211	133
8	114	157	164	190	270	3,910	g 12,300	1,620	g 398	10,500	200	127
9	111	160	168	250	280	5,320	3,450	1,440	g 398	5,600	197	149
10	108	157	171	300	270	12,100	5,750	1,260	g 446	3,290	190	170
11	111	150	174	300	260	13,600	4,170	1,040	470	2,230	187	164
12	111	144	160	280	250	14,000	2,930	1,040	496	1,530	190	158
13	108	138	150	250	240	11,500	2,450	1,080	421	1,350	200	146
14	111	144	140	200	230	13,100	2,010	1,260	398	1,040	190	140
15	108	144	130	180	230	13,700	1,710	1,260	*374	915	183	135
16	108	144	120	170	220	13,100	1,530	1,080	886	696	180	140
17	111	144	120	170	220	9,170	1,440	956	1,530	575	180	143
18	* 111	147	* 110	190	*220	5,750	1,080	1,040	1,260	496	180	209
19	111	147	110	220	210	3,530	1,440	915	876	446	*173	523
20	111	174	110	300	210	*2,570	3,250	800	876	374	176	241
21	138	171	120	400	210	2,120	27,000	696	1,530	352	190	226
22	126	178	120	500	200	1,910	* 33,600	604	2,810	*352	193	164
23	123	* 178	130	*550	200	2,010	34,300	548	3,050	329	207	*190
24	120	185	140	550	200	2,010	* 27,300	521	1,910	329	187	187
25	117	185	140	600	200	1,910	16,300	* 521	1,260	308	167	173
26	120	174	150	650	200	7,120	3,270	521	876	308	167	164
27	120	174	150	650	190	5,970	6,050	1,230	633	308	158	164
28	126	178	140	650	190	4,040	10,100	1,620	521	286	158	164
29	126	171	140	550	190	3,050	13,100	g 876	421	274	161	176
30	123	164	140	500	------	2,340	9,890	g 604	398	266	176	237
31	129	------	130	450	-----	1,810	-----	g 470	----	266	164	-------
Total	3,630	4,753	4,410	10,060	7,160	182,710	314,680	47,132	25,238	33,613	5,971	5,306
Mean	117	158	142	325	247	6,087	10,489	1,520	841	1,246	193	177
Cfsm	0.044	0.060	0.053	0.122	0.093	2.29	3.95	0.573	0.317	0.469	0.073	0.067
In.	0.05	0.07	0.06	0.14	0.10	2.64	4.41	0.66	0.35	0.54	0.08	0.07

Calendar year 1963 : Max 31,000 Min 108 Mean 1,201 Cfsm 0.452 In. 6.15
Water year 1963-64 : Max 34,300 Min 108 Mean 1,791 Cfsm 0.675 In. 9.17

Peak discharge (base, 18,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-15	1200	14.80	21,100				
4-4	1300	13.71	18,100				
4-23	0100	19.45	35,800				

* Discharge measurement made on this day.
g Computed from twice-daily wire-weight gage readings.
Note.--Stage-discharge relation affected by ice Dec. 12 to Mar. 3.

3-3280. Eel River at North Manchester, Ind.

Location.--Lat 40°59', long 85°46', in NE¼ sec. 5, T. 29 N., R. 7 E., on right bank, 200 ft downstream from Main Street Bridge at North Manchester and 1¾ miles upstream from Pony Creek. Records include flow of Pony Creek.
Drainage area.--416 sq mi, includes that of Pony Creek.
Records available.--October 1929 to September 1964. Prior to April 1930, monthly discharge only, published in WSP 1305. Gage-height records since October 1924 are available in the District office.
Gage.--Water-stage recorder. Datum of gage is 738.00 ft above mean sea level, datum of 1929. Prior to July 23, 1953, wire-weight gage or chain gage on downstream side of Second Street Bridge, 700 ft upstream at same datum.
Average discharge.--35 years, 344 cfs.
Extremes.--Maximum discharge during year, 5,400 cfs July 8 (gage height, 11.65 ft); minimum daily, 40 cfs Dec. 16-22, Dec. 31 to Jan. 3, Jan. 14-17, minimum gage height, 1.51 ft Sept. 6-10, 15.
1929-64: Maximum discharge observed, 7,500 cfs Feb. 27, 1936 (gage height, 14.00 ft); minimum not determined, occurred Oct. 7, 1957, due to unusual regulation, minimum daily, 16 cfs Oct. 19, 1956.
Remarks.--Records fair prior to Mar. 26, good thereafter except those for period of ice effect, which are poor. Diurnal fluctuation caused by grist mill above station.
Revisions.--Some records of daily discharge for the water year 1957 are in error and revised figures are available in the District office. Revisions will be published in the next water supply paper.

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 8 to Dec. 8, Dec. 10-12, Jan. 19 to Mar. 13, Mar. 16-25)

Oct. 1 to June 20		June 21 to Sept. 30	
1.6	32	1.5	45
1.9	78	1.7	78
2.5	213	2.0	127
3.0	344	2.5	215
5.0	1,070	3.0	353
7.0	2,020	5.0	1,070
		7.0	2,020
		10.0	3,960

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	52	55	40	75	38	344	620	99	66	75	61
2	44	54	55	40	75	201	344	480	91	59	75	66
3	42	51	55	40	71	160	990	394	84	56	89	64
4	45	51	55	41	68	127	990	329	78	53	80	70
5	48	54	55	42	66	286	690	286	73	47	73	63
6	51	55	55	43	66	249	762	249	76	58	68	47
7	49	54	55	46	64	158	1,150	225	82	1,490	63	47
8	48	52	60	50	63	130	990	213	155	3,900	59	47
9	51	51	60	50	60	322	690	189	125	1,490	58	47
10	51	51	61	50	61	377	550	177	91	762	61	47
11	54	51	60	48	58	237	445	160	73	483	70	50
12	54	52	60	46	60	201	394	151	64	353	101	50
13	51	52	64	42	60	219	344	160	58	264	89	48
14	52	55	60	40	58	* 590	314	237	145	215	80	48
15	52	55	50	40	58	798	286	213	498	186	68	51
16	51	55	40	40	60	515	261	177	1,150	195	61	58
17	48	55	* 40	40	58	300	249	201	*620	186	56	59
18	46	55	40	50	* 58	213	225	177	344	157	* 58	78
19	* 54	55	40	66	60	165	225	148	237	142	55	117
20	45	55	40	126	60	139	237	127	505	127	55	104
21	42	57	40	201	60	130	1,270	114	450	*117	71	84
22	44	60	40	165	58	127	1,910	105	278	113	91	* 84
23	45	*66	43	* 134	57	139	1,420	99	195	106	81	91
24	46	64	43	114	55	146	830	93	160	99	68	81
25	46	58	45	143	60	192	590	* 93	136	89	58	76
26	48	57	45	139	64	1,420	445	93	116	91	59	75
27	48	57	45	97	61	1,280	480	274	101	88	59	78
28	49	55	45	80	63	834	1,150	261	109	81	64	76
29	49	55	43	76	61	620	1,150	177	84	83	75	71
30	49	54	41	76	------	480	870	136	73	81	66	73
31	49	------	40	75	------	410	------	114	------	78	59	------
Total	1,495	1,648	1,530	2,280	1,798	11,353	20,595	6,472	6,350	11,315	2,145	2,011
Mean	48.2	54.9	49.4	73.5	62.0	366	686	209	212	365	69.2	67.0
Cfsm	0.116	0.132	0.119	0.177	0.149	0.880	1.65	0.502	0.510	0.877	0.166	0.161
In.	0.13	0.15	0.14	0.20	0.16	1.01	1.84	0.58	0.57	1.01	0.19	0.18

Calendar year 1963: Max 3,200 Min 31 Mean 153 Cfsm 0.368 In. 5.01
Water year 1963-64: Max 3,900 Min 40 Mean 189 Cfsm 0.454 In. 6.16

Peak discharge (base, 2,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
7-8	0100	11.65	5,400				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 16 to Jan. 18

3-3285. Eel River near Logansport, Ind.

Location.--Lat 40°46'55", long 86°15'50", in sec. 14, T. 27 N., R. 2 E., on right bank at downstream side of county bridge on Adamsboro Road, 5½ miles northeast of Logansport and 6.9 miles upstream from mouth.

Drainage area.--791 sq mi.

Records available.--July 1943 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 621.50 ft above mean sea level, datum of 1929. Prior to Aug. 15, 1956, wire-weight gage at same site and datum.

Average discharge.--21 years, 705 cfs.

Extremes.--Maximum discharge during year, 7,460 cfs July 9 (gage height, 9.31 ft); minimum daily, 75 cfs Dec. 18-22, 31, Jan. 1; minimum gage height, 2.84 ft Oct. 4.
1943-64: Maximum discharge, 13,100 cfs Jan. 5, 1950 (gage height, 11.80 ft); minimum, 65 cfs Mar. 16, 1960, result of freezeup (gage height, 2.60 ft).
Flood of May 18, 1943, reached a stage of 13.2 ft, from floodmark (discharge, 17,000 cfs, from rating curve extended above 9,900 cfs by logarithmic plotting).

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)
(Shifting-control method used Jan. 20, Jan. 24, 25, Jan. 27 to Mar. 1, Mar. 20-27, Apr. 1, 4, 7, 8, 17, 18, 20-23, 29, May 10-13, 17-28, May 30 to June 15)

2.7	68	4.5	820
2.8	82	6.0	2,220
3.0	122	8.0	5,100
3.5	268	9.0	6,900
4.0	497		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*93	100	109	75	233	197	618	1,250	286	178	162	107
2	93	98	111	80	233	434	618	940	268	168	157	104
3	93	102	115	85	226	555	1,250	782	250	160	154	102
4	93	104	115	90	203	470	1,900	681	250	151	151	98
5	91	*113	115	100	*223	526	1,250	586	233	144	149	98
6	91	113	115	115	207	681	1,340	526	233	151	144	96
7	91	111	115	125	197	526	2,340	497	250	491	136	98
8	91	107	122	141	207	418	2,100	443	250	5,460	132	95
9	91	102	122	*157	197	526	1,340	418	286	6,900	127	95
10	91	98	127	150	189	860	900	392	286	2,840	124	93
11	91	95	129	105	184	681	745	370	250	1,700	124	93
12	93	95	127	90	186	555	650	347	233	1,250	122	93
13	93	95	*127	85	184	526	586	347	220	1,020	127	93
14	93	96	120	80	176	936	526	*443	220	860	141	93
15	95	100	100	80	170	1,430	470	497	285	681	132	93
16	95	102	85	80	173	1,020	443	443	942	555	124	95
17	95	104	80	85	168	713	418	418	1,430	497	*122	95
18	96	98	75	100	168	*555	392	392	*782	497	118	111
19	100	98	75	150	168	470	418	370	526	392	115	332
20	98	102	75	370	168	418	631	347	526	347	113	149
21	109	107	75	586	165	392	2,050	326	1,120	305	122	181
22	104	127	75	618	162	370	3,660	305	940	286	134	*151
23	102	144	80	470	157	370	*2,820	286	586	*268	139	136
24	98	144	80	418	160	370	1,800	268	418	250	141	124
25	98	144	85	418	160	418	1,160	268	326	226	129	118
26	100	132	85	470	176	1,730	900	268	268	223	122	113
27	98	122	85	392	168	2,580	782	268	233	210	118	113
28	95	120	85	347	160	1,610	1,520	370	216	207	115	111
29	93	118	80	305	162	1,120	2,110	470	203	200	115	111
30	91	120	80	286	------	820	1,700	370	197	181	115	111
31	93	------	75	233	------	713	------	305	------	170	113	-------
Total	2,948	3,311	3,044	5,886	5,330	22,990	37,437	13,993	12,513	26,968	4,037	3,502
Mean	95.1	110	98.2	222	184	742	1,248	451	417	870	130	117
Cfsm	0.120	0.139	0.124	0.281	0.233	0.938	1.58	0.570	0.527	1.10	0.164	0.148
In.	0.14	0.16	0.14	0.32	0.25	1.08	1.76	0.66	0.59	1.27	0.19	0.17

Calendar year 1963 : Max 5,600 Min 75 Mean 320 Cfsm 0.405 In. 5.50
Water year 1963-64 : Max 6,900 Min 75 Mean 391 Cfsm 0.494 In. 6.73

Peak discharge (base, 5,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
7-9	0900	9.31	7,460				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 7, Jan. 10-19.

3-3290. Wabash River at Logansport, Ind.

Location.--Lat 40°44'47", long 86°22'39", in NE¼ sec. 35, T. 27 N., R. 1 E., on left bank 150 ft downstream from Cicott Street Bridge in Logansport, 1,000 ft downstream from Eel River, and at mile 353.7.
Drainage area.--3,751 sq mi.
Records available.--April to September, November and December 1903, March to November 1904, March 1905 to July 1906, May 1923 to September 1964. January, February and December 1904, January and February 1905 (gage heights only). Gage-height records collected at same site December 1910 to December 1916, and since January 1926 are contained in reports of U. S. Weather Bureau.
Gage.--Water-stage recorder. Datum of gage is 573.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). April 1903 to July 1906, chain gage at site 150 ft upstream at datum 2.12 ft higher. May 1923 to Mar. 15, 1925, chain gage at site 150 ft upstream at datum 0.19 ft higher. Mar. 16, 1925, to Mar. 31, 1927 and Oct. 1, 1927, to Feb. 8, 1934, chain gage at site 150 ft upstream at present datum. Apr. 1 to Sept. 30, 1927, staff gage at present site at datum approximately 2.85 ft higher.
Average discharge.--41 years (1923-64), 3,237 cfs.
Extremes.--Maximum discharge during year, 40,800 cfs Apr. 23 (gage height, 14.64 ft); minimum, 151 cfs Oct. 11 (gage height, 2.51 ft).
1903-6, 1923-64: Maximum discharge, 89,800 cfs May 18, 1943 (gage height, 21.32 ft); minimum, 97 cfs Sept. 25, 1941; minimum daily, 135 cfs Sept. 26, 1941; minimum gage height, 2.27 ft July 23, 1936.
Maximum stage known, 25.3 ft Mar. 26, 1913, from floodmarks (discharge, 140,000 cfs, estimated).
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)
(Shifting-control method used Mar. 15 to May 16)

2.5	146
2.7	260
3.1	590
3.5	1,100
4.0	2,040
5.0	4,120
6.0	6,700
10.0	21,400
14.0	40,300

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*192	241	288	230	736	350	2,340	3,230	808	645	455	274
2	187	247	267	220	678	600	2,440	6,400	760	590	437	254
3	187	267	260	230	623	1,200	15,300	4,580	724	554	455	247
4	192	267	267	240	581	2,340	22,200	3,690	678	678	410	235
5	197	*316	247	250	* 554	3,890	20,200	3,060	678	667	386	222
6	192	309	274	270	545	10,300	17,400	2,640	678	748	378	216
7	187	316	267	300	491	7,940	13,200	2,340	772	3,380	362	210
8	182	316	288	386	470	4,820	13,600	2,040	760	13,800	346	203
9	177	295	302	* 464	480	3,080	11,700	1,840	689	15,200	330	177
10	177	288	309	500	450	14,200	7,300	1,640	736	3,260	316	182
11	172	274	281	480	400	16,600	5,320	1,350	736	4,580	316	192
12	182	260	270	400	390	17,000	3,900	1,350	784	3,270	309	187
13	182	247	270	350	380	14,600	3,270	1,350	724	2,540	330	182
14	182	247	* 260	320	370	15,000	2,640	* 1,540	667	2,140	346	182
15	182	260	250	300	360	22,700	2,340	1,640	689	1,740	323	182
16	187	267	230	300	360	19,400	1,940	1,440	1,240	1,350	316	182
17	187	260	220	300	350	12,400	1,940	1,260	2,640	1,180	* 302	182
18	197	267	210	320	350	7,300	1,440	1,260	* 2,140	1,100	288	341
19	210	260	210	350	340	* 4,580	1,840	1,260	1,540	950	291	667
20	203	274	210	450	340	5,060	7,320	1,100	1,440	820	274	545
21	216	316	220	700	330	2,540	29,100	1,020	2,640	772	316	491
22	216	354	230	900	330	2,240	37,600	950	3,480	772	354	*428
23	210	410	230	1,000	320	2,140	* 33,200	885	4,120	* 712	346	354
24	203	370	240	1,000	320	2,340	31,900	885	2,640	667	346	370
25	203	370	250	1,100	310	2,240	21,400	820	1,840	623	323	338
26	210	346	250	1,100	310	7,690	11,700	820	1,350	612	295	309
27	222	323	250	1,100	310	11,400	7,940	885	1,020	590	288	295
28	216	316	250	1,000	310	6,400	11,700	2,240	885	554	281	281
29	216	309	250	900	300	4,580	17,400	1,540	772	545	281	274
30	210	302	240	820	------	3,480	14,200	1,100	712	491	288	235
31	222	------	230	796	------	2,640	------	885	------	473	309	------
Total	6,098	8,894	7,820	17,076	12,088	233,050	387,770	63,090	39,382	73,003	10,387	8,437
Mean	197	296	252	551	417	7,518	12,926	2,035	1,313	2,516	335	281
Cfsm	0.053	0.079	0.067	0.147	0.111	2.00	3.45	0.543	0.350	0.671	0.089	0.075
In.	0.06	0.09	0.08	0.17	0.12	2.31	3.85	0.63	0.39	0.77	0.10	0.08

Calendar year 1963: Max 35,000 Min 172 Mean 1,596 Cfsm 0.425 In. 5.78
Water year 1963-64: Max 39,200 Min 172 Mean 2,383 Cfsm 0.635 In. 8.65

Peak discharge (base, 22,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-15	1600	10.88	25,000				
4-4	1500	10.60	22,600				
4-23	0400	14.64	40,800				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 7, Jan. 10-29, Feb. 8 to Mar. 3.

3-3295. Wabash River at Delphi, Ind.

Location.--Lat 40°35'26", long 86°41'54", in SE¼ sec. 24, T. 25 N., R. 3 W., on downstream side of second pier from left abutment of highway bridge, 1 mile west of Delphi, 1.6 miles upstream from Deer Creek, 8.6 miles upstream from Tippecanoe River, and at mile 330.8.

Drainage area.--4,032 sq mi.

Records available.--October 1939 to September 1964. Prior to January 1940 monthly discharge only, plublished in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 519.90 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to July 19, 1942, wire-weight gage at same site and datum.

Average discharge.--25 years, 3,377 cfs.

Extremes.--Maximum discharge during year, 40,700 cfs Apr. 23 (gage height, 21.69 ft); minimum, 171 cfs Oct. 10 (gage height, 0.99 ft).
1939-64: Maximum discharge, 85,300 cfs May 19, 1943 (gage height, 25.60 ft); maximum gage height, 27.48 ft Feb. 11, 1959 (ice jam); minimum daily discharge, 158 cfs Sept. 19, 20, 1941.
Maximum stage known, 28.4 ft Mar. 26, 1913, from information by State Highway Commission (discharge, about 145,000 cfs, from rating curve extended above 82,000 cfs by logarithmic plotting).

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

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. 3, June 16-26)

0.8	150	10.0	10,700
1.0	220	14.0	17,000
2.0	720	18.0	26,000
3.0	1,500	22.0	42,500
5.0	3,600		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	178	256	360	250	750	400	2,780	10,100	910	720	510	310
2	174	256	360	250	700	600	*2,670	7,100	840	665	485	295
3	174	265	335	250	650	1,100	10,100	5,410	780	610	460	* 290
4	174	300	335	250	600	2,150	13,600	4,200	750	560	535	285
5	174	335	335	270	550	3,700	13,800	3,720	720	720	460	270
6	178	360	335	290	500	3,450	16,500	3,120	750	692	438	260
7	178	335	360	330	450	7,550	16,700	2,670	750	1,040	410	252
8	174	335	360	400	420	5,270	15,800	2,450	910	11,300	385	252
9	174	335	360	500	410	4,080	12,400	2,150	750	14,800	385	252
10	174	335	360	520	430	9,690	8,150	2,050	720	13,100	360	240
11	174	335	360	520	440	13,200	6,110	1,770	750	5,410	360	224
12	174	310	350	450	450	13,900	4,590	1,680	780	3,480	335	228
13	178	310	330	380	450	13,000	3,720	1,590	810	2,670	360	240
14	178	310	310	350	450	11,900	3,120	1,770	720	2,350	360	240
15	178	310	290	330	440	17,400	2,780	1,860	692	1,950	360	240
16	178	310	260	320	440	18,300	2,450	1,860	848	1,680	360	240
17	182	310	240	330	430	13,100	2,250	1,590	1,770	1,410	335	244
18	185	335	230	350	420	8,000	1,950	1,500	2,050	1,320	310	275
19	202	335	230	400	410	5,410	1,770	1,590	1,680	1,140	310	510
20	213	335	230	500	410	3,720	4,830	1,410	1,410	945	310	720
21	210	360	230	900	400	3,000	22,900	1,230	1,860	875	360	535
22	210	410	240	1,000	400	2,560	35,400	1,140	* 2,780	810	410	510
23	210	485	* 250	1,100	400	2,450	39,500	980	3,480	*810	410	438
24	206	438	260	1,100	400	2,450	34,100	910	2,780	720	385	360
25	206	410	270	1,200	*400	2,670	23,200	* 910	1,950	665	360	385
26	206	410	270	1,300	390	5,400	13,100	875	1,500	638	360	360
27	224	* 385	270	1,200	380	11,300	8,750	875	1,230	610	335	360
28	236	385	270	*1,200	330	7,550	9,650	1,580	1,020	610	310	335
29	216	360	270	1,000	370	5,130	14,800	1,860	875	560	310	310
30	216	360	260	900	------	4,080	13,900	1,320	780	560	305	305
31	* 224	------	250	850	------	3,240	------	1,060	------	510	300	------
Total	5,958	10,315	9,170	13,990	13,320	210,750	372,370	72,330	37,645	70,930	11,673	9,765
Mean	192	344	296	613	459	6,798	12,412	2,333	1,255	2,288	377	326
Cfsm	0.048	0.085	0.073	0.152	0.114	1.69	3.08	0.579	0.311	0.567	0.094	0.081
In.	0.06	0.10	0.08	0.18	0.12	1.95	3.44	0.67	0.35	0.63	0.11	0.09

Calendar year 1963: Max 48,000 Min 174 Mean 1,787 Cfsm 0.443 In. 6.02
Water year 1963-64: Max 39,500 Min 174 Mean 2,304 Cfsm 0.571 In. 7.78

Peak discharge (base, 24,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-23	1500	21.69	40,700				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Mar. 3 (no gage-height record Dec. 13-22, Jan. 7, 8, 10-16).

3-3297. Deer Creek near Delphi, Ind.

Location.--Lat 40°36', long 86°37', on line between SE¼ sec. 22 and NE¼ sec. 27, T. 25 N., R. 2 W., on downstream side of left wingwall of highway bridge, 3 miles northeast of Delphi and 4½ miles upstream from mouth.

Drainage area.--278 sq mi.

Records available.--October 1943 to September 1964. Prior to March 1944 monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder (digital since Apr. 30). Altitude of gage is 542 ft (by barometer). Prior to Sept. 18, 1950, wire-weight gage at same site and datum.

Average discharge.--21 years, 236 cfs.

Extremes.--Maximum discharge during year, 3,230 cfs Apr. 21 (gage height, 8.57 ft); minimum, 6.8 cfs Sept. 9, 10, 11, 13, 15, 16 (gage height, 2.01 ft).
1943-64: Maximum discharge, 14,400 cfs June 10, 1958 (gage height, 18.26 ft); minimum, 5.6 cfs Sept. 27, 1954.
Flood in May 1943 reached a stage of 19.8 ft, from floodmarks (discharge, 18,000 cfs, from rating curve extended above 8,000 cfs by logarithmic plotting).

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)

2.0	6.0	3.5	280
2.2	24	4.0	460
2.6	69	6.0	1,470
3.0	142	9.0	3,550

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	18	24	22	27	6	62	161	465	5	49	24	14
2	15	29	21	27	52	264	*218	374	21	46	27	13
3	15	24	23	27	5	312	1,310	312	49	44	23	*12
4	15	24	22	27	47	280	1,240	261	46	41	24	11
5	15	33	23	27	45	395	730	225	46	38	24	10
6	16	31	23	3	45	33	610	195	49	41	25	9.4
7	17	30	24	35	44	296	490	174	54	110	22	8.6
8	19	29	24	43	43	161	436	159	52	565	20	8.6
9	18	28	25	5	42	287	456	144	45	1,070	23	7.7
10	17	26	27	5	42	404	366	127	43	448	19	7.7
11	15	25	27	5	44	296	296	115	41	355	19	7.7
12	17	25	24	4	43	268	249	113	44	194	19	7.7
13	16	25	24	5	41	287	226	112	62	236	18	7.7
14	17	27	21	3	36	544	179	112	61	194	16	7.7
15	14	26	17	27	35	592	154	107	53	147	17	7.7
16	2	26	16	26	36	404	144	95	55	121	20	8.6
17	20	26	15	25	44	240	137	87	71	96	16	8.6
18	21	27	15	32	33	275	121	83	56	85	16	10
19	25	27	15	35	44	156	107	81	47	74	15	24
20	26	28	15	5	42	143	1,440	74	129	67	15	15
21	27	33	15	27	31	139	2,710	74	614	56	21	16
22	27	30	15	15	4	121	2,530	69	*478	45	17	15
23	26	44	16	12	3	114	1,380	66	41	44	14	22
24	27	39	20	14	27	93	735	64	139	*42	22	16
25	26	32	30	15	*24	127	730	*62	136	41	20	15
26	24	29	35	11	24	567	567	78	134	38	18	14
27	29	*26	48	8	29	522	509	92	83	37	17	15
28	30	24	40	*65	24	345	515	82	71	36	15	14
29	28	22	28	62	29	284	*504	69	65	37	14	13
30	27	22	*35	56	------	228	581	64	64	34	16	13
31	*28	------	32	57	------	195	------	62	------	32	15	------
TOTAL	656	868	746	1,537	1,117	8,526	21,425	4,155	3,277	4,768	610	367.7
MEAN	21.2	28.9	24.1	50.0	39.2	275	714	134	109	154	19.7	12.3
CFSM	.076	.104	.087	.180	.141	.989	2.57	.482	.392	.554	.071	.044
IN	.09	.12	.10	.21	.15	1.14	2.87	.56	.44	.64	.08	.05

CALENDAR YEAR 1963 MAX 5,370 MIN 13 MEAN 132 CFSM .468 INCHES 6.33
WATER YEAR 1963-64 MAX 5,010 MIN 7.7 MEAN 132 CFSM .475 INCHES 6.45

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-21	1100	8.57	3,230				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Feb. 4, Feb. 8, 9, 20-24, 26-29.

3-3305. Tippecanoe River at Oswego, Ind.

Location.--Lat 41°19'14", long 85°47'21", in NE¼NE¼ sec. 14, T. 33 N., R. 6 E., on left bank 10 ft downstream from dam at Tippecanoe Lake Outlet in Oswego and 3 miles east of Leesburg.

Drainage area.--115 sq mi.

Records available.--October 1949 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 830.00 ft above mean sea level, datum of 1929. Prior to Aug. 12, 1953, staff gage at same site and datum.

Average discharge.--15 years, 100 cfs.

Extremes.--Maximum discharge during year, 122 cfs May 3 (gage height, 6.53 ft); minimum, 2.0 cfs Sept. 30; minimum gage height, 4.38 ft Oct. 21, 22.
1949-64: Maximum discharge, 700 cfs Oct. 17, 1954 (gage height, 8.64); minimum, 1.7 cfs Nov. 13, 14, 1956; minimum gage height, 4.36 ft Sept. 8, 1953.

Remarks.--Records fair. Occasional regulation by flashboards at lake outlet.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 10 to Dec. 10, July 10 to Sept. 30)

4.2	1.8	5.0	22
4.3	2.9	5.5	47
4.5	6.7	6.0	80
4.7	12	6.5	122

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.4	6.7	18	19	47	25	62	104	21	25	12	9.2
2	* 7.0	7.4	18	19	44	29	69	108	20	24	12	9.0
3	6.7	6.7	19	20	44	33	76	113	19	23	12	9.0
4	6.7	7.4	20	22	* 41	36	76	122	19	22	12	8.4
5	6.5	8.0	20	23	41	38	80	113	16	21	12	8.0
6	6.5	8.2	21	23	41	41	83	108	15	22	11	7.2
7	6.2	* 8.4	22	*23	38	44	83	104	16	38	10	6.5
8	6.5	8.2	23	23	36	47	87	95	18	80	9.7	6.0
9	6.7	8.0	25	25	36	47	87	80	17	83	9.0	6.2
10	7.0	8.0	26	25	34	50	87	59	16	80	8.7	6.0
11	6.7	7.4	25	24	32	50	87	19	16	80	8.4	5.8
12	7.0	7.2	25	45	30	50	91	21	17	80	8.4	5.2
13	7.4	7.2	20	76	30	* 50	91	* 22	18	72	8.0	3.8
14	7.2	8.2	19	72	30	50	87	24	18	69	7.7	4.6
15	6.7	8.0	18	66	28	47	83	25	18	66	7.7	4.3
16	7.0	8.0	18	62	28	47	83	27	19	62	8.0	4.0
17	7.0	8.7	*17	59	26	47	80	30	*19	59	7.7	3.6
18	5.6	9.2	17	56	25	47	80	32	19	59	* 7.2	3.8
19	5.0	9.7	17	62	25	47	80	30	19	56	7.0	4.1
20	4.6	10	17	69	24	47	80	30	26	56	6.7	4.1
21	4.1	12	17	66	24	47	* 80	31	28	52	7.0	4.3
22	4.1	12	17	59	23	41	83	29	32	*43	8.2	4.3
23	4.6	14	17	56	22	36	87	28	30	16	9.0	*3.8
24	4.8	16	18	56	21	36	91	26	28	19	10	3.0
25	5.4	16	19	52	21	38	91	26	28	18	10	2.8
26	5.8	15	20	52	20	41	91	26	28	18	10	2.4
27	7.0	16	21	50	20	44	95	26	27	17	10	2.3
28	8.0	17	21	50	20	47	100	25	26	16	11	2.2
29	6.5	16	21	47	21	50	104	24	24	15	11	2.2
30	5.2	16	20	47	---	52	104	22	26	14	10	2.1
31	5.8	---	19	47	---	59	---	21	---	13	10	---
Total	192.7	310.6	615	1,395	872	1,363	2,558	1,550	643	1,318	291.4	148.2
Mean	6.22	10.4	19.8	45.0	30.1	44.0	85.3	50.0	21.4	42.5	9.40	4.94
Cfsm	0.054	0.090	0.172	0.391	0.262	0.383	0.742	0.435	0.186	0.370	0.082	0.043
In.	0.06	0.10	0.20	0.45	0.28	0.44	0.83	0.50	0.21	0.43	0.09	0.05

Calendar year 1963: Max 237 Min 2.5 Mean 38.1 Cfsm 0.331 In. 4.51
Water year 1963-64: Max 122 Min 2.1 Mean 30.8 Cfsm 0.268 In. 3.64

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Jan. 5.

GPO 820-311-4

3-3315. Tippecanoe River near Ora, Ind.

Location.--Lat 41°10', long 86°34', in NE¼ sec. 7, T. 31 N., R. 1 W., on right bank at downstream side of highway bridge, 1.3 miles southwest of Ora and 2.0 miles downstream from Osborn ditch.

Drainage area.--839 sq mi.

Records available.--September 1943 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Altitude of gage is 694 ft (by barometer). Prior to July 30, 1956, wire-weight gage on upstream side of bridge at same datum.

Average discharge.--21 years, 774 cfs.

Extremes.--Maximum discharge during year, 1,680 cfs July 13 (gage height, 9.14 ft); minimum, 103 cfs Sept. 17, 18 (gage height, 4.17 ft).
1943-64: Maximum discharge, 7,800 cfs Apr. 5, 1950 (gage height, 14.40 ft); minimum, that of Sept. 17, 18, 1964; minimum gage height, 4.15 ft Aug. 14, 1944, Oct. 16, 17, 1946.

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)
(Shifting-control method used Feb. 4-7, 15-23, Mar. 1-25, Apr. 14-20, May 6 to June 16, July 8-28)

4.1	90
4.4	148
5.0	282
7.0	840
9.0	1,550
10.0	2,020

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	158	148	201	150	400	179	840	1,070	179	223	258	148
2	*158	158	201	150	350	282	810	1,000	179	212	246	148
3	148	148	201	150	300	332	840	872	179	201	234	138
4	148	158	201	160	* 282	294	936	810	168	201	223	138
5	148	168	201	170	270	332	840	750	168	190	212	128
6	138	* 168	212	180	258	358	904	690	168	190	201	124
7	138	179	201	*190	246	358	1,170	634	201	258	201	120
8	138	179	223	190	220	332	1,280	606	201	715	190	114
9	138	168	234	190	210	358	1,170	550	190	1,280	179	* 112
10	138	168	234	190	200	438	1,030	466	179	1,390	168	108
11	138	168	234	190	200	438	968	*438	179	1,470	179	112
12	138	168	246	190	200	* 438	872	410	168	1,640	168	108
13	128	168	170	180	190	466	780	410	179	1,680	168	106
14	128	179	*150	180	190	550	690	384	190	1,600	158	106
15	128	190	150	180	190	634	634	358	328	1,390	158	106
16	128	190	140	200	190	606	606	332	564	1,240	158	106
17	128	190	140	250	190	522	550	358	522	1,070	148	106
18	128	190	140	300	190	494	522	332	410	904	148	114
19	138	179	140	350	190	438	522	319	384	780	138	138
20	138	179	140	466	190	410	550	294	522	634	138	158
21	138	201	140	578	179	438	840	282	690	550	148	212
22	138	223	140	634	179	466	1,210	258	662	522	168	234
23	138	246	140	634	168	466	1,210	246	*606	* 494	201	212
24	138	246	150	580	160	438	1,100	246	522	466	212	190
25	138	246	160	500	160	438	1,030	223	438	438	201	168
26	138	246	170	450	150	750	* 936	212	384	384	212	168
27	138	234	170	400	150	1,140	904	212	319	358	201	168
28	138	223	170	350	150	1,030	1,030	201	282	342	201	168
29	138	212	170	400	150	1,000	1,170	201	258	306	179	168
30	138	212	160	450	---------	968	1,170	201	246	282	168	158
31	138	----------	150	450	---------	904	----------	190	----------	270	158	----------
Total	4,288	5,732	5,479	9,632	6,102	16,297	27,114	13,555	9,665	21,680	5,722	4,284
Mean	138	191	177	311	210	526	904	437	322	699	185	143
Cfsm	0.164	0.228	0.211	0.371	0.250	0.627	1.08	0.521	0.384	0.833	0.220	0.170
In.	0.19	0.25	0.24	0.43	0.27	0.72	1.20	0.60	0.43	0.96	0.25	0.19

Calendar year 1963: Max 6,500 Min 128 Mean 465 Cfsm 0.554 In. 7.52
Water year 1963-64: Max 1,680 Min 106 Mean 354 Cfsm 0.422 In. 5.73

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 13 to Jan. 19, Jan. 24 to Feb. 3, Feb. 8-14, 24-29.

3-3323. Little Indian Creek near Royal Center, Ind.

Location.--Lat 40°53', long 86°35', in NW¼ sec. 13, T. 28 N., R. 2 W., on right bank at downstream side of county road bridge, 2.9 miles upstream from mouth, 3.2 miles downstream from Fredericks ditch, and 4.8 miles northwest of Royal Center.

Drainage area.--35.0 sq mi.

Records available.--July 1959 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 692.73 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 22.8 cfs.

Extremes.--Maximum discharge during year, 197 cfs Apr. 21 (gage height, 4.14 ft); minimum daily, 0.5 cfs Dec. 17-22; minimum gage height, 0.73 ft Sept. 15, 16.
1959-64: Maximum discharge, about 500 cfs Mar. 5, 1963 (gage height, unknown); minimum daily, that of Dec. 17-22, 1963; minimum gage height, 0.63 ft Mar. 16, 1960.
Maximum stage known, 11.2 ft in Spring of 1957, from information by local residents.

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

Rating tables, except periods of ice effect and indefinite stage-discharge relation
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 2 to Nov. 26)

Oct. 1 to Mar. 25		Mar. 26 to Sept. 30			
0.7	1.4	0.7	0.6	1.3	18
.8	2.8	.8	1.3	1.5	28
.9	5.0	.9	2.4	2.0	58
1.0	9.0	1.0	4.2	4.0	190
1.5	31	1.1	7.4		
2.0	60				

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 4.6	3.2	3.5	a 2.5	a 12	20	16	43	7.0	4.2	3.8	1.6
2	4.3	2.1	3.9	a 4.0	a 8.0	19	39	36	7.0	4.2	3.8	1.4
3	4.3	1.6	3.7	b 5.5	a 6.0	10	70	30	7.0	4.5	3.8	1.4
4	4.3	1.9	4.1	b 8.0	a 4.5	11	34	26	6.5	4.5	4.0	1.4
5	4.6	* 2.6	4.3	b 4.5	*a 6.0	13	26	22	6.5	4.5	3.7	1.2
6	4.1	2.1	4.3	b 3.0	5.8	9.0	95	20	9.0	11	3.5	1.0
7	3.9	1.7	4.6	b 2.7	5.0	7.0	106	19	25	57	3.3	1.0
8	3.9	1.4	6.6	a 2.5	b 4.5	6.6	64	19	20	76	3.1	1.0
9	4.1	1.4	5.8	a 5.0	b 4.2	18	37	18	16	30	2.9	1.0
10	3.7	1.4	4.6	b18	b 4.0	15	28	16	13	16	2.8	1.0
11	3.7	1.4	4.3	b12	b 4.5	11	22	15	11	9.7	2.4	.8
12	3.5	1.4	b 2.5	b 8.0	b 4.0	15	19	16	9.0	7.4	2.4	.8
13	3.5	1.4	a 1.3	b 6.0	b 4.0	17	18	17	8.0	6.1	2.8	.8
14	3.2	1.9	*a .8	b 4.5	b 4.0	24	14	*15	8.0	5.2	2.9	.8
15	3.5	1.6	a .6	b 4.0	b 5.0	15	12	14	10	4.5	2.8	.8
16	3.2	1.6	a .6	b 3.5	b 4.5	12	11	15	15	4.2	2.4	.8
17	3.2	1.9	a .5	b 3.3	b 4.0	9.4	9.7	14	7.4	4.2	* 2.1	.8
18	3.0	2.0	a .5	b 3.1	b 3.5	7.4	11	13	*6.4	5.8	2.2	1.1
19	3.7	2.0	a .5	b 3.0	b 3.3	* 7.0	16	15	5.8	5.8	2.1	1.4
20	3.2	2.9	a .5	b10	b 3.5	7.8	65	13	19	4.8	1.9	1.2
21	2.8	4.3	a .5	b50	b 3.5	11	176	12	66	6.4	2.6	.9
22	2.6	4.3	a .5	b45	b 3.5	10	127	11	66	* 9.7	4.5	* .8
23	2.6	6.6	a .6	b35	b 3.5	9.0	*94	10	27	6.1	3.8	.8
24	2.4	3.5	a 1.0	b28	b 3.5	8.6	49	10	15	5.2	2.4	.8
25	2.4	3.2	a 2.0	b22	b 3.5	49	36	10	9.7	6.4	2.2	.8
26	2.3	3.0	b 3.0	b19	b 3.5	155	30	12	7.1	6.4	2.1	.9
27	2.6	3.0	b 5.0	b16	b 3.5	67	39	10	6.1	5.2	2.1	1.2
28	2.4	3.2	b 3.5	b12	b 3.5	46	70	9.0	5.2	4.5	2.0	1.0
29	2.3	3.2	a 2.5	a11	b 3.5	34	55	8.5	4.8	4.2	1.8	.9
30	2.0	3.5	a 2.0	a11	---	24	61	8.0	4.2	4.0	1.6	.9
31	2.4	---	a 1.7	a15	---	19	---	7.5	---	4.0	1.4	---
Total	102.5	75.3	79.8	377.1	131.8	686.8	1449.7	504.0	427.7	331.7	85.2	30.3
Mean	3.31	2.51	2.57	12.2	4.54	22.2	48.3	16.2	14.3	10.7	2.75	1.01
Cfsm	0.095	0.072	0.073	0.349	0.130	0.634	1.38	0.463	0.409	0.306	0.079	0.029
In.	0.11	0.08	0.08	0.40	0.14	0.73	1.54	0.53	0.46	0.35	0.09	0.03

Calendar year 1963: Max 400 Min 0.5 Mean 13.8 Cfsm 0.394 In. 5.34
Water year 1963-64: Max 176 Min 0.5 Mean 11.7 Cfsm 0.334 In. 4.54

Peak discharge (base, 250 cfs).--No peak above base.

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Stage-discharge relation indefinite May 18 to June 15.

3-3324. Big Monon Creek near Francesville, Ind.

Location.--Lat 40°59', long 86°52', in NE¼ sec. 10, T. 29 N., R. 4 W., on right bank at downstream side of county road bridge, 1.1 miles east of Francesville, 1.6 miles downstream from unnamed tributary from right bank, and 10.2 miles upstream from mouth.

Drainage area.--145 sq mi.

Records available.--August 1959 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 653.17 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 113 cfs.

Extremes.--Maximum discharge during year, 312 cfs Apr. 21 (gage height, 4.36 ft); minimum, 6.5 cfs Sept. 30; minimum gage height, 1.17 ft Dec. 1.
1959-64: Maximum discharge, 2,100 cfs Apr. 24, 1961 (gage height, 13.27 ft); maximum gage height, 14.29 ft Mar. 6, 1963, (backwater from ice); minimum discharge, that of Sept. 30, 1964, minimum gage height, that of Dec. 1, 1963.
Maximum stage known, about 18.60 ft in Spring of 1957, from information by local residents.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 20 to Aug. 28, Sept. 19-30)

1.2	13
1.5	28
2.0	63
3.0	155
5.0	390

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*18	19	17	20	45	49	72	126	50	43	39	28
2	17	18	17	20	45	55	90	108	51	42	38	28
3	17	16	16	20	40	46	112	94	46	44	36	28
4	17	*20	22	20	37	45	90	86	49	43	41	35
5	18	19	19	21	*35	52	81	76	53	41	34	27
6	18	17	19	22	33	45	126	68	55	46	30	24
7	17	18	16	23	31	41	117	63	81	94	29	23
8	17	18	19	23	30	37	99	63	81	155	28	22
9	17	19	20	*23	29	45	81	63	72	117	26	*19
10	16	16	17	24	28	42	72	59	63	90	26	19
11	16	16	15	24	27	42	63	53	59	76	27	19
12	16	16	15	24	27	43	63	54	59	72	27	18
13	17	16	*14	24	26	49	59	55	63	68	29	17
14	17	17	14	23	25	49	53	* 53	63	63	24	16
15	17	17	13	23	25	44	50	48	72	59	23	15
16	17	16	13	25	26	38	47	48	108	55	22	14
17	16	16	13	30	27	34	44	47	108	53	19	13
18	23	17	12	35	26	33	45	43	104	76	20	15
19	19	16	12	40	25	*31	55	39	86	86	19	16
20	17	17	12	55	25	35	102	39	103	76	16	13
21	16	19	12	70	24	59	274	39	94	68	19	24
22	16	20	12	80	23	59	206	40	108	59	38	31
23	16	22	13	80	22	54	145	39	*90	*59	59	26
24	17	20	14	75	21	52	117	39	72	55	34	22
25	15	17	15	65	21	68	*99	42	59	54	28	15
26	15	17	18	55	21	145	94	44	55	51	25	15
27	16	17	25	45	20	90	112	47	52	49	24	21
28	16	20	28	40	20	86	135	47	48	48	25	22
29	17	17	26	40	20	81	185	49	46	45	26	18
30	16	17	24	40	----------	90	155	49	45	41	34	15
31	17	----------	22	40	----------	72	----------	49	----------	41	33	----------
Total	524	530	524	1,149	804	1,711	3,043	1,769	2,095	1,969	898	618
Mean	16.9	17.7	16.9	37.1	27.7	55.2	101	57.1	69.8	63.5	29.0	20.6
Cfsm	0.117	0.122	0.117	0.256	0.191	0.381	0.697	0.394	0.481	0.438	0.200	0.142
In.	0.13	0.14	0.13	0.30	0.21	0.44	0.78	0.45	0.54	0.50	0.23	0.16

Calendar year 1963 : Max 1,700 Min 12 Mean 64.6 Cfsm 0.446 In. 6.05
Water year 1963-64 : Max 274 Min 12 Mean 42.7 Cfsm 0.294 In. 4.01

Peak discharge (base, 1,200 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 10 to Feb. 29.

3-3325. Tippecanoe River near Monticello, Ind.

Location.--Lat 40°47', long 86°45', in sec. 21, T. 27 N., R. 3 W., at Norway plant of Northern Indiana Public Service Co., 2 miles north of Monticello.

Drainage area.--1,710 sq mi.

Records available.--October 1931 to September 1964.

Average discharge.--33 years, 1,431 cfs.

Extremes.--Maximum daily discharge during year, 3,400 cfs Apr. 21; minimum daily, 131 cfs Oct. 7, Sept. 7.
1931-64: Maximum daily discharge, 16,800 cfs June 13, 1958; minimum daily, 103 cfs July 27, 1934.

Remarks.--Discharge computed on basis of records of operation of powerplant and flow over dam.

Cooperation.--Records of daily discharge furnished by Northern Indiana Public Service Co.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	326	326	282	218	669	369	1,430	1,880	369	456	304	239
2	250	218	218	218	521	521	1,470	1,870	391	360	391	283
3	174	218	369	153	521	702	1,720	1,540	462	466	413	218
4	192	196	283	304	521	669	1,640	1,400	403	304	304	218
5	183	326	304	261	391	521	1,430	1,280	348	348	304	225
6	241	261	261	261	521	669	2,040	1,240	489	369	322	218
7	131	304	304	283	478	718	2,460	1,120	413	521	196	131
8	153	304	283	304	348	521	2,100	1,040	550	902	304	196
9	207	281	326	304	261	784	2,040	1,020	478	1,000	326	174
10	261	217	261	369	370	669	1,690	957	434	1,150	236	153
11	196	218	326	326	304	784	1,620	814	369	1,430	196	196
12	261	304	262	326	326	834	1,540	748	391	1,490	261	218
13	239	196	326	283	391	719	1,370	834	434	1,590	261	196
14	196	174	153	218	521	916	1,240	735	359	1,660	145	153
15	196	304	239	304	333	916	1,020	735	521	1,600	239	196
16	239	218	159	228	268	916	1,000	710	587	1,500	196	196
17	218	283	230	192	436	867	1,000	653	867	1,220	196	174
18	196	345	192	326	391	686	1,000	751	718	1,140	304	239
19	261	261	230	304	326	784	1,040	636	521	1,090	196	304
20	196	261	234	473	348	725	1,590	636	805	916	261	196
21	196	326	268	685	304	718	3,400	521	1,200	832	261	456
22	283	326	153	620	326	784	3,260	669	1,500	636	239	348
23	153	326	185	751	239	916	2,520	521	1,080	636	413	391
24	283	348	282	735	261	763	2,080	521	834	528	281	348
25	196	283	283	702	288	926	1,810	521	878	554	348	283
					413							
26	196	283	276	555	305	1,840	1,660	521	607	413	261	263
27	271	351	283	582	348	1,810	1,760	521	391	521	261	348
28	218	391	239	473	391	1,810	2,080	391	686	521	283	278
29	218	326	281	386		1,620	2,140	391	420	348	261	218
30	196	292	283	521	---	1,620	2,310	434	337	413	391	261
31	196	---	174	413	---	1,430	---	521	---	413	261	---
Total	5,722	8,467	7,949	12,078	11,120	28,527	53,460	26,131	17,842	25,327	8,615	7,317
Mean	217	282	256	390	383	920	1,782	843	595	817	278	244
Cfsm	0.127	0.165	0.150	0.228	0.224	0.538	1.04	0.493	0.348	0.478	0.163	0.143
In.	0.15	0.18	0.17	0.26	0.24	0.62	1.16	0.57	0.39	0.55	0.19	0.16

Calendar year 1963: Max 11,400 Min 131 Mean 764 Cfsm 0.446 In. 6.06
Water year 1963-64: Max 3,400 Min 131 Mean 583 Cfsm 0.341 In. 4.64

3-3330. Tippecanoe River near Delphi, Ind.

Location.--Lat 40°37', long 86°45', in sec. 16, T. 25 N., R. 3 W., on right bank 2 miles northeast of Springboro, 2 miles downstream from Big Creek, and 5 miles northwest of Delphi.

Drainage area.--1,857 sq mi.

Records available.--March to December 1903, March to December 1904, March 1905 to July 1906, November and December 1908, July 1939 to September 1964. Published as "at Springboro" 1903.

Gage.--Water-stage recorder (digital). Datum of gage is 552.01 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Mar. 14, 1903, to July 20, 1906, and Nov. 2 to Dec. 31, 1908, chain gage at site 5½ miles downstream at different datum.

Average discharge.--25 years (1939-64), 1,547 cfs.

Extremes.--Maximum discharge during year, 4,740 cfs Apr. 21 (gage height, 6.78 ft); minimum daily, 172 cfs Sept. 10.
1903-6, 1908, 1939-64: Maximum discharge, 22,600 cfs Feb. 10, 1959 (gage height, 15.10 ft); minimum daily, 1 cfs Nov. 2, 3, 1954, caused by repair work at Oakdale Dam, 6½ miles upstream.

Remarks.--Records good except those for period of ice effect, which are fair. Flow regulated by powerplant above station.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 20 to Aug. 29)

2.2	155
2.3	190
2.7	360
3.5	945
5.0	2,430
7.0	5,060

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	363	477	446	356	728	646	1,430	2,120	464	408	473	301
2	297	259	270	212	580	656	1,610	2,000	467	463	473	389
3	294	257	461	211	604	652	2,160	1,820	464	413	473	*301
4	296	269	273	385	528	799	1,820	1,660	570	414	473	288
5	299	541	485	253	462	634	1,580	1,230	372	317	335	261
6	303	265	279	320	715	771	* 2,480	1,440	583	247	261	260
7	305	420	378	288	429	572	2,590	1,340	582	564	265	260
8	309	261	459	315	426	701	2,390	1,150	668	1,280	265	257
9	313	402	490	546	429	901	2,200	1,240	543	885	413	233
10	318	271	274	345	494	663	1,840	1,170	495	1,330	261	172
11	318	406	456	376	286	938	1,680	936	455	1,680	372	320
12	321	267	382	427	357	1,020	1,670	887	461	1,810	233	204
13	321	256	350	368	423	708	1,430	989	462	1,710	249	204
14	320	261	400	247	598	1,030	1,390	959	526	1,950	222	204
15	319	400	250	367	422	1,020	1,090	843	634	1,930	222	202
16	318	261	350	244	421	1,010	1,130	916	656	1,710	225	202
17	299	401	322	295	422	1,010	1,100	726	1,030	1,420	265	217
18	270	371	b443	445	423	672	1,120	919	926	1,400	335	512
19	462	372	b548	394	424	821	1,200	712	589	1,300	222	476
20	241	399	b386	658	423	797	2,140	689	1,090	1,140	301	237
21	257	424	b539	746	358	952	3,890	619	1,230	1,010	345	444
22	423	458	257	754	397	795	3,610	750	1,630	798	390	395
23	260	446	188	935	257	1,010	2,720	647	* 1,160	734	446	542
24	261	376	375	855	294	828	2,330	577	892	* 707	315	371
25	324	440	320	754	*312	1,170	2,130	*607	1,040	521	320	270
26	269	441	306	558	526	2,260	1,890	605	587	556	355	332
27	401	448	259	810	418	1,850	1,990	682	400	653	265	477
28	258	435	399	*401	373	2,040	2,320	466	699	593	350	295
29	257	422	365	485	387	1,840	* 2,420	466	407	473	249	341
30	257	270	*206	575	------	1,660	2,520	462	451	466	521	265
31	* 261	------	209	636	------	1,610	------	673	------	466	308	------
TOTAL	9,514	10,976	11,145	14,564	12,916	32,036	59,870	30,300	20,533	29,348	10,202	9,232
MEAN	307	366	360	470	445	1,033	1,996	977	684	947	329	308
CFSM	.165	.197	.194	.253	.240	.556	1.07	.526	.368	.510	.177	.166
IN	.19	.22	.22	.29	.26	.64	1.20	.61	.41	.59	.20	.18

CALENDAR YEAR	1963	MAX	13,300	MIN	160	MEAN	908	CFSM	.489	INCHES	6.64
WATER YEAR	1963-64	MAX	3,890	MIN	172	MEAN	685	CFSM	.369	INCHES	5.02

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3334.5 Wildcat Creek near Jerome, Ind.

Location.--Lat 40°26'29", long 85°55'08", on line between secs. 13 and 14, T. 23 N., R. 5 E., on right bank at downstream side of bridge on county road, 1100 East, 0.5 miles downstream from Mud Creek and 1.5 miles southeast of Jerome.

Drainage area.--148 sq mi.

Records available.--July 1961 to September 1964.

Gage.--Water-stage recorder (digital after Aug. 31). Datum of the gage is 820.00 ft above mean sea level, datum of 1929 (unadjusted).

Extremes.--Maximum discharge during year, 4,160 cfs Apr. 20 (gage height, 11.80 ft); minimum, 1.8 cfs Sept. 12-15.
1961-64: Maximum discharge, that of Apr. 20, 1964; minimum, that of Sept. 12-15, 1964.
Maximum stage known, about 18 ft March 1913, from information by local residents.

Remarks.--Records good except those below 20 cfs and 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)
(Shifting-control method used Oct. 28 to Dec. 16, Jan. 7, 8, Feb. 3-8, Sept. 1-30)

1.3	1.1	3.0	180
1.4	2.6	4.0	410
1.5	4.9	5.0	690
1.7	12	7.0	1,400
1.8	18	10.0	2,950
2.0	35	11.0	3,600
2.4	80		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	2.6	3.1	1.9	10	18	134	335	22	24	11	4.3
2	1.9	2.6	3.3	1.9	11	85	306	250	21	25	10	4.2
3	1.9	2.8	3.3	2.0	* 12	190	1,320	200	21	25	* 11	4.0
4	1.9	2.8	3.3	2.2	10	204	930	160	20	23	10	3.6
5	1.9	3.8	3.3	2.4	10	600	540	134	19	20	10	3.4
6	1.9	3.8	3.3	2.8	14	322	570	110	21	33	9.0	3.4
7	1.9	4.0	3.3	* 3.3	23	150	600	95	20	1,340	9.0	3.3
8	2.0	3.3	3.5	4.0	20	110	460	88	19	2,470	9.0	3.0
9	2.0	3.1	4.2	6.0	17	150	310	78	19	965	8.0	2.7
10	2.0	3.1	3.8	8.0	15	550	* 240	67	17	485	8.0	2.6
11	2.0	3.1	3.5	6.0	13	350	180	*61	16	272	8.0	2.2
12	2.1	2.8	3.8	5.0	12	280	160	60	16	180	10	1.9
13	2.1	2.8	3.5	4.5	13	250	142	57	16	142	9.0	1.9
14	2.1	3.1	3.1	4.0	13	600	110	52	14	102	8.0	1.8
15	2.2	3.3	2.6	3.7	13	* 1,040	88	44	16	* 135	7.0	1.9
16	2.2	2.8	2.4	3.7	15	600	80	53	16	151	7.0	2.2
17	2.2	3.1	2.2	3.7	12	410	78	50	14	95	6.0	2.4
18	2.2	3.3	2.1	3.8	13	260	74	58	*13	70	6.0	3.4
19	2.4	3.5	2.1	4.0	15	200	288	45	12	58	7.0	4.6
20	2.5	3.5	2.0	6.0	15	170	*2,920	44	104	48	9.1	3.5
21	2.6	3.5	2.0	15	15	160	3,460	37	720	43	12	3.0
22	2.4	4.0	2.0	11	14	142	2,300	33	600	37	14	4.0
23	2.4	5.6	1.9	9.5	14	125	1,320	33	285	33	14	5.7
24	2.4	4.9	1.9	9.0	13	110	840	31	151	28	12	3.5
25	2.4	4.0	1.9	16	12	149	600	30	95	26	10	* 2.1
26	2.6	3.8	2.0	13	14	570	435	27	67	30	8.0	2.6
27	2.6	3.8	2.2	11	14	410	385	31	52	35	7.0	2.7
28	* 2.2	3.3	2.2	9.0	14	285	660	29	43	20	9.0	2.7
29	2.2	* 3.3	2.1	8.5	14	240	690	25	34	17	7.0	2.5
30	2.4	3.1	2.0	8.0	------	180	460	24	28	14	6.0	2.2
31	2.4	------	1.9	9.0	------	160	------	23	------	12	* 4.7	-------
Total	68.2	102.5	83.8	197.9	400	9,070	20,680	2,364	2,511	6,958	275.8	91.3
Mean	2.20	3.42	2.70	6.38	13.8	293	689	76.3	83.7	224	8.90	3.04
Cfsm	0.015	0.023	0.018	0.043	0.093	1.98	4.66	0.516	0.566	1.51	0.060	0.021
In.	0.02	0.03	0.02	0.05	0.10	2.28	5.20	0.59	0.63	1.74	0.07	0.02

Calendar year 1963: Max 2,810 Min 1.9 Mean 70.4 Cfsm 0.476 In. 6.47
Water year 1963-64: Max 3,460 Min 1.8 Mean 117 Cfsm 0.791 In. 10.75

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	Unknown	6.58	1,240	4-20	2000	11.80	4,160
3-14	Unknown	7.35	1,560	7-8	0100	10.27	3,130

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 17 to Jan. 6, Jan. 9 to Feb. 2. No gage-height record Oct. 1-27, Mar. 7-14; Aug. 1-19, 26-30, Sept. 20-22, 24, 25.

3-3330. Kokomo Creek near Kokomo, Ind.

Location.--Lat 40°26'28", long 86°05'20", midway on line between secs. 16 and 17, T. 23 N., R. 4 E., on left bank at upstream side of county road bridge, 3.4 miles southeast of Kokomo, and 4.2 miles upstream from mouth.

Drainage area.--24.3 sq mi.

Records available.--July 1959 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 807.68 ft above mean sea level, datum of 1929 (unadjusted).

Average discharge.--5 years, 16.7 cfs.

Extremes.--Maximum discharge during year, 1,040 cfs Apr. 20 (gage height, 9.88 ft); minimum, 0.4 cfs Oct. 1, 3, 4, 6, 10; minimum gage height, 1.46 ft Oct. 1.
1959-64: Maximum discharge, that of Apr. 20, 1964; minimum, 0.4 cfs Aug. 27, 28, Sept. 13-15, 1959, Oct. 1, 3, 4, 6, 10, 1963; minimim gage height, 1.30 ft Aug. 12, 27, 1959.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	1.0	0.7	.5	2.8	6.7	24	48	3.4	9.5	1.6	0.9
2	.5	.9	.8	.5	2.6	16	78	40	3.4	8.7	1.6	.9
3	.5	.8	.8	.6	*2.2	19	255	34	3.4	7.2	*1.9	.9
4	.5	.8	.8	.6	2.0	25	126	29	3.2	6.2	2.6	.9
5	.5	1.2	.8	.7	2.0	*47	78	24	3.2	5.4	1.5	.9
6	.5	1.0	.8	.8	3.4	22	98	20	3.4	15	1.1	.8
7	.5	.8	.8	*1.0	4.5	15	82	18	3.2	157	1.0	.8
8	.5	.8	1.3	1.0	2.6	16	55	17	2.8	295	.8	.8
9	.5	.8	1.3	2.0	2.3	82	41	14	2.5	110	.6	.8
10	.5	.7	1.2	1.8	1.9	78	*35	12	2.5	62	.6	.8
11	.5	.7	1.2	1.4	1.7	45	29	*11	2.5	38	.8	.8
12	.5	.8	1.2	1.2	1.6	41	26	11	2.6	41	.9	.8
13	.5	.7	1.1	1.0	1.7	61	24	9.8	3.0	28	1.1	.7
14	.5	.8	.8	.9	1.7	199	20	8.7	2.6	*14	1.0	.7
15	.5	.7	.7	.9	1.7	118	17	7.6	14	12	1.0	.7
16	.5	.7	.6	.9	1.7	58	16	7.6	5.7	7.6	1.0	.7
17	.5	.7	.5	.9	1.7	42	15	7.6	3.4	5.1	.9	.7
18	.5	.8	.5	1.0	1.7	31	15	6.5	*3.2	4.0	.9	.8
19	.5	.7	.5	1.1	1.9	25	75	5.9	3.0	3.2	.9	.8
20	.6	.8	.5	7.2	1.7	25	*685	6.9	19	2.5	.9	.8
21	.7	.7	.5	6.5	1.6	22	668	5.9	190	2.2	2.0	.8
22	.7	1.0	.5	6.2	1.6	17	345	5.4	110	2.0	1.9	.8
23	.7	1.2	.5	6.9	1.3	15	174	4.8	55	1.5	1.5	.8
24	.7	.9	.5	8.0	1.3	15	118	4.8	35	1.5	1.4	.7
25	.7	.8	.5	8.0	1.4	32	86	4.5	23	1.6	1.3	*.7
26	.7	.8	.5	5.1	1.7	110	62	7.0	17	1.7	1.3	.6
27	.7	.8	.5	3.4	1.7	55	66	7.6	14	2.0	1.2	.6
28	*.7	.8	.5	2.3	1.7	41	45	5.7	12	1.7	1.2	.6
29	.7	*.8	.5	2.0	1.7	35	86	4.8	11	1.5	1.3	.6
30	.7	.8	.5	1.9	------	29	62	4.3	11	1.4	1.2	.6
31	.7	------	.5	2.3	------	28	------	3.4	------	1.2	*1.0	------
Total	18.0	24.8	22.4	78.6	57.4	1,370.7	3,506	396.8	568	849.7	38.0	22.8
Mean	0.58	0.83	0.72	2.54	1.98	44.2	117	12.8	18.9	27.4	1.23	0.76
Cfsm	0.024	0.034	0.030	0.105	0.081	1.82	4.81	0.527	0.778	1.13	0.051	0.031
In.	0.03	0.04	0.03	0.12	0.09	2.10	5.37	0.61	0.87	1.30	0.06	0.03

Calendar year 1963 : Max 430 Min 0.5 Mean 12.1 Cfsm 0.498 In. 6.75
Water year 1963-64 : Max 685 Min 0.5 Mean 19.0 Cfsm 0.782 In. 10.64

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-3	0300	5.29	285	6-21	1130	5.14	265
4-20	1330	9.88	1,040	7-7	2100	6.51	410

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 17 to Jan. 19.

3-3337. Wildcat Creek at Kokomo, Ind.

Location.--Lat 40°28', long 86°09', in NW¼ sec. 2, T. 23 N., R. 3 E., on right bank in Kokomo, 0.3 mile downstream from Kokomo Creek, 0.4 mile upstream from Dixon Road Bridge and on property of Continental Steel Corporation.

Drainage area.--245 sq mi.

Records available.--October 1955 to September 1964.

Gage.--Water-stage recorder (digital Apr. 14-Sept. 30). Altitude of gage is 777 ft (from topographic map).

Average discharge.--9 years, 218 cfs.

Extremes.--Maximum discharge during year, 6,900 cfs Apr. 21 (gage height, 11.77 ft); minimum, 6.6 cfs Oct. 13; minimum gage height, 0.94 ft Sept. 7.

1955-64: Maximum discharge, 8,100 cfs Feb. 10, 1959 (gage height, 10.83 ft); minimum, 5.0 cfs Sept. 30, 1956, minimum gage height, that of Sept. 7, 1964.

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 Oct. 12-30)

Oct. 1 to Mar. 14

0.89	6.6	2.0	107
1.0	12	2.5	211
1.1	17	3.0	365
1.2	24	4.0	760
1.6	57	5.0	1,280

Mar. 15 to Sept. 30

1.0	15	2.4	220
1.1	20	3.0	410
1.3	33	4.0	840
1.6	60	8.0	3,500
1.9	100	12.0	7,100

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	22	31	13	b8.0	25	23	265	566	39	53	33	22
2	22	17	17	b8.0	24	57	374	462	33	51	28	24
3	22	13	20	b8.5	*25	55	1,550	374	33	43	*41	24
4	21	20	20	b9.0	27	1[illegible]4	1,540	319	32	39	43	22
5	19	36	19	b10	26	470	845	271	35	33	36	20
6	14	21	19	b11	43	510	790	232	40	114	*33	16
7	23	20	17	*13	31	280	840	193	36	1,100	30	15
8	14	20	25	21	27	a 220	650	175	35	3,260	30	22
9	14	17	20	71	23	a 3[illegible]	533	150	36	1,5[illegible]0	27	24
10	17	16	21	25	23	a 8[illegible]	*410	132	35	750	24	23
11	16	19	20	21	21	a 960	340	*120	32	478	42	21
12	12	20	21	17	21	a 800	295	110	34	394	31	17
13	7.9	22	20	b16	25	a 650	265	120	33	292	26	15
14	12	23	17	b16	23	a 600	223	104	25	*229	25	17
15	13	20	b15	b16	21	*a1,200	183	84	97	191	20	17
16	13	17	b12	b16	27	893	169	79	58	237	20	20
17	12	13	b11	b17	25	570	61	74	40	200	19	21
18	14	26	b10	21	24	45	64	81	*35	135	21	42
19	13	20	b9.0	30	25	340	271	86	43	101	23	29
20	12	22	b9.0	60	27	295	4,260	83	128	88	24	20
21	15	24	b8.5	38	29	250	*6,320	67	540	75	47	20
22	16	39	b8.5	33	28	23[illegible]	3,730	60	840	69	39	24
23	16	32	b8.0	34	25	205	2,110	54	498	60	28	23
24	16	14	b8.0	62	25	175	1,260	61	301	58	26	25
25	16	17	b8.0	47	25	235	[illegible]	57	196	55	25	*23
26	16	2[illegible]	b9.0	29	25	470	666	74	130	46	24	21
27	11	17	b9.0	29	24	650	642	74	95	49	23	21
28	*17	14	b8.5	27	23	510	879	62	74	51	37	18
29	1[illegible]	*14	b8.5	2[illegible]	2[illegible]	410	961	49	67	45	26	19
30	1[illegible]	1[illegible]	b8.5	26	------	340	720	45	60	41	20	20
31	25	------	b8.	41	------	2[illegible]	------	46	------	36	*19	------
TOTAL	496.9	622	427.5	795.0	744	13,610	32,276	4,467	4,019	10,174	597	656
MEAN	16.0	20.7	13.8	25.6	25.7	439	1,076	144	134	328	20.9	21.9
CFSM	.065	.085	.056	.105	.105	1.79	4.39	.588	.547	1.34	.085	.089
IN.	.07	.09	.06	.12	.11	2.07	4.90	.68	.61	1.54	.10	.10

CALENDAR YEAR 1963 MAX 2,620 MIN 7.9 MEAN 111 CFSM .453 INCHES 6.15
WATER YEAR 1963-64 MAX 6,320 MIN 7.9 MEAN 189 CFSM .771 INCHES 10.49

Peak discharge (base, 2,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-21	0200	11.77	6,900				
7-8	1230	8.01	3,500				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3340. Wildcat Creek at Owasco, Ind.

Location.--Lat 40°27'50", long 86°38'15", in SE¼SE¼ sec. 4, T. 23 N., R. 2 W., on left bank, 500 ft downstream from State Highway 39 bridge, half a mile northwest of Owasco and 5 miles upstream from South Fork Wildcat Creek.

Drainage area.--390 sq mi.

Records available.--October 1943 to September 1964. Prior to March 1944, monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder (digital Apr. 29-Sept. 30). Datum of gage is 624.63 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1950, wire-weight gage 500 ft upstream at same datum.

Average discharge.--21 years, 365 cfs.

Extremes.--Maximum discharge during year, 10,000 cfs Apr. 21 (gage height, 11.75 ft), minimum daily, 23 cfs Dec. 20-24, 30, 31, Jan. 1, minimum gage height, Sept. 16, 1.7.
1943-64: Maximum discharge, 10,200 cfs Jan. 5, 1950 (gage height, 13.3 ft), from rating curve extended above 6,700 cfs, minimum observed, 10 cfs Sept. 25, 1944.
Flood of May 18, 1943, reached a stage of 14.0 ft, from floodmarks.

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 Aug. 4 to Sept. 3)

Oct. 1 to Mar. 15, Apr. 22, to Sept. 30

1.0	20	3.0	455
1.3	39	5.0	1,520
1.7	80	7.0	2,820
2.2	165	9.0	4,860
2.6	280	11.4	9,200

1.4	56	3.0	520
1.8	116	5.0	1,520
2.2	211		

Note.--Same as preceding table above 5.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	34	31	23	74	65	410	1,030	89	117	69	37
2	26	54	34	24	76	118	517	890	80	108	63	35
3	26	56	33	24	64	175	1,940	745	78	101	53	39
4	27	45	31	25	55	175	2,470	605	74	88	50	33
5	27	33	35	27	60	399	2,120	520	72	78	69	31
6	32	31	36	30	60	805	1,520	445	81	68	56	33
7	33	51	38	32	79	605	1,460	378	139	167	55	35
8	30	41	48	37	83	340	1,290	340	120	1,580	54	32
9	30	43	51	45	72	505	985	312	79	2,720	53	29
10	29	41	51	70	68	1,120	745	270	68	2,400	50	32
11	38	34	45	78	* 59	1,520	610	252	63	955	47	35
12	26	31	49	47	54	1,220	520	236	107	680	46	31
13	27	30	45	43	51	1,000	431	224	188	765	61	29
14	30	33	41	40	54	1,280	389	230	107	485	*49	28
15	*27	*39	30	38	53	1,760	* 332	*197	113	465	46	*27
16	25	47	* 25	38	54	1,940	296	173	145	410	44	26
17	24	44	24	38	53	1,140	279	249	118	356	41	25
18	25	41	24	38	52	* 790	211	215	*92	328	37	34
19	28	35	24	43	52	610	355	175	76	236	36	41
20	32	36	23	60	51	475	2,090	165	115	188	43	54
21	28	39	23	150	52	410	* 7,480	165	1,300	171	54	41
22	27	43	23	110	50	370	3,200	145	1,660	* 163	71	32
23	29	54	23	90	48	332	5,960	129	1,190	133	71	31
24	39	69	23	88	45	314	3,160	120	715	111	74	32
25	38	55	24	100	42	354	2,000	123	455	103	50	32
26	33	45	25	140	42	835	1,400	135	328	98	42	32
27	31	43	26	82	40	1,080	1,120	277	242	88	35	35
28	41	41	26	76	40	935	1,350	206	185	86	32	33
29	28	37	25	68	40	665	1,470	145	151	91	31	34
30	27	34	23	*64	----------	542	1,380	118	131	84	50	31
31	28	----------	23	67	----------	475	----------	96	----------	78	42	----------
Total	919	1,259	982	1,835	1,623	22,354	53,490	9,360	8,361	13,501	1,574	999
Mean	29.6	42.0	31.7	59.2	56.0	721	1,783	302	279	436	50.8	33.3
Cfsm	0.076	0.108	0.081	0.152	0.144	1.85	4.57	0.774	0.715	1.12	0.130	0.085
In.	0.09	0.12	0.09	0.17	0.15	2.13	5.10	0.89	0.80	1.29	0.15	0.10

Calendar year 1963: Max 6,500 Min 20 Mean 711 Cfsm 0.541 In. 7.36
Water year 1963-64: Max 9,200 Min 23 Mean 318 Cfsm 0.815 In. 11.09

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-21	2400	11.75	9,900				
7-10	0300	7.39	3,120				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 30, Feb. 23 to 29.

3-3345. South Fork Wildcat Creek near Lafayette, Ind.

Location.--Lat 40°25'04", long 86°46'05", in SW¼ sec. 21, T. 23 N., R. 3 W., on right bank 40 ft upstream from bridge on State Highway 26, one-half mile upstream from Middle Fork, 4¼ miles upstream from mouth, and 5 miles east of Lafayette.

Drainage area.--246 sq mi.

Records available.--October 1943 to September 1964. Prior to March 1944 monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 563.45 ft above mean sea level (State Highway Department of Indiana bench mark). Prior to July 29, 1954, wire-weight gage at site 40 ft downstream at same datum.

Average discharge.--21 years, 234 cfs.

Extremes.--Maximum discharge during year, 10,800 cfs Apr. 20 (gage height, 14.64 ft); minimum, 16 cfs Sept. 8-9; minimum gage height, 1.23 ft Oct. 16.
1943-64: Maximum discharge, 12,600 cfs June 10, 1958 (gage height, 15.28 ft), from rating curve extended above 6,000 cfs on basis of contracted-opening measurement at 16.8 ft, minimum, 15 cfs Sept. 18, 19, 22, 1944.
Flood in May 1943 reached a stage of 16.8 ft, from floodmarks (discharge, 17,900 cfs, by contracted-opening method).

Remarks.--Records poor.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 14-25, Mar. 2-22, Mar. 25 to Apr. 3)

Oct. 1 to Apr. 3

1.1	17	2.2	215
1.2	26	3.0	466
1.4	50	5.0	1,260
1.8	120		

Apr. 4 to Sept. 30

1.3	12	5.0	1,260
1.5	42	8.0	2,670
1.9	122	11.0	5,020
2.3	220	14.0	9,600
3.0	460		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	26	27	19	74	46	215	540	94	127	47	20
2	23	25	27	18	65	161	272	440	86	115	46	21
3	23	25	26	18	58	318	1,220	362	84	107	42	21
4	23	25	27	19	50	318	1,180	310	74	100	40	20
5	23	28	27	22	50	288	780	265	72	92	40	19
6	23	33	27	25	58	503	940	235	78	96	37	19
7	23	33	27	27	74	303	980	208	78	107	36	18
8	22	28	30	30	87	258	740	195	76	145	36	17
9	22	27	32	35	77	660	500	182	86	220	34	17
10	23	27	30	50	72	1,020	380	158	74	162	32	20
11	23	26	30	66	*56	780	310	134	62	127	*31	19
12	23	25	32	50	52	700	265	143	64	109	34	20
13	23	26	28	40	58	700	235	140	152	98	36	21
14	22	*28	26	35	52	940	208	140	107	107	34	20
15	*22	27	24	31	52	900	182	*122	96	265	32	19
16	21	27	*22	30	52	580	*170	118	148	220	31	*20
17	22	26	20	30	50	396	155	170	109	145	30	22
18	22	26	20	31	52	*288	152	208	*82	235	29	28
19	23	26	19	35	50	244	500	152	72	208	30	31
20	24	28	19	50	50	230	6,170	138	297	109	26	29
21	24	29	18	120	49	230	3,410	118	2,720	107	27	23
22	22	36	18	80	45	202	3,420	107	1,870	*92	30	22
23	22	50	18	70	44	188	1,770	100	1,060	80	30	28
24	22	46	18	66	41	176	1,300	96	620	74	27	23
25	22	34	18	90	40	202	1,020	94	400	68	23	22
26	24	30	19	110	40	700	820	121	280	64	25	22
27	24	30	19	90	40	580	700	480	220	60	25	25
28	24	29	19	80	40	380	780	250	182	58	24	25
29	23	28	20	85	40	303	780	168	160	55	24	22
30	23	27	20	*80	------	258	620	127	138	53	24	22
31	27	------	20	64	------	230	------	104	------	49	23	------
Total	709	881	727	1,596	1,568	13,082	35,174	6,125	9,641	3,654	985	655
Mean	22.9	29.4	23.5	51.5	54.1	422	1,172	198	321	118	31.8	21.8
Cfsm	.093	0.120	0.096	0.096	0.220	1.72	4.76	0.805	1.30	0.480	0.129	0.087
In.	0.11	0.13	0.11	0.11	0.24	1.98	5.31	0.93	1.45	0.55	0.15	0.10

Calendar year 1963: Max 4,720 Min 18 Mean 130 Cfsm 0.527 In. 7.15
Water year 1963-64: Max 8,410 Min 17 Mean 204 Cfsm 0.831 In. 9.52

Peak discharge (base, 3,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-20	1900	14.64	10,800				
6-21	1700	9.16	3,450				

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 30, Feb. 24-29.

3-3350. Wildcat Creek near Lafayette, Ind.

Location.--Lat 40°26'26", long 86°49'46", on line between north half of secs. 13 and 14, T. 23 N., R. 4 W., on downstream side of county highway bridge, 2 miles east of corporate limits of Lafayette, 2½ miles upstream from mouth, and 3 miles downstream from South Fork Wildcat Creek.

Drainage area.--791 sq mi.

Records available.--May 1954 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 527.66 ft above mean sea level, datum of 1929 (Indiana Flood Control and Water Resources Commission bench mark). Prior to June 13, 1957, wire-weight gage at present site and datum.

Average discharge.--10 years, 737 cfs.

Extremes.--Maximum discharge during year, 18,300 cfs Apr. 21 (gage height, 18.36 ft); minimum, 46 cfs Sept. 6, 7 (gage height, 2.36 ft). 1954-64: Maximum discharge, 25,000 cfs June 10, 1958 (gage height, 21.52 ft), from rating curve extended above 18,000 cfs by logarithmic plotting; minimum, 46 cfs Sept. 27-29, 1954, Sept. 6, 7, 1964; minimum gage height, 2.36 ft, Sept. 6, 7, 1964.

Remarks.--Records fair. There is evidence of minor regulation or diversion above the gage.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 27 to Sept. 30)

Oct. 1-15				Oct. 15 to Sept. 30			
2.5	56	2.6	78	2.4	32	4.0	700
				2.6	69	8.0	3,900
				2.8	121	14.0	10,300
				3.0	186	17.0	15,300
				3.5	405	18.0	18,300

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	74	72	50	170	130	732	2,200	265	332	169	72
2	71	74	72	50	150	372	944	1,720	257	310	155	57
3	71	86	72	52	130	700	4,100	1,400	245	265	140	59
4	69	94	72	54	120	732	4,100	1,170	229	257	124	57
5	71	89	72	58	130	1,170	3,540	1,030	213	237	127	49
6	74	82	74	64	140	1,400	3,450	895	229	237	133	47
7	71	79	76	68	140	1,170	3,180	765	270	241	124	57
8	69	86	84	90	150	830	2,600	700	455	1,430	121	69
9	65	82	94	110	150	1,240	1,960	635	288	3,000	116	65
10	67	82	94	150	130	2,200	1,560	575	229	3,540	113	65
11	69	79	92	200	*120	2,360	1,240	515	198	1,560	107	72
12	71	72	92	150	110	2,200	1,030	485	206	960	99	76
13	69	67	86	120	110	2,040	895	485	575	960	107	72
14	67	69	80	100	110	2,440	765	485	380	765	*107	69
15	*64	*76	74	90	110	2,680	635	*430	310	798	94	*69
16	55	89	* 68	86	110	2,680	* 575	380	355	830	92	69
17	55	94	62	86	110	1,960	515	485	355	605	92	74
18	55	82	58	90	110	*1,320	430	635	265	700	72	86
19	59	76	54	100	110	1,030	1,110	455	* 229	575	67	102
20	65	76	52	150	110	830	9,380	405	593	405	86	110
21	69	82	50	320	110	765	17,600	380	5,500	332	102	113
22	67	97	50	* 230	100	668	*14,900	355	4,900	* 310	110	94
23	65	116	50	200	100	575	9,940	332	3,180	265	127	99
24	67	118	50	180	95	545	6,510	310	1,960	249	110	84
25	74	118	50	250	95	605	4,200	288	1,240	225	99	84
26	76	97	52	320	95	1,800	3,090	310	830	217	84	82
27	76	89	56	260	100	1,960	2,520	1,100	635	202	79	86
28	72	86	56	230	100	1,640	2,680	798	515	198	69	89
29	74	82	56	210	110	1,240	2,840	515	405	213	69	89
30	69	76	54	190	------	960	2,680	380	355	186	74	86
31	69	------	52	180	------	830	------	310	------	169	94	------
Total	2,106	2,569	2,076	4,488	3,425	41,072	109,701	20,928	23,666	20,573	3,262	2,302
Mean	67.9	85.6	67.0	145	118	1,325	3,657	675	856	664	105	76.7
Cfsm	0.086	0.108	0.085	0.183	0.149	1.68	4.62	0.853	1.08	0.839	0.133	0.097
In.	0.10	0.12	0.10	0.21	0.16	1.94	5.16	0.98	1.20	0.97	0.15	0.11

Calendar year 1963: Max 9,590 Min 50 Mean 392 Cfsm 0.496 In. 6.74
Water year 1963-64: Max 17,600 Min 47 Mean 651 Cfsm 0.823 In. 11.20

Peak discharge (base, 6,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-21	1400	18.36	18,300				
6-21	unknown	11.00	6,950				

*Discharge measurement on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Feb. 29 (no gage-height record Dec. 18 to Jan. 5).

3-3355. Wabash River at Lafayette, Ind.

Location.--Lat 40°25'19", long 86°53'49", in sec. 20, T. 23 N., R. 4 W., on right bank 20 ft downstream from Brown Street Bridge in Lafayette, 5.1 miles downstream from Wildcat Creek, and at mile 311.9.

Drainage area.--7,247 sq mi.

Records available.--February 1901 to January 1902, March to December 1902, January to May 1903, (gage heights only), October 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1305. Gage-height records collected at same site since October 1913 are contained in reports of U. S. Weather Bureau. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder. Datum of gage is 504.14 ft above mean sea level, datum of 1929. Oct. 7, 1923 to Nov. 20, 1933, chain gage at same site and datum. Prior to May 2, 1903, staff gage half a mile upstream at different datum.

Average discharge.--41 years (1923-64), 6,244 cfs.

Extremes.--Maximum discharge during year, 58,300 cfs Apr. 23 (gage height, 20.89 ft); minimum, 477 cfs Sept. 11 (gage height, 0.51 ft) 1901-3, 1923-64: Maximum discharge, 131,000 cfs May 19, 1943 (gage height, 28.47 ft); minimum, 265 cfs Jan. 12, 1954, minimum gage height, 0.24 ft Aug. 15, 18, 1901.
Maximum stage known, 32.9 ft Mar. 26, 1913, from floodmark, determined by U. S. Weather Bureau (discharge, 190,000 cfs, estimated).

Remarks.--Records good, except for periods of ice effect and no gage-height record, which are poor. Flow regulated at low stages by powerplants upstream.

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

0.5	470	15.0	28,000
1.2	1,040	19.0	46,5000
3.0	3,230	21.0	59,000
10.0	15,000		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	650	690	820	b 700	b 1,800	1,040	5,770	13,000	2,170	1,920	1,290	730
2	690	905	810	700	1,920	2,040	5,610	12,800	1,920	1,800	1,240	730
3	650	730	800	700	1,680	2,820	13,000	10,200	1,920	1,680	1,190	770
4	610	730	800	700	1,560	3,800	25,200	8,530	1,920	1,560	1,190	690
5	650	995	800	700	1,450	4,850	29,200	7,210	1,800	1,560	1,190	650
6	650	905	800	720	1,450	9,550	27,700	6,570	1,680	1,560	1,040	610
7	610	770	800	740	1,560	10,600	26,800	5,770	1,920	1,680	950	610
8	610	950	820	760	1,190	8,360	25,900	5,300	2,300	8,970	905	610
9	610	770	840	840	1,190	6,570	21,000	4,850	2,170	20,000	860	575
10	650	905	850	1,000	1,290	10,600	14,600	4,550	1,800	17,000	950	575
11	650	770	860	850	* 1,190	16,600	10,700	4,100	1,680	10,200	* 860	505
12	650	860	850	770	1,090	13,200	8,530	3,800	1,680	7,210	905	610
13	610	730	830	720	1,190	17,800	7,210	3,650	2,040	5,770	815	540
14	* 610	690	800	700	1,240	16,200	6,250	3,800	1,920	5,450	815	540
15	610	* 720	750	700	1,340	20,800	* 5,450	3,800	1,920	5,150	815	* 540
16	610	740	*680	750	1,190	* 25,900	5,000	* 3,800	1,920	4,700	815	540
17	610	760	690	800	1,140	21,000	4,550	3,650	2,820	3,950	770	540
18	610	760	730	1,000	1,140	12,600	4,400	3,370	3,950	4,100	815	708
19	610	760	770	1,200	1,140	8,700	4,700	3,510	3,370	3,230	815	995
20	815	780	730	1,600	1,140	6,730	13,400	3,090	3,510	3,090	730	1,240
21	610	800	b710	2,100	1,090	5,770	36,200	2,820	7,530	2,560	905	1,140
22	610	900	b690	3,000	1,040	5,000	53,100	2,560	*10,740	2,430	1,040	1,090
23	770	1,200	b670	b3,000	950	4,550	* 57,600	2,560	8,870	*2,170	1,040	1,140
24	650	1,100	b660	b2,600	730	4,400	54,300	2,300	7,050	1,920	1,040	1,040
25	650	1,000	b640	b2,400	860	4,700	44,700	2,170	5,150	1,920	950	860
26	690	960	b640	b2,200	995	8,020	30,400	2,300	4,100	1,560	950	815
27	650	920	b640	b2,000	1,190	15,400	17,500	2,690	3,090	1,560	905	860
28	815	900	b650	b1,800	1,040	13,400	* 14,600	2,950	2,690	1,560	860	905
29	690	860	b660	b1,500	950	9,550	21,200	3,370	3,090	1,450	860	815
30	650	830	b680	b1,600	---------	7,850	22,900	2,820	2,040	1,400	815	730
31	650	---------	b700	b1,700	---------	6,570	---------	2,430	---------	1,290	860	---------
Total	20,200	23,390	23,170	40,550	35,735	309,970	613,470	149,320	93,760	130,400	29,185	22,703
Mean	652	846	747	1,308	1,232	9,999	20,620	4,817	3,292	4,206	941	757
Cfsm	0.090	0.117	0.103	0.180	0.170	1.38	2.84	0.665	0.454	0.580	0.130	0.104
In.	0.10	0.13	0.12	0.21	0.18	1.59	3.17	0.77	0.52	0.67	0.15	0.12

Calendar year 1963: Max 60,000 Min 610 Mean 3,245 Cfsm 0.448 In. 6.07
Water year 1963-64: Max 57,600 Min 505 Mean 4,109 Cfsm 0.567 In. 7.73

* Discharge measurement made this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 15 to Dec. 16, Jan. 2-22.

3-3357. Big Pine Creek near Williamsport, Ind.

Location.--Lat 40°19', long 87°17', in SE¼ sec. 26, T. 22 N., R. 8 W., on upstream side of highway bridge, 1.6 miles north of city limits of Williamsport, and 2.5 miles upstream from mouth.

Drainage area.--329 sq mi.

Records available.--October 1955 to September 1964.

Gage.--Wire-weight gage, read twice daily, and crest-stage gage. Datum of gage is 511.68 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--9 years, 244 cfs.

Extremes.--Maximum discharge during year, 7,980 cfs Apr. 20 (gage height, 13.25 ft); minimum daily, 7.6 cfs Sept. 12-14; minimum gage height observed, 2.66 ft Aug. 26.
1955-64: Maximum discharge, 12,600 cfs Feb. 10, 1959 (gage height, 16.00 ft from floodmark), from rating curve extended above 6,000 cfs on basis of contracted-opening measurement; minimum daily, 7.0 cfs Oct. 10, 1956.

Remarks.--Records poor.

Rating table, except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

2.6	9.0	4.5	380
2.8	20	5.0	590
3.0	36	7.0	1,640
3.3	70	9.0	3,200
3.6	120	11.0	5,200
4.0	210		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.3	13	12	7.8	24	21	360	400	50	85	38	12
2	8.4	12	12	7.8	23	29	635	340	49	79	36	11
3	8.4	12	12	7.8	22	41	870	305	48	76	34	11
4	8.5	12	12	8.0	21	54	725	270	48	76	31	10
5	8.5	12	11	8.8	23	65	635	225	48	70	27	9.0
6	8.6	14	11	10	27	73	590	210	47	62	26	8.6
7	9.0	13	11	11	32	70	635	198	47	62	23	8.4
8	9.5	13	11	12	31	67	545	185	46	67	21	8.2
9	9.2	13	11	14	a27	140	460	185	44	79	20	8.0
10	8.6	13	11	19	a25	132	340	160	40	65	*19	7.8
11	8.6	13	11	26	a24	124	288	150	32	50	18	7.7
12	8.3	* 13	11	19	a23	124	240	150	32	65	18	7.6
13	8.3	13	11	16	*a22	120	*198	140	34	120	18	7.6
14	* 8.5	13	10	14	a21	132	198	*130	36	126	17	7.6
15	9.0	13	9.3	13	21	150	172	122	40	198	16	7.8
16	10	13	8.6	12	21	110	138	116	38	240	15	8.2
17	10	13	8.4	12	21	*80	128	109	* 32	420	14	*9.1
18	11	13	8.2	13	21	76	124	100	27	568	14	11
19	11	13	8.0	15	20	60	365	75	27	1,170	15	13
20	13	13	* 7.8	25	21	57	4,910	70	54	*545	16	12
21	14	13	7.8	50	20	48	3,020	67	1,260	340	22	11
22	14	15	7.8	35	19	46	2,130	66	1,400	255	32	10
23	13	19	7.8	28	18	45	1,640	65	820	185	42	9.7
24	13	17	7.8	32	17	45	1,070	62	460	150	27	9.4
25	14	14	7.8	36	17	46	770	62	255	120	18	9.4
26	13	13	7.8	44	17	56	635	60	185	94	13	9.4
27	13	13	7.8	35	16	120	545	64	160	73	16	11
28	12	12	7.9	32	16	322	500	65	132	57	18	12
29	12	12	8.0	29	16	340	460	61	113	48	16	11
30	12	12	8.0	28	------	240	440	57	100	45	15	11
31	14	------	7.8	26	------	185	------	54	------	42	13	------
Total	328.7	397	293.6	646.2	626	3,218	23,766	4,324	5,704	5,632	668	289.5
Mean	10.6	13.2	9.47	20.8	21.6	104	792	139	190	182	21.5	9.65
Cfsm	0.032	0.040	0.029	0.063	0.066	0.316	2.41	0.422	0.578	0.553	0.065	0.029
In.	0.04	0.04	0.03	0.07	0.07	0.37	2.69	0.48	0.65	0.63	0.07	0.03

Calendar year 1963: Max 5,320 Min 7.8 Mean 114 Cfsm 0.347 In. 4.72
Water year 1963-64: Max 4,910 Min 7.6 Mean 125 Cfsm 0.380 In. 5.17

Peak discharge (base, 2,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-20	0800	13.25	7,980				

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation indefinite or affected by ice Oct. 1 to Feb. 4, Feb. 21-29, Mar. 16-27 and Aug. 30-Sept. 30.

3-3360. Wabash River at Covington, Ind.

Location.--Lat 40°08'24", long 87°24'20", in sec. 35, T. 20 N., R. 9 W., rear center of span or downstream side of highway bridge at Covington, 2.3 miles downstream from Opossum Run, 3.6 miles upstream from Spring Creek, and at mile 271.1.

Drainage area.--6,268 sq mi.

Records available.--October 1939 to September 1964. Gage-height records collected at site three-eighths of a mile downstream January 1927 to December 1930 and at present site since December 1930 are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage read twice daily. Datum of gage is 473.97 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 62,500 cfs Apr. 24 (gage height, 25.10 ft), minimum discharge, 630 cfs Sept. 13-15, 17 (gage height, 2.95 ft).

1939-64: Maximum discharge, 147,000 cfs May 20, 1943 (gage height, 32.44 ft), minimum observed, 487 cfs Sept. 29, 1941 (gage height, 1.81 ft).

Maximum stage known, 35.1 ft in March 1913, from floodmark determined by U. S. Weather Bureau (discharge, 200,000 cfs estimated).

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)

2.9	630	19.0	27,200
6.0	4,000	22.0	40,200
15.0	17,800	25.0	61,700

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	770	820	920	780	2,200	1,020	5,550	22,000	2,740	2,520	1,640	970
2	720	820	920	780	2,080	1,070	5,100	19,100	2,740	2,410	1,530	970
3	720	820	920	780	2,080	1,070	8,680	14,300	2,410	2,300	1,530	920
4	720	870	920	780	1,970	1,750	15,500	11,200	2,190	2,190	1,420	870
5	770	920	920	800	1,640	3,880	21,300	9,480	2,190	1,750	1,420	870
6	720	920	920	800	1,530	5,810	24,200	8,050	2,190	2,080	1,420	820
7	770	920	920	820	1,530	9,800	25,000	7,450	2,190	2,080	1,420	820
8	720	920	920	860	1,530	9,800	25,000	6,550	2,190	2,080	1,370	820
9	720	870	970	1,000	1,530	7,900	25,100	5,950	2,190	12,700	1,270	770
10	720	920	970	1,100	1,370	8,200	22,000	5,530	2,080	17,200	*1,120	720
11	675	920	970	950	1,320	12,700	15,900	4,990	2,080	14,900	1,070	720
12	675	* 920	970	840	1,270	16,200	11,200	4,360	2,080	9,960	1,070	675
13	675	920	920	780	*1,220	17,000	* 9,320	4,240	2,300	6,550	1,120	630
14	* 720	920	840	760	1,220	16,700	7,750	4,120	2,520	5,390	1,120	* 630
15	770	870	760	760	1,170	16,400	6,850	4,000	2,300	5,810	1,070	630
16	770	870	720	800	1,170	19,100	5,950	4,240	2,190	5,390	1,020	630
17	770	870	700	900	1,270	* 20,600	5,390	4,120	*2,300	4,860	970	630
18	820	920	700	1,100	1,370	18,500	5,120	* 4,000	2,960	4,730	970	675
19	870	920	700	1,400	1,320	12,400	5,950	3,760	3,880	5,950	970	820
20	870	920	700	2,000	1,270	8,360	15,800	3,760	4,360	*4,860	970	1,120
21	920	970	700	2,600	1,220	6,700	29,000	3,520	12,200	3,290	1,020	1,270
22	820	1,020	700	* 3,400	1,170	5,530	* 36,600	3,180	15,200	3,180	1,120	1,270
23	820	1,120	700	3,700	1,120	5,120	51,700	2,960	14,300	2,850	1,270	1,170
24	870	1,220	700	3,500	1,020	4,730	60,900	2,850	10,800	2,630	1,220	1,120
25	820	1,120	700	3,000	1,020	4,600	58,600	2,630	7,900	2,410	1,170	1,120
26	820	1,070	700	2,500	1,020	7,000	57,000	2,300	6,400	2,300	1,120	1,070
27	820	1,070	700	2,100	1,020	11,700	37,100	2,190	4,480	1,970	1,020	920
28	820	1,020	700	1,800	970	15,600	25,100	2,190	3,640	1,970	970	870
29	870	970	720	1,700	970	12,500	* 20,200	2,190	3,130	1,970	920	870
30	820	920	740	1,800	---------	9,480	21,700	2,520	2,740	1,860	970	820
31	820	----------	780	2,000	---------	7,600	----------	2,630	----------	1,640	970	----------
Total	24,185	24,350	25,120	46,890	39,590	298,820	670,560	180,360	130,920	141,780	36,260	26,210
Mean	780	945	810	1,513	1,365	9,639	22,350	5,818	4,364	4,574	1,170	874
Cfsm	0.095	0.115	0.099	0.184	0.166	1.17	2.72	0.709	0.532	0.557	0.143	0.106
In.	0.11	0.13	0.11	0.21	0.18	1.35	3.04	0.82	0.59	0.64	0.16	0.12

Calendar year 1963: Max 60,000 Min 675 Mean 3,670 Cfsm 0.447 In. 6.05
Water year 1963-64: Max 60,900 Min 630 Mean 4,506 Cfsm 0.549 In. 7.46

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Feb. 1 (no gage-height record Dec. 15 to Jan. 6).

3-3390. Vermilion River near Danville, Ill.

Location.--Lat 40°05'53", long 87°35'37", in SE¼NW¼ sec. 22, T. 19 N., R. 11 W., on left bank 1.5 miles upstream from Stony Creek and 2¾ miles southeast of Danville.

Drainage area.--1,279 sq mi.

Records available.--October 1914 to September 1921, June 1928 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 503.33 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Nov. 12, 1914, to Aug. 6, 1921, and June 13, 1928, to Jan. 9, 1935, chain gage at downstream side of Chicago & Eastern Illinois Railroad bridge 0.3 mile upstream at same datum.

Average discharge.--43 years, 890 cfs.

Extremes.--Maximum discharge during year, 26,100 cfs Apr. 21 (gage height, 24.82 ft); minimum, 31 cfs Dec. 25-26.
1914-21, 1928-64: Maximum discharge, 48,700 cfs Mar. 13, 1939 (gage height, 28.59 ft); minimum daily, 2 cfs Oct. 9-14, 1920, Aug. 10, 1930.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Flow regulated at times by storage at Lake Vermilion on North Fork Vermilion River, 4½ miles above station (usable capacity, 7,440 acre-ft in 1940), and by Danville sewage-disposal plant.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	45	39	b 37	120	99	525	2,250	173	475	104	a 50
2	40	44	40	40	102	111	558	1,780	173	430	97	a 48
3	40	45	39	37	104	120	1,710	1,340	182	455	95	a 46
4	40	46	37	37	104	138	2,440	1,110	185	556	80	a 45
5	37	55	37	39	93	167	1,860	991	185	585	71	a 45
6	36	54	37	40	93	188	2,670	900	197	624	65	a 44
7	35	49	36	48	102	200	3,680	942	219	830	74	a 44
8	37	49	40	52	80	206	2,860	970	1,720	956	65	a 43
9	36	54	42	* 59	82	* 229	1,990	900	1,120	574	59	* 42
10	37	45	* 41	60	88	390	1,500	795	335	* 485	60	46
11	40	40	41	55	73	495	1,160	718	243	335	59	49
12	39	40	b 40	b 50	73	490	1,020	676	200	465	52	49
13	37	* 39	b 38	b 47	80	515	900	658	182	405	* 48	48
14	35	39	b 36	b 44	86	742	742	612	182	304	45	49
15	35	40	b 35	b 41	78	760	652	a 550	185	390	44	49
16	37	42	b 34	40	80	612	580	a 500	173	640	42	46
17	39	44	b 34	41	82	490	552	a 460	158	505	41	44
18	39	49	b 34	41	84	410	536	a 420	135	682	41	59
19	51	48	b 33	40	88	358	1,950	a 380	123	1,570	42	69
20	60	42	b 33	55	* 95	353	13,100	a 350	844	1,050	44	82
21	92	45	b 33	86	93	525	* 25,200	a 320	9,470	590	45	91
22	97	73	b 33	153	82	530	22,800	a 300	12,100	405	a 120	85
23	* 62	91	b 33	440	80	480	15,200	a 280	* 7,780	348	a 80	62
24	49	63	b 33	415	80	415	* 11,200	a 260	3,390	270	a 60	57
25	49	104	35	410	84	468	5,720	246	2,080	203	88	59
26	46	84	33	b 300	86	1,790	4,280	* 226	1,540	182	a 70	55
27	45	57	34	b 170	82	1,960	3,580	215	1,210	167	a 60	62
28	55	46	37	b 120	82	1,270	3,320	212	991	152	a 65	60
29	51	41	37	130	91	984	3,000	206	754	130	a 56	57
30	45	39	b 36	138	------	795	2,580	191	546	111	a 54	76
31	44	------	b 35	123	------	640	------	182	------	113	a 52	------
Total	1,424	1,552	1,125	3,388	2,547	16,930	140,865	19,940	46,774	14,989	1,979	1,641
Mean	45.9	51.7	36.3	109	87.8	546	4,696	643	1,559	484	63.8	54.7
Cfsm	0.036	0.040	0.028	0.085	0.069	0.427	3.67	0.503	1.22	0.378	0.050	0.043
In.	0.04	0.05	0.03	0.10	0.07	0.49	4.10	0.58	1.36	0.44	0.06	0.05

Calendar year 1963 : Max 17,100 Min 33 Mean 463 Cfsm 0.362 In. 4.92
Water year 1963-64 : Max 25,200 Min 33 Mean 692 Cfsm 0.541 In. 7.37

Peak discharge (base, 6,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-21	1100	24.82	26,100				
6-22	0800	17.55	12,900				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3395. Sugar Creek at Crawfordsville, Ind.

Location.--Lat 40°02'56", long 86°53'58", in NW¼ sec. 32, T. 19 N., R. 4 W., on left bank 327 ft upstream from Crawfordsville Electric Light and Power Co.'s dam, half a mile upstream from bridge on State Highway 43, and 1 mile downstream from Walnut Fork Creek.

Drainage area.--509 sq mi.

Records available.--June 1938 to September 1964.

Gage.--Water-stage recorder (digital starting Aug. 17). Datum of gage is 657.77 ft above mean sea level, datum of 1929.

Average discharge.--26 years, 471 cfs.

Extremes.--Maximum discharge during year, 21,800 cfs Apr. 21 (gage height, 13.40 ft); minimum daily, 9.8 cfs Oct. 2, 10, 11, 14, 15; minimum gage height, 1.03 ft Sept. 11-14.
1938-64: Maximum discharge, 26,300 cfs June 28, 1957 (gage height, 14.48 ft), minimum, 1.8 cfs Sept. 28, 1954.
Maximum stage known, 17.3 ft in March 1913, from information by local resident (discharge, about 36,000 cfs).

