STATE OF ILLINOIS
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FLOW DURATION OF ILLINOIS STREAMS

By
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U.S. GEOLOGICAL SURVEY

Prepared Cooperatively By The
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Issued By
DIVISION OF WATERWAYS
THOMAS B. CASEY, CHIEF ENGINEER
1957

PUBLISHED WITH THE APPROVAL OF THE DIRECTOR, U. S. GEOLOGICAL SURVEY
PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

114

"It is a capital mistake to theorize before one has data."

—Sir Arthur Conan Doyle,
The Adventures of Sherlock Holmes

CONTENTS

	PAGE
INTRODUCTION	1
PURPOSE AND SCOPE	1
COOPERATION AND DIVISION OF WORK	1
FLOW-DURATION STUDIES	3
USES OF FLOW-DURATION CURVES AND TABLES	3
PREPARATION OF DATA	5
PRESENTATION OF RESULTS	6
VARIATION OF FLOW-DURATION WITH PERIOD OF RECORD	6
LONG-TERM FLOW-DURATION CURVES FROM SHORT-TERM RECORDS	8
Duration relation between two areas	8
Computation of the long-term curve	10
LONG-TERM FLOW-DURATION CURVES FROM MISCELLANEOUS MEASUREMENTS	12
PERIODS USED FOR PREPARATION OF DURATION CURVES	16
COMPUTATION OF LONG-TERM AVERAGE DISCHARGE	18
Integration of the flow-duration curve	18
Average discharge, 1921-45	22
DURATION DATA	23
EXTENT AND ARRANGEMENT OF STATION DATA	23
GALENA RIVER BASIN	31
Galena River at Galena	31
East Fork Galena River at Council Hill	32
APPLE RIVER BASIN	33
Apple River near Hanover	33
PLUM RIVER BASIN	34
Plum River below Carroll Creek, near Savanna	34
ROCK RIVER BASIN	35
Rock River at Rockton	35
Rock River at Oregon	36
Rock River at Como	37
Pecatonica River at Freeport	38
Pecatonica River at Shirland	39
Sugar River near Brodhead, Wis.	40
Sugar River at Shirland	42
Kishwaukee River at Belvidere	43
Kishwaukee River near Perryville	44
South Branch Kishwaukee River at DeKalb	45
South Branch Kishwaukee River near Fairdale	46
Killbuck Creek near Monroe Center	47

PAGE

DURATION DATA -- continued

ROCK RIVER BASIN -- continued
Leaf River at Leaf River 48
Kyte River near Flagg Center 49
Elkhorn Creek near Penrose 50
Rock Creek near Coleta 51
Rock Creek near Morrison 52
Green River at Amboy 53
Green River near Geneseo 54
Mill Creek at Milan 55

EDWARDS RIVER BASIN 56
Edwards River near Orion 56
Edwards River near New Boston 57

POPE CREEK BASIN 58
Pope Creek near Keithsburg 58

HENDERSON CREEK BASIN 59
Henderson Creek near Little York 59
Henderson Creek near Oquawka 60
North Henderson Creek near Seaton 61
Cedar Creek at Little York 62
South Henderson Creek at Biggsville 63

BEAR CREEK BASIN 64
Bear Creek near Marcelline 64

THE SNY BASIN 65
The Sny at Atlas 65
Hadley Creek at Kinderhook 66
Hadley Creek near Shinn 67
Bay Creek at Pittsfield 68
Bay Creek at Nebo 69

ILLINOIS RIVER BASIN 70
Des Plaines River near Gurnee 70
Des Plaines River near Des Plaines 71
Des Plaines River at Riverside 72
Illinois River at Marseilles 73
Illinois River at Kingston Mines 75
Illinois River at Meredosia 76
Salt Creek at Western Springs 78
Hickory Creek at Joliet 79
Spring Creek at Joliet 80
Du Page River at Troy 81
Kankakee River at Momence 82
Kankakee River near Wilmington 83
Singleton Ditch at Illinoi 85
Iroquois River at Iroquois 86
Iroquois River near Chebanse 87
Mazon River near Coal City 88
Fox River at Wilmot, Wis. 89
Fox River at Algonquin 90
Fox River at Dayton 91

PAGE

DURATION DATA -- continued

ILLINOIS RIVER BASIN -- continued
North Fork Vermilion River near Charlotte 92
Vermilion River at Pontiac 93
Vermilion River at Lowell 94
Bureau Creek at Princeton 96
Bureau Creek at Bureau 97
West Bureau Creek at Wyanet 98
East Bureau Creek near Bureau 99
Crow Creek near Washburn 100
Farm Creek at East Peoria 101
Kickapoo Creek near Kickapoo 102
Kickapoo Creek at Peoria 103
Mackinaw River near Congerville 104
Mackinaw River near Green Valley 105
Money Creek above Lake Bloomington 106
Hickory Creek above Lake Bloomington 107
Spoon River at London Mills 108
Spoon River at Seville 109
Sangamon River at Monticello 110
Sangamon River at Riverton 111
Sangamon River near Oakford 112
South Fork Sangamon River near Taylorville 113
South Fork Sangamon River at Kincaid 114
Salt Creek near Rowell 115
Salt Creek near Greenview 116
Kickapoo Creek near Heyworth 117
Kickapoo Creek near Lincoln 118
Sugar Creek near Hartsburg 119
La Moine River at Colmar 120
La Moine River at Ripley 121
Macoupin Creek near Kane 122

CAHOKIA CREEK BASIN 123
Indian Creek at Wanda 123
Canteen Creek at Caseyville 124
Long Lake at Stallings 125

KASKASKIA RIVER BASIN 126
Kaskaskia River near Arcola 126
Kaskaskia River at Shelbyville 127
Kaskaskia River at Vandalia 128
Kaskaskia River at Carlyle 129
Kaskaskia River at New Athens 130
Shoal Creek near Breese 131
Silver Creek near Lebanon 132

BIG MUDDY RIVER BASIN 133
Big Muddy River near Benton 133
Big Muddy River at Plumfield 134
Big Muddy River at Murphysboro 135
Beaucoup Creek near Pinckneyville 136
Beaucoup Creek near Matthews 137

PAGE

DURATION DATA -- continued

OHIO RIVER BASIN 138
Ohio River at Golconda 138
Ohio River at Metropolis 139
Wabash River at Vincennes, Ind. 140
Wabash River at Mount Carmel 141
Vermilion River near Catlin 142
Vermilion River near Danville 143
Salt Fork Vermilion River near Homer 144
West Branch Salt Fork at Urbana 145
Embarrass River near Oakland 146
Embarrass River near Diona 147
Embarrass River at Ste. Marie 148
Embarrass River at Lawrenceville 149
North Fork Embarrass River near Oblong 150
Bonpas Creek at Browns 151
Little Wabash River at Wilcox 152
Little Wabash River at Carmi 154
Skillet Fork at Wayne City 155
Saline River near Junction 156
Middle Fork of Saline River near Harrisburg 157
Cache River at Forman 158
Big Creek near Wetaug 159

REGIONAL ANALYSES 161

PARAMETERS OF THE FLOW-DURATION CURVE 161
Variability index 161
Average discharge 164
Accuracy of map values 164
Adjustment for size of drainage area 164

ADJUSTMENTS TO THE FLOW-DURATION CURVE 166
Adjustment of high discharges 166
Adjustment of low discharges 168

SYNTHETIC FLOW-DURATION CURVES 170
Use of parameters and adjustments 170
Plotting position of average discharge 174
Reliability of synthetic flow-duration curves 176

REVIEW 181

SELECTED BIBLIOGRAPHY 185

INDEX 187

TABLES

TABLE		PAGE
1	Synthetic computations for Big Creek near Wetaug	19
2	Comparison of observed and computed values of mean discharge	21
3	Index of surface-water records for Illinois	24
4	Station data for regional analyses	162
5	Size-adjustment coefficients for variability index, and for average discharge	166
6	Computations for variability index, Big Creek near Wetaug	182

FIGURES

FIGURE		PAGE
1	Duration curves for daily flows of Big Creek near Wetaug	7
2	Duration curves for selected periods of daily flows of Big Muddy River at Plumfield	11
3	Duration relation, Wetaug and Plumfield	13
4	Duration relation, Morrison and Freeport	15
5	Duration curves for daily flows of Rock Creek near Morrison	17
6	Gaging stations in Illinois	29
7	Gaging stations in Cook County and environs	30
8	Regional values of the variability index for Illinois areas of 100 square miles	165
9	Regional values of average discharge for Illinois areas of 100 square miles	167
10	Variability index versus drainage area	169
11	Average discharge versus drainage area	169
12	Discharge equalled or exceeded one percent of time versus variability index and average discharge	171
13	Discharge equalled or exceeded 99 percent of time versus variability index	173
14	Percent of time average discharge is equalled or exceeded versus variability index	175
15	Synthetic duration curve for Vermilion River at Pontiac	177
16	Synthetic duration curve for Elkhorn Creek near Penrose	179
17	Synthetic duration curve for Spoon River at Seville	180

INTRODUCTION

PURPOSE AND SCOPE

This report is a supplement to an earlier report, "Water-supply characteristics of Illinois streams," (Mitchell, 1950).

One of the features of the earlier report was the presentation of tables and curves for duration of daily discharges at selected gaging stations on Illinois streams. The present report extends the study at those stations by the addition of the subsequent five-year period of record. Further, the present report provides duration data for many additional streams. The increase in number of stations arises from two important circumstances: 1) Most of the added stations are those for which observations were begun at a comparatively recent date, so that in the five-year period since the earlier report the lengths of these records have been increased by proportionately large amounts. 2) Further developments in hydrologic techniques have greatly increased the usefulness of even short-term flow-duration data.

All significantly useful flow-duration data for Illinois streams, available from the records of the U. S. Geological Survey as of September 30, 1950, now are published either in the 1950 publication mentioned above, or in the present report.

Consideration is given, also, in the present report, to the regional aspects of flow duration. The two principal parameters of the flow-duration curve -- the variability index and the average discharge -- are provided for each station. These station values form the basis for regional values of the parameters which, in turn, may be assumed to be indicative of average values for ungaged areas. Thus the report provides not only the flow-duration data at gaging stations, but also a means of estimating the probable data for ungaged areas.

COOPERATION AND DIVISION OF WORK

This report has been prepared in accordance with a cooperative agreement between the State of Illinois, Department of Public Works and Buildings, Division of Waterways, and the United States Department of the Interior, Geological Survey. It was agreed that the two organizations should contribute equally toward the cost of preparation of the report; that the work should be done by personnel of the Water

Resources Division of the Geological Survey, in the district office at Champaign; that the resulting report should be published by the Division of Waterways.

The data have been assembled and the manuscript has been prepared by, or under the technical supervision of, William D. Mitchell, Hydraulic Engineer, Geological Survey, working under the administrative direction of J. H. Morgan, District Engineer. Much of the detail of computation and tabulation was under the immediate supervision of Richard G. Godfrey, Hydraulic Engineer. The manuscript was vari-typed by Mrs. Joanne Gates and Mrs. Helen Larson.

FLOW-DURATION STUDIES

Charts for the graphical presentation of streamflow data may be divided into two distinct categories. In the first, chronological sequence of the events is of major importance, and therefore the date or time of occurrence is one of the factors on which the plot is based. Hydrographs and mass diagrams are representative of the types of charts commonly found in this category. In the second, the frequency of occurrence, irrespective of chronological sequence, is the element of primary interest. Such charts may show the frequency of floods, droughts, or other desired characteristic of the flow. Charts that show the frequency of occurrence of the various rates of flow throughout the entire regimen of a stream at a given point are known as flow-duration curves. They indicate the percent of time, within a given period, during which any given rate of flow was equalled or exceeded.

USES OF FLOW-DURATION CURVES AND TABLES

In his discussion of Foster's "Duration Curves," (1934), Hoyt touched upon certain problems confronting the International Advisory Committee on Rating of Rivers. He stated, "It is doubtful whether agreement could have been reached on the basis of any defined rates of flow other than those obtained through the use of the duration curve." He explains that the duration curve is useful because--

(1) It is in widespread use among engineers in many countries.
(2) Rates of flow based on the curve are easily defined.
(3) Defined rates of flow can be easily checked by computations made independently.
(4) It presents a generalized picture of the flow and the relation of flows of various magnitudes to the duration of time.

One of the earliest uses of flow-duration studies was in connection with hydroelectric power developments. More recently it has been recognized that such studies also are very useful in the preliminary investigations of problems such as water supply, and the dilution and disposal of domestic and industrial wastes. As an illustration, let it be assumed that an industrial plant is to be located in northwestern Illinois, on one of the tributaries of Rock River, and will require a water supply, to be provided from surface water without construction of storage facilities, of 50 cfs for at least 98 percent of the time. Return flows will be such that water

rights downstream from the plant will not be in question. Where are the possible locations for this plant?

Data for streams tributary to Rock River in Illinois will be found on pages 35-55. A quick inspection of the curves on these pages discloses that, at 98 percent of the time, no stream in the area provides a discharge of more than 0.25 cfs per sq mi; hence all areas draining less than about 200 sq mi are immediately eliminated from consideration. Any point on Pecatonica River will be suitable, inasmuch as the minimum discharge at Freeport, near the Wisconsin line, is 98 cfs. Sugar River also will be suitable, since the discharge at Brodhead, Wis., is more than 0.2 cfs per sq mi from 536 sq mi. Kishwaukee River will be satisfactory only below the mouth of the South Fork; here the record for Perryville indicates a discharge of about 0.065 cfs from 1,090 sq mi, but above the mouth of South Fork, at Belvidere, we find only about 0.06 cfs per sq mi from 525 sq mi. The South Fork of Kishwaukee River is not suitable; although the drainage area at Fairdale is 384 sq mi, the discharge at 98 percent of the time is only about 0.023 cfs per sq mi, or about 9 cfs. The only other tributary with sufficient area to be worthy of investigation is Green River. At Geneseo, we find a discharge of about 0.053 cfs per sq mi from 958 sq mi, or about 50.8 cfs. Obviously, the lower section of Green River meets the stated requirement, but by such narrow margin as to indicate the need for more detailed study.

As another example of the use of duration data, consider the disposal of 0.1 mgd of industrial waste (0.155 cfs) from a plant which is to be located on Little Wabash River near the station at Wilcox. Assume that the waste has a BOD of 1,500 ppm; that it may be effectively treated by sedimentation and by chemical precipitation; that the water upstream from the plant has a BOD of 2 ppm, and that immediately downstream from the plant effluent it must have a BOD of not more than 4 ppm. (These factors are for illustrative purposes only. Officials of the State Sanitary Water Board should be consulted for actual design values.) If a 30 percent reduction in BOD is obtained by sedimentation, to what extent will chemical treatment be required?

Let Q represent the rate of flow of the stream, and q the rate of flow of industrial waste, both in cfs.

$$\text{BOD}\ (Q) + \text{BOD}\ (q) = \text{BOD}\ (Q + q)$$

Since 30 percent reduction is obtained by sedimentation, the BOD of the waste now may be considered as 1,050 ppm. Substituting in the above equation,

$$2\ Q + 1{,}050 \times 0.155 = 4\ (Q + 0.155)$$

$$Q = 81.1 \text{ cfs}$$

Entering the duration curve for Wilcox (see p. 152) with a discharge of 81.1/1,130, or 0.072 cfs per sq mi, it is found that, based on the records for 1921-45, this

discharge may be expected to be equalled or exceeded about 56 percent of the time. Hence, for 56 percent of the time no chemical treatment will be needed.

Assume that the proposed chemical treatment will remove only 80 percent of the BOD which remained after sedimentation treatment. Then

$$2\,Q + 1{,}050 \times 0.155 \times 0.2 = 4\,(Q + 0.155)$$

$$Q = 16.0 \text{ cfs}$$

This is a discharge of 0.0142 cfs per sq mi. By reference to the duration curve, it may be expected that it will be equalled or exceeded about 84 percent of the time. Thus for 28 percent of the time (84 minus 56) chemical treatment will be required in varying degrees up to the full proposed treatment. For the remaining 16 percent of time the proposed treatment will be inadequate; either more complete treatment will be required, or some other means of waste disposal must be provided.

It will be understood, of course, that the two foregoing examples are by no means illustrative of all the uses of duration; they merely are indicative of the many problems to which duration studies are applicable. It is impractical, in this short discussion, to provide a complete range of examples. There is, however, one other field to which duration studies are particularly adapted, and which is worthy of special attention. Perhaps the greatest value of flow-duration data, particularly for Illinois streams, lies in their use as tools for other hydrologic studies.

Duration data provide a ready means for the establishment of a curve of relation between the discharges for two different areas. This, in turn, provides the hydrologist with a means for greatly expanding the amount of reliable information which may be derived from a short, or even fragmentary, period of streamflow record. In addition, the area under the duration-curve represents a value of the mean discharge, and the slope of the curve represents the variability of the stream. The latter provides a means of determining regional values of variability -- an important factor in predicting the extent of correlation which may be expected between the discharges from two or more areas. Details concerning such uses of duration data will be provided in later sections of this report.

PREPARATION OF DATA

The methods of preparing duration data are quite simple, and generally are well understood by most engineers. Furthermore, the techniques used for this report are identical with those explained in an earlier report (Mitchell, 1950). Those readers who desire more detailed information are referred to the earlier publication.

PRESENTATION OF RESULTS

Following the precedent of the earlier report (Mitchell, 1950), flow-duration data for each gaging station are presented in both graphic and tabular form. In each table, data for each individual year of record are summarized in individual columns, as shown by the table headings. Data for the complete period of record are summarized in the last two columns of the table. For those stations which were included in the 1950 report, yearly data have been shown only for the additional years (1946-50) of record, but the figures in the last two columns represent the entire period of record, including the years for which data previously were published.

The station curves of the present report are similar to those of the earlier report in all respects except size. Additional experience has indicated that, for detailed studies, the user of these reports will wish to refer to the tabular, rather than the graphic, presentation. The principle uses of the graphs will be found in the quick determination of approximate values, and, more particularly, as a visual index of the characteristics of the areas. These purposes will be adequately served by the reduced size of the graphs.

The advantages of the logarithmic probability scales have been discussed at length in the 1950 report. It is suggested that the reader refer to that report for further explanation.

VARIATION OF FLOW DURATION WITH PERIOD OF RECORD

If flow-duration curves for hydrologically similar areas are to exhibit the maximum degree of similarity, it is necessary that the curves be based on the same period of record. It is not enough that the periods of record be of equal length; they should be for the same specific years, so that there is the maximum probability that the specific meteorological events that are reflected in one record also will be reflected in the other. This is especially true for those cases in which unusual meteorological events, such as lead to protracted periods of great floods or droughts, occur within a short period of streamflow record. The point may be emphasized by a study of the flow-duration curves, at a given site on a given stream, for different short portions of the period of record.

Figure 1, page 7, presents duration curves for various portions of the record for Big Creek near Wetaug. The central curve, shown by heavy line, represents the entire period of record, 1942-50. (This curve is based only on the large open

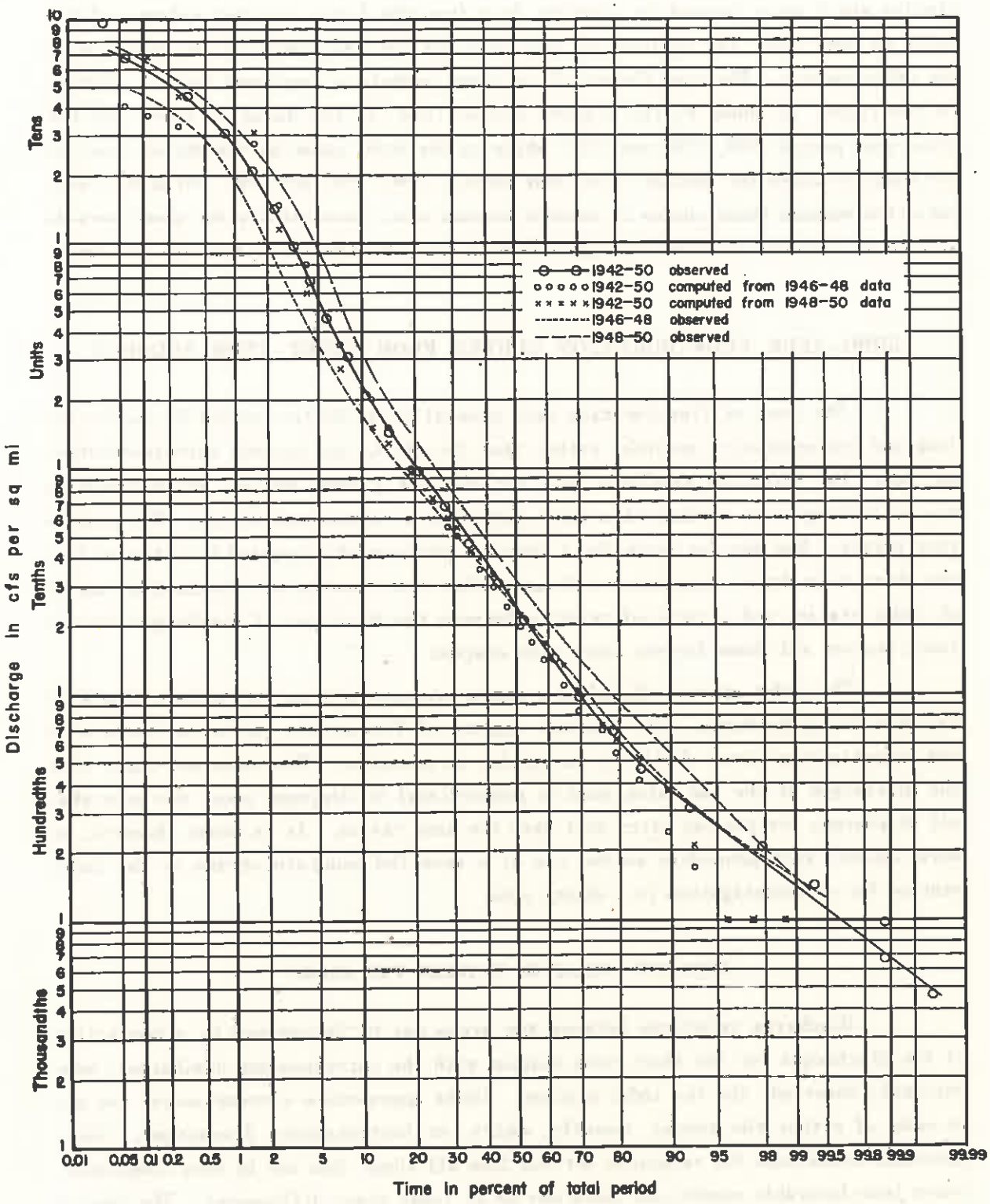


Figure 1.--Duration curves for daily flows of Big Creek near Wetaug

circles which were located by plotting data from the first and last columns of the table on page 159. The position of the curve was not influenced by the presence of the other symbols. The significance of the other symbols is explained below.) Further to the right, as shown by the lighter dashed line, is the duration curve for the three-year period 1948, 1949 and 1950, while to the left, shown by the dotted line, is the duration curve for another three-year period, 1946, 1947 and 1948. From the large variation between these curves it becomes obvious that, particularly for short periods of record, duration curves may vary greatly with the period for which data are available.

LONG-TERM FLOW-DURATION CURVES FROM SHORT-TERM RECORDS

The uses of flow-duration data generally are better served by curves for long and representative periods, rather than for short, and perhaps unrepresentative periods. But often the available data are only for a short period, and information may be lacking as to whether this short period is a representative one. The problem then arises: How may the curve for a long and representative period be obtained from the short-term data? Experience indicates that best results are obtained by use of an index station and a curve of relation between the durations of discharges for the index station and those for the short-term station.

The index station should be a gaging station with an appropriate length of reliable daily discharge. The seasonal regimen of flow at the two sites (index site and investigation site) should be as similar as possible. This does not imply that the discharges at the two sites need be proportional to drainage area, nor even that all discharges for the two sites must have the same ratios. It is meant, however, to warn against such procedure as the use of a snow-fed mountain stream as the index station for an investigation in a desert area.

DURATION RELATION BETWEEN TWO AREAS

Discharge relations between two areas may be determined by a comparison of the discharges for the short-term station with the corresponding discharges, concurrently observed, for the index station. Under appropriate circumstances, use may be made of either the annual, monthly, daily, or instantaneous discharges. Under favorable conditions the relations derived from all these data may be very comparable; under less favorable conditions there may be at least minor differences. The type of data which should be used for the comparison is largely dependent upon the number of such data available, and upon the use which is to be made of the relation. Experience

indicates, for example, that best estimates of monthly mean discharges -- particularly for the months of higher discharges -- are obtained from a discharge relation based on an appropriate number of concurrent monthly mean discharges; likewise, best estimates of duration curves are obtained from a duration relation based on an appropriate number of concurrent daily discharges, arranged in duration series.

The duration relation is obtained most conveniently by logarithmic plotting, with the values for the index station as abscissa and those for the short-term station as ordinate. (The logarithms of the discharges may be plotted on arithmetic coordinates but it usually is more convenient to plot the discharges, themselves, on logarithmic coordinates.) As a preliminary to such a plot, duration curves are prepared for each of the areas, using only the complete years of record which are common to both areas. A point for the duration relation then may be obtained by reading the ordinate of each of the duration curves for any common value of the abscissa. Additional points are obtained in like manner by choosing other appropriate values of the abscissa, thus obtaining a series of points on which a curve of the duration relation may be based.

The duration relation is used extensively in the following sections of this report. Furthermore, it is this use of duration data which, in large measure, justifies the manner in which the data have been prepared for the various gaging-station records. It is appropriate, therefore, that this relation should be further explained by use of examples. These examples also will illustrate the manner in which the duration relation is used to obtain the long-term duration curve from a short-term record.

Let it be assumed that the nine water years of published record for Big Creek near Wetaug constitute a long and representative period for that station, and that the flow-duration curve for that period is to be computed from the record for the three wet years, 1948, 1949, and 1950. (Actually, a longer period might be more representative, but the above assumption is made in order that the computed flow-duration curve may be checked against the correct curve as derived from observed data.)

Let Big Muddy River at Plumfield be used as the index station. The duration curve for this index station, for water years 1948-50, is presented as one of the curves of Figure 2, page 11. From that curve it will be noted that a discharge of, say, 1.50 cfs per sq mi is equalled or exceeded 30.0 percent of the time. From the corresponding curve of Figure 1 it will be noted that a discharge of 0.767 cfs per sq mi is equalled or exceeded for this same, or 30.0 percent, of the time. These two values of discharge are plotted, one against the other, to obtain one of the + symbols of Figure 3, the duration relation between the two stations. After additional + points have been plotted by a similar procedure, the relation curve may be drawn as shown by the light dashed line.

Additional information as to the proper location of the relation curve may be obtained by plotting additional points obtained from other appropriate pairs of of the curves of Figures 1 and 2. Use of the entire period of concurrent record, 1942-50, provides the open circles of Figure 3. (See p. 13.) Since this is the longer, and presumably the more representative, period, a heavy line based on these open circles is considered the more probable position of the duration-relation curve. A further check upon the location is provided by a third determination. This is shown by the small solid dots of Figure 3, obtained from analysis of the duration curves for the 1946-48 water years.

A more rigorous evaluation of the reliability of the relation, such as the standard error of the graph, would be very desirable. Unfortunately, these data do not readily lend themselves to such an evaluation. Experience indicates that the duration relation has about the same reliability as the relation between monthly discharge, for which the standard error of the graph may be computed. Detailed discussion of this problem will be reserved for a later section (see Review, p. 181), but it now may be noted that, although the duration curves for the three periods of the above example are quite different, the three duration relations are, except perhaps at their extremities, quite similar. It is this fact that makes it possible to estimate a reliable duration relation from any reasonable length of concurrent records, and thus provides a means of estimating the long-term duration curve from a short-term record.

COMPUTATION OF THE LONG-TERM CURVE

The period of record for Big Creek near Wetaug consists of the nine water years 1942-50. For the index station, Big Muddy River at Plumfield, the duration curve for these same years, 1942-50, is shown as the heavy, continuous line of Figure 2. Suppose now that the table of discharge versus percent of time that was used to plot the heavy curve of Figure 2 has been altered by substituting, in place of the Big Muddy River discharges, the corresponding Big Creek discharges as read from the relation curve of Figure 3. This becomes the table for the computed curve for the period of record on Big Creek, and plots as shown in Figure 1. If use is made of the 1948-50 relation from Figure 3 (defined by + symbols) the results are as indicated by the x symbols on Figure 1. If use is made of the 1946-48 relation from Figure 3 (solid dots) the results are as indicated by the small open circles on Figure 1. The agreement between these sets of points and the larger open circles (which define the actual curve) is an indication of the extent to which the longer-term curve is accurately defined from the short periods of record. It will be noted that the agreement is quite good throughout the range between 1 percent and 90 percent of the time. It is true

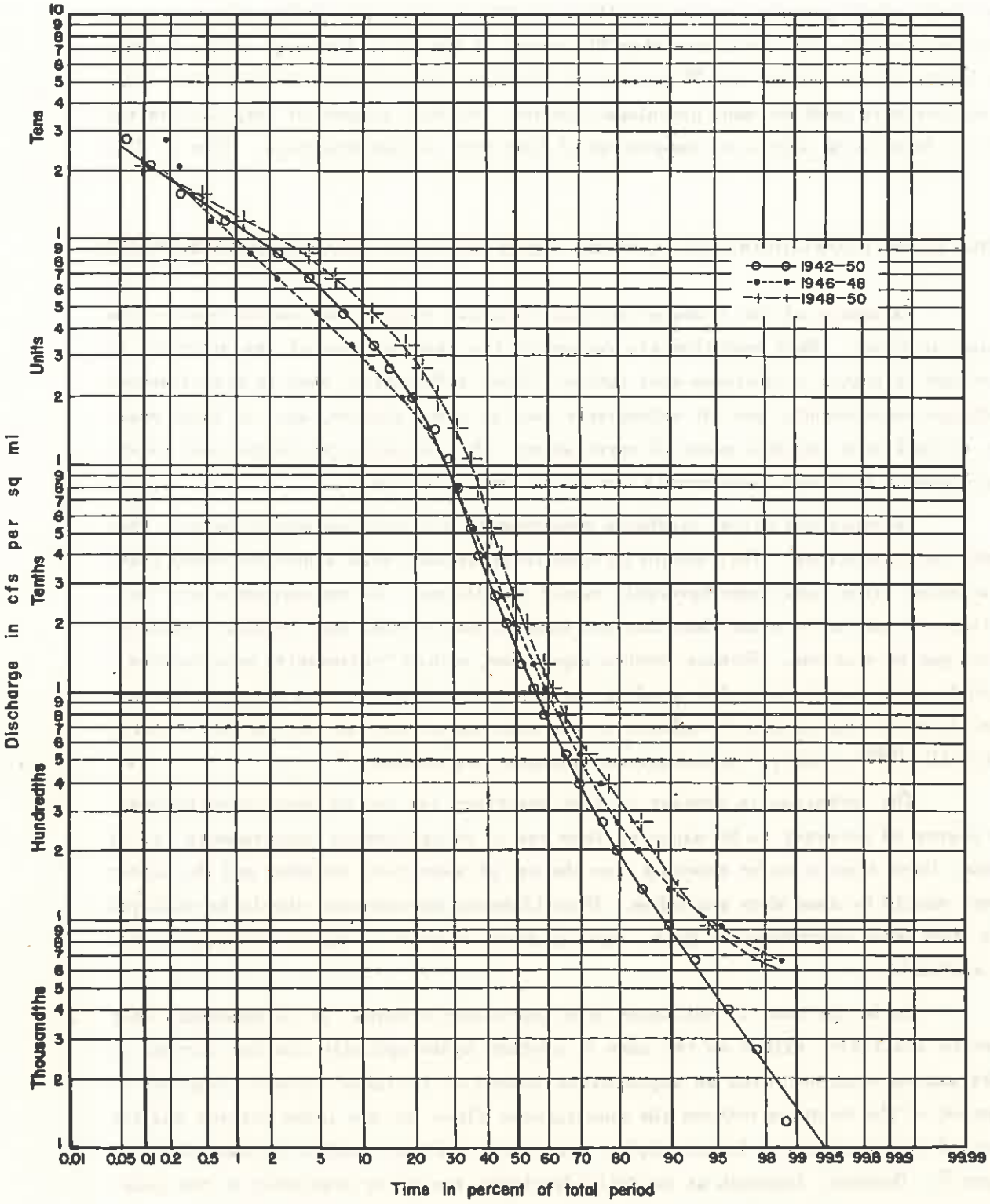


Figure 2.--Duration curves for selected periods of daily flows of Big Muddy River at Plumfield

that these short periods provide insufficient data to precisely define the curves at their extremities, but since more than 80 percent of the total discharge occurs between the limits of one percent and 90 percent of the time, the agreement between the curves is sufficiently good for many hydrologic studies. Further support of this observation will be found in the section on computation of long-term average discharge. (See p. 21).

LONG-TERM FLOW-DURATION CURVES FROM MISCELLANEOUS MEASUREMENTS

Estimates of the flows of streams often are required at points remote from gaging stations. Most hydrologists recognize the inadequacies of the attempts to base such estimates on drainage-area ratios. Other information, such as miscellaneous discharge measurements, was not extensively used in older studies, due, in large measure, to lack of a suitable means of correlation. This situation no longer need exist; miscellaneous discharge measurements now may be used effectively.

As explained below, discharge measurements for such use should be more than random determinations. They should be made in accordance with a predetermined plan, at selected sites, and under favorable runoff conditions. The measurements are "miscellaneous" only in the sense that they are made at points other than regular, complete-record gaging stations. Perhaps another expression, such as "correlative measurements," would be more descriptive; but pending the general acceptance of a more significant term it seems appropriate to adhere to the expression used in the earlier report, (Mitchell, 1950), namely, "miscellaneous discharge measurements."

The technique is similar to that described for use of short-term records. The degree of accuracy to be expected from use of miscellaneous measurements is, of course, lower than is to be expected from the use of short-term records, and the latter always should be used when available. Miscellaneous measurements should be employed only when more comprehensive data, such as short records of daily discharges, are not available.

As in the case of estimates from short-term records, it is necessary that there be available, either on the same or another hydrologically similar stream, an index gaging station, with an appropriate length of reliable record. A graph is prepared of the relation between the simultaneous flows for the index station and the point of investigation. In principle, this graph will be similar to that shown as Figure 3. However, inasmuch as no daily discharge record is available at the point of investigation, the relation curve cannot now be determined from duration data. It can, however, be approximated, by plotting the miscellaneous discharges measured

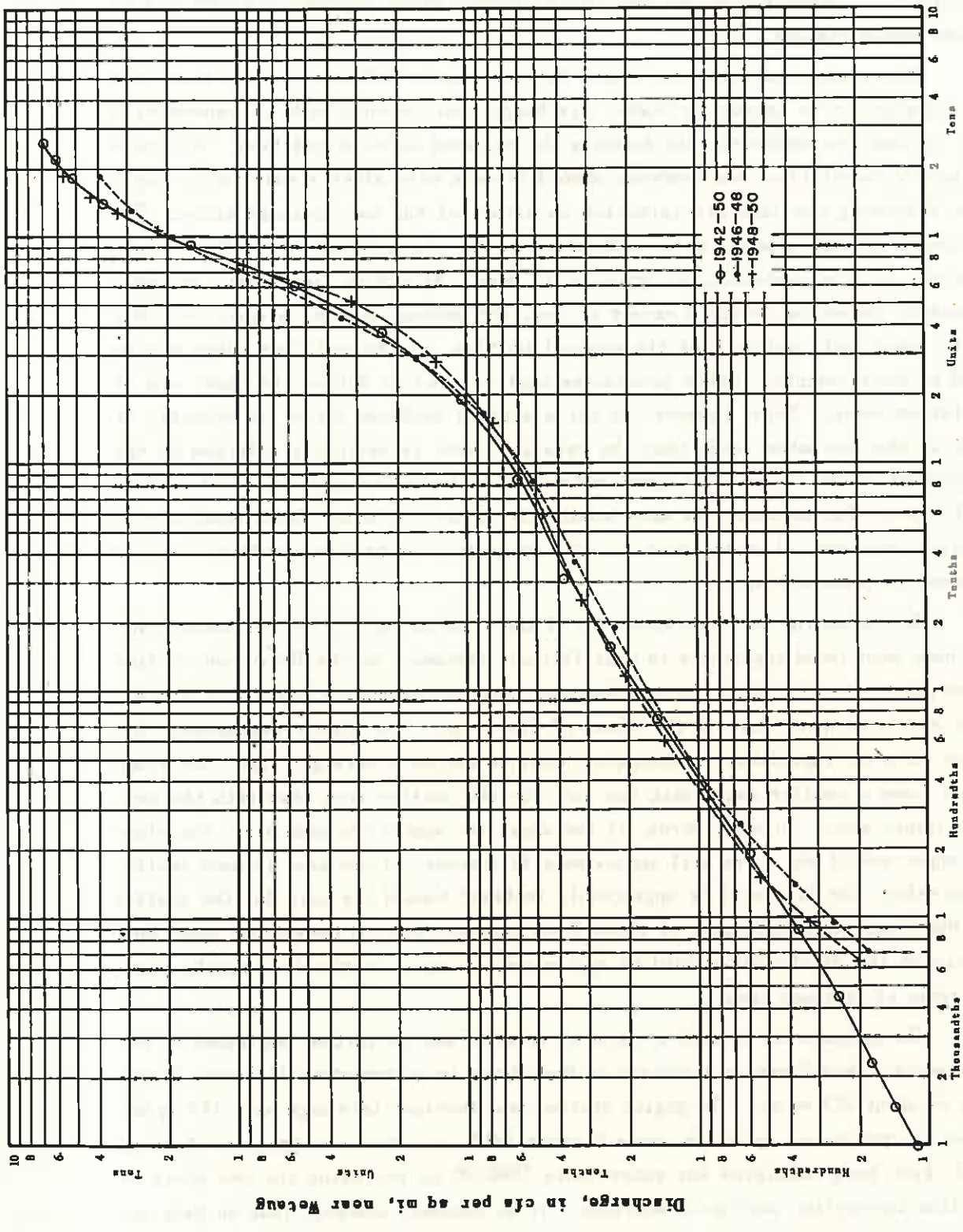


Figure 3.--Duration relation, Wetaug and Plumfield

at the point of investigation against the discharges which occurred concurrently at the index gaging station.

Experience has indicated that, for streams in Illinois (except those for which correlation is unusually high), discharge measurements made at random with respect to time are ineffective in defining the required curve of relation. To obtain satisfactory correlation, measurements should be made only after a substantial lapse of time following the last precipitation on either of the two drainage areas. The exact length of time appears to be a function of the characteristics of the basins, and may be, in some instances, as great as 10 days. With this limitation, suitable measurements cannot be obtained except at low, and perhaps medium, stages, and thus only the lower end, and perhaps the central portion, of the relation curve may be defined by measurements. Other procedures must be used to define the upper end of the relation curve. This, however, is not a serious handicap since, in general, it is only in the low-water range that the relation curve is seriously affected by the peculiarities of the basins; the upper end may be estimated by application of certain general rules. Furthermore, for many studies it is the low-water flows which are of particular interest. Larger errors in the estimates for high-water flows may, in many cases, be permissible.

In estimating the high-water end of the relation curve, the following principles have been found applicable to most Illinois streams: At the 10-percent-of-time duration point, the discharges for two drainage areas of reasonable hydrologic similarity are nearly proportional to the sizes of the areas. For higher discharges, the relation curve on logarithmic coordinates tends to become a straight line, the slope of which forms a smaller angle with the axis for the smaller area than with the axis for the larger area. In other words, if the areas are nearly the same size, the slope of the upper end of the curve will approximate 45 degrees; if one area is much smaller than the other, the line will be appreciably inclined toward the axis for the smaller area. Hydrologic considerations of flood flows indicate that, at the extreme upper end, the ratio of the discharges should be approximately equal to the five-tenths power of the ratio of drainage areas.

The preparation of such a curve of relation may be further explained by use of an example. Rock Creek, a tributary to Rock River in northwestern Illinois, drains an area of about 215 sq mi. The gaging station near Morrison (drainage area 143 sq mi) has been in continuous operation since October 1942, and duration data, as shown on page 52, have been tabulated for water years 1940-50 by including the two years of record from the earlier station at Morrison. It is assumed, however, that no data are available except the size of the area, and a few miscellaneous discharge measurements.

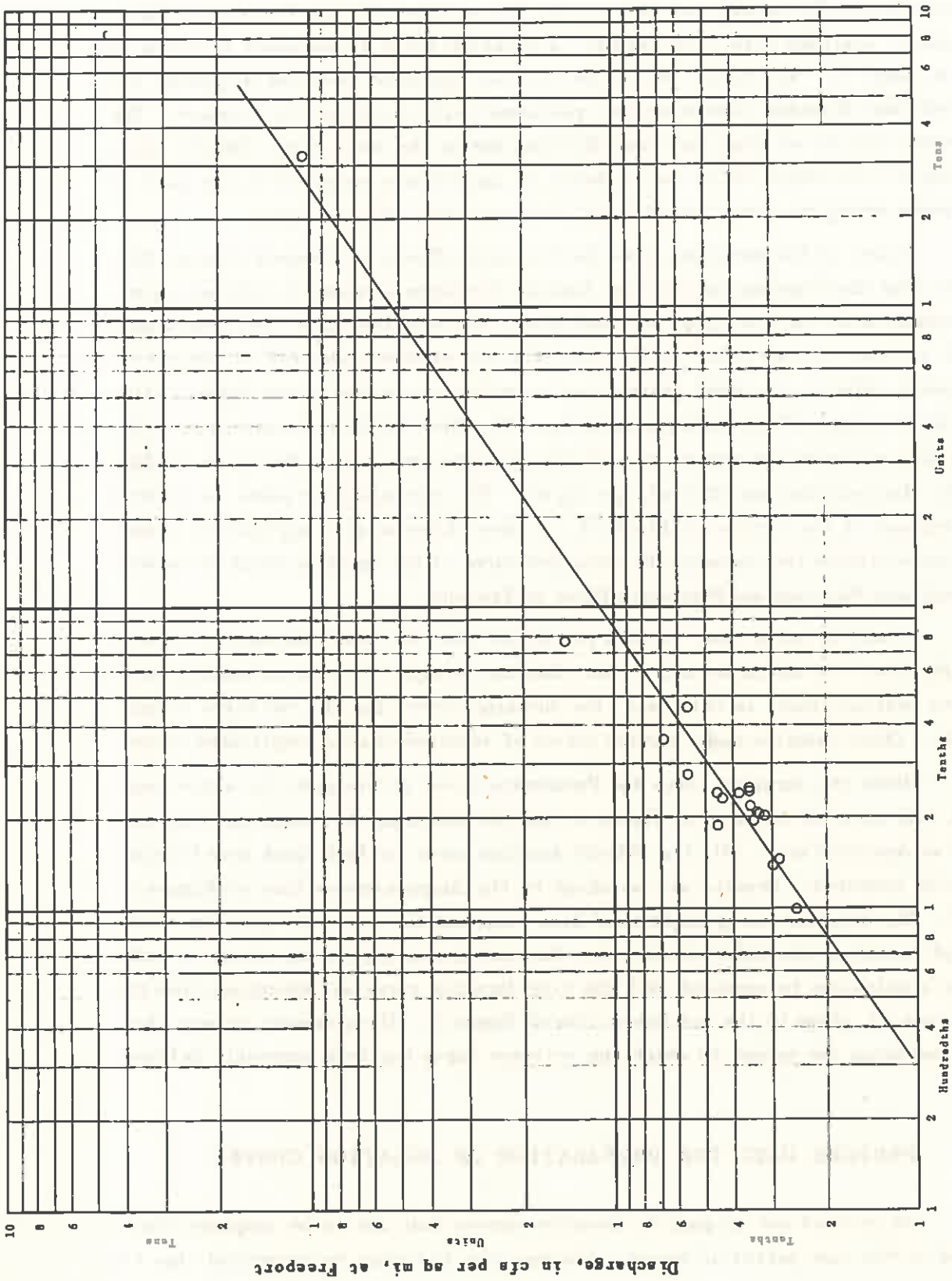


Figure 4.--Duration relation, Morrison and Freeport

Using only this information, and the records for an index station (Pecatonica River at Freeport, drainage area 1,330 sq mi), a relation curve is obtained as shown by Figure 4, page 15. All except two of the circles represent measured discharge for Rock Creek near Morrison plotted against published daily discharge for Freeport. The measurements are all of those made near Morrison during the water years 1942-50, after excluding all for which there was evidence of appreciable rainfall on any part of either basin within the 5-day period immediately preceding the measurement.

A plot of the duration curve for Pecatonica River at Freeport (see p. 38), indicates that the 10-percent-of-the-time duration discharge is about 1.2 cfs per sq mi. In accordance with the principles outlined above, the relation curve then should pass through, or near to, the point (1.2, 1.2). For the extreme upper end of the curve, a reasonable value at the index station may be assumed to be the second highest value of the first column of the duration table (p. 38), which is 10.5 cfs per sq mi. Adjusting this value by the square root of the drainage area ratio, the corresponding value for Morrison becomes 32.0 cfs per sq mi. The corresponding point is plotted as the highest of the circles of Figure 4. A curve drawn to give appropriate weight to all these circles then becomes the estimated curve of the duration relation between Rock Creek near Morrison and Pecatonica River at Freeport.

It will be noted that, in this particular case, the resulting curve is nearly a straight line. It should be pointed out that the straight line has no significance, except to indicate that, in this case, the duration curves for the two sites diverge uniformly. Other examples might provide curves of relation of more complicated nature.

Using the duration curve for Pecatonica River at Freeport for water years 1941-50, the curve of relation of Figure 4, and the technique for computing long-term curves (as described on p. 10), the 1941-50 duration curve for Rock Creek near Morrison now may be computed. Results are as shown by the discontinuous line of Figure 5, page 17. The duration curve might have been computed for any other portion of the period of record at the index station, but this particular period was chosen in order that the results may be compared with the true duration curve as determined from the data on page 52, shown by the continuous line of Figure 5. The agreement between these curves indicates the extent to which the relation curve has been correctly defined.

PERIODS USED FOR PREPARATION OF DURATION CURVES

As pointed out on page 6, duration curves that are to be compared should be based on the same period of record. However, the fact must be recognized that the

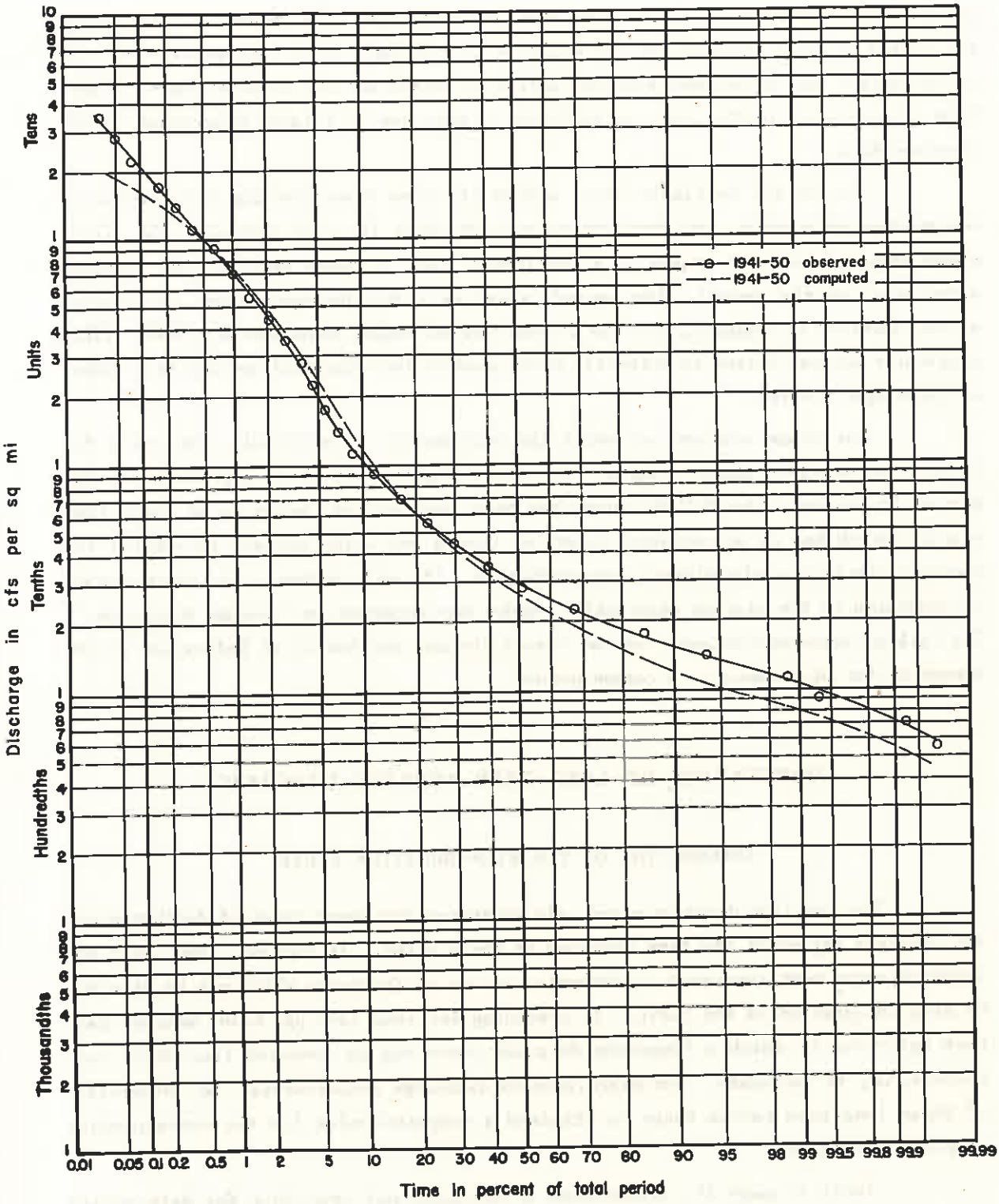


Figure 5.--Duration curves for daily flows of Rock Creek near Morrison

period of record actually varies from station to station. One method of eliminating the effect of this variable period would be to eliminate from each station all the record except that coincident with the period of record for the shortest-term station. Such procedure is inefficient, as it fails to make use of a large proportion of the observed data.

To use all available data, and at the same time minimize the effects of unsynchronized periods, two duration curves are shown for each station. The first, shown among the station graphs as a continuous line, is based upon all the complete water years of the record. The second, shown as a discontinuous line, is a curve, either observed or computed, for the 25-year period ending September 30, 1945. (This particular 25-year period is currently being used as the "standard" period in a number of hydrologic studies.)

For those stations at which the information is available, the curve for 1921-45 is based on observed data. For those stations at which a portion of this period is missing, the 1921-45 curve has been snythesized, using as an index that station which has an appropriate length of record and which appears to exhibit the greatest similarity in hydrologic characteristics. (In each instance, the index station is indicated in the station description, under the paragraph on "Average discharge.") The lack of agreement between the two curves for any station is an indication of the necessity for adjustments to a common period.

COMPUTATION OF LONG-TERM AVERAGE DISCHARGE

INTEGRATION OF THE FLOW-DURATION CURVE

For any flow-duration curve, the ordinates represent rates of discharge and the abscissa represent the time duration of these rates. It follows, then, that any duration curve must represent a particular volume of discharge which may be obtained by step integration of the curve. In preceding sections (see pp. 8-16) methods have been described by which a long-term duration curve may be computed from short-term records, or, if necessary, from miscellaneous discharge measurements. By integration of these long-term curves there is obtained a computed value for the corresponding long-term discharge.

Table 1, page 19, illustrates a computational procedure for determining the long-term mean discharge from a short-term record. Starting with only a short-term record at the point of investigation and the long-term duration curve at the index

Table 1.--Synthetic computations for Big Creek near Wetaug

Period of record, water years 1948-50; drainage area, 32.2 sq mi
[Index station, Big Muddy River at Plumfield]

Index station			Short-term station			
cfs/sq mi	percent of time 1942-50	percent of time 1948-50	cfs/sq mi from curve	cfs/sq mi mean	time increment/100	product
0	100.00	100.00	0.010			
				0.010	0.0128	0.0001
.0013	98.72	100.00	.010			
				.010	.0121	.0001
.0027	97.51	100.00	.010			
				.010	.0159	.0002
.0040	95.92	100.00	.010			
				.016	.0304	.0005
.0066	92.88	97.90	.021			
				.029	.0341	.0010
.0093	89.47	94.07	.037			
				.045	.0502	.0023
.0133	84.45	90.69	.052			
				.057	.0532	.0030
.0199	79.13	87.68	.062			
				.067	.0335	.0022
.0266	75.78	84.76	.072			
				.088	.0623	.0055
.0398	69.55	76.92	.104			
				.119	.0432	.0051
.0531	65.23	71.62	.134			
				.151	.0691	.0104
.0797	58.32	64.96	.168			
				.180	.0347	.0062
.106	54.85	61.68	.192			
				.206	.0319	.0066
.133	51.66	58.39	.220			
				.250	.0508	.0127
.199	46.58	53.19	.280			
				.305	.0399	.0122
.266	42.59	49.18	.330			
				.360	.0490	.0176
.398	37.69	44.43	.390			
				.415	.0289	.0120
.531	34.80	41.51	.440			
				.490	.0362	.0177
.797	31.18	37.59	.540			
				.570	.0283	.0161
1.06	28.35	34.40	.600			
				.660	.0404	.0267
1.46	24.31	31.02	.720			
				.840	.0520	.0437
1.99	19.11	25.64	.960			
				1.13	.0487	.0550
2.66	14.24	20.71	1.30			
				1.41	.0268	.0378
3.32	11.56	17.88	1.52			
				2.11	.0438	.0924
4.65	7.18	11.13	2.70			
				4.35	.0310	.1348
6.64	4.08	6.75	6.00			
				8.80	.0168	.1478
8.63	2.40	4.11	11.6			
				21.3	.0161	.3429
12.0	.79	1.19	31.0			
				38.0	.0052	.1976
15.9	.27	.46	45.0			
				56.5	.0015	.0848
21.2	.12	.09	68.0			
				84.0	.0006	.0504
27.9	.06	0	100			
				100	.0006	.0600
34.5	0	0	100			
				Totals	1.0000	1.4054

Average discharge, 1942-50.--1.405 cfs/sq mi x 32.2 sq mi = 45.2 cfs

station, the form provides, first, for the development of the long-term duration curve at the short-term station, and, finally, for the step integration of the latter curve to provide the long-term mean discharge at the short-term station.

For the illustration, use is made of the same basic assumptions as were made on page 9: That the nine water years of published record for Big Creek near Wetaug constitute a long and representative period for that station, and that the flow-duration curve for that period is to be computed from the record for the three wet years, 1948-50. An additional objective now is added, namely, that the computed curve for 1942-50 shall be integrated by step methods to obtain the mean discharge for that period. (As pointed out on page 9, a longer period might be considered more representative, but the above assumptions are made in order that computed values may be checked against the correct values as derived from observed data.)

As in the previous example, Big Muddy River at Plumfield is chosen as the index station. The first two columns of Table 1 present the duration data for the long-term period at the index station, or, in this case, the 1942-50 data for Big Muddy River at Plumfield. (It will be noted that these data plot as the open circles of Figure 2, page 11.) Columns 1 and 3 of the table present the duration data for Plumfield for the short-term period, 1948-50 (shown on Figure 2 by the + symbols).

Column 4 of the table constitutes the transformation step. As a preliminary to obtaining column 4, a plot is made of the available duration data for the short-term station, or, in this case, the 1948-50 data for Big Creek near Wetaug. (This is shown in Figure 1 as the light, dashed line.) For any line in column 4, the value for 1948-50 now may be obtained by entering the curve just plotted with the value from the same line in column 3.

Another method of determining the values for column 4 involves more work, but is somewhat easier to understand, and may provide a somewhat smoother transformation. By using the appropriate (1948-50) curves from Figures 1 and 2, the relation curve (+ points) of Figure 3 may be obtained. For any line in column 4, a value then may be obtained by entering the relation curve with the value from the same line in column 1. This is the method which was explained in a previous section (see p. 10). This method, however, requires the plotting of three curves -- the short-term curve at each of the two stations, and the curve of relation between them. By the method of the preceding paragraph, the only curve needed is the duration curve for the short-term record.

Determined by either of the two methods just described, the values from column 4, when plotted against the values from column 2, provide the computed long-term duration curve for the short-term station. (It will be noted that these are plotted

as the x symbols on Figure 1.) The remaining columns of Table 1 constitute the step integration of this computed curve.

Column 6 is the increment of duration for each discharge interval, or the difference between appropriate values of column 2 after dividing by 100. Column 5 is the mean discharge for the interval, while column 7 is the product of columns 5 and 6. The summation of column 7 is the mean discharge, in cfs per sq mi.

As a check upon this method of determining mean discharge, the result may be compared with the known value as determined from observed data, which is 1.46 cfs per sq mi. By contrast, the observed mean discharge for the short-term period 1948-50 is known to be 1.96 cfs per sq mi. Thus it is obvious that, when only a short-term period of discharge is available at a station, the long-term mean discharge should be computed as described above, rather than assumed to be equal to the short-term value.

It should not be assumed, however, that the long-term mean discharge computed by the proposed method always will agree so well with the true value. This point is emphasized by Table 2, which summarizes the results of other test computations.

Table 2.--Comparison of observed and computed values of mean discharge

[All discharges expressed in cfs per sq mi]

Short-term station	Short-term record used as base	Short-term mean	Long-term mean: period	Long-term mean: actual	Long-term mean: computed	Ratio
Big Creek near Wetaug	1946-48 duration	1.07	1942-50	1.46	1.39	0.95
	1948-50 duration	1.96	1942-50	1.46	1.41	.97
Edwards River near Orion	1942-43 duration	.88	1941-50	.61	.69	1.13
	1942-45 duration	.70	1941-50	.61	.65	1.07
	1948-49 duration	.53	1941-50	.61	.72	1.18
	1946-49 duration	.58	1941-50	.61	.63	1.03
Rock Creek near Morrison	1942-50 discharge measurements only	----	1941-50	.67	.65	.97

It will be noted that, for Wetaug, use of the 1946-48 data provides a computed mean of 1.39 cfs per sq mi, or about 95 percent of the true value. For Edwards River at Orion (for which Spoon River at Seville was used as the index station), four different portions of the record provide computed values which range from 103 to 118 percent of the true mean discharge. The two highest of the computed values were obtained from the use of only two years of duration data for each computation. The results are appreciably better for the two other values which were based on four years of duration data for each computation. However, based on even a two-year period of record, the computed values tend to be nearer the true long-term values than are the actual observed short-term values. It also may be worthy of note that the computations which are based on the wet periods tend to produce somewhat better estimates than those

which are based on the dry periods. Finally, attention is invited to the fact that the estimate for Rock Creek near Morrison, based only on miscellaneous discharge measurements, differs from the true mean discharge by only about three percent.

AVERAGE DISCHARGE, 1921-45

In the derivation of flow-duration curves by synthetic methods, which will be discussed in a subsequent section, it will be pointed out that one of the parameters is the average discharge. For that reason it becomes desirable that average discharge should be computed for each of the records which are presented in this report.

An earlier publication (Mitchell, 1950, p. 289) discusses the desirability of standardizing the period used for computing average discharge. It is pointed out that the average discharge, as published in water-supply papers, is that for a period of at least 10 years, but that the particular span of years often is unrelated to pertinent hydrologic factors. For stations at which the record is long and continuous, such average discharges are quite satisfactory. But for short and/or fragmentary records, an appreciable bias may be injected into comparisons between records, due to the difference in the periods from which the averages are computed.

In order that the values may be as comparable as possible, all average discharges of this report are for the 25-year period 1921-45, inclusive. (As previously noted, this particular 25-year period currently is being used as a "standard" period in a number of hydrologic studies.) For those stations at which the information is available, the average discharge has been computed from the observed 1921-45 data. For other stations, at which a portion of this period was unobserved, other methods are used to estimate the 1921-45 average. If average discharges for individual years are available for more than about one-third of the period, the estimate is made from a regression equation based on a least-squares correlation with the concurrent average annual discharges of an appropriate index station. If the number of average annual discharges is insufficient to establish a dependable regression, then the estimate is obtained by integration of the 1921-45 synthetic duration curve, as described above. This value of the average discharge, 1921-45, together with a statement as to the method and index station used for estimates, appears in an appropriate paragraph of each station description.

DURATION DATA

EXTENT AND ARRANGEMENT OF STATION DATA

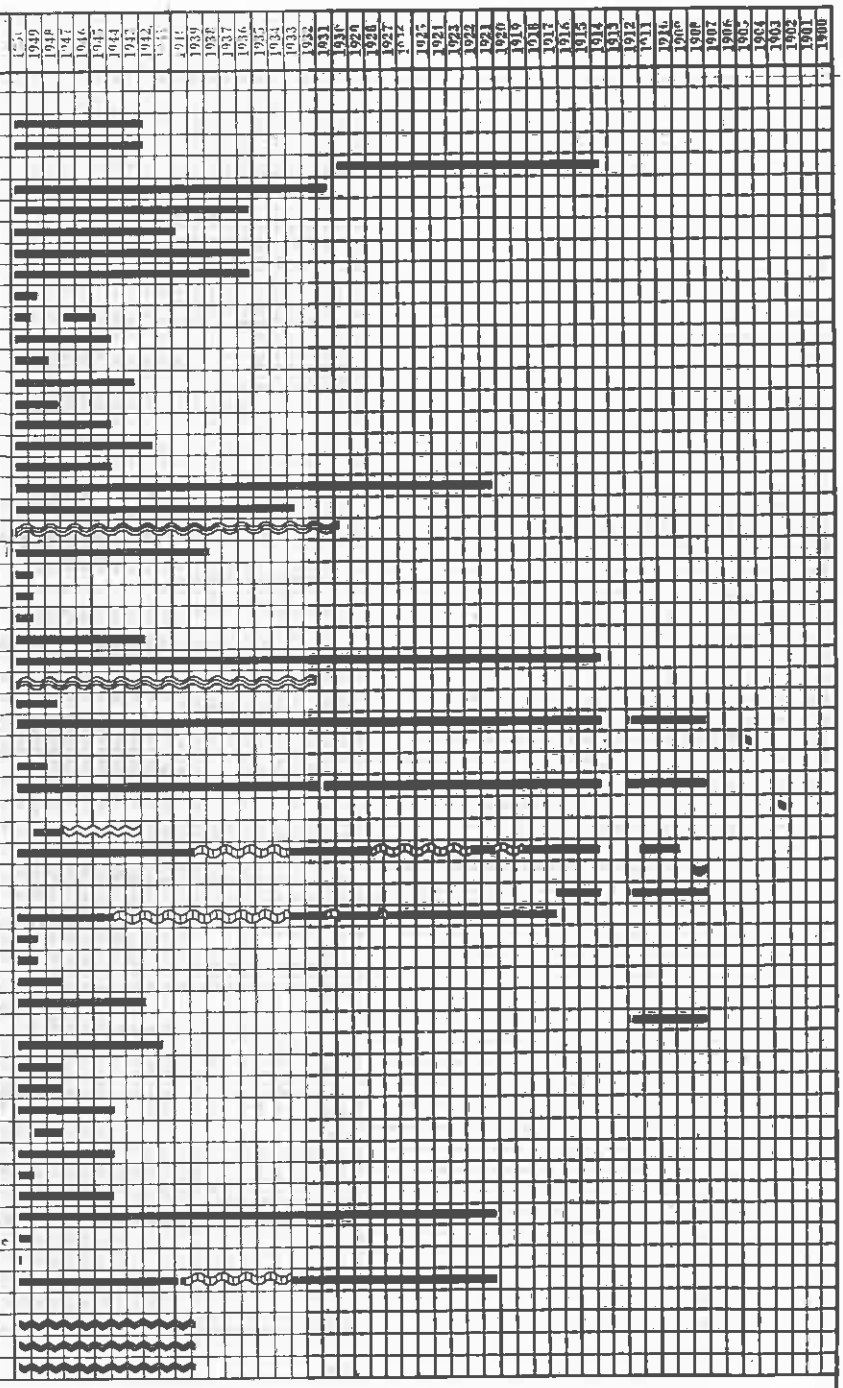
This section of this report presents station descriptions, duration curves, and tables of duration data for 121 gaging stations in, or near the boundaries of, Illinois. A comprehensive view of available streamflow data for Illinois will assist the reader both in identifying the records which are presented and in selection of particular records for intensive study. To this end, Table 3, pages 24-27, presents a list of streamflow data for Illinois, including records for short, and even for fragmentary, periods.

It should not be assumed that Table 3 presents an absolutely complete list of all streamflow data that have been collected by all agencies. There are many gradations of data, ranging from long and continuous published records of stage and/or discharge to miscellaneous isolated and unpublished observations. The criterion for inclusion in Table 3 was the fact that, at one time or another, observations other than miscellaneous discharge measurements had been published in reports of the U. S. Geological Survey. The point of collection of these records is indicated on the map, Figure 6, page 29, except those points which are in, or near the boundaries of, Cook County are indicated on the larger-scale map, Figure 7, page 30. The system of numbers used to correlate the items of Table 3 with the locations on the maps is identical with that used in earlier reports (e.g., Mitchell, 1950, 1954).

The stations used for this report were determined from Table 3 as follows: (1) Stations on Mississippi River were eliminated as being of only minor interest from the viewpoint of flow duration. (2) Stations with less than five complete years of record were eliminated, except for those instances in which the station had been discontinued. (3) Stations which were known to represent unnatural conditions (e.g., Chicago Sanitary & Ship Canal at Lockport) were eliminated. (4) Of two concurrent stations on the same stream which differed only slightly in drainage area (e.g., Embarrass River at Ste. Marie and at Newton) the shorter record was eliminated. (5) For two stations on the same stream that differed in drainage area by not more than 10 percent, and for which the periods of record were not concurrent, the records were combined under the name of the more recent station, adjustments being made,

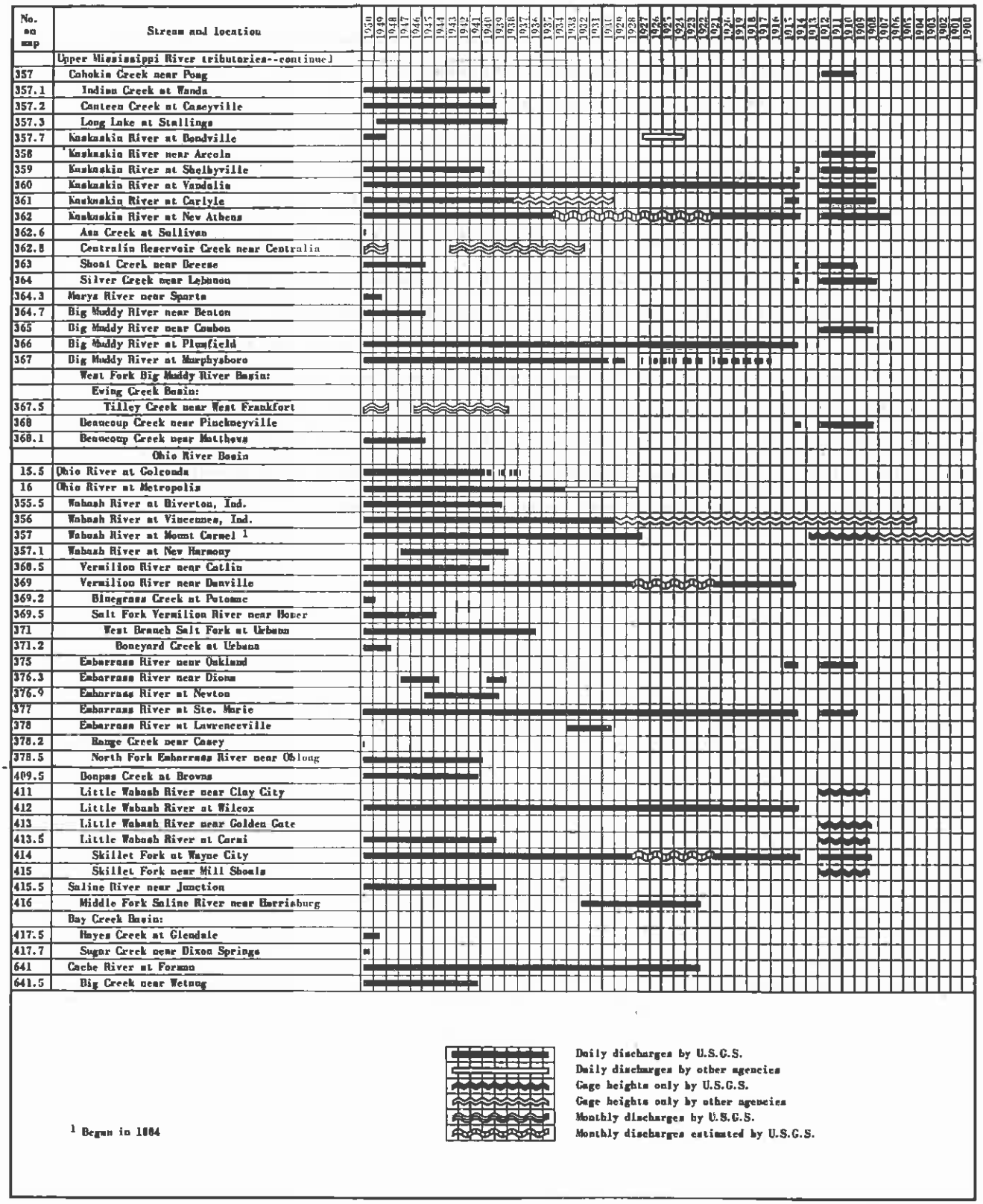
Table 3.--Index of surface-water records for Illinois--continued

No. on map	Stream and location
	Upper Mississippi River tributaries--continued
	Illinois River tributaries--continued
340.5	North Fork Vermilion River near Charlotte
340.7	Vermilion River at Pontiac
341	Vermilion River at Streator
342	Vermilion River at Lowell
343	Bureau Creek at Princeton
343.5	Bureau Creek at Bureau
344	West Bureau Creek at Wyanet
345	East Bureau Creek near Bureau
345.1	West Crow Creek near Henry
345.2	Gimlet Creek at Sparland
345.3	Crow Creek near Washburn
345.4	Farm Creek at Farmdale
345.5	Farm Creek at East Peoria
345.6	Fondulac Creek near East Peoria
345.7	Kickapoo Creek near Kickapoo
345.8	Kickapoo Creek at Peoria
345.9	Mackinaw River near Congerville
346	Mackinaw River near Green Valley
347	Money Creek above Lake Bloomington
347.1	Money Creek at Lake Bloomington
347.2	Hickory Creek above Lake Bloomington
347.3	Panther Creek near El Paso
347.4	East Branch Panther Creek near Gridley
347.5	East Branch Panther Creek at El Paso
347.8	Spoon River at London Mills
348	Spoon River at Seville
348.2	Brush Creek at Lake Bracken, near Galesburg
348.8	Sangamon River at Mahomet
349	Sangamon River at Monticello
349.4	Sangamon River at Decatur
349.5	Sangamon River at Lake Decatur
350	Sangamon River at Riverton
350.5	Sangamon River at Springfield
350.6	Sangamon River at Petersburg
351	Sangamon River near Oakford
351.5	Sangamon River near Chandlerville
352	South Fork Sangamon River near Taylorville
353	South Fork Sangamon River at Kincaid
353.1	South Fork Sangamon River near Rochester
353.3	Flat Branch near Taylorville
353.65	Spring Creek near Springfield
353.9	Salt Creek near Rowell
354	Salt Creek near Kenney
354.1	Salt Creek near Greenview
354.7	Lake Fork near Cornland
354.75	Kickapoo Creek at Waynesville
354.80	Kickapoo Creek near Lincoln
354.85	Sugar Creek near Armington
354.90	Sugar Creek near Hartburg
354.92	Crane Creek near Easton
354.95	La Moine River at Colmar
355	La Moine River at Ripley
355.5	N. Fork Mauvaise Terre Creek near Jacksonville
355.8	Hurricane Creek near Roodhouse
356	Macoupin Creek near Kane
	Lakes in Illinois River Basin
356.4	Channel Lake near Antioch
356.5	Fox Lake near Lake Villa
356.6	Nippersink Lake at Fox Lake



Daily discharges by U.S.G.S.
Daily discharges by other agencies
Gage heights only by U.S.G.S.
Gage heights only by other agencies
Monthly discharges by U.S.G.S.
Monthly discharges estimated by U.S.G.S.