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

Rating table, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 18-23)

1.0	8.6	3.0	1,460
1.1	24	4.0	3,350
1.5	143	7.0	7,420
2.0	371	11.0	14,600
2.4	640	12.6	19,100

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	20	22	12	66	74	429	1,060	104	123	53	30
2	9.8	20	22	12	62	360	460	860	110	117	50	24
3	11	20	22	13	60	491	1,920	640	117	126	47	22
4	11	*20	20	15	60	491	2,400	526	107	188	44	20
5	11	24	20	18	65	1,550	1,640	460	104	158	40	18
6	11	27	20	20	*86	1,290	1,920	371	107	126	38	16
7	11	24	20	25	110	740	2,120	333	107	133	35	15
8	12	22	22	*30	97	590	1,550	307	107	140	34	15
9	*11	22	24	50	113	4,380	1,060	282	*92	234	31	15
10	9.8	22	* 27	70	92	4,650	740	253	89	180	*29	14
11	9.8	22	27	90	71	2,970	600	229	80	140	32	13
12	11	22	25	70	68	2,590	491	*229	80	150	37	13
13	11	20	22	45	80	2,400	* 460	220	173	123	37	13
14	9.8	22	20	40	68	*3,160	400	208	184	147	39	14
15	9.8	22	17	35	66	2,400	333	188	150	1,460	34	* 14
16	11	22	15	32	68	1,550	302	173	150	* 990	29	14
17	12	22	14	31	66	1,130	277	229	113	477	29	15
18	11	24	13	30	71	800	262	208	98	369	32	19
19	14	29	12	35	68	600	991	173	89	281	33	21
20	16	27	12	100	68	526	10,200	184	845	206	29	22
21	20	29	11	190	66	491	19,100	162	2,780	164	26	22
22	18	46	11	160	60	460	g 9,790	143	2,300	138	32	20
23	16	71	11	150	51	400	g 5,040	136	1,120	119	33	19
24	16	60	11	160	51	371	g 3,900	130	560	104	31	17
25	16	48	11	210	50	615	2,210	123	366	94	29	17
26	16	37	12	190	50	1,830	1,640	205	262	86	27	16
27	16	32	13	140	50	1,380	1,640	200	212	78	25	18
28	16	27	13	100	50	860	2,400	150	180	71	25	18
29	16	24	13	90	50	640	2,120	126	154	66	26	* 18
30	16	22	12	80	------	526	1,380	117	136	61	23	19
31	16	------	12	70	------	491	------	110	------	56	38	------
Total	406	849	526	2,313	1,983	40,806	77,775	8,735	11,076	6,905	1,047	531
Mean	13.1	28.3	17.0	74.6	68.4	1,316	2,592	282	369	223	33.8	17.7
Cfsm	0.026	0.056	0.033	0.147	0.134	2.59	5.09	0.554	0.725	0.438	0.066	0.035
In.	0.03	0.06	0.04	0.17	0.14	2.99	5.68	0.64	0.81	0.50	0.08	0.04

Calendar year 1963: Max 14,400 Min 9.8 Mean 307 Cfsm 0.603 In. 8.20
Water year 1963-64: Max 19,100 Min 9.8 Mean 418 Cfsm 0.821 In. 11.18

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	2300	5.00	4,910				
4-21	1000	13.40	21,800				

* Discharge measurement made on this day.
g Gage height based on graph of observer readings.
Note.--Stage-discharge affected by ice Dec. 12 to Feb. 3, Feb. 25-29.

GPO 821-311-5

3-3400. Sugar Creek near Byron, Ind.

Location.--Lat 39°55'52", long 87°07'33", in SW¼ sec. 8, T. 17 N., R. 6 W., on right bank, 30 ft upstream from highway bridge, 2½ miles northwest of Byron and 5 miles downstream from Indian Creek.

Drainage area.--668 sq mi.

Records available.--October 1940 to September 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 538.92 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 18, 1941, staff gage at same site and datum.

Average discharge.--24 years, 641 cfs.

Extremes.--Maximum discharge during year, 24,000 cfs Apr. 21 (gage height, 18.71 ft); minimum daily, 24 cfs Dec. 21-25; minimum gage height, 1.80 Sept. 8, 9.
1940-64: Maximum discharge, 32,200 cfs June 28, 1957 (gage height, 22.98 ft); minimum observed 12 cfs Sept. 21, 1941; minimum gage height observed, 1.70 ft Aug. 8, 1941.

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. 9

1.8	27	4.3	960
2.1	63	6.0	2,150
2.5	141	9.0	5,250
3.1	340	10.0	6,600

Mar. 10 to Sept. 30

1.8	32	6.0	2,150
2.0	56	9.0	5,250
2.4	132	14.0	13,100
3.0	315	18.5	23,500
4.0	780		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	33	45	48	26	140	104	559	1,320	164	182	76	53
2	31	44	48	27	130	437	593	1,090	172	167	73	44
3	31	43	48	28	120	708	2,390	917	182	169	69	39
4	31	*44	48	32	118	793	2,540	757	171	227	67	37
5	31	52	48	40	120	1,890	1,630	655	163	230	61	34
6	31	56	47	50	* 179	1,680	2,420	571	173	196	58	32
7	30	52	48	60	193	981	2,170	509	175	188	56	30
8	30	50	60	* 76	149	887	1,580	476	221	200	54	30
9	*30	48	62	100	170	6,180	* 1,120	438	* 159	272	51	32
10	30	47	*57	130	141	5,420	869	393	142	267	* 50	31
11	30	47	53	150	110	3,510	716	361	129	207	49	31
12	30	47	52	140	105	2,890	615	* 374	121	184	52	31
13	31	48	45	100	110	2,680	567	353	194	184	51	30
14	30	50	40	85	101	* 3,140	504	337	278	162	51	* 30
15	31	52	36	75	95	2,530	434	305	229	977	49	36
16	33	50	32	70	103	1,580	394	279	212	*1,170	46	38
17	34	50	30	67	103	1,160	367	317	175	657	44	39
18	35	55	28	65	101	891	365	343	146	499	44	47
19	42	56	26	70	101	697	1,570	278	135	391	43	56
20	42	55	25	200	99	631	14,700	265	1,200	284	42	54
21	39	59	24	430	92	627	23,300	257	3,520	226	46	53
22	42	86	24	350	90	582	12,500	233	2,600	188	49	55
23	41	127	24	300	86	512	4,970	219	1,450	163	54	55
24	41	92	24	300	84	478	*3,250	207	832	142	49	50
25	39	77	24	450	81	943	2,350	199	595	127	47	48
26	39	66	25	430	80	2,200	1,760	233	406	116	45	49
27	39	59	26	330	80	1,480	2,160	382	323	106	42	53
28	38	55	28	212	80	1,230	2,820	248	265	98	42	51
29	38	50	28	180	81	839	2,180	207	229	91	41	*52
30	38	50	27	160	------	685	1,640	185	203	85	41	52
31	39	------	26	150	------	617	------	172	------	81	63	------
TOTAL	1,079	1,712	1,161	4,823	3,241	48,781	93,033	12,886	14,927	8,235	1,603	1,272
MEAN	34.8	57.1	37.5	156	112	1,574	3,101	415	498	266	51.7	42.4
CFSM	.052	.086	.056	.234	.169	2.36	4.64	.621	.746	.398	.077	.064
IN	.06	.10	.06	.27	.18	2.72	5.19	.72	.83	.46	.09	.07

CALENDAR YEAR 1963 MAX 15,900 MIN 24 MEAN 395 CFSM .591 INCHES 8.03
WATER YEAR 1963-64 MAX 23,300 MIN 24 MEAN 527 CFSM .789 INCHES 10.73

Peak discharge (base, 6,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	0830	10.73	7,620				
4-21	1715	18.71	24,000				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Feb. 3, Feb. 22 to 29.

3-3405. Wabash River at Montezuma, Ind.

Location.--Lat 39°47'33", long 87°22'26", in sec. 35, T. 16 N., R. 9 W., in downstream side of first pier from left bank of bridge on U. S. Highway 36 at Montezuma, 2.0 miles upstream from Raccoon Creek, 4.9 miles downstream from Sugar Creek, and at mile 240.

Drainage area.--11,100 sq mi, approximately.

Records available.--October 1927 to September 1964 in reports of Geological Survey. July 1924 to September 1927 (gage heights only) in reports of Indiana Department of Conservation.

Gage.--Water-stage recorder. Datum of gage is 457.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Oct. 1 1927 to Sept. 11, 1934, chain gage and Sept. 12, 1934 to July 12, 1950, wire-weight gage, at same site and datum.

Average discharge.--37 years, 9,300 cfs.

Extremes.--Maximum discharge during year, 76,700 cfs Apr. 24 (gage height, 26.43 ft); minimum daily, 860 cfs Dec. 20, 21; minimum gage height, 1.95 ft Sept. 13.
1927-64: Maximum discharge, 184,000 cfs May 20, 1943 (gage height, 32.83 ft); minimum observed, 560 cfs Sept. 24, 1941, minimum gage height, 1.43 ft Aug. 3, 10, 1934.
Maximum stage known, 34.0 ft Mar. 27, 1913, from floodmarks (discharge, 230,000 cfs, estimated).

Remarks.--Records good except those for periods of ice effect and 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)
(Shifting-control method used May 3 to June 8 and July 29 to Aug. 22)

1.9	830	18.0	31,400
2.5	1,480	22.0	46,600
7.0	8,350	27.0	61,500

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,000	1,000	1,290	1,000	b 3,000	1,610	9,420	23,600	3,410	4,130	2,290	1,290
2	955	1,000	1,170	1,000	2,850	*1,870	8,350	27,400	3,270	3,830	2,150	1,290
3	955	1,000	1,110	1,000	2,570	2,850	10,000	22,200	3,130	3,690	2,150	1,170
4	955	1,110	1,170	1,000	2,290	3,550	19,200	17,000	2,990	3,690	2,010	1,170
5	955	1,110	1,110	1,000	2,150	5,510	23,400	13,800	2,850	3,550	2,010	1,110
6	955	* 1,110	1,230	1,000	2,290	6,650	27,400	12,000	2,850	3,410	1,870	1,060
7	955	1,290	1,110	1,000	* 2,430	9,060	30,900	10,400	2,850	3,550	1,870	1,060
8	*955	1,230	1,230	1,100	2,290	11,000	* 30,400	9,600	3,270	3,690	1,680	1,000
9	955	1,170	1,170	1,200	2,290	20,400	29,900	8,700	4,580	7,400	1,540	955
10	955	1,230	1,230	1,300	2,010	21,000	28,600	7,840	* 3,980	16,400	1,480	* 955
11	910	1,110	1,290	1,300	1,870	18,000	24,400	7,330	3,410	17,000	1,480	955
12	910	1,170	1,290	1,100	1,870	20,600	17,600	6,820	3,130	12,600	1,420	910
13	910	1,060	1,100	950	1,870	22,400	13,400	6,310	3,130	*3,880	* 1,350	870
14	910	1,110	1,000	960	1,740	22,400	11,200	6,150	3,410	7,330	1,350	910
15	910	1,060	950	980	1,870	21,600	9,600	5,990	3,550	6,650	1,290	870
16	910	1,060	940	1,100	1,870	21,400	8,520	5,830	3,270	7,500	1,230	870
17	955	1,110	940	1,200	1,870	22,200	7,670	5,830	3,270	6,820	1,230	870
18	955	1,170	920	1,300	1,740	22,200	6,990	* 5,510	3,270	6,310	1,170	910
19	955	1,110	900	1,500	1,740	18,000	9,420	5,350	4,130	5,990	1,170	1,060
20	1,000	1,170	960	1,800	1,740	12,200	25,100	5,030	5,030	7,150	1,170	1,170
21	1,000	1,230	860	2,500	1,740	10,000	56,800	4,880	14,800	5,670	1,170	1,420
22	1,110	1,420	880	3,500	1,680	9,420	74,300	4,580	25,200	4,580	1,230	1,540
23	1,060	1,740	900	4,300	1,610	8,520	73,500	4,280	25,600	4,130	1,540	1,480
24	1,000	1,650	900	b 4,600	1,480	7,840	* 76,700	4,130	20,000	3,690	1,680	1,350
25	1,060	1,680	900	b 5,000	1,420	7,500	75,100	3,980	13,200	3,410	1,680	1,420
26	1,000	1,540	900	b 4,500	1,480	11,800	63,200	3,690	9,420	3,130	1,540	1,350
27	955	1,480	940	b 3,500	1,480	14,000	53,700	3,690	7,500	2,850	1,420	1,230
28	1,000	1,420	980	b 2,500	1,610	17,800	50,500	3,830	6,150	2,710	1,480	1,170
29	1,000	1,290	1,000	2,100	1,610	17,200	* 39,600	3,830	5,190	2,570	1,350	* 1,230
30	1,060	1,290	1,000	2,300	- - - - - -	13,400	32,600	3,980	4,730	2,570	1,290	1,170
31	1,000	- - - - - -	*1,000	2,700	- - - - -	11,000	- - - - -	3,830	- - - - -	2,430	1,290	- - - - - -
Total	30,165	37,150	32,270	60,230	56,460	412,980	963,470	263,390	200,570	174,320	47,580	33,815
Mean	973	1,238	1,041	1,945	1,947	13,320	32,120	8,496	6,686	5,752	1,535	1,127
Cfsm	0.088	0.112	0.094	0.175	0.175	1.20	2.89	0.765	0.602	0.518	0.138	0.102
In.	0.10	0.12	0.11	0.20	0.19	1.38	3.22	0.88	0.67	0.60	0.16	0.11

Calendar year 1963: Max 68,000 Min 860 Mean 5,037 Cfsm 0.454 In. 6.13
Water year 1963-64: Max 76,700 Min 860 Mean 6,329 Cfsm 0.570 In. 7.74

Peak discharge (base, 30,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-8	1300	17.63	30,400				
4-24	2100	26.43	76,700				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 13 to Jan. 23 and Jan. 29-31.

3-3408. Big Raccoon Creek near Fincastle, Ind.
(Formerly published as Raccoon Creek near Fincastle)

Location.--Lat 39°48'45", long 86°57'14", in SW¼ sec. 22, T. 16 N., R. 5 W., on left bank at downstream side of county road bridge, 8,350 ft upstream from Ramp Creek and 3.1 miles northwest of Fincastle.

Drainage area.--132 sq mi.

Records available.--August 1957 to September 1964. Prior to October 1963, published as Raccoon Creek near Fincastle. Sediment records collected since 1959 by the Indiana Flood Control and Water Resources Commission.

Gage.--Water-stage recorder. Datum of the gage is 686.03 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 130 cfs.

Extremes.--Maximum discharge during year, 11,600 cfs Apr. 21 (gage height, 15.15 ft); minimum discharge, 1.7 cfs Sept. 15, 16 (gage height, 1.66 ft).
1957-64: Maximum discharge, 15,100 cfs Jan. 26, 1962; maximum gage height, 15.68 ft Jan. 26, 1962 (ice jam), minimum discharge, that of Sept. 15-16, 1964.
Maximum flood known, 39,900 cfs June 28, 1957 (gage height, 19.10 ft) from slope-area measurement.

Remarks.--Records good except those above 3,200 cfs which are fair, and 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 Oct. 1 to Dec. 10)

Oct. 1 to Mar. 8

1.5	1.0	2.5	82
1.6	3.7	3.0	156
1.7	9.0	4.0	342
2.0	33	5.0	600

Mar. 9 to Sept. 30

1.6	1.0	2.0	11	3.2	159	10.0	2,680
1.7	2.2	2.2	21	4.0	329	11.0	3,250
1.8	4.2	2.4	37	6.0	900	13.0	5,550
1.9	7.0	2.7	71	9.0	2,180	14.0	7,650

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	6.6	5.6	4.0	20	32	85	250	23	19	6.1	12
2	2.7	5.6	5.6	4.0	19	164	88	199	23	16	5.8	6.4
3	2.7	5.6	5.6	4.0	19	173	811	159	27	16	*5.6	4.8
4	2.4	*4.6	5.6	4.2	19	240	570	127	23	17	5.1	3.6
5	2.4	6.1	5.6	4.5	19	660	403	106	20	16	4.5	3.2
6	2.7	6.1	5.6	5.0	*36	342	630	91	23	16	4.2	2.8
7	2.7	5.6	5.6	6.0	67	236	447	82	23	17	4.0	2.6
8	3.0	5.1	7.6	*8.0	50	344	283	77	*21	19	4.0	2.4
9	*2.7	4.6	7.8	20	46	*4,890	*209	69	20	19	3.8	2.2
10	2.7	4.1	*7.2	14	35	1,920	159	61	17	16	3.8	2.2
11	3.0	4.1	6.6	10	28	870	121	57	16	14	3.8	2.2
12	4.1	3.7	5.8	8.0	26	840	99	*64	17	14	4.8	2.2
13	4.6	3.7	5.4	7.7	26	*810	90	59	19	13	3.6	2.2
14	5.1	4.1	5.0	7.4	24	690	69	53	19	15	3.2	2.2
15	5.1	4.1	4.5	7.2	23	428	52	47	18	17	3.8	*1.9
16	5.6	3.7	4.2	7.0	25	329	45	70	16	16	4.0	1.8
17	5.6	3.3	4.0	7.0	23	239	40	264	15	*36	3.8	1.8
18	6.6	3.3	3.8	7.0	23	179	40	90	14	29	3.8	2.8
19	8.4	3.3	3.7	15	23	135	838	61	13	19	3.8	3.6
20	8.4	3.7	3.6	110	23	127	3,430	76	22	14	3.8	3.6
21	7.8	3.7	3.6	70	23	131	6,070	60	461	12	4.2	3.2
22	7.8	6.6	3.6	60	22	105	1,550	47	356	11	4.8	4.2
23	7.2	13	3.6	52	21	88	690	41	159	9.8	4.8	5.1
24	6.6	14	3.7	50	20	81	630	37	84	9.4	4.5	3.6
25	6.1	11	3.8	140	20	133	428	35	58	7.4	4.2	3.0
26	6.1	9.8	4.0	70	20	353	305	31	42	7.0	4.2	2.8
27	6.1	7.8	4.2	50	20	219	666	32	34	6.7	4.0	3.2
28	5.6	7.2	4.5	35	20	179	720	31	29	6.1	4.2	*3.2
29	5.6	6.6	4.5	28	20	149	428	27	24	5.8	4.5	2.8
30	5.1	6.1	4.5	25	------	114	329	26	21	5.6	5.1	2.8
31	5.6	------	4.2	22	------	106	------	24	------	6.4	6.7	------
Total	153.1	176.8	152.8	862	760	15,306	20,325	2,453	1,657	445.2	136.5	100.4
Mean	4.94	5.89	4.93	27.8	26.2	494	678	79.1	55.2	14.4	4.40	3.35
Cfsm	0.037	0.045	0.037	0.211	0.198	3.74	5.14	0.599	0.418	0.109	0.033	0.025
In.	0.04	0.05	0.04	0.24	0.21	4.31	5.74	0.69	0.47	0.13	0.04	0.03

Calendar year 1963: Max 4,570 Min 2.4 Mean 93.3 Cfsm 0.707 In. 9.59
Water year 1963-64: Max 6,070 Min 1.8 Mean 116 Cfsm 0.879 In. 11.99

Peak discharge (base, 1,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	1100	13.68	6,900				
4-21	0900	15.15	11,600				

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Feb. 3, Feb. 23-24, 26-29.

3-3409. Big Raccoon Creek at Ferndale, Ind.
(Formerly published as Raccoon Creek at Ferndale)

Location.--Lat 39°41'44", long 87°05'01", in SW¼ sec. 33, T. 15 N., R. 6 W., on right bank, 1.2 miles southwest of Ferndale, 1.7 miles northeast of Mansfield, 2.0 miles upstream from Rocky Fork Creek, and 2.4 miles downstream from Mansfield Reservoir dam.

Drainage area.--215 sq mi.

Records available.--October 1956 to September 1964. Prior to October 1963, published as Raccoon Creek at Ferndale.

Gage.--Water-stage recorder. Datum of gage is 582.36 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--8 years, 232 cfs (adjusted for change in contents).

Extremes.--Maximum discharge during year, 2,400 cfs Mar. 21 (gage height, 8.22 ft); mininum daily, 8.8 cfs Dec. 14-28; minimum gage height, 1.22 ft Dec. 14-19, 24-29.
1956-64: Maximum discharge, 40,500 cfs June 28, 1957 (gage height, 19.87 ft) from rating extended above 5,000 cfs on basis of records for station at Mansfield; minimum daily, 2.7 cfs Oct. 11, 1956.

Remarks.--Records good. Flow regulated since October 1960 by Mansfield Reservoir (capacity, 132,840 acre-ft).

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 18-30)

1.2	7.2
1.3	15
1.4	25
1.8	75
2.6	225
4.0	605
6.0	1,360
8.1	2,350

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	192	192	19	11	49	23	704	94	52	43	42	42
2	192	203	13	11	49	106	663	93	52	43	42	42
3	192	203	12	11	44	172	148	91	52	42	42	42
4	192	203	11	11	34	*180	94	402	52	41	42	42
5	192	203	10	11	*34	268	125	1,000	53	40	42	42
6	192	214	10	11	38	322	*125	1,000	53	42	*43	42
7	*192	*214	9.5	11	58	81	94	1,000	54	42	44	42
8	192	214	11	13	71	186	91	1,000	*51	42	44	42
9	192	203	10	*28	71	204	88	1,000	49	41	44	*42
10	192	203	9.5	25	71	125	88	1,000	48	41	44	41
11	192	203	9.5	33	54	96	86	992	46	41	44	41
12	203	203	9.5	46	47	102	86	496	46	41	44	41
13	203	192	9.5	71	48	94	868	*1,000	46	41	44	41
14	203	192	8.8	65	48	89	1,000	1,000	46	41	43	41
15	203	192	8.8	51	48	88	1,000	1,000	46	* 42	43	41
16	203	192	8.8	37	48	86	962	868	44	42	43	41
17	203	192	* 8.8	27	47	86	833	482	44	41	43	100
18	203	192	8.8	22	47	86	51	1,000	44	43	43	134
19	203	225	8.8	26	48	85	128	1,000	44	42	43	134
20	225	236	8.8	121	48	946	424	1,000	44	42	43	134
21	236	236	8.8	182	47	2,300	202	1,000	47	42	44	134
22	225	283	8.8	182	47	2,350	109	1,000	65	42	44	134
23	214	308	8.8	134	46	2,300	128	1,000	80	42	44	162
24	214	225	8.8	125	46	1,400	109	1,000	80	42	43	172
25	214	203	8.8	162	46	97	97	1,000	80	42	43	162
26	203	260	8.8	182	46	88	97	1,040	80	42	43	162
27	203	283	8.8	134	46	85	165	1,000	80	42	42	162
28	203	260	8.8	94	46	85	112	559	80	42	44	* 162
29	203	236	9.5	64	40	81	99	58	78	42	43	162
30	203	99	11	52	------	306	96	52	52	42	43	162
31	192	------	11	49	------	704	------	52	--------	42	43	-------
Total	6,271	6,464	307	2,002	1,412	13,221	8,872	23,279	1,688	1,295	1,338	2,741
Mean	202	215	9.9	64.6	48.7	426	296	751	56.3	41.8	43.2	91.4
(ƒ)	-226	-181	+1.6	+2.6	+29.6	+289	+850	-607	0	-32.5	-17.9	-134
Adjusted for change in contents in Mansfield Reservoir												
Mean	-24	34	11.5	67.2	78.3	715	1,146	144	56.3	9.3	25.3	-42.6
Cfsm	-0.112	0.158	0.053	0.313	0.364	3.33	5.33	0.670	0.262	0.043	0.118	-0.198
In.	-0.13	0.18	0.06	0.36	0.39	3.84	5.95	0.77	0.29	0.05	0.14	-0.22

	Observed					Adjusted				
Calendar year 1963:	Max 2,000	Min 8.8	Mean 139	Mean 142	Cfsm 0.660	In. 8.75				
Water year 1963-64:	Max 2,350	Min 8.8	Mean 188	Mean 184	Cfsm 0.856	In. 11.8				

* Discharge measurement made on this day.
ƒ Change in contents, equivalent in cubic feet per second, in Mansfield Reservoir, furnished by Corps of Engineers.
Note.--Stage-discharge relation affected by ice Dec. 19-24.

3-3412. Little Raccoon Creek near Catlin, Ind.

Location.--Lat 39°40'38", long 87°13'38", in NW¼ sec. 7, T. 14 N., R. 7 W., on left bank at downstream side of county road bridge, 300 ft downstream from unnamed tributary from left bank, 0.4 mile upstream from Sunderland Branch, 1.2 miles southeast of Catlin, 2.4 miles upstream from Weisner Creek, and 3.8 miles upstream from mouth.
Drainage area.--133 sq mi.
Records available.--December 1956 to September 1964 (fragmentary prior to October 1957).
Gage.--Water-stage recorder. Datum of gage is 515.56 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).
Average discharge.--7 years (1957-1964), 123 cfs.
Extremes.--Maximum discharge during year, 10,500 cfs Mar. 9 (gage height, 14.77 ft); minimum daily, 4.1 cfs Dec. 22; minimum gage height, 1.61 ft Sept. 25, 26, 28-30.
1956-64: Maximum discharge, 53,400 cfs June 28, 1957 (gage height, 18.27 ft); from rating curve extended above 6,000 cfs on basis of combination contracted-opening, culvert, and flow-over-road measurement of peak flow, at site 8⅓ miles upstream, adjusted to drainage area at gage; minimum daily, that of Dec. 22, 1963, minimum gage height, 1.56 ft Sept. 25, 1959.
Remarks.--Records fair except those for periods of ice effect and no gage-height record, 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 Aug. 20-29)

Oct. 1 to Dec. 31

1.7	5.0	1.9	15
1.8	9.0	2.0	22

Jan. 1 to Sept. 30

1.6	4.1	2.4	55	12.0	2,890
1.7	6.7	2.7	94	13.0	3,770
1.8	10	5.0	148	13.5	4,800
2.1	28	12.0	688	14.0	6,600

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	7.2	7.2	4.9	19	28	91	310	32	17	8.1	11
2	6.4	6.8	7.2	4.6	18	45	90	242	32	15	8.1	8.1
3	6.4	6.8	7.2	4.8	17	50	1,040	204	32	18	12	7.1
4	6.4	6.8	7.2	5.0	16	168	380	170	30	18	17	6.2
5	6.4	8.5	7.2	5.2	*16	352	386	148	29	14	11	5.9
6	6.0	*8.5	7.2	5.5	41	138	*996	128	30	14	10	5.4
7	6.0	8.0	7.2	6.5	53	87	408	117	29	17	9.9	5.4
8	*6.0	7.6	10	15	30	396	255	110	29	17	9.9	5.1
9	6.4	7.2	10	*50	25	5,210	181	99	26	17	9.9	*5.1
10	6.0	6.8	8.0	40	20	1,140	148	88	*23	14	9.6	4.9
11	6.0	6.4	8.0	25	20	660	119	80	21	13	*8.5	4.9
12	6.0	6.4	8.0	15	20	716	105	123	21	13	7.4	4.9
13	6.0	6.4	7.0	12	20	*640	100	*88	22	12	7.4	4.9
14	6.0	7.2	6.0	11	20	464	84	90	20	12	7.1	4.6
15	6.4	6.8	5.5	10	20	324	71	65	20	*35	6.4	4.6
16	6.4	6.4	5.2	10	20	242	65	154	20	26	6.4	4.6
17	6.4	6.8	5.0	10	20	181	60	192	18	18	6.4	4.6
18	6.4	7.2	*4.7	12	20	148	63	112	19	20	6.4	5.4
19	6.8	7.2	4.4	15	20	124	1,190	91	18	25	*6.2	5.4
20	8.0	7.6	4.2	150	20	126	2,620	81	49	19	5.7	5.1
21	8.0	7.6	4.2	70	20	148	4,740	70	242	14	5.7	4.9
22	7.6	13	4.1	40	20	123	1,280	61	159	12	5.7	4.9
23	7.2	21	4.2	25	20	108	716	55	68	11	5.9	4.9
24	7.2	14	4.3	25	20	102	688	52	42	10	5.7	4.6
25	6.8	11	4.5	60	20	383	436	46	31	9.9	5.4	4.6
26	6.8	10	4.7	40	20	520	380	46	26	9.6	5.1	4.4
27	6.4	8.0	4.9	30	20	242	940	42	23	9.2	5.1	4.6
28	6.4	8.0	5.2	26	20	192	856	39	22	8.9	5.1	*4.6
29	6.0	7.6	5.3	24	21	148	492	37	20	8.5	4.6	4.4
30	6.0	7.6	5.2	22	------	114	380	34	18	8.1	9.4	4.4
31	6.4	------	5.1	20	------	108	------	33	------	7.8	86	-------
Total	202.0	250.4	188.1	793.7	636	13,427	19,360	3,207	1,171	463.0	317.1	159.5
Mean	6.52	8.35	6.07	25.6	21.9	433	645	103	39.0	14.9	10.2	5.32
Cfsm	0.049	0.063	0.046	0.192	0.165	3.26	4.85	.774	0.293	0.112	0.077	0.040
In.	0.06	0.07	0.05	0.22	0.18	3.76	5.41	0.89	0.33	0.13	0.09	0.04

Calendar year 1963: Max 2,510 Min 4.1 Mean 77.9 Cfsm 0.586 In. 7.94
Water year 1963-64: Max 5,210 Min 4.1 Mean 110 Cfsm 0.827 In. 11.23

Peak discharge (base, 1,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	1200	14.77	10,500	4-19	1500	11.40	2,610
4-3	0930	9.56	2,030	4-21	1100	14.00	6,600

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 13-Feb. 3, Feb. 8-28.

3-3413. Big Raccoon Creek at Coxville, Ind.
(Formerly published as Raccoon Creek at Coxville)

Location.--Lat 39°39'09", long 87°17'37", in SW¼ sec. 15, T. 14 N., R. 8 W., on right bank at downstream side of covered bridge on county road at Coxville, 0.8 mile upstream from Rock Run, 1.5 miles downstream from Little Raccoon Creek, and 2.1 miles northwest of Rosedale.

Drainage area.--440 sq mi.

Records available.--October 1956 to September 1964. Prior to October 1963, published as Raccoon Creek at Coxville.

Gage.--Water-stage recorder. Datum of gage is 494.00 ft above mean sea level, datum of 1929 (Indiana Flood Control and Water Resources Commission bench mark).

Average discharge.--8 years, 479 cfs (adjusted for change in contents).

Extremes.--Maximum discharge during year, 13,100 cfs Apr. 21 (gage height, 14.55 ft); minimum daily, 30 cfs Dec. 26 to Jan. 8; minimum gage height, 1.82 ft Jan. 8.
1956-64: Maximum discharge, 108,000 cfs June 28, 1957 (gage height, 21.23 ft) from rating curve extended above 35,000 cfs on basis of an estimate made by a slope-area study; minimum daily, 6.5 cfs Oct. 10, 1956.

Remarks.--Records good except those for periods of ice effect or indefinite stage-discharge relation, which are poor. Flow regulated since October 1960 by Mansfield Reservoir, (capacity, 132,840 acre-ft).

Rating table, except periods of ice effect and indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 5-29)

1.9	51	11.0	3,150
2.3	100	12.0	4,240
3.0	209	13.0	6,450
4.0	411	14.0	10,000
6.0	950	15.0	15,500
10.0	2,550		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	200	209	121	30	97	107	830	585	175	107	74	74
2	200	209	87	30	93	128	830	510	167	100	74	68
3	200	209	74	30	90	263	1,880	460	159	136	74	66
4	200	218	69	30	85	424	740	411	143	128	74	63
5	200	218	64	30	*80	815	722	1,150	143	107	70	62
6	200	*218	62	30	134	635	1,580	1,300	143	107	69	62
7	200	227	59	30	184	374	710	1,300	136	107	69	61
8	200	227	61	30	151	441	535	1,300	159	114	68	61
9	*200	227	60	70	140	7,380	*435	1,260	128	107	68	*60
10	200	218	58	110	120	2,860	387	1,260	*121	100	68	59
11	200	218	56	90	105	1,100	342	1,220	121	94	68	59
12	200	218	55	84	95	1,140	321	853	114	100	*68	60
13	209	218	54	110	95	*1,070	388	*1,180	114	*94	68	60
14	209	209	50	120	95	800	1,200	1,220	114	94	68	59
15	209	209	45	110	95	585	1,200	1,180	114	107	68	59
16	209	218	40	80	95	485	1,200	1,180	107	100	68	59
17	209	209	*38	70	95	411	1,100	1,150	107	94	68	65
18	209	209	36	60	96	364	539	1,220	107	100	68	136
19	218	218	35	90	100	321	1,660	1,260	100	100	68	143
20	218	245	33	400	100	454	4,940	1,220	102	94	68	151
21	227	245	32	300	100	2,700	10,300	1,220	260	87	70	151
22	227	263	32	260	97	2,700	2,440	1,220	241	87	73	151
23	227	342	31	220	96	2,700	1,340	1,180	175	87	68	159
24	227	282	31	200	95	2,100	1,510	1,180	159	80	67	175
25	227	227	31	350	93	859	*860	1,180	143	80	68	175
26	218	245	30	301	93	875	685	1,220	143	87	68	175
27	218	282	30	245	92	535	1,580	1,200	143	80	67	184
28	218	282	30	192	92	460	1,590	1,100	136	80	68	184
29	209	263	30	140	92	387	890	302	136	74	68	*184
30	209	227	30	120	------	352	685	218	128	74	69	184
31	209	------	30	100	------	800	------	192	--------	74	114	-------
Total	6,506	7,009	1,494	4,062	2,995	34,625	43,419	31,431	4,238	2,980	2,188	3,209
Mean	210	234	48.2	131	103	1,117	1,447	1,014	141	96.1	70.6	107
(ƒ)	-226	-181	+1.6	+3	+30	+289	+850	-607	0	-32.5	-17.9	-134

Adjusted for change in contents in Mansfield Reservoir

Mean	-16	53	49.8	134	133	1,406	2,297	407	141	63.6	52.7	-27
Cfsm	-0.036	0.120	0.113	0.305	0.302	3.20	5.22	0.925	0.320	0.145	0.120	-0.061
In.	-0.04	0.13	0.13	0.35	0.32	3.69	5.82	1.06	0.36	0.17	0.14	-0.07

	Observed					Adjusted				
Calendar year 1963 :	Max	8,240	Min	30	Mean 294	Mean	294	Cfsm	0.664	In. 9.07
Water year 1963-64 :	Max	10,300	Min	30	Mean 394	Mean	410	Cfsm	0.932	In. 12.20

* Discharge measurement made on this day.
ƒ Change in contents equivalent in cubic feet per second, in Mansfield Reservoir; furnished by Corps of Engineers.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 25, Jan. 29 to Feb. 4, Feb. 9-29. Stage-discharge relation indefinite Mar. 21-23, Apr. 14-17.

3-3415. Wabash River at Terre Haute, Ind.

Location.--Lat 39°28'00", long 87°25'08", in NW¼ sec. 21, T. 12 N., R. 9 W., on left bank at upstream side of Wabash Avenue Bridge at Terre Haute, 2.2 miles upstream from Sugar Creek, 4 miles downstream from Lost Creek, and at mile 214.4.

Drainage area.--12,200 sq mi, approximately.

Records available.--August 1902 to December 1903 (gage height only), February 1905 to July 1906, October 1927 to September 1964. Gage-height records collected at site 3,300 ft upstream June 1891 to June 1897, and since December 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 442.90 ft above mean sea level, datum of 1929. Aug. 3, 1902, to Dec. 31, 1903, chain gage at powerhouse 3,400 ft upstream at datum 3.0 ft higher. Feb. 25, 1905 to July 20, 1906, chain gage at Vandalia Railway bridge 2,600 ft upstream at datum 2.2 ft higher. Oct. 1, 1927 to Oct. 27, 1928, staff gage at present site and datum.

Average discharge.--37 years (1927-64), 10,250 cfs.

Extremes.--Maximum discharge during year, 82,400 cfs Apr. 25 (gage height, 24.39 ft); minimum, 740 cfs Jan. 13 (gage height, 3.27 ft), result of freezeup.

1927-64: Maximum discharge, 189,000 cfs May 20, 1943 (gage height, 30.50 ft); minimum, 690 cfs Aug. 10, 1934 (gage height, 2.40 ft).

Maximum stage known, 31.1 ft Mar. 27, 1913, present site and datum (discharge, 245,000 cfs, estimated).

Remarks.--Records fair. Water for municipal supply for Terre Haute diverted above gage, most of which is returned below.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 24, Aug. 15 to Sept. 30)

Oct. 1 to Jan. 24		Jan. 25 to Sept. 30			
3.3	800	3.2	1,040	18.0	35,000
3.7	1,330	4.0	2,110	22.0	59,000
5.0	3,520	6.0	5,880	24.3	81,300
		15.0	24,500		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,400	* 1,400	1,560	985	3,500	2,260	12,600	41,500	4,800	3,000	2,740	1,610
2	1,400	1,400	1,560	985	3,610	* 2,260	11,200	33,000	4,600	* 4,400	2,580	1,610
3	1,330	1,480	1,400	985	3,250	2,910	* 13,600	33,500	4,200	4,400	2,580	1,540
4	1,330	1,480	1,330	920	3,080	4,000	20,000	26,000	4,000	4,600	2,420	1,480
5	1,400	1,480	* 1,330	985	* 2,740	6,200	24,800	21,200	3,800	4,200	* 2,420	1,480
6	1,480	1,480	1,330	1,050	2,910	9,000	32,100	17,400	3,800	4,000	2,260	1,480
7	1,400	1,560	1,400	1,050	3,250	9,800	33,500	15,200	3,600	4,200	2,260	1,410
8	* 1,330	1,630	1,400	1,190	3,250	12,200	* 34,000	13,800	* 3,800	4,400	2,260	1,280
9	1,330	1,560	1,400	1,330	3,080	22,700	36,000	12,800	4,600	3,400	2,110	1,280
10	1,260	1,560	1,330	* 1,330	2,910	23,900	35,500	11,800	5,000	14,000	1,960	1,220
11	1,260	1,790	1,480	1,480	2,740	25,100	33,000	* 11,000	4,200	17,800	1,960	* 1,160
12	1,260	1,630	1,480	1,260	2,580	24,800	29,400	10,400	5,610	15,000	1,960	1,100
13	1,260	1,400	1,400	920	2,580	27,200	14,600	9,600	3,430	12,000	1,820	1,040
14	1,260	1,480	1,050	b 1,000	2,420	27,500	15,000	8,200	5,610	9,400	1,820	1,040
15	1,260	1,480	1,050	b 1,000	2,420	25,300	15,200	8,000	4,000	8,000	1,750	1,100
16	1,260	1,480	985	b 1,000	2,580	25,100	11,800	8,800	3,800	8,200	1,750	1,040
17	1,260	1,480	985	b 1,200	2,580	25,100	10,600	9,200	5,510	8,400	1,680	1,040
18	1,330	1,480	* 920	b 1,400	2,420	25,700	8,800	8,400	5,610	7,600	1,680	1,100
19	1,330	1,480	860	1,560	2,420	22,700	10,800	8,200	4,200	7,800	1,610	1,240
20	1,400	1,560	860	1,790	2,420	17,200	23,800	7,800	5,000	8,600	1,610	1,340
21	1,400	1,630	860	2,650	2,420	14,000	43,500	7,400	10,200	7,400	1,680	1,480
22	1,480	1,790	860	3,700	2,420	13,000	64,400	7,000	23,600	5,800	1,610	1,610
23	1,480	1,960	920	4,580	2,260	12,000	77,000	6,600	27,500	4,800	1,680	1,680
24	1,400	2,130	860	5,300	2,260	11,000	80,200	6,400	25,100	4,400	1,820	1,610
25	1,400	2,040	860	7,600	2,110	10,600	* 81,300	6,200	17,800	4,000	1,820	1,540
26	1,400	1,960	920	6,200	2,110	14,000	78,000	5,800	12,800	3,800	1,750	1,610
27	1,400	1,880	985	5,200	2,110	16,000	74,000	5,600	9,800	3,610	1,680	1,480
28	1,400	1,790	985	3,610	2,110	14,600	64,400	5,800	8,000	3,250	1,610	1,410
29	1,400	1,790	1,050	2,910	2,260	20,200	55,800	5,600	6,600	3,080	1,680	* 1,410
30	1,330	1,630	1,050	3,080	---------	17,400	47,400	5,200	5,800	3,080	1,680	1,480
31	1,480	----------	1,050	3,430	---------	14,400	----------	5,400	----------	2,910	1,680	----------
Total	42,110	48,890	35,510	71,680	77,100	503,130	1,092,300	388,800	224,670	204,530	59,920	40,940
Mean	1,358	1,630	1,150	2,312	2,659	16,391	36,410	12,542	7,622	6,598	1,933	1,365
Cfsm	0.111	0.134	0.094	0.180	0.218	1.34	2.98	1.03	0.625	0.541	0.158	0.112
In.	0.13	0.15	0.11	0.22	0.24	1.54	3.32	1.19	0.70	0.62	0.18	0.12

Calendar year 1963 : Max 64,800 Min 860 Mean 5,654 Cfsm 0.463 In. 6.29
Water year 1963-64 : Max 81,300 Min 860 Mean 7,646 Cfsm 0.627 In. 8.52

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Computed from once-daily readings of wire-weight gage Oct. 27 to Nov. 8, Nov. 9-19, July 25-28, Aug. 1-4, Sept. 6-10, 19-28.

3-3420. Wabash River at Riverton, Ind.

Location.--Lat 39°01'13", long 87°34'07", in sec. 30, T. 7 N., R. 10 W., on left bank at downstream side of Illinois Central Railroad bridge at Riverton, 0.6 mile downstream from Turtle Creek, and at mile 162.0.

Drainage area.--13,100 sq mi, approximately.

Records available.--October 1938 to September 1964. Prior to April 1939 monthly discharge only, published in WSP 1305. June 1911 to December 1914 (gage heights only) available in the Corps of Engineers office, Louisville, Ky.

Gage.--Water-stage recorder. Datum of gage is 414.65 ft above mean sea level, datum of 1929. June 23, 1911 to Dec. 31, 1914, staff gage maintained by Illinois Central Railroad at same site and datum. Apr. 18, 1939 to July 17, 1951, wire-weight gage at same site and datum, read twice daily.

Average discharge.--26 years, 11,080 cfs.

Extremes.--Maximum discharge during year, 78,400 cfs Apr. 27 (gage height, 22.20 ft); minimum daily, 900 cfs Dec. 20-25; minimum gage height observed, 0.53 ft Dec. 25-27.

1938-64: Maximum discharge, 201,000 cfs May 21, 1943 (gage height, 29.36 ft); minimum observed, 858 cfs Sept. 27 to Oct. 1, 1941 (gage height, 0.02 ft).

Flood of Mar. 28, 1913, reached a stage of 26.4 ft, from graph based on once-daily readings by Illinois Central Railroad Co. (discharge, 250,000 cfs, estimated).

Remarks.--Records fair.

Rating table, except periods of ice effect, (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 23 to Feb. 10, Mar. 4-9)

0.5	1,080	16.0	32,000
1.0	1,430	18.0	41,000
2.0	2,500	20.0	55,500
6.0	8,000	23.0	88,000
12.0	19,500		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,430	1,430	1,730	1,130	*3,470	2,060	*13,700	59,600	5,240	5,660	2,980	*1,730
2	1,430	1,430	1,630	1,130	3,730	2,060	11,900	51,500	4,820	5,100	2,860	1,730
3	1,430	1,430	1,530	1,130	3,600	2,170	12,700	44,700	4,680	4,680	2,740	1,730
4	1,430	1,430	1,530	1,130	3,220	3,100	16,300	40,500	*4,400	4,960	2,740	1,630
5	1,430	1,430	1,430	1,130	2,980	5,520	19,500	35,200	4,120	4,960	2,620	1,630
6	1,430	1,430	1,430	1,130	2,860	6,800	25,400	28,800	3,990	4,400	2,500	1,530
7	1,430	1,430	*1,430	1,130	2,980	8,000	*29,400	22,800	3,990	*4,260	2,500	1,530
8	1,430	1,530	1,430	1,130	3,340	9,120	30,000	18,100	3,990	4,400	2,500	1,530
9	1,430	1,840	1,430	1,260	3,220	16,600	31,200	15,300	3,990	5,100	2,390	1,530
10	1,430	2,060	1,430	1,340	3,100	28,200	32,800	13,500	4,540	5,650	2,280	1,530
11	1,430	1,730	1,430	1,430	2,740	30,000	33,600	11,900	4,820	13,900	2,170	1,430
12	1,430	1,630	1,430	1,300	2,500	28,500	33,600	10,700	4,120	16,500	2,170	1,430
13	1,430	1,600	1,430	1,100	2,390	27,900	30,800	10,100	3,730	14,300	2,170	1,430
14	1,430	1,600	1,200	1,000	2,390	27,900	23,400	9,280	3,730	10,500	2,060	1,430
15	1,430	1,600	1,100	1,000	2,280	27,900	17,300	8,960	3,730	8,480	2,060	1,430
16	1,430	1,600	1,000	1,100	2,280	27,000	13,900	8,640	3,860	7,550	1,950	1,430
17	1,340	1,600	1,000	1,300	2,390	25,800	11,900	8,480	3,860	7,700	1,950	1,430
18	1,340	1,600	1,000	1,400	2,390	25,500	10,500	8,480	3,730	7,700	1,950	1,430
19	1,340	1,600	950	1,530	2,390	25,200	9,600	7,850	3,730	7,100	1,840	1,430
20	1,340	1,600	900	1,630	2,390	22,800	14,100	7,700	3,990	7,400	1,840	1,530
21	1,340	1,600	900	2,280	2,390	17,700	25,800	7,400	5,100	7,700	1,840	1,630
22	1,340	1,700	900	2,860	2,390	14,500	32,400	7,100	12,300	6,650	1,840	1,630
23	1,340	1,900	900	3,990	2,280	12,900	39,500	6,650	21,300	5,660	1,840	1,840
24	1,340	2,000	900	5,100	2,280	11,700	53,900	6,360	24,600	4,960	1,840	1,840
25	1,340	2,060	900	7,400	2,170	10,700	67,700	6,220	22,500	4,680	1,950	1,840
26	1,340	2,060	1,000	7,250	2,060	11,500	*73,900	5,940	16,300	4,540	2,060	1,730
27	1,430	1,950	1,080	6,080	2,060	14,500	77,200	5,800	11,700	*3,990	2,060	1,730
28	*1,430	1,840	1,130	5,100	2,060	15,900	77,200	5,660	9,120	3,600	1,950	1,730
29	1,430	1,840	1,130	3,730	2,060	18,300	73,900	5,660	7,550	3,340	1,840	1,730
30	1,430	1,840	*1,130	2,980	---	18,500	67,800	5,520	6,500	3,220	1,840	1,630
31	1,430	---	1,190	2,980	---	16,300	---	5,240	---	3,100	1,730	---
Total	43,430	50,390	37,600	74,180	75,390	514,630	1,011,900	489,640	220,030	202,740	67,060	47,830
Mean	1,401	1,680	1,213	2,393	2,634	16,600	33,730	15,790	7,334	6,540	2,163	1,594
Cfsm	0.107	0.128	0.093	0.183	0.201	1.27	2.57	1.21	0.560	0.499	0.165	0.122
In.	0.12	0.14	0.11	0.21	0.22	1.46	2.87	1.40	0.62	0.58	0.19	0.14

Calendar year 1963: Max 67,800 Min 900 Mean 6,201 Cfsm 0.474 In. 6.42
Water year 1963-64: Max 77,200 Min 900 Mean 7,748 Cfsm 0.591 In. 8.06

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 13-24, Dec. 15. Stage-discharge relation affected by ice Dec. 14-26, Jan. 12-18. Computed from once daily wire-weight gage readings Oct. 1 to Nov. 12, Nov. 25 to Dec. 13, Dec. 27 to Jan. 11, Jan. 19-21, Aug. 10 to Sept. 30.

3-3425. Busseron Creek near Carlisle, Ind.

Location.--Lat 38°58'30", long 87°25'35", in W½ sec. 17, T. 6 N., R. 9 W., on right bank 10 ft downstream from bridge on State Highway 58, 1½ miles northwest of Carlisle, and 6 3/4 miles upstream from mouth.

Drainage area.--228 sq mi.

Records available.--October 1943 to September 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 425.36 ft above mean sea level (Indiana State Highway Department bench mark). Prior to Nov. 8, 1950, wire-weight gage at same site and datum.

Average discharge.--21 years, 214 cfs.

Extremes.--Maximum discharge during year, 2,750 cfs Mar. 10 (gage height, 14.73 ft); minimum, 0.7 cfs Oct. 25, 26; minimum gage height, 2.11 ft Sept. 15, 16.
1943-64: Maximum discharge, 8,800 cfs Jan. 5, 1950 (gage height, 20.05 ft); maximum gage height, 20.30 ft May 9, 1961; no flow many days in 1954.

Remarks.--Records good. Flow regulated at times by mining operations above gage.

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. 22)

Oct. 1 to Mar. 10

2.16	0.7	3.0	32
2.2	1.0	4.5	143
2.3	2.5	6.5	390
2.4	4.7	10.0	1,050
2.6	11	13.6	2,200

Mar. 11 to Sept. 30

2.1	1.0	4.0	102
2.2	1.9	6.0	320
2.3	3.9	9.0	850
2.5	10	12.0	1,630
2.7	18	13.6	2,200
3.0	35		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	*1.1	6.7	4.0	2.3	12	11	58	230	11	5.4	13	*5.0
2	1.2	7.3	4.3	2.2	9.8	8.5	73	140	10	5.3	9.9	4.0
3	1.3	5.6	4.7	2.6	9.1	11	*498	94	18	39	7.8	3.1
4	1.7	3.2	*4.0	3.1	7.6	130	886	73	* 14	254	6.9	2.7
5	1.9	2.5	4.5	3.8	7.6	573	369	61	11	41	6.3	2.1
6	2.3	2.5	4.7	*5.3	19	153	1,330	53	11	* 19	5.8	2.4
7	2.5	3.2	4.7	7.0	26	74	1,310	46	11	21	4.7	3.1
8	2.5	2.9	6.4	7.6	17	91	495	46	11	75	5.7	2.8
9	3.4	2.5	8.3	24	21	1,650	200	41	11	189	4.6	2.4
10	5.0	2.3	6.2	31	14	2,570	146	32	10	53	3.2	1.5
11	6.4	2.1	5.3	19	8.0	2,190	120	27	8.7	24	2.9	1.3
12	8.7	1.6	5.9	12	9.1	2,020	103	25	7.7	17	3.3	1.5
13	11	1.2	6.4	8.0	14	1,510	103	40	7.0	18	4.2	1.6
14	7.3	1.1	6.2	6.7	11	512	98	35	16	17	3.2	1.7
15	6.2	1.3	3.4	6.7	12	255	80	26	14	12	3.1	1.3
16	6.4	2.1	1.9	7.0	17	170	69	25	9.3	9.4	3.2	1.2
17	8.3	2.1	1.1	7.0	19	136	61	32	8.4	21	2.9	1.5
18	15	4.0	1.0	7.0	24	111	55	25	147	44	2.8	6.1
19	15	13	1.5	9.1	25	93	56	22	60	30	2.6	14
20	4.3	8.7	1.5	28	26	115	176	20	25	15	2.7	9.6
21	3.6	8.3	1.4	41	23	175	169	18	69	10	4.0	17
22	1.1	21	1.4	34	17	143	529	17	124	8.1	15	11
23	1.0	62	1.4	30	14	106	401	16	43	7.0	7.3	32
24	.9	24	1.4	29	15	92	*227	20	21	6.2	4.6	6.5
25	.9	11	1.5	109	13	98	244	16	14	6.3	3.4	2.5
26	.7	7.3	1.6	82	14	144	299	30	11	199	3.8	1.7
27	1.1	6.2	1.8	31	9.5	110	533	24	8.7	* 63	4.6	2.5
28	1.2	5.3	2.0	14	* 11	87	1,010	26	7.7	49	5.1	2.7
29	* 3.2	5.0	2.5	13	9.1	79	573	20	6.5	266	9.3	2.7
30	4.0	4.5	3.0	9.5	------	66	348	15	5.6	60	5.8	4.4
31	4.5	------	2.5	*11	------	63	------	13	------	22	3.4	------
TOTAL	133.7	230.5	106.5	602.9	433.8	13,546.5	10,619	1,308	731.6	1,605.7	165.1	151.9
MEAN	4.31	7.68	3.44	19.4	15.0	437	354	42.2	24.4	51.8	5.33	5.06
CFSM	.019	.034	.015	.085	.066	1.92	1.55	.185	.107	.227	.023	.022
IN	.02	.04	.02	.10	.07	2.21	1.73	.21	.12	.26	.03	.02

CALENDAR YEAR 1963 MAX 3,650 MIN .1 MEAN 131 CFSM .575 INCHES 7.78
WATER YEAR 1963-64 MAX 2,570 MIN .7 MEAN 81.0 CFSM .355 INCHES 4.83

Peak discharge (base, 2,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0700	14.73	2,750				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 19 to Jan. 5. No gage-height record May 12 to June 3.

3-3430. Wabash River at Vincennes, Ind.

Location.--Lat 38°40'52", long 87°32'04", near center of span on downstream side of bridge on U. S. Highway 50 at Vincennes, Knox County, 4.8 miles downstream from Maria Creek, 5.8 miles upstream from Embarras River, and at mile 127.8.
Drainage area.--13,700 sq mi, approximately.
Records available.--October 1929 to September 1964. Prior to December 1929 monthly discharge only, published in WSP 1305. Gage-height records collected at same site since November 1904 are contained in reports of U. S. Weather Bureau.
Gage.--Wire-weight gage read twice daily. Datum of gage is 394.43 ft above mean sea level, datum of 1929. Prior to Aug. 14, 1940, staff and chain gages, and Aug. 14, 1940, to Sept. 30, 1946, wire-weight gage, at same site at datum 2.00 ft higher. Since Oct. 1, 1955, auxiliary water-stage recorder 4.7 miles upstream from base gage at datum 0.80 ft lower.
Average discharge.--35 years, 11,290 cfs.
Extremes.--Maximum discharge during year, 71,900 cfs Apr. 28; maximum gage height, 23.00 ft Apr. 29; minimum daily discharge, 1,000 cfs Dec. 20-28; minimum gage height, 2.00 ft Jan. 6, 7.
1929-64: Maximum discharge, 189,000 cfs May 22, 23, 1943 (gage height, 29.33 ft, present datum); minimum observed, 770 cfs Aug. 4, 5, 1934 (gage height, 1.40 ft, present datum).
Flood of Mar. 29, 1913, reached a stage of 26.3 ft, present datum, from floodmarks, determined by Corps of Engineers (discharge, 255,000 cfs, estimated).
Remarks.--Records fair.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Fall used as a factor Mar. 9 to Apr. 18, Apr. 21 to May 14, June 23-29, July 12-15; shifting-control method used Aug. 26 to Sept. 9)

2.0	1,250
3.0	2,890
8.0	14,800
16.0	40,000
23.0	74,100

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,600	1,530	1,920	1,100	3,080	2,150	14,700	62,200	6,050	6,970	3,280	2,080
2	1,530	1,530	1,920	1,100	3,480	2,220	*13,000	55,000	6,050	5,280	3,280	*2,000
3	1,530	1,530	1,760	1,200	3,680	2,260	12,000	48,200	*5,370	5,590	3,080	2,000
4	1,530	1,530	*1,760	1,250	3,480	2,610	15,600	42,800	5,150	5,370	2,890	1,920
5	1,530	1,530	1,680	1,250	3,080	4,490	20,800	38,800	4,720	5,050	2,890	1,920
6	1,530	1,600	1,600	1,250	3,080	6,280	23,600	32,700	4,720	5,370	2,700	1,840
7	1,530	1,680	1,600	1,250	3,080	7,510	25,300	25,100	4,510	6,050	2,700	1,760
8	1,460	1,600	1,600	1,320	3,080	8,700	25,900	19,700	4,510	*4,720	2,700	1,760
9	1,460	1,680	1,680	1,390	3,280	14,500	27,300	15,300	4,300	5,370	2,520	1,680
10	1,460	1,760	1,600	1,530	3,280	25,200	28,000	14,500	4,510	5,050	2,520	1,760
11	1,460	1,680	1,680	1,600	3,080	27,100	29,100	13,000	5,370	10,200	2,340	1,760
12	1,460	1,680	1,680	1,680	2,890	27,100	29,200	12,000	5,150	15,500	2,340	1,600
13	1,460	1,680	1,680	1,760	2,700	26,300	28,800	11,000	4,510	15,400	2,170	1,600
14	1,460	1,680	1,500	1,400	2,520	26,000	25,400	11,000	4,720	12,000	2,170	1,600
15	1,460	1,600	1,300	1,200	2,520	25,500	19,100	10,600	4,510	10,000	2,170	1,600
16	1,460	1,600	1,200	1,100	2,520	25,100	15,600	10,200	4,300	9,150	2,170	1,600
17	1,390	1,600	1,100	1,200	2,520	24,400	13,000	9,900	4,510	8,400	2,080	1,600
18	1,460	1,600	1,100	1,400	2,520	23,600	12,000	9,900	5,970	8,900	2,080	1,680
19	1,460	1,600	1,100	1,600	2,700	23,300	11,000	9,650	5,970	8,900	2,080	1,680
20	1,460	1,600	1,000	1,760	2,520	22,700	12,500	9,150	4,510	8,160	2,000	1,680
21	1,460	1,680	1,000	2,000	2,520	19,600	21,100	8,650	5,150	8,650	2,080	1,760
22	1,460	1,600	1,000	2,520	2,520	16,200	25,600	8,400	7,680	8,400	2,080	1,840
23	1,530	1,920	1,000	3,080	2,520	14,000	29,400	7,920	17,800	5,970	2,080	1,840
24	1,530	2,000	1,000	*4,300	2,340	13,000	34,900	7,680	21,900	6,050	2,000	2,080
25	1,600	2,170	1,000	6,050	*2,340	12,000	47,000	7,200	22,700	5,370	2,080	2,000
26	1,530	2,170	1,000	7,920	2,170	12,000	58,000	6,970	13,800	5,370	2,170	2,000
27	1,530	2,170	1,000	6,740	2,170	14,000	*65,000	6,740	14,000	4,930	2,340	1,920
28	1,530	2,080	1,000	5,820	2,170	15,500	71,100	6,510	11,000	*4,300	2,340	1,920
29	*1,460	2,000	1,100	4,510	2,170	17,600	71,000	6,510	9,400	3,880	2,170	1,840
30	1,460	2,000	1,100	3,480	---	18,800	67,200	6,510	9,160	3,880	2,080	1,760
31	1,530	---	1,100	3,080	---	17,400	---	6,280	---	3,480	2,080	---
Total	46,310	52,080	41,760	76,840	80,010	497,120	895,200	541,070	239,000	225,710	73,660	54,080
Mean	1,494	1,736	1,347	2,479	2,759	16,040	29,870	17,450	7,933	7,281	2,376	1,803
Cfsm	0.109	0.127	0.098	0.181	0.201	1.17	2.18	1.27	0.579	0.531	0.173	0.132
In.	0.13	0.14	0.11	0.21	0.22	1.35	2.43	1.46	0.65	0.61	0.20	0.15

Calendar year 1963 : Max 56,000 Min 1,000 Mean 6,328 Cfsm 0.462 In. 6.27
Water year 1963-64 : Max 71,100 Min 1,000 Mean 7,713 Cfsm 0.563 In. 7.66

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 3, Jan. 14-18.

3-3455. Embarras River at Ste. Marie, Ill.

Location.--Lat 38°56'10", long 88°01'10", in NW¼NW¼ sec. 30, T. 6 N., R. 14 W., on left bank at downstream side of highway bridge at Ste. Marie.

Drainage area.--1,513 sq mi.

Records available.--October 1909 to December 1912, August 1914 to September 1964. Prior to October 1963, published as Embarrass River at Ste. Marie.

Gage.--Water-stage recorder. Datum of gage is 446.75 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to June 29, 1940, chain gage at same site and datum.

Average discharge.--53 years, 1,192 cfs.

Extremes.--Maximum discharge during year, 7,680 cfs Apr. 28 (gage height, 17.16 ft); minimum daily, 16 cfs on several days. 1909-12, 1914-64: Maximum discharge, 44,800 cfs Jan. 4, 1950 (gage height, 24.95 ft), from rating curve extended above 29,000 cfs; maximum gage height, 25.54 ft June 30, 1957; minimum discharge, 1 cfs Oct. 5-9, 1914.

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

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	22	64	25	330	275	1,400	2,470	242	129	62	38
2	25	22	61	27	280	268	1,220	2,060	236	120	53	35
3	25	20	57	30	258	273	2,110	1,770	230	115	47	34
4	25	17	52	32	232	374	3,010	1,530	* 225	110	* 38	34
5	25	18	49	35	215	621	2,030	1,350	212	106	38	34
6	23	22	48	35	213	624	4,000	* 1,190	206	* 103	35	34
7	22	20	45	35	215	535	5,030	1,070	202	102	36	35
8	22	* 20	49	40	283	528	3,680	978	206	97	36	35
9	22	20	49	45	383	1,540	2,750	890	198	97	36	35
10	20	17	48	55	438	4,550	2,530	814	182	95	36	* 34
11	20	17	47	65	* 414	5,450	2,380	759	172	92	35	17
12	21	17	45	80	362	5,500	2,040	705	167	92	30	17
13	17	17	35	95	328	5,370	1,710	759	157	102	32	16
14	20	16	30	110	300	4,860	* 1,450	783	211	132	34	22
15	20	17	25	110	289	4,210	1,240	663	142	115	35	17
16	16	17	25	100	285	3,570	1,080	588	134	93	35	17
17	*18	16	25	90	281	2,980	940	535	126	86	35	17
18	16	22	* 25	80	283	* 2,610	848	498	153	92	34	28
19	20	20	23	70	298	2,270	783	470	136	86	32	21
20	17	17	21	70	320	1,930	1,020	435	121	82	31	20
21	21	17	20	* 100	342	1,800	3,490	406	226	88	31	26
22	20	33	20	650	351	1,800	4,560	383	213	92	36	25
23	18	67	20	450	350	1,650	4,860	360	169	83	39	38
24	18	64	20	500	340	1,560	5,310	344	182	89	32	30
25	17	75	20	1,270	330	1,520	6,000	326	176	100	35	30
26	18	85	22	907	310	2,180	6,710	313	197	86	35	25
27	18	75	25	600	300	2,520	7,410	300	204	81	35	25
28	20	69	25	400	300	2,040	7,500	292	182	74	45	25
29	16	69	25	300	285	1,910	5,820	279	160	69	40	22
30	18	68	25	300	---	1,800	3,200	270	142	92	34	21
31	17	---	25	350	---	1,620	---	258	---	71	32	---
Total	625	996	1,070	7,056	8,915	63,738	95,111	23,848	5,509	2,971	1,144	807
Mean	20.2	33.2	34.5	228	307	2,217	3,204	769	184	95.8	36.9	26.9
Cfsm	0.013	0.022	0.023	0.151	0.203	1.47	2.12	0.508	0.122	0.063	0.024	0.018
In.	0.02	0.02	0.03	0.17	0.22	1.69	2.36	0.59	0.14	0.07	0.03	0.02

Calendar year 1963: Max 11,600 Min 16 Mean 398 Cfsm 0.263 In. 3.60
Water year 1963-64: Max 7,500 Min 16 Mean 595 Cfsm 0.393 In. 5.36

Peak discharge (base, 6,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-28	0430	17.16	7,680				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 24, Jan. 27 to Feb. 2, Feb. 23-27 (no gage-height record Jan. 10, 12-17, 19, 20).

3-3460. North Fork Embarras River near Oblong, Ill.

Location.--Lat 39°00'35", long 87°56'45", in extreme northwest corner of sec. 35, T. 7 N., R. 14 W., on left bank at downstream side of pier of bridge on State Highway 33, three-quarters of a mile upstream from Illinois Central Railroad bridge, 2 miles west of Oblong, and 8½ miles upstream from mouth.

Drainage area.--319 sq mi.

Records available.--October 1940 to September 1964. Prior to October 1963, published as North Fork Embarrass River near Oblong.

Gage.--Water-stage recorder. Datum of gage is 458.19 ft above mean sea level, datum of 1929. Prior to Dec. 11, 1940, wire-weight gage at same site and datum.

Average discharge.--24 years, 242 cfs.

Extremes.--Maximum discharge during year, 2,520 cfs Mar. 11 (gage height, 13.86 ft); minimum, 0.1 cfs several days.
1940-64: Maximum discharge, 27,100 cfs Jan. 4, 1950 (gage height, 22.38 ft), from rating curve extended above 16,000 cfs; no flow for many days in 1953-54.

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)
(Shifting-control method used Oct. 1 to Nov. 23, Mar. 6-9, Mar. 15 to Apr. 3, Apr. 9-20, 25-27, Apr. 29 to May 26)

-0.25	0.1	0.6	22	7.0	750
- .2	.5	1.0	44	11.0	1,530
- .1	1.5	1.5	78	13.0	2,120
0	3.0	2.0	113	14.0	2,600
.3	10	4.0	330		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	1.2	5.0	b 0.9	b25	b 25	102	157	12	a 3.3	1.0	4.6
2	.5	1.1	a 5.0	b 1.0	b23	25	96	124	11	a 3.2	.8	1.2
3	.5	1.1	a 5.0	b 1.1	b21	26	855	106	11	a 3.1	* .7	1.2
4	.4	1.1	a 4.9	b 1.1	b19	53	1,520	92	* 11	a 3.0	.6	.6
5	.3	1.2	4.8	1.2	b18	347	580	82	11	a 2.9	.4	.4
6	.3	1.2	4.8	1.5	b19	325	1,540	*73	11	* 2.8	.2	.4
7	.3	1.4	4.8	1.8	30	136	1,980	65	10	a 2.7	1.0	.2
8	.3	*1.1	5.5	1.8	74	96	564	60	9.7	a 2.6	3.2	.1
9	.2	.9	5.5	4.0	58	601	261	56	9.5	a 2.5	.5	.1
10	.2	.8	4.2	1.9	48	1,900	188	51	9.0	a 2.4	.4	* .1
11	.2	.6	3.8	2.7	*34	2,350	151	47	7.9	a 2.4	.2	.1
12	.2	.5	3.8	3.0	29	1,640	127	45	7.2	2.4	.3	.1
13	.2	.5	3.2	b 10	29	1,210	119	50	6.9	29	.3	.2
14	.2	.5	2.5	b 15	27	583	* 125	47	29	26	.2	.1
15	.2	.5	1.9	b 11	28	341	111	40	9.5	12	.2	.1
16	.2	.5	1.4	b 9.0	31	206	96	37	22	7.2	.3	.1
17	* .1	.4	1.1	b 7.5	33	151	87	34	13	5.0	.3	.3
18	.1	.6	* 1.2	6.9	42	*118	81	32	16	a 3.5	.2	.5
19	.2	.6	b 1.2	6.7	56	100	77	30	9.7	10	.2	.4
20	.4	.7	b 1.1	11	84	101	126	26	7.7	5.5	.2	.4
21	.5	1.0	b.9	57	91	280	893	24	53	a 4.5	1.0	.4
22	.6	2.7	b.8	*b 220	b55	382	1,360	22	24	a 4.0	.5	2.8
23	.6	a 10	b.7	b 140	b40	195	831	20	8.7	a 3.5	.5	3.0
24	.5	13	b.7	b 140	b35	139	354	18	7.2	a 3.0	.5	3.2
25	.5	a 16	b.8	b 230	b32	142	345	17	6.0	a 2.5	.5	2.2
26	.5	a 15	b 1.0	b 280	b30	555	201	16	5.0	2.2	.4	1.0
27	.5	a 10	b 1.0	b 100	b28	555	246	15	a 4.0	1.6	.4	.7
28	.7	a 7.0	b 1.0	b 70	b27	217	736	15	3.6	1.2	.6	.4
29	.8	* 5.7	b.9	b 50	b26	184	394	15	a 3.5	1.0	.4	.4
30	1.0	a 5.4	b.8	b 35	---	151	216	13	a 3.4	.8	.5	.2
31	1.0	---	b.8	b 30	---	112	---	13	---	.8	18	---
Total	12.7	102.3	80.1	1,451.1	1,092	13,246	14,362	1,442	352.5	156.6	34.5	25.5
Mean	0.41	3.41	2.58	46.8	37.7	427	479	46.5	11.8	5.05	1.11	0.85
Cfsm	0.0013	0.011	0.0081	0.147	0.118	1.34	1.50	0.146	0.037	0.016	0.0035	0.0027
In.	0.001	0.01	0.009	0.17	0.13	1.54	1.67	0.17	0.04	0.02	0.004	0.003

Calendar year 1963: Max 7,100 Min 0.1 Mean 119 Cfsm 0.373 In. 5.06
Water year 1963-64: Max 2,350 Min 0.1 Mean 88.4 Cfsm 0.277 In. 3.77

Peak discharge (base, 4,000 cfs).--No peak above base.

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3470. White River at Muncie, Ind.

Location.--Lat 40°12', long 85°23', in sec. 10, T. 20 N., R. 10 E., on right bank 200 ft downstream from Walnut Street Bridge in Muncie and 6 miles upstream from Bell Creek.

Drainage area.--242 sq mi.

Records available.--November 1930 to September 1964. Prior to October 1948, published as West Fork White River at Muncie. Daily gage heights from October 1924 to December 1929 are available in the District office.

Gage.--Water-stage recorder (digital since Apr. 28). Datum of gage is 917.10 ft above mean sea level (City of Muncie bench mark). Prior to Jan. 4, 1934, chain gage at highway bridge 200 ft upstream at datum 8.00 ft higher. Jan. 4, 1934, to Sept. 13, 1940, water-stage recorder and Sept. 14, 1940, to Feb. 14, 1941, staff gage, at present site at datum 7.00 ft higher. Feb. 15, 1941, to Jan. 27, 1942, wire-weight gage at bridge 200 ft upstream at datum 3.00 ft higher. Jan. 28, 1942, to Apr. 27, 1964, water-stage recorder at present site at datum 3.00 ft higher.

Average discharge.--33 years (1931-64), 218 cfs (adjusted for diversion after September 1937).

Extremes.--Maximum discharge during year, 14,300 cfs Apr. 21 (gage height, 11.98 ft, datum then in use); minimum, 2.6 cfs Aug. 19 (gage height, 2.47 ft).

1930-64: Maximum discharge, that of Apr. 21, 1964; maximum gage height, 21.07 ft Jan. 15, 1937, present datum; minimum discharge, 0.6 cfs Sept. 16, 1937; minimum daily, 1.1 cfs Sept. 16, 17, 23-25, 1954 and Oct. 10, 1956.

Maximum stage known, about 22.6 ft in March 1913, present datum (discharge, about 20,000 cfs).

Remarks.--Records good except those for periods of ice effect and those below 20 cfs, which are poor. City of Muncie diverts part of its water supply 2.5 miles above gage and returns it to river at sewer outlet a short distance below gage. Records of diversion available since October 1937.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	12	24	18	b 16	27	23	* 84	584	36	21	7.7	5.4
2	10	31	*18	b 18	39	113	173	434	34	24	7.5	5.3
3	9.8	41	16	18	73	173	1,800	338	36	22	4.6	4.2
4	9.8	41	16	15	62	309	1,800	272	36	24	11	3.5
5	10	32	16	18	60	1,330	790	225	32	23	11	3.8
6	12	24	16	21	69	610	1,080	193	36	21	14	5.1
7	13	18	17	20	69	306	1,690	164	42	81	12	7.4
8	11	22	25	18	56	235	790	155	69	*213	11	4.4
9	11	70	24	30	60	2,830	402	138	106	125	11	3.6
10	11	25	20	21	35	4,600	284	117	69	72	12	3.1
11	16	22	19	29	20	3,520	221	101	46	54	4.8	3.3
12	36	16	b 18	32	22	1,800	190	110	52	48	3.3	3.3
13	56	14	b 17	32	27	1,370	170	115	65	47	4.1	4.9
14	50	13	b 16	19	25	*990	143	99	120	41	4.4	4.5
15	22	13	b 15	19	24	*870	120	86	86	42	8.5	4.3
16	18	16	b 15	18	29	545	112	83	58	39	10	4.4
17	16	15	b 15	17	24	376	103	77	48	36	7.0	3.6
18	16	20	b 15	18	24	264	101	69	44	29	3.4	9.0
19	18	16	b 16	25	25	199	389	66	40	25	3.2	18
20	23	16	b 18	65	21	170	3,980	59	59	19	6.2	15
21	22	16	b 25	124	20	173	* 11,600	54	115	12	17	15
22	16	28	b 35	113	19	190	* 6,840	54	138	13	16	14
23	15	38	b 40	90	18	183	3,400	50	106	13	17	18
24	13	30	b 45	92	18	158	1,580	52	69	8.0	16	*8.9
25	12	27	b 43	113	17	149	950	42	50	8.8	9.4	6.6
26	42	20	*38	b 90	13	149	680	44	39	8.4	8.2	10
27	65	16	27	b 60	*12	130	*741	*44	35	4.6	6.3	15
28	60	17	b 25	b 30	11	115	1,890	44	37	4.6	5.0	14
29	18	21	b 20	*b 25	14	110	1,340	41	30	* 5.5	4.6	9.4
30	*11	16	b 16	b 25	------	96	846	41	22	3.6	7.7	11
31	11	------	b 15	26	------	86	------	40	------	4.0	9.4	------
TOTAL	665.6	718	679	1,257	933	22,172	44,289	3,991	1,755	1,091.5	273.3	238.0
MEAN	21.5	23.9	21.9	40.5	32.2	715	1,476	129	58.5	35.2	8.82	7.93
(✓)	19.1	17.0	17.2	17.8	17.1	16	16	17	17.3	17.9	18.6	17.8

Adjusted for diversion

Mean	40.6	40.9	39.1	58.3	49.3	731	1,492	146	75.8	53.1	27.4	25.7
Cfsm	0.168	0.169	0.162	0.241	0.204	3.02	6.17	0.603	0.313	0.219	0.113	0.106
In.	0.19	0.19	0.19	0.28	0.22	3.48	6.88	0.70	0.35	0.25	0.13	0.12

	Observed			Adjusted			
Calendar year 1963 :	Max 6,580	Min 1.9	Mean 107	Mean 126	Cfsm 0.521	In. 7.06	
Water year 1963-64 :	Max 11,600	Min 3.1	Mean 213	Mean 230	Cfsm 0.950	In. 12.98	

Peak discharge (base, 2,500 cfs).--Mar. 10 (2100) 4,960 cfs (5.80 ft); Apr. 21 (0830) 14,300 cfs (11.98 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3475. Buck Creek near Muncie, Ind.

Location.--Lat 40°08'05", long 85°22'52", in SE¼ sec. 34, T. 20 N., R. 10 E., on left bank at downstream side of county highway bridge, 1 mile upstream from Muncie Water Works Co. pumping station and 4.2 miles southeast of courthouse in Muncie.

Drainage area.--36.7 sq mi.

Records available.--October 1954 to September 1964.

Gage.--Water-stage recorder (digital since Apr. 28, 1964). Datum of gage is 944.67 ft above mean sea level, datum of 1929. Prior to May 5, 1955, wire-weight gage at same site and datum.

Average discharge.--10 years, 35.6 cfs.

Extremes.--Maximum discharge during year, 1,780 cfs Apr. 21 (gage height, 13.96 ft); minimum, 6.0 cfs Dec. 14 (gage height, 2.43 ft, result of freeze-up).
1954-64: Maximum discharge, that of Apr. 21, 1964; minimum daily, 5.8 cfs Sept. 12, 1956.
Maximum stage known about 15 ft, from information by local residents. Date unknown.

Remarks.--Records good 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 Mar. 4, July 16 to Aug. 1)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
2.5	7.6	3.0	26	2.3	5.4	4.0	105
2.6	10	3.5	54	2.6	14	8.0	545
2.8	18	4.0	97	3.0	29	10.0	807
				3.5	60	13.0	1,460

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	8.2	11	8.7	b 16	12	16	* 22	75	20	17	9.6	9.2
2	8.2	9.6	* 9.0	b 17	11	23	38	64	21	17	9.6	9.1
3	8.2	9.3	9.0	b 18	10	19	206	57	21	17	9.6	8.9
4	8.4	9.3	9.0	b 18	11	84	90	52	20	17	9.8	8.7
5	8.4	10	9.0	b 17	10	154	64	47	20	16	9.6	8.5
6	8.2	9.6	8.7	b 15	19	56	130	45	21	* 17	9.6	8.4
7	8.2	9.0	8.7	b 13	18	40	72	42	22	30	9.8	8.0
8	8.4	9.0	10	11	b 13	48	50	41	31	34	9.6	8.0
9	8.4	9.0	10	15	b 12	542	43	39	23	21	9.3	8.0
10	7.9	9.0	10	b 14	b 11	487	37	37	21	18	9.6	7.9
11	7.9	9.0	10	b 12	b 11	193	32	35	21	17	9.6	8.0
12	8.2	9.0	9.8	b 11	11	182	29	39	21	17	9.6	8.2
13	8.2	9.0	9.0	b 10	11	149	29	35	23	16	10	8.2
14	8.7	9.3	b 9.0	b 10	11	116	26	33	20	15	10	* 8.2
15	8.7	9.0	b 8.5	b 10	11	90	24	32	20	18	10	8.1
16	8.7	8.7	b 8.5	b 11	11	68	24	31	20	14	10	8.2
17	9.0	8.7	b 8.5	b 12	11	53	23	30	20	13	9.9	8.2
18	9.0	9.3	b 8.5	b 12	10	43	24	29	21	13	9.7	9.6
19	9.0	9.0	b 8.5	b 25	10	37	123	28	20	12	9.6	10
20	9.3	9.0	b 8.5	b 35	10	34	954	27	24	12	9.5	9.0
21	9.3	9.0	b 9.0	23	10	37	* 1,260	26	26	12	11	8.5
22	9.6	9.6	b 9.5	19	10	34	* 538	24	21	13	11	8.7
23	9.3	12	b 11	18	10	31	215	24	20	11	11	9.2
24	9.3	9.6	b 13	17	11	29	149	23	19	11	9.9	8.7
25	9.3	9.0	b 16	22	10	30	116	22	19	11	9.8	8.9
26	9.0	9.0	*b 19	b 15	10	30	95	23	19	10	9.7	8.6
27	9.0	9.0	b 21	*b 13	* 9.8	26	171	* 22	18	10	* 9.6	8.6
28	9.0	9.0	b 20	b 12	9.8	26	* 186	21	18	10	9.5	8.7
29	9.0	9.0	b 19	b 11	10	24	119	21	17	* 8.4	9.5	8.8
30	* 9.0	9.0	b 16	b 11	------	24	89	20	17	9.6	9.8	8.7
31	9.6	------	b 15	12	------	23	------	20	------	9.6	10	------
TOTAL	270.6	279.0	349.4	475	324.6	2,748	4,978	1,064	624	466.6	304.8	257.8
MEAN	8.73	9.30	11.3	15.3	11.2	88.6	166	34.3	20.8	15.1	9.83	8.59
CFSM	.238	.253	.308	.417	.305	2.41	4.52	.935	.567	.411	.268	.234
IN	.27	.28	.35	.48	.33	2.78	5.04	1.08	.63	.47	.31	.26

CALENDAR YEAR 1963 MAX 370 MIN 7.1 MEAN 22.1 CFSM .602 INCHES 8.17
WATER YEAR 1963-64 MAX 1,260 MIN 7.9 MEAN 33.2 CFSM .905 INCHES 12.30

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	0500	9.66	765				
4-21	0100	13.96	1,780				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3480. White River at Anderson, Ind.

Location.--Lat 40°06', long 85°41', in sec. 18, T. 19 N., R. 8 E., on left bank at municipal water-supply plant in Anderson, 1 mile upstream from Killbuck Creek.
Drainage area.--401 sq mi.
Records available.--July 1925 to September 1926, October 1931 to September 1964. Monthly discharge only for some periods, published in WSP 1305. Gage-height records collected at site 700 ft downstream December 1910 to February 1918 and at present site since February 1918 are contained in reports of U. S. Weather Bureau. Prior to October 1948, published as West Fork White River at Anderson.
Gage.--Staff gage above concrete dam. Gage read twice daily. Datum of gage is 825.02 ft above mean sea level, datum of 1929. Prior to May 12, 1934, chain gage at site 250 ft upstream at same datum.
Average discharge.--34 yearsm 374 cfs.
Extremes.--Maximum discharge during year, 18,700 cfs Apr. 21 (gage height, 19.41 ft); minimum daily, 35 cfs Dec. 17-21; minimum gage height observed, 7.26 ft Jan. 11.
1925-26, 1931-64: Maximum discharge, that of Apr. 21, 1964; maximum gage height, 19.96 ft June 14, 1958; minimum discharge observed, 8.8 cfs Sept. 24, 1940 (gage height, 6.92 ft).
Maximum stage known, 23.6 ft Mar. 25, 1913, present site and datum, based on determination by U. S. Weather Bureau at site then in use (discharge, 28,000 cfs, estimated).
Remarks.--Records fair except those for periods of ice effect or indefinite stage-discharge relation, which are poor. The City of Anderson diverts water for its municipal supply above the gage.
Cooperation.--Gage readings furnished by City of Anderson.

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

7.2	31
7.3	51
7.5	110
7.9	300
8.5	735
10.0	2,370
13.0	6,770
15.0	10,200
18.0	15,900

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	50	81	54	36	69	64	*186	1,070	118	110	78	*78
2	50	64	*51	39	66	97	262	825	118	114	78	75
3	50	64	51	45	64	168	1,500	650	134	114	78	75
4	50	56	51	45	81	291	2,500	570	122	134	81	75
5	50	72	51	45	75	1,560	1,380	481	118	122	78	75
6	50	64	51	42	104	1,220	1,170	432	134	107	81	66
7	50	56	51	40	130	610	2,130	392	130	250	81	61
8	50	51	56	40	114	406	1,380	366	134	532	78	61
9	50	64	56	45	114	3,000	780	342	168	386	78	61
10	50	75	51	50	97	5,010	610	294	164	*256	78	61
11	50	64	51	44	75	4,850	467	278	138	186	78	61
12	50	51	51	47	66	2,890	386	306	107	182	78	61
13	52	51	50	47	69	2,130	360	294	256	182	78	61
14	60	54	45	47	75	1,890	318	278	172	159	78	64
15	60	56	40	47	72	1,550	272	245	190	200	78	61
16	55	56	37	47	66	1,120	240	245	182	177	72	61
17	50	56	35	47	75	825	245	235	126	146	66	61
18	50	61	35	47	75	610	250	220	122	142	72	64
19	50	54	35	49	75	467	594	215	118	146	72	126
20	50	54	35	49	75	406	3,980	200	168	134	72	72
21	52	51	35	142	75	392	*15,100	177	235	118	72	*54
22	52	59	37	142	72	373	*12,600	168	235	100	107	51
23	50	134	40	122	64	348	5,770	159	210	94	84	104
24	48	61	*42	118	61	318	2,630	146	177	87	72	72
25	48	56	45	126	64	306	1,660	142	142	87	75	56
26	52	54	47	100	72	306	1,280	134	130	87	72	51
27	65	61	47	70	*69	284	1,170	190	118	81	66	51
28	75	56	47	50	64	250	2,250	*138	122	84	66	51
29	*80	56	45	40	64	240	2,010	138	118	*81	69	54
30	70	56	40	*45	------	215	1,440	134	110	81	64	51
31	51	------	36	50	------	200	------	130	------	78	110	------
Total	1,670	1,848	1,398	1,903	2,242	32,396	64,920	9,594	4,516	4,757	2,390	1,975
Mean	53.9	61.6	45.1	61.4	77.3	1,045	2,164	309	151	153	77.1	65.8
Cfsm	0.134	0.154	0.112	0.153	0.193	2.61	5.40	0.771	0.377	0.382	0.192	0.164
In.	0.15	0.17	0.13	0.18	0.21	3.01	6.02	0.89	0.42	0.44	0.22	0.18

Calendar year 1963 : Max 10,100 Min 35 Mean 237 Cfsm 0.591 In. 8.02
Water year 1963-64 : Max 15,100 Min 35 Mean 354 Cfsm 0.883 In. 12.02

Peak discharge (base, 2,700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	2200	12.30	5,650				
4-21	1930	19.41	18,700				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 13 to Jan. 10, Jan. 26-31. Stage-discharge relation indefinite Oct. 1-30.

3-3481. Killbuck Creek near Anderson, Ind.

Location.--Lat 40°08'18", long 85°39'44", in SW¼ sec. 31, T. 20 N., R. 8 E., on downstream side of State Highway 109 bridge, 900 ft downstream from Little Killbuck Creek, 2.1 miles from mouth and 2.3 miles northeast of county courthouse at Anderson.

Drainage area.--98.5 sq mi.

Records available.--July to September 1964.

Gage.--Wire-weight gage, crest-stage gage and SR recorder. Gage read twice daily. Datum of gage is 833.58 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Extremes.--Maximum discharge during period, 99 cfs July 15 (gage height, 3.50 ft, from graph based on gage readings); minimum, 11 cfs Sept. 16 (gage height, 2.19 ft).

Remarks.--Records good.

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

2.2	11	2.8	39
2.4	18	3.4	89

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*										28	*23
2											28	19
3											27	17
4											27	17
5											28	17
6											24	17
7											26	18
8											24	17
9										*	24	14
10											24	12
11											24	16
12											21	16
13											24	15
14											23	13
15										84	23	13
16										61	21	*11
17										46	20	14
18										43	20	18
19										35	19	25
20										35	19	23
21										36	18	20
22										37	18	19
23										35	22	26
24										34	20	22
25										33	18	20
26										33	18	15
27										32	17	12
28										32	17	12
29	*								*	31	17	12
30					---					22	18	12
31		---			---		---		---	*25	31	---
Total											688	505
Mean											22.2	16.8
Cfsm											0.225	0.171
In.											0.26	0.19

Calendar year	: Max	Min	Mean	Cfsm	In.	
Water year	: Max	Min	Mean	Cfsm	In.	

* Discharge measurement made on this day.

GPO 820-211-4

3-3485. White River near Noblesville, Ind.

Location.--Lat 40°07', long 85°58', in sec. 4, T. 19 N., R. 5 E., near center of span on downstream side of highway bridge, 1 mile west of Strawtown, 7 miles northeast of Noblesville, 9.5 miles upstream from Cicero Creek, and at mile 277.4.

Drainage area.--814 sq mi.

Records available.--May 1915 to September 1926, October 1928 to September 1964. Monthly discharge only for some periods, published in WSP 1305. Published as "West Branch of White River" prior to October 1922 and as "West Fork of White River" October 1922 to September 1948. Records of daily discharge for the water year 1928, published in WSP 663, have been found to be unreliable and should not be used. (The maximum for this year is believed to be reasonably accurate.) Records of water temperatures published in WSP.

Gage.--Water-stage recorder. Datum of gage is 763.08 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 1, 1922, chain gage at bridge 2 miles downstream at different datum. July 1, 1922, to Nov. 21, 1933, chain gage at present site and datum.

Average discharge.--47 years, 801 cfs.

Extremes.--Maximum discharge during year, 26,600 cfs Apr. 22 (gage height, 16.35 ft); minimum, 73 cfs Oct. 7, (gage height, 3.93 ft). 1915-26, 1928-64: Maximum discharge, 27,200 cfs Mar. 21, 1927 (gage height, 16.3 ft, from graph based on gage readings); maximum gage height, 16.35 ft June 14, 1958, Apr. 22, 1964; minimum, 36 cfs Sept. 25, 1941.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made twice a month.

Revisions.--Summaries for April 1963 and 1963 water year have been found to be in error. Correct figures are available in the district office.

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

3.9	75	9.0	3,400
4.2	150	11.0	5,500
4.5	240	13.0	8,940
5.0	435	15.0	14,700
7.0	1,720	16.0	21,800

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	77	112	105	80	147	126	480	2,100	258	204	165	198
2	81	144	100	85	138	225	660	1,720	258	204	165	141
3	83	118	102	90	123	350	2,520	1,420	275	225	156	123
4	79	108	110	95	135	555	4,400	1,210	258	258	153	118
5	81	123	110	90	144	2,100	2,910	1,080	240	240	162	112
6	83	135	108	90	192	2,320	2,480	945	258	258	156	108
7	75	120	110	85	240	1,280	3,600	880	275	2,000	150	100
8	77	110	115	90	210	880	2,910	782	275	4,000	147	95
9	87	105	118	95	186	4,180	1,800	720	292	2,820	147	102
10	89	105	120	110	165	7,700	1,350	635	310	1,500	135	105
11	85	118	120	120	156	9,160	1,080	580	275	1,010	141	100
12	85	105	120	120	144	6,760	880	580	258	690	147	102
13	83	112	118	120	141	4,200	815	608	412	608	138	100
14	91	115	110	120	144	4,950	750	555	330	505	138	91
15	100	118	100	110	147	5,280	662	530	350	662	132	91
16	105	115	95	110	147	3,900	580	480	330	580	129	100
17	93	110	90	110	135	2,320	555	458	275	435	123	102
18	91	112	85	110	141	1,640	555	412	258	390	126	118
19	91	126	80	156	138	1,280	1,080	412	240	350	126	236
20	93	126	80	240	138	1,080	6,890	412	310	310	123	186
21	91	123	80	330	129	1,010	13,200	370	635	292	138	129
22	95	129	85	275	123	880	21,800	350	750	275	201	120
23	102	210	90	225	115	782	12,000	350	608	240	171	135
24	100	201	95	210	108	720	7,020	330	435	225	138	162
25	98	135	100	258	110	720	3,600	310	350	207	132	129
26	95	120	100	220	120	782	2,640	292	292	198	132	115
27	93	120	95	170	123	720	2,320	350	258	192	129	102
28	105	115	90	140	120	635	3,600	310	225	192	123	95
29	112	102	85	130	118	580	4,000	292	225	189	126	100
30	115	100	80	130	------	530	2,820	275	210	180	120	102
31	100	------	80	153	------	505	------	258	------	171	141	-------
Total	2,835	3,692	3,076	4,467	4,177	68,150	114,957	20,006	9,725	19,610	4,410	3,617
Mean	91.5	123	99.2	144	144	2,198	3,832	645	324	633	142	121
Cfsm	0.112	0.151	0.122	0.177	0.177	2.70	4.71	0.792	0.398	0.778	0.174	0.149
In.	0.13	0.17	0.14	0.20	0.19	3.11	5.26	0.91	0.44	0.90	0.20	0.17

Calendar year 1963 : Max 18,200 Min 75 Mean 478 Cfsm 0.587 In. 7.96
Water year 1963-64 : Max 21,800 Min 75 Mean 707 Cfsm 0.869 In. 11.82

Peak discharge (base, 5,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	0900[1]	13.20	9,380				
4-22	0700	16.35	26,600				

Note.--Stage-discharge relation affected by ice Dec. 31 to Jan. 11, Jan. 26-30. No gage-height record Dec. 14-30, Jan. 12-18.

3-3490. White River at Noblesville, Ind.

Location.--Lat 40°02'50", long 86°01'00", in SE¼ sec. 36, T. 19 N., R. 4 E., on right bank at downstream side of Logan Street bridge in Noblesville, ¼ miles upstream from Cicero Creek, 3½ miles downstream from dam at Clare, and at mile 269.0.
Drainage area.--837 sq mi.
Records available.--October 1946 to September 1964. Gage-height records collected at present site from December 1913 to December 1935, and at a site 400 ft downstream thereafter, are contained in reports of U. S. Weather Bureau. Prior to October 1948, published as West Fork White River at Noblesville. Records of water temperatures published in WSP.
Gage.--Water-stage recorder (digital). Datum of gage is 738.16 ft above mean sea level, datum of 1929.
Average discharge.--18 years, 840 cfs.
Extremes.--Maximum discharge during year, 26,800 cfs Apr. 22 (gage height, 21.31 ft); minimum, 0.9 cfs Sept. 24 (gage height, 3.45 ft, regulation by Clare dam); minimum daily, 74 cfs Oct. 8, 9, Sept. 24.
1946-64: Maximum discharge, that of Apr. 22, 1964; minimum, that of Sept. 24, 1964; minimum daily discharge, 44 cfs Sept. 28, 1954.
Maximum stage known, 23.8 ft Mar. 25, 1913, present site and datum, from U. S. Weather Bureau records.
Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by powerplant above station. Discharge measurements generally made twice a month.

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 13, Jan. 19 to Mar. 8, Apr. 24 to May 6, May 24 to June 12, June 17-20)

Oct. 1 to Mar. 9

4.4	66	6.0	835
4.7	160	11.0	4,900
5.0	282		

Mar. 10 to Sept. 30

4.1	70	6.0	860
4.2	91	11.0	4,900
4.5	170	16.0	11,600
5.0	350	21.0	25,600

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	80	106	116	90	160	113	555	2,400	204	191	167	242
2	80	110	116	90	157	157	680	1,880	267	200	167	176
3	80	97	116	90	150	226	2,490	1,540	253	211	167	135
4	83	91	122	95	150	340	4,540	1,300	214	334	158	127
5	77	97	122	95	160	1,740	3,340	1,140	249	242	164	122
6	80	91	122	95	183	2,340	2,710	994	197	282	170	114
7	77	91	122	90	218	1,180	3,670	908	270	1,480	146	91
8	74	88	125	90	194	746	3,350	836	253	4,130	158	91
9	74	86	129	95	175	4,430	2,000	788	270	2,990	158	103
10	77	83	129	110	160	8,040	1,420	716	298	1,600	161	103
11	77	97	132	120	157	9,050	1,130	655	274	987	152	93
12	77	88	129	130	150	7,870	950	655	242	722	135	93
13	83	91	129	120	146	4,670	854	680	395	605	155	91
14	86	97	120	120	143	5,220	788	640	417	545	149	81
15	88	100	110	110	143	5,560	692	580	390	675	132	85
16	94	103	100	110	143	4,370	625	550	354	645	143	91
17	91	103	90	110	132	2,640	580	545	282	485	130	96
18	94	103	85	120	129	1,810	575	476	221	422	135	114
19	91	113	85	150	125	1,380	1,040	453	249	378	137	232
20	97	119	85	179	122	1,160	7,250	444	318	338	135	228
21	97	119	85	226	119	1,040	18,600	395	625	294	176	140
22	94	136	85	206	113	938	25,200	370	740	286	197	130
23	100	171	90	210	110	866	15,700	354	635	260	221	207
24	97	160	95	190	106	818	8,130	338	480	260	140	74
25	94	132	100	222	103	788	4,300	306	378	194	146	146
26	94	122	100	218	110	854	3,070	294	314	207	158	105
27	91	125	100	198	110	812	2,560	330	270	197	132	103
28	100	122	100	171	119	704	3,840	318	239	200	137	91
29	103	116	95	164	110	665	4,540	274	225	188	140	117
30	110	116	95	157	------	615	3,260	260	221	173	140	114
31	100	------	90	160	------	585	------	246	------	170	167	------
TOTAL	2,740	3,273	3,319	4,331	4,097	71,727	128,439	21,665	9,744	19,891	4,773	3,735
MEAN	88.4	109	107	140	141	2,314	4,281	699	325	642	154	125
CFSM	.106	.130	.128	.167	.169	2.76	5.11	.835	.388	.767	.184	.149
IN	.12	.15	.15	.19	.18	3.19	5.71	.96	.43	.88	.21	.17

CALENDAR YEAR 1963 MAX 18,300 MIN 74 MEAN 496 CFSM .593 INCHES 8.04
WATER YEAR 1963-64 MAX 25,200 MIN 74 MEAN 759 CFSM .907 INCHES 12.34

Peak discharge (base, 6,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	1930	14.42	9,160				
4-22	1045	21.31	26,800				

Note.--Stage-discharge relation affected by ice Jan. 3-18. No gage-height record Dec. 14 to Jan. 2.

3-3495. Cicero Creek near Arcadia, Ind.

Location.--Lat 40°11', long 86°00', on line between secs. 18 and 19, T. 20 N., R. 5 E., on left bank, on downstream side of county bridge, 1½ miles east of Arcadia and 10 miles upstream from Morse Dam.

Drainage area.--131 sq mi.

Records available.--October 1954 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 815.12 ft above mean sea level, datum of 1929. Prior to Dec. 7, 1955, wire-weight gage at same site and datum.

Average discharge.--10 years, 122 cfs.

Extremes.--Maximum discharge during year, 3,680 cfs Apr. 21 (gage height, 10.65 ft); minimum, 0.6 cfs Oct. 2; minimum gage height, 1.70 ft Aug. 18.
1954-64: Maximum discharge, 6,720 cfs June 29, 1957 (gage height, 11.86 ft); minimum, 0.4 cfs Oct. 10, 1956.
Maximum stage known, 15.6 ft (probably the flood of January 1937) from information by local residents.

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)
(Shifting-control method used Oct. 1 to Nov. 21)

Oct. 1 to Jan. 9		Jan. 10 to Sept. 30			
1.6	0.8	1.6	0	3.0	96
1.7	2.7	1.7	1.5	3.5	165
1.8	4.8	1.8	3.5	4.5	390
1.9	7.4	1.9	6.0	8.0	1,340
2.1	16	2.1	13	9.0	1,850
2.5	47	2.5	42	11.0	4,460
3.0	106				

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.5	6.3	3.0	1.2	8.0	22	96	340	14	11	4.7	a 3.5
2	1.0	8.2	✲ 1.7	1.3	8.0	✲ 146	340	253	14	10	4.4	a 2.2
3	1.9	6.6	2.5	1.6	7.5	150	915	190	✲ 14	11	✲ 3.9	a 2.2
4	2.5	6.6	3.5	2.0	7.0	254	665	143	13	9.6	4.2	2.0
5	2.9	7.1	4.8	2.5	✲ 6.0	665	440	122	12	7.7	3.5	2.2
6	3.3	11	5.0	2.4	8.0	340	a 620	96	12	13	3.1	2.2
7	2.3	✲9.4	5.3	✲2.2	30	181	a 500	✲ 83	12	234	2.2	1.7
8	1.5	8.2	6.0	3.0	25	170	a 350	76	12	690	2.0	1.5
9	✲ 1.3	7.8	7.1	25	10	1,190	✲a 260	68	12	365	1.9	1.3
10	1.9	7.4	5.5	40	8.5	1,170	190	56	9.6	181	1.5	1.9
11	2.5	7.4	3.0	20	7.0	765	143	51	8.4	102	1.5	✲ 2.2
12	2.7	6.8	2.0	10	7.5	665	122	52	10	72	1.7	2.4
13	3.5	6.8	1.7	6.5	6.0	715	109	48	12	96	1.9	2.4
14	2.5	7.1	1.4	5.5	6.0	1,090	90	43	10	61	1.7	2.0
15	1.9	7.4	1.2	5.0	6.5	765	77	37	12	238	1.7	1.7
16	1.5	7.8	1.1	4.5	7.0	515	70	36	11	✲ 219	1.7	1.9
17	1.7	8.2	1.0	4.0	6.0	365	65	155	8.0	109	1.7	2.2
18	1.9	8.2	1.0	4.5	5.5	230	61	90	7.4	64	1.2	3.5
19	2.5	7.8	1.0	5.0	5.0	173	286	60	7.1	44	1.2	5.4
20	3.3	8.2	1.0	25	4.7	150	1,760	48	18	33	1.9	3.3
21	3.3	8.2	1.0	70	4.5	143	3,160	39	150	27	3.1	2.6
22	3.3	13	1.0	45	4.2	116	2,560	36	241	22	a 2.5	1.9
23	3.1	20	1.0	25	4.0	102	1,260	31	136	17	a 1.6	2.2
24	3.3	8.6	1.1	15	3.8	96	790	29	79	14	a 1.5	2.4
25	3.5	6.3	1.2	30	3.7	146	590	26	48	14	a 1.4	2.0
26	3.5	5.5	1.4	20	3.6	340	440	24	35	62	a 1.4	1.7
27	4.6	5.3	1.5	15	3.6	219	390	27	25	36	a 1.3	2.4
28	4.2	5.3	1.6	10	3.5	173	740	22	20	17	a 1.4	2.6
29	4.2	5.0	1.5	8.0	3.5	150	665	18	16	11	a 1.5	2.2
30	4.2	4.4	1.4	7.0	------	122	465	16	13	8.0	a 8.0	1.7
31	4.6	------	1.2	7.0	------	116	------	15	------	6.6	a 8.0	------
Total	85.9	235.9	72.7	423.2	213.6	11,444	18,219	2,330	991.5	2,804.9	79.3	69.4
Mean	2.77	7.86	2.35	13.7	7.37	369	607	75.2	33.0	90.5	2.56	2.31
Cfsm	0.021	0.060	0.018	0.105	0.056	2.82	4.63	0.574	0.252	0.691	0.020	0.018
In.	0.02	0.07	0.02	0.12	0.06	3.25	5.17	0.66	0.28	0.80	0.02	0.02

Calendar year 1963 : Max 2,590 Min 1.0 Mean 80.4 Cfsm 0.614 In. 8.33
Water year 1963-64 : Max 3,160 Min 1.0 Mean 101 Cfsm 0.771 In. 10.49

Peak discharge (base, 1,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	2200	8.08	1,380				
3-14	1030	7.38	1,150				
4-21	2000	10.65	3,680				

✲ Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 1-4, Dec. 11 to Feb. 4, Feb. 6-29.

3-3497. Little Cicero Creek near Arcadia, Ind.

Location.--Lat 40°10', long 86°03', on line between sec. 14 and 23, T. 20 N., R. 4 E., on left bank on downstream side of county road bridge, 0.5 mile downstream from Taylor Creek, 1.3 miles west of Arcadia, 3.9 miles upstream from mouth, and 9.3 miles northwest of Noblesville.

Drainage area.--44.7 sq mi.

Records available.--October 1955 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 840 ft (by barometer).

Average discharge.--9 years, 41.1 cfs.

Extremes.--Maximum discharge during year, 2,210 cfs Apr. 20; (gage height, 7.63 ft); no flow Oct. 1 to Nov. 6, Sept. 8-20, 28-30.
1955-64: Maximum discharge, 3,980 cfs June 28, 1957 (gage height, 8.69 ft); no flow Oct. 9, 10, 1956, Sept. 14 to Nov. 6, 1963, Sept. 8-20, 28-30, 1964.