Table 3.--Index of surface-water records for Illinois--continued



[1] Begun in 1884

where necessary, for change in drainage area. After making these adjustments to Table 3, 119 stations still remained as the basis for this report.

Because they help to determine the hydrologic characteristics of northern Illinois, two stations in southern Wisconsin were added to the study. These stations are Sugar River near Brodhead, and Fox River at Wilmot.

Two points on Illinois streams, not included in Table 3, also were added to the study. These are points at which low-water discharge measurements are available in sufficient number to provide a correlation with an index station, as described on page 12. These points are Sugar River at Shirland, and Kickapoo Creek near Heyworth.

In the presentation of station data, the arrangement is in accordance with the scheme used prior to 1951 in the U. S. Geological Survey water-supply papers. This so-called "downstream order" is explained as follows: Within any basin, data on the main stream are listed first, beginning with the most upstream point, following with points as they occur in continuous downstream succession, and ending with the most downstream point. These are followed by data for the most upstream tributary basin, and within this tributary basin the same order of listing is observed. Other tributary basins follow the first in continuous downstream order.

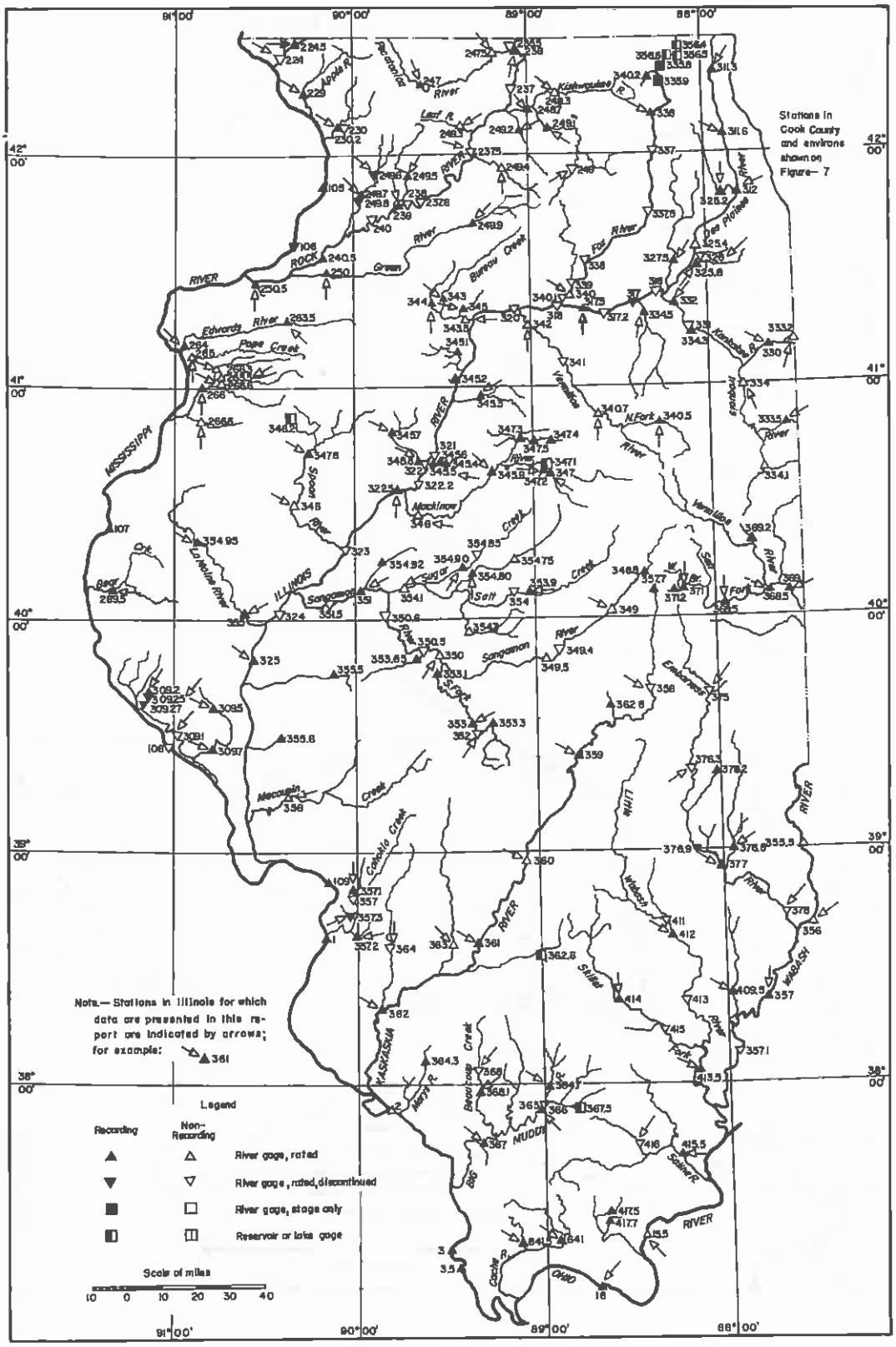


Figure 6.--Gaging stations in Illinois

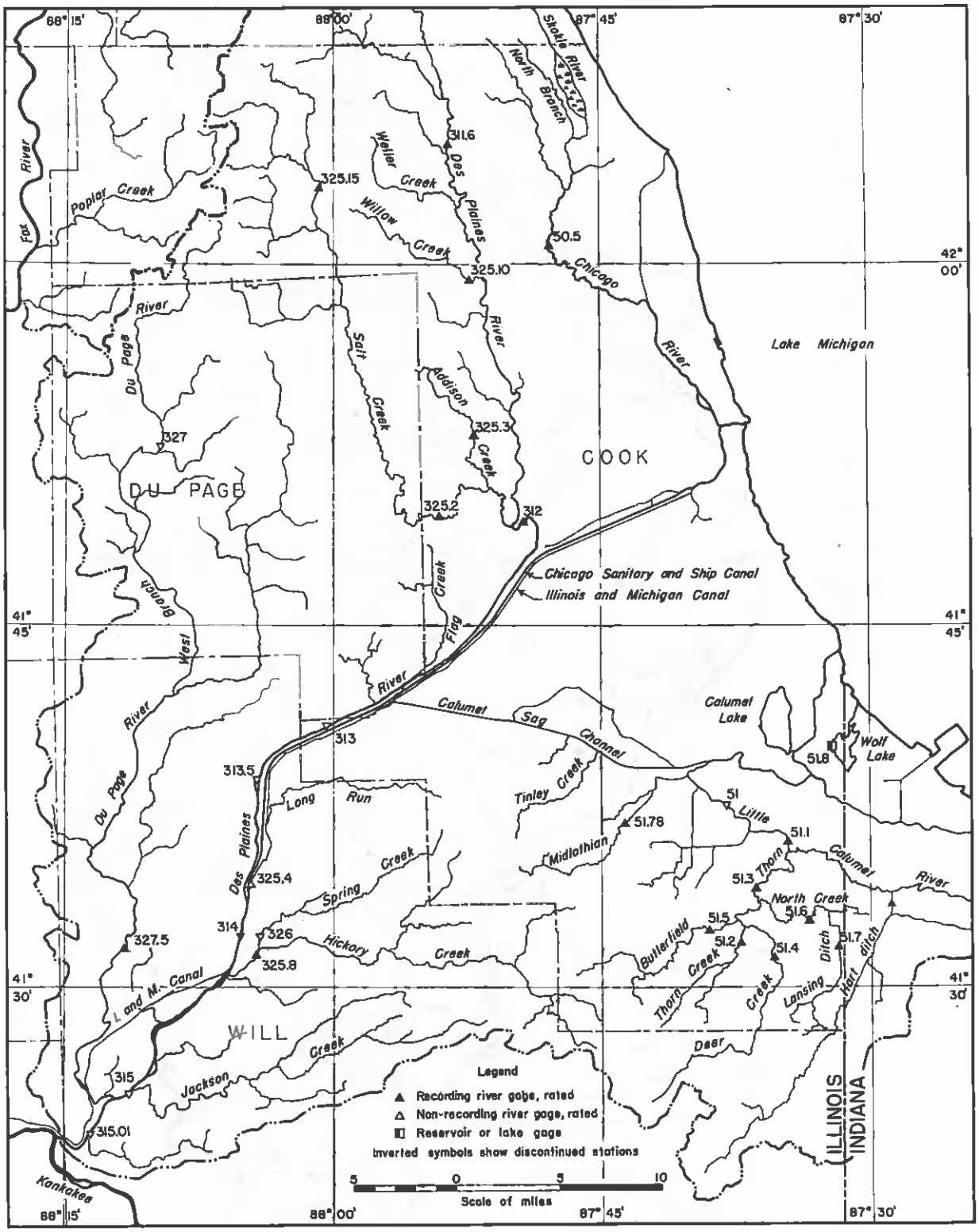
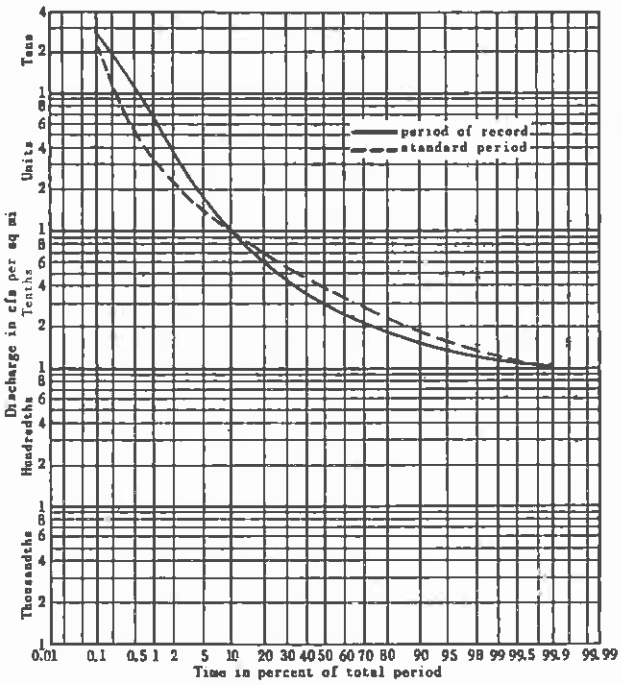


Figure 7.--Gaging stations in Cook County and environs

GALENA RIVER AT GALENA



Galena River at Galena

LOCATION.--Lat 42°24′50″, long. 90°25′40″, in NE¼NE¼ sec. 24, T. 28 N., R. 1 W., on Green Street Bridge in Galena, about 1,500 ft downstream from Hughlett Branch, and 4 miles upstream from mouth.

DRAINAGE AREA.--192 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-38.

AVERAGE DISCHARGE, 1921-45.--114 cfs; from synthetic duration curve, using Pecatonica River at Freeport as index station.

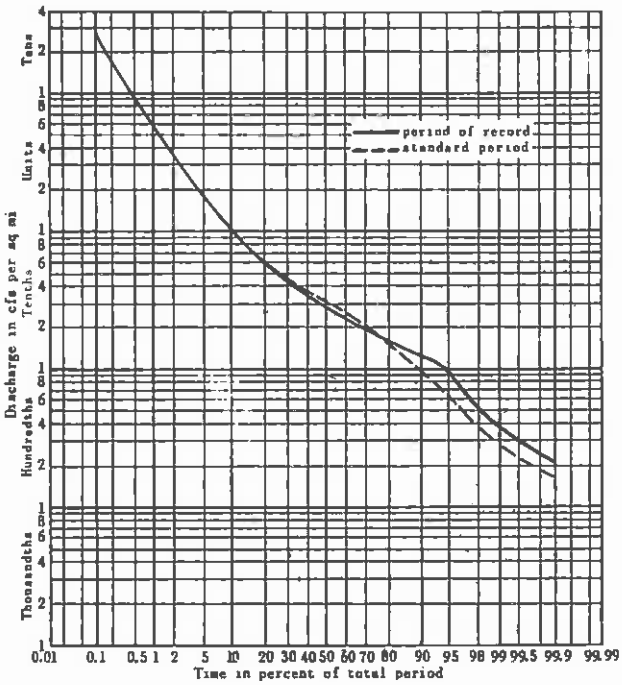
EXTREMES.--1934-38: Maximum discharge, about 11,400 cfs Feb. 21, 1937; minimum, 20 cfs July 11, 12, 30, Aug. 3, 9, 1936, Dec. 10, 11, 1938.

REMARKS.--Backwater from Mississippi River frequently affects stage-discharge relation, but does not appreciably affect the duration distribution. Published data have been supplemented by estimation of daily discharges Oct. 1-24, 1934, based on hydrographic comparison with records for Pecatonica River at Freeport.

Days of duration of discharge for Galena River at Galena

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1935	'36	'37	'38	1935-38	Percent of time
0.0938	18	365	366	365	365	1,461	100.00
.115	22	365	350	365	363	1,443	98.77
.135	26	365	328	361	349	1,403	96.03
.167	32	352	285	313	310	1,260	86.24
.198	38	341	240	268	260	1,109	75.91
.240	46	304	191	224	228	947	64.82
.292	56	248	136	174	184	742	50.79
.354	68	207	87	145	144	583	39.90
.432	83	145	51	113	115	424	29.02
.521	100	111	37	90	101	339	23.20
.625	120	85	31	67	87	270	18.48
.781	150	68	21	52	70	211	14.44
.938	180	50	19	39	54	162	11.09
1.15	220	34	15	31	46	126	8.62
1.35	260	32	13	27	38	110	7.53
1.67	320	18	9	20	31	78	5.34
1.98	380	15	8	14	25	62	4.24
2.40	460	11	6	10	20	47	3.22
2.92	560	9	6	9	18	42	2.87
3.54	680	7	5	9	12	33	2.26
4.32	830	6	4	9	9	28	1.92
5.21	1,000	5	3	7	7	22	1.51
6.25	1,200	3	1	6	6	16	1.10
7.81	1,500	---	1	5	5	11	.75
9.38	1,800	---	---	4	4	8	.55
11.5	2,200	---	---	4	3	7	.48
13.5	2,600	---	---	4	3	7	.48
16.7	3,200	---	---	3	3	6	.41
19.8	3,800	---	---	2	2	4	.27
24.0	4,600	---	---	1	1	2	.14
29.2	5,600	---	---	---	---	-----	------

EAST FORK GALENA RIVER AT COUNCIL HILL



East Fork Galena River at Council Hill

LOCATION.--Lat 42°28′05″, long. 90°20′20″, in W½ sec. 31, T. 29 N., R. 2 E., at Council Hill, 3 miles upstream from mouth, and 6 miles northeast of Galena.

DRAINAGE AREA.--20.1 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--12.2 cfs; from correlation of the observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1939-50: Maximum discharge, 16,600 cfs Apr. 29, 1947; minimum, 0.3 cfs June 22, 1940.

Days of duration of discharge for East Fork Galena River at Council Hill

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0119	0.24	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0159	.32	365	365	365	365	366	365	365	365	366	365	365	4,017	99.98
.0209	.42	363	365	365	365	366	365	365	365	366	365	365	4,015	99.92
.0279	.56	359	363	365	365	366	365	365	365	366	365	365	4,009	99.78
.0373	.75	341	353	365	365	366	365	365	365	366	365	365	3,981	99.08
.0498	1.0	316	337	365	365	366	365	365	365	366	365	365	3,940	98.06
.0647	1.3	292	318	365	365	366	365	365	365	366	365	365	3,897	96.99
.0896	1.8	250	300	365	364	366	365	353	365	366	365	365	3,824	95.17
.119	2.4	149	282	364	363	366	365	318	365	366	337	365	3,640	90.59
.159	3.2	87	226	331	352	365	365	290	365	276	227	347	3,231	80.41
.209	4.2	50	124	292	291	332	359	265	271	209	151	344	2,688	66.90
.279	5.6	31	73	213	211	249	331	175	198	135	126	343	2,085	51.89
.373	7.5	19	55	105	125	182	207	76	168	95	106	301	1,439	35.81
.498	10	13	30	61	91	140	157	43	139	72	66	207	1,019	25.36
.647	13	11	20	39	57	114	140	31	96	56	55	125	744	18.52
.896	18	7	14	25	33	84	91	19	65	38	35	70	481	11.97
1.19	24	5	13	20	18	44	52	15	36	28	24	43	298	7.42
1.59	32	4	12	17	13	33	31	10	22	23	15	27	207	5.15
2.09	42	2	9	13	12	20	19	8	15	15	14	18	145	3.61
2.79	56	2	5	8	9	16	13	7	10	11	9	16	106	2.64
3.73	75	1	5	7	6	10	6	5	7	8	6	8	69	1.72
4.98	100	1	4	6	4	7	3	2	4	6	4	6	47	1.17
6.47	130	1	2	4	2	6	1	2	3	5	2	4	32	.80
8.96	180	---	2	1	2	4	1	2	3	3	1	3	22	.55
11.9	240	---	1	1	2	1	1	2	1	1	---	1	11	.27
15.9	320	---	---	1	2	---	1	2	1	1	---	---	8	.20
20.9	420	---	---	1	2	---	---	1	1	1	---	---	6	.15
27.9	560	---	---	1	1	---	---	1	1	---	---	---	4	.10
37.3	750	---	---	---	---	---	---	---	---	---	---	---	-----	------

APPLE RIVER NEAR HANOVER

LOCATION.--Lat 42°15′05″, long. 90°17′10″, in NE¼NW¼ sec. 16, T. 26 N., R. 2 E., 0.3 mile southwest of Hanover, and 12 miles upstream from mouth. Prior to Oct. 1, 1945, at site 3.5 miles downstream.

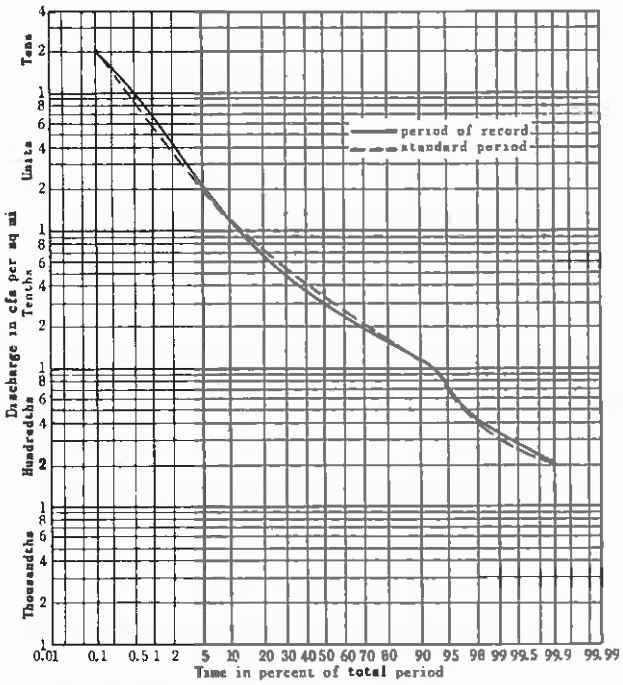
DRAINAGE AREA.--244 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-50.

AVERAGE DISCHARGE, 1921-45.--163 cfs; from correlation of the observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1934-50: Maximum discharge, 12,000 cfs Jan. 5, 1946; minimum, 4 cfs July 26, 1941.

REMARKS.--Backwater from Mississippi River frequently affects stage-discharge relation, but does not appreciably affect the duration distribution. Occasional regulation during low flow caused by dam at Hanover. Data for water years 1935-45 adjusted to present site. Published data have been supplemented by estimation of daily discharges Oct. 1 to Nov. 3, 1934, based on hydrographic comparison with records for Pecatonica River at Freeport.

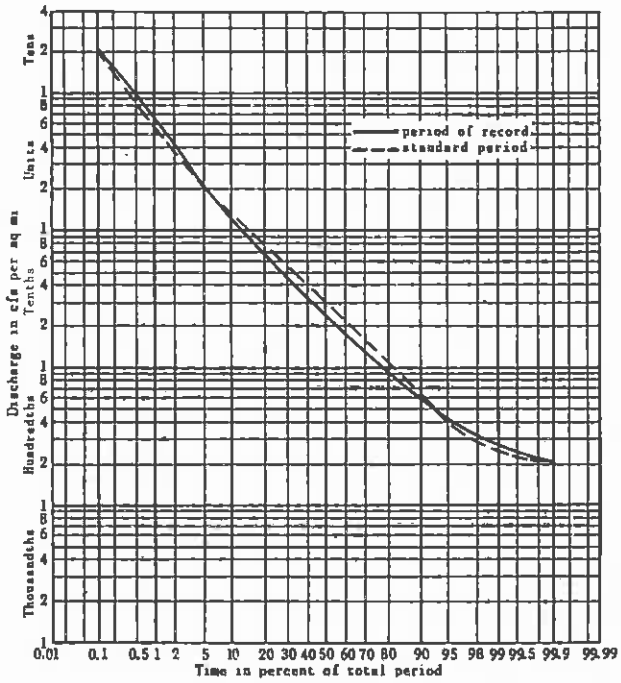


Apple River near Hanover

Days of duration of discharge for Apple River near Hanover

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1935	'36	'37	'38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	1935-50	Percent of time
0.0127	3.1	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,844	100.00
.0164	4.0	365	366	365	365	365	366	364	365	365	366	365	365	365	366	365	365	5,843	99.98
.0217	5.3	365	366	365	365	365	365	363	365	365	366	365	365	365	366	365	365	5,841	99.95
.0287	7.0	365	366	362	359	365	361	356	365	365	366	365	365	365	366	365	364	5,820	99.56
.0373	9.1	365	366	358	349	365	348	333	365	365	366	363	365	365	366	365	364	5,768	98.70
.0492	12	365	366	348	339	365	311	311	365	365	364	362	365	365	366	365	364	5,686	97.30
.0656	16	365	366	346	333	365	281	288	365	365	358	362	365	365	366	365	364	5,619	96.15
.0861	21	365	366	344	330	355	227	277	359	364	352	359	365	365	366	365	364	5,523	94.51
.111	27	365	366	337	321	347	188	259	359	363	348	353	365	364	355	359	357	5,406	92.50
.148	36	345	308	323	302	326	125	213	353	362	342	334	327	358	299	265	278	4,860	83.16
.197	48	322	258	272	261	283	55	180	344	356	322	289	267	289	189	186	230	4,103	70.21
.258	63	251	149	209	230	242	20	147	313	336	265	229	210	221	147	146	201	3,316	56.74
.340	83	214	87	167	182	186	12	102	259	275	192	191	145	180	111	104	165	2,572	44.01
.451	110	157	47	127	143	120	10	81	155	210	156	164	99	156	78	74	114	1,891	32.36
.574	140	121	36	91	113	62	5	61	86	171	127	141	63	123	56	56	86	1,398	23.92
.779	190	88	24	59	83	43	4	42	39	113	106	91	43	82	39	44	62	962	16.46
1.02	250	60	21	37	56	29	2	27	23	75	84	60	31	59	31	35	43	673	11.52
1.35	330	34	21	30	44	20	2	18	17	49	58	42	21	45	26	31	38	496	8.49
1.80	440	26	18	21	32	15	2	13	9	26	36	31	15	32	23	24	27	350	5.99
2.34	570	16	15	16	20	15	2	10	5	15	23	20	11	20	16	18	17	239	4.09
3.07	750	15	10	13	16	11	2	5	3	11	13	12	7	17	12	13	16	176	3.01
4.02	980	9	7	11	11	6	1	4	---	9	10	8	7	10	8	11	12	124	2.12
5.33	1,300	7	5	8	8	1	1	2	---	6	6	3	6	7	8	9	9	86	1.47
6.97	1,700	2	1	8	6	---	---	2	---	4	4	2	4	3	6	7	6	55	.94
9.02	2,200	---	1	7	5	---	---	2	---	2	1	2	4	1	3	2	4	34	.58
12.3	3,000	---	---	5	3	---	---	---	---	1	---	1	3	1	2	1	3	20	.34
16.0	3,900	---	---	4	2	---	---	---	---	1	---	---	1	1	2	---	---	11	.19
20.9	5,100	---	---	2	2	---	---	---	---	1	---	---	1	---	2	---	---	8	.14
27.9	6,800	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	1	.017
36.9	9,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

PLUM RIVER BELOW CARROLL CREEK, NEAR SAVANNA



Plum River below Carroll Creek, near Savanna

LOCATION.--Lat 42°06′50″, long. 90°05′35″, in NW¼SW¼ sec. 31, T. 25 N., R. 4 E., 0.7 mile upstream from Camp Creek, 2.6 miles downstream from Carroll Creek, 3½ miles northeast of Savanna, and 13 miles upstream from mouth.

DRAINAGE AREA.--231 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-50.

AVERAGE DISCHARGE, 1921-45.--144 cfs; from correlation of the observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1934-50: Maximum discharge, 11,600 cfs Jan. 6, 1946; minimum observed, 3 cfs Jan. 17. 17, 1940 (unadjusted).

REMARKS.--Data for water years 1935-41 collected at site 3.5 miles upstream (drainage area 164 sq mi) and adjusted to present site. Published data have been supplemented by estimation of daily discharges Oct. 1 to Nov. 7, 1934, based on hydrographic comparison with records for Pecatonica River at Freeport.

Days of duration of discharge for Plum River below Carroll Creek, near Savanna

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1935	'36	'37	'38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	1935-50	Percent of time
0.0173	4	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,844	100.00
.0216	5	365	362	365	365	365	365	364	365	365	366	365	365	365	366	365	365	5,838	99.90
.0303	7	365	348	365	365	364	327	335	365	365	366	365	365	365	366	365	365	5,756	98.49
.0390	9	365	335	365	358	351	251	311	365	365	366	365	365	365	366	347	365	5,605	95.91
.0519	12	365	316	336	325	330	201	296	365	365	366	365	365	365	366	331	360	5,417	92.69
.0693	16	342	304	317	280	326	107	292	365	365	366	365	332	352	366	320	321	5,120	87.61
.0909	21	322	288	309	266	302	79	262	365	365	366	365	294	330	335	269	287	4,804	82.20
.121	28	289	245	298	260	286	46	213	354	365	366	337	281	265	283	192	259	4,339	74.25
.156	36	274	181	275	243	278	19	181	343	352	290	253	257	227	205	164	235	3,777	64.63
.208	48	250	130	249	208	249	11	159	316	309	204	190	172	203	155	132	192	3,129	53.54
.273	63	234	95	204	181	224	8	135	277	260	177	169	114	186	128	102	159	2,653	45.40
.364	84	209	75	160	158	172	5	110	195	215	159	155	83	159	96	78	120	2,149	36.77
.476	110	163	56	112	132	109	3	85	110	182	141	131	68	133	75	60	94	1,654	28.30
.649	150	119	35	80	103	53	3	56	64	150	107	78	43	97	58	48	68	1,162	19.88
.823	190	89	28	51	86	37	2	40	42	106	90	59	38	83	47	40	53	891	15.25
1.08	250	62	23	31	68	25	2	25	25	67	64	44	26	67	35	33	43	640	10.95
1.43	330	48	21	28	50	15	1	20	14	44	40	28	18	42	30	26	35	460	7.87
1.86	430	35	17	25	41	11	1	17	11	33	25	18	14	25	22	22	27	344	5.89
2.47	570	26	16	20	34	6	---	11	7	22	17	10	12	17	18	15	17	248	4.24
3.25	750	16	10	16	29	5	---	9	3	15	9	8	10	9	13	11	12	175	2.99
4.33	1,000	12	7	13	23	3	---	4	2	8	7	2	5	4	8	9	9	116	1.98
5.63	1,300	10	2	10	20	2	---	4	---	8	4	1	3	3	7	6	4	84	1.44
7.36	1,700	3	---	10	15	---	---	1	---	4	1	---	2	1	6	4	3	50	.86
9.96	2,300	---	---	6	7	---	---	---	---	3	1	---	2	---	4	1	2	26	.44
13.0	3,000	---	---	4	4	---	---	---	---	1	1	---	2	---	4	1	---	17	.29
16.9	3,900	---	---	1	2	---	---	---	---	1	---	---	1	---	1	---	---	6	.10
22.5	5,200	---	---	1	---	---	---	---	---	1	---	---	1	---	1	---	---	4	.068
29.4	6,800	---	---	---	---	---	---	---	---	---	---	---	1	---	1	---	---	2	.034
39.0	9,000	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---	1	.017
51.9	12,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

ROCK RIVER AT ROCKTON

LOCATION.--Lat 42°27′05″, long. 89°04′20″, in SE¼NW¼ sec. 24, T. 46 N., R. 1 E., at bridge on State Highway 2 in Rockton, three-quarters of a mile downstream from Pecatonica River.

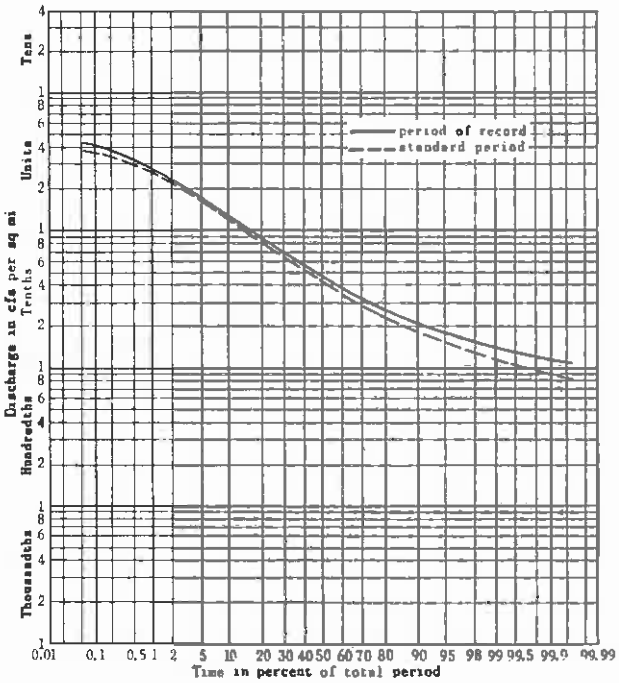
DRAINAGE AREA.--6,290 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1915-18, 1941-50.

AVERAGE DISCHARGE, 1921-45.--3,610 cfs; from correlation of observed mean annual discharges with concurrent values for Rock River at Como.

EXTREMES.--1914-18, 1940-50: Maximum discharge, 31,500 cfs Mar. 30, 1916 (adjusted to present site); minimum daily, 642 cfs Oct. 2, 1949.

REMARKS.--Diurnal fluctuations do not appreciably affect duration distribution. Data for water years 1915-18 collected at Rockford (drainage area 6,520 sq mi, approximately) and adjusted to Rockton site.

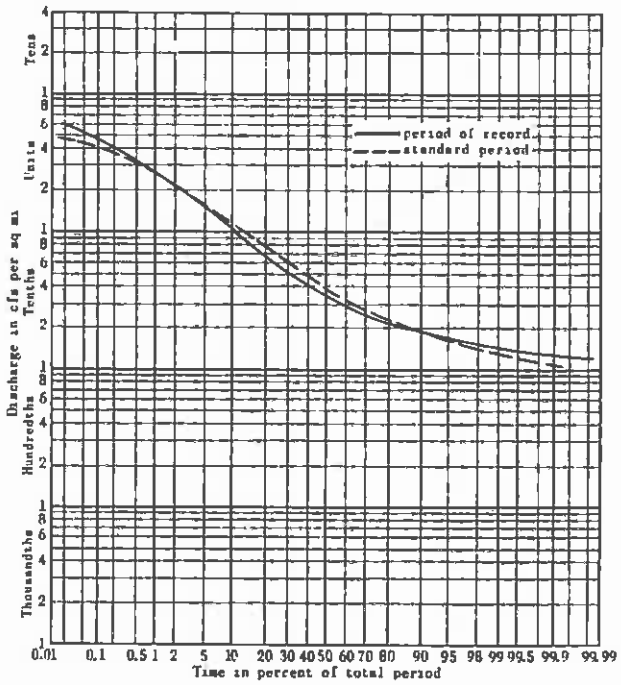


Rock River at Rockton

Days of duration of discharge for Rock River at Rockton

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1915	1916	1917	1918	----	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Total	Percent of time
0.0970	610	365	366	365	365	---	365	365	365	366	365	365	365	366	365	365	5,113	100.00
.110	690	365	366	365	365	---	365	365	365	366	365	364	365	366	363	363	5,108	99.90
.126	790	365	366	365	365	---	362	365	365	366	365	362	364	364	360	361	5,095	99.65
.143	900	365	366	365	364	---	359	365	365	366	365	344	354	357	340	357	5,032	98.42
.162	1,020	365	366	365	362	---	344	365	365	365	359	331	344	347	317	343	4,938	96.58
.184	1,160	365	365	364	357	---	333	364	364	359	351	313	320	319	295	320	4,789	93.66
.210	1,320	365	364	363	336	---	314	362	364	340	323	300	291	292	268	296	4,578	89.54
.238	1,500	365	359	359	290	---	296	362	355	312	286	287	271	264	237	277	4,320	84.49
.273	1,720	363	355	324	258	---	260	355	349	253	250	267	224	233	192	266	3,949	77.23
.318	2,000	357	348	265	236	---	222	316	315	199	197	231	189	188	146	238	3,447	67.42
.358	2,250	326	326	246	204	---	205	290	291	171	166	186	174	161	132	226	3,104	60.71
.413	2,600	281	310	241	173	---	179	250	266	149	144	167	158	147	120	207	2,792	54.61
.461	2,900	188	303	220	150	---	153	207	240	136	137	139	149	124	109	185	2,440	47.72
.525	3,300	162	258	207	137	---	109	146	191	125	113	109	133	110	91	159	2,050	40.09
.604	3,800	125	238	152	127	---	82	95	157	115	80	86	111	98	76	136	1,678	32.82
.700	4,400	94	191	119	108	---	68	58	124	96	66	72	97	87	64	122	1,366	26.72
.795	5,000	86	174	101	89	---	56	27	100	72	47	65	86	75	47	101	1,126	22.02
.890	5,600	78	149	91	77	---	46	13	89	63	32	62	64	63	39	86	952	18.62
1.02	6,400	73	131	73	62	---	30	12	69	45	9	55	34	57	28	65	743	14.53
1.16	7,300	67	117	59	59	---	20	3	49	33	1	46	20	50	20	50	594	11.62
1.34	8,400	46	82	47	55	---	11	---	40	24	---	40	8	43	13	41	450	8.80
1.51	9,500	31	71	38	51	---	8	---	36	21	---	38	---	38	11	23	366	7.16
1.72	10,800	30	30	31	41	---	5	---	23	17	---	29	---	25	10	17	258	5.05
1.94	12,200	29	28	14	39	---	---	---	16	12	---	21	---	20	7	14	200	3.91
2.23	14,000	8	21	---	35	---	---	---	13	6	---	18	---	16	2	---	119	2.33
2.54	16,000	1	19	---	25	---	---	---	10	3	---	16	---	14	1	---	89	1.74
2.86	18,000	---	8	---	13	---	---	---	3	---	---	9	---	10	---	---	43	.84
3.34	21,000	---	8	---	4	---	---	---	---	---	---	---	---	4	---	---	16	.31
3.82	24,000	---	6	---	---	---	---	---	---	---	---	---	---	3	---	---	9	.18
4.29	27,000	---	4	---	---	---	---	---	---	---	---	---	---	---	---	---	4	.078
4.77	30,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

ROCK RIVER AT OREGON



Rock River at Oregon

LOCATION.--Lat 42°01′00″, long. 89°19′45″, near center of sec. 3, T. 23 N., R. 10 E., in tailrace of Illinois Northern Utilities Co.'s plant in Oregon, 1,000 ft upstream from bridge on State Highway 64, and 2 miles upstream from Kyte River.

DRAINAGE AREA.--8,120 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1940-49.

AVERAGE DISCHARGE, 1921-45.--4,640 cfs; from correlation of observed mean annual discharges with concurrent values for Rock River at Como.

EXTREMES.--1939-49: Maximum discharge, 45,500 cfs Jan. 6, 1946; minimum daily, 948 cfs July 28, 1946.

REMARKS.--Diurnal fluctuations do not appreciably affect duration distribution.

Days of duration of discharge for Rock River at Oregon

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1940-49	Percent of time
0.107	866	366	365	365	365	366	365	365	365	366	365	3,653	100.00
.123	1,000	366	365	365	365	366	365	364	365	366	364	3,651	99.95
.142	1,150	361	365	365	365	366	365	361	362	365	337	3,612	98.88
.164	1,330	323	359	365	365	365	365	342	351	355	322	3,512	96.14
.190	1,540	256	338	364	365	359	360	324	302	322	295	3,285	89.93
.219	1,780	215	282	362	364	313	324	290	269	282	249	2,950	80.76
.252	2,050	181	230	357	358	280	260	271	223	239	205	2,604	71.28
.292	2,370	165	206	336	342	228	215	240	198	189	159	2,278	62.36
.337	2,740	133	182	289	311	180	168	203	180	160	145	1,951	53.41
.389	3,160	93	143	240	276	152	148	181	159	141	131	1,664	45.55
.450	3,650	67	112	184	231	137	134	145	148	122	121	1,401	38.35
.520	4,220	39	92	143	190	117	109	113	135	109	104	1,151	31.51
.600	4,870	30	74	101	152	111	85	88	113	98	82	934	25.57
.692	5,620	12	64	79	120	102	59	69	94	82	64	745	20.39
.799	6,490	10	54	47	103	73	35	64	83	65	46	580	15.88
.924	7,500	7	40	29	81	58	26	60	56	60	35	452	12.37
1.07	8,660	6	27	15	62	38	14	51	36	51	28	328	8.98
1.23	10,000	5	16	3	47	28	6	41	13	43	22	224	6.13
1.42	11,500	3	10	---	39	21	2	37	3	38	18	171	4.68
1.64	13,300	2	7	---	30	18	---	32	---	29	11	129	3.53
1.90	15,400	---	1	---	22	13	---	26	---	21	9	92	2.52
2.19	17,800	---	---	---	14	9	---	21	---	17	4	65	1.78
2.52	20,500	---	---	---	5	6	---	14	---	13	---	38	1.04
2.92	23,700	---	---	---	3	3	---	6	---	9	---	21	.57
3.37	27,400	---	---	---	1	2	---	4	---	6	---	13	.36
3.89	31,600	---	---	---	1	2	---	2	---	3	---	8	.22
4.50	36,500	---	---	---	---	---	---	1	---	1	---	2	.055
5.20	42,200	---	---	---	---	---	---	1	---	---	---	1	.027
6.00	48,700	---	---	---	---	---	---	---	---	---	---	-----	------

ROCK RIVER AT COMO

LOCATION.--Lat 41°47′00″, long. 89°44′58″, in NE¼ sec. 25, T. 21 N., R. 6 E., 1 mile upstream from Como, 3 miles downstream from Rock Falls, and 3½ miles upstream from Elkhorn Creek.

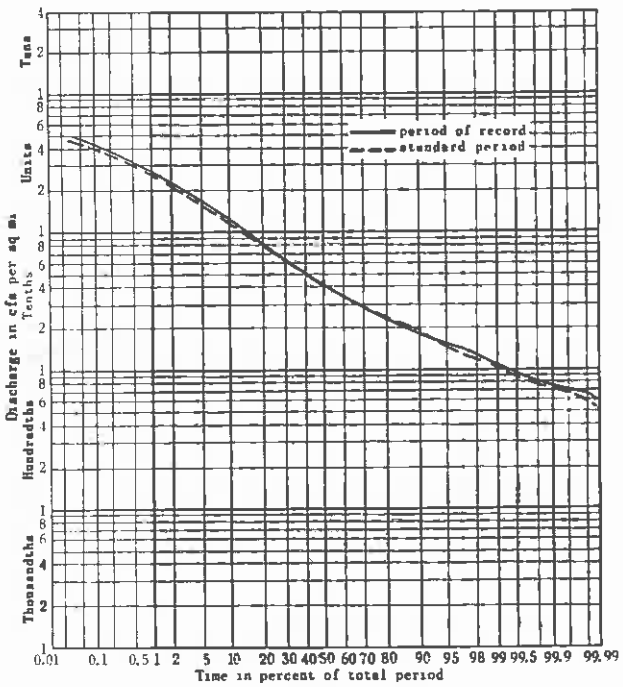
DRAINAGE AREA.--8,700 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1915-50.

AVERAGE DISCHARGE, 1921-45.--4,976 cfs.

EXTREMES.--1914-50: Maximum discharge, 51,000 cfs Feb. 22, 1937; minimum daily, 440 cfs Aug. 20, 1934.

REMARKS.--Diurnal fluctuations do not appreciably affect duration distribution. About 100 cfs diverted above gage to Illinois and Mississippi Canal. For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

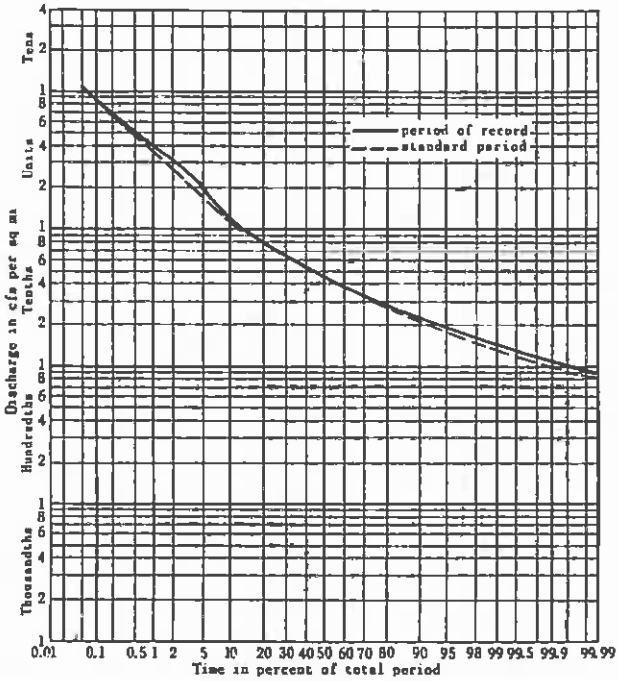


Rock River at Como

Days of duration of discharge for Rock River at Como

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1915-50	Percent of time
0.0506	440	365	365	366	365	365	13,149	100.00
.0666	579	365	365	366	365	365	13,146	99.98
.0777	676	365	365	366	365	365	13,124	99.81
.0887	772	365	365	366	365	365	13,100	99.63
.111	966	364	365	366	365	363	12,992	98.81
.123	1,070	360	364	366	361	358	12,907	98.16
.133	1,160	356	362	364	346	357	12,775	97.16
.156	1,360	333	350	350	325	340	12,367	94.05
.167	1,450	327	341	336	309	329	12,148	92.39
.190	1,650	310	308	293	273	299	11,594	88.17
.211	1,840	300	286	263	245	285	11,080	84.26
.233	2,030	290	256	244	226	279	10,487	79.76
.267	2,320	273	219	219	190	270	9,534	72.51
.300	2,610	251	193	186	156	260	8,601	65.41
.333	2,900	208	184	166	146	240	7,831	59.56
.367	3,190	193	167	150	140	227	7,170	54.53
0.411	3,580	169	155	128	128	203	6,441	48.98
.467	4,060	143	143	120	117	182	5,750	43.73
.522	4,540	122	137	111	108	165	5,099	38.78
.578	5,030	98	118	100	91	143	4,458	33.90
.667	5,800	76	97	92	67	126	3,721	28.30
.777	6,760	65	84	67	49	110	2,944	22.39
.999	8,690	54	47	54	31	78	1,898	14.43
1.11	9,660	48	28	48	26	64	1,542	11.73
1.45	12,600	37	4	39	14	29	938	7.13
1.67	14,500	29	---	28	12	15	669	5.09
2.11	18,400	21	---	18	5	5	368	2.80
2.56	22,300	10	---	13	---	1	189	1.44
3.00	26,100	6	---	8	---	---	86	.65
3.67	31,900	3	---	4	---	---	45	.34
4.45	38,700	2	---	2	---	---	7	.053
5.23	45,500	---	---	---	---	---	-----	------

PECATONICA RIVER AT FREEPORT



Pecatonica River at Freeport

LOCATION.--Lat 42°18′13″, long. 89°36′57″, in SE¼ sec. 30, T. 27 N., R. 8 E., on property of Public Service Co. of Northern Illinois at Freeport, 0.3 mile upstream from Stephenson Street Bridge, and 5 miles upstream from Yellow Creek.

DRAINAGE AREA.--1,330 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1915-50.

AVERAGE DISCHARGE, 1921-45.--872 cfs.

EXTREMES.--1914-50: Maximum discharge, 18,400 cfs Mar. 16, 1929; minimum observed, 98 cfs July 3, 1934.

REMARKS.--Some diurnal regulation caused by power plants above station. For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Pecatonica River at Freeport

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1915-50	Percent of time
0.0827	110	365	365	366	365	365	13,149	100.00
.0977	130	365	365	366	365	365	13,145	99.97
.113	150	365	365	366	365	365	13,140	99.93
.128	170	365	365	366	365	364	13,126	99.83
.143	190	365	365	366	365	363	13,061	99.33
.158	210	365	365	366	365	363	12,992	98.81
.173	230	365	364	366	364	362	12,891	98.04
.195	260	365	361	362	362	356	12,656	96.25
.218	290	365	359	351	349	328	12,191	92.71
.248	330	342	355	345	308	284	11,366	86.44
.278	370	317	329	323	266	262	10,558	80.30
.308	410	280	286	292	222	247	9,711	73.85
.346	460	238	261	246	171	228	8,694	66.12
.391	520	198	217	191	147	200	7,498	57.02
.436	580	173	191	168	126	172	6,589	50.11
0.496	660	122	175	132	98	146	5,557	42.26
.556	740	91	148	119	88	132	4,799	36.50
.617	820	74	131	104	78	115	4,086	31.07
.677	900	65	125	89	71	105	3,580	27.23
.752	1,000	55	110	75	63	99	3,006	22.86
.977	1,300	41	68	53	36	72	1,958	14.89
1.35	1,800	29	27	39	22	50	1,199	9.12
1.80	2,400	21	12	25	16	33	779	5.92
2.41	3,200	18	5	19	13	26	510	3.88
3.31	4,400	10	---	13	6	14	242	1.84
4.29	5,700	7	---	11	2	7	116	.88
5.79	7,700	4	---	5	1	2	51	.39
7.52	10,000	1	---	2	---	---	23	.17
10.5	14,000	---	---	---	---	---	8	.061
14.3	19,000	---	---	---	---	---	-----	------

PECATONICA RIVER AT SHIRLAND

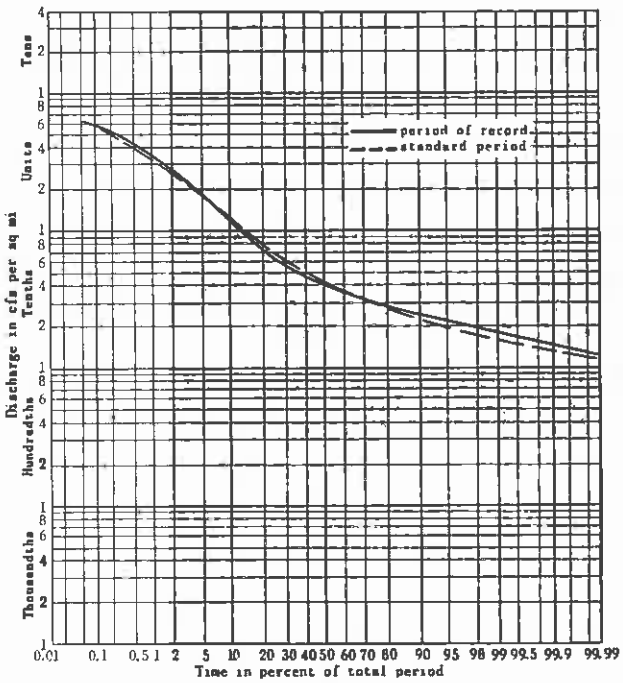
LOCATION.--Lat 42°26′10″, long. 89°11′50″, in SW¼ sec. 11, T. 28 N., R. 11 E., at highway bridge over mouth of Sugar River, half a mile south of Shirland and 7½ miles upstream from mouth.

DRAINAGE AREA.--2,540 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--1,630 cfs; from correlation of observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1939-50: Maximum discharge, 15,400 cfs Jan. 8, 1946; minimum observed, 350 cfs Jan. 18, 1940.



Pecatonica River at Shirland

Days of duration of discharge for Pecatonica River at Shirland

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.130	330	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.148	375	365	365	365	365	366	365	365	365	366	365	364	4,016	99.95
.169	430	351	365	365	365	366	365	365	365	366	364	363	4,000	99.55
.193	490	339	363	365	365	366	365	365	365	366	361	351	3,971	98.83
.220	560	270	352	365	365	366	365	355	365	347	322	318	3,790	94.33
.252	640	186	301	363	365	358	351	322	353	330	278	277	3,484	86.71
.287	730	123	252	357	365	335	317	308	309	293	224	261	3,144	78.25
.331	840	93	209	348	363	297	271	259	228	237	164	250	2,719	67.67
.378	960	63	161	281	330	225	233	200	191	176	135	208	2,203	54.83
.433	1,100	48	122	222	287	185	194	144	178	159	121	188	1,848	45.99
.492	1,250	36	99	181	251	162	173	116	159	135	105	166	1,583	39.40
.559	1,420	33	76	128	196	147	124	91	127	115	89	132	1,258	31.31
.650	1,650	25	59	87	142	117	93	65	113	91	67	106	965	24.02
.748	1,900	19	49	57	105	88	70	57	96	74	49	90	754	18.77
.846	2,150	16	43	42	81	68	58	52	82	65	43	79	629	15.65
.984	2,500	9	35	26	65	58	43	46	59	57	33	74	505	12.57
1.10	2,800	7	33	19	55	48	37	40	46	48	23	63	419	10.43
1.26	3,200	7	27	14	46	43	32	37	35	39	21	56	357	8.89
1.46	3,700	7	24	11	38	32	19	34	28	37	20	43	293	7.29
1.65	4,200	6	18	11	27	30	10	32	13	34	19	39	239	5.95
1.89	4,800	5	13	10	25	27	6	30	8	32	18	32	206	5.13
2.17	5,500	4	7	10	14	18	---	24	4	29	16	26	152	3.78
2.52	6,400	3	7	---	12	15	---	18	---	21	12	22	110	2.74
2.83	7,200	2	4	---	11	13	---	17	---	18	9	11	85	2.12
3.27	8,300	---	---	---	9	9	---	15	---	16	6	---	55	1.37
3.74	9,500	---	---	---	6	5	---	9	---	12	3	---	35	.87
4.33	11,000	---	---	---	3	1	---	6	---	8	1	---	19	.47
4.84	12,300	---	---	---	---	---	---	5	---	6	---	---	11	.27
5.55	14,100	---	---	---	---	---	---	3	---	3	---	---	6	.15
6.34	16,100	---	---	---	---	---	---	---	---	---	---	---	---	----

SUGAR RIVER NEAR BRODHEAD, WIS.

LOCATION.--Lat 42°36′40″, long. 89°23′50″, in SW¼ sec. 26, T. 2 N., R. 9 E., at highway bridge 2 miles upstream from Jordan Creek and 2 miles southwest of Brodhead.

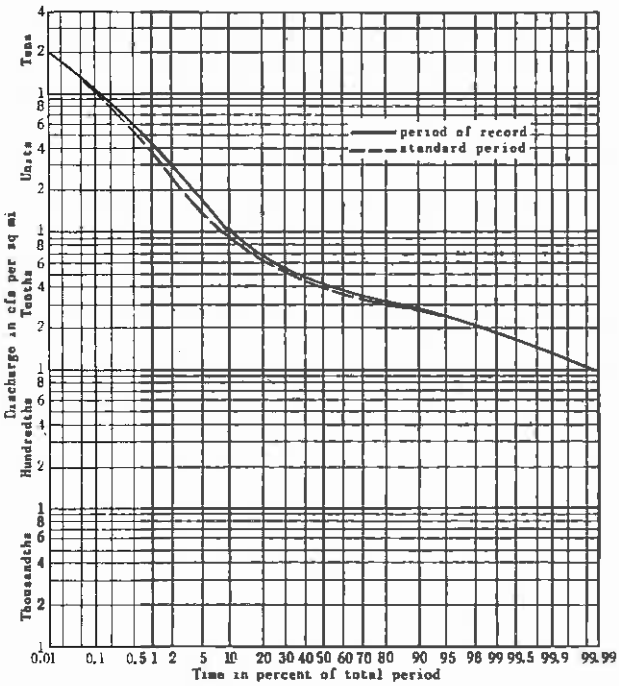
DRAINAGE AREA.--536 sq mi.

DURATION DATA AVAILABLE.--Water years 1915-50.

AVERAGE DISCHARGE, 1921-45.--325 cfs.

EXTREMES.--1914-50: Maximum discharge, 14,800 cfs Sept. 13, 1915; minimum observed, 44 cfs Sept. 5, 19, 1948.

REMARKS.--Diurnal fluctuations caused by power plant at Brodhead do not appreciably affect duration distribution.



Sugar River near Brodhead, Wis.

Days of duration of discharge for Sugar River near Brodhead, Wis.

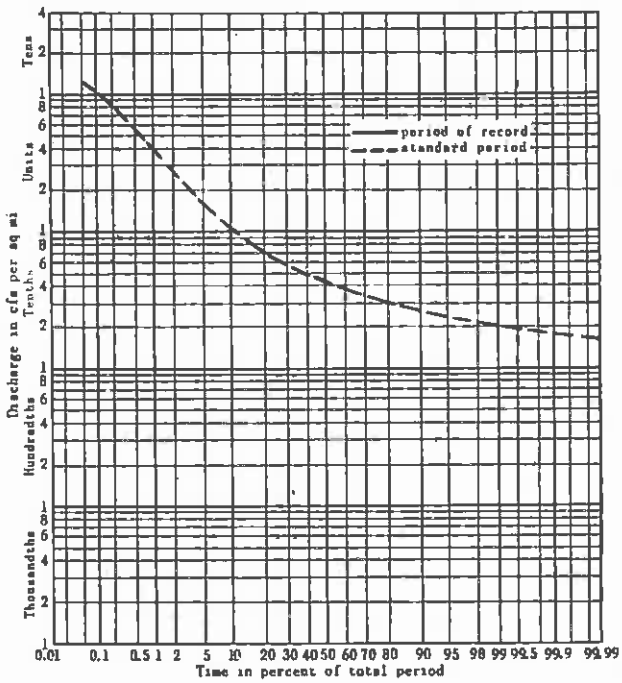
Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
0.0858	46	365	366	365	365	365	366	365	365	365	366	365	365	365
.104	56	365	366	365	365	365	366	365	365	365	366	365	365	365
.127	68	365	366	365	365	365	366	365	365	365	366	365	365	365
.155	83	365	366	365	363	364	366	365	365	363	364	365	363	365
.187	100	365	366	364	359	362	366	365	363	363	362	362	362	364
.224	120	364	366	363	353	361	366	360	363	354	351	350	357	362
.280	150	364	366	346	330	354	365	337	359	335	330	299	320	354
.336	180	334	365	285	300	327	360	312	338	297	298	243	259	323
.410	220	311	356	271	233	253	330	240	288	215	229	167	176	249
.485	260	237	309	207	162	144	255	144	222	127	174	86	125	208
.597	320	151	238	122	88	85	174	80	137	70	119	51	70	163
.709	380	109	157	84	59	54	115	48	90	58	81	32	42	131
.858	460	78	93	56	46	35	73	31	64	34	59	27	33	84
1.04	560	59	60	44	41	22	56	22	42	23	45	24	21	47
1.27	680	46	45	32	36	17	42	14	27	18	35	12	15	37
1.55	830	32	29	27	32	13	35	8	21	17	31	10	6	23
1.87	1,000	23	21	18	26	11	22	2	16	15	29	7	5	16
2.24	1,200	22	18	10	21	9	15	---	14	13	18	5	3	10
2.80	1,500	17	13	6	18	6	11	---	10	11	7	3	2	7
3.36	1,800	14	10	3	16	4	8	---	9	7	1	3	2	5
4.10	2,200	8	8	2	9	3	4	---	5	4	1	---	---	3
4.85	2,600	6	8	1	5	2	---	---	4	4	---	---	---	3
5.97	3,200	3	6	---	4	2	---	---	2	3	---	---	---	2
7.09	3,800	3	6	---	1	2	---	---	2	2	---	---	---	1
8.58	4,600	2	4	---	1	1	---	---	2	1	---	---	---	---
10.4	5,600	2	3	---	---	1	---	---	2	1	---	---	---	---
12.7	6,800	1	1	---	---	---	---	---	1	1	---	---	---	---
15.5	8,300	1	---	---	---	---	---	---	1	---	---	---	---	---
18.7	10,000	1	---	---	---	---	---	---	---	---	---	---	---	---
22.4	12,000	---	---	---	---	---	---	---	---	---	---	---	---	---

Days of duration of discharge for Sugar River near Brodhead, Wis.--continued

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
0.0858	46	366	365	365	365	366	365	365	365	366	365	365	365	366
.104	56	366	365	365	362	366	365	364	365	366	365	365	365	366
.127	68	366	365	365	356	366	365	356	365	366	364	365	365	366
.155	83	366	365	364	350	364	365	342	365	365	364	365	365	366
.187	100	366	365	363	339	362	365	321	364	357	361	365	365	365
.224	120	366	365	359	322	342	354	267	359	327	355	349	363	351
.280	150	366	363	328	283	307	326	185	338	273	286	267	326	220
.336	180	366	351	271	205	283	270	118	287	196	202	189	281	94
.410	220	355	309	210	110	232	188	59	224	124	144	152	222	55
.485	260	314	266	153	41	190	133	34	183	80	126	130	170	35
.597	320	254	211	70	18	119	95	18	108	49	106	99	97	27
.709	380	175	144	38	8	97	82	12	81	35	82	86	69	16
.858	460	111	103	25	6	47	69	9	64	26	65	74	44	11
1.04	560	65	75	12	2	27	58	3	46	18	48	60	34	6
1.27	680	53	61	10	2	19	48	3	26	10	32	44	26	6
1.55	830	39	37	4	---	17	35	1	24	6	24	39	19	5
1.87	1,000	29	29	4	---	14	24	---	18	5	21	35	11	5
2.24	1,200	19	16	4	---	11	13	---	12	4	21	30	6	4
2.80	1,500	12	14	3	---	3	10	---	8	3	19	25	2	4
3.36	1,800	9	10	3	---	2	8	---	3	3	19	23	1	4
4.10	2,200	5	6	3	---	2	8	---	---	1	11	16	1	2
4.85	2,600	5	5	2	---	2	5	---	---	---	8	15	---	1
5.97	3,200	3	4	1	---	2	4	---	---	---	6	9	---	---
7.09	3,800	1	3	1	---	1	4	---	---	---	5	6	---	---
8.58	4,600	---	3	---	---	---	3	---	---	---	3	3	---	---
10.4	5,600	---	3	---	---	---	2	---	---	---	2	3	---	---
12.7	6,800	---	2	---	---	---	---	---	---	---	1	1	---	---
15.5	8,300	---	2	---	---	---	---	---	---	---	---	---	---	---
18.7	10,000	---	1	---	---	---	---	---	---	---	---	---	---	---
22.4	12,000	---	---	---	---	---	---	---	---	---	---	---	---	---

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1915-50	Percent of time
0.0858	46	365	365	365	366	365	365	365	366	365	365	13,149	100.00
.104	56	365	365	365	366	365	365	365	366	365	365	13,145	99.97
.127	68	365	365	365	366	365	365	365	366	365	365	13,130	99.86
.155	83	365	365	365	366	365	365	365	366	365	365	13,097	99.60
.187	100	365	365	365	366	365	365	364	366	364	363	13,029	99.09
.224	120	363	365	363	360	3[illegible]5	356	358	364	355	350	12,748	96.95
.280	150	344	344	348	321	359	298	296	311	282	285	11,515	87.57
.336	180	259	301	278	217	234	207	210	234	200	232	9,526	72.45
.410	220	175	191	173	155	149	105	144	173	127	191	7,285	55.40
.485	260	117	113	137	112	104	68	111	130	99	142	5,388	40.98
.597	320	70	50	72	59	57	50	80	83	67	100	3,507	26.67
.709	380	52	29	51	47	36	43	46	63	51	66	2,469	18.78
.858	460	34	13	38	36	26	33	34	47	41	49	1,718	13.07
1.04	560	24	9	29	30	11	27	22	37	28	39	1,216	9.25
1.27	680	17	3	24	23	7	24	17	31	25	35	922	7.01
1.55	830	15	2	19	19	3	19	10	29	19	31	700	5.32
1.87	1,000	11	1	12	15	---	17	7	25	17	27	538	4.09
2.24	1,200	9	1	9	13	---	15	6	21	11	22	405	3.08
2.80	1,500	6	---	6	10	---	13	1	17	9	20	296	2.25
3.36	1,800	4	---	5	8	---	10	---	13	7	16	230	1.75
4.10	2,200	2	---	4	8	---	8	---	8	5	13	150	1.14
4.85	2,600	1	---	3	5	---	7	---	6	2	10	110	.84
5.97	3,200	---	---	3	3	---	4	---	4	2	6	73	.56
7.09	3,800	---	---	---	2	---	4	---	2	1	3	50	.38
8.58	4,600	---	---	---	---	---	2	---	2	---	1	28	.21
10.4	5,600	---	---	---	---	---	1	---	2	---	---	22	.17
12.7	6,800	---	---	---	---	---	---	---	1	---	---	9	.068
15.5	8,300	---	---	---	---	---	---	---	---	---	---	4	.030
18.7	10,000	---	---	---	---	---	---	---	---	---	---	2	.015
22.4	12,000	---	---	---	---	---	---	---	---	---	---	-----	------

SUGAR RIVER AT SHIRLAND



Sugar River at Shirland

LOCATION.--Lat 42°26′10″, long. 89°11′50″, in SW¼ sec. 11, T. 28 N., R. 11 E., at highway bridge over mouth of Sugar River, half a mile south of Shirland.

DRAINAGE AREA.--757 sq mi.

DURATION DATA AVAILABLE.--16 miscellaneous discharge measurements during the water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--478 cfs; from synthetic duration curve, using Pecatonica River at Freeport as index station.

REMARKS.--Daily gage heights have been observed since 1940. Backwater from Pecatonica River precludes computation of daily discharge, but does not appreciably affect the duration distribution. Duration relation with index station obtained through use of auxiliary relation with Pecatonica River at Shirland for water years 1940-50.

Coordinates of synthetic duration curve for Sugar River at Shirland

Cfs	Cfs per sq mi	Percent of time	Cfs	Cfs per sq mi	Percent of time	Cfs	Cfs per sq mi	Percent of time
127	0.168	100.00	232	0.306	78.58	638	0.843	14.73
127	.168	99.96	248	.328	72.79	840	1.11	8.78
127	.168	99.90	273	.361	65.38	1,180	1.56	5.59
132	.174	99.76	301	.398	56.32	1,650	2.18	3.32
154	.203	99.06	325	.429	49.30	2,480	3.28	1.39
162	.214	98.30	366	.483	41.44	3,410	4.50	.65
167	.221	97.27	398	.526	35.67	4,940	6.53	.32
177	.234	95.01	423	.559	30.37	6,250	8.26	.18
193	.255	90.91	455	.601	26.76	6,460	8.53	.066
215	.284	84.73	497	.657	22.76	6,620	8.74	------

KISHWAUKEE RIVER AT BELVIDERE

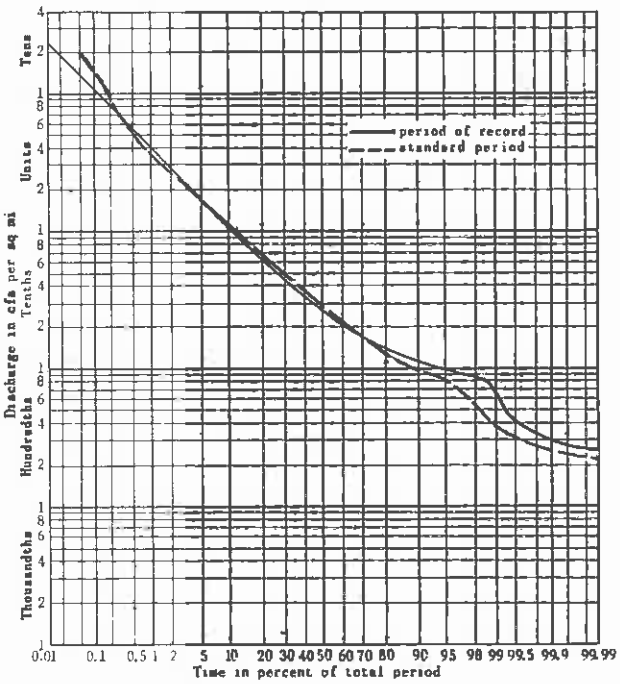
LOCATION.--Lat 42°15'20", long. 88°51'45", near southeast corner of sec. 27, T. 44 N., R. 3 E., at Belvidere sewage-treatment plant, 1¼ miles downstream from State Street Bridge in Belvidere and 3 miles downstream from Piscasaw Creek.

DRAINAGE AREA.--525 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--290 cfs; from correlation of observed mean annual discharges with concurrent values for the Pecatonica River at Freeport.

EXTREMES.--1939-50: Maximum discharge, 10,300 cfs Mar. 16, 1943; minimum observed, 14 cfs Jan. 28, 1940.

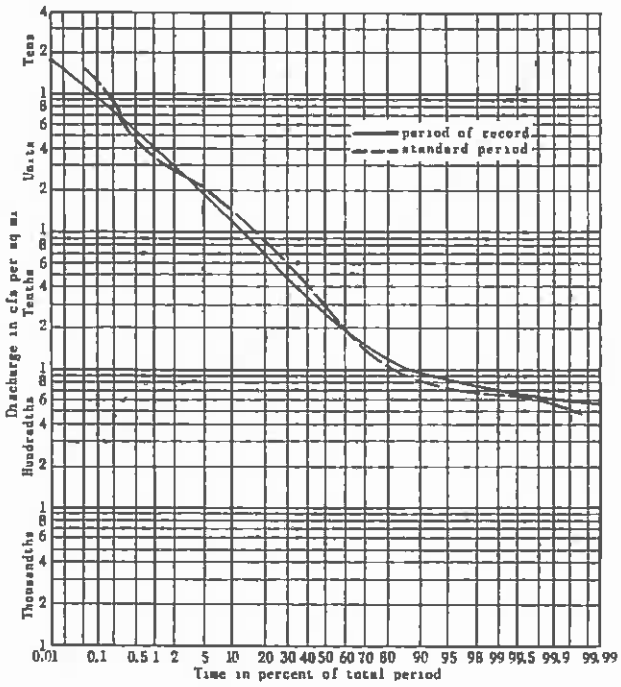


Kishwaukee River at Belvidere

Days of duration of discharge for Kishwaukee River at Belvidere

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0248	13	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0305	16	362	365	365	365	366	365	365	365	366	365	365	4,014	99.90
.0381	20	349	365	365	365	366	365	365	365	366	365	365	4,001	99.58
.0476	25	342	365	365	365	366	365	365	365	366	365	365	3,994	99.40
.0610	32	335	365	365	365	366	365	365	365	366	365	365	3,987	99.23
.0762	40	326	358	365	365	366	365	365	365	366	365	365	3,971	98.83
.0952	50	293	345	365	365	366	362	326	349	366	365	363	3,865	96.19
.120	63	228	302	363	365	328	318	297	303	306	316	351	3,477	86.54
.150	79	156	254	354	363	291	221	285	226	236	240	297	2,923	72.75
.190	100	123	212	338	348	211	189	275	189	205	192	269	2,551	63.49
.248	130	96	174	314	309	175	142	256	159	165	154	252	2,196	54.65
.305	160	80	146	289	266	154	124	231	141	136	137	237	1,941	48.31
.381	200	53	111	253	202	123	94	151	118	101	95	193	1,494	37.18
.476	250	35	78	191	167	111	81	115	101	82	79	162	1,202	29.92
.610	320	19	56	151	118	98	53	84	80	61	54	119	893	22.22
.762	400	13	43	106	94	75	40	65	50	49	36	92	663	16.50
.952	500	5	31	74	82	54	29	53	29	41	30	73	501	12.47
1.20	630	3	21	52	61	33	19	40	21	31	21	51	353	8.79
1.50	790	---	11	34	39	18	10	32	14	26	14	39	237	5.90
1.90	1,000	---	9	25	23	15	7	23	8	21	9	26	166	4.13
2.48	1,300	---	4	12	15	11	4	16	4	14	8	14	102	2.54
3.05	1,600	---	2	9	10	7	2	14	2	12	6	9	73	1.82
3.81	2,000	---	1	6	8	6	---	6	---	10	5	6	48	1.19
4.76	2,500	---	---	1	6	4	---	4	---	6	4	4	29	.72
6.10	3,200	---	---	---	3	4	---	3	---	4	1	2	17	.42
7.62	4,000	---	---	---	3	2	---	1	---	2	1	1	10	.25
9.52	5,000	---	---	---	1	1	---	1	---	1	1	---	5	.12
12.0	6,300	---	---	---	1	1	---	1	---	1	---	---	4	.10
15.0	7,900	---	---	---	1	1	---	---	---	---	---	---	2	.050
19.0	10,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

KISHWAUKEE RIVER NEAR PERRYVILLE



Kishwaukee River near Perryville

LOCATION.--Lat 42°11′45″, long. 88°59′55″, in northeast corner of sec. 21, T. 43 N., R. 2 E., at Forest Preserve road bridge, 1¼ miles downstream from South Branch, 2 miles southwest of Perryville, 7½ miles upstream from Killbuck Creek, and 9½ miles upstream from mouth.

DRAINAGE AREA.--1,090 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--603 cfs; from correlation of observed mean annual discharges with concurrent values for the Pecatonica River at Freeport.

EXTREMES.--1939-50: Maximum discharge, 16,400 cfs Jan. 6, 1946; minimum observed, 53 cfs Jan. 20, 1940.

Days of duration of discharge for Kishwaukee River near Perryville

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0486	53	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0606	66	362	365	365	365	366	365	365	365	366	365	365	4,014	99.90
.0743	81	338	365	365	365	366	365	345	356	347	365	365	3,942	98.11
.0917	100	300	360	365	365	365	343	313	337	292	319	358	3,717	92.51
.110	120	224	337	365	365	344	294	303	271	262	261	303	3,329	82.85
.138	150	166	282	365	365	299	220	290	212	224	218	274	2,915	72.55
.174	190	132	225	351	352	215	195	281	191	197	195	256	2,590	64.46
.211	230	105	202	339	311	179	164	272	167	170	168	244	2,321	57.77
.257	280	78	180	325	269	155	127	254	148	141	145	221	2,043	50.85
.321	350	58	140	302	240	140	111	200	133	116	124	190	1,754	43.65
.394	430	39	112	248	204	129	92	145	113	95	102	165	1,444	35.94
.486	530	33	95	200	169	111	75	109	90	80	84	135	1,181	29.39
.606	660	23	88	166	126	102	54	88	76	69	59	116	967	24.07
.743	810	19	65	133	99	75	46	74	61	57	41	102	772	19.21
.917	1,000	15	44	89	72	47	36	63	40	47	31	85	569	14.16
1.10	1,200	10	39	70	53	29	23	52	32	37	26	72	443	11.03
1.38	1,500	4	23	47	40	21	13	37	23	32	18	53	311	7.74
1.74	1,900	1	17	31	27	17	11	29	17	24	16	39	229	5.70
2.11	2,300	---	14	20	18	14	6	22	12	21	11	24	162	4.03
2.57	2,800	---	8	7	15	11	5	16	8	16	8	16	110	2.74
3.21	3,500	---	3	3	11	8	3	10	2	13	6	8	67	1.67
3.94	4,300	---	---	2	7	7	---	9	---	10	3	6	44	1.10
4.86	5,300	---	---	---	5	5	---	5	---	7	3	4	29	.72
6.06	6,600	---	---	---	4	2	---	4	---	3	1	1	15	.37
7.43	8,100	---	---	---	1	2	---	2	---	1	1	---	7	.17
9.17	10,000	---	---	---	1	2	---	1	---	1	---	---	5	.12
11.0	12,000	---	---	---	---	1	---	1	---	1	---	---	3	.075
13.8	15,000	---	---	---	---	---	---	1	---	---	---	---	1	.025
17.4	19,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

SOUTH BRANCH KISHWAUKEE RIVER AT DE KALB

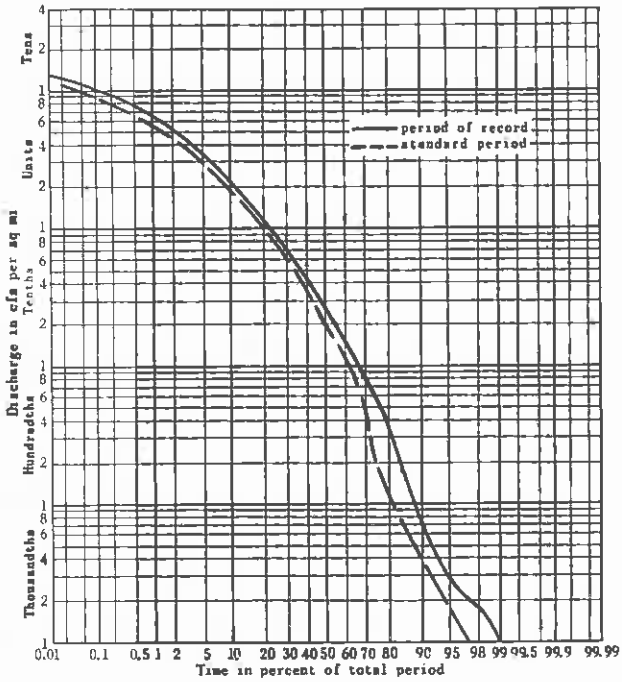
LOCATION.--Lat 41°55′50″, long. 88°45′35″, in SW¼NE¼ sec. 22, T. 40 N., R. 4 E., at Lincoln Highway Bridge in De Kalb, and 8 miles upstream from East Branch.

DRAINAGE AREA.--70 sq mi.

DURATION DATA AVAILABLE.--Water years 1926-33.

AVERAGE DISCHARGE, 1921-45.--46.2 cfs; from correlation of observed mean annual discharges with concurrent values for Fox River at Dayton.

EXTREMES.--1925-33: Maximum discharge, 978 cfs June 12, 1929; minimum daily, 0.01 cfs July 31, 1930, Oct. 4, 5, 1931.

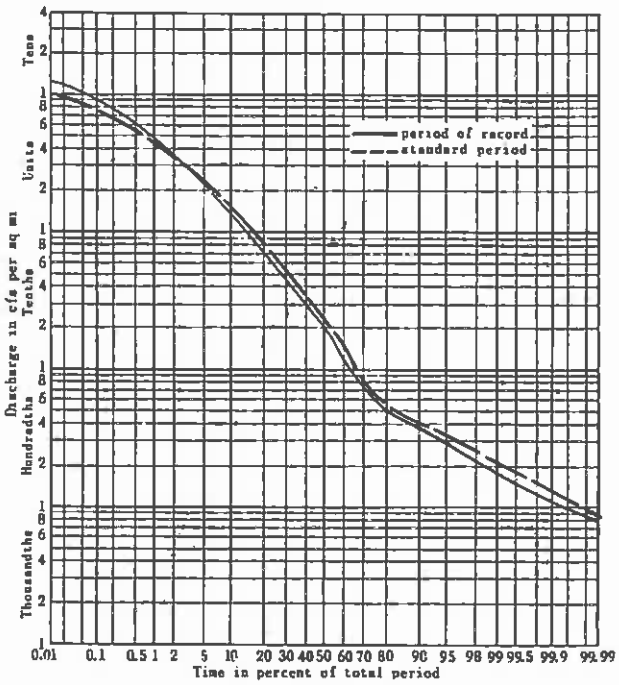


South Branch Kishwaukee River at De Kalb

Days of duration of discharge for South Branch Kishwaukee River at De Kalb

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1926	1927	1928	1929	1930	1931	1932	1933	1926-33	Percent of time
0.0001	0.01	365	365	366	365	365	365	366	365	2,922	100.00
.0003	.02	365	365	366	365	364	365	364	365	2,919	99.90
.0004	.03	365	365	366	365	361	365	364	365	2,916	99.79
.0007	.05	365	365	366	365	355	363	360	365	2,904	99.38
.0010	.07	365	365	366	365	347	359	358	365	2,890	98.90
.0014	.10	365	365	366	365	346	354	352	363	2,876	98.43
.0021	.15	354	365	366	364	343	346	331	361	2,830	96.85
.0031	.22	336	350	366	362	342	336	311	348	2,751	94.15
.0046	.32	329	342	366	361	338	328	297	344	2,705	92.57
.0066	.46	324	341	366	358	334	325	295	327	2,670	91.38
.0097	.68	319	334	363	356	330	305	290	305	2,602	89.05
.0143	1.0	314	329	359	340	311	283	290	285	2,511	85.93
.0214	1.5	309	316	358	320	290	269	285	274	2,421	82.85
.0314	2.2	294	310	355	312	285	251	284	257	2,348	80.36
.0457	3.2	276	301	354	304	273	224	281	240	2,253	77.10
.0657	4.6	254	295	341	300	265	191	266	223	2,135	73.07
.0971	6.8	232	287	314	292	257	167	250	207	2,006	68.65
.143	10	188	271	283	278	239	129	234	194	1,816	62.15
.214	15	158	251	246	255	217	85	216	180	1,608	55.03
.314	22	126	242	202	238	170	60	189	161	1,388	47.50
.457	32	100	210	177	213	147	36	144	134	1,161	39.73
.657	46	83	174	138	178	74	19	112	111	889	30.42
.971	68	62	153	90	138	36	13	79	79	650	22.25
1.43	100	45	115	59	102	24	6	45	48	444	15.20
2.14	150	34	68	29	68	13	2	23	24	261	8.93
3.14	220	21	40	12	51	8	2	8	13	155	5.30
4.57	320	13	18	7	26	2	---	2	3	71	2.43
6.57	460	3	8	1	13	---	---	---	1	26	.89
9.71	680	---	2	---	2	---	---	---	---	4	.14
14.3	1,000	---	---	---	---	---	---	---	---	-----	------

SOUTH BRANCH KISHWAUKEE RIVER NEAR FAIRDALE



South Branch Kishwaukee River near Fairdale

LOCATION.--Lat 42°06′40″, long. 88°54′00″, on line between and near south boundary of secs. 16 and 17, T. 42 N., R. 3 E., at county highway bridge, 1.2 miles downstream from Owens Creek, 1¾ miles northeast of Fairdale, and 9½ miles upstream from mouth.

DRAINAGE AREA.--386 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--204 cfs; from correlation of observed mean annual discharges with concurrent values for Fox River at Dayton.

EXTREMES.--1939-50: Maximum discharge, 6,840 cfs Jan. 5, 1946; minimum 2.1 cfs Jan. 20, 1940.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Nov. 25, 1939, based on hydrographic comparison with records for the Kishwaukee River near Perryville and at Belvidere.

Days of duration of discharge for South Branch Kishwaukee River near Fairdale

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown												Percent of time
		Water year												
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	
0.0078	3	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0104	4	363	365	365	365	366	365	365	365	366	365	365	4,015	99.93
.0130	5	357	365	365	365	366	365	365	365	366	365	365	4,009	99.78
.0155	6	348	365	365	365	366	362	365	365	366	365	365	3,997	99.48
.0207	8	338	365	365	365	366	349	365	365	366	365	365	3,974	98.90
.0259	10	313	360	365	365	366	329	365	365	362	365	365	3,920	97.56
.0337	13	289	349	365	365	364	307	349	340	318	325	360	3,731	92.86
.0440	17	239	334	365	365	350	270	312	267	274	257	300	3,333	82.95
.0570	22	169	316	365	358	303	224	305	225	239	232	280	3,016	75.06
.0725	28	151	278	365	350	273	212	299	210	215	211	261	2,825	70.31
.0933	36	132	256	360	338	223	204	295	196	193	198	247	2,642	65.75
.119	46	108	238	352	322	197	194	287	179	173	181	234	2,465	61.35
.155	60	75	218	346	298	170	178	275	167	153	172	221	2,273	56.57
.199	77	61	192	331	279	157	156	263	143	131	151	206	2,070	51.52
.259	100	48	157	313	248	143	128	231	126	117	124	185	1,820	45.30
.337	130	35	123	287	214	136	108	172	109	95	98	161	1,538	38.28
.440	170	30	97	225	171	127	90	121	101	75	77	138	1,252	31.16
.570	220	25	72	164	127	108	68	99	76	62	57	119	977	24.32
.725	280	22	49	131	97	89	52	78	63	53	45	101	780	19.41
.933	360	14	37	93	67	54	41	65	45	42	35	86	579	14.41
1.19	460	11	22	68	48	32	29	52	36	33	27	73	431	10.73
1.55	600	9	18	49	39	27	19	38	27	28	16	46	316	7.86
1.99	770	6	11	39	29	19	14	27	22	22	8	37	234	5.82
2.59	1,000	2	9	24	22	14	7	16	15	14	6	22	151	3.76
3.37	1,300	---	3	9	13	10	6	12	11	11	3	11	89	2.22
4.40	1,700	---	1	2	7	7	3	10	1	6	2	6	45	1.12
5.70	2,200	---	---	1	4	5	1	7	---	4	2	3	27	.67
7.25	2,800	---	---	1	1	4	---	3	---	2	1	2	14	.35
9.33	3,600	---	---	---	---	1	---	1	---	---	1	1	4	.10
11.9	4,600	---	---	---	---	---	---	---	---	---	---	---	-----	------

KILLBUCK CREEK NEAR MONROE CENTER

LOCATION.--Lat 42°05'55", long. 89°03'10", in NW¼SW¼ sec. 19, T. 42 N., R. 2 E., 800 ft upstream from Chicago, Milwaukee & St. Paul Railroad bridge, 800 ft upstream from bridge on State Highway 72, 3 miles west of Monroe Center, and 8 miles upstream from mouth.

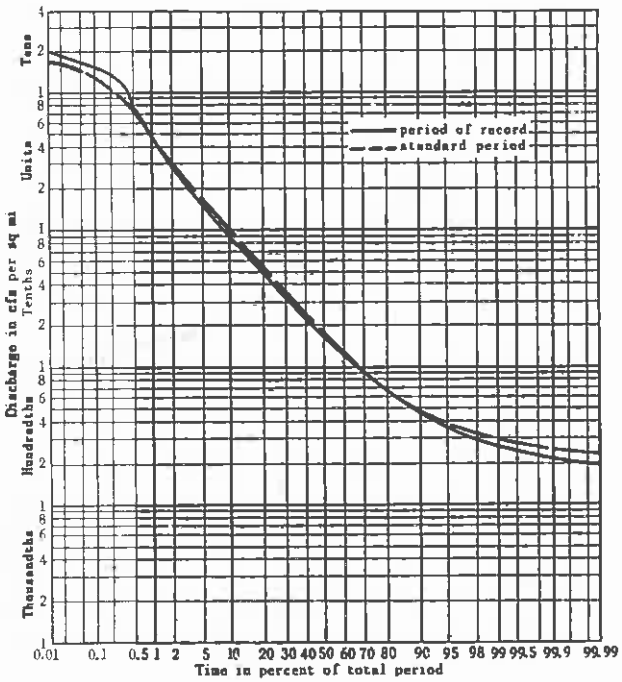
DRAINAGE AREA.--114 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--55.7 cfs from correlation of observed mean annual discharges with concurrent values for Fox River at Dayton.

EXTREMES.--1939-50: Maximum discharge, 3,820 cfs Jan. 5, 1946; minimum, 2.0 cfs July 25, 1940.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Dec. 12, 1939, based on hydrographic comparison with records for Kyte River near Flagg Center and Kishwaukee River near Perryville.

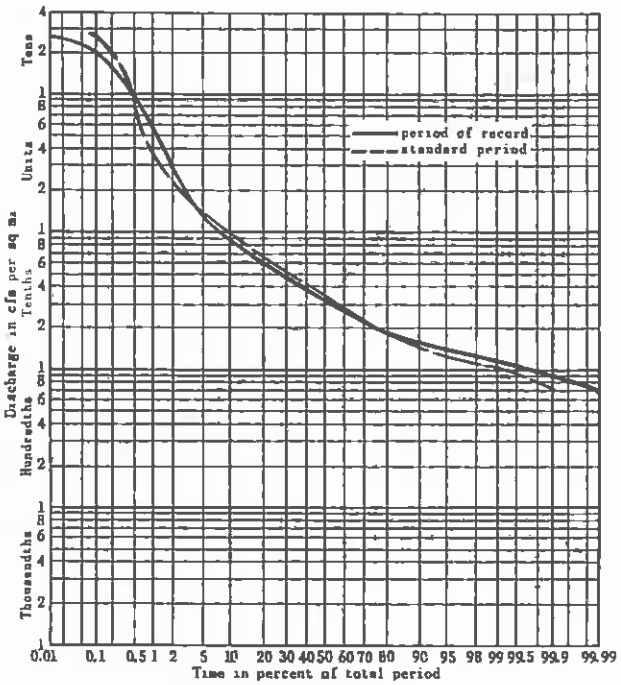


Killbuck Creek near Monroe Center

Days of duration of discharge for Killbuck Creek near Monroe Center

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0158	1.8	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0202	2.3	365	365	365	365	366	365	365	365	366	365	365	4,017	99.98
.0263	3.0	343	364	365	365	366	365	365	365	366	365	365	3,994	99.40
.0342	3.9	305	341	365	365	366	365	365	365	366	365	349	3,917	97.49
.0439	5.0	237	309	365	365	366	347	365	365	360	337	328	3,744	93.18
.0579	6.6	140	282	365	365	366	312	358	306	296	290	307	3,387	84.30
.0746	8.5	110	253	365	363	354	288	340	235	254	235	290	3,087	76.83
.0965	11	80	221	351	326	246	226	311	201	221	201	282	2,666	66.35
.123	14	69	205	328	289	190	202	299	169	186	176	270	2,383	59.31
.167	19	45	182	302	258	145	165	252	134	148	160	241	2,032	50.57
.211	24	36	153	282	244	135	127	218	116	127	140	215	1,793	44.62
.281	32	28	100	245	201	129	107	151	105	101	111	183	1,461	36.36
.360	41	24	76	199	169	118	83	110	92	82	88	145	1,186	29.52
.474	54	19	58	158	131	107	70	89	70	64	68	119	953	23.72
.614	70	18	44	106	99	91	53	73	60	56	52	99	751	18.69
.789	90	14	31	77	76	61	34	62	42	42	41	79	559	13.91
1.05	120	12	17	48	45	37	23	48	28	35	34	60	387	9.63
1.32	150	12	12	30	31	27	17	34	21	29	26	46	285	7.09
1.75	200	7	7	13	20	17	14	20	13	20	22	32	185	4.60
2.28	260	6	5	6	13	11	10	13	7	13	11	21	116	2.89
2.98	340	3	5	2	9	7	8	8	6	12	10	15	85	2.12
3.86	440	---	5	1	9	6	4	6	2	9	9	10	61	1.52
5.00	570	---	3	1	5	5	4	5	1	7	8	7	46	1.14
6.49	740	---	2	1	4	3	1	5	---	3	6	5	30	.75
8.60	980	---	---	---	3	2	1	5	---	3	3	4	21	.52
10.5	1,200	---	---	---	2	2	1	4	---	3	2	3	17	.42
14.0	1,600	---	---	---	---	1	---	2	---	2	2	2	9	.22
18.4	2,100	---	---	---	---	---	---	1	---	---	---	1	2	.050
24.6	2,800	---	---	---	---	---	---	---	---	---	---	---	-----	------

LEAF RIVER AT LEAF RIVER



Leaf River at Leaf River

LOCATION.--Lat 42°07′35″, long. 89°23′25″, in NW¼ sec. 31, T. 25 N., R. 10 E., at bridge on State Highway 72, 0.4 mile downstream from Chicago, Milwaukee & St. Paul Railroad bridge, 0.6 mile east of town of Leaf River, and 0.8 mile downstream from Mud Creek.

DRAINAGE AREA.--102 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--59.6 cfs: from correlation of observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1939-50: Maximum discharge, 6,510 cfs Feb. 27, 1948, from rating curve extended above 2,900 cfs; minimum observed, 7.6 cfs Jan. 5, 1940.

Days of duration of discharge for Leaf River at Leaf River

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0667	6.8	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0823	8.4	364	364	365	365	366	365	365	365	366	365	365	4,015	99.93
.102	10.4	348	361	365	365	366	365	365	365	366	365	365	3,996	99.45
.125	12.8	288	351	365	365	366	365	333	348	366	363	363	3,873	96.39
.156	15.9	168	296	365	365	366	361	282	307	364	298	274	3,446	85.76
.191	19.5	110	244	361	365	357	315	263	255	323	195	245	3,033	75.49
.235	24	70	202	339	362	320	266	229	213	270	149	219	2,639	65.68
.294	30	48	141	311	314	272	178	188	176	200	126	189	2,143	53.33
.363	37	35	106	233	268	168	140	103	169	153	95	143	1,613	40.14
.451	46	25	83	162	224	145	86	69	145	101	72	101	1,213	30.19
.549	56	19	56	88	181	124	62	49	112	71	55	77	894	22.25
.667	68	15	41	48	116	80	35	38	81	49	38	60	601	14.96
.823	84	13	22	23	71	50	19	24	56	33	27	42	380	9.46
1.02	104	11	16	16	40	32	12	19	35	25	24	33	263	6.55
1.25	128	8	9	12	31	21	8	17	26	18	19	23	192	4.78
1.56	159	7	7	11	24	19	7	12	21	13	17	17	155	3.86
1.91	195	6	6	11	17	12	4	10	16	12	13	13	120	2.99
2.35	240	4	6	8	12	6	3	9	13	11	11	12	95	2.36
2.94	300	4	5	7	9	5	3	8	12	9	8	10	80	1.99
3.63	370	3	5	3	7	5	3	7	8	7	8	8	64	1.59
4.51	460	3	4	3	5	5	3	5	6	6	7	5	52	1.29
5.49	560	3	3	2	4	5	---	5	1	5	4	4	36	.90
6.67	680	2	3	1	4	5	---	4	1	4	2	4	30	.75
8.24	840	1	3	1	4	3	---	3	---	4	2	3	24	.60
10.2	1,040	---	1	1	4	3	---	2	---	4	2	2	19	.47
12.5	1,280	---	1	---	2	2	---	2	---	4	1	2	14	.35
15.6	1,590	---	---	---	---	2	---	2	---	3	1	1	9	.22
19.1	1,950	---	---	---	---	2	---	1	---	3	---	---	6	.15
23.5	2,400	---	---	---	---	---	---	1	---	1	---	---	2	.050
29.4	3.000	---	---	---	---	---	---	---	---	---	---	---	-----	------

KYTE RIVER NEAR FLAGG CENTER

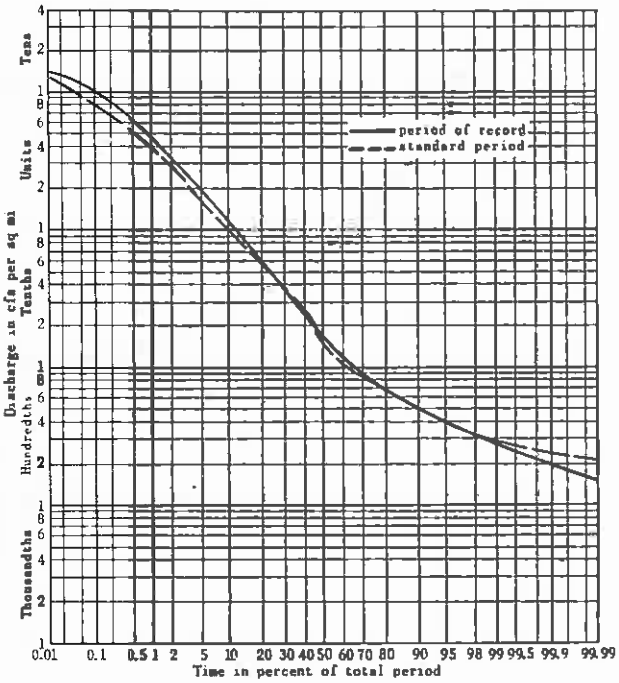
LOCATION.--Lat 41°56′, long. 89°09′, in sec. 18, T. 40 N., R. 1 E., at bridge on county highway, 2 miles west of Flagg Center, and 3 miles downstream from Chicago & Northwestern Railroad bridge.

DRAINAGE AREA .--125 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-51.

AVERAGE DISCHARGE, 1921-45.--62.0 cfs; from correlation of observed mean annual discharges with concurrent values for Fox River at Dayton.

EXTREMES.--1939-51: Maximum discharge observed, 2,630 cfs Feb. 20, 1951; minimum observed, 1.8 cfs Jan. 2, 1940.

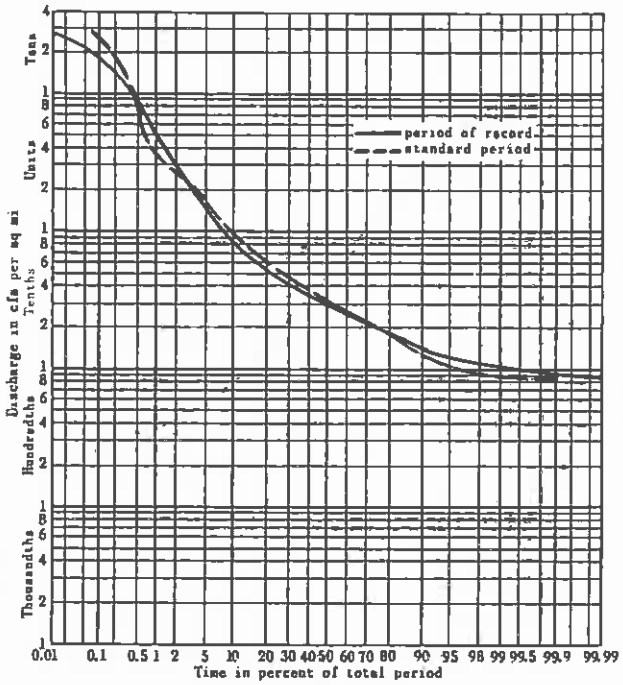


Kyte River near Flagg Center

Days of duration of discharge for Kyte River near Flagg Center

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1940-51	Percent of time
0.0128	1.6	366	365	365	365	366	365	365	365	366	365	365	365	4,383	100.00
.0160	2.0	365	365	365	365	366	365	365	365	366	365	365	365	4,382	99.98
.0208	2.6	359	364	365	365	366	365	365	365	366	365	365	365	4,375	99.82
.0272	3.4	316	353	365	365	365	365	365	363	366	365	365	365	4,318	98.52
.0352	4.4	269	344	364	365	365	360	365	360	366	364	360	365	4,247	96.90
.0456	5.7	198	302	364	364	361	321	364	351	359	330	348	365	4,027	91.88
.0592	7.4	140	261	364	352	326	295	349	329	297	300	306	365	3,684	84.05
.0760	9.5	90	211	359	343	289	248	330	282	247	267	295	363	3,324	75.84
.0960	12	57	196	342	328	229	240	314	238	225	238	286	355	3,048	69.54
.128	16	37	151	327	304	172	191	302	180	192	194	248	277	2,575	58.75
.160	20	28	124	316	279	145	177	285	160	177	174	222	234	2,321	52.95
.208	26	26	94	297	245	134	153	265	145	148	151	203	214	2,075	47.34
.272	34	23	75	262	215	129	125	199	132	117	124	172	192	1,765	40.27
.352	44	17	59	202	187	123	97	138	110	96	99	137	174	1,439	32.83
.456	57	17	47	161	139	106	76	100	84	75	76	119	137	1,137	25.94
.592	74	15	33	119	110	88	59	78	71	59	59	98	106	895	20.42
.760	95	13	22	84	80	58	48	57	58	48	43	84	82	677	15.45
.960	120	11	19	63	62	38	36	53	44	39	36	67	66	534	12.18
1.28	160	10	11	41	49	25	24	41	31	30	28	49	51	390	8.90
1.60	200	7	9	26	33	19	18	35	26	24	22	41	43	303	6.91
2.08	260	6	7	15	24	14	15	27	16	14	16	29	27	210	4.79
2.72	340	5	4	11	14	8	11	18	12	11	14	23	21	152	3.47
3.52	440	3	3	6	7	6	8	13	8	9	10	12	15	100	2.28
4.56	570	1	2	2	6	5	5	9	6	7	8	7	15	73	1.67
5.92	740	1	1	---	2	2	2	5	---	6	6	3	10	38	.87
7.60	950	---	---	---	1	2	---	3	---	4	3	3	9	25	.57
9.60	1,200	---	---	---	---	1	---	3	---	1	1	---	6	12	.27
12.8	1,600	---	---	---	---	---	---	1	---	---	---	---	3	4	.091
16.0	2,000	---	---	---	---	---	---	---	---	---	---	---	1	1	.023
20.8	2,600	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

ELKHORN CREEK NEAR PENROSE



Elkhorn Creek near Penrose

LOCATION.--Lat 41°54′10″, long. 89°41′40″, in SW¼SE¼ sec. 9, T. 22 N., R. 7 E., at county highway bridge, 2 miles northwest of Penrose, 2.2 miles downstream from Buffalo Creek, and 5 miles upstream from Sugar Creek.

DRAINAGE AREA.--153 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--84.6 cfs; from correlation of observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1939-50: Maximum discharge, 5,980 cfs Jan. 5, 1946; minimum, 6.8 cfs Nov. 12, 1940.

Days of duration of discharge for Elkhorn Creek near Penrose

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0850	13	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.101	15.5	353	365	365	365	366	365	365	365	366	349	356	3,980	99.05
.124	19	301	343	365	365	366	365	365	364	357	309	311	3,811	94.85
.154	23.5	192	296	365	365	366	365	316	322	326	223	262	3,398	84.57
.190	29	107	252	365	365	365	355	294	268	301	180	235	3,087	76.83
.229	35	64	219	344	365	334	285	278	226	225	147	189	2,676	66.60
.281	43	33	135	269	293	193	180	183	190	151	132	154	1,913	47.61
.340	52	16	103	207	256	166	150	122	173	107	106	117	1,523	37.90
.418	64	16	71	147	202	138	101	86	155	70	76	86	1,148	28.57
.523	80	15	51	73	157	90	56	58	116	49	59	67	791	19.69
.641	98	12	37	46	102	67	34	40	84	38	43	54	557	13.86
.784	120	6	30	35	65	50	21	28	64	26	35	45	405	10.08
.961	147	4	25	27	47	32	15	23	43	20	32	33	301	7.49
1.18	180	3	22	19	33	27	6	15	28	18	28	29	228	5.67
1.44	220	3	19	15	29	20	6	15	22	16	26	28	199	4.95
1.76	270	1	14	13	21	15	4	13	18	15	20	27	161	4.01
2.16	330	1	13	10	15	11	3	9	17	12	17	23	131	3.26
2.61	400	1	12	9	13	9	2	9	14	10	17	17	113	2.81
3.27	500	---	8	6	10	8	---	6	9	8	14	12	81	2.02
3.92	600	---	7	4	7	7	---	5	6	8	12	9	65	1.62
4.84	740	---	5	2	6	4	---	4	2	8	8	5	44	1.10
5.95	910	---	5	2	4	3	---	4	---	6	7	4	35	.87
7.19	1,100	---	4	1	3	3	---	3	---	6	3	4	27	.67
9.15	1,400	---	---	1	2	2	---	2	---	5	3	3	18	.45
11.1	1,700	---	---	---	1	2	---	2	---	3	2	1	11	.27
13.7	2,100	---	---	---	1	2	---	2	---	2	1	---	8	.20
17.0	2,600	---	---	---	1	1	---	2	---	2	1	---	7	.17
20.3	3,100	---	---	---	---	---	---	1	---	2	---	---	3	.075
24.8	3,800	---	---	---	---	---	---	1	---	---	---	---	1	.025
30.1	4,600	---	---	---	---	---	---	---	---	---	---	---	-----	------

ROCK CREEK NEAR COLETA

LOCATION.--Lat 41°55′00″, long. 89°52′50″, in NE¼NE¼ sec. 11, T. 22 N., R. 5 E., at county highway bridge, 1 mile upstream from unnamed tributary, 2 miles downstream from Otter Creek and 5 miles northwest of Coleta.

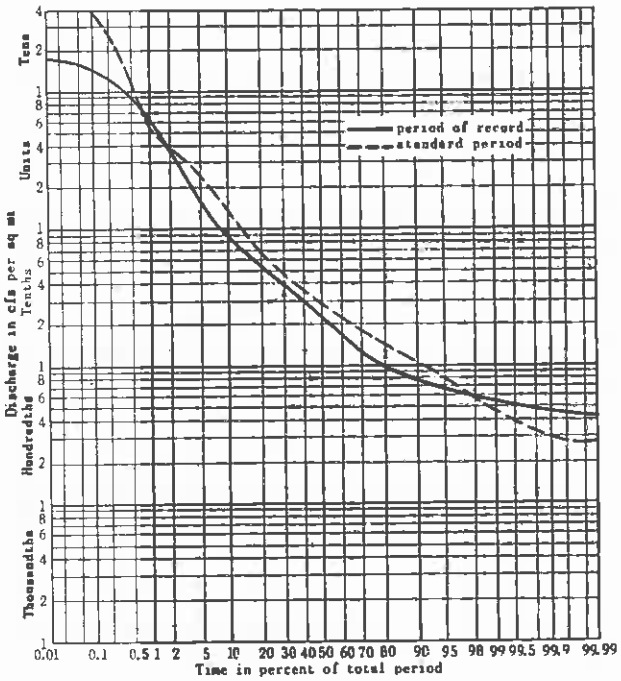
DRAINAGE AREA.--81.6 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-42.

AVERAGE DISCHARGE, 1921-45.--57.6 cfs, from synthetic duration curve, using Pecatonica River at Freeport as index station.

EXTREMES.--1939-42: Maximum discharge, 2,660 cfs June 3, 1941; minimum, 3 cfs Dec. 4, 1940.

REMARKS.--Published data have been supplemented by estimation of daily discharges Oct. 1 to Nov. 30, 1939, based on one discharge measurement and hydrographic comparison with records for Elkhorn Creek near Penrose. Duration relation with index station obtained through use of auxiliary relation with Rock Creek near Morrison for water years 1940-42

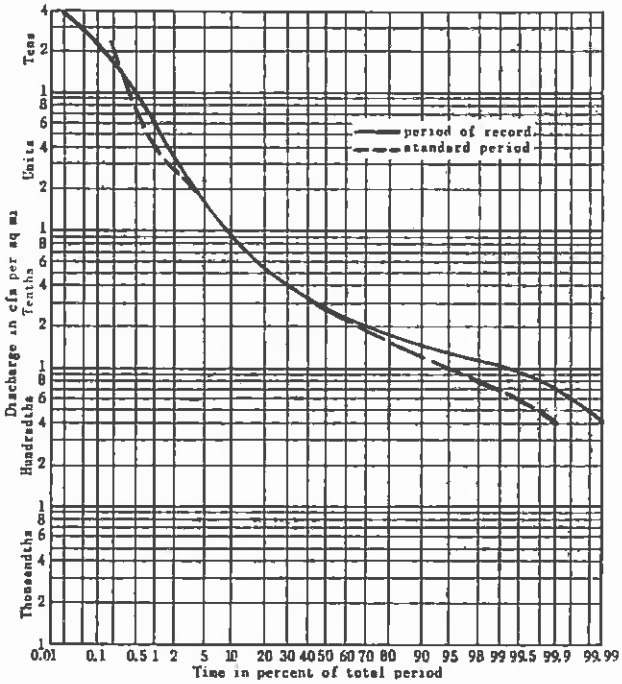


Rock Creek near Coleta

Days of duration of discharge for Rock Creek near Coleta

Cfs per sq mi	Cfs	Days equalled or exceeded 1940	Water year '41	'42	---	1940-42	Percent of time
0.0343	2.8	366	365	365	---	1,096	100.00
.0429	3.5	366	364	365	---	1,095	99.91
.0527	4.3	360	356	365	---	1,081	98.63
.0650	5.3	326	335	365	---	1,026	93.61
.0809	6.6	263	315	365	---	943	86.04
.0993	8.1	171	298	365	---	834	76.09
.122	10	114	268	365	---	747	68.16
.147	12	88	243	363	---	694	63.32
.184	15	74	204	342	---	620	56.57
.233	19	53	167	309	---	529	48.27
.282	23	42	137	257	---	436	39.78
.343	28	32	121	206	---	359	32.76
.429	35	19	94	165	---	278	25.36
.527	43	13	76	115	---	204	18.61
.650	53	8	65	78	---	151	13.78
0.809	66	6	54	55	---	115	10.49
.993	81	4	43	39	---	86	7.85
1.23	100	3	33	28	---	64	5.84
1.47	120	2	28	22	---	52	4.74
1.84	150	2	25	22	---	49	4.47
2.33	190	1	19	16	---	36	3.28
2.82	230	1	18	12	---	31	2.83
3.43	280	---	15	11	---	26	2.37
4.29	350	---	12	5	---	17	1.55
5.27	430	---	10	3	---	13	1.19
6.50	530	---	8	3	---	11	1.00
8.09	660	---	6	3	---	9	.82
9.93	810	---	4	1	---	5	.46
12.3	1,000	---	3	---	---	3	.27
14.7	1,200	---	1	---	---	1	.091
18.4	1,500	---	---	---	---	-----	------

ROCK CREEK NEAR MORRISON



Rock Creek near Morrison

LOCATION.--Lat 41°49′50″, long. 89°58′00″, in SW¼SE¼ sec. 6, T. 21 N., R. 5 E., just downstream from unnamed stream on right bank, 1½ miles north of Morrison, and 4½ miles downstream from Little Rock Creek.

DRAINAGE AREA.--143 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--89.8 cfs; from correlation of observed mean annual discharges with concurrent values for Pecatonica River at Freeport.

EXTREMES.--1942-50: Maximum discharge, 5,770 cfs Jan. 6, 1946; minimum, 8.6 cfs Dec. 17, 1948.

REMARKS.--Data for water years 1941-42 collected at site 3¾ miles downstream (drainage area, 169 sq mi) and adjusted to present site.

Days of duration of discharge for Rock Creek near Morrison

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0434	6.2	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0552	7.9	364	365	365	366	365	365	365	366	365	365	3,651	99.97
.0700	10	362	365	365	366	365	365	365	366	365	365	3,649	99.92
.0909	13	341	365	365	366	365	365	365	366	365	365	3,628	99.34
.112	16	316	365	365	366	365	365	365	366	364	365	3,602	98.63
.140	20	286	365	359	363	365	345	363	360	313	304	3,423	93.73
.175	25	255	362	345	348	364	291	319	309	246	255	3,094	84.72
.224	32	211	337	308	300	258	259	228	214	164	194	2,473	67.72
.280	40	164	269	277	197	188	168	191	157	133	146	1,890	51.75
.350	50	121	200	232	161	148	109	164	105	97	115	1,452	39.76
.441	63	97	135	184	136	103	68	137	68	76	85	1,089	29.82
.552	79	76	77	147	107	64	53	108	51	61	67	811	22.21
.699	100	58	52	111	74	42	41	77	38	47	56	596	16.32
.909	130	47	37	70	52	22	26	57	30	39	44	424	11.61
1.12	160	35	27	44	37	17	24	42	24	34	37	321	8.79
1.40	200	31	20	35	25	14	19	29	18	27	34	252	6.90
1.75	250	24	17	24	21	9	16	23	17	23	29	203	5.56
2.24	320	21	12	20	16	4	15	19	15	22	24	168	4.60
2.80	400	17	8	16	13	3	12	17	13	17	22	138	3.78
3.50	500	12	4	11	10	2	9	10	11	16	16	101	2.76
4.41	630	12	3	6	7	---	8	5	10	10	13	74	2.03
5.52	790	9	---	4	4	---	5	4	9	8	8	51	1.40
6.99	1,000	7	---	4	3	---	4	1	7	5	6	37	1.01
9.09	1,300	4	---	2	2	---	3	---	7	3	2	23	.63
11.2	1,600	1	---	2	1	---	2	---	5	2	1	14	.38
14.0	2,000	---	---	2	1	---	2	---	3	1	---	9	.25
17.5	2,500	---	---	1	1	---	2	---	2	---	---	6	.16
22.4	3,200	---	---	1	---	---	1	---	1	---	---	3	.082
28.0	4,000	---	---	---	---	---	1	---	1	---	---	2	.055
35.0	5,000	---	---	---	---	---	1	---	---	---	---	1	.027
44.1	6,300	---	---	---	---	---	---	---	---	---	---	-----	------

GREEN RIVER AT AMBOY

LOCATION.--Lat 41°42′35″, long. 89°19′28″, in SE¼NE¼ sec. 22, T. 20 N., R. 10 E., at bridge on U. S. Highway 52, at southeast edge of Amboy.

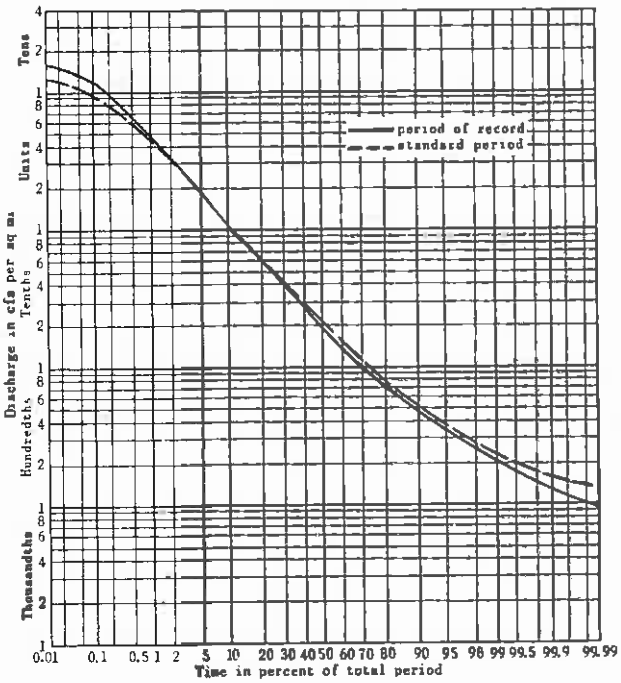
DRAINAGE AREA.--199 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--91.5 cfs; from multiple correlation of observed mean annual discharges with concurrent values for Fox River at Dayton and Spoon River at Seville.

EXTREMES.--1939-50: Maximum discharge, 3,960 cfs Jan. 5, 1946; minimum observed, 2.0 cfs on several days in February 1940, and Dec. 8, 1949.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Nov. 30, 1939, based on hydrographic comparison with records for Green River near Geneseo.

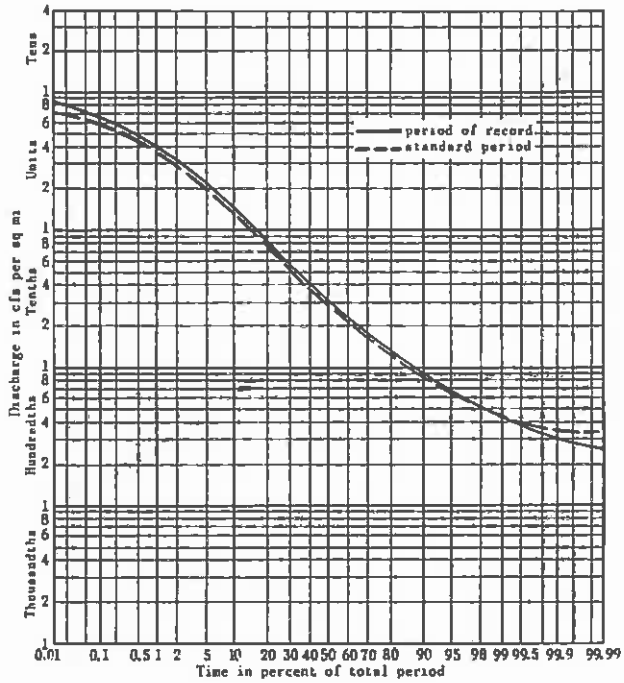


Green River at Amboy

Days of duration of discharge for Green River at Amboy

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0090	1.8	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0116	2.3	362	365	365	365	366	365	365	365	366	365	365	4,014	99.90
.0151	3.0	346	365	365	365	366	365	365	365	366	365	365	3,998	99.50
.0186	3.7	330	365	365	365	366	365	365	365	366	365	365	3,982	99.10
.0246	4.9	326	360	365	365	366	365	365	365	366	365	365	3,973	98.88
.0316	6.3	306	344	365	365	365	313	365	365	366	365	365	3,884	96.67
.0412	8.2	250	278	365	365	352	307	365	365	366	359	364	3,736	92.98
.0528	10.5	188	242	365	365	294	288	365	365	366	331	355	3,524	87.71
.0688	13.7	156	218	363	365	214	230	365	353	352	321	298	3,235	80.51
.0905	18.0	108	194	363	365	163	226	343	294	281	249	280	2,866	71.33
.116	23	67	155	351	314	141	210	316	208	233	218	260	2,473	61.55
.151	30	44	136	325	274	131	185	301	179	187	190	237	2,189	54.48
.186	37	31	116	306	249	126	161	284	161	164	170	214	1,982	49.33
.246	49	23	97	286	214	117	134	249	145	137	139	191	1,732	43.11
.316	63	18	71	238	185	104	113	190	129	101	116	160	1,425	35.47
.412	82	16	53	192	150	89	92	129	110	75	87	138	1,131	28.15
.528	105	11	35	145	137	81	69	97	94	58	71	113	911	22.67
.688	137	9	24	118	110	55	53	68	70	44	43	96	690	17.17
.905	180	7	14	74	65	36	38	52	56	32	27	76	477	11.87
1.16	230	4	10	58	45	20	25	42	37	24	18	57	340	8.46
1.51	300	4	9	36	30	14	19	32	27	16	16	43	246	6.12
1.86	370	3	5	21	23	11	13	24	21	14	12	30	177	4.41
2.46	490	2	4	11	14	6	9	13	14	11	8	23	115	2.86
3.16	630	2	3	5	5	4	7	9	10	9	8	16	78	1.94
4.12	820	1	1	1	4	4	3	7	5	4	5	12	47	1.17
5.28	1,050	1	1	1	3	1	2	5	3	4	5	7	33	.82
6.88	1,370	1	---	---	2	1	---	3	1	3	3	3	17	.42
9.05	1,800	---	---	---	1	1	---	2	---	2	1	2	9	.22
11.6	2,300	---	---	---	---	---	---	1	---	---	---	1	2	.050
15.1	3,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

GREEN RIVER NEAR GENESEO



Green River near Geneseo

LOCATION.--Lat 41°29′20″, long. 90°09′30″, in NE¼SW¼ sec. 4, T. 17 N., R. 3 E., at bridge on State Highway 82, 1.4 miles upstream from Geneseo Creek, and 2.4 miles north of Geneseo.

DRAINAGE AREA.--958 sq mi.

DURATION DATA AVAILABLE.--Water years 1937-50.

AVERAGE DISCHARGE, 1921-45.--547 cfs; from multiple correlation of observed mean annual discharges with concurrent values for Fox River at Dayton and Spoon River at Seville.

EXTREMES.--1936-50: Maximum discharge, 8,050 cfs Jan. 5, 1946; minimum daily, 27 cfs Jan. 2, 1940.

Days of duration of discharge for Green River near Geneseo

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1937-50	Percent of time
0.0251	24	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,113	100.00
.0313	30	365	365	365	360	365	365	365	366	365	365	365	366	365	365	5,107	99.88
.0386	37	365	365	365	342	365	365	365	366	365	365	365	366	365	365	5,089	99.53
.0480	46	365	365	365	296	360	365	365	366	364	365	365	366	365	365	5,037	98.51
.0595	57	365	365	365	255	328	365	365	366	346	365	365	366	365	365	4,946	96.73
.0741	71	365	347	365	237	297	365	365	366	315	365	365	366	363	365	4,846	94.78
.0908	87	359	342	359	203	282	365	365	359	312	365	365	352	346	361	4,735	92.61
.115	110	336	331	338	166	258	365	365	310	271	365	363	315	284	304	4,371	85.49
.141	135	322	289	321	127	218	365	357	233	224	352	328	292	247	264	3,939	77.04
.177	170	311	260	290	84	193	363	341	197	206	332	284	231	220	241	3,553	69.49
.219	210	305	253	244	52	173	363	305	165	187	309	253	184	203	220	3,216	62.90
.261	250	295	253	199	33	150	358	259	149	173	292	221	146	182	206	2,916	57.03
.324	310	268	223	156	23	117	331	223	137	153	257	188	115	152	179	2,522	49.33
.407	390	243	196	131	15	90	273	197	130	129	193	161	89	134	154	2,135	41.76
.501	480	220	163	99	12	68	237	174	123	100	142	137	66	117	134	1,792	35.05
.626	600	178	130	71	9	52	190	146	102	80	91	116	49	98	108	1,420	27.77
.772	740	134	107	52	8	43	147	122	86	58	68	90	36	66	91	1,108	21.67
.960	920	107	86	41	6	29	101	83	70	36	57	72	28	43	70	829	16.21
1.18	1,130	86	66	31	4	17	77	62	47	26	46	56	25	32	52	627	12.26
1.46	1,400	64	51	25	4	13	56	49	29	17	40	42	19	25	36	470	9.19
1.82	1,740	45	36	16	4	8	40	37	15	12	32	31	13	18	24	331	6.47
2.24	2,150	27	17	10	3	4	23	25	11	8	21	24	10	13	17	213	4.17
2.79	2,670	15	7	7	3	2	9	10	8	5	12	18	8	11	11	126	2.46
3.44	3,300	6	2	2	2	2	4	6	5	2	10	13	7	11	5	77	1.51
4.27	4,090	1	1	1	---	---	1	3	3	2	7	6	5	5	2	37	.72
5.28	5,060	---	1	---	---	---	---	1	1	---	4	2	2	2	1	14	.27
6.53	6,260	---	---	---	---	---	---	---	---	---	---	---	1	---	---	1	.020
8.10	7,760	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

MILL CREEK AT MILAN

LOCATION.--Lat 41°26′35″, long. 90°33′15″, in SW¼SE¼ sec. 24, T. 17 N., R. 2 W., at Knoxville Road Bridge, 1 mile southeast of Milan.

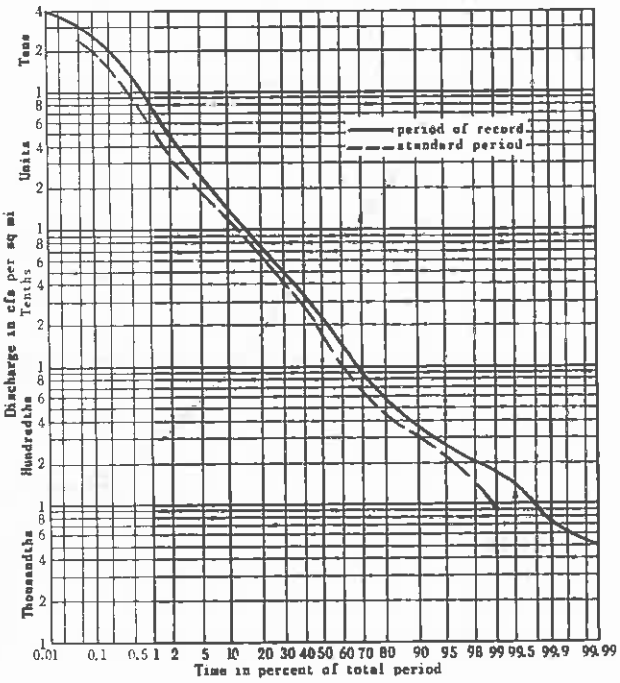
DRAINAGE AREA.--62.5 sq mi.

DURATION DATA AVAILABLE.--Water years 1942-50.

AVERAGE DISCHARGE, 1921-45.--35.8 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1941-50: Maximum discharge, 4,570 cfs Feb. 27, 1948; no flow for many days.

REMARKS.--Occasional pumpage of about 1 cfs from quarry into creek above gage.

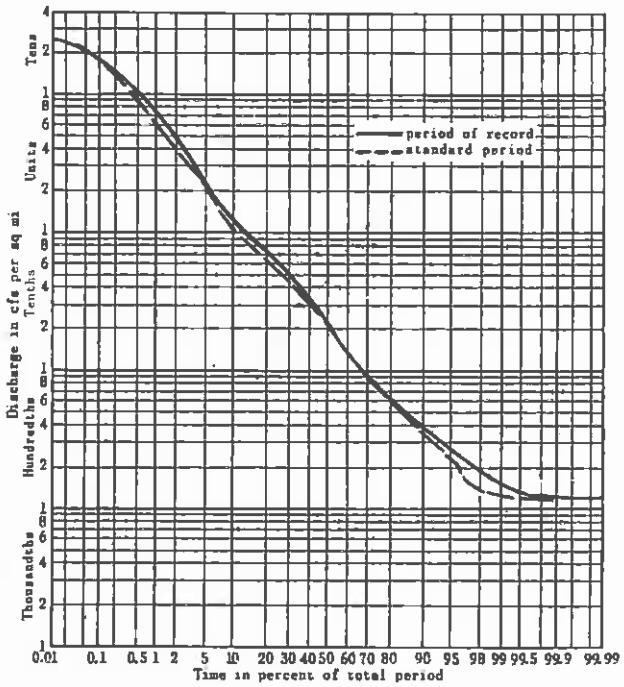


Mill Creek at Milan

Days of duration of discharge for Mill Creek at Milan

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1942	1943	1944	1945	1946	1947	1948	1949	1950	1942-50	Percent of time
0	0	365	365	366	365	365	365	366	365	365	3,287	100.00
.0016	.1	365	365	366	365	365	365	366	365	365	3,287	100.00
.0032	.2	365	365	366	365	365	365	366	365	365	3,287	100.00
.0048	.3	365	365	366	365	365	365	366	365	365	3,287	100.00
.0064	.4	365	365	366	364	365	365	366	365	364	3,285	99.94
.0112	.7	365	365	366	358	358	365	366	365	363	3,271	99.51
.0160	1.0	365	365	366	352	356	364	365	365	363	3,261	99.21
.0240	1.5	365	365	358	339	352	360	335	357	354	3,185	96.90
.0352	2.2	359	362	326	296	348	344	324	350	316	3,025	92.03
.0512	3.2	342	318	282	255	333	312	287	336	289	2,754	83.78
.0736	4.6	328	293	245	227	290	281	229	316	264	2,473	75.24
.109	6.8	311	268	202	195	245	244	163	273	236	2,137	65.01
.160	10	294	247	170	174	214	201	123	220	203	1,846	56.16
.240	15	265	219	162	158	185	174	92	173	179	1,607	48.89
.352	22	203	180	144	124	128	158	60	129	131	1,257	38.24
.512	32	117	127	125	110	79	118	37	82	86	881	26.80
.736	46	63	93	99	72	55	93	28	55	58	616	18.74
1.09	68	29	63	72	39	35	73	26	40	39	416	12.66
1.60	100	16	36	39	20	22	50	15	29	28	255	7.76
2.40	150	7	27	22	7	15	28	11	21	18	156	4.75
3.52	220	4	21	12	5	8	16	7	16	11	100	3.04
5.12	320	1	15	8	3	5	9	6	7	10	64	1.95
7.36	460	1	11	4	1	3	4	5	4	6	39	1.19
10.9	680	1	5	3	---	2	2	4	3	4	24	.73
16.0	1,000	---	1	1	---	2	1	2	1	4	12	.36
24.0	1,500	---	1	---	---	2	---	2	---	---	5	.15
35.2	2,200	---	---	---	---	1	---	---	---	---	1	.030
51.2	3,200	---	---	---	---	---	---	---	---	---	-----	------

EDWARDS RIVER NEAR ORION



Edwards River near Orion

LOCATION.--Lat 41°16′20″, long. 90°22′40″, in NE¼SE¼ sec. 21, T. 15 N., R. 1 E., at bridge on U. S. Highway 150, 1.5 miles north of Opheim, and 5.5 miles south of Orion.

DRAINAGE AREA.--163 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--95.8 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1941-50: Maximum discharge, 5,420 cfs Apr. 24, 1950; minimum, 1.8 cfs Sept. 1, 1941.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Dec. 31, 1940, based on two discharge measurements and hydrographic comparison with records for Edwards River near New Boston.

Days of duration of discharge for Edwards River near Orion

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0110	1.8	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0147	2.4	355	365	365	366	365	365	365	337	365	365	3,613	98.93
.0196	3.2	342	365	365	366	356	365	354	331	365	365	3,574	97.86
.0258	4.2	325	365	365	357	341	363	334	317	359	365	3,491	95.59
.0344	5.6	306	365	365	332	297	352	322	294	359	360	3,352	91.79
.0460	7.5	258	364	363	279	267	337	312	252	356	337	3,125	85.57
.0613	10	235	364	356	232	233	330	290	223	313	296	2,872	78.64
.0798	13	216	363	345	221	206	309	270	194	279	271	2,674	73.22
.110	18	194	348	300	190	190	270	242	153	228	248	2,363	64.70
.147	24	159	334	285	167	180	238	201	120	214	232	2,130	58.32
.196	32	129	320	257	153	161	217	179	102	192	209	1,919	52.55
.258	42	110	297	232	140	147	185	163	69	159	183	1,685	46.14
.344	56	80	256	201	131	130	138	144	54	119	157	1,410	38.61
.460	75	50	200	158	122	112	98	128	45	97	131	1,141	31.24
.613	100	34	150	112	99	87	67	100	35	67	99	850	23.27
.798	130	28	106	87	75	65	49	82	25	54	81	652	17.85
1.10	180	20	67	63	47	43	28	55	19	40	53	435	11.91
1.47	240	15	47	41	32	28	19	33	15	34	36	300	8.21
1.96	320	12	35	29	23	17	13	21	13	29	25	217	5.94
2.58	420	11	28	22	14	11	10	15	11	25	16	163	4.46
3.44	560	3	20	16	10	7	7	10	10	20	11	114	3.12
4.60	750	1	15	11	6	4	5	8	9	13	7	79	2.16
6.13	1,000	1	7	7	2	2	3	6	6	7	4	45	1.23
7.98	1,300	1	2	5	2	2	3	4	4	4	2	29	.79
11.0	1,800	---	1	4	---	2	2	4	2	2	2	19	.52
14.7	2,400	---	---	---	---	---	1	2	1	---	---	4	.11
19.6	3,200	---	---	---	---	---	1	1	---	---	---	2	.055
25.8	4,200	---	---	---	---	---	---	---	---	---	---	-----	------

EDWARDS RIVER NEAR NEW BOSTON

LOCATION.--Lat 41°11′15″, long. 90°58′05″, at quarter corner between secs. 21 and 28, T. 14 N., R. 5 W., at bridge on State Highway 17, 1½ miles northeast of New Boston, and 5 miles upstream from mouth.

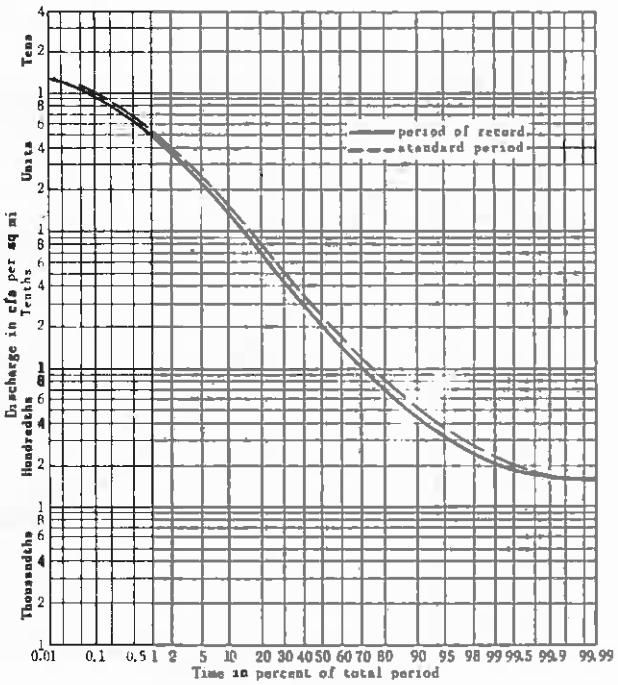
DRAINAGE AREA.--434 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-50.

AVERAGE DISCHARGE, 1921-45.--256 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1934-50: Maximum discharge, 7,280 cfs Apr. 26, 1950; minimum observed, 6 cfs July 26, 1940.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Nov. 11, 1934, based on hydrographic comparison with records for Spoon River at Seville.

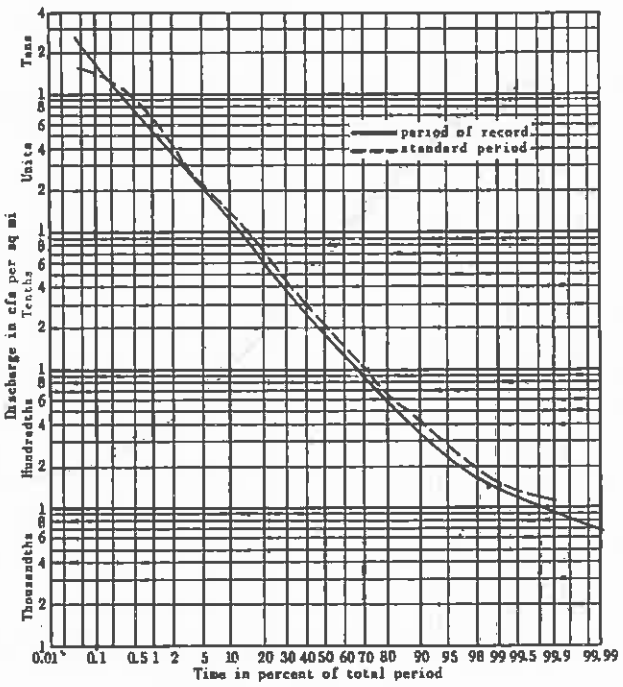


Edwards River near New Boston

Days of duration of discharge for Edwards River near New Boston

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1935	'36	'37	'38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	1935-50	Percent of time
0.0115	5	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,844	100.00
.0161	7	365	366	365	365	365	365	362	365	365	366	365	365	365	366	365	365	5,840	99.93
.0207	9	365	344	364	344	365	346	360	365	365	366	365	365	365	366	365	365	5,775	98.82
.0253	11	365	327	353	315	365	321	351	365	365	366	365	365	365	366	365	365	5,684	97.26
.0346	15	365	315	341	287	365	282	319	365	365	366	365	365	365	356	365	363	5,549	94.95
.0438	19	365	311	331	283	364	258	274	365	365	346	360	365	358	334	365	357	5,401	92.42
.0576	25	362	302	324	275	331	225	240	364	365	308	322	362	330	306	352	315	5,083	86.98
.0737	32	349	274	310	266	298	178	226	363	336	266	270	340	318	260	318	291	4,663	79.79
.0945	41	333	255	305	253	261	140	205	358	316	233	233	297	289	208	284	277	4,247	72.67
.122	53	314	236	291	236	236	118	183	344	292	193	202	271	257	175	246	261	3,855	65.97
.159	69	300	214	261	228	196	97	160	335	268	176	186	238	220	148	222	245	3,494	59.79
.203	88	283	154	244	209	175	81	138	316	245	162	172	214	195	113	202	225	3,128	53.52
.253	110	271	119	226	165	153	64	122	296	231	152	159	174	177	95	172	195	2,771	47.42
.346	150	241	85	201	128	123	38	91	252	190	144	142	126	145	75	148	160	2,289	39.17
.438	190	225	71	181	109	98	25	75	206	150	134	127	102	128	62	123	128	1,944	33.26
.576	250	202	52	154	95	68	18	51	161	115	110	103	77	117	47	91	100	1,561	26.71
.737	320	169	45	124	70	47	15	31	125	98	94	85	65	93	36	67	81	1,245	21.30
.945	410	128	30	89	60	40	9	24	82	82	73	61	50	85	29	57	66	965	16.51
1.22	530	90	29	59	51	35	7	17	63	56	56	38	44	76	26	43	52	742	12.70
1.59	690	63	22	44	43	28	6	12	43	40	36	24	30	56	25	35	42	549	9.39
2.03	880	47	20	23	33	20	4	5	26	34	26	16	22	39	20	23	34	392	6.71
2.53	1,100	40	15	7	24	12	4	---	14	28	16	12	18	31	15	8	20	264	4.52
3.46	1,500	24	8	3	9	6	1	---	3	16	11	7	12	22	11	3	13	149	2.55
4.38	1,900	12	7	3	4	6	---	---	1	8	7	6	10	13	10	3	7	97	1.66
5.76	2,500	1	3	1	1	3	---	---	---	2	3	3	5	6	6	1	5	40	.68
7.37	3,200	---	---	---	---	3	---	---	---	1	1	1	3	4	2	---	2	17	.29
9.45	4,100	---	---	---	---	---	---	---	---	---	---	---	2	1	---	---	1	4	.068
12.2	5,300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1	.017
15.9	6,900	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

POPE CREEK NEAR KEITHSBURG



Pope Creek near Keithsburg

LOCATION.--Lat 41°07′45″, long. 90°55′10″, in SE¼ sec. 11, T. 13 N., R. 5 W., at highway bridge, 2 miles northeast of Keithsburg, and 3.3 miles upstream from mouth.

DRAINAGE AREA.--171 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-50.

AVERAGE DISCHARGE, 1921-45.--101 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1934-50: Maximum discharge, 4,180 cfs Apr. 25, 1950; minimum, 0.6 cfs Oct. 1, 2, 1949.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Dec. 5, 1934, based on hydrographic comparison with records for Spoon River at Seville.

Days of duration of discharge for Pope Creek near Keithsburg

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1935	'36	'37	'38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	1935-50	Percent of time
0.0029	0.5	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,844	100.00
.0041	.7	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	363	5,842	99.97
.0058	1.0	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	363	5,842	99.97
.0082	1.4	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	362	5,841	99.95
.0111	1.9	365	366	365	365	365	366	360	365	365	366	365	365	365	366	363	359	5,831	99.78
.0152	2.6	365	350	349	365	365	352	351	365	365	366	365	365	365	366	363	357	5,774	98.80
.0211	3.6	365	321	338	304	365	342	331	365	365	366	365	365	365	366	360	353	5,636	96.44
.0304	5.2	365	314	325	267	365	279	278	365	365	364	359	365	365	366	351	331	5,424	92.81
.0409	7.0	365	312	317	265	365	259	257	365	362	326	339	356	363	361	326	305	5,243	89.72
.0573	9.8	362	290	308	261	365	190	227	363	360	270	255	307	324	305	293	286	4,766	81.55
.0819	14	347	269	296	255	352	156	197	358	330	213	218	277	288	268	255	281	4,360	74.61
.111	19	319	230	265	223	271	125	176	348	307	176	206	249	256	217	234	260	3,862	66.08
.152	26	303	223	227	169	214	90	145	317	271	160	182	227	211	156	215	244	3,354	57.39
.211	36	284	208	202	144	166	54	110	297	240	146	167	187	181	93	182	220	2,881	49.30
.304	52	258	140	174	117	106	31	73	257	213	132	149	133	160	68	143	178	2,332	39.90
.409	70	230	81	155	96	73	23	53	207	157	125	130	101	140	59	115	140	1,885	32.26
.573	98	186	44	118	76	53	15	35	152	117	106	107	72	122	46	68	106	1,423	24.35
.819	140	149	29	75	60	37	9	21	99	88	78	76	54	91	29	44	75	1,014	17.35
1.11	190	104	24	47	52	27	6	16	60	57	58	47	31	76	23	34	55	717	12.27
1.52	260	63	17	28	39	21	5	10	44	30	40	29	19	51	17	27	34	474	8.11
2.11	360	38	13	14	26	13	3	4	27	26	25	21	13	36	11	22	22	314	5.37
3.04	520	23	11	6	13	7	2	1	17	16	10	11	8	19	8	16	12	180	3.08
4.09	700	18	8	4	9	7	1	1	9	10	7	9	6	12	8	12	9	130	2.22
5.73	980	10	6	2	6	5	---	---	2	6	4	6	3	10	5	9	8	82	1.40
8.19	1,400	8	2	---	1	2	---	---	---	2	1	4	3	7	3	6	4	43	.74
11.1	1,900	3	1	---	---	1	---	---	---	1	1	---	2	4	3	2	2	20	.34
15.2	2,600	---	---	---	---	1	---	---	---	---	---	---	1	1	---	---	1	4	.068
21.1	3,600	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

HENDERSON CREEK NEAR LITTLE YORK

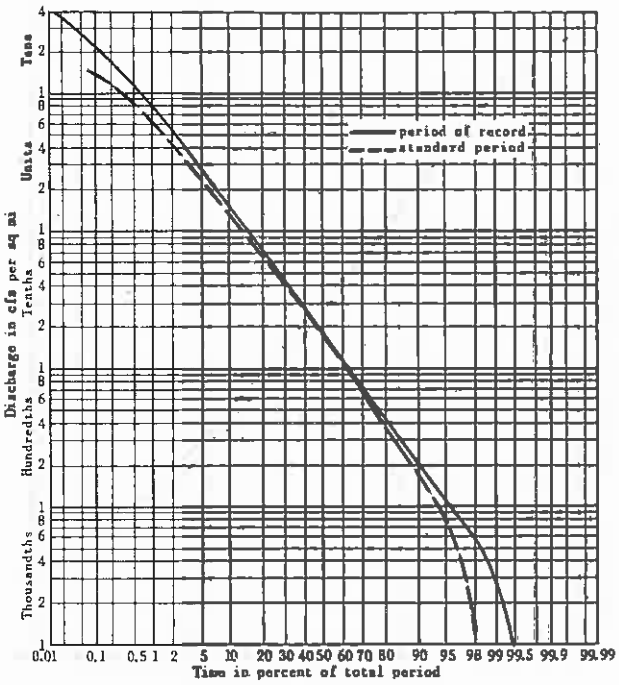
LOCATION.--Lat 41°02′35″, long. 90°44′45″, between secs. 8 and 9, T. 12 N., R. 3 W., at bridge on State Highways 94 and 135, 1.3 miles upstream from Duck Creek, 2.2 miles north of Little York, and 3.8 miles upstream from North Henderson Creek.

DRAINAGE AREA.--151 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--91.5 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1940-50: Maximum discharge, 8,250 cfs Apr. 25, 1950; no flow Sept. 3, 4, 9-11, 27, 28, Oct. 2, 1949.