Remarks.--Records good except those for periods of ice effect or no gage-height record, 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 May 20 to June 7, June 10-12, 1 , 17-20, 25-29, July 6, 21-25, July 30 to Aug. 2)

Oct. 1 to Apr. 19

1.0	0	1.6	4.4	3.0	132
1.1	.1	1.7	6.5	3.5	236
1.2	.3	1.8	9.4	4.0	371
1.3	.8	1.9	13	5.0	656
1.4	1.5	2.2	33	6.0	1,010
1.5	2.7	2.5	64		

Apr. 20 to Sept. 30

1.1	0	1.6	5.6	3.0	145
1.2	.2	1.7	9.3	3.5	241
1.3	.7	1.9	20	4.0	371
1.4	1.5	2.2	44	6.0	1,010
1.5	3.0	2.6	87	7.0	1,620

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.3	a 0.2	3.0	b 10	24	80	3.7	3.0	3.4	0.8
2		0	* .3	a .2	2.8	66	131	63	* 3.9	2.8	3.2	.7
3		0	.3	b .2	2.1	43	399	50	5.3	2.8	3.0	.4
4		0	.3	b .2	1.8	102	201	41	4.5	89	2.4	.2
5		0	.3	b .2	* 1.8	229	124	33	3.2	40	* 1.9	.2
6		0	.3	b .2	b 7.0	94	197	27	3.4	11	1.6	.1
7		* .1	.3	*b .2	b 15	58	160	* 24	16	201	1.4	.1
8		.2	.4	b .2	b 6.0	60	94	22	73	414	1.2	0
9		.2	.6	a 7.5	b 3.0	750	* 68	19	19	170	1.2	0
10		.2	.7	a 3.5	b 2.5	483	55	16	6.5	100	1.2	0
11		.2	.8	a 2.0	b 2.3	262	39	15	3.4	56	1.2	* 0
12		.2	.8	a 1.8	b 2.1	236	31	18	7.0	35	1.2	0
13		.2	b .5	a 1.6	b 2.1	275	27	16	34	77	1.2	0
14		.2	b .3	a 1.6	b 2.0	357	19	13	16	45	1.1	0
15		.2	b .2	a 1.6	b 2.0	170	14	11	98	321	.7	0
16		.2	b .1	a 1.6	b 2.3	108	13	17	38	* 179	.7	0
17		.1	b .1	a 1.6	b 2.2	81	12	98	11	100	.7	0
18		.2	b .1	a 1.9	b 2.1	56	11	32	5.9	53	.5	0
19		.3	b .1	a 2.5	b 2.0	44	156	18	4.5	31	.5	0
20		.2	b .1	b 6.0	b 1.9	40	1,430	13	27	17	.6	0
21		.3	b .1	b 15	b 1.8	38	1,070	9.8	161	12	1.2	.2
22		.3	b .1	b 9.0	b 1.7	29	* 455	9.3	114	8.4	1.5	.3
23		.7	b .1	b 6.0	b 1.6	27	230	8.0	58	5.9	1.5	.2
24		1.5	b .2	b 5.5	b 1.5	24	161	6.8	28	4.2	.8	.1
25		.8	b .2	b 10	b 1.5	38	122	6.2	12	77	.6	.1
26		.5	a .3	b 6.0	b 1.4	94	94	5.9	6.5	294	.4	.1
27		.4	a .3	b 3.0	b 1.4	58	120	6.5	4.7	100	.4	.1
28		.4	a .3	b 2.2	b 1.3	49	230	5.0	3.4	45	.4	0
29		.3	a .3	b 2.2	b 1.3	43	137	4.5	3.2	21	.5	0
30		.3	a .2	2.2	------	31	100	4.2	3.0	9.3	1.2	0
31		------	a .2	2.7	------	31	------	3.9	------	4.5	1.2	------
Total	0	8.2	9.2	98.6	79.5	3,986	5,924	696.1	777.1	2,528.9	38.6	3.6
Mean	0	0.27	0.30	3.18	2.74	129	197	22.5	25.9	81.6	1.25	0.12
Cfsm	0	0.006	0.007	0.071	0.061	2.89	4.41	0.503	0.579	1.83	0.028	0.003
In.	0	0.007	0.008	0.08	0.07	3.33	4.92	0.58	0.65	2.11	0.03	0.003

Calendar year 1963 : Max 1,130 Min 0 Mean 21.4 Cfsm 0.479 In. 6.50
Water year 1963-64 : Max 1,430 Min 0 Mean 38.7 Cfsm 0.866 In. 11.79

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	1900	5.68	889				
4-20	1930	7.63	2,210				
7-7	2300	4.66	568				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3501. Hinkle Creek near Cicero, Ind.

Location.--Lat 40°06'05", long 86°05'10", on line between secs. 9 and 16, T. 19 N., R. 4 E., on left bank on downstream side of county road bridge, 3.7 miles above mouth, 4.0 miles upstream from Morse Reservoir Dam, 4.2 miles southwest of Cicero, and 5.7 miles northwest of Noblesville.

Drainage area.--16.3 sq mi.

Records available.--October 1955 to September 1964.

Gage.--Water-stage recorder (digital). Altitude of gage is 820 ft (from topographic map).

Average discharge.--9 years, 20.6 cfs.

Extremes.--Maximum discharge during year, 3,290 cfs Apr. 20 (gage height, 7.80 ft); minimum, 0.4 cfs Oct. 3, 5-10, Sept. 11; minimum gage height, 0.97 ft Dec. 17.
1955-64: Maximum discharge, 4,920 cfs June 28, 1957 (gage height, 8.45 ft); minimum, 0.1 cfs Sept. 27, 28, 1956 (gage height, 1.30 ft); minimum gage height, that of Dec. 17, 1963.

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. 1-29, Sept. 8-30)

Oct. 1 to Apr. 19

0.9	0.4	1.6	37
1.0	0.8	2.0	89
1.1	1.4	2.5	196
1.2	3.4	3.0	340
1.3	8.5	4.0	640
1.4	16		

Apr. 20 to Sept. 30

Note.--Same as preceeding table below 1.6 ft.

1.6	37	3.0	348
1.8	66	4.0	692
2.0	103	6.0	1,620
2.5	213		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.5	1.0	0.9	0.7	1.7	6.0	8.8	35	2.7	1.8	2.2	1.1
2	.5	.9	1.0	.8	1.5	23	41	27	2.9	1.7	2.0	.9
3	.4	.9	*1.0	1.0	*1.2	17	155	21	4.6	28	1.9	.8
4	.5	.9	1.0	1.2	1.2	67	68	18	*2.7	64	1.7	.8
5	.4	1.1	1.0	1.3	1.2	*79	47	15	2.6	16	1.5	.7
6	.4	1.0	1.0	1.3	10	38	83	*13	3.4	14	*1.4	.7
7	.4	*1.0	1.0	*1.4	6.0	22	58	11	7.4	191	1.3	.6
8	*.4	1.0	1.2	1.5	3.5	39	38	11	22	119	1.3	.6
9	.4	1.0	1.2	6.0	2.0	511	*26	9.2	5.7	49	1.3	.5
10	.4	1.0	1.0	2.0	1.5	172	21	8.0	3.4	27	1.3	.5
11	.5	1.0	1.0	1.5	1.5	97	16	7.6	2.5	16	1.5	*.4
12	.5	1.0	1.1	1.2	1.4	98	13	8.7	3.8	13	1.9	.5
13	.5	1.0	1.0	1.2	1.3	108	11	8.1	11	30	1.3	.5
14	.5	1.0	.9	1.1	1.3	86	8.5	6.7	15	14	1.2	.5
15	.5	1.0	.7	1.1	1.4	56	7.2	5.8	57	*47	1.1	.5
16	.6	1.0	.6	1.1	1.6	41	6.0	19	14	26	1.1	.5
17	.6	1.0	.6	1.1	1.5	30	5.4	30	7.0	14	1.0	.6
18	.6	1.1	.6	1.3	1.4	20	6.0	12	4.9	9.5	1.1	.8
19	.7	1.0	.6	1.5	1.4	16	139	8.5	4.1	7.0	1.1	.8
20	.7	1.0	.6	10	1.3	15	*1,440	7.2	34	4.8	1.1	.7
21	.7	1.0	.6	7.0	1.2	15	312	6.0	58	3.8	2.2	.7
22	.7	1.4	.6	5.0	1.1	12	*153	5.4	29	3.2	2.0	.7
23	.7	2.2	.6	4.0	1.1	11	90	4.8	14	2.6	1.4	.8
24	.7	1.2	.7	3.5	1.0	9.7	66	4.6	8.1	2.2	1.3	.7
25	.7	1.0	.7	7.0	1.0	15	50	4.0	5.1	15	1.3	.7
26	.7	1.0	.8	4.0	.9	28	40	4.0	3.9	36	1.3	.7
27	.7	1.1	.9	1.7	.9	18	63	4.3	2.9	12	1.2	.7
28	.8	1.0	.9	1.5	.9	16	114	3.4	2.4	7.3	1.3	.8
29	.7	.9	.9	1.4	.9	14	62	3.2	2.0	4.6	1.4	.8
30	.8	1.0	.8	1.4	------	11	45	2.7	1.9	3.0	4.1	.8
31	.8	------	.7	1.6	------	11	------	2.7	------	2.5	4.6	------
TOTAL	18.0	31.7	26.2	76.4	52.9	1,701.7	3,192.9	326.9	338.0	785.0	50.4	20.4
MEAN	.58	1.06	.85	2.47	1.82	54.9	106	10.5	11.3	25.3	1.63	.68
CFSM	.036	.065	.052	.152	.112	3.37	6.50	.644	.693	1.55	.100	.042
IN	.04	.07	.06	.17	.12	3.88	7.28	.75	.77	1.79	.11	.05

CALENDAR YEAR 1963 MAX 1,100 MIN .4 MEAN 13.1 CFSM .804 INCHES 10.94
WATER YEAR 1963-64 MAX 1,440 MIN .4 MEAN 18.1 CFSM 1.11 INCHES 15.11

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	0515	5.21	1,070				
4-20	1400	7.80	3,290				

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 16 to Jan. 4, Jan. 9-17, 20-28, Feb. 6 to Mar. 1.

3-3505. Cicero Creek at Noblesville, Ind.

Location.--Lat 40°03'20", long 87°02'30", in sec. 35, T. 19 N., R. 4 E., on right bank 150 ft downstream from bridge on State Highway 38, 1 mile northwest of Noblesville, 1½ miles downstream from Hinkle Creek, and 2½ miles upstream from mouth.

Drainage area.--219 sq mi.

Records available.--July 1950 to September 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 750.00 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--14 years, 194 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 7,800 cfs Apr. 20 (gage height, 14.50 ft); minimum, 0.9 cfs Sept. 27, 28 (gage height, 3.62 ft).
1950-64: Maximum discharge, 9,800 cfs June 28, 1957 (gage height, 15.26 ft); minimum, 0.5 cfs Sept. 25, 1954.

Remarks.--Records good except those for period of indefinite stage-discharge relation, which are poor. Flow regulated by Morse Reservoir located approximately 1.2 miles upstream beginning Dec. 9, 1955 (capacity, 6,900,000,000 gal).

Rating tables, except period of indefinite stage-discharge (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 30)

Oct. 1 to Apr. 20

3.58	1.9	4.5	66
3.6	2.0	5.0	140
3.7	3.3	6.0	400
3.8	5.8	10.0	1,720
3.9	10	11.0	2,200
4.0	16	12.0	3,120
4.2	33	14.0	6,550

Apr. 21 to July 31

3.9	12	5.0	158
4.1	28	5.5	263
4.5	77	6.0	400

Note.--Same as preceding table above 6.0 ft.

Aug. 1 to Sept. 30

3.5	0.7	3.9	14
3.6	1.9	4.2	41
3.7	4.1	4.6	95
3.8	8.0		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	40	15	2.2	52	2.3	2.5	152	558	*22	17	11	6.7
2	40	2.5	2.2	58	2.3	2.9	295	433	20	16	12	4.8
3	41	2.3	*2.1	79	* 2.3	2.9	1,240	339	30	33	*18	31
4	41	2.3	2.0	38	2.4	5.8	1,210	*269	22	125	25	* 89
5	41	2.4	1.9	37	2.4	*201	797	222	22	78	14	89
6	42	2.3	1.9	18	3.3	578	861	178	34	* 67	3.2	88
7	42	*2.4	1.9	* 2.2	3.1	398	*967	155	33	393	2.9	86
8	* 43	2.5	2.1	2.1	2.8	319	713	130	60	1,150	8.2	70
9	42	2.5	2.1	2.6	2.5	2,130	489	131	47	719	6.5	40
10	41	2.5	2.0	2.1	2.5	2,260	369	111	56	378	2.8	40
11	42	2.5	2.0	2.1	2.5	1,360	282	92	20	220	5.5	40
12	42	2.6	2.0	2.1	2.5	1,120	230	98	31	171	8.1	39
13	42	2.6	2.0	2.2	2.6	1,060	201	118	86	138	3.9	40
14	42	2.7	1.9	2.1	2.6	1,420	171	92	67	135	3.1	33
15	42	2.7	1.9	2.1	2.6	1,220	140	60	153	351	2.8	22
16	31	2.5	1.9	2.1	2.6	821	107	79	103	447	2.7	22
17	18	2.5	11	2.1	2.6	600	104	245	53	261	2.6	22
18	19	2.6	33	2.1	2.6	403	126	218	38	163	2.6	22
19	19	2.5	33	2.1	2.6	310	421	146	32	114	2.5	22
20	19	2.6	31	2.9	2.6	265	4,460	115	91	85	2.5	22
21	20	2.5	23	2.4	2.6	272	5,780	78	230	65	7.0	17
22	20	2.9	21	2.3	2.6	196	* 4,410	65	332	50	5.0	1.9
23	20	3.1	20	2.3	2.5	170	2,270	55	237	41	4.0	1.5
24	20	2.5	15	2.3	2.5	157	1,220	58	155	29	3.5	52
25	20	2.4	2.4	3.1	2.5	188	885	46	92	32	3.0	53
26	20	2.3	2.2	2.6	2.5	362	675	39	70	184	3.0	1.2
27	20	2.3	2.1	2.4	2.3	395	610	50	56	165	3.0	1.0
28	20	2.3	2.1	2.3	2.3	315	1,010	52	39	96	3.0	1.0
29	20	2.3	2.1	2.3	2.3	271	1,040	32	29	69	4.0	9.5
30	20	2.4	2.1	2.3	------	216	749	13	24	30	12	21
31	21	------	21	2.3	------	200	------	14	------	13	6.5	------
Total	950	87.5	253.1	339.5	73.8	17,221.1	31,984	4,291	2,284	5,835	193.9	987.6
Mean	30.6	2.92	8.17	11.0	2.55	556	1,066	138	76.1	188	6.26	32.9
(≠)	-30.8	+3.57	-0.19	+10.9	+23.14	+51	+8	-12	+0.7	0	-3.65	-36.4

Adjusted for change in contents in Morse Reservoir

Mean	-0.2	6.49	7.98	21.9	25.69	607	1,074	126	76.8	188	2.61	-3.5
Cfsm	-0.00091	0.030	0.036	0.100	0.117	2.77	4.90	0.575	0.351	0.858	0.012	-0.016
In.	-0.001	0.03	0.04	0.12	0.13	3.19	5.47	0.66	0.39	0.99	0.01	-0.02

	Observed				Adjusted			
Calendar year 1963 :	Max 4,960	Min 1.6	Mean 130		Mean 123	Cfsm 0.562	In. 7.70	
Water year 1963-64 :	Max 5,780	Min 1.0	Mean 176		Mean 177	Cfsm 0.808	In. 11.01	

Peak discharge (base, 2,000 cfs).--Mar. 10 (0415) 2,780 cfs (11.73 ft); Apr. 20 (2045) 7,800 cfs (14.50 ft).

* Discharge measurement made on this day.
≠ Change in contents, equivalent in cubic feet per second, in Morse Reservoir, furnished by Indianapolis Water Co.
Note.--Stage-discharge relation indefinite Aug. 16-29.

3-3510. White River near Nora, Ind.

Location.--Lat 39°54'35", long 86°06'20", in sec. 20, T. 17 N., R. 4 E., on downstream side of center pier of bridge on State Highway 100, 2 miles east of Nora, 14 miles upstream from Fall Creek and at mile 253.4.

Drainage area.--1,200 sq mi.

Records available.--October 1929 to September 1964. Prior to April 1930 monthly discharge only, published in WSP 1305. Prior to October 1948, published as West Fork White River near Nora. Records of water temperatures published in WSP.

Gage.--Water-stage recorder. Datum of gage is 710.94 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Oct. 26, 1929, to July 29, 1942, at site 200 ft downstream at same datum. Supplemental water-stage recorder 4½ miles downstream.

Average discharge.--35 years, 1,076 cfs.

Extremes.--Maximum discharge during year, 30,400 cfs Apr. 23 (gage height, 18.65 ft); minimum, 78 cfs Sept. 25 (gage height, 1.75 ft, result of regulation).
1929-64: Maximum discharge, 32,400 cfs May 19, 1943 (gage height, 18.19 ft); minimum, 40 cfs Sept. 2, 1934; minimum daily, 49 cfs Sept. 17, 1941.
Flood of Mar. 26, 1913, reached a stage of 22.4 ft, from floodmark, determined by State Higheay Department of Indiana (discharge, 58,500 cfs, estimated).

Remarks.--Records good except those for period of ice effect, which are poor. Flow slightly regulated by Morse Reservoir. Discharge measurements generally made twice a month.

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

Oct. 1 to Apr. 4				Apr. 5 to Sept. 30			
1.8	105	4.0	1,180	1.9	120	8.0	5,230
2.0	167	5.0	1,950	2.4	277	12.0	11,500
2.5	342	8.0	5,230	3.0	510	16.0	20,800
3.0	569	12.0	11,200	4.0	1,100	19.0	32,200
				5.0	1,900		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	148	154	138	150	180	151	845	3,700	368	277	242	201
2	138	154	135	160	177	218	910	2,930	368	260	226	210
3	148	164	132	170	164	324	2,900	2,490	406	242	226	177
4	157	129	129	170	151	615	5,770	2,090	386	406	226	198
5	154	129	138	170	154	1,870	4,990	1,720	349	386	210	226
6	157	151	135	170	216	3,370	3,920	1,560	349	349	210	226
7	157	148	132	160	270	2,310	4,630	1,320	386	942	207	210
8	148	138	148	160	324	1,550	4,750	1,250	406	3,360	177	204
9	145	129	154	170	252	5,940	3,040	1,100	406	4,510	189	177
10	154	123	145	180	221	10,100	2,090	1,030	386	2,710	198	165
11	167	114	141	180	197	11,000	1,640	900	406	1,640	183	168
12	170	123	145	170	187	10,900	1,400	840	349	1,180	198	165
13	148	117	141	160	177	7,500	1,180	900	465	960	192	165
14	148	117	145	150	174	6,750	1,100	900	585	900	180	162
15	161	129	135	140	174	7,200	960	780	488	1,400	177	150
16	170	135	126	140	190	6,040	840	720	560	1,560	177	138
17	174	141	126	140	180	4,030	750	840	445	1,100	177	144
18	138	141	135	140	167	2,710	720	840	349	780	168	147
19	129	145	150	150	170	2,040	1,430	750	349	720	165	183
20	135	154	160	252	167	1,710	7,670	692	406	560	168	294
21	129	154	170	380	167	1,550	22,100	610	840	488	177	226
22	120	167	170	421	164	1,400	23,200	535	1,180	445	210	183
23	117	224	170	324	164	1,250	26,600	510	1,100	386	242	171
24	114	288	160	306	151	1,180	16,500	488	840	368	204	217
25	114	224	150	306	141	1,110	7,440	465	610	349	189	258
26	111	164	150	324	145	1,320	4,750	445	488	406	174	171
27	114	145	150	288	145	1,400	3,810	445	406	465	171	126
28	114	145	150	235	151	1,180	4,510	465	349	386	168	135
29	105	148	150	224	154	1,040	6,040	445	330	330	168	120
30	120	145	140	197	------	975	4,870	406	294	294	159	147
31	141	------	140	184	------	910	------	386	------	260	156	------
Total	4,345	4,539	4,490	6,471	5,274	99,643	176,355	32,552	14,649	30,419	5,914	5,464
Mean	140	151	145	209	182	3,214	5,878	1,050	488	981	191	182
Cfsm	0.117	0.126	0.121	0.174	0.152	2.68	4.90	0.875	0.407	0.818	0.159	0.152
In.	0.13	0.14	0.14	0.20	0.16	3.09	5.47	1.01	0.45	0.94	0.18	0.17

Calendar year 1963 : Max 19,100 Min 105 Mean 722 Cfsm 0.602 In. 8.16
Water year 1963-64 : Max 28,200 Min 105 Mean 1,066 Cfsm 0.888 In. 12.08

Peak discharge (base, 7,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-12	0500	12.02	11,200				
4-23	0100	18.65	30,400				

Note.--Stage-discharge relation affected by ice Dec. 19 to Jan. 19.

3-3515. Fall Creek near Fortville, Ind.

Location.--Lat 39°57'15", long 85°52'05", in sec. 5, T. 17 N., R. 6 E., on right bank at downstream side of bridge on State Highway 238, 1 mile downstream from Lick Creek and 2 miles northwest of Fortville.

Drainage area.--172 sq mi.

Records available.--July 1941 to September 1964. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder (digital since June 17). Datum of gage is 787.43 ft above mean sea level, datum of 1929 (levels by Indianapolis Water Co.).
Prior to June 27, 1942, staff gage at same site and datum.

Average discharge.--23 years, 167 cfs.

Extremes.--Maximum discharge during year, about 8,750 cfs Apr. 21 (gage height, 9.88 ft); minimum daily, 16 cfs Oct. 1-7; minimum gage height, 1.20 ft Oct. 1-3.
1941-64: Maximum discharge, that of Apr. 21, 1964, minimum observed, 5.0 cfs Sept. 23, 24, 1941 (gage height, 1.04 ft).
Maximum stage known, about 12 ft March 1913, (information by local resident).

Remarks.--Records good, except those for periods of ice effect, which are fair. Discharge measurements generally made twice a month.

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

1.1	12	5.0	920
1.2	17	6.0	1,350
1.5	44	7.0	2,020
2.0	112	8.0	3,330
2.5	203	9.0	5,600
3.0	320	10.0	9,150
4.0	600		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	37	27	22	42	44	120	428	83	46	50	39
2	16	36	27	22	41	96	127	347	86	44	50	32
3	16	30	27	23	37	104	533	296	104	44	48	29
4	16	28	27	23	34	197	600	260	89	45	46	29
5	16	30	27	24	36	852	374	236	82	45	43	26
6	16	33	26	24	49	455	544	214	86	49	43	26
7	16	31	26	23	91	272	571	193	89	361	41	25
8	17	30	28	31	70	256	347	193	86	828	41	24
9	17	29	28	42	55	1,810	260	173	79	409	41	24
10	18	28	28	42	45	3,870	214	163	73	227	40	23
11	18	28	27	35	40	2,730	183	154	69	159	40	22
12	19	28	28	25	40	1,350	163	163	68	141	40	21
13	19	28	26	25	42	1,070	163	163	86	146	39	22
14	20	28	23	25	41	852	154	154	77	141	36	22
15	20	29	22	25	38	720	136	136	69	301	35	23
16	20	28	21	27	42	513	127	127	64	258	33	22
17	20	28	20	29	37	401	120	127	60	161	32	23
18	20	30	20	29	41	308	120	120	61	199	32	28
19	22	32	20	31	41	260	478	120	63	260	31	44
20	23	30	20	86	40	236	2,580	112	83	155	30	36
21	23	29	20	112	38	225	5,950	112	99	124	35	28
22	24	32	20	83	36	193	3,330	104	80	102	44	27
23	23	62	21	75	33	183	1,720	104	69	90	44	41
24	23	49	23	68	31	173	996	97	61	82	36	34
25	23	35	25	83	34	173	720	97	56	75	32	28
26	23	30	25	69	38	183	571	94	55	72	31	26
27	23	29	25	57	36	163	542	97	52	68	30	26
28	23	28	25	50	36	144	896	93	50	64	29	26
29	24	28	24	48	36	136	690	90	48	60	29	27
30	25	27	23	44	------	127	542	86	46	56	29	27
31	25	------	22	43	------	127	------	83	------	54	37	------
Total	624	950	751	1,345	1,220	13,223	24,861	4,936	2,173	4,866	1,167	830
Mean	20.1	31.7	24.2	43.4	42.1	588	829	159	72.4	157	37.6	27.7
Cfsm	0.117	0.184	0.141	0.252	0.245	3.42	4.82	0.924	0.421	0.913	0.219	0.161
In.	0.13	0.21	0.16	0.29	0.26	3.94	5.38	1.07	0.47	1.05	0.25	0.18

Calendar year 1963: Max 4,500 Min 14 Mean 121 Cfsm 0.703 In. 9.53
Water year 1963-64: Max 6,950 Min 16 Mean 169 Cfsm 0.983 In. 13.39

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1030	8.47	4,290				
4-21	1130	9.88	8,750				

Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 2, Jan. 6, 7, 11, 12, 14-17, Feb. 10-12.

3-3520. Lawrence Creek at Fort Benjamin Harrison, Ind.

Location.--Lat 39°52'09", long 86°01'25", in S½ sec. 36, T. 17 N., R. 4 E., on left bank 100 ft upstream from Shafter Avenue Bridge in Fort Benjamin Harrison, 600 ft east of sewage disposal plant, and a third of a mile upstream from mouth.

Drainage area.--2.86 sq mi.

Records available.--March 1952 to September 1956, October 1957 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 749.10 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 5.15 cfs.

Extremes.--Maximum discharge during year, 678 cfs Mar. 8 (gage height, 6.12 ft); minimum 0.9 cfs Sept. 12, 13, minimum gage height, 2.26 ft Jan. 18.
1952-56, 1957-64: Maximum discharge, 2,650 cfs May 28, 1956 (gage height, 9.32 ft) minimum, 0.1 cfs Aug. 1, 2, 1952, Oct. 29, 30, 1953.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. City of Lawrence discharges effluent from sewage treatment plant into creek above gage.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-6, July 25 to Sept. 30)

Oct. 1 to Mar. 4

2.1	0.8	2.5	5.8
2.2	1.5	2.6	8.6
2.3	2.4	2.8	18
2.4	3.8	3.0	33

Mar. 4 to Sept. 30

2.4	1.0	2.9	16
2.5	1.8	3.0	25
2.6	3.1	3.5	95
2.7	5.6	4.0	178
2.8	9.6		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	3.9	2.6	b 1.6	b 2.5	b 1.8	1.6	8.3	2.4	3.7	2.5	1.3
2	1.6	2.3	b 2.0	b 1.9	b 2.4	b 1.8	2.4	6.7	4.1	3.3	2.4	1.3
3	1.5	2.2	b 1.7	b 2.1	2.2	b 1.8	39	5.3	* 2.5	4.0	2.4	1.3
4	1.4	2.3	*b 1.6	b 2.1	2.2	*80	8.3	5.3	2.2	3.1	2.2	1.3
5	1.4	* 3.0	b 1.7	b 1.8	* 2.2	17	10	*4.4	2.2	2.9	2.0	1.3
6	1.4	2.4	b 2.0	b 1.6	24	6.7	32	3.7	2.6	7.3	* 1.8	1.2
7	1.7	2.4	2.6	b 1.5	7.6	4.1	9.1	3.3	15	41	1.8	1.2
8	2.0	2.3	4.0	*b 1.4	b 5.0	81	6.0	3.3	3.1	15	1.8	1.3
9	1.8	2.3	2.7	b 1.3	b 4.0	135	4.4	3.3	2.6	6.3	1.8	1.3
10	1.7	2.3	b 2.2	b 1.3	b 3.5	59	* 3.9	3.1	2.6	4.4	1.9	1.2
11	1.7	2.3	b 1.7	b 1.2	b 3.0	25	3.7	3.7	2.5	3.7	22	1.4
12	1.8	2.3	b 1.5	b 1.2	b 2.9	37	3.3	14	2.8	4.7	1.9	1.3
13	2.1	2.2	b 1.3	b 1.2	b 2.8	18	3.7	3.5	2.8	3.9	1.4	1.1
14	2.1	2.4	b 1.1	b 1.2	a 2.6	18	2.9	3.3	3.1	8.3	1.4	*1.3
15	2.0	2.3	b 1.1	b 1.2	a 2.5	9.6	2.8	2.9	4.4	9.8	1.5	1.3
16	1.9	2.4	b 1.0	b 1.2	a 2.4	6.7	2.6	4.7	2.8	4.4	1.5	1.3
17	2.1	2.3	b 1.0	b 1.2	a 2.3	5.3	2.6	2.9	2.9	* 3.9	1.5	1.3
18	2.1	3.3	b 1.0	b 1.3	b 2.2	4.4	5.6	2.8	3.1	3.7	1.5	3.1
19	2.2	2.4	b 1.0	b 2.5	b 2.1	3.5	119	2.6	3.5	3.5	1.4	1.4
20	2.1	2.4	a 1.0	b 6.0	b 2.1	2.8	137	2.5	6.0	3.3	1.4	1.1
21	2.1	2.4	a 1.0	b 4.0	b 2.0	2.4	126	2.5	13	2.9	1.8	1.3
22	2.2	17	a 1.0	b 2.3	b 2.0	2.0	74	2.5	3.5	2.9	1.4	1.7
23	2.0	5.5	a 1.1	b 2.1	b 1.9	2.0	32	2.6	3.5	2.8	1.5	1.3
24	1.9	2.7	a 1.3	b 7.0	b 1.9	1.9	21	2.6	3.1	2.6	1.4	1.2
25	2.0	2.7	a 1.5	b 4.5	b 1.9	3.2	13	2.6	3.1	21	1.4	1.2
26	2.0	2.6	a 1.7	b 3.0	b 1.8	2.5	11	5.9	3.1	4.7	1.3	1.3
27	2.2	2.6	a 1.7	b 2.0	b 1.8	2.0	13	2.6	3.3	3.5	1.3	1.3
28	2.2	2.6	a 1.5	b 1.9	b 1.8	2.0	22	2.5	3.3	3.3	1.3	1.3
29	2.1	2.5	a 1.2	b 1.8	b 1.8	1.7	18	2.6	3.5	2.9	1.3	1.3
30	2.0	2.6	a 1.2	b 1.7	------	1.7	11	2.2	3.3	2.6	1.3	1.3
31	2.2	------	b 1.4	b 1.9	------	1.7	------	2.2	------	2.6	1.3	------
Total	59.2	92.9	49.4	67.0	97.4	541.6	740.9	120.4	115.9	192.0	71.4	40.5
Mean	1.91	3.10	1.59	2.16	3.36	17.5	24.7	3.88	3.86	6.19	2.30	1.35
Cfsm												
In.												

Calendar year 1963: Max 170 Min 1.0 Mean 4.79 Cfsm In.
Water year 1963-64: Max 137 Min 1.0 Mean 5.98 Cfsm In.

Peak discharge (base, 300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1430	4.73	304	7-7	1800	5.18	410
3-8	2330	6.12	678	7-25	1700	4.81	323
4-20	0700	5.77	578	8-11	1700	4.81	323

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3522. Mud Creek at Indianapolis, Ind.

Location.--Lat 39°53'30", long 86°00'57", in NE¼ sec. 25, T. 17 N., R. 4 E., on left bank at downstream side of Lantern Road Bridge at Indianapolis, 0.2 miles northeast of intersection of 75th Street and Sargent Road, 2.0 miles southeast of Castleton and 1.5 miles upstream from mouth.

Drainage area.--42.5 sq mi.

Records available.--May 1958 to September 1964.

Gage.--Water-stage recorder (digital since Apr. 16). Datum of gage is 752.99 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--6 years, 36.0 cfs.

Extremes.--Maximum discharge during year, 2,010 cfs Apr. 21 (gage height, 8.37 ft); minimum, 0.2 cfs Oct. 3, minimum gage height, 1.68 ft Sept. 11.
1958-64: Maximum discharge, that of Apr. 21, 1964; minimum, 0.2 cfs Aug. 24, 1962, several days in September and Oct. 3, 1963, minimum gage height, 1.65 ft Aug. 24, 1962.

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 Oct. 3 to Nov. 22, Mar. 2-5, 8-15, Apr. 3, 6, 19, Sept. 19-30)

Oct. 1 to Apr. 19

1.6	0.2	3.0	67
1.7	1.0	4.0	170
1.8	2.6	5.0	340
2.0	7.0	6.0	580
2.2	14	7.0	900
2.5	30		

Apr. 20 to Sept. 30

1.6	0.3	3.5	84
1.7	1.0	4.0	135
1.8	2.0	5.0	267
2.0	4.8	6.0	462
2.2	8.5	6.5	600
2.5	22	7.0	840
3.0	47	8.0	1,650

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.6	2.2	2.1	0.4	3.4	4.1	24	82	8.0	5.5	4.4	2.4
2	.5	2.1	2.1	.6	3.0	12	26	65	8.3	5.2	4.2	2.1
3	.3	1.8	2.1	.8	2.6	11	147	54	*9.9	5.2	4.1	2.0
4	.3	* 1.3	*1.9	1.0	2.2	*46	152	46	8.0	5.2	4.0	1.8
5	.3	2.1	1.9	1.0	*2.4	152	98	* 41	7.6	4.8	4.2	1.6
6	.3	1.8	1.8	1.3	7.0	76	162	38	7.8	5.2	* 4.0	1.4
7	.6	1.6	1.8	1.2	9.4	48	157	35	8.5	43	4.0	1.1
8	.9	1.4	2.4	*1.3	6.8	65	98	33	9.9	136	3.7	.9
9	1.0	1.3	2.4	2.6	5.8	525	72	30	8.3	72	3.7	.7
10	1.0	1.3	1.9	1.9	4.4	795	*59	27	6.9	40	3.7	*.6
11	1.0	1.2	1.6	1.2	4.0	580	48	25	6.2	25	4.1	.5
12	1.2	1.2	1.8	.9	3.2	400	41	25	6.2	19	3.7	.6
13	1.3	1.2	1.0	.7	3.6	340	38	23	49	16	3.3	.6
14	1.4	1.2	.9	.5	3.2	250	31	21	35	20	3.1	.7
15	1.6	.9	.8	.5	3.2	199	28	20	19	122	3.0	.6
16	1.8	.9	.8	.6	3.2	157	24	19	13	69	3.0	.6
17	1.8	.9	1.0	.8	3.0	118	23	19	9.2	*37	2.8	.7
18	1.8	1.2	1.6	.9	3.0	94	23	18	8.3	29	2.7	1.4
19	1.8	1.0	1.2	1.3	3.0	72	225	16	7.8	56	2.6	1.7
20	2.1	1.0	.8	9.4	2.8	63	*816	15	15	30	2.6	1.7
21	2.6	1.0	.5	8.2	2.4	55	1,600	14	43	19	3.4	1.2
22	2.6	2.8	.6	7.0	2.2	44	*770	13	30	14	4.2	1.1
23	2.6	6.8	.7	6.5	2.2	40	*417	12	19	11	3.7	1.4
24	2.8	4.8	.8	6.3	2.1	37	*244	12	14	8.5	3.1	1.2
25	2.8	3.6	.9	9.7	2.1	39	*164	11	9.9	8.0	3.0	1.1
26	2.6	3.0	.9	6.0	2.6	48	*123	11	8.3	6.9	3.0	1.0
27	2.6	2.6	.8	3.5	2.6	43	112	11	7.6	6.2	2.7	.9
28	2.6	2.4	.5	2.5	2.4	38	145	9.9	6.7	5.8	2.6	1.0
29	2.6	2.4	.4	2.0	2.4	33	133	9.2	5.9	5.5	2.6	1.1
30	2.2	2.2	.3	2.5	------	28	107	8.5	5.6	4.9	2.4	1.1
31	2.6	------	.3	3.4	------	26	------	8.3	------	4.7	2.4	------
TOTAL	50.2	59.2	38.6	86.5	100.2	4,438.1	6,107	771.9	401.9	839.6	104.0	34.8
MEAN	1.62	1.97	1.25	2.79	3.46	143	204	24.9	13.4	27.1	3.36	1.16
CFSM	.038	.046	.029	.066	.081	3.36	4.80	.586	.315	.638	.079	.027
IN.	.04	.05	.03	.08	.09	3.88	5.34	.68	.35	.73	.09	.03

CALENDAR YEAR 1963 MAX 1,400 MIN .2 MEAN 32.9 CFSM .774 INCHES 10.52
WATER YEAR 1963-64 MAX 1,600 MIN .3 MEAN 35.6 CFSM .838 INCHES 11.40

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1900	6.97	830				
4-21	0545	8.37	2,010				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 13 to Jan. 30.

3-3525. Fall Creek at Millersville, Ind.

Location.--Lat 39°51'05", long 86°05'20", in sec. 9, T. 16 N., R. 4 E., on left bank at downstream side of highway bridge at Millersville and 8.5 miles upstream from mouth.

Drainage area.--313 sq mi.

Records available.--October 1929 to September 1964. Monthly discharges only for some periods, published in WSP 1305. Twice daily readings at a chain gage at same site and datum from July 1925 to September 1926 are available in the District office.

Gage.--Water-stage recorder (digital). Datum of gage is 722.16 ft above mean sea level, datum of 1929.

Average discharge.--35 years, 274 cfs (unadjusted).

Extremes.--Maximum discharge during year, 10,100 cfs Apr. 21 (gage height, 12.78 ft); minimum, 29 cfs Jan. 10 (gage height, 1.73 ft).
1929-64: Maximum discharge, 12,900 cfs May 28, 1956 (gage height, 13.53 ft), minimum, 7.0 cfs Sept. 28, 1941 (gage height, 0.84 ft).
Maximum stage known, 16.3 ft Mar. 26, 1913, from floodmarks (discharge, 22,000 cfs, by slope-area measurement).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made twice a month. Flow regulated by Geist Reservoir, 8.5 miles upstream, since January 1943 (capacity, 6,900,000,000 gal).

Revisions.--Revised figures of discharge for some days and the yearly maximum, March 1963 are on file in the District office.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 20-24)

Oct. 1 to July 8

1.7	26	6.0	1,620
2.0	62	8.0	3,170
2.5	152	11.0	6,510
3.0	267	12.0	8,040
3.5	413	13.0	10,700
4.0	608		

July 9 to Sept. 30

1.9	54	3.0	241
2.2	93	3.5	381
2.5	141	4.0	569

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	72	68	48	35	44	54	195	810	80	85	70	73
2	72	59	49	36	43	65	204	649	87	92	76	79
3	75	59	52	37	42	72	681	524	113	92	75	78
4	75	59	52	37	42	232	1,080	441	100	92	79	79
5	75	64	52	37	43	485	815	387	95	88	80	78
6	117	58	52	37	92	211	1,020	335	100	99	75	76
7	128	52	54	37	76	134	1,120	312	115	207	74	76
8	85	64	62	40	64	156	800	285	160	920	73	76
9	75	62	58	48	58	2,180	561	257	113	500	73	76
10	75	62	54	33	52	5,080	434	255	90	300	73	76
11	80	62	51	33	48	5,370	358	240	88	250	111	76
12	78	62	52	33	47	3,690	309	257	65	220	80	75
13	72	64	42	33	49	2,500	277	252	117	220	75	75
14	68	64	37	33	47	1,910	262	237	124	220	73	75
15	68	62	35	34	47	1,510	235	195	95	450	70	67
16	70	64	32	38	51	1,150	202	180	95	350	70	64
17	70	64	30	43	49	850	188	188	64	260	70	64
18	73	75	30	44	51	658	211	169	62	350	69	76
19	73	72	30	51	52	508	1,300	150	64	400	70	73
20	73	64	30	73	51	438	4,030	158	97	265	70	67
21	72	64	30	43	59	380	8,850	136	220	196	76	67
22	70	83	32	52	130	343	7,760	123	204	150	75	69
23	56	95	35	54	52	307	4,500	119	136	118	74	71
24	58	67	38	56	44	280	2,510	111	100	99	73	67
25	58	64	40	97	43	301	1,530	130	85	146	74	66
26	58	62	40	73	48	296	1,150	115	72	116	73	66
27	58	62	40	59	42	309	995	130	73	95	71	67
28	59	62	40	49	46	265	1,200	130	72	80	73	66
29	59	61	38	48	46	235	1,280	102	70	78	71	66
30	58	51	35	46	------	216	1,040	90	75	76	70	66
31	61	------	35	46	------	207	------	81	------	71	70	------
TOTAL	2,241	1,931	1,305	1,415	1,558	30,392	45,097	7,548	3,031	6,685	2,306	2,150
MEAN	72.3	64.4	42.1	45.6	53.7	980	1,503	243	101	216	74.4	71.7
CFSM	-	-	-	-	-	-	-	-	-	-	-	-
IN	-	-	-	-	-	-	-	-	-	-	-	-
(≠)	-49.5	-16.1	-0.8	+8.1	+16.6	+135	+14	-16	-4	+3	-37.9	-42.4

CALENDAR YEAR 1963 MAX 7,080 MIN 30 MEAN 243 CFSM .776 INCHES 10.54 ≠ -6
WATER YEAR 1963-64 MAX 8,850 MIN 30 MEAN 289 CFSM .923 INCHES 12.55 ≠ +1

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	2100	10.49	5,860				
4-21	2100	12.78	10,100				

≠ Change in contents, equivalent in cubic feet per second, in Geist Reservoir, furnished by Indianapolis Water Co.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 7, Jan. 11-17.

3-3530. White River at Indianapolis, Ind.

Location.--Lat 39°45'05", long 86°10'30", on downstream side of second pier from right bank of Morris Street Bridge in Indianapolis, 2½ miles downstream from Fall Creek and at mile 235.8.

Drainage area.--1,627 sq mi.

Records available.--March 1904 to July 1906 and April 1930 to September 1964. Gage-height record published in reports of U. S. Weather Bureau for site 1.1 miles upstream Feb. 8, 1911 to Mar. 25, 1913 and at site 2.3 miles upstream since Oct. 16, 1913. Prior to October 1948, published as West Fork White River at Indianapolis.

Gage.--Water-stage recorder (digital since May 15). Datum of gage is 662.26 ft (revised) above mean sea level, datum of 1929. March 1904 to July 1906, chain gage at railroad bridge three-quarters of a mile upstream at datum approximately 2.9 ft higher. April 1930 to July 20, 1931, float gage at Indianapolis sanitation plant 2½ miles downstream at datum 660 ft lower. July 21, 1931, to Mar. 2, 1932, staff gage at present site at datum 660 ft lower.

Average discharge.--35 years (1904-5, 1930-64), 1,406 cfs (adjusted for diversion and change in content since October 1955; includes sewage effluent, April 1930 to September 1931).

Extremes.--Maximum discharge during year, 35,600 cfs Apr. 22 (gage height, 19.88 ft); minimum daily, 52 cfs Dec. 21; minimum gage height, 2.16 ft Jan. 15.

1904-6, 1930-64: Maximum discharge, 37,200 cfs May 18, 1943; maximum gage height, 21.57 ft Jan. 16, 1937; minimum, 6.8 cfs Sept. 21, 1941.

Flood of Mar. 26, 1913, reached a stage of 30.0 ft, from floodmarks determined by Indianapolis Water Co. (discharge, 70,000 cfs, estimated).

Remarks.--Records good except those for periods of ice effect, which are fair. Discharge measurements generally made twice a month. During the year the Indianapolis Water Co. diverted 29,100,000,000 gal of water for municipal use, most of which was returned 3 miles below the gage at sanitation plant. Slight fluctuation at low flow due to this diversion. Flow slightly regulated by Morse and Geist Reservoirs (combined usable capacity, 13,800,000,000 gal).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	81	149	96	b60	166	158	1,030	4,220	412	298	245	97
2	74	123	96	77	166	183	1,080	3,360	418	268	212	127
3	69	119	90	108	158	272	3,330	2,660	502	304	170	138
4	67	145	78	196	126	1,440	6,450	2,220	469	304	138	112
5	72	153	74	145	112	2,680	6,270	1,900	430	400	119	127
6	87	115	82	134	374	3,260	5,580	1,700	463	406	123	180
7	108	112	85	115	276	2,680	5,750	1,530	476	788	123	180
8	103	103	119	90	286	2,427	5,580	1,370	573	4,100	112	165
9	87	106	123	141	267	10,700	4,000	1,290	534	5,000	115	130
10	85	106	103	108	222	16,600	3,020	1,150	463	3,120	138	106
11	87	119	92	126	183	17,000	2,350	1,080	443	1,780	437	92
12	85	101	94	134	162	15,400	1,920	1,220	521	1,300	292	94
13	103	108	92	85	162	11,500	1,720	1,080	528	1,100	170	108
14	112	101	81	61	149	8,900	1,420	1,080	632	976	130	119
15	90	99	74	58	141	9,100	1,270	996	632	1,510	127	97
16	103	106	70	84	209	7,930	1,120	905	586	1,780	127	85
17	108	123	60	92	222	5,260	940	918	534	1,360	130	79
18	119	179	57	92	179	3,620	1,030	983	424	1,020	99	201
19	108	112	b55	126	162	2,790	4,220	879	346	911	87	175
20	106	106	b53	286	162	2,350	14,400	794	430	827	90	170
21	138	112	b52	196	149	2,020	32,200	755	1,100	859	112	239
22	103	300	b54	272	179	1,820	35,000	664	1,160	651	155	304
23	94	339	b58	258	196	1,620	32,200	612	1,160	476	195	228
24	85	213	63	281	153	1,520	20,800	586	931	400	195	127
25	85	218	65	427	119	1,520	10,700	567	736	872	155	127
26	84	162	90	301	106	1,620	6,270	684	580	632	119	190
27	94	130	79	272	119	1,720	4,960	580	469	476	119	141
28	101	115	69	213	119	1,520	5,580	528	388	424	108	115
29	87	119	b66	179	134	1,420	7,360	508	334	334	112	85
30	92	106	b64	166	------	1,220	5,760	463	286	304	127	97
31	94	------	b62	166	------	1,120	------	450	------	274	134	------
TOTAL	2,911	4,190	2,396	5,049	5,158	141,363	233,310	37,732	16,960	33,254	4,715	4,235
MEAN	93.9	140	77.3	163	178	4,560	7,777	1,217	565	1,073	152	141
(ℓ)	+127	+107	+109	+104	+105	+105	+110	+128	+150	+145	+151	+135
(ℓℓ)	-80.2	-12	-1.0	+19	+40	+186	+21	-28	-4	+2	-42	-79

Adjusted for diversion and change in reservoir contents

Mean	141	235	185	286	323	4,851	7,908	1,317	711	1,220	261	197
Cfsm	0.087	0.144	0.114	0.176	0.199	2.98	4.86	0.809	0.437	0.750	0.160	0.121
In.	0.10	0.16	0.13	0.20	0.21	3.44	5.42	0.93	0.49	0.86	0.18	0.14

	Observed			Adjusted			
Calendar year 1963 :	Max 27,200	Min 52	Mean 1,006	Mean 1,115	Cfsm 0.685	In. 9.31	
Water year 1963-64 :	Max 35,000	Min 52	Mean 1,342	Mean 1,467	Cfsm 0.902	In. 12.26	

Peak discharge (base, 8,500 cfs).--Mar. 11 (0400) 17,200 cfs (13.46 ft); Apr. 22 (0930) 35,600 cfs (19.88 ft).

ℓ Change in contents, equivalent in cubic feet per second in Morse and Geist Reservoirs; furnished by Indianapolis Water Co.
ℓℓ Diversion above station for municipal supply, equivalent in cubic feet per second; furnished by Indianapolis Water Co.
b Stage-discharge relation affected by ice.

3-3531.2 Pleasant Run at Arlington Avenue at Indianapolis, Ind.

Location.--Lat 39°46'33", long 86°03'50", in NW¼ sec. 2, T. 15 N., R. 4 E., on right bank 46 ft upstream from Arlington Avenue Bridge in Indianapolis, and 0.5 mile downstream from unnamed tributary.

Drainage area.--7.67 sq mi.

Records available.--December 1959 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 780.00 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Extremes.--Maximum discharge during year, 1,590 cfs Mar. 9 (gage height, 10.25 ft); minimum, 0.1 cfs on many days; minimum gage height, 2.93 ft June 26.
1959-64: Maximum discharge, 1,610 cfs Mar. 4, 1963 (gage height, 10.32 ft), no flow at times some years.
Flood in May 1956 reached a stage of 16.0 ft, from information by local resident.

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)

3.0	0.1	3.7	22
3.1	.7	3.9	39
3.2	2.0	4.4	128
3.3	4.0	5.0	275
3.4	6.8	6.0	525
3.5	10		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	1.7	0.2	1.0	0.9	3.2	0.1	2.6	0.4	0.2	0.2	0.4
2	*.3	.3	.3	1.4	.8	2.6	2.0	1.9	2.7	.2	.2	.4
3	.3	.3	.3	1.7	.8	1.9	30	1.6	* 3.4	1.0	.4	.4
4	.3	.2	.4	1.7	* .7	* 111	6.8	1.1	.9	1.1	.5	.2
5	.4	*2.9	.2	1.6	.8	19	7.3	* 1.0	1.0	.2	.5	.4
6	.3	.8	.2	1.4	21	6.2	40	1.0	1.9	3.6	.4	.2
7	.3	.4	.2	1.3	3.6	3.4	10	.8	4.3	66	* .2	.2
8	.4	.3	.6	* 1.2	2.2	111	* 5.9	.8	3.0	12	.4	.2
9	.3	.2	.4	1.1	1.4	454	4.0	.6	1.0	4.3	.2	.4
10	.1	.2	.3	1.0	1.1	158	3.2	.6	1.0	1.9	.2	.4
11	.3	.2	.3	1.0	1.0	31	2.4	.5	1.0	2.5	49	.7
12	.4	.2	.3	1.0	.9	38	1.6	7.0	2.6	11	1.1	.4
13	.3	.4	.3	1.0	1.6	12	2.4	1.4	2.3	5.2	.3	.2
14	.4	.5	.3	1.0	1.6	11	1.6	.8	1.0	12	.2	* .3
15	.5	.3	.4	1.0	1.9	5.6	1.6	.6	1.1	14	.2	.4
16	.5	.2	.5	1.0	3.7	2.6	1.3	.4	1.0	4.0	.2	.5
17	.5	.2	.6	1.0	2.5	1.0	1.1	.5	.6	2.8	.2	.5
18	.2	2.3	1.5	1.2	1.5	.4	3.8	.4	1.6	2.6	.4	6.2
19	.2	.5	2.0	2.0	2.5	.4	188	.4	1.0	2.0	.3	3.3
20	.3	.4	1.5	4.0	2.0	.5	* 205	.4	3.4	* 2.2	.3	.5
21	.4	.4	1.0	4.5	1.6	.7	115	.4	16	3.2	1.2	.4
22	.4	11	.9	2.0	1.4	.2	60	.3	1.6	2.2	.6	4.8
23	.5	12	.8	1.5	1.0	.1	14	.2	1.0	2.4	.3	2.3
24	.3	.9	.9	5.0	1.0	.1	12	.4	.8	2.4	.2	.7
25	.5	.4	1.2	9.1	1.1	2.4	4.8	.2	.5	20	.7	1.0
26	.3	.3	1.7	1.7	2.6	1.6	4.5	5.1	.1	4.2	.4	.4
27	.4	.2	1.2	1.1	2.5	.2	8.4	1.8	.2	1.0	.4	.2
28	.4	.2	1.0	.9	1.6	.2	16	.6	.2	.6	.5	.6
29	.4	.2	.9	.8	1.8	.1	6.5	.5	.2	.6	.4	.8
30	.8	.2	.9	.7	------	.1	4.0	.4	.2	.4	3.0	.5
31	.8	------	.9	.7	------	.1	------	.4	------	.4	1.3	------
Total	11.8	38.3	22.2	55.6	67.1	978.6	763.3	34.7	56.0	186.2	64.4	27.9
Mean	0.38	1.28	0.72	1.79	2.31	31.6	25.4	1.12	1.87	6.01	2.08	0.93
Cfsm	0.050	0.167	0.094	0.233	0.301	4.12	3.31	0.146	0.244	0.784	0.271	0.121
In.	0.06	0.19	0.11	0.27	0.32	4.75	3.69	0.17	0.27	0.90	0.31	0.14

Calendar year 1963 : Max 574 Min 0.1 Mean 5.99 Cfsm 0.781 In. 10.60
Water year 1963-64 : Max 454 Min 0.1 Mean 6.30 Cfsm 0.821 In. 11.18

Peak discharge (base, 320 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1800	5.72	450				
3-9	0015	10.25	1,590				
4-19	1115	6.45	625				
8-11	1345	5.72	450				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 8-28, Dec. 31 to Jan. 24, Jan. 29 to Feb. 2, Feb. 17-20, 24, 25.

3-3531.6 Pleasant Run at Brookville Road at Indianapolis, Ind.

Location.--Lat 39°45'52", long 86°05'43", in NW¼ sec. 9, T. 15 N., R. 4 E., on right bank at downstream side of Brookville Road Bridge in Indianapolis, and 2.2 miles downstream from Arlington Avenue.

Drainage area.--10.3 sq mi.

Records available.--November 1959 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 752.00 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Extremes.--Maximum discharge during year, 1,840 cfs Mar. 9 (gage height, 8.87 ft); no flow for many days.
1959-64: Maximum discharge, 2,010 cfs Mar. 4, 1963 (gage-height, 9.22 ft); no flow at times during most years.

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. 1, 5, 6, 18)

1.88	0	2.4	13
1.90	0.1	2.7	37
1.95	.2	3.0	69
2.0	.6	3.5	137
2.1	1.9	4.0	239
2.2	4.0	6.0	805

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0.8	0.2	10	1.0	3.6	0.0	5.9	1.0	0.0	0.2	0.3
2	*	0	.1	9.0	.9	3.4	3.2	4.0	5.1	0	.2	.1
3		0	* .1	8.0	.8	2.5	47	3.4	*6.0	.9	.1	0
4		0	.4	10	* .8	* 142	9.4	2.7	.8	.9	.6	0
5		* 4.7	.5	10	1.0	32	9.4	*2.4	.6	0	.6	0
6		.2	.3	9.0	32	8.4	52	2.2	1.4	5.1	.5	0
7		0	.2	7.0	4.9	4.7	13	1.7	4.8	85	*.1	0
8		0	.3	5.0	2.7	165	* 6.7	1.6	4.3	18	.1	0
9		0	1.0	*4.0	1.7	522	4.0	1.4	.8	4.9	.1	0
10		0	.6	2.0	1.9	232	2.9	1.2	.6	1.6	0	0
11		0	.4	.8	1.9	52	2.2	1.2	.6	1.9	67	0
12		0	.3	.4	1.9	64	1.6	16	5.2	11	5.5	0
13		0	.2	3	2.0	25	2.5	2.2	2.9	6.8	.3	0
14		0	.1	.6	3.2	20	2.0	1.4	.8	11	.1	* 0
15		0	0	1.3	4.7	11	1.7	1.1	.6	18	0	0
16		0	0	4.0	12	4.7	1.7	.8	.8	3.6	0	0
17		0	0	.8	6.7	2.5	1.3	.8	.3	2.7	0	0
18		7.0	0	.6	3.4	1.6	9.9	.5	1.2	2.2	0	15
19		1.4	0	6.0	4.0	.6	211	.4	.6	1.9	.2	6.9
20		.5	0	10	2.9	.1	*244	.4	4.0	*1.9	0	.5
21		.6	0	8.0	2.0	.2	154	.4	32	3.4	1.3	0
22		25	0	7.0	1.7	.1	85	.5	16	2.0	.8	15
23		21	0	6.0	1.5	0	21	.6	.6	2.2	.2	4.3
24		2.0	0	8.0	1.3	0	21	.8	.3	3.3	0	.7
25		1.0	0	4.0	1.6	2.2	10	.8	.1	62	.9	1.5
26		.8	0	2.7	3.4	1.9	8.9	11	0	8.5	.4	.6
27		.6	0	1.6	4.4	0	15	3.5	0	1.7	0	0
28		.6	.6	.8	2.2	0	21	1.1	0	1.2	.4	0
29		.3	14	.8	2.2	0	12	1.0	0	1.1	.6	.6
30		.2	12	.8	- - - - -	0	7.9	.8	0	.8	2.5	.8
31		- - - - -	11	.9	- - - - -	0	- - - - -	.8	- - - - -	.4	3.3	- - - - -
Total		66.7	42.3	139.4	110.7	1,301.5	981.3	72.6	77.0	264.0	86.0	46.3
Mean		2.22	1.36	4.50	3.82	42.0	32.7	2.34	2.57	8.52	2.77	1.54
Cfsm		0.216	0.132	0.437	0.371	4.08	3.17	0.227	0.250	0.827	0.269	0.150
In.		0.24	0.15	0.50	0.40	4.70	3.54	0.26	0.28	0.95	0.31	0.17

Calendar year 1963 : Max 650 Min 0 Mean 7.33 Cfsm 0.712 In. 9.63
Water year 1963-64 : Max 522 Min 0 Mean 8.71 Cfsm 0.846 In. 11.50

Peak discharge (base, 380 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1700	5.42	625	7-7	1800	4.74	423
3-9	0030	8.87	1,840	7-25	1700	6.73	1,040
4-19	1130	5.34	595	8-11	0430	5.17	565

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 7-15, Dec. 31 to Jan. 12, Jan. 19-25, Jan. 30 to Feb. 2, Feb. 22, 23.

3-3532. Eagle Creek at Zionsville, Ind.

Location.--Lat 39°56'56", long 86°15'22", in NW¼ sec. 1, T. 17 N., R. 2 E., on downstream side of second pier from right bank of bridge on State Highway 334 at Zionsville, and 200 ft upstream from Long Branch.

Drainage area.--102 sq mi.

Records available.--October 1957 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 816.85 ft above mean sea level, datum of 1929. Prior to Oct. 9, 1957, wire-weight gage at same site and datum.

Average discharge.--7 years, 103 cfs.

Extremes.--Maximum discharge during year, 12,400 cfs Apr. 20 (gage height, 14.64 ft); no flow Oct. 1-16, Sept. 11-22, 25-30.
1957-64: Maximum discharge, that of Apr. 20, 1964; no flow for several days in September 1959, September, October 1963, September 1964.
Flood of June 28, 1957, reached a stage of 19.20 ft, from floodmark.

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)
(Shifting-control method used May 27 to Aug. 8, Aug. 11-14)

2.0	0	3.2	75
2.1	.2	3.5	143
2.2	.5	4.0	290
2.3	1.4	4.5	460
2.4	3.2	5.0	660
2.5	6.0	6.0	1,150
2.6	10	8.0	2,250
2.8	23	10.0	3,900
3.0	44	12.0	6,800

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	2.2	3.4	b 1.0	8.3	11	73	188	7.9	7.1	6.4	0.7
2	0	2.2	b 3.0	b 1.1	8.3	85	142	148	7.5	6.7	5.1	.6
3	0	2.0	b 2.5	b 1.3	7.5	65	873	118	14	14	4.5	.5
4	0	2.0	*b 1.5	b 1.8	6.7	220	409	91	*13	173	4.2	.4
5	0	2.4	b 2.0	b 2.0	6.0	452	275	73	11	61	3.4	.4
6	0	2.4	3.6	b 2.0	* 12	173	500	63	10	30	3.0	.3
7	0	* 2.4	3.6	b 1.8	34	106	324	*55	12	68	*2.6	.2
8	0	2.4	4.2	b 2.5	b 20	130	215	54	38	290	2.4	.2
9	0	2.2	a 4.5	*b 6.0	14	3,260	*154	48	29	133	2.0	.2
10	0	2.2	a 3.5	b15	11	1,180	126	41	16	77	1.9	.1
11	0	2.2	a 2.5	b 5.0	9.1	580	97	36	10	45	2.7	0
12	0	2.2	a 2.0	b 4.0	7.5	580	81	36	7.9	30	3.6	0
13	0	2.2	a 1.5	a 3.5	7.9	*730	73	36	15	27	2.8	0
14	0	2.4	b 1.2	a 3.5	7.5	755	58	34	23	81	2.6	* 0
15	0	2.4	b 1.0	a 3.0	7.1	438	48	30	48	* 706	2.0	0
16	0	2.4	b .9	a 3.0	7.9	260	43	29	44	200	1.7	0
17	.2	2.6	b .8	a 3.0	7.1	197	41	39	21	*113	1.4	0
18	.3	3.2	b .8	b 2.8	7.1	138	42	31	14	70	1.3	0
19	.4	3.4	b .8	b 2.6	7.5	111	531	27	11	52	1.0	0
20	.6	3.4	b .8	20	7.5	100	*5,460	25	29	35	1.0	0
21	.8	3.4	b .8	61	7.1	102	2,770	21	200	24	1.0	0
22	.8	4.2	b .8	32	6.7	87	942	20	146	19	1.9	0
23	.9	9.1	b .8	25	6.4	75	500	18	81	15	2.0	.1
24	.9	7.9	b .9	24	6.0	72	375	17	45	12	1.9	.1
25	.9	6.4	b 1.0	b35	5.7	93	275	16	27	16	1.4	0
26	.9	5.4	b 1.1	b20	6.4	230	215	14	20	58	1.3	0
27	.9	4.5	b 1.2	b15	6.7	146	275	13	15	36	1.0	0
28	.9	3.9	b 1.3	b 9.0	6.7	120	500	12	12	18	.9	0
29	1.0	3.6	b 1.2	b 7.0	6.7	113	307	11	9.6	12	.8	0
30	1.0	3.4	b 1.1	7.5	- - - - -	89	245	9.6	8.3	9.1	.8	0
31	1.0	- - - - - -	b 1.0	7.5	- - - - -	87	- - - - -	8.3	- - - -	6.7	.8	- - - - - -
Total	11.5	100.6	55.3	327.9	262.4	10,785	15,969	1,361.9	945.2	2,444.6	69.4	3.8
Mean	0.37	3.35	1.78	10.6	9.05	348	532	43.9	31.5	78.9	2.24	0.13
Cfsm	0.0036	0.033	0.017	0.104	0.089	3.41	5.22	0.430	0.309	0.774	0.022	0.0013
In.	0.004	0.04	0.02	0.12	0.10	3.93	5.82	0.50	0.34	0.89	0.03	0.001

Calendar year 1963: Max 3,900 Min 0 Mean 71.8 Cfsm 0.704 In. 9.56
Water year 1963-64: Max 5,460 Min 0 Mean 88.4 Cfsm 0.867 In. 11.80

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	0800	11.14	5,260				
4-20	1630	14.64	12,400				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3535. Eagle Creek at Indianapolis, Ind.

Location.--Lat 39°46'33", long 86°15'01", in NE¼ sec. 1, T. 15 N., R. 2 E., on right bank at downstream side of bridge on Lynnhurst Drive, approximately 600 ft south of intersection of West 10th Street and Lynnhurst Drive, 0.5 mile downstream from West 10th Street Bridge, 1.0 mile upstream from Vermont Street Bridge, 2.9 miles upstream from mouth of Little Eagle Creek, and 6.9 miles upstream from mouth.
Drainage area.--179 sq miles.
Records available.--November 1938 to September 1964.
Gage.--Water-stage recorder. Datum of gage is 706.21 ft above mean sea level, datum of 1929. Temporary site during reconstruction of bridge on Lynnhurst, a wire-weight gage on downstream side of 10th Street Bridge, approximately half a mile upstream at same datum Aug. 8, 1957 to June 30, 1958.
Average discharge.--25 years (1939-64), 154 cfs.
Extremes.--Maximum discharge during year, 14,700 cfs Apr. 21 (gage height, 11.05 ft); minimum, 1.0 cfs Sept. 9 (gage height, -1.17 ft).
1938-64: Maximum discharge, 28,800 cfs June 28, 1957 (gage height, 16.38 ft), from rating curve extended above 9,000 cfs on basis of a combined current-meter measurement and slope-area measurement; no flow for several days in August 1941.
Flood of March 1913 reached a stage of 16.0 ft, from information by local residents.
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 Apr. 3-20)

Oct. 1 to Apr. 19

-0.85	1.6	1.0	215
-.8	2.4	2.0	620
-.7	5.3	3.0	1,210
-.3	24	5.0	2,950
0.0	42	6.0	4,100
.5	98		

Apr. 20 to Sept. 30

-1.12	1.6	0.5	241
-1.1	2.0	1.0	445
-.9	7.2	2.0	1,050
-.6	21	4.0	2,850
-.3	49	6.0	5,100
0.0	100	9.0	9,500

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	3.5	4.9	15	23	20	117	336	29	*21	27	*3.8
2	1.6	3.5	4.9	25	22	60	117	259	29	19	17	3.8
3	1.8	3.3	4.9	34	21	*108	1,010	208	26	18	15	3.1
4	1.6	3.1	*4.5	29	19	279	720	177	*26	60	14	3.3
5	1.8	4.1	4.1	20	16	819	460	152	27	88	13	3.3
6	1.8	* 4.1	4.1	20	*28	*380	791	128	27	49	12	3.1
7	1.8	3.5	4.1	18	35	215	570	*112	26	57	* 9.1	2.4
8	*1.6	3.3	4.9	17	39	316	380	102	26	277	8.4	2.2
9	1.6	2.9	5.3	39	36	3,550	280	92	42	241	7.8	1.6
10	1.8	2.9	3.8	40	31	2,280	215	77	34	105	7.2	2.4
11	1.8	2.9	4.1	52	29	930	172	68	26	59	6.6	2.4
12	1.9	2.9	4.1	30	22	950	148	88	25	45	5.8	2.6
13	2.1	2.9	4.1	10	20	950	*148	74	26	35	6.6	2.4
14	2.2	2.9	4.0	5.0	20	1,060	126	68	27	37	6.4	2.4
15	2.2	2.9	3.9	* 5.3	20	595	108	60	31	493	6.1	2.6
16	2.2	2.9	3.8	10	22	400	98	53	44	873	5.5	2.8
17	2.2	2.9	3.8	20	21	300	90	65	41	163	5.2	3.1
18	2.2	3.5	3.8	36	20	230	90	57	34	102	5.2	6.1
19	2.4	3.8	3.7	42	20	172	862	50	26	73	5.8	5.0
20	2.4	3.8	3.7	60	20	159	*4,510	46	26	57	5.2	3.6
21	2.6	3.8	4.0	70	19	159	9,100	42	216	50	5.8	3.6
22	2.6	8.3	6.0	60	18	136	2,030	40	277	38	5.5	5.8
23	2.6	13	10	50	18	126	1,120	39	136	32	5.5	4.7
24	2.6	6.6	15	50	17	117	774	37	77	*24	4.7	3.1
25	2.6	6.6	20	82	17	117	518	36	55	31	4.7	2.8
26	2.6	6.6	24	64	17	229	399	38	42	34	5.2	2.8
27	2.6	5.7	21	46	17	230	445	36	35	55	4.1	2.8
28	2.4	5.7	10	30	17	172	806	33	30	37	4.7	2.8
29	2.2	5.3	5.0	20	16	159	544	32	26	31	4.7	2.8
30	2.4	5.3	4.0	25	------	136	422	30	23	24	4.1	*2.8
31	2.4	------	8.0	25	------	126	------	29	------	27	3.6	------
Total	66.2	132.5	211.5	1,049.3	640	15,530	27,170	2,664	1,515	3,255	240.5	96.0
Mean	2.14	4.42	6.82	33.8	22.1	501	906	85.9	50.5	105	7.76	3.20
Cfsm	0.012	0.025	0.038	0.189	0.123	2.80	5.06	0.480	0.282	0.587	0.043	0.018
In.	0.01	0.03	0.04	0.22	0.13	3.23	5.64	0.55	0.31	0.68	0.05	0.02

Calendar year 1963: Max 5,970 Min 1.6 Mean 134 Cfsm 0.749 In. 10.14
Water year 1963-64: Max 9,100 Min 1.6 Mean 144 Cfsm 0.804 In. 10.91

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	2030	7.25	5,660				
4-21	0400	11.05	14,700				

*Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14-25, Dec. 28 to Jan. 2, Jan. 12-17, 21-23, 28-30.

GPO 820-311-7

3-3536. Little Eagle Creek at Speedway, Ind.

Location.--Lat 39°47'15", long 86°13'41", in NW¼ sec. 32, T. 16 N., R. 3 E., on right bank at downstream side of 16th Street Bridge in Speedway, 0.5 mile east of 500-Mile Track, 0.6 mile upstream from tributary from the right and 2.4 miles upstream from mouth.

Drainage area.--18.6 sq mi.

Records available.--October 1959 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 710.82 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--5 years, 17.2 cfs.

Extremes.--Maximum discharge during year, 1,880 cfs Apr. 21 (gage height, 7.31 ft); no flow Nov. 16, Dec. 20, 21, 29-31.
1959-64: Maximum discharge, 1,940 cfs Apr. 25, 1961 (gage height, 7.44 ft); no flow at times each year.

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)
(Shifting-control method used Apr. 20-26)

1.18	0	2.5	124
1.3	.1	3.0	231
1.5	2.2	4.0	490
1.7	11	6.0	1,250
2.0	46		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.9	0.2	0.1	3.3	6.3	12	32	1.5	*1.2	1.0	* 0.5
2	.5	.9	.3	.8	2.2	17	18	27	2.1	1.0	1.3	.6
3	.8	.7	.3	1.5	1.5	10	121	20	3.0	2.3	1.0	.6
4	.7	.7	* .4	1.0	1.3	134	53	17	* 1.9	1.5	.9	.6
5	.7	1.3	.5	.8	1.5	119	37	16	2.2	1.0	.7	.7
6	.7	* .9	.6	.5	* 15	40	134	12	3.0	1.6	.7	.6
7	* .8	.7	.6	.8	11	28	53	* 9.4	2.7	9.9	* .6	.4
8	.9	.4	2.9	.5	8.3	146	33	8.8	2.7	6.1	.5	.6
9	.8	.5	1.5	* .2	6.3	565	* 23	7.3	2.2	1.9	.6	.5
10	.6	.6	1.0	.2	4.0	330	18	6.7	1.9	1.2	.6	.4
11	.7	.5	1.0	b .2	5.8	116	16	6.3	1.7	.9	14	.4
12	.7	.5	1.0	.1	1.7	133	15	13	2.2	1.6	3.3	.4
13	.6	.1	.8	b .1	3.0	* 85	15	12	3.3	1.2	1.9	.4
14	.5	.1	b .4	b .1	2.4	65	12	7.8	2.4	5.0	1.5	.4
15	.3	.1	b .1	b .8	1.5	47	9.4	5.8	3.7	9.8	1.2	.4
16	.5	0	b .1	3.0	3.3	31	8.8	7.7	1.5	1.9	1.2	.4
17	.5	.1	b .1	4.7	6.7	23	8.8	9.4	1.3	1.0	.9	.4
18	.3	.6	b .1	6.7	2.7	18	14	5.4	2.3	4.7	.8	4.3
19	.5	.4	b .1	b8.0	4.0	15	282	4.7	1.7	1.2	.7	1.2
20	.5	.4	0	b 15	3.3	16	*664	4.0	5.1	.7	.7	.9
21	.5	.4	0	b 20	2.4	17	831	4.0	26	14	3.5	.6
22	.4	7.6	.2	11	3.3	13	178	4.0	7.8	2.2	1.2	5.3
23	.4	11	.5	7.8	1.9	12	83	3.3	3.6	1.2	1.0	2.4
24	.4	2.4	.8	b 14	3.0	18	77	3.6	2.4	* .9	.7	.8
25	.4	1.5	1.0	b 20	1.5	33	56	3.3	1.7	2.3	.8	.5
26	.4	1.0	.5	b 12	2.7	35	47	8.5	1.2	3.6	.7	.5
27	.4	1.0	.2	b 5.0	2.4	24	82	3.6	1.0	1.7	.6	.5
28	.5	.9	.1	b 3.0	2.2	24	93	1.9	1.3	1.4	.7	.4
29	.6	.8	0	b 2.5	2.2	21	53	1.7	1.5	1.4	.9	.4
30	.5	.4	0	b 3.0	- - - - - -	25	43	1.5	1.2	1.0	.8	* .5
31	.6	- - - - - -	0	3.0	- - - - - -	16	- - - - -	1.3	- - ----	1.0	.4	- - - - - -
Total	17.4	37.4	15.3	146.4	110.4	2,182.3	3,090.0	269.0	96.1	86.4	45.4	26.6
Mean	0.56	1.25	0.49	4.72	3.81	70.4	103	8.68	3.20	2.79	1.46	0.89
Cfsm	0.030	0.067	0.026	0.254	0.205	3.78	5.54	0.467	0.172	0.150	0.078	0.048
In.	0.03	0.07	0.03	0.29	0.22	4.36	6.18	0.54	0.19	0.17	0.09	0.05

Calendar year 1963 : Max 973 Min 0 Mean 15.4 Cfsm 0.828 In. 11.27
Water year 1963-64 : Max 831 Min 0 Mean 16.7 Cfsm 0.898 In. 12.22

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-8	2230	5.27	950				
4-21	0600	7.31	1,880				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 20 to Jan. 9.

3-3537. West Fork White Lick Creek at Danville, Ind.

Location.--Lat 39°45'36", long 86°30'47", in NW¼NE¼ sec. 10, T. 15 N., R. 1 W., on upstream side of U. S. 36 highway bridge, 0.1 mile east of city limits of Danville, 0.5 mile upstream from unnamed tributary from left, and 7 miles west of Avon.

Drainage area.--28.9 sq mi.

Records available.--May 1958 to September 1964.

Gage.--Wire-weight gage read twice daily. Crest-stage gage since Dec. 10, 1959. Datum of the gage is 828.83 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 25.4 cfs.

Extremes.--Maximum discharge during year, 2,170 cfs Apr. 21 (gage height, 8.77 ft); no flow many days.
1958-64: Maximum discharge, 3,330 cfs July 14, 1962 (gage height, 11.32 ft); no flow many days.
Maximum flood known, 6,660 cfs June 28, 1957 (gage height, 16.0 ft, from floodmark), from contracted-opening measurement.

Remarks.--Records poor.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 5, 9, 12, 19)

Oct. 1 to Mar. 9

0.66	0	1.3	21
.7	.1	1.6	44
.8	.7	2.2	115
.9	2.4	3.0	260
1.0	5.3	5.0	780
1.1	9.2		

Mar. 10 to Sept. 30

0.59	0	1.6	34
.6	.1	2.0	70
.7	.4	2.5	135
.8	1.2	3.0	260
.9	2.6	5.0	780
1.0	5.0	6.0	1,130
1.3	16		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	a 0	0	a 0	1.1	a 7.0	14	41	2.6	1.0	0.1	0
2	0	0	0	a 0	.7	26	18	35	2.6	1.0	a 0	0
3	0	0	0	a .1	.5	28	213	27	2.6	1.0	a 0	0
4	0	* .1	0	b .3	.4	170	100	22	2.1	3.2	a 0	0
5	0	.2	0	a .1	.4	230	31	19	2.3	.8	a 0	0
6	.1	.1	0	b .1	16	70	144	17	3.0	.9	a 0	0
7	0	.1	.1	a .1	a 11	39	80	15	3.4	5.9	a 0	0
8	0	0	.1	a .2	8.0	152	a 50	14	5.0	6.2	a 0	0
9	*0	.2	* .1	b .6	a 6.0	690	* 39	12	* 2.6	2.0	0	0
10	0	a .1	a .1	b 4.0	* 3.0	405	a 33	10	2.0	1.1	0	0
11	.3	a 0	.1	b 1.0	2.4	202	a 28	10	1.4	1.0	0	0
12	0	0	a .1	a .3	1.8	191	25	*15	1.3	2.3	0	0
13	0	a .1	a .1	a .2	1.8	* 135	23	11	6.2	2.0	0	0
14	0	.1	b 0	a .2	2.0	100	18	8.8	3.0	1.4	0	0
15	0	.1	a 0	a .1	1.8	70	15	7.4	2.3	1.2	0	*0
16	0	.2	a 0	a .1	a 2.1	50	14	6.8	1.7	1.2	0	0
17	0	.2	a 0	a .1	2.4	36	13	10	1.2	* .7	0	0
18	0	.1	a 0	b 2.0	2.2	a 30	12	18	1.0	.5	0	.7
19	0	.1	a 0	a 5.0	2.0	22	23	12	1.2	.5	* 0	a .2
20	0	.1	a 0	b 20	1.6	22	660	12	2.0	.4	0	.1
21	0	.1	b 0	b 12	1.2	22	1,060	8.0	61	.5	a 0	.1
22	0	1.0	a 0	8.4	a 1.0	19	224	6.2	31	.3	.1	.1
23	0	.6	a 0	7.5	a .9	18	128	5.6	11	.7	0	.2
24	0	.1	a 0	* 6.4	.8	17	113	6.8	6.2	.3	0	.1
25	0	0	a 0	17	1.2	22	70	4.4	3.6	.2	0	.2
26	0	0	a 0	14	2.4	37	56	6.2	2.6	1.0	0	0
27	0	.1	a .1	6.4	2.2	25	120	5.0	2.3	.3	0	0
28	0	a 0	b .2	a 2.5	2.0	25	120	3.9	a 1.7	.2	.3	0
29	0	0	a .1	a .9	a 3.0	21	68	3.4	1.4	.1	.1	*0
30	a0	0	a 0	a 1.0	------	19	53	3.0	1.1	0	.1	0
31	a0	------	a 0	1.0	------	18	------	2.8	------	.1	.1	------
Total	0.4	3.7	1.1	111.6	81.9	2918	3565	378.3	171.4	38.0	0.8	1.7
Mean	0.01	0.12	0.04	3.60	2.82	94.1	119	12.2	5.71	1.23	0.03	0.06
Cfsm	0.00035	0.0042	0.0014	0.125	0.098	3.26	4.12	0.422	0.198	0.043	0.0010	0.0021
In.	0.0004	0.005	0.002	0.14	0.11	3.76	4.60	0.49	0.22	0.05	0.001	0.002

Calendar year 1963: Max 1,500 Min 0 Mean 19.0 Cfsm 0.657 In. 8.99
Water year 1963-64: Max 1,060 Min 0 Mean 19.9 Cfsm 0.689 In. 9.38

Peak discharge (base, 700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	2300	5.58	990				
3-7	2200	5.49	955				
4-21	0600	8.77	2,170				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3538. White Lick Creek at Mooresville, Ind.

Location.--Lat 39°36'28", long 86°22'56", in SE¼ sec. 35, T. 14 N., R. 1 E., on right bank at downstream side of bridge on State Highway 42 at Mooresville, 1.0 mile downstream from McCracken Creek and 2.0 miles upstream from East Fork White Lick Creek.

Drainage area.--212 sq mi.

Records available.--August 1957 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 644.64 ft above mean sea level, datum of 1929. Dec. 10, 1963 to Sept. 30, 1964, wire-weight gage at bridge 1,950 ft upstream at datum 1.39 ft higher.

Average discharge.--7 years, 209 cfs.

Extremes.--Maximum discharge during year, 13,600 cfs Apr. 20 (gage height, 20.94 ft); minimum daily, 3.2 cfs Sept. 12.
1957-64: Maximum discharge, 10,000 cfs Mar. 4, 1963, minimum daily, 2.0 cfs Dec. 24, 25, 1960.
Flood of June 28, 1957 reached a stage of 22.5 ft, from levels to high-water mark by Indiana Flood Control and Water Resources Commission.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 7.3	9.0	10	6.9	33	55	185	350	*42	26	12	7.9
2	7.3	7.3	10	*8.2	30	181	200	285	45	23	11	6.3
3	6.2	8.4	*10	7.4	29	55	1,840	230	40	21	11	5.9
4	6.8	8.4	13	8.0	21	126	892	200	36	35	12	5.4
5	6.8	11	13	8.0	23	270	565	185	34	23	11	6.3
6	6.2	11	15	8.5	54	76	1,650	151	38	23	10	5.6
7	5.9	10	16	9.0	94	42	700	146	37	29	10	a 5.0
8	5.6	10	20	8.6	40	68	400	138	38	56	9.1	a 4.7
9	5.9	9.0	22	13	48	3,980	285	127	33	36	7.9	a 4.4
10	5.9	8.4	9.8	20	37	3,370	230	115	20	30	7.3	a 3.7
11	5.9	7.9	*10	30	31	1,620	200	109	22	25	7.3	a 3.4
12	5.9	7.3	11	a20	26	1,530	170	163	24	28	8.5	a 3.2
13	5.9	7.9	8.0	a16	30	1,290	248	121	51	29	8.5	a 3.5
14	5.9	7.9	7.0	a14	28	910	163	107	35	25	7.9	5.1
15	6.2	7.9	a 6.4	a13	29	735	144	91	29	33	7.3	4.9
16	5.9	7.9	a 6.0	a12	28	805	131	80	28	26	6.8	5.9
17	6.2	7.9	a 5.8	a12	32	400	131	285	24	23	7.3	7.3
18	6.2	11	a 5.6	a10	33	328	144	117	31	22	76	13
19	6.8	11	a 5.4	10	36	265	1,520	91	28	23	7.1	13
20	7.3	9.6	a 5.3	126	b 36	265	3,910	87	30	20	7.3	9.1
21	7.3	9.6	a 5.2	460	33	265	10,500	81	28	18	8.5	7.9
22	7.3	13	a 5.2	125	29	230	3,650	68	163	16	9.4	8.5
23	6.8	33	5.2	89	26	215	1,450	61	100	26	8.2	8.8
24	6.8	21	5.3	81	33	200	1,370	58	69	18	7.6	7.1
25	6.8	14	5.4	305	b 40	215	805	57	54	26	8.5	6.6
26	6.2	11	5.8	115	52	328	*458	58	42	22	8.5	5.9
27	6.2	10	6.5	78	* 36	265	706	75	32	17	8.5	7.6
28	6.2	9.6	6.6	78	39	455	1,130	57	28	15	8.2	5.9
29	5.9	9.0	6.5	51	30	237	598	50	23	* 14	7.9	4.7
30	5.9	9.6	a 6.4	31	------	*168	450	47	*25	13	7.6	4.5
31	* 6.8	------	a 6.4	*33	------	230	------	43	------	12	* 8.8	-------
Total	198.3	318.6	273.8	1,806.6	1,036	19,179	34,825	3,833	1,229	753	268.6	191.1
Mean	6.40	10.6	8.83	58.3	35.7	619	1,328	124	41.0	24.3	8.66	6.37
Cfsm	0.030	0.050	0.042	0.275	0.168	2.92	6.26	0.585	0.193	0.115	0.041	0.030
In.	0.03	0.06	0.05	0.32	0.18	3.37	6.98	0.67	0.22	0.13	0.05	0.03

Calendar year 1963: Max 8,550 Min 5.2 Mean 161 Cfsm 0.759 In. 10.28
Water year 1963-64: Max 10,500 Min 3.2 Mean 188 Cfsm 0.887 In. 12.09

Peak discharge (base, 2,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	1700	18.90	5,420				
4-3	1200	14.76	3,210				
4-20	2200	20.94	13,600				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3540. White River near Centerton, Ind.

Location.--Lat 39°30'02", long 86°24'24", in SW¼SE¼ sec. 3, T. 12 N., R. 1 E., on right bank three-eighths of a mile downstream from highway bridge, 1 mile south of Centerton, 1 1/8 miles downstream from White Lick Creek, and at mile 202.6.
Drainage area.--2,435 sq mi.
Records available.--October 1930 to March 1932, October 1946 to September 1964. Prior to March 1932, published as West Fork White River at Martinsville and November 1946 to September 1948, published as West Fork White River near Centerton. Monthly discharge only for October 1947, published in WSP 1305. Daily chain-gage readings of gage height from July 1925 to September 1930 are available in the District office. Periodic sediment samples collected since 1963.
Gage.--Water-stage recorder (digital). Datum of gage is 595.44 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark), levels by Indianapolis Power and Light Co. Prior to March 1932, chain gage at site 8½ miles downstream at datum 17.72 ft lower. November 1946 to July 1953, wire-weight gage three-eighths of a mile upstream at present datum.
Average discharge.--19 years (1930-31, 1946-64) 2,357 cfs (unadjusted).
Extremes.--Maximum discharge during year, 50,500 cfs Apr. 22 (gage height, 17.57 ft); minimum 238 cfs Dec. 26, Jan. 2; minimum gage height, 1.20 ft Jan. 2.
1930-32, 1946-64: Maximum discharge, that of Apr. 22, 1964; minimum, (corrected) 131 cfs Nov. 15, 1930; minimum gage height, 0.43 ft Oct. 4, 5, 1954.
Flood in March 1913 reached a stage of 22.8 ft at Martinsville site, from information by State Highway Department of Indiana (discharge, 90,000 cfs, estimated).
Remarks.--Records fair. Flow slightly regulated by Morse and Geist Reservoirs. (Combined capacity, 13,800,000,000 gal.)

Rating tables (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 23, Mar. 23 to Apr. 2, Apr. 13-18, May 7-31, July 29 to Sept. 30)

Oct. 1 to May 31, July 29 to Sept. 30

1.2	220	14.0	23,500
4.0	3,140	16.0	36,000
8.0	8,600	17.6	50,500
12.0	16,200		

June 1 to July 28

2.0	500
3.0	1,700
6.0	5,700

Note.--Same as preceding table above 6.0 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	* 289	309	340	264	435	408	1,930	7,610	*669	557	567	* 384
2	270	338	322	* 250	407	469	1,930	6,060	648	545	536	364
3	260	287	* 328	260	392	584	5,630	5,060	696	553	492	380
4	265	268	328	334	396	1,590	7,840	4,320	690	768	491	387
5	269	322	321	364	367	5,910	8,280	3,770	649	601	462	361
6	260	359	313	334	400	4,200	9,630	3,350	640	685	431	343
7	* 254	307	317	340	735	4,020	8,420	3,030	627	833	427	347
8	313	301	323	328	561	3,080	7,570	2,790	654	2,580	416	349
9	318	293	362	358	559	13,000	6,380	2,580	716	5,730	388	374
10	302	274	356	400	513	28,400	4,510	2,360	646	4,950	358	355
11	294	260	347	358	481	26,700	3,560	2,180	780	3,170	390	333
12	294	282	346	352	447	24,300	3,010	2,540	758	2,430	765	308
13	272	289	342	328	439	21,200	2,720	2,270	940	2,140	511	284
14	262	300	335	316	450	15,500	2,470	2,140	851	1,720	424	273
15	294	297	312	304	431	12,400	2,240	2,050	946	1,900	388	297
16	287	286	297	304	433	11,000	2,040	1,850	937	2,740	364	294
17	289	268	303	322	490	8,850	1,840	1,990	929	2,390	341	288
18	293	274	302	328	488	6,110	1,750	1,880	926	1,900	367	322
19	299	352	298	334	473	4,550	5,130	1,820	839	1,550	353	519
20	277	304	294	509	476	3,760	18,200	1,630	731	1,460	339	384
21	257	298	285	586	454	3,370	32,900	1,530	1,310	1,290	360	354
22	297	316	262	538	437	3,020	*47,100	1,390	1,940	1,400	398	412
23	289	776	257	570	430	2,710	42,100	1,290	1,920	1,110	378	562
24	284	570	265	546	423	2,520	39,400	1,200	1,660	892	381	430
25	283	442	259	813	418	2,470	27,200	1,170	1,340	812	411	362
26	283	430	246	717	422	2,670	*14,300	1,130	1,080	1,700	406	346
27	266	406	299	602	* 426	2,770	9,340	1,390	912	988	367	350
28	251	382	293	516	425	2,620	9,580	1,120	782	890	379	305
29	277	352	272	474	415	2,390	9,410	1,070	*665	* 782	390	303
30	277	352	255	448	------	2,210	* 9,510	991	*602	686	354	288
31	* 277	------	273	*436	------	* 2,070	------	912	------	637	* 361	------
TOTAL	8,702	10,294	9,452	12,953	13,343	224,851	345,920	74,473	29,483	50,389	13,015	10,658
MEAN	281	343	305	418	460	7,253	11,530	2,402	983	1,625	420	355
CFSM	.115	.141	.125	.172	.189	2.98	4.74	.986	.404	.667	.173	.146
IN	.13	.16	.14	.20	.20	3.43	5.28	1.14	.45	.77	.20	.16

CALENDAR YEAR 1963 MAX 37,300 MIN 246 MEAN 1,755 CFSM .721 INCHES 9.79
WATER YEAR 1963-64 MAX 47,100 MIN 246 MEAN 2,195 CFSM .901 INCHES 12.27

Peak discharge (base, 9,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1515	15.08	29,800				
4-6	1315	9.11	10,400				
4-22	1215	17.57	50,500				

* Discharge measurement made on this day.

3-3545. Bean Blossom Creek at Bean Blossom, Ind.

Location.--Lat 39°15'45", long 86°14'55", in NW¼ sec. 31, T. 10 N., R. 3 E., on right bank, 15 ft downstream from bridge on State Highway 135, 0.3 mile south of Bean Blossom, and 2.5 miles upstream from North Fork Bean Blossom Creek.

Drainage area.--14.6 sq mi.

Records available.--October 1951 to September 1964.

Gage.--Water-stage recorder (digital after Apr. 14, 1964). Datum of gage is 673.65 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 15.2 cfs.

Extremes.--Maximum discharge during year, 2,140 cfs Mar. 9 (gage height, 10.18 ft); no flow for many days.
1951-64: Maximum discharge, 8,140 cfs June 23, 1960 (gage height, 11.78 ft) from curve extended above 2,000 cfs on basis of contracted-opening measurement; no flow for many days in most years.

Remarks.--Records fair.

Rating tables, (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 27 to Jan. 19, Mar. 10 to Apr. 3)

Oct. 1 to Mar. 9

1.35	0	1.8	8.2	3.0	104
1.4	.1	1.9	14	4.0	218
1.5	.5	2.0	21	5.0	368
1.6	1.6	2.2	36		
1.7	3.9	2.5	60		

Mar. 9 to Sept. 30

1.6	0	2.1	4.9	5.0	280
1.7	.2	2.2	6.8	7.0	685
1.8	.8	2.5	14	9.0	1,360
1.9	1.9	3.0	38		
2.0	3.3	4.0	132		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	1.4	1.6	9.8	13	0.4	0		
2			0	0	1.1	1.9	19	11	.3	0		
3			0	.4	.9	2.5	75	8.8	.4	0		
4			0	.4	.6	227	28	7.5	.3	0		
5			0	.2	.7	87	29	6.5	.2	0		
6			0	.5	4.6	42	125	5.6	.6	0		
7			0	.7	3.6	26	30	4.9	.5	1.6		
8			.1	.6	2.5	36	20	4.5	.3	2.2		
9			.2	1.3	2.1	1,110	16	3.8	.2	2.7		
10			.1	.9	1.9	225	13	3.1	.2	2.4		
11			.1	.3	1.4	44	12	* 2.8	.1	.3		
12		*	.1	.2	1.1	36	11	3.2	.1	.3		
13			.1	.2	1.6	24	11	3.0	.1	.4		
14	*		0	.2	1.6	21	* 9.5	2.7	.2	.2		
15			0	.2	1.6	18	8.6	2.0	.1	.2		
16			0	.2	1.7	* 15	7.9	1.8	* .2	.1		*
17			0	* .1	2.1	13	7.3	1.6	.1	.1		
18			0	.1	2.5	12	6.9	1.2	1.9	0		
19			0	.2	3.9	11	122	1.1	.9	0	*	
20			* 0	9.9	* 3.6	13	68	.8	.3	* 0		
21			0	4.6	3.3	14	43	.7	.3	0		
22			0	4.2	3.0	13	43	.7	2.6	0		
23			0	3.9	2.3	12	25	.6	.7	* .2		
24			0	4.2	2.1	11	22	.6	.2	2.1		
25			0	4.6	1.9	18	16	.5	.1	.2		
26			0	3.0	2.1	27	15	.6	.1	.1		
27			.1	2.5	1.7	17	24	.6	.1	0		
28			0	1.6	1.7	14	67	.8	0	0		
29			0	1.1	1.4	12	22	.7	0	0		
30			0	1.0	------	11	16	.5	0	0		
31		------	0	1.1	------	10	------	.4	------	0		------
Total	0	0	0.8	48.4	60.0	2125.0	922.0	95.6	12.1	13.1	0	0
Mean	0	0	0.03	1.56	2.07	68.5	30.7	3.08	0.40	0.42	0	0
Cfsm	0	0	0.0021	0.107	0.142	4.69	2.10	0.211	0.027	0.029	0	0
In.	0	0	0.002	0.12	0.15	5.41	2.34	0.24	0.03	0.03	0	0

Calendar year 1963: Max 545 Min 0 Mean 10.6 Cfsm 0.726 In. 9.88
Water year 1963-64: Max 1,110 Min 0 Mean 8.95 Cfsm 0.613 In. 8.32

Peak discharge (base, 700 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1830	6.87	774				
3-9	2130	10.18	2,140				
4-19	1830	7.39	790				

* Discharge measurement made on this day.

3-3550. Bear Creek near Trevlac, Ind.

Location.--Lat 39°16'40", long 86°20'45", in NE¼ sec. 30, T. 10 N., R. 2 E., on left bank, 15 ft west of county road at footbridge, 1.1 miles northwest of Trevlac, and 1.3 miles upstream from mouth.

Drainage area.--7.00 sq mi.

Records available.--May 1952 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 640 ft (from topographic map).

Average discharge.--12 years, 6.33 cfs.

Extremes.--Maximum discharge during year, 466 cfs Mar. 9 (gage height, 4.73 ft); no flow for many days.
1952-64: Maximum discharge, 1,830 cfs June 12, 1957 (gage height, 7.62 ft), from rating curve extended above 290 cfs on basis of slope-area measurement of peak flow at gage height, 6.43 ft; no flow for many days.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1	0	0	0.2	0.2	3.9	9.0	0.1	0		
2	0	.1	0	.1	.2	.2	17	6.8	.1	0		
3	0	0	0	.2	.2	.2	78	5.3	.1	0		
4	0	0	0	.2	.2	88	24	4.7	0	.1		
5	0	.1	0	.3	.2	22	25	3.6	0	0		
6	0	.1	0	.5	4.4	7.6	88	3.6	.1	0		
7	0	.1	0	.7	2.1	5.0	28	2.7	.1	2.2		
8	0	0	.1	.6	.7	7.7	13	1.9	.2	1.0		
9	0	0	.1	1.2	.2	230	8.6	1.7	.1	.4		
10	0	0	.1	1.2	.2	100	6.8	1.3	0	.3		
11	0	0	.1	.3	.2	30	5.3	*.8	0	.1		
12	0	* 0	.1	.2	.2	31	4.7	.8	0	.4		
13	0	0	.1	.2	.2	15	4.7	.8	0	.4		
14	* 0	.1	.1	.2	.2	11	* 3.9	.7	.1	.3		
15	0	.1	0	.2	.2	7.9	3.2	.5	.1	.4		
16	0	0	0	.1	.2	* 5.9	2.7	.4	*0	.2		*
17	0	0	0	*.1	.2	4.7	2.5	.3	0	.1		
18	0	.1	0	.2	.4	3.6	2.3	.3	1.9	.1		
19	0	.1	0	.2	.6	2.9	7.9	.3	.4	.1	*	
20	0	.1	* 0	6.6	* 1.0	4.4	32	.1	.1	0		
21	0	.1	0	3.1	1.0	6.5	46	.1	.1	* 0		
22	0	.3	0	1.5	.7	5.6	46	.1	4.1	0		
23	0	.3	0	.9	.4	5.0	24	.1	.8	0		
24	0	.1	0	2.9	.2	4.2	23	.1	.3	0		
25	0	.1	0	4.6	.4	6.9	13	.1	.1	0		
26	0	.1	0	1.7	.2	16	12	.1	.1	0		
27	.1	.1	.1	.6	.2	9.3	20	.1	.1	0		
28	.1	0	.1	.4	.2	7.6	44	.1	0	0		
29	0	0	.1	.2	.2	5.9	20	.2	0	0		
30	0	0	0	.2	- - - - -	5.0	13	.1	0	0		
31	0	- - - - -	0	.2	- - - - -	4.2	- - - - -	0	- - - - -	0		- - - - -
Total	0.2	2.1	1.0	29.8	15.7	653.5	622.5	46.7	8.9	6.1	0	0
Mean	0.01	0.07	0.03	0.96	0.54	21.1	20.8	1.51	0.30	0.20	0	0
Cfsm	0.0014	0.010	0.0043	0.137	0.077	3.01	2.97	0.216	0.043	0.028	0	0
In.	0.002	0.01	0.005	0.16	0.08	3.47	3.31	0.25	0.05	0.03	0	0

Calendar year 1963: Max 150 Min 0 Mean 4.10 Cfsm 0.586 In. 7.97
Water year 1963-64: Max 230 Min 0 Mean 3.79 Cfsm 0.541 In. 7.37

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	1900	4.73	466				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 27-29, Jan. 3-19. No gage-height record Oct. 1-23, Dec. 14-26, Dec. 30 to Jan. 2, June 4, 5, 9-17, June 29 to July 5, July 21 to Sept. 30. Stage-discharge relation indefinite May 21 to June 3, June 6-8, 20, 21, 26-28, July 16-20.

3-3560. Bean Blossom Creek at Dolan, Ind.

Location.--Lat 39°14'30", long 86°29'57", in SW¼ sec. 2, T. 9 N., R. 1 W., on downstream side of pier of highway bridge at Dolan, 17.5 miles upstream from mouth.

Drainage area.--100 sq mi.

Records available.--April 1946 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 576.41 ft above mean sea level, unadjusted. Prior to Sept. 28, 1951, wire-weight gage at same site and datum.

Average discharge.--18 years, 115 cfs (unadjusted).

Extremes.--Maximum discharge during year, 2,200 cfs Mar. 10 (gage height, 14.25 ft); minimum, 14 cfs Sept. 20-26; minimum gage height, 1.75 ft Sept. 20-24.
1946-64: Maximum discharge, 9,420 cfs June 2, 1947, maximum gage height, 17.9 ft Jan. 5, 1949; no flow at times during 1946-49, 1953.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated since April 1953 by Lake Lemon (capacity, 4,640,000,000 gal) 8.1 miles upstream.

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

1.8	14	5.0	320
2.0	22	7.0	610
2.5	52	10.0	1,060
3.0	92	12.0	1,450
4.0	190	14.0	2,120

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*24	24	24	23	22	22	71	170	20	18	18	18
2	23	24	24	23	22	22	116	125	20	18	18	*18
3	23	24	24	23	22	22	728	96	*20	20	18	16
4	23	24	24	*23	22	171	*610	*79	20	19	18	16
5	23	24	24	23	22	199	348	63	20	18	18	16
6	23	24	24	23	26	52	1,030	56	20	18	18	16
7	24	24	23	23	24	37	775	48	20	*28	*18	16
8	24	24	24	24	24	40	348	42	20	28	18	16
9	24	24	24	23	24	996	202	35	19	22	18	16
10	24	24	24	22	24	2,000	140	28	19	21	18	16
11	24	24	24	22	22	1,630	106	27	19	20	18	16
12	24	24	24	22	22	685	92	27	19	20	18	16
13	24	24	24	22	23	376	88	26	19	20	18	17
14	24	24	24	22	22	*226	63	24	19	19	18	17
15	24	24	24	21	20	160	52	22	19	19	18	17
16	24	24	23	22	20	120	52	22	19	19	18	17
17	24	24	23	22	20	83	45	21	19	19	18	17
18	24	24	23	21	20	71	38	20	24	19	18	18
19	24	24	23	21	20	67	87	20	20	19	18	16
20	24	24	23	22	20	79	550	20	19	19	18	14
21	25	24	23	22	20	75	700	20	19	19	19	14
22	24	26	23	22	20	83	730	20	21	19	19	14
23	24	26	23	22	20	79	475	20	20	19	18	14
24	24	24	23	24	20	75	334	20	19	19	18	14
25	24	24	23	26	20	75	214	20	19	19	18	14
26	24	24	23	24	20	150	170	20	19	19	18	14
27	24	24	23	24	20	180	190	20	19	19	18	15
28	25	24	23	20	22	140	505	20	19	19	18	15
29	24	*24	23	*20	22	101	446	20	19	18	18	15
30	*24	24	23	20	----------	75	264	20	19	18	18	*15
31	24	----------	23	20	----------	71	----------	20	----------	18	18	----------
Total	741	724	727	691	625	3,162	3,569	1,191	587	609	560	473
Mean	23.9	24.1	23.4	22.3	21.6	263	319	38.4	19.6	19.6	18.1	15.8
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-
(≠)	-24.4	-20.2	-18.7	-11.1	-7.8	+152	+5	-22.8	-20.2	-17.9	-22.8	-20.3

Calendar year 1963 : Max 1,500 Min 17 Mean 71.5 Cfsm 0.715 In. 9.71 ≠ -5.5
Water year 1963-64 : Max 2,000 Min 14 Mean 67.4 Cfsm 0.674 In. 9.17 ≠ -2.2

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	2330	14.25	2,200				

* Discharge measurement made on this day.
≠ Change in contents, equivalent in cubic feet per second, in Lake Lemon (formerly known as Bloomington Reservoir).
Note.--Stage-discharge relation affected by ice Dec. 16 to Jan. 7, Jan. 11-20, 28-31, Feb. 15-27.

3-3570. White River at Spencer, Ind.

Location.--Lat 39°16'49", long 86°45'42", in sec. 29, T. 10 N., R. 3 W., on right bank at downstream side of highway bridge at Spencer, 3.3 miles upstream from McBrides Creek and at mile 165.9.

Drainage area.--2,980 sq mi.

Records available.--July 1925 to September 1964. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1948, published as West Fork White River at Spencer.

Gage.--Water-stage recorder. Datum of gage is 526.04 ft above mean sea level, datum of 1929. Prior to Dec. 26, 1940, wire-weight gage at same site and datum.

Average discharge.--39 years, 3,025 cfs, (unadjusted).

Extremes.--Maximum discharge during year, 48,900 cfs Apr. 23 (gage height, 23.33 ft); minimum, 270 cfs Jan. 1 (gage height, 1.56 ft).
1925-64: Maximum discharge, 59,400 cfs May 15, 1933, Jan. 16, 1937, (gage height, 23.2 ft); minimum, 133 cfs Sept. 25, 30, 1941; minimum gage height, 0.88 ft Sept. 25, 30, Oct. 1, 1941.
Maximum stage known, 28.5 ft Mar. 26, 1913, from floodmarks (discharge, 100,000 cfs, estimated).