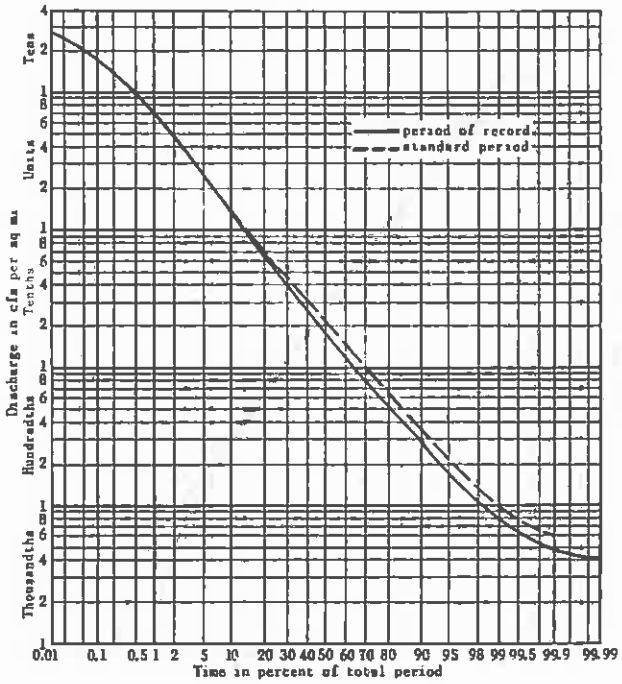


Henderson Creek near Little York

Days of duration of discharge for Henderson Creek near Little York

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown, Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0007	.1	365	365	365	366	365	365	365	366	358	364	3,644	97.78
.0013	.2	360	365	365	366	365	365	365	366	357	362	3,636	99.56
.0020	.3	349	365	365	366	365	365	365	365	356	362	3,623	99.21
.0033	.5	323	365	365	365	365	365	365	363	354	361	3,592	98.36
.0046	.7	323	365	365	366	365	365	365	363	353	356	3,586	98.19
.0066	1.0	318	365	365	366	365	365	364	360	352	348	3,568	97.70
.0099	1.5	294	365	365	366	364	362	358	359	347	317	3,497	95.76
.0146	2.2	276	365	365	363	358	344	350	357	344	297	3,419	93.62
.0212	3.2	257	365	365	349	336	332	337	344	315	290	3,290	90.09
.0305	4.6	243	364	365	309	303	302	321	299	292	284	3,082	84.39
.0450	6.8	228	364	358	248	250	266	297	239	259	275	2,784	76.23
.0662	10	212	358	314	220	211	247	284	213	237	254	2,550	69.82
.0993	15	187	336	298	178	187	233	237	186	225	244	2,311	63.28
.146	22	150	320	279	156	175	206	201	159	201	221	2,068	56.63
.212	32	108	308	257	136	162	157	171	123	165	187	1,774	48.58
.305	46	68	281	217	126	149	117	154	90	126	147	1,475	40.39
.450	68	42	227	174	109	131	76	137	57	95	109	1,157	31.68
.662	100	30	148	124	89	108	44	118	32	64	78	835	22.86
.993	150	15	86	86	58	69	25	91	23	41	55	549	15.03
1.46	220	7	57	57	43	52	17	57	16	33	41	380	10.41
2.12	320	2	39	35	17	30	13	33	13	27	33	242	6.63
3.05	460	2	27	23	9	19	12	19	8	21	24	164	4.49
4.50	680	---	17	16	6	11	8	12	7	14	16	107	2.93
6.62	1,000	---	6	8	6	7	3	6	3	6	9	54	1.48
9.93	1,500	---	6	2	1	6	1	2	2	2	6	28	.77
14.6	2,200	---	---	1	---	---	---	1	1	---	3	6	.16
21.2	3,200	---	---	---	---	---	---	---	---	---	1	1	.027
30.5	4,600	---	---	---	---	---	---	---	---	---	1	1	.027
45.0	6,800	---	---	---	---	---	---	---	---	---	---	-----	------

HENDERSON CREEK NEAR OQUAWKA



Henderson Creek near Oquawka

LOCATION.--Lat 41°00′05″, long. 90°51′15″, in NE¼SW¼ sec. 28, T. 12 N., R. 4 W., at bridge on State Highway 94, 1 mile south of Bald Bluff, 6½ miles northeast of Oquawka, and 22 miles upstream from mouth.

DRAINAGE AREA.--428 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-50.

AVERAGE DISCHARGE, 1921-45.--277 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1934-50: Maximum discharge, 16,500 cfs Apr. 25, 1950; minimum observed, 1.7 cfs Sept. 22, 23, 1940.

REMARKS.--Published records have been supplemented by estimation of daily discharges Oct. 1 to Dec. 7, 1934, based on hydrographic comparison with records for Spoon River at Seville.

Days of duration of discharge for Henderson Creek near Oquawka

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1935	'36	'37	'38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	1935-50	Percent of time
0.0033	1.4	365	366	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,844	100.00
.0044	1.9	365	366	365	365	365	362	365	365	365	366	365	365	365	366	365	365	5,840	99.93
.0063	2.7	365	356	365	365	365	354	359	365	365	366	365	365	365	366	365	365	5,816	99.52
.0086	3.7	365	335	354	365	365	345	346	365	365	366	365	365	365	366	365	365	5,762	98.60
.0121	5.2	365	316	342	348	365	286	325	365	365	366	365	365	365	366	365	365	5,634	96.41
.0168	7.2	365	313	332	338	364	266	300	365	365	366	365	365	365	366	364	365	5,564	95.21
.0234	10	365	311	326	311	354	229	275	365	365	366	345	365	365	366	342	327	5,377	92.01
.0327	14	365	306	320	278	342	188	263	364	365	364	327	361	358	361	326	323	5,211	89.17
.0444	19	365	294	313	269	305	159	246	364	361	342	298	352	343	342	309	307	4,969	85.03
.0631	27	358	273	297	259	266	133	221	359	333	276	242	294	320	320	290	293	4,534	77.58
.0864	37	335	246	275	249	234	124	190	346	320	227	219	266	290	248	250	285	4,104	70.23
.121	52	310	227	234	232	204	99	160	333	305	198	198	240	260	206	211	261	3,678	62.94
.168	72	288	219	214	207	170	67	122	320	281	164	182	218	218	175	194	236	3,275	56.04
.234	100	278	194	197	167	150	46	87	305	254	144	173	181	186	129	166	219	2,876	49.21
.327	140	251	101	178	133	119	31	61	294	214	137	159	128	154	95	138	188	2,381	40.74
.444	190	222	62	134	112	89	22	46	239	167	130	141	100	142	71	116	139	1,932	33.06
.631	270	182	39	102	84	52	14	31	179	126	116	118	59	121	38	74	102	1,437	24.59
.864	370	138	28	64	67	40	7	21	112	103	86	90	43	104	26	50	73	1,052	18.00
1.21	520	102	18	27	55	27	5	12	75	72	63	61	25	80	18	37	54	731	12.51
1.68	720	64	17	17	46	22	4	7	48	45	41	42	17	49	14	30	45	508	8.69
2.34	1,000	41	13	6	29	12	2	3	32	26	21	29	11	26	12	22	28	313	5.36
3.27	1,400	32	11	4	20	8	2	2	23	19	10	19	9	15	8	14	18	214	3.66
4.44	1,900	13	5	2	11	5	1	1	14	9	7	11	7	9	5	13	13	126	2.16
6.31	2,700	6	4	1	4	2	---	---	5	4	6	7	5	7	5	7	11	74	1.27
8.64	3,700	2	2	---	2	2	---	---	3	---	3	5	3	4	3	5	7	41	.70
12.1	5,200	---	2	---	---	1	---	---	---	---	---	---	1	1	1	3	4	13	.22
16.8	7,200	---	---	---	---	1	---	---	---	---	---	---	1	---	1	---	3	6	.10
23.4	10,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1	.017
32.7	14,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

NORTH HENDERSON CREEK NEAR SEATON

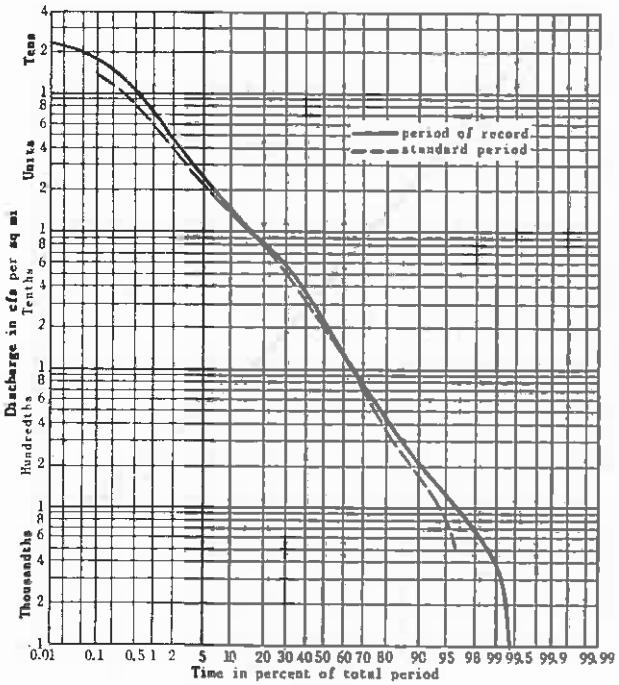
LOCATION.--Lat 41°05′25″, long. 90°46′25″, near center of sec. 30, T. 13 N., R. 3 W., at highway bridge, 1.1 miles upstream from Snake Creek, 1.6 miles southeast of Seaton, and 6 miles upstream from mouth.

DRAINAGE AREA.--66.4 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-51.

AVERAGE DISCHARGE, 1921-45.--38.3 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1940-51: Maximum discharge, 1,740 cfs Apr. 24, 1950; no flow for several days in October 1940, August and September 1941.

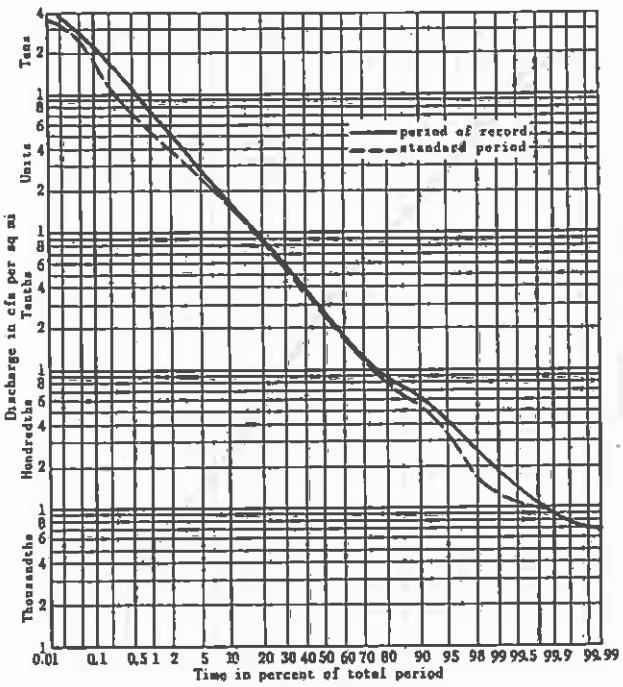


North Henderson Creek near Seaton

Days of duration of discharge for North Henderson Creek near Seaton

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1941-51	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	365	4,017	100.00
.0015	.1	336	365	365	366	365	365	365	366	365	365	365	3,988	99.28
.0030	.2	328	365	365	366	365	365	365	366	365	365	365	3,980	99.08
.0045	.3	325	365	365	366	365	365	364	366	365	365	365	3,976	98.98
.0060	.4	320	365	365	364	365	365	363	366	356	358	365	3,952	98.38
.0075	.5	319	365	365	363	365	364	363	366	349	337	365	3,921	97.61
.0105	.7	316	365	365	359	360	353	354	366	330	301	365	3,834	95.44
.0151	1.0	312	365	365	352	343	343	348	360	310	299	365	3,762	93.65
.0211	1.4	299	365	365	339	293	310	333	315	289	287	365	3,560	88.62
.0286	1.9	294	364	362	334	278	296	327	295	271	282	353	3,456	86.03
.0407	2.7	274	363	344	311	249	282	316	263	255	277	324	3,258	81.10
.0557	3.7	260	357	333	284	227	268	302	241	234	274	292	3,072	76.47
.0783	5.2	232	343	315	235	199	245	274	208	216	268	266	2,801	69.73
.108	7.2	208	334	293	203	181	227	252	182	204	246	241	2;571	64.00
.151	10	184	324	282	176	176	204	220	135	182	218	234	2,335	58.13
.211	14	143	310	263	160	165	171	201	99	162	195	215	2,084	51.88
.286	19	113	292	233	145	153	141	174	80	129	178	190	1,828	45.51
.407	27	61	227	173	135	137	105	157	55	101	140	165	1,456	36.25
.557	37	39	164	127	124	120	72	136	40	66	111	142	1,141	28.40
.783	52	23	96	97	92	100	45	109	25	45	72	117	821	20.44
1.08	72	15	61	69	69	65	29	89	18	35	54	80	584	14.54
1.51	100	8	40	38	37	40	15	64	13	26	42	53	376	9.36
2.11	140	5	25	22	18	25	9	37	11	21	22	31	226	5.63
2.86	190	4	16	11	10	19	7	22	8	20	15	21	153	3.81
4.07	270	2	11	6	4	10	4	9	6	10	9	17	88	2.19
5.57	370	1	6	4	4	7	3	7	3	5	7	12	59	1.47
7.83	520	1	2	1	2	4	2	6	2	3	6	8	37	.92
10.8	720	---	---	---	2	3	1	3	1	3	4	4	21	.52
15.1	1,000	---	---	---	---	1	1	---	---	1	1	2	6	.15
21.1	1,400	---	---	---	---	---	---	---	---	---	1	---	1	.025
28.6	1,900	---	---	---	---	---	---	---	---	---	---	---	-----	------

CEDAR CREEK AT LITTLE YORK



Cedar Creek at Little York

LOCATION.--Lat 41°00′50″, long. 90°44′45″, between secs. 20 and 21, T. 12 N., R. 3 W., at bridge on State Highway 135 at north edge of Little York, 1.5 miles upstream from Davids Creek, and 6.7 miles upstream from mouth.

DRAINAGE AREA.--128 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--90.6 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1940-50: Maximum discharge, 7,470 cfs Apr. 24, 1950; minimum observed, 1.0 cfs Aug. 28, 1941.

Days of duration of discharge for Cedar Creek at Little York

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0067	0.86	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0094	1.2	359	365	365	366	365	365	365	366	365	365	3,646	99.84
.0125	1.6	356	365	365	366	365	365	365	366	365	365	3,643	99.75
.0164	2.1	338	365	365	366	365	365	365	366	365	365	3,625	99.26
.0227	2.9	320	365	365	366	365	365	365	366	363	365	3,605	98.71
.0312	4.0	298	364	365	366	359	365	365	366	352	354	3,554	97.32
.0422	5.4	282	363	365	366	326	363	364	365	339	317	3,450	94.47
.0578	7.4	256	352	362	350	309	352	355	358	324	290	3,308	90.58
.0781	10	224	327	344	313	272	322	322	333	287	281	3,025	82.83
.109	14	180	319	312	232	238	278	295	266	248	278	2,646	72.45
.141	18	143	313	299	193	215	254	272	222	225	256	2,392	65.50
.195	25	105	303	282	162	189	228	241	171	193	226	2,100	57.50
.266	34	92	298	248	145	178	189	219	136	175	197	1,877	51.40
.359	46	70	286	216	131	158	138	174	97	143	166	1,579	43.24
.492	63	61	258	169	124	139	102	154	74	105	135	1,321	36.17
.672	86	41	194	116	106	122	59	133	45	79	108	1,003	27.46
.938	120	21	131	93	88	96	44	107	28	58	81	747	20.45
1.25	160	19	85	65	68	75	29	85	27	43	66	562	15.39
1.64	210	15	63	54	52	54	17	63	19	34	50	421	11.53
2.27	290	7	37	27	33	34	10	35	15	25	37	260	7.12
3.12	400	5	22	18	18	20	8	23	12	18	27	171	4.68
4.22	540	1	15	10	8	11	7	15	6	12	15	100	2.74
5.78	740	1	10	6	6	7	6	10	3	6	9	64	1.75
7.81	1,000	---	6	2	3	4	5	4	2	3	5	34	.93
10.9	1,400	---	4	---	1	2	3	1	2	2	3	18	.49
14.1	1,800	---	1	---	---	---	2	---	2	2	3	10	.27
19.5	2,500	---	1	---	---	---	1	---	---	2	2	6	.16
26.6	3,400	---	---	---	---	---	---	---	---	---	2	2	.055
35.9	4,600	---	---	---	---	---	---	---	---	---	---	-----	------

SOUTH HENDERSON CREEK AT BIGGSVILLE

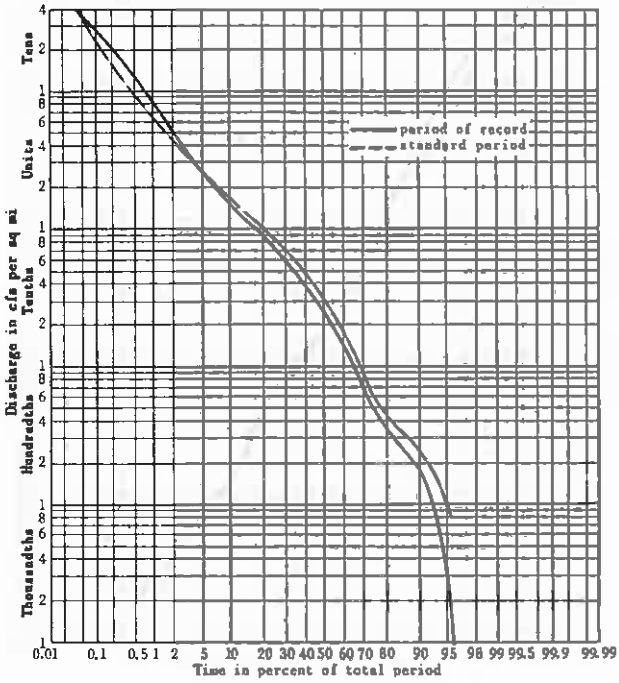
LOCATION.--Lat 40°51′25″, long. 90°51′50″, between secs. 16 and 17, T. 10 N., R. 4 W., at bridge on State Highway 94 at north edge of Biggsville, 1.5 miles downstream from Old Tom Creek, and 6.4 miles upstream from mouth.

DRAINAGE AREA.--81.4 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--54.2 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1939-50: Maximum discharge observed, 7,300 cfs June 12, 1946; no flow for several days during 1940, 1946-47, 1949.

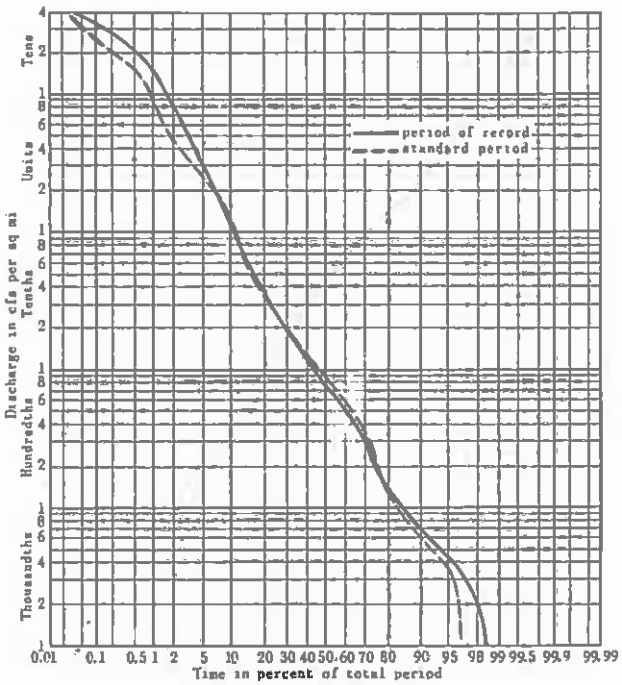


South Henderson Creek at Biggsville

Days of duration of discharge for South Henderson Creek at Biggsville

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0	0	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0002	.02	331	336	365	365	366	365	363	363	357	348	306	3,865	96.19
.0009	.07	308	326	365	365	366	365	363	363	357	348	306	3,832	95.37
.0018	.15	298	320	365	365	366	365	360	361	356	341	303	3,800	94.57
.0033	.27	297	315	365	365	366	365	359	359	355	334	301	3,781	94.10
.0054	.44	291	308	365	365	366	365	358	357	355	333	300	3,763	93.65
.0086	.70	282	295	364	365	359	365	356	355	353	328	298	3,720	92.58
.0123	1.00	266	280	362	365	354	365	350	350	348	325	297	3,662	91.14
.0209	1.70	218	249	359	355	312	364	327	344	339	313	279	3,459	86.09
.0295	2.4	178	207	356	335	286	329	300	333	327	288	273	3,212	79.94
.0430	3.5	148	179	351	309	248	280	263	321	307	273	268	2,947	73.34
.0639	5.2	133	162	335	298	222	247	247	290	289	257	263	2,743	68.27
.0946	7.7	121	136	327	276	191	217	233	256	262	223	242	2,484	61.82
.135	11	102	109	317	251	173	202	213	242	212	203	216	2,240	55.75
.197	16	85	81	312	218	149	187	176	211	166	162	187	1,934	48.13
.295	24	50	64	304	197	133	174	128	167	117	119	156	1,609	40.04
.418	34	33	50	298	164	125	158	97	141	81	97	120	1,364	33.95
.614	50	18	35	246	121	98	140	79	113	41	56	85	1,032	25.68
.885	72	9	28	167	87	83	109	47	87	30	20	64	731	18.19
1.23	100	7	21	102	63	64	91	27	65	22	13	53	528	13.14
1.84	150	3	13	66	43	39	57	14	44	14	10	37	340	8.46
2.70	220	2	7	30	26	18	21	10	26	11	7	19	177	4.41
3.93	320	1	4	19	17	12	12	8	19	8	4	13	117	2.91
5.65	460	1	2	9	8	7	8	8	8	7	3	8	69	1.72
8.35	680	1	1	7	5	2	5	5	5	1	2	5	39	.97
12.3	1,000	1	1	2	1	2	1	3	4	1	2	4	22	.55
17.2	1,400	---	1	1	---	1	1	2	---	1	1	3	11	.27
25.8	2,100	---	---	1	---	---	1	1	---	1	---	1	5	.12
38.1	3,100	---	---	---	---	---	---	1	---	---	---	1	2	.050
51.6	4,200	---	---	---	---	---	---	---	---	---	---	---	-----	------

BEAR CREEK NEAR MARCELLINE



Bear Creek near Marcelline

LOCATION.--Lat 40°08′34″, long. 91°20′14″, between secs. 20 and 21, T. 2 N., R. 8 W., at highway bridge, 0.9 mile downstream from Grindstone Creek, 2¼ mile northeast of Marcelline, and 12 miles upstream from mouth.

DRAINAGE AREA.--348 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--183 cfs; from correlation of observed mean annual discharges with concurrent values for La Moine River at Ripley.

EXTREMES.--1944-50: Maximum discharge observed 14,800 cfs Apr. 11, 1944; minimum observed, 0.1 cfs Sept. 16, 1947.

Days of duration of discharge for Bear Creek near Marcelline

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0	0	365	365	365	366	365	365	2,191	100.00	0.124	43	184	139	154	118	122	159	876	39.98
.0003	.1	365	365	365	366	365	365	2,191	100.00	.190	66	154	105	120	84	98	116	677	30.90
.0006	.2	365	365	362	366	365	365	2,188	99.86	.287	100	123	75	106	65	75	75	519	23.69
.0009	.3	365	365	358	353	365	365	2,171	99.09	.431	150	98	44	85	47	60	59	393	17.94
.0014	.5	365	364	347	350	365	365	2,156	98.40	.661	230	77	32	67	37	46	46	305	13.92
.0020	.7	365	364	339	349	365	365	2,147	97.99	1.01	350	62	24	55	32	38	42	253	11.55
.0029	1.0	360	356	332	348	365	365	2,126	97.03	1.52	530	48	19	38	23	24	26	178	8.12
.0043	1.5	355	339	319	342	365	364	2,084	95.12	2.33	810	39	13	29	15	10	18	124	5.66
.0066	2.3	353	328	307	307	335	352	1,982	90.46	3.45	1,200	31	9	21	12	6	9	88	4.02
.0101	3.5	351	320	291	288	295	311	1,856	84.71	5.46	1,900	21	5	13	10	4	6	59	2.69
.0152	5.3	346	296	283	257	256	274	1,712	78.14	8.05	2,800	16	5	9	6	2	5	43	1.96
.0233	8.1	304	278	273	206	214	253	1,528	69.74	12.4	4,300	7	4	6	4	1	2	24	1.10
.0345	12	282	265	255	183	198	238	1,421	64.86	19.0	6,600	1	---	2	4	1	1	9	.41
.0546	19	250	224	219	164	174	218	1,249	57.01	28.7	10,000	---	---	---	3	---	---	3	.14
.0805	28	216	178	191	145	150	189	1,069	48.79	43.1	15,000	---	---	---	---	---	---	-----	------

THE SNY AT ATLAS

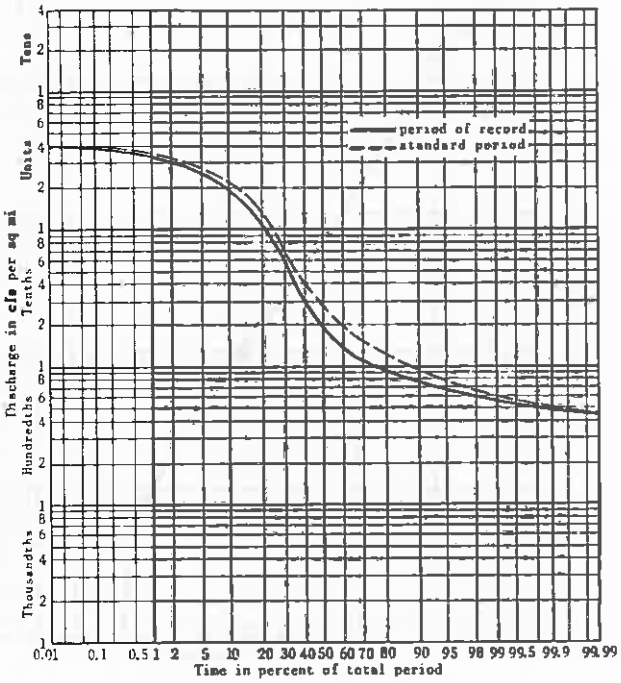
LOCATION.--Lat 39°30′20″, long. 90°59′00″, in NE¼NW¼ sec. 33, T. 6 S., R. 5 W., at bridge on U. S. Highway 54, three-eighths of a mile downstream from Ambrosia Creek and 1 mile west of Atlas.

DRAINAGE AREA.--451 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-42.

AVERAGE DISCHARGE, 1921-45.--307 cfs; from synthetic duration curve, using Spoon River at Seville as index station.

EXTREMES.--1939-42: Maximum discharge observed, 1,800 cfs May 15, 1942; minimum observed, 22 cfs Aug. 8, Sept. 1, 1941.

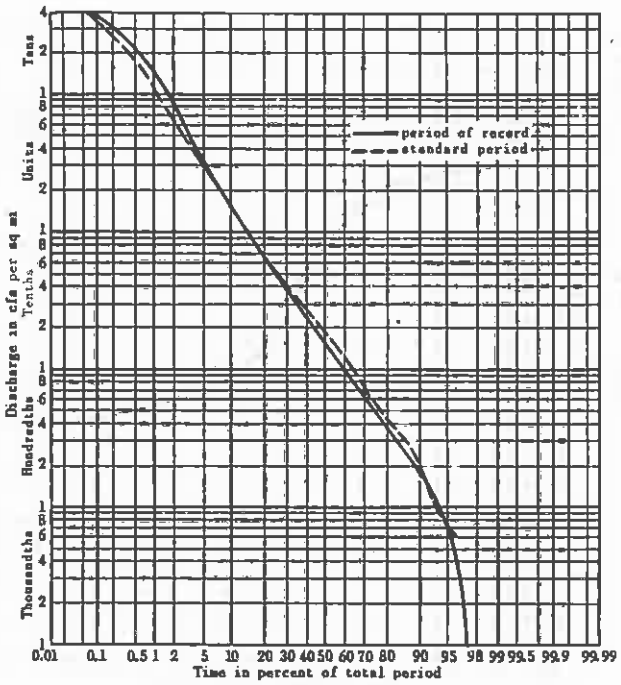


The Sny at Atlas

Days of duration of discharge for The Sny at Atlas

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1940	'41	'42	---	1940-42	Percent of time
0.0466	21	366	365	365	---	1,096	100.00
.0554	25	365	351	365	---	1,081	98.63
.0643	29	357	341	365	---	1,063	96.99
.0754	34	319	325	365	---	1,009	92.06
.0887	40	263	277	365	---	905	82.57
.102	46	205	255	365	---	825	75.27
.120	54	166	227	365	---	758	69.16
.140	63	140	189	365	---	694	63.32
.164	74	122	155	365	---	642	58.58
.191	86	77	138	365	---	580	52.92
.222	100	42	120	363	---	525	47.90
.266	120	22	97	358	---	477	43.52
.310	140	15	77	344	---	436	39.78
.355	160	12	67	320	---	399	36.41
.399	180	9	60	307	---	376	34.31
0.466	210	8	50	301	---	359	32.76
.554	250	5	40	288	---	333	30.38
.643	290	5	35	262	---	302	27.55
.754	340	4	25	245	---	274	25.00
.887	400	4	20	218	---	242	22.08
1.02	460	4	18	203	---	225	20.53
1.20	540	3	15	176	---	194	17.70
1.40	630	1	10	151	---	162	14.78
1.64	740	---	7	123	---	130	11.86
1.91	860	---	5	98	---	103	9.40
2.22	1,000	---	4	75	---	79	7.21
2.66	1,200	---	1	41	---	42	3.83
3.10	1,400	---	1	15	---	16	1.46
3.55	1,600	---	---	4	---	4	.36
3.99	1,800	---	---	1	---	1	.091
4.66	2,100	---	---	---	---	-----	------

HADLEY CREEK AT KINDERHOOK



Hadley Creek at Kinderhook

LOCATION.--Lat 39°41′35″, long. 91°08′55″, in SE¼NE¼ sec. 25, T. 4 S., R. 7 W., at bridge on State Highway 96, 0.8 mile southeast of Kinderhook, 2.0 miles upstream from Chicago, Burlington & Quincy Railroad bridge, and 5.5 miles upstream from mouth.

DRAINAGE AREA.--72.7 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--50.9 cfs; from correlation of observed mean annual discharges with concurrent values for Salt River near New London, Mo.

EXTREMES.--1939-50: Maximum discharge, 15,000 cfs Apr. 23, 1944; no flow for many days during 1940, 1941, 1944 and 1947.

Days of duration of discharge for Hadley Creek at Kinderhook

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0	0	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0001	.01	321	325	365	365	364	365	365	365	364	365	365	3,929	97.78
.0004	.03	319	321	365	365	364	365	365	365	364	365	365	3,923	97.64
.0008	.06	315	313	365	365	364	365	365	365	364	365	365	3,911	97.34
.0014	.10	313	305	365	365	364	365	365	365	364	365	365	3,901	97.09
.0022	.16	311	294	365	365	363	365	365	365	362	365	364	3,884	96.66
.0036	.26	306	290	365	365	362	365	365	365	362	365	364	3,874	96.42
.0058	.42	300	286	365	365	356	365	365	365	357	365	347	3,836	95.47
.0091	.66	294	276	365	360	342	365	365	362	350	364	337	3,780	94.08
.0138	1.00	285	268	365	327	322	365	360	357	348	359	322	3,678	91.54
.0220	1.6	220	246	364	304	286	356	352	348	338	357	310	3,481	86.64
.0330	2.4	171	225	363	298	257	344	349	329	322	334	288	3,280	81.63
.0495	3.6	132	210	354	285	207	311	341	308	287	282	272	2,989	74.39
.0757	5.5	84	161	335	271	175	278	315	289	222	234	243	2,607	64.88
.116	8.4	54	130	322	256	143	222	298	274	153	204	193	2,249	55.97
.179	13	31	91	282	221	119	198	253	252	117	163	173	1,900	47.29
.275	20	20	53	247	175	106	173	179	191	96	113	149	1,502	37.38
.413	30	12	41	191	133	88	144	122	140	80	72	118	1,141	28.40
.619	45	5	26	127	80	67	113	83	111	52	56	76	796	19.81
.922	67	4	17	85	51	51	90	60	86	37	41	46	568	14.14
1.38	100	3	12	55	36	43	71	40	67	29	31	26	413	10.28
2.20	160	2	9	40	26	27	49	25	52	17	22	14	283	7.04
3.16	230	2	6	31	20	16	33	15	35	14	17	8	197	4.90
4.95	360	1	4	23	15	9	23	9	23	8	6	3	124	3.09
7.43	540	1	2	18	13	6	14	7	16	3	3	1	84	2.09
11.4	830	---	1	9	10	5	9	4	11	---	2	1	52	1.29
17.9	1,300	---	1	5	5	4	7	2	7	---	1	1	33	.82
26.1	1,900	---	1	---	2	2	2	---	3	---	1	---	11	.27
39.9	2,900	---	---	---	---	1	1	---	---	---	1	---	3	.075
60.5	4,400	---	---	---	---	---	---	---	---	---	---	---	-----	------

HADLEY CREEK NEAR SHINN

LOCATION.--Lat 39°39'55", long. 91°09'12", near center of NE¼ sec. 1, T. 5 S., R. 7 W., at Chicago Burlington & Quincy Railroad bridge, 1.1 miles southeast of Shinn, 2.7 miles south of Kinderhook, and 3.5 miles upstream from mouth.

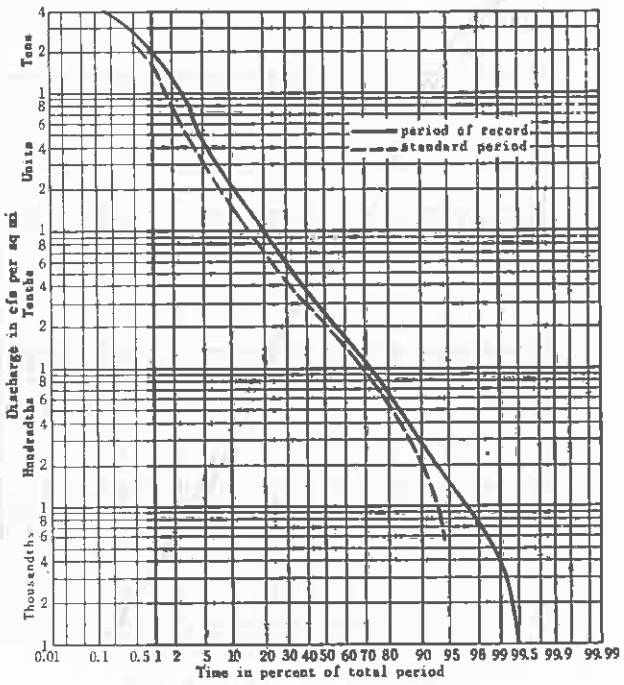
DRAINAGE AREA.--73.6 sq mi.

DURATION DATA AVAILABLE.--Water years 1942-46.

AVERAGE DISCHARGE, 1921-45.--51.5 cfs; from correlation of observed mean annual discharges with concurrent values for Salt River near New London, Mo.

EXTREMES.--1941-46: Maximum discharge, 15,000 cfs Apr. 23, 1944, by contracted opening method; no flow for several days in 1944, 1946.

REMARKS.--Duration relation with index station obtained through use of auxiliary relation with Hadley Creek at Kinderhook for water years 1942-46.

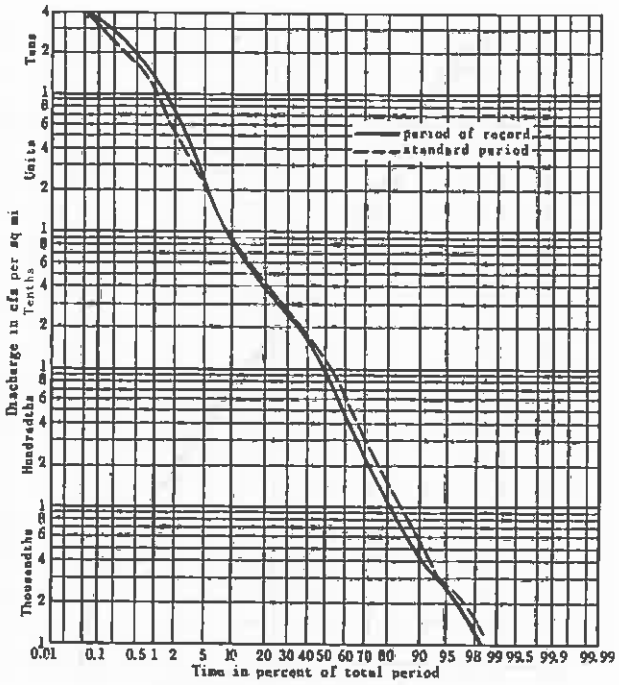


Hadley Creek near Shinn

Days of duration of discharge for Hadley Creek near Shinn

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1942	'43	'44	'45	'46	1942-46	Percent of time
0	0	365	365	366	365	365	1,826	100.00
.0014	.1	365	365	359	365	360	1,814	99.34
.0027	.2	365	365	354	365	360	1,809	99.07
.0041	.3	365	362	348	365	360	1,800	98.58
.0068	.5	365	357	342	365	360	1,789	97.97
.0095	.7	365	352	330	365	359	1,771	96.99
.0136	1.0	365	344	313	362	357	1,741	95.35
.0204	1.5	365	335	288	349	357	1,694	92.77
.0299	2.2	365	323	259	344	352	1,643	89.98
.0435	3.2	359	299	213	332	345	1,548	84.78
.0625	4.6	345	281	194	301	337	1,458	79.85
.0924	6.8	329	262	163	260	318	1,332	72.95
.136	10	306	237	132	210	286	1,171	64.13
.204	15	280	204	112	192	237	1,025	56.13
.299	22	233	165	97	166	169	830	45.45
.435	32	181	117	87	145	122	652	35.71
.625	46	135	84	70	116	89	494	27.05
.924	68	97	57	55	92	59	360	19.72
1.36	100	75	40	41	72	35	263	14.40
2.04	150	51	27	29	49	25	181	9.91
2.99	220	33	22	17	33	14	119	6.52
4.35	320	26	19	12	26	13	96	5.26
6.25	460	19	13	9	19	7	67	3.67
9.24	680	12	10	7	15	6	50	2.74
13.6	1,000	8	8	4	8	4	32	1.75
20.4	1,500	1	4	4	5	2	16	.88
29.9	2,200	---	1	2	2	---	5	.27
43.5	3,200	---	1	1	1	---	3	.16
62.5	4,600	---	---	---	---	---	-----	------

BAY CREEK AT PITTSFIELD



Bay Creek at Pittsfield

LOCATION.--Lat 39°37′30″, long. 90°47′40″, in NE¼SW¼ sec. 18, T. 5 S., R. 3 W., at bridge on abandoned highway, 50 ft downstream from Panther Creek, 0.1 mile downstream from bridge on State Highway 107, 0.4 mile downstream from Wabash Railroad bridge, and 1.4 miles northeast of Pittsfield.

DRAINAGE AREA.--39.6 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--24.5 cfs; from correlation of observed mean annual discharges with concurrent values for Salt River near New London, Mo.

EXTREMES.--1939-50: Maximum discharge, 8,300 cfs June 9, 1945, from rating curve extended above 4,400 cfs; no flow during many periods.

Days of duration of discharge for Bay Creek at Pittsfield

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0	0.0	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0005	.02	366	365	365	355	359	342	365	358	363	355	365	3,958	98.51
.0013	.05	337	365	365	355	359	342	365	358	363	355	365	3,929	97.78
.0023	.09	287	324	365	355	359	342	365	358	363	355	365	3,838	95.52
.0038	.15	234	278	364	337	316	331	365	350	352	346	365	3,638	90.54
.0061	.24	196	221	361	331	289	315	365	345	337	331	357	3,448	85.81
.0093	.37	165	205	359	320	268	307	365	342	330	320	335	3,316	82.53
.0141	.56	150	180	347	306	228	292	364	326	298	293	298	3,082	76.70
.0217	.86	128	160	328	297	200	278	361	302	279	270	268	2,871	71.45
.0328	1.3	112	135	319	279	184	256	354	292	243	235	245	2,654	66.05
.0480	1.9	94	110	301	264	165	229	339	279	209	220	201	2,411	60.00
.0707	2.8	72	98	289	238	137	209	297	267	168	201	183	2,159	53.73
.104	4.1	45	72	269	227	116	190	241	257	142	177	167	1,903	47.36
.152	6.0	29	49	231	196	99	166	181	230	121	140	154	1,596	39.72
.227	9.0	18	33	186	138	80	139	139	195	92	99	135	1,254	31.21
.328	13	14	31	146	88	62	112	99	131	69	70	109	931	23.17
.480	19	8	24	107	64	44	90	70	100	46	47	72	672	16.72
.707	28	5	17	81	49	32	69	53	75	35	31	45	492	12.24
1.04	41	4	14	63	35	27	47	33	50	23	24	35	355	8.84
1.52	60	3	6	52	23	20	38	29	38	19	17	23	268	6.67
2.27	90	3	3	42	17	15	33	24	32	13	13	18	213	5.30
3.28	130	---	3	32	14	11	28	19	26	10	11	12	166	4.13
4.80	190	---	3	27	13	6	21	13	19	7	11	9	129	3.21
7.07	280	---	2	22	12	5	17	7	13	5	6	4	93	2.31
10.4	410	---	2	12	10	5	11	4	11	2	1	3	61	1.52
15.2	600	---	1	5	8	3	7	2	7	---	1	1	35	.87
22.7	900	---	1	3	3	2	2	2	2	---	---	1	16	.40
32.8	1,300	---	---	---	2	1	2	1	---	---	---	---	6	.15
48.0	1,900	---	---	---	---	---	1	1	---	---	---	---	2	.050
70.7	2,800	---	---	---	---	---	1	---	---	---	---	---	1	.025
104.	4,100	---	---	---	---	---	---	---	---	---	---	---	-----	------

BAY CREEK AT NEBO

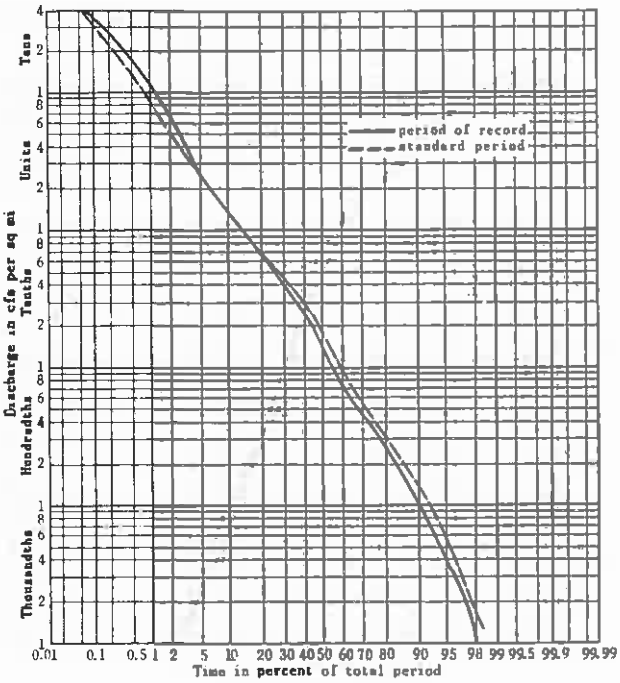
LOCATION.--Lat 39°26′35″, long. 90°47′45″, in NW¼ sec. 19, T. 7 S., R. 3 W., at highway bridge 500 ft upstream from Spring Creek, a quarter of a mile west of Nebo, and 6.1 miles upstream from Chicago & Alton Railroad bridge.

DRAINAGE AREA.--162 sq mi (including that of Spring Creek).

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--100 cfs; from correlation of observed mean annual discharges with concurrent values for Salt River near New London, Mo.

EXTREMES.--1939-50: Maximum discharge, 23,500 cfs Aug. 16, 1946; from rating curve extended above 9,000 cfs; no flow for many days.

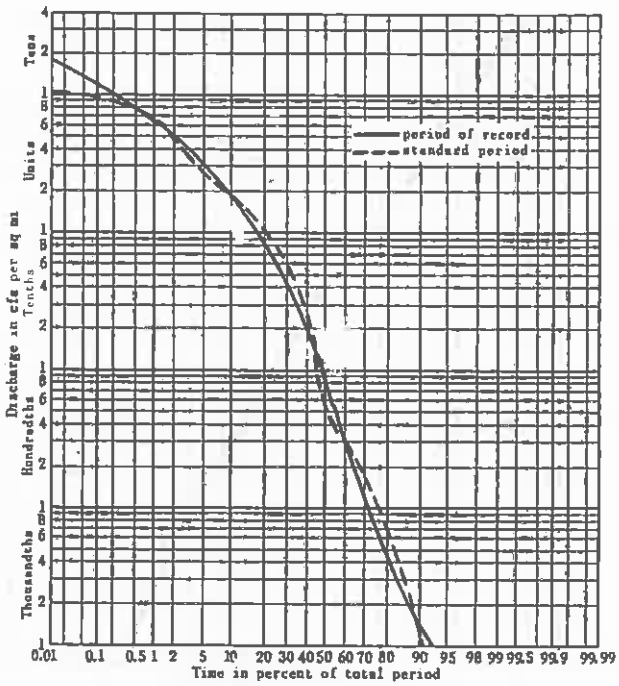


Bay Creek at Nebo

Days of duration of discharge for Bay Creek at Nebo

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0	0	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0006	.1	333	340	365	365	366	357	365	365	366	365	365	3,952	98.36
.0012	.2	323	326	365	365	366	357	365	365	366	365	365	3,928	97.76
.0019	.3	309	310	365	365	366	357	365	365	366	365	365	3,898	97.01
.0025	.4	302	300	365	365	366	357	365	365	366	365	365	3,881	96.59
.0043	.7	277	281	365	365	348	352	365	365	366	365	356	3,805	94.70
.0062	1.0	264	259	365	365	334	343	365	362	359	365	344	3,725	92.71
.0093	1.5	238	244	365	365	317	333	365	356	352	365	323	3,623	90.17
.0142	2.3	187	237	365	356	297	320	365	343	339	365	313	3,487	86.78
.0216	3.5	150	201	365	344	269	280	365	328	311	349	306	3,268	81.33
.0327	5.3	128	151	358	320	248	257	365	312	283	327	295	3,044	75.76
.0500	8.1	94	115	342	290	181	236	364	298	234	272	277	2,703	67.27
.0741	12	59	95	321	280	149	223	349	283	211	249	254	2,473	61.55
.117	19	28	61	301	266	123	204	315	275	168	220	196	2,157	53.68
.173	28	16	45	286	246	118	182	240	267	136	205	178	1,919	47.76
.265	43	6	27	233	179	108	157	163	218	112	180	157	1,540	38.33
.407	66	5	20	162	130	84	122	111	162	85	133	127	1,141	28.40
.617	100	4	11	116	85	63	89	76	107	58	82	74	765	19.04
.926	150	3	8	80	60	43	70	46	80	39	53	37	519	12.92
1.42	230	2	8	60	42	27	47	28	56	22	31	25	348	8.66
2.16	350	1	5	43	27	17	33	20	36	14	23	15	234	5.82
3.27	530	---	4	37	21	11	27	15	25	9	12	8	169	4.21
5.00	810	---	2	25	16	5	19	8	17	6	4	6	108	2.69
7.41	1,200	---	1	16	12	3	12	6	13	3	3	3	72	1.79
11.7	1,900	---	---	7	8	3	6	2	6	2	1	1	36	.90
17.3	2,800	---	---	4	6	2	3	1	3	1	---	---	20	.50
26.5	4,300	---	---	1	2	1	2	1	2	1	---	---	10	.25
40.7	6,600	---	---	1	---	---	1	1	---	---	---	---	3	.075
61.7	10,000	---	---	---	---	---	---	1	---	---	---	---	1	.025
92.6	15,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

DES PLAINES RIVER NEAR GURNEE



Des Plaines River near Gurnee

LOCATION.--Lat 42°20'40", long. 87°56'30", in SW¼ sec. 27, T. 45 N., R. 11 E., at bridge on State Highway 120, 600 ft east of intersection of State Highways 120 and 63, 2½ miles southwest of Gurnee, 2½ miles upstream from Bull Creek, and 6 miles downstream from Mill Creek.

DRAINAGE AREA.--215 sq mi.

DURATION DATA AVAILABLE.--Water years 1946-50.

AVERAGE DISCHARGE, 1921-45.--140 cfs; from correlation of the observed mean annual discharges with concurrent values for Des Plaines River at Riverside.

EXTREMES.--1945-50: Maximum discharge, 2,620 cfs Mar. 21, 1948; minimum, 0.1 cfs for many days.

Days of duration of discharge for Des Plaines River near Gurnee

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1946-50	Percent of time
0	0	365	365	366	365	365	1,826	100.00
.0005	.1	365	365	366	365	365	1,826	100.00
.0009	.2	337	324	336	311	365	1,673	91.62
.0014	.3	325	306	330	280	365	1,606	87.95
.0023	.5	312	284	323	262	362	1,543	84.50
.0032	.7	287	254	316	258	359	1,474	80.72
.0047	1.0	282	238	306	244	343	1,413	77.38
.0070	1.5	280	223	291	232	317	1,343	73.55
.0102	2.2	276	198	272	223	301	1,270	69.55
.0149	3.2	272	180	257	204	290	1,203	65.88
.0214	4.6	267	172	253	192	283	1,167	63.91
.0316	6.8	257	158	236	184	266	1,101	60.30
.0465	10	252	147	203	169	253	1,024	56.08
.0698	15	246	139	182	150	236	953	52.19
0.102	22	218	128	157	126	221	850	46.55
.149	32	190	122	137	114	201	764	41.84
.214	46	161	117	124	106	173	681	37.29
.316	68	119	113	116	90	143	581	31.82
.465	100	89	98	109	74	116	486	26.62
.698	150	73	87	86	48	98	392	21.47
1.02	220	60	61	68	38	74	301	16.48
1.49	320	47	44	55	23	53	222	12.16
2.14	460	34	28	44	16	40	162	8.87
3.16	680	24	11	28	9	25	97	5.31
4.65	1,000	9	---	18	2	7	36	1.97
6.98	1,500	2	---	7	---	4	13	.71
10.2	2,200	---	---	3	---	---	3	.16
14.9	3,200	---	---	---	---	---	-----	------

DES PLAINES RIVER NEAR DES PLAINES

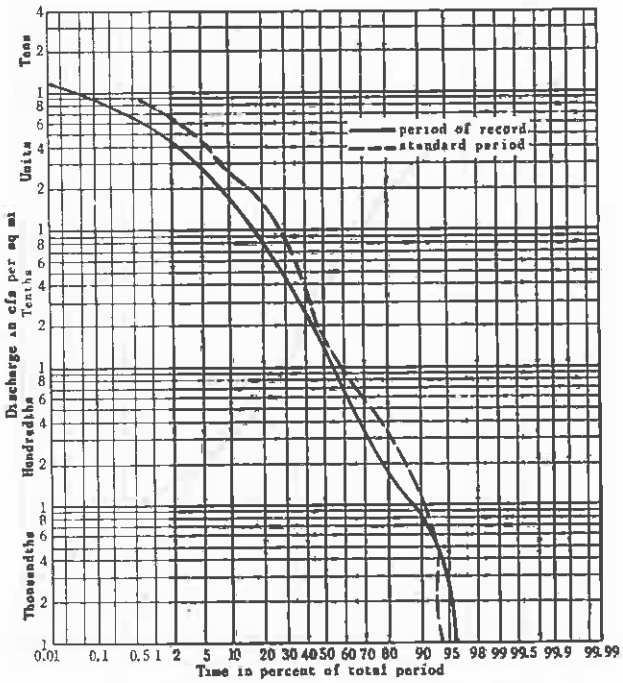
LOCATION.--Lat 42°04′55″, long. 87°53′25″, in SE¼SE¼ sec. 25, T. 42 N., R. 11 E., 50 ft upstream from dam No. 2 of Cook County Forest Preserve, 0.3 mile downstream from Lake Avenue Bridge, 1.2 miles upstream from Central Road Bridge, and 2½ miles north of Des Plaines.

DRAINAGE AREA.--374 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--218 cfs; from correlation of the observed mean annual discharges with concurrent values for Des Plaines River at Riverside.

EXTREMES.--1940-50: Maximum discharge, 4,040 cfs Apr. 25, 1950; no flow for many days in August and September 1944, July to September 1946.

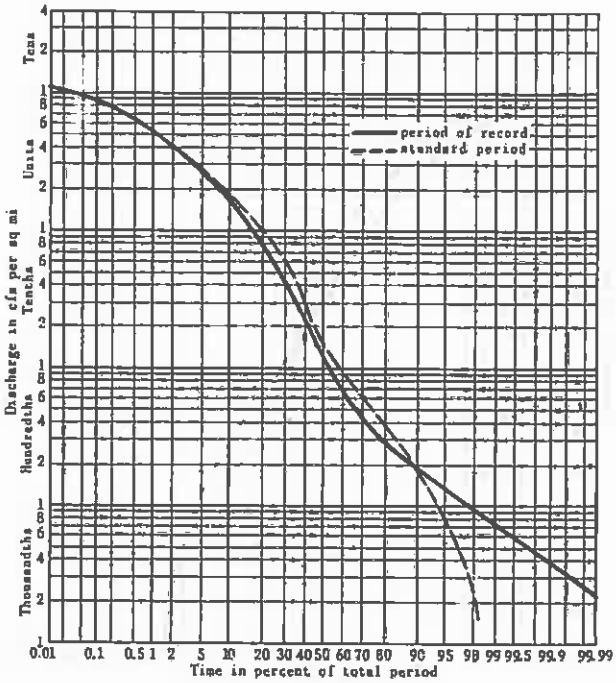


Des Plaines River near Des Plaines

Days of duration of discharge for Des Plaines River near Des Plaines

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0003	.1	365	365	365	338	365	333	365	366	365	365	3,592	98.36
.0005	.2	365	365	365	334	365	331	347	348	365	365	3,550	97.21
.0008	.3	365	365	365	329	362	331	343	338	365	363	3,526	96.55
.0013	.5	365	365	365	324	351	329	340	335	362	363	3,499	95.81
.0019	.7	365	365	365	321	343	328	339	334	362	363	3,485	95.43
.0027	1.0	361	365	365	317	330	325	339	332	358	363	3,455	94.61
.0040	1.5	357	365	365	316	330	322	339	323	350	362	3,429	93.89
.0059	2.2	353	364	365	310	314	318	329	315	332	362	3,362	92.06
.0087	3.2	343	359	365	306	275	311	326	312	316	362	3,275	89.68
.0123	4.6	337	356	365	298	240	295	279	305	296	354	3,125	85.57
.0182	6.8	331	350	364	274	229	289	242	282	260	318	2,939	80.48
.0267	10	322	343	343	228	218	269	221	268	233	297	2,742	75.08
.0401	15	292	333	323	198	200	259	206	228	217	267	2,523	69.09
.0588	22	253	325	301	169	180	255	171	203	195	237	2,289	62.68
.0856	32	225	309	263	145	155	246	142	185	165	221	2,056	56.30
.123	46	205	297	240	122	126	226	126	141	136	211	1,830	50.11
.182	68	189	264	215	115	100	191	118	127	116	194	1,629	44.61
.267	100	157	227	195	107	78	142	112	120	99	163	1,400	38.34
.401	150	122	192	158	94	68	107	103	110	79	124	1,157	31.68
.588	220	93	137	113	77	58	83	94	93	63	105	916	25.08
.856	320	69	108	83	60	53	64	84	74	43	81	719	19.69
1.23	460	60	86	62	46	43	50	52	59	30	56	544	14.90
1.82	680	42	50	46	31	28	38	35	39	19	40	368	10.08
2.67	1,000	17	21	24	12	9	27	15	26	7	21	179	4.90
4.01	1,500	---	6	10	6	3	14	4	18	1	12	74	2.03
5.88	2,200	---	---	3	4	---	2	---	6	---	5	20	.55
8.56	3,200	---	---	---	---	---	---	---	2	---	2	4	.11
12.3	4,600	---	---	---	---	---	---	---	---	---	---	-----	------

DES PLAINES RIVER AT RIVERSIDE



Des Plaines River at Riverside

LOCATION.--Lat 41°49′20″, long. 87°49′15″, in SW¼SW¼ sec. 36, T. 39 N., R. 12 E., 300 ft downstream from Barry Point Road Bridge in Riverside, 200 ft northwest of Riverside-Lyons boundary, 500 ft downstream from Hoffman Dam, 4,000 ft downstream from Salt Creek, and 1½ miles downstream from Chicago, Burlington & Quincy Railroad bridge.

DRAINAGE AREA.--635 sq mi.

DURATION DATA AVAILABLE.--Water years 1944-50.

AVERAGE DISCHARGE, 1921-45.--396 cfs.

EXTREMES.--1914-50: Maximum discharge, 7,450 cfs Mar. 18, 1919.

REMARKS.--Monthly mean discharges prior to 1944, collected by Sanitary District of Chicago, included in computation of average discharge. For the long-term flow duration curves, data at Riverside since 1944 were combined with unpublished daily discharges for earlier periods of high water, and with low-water data for 1915-44 for Des Plaines River at Lemont.

Days of duration of discharge for Des Plaines River at Riverside

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1944	1945	1946	1947	1948	1949	1950	1915-50	Percent of time
0	0	366	365	365	365	366	365	365	13,149	100.00
.0016	1.0	366	365	365	365	366	365	365	13,006	98.91
.0022	1.4	366	365	365	365	366	365	365	12,985	98.75
.0030	1.9	365	365	365	365	366	365	365	12,946	98.46
.0043	2.7	362	365	365	365	366	365	365	12,895	98.07
.0058	3.7	361	365	365	365	362	365	365	12,838	97.63
.0082	5.2	359	362	365	365	351	362	363	12,702	96.60
.0113	7.2	335	356	365	361	346	352	361	12,521	95.22
.0157	10	330	352	365	341	333	321	359	12,226	92.98
.0220	14	311	290	336	312	297	285	350	11,654	88.63
.0299	19	291	237	302	258	282	268	318	11,021	83.82
.0425	27	265	224	296	228	271	243	286	10,267	78.08
.0583	37	235	214	278	201	252	224	262	9,190	69.89
.0819	52	170	191	272	166	220	206	247	8,347	63.48
.113	72	139	159	254	148	199	187	234	7,405	56.32
.157	100	130	130	234	139	168	153	222	6,585	50.08
.220	140	119	113	185	125	138	128	206	5,750	43.73
.299	190	103	93	161	120	125	111	185	5,252	39.94
.425	270	94	76	119	108	113	89	161	4,585	34.87
.583	370	87	66	88	93	93	64	131	3,849	29.27
.819	520	61	59	63	77	79	42	96	3,051	23.20
1.13	720	39	46	53	58	61	29	74	2,286	17.39
1.57	1,000	22	27	40	40	44	22	54	1,541	11.72
2.20	1,400	12	13	30	24	32	9	38	966	7.35
2.99	1,900	8	7	21	12	22	---	22	542	4.12
4.25	2,700	6	5	11	6	11	---	7	281	2.14
5.83	3,700	4	---	---	---	6	---	4	98	.75
8.19	5,200	---	---	---	---	3	---	2	19	.14
11.3	7,200	---	---	---	---	---	---	---	1	.008
15.7	10,000	---	---	---	---	---	---	---	------	------

ILLINOIS RIVER AT MARSEILLES

LOCATION.--Lat 41°19′40″, long. 88°43′10″, in SE¼SW¼ sec. 13, T. 33 N., R. 4 E., 0.4 mile downstream from dam in Marseilles, 6.9 miles upstream from Fox River, and at mile 246.6.

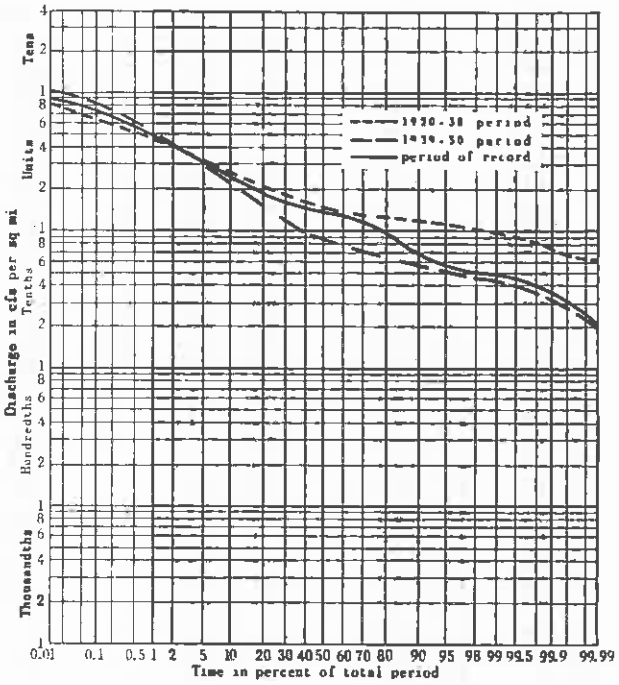
DRAINAGE AREA.--7,640 sq mi. Since Jan. 17, 1900, flow has included diversion from Lake Michigan through Chicago Sanitary and Ship Canal.

DURATION DATA AVAILABLE.--Water years 1920-50.

AVERAGE DISCHARGE, 1921-45.--12,050 cfs; 5,250 cfs (adjusted for diversion and pumpage).

EXTREMES.--1919-50: Maximum discharge, 83,300 cfs Apr. 26, 1950; minimum daily, 1,460 cfs Oct. 16, 1943.

REMARKS.--Data for water years 1920-34 collected at site at Morris 16.6 miles upstream (drainage area, 7,440 sq mi). Since Jan. 1, 1939 diversion from Lake Michigan has been limited to 1,500 cfs exclusive of domestic pumpage. Flow duration since 1939 differs materially from the earlier period, as shown by the accompanying curves.



Illinois River at Marseilles

Days of duration of discharge for Illinois River at Marseilles

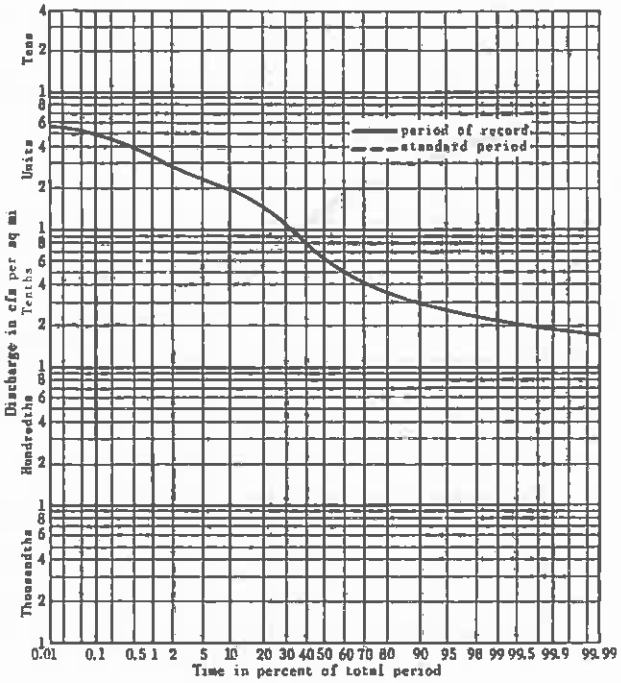
Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
0.183	1,400	366	365	365	365	366	365	365	365	366	365
.209	1,600	366	365	365	365	366	365	365	365	366	365
.236	1,800	366	365	365	365	366	365	365	365	366	365
.275	2,100	366	365	365	365	366	365	365	365	366	365
.327	2,500	366	365	365	365	366	365	365	365	366	365
.380	2,900	366	365	365	365	366	365	365	365	366	365
.445	3,400	366	365	365	365	366	365	365	365	366	365
.524	4,000	366	365	365	365	366	365	365	365	366	365
.602	4,600	366	365	365	365	366	365	365	365	366	365
.707	5,400	366	365	365	365	366	365	365	365	366	364
.825	6,300	366	365	365	365	366	365	365	365	366	364
.969	7,400	366	365	365	365	366	365	365	364	366	359
1.13	8,600	354	356	365	365	366	363	354	361	366	351
1.31	10,000	233	114	302	237	356	232	251	342	366	343
1.57	12,000	91	46	181	70	318	73	156	236	300	282
1.83	14,000	80	32	133	43	219	37	97	180	217	176
2.09	16,000	64	14	99	26	146	25	74	145	150	138
2.36	18,000	55	7	81	23	115	17	52	123	90	100
2.75	21,000	34	---	55	11	47	5	30	89	54	66
3.27	25,000	21	---	29	2	22	---	19	58	28	36
3.80	29,000	12	---	22	---	14	---	10	40	18	15
4.45	34,000	8	---	13	---	6	---	4	19	3	7
5.24	40,000	5	---	9	---	2	---	2	13	---	1
6.02	46,000	1	---	2	---	1	---	---	5	---	1
7.07	54,000	---	---	1	---	---	---	---	1	---	---
8.25	63,000	---	---	---	---	---	---	---	---	---	---
9.69	74,000	---	---	---	---	---	---	---	---	---	---
11.3	86,000	---	---	---	---	---	---	---	---	---	---

Days of duration of discharge for Illinois River at Marseilles--continued

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
0.183	1,400	365	365	366	365	365	365	366	365	365	365	366	365
.209	1,600	365	365	366	365	365	365	366	365	365	365	366	365
.236	1,800	365	365	366	365	365	365	366	365	365	365	366	365
.275	2,100	365	365	366	365	365	365	366	365	365	365	364	365
.327	2,500	365	365	366	365	365	365	366	365	365	365	363	365
.380	2,900	365	365	366	365	365	365	366	365	365	364	358	365
.445	3,400	365	365	366	365	365	365	366	365	365	362	348	360
.524	4,000	365	365	366	365	365	365	366	365	365	326	309	344
.602	4,600	365	365	366	365	365	365	366	365	365	305	253	295
.707	5,400	365	365	366	365	365	365	366	360	365	281	160	212
.825	6,300	365	365	366	365	364	365	366	349	365	248	98	152
.969	7,400	365	358	366	364	363	365	343	335	354	197	64	102
1.13	8,600	344	257	364	363	344	352	237	294	309	106	40	64
1.31	10,000	272	116	266	265	212	299	167	200	185	83	26	38
1.57	12,000	225	42	149	139	42	203	77	104	141	68	10	18
1.83	14,000	88	19	81	111	11	145	37	73	117	48	5	1
2.09	16,000	61	10	57	87	---	109	21	56	83	36	---	---
2.36	18,000	43	4	29	68	---	71	16	42	47	28	---	---
2.75	21,000	24	1	13	53	---	46	13	24	24	21	---	---
3.27	25,000	15	---	1	30	---	15	7	2	8	11	---	---
3.80	29,000	8	---	---	16	---	6	5	---	4	4	---	---
4.45	34,000	1	---	---	12	---	2	1	---	1	3	---	---
5.24	40,000	---	---	---	9	---	---	---	---	---	---	---	---
6.02	46,000	---	---	---	6	---	---	---	---	---	---	---	---
7.07	54,000	---	---	---	2	---	---	---	---	---	---	---	---
8.25	63,000	---	---	---	---	---	---	---	---	---	---	---	---
9.69	74,000	---	---	---	---	---	---	---	---	---	---	---	---
11.3	86,000	---	---	---	---	---	---	---	---	---	---	---	---

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1942	1943	1944	1945	1946	1947	1948	1949	1950	1920-50	Percent of time
0.183	1,400	365	365	366	365	365	365	366	365	365	11,324	100.00
.209	1,600	365	365	365	365	365	365	366	365	365	11,323	99.99
.236	1,800	365	365	365	365	365	365	366	365	365	11,323	99.99
.275	2,100	365	365	365	365	365	365	366	365	365	11,321	99.97
.327	2,500	365	365	363	365	365	365	366	365	365	11,318	99.95
.380	2,900	365	365	359	365	365	365	366	365	365	11,308	99.86
.445	3,400	365	365	351	362	364	362	363	362	363	11,268	99.51
.524	4,000	360	361	322	343	360	348	344	336	348	11,041	97.50
.602	4,600	343	346	249	300	345	319	314	304	323	10,636	93.92
.707	5,400	314	317	180	228	306	243	275	264	286	10,000	88.31
.825	6,300	272	278	141	180	247	185	214	222	248	9,417	83.16
.969	7,400	230	238	127	143	186	142	163	167	224	8,842	78.08
1.13	8,600	179	201	120	105	150	119	113	120	194	7,976	70.43
1.31	10,000	125	161	105	79	118	102	87	83	179	5,944	52.49
1.57	12,000	94	126	80	54	77	89	69	61	159	3,780	33.38
1.83	14,000	78	99	66	38	63	69	50	35	145	2,593	22.90
2.09	16,000	61	83	50	31	47	55	39	24	122	1,913	16.89
2.36	18,000	47	72	38	21	39	44	27	20	93	1,412	12.47
2.75	21,000	33	54	28	14	22	31	23	14	62	891	7.87
3.27	25,000	20	43	19	11	11	14	17	4	43	486	4.29
3.80	29,000	13	31	14	5	6	9	12	2	32	298	2.63
4.45	34,000	8	25	11	4	4	5	5	---	18	160	1.41
5.24	40,000	5	15	5	2	---	3	3	---	8	72	.64
6.02	46,000	3	10	4	---	---	2	2	---	5	42	.37
7.07	54,000	2	6	---	---	---	1	1	---	3	17	.15
8.25	63,000	2	2	---	---	---	1	---	---	1	6	.053
9.69	74,000	---	---	---	---	---	---	---	---	1	1	.009
11.3	86,000	---	---	---	---	---	---	---	---	---	-----	------

ILLINOIS RIVER AT KINGSTON MINES



Illinois River at Kingston Mines

LOCATION.--Lat 40°33'10", long. 89°46'40", in SE¼SE¼ sec. 26, T. 7 N., R. 6 E., at Kingston Mines, 2.3 miles downstream from Mackinaw River and at mile 145.3.

DRAINAGE AREA.--15,200 sq mi, approximately. Since Jan. 17, 1900, flow has included diversion from Lake Michigan through Chicago Sanitary and Ship Canal.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--16,800 cfs; 10,000 cfs (adjusted for diversion and pumpage).

EXTREMES.--1939-50: Maximum discharge, 83,100 cfs May 23, 1943; minimum daily, 2,300 cfs Sept. 27, 1943.

REMARKS.--Yearly mean discharges prior to 1939 at Peoria (16.8 miles upstream, drainage area 13,500 sq mi, approximately) and 1939 yearly mean discharge at Pekin (7.5 miles upstream, drainage area 13,900 sq mi, approximately) adjusted to present site, included in computation of average discharge.

Days of duration of discharge of discharge for Illinois River at Kingston Mines

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown												Percent of time
		Water year												
		1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	
0.141	2,150	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.161	2,450	366	365	365	364	366	365	365	365	366	365	365	4,017	99.98
.183	2,780	366	365	363	364	366	363	365	365	365	365	365	4,012	99.85
.208	3,160	364	365	363	364	365	357	365	365	361	365	364	3,998	99.50
.236	3,590	353	364	362	363	360	332	365	350	355	362	362	3,928	97.76
.268	4,080	323	354	358	357	345	304	361	338	344	351	360	3,795	94.45
.305	4,640	286	345	356	349	303	274	345	321	330	324	339	3,572	88.90
.347	5,280	217	327	352	340	226	252	334	294	305	295	311	3,253	80.96
.394	5,990	174	298	344	335	185	217	314	285	293	269	294	3,008	74.86
.448	6,810	143	263	335	318	153	187	284	270	269	241	269	2,732	67.99
.509	7,740	114	196	320	299	135	175	255	219	244	220	253	2,430	60.48
.579	8,800	72	157	293	271	127	138	232	180	196	202	242	2,110	52.51
.658	10,000	54	134	270	246	121	121	210	159	178	167	225	1,885	46.91
.750	11,400	34	96	233	232	120	112	190	139	143	148	217	1,664	41.41
.849	12,900	20	65	206	222	116	104	177	130	132	129	213	1,514	37.68
.967	14,700	17	33	185	207	109	91	151	119	127	101	205	1,345	33.47
1.10	16,700	10	26	165	191	95	81	129	104	115	79	194	1,189	29.59
1.25	19,000	5	8	145	169	85	52	100	98	105	62	182	1,011	25.16
1.41	21,500	---	---	110	134	82	31	75	91	85	38	166	812	20.21
1.61	24,500	---	---	86	105	71	25	52	79	68	23	146	655	16.30
1.83	27,800	---	---	63	84	56	18	34	73	51	16	107	502	12.49
2.02	31,600	---	---	40	66	42	15	19	53	34	10	67	346	8.61
2.36	35,900	---	---	24	48	28	10	12	38	20	---	50	230	5.72
2.68	40,800	---	---	17	32	17	6	8	18	14	---	23	135	3.36
3.05	46,400	---	---	4	25	7	---	4	1	10	---	13	64	1.59
3.47	52,800	---	---	1	19	4	---	---	---	6	---	8	38	.95
3.94	59,900	---	---	---	13	3	---	---	---	---	---	6	22	.55
4.48	68,100	---	---	---	9	---	---	---	---	---	---	2	11	.27
5.09	77,400	---	---	---	3	---	---	---	---	---	---	---	3	.075
5.79	88,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

ILLINOIS RIVER AT MEREDOSIA

LOCATION.--Lat 39°49′36″, long. 90°33′53″, in SE¼NE¼ sec. 21, T. 16 N., R. 13 W., at Wabash Railway bridge in Meredosia, 4½ miles upstream from McKee Creek, and at mile 71.1.

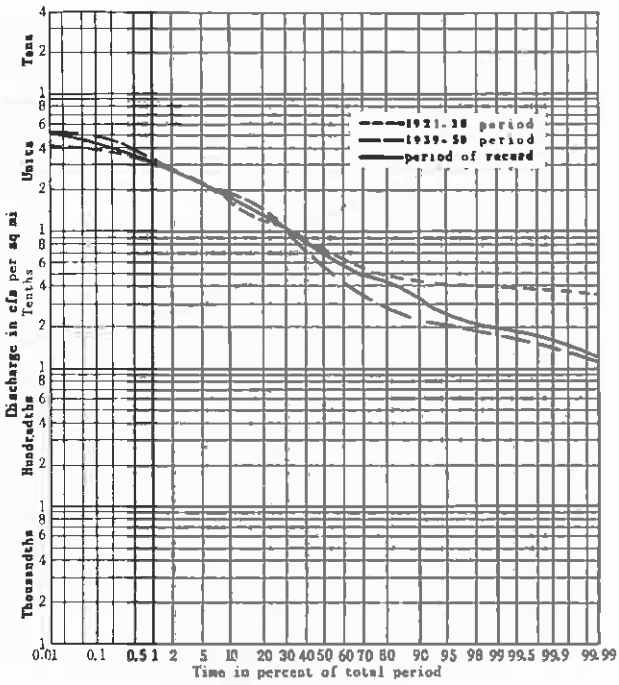
DRAINAGE AREA.--25,300 sq mi, approximately. Since Jan. 17, 1900, flow has included diversion from Lake Michigan through Chicago Sanitary and Ship Canal.

DURATION DATA AVAILABLE.--Water years 1921-50.

AVERAGE DISCHARGE, 1921-45.--23,100 cfs; 16,300 cfs (adjusted for diversion and pumpage).

EXTREMES.--1920-50: Maximum discharge, 123,000 cfs May 26-28, 1943; minimum daily, 3,060 cfs Sept. 1, 1945.

REMARKS.--Data for water years 1921-38 collected at site at Beardstown 17.5 miles upstream (drainage area, 23,500 sq mi). Since Jan. 1, 1939, diversion from Lake Michigan has been limited to 1,500 cfs exclusive of pumpage. Flow duration since 1939 differs materially from the earlier period, as shown by the accompanying curves.



Illinois River at Meredosia

Days of duration of discharge for Illinois River at Meredosia

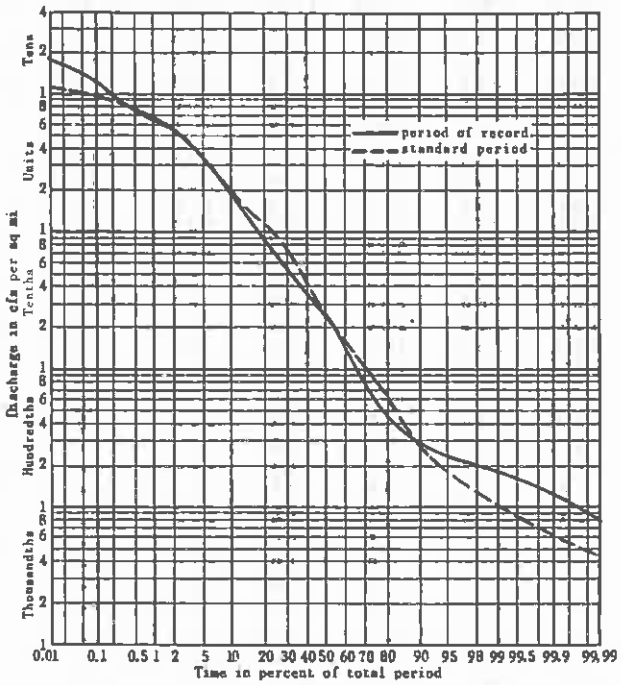
Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
0.117	2,960	365	365	365	366	365	365	365	366	365	365	365
.134	3,380	365	365	365	366	365	365	365	366	365	365	365
.153	3,870	365	365	365	366	365	365	365	366	365	365	365
.175	4,440	365	365	365	366	365	365	365	366	365	365	365
.201	5,080	365	365	365	366	365	365	365	366	365	365	365
.230	5,820	365	365	365	366	365	365	365	366	365	365	365
.263	6,660	365	365	365	366	365	365	365	366	365	365	365
.302	7,630	365	365	365	366	365	365	365	366	365	365	365
.345	8,730	365	365	365	366	365	365	365	366	365	365	365
.395	10,000	364	365	359	366	357	365	365	366	365	365	352
.451	11,400	248	343	289	366	333	365	365	366	365	333	220
.518	13,100	149	304	148	356	277	319	363	366	352	290	140
.593	15,000	133	267	115	349	189	297	357	337	308	250	65
.680	17,200	83	218	95	339	155	233	329	319	278	194	54
.779	19,700	62	191	78	318	116	161	297	297	273	153	34
.889	22,500	39	161	58	256	83	142	279	275	267	142	4
1.02	25,800	23	144	32	211	65	127	266	233	243	117	---
1.17	29,600	17	127	22	168	46	97	257	176	193	89	---
1.34	33,800	6	64	12	88	16	67	236	127	174	61	---
1.53	38,700	---	58	---	55	---	50	217	83	141	32	---
1.75	44,400	---	53	---	34	---	43	189	40	109	10	---
2.01	50,800	---	45	---	14	---	34	168	14	73	---	---
2.30	58,200	---	32	---	---	---	23	143	3	32	---	---
2.63	66,600	---	25	---	---	---	7	67	---	---	---	---
3.02	76,300	---	14	---	---	---	---	46	---	---	---	---
3.45	87,300	---	1	---	---	---	---	18	---	---	---	---
3.95	100,000	---	---	---	---	---	---	2	---	---	---	---
4.51	114,000	---	---	---	---	---	---	---	---	---	---	---
5.18	131,000	---	---	---	---	---	---	---	---	---	---	---

Days of duration of discharge for Illinois River at Meredosia--continued

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown										
		Water year										
		1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
0.117	2,960	366	365	365	365	366	365	365	365	366	365	365
.134	3,380	366	365	365	365	366	365	365	365	366	365	365
.153	3,870	366	365	365	365	366	365	365	362	365	365	365
.175	4,440	366	365	365	365	366	365	365	356	360	363	365
.201	5,080	366	365	365	365	366	365	365	349	331	340	365
.230	5,820	366	365	365	365	366	365	365	341	273	299	365
.263	6,660	366	365	365	365	366	365	365	339	212	263	361
.302	7,630	366	365	365	365	366	365	365	335	178	239	356
.345	8,730	366	365	365	365	366	365	365	318	149	207	352
.395	10,000	366	365	362	365	291	353	355	283	114	166	339
.451	11,400	343	322	273	352	240	325	298	235	83	144	332
.518	13,100	308	233	116	300	187	285	243	199	61	111	320
.593	15,000	256	212	19	263	152	259	220	174	34	73	297
.680	17,200	203	201	---	239	115	230	193	151	21	46	264
.779	19,700	172	187	---	225	79	199	173	136	14	29	219
.889	22,500	143	166	---	194	53	143	162	123	8	20	200
1.02	25,800	97	136	---	163	39	109	147	93	---	3	172
1.17	29,600	42	96	---	138	32	76	73	79	---	---	153
1.34	33,800	9	82	---	106	21	42	38	64	---	---	130
1.53	38,700	---	76	---	65	18	21	30	39	---	---	91
1.75	44,400	---	62	---	27	13	6	24	30	---	---	56
2.01	50,800	---	49	---	22	9	---	15	20	---	---	36
2.30	58,200	---	39	---	14	---	---	10	10	---	---	15
2.63	66,600	---	21	---	7	---	---	3	5	---	---	9
3.02	76,300	---	16	---	---	---	---	---	---	---	---	---
3.45	87,300	---	8	---	---	---	---	---	---	---	---	---
3.95	100,000	---	---	---	---	---	---	---	---	---	---	---
4.51	114,000	---	---	---	---	---	---	---	---	---	---	---
5.18	131,000	---	---	---	---	---	---	---	---	---	---	---

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown									Percent of time
		Water year									
		1943	1944	1945	1946	1947	1948	1949	1950	1921-50	
0.117	2,960	365	366	365	365	365	366	365	365	10,957	100.00
.134	3,380	365	366	363	365	365	366	365	365	10,955	99.98
.153	3,870	365	366	362	365	365	366	365	365	10,950	99.94
.175	4,440	364	366	358	365	365	366	364	360	10,926	99.72
.201	5,080	363	363	326	365	357	357	359	360	10,809	98.65
.230	5,820	361	325	299	363	349	350	339	348	10,586	96.61
.263	6,660	347	256	256	350	337	323	316	320	10,254	93.58
.302	7,630	335	200	232	340	328	311	275	303	10,006	91.32
.345	8,730	318	165	206	322	290	290	247	276	9,714	88.66
.395	10,000	296	140	190	296	266	262	226	255	9,279	84.69
.451	11,400	285	133	179	274	239	228	213	244	8,335	76.07
.518	13,100	273	124	153	246	223	201	188	240	7,075	64.57
.593	15,000	259	123	145	217	212	170	169	234	6,155	56.17
.680	17,200	242	119	137	191	189	153	130	221	5,342	48.75
.779	19,700	234	110	116	170	148	138	110	206	4,645	42.39
.889	22,500	221	100	112	158	134	126	88	202	4,059	37.04
1.02	25,800	189	93	99	138	119	105	74	197	3,434	31.34
1.17	29,600	169	89	86	94	102	84	57	181	2,743	25.03
1.34	33,800	145	84	74	66	99	63	36	165	2,075	18.94
1.53	38,700	102	64	43	48	89	34	24	135	1,515	13.83
1.75	44,400	65	42	26	24	70	28	17	95	1,063	9.70
2.01	50,800	50	36	12	13	39	23	11	54	737	6.73
2.30	58,200	36	32	7	10	26	18	---	30	480	4.38
2.63	66,600	32	26	---	---	6	12	---	11	231	2.11
3.02	76,300	26	18	---	---	---	---	---	2	122	1.11
3.45	87,300	20	12	---	---	---	---	---	---	59	.54
3.95	100,000	15	2	---	---	---	---	---	---	19	.17
4.51	114,000	10	---	---	---	---	---	---	---	10	.091
5.18	131,000	---	---	---	---	---	---	---	---	-----	------

SALT CREEK AT WESTERN SPRINGS



Salt Creek at Western Springs

LOCATION.--Lat 41°49′35″, long. 87°54′00″, on boundary between secs. 31 and 32, T. 39 N., R. 12 E., at bridge on Wolf Road, in Cook County Forest Preserve, half a mile north of Western Springs, and 9 miles upstream from mouth.

DRAINAGE AREA.--122 sq mi.

DURATION DATA AVAILABLE.--Water years 1946-50.

AVERAGE DISCHARGE, 1921-45.--85.8 cfs; from correlation of the observed mean annual discharges with concurrent values for Des Plaines at Riverside.

EXTREMES.--1945-50: Maximum discharge, 1,920 cfs Mar. 20, 1948; minimum, 0.9 cfs Aug. 27, 1950.

REMARKS.--Some irrigation and diversion.

Days of duration of discharge for Salt Creek at Western Springs

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1946-50	Percent of time
0.0082	1.0	365	365	366	365	365	1,826	100.00
.0107	1.3	365	365	366	365	364	1,825	99.95
.0148	1.8	364	364	366	365	364	1,823	99.84
.0197	2.4	360	360	363	355	362	1,800	98.58
.0262	3.2	334	354	324	336	357	1,705	93.37
.0344	4.2	303	331	293	300	349	1,576	86.31
.0459	5.6	289	309	277	267	329	1,471	80.56
.0615	7.5	282	283	256	236	267	1,324	72.51
.0820	10.0	276	264	241	220	247	1,248	68.35
.107	13	270	237	224	207	233	1,171	64.13
.148	18	263	208	202	184	220	1,077	58.98
.197	24	242	183	169	157	211	962	52.68
.262	32	200	162	149	143	198	852	46.66
.344	42	146	148	133	119	185	731	40.03
0.459	56	117	119	111	101	173	621	34.01
.615	75	78	105	91	66	147	487	26.67
.820	100	60	94	79	49	125	407	22.29
1.07	130	50	78	63	35	99	325	17.80
1.48	180	42	56	51	28	70	247	13.53
1.97	240	33	37	37	25	50	182	9.97
2.62	320	26	25	30	19	35	135	7.39
3.44	420	18	18	22	13	22	93	5.09
4.59	560	11	12	15	3	12	53	2.90
6.15	750	5	6	10	1	4	26	1.42
8.20	1,000	---	---	4	---	3	7	.38
10.7	1,300	---	---	2	---	1	3	.16
14.8	1,800	---	---	1	---	---	1	.055
19.7	2,400	---	---	---	---	---	-----	------

HICKORY CREEK AT JOLIET

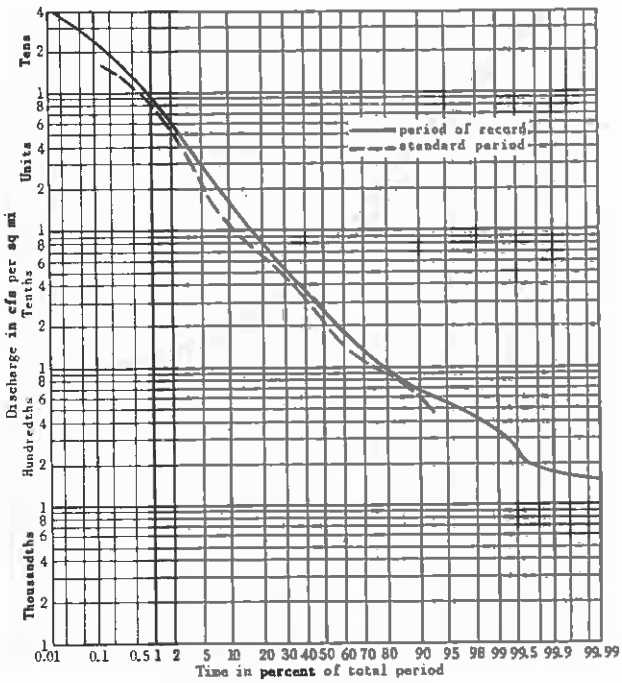
LOCATION.--Lat 41°31′10″, long. 88°04′10″, in SW¼NE¼ sec. 15, T. 35 N., R. 10 E., at Third Avenue in Joliet, 0.25 mile downstream from Spring Creek, and 1¾ miles upstream from mouth.

DRAINAGE AREA.--107 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--77.4 cfs; from correlation of observed mean annual discharges with concurrent values for Kankakee River near Wilmington.

EXTREMES.--1944-50: Maximum discharge, 10,200 cfs Apr. 5, 1947; minimum observed, 1.8 cfs Dec. 22-24, 1944.

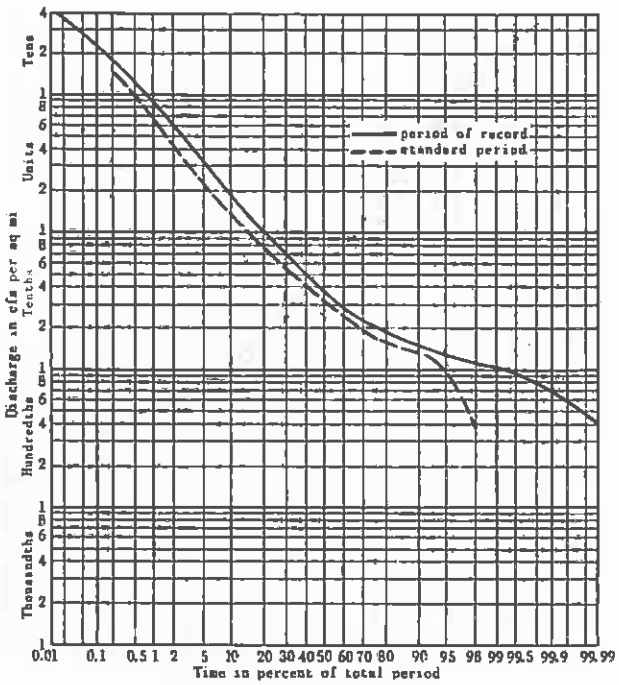


Hickory Creek at Joliet

Days of duration of discharge for Hickory Creek at Joliet

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0168	1.8	365	365	365	366	365	365	2,191	100.00	1.21	130	34	41	75	44	40	95	329	15.02
.0224	2.4	356	365	365	366	365	365	2,182	99.59	1.68	180	25	28	54	32	21	67	227	10.36
.0299	3.2	352	365	365	363	365	365	2,175	99.27	2.24	240	22	20	39	23	12	49	165	7.53
.0393	4.2	327	361	365	359	365	365	2,142	97.76	2.99	320	17	16	24	14	7	39	117	5.34
.0523	5.6	297	347	365	341	365	365	2,080	94.93	3.93	420	12	12	15	12	4	32	87	3.97
.0701	7.5	270	339	357	296	349	363	1,974	90.10	5.23	560	8	8	8	6	3	23	56	2.56
.0935	10	222	323	337	275	285	335	1,777	81.10	7.01	750	4	5	7	6	2	15	39	1.78
.121	13	187	309	297	253	238	289	1,573	71.79	9.35	1,000	2	5	5	5	2	6	25	1.14
.168	18	166	291	273	220	202	259	1,411	64.40	12.1	1,300	---	1	3	4	1	4	13	.59
.224	24	153	254	239	168	180	236	1,230	56.14	16.8	1,800	---	---	3	1	---	2	6	.27
.299	32	128	206	200	136	152	215	1,037	47.33	22.4	2,400	---	---	1	1	---	1	3	.14
.393	42	113	144	168	108	126	199	858	39.16	29.9	3,200	---	---	1	---	---	---	1	.046
.523	56	77	95	128	88	101	177	666	30.40	39.3	4,200	---	---	1	---	---	---	1	.046
.701	75	54	73	103	71	69	140	510	23.28	52.3	5,600	---	---	1	---	---	---	1	.046
.935	100	43	54	85	52	48	118	400	18.26	70.1	7,500	---	---	---	---	---	---	-----	------

SPRING CREEK AT JOLIET



Spring Creek at Joliet

LOCATION.--Lat 41°31′45″, long. 88°04′00″, in SE¼ sec. 10, T. 35 N., R. 10 E., at Benton Street Bridge, in Joliet, half a mile above mouth.

DRAINAGE AREA.--19.7 sq mi.

DURATION DATA AVAILABLE.--Water years 1926-33.

AVERAGE DISCHARGE, 1921-45.--15.1 cfs; from correlation of observed mean annual discharges with concurrent value for Kankakee River near Wilmington.

EXTREMES.--1925-33: Maximum discharge, 1,070 cfs June 11, 1926; minimum, 0.8 cfs June 10, 1933.

Days of duration of discharge for Spring Creek at Joliet

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1926	1927	1928	1929	1930	1931	1932	1933	1926-33	Percent of time
0.0401	0.79	365	365	366	365	365	365	366	365	2,922	100.00
.0508	1.0	365	365	366	365	365	365	366	364	2,921	99.97
.0660	1.3	365	365	366	365	365	365	366	360	2,917	99.83
.0812	1.6	365	365	366	365	365	365	366	355	2,912	99.66
.102	2.0	365	365	366	365	365	360	359	354	2,899	99.21
.127	2.5	340	359	366	365	365	348	339	348	2,830	96.85
.162	3.2	340	340	361	362	363	263	298	314	2,641	90.38
.203	4.0	340	331	354	327	360	212	259	239	2,422	82.89
.254	5.0	192	294	252	298	330	153	229	171	1,919	65.67
.320	6.3	183	246	214	239	298	113	196	139	1,628	55.72
.401	7.9	108	224	193	208	258	97	173	121	1,382	47.30
.508	10	93	194	151	173	186	74	144	107	1,122	38.40
.660	13	73	175	134	131	134	62	119	91	919	31.45
.812	16	46	147	101	107	100	47	101	76	725	24.81
1.02	20	33	129	75	92	71	40	82	67	589	20.16
1.27	25	33	97	56	81	51	24	57	56	455	15.57
1.62	32	27	73	37	69	36	12	43	43	340	11.64
2.03	40	21	52	24	58	24	10	35	34	258	8.83
2.54	50	16	42	22	44	19	5	26	24	198	6.78
3.20	63	13	30	15	34	9	3	17	17	138	4.72
4.01	79	11	26	13	26	7	1	10	11	105	3.59
5.08	100	9	18	9	20	5	1	4	3	69	2.36
6.60	130	5	13	6	16	3	---	2	3	48	1.64
8.12	160	3	8	2	12	---	---	2	1	28	.96
10.2	200	2	7	1	6	---	---	2	1	19	.65
12.7	250	2	5	---	3	---	---	1	---	11	.38
16.2	320	2	2	---	2	---	---	---	---	6	.21
20.3	400	1	1	---	1	---	---	---	---	3	.10
25.4	500	1	---	---	---	---	---	---	---	1	.034
32.0	630	1	---	---	---	---	---	---	---	1	.034
40.1	790	---	---	---	---	---	---	---	---	-----	------

DU PAGE RIVER AT TROY

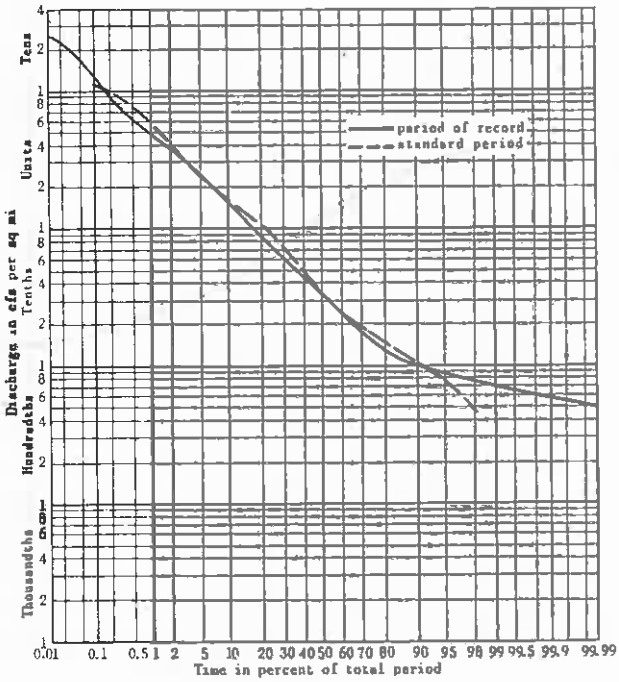
LOCATION.--Lat 41°31′20″, long. 88°11′35″, in SE¼SW¼ sec. 10, T. 35 N., R. 9 E., at Troy (formerly known as Grinton), 400 ft upstream from U. S. Highway 52, and 3.8 miles downstream from Lilly Cache Creek.

DRAINAGE AREA.--325 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--210 cfs; from multiple correlation of the observed mean annual discharges with concurrent values for Des Plaines River at Riverside and Fox River at Dayton.

EXTREMES.--1940-50: Maximum discharge, 11,000 cfs Mar. 19, 1948; minimum, 13 cfs Feb. 1, 1942.

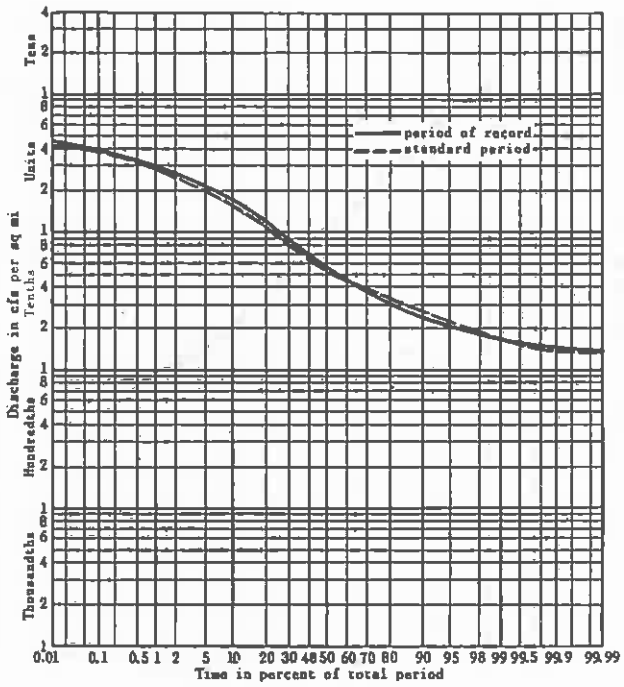


Du Page River at Troy

Days of duration of discharge for Du Page River at Troy

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0462	15	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0585	19	361	365	365	365	365	365	365	362	365	365	3,643	99.75
.0738	24	352	365	365	362	364	360	356	357	365	365	3,611	98.88
.0923	30	320	365	365	356	362	339	338	342	349	347	3,483	95.37
.117	38	278	365	365	287	323	320	318	312	284	312	3,164	86.64
.148	48	230	347	349	160	250	299	285	259	235	296	2,710	74.21
.185	60	214	328	315	137	209	285	228	231	212	277	2,436	66.70
.246	80	188	305	263	123	155	270	192	204	188	245	2,133	58.41
.308	100	155	288	232	110	117	252	163	175	164	221	1,877	51.40
.400	130	109	222	206	100	92	200	131	147	135	211	1,553	42.52
.492	160	89	183	170	94	77	154	118	120	111	195	1,311	35.90
.615	200	66	162	137	83	61	111	102	93	89	174	1,078	29.52
.769	250	50	139	112	64	52	82	95	77	61	149	881	24.12
.985	320	36	106	80	42	45	63	78	62	40	121	673	18.43
1.23	400	28	71	61	20	32	48	58	50	29	87	484	13.25
1.54	500	22	44	47	13	23	31	36	39	26	66	347	9.50
2.00	650	10	32	35	9	15	20	24	25	14	43	227	6.22
2.52	820	6	20	26	7	9	15	20	20	8	24	155	4.24
3.08	1,000	3	17	23	5	7	10	15	14	3	17	114	3.12
4.00	1,300	1	9	15	3	4	7	9	9	2	8	67	1.83
5.23	1,700	---	3	7	2	1	2	6	5	1	4	31	.85
6.46	2,100	---	1	3	---	---	2	2	4	1	2	15	.41
8.31	2,700	---	---	---	---	---	---	2	3	1	2	8	.22
10.5	3,400	---	---	---	---	---	---	1	2	---	2	5	.14
12.9	4,200	---	---	---	---	---	---	1	2	---	1	4	.11
16.6	5,400	---	---	---	---	---	---	---	2	---	1	3	.082
20.9	6,800	---	---	---	---	---	---	---	1	---	---	1	.027
26.5	8,600	---	---	---	---	---	---	---	---	---	---	-----	------

KANKAKEE RIVER AT MOMENCE



Kankakee River at Momence

LOCATION.--Lat 41°09′36″, long. 87°40′07″, in NE¼ sec. 24, T. 31 N., R. 13 E., 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).

DURATION DATA AVAILABLE.--Water years 1916-50.

AVERAGE DISCHARGE, 1921-45.--1,770 cfs.

EXTREMES.--1905-6, 1914-50: Maximum discharge, 10,100 cfs Apr. 25, 1950; minimum observed, 306 cfs Sept. 1, 16, 17, 1919.

REMARKS.--For summary of data prior to 1946, see "Water-supply Characteristics of Illinois Streams."

Days of duration of discharge for Kankakee River at Momence

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'46	'48	'49	'50	1946-50	Percent of time
0.130	305	365	365	366	365	365	12,784	100.00
.137	320	365	365	366	365	365	12,777	99.95
.145	340	365	365	366	365	365	12,759	99.80
.158	370	365	365	366	365	365	12,736	99.62
.171	400	365	365	366	365	365	12,642	98.89
.192	450	365	365	366	365	365	12,454	98.66
.214	500	365	365	366	365	365	12,288	96.12
.246	575	340	353	359	363	365	11,769	92.06
.278	650	322	348	335	320	363	11,082	86.69
.321	750	305	337	325	282	351	10,312	80.66
.363	850	292	322	311	251	328	9,634	75.36
.406	950	281	298	266	242	294	8,746	68.41
.470	1,100	263	269	233	230	263	7,552	59.07
.534	1,250	240	219	207	212	249	6,713	52.51
.598	1,400	205	184	180	198	240	6,009	47.00
0.684	1,600	179	148	162	174	233	5,151	40.29
.769	1,800	146	120	149	156	229	4,431	34.66
.855	2,000	111	114	124	127	224	3,907	30.56
.962	2,250	91	101	105	84	216	3,342	26.14
1.07	2,500	86	98	92	69	202	2,862	22.39
1.28	3,000	61	85	74	47	181	2,130	16.66
1.50	3,500	40	70	58	31	155	1,592	12.45
1.92	4,500	11	35	30	7	130	825	6.45
2.35	5,500	---	4	6	---	53	317	2.48
2.78	6,500	---	---	---	---	32	139	1.09
3.21	7,500	---	---	---	---	13	46	.36
3.63	8,500	---	---	---	---	6	20	.16
4.27	10,000	---	---	---	---	---	1	.008
4.91	11,500	---	---	---	---	---	-----	------

KANKAKEE RIVER NEAR WILMINGTON

LOCATION.--Lat 41°20′48″, long. 88°11′11″, in NW¼ sec. 15, T. 33 N., R. 9 E., 0.4 mile downstream from Prairie Creek, and 5 miles downstream from Wilmington.

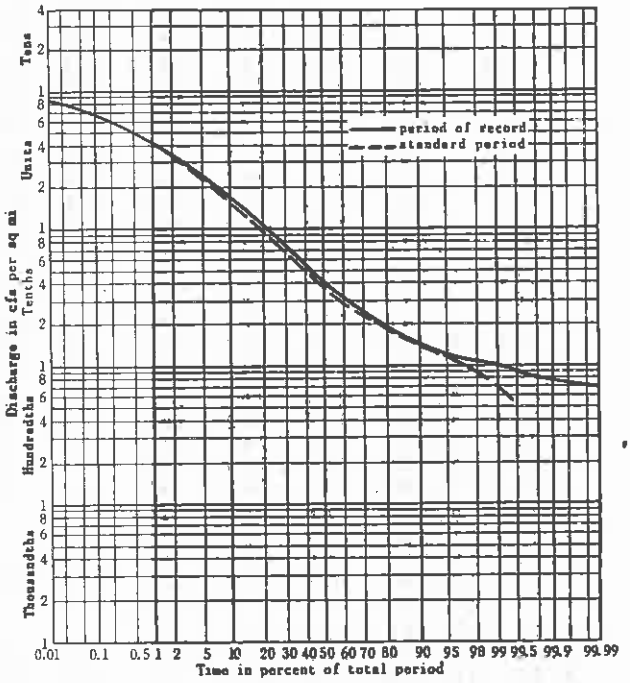
DRAINAGE AREA.--5,250 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1916-33, 1936-50.

AVERAGE DISCHARGE, 1921-45.--3,810 cfs; from correlation of observed mean annual discharges with concurrent values for Kankakee River at Momence.

EXTREMES.--1914-33, 1934-50: Maximum discharge, 48,000 cfs May 21, 1943; minimum, 204 cfs Aug. 1, 1936.

REMARKS.--Data for water years 1916-33, collected at Custer Park (4,870 sq mi, approximately) and adjusted to Wilmington site.



Kankakee River near Wilmington

Days of duration of discharge for Kankakee River near Wilmington

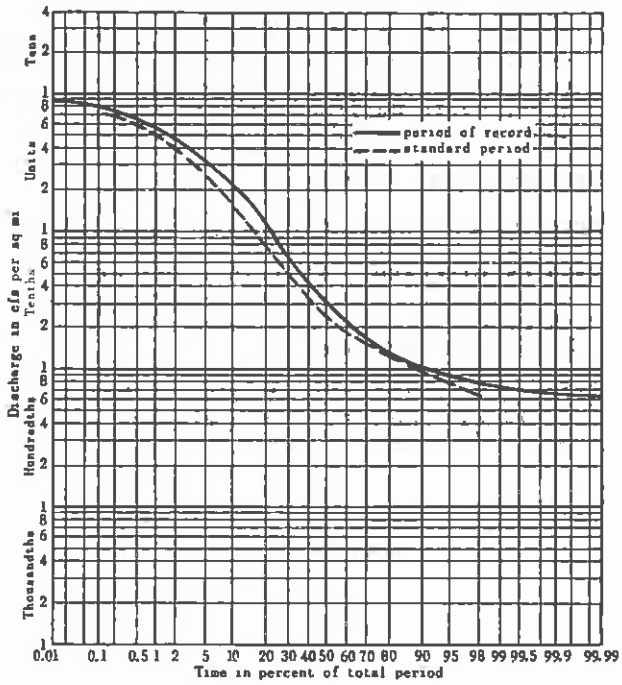
Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
0.0495	260	366	365	365	365	366	365	365	365	366	365	365	365
.0590	310	366	365	365	365	366	365	365	365	366	365	365	365
.0699	367	366	365	365	365	366	365	365	365	366	365	365	365
.0821	431	366	365	365	362	365	364	363	365	366	365	365	365
.0966	507	365	365	364	347	363	354	361	360	366	364	365	365
.115	604	362	365	333	316	339	316	341	356	366	345	365	365
.135	711	349	361	298	288	298	279	320	341	366	327	365	365
.156	819	337	350	241	275	266	243	311	318	365	299	350	365
.181	949	324	333	226	265	252	211	295	276	362	279	336	362
.205	1,078	308	312	213	259	235	177	269	244	353	252	326	348
.246	1,294	268	274	190	253	220	165	238	159	349	187	293	327
.308	1,617	250	222	167	247	167	142	214	127	335	137	278	304
.370	1,940	214	139	156	236	139	106	206	108	318	131	250	298
.431	2,264	209	116	136	201	118	88	202	84	288	108	223	294
.513	2,695	163	81	117	178	113	78	178	66	264	95	200	273
.616	3,234	148	66	96	164	96	52	165	57	242	71	169	242
.719	3,773	120	55	77	123	81	46	150	49	221	61	128	220
.924	4,851	106	40	39	92	74	28	113	37	173	42	98	185
1.13	5,929	65	28	27	68	60	13	97	27	124	34	83	164
1.44	7,546	44	19	20	52	48	1	77	20	92	25	60	127
1.85	9,702	16	11	10	33	30	---	55	14	61	10	28	102
2.26	11,860	15	6	7	23	17	---	41	10	32	4	23	79
2.87	15,090	---	3	3	8	11	---	28	2	18	---	12	49
3.70	19,400	---	---	2	6	6	---	17	---	2	---	4	28
4.52	23,720	---	---	---	---	5	---	8	---	---	---	---	13
5.75	30,180	---	---	---	---	---	---	1	---	---	---	---	---
6.98	36,650	---	---	---	---	---	---	---	---	---	---	---	---
8.38	44,000	---	---	---	---	---	---	---	---	---	---	---	---
10.3	54,000	---	---	---	---	---	---	---	---	---	---	---	---

Days of duration of discharge for Kankakee River near Wilmington--continued

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
0.0495	260	366	365	365	365	366	365	---	---	366	365	365	365	366
.0590	310	366	365	365	365	366	365	---	---	366	365	365	365	365
.0699	367	366	365	365	365	366	365	---	---	352	365	365	365	364
.0821	431	366	365	365	365	366	365	---	---	336	365	365	365	362
.0966	507	366	365	365	365	366	365	---	---	322	365	365	365	360
.115	604	366	365	365	363	366	365	---	---	307	363	365	362	349
.135	711	366	365	342	329	366	365	---	---	279	355	364	344	298
.156	819	366	365	309	276	332	353	---	---	241	347	354	338	243
.181	949	366	356	300	232	317	304	---	---	211	332	341	334	195
.205	1,078	365	332	265	171	310	293	---	---	204	326	324	306	173
.246	1,294	355	321	240	144	268	268	---	---	185	300	286	261	149
.308	1,617	316	288	221	115	211	225	---	---	164	256	246	205	126
.370	1,940	276	255	188	103	200	183	---	---	133	234	220	179	100
.431	2,264	256	242	173	85	190	163	---	---	108	216	188	167	85
.513	2,695	234	219	158	57	165	144	---	---	86	185	166	151	68
.616	3,234	207	203	140	38	137	129	---	---	66	140	146	128	59
.719	3,773	197	182	124	27	92	124	---	---	48	120	134	111	43
.924	4,851	158	162	113	10	51	108	---	---	30	87	121	88	27
1.13	5,929	121	138	79	3	39	94	---	---	23	71	100	76	15
1.44	7,546	85	112	45	---	23	73	---	---	15	51	71	61	7
1.85	9,702	55	72	33	---	8	56	---	---	13	32	35	41	3
2.26	11,860	37	52	21	---	---	38	---	---	11	6	19	23	---
2.87	15,090	22	30	11	---	---	20	---	---	3	---	6	13	---
3.70	19,400	13	9	---	---	---	10	---	---	---	---	2	7	---
4.52	23,720	4	3	---	---	---	5	---	---	---	---	---	2	---
5.75	30,180	---	---	---	---	---	3	---	---	---	---	---	---	---
6.98	36,650	---	---	---	---	---	---	---	---	---	---	---	---	---
8.38	44,000	---	---	---	---	---	---	---	---	---	---	---	---	---
10.3	54,000	---	---	---	---	---	---	---	---	---	---	---	---	---

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Total	Percent of time
0.0495	260	365	365	365	366	365	365	365	366	365	365	5,479	100.00
.0590	310	365	365	365	366	365	365	365	366	365	365	5,478	99.98
.0699	367	364	365	365	366	365	365	365	366	365	365	5,462	99.69
.0821	431	362	365	365	366	365	365	365	366	365	365	5,442	99.32
.0966	507	331	363	365	366	365	365	365	366	365	365	5,393	98.43
.115	604	312	363	365	359	361	361	365	363	365	365	5,325	97.19
.135	711	298	362	365	319	313	337	348	344	325	363	5,014	91.51
.156	819	281	361	365	306	304	322	348	334	309	362	4,815	87.88
.181	949	262	361	365	297	241	315	336	329	272	359	4,550	83.04
.205	1,078	252	350	365	283	208	306	326	316	249	345	4,333	79.08
.246	1,294	215	341	357	224	196	295	313	291	232	297	3,942	71.95
.308	1,617	172	316	335	167	178	287	274	267	215	264	3,472	63.37
.370	1,940	138	303	314	146	166	265	223	231	205	253	3,110	56.76
.431	2,264	97	271	298	138	157	226	184	206	185	242	2,768	50.52
.513	2,695	59	221	266	132	140	199	159	181	167	228	2,408	43.95
.616	3,234	35	181	236	124	121	151	134	155	152	214	2,042	37.27
.719	3,773	24	155	204	114	99	120	123	139	119	197	1,750	31.94
.924	4,851	10	108	157	100	61	99	99	97	78	173	1,335	24.37
1.13	5,929	7	87	127	82	41	76	84	77	62	161	1,089	19.88
1.44	7,546	3	70	94	62	30	57	61	55	33	147	817	14.91
1.85	9,702	---	43	66	40	16	30	31	32	18	114	514	9.38
2.26	11,860	---	30	49	27	10	15	20	23	11	76	330	6.02
2.87	15,090	---	14	35	15	6	7	8	9	1	48	165	3.01
3.70	19,400	---	12	22	11	3	---	1	1	---	30	89	1.62
4.52	23,720	---	5	17	8	---	---	---	---	---	10	42	.77
5.75	30,180	---	2	7	1	---	---	---	---	---	1	11	.20
6.98	36,650	---	1	2	---	---	---	---	---	---	---	3	.055
8.38	44,000	---	---	1	---	---	---	---	---	---	---	1	.018
10.3	54,000	---	---	---	---	---	---	---	---	---	---	-----	------

SINGLETON DITCH AT ILLINOI



Singleton ditch at Illinoi

LOCATION.--Lat 41°11′20″, long. 87°31′35″, in SW¼NW¼ sec. 8, T. 31 N., R. 15 E., at highway bridge at Illinoi, beside the Cleveland, Cincinnati, Chicago & St. Louis Railroad, and at Indiana-Illinois State line.

DRAINAGE AREA.--228 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

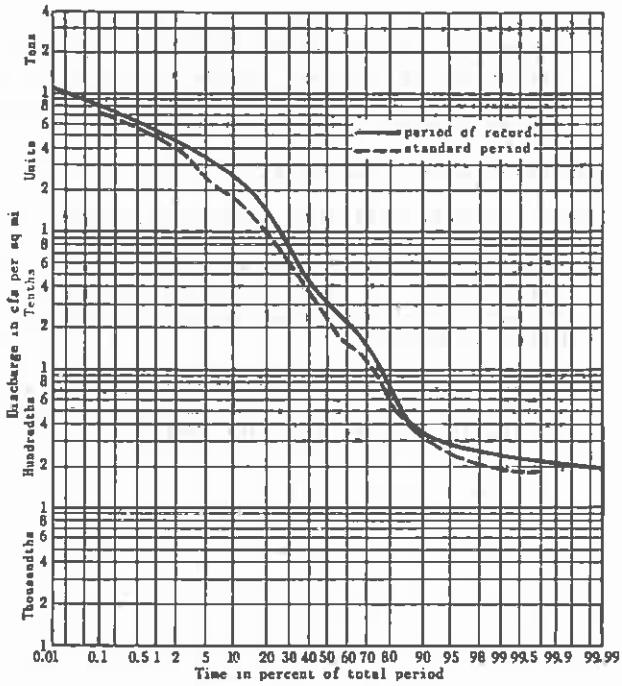
AVERAGE DISCHARGE, 1921-45.--147 cfs; from correlation of observed mean annual discharges with concurrent values for Kankakee River at Momence.

EXTREMES.--1944-50: Maximum discharge, 1,850 cfs Apr. 11, 1950; minimum daily, 14 cfs Jan. 31 to Feb. 10, 1945.

Days of duration of discharge for Singleton ditch at Illinoi

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0628	14	365	365	365	366	365	365	2,191	100.00
.0762	17	340	346	356	366	365	365	2,138	97.58
.0897	20	310	334	346	355	365	365	2,075	94.71
.108	24	268	321	344	338	342	365	1,978	90.28
.130	29	234	308	321	284	314	361	1,822	83.16
.157	35	205	298	287	260	278	313	1,641	74.90
.184	41	187	292	255	246	262	282	1,524	69.56
.220	49	170	259	231	220	250	262	1,392	63.53
.265	59	157	217	198	199	239	245	1,255	57.28
.314	70	149	184	176	177	220	228	1,134	51.76
.377	84	140	153	164	154	192	211	1,014	46.28
.448	100	135	122	151	133	172	201	914	41.72
.538	120	129	103	139	117	162	188	838	38.25
.628	140	115	91	127	104	139	174	750	34.23
.762	170	91	80	114	86	117	160	648	29.58
0.897	200	73	76	100	80	92	150	571	26.06
1.08	240	55	69	89	64	61	143	481	21.95
1.30	290	37	45	82	53	42	131	390	17.80
1.57	350	26	28	73	38	33	113	311	14.19
1.84	410	21	22	60	32	28	94	257	11.73
2.20	490	19	16	46	28	23	71	203	9.27
2.65	590	13	12	29	20	13	55	142	6.48
3.14	700	8	9	24	15	8	44	108	4.93
3.77	840	4	3	9	9	3	31	59	2.69
4.48	1,000	1	---	3	6	2	26	38	1.73
5.38	1,200	1	---	1	4	---	20	26	1.19
6.28	1,400	---	---	1	1	---	16	18	.82
7.62	1,700	---	---	---	---	---	7	7	.32
8.97	2,000	---	---	---	---	---	---	-----	------

IROQUOIS RIVER AT IROQUOIS



Iroquois River at Iroquois

LOCATION.--Lat 40°49′25″, long. 87°34′55″, in SE¼ sec. 15, T. 27 N., R. 11 W., at bridge on U. S. Highway 52 at Iroquois, 500 ft upstream from Cleveland, Cincinnati, Chicago & St. Louis Railroad bridge, and 4½ miles downstream from Indiana-Illinois State line.

DRAINAGE AREA.--682 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--473 cfs; from correlation of observed mean annual discharges with concurrent values for Iroquois River near Chebanse.

EXTREMES.--1944-50: Maximum discharge, 4,740 cfs Apr. 6, 1950; minimum, 13 cfs Sept. 19, 1948.

Days of duration of discharge for Iroquois River at Iroquois

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0191	13	365	365	365	366	365	365	2,191	100.00
.0235	16	365	361	361	363	365	365	2,180	99.50
.0293	20	337	334	348	349	365	365	2,098	95.76
.0367	25	285	314	342	329	327	363	1,960	89.46
.0469	32	241	310	328	310	306	362	1,857	84.76
.0587	40	228	306	316	303	297	362	1,812	82.70
.0733	50	219	302	303	295	275	349	1,743	79.55
.0924	63	209	293	294	287	265	332	1,680	76.68
.116	79	201	286	274	275	242	309	1,587	72.43
.147	100	187	280	253	259	225	283	1,487	67.87
.191	130	174	266	199	234	219	261	1,353	61.75
.235	160	165	254	165	204	208	242	1,238	56.50
.293	200	143	229	145	175	184	228	1,104	50.39
.367	250	122	191	126	153	171	209	972	44.36
.469	320	107	157	107	127	148	198	844	38.52
.587	400	81	138	101	116	130	189	755	34.46
.733	500	64	121	92	104	106	182	669	30.53
.924	630	49	104	83	92	90	177	595	27.16
1.16	790	36	86	64	79	76	168	509	23.23
1.47	1,000	31	67	51	63	60	160	432	19.72
1.91	1,300	23	50	37	46	41	131	328	14.97
2.35	1,600	17	27	26	30	31	108	239	10.91
2.93	2,000	9	18	5	16	23	78	149	6.80
3.67	2,500	7	5	---	---	8	58	78	3.56
4.69	3,200	4	---	---	---	---	38	42	1.92
5.87	4,000	---	---	---	---	---	15	15	.68
7.33	5,000	---	---	---	---	---	---	-----	------

IROQUOIS RIVER NEAR CHEBANSE

LOCATION.--Lat 41°00′29″, long. 87°49′22″, in SW¼ sec. 10, T. 29 N., R. 13 W., at highway bridge, 3 miles downstream from Beaver Creek, 4½ miles east of Chebanse, and 6 miles upstream from mouth.

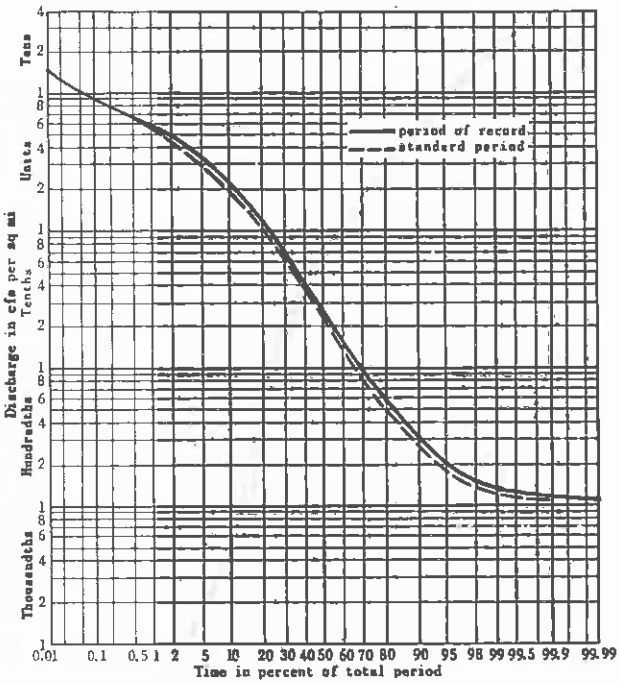
DRAINAGE AREA.--2,120 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1924-50.

AVERAGE DISCHARGE, 1921-45.--1,470 cfs; from correlation of observed mean annual discharges with concurrent values for Kankakee River at Momence.

EXTREMES.--1923-50: Maximum discharge observed, 27,000 cfs May 13, 1933; minimum observed, 11 cfs Aug. 6-8, 1934.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

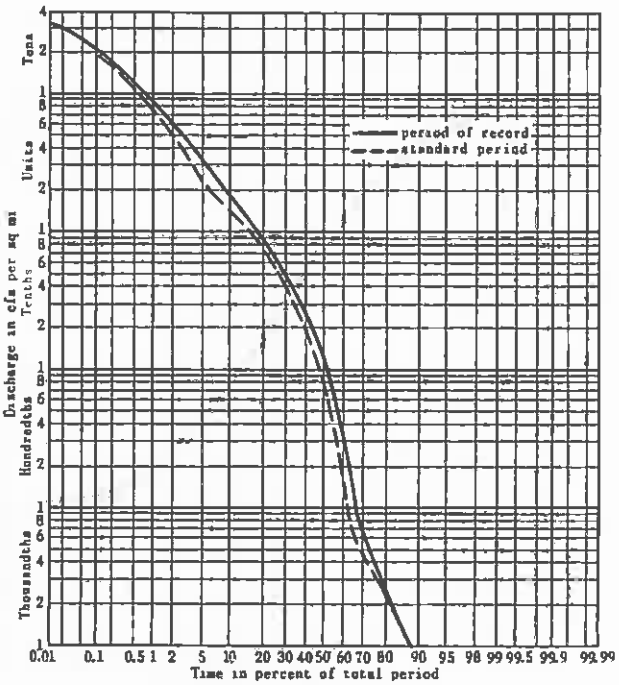


Iroquois River near Chebanse

Days of duration of discharge for Iroquois River near Chebanse

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1946-50	Percent of time
0.0042	9	365	365	366	365	365	9,862	100.00
.0057	12	365	365	366	365	365	9,859	99.97
.0075	16	365	365	366	365	365	9,850	99.88
.0099	21	365	365	366	365	365	9,796	99.33
.0132	28	365	365	366	365	365	9,708	98.44
.0179	38	365	365	365	365	365	9,531	96.64
.0245	52	347	364	357	360	364	9,147	92.75
.0340	72	331	348	336	327	363	8,704	88.26
.0472	100	329	337	312	309	362	8,208	83.23
.0613	130	310	323	303	278	346	7,723	78.31
.0802	170	306	305	299	251	327	7,264	73.66
.108	230	301	281	283	243	288	6,701	67.95
.146	310	294	253	254	229	267	6,125	62.11
.193	410	285	207	236	223	255	5,643	57.22
.259	550	250	172	214	208	228	5,077	51.48
0.354	750	202	140	179	182	211	4,426	44.88
.472	1,000	164	118	153	152	199	3,779	38.32
.613	1,300	139	102	131	124	182	3,148	31.92
.802	1,700	117	94	115	105	173	2,603	26.39
1.08	2,300	91	76	92	81	160	2,044	20.73
1.46	3,100	71	55	71	49	138	1,548	15.70
1.93	4,100	42	33	45	36	109	1,113	11.29
2.59	5,500	27	19	25	20	82	740	7.50
3.54	7,500	11	7	7	6	50	397	4.03
4.72	10,000	---	---	---	---	33	186	1.89
6.13	13,000	---	---	---	---	15	76	.77
8.02	17,000	---	---	---	---	---	21	.21
10.8	23,000	---	---	---	---	---	3	.030
14.6	31,000	---	---	---	---	---	-----	-----

MAZON RIVER NEAR COAL CITY



Mazon River near Coal City

LOCATION.--Lat 41°17′10″, long. 88°21′35″, in SW¼SW¼ sec. 31, T. 33 N., R. 8 E., at bridge on State Highway 113S, a quarter of a mile downstream from Johnny Run, and 4 miles west of Coal City.

DRAINAGE AREA.--470 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--289 cfs; from correlation of observed mean annual discharges with concurrent values for Vermilion River at Lowell.

EXTREMES.--1939-50: Maximum discharge, 17,300 cfs Apr. 25, 1950; no flow at times in most years.

Days of duration of discharge for Mazon River near Coal City

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0	0	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0002	.1	281	324	365	365	343	365	332	333	348	365	365	3,786	94.23
.0004	.2	193	324	365	362	323	365	331	332	346	365	365	3,671	91.36
.0006	.3	188	324	365	357	296	365	330	327	344	361	364	3,621	90.12
.0011	.5	181	320	365	347	255	359	328	321	332	325	363	3,496	87.01
.0015	.7	166	314	365	335	234	347	325	317	318	321	361	3,403	84.69
.0021	1.0	148	299	365	327	220	329	320	309	301	311	348	3,277	81.56
.0032	1.5	128	278	365	323	196	300	317	290	293	280	303	3,073	76.48
.0047	2.2	112	236	365	320	166	212	309	281	290	270	286	2,847	70.86
.0068	3.2	106	213	365	316	158	204	307	276	288	264	276	2,773	69.01
.0100	4.7	99	204	365	313	150	200	303	269	283	256	269	2,711	67.47
.0147	6.9	94	194	365	310	147	193	301	254	275	248	258	2,639	65.68
.0213	10	81	186	364	306	144	186	300	248	264	243	241	2,563	63.79
.0319	15	68	176	360	301	139	177	298	240	250	240	230	2,479	61.70
.0468	22	63	162	341	297	132	168	296	230	227	235	224	2,375	59.11
.0681	32	48	141	333	289	125	160	287	216	204	228	215	2,246	55.90
.100	47	38	112	328	282	119	153	268	183	185	222	209	2,099	52.24
.147	69	26	97	324	270	114	149	234	165	161	207	202	1,949	48.51
.213	100	17	66	297	247	102	137	197	145	128	188	188	1,712	42.61
.319	150	13	48	274	224	92	124	172	129	100	163	175	1,514	37.68
.468	220	9	31	235	181	86	108	134	108	85	121	164	1,262	31.41
.681	320	4	23	193	141	72	92	96	92	68	90	149	1,020	25.39
1.00	470	4	10	129	101	52	53	67	79	46	57	123	721	17.94
1.47	690	1	4	78	80	37	33	48	56	33	29	87	486	12.10
2.13	1,000	---	1	47	61	25	21	32	40	22	15	61	325	8.09
3.19	1,500	---	1	30	43	18	12	17	20	15	5	36	197	4.90
4.68	2,200	---	---	20	26	13	6	10	10	8	2	22	117	2.91
6.81	3,200	---	---	10	14	7	4	5	5	4	1	13	63	1.57
10.0	4,700	---	---	5	11	3	1	2	2	2	1	6	33	.82
14.7	6,900	---	---	2	5	3	---	---	1	---	---	2	13	.32
21.3	10,000	---	---	2	1	1	---	---	---	---	---	1	5	.12
31.9	15,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

FOX RIVER AT WILMOT, WIS.

LOCATION.--Lat 42°30′40″, long. 88°10′45″, in SW¼ sec. 30, T. 1 N., R. 20 E., at highway bridge, 400 ft upstream from Wilmot Dam, 1 mile north of Wisconsin-Illinois State line, and 6 miles upstream from Fox Chain of Lakes.

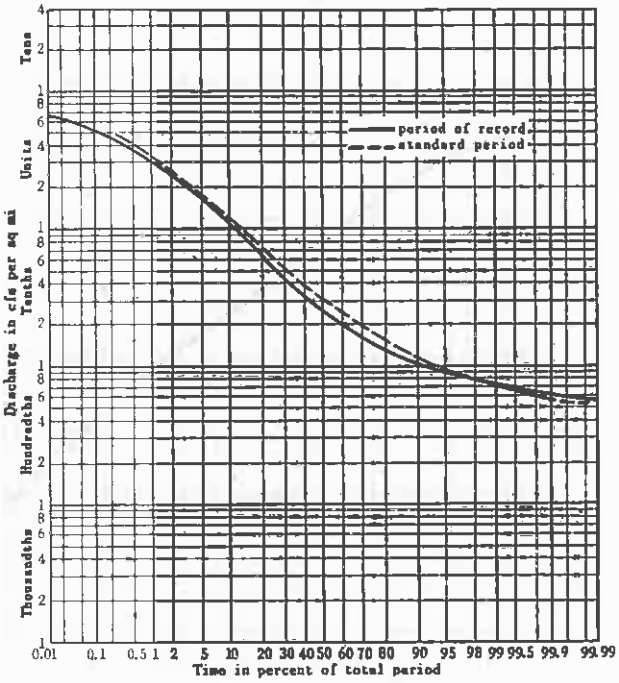
DRAINAGE AREA.--880 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--459 cfs; from correlation of observed mean annual discharges with concurrent values for Fox River at Algonquin.

EXTREMES.--1939-50: Maximum discharge observed, 5,400 cfs Mar. 17, 1943; no flow Oct. 26, 1945; minimum daily discharge, 50 cfs Nov. 1, 1944.

REMARKS.--Regulation from Wilmot Dam does not appreciably affect duration distribution.

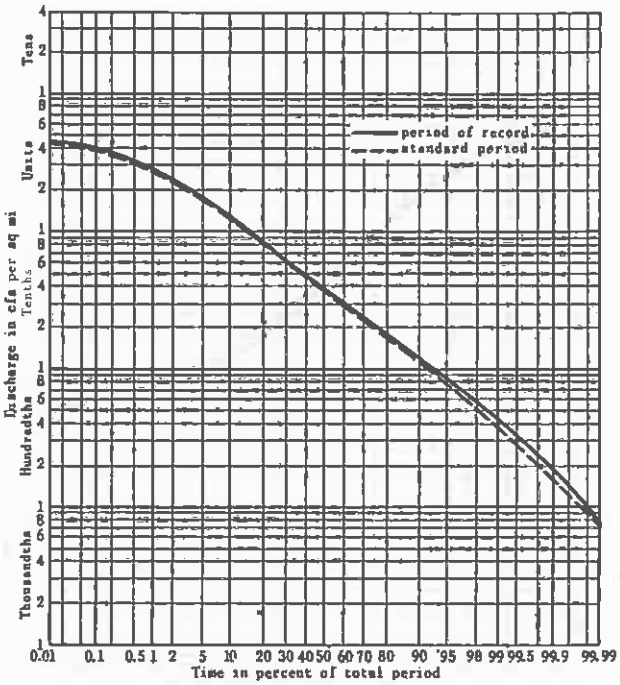


Fox River at Wilmot, Wis.

Days of duration of discharge for Fox River at Wilmot, Wis.

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0557	49	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0670	59	364	365	365	365	361	363	352	364	365	365	365	3,994	99.40
.0795	70	358	363	365	365	354	360	335	359	361	360	365	3,945	98.18
.0955	84	349	352	364	362	332	339	304	352	348	338	362	3,802	94.62
.114	100	314	336	362	358	281	298	298	343	326	290	347	3,553	88.43
.136	120	266	314	349	340	248	245	290	300	310	263	328	3,253	80.96
.159	140	235	307	340	321	215	197	288	276	293	233	292	2,997	74.59
.193	170	186	292	311	289	182	163	276	230	270	192	253	2,644	65.80
.227	200	162	282	294	269	156	152	232	180	220	151	218	2,316	57.64
.273	240	145	251	248	256	133	123	188	130	182	100	181	1,937	48.21
.330	290	113	187	212	220	114	103	152	113	161	81	151	1,607	40.00
.398	350	83	147	188	196	105	78	116	106	146	75	125	1,365	33.97
.466	410	67	111	152	168	91	65	98	100	128	68	117	1,165	28.99
.557	490	50	98	114	128	70	52	87	96	121	63	106	985	24.51
.670	590	42	90	66	99	56	41	73	88	103	46	91	795	19.79
.795	700	33	73	49	78	43	30	62	75	79	37	74	633	15.75
.955	840	25	56	21	58	32	19	51	67	66	28	64	487	12.12
1.14	1,000	22	33	8	48	24	9	45	41	52	23	52	357	8.89
1.36	1,200	19	22	6	43	18	6	40	26	43	17	40	280	6.97
1.59	1,400	14	14	3	32	14	2	35	10	36	11	29	200	4.98
1.93	1,700	8	5	---	24	10	1	25	5	29	7	14	128	3.19
2.27	2,000	5	---	---	21	5	---	20	1	22	3	6	83	2.07
2.73	2,400	4	---	---	15	3	---	11	---	13	---	1	47	1.17
3.30	2,900	2	---	---	9	1	---	2	---	7	---	---	21	.52
3.98	3,500	---	---	---	7	---	---	1	---	5	---	---	13	.32
4.66	4,100	---	---	---	3	---	---	---	---	3	---	---	6	.15
5.57	4,900	---	---	---	1	---	---	---	---	1	---	---	2	.050
6.70	5,900	---	---	---	---	---	---	---	---	---	---	---	-----	------

FOX RIVER AT ALGONQUIN



Fox River at Algonquin

LOCATION.--Lat 42°09′59″, long. 88°17′25″, in NW¼ sec. 34, T. 43 N., R. 8 E., 20 ft upstream from Chicago Street Bridge at Algonquin and 400 ft upstream from Crystal Lake outlet.

DRAINAGE AREA.--1,364 sq mi.

DURATION DATA AVAILABLE.--Water years 1916-50.

AVERAGE DISCHARGE, 1921-45.--741 cfs.

EXTREMES.--1915-51: Maximum discharge, 5,850 cfs Apr. 1, 2, 1916; minimum, 0.2 cfs Nov. 11, 1940, result of violent wind storm; minimum daily, 12 cfs Aug. 30, 31, 1943, July 28, 1942.

REMARKS.--Flow occasionally regulated by dam near McHenry, 16 miles above station, and occasionally affected by wind action on Fox Chain of Lakes. For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Fox River at Algonquin

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0081	11	365	365	366	365	365	12,419	100.00
.0095	13	365	365	366	365	365	12,416	99.98
.0117	16	365	365	366	365	365	12,416	99.98
.0154	21	365	365	366	365	365	12,411	99.94
.0183	25	365	365	366	365	365	12,406	99.90
.0227	31	365	365	365	365	365	12,391	99.77
.0286	39	365	365	364	365	365	12,373	99.63
.0359	49	365	365	354	365	365	12,312	99.14
.0440	60	345	363	349	364	365	12,227	98.45
.0550	75	335	354	344	358	363	12,107	97.49
.0682	93	325	325	325	349	363	11,898	95.80
.0843	115	304	305	322	323	359	11,637	93.70
.104	142	301	289	307	302	344	11,236	90.47
.129	176	295	275	300	274	325	10,666	85.88
.161	220	283	250	280	247	311	9,879	79.55
0.198	270	270	222	246	212	278	9,053	72.90
.246	335	238	176	194	183	232	7,905	63.65
.308	420	173	134	174	148	207	6,632	53.40
.381	520	144	117	158	113	169	5,672	45.67
.469	640	129	105	144	73	138	4,769	38.40
.579	790	103	93	121	59	121	3,888	31.31
.718	980	88	85	95	54	109	3,101	24.97
.880	1,200	72	71	69	44	84	2,463	19.83
1.10	1,500	54	49	62	24	61	1,783	14.36
1.36	1,850	43	30	50	20	42	1,106	8.91
1.69	2,300	37	2	37	6	28	662	5.33
2.09	2,850	26	---	16	---	12	376	3.03
2.60	3,550	3	---	12	---	---	166	1.34
3.23	4,400	---	---	5	---	---	87	.70
3.96	5,400	---	---	---	---	---	12	.097
4.91	6,700	---	---	---	---	---	-----	-----

FOX RIVER AT DAYTON

LOCATION.--Lat 41°23′14″, long. 88°47′21″, in SE¼ sec. 29, T. 34 N., R. 4 E., at plant of North Counties Hydro-Electric Co. at Dayton 5.6 miles upstream from mouth.

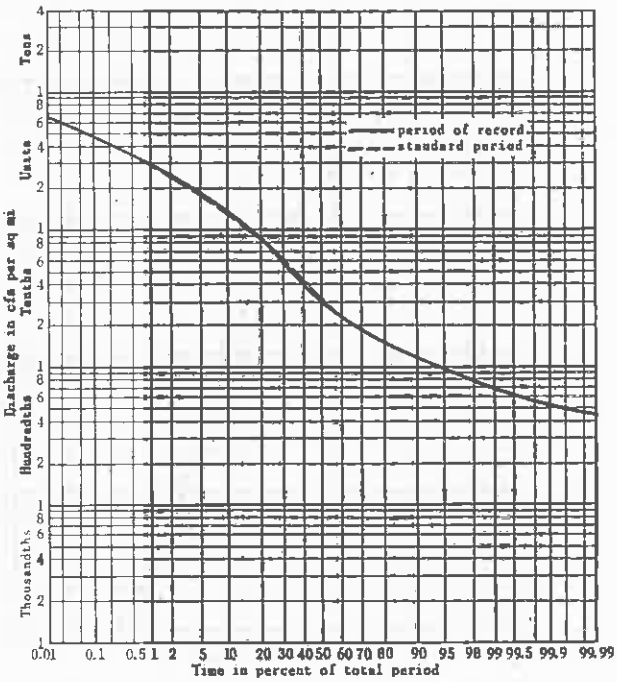
DRAINAGE AREA.--2,570 sq mi.

DURATION DATA AVAILABLE.--Water years 1916-50.

AVERAGE DISCHARGE, 1921-45.--1,410 cfs.

EXTREMES.--1925-51: Maximum discharge, 29,000 cfs Mar. 19, 1948 minimum daily, 1 cfs Aug. 29, 1934, when wheels were shut down; minimum daily with plant operating, 116 cfs Sept. 6, 1944.

REMARKS.--Low flow regulated by power plant above station. For summary of data prior to 1946, see "Water-Supply Characteristics of Illinois Streams."

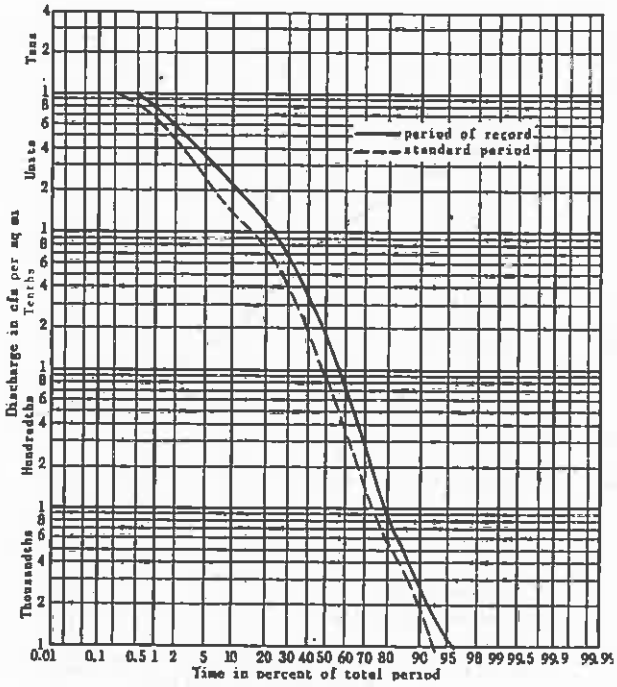


Fox River at Dayton

Days of duration of discharge for Fox River at Dayton

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0004	1	365	365	366	365	365	12,784	100.00
.0389	100	365	365	366	365	365	12,783	99.99
.0428	110	365	365	366	365	365	12,783	99.99
.0467	120	360	365	366	365	365	12,777	99.95
.0506	130	356	365	366	365	365	12,773	99.91
.0584	150	350	365	366	365	365	12,741	99.66
.0700	180	336	354	365	361	364	12,619	98.71
.0856	220	321	327	355	344	362	12,303	96.24
.105	270	303	314	334	312	353	11,825	92.50
.128	330	297	295	311	277	321	11,141	87.15
.152	390	293	282	295	256	301	10,410	81.43
.183	470	283	253	251	227	274	9,259	72.43
.226	580	266	199	210	194	242	8,134	63.63
.272	700	233	165	192	167	229	7,315	57.22
.327	840	196	142	166	143	216	6,575	51.43
.389	1,000	172	125	149	129	200	5,826	45.57
0.467	1,200	145	117	128	106	171	5,068	39.64
.584	1,500	114	102	90	83	139	4,046	31.65
.700	1,800	92	91	82	63	117	3,385	26.48
.856	2,200	80	87	71	49	103	2,571	20.11
1.05	2,700	61	65	60	38	85	1,825	14.28
1.28	3,300	46	45	47	26	57	1,334	10.43
1.52	3,900	39	30	40	14	45	971	7.60
1.83	4,700	28	20	31	9	36	676	5.29
2.26	5,800	7	8	18	5	19	349	2.73
2.72	7,000	2	6	11	5	8	189	1.48
3.27	8,400	1	5	7	3	4	90	.70
3.89	10,000	---	2	3	---	2	42	.33
4.67	12,000	---	1	3	---	2	24	.19
5.84	15,000	---	---	2	---	1	11	.086
7.00	18,000	---	---	2	---	1	5	.039
8.56	22,000	---	---	1	---	---	1	.008
10.1	26,000	---	---	---	---	---	------	------

NORTH FORK VERMILION RIVER NEAR CHARLOTTE



North Fork Vermilion River near Charlotte

LOCATION.--Lat 40°50′08″, long. 88°17′58″, in SE¼SE¼ sec. 4, T. 27 N., R. 8 E., at Foreman highway bridge, half a mile downstream from Illinois Central Railroad, 1¼ miles northwest of Charlotte, 5½ miles north of Chatsworth, and 15 miles upstream from confluence with South Fork.