Remarks.--Records good except for those periods of ice effect, which are fair. Flow slightly regulated by three reservoirs above station.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 3-13, Jan. 16 to Mar. 3, Mar. 20 to Apr. 2, Apr. 11-19)

Oct. 1 to Apr. 23

1.7	290	12.0	8,950
2.4	620	16.0	14,800
3.0	980	20.0	27,500
5.0	2,520	23.1	47,100
10.0	6,920		

Apr. 24 to Sept. 30

2.3	325	5.0	1,840
3.0	585	12.0	8,950
4.0	1,110		

Note.--Same as preceding table above 12.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	375	352	398	b 310	560	488	*2,600	10,300	1,110	* 830	780	408
2	375	352	*375	b 310	535	488	2,600	* 7,960	* 1,110	780	730	* 408
3	398	398	375	* 310	*510	590	5,120	5,600	1,050	780	680	390
4	375	352	375	330	488	1,170	9,400	5,600	1,110	830	630	408
5	375	330	375	398	465	5,780	9,760	4,800	1,050	880	585	408
6	375	375	375	442	535	5,780	11,500	4,300	1,050	830	562	390
7	352	420	352	398	770	4,750	13,000	3,800	1,050	1,050	540	390
8	330	375	375	398	920	4,120	11,200	3,500	1,050	1,760	520	390
9	375	375	375	420	800	7,810	9,170	3,200	1,050	3,800	500	390
10	352	375	398	442	770	16,500	7,020	2,900	1,050	5,400	480	408
11	352	352	398	465	710	23,000	5,400	2,700	990	4,200	460	390
12	330	330	398	442	620	32,700	4,390	2,600	990	3,000	480	374
13	330	352	398	420	535	23,500	3,880	2,800	930	2,500	730	357
14	310	352	398	b 390	560	23,800	3,480	2,400	1,050	2,020	562	357
15	310	352	375	b 360	560	13,100	3,080	2,300	990	1,680	500	341
16	330	352	b 360	352	560	14,100	2,840	2,200	1,050	2,200	460	341
17	330	352	b 340	352	560	12,100	2,600	2,020	1,050	2,600	442	341
18	330	352	b 320	352	650	9,400	2,360	2,110	1,110	2,110	425	374
19	330	352	b 320	352	680	6,740	2,920	2,020	1,110	1,760	425	390
20	352	420	b 320	442	650	5,500	10,300	1,840	990	1,530	425	480
21	330	398	b 310	740	650	4,930	19,600	1,680	990	1,390	442	425
22	310	420	b 310	770	590	4,390	32,700	1,600	* 1,680	1,320	480	408
23	352	465	b 310	770	535	3,880	*47,100	1,530	1,840	1,250	460	425
24	352	920	b 310	800	535	3,560	45,400	1,460	1,760	1,110	442	520
25	352	650	b 310	860	510	3,320	40,800	1,390	1,530	1,250	442	442
26	330	535	b 310	1,190	*510	3,480	30,000	1,320	1,250	1,600	460	390
27	330	510	b 320	980	510	3,640	17,300	1,390	1,110	1,390	442	390
28	330	465	b 330	800	510	3,560	12,100	1,460	990	1,050	425	390
29	310	442	b 330	710	488	3,320	11,800	1,320	930	930	442	357
30	310	398	b 330	650	---------	3,240	11,100	1,250	880	*880	425	357
31	*330	---------	b 320	590	---------	2,760	---------	1,180	---------	830	408	---------
Total	10,622	12,473	10,890	16,545	17,276	265,496	390,520	91,530	33,900	53,540	15,784	11,839
Mean	343	416	351	534	596	8,597	13,020	2,953	1,130	1,727	509	395
Cfsm	0.115	0.140	0.118	0.179	0.200	2.88	4.37	0.991	0.379	0.580	0.171	0.133
In.	0.13	0.16	0.14	0.21	0.22	3.32	4.88	1.14	0.42	0.67	0.20	0.15

Calendar year 1963: Max 38,700 Min 310 Mean 2,230 Cfsm 0.748 In. 10.18
Water year 1963-64: Max 47,100 Min 310 Mean 2,545 Cfsm 0.854 In. 11.64

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3575. Big Walnut Creek near Reelsville, Ind.

Location.--Lat 39°32'11", long 86°58'35", in NW¼SE¼ sec. 28, T. 13 N., R. 5 W., on left bank at highway bridge, 1½ miles southwest of Reelsville, and 3 miles upstream from Mill Creek.

Drainage area.--338 sq mi.

Records available.--July 1949 to September 1964. Published as Eel River near Reelsville, October 1952 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 588.24 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Dec. 10, 1949, wire-weight gage at same site and datum.

Average discharge.--15 years, 344 cfs.

Extremes.--Maximum discharge during year, 10,900 cfs Apr. 21 (gage height, 16.04 ft); minimum, 3.2 cfs Sept. 13-15 (gage height, 3.10 ft).
1949-64: Maximum discharge, 30,700 cfs June 28, 1957 (gage height, 18.63 ft); minimum, 1.2 cfs Sept. 8, 1954 (gage height, 1.56 ft).

Remarks.--Records poor.

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 Dec. 12, Jan. 8 to Feb. 7, Feb. 15-21, Mar. 2-4, 7, Mar. 16 to Apr. 3, Apr. 8-19, Sept. 1-30)

2.98	3.2	5.2	405
3.0	4.0	6.0	720
3.2	13	9.0	2,050
3.5	30	12.0	3,920
3.8	60	15.0	7,800
4.2	122	16.0	10,900
4.6	212		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.1	9.1	11	7.0	73	50	325	640	86	50	21	8.6
2	8.6	9.5	11	7.0	66	147	325	520	85	48	20	8.2
3	8.2	11	10	8.0	58	*255	1,730	450	84	46	20	7.8
4	8.2	11	11	9.0	* 52	828	1,040	405	78	86	21	7.8
5	8.2	*13	11	11	50	1,620	800	352	74	54	* 18	6.9
6	8.2	15	12	13	97	760	1,360	318	73	48	16	6.1
7	7.4	16	11	*15	165	480	840	285	76	50	16	6.1
8	6.5	13	13	17	100	642	600	270	187	74	15	* 5.7
9	6.1	12	16	99	80	5,840	520	240	88	80	14	4.8
10	* 5.7	11	16	86	60	5,920	*440	226	78	59	14	4.8
11	5.3	10	16	88	58	2,000	405	200	*61	49	14	4.4
12	5.3	9.1	14	44	56	1,850	370	226	59	66	12	4.0
13	5.3	9.1	12	27	56	1,600	352	* 226	64	72	12	3.2
14	4.8	9.1	11	25	56	1,200	318	187	64	* 56	12	3.2
15	4.4	9.5	10	24	61	920	285	176	60	49	12	3.2
16	5.7	10	10	21	64	720	270	174	56	61	12	3.6
17	6.9	10	*9.5	19	68	600	255	760	55	48	12	4.4
18	6.5	12	9.0	18	68	520	255	300	54	49	11	4.8
19	6.9	12	8.5	21	74	440	1,530	212	50	44	11	4.8
20	7.4	12	8.0	262	78	440	6,400	176	50	41	11	5.7
21	8.6	12	7.5	187	68	520	9,300	165	116	37	10	4.4
22	9.5	17	7.0	132	59	480	4,650	143	270	34	11	4.0
23	10	36	7.0	76	50	422	1,800	132	154	33	12	9.1
24	10	28	7.0	84	45	388	1,850	122	105	30	11	6.9
25	10	24	6.5	707	45	440	1,160	122	78	28	11	5.3
26	9.5	19	6.0	272	45	560	880	124	74	28	10	4.4
27	11	16	6.0	166	45	520	1,660	197	66	26	10	4.8
28	9.1	14	6.0	118	45	440	1,500	122	61	25	9.5	* 5.7
29	6.9	12	6.0	112	45	422	1,000	105	56	23	10	5.7
30	7.4	11	6.0	82	------	370	760	96	53	23	10	6.1
31	7.4	------	6.0	76	------	352	------	88	------	21	10	------
Total	234.1	412.4	301.0	2833	1,887	31,746	42,980	7,759	2,515	1,438	408.5	164.5
Mean	7.55	13.7	9.71	91.4	65.1	1,024	1,433	250	83.8	46.4	13.2	5.48
Cfsm	0.022	0.041	0.029	0.270	0.193	3.03	4.24	0.740	0.248	0.137	0.039	0.016
In.	0.03	0.05	0.03	0.31	0.21	3.49	4.73	0.85	0.28	0.16	0.04	0.02

Calendar year 1963: Max 13,000 Min 4.4 Mean 238 Cfsm 0.705 In. 9.58
Water year 1963-64: Max 9,300 Min 3.2 Mean 253 Cfsm 0.749 In. 10.20

Peak discharge (base, 2,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0830	14.84	7,450	4-21	1100	16.04	10,900
4-3	1315	10.93	3,140	4-27	1700	10.92	3,140

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 7, Feb. 8-14, Feb. 23 to Mar. 1. Computed from once-daily telemark readings May 30 to June 10, June 26 to Aug. 4.

3-3580. Mill Creek near Cataract, Ind.

Location.--Lat 39°26', long 86°46', in SE¼ sec. 32, T. 12 N., R. 3 W., on left bank at downstream side of bridge on State Highway 43, 3 miles east of Cataract.

Drainage area.--241 sq mi.

Records available.--July 1949 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 706.40 ft above mean sea level, datum of 1929. Prior to Nov. 8, 1949, wire-weight gage at same site and datum.

Average discharge.--15 years, 259 cfs.

Extremes.--Maximum discharge during year, 5,920 cfs Apr. 21 (gage height, 17.97 ft); minimum, 0.8 cfs Sept. 13 (gage height, 2.97 ft).
1949-64: Maximum discharge, 11,400 cfs June 24, 1960 (gage height, 22.58 ft); minimum, 0.1 cfs Sept. 3, 6, 7, 28, 29, 1954.

Remarks.--Records fair.

Rating table, except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)
(Shifting-control method used Oct. 8, to Dec. 17, Jan. 2-20, Sept. 19-30)

2.98	0.8	5.0	120
3.0	1.0	6.0	262
3.1	2.6	7.0	482
3.2	5.0	9.0	1,080
3.5	15	12.0	2,220
3.9	34	15.0	3,800
4.4	68	18.0	5,920

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	5.0	6.5	b 2.0	25	46	110	302	26	* 11	7.1	2.8
2	5.3	5.6	* 6.2	2.8	21	88	115	230	*25	11	6.8	*2.8
3	5.3	5.3	6.5	* 3.8	*17	96	1,430	192	24	11	11	2.6
4	5.3	4.5	6.5	5.0	14	586	1,480	157	24	264	9.4	2.4
5	5.3	4.8	5.9	5.9	15	1,900	605	131	22	50	6.8	2.0
6	5.0	5.6	6.2	6.8	58	648	1,860	115	24	24	4.3	1.8
7	4.8	5.3	5.6	8.0	131	342	1,020	106	30	22	4.0	3.4
8	4.3	4.0	7.1	8.4	64	432	434	96	31	207	4.0	4.4
9	4.3	3.3	8.7	13	60	2,930	302	88	26	92	4.0	1.2
10	4.3	2.8	7.7	29	44	5,050	230	76	20	44	3.6	1.1
11	4.8	2.8	6.5	25	29	4,420	185	72	17	29	3.6	1.0
12	4.5	2.6	7.4	17	28	2,620	164	106	17	60	3.1	1.0
13	4.8	2.2	7.1	10	35	1,430	157	92	82	113	3.1	.9
14	4.8	2.4	5.6	7.4	30	710	131	72	38	46	3.6	.9
15	4.8	2.8	4.3	6.8	29	510	110	64	24	45	3.1	1.0
16	4.8	2.8	2.8	6.5	26	342	96	56	22	50	3.1	1.5
17	5.0	2.8	2.2	6.2	39	262	92	166	18	26	3.1	2.6
18	5.3	3.8	b 1.8	6.2	45	200	84	84	20	22	3.8	6.4
19	5.3	5.0	b 1.7	6.2	56	171	978	60	22	21	3.6	8.4
20	5.3	4.5	b 1.6	70	60	178	3,420	50	19	18	3.6	5.9
21	5.6	3.6	b 1.5	116	56	262	5,680	45	30	16	4.0	5.3
22	5.6	4.5	b 1.5	76	46	215	4,840	41	53	15	5.0	3.6
23	4.8	16	b 1.5	68	46	171	2,390	39	36	17	6.8	3.8
24	4.0	17	b 1.5	60	45	157	1,620	38	21	16	6.8	5.9
25	4.3	14	b 1.5	184	39	164	*680	39	16	13	5.6	9.4
26	4.3	10	b 1.6	93	*45	230	434	34	14	86	5.0	7.1
27	4.0	8.7	b 1.7	43	36	178	826	64	14	22	5.3	4.5
28	3.8	7.7	b 1.7	38	41	157	1,430	42	13	14	4.8	3.3
29	3.6	7.1	b 1.7	29	35	144	594	35	12	* 11	4.0	2.6
30	* 3.6	6.8	b 1.7	21	------	120	410	30	12	9.8	4.0	2.6
31	3.8	------	b 1.7	22	------	*126	------	27	------	8.4	3.6	-------
Total	146.0	173.3	125.5	996	1,215	24,885	31,907	2,749	752	1,394.2	149.6	102.2
Mean	4.71	5.78	4.05	32.1	41.9	802	1,064	88.7	25.1	45.0	4.83	3.41
Cfsm	0.020	0.024	0.017	0.133	0.174	3.33	4.41	0.368	0.104	0.187	0.020	0.014
In.	0.02	0.03	0.02	0.15	0.19	3.84	4.92	0.42	0.12	0.22	0.02	0.02

Calendar year 1963: Max 8,920 Min 1.5 Mean 170 Cfsm 0.705 In. 9.57
Water year 1963-64: Max 5,680 Min 0.9 Mean 176 Cfsm 0.730 In. 9.97

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1900	17.32	5,360				
4-21	1700	17.97	5,920				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3590. Mill Creek near Manhattan, Ind.

Location.--Lat 39°29', long 86°55', in sec. 11, T. 12 N., R. 5 W., on left bank, 200 ft downstream from Cagles Mill, three-quarters of a mile downstream from Cagles Mill Reservoir, three-quarters of a mile upstream from Deer Creek, and 5 3/4 miles south of Manhattan.

Drainage area.--292 sq mi.

Records available.--May to September 1931 (fragmentary), October 1938 to September 1964. Monthly discharge only for some periods, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage 581.83 ft above mean sea level, datum of 1929. May 3 to Sept. 2, 1931, staff gage on upstream side of mill at datum 7 ft higher. May 3 to Sept. 25, 1939, staff gage on upstream side of mill at datum 6 ft higher. Sept. 26, 1939 to May 12, 1941, chain, wire-weight, and tape gages at present site and datum.

Average discharge.--26 years (1938-64), 290 cfs (unadjusted).

Extremes.--Maximum discharge during year, 2980 cfs Mar. 24 (gage height, 8.76 ft), maximum gage height, 12.60 ft Apr. 20 (backwater from Deer Creek), minimum 2.0 cfs Aug. 16-20.
1931, 1938-64: Maximum discharge, 8,960 cfs Jan. 5, 1950 (gage height, 18.38 ft), no flow Aug. 7, 1953.

Remarks.--Records good except those for periods of no gage-height record and backwater from Deer Creek, which are fair. Flow regulated since Dec. 20, 1952 by Cagles Mill Reservoir (capacity, 228,100 acre-ft).

Rating table, except periods of backwater from Deer Creek (gage height in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 22 to Sept. 30)

1.17	2.0	2.5	109
1.2	2.5	3.0	202
1.3	5.0	4.0	490
1.4	8.4	6.0	1,350
1.5	12.4	8.5	2,800
1.7	22.0		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 4.6	a 2.9	11	8.1	28	60	202	109	27	8.5	3.0	3.5
2	a 4.2	a 2.9	8.9	5.0	35	54	160	109	25	4.0	4.5	3.2
3	a 4.0	a 2.9	8.0	4.5	39	*103	c 200	117	35	3.9	3.8	3.0
4	a 3.8	a 2.8	10	4.2	* 39	c 125	117	1,040	33	51	* 3.2	2.8
5	a 3.7	*a 2.9	10	4.0	39	c 240	427	2,200	27	106	3.2	3.0
6	a 3.6	a 2.8	10	4.0	88	381	c 530	2,380	27	107	3.0	3.0
7	a 3.5	2.8	10	*4.0	109	125	260	2,380	61	84	2.8	2.8
8	a 3.4	2.8	11	4.0	109	c 140	107	2,320	71	71	2.8	2.5
9	a 3.3	2.5	11	23	109	c 125	107	2,260	40	218	2.5	2.3
10	*a 3.3	2.3	10	33	109	c 125	*107	2,200	27	114	2.3	2.1
11	a 3.2	2.3	10	33	49	c 125	109	2,200	*22	32	2.1	2.3
12	a 3.2	2.3	19	54	27	c 125	109	2,140	15	58	2.1	2.3
13	a 3.2	2.5	22	63	27	c 125	336	* 2,080	15	74	2.1	2.5
14	a 3.1	2.3	a 23	42	88	125	490	2,020	64	* 98	2.1	2.3
15	a 3.1	2.5	a 14	11	66	125	1,250	2,080	62	95	2.1	2.3
16	a 3.1	2.5	a 11	11	52	125	1,600	2,080	18	36	2.0	2.3
17	a 3.0	2.5	*9.6	19	52	125	1,720	1,550	4.5	30	2.0	2.1
18	a 3.0	2.8	9.6	23	52	966	1,660	786	47	40	2.0	2.3
19	14	2.5	9.6	23	76	1,720	c 730	117	48	56	2.0	2.3
20	a 5.5	2.5	10	40	109	1,190	c 110	68	36	170	2.0	2.3
21	a 4.5	2.5	10	92	83	2,380	c 110	54	49	13	2.3	2.3
22	a 3.9	2.8	10	13	44	2,800	c 110	56	96	8.8	4.2	2.5
23	a 3.6	3.0	6.2	13	69	2,800	c 115	36	77	8.8	3.5	2.8
24	a 3.4	14	4.2	14	62	2,860	c 110	29	12	16	3.2	3.0
25	a 3.2	23	4.0	13	39	2,920	109	36	3.2	20	3.0	2.5
26	a 3.1	22	3.5	14	33	2,860	109	67	19	20	3.2	2.5
27	a 3.0	22	5.0	236	33	2,740	c 115	78	4.5	59	3.5	2.8
28	a 2.9	22	10	96	75	2,620	c 115	81	3.8	59	3.8	* 2.8
29	a 2.9	18	10	17	109	2,500	117	54	3.5	16	3.8	2.5
30	a 2.9	11	10	21	------	774	109	36	3.0	5.7	3.5	2.5
31	a 2.8	------	10	28	------	109	------	28	--------	4.2	3.5	-------
Total	118.0	192.6	320.6	969.8	1,849	31,592	11,450	30,791	975.5	1,686.9	89.1	77.4
Mean	3.81	6.42	10.3	31.3	63.8	1,019	382	993	32.5	54.4	2.87	2.58
(ƒ)	-2.93	-7.73	-0.5	+1.1	-1.7	+3.3	+917	-886	0.0	0.0	-3.25	-5.04

Adjusted for change in contents in Cagles Mill Reservoir

Mean	0.86	14.15	9.8	32.4	62.1	1,022.3	1,299	107	32.5	54.4	-0.36	-2.46
Cfsm	0.0030	0.048	0.034	0.111	0.213	3.50	4.45	0.366	0.111	0.186	-0.013	-0.0084
In.	0.00	0.05	0.04	0.13	0.23	4.04	4.97	0.42	0.12	0.21	-0.02	-0.01

	Observed			Adjusted			
Calendar year 1963 :	Max 2,740	Min 2.8	Mean 207	Mean 207	Cfsm 0.709	In. 9.61	
Water year 1963-64 :	Max 2,920	Min 2.0	Mean 219	Mean 219	Cfsm 0.750	In. 10.18	

* Discharge measurement made on this day.
ƒ Change in contents, equivalent in cubic feet per second, in Cagles Mill Reservoir, furnished by Corps of Engineers.
a No gage-height record.
c Backwater from Mill Creek.

3-3595. Deer Creek near Putnamville, Ind.

Location.--Lat 39°34'04", long 86°52'00", in NW¼ sec. 16, T. 13 N., R. 4 W., on left bank on upstream side of bridge on State Highway 243, 0.4 mile southwest of Putnamville, 0.4 mile downstream from small tributary from left and 0.8 mile downstream from Limestone Creek.

Drainage area.--59.0 sq mi.

Records available.--October 1954 to September 1964.

Gage.--Water-stage recorder (January 1959 to July 1963, wire-weight gage on downstream side of bridge read twice daily, used for gage heights below 1.7 ft). Datum of gage is 630.73 ft above mean sea level, datum of 1929. Prior to July 3, 1957, wire-weight gage at same site and datum.

Average discharge.--10 years, 63.7 cfs.

Extremes.--Maximum discharge during year, 8,640 cfs Apr. 20 (gage height, 11.64 ft); minimum daily, 0.1 cfs Oct. 12-24, Sept. 4-17, minimum observed gage height, 0.54 ft Sept. 8.
1954-64: Maximum discharge, 10,700 cfs Mar. 4, 1963 (gage height 12.95 ft), no flow Oct. 1-10, 1954.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.7	1.1	0.3	10	18	50	66	5.0	2.5	1.0	0.2
2	.2	.6	1.1	.3	9.2	39	58	66	5.0	2.5	1.5	.2
3	.2	.6	1.1	.3	7.8	36	805	56	4.5	54	2.5	.2
4	.2	.6	1.1	.5	*6.0	571	160	44	4.5	30	* 1.3	.1
5	.2	*.7	1.1	1.0	6.0	*320	251	37	4.5	5.0	1.0	.1
6	.2	.7	1.1	1.5	33	87	506	32	5.3	2.0	1.0	.1
7	.2	.7	1.1	* 2.1	42	62	149	28	30	2.0	.8	.1
8	.2	.7	2.0	2.3	27	669	91	27	22	16	.6	* .1
9	.2	.6	* 2.9	10	19	2,070	*73	24	15	26	.4	.1
10	* .2	.6	2.2	20	15	843	63	22	8.0	16	.3	.1
11	.2	.4	2.0	10	14	331	57	*19	* 4.0	5.0	.3	.1
12	.1	.4	1.7	5.0	13	550	53	17	4.0	22	.3	.1
13	.1	.4	1.3	2.5	12	274	53	32	14	36	.3	.1
14	.1	.6	1.1	2.0	11	160	46	20	6.0	* 15	.3	.1
15	.1	.6	.9	2.0	11	105	41	15	4.0	9.0	.3	.1
16	.1	.6	.7	2.0	14	82	39	26	3.5	5.0	.2	.1
17	.1	.6	.6	2.0	15	66	38	58	3.0	3.0	.2	.1
18	.1	1.1	.5	2.0	17	60	38	34	3.0	2.0	.2	6.0
19	.1	1.1	.4	5.0	20	56	824	24	3.0	2.0	.2	2.0
20	.1	1.2	.4	39	20	64	3,760	19	3.0	1.0	.2	.3
21	.1	1.2	.4	55	16	82	1,100	16	9.0	1.0	.2	.2
22	.1	4.0	.3	33	13	64	513	13	15	1.0	.2	.7
23	.1	17	.3	39	12	66	463	11	10	2.0	.4	14
24	.1	7.8	.3	44	12	56	350	14	7.0	5.0	.2	3.0
25	.3	2.9	.3	87	11	87	124	9.0	5.0	22	.2	1.0
26	.6	2.2	.3	58	15	138	83	13	4.0	11	.2	.4
27	.4	1.5	.3	30	15	76	512	9.0	3.5	5.0	.2	.3
28	.3	1.1	.3	20	13	74	303	7.0	3.0	3.0	.9	* .3
29	.3	1.1	.3	13	12	66	110	6.0	2.5	2.0	.5	.3
30	.2	1.1	.3	10	------	57	79	6.0	2.5	1.5	.4	.3
31	.3	------	.3	9.8	------	57	------	5.0	------	1.0	.3	------
Total	5.9	53.4	27.8	508.6	441.0	7,286	10,792	775.0	212.8	310.5	16.6	30.8
Mean	0.19	1.78	0.90	16.4	15.2	235	360	25.0	7.09	10.0	0.54	1.03
Cfsm	0.0032	0.030	0.015	0.278	0.258	3.98	6.10	0.424	0.120	0.169	0.0092	0.017
In.	0.004	0.03	0.02	0.32	0.28	4.59	6.81	0.49	0.13	0.19	0.01	0.02

Calendar year 1963: Max 6,000 Min 0.1 Mean 53.2 Cfsm 0.902 In. 12.24
Water year 1963-64: Max 3,760 Min 0.1 Mean 55.9 Cfsm 0.947 In. 12.89

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1800	5.93	2,550				
3-8	2300	8.89	5,390				
4-20	1500	11.64	8,640				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 19, 27-30, Feb. 8, 12, 22-25. No gage-height record Apr. 10-18, Apr. 29 to Sept. 30.

3-3600. Eel River at Bowling Green, Ind.

Location.--Lat 39°23'02", long 87°01'12", in NW¼ sec. 24, T. 11 N., R. 6 W., on left bank, 500 ft downstream from bridge on State Highway 46, at Bowling Green, and 0.5 mile downstream from Jordan Creek.
Drainage area.--844 sq mi.
Records available.--January 1931 to September 1964. Prior to October 1934, published as "near Centerpoint."
Gage.--Water-stage recorder. Datum of gage is 548.02 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Jan. 30, 1931, to Nov. 27, 1934, chain gage at site 5½ miles downstream at datum 6.15 ft lower. Nov. 28, 1934, to Nov. 30, 1949, water-stage recorder at site 500 ft upstream from present site at datum 1 ft higher.
Average discharge.--33 years, 846 cfs (adjusted for storage December 1952 to September 1956).
Extremes.--Maximum discharge during the year, 13,000 cfs Apr. 21 (gage height, 19.69 ft); minimum, 17 cfs Sept. 13-17; minimum gage height, 0.91 ft Sept. 15, 16.
1931-64: Maximum discharge, 34,000 cfs Jan. 4, 1950 (gage height, 23.53 ft); minimum, 11 cfs Oct. 7, 8, 1954 (gage height, 0.32 ft).
Maximum stage known, about 30.0 ft in 1875, present datum, from information by Corps of Engineers.
Remarks.--Records fair except those for periods of ice effect, which are poor. Flow regulated by Cagles Mill Reservoir (capacity, 228,100 acre-ft).

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 30 to Apr. 3, May 19 to June 8)

Oct. 1 to July 7		July 8 to Sept. 30	
1.1	18	0.9	16
1.4	49	1.0	22
1.7	94	1.5	71
2.5	266	2.0	158
5.0	1,000	3.0	400
10.0	3,110		
18.0	8,200		
19.0	10,100		
20.0	14,500		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	24	35	b26	132	*b 140	* 615	1,320	182	77	52	25
2	25	25	*35	b26	128	182	645	1,100	* 172	74	52	*24
3	24	26	34	*b26	*128	332	2,760	975	172	72	98	23
4	24	28	34	b26	121	985	2,800	1,240	172	271	57	22
5	24	29	35	b26	117	3,160	1,700	2,700	152	204	51	21
6	24	30	35	b30	177	1,680	4,070	2,980	152	182	46	21
7	24	30	35	b35	346	825	2,340	2,880	182	279	42	20
8	24	32	39	b50	292	885	1,280	2,840	465	262	41	20
9	24	31	42	142	b200	1,070	1,000	2,750	254	300	38	20
10	24	29	41	216	b170	3,650	885	2,700	182	300	37	19
11	23	28	41	b 150	b140	5,150	795	2,620	162	148	36	18
12	23	27	41	b 100	132	3,530	735	2,620	142	148	34	18
13	22	27	b30	b 80	132	3,110	795	2,570	142	238	34	17
14	22	28	b25	b70	152	2,160	975	2,480	162	204	33	17
15	22	29	b25	b60	182	1,680	1,400	2,440	204	204	32	17
16	23	28	b25	b50	162	1,280	1,980	2,480	152	181	31	17
17	23	27	b24	b50	172	1,040	2,160	2,840	124	120	30	17
18	24	33	b24	b50	182	1,160	2,080	1,850	142	164	29	21
19	24	35	b24	b60	204	2,300	3,120	645	172	158	28	24
20	30	31	b24	294	254	1,760	7,440	495	142	124	28	23
21	26	31	b23	465	b170	2,840	12,000	405	182	88	28	21
22	25	31	b22	465	b140	3,310	9,600	346	465	90	30	20
23	24	68	b21	319	b140	3,310	*4,730	306	375	90	32	20
24	24	64	b21	254	b130	3,260	4,730	266	216	71	29	25
25	24	56	b21	755	b130	3,410	*2,340	254	204	74	29	21
26	24	50	b21	465	132	3,770	1,060	266	132	78	30	20
27	24	45	b22	b250	132	3,530	3,090	360	124	88	28	20
28	25	40	b24	b200	b130	3,260	4,550	292	104	116	27	20
29	24	37	b25	b150	b130	3,110	2,160	254	* 91	81	28	19
30	*24	35	b26	b140	------	2,110	1,600	204	82	* 60	28	19
31	24	------	b26	b140	------	645	------	193	------	56	28	------
Total	747	1,034	900	5,170	4,757	74,634	85,435	45,671	5,604	4,602	1,146	609
Mean	24.1	34.5	29.0	167	164	2,408	2,848	1,473	187	148	37.0	20.3
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-
(≠)	-2.9	+7.7	-0.5	+1.1	-1.7	+3.3	+913	-886	0	0	-3.3	-5.0

Calendar year 1963 : Max 22,000 Min 22 Mean 596 Cfsm 0.706 In. 9.59 ≠ 0.1
Water year 1963-64 : Max 12,000 Min 17 Mean 625 Cfsm 0.745 In. 10.15 ≠ 0.4

≠ Change in contents, equivalent in cubic feet per section, in Cagles Mill Reservoir; furnished by Corps of Engineers.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 31 to Dec. 1.

3-3605. White River at Newberry, Ind.

Location.--Lat 38°55'42", long 87°01'00", in sec. 25, T. 6 N., R. 6 W., on right bank, 500 ft upstream from bridge on State Highway 57 at Newberry, 2.3 miles downstream from Doans Creek, at mile 118.0.

Drainage area.--4,696 sq mi.

Records available.--September 1928 to September 1964. Prior to October 1948, published as West Fork White River at Newberry.

Gage.--Water-stage recorder (digital, Aug. 17 to Sept. 30). Datum of gage is 465.59 ft above mean sea level, datum of 1929. Prior to Oct. 21, 1928, staff gage at same site and datum.

Average discharge.--36 years, 4,564 cfs (unadjusted).

Extremes.--Maximum discharge during year, 57,600 cfs Apr. 25 (gage height, 22.42 ft); minimum daily, 360 cfs Dec. 20-27.
1928-64: Maximum discharge, 76,900 cfs May 21, 1943 (gage height, 24.19 ft); minimum, 193 cfs Oct. 1, 1941; minimum gage height, 0.29 ft Sept. 30, Oct. 7, 8, 1954.
Maximum stage since at least 1875, 27.5 ft Mar. 27, 1913, from floodmarks by State Highway Department of Indiana (discharge, 130,000 cfs, estimated).

Remarks.--Records fair. Flow slightly regulated by four reservoirs above station.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 29 to Mar. 3, May 3 to July 7)

0.9	385	12.0	13,400
1.0	445	17.0	24,800
2.0	1,150	20.0	36,500
5.0	4,000	23.0	63,800
7.0	6,350		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	475	415	505	370	958	732	4,000	15,900	1,640	1,150	1,150	555
2	475	415	475	370	882	796	* 3,780	*12,900	1,550	1,070	1,070	* 531
3	475	415	475	380	845	789	6,080	9,880	*1,470	1,070	1,070	535
4	475	445	475	410	810	1,210	10,300	7,860	1,470	1,470	1,070	520
5	445	445	445	450	775	5,460	12,300	6,710	1,470	1,470	995	515
6	445	445	445	470	810	8,460	15,700	6,950	1,390	* 1,310	920	511
7	445	445	445	480	882	6,950	13,900	6,710	1,390	1,370	845	500
8	445	505	475	500	1,070	5,590	13,500	6,350	1,550	5,390	810	488
9	445	475	475	540	1,230	11,700	15,500	5,990	1,640	4,220	775	483
10	445	475	445	580	1,150	23,700	11,400	5,630	1,550	4,330	775	478
11	445	475	475	580	1,070	26,200	8,640	5,270	1,390	5,150	740	490
12	445	445	505	570	995	27,900	6,830	5,150	1,310	4,220	705	477
13	445	445	475	560	958	34,100	5,870	5,150	1,310	3,350	705	462
14	445	415	475	520	882	36,200	5,270	5,150	1,470	2,950	845	451
15	415	445	450	500	845	32,100	4,910	4,670	1,470	2,550	810	436
16	415	445	400	470	882	27,300	4,670	4,550	1,310	2,270	740	428
17	415	445	380	460	882	21,600	4,910	4,440	1,390	2,550	705	429
18	415	445	370	460	920	15,900	4,910	4,550	1,820	2,850	656	469
19	415	475	370	470	995	11,300	4,670	4,110	2,090	2,550	629	481
20	415	475	360	580	995	9,250	7,800	3,050	1,640	2,360	620	473
21	415	*505	360	720	995	8,300	13,200	2,750	1,470	2,000	621	548
22	415	505	360	882	995	8,110	13,900	2,550	1,910	1,820	644	532
23	415	570	360	995	920	7,920	27,800	2,360	2,270	1,730	660	486
24	415	570	360	1,070	845	7,470	*43,000	2,270	2,360	1,640	632	493
25	415	758	360	1,150	*845	7,080	55,600	2,090	2,090	1,470	611	535
26	415	740	360	1,470	882	7,210	51,600	2,000	1,820	1,640	604	538
27	415	635	360	1,550	845	7,370	41,000	2,000	1,550	1,910	614	485
28	*415	602	380	1,310	810	7,340	30,900	2,000	1,470	* 1,730	609	458
29	415	570	380	*1,150	775	7,000	24,200	2,000	1,310	1,640	587	451
30	385	538	380	1,070	---	6,470	19,900	1,820	1,230	1,390	586	435
31	385	---	380	995	---	5,610	---	1,730	---	1,230	576	---
Total	13,345	14,983	12,960	22,082	25,748	387,167	507,040	154,540	47,800	71,850	23,379	14,673
Mean	430	499	418	712	922	12,490	16,900	4,985	1,593	2,318	754	489
Cfsm	0.092	0.106	0.089	0.152	0.196	2.66	3.60	1.06	0.339	0.494	0.161	0.104
In.	0.11	0.12	0.10	0.17	0.21	3.07	4.02	1.22	0.38	0.57	0.18	0.12

Calendar year 1963: Max 55,600 Min 360 Mean 3,333 Cfsm 0.710 In. 9.64
Water year 1963-64: Max 56,600 Min 360 Mean 3,543 Cfsm 0.754 In. 10.27

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 21.

3-3610. Big Blue River at Carthage, Ind.

Location.--Lat 39°46', long 85°34', in sec. 18, T. 15 N., R. 9 E., on right bank, 500 ft upstream from highway bridge, half a mile west of Carthage, and 2½ miles downstream from Three Mile Creek.

Drainage area.--187 sq mi.

Records available.--October 1950 to September 1964. Prior to October 1961, published as Blue River at Carthage, Ind.

Gage.--Water-stage recorder. Datum of gage is 859.33 ft above mean sea level, datum of 1929. Prior to July 19, 1951, wire-weight gage at site 500 ft downstream at same datum.

Average discharge.--14 years, 194 cfs.

Extremes.--Maximum discharge during year, 5,540 cfs Apr. 22 (gage height, 10.65 ft); minimum, 30 cfs Sept. 8, 13-15 (gage height, 1.20 ft).
1950-64: Maximum discharge, 12,900 cfs Mar. 4, 1963 (gage height, 14.62 ft, from floodmarks), from rating curve extended above 6,200 cfs; minimum, 16 cfs Sept. 18-20, 1955; minimum gage height, that of Sept. 8, 13-15, 1964.

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 Apr. 19

1.3	23	5.0	980
1.4	33	6.0	1,360
1.6	57	8.0	2,650
2.0	121	10.0	4,750
3.0	340		

Apr. 20 to Sept. 30

1.2	30	2.0	150
1.3	39	3.0	365
1.5	66	5.0	980

Note.--Same as preceding table above 5.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	47	40	b 37	57	57	121	440	96	60	54	39
2	34	43	40	43	56	81	130	365	109	58	51	38
3	33	40	41	48	53	82	669	320	127	60	51	37
4	33	37	41	53	52	280	630	287	100	66	51	36
5	34	45	41	43	52	1,020	365	254	94	57	49	35
6	34	45	41	43	93	450	642	232	100	62	47	34
7	32	42	40	48	101	278	570	221	98	564	46	32
8	33	41	44	44	77	232	340	210	109	584	45	31
9	33	41	45	70	70	2,090	265	188	94	254	44	34
10	33	40	42	68	64	4,270	221	178	87	159	41	33
11	33	38	42	b 55	60	1,800	190	168	84	121	70	32
12	38	40	43	48	58	1,030	170	265	82	128	57	32
13	34	40	42	44	58	770	170	221	93	141	47	31
14	33	43	40	60	57	600	150	188	87	109	46	30
15	33	42	34	57	57	540	140	159	81	188	45	32
16	33	41	b 32	52	58	390	130	159	80	150	44	32
17	34	40	b 31	50	56	315	130	150	76	109	41	33
18	33	*47	b 31	50	58	254	130	141	82	93	41	37
19	34	48	b 31	53	58	221	978	132	87	86	40	57
20	33	42	b 32	128	57	210	* 2,830	130	94	80	39	41
21	*34	45	b 33	105	56	210	4,510	125	107	75	43	37
22	37	43	b 34	87	54	200	* 4,510	121	93	72	51	37
23	40	57	b 36	79	b 51	180	1,500	118	82	69	49	39
24	37	44	b 37	* 81	50	* 170	875	116	76	68	* 44	38
25	37	41	b 39	98	50	170	610	112	*70	68	43	38
26	35	42	* 43	79	56	200	490	109	69	78	43	38
27	34	41	b 42	70	54	170	690	116	66	* 63	41	36
28	33	41	b 38	64	* 53	160	1,360	* 107	*68	63	39	36
29	34	40	b 35	b 61	52	140	805	105	62	60	39	39
30	33	40	33	58	------	130	550	100	60	58	38	39
31	34	------	b 33	57	------	130	------	96	------	57	43	------
Total	1,060	1,276	1,176	1,933	1,728	15,880	24,891	5,633	2,613	3,860	1,422	1,083
Mean	34.2	42.5	37.9	62.4	59.6	544	829	182	87.1	125	45.9	36.1
Cfsm	0.183	0.227	0.203	0.334	0.319	2.91	4.43	0.973	0.466	0.668	0.245	0.193
In.	0.21	0.25	0.23	0.39	0.34	3.36	4.94	1.12	0.52	0.77	0.28	0.22

Calendar year 1963: Max 6,900 Min 28 Mean 166 Cfsm 0.888 In. 12.07
Water year 1963-64: Max 4,510 Min 30 Mean 174 Cfsm 0.174 In. 12.63

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0900	10.33	5,140				
4-22	0300	10.65	5,540				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3615. Big Blue River at Shelbyville, Ind.

Location.--Lat 39°31'45", long 85°46'55", in SE¼ sec. 31, T. 13 N., R. 7 E., on left bank, a quarter of a mile downstream from bridge on U. S. Highway 421 at Shelbyville and 0.6 mile downstream from Little Blue River.

Drainage area.--425 sq mi.

Records available.--September 1943 to September 1964. Prior to October 1961, published as Blue River at Shelbyville.

Gage.--Water-stage recorder (digital after Aug. 17, 1964). Datum of gage is 737.67 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1953, wire-weight gage at bridge a quarter of a mile upstream at datum 3.5 ft higher.

Average discharge.--21 years, 458 cfs.

Extremes.--Maximum discharge during year, 9,800 cfs Apr. 21 (gage height, 15.40 ft); minimum, 37 cfs Oct. 4; minimum gage height, 2.43 ft Sept 15, 16.
1943-64: Maximum discharge, 15,800 cfs Mar. 5, 1963 (gage height, 17.70 ft); minimum, 23 cfs Oct. 2, 1953.
Flood of March 1913 reached a stage of about 20.2 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)

Oct. 1 to July 7

2.4	32	6.0	925
2.6	48	8.0	2,170
3.0	87	11.0	4,300
3.5	159	13.0	6,000
4.0	253	15.0	9,000
5.0	515	16.0	11,200

July 8 to Sept. 30

2.4	38	3.5	169
2.5	48	4.0	259
2.7	68	5.0	515
3.0	99		

Note.--Same as preceding table above 5.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	51	58	50	87	82	297	1,140	167	120	99	61
2	38	54	59	57	82	87	320	875	167	99	94	60
3	38	55	57	62	82	113	1,070	735	193	93	94	58
4	37	51	58	64	76	223	1,820	620	184	93	88	56
5	38	52	58	68	74	1,380	1,140	550	167	93	88	53
6	38	55	58	68	99	1,190	1,440	485	167	87	83	52
7	39	58	58	68	135	620	1,760	455	167	152	78	49
8	38	55	61	71	143	485	1,140	425	167	1,820	78	47
9	38	53	62	82	120	1,880	780	395	175	1,190	73	46
10	39	52	63	90	106	5,420	620	345	159	655	68	46
11	39	52	61	80	99	7,300	515	345	143	395	74	45
12	39	51	62	70	93	4,220	455	345	135	395	152	43
13	42	*52	62	60	87	2,520	425	*425	135	455	96	42
14	44	52	55	57	87	1,830	425	345	143	395	83	42
15	*40	55	50	71	87	1,630	*370	320	135	395	78	42
16	41	55	45	*69	87	1,190	345	297	*120	550	73	43
17	42	54	42	65	87	875	320	275	113	370	*73	*44
18	42	59	41	66	82	*695	297	264	133	279	67	53
19	42	60	41	69	*93	585	930	253	143	230	65	64
20	44	64	41	99	93	515	4,870	233	135	203	63	74
21	44	62	42	172	93	515	3,850	223	151	185	69	63
22	44	64	44	159	87	485	*9,400	223	159	169	76	55
23	44	69	45	135	87	455	*6,600	213	135	*153	80	56
24	46	74	*46	135	82	425	3,360	203	120	145	74	54
25	46	67	50	135	82	425	1,960	203	106	130	68	54
26	46	62	52	135	82	515	1,370	193	106	145	65	53
27	46	61	54	120	87	485	1,370	193	99	137	64	53
28	46	60	55	99	87	425	2,730	193	93	123	67	52
29	45	60	51	92	82	395	2,590	184	93	117	65	53
30	45	58	46	88	------	345	1,630	175	87	111	63	54
31	46	------	45	87	------	320	------	167	------	105	61	------
Total	1,294	1,727	1,622	2,743	2,668	37,630	59,199	11,297	4,197	9,589	2,419	1,567
Mean	41.7	57.6	52.3	88.5	92.0	1,214	1,973	364	140	309	78.0	52.2
Cfsm	0.098	0.136	0.123	0.208	0.216	2.86	4.64	0.856	0.329	0.727	0.184	0.123
In.	0.11	0.15	0.14	0.24	0.23	3.30	5.18	0.99	0.37	0.84	0.21	0.14

Calendar year 1963: Max 13,800 Min 37 Mean 324 Cfsm 0.762 In. 10.37
Water year 1963-64: Max 9,400 Min 37 Mean 371 Cfsm 0.873 In. 11.90

Peak discharge (base, 3,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	0500	14.45	7,940				
4-21	2100	15.40	9,800				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 1, Jan. 10-13, 29, 30.

GPO 820-311-8

3-3620. Youngs Creek near Edinburg, Ind.

Location.--Lat 39°25'08", long 86°00'18", in SW¼ sec. 5, T. 11 N., R. 5 E., on left bank on upstream side of highway bridge half a mile southwest of Amity, 2 miles upstream from mouth, and 5 miles northwest of Edinburg.

Drainage area.--109 sq mi.

Records available.--October 1942 to September 1964. Prior to December 1942 monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 670.20 ft above mean sea level, datum of 1929. Prior to June 30, 1955, wire-weight gage at same site and datum.

Average discharge.--22 years, 108 cfs.

Extremes.--Maximum discharge during year, 6,510 cfs Apr. 21 (gage height, 11.61 ft); minimum, 1.4 cfs Sept. 11-15; minimum gage height, 0.64 ft Aug. 17-20, Sept. 7, 8.
1942-64: Maximum discharge, 10,700 cfs Jan. 27, 1952 (gage height, 13.4 ft); minimum, 0.4cfs Sept. 14, 1954

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. 11 to Dec. 14, Jan. 4-14, 16, 24-27)

Oct. 1 to Mar. 4

0.62	0.8
.7	2.6
.8	9.0
.9	19
1.0	32
1.5	97
2.0	163
3.0	310

Mar. 5 to Sept. 30

0.6	0.8	4.0	492
.7	3.6	6.0	990
.8	10	8.0	1,750
.9	20	9.0	2,450
1.0	33	10.0	3,650
1.5	103	11.0	5,350
2.0	173		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	4.0	3.0	2.4	7.8	12	57	130	14	5.1	4.1	3.1
2	5.9	5.2	3.0	2.5	7.2	13	79	136	14	5.1	3.6	3.1
3	5.2	3.0	3.5	8.0	6.6	13	734	110	14	5.7	3.6	3.1
4	5.2	3.0	3.0	14	5.9	196	525	89	14	7.7	3.6	3.1
5	5.9	4.6	3.5	12	5.9	946	356	79	13	5.7	3.6	3.1
6	4.6	5.2	3.5	8.1	20	373	675	69	15	9.2	3.1	2.4
7	4.0	4.0	3.0	6.6	49	247	424	62	14	10	3.1	1.6
8	4.6	4.0	3.5	6.6	35	217	262	58	17	18	3.1	2.0
9	4.6	3.5	4.0	9.9	26	1,390	187	54	14	13	3.1	2.4
10	3.5	3.0	3.0	11	18	4,130	145	48	11	19	2.4	1.8
11	3.0	3.0	3.0	7.3	15	1,620	117	44	9.2	13	3.1	1.6
12	2.6	3.5	3.0	5.9	13	690	96	47	7.7	32	2.7	1.6
13	2.3	4.0	3.0	5.2	12	441	89	41	7.7	62	4.1	1.6
14	2.6	* 4.0	3.0	5.9	11	373	72	37	9.2	43	* 3.1	1.6
15	2.6	3.5	2.6	* 5.4	11	339	61	* 33	7.7	29	2.0	2.0
16	* 2.6	3.5	2.5	5.2	14	* 247	55	32	7.7	21	2.0	2.0
17	2.3	3.5	2.4	4.8	16	187	* 53	30	* 7.0	16	1.8	* 1.8
18	2.0	4.6	2.3	4.7	18	138	48	29	20	13	1.6	4.1
19	2.0	6.6	2.3	4.6	28	117	327	26	20	10	1.8	7.7
20	2.3	5.2	* 2.3	27	* 33	110	2,220	23	18	9.2	1.8	4.6
21	2.0	5.2	2.3	35	31	110	3,750	21	15	8.5	2.7	2.0
22	2.3	5.9	2.3	29	28	89	1,600	21	17	* 8.5	6.2	2.7
23	2.3	11	2.4	23	24	83	615	20	15	7.7	3.6	3.1
24	2.3	6.6	2.6	16	20	78	590	19	11	7.0	2.0	2.4
25	2.6	5.2	2.9	19	18	76	373	19	9.2	6.2	2.4	2.4
26	2.3	4.6	3.1	16	16	145	292	18	8.5	5.7	3.1	2.7
27	2.6	4.0	3.2	14	14	117	307	17	7.0	5.1	3.1	2.7
28	2.3	3.5	3.2	12	14	96	510	18	6.2	5.1	3.6	1.8
29	2.6	3.0	3.1	10	14	79	322	16	5.7	5.1	9.2	2.0
30	2.3	3.0	2.8	9.0	------	67	232	15	5.7	4.1	4.6	2.4
31	3.0	------	2.6	8.5	------	64	------	14	------	4.1	2.7	------
Total	101.0	132.9	89.9	346.6	531.4	12,705	15,473	1,427	354.5	413.8	100.5	78.5
Mean	3.26	4.43	2.90	11.25	18.3	410	516	46.0	11.8	13.3	3.24	2.62
Cfsm	0.030	0.041	0.027	0.103	0.168	3.76	4.73	0.422	0.108	0.122	0.030	0.024
In.	0.03	0.05	0.03	0.12	0.18	4.34	5.28	0.49	0.12	0.14	0.03	0.03

Calendar year 1963: Max 5,560 Min 2.0 Mean 69.2 Cfsm 0.635 In. 8.61
Water year 1963-64: Max 4,130 Min 1.6 Mean 86.8 Cfsm 0.796 In. 10.84

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	1300	10.71	4,810				
4-4	0130	7.16	1,380				
4-21	0230	11.61	6,510				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 3, Jan. 15, 17-23, 28, 29, Jan. 31 to Feb. 2, Feb. 11, 13-15, 26, 27.

3-3625. Sugar Creek near Edinburg, Ind.

Location.--Lat 39°21'39", long 85°59'51", on line between secs. 29 and 32, T. 11 N., R. 5 E., on left bank, 50 ft upstream from highway bridge in Camp Atterbury, 1¼ miles upstream from confluence with Blue River, and 1½ miles northwest of Edinburg.

Drainage area.--462 sq mi.

Records available.--October 1942 to September 1964. Prior to February 1943 monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder (digital after Apr. 14, 1964). Datum of gage is 646.23 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1952, wire-weight gage on downstream side of old highway bridge, 100 ft downstream at same datum.

Average discharge.--22 years, 485 cfs.

Extremes.--Maximum discharge during year, 11,900 cfs Apr. 21 (gage height, 14.83 ft); minimum, 17 cfs Sept. 11, 12, 13, 15; minimum gage height, 3.53 ft Sept. 11, 13.
1942-64: Maximum discharge, 27,600 cfs May 29, 1956 (gage height, 18.38 ft); minimum, 8.0 cfs Sept. 18, 1954 (gage height, 3.04 ft).

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 Jan. 11-27, Jan. 30 to Mar. 4)

Oct. 1 to Mar. 10				Mar. 11 to July 22				July 23 to Sept. 30			
3.7	19	6.0	900	3.8	33	7.0	1,530	3.5	15	4.0	73
4.0	66	8.0	2,240	4.0	72	9.0	2,900	3.6	21	4.2	125
4.5	195	11.0	5,100	4.3	155	11.0	4,680	3.8	40	4.5	230
5.0	380	13.0	8,020	4.5	230	13.0	7,680				
				5.0	450	15.0	12,500				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	28	34	34	25	62	64	284	998	118	67	61	30
2	26	35	34	26	59	62	315	789	116	53	58	32
3	28	37	34	32	55	7[illegible]	1,290	648	116	50	54	33
4	26	34	32	42	5[illegible]	28[illegible]	2,410	546	114	60	52	32
5	28	35	31	43	48	1,86[illegible]	1,470	472	115	67	47	29
6	26	37	31	43	72	1,45[illegible]	1,85[illegible]	416	116	63	45	27
7	25	35	31	42	123	960	2,760	375	114	69	43	27
8	25	37	35	42	116	68[illegible]	1,260	349	115	430	41	24
9	25	35	37	50	1[illegible]6	2,510	975	323	1[illegible]5	778	38	23
10	25	34	35	35	90	7,720	7[illegible]0	291	1[illegible]1	658	38	21
11	25	32	35	53	81	10,[illegible]00	575	268	95	396	38	18
12	25	* 31	37	42	75	6,9[illegible]0	5[illegible]0	264	90	290	40	18
13	25	29	35	35	68	4,1[illegible]	450	381	86	268	63	18
14	24	31	29	42	7[illegible]	2,480	* 425	314	93	211	69	19
15	24	31	b 27	38	64	1,850	35[illegible]	*264	95	178	52	23
16	* 24	31	b 26	37	66	1,36[illegible]	317	236	87	240	44	21
17	25	31	b 25	* 35	68	1,[illegible]30	246	219	* 79	274	40	19
18	25	34	b 24	37	*7[illegible]	810	478	207	95	214	37	* 24
19	26	35	24	37	84	* 650	62[illegible]	191	112	172	35	35
20	28	37	24	85	90	575	3,690	178	103	147	*34	33
21	28	37	24	118	9[illegible]	550	10,600	168	96	127	37	28
22	28	38	25	130	84	475	9,[illegible]00	161	98	*119	44	31
23	29	53	26	116	79	426	*6,910	155	112	104	44	31
24	42	52	* 29	1[illegible]3	7[illegible]	405	4,660	151	93	94	42	27
25	31	52	31	1[illegible]6	66	382	2,770	145	81	86	40	27
26	28	5[illegible]	32	103	68	475	1,640	140	75	91	37	25
27	28	43	34	96	66	475	1,400	136	70	182	36	26
28	31	4[illegible]	34	b 84	64	4[illegible]5	1,900	137	64	116	33	25
29	29	37	31	b 74	64	360	1,760	131	60	89	43	25
30	28	35	29	68	------	336	1,330	123	59	75	40	26
31	29	------	26	64	------	302	------	120	------	67	35	------
TOTAL	853	1,112	941	1,853	2,17[illegible]	50,904	62,280	9,296	2,873	5,837	1,360	777
MEAN	27.5	37.1	30.4	6[illegible].7	74.8	1,642	2,076	300	95.8	188	43.9	25.9
CFSM	.060	.080	.066	.131	.162	3.55	4.49	.649	.207	.407	.095	.056
IN	.07	.09	.08	.15	.17	4.1[illegible]	5.01	.75	.23	.47	.11	.06

CALENDAR YEAR 1963 MAX 13[illegible] MIN 23 MEAN 346 CFSM .749 INCHES 10.18
WATER YEAR 1963-64 MAX 1[illegible] MIN 18 MEAN 383 CFSM .829 INCHES 11.29

Peak discharge (base, 4,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	0530	14.73	11,700				
4-21	1300	14.83	11,900				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3630. Driftwood River near Edinburg, Ind.

Location.--Lat 39°20'21", long 85°59'11", in sec. 4, T. 10 N., R. 5 E., on left bank just downstream from highway bridge, 0.8 mile downstream from confluence of Blue River and Sugar Creek and 1½ miles southwest of Edinburg.

Drainage area.--1,054 sq mi.

Records available.--October 1940 to September 1964. Prior to July 1941 monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 636.99 ft above mean sea level, datum of 1929. Prior to Oct. 7, 1941, wire-weight gage at same site and datum.

Average discharge.--24 years, 1,121 cfs.

Extremes.--Maximum discharge during year, 22,300 cfs Apr. 21 (gage height, 15.62 ft); minimum, 98 cfs Sept. 11-15, minimum gage height, 1.70 ft Oct. 9-21.
1940-64: Maximum discharge, 40,500 cfs Mar. 6, 1963 (gage height, 16.97 ft); minimum observed, 36 cfs Sept. 23, 1941. Maximum stage known, 20.3 ft in March 1913, from information by local residents.

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 May 18 to July 8)

Oct. 1 to Apr. 20				Apr. 21 to Sept. 30	
1.7	100	9.0	4,500	1.9	84
2.0	203	11.0	6,460	2.0	111
2.5	400	13.0	9,600	2.5	295
3.0	615	14.0	12,400	3.0	510
4.0	1,080	15.0	17,500	4.0	1,030
7.0	2,910	16.0	26,300	7.0	2,910

Note.--Same as preceding table above 7.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	115	138	b110	b 200	199	845	3,120	398	204	247	153
2	103	119	135	119	b 190	195	885	2,490	398	211	235	150
3	103	122	135	127	b 185	203	2,110	2,110	398	200	223	150
4	103	124	135	139	b 184	426	4,590	1,810	420	204	215	127
5	103	124	135	142	184	2,350	3,580	1,570	398	204	204	124
6	103	127	135	150	214	3,120	3,660	1,390	398	196	196	117
7	103	127	135	154	272	2,050	4,410	1,270	398	211	189	114
8	103	127	142	154	320	1,460	3,500	1,210	398	1,080	178	111
9	100	127	142	169	300	3,520	2,420	1,090	375	2,350	174	108
10	100	127	142	157	276	10,500	1,870	1,030	355	1,810	158	106
11	100	127	142	169	257	13,800	1,570	920	335	1,130	158	100
12	100	124	146	b155	237	17,500	1,340	920	315	920	158	98
13	100	122	146	150	230	9,950	1,240	1,090	315	865	235	98
14	100	*122	135	142	222	5,100	1,130	* 1,030	315	810	215	99
15	100	124	122	150	214	4,680	1,030	865	315	710	145	100
16	* 100	127	b112	*150	218	3,660	* 930	810	295	920	171	100
17	100	127	b102	154	218	* 2,840	885	760	*287	920	160	100
18	100	135	b100	150	* 218	2,230	840	710	315	710	*157	* 106
19	100	138	b100	150	230	1,870	1,140	660	335	585	150	121
20	100	142	b100	214	241	1,630	5,320	610	335	510	150	124
21	100	150	b100	272	241	1,510	13,600	585	315	465	154	124
22	103	150	b105	340	237	1,400	21,300	560	315	* 420	150	124
23	105	173	b110	320	230	1,340	14,300	535	335	395	168	117
24	114	173	*114	300	218	1,190	12,200	535	291	375	164	111
25	116	173	119	300	211	1,130	7,070	510	263	335	160	111
26	111	173	124	300	211	1,240	4,500	488	247	335	150	108
27	111	157	131	280	207	1,290	3,660	465	235	442	146	106
28	114	154	131	253	203	1,130	4,680	465	223	355	146	106
29	111	146	125	226	203	1,080	5,490	442	219	315	157	106
30	111	142	112	b220	------	940	4,410	420	204	283	150	106
31	111	------	110	b210	------	895	------	420	------	263	140	------
Total	3,231	4,119	3,860	5,025	5,571	107,498	143,545	31,890	9,745	14,756	5,483	3,364
Mean	104	137	125	194	227	3,468	4,785	996	325	605	177	112
Cfsm	0.099	0.130	0.119	0.184	0.215	3.29	4.54	0.945	0.308	0.574	0.168	0.106
In.	0.11	0.14	0.14	0.21	0.23	3.79	5.07	1.09	0.34	0.66	0.19	0.12

Calendar year 1963 : Max 34,500 Min 100 Mean 812 Cfsm 0.770 In. 10.45
Water year 1963-64 : Max 21,300 Min 98 Mean 937 Cfsm 0.889 In. 12.09

Peak discharge (base, 7,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	1900 to 2200	15.46	21,300				
4-21	1800 to 2000	15.62	22,300				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3635. Flatrock River at St. Paul, Ind.

Location.--Lat 39°25'03", long 85°38'03", in NE¼ sec. 9, T. 11 N., R. 8 E., on right bank 500 ft downstream from highway bridge, 0.8 mile southwest of St. Paul, and 1½ miles downstream from Mill Creek.

Drainage area.--298 sq mi.

Records available.--October 1930 to September 1964. Prior to October 1958, published as Flatrock Creek at St. Paul.

Gage.--Water-stage recorder (digital after Aug. 21, 1964). Datum of gage is 764.84 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct. 21, 1938, chain gage at site 500 ft upstream at same datum.

Average discharge.--34 years, 313 cfs.

Extremes.--Maximum discharge during year, 9,260 cfs Apr. 20 (gage height, 8.66 ft); minimum, 0.8 cfs Oct. 12-22; minimum gage height, 0.10 ft Oct. 15-19.

1930-64: Maximum discharge, 18,500 cfs Jan. 5, 1949; maximum recorded gage height, 12.17 ft Mar. 5, 1963; minimum discharge, 0.5 cfs Aug. 7, 9, 1931.

Flood in March 1913 reached a stage of approximately 20.5 ft, from information by local residents.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Slight diversion occasionally by quarry above gage.

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

0.07	0.6	.6	32	2.0	670
.1	1.2	.7	46	4.0	2,360
.2	4.2	.8	66	5.0	3,440
.3	8.6	.9	94	7.0	6,400
.4	14	1.1	170	8.0	8,000
.5	22	1.5	355		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	7.5	11	7.2	32	28	210	1,000	70	33	29	12
2	1.9	7.5	11	7.6	31	26	235	775	70	36	26	11
3	1.6	10	11	9.0	30	29	1,920	600	82	35	24	11
4	1.4	9.2	11	21	29	262	1,360	505	80	34	24	9.9
5	1.2	8.6	11	40	28	880	1,040	415	70	32	22	8.9
6	1.2	9.7	11	75	38	705	1,530	338	70	31	20	8.0
7	1.2	9.7	11	68	48	415	1,530	290	70	115	19	7.3
8	1.2	9.7	12	62	52	306	1,280	265	70	740	18	6.8
9	1.2	9.7	14	50	48	2,640	775	234	74	505	17	6.1
10	1.2	9.2	14	40	46	5,120	568	206	74	475	16	6.0
11	1.0	9.2	14	33	42	3,570	475	190	62	250	14	5.5
12	.8	9.2	14	27	40	2,360	397	182	58	242	14	5.1
13	.8	*8.6	14	22	38	1,530	391	*186	58	361	18	4.8
14	.8	9.2	13	19	36	1,200	328	170	62	280	18	4.7
15	*.8	9.2	11	16	34	1,200	*275	140	58	222	15	4.7
16	.8	11	10	*15	35	920	246	130	*56	242	14	4.7
17	.8	10	9.5	14	35	670	226	120	46	445	*13	*3.8
18	.8	11	8.5	14	35	*505	218	115	52	138	12	4.4
19	.8	11	7.5	20	*35	397	856	110	66	142	12	4.7
20	.8	13	7.0	225	36	361	5,040	102	75	134	11	6.5
21	.8	13	7.0	238	35	367	7,520	98	60	98	12	9.5
22	.8	13	7.0	166	32	367	5,280	95	56	81	19	10
23	1.9	15	7.6	105	30	322	3,830	92	56	*70	24	10
24	2.8	14	*8.0	70	30	290	2,160	88	50	64	17	8.2
25	3.0	14	8.2	60	30	285	1,440	86	40	56	15	7.4
26	3.8	13	8.2	53	31	445	1,040	85	36	52	13	7.0
27	4.6	12	8.2	48	30	475	1,120	82	34	48	12	6.9
28	5.4	12	8.0	44	30	385	1,620	80	32	46	12	7.1
29	5.0	12	7.6	41	29	311	1,710	78	30	42	13	8.0
30	5.0	11	7.2	38	------	260	1,360	75	28	36	18	7.6
31	5.4	------	7.0	35	------	234	------	72	------	32	15	------
Total	60.7	321.2	309.5	1,682.8	1,025	26,865	46,030	7,004	1,745	5,117	526	217.6
Mean	1.96	10.7	9.98	54.3	35.3	867	1,534	226	58.2	165	17.0	7.25
Cfsm	0.0066	0.036	0.033	0.182	0.118	2.91	5.15	0.758	0.195	0.554	0.057	0.024
In.	0.008	0.04	0.04	0.21	0.13	3.36	5.75	0.87	0.22	0.64	0.07	0.03

Calendar year 1963: Max 13,800 Min 0.8 Mean 211 Cfsm 0.708 In. 9.63
Water year 1963-64: Max 7,520 Min 0.8 Mean 248 Cfsm 0.832 In. 11.37

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0100	7.37	7,040				
4-3	1200	5.27	3,830				
4-20	1930	8.66	9,260				

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 5, Jan. 8-19, 25-30, Feb. 2-5, 8, 9, 12-14, 23, 24. No gage-height record May 14 to June 15.

3-3640. East Fork White River at Columbus, Ind.

Location.--Lat 39°12', long 86°56', in NW¼ sec. T. 9 N., R. 5 E., on left bank at abutment of abandoned bridge at west end of Second Street in Columbus, 0.6 mile downstream from confluence of Driftwood River and Flatrock River, and 1.4 miles upstream from Haw Creek.

Drainage area.--1,692 sq mi.

Records available.--October 1947 to September 1964. Prior to January 1948 monthly discharge only, published in WSP 1305.

Gage.--Water-stage recorder. Datum of gage is 603.12 ft above mean sea level, datum of 1929. Prior to Oct. 22, 1952, wire-weight gage, 600 ft upstream at same datum.

Average discharge.--17 years, 1,855 cfs.

Extremes.--Maximum discharge during year, 35,400 cfs Apr. 22 (gage height, 13.38 ft); minimum, 104 cfs Sept. 12-16 (gage height, 0.96 ft).
1947-64: Maximum discharge, 52,300 cfs Mar. 6, 1963 (gage height, 16.23 ft); minimum, 87 cfs Sept. 29, Oct. 7, 1954.

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)

0.9	80	3.0	4,120
1.0	120	4.0	7,400
1.2	230	6.0	11,100
1.5	435	8.0	14,800
1.8	810	11.0	24,000
2.0	1,120	14.0	38,800
2.5	2,400		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145	* 155	218	b 170	b 325	296	1,220	2,600	553	315	322	155
2	145	165	212	176	b 310	290	1,440	4,320	540	322	310	155
3	145	165	212	194	b 300	290	3,400	3,400	540	322	290	160
4	145	170	212	206	b 290	1,400	3,300	2,900	540	322	278	155
5	145	176	212	212	310	4,740	3,950	2,570	540	322	260	150
6	155	182	212	230	355	4,890	6,530	2,250	540	322	248	145
7	160	182	212	242	419	3,620	7,620	1,960	540	355	236	140
8	150	182	230	248	466	2,560	3,950	1,820	530	698	224	130
9	145	182	230	272	456	7,320	4,320	1,690	508	2,900	212	125
10	140	182	218	266	419	20,600	3,230	1,550	530	2,560	206	120
11	140	176	224	272	387	27,800	2,730	1,440	498	1,820	200	116
12	140	170	230	b 255	355	25,400	2,400	1,320	466	1,220	200	108
13	140	170	230	b 245	348	16,800	2,100	1,440	435	1,220	242	104
14	140	* 165	218	248	329	10,600	1,960	*1,440	456	1,220	*278	104
15	140	165	194	* 260	322	7,540	1,820	1,220	446	1,020	242	104
16	* 140	165	b 170	248	322	5,840	*1,550	1,120	427	1,010	218	112
17	140	170	b 150	254	322	* 4,630	1,440	1,070	* 411	1,120	200	108
18	140	188	b 145	248	* 329	3,650	1,320	1,010	446	976	188	125
19	140	188	b 145	248	342	2,930	2,110	a 940	477	810	176	150
20	140	188	*b 148	329	355	2,530	6,890	a 920	456	712	170	150
21	140	212	b 150	403	355	2,240	21,000	a 880	466	*644	182	*160
22	145	224	b 153	498	348	2,130	33,400	a 820	456	566	200	160
23	145	260	b 158	508	336	1,960	27,400	782	456	508	206	155
24	140	260	b 163	488	316	1,790	20,100	754	411	456	200	140
25	155	260	b 168	508	310	1,680	12,400	712	387	456	206	130
26	140	260	176	477	310	1,990	7,400	684	363	419	194	130
27	145	254	194	435	303	2,220	5,600	657	348	466	182	135
28	150	242	200	411	296	1,960	7,400	631	335	446	188	140
29	145	230	200	363	296	1,710	8,520	618	329	387	194	140
30	145	224	182	b 350	------	1,500	7,620	592	322	355	194	135
31	150	------	170	b 335	------	1,370	------	579	------	336	170	------
Total	4,475	5,922	5,936	9,599	9,931	174,816	223,970	47,689	13,753	24,606	7,715	4,061
Mean	144	197	191	310	342	5,639	7,466	1,538	458	794	220	135
Cfsm	0.085	0.116	0.113	0.183	0.202	3.33	4.41	0.909	0.271	0.469	0.130	0.080
In.	0.10	0.13	0.13	0.21	0.22	3.84	4.92	1.05	0.30	0.54	0.15	0.09

Calendar year 1963 : Max 49,000 Min 140 Mean 1,267 Cfsm 0.749 In. 10.18
Water year 1963-64 : Max 33,800 Min 104 Mean 1,452 Cfsm 0.858 In. 11.68

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-11	0800	11.97	28,200				
4-22	0530	13.38	35,400				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3645. Clifty Creek at Hartsville, Ind.

Location.--Lat 39°16'25", long 85°42'10", in NW¼ sec. 36, T. 10 N., R. 7 E., at downstream side of left abutment of highway bridge, a quarter of a mile north of Hartsville and 5 miles upstream from Duck Creek.

Drainage area.--88.8 sq mi.

Records available.--February 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 677.34 ft above mean sea level, datum of 1929. Prior to Sept. 24, 1952, wire-weight gage at same site and datum.

Average discharge.--16 years, 101 cfs.

Extremes.--Maximum discharge during year, 6,820 cfs Mar. 10 (gage height, 11.78 ft); no flow for many days.
1948-64: Maximum discharge, 11,300 cfs Jan. 21, 1959 (gage height, 14.29 ft); no flow at times most years.
Flood in 1913 reached a stage of 25.1 ft, from floodmarks.

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)

1.21	0	2.2	118
1.25	.2	2.5	198
1.3	.7	3.0	382
1.4	3.4	5.0	1,280
1.5	9.0	7.0	2,400
1.6	18	9.0	3,790
1.7	28	11.0	5,700
1.9	55		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.0	0.6	7.4	3.6	62	159	7.8	0.3	5.2	
2		0	2.0	1.0	6.8	9.0	148	123	7.0	.2	2.6	
3		.1	2.0	1.7	5.7	11	1,340	96	7.0	.1	1.4	
4		.1	2.0	4.3	4.8	314	540	75	7.0	.1	.8	
5		.2	2.0	5.7	4.8	811	234	62	7.6	.1	.3	
6		.6	2.0	6.2	11	237	622	50	8.8	.1	.1	
7		.7	2.0	9.8	21	161	362	44	8.0	1.5	0	
8		.7	2.6	9.0	16	140	214	40	9.0	40	0	
9		.8	3.0	17	13	3,340	161	37	9.0	18	0	
10		1.0	3.0	21	10	4,760	133	32	7.0	22	0	
11		1.0	3.0	16	8.2	804	111	28	5.8	11	0	
12		1.0	3.4	11	7.8	514	96	30	4.7	9.5	0	
13		*1.0	3.0	7.4	7.8	342	92	*28	3.8	7.8	*0	
14	*	1.2	3.0	5.0	8.2	310	81	24	3.2	6.2	0	
15		1.2	2.3	*4.0	9.0	310	*68	22	2.5	4.6	0	
16		1.0	1.7	3.3	11	208	59	19	*2.5	4.6	0	
17		1.2	1.2	2.9	13	164	55	18	2.3	4.0	0	*
18		1.4	.9	2.6	15	*128	50	16	4.3	3.1	0	
19		1.7	.7	4.5	*19	106	464	15	5.2	2.0	0	
20		1.7	*.6	60	22	99	1,320	13	5.7	1.5	0	
21	*	1.7	.5	77	20	146	1,960	11	4.8	1.2	0	
22		2.0	.4	43	15	156	582	9.8	4.8	*3.0	0	
23		2.6	.5	31	12	128	322	9.0	5.2	2.6	0	
24		2.6	.6	25	11	108	266	9.0	3.4	2.3	0	
25		2.3	.8	21	10	101	139	9.0	2.3	2.6	0	
26		2.3	.9	18	12	156	148	9.0	1.7	1.7	0	
27		2.3	1.0	16	11	133	222	9.0	1.2	1.2	0	
28		2.3	1.1	13	10	108	382	9.0	1.0	1.0	0	
29		2.3	.8	11	9.8	92	248	9.0	.7	6.2	0	
30		2.0	.6	9.5	------	75	218	9.0	.4	30	0	
31		------	.5	8.5	------	68	------	9.0	------	11	0	------
Total	0	39.0	50.1	466.0	332.3	14,048	10,799	1,032.8	143.7	198.5	10.4	0
Mean	0	1.30	1.62	15.0	11.5	453	360	33.3	4.79	6.40	0.34	0
Cfsm	0	0.015	0.018	0.169	0.130	5.10	4.05	0.375	0.054	0.072	0.0038	0
In.	0	0.02	0.02	0.19	0.14	5.88	4.52	0.43	0.06	0.08	0.004	0

Calendar year 1963 : Max 4,290 Min 0 Mean 65.0 Cfsm 0.732 In. 9.94
Water year 1963-64 : Max 4,760 Min 0 Mean 74.1 Cfsm 0.834 In. 11.34

Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0400	5.27	1,420	4-3	2000	6.53	2,110
3-10	0630	11.78	6,820	4-21	0430	9.63	4,310

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 18 to Jan. 1, Jan. 14-19, 25-31, Feb. 9, 10, 12, 13, 23-25, 28. No gage-height record May 27 to June 16, July 4-22.

3-3650. Sand Creek near Brewersville, Ind.

Location.--Lat 39°05'05", long 85°29'30", in NW¼ sec. 5, T. 7 N., R. 9 E., on left bank at downstream side of county highway bridge, 2½ miles west of Brewersville, and 5.2 miles upstream from Bear Creek.

Drainage area.--156 sq mi.

Records available.--February 1948 to September 1964.

Gage.--Water-stage recorder (digital after Aug. 21, 1964). Altitude of gage is 630 ft (by barometer). Prior to Oct. 6, 1952, wire-weight gage at site 1.7 miles upstream at datum approximately 8 ft higher.

Average discharge.--16 years, 173 cfs.

Extremes.--Maximum discharge during year, 14,000 cfs Mar. 10 (gage height, 18.70 ft inside, 19.2 ft outside); no flow for several days.
1948-64: Maximum discharge, 19,900 cfs Jan. 21, 1959 (gage height, 21.70 ft inside, 22.20 ft outside), from rating curve extended above 6,500 cfs on basis of contracted-opening measurement of peak flow; no flow many times.

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. 1-6)

Oct. 1 to Mar. 9 Mar. 10 to Apr. 2				Mar. 9 to Mar. 10		Apr. 3 to Sept. 30			
0.52	0	1.5	70	13.0	6,000	0.4	0	1.5	65
.6	.9	2.0	145	14.0	7,050	.5	.3	2.0	143
.7	3.6	2.5	234	15.0	8,300	.6	1.4	2.5	235
.8	7.2	3.0	360	16.0	9,000	.7	3.6	3.0	360
.9	12	4.0	675			.8	7.2	4.0	675
1.0	17	6.0	1,420			1.0	17	6.0	1,420
1.2	32	8.0	2,420			1.2	32	8.0	2,420

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	1.3	4.0	b 1.3	25	22	85	436	10	2.1	6.0	0
2	.6	3.6	3.2	b 1.4	23	22	148	151	8.5	1.5	12	0
3	.4	3.0	2.6	b 2.1	b20	30	2,380	127	8.5	1.7	7.2	0
4	.4	3.0	2.6	b 5.0	18	1,070	1,002	103	8.5	2.1	5.0	.1
5	.4	4.3	2.4	16	16	2,260	340	85	10	1.9	3.6	* 1.2
6	.3	5.4	2.4	28	28	471	1,120	73	11	2.1	2.3	1.2
7	.5	4.3	2.6	51	66	246	570	*64	9.4	1.9	1.7	1.6
8	* .5	*36	5.0	35	59	200	*305	55	10	121	1.0	.8
9	.5	2.6	7.2	b 50	48	4,700	205	50	10	25	.8	.6
10	.5	2.4	7.2	*b 84	41	* 4,360	160	42	8.5	31	.6	.4
11	.6	2.4	76	b 54	b 35	1,140	135	36	6.5	15	.4	.3
12	.7	2.0	5.5	39	30	* 419	119	34	5.4	12	.4	.2
13	.6	2.0	8.1	26	*31	445	111	42	5.0	11	*.3	.1
14	.4	2.4	7.2	19	31	449	119	36	5.0	8.5	.2	.1
15	.3	2.0	6.5	15	25	636	95	30	5.8	6.5	.2	.1
16	.3	1.8	5.8	14	36	312	79	25	* 6.5	6.5	.1	0
17	.4	1.5	4.3	12	46	220	71	22	5.4	*5.8	.1	0
18	.4	2.4	3.2	b 11	53	138	65	21	11	4.3	.1	0
19	.7	2.4	2.8	25	55	121	137	19	12	2.8	0	.2
20	.5	2.0	* 2.4	234	74	128	663	16	12	2.1	0	.2
21	.5	2.6	2.0	261	64	204	815	15	13	1.7	0	.1
22	.5	2.6	b 16	130	52	264	655	14	10	4.3	.1	.1
23	.5	4.7	b 1.4	85	42	156	420	12	5.8	5.4	.1	.1
24	.5	4.7	1.3	67	b 37	136	295	11	6.1	4.0	.1	.1
25	1.5	5.0	1.3	145	33	126	205	11	4.7	2.8	.1	0
26	1.6	6.5	1.6	b160	b 31	246	154	11	3.6	2.1	.1	0
27	1.8	6.6	1.8	b 80	b29	169	241	11	3.3	1.7	0	0
28	1.8	5.8	b 1.6	b 45	b27	145	575	11	2.8	1.4	0	.1
29	1.3	4.3	b 1.4	b 38	24	124	330	11	2.6	1.2	.1	.1
30	.5	4.0	b 1.3	29	------	108	235	11	2.3	1.2	0	.1
31	.7	------	b 1.3	28	------	92	------	11	------	.5	0	------
Total	24.4	101.7	112.0	1852.8	1124	24,737	12,424	1,344	217.3	314.7	42.6	7.2
Mean	0.79	3.39	3.61	59.8	38.8	927	414	43.4	7.57	10.3	1.37	0.24
Cfsm	0.0051	0.022	0.023	0.383	0.249	5.94	2.65	0.278	0.049	0.066	0.0080	0.0015
In.	0.006	0.02	0.03	0.44	0.27	6.85	296	0.32	0.05	0.08	0.01	0.002

Calendar year 1963: Max 5,900 Min 0.3 Mean 109 Cfsm 0.699 In. 9.52
Water year 1963-64: Max 9,360 Min 0 Mean 127 Cfsm 0.814 In. 11.04

Peak discharge (base, 2,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0300	11.00	4,300				
3-10	0100	18.70	14,000				
4-3	2000	10.78	4,160				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3655. East Fork White River at Seymour, Ind.

Location.--Lat 38°58'57", long 85°53'57", in NW¼ sec. 7, T. 6 N., R. 6 E., on left bank 1,700 ft downstream from highway bridge, 1 mile north of Seymour, 9.6 miles downstream from Sand Creek, and at mile 219.2.
Drainage area.--2,333 sq mi.
Records available.--October 1927 to September 1964. Yearly maximum discharge only for water years 1924-27, published in WSP 1305. Daily gage heights from May 1923 to September 1927 are available in the district office. Periodic sediment samples collected since 1963. Records of water temperature published in WSP.
Gage.--Water-stage recorder. Datum of gage is 550.67 ft above mean sea level, datum of 1929. Oct. 1, 1927, to July 2, 1931, chain gage 1,700 ft upstream and 500 ft upstream from dam at datum 7.61 ft higher. July 3, 1931, to July 16, 1934, staff gage at site 100 ft downstream at present datum.
Average discharge.--37 years, 2,381 cfs.
Extremes.--Maximum discharge during year, 54,900 cfs Mar. 10 (gage height, 18.72 ft); minimum daily, 170 cfs Dec. 19-22.
1923-64: Maximum discharge, 78,500 cfs Jan. 5, 1949 (gage height, 19.67 ft).
1927-64: Minimum, 84 cfs Sept. 15, 1941.
Maximum stage known, 21.0 ft Mar. 26, 1913, from information by Corps of Engineers and State Highway Department of Indiana (discharge, 120,000 cfs).
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some regulation of low flow by Seymour Water Co. at dam above station.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic reet per second)
(Shifting-control method used July 9, 10, 12-20)

Oct. 1 to Apr. 5

0.1	165	0.7	330	6.0	3,380	15.0	17,000
0.2	190	1.0	435	10.0	7,100	17.0	28,000
0.3	215	2.0	880	12.0	9,600	18.0	40,000
0.5	268	4.0	1,960	14.0	13,800	19.0	62,000

Apr. 6 to Sept. 30

0.5	186	4.0	1,850
0.7	242	6.0	3,300
1.0	335	10.0	7,100
2.0	740		

Note.--Same as preceding table above 10.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	215	228	180	400	379	2,100	3,640	880	465	465	272
2	215	215	228	185	382	368	2,100	6,500	830	465	445	272
3	210	215	228	200	365	379	4,370	5,100	830	465	425	272
4	205	215	223	210	348	933	9,600	4,260	830	465	405	272
5	205	* 215	228	225	330	7,580	10,240	* 3,640	830	465	388	272
6	205	215	228	250	382	7,460	9,180	3,140	830	445	370	257
7	200	215	215	265	470	5,290	11,300	2,840	830	505	352	242
8	195	215	228	* 290	550	3,740	9,600	2,620	785	930	352	242
9	200	215	* 228	314	550	9,500	7,210	2,410	785	1,710	335	242
10	200	215	228	b 340	* 550	44,800	5,300	2,200	785	2,620	* 335	242
11	* 190	215	228	b 320	490	40,700	4,080	1,990	740	2,270	318	227
12	195	215	240	b 300	452	30,900	3,470	1,920	740	1,720	318	227
13	200	215	240	283	435	27,000	* 3,060	1,850	695	* 1,480	318	212
14	202	215	240	b 280	418	* 18,400	2,840	1,920	695	1,480	335	212
15	202	215	228	b 280	400	13,100	2,550	1,780	695	1,420	335	212
16	202	215	b 205	b 270	416	9,710	2,270	1,660	650	1,250	318	212
17	202	215	190	b 270	418	7,310	2,060	1,540	605	1,360	318	212
18	202	215	180	b 270	452	5,690	1,920	1,420	* 695	1,360	318	199
19	202	215	170	268	490	4,490	1,850	1,360	695	1,140	302	227
20	202	215	170	394	510	3,840	4,900	1,250	650	980	302	227
21	202	228	170	730	510	3,810	10,000	1,200	650	930	302	227
22	202	228	170	680	510	3,590	24,700	1,140	650	830	318	* 227
23	202	240	172	680	470	3,210	33,000	1,140	650	740	302	242
24	202	240	175	590	435	2,920	27,400	1,080	605	785	302	227
25	202	240	180	780	418	2,740	19,700	1,030	565	650	302	212
26	215	240	185	780	418	2,950	12,800	1,030	565	695	302	212
27	215	240	200	635	400	3,280	8,510	1,030	525	605	287	212
28	215	240	210	510	400	3,080	5,640	980	505	650	287	199
29	202	240	210	452	382	2,770	10,100	930	485	565	287	212
30	215	228	205	435	------	2,490	10,100	930	485	525	287	212
31	202	------	185	418	------	2,260	------	880	------	485	287	------
Total	6,323	6,664	6,420	12,084	12,753	274,669	264,950	69,410	20,760	30,455	10,317	6,934
Mean	204	222	207	390	440	8,860	8,965	2,239	692	982	333	231
Cfsm	0.087	0.095	0.089	0.167	0.189	3.80	3.84	0.960	0.297	0.421	0.143	0.099
In.	0.10	0.11	0.10	0.19	0.20	4.38	4.28	1.11	0.33	0.49	0.16	0.11

Calendar year 1963 : Max 47,600 Min 170 Mean 1,686 Cfsm 0.723 In. 9.82
Water year 1963-64 : Max 44,800 Min 170 Mean 1,983 Cfsm 0.850 In. 11.56

Peak discharge (base, 12,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	2000	18.72	54,900				
4-22	2230	17.67	35,400				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 3-13, Dec. 17 to Jan. 8

3-3660. Graham Creek near Vernon, Ind.

Location.--Lat 38°56', long 85°34', in SE¼ sec. 30, T. 6 N., R. 9 E., on right bank 10 ft upstream from State Highway 7, 4.7 miles southeast of Vernon, and 8.0 miles downstream from Little Graham Creek.

Drainage area.--77.6 sq mi.

Records available.--June 1955 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 677.47 ft above mean sea level, datum of 1929 (unadjusted). Prior to June 10, 1955, wire-weight gage at same site and datum.

Average discharge.--9 years, 91.9 cfs.

Extremes.--Maximum discharge during year, 7,300 cfs Mar. 9 (gage height, 13.98 ft); no flow for many days.
1955-64: Maximum discharge, 18,600 cfs June 23, 1960 (gage height, 21.37 ft) from rating curve extended above 6,000 cfs on basis of contracted-opening measurements of peak flow; no flow at times during most years.

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

Rating tables, (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 23 to Sept. 30)

Oct. 1 to Mar. 9

1.16	0	1.8	8.8	4.0	510
1.2	.1	1.9	14	6.0	1,500
1.3	.3	2.0	22	8.0	2,700
1.4	.9	2.4	54	10.0	3,950
1.5	1.9	2.7	98	12.0	5,320
1.6	3.2	3.0	165		
1.7	5.3	3.5	320		

Mar. 10 to Sept. 30

1.02	0	1.6	6.2	2.4	66
1.1	.2	1.7	9.2	2.8	134
1.2	.5	1.8	13	3.2	230
1.3	1.2	1.9	18	4.0	510
1.4	2.4	2.0	24		
1.5	4.0	2.1	32		

Note.--Same as preceding table above 4.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	3.2	4.1	32	62	2.8	3.6	0.6	
2			0	.1	2.6	3.7	35	45	2.8	3.0	.5	
3			0	.1	2.3	4.1	921	35	3.6	8.4	.4	*
4			0	.1	1.7	835	398	28	3.1	28	.4	
5			0	.2	1.9	2,160	146	23	2.6	28	.3	
6		*	0	.5	6.2	189	449	19	4.4	12	.3	
7			0	1.0	14	81	277	16	5.4	54	.2	
8	*		0	2.0	18	66	126	* 14	6.5	616	.2	
9			0	3.4	13	2,160	77	13	5.4	120	.1	
10			0	* 2.5	9.2	3,670	* 56	12	3.4	567	.1	
11			0	1.7	7.2	544	43	10	2.6	102	.1	
12			* 0	1.3	56	* 218	36	9.6	2.0	54	* .1	
13			0	1.2	* 5.6	134	33	9.6	1.7	42	.1	
14			0	1.1	4.8	159	30	8.6	2.8	33	.1	
15			0	.9	4.6	304	26	8.0	3.0	* 21	.1	
16			0	1.0	5.3	124	23	7.1	3.1	14	.1	
17			0	1.3	6.5	79	20	6.5	* 26	8.9	.1	
18			0	1.5	8.4	60	19	5.7	415	6.5	.1	
19			0	1.9	9.6	50	24	5.0	293	6.0	0	
20			0	20	10	46	116	4.4	65	14	* 0	
21			0	64	10	53	147	3.4	30	3.7	0	
22			0	33	9.6	56	1,920	3.1	136	3.4	.1	
23			0	22	8.0	46	324	2.6	81	2.2	.1	
24			0	14	7.2	41	130	2.6	42	1.7	.1	
25			.1	14	6.2	39	77	2.8	28	1.2	.1	
26			.1	14	5.9	92	57	2.6	16	1.0	.1	
27			.1	12	5.3	94	138	3.4	11	1.0	0	
28			.1	8.0	4.8	61	342	3.2	7.7	.7	0	
29			0	5.3	4.3	50	132	3.1	5.7	1.0	.1	
30			0	4.1	------	40	96	2.6	4.6	1.3	.1	
31		------	0	3.4	------	35	------	2.6	------	.7	0	------
Total	0	0	0.4	235.6	201.0	14,497.9	6,240	373.5	1,192.8	1,761.3	4.6	0
Mean	0	0	0.01	7.63	6.93	468	208	12.0	52.2	56.8	0.15	0
Cfsm	0	0	0.00013	0.098	0.089	6.03	2.68	0.155	0.673	0.732	0.0019	0
In.	0	0	0.0002	0.11	0.10	6.95	2.99	0.18	0.75	0.84	0.002	0

Calendar year 1963 Max 3,780 Min 0 Mean 55.8 Cfsm 0.719 In. 9.77
Water year 1963-64 Max 5,160 Min 0 Mean 68.0 Cfsm 0.876 In. 11.92

Peak discharge (base, 2,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0100	10.77	4,470				
3-9	1600	13.98	7,300				
4-22	0830	8.11	2,760				

* Discharge measurement made on this day.
Note.--No gage-height record Dec. 18-28, Dec. 30 to Jan. 7.

3-3665. Muscatatuck River near Deputy, Ind.

Location.--Lat 38°48'15", long 85°40'26", in NE¼ sec. 7, T. 4 N., R. 8 E., on left bank at downstream side of highway bridge, 1.4 miles northwest of Deputy, 1.9 miles upstream from Coffee Creek, and 2.4 miles downstream from confluence of Graham Creek and Big Creek.

Drainage area.--296 sq mi.

Records available.--November 1947 to September 1964.

Gage.--Water-stage recorder (digital after May 6, 1964). Datum of gage is 541.13 ft above mean sea level, datum of 1929 (unadjusted). Prior to June 22, 1955, wire-weight gage at same site and datum.

Average discharge.--16 years (1948-64), 354 cfs.

Extremes.--Maximum discharge during year, 31,400 cfs Mar. 10 (gage height, 28.54 ft); no flow for several days.
1947-64: Maximum discharge, 52,200 cfs Jan. 21, 1959 (gage height, 33.1 ft, from floodmarks), from rating curve extended above 25,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.

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)
(Shifting-control method used Oct. 1 to Nov. 6, Jan. 25, 26, 29, 30, Feb. 5-7, 9, Feb. 11 to Mar. 4, Aug. 22 to Sept. 30)

Mar. 5 to Sept. 30

0.84	0	1.5	22	13.0	2,650
.9	.1	1.7	36	16.0	4,500
1.0	.6	2.0	65	18.0	6,600
1.1	2.4	2.5	120	20.0	9,500
1.2	5.5	3.0	187	22.0	13,400
1.3	10	5.0	532	24.0	18,000
1.4	16	10.0	1,580	26.0	23,100

Oct. 1 to Mar. 4

0.60	0	2.0	61
.7	.3	2.5	111
.8	1.0	3.0	175
.9	2.4	4.0	325
1.0	4.9	8.0	1,110
1.2	12	12.0	2,180
1.5	26	13.0	2,660

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.1	0.1	0.1	a 0.1	b 14	17	140	264	14	21	4.4	0.2
2	.1	.1	.1	a .1	b 13	17	140	222	14	19	4.1	.2
3	.1	.1	.1	a .1	b 13	20	456	159	16	19	3.7	*.2
4	.1	.1	.1	a .6	b 12	2,230	1,260	126	15	76	3.3	.2
5	.1	.1	.1	a 3.0	12	12,600	442	108	15	49	2.8	.2
6	.1	*.1	.1	a 10	21	1,310	696	*92	23	46	2.3	.2
7	.1	.1	.1	45	47	448	910	77	23	37	2.0	.2
8	.1	.1	.2	*39	50	391	442	72	23	946	1.9	.2
9	*.1	.1	.3	*30	44	15,000	* 298	71	21	364	1.7	.1
10	.1	.1	.3	a 20	b 35	*20,900	217	59	17	413	1.4	.1
11	.1	.1	.4	a 14	30	2,860	187	50	14	288	1.5	.1
12	.1	.1	*.5	a 10	25	950	166	48	13	140	1.3	.1
13	0	.1	.6	a 6.8	24	604	152	51	24	131	*1.2	.1
14	0	.1	.6	a 4.6	* 23	780	146	50	34	89	.9	0
15	0	.1	.5	a 3.5	22	1,050	126	41	74	*65	1.1	0
16	0	.1	.4	a 3.9	24	604	114	35	48	43	1.2	0
17	0	.1	.3	a 4.8	27	388	102	32	*24	30	1.1	0
18	0	.1	b.2	a 5.8	29	280	102	29	3,700	26	1.0	0
19	0	.1	b.2	a 7.5	32	232	200	26	3,200	50	.8	.3
20	0	.1	b.2	103	39	217	676	23	460	41	.7	.1
21	0	.2	b.2	129	40	232	511	20	211	23	.9	.1
22	0	.2	b.1	100	36	232	5,800	18	404	19	.6	.1
23	0	.3	b.1	68	31	202	1,800	17	404	14	.6	.1
24	0	.3	b.1	53	26	173	622	16	177	11	.4	0
25	0	.3	b.1	46	25	159	406	15	112	9.4	.4	0
26	0	.3	b.1	38	23	559	293	14	83	8.2	.3	0
27	0	.3	.1	b30	21	424	470	14	59	7.0	.3	.1
28	0	.2	a.1	b24	20	280	940	14	41	9.0	.3	.1
29	0	.2	a.1	19	18	217	568	15	30	14	.3	.1
30	0	.2	a.1	16	------	180	352	15	24	7.8	.3	.1
31	0	------	a.1	b15	------	159	------	14	------	5.4	.3	------
TOTAL	1.2	4.5	6.6	849.8	778	63,715	18,789	1,767	9,317	3,020.8	43.1	3.2
MEAN	.04	.15	.21	27.4	26.8	2,055	626	57.6	311	97.4	1.39	.11
CFSM	.0001	.0005	.0007	.093	.091	6.94	2.11	.195	1.05	.329	.0047	.0004
IN.	0	0	0	.11	.10	8.01	2.36	.22	1.17	.38	.01	0

CALENDAR YEAR 1963 MAX 14,200 MIN 0 MEAN 617 CFSM .733 INCHES 9.94
WATER YEAR 1963-64 MAX 20,900 MIN 0 MEAN 269 CFSM .909 INCHES 12.35

Peak discharge (base, 7,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0400	25.70	22,300	4-22	1230	18.73	7,480
3-10	0230	28.54	31,400	6-18	2015	19.80	9,180

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3670. Muscatatuck River near Austin, Ind.

Location.--Lat 38°46', long 85°49', in sec. 23, T. 4 N., R. 6 E., on right bank 15 ft downstream from bridge on U. S. Highway 31, 2 miles north of Austin, and 4 miles upstream from Stucker Fork.

Drainage area.--365 sq mi.

Records available.--August 1932 to September 1964 (high-water records only since October 1943).

Average discharge.--10 years (1932-35, 1936-43), 387 cfs.

Gage.--Water-stage recorder. Datum of gage is 513.96 ft above mean sea level, datum of 1929. Prior to June 22, 1934, chain gage at same site and datum. Nov. 8 to Dec. 30, 1939, staff gage approximately half a mile upstream at different datum. Aug. 1, 1940, to Sept. 30, 1943, auxiliary gage (for low flows) at Slate-Ford bridge 2½ miles upstream at different datum.

Extremes.--Maximum discharge during year, 36,600 cfs Mar. 10 (gage height, 27.61 ft).
1932-64: Maximum discharge, 53,900 cfs Jan. 22, 1959 (gage height, 29.20 ft).

Remarks.--Records fair. Daily discharge not computed when gage height is below 13.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												
2												
3												
4							1,210					
5						5,860						
6						4,400						
7						2,810	1,080					
8						1,120						
9						5,650						
10						30,400						
11						11,700						
12						4,120						
13						1,820						
14						*1,060						
15						1,380						
16						756						
17												
18									1,140			
19									4,810			
20									3,750			
21									1,110			
22							2,320					
23							2,260					
24							2,750					
25							1,120					
26												
27												
28							1,240					
29							950					
30					------							
31	------	------			------		------		------			------
Total	-	-	-	-	-	-	-	-	-	-	-	-
Mean	-	-	-	-	-	-	-	-	-	-	-	-
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1963: Max 11,700 Min - Mean - Cfsm - In. -
Water year 1963-64: Max 30,400 Min - Mean - Cfsm - In. -

Peak discharge (base, 5,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	2100	23.71	13,200	4-23	1100	20.87	5,980
3-10	0900	27.61	36,600	6-19	2000	21.07	6,340

* Discharge measurement made on this day.

3-3680. Brush Creek near Nebraska, Ind.

Location.--Lat 39°04', long 85°29', in NE¼ sec. 11, T. 7 N., R. 9 E., on right bank at downstream side of county road bridge, 1.5 miles northwest of Nebraska, 2.9 miles northeast of Butlerville, and 3.6 miles upstream from Brush Creek Dam.

Drainage area.--11.7 sq mi.

Records available.--May 1955 to September 1964. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder. Datum of gage is 717.17 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--9 years, 13.6 cfs.

Extremes.--Maximum discharge during year, 1,980 cfs Mar. 9 (gage height, 9.00 ft, from rating curve extended above 440 cfs as explained below); no flow for many days.
1955-64: Maximum discharge, 3,120 cfs July 15, 1962 (gage height, 10.90 ft), from rating curve extended above 440 cfs on basis of contracted-opening measurement of peak flow at gage height, 9.70 ft; no flow at times in most years.

Remarks.--Records fair except those above 600 cfs, which are poor.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 8 to Aug. 8)

Oct. 1 to Mar. 9

2.04	0	2.5	6.9	4.0	164
2.1	.1	2.6	11	5.0	370
2.2	.5	2.8	22	6.0	660
2.3	1.6	3.0	37	7.0	1,030
2.4	3.8	3.4	78	8.0	1,470

Mar. 10 to Sept. 30

2.0	0	2.4	5.2
2.1	.4	2.6	12
2.2	1.2	2.8	22
2.3	3.0		

Note.--Same as preceding table above 2.8 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.4	0.6	3.8	7.0	0.2	0		
2				0	.2	1.3	13	5.5	.2	0		
3				0	.3	3.2	196	4.4	.3	0		
4				0	.3	216	22	3.6	.2	0		*
5				18	.3	3.4	17	3.2	.1	0		
6				34	4.3	10	76	2.6	.2	0		
7		*		23	3.6	6.2	19	*2.2	.2	26		
8				4.1	2.0	19	* 10	2.0	.2	5.8		
9				20	1.5	1,260	7.3	1.6	.1	14		
10	*			4.1	1.3	230	6.1	1.2	0	4.2		
11			*	1.0	*.8	40	5.0	1.2	0	.6	*	
12				.4	.6	28	4.4	1.2	0	.4		
13				.4	.5	* 14	5.2	1.6	0	.3		
14				*.3	.9	52	4.4	1.2	.2	.2		
15				.2	1.0	26	3.3	.9	.1	.2		
16				.2	3.2	12	3.2	.7	*0	*.1		
17				.2	2.2	8.2	3.0	.6	0	.1		
18				.2	2.0	6.4	3.2	.6	2.4	.1		
19				12	3.0	5.2	96	.4	1.1	.1		
20				52	2.8	6.4	60	.4	.2	.1	*	
21				8.1	2.0	9.3	66	.3	.1	0		
22				2.2	1.5	6.7	177	.3	1.0	0		
23				1.8	1.2	5.2	20	.2	.4	0		
24				2.2	1.1	5.0	12	.2	.2	.1		
25				14	.9	6.6	7.9	.2	.1	.1		
26				2.4	1.1	20	76	.2	0	0		
27				1.3	.9	8.2	49	.2	0	0		
28				.7	.7	6.7	35	.2	0	76		
29				.5	.7	5.5	14	.3	0	16		
30				.4	- - - - -	4.7	9.3	.2	0	.3		
31		- - - - -		.4	- - - - -	4.2	- - - - -	.2	- - - - -	.1		- - - - -
Total	0	0	0	204.1	41.9	2,080.2	956.2	44.6	7.5	64.0	0	0
Mean	0	0	0	6.58	1.44	67.1	31.9	1.44	0.25	2.06	0	0
Cfsm	0	0	0	0.562	0.123	5.74	2.73	0.123	0.021	0.176	0	0
In.	0	0	0	52	4.3	1,260	3.05	0.14	0.02	0.20	0	0

Calendar year 1963: Max 708 Min 0 Mean 9.57 Cfsm 0.818 In. 11.12
Water year 1963-64: Max 1,260 Min 0 Mean 9.29 Cfsm 0.796 In. 10.81

Peak discharge (base, 950 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	2100	9.00	1,980				

* Discharge measurement made on this day.

3-3690. Vernon Fork near Butlerville, Ind.

Location.--Lat 39°02'55", long 85°32'40", in SE¼ sec. 17, T. 7 N., R. 9 E., on left bank 0.3 mile downstream from Muscatatuck State School dam, 1¼ miles downstream from Brush Creek, and 2 miles northwest of Butlerville.

Drainage area.--87.3 sq mi.

Records available.--February 1942 to September 1964. Prior to October 1960, published as North Fork of Vernon Fork near Butlerville, Ind.

Gage.--Water-stage recorder (digital after Aug. 18, 1964) and concrete control. Datum of gage is 669.40 ft above mean sea level, datum of 1929. Prior to Aug. 19, 1942, staff gage at same site and datum.

Average discharge.--22 years, 95.5 cfs (unadjusted).

Extremes.--Maximum discharge during year, 9,740 cfs Mar. 10 (gage height, 17.60 ft); minimum, 0.3 cfs Aug. 17 (gage height, 1.58 ft). 1942-64: Maximum discharge, 26,200 cfs Jan. 21, 1959 (gage height, 25.41 ft), from rating curve extended above 10,000 cfs on basis of slope-area measurement of peak flow; no flow at times in most years.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Water supply for the Muscatatuck State School is diverted and the sewage effluent returned above station. Flow regulated by Brush Creek Reservoir (capacity, 668,000,000 gal), 1 3/4 miles upstream. Storage began November 1953.