DRAINAGE AREA.--184 sq mi.

DURATION DATA AVAILABLE.--Water years 1943-50.

AVERAGE DISCHARGE, 1921-45.--111 cfs; from correlation of observed mean annual discharges with concurrent values for Vermilion River at Lowell.

EXTREMES.--1942-50: Maximum discharge, 2,400 cfs May 18, 1943; no flow for many days.

Days of duration of discharge for North Fork Vermilion River near Charlotte

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1943	1944	1945	1946	1947	1948	1949	1950	1943-50	Percent of time
0	0	365	366	365	365	365	366	365	365	2,922	100.00
.0005	.1	365	358	352	365	324	353	365	365	2,847	97.43
.0011	.2	365	355	314	365	319	338	365	365	2,786	95.35
.0016	.3	365	344	268	365	315	332	360	365	2,714	92.88
.0022	.4	365	336	255	365	311	329	346	365	2,672	91.44
.0027	.5	365	327	251	365	308	325	339	359	2,639	90.31
.0038	.7	365	309	243	356	302	318	328	352	2,573	88.06
.0054	1.0	363	273	225	343	285	313	316	348	2,466	84.39
.0076	1.4	361	257	217	328	279	307	299	345	2,393	81.90
.0109	2.0	355	236	211	318	271	301	285	340	2,317	79.30
.0158	2.9	352	214	206	314	267	289	272	325	2,239	76.63
.0223	4.1	344	180	193	291	265	278	252	293	2,906	71.73
.0321	5.9	336	165	186	282	264	263	240	266	2,002	68.51
.0457	8.4	324	155	180	268	254	252	230	248	1,911	65.40
.0652	12	306	149	171	253	243	237	218	237	1,814	62.08
.0924	17	293	144	160	239	221	219	204	227	1,707	58.42
.130	24	280	140	149	228	201	201	191	212	1,602	54.83
.190	35	260	136	140	205	180	172	164	196	1,453	49.73
.266	49	237	130	128	169	144	147	146	178	1,279	43.77
.380	70	209	126	114	139	130	123	114	166	1,121	38.36
.543	100	176	118	96	125	114	103	99	157	988	33.81
.761	140	140	102	81	102	101	87	73	145	831	28.44
1.09	200	110	74	52	75	84	71	48	120	634	21.70
1.58	290	83	48	28	49	58	47	29	99	441	15.09
2.23	410	64	28	17	27	36	25	21	78	296	10.13
3.21	590	48	20	13	16	15	9	4	51	176	6.02
4.57	840	31	12	6	5	3	3	---	27	87	2.98
6.52	1,200	20	10	4	1	1	---	---	13	49	1.68
9.24	1,700	10	6	---	---	---	---	---	2	18	.62
13.0	2,400	---	---	---	---	---	---	---	---	-----	------

VERMILION RIVER AT PONTIAC

LOCATION.--Lat 40°52′40″, long. 88°38′10″, in SW¼ sec. 22, T. 28 N., R. 5 E., at Vermilion Street Bridge in Pontiac, 0.1 mile upstream from Chicago & Alton Railroad and State Highway 116, three-quarters of a mile upstream from Turtle Creek, and 1½ miles downstream from Wabash Railroad.

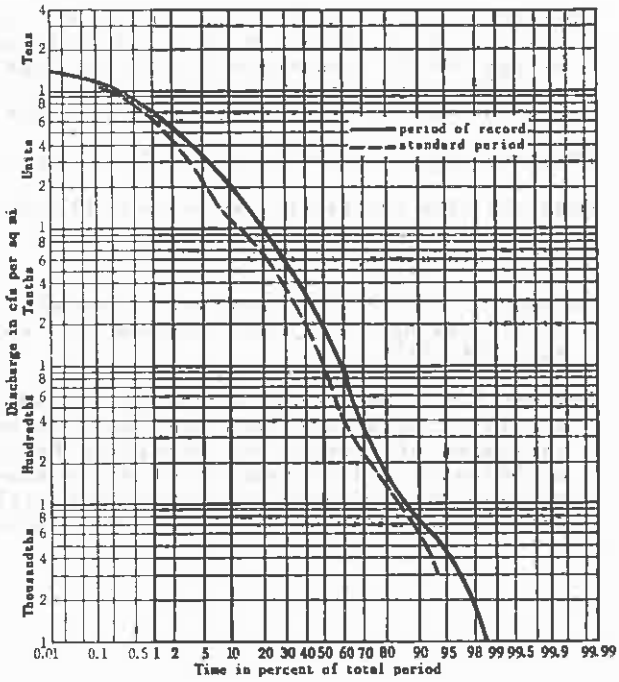
DRAINAGE AREA.--568 sq mi.

DURATION DATA AVAILABLE.--Water years 1943-50.

AVERAGE DISCHARGE, 1921-45.--327 cfs; from correlation of observed mean annual discharges with concurrent values for Vermilion River at Lowell.

EXTREMES.--1942-50: Maximum discharge, 8,170 cfs Aug. 5, 1943; minimum, 0.1 cfs Oct. 5, 1947.

REMARKS.--An average of 1.4 cfs, diverted half a mile above station for water supply of the city of Pontiac, is not included in records.



Vermilion River at Pontiac

Days of duration of discharge for Vermilion River at Pontiac

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1943	1944	1945	1946	1947	1948	1949	1950	1943-50	Percent of time
0.0002	0.1	365	366	365	365	365	366	365	365	2,922	100.00
.0004	.2	365	366	365	365	365	365	365	365	2,921	99.97
.0005	.3	365	366	365	365	362	349	365	365	2,902	99.32
.0007	.4	365	366	365	365	362	347	361	365	2,896	99.11
.0012	.7	365	366	365	365	355	343	357	365	2,881	98.60
.0018	1.0	365	365	365	365	354	338	355	365	2,872	98.29
.0026	1.5	365	362	365	359	337	337	351	365	2,841	97.23
.0040	2.3	365	351	355	350	335	327	342	365	2,790	95.48
.0062	3.5	365	343	345	343	327	316	326	361	2,726	93.29
.0093	5.3	365	326	289	330	316	306	300	356	2,588	88.57
.0143	8.1	357	283	244	328	301	304	261	341	2,419	82.79
.0211	12	354	245	227	327	291	303	244	298	2,289	78.34
.0335	19	351	176	212	322	272	290	235	257	2,115	72.38
.0493	28	331	159	191	279	256	275	229	245	1,965	67.25
.0757	43	309	147	176	252	252	255	221	236	1,848	63.24
.116	66	287	140	163	230	235	224	201	223	1,703	58.28
.176	100	266	132	151	213	215	199	184	209	1,569	53.70
.264	150	232	120	124	186	178	172	164	189	1,365	46.71
.405	230	192	106	103	151	146	133	124	172	1,127	38.57
.616	350	169	93	82	132	118	107	86	157	944	32.31
.933	530	120	73	52	98	81	79	52	122	677	23.17
1.43	810	91	37	27	56	50	55	28	96	440	15.06
2.11	1,200	66	27	18	30	29	22	9	66	267	9.14
3.35	1,900	45	21	8	16	7	7	---	35	139	4.76
4.93	2,800	26	11	3	3	2	---	---	17	62	2.12
7.57	4,300	12	8	---	---	---	---	---	3	23	.79
11.6	6,600	3	1	---	---	---	---	---	---	4	.14
17.6	10,000	---	---	---	---	---	---	---	---	-----	------

VERMILION RIVER AT LOWELL

LOCATION.--Lat 41°15′18″, long. 89°00′49″, in SE¼ sec. 8, T. 32 N., R. 2 E., at highway bridge 500 ft downstream from State Highway 178, a quarter of a mile northwest of Lowell, and 10 miles upstream from mouth.

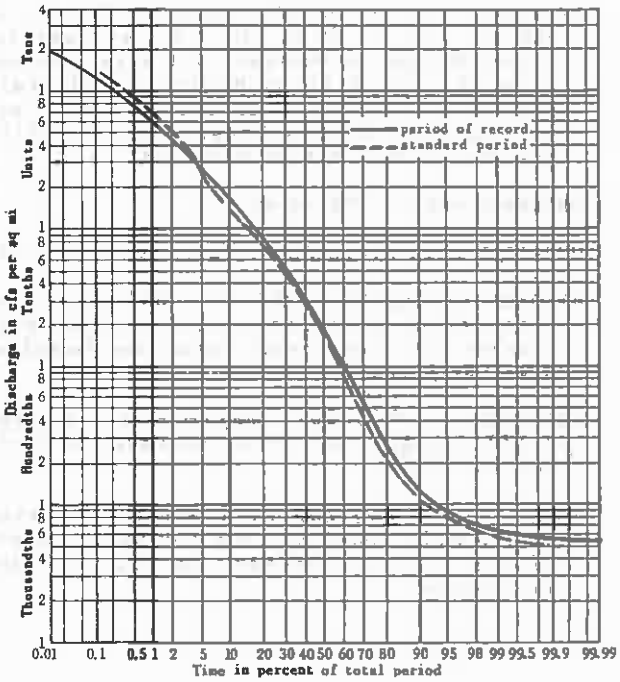
DRAINAGE AREA.--1,230 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1932-50.

AVERAGE DISCHARGE, 1921-45.--732 cfs.

EXTREMES.--1931-50: Maximum discharge, 23,300 cfs Apr. 25, 1950; minimum, 5.9 cfs Aug. 2-4, 1934.

REMARKS.--For the average discharge, 1921-45, published data have been supplemented by inclusion of records for Vermilion River at Streator and estimation of daily discharges by hydrographic comparison with records for Kankakee River at Custer Park.



Vermilion River at Lowell

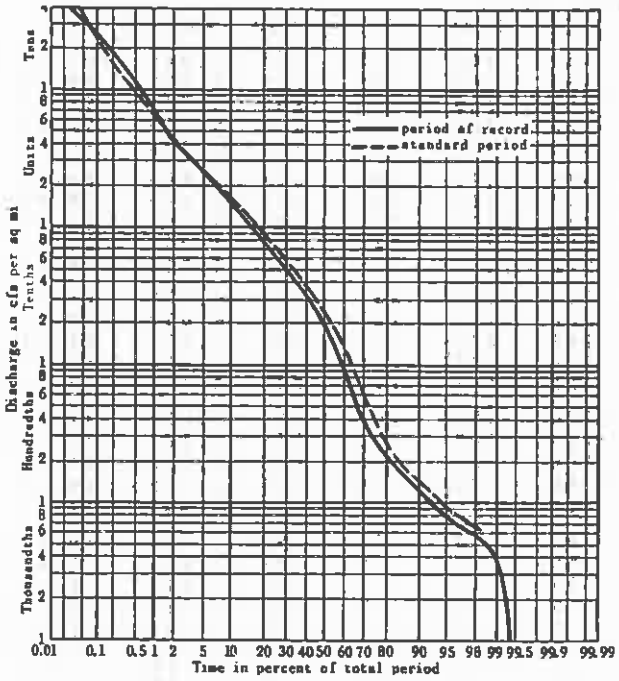
Days of duration of discharge for Vermilion River at Lowell

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
0.0041	5.0	366	365	365	365	366	365	365	365	366	365	365
.0055	6.8	366	365	360	365	366	365	365	365	363	365	365
.0076	9.3	366	365	343	365	352	354	358	357	275	337	365
.0098	12	366	338	332	365	328	345	341	347	225	287	365
.0138	17	343	317	305	357	295	334	307	341	170	237	365
.0187	23	333	302	290	342	269	323	297	335	165	228	365
.0244	30	324	285	281	328	262	316	283	317	157	212	365
.0333	41	312	268	271	314	255	308	275	267	151	196	361
.0455	56	298	248	263	306	249	304	268	234	131	183	355
.0602	74	290	223	249	301	240	297	262	218	107	158	351
.0813	100	276	203	191	298	202	291	255	196	83	141	344
.114	140	254	192	93	288	172	279	239	179	74	121	331
.146	180	246	184	69	272	153	258	226	171	59	100	316
.203	250	235	178	45	244	116	239	205	160	34	67	297
.276	340	217	162	35	209	98	218	174	152	24	44	257
.366	450	198	147	25	178	75	189	145	133	18	34	226
.496	610	162	134	20	160	52	137	128	109	15	26	196
.683	840	99	115	14	131	28	95	103	81	9	19	163
.894	1,100	71	102	11	104	22	69	77	67	3	14	130
1.22	1,500	44	80	4	80	19	55	45	46	1	8	86
1.63	2,000	24	57	2	58	11	38	30	29	---	4	60
2.11	2,600	11	34	1	47	8	26	23	26	---	1	52
2.85	3,500	5	22	---	30	6	12	8	16	---	---	32
3.90	4,800	1	14	---	13	4	3	4	8	---	---	16
5.28	6,500	---	9	---	4	2	---	1	3	---	---	8
7.15	8,800	---	7	---	2	2	---	---	---	---	---	4
9.76	12,000	---	4	---	---	---	---	---	---	---	---	2
13.0	16,000	---	1	---	---	---	---	---	---	---	---	1
17.9	22,000	---	---	---	---	---	---	---	---	---	---	---

Days of duration of discharge for Vermilion River at Lowell.--continued

Cfs per sq mi	Cfs	Days when discharged equalled or exceeded that shown Water year 1943	1944	1945	1946	1947	1948	1949	1950	1932-50	Percent of time
0.0041	5.0	365	366	365	365	365	366	365	365	6,940	100.00
.0055	6.8	365	366	365	365	365	366	365	365	6,932	99.88
.0076	9.3	365	366	365	365	365	366	365	365	6,759	97.39
.0098	12	365	366	365	365	365	366	364	364	6,559	94.51
.0138	17	365	353	365	357	350	360	343	360	6,224	89.68
.0187	23	365	298	312	341	325	321	280	314	5,805	83.65
.0244	30	365	255	246	329	297	312	262	280	5,476	78.90
.0333	41	365	189	212	326	288	305	253	268	5,184	74.70
.0455	56	357	164	203	321	282	287	246	258	4,957	71.43
.0602	74	350	154	195	295	274	273	239	252	4,728	68.13
.0813	100	330	145	182	280	267	260	231	244	4,419	63.67
.114	140	299	139	175	261	256	223	217	238	4,030	58.07
.146	180	284	131	170	243	242	206	211	230	3,771	54.34
.203	250	269	129	155	231	216	187	196	215	3,418	49.25
.276	340	244	122	147	205	184	161	174	206	3,033	43.70
.366	450	216	109	129	161	154	129	142	190	2,598	37.44
.496	610	183	95	111	130	129	107	98	175	2,167	31.22
.683	840	154	83	82	106	106	89	73	166	1,716	24.73
.894	1,100	125	71	60	84	92	76	49	145	1,372	19.77
1.22	1,500	102	49	44	63	74	50	30	113	993	14.31
1.63	2,000	80	40	32	47	60	33	22	97	724	10.43
2.11	2,600	70	32	19	30	40	16	9	69	514	7.41
2.85	3,500	51	25	12	21	19	10	4	46	319	4.60
3.90	4,800	35	17	6	12	9	4	2	26	174	2.51
5.28	6,500	25	12	4	6	5	2	1	9	91	1.31
7.15	8,800	15	8	---	3	1	---	---	4	46	.66
9.76	12,000	6	4	---	---	---	---	---	2	18	.26
13.0	16,000	2	1	---	---	---	---	---	1	6	.086
17.9	22,000	---	---	---	---	---	---	---	---	-----	------

BUREAU CREEK AT PRINCETON



Bureau Creek at Princeton

LOCATION.--Lat 41°21′55″, long. 89°29′55″, in SW¼SE¼ sec. 18, T. 16 N., R. 9 E., 500 ft downstream from bridge on U. S. Highways 6 and 34, 0.6 mile downstream from Eperson Run, and 1½ miles west of Princeton.

DRAINAGE AREA.--186 sq mi.

DURATION DATA AVAILABLE.--Water years 1937-50.

AVERAGE DISCHARGE, 1921-45.--124 cfs; from multiple correlation of observed mean annual discharges with concurrent values for Fox River at Dayton and Spoon River at Seville.

EXTREMES.--1936-50: Maximum discharge, 11,800 cfs Jan. 14, 1938; no flow during January 1940.

Days of duration of discharge for Bureau Creek at Princeton

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1937-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,113	100.00
.0005	.1	365	365	365	335	365	365	365	366	365	365	365	366	365	365	5,082	99.39
.0011	.2	365	365	365	335	365	365	365	366	365	365	365	366	365	365	5,082	99.39
.0016	.3	365	365	365	334	365	365	365	366	365	365	365	366	365	365	5,081	99.37
.0027	.5	365	365	365	328	365	365	365	366	365	365	365	366	365	365	5,075	99.26
.0038	.7	365	365	365	302	362	365	365	366	364	365	365	366	365	365	5,045	98.67
.0054	1.0	365	362	365	284	341	365	365	366	362	365	365	366	361	365	4,997	97.73
.0081	1.5	361	358	365	270	309	365	356	340	325	365	365	358	342	341	4,820	94.27
.0118	2.2	348	357	365	249	276	365	347	292	304	364	345	334	328	302	4,576	89.50
.0172	3.2	326	348	364	229	261	364	324	236	281	356	320	294	306	274	4,283	83.77
.0247	4.6	311	304	353	184	253	360	301	181	228	345	297	263	264	260	3,904	76.35
.0366	6.8	306	267	340	158	236	355	289	163	223	327	263	221	226	248	3,622	70.84
.0538	10	301	262	328	132	221	344	282	154	212	314	219	196	214	240	3,419	66.87
.0806	15	290	254	306	106	205	329	266	143	198	306	191	179	194	233	3,200	62.59
.118	22	283	247	274	69	177	315	250	135	180	298	177	155	177	222	2,959	57.87
.172	32	264	241	227	42	157	302	225	129	172	291	158	119	165	211	2,703	52.87
.247	46	244	220	190	28	139	291	202	121	152	257	142	89	132	184	2,391	46.76
.366	68	205	165	152	20	102	258	164	110	134	200	126	72	103	144	1,955	38.24
.538	100	162	134	111	14	62	188	123	95	91	136	109	47	80	104	1,456	28.48
.806	150	114	103	60	11	41	135	90	65	57	87	90	31	58	85	1,027	20.09
1.18	220	77	68	31	7	20	81	65	42	35	53	63	21	44	67	674	13.18
1.72	320	45	38	22	4	13	54	45	18	23	36	38	15	37	48	436	8.53
2.47	460	17	25	12	3	8	28	30	9	14	19	24	10	24	30	253	4.95
3.66	680	11	13	5	3	5	17	15	4	7	11	11	7	20	14	143	2.80
5.38	1,000	4	7	4	2	5	6	5	3	3	6	4	6	12	8	75	1.47
8.06	1,500	1	3	4	1	3	1	3	1	2	4	4	4	9	5	45	.88
11.8	2,200	1	2	3	1	2	---	3	1	2	2	1	2	4	1	25	.49
17.2	3,200	1	1	2	---	---	---	---	1	2	2	---	---	1	1	11	.22
24.7	4,600	1	1	1	---	---	---	---	---	1	1	---	---	---	1	6	.12
36.6	6,800	1	1	---	---	---	---	---	---	---	---	---	---	---	---	2	.039
53.8	10,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

BUREAU CREEK AT BUREAU

LOCATION.--Lat 41°16′40″, long. 89°23′00″, in SE¼SW¼ sec. 18, T. 15 N., R. 10 E., at bridge on State Highway 29, 1 mile southwest of Bureau and 2¼ miles downstream from East Bureau Creek.

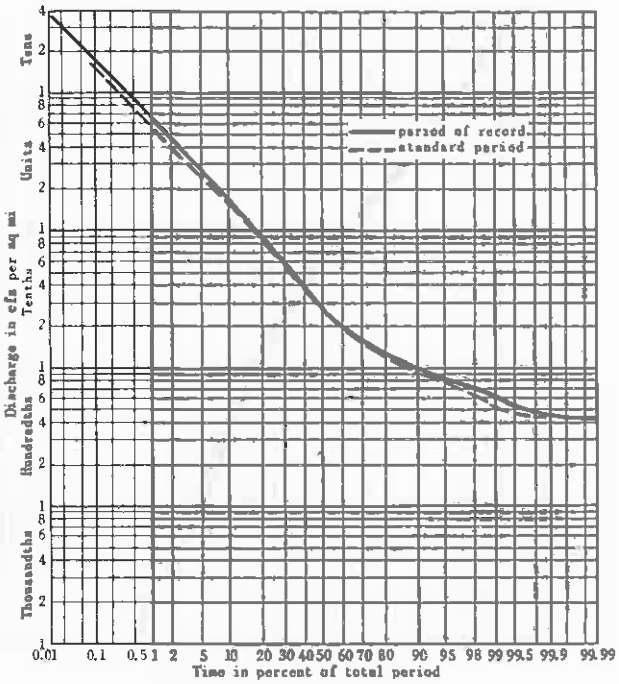
DRAINAGE AREA.--481 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-51.

AVERAGE DISCHARGE, 1921-45.--314 cfs; from multiple correlation of observed mean annual discharges with concurrent values for Fox River at Dayton and Spoon River at Seville.

EXTREMES.--1940-51: Maximum discharge, 18,000 cfs July 9, 1951; minimum, 23 cfs Feb. 8-15, Oct. 31, Nov. 1, 1948.

REMARKS.--Records include leakage from Illinois and Mississippi Canal above gage.

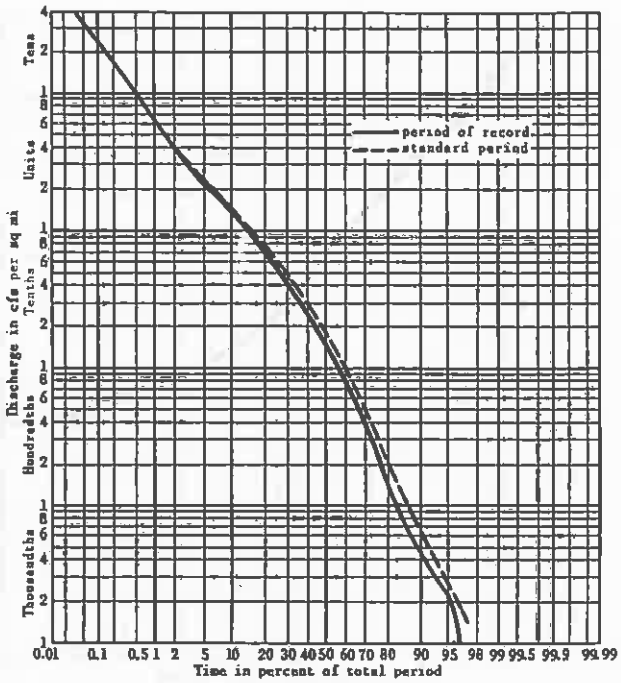


Bureau Creek at Bureau

Days of duration of discharge for Bureau Creek at Bureau

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1941-51	Percent of time
0.0416	20	365	365	365	366	365	365	365	366	365	365	365	4,017	100.00
.0520	25	365	365	365	366	365	364	365	351	358	365	365	3,994	99.43
.0665	32	364	365	365	366	360	362	365	338	352	355	344	3,936	97.98
.0832	40	357	365	365	365	347	361	365	335	287	295	326	3,768	93.80
.104	50	335	365	356	304	282	353	339	284	251	265	283	3,417	85.06
.131	63	286	365	336	214	224	333	243	218	226	250	249	2,944	73.29
.164	79	238	358	291	156	204	311	207	188	198	241	245	2,637	65.65
.208	100	187	342	257	144	187	301	176	157	185	214	240	2,390	59.50
.270	130	162	324	227	135	162	275	150	114	172	193	231	2,145	53.40
.333	160	134	311	205	131	149	249	139	87	149	182	222	1,958	48.74
.416	200	109	294	176	121	134	197	125	67	126	140	197	1,686	41.97
.520	250	78	245	150	110	106	165	108	44	108	109	172	1,395	34.73
.665	320	53	182	111	98	69	111	92	31	86	91	124	1,048	26.09
.832	400	27	140	90	68	53	82	80	29	73	80	95	817	20.34
1.04	500	20	93	76	54	41	69	64	27	59	66	75	644	16.03
1.31	630	14	67	59	43	27	41	52	22	46	53	63	487	12.12
1.64	790	11	42	51	29	19	28	44	18	40	38	42	362	9.01
2.08	1,000	8	34	35	18	10	17	35	12	33	27	35	264	6.57
2.70	1,300	6	22	27	11	9	12	31	11	22	18	27	196	4.88
3.33	1,600	5	11	18	6	5	11	20	9	20	14	18	137	3.41
4.16	2,000	2	5	16	3	3	9	8	8	14	8	16	92	2.29
5.20	2,500	1	2	10	2	2	8	5	8	9	5	13	65	1.62
6.65	3,200	---	1	3	1	1	4	5	8	7	2	10	42	1.05
8.32	4,000	---	---	---	1	1	3	2	7	6	1	8	29	.72
10.4	5,000	---	---	---	1	1	1	2	5	1	1	7	19	.47
13.1	6,300	---	---	---	1	1	1	1	4	---	1	3	12	.30
16.4	7,900	---	---	---	1	---	1	1	1	---	---	2	6	.15
20.8	10,000	---	---	---	---	---	---	---	---	---	---	2	2	.050
27.0	13,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

WEST BUREAU CREEK AT WYANET



West Bureau Creek at Wyanet

LOCATION.--Lat 41°21'54", long. 89°34'08", at northeast corner of sec. 21., T. 16 N., R. 8 E., at bridge on U. S. Highways 6 and 34, half a mile east of Wyanet.

DRAINAGE AREA.--83.3 sq mi.

DURATION DATA AVAILABLE.--Water years 1937-50.

AVERAGE DISCHARGE, 1921-45.--49.6 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1936-50: Maximum discharge, 5,910 cfs Jan. 24, 1938; no flow for several days during 1936, 1940, 1941, 1943, 1944, 1950.

Days of duration of discharge for West Bureau Creek at Wyanet

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1937-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,113	100.00
.0012	.1	349	365	365	267	307	365	365	333	365	365	365	366	365	362	4,904	95.91
.0024	.2	342	359	365	259	297	365	365	323	343	365	365	366	349	357	4,820	94.27
.0036	.3	325	335	365	256	288	365	365	295	295	365	363	364	339	351	4,671	91.36
.0048	.4	320	332	365	251	284	365	365	289	283	360	363	349	324	343	4,593	89.83
.0072	.6	316	326	365	241	274	365	364	274	263	345	363	338	307	338	4,479	87.60
.0108	.9	307	301	365	238	263	365	344	256	244	328	349	328	279	306	4,273	83.57
.0168	1.4	296	272	363	219	247	365	342	250	228	321	327	295	255	254	4,034	78.90
.0252	2.1	294	269	354	201	222	365	340	231	222	313	293	252	238	239	3,833	74.97
.0360	3.0	291	260	338	147	204	365	329	187	214	310	283	224	218	229	3,599	70.39
.0528	4.4	283	253	292	105	177	355	303	166	193	303	254	196	198	227	3,305	64.64
.0780	6.5	274	240	248	71	159	336	275	149	183	299	215	164	184	217	3,014	58.95
.114	9.5	249	230	231	54	131	324	262	140	175	292	180	133	165	212	2,778	54.33
.168	14	201	215	205	34	115	314	247	134	161	263	160	105	146	205	2,505	48.99
.252	21	161	162	173	23	94	297	205	125	141	229	144	82	112	183	2,131	41.68
.360	30	125	129	135	17	65	261	184	109	119	183	125	69	89	136	1,746	34.15
.528	44	101	93	89	11	45	194	139	94	89	132	102	53	70	101	1,313	25.68
.780	65	71	56	53	9	30	134	92	76	52	88	79	39	47	78	904	17.68
1.14	95	42	39	30	6	18	98	59	49	29	60	59	29	33	56	607	11.87
1.68	140	24	28	21	5	12	60	37	19	18	44	37	21	25	35	386	7.55
2.52	210	11	9	12	4	8	27	24	8	10	20	21	15	18	22	209	4.09
3.60	300	6	6	8	4	3	15	14	4	7	10	10	9	12	13	121	2.37
5.28	440	1	3	4	3	3	9	8	3	2	7	8	6	6	8	71	1.39
7.80	650	1	3	2	2	2	3	3	2	1	4	3	5	3	4	38	.74
11.4	950	1	1	1	1	1	1	1	2	1	3	1	2	2	2	20	.39
16.8	1,400	1	1	1	---	---	1	---	1	---	2	1	2	2	1	13	.25
25.2	2,100	---	1	1	---	---	---	---	---	---	1	---	---	---	---	3	.059
36.0	3,000	---	1	---	---	---	---	---	---	---	1	---	---	---	---	2	.039
52.8	4,400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

EAST BUREAU CREEK NEAR BUREAU

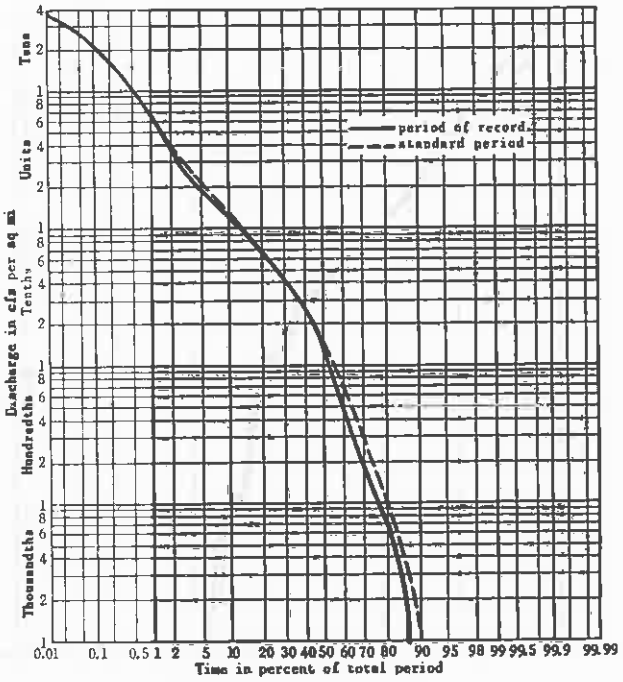
LOCATION.--Lat 41°20′06″, long. 89°22′53″, in SW¼SE¼ sec. 30, T. 16 N., R. 10 E., at highway bridge half a mile downstream from Brush Creek, 2½ miles upstream from mouth, and 3½ miles north of Bureau.

DRAINAGE AREA.--101 sq mi.

DURATION DATA AVAILABLE.--Water years 1937-50.

AVERAGE DISCHARGE, 1921-45.--48.7 cfs; from multiple correlation of observed mean annual discharges with concurrent values for Vermilion River at Lowell and Spoon River at Seville.

EXTREMES.--1936-50: Maximum discharge, 6,200 cfs Jan. 24, 1938; no flow for several days in most years.

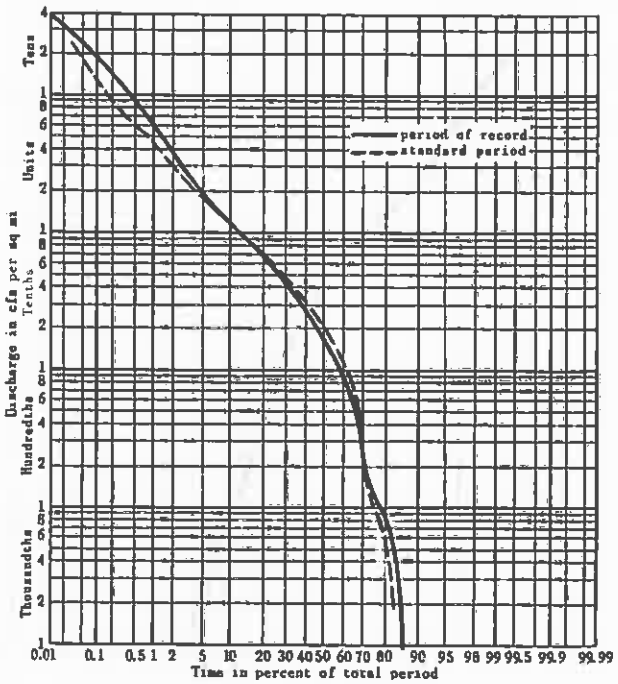


East Bureau Creek near Bureau

Days of duration of discharge for East Bureau Creek near Bureau

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1937-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	365	366	365	365	5,113	100.00
.0010	.1	341	348	365	247	302	365	358	361	335	365	360	345	232	246	4,570	89.38
.0020	.2	336	347	365	225	287	365	357	348	309	347	349	325	229	246	4,435	86.74
.0030	.3	334	345	365	220	276	365	355	300	298	336	319	302	229	246	4,290	83.90
.0050	.5	332	340	365	207	263	365	350	281	273	331	298	266	228	242	4,141	80.99
.0069	.7	325	336	365	200	259	365	345	269	251	329	286	250	224	241	4,045	79.11
.0099	1.0	321	331	363	192	254	356	337	259	233	327	277	232	218	239	3,939	77.04
.0149	1.5	315	306	354	159	244	351	323	235	228	327	260	206	208	239	3,755	73.44
.0218	2.2	313	289	344	127	219	345	305	196	219	324	233	168	203	236	3,521	68.86
.0317	3.2	304	283	325	99	201	336	286	162	211	315	208	151	198	235	3,314	64.82
.0455	4.6	293	274	286	82	188	331	278	152	201	310	188	129	189	232	3,133	61.28
.0673	6.8	259	268	257	62	167	319	261	143	187	303	175	116	171	226	2,914	56.99
.0990	10	227	251	229	46	152	304	230	131	173	293	162	91	142	219	2,650	51.83
.149	15	206	224	205	21	134	290	216	123	149	260	144	71	124	210	2,377	46.49
.218	22	169	189	185	17	112	277	194	117	126	227	135	60	109	200	2,117	41.40
.317	32	147	154	154	14	75	246	151	112	89	177	121	46	65	160	1,711	33.46
.455	46	117	119	105	13	48	177	109	98	65	122	109	34	38	123	1,277	24.98
.673	68	90	96	65	10	34	133	89	80	48	79	78	26	24	95	947	18.52
.990	100	45	62	38	8	19	90	67	51	32	58	62	18	18	67	635	12.42
1.49	150	14	38	21	6	11	45	48	27	18	29	35	13	14	45	364	7.12
2.18	220	6	18	9	4	6	19	34	17	9	16	18	10	12	28	206	4.03
3.17	320	3	11	5	3	4	12	18	7	5	13	10	10	7	15	123	2.41
4.55	460	3	9	4	2	3	6	8	5	1	8	4	8	3	12	76	1.49
6.73	680	1	6	2	1	2	3	8	3	---	8	3	4	1	6	48	.94
9.90	1,000	1	1	2	---	1	1	1	1	---	3	1	1	1	3	17	.33
14.9	1,500	1	1	1	---	---	---	---	1	---	1	1	1	1	2	10	.20
21.8	2,200	---	1	---	---	---	---	---	---	---	1	1	1	---	1	5	.098
31.7	3,200	---	1	---	---	---	---	---	---	---	---	---	---	---	---	1	.020
45.5	4,600	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

CROW CREEK NEAR WASHBURN



Crow Creek near Washburn

LOCATION.--Lat 40°57′15″, long. 89°18′30″, in SW¼ sec. 23, T. 29 N., R. 2 W., at highway bridge, 200 ft downstream from Atchison, Topeka & Santa Fe Railroad bridge, 2 miles downstream from unnamed tributary, and 2½ miles northwest of Washburn.

DRAINAGE AREA.--123 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--58.5 cfs; from correlation of observed mean annual discharges with concurrent values for Vermilion River at Lowell.

EXTREMES.--1944-50: Maximum discharge, 3,700 cfs Apr. 5, 1947; no flow for several days each year.

Days of duration of discharge for Crow Creek near Washburn

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0	0	365	365	365	366	365	365	2,191	100.00
.0008	.1	365	362	359	344	252	293	1,975	90.14
.0016	.2	364	353	337	307	247	289	1,897	86.58
.0024	.3	350	341	322	300	245	288	1,846	84.25
.0041	.5	346	332	316	292	242	287	1,815	82.84
.0057	.7	340	330	311	290	240	282	1,793	81.83
.0081	1.0	313	328	304	284	237	279	1,745	79.64
.0122	1.5	244	326	295	278	236	274	1,653	75.45
.0179	2.2	217	320	287	263	230	264	1,581	72.16
.0260	3.2	207	313	283	244	221	258	1,526	69.65
.0374	4.6	200	307	275	233	215	255	1,485	67.78
.0553	6.8	189	301	250	218	210	251	1,419	64.76
.0813	10	175	276	226	193	198	248	1,316	60.06
.122	15	160	249	211	167	174	243	1,204	54.95
.179	22	137	227	169	134	142	234	1,043	47.60
0.260	32	117	178	138	93	112	216	854	38.98
.374	46	102	129	116	65	63	196	671	30.63
.553	68	70	87	99	43	41	173	513	23.41
.813	100	46	52	80	27	26	132	363	16.57
1.22	150	25	26	52	16	14	72	205	9.36
1.79	220	12	16	26	11	6	41	112	5.11
2.60	320	6	10	13	8	4	27	68	3.10
3.74	460	4	5	5	5	2	15	36	1.64
5.53	680	3	4	4	5	2	6	24	1.10
8.13	1,000	1	1	2	1	1	2	8	.37
12.2	1,500	---	1	1	1	1	1	5	.23
17.9	2,200	---	---	1	---	---	1	2	.091
26.0	3,200	---	---	---	---	---	---	-----	------

FARM CREEK AT EAST PEORIA

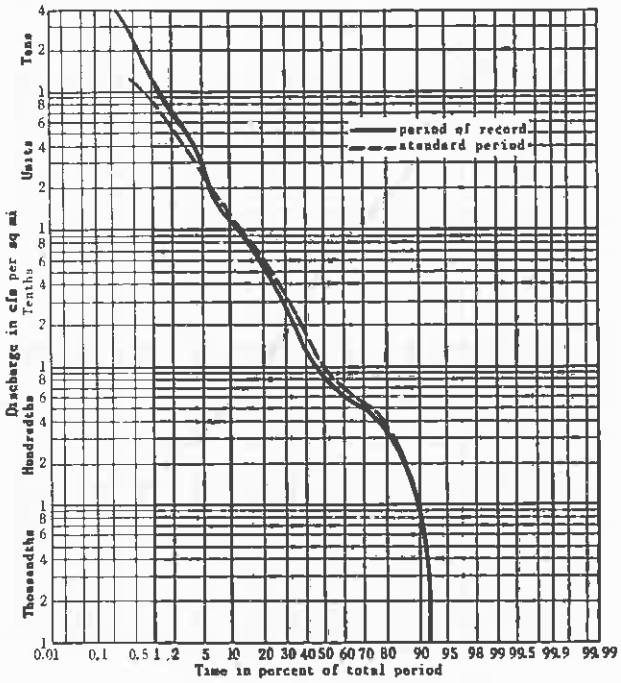
LOCATION.--Lat 40°40′05″, long. 89°34′45″, near quarter-section corner between secs. 32 and 33, T. 26 N., R. 4 W., at Main Street Bridge in East Peoria, 300 ft downstream from Coal Creek, 400 ft upstream from Peoria & Pekin Union Railroad bridge, 1,300 ft upstream from entrance to Farm Creek diversion channel, and 1.3 miles upstream from mouth.

DRAINAGE AREA.--60.9 sq mi.

DURATION DATA AVAILABLE.--Water years 1944-50.

AVERAGE DISCHARGE, 1921-45.--41.9 cfs; from correlation of observed mean annual discharges with concurrent values for Mackinaw River near Green Valley.

EXTREMES.--1943-50: Maximum discharge, 22,000 cfs Apr. 29, 1947; no flow for many days.

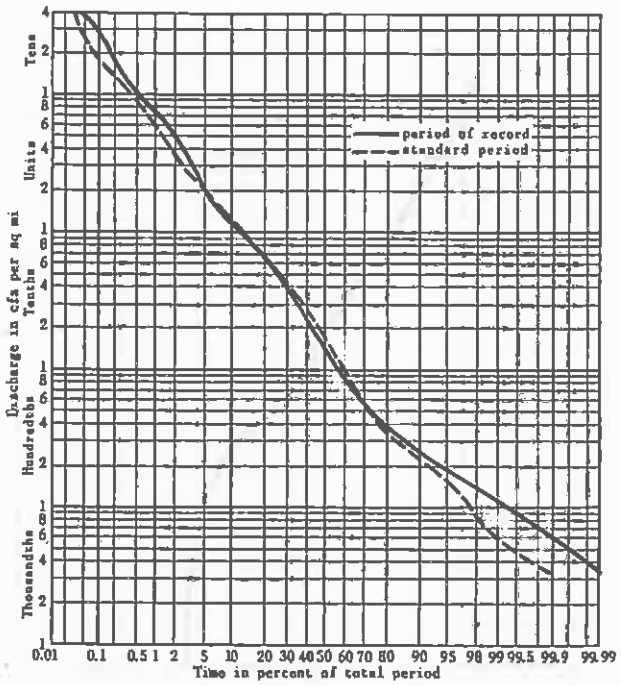


Farm Creek at East Peoria

Days of duration of discharge for Farm Creek at East Peoria

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown, Water year 1944	1945	1946	1947	1948	1949	1950	1944-50	Percent of time
0	0	366	365	365	365	366	365	365	2,557	100.00
.0016	.1	286	271	327	365	328	365	365	2,307	90.22
.0033	.2	286	271	327	365	328	365	365	2,307	90.22
.0049	.3	279	271	327	365	328	365	365	2,300	89.95
.0066	.4	278	271	327	365	328	365	365	2,299	89.91
.0115	.7	278	270	327	365	328	364	364	2,296	89.79
.0164	1.0	277	270	327	365	328	362	363	2,292	89.64
.0246	1.5	252	264	310	360	318	358	362	2,224	86.98
.0361	2.2	217	234	259	301	309	329	361	2,010	78.61
.0525	3.2	165	197	183	294	268	285	339	1,731	67.70
.0755	4.6	135	167	174	251	208	183	281	1,399	54.71
.112	6.8	113	143	158	207	151	138	235	1,145	44.78
.164	10	95	129	148	169	124	104	218	987	38.60
.246	15	75	104	126	139	97	69	194	804	31.44
.361	22	66	78	106	122	78	39	172	661	25.85
.525	32	59	59	82	100	71	26	142	539	21.08
.755	46	52	45	57	81	44	14	105	398	15.57
1.12	68	37	30	37	63	34	9	73	283	11.07
1.64	100	26	22	25	33	28	7	50	191	7.47
2.46	150	22	22	17	18	22	4	33	138	5.40
3.61	220	21	20	9	14	16	3	23	106	4.15
5.25	320	13	15	5	9	10	---	14	66	2.58
7.55	460	10	9	3	7	9	---	9	47	1.84
11.2	680	6	4	2	5	5	---	4	26	1.02
16.4	1,000	4	2	2	4	1	---	3	16	.63
24.6	1,500	3	1	1	4	---	---	1	10	.39
36.1	2,200	2	1	1	3	---	---	1	8	.31
52.5	3,200	---	---	---	1	---	---	---	1	.039
75.5	4,600	---	---	---	---	---	---	---	-----	------

KICKAPOO CREEK NEAR KICKAPOO



Kickapoo Creek near Kickapoo

LOCATION.--Lat 40°48′00″, long. 89°48′00″, in SW¼SE¼ sec. 34, T. 10 N., R. 6 E., at bridge on U. S. Highway 150, three-quarters of a mile upstream from West Fork Kickapoo Creek and 2½ miles northwest of Kickapoo.

DRAINAGE AREA.--120 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--68.9 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1944-50: Maximum discharge, 9,340 cfs Mar. 19, 1948; minimum, 0.4 cfs Oct. 28, 29, 1946.

Days of duration of discharge for Kickapoo Creek near Kickapoo

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0033	0.4	365	365	365	366	365	365	2,191	100.00	0.433	52	128	99	136	71	52	156	642	29.30
.0042	.5	365	365	363	366	365	365	2,189	99.91	.600	72	98	78	103	51	35	121	486	22.18
.0058	.7	365	365	358	366	365	365	2,184	99.68	.833	100	70	56	77	38	27	82	350	15.97
.0083	1.0	365	365	356	366	365	365	2,182	99.59	1.17	140	41	31	46	25	22	57	222	10.13
.0117	1.4	365	361	355	366	365	365	2,177	99.36	1.58	190	31	17	31	16	16	34	145	6.62
.0158	1.9	365	358	354	366	365	365	2,173	99.18	2.25	270	18	13	16	12	14	21	94	4.29
.0225	2.7	350	343	342	349	335	317	2,036	92.93	3.08	370	9	8	12	10	11	18	68	3.10
.0308	3.7	312	329	318	337	310	300	1,906	86.99	4.33	520	8	7	10	10	7	10	52	2.37
.0433	5.2	248	307	293	299	245	290	1,682	76.77	6.00	720	5	7	5	6	4	6	33	1.51
.0600	7.2	212	277	278	244	212	271	1,494	68.19	8.33	1,000	2	4	1	3	4	4	18	.82
.0833	10	191	254	270	196	184	258	1,353	61.75	11.7	1,400	1	2	1	2	1	3	10	.46
.117	14	179	230	250	169	163	240	1,231	56.18	15.8	1,900	---	1	---	1	1	3	6	.27
.158	19	168	187	220	136	139	232	1,082	49.38	22.5	2,700	---	1	---	1	1	1	4	.18
.225	27	157	157	178	116	114	217	939	42.86	30.8	3,700	---	---	---	---	---	---	-----	------
.308	37	146	131	158	93	77	188	793	36.19										

KICKAPOO CREEK AT PEORIA

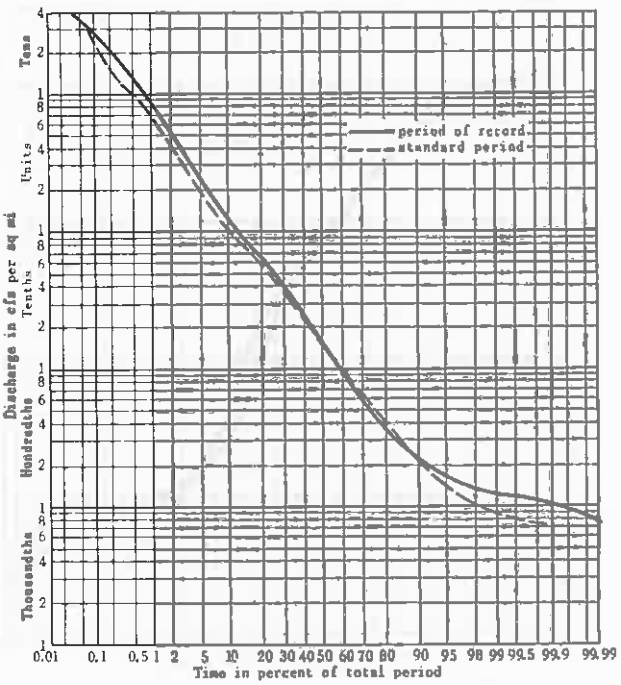
LOCATION.--Lat 40°40′55″, long. 89°39′15″, in NW¼ sec. 13, T. 8 N., R. 7 E., at bridge on State Highway 116, half a mile west of Peoria, 1.5 miles downstream from Dry Run, and 4 miles upstream from mouth.

DRAINAGE AREA.--296 sq mi.

DURATION DATA AVAILABLE.--Water years 1943-47, 1949-50.

AVERAGE DISCHARGE, 1921-45.--175 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1942-50: Maximum discharge, 15,800 cfs Apr. 25, 1950; minimum, 2.6 cfs Sept. 27, 29, 30, 1949.

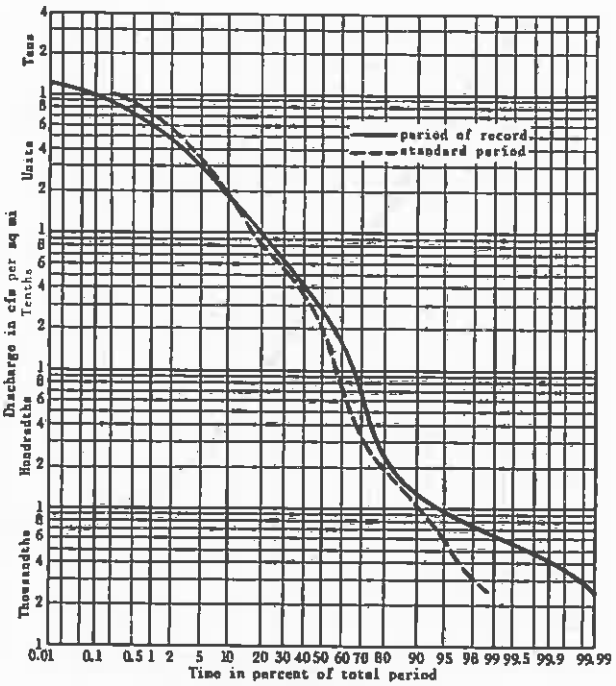


Kickapoo Creek at Peoria

Days of duration of discharge for Kickapoo Creek at Peoria

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1943	1944	1945	1946	1947	1948	1949	1950	Total	Percent of time
0.0071	2.1	365	366	365	365	365	---	365	365	2,556	100.00
.0098	2.9	365	366	365	365	365	---	361	365	2,552	99.84
.0135	4.0	365	366	365	360	365	---	342	355	2,518	98.51
.0182	5.4	365	366	363	352	357	---	328	321	2,452	95.93
.0250	7.4	363	349	346	338	344	---	292	299	2,331	91.20
.0338	10.0	323	297	336	328	327	---	259	293	2,163	84.62
.0473	14	301	236	263	311	300	---	237	290	1,938	75.82
.0608	18	286	181	231	294	285	---	221	280	1,778	69.56
.0845	25	273	161	200	237	277	---	186	259	1,593	62.32
.115	34	267	143	184	211	266	---	159	245	1,475	57.71
.155	46	247	131	168	186	218	---	142	229	1,321	51.68
.213	63	215	115	154	161	180	---	119	196	1,140	44.60
.291	86	180	100	136	132	154	---	89	170	961	37.60
.405	120	142	85	118	110	136	---	60	139	790	30.91
.541	160	115	72	96	88	115	---	45	98	629	24.61
.709	210	88	56	73	70	90	---	37	79	493	19.29
.980	290	65	42	57	44	58	---	29	63	358	14.01
1.35	400	51	31	41	30	33	---	24	48	258	10.09
1.82	540	38	22	29	15	17	---	14	36	171	6.69
2.50	740	25	18	17	13	13	---	12	19	117	4.58
3.38	1,000	17	11	10	10	9	---	11	14	82	3.21
4.73	1,400	13	9	7	5	7	---	6	10	57	2.23
6.08	1,800	10	7	4	3	3	---	3	7	37	1.45
8.45	2,500	7	5	3	2	2	---	3	5	27	1.06
11.5	3,400	4	4	1	2	---	---	2	5	18	.70
15.5	4,600	1	3	1	2	---	---	---	4	11	.43
21.3	6,300	--	1	---	---	---	---	---	3	4	.16
29.1	8,600	---	---	---	---	---	---	---	1	1	.039
40.5	12,000	---	---	---	---	---	---	---	1	1	.039
54.1	16,000	---	---	---	---	---	---	---	---	-----	------

MACKINAW RIVER NEAR CONGERVILLE



Mackinaw River near Congerville

LOCATION.--Lat 40°37′25″, long. 89°14′30″, in NE¼SW¼ sec. 17, T. 25 N., R. 1 W., at bridge on U. S. Highway 150, 900 ft downstream from New York, Chicago & St. Louis Railroad bridge, a quarter of a mile downstream from Walnut Creek, and 2 miles northwest of Congerville.

DRAINAGE AREA.--764 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--498 cfs; from correlation of observed mean annual discharges with concurrent values for Mackinaw River near Green Valley.

EXTREMES.--1944-50: Maximum discharge, 15,500 cfs Apr. 30, 1947; minimum, 2.5 cfs Oct. 11, 1946.

Days of duration of discharge for Mackinaw River near Congerville

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0026	2.0	365	365	365	366	365	365	2,191	100.00	0.262	200	144	230	185	174	163	209	1,105	50.43
.0038	2.9	365	365	364	366	365	365	2,190	99.95	.380	290	127	179	158	141	133	194	932	42.54
.0054	4.1	365	349	360	366	365	365	2,170	99.04	.537	410	107	137	129	117	97	181	768	35.05
.0077	5.9	361	331	354	366	363	364	2,139	97.63	.772	590	88	103	107	83	61	161	603	27.52
.0110	8.4	290	327	352	360	347	363	2,039	93.06	1.10	840	51	72	78	59	36	113	409	18.67
.0157	12	245	325	345	337	311	362	1,925	87.86	1.57	1,200	32	51	40	39	22	80	264	12.05
.0223	17	215	324	319	325	252	325	1,760	80.33	2.23	1,700	21	31	19	21	15	48	155	7.07
.0314	24	207	324	303	308	241	293	1,676	76.49	3.14	2,400	9	16	9	11	7	33	85	3.88
.0458	35	202	323	294	299	236	271	1,625	74.17	4.58	3,500	5	11	6	3	1	18	44	2.01
.0641	49	196	297	285	285	230	259	1,552	70.84	6.41	4,900	1	6	3	1	---	10	21	.96
.0916	70	189	268	277	246	210	248	1,438	65.63	9.16	7,000	---	3	2	---	---	4	9	.41
.131	100	178	250	265	219	199	239	1,350	61.62	13.1	10,000	---	2	2	---	---	1	5	.23
.183	140	160	238	220	202	193	225	1,238	56.50	18.3	14,000	---	---	---	---	---	---	-----	------

MACKINAW RIVER NEAR GREEN VALLEY

LOCATION.--Lat 40°26′43″, long. 89°39′10″, in SE¼NW¼ sec. 15, T. 23 N., R. 5 W. at bridge on State Highway 29, 3 miles north of Green Valley and 13 miles upstream from mouth.

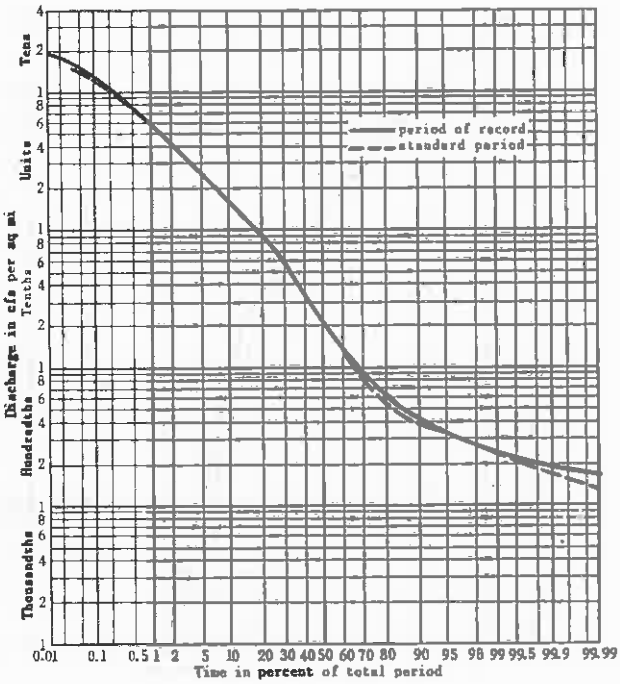
DRAINAGE AREA.--1,100 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1922-50.

AVERAGE DISCHARGE, 1921-45.--675 cfs.

EXTREMES.--1921-50: Maximum discharge, 26,400 cfs Apr. 24, 1944; minimum observed, 17 cfs Oct. 26, 27, 1940.

REMARKS.--For average discharge, 1921-45, published data have been supplemented by estimation of daily discharges Oct. 1, 1920 to Mar. 8, 1921 by hydrographic comparison with records for Sangamon River at Monticello. For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

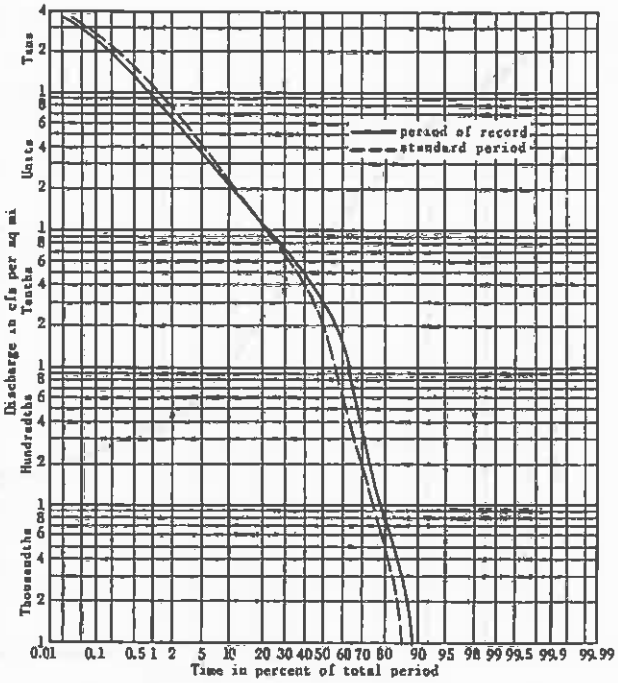


Mackinaw River near Green Valley

Days of duration of discharge for Mackinaw River near Green Valley

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0145	16	365	365	366	365	365	10,592	100.00
.0191	21	365	365	366	365	365	10,555	99.65
.0245	27	365	365	366	365	365	10,438	98.55
.0318	35	365	365	366	365	365	10,025	94.65
.0409	45	365	365	366	365	365	9,416	88.90
.0545	60	352	349	356	268	307	8,559	80.81
.0709	78	335	331	328	246	295	7,960	75.15
.0909	100	328	305	309	235	283	7,432	70.17
.118	130	302	289	279	228	269	6,896	65.11
.155	170	261	276	241	211	257	6,287	59.36
.200	220	244	244	217	195	245	5,703	53.84
.255	280	231	215	186	175	236	5,150	48.62
.327	360	196	181	163	152	221	4,607	43.50
.418	460	162	156	136	125	205	3,967	37.45
.545	600	125	128	107	98	191	3,294	31.10
0.709	780	101	114	94	63	173	2,636	24.89
.909	1,000	76	95	72	40	143	2,128	20.09
1.18	1,300	58	72	53	29	111	1,576	14.88
1.55	1,700	40	41	33	19	79	1,090	10.29
2.00	2,200	24	19	19	15	54	759	7.17
2.55	2,800	17	11	13	4	44	521	4.92
3.27	3,600	10	8	5	---	31	332	3.13
4.18	4,600	5	6	---	---	20	208	1.96
5.45	6,000	5	4	---	---	10	117	1.10
7.09	7,800	2	2	---	---	5	61	.58
9.09	10,000	2	2	---	---	2	34	.32
11.8	13,000	1	---	---	---	---	13	.12
15.5	17,000	---	---	---	---	---	4	.038
20.0	22,000	---	---	---	---	---	1	.009
25.5	28,000	---	---	---	---	---	-----	------

MONEY CREEK ABOVE LAKE BLOOMINGTON



Money Creek above Lake Bloomington

LOCATION.--Lat 40°37′13″, long. 88°54′59″, in SE¼SW¼ sec. 18, T. 25 N., R. 3 E., 200 ft north of line between secs. 18 and 19, 1 mile unstream from Lake Bloomington, and 4 miles northeast of Hudson.

DRAINAGE AREA.--51.9 sq mi.

DURATION DATA AVAILABLE.--Water years 1935-40, 1942-50.

AVERAGE DISCHARGE, 1921-45.--35.7 cfs; from correlation of observed mean annual discharges with concurrent values for Mackinaw River near Green Valley.

EXTREMES.--1933-50: Maximum discharge, 3,900 cfs Apr. 30, 1947; no flow at times during most years.

Days of duration of discharge for Money Creek above Lake Bloomington

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1935	'36	'37	'38	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	Total	Percent of time
0	0	365	366	365	365	365	366	---	365	365	366	365	365	365	366	365	365	5,479	100.00
.0002	.01	350	336	365	346	279	184	---	343	358	328	365	333	323	318	324	363	4,915	89.71
.0006	.03	345	328	365	338	271	179	---	338	354	322	361	332	318	310	322	354	4,837	88.28
.0010	.05	341	319	365	333	259	171	---	338	345	316	358	331	315	307	321	352	4,771	87.08
.0017	.09	338	315	365	328	248	157	---	336	335	309	338	328	313	303	320	348	4,681	85.44
.0029	.15	334	306	364	321	235	152	---	333	332	286	326	327	310	298	307	345	4,576	83.52
.0046	.24	326	303	362	311	227	145	---	329	328	263	284	321	306	297	290	341	4,433	80.91
.0071	.37	323	299	356	305	213	142	---	323	325	235	274	320	302	296	281	334	4,328	78.99
.0106	.55	319	298	353	293	206	138	---	318	320	205	269	319	300	295	266	325	4,224	77.09
.0160	.83	312	295	351	265	197	135	---	313	314	182	259	316	291	293	255	307	4,085	74.56
.0231	1.2	308	292	350	255	191	131	---	308	311	169	250	314	287	291	246	286	3,989	72.81
.0347	1.8	299	285	341	233	183	127	---	305	307	156	214	309	281	281	240	268	3,829	69.89
.0520	2.7	288	270	335	224	176	109	---	301	298	151	203	303	277	270	232	243	3,680	67.17
.0771	4.0	274	248	326	211	173	88	---	297	284	140	192	299	270	248	225	235	3,510	64.16
.116	6.0	264	219	314	201	162	49	---	291	273	134	182	291	266	220	216	225	3,307	60.36
.173	9.0	249	166	282	190	146	23	---	275	261	129	165	260	252	196	202	212	3,008	54.90
.250	13	228	130	254	179	129	15	---	264	248	120	149	226	219	155	173	198	2,687	49.04
.385	20	195	93	200	143	98	11	---	236	218	99	124	173	173	118	129	184	2,194	40.04
.559	29	165	69	164	119	80	7	---	194	184	89	103	140	141	83	87	165	1,790	32.67
.809	42	125	48	118	85	56	2	---	143	124	73	72	108	101	58	58	141	1,312	23.95
1.19	62	86	32	78	52	38	2	---	91	89	52	49	83	61	49	34	105	901	16.44
1.73	90	53	22	46	27	29	1	---	49	64	36	34	62	34	31	22	69	579	10.57
2.50	130	33	14	22	16	20	1	---	29	43	21	23	47	16	12	11	44	352	6.42
3.85	200	20	9	9	6	9	---	---	19	25	10	15	27	6	4	4	23	186	3.39
5.59	290	8	7	5	1	6	---	---	6	18	8	8	13	4	2	2	15	103	1.88
8.09	420	3	4	3	---	3	---	---	4	12	6	3	5	2	1	1	9	56	1.02
11.9	620	2	3	---	---	1	---	---	2	9	4	---	3	1	---	---	4	29	.53
17.3	900	1	1	---	---	---	---	---	---	3	3	---	---	1	---	---	1	10	.18
25.0	1,300	---	---	---	---	---	---	---	---	1	1	---	---	1	---	---	---	3	.055
38.5	2,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

HICKORY CREEK ABOVE LAKE BLOOMINGTON

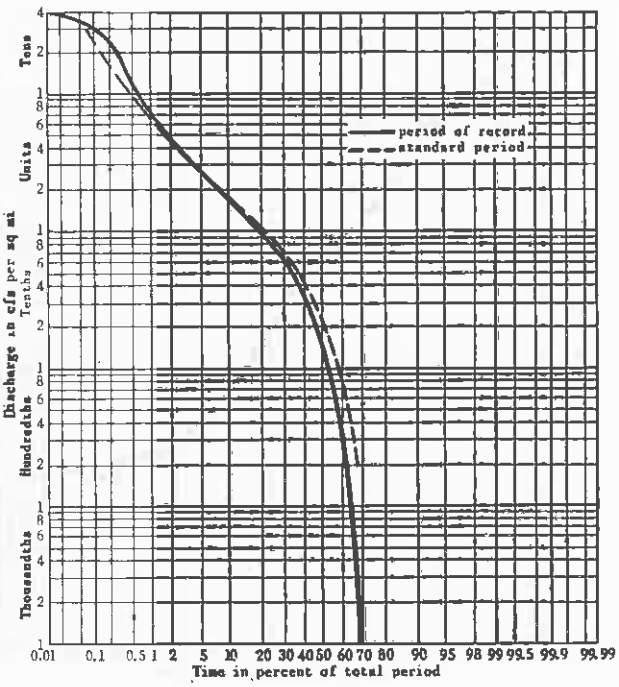
LOCATION.--Lat 40°38′15″, long. 88°57′00″, in SE¼ sec. 11, T. 25 N., R. 2 E., 300 ft downstream from unnamed tributary, a quarter of a mile upstream from Lake Bloomington, and 3 miles northeast of Hudson.

DRAINAGE AREA.--10.1 sq mi.

DURATION DATA AVAILABLE.--Water years 1939-50.

AVERAGE DISCHARGE, 1921-45.--6.98 cfs; from correlation of observed mean annual discharges with concurrent values for Mackinaw River near Green Valley.

EXTREMES.--1938-50: Maximum discharge, 1,460 cfs Aug. 3, 1943; no flow at times in each year.

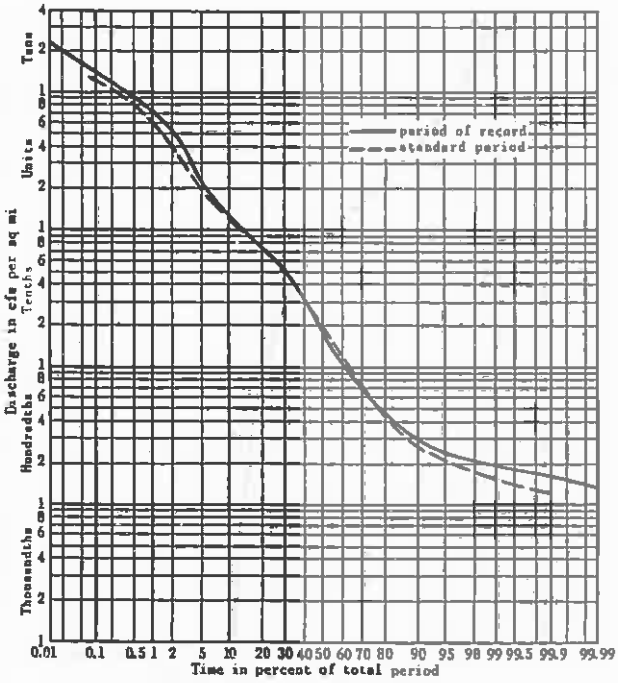


Hickory Creek above Lake Bloomington

Days of duration of discharge for Hickory Creek above Lake Bloomington

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1939-50	Percent of time
0	0	365	366	365	365	365	366	365	365	365	366	365	365	4,383	100.00
.0010	.01	197	133	127	324	317	193	307	333	294	276	239	265	3,005	68.56
.0020	.02	196	133	117	318	312	177	296	329	289	271	238	254	2,930	66.85
.0030	.03	195	131	112	317	310	170	291	329	288	267	238	251	2,899	66.14
.0040	.04	195	131	108	314	308	169	288	328	284	267	237	243	2,872	65.53
.0059	.06	192	127	104	312	303	163	270	327	283	264	237	241	2,823	64.41
.0079	.08	191	126	102	306	298	163	261	327	281	260	236	239	2,790	63.66
.0119	.12	187	124	95	303	294	158	252	325	281	260	232	238	2,749	62.72
.0178	.18	185	108	82	301	292	153	251	321	280	259	229	235	2,696	61.51
.0257	.26	183	96	72	298	289	152	244	317	278	257	225	234	2,645	60.35
.0376	.38	181	80	66	297	283	151	232	315	276	249	220	231	2,581	58.89
.0554	.56	177	66	56	295	274	147	213	306	272	239	213	228	2,486	56.72
.0792	.80	171	41	41	289	267	141	208	303	267	229	210	226	2,393	54.60
.119	1.20	164	30	29	277	260	135	199	298	243	205	203	221	2,264	51.65
.178	1.80	149	24	23	268	253	129	189	291	238	179	188	216	2,147	48.98
.257	2.60	134	17	16	253	241	120	176	267	196	147	168	203	1,938	44.22
.376	3.80	110	9	13	224	221	111	160	214	171	120	140	191	1,684	38.42
.554	5.60	75	5	10	182	180	92	138	165	140	94	100	179	1,360	31.03
.792	8.00	56	4	9	131	142	79	103	124	112	73	64	162	1,059	24.16
1.19	12.0	38	2	4	82	93	64	66	81	56	51	38	119	694	15.83
1.78	18.0	24	2	2	37	61	39	36	49	22	25	16	72	385	8.78
2.57	26	18	1	---	20	41	25	21	27	11	7	6	40	217	4.95
3.76	38	9	---	---	13	24	14	15	11	5	3	3	19	116	2.65
5.54	56	4	---	---	5	15	8	8	9	2	1	---	13	65	1.48
7.92	80	2	---	---	3	9	4	4	6	2	1	---	8	39	.89
11.9	120	1	---	---	3	7	3	---	3	1	---	---	5	23	.52
17.8	180	---	---	---	1	5	3	---	2	---	---	---	3	14	.32
25.7	260	---	---	---	---	4	3	---	---	---	---	---	2	9	.21
37.6	380	---	---	---	---	1	---	---	---	---	---	---	---	1	.023
55.4	560	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

SPOON RIVER AT LONDON MILLS



Spoon River at London Mills

LOCATION.--Lat 40°42′51″, long. 90°16′00″, in NW¼ sec. 3, T. 8 N., R. 2 E., at highway bridge in London Mills, 0.5 mile upstream from Minneapolis & St. Louis Railroad, 1.4 miles upstream from Cedar Creek, and 2.8 miles downstream from Littlers Creek.

DRAINAGE AREA.--1,070 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1943-50.

AVERAGE DISCHARGE, 1921-45.--623 cfs; from correlation of observed mean annual discharges with concurrent values for Spoon River at Seville.

EXTREMES.--1942-50: Maximum discharge, 27,000 cfs Mar. 20, 1948; minimum, 13 cfs Sept. 20, 1947.

Days of duration of discharge for Spoon River at London Mills

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1943	1944	1945	1946	1947	1948	1949	1950	1943-50	Percent of time
0.0103	11	365	366	365	365	365	366	365	365	2,922	100.00
.0140	15	365	366	365	365	363	366	365	365	2,920	99.93
.0187	20	365	364	365	364	360	366	351	358	2,893	99.01
.0243	26	365	362	355	362	343	357	328	307	2,779	95.11
.0318	34	365	337	326	353	337	339	292	290	2,639	90.31
.0421	45	358	289	257	340	322	321	257	287	2,431	83.20
.0561	60	332	220	227	331	312	304	212	287	2,225	76.15
.0729	78	305	181	208	319	286	276	194	282	2,051	70.19
.0935	100	292	164	196	287	247	235	182	271	1,874	64.13
.121	130	277	144	187	247	219	190	162	253	1,679	57.46
.168	180	266	129	175	224	196	157	148	233	1,528	52.29
.215	230	249	123	165	201	174	135	137	210	1,394	47.71
.290	310	208	117	154	157	151	101	124	185	1,197	40.97
.374	400	177	108	143	129	138	78	103	148	1,024	35.04
.495	530	149	96	130	92	123	51	71	111	823	28.17
.654	700	116	78	103	66	98	39	52	87	639	21.87
.869	930	85	59	73	45	82	30	40	68	482	16.50
1.12	1,200	67	45	52	30	63	28	32	57	374	12.80
1.50	1,600	51	33	29	21	39	24	25	48	270	9.24
1.96	2,100	39	19	19	15	28	19	17	31	187	6.40
2.62	2,800	28	14	15	14	16	15	14	24	140	4.79
3.46	3,700	16	10	10	10	10	12	12	20	100	3.42
4.49	4,800	10	7	10	10	7	11	10	12	77	2.64
5.89	6,300	---	5	7	4	4	8	5	8	41	1.40
7.85	8,400	---	4	5	3	---	3	1	7	23	.79
10.3	11,000	---	---	1	3	---	2	---	4	10	.34
13.1	14,000	---	---	1	---	---	2	---	1	4	.14
17.8	19,000	---	---	---	---	---	1	---	1	2	.068
23.4	25,000	---	---	---	---	---	---	---	---	-----	------

SPOON RIVER AT SEVILLE

LOCATION.--Lat 40°29′10″, long. 90°20′34″, in SW¼ sec. 24, T. 6 N., R. 1 E., at highway bridge in Seville.

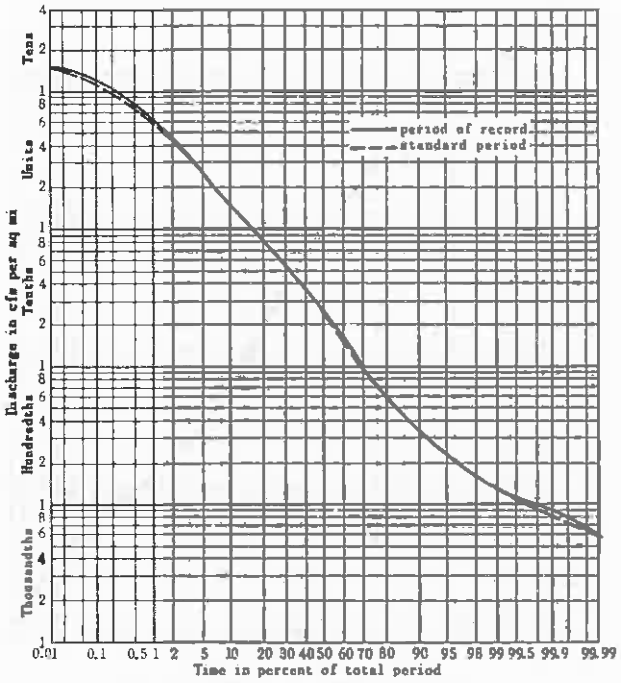
DRAINAGE AREA.--1,600 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1915-50.

AVERAGE DISCHARGE, 1921-45.--990 cfs.

EXTREMES.--1914-50: Maximum discharge, 28,900 cfs Aug. 22, 1924; minimum observed, 3.8 cfs July 31, Aug. 27-29, 1914.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

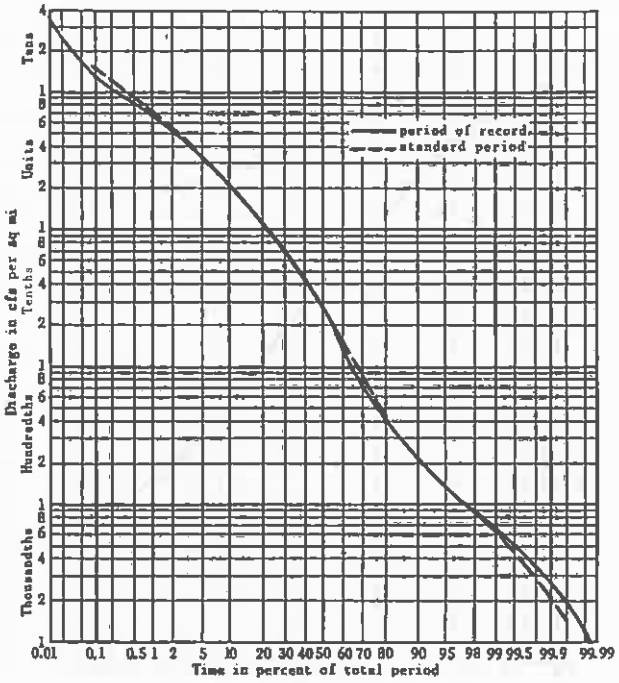


Spoon River at Seville

Days of duration of discharge for Spoon River at Seville

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1946-50	Percent of time
0.0050	8	365	365	366	365	365	13,149	100.00
.0081	13	365	365	366	365	365	13,137	99.91
.0150	24	365	363	366	362	363	12,951	98.49
.0200	32	365	360	365	355	349	12,676	96.40
.0262	42	364	343	351	348	310	12,346	93.89
.0350	56	353	333	343	332	296	11,783	89.61
.0475	76	343	321	331	304	294	11,085	84.30
.0625	100	332	311	308	263	291	10,437	79.37
.0812	130	323	295	269	238	279	9,803	74.55
.112	180	266	265	231	212	265	8,930	67.91
.150	240	237	235	190	189	258	8,071	61.38
.200	320	217	209	156	157	245	7,173	54.55
.262	420	185	191	121	130	220	6,314	48.02
.350	560	139	167	99	113	185	5,269	40.07
0.475	760	110	142	70	87	143	4,234	32.20
.625	1,000	82	132	53	63	100	3,380	25.71
.812	1,300	55	108	46	46	83	2,633	20.02
1.12	1,800	39	74	33	33	67	1,812	13.78
1.50	2,400	22	41	23	27	48	1,262	9.60
2.00	3,200	17	28	19	21	32	865	6.58
2.62	4,200	16	20	18	15	25	611	4.65
3.50	5,600	14	14	14	11	18	409	3.11
4.75	7,600	12	10	11	8	11	248	1.89
6.25	10,000	7	1	4	1	9	112	.85
8.12	13,000	5	---	3	---	7	63	.48
11.2	18,000	---	---	2	---	2	11	.084
15.0	24,000	---	---	1	---	---	4	.030
20.0	32,000	---	---	---	---	---	-----	------

SANGAMON RIVER AT MONTICELLO



Sangamon River at Monticello

LOCATION.--Lat 40°01′40″, long. 88°35′25″, in SW¼ sec. 12, T. 18 N., R. 5 E., at Illinois Central Railroad bridge, half a mile west of Monticello.

DRAINAGE AREA.--550 sq mi.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915-50.

AVERAGE DISCHARGE, 1921-45.--426 cfs.

EXTREMES.--1908-12, 1914-50: Maximum discharge, 19,000 cfs Oct. 4, 1926; minimum, 0.4 cfs Sept. 22, 1940.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Sangamon River at Monticello

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0007	0.4	365	365	366	365	365	14,610	100.00
.0018	1	365	365	366	365	365	14,604	99.96
.0036	2	365	365	366	365	365	14,570	99.73
.0073	4	365	365	366	365	365	14,447	98.88
.0109	6	365	365	366	365	365	14,183	97.08
.0145	8	365	365	366	365	365	13,902	95.15
.0182	10	365	365	366	365	365	13,545	92.71
.0273	15	353	351	337	348	364	12,643	86.54
.0364	20	340	321	312	320	362	11,963	81.88
.0455	25	337	305	304	301	344	11,458	78.43
.0545	30	334	297	301	288	337	11,060	75.70
.0727	40	328	286	293	256	329	10,452	71.54
.0909	50	323	283	276	243	324	9,979	68.30
.127	70	315	277	241	230	313	9,228	63.16
.164	90	306	268	224	222	299	8,681	59.42
0.218	120	274	247	201	209	286	7,927	54.26
.273	150	245	210	180	193	273	7,303	49.99
.364	200	207	180	154	166	240	6,364	43.56
.545	300	152	140	122	128	214	5,010	34.29
.773	425	121	110	94	96	190	3,831	26.22
1.00	550	96	79	73	79	167	3,050	20.88
1.27	700	76	52	58	62	135	2,381	16.30
1.82	1,000	44	32	28	37	88	1,585	10.85
2.73	1,500	21	12	13	15	50	891	6.10
5.45	3,000	6	5	3	---	19	245	1.68
8.18	4,500	1	---	---	---	7	86	.59
12.7	7,000	---	---	---	---	1	21	.14
18.2	10,000	---	---	---	---	---	7	.048
27.3	15,000	---	---	---	---	---	2	.014
36.4	20,000	---	---	---	---	---	-----	-----

SANGAMON RIVER AT RIVERTON

LOCATION.--Lat 39°50′34″, long. 89°32′52″, in NE¼ sec. 16, T. 16 N., R. 4 W., at bridge on U. S. Highway 36 at Riverton, 4½ miles downstream from South Fork.

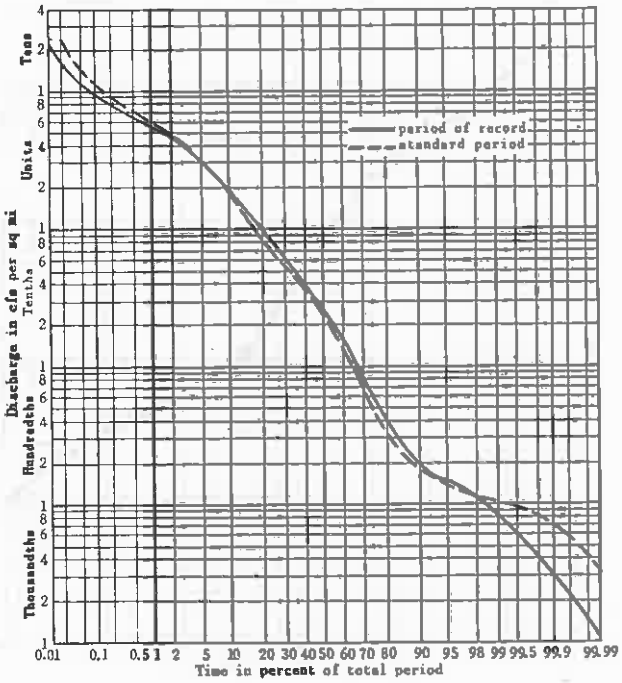
DRAINAGE AREA.--2,560 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915-50.

AVERAGE DISCHARGE, 1921-45.--1,780 cfs.

EXTREMES.--1908-12, 1914-50: Maximum discharge, 68,700 cfs May 19, 1943; minimum, 3.0 cfs Oct. 3-15, 1914.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

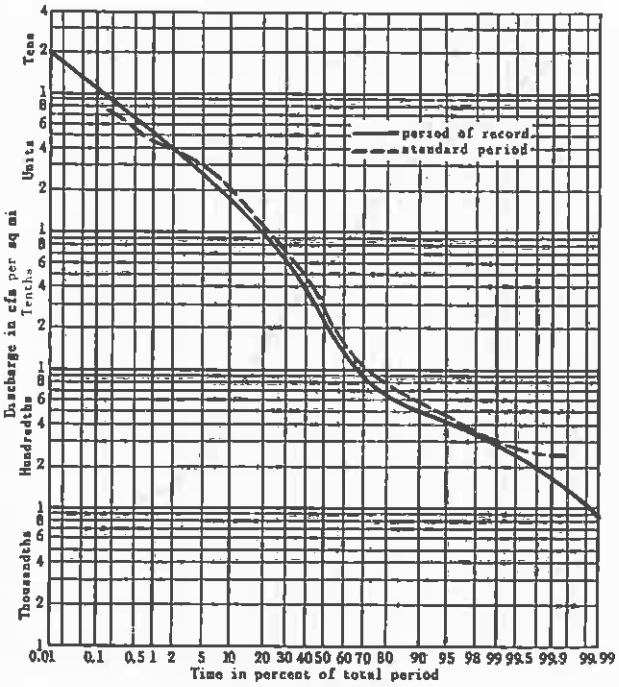


Sangamon River at Riverton

Days of duration of discharge for Sangamon River at Riverton

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0012	3	365	365	366	365	365	14,610	100.00
.0031	8	365	365	366	365	365	14,591	99.87
.0062	16	365	365	366	365	365	14,531	99.46
.0102	26	365	365	366	365	365	14,383	98.45
.0156	40	365	365	365	357	365	13,801	94.46
.0273	70	365	362	334	324	364	12,723	87.08
.0430	110	365	336	306	281	358	11,692	80.03
.0586	150	352	313	293	261	345	11,043	75.59
.0781	200	345	293	274	250	334	10,418	71.31
.0977	250	341	285	256	233	316	9,871	67.56
.117	300	337	282	242	223	305	9,465	64.78
.156	400	322	275	214	201	278	8,744	59.85
.195	500	302	266	197	181	263	8,215	56.23
.234	600	287	258	185	171	251	7,769	53.18
.312	800	259	235	159	148	223	6,761	46.28
.391	1,000	214	225	140	120	205	5,975	40.90
0.469	1,200	195	206	128	98	197	5,415	37.06
.586	1,500	165	174	105	82	183	4,588	31.40
.781	2,000	118	143	88	71	157	3,576	24.48
1.17	3,000	87	104	59	48	111	2,540	17.39
1.56	4,000	58	67	42	37	88	1,886	12.91
1.95	5,000	33	49	24	29	77	1,430	9.79
2.73	7,000	10	30	11	24	64	912	6.24
3.52	9,000	1	20	9	18	36	543	3.72
4.69	12,000	---	8	4	1	20	240	1.64
5.86	15,000	---	2	---	---	14	112	.77
7.42	19,000	---	---	---	---	4	49	.34
10.2	26,000	---	---	---	---	---	13	.089
13.3	34,000	---	---	---	---	---	5	.034
17.2	44,000	---	---	---	---	---	4	.027
22.7	58,000	---	---	---	---	---	2	.014
30.1	77,000	---	---	---	---	---	-----	------

SANGAMON RIVER NEAR OAKFORD



Sangamon River near Oakford

LOCATION.--Lat 40°07′25″, long. 89°59′05″, in NW¼SE¼ sec. 3, T. 19 N., R. 8 W., at bridge on State Highway 97, just upstream from Chicago & Illinois Midland Railroad bridge, three-quarters of a mile downstream from Crane Creek, and 1¾ miles northwest of Oakford.

DRAINAGE AREA.--5,120 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1911, 1916-18, 1929-33, 1940-50.

AVERAGE DISCHARGE, 1921-45.--3,460 cfs; from multiple correlation of observed mean monthly discharges with concurrent values for Sangamon River at Riverton and Sangamon River at Monticello.

EXTREMES.--1909-12, 1914-19, 1921-22, 1928-33, 1939-50: Maximum discharge, 123,000 cfs May 20, 1943; minimum, 68 cfs Dec. 3, 1940.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Sangamon River near Oakford

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0088	45	365	365	366	365	365	7,305	100.00
.0100	51	365	365	366	365	365	7,294	99.85
.0113	58	365	365	366	365	365	7,294	99.85
.0129	66	365	365	366	365	365	7,284	99.71
.0146	75	365	365	366	365	365	7,284	99.71
.0168	86	365	365	366	365	365	7,284	99.71
.0189	97	365	365	366	365	365	7,284	99.71
.0215	110	365	365	366	365	365	7,284	99.71
.0248	127	365	365	366	365	365	7,273	99.56
.0287	147	365	365	366	365	365	7,212	98.73
.0332	170	365	365	366	365	365	7,068	96.76
.0391	200	365	365	366	365	365	6,860	93.91
.0469	240	365	365	366	365	365	6,549	89.65
.0566	290	365	365	366	339	362	6,106	83.59
.0723	370	364	353	337	269	361	5,543	75.88
0.0938	480	352	330	283	250	345	5,130	70.23
.127	650	346	301	252	234	306	4,671	63.94
.176	900	336	286	210	211	266	4,173	57.13
.254	1,300	289	275	178	179	248	3,635	49.76
.391	2,000	232	249	144	133	221	2,956	40.47
.605	3,100	154	189	104	79	181	2,200	30.12
.918	4,700	107	145	59	55	150	1,461	20.00
1.41	7,200	62	76	30	39	108	874	11.96
2.15	11,000	14	40	13	24	80	459	6.28
3.12	16,000	---	15	6	4	26	202	2.77
4.69	24,000	---	---	---	---	6	69	.94
6.64	34,000	---	---	---	---	---	13	.18
9.38	48,000	---	---	---	---	---	7	.096
13.1	67,000	---	---	---	---	---	4	.055
18.0	92,000	---	---	---	---	---	2	.027
24.2	124,000	---	---	---	---	---	-----	-----

SOUTH FORK OF SANGAMON RIVER NEAR TAYLORVILLE

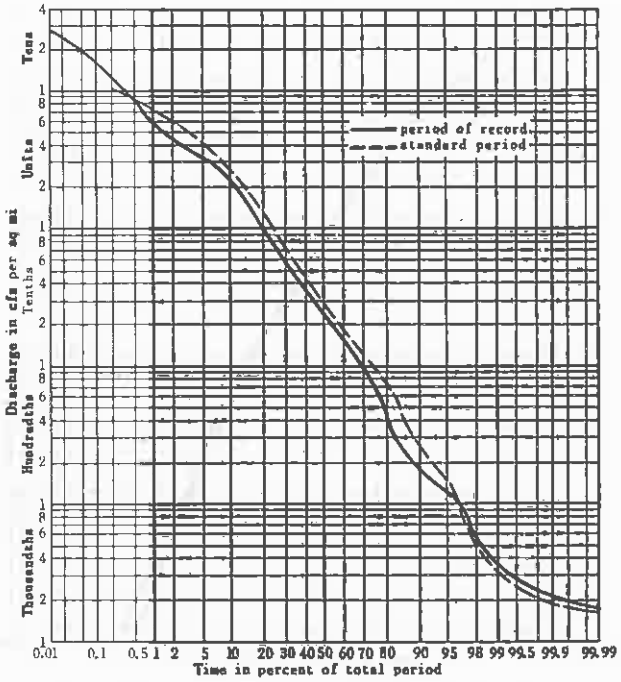
LOCATION.--Lat 39°30′25″, long. 89°20′45″, in NE¼NE¼ sec. 7, T. 12 N., R. 2 W., at Wabash Railroad bridge about 3½ miles southwest of Taylorville, Christian County, and about a quarter of a mile upstream from highway bridge known as Half Acre Bridge.

DRAINAGE AREA.--427 sq mi.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915-16.

AVERAGE DISCHARGE, 1921-45.--377 cfs; from synthetic duration curve, using Sangamon River at Monticello as index station.

EXTREMES.--1908-12, 1914-16: Maximum discharge, 9,660 cfs Jan. 31, 1916; minimum 0.6 cfs Aug. 10, 11, Sept. 29, 1914.

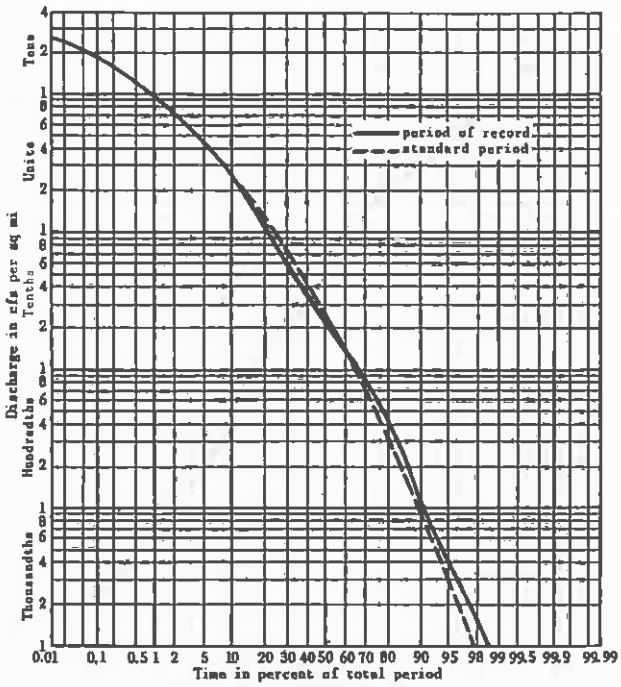


South Fork of Sangamon River near Taylorville

Days of duration of discharge for South Fork of Sangamon River near Taylorville

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1909	1910	1911	1912	1913	1914	1915	1916	Total	Percent of time
0	0	365	365	365	366	---	---	365	366	2,192	100.00
.0023	1	365	365	365	366	---	---	365	363	2,189	99.86
.0047	2	365	365	365	366	---	---	357	343	2,161	98.59
.0070	3	365	365	365	366	---	---	343	336	2,140	97.63
.0117	5	360	365	365	366	---	---	319	328	2,103	95.94
.0187	8	274	353	357	366	---	---	281	317	1,948	88.87
.0258	11	231	350	336	365	---	---	262	312	1,856	84.67
.0398	17	221	339	316	346	---	---	260	305	1,787	81.52
.0585	25	192	322	308	332	---	---	237	299	1,690	77.10
.0820	35	186	309	286	319	---	---	206	291	1,597	72.86
.129	55	179	268	227	305	---	---	183	272	1,434	65.42
.187	80	167	220	199	286	---	---	155	240	1,267	57.80
.281	120	135	157	168	251	---	---	123	161	995	45.39
.468	200	104	104	129	190	---	---	87	119	733	33.44
.703	300	84	77	88	117	---	---	77	81	524	23.90
.937	400	72	56	67	92	---	---	63	71	421	19.21
1.30	555	58	38	45	79	---	---	53	60	333	15.19
1.87	800	39	24	28	73	---	---	41	49	254	11.59
2.81	1,200	26	16	13	43	---	---	35	38	171	7.80
4.22	1,800	4	---	7	17	---	---	16	13	57	2.60
6.32	2,700	---	---	3	3	---	---	8	8	22	1.00
9.37	4,000	---	---	1	---	---	---	3	4	8	.36
14.1	6,000	---	---	---	---	---	---	1	2	3	.14
19.9	8,500	---	---	---	---	---	---	---	1	1	.046
28.1	12,000	---	---	---	---	---	---	---	---	-----	------

SOUTH FORK SANGAMON RIVER AT KINCAID



South Fork Sangamon River at Kincaid

LOCATION.--Lat 39°34′40″, long. 89°23′30″, in SW¼NE¼ sec. 14, T. 13 N., R. 3 W., 200 ft upstream from Chicago & Illinois Midland Railroad bridge, 300 ft upstream from bridge on State Highway 104, 1 mile southeast of Kincaid, and 6 miles downstream from Bear Creek.

DRAINAGE AREA.--510 sq mi.

DURATION DATA AVAILABLE.--Water years 1918-27, 1929-30, 1932-33, 1945-50.

AVERAGE DISCHARGE, 1921-45.--374 cfs; from correlation of observed mean annual discharges with concurrent values for Sangamon River at Riverton and Sangamon River at Monticello.

EXTREMES.--1917-33, 1944-50: Maximum discharge, 11,800 cfs Mar. 15, 1922; no flow Aug. 29, Oct. 6-23, 1922.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for South Fork Sangamon River at Kincaid

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0	0	365	365	366	365	365	7,304	100.00
.0004	.2	365	365	366	365	365	7,228	98.99
.0012	.6	365	365	366	365	365	7,193	98.48
.0024	1.2	365	365	366	365	365	7,106	97.29
.0039	2.0	365	365	366	365	365	6,993	95.74
.0063	3.2	365	365	366	365	365	6,860	93.92
.0094	4.8	365	365	365	365	365	6,752	92.44
.0137	7.0	365	363	354	365	365	6,533	89.44
.0196	10	365	353	337	365	365	6,343	86.84
.0274	14	365	342	323	346	364	6,185	84.68
.0392	20	358	324	306	322	355	5,886	80.59
.0549	28	348	303	266	292	340	5,549	75.97
.0784	40	336	294	234	246	306	5,132	70.26
.108	55	320	288	196	207	280	4,772	65.33
.151	77	278	272	172	173	255	4,278	58.57
0.212	108	245	257	149	154	229	3,790	51.89
.290	148	206	240	127	135	209	3,340	45.73
.402	205	168	204	104	113	178	2,806	38.42
.549	280	146	173	97	104	163	2,358	32.28
.765	390	111	139	83	76	139	1,874	25.66
1.06	540	80	121	64	60	114	1,509	20.66
1.45	740	68	102	45	48	95	1,206	16.51
2.00	1,020	54	81	28	40	77	957	13.10
2.74	1,400	34	45	16	31	60	695	9.52
3.86	1,970	7	28	8	21	44	427	5.85
5.29	2,700	1	17	5	12	26	251	3.44
7.25	3,700	---	8	2	3	12	118	1.62
10.2	5,200	---	5	---	---	3	53	.73
13.7	7,000	---	2	---	---	2	22	.30
19.2	9,800	---	---	---	---	1	6	.082
26.5	13,500	---	---	---	---	---	-----	------

SALT CREEK NEAR ROWELL

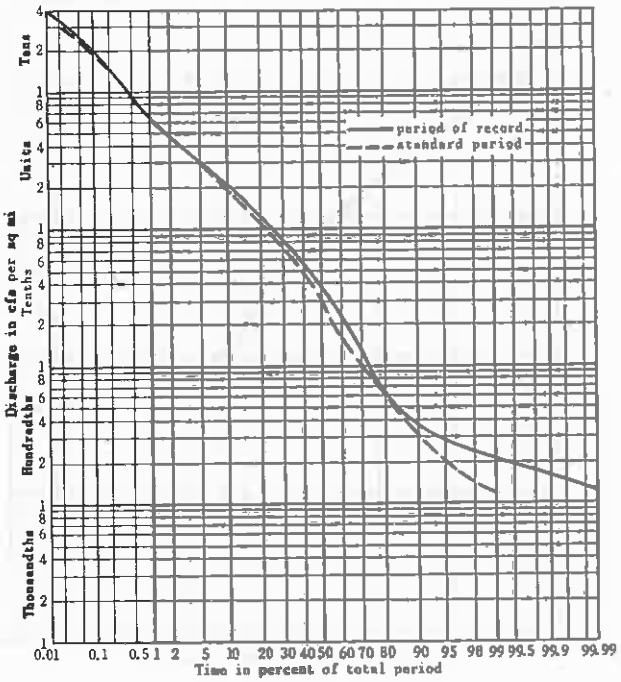
LOCATION.--Lat 40°07′, long. 89°02′, in NE¼SE¼ sec. 11, T. 19 N., R. 1 E., at county highway bridge half a mile upstream from U. S. Highway 54, three-quarters of a mile upstream from Illinois Central Railroad and Ten Mile Creek, and 3.2 miles northwest of Rowell.

DRAINAGE AREA.--334 sq mi.

DURATION DATA AVAILABLE.--Water years 1943-50.

AVERAGE DISCHARGE, 1921-45.--258 cfs; from correlation of observed mean annual discharges with concurrent values for Sangamon River at Monticello.

EXTREMES.--1942-50: Maximum discharge, 12,400 cfs May 18, 1943; minimum, 5.2 cfs Aug. 12-17, 1944.

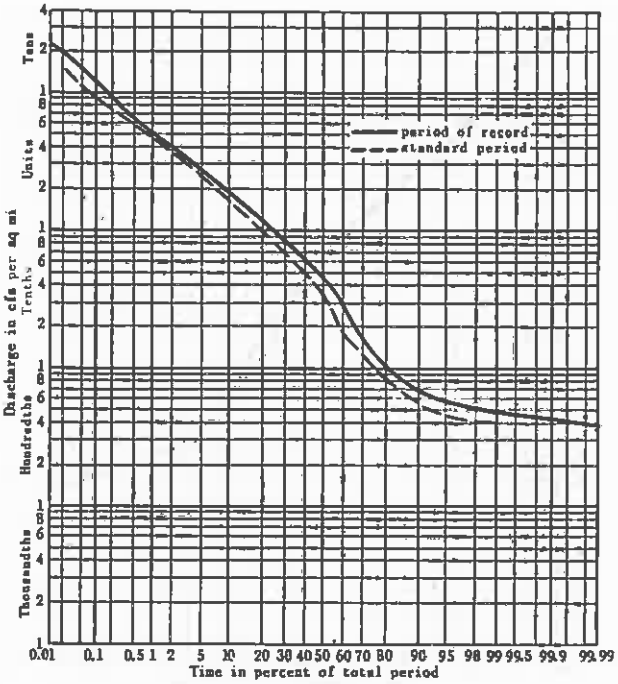


Salt Creek near Rowell

Days of duration of discharge for Salt Creek near Rowell

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1943	1944	1945	1946	1947	1948	1949	1950	1943-50	Percent of time
0.0126	4.2	365	366	365	365	365	366	365	365	2,922	100.00
.0168	5.6	365	361	365	365	365	366	365	365	2,917	99.83
.0225	7.5	365	350	358	365	358	354	365	365	2,880	98.56
.0299	10	365	318	303	365	333	337	337	364	2,722	93.16
.0389	13	361	305	252	365	326	330	319	353	2,611	89.36
.0539	18	332	262	222	356	316	313	295	334	2,430	83.16
.0719	24	317	198	203	348	307	301	263	321	2,258	77.28
.0958	32	304	160	193	338	301	295	241	310	2,142	73.31
.126	42	294	145	184	328	295	281	228	292	2,047	70.05
.168	56	283	138	174	296	286	226	214	275	1,892	64.75
.225	75	273	129	153	267	276	201	187	250	1,736	59.41
.299	100	262	122	131	247	256	176	164	229	1,587	54.31
.389	130	242	116	112	217	220	156	148	205	1,416	48.46
.539	180	206	106	80	181	187	125	111	181	1,177	40.28
.719	240	168	97	56	143	154	91	91	162	962	32.92
.958	320	118	77	38	118	115	66	72	144	748	25.60
1.26	420	90	56	25	96	80	54	49	111	561	19.20
1.68	560	65	35	17	68	49	35	31	87	387	13.24
2.25	750	50	26	6	48	30	26	19	58	263	9.00
2.99	1,000	34	17	4	26	13	13	10	42	159	5.44
3.89	1,300	22	11	1	11	3	6	4	33	91	3.11
5.39	1,800	13	7	---	2	---	3	---	20	45	1.54
7.19	2,400	5	6	---	1	---	---	---	11	23	.79
9.58	3,200	4	4	---	---	---	---	---	7	15	.51
12.6	4,200	3	2	---	---	---	---	---	3	8	.27
16.8	5,600	2	2	---	---	---	---	---	1	5	.17
22.5	7,500	2	1	---	---	---	---	---	---	3	.10
29.9	10,000	1	---	---	---	---	---	---	---	1	.034
38.9	13,000	---	---	---	---	---	---	---	---	-----	------

SALT CREEK NEAR GREENVIEW



Salt Creek near Greenview

LOCATION.--Lat 40°08′01″, long. 89°44′08″, in NE¼NE¼ sec. 2, T. 19 N., R. 6 W., at bridge on State Highway 29, 3.5 miles north of Greenview, 3.3 miles downstream from Pike Creek, and 5 miles upstream from mouth.

DRAINAGE AREA.--1,800 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1942-50.

AVERAGE DISCHARGE, 1921-45.--1,180 cfs; from correlation of observed mean annual discharges with concurrent values for Sangamon River at Riverton.

EXTREMES.--1941-50: Maximum discharge, 41,200 cfs May 19, 1943; minimum observed, 71 cfs Sept. 10, 11, 1944.

Days of duration of discharge for Salt Creek near Greenview

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1942	1943	1944	1945	1946	1947	1948	1949	1950	1942-50	Percent of time
0.0350	63	365	365	366	365	365	365	366	365	365	3,287	100.00
.0439	79	365	365	363	365	365	365	366	365	365	3,284	99.91
.0556	100	365	365	334	320	365	365	366	363	365	3,208	97.60
.0722	130	364	365	253	241	364	355	335	287	365	2,929	89.11
.0889	160	360	352	184	225	350	338	305	264	362	2,740	83.36
.111	200	349	326	161	217	341	320	272	244	309	2,539	77.24
.139	250	333	312	146	205	336	309	252	236	283	2,412	73.38
.178	320	319	302	133	193	316	297	214	214	256	2,244	68.27
.222	400	314	296	128	180	289	288	195	191	247	2,128	64.74
.278	500	307	284	124	162	270	281	175	166	231	2,000	60.85
.350	630	294	271	115	145	247	277	156	144	209	1,858	56.53
.439	790	271	249	108	132	217	252	132	131	194	1,686	51.29
.556	1,000	238	217	94	110	173	215	106	94	181	1,428	43.44
.722	1,300	187	171	71	78	137	178	75	65	167	1,129	34.35
.889	1,600	142	125	56	54	111	150	60	51	151	900	27.38
1.11	2,000	101	96	40	35	87	114	50	38	118	679	20.66
1.39	2,500	75	71	31	22	70	79	36	29	96	509	15.49
1.78	3,200	59	52	25	14	42	47	22	18	74	353	10.74
2.22	4,000	47	43	20	8	22	25	11	7	53	236	7.18
2.78	5,000	27	34	15	2	12	13	3	---	33	139	4.23
3.50	6,300	17	28	13	1	6	6	---	---	24	95	2.89
4.39	7,900	7	20	12	---	2	3	---	---	11	55	1.67
5.56	10,000	4	13	8	---	---	1	---	---	1	27	.82
7.22	13,000	2	7	3	---	---	---	---	---	---	12	.37
8.89	16,000	1	5	1	---	---	---	---	---	---	7	.21
11.1	20,000	---	4	1	---	---	---	---	---	---	5	.15
13.9	25,000	---	3	---	---	---	---	---	---	---	3	.091
17.8	32,000	---	2	---	---	---	---	---	---	---	2	.061
22.2	40,000	---	---	---	---	---	---	---	---	---	-----	------

KICKAPOO CREEK NEAR HEYWORTH

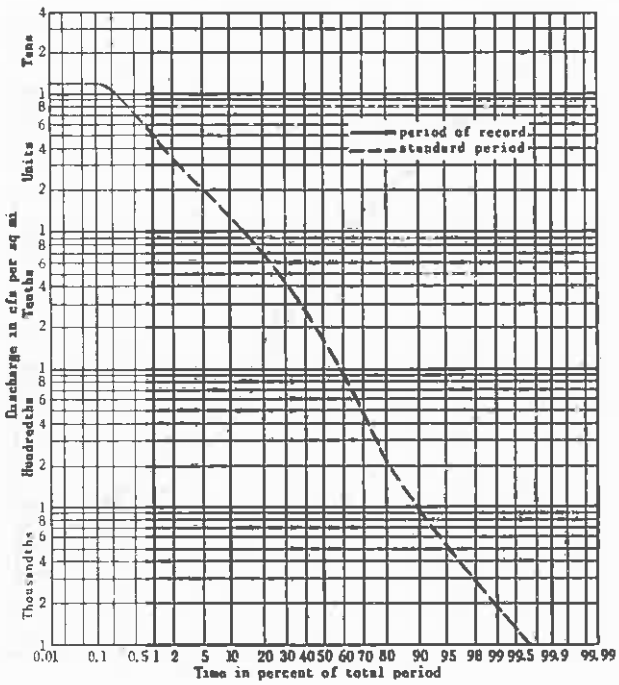
LOCATION.--Lat 40°21′00″, long. 88°56′20″, in NW corner of NW¼SW¼ sec. 24, T. 22 N., R. 2 E., at county highway bridge, about 2¾ miles upstream from Little Kickapoo Creek and 3¼ miles northeast of Heyworth.

DRAINAGE AREA.--71.4 sq mi.

DURATION DATA AVAILABLE.--12 miscellaneous discharge measurements during the water years 1949-54.

AVERAGE DISCHARGE, 1921-45.--37.3 cfs; from synthetic duration curve, using Sangamon River at Riverton as index station.

REMARKS.--Duration relation with index station obtained through use of auxiliary relation with Kickapoo Creek near Lincoln for water years 1949-54.

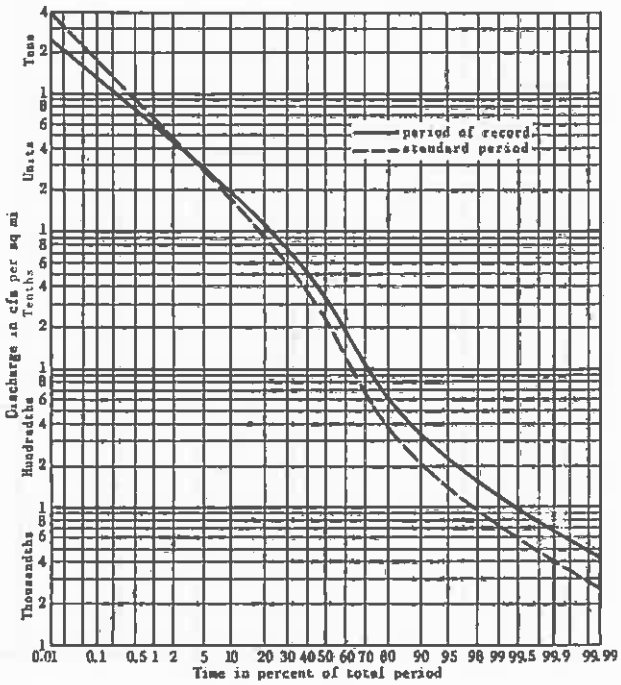


Kickapoo Creek near Heyworth

Coordinates of synthetic duration curve for Kickapoo Creek near Heyworth

Cfs	Cfs per sq mi	Percent of time	Cfs	Cfs per sq mi	Percent of time	Cfs	Cfs per sq mi	Percent of time
0.05	0.0007	100.00	8.00	0.112	57.65	94.0	1.32	9.59
.05	.0007	99.93	8.70	.122	54.20	132	1.85	6.35
.05	.0007	98.80	11.0	.154	51.53	170	2.38	3.88
.53	.0074	93.13	15.7	.220	44.95	260	3.64	1.86
1.12	.0157	84.51	20.2	.283	40.23	355	4.97	.87
1.97	.0276	77.36	24.5	.343	36.50	580	8.13	.44
2.88	.0404	72.58	30.5	.427	30.91	1,370	11.9	.14
4.15	.0581	68.74	40.0	.560	23.62	1,370	11.9	.055
4.95	.0694	65.31	61.0	.855	16.57	1,370	11.9	.044
5.80	.0812	62.46	77.5	1.08	12.41	1,370	11.9	.022
						1,370	11.9	------

KICKAPOO CREEK NEAR LINCOLN



Kickapoo Creek near Lincoln

LOCATION.--Lat 40°11'30", long. 89°21'40", in NE¼NW¼ sec. 18, T. 20 N., R. 2 W., at county highway bridge, 1,000 ft upstream from Illinois Terminal Electric Railroad, 3 miles north of Lincoln, and 7½ miles upstream from mouth.

DRAINAGE AREA.--306 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--202 cfs; from correlation of observed mean annual discharges with concurrent values for Sangamon River at Riverton.

EXTREMES.--1944-50: Maximum discharge, 7,400 cfs Apr. 26, 1950; minimum daily, 2 cfs Oct. 29 to Nov. 2, Nov. 6, 1944.

Days of duration of discharge for Kickapoo Creek near Lincoln

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0059	1.8	365	365	365	366	365	365	2,191	100.00
.0078	2.4	359	365	365	366	365	365	2,185	99.73
.0105	3.2	356	365	365	366	365	365	2,182	99.59
.0137	4.2	342	365	365	366	365	365	2,168	98.95
.0183	5.6	322	365	365	366	365	365	2,148	98.04
.0245	7.5	267	365	365	360	343	365	2,065	94.25
.0327	10	243	365	365	345	291	363	1,972	90.00
.0425	13	224	362	343	310	273	357	1,869	85.30
.0588	18	214	344	330	302	258	323	1,771	80.83
.0784	24	206	338	314	284	241	292	1,675	76.45
.105	32	195	333	302	252	229	266	1,577	71.98
.137	42	183	318	296	212	214	247	1,470	67.09
.183	56	162	289	287	181	193	235	1,347	61.48
.245	75	147	260	281	156	164	226	1,234	56.32
0.327	100	127	236	268	138	137	212	1,118	51.03
.425	130	104	208	245	121	111	195	984	44.91
.588	180	67	164	205	91	83	181	791	36.10
.784	240	49	130	164	65	61	161	630	28.75
1.05	320	33	104	122	54	40	129	482	22.00
1.37	420	24	78	81	40	30	92	345	15.75
1.83	560	16	46	49	29	16	63	219	10.00
2.45	750	11	29	28	17	9	41	135	6.16
3.27	1,000	3	17	17	11	4	30	82	3.74
4.25	1,300	1	7	9	6	2	22	47	2.15
5.88	1,800	---	2	1	---	---	14	17	.78
7.84	2,400	---	2	---	---	---	12	14	.64
10.5	3,200	---	1	---	---	---	3	4	.18
13.7	4,200	---	---	---	---	---	2	2	.091
18.3	5,600	---	---	---	---	---	---	-----	------

SUGAR CREEK NEAR HARTSBURG

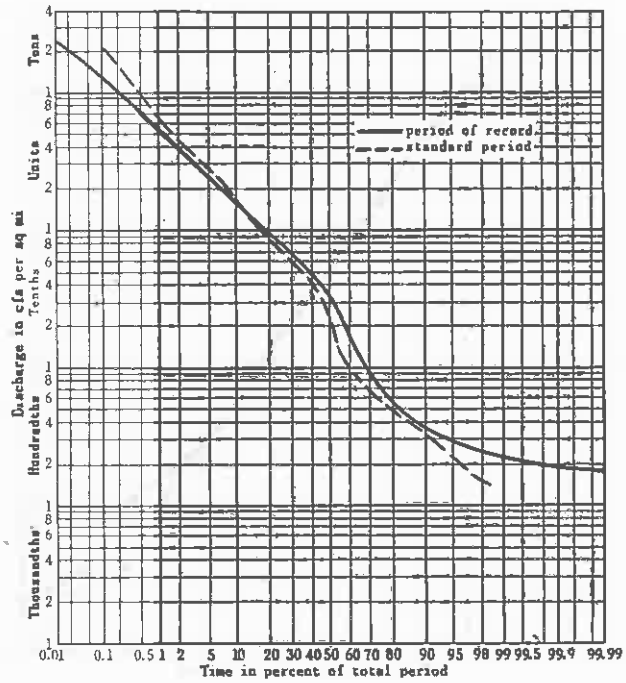
LOCATION.--Lat 40°13′10″, long. 89°24′35″, in NE¼NE¼ sec. 3, T. 20 N., R. 3 W., at bridge on State Highway 121, 100 ft upstream from Illinois Central Railroad, 2½ miles southeast of Hartsburg, 4 miles northwest of Lincoln, and 7 miles downstream from West Fork.

DRAINAGE AREA.--335 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--226 cfs; from correlation of observed mean annual discharges with concurrent values for Sangamon River at Monticello.

EXTREMES.--1944-50: Maximum discharge, 8,500 cfs Apr. 30, 1947; minimum, 5 cfs Sept. 11, 1945.

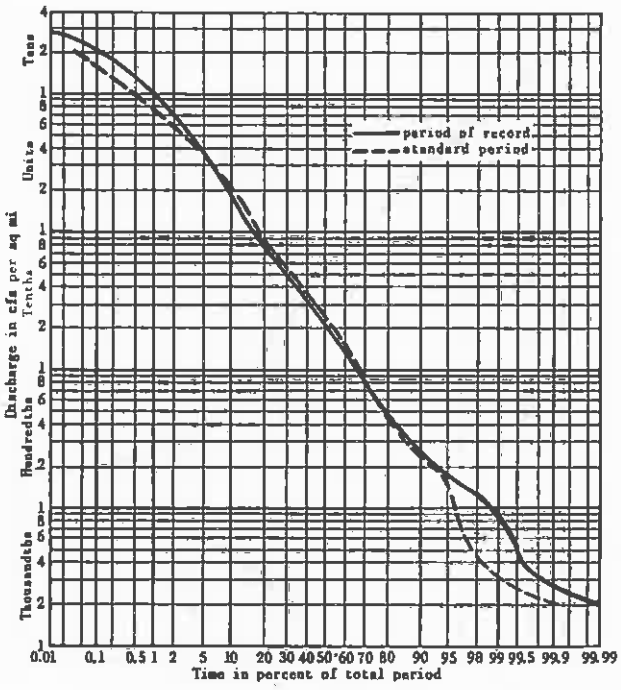


Sugar Creek near Hartsburg

Days of duration of discharge for Sugar Creek near Hartsburg

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0179	6.0	365	365	365	366	365	365	2,191	100.00	0.657	220	99	129	154	74	57	178	691	31.54
.0230	7.7	348	365	365	359	365	365	2,167	98.90	.836	280	75	101	122	59	39	156	552	25.19
.0299	10	322	365	365	349	345	365	2,111	96.35	1.07	360	52	78	79	42	29	116	396	18.07
.0388	13	277	361	358	324	305	365	1,990	90.83	1.37	460	35	58	52	29	21	88	283	12.92
.0507	17	226	347	333	305	260	332	1,803	82.29	1.79	600	26	44	27	19	13	58	187	8.53
.0657	22	212	335	318	293	240	292	1,690	77.13	2.30	770	20	25	19	15	7	43	129	5.89
.0836	28	204	325	303	266	219	270	1,587	72.43	2.99	1,000	11	19	12	10	5	28	85	3.88
.107	36	193	299	298	249	208	258	1,505	68.69	3.88	1,300	4	8	7	5	4	23	51	2.33
.137	46	184	276	291	217	190	246	1,404	64.08	5.07	1,700	1	6	4	1	---	12	24	1.10
.179	60	171	254	281	194	179	236	1,315	60.02	6.57	2,200	1	4	2	---	---	10	17	.78
.230	77	159	241	274	176	159	231	1,240	56.60	8.36	2,800	1	1	2	---	---	3	7	.32
.299	100	146	226	254	152	139	221	1,138	51.94	10.7	3,600	---	1	2	---	---	1	4	.18
.388	130	133	194	232	127	111	204	1,001	45.69	13.7	4,600	---	---	---	---	---	---	-----	------
.507	170	123	164	185	96	80	189	837	38.20										

LA MOINE RIVER AT COLMAR



La Moine River at Colmar

LOCATION.--Lat 40°19'45", long. 90°53'55", in SE¼SW¼ sec. 18, T. 4 N., R. 4 W., at bridge on State Highway 61, a quarter of a mile downstream from Chicago, Burlington & Quincy Railroad bridge, 1 mile southwest of Colmar and 1¾ miles upstream from Troublesome Creek.

DRAINAGE AREA.--655 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--414 cfs; from correlation of observed mean annual discharges with concurrent values for La Moine River at Ripley.

EXTREMES.--1944-50: Maximum discharge, 20,300 cfs July 27, 1948; minimum, 1.8 cfs Sept. 6-9, 1945.

Days of duration of discharge for La Moine River at Colmar

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0021	1.4	365	365	365	366	365	365	2,191	100.00	0.290	190	178	151	191	117	140	157	934	42.63
.0029	1.9	363	365	365	366	365	365	2,189	99.91	.412	270	166	116	159	96	113	127	777	35.46
.0041	2.7	357	365	365	366	365	365	2,183	99.63	.565	370	149	84	133	71	80	90	607	27.70
.0056	3.7	352	365	365	366	365	365	2,178	99.41	.794	520	123	64	104	59	54	64	468	21.36
.0079	5.2	346	365	365	366	365	365	2,172	99.13	1.10	720	89	40	83	41	39	46	338	15.43
.0110	7.2	343	365	361	365	361	360	2,155	98.36	1.53	1,000	66	27	60	28	27	29	237	10.82
.0153	10	339	365	358	351	349	354	2,116	96.58	2.14	1,400	51	20	39	23	20	19	172	7.85
.0214	14	335	365	346	346	328	309	2,029	92.61	2.90	1,900	40	13	28	19	16	10	126	5.75
.0290	19	329	362	325	329	305	290	1,940	88.54	4.12	2,700	24	10	19	16	11	9	89	4.06
.0412	27	326	343	315	305	279	275	1,843	84.12	5.65	3,700	14	10	13	14	7	3	61	2.78
.0565	37	317	314	305	255	257	266	1,714	78.23	7.94	5,200	6	5	9	8	2	1	31	1.41
.0794	52	285	284	295	222	233	255	1,574	71.84	11.0	7,200	1	4	4	5	2	---	16	.73
.110	72	244	259	283	195	210	242	1,433	65.40	15.3	10,000	---	2	1	3	---	---	6	.27
.153	100	224	226	251	166	186	218	1,271	58.01	21.4	14,000	---	---	---	2	---	---	2	.091
.214	140	202	181	221	140	155	192	1,091	49.79	29.0	19,000	---	---	---	---	---	---	-----	------

LA MOINE RIVER AT RIPLEY

LOCATION.--Lat 40°01'31", long. 90°37'55", in NE¼ sec. 33, T. 1 N., R. 2 W., at bridge on U. S. Highway 24, a quarter of a mile east of Ripley and 2 miles upstream from Town Branch.

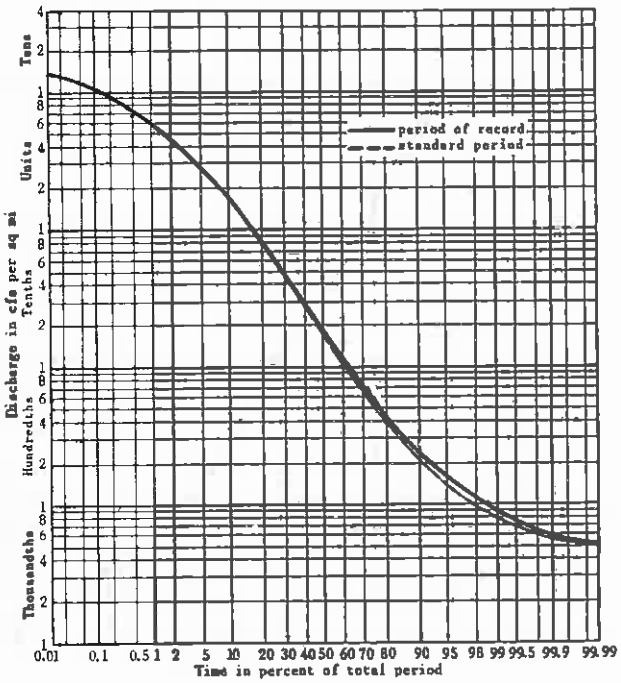
DRAINAGE AREA.--1,310 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1922-50.

AVERAGE DISCHARGE, 1921-45.--755 cfs.

EXTREMES.--1921-50: Maximum discharge, 17,100 cfs Apr. 25, 1944; minimum, 6.4 cfs Sept. 23, 1940.

REMARKS.--For average discharge, 1921-45, published data have been supplemented by estimation of monthly discharges October 1920 to March 1921 from correlation of observed values with concurrent values for Spoon River at Seville. For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

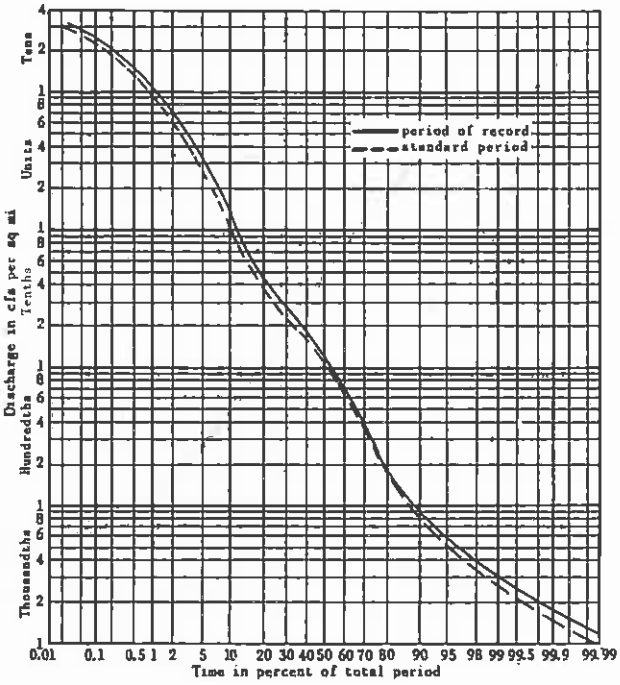


La Moine River at Ripley

Days of duration of discharge for La Moine River at Ripley

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0046	6	365	365	366	365	365	10,592	100.00
.0053	7	365	365	366	365	365	10,581	99.90
.0061	8	365	365	366	365	365	10,570	99.79
.0069	9	365	365	366	365	365	10,554	99.64
.0076	10	365	365	366	365	365	10,525	99.37
.0092	12	365	365	366	365	365	10,471	98.86
.0107	14	365	365	366	365	365	10,379	97.99
.0122	16	365	365	366	365	365	10,309	97.33
.0145	19	365	365	359	365	362	10,180	96.11
.0176	23	365	360	352	361	358	9,906	93.52
.0214	28	365	358	344	354	353	9,653	91.13
.0267	35	365	344	335	348	321	9,271	87.53
.0328	43	365	337	329	333	308	8,945	84.45
.0427	56	357	326	298	296	301	8,445	79.73
.0565	74	339	317	273	268	284	7,880	74.40
0.763	100	324	306	226	242	271	7,298	68.90
.107	140	277	292	190	217	256	6,545	61.79
.153	200	238	247	169	183	231	5,726	54.06
.229	300	191	218	132	146	201	4,712	44.49
.344	450	138	169	101	110	167	3,759	35.49
.580	760	86	129	76	61	101	2,596	24.51
.962	1,260	59	88	56	39	64	1,766	16.67
1.60	2,100	32	64	38	21	37	1,113	10.51
2.37	3,100	16	46	28	16	22	656	6.19
3.21	4,200	12	27	17	13	9	419	3.96
4.43	5,800	10	19	9	4	2	211	1.99
5.65	7,400	7	12	8	3	---	114	1.08
7.18	9,400	4	8	7	---	---	48	.45
9.16	12,000	2	3	4	---	---	20	.19
10.7	14,000	1	2	3	---	---	11	.10
13.1	17,100	---	---	---	---	---	-----	------

MACOUPIN CREEK NEAR KANE



Macoupin Creek near Kane

LOCATION.--Lat 39°14′00″, long. 90°23′45″, in SE¼ sec. 11, T. 9 N., R. 12 W., at bridge on U. S. Highway 67, 1.4 miles downstream from Link Branch, and 3½ miles northwest of Kane.

DRAINAGE AREA.--875 sq mi.

DURATION DATA AVAILABLE.--Water years 1922-33, 1941-50.

AVERAGE DISCHARGE, 1921-45.--604 cfs; from multiple correlation of observed mean monthly discharges with concurrent values for Kaskaskia River at Vandalia and Cuivre River near Troy, Mo.

EXTREMES.--1921-33, 1940-50: Maximum discharge, 40,000 cfs May 18, 1943; minimum, 1 cfs Sept. 29, Oct. 3, 5, 15, 1922.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois stream."

Days of duration of discharge for Macoupin Creek near Kane

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0	0	365	365	366	365	365	8,035	100.00
.0023	2	365	365	366	365	365	8,013	99.73
.0046	4	365	365	366	365	365	7,813	97.24
.0057	5	365	365	366	365	365	7,716	96.03
.0069	6	365	365	366	365	365	7,575	94.28
.0103	9	365	352	328	365	363	7,164	89.16
.0137	12	365	343	286	357	354	6,939	86.36
.0206	18	363	326	250	337	336	6,504	80.95
.0297	26	351	308	231	312	311	6,063	75.46
.0411	36	323	295	210	288	301	5,713	71.10
.0571	50	313	287	190	270	283	5,332	66.36
.0777	68	279	280	174	246	259	4,931	61.37
.105	92	244	266	165	220	239	4,461	55.52
.141	123	211	255	152	205	221	3,973	49.45
.189	165	181	237	137	189	200	3,448	42.91
.254	222	154	216	113	165	180	2,936	36.54
0.343	300	130	170	90	126	168	2,427	30.21
.466	408	102	145	67	98	128	1,969	24.51
.638	558	83	112	53	80	108	1,576	19.61
.874	765	68	89	35	58	86	1,249	15.54
1.20	1,050	57	72	22	44	70	996	12.40
1.61	1,410	50	54	20	34	56	815	10.14
2.23	1,950	40	41	13	28	43	651	8.10
3.09	2,700	24	33	8	23	32	512	6.37
4.11	3,600	8	23	3	17	23	368	4.58
5.35	4,680	6	13	2	13	17	262	3.26
7.20	6,300	4	11	---	5	8	161	2.00
10.3	9,000	4	5	---	1	3	94	1.17
14.1	12,300	4	1	---	---	---	32	.40
18.9	16,500	3	---	---	---	---	15	.19
25.4	22,200	1	---	---	---	---	5	.062
34.3	30,000	---	---	---	---	---	2	.025
45.7	40,000	---	---	---	---	---	-----	------

INDIAN CREEK AT WANDA

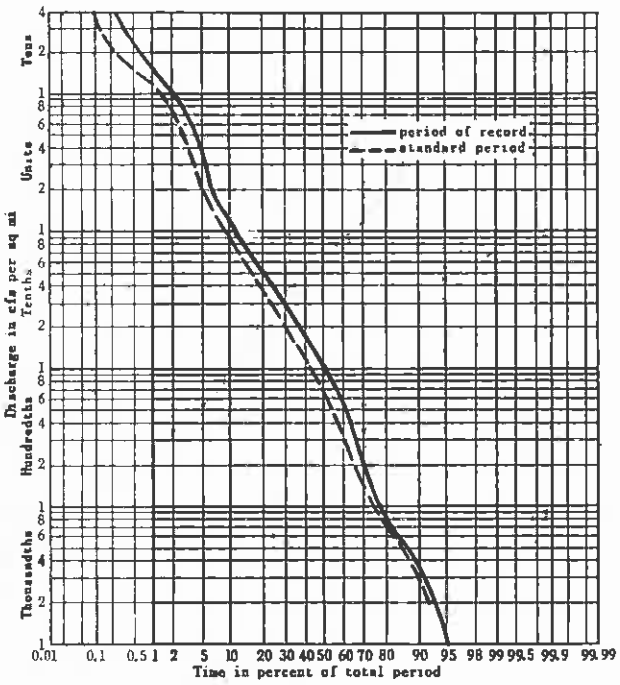
LOCATION.--Lat 38°50′30″, long. 90°01′59″, in SE¼NW¼ sec. 31, T. 5 N., R. 8 W., at bridge on State Highway 159, three-quarters of a mile northeast of Wanda, 2¼ miles upstream from mouth, and 5 miles west of Edwardsville.

DRAINAGE AREA.--37.0 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--25.8 cfs; from correlation of observed mean annual discharges with concurrent values for Kaskaskia River at Vandalia.

EXTREMES.--1940-50: Maximum discharge, 9,340 cfs Aug. 15, 1946; no flow for many days in 1940, 1941, 1944, 1948

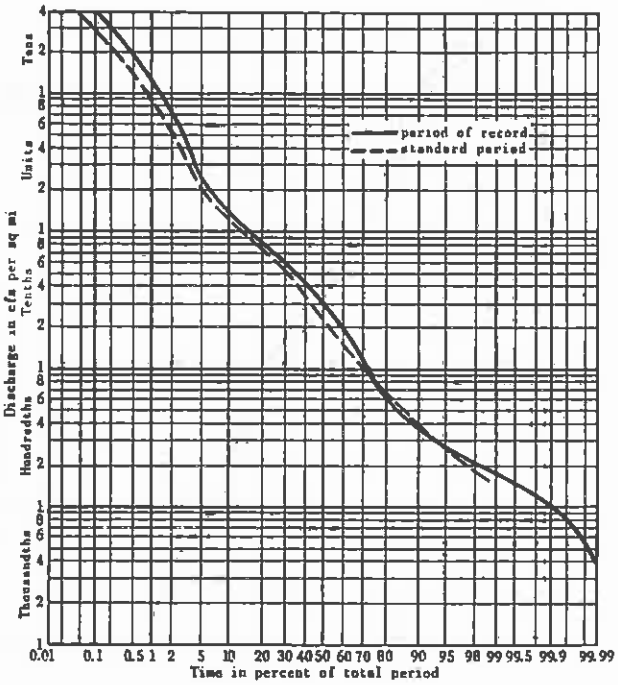


Indian Creek at Wanda

Days of duration of discharge for Indian Creek at Wanda

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0003	.01	263	365	365	347	365	365	365	361	365	365	3,526	96.55
.0005	.02	255	365	365	340	364	365	365	361	365	365	3,510	96.11
.0011	.04	248	365	361	329	347	365	365	361	365	365	3,471	95.04
.0016	.06	242	365	361	320	345	365	365	361	365	365	3,454	94.58
.0027	.10	234	362	346	291	303	361	353	340	359	360	3,309	90.61
.0043	.16	222	357	337	282	282	355	327	334	347	355	3,198	87.57
.0068	.25	213	349	308	251	247	351	319	322	336	343	3,039	83.21
.0108	.40	203	340	285	201	230	345	302	282	321	321	2,830	77.49
.0170	.63	153	327	278	180	220	338	293	258	312	308	2,667	73.03
.0270	1.0	121	310	273	166	198	330	291	215	295	294	2,493	68.26
.0432	1.6	89	287	261	140	187	316	284	194	283	281	2,322	63.58
.0676	2.5	72	252	255	111	176	281	269	168	259	250	2,093	57.31
.108	4.0	49	195	231	82	158	230	248	146	218	222	1,779	48.71
.170	6.3	35	150	193	67	141	183	224	116	174	192	1,475	40.39
.270	10	27	109	141	48	116	141	185	83	145	170	1,165	31.90
.432	16	17	86	100	34	87	91	127	66	106	129	843	23.08
.676	25	12	60	65	27	65	61	81	49	70	91	581	15.91
1.08	40	7	40	44	17	47	42	52	34	45	61	389	10.65
1.70	63	5	29	34	13	40	28	30	24	29	45	277	7.58
2.70	100	3	23	27	8	30	21	22	18	22	32	206	5.64
4.32	160	1	10	21	5	27	16	19	16	16	25	156	4.27
6.76	250	1	6	15	3	18	9	12	9	12	15	100	2.74
10.8	400	---	5	11	3	11	5	9	1	9	8	62	1.70
17.0	630	---	2	5	3	4	2	4	1	1	5	27	.74
27.0	1,000	---	1	2	2	1	2	2	1	---	3	14	.38
43.2	1,600	---	1	2	2	---	2	1	---	---	2	10	.27
67.6	2,500	---	---	---	1	---	2	1	---	---	---	4	.11
108	4,000	---	---	---	---	---	1	---	---	---	---	1	.027
170	6,300	---	---	---	---	---	---	---	---	---	---	-----	------

CANTEEN CREEK AT CASEYVILLE



Canteen Creek at Caseyville

LOCATION.--Lat 38°38′35″, long. 90°01′00″, in N½NW¼ sec. 8, T. 2 N., R. 8 W., at highway bridge at Caseyville, 100 ft upstream from Pennsylvania Railroad bridge and 400 ft upstream from bridge on State Highway 157.

DRAINAGE AREA.--22.5 sq mi.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--16.4 cfs from correlation of observed mean annual discharges with concurrent values for Kaskaskia River at Vandalia.

EXTREMES.--1939-50: Maximum discharge, 10,000 cfs Aug. 16, 1946; minimum, 0.04 cfs Aug. 22, 1941.

Days of duration of discharge for Canteen Creek at Caseyville

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0031	0.07	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0044	.10	366	364	365	365	366	365	365	365	366	365	365	4,017	99.98
.0067	.15	366	364	365	365	366	365	365	365	366	365	365	4,017	99.98
.0098	.22	366	363	365	365	364	365	365	365	366	365	365	4,014	99.90
.0142	.32	365	355	365	365	355	364	365	365	366	365	365	3,995	99.43
.0204	.46	351	337	365	363	332	346	365	364	366	365	365	3,919	97.54
.0302	.68	323	288	362	347	309	295	365	353	365	365	365	3,737	93.01
.0444	1.0	288	215	347	336	278	239	355	332	364	362	365	3,481	86.64
.0667	1.5	225	162	319	297	249	200	349	320	350	347	361	3,179	79.12
.0978	2.2	183	114	304	283	195	183	340	310	339	317	353	2,921	72.70
.142	3.2	155	62	271	268	157	169	333	293	320	297	332	2,657	66.13
.204	4.6	130	44	229	255	122	163	298	277	239	271	302	2,330	57.99
.302	6.8	81	24	183	243	99	137	238	262	183	213	252	1,915	47.66
.444	10.0	42	15	127	178	65	113	178	238	143	164	214	1,477	36.76
.667	15	21	11	83	113	36	77	122	184	94	126	182	1,049	26.11
.978	22	9	6	51	70	20	55	69	103	71	88	124	666	16.58
1.42	32	7	3	33	47	12	41	39	51	45	49	77	404	10.05
2.04	46	4	3	21	32	8	29	23	33	27	28	43	251	6.25
3.02	68	3	2	13	24	5	22	17	19	19	18	23	165	4.11
4.44	100	2	2	11	15	4	18	13	14	15	15	14	123	3.06
6.67	150	1	---	7	11	3	12	9	9	9	9	9	79	1.97
9.78	220	---	---	5	8	2	4	4	7	3	7	6	46	1.14
14.2	320	---	---	4	5	2	1	2	3	3	4	3	27	.67
20.4	460	---	---	2	3	1	---	2	1	2	1	2	14	.35
30.2	680	---	---	1	1	1	---	2	1	1	---	1	8	.20
44.4	1,000	---	---	1	---	---	---	2	---	---	---	---	3	.075
66.7	1,500	---	---	1	---	---	---	2	---	---	---	---	3	.075
97.8	2,200	---	---	---	---	---	---	2	---	---	---	---	2	.050
142	3,200	---	---	---	---	---	---	1	---	---	---	---	1	.025
204	4,600	---	---	---	---	---	---	---	---	---	---	---	-----	------

LONG LAKE AT STALLINGS

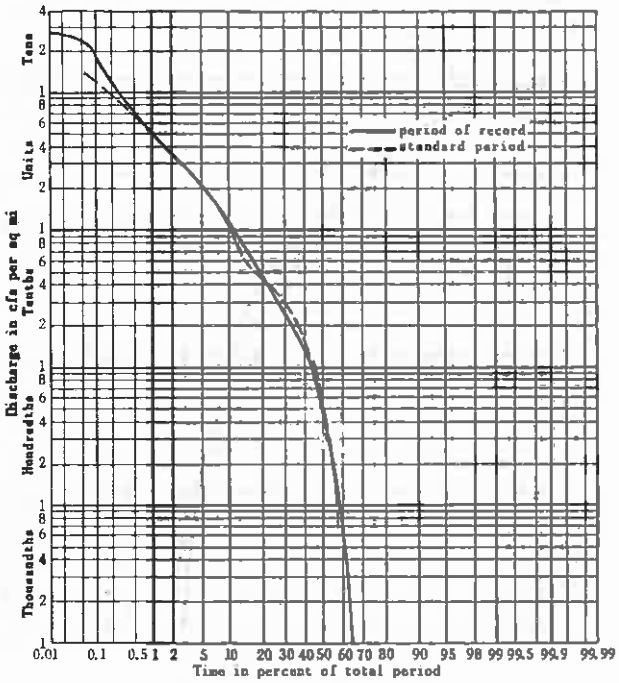
LOCATION.--Lat 38°43′45″, long. 90°03′15″, in NW¼NW¼ sec. 12, T. 3 N., R. 9 W., at culvert under Illinois Terminal Electric Railroad at Stallings, 400 feet upstream from outlet at Elm Slough.

DRAINAGE AREA.--5.0 sq mi.

DURATION DATA AVAILABLE.--Water years 1939-49.

AVERAGE DISCHARGE, 1921-45.--2.12 cfs; from synthetic duration curve, using Big Muddy River at Plumfield as index station.

EXTREMES.--1939-49: Maximum discharge, 121 cfs Aug. 18, 1946; no flow for long periods.