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

1.5	0.2	2.1	4.4	3.2	116
1.6	.4	2.3	9.2	3.5	221
1.7	.7	2.5	17	5.0	900
1.8	1.2	2.6	24	9.0	3,050
1.9	1.8	2.8	42	13.0	5,700
2.0	2.9	3.0	71	14.0	6,450

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	4.1	3.5	0.8	6.1	6.9	31	81	3.2	1.2	1.2	0.9
2	.8	3.6	3.5	.8	5.6	8.2	118	63	3.0	1.2	1.0	.7
3	.7	3.5	3.3	1.0	5.2	13	1,270	50	3.5	1.2	.9	.6
4	5.6	3.6	3.3	.9	4.1	1,100	312	40	3.2	1.2	.8	.5
5	16	3.8	4.0	.7	3.8	760	150	32	2.9	1.0	.7	*.5
6	14	3.8	4.5	.8	12	140	563	26	3.9	1.0	.5	.4
7	17	* 1.5	5.6	2.8	25	81	241	*23	3.5	7.9	.5	.4
8	16	1.0	5.6	15	15	75	*122	20	3.2	42	.6	.4
9	16	1.0	5.4	51	13	6,390	83	17	3.2	12	.4	4.7
10	* 12	.8	5.2	37	11	4,210	63	15	2.9	22	.4	25
11	1.8	.8	4.8	15	8.2	550	54	13	2.4	13	.4	2.1
12	1.2	.8	4.3	9.2	* 7.6	230	47	14	1.9	8.9	*.5	1.5
13	1.0	.7	3.9	5.6	8.2	*181	47	14	1.8	6.4	.5	1.3
14	1.0	.7	1.4	* 4.4	7.9	257	47	13	2.2	4.2	.4	2.2
15	1.0	.6	1.0	3.3	8.2	298	38	11	2.2	3.0	.4	2.2
16	.9	.6	.8	2.8	14	128	31	9.5	*1.9	*2.4	.4	2.0
17	.8	.7	.7	2.7	17	85	28	8.2	1.8	2.4	.4	2.3
18	.6	3.0	.7	2.5	19	63	55	7.4	6.3	2.8	.5	2.3
19	.5	5.2	.8	4.2	21	51	316	6.4	11	11	.7	2.3
20	.5	5.6	*.8	168	22	50	471	5.2	7.9	5.9	1.8	1.2
21	.6	5.0	.7	60	17	73	241	4.2	5.0	3.5	6.5	1.7
22	.8	5.2	.6	33	13	65	716	4.1	3.8	2.7	8.9	1.9
23	1.6	6.6	.7	24	11	52	221	3.8	3.6	2.7	2.4	2.4
24	1.1	6.0	.7	22	11	45	119	3.2	4.1	2.5	2.3	2.6
25	1.0	6.0	.6	29	9.2	42	83	2.9	2.8	2.3	2.0	3.1
26	1.1	5.0	.7	26	10	125	66	2.9	2.1	2.0	5.2	4.6
27	1.2	4.5	.7	17	8.9	79	271	3.6	2.0	1.6	15	6.2
28	1.4	3.7	.7	8.6	7.9	57	341	3.6	1.8	1.4	9.4	5.6
29	2.2	3.2	.6	7.6	6.9	48	167	3.8	1.4	1.3	2.6	2.6
30	3.0	3.0	.6	6.4	----------	39	108	3.3	1.2	1.2	2.0	2.3
31	3.9	----------	.7	6.1	----------	35	----------	3.0	----------	1.2	.8	----------
Total	126.0	93.6	70.4	568.2	328.8	15,337.1	5,420	507.1	99.7	173.1	70.1	86.5
Mean	4.06	3.12	2.27	18.3	11.3	495	214	16.4	3.32	5.58	2.26	2.88
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-
(ƒ)	-5.92	-3.09	-1.37	+4.6	+2.0	+6	+1	-1.9	-0.61	+0.88	-4.10	-3.93

Calendar year 1963 : Max 2,660 Min 0.5 Mean 61.3 Cfsm 0.702 In. 9.53 ƒ -0.9
Water year 1963-64 : Max 6,390 Min 0.4 Mean 65.2 Cfsm 0.747 In. 10.17 ƒ -0.6

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-10	0130	17.60	9,740				

* Discharge measurement made on this day.
ƒ Change in contents, equivalent in cubic feet per second, in Brush Creek Reservoir; furnished by the Indiana Flood Control and Water Resources Commission.
Note.--No gage-height record Nov. 21 to Dec. 12, Mar. 11, 12.

3-3695. Vernon Fork at Vernon, Ind.

Location.--Lat 38°57', long 85°37', in sec. 10, T. 6 N., R. 8 E., on right bank just downstream from highway bridge, 1 mile southwest of Vernon and 2 miles downstream from South Fork.
Drainage area.--201 sq mi.
Records available.--October 1939 to September 1964. Monthly discharge only for some periods, published in WSP 1305.
Gage.--Water-stage recorder (digital after May 6, 1964). Datum of gage is 587.30 ft above mean sea level, datum of 1929, supplementary adjustment of 1944 (levels by Indiana Flood Control and Water Resources Commission). Prior to Jan. 14, 1940, staff gage at same site and datum.
Average discharge.--25 years, 222 cfs.
Extremes.--Maximum discharge during year, 21,100 cfs Mar. 9 (gage height, 22.66 ft inside, 22.8 ft outside); minimum, 1.1 Dec. 23-25, 31, Jan. 1, 5, minimum gage height, 0.08 ft Aug. 11.
1939-64: Maximum discharge, 56,800 cfs Jan. 21, 1959 from rating curve extended above 24,000 cfs on basis of slope-area measurement of peak flow (gage height, 32.83 ft from high-water mark). No flow at times in 1940, 1943-44.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diversion above station for municipal water supply of North Vernon and Vernon. Part of this diversion returned above gage as sewage effluent by North Vernon Sewage Treatment Plant.

Rating tables, except periods of ice effect, (gage height in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-8, Nov. 1-6, June 18-22, July 4, 8-12)

Oct. 1 to Jan. 20

0.1	0.6	1.0	32
.2	1.6	1.5	73
.3	3.3	2.0	155
.4	5.5	3.0	410
.5	8.2	4.0	735
.8	20		

Jan. 21 to Sept. 30

0.04	1.0	0.8	22	7.0	2,200
.2	2.7	1.0	34	11.0	5,400
.3	4.2	1.5	80	14.0	8,400
.4	6.5	2.0	167	17.0	12,100
.5	9.5	3.0	410	19.0	15,000
.6	13	5.0	1,140		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.5	2.4	3.5	1.1	13	16	69	187	5.2	2.9	6.6	1.6
2	2.0	2.7	3.1	1.2	11	16	102	147	5.3	2.5	4.5	1.7
3	1.9	2.5	2.9	1.6	9.[illegible]	21	2,330	111	6.0	2.5	3.2	1.8
4	1.8	1.9	3.5	b 1.4	8.0	1,620	865	89	5.9	36	2.6	* 1.7
5	1.6	1.6	3.5	b 1.1	13	3,07[illegible]	36	77	5.3	7.0	2.3	1.5
6	1.4	1.6	3.3	b 1.2	25	426	1,230	* 67	7.0	3.6	2.1	1.5
7	1.3	2.	3.[illegible]	b 4.5	50	233	595	56	7.4	49	1.9	1.5
8	* 1.4	* 2.2	4.[illegible]	b 10	31	194	310	52	7.[illegible]	475	1.8	1.4
9	1.9	2.	4.4	b 3[illegible]	27	13,7[illegible]	211	47	5.8	89	1.6	1.3
10	15	2.[illegible]	5.5	*b100	23	* 11,400	* 157	40	4.4	113	1.4	1.7
11	14	2.[illegible]	5.5	44	17	1,350	128	35	3.7	72	1.3	2.3
12	9.8	1.9	5.3	30	16	* 752	105	33	3.2	37	* 1.9	2.9
13	2.3	1.8	* 5.1	21	* 17	449	101	36	3.2	27	2.6	2.9
14	2.[illegible]	2.4	5.1	14	18	472	111	33	6.0	20	1.9	3.5
15	1.9	2.3	4.4	10	18	766	92	28	7.6	* 15	1.6	3.1
16	1.8	2.5	3.5	8.2	23	335	74	24	4.8	9.9	1.5	2.8
17	2.7	2.4	2.7	7.5	32	223	66	20	3.7	7.2	1.3	3.3
18	2.4	2.4	b 2.3	7.0	36	161	52	16	* 13	5.6	1.1	3.8
19	3.1	2.2	b 2.7	12	43	125	44	16	65	15	1.6	3.1
20	2.7	2.[illegible]	b 1.6	450	46	113	1,410	12	34	18	1.5	3.3
21	2.7	3.1	b 1.3	298	44	159	514	9.6	27	10	2.0	3.1
22	2.2	3.1	b 1.2	171	36	173	2,240	7.1	63	6.5	2.6	2.3
23	1.6	5.7	b 1.1	58	28	139	602	6.0	22	4.4	3.0	2.0
24	1.5	4.[illegible]	b 1.1	52	24	106	310	7.1	13	3.4	2.5	2.0
25	2.4	3.1	b 1.1	93	22	98	211	6.7	7.7	2.3	2.0	1.7
26	2.4	3.0	b 1.2	87	21	242	167	6.3	7.5	2.5	2.1	1.6
27	2.7	3.	1.3	66	21	218	335	6.6	5.8	2.4	2.1	2.5
28	2.9	3.	1.9	42	19	139	855	6.3	4.2	3.5	2.3	3.2
29	2.[illegible]	4.3	1.6	30	17	111	335	7.3	3.2	11	2.7	4.3
30	1.6	4.[illegible]	1.2	22	------	9[illegible]	267	6.3	3.4	12	2.9	3.3
31	1.4	------	1.1	16	------	77	------	2.5	------	12	2.1	------
TOTAL	99.2	92.2	87.5	1,163.0	7.0	36,982	14,424	1,238.3	415.3	877.5	71.1	79.9
MEAN	3.20	3.[illegible]	2.[illegible]	52.5	24.4	1,193	481	39.9	13.8	28.3	2.29	2.66
CFSM	.[illegible]	.[illegible]	.[illegible]	.261	.121	5.94	2.39	.199	.069	.141	.011	.013
IN.	.[illegible]	.[illegible]	.[illegible]	.[illegible]	.13	5.34	2.07	.22	.06	.16	.01	.01

CALENDAR YEAR 1963 MAX 7,44[illegible] MIN 1.1 MEAN 134 CFSM .667 INCHES 9.02
WATER YEAR 1963-64 MAX 13,7[illegible] MIN 1.1 MEAN 155 CFSM .771 INCHES 10.49

Peak discharge (base, 6,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0130	17.07	7,500				
3-9	2330	22.66	21,100				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

3-3715. East Fork White River near Bedford, Ind.

Location.--Lat 38°46'10", long 86°24'30", in NE¼ sec. 21, T. 4 N., R. 1 E., on downstream side of center pier of bridge on county road, 0.4 mile upstream from Mill Creek, 2.9 miles downstream from Sugar Creek, 3.9 miles northeast of Mitchell, and 7.8 miles southeast of Bedford.

Drainage area.--3,870 sq mi.

Records available.--May 1939 to September 1964 (high-water records only October 1943 to September 1957).

Gage.--Water-stage recorder (digital after Aug. 4, 1964). Datum of gage is 473.59 ft above mean sea level, datum of 1929. Prior to Feb. 6, 1940, wire-weight gage and Feb. 6, 1940 to Sept. 24, 1957, water-stage recorder, at site 9.7 miles downstream at datum 4.39 ft lower. Since Sept. 24, 1957, auxiliary water-stage recorder 9.7 miles downstream from base gage.

Average discharge.--11 years (1939-43, 1957-64), 3,520 cfs.

Extremes.--Maximum discharge during year, 75,700 cfs Mar. 12; maximum gage height, 35.22 ft Mar. 13; minimum daily, 220 cfs Dec. 18, 19.

1939-64: Maximum discharge, 75,700 cfs that of Mar. 12, 1964; maximum gage height, 35.97 ft May 11, 1961.

Flood in March 1913 reached a stage of 47.5 ft, from floodmark determined by Corps of Engineers (discharge, 155,000 cfs) at former site.

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)
(Fall used as a factor Mar. 9-20, Apr. 24 to May 1)

Oct. 1 to Mar. 4

2.4	220	3.0	585
2.5	275	4.0	1,240
2.6	335	5.0	1,930

Mar. 5 to Apr. 28

6.0	2,680	29.0	38,400
8.0	4,380	31.0	47,800
12.0	8,020	33.0	57,800
20.0	17,400	35.5	73,700
24.0	23,900		

Apr. 29 to Sept. 30

2.4	245	5.0	1,860
2.6	345	7.0	3,480
3.0	565		

Note.--Same as preceding table above 7.0 ft

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	287	293	317	245	682	600	3,840	14,600	*1,240	910	850	384
2	287	287	311	235	650	581	3,570	12,700	1,170	910	760	375
3	275	287	311	235	618	575	3,480	10,600	1,170	850	730	366
4	264	287	305	260	585	1,440	4,470	8,300	1,170	1,100	*702	358
5	264	287	305	300	552	5,660	7,260	6,630	1,100	1,370	658	350
6	264	287	299	325	585	*7,670	10,400	5,550	1,170	1,170	630	341
7	258	287	299	345	650	8,900	*12,500	4,830	1,170	975	605	336
8	253	287	311	360	812	11,100	13,000	4,290	1,170	* 1,100	584	328
9	253	293	317	380	845	17,800	13,300	3,840	1,100	1,930	560	318
10	258	293	317	400	910	27,600	12,600	3,480	1,040	2,940	540	312
11	253	299	317	400	845	40,700	10,200	3,210	1,040	3,030	526	305
12	248	299	323	380	812	73,100	7,440	3,030	1,040	3,120	511	301
13	248	299	a 323	350	748	69,200	5,910	2,760	975	2,760	502	295
14	248	299	a 311	330	715	60,200	5,100	2,680	1,110	2,210	490	291
15	248	299	a 287	320	682	53,400	4,650	2,520	1,040	1,930	482	285
16	248	299	a 242	320	682	39,700	4,200	2,440	1,040	1,790	494	284
17	253	299	a 230	330	682	31,300	3,840	2,280	1,040	1,650	494	278
18	253	305	220	345	682	25,800	3,480	2,140	5,390	1,580	477	287
19	253	305	220	380	715	21,000	3,400	2,070	3,500	1,650	461	291
20	253	305	225	500	748	16,200	4,110	1,930	5,810	1,580	451	289
21	253	305	230	900	812	12,200	5,820	1,860	5,910	1,440	450	292
22	253	305	230	1,300	845	9,270	8,500	1,720	5,000	1,300	467	290
23	253	317	230	1,650	812	7,010	11,700	1,650	5,640	1,170	465	290
24	258	317	233	1,240	780	5,830	27,400	1,580	3,840	1,100	450	284
25	258	317	235	1,230	748	5,180	35,900	1,510	2,280	1,040	438	283
26	258	311	245	1,170	682	4,860	33,300	1,440	1,650	1,040	430	276
27	264	*311	250	1,100	682	5,080	23,400	1,440	1,370	975	422	285
28	*275	317	250	1,000	650	5,530	*22,900	1,370	1,170	910	417	*291
29	275	317	250	900	618	5,370	18,100	1,370	1,100	850	413	290
30	275	317	* 250	820	------	4,840	15,300	1,300	975	850	405	286
31	275	------	250	748	------	4,310	------	1,240	------	710	*399	------
Total	8,065	9,030	8,443	13,798	20,829	580,006	344,070	116,360	67,420	45,140	16,263	9,241
Mean	260	301	272	606	718	18,710	11,469	3,754	2,247	1,488	525	308
Cfsm	0.067	0.078	0.070	0.157	0.186	4.83	2.96	0.970	0.581	0.384	0.136	0.080
In.	0.08	0.09	0.08	0.18	0.20	5.57	3.30	1.12	0.65	0.44	0.16	0.09

Calendar year 1963 : Max 56,300 Min 248 Mean 2,680 Cfsm 0.693 In. 9.41
Water year 1963-64 : Max 73,100 Min 220 Mean 3,401 Cfsm 0.879 In. 11.96

Peak discharge (base, 13,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-12	1400	35.22	75,700				
4-9	1600	17.11	13,500				
4-25	0200	26.78	37,000				

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 17 to Jan. 12, Jan. 18-22, 28-30.

3-3716. South Fork Salt Creek at Kurtz, Ind.

Location.--Lat 38°57'46", long 86°12'12", in SW¼ sec. 9, T. 6 N., R. 3 E., on right bank at downstream side of county road bridge, at the north edge of Kurtz, 0.8 mile upstream from unnamed tributary from the right, and 6.1 miles upstream from Little Salt Creek.

Drainage area.--38.1 sq mi.

Records available.--October 1960 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 568.00 ft above mean sea level, datum of 1929 (unadjusted).

Extremes.--Maximum discharge during year, 4,960 cfs Mar. 9 (gage height, 13.08 ft); no flow for many days.
1960-64: Maximum discharge, 4,960 cfs Mar. 9, 1964 (gage height, 13.08 ft); no flow at times in most years.
Flood of January 1959 reached a stage of approximately 15 ft, from floodmarks.

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 Jan. 20 to Feb. 12, Feb. 15-25, Feb. 29 to Mar. 4, May 8 to July 30; stage-discharge relation affected by ice Feb. 13, 14, 26-28)

Oct. 1 to Mar. 4

2.22	0	3.2	54
2.3	0.6	3.5	88
2.4	2.0	4.0	160
2.5	4.1	5.0	380
2.6	7.4	6.0	680
2.7	12.0	8.0	1,430
2.9	26		

Mar. 4 to Sept. 30

2.1	0	3.5	78
2.2	0.2	4.0	169
2.3	0.8	5.0	400
2.4	1.8	7.0	1,050
2.5	3.4	9.0	1,830
2.6	5.7	11.0	2,800
2.8	13	12.0	3,600
3.0	24	13.0	4,840
3.2	40		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.7	2.2	19	49	✲0.4	1.3		
2				0	.7	2.6	36	36	1.2	1.1		
3				0	.5	5.8	166	28	3.5	7.2		
4				0	.4	1,050	83	24	1.8	7.7		
5				0	.3	220	147	20	.8	2.3	✲	
6				0	9.1	✲57	✲413	17	.9	1.5		
7				✲0	8.2	36	112	15	1.1	46		
8				0	3.6	92	63	14	.8	✲33		
9				0	3.3	✲3,870	44	12	.6	6.8		
10				0	2.7	1,910	35	10	.4	4.0		
11				0	1.8	180	29	8.8	.3	2.6		
12				0	1.6	137	26	10	.2	2.5		
13				0	1.8	76	35	12	.2	3.7		
14				0	2.0	133	30	8.8	52	2.5		
15				0	2.5	101	25	7.1	12	1.5		
16				0	6.7	57	23	6.0	2.8	1.1		
17				0	5.3	39	20	4.9	1.4	.9		
18				0	5.0	30	21	4.2	300	8.9		
19				0	6.4	26	23	3.5	39	2.6		
20				26	6.7	40	28	2.8	13	1.4		
21				4.7	5.0	45	32	2.2	12	1.0		
22				3.1	3.6	36	148	1.6	236	.7		
23				2.4	3.3	30	74	1.4	25	.6		
24				2.5	2.9	28	112	1.2	11	.4		
25				3.8	2.7	38	60	1.0	6.3	.3		
26				2.5	2.5	71	109	1.0	4.4	.3		
27		✲		1.6	2.4	41	331	1.2	3.4	.2		
28	✲			✲.8	2.3	34	190	.9	2.6	.2		✲
29				.5	2.2	28	✲95	1.0	2.0	.1		
30				.4	- - - - -	24	70	.8	1.6	.1		
31		- - - - -		.4	- - - - -	22	- - - - -	.6	- - - - -	0	✲	- - - - -
Total	0	0	0	48.7	96.2	3461.6	2,599	306.0	736.7	142.5	0	0
Mean	0	0	0	1.57	3.32	273	86.6	9.87	24.6	4.60	0	0
Cfsm	0	0	0	0.041	0.087	7.17	2.27	0.259	0.646	0.121	0	0
In.	0	0	0	0.05	0.09	8.27	2.53	0.30	0.72	0.14	0	0

Calendar year 1963 : Max 1,630 Min 0 Mean 29.7 Cfsm 0.780 In. 10.59
Water year 1963-64 : Max 3,870 Min 0 Mean 33.9 Cfsm 0.890 In. 12.10

Peak discharge (base, 1,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	2200	10.44	2,470				
3-9	2200	13.08	4,960				

✲ Discharge measurement made on this day.

GPO 821-311-6

3-3716.5 North Fork Salt Creek at Nashville, Ind.

Location.--Lat 39°12'05", long 86°14'50", in SW¼ sec. 19, T. 9 N., R. 3 E., near center of stream at downstream side of bridge on State Highway 46, 700 ft downstream from Greasy Creek and 0.4 mile south of center of Nashville, Brown County.

Drainage area.--75.9 sq mi.

Records available.--July 1962 to September 1964.

Gage.--Wire-weight gage read twice daily. Datum of gage is 579.576 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 7,130 cfs Mar. 9 (gage height, 15.93 ft, from floodmark); no flow for many days.
1962-64: Maximum discharge, 7,500 cfs Mar. 4, 1963; maximum gage height, 15.93 ft (from floodmark) Mar. 9, 1964; no flow at times during 1963-64.

Remarks.--Records fair.

(Rating tables, except periods of ice effect and indefinite stage-discharge relation
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 17, Dec. 20-28, 31, Jan. 2-15)

Oct. 1 to Mar. 8

2.70	0	3.3	31
2.8	0.4	3.5	58
2.9	1.8	4.0	152
3.0	5.0	5.0	420
3.1	11	6.0	760

Mar. 9 to Sept. 30

2.46	0	4.0	160
2.5	0.2	4.5	275
2.6	1.3	5.0	400
2.7	3.2	6.0	680
2.9	9.4	8.0	1,350
3.1	19	10.0	2,250
3.3	33	13.0	4,300
3.6	81	14.0	5,200

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	0	0.1	0	6.1	8.7	47	116	3.9	0.2	0.4	
2	3.1	0	0	.1	6.0	7.9	395	85	3.4	.2	.2	
3	3.1	0	0	.1	6.0	18	*1,030	66	2.9	.7	.1	
4	3.1	0	0	.2	6.0	388	314	47	2.4	1.4	.1	
5	3.1	0	0	.2	8.2	568	226	34	2.4	.8	.2	
6	3.1	0	0	.8	15	196	1,420	31	2.9	.6	.2	
7	3.1	0	.1	.8	16	82	338	26	2.4	3.2	.1	
8	2.6	0	.1	1.0	16	155	172	24	2.2	18	0	
9	1.6	0	.2	3.4	15	5,030	101	20	2.0	78	0	
10	.4	0	.2	2.8	14	*3,350	83	18	1.9	47	0	
11	.4	0	.1	1.6	12	419	67	17	1.6	9.8	0	
12	.4	* 0	.1	1.6	10	206	59	*17	1.3	6.0	0	
13	.4	0	.2	1.6	9.6	166	59	16	1.2	5.4	0	
14	* .4	0	.2	1.2	10	150	*69	15	e 1.0	5.4	0	
15	.3	0	.1	1.2	9.6	144	59	13	e .9	5.1	0	
16	.2	0	.1	.6	9.8	*122	57	12	*e .8	4.5	0	*
17	.1	0	0	* .5	10	84	49	12	e .7	3.4	0	
18	0	0	0	.5	10	66	43	11	e .8	2.6	0	
19	0	0	0	3.0	12	58	404	11	2.2	2.2	* 0	
20	0	0	* 0	23	* 21	52	518	9.4	2.0	2.2	0	
21	0	0	0	23	20	50	350	8.2	2.2	*1.9	0	
22	0	0	0	21	17	48	475	7.6	2.6	1.6	0	
23	0	.4	.1	21	15	47	264	7.6	2.4	1.4	0	
24	0	.3	.1	23	13	46	194	7.2	2.2	1.3	0	
25	0	.1	.1	28	11	63	145	6.9	2.0	1.3	0	
26	0	.1	.1	32	10	238	128	6.9	1.6	2.2	0	
27	0	.1	.1	18	11	157	252	6.6	1.3	1.6	0	
28	0	.1	.1	11	9.6	120	350	6.0	.9	1.3	0	
29	0	.1	0	7.5	8.9	86	229	5.4	.6	1.0	0	
30	0	.1	0	7.0	------	52	149	5.1	.4	.7	0	
31	0	------	0	6.5	------	47	------	4.5	------	.7	0	------
Total	28.5	1.3	2.1	242.2	337.8	12,224.6	7,046	672.4	55.1	211.7	1.3	0
Mean	0.92	0.04	0.07	7.81	11.6	394	268	21.7	1.84	6.83	0.04	0
Cfsm	0.0012	0.00053	0.00092	0.103	0.153	5.19	3.53	0.286	0.024	0.090	0.00053	0
In.	0.001	0.001	0.001	0.12	0.16	5.98	3.94	0.33	0.03	0.10	0.001	0

Calendar year 1963 : Max 2,710 Min 0 Mean 56.3 Cfsm 0.742 In. 10.06
Water year 1963-64 : Max 5,030 Min 0 Mean 59.6 Cfsm 0.785 In. 10.66

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-9	2400	15.93	7,130				
4-2	2400	9.23	1,850				
4-6	0100	11.13	2,910				

* Discharge measurement made on this day.
e Stage-discharge relation indefinite.
Note.--Stage-discharge relation affected by ice Dec. 18, 19, 29, 30, Jan. 1, 16-18, 28-31, Feb. 1, 10-12, 16-19, 23-26.

3-3720. North Fork Salt Creek near Belmont, Ind.

Location.--Lat 39°09'00", long 86°20'14", in NW¼ sec. 5, T. 8 N., R. 2 E., on right bank 15 ft downstream from bridge on State Highway 46, 100 ft upstream from Schooner Creek, 0.7 mile northeast of Belmont, 6½ miles upstream from Brummett Creek, and 20 miles upstream from mouth. Records include flow of Schooner Creek.
Drainage area.--120 sq mi, includes that of Schooner Creek.
Records available.--April 1946 to September 1964.
Gage.--Water-stage recorder. Datum of gage is 543.62 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct. 9, 1951, wire-weight gage at same site and datum.
Average discharge.--18 years, 131 cfs.
Extremes.--Maximum discharge during year, 10,100 cfs Mar. 10 (gage height, 21.63 ft); no flow for many days.
1946-64: Maximum discharge, 13,300 cfs June 23, 1960 (gage height, 23.10 ft); no flow at times in most years.
Flood in March 1913 reached a stage of 25.7 ft, from information by local residents.
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 in stage used as a factor Mar. 4-6, 9-13, 25-27, Apr. 3, 4, 6, 7, 19-23, 28, 29)

Oct. 1 to Mar. 4		Mar. 5 to Apr. 5		Apr. 6 to Sept. 30	
2.5	0	3.8	45	2.4	0
2.6	.9	4.0	62	2.5	.2
2.7	3.0	6.0	311	2.6	.6
2.8	5.5	10.0	837	2.7	1.4
2.9	8.1	14.0	1,460	2.8	3.0
3.0	12	17.0	2,290	3.0	8.5
3.2	20	18.0	3,040	3.2	18
3.5	38	19.0	4,480	3.3	24
4.0	82	21.0	8,700	3.5	38
6.0	335			4.0	79
10.0	855			5.0	184
				6.0	311

Note.--Same as preceding table above 6.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	0.1	0.3	0.1	8.4	11	55	184	3.8	0.8	0.3	0
2	* 5.3	.1	.3	.2	7.8	11	184	144	3.4	.6	.3	* 0
3	4.8	.1	.2	* .6	7.1	12	*1,290	107	* 3.4	1.9	* .2	0
4	4.2	.1	.2	.6	6.3	770	617	* 88	3.0	3.0	.2	0
5	4.0	.1	.2	.4	5.8	1,620	324	74	2.8	1.8	.1	0
											.1	
6	4.0	.1	.1	.6	9.3	311	1,550	59	3.0	1.4	.1	0
7	4.2	.1	.1	.4	20	137	696	50	2.8	13	.1	0
8	3.8	.1	.4	.4	24	117	285	44	2.8	41	.1	0
9	3.2	.1	.4	1.8	20	4,610	184	38	2.4	* 28	.1	0
10	2.5	.1	.3	1.6	18	3,080	138	32	2.0	41	.1	0
11	1.6	.1	.3	b 1.4	14	1,190	112	27	1.7	34	.1	0
12	1.6	.1	.4	b 1.2	12	508	97	27	1.6	16	.1	0
13	1.4	.1	.4	b 1.1	12	309	97	28	1.4	10	.1	0
14	1.0	.1	.4	1.0	11	* 266	102	27	2.6	14	.1	0
15	.9	.1	.3	b .9	10	274	92	19	2.0	12	.1	0
16	.6	.1	.2	b .8	12	175	84	16	1.7	7.0	0	0
17	.4	.1	.1	b .8	12	124	79	14	1.3	4.9	0	0
18	.3	.2	.1	.9	14	87	70	11	3.0	3.6	0	0
19	.2	.1	b .1	1.6	22	69	248	10	3.0	2.8	0	0
20	.1	.1	b .1	6.8	28	75	1,200	8.8	3.2	2.1	0	0
21	.2	.1	.1	22	28	95	578	7.6	3.4	1.6	0	0
22	.2	.2	.1	23	25	85	761	6.7	7.0	1.3	0	0
23	.2	.7	.1	22	22	72	475	6.4	4.1	1.2	0	0
24	.2	.6	.2	22	19	64	324	6.1	8.2	.9	0	0
25	.2	.4	.2	27	17	123	220	5.5	5.5	.7	0	0
26	.1	.7	.2	28	b 15	616	184	5.2	3.4	.6	0	0
27	.1	.9	.2	22	b 14	282	337	4.6	2.3	1.1	0	0
28	.1	.7	.2	16	13	168	845	4.6	1.6	1.4	0	0
29	.1	* .7	.1	*11	12	119	470	4.6	1.2	.9	.1	0
30	.1	.4	b 0	.9	------	87	272	4.4	.9	.7	.1	* 0
31	* .2	------	b 0	8.7	------	73	------	4.1	------	.4	0	-------
Total	51.6	7.5	6.3	233.9	438.7	20,540	11,970	1,067.6	88.5	249.7	2.3	0
Mean	1.66	0.25	0.20	7.55	15.1	663	399	34.4	2.95	8.05	0.07	0
Cfsm	0.014	0.0021	0.0017	0.063	0.126	5.52	3.32	0.287	0.025	0.067	0.00058	0
In.	0.02	0.002	0.002	0.07	0.14	6.36	3.70	0.33	0.03	0.08	0.0007	0

Calendar year 1963: Max 5,390 Min 0 Mean 88.0 Cfsm 0.733 In. 9.94
Water year 1963-64: Max 4,610 Min 0 Mean 94.7 Cfsm 0.789 In. 10.73

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0600	17.08	2,380				
3-10	0600	21.63	10,100				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3725. Salt Creek near Harrodsburg, Ind.

Location.--Lat 39°00'16", long 86°30'31", in NW¼ sec. 34, T. 7 N., R. 1 W., on right bank 1,300 ft downstream from Monroe Reservoir dam site, 0.9 mile upstream from Clear Creek, 2.2 miles southeast of Harrodsburg, and 25.1 miles upstream from mouth.

Drainage area.--441 sq mi.

Records available.--May 1955 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 480.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1960, wire-weight gage at site 3,500 ft upstream at datum 2.41 ft higher.

Average discharge.--9 years, 497 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 8,000 cfs Mar. 10 (gage height, 28.40 ft), no flow Sept. 29, 30, minimum gage height, 4.68 ft Sept. 7, 8.

1955-64: Maximum discharge, 22,000 cfs June 25, 1960 (gage height, 32.76 ft, from graph based on gage readings at site and datum then in use), maximum gage height at present site and datum, 35.35 ft May 9, 1961, no flow Sept. 29, 30, 1964.

Remarks.--Records good except those below 200 cfs which are poor. Flow regulated by Monroe Reservoir (capacity, 418,700 acre-ft), since Jan., 1963.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	1.3	0.8	0.7	43	50	*2,500	c1,300	20	24	7.3	*0.6
2	.6	1.1	.8	.8	38	47	*2,710	c1,100	19	19	7.0	.6
3	.7	.6	1.0	1.1	33	47	c 2,700	c900	20	18	6.2	.6
4	.7	.5	.8	3.2	30	644	c 2,650	c600	18	c45	6.4	.6
5	.7	.9	1.0	2.1	27	2,270	c 2,600	494	15	47	5.6	.6
6	.7	1.2	1.0	* 1.8	40	1,910	*c 2,600	330	15	45	* 4.8	.6
7	.7	.8	1.0	1.8	48	2,120	c 2,650	261	16	c55	4.2	.6
8	.7	.6	1.4	1.6	52	2,210	c 2,700	209	16	c350	4.2	.5
9	.7	.6	1.6	2.9	71	2,200	c 2,600	183	15	392	3.9	.5
10	.7	.6	1.2	3.4	78	c 7,050	*c 2,500	153	14	*274	3.1	.5
11	.7	.5	1.1	2.1	68	c 4,880	2,500	135	*16	178	3.3	.5
12	.7	.6	1.4	1.8	62	c 1,940	2,340	171	14	147	4.0	.5
13	.8	.8	1.4	1.3	59	c 384	* 2,200	153	13	118	3.4	.5
14	.6	.9	1.1	b 1.2	56	c 295	* 2,020	141	c 30	91	3.4	.4
15	.7	.8	.8	b 1.2	50	* c 303	* 1,810	130	68	70	3.4	.4
16	.9	.9	.6	b 1.3	50	c 310	* 1,610	118	c85	58	2.9	.4
17	.8	.8	b .5	1.4	53	c 316	* 1,340	102	107	48	2.8	.4
18	.8	.9	b .5	1.5	59	c 1,300	1,040	83	c150	39	2.8	1.5
19	.7	2.6	b .5	1.9	68	2,580	881	75	409	46	3.1	1.2
20	.9	1.8	b .4	34	78	2,750	596	64	460	45	3.0	1.0
21	.8	*1.6	b .4	28	85	3,020	935	53	266	35	4.3	.8
22	.9	1.7	.4	25	89	2,930	1,100	46	260	35	10	.6
23	.9	4.9	.5	34	85	3,030	1,240	38	315	25	5.6	.5
24	1.1	2.0	.6	48	78	* 3,230	c 1,400	33	256	20	3.7	.4
25	1.0	1.2	.8	25	71	3,210	1,520	30	168	18	3.4	.3
26	.9	1.1	.7	65	68	2,580	1,540	25	113	c35	4.0	.3
27	1.0	.9	b .6	64	62	* 3,410	1,520	29	81	19	3.7	.2
28	1.0	.9	b .6	62	59	3,810	c 1,570	26	55	13	3.9	.1
29	.7	.7	b .6	58	53	3,750	c 1,600	26	39	10	5.0	*0
30	.5	.8	b .5	53	------	3,470	*c 1,500	24	31	9.5	13	0
31	*.4	------	.5	*48	------	3,070	------	22	--------	8.5	9.0	-------
Total	23.5	34.6	25.1	577.1	1,713	72,116	56,572	7,054	3,104	2,337.0	150.9	15.7
Mean	0.76	1.15	0.81	18.6	59.1	2,326	1,886	228	103	75.4	4.87	0.52
(f)	0	0	0	0	0	+841	-684	0	0	0	0	0

Adjusted for change in contents in Monroe Reservoir

Mean	0.76	1.15	0.81	18.6	59.1	3,167	1,202	228	103	75.4	4.87	0.52
Cfsm	0.0017	0.0026	0.0018	0.042	0.134	7.18	2.73	0.517	0.234	0.171	0.011	0.0012
In.	0.002	0.003	0.002	0.05	0.14	8.28	3.05	0.60	0.26	0.20	0.01	0.001

	Observed			Adjusted			
Calendar year 1963 :	Max 8,800	Min 0.4	Mean 336	Mean 336	Cfsm 0.762	In. 10.36	
Water year 1963-64 :	Max 7,050	Min 0	Mean 393	Mean 405	Cfsm 0.918	In. 12.60	

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
c Backwater from East Fork White River or Clear Creek.
f Change in contents, equivalent in cubic feet per second, in Monroe Reservoir, furnished by Corps of Engineers.
Note.--Stage-discharge relation indefinite Sept. 2-30.

3-3727. Clear Creek near Harrodsburg, Ind.

Location.--Lat 39°02'03", long 86°34'01", in NW¼ sec. 19, T. 7 N., R. 1 W., on left bank at downstream side of county road bridge, 1.9 miles northwest of Harrodsburg, 3.9 miles upstream from Little Clear Creek, and 5.1 miles upstream from mouth.

Drainage area.--55.2 sq mi, of which 6.4 sq mi does not contribute directly to surface runoff.

Records available.--September 1960 to September 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 517.00 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 6,380 cfs Mar. 9 (gage height, 13.07 ft); minimum, 4.5 cfs Sept. 14 (gage height, 3.22 ft).
1960-64: Maximum discharge, that of Mar. 9, 1964; minimum, that of Sept. 14, 1964; minimum gage height, 3.20 ft Oct. 3, 1960.
Flood of June 1960 reached a stage of 16.47 ft, from floodmarks (discharge, 10,200 cfs on basis of contracted-opening measurement).

Remarks.--Records good except those for periods of ice effect, which are fair. Flow partly regulated by effluent from the sewage treatment plant of the city of Bloomington and possibly by pumpage from several rock quarries.

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

Oct. 1 to July 7

3.1	5.7	5.5	360
3.2	6.8	6.0	560
3.4	11	7.0	1,090
3.7	24	8.0	1,800
4.0	48	10.0	3,400
4.5	116	11.0	4,250
5.0	215		

July 8 to Sept. 30

3.2	4.1
3.3	6.5
3.4	9.5
3.7	24

Note.--Same as preceding table above 3.7 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	*8.5	14	8.9	8.2	12	13	53	35	13	13	13	*9.8
2	9.2	9.7	9.0	9.6	11	14	*103	74	13	13	12	9.6
3	8.8	8.4	10	18	11	16	462	53	17	36	11	9.6
4	9.0	8.2	9.4	22	11	538	258	36	14	42	13	9.7
5	9.4	10	11	20	12	335	334	*50	14	16	11	10
6	9.1	10	10	*16	43	191	1,160	46	17	17	*11	8.0
7	8.2	8.7	10	14	31	90	370	43	15	* 400	11	7.0
8	9.4	8.5	14	22	22	*117	204	41	14	204	12	7.6
9	8.8	8.6	12	34	19	3,650	146	35	13	63	9.8	9.8
10	9.7	8.6	11	27	13	1,430	117	31	13	38	8.9	8.5
11	9.9	8.2	11	19	16	520	95	31	12	27	13	8.7
12	9.8	9.2	12	16	15	381	84	36	*12	25	14	7.6
13	8.9	9.1	11	14	15	268	80	33	13	21	13	6.4
14	8.2	9.2	11	14	15	196	67	28	60	19	13	5.0
15	9.8	8.9	9.6	14	16	143	57	26	20	17	14	9.2
16	9.5	9.4	9.4	15	17	115	50	24	16	15	13	9.9
17	8.9	8.6	7.9	16	14	95	46	22	14	15	12	10
18	8.6	12	7.6	12	22	81	43	21	106	17	14	23
19	8.8	10	7.6	25	27	71	101	21	46	16	13	17
20	8.9	9.0	7.6	76	27	65	89	19	34	12	13	11
21	8.4	9.4	8.4	33	24	88	63	18	36	14	34	10
22	9.7	18	8.5	22	21	76	110	17	67	27	21	10
23	9.2	36	8.5	19	19	72	76	18	44	14	15	10
24	10	13	8.5	26	18	65	166	18	34	14	10	9.5
25	8.9	11	8.4	44	17	98	99	17	19	43	12	9.0
26	9.4	11	8.2	23	16	171	86	16	17	70	12	10
27	9.7	*10	8.9	18	15	113	115	16	16	20	11	10
28	11	9.4	7.6	*16	14	100	200	14	14	16	23	8.8
29	9.6	8.3	7.4	15	14	82	107	14	14	15	20	*11
30	*9.0	9.1	7.2	13	------	69	107	15	14	13	9.4	10
31	9.0	------	7.8	12	------	63	------	14	------	13	8.8	------
TOTAL	284.8	324.3	287.1	661.5	537	9,301	5,653	976	744	1,285	421.4	298.0
MEAN	9.19	10.8	9.26	21.3	19.2	300	188	31.5	24.8	41.5	13.6	9.93
CFSM	.167	.196	.168	.386	.348	5.44	3.41	.571	.449	.752	.246	.180
IN.	.19	.22	.19	.45	.36	6.27	3.81	.66	.50	.87	.28	.20

CALENDAR YEAR 1963 MAX 2,230 MIN 7.2 MEAN 48.9 CFSM .886 INCHES 12.04
WATER YEAR 1963-64 MAX 3,650 MIN 6.0 MEAN 55.1 CFSM .998 INCHES 13.59

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1845	8.12	1,900	4-6	0330	8.43	2,120
3-9	2200	13.07	6,380	7-7	2100	8.78	2,440

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 7, Jan. 13-17, 29, Jan. 31 to Feb. 3, Feb. 13, 14, 16, 17, 28.

3-3730. Salt Creek near Peerless, Ind.

Location.--Lat 38°56'35", long 86°30'38", in NW¼ sec. 22, T. 6 N., R. 1 W., on downstream side near center of Monon Railroad bridge, 3,400 ft downstream from Little Salt Creek, 1.5 miles north of Peerless, 6.5 miles downstream from Monroe Reservoir, and 18.6 miles upstream from mouth.
Drainage area.--582 sq mi.
Records available.--February 1939 to September 1950, February 1957 to September 1964.
Gage.--Wire-weight gage read twice daily. Datum of gage is 476.02 ft above mean sea level, datum of 1929. Feb. 1-10, 1939 chain gage and Feb. 11, 1939 to Sept. 30, 1950, water-stage recorder, at same site and datum.
Average discharge.--18 years, 662 cfs (adjusted for storage).
Extremes.--Maximum discharge during, 10,000 cfs Mar. 10 (gage height, 29.00 ft); minimum, 5.6 cfs Sept. 15 (gage height, 1.41 ft).
1939-50, 1957-64: Maximum discharge, 25,100 cfs May 10, 1961 (gage height, 35.33 ft, from graph based on gage readings); minimum, 0.7 cfs Aug. 18, 1940.
Flood of January 1937 reached a stage of 34.3 ft (information by Corps of Engineers).
Remarks --Records fair. Stage-discharge relation affected at times by backwater from East Fork White River or return flow from overbank storage. Flow regulated by Monroe Reservoir (capacity, 418,700 acre-ft), since January 1963.

Rating tables, except periods of ice effect and backwater (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 28, Jan. 10, Jan. 20 to Feb. 4, Feb. 6 to Mar. 4. Stage-discharge relation affected by ice Dec. 18-21, 28, 29, Jan. 12, 14, 15)

Oct. 1 to Mar. 31

1.4	6.5	3.0	142	19.0	3,850
1.5	8.7	4.0	262	24.0	5,650
1.7	16	6.0	536	27.0	7,040
2.0	37	9.0	1,060	29.0	10,000
2.5	87	13.0	1,950		

Apr. 1 to Sept. 30

1.3	4.6	1.6	12	2.1	54
1.4	6.5	1.7	18	2.5	88
1.5	8.7	1.9	36	3.0	142

Note.--Same as preceding table above 3.0 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.4	11	11	8.7	52	67	3,040	1,500	40	49	24	*11
2	9.4	16	11	9.4	45	63	*2,880	1,150	39	44	21	9.4
3	10	12	11	11	39	57	3,040	950	41	43	20	8.7
4	11	11	12	22	34	362	3,170	750	41	88	18	8.5
5	11	10	12	27	32	3,100	3,040	590	38	68	17	8.7
6	11	13	14	24	57	2,470	4,260	450	39	64	*14	9.0
7	12	13	13	*19	109	2,460	4,440	358	42	116	12	7.8
8	9.4	12	14	18	98	*2,200	3,880	298	40	620	11	7.2
9	11	11	19	22	114	3,190	3,440	250	38	*633	11	7.4
10	10	11	15	38	126	3,910	3,170	214	34	370	10	8.3
11	11	11	14	28	114	3,700	2,910	214	*34	250	9.7	8.3
12	12	10	15	18	92	2,400	2,660	358	32	178	11	8.3
13	12	11	15	16	87	670	2,470	250	34	142	11	7.8
14	11	13	15	16	82	510	2,260	202	118	114	11	6.5
15	11	13	13	16	76	460	2,010	190	98	83	11	5.7
16	11	13	11	17	82	440	1,720	154	126	70	10	7.6
17	12	14	9.7	17	87	430	1,470	131	126	66	9.7	9.0
18	10	12	9.0	16	98	1,450	1,190	109	464	63	8.7	9.7
19	11	17	9.0	19	126	2,700	875	88	671	62	9.0	25
20	10	13	9.1	56	148	2,900	671	83	637	62	9.0	14
21	11	*13	9.5	92	154	3,320	983	70	396	57	10	9.7
22	11	13	10	60	154	3,170	1,270	65	440	57	42	9.4
23	12	49	10	56	142	3,080	1,470	60	472	56	20	9.0
24	11	23	10	82	126	3,290	1,700	57	346	45	13	9.0
25	13	14	10	131	120	3,260	1,850	54	202	47	9.7	8.5
26	11	13	10	126	109	2,820	1,900	49	148	70	9.7	8.5
27	11	13	9.7	120	98	3,240	1,950	52	104	58	10	9.0
28	11	12	9.5	*109	82	3,720	2,000	50	88	47	9.7	9.0
29	*13	12	9.0	92	76	3,770	2,000	51	63	34	24	*8.5
30	13	11	8.5	76	------	3,650	*1,900	46	54	28	13	8.5
31	11	------	8.3	63	------	3,310	------	42	--------	24	62	-------
Total	343.2	420	356.3	1,425.1	2,759	73,179	63,619	8,875	5,045	3,718	481.2	277.0
Mean	11.1	14.0	11.5	46.0	95.1	2,554	2,321	286	168	120	15.5	9.23
(ƒ)	0	0	0	0	0	+841	-684	0	0	0	0	0

Adjusted for change in contents in Monroe Reservoir

Mean	11.1	14.0	11.5	46.0	95.1	3,395	1,637	286	168	120	15.5	9.23
Cfsm	0.019	0.024	0.020	0.079	0.163	5.83	2.81	0.491	0.289	0.206	0.027	0.016
In.	0.02	0.03	0.02	0.09	0.17	6.72	3.14	0.57	0.32	0.24	0.03	0.02

	Observed			Adjusted		
Calendar year 1963:	Max 8,020	Min 8.3	Mean 427	Mean 427	Cfsm 0.734	In. 9.96
Water year 1963-64:	Max 8,910	Min 5.7	Mean 471	Mean 484	Cfsm 0.832	In. 11.37

* Discharge measurement made on this day.
ƒ Change in contents, equivalent in cubic feet per second, in Monroe Reservoir, furnished by Corps of Engineers.
Note.--Backwater from East Fork White River or return flow from overbank storage Mar. 8, 11-20, Apr. 24 to May 6.

3-3732. Indian Creek near Springville, Ind.

Location.--Lat 38°57'01", long 86°40'30", in SW¼ sec. 18, T. 6 N., R. 2 W., on left bank at downstream side of State Highway 54 bridge, ¼ mile downstream from Popcorn Creek, and 4 miles northwest of Springville.

Drainage area.--60.9 sq mi.

Records available.--September 1961 to September 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 580.00 ft above mean sea level, datum of 1929, unadjusted.

Extremes.--Maximum discharge during year, 6,450 cfs Mar. 9 (gage height, 12.95 ft); no flow for many days.
1961-64: Maximum discharge, that of Mar. 9, 1964; minimum, no flow in some years.
Flood of Spring 1950 or 1951 reached a stage of 18.4 ft from information by local resident.

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 to Nov. 22)

1.43	0	2.7	90
1.5	.2	3.0	155
1.6	.7	3.5	320
1.7	1.7	4.0	520
1.8	3.6	5.0	930
1.9	6.0	6.0	1,380
2.0	10	8.0	2,500
2.2	25	10.0	3,840
2.4	45	12.0	5,500

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	*0	.1	.5	.3	b 3.7	5.3	32	55	2.9	2.5	.6	.6
2	0	.1	.5	.4	b 3.5	5.5	*50	44	*2.5	2.2	.7	.5
3	0	.1	.5	2.3	b 3.2	5.7	225	36	3.3	5.6	.5	.4
4	0	.1	.4	2.0	3.1	785	114	31	2.7	21	.6	.3
5	0	.1	.5	2.4	3.1	332	329	26	2.3	7.2	*1.0	.3
6	0	.1	.5	b 2.2	11	108	1,120	22	2.6	4.2	.5	.1
7	0	.1	.5	*b 2.0	16	67	236	19	2.5	*106	.4	.1
8	0	.1	.7	b 1.9	11	* 136	122	17	2.3	134	.3	.1
9	0	.1	.3	b 2.5	8.5	4,770	80	15	1.8	28	.2	.1
10	0	.1	1.0	b 4.1	7.8	1,780	64	12	1.3	16	.1	.1
11	0	.1	1.0	b 2.5	6.4	345	51	12	1.1	9.7	.1	
12	0	.1	1.1	b 2.0	5.6	254	45	64	.9	11	.1	
13	0	.1	1.0	b 1.8	5.9	145	45	25	.8	7.1	.1	
14	0	.1	.8	b 1.5	5.9	116	40	18	39	5.3	.1	
15	0	.1	.6	b 1.5	6.5	92	34	14	23	4.4	.1	
16	0	.1	.4	1.8	8.6	67	30	11	7.8	3.7		
17	0	.1	.3	1.9	11	54	27	9.5	4.5	3.2		
18	0	.3	b.2	2.1	12	41	25	8.4	122	2.6		
19	0	.3	b.2	4.2	16	38	26	7.2	62	3.2		
20	0	.3	b.2	22	19	52	29	5.8	28	3.2		
21	0	.3	b.2	15	16	65	37	5.3	26	2.5	.1	
22	0	.0	.2	9.2	13	56	121	4.7	62	2.5	.2	
23	0	2.5	.3	7.3	11	47	76	4.7	28	1.8	.7	
24	0	2.4	.4	7.5	8.5	42	131	5.3	16	1.5	.5	
25	0	1.7	.4	17	b 7.2	58	76	4.7	7.9	1.5	1.2	
26	0	*1.2	.4	14	b 6.4	143	50	4.2	8.1	8.8	1.2	
27	0	.9	b.3	*8.7	b 5.8	81	78	4.5	5.5	5.1	.8	
28	*0	.7	b.3	6.0	b 5.6	63	175	4.5	4.6	2.4	1.1	*0
29	0	.7	b.2	4.7	b 5.4	50	*90	4.5	3.6	1.6	.9	0
30	0	.5	b.2	4.3	------	41	71	3.6	2.9	1.3	1.4	0
31	.1	------	.2	4.2	------	38	------	3.1	------	1.2	*6.1	------
TOTAL	.1	14.4	14.9	159.6	247.2	9,886.7	3,537	500.8	477.2	414.2	19.8	2.4
MEAN	.003	.48	.48	5.15	8.50	31	121	16.2	15.9	13.4	.64	.07
CFSM	0	.008	.008	.085	.140	.514	1.99	.266	.261	.220	.011	.001
IN	0	.01	.01	.12	.15	.54	2.22	.31	.29	.25	.01	0

CALENDAR YEAR 1963 MAX 1,940 MIN 0 MEAN 41.3 CFSM .678 INCHES 9.20
WATER YEAR 1963-64 MAX 4,770 MIN 0 MEAN 42.0 CFSM .690 INCHES 9.39

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-4	1745	8.29	2,670				
3-9	2115	12.95	6,450				
4-6	0145	8.08	2,560				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3725. East Fork White River at Shoals, Ind.

Location.--Lat 38°40'02", long 86°47'32", in sec. 30, T. 3 N., R. 3 W., in first pier from left bank on highway bridge at Shoals, 400 ft upstream from Baltimore and Ohio Railroad bridge, 1 mile upstream from Beaver Creek, and at mile 107.6.

Drainage area.--4,954 sq mi.

Records available.--June 1903 to July 1906, October 1908 to September 1916, June 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1305. Published as East Branch White River at Shoals, 1903-6, 1908-16. Gage-height records collected at same site since May 1908 are contained in reports of U.S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 442.25 ft above mean sea level, datum of 1929. Prior to Jan. 1, 1909, chain gage at same site at datum 61.00 ft lower. Jan. 1, 1909 to July 26, 1927 and Dec. 10, 1929 to Oct. 26, 1932, chain gage at present site and datum.

Average discharge.--50 years (1903-5, 1906-16, 1923-64), 5,371 cfs.

Extremes.--Maximum discharge during year, 62,300 cfs Mar. 15 (gage height, 31.02 ft); minimum observed, 195 cfs Dec. 21 (gage height, 1.34 ft).
1903-6, 1908-16, 1923-64: Maximum discharge, 160,000 cfs Mar. 28, 1913 (gage height, 42.2 ft), from rating curve extended above 100,000 cfs by logarithmic plotting; minimum, 44 cfs Oct. 6, 1935, as a result of filling Williams Reservoir.

Remarks.--Records good.

Rating table, (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Dec. 18-20, Jan. 13-15, 29)

1.8	210	7.0	8,900
2.1	365	13.0	18,900
2.3	510	21.0	31,300
2.7	850	25.0	40,600
3.5	1,800	30.0	57,400
5.0	4,470	31.0	62,200

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	294	317	347	g 278	805	724	7,170	13,900	1,460	1,170	550	472
2	300	311	347	g 272	760	706	5,650	12,700	1,400	1,120	950	435
3	305	300	347	g 266	715	637	4,210	14,800	1,460	1,120	900	421
4	311	305	341	g 283	670	1,200	5,650	11,400	1,460	1,120	850	407
5	305	311	335	g 353	626	14,200	4,500	4,900	1,460	1,340	805	400
6	294	311	329	365	628	12,500	14,300	5,930	1,460	1,530	760	393
7	294	311	329	400	628	14,800	14,500	5,750	1,400	1,400	760	393
8	294	311	347	414	760	12,400	14,600	4,890	1,460	1,730	760	386
9	300	311	359	435	850	23,500	17,900	4,470	1,400	2,600	670	379
10	294	311	353	472	950	34,200	17,600	3,480	1,340	2,950	670	372
11	288	311	359	472	950	44,500	15,000	3,690	1,340	3,500	435	365
12	294	305	359	435	950	* 49,100	12,500	3,500	1,280	3,310	355	393
13	300	305	353	390	900	53,900	4,680	3,500	1,220	3,310	428	353
14	288	305	353	375	850	61,000	4,070	3,130	1,340	2,450	548	341
15	283	311	347	370	805	61,400	7,170	2,950	1,660	2,430	548	335
16	305	311	g 256	372	805	57,300	6,440	2,950	1,400	2,100	510	329
17	294	311	g 238	386	760	51,500	5,750	2,770	1,340	1,950	510	329
18	283	329	g 238	428	805	41,500	5,100	2,600	5,930	1,840	510	347
19	293	329	g 245	435	805	34,000	4,680	2,260	14,400	1,730	510	365
20	283	323	g 255	510	850	31,800	4,680	2,260	4,630	1,730	472	365
21	288	323	g 261	628	900	23,400	5,530	2,100	7,170	1,730	400	365
22	288	329	g 266	715	950	15,500	4,500	* 1,950	5,930	1,680	472	365
23	288	359	*g 266	1,000	1,000	* 12,100	11,800	1,840	5,680	* 1,450	510	353
24	283	365	g 266	1,400	* 950	4,780	15,300	1,500	5,750	1,340	510	347
25	* 283	379	g 266	1,340	900	5,900	23,000	1,730	4,070	1,220	510	341
26	283	* 359	g 278	1,340	900	8,440	27,900	1,660	2,770	1,220	*472	* 335
27	294	359	g 283	* 1,280	850	4,050	* 34,400	1,660	2,100	1,220	472	347
28	311	359	g 283	1,170	760	4,660	30,600	1,600	1,660	1,120	472	353
29	305	353	g 283	1,050	760	4,050	24,000	1,600	* 1,460	1,060	472	353
30	294	347	g 294	950	------	3,720	23,100	1,530	1,170	1,000	472	347
31	300	------	g 283	900	------	4,050	------	1,460	------	1,000	472	------
Total	9,109	9,771	9,448	14,434	23,844	726,587	407,340	141,600	54,050	54,940	14,115	11,046
Mean	294	326	305	629	822	23,400	13,580	4,697	2,935	1,772	584	368
Cfsm	0.059	0.066	0.062	0.127	0.166	4.72	2.74	0.948	0.592	0.358	0.118	0.074
In.	0.07	0.07	0.07	0.15	0.18	5.44	3.06	1.09	0.66	0.41	0.14	0.08

Calendar year 1963 : Max 45,200 Min 145 Mean 3,460 Cfsm 0.698 In. 9.50
Water year 1963-64 : Max 61,400 Min 238 Mean 4,159 Cfsm 0.840 In. 11.42

Peak discharge (base, 20,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-15	0030	31.02	62,300				
4-28	0300	20.80	31,000				

* Discharge measurement made on this day.
g Discharge computed from twice-daily wire-weight gage readings.

3-3740. White River at Petersburg, Ind.

Location.--Lat 38°30'39", long 87°17'22", in SW¼ sec. 15, T. 1 N., R. 8 W., on left bank, 300 ft downstream from bridge on State Highway 61, three-eighths of a mile upstream from Prides Creek, 1 mile north of Petersburg, and at mile 47.7.

Drainage area.--11,139 sq mi.

Records available.--October 1927 to September 1964. Monthly discharges only for some periods, published in WSP 1305. Published as "at Hazleton" October 1927 to September 1938. Records published for both sites October 1937 to September 1938. Gage-height records collected at present site and datum since January 1935 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 400.00 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1937, water-stage recorder at bridge, 29 miles downstream at datum 16.77 ft lower. Oct. 1, 1937, to Apr. 1, 1941, wire-weight gage at site 300 ft upstream at present datum.

Average discharge.--37 years, 11,410 cfs.

Extremes.--Maximum discharge during year, 108,000 cfs Mar. 16 (gage height, 25.13 ft); minimum daily, 670 cfs Dec. 18; minimum gage height, 0.64 ft Dec. 16.

1927-64: Maximum discharge, 183,000 cfs Jan. 22, 1937 (gage height, 28.3 ft, present datum, 31.58 ft site and datum then in use); minimum, 553 cfs Oct. 2, 1941 (gage height, 0.05 ft).

Maximum stage known, 29.5 ft (present site and datum) in March 1913, from floodmarks, by Corps of Engineers (discharge, 235,000 cfs, estimated).

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 Oct. 15 to Dec. 14)

Oct. 1 to Apr. 28				Apr. 29 to Sept. 30			
0.5	810	20.0	46,000	1.1	970	15.0	27,000
2.0	2,480	22.0	58,000	2.0	1,800	20.0	46,000
6.0	8,550	24.0	82,500	4.0	4,300	22.0	58,000
10.0	15,700	26.0	130,000	8.0	11,330	24.0	82,500
16.0	30,000						

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,000	900	1,100	700	2,240	1,710	15,900	55,500	4,020	3,340	2,530	1,310
2	1,100	855	1,100	700	2,000	1,630	13,800	44,700	3,740	3,080	2,470	1,310
3	1,100	855	1,050	700	1,630	12,700	42,500	3,740	3,740	2,950	2,350	1,220
4	1,100	855	1,050	720	1,760	2,160	15,200	35,400	3,600	2,950	2,240	1,220
5	1,050	555	1,000	800	1,760	7,090	16,500	*27,300	3,470	3,210	2,240	1,220
6	1,050	855	1,000	900	1,640	14,200	24,100	*20,300	3,470	3,470	2,020	1,220
7	1,050	855	1,000	1,000	1,640	14,000	*30,600	16,900	3,470	3,340	2,020	1,130
8	1,000	855	1,000	1,000	1,640	13,800	34,600	15,100	3,340	4,730	1,910	1,130
9	1,000	855	1,050	1,000	1,760	23,600	37,800	13,700	3,340	7,260	1,910	1,130
10	950	855	1,000	1,000	2,000	47,200	38,600	12,500	3,470	3,140	1,800	1,130
11	950	855	1,000	1,100	2,240	57,200	37,800	11,500	3,340	7,260	1,800	1,130
12	950	855	1,050	1,200	2,240	* 63,000	32,700	10,900	3,210	3,140	1,700	a 1,100
13	900	* 855	1,050	1,300	2,240	73,900	25,400	10,500	3,080	7,730	1,700	a 1,100
14	900	855	1,050	1,300	2,120	* 84,200	19,600	10,500	3,340	5,920	1,700	a 1,100
15	900	810	900	1,200	2,000	93,000	16,500	9,940	* 3,470	5,070	1,600	a 1,000
16	900	810	700	1,200	2,000	103,000	14,800	9,220	* 3,470	*5,260	1,600	a 1,000
17	900	810	580	* 1,200	1,880	105,000	13,400	8,860	3,340	4,780	*1,600	a 1,100
18	855	855	* 670	1,200	* 1,880	92,800	12,700	8,500	11,000	4,620	1,500	a 1,200
19	900	855	630	1,300	2,000	79,700	12,100	8,140	25,600	5,740	1,500	a 1,200
20	855	855	700	1,300	2,000	63,600	12,100	a 7,430	21,800	4,940	1,400	a 1,200
21	* 855	855	700	1,400	2,000	53,300	13,000	6,750	16,300	4,620	1,400	a 1,200
22	855	900	700	1,520	2,120	43,900	17,600	6,240	15,500	4,160	1,400	a 1,100
23	855	1,000	700	1,640	2,120	33,300	25,600	* 5,530	14,700	3,740	1,400	a 1,100
24	855	1,000	700	2,000	2,120	* 23,200	23,400	5,260	12,900	3,470	1,400	1,050
25	855	1,000	700	2,480	2,120	21,800	37,000	5,100	10,900	3,340	1,400	1,010
26	855	1,050	700	2,600	2,000	19,400	55,900	4,730	8,140	3,210	1,400	1,010
27	855	1,200	700	2,720	2,000	18,200	72,600	4,620	6,070	3,080	1,400	1,050
28	855	1,250	750	2,860	1,880	17,700	78,200	4,460	4,940	3,210	1,400	1,050
29	855	1,200	760	2,720	1,760	18,000	*74,000	4,620	4,300	3,340	1,310	a 1,000
30	855	1,150	740	2,480	---------	17,800	66,100	4,300	3,740	2,950	1,310	a 1,000
31	855	----------	700	2,360	---------	17,100	----------	4,150	----------	2,710	1,400	----------
Total	28,815	27,615	26,680	45,600	57,040	1,290,220	902,300	441,360	214,800	141,860	52,870	33,720
Mean	930	920	861	1,471	1,967	41,620	30,080	14,240	7,160	4,576	1,705	1,124
Cfsm	0.083	0.083	0.077	0.132	0.177	3.74	2.70	1.28	0.643	0.411	0.153	0.101
In.	0.10	0.09	0.09	0.15	0.19	4.31	3.01	1.48	0.72	0.47	0.18	0.11

Calendar year 1963: Max 82,500 Min 670 Mean 7,843 Cfsm 0.704 In. 9.55
Water year 1963-64: Max 108,000 Min 670 Mean 8,915 Cfsm 0.800 In. 10.90

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 21.

3-3745. Patoka River near Ellsworth, Ind.

Location.--Lat 38°2 '29", long 86°43 31" in SE¼ sec. 10, T. 1 S., R. 3 W., on right bank, 200 ft upstream from county road bridge 1.0 mile northwest of Ellsworth, 2.9 miles upstream from Dillon Creek, and 4 miles east of Dubois.

Drainage area.--171 sq mi.

Records available.--June 1961 to September 1964. Discharge measurements only during May 1961.

Gage.--Water-stage recorder (digital since Aug. 21). Prior to Oct 1, 1961, wire-weight gage on downstream side of bridge, 200 ft downstream at same datum. Datum of gage is 477.00 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Extremes.--Maximum discharge during year, 14,700 cfs Mar. 10 (gage height, 20.02 ft), no flow Oct. 30.
1961-64: Maximum discharge, that of Mar. 10, 1964, minimum, that of Oct. 30, 1964.
Flood of March 1913 reached a stage of 19.1 ft (discharge about 12,300 cfs) according to information by local resident.

Remarks.--Records fair.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.1	0.7	0.6	9.4	11	127	285	29	6.9	2.1	1.8
2	.5	.2	.6	.6	7.9	10	114	208	23	5.6	2.0	1.6
3	.6	.2	.6	1.0	7.4	11	138	174	17	10	1.6	1.3
4	.6	.2	.6	1.8	6.9	1,280	253	134	13	21	1.6	1.1
5	.6	.2	.6	1.8	6.0	4,350	260	109	11	6.4	1.5	1.0
6	.6	.3	.6	1.6	6.9	*4,430	1,150	89	11	4.8	1.4	.9
7	.6	.3	.5	1.6	8.9	2,620	939	76	20	83	1.3	.9
8	.6	.3	.7	1.6	10	1,350	451	66	16	417	1.0	.8
9	.5	.3	1.0	3.1	12	5,260	264	58	11	186	1.0	.6
10	.4	.3	.9	6.0	15	*3,500	197	48	7.4	70	1.0	.6
11	.4	.3	1.0	5.2	14	*7,560	162	41	6.0	39	1.0	.6
12	.3	.3	1.0	4.2	12	3,040	145	38	5.2	26	.9	.5
13	.3	*.3	1.0	3.9	13	*1,690	197	45	6.0	21	1.0	.4
14	.2	.3	.9	3.4	17	1,070	208	56	24	15	1.0	.3
15	.2	.3	.8	2.5	22	1,170	186	48	19	11	1.0	.3
16	.1	.3	.6	2.0	36	905	150	39	8.9	7.9	1.0	.3
17	.2	.3	*.6	1.8	46	424	129	32	6.0	*80	1.0	.2
18	.1	.4	.6	2.0	49	265	114	24	218	45	1.0	.3
19	.1	.4	.6	2.7	*43	203	143	20	502	17	1.0	.4
20	.1	.4	.6	6.4	42	190	*417	16	264	13	*1.0	.6
21	.1	.5	.4	11	42	202	264	14	68	14	1.0	.6
22	.1	.8	.4	19	39	186	728	*10	132	8.9	2.3	*.8
23	*.1	1.0	.4	13	26	166	728	8.9	134	6.9	3.1	.7
24	.1	.9	.4	32	24	144	400	7.9	70	5.6	2.7	.7
25	.1	.8	.4	93	20	141	253	7.4	*59	4.5	2.4	.6
26	.1	.7	.6	30	19	*502	326	7.7	38	4.8	3.2	.4
27	.1	.7	.6	25	15	539	703	186	24	8.9	2.6	.7
28	.1	.7	.6	19	14	294	1,000	79	16	6.9	2.5	1.1
29	.1	.7	.7	*14	11	214	764	123	11	5.6	2.8	1.1
30	0	.7	.6	11	------	171	417	56	8.9	3.4	2.1	.8
31	.1	------	.6	9.4	------	148	------	38	------	2.7	2.0	------
Total	8.5	13.2	20.2	330.2	594.4	53,046	11,327	2,143.9	1,778.4	1,157.8	51.1	22.0
Mean	0.27	0.44	0.65	10.7	20.5	1,711	378	69.2	59.3	37.3	1.65	0.73
Cfsm	0.0016	0.0026	0.0038	0.063	0.120	10.0	2.21	0.405	0.347	0.218	0.0096	0.0043
In.	0.002	0.003	0.004	0.07	0.13	11.53	2.47	0.47	0.39	0.25	0.01	0.005

Calendar year 1963: Max 3,580 Min 0 Mean 1,261 Cfsm 7.37 In. 10.01
Water year 1963-64: Max 13,500 Min 0 Mean 1,926 Cfsm 11.3 In. 15.33

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	0200	15.75	4,950				
3-9	0930	20.02	14,700				
4-6	1330	10.49	1,220				

* Discharge measurement made on this day.

3-3755. Patoka River at Jasper, Ind.

Location.--Lat 38°24'49", long 86°52'36", in SE¼ sec. 20, T. 1 S., R. 4 W., on left bank 0.3 mile upstream from unnamed outlet of Jasper Lake, 1.0 mile downstream from Coon Seitz bridge, 1.2 miles downstream from Beaver Creek, and 3.3 miles northeast of Jasper.

Drainage area.--257 sq mi.

Gage.--Water-stage recorder. Datum of gage is 446.19 ft above mean sea level, datum of 1929. Prior to Sept. 18, 1956, wire-weight gage at bridge 5.6 miles downstream at datum 0.34 ft lower (now used as a supplementary gage for high-water periods in excess of 1,460 cfs).

Average discharge.--16 years (1948-64), 365 cfs.

Extremes.--Maximum discharge during year, 14,100 cfs Mar. 11 (gage height, 15.17 ft at supplementary gage); maximum gage height at base gage 21.20 ft Mar. 11, 1964 from floodmark; no flow Sept. 26-29, 31; minimum gage height, 3.02 ft Sept. 14.
1947-64: Maximum discharge, that of Mar. 11, 1965; maximum gage height at base gage, that of Mar. 11, 1964; no flow at times during 1948, 1952-56, 63, 64.
Maximum stage known, 15.9 ft (at former site) in March 1913, from floodmark furnished by local residents (discharge, 16,000 cfs).

Remarks.--Records fair. Flow slightly regulated by Beaver Creek Reservoir, whose outlet enters the Patoka River 1.2 miles above the base gage. Records prior to Oct. 18, 1956, when gage was relocated, affected by diversion of about 0.7 million gallons a day by City of Jasper for municipal supply.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.1	0.1	0.4	0.5	16	22	153	817	39	20	3.6	2.5
2	2.8	.1	4.3	.6	14	20	133	452	31	18	2.5	4.3
3	.3	.1	2.3	.8	13	20	153	289	25	15	1.8	4.6
4	5.3	5.1	1.8	4.1	11	530	277	206	20	14	1.3	2.5
5	2.8	1.9	.3	1.9	10	1,290	368	153	16	24	5.9	1.8
6	.4	4.7	4.7	1.6	11	1,890	1,040	118	18	21	2.2	1.8
7	4.8	2.3	2.3	1.8	13	3,590	1,190	95	40	34	.7	1.8
8	2.8	4.7	.8	1.9	14	4,330	1,260	79	55	452	.5	1.8
9	.7	2.5	.5	3.6	15	5,770	1,040	71	32	424	.5	1.8
10	5.5	.2	.5	3.6	16	9,970	508	59	21	173	6.1	5.2
11	2.8	.1	.5	3.6	18	*13,500	289	52	15	71	3.1	20
12	.4	4.3	.8	6.4	19	*11,900	217	45	12	41	1.1	2.3
13	.3	*2.5	4.6	7.0	20	*7,740	229	41	9.7	30	1.0	.7
14	5.5	.2	2.7	6.1	20	*4,800	301	42	21	23	6.7	8.1
15	3.2	3.9	1.3	5.2	24	3,500	277	50	25	18	3.0	2.0
16	2.5	2.5	1.0	4.6	32	2,470	289	45	23	14	1.1	5.6
17	5.6	.2	*.8	4.3	44	1,740	173	39	*16	16	.7	2.5
18	3.2	4.7	.9	4.1	47	1,220	143	31	183	62	7.2	5.7
19	1.0	2.5	.8	4.9	*59	659	128	26	610	42	2.8	2.6
20	.7	3.4	.7	21	55	371	*241	22	565	18	*6.7	.7
21	4.8	2.1	32	19	53	306	508	19	248	13	2.7	5.9
22	2.3	5.5	33	20	51	281	625	*16	229	*13	2.1	*2.5
23	*.4	3.2	31	23	46	240	967	13	163	12	2.5	.9
24	4.6	1.6	29	30	41	198	882	11	133	8.1	3.2	1.0
25	2.1	4.3	28	97	34	176	536	10	*87	6.1	8.9	1.1
26	.1	2.5	27	118	31	*272	494	11	67	4.9	4.6	.9
27	0	.4	23	53	28	624	882	38	55	3.9	2.3	1.1
28	0	.1	2.5	*32	26	589	1,090	163	39	4.9	9.0	1.3
29	4.9	.3	1.0	26	23	378	1,190	95	30	11	4.5	1.4
30	2.5	.4	.7	21	---------	256	1,190	100	23	8.1	3.6	2.5
31	0	----------	.5	17	---------	190	----------	59	----------	4.9	3.4	----------
Total	76.4	66.4	239.7	543.6	804	78,842	16,773	3,267	2,850.7	1,619.9	105.3	96.9
Mean	2.46	2.21	7.73	17.5	27.7	2,543	559	105	95.0	52.3	3.40	3.23
Cfsm	0.0096	0.0086	0.030	0.068	0.108	9.89	2.18	0.409	0.370	0.204	0.013	0.013
In.	0.01	0.01	0.03	0.08	0.12	11.40	2.43	0.47	0.41	0.24	0.01	0.01

Calendar year 1963: Max 3,960 Min 0 Mean 208 Cfsm 0.809 In. 10.95
Water year 1963-64: Max 13,500 Min 0 Mean 288 Cfsm 1.12 In. 15.22

* Discharge measurement made on this day.

3-3763. Patoka River at Winslow, Ind.

Location.--Lat. 38°22'48", long 87°13'00", in SW¼ sec. 32, T. 1 S., R. 7 W., on right bank at abandoned bridge abutment, 65 ft upstream from State Road 61 bridge, 100 ft downstream from dam of Winslow Water Company and 41.3 miles above mouth.

Drainage area.--603 sq mi.

Records available.--October 1963 to September 1964. Discharge measurements and gage readings June 1961 to Sept. 1963, obtained by Indiana Flood Control and Water Resources Commission are available in the District office.

Gage.--Water-stage recorder. Prior to Nov. 21, 1963, wire-weight gage on downstream side of bridge 65 ft downstream at same datum. Datum of gage 400.00 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Extremes.--Maximum discharge during year, 15,500 cfs (gage height 28.84 ft), minimum daily, 0.5 cfs (unusual regulation by water company reservoir).
Maximum stage known, 28.9 ft in January 1937, from floodmarks, information from Indiana Flood Control and Water Resources Commission.

Remarks.--Record poor. An average of 0.13 cfs is diverted for municipal water supply 100 ft above gage.

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, Mar. 1-4, Sept. 4, 25-30. Stage-discharge relation indefinite May 7-26, June 9-19)

Oct. 1 to Nov. 20
Mar. 1-31

4.9	2.3	8.0	108
5.1	3.8	10	252
5.3	6.2	14	610
5.5	10	18	1,220
5.7	15	19	1,440
6.0	25		

Note.--Same as following table above 19.0 ft.

Nov. 21 to Feb. 29
Apr. 1 to Sept. 30

5.5	0.2	19.0	1,440
5.6	.6	21.0	2,120
5.7	1.6	23.0	3,210
5.8	3.3	24.0	4,000
5.9	6.0	25.0	5,500
6.2	20	27.0	10,100
8.0	149	29.0	16,000
16.0	900		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.9	7.5	6.9	20	54	40	670	1,350	160	32	18	165
2	4.8	6.1	6.9	11	40	37	604	1,350	110	20	10	125
3	4.8	6.4	6.9	9.2	31	37	559	1,330	70	15	6.4	42
4	4.7	6.7	6.4	7.8	25	544	577	1,120	50	16	3.3	12
5	4.5	7.1	6.0	10	21	1,960	690	864	40	13	1.5	8.0
6	4.2	8.6	6.0	15	24	*1,850	1,520	680	40	16	2.3	5.0
7	4.1	6.9	5.5	14	24	1,950	1,600	400	45	17	1.9	3.5
8	4.0	5.8	5.7	14	24	2,650	1,600	250	50	157	1.6	3.0
9	4.2	4.9	5.7	22	27	3,650	1,570	170	90	433	1.5	2.5
10	4.2	4.5	5.5	19	27	*10,900	1,540	130	150	559	1.2	2.3
11	3.2	4.2	6.0	b 17	25	13,300	1,540	110	90	433	1.5	2.1
12	3.2	4.2	7.4	b 16	27	*15,100	1,440	92	60	262	1.4	2.0
13	3.0	4.0	7.8	b 14	b 30	15,200	1,260	80	50	150	1.3	2.0
14	* 2.9	4.1	8.2	b 13	b 35	14,600	1,030	72	45	100	1.5	2.0
15	2.8	4.0	8.7	12	b 40	13,600	852	66	40	*60	1.8	2.0
16	2.8	4.0	7.4	* 10	b 50	11,900	750	58	60	30	1.9	2.0
17	2.7	4.0	*6.0	11	b 60	9,940	680	52	80	19	1.9	2.5
18	3.0	4.0	6.0	11	*b 70	7,910	622	48	250	98	* 2.4	5.0
19	3.8	4.2	5.5	16	b 80	6,040	700	45	400	226	2.4	9.0
20	4.9	* 4.2	4.6	46	b 90	4,740	800	41	810	141	2.3	11
21	4.2	4.1	4.4	78	b 80	3,960	900	38	750	96	3.1	15
22	3.8	5.2	4.1	103	b 70	3,420	1,000	35	577	61	5.7	13
23	3.5	7.8	4.1	103	b 65	2,930	1,100	* 31	388	25	8.2	11
24	3.6	9.2	4.1	89	b 60	2,370	1,100	28	* 289	14	15	* 10
25	* 3.9	15	4.1	78	b 55	1,800	1,100	26	217	10	22	8.7
26	4.4	13	11	198	b 50	1,480	1,100	25	131	10	18	8.7
27	4.6	14	58	253	b 47	1,290	* 1,110	35	133	22	15	11
28	5.3	13	64	217	b 45	1,120	1,240	60	89	11	14	10
29	5.0	10	58	157	b 43	1,010	1,310	110	68	16	10	10
30	4.7	8.2	50	89	---------	862	1,330	150	50	96	11	10
31	5.6	----------	36	72	---------	704	----------	200	----------	58	110	----------
Total	125.3	204.9	426.9	1,745	1,319	153,894	31,894	9,046	3,432	3,216	297.1	515.3
Mean	4.04	6.83	13.8	56.3	45.5	5,126	1,063	292	181	104	9.58	17.2
Cfsm	0.0067	0.011	0.023	0.093	0.075	8.50	1.76	0.484	0.300	0.172	0.016	0.029
In.	0.01	0.01	0.03	0.11	0.08	9.80	1.96	0.56	0.33	0.20	0.02	0.03

Calendar year 1963: Max - Min - Mean - Cfsm - In. -
Water year 1963-64: Max 15,200 Min 0.5 Mean 582 Cfsm 9.65 In. 13.14

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 15-18, Apr. 19-26, May 27 to June 8, July 13-15, Sept. 5-24.

3-3765. Patoka River near Princeton, Ind.

Location.--Lat 38°23'30", long 87°32'55", in NE¼ NW¼ sec. 32, T. 1 S., R. 10 W., on left bank 75 ft upstream from dam of Princeton Water and Lighting Co., 270 ft upstream from bridge on State Highway 65, half a mile downstream from Indian Creek, and 2 miles northeast of Princeton.

Drainage area.--815 sq mi.

Records available.--August 1934 to September 1964. Published as "at Patoka" August 1934 to September 1940. Records published for both sites October 1939 to September 1940 (monthly discharge only at present site, for October, November 1939, published in WSP 1305).

Gage.--Water-stage recorder (digital since Aug. 18) and concrete control. Datum of gage is 394.14 ft (revised) above mean sea level, datum of 1929, Parkersburg-Uniontown supplementary adjustment of 1944 (levels by Indiana Flood Control and Water Resources Commission). Aug. 29, 1934 to Sept. 30, 1940, chain gage at site 3 miles downstream at datum 387.15 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Dec. 1, 1939, to Jan. 21, 1941, staff gage at present site and datum.

Average discharge.--30 years, 995 cfs.

Extremes.--Maximum discharge during year, 15,200 cfs Mar. 16 (gage height, 21.50 ft), minimum daily, 5.0 cfs Sept. 13-16 (gage height, 0.76 ft).

1934-64: Maximum discharge, 18,700 cfs Jan. 26, 1937 (gage height, 26.80 ft, site and datum then in use), no flow Aug. 29 to Sept. 12, 1936.

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)

0.76	5.0	11.0	2,320
.8	6.7	13.0	2,980
.9	25	15.0	4,150
1.2	98	17.0	6,000
1.6	231	19.0	9,400
2.0	385	21.5	15,200

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	14	17	38	71	46	2,050	1,690	220	66	61	178
2	10	25	14	29	59	43	1,730	1,660	174	52	38	158
3	8.7	19	12	22	52	41	1,460	1,620	138	45	27	102
4	8.7	15	13	20	42	371	1,140	1,580	107	57	19	54
5	8.7	15	12	22	40	1,120	1,040	1,540	87	47	12	32
6	9.2	15	12	34	40	1,200	1,460	1,420	79	36	7.7	21
7	8.7	17	11	38	49	1,300	1,440	1,140	93	57	5.0	16
8	8.7	17	11	31	42	1,570	1,500	720	101	332	5.0	15
9	8.7	15	12	40	40	2,910	1,600	415	187	332	5.8	13
10	7.7	12	15	47	42	4,770	1,680	292	235	556	5.8	12
11	6.7	9.9	14	40	42	* 7,670	1,700	220	170	556	5.8	10
12	6.7	8.7	14	36	42	*10,100	1,720	187	119	385	5.8	9.5
13	6.7	8.7	19	31	42	*11,600	1,740	177	93	224	5.0	8.7
14	6.7	7.7	17	b 25	52	13,200	1,720	167	90	* 131	5.0	8.7
15	6.7	* 7.7	12	b 22	59	14,700	1,660	144	79	84	5.0	8.7
16	6.7	8.7	12	*b 21	71	15,100	1,540	128	122	61	5.0	8.7
17	6.7	9.9	11	b 21	87	14,500	1,340	116	134	52	5.8	9.4
18	6.7	12	*10	b 22	82	13,600	1,080	107	385	129	* 5.8	21
19	6.7	14	b 9.0	b 25	87	12,300	1,100	104	385	940	7.9	38
20	6.2	15	b 8.4	b 50	* 95	11,000	1,280	* 93	660	292	8.9	27
21	* 8.7	15	b 7.8	b 70	101	9,360	1,340	87	840	154	11	19
22	8.7	20	b 7.2	87	104	8,100	1,540	84	840	107	19	36
23	8.7	31	b 6.8	93	95	6,790	1,520	71	*620	71	42	* 34
24	8.7	45	b 6.8	98	87	5,660	1,560	61	351	49	31	22
25	8.7	27	6.7	101	79	4,840	*1,600	54	263	42	25	15
26	8.7	20	6.7	101	76	4,230	1,600	52	201	79	32	11
27	8.7	25	8.7	184	71	3,780	1,640	79	163	49	29	11
28	15	25	32	201	61	3,360	1,640	107	122	66	25	20
29	31	22	52	184	52	2,910	1,660	235	90	52	26	27
30	19	20	52	125	---------	2,600	1,680	267	76	54	26	17
31	11	----------	45	90	---------	2,360	----------	271	----------	90	167	----------
Total	293.5	516.3	486.1	1,948	1,862	191,131	45,810	14,878	7,224	5,247	679.3	962.7
Mean	9.47	17.2	15.7	62.8	64.2	6,166	1,527	480	241	169	21.9	32.1
Cfsm	0.012	0.021	0.019	0.077	0.079	0.757	1.87	0.589	0.296	0.207	0.027	0.039
In.	0.01	0.02	0.02	0.09	0.08	8.73	2.09	0.68	0.33	0.24	0.03	0.04

Calendar year 1963 : Max 5,280 Min 6.2 Mean 546 Cfsm 0.670 In. 9.07
Water year 1963-64 : Max 15,100 Min 5.0 Mean 741 Cfsm 0.909 In. 12.36

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

3-3775. Wabash River at Mount Carmel, Ill.

Location.--Lat 38°24'07", long 87°45'10", in sec. 28, T. 1 S., R. 12 W., on right bank on downstream side of Southern Railway bridge at Mount Carmel, Wabash County, and 0.1 mile downstream from Patoka River and at mile 94.5.

Drainage area.--28,600 sq mi, approximately.

Records available.--January 1908 to September 1913 (gage heights only), October 1927 to September 1964. Gage-height records collected in this vicinity November 1874 to December 1878, are contained in files of Louisville office of the Corps of Engineers and since June 1884 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 371.46 ft above mean sea level, datum of 1929. Prior to Dec. 21, 1928, staff gage at same site and datum. Oct. 1, 1933, to Feb. 8, 1935, chain gage and Feb. 9, 1935 to Sept. 30, 1949, water-stage recorder at New York Central Railroad bridge 3.0 miles downstream at datum 0.17 ft higher.

Average discharge.--37 years, 26,480 cfs.

Extremes.--Maximum discharge during year, 151,000 cfs Apr. 30 (gage height, 24.15 ft); minimum daily, 1,700 cfs Dec. 19-29; minimum gage height, -0.06 ft Dec. 20.

1927-64: Maximum discharge, 305,000 cfs May 25, 1943 (gage height, 27.54 ft, present site and datum); minimum, 1,620 cfs Sept. 27, 28, 30, 1941.

Maximum stage known, 31.0 ft Mar. 30, 1913, present site and datum (discharge, 428,000 cfs, from rating curve extended above 310,000 cfs).

Remarks.--Records fair.

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

-0.10	1,600
2.0	8,150
14.0	52,000
20.0	88,000
24.1	149,000

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,650	2,650	3,250	1,800	5,100	4,450	34,000	*147,000	11,300	12,400	3,750	3,850
2	2,650	2,500	3,100	2,650	5,100	4,270	34,000	134,000	11,300	11,000	3,400	3,850
3	2,650	2,500	3,100	2,650	5,100	4,270	30,200	125,000	10,200	9,900	3,100	3,700
4	2,650	2,500	3,250	2,500	5,800	5,050	30,200	*106,000	9,900	9,200	3,800	3,550
5	2,650	2,500	2,800	2,350	5,500	4,240	35,400	*90,000	9,550	9,550	3,800	3,400
6	2,650	2,500	2,650	2,350	5,200	15,600	44,000	*75,800	9,200	9,550	3,500	3,250
7	2,650	2,500	2,650	1,800	4,900	23,000	52,000	*61,000	9,200	9,200	3,500	3,250
8	2,500	2,650	2,950	1,900	4,900	27,700	53,500	*46,800	9,200	9,200	3,200	3,250
9	2,500	2,650	2,800	2,000	5,200	34,000	62,500	*37,200	8,850	11,000	3,200	3,100
10	2,500	2,650	2,650	2,200	5,500	54,200	69,000	*32,000	8,500	14,400	4,900	3,100
11	2,500	2,800	2,650	2,500	5,500	64,600	65,000	28,800	8,850	15,200	4,900	2,950
12	2,500	2,650	2,800	2,650	5,500	* 74,900	65,500	*27,000	9,200	21,800	4,600	2,800
13	2,350	2,650	2,650	2,800	5,500	92,800	60,000	25,600	8,500	24,600	4,300	2,800
14	2,350	* 2,650	2,650	2,500	5,200	*115,000	53,000	24,200	8,150	* 22,800	4,300	2,800
15	2,350	2,650	2,300	2,200	5,200	*124,000	44,400	22,800	9,200	19,400	4,000	2,800
16	2,500	2,650	2,000	2,000	5,200	*137,000	38,800	21,800	8,500	15,600	4,000	2,650
17	2,350	2,650	1,900	2,100	4,900	*143,000	35,200	20,800	8,500	14,800	4,300	2,800
18	2,350	2,650	1,800	2,200	4,900	*144,000	29,200	20,000	11,600	14,100	4,000	3,100
19	2,350	2,650	1,700	2,500	4,900	137,000	27,400	*19,700	23,100	13,900	* 4,000	2,950
20	2,500	2,650	1,700	2,900	4,900	124,000	27,000	18,600	32,000	13,800	4,000	2,950
21	2,500	2,650	1,700	3,400	4,900	*113,000	31,200	18,000	23,100	14,400	4,000	2,950
22	2,500	2,950	1,700	4,000	5,200	94,600	40,800	16,600	24,600	14,100	4,300	3,100
23	2,500	3,100	1,700	4,600	5,200	83,300	49,200	15,200	*23,500	12,700	4,000	3,250
24	* 2,500	3,250	1,700	5,100	* 4,900	69,200	57,000	14,400	33,700	11,000	4,000	3,400
25	2,500	3,400	1,700	7,800	4,900	55,300	65,500	13,800	34,800	9,900	4,000	* 3,400
26	2,500	3,550	1,700	11,300	4,900	43,700	80,000	13,000	32,600	9,550	4,000	3,400
27	2,500	3,550	1,700	11,000	4,600	40,600	100,000	12,700	25,400	9,200	4,000	3,400
28	2,500	3,550	1,700	9,600	4,600	40,500	*124,000	12,400	20,400	8,500	4,000	3,250
29	2,500	3,550	1,700	8,500	4,600	40,600	145,000	12,400	15,600	8,150	4,000	3,250
30	2,500	3,400	*1,800	7,100	---------	41,400	143,000	12,000	14,100	8,150	3,850	3,100
31	2,500	----------	1,800	6,100	---------	41,000	----------	11,600	----------	7,450	3,700	----------
Total	77,650	83,200	70,250	125,050	135,800	2,033,350	1,757,000	1,241,200	492,600	401,500	143,400	93,400
Mean	2,505	2,840	2,266	4,066	5,200	65,490	58,570	40,040	16,350	12,950	4,626	3,180
Cfsm	0.088	0.099	0.079	0.142	0.182	2.29	2.05	1.40	0.572	0.453	0.162	0.111
In.	0.10	0.11	0.09	0.16	0.20	2.64	2.29	1.61	0.64	0.52	0.19	0.12

Calendar year 1963: Max 152,000 Min 1,700 Mean 16,550 Cfsm 0.579 In. 7.85
Water year 1963-64: Max 149,000 Min 1,700 Mean 18,220 Cfsm 0.637 In. 8.67

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 1, Jan. 7-11, 13-20.

3-3780. Bonpas Creek at Browns, Ill.

Location.--Lat 38°22'50", long 87°58'35", in SW¼SE¼ sec. 33, T. 1 S., R. 14 W., at Browns, on left bank 30 ft upstream from concrete dam of Albion municipal water plant, 100 ft upstream from Nigger Creek, 300 ft upstream from bridge on Browns road, and a quarter of a mile upstream from Southern Railway bridge.

Drainage area.--228 sq mi.

Records available.--October 1940 to September 1964.

Gage.--Water-stage recorder and concrete dam. Datum of gage is 374.92 ft above mean sea level, datum of 1929. Auxiliary wire-weight gage near mouth on Wabash River at Grayville read twice daily.

Average discharge.--24 years, 224 cfs.

Extremes.--Maximum discharge during year, 3,840 cfs Mar. 11 (gage height, 19.40 ft); no flow for many days.
1940-64: Maximum discharge, 7,500 cfs May 9, 1961 (gage height, 24.04 ft); no flow at times for most years.

Remarks.--Records good except those for periods of backwater from Wabash River or ice effect or no gage-height record, which are poor. Albion municipal water plant diverts about 0.1 cfs at gage; diversion not included in record.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.6	0	1.5	1.8	31	c 0	23	2.8	0.2	
2		0	.4	0	.6	1.6	29	c 0	16	2.4	.2	
3		0	.3	0	.8	1.2	160	c 0	12	2.1	.2	
4		0	.3	0	*.8	102	256	c 0	8.9	1.8	*0	(*)
5		0	.3	0	1.2	392	219	c 8.0	7.5	1.8	0	
6		0	.2	0	2.8	367	793	c10	7.5	2.1	0	
7		*0	.1	*0	7.5	151	848	*13	a10	*1.0	0	
8		0	.2	.1	9.6	289	724	12	a60	1.2	0	
9		0	.2	6.2	8.2	2,150	373	12	a20	1.2	0	
10		0	*.2	23	8.2	3,480	*144	10	a10	1.2	0	
11	(*)	0	.2	27	6.8	*3,760	18	10	a8.0	1.2	0	
12		0	b .2	18	5.1	3,390	8.2	45	a6.0	1.2	0	
13		0	b .1	8.2	4.5	2,880	7.5	330	a5.0	1.2	0	
14		0	b0	b5.0	3.6	2,360	6.8	337	a30	1.8	0	
15		0	b0	b2.5	4.0	1,850	6.2	140	10	1.8	0	
16		0	0	b1.5	7.5	*1,410	4.0	42	a7.0	1.5	0	
17		0	0	b1.0	12	c923	2.4	27	a5.0	1.0	0	
18		0	0	b.9	12	c309	1.2	19	a100	.8	0	
19		0	0	1.8	12	c 3.5	60	14	a1,300	.8	0	
20		0	0	26	13	c101	278	12	a1,300	19	0	
21		0	0	65	12	c165	545	11	a1,200	23	0	
22		0	0	39	10	c127	820	8.9	a1,100	10	0	
23		0	0	23	8.9	c 76	737	8.2	613	5.1	0	
24		0	0	16	7.5	c 55	456	7.5	168	2.8	0	
25		0	0	26	6.2	143	240	5.1	24	1.5	0	
26		0	0	42	5.1	548	110	5.6	12	.8	0	
27		1.2	0	24	4.0	371	84	28	7.5	.8	0	
28		1.2	0	14	3.2	177	c91	177	6.2	.6	0	
29		.8	0	7.5	2.8	67	c143	254	4.5	.6	0	
30		.8	0	4.0	----------	44	c13	95	36	.4	0	
31		----------	0	2.1	----------	37	----------	37	----------	.3	0	----------
Total	0	4.0	3.3	383.8	181.6	25,731.5	7,258.3	1,678.3	5,134.7	93.8	0.5	0
Mean	0	0.13	0.11	12.4	6.26	830	242	54.1	204	3.03	0.02	0
Cfsm	0	0.00057	0.00048	0.054	0.027	3.64	1.06	0.237	0.895	0.013	0.000088	0
In.	0	0.0007	0.0005	0.06	0.03	4.20	1.18	0.27	1.00	0.02	0.00008	0

Calendar year 1963: Max 2,160 Min 0 Mean 101 Cfsm 0.443 In. 5.98
Water year 1963-64: Max 3,760 Min 0 Mean 113 Cfsm 0.496 In. 6.76

* Discharge measurement or observation of no flow made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from Wabash River.

3-3815. Little Wabash River at Carmi, Ill.

Location.--Lat 38°03'40", long 88°09'35", near center of E½ sec. 25, T. 5 S., R. 9 E., on right bank at upstream side of Possum Bridge, 2.3 miles south of Main Street Bridge in Carmi and 7 3/4 miles downstream from Skillet Fork.

Drainage area.--3,111 sq mi.

Records available.--October 1908 to December 1912 (gage heights only), October 1939 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 339.91 ft above mean sea level, datum of 1929. October 1908 to December 1912, chain gage at site 3.1 miles upstream at datum 0.4 foot higher. Oct. 1 to Nov. 8, 1939, wire-weight gage at present site and datum. Since Nov. 14, 1939, auxiliary water-stage recorder 3.1 miles upstream.

Average discharge.--25 years, 2,511 cfs.

Extremes.--Maximum discharge during year, 14,900 cfs Mar. 16; maximum gage height, 30.74 ft Mar. 17; minimum daily discharge, 6.6 cfs Sept. 15.
1939-64: Maximum discharge, 46,900 cfs May 12, 1961; maximum gage height, 36.70 ft May 13, 1961; no flow Sept. 15-17, 1952, result of temporary dam upstream; minimum unregulated discharge, 0.6 cfs Sept. 9, 1953, July 31, 1954.

Remarks.--Records good. At extremely high stages, there is diversion six miles above the gage through McHenry Slough to the Wabash River.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	60	136	17	313	129	4,150	3,610	2,990	232	55	56
2	11	39	112	16	240	* 122	2,830	2,850	* 1,300	*166	49	49
3	15	22	94	17	191	116	1,340	1,740	528	130	46	35
4	12	20	70	19	*149	862	1,610	1,150	286	108	44	* 26
5	8.2	18	56	20	133	2,380	2,100	878	220	91	37	23
6	7.4	16	47	20	201	2,790	3,880	807	200	80	30	26
7	7.8	16	43	* 21	341	2,990	3,150	* 515	230	98	25	36
8	7.8	16	50	24	430	3,260	3,580	520	268	382	23	43
9	7.8	16	44	58	326	7,290	3,030	405	220	522	20	29
10	7.8	16	39	68	268	12,500	* 3,860	442	167	539	18	20
11	* 7.8	16	* 37	58	268	* 12,500	3,350	287	126	1,090	16	14
12	7.8	15	42	77	276	12,800	4,450	252	100	1,440	16	11
13	7.4	14	36	98	286	13,400	3,830	332	90	960	13	8.2
14	8.2	*13	31	86	289	14,100	3,210	697	77	615	12	7.0
15	8.2	12	29	66	299	14,700	2,100	679	148	339	11	6.6
16	8.2	13	25	53	334	14,900	1,350	443	433	206	11	7.4
17	8.6	13	23	46	421	14,700	984	310	466	149	11	9.0
18	8.6	19	22	42	385	14,400	768	261	657	124	11	25
19	8.6	20	21	66	337	13,800	841	253	1,900	131	11	42
20	9.0	19	20	345	294	13,300	1,660	227	4,320	106	11	46
21	9.6	20	18	298	292	12,700	3,540	197	5,440	92	12	84
22	9.6	41	17	315	295	12,100	5,090	168	5,340	77	20	93
23	9.0	110	16	275	298	11,400	5,710	145	5,880	71	26	62
24	9.0	188	15	340	303	10,600	5,800	133	7,390	66	23	32
25	11	165	15	630	284	10,100	5,430	120	7,430	95	22	20
26	11	164	17	1,410	252	9,510	4,440	112	7,010	115	47	14
27	13	153	18	2,260	213	9,050	3,310	134	5,340	94	58	18
28	13	128	19	1,980	184	8,300	2,690	1,770	3,370	82	49	20
29	13	129	18	1,290	147	7,460	3,090	3,700	1,350	*64	36	14
30	*14	146	19	803	---------	6,620	3,480	4,350	506	56	30	10
31	32	----------	18	457	---------	5,500	----------	4,420	----------	58	39	----------
Total	322.4	1,637	1,167	11,315	8,049	274,379	105,703	31,967	65,832	8,378	832	887.2
Mean	10.4	54.6	37.6	365	278	8,851	3,523	1,031	2,194	270	26.8	29.6
Cfsm	0.0033	0.018	0.012	0.117	0.089	2.85	1.13	0.331	0.705	0.087	0.0086	0.0095
In.	0.004	0.02	0.01	0.14	0.10	3.28	1.26	0.38	0.79	0.10	0.01	0.01

Calendar year 1963: Max 10,800 Min 7.4 Mean 1,192 Cfsm 0.383 In. 5.20
Water year 1963-64: Max 14,900 Min 6.6 Mean 1,395 Cfsm 0.448 In. 6.10

* Discharge measurement made on this day.

4-0875. Hart ditch at Munster, Ind.

Location.--Lat 41°33'40", long 87°28'50", in N½ sec. 20, T. 36 N., R. 9 W., on left bank at city limits of Munster, a quarter of a mile downstream from U. S. Highway 6 and 0.4 mile upstream from mouth.

Drainage area.--69.2 sq mi.

Records available.--September 1942 to September 1964.

Gage.--Water-stage recorder and concrete control. Datum of gage is 591.27 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Since Sept. 11, 1959, auxiliary water-stage recorder 1,200 ft upstream from base gage.

Average discharge.--22 years, 54.1 cfs.

Extremes.--Maximum discharge during year, 465 cfs Apr. 21 (gage height, 2.23 ft); minimum, 0.8 cfs Sept. 5, 6 (gage height, 0.44 ft). 1942-64: Maximum discharge, 2,670 cfs Apr. 28, 1958; maximum gage height, 7.83 ft Oct. 11, 1954; minimum, that of Sept. 5, 6, 1964.

Remarks.--Records fair except those for periods of ice effect, which are poor. Flow from this ditch discharges into Little Calumet River near Munster. Practically all of this flow discharges into the Calumet Sag Canal or Grand Calumet River.

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

0.4	0.1
.5	3.0
.6	9.4
.7	19
.8	33
1.0	70
1.5	220
2.0	395

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	8.6	5.2	1.6	13	38	36	95	5.8	5.8	4.0	2.5
2	4.6	5.8	4.0	16	11	56	60	75	6.4	5.2	3.5	3.0
3	5.2	5.2	4.0	✲ 3.0	10	52	62	54	6.4	3.5	4.0	2.0
4	5.8	5.2	4.0	3.0	10	39	43	45	5.8	3.5	5.2	1.6
5	5.8	7.9	4.0	3.0	11	52	55	38	6.4	2.5	4.6	16
6	5.2	6.4	3.5	3.0	12	35	238	30	7.2	4.6	4.0	16
7	4.6	6.4	4.0	3.5	12	32	238	26	6.4	7.9	3.5	1.6
8	6.4	5.8	7.2	3.5	11	29	131	26	5.8	4.0	3.0	1.6
9	6.4	6.4	4.0	5.8	8.6	38	75	24	5.8	3.5	3.5	1.6
10	6.4	5.8	4.6	3.5	8.6	35	56	23	5.2	3.0	4.6	10
11	6.4	5.8	4.6	b 3.2	8.6	27	45	19	5.2	4.0	7.2	7.9
12	6.4	6.4	4.6	3.0	8.6	23	36	20	5.8	3.0	5.2	2.0
13	5.2	7.2	4.0	b 2.8	b 8.6	20	32	36	5.8	2.5	4.0	2.0
14	5.8	7.9	3.5	b 2.6	b 8.8	18	26	33	12	3.5	3.5	1.6
15	7.2	6.4	3.0	b 2.5	b 9.0	16	26	26	17	3.0	3.5	1.6
16	7.9	6.4	2.5	2.5	b 9.2	13	23	23	11	2.5	3.0	1.6
17	7.9	7.9	b 2.3	2.5	9.4	12	22	18	8.6	2.5	3.0	1.6
18	8.6	8.6	b 2.1	3.0	10	10	27	16	7.2	68	3.5	4.6
19	11	7.9	b 2.0	4.0	11	10	43	14	17	18	3.0	3.0
20	5.8	7.9	b 1.8	17	12	10	238	12	41	8.6	2.0	120
21	5.8	8.6	b 1.8	29	12	12	395	11	32	8.6	38	140
22	✲ 6.0	17	b 1.7	30	12	13	272	11	78	6.4	46	26
23	4.6	14	b 1.7	27	10	✲ 14	137	10	41	4.6	3.5	15
24	4.6	8.6	b 1.6	29	10	13	80	11	24	5.2	2.5	7.9
25	5.2	7.9	b 1.6	27	13	29	54	9.4	✲16	7.9	3.0	6.4
26	5.2	✲ 7.9	1.6	22	✲14	62	41	9.4	12	5.2	2.5	38
27	5.2	7.9	2.5	19	14	45	45	✲ 7.9	10	4.6	✲ 2.0	68
28	4.6	7.2	2.5	✲14	14	36	✲ 78	7.2	7.9	4.6	2.0	27
29	8.6	5.8	2.0	12	18	30	164	7.2	7.2	5.2	2.0	14
30	5.8	5.8	b 1.7	11	---	23	122	6.4	6.4	4.6	5.8	✲ 10
31	7.2	---	b 1.6	12	---	30	---	5.8	---	✲ 4.0	3.0	---
Total	191.2	226.6	95.2	306.6	319.4	872	2,900	749.3	476.3	220.0	146.7	525.3
Mean	6.17	7.42	3.07	9.89	11.0	28.1	96.7	24.2	15.9	7.10	4.73	17.5
Cfsm	0.089	0.107	0.044	0.143	0.159	0.406	1.40	0.350	0.230	0.103	0.068	0.253
In.	0.10	0.12	0.05	0.16	0.17	0.47	1.56	0.40	0.26	0.12	0.08	0.28

Calendar year 1963: Max 250 Min 1.6 Mean 21.6 Cfsm 0.312 In. 4.23
Water year 1963-64: Max 395 Min 1.6 Mean 19.2 Cfsm 0.277 In. 3.77

Peak discharge (base, 800 cfs).--No peaks above base.

✲ Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

4-0376. Little Calumet River at Munster, Ind.

Location.--Lat 41°34'07", long 87°31'18", in NE¼ sec. 13, T. 36 N., R. 10 W., on left bank 200 ft upstream from Hohman Street Bridge, a quarter of a mile south of intersection of Hohman Street and 173rd Street, 0.4 mile upstream from Indiana-Illinois State line, 1 mile north of intersection of Hohman Street and Ridge Road, and 4.6 miles upstream from mouth of Thorn Creek.

Drainage area.--Indeterminate.

Records available.--June 1958 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 580.72 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 53.1 cfs.

Extremes.--Maximum discharge, 485 cfs Sept. 20 (gage height, 8.80 ft); minimum, 0.7 cfs Oct. 10; minimum gage height, 2.87 ft Oct. 10, Sept. 4.
1958-64: Maximum discharge, 1,510 cfs Apr. 28, 1959 (gage height, 13.67 ft); minimum, that of Oct. 10, 1963 and Sept. 4, 1964.

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

Rating table, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 27, Jan. 3-8, 19, 21-26, Feb. 2, 3, 5-7, 16-20, Mar. 1, Mar. 9 to Apr. 5, May 10-12, 17-20, 24, June 16, 24, 25, July 6, 7)

2.9	1.0	4.5	50
3.0	2.3	5.0	78
3.2	6.2	6.0	158
3.5	14	8.0	379
4.0	29	9.0	513

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	15	9.3	3.9	11	27	31	96	5.5	4.4	5.3	3.0
2	6.7	8.8	8.8	3.9	10	52	52	72	6.0	4.4	5.1	2.3
3	6.5	8.0	9.3	✲ 7.0	9.1	55	63	52	6.2	4.0	5.1	2.2
4	6.7	7.5	9.1	6.5	b 9.5	41	52	43	5.5	4.0	6.7	2.2
5	6.0	11	9.1	5.3	10	68	77	37	5.5	2.3	6.0	2.0
6	5.7	9.1	9.3	5.1	11	45	267	31	6.7	12	5.3	2.2
7	5.5	8.3	9.6	5.3	10	41	290	26	6.0	21	4.8	2.0
8	7.0	8.0	17	5.5	9.3	39	194	24	5.1	9.9	3.3	2.3
9	5.7	7.5	11	b 10	8.8	50	115	23	6.2	6.0	2.3	2.8
10	5.2	7.0	11	7.0	8.2	45	82	20	6.2	5.1	3.3	17
11	6.5	7.0	11	6.2	8.0	39	66	18	5.1	6.7	9.8	24
12	6.7	7.8	11	5.5	b 8.2	31	52	20	5.1	7.0	6.4	5.3
13	4.6	8.0	10	5.0	b 8.5	27	48	41	5.5	3.3	3.5	3.5
14	5.6	11	b 8.8	4.7	b 9.0	24	43	33	13	6.7	2.8	3.1
15	6.5	8.5	b 7.6	4.5	b 9.5	21	41	26	25	4.4	2.2	2.8
16	7.2	7.8	b 6.5	4.5	9.9	19	39	24	16	3.8	1.9	2.6
17	7.2	8.6	b 5.6	4.6	11	17	31	17	9.3	4.1	2.6	2.8
18	13	12	5.1	5.2	12	15	36	15	7.2	138	2.4	7.9
19	17	9.1	4.7	7.2	13	14	43	13	25	29	2.0	4.6
20	8.5	10	4.5	b 15	12	15	205	11	31	16	1.9	178
21	7.0	12	4.2	26	11	16	405	11	80	24	89	248
22	✲8.5	22	4.1	26	10	17	340	11	68	13	13	49
23	8.3	27	4.0	24	9.5	✲18	204	11	37	9.3	6.5	24
24	8.0	14	3.9	26	9.5	17	115	18	21	8.3	4.0	15
25	8.8	11	3.9	35	12	29	82	9.9	✲14	9.9	36	12
26	11	✲ 10	b 3.9	23	✲16	50	60	✲ 10	11	7.2	3.5	53
27	7.8	10	5.7	✲19	18	41	63	9.1	8.3	5.5	✲ 3.6	86
28	6.0	9.9	5.7	14	22	37	✲ 92	8.0	6.5	6.2	3.1	29
29	12	8.3	5.2	12	24	33	158	7.8	5.1	10	3.5	19
30	9.1	9.1	4.5	10	---	31	131	7.5	5.3	✲6.5	8.5	✲ 15
31	11	---	4.0	10	---	29	---	7.8	---	5.7	4.8	---
Total	242.3	313.3	227.4	346.9	330.0	1,003	3,477	753.1	457.3	397.7	225.8	8226
Mean	7.82	10.4	7.34	11.2	11.4	32.4	116	24.3	15.2	12.8	7.28	27.4
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1963: Max 379 Min 2.3 Mean 25.2 Cfsm - In. -
Water year 1963-64: Max 405 Min 1.9 Mean 23.5 Cfsm - In. -

✲ Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 18-25, Dec. 28 to Jan. 2, 9-18, Jan. 27 to Feb. 1, 8-11, 21-29.

4-905. Thorn Creek at Thornton, Ill.

Location.--Lat 41°34'05", long 87°36'30", near center of N½ sec. 34, T. 36 N., R. 14 E., on right bank at downstream side of Ridge Road Bridge in Thornton, 1 mile downstream from North Creek, and 1½ miles upstream from Grand Trunk Railway.

Drainage area.--104 sq mi.

Records available.--May 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 586.43 ft above mean sea level, datum of 1929. Prior to Dec. 18, 1948, wire-weight gage at same site and datum.

Average discharge.--16 years, 86.7 cfs.

Extremes.--Maximum discharge during year, 621 cfs Apr. 21 (gage height, 7.02 ft); minimum daily, 18 cfs Oct. 6.
1948-64: Maximum discharge, 4,700 cfs July 13, 1957 (gage height, 16.00 ft); minimum daily, 4.4 cfs Sept. 11, 1949.
Flood of Apr. 5, 1947, reached a stage of 14.34 ft, from floodmark (discharge, 4,200 cfs).

Remarks.--Records good except those for period of no gage-height record, which are fair. Some diurnal fluctuation caused by pumping operations above station. Figures of discharge include about 9 cfs pumped from ground-water sources for municipal supply of Chicago Heights and undetermined amount of ground-water pumpage for industrial use above station.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 19 to Nov. 22)

2.0	12	2.5	59	5.0	414
2.1	17	3.0	149	7.0	618
2.3	33	4.0	306		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	41	20	a21	32	48	51	160	25	28	25	26
2	26	28	22	a25	23	65	73	115	28	29	23	26
3	27	24	26	a32	23	64	109	89	28	28	36	*26
4	27	27	25	a25	28	56	79	80	27	24	37	28
5	21	38	24	a20	27	111	120	72	27	22	25	26
6	18	32	25	a28	27	65	505	64	28	30	24	22
7	24	*28	23	a27	26	51	*468	*61	25	38	*23	20
8	25	30	29	a26	24	48	281	65	27	35	22	25
9	*24	27	26	*28	23	83	138	52	29	*29	20	28
10	26	23	28	27	23	62	102	41	*28	29	28	32
11	26	24	25	25	25	51	88	41	28	27	40	54
12	23	28	*26	22	*24	48	73	43	28	26	28	28
13	20	29	29	23	26	*44	70	61	28	27	24	22
14	26	30	24	28	28	41	62	55	32	40	23	27
15	31	31	20	28	28	32	56	45	72	30	21	28
16	31	28	22	28	25	32	55	44	49	31	20	28
17	35	27	27	28	29	32	52	34	38	31	25	28
18	39	35	27	27	31	30	70	35	42	115	29	40
19	47	35	27	29	31	30	96	35	50	51	28	30
20	28	37	26	94	29	33	433	35	230	37	28	166
21	28	43	25	61	29	38	605	32	288	73	134	276
22	29	72	23	59	27	31	435	34	301	64	42	82
23	33	92	23	58	22	30	255	32	138	38	23	61
24	31	30	27	58	23	31	145	43	73	76	24	39
25	30	26	23	71	27	95	100	33	53	71	25	32
26	27	29	23	37	28	128	84	32	44	40	26	123
27	34	28	25	30	27	79	118	34	37	34	25	234
28	29	24	23	26	27	64	177	31	29	31	25	80
29	29	21	20	25	31	56	274	29	30	30	21	61
30	29	21	21	25	---	49	198	24	29	28	28	53
31	32	---	23	29	---	52	---	21	---	28	23	---
Total	892	988	757	1,070	773	1,679	5,372	1,572	1,941	1,222	975	1,751
Mean	28.5	32.9	24.4	34.5	26.7	54.2	179	50.7	64.7	39.4	31.5	58.4
Cfsm	0.274	0.316	0.235	0.332	0.257	0.521	1.72	0.488	0.622	0.379	0.303	0.562
In.	0.32	0.35	0.27	0.38	0.28	0.60	1.92	0.56	0.69	0.44	0.35	0.63

Calendar year 1963: Max 805 Min 15 Mean 52.0 Cfsm 0.500 In. 6.79
Water year 1963-64: Max 605 Min 18 Mean 51.9 Cfsm 0.499 In. 6.79

Peak discharge (base, 900 cfs).--No peak above base.

* Discharge measurement made on this day.
a No gage-height record.

4-910. Little Calumet River at South Holland, Ill.

Location.--Lat 41°36'05", long 87°34'38", in SW¼SW¼ sec. 13, T. 36 N., R. 14 E., on right bank at downstream side of bridge on U. S. Highway 6, 0.6 mile downstream from Thorn Creek, and 1.6 miles east of South Holland.

Records available.--October 1947 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 575.00 ft above mean sea level. Prior to Oct. 27, 1947, wire-weight gage at same site and datum. Auxiliary water-stage recorder at Dixmoor, 6.1 miles downstream, prior to Nov. 17, 1947, auxiliary wire-weight gage at same site read twice daily.

Average discharge.--17 years, 154 cfs.

Extremes.--Maximum discharge during year, 995 cfs Apr. 21 (gage height, 11.18 ft), minimum daily, 27 cfs Sept. 7.
1947-64: Maximum discharge, 4,440 cfs July 14, 1957 (gage height, 20.11 ft), minimum daily, 7.9 cfs Oct. 6, 1950.
Flood of Apr. 6, 1947, reached a stage of 19.24 ft, from floodmarks (discharge, 4,760 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Flow from about 330 sq mi of upper Little Calumet River basin above a point in Gary, Ind., is diverted to Lake Michigan by Burns ditch. Calumet Sag Channel, 8 miles below station, usually diverts the entire low flow to the Mississippi River basin.

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 25 to Mar. 4, May 24 to June 14)

5.0	24	8.0	330
5.5	53	10.0	710
6.0	90	11.1	975
7.0	194		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	38	a 28	32	44	59	85	238	29	36	35	34
2	32	44	a 31	30	36	78	123	134	34	36	32	34
3	33	36	38	43	33	81	175	137	35	36	36	*34
4	33	34	38	45	38	73	133	111	34	35	52	34
5	32	43	38	35	36	147	144	96	34	30	34	33
6	28	*44	39	34	38	94	702	85	36	38	32	30
7	28	35	39	36	39	78	734	78	35	63	33	27
8	*35	39	47	*35	36	73	* 450	*83	32	34	30	32
9	36	39	42	45	32	114	248	72	36	39	28	37
10	36	38	41	39	30	98	173	60	34	* 37	* 30	47
11	35	34	* 39	36	34	82	134	55	*32	36	45	80
12	35	42	41	34	*34	76	107	56	33	41	44	38
13	31	41	40	33	38	* 70	97	82	35	35	34	30
14	29	41	34	42	38	71	88	82	38	47	32	29
15	39	43	30	42	40	66	77	66	74	41	31	33
16	38	41	29	42	36	60	74	65	82	39	28	33
17	39	38	37	41	38	59	70	52	47	40	30	33
18	45	45	38	40	42	54	82	47	54	230	37	45
19	55	45	38	41	44	52	111	48	58	94	36	42
20	44	44	37	95	41	54	438	44	257	51	38	216
21	32	53	35	80	40	61	955	44	300	83	262	570
22	37	62	33	72	40	58	756	44	313	103	75	164
23	39	111	31	71	38	55	400	45	176	47	37	83
24	41	47	38	70	34	58	250	52	92	48	32	55
25	38	36	33	91	39	105	175	42	65	80	33	45
26	38	39	33	52	44	162	133	39	52	51	33	92
27	45	39	35	47	42	125	146	40	46	41	34	335
28	39	38	33	41	40	100	208	36	39	39	34	124
29	40	a 32	31	36	42	92	328	35	36	43	32	70
30	41	a 30	30	35	---	80	229	32	38	38	47	55
31	40	---	35	37	---	84	---	28	---	36	35	---
Total	1,147	1,314	1,111	1,452	1,106	2,517	7,915	2,130	2,207	1,667	1,351	2,514
Mean	37.0	43.8	35.8	46.8	38.1	81.2	264	70.3	73.6	53.8	43.6	83.8
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1963 : Max 1,200 Min 22 Mean 77.4 Cfsm - In. -
Water year 1963-64 : Max 955 Min 27 Mean 72.4 Cfsm - In. -

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 13 to Jan. 17.

4-0930. Deep River at Lake George Outlet at Hobart, Ind.

Location.--Lat 41°32'10", long 87°15'25", in NW¼ sec. 32, T. 36 N., R. 7 ., on left bank at upstream side of highway bridge, 300 ft upstream from Duck Creek and 400 ft downstream from Lake George Dam.

Drainage area.--125 sq mi.

Records available.--April 1947 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 588.17 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 29, 1952, staff gage, and July 30, 1952 to July 20, 1955, water-stage recorder at site 400 ft upstream at 11.80 ft higher.

Average discharge.--17 years, 39.0 cfs.

Extremes.--Maximum discharge during year, 393 cfs Apr. 7 (gage height, 6.97 ft); minimum, 3.2 cfs Oct. 7; minimum gage height, 3.49 ft Aug. 8.
1947-64: Maximum discharge, 3,060 cfs Oct. 11, 1954 (gage height, 19.48 ft, present datum, site then in use); minimum, 2.0 cfs (regulated) Oct. 6, 1956; minimum gage height, 3.35 ft Sept. 21, 1956.

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

Rating table, except periods of ice effect and indefinite stage-discharge relation
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 9-21)

3.5	4.6
3.6	7.2
3.8	14
4.0	24
4.2	36
5.0	110
7.0	293

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	17	14	9.2	18	69	65	134	14	9.2	7.2	5.4
2	9.8	15	15	9.5	17	110	78	144	14	7.8	7.5	5.8
3	7.2	14	15	*11	16	88	104	116	14	7.8	7.2	6.6
4	8.1	12	15	13	16	63	116	99	13	7.2	6.6	6.1
5	8.4	13	15	14	16	56	99	83	13	7.2	5.1	4.8
6	7.8	13	15	16	16	53	228	68	15	9.2	6.9	4.6
7	5.3	13	15	16	15	43	363	58	16	17	7.2	6.1
8	6.6	13	21	16	14	38	333	64	17	22	4.6	6.1
9	7.2	14	20	16	14	57	228	94	20	20	4.6	5.8
10	11	13	17	19	13	99	150	116	8.8	15	6.6	76
11	9.5	14	17	17	12	83	121	94	10	12	12	9.2
12	8.8	13	18	16	12	65	94	73	13	9.5	8.8	8.1
13	8.8	14	16	15	13	58	88	78	14	13	9.5	8.8
14	8.8	14	14	14	13	56	63	68	18	17	8.8	9.8
15	8.8	18	14	14	13	47	52	58	22	15	7.8	8.4
16	8.8	17	11	14	14	42	52	50	20	14	7.5	9.2
17	8.4	17	b 10	14	14	31	46	45	22	13	7.5	10
18	10	14	b 10	14	14	27	54	41	20	28	5.8	15
19	13	16	b 10	16	15	24	46	36	17	56	6.4	17
20	12	19	b 10	24	15	25	103	28	25	54	6.4	62
21	13	22	b 10	31	15	29	273	27	39	40	23	238
22	*12	27	10	37	15	26	378	26	52	31	22	213
23	9.5	30	b 10	35	14	30	333	25	52	23	20	99
24	9.5	28	b 10	40	14	31	228	24	*34	18	13	43
25	9.8	20	11	45	13	*47	156	22	26	15	8.8	30
26	9.8	*21	b 11	35	15	104	121	22	20	14	* 6.9	38
27	8.8	17	12	22	16	116	110	*19	14	14	6.6	65
28	8.8	16	13	*19	* 15	94	* 120	16	13	12	7.8	83
29	11	15	12	16	19	83	213	16	12	* 7.8	6.6	*52
30	11	17	11	15	---	67	228	15	10	6.9	7.5	78
31	13	---	10	16	---	62	---	15	---	6.9	5.8	---
Total	295.5	506	412	608.7	426	1,823	4,623	1,824	597.8	542.5	273.0	1,205.4
Mean	9.53	16.9	13.3	19.6	14.7	58.8	154	58.8	19.9	17.5	8.81	40.2
Cfsm	0.076	0.135	0.106	0.157	0.118	0.470	1.23	0.470	0.159	0.140	0.070	0.322
In.	0.09	0.15	0.12	0.18	0.13	0.54	1.37	0.54	0.18	0.16	0.08	0.36

Calendar year 1963: Max 540 Min 4.7 Mean 34.5 Cfsm 0.276 In. 3.75
Water year 1963-64: Max 378 Min 4.6 Mean 35.9 Cfsm 0.287 In. 3.90

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 22 to Nov. 20. Stage-discharge relation indefinite Jan. 27 to Feb. 29.

4-0932. Little Calumet River at Gary, Ind.

Location.--Lat 41°34'19", long 87°19'13", in SE¼ sec. 15, T. 36 N., R. 8 W., on right bank at upstream side of Pennsylvania Railroad bridge at Gary, 1.3 miles downstream from bridge on State Highway 53 and 1.3 miles upstream from confluence with Deep River.

Drainage area.--Indeterminate.

Records available.--June 1958 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 580.00 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 14.6 cfs.

Extremes.--Maximum discharge during year, 41 cfs Apr. 23 (gage height, 7.49 ft); maximum gage height, 7.57 ft Apr. 7; no flow for many days.
1958-64: Maximum discharge, 196 cfs May 1, 1959 (gage height, 9.63 ft); no flow at times during each year.
Flood in October 1954 reached a stage of 13.0 ft, from floodmark.

Remarks.--Records poor. During times of flood on Deep River, reverse flow may occur at the gage.

Rating table, except periods of indefinite stage-discharge relation
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 16 to Apr. 20)

6.1	0
6.2	0.4
6.3	1.5
6.5	5.7
6.7	11
7.0	21
7.5	41

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.1	3.0	6.4	0.1	e 5.5	13	24	35	2.2	2.1	0.3	0.1
2	1.9	1.5	6.0	.1	e 5.5	13	22	30	1.6	1.5	.2	0
3	1.4	1.2	5.7	*.1	5.5	15	19	23	1.1	1.1	.1	0
4	1.2	.5	5.7	.2	5.5	13	20	18	.4	.7	0	0
5	.9	0	5.7	.2	5.5	16	22	14	.5	.5	0	0
6	.7	.4	5.7	.2	5.5	16	35	11	.9	1.2	0	0
7	.9	1.2	5.7	.2	5.5	16	37	9.5	1.4	4.3	0	0
8	.7	1.4	8.0	.2	5.5	18	37	8.7	1.7	3.0	0	0
9	.6	1.4	7.0	.2	5.5	22	37	8.3	1.4	2.2	0	0
10	.5	1.4	6.7	.3	5.5	22	33	7.8	1.1	1.9	0	0
11	.4	1.4	6.2	.3	5.5	23	29	6.8	.5	1.9	.1	.7
12	.4	.8	6.2	.2	5.5	21	27	6.6	.8	1.9	.5	.4
13	.4	1.9	4.4	.2	e 5.5	21	23	10	.4	.6	0	.2
14	.2	4.6	3.4	.2	e 5.5	21	22	12	.8	.9	0	.1
15	.2	1.9	1.7	.2	e 5.5	20	20	10	4.5	.4	0	0
16	.3	.1	1.2	.2	e 5.5	19	18	8.0	2.2	.1	0	0
17	.1	3.5	.8	.2	e 5.5	18	14	6.6	1.7	0	0	0
18	.4	3.6	.6	.2	e 5.5	16	12	5.3	1.7	7.4	0	.5
19	2.5	0	.4	.2	e 5.5	14	12	4.6	2.6	3.3	0	.7
20	.8	1.2	.3	.3	e 5.5	13	29	3.8	6.5	2.6	0	1.8
21	.6	2.9	.2	.3	e 5.5	16	37	3.6	8.3	2.2	.1	7.7
22	* .7	1.3	.2	.5	e 5.5	15	41	3.5	5.5	1.9	1.4	8.2
23	.5	12	.1	.7	e 5.5	14	41	3.2	4.6	1.4	.9	8.2
24	.4	12	.1	1.0	e 5.5	*14	39	3.5	*4.2	1.2	.7	8.2
25	.3	8.5	.1	1.5	e 5.5	20	37	3.2	3.5	.9	.4	8.0
26	.4	7.8	.1	2.4	*e 5.5	25	33	3.2	3.3	.9	*.2	8.2
27	.4	8.2	.1	4.0	5.5	24	31	*3.1	3.0	.9	.2	12
28	.2	7.4	.1	* 6.0	e 5.5	24	* 30	2.8	2.8	.8	.2	11
29	2.2	7.0	.1	5.5	5.5	22	34	2.5	2.6	.7	.1	12
30	1.1	7.0	.1	5.5	---------	23	37	2.3	2.4	* .5	.1	* 11
31	1.4	----------	.1	5.5	---------	24	----------	2.3	----------	.4	.1	----------
Total	24.8	105.1	89.1	36.9	159.5	571	852	272.2	74.2	49.7	56	98.8
Mean	0.80	3.50	2.87	1.19	5.50	18.4	28.4	8.78	2.47	1.60	0.18	3.29
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1963: Max 52 Min 0 Mean 5.73 Cfsm - In. -
Water year 1963-64: Max 41 Min 0 Mean 6.39 Cfsm - In. -

* Discharge measurement made on this day.
e Stage-discharge relation indefinite.
Note.--No gage-height record Dec. 14 to Jan. 31, Feb. 3-12, 27, 28, Apr. 26 to June 2.

4-0935. Burns ditch at Gary, Ind.

Location.--Lat 41°34'30", long 87°17'20", in NE sec. 13, T. 36 N., R. 8 W., on left bank on downstream side of bridge on Central Avenue, 0.4 mile east of Gary and 0.4 mile downstream from confluence of Deep River and Little Calumet River.

Drainage area.--About 160 sq mi.

Records available.--October 1943 to September 1964 (October 1950 to September 1955, high-water records only).

Gage.--Water-stage recorder. Datum of gage is 577.04 ft above mean sea level, datum of 1929. Prior to July 28, 1955, wire-weight gage at same site and datum.

Average discharge.--16 years (1943-50, 1955-64), 120 cfs.

Extremes.--Maximum discharge during year, 541 cfs Apr. 22 (gage height, 6.32 ft); minimum daily, 5.2 cfs Aug. 8, 9, Sept. 4, 5.
1943-64: Maximum discharge, 3,430 cfs Oct. 11, 1954; maximum gage height, 16.44 ft Mar. 16, 1944, from graph based on gage readings; minimum discharge determined, 1.8 cfs, Oct. 14, 1946.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Burns ditch is an artificial channel which reverses the direction of flow of part of Little Calumet River and flows into Lake Michigan at Wickliffe.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 12 to Dec. 7, May 20 to June 3, June 6-10, 14)

Oct. 1 to Feb. 19		Feb. 19 to Sept. 30			
3.4	11	3.2	5.0	4.0	82
3.6	21	3.3	10	4.5	166
3.8	35	3.4	17	5.0	268
4.0	57	3.6	35	7.0	690
5.0	203				

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	31	17	b12	34	69	104	310	18	10	8.3	6.0
2	18	29	14	13	31	147	112	236	17	10	8.7	6.5
3	16	25	15	14	29	129	147	176	18	10	8.4	7.2
4	15	22	15	16	29	96	166	138	16	10	7.6	7.0
5	13	21	15	17	29	92	156	109	16	10	7.0	5.2
6	12	21	15	18	30	85	310	90	18	10	8.0	5.2
7	12	21	16	19	29	76	499	78	21	23	8.4	6.8
8	12	22	31	20	27	69	478	74	22	27	5.2	6.8
9	13	22	31	28	26	89	352	95	20	22	5.2	6.6
10	13	21	28	25	24	129	247	120	18	17	76	8.5
11	15	21	26	22	22	120	176	112	15	12	14	10
12	15	21	b23	19	22	101	147	83	14	11	10	9.0
13	14	21	b20	17	25	92	129	99	13	11	11	10
14	13	29	b18	16	24	88	106	83	18	12	10	11
15	13	26	b16	b15	23	77	90	73	38	12	9.0	10
16	13	26	b15	b15	25	65	82	67	29	11	8.6	10
17	14	28	b14	b15	25	58	77	62	22	10	8.6	11
18	15	30	b14	16	25	52	72	57	21	27	6.8	14
19	22	20	b14	18	28	46	86	52	20	47	7.5	18
20	22	19	b14	29	28	42	156	43	42	67	7.5	47
21	21	34	14	35	27	54	373	38	63	49	36	352
22	*18	38	14	44	28	54	520	36	74	40	24	331
23	16	58	14	45	27	52	520	33	69	25	20	156
24	15	47	b14	61	25	*57	394	36	*52	17	12	70
25	17	37	b15	76	24	83	268	31	37	13	9.0	43
26	15	*29	16	55	27	147	206	28	26	11	*7.5	43
27	15	26	b16	43	*29	186	176	*27	21	10	7.5	78
28	16	17	b16	*34	28	156	*206	23	15	9.5	8.6	96
29	21	17	b14	29	30	129	331	21	12	9.0	7.8	78
30	20	17	b13	26	---	110	352	20	10	*8.3	8.4	*55
31	21	---	b12	29	---	104	---	20	---	8.0	6.5	---
Total	492	796	529	841	780	2,854	7,038	2,470	795	568.8	314.7	1,517.8
Mean	15.9	26.5	17.1	27.1	26.9	92.1	235	79.7	26.5	18.3	10.2	50.6
Cfsm	0.099	0.166	0.107	0.169	0.168	0.576	1.47	0.498	0.166	0.114	0.064	0.316
In.	0.11	0.19	0.12	0.19	0.18	0.66	1.64	0.57	0.19	0.13	0.07	0.35

Calendar year 1963: Max 623 Min 6.5 Mean 46.2 Cfsm 0.289 In. 3.90
Water year 1963-64: Max 520 Min 5.2 Mean 51.9 Cfsm 0.324 In. 4.40

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record June 4, 5, 11-13, July 1-6, July 27 to Aug. 20, Aug. 25 to Sept. 19.

4-0940. Little Calumet River at Porter, Ind.

Location.--Lat 41°37'18", long 87°05'13", in NE¼ sec. 34, T. 37 N., R. 6 W., near center of span on downstream side of highway bridge, three-quarters of a mile northwest of Porter and 4.5 miles upstream from Salt Creek.

Drainage area.--62.9 sq mi.

Records available.--May 1945 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 603.48 ft above mean sea level, datum of 1929. Prior to June 26, 1952, wire-weight gage at same site and datum.

Average discharge.--19 years, 67.9 cfs.

Extremes.--Maximum discharge during year, 282 cfs Apr. 7 (gage height, 5.32 ft); minimum daily, 19 cfs Dec. 31, Aug. 8, Sept. 8, 9.
1945-64: Maximum discharge, 3,110 cfs Oct. 10, 1954 (gage height, 11.60 ft); minimum, 15 cfs Dec. 6, 1958, result of freezeup; minimum gage height, 2.14 ft Aug. 22, 1949.

Remarks.--Records fair prior to Mar. 5 and good thereafter, except those for periods of ice effect or no gage-height record, 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 Oct. 1 to Dec. 11, Dec. 17-Jan. 19-25, Feb. 1-8, Mar. 5)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
2.3	18	3.0	36	2.5	18	4.0	67
2.4	20	3.5	53	2.6	19	4.5	100
2.5	22	4.0	76	3.0	26	5.0	155
				3.5	44	6.0	320

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	31	27	20	36	50	52	96	22	25	22	21
2	21	27	27	20	34	66	70	70	21	26	21	21
3	21	24	27	*21	31	66	85	54	21	28	21	21
4	21	23	27	22	30	66	64	46	21	28	21	20
5	21	24	27	24	31	64	54	40	21	26	21	20
6	21	26	27	26	31	52	150	35	21	28	21	20
7	20	24	28	29	31	46	264	32	21	60	20	20
8	21	24	30	34	31	44	162	35	20	109	19	19
9	21	23	32	42	28	73	88	39	20	67	20	19
10	22	24	30	44	27	60	67	35	20	46	20	20
11	22	23	28	34	26	50	57	30	20	37	23	23
12	22	23	26	28	26	48	48	29	20	32	25	21
13	23	24	24	25	27	46	46	34	23	30	22	21
14	23	30	24	24	28	42	40	48	26	34	21	21
15	22	30	23	24	30	40	37	39	26	32	20	21
16	22	27	23	24	31	37	35	35	29	29	20	21
17	22	27	23	24	31	34	34	34	23	28	21	21
18	22	27	22	26	31	32	34	30	28	46	24	23
19	24	27	22	32	31	30	44	28	24	44	23	25
20	26	27	22	36	32	32	43	25	46	34	22	25
21	24	34	22	39	32	35	199	25	62	30	44	99
22	23	32	22	37	31	35	199	24	114	39	36	104
23	*22	42	22	41	30	44	114	24	54	28	26	48
24	22	37	23	46	30	*48	73	24	*35	26	24	57
25	22	31	23	61	31	63	54	24	30	39	23	48
26	22	*30	23	36	32	114	48	23	28	46	*22	32
27	23	28	23	32	*33	88	62	*23	26	29	22	109
28	22	28	22	*31	37	67	*96	22	26	25	24	101
29	24	27	20	30	37	64	142	22	25	*25	24	50
30	24	27	20	30	---	52	148	22	25	23	23	40
31	24	---	19	30	---	52	---	21	---	22	22	---
Total	691	831	758	972	896	1,640	2,649	1,068	893	1,121	717	1,111
Mean	22.3	27.7	24.5	31.4	30.9	52.9	88.3	34.5	29.8	36.2	23.1	37.0
Cfsm	0.355	0.440	0.390	0.499	0.491	0.841	1.40	0.548	0.474	0.576	0.367	0.588
In.	0.41	0.49	0.45	0.58	0.53	0.97	1.56	0.63	0.53	0.66	0.42	0.66

Calendar year 1963 : Max 367 Min 19 Mean 43.3 Cfsm 0.688 In. 9.37
Water year 1963-64 : Max 264 Min 19 Mean 36.5 Cfsm 0.580 In. 7.89

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12, Jan. 5-7, 26, 27, 30, 31, Feb. 5-23, 25-27. No gage-height record Dec. 14 to Jan. 4, Jan. 8, 10-18, 28, 29, Feb. 24.

4-0945. Salt Creek near McCool, Ind.

Location.--Lat 41°35'48", long 87°08'40", in SE¼ sec. 6, T. 36 N., R. 6 W., on left bank on downstream side of highway bridge, 50 ft downstream from New York Central Railroad bridge, 1¾ miles north of McCool and 1.5 miles upstream from Little Calumet River.

Drainage area.--78.7 sq mi.

Records available.--May 1945 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 594.10 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 25, 1955, wire-weight gage at same site and datum.

Average discharge.--19 years, 67.2 cfs.

Extremes.--Maximum discharge during year, 290 cfs Apr. 7 (gage height, 6.16 ft); minimum, 14 cfs Sept. 8, 10 (gage height, 2.35 ft).
1945-64: Maximum discharge, 3,180 cfs Oct. 11, 1954 (gage height, 14.12 ft); minimum, 6.3 cfs Aug. 24, 1955 (gage height, 2.31 ft).

Remarks.--Records good 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 Oct. 1 to Dec. 11, Mar. 3-25, Mar. 27 to Apr. 6)

Oct. 1 to Apr. 21		Apr. 22 to Sept. 30	
2.5	19	2.3	13
3.0	32	2.5	17
3.5	55	3.0	31
4.0	86	3.5	55
5.0	166		
6.0	266		

Note.--Same as preceding table above 3.5 ft.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	32	26	22	44	91	58	67	20	17	16	16
2	22	29	26	23	40	123	67	58	20	17	16	15
3	22	25	26	25	36	93	93	49	20	17	16	15
4	22	24	26	28	36	73	76	44	20	17	16	15
5	23	25	26	31	36	70	61	42	20	17	16	15
6	23	26	26	36	36	55	208	37	20	17	15	15
7	22	25	28	40	36	47	266	33	20	27	15	15
8	23	24	29	40	34	47	157	53	24	31	15	14
9	24	24	31	52	31	116	100	79	20	21	15	15
10	24	24	29	50	29	107	73	64	20	19	15	15
11	24	24	28	42	28	67	61	44	20	19	16	17
12	25	24	27	36	28	58	52	37	19	18	19	16
13	26	24	27	32	29	55	50	37	21	18	16	15
14	25	28	26	30	30	52	44	39	23	19	16	15
15	26	28	26	28	32	50	40	33	23	19	15	15
16	26	26	25	28	34	42	40	31	29	18	15	15
17	26	26	25	29	34	40	38	33	21	18	15	16
18	23	26	25	32	34	38	38	27	20	20	15	17
19	24	26	25	36	34	36	47	27	20	21	15	21
20	25	28	25	44	36	33	106	26	33	18	15	25
21	22	36	25	55	36	37	215	24	38	18	27	184
22	20	32	25	44	34	40	205	24	52	18	27	178
23	✲ 20	47	25	47	32	47	107	23	29	18	18	55
24	20	38	26	55	30	✲50	76	23	✲ 23	17	17	33
25	22	32	27	79	27	64	61	23	20	18	16	26
26	22	✲ 29	28	55	25	139	52	23	20	19	✲16	26
27	23	28	28	40	✲24	100	55	✲ 23	19	17	16	120
28	23	28	25	✲ 30	28	70	✲ 73	21	18	17	16	99
29	23	26	23	30	34	67	100	21	18	✲16	17	✲ 49
30	26	26	22	30	---	52	82	21	18	16	16	35
31	24	---	22	35	---	52	---	21	---	16	15	---
Total	728	840	808	1,184	947	2,011	2,701	1,107	688	578	513	1,127
Mean	23.5	28.0	26.1	38.2	32.7	64.9	69.0	35.7	22.9	18.6	16.5	37.6
Cfsm	0.299	0.356	0.332	0.485	0.416	0.825	0.877	0.454	0.291	0.236	0.210	0.478
In.	0.34	0.40	0.38	0.56	0.45	0.95	0.98	0.52	0.32	0.27	0.24	0.53

Calendar year 1963: Max 270 Min 19 Mean 41.3 Cfsm 0.525 In. 7.11
Water year 1963-64: Max 266 Min 14 Mean 34.4 Cfsm 0.437 In. 5.94

✲ Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 6, Jan. 14-18, 26-31, Feb. 10-14, 24-28.

4-965. Fawn River near White Pigeon, Mich.

Location.--Lat 41°47'00", long 85°35'00" in SW¼ sec. 16, T. 6 S., R. 11 W., on right bank a quarter of a mile downstream from bridge on county highway, 3.1 miles east of White Pigeon and 3½ miles upstream from outlet of Klinger Lake.

Drainage area.--192 sq mi.

Records available.--July 1963 to July 1964 (gage height and discharge measurements only), October 1957 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 865.4 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 133 cfs.

Extremes.--Maximum discharge during year, 166 cfs Apr. 9 (gage height, 2.91 ft), minimum, 26 cfs Aug. 5, minimum gage height, 1.72 ft Jan. 16, Sept. 16.
1957-64: Maximum discharge, 488 cfs Mar. 15, 1962 (gage height, 4.37 ft), minimum, that of Aug. 5, 1964, minimum gage height, that of Jan. 16, Sept. 16, 1964.
A daily mean discharge of 750 cfs occurred Mar. 15, 1964.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Small diurnal fluctuation caused 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 July 6 to Aug. 24)

1.6	24
1.8	36
2.5	160
3.0	202

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	52	52	50	75	60	143	175	64	57	29	42
2	43	62	*57	50	70	56	143	171	67	46	28	43
3	45	56	49	50	65	* 57	138	153	70	57	28	35
4	45	*67	51	50	*58	73	* 161	138	*67	58	28	32
5	43	69	58	50	66	68	162	135	75	59	27	32
6	50	61	48	50	68	79	161	137	62	52	28	42
7	40	62	54	* 58	67	75	171	137	69	38	28	42
8	*48	54	56	60	58	82	170	129	73	58	28	40
9	55	51	59	64	60	80	180	135	58	75	28	35
10	56	62	52	50	54	81	166	137	61	57	28	*31
11	54	55	64	b 50	48	88	159	122	51	61	*30	33
12	52	55	51	b 50	59	85	138	*117	64	52	33	33
13	47	50	55	b 50	58	93	129	125	73	37	32	33
14	52	64	42	b 50	62	92	138	131	65	*52	30	33
15	48	61	38	b 50	59	89	125	122	68	68	30	33
16	52	50	45	52	60	89	128	124	73	50	39	35
17	59	55	45	55	59	92	121	140	75	45	36	35
18	58	56	50	55	*54	106	117	119	73	52	39	35
19	62	48	50	55	65	95	118	118	69	47	28	35
20	65	56	50	60	62	100	126	106	57	35	28	40
21	66	64	50	65	61	98	137	106	69	48	44	40
22	59	55	50	70	49	95	150	97	70	49	64	40
23	56	67	50	80	61	101	140	97	74	39	71	40
24	59	69	50	90	51	97	137	86	74	35	74	40
25	51	64	50	95	52	88	132	95	69	32	66	40
26	45	62	50	100	61	113	132	89	70	30	47	40
27	54	64	50	100	62	131	134	82	71	30	56	40
28	50	52	50	95	62	166	140	70	65	35	48	45
29	46	61	50	90	47	150	148	67	61	42	59	45
30	51	50	50	85	----------	150	162	86	47	32	47	45
31	48	----------	50	80	----------	138	----------	76	----------	30	35	----------
Total	1,606	1,754	1,576	2,009	1,733	2,987	4,306	3,622	2,004	1,458	1,216	1,134
Mean	51.8	58.5	50.8	64.8	59.8	96.4	144	117	66.8	47.0	39.2	37.8
Cfsm	0.271	0.306	0.266	0.339	0.313	0.505	0.754	0.613	0.350	0.246	0.205	0.198
In.	0.31	0.34	0.31	0.39	0.34	0.58	0.84	0.71	0.39	0.28	0.24	0.22

Calendar year 1963: Max 252 Min 38 Mean 87.2 Cfsm 0.457 In. 6.15
Water year 1963-64: Max 180 Min 27 Mean 69.4 Cfsm 0.363 In. 4.95

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 16 to Jan. 6, Jan. 16 to Feb. 3, Sept. 8-30.

4-990. St. Joseph River at Mottville, Mich.

Location.--Lat 41°48'05", long 85°45'15", in SW¼ sec. 6, T. 8 S., R. 12 W., Michigan meridian, on right bank 500 ft upstream from bridge on U.S. Highway 112 at Mottville, 0.4 mile downstream from Michigan Gas and Electric Co. hydroelectric plant, 4 miles upstream from Pigeon River, and at mile 96.

Drainage area.--1,866 sq mi.

Records available.--October 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1307.

Gage.--Water-stage recorder (digital). Datum of gage is 755.3 ft above mean sea level (Michigan Gas and Electric Co. benchmark). Prior to Oct. 1, 1951, at site 0.4 mile upstream at datum 4.2 ft higher.

Average discharge.--41 years, 1,474 cfs.

Extremes.--Maximum discharge during year, 2,550 cfs Dec. 16 (gage height, 4.55 ft), minimum, 34 cfs Oct. 18 (gage height, 0.93 ft), minimum daily, 39 cfs Oct. 19.
1923-64: Maximum discharge, 10,700 cfs Apr. 27, 1950 (gage height, 6.56 ft, site and datum then in use), minimum daily, 39 cfs Oct. 19, 1963.

Remarks.--Records good. Flow regulated by powerplant above station.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 4 to Dec. 5)

Oct. 1 to Jan. 6		Jan. 7 to Sept. 30	
0.9	30	1.0	50
1.0	43	1.3	110
1.3	103	1.6	205
1.6	190	2.0	380
2.0	355	2.5	710
2.4	585	3.0	1,130
3.0	1,040	4.0	2,040

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	512	660	360	89	600	100	1,010	1,100	652	469	343	352
2	525	42	*603	608	324	*810	1,040	1,110	643	452	272	355
3	412	112	590	564	732	599	1,180	1,140	462	352	211	419
4	406	788	590	706	*851	527	1,040	1,020	464	350	223	364
5	141	665	604	74	541	427	971	1,080	*459	294	302	353
6	150	634	592	562	583	720	1,490	1,020	519	338	387	345
7	408	*548	538	*526	569	59	1,610	1,090	344	482	205	347
8	*435	650	188	531	767	177	*1,280	1,120	510	669	350	348
9	437	746	596	514	64	991	1,530	913	586	583	345	348
10	442	806	657	586	562	1,010	1,260	927	668	561	347	458
11	439	504	690	796	598	1,060	1,350	1,270	588	335	336	*349
12	131	442	569	149	535	742	654	*1,050	507	350	*331	311
13	125	530	631	632	600	746	1,310	951	365	556	326	293
14	407	333	503	588	703	873	1,210	1,150	407	*539	337	278
15	444	654	79	564	745	61	989	1,200	568	481	335	300
16	393	61	708	538	67	1,070	1,110	1,210	621	456	336	321
17	299	75	615	539	585	1,060	906	971	677	445	337	326
18	389	826	567	782	596	791	746	1,020	553	531	328	318
19	39	692	562	66	586	810	878	1,020	483	445	320	314
20	66	524	605	538	597	833	865	1,190	353	528	315	309
21	557	732	316	532	555	813	1,180	1,060	369	508	342	310
22	499	648	72	588	719	57	909	967	562	504	350	307
23	497	523	662	608	61	1,120	875	816	578	514	348	348
24	515	195	676	747	612	891	1,050	634	567	482	346	380
25	606	634	75	771	574	943	777	1,060	522	344	347	392
26	42	605	571	81	797	808	992	775	500	331	353	440
27	48	912	571	994	654	1,020	873	677	398	329	368	421
28	609	209	687	721	743	854	1,250	652	357	329	414	408
29	559	894	78	604	562	935	1,140	465	499	344	423	382
30	507	68	535	619	---------	1,130	1,150	799	499	332	422	521
31	489	---------	639	779	---------	1,240	---------	406	---------	325	400	---------
Total	11,528	15,712	15,729	16,996	15,482	23,277	32,625	29,863	15,270	13,558	10,399	10,717
Mean	372	524	507	548	568	751	1,088	963	509	437	335	357
Cfsm	0.199	0.281	0.272	0.294	0.304	0.403	0.583	0.516	0.273	0.234	0.180	0.191
In.	0.23	0.31	0.31	0.34	0.33	0.46	0.65	0.60	0.30	0.27	0.21	0.21

Calendar year 1963: Max 2,900 Min 39 Mean 746 Cfsm 0.400 In. 5.43
Water year 1963-64: Max 1,610 Min 39 Mean 580 Cfsm 0.311 In. 4.23

* Discharge measurement made on this day.

4-495. Pigeon Creek at Hogback Lake Outlet, near Angola, Ind.

Location.--Lat 41°37'24", long 85°05'44", in NE¼NW¼ sec. 36, T. 37 N., R. 12 E., on right bank 200 ft north of lake outlet, 2 miles southeast of Flint, and 5.1 miles west of Angola.

Drainage area.--1.02 sq mi.

Records available.--October 1945 to September 1964. Prior to October 1947, published as "near Flint."

Gage.--Water-stage recorder. Datum of gage is 940.00 ft above mean sea level, datum of 1929. Prior to October 1947, wire-weight gage at site 1¼ miles downstream at different datum. October 1947 to Aug. 3, 1953, staff gage at site 600 ft downstream at same datum.

Average discharge.--19 years, 73.1 cfs.

Extremes.--Maximum discharge during year, 92 cfs May 2 (gage height, 10.49 ft), minimum, 5.1 cfs Oct. 1-18, minimum gage height, 7.63 ft Sept. 17, 18.
1945-64: Maximum discharge, 744 cfs Apr. 6, 1950 (gage height, 14.45 ft), minimum, that of Oct. 1-18, 1963, minimum gage height, 7.24 ft Sept. 9, 10, 1953.

Remarks.--Records fair.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Mar. 9)

7.5	4.4	8.5	24
7.6	5.5	9.0	37
7.8	8.0	10.0	72
8.0	11	10.5	92

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1	6.1	6.2	7.2	11	8.4	56	88	26	22	6.8	*12
2	5.1	6.2	6.3	7.1	11	8.4	56	92	25	21	6.7	11
3	5.1	6.2	6.3	7.1	11	86	60	92	* 24	21	6.8	11
4	5.1	6.2	6.2	7.2	11	8.7	64	88	22	18	7.2	10
5	5.1	6.3	6.3	7.2	*10	9.4	68	84	21	18	7.0	9.6
6	5.1	6.5	6.3	7.2	10	* 9.7	76	80	21	16	6.7	9.1
7	5.1	6.3	6.5	* 7.1	10	10	80	*76	20	16	6.6	8.8
8	5.1	6.3	6.8	6.7	10	11	* 84	72	20	18	6.6	8.4
9	5.1	6.3	7.1	7.1	10	12	84	68	18	*18	6.3	8.0
10	5.2	6.3	7.1	7.2	10	13	84	64	18	18	6.2	7.7
11	5.2	6.2	7.2	7.1	9.9	14	80	64	17	17	6.6	7.5
12	5.1	6.1	7.6	7.0	9.7	15	80	60	16	16	6.8	7.0
13	5.1	6.3	7.6	7.2	9.9	15	76	56	16	15	6.7	6.6
14	5.1	6.3	7.6	7.2	9.9	16	72	56	15	15	6.6	6.3
15	5.1	6.2	7.6	7.2	9.7	16	68	56	15	15	6.5	6.1
16	5.2	6.2	7.6	7.2	9.6	17	64	52	15	14	6.5	5.9
17	5.2	6.1	7.5	7.4	9.4	18	60	52	15	14	6.3	5.7
18	5.2	6.1	7.6	7.5	9.3	18	56	52	14	13	6.1	5.7
19	5.3	6.1	7.6	7.5	9.6	18	56	49	15	12	6.0	6.6
20	5.3	* 6.2	7.6	7.6	9.4	20	56	46	20	12	5.8	6.6
21	5.4	6.3	7.6	7.7	9.3	21	56	46	22	11	6.3	6.6
22	5.5	6.5	7.5	8.0	9.1	21	60	43	25	11	7.4	* 6.7
23	*5.5	6.6	7.5	8.4	9.1	21	64	40	29	10	9.6	6.7
24	5.5	6.6	7.5	8.8	9.0	21	72	37	31	9.7	10	6.7
25	5.5	6.5	7.5	9.7	9.0	25	72	36	31	9.4	11	6.6
26	5.6	6.3	7.5	9.9	8.7	29	72	35	31	9.1	12	6.6
27	5.7	6.2	7.5	10	8.6	33	76	35	29	8.7	13	6.7
28	5.7	6.2	7.5	10	8.6	40	76	32	28	*8.4	13	6.5
29	5.7	6.1	7.5	10	8.4	46	80	31	26	7.9	13	6.2
30	5.7	6.2	7.5	10	---	52	88	29	25	7.5	13	6.0
31	5.9	---	7.4	10	---	56	---	28	---	7.2	12	---
Total	164.6	188.0	223.3	246.5	280.2	651.2	2,035	1,759	651	429.9	291.8	224.9
Mean	5.31	6.27	7.20	7.95	9.66	20.4	69.9	56.1	21.7	13.9	8.12	7.50
Cfsm	0.052	0.061	0.071	0.078	0.095	0.200	0.685	0.550	0.213	0.136	0.080	0.074
In.	0.06	0.07	0.08	0.09	0.10	0.23	0.76	0.63	0.24	0.16	0.09	0.08

Calendar year 1963: Max 255 Min 5.1 Mean 25.4 Cfsm 0.249 In. 3.39
Water year 1963-64: Max 92 Min 5.1 Mean 19.5 Cfsm 0.191 In. 2.59

Peak discharge (base, 200 cfs).--No peak above base.

* Discharge measurement made on this day.

4-0996.20 Pretty Lake Inlet near Stroh, Ind.

Location.--Lat 41°34'50", long 85°15'00", in NW¼ sec. 15, T. 36 N., R. 12 E., on left bank 400 ft upstream from mouth, and 2.6 miles west of Stroh.

Drainage area.--0.6 sq mi, approximately.

Records available.--June to September 1964.

Gage.--Water-stage recorder. Datum of gage is 960.00 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 1.2 cfs Mar. 26; maximum gage height, 6.55 Apr. 21; no flow for many days.
1963-64: Maximum discharge, that of Mar. 26, 1964, maximum gage-height recorded, that of Apr. 21, 1964, no flow for many days.

Remarks.--Records poor.

Rating tables, except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 16

5.85	0.00	6.2	0.26
5.9	.01	6.3	.48
6.0	.05	6.4	1.1
6.1	.12		

Apr. 17 to Sept. 30

6.03	0.00	6.4	0.39
6.1	.03	6.5	.74
6.2	.10	6.55	1.0
6.3	.22		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.02	0.01	0	a 0.04	0.02	.32	0.39	0.01	0		
2	0	.02	.01	0	a .03	.03	e .30	.31	0	0		
3	0	.01	.01	0	a .02	.04	e .25	.25	0	0		
4	0	.01	.01	0	* .01	.06	e .20	.22	0	0		
5	0	* .02	.01	0	.01	e .05	e .30	.18	0	0		
6	0	.01	.01	0	.01	e .04	e .30	.13	0	0		
7	0	.01	.01	0	.01	a .03	e .20	.11	0	.05		
8	0	.01	.02	0	b .01	a .30	e .15	.34	* 0	.04		
9	0	0	.01	0	.01	a .25	e .15	.28	0	0		
10	0	0	* .01	0	.01	a .20	e .15	.19	0	0		
11	0	0	.01	0	.01	a .15	e .15	.14	0	0		
12	0	0	.01	0	.01	a .15	e .15	.18	0	0		
13	0	.01	0	0	0	* .14	e .15	.20	0	0		
14	0	.01	0	0	.01	e .12	e .15	.16	0	0		
15	* 0	.01	0	0	a .01	e .10	e .15	.12	0.02	0		
16	0	.01	0	0	a .01	e .08	e .15	.14	.02	0		
17	0	.01	0	0	a .01	e .07	.14	.12	.08	0		
18	0	.01	0	0	a .01	.06	.15	.09	.02	0		
19	.01	.01	0	0	.01	.05	.25	.07	.06	0		
20	.01	.01	0	0	.01	.05	.43	.05	.36	0		
21	.01	.02	0	.02	.01	e .15	.79	.04	.09	0		
22	.01	.02	0	.01	.01	e .10	.64	.04	.06	.02		
23	.01	.03	0	* .03	b .01	e .08	.46	.03	.05	0		
24	.01	.01	0	.05	b .01	e .06	.35	.02	.02	0		
25	.01	.01	0	.06	b .01	* .39	.28	.02	0	0		
26	.01	.01	0	b .02	.01	.85	.23	.05	0	0		
27	.01	.01	0	b .01	.01	.67	.39	.05	0	0		
28	.01	.01	0	* b .01	.01	.56	.74	.03	0	0		
29	.01	.01	0	b 0	.01	.52	.64	.02	0	0		
30	.01	.01	0	b 0	---	.46	.50	.02	0	0		
31	.01	---	0	a .02	---	.41	---	.02	---	0		---
Total	.13	.33	.13	.23	.34	6.24	9.21	4.01	.79	.11	0	0
Mean	0.004	0.011	0.004	0.007	0.012	0.201	0.307	0.129	0.026	0.004	0	0
Cfsm	0.0067	0.018	0.0067	0.012	0.020	0.335	0.512	0.215	0.043	0.0067	0	0
In.	0.008	0.02	0.008	0.01	0.02	0.39	0.57	0.25	0.05	0.008	0	0

Calendar year 1963: Max - Min - Mean - Cfsm - In. -
Water year 1963-64: Max 0.85 Min 0 Mean 0.059 Cfsm 0.098 In. 1.33

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
e Stage-discharge relation indefinite.

4-1002.2 North Branch Elkhart River near Cosperville, Ind.

Location.--Lat 41°29'32", long 85°26'54", in SW¼NE¼ sec. 14, T. 35 N., R. 9 E., at downstream side of county road bridge over outlet of Waldron Lake at extreme west end of lake, 1.5 miles northeast of Cosperville, and 6.6 miles northwest of Albion.

Drainage area.--133 sq mi.

Records available.--October 1950 to September 1964.

Gage.--Wire-weight gage read twice daily. Datum of gage is 880.00 ft above mean sea level, datum of 1929. Prior to Aug. 7, 1956, staff gage at same site and datum.

Average discharge.--14 years, 108 cfs.

Extremes.--Maximum discharge during year, 170 cfs Apr. 29 to May 2; maximum gage height, 6.24 ft Apr. 30; minimum, 4.1 cfs Aug. 11, Sept. 17 (gage height, 4.43 ft).
1950-64: Maximum discharge observed, 717 cfs May 13, 1956 (gage height, 8.78 ft); minimum, 2.2 cfs Sept. 17, 18, 21, 1959; minimum gage height, that of Aug. 11, Sept. 17, 1964.

Remarks.--Records fair.

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

4.4	3.2	5.0	42
4.5	6.6	5.5	93
4.6	12	6.0	148
4.7	18	7.0	258
4.8	25		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.9	10	26	20	34	28	120	170	28	19	7.5	*17
2	7.0	12	26	19	36	29	120	170	26	16	7.0	15
3	7.5	14	26	19	35	30	137	159	*22	14	6.6	12
4	7.0	15	25	20	34	31	137	159	20	14	7.0	9.3
5	6.6	18	24	20	*32	* 34	142	148	20	13	7.5	8.4
6	6.6	19	23	*20	34	36	142	137	20	11	6.2	8.4
7	6.2	21	22	21	34	37	*148	*132	20	16	5.5	8.4
8	5.8	21	24	21	34	38	148	120	20	28	5.1	7.5
9	5.5	22	26	24	32	40	148	115	18	33	4.4	6.6
10	5.5	21	27	25	32	44	148	104	20	*36	4.4	5.8
11	6.2	20	29	26	32	45	142	98	19	32	4.4	6.2
12	6.6	20	29	24	31	45	137	93	18	30	5.1	6.2
13	6.6	22	30	21	31	47	132	93	18	28	5.5	5.5
14	6.2	23	29	22	30	49	120	88	20	24	5.8	4.4
15	6.2	21	26	24	30	52	115	82	22	23	5.8	4.4
16	6.2	20	26	24	31	49	104	76	21	21	6.2	4.4
17	6.6	20	25	24	30	48	104	76	21	19	5.8	4.4
18	6.6	21	24	24	30	47	98	71	20	19	5.8	5.1
19	8.8	21	24	24	31	46	98	70	19	19	5.8	6.2
20	8.8	*20	23	25	31	47	104	67	26	16	5.8	6.6
21	9.3	23	22	26	30	51	120	62	32	13	6.6	7.0
22	9.3	24	22	27	30	53	148	57	38	13	10	6.2
23	* 10	30	21	30	30	54	159	53	36	14	15	6.2
24	11	32	21	31	28	54	148	49	32	14	17	5.5
25	11	32	22	33	28	62	148	45	31	13	19	5.5
26	11	32	22	34	29	82	142	42	30	12	19	5.1
27	11	31	22	34	28	115	142	42	28	12	18	5.5
28	10	30	21	33	27	126	148	39	25	*13	18	5.8
29	9.9	30	21	32	26	126	170	36	23	12	19	5.8
30	9.3	28	20	32	---	126	170	32	20	9.3	18	5.8
31	9.9	---	20	32	---	126	---	30	---	7.9	16	---
Total	246.1	673	748	791	900	1,797	4,039	2,715	713	564.2	292.8	210.2
Mean	7.94	22.4	24.1	25.5	31.0	58.0	135	87.6	23.8	18.2	9.45	7.01
Cfsm	0.060	0.168	0.181	0.192	0.233	0.436	1.02	0.659	0.179	0.137	0.071	0.053
In.	0.07	0.19	0.21	0.22	0.25	0.50	1.13	0.76	0.20	0.16	0.08	0.06

Calendar year 1963 : Max 258 Min 4.2 Mean 51.3 Cfsm 0.386 In. 5.24
Water year 1963-64 : Max 170 Min 4.4 Mean 37.4 Cfsm 0.281 In. 3.83

Peak discharge (base, 250 cfs).--No peak above base.

* Discharge measurement made on this day.

4-1005. Elkhart River at Goshen, Ind.

Location.--Lat 41°35', long 85°50', near line between secs. 8 and 9, T. 36 N., R. 6 E., on right bank 20 ft downstream from River Avenue Bridge at Goshen and half a mile upstream from Rock Run.

Drainage area.--580 sq mi.

Records available.--April 1931 to September 1964. Periodic sediment samples collected since 1963.

Gage.--Water-stage recorder. Datum of gage is 769.43 ft above mean sea level, datum of 1929. Prior to Nov. 20, 1931, chain gage at same site and datum.

Average discharge.--33 years, 492 cfs.

Extremes.--Maximum discharge during year, 830 cfs Apr. 22 (gage height, 3.72 ft); minimum, 6.6 cfs Aug. 11 (gage height, 1.38 ft), regulation caused by storage behind dam about 3½ miles above gage.
1931-64: Maximum discharge, 5,440 cfs Apr. 4, 1950 (gage height, 10.15 ft); maximum gage height, 10.33 ft July 10, 1951; minimum discharge, that of Aug. 11, 1964.

Remarks.--Records fair. The flow is regulated by three powerplants above station.

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-3, June 23 to Sept. 22)

Oct. 1 to Jan. 12		Jan. 13 to Sept. 30			
1.9	72	1.15	6.3	2.0	126
2.0	96	1.2	8.0	2.5	290
2.3	170	1.3	12	3.0	480
		1.5	28	4.0	995
		1.7	59		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	120	130	b 120	196	154	480	620	170	118	105	91
2	106	125	127	b 120	188	185	480	595	157	110	105	80
3	103	120	127	122	188	179	570	570	154	98	103	78
4	103	120	127	a 122	173	188	645	548	140	100	103	76
5	101	120	125	a 123	179	* 176	548	525	146	100	93	74
6	101	127	125	*a 125	*179	220	570	525	140	108	85	72
7	96	130	122	137	179	202	*720	502	151	206	87	70
8	94	127	127	137	163	213	670	* 502	176	480	87	74
9	91	125	132	144	146	213	595	480	166	* 525	79	69
10	94	125	134	b 140	146	255	525	440	146	360	11	65
11	94	127	130	137	157	238	502	400	140	290	7.0	61
12	91	125	134	b 140	154	238	480	380	138	255	35	59
13	84	132	130	b 250	166	255	460	400	129	220	96	59
14	74	130	b 122	185	157	290	440	380	134	202	89	55
15	68	127	b 116	140	154	308	420	342	173	206	85	57
16	82	125	b 111	137	154	290	400	342	213	182	83	55
17	86	125	b 108	134	148	272	400	325	179	173	82	57
18	84	127	b 108	132	148	272	380	a 315	154	170	89	59
19	79	125	b 108	143	154	255	380	a 305	143	163	105	59
20	86	* 127	b 110	157	151	255	420	a 295	182	166	96	59
21	106	130	b 110	185	148	272	548	a 280	238	151	110	59
22	* 132	160	b 112	176	146	290	775	a 270	220	151	93	59
23	127	144	115	185	140	308	670	a 260	199	151	91	61
24	134	139	122	206	129	308	570	a 255	179	146	115	59
25	118	134	125	238	129	325	525	a 245	163	140	91	61
26	108	149	127	182	164	480	502	*a 235	148	140	108	61
27	108	137	125	154	143	645	525	220	140	*126	103	65
28	106	132	125	176	121	548	570	196	134	121	93	*74
29	106	137	125	166	118	525	645	188	123	118	89	82
30	118	132	b 122	185	---	502	645	188	121	108	96	80
31	115	---	b 120	199	---	480	---	182	---	105	*93	---
Total	3,098	3,903	3,781	4,897	4,518	9,341	15,060	11,310	4,769	5,689	2,707.0	1,990
Mean	99.9	130	122	158	156	301	535	365	160	184	87.3	66.3
Cfsm	0.17	0.224	0.210	0.272	0.269	0.519	0.922	0.629	0.276	0.317	0.151	0.114
In.	0.20	0.25	0.24	0.31	0.29	0.60	1.03	0.72	0.31	0.37	0.17	0.13

Calendar year 1963: Max 1,650 Min 50 Mean 265 Cfsm 0.457 In. 6.20
Water year 1963-64: Max 775 Min 7.0 Mean 197 Cfsm 0.340 In. 4.62

Peak discharge (base, 1,800 cfs).--No peaks above base.

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.

4-1010. St. Joseph River at Elkhart, Ind.

Location.--Lat 41°41'30", long 85°58'25", in NE¼ sec. 5, T. 37 N., R. 5 E., on left bank 100 ft downstream from Elkhart River, 200 ft upstream from Main Street Bridge in Elkhart, and 1,900 ft downstream from Christiana Creek.

Drainage area.--3,339 sq mi.

Records available.--August 1947 to September 1964. Gage heights at site three-quarters of a mile downstream at different datum for September 1924 to March 1926 are available in the district office.

Gage.--Water-stage recorder (digital). Datum of gage is 700.00 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 2,928 cfs.

Extremes.--Maximum discharge during year, 4,860 cfs Apr. 22 (gage height, 20.56 ft); minimum daily, 336 cfs Aug. 5.
1947-64: Maximum discharge, 18,400 cfs Apr. 5, 1950 (gage height, 27.82 ft); minimum daily, that of Aug. 5, 1964.

Remarks.--Records fair. The flow is regulated by Elkhart Hydroelectric Plant, 2,400 ft upstream, and by a hydroelectric plant on Elkhart River at Goshen.

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

Oct. 1 to Nov. 3		Nov. 4 to June 2		June 3 to Sept. 30	
17.3	414	17.3	520	17.1	290
17.4	489	17.4	590	17.3	440
17.7	725	17.6	730	17.5	600
18.0	1,010	18.0	1,100	17.7	780
19.0	2,200	19.0	2,350	18.0	1,090
		20.0	3,890	19.0	2,350

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1963 TO SEPTEMBER 1964

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1,020	1,010	655	842	1,610	895	2,390	2,600	1,220	761	697	819
2	941	789	1,290	727	993	1,350	2,550	2,630	1,570	812	693	788
3	1,050	484	1,170	1,040	1,260	1,320	2,800	2,650	1,010	956	587	756
4	837	1,190	1,130	1,290	1,440	1,170	3,290	2,430	1,120	892	464	724
5	687	1,300	1,140	917	1,490	* 1,080	1,830	2,710	1,340	924	336	744
6	569	1,160	1,130	* 911	*1,040	1,240	3,230	2,450	1,190	741	653	744
7	780	1,130	1,140	1,110	1,190	1,010	* 3,730	2,280	966	1,300	* 579	720
8	781	1,130	797	1,120	1,260	684	3,230	* 2,790	1,210	2,970	616	647
9	846	1,230	1,060	1,180	1,020	1,710	3,290	2,240	1,320	* 1,960	742	649
10	839	1,460	1,180	953	902	1,860	2,940	2,410	1,370	1,540	717	672
11	837	1,200	1,390	1,120	1,130	1,820	2,830	2,380	1,380	1,330	742	797
12	695	1,030	1,080	928	1,170	1,750	2,220	2,480	1,330	1,080	715	633
13	526	1,110	1,170	778	1,140	1,530	2,570	2,210	1,300	1,150	737	647
14	672	975	640	1,090	1,220	1,820	2,780	2,160	1,160	1,240	779	583
15	750	1,060	b 800	1,110	1,340	1,000	2,310	2,470	1,440	1,170	749	585
16	873	848	704	1,070	910	1,670	2,520	2,310	1,450	1,080	731	635
17	747	560	b 880	1,100	955	2,030	2,230	2,220	1,460	1,030	707	665
18	760	1,120	b 850	1,090	1,130	1,730	1,970	2,020	1,410	1,020	727	689
19	644	1,410	b 830	1,080	1,160	1,500	2,100	2,190	1,250	1,120	704	720
20	459	1,090	b 800	951	1,140	1,630	2,150	2,180	1,230	983	725	670
21	595	* 1,180	b 750	1,270	1,130	1,660	2,590	2,110	1,230	1,110	853	704
22	878	1,390	687	1,230	1,150	1,090	2,940	1,900	1,500	1,080	868	638
23	1,150	1,180	813	1,220	835	1,630	2,520	1,770	1,890	1,050	902	640
24	*821	866	1,090	1,490	968	2,120	2,640	1,580	1,850	1,010	838	684
25	1,040	1,150	901	1,550	1,080	1,670	2,140	1,970	1,490	939	852	713
26	625	1,200	801	1,200	1,140	2,510	2,420	* 1,650	1,310	848	812	798
27	454	1,240	1,120	1,130	1,480	2,330	2,370	1,570	1,240	* 771	822	938
28	636	1,140	1,010	1,380	1,230	2,470	2,690	1,500	1,110	750	909	* 879
29	1,120	1,290	1,030	1,290	940	2,450	2,930	1,260	1,140	717	890	843
30	941	994	758	1,490	------	2,490	3,060	1,620	1,070	741	865	825
31	956	------	893	1,270	------	2,830	------	1,410	------	644	* 850	------
TOTAL	24,529	32,916	29,689	34,927	33,453	52,049	79,260	66,150	39,556	32,719	22,861	21,639
MEAN	791	1,097	958	1,127	1,154	1,679	2,642	2,134	1,319	1,055	737	721
CFSM	.237	.329	.287	.338	.346	.503	.791	.639	.395	.316	.221	.216
IN	.27	.37	.33	.39	.37	.58	.88	.74	.44	.36	.25	.24

CALENDAR YEAR 1963 MAX 5,970 MIN 454 MEAN 1,630 CFSM .488 INCHES 6.63
WATER YEAR 1963-64 MAX 3,730 MIN 336 MEAN 1,283 CFSM .384 INCHES 5.23

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

4-1015. St. Joseph River at Niles, Mich.

Location.--Lat 41°49'45", long 84°15'35", in SW¼ sec. 26, T. 7 S., R. 17 W., on right bank 100 ft upstream from Main Street Bridge at Niles, 0.6 mile downstream from dam of French Paper Co., 1 mile upstream from Dowagiac River, and at mile 44.

Drainage area.--3,666 sq mi.

Records available.--October 1930 to September 1964. Monthly discharge only for some periods, published in WSP 1307.

Gage.--Water-stage recorder (digital). Datum of gage is 635.02 ft above mean sea level, datum of 1929. Oct. 1, 1930 to Feb. 11, 1931, tape gage on Main Street Bridge, and Feb. 12 to June 30, 1931, staff gage 50 ft upstream from present site (gage heights referred to mean sea level). Since Oct. 1, 1943, auxiliary gage is headwater gage at hydroelectric plant at Buchanan Dam, 8 miles downstream.

Average discharge.--34 years, 3,038 cfs.

Extremes.--Maximum discharge during year, 4,610 cfs Apr. 6 (gage height, 4.38 ft); minimum daily discharge, 678 cfs Aug. 6. 1930-64: Maximum discharge, 20,200 cfs Apr. 5, 1950 (gage height, 13.10 ft); minimum daily, 420 cfs Aug. 30, 1931.

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

Cooperation.--Gage-height record at auxiliary gage furnished by Indiana and Michigan Electric Co.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,010	1,160	1,000	1,150	1,380	990	2,680	2,910	1,600	1,320	a 700	750
2	1,090	1,350	1,310	1,270	a1,300	1,230	3,090	3,070	1,400	1,180	a 800	841
3	1,010	726	* 1,360	1,140	a1,200	1,320	3,410	2,510	1,450	1,180	a 900	785
4	1,090	1,150	1,260	901	*a1,500	* 1,330	* 2,500	2,800	1,350	1,010	926	806
5	874	1,480	1,290	1,340	1,440	1,300	a 2,500	2,670	* 1,200	889	806	784
6	764	* 1,350	1,270	* 1,100	1,260	967	a 3,500	2,670	1,240	1,540	678	737
7	1,150	1,390	1,360	1,170	1,120	1,410	a 3,800	2,580	1,350	1,480	710	762
8	1,100	1,330	1,090	1,220	a1,000	963	a 3,100	3,060	1,360	2,220	691	1,200
9	*1,080	1,230	1,200	1,260	a1,300	1,490	a 3,600	2,570	1,380	2,090	710	1,010
10	893	1,130	1,330	1,260	a1,000	a 2,200	a 3,100	2,560	1,450	1,940	1,020	* 932
11	1,020	1,700	1,390	1,110	a1,100	2,290	a 3,200	2,610	1,460	1,520	1,020	969
12	932	1,420	1,390	1,100	a1,000	2,090	a 2,000	2,680	1,540	1,410	* 943	859
13	899	1,340	1,060	1,000	a1,100	1,740	a 3,000	* 2,450	1,770	1,620	896	750
14	1,250	1,470	1,230	1,100	a1,400	1,650	2,880	2,340	1,200	1,490	896	816
15	1,060	1,070	1,060	1,100	1,310	1,780	2,560	2,530	1,700	*1,400	912	758
16	904	1,310	1,100	1,150	988	1,350	2,520	2,370	1,730	1,370	825	694
17	1,190	849	1,100	1,170	1,380	1,850	2,520	2,520	2,000	1,270	1,030	739
18	988	1,270	1,000	1,280	1,180	2,130	2,040	2,350	1,530	1,380	851	775
19	1,140	1,420	800	1,120	1,100	1,760	2,370	2,410	1,400	1,200	811	986
20	920	1,470	900	1,290	1,300	1,460	2,560	2,090	1,560	1,290	784	823
21	1,080	1,410	800	1,400	1,220	1,960	2,680	2,040	1,620	1,310	1,330	1,250
22	1,040	1,520	750	1,340	971	1,850	3,020	2,080	2,020	1,400	858	1,120
23	1,010	1,540	700	1,420	992	1,360	2,760	1,680	1,750	1,310	951	1,020
24	1,350	1,140	946	1,260	1,080	2,180	2,710	1,830	1,730	a1,300	1,200	1,040
25	1,370	1,210	1,210	1,890	1,120	2,230	2,590	2,100	1,660	a1,300	840	899
26	875	1,260	1,180	1,360	1,100	2,470	2,410	1,990	1,340	a1,000	878	804
27	1,010	1,330	1,150	1,100	1,350	2,740	2,780	1,810	1,400	a1,200	899	1,170
28	1,060	1,330	1,260	1,200	1,270	2,790	2,580	1,550	1,470	a1,200	942	1,290
29	978	1,020	1,170	1,250	1,230	2,650	3,400	1,660	1,040	a1,000	1,060	1,010
30	1,170	1,650	1,080	1,520	---------	2,980	3,400	1,150	1,340	a 900	1,070	1,010
31	1,430	----------	1,320	1,440	---------	3,070	----------	1,410	----------	a 800	1,040	----------
Total	32,737	39,025	35,066	38,411	34,691	57,580	85,260	71,050	45,040	41,519	27,977	27,389
Mean	1,056	1,301	1,131	1,239	1,196	1,857	2,842	2,292	1,501	1,339	902	913
Cfsm	0.288	0.355	0.309	0.338	0.326	0.507	0.775	0.625	0.409	0.365	0.246	0.249
In.	0.33	0.40	0.36	0.39	0.35	0.58	0.86	0.72	0.46	0.42	0.28	0.28

Calendar year 1963: Max 6,390 Min 648 Mean 1,797 Cfsm 0.490 In. 6.65
Water year 1963-64: Max 3,800 Min 678 Mean 1,464 Cfsm 0.399 In. 5.43

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 16-23, Jan. 12-15, 27, 28.

GPO 820-311-11

4-1780. St. Joseph River near Newville, Ind.

Location.--Lat 41°23'10", long 84°48'05", in Ohio, in SW¼ sec. 18, T. 5 N., R. 1 E., on left bank 20 ft downstream from bridge on Ohio State Highway 249 and 3½ miles northeast of Newville.

Drainage area.--614 sq mi.

Records available.--October 1946 to September 1964. Monthly discharge only for some periods, published in WSP 1307.

Gage.--Water-stage recorder. Datum of gage 795.40 ft above mean sea level, datum of 1929. Prior to Oct. 22, 1947, wire-weight gage at same site and datum.

Average discharge.--18 years, 498 cfs.

Extremes.--Maximum discharge during year, 1,200 cfs Apr. 7 (gage height, 8.29 ft); minimum, 14 cfs Sept. 9, 10, 14-16 (gage height, 1.50 ft).
1946-64: Maximum discharge, 9,710 cfs Apr. 6, 1950 (gage height, 17.05 ft); minimum, that of Sept. 9, 10, 14-16, 1964; minimum gage height, 1.45 ft Sept. 30, 1953.

Remarks.--Records good, except those for periods of no gage-height record, or 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. 18 to Dec. 11)

Oct. 1 to June 21				June 22 to Sept. 30			
1.6	17	4.0	272	1.5	14	3.0	145
1.8	30	6.0	650	1.6	20	4.0	272
2.0	45	8.0	1,110	2.0	50	6.0	650
2.5	88	9.0	1,410	2.5	95		
3.0	141						

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	22	36	27	75	47	414	870	65	58	23	*27
2	20	24	35	27	75	54	396	730	61	53	21	25
3	20	27	34	28	*73	55	690	570	*57	51	30	23
4	19	30	33	31	65	65	920	450	53	48	57	21
5	24	38	31	32	60	125	995	360	52	55	38	19
6	27	39	33	34	55	*95	1,110	306	51	58	26	18
7	24	38	34	*37	51	120	1,170	*256	51	58	22	17
8	23	38	36	38	49	145	*1,050	228	53	*80	19	16
9	21	36	38	80	47	175	920	202	57	95	18	15
10	19	34	39	108	46	175	750	242	74	95	16	14
11	20	32	42	100	45	130	550	288	83	85	17	16
12	20	30	42	78	45	170	432	242	69	72	18	17
13	20	30	36	68	45	215	360	215	61	63	19	16
14	20	30	34	58	40	342	306	202	53	72	32	15
15	20	31	31	52	40	530	272	215	52	63	35	15
16	20	31	29	49	39	414	242	242	57	57	29	14
17	20	31	28	47	38	324	215	215	57	51	25	15
18	20	37	27	48	38	242	202	189	57	46	21	16
19	20	*34	26	50	37	189	189	189	52	42	20	23
20	21	34	26	80	37	160	215	165	61	38	20	25
21	24	37	25	108	37	189	432	147	221	35	23	31
22	*21	39	25	108	36	272	770	129	650	32	28	30
23	20	49	25	105	36	256	770	113	530	29	34	29
24	21	49	27	105	36	228	670	103	324	27	47	26
25	21	50	27	125	36	308	510	93	202	28	90	24
26	21	47	29	125	36	810	378	93	145	30	85	24
27	21	47	28	110	36	945	378	103	110	31	63	24
28	21	44	28	95	39	920	790	93	90	*27	52	24
29	21	40	27	85	39	830	970	83	76	25	44	*24
30	22	38	27	75	----------	650	970	78	63	24	36	23
31	21	----------	27	70	----------	490	----------	69	----------	24	31	----------
Total	652	1,086	965	2,183	1,331	9,670	18,036	7,480	3,587	1,552	1,039	626
Mean	21.0	36.2	31.1	70.4	45.9	312	601	241	120	50.1	33.5	20.9
Cfsm	0.034	0.059	0.051	0.115	0.075	0.508	0.979	0.393	0.195	0.082	0.055	0.034
In.	0.04	0.07	0.06	0.13	0.08	0.59	1.09	0.45	0.22	0.09	0.06	0.04

Calendar year 1963 : Max 2,370 Min 18 Mean 196 Cfsm 0.319 In. 4.35
Water year 1963-64 : Max 1,170 Min 14 Mean 132 Cfsm 0.215 In. 2.92

Peak discharge (base, 2,500 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12, Jan. 8 to Mar. 12. No gage-height record Dec. 13 to Jan. 7.

4-1790. St. Joseph River at Cedarville, Ind.

Location.--Lat 41°12', long 85°01', in SE¼ sec. 28, T. 32 N., R. 13 E., on left bank 500 ft upstream from highway bridge, 0.4 mile south of Cedarville, 2,700 ft downstream from Cedarville Dam, and 0.5 mile upstream from mouth of Cedar Creek.

Drainage area.--783 sq mi.

Records available.--January 1931 to May 1932, October 1955 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 757.94 ft above mean sea level, datum of 1929. Jan. 1, 1931 to May 31, 1932, tape gage on downstream side of highway bridge 500 ft downstream from present site at datum approximately 20 ft lower.

Average discharge.--9 years (1955-64), 522 cfs.

Extremes.--Maximum daily discharge during year, 1,880 cfs Mar. 26; minimum daily, 22 cfs Sept. 29.
1931-32, 1955-64: Maximum discharge, 10,100 cfs May 1, 1956 (gage height, 18.07 ft, from floodmarks); minimum daily, 1.6 cfs May 22, 27, 1958.

Remarks.--Records good. Flow regulated by reservoir above station.

Rating table, (gage height, in feet, and discharge, in cubic feet per second)
(Discharge of Cedar Creek near Cedarville used as a factor Mar. 15, 26-30, Apr. 3-10, 21-25, Apr. 28 to May 2; indefinite stage-discharge relation Mar. 14, 16, 22, 23, 25, 31, Apr. 1, 11, 12, 20, 26, 27, May 3, 4)

1.4	19	3.0	305
1.6	37	4.0	640
2.0	92	5.0	1,200
2.5	190	7.0	2,260

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	39	54	39	110	63	600	1,100	110	79	58	52
2	29	38	58	44	97	94	840	1,070	97	68	57	*50
3	30	36	53	50	90	120	* 1,020	730	90	65	57	50
4	29	37	53	50	*94	* 166	1,290	640	* 90	61	57	50
5	29	50	52	50	92	293	1,210	530	78	52	62	50
6	29	76	50	50	101	270	1,540	*348	75	54	65	50
7	29	56	50	50	85	235	1,540	348	108	125	62	50
8	29	49	66	* 50	66	224	1,420	318	112	*174	59	50
9	28	49	68	145	69	441	1,220	293	76	106	57	50
10	28	49	62	129	72	395	1,060	270	70	114	49	50
11	29	50	52	106	73	258	710	270	76	118	43	50
12	30	48	47	108	72	235	640	305	101	120	43	50
13	29	48	53	87	70	293	530	428	106	97	43	50
14	28	50	54	62	69	733	428	361	99	79	43	49
15	28	45	47	56	69	854	363	270	124	79	43	47
16	28	45	47	56	69	660	293	323	111	81	43	34
17	28	44	53	57	62	530	270	354	62	79	44	41
18	28	47	53	57	58	293	281	235	58	76	47	42
19	29	* 49	52	57	62	270	270	246	63	66	47	32
20	29	49	52	107	62	258	480	235	72	58	45	32
21	30	53	52	168	63	400	1,190	190	370	54	47	25
22	*29	54	52	168	61	670	1,350	190	1,340	48	47	27
23	31	62	44	158	59	580	1,070	168	960	57	70	37
24	32	63	38	148	59	395	731	138	579	61	38	44
25	33	62	38	168	59	628	734	148	305	61	33	39
26	34	61	38	168	59	1,880	640	203	212	57	41	34
27	36	59	38	158	59	1,420	664	250	168	48	62	34
28	34	59	38	138	59	1,180	1,240	168	108	49	70	28
29	36	65	38	120	58	1,110	1,200	125	92	* 57	65	*22
30	30	57	38	114	---	948	1,210	116	92	58	57	28
31	31	---	39	110	---	710	---	120	---	58	53	---
Total	931	1,549	1,529	3,028	2,078	16,606	26,034	10,490	6,004	2,359	1,607	1,247
Mean	30.3	51.6	49.3	97.7	71.7	536	868	338	200	76.1	51.8	41.6
Cfsm	0.039	0.066	0.063	0.125	0.092	0.685	1.11	0.432	0.256	0.097	0.066	0.053
In.	0.04	0.07	0.07	0.14	0.10	0.79	1.24	0.50	0.29	0.11	0.08	0.06

Calendar year 1963: Max 2,660 Min 21 Mean 236 Cfsm 0.301 In. 4.07
Water year 1963-64: Max 1,880 Min 22 Mean 201 Cfsm 0.257 In. 3.49

* Discharge measurement made on this day.

4-1795. Cedar Creek at Auburn, Ind.

Location.--Lat 41°21', long 85°03', in SW¼ sec. 29, T. 34 N., R. 13 E., near center of span on upstream side of Ninth Street Bridge in Auburn, 2 miles upstream from Peckhart ditch.

Drainage area.--93 sq mi, approximately.

Records available.--July 1943 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 847.14 ft above mean sea level (City of Auburn bench mark). Prior to Aug. 28, 1946, staff gage, and Aug. 28, 1946, to Sept. 30, 1953, wire-weight gage at same site and datum.

Average discharge.--21 years, 66.9 cfs.

Extremes.--Maximum discharge during year, 420 cfs Mar. 26 (gage height, 5.07 ft); minimum, 1.5 cfs Sept. 6, 7, 13; minimum gage height, 0.59 ft Aug. 9, Sept. 27.
1943-64: Maximum discharge, 1,520 cfs Apr. 5, 1950 (gage height, 9.90 ft); minimum, 0.5 cfs Nov. 12, 1953; minimum gage height, that of Aug. 9, Sept. 27, 1964.

Remarks.--Records fair.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Nov. 4, Mar. 2 to Apr. 20)

0.5	1.3	1.2	22
.6	2.5	1.5	41
.7	4.3	2.0	85
.8	6.8	3.0	182
1.0	14	5.0	420

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	4.5	3.7	4.7	11	4.5	72	140	10	7.5	3.1	*3.1
2	3.9	3.7	4.1	4.9	10	6.8	76	108	10	7.1	3.3	3.1
3	3.3	3.1	4.5	6.2	9.5	*8.8	182	90	*10	6.8	3.9	3.0
4	3.9	4.8	4.3	5.4	8.8	15	140	72	10	6.2	3.9	3.3
5	3.9	7.1	4.1	4.5	*8.5	35	103	62	9.2	5.1	4.1	2.4
6	3.3	5.9	4.5	4.9	8.5	27	116	52	9.2	5.4	3.9	1.7
7	3.5	4.9	4.5	*4.9	7.5	23	140	*46	10	18	3.5	1.7
8	3.7	4.5	7.0	5.1	7.1	20	*126	41	10	*17	3.1	3.0
9	3.9	3.9	6.8	18	5.4	33	98	37	9.2	12	2.5	3.5
10	4.7	3.3	6.5	9.5	5.2	32	80	34	8.8	10	3.1	3.7
11	4.5	3.7	5.9	6.8	5.0	31	62	32	8.2	8.2	5.2	4.3
12	4.1	4.3	5.6	5.4	4.9	30	54	30	7.8	7.1	4.7	2.2
13	3.7	4.7	5.2	5.4	4.8	38	48	32	8.2	6.8	4.3	1.5
14	3.7	4.7	4.7	5.7	4.7	116	42	31	7.1	7.8	4.3	2.4
15	3.9	4.5	4.2	6.2	4.7	140	37	28	9.2	7.1	3.7	2.8
16	4.5	3.7	4.1	6.5	4.5	103	33	27	9.2	6.5	2.8	3.0
17	3.3	3.3	3.9	5.9	5.4	80	29	25	8.2	6.2	4.1	3.1
18	3.5	4.1	3.8	4.9	5.6	62	27	23	7.8	5.4	4.7	5.8
19	3.0	*4.7	3.8	4.5	5.9	45	30	22	11	4.7	5.1	8.9
20	2.6	5.6	3.7	8.7	5.9	40	50	20	22	5.4	5.4	3.9
21	3.1	5.4	3.7	16	5.6	116	240	19	54	5.4	6.6	3.5
22	3.9	6.0	3.7	16	5.1	160	276	18	41	5.1	4.3	3.7
23	*3.9	6.2	4.5	13	4.3	140	193	17	27	5.1	3.3	3.5
24	4.1	4.5	4.7	13	4.3	116	140	17	19	4.7	3.9	3.5
25	4.3	4.5	4.5	16	4.4	111	112	16	16	5.0	4.1	3.5
26	3.7	4.7	4.9	13	4.5	348	90	22	13	4.7	3.9	3.1
27	3.0	5.1	5.6	11	4.5	216	126	16	11	3.9	3.9	2.6
28	3.3	4.3	4.9	9.2	4.5	160	336	14	9.5	*4.1	4.4	3.0
29	3.7	4.3	4.3	7.8	4.5	130	252	12	9.2	4.3	3.0	*3.3
30	3.9	3.9	4.5	7.1	----------	103	182	11	8.5	3.7	2.0	3.3
31	4.5	----------	4.6	8.5	----------	85	----------	11	----------	3.5	2.8	----------
Total	116.6	137.9	144.8	258.7	174.6	2,575.1	3,492	1,125	403.3	209.8	120.9	99.4
Mean	3.76	4.60	4.67	8.35	6.02	83.1	116	36.3	13.4	6.77	3.90	3.31
Cfsm	0.040	0.049	0.050	0.090	0.065	0.894	1.25	0.390	0.144	0.073	0.042	0.036
In.	0.05	0.05	0.06	0.10	0.07	1.03	1.40	0.45	0.16	0.08	0.05	0.04

Calendar year 1963 : Max 458 Min 2.6 Mean 33.8 Cfsm 0.363 In. 4.93
Water year 1963-64 : Max 348 Min 1.5 Mean 24.2 Cfsm 0.260 In. 3.54

Peak discharge (base, 700 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 13-22, 31, Jan. 13, 14, 27, Feb. 10-14, 24-28.

4-1800. Cedar Creek near Cedarville, Ind.

Location.--Lat 41°13', long 85°05', in NW¼ sec. 19, T. 32 N., R. 13 E., on left bank at downstream side of bridge on State Highway 427, 2 3/4 miles northwest of Cedarville and 4 miles upstream from mouth.

Drainage area.--279 sq mi.

Records available.--October 1946 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 780.09 ft above mean sea level, datum of 1929. Prior to Nov. 4, 1947, wire-weight gage at same site and datum.

Average discharge.--18 years, 233 cfs.

Extremes.--Maximum discharge during year, 1,300 cfs Mar. 26 (gage height, 5.23 ft); minimum discharge, 18 cfs Sept. 6-9, 14; minimum gage height, 1.22 ft Sept. 7, 8, 9.
1946-64: Maximum discharge, 4,870 cfs Apr. 5, 1950 (gage height, 11.67 ft); minimum, 12 cfs Oct. 3, 1949; minimum gage height, that of Sept. 7, 8, 9, 1964.

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. 25-29, Apr. 3, 4, 7, 8, 30, May 1)

1.2	14
1.3	21
1.4	31
1.6	60
2.0	138
3.0	469
5.0	1,260

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	27	23	32	43	28	220	432	47	34	23	20
2	22	29	22	34	43	34	220	329	46	32	22	*20
3	22	26	22	38	38	*43	*450	263	44	31	22	20
4	23	24	23	34	36	55	432	210	*41	30	22	19
5	22	30	23	30	*35	114	312	180	40	28	23	19
6	21	31	23	28	35	100	378	*154	41	27	22	18
7	21	28	23	*27	35	83	543	134	49	54	22	18
8	20	26	26	26	32	71	450	123	49	*131	21	18
9	21	25	28	52	31	123	346	112	44	96	20	18
10	21	24	25	55	30	120	263	104	40	67	20	19
11	21	23	25	44	29	102	230	98	39	50	25	21
12	21	22	25	38	29	102	184	94	36	43	30	22
13	21	24	24	41	28	102	171	124	38	46	24	20
14	21	25	26	44	28	284	148	112	36	40	24	18
15	22	25	26	44	27	346	154	94	43	39	21	19
16	22	24	25	46	27	230	114	91	52	36	20	20
17	22	23	24	44	25	161	108	87	41	34	19	20
18	22	23	23	43	26	118	100	82	40	32	20	22
19	22	*23	23	39	27	100	108	76	38	31	20	41
20	22	24	22	52	27	91	168	74	80	29	20	27
21	22	28	22	69	26	156	780	69	116	32	23	21
22	*22	29	22	60	26	296	1,110	65	142	30	29	22
23	23	38	25	52	26	263	700	60	92	29	25	23
24	23	31	26	47	27	223	469	57	69	28	21	21
25	23	25	25	60	27	336	346	55	57	27	21	21
26	23	25	30	58	27	1,180	280	76	49	28	20	20
27	23	25	31	50	27	900	329	132	43	26	20	20
28	23	25	28	45	27	543	1,020	82	39	27	20	20
29	22	24	24	39	27	414	900	65	35	28	23	*20
30	23	24	24	35	---	312	620	57	35	26	20	20
31	24	---	29	34	---	263	---	50	---	24	19	---
Total	681	780	767	1,340	871	7,293	11,653	3,741	1,561	1,215	681	627
Mean	22.0	26.0	24.7	43.2	30.0	23.5	388	121	52.0	39.2	22.0	20.9
Cfsm	0.079	0.093	0.089	0.155	0.108	0.842	1.39	0.434	0.186	0.141	0.079	0.075
In.	0.09	0.10	0.10	0.18	0.12	0.97	1.55	0.50	0.21	0.16	0.09	0.09

Calendar year 1963 : Max 1,180 Min 20 Mean 103 Cfsm 0.369 In. 5.03
Water year 1963-64 : Max 1,180 Min 18 Mean 85.3 Cfsm 0.306 In. 4.16

Peak discharge (base, 2,000 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14, Dec. 17 to Jan. 5, Jan. 10-13, 27-29, Feb. 9-12, 22-25, 28, 29.

4-1815. St. Marys River at Decatur, Ind.

Location.--Lat 40°51', long 84°56', in SW¼ sec. 27, T. 28 N., R. 14 E., on right bank 10 ft downstream from bridge on U. S. Highway 27, half a mile north of city limits of Decatur, and half a mile upstream from Holthouse ditch.

Drainage area.--615 sq mi.

Records available.--October 1946 to September 1964. Monthly discharge only for some periods, published in WSP 1307. Gage-height records collected at site half a mile upstream January 1932 to November 1954, and at present site thereafter are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 760.44 ft above mean sea level, datum of 1929. Prior to July 27, 1948, wire-weight gage at same site and datum.

Average discharge.--18 years, 503 cfs.

Extremes.--Maximum discharge during year, 6,450 cfs Apr. 23 (gage height, 20.66 ft); minimum daily, 6.0 cfs Oct. 12, 17, 18, 27; minimum gage height, 1.96 ft Sept. 13-16.
1946-64: Maximum discharge, 11,300 cfs Feb. 10, 11, 1959; maximum gage height, 24.22 ft Feb. 10, 1959 (ice jam); minimum discharge, 4.7 cfs Oct. 19, 1960; minimum gage height, 1.73 ft Sept. 12, 1955.

Remarks.--Records good except those for periods of ice effect or indefinite stage-discharge relation, which are fair. Flow regulated by Grand Lake Reservoir. Slight diversion from or into Wabash River and into Miami and Erie Canal.

Rating tables except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 17 to Sept. 30)

Oct. 1 to Jan. 25
Apr. 8 to Sept. 30

1.6	5.8	3.0	67	7.0	630	15.0	2,690
1.8	9.7	3.5	107	9.0	1,050	18.0	3,900
2.0	15	4.0	161	11.0	1,560	21.0	6,900
2.5	36	5.0	292	13.0	2,110		

Jan. 26 to Apr. 7

2.1	18	4.0	122	11.0	1,560
2.4	30	5.0	240	15.0	2,690
3.0	56	7.0	600	19.0	4,550
3.5	82	9.0	1,050	20.0	5,510

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	10	13	15	61	50	240	1,200	54	32	16	15
2	8.6	11	12	17	54	*154	*893	972	* 53	32	17	14
3	7.6	13	12	19	* 47	540	3,210	803	50	23	17	*14
4	7.3	14	12	18	43	691	3,750	642	43	19	17	13
5	7.3	16	12	17	38	1,860	3,570	* 508	34	17	16	13
6	7.5	20	12	17	b 37	1,200	3,850	406	38	* 16	16	13
7	7.0	21	12	16	b 35	710	4,970	317	88	36	15	13
8	7.2	18	12	15	b 33	666	4,970	266	89	82	14	13
9	6.8	15	12	*37	b 31	1,390	3,750	232	49	72	13	12
10	6.6	14	12	35	b 30	2,540	2,600	200	41	66	14	12
11	6.2	13	12	30	b 29	2,330	1,590	177	33	53	19	12
12	6.0	12	13	27	b 28	2,220	1,080	157	33	75	19	11
13	6.2	12	13	26	b 28	2,600	810	151	44	88	16	11
14	6.4	12	13	23	b 27	3,490	590	232	47	76	15	11
15	6.4	12	13	21	b 26	4,200	452	143	166	68	15	10
16	6.2	12	12	20	b 25	3,650	320	100	220	56	14	11
17	6.0	12	11	20	b 25	2,780	264	115	108	42	14	11
18	6.0	13	11	21	b 24	1,860	222	137	83	34	16	13
19	8.5	13	11	23	24	1,200	478	89	81	29	15	21
20	7.0	*13	11	31	24	910	2,300	99	86	27	15	19
21	* 6.5	13	11	50	b 24	820	5,170	69	437	24	17	18
22	7.2	13	12	85	b 24	798	5,310	54	558	22	16	16
23	7.2	16	13	100	b 24	600	5,310	47	211	20	15	17
24	8.5	24	14	100	b 24	482	5,030	48	100	17	17	17
25	11	21	14	140	24	650	4,970	51	63	17	16	18
26	7.5	18	18	b 130	24	1,910	3,700	436	64	17	16	17
27	6.0	16	20	122	b 24	1,100	2,720	1,030	61	33	15	15
28	6.4	14	16	112	b 24	644	2,930	271	50	41	17	14
29	12	13	13	96	b 24	520	2,510	117	40	28	16	13
30	11	13	13	79	------	392	1,690	71	32	21	14	14
31	9.0	------	13	71	------	304	------	52	------	* 18	14	------
Total	233.1	437	398	1,533	885	43,261	82,249	9,192	3,056	1,201	486	421
Mean	7.52	14.6	12.8	49.5	30.5	1,396	2,742	297	102	38.7	15.7	14.0
Cfsm	0.012	0.024	0.021	0.080	0.050	2.27	4.46	0.483	0.166	0.063	0.026	0.023
In.	0.01	0.03	0.02	0.09	0.05	2.62	4.98	0.56	0.19	0.07	0.03	0.03

Calendar year 1963: Max 6,170 Min 6.0 Mean 229 Cfsm 0.372 In. 5.06
Water year 1963-64: Max 6,310 Min 6.0 Mean 392 Cfsm 0.637 In. 8.68

Peak discharge (base, 2,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-15	1000	18.56	4,270				
4-7	2300	19.96	5,510				
4-23	0100 to 0600	20.66	6,450				

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Stage-discharge relation indefinite Oct. 1 to Jan. 25.

4-1820. St. Marys River near Fort Wayne, Ind.

Location.--Lat 41°00', long 85°07', in NE¼ sec. 12, T. 29 N., R. 12 E., on left bank, 130 ft downstream from highway bridge, 4 miles south of Fort Wayne, and 12 miles upstream from confluence with St. Joseph River.

Drainage area.--753 sq mi.

Records available.--October 1930 to September 1964. Monthly discharge only for some periods published in WSP 1307. Fragmentary gage-height records for period November 1924 to October 1927 are available in the District office. Sediment records collected since 1953 by the Indiana Flood Control and Water Resources Commission.

Gage.--Water-stage recorder. Datum of gage is 748.61 ft above mean sea level, unadjusted. Prior to Apr. 13, 1939, chain gage on highway bridge at same datum.

Average discharge.--34 years, 553 cfs.

Extremes.--Maximum discharge during year, 6,450 cfs Apr. 23 (gage height, 14.33 ft); minimum discharge, 6.0 cfs Oct. 17, 18; minimum gage height, 0.48 ft Oct. 23.
1930-64: Maximum discharge, 13,600 cfs Feb. 11, 1959; maximum gage height, 19.42 ft Feb. 11, 1959 (ice jam); minimum observed, 3.4 cfs Oct. 19, 1934 (gage height, 0.28 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. The flow is sometimes regulated by Grand Lake. There is slight diversion from or into Wabash River basin and into Miami and Erie Canal.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-22, Oct. 24 to Nov. 23)

0.38	6	2.0	164
.5	10	3.0	375
.6	15	5.0	1,020
.8	28	8.0	2,220
1.0	43	13.0	5,160
1.5	93	15.0	7,380

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	11	17	a 20	88	45	350	1,500	82	42	21	14
2	9.2	12	16	a 23	77	*145	*577	1,160	*77	39	18	14
3	8.4	15	16	a 25	66	350	3,050	945	77	41	18	* 16
4	8.0	15	16	a 24	* 57	735	3,930	*770	68	31	19	14
5	8.0	17	16	a 22	55	1,780	3,930	605	58	26	18	14
6	8.4	21	15	a 22	52	1,620	4,050	485	54	* 23	18	13
7	7.6	22	14	a 20	49	875	4,410	375	58	50	17	12
8	* 8.0	19	16	*a 19	48	700	4,940	300	140	112	17	12
9	7.6	18	16	28	46	1,510	4,800	260	105	112	16	12
10	7.2	17	16	42	45	2,420	3,690	230	68	88	15	12
11	6.9	16	16	39	44	2,520	2,130	191	54	72	16	12
12	6.6	16	17	35	42	2,220	1,300	173	43	65	18	12
13	6.9	15	17	34	41	2,420	945	182	58	82	24	12
14	7.2	15	17	30	40	3,570	700	425	69	88	20	11
15	6.6	16	16	27	39	4,230	515	280	140	77	17	10
16	6.9	16	16	26	37	4,230	375	182	400	72	17	11
17	6.6	16	15	26	37	3,630	290	140	230	61	16	11
18	6.6	17	14	27	36	2,420	250	156	125	48	15	12
19	9.2	16	14	30	36	1,460	260	140	99	38	16	15
20	7.2	* 16	14	40	36	1,080	1,740	118	191	34	17	20
21	* 7.2	16	14	65	36	945	4,660	118	527	30	18	22
22	8.0	17	15	118	37	980	5,970	88	1,120	29	19	20
23	7.6	22	17	132	37	770	6,450	72	475	26	20	23
24	10	31	19	132	38	605	6,320	66	210	24	18	19
25	12	26	17	182	38	692	5,870	66	118	21	17	17
26	8.0	24	24	173	39	2,420	4,940	173	82	19	18	17
27	6.6	22	26	164	40	1,700	3,810	1,740	77	19	16	18
28	7.2	18	21	140	40	945	3,570	700	71	30	17	16
29	14	17	a 17	118	40	700	3,220	270	60	43	18	15
30	12	17	a 17	112	- - - - - -	545	2,320	148	49	*34	19	14
31	10	- - - - - -	a 17	99	- - - - - -	425	- - - - - -	105	- - ----	26	16	- - - - - - -
Total	256.7	536	518	1,994	1,316	48,687	89,362	12,163	4,985	1,502	549	440
Mean	8.28	17.9	16.7	64.3	45.4	1,571	2,979	392	166	48.5	17.7	14.7
Cfsm	0.011	0.024	0.022	0.085	0.060	2.09	3.96	0.521	0.220	0.064	0.024	0.020
In.	0.01	0.03	0.03	0.10	0.06	2.41	4.42	0.60	0.24	0.07	0.03	0.02

Calendar year 1963: Max 7,380 Min 6.6 Mean 272 Cfsm 0.361 In. 4.93
Water year 1963-64: Max 6,450 Min 6.6 Mean 443 Cfsm 0.588 In. 8.02

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-16	0200	11.77	4,350				
4-8	2300	12.93	5,080				
4-23	1200	14.33	6,450				

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 13-28, Jan. 9 to Mar. 3.

4-1825.90 Harber ditch at Fort Wayne, Ind.

Location.--Lat 41°00'27", long 85°10'58", in SW¼ sec. 33, T. 30 N., R. 12 E., at Ft. Wayne city limits, on left bank 50 ft upstream from State Highway 3 bridge and 3.2 miles upstream from mouth. The stream name changes to Fairfield ditch 3,850 ft downstream at bridge on lower Huntington Road.

Drainage area.--21.9 sq mi.

Records available.--May 1964 to September 1964. Discharge measurements available October 1960 to May 1964 and gage heights January 1961 to May 1964 at site 3,850 ft downstream.

Gage.--Water-stage recorder. Datum of gage is 757.00 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during period May to September, 207 cfs May 26 (gage height, 5.90 ft); minimum, 0.1 cfs Sept. 7 (gage height, 1.61 ft).

Remarks.--Records good.

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

1.6	0.1
1.7	.5
1.8	1.6
1.9	3.4
2.0	5.8
2.2	11
2.5	21
3.0	42
3.5	67
4.0	93
5.0	153

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									4.8	2.6	0.4	0.4
2									*4.4	2.8	1.4	.4
3									4.6	1.7	.8	* .4
4									4.1	1.0	.7	.5
5									2.8	.8	.8	.5
6									4.8	1.2	.7	.2
7									6.1	*21	.7	.2
8									5.8	23	.7	.3
9									4.4	10	.4	.7
10									4.4	5.1	.5	.7
11									2.6	3.2	3.3	.7
12									3.2	2.6	.7	.4
13									2.6	2.0	.4	.3
14									9.6	1.7	.4	.3
15									15	1.7	.2	.4
16									11	1.6	.2	.7
17									7.1	1.0	1.7	.5
18									4.8	.8	.6	2.6
19									9.4	.8	.4	4.3
20									36	.7	.5	.4
21								*3.9	28	.9	3.4	.5
22								3.9	37	.9	.4	.8
23								3.4	13	.9	.2	3.5
24								3.4	7.4	.7	.2	.8
25								2.8	4.6	.5	.2	.5
26								50	3.6	.4	.5	.4
27								*116	2.8	.5	.4	.5
28								32	2.2	.7	1.2	.4
29								14	2.2	.6	.4	.5
30					------			8.7	1.8	* .5	.5	* .4
31		------			------		------	6.3	------	.7	.6	------
Total									250.1	92.6	23.5	23.2
Mean									8.34	2.99	0.76	0.77
Cfsm									0.381	0.137	0.035	0.035
In.									0.42	0.16	0.04	0.04

Calendar year : Max Min Mean Cfsm In.
Water year : Max Min Mean Cfsm In.

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
5-26	2300	5.90	207				

* Discharge measurement made on this day.

4-1830. Maumee River at New Haven, Ind.

Location.--Lat 41°05', long 85°01', in SW¼ sec. 1, T. 30 N., R. 13 E., in center of span on downstream side of county road bridge, a quarter of a mile upstream from Wabash Railroad bridge, half a mile north of New Haven, and 6 miles downstream from confluence of St. Marys and St. Joseph Rivers.

Drainage area.--1,940 sq mi.

Records available.--December 1946 to September 1956 (high-water records only), October 1956 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 724.51 ft above mean sea level, datum of 1929. Prior to Sept. 7, 1956, wire-weight gage at same site and datum.

Average discharge.--8 years (1956-64), 1,401 cfs.

Extremes.--Maximum discharge during year, 9,630 cfs Apr. 22 (gage height, 15.19 ft); minimum daily, 48 cfs Oct. 6, 13.
1946-64: Maximum discharge, 19,100 cfs Feb. 16, 1950 (gage height, 21.4 ft); minimum daily since Sept. 7, 1956, that of Oct. 6, 13, 1963.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated at low stage by powerplant above station. Flow slightly regulated by upstream reservoirs.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 27 to Aug. 2, Sept. 14-30;
stage-discharge relation affected by ice Jan. 13, 14)

Oct. 1 to Jan. 8		Jan. 9 to Sept. 30	
1.9	34	2.0	62
2.1	70	2.8	235
2.2	90	3.5	480
2.4	130	5.0	1,340
2.8	220	9.0	4,060
3.0	270	13.0	7,430
3.5	440	16.0	10,400

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	183	106	57	295	229	1,400	3,640	319	176	91	110
2	63	92	110	63	250	312	*1,720	2,930	249	159	114	*106
3	61	84	279	94	185	*480	4,820	2,410	266	134	152	110
4	60	78	72	106	*198	956	6,120	1,890	*249	134	104	107
5	54	196	98	96	198	2,310	5,940	1,570	246	103	104	100
6	48	163	90	96	198	2,520	6,660	*1,280	261	82	104	88
7	52	145	98	98	198	1,600	7,130	1,010	302	*480	106	85
8	56	112	145	*108	148	1,200	7,330	926	376	731	102	95
9	56	82	137	559	158	2,450	7,330	806	331	419	90	100
10	*60	102	100	295	156	3,290	6,030	703	230	324	98	98
11	60	98	112	210	138	3,430	4,060	645	231	260	124	97
12	54	106	86	198	140	3,150	2,660	635	218	272	156	87
13	48	90	98	160	158	3,290	1,980	951	265	253	120	73
14	54	120	78	135	162	5,300	1,530	1,290	328	234	114	73
15	64	94	84	132	154	6,480	1,270	868	1,150	212	104	80
16	64	88	80	112	144	5,940	950	683	1,080	215	94	78
17	64	98	78	110	140	5,060	775	686	618	196	98	78
18	56	106	86	112	144	3,640	775	555	367	182	118	114
19	49	*96	90	124	142	2,310	775	521	290	154	*102	174
20	74	106	80	250	142	1,720	2,250	537	834	121	102	115
21	60	163	106	295	138	1,720	7,630	506	802	122	171	77
22	*58	136	86	348	130	2,240	9,530	201	2,820	139	134	142
23	60	220	86	365	142	1,980	9,330	330	1,870	158	128	131
24	71	152	76	330	104	1,460	8,630	328	1,200	115	136	90
25	61	126	70	570	134	1,860	8,030	286	602	108	118	80
26	82	122	72	400	162	6,030	7,130	779	438	101	110	77
27	61	108	80	348	144	5,220	6,120	2,590	301	98	108	85
28	82	88	82	330	130	3,220	6,750	1,500	256	98	132	81
29	60	120	78	265	132	2,590	6,390	661	210	*107	165	77
30	74	86	72	250	------	2,120	5,220	418	158	114	151	71
31	100	------	74	280	------	1,720	------	337	------	106	138	------
Total	1,930	3,560	2,989	6,896	4,664	85,827	146,265	32,472	16,867	6,107	3,688	2,879
Mean	62.3	119	96.4	222	161	2,769	4,875	1,047	562	197	119	96.0
Cfsm	0.032	0.061	0.050	0.114	0.083	1.43	2.51	0.540	0.290	0.102	0.061	0.050
In.	0.04	0.07	0.06	0.13	0.09	1.65	2.80	0.62	0.32	0.12	0.07	0.06

Calendar year 1963: Max 9,830 Min 48 Mean 658 Cfsm 0.339 In. 4.61
Water year 1963-64: Max 9,530 Min 48 Mean 858 Cfsm 0.442 In. 6.03

Peak discharge (base, 9,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-22	1900	15.19	9,630				

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 1 to Oct. 30.

4-1835. Maumee River at Antwerp, Ohio

Location.--Lat 41°11'56", long 84°44'40", in sec. 22, T. 3 W., R. 1 E., on left bank 425 ft downstream from bridge on State Highway 49, 1 mile north of Antwerp, Pauling County, 7 miles downstream from Indiana State line, and 10 miles upstream from Marie DeLarme Creek.

Drainage area.--2,049 sq mi.

Records available.--September 1921 to December 1935, April 1939 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 694.86 ft above mean sea level, adjustment of 1929. Prior to Sept. 13, 1925, chain gage at site 400 ft upstream at same datum.

Average discharge.--39 years, 1,639 cfs.

Extremes.--Maximum discharge during year, 9,890 cfs Apr. 22 (gage height, 13.24 ft); minimum, 49 cfs Oct. 8, 9 (gage height, 0.58 ft).
1921-35, 1939-64: Maximum discharge, 26,200 cfs May 20, 1943 (gage height, 20.29 ft); minimum, 24 cfs Oct. 17, 1930, June 21, 22, 1933 (gage height, 0.32 ft).
Flood of Mar. 27, 1913, estimated as 40,000 cfs.

Remarks.--Records good except those for period of ice effect, which are fair. Low flow slightly regulated by powerplant at Fort Wayne, Ind. Flow slightly regulated by upstream reservoirs.

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

Oct. 1 to Apr. 22				Apr. 22 to Sept. 30			
0.5	36	3.0	855	0.7	69	4.0	1,430
1.0	143	6.0	2,720	1.0	136	7.0	3,470
1.5	269	11.0	7,140	1.5	271	11.0	7,140
2.0	433	14.0	11,000	2.0	440	14.0	11,000

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	96	134	90	340	171	1,580	4,090	367	204	115	146
2	96	190	127	80	360	305	1,480	3,020	*346	218	111	* 111
3	74	116	* 122	75	300	419	4,090	2,570	293	207	107	95
4	74	109	254	80	240	585	5,870	2,030	303	165	333	95
5	72	102	173	120	* 240	1,650	5,840	1,690	281	162	160	93
6	67	190	127	130	240	2,460	5,120	1,410	274	148	113	91
7	61	166	125	130	244	1,980	6,640	1,160	310	131	98	84
8	52	154	141	*130	241	1,300	6,830	1,040	444	717	91	73
9	52	145	166	140	210	1,820	6,930	935	440	691	91	76
10	*63	94	171	700	218	2,790	5,300	810	370	444	89	89
11	63	105	152	450	223	3,120	4,780	715	265	353	80	91
12	67	109	130	300	228	3,040	3,020	682	241	297	109	91
13	67	122	130	180	210	2,900	2,220	955	259	303	162	91
14	65	94	110	190	188	4,310	1,760	1,590	271	* 281	129	80
15	56	116	120	210	192	6,470	1,410	1,270	418	268	111	69
16	58	127	95	170	188	5,910	1,160	900	1,710	241	102	76
17	69	91	100	150	185	5,290	943	780	1,050	226	89	87
18	74	109	95	140	178	4,180	810	735	610	215	80	91
19	74	* 102	95	130	171	2,770	855	614	405	188	* 102	136
20	67	125	100	150	166	1,920	1,230	578	519	168	100	209
21	61	120	100	310	168	1,840	6,560	592	985	138	98	160
22	76	161	100	360	168	2,370	9,820	484	2,110	134	150	98
23	67	166	130	420	157	2,270	* 9,470	268	2,430	136	158	153
24	63	225	110	450	178	1,810	8,640	370	1,530	172	113	165
25	61	178	100	450 700	166	1,590	7,790	350	1,010	134	120	124
26	74	161	90	700	161	5,010	7,220	333	624	124	113	95
27	74	141	85	500	171	6,110	6,250	1,610	472	113	98	95
28	83	129	90	440	168	4,020	5,980	2,250	356	111	91	93
29	67	111	95	430	161	2,850	6,650	1,100	303	113	104	98
30	*83	122	95	370	------	2,370	5,650	614	256	113	172	* 93
31	74	------	90	310	------	* 1,940	------	452	------	124	148	-------
Total	2,119	3,976	3,752	8,485	5,060	85,570	145,098	35,997	19,252	7,039	3,737	3,148
Mean	68.4	133	121	274	209	2,760	4,837	1,161	642	227	121	105
Cfsm	0.033	0.065	0.059	0.134	0.102	1.35	2.36	0.567	0.313	0.111	0.059	0.051
In.	0.04	0.07	0.07	0.15	0.11	1.56	2.63	0.65	0.35	0.13	0.07	0.06

Calendar year 1963 : Max 10,200 Min 52 Mean 699 Cfsm 0.341 In. 4.64
Water year 1963-64 : Max 9,820 Min 52 Mean 886 Cfsm 0.432 In. 5.89

Peak discharge (base, 8,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-22	1100	13.24	9,890				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Feb. 6.

5-5150. Kankakee River near North Liberty, Ind.

Location.--Lat 41°33'50", long 86°29'50", on line between secs. 14 and 23, T. 36 N., R. 1 W., on left bank at downstream side of bridge on St. Joseph County highway named "New Road," 4 miles northwest of North Liberty.

Drainage area.--152 sq mi.

Records available.--January 1951 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 680.04 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to June 26, 1956, wire-weight gage at same site and datum.

Average discharge.--13 years, 137 cfs.

Extremes.--Maximum discharge during year, 303 cfs June 23 (gage height, 5.73 ft); minimum, 44 cfs Sept. 9, 10 (gage height, 1.89 ft). 1951-64: Maximum discharge, 686 cfs Oct. 10, 1954; maximum gage height, 8.64 ft Oct. 12, 1954 (backwater from return of overbank flow); minimum discharge, that of Sept. 9, 10, 1964; minimum gage height, 1.60 ft Aug. 19, 1957.

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)
(Shifting-control method used Oct. 1, 2, Oct. 18 to Dec. 13, Mar. 9 to June 12)

1.9	44
2.1	52
3.0	89
4.0	158
6.0	330

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	72	76	85	95	89	142	198	80	101	64	52
2	68	72	76	95	95	101	142	174	68	95	64	52
3	68	72	76	105	95	107	174	158	76	89	64	56
4	68	68	76	110	95	113	174	150	80	89	64	48
5	68	72	76	100	*95	127	158	134	72	89	60	50
6	68	*72	76	90	95	134	174	127	72	95	56	64
7	68	68	72	80	95	127	182	127	84	182	56	56
8	68	68	72	80	95	127	166	134	89	276	48	*46
9	68	68	89	*75	89	150	150	142	84	222	56	50
10	68	68	89	75	89	150	142	127	64	174	52	46
11	72	68	89	70	89	134	134	*120	64	150	56	52
12	72	68	*84	70	89	*134	127	120	77	134	60	56
13	72	68	84	70	89	142	127	120	127	127	60	52
14	72	84	b80	70	89	134	120	113	113	120	60	60
15	72	84	75	70	84	127	113	113	127	113	60	56
16	72	80	70	70	84	120	113	113	142	113	60	50
17	72	80	70	75	84	113	107	107	127	107	52	56
18	72	80	70	80	84	107	107	101	113	101	52	60
19	72	76	70	90	84	107	107	95	107	101	52	64
20	76	76	70	85	84	101	120	89	134	95	63	64
21	76	76	70	90	84	107	142	95	142	95	84	72
22	72	76	75	100	b 80	107	158	89	174	*89	89	72
23	72	80	75	100	b 78	113	142	89	276	76	80	76
24	68	80	80	110	b 78	127	134	89	222	76	76	76
25	72	80	85	120	b 77	134	*127	89	* 174	64	72	72
26	72	80	85	120	b 76	206	120	84	150	64	72	72
27	72	80	90	120	b 76	198	134	84	134	72	68	113
28	68	76	80	110	b 78	182	190	72	127	68	68	120
29	68	76	80	100	b 80	174	231	72	113	68	64	101
30	68	76	75	100	---	158	222	76	95	68	64	*95
31	68	---	75	100	---	150	---	80	---	68	60	---
Total	2,180	2,244	2,410	2,815	2,505	4,100	4,379	3,481	3,507	3,381	1,956	1,959
Mean	70.3	74.8	77.7	90.8	86.4	132	146	112	117	109	63.1	65.3
Cfsm	0.462	0.492	0.511	0.597	0.568	0.868	0.961	0.737	0.770	0.717	0.415	0.430
In.	0.53	0.55	0.59	0.69	0.61	1.00	1.07	0.85	0.86	0.83	0.48	0.48

Calendar year 1963 : Max 545 Min 52 Mean 110 Cfsm 0.724 In. 9.84
Water year 1963-64 : Max 276 Min 46 Mean 95.4 Cfsm 0.628 In. 8.54

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 15 to Feb. 4.

5-5155. Kankakee River at Davis, Ind.

Location.--Lat 41°24', long 86°42', in sec. 13, T. 34 N., R. 3 W., on left bank at downstream side of bridge on U. S. Highway 30 at Davis, half a mile downstream from Mill Creek and 4 miles east of Hanna.

Drainage area.--508 sq mi.

Records available.--July 1905 to July 1906 and October 1924 to September 1964. Monthly discharge only for some periods, published in WSP 1308.

Gage.--Water-stage recorder. Datum of gage is 664.68 ft above mean sea level, datum of 1929. July 13, 1905 to July 21, 1906, staff gage at site, 50 ft downstream at different datum. July 28, 1925 to May 18, 1929, chain gage on bridge half a mile downstream at different datum. Apr. 19, 1931 to Mar. 11, 1942, chain gage at present site and datum. Mar. 12, 1942 to Nov. 3, 1953, wire-weight gage at present site and datum.

Average discharge.--40 years (1924-64), 473 cfs.

Extremes.--Maximum discharge during year, 717 cfs July 8 (gage height, 8.69 ft); minimum discharge, 158 cfs Sept. 9, 10; minimum gage height, 4.60 ft Sept. 10.
1905-6, 1924-64: Maximum discharge observed, about 1,700 cfs Dec. 15, 1927 (gage height, 9.50 ft, site and datum then in use), from rating curve extended above 520 cfs; maximum gage height at present site and datum, 11.76 ft Oct. 16-18, 1954; minimum discharge observed, 154 cfs Aug. 30 to Sept. 3, 1941; minimum gage height observed, 2.97 ft Aug. 14, 1934.

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)
(Shifting-control method used Oct. 19 to Nov. 22, July 7 to Aug. 3)

4.5	154	6.0	300
4.9	176	7.0	430
5.5	235	9.0	735

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	176	261	248	230	274	248	456	613	248	274	223	176
2	176	261	235	270	274	300	456	581	248	274	212	169
3	176	261	235	326	274	326	509	523	235	261	202	169
4	176	*261	235	339	261	339	537	495	235	248	202	169
5	176	261	235	300	*261	365	509	456	235	248	193	163
6	176	274	235	248	261	378	537	430	235	248	193	163
7	176	261	235	235	261	365	581	417	235	391	184	169
8	184	261	235	*235	248	352	551	417	248	663	176	*163
9	184	261	248	230	248	391	523	430	248	699	176	158
10	184	261	261	220	248	417	482	430	235	663	176	158
11	184	261	261	210	235	404	456	*404	223	581	176	163
12	184	*261	210	210	235	404	430	391	223	509	184	169
13	184	261	248	210	235	*404	417	391	300	456	184	163
14	184	300	230	210	235	404	404	391	326	430	176	163
15	193	313	220	210	235	404	391	378	365	404	176	163
16	193	300	210	210	235	378	378	365	404	378	176	163
17	193	287	210	210	223	365	365	352	378	365	169	163
18	193	274	210	248	223	352	365	339	352	378	169	169
19	202	261	210	274	223	339	365	326	326	365	169	176
20	223	261	210	248	223	339	404	313	339	339	169	184
21	212	274	210	287	223	352	509	300	378	326	193	223
22	212	261	220	300	223	352	581	300	430	*313	248	235
23	212	274	230	300	220	378	537	287	443	300	235	223
24	212	274	240	313	210	391	523	287	*469	274	223	212
25	212	261	250	339	210	417	*482	287	443	287	223	212
26	223	261	270	339	210	509	456	274	391	300	202	212
27	223	248	270	326	210	551	469	274	352	274	193	287
28	223	248	250	300	210	537	565	261	326	261	193	352
29	235	248	240	287	210	509	629	248	313	248	193	326
30	235	235	230	274	---	495	645	248	287	235	184	*300
31	235	---	220	274	---	482	---	248	---	223	176	---
Total	6151	7986	7302	8212	5838	12247	14512	11456	9470	11215	5948	5915
Mean	198	266	236	265	236	395	484	370	316	362	192	197
Cfsm	0.390	0.524	0.465	0.522	0.465	0.778	0.953	0.728	0.622	0.713	0.378	0.388
In.	0.45	0.58	0.54	0.60	0.50	0.90	1.06	0.84	0.69	0.82	0.44	0.43

Calendar year 1963: Max 996 Min 160 Mean 363 Cfsm 0.715 In. 9.69
Water year 1963-64: Max 699 Min 158 Mean 293 Cfsm 0.577 In. 7.85

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 2, Jan. 9-17, Feb. 23-29.

5-5160. Yellow River near Bremen, Ind.

Location.--Lat 41°25', long 86°10', on line between secs. 3 and 10, T. 34 N., R. 3 E., on left bank at downstream side of bridge, 0.5 mile downstream from Bunch ditch, 2 miles southwest of Bremen, and 4 miles upstream from Dausman ditch.

Drainage area.--132 sq mi.

Records available.--August 1955 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 784.63 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--9 years, 88.3 cfs.

Extremes.--Maximum discharge during year, 945 cfs July 8 (gage height, 10.83 ft); minimum, 7.8 cfs Oct. 1, 6 (gage height, 1.43 ft).
1955-64: Maximum discharge, 1,380 cfs May 13, 1956; maximum gage height, 13.07 ft Mar. 30, 1960; minimum, 6.2 cfs Aug. 23 and Oct. 11, 12, 13, 1957; minimum gage height, 0.81 ft Sept. 10, 1955.

Remarks.--Records good except those for periods of ice effect which are poor and those above 150 cfs 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 Apr. 20-23, Aug. 21 to Sept. 8)

1.4	7.3
1.7	14
2.0	26
3.0	85
6.0	380
11.0	969

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	12	11	10	24	43	108	160	29	26	16	12
2	8.0	11	11	12	22	61	171	124	29	25	15	12
3	8.2	10	11	13	20	46	314	96	29	24	14	12
4	8.2	10	10	14	*22	46	200	82	29	23	13	12
5	8.2	11	10	13	18	64	142	71	28	22	13	12
6	8.0	*11	10	12	19	52	326	61	28	34	12	12
7	8.2	10	10	* 12	18	44	336	52	31	328	12	11
8	8.2	10	14	12	16	38	210	68	68	933	12	*12
9	8.3	10	14	16	14	61	142	74	46	705	12	11
10	8.3	10	13	14	13	64	116	55	36	369	12	11
11	8.7	10	12	13	13	49	92	49	31	200	12	13
12	8.5	10	12	13	13	52	82	49	31	133	13	11
13	8.5	12	11	13	14	*92	74	*46	41	96	12	10
14	8.5	13	9.0	13	14	133	61	44	74	78	12	10
15	8.5	12	8.5	13	13	85	52	38	88	64	11	10
16	8.7	11	*8.5	13	13	61	46	61	108	49	11	9.8
17	8.7	13	8.5	14	13	49	44	82	71	41	11	9.6
18	8.7	11	8.5	15	13	41	41	55	52	108	11	9.8
19	9.2	10	8.5	16	14	34	52	46	46	74	11	10
20	9.0	11	8.5	25	13	34	134	38	82	46	10	9.8
21	9.2	12	8.7	32	13	55	* 380	36	96	36	20	10
22	9.2	12	9.0	32	12	92	325	36	124	* 30	21	10
23	9.2	13	9.3	33	12	116	170	34	85	28	19	11
24	9.2	12	10	36	12	92	124	36	64	24	17	11
25	9.2	11	10	52	12	112	100	34	* 49	25	16	10
26	9.4	11	11	45	12	513	88	36	41	23	14	9.8
27	9.6	11	11	35	12	281	183	55	35	21	13	13
28	9.6	11	11	25	12	190	402	36	32	20	15	12
29	9.6	11	10	23	14	210	314	32	30	23	13	*11
30	9.6	11	9.5	22	------	133	220	30	28	20	13	10
31	11	------	9.0	20	------	116	------	30	------	18	12	-------
Total	273.4	333	317.5	631	430	3,059	5,049	1,746	1,561	3,646	418	327.8
Mean	8.82	11.1	10.2	20.4	14.8	98.7	168	56.3	52.0	118	13.5	10.9
Cfsm	0.067	0.084	0.077	0.155	0.112	0.748	1.27	0.427	0.394	0.894	0.102	0.083
In.	0.08	0.09	0.09	0.18	0.12	0.86	1.42	0.49	0.44	103	0.12	0.09

Calendar year 1964 : Max 933 Min 8.0 Mean 60.6 Cfsm 0.459 In. 6.23
Water year 1963-64 : Max 933 Min 8.0 Mean 48.6 Cfsm 0.368 In. 5.01

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
7-8	1100	10.83	945				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 13 to Jan. 6, Jan. 10-20, 26-29, Feb. 8-11, 22-29.

5-5165. Yellow River at Plymouth, Ind.

Location.--Lat 41°20'25", long 86°18'16", in NW¼ sec. 13, T. 33 N., R. 2 E., on left bank 50 ft upstream from LaPorte Street footbridge in Plymouth, 1.1 miles downstream from Elmer Seltenright (formerly Baker) ditch and 8.1 miles upstream from Wolf Creek.

Drainage area.--284 sq mi.

Records available.--July 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 764.78 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Aug. 27, 1959, wire-weight gage at same site and datum.

Average discharge.--16 years, 236 cfs.

Extremes.--Maximum discharge during year, 1,470 cfs July 9 (gage height, 10.53 ft); minimum, 26 cfs Jan. 1, but may have been less during periods of ice effect.
1948-64: Maximum discharge, 5,390 cfs Oct. 12, 13, 1954 (gage height, 17.13 ft); minimum, 18 cfs Oct. 24, 1953, Jan. 21-31, 1963; minimum gage height observed, 3.49 ft Jan. 11, 14, 1954.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, 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 Oct. 1-11, Nov. 6 to Dec. 18, Jan. 1-8, 16-19, Feb. 8, 11-23, 29, June 15 to July 7, Sept. 22-30)

Oct. 1 to Mar. 5				Mar. 6 to Sept. 30			
3.7	21	4.5	95	3.9	27	6.0	360
4.1	49	5.0	167	4.4	77	8.0	810
				5.0	156	10.5	1,470

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	a 36	36	27	57	85	283	448	73	52	94	52
2	34	a 37	36	27	59	160	261	338	76	55	94	50
3	32	a 37	36	29	57	123	360	272	77	56	88	50
4	32	a 36	36	34	* 47	116	536	228	77	51	88	50
5	33	*a 37	36	36	57	144	a 350	199	77	45	82	49
6	32	36	36	38	54	148	a 500	164	82	47	77	45
7	31	36	36	* 39	54	126	a 600	140	88	380	75	44
8	30	35	39	39	43	106	603	133	100	1,100	69	* 44
9	31	34	44	46	41	120	404	156	120	1,440	64	44
10	31	34	44	45	40	156	316	133	106	1,380	63	46
11	30	34	43	44	39	133	250	113	113	858	68	54
12	31	34	42	42	43	126	208	113	106	426	70	50
13	31	39	36	40	43	*181	181	* 113	113	316	66	45
14	31	44	33	38	45	316	156	106	113	261	62	43
15	31	41	36	36	43	250	133	100	156	218	58	42
16	32	38	*37	36	41	172	126	94	164	190	52	41
17	32	37	36	36	39	140	113	230	156	164	50	41
18	32	38	31	36	41	126	106	164	140	199	51	41
19	34	36	29	36	43	113	120	120	133	272	49	42
20	34	38	29	46	43	100	228	106	181	172	46	38
21	34	42	29	68	42	126	* 672	94	228	*140	57	38
22	34	44	29	74	38	208	882	88	181	133	70	36
23	34	44	30	76	36	250	649	88	120	126	77	38
24	34	42	30	81	35	239	382	88	94	126	68	34
25	35	39	30	123	36	218	283	82	* 82	120	64	32
26	35	39	31	74	36	536	239	77	70	113	60	31
27	36	38	31	74	35	882	316	88	64	113	56	34
28	36	37	31	56	35	672	672	77	60	106	58	33
29	a 36	36	30	52	38	a 600	718	73	55	106	56	* 30
30	a 36	36	29	48	---	a 400	580	72	52	106	52	29
31	a 36	---	27	50	---	316	---	72	---	100	52	---
Total	1,024	1,134	1,058	1,526	1,260	7,388	11,227	4,369	3,257	8,971	2,036	1,246
Mean	33.0	37.8	34.1	49.2	43.4	238	374	141	109	289	65.7	41.5
Cfsm	0.116	0.133	0.120	0.173	0.153	0.838	1.32	0.496	0.384	1.02	0.231	0.146
In.	0.13	0.15	0.14	0.20	0.16	0.97	1.47	0.57	0.43	1.18	0.27	0.16

Calendar year 1963 : Max 1,700 Min 18 Mean 143 Cfsm 0.504 In. 6.84
Water year 1963-64 : Max 1,440 Min 29 Mean 122 Cfsm 0.430 In. 5.83

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 19-31, Jan. 10-15, 27-29, Feb. 9, 10, 24-28.

5-5170. Yellow River at Knox, Ind.

Location.--Lat 41°18', long 86°37', in sec. 14, T. 33 N., R. 2 W., on right bank 40 ft upstream from bridge on U. S. Highway 35 in Knox, 1½ miles downstream from Eagle Creek, and 9 miles upstream from mouth.

Drainage area.--425 sq mi.

Records available.--August 1905 to July 1906, August 1943 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 679.93 ft above mean sea level, datum of 1929, Lafayette supplementary adjustment of 1951 (levels by Indiana Flood Control and Water Resources Commission). August 1905 to July 1906, chain gage at same site at different datum. August 1943 to July 17, 1952, wire-weight gage at same site and datum.

Average discharge.--21 years (1943-64), 371 cfs.

Extremes.--Maximum discharge during year, 1,030 cfs July 11 (gage height, 7.39 ft); minimum, 49 cfs Dec. 14 (gage height, 4.38 ft). 1905-6, 1943-64: Maximum discharge, 5,660 cfs Oct. 15, 16, 1954 (gage height, 13.75 ft); minimum, 39 cfs Jan. 11, 1957, result of freezeup; minimum gage height, 4.26 ft Jan. 12, 1954.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Low flow is affected by pumpage at times.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 4-23, Mar. 1, Aug. 21 to Sept. 20)

4.5	61
5.0	114
5.5	200
6.0	355
7.0	780
8.0	1,500

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	92	98	98	70	150	120	410	680	126	126	108	69
2	92	98	98	70	150	176	390	590	126	120	108	70
3	92	103	98	75	140	230	450	490	120	120	114	67
4	92	98	98	85	*133	215	580	430	120	114	108	66
5	92	*98	98	90	126	215	500	372	120	114	103	64
6	92	98	98	100	130	245	550	338	120	114	103	63
7	86	98	98	*110	133	245	700	290	120	178	103	63
8	86	98	103	110	126	215	650	275	140	454	98	* 62
9	86	92	108	110	126	215	550	260	133	730	92	64
10	86	92	114	110	120	230	500	275	133	900	92	62
11	86	92	108	100	126	245	450	* 245	120	1,030	92	67
12	86	92	108	100	120	* 245	370	230	114	840	103	71
13	86	92	108	100	120	230	340	230	114	470	98	67
14	86	103	72	95	120	290	310	215	126	355	98	64
15	86	108	98	95	120	372	290	200	126	290	98	62
16	86	103	*98	95	114	338	270	200	156	245	92	63
17	86	103	92	95	114	275	250	188	166	215	86	64
18	86	98	86	95	114	245	230	305	156	200	86	67
19	86	98	80	95	114	215	210	260	145	200	86	71
20	92	98	80	100	114	200	300	200	215	260	86	81
21	92	103	80	120	114	215	600	176	290	188	83	98
22	92	108	80	150	114	245	700	166	305	*166	86	98
23	92	114	80	150	110	305	750	156	275	148	108	98
24	92	114	85	160	100	320	700	156	* 230	140	103	98
25	92	108	85	170	110	320	* 500	148	188	140	92	92
26	92	108	90	190	100	390	430	148	166	133	86	86
27	92	103	90	180	100	635	410	140	148	133	81	92
28	92	103	85	150	100	730	510	140	140	120	81	98
29	92	98	80	130	100	590	730	140	133	114	81	98
30	92	98	75	130	---	550	780	133	126	114	76	92
31	92	---	70	140	---	470	---	126	---	114	71	---
Total	2,774	3,017	2,841	3,570	3,461	9,531	14,410	7,902	4,697	8,585	2,902	2,277
Mean	89.5	101	91.6	115	119	307	480	255	157	277	93.6	75.9
Cfsm	0.211	0.238	0.216	0.271	0.280	0.722	1.13	0.600	0.369	0.652	0.220	0.178
In.	0.24	0.27	0.25	0.31	0.30	0.83	1.26	0.69	0.41	0.75	0.25	0.20

Calendar year 1963 : Max 1,500 Min 50 Mean 198 Cfsm 0.466 In. 6.31
Water year 1963-64 : Max 1,030 Min 62 Mean 180 Cfsm 0.424 In. 5.76

* Discharge measurement made on this day.
Note.--No gage-height record Jan. 3 to Feb. 3, Apr. 3-25. Stage-discharge relation affected by ice Dec. 19 to Jan. 2, Feb. 23-29.

5-5175. Kankakee River at Dunns Bridge, Ind.

Location.--Lat 41°13'17", long 86°57'52", in sec. 15, T. 32 N., R. 5 W., on left bank at downstream side of county highway bridge at Dunns Bridge, 1.8 miles north of Tefft, and 3.5 miles upstream from Davis ditch.

Drainage area.--1,308 sq mi.

Records available.--July 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 649.65 ft above mean sea level, datum of 1929, Lafayette supplementary adjustment of 1951 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 17, 1956, wire-weight gage at same site and datum.

Average discharge.--16 years, 1,206 cfs.

Extremes.--Maximum discharge during year, 1,700 cfs May 1 (gage height, 6.82 ft); minimum, 301 cfs Sept. 1-19; minimum gage height, 1.87 ft Sept. 9-19.
1948-64: Maximum discharge, 5,300 cfs Oct. 22, 1954 (gage height, 13.20 ft); minimum, 280 cfs Jan. 25-29, 1963, result of freezeup; minimum gage height, that of Sept. 9-19, 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)

1.9	301
3.0	560
5.0	1,090
7.0	1,780

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	362	362	482	450	508	456	1,150	1,700	586	586	456	301
2	*362	384	482	460	508	482	1,120	1,620	560	560	456	301
3	362	384	508	470	508	560	1,150	1,500	560	534	431	301
4	362	384	508	480	482	638	1,180	1,400	534	508	431	301
5	362	*384	560	500	*560	716	1,210	1,300	534	508	407	301
6	362	384	508	520	560	742	1,240	1,210	534	508	384	301
7	362	384	482	530	560	768	1,300	1,120	534	586	384	301
8	362	384	456	* 540	534	768	1,370	1,060	560	820	362	301
9	341	384	482	540	508	768	1,370	1,030	560	1,150	341	301
10	341	407	508	540	508	820	1,340	1,010	508	1,340	341	301
11	341	384	508	540	482	846	1,270	978	482	1,440	341	301
12	341	384	508	530	482	846	1,180	924	482	1,500	341	301
13	341	362	*420	520	482	846	1,090	924	482	1,340	362	301
14	341	407	400	510	482	846	1,030	*898	560	1,060	362	301
15	341	431	390	500	482	872	1,010	872	612	924	341	301
16	341	431	380	500	482	872	950	846	716	872	341	301
17	341	431	380	500	456	846	924	846	716	794	321	301
18	341	431	370	510	456	820	898	820	690	820	341	301
19	341	431	370	530	482	*768	898	872	664	820	341	301
20	362	431	370	570	482	768	924	820	742	794	341	341
21	362	456	380	640	482	768	1,090	768	846	768	341	431
22	362	456	380	660	456	768	1,340	742	950	716	384	482
23	362	482	390	664	440	820	1,440	716	*1,010	664	431	456
24	341	482	410	612	430	872	1,470	690	978	638	*431	431
25	341	482	430	664	430	898	1,440	664	898	612	407	407
26	341	482	450	664	430	978	*1,370	664	820	612	384	384
27	341	456	470	612	430	1,090	1,300	638	742	*612	362	456
28	341	456	480	570	420	1,210	1,340	612	690	560	341	560
29	341	482	480	560	420	1,240	1,500	612	638	534	341	586
30	341	456	470	612	---	1,180	1,660	586	612	508	341	560
31	362	---	460	560	---	1,180	---	586	---	482	321	---
Total	10,844	12,654	13,872	17,058	13,942	26,052	36,554	29,028	19,800	24,170	11,509	10,813
Mean	350	422	447	550	481	840	1,218	936	660	780	371	360
Cfsm	0.268	0.323	0.342	0.420	0.368	0.642	0.931	0.716	0.505	0.596	0.284	0.275
In.	0.31	0.36	0.39	0.48	0.40	0.74	1.04	0.83	0.56	0.69	0.33	0.31

Calendar year 1963: Max 2,910 Min 280 Mean 756 Cfsm 0.578 In. 7.84
Water year 1963-64: Max 1,700 Min 301 Mean 618 Cfsm 0.472 In. 6.44

* Discharge measurement made on this day.
Note.--No gage-height record Dec. 14-19, Jan. 10-21, 28, 29. Stage-discharge relation affected by ice Dec. 13, Dec. 20 to Jan. 9, 22, Feb. 23-29.

5-5180. Kankakee River at Shelby, Ind.

Location.--Lat 41°11', long 87°21', in NE¼ sec. 33, T. 32 N., R. 8 W., on left bank 25 ft downstream from Monon Railroad bridge, 1 mile south of Shelby and 9 miles upstream from Beaver Lake Creek.

Drainage area.--1,753 sq mi.

Records available.--October 1922 to September 1964. Monthly discharge only for some periods, published in WSP 1308. Periodic sediment samples have been collected since 1963.

Gage.--Water-stage recorder. Datum of gage is 628.13 ft above mean sea level, datum of 1929. Prior to Dec. 19, 1934, chain gage at highway bridge about 400 ft upstream at same datum.

Average discharge.--42 years, 1,497 cfs.

Extremes.--Maximum discharge during year, about 2,200 cfs May 1 (gage height not determined); minimum, 380 cfs Sept. 18 (gage height, 1.93 ft).

1922-64: Maximum discharge, 7,200 cfs Dec. 21, 1927 (gage height, 11.40 ft, present datum, site then in use), from rating curve extended above 3,000 cfs by gage-height relation study with that of present site; minimum daily, 260 cfs Jan. 13-15, 1954, result of freezeup; minimum gage height, 0.80 ft (present datum, site then in use) Aug. 4, 5, 1934.

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)
(Shifting-control method used Oct. 1-5, Nov. 16 to Dec. 13, Mar. 17 to Apr. 4)

2.0	405
2.2	455
5.0	1,310
7.0	2,260

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	455	480	565	520	1,210	655	1,340	2,100	745	775	625	430
2	455	505	565	520	1,170	745	1,340	2,000	745	745	625	430
3	455	505	595	520	835	835	1,340	1,900	745	715	595	430
4	455	480	595	520	775	895	1,340	1,700	715	685	565	405
5	455	505	595	520	745	925	1,420	1,600	715	685	565	405
6	455	505	625	530	745	955	1,530	1,500	715	685	535	405
7	455	505	595	540	745	985	1,620	1,400	685	715	535	405
8	455	505	595	*550	715	985	1,620	1,400	715	805	505	405
9	455	505	565	560	685	985	1,620	1,300	715	985	480	405
10	455	480	595	560	685	985	1,580	1,300	685	1,170	480	405
11	455	505	595	560	685	1,020	1,530	1,200	655	1,310	480	405
12	455	505	595	540	655	1,040	1,450	1,200	655	1,420	480	405
13	455	480	565	530	655	1,020	1,380	1,200	655	1,420	480	405
14	455	505	540	530	685	1,020	1,310	1,100	655	1,280	480	405
15	455	505	520	530	655	1,020	1,240	1,100	745	1,110	455	405
16	455	535	500	530	655	1,040	1,210	1,100	805	1,020	455	405
17	480	565	480	540	655	1,020	1,170	1,100	865	955	455	405
18	480	535	470	550	655	985	1,140	1,000	865	955	430	405
19	480	505	470	580	655	955	1,140	1,000	835	985	405	405
20	480	505	470	600	655	925	1,170	1,000	895	955	405	430
21	*480	535	480	670	625	925	1,380	1,000	985	925	430	535
22	480	565	490	740	625	925	1,620	950	1,110	895	455	595
23	480	565	500	840	625	*955	1,770	900	*1,170	865	505	595
24	480	565	510	940	595	985	1,820	900	1,140	805	*535	565
25	455	*565	520	1,050	*625	1,040	1,820	850	1,110	775	535	535
26	455	565	520	1,050	625	1,140	1,720	*835	1,040	745	505	535
27	455	565	530	1,000	625	1,240	*1,620	835	955	745	480	565
28	455	565	530	1,000	625	1,310	1,620	805	895	*745	480	685
29	455	565	530	1,000	625	1,380	1,700	805	835	685	480	745
30	480	565	530	1,040	----------	1,380	2,000	775	805	655	455	745
31	480	----------	520	1,110	----------	1,380	----------	775	----------	625	455	----------
Total	14,355	15,740	16,755	21,270	20,515	31,655	44,560	36,630	24,855	27,840	15,350	14,300
Mean	463	525	540	686	707	1,021	1,485	1,182	828	898	495	477
Cfsm	0.264	0.299	0.308	0.391	0.403	0.582	0.847	0.674	0.472	0.512	0.282	0.272
In.	0.30	0.33	0.36	0.45	0.43	0.67	0.94	0.78	0.53	0.59	0.33	0.30

Calendar year 1963: Max 3,340 Min 330 Mean 919 Cfsm 0.524 In. 7.12
Water year 1963-64: Max 2,100 Min 405 Mean 775 Cfsm 0.442 In. 6.01

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 26 to Jan. 8, Apr. 29 to May 25. Stage-discharge relation affected by ice Dec. 14-25, Jan. 9-29.

GPO 820-311-12

5-5190. Singleton ditch at Schneider, Ind.

Location.--Lat 41°12'44", long 87°26'44", on line between NE¼ sec. 21 and NW¼ sec. 22, T. 32 N., R. 9 W., on left bank 15 ft upstream from bridge on Ackerman Avenue, half a mile upstream from Bruce ditch, 1½ miles downstream from Cedar Creek, and 1 2/3 miles north of Schneider.

Drainage area.--122 sq mi.

Records available.--July 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 623.67 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1949, wire-weight gage at same site at datum 2.00 ft higher. Oct. 1, 1949, to Aug. 13, 1951, wire-weight gage at same site and datum.

Average discharge.--16 years, 88.4 cfs.

Extremes.--Maximum discharge during year, 200 cfs Apr. 21 (gage height, 3.82 ft); minimum, 3.0 cfs Sept. 7 (gage height, 1.13 ft).
1948-64: Maximum discharge, 1,120 cfs Feb. 14, 1959 (gage height, 10.45 ft); minimum, that of Sept. 7, 1964.

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

Rating tables, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-8, May 13 to June 19)

Oct. 1 to June 20		June 21 to Sept. 30	
1.1	3.5	1.1	2.6
1.2	7.0	1.3	5.3
1.4	15	1.5	9.5
2.0	45	1.7	15.7
2.5	75	2.0	31
3.0	113	2.5	63
4.0	228	3.1	116

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	11	14	4.0	15	50	40	93	18	19	12	4.0
2	7.0	11	12	*4.0	15	60	40	82	18	18	12	4.1
3	6.6	10	18	4.0	14	55	45	72	18	17	12	4.2
4	6.6	10	16	5.0	14	50	42	69	18	16	11	4.0
5	6.6	11	19	6.0	14	45	40	63	18	15	9.5	3.8
6	6.0	11	15	8.0	15	40	112	54	18	15	8.8	3.8
7	6.0	10	12	10	17	38	150	51	18	18	8.1	3.6
8	5.6	10	14	13	23	32	113	48	18	20	7.2	3.6
9	6.6	10	15	25	20	32	89	54	16	18	5.7	4.1
10	6.6	12	12	20	17	42	75	51	17	16	6.2	3.6
11	6.0	10	10	18	15	45	66	48	13	15	7.7	4.1
12	6.0	10	8.0	17	14	42	60	48	15	15	7.2	4.2
13	6.6	11	7.0	16	13	42	57	45	18	14	6.1	3.7
14	6.6	13	6.0	15	13	45	51	42	17	15	6.2	3.7
15	6.0	12	5.5	15	12	42	45	38	23	14	5.3	3.8
16	6.0	11	5.0	15	12	35	40	35	30	13	5.3	3.7
17	6.0	11	5.0	16	11	33	40	29	20	12	5.5	3.8
18	7.0	14	5.0	19	11	30	40	28	16	45	5.3	4.7
19	7.4	13	4.5	23	11	26	35	28	17	71	4.4	5.3
20	7.7	12	4.5	28	11	24	54	26	138	38	6.3	6.2
21	*8.4	13	4.5	35	12	26	162	24	111	26	9.3	12
22	9.1	13	4.0	45	13	25	174	25	106	24	8.8	13
23	10	18	4.0	37	15	*26	130	24	*67	24	8.4	10
24	10	16	4.0	30	18	30	101	25	49	20	6.1	9.3
25	9.4	* 13	4.0	33	* 24	35	82	22	41	18	* 5.9	9.0
26	9.4	13	4.0	37	20	69	72	* 22	35	16	5.3	10
27	9.4	13	4.0	*32	18	60	* 69	23	29	15	5.0	26
28	9.1	13	4.0	23	20	54	72	20	25	*14	5.3	* 27
29	9.4	13	4.0	19	25	51	97	20	22	14	4.8	20
30	9.1	12	4.0	17	---	63	101	20	20	12	4.4	15
31	9.8	---	4.0	16	---	45	---	20	---	12	4.6	---
Total	233.7	360	252.0	605.0	452	1,292	2,294	1,249	989	619	219.7	233.3
Mean	7.54	12.0	8.13	19.5	15.6	41.7	76.5	40.3	33.0	20.0	7.09	7.78
Cfsm	0.062	0.098	0.067	0.160	0.128	0.342	0.627	0.330	0.270	0.164	0.058	0.064
In.	0.07	0.11	0.08	0.18	0.14	0.39	0.70	0.38	0.30	0.19	0.07	0.07

Calendar year 1963: Max 1,000 Min 4.0 Mean 44.3 Cfsm 0.363 In. 4.92
Water year 1963-64: Max 174 Min 3.6 Mean 24.0 Cfsm 0.197 In. 2.68

Peak discharge (base, 730 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--No gage-height record Feb. 18 to Mar. 6. Stage-discharge relation affected by ice Dec. 10 to Feb. 17.

5-5195. West Creek near Schneider, Ind.

Location.--Lat 41°12'52", long 87°29'36", in NW¼NE¼ sec. 19, T. 32 N., R. 9 W., on left bank at downstream side of county highway bridge, 1.2 miles upstream from Singleton ditch and 2 3/4 miles northwest of Schneider.

Drainage area.--54.5 sq mi.

Records available.--July 1948 to December 1951, January 1954 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 627.86 ft above mean sea level, datum of 1929 (levels by Soil Conservation Service). Prior to Mar. 17, 1950, staff gage 75 ft below bridge at same datum. Mar. 17, 1950, to Dec. 31, 1951, Jan. 1, 1954, to June 10, 1956, wire-weight gage at same site and datum.

Average discharge.--13 years, 37.0 cfs.

Extremes.--Maximum discharge during year, 159 cfs Apr. 21 (gage height, 2.80 ft); minimum, 4.4 cfs May 31, June 2 (gage height, 0.95 ft). 1948-51, 1954-64: Maximum discharge, 1,840 cfs Oct. 10, 11, 1954 (gage height, 8.06 ft, from graph based on gage readings); minimum, 1.3 cfs Feb. 17, 1957 (gage height, 0.32 ft), result of freezeup.

Remarks.--Records good except those for periods of ice effect or no gage-height record, 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 Jan. 26-28)

Oct. 1 to Feb. 7		Feb. 8 to Sept. 30	
1.1	5.6	0.9	4.0
1.3	9.2	1.1	6.5
1.5	15	1.3	13.5
1.7	23	1.5	26
		2.0	67
		2.5	121
		2.8	159

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	7.0	7.0	6.0	9.0	25	15	32	6.2	5.5	5.2	4.8
2	6.0	6.8	7.0	*6.0	8.5	30	14	27	4.8	5.2	5.2	4.8
3	5.9	6.6	7.1	6.5	8.0	25	18	21	4.8	5.2	5.4	4.8
4	5.9	6.6	7.0	7.5	8.0	20	18	18	4.6	5.2	5.6	4.8
5	5.9	7.0	7.0	8.0	8.0	17	17	14	4.8	5.1	5.2	4.6
6	5.8	6.8	7.0	9.0	7.7	15	78	12	5.0	5.2	5.0	4.8
7	5.8	6.5	7.0	10	8.0	14	77	12	5.0	5.5	5.0	4.8
8	5.8	6.5	7.3	11	9.0	13	56	17	4.9	5.5	5.0	4.8
9	5.8	6.4	7.0	13	12	13	41	29	4.9	5.4	4.9	4.8
10	5.8	6.5	6.5	12	9.2	13	31	20	5.0	5.2	5.0	4.9
11	5.8	6.2	6.5	11	9.0	14	23	14	4.8	9.8	4.9	5.4
12	5.9	6.5	6.0	10	8.0	15	20	11	4.8	14	4.8	5.0
13	5.9	6.6	6.0	9.5	8.0	15	16	11	5.1	6.0	4.8	4.9
14	5.8	7.0	6.0	9.0	7.0	16	14	11	5.2	5.6	4.8	5.0
15	5.8	6.8	5.5	8.5	7.0	15	12	9.5	5.8	5.5	4.6	5.0
16	5.8	7.0	5.5	8.5	6.0	14	11	8.2	6.2	60	4.6	5.2
17	5.8	7.1	5.5	9.0	6.0	12	9.5	7.6	5.8	45	4.7	5.0
18	5.8	7.3	5.5	10	6.0	11	9.8	7.0	5.1	35	4.8	5.4
19	6.2	7.1	5.5	12	6.0	10	9.8	6.8	5.8	25	4.8	5.5
20	6.4	6.8	5.5	14	6.0	10	44	6.2	68	17	5.5	6.0
21	*6.2	7.1	5.5	18	6.0	9.5	151	5.9	40	12	5.0	9.5
22	5.9	7.9	5.5	25	6.5	9.5	112	5.5	*32	10	5.0	5.9
23	6.0	9.8	5.5	20	7.0	*9.2	67	5.4	19	9.0	5.0	5.5
24	5.9	9.5	5.5	17	8.4	9.2	47	5.4	14	8.0	5.0	5.4
25	5.9	*8.4	5.5	15	*16	11	34	5.0	9.5	7.0	*5.1	5.2
26	5.9	7.3	5.5	23	9.8	33	27	*5.1	8.2	6.5	4.8	6.0
27	6.2	7.1	6.0	*17	9.0	30	*25	5.4	7.0	6.0	4.8	9.5
28	5.9	7.0	6.0	14	8.2	25	27	5.6	6.2	6.0	4.9	*7.2
29	6.0	7.0	6.0	14	8.8	22	39	5.5	5.6	5.5	4.8	6.2
30	6.0	7.0	6.0	10	---	26	39	5.0	5.5	5.5	4.9	5.9
31	6.5	---	6.0	9.5	---	17	---	4.8	---	5.2	4.8	---
Total	184.3	213.2	190.4	373.0	236.1	518.4	1,102.1	352.9	313.6	356.6	153.9	166.6
Mean	5.95	7.11	6.14	12.0	8.14	16.7	36.7	11.4	10.5	11.5	4.96	5.55
Cfsm	0.109	0.130	0.113	0.220	0.149	0.306	0.673	0.209	0.193	0.211	0.091	0.102
In.	0.13	0.14	0.13	0.25	0.16	0.35	0.75	0.24	0.22	0.24	0.10	0.11

Calendar year 1963: Max 360 Min 4.3 Mean 16.5 Cfsm 0.303 In. 4.12
Water year 1963-64: Max 151 Min 4.6 Mean 11.4 Cfsm 0.209 In. 2.82

Peak discharge (base, 500 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--No gage-height record Mar. 2-22, July 15-30, Aug. 17-24. Stage-discharge relation affected by ice Dec. 9 to Jan. 25, Jan. 29 to Feb. 5, Feb. 7, 8, 11-20, 23, 27.

5-5200. Singleton ditch at Illinoi, Ill.

Location.--Lat 41°11'20", long 87°31'35", in SW¼NW¼ sec. 8, T. 31 N., R. 15 E., on left bank 50 ft downstream from county highway bridge at Illinois, beside the Cleveland, Cincinnati, Chicago and St. Louis Railway, and at Indiana-Illinois State line.

Drainage area.--219 sq mi.

Records available.--October 1944 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 620.33 ft above mean sea level, datum of 1929. Prior to Aug. 28, 1953, wire-weight gage at same site and datum.

Average discharge.--20 years, 159 cfs.

Extremes.--Maximum discharge during year, 422 cfs Apr. 21 (gage height, 3.71 ft); minimum, 4.5 cfs Sept. 8; minimum gage height, 1.25 ft Feb. 21.
1944-64: Maximum discharge, 2,040 cfs Feb. 14, 23, 1959; maximum gage height, 10.11 ft Mar. 4, 1963 (backwater from ice); minimum, that of Sept. 8, 1964; minimum gage height, 0.71 ft Oct. 21, 1948.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1, 2, Apr. 6 to May 4, July 2 to Sept. 30)

1.1	3.0
1.2	8.0
1.4	21
1.7	42
2.0	69
2.5	134
3.0	224
4.0	444

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	20	20	10	28	74	54	134	34	41	25	9.2
2	12	19	20	*10	27	98	54	112	31	38	24	8.0
3	12	18	23	11	26	69	62	98	30	38	25	7.5
4	11	18	24	12	26	61	59	92	29	37	25	8.0
5	11	20	24	14	25	59	58	80	29	34	22	8.0
6	11	20	26	16	25	53	209	74	31	34	22	7.0
7	11	19	22	20	30	48	268	69	31	36	20	7.0
8	11	18	24	27	40	44	214	69	30	38	19	6.0
9	12	17	25	45	35	62	167	86	27	36	17	6.0
10	11	19	22	37	30	67	134	74	29	34	16	6.5
11	12	16	20	32	28	60	112	65	26	34	18	8.0
12	12	18	17	30	27	58	98	62	27	41	20	8.0
13	12	20	15	27	25	57	92	60	32	32	17	8.0
14	12	22	14	26	23	60	92	57	32	30	16	7.0
15	12	19	12	26	22	58	80	53	38	28	14	6.5
16	11	18	11	28	21	49	69	51	46	29	13	6.5
17	12	19	10	30	21	46	67	46	38	25	13	7.0
18	15	23	10	35	20	41	68	44	34	68	13	9.2
19	15	21	10	45	20	40	69	45	35	74	12	10
20	16	24	10	55	20	40	138	44	214	47	10	13
21	*15	22	10	70	21	41	334	41	185	36	22	24
22	15	22	10	90	23	41	356	41	167	32	20	22
23	17	29	10	70	27	* 41	246	41	* 119	32	18	18
24	17	29	10	65	32	43	185	41	92	30	15	18
25	16	* 24	10	70	* 38	51	150	38	74	29	*13	18
26	16	23	10	80	35	92	126	* 36	64	28	13	20
27	16	22	10	55	32	86	*119	36	56	27	11	33
28	16	22	10	40	40	74	119	36	52	*25	11	* 35
29	16	21	10	35	42	67	158	36	49	26	11	30
30	15	20	10	30	---	80	158	34	44	25	9.8	27
31	17	---	10	30	---	65	---	32	---	25	9.2	---
Total	419	622	469	1,171	809	1,825	4,115	1,827	1,725	1,089	514.0	401.4
Mean	13.5	20.7	15.1	37.8	27.9	58.9	137	58.9	57.5	35.1	16.6	13.4
Cfsm	0.062	0.095	0.069	0.173	0.127	0.269	0.626	0.269	0.263	0.160	0.076	0.061
In.	0.07	0.11	0.08	0.20	0.14	0.31	0.70	0.31	0.29	0.18	0.09	0.07

Calendar year 1963 : Max 1,800 Min 10 Mean 78.1 Cfsm 0.357 In. 4.85
Water year 1963-64 : Max 356 Min 6.0 Mean 40.9 Cfsm 0.187 In. 2.55

Peak discharge (base, 1,100 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 10 to Feb. 28.

5-5205. Kankakee River at Momence, Ill.

Location.--Lat 41°09'36", long 87°40'07", in NE¼ sec. 24, T. 31 N., R. 13 E., on right bank a quarter of a mile downstream from highway bridge in Momence and 1¼ miles upstream from Tower Creek.

Drainage area.--2,340 sq mi, approximately.

Records available.--February to December 1905, February to July 1906, December 1914 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 610.18 ft above mean sea level, datum of 1929. Prior to Aug. 1, 1938, chain gage at bridge a quarter of a mile upstream at same datum.

Average discharge.--49 years (1915-64),1,808 cfs.

Extremes.--Maximum discharge during year, 2,410 cfs May 3 (gage height, 1.48 ft); minimum daily, 355 cfs Sept. 8-15.
1905-6, 1914-64: Maximum discharge, 10,100 cfs Apr. 25, 1950 (gage height, 5.06 ft); maximum gage height observed, 8.09 ft Jan. 25, 1930, site then in use (ice jam); minimum discharge observed, 306 cfs Sept. 1, 16, 17, 1919.

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)
(Shifting-control method used Oct. 1 to Nov. 17, July 22 to Sept. 30)

-0.4	340	1.0	1,620
0	560	1.5	2,440
.5	940		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	445	456	614	b450	a750	690	1,650	2,320	816	880	683	a460
2	445	462	627	b460	a750	784	1,640	2,380	808	850	669	a440
3	434	462	634	b470	a750	840	1,620	2,390	800	824	662	a420
4	418	467	634	b480	a800	910	1,590	2,340	792	800	683	a400
5	418	467	655	b500	a820	984	1,620	2,240	784	776	641	a390
6	439	467	655	b520	*840	995	1,880	2,100	776	768	614	a380
7	434	472	662	*b500	800	995	2,100	1,990	776	792	594	365
8	428	a470	655	b500	b770	1,010	2,100	1,880	753	824	566	355
9	423	a470	648	b490	b760	1,030	2,080	1,780	746	940	524	355
10	412	a470	655	b490	739	1,060	2,020	1,700	746	1,150	524	355
11	412	a480	*662	b490	b720	*1,060	1,970	1,590	725	1,360	512	355
12	412	*478	b640	b490	b720	1,060	1,910	1,540	725	1,520	*506	355
13	406	478	b600	b490	718	1,090	1,830	1,480	732	1,620	500	355
14	406	484	b560	b480	b700	1,100	1,700	1,440	718	*1,680	500	355
15	406	484	b520	b480	b700	1,100	1,580	1,380	746	1,540	489	355
16	*434	484	b520	b480	704	1,120	1,470	1,320	800	1,340	484	*370
17	434	489	b520	b480	697	1,120	1,410	1,260	860	1,180	484	380
18	434	494	b520	b490	697	1,090	1,350	1,240	890	1,180	a480	390
19	439	500	b500	b500	697	1,030	1,340	1,180	*920	1,280	a480	406
20	439	500	b470	b540	690	995	1,420	*1,150	1,260	1,210	a470	412
21	434	500	b450	b600	676	995	1,970	1,170	1,470	1,120	467	462
22	434	590	b450	b650	662	995	2,180	1,130	1,530	1,060	467	536
23	428	608	b450	b750	b660	995	2,180	1,060	1,470	1,030	524	566
24	423	614	b460	b1,000	b660	1,030	2,200	1,030	1,440	951	584	560
25	423	608	b470	b1,200	b660	1,120	2,200	995	1,380	900	648	536
26	423	614	b470	b1,150	b680	1,260	2,200	973	1,280	850	648	536
27	439	608	b470	b1,000	b680	1,400	2,200	940	1,180	832	584	566
28	445	602	b450	b900	b680	1,470	2,220	910	1,080	816	524	608
29	445	608	b450	b850	b680	1,580	2,270	890	995	800	524	655
30	439	602	b450	b800	---	1,620	2,300	870	930	753	a500	690
31	445	---	b450	b750	---	1,670	---	840	---	711	a480	---
Total	13,296	15,488	16,971	19,430	20,860	34,198	56,200	45,508	28,928	32,337	17,005	13,368
Mean	429	516	547	627	719	1,103	1,873	1,468	964	1,043	549	446
Cfsm	0.183	0.221	0.234	0.268	0.307	0.471	0.800	0.627	0.412	0.446	0.235	0.191
In.	0.21	0.25	0.27	0.31	0.33	0.54	0.89	0.72	0.46	0.51	0.27	0.21

Calendar year 1963 : Max 6,200 Min 406 Mean 1,130 Cfsm 0.483 In. 6.56
Water year 1963-64 : Max 2,390 Min 355 Mean 857 Cfsm 0.366 In. 4.97

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice (no gage-height record Jan. 16-31).

5-5210. Iroquois River at Rosebud, Ind.

Location.--Lat 41°02', long 87°11', in SW¼ sec. 24, T. 30 N., R. 7 W., 100 ft downstream from bridge on county road, half a mile north of Rosebud, half a mile downstream from confluence of Swain and Dexter ditches, 1.5 miles upstream from Davidson ditch, and 2 miles east of Parr.

Drainage area.--30.3 sq mi.

Records available.--July 1948 to September 1964.

Gage.--Water stage recorder. Datum of gage is 661.47 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to Oct. 1, 1953, wire-weight gage on downstream side of county bridge at same datum.

Average discharge.--16 years, 23.0 cfs.

Extremes.--Maximum discharge during year, 87 cfs Apr. 21; maximum gage height, 4.00 ft Jan. 20 (ice jam); minimum discharge, 0.9 cfs Sept. 6, 9, 10 (gage height, 0.82 ft).
1948-64: Maximum discharge, 422 cfs Apr. 4, 1950, maximum gage height, 8.86 ft Feb. 10, 1959; minimum discharge, that of Sept. 6, 9, 10, 1964.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.5	2.2	2.8	1.4	4.8	10	15	26	5.2	4.7	2.2	1.3
2	2.5	2.5	2.8	1.4	4.7	12	16	24	5.2	4.6	2.2	1.4
3	2.5	2.5	3.1	1.4	4.0	11	17	22	5.3	4.3	2.9	1.3
4	2.5	2.3	3.3	1.4	4.1	10	16	16	5.1	4.0	3.1	1.3
5	2.5	2.5	3.7	1.4	4.3	11	15	15	6.4	3.9	2.4	1.3
6	2.5	2.8	4.2	1.5	4.5	8.4	20	13	4.8	4.3	2.0	1.2
7	2.5	2.7	4.5	1.6	4.2	6.6	25	13	5.1	4.3	2.0	1.5
8	2.4	2.5	4.6	1.8	3.7	5.0	22	13	11	4.3	2.0	1.3
9	2.4	2.6	4.4	1.8	3.4	6.6	18	13	9.7	3.9	1.9	1.2
10	2.4	2.5	3.6	1.8	3.1	7.2	15	11	8.6	3.9	2.1	1.0
11	2.4	2.4	3.5	1.9	3.0	7.5	11	11	6.8	3.7	2.1	1.4
12	2.4	2.5	3.5	1.8	*2.9	8.0	12	11	6.3	3.7	1.7	1.4
13	2.3	*2.9	3.4	1.8	2.8	9.0	12	11	10	3.5	*1.9	1.4
14	2.3	2.9	3.2	1.7	2.7	10	*11	9.9	11	3.7	1.9	1.4
15	2.3	2.4	2.5	1.7	2.7	7.4	9.2	*9.2	15	3.5	1.7	1.4
16	*2.3	2.1	1.9	1.6	2.7	6.0	8.4	9.2	20	3.2	1.6	*1.4
17	2.3	2.5	*1.4	1.6	2.6	5.0	8.1	8.4	13	3.2	1.5	1.4
18	2.5	2.8	1.3	1.6	2.6	4.2	8.6	8.0	11	5.4	1.7	1.8
19	2.7	3.0	1.2	1.6	2.6	*3.7	9.7	6.9	8.0	4.3	1.7	1.8
20	2.6	3.3	1.2	7.0	2.6	3.5	25	6.3	20	3.4	1.6	1.6
21	2.3	3.6	1.2	18	2.6	11	79	5.9	26	*3.1	2.1	1.8
22	2.2	4.1	1.2	14	2.6	13	67	5.3	17	3.1	2.4	2.2
23	2.1	4.3	1.2	12	2.6	12	55	5.8	*10	2.9	2.4	1.8
24	2.1	4.3	1.2	10	2.6	11	45	5.6	7.5	3.2	1.9	1.4
25	2.1	3.8	1.3	8.2	2.5	10	37	5.5	6.3	3.4	1.8	1.4
26	2.1	3.6	1.3	6.8	2.5	28	32	5.5	5.6	2.7	1.8	1.7
27	2.2	3.5	1.4	5.8	2.5	22	31	5.6	5.6	2.6	1.7	2.8
28	2.4	3.3	1.6	4.8	2.5	17	32	5.5	5.3	2.6	1.9	2.0
29	2.8	2.9	1.6	4.1	2.5	12	36	5.3	5.1	2.6	1.7	1.6
30	2.6	2.8	1.6	4.4	------	17	31	5.2	4.8	2.4	1.7	1.4
31	2.1	------	1.6	*4.8	------	16	------	5.1	------	2.3	1.4	------
Total	73.8	88.1	75.3	130.7	90.9	321.1	739	317.2	280.7	110.7	61.0	45.9
Mean	2.38	2.94	2.43	4.22	3.13	10.4	24.6	10.2	9.36	3.57	1.97	1.53
Cfsm	0.079	0.097	0.080	0.140	0.103	0.343	0.812	0.337	0.309	0.118	0.065	0.050
In.	0.09	0.11	0.09	0.16	0.11	0.40	0.91	0.39	0.34	0.14	0.07	0.06

Calendar year 1963 : Max 250 Min 1.2 Mean 11.3 Cfsm 0.373 In. 5.09
Water year 1963-64 : Max 79 Min 1.0 Mean 6.38 Cfsm 0.211 In. 2.87

Peak discharge (base, 150 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--No gage-height record Mar. 19 to Apr. 14, June 14-22. Stage-discharge relation indefinite Oct. 1 to Mar. 18.

5-5220. Iroquois River near North Marion, Ind.

Location.--Lat 40°58', long 87°07', in S½ sec. 9, T. 29 N., R. 6 W., on left bank at upstream side of county highway bridge, 1¼ miles upstream from Ryan ditch, 2 miles east of North Marion, and 3½ miles northeast of Rensselaer.

Drainage area.--134 sq mi.

Records available.--December 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 646.68 ft above mean sea level, datum of 1929. Prior to Sept. 6, 1955, wire-weight gage at same site and datum.

Average discharge.--15 years (1949-64) 109 cfs.

Extremes.--Maximum discharge during year, 305 cfs Apr. 22 (gage height, 5.53 ft); minimum, 1.5 cfs Sept. 8; minimum gage height, 1.06 ft Aug. 17.
1948-64: Maximum discharge, 2,040 cfs June 10, 1958 (gage height, 15.09 ft); minimum, that of Sept. 8, 1964.

Remarks.--Records fair except those for periods of indefinite stage-discharge relation and no gage-height record, which are poor. Water is diverted from Oliver ditch, a tributary, into Ryan ditch. Ryan ditch enters the Iroquois River 1½ miles below this station.

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

1.0	1.1	1.7	21
1.1	2.4	2.0	34.5
1.2	4.3	3.0	97
1.3	6.9	5.5	305
1.5	13.5		

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.5	5.2	6.6	3.7	18	40	64	148	16	12	3.9	2.3
2	8.2	6.0	6.8	3.5	20	52	70	118	9.9	9.6	3.7	2.3
3	8.2	6.0	7.4	3.5	18	46	76	104	10	9.3	3.9	4.3
4	8.2	5.5	8.4	3.5	17	40	70	86	15	8.7	5.9	3.7
5	8.1	6.2	9.2	3.6	15	49	64	73	14	9.3	4.6	2.6
6	8.0	6.6	10	3.7	16	37	97	67	16	14	3.5	2.1
7	7.8	6.4	11	4.0	16	32	111	61	37	40	3.2	2.3
8	7.5	6.0	11	4.4	13	28	97	58	43	43	3.0	1.8
9	7.3	6.2	11	4.6	13	30	80	61	32	28	2.6	2.1
10	7.1	6.0	9.0	4.6	14	32	64	58	22	11	3.0	2.3
11	6.9	5.6	8.8	4.6	14	32	49	49	16	9.3	3.0	2.1
12	6.6	5.7	8.6	4.6	*13	32	52	49	13	8.4	2.6	2.4
13	6.4	6.4	8.2	4.4	12	40	52	43	21	10	* 3.3	2.3
14	6.0	*7.0	7.6	4.2	11	43	* 43	34	22	7.8	3.0	2.0
15	5.7	5.8	6.0	4.1	11	34	40	*32	36	6.9	2.6	1.6
16	*5.4	5.2	4.5	4.0	11	28	40	34	76	6.1	2.6	2.1
17	5.5	6.0	3.5	4.0	11	27	37	40	52	5.9	2.1	* 3.0
18	5.8	6.8	* 3.2	4.0	12	23	32	34	43	10	1.9	5.6
19	6.4	7.5	3.0	4.0	12	* 23	34	28	20	28	2.3	8.4
20	6.2	8.0	3.0	15	11	24	84	24	77	18	2.3	5.1
21	5.4	9.0	3.0	60	11	49	251	19	104	*12	3.5	4.1
22	5.2	10	3.0	52	10	58	296	18	90	7.5	4.6	18
23	5.0	11	3.0	45	10	52	224	24	*73	5.9	5.6	13
24	5.0	11	3.1	38	10	49	164	22	52	5.6	4.6	11
25	5.0	9.2	3.2	30	10	46	118	24	40	5.6	4.8	9.0
26	5.0	8.8	3.4	25	10	125	104	18	22	5.1	4.1	8.4
27	5.2	8.6	3.6	19	10	104	118	23	17	5.6	5.1	11
28	5.4	8.3	3.9	16	10	83	148	22	18	4.8	4.6	9.3
29	6.8	7.2	4.1	15	10	52	180	20	18	3.9	4.1	9.0
30	6.2	6.8	4.1	15	------	76	172	12	10	3.5	3.9	8.1
31	5.0	------	3.9	16	------	73	------	17	------	3.5	2.8	------
Total	199.0	214.0	185.1	423	369	1,459	3,031	1,420	1,034.9	358.3	110.7	161.3
Mean	64.2	7.13	5.97	13.6	12.7	47.1	101	45.8	34.5	11.6	3.57	5.38
Cfsm	0.048	0.053	0.045	0.101	0.095	0.351	0.754	0.342	0.257	0.087	0.027	0.040
In.	0.06	0.06	0.05	0.12	0.10	0.40	0.84	0.39	0.29	0.10	0.03	0.04

Calendar year 1963: Max 1,000 Min 3.0 Mean 53.7 Cfsm 0.401 In. 5.44
Water year 1963-64: Max 296 Min 1.6 Mean 24.5 Cfsm 0.183 In. 2.48

Peak discharge (base, 420 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation indefinite Oct. 1 to Dec. 10, Dec. 30 to Feb. 29. No gage-height record Dec. 11-29.

5-5225. Iroquois River at Rensselaer, Ind.

Location.--Lat 40°56', long 87°08', in NE¼ NW¼ SE¼ sec. 29, T. 29 N., R. 6 W., on right bank, 20 ft downstream from bridge on State Highway 114, three-quarters of a mile east of Rensselaer, 1.5 miles downstream from Ryan ditch and 5.5 miles upstream from Big Slough Creek.

Drainage area.--194 sq mi.

Records available.--July 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 642.29 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission). Prior to July 8, 1949, wire-weight gage at same site and datum.

Average discharge.--16 years, 146 cfs.

Extremes.--Maximum discharge during year, 417 cfs Apr. 22 (gage height, 7.35 ft); minimum, 2.0 cfs Sept. 16, minimum gage-height, 2.95 ft Aug. 16.
1948-64: Maximum discharge, 2,550 cfs June 10, 1948 (gage height, 16.54 ft), minimum, that of Sept. 6, 1964, minimum gage height, 2.73 ft Sept. 15, 1948.

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)

2.9	2.75	4.3	75
3.0	5.0	5.0	135
3.2	12	7.0	365
3.6	31	7.4	417

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	5.5	7.3	5.0	20	43	72	195	21	12	4.4	3.3
2	9.8	6.6	8.4	4.8	22	55	78	155	14	10	5.0	2.6
3	8.4	8.4	8.0	4.6	20	49	98	135	14	10	4.2	3.3
4	8.0	6.6	10	4.6	18	42	86	116	17	9.4	5.0	4.2
5	9.0	7.6	9.8	4.8	17	52	75	94	18	9.0	5.0	3.5
6	8.4	8.7	12	5.0	17	42	116	82	21	11	4.2	2.9
7	9.8	8.0	12	5.2	17	36	145	78	43	39	3.7	2.9
8	7.3	6.6	13	5.8	14	30	116	72	49	46	3.7	2.9
9	7.3	7.3	12	6.2	15	32	94	78	43	29	3.5	2.2
10	10	7.3	9.4	6.2	15	35	78	75	28	14	3.5	2.9
11	7.6	6.3	10	6.1	15	35	61	64	21	10	3.5	3.1
12	7.3	6.3	9.8	6.0	*14	35	61	61	18	9.4	3.1	2.9
13	8.4	6.6	9.4	5.8	13	42	61	58	30	10	*2.9	3.3
14	6.6	* 7.0	8.4	5.6	12	46	* 55	*46	30	9.0	3.3	2.9
15	6.1	5.5	6.1	5.5	12	41	46	41	38	8.0	3.1	2.2
16	*6.3	5.3	5.2	5.4	12	32	46	46	86	7.0	2.8	* 2.2
17	6.1	6.6	4.8	5.4	12	29	43	49	58	6.6	3.3	2.9
18	6.6	7.6	*4.6	5.4	13	24	39	46	55	9.0	3.1	4.4
19	7.0	7.6	4.4	5.4	13	* 24	42	37	24	28	2.9	8.7
20	8.7	8.7	4.2	20	12	25	95	30	78	20	3.3	6.1
21	7.0	10	4.0	*70	12	55	352	25	125	*15	5.0	5.3
22	5.0	11	3.9	60	11	64	391	24	102	10	7.3	12
23	5.8	15	3.9	50	11	58	300	30	*86	8.0	9.4	12
24	5.8	12	3.9	45	11	52	217	28	61	7.6	7.3	10
25	5.3	10	4.0	35	11	55	155	30	46	8.0	6.3	8.0
26	5.5	9.8	4.2	27	11	165	135	24	27	6.6	5.8	8.0
27	6.1	9.4	4.6	22	11	125	145	27	18	6.3	6.1	9.4
28	5.5	9.4	5.0	18	11	98	185	29	17	6.1	6.6	9.4
29	8.7	8.0	5.4	17	11	98	239	24	19	5.3	5.5	7.6
30	7.0	7.6	5.4	16	------	78	228	18	12	4.4	5.8	6.6
31	5.3	------	5.2	*18	------	86	------	19	------	4.7	4.4	------
Total	223.7	242.3	218.3	500.8	403	1,683	3,854	1,836	1,219	388.4	143.0	157.9
Mean	7.22	8.08	7.04	16.2	13.9	54.3	128	59.2	40.6	12.5	4.61	5.26
Cfsm	0.037	0.042	0.036	0.084	0.072	0.280	0.660	0.305	0.209	0.064	0.024	0.027
In.	0.04	0.05	0.04	0.10	0.08	0.32	0.74	0.35	0.23	0.07	0.03	0.03

Calendar year 1963: Max 1,400 Min 3.9 Mean 68.3 Cfsm 0.352 In. 4.79
Water year 1963-64: Max 391 Min 2.2 Mean 29.7 Cfsm 0.153 In. 2.08

Peak discharge (base, 650 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 16 to Feb. 29.

5-5230. Bice ditch near South Marion, Ind.

Location.--Lat 40°52', long 87°06', on line between secs. 15 and 22, T. 28 N., R. 6 W., on left bank at upstream side of bridge on State Highway 16, 2 miles upstream from Big Slough Creek, 3 miles southeast of South Marion, and 5 miles southeast of Rensselaer.

Drainage area.--22.6 sq mi.

Records available.--December 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 653.30 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1955, wire-weight gage at same site and datum.

Average discharge.--15 years (1949-64), 16.4 cfs.

Extremes.--Maximum discharge during year, 118 cfs Apr. 21 (gage height, 4.08 ft); minimum daily, no flow for many days.
1948-64: Maximum discharge, 780 cfs June 13, 1958 (gage height, 12.02 ft); no flow at times during 1952, 1955, and 1964.

Remarks.--Records poor.

Rating table, except for periods of ice effect and indefinite stage-relation
(gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 18-25, Aug. 24 to Sept. 30)

0.80	0.12	1.4	10.5
.90	.38	2.0	31.5
1.0	.95	3.0	70
1.1	2.15	4.0	113
1.2	4.25	5.0	163

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.3	0.3	0	1.6	6.5	9.4	19	1.0	0.7	0.2	0
2	.2	.3	.3	0	1.0	9.4	16	15	1.0	.6	.2	0
3	.2	.3	.3	.1	*.8	2.9	26	11	.9	.6	.2	0
4	.2	.3	.3	.2	.7	2.5	15	8.3	.9	.6	.2	0
5	.2	.3	.3	.2	.7	2.5	13	6.8	.9	.6	.2	0
6	.2	.3	.3	.2	.8	1.7	28	5.3	1.1	.8	.1	0
7	.2	.3	.3	.2	.6	1.5	26	4.8	1.4	.9	.1	0
8	.2	.3	.3	.2	.6	1.9	18	4.2	1.4	1.1	.1	0
9	.2	.3	.3	.3	.5	11	12	4.0	1.1	.9	.1	0
10	.2	.3	.3	.2	.5	11	9.4	3.1	.9	.7	.1	0
11	.2	.3	.2	.1	*.4	13	7.1	2.9	.7	.6	.1	.1
12	.2	.3	.2	.1	.4	16	6.2	2.9	.7	.6	*.1	.1
13	.2	.3	.2	.1	.4	19	5.9	2.7	.7	.6	.1	.1
14	.2	* .3	.1	.1	.4	15	* 4.2	2.5	.7	.6	.1	0
15	*.2	.3	.1	.1	.4	9.4	3.8	*2.0	1.1	.6	.1	.1
16	.2	.3	.1	.1	.4	5.0	3.3	2.0	1.2	.5	.1	*.1
17	.2	.3	.1	.1	.4	3.0	3.1	1.7	1.0	.5	.1	.1
18	.2	.3	* .1	.1	.5	* 1.8	3.1	1.6	.8	1.0	.1	.1
19	.2	.3	.1	.3	.5	1.6	5.0	1.4	.7	1.2	.1	.1
20	.2	.3	0	*b18	.5	3.3	38	1.4	2.5	.7	.1	.1
21	.2	.3	0	b16	.5	23	98	1.2	3.5	*.4	.2	.1
22	.2	.3	0	b6.5	.5	21	62	1.2	3.3	.4	.2	.1
23	.2	.3	0	5.9	.4	19	40	1.2	2.9	.3	.1	.1
24	.2	.3	0	4.8	.4	17	28	1.2	*2.2	.3	.1	.1
25	.2	.3	0	2.7	.4	28	20	1.1	1.7	.3	.1	.1
26	.2	.3	0	2.2	.5	50	15	1.1	1.1	.3	.1	.1
27	.2	.3	.1	1.1	.6	23	18	1.1	1.0	.3	.1	.1
28	.2	.3	.1	.8	.6	24	23	1.1	.8	.3	.1	.1
29	.2	.3	.1	.7	1.0	20	33	1.0	.7	.2	0	.1
30	.2	.3	0	.7	------	13	26	1.0	.7	.2	0	.1
31	.2	------	0	1.2	------	12	------	1.0	------	.2	0	------
Total	6.2	9.0	4.5	63.3	17.0	388	615.5	114.8	38.6	17.6	3.5	1.9
Mean	0.20	0.30	0.15	2.04	0.586	12.5	20.5	3.70	1.29	0.568	0.110	0.063
Cfsm	0.0088	0.013	0.0066	0.090	0.026	0.553	0.907	0.164	0.057	0.025	0.0049	0.0028
In.	0.01	0.01	0.01	0.10	0.03	0.64	1.01	0.19	0.06	0.03	0.01	0

Calendar year 1963: Max 398 Min 0 Mean 7.15 Cfsm 0.316 In. 4.28
Water year 1963-64: Max 98 Min 0 Mean 3.50 Cfsm 0.155 In. 2.10

Peak discharge (base, 340 cfs).--No peaks above the base.

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--Stage-discharge relation indefinite Oct. 1 to Dec. 13, Mar. 16-17.

5-5235. Big Slough Creek near Collegeville, Ind.

Location.--Lat 40°52', long 87°09', in SW¼ NW¼ sec. 7, T. 28 N., R. 6 W., on right bank on downstream side of bridge on State Highway 53, 1½ miles south of Collegeville, 2½ miles upstream from mouth, and 2 3/4 miles downstream from Bice ditch.

Drainage area.--84.1 sq mi.

Records available.--July 1948 to December 1951, October 1952 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 634.75 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1955, wire-weight gage and Aug. 5, 1955, to Oct. 8, 1958, water-stage recorder, at same site at datum 3.00 ft higher.

Average discharge.--15 years, 61.8 cfs.

Extremes.--Maximum discharge during year, 506 cfs Apr. 21 (gage height, 7.70 ft); minimum daily, 0.7 cfs Dec. 20-26.
1948-51, 1952-64: Maximum discharge, 2,030 cfs June 13, 1958; maximum gage height, 16.46 ft Mar. 5, 1963 (backwater from ice); minimum discharge, that of Dec. 20-26, 1963.

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

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

3.2	1.7	4.5	65
3.3	3.5	5.0	110
3.5	8.7	6.0	231
3.9	25	8.0	560

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	4.3	4.0	.9	15	14	35	77	10	8.7	4.5	2.5
2	3.1	3.9	4.0	.9	15	22	42	61	11	8.7	4.3	2.4
3	3.1	3.5	4.0	1.0	13	14	69	46	10	8.7	4.1	2.4
4	3.1	3.9	4.0	1.5	13	11	46	41	9.7	8.4	4.3	2.2
5	3.1	4.1	4.0	1.5	14	13	41	35	10	7.8	4.3	2.2
6	3.1	3.9	4.0	1.5	14	10	69	32	11	10	4.1	2.2
7	3.1	3.7	4.0	1.5	13	9.0	77	28	14	10	3.9	2.2
8	3.1	3.5	4.0	1.5	12	9.4	61	25	14	10	3.7	2.2
9	3.1	3.5	4.0	2.0	10	13	42	24	12	9.0	3.7	2.0
10	3.1	3.3	4.0	2.5	9.6	16	36	22	11	8.1	3.7	2.0
11	3.1	3.3	3.0	2.0	9.1	15	30	21	10	7.2	3.7	2.2
12	3.1	3.3	3.0	1.7	*8.7	16	27	20	10	7.2	*3.5	2.0
13	3.1	3.5	3.0	1.6	8.6	18	31	22	10	7.2	3.5	2.2
14	3.1	*3.7	2.0	1.5	8.5	19	*22	*20	9.4	7.2	3.7	2.0
15	*3.1	4.0	2.0	1.5	8.9	15	20	17	12	7.0	3.5	2.2
16	3.3	4.0	2.0	1.5	9.1	12	18	17	12	6.1	3.5	* 2.2
17	3.3	4.0	.9	1.5	9.1	11	18	16	11	5.8	3.3	2.4
18	3.5	4.0	*.8	1.5	9.0	13	18	15	9.7	8.4	3.3	3.3
19	3.7	4.0	.8	1.5	8.9	10	22	14	10	8.1	3.3	3.3
20	3.5	4.0	.7	10	8.6	* 11	88	13	20	7.0	3.1	2.9
21	3.5	4.0	.7	50	8.3	24	439	12	26	* 5.8	3.9	2.7
22	3.3	4.0	.7	42	7.6	26	353	12	24	5.5	4.8	2.5
23	3.3	4.0	.7	35	7.1	20	231	12	*22	5.5	3.5	3.3
24	3.3	4.0	.7	30	6.6	17	131	12	18	5.5	3.3	2.7
25	3.1	4.0	.7	25	6.2	28	77	11	14	7.8	3.1	2.5
26	3.1	4.0	.7	21	6.1	154	61	11	12	5.5	2.7	2.7
27	3.3	4.0	1.0	18	6.0	65	69	11	12	5.0	2.7	3.7
28	3.5	4.0	1.0	15	6.0	65	95	11	10	4.8	3.3	3.1
29	3.5	4.0	1.0	13	6.0	65	136	10	10	4.5	2.5	2.9
30	3.5	4.0	.9	12	---	69	100	10	9.7	4.5	2.5	2.7
31	3.9	---	.9	13	---	40	---	10	---	4.5	2.5	---
Total	101.3	115.4	67.2	313.1	277.0	844.4	2,504	688	384.5	219.5	109.8	75.8
Mean	3.27	4.85	2.02	10.1	9.55	27.2	83.5	22.2	12.8	7.08	3.54	2.53
Cfsm	0.039	0.046	0.024	0.120	0.114	0.323	0.993	0.264	0.152	0.084	0.042	0.030
In.	0.04	0.05	0.03	0.14	0.12	0.37	1.11	0.30	0.17	0.10	0.05	0.03

Calendar year 1963: Max 1,100 Min 0.7 Mean 30.2 Cfsm 0.359 In. 4.87
Water year 1963-64: Max 439 Min 0.7 Mean 15.6 Cfsm 0.185 In. 2.51

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Jan. 22, to Feb. 29. No gage-height record Nov. 14 to Jan. 21.

5-5240. Carpenter Creek at Egypt, Ind.

Location.--Lat 40°52', long 87°12', on line between SW¼ sec. 15 and NW¼ sec. 22, T. 28 N., R. 7 W., on left bank on downstream side of bridge on State Highway 16, 0.5 mile north of Egypt, 2 3/4 miles upstream from mouth and 4 miles southwest of Collegeville.

Drainage area.--48.1 sq mi.

Records available.--July 1948 to December 1951, October 1952 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 641.79 ft above mean sea level, datum of 1929. Prior to Sept. 6, 1955, wire-weight gage at same site and datum.

Average discharge.--15 years, 34.9 cfs.

Extremes.--Maximum discharge during year, 294 cfs Apr. 21 (gage height, 7.62 ft); no flow for many days.
1948-51, 1952-64: Maximum discharge, 3,720 cfs June 10, 1958 (gage height, 11.66 ft); no flow at times during 1953, 1955-56, 1959, 1963-64.

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 Apr. 28, Apr. 30 to May 25, May 27, 28, 31, June 7-16, 19-21, June 23 to July 1, July 8, 18)

1.4	0	2.5	12
1.5	.1	3.0	25
1.6	.3	3.5	40
1.7	.8	4.0	57
1.8	1.4	5.0	104
2.0	3.2	7.0	238
2.2	6.2	8.0	340

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.3	0.2	0	b 6.0	13	24	32	1.1	2.0	0.1	0
2	0	.6	.2	0	b 4.5	28	30	28	1.2	1.6	.1	0
3	0	1.0	.2	0	b 3.1	12	57	24	1.2	1.4	0	0
4	0	.2	.3	0	b 2.5	7.8	42	20	.9	1.2	0	0
5	0	.3	.3	0	1.8	7.8	37	17	.8	.8	0	0
6	0	.5	.3	0	1.6	5.5	61	15	1.3	.8	0	0
7	0	.4	.3	0	1.7	3.5	69	14	1.9	.9	0	0
8	0	.4	.5	0	1.3	3.5	53	14	50	2.3	0	0
9	0	.2	.6	0	b .8	10	37	12	24	1.2	0	0
10	0	.2	.5	0	b .6	11	30	9.2	10	.7	0	0
11	0	.2	.3	0	.6	11	24	8.0	4.5	.4	0	0
12	0	.2	.4	0	* .6	12	22	8.4	3.2	.3	*0	0
13	0	.2	.5	0	.6	15	20	8.2	2.7	.4	0	0
14	0	*.3	.3	0	b .6	19	*16	*7.2	2.0	.4	0	0
15	0	.4	0	0	b .7	13	13	5.2	2.7	.5	0	0
16	*0	.4	0	0	b .7	8.6	12	5.0	2.4	.3	0	0
17	0	.5	0	0	b .7	6.6	11	4.5	1.3	.2	0	0
18	0	.1	* 0	0	b .7	4.5	10	3.7	1.2	65	0	0
19	0	.2	0	0	b .7	3.8	14	3.5	1.2	99	0	0
20	0	.2	0	*47	b .6	*4.2	89	2.9	8.8	43	0	0
21	.1	.4	0	65	b .6	20	274	2.7	44	* 18	0	0
22	.3	.6	0	38	b .5	24	184	2.5	69	10	.6	0
23	.2	1.2	0	31	b .5	18	114	2.4	36	5.2	.2	0
24	.1	1.1	0	22	b .4	15	74	2.2	* 19	2.7	.1	0
25	.2	.6	0	25	b .4	33	57	2.0	12	1.9	0	0
26	.2	.4	0	18	b .4	144	44	1.8	7.6	1.2	0	0
27	.2	.4	0	b 12	b .4	b 54	43	2.0	5.4	.8	0	0
28	.4	.4	0	b 9.0	b .4	b 48	40	1.9	4.0	.5	0	0
29	.5	1.0	0	b 7.0	b .4	b 46	43	1.4	3.1	.3	0	0.1
30	.3	.2	0	b 6.0	------	b 35	38	1.3	1.6	.1	0	0
31	.2	------	0	b 7.0	------	b 28	------	1.4	------	.1	0	------
Total	2.7	13.1	4.9	287.0	34.4	664.8	1.582	263.4	324.1	263.2	1.1	0.1
Mean	0.09	0.44	0.16	9.26	1.19	21.4	52.7	8.50	10.8	8.49	0.04	0.003
Cfsm	0.0019	0.009	0.003	0.193	0.025	0.44	1.10	0.177	0.225	0.176	0.0083	0.00006
In.	0.002	0.01	0.004	0.22	0.03	0.51	1.23	0.20	0.25	0.20	0.009	0.00007

Calendar year 1963: Max 620 Min 0 Mean 12.8 Cfsm 2.66 In. 3.61
Water year 1963-64: Max 274 Min 0 Mean 9.4 Cfsm 1.95 In. 2.67

Peak discharge (base, 600 cfs).--No peaks above the base.

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

5-5245. Iroquois River near Foresman, Ind.

Location.--Lat 40°52', long 87°18', on line between secs. 14 and 15, T. 28 N., R. 8 W., on right bank at downstream side of bridge on State Highway 55, a quarter of a mile north of intersection of Highways 16 and 55, 0.6 mile west of Foresman, and 3 miles east of Brook.

Drainage area.--452 sq mi.

Records available.--December 1948 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 624.00 ft above mean sea level, datum of 1929. Prior to Sept. 7, 1955, wire-weight gage 2.5 miles upstream at datum 3.54 ft higher.

Average discharge.--15 years (1949-64), 327 cfs.

Extremes.--Maximum discharge during year, 1,310 cfs Apr. 21 (gage height, 13.28 ft); minimum, 6.1 cfs Sept. 10; gage height, 2.97 ft. 1948-64: Maximum discharge, 5,930 cfs June 14, 1958 (gage height, 24.42 ft); minimum discharge, that of Sept. 10, 1964; minimum gage height, 2.92 ft Sept. 27-29, 1956.

Remarks.--Records poor.

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	19	20	11	42	60	214	470	45	37	11	11
2	17	18	20	11	49	102	209	390	45	33	11	9.8
3	17	17	19	11	*45	123	323	310	41	31	12	8.9
4	17	19	19	11	39	99	306	260	37	30	12	8.6
5	16	19	20	12	38	95	265	230	39	28	12	9.1
6	16	19	20	12	39	93	363	190	43	28	13	9.1
7	17	19	22	13	38	82	470	160	56	39	13	8.6
8	16	19	24	14	32	71	445	150	93	64	12	8.4
9	13	18	24	15	35	76	346	140	111	64	11	7.5
10	16	18	22	15	34	88	270	150	82	49	10	6.3
11	17	18	20	15	30	94	204	140	58	33	10	7.0
12	17	*17	22	15	*32	94	169	*120	47	28	*9.8	9.8
13	16	16	19	14	30	101	156	110	66	26	10	10
14	17	17	19	14	28	120	142	100	66	26	10	10
15	16	19	15	13	28	111	*122	93	61	24	11	9.8
16	*15	18	12	13	28	92	111	84	135	22	11	9.1
17	16	17	12	13	28	76	106	84	120	20	10	*8.4
18	16	18	* 11	13	29	66	100	84	93	167	10	9.6
19	16	18	11	13	29	64	90	76	76	222	10	13
20	17	18	9.8	50	28	*61	100	71	152	* 150	9.8	15
21	18	19	9.2	200	28	105	350	61	250	64	12	14
22	18	22	9.0	180	26	167	1,300	58	287	41	16	12
23	17	24	8.9	160	25	156	1,200	56	242	28	22	17
24	17	25	9.0	130	25	135	830	58	*169	20	19	17
25	17	24	9.4	100	25	150	540	56	120	19	18	15
26	16	22	10	72	25	532	370	54	85	18	17	14
27	16	20	11	59	25	536	310	51	64	16	14	14
28	16	19	11	51	25	438	330	54	51	14	14	14
29	16	19	12	46	25	392	410	54	47	13	15	14
30	19	20	12	41	------	288	530	49	43	11	13	12
31	20	------	12	40	-----	266	-----	43	-----	11	12	-------
Total	516	575	474.3	1,377	910	4,933	10,681	4,006	2,824	1,376	390.6	332
Mean	16.6	19.2	15.3	44.4	31.4	159	356	129	94.1	44.4	12.6	11.1
Cfsm	0.037	0.042	0.034	0.098	0.069	0.352	0.788	0.285	0.208	0.098	0.028	0.025
In.	0.04	0.05	0.04	0.11	0.07	0.41	0.88	0.33	0.23	0.11	0.03	0.03

Calendar year 1963: Max 3,000 Min 8.9 Mean 149 Cfsm 0.330 In. 4.48
Water year 1963-64: Max 1,300 Min 6.3 Mean 77.6 Cfsm 0.172 In. 2.33

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 18 to Feb. 29. No gage-height record Apr. 19 to May 14.

5-5250. Iroquois River at Iroquois, Ill.

Location.--Lat 40°49'25", long 87°34'55", in SE¼ sec. 15, T. 27 N., R. 11 W., on left bank at upstream side of bridge on U. S. Highway 52 at Iroquois, 500 ft upstream from Cleveland, Cincinnati, Chicago & St. Louis Railway bridge and 4½ miles downstream from Indiana-Illinois State line.

Drainage area.--682 sq mi.

Records available.--October 1944 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 614.34 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1945, chain gage at same site and datum.

Average discharge.--20 years, 494 cfs.

Extremes.--Maximum discharge during year, 1,540 cfs Apr. 23 (gage height, 13.41 ft); minimum, 5.2 cfs Sept. 13.
1944-64: Maximum discharge, 10,400 cfs June 13, 1958 (gage height, 26.31 ft); minimum, that of Sept. 13, 1964.

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

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	19	22	15	60	69	378	691	60	60	18	13
2	12	22	22	18	64	109	339	640	56	53	17	12
3	12	17	23	18	67	141	387	562	56	46	16	10
4	12	21	22	18	66	145	448	483	52	44	15	9.2
5	12	21	21	16	60	131	447	413	48	39	15	8.0
6	11	23	20	15	56	118	501	357	50	38	13	7.2
7	10	23	21	15	54	107	609	316	54	40	14	7.2
8	9.5	22	23	15	50	98	637	285	75	60	13	7.2
9	11	22	27	15	47	92	590	263	105	78	12	7.2
10	11	22	27	15	42	98	499	237	119	87	11	7.2
11	11	21	26	15	40	106	406	218	103	71	11	6.8
12	12	*21	24	15	38	114	338	206	77	63	* 9.5	5.8
13	13	20	*23	15	37	*127	294	194	65	56	9.2	5.5
14	14	19	21	14	36	154	258	182	75	*44	8.9	6.5
15	13	19	19	14	35	163	229	165	81	72	8.6	8.0
16	13	19	17	14	35	152	202	147	110	108	8.9	9.2
17	14	21	16	15	35	130	182	136	148	65	8.9	*9.2
18	13	22	15	16	*35	107	167	131	141	138	9.2	10
19	13	20	12	17	36	91	169	129	*115	452	8.9	10
20	13	20	11	*35	37	81	270	119	123	387	8.6	11
21	13	22	10	170	36	102	1.060	108	284	260	11	13
22	14	25	10	320	35	171	1.490	100	406	161	14	16
23	15	30	10	350	33	228	1.530	92	388	105	16	18
24	*15	32	10	300	31	231	1.460	88	326	77	18	16
25	14	34	10	250	30	223	1.290	*86	249	58	22	18
26	14	35	10	190	30	488	1.070	83	183	46	20	21
27	16	31	10	140	30	667	*874	82	132	40	18	22
28	16	28	10	100	31	661	724	76	99	34	18	20
29	14	25	10	80	40	597	678	72	80	28	16	18
30	14	23	11	70	---	514	695	72	68	23	15	18
31	14	---	12	61	---	430	---	66	---	20	14	---
Total	401.5	699	525	2.361	1.226	6.645	13.221	5.799	3.928	2.853	417.7	350.2
Mean	13.0	23.3	16.9	76.2	42.3	214	607	219	131	92.0	13.5	11.7
Cfsm	0.019	0.034	0.025	0.112	0.062	0.314	0.890	0.321	0.192	0.135	0.020	0.017
In.	0.02	0.04	0.03	0.13	0.07	0.36	0.99	0.37	0.21	0.16	0.02	0.02

Calendar year 1963: Max 5,090 Min 9.5 Mean 236 Cfsm 0.346 In. 4.70
Water year 1963-64: Max 1,530 Min 5.5 Mean 121 Cfsm 0.177 In. 2.42

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 14 to Jan. 30, Feb. 8-29.

5-5255. Sugar Creek at Milford, Ill.

Location.--Lat 40°37'50", long 87°43'25", in N½ sec. 16, T. 25 N., R. 12 W., near right bank on downstream side of highway bridge, 200 ft downstream from Mud Creek and 1 mile west of Milford.

Drainage area.--430 sq mi.

Records available.--July 1948 to September 1964.

Gage.--Wire-weight gage read twice daily, and crest-stage gage. Datum of gage is 622.00 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 323 cfs.

Extremes.--Maximum discharge during year, 5,980 cfs Apr. 21 (gage height, 17.95 ft, from graph based on gage readings); minimum, 3.2 cfs Oct. 11.
1948-64: Maximum discharge, 22,900 cfs Feb. 21, 1951 (gage height, 20.90), from rating curve extended above 8,200 cfs; maximum gage height, 23.74 ft Feb. 10, 1959 (ice jam); minimum discharge observed, 2.8 cfs Dec. 14, 1952, result of freezeup.

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

Rating table, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 20 to June 7, June 21 to Sept. 30)

1.4	3.0	4.0	141	13.0	1,860
1.7	8.9	5.0	245	16.0	3,140
2.0	18	7.0	513	17.0	4,040
2.5	38	10.0	1,050	18.0	5,200
3.0	65				

Discharge, in cubic feet per second, water year October 1963 to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	6.0	6.2	4.5	37	a 20	a140	555	44	102	19	6.8
2	3.5	7.5	5.8	5.2	38	a 40	a130	483	42	95	18	6.8
3	3.5	7.3	6.2	5.2	34	67	a150	388	42	86	17	6.6
4	3.5	7.3	7.1	5.2	30	61	a170	358	40	80	15	6.4
5	3.5	8.9	8.2	5.0	27	a 45	a180	329	38	72	14	6.2
6	3.3	9.7	8.7	4.7	28	a 40	a190	275	48	70	14	5.8
7	3.3	8.9	8.7	4.5	28	a 35	a230	251	555	204	12	5.6
8	3.3	a 8.0	8.7	4.5	21	a 32	a260	231	940	166	12	5.5
9	3.3	a 7.2	8.7	4.5	20	a 30	a250	219	332	132	11	5.3
10	3.3	a 6.6	8.7	4.5	17	a 33	237	185	200	*101	10	*5.1
11	3.2	a 6.4	8.0	4.5	16	a 37	187	159	115	85	10	5.6
12	3.3	a 6.2	7.2	4.5	a 15	a 40	159	151	66	79	*9.9	5.5
13	3.8	* 6.0	* 6.4	4.5	a 15	* 46	142	142	53	184	9.7	5.8
14	4.2	a 5.8	6.2	4.5	a 14	a 56	123	132	50	179	9.4	6.2
15	4.5	a 5.8	5.8	4.5	a 14	a 62	100	117	48	164	9.2	6.0
16	4.4	5.8	5.4	4.5	14	a 58	86	105	44	151	8.7	5.6
17	4.7	5.8	5.0	4.7	14	a 50	79	96	39	132	8.4	5.5
18	5.5	5.8	4.7	5.0	* 14	a 42	96	88	36	558	8.4	8.9
19	5.8	5.8	4.1	15	14	a 35	345	81	*33	1,290	8.2	11
20	6.2	5.5	3.8	* 32	15	a 31	1,300	74	132	731	8.2	9.7
21	6.4	5.8	3.5	70	a 14	a 40	*5,020	67	1,520	363	19	8.9
22	a 5.8	11	3.5	160	a 13	a 68	4,840	60	3,120	243	25	8.4
23	a 5.2	14	3.5	180	a 13	a 86	3,020	55	2,300	137	18	8.0
24	* 5.1	13	3.5	150	a 12	a 92	2,000	52	1,110	96	16	8.0
25	a 5.0	11	3.5	120	a 12	a 86	1,300	*56	574	70	12	7.8
26	a 5.0	9.9	3.5	90	a 12	a190	940	56	293	66	11	8.4
27	5.8	9.2	3.5	70	a 12	a250	796	55	169	46	10	9.9
28	6.4	7.8	3.5	50	a 12	a240	742	53	134	38	9.9	8.7
29	a 6.0	6.6	3.5	41	a 14	a220	787	56	127	31	9.4	8.4
30	a 5.6	6.2	3.7	34	------	a190	655	52	113	27	8.2	8.0
31	a 5.2	------	4.0	32	------	a160	------	48	------	24	7.5	------
Total	141.1	230.8	172.8	1,128.5	539	2,482	24,654	5,029	12,357	5,802	378.1	214.4
Mean	4.55	7.69	5.57	36.4	18.6	80.1	822	162	412	187	12.2	7.15
Cfsm	0.011	0.018	0.013	0.085	0.043	0.186	1.91	0.377	0.958	0.435	0.028	0.017
In.	0.01	0.02	0.01	0.10	0.05	0.21	2.13	0.43	1.07	0.50	0.03	0.02

Calendar year 1963: Max 6,200 Min 3.2 Mean 150 Cfsm 0.349 In. 4.71
Water year 1963-64: Max 5,020 Min 3.2 Mean 145 Cfsm 0.337 In. 4.58

Peak discharge (base, 2,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
4-21	1200	17.95	5,980				
6-22	1200	15.50	3,220				

* Discharge measurement made on this day.
a No gage-height record.
Note.--Stage-discharge relation affected by ice Dec. 11 to Jan. 28.

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 and miscellaneous sites are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in the second 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 stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1964

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Miami River Basin				
3-2748.00	Martindale Creek near Cambridge City, Ind.	Lat 39°49', long 85°09', on line between secs. 13 and 24, T. 16 N., R. 12 E., 1¼ miles upstream from U.S. Highway 40, and 1 3/4 miles northeast of Cambridge City.	58.1	1960-64	10-9-63	1.58
					11-4-63	3.62
					9-8-64	1.95
3-2752.00	Salt Creek near Metamora, Ind.	Lat 39°26'45", long 85°11'01", in SW¼ sec. 34, T. 12 N., R. 12 E., three-tenths of a mile south of U.S. Highway 52 and 2 3/4 miles west of Metamora.	115	1954	10-9-63	0.70
				1960-64	11-4-63	0.84
3-2757.00	Silver Creek near Liberty, Ind.	Lat 39°39'36", long 84°55'39", on line between sec. 31, T. 12 N., R. 1 W., and sec. 36, T. 12 N., R. 2 W., at bridge on U.S. Highway 27, 1½ miles north of Liberty.	9.67	1960-64	10-9-63	0.02
					11-4-63	0.06
					9-8-64	0
		Laughery Creek Basin				
3-2767.50	Laughery Creek near Ballstown, Ind.	Lat 39°14'42", long 85°14'52", in SW¼NE¼ sec. 12, T. 9 N., R. 11 E., at bridge on State Highway 229, six-tenths of a mile south of Ballstown.	a 37	1961-64	10-14-63	0
		Indian Kentuck Creek Basin				
3-2918.00	Indian Kentuck Creek at Manville, Ind.	Lat 38°47'10", long 85°16'58", in SE¼ sec. 15, T. 4 N., R. 11 E., at Manville, below mouth of West Fork Indian Kentuck Creek.	a 121	1954	10-9-63	0
				1961-64		
		Fourteenmile Creek Basin				
3-2924.00	Fourteenmile Creek near Charlestown, Ind.	Lat 38°27'58", long 85°37'04", in SE¼SE¼ of lot 120 of Clark Military Grant, at bridge on State Highway 62, 2 miles northeast of Charlestown.	a 97	1954	10-9-63	0.03
				1962-64	11-6-63	0.11
		Indian Creek Basin				
3-3026.00	Little Indian Creek near Corydon, Ind.	Lat 38°11'59", long 86°05'44", in NE¼ sec. 5, T. 4 S., R. 4 E., at bridge on county highway, two-tenths of a mile south of State Highway 62, 1 3/4 miles east of Corydon, and 2.4 miles upstream from mouth.	32.5	1960-64	11-4-63	0.51
		Blue River Basin				
3-3027.00	Middle Fork Blue River near Salem, Ind.	Lat 38°32'36", long 86°05'37", in NE¼ sec. 8, T. 1 N., R. 4 E., 1.7 miles upstream from confluence with West Fork Blue River, at bridge on State Highway 135, 4½ miles south of Salem.	38.4	1954	11-4-63	0
				1961		
				1964		
3-3029.00	Spring Creek near White Cloud, Ind.	Lat 38°14'20", long 86°13'45", in SE¼ sec. 19, T. 3 S., R. 3 E., at county highway bridge, north of White Cloud and at mouth of Harrison Spring.		1951-52	10-22-63	7.12
				1954-64	11-12-63	6.89
					12-15-63	9.29
					1-27-64	53.5
					2-17-64	103
					3-25-64	195
					4-21-64	135
					5-21-64	61.6
					6-26-64	42.8
					7-23-64	44.4
					8-21-64	10.1
					9-21-64	8.48

Discharge measurements made at low-flow partial-record stations during water year 1964--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Little Pigeon Creek Basin				
3-3040.00	Little Pigeon Creek near Tennyson, Ind.	Lat 38°02'45", long 87°07'05", in NE¼ sec. 31, T. 5 S., R. 6 W., at county highway bridge, 1½ miles downstream from East Fork, and 2½ miles south of Tennyson.	150	≠1944-47 1961-64	11-5-63	0
		Wabash River Basin				
3-3228.00	Bear Creek near Bryant, Ind.	Lat 40°31', long 84°58', on line between secs. 19 and 20, T. 24 N., R. 14 E., at bridge on U.S. Highway 27, 5 miles north of Portland, 1¼ miles south of Bryant.	a 14	1957 1961-64	11-8-63 8-24-64	0 0
3-3232.00	Rock Creek near Markle, Ind.	Lat 40°47'47", long 85°21'28", in NE¼ sec. 14, T. 27 N., R. 10 E., at bridge on State Highway 3, 2¼ miles southwest of Markle.	a 92	1954 1960-64	11-8-63 8-26-64	0.83 0.67
3-3238.00	Eight Mile Creek at Zanesville, Ind.	Lat 40°55', long 85°17', in sec. 4, T. 28 N., R. 11 E., at bridge on State Highway 3, 0.7 mile southwest of Zanesville.	a 46	1954 1961-64	11-8-63 8-25-64	0.47 0.50
3-3261.00	Big Lick Creek near Wheeling, Ind.	Lat 40°23', long 85°27', in NE¼ sec. 12, T. 22 N., R. 9 E., at county highway bridge, 3/8 mile upstream from mouth and 1¼ miles northeast of Wheeling.	a 83	1954 1961-64	11-8-63 11-13-63 8-26-64	4.73 4.23 4.08
3-3275.20	Pipe Creek near Bunker Hill, Ind.	Lat 40°40'06", long 86°05'44", in SE¼ sec. 29, T. 26 N., R. 4 E., at bridge on county highway, ½ mile northeast of Bunker Hill.	a 168	1953-54 1960-64	10-8-63 11-1-63 9-9-64	3.72 7.46 6.89
3-3277.70	Blue River near Columbia City, Ind.	Lat 41°10'52", long 85°27'24", in SW¼ sec. 35, T. 32 N., R. 9 E., at county highway bridge, 0.6 mile east of State Highway 9, 2¼ miles northeast of Columbia City and 2.5 miles downstream from Thorn Creek.	a 60	1961-64	11-8-63 9-10-64	4.04 3.36
3-3293.00	Rock Creek at Rockfield, Ind.	Lat 40°39'10", long 86°33'30", in SE¼ sec. 32, T. 26 N., R. 1 W., at bridge on State Highway 25, 1¼ miles northeast of Rockfield.	a 81	1954 1960-64	10-8-63 11-1-63 9-2-64	0.90 1.96 0.89
3-3296.00	Bachelor Run near Flora, Ind.	Lat 40°32'50", long 86°29'30", on line between secs. 2 and 11, T. 24 N., R. 1 W., at bridge on State Highway 18, 1¼ miles east of Flora.	a 13	1960-64	10-8-63 11-1-63 9-2-64	0.37 0.90 0.53
3-3314.30	Mud Creek near Bruce Lake, Ind.	Lat 41°03'10", long 86°19'39", on line between secs. 8 and 17, T. 30 N., R. 2 E., at bridge on State Highway 14, 4½ miles east of Bruce Lake, and 5½ miles west of Rochester.	a 69	1960-64	9-11-64	2.17
3-3334.00	Mud Creek near Windfall, Ind.	Lat 40°24'23", long 85°54'18", in NW¼NE¼ sec. 34, T. 23 N., R. 5 E., at bridge on east-west county road along Tipton-Howard county line ½ mile east of State Road 213, ½ mile downstream from Turkey Creek, and 3 miles north of Windfall.	a 75	1960-64	10-8-63 11-1-63 9-9-64	0.41 0.85 0.80
3-3343.00	Kilmore Creek at Kilmore, Ind.	Lat 40°21', long 86°30', in SW¼ sec. 14, T. 22 N., R. 1 W., at county highway bridge, 0.7 mile upstream from State Highway 75, at south edge of Kilmore.	a 62	1954 1960-64	10-7-63 11-1-63 9-8-64	0.12 0.89 0
3-3356.70	Wea Creek near Lafayette, Ind.	Lat 40°21'46", long 86°54'17", in SE¼ sec. 7, T. 22 N., R. 4 W., at bridge on State Highway 43, 2 3/4 miles south of Lafayette.	a 103	1960-64	10-7-63 11-1-63 9-8-64	7.39 10.1 8.89
3-3391.00	Coal Creek near Veedersburg, Ind.	Lat 40°08'33", long 87°15'00", on line between secs. 30 and 31, T. 20 N., R. 7 W., at bridge on county road, 2.2 miles northeast of Veedersburg.	77.6	1962-64	10-7-63 11-1-63 9-8-64	4.01 5.92 4.22
3-3392.00	Sugar Creek near Kirklin, Ind.	Lat 40°12', long 86°22', in SE¼NW¼ sec. 1, T. 20 N., R. 1 E., at bridge on U.S. Highway 421, 1 mile north of Kirklin.	a 41	1960-64	10-7-63 11-1-63 9-8-64	0.42 0.74 0.48
3-3414.50	Otter Creek at Burnett, Ind.	Lat 39°32'17", long 87°17'44", on line between secs. 27 and 28, T. 13 N., R. 8 W., at county highway bridge, 0.3 mile south of Burnett.	a 69	1961-64	10-7-63 11-8-63 9-11-64	3.89 4.64 3.36
3-3416.00	Honey Creek near Prairieton, Ind.	Lat 39°23'51", long 87°27'07", at center of sec. 18, T. 11 N., R. 9 W., at bridge on State Highway 63, 2.4 miles northeast of Prairieton.	a 86	1960-64	10-7-63 11-7-63	3.53 3.91
3-3418.00	Prairie Creek at Prairie Creek, Ind.	Lat 39°16'50", long 87°29'54", on line between secs. 26 and 27, T. 10 N., R. 10 W., at bridge on State Highway 63, ½ mile north of Prairie Creek.	a 24	1960	10-7-63 11-4-63	0 0

Discharge measurements made at low-flow partial-record stations during water year 1964--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Wabash River Basin--Continued				
3-3419.20	Turman Creek near Farmersburg, Ind.	Lat 39°14'40", long 87°24'28", at corner of secs. 3, 4, 9, and 10, T. 9 N., R. 9 W., 1½ miles southwest of Farmersburg and 3.0 miles upstream from dam for Thunderbird Pond.	a 13	1964	10-7-63 11-1-63	0 0
3-3427.00	Maria Creek near Emison, Ind.	Lat 38°46'25", long 87°28'21", in N½ sec. 24, T. 4 N., R. 10 W., at bridge on U.S. Highway 41, 2 miles south of Emison.	a 88	1954 1960-64	9-1-64	0.55
3-3467.00	White River near Harrisville, Ind.	Lat 40°11', long 84°53', in sec. 19, T. 20 N., R. 15 E., at bridge on State Highway 32, 1 mile west of Harrisville.	21.3	1961-64	11-8-63 11-14-63 8-27-64	0.63 0.65 0.47
3-3483.00	Pipe Creek near Alexandria, Ind.	Lat 40°16'40", long 85°38'34", on line between secs. 8 and 17, T. 21 N., R. 8 E., at bridge on State Highway 28, 1½ miles east of State Highway 9, and 2 miles northeast of Alexandria.	44.7	1960-64	10-1-63 10-24-63 11-13-63 9-15-64	2.29 2.18 2.42 2.64
3-3507.00	Stoney Creek near Noblesville, Ind.	Lat 40°01'44", long 85°59'42", in NE¼NE¼ sec. 7, T. 18 N., R. 5 E., at bridge on State Highway 37, 1.4 miles southeast of Post Office in Noblesville, and 1.4 miles upstream from mouth.	a 51	1946 1960-64	10-8-63 11-13-63 9-4-64	2.28 4.17 5.60
3-3513.00	Crooked Creek at Augusta, Ind.	Lat 39°53'43", long 86°12'53", in NE¼NW¼ sec. 29, T. 17 N., R. 3 E., at bridge on U.S. Highway 421, 0.4 mile north of Augusta.	7.22	1960-64	10-7-63 11-8-63 9-4-64	b 0.02 b 0.06 0
3-3519.00	Indian Creek at Oaklandon, Ind.	Lat 39°51'51", long 85°58'07", in SW¼NW¼ sec. 3, T. 16 N., R. 5 E., at bridge on old State Highway 67, 0.2 mile northeast of State Highway 67 and Sunnyside Road intersection, and 1 mile southwest of Oaklandon.	a 18	1960-64	10-9-63 10-15-63 10-30-63 11-8-63 9-4-64	0 0 0 0.03 0.02
3-3536.30	Little Buck Creek at Southport, Ind.	Lat 39°39'55", long 86°06'06", on line between secs. 8 and 17, T. 14 N., R. 4 E., at bridge on Southport Road, 200 ft east of Sherman Drive - Southport Road intersection, and ½ mile east of Southport.	a 9	1960-64	10-7-63 11-13-63 9-4-64	0.01 0.05 0.01
3-3536.50	Pleasant Run at Greenwood, Ind.	Lat 39°37'53", long 86°06'58", in NW¼ sec. 29, T. 14 N., R. 4 E., at bridge on State Highway 431, 0.2 mile south of Marion-Johnson county line, and 0.5 mile north of Greenwood.	a 5	1960-64	10-7-63 11-13-63	0 0
3-3536.70	White Lick Creek near Brownsburg, Ind.	Lat 39°51'56", long 86°23'42", on line between sec. 2, T. 16 N., R. 1 E., and sec. 34, T. 17 N., R. 1 E., at bridge on county highway, 350 ft west of State Highway 267, and 1½ miles north of Brownsburg.	a 30	1960-64	10-7-63 11-1-63	0 0
3-3541.00	Sycamore Creek near Centerton, Ind.	Lat 39°30'49", long 86°25'55", on line between sec. 33, T. 13 N., R. 1 E., and sec. 4, T. 12 N., R. 1 E., at county highway bridge, 2 miles west of Centerton.	17.2	1960-64	10-7-63 9-4-64	0.19 0.15
3-3542.00	Indian Creek near Morgantown, Ind.	Lat 39°22'08", long 86°13'50", in NW¼ sec. 29, T. 11 N., R. 3 E., at bridge on county highway, 100 ft upstream from Barnes Creek, 1.6 miles east of Morgantown.	a 20	1961-64	10-7-63 9-4-64	0 0
3-3571.00	Rattlesnake Creek near Spencer, Ind.	Lat 39°15'36", long 86°48'20", in S½ sec. 36, T. 10 N., R. 4 W., at county highway bridge, 400 ft upstream from State Highway 67 and U.S. Highway 231 bridge, and 2½ miles southwest of Spencer.	a 25	1960-64	10-7-63	0.39
3-3573.00	Big Walnut Creek near Barnard, Ind.	Lat 39°49'50", long 86°41'12", in NW¼ sec. 18, T. 16 N., R. 2 W., at bridge on Putnam-Hendricks county line, 1½ miles southeast of Barnard.	a 120	1961-64	10-9-63 11-1-63 9-8-64 9-16-64	3.41 7.06 1.41 1.66
3-3602.00	Lattas Creek at Switz City, Ind.	Lat 39°02'40", long 87°02'38", in SE¼ sec. 14, T. 7 N., R. 6 W., at bridge on State Highway 67, 0.9 mile north of Switz City.	a 32	1954 1960-64	11-5-63	0
3-3603.00	Richland Creek near Bloomfield, Ind.	Lat 39°01'38", long 86°55'05", in SE¼SE¼ sec. 24, T. 7 N., R. 5 W., at bridge on State Highway 54, 1.9 miles east of Bloomfield.	a 96	1960-64	10-28-63	1.74
3-3614.00	Little Blue River near Rays Crossing, Ind.	Lat 39°33'16", long 85°43'08", on line between secs. 23 and 26, T. 13 N., R. 7 E., at county highway bridge, 2.8 miles west of Rays Crossing.	a 94	1960-64	10-15-63 11-8-63	0.50 1.92

GPO 820-211-13

Discharge measurements made at low-flow partial-record stations during water year 1964--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Wabash River Basin--Continued				
3-3616.00	Brandywine Creek near Maxwell, Ind.	Lat 39°51'30", long 85°44'17", on line between secs. 3 and 10, T. 16 N., R. 7 E., at county highway bridge, 1.6 miles east of Maxwell and 4.5 miles northeast of Greenfield.	a 25	1960-64	10-9-63 11-8-63 9-8-64	0.06 0.22 0.16
3-3617.00	Sugar Creek near Pleasant View, Ind.	Lat 39°38'49", long 85°55'09", in E½ sec. 24, T. 14 N., R. 5 E., at bridge on Interstate Highway 74, 1 3/4 miles southeast of Pleasant View.	a 121	1954 1960-64	10-15-63 11-8-63 9-4-64	7.19 9.75 9.78
3-3618.00	Buck Creek near New Bethel, Ind.	Lat 39°43'34", long 85°48'20", on line between secs. 21 and 28, T. 15 N., R. 5 E., at bridge on E. Troy Ave., 7.7 miles east of corporate limits of Indianapolis.	49.5	1960-64	10-9-63 11-13-63 9-4-64	0.20 0.28 0.39
3-3619.00	Hurricane Creek at Franklin, Ind.	Lat 38°29'53", long 86°01'34", on line between sec. 7, T. 12 N., R. 5 E., and sec. 12, T. 12 N., R. 4 E., at county highway bridge, 1.0 mile northeast of Franklin.	a 13	1960-64	10-7-63 11-8-63	0 0
3-3632.00	Flatrock River at Lewisville, Ind.	Lat 39°48'24", long 85°21'29", in NW¼SE¼ sec. 25, T. 16 N., R. 10 E., at bridge on U.S. Highway 40 at Lewisville.	a 49	1954 1960-64	10-9-63 11-4-63 9-8-64	2.36 2.98 3.14
3-3643.00	Haw Creek near Columbus, Ind.	Lat 39°14'44", long 85°52'51", in W½SE¼ sec. 5, T. 9 N., R. 6 E., at county highway bridge, 1.1 miles north of corporate limits of Columbus.	a 50	1960-64	10-14-63 11-5-63	0.91 0.94
3-3648.00	Sand Creek near Greensburg, Ind.	Lat 39°20'55", long 85°26'51", in NE¼ sec. 6, T. 10 N., R. 10 E., at county highway bridge, 1½ miles northeast of Greensburg.	a 9	1960-64	10-14-63 11-8-63	0.01 0.03
3-3656.00	White Creek near Cortland, Ind.	Lat 38°58'46", long 86°00'58", on line between secs. 6 and 7, T. 6 N., R. 5 E., at bridge on State Highway 258, 3 miles west of Cortland.	a 94	1954 1961-64	10-9-63 11-5-63	0 0
3-3663.00	Big Creek near Volga, Ind.	Lat 38°46'47", long 85°32'57", in NE¼NW¼ sec. 20, T. 4 N., R. 9 E., at county highway bridge, 1.7 miles west of Volga, and 5.5 miles east of Deputy.	a 96	1954 1961-64	10-9-63 11-6-63	0 0.07
3-3673.00	Stucker Fork at Scottsburg, Ind.	Lat 38°41'41", long 85°45'24", on line between secs. 16 and 17, T. 3 N., R. 7 E., at county highway bridge, 0.6 mile north of State Highway 56, and 1 mile east of Scottsburg.	a 74	1961-64	10-9-63 11-6-63	0 1.04
3-3715.50	Middle Fork Salt Creek at Story, Ind.	Lat 39°05'37", long 86°12'29", in SE¼SE¼ sec. 29, T. 8 N., R. 3 E., at bridge on State Highway 135, 0.5 mile southeast of Story.	a 37	1954 1961-64	10-7-63 11-5-63	0 0
3-3733.20	Indian Creek near Trinity Springs, Ind.	Lat 38°44'15", long 86°46'14", in W½ sec. 32, T. 4 N., R. 3 W., at bridge on county road, 1.3 miles south of Trinity Springs, and 2.3 miles above mouth.	a 240	1963-64	10-29-63 9-26-64	0.57 0.68
3-3736.00	Lick Creek near Paoli, Ind.	Lat 38°32'42", long 86°26'56", in SW¼ sec. 6, T. 1 N., R. 1 E., at bridge on county road, 1.3 miles southeast of Paoli.	a 16	1954 1962-64	10-28-63 9-26-64	0.37 0.62
		Streams Tributary to Lake Michigan				
4-0984.00	Fawn River near Howe, Ind.	Lat 41°44'55", long 85°25'05", in SW¼ sec. 18, T. 38 N., R. 10 E., at county highway bridge, 1½ miles north of Howe.	a 161	1960-64	10-7-63 9-10-64	17.4 17.7
4-1004.90	Turkey Creek at New Paris, Ind.	Lat 41°30'00", long 85°50'40", in SW¼ sec. 9, T. 35 N., R. 6 E., at county highway bridge, 0.4 mile west of New Paris.	a 160	1960-64	10-11-63 9-10-64	31.3 16.9
		Streams Tributary to Lake Erie				
4-1826.00	Fairfield ditch at Fort Wayne, Ind.	Lat 41°00'59", long 85°11'18", at intersection of secs. 28, 29, 32 and 33, T. 30 N., R. 12 E., at bridge on lower Huntington Road, at Fort Wayne, 0.7 mile downstream from State Highway 3 and 2.5 miles upstream from mouth.	* 22.3	1961-64	10-21-63 11-19-63 1-8-64 2-4-64 3-2-64 4-3-64 5-5-64	0.29 0.47 0.51 1.10 15.7 15.5 7.29

Discharge measurements made at low-flow partial-record stations during water year 1964--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Illinois River Basin				
5-5151.00	Little Kankakee River near Mill Creek, Ind.	Lat 41°34', long 86°35', in sec. 18, T. 36 N., R. 1 W., at bridge on State Highway 4, 2½ miles west of Mill Creek.	a 39	1961-64	11-6-63 9-10-64	28.2 19.7
5-5163.00	Dausman ditch near Bremen, Ind.	Lat 41°22'58", long 86°07'02", at section line on east side of sec. 24, T. 34 N., on range line between R. 3 E., and R. 4 E., at bridge on State Highway 331, 4½ miles southeast of Bremen.	a 48	1956 1961-64	9-10-64	2.02
5-5175.50	Reeves ditch near LaCrosse, Ind.	Lat 41°19'03", long 86°55'49", on line between secs. 12 and 13, T. 33 N., R. 5 W., at bridge on State Highway 8, 2.0 miles west of LaCrosse.	a 44	1961-64	11-4-63 8-25-64	8.09 7.46

a About.
b Field estimate.
ƒ Operated as a continuous-record gaging station.
* Revised.

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Discharge measurements made at miscellaneous sites during water year 1964

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Silver Creek basin						
Muddy Fork Silver Creek	Silver Creek	Lat 38°26'55", long 85°51'55", in SW¼SW¼ sec. 4, T. 1 S., R. 6 E., at county highway bridge, at Carwood, Ind.			11-4-63	0
Big Run	Muddy Fork Silver Creek	Lat 38°27'45", long 85°51'29", in sec. 4, T. 1 S., R. 6 E., at county highway bridge, and 1 mile north of Carwood, Ind.			11-4-63	0
Little Blue River basin						
Stinking Fork Little Blue River	Little Blue River	Lat 38°13'57", long 86°31'44", in NW¼ sec. 28, T. 3 S., R. 1 W., at U.S. Highway 460 bridge, at West Fork, Ind.			11-4-63	0
...Do.....	...do.....	Lat 38°12'33", long 86°29'15", in S½ sec. 35, T. 3 S., R. 1 W., 0.7 mile west of Sulphur Springs, Ind.			11-4-63	0
Little Blue River	Ohio River	Lat 38°09'03", long 86°24'28", in NE¼NE¼ sec. 21, T. 4 S., R. 1 E., 1,000 ft downstream from Turkey Fork, and 1.8 miles southwest of Fredonia, Ind.			11-4-63	*0.16
Wabash River basin						
Loon Creek	Wabash River	Lat 40°50'31", long 85°31'36", in NW¼ sec. 33, T. 28 N., R. 9 E., at bridge on State Highway 37 and 1⅔ miles southwest of Huntington, Ind.			11-19-63	0
Mississinewa River	Wabash River	Lat 40°17'31", long 84°48'15", on line between sec. 30, T. 14 N., R. 1 E., and sec. 25, T. 19 N., R. 1 W., at bridge on Ohio-Indiana state line, 0.6 mile upstream from Mitchell ditch, and 2.4 miles southeast of Salem, Ind.	25.0		11-14-63	*0.20
Harshman Creek	Mississinewa River	Lat 40°16'50", long 84°52'26", on line between secs. 8 and 17, T. 21 N., R. 15 E., at bridge on county road, 0.7 mile upstream from mouth, and 2.6 miles southwest of Salem, Ind.	13.2		11-14-63	*0.20
Bear Creek	...do.....	Lat 40°16'42", long 85°04'27", on line between secs. 15 and 16, T. 21 N., R. 13 E., at bridge on county road, 1.0 mile upstream from mouth, and 2.5 miles west of Ridgeville, Ind.	15.0		11-14-63	*0.04
Platt Nibarger ditch	...do.....	Lat 40°17'36", long 85°08'36", on line between secs. 1 and 12, T. 21 N., R. 12 E., at bridge on State Highway 28, 0.8 mile upstream from mouth, and 3.9 miles south of Redkey, Ind.	5.81		11-14-63	*0.02
Mississinewa River	Wabash River	Lat 40°17'38", long 85°12'50", in SW¼ sec. 5, T. 21 N., R. 12 E., 1.3 miles southeast of Albany, Ind., and 1.7 miles upstream from Mud Creek.	228		11-14-63	*4.13
Mud Creek	Mississinewa River	Lat 40°17'15", long 85°14'10", in NW¼ sec. 12, T. 21 N., R. 11 E., at bridge on county road, 1300 ft upstream from mouth, and 0.8 mile south of Albany, Ind.	11.7		11-14-63	0
Halfway Creek	...do.....	Lat 40°19'08", long 85°13'48", in NW¼ sec. 36, T. 22 N., R. 11 E., at bridge on State Highway 167, 2.0 miles above mouth, and 1.3 miles north of Albany, Ind.	21.8		11-14-63	0
Campbells Creek	...do.....	Lat 40°14'05", long 85°14'10", on line between secs. 25 and 26, T. 21 N., R. 11 E., at bridge on county road, and 3.6 miles northeast of Parker City, Ind.	10.2		11-14-63	*0.19
Campbells Creek	...do.....	Lat 40°15'39", long 85°17'22", in NW¼ sec. 21, T. 21 N., R. 11 E., at bridge on Delaware County road 525 E., and 1.0 mile north of Desoto, Ind.	20.4	1963	10-24-63 11-13-63 9-15-64	*0.32 *0.36 *0.05
Mississinewa River tributary	...do.....	Lat 40°17'03", long 85°17'36", on line between secs. 8 and 9, T. 21 N., R. 11 E., at bridge on Delaware County road 500 E., and 3.1 miles southwest of Albany, Ind.	2.35		11-15-63	0
Mississinewa River tributary	...do.....	Lat 40°16'48", long 85°18'26", in SW¼ sec. 8, T. 21 N., R. 11 E., at bridge on county road, 0.2 mile upstream from mouth, and 3.4 miles northeast of Royerton, Ind.	0.93		11-15-63	0
Bosman ditch	...do.....	Lat 40°20'03", long 85°16'26", in N½ sec. 28, T. 22 N., R. 11 E., at bridge on Delaware County road 550 E., and 3.5 miles northwest of Albany, Ind.	3.12		11-14-63	0
Bosman ditch tributary	Bosman ditch	Lat 40°19'40", long 85°16'26", at center of sec. 28, T. 22 N., R. 11 E., at bridge on Delaware County road 550 E., 0.3 mile upstream from mouth, and 3.2 miles northwest of Albany, Ind.	1.56		11-14-63	0

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Bosman ditch	Mississinewa River	Lat 40°18'56", long 85°18'15", in N½ sec. 32, T. 22 N., R. 11 E., at bridge on Delaware County road 450 E., 0.2 mile upstream from mouth, and 3.1 miles southeast of Eaton, Ind.	6.10		11-14-63	* *0.26
Rees ditch	...do.....	Lat 40°22'24", long 85°16'38", on line between secs. 9 and 10, T. 22 N., R. 11 E., at bridge on Delaware County road 600 E., and 3.6 miles west of Dunkirk, Ind.	6.43		11-12-63	0
Rees ditch	...do.....	Lat 40°21'50", long 85°17'26", on line between secs. 9 and 16, T. 22 N., R. 11 E., at bridge on Delaware County road 1200 N., and 2.1 miles south of Millgrove, Ind.	8.07		11-12-63	*0.13
Rees ditch	...do.....	Lat 40°20'08", long 85°19'25", in SW¼ sec. 19, T. 22 N., R. 11 E., at bridge on Delaware County road 350 E., 1.0 mile upstream from mouth, and 0.9 mile east of Eaton, Ind.	13.5	1963	10-24-63 11-12-63 9-15-64	*0.91 *0.91 *0.77
Mississinewa River	Wabash River	Lat 40°22'28", long 85°27'04", in NE¼ sec. 12, T. 22 N., R. 9 E., 0.1 mile upstream from Big Lick Creek, and 1.0 mile northeast of Wheeling, Ind.	348		11-13-63	*10.1
Big Lick Creek	Mississinewa River	Lat 40°25'53", long 85°22'13", on line between secs. 22 and 23, T. 23 N., R. 10 E., at bridge on State Highway 3, 0.8 mile upstream from Little Lick Creek, and 1.4 miles south of Hartford City, Ind.	32.9		11-13-63	*0.72
Studebaker ditch	Pike Creek	Lat 40°20'10", long 85°25'35", on line between secs. 19 and 20, T. 22 N., R. 10 E., at bridge on Delaware County road 200 W., and 2.7 miles southeast of Wheeling, Ind.	10.5	1963	10-24-63 11-12-63 9-15-64	*0.11 *0.10 *0.17
Hayden ditch	Pike Creek	Lat 40°20'08", long 85°27'30", on line between secs. 24 and 25, T. 22 N., R. 9 E., at bridge on Delaware County road 1000 N., 0.9 mile upstream from mouth, and 2.0 miles south of Wheeling, Ind.	4.45		11-15-63	0
Hedgeland ditch	Pike Creek	Lat 40°20'39", long 85°27'55", in NE¼ sec. 23, T. 22 N., R. 9 E., at bridge on U.S. Highway 35, 0.6 mile upstream from mouth, and 1.4 miles south of Wheeling, Ind.	2.76		11-15-63	0
Pike Creek	Mississinewa River	Lat 40°21'47", long 85°27'26", in NW¼ sec. 13, T. 22 N., R. 9 E., at bridge on county road, 0.4 mile east of Wheeling, Ind., and 0.7 mile upstream from mouth.	21.5		11-15-63	*0.92
Hoppas ditch	...do.....	Lat 40°23'17", long 85°30'28", in NE¼ sec. 4, T. 22 N., R. 9 E., at bridge on U.S. Highway 35, 0.4 mile west of Matthews, Ind., and 0.8 mile upstream from mouth.	8.14		11-13-63	*0.12
Lake Branch	...do.....	Lat 40°26'19", long 85°29'36", in S½ sec. 15, T. 23 N., R. 9 E., at bridge on State Highway 26, 0.6 mile downstream from confluence of Hallis ditch and Jefferson ditch, and 2.5 miles south of Upland, Ind.	9.15		11-13-63	*0.06
Barren Creek	...do.....	Lat 40°27'08", long 85°32'42", on line between secs. 7 and 18, T. 23 N., R. 9 E., at bridge on Grant County road 700 S., 0.3 mile upstream from mouth, and 3.1 miles southwest of Upland, Ind.	20.7		11-13-63	*1.63
Mississinewa River	Wabash River	Lat 40°27'21", long 85°34'40", on line between secs. 11 and 12, T. 23 N., R. 8 E., at bridge on Grant County road 500 E., 1.9 miles downstream from Barren Creek, and 4½ miles southwest of Upland, Ind.	515		11-13-63	*26.3
Prairie Creek	Sugar Creek	Lat 40°04'00", long 86°29'45", in N½ sec. 26, T. 19 N., R. 1 W., at Interstate 65 bridge, and 1. miles northwest of Lebanon, Ind.		1962	4-20-64 4-20-64	a1,200 a1,140
Honey Creek	Wabash River	Lat 39°23'41", long 87°23'53", in S½ sec. 15, T. 11 N., R. 9 W., at U.S. 41 bridge, at Allendale, Ind.			11-7-63	1.05
White River	Wabash River	Lat 40°10'58", long 85°58'15", in SW¼ sec. 16, T. 20 N., R. 14 E., at bridge on county road, 0.9 mile northeast of Winchester, Ind., and 1.3 miles upstream from Sugar Creek.	34.1		11-14-63	*0.49
White River tributary	White River	Lat 40°10'48", long 85°04'20", in SW¼ sec. 15, T. 20 N., R. 13 E., at bridge on county road, 100 ft above mouth, and 1.9 miles northeast of Maxville, Ind.	1.15		11-14-63	*0.01

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Eightmile Creek	White River	Lat 40°10'16", long 85°05'02", in W½ sec. 21, T. 20 N., R. 13 E., at bridge on State Highway 32, 0.7 mile upstream from mouth, and 1.2 miles east of Maxville, Ind.	8.06		11-14-63	*0.13
White River	Wabash River	Lat 40°10'14", long 85°07'40", on line between sec. 24, T. 20 N., R. 12 E., and sec. 19, T. 20 N., R. 13 E., at bridge on State Highway 1, and 1.2 miles south of Farmland, Ind.	84.5		11-14-63	*3.98
Stoney Creek	White River	Lat 40°06'21", long 85°13'31", on line between secs. 12 and 13, T. 19 N., R. 11 E., at bridge on Delaware County road 600 S., 30 ft upstream from mouth of unnamed tributary, 1.5 miles east of Gates Corner, Ind., and 3.3 miles north of Blountsville, Ind.	18.7	1963	10-22-63 11-12-63 9-4-64	*1.11 *1.26 *0.65
Stoney Creek tributary	Stoney Creek	Lat 40°06'21", long 85°13'31", on line between secs. 12 and 13, T. 19 N., R. 11 E., at bridge on Delaware County road 600 S., 20 ft upstream from mouth, and 3.3 miles north of Blountsville, Ind.	1.03		10-22-63 11-12-63 9-14-64	*0.10 *0.10 *0.03
White River	Wabash River	Lat 40°09'52", long 85°15'15", on line between secs. 22 and 23, T. 20 N., R. 11 E., at bridge on county road, 2.0 miles southeast of Selma, Ind., and 2.5 miles upstream from Mud Creek.	179		11-14-63	*10.7
Mud Creek	White River	Lat 40°10'32", long 85°17'08", in NW¼ sec. 21, T. 20 N., R. 11 E., at bridge on county road, 0.6 mile upstream from mouth and 1.4 miles southwest of Selma, Ind.	6.27		11-15-63	*0.20
Cunningham ditch	Prairie Creek	Lat 40°07'21", long 85°15'12", on line between secs. 2 and 3, T. 19 N., R. 11 E., at bridge on Delaware County road 700 E., 1.2 miles north of Gates Corner, Ind., and 2.4 miles east of New Burlington, Ind.	1.95	1963	10-22-63 11-12-63 9-14-64	*0.57 *0.49 *0.62
Prairie Creek	White River	Lat 40°08'57", long 85°17'46", in NE¼ sec. 32, T. 20 N., R. 11 E., at bridge on Delaware County road 300 S., 300 ft upstream from mouth, 0.3 mile downstream from Prairie Creek Reservoir, and 3 3/4 miles southeast of Muncie Indiana Water Works.	17.0		11-12-63	b9.91
Medford drain	...do.....	Lat 40°08'47", long 85°18'30", in NW¼ sec. 32, T. 20 N., R. 11 E., at bridge on county road, 0.2 mile upstream from mouth, and 3¼ miles southeast of Muncie Indiana Water Works.	2.14		11-15-63	*0.04
White River tributary	...do.....	Lat 40°11'02", long 85°19'46", on line between sec. 13, T. 20 N., R. 10 E., and sec. 18, T. 20 N., R. 11 E., at bridge on Delaware County road 300 E., and 1 mile east of Muncie Indiana Water Works.	3.83		11-12-63	*0.77
Muncie Creek	...do.....	Lat 40°13'48", long 85°19'26", in NW¼ sec. 31, T. 21 N., R. 11 E., at bridge on county road, and 1.9 miles southwest of Desoto, Ind.	3.82		11-12-63	0
Muncie Creek	...do.....	Lat 40°13'41", long 85°21'30", in N½ sec. 35, T. 21 N., R. 10 E., 20 ft upstream from unnamed tributary, and 3.0 miles northeast of the Post Office in Muncie, Ind.	5.50		11-15-63	*0.14
White River	Wabash River	Lat 40°11'09", long 85°27'42", on line between secs. 13 and 14, T. 20 N., R. 9 E., at bridge on Delaware County road 400 W., 1.0 mile downstream from Muncie sewage treatment plant, and 1.9 miles northeast of Yorktown, Ind.	245		11-14-63	34.2
Buck Creek	White River	Lat 40°05'28", long 85°21'41", on line between secs. 14 and 23, T. 19 N., R. 10 E., at bridge on Delaware County road 700 S., 100 ft downstream from Macedonia Creek, 1.6 miles downstream from Little Buck Creek, and 1.7 miles northeast of Oakville, Ind.	27.1		11-12-63	*7.16
Buck Creek	...do.....	Lat 40°09'26", long 85°26'48", in E½ sec. 25, T. 20 N., R. 9 E., at bridge on Delaware County road 325 W., 0.5 mile upstream from Bell Creek, and 2.7 miles southeast of Yorktown, Ind.	48.5		11-12-63	*10.6
Bell Creek	Buck Creek	Lat 40°05'29", long 85°29'31", on line between secs. 15 and 22, T. 19 N., R. 9 E., at bridge on Delaware County road 700 S., and 0.4 mile east of Cross Roads, Ind.	16.0	1963	10-22-63 11-13-63 9-14-64	*0.90 *1.17 *0.73

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Williams Creek	Bell Creek	Lat 40°06'12", long 85°28'50", on line between NW¼ sec. 14 and NE¼ sec. 15, T. 19 N., R. 9 E., at bridge on county road, 0.3 mile upstream from mouth, and 1.3 miles northeast of Cross Roads, Ind.	11.7	1963	10-22-63 11-13-63 9-14-64	*0.37 *0.44 *0.32
Little No Name Creek	No Name Creek	Lat 40°08'05", long 85°26'48", on line between sec. 1, T. 19 N., R. 9 E., and sec. 36, T. 20 N., R. 9 E., at bridge on Delaware County road 400 S., 0.5 mile upstream from mouth, and 1.1 miles north of Progress, Ind.	2.63		11-15-63	*0.07
No Name Creek	Bell Creek	Lat 40°08'30", long 85°26'04", in SW¼ sec. 31, T. 20 N., R. 10 E., at bridge on State Highway 67, 1.0 mile upstream from mouth, and 1.5 miles north of Progress, Ind.	7.55	1963	10-22-63 11-12-63 9-14-64	*0.13 *0.11 *0.08
York Prairie Creek	White River	Lat 40°12'00", long 85°26'33", on line between sec. 12, T. 20 N., R. 9 E., and sec. 7, T. 20 N., R. 10 E., at bridge on Delaware County road 300 W., and 3.0 miles west of Post Office in Muncie, Ind.	3.43		11-13-63	*0.29
York Prairie Creek	...do.....	Lat 40°11'52", long 85°30'00", in SW¼ sec. 10, T. 20 N., R. 9 E., at bridge on Delaware County road 600 W., and 0.9 mile southwest of Cammack, Ind.	9.70	1963	10-22-63 11-13-63 9-15-64	*2.35 *1.11 *2.48
York Prairie Creek	...do.....	Lat 40°10'02", long 85°32'35", in SE¼ sec. 19, T. 20 N., R. 9 E., at bridge on Delaware County road 175 S., 0.6 mile upstream from mouth, and 2.7 miles west of Yorktown, Ind.	16.2		11-15-63	*2.40
White River	Wabash River	Lat 40°07'11", long 85°34'33", on line between secs. 11 and 12, T. 19 N., R. 8 E., at bridge on Delaware-Madison County line, 1.0 mile upstream from Chesterfield Branch, and 1.0 mile west of Daleville, Ind.	383		11-14-63	50.7
Killbuck Creek	White River	Lat 40°16'38", long 85°26'29", on line between secs. 7 and 18, T. 21 N., R. 10 E., at bridge on State Highway 28, and 0.3 mile west of Anthony, Ind.	7.35		11-15-63	*0.19
Mud Creek	Killbuck Creek	Lat 40°17'48", long 85°25'27", on line between secs. 5 and 6, T. 21 N., R. 10 E., at bridge on Delaware County road 200 W., 0.9 mile upstream from mouth, and 1.6 miles northeast of Anthony, Ind.	6.52		11-12-63	*0.22
Killbuck Creek	White River	Lat 40°15'34", long 85°31'12", on line between NE¼ sec. 20 and NW¼ sec. 21, T. 21 N., R. 9 E., at bridge on Delaware County road 700 W., and 1.0 mile northeast of Bethel, Ind.	26.1	1963	10-24-63 11-12-63 11-15-63 9-15-64	*1.11 4.43 *1.66 *1.67
Thurston ditch	Killbuck Creek	Lat 40°15'34", long 85°31'12", in NE¼ sec. 20, T. 21 N., R. 9 E., at mouth, and 1.0 mile northeast of Bethel, Ind.	1.63		11-12-63	0
Jakes Creek	Killbuck Creek	Lat 40°14'36", long 85°27'43", on line between secs. 25 and 26, T. 21 N., R. 9 E., at bridge on Delaware County road 400 W., 0.1 mile upstream from Eagle Branch, and 2.8 miles northeast of Cammack, Ind.	8.64		11-15-63	*0.50
Eagle Branch	Jakes Creek	Lat 40°14'31", long 85°27'43", on line between secs. 25 and 26, T. 21 N., R. 9 E., at bridge on Delaware County road 400 W., 0.1 mile upstream from mouth, and 2.7 miles northeast of Cammack, Ind.	5.01		11-15-63	*0.05
Jakes Creek	Killbuck Creek	Lat 40°14'45", long 85°31'45", in N½ sec. 29, T. 21 N., R. 9 E., at bridge on Delaware County road 750 W., 0.2 mile upstream from mouth, and 0.4 mile southeast of Bethel, Ind.	18.5		10-1-63 10-24-63 11-12-63 9-15-64	*0.21 *0.50 *0.49 *0.13
Pleasant Run Creek	Killbuck Creek	Lat 40°13'08", long 85°33'17", on line between NW¼ sec. 6, T. 20 N., R. 9 E., and SW¼ sec. 31, T. 21 N., R. 9 E., at bridge on Delaware County road 200 N., 0.6 mile upstream from mouth, and 1.6 miles southeast of Gilman, Ind.	4.91		11-13-63	*0.04
Killbuck Creek	White River	Lat 40°08'22", long 85°39'34", in SE¼ sec. 31, T. 20 N., R. 8 E., 100 ft upstream from Little Killbuck Creek, and 1.0 mile east of North Anderson, Ind.	74.4		11-13-63 9-16-64	*10.3 *8.00

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Little Killbuck Creek	Killbuck Creek	Lat 40°08'33", long 85°39'30", in E½ sec. 31, T. 20 N., R. 8 E., 1000 ft upstream from Killbuck Creek, and 1 mile northeast of North Anderson, Ind.	c23		9-16-64	*3.04
White River	Wabash River	Lat 40°08'32", long 85°51'46", on line between secs. 32 and 33, T. 20 N., R. 6 E., at bridge on Madison-Hamilton County line, at Perkinsville, Ind., and 0.7 mile upstream from Pipe Creek.	556		11-15-63	83.3
Pipe Creek	White River	Lat 40°18'12", long 85°30'04", on line between secs. 3 and 4, T. 21 N., R. 9 E., at bridge on Delaware County road 600 W., and 0.7 mile south of Gaston, Ind.	1.30		11-15-63	0
Yeager, Finley, Manard ditch	Pipe Creek	Lat 40°18'50", long 85°32'49", in sec. 31, T. 22 N., R. 9 E., at bridge on Delaware County road 1450 N., 1.0 mile upstream from mouth, and 2.4 miles west of Gaston, Ind.	7.43		11-15-63	0
Steel ditch	Yeager, Finley, Monard ditch	Lat 40°18'50", long 85°31'11", on line between secs. 32 and 33, T. 22 N., R. 9 E., at bridge on Delaware County road 850 N., 1.5 miles upstream from mouth, and 1.0 mile west of Gaston, Ind.	0.67		11-15-63	0
Pipe Creek	White River	Lat 40°20'21", long 85°32'58", in S½ sec. 19, T. 22 N., R. 9 E., at bridge on Delaware County road 850 W., and 3.1 miles northwest of Gaston, Ind.	18.3		11-13-63	*1.05
Pipe Creek	...do.....	Lat 40°16'16", long 85°39'09", on line between secs. 17 and 18, T. 21 N., R. 8 E., at bridge on Madison County road 100 E., 0.4 mile downstream from Gimco Brook, and 1 mile east of Alexandria, Ind.			4-20-64	a1,320
Mud Creek	Pipe Creek	Lat 40°16'39", long 85°41'27", on line between secs. 11 and 14, T. 21 N., R. 7 E., at State Highway 28 bridge, 3/4 mile west of Alexandria, Ind., and 1.3 miles upstream from mouth.			4-20-64	a1,070
Pipe Creek	White River	Lat 40°14'07", long 85°44'50", on line between secs. 28 and 29, T. 21 N., R. 7 E., at bridge on Madison County road 400 W., and 1.9 miles northeast of Frankton, Ind.	108		11-13-63	*5.48
White River	Wabash River	Lat 39°52'16", long 86°09'22", in SW¼ sec. 35, T. 17 N., R. 3 E., at bridge on U.S. Highway 31, and at Indianapolis, Ind.		1958, 1961-62	4-21-64 4-22-64 4-23-64 4-25-64	a22,600 a26,800 a25,700 a6,860
White River	...do.....	Lat 39°47'20", long 86°11'53", in NE¼ sec. 33, T. 16 N., R. 3 E., at West 16th Street bridge, and at Indianapolis, Ind.		1958-59 1962-63	4-21-64 4-22-64 4-23-64 4-25-64	a23,100 a26,400 a29,000 a7,090
Fall Creek	White River	Lat 40°04'11", long 85°28'59", in E½ sec. 27, T. 19 N., R. 9 E., at county highway bridge, 1.5 miles upstream from Honey Creek, and 1.6 miles south of Cross Roads, Ind.	4.97		11-15-63	*0.12
Brandon ditch	Fall Creek	Lat 40°04'38", long 85°34'48", on line between secs. 23 and 26, T. 19 N., R. 8 E., at bridge on Madison County road 200 S., and 2.8 miles northwest of Middletown, Ind.	5.42		11-13-63	*0.63
Fall Creek	White River	Lat 39°59'27", long 85°45'22", in SE¼ sec. 20, T. 18 N., R. 7 E., at Idlewold Country Club, and 0.6 mile southwest of Pendleton, Ind.		1962	10-7-63	*11.9
Foster Branch	Fall Creek	Lat 39°58'43", long 85°47'26", in SE¼ sec. 25 T. 18 N., R. 6 E., at county highway bridge, 0.5 mile above mouth, and 1.7 miles northeast of Ingalls, Ind.		1961	10-7-63 10-30-63	*1.95 *1.08
Fall Creek	White River	Lat 39°47'50", long 86°10'09", in S½ sec. 26, T. 16 N., R. 3 E., at bridge on Northwestern Avenue, at Indianapolis, Ind., and 2.5 miles upstream from mouth.			4-22-64 4-23-64 4-24-64	a8,480 a4,580 a2,370
Dry Run	Little Eagle Creek	Lat 39°48'04", long 86°14'54", in SW¼ sec. 30, T. 16 N., R. 3 E., 400 ft downstream from 25th Street in Speedway, Ind.	4.52	1956, 1962-63	4-20-64	676
White River	Wabash River	Lat 39°26'02", long 86°27'00", in W½ sec. 32, T. 12 N., R. 1 E., at bridge on State Highway 39, 1¼ miles northwest of Martinsville, Ind. and 2.0 miles upstream from Lambs Creek.	2,478	1925-27, d1931-32, 1946, 1948 e1956-58, e1963	12-3-63	308

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Big Walnut Creek	Eel River	Lat 40°00'00", long 86°31'03", in NE¼SW¼ sec. 15, T. 18 N., R. 1 W., 1.5 miles upstream from Cunningham ditch, and 4 miles southwest of Lebanon, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°56'27", long 86°34'54", in SE¼SE¼ sec. 1, T. 17 N., R. 2 W., 0.4 mile upstream from Main Edlin ditch, and 2½ miles northeast of Jamestown, Ind.			9-15-64	0
Main Edlin ditch	Big Walnut Creek	Lat 39°58'53", long 86°27'32", in SW¼SE¼ sec. 19, T. 18 N., R. 1 E., 4 miles south of Lebanon, Ind.			9-15-64	0
Main Edlin ditch tributary	Main Edlin ditch	Lat 39°58'01", long 86°26'49", in NW¼NW¼ sec. 32, T. 18 N., R. 1 E., 5 miles south of Lebanon, Ind.			9-15-64	0
Main Edlin ditch	Big Walnut Creek	Lat 39°59'09", long 86°28'49", in NE¼SW¼ sec. 24, T. 18 N., R. 1 W., 4 miles south of Lebanon, Ind.			9-15-64	0
Main Edlin ditch tributary	Main Edlin ditch	Lat 39°59'55", long 86°28'25", in SE¼SE¼ sec. 13, T. 18 N., R. 1 W., and 3 miles south of Lebanon, Ind.			9-15-64	0
Main Edlin ditch	Big Walnut Creek	Lat 39°56'59", long 86°32'55", in NE¼NE¼ sec. 5, T. 17 N., R. 1 W., 0.3 mile upstream from Grassy Branch, and 1.4 miles northwest of New Brunswick, Ind.			9-15-64	0
Grassy Branch	Main Edlin ditch	Lat 39°57'21", long 89°28'58", in SW¼SW¼ sec. 36, T. 18 N., R. 1 W., 1.5 miles southeast of Milledgeville, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°57'07", long 86°30'57", in SW¼SE¼ sec. 34, T. 18 N., R. 1 W., 0.7 mile northeast of New Brunswick, Ind.			9-15-64	0
Big Walnut Creek	Eel River	Lat 39°55'34", long 86°35'43", in SE¼SW¼ sec. 12, T. 17 N., R. 2 W., at county road bridge, 1 mile east of Jamestown, Ind.	c35		9-16-64	0.79
Ross ditch tributary	Ross ditch	Lat 39°55'48", long 89°29'10", in SW¼NW¼ sec. 12, T. 17 N., R. 1 W., 4.5 miles northeast of Lizton, Ind.			9-15-64	0
Ross ditch	East Fork Big Walnut Creek	Lat 39°54'52", long 86°30'55", in NW¼SE¼ sec. 15, T. 17 N., R. 1 W., 2.6 miles northeast of Lizton, Ind.			9-15-64	0
East Fork Big Walnut Creek	Big Walnut Creek	Lat 39°52'04", long 86°33'45" in SE¼SE¼ sec. 31, T. 17 N., R. 1 W., 1.4 miles north of Montclaire, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°50'39", long 86°38'51", in SW¼NW¼ sec. 9, T. 16 N., R. 2 W., 1.1 miles south of North Salem, Ind.			9-15-64	0
Middle Fork Big Walnut Creek	East Fork Big Walnut Creek	Lat 39°54'58", long 86°34'35", in SE¼NW¼ sec. 18, T. 17 N., R. 1 W., 2.6 miles southeast of Jamestown, Ind.			9-15-64	0
Ramp Run tributary	Ramp Run tributary	Lat 39°48'06", long 86°37'08", in NW¼NE¼ sec. 27, T. 16 N., R. 2 W., 4.2 miles southeast of North Salem, Ind.			9-15-64	0
Ramp Run tributary	...do.....	Lat 39°48'25", long 86°37'08", in SW¼SE¼ sec. 22, T. 16 N., R. 2 W., 3.8 miles southeast of North Salem			9-15-64	0
Ramp Run	East Fork Big Walnut Creek	Lat 39°48'55", long 86°38'16", in SW¼NE¼ sec. 21, T. 16 N., R. 2 W., 3.1 miles south of North Salem, Ind.			9-15-64	0
Ramp Run tributary	Ramp Run	Lat 39°47'27", long 86°37'39", in SE¼SW¼ sec. 27, T. 16 N., R. 2 W., 2.4 miles northeast of New Winchester, Ind.			9-15-64	0
Ramp Run tributary	Ramp Run tributary	Lat 39°47'25", long 86°39'07", in NE¼NE¼ sec. 32, T. 16 N., R. 2 W., 2.0 miles north of New Winchester, Ind.			9-15-64	0
Ramp Run tributary	Ramp Run	Lat 39°48'43", long 86°38'57", in NW¼SW¼ sec. 21, T. 16 N., R. 2 W., 3.3 miles south of North Salem, Ind.			9-15-64	0
Ramp Run	East Fork Big Walnut Creek	Lat 39°49'53", long 86°39'53", in NE¼NW¼ sec. 17, T. 16 N., R. 2 W., 2.3 miles southwest of North Salem, Ind.			9-15-64	0
Big Walnut Creek tributary	Big Walnut Creek	Lat 39°50'55", long 86°42'18", in NW¼NW¼ sec. 12, T. 16 N., R. 3 W., at bridge on State Highway 236, and ¼ mile west of Barnard, Ind.			9-15-64	0

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Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Big Walnut Creek	Eel River	Lat 39°48'58", long 86°45'12", in SE¼NW¼ sec. 21, T. 16 N., R. 3 W., at county highway bridge, and 3.5 miles southeast of Roachdale, Ind.	c132		9-16-64	1.20
Big Walnut Creek tributary	Big Walnut Creek	Lat 39°46'34", long 86°45'28", in NW¼NW¼ sec. 4, T. 15 N., R. 3 W., 3 miles northeast of Bainbridge, Ind.			9-15-64	0
Big Walnut Creek	Eel River	Lat 39°44'55", long 86°46'31", in SE¼SW¼ sec. 8, T. 15 N., R. 3 W., at county highway bridge, and 2 miles southeast of Bainbridge, Ind.	c142		9-16-64	0.19
...Do.....	...do.....	Lat 39°43'56", long 86°46'21", in SE¼SW¼ sec. 17, T. 15 N., R. 3 W., at county highway bridge (Smith bridge), and 2.9 miles southeast of Bainbridge, Ind.			9-15-64	0
Plum Creek	Big Walnut Creek	Lat 39°46'34", long 86°43'29", in NE¼NE¼ sec. 3, T. 15 N., R. 3 W., 1.0 mile south of New Maysville, Ind.			9-15-64	0
Plum Creek tributary	Plum Creek	Lat 39°46'34", long 86°44'22", in NW¼NW¼ sec. 3, T. 15 N., R. 3 W., 1.2 miles southwest of New Maysville, Ind.			9-15-64	0
Plum Creek tributary	...do.....	Lat 39°45'16", long 86°45'27", in SW¼NW¼ sec. 9, T. 15 N., R. 3 W., 2.9 miles east of Bainbridge, Ind.			9-15-64	0
Plum Creek	Big Walnut Creek	Lat 39°43'56", long 86°46'03", in SW¼SE¼ sec. 17, T. 15 N., R. 3 W., 0.4 mile upstream from mouth, and 3.1 miles southeast of Bainbridge, Ind.			9-15-64	0
Bledsoe Branch	Big Walnut Creek	Lat 39°44'17", long 86°49'02", in NW¼SE¼ sec. 14, T. 15 N., R. 4 W., 1.8 miles southeast of Bainbridge, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°42'41", long 86°47'03", in SE¼NE¼ sec. 30, T. 15 N., R. 3 W., 800 ft upstream from mouth, and 3.2 miles northwest of Fillmore, Ind.			9-15-64	0
Clear Creek	...do.....	Lat 39°46'33", long 86°40'41", in NW¼NE¼ sec. 6, T. 15 N., R. 2 W., 1.8 miles northwest of New Winchester, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°44'07", long 86°42'41", in SW¼SE¼ sec. 14, T. 15 N., R. 3 W., 2.8 miles northwest of Reno, Ind.			9-15-64	0
Clear Creek tributary	Clear Creek	Lat 39°44'20", long 86°41'09", in SW¼NW¼ sec. 18, T. 15 N., R. 2 W., 2.2 miles northwest of Reno, Ind.			9-15-64	0
Clear Creek	Big Walnut Creek	Lat 39°43'04", long 86°42'59", in SE¼SE¼ sec. 22, T. 15 N., R. 3 W., 3 miles west of Reno, Ind.			9-15-64	0
Clear Creek tributary	Clear Creek	Lat 39°46'34", long 86°42'16", in NW¼NW¼ sec. 1, T. 15 N., R. 3 W., 1.7 miles southeast of New Maysville, Ind.			9-15-64	0
Clear Creek tributary	Clear Creek	Lat 39°43'56", long 86°43'36", in SE¼SE¼ sec. 15, T. 15 N., R. 3 W., 3.4 miles northwest of Reno, Ind.			9-15-64	0
Miller Creek	...do.....	Lat 39°44'19", long 86°39'43", in NE¼SW¼ sec. 17, T. 15 N., R. 2 W., 2 miles north of Reno, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°41'56", long 86°43'47", in SW¼NE¼ sec. 34, T. 15 N., R. 3 W., 3.3 miles southwest of Reno, Ind.			9-15-64	0
Clear Creek	Big Walnut Creek	Lat 39°41'45", long 86°47'05", in NE¼SE¼ sec. 31, T. 15 N., R. 3 W., 0.3 mile upstream from mouth, and 2.4 miles northwest of Reno, Ind.			9-15-64	0
Big Walnut Creek	Eel River	Lat 39°40'47", long 86°48'39", in NW¼SW¼ sec. 1, T. 14 N., R. 4 W., 3.8 miles northeast of Greencastle, Ind.	c199		9-16-64	1.30
Dry Branch	Big Walnut Creek	Lat 39°43'56", long 86°49'42", in NW¼NW¼ sec. 23, T. 15 N., R. 4 W., 2.2 miles southwest of Bainbridge, Ind.			9-15-64	0
...Do.....	...do.....	Lat 39°41'00", long 86°48'59", in SE¼NE¼ sec. 2, T. 14 N., R. 4 W., 3.6 miles northeast of Greencastle, Ind.			9-15-64	0
Snyder Branch	...do.....	Lat. 39°41'22", long 86°51'16", in NE¼NE¼ sec. 4, T. 14 N., R. 4 W., 3.2 miles north of Greencastle, Ind.			9-15-64	0

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Snyder Branch	Big Walnut Creek	Lat 39°40'15", long 86°51'44", in SE¼NW¼ sec. 9, T. 14 N., R. 4 W., 500 ft upstream from mouth, 1.9 miles north of Greencastle, Ind.			9-15-64	0
Big Walnut Creek tributary	Big Walnut Creek	Lat 39°39'34", long 86°53'05", in NW¼NW¼ sec. 17, T. 14 N., R. 4 W., 1.7 miles northwest of Greencastle, Ind.			9-15-64	0
Big Walnut Creek	Eel River	Lat 39°37'41", long 86°53'54", in SE¼NW¼ sec. 30, T. 14 N., R. 4 W., 2.3 miles southwest of Greencastle, Ind.			9-15-64	0
Little Walnut Creek	Big Walnut Creek	Lat 39°37'30", long 86°56'30", in NE¼SE¼ sec. 27, T. 14 N., R. 5 W., 300 ft upstream from NYCRR bridge, 600 ft upstream from mouth, and 4.9 miles north of Reelsville, Ind.	c64		9-17-64	0.74
Big Walnut Creek	Eel River	Lat 39°37'24", long 86°56'32", in NE¼SE¼ sec. 27, T. 14 N., R. 5 W., 150 ft downstream from Little Walnut Creek, and 4.9 miles north of Reelsville, Ind.	c294		9-17-64	2.88
Snake Creek	Big Walnut Creek	Lat 39°36'34", long 86°57'12", in NE¼SW¼ sec. 34, T. 14 N., R. 5 W., 3.7 miles north of Reelsville, Ind.			9-15-64	0
Maiden Run	Big Walnut Creek	Lat 39°34'01", long 86°57'52", in NW¼SE¼ sec. 16, T. 13 N., R. 5 W., 0.7 mile north of Reelsville, Ind.			9-15-64	0
White River	Wabash River	Lat 38°47'42", long 87°14'28", in E½ sec. 12, T. 4 N., R. 8 W., at bridge on State Highway 358, and 1¼ miles southeast of Edwardsport, Ind.		1943-45 1947-50	3-13-64 3-16-64 3-17-64 3-18-64 3-21-64 3-23-64 4-25-64 4-26-64 4-25-64	a29,100 a32,000 a26,400 a21,400 a10,300 a8,720 44,400 50,700 a31,300
White River	Wabash River	Lat 38°38'50", long 87°14'16", at bridge on U.S. Highway 50, 0.8 mile downstream from Prairie Creek, and 3½ miles west of Washington, Ind.			3-12-64 3-13-64 3-17-64 3-19-64 3-20-64 3-24-64	a26,700 a26,300 a31,400 a19,800 a14,800 a8,380
North Branch Clifty Creek	Clifty Creek	Lat 39°25'55", long 85°28'10", in sec. 1, T. 11 N., R. 9 E., at county highway bridge, and 1.0 mile northeast of Sandusky, Ind.			10-21-63	0
Middle Branch Clifty Creek	Clifty Creek	Lat 39°26'03", long 85°24'16", in NW¼ sec. 3, T. 11 N., R. 10 E., at county highway bridge, and 3.0 miles west of Clarksburg, Ind.			10-21-63	0
...Do.....	...do.....	Lat 39°25'58", long 85°24'40", in NE¼ sec. 4, T. 11 N., R. 10 E., at county highway bridge, and 3.4 miles west of Clarksburg, Ind.			10-21-63	0
...Do.....	...do.....	Lat 39°25'49", long 85°25'32", in SE¼ sec. 5, T. 11 N., R. 10 E., 0.8 mile upstream from county highway bridge, and 2.9 miles east of Sandusky, Ind.			10-21-63	0
...Do.....	...do.....	Lat 39°25'28", long 85°26'36", in SE¼ sec. 6, T. 11 N., R. 10 E., 0.3 mile downstream from county highway bridge, and 2.0 miles east of Sandusky, Ind.			10-21-63	0
Clifty Creek	East Fork White River	Lat 39°25'27", long 85°28'47", on line between secs. 11 and 12, T. 11 N., R. 9 E., at bridge on State Highway 3, and 0.2 mile north of Sandusky, Ind.			10-21-63	0.23
Clifty Creek tributary	Clifty Creek	Lat 39°25'42", long 85°29'30", in SW¼ sec. 2, T. 11 N., R. 9 E., at county highway bridge, 100 ft above mouth, 0.8 mile northwest of Sandusky, Ind.			10-21-63	0
Clifty Creek tributary	...do.....	Lat 39°25'42", long 85°29'33", in SW¼ sec. 2, T. 11 N., R. 9 E., at county highway bridge, 100 ft above mouth, and 0.9 mile northwest of Sandusky, Ind.			10-21-63	0
Clifty Creek tributary	...do.....	Lat 39°23'42", long 85°30'51", on line between secs. 15 and 22, T. 11 N., R. 9 E., at county highway bridge, and 2.6 miles northeast of Adams, Ind.			10-21-63	0

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Clifty Creek	East Fork White River	Lat 39°20'27", long 85°38'28", in SW¼ sec. 4, T. 10 N., R. 8 E., at county highway bridge, and 1.4 miles north of Burney, Ind.			10-21-63	0.11
Clifty Creek	...do.....	Lat 39°19'12", long 85°40'30", on line between secs. 7 and 18, T. 10 N., R. 8 E., at county highway bridge, and 1.9 miles west of Burney, Ind.			10-21-63	0
Clifty Creek tributary	Clifty Creek	Lat 39°18'40", long 85°40'37", in S½ sec. 18, T. 10 N., R. 8 E., 700 ft above mouth, and 2.0 miles east of Rugby, Ind.			10-21-63	0
Clifty Creek	East Fork White River	Lat 39°18'20", long 85°41'07", on line between secs. 18 and 19, T. 10 N., R. 8 E., at county highway bridge, and 1.6 miles east of Rugby, Ind.			10-21-63	0
...Do.....	...do.....	Lat 39°15'50", long 85°42'17", in SW¼ sec. 36, T. 10 N., R. 7 E., at county highway bridge, and 0.3 mile southwest of Hartsville, Ind.			10-21-63	0
Middle Fork of Fall Fork Clifty Creek	Fall Fork Clifty Creek	Lat 39°16'17", long 85°40'27", in NE¼ sec. 31, T. 10 N., R. 8 E., at bridge on State Highway 46, and 1.2 miles east of Hartsville, Ind.			10-21-63	0
Clifty Creek	East Fork White River	Lat 39°14'53", long 85°43'22", in SW¼ sec. 2, T. 9 N., R. 7 E., 500 ft upstream from county highway bridge, and 1.6 miles southwest of Hartsville, Ind.			10-21-63	0.07
Otter Creek	Clifty Creek	Lat 39°13'01", long 85°46'19", in N½ sec. 20, T. 9 N., R. 7 E., at bridge on State Highway 9, and 1.6 miles southwest of Newbern, Ind.			10-21-63	0
Clifty Creek	East Fork White River	Lat 39°10'10", long 85°53'35", in NW¼ sec. 5, T. 8 N., R. 6 E., at county highway bridge, 1½ miles south of Columbus, Ind., and 1.9 miles above mouth.			10-21-63	1.33
Brush Creek	Little Sand Creek	Lat 39°11'46", long 85°46'20", at center of sec. 29, T. 9 N., R. 7 E., at State Highway 9 bridge, 2.8 miles southwest of Newbern, Ind.			10-21-63	0
...Do.....	...do.....	Lat 39°11'18", long 85°47'03", on line between secs. 30 and 31, T. 9 N., R. 7 E., at county highway bridge, and 3.1 miles southeast of Petersville, Ind.			10-21-63	0
Brush Creek tributary	Brush Creek	Lat 39°11'18", long 85°47'51", on line between secs. 30 and 31, T. 9 N., R. 7 E., at county highway bridge, and 2.7 miles southeast of Petersville, Ind.			10-21-63	0
...Do.....	...do.....	Lat 39°11'16", long 85°49'48", on line between secs. 26 and 35, T. 9 N., R. 6 E., at county highway bridge, and 2.6 miles south of Petersville, Ind.			10-21-63	0
Big Creek	Muscatatuck River	Lat 38°51'32", long 85°31'07", on line between secs. 21 and 22, T. 5 N., R. 9 E., at bridge on State Highway 7, 0.5 mile upstream from Camp Creek, and 2 miles south of Dupont, Ind.			11-6-63	0
Muscatatuck River	East Fork White River	Lat 38°48'56", long 85°41'02", on line between sec. 1, T. 4 N., R. 7 E., and sec. 6, T. 4 N., R. 8 E., at Jefferson, Jennings and Scott County lines, and 2¼ miles northwest of Deputy, Ind.			10-18-63 10-29-63 12-12-63 1-8-64	a0.47 a0.03 a0.64 a40.4
...Do.....	...do.....	Lat 38°49'29", long 85°43'41", in S½ sec. 34, T. 5 N., R. 7 E., 400 ft upstream from Crooked Creek, and 4 3/4 miles northwest of Deputy, Ind.			10-18-63 10-29-63 11-12-63 12-11-63	a1.1 a0.24 a0.21 a0.59
...Do.....	...do.....	Lat 38°48'52", long 85°45'33", in E½ sec. 5, T. 4 N., R. 7 E., 2.6 miles upstream from Cana Creek, and 4½ miles northeast of Crothersville, Ind.			10-18-63 10-29-63 11-11-63 12-11-63 1-7-64	a2.0 a0.69 a0.61 a0.99 a4.22
...Do.....	...do.....	Lat 38°48'25", long 85°54'37", in N½ sec. 7, T. 4 N., R. 7 E., 0.4 mile upstream from Cana Creek, and 3 miles northeast of Crothersville, Ind.			10-17-63 10-29-63 11-11-63 12-11-63 1-7-64	a3.1 a0.9 a0.94 a1.18 a3.41
...Do.....	...do.....	Lat 38°47'22", long 85°48'25", in N½ sec. 13, T. 4 N., R. 6 E., at bridge on county road, 1000 ft downstream from White Oak Branch, and 1 3/4 miles east of Crothersville, Ind.			10-17-63 10-29-63 11-11-63 12-11-63	a4.4 a0.7 a1.0 a1.78

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
South Fork Vernon Fork	Vernon Fork	Lat 38°59'21", long 85°34'33", in SE¼ sec. 1, T. 6 N., R. 8 E., 500 ft downstream from Hinchman's Fork bridge, and 2 miles east of Vernon, Ind.		1957, 1959-61	11-7-63	0
Straight River	Patoka River	Lat 38°21'20", long 86°53'34", in SE¼ sec. 7, T. 2 S., R. 4 W., at State Highway 162 bridge, 3.3 miles southeast of Jasper, Ind.	62.4	1959, 1962-63	3-10-64 3-11-64	1,130 195
Flat Creek tributary	Flat Creek	Lat 38°26'11", long 87°12'01", on line between SW¼ sec. 9 and NW¼ sec. 16, T. 1 S., R. 7 W., at State Highway 56 bridge, 3/4 mile west of Cato, Ind.			9-16-64	*f0.1
Flat Creek	Patoka River	Lat 38°26'25", long 87°11'53", in SW¼ sec. 9, T. 1 S., R. 7 W., at private road, 3/4 mile northwest of Cato, Ind.			9-16-64	*f0.1
Flat Creek tributary	Flat Creek	Lat 38°26'11", long 87°11'17", on line between SE¼ sec. 9 and NE¼ sec. 16, T. 1 S., R. 7 W., at State Highway 56 bridge, at Cato, Ind.			9-16-64	0
Flat Creek tributary	Flat Creek	Lat 38°26'11", long 87°10'52", on line between SW¼ sec. 10, and NW¼ sec. 15, T. 1 S., R. 7 W., at State Highway 56 bridge, ¼ mile east of Cato, Ind.			9-16-64	0
Flat Creek tributary	Flat Creek tributary	Lat 38°26'26", long 87°10'28", on line between SE and SW ¼ sec. 10, T. 1 S., R. 7 W., at twin culverts on county road, 3/4 mile northeast of Cato, Ind.			9-16-64	0
Flat Creek tributary	Flat Creek	Lat 38°26'32", long 87°08'48", on line between secs. 11 and 12, T. 1 S., R. 7 W., at county road bridge, 0.4 mile north of State Highway 56, and 2 miles east of Cato, Ind.			9-16-64	0
Flat Creek tributary	...do.....	Lat 38°25'58", long 87°08'31", in center of NW¼ sec. 13, T. 1 S., R. 7 W., at county road bridge, ¼ mile south of State Highway 56, and 2½ miles east of Cato, Ind.			9-16-64	0
Flat Creek	Patoka River	Lat 38°25'38", long 87°07'39", in SW¼ sec. 18, T. 1 S., R. 6 W., at county road bridge, 2½ miles southwest of Otwell, Ind.			9-16-64	0
...Do.....	...do.....	Lat 38°25'03", long 87°06'48", in NE¼ sec. 19, T. 1 S., R. 6 W., at bridge on Old Jasper Winslow Road, 2 3/4 miles southwest of Otwell, Ind.			9-16-64	0
Bone Creek	Flat Creek	Lat 38°23'48", long 87°07'16", in SW¼ sec. 30, T. 1 S., R. 6 W., at county road bridge, 1 3/4 miles northwest of White Sulphur Springs, Ind.			9-16-64	*f0.001
...Do.....	...do.....	Lat 38°24'53", long 87°06'44", in E½ sec. 19, T. 1 S., R. 6 W., at mouth, 2¼ miles northwest of White Sulphur Springs, Ind.			9-16-64	0
Flat Creek	Patoka River	Lat 38°24'52", long 87°06'38", on line between secs. 19 and 20, T. 1 S., R. 6 W., at bridge on Flat Creek Road, 2 miles northwest of White Sulphur Springs, Ind.			9-16-64	0
Flat Creek tributary	Flat Creek	Lat 38°25'10", long 87°05'48", in NE¼ sec. 20, T. 1 S., R. 6 W., at bridge on Old Jasper Winslow Road, ¼ mile southwest of New Lebanon Church, and 2¼ miles north of White Sulphur Springs, Ind.			9-16-64	0
Flat Creek	Patoka River	Lat 38°24'33", long 87°05'31", on line between secs. 20 and 21, T. 1 S., R. 6 W., at State Highway 257 bridge, 1.6 miles north of White Sulphur Springs, Ind.			9-16-64	0
Flat Creek tributary	Flat Creek	Lat 38°24'27", long 87°05'31", on line between NW¼ sec. 28 and NE¼ sec. 29, T. 1 S., R. 6 W., at State Highway 257 bridge, 1½ miles north of White Sulphur Springs, Ind.			9-16-64	0
Flat Creek	Patoka River	Lat 38°23'35", long 87°04'23", on line between SE¼ sec. 28 and NE¼ sec. 33, T. 1 S., R. 6 W., at county road bridge, 1.1 miles northeast of White Sulphur Springs, Ind.			9-16-64	0
Little Flat Creek	Flat Creek	Lat 38°24'01", long 87°03'36", in E½ sec. 27, T. 1 S., R. 6 W., at bridge on Dubois County road 155 N., 2 miles northeast of White Sulphur Springs, Ind.			9-16-64	*f0.01
Flat Creek tributary	...do.....	Lat 38°23'39", long 87°02'41", in S½ sec. 26, T. 1 S., R. 6 W., at bridge on Dubois County road 750 W., 2 3/4 miles southwest of Ireland, Ind.			9-16-64	*f0.01

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wabash River basin--Continued				
Flat Creek	Patoka River	Lat 38°23'08", long 87°03'30", in E½ sec. 34, T. 1 S., R. 6 W., at bridge on Dubois County road 50 N., 1 3/4 miles east of White Sulpher Springs, Ind.			9-16-64	0
Sulphur Springs Brook	Flat Creek	Lat 38°23'15", long 87°05'30", on line between secs. 32 and 33, T. 1 S., R. 6 W., at State Highway 257 bridge, at White Sulphur Springs, Ind.			9-16-64	0
Sulphur Springs Brook tributary	Sulphur Springs Brook	Lat 38°23'09", long 87°03'46", at center of sec. 34, T. 1 S., R. 6 W., at bridge on Dubois County road 50 N., 1½ miles east of White Sulpur Springs, Ind.			9-16-64	0
Cup Creek	Patoka River	Lat 38°16'10", long 87°06'39", in E½ sec. 7, T. 3 S., R. 6 W., at bridge on Old State Highway 64, 2 miles east of Stendal, Ind.			9-17-64	0
Cup Creek tributary	Cup Creek	Lat 38°16'10", long 87°07'07", at center of sec. 7, T. 3 S., R. 6 W., at bridge on Old State Highway 64, 1½ miles east of Stendal, Ind.			9-17-64	0
Cup Creek	Patoka River	Lat 38°19'00", long 87°07'14", in NW¼ sec. 30, T. 2 S., R. 6 W., at Stage Highway 257 bridge, ½ mile southwest of Pikeville, Ind.			9-17-64	0
Beadens Creek	Cup Creek	Lat 38°18'46", long 87°08'45", in E½ sec. 26, T. 2 S., R. 7 W., at culvert on State Highway 64, 2½ miles southeast of Augusta, Ind.			9-17-64	*f0.1
Stone Coe Creek	Patoka River	Lat 38°23'40", long 87°13'12", on line between secs. 29 and 30, T. 1 S., R. 7 W., at State Highway 61 bridge, 1 mile north of Winslow, Ind.			9-16-64	f1.0
Patoka River tributary	Patoka River	Lat 38°23'59", long 87°14'26", on line common to sec. 25, T. 1 S., R. 8 W., and sec. 30, T. 1 S., R. 7 W., at twin culverts on Sugar Ridge Road, 2 miles northwest of Winslow, Ind.			9-16-64	0
Patoka River tributary	...do.....	Lat 38°23'59", long 87°14'33", in E½ sec. 25, T. 1 S., R. 8 W., at bridge on Sugar Ridge Road, 2 miles northwest of Winslow, Ind.			9-16-64	0
Sugar Creek	...do.....	Lat 38°23'58", long 87°16'40", in SW¼NW¼ sec. 26, T. 1 S., R. 8 W., at junction of Sugar Creek Road and Line Road, ½ mile east of Littles, Ind.			9-16-64	0
Flat Creek	...do.....	Lat 38°25'49", long 87°18'32", in NW¼ sec. 16, T. 1 S., R. 8 W., at State Highway 57 bridge, 1 mile north of Glezen, Ind.			9-16-64	0
...Do.....	...do.....	Lat 38°25'18", long 87°18'05", on line between secs. 16 and 21, T. 1 S., R. 8 W., at bridge on Chandler Road, ½ mile north of Glezen, Ind.			9-16-64	0
...Do.....	...do.....	Lat 38°24'10", long 87°18'03", in NE¼ sec. 28, T. 1 S., R. 8 W., at culverts on Winslow Patoka Road, 1 mile south of Glezen, Ind.			9-16-64	0
South Fork Patoka River tributary	South Fork Patoka River	Lat 38°13'20", long 87°10'53", on line between secs. 27 and 28, T. 3 S., R. 7 W., at bridge on Warrick County Road 300 E., 1 3/4 miles northeast of Scalesville, Ind.			9-17-64	*f0.2
South Fork Patoka River tributary	South Fork Patoka River tributary	Lat 38°13'53", long 87°11'01", on line between secs. 21 and 28, T. 3 S., R. 7 W., at bridge on Pike-Warrick County line, 2¼ miles northeast of Scalesville, Ind.			9-17-64	*f0.5
South Fork Patoka River tributary	South Fork Patoka River	Lat 38°14'59", long 87°10'39", in SW¼ sec. 15, T. 3 S., R. 7 W., at county road bridge, 2¼ miles southwest of Stendal, Ind.			9-16-64	0
South Fork Patoka River tributary	South Fork Patoka River	Lat 38°15'40", long 87°11'44", in S½ SW¼ sec. 9, T. 3 S., R. 7 W., at county road bridge, 2¼ miles southeast of Scottsburg, Pike County, Ind.			9-17-64	0
South Fork Patoka River tributary	...do.....	Lat 38°15'37", long 87°12'00", at corner of secs. 8, 9, 16 and 17, T. 3 S., R. 7 W., at county road bridge, 2¼ miles southeast of Scottsburg, Pike County, Ind.			9-17-64	*f0.001
South Fork Patoka River tributary	...do.....	Lat 38°15'50", long 87°12'30", in SE¼ sec. 8, T. 3 S., R. 7 W., at county road bridge, 1 3/4 miles southeast of Scottsburg, Pike County, Ind.			9-17-64	0

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Wabash River basin--Continued						
Houchin ditch	South Fork Patoka River	Lat 38°16'43", long 87°12'02", on line between secs. 4 and 5, T. 3 S., R. 7 W., at county road bridge, 1¼ miles southeast of Scottsburg, Pike County, Ind.			9-17-64	*f0.05
South Fork Patoka River tributary	...do.....	Lat 38°17'23", long 87°12'05", on line between sec. 5, T. 3 S., R. 7 W., and sec. 32, T. 2 S., R. 7 W., at county road bridge, 1 mile east of Scottsburg, Pike County, Ind.			9-17-64	0
Streams tributary to Lake Michigan						
Grand Calumet River	Little Calumet River	Lat 41°36'17", long 87°19'49", in NW¼ sec. 3, T. 36 N., R. 8 W., at Virginia Street bridge, Gary, Ind.		1955-56	3-18-64	297
...Do.....	...do.....	Lat 41°36'17", long 87°20'14", in NW¼ sec. 3, T. 36 N., R. 8 W., at Broadway Street bridge, Gary, Ind.		1955-56	3-18-64	507
...Do.....	...do.....	Lat 41°36'35", long 87°23'12", in NW¼ sec. 4, T. 36 N., R. 8 W., at Buchanan Street bridge, Gary, Ind.		1955-56	3-18-64	657
...Do.....	...do.....	Lat 41°36'32", long 87°22'19", in NW¼ sec. 5, T. 36 N., R. 8 W., at Bridge Street bridge, Gary, Ind.			10-21-63	g538
					10-23-63	g517
					do	g522
					do	g495
					do	g504
					do	g516
					do	g526
					do	g504
					do	g522
					do	g522
					do	g516
					do	g524
					do	g500
					do	g529
					do	g529
					10-24-63	g530
					do	g550
...Do.....	...do.....	Lat 41°36'35", long 87°23'12", in NW¼ sec. 6, T. 36 N., R. 8 W., at Pennsylvania R.R. bridge, Gary, Ind.		1955-56	3-18-64	749
...Do.....	...do.....	Lat 41°36'30", long 87°23'38", in NW¼ sec. 6, T. 36 N., R. 8 W., at U.S. Highway 12 bridge, Gary, Ind.		1955-56	3-18-64	718
...Do.....	...do.....	Lat 41°36'38", long 87°25'22", in S½ sec. 35, T. 37 N., R. 9 W., at Elgin, Joliet and Eastern Railroad bridge, Gary, Ind.		1955-56	3-18-64	808
					3-19-64	848
...Do.....	...do.....	Lat 41°36'52", long 87°27'40", in S½ sec. 33, T. 37 N., R. 9 W., at Kennedy Street bridge, East Chicago, Ind.		1955-56	3-19-64	894
Indiana Harbor Canal	Lake Michigan	Lat. 41°37'17", long 87°28'15", at bridge on 151st Street, East Chicago, Ind.		1955-56	10-1-63	g769
				1962-63	10-8-63	g737
					10-15-63	g761
					10-22-63	g776
					12-30-63	g672
					12-31-63	g651
					1-2-64	g674
					1-3-64	g715
					2-19-64	g797
					2-25-64	g793
					2-28-64	g840
					3-3-64	g887
					3-9-64	g831
					3-13-64	g871
					3-18-64	1,010
					3-19-64	g910
					3-23-64	g864
					do	g828
					3-27-64	g891
...Do.....	...do.....	Lat 41°39'20", long 87°27'33", in SE¼ sec. 16, T. 37 N., R. 9 W., at Dickey Street bridge, East Chicago, Ind.		1955-56	3-19-64	1,450

Discharge measurements made at miscellaneous sites during water year 1964--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Streams tributary to Lake Michigan--Continued				
Grand Calumet River	Little Calumet River	Lat 41°36'52", long 87°28'50", in S½ sec. 32, T. 37 N., R. 9 W., at Indianapolis Blvd. bridge, East Chicago, Ind.			2-19-64	g43.8
					2-25-64	g38.7
					2-27-64	g34.7
					2-28-64	g31.6
					3-3-64	g27.0
					4-3-64	g23.5
...Do.....	...do.....	Lat 41°37'15", long 87°30'30", in NW¼ sec. 31, T. 37 N., R. 10 W., at Calumet Ave. bridge, Hammond, Ind.		1955-56	3-19-64	20.1
...Do.....	...do.....	Lat 41°37'53", long 87°32'22", in SW¼ sec. 5, T. 36 N., R. 15 E., at Burnham Ave. bridge, Calumet City, Ill.			3-19-64	16.0
		Illinois River basin				
Crooked Creek	Koselki ditch	Lat 41°26'03", long 86°57'43", in SW¼ sec. 35, T. 35 N., R. 5 W., at county highway bridge, and 3.3 miles west of Wanatah, Ind.			11-4-63	15.2

* Base flow.
a Made by Indiana Flood Control and Water Resources Commission.
b Regulated.
c About.
d Operated as a continuous record station.
e High-water measurements for "White River near Centerton, Ind." gage.
f Estimate.
g Made by Department of Health, Education, and Welfare, Public Health Service.

For several years records of the water-surface elevations of many of the lakes in Indiana have been collected by the Geological Survey under cooperative agreement with the Indiana Department of Conservation, Division of Water Resources. Basic data for a few selected lakes have been published in WSP 1363, entitled "Hydrology of Indiana Lakes." Records which have not been published are available in the files of the District Office of the Geological Survey in Indianapolis, Indiana. In general, the records are based on once-daily readings of a staff gage by a local observer and consist of daily, monthly, and yearly mean water-surface elevations as well as graphs showing the fluctuation in elevation. Discharge measurements, made at the outflow, are also available in some instance.

The lakes for which records have been collected are listed in the following table. The established level, sometimes referred to as the legal level, is that elevation set by the courts to which the average level of the lake is to be held; it is normally set at about the average level that has prevailed for a number of years prior to the establishment of the level.

Lakes in the Ohio River basin for which records are available

Lake	County	Drainage area (square miles)	Surface area (acres)	Established level**	Records available
Bayou drain basin					
Hovey Lake near Mt. Vernon	Posey	6.34	253		1950-64
Wabash River basin					
Banning Lake near North Webster	Kosciusko	0.58	12	837.50	1945-64
Baugher Lake near Washington Center	Noble	36.4	32	878.52	1945-51
Beaver Dam Lake near Silver Lake	Kosciusko	1.89	146	868.95	1947-53
Big Barbee Lake near North Webster	Kosciusko	44.8	302	837.50	1945-64
Big Chapman Lake near Warsaw a/	Kosciusko	4.59	474	827.75	1945-64
Big Lake near Wolflake	Noble	6.77	228	897.83	1943-64
Blue Lake near Churubusco	Whitley	3.47	239	850.28	1946-64
Bruce Lake at Lake Bruce	Pulaski	5.19	245	723.69	1943-53
Carr Lake near Claypool	Kosciusko	2.56	79	848.88	1947-53
Cedar Lake at Tri-Lakes	Whitley	1.62	131	901.90	1943-49
Center Lake at Warsaw	Kosciusko	0.75	120	-	1945-64
Crooked Lake near Wolflake	Noble	1.32	206	905.69	1943-53
Crystal Lake near Atwood	Kosciusko	0.38	76	789.69	1945-51
Diamond Lake near Silver Lake	Kosciusko	5.35	79	-	1954-64
Everett Lake near Levert	Allen	2.13	43	-	1946-64
Fish Lake near Warsaw	Kosciusko	3.59	15	845.52	1951-64
Fletcher Lake at Fletcher	Fulton	0.62	45	783.20	1946-53
Gilbert Lake near Washington Center	Noble	0.39	28	-	1954-64
Goose Lake near Lorane	Whitley	1.42	84	910.96	1945-53
Hill Lake near Silver Lake	Kosciusko	0.56	67	871.50	1952-64
Hoffman Lake at Atwood	Kosciusko	7.14	180	785.85	1945-53
Horseshoe Lake near Washington Center	Noble	1.39	18	901.80	1945-64
Irish Lake near North Webster	Kosciusko	50.8	135	837.50	1945-64
James Lake at Oswego	Kosciusko	-	271	836.40	1943-64
Johnson Lake near Pierceton	Kosciusko	5.42	15	-	1954-64
Kuhn Lake near North Webster	Kosciusko	3.74	121	837.50	1945-64
Lake Manitou at Rochester	Fulton	38.1	631	778.41	1943-64
Langenbaum Lake near Monterey	Starke	0.98	48	-	1954-64
Little Barbee Lake near North Webster	Kosciusko	48.8	56	837.50	1945-64
Little Chapman Lake near Warsaw	Kosciusko	7.78	128	827.75	1945-64
Little Wilson Lake near Larwill	Whitley	0.59	8	865.39	1946-52
Long Lake at Laketon	Wabash	0.64	48	751.19	1946-51 1959-64
Loon Lake at Ormas	Whitley	11.2	222	895.14	1943-64
Loon Lake near Silver Lake	Kosciusko	2.70	40	865.74	1947-53
Lost Lake near Culver	Marshall	10.2	40	732.00	1954-64
Lukens Lake near Disko	Wabash	0.99	46	-	1948-49 1959-64
McClures Lake near Silver Lake	Kosciusko	0.45	32	865.85	1945-52
Maxinkuckee Lake at Culver	Marshall	9.48	1,650	733.12	1943-64
Muskelonge Lake near Warsaw	Kosciusko	11.1	32	842.67	1943-53 1959-64
New Lake near Etna	Whitley	0.49	50	903.91	1945-53
North Little Lake at Silver Lake	Kosciusko	2.81	12	861.73	1947-64
Nyona Lake near Greenoak	Fulton	6.47	104	793.91	1946-64
Ogle Lake near Nashville	Brown	1.03	20	-	1954-64
Old Lake near Etna	Whitley	3.13	32	898.07	1949-64
Palestine Lake at Palestine	Kosciusko	29.9	* 290	-	1954-64
Pike Lake at Warsaw	Kosciusko	40.4	203	-	1954-64
Ridinger Lake near Pierceton	Kosciusko	34.9	136	843.12	1943-64
Robinson Lake near Pierceton	Kosciusko	6.95	59	851.09	1946-51
Rock Lake near Akron	Kosciusko	1.78	56	847.29	1949-64
Round Lake at Tri-Lakes	Whitley	0.83	125	901.90	1946-53
Sawmill Lake near North Webster	Kosciusko	51.9	23	837.50	1945-64

Lakes in the Ohio River basin for which records are available--Continued

Lake	County	Drainage area (square miles)	Surface area (acres)	Established level**	Records available
Wabash River basin--Continued					
Sechrist Lake near North Webster	Kosciusko	0.42	81	837.50	1945-64
Shoe Lake near Oswego	Kosciusko	0.47	40	841.57	1946-53
Shriner Lake at Tri-Lakes	Whitley	1.12	111	907.04	1943-64
Silver Lake at Silver Lake	Kosciusko	4.47	102	861.73	1947-64
Smalley Lake near Washington Center	Noble	32.6	69	-	1943-64
South Mud Lake near Fulton	Fulton	4.74	94	793.42	1946-64
Starve Hollow Lake near Vallonia	Jackson	6.14	145	-	1946-61
					1963-64
Tippecanoe Lake at Oswego	Kosciusko	115.0	816	836.40	1943-64
Town Lake near Akron	Fulton	1.74	* 23	-	1949-50
Troy Cedar Lake near Lorane	Whitley	5.51	93	905.41	1945-52
Versailles Lake near Versailles	Ripley	167.0	232	-	1957-64
Webster Lake at North Webster	Kosciusko	54.0	774	852.75	1943-64
Wilmot Pond at Wilmot b/	Noble	39.7	10	-	1945-51
Wilson Lake near Larwill	Whitley	0.49	29	865.39	1946-52
Winona Lake at Warsaw	Kosciusko	32.1	529	811.06	1943-64
Yellow Creek Lake near Silver Lake	Kosciusko	8.50	151	860.50	1945-53
Zink Lake near Rochester	Fulton	0.26	19	810.68	1952-55
Lakes in the St. Lawrence River basin for which records are available					
Streams tributary to Lake Michigan					
Adams Lake near Wolcottville	LaGrange	5.69	267	953.59	1946-64
Atwood Lake near Wolcottville	LaGrange	1.31	170	899.99	1948-53
Ball Lake near Hamilton	Steuben	11.5	87	-	1961-64
Bass Lake near Angola	Steuben	0.60	61	-	1954-64
Bear Lake at Wolflake	Noble	6.12	136	894.60	1943-64
Big Long Lake near Stroh	LaGrange	4.13	388	-	1954-64
Big Otter Lake near Fremont	Steuben	19.8	69	965.18	1946-53
Big Turkey Lake at Stroh	LaGrange	34.6	450	926.61	1945-64
Bixler Lake at Kendallville	Noble	3.63	120	963.65	1945-64
Blackman Lake near Wolcottville	LaGrange	1.4	67	974.20	1953-59
Bower Lake near Pleasant Lake	Steuben	87.5	25	948.50	1946-64
Cedar Lake near Ontario	LaGrange	1.66	120	871.90	1948-51
Cedar Lake near Waterloo	DeKalb	21.8	28	896.76	1943-56
Cree Lake near Kendallville	Noble	4.90	58	945.23	1949-64
Crooked Lake at Crooked Lake	Steuben	11.9	733	988.17	1946-64
Dallas Lake near Wolcottville	LaGrange	39.4	283	897.36	1945-64
Dewart Lake near Leesburg	Kosciusko	7.88	551	867.70	1945-64
Diamond Lake near Wawaka	Noble	2.82	105	-	1946-64
Duely Lake near Cromwell c/	Noble	11.2	21	876.68	1953-64
Eagle Lake near Kimmel	Noble	1.77	81	-	1946-48
Emma Lake near Emma	LaGrange	14.8	42	-	1954-64
Engle Lake near Ligonier	Noble	3.22	48	-	1956-64
Fish Lake near Plato	LaGrange	10.8	100	936.50	1945-64
Fish Lake near Scott	LaGrange	6.14	139	814.42	1954-64
Flatbelly Lake near Syracuse	Kosciusko	4.4	326	-	1964
Fox Lake near Angola	Steuben	1.13	142	1,018.83	1946-53
Golden Lake near Pleasant Lake	Steuben	92.4	119	948.50	1946-64
Gordy Lake near Cromwell	Noble	8.82	31	876.68	1953-64
Hackenburg Lake near Wolcottville	LaGrange	54.8	42	897.36	1945-64
Harper Lake near Washington Center	Noble	2.67	11	878.25	1946-64
Heaton Lake near Elkhart	Elkhart	8.78	87	767.30	1946-53
High Lake near Wolflake	Noble	4.75	123	-	1961-64
Hindman Lake near Washington Center	Noble	8.00	13	878.25	1946-64
Hogback Lake near Angola	Steuben	102.0	146	948.50	1946-64
Howard Lake near Angola	Steuben	3.94	27	-	1954-63
Hunter Lake near Middlebury	Elkhart	0.72	99	856.90	1946-53
Indian Lake near Corunna	DeKalb	3.50	56	-	1957
Indiana Lake near Bristol	Elkhart	0.53	122	759.73	1946-53
Jimerson Lake at Nevada Mills	Steuben	47.0	283	964.66	1946-64
Knapp Lake near Washington Center	Noble	5.64	88	878.25	1946-64
Lake Gage at Panama	Steuben	17.2	324	954.25	1946-64
Lake George at Hobart	Lake	125.0	282	602.23	1946-64
Lake George at Jamestown	Steuben	12.3	488	985.28	1946-64
Lake James at Lake James	Steuben	43.0	1,034	964.96	1943-49
Lake of the Woods near Helmer	LaGrange	5.36	136	951.09	1951-64
Lake Pleasant near Nevada Mills	Steuben	2.51	424	-	1954-64
Latta Lake near Rome City	Noble	4.37	42	-	1954-64
Lime Lake at Panama	Steuben	17.4	44	954.25	1946-64
Little Long Lake at Kendallville	Noble	4.34	71	-	1954-64
Little Otter Lake near Fremont	Steuben	14.3	34	965.18	1946-53

Lakes in the St. Lawrence River basin for which records are available--Continued

Lake	County	Drainage area (square miles)	Surface area (acres)	Established level**	Records available
Streams tributary to Lake Michigan--Continued					
Little Turkey Lake at Elmira	LaGrange	56.0	135	925.72	1945-64
Long Lake at Moonlight	Steuben	70.8	92	-	1946-64
Long Lake near Burr Oak	Noble	12.0	40	-	1954-64
Loon Lake near Angola	Steuben	2.73	138	-	1954-64
Lower Long Lake near Albion	Noble	3.96	66	889.81	1946-52
McClish Lake near Helmer	LaGrange	1.36	35	951.09	1951-64
Martin Lake near Valentine	LaGrange	5.36	26	-	1945-64
Messick Lake near Wolcottville	LaGrange	55.8	68	897.36	1945-64
Moss Lake near Washington Center	Noble	5.90	9	878.25	1946-64
Mud Lake near Orland	Steuben	1.64	25	-	1956-64
Muncie Lake near Burr Oak	Noble	43.4	47	-	1954-64
North Twin Lake near Howe	LaGrange	1.99	135	843.56	1953-64
Olin Lake near Valentine	LaGrange	6.12	103	899.45	1945-64
Oliver Lake near Valentine	LaGrange	11.3	362	899.45	1945-64
Otter Lake near Flint	Steuben	6.82	118	-	1954-64
Papakeechie Lake near Syracuse	Kosciusko	5.3	300	-	1964
Pigeon Lake near Angola	Steuben	30.6	61	-	1954-63
Pleasant Lake at Pleasant Lake	Steuben	0.94	53	963.52	1946-64
Pleasant Lake near Wolflake	Noble	0.30	20	-	1952-53
Pretty Lake near Stroh	LaGrange	2.91	184	965.50	1949-53, 1963-64
Rider Lake near Cromwell	Noble	9.12	5	876.68	1953-64
Rivir Lake near Burr Oak	Noble	18.7	24	-	1954-64
Round Lake at Kendallville	Noble	3.60	99	-	1954-64
Royer Lake near Plato	LaGrange	4.91	69	936.50	1952-64
Sacarider Lake near Kendallville	Noble	2.42	33	-	1954-63
Sand Lake near Burr Oak	Noble	15.0	47	893.56	1946-51
Sanford Lake near Cosperville	Noble	104.0	114	-	1948-64
Shipshewana Lake near Shipshewana	LaGrange	4.00	202	852.04	1951-64
Silver Lake near Angola	Steuben	3.72	238	959.40	1945-53
Silver Lake near Wolflake	Noble	0.32	34	-	1953-63
Simonton Lake near Elkhart	Elkhart	4.37	282	772.19	1946-64
Skinner Lake near Albion	Noble	13.8	125	927.74	1945-64
Snow Lake near Lake James	Steuben	36.3	310	964.96	1943-49
South Twin Lake near Howe	LaGrange	3.13	116	843.56	1953-64
Sparta Lake at Kimmel	Noble	0.26	31	888.50	1946-51
Steinbarger Lake near Cosperville	Noble	25.3	73	-	1948-64
Stone Lake near Scott	LaGrange	1.32	152	-	1954-64
Story Lake near Hudson	DeKalb	2.48	77	942.20	1946, 1954-64
Sylvan Lake at Rome City	Noble	31.5	575	916.20	1943-64
Syracuse Lake at Syracuse	Kosciusko	37.4	* 414	858.87	1943-64
Tamarack Lake near Cosperville	Noble	15.1	50	-	1948-64
Upper Long Lake near Wolflake	Noble	2.03	86	-	1956-64
Village Lake near Cromwell	Noble	11.9	12	876.68	1953-64
Wabee Lake near Milford	Kosciusko	13.4	187	829.79	1946-53
Waldron Lake near Cosperville	Noble	131.0	216	-	1948-64
Wall Lake near Orland	LaGrange	1.43	141	942.25	1953-54
Wawasee Lake near Wawasee	Kosciusko	36.1	2,620	858.89	1943-64
Westler Lake near Wolcottville	LaGrange	37.3	88	897.36	1945-64
Witmer Lake near Wolcottville	LaGrange	35.8	204	897.36	1945-64
Wolf Lake at Hammond	Lake	5.72	999	-	1946-49
Wolf Lake near Goshen	Elkhart	0.87	100	813.00	1947-57
Streams tributary to Lake Erie					
Clear Lake at Clear Lake	Steuben	7.25	800	1,037.38	1943-64
Hamilton Lake at Hamilton	Steuben	12.8	802	898.83	1943-64
Long Lake near Ray	Steuben	2.29	154	-	1961-63
Round Lake at Clear Lake	Steuben	7.25	30	1,037.38	1943-64
Lakes in the Upper Mississippi River basin for which records are available					
Illinois River basin					
Bass Lake at Bass Lake	Starke	3.66	1,405	713.65	1943-64
Cedar Lake at Cedar Lake	Lake	8.05	781	-	1943-64
Clear Lake at LaPorte	LaPorte	0.35	106	798.20	1942-49, 1952-64
Dalecarlia Lake near Creston	Lake	19.4	193	-	1947-52
Eagle Lake near Ober	Starke	26.2	24	713.25	1946-53
Eliza Lake near Beatrice	Porter	2.69	45	-	1954-64
Flint Lake near Valparaiso	Porter	2.88	86	-	1946-64
Hudson Lake at Hudson Lake	LaPorte	3.06	432	763.09	1946-64

Lakes in the Upper Mississippi River basin for which records are available--Continued

Lake	County	Drainage area (square miles)	Surface area (acres)	Established levels**	Records available
Illinois River basin--Continued					
J. C. Murphy Lake near Morocco	Newton	16.7	1,515	-	1952-61
Koontz Lake at Koontz Lake	Starke	6.46	346	714.56	1943-64
Lake of the Woods near Bremen	Marshall	11.6	416	803.85	1945-64
Long Lake near Valparaiso	Porter	1.25	65	797.66	1947-52
Lower Fish Lake near Stillwell	LaPorte	10.5	134	688.22	1946-53
Mill Pond Lake and Kreighbaum Lake near Twin Lakes	Marshall	4.86	168	767.75	1945-53
Myers Lake near Twin Lakes	Marshall	1.66	96	768.69	1945-53
North Chain Lake at Lydick	St. Joseph	4.50	88	721.17	1946-53
Pine Lake at LaPorte	LaPorte	5.88	564	796.20	1946-64
Pretty Lake near Plymouth	Marshall	0.91	97	-	1954-64
Riddles Lake near Lakeville	St. Joseph	13.5	77	817.50	1946-64
Ringneck Lake near Medaryville	Jasper	-	1,400	-	1949-55
Saugany Lake near Rolling Prairie	LaPorte	0.82	74	781.21	1946-50
Silver Lake near Rolling Prairie	LaPorte	0.82	54	795.20	1946-64
Skitz Lake near Knox	Starke	-	1,000	-	1949-53
South Chain Lake at Westfield	St. Joseph	6.00	90	717.04	1946-53
Spectacle (Loomis) Lake near Valparaiso	Porter	0.89	62	-	1946-53
Stone Lake at LaPorte	LaPorte	5.88	140	796.20	1946-64
Upper Fish Lake near Stillwell	LaPorte	9.71	139	688.22	1946-53
Wauhob Lake near Valparaiso	Porter	0.29	21	-	1946-64
Wharton Lake near South Bend	St. Joseph	1.75	-	-	1960-64

* Revised.
** Elevation, in feet, above mean sea level.
a Formerly published as Chapman Lake near Warsaw.
b Formerly published as Rider Lake at Wilmot.
c Formerly published as Duley Lake near Cromwell, Druley Lake near Cromwell and Druely Lake near Cromwell.
d Formerly published as Hawks Lake near Culver.

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