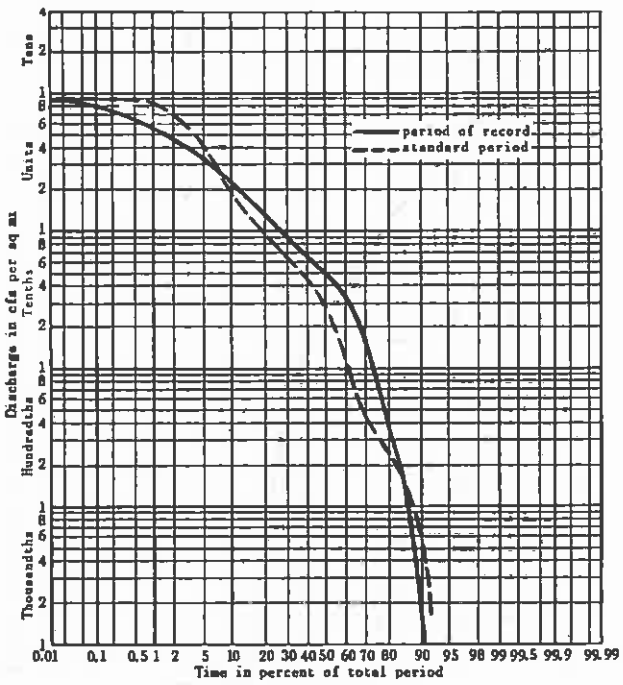


Long Lake at Stallings

Days of duration of discharge for Long Lake at Stallings

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1939-49	Percent of time
0	0	365	366	365	365	365	366	365	365	365	366	365	4,018	100.00
.0020	.01	235	112	---	86	313	215	207	357	325	318	333	2,501	62.24
.0040	.02	234	102	---	85	311	202	203	354	321	312	333	2,457	61.15
.0060	.03	228	95	---	84	310	194	203	353	321	304	332	2,424	60.33
.0080	.04	222	90	---	83	307	186	202	353	318	299	332	2,392	59.53
.0100	.05	211	86	---	81	306	176	202	353	316	291	331	2,353	58.56
.0160	.08	188	75	---	77	300	139	198	341	313	272	325	2,228	55.45
.0200	.10	177	69	---	76	296	125	197	339	312	261	311	2,163	53.83
.0280	.14	171	65	---	73	293	115	195	336	312	240	305	2,105	52.39
.0380	.19	161	56	---	68	291	104	193	334	310	224	296	2,037	50.70
.0540	.27	155	40	---	64	285	92	192	332	308	203	272	1,943	48.36
.0740	.37	146	32	---	63	282	86	186	330	306	183	246	1,860	46.29
.104	.52	120	22	---	59	275	83	181	324	304	160	216	1,744	43.40
.144	.72	98	17	---	54	245	81	169	321	297	151	182	1,615	40.19
.200	1.0	84	11	---	52	185	77	161	274	269	137	144	1,394	34.69
.280	1.4	60	8	---	50	145	71	146	214	251	105	126	1,176	29.27
.380	1.9	44	6	---	48	112	62	124	166	220	76	114	972	24.19
.540	2.7	18	2	---	40	90	52	95	118	167	57	82	721	17.94
.740	3.7	11	---	---	32	75	42	82	88	119	45	57	551	13.71
1.04	5.2	3	---	---	26	64	34	71	64	78	37	40	417	10.38
1.44	7.2	---	---	---	24	55	28	49	52	56	31	29	324	8.06
2.00	10	---	---	---	21	46	19	25	25	40	14	19	209	5.20
2.80	14	---	---	---	17	26	12	17	18	21	2	9	122	3.04
3.80	19	---	---	---	11	18	9	7	16	9	---	1	71	1.77
5.40	27	---	---	---	7	7	7	---	14	1	---	---	36	.90
7.40	37	---	---	---	1	3	4	---	12	---	---	---	20	.50
10.4	52	---	---	---	---	---	---	---	9	---	---	---	9	.22
14.4	72	---	---	---	---	---	---	---	6	---	---	---	6	.15
20.0	100	---	---	---	---	---	---	---	5	---	---	---	5	.12
28.0	140	---	---	---	---	---	---	---	---	---	---	---	-----	------

KASKASKIA RIVER NEAR ARCOLA



Kaskaskia River near Arcola

LOCATION.--Lat 39°40′50″, long. 88°22′35″, in SW¼SW¼ sec. 1, T. 14 N., R. 7 E., at highway bridge known as "Bagdad-Bridge"

LOCATION.--Lat 39°40′50″, long. 88°22′35″, in SW¼SW¼ sec. 1, T. 14 N., R. 7 E., at highway bridge known as "Bagdad-Bridge," about 4 miles west of Arcola.

DRAINAGE AREA.--390 sq mi.

DURATION DATA AVAILABLE.--Water years 1909-12.

AVERAGE DISCHARGE, 1921-45.--337 cfs; from synthetic duration curve, using Kaskaskia River at Vandalia as index station.

EXTREMES.--1908-12: Maximum discharge, observed, 3,870 cfs May 8, 1908; no flow Sept. 1, 1908 to Jan. 24, 1909, July 26, 1911.

Days of duration of discharge for Kaskaskia River near Arcola

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1909	'10	'11	'12	1909-12	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1909	'10	'11	'12	1909-12	Percent of time
0	0	365	365	365	366	1,461	100.00	0.0615	24	200	343	252	323	1,118	76.52
.0003	.1	249	365	364	366	1,344	91.99	.0897	35	193	331	238	315	1,077	73.72
.0005	.2	249	365	362	365	1,341	91.79	.126	49	187	314	227	307	1,035	70.84
.0008	.3	249	365	361	365	1,340	91.72	.179	70	183	294	216	304	997	68.24
.0013	.5	249	365	354	362	1,330	91.03	.256	100	177	257	208	301	943	64.54
.0018	.7	247	365	347	360	1,319	90.28	.359	140	166	208	196	288	858	58.73
.0026	1.0	245	365	339	358	1,307	89.46	.513	200	149	163	170	230	712	48.73
.0036	1.4	243	365	333	355	1,296	88.71	.744	290	124	101	109	150	484	33.13
.0051	2.0	243	365	326	354	1,288	88.16	1.05	410	99	68	74	119	360	24.64
.0074	2.9	242	365	322	352	1,281	87.68	1.51	590	77	38	42	94	251	17.18
.0105	4.1	238	360	319	350	1,267	86.72	2.15	840	58	20	28	48	154	10.54
.0151	5.9	236	355	315	349	1,255	85.90	3.08	1,200	42	8	8	12	70	4.79
.0215	8.4	228	349	306	344	1,227	83.98	4.36	1,700	24	5	2	5	36	2.46
.0308	12	221	349	293	340	1,203	82.34	6.15	2,400	8	---	2	3	13	.89
.0436	17	209	346	269	329	1,153	78.92	8.97	3,500	---	---	---	---	-----	------

KASKASKIA RIVER AT SHELBYVILLE

LOCATION.--Lat 39°24′20″, long. 88°47′00″, in SE¼SW¼ sec. 8, T. 11 N., R. 4 E., at bridge on State Highway 16 in Shelbyville, 2,000 ft upstream from Chicago & Eastern Illinois Railroad bridge, 7 miles upstream from Robinson Creek, and at mile 221.42.

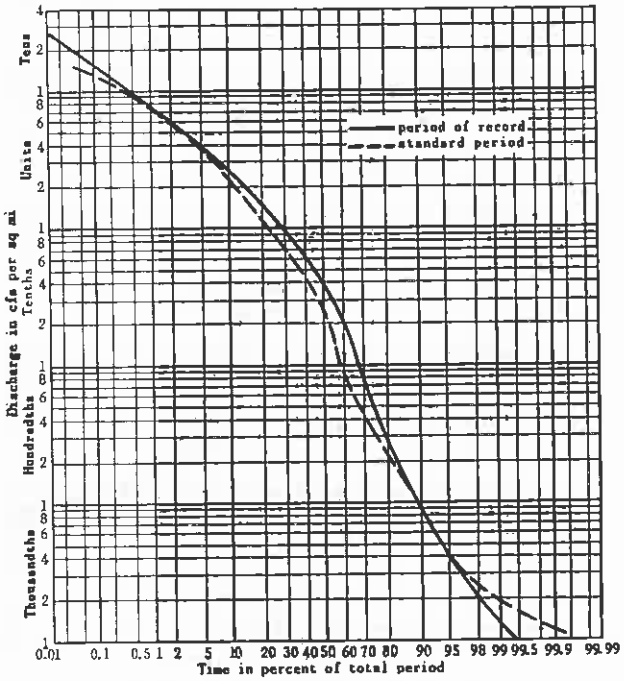
DRAINAGE AREA.--1,030 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1909-12, 1941-50.

AVERAGE DISCHARGE, 1921-45.--760 cfs; from correlation of observed mean annual discharges with concurrent values for Kaskaskia River at Vandalia.

EXTREMES.--1908-12, 1940-50: Maximum discharge, 25,000 cfs May 19, 1943; minimum, 0.08 cfs Sept. 12, 1945.

REMARKS.--Municipal water supply for Shelbyville obtained from shallow wells in gravel beds along right bank just above gage.

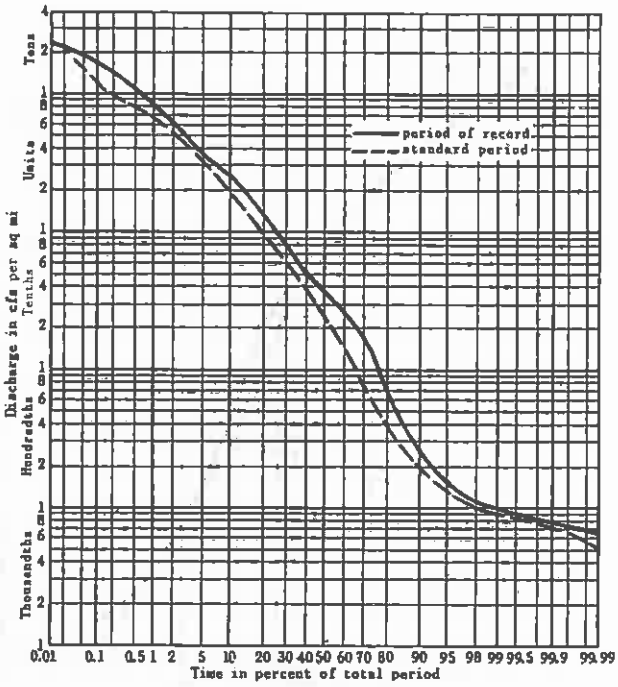


Kaskaskia River at Shelbyville

Days of duration of discharge for Kaskaskia River at Shelbyville

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1909	1910	1911	1912	----	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	Total	Percent of time
0.0006	0.62	365	365	365	366	---	365	365	365	366	365	365	365	366	365	365	5,113	100.00
.0010	1.0	365	365	365	366	---	337	365	365	366	365	365	365	366	365	365	5,085	99.45
.0018	1.9	365	365	365	366	---	309	365	365	348	363	365	365	364	365	365	5,035	98.47
.0025	2.6	365	365	365	366	---	304	365	365	329	362	365	365	357	363	365	5,031	98.40
.0039	4.0	365	365	365	366	---	289	365	359	307	348	362	365	348	358	365	4,927	96.36
.0058	6.0	365	365	364	366	---	279	365	345	295	323	357	345	331	349	360	4,809	94.05
.0086	8.9	358	365	363	366	---	267	365	333	244	296	357	330	323	329	360	4,656	91.06
.0126	13	345	365	345	366	---	257	365	327	205	262	356	321	311	319	360	4,504	88.09
.0194	20	297	348	320	366	---	248	361	311	181	244	348	309	303	305	360	4,301	84.12
.0282	29	250	347	304	366	---	216	359	298	155	232	346	298	300	296	358	4,125	80.68
.0417	43	216	347	296	366	---	165	341	288	148	213	340	287	294	287	352	3,940	77.06
.0612	63	200	343	286	364	---	133	325	276	142	200	335	282	268	264	345	3,763	73.60
.0893	92	185	320	250	335	---	125	315	271	136	189	331	278	232	237	336	3,540	69.24
.126	130	183	307	246	329	---	117	309	267	130	180	326	274	214	219	321	3,422	66.93
.194	200	179	280	223	320	---	101	303	257	126	166	303	266	182	186	293	3,185	62.29
.282	290	176	247	202	295	---	80	279	243	122	149	257	244	156	160	257	2,867	56.07
.417	430	161	160	180	254	---	55	245	199	110	133	212	217	136	125	229	2,316	45.30
.612	630	141	132	151	226	---	36	211	151	93	114	159	166	102	98	200	1,980	38.72
.893	920	120	83	111	155	---	10	175	107	65	92	116	124	74	78	161	1,471	28.77
1.26	1,300	109	55	73	119	---	1	131	81	40	73	78	97	54	63	105	1,079	21.10
1.94	2,000	81	33	40	83	---	---	90	52	30	53	50	47	31	49	82	721	14.10
2.82	2,900	55	22	23	51	---	---	48	32	18	28	27	23	15	32	66	440	8.61
4.17	4,300	19	6	7	40	---	---	17	21	14	11	5	8	8	18	35	209	4.09
6.12	6,300	6	1	3	11	---	---	4	12	8	6	---	3	5	4	20	83	1.62
8.93	9,200	---	---	---	---	---	---	3	6	6	2	---	2	3	---	11	33	.65
12.6	13,000	---	---	---	---	---	---	1	5	1	1	---	---	---	---	3	11	.22
19.4	20,000	---	---	---	---	---	---	---	2	---	---	---	---	---	---	1	3	.059
28.2	29,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

KASKASKIA RIVER AT VANDALIA



Kaskaskia River at Vandalia

LOCATION.--Lat 38°57′35″, long. 89°05′20″, in SE¼ sec. 16, T. 6 N., R. 1 E., at Gallatin Street Bridge in Vandalia, 3½ miles upstream from Hickory Creek, and at mile 160.85.

DRAINAGE AREA.--1,980 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915-50.

AVERAGE DISCHARGE, 1921-45.--1,430 cfs.

EXTREMES.--1908-12, 1914-50: Maximum discharge, 52,200 cfs May 18, 1943; minimum observed, 3.5 cfs Aug. 22, 1911.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Kaskaskia River at Vandalia

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0015	3	365	365	366	365	365	14,610	100.00
.0020	4	365	365	366	365	365	14,609	99.99
.0025	5	365	365	366	365	365	14,606	99.97
.0035	7	365	365	366	365	365	14,606	99.97
.0051	10	365	365	366	365	365	14,604	99.96
.0071	14	365	365	366	365	365	14,563	99.68
.0096	19	365	365	366	365	365	14,410	98.63
.0136	27	365	365	366	365	365	14,063	96.26
.0187	37	365	365	351	359	365	13,617	93.20
.0253	50	365	364	329	343	365	13,054	89.35
.0354	70	365	338	321	328	363	12,339	84.46
.0505	100	352	318	304	312	361	11,620	79.53
.0707	140	346	299	280	301	358	10,931	74.82
.0960	190	342	287	251	290	349	10,269	70.29
.136	270	335	281	224	269	325	9,443	64.63
0.187	370	317	269	203	245	306	8,649	59.20
.253	500	282	245	180	214	279	7,715	52.81
.354	700	241	231	158	173	247	6,602	45.19
.505	1,000	187	191	130	141	211	5,328	36.47
.707	1,400	134	144	98	106	174	4,079	27.92
.960	1,900	95	118	67	82	142	3,120	21.36
1.36	2,700	72	83	43	66	109	2,326	15.92
1.87	3,700	53	63	29	53	96	1,751	11.98
2.53	5,000	30	47	19	38	81	1,225	8.38
3.54	7,000	12	11	12	26	44	568	3.89
5.05	10,000	4	2	9	11	23	238	1.63
7.07	14,000	---	---	2	3	15	85	.58
9.60	19,000	---	---	---	2	9	25	.17
13.6	27,000	---	---	---	---	3	10	.068
17.7	35,000	---	---	---	---	1	4	.027
23.1	45,800	---	---	---	---	---	-----	------

KASKASKIA RIVER AT CARLYLE

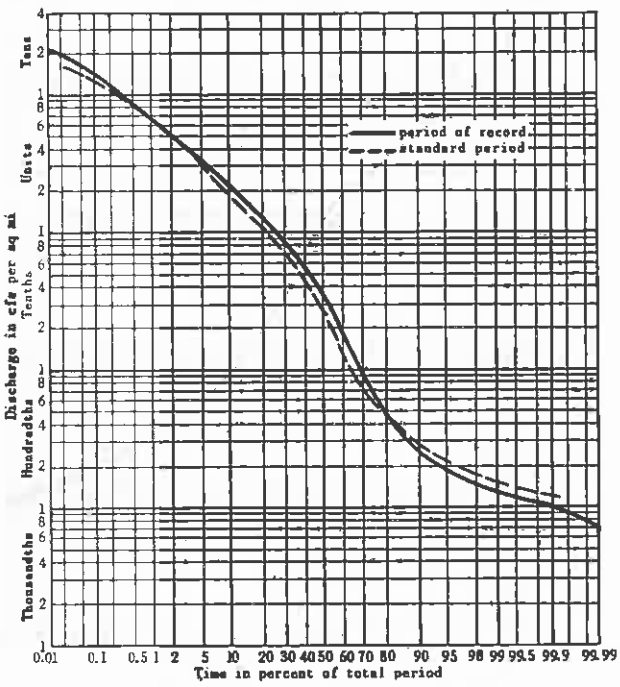
LOCATION.--Lat 38°36′42″, long. 89°21′22″, in SE¼ sec. 18, T. 2 N., R. 2 W., at bridge on U. S. Highway 50 at Carlyle, 16.5 miles upstream from Crooked Creek and at mile 105.75.

DRAINAGE AREA.--2,680 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915, 1939-50.

AVERAGE DISCHARGE, 1921-45.--1,990 cfs; from correlation of observed mean annual discharges with concurrent values for Kaskaskia River at Vandalia.

EXTREMES.--1908-12, 1914-15, 1938-50: Maximum discharge, 54,400 cfs May 21, 1943; minimum, 22 cfs Sept. 19, 1940.

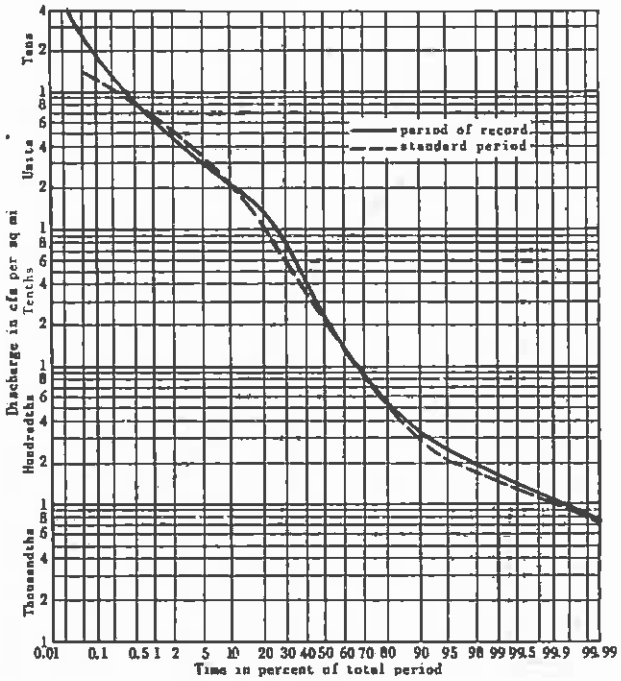


Kaskaskia River at Carlyle

Days of duration of discharge for Kaskaskia River at Carlyle

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1909	'10	'11	'12	---	'15	---	'39	'40	'41	'42	'43	'44	'45	'46	'47	'48	'49	'50	Total	Percent of time
0.0067	18	365	365	365	366	---	365	---	365	366	365	365	365	366	365	365	365	366	365	365	6,209	100.00
.0090	24	365	362	365	366	---	365	---	365	366	365	365	365	366	365	365	365	366	365	365	6,206	99.95
.0119	32	365	362	352	366	---	365	---	365	357	354	365	365	366	365	365	365	366	365	365	6,173	99.42
.0160	43	365	357	337	366	---	365	---	365	349	327	365	365	352	335	365	365	366	365	365	6,074	97.83
.0216	58	281	353	327	366	---	363	---	363	330	308	365	349	285	282	365	365	359	365	365	5,791	93.27
.0284	76	246	350	310	366	---	327	---	350	259	291	365	329	233	273	365	365	342	352	365	5,488	88.39
.0373	100	231	348	300	366	---	305	---	335	205	263	365	322	199	253	365	349	329	347	365	5,247	84.51
.0504	135	218	347	282	359	---	293	---	310	178	212	360	292	170	233	365	328	311	338	361	4,957	79.84
.0672	180	210	345	270	352	---	291	---	297	164	171	343	282	160	217	350	315	292	316	360	4,735	76.26
.0896	240	203	337	254	346	---	287	---	273	152	151	328	275	148	201	346	296	276	304	354	4,531	72.97
.119	320	196	330	233	340	---	260	---	252	146	132	319	270	139	184	341	284	239	294	337	4,296	69.19
.160	430	188	313	213	337	---	233	---	226	136	118	309	266	134	166	325	276	212	266	315	4,033	64.95
.216	580	183	284	192	325	---	217	---	190	106	95	295	255	130	153	282	267	185	231	289	3,679	59.25
.284	760	175	234	180	291	---	195	---	160	87	77	269	240	118	147	255	241	169	196	260	3,294	53.05
.373	1,000	158	188	167	279	---	165	---	144	58	58	245	205	101	144	223	223	149	173	238	2,918	47.00
.504	1,350	137	142	144	231	---	142	---	128	45	35	216	154	75	131	183	183	124	148	214	2,432	39.17
.672	1,800	117	109	116	188	---	122	---	114	30	23	195	128	54	117	152	160	100	126	186	2,037	32.81
.896	2,400	107	82	92	146	---	108	---	104	24	19	168	106	46	108	124	146	79	101	171	1,731	27.88
1.19	3,200	88	62	66	123	---	84	---	93	18	13	147	93	43	102	107	133	60	90	148	1,470	23.68
1.60	4,300	58	36	23	82	---	61	---	69	12	2	115	67	31	86	74	106	37	77	114	1,050	16.91
2.16	5,800	32	25	11	62	---	37	---	41	---	---	70	52	24	59	44	65	17	53	75	667	10.74
2.84	7,600	20	7	---	51	---	28	---	19	---	---	38	39	21	47	33	14	13	33	54	417	6.72
3.73	10,000	16	5	---	33	---	22	---	13	---	---	6	25	14	33	14	4	12	23	35	255	4.11
5.04	13,500	5	1	---	15	---	14	---	4	---	---	---	19	7	16	1	---	9	15	26	132	2.13
6.72	18,000	---	---	---	5	---	7	---	---	---	---	---	13	5	6	---	---	6	6	19	67	1.08
8.96	24,000	---	---	---	---	---	4	---	---	---	---	---	6	2	2	---	---	---	---	9	23	.37
11.9	32,000	---	---	---	---	---	3	---	---	---	---	---	5	---	---	---	---	---	---	3	11	.18
16.0	43,000	---	---	---	---	---	---	---	---	---	---	---	3	---	---	---	---	---	---	---	3	.048
21.6	58,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-----	------

KASKASKIA RIVER AT NEW ATHENS



Kaskaskia River at New Athens

LOCATION.--Lat 38°19′22″, long. 89°52′57″, in SW¼ sec. 28, T. 2 S., R. 7 W., 0.5 mile downstream from highway bridge at New Athens and at mile 40.9.

DRAINAGE AREA.--5,220 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1908-12, 1915-21, 1936-50.

AVERAGE DISCHARGE, 1921-45.--3,610 cfs; from multiple correlation of observed mean monthly discharges with concurrent values for Kaskaskia River at Vandalia and Big Muddy River at Plumfield.

EXTREMES.--1907-1912, 1914-21, 1934-50: Maximum discharge, 83,000 cfs May 23, 1943; minimum, 13 cfs Oct. 5, 1943; affected by backwater from Mississippi River; minimum, unaffected by backwater, 61 cfs Sept. 26, 1936.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Kaskaskia River at New Athens

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0057	30	365	365	366	365	365	9,497	100.00
.0077	40	365	365	366	365	365	9,496	99.99
.0100	52	365	365	366	365	365	9,494	99.97
.0130	68	365	365	366	365	365	9,476	99.78
.0169	88	365	365	366	365	365	9,398	98.96
.0215	112	365	365	357	365	365	9,217	97.05
.0287	150	365	365	348	352	365	8,864	93.33
.0383	200	365	365	335	348	365	8,428	88.74
.0498	260	365	342	326	344	364	8,080	85.08
.0632	33	364	328	312	336	361	7,690	80.97
.0843	440	352	302	276	323	358	7,106	74.82
.111	580	348	287	251	313	338	6,627	69.78
.142	740	334	274	224	295	318	6,140	64.65
.192	1,000	303	267	204	255	293	5,500	57.91
.249	1,300	261	248	179	219	264	4,933	51.94
0.326	1,700	232	227	161	185	247	4,348	45.78
.421	2,200	199	206	146	166	227	3,851	40.55
.556	2,900	164	190	122	145	213	3,319	34.95
.728	3,800	145	173	107	127	196	2,904	30.58
.958	5,000	131	157	90	115	173	2,528	26.62
1.23	6,400	103	126	71	94	152	2,113	22.25
1.61	8,400	66	76	31	73	116	1,475	15.53
2.11	11,000	41	39	21	49	72	954	10.05
2.78	14,500	30	16	13	38	52	579	6.10
3.64	19,000	13	1	9	25	39	352	3.71
4.79	25,000	9	---	6	14	31	192	2.02
6.32	33,000	8	---	---	5	18	89	.94
8.24	43,000	7	---	---	---	11	45	.47
10.7	56,000	4	---	---	---	4	20	.21
13.8	72,000	---	---	---	---	---	4	.042
18.0	94,000	---	---	---	---	---	-----	------

SHOAL CREEK NEAR BREESE

LOCATION.--Lat 38°36′35″, long. 89°29′40″, in SW¼SW¼ sec. 13, T. 2 N., R. 4 W., at bridge on U. S. Highway 50, 0.35 mile upstream from Baltimore & Ohio Railroad, 1.7 miles east of Breese and 7 miles upstream from Beaver Creek.

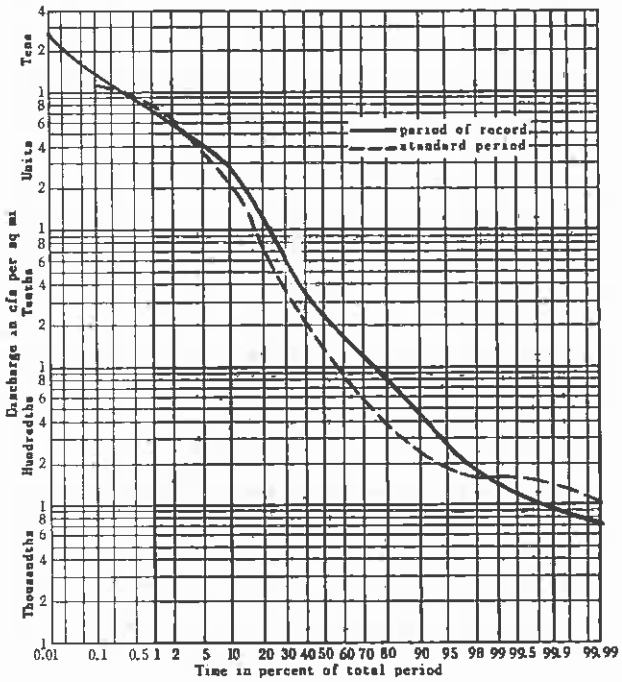
DRAINAGE AREA.--760 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1910-12, 1946-50.

AVERAGE DISCHARGE, 1921-45.--540 cfs; from multiple correlation of observed mean annual discharges with concurrent values for Kaskaskia River at Vandalia and Macoupin Creek near Kane.

EXTREMES.--1909-12, 1914, 1945-50: Maximum discharge, 23,100 cfs Jan. 6, 1950; minimum, 5.7 cfs Oct. 15, 16, 1947.

REMARKS.--Data for water years 1910-12 collected at site 0.35 mile downstream.

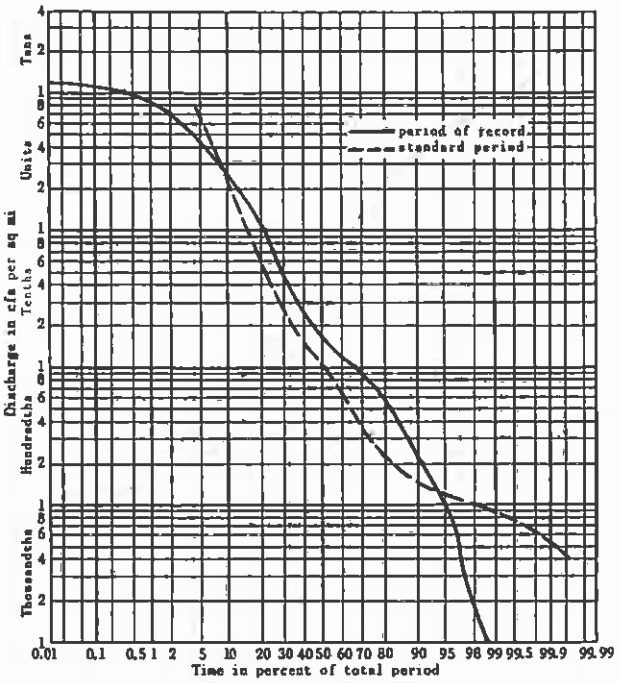


Shoal Creek near Breese

Days of duration of discharge for Shoal Creek near Breese

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1910	1911	1912	----	1946	1947	1948	1949	1950	Total	Percent of time
0.0060	4.6	365	365	366	---	365	365	366	365	365	2,922	100.00
.0090	6.8	365	365	366	---	365	365	362	365	365	2,918	99.86
.0132	10	365	365	366	---	365	355	343	363	362	2,884	98.70
.0197	15	365	365	366	---	365	350	331	351	361	2,854	97.67
.0289	22	357	365	366	---	365	323	300	326	350	2,752	94.18
.0421	32	348	365	360	---	365	303	246	304	331	2,622	89.73
.0605	46	347	344	319	---	363	285	220	283	286	2,447	83.74
.0895	68	344	279	294	---	333	269	192	257	259	2,227	76.21
.132	100	302	196	272	---	259	253	162	215	232	1,891	64.72
.197	150	214	135	207	---	223	232	131	179	213	1,534	52.50
.289	220	174	111	182	---	191	205	113	152	184	1,312	44.90
.421	320	141	95	142	---	162	156	99	133	156	1,084	37.10
.605	460	118	72	127	---	129	126	82	109	133	896	30.66
.895	680	97	58	104	---	102	98	57	82	108	706	24.16
1.32	1,000	84	41	82	---	75	77	48	70	94	571	19.54
1.97	1,500	64	33	65	---	55	56	30	52	70	425	14.54
2.89	2,200	45	19	48	---	31	42	19	39	52	295	10.10
4.21	3,200	15	6	23	---	10	23	7	20	30	134	4.59
6.05	4,600	5	3	14	---	3	7	4	8	9	53	1.81
8.95	6,800	---	---	1	---	2	2	---	2	5	12	.41
13.2	10,000	---	---	---	---	---	---	---	---	3	3	.10
19.7	15,000	---	---	---	---	---	---	---	---	1	1	.034
28.9	22,000	---	---	---	---	---	---	---	---	---	-----	------

SILVER CREEK NEAR LEBANON



Silver Creek near Lebanon

LOCATION.--Lat 89°49′55″, long. 38°35′40″, in NW¼ sec. 25, T. 2 N., R. 7 W., at highway bridge at Wrights Crossing, about 2 miles west of Lebanon, Ill., between the Baltimore & Ohio Southwestern and the East St. Louis & Suburban Railroad bridges across Silver Creek.

DRAINAGE AREA.--335 sq mi.

DURATION DATA AVAILABLE.--Water years 1910-12.

AVERAGE DISCHARGE, 1921-45.--315 cfs; from synthetic duration curve, using Kaskaskia River at Vandalia as index station.

EXTREMES.--1908-12, 1914: Maximum discharge, 5,240 cfs May 7, 1908; minimum, no flow Oct. 14, 1909.

Days of duration of discharge for Silver Creek near Lebanon

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1910	'11	'12	---	1910-12	Percent of time
0	0	365	365	366	---	1,096	100.00
.0003	.1	361	365	366	---	1,092	99.64
.0006	.2	354	365	366	---	1,085	99.00
.0009	.3	351	364	366	---	1,081	98.63
.0012	.4	351	364	366	---	1,081	98.63
.0018	.6	350	362	366	---	1,078	98.36
.0024	.8	349	357	366	---	1,072	97.81
.0036	1.2	348	353	366	---	1,067	97.35
.0051	1.7	348	349	366	---	1,063	96.99
.0072	2.4	348	344	366	---	1,058	96.53
.0104	3.5	348	335	361	---	1,044	95.26
.0146	4.9	345	322	356	---	1,023	93.34
.0209	7.0	339	307	350	---	996	90.88
.0299	10	334	274	331	---	939	85.68
.0418	14	328	265	328	---	921	84.03
0.0597	20	301	252	313	---	866	79.01
.0865	29	273	235	285	---	793	72.35
.122	41	237	226	245	---	708	64.60
.176	59	195	133	221	---	549	50.09
.251	84	161	101	201	---	463	42.24
.358	120	142	81	174	---	397	36.22
.507	170	103	74	127	---	304	27.74
.716	240	87	58	115	---	260	23.72
1.04	350	77	49	95	---	221	20.16
1.49	490	70	43	81	---	194	17.70
2.09	700	49	29	56	---	134	12.23
2.99	1,000	38	16	41	---	95	8.67
4.18	1,400	23	13	26	---	62	5.66
5.97	2,000	15	8	12	---	35	3.19
8.66	2,900	5	3	3	---	11	1.00
12.2	4,100	---	---	---	---	-----	------

BIG MUDDY RIVER NEAR BENTON

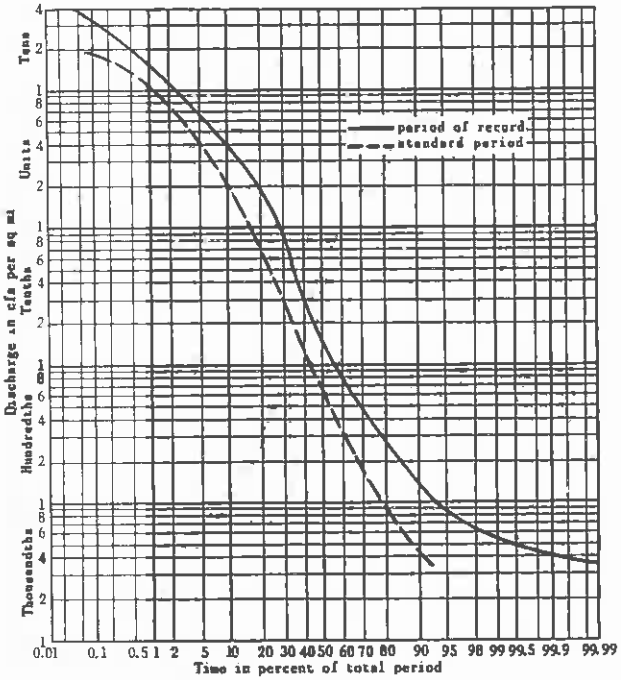
LOCATION.--Lat 37°59′40″, long. 88°58′30″, in NE¼NW¼ sec. 22, T. 6 S., R. 2 E., at bridge on State Highway 14, a third of a mile upstream from Illinois Central Railroad bridge, 3 miles west of Benton, 4½ miles east of Christopher, and 9 miles upstream from Middle Fork Big Muddy River.

DRAINAGE AREA.--498 sq mi.

DURATION DATA AVAILABLE.--Water years 1946-50.

AVERAGE DISCHARGE, 1921-45.--413 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1945-50: Maximum discharge, 28,200 cfs Aug. 17, 1946; minimum, 1.9 cfs July 21, 25, 1950.

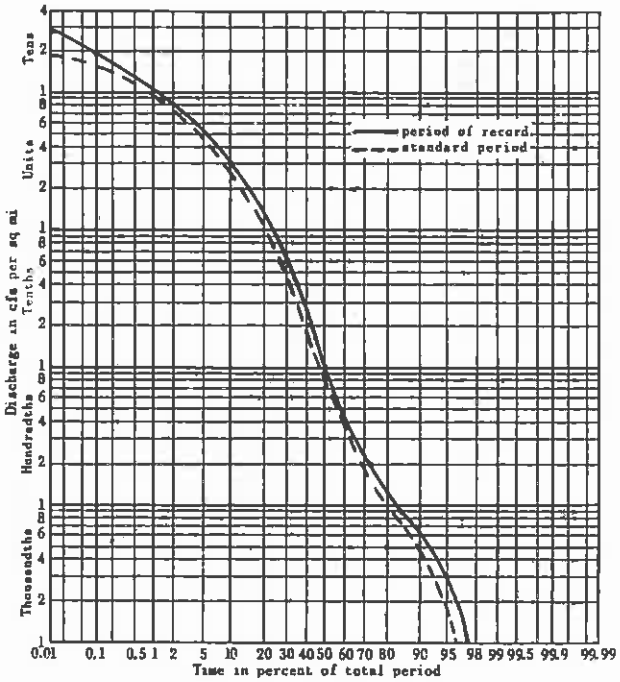


Big Muddy River near Benton

Days of duration of discharge for Big Muddy River near Benton

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	1946-50	Percent of time
0.0038	1.9	365	365	366	365	365	1,826	100.00
.0056	2.8	362	355	347	365	360	1,789	97.97
.0086	4.3	345	349	322	362	349	1,727	94.58
.0132	6.6	326	330	303	341	345	1,645	90.09
.0201	10	306	304	285	329	338	1,562	85.54
.0301	15	286	275	270	304	314	1,449	79.35
.0462	23	267	261	235	271	279	1,313	71.90
.0703	35	244	238	212	245	256	1,195	65.44
.106	53	227	207	188	215	235	1,072	58.71
.163	81	203	181	165	185	213	947	51.86
.241	120	172	152	147	160	192	823	45.07
.382	190	147	132	120	136	178	713	39.05
0.562	280	130	108	108	113	165	624	34.17
.863	430	111	89	90	99	157	546	29.90
1.32	660	99	71	68	87	144	469	25.68
2.01	1,000	69	42	45	66	106	328	17.96
3.01	1,500	50	20	26	45	70	211	11.56
4.62	2,300	28	7	11	34	43	123	6.74
7.03	3,500	14	3	6	26	26	75	4.11
10.6	5,300	10	2	2	19	10	43	2.35
16.3	8,100	4	---	---	8	3	15	.82
24.1	12,000	2	---	---	1	2	5	.27
38.2	19,000	1	---	---	---	---	1	.055
56.2	28,000	---	---	---	---	---	-----	------

BIG MUDDY RIVER AT PLUMFIELD



Big Muddy River at Plumfield

LOCATION.--Lat 37°54′05″, long. 89°00′50″, in NW¼ sec. 20, T. 7 S., R. 2 E., ¾ of a mile upstream from bridge on State Highway 149 at Plumfield and 1.9 miles downstream from Middle Fork.

DRAINAGE AREA.--753 sq mi.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915-50.

AVERAGE DISCHARGE, 1921-45.--636 cfs.

EXTREMES.--1908-12, 1914-50: Maximum discharge, 26,100 cfs Aug. 19, 1946; no flow at various time in 1914, 1936, 1940, 1941.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Big Muddy River at Plumfield

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0	0	365	365	366	365	365	14,610	100.00
.0013	1	365	365	366	365	365	14,122	96.66
.0027	2	365	365	366	365	365	13,907	95.19
.0040	3	365	365	366	365	365	13,593	93.04
.0066	5	362	362	356	352	365	12,847	87.93
.0093	7	357	354	334	339	358	12,238	83.76
.0133	10	337	327	314	330	350	11,503	78.73
.0199	15	321	296	301	318	342	10,675	73.07
.0266	20	305	285	285	309	335	10,087	69.04
.0398	30	292	267	262	277	304	9,194	62.93
.0531	40	278	256	233	266	286	8,612	58.95
.0797	60	252	232	211	240	261	7,742	52.99
.106	80	237	214	199	224	253	7,173	49.10
.133	100	225	200	184	212	244	6,747	46.18
.199	150	203	174	165	182	236	6,013	41.16
.266	200	181	161	147	167	225	5,521	37.79
0.398	300	159	145	129	152	206	4,873	33.35
.531	400	147	126	120	140	195	4,450	30.46
.797	600	137	101	103	124	185	3,850	26.35
1.06	800	130	92	90	115	172	3,392	23.22
1.46	1,100	112	72	72	105	163	2,783	19.05
1.99	1,500	91	40	54	81	146	2,126	14.55
2.66	2,000	65	23	33	71	123	1,608	11.01
3.32	2,500	52	14	26	64	106	1,252	8.57
4.65	3,500	35	10	9	43	70	814	5.57
6.64	5,000	17	4	5	27	42	455	3.11
8.63	6,500	10	2	3	18	24	246	1.68
12.0	9,000	6	---	---	7	6	85	.58
15.9	12,000	4	---	---	3	2	21	.14
21.2	16,000	3	---	---	1	---	5	.034
27.9	21,000	2	---	---	---	---	2	.014
34.5	26,000	---	---	---	---	---	-----	------

BIG MUDDY RIVER AT MURPHYSBORO

LOCATION.--Lat 37°44'55", long. 89°20'45", in SE¼ sec. 8, T. 9 S., R. 2 W., just upstream from Lewis Creek, 0.1 mile upstream from Gulf, Mobile & Ohio Railroad bridge, at Murphysboro.

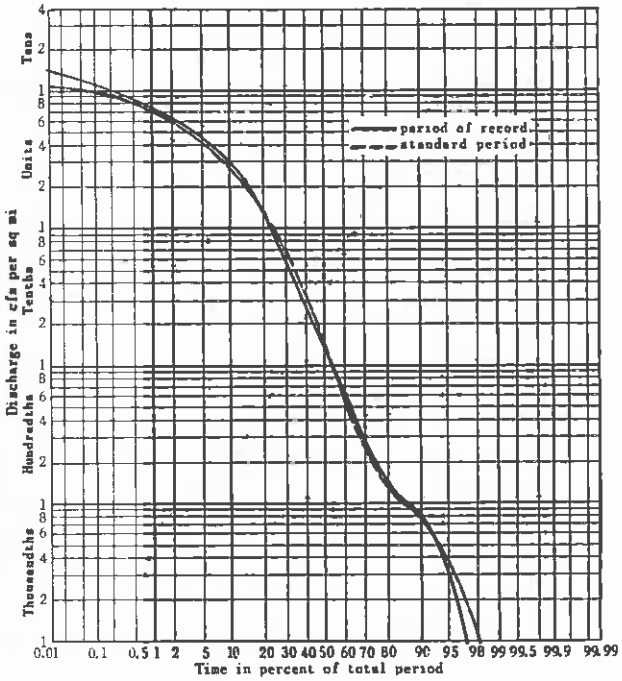
DRAINAGE AREA.--2,170 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1931-50.

AVERAGE DISCHARGE, 1921-45.--1,940 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1917-50: Maximum discharge, 28,000 cfs Jan. 28, 1949; maximum daily reverse flow, 4,400 cfs July 3, 1947, caused by backwater from Mississippi River; no flow Aug. 13 to Sept. 1, 1936 (unaffected by backwater).

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

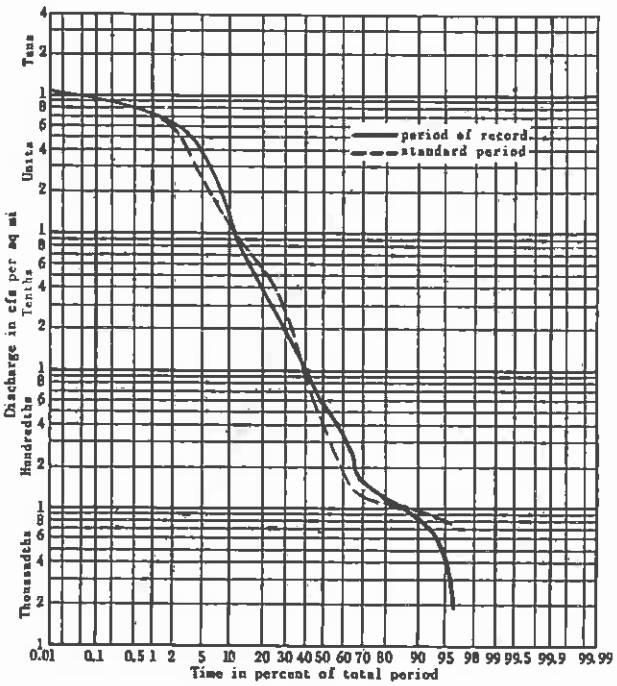


Big Muddy River at Murphysboro

Days of duration of discharge for Big Muddy River at Murphysboro

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
-2.30	-5,000	365	365	366	365	365	7,305	100.00
-.230	-500	363	358	366	363	365	7,294	99.85
-.0230	-50	359	354	364	363	361	7,280	99.66
-.0023	-5	358	354	364	363	361	7,273	99.56
0	0	358	354	364	363	361	7,269	99.51
.0009	2	358	352	363	360	361	7,157	97.97
.0018	4	358	352	363	360	359	7,053	96.55
.0023	5	358	352	363	360	359	7,015	96.03
.0028	6	358	352	363	360	359	6,975	95.48
.0041	9	358	352	363	360	359	6,892	94.35
.0055	12	358	352	363	360	359	6,784	92.87
.0083	18	358	352	363	360	359	6,541	89.54
.0120	26	358	341	344	346	359	6,155	84.26
.0166	36	357	323	328	344	357	5,851	80.10
.0230	50	355	304	311	330	355	5,523	75.61
.0313	68	345	290	293	320	352	5,168	70.75
.0424	92	330	282	284	314	347	4,846	66.34
.0567	123	306	272	270	302	340	4,516	61.82
0.0760	165	286	266	247	285	322	4,195	57.43
.102	222	269	248	230	262	308	3,857	52.80
.138	300	248	231	213	238	297	3,560	48.73
.188	408	218	206	188	208	280	3,217	44.04
.257	558	203	192	167	185	248	2,916	39.92
.353	765	190	172	146	172	240	2,671	36.56
.484	1,050	178	158	133	155	228	2,396	32.80
.650	1,410	168	135	118	144	213	2,156	29.51
.899	1,950	150	112	99	122	199	1,842	25.22
1.24	2,700	122	78	83	107	180	1,539	21.07
1.66	3,600	100	49	69	93	169	1,275	17.45
2.16	4,680	79	30	50	82	144	1,005	13.76
2.90	6,300	62	22	34	76	122	765	10.47
4.15	9,000	30	13	10	50	81	453	6.20
5.67	12,300	16	5	5	21	49	222	3.04
7.60	16,500	6	---	---	11	17	82	1.12
10.2	22,200	---	---	---	7	12	28	.38
13.8	30,000	---	---	---	---	---	-----	------

BEAUCOUP CREEK NEAR PINCKNEYVILLE



Beaucoup Creek near Pinckneyville

LOCATION.--Lat 38°03'40", long. 89°21'45", in NE¼SW¼ sec. 30, T. 5 S., R. 2 W., at Illinois Central Railroad bridge about 1½ miles east of Pinckneyville, and about 10 miles upstream from Galum Creek.

DRAINAGE AREA.--227 sq mi.

DURATION DATA AVAILABLE.--Water years 1909-12.

AVERAGE DISCHARGE, 1921-45.--122 cfs; from synthetic duration curve, using Big Muddy River at Plumfield as index station.

EXTREMES.--1909-12: Maximum discharge observed, 2,170 cfs Feb. 28, 1910, May 1, 1911; minimum observed, 0.6 cfs Sept. 11, 12, 1912.

Days of duration of discharge for Beaucoup Creek near Pinckneyville

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1909	'10	'11	'12	Total	Percent of time
0	0	365	365	365	366	1,461	100.00
.0022	.5	306	365	365	366	1,402	95.96
.0031	.7	306	365	365	364	1,400	95.82
.0044	1.0	306	365	365	361	1,397	95.62
.0057	1.3	282	359	349	357	1,347	92.88
.0079	1.8	275	354	349	350	1,328	90.90
.0106	2.4	215	311	347	338	1,211	82.89
.0141	3.2	188	273	273	329	1,063	72.76
.0185	4.2	177	246	251	317	991	67.83
.0247	5.6	176	242	241	289	948	64.89
.0330	7.5	167	219	219	276	881	60.30
.0441	10	160	205	202	247	814	55.72
.0573	13	156	185	182	236	759	51.95
.0793	18	139	164	144	208	655	44.83
.106	24	124	145	125	200	594	40.66
0.141	32	114	127	104	177	522	35.73
.185	42	103	105	92	153	453	31.01
.247	56	94	86	81	130	391	26.76
.330	75	79	70	71	114	334	22.86
.441	100	65	56	54	101	276	18.89
.573	130	58	48	45	93	244	16.70
.793	180	43	40	36	69	188	12.87
1.06	240	42	32	29	60	163	11.16
1.41	320	39	26	26	54	145	9.92
1.85	420	36	23	22	43	124	8.49
2.47	560	32	19	16	35	102	6.98
3.30	750	25	15	14	31	85	5.82
4.41	1,000	20	14	12	20	66	4.52
5.73	1,300	13	8	9	15	45	3.08
7.93	1,806	5	2	3	3	13	.89
10.6	2,400	---	---	---	---	-----	------

BEAUCOUP CREEK NEAR MATTHEWS

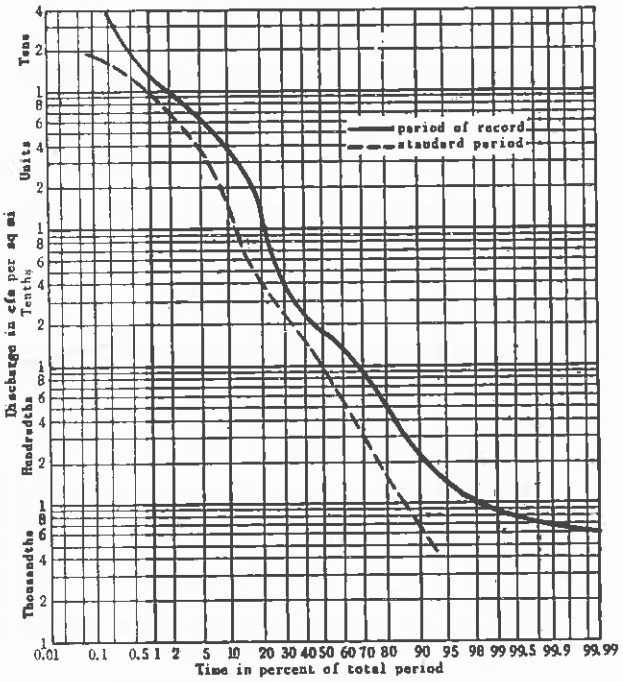
LOCATION.--Lat 37°58'00", long. 89°21'00", in SW¼ sec. 29, T. 6 S., R. 2 W., at bridge on State Highway 13, 1¼ miles east of Matthews, 3½ miles upstream from Galum Creek and 7 miles southwest of DuQuoin.

DRAINAGE AREA.--291 sq mi.

DURATION DATA AVAILABLE.--Water years 1946-50.

AVERAGE DISCHARGE, 1921-45.--210 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1945-50: Maximum discharge, 18,100 cfs Aug. 17, 1946; minimum, 1.6 cfs Oct. 10-14, 1948.

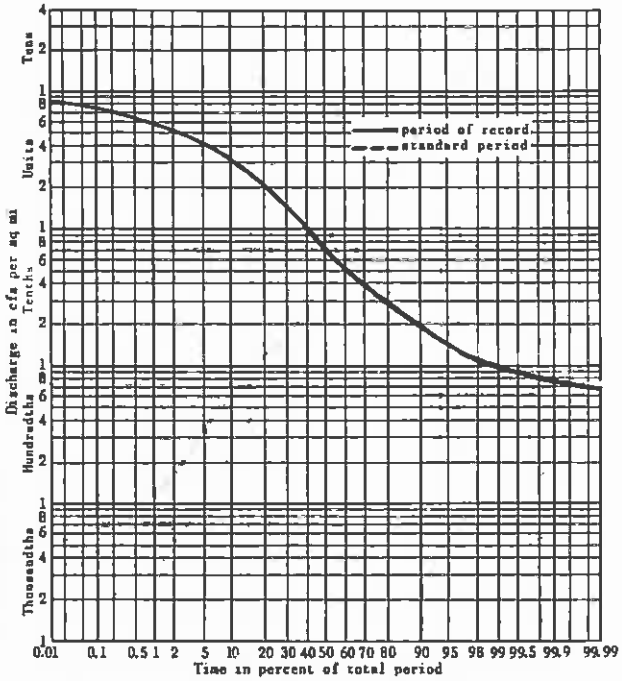


Beaucoup Creek near Matthews

Days of duration of discharge for Beaucoup Creek near Matthews

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0052	1.5	365	365	366	365	365	1,826	100.00
.0079	2.3	365	365	362	357	365	1,814	99.34
.0120	3.5	365	352	347	353	361	1,778	97.37
.0182	5.3	361	311	315	346	352	1,685	92.28
.0278	8.1	338	289	278	342	346	1,593	87.24
.0412	12	316	268	260	332	331	1,507	82.53
.0653	19	277	245	224	301	309	1,356	74.26
.0962	28	246	226	194	267	289	1,222	66.92
.148	43	193	189	167	214	257	1,020	55.86
.227	66	152	148	129	168	201	798	43.70
.344	100	114	119	94	128	174	629	34.45
.515	150	95	96	78	104	142	515	28.20
0.790	230	77	73	63	88	124	425	23.27
1.20	350	65	59	49	75	106	354	19.39
1.82	530	54	42	40	61	91	288	15.77
2.78	810	38	27	28	53	78	224	12.27
4.12	1,200	27	16	15	39	62	159	8.71
6.53	1,900	16	4	6	22	38	86	4.71
9.62	2,800	8	2	3	8	15	36	1.97
14.8	4,300	5	2	1	3	4	15	.82
22.7	6,600	3	---	---	2	2	7	.38
34.4	10,000	2	---	---	1	1	4	.22
51.5	15,000	1	---	---	---	---	1	.055
79.0	23,000	---	---	---	---	---	-----	------

OHIO RIVER AT GOLCONDA



Ohio River at Golconda

LOCATION.--Lat 37°21′30″, long. 88°28′55″, at lock and dam 51, at Golconda, Pope County, 0.5 mile upstream from Long Branch, 1 mile downstream from Loves Branch, and at mile 903.1.

DRAINAGE AREA.--143,900 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1940-50.--172,000 cfs.

EXTREMES.--1937-50: Maximum discharge, 1,470,000 cfs Feb. 2, 3, 1937.

Days of duration of discharge for Ohio River at Golconda

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0695	10,000	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0834	12,000	360	365	365	366	365	365	365	366	365	365	3,647	99.86
.0973	14,000	355	365	365	361	365	365	360	366	365	365	3,632	99.45
.111	16,000	335	365	365	341	365	360	355	366	365	365	3,582	98.08
.132	19,000	319	355	365	336	365	350	355	356	360	365	3,526	96.55
.160	23,000	309	355	350	294	350	335	345	341	350	365	3,394	92.94
.188	27,000	309	345	345	242	335	335	340	325	345	365	3,286	89.98
.222	32,000	303	329	330	227	312	329	340	310	319	365	3,164	86.64
.257	37,000	278	329	319	191	310	329	314	305	309	365	3,049	83.49
.306	44,000	242	305	319	155	287	319	294	291	304	345	2,861	78.34
.361	52,000	203	275	313	155	253	303	294	247	288	345	2,676	73.27
.424	61,000	178	259	291	143	224	285	263	230	277	292	2,442	66.87
.500	72,000	151	225	271	127	206	271	237	204	251	279	2,222	60.84
.591	85,000	127	188	258	121	194	249	194	152	235	272	1,990	54.49
.695	100,000	109	162	244	112	183	220	176	133	208	259	1,806	49.45
.834	120,000	73	128	218	109	172	210	156	130	192	244	1,632	44.69
.973	140,000	58	113	195	98	164	194	146	118	173	224	1,483	40.61
1.11	160,000	37	94	172	91	158	183	138	109	158	203	1,343	36.77
1.32	190,000	21	64	148	84	138	148	125	106	137	181	1,152	31.54
1.60	230,000	4	55	123	79	118	117	109	89	123	157	974	26.67
1.88	270,000	2	47	101	69	101	82	102	77	108	129	818	22.40
2.22	320,000	---	29	76	54	79	53	70	66	90	104	621	17.00
2.57	370,000	---	24	63	38	64	25	32	61	75	80	462	12.65
3.06	440,000	---	17	48	20	48	14	---	51	49	72	319	8.73
3.61	520,000	---	2	30	7	37	---	---	33	26	64	199	5.45
4.24	610,000	---	---	18	---	25	---	---	17	15	50	125	3.42
5.00	720,000	---	---	8	---	19	---	---	9	8	40	84	2.30
5.91	850,000	---	---	---	---	13	---	---	---	---	13	26	.71
6.95	1,000,000	---	---	---	---	4	---	---	---	---	---	4	.11
8.34	1,200,000	---	---	---	---	---	---	---	---	---	---	-----	------

OHIO RIVER AT METROPOLIS

LOCATION.--Lat 37°08′51″, long. 88°44′27″, at Paducah & Illinois Railroad bridge at Metropolis, Massac County, 9½ miles downstream from Tennessee River, and 37 miles upstream from mouth.

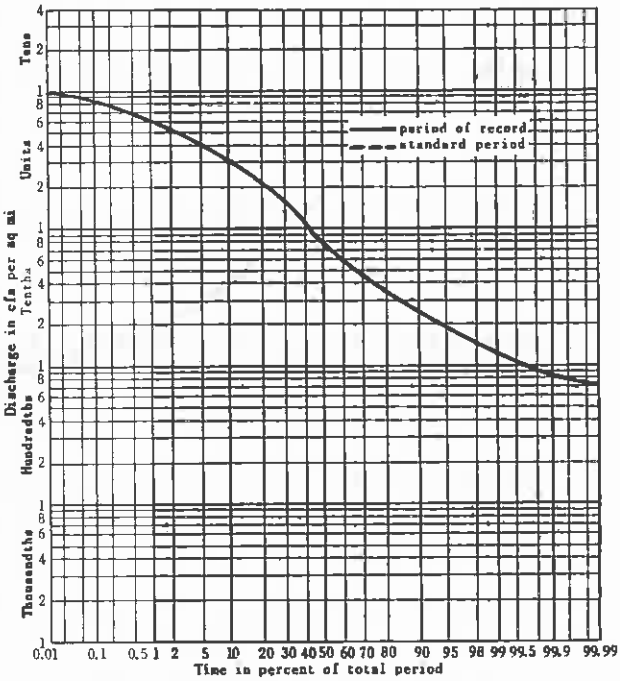
DRAINAGE AREA.--203,000 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1929-50.

AVERAGE DISCHARGE, 1934-50.--264,900 cfs. (Overflow through Bay Creek and Cache River Valleys not included.)

EXTREMES.--1934-50: Maximum discharge, 1,780,000 cfs Feb. 1, 1937 (total discharge, including overflow through Bay Creek and Cache River Valleys, 1,850,000 cfs); minimum, 20,600 cfs Oct. 8, 1941.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams." Flow controlled by operation of navigation dams upstream and downstream from Metropolis except during periods of high water when dams are lowered and open-river conditions prevail.

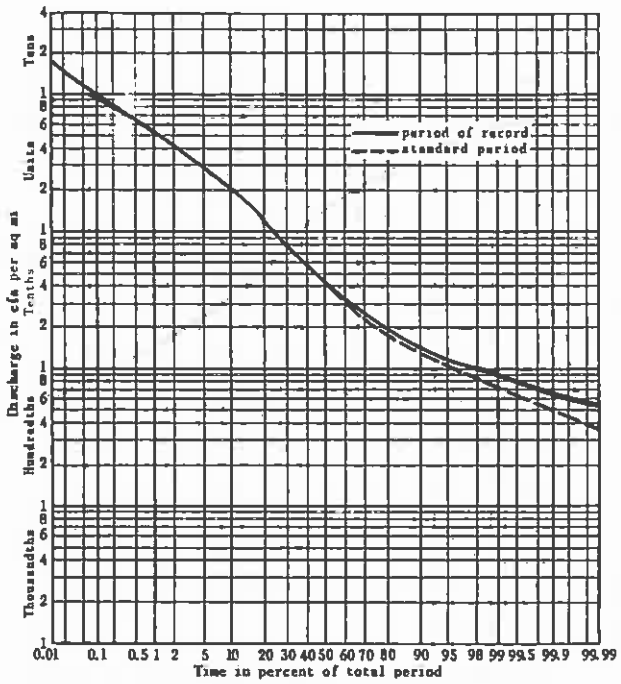


Ohio River at Metropolis

Days of duration of discharge for Ohio River at Metropolis

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0690	14,000	365	365	366	365	365	8,035	100.00
.0793	16,100	365	365	366	365	365	8,032	99.96
.0941	19,100	365	365	366	365	365	8,013	99.73
.112	22,800	365	365	366	365	365	7,979	99.30
.132	26,800	365	365	366	365	365	7,900	98.32
.158	32,000	365	365	366	365	365	7,797	97.04
.182	37,000	365	365	366	365	365	7,685	95.64
.217	44,000	365	365	359	363	365	7,486	93.17
.256	52,000	364	365	338	357	365	7,199	89.60
.296	60,000	350	358	318	346	365	6,838	85.10
.355	72,000	334	331	296	333	362	6,326	78.73
.414	84,000	312	310	275	318	362	5,874	73.11
.493	100,000	289	277	239	300	352	5,315	66.15
.591	120,000	272	250	201	270	314	4,744	59.04
.690	140,000	259	229	154	243	282	4,295	53.45
0.759	154,000	243	206	147	231	274	4,089	50.89
.956	194,000	222	173	134	209	253	3,485	43.37
1.13	230,000	194	155	117	191	223	3,021	37.60
1.33	270,000	162	133	103	168	198	2,582	32.13
1.58	320,000	135	116	90	150	175	2,211	27.52
1.87	380,000	105	85	80	127	138	1,852	23.05
2.22	450,000	74	55	74	111	112	1,499	18.66
2.56	520,000	38	31	69	90	93	1,182	14.71
3.05	620,000	33	16	58	75	72	856	10.65
3.65	740,000	23	5	35	38	55	523	6.51
4.24	860,000	9	---	15	14	51	278	3.46
5.02	1,020,000	---	---	---	---	46	133	1.66
5.91	1,200,000	---	---	---	---	29	54	.67
6.95	1,410,000	---	---	---	---	---	19	.24
8.37	1,700,000	---	---	---	---	---	8	.10
9.85	2,000,000	---	---	---	---	---	-----	------

WABASH RIVER AT VINCENNES, IND.



Wabash River at Vincennes, Ind.

LOCATION.--Lat 38°40′52″, long. 87°32′04″, at bridge on U. S. Highway 50 at Vincennes, Knox County, 4.8 miles downstream from Maria Creek, 5.8 miles upstream from Embarrass River, and at mile 127.8.

DRAINAGE AREA.--13,700 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1931-50.

AVERAGE DISCHARGE, 1921-45.--11,300 cfs, from correlation of observed mean annual discharges with concurrent values for Embarrass River at Ste. Marie, Ill.

EXTREMES.--1929-50: Maximum discharge, 189,000 cfs May 22, 23, 1943; minimum observed, 770 cfs Aug. 4, 5, 1934.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Wabash River at Vincennes, Ind.

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0519	700	365	365	366	365	365	7,305	100.00
.0613	840	365	365	366	365	365	7,297	99.89
.0745	1,020	365	365	366	365	365	7,281	99.67
.0891	1,220	365	365	366	365	365	7,233	99.01
.109	1,490	365	362	366	365	365	7,089	97.04
.131	1,800	362	348	364	365	365	6,771	92.69
.159	2,180	337	338	347	341	362	6,259	85.68
.193	2,650	325	334	325	322	360	5,725	78.37
.234	3,200	314	303	291	306	360	5,273	72.18
.283	3,880	296	261	237	291	348	4,625	63.31
.343	4,700	285	212	211	271	322	4,143	56.71
.412	5,650	263	181	189	262	297	3,726	51.00
.500	6,850	229	156	165	234	279	3,277	44.86
.606	8,300	184	138	148	197	252	2,758	37.75
.730	10,000	165	120	131	147	222	2,338	32.00
0.883	12,100	144	107	106	115	208	1,965	26.90
1.08	14,800	124	90	86	98	187	1,605	21.97
1.29	17,700	96	79	72	85	177	1,359	18.60
1.57	21,500	69	57	61	73	162	1,100	15.06
1.90	26,000	53	45	48	60	131	881	12.06
2.26	31,000	16	26	31	51	97	624	8.54
2.74	37,500	1	18	26	39	80	403	5.52
3.32	45,500	---	6	17	24	60	259	3.54
3.94	54,000	---	---	7	12	46	163	2.23
4.82	66,000	---	---	3	5	28	92	1.26
5.77	79,000	---	---	---	---	21	41	.56
7.01	96,000	---	---	---	---	11	23	.31
8.54	117,000	---	---	---	---	1	8	.11
10.2	140,000	---	---	---	---	---	4	.055
12.4	170,000	---	---	---	---	---	3	.041
17.2	235,000	---	---	---	---	---	-----	------

WABASH RIVER AT MOUNT CARMEL

LOCATION.--Lat 38°24′07″, long. 87°45′10″, in sec. 28, T. 1 S., R. 12 W., at Southern Railway bridge, at Mount Carmel, Wabash County, and 0.1 mile downstream from Patoka River.

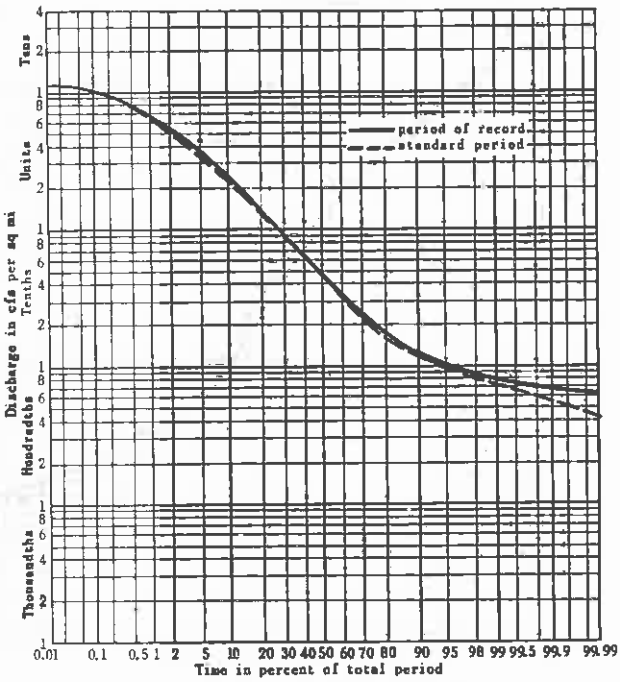
DRAINAGE AREA.--28,600 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1928-50.

AVERAGE DISCHARGE, 1921-45.--25,800 cfs; from correlation of observed mean annual discharges with concurrent values for Embarrass River at Ste. Marie.

EXTREMES.--1927-50: Maximum discharge, 305,000 cfs May 25, 1943; minimum, 1,620 cfs Sept. 27, 28, 30, 1941.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

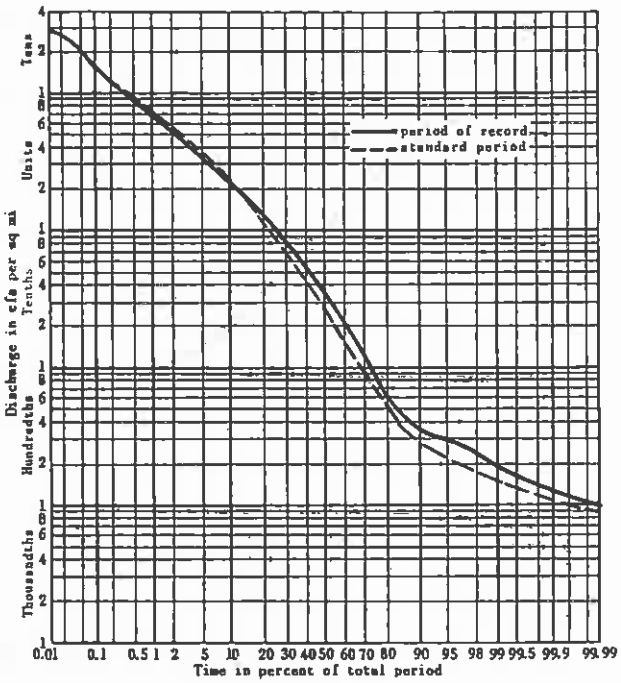


Wabash River at Mount Carmel

Days of duration of discharge for Wabash River at Mount Carmel

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0524	1,500	365	365	366	365	365	8,401	100.00
.0629	1,800	365	365	366	365	365	8,393	99.90
.0769	2,200	365	365	366	365	365	8,364	99.56
.0909	2,600	365	361	366	365	365	8,236	98.04
.112	3,200	365	347	366	365	365	7,834	93.25
.136	3,900	343	337	352	349	365	7,347	87.45
.164	4,700	337	333	331	336	361	6,882	81.92
.199	5,700	330	326	277	326	360	6,425	76.48
.241	6,900	320	296	255	302	348	5,844	69.56
.294	8,400	309	272	214	283	315	5,284	62.90
.357	10,200	297	243	185	280	299	4,822	57.40
.430	12,300	259	198	166	259	281	4,305	51.24
.521	14,900	236	183	145	227	267	3,807	45.32
.629	18,000	203	164	136	204	255	3,362	40.02
.769	22,000	176	138	126	169	229	2,910	34.64
0.944	27,000	160	120	98	132	204	2,453	29.20
1.12	32,000	140	96	86	118	178	2,093	24.91
1.36	39,000	100	84	68	99	157	1,682	20.02
1.64	47,000	69	74	49	85	138	1,400	16.66
1.99	57,000	47	55	32	69	107	1,090	12.97
2.41	69,000	16	32	29	60	88	816	9.71
2.94	84,000	5	20	23	50	76	585	6.96
3.57	102,000	---	10	19	38	64	421	5.01
4.30	123,000	---	---	11	27	55	264	3.14
5.21	149,000	---	---	3	16	39	155	1.84
6.29	180,000	---	---	---	10	24	82	.98
7.69	220,000	---	---	---	3	15	44	.52
9.44	270,000	---	---	---	---	8	18	.21
11.2	320,000	---	---	---	---	---	-----	------

VERMILION RIVER NEAR CATLIN



Vermilion River near Catlin

LOCATION.--Lat 40°06′09″, long. 87°42′58″, in SE¼SE¼ sec. 16, T. 19 N., R. 12 W., 75 ft upstream from Butler Branch bridge, 150 ft upstream from Butler Branch, 0.1 mile downstream from Salt Fork, and 2½ miles northwest of Catlin.

DRAINAGE AREA.--959 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--737 cfs; from correlation of observed mean annual discharges with concurrent values for Vermilion River near Danville.

EXTREMES.--1940-50: Maximum discharge, 36,000 cfs May 18, 1943; minimum, 9.5 cfs Sept. 17, 1940.

Days of duration of discharge for Vermilion River near Catlin

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0094	9	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0125	12	360	365	365	366	365	365	365	366	365	365	3,647	99.86
.0167	16	348	365	365	366	365	365	365	366	365	365	3,635	99.53
.0229	22	334	365	364	360	346	365	365	366	365	365	3,595	98.44
.0302	29	316	363	355	322	315	365	365	366	365	365	3,497	95.76
.0407	39	289	344	331	265	227	346	332	329	318	364	3,143	86.06
.0542	52	260	329	315	211	213	329	306	302	301	361	2,927	80.15
.0719	69	241	316	306	168	208	323	292	287	282	350	2,773	75.93
.0938	90	202	307	299	157	201	318	285	281	262	341	2,653	72.65
.125	120	152	303	286	146	189	315	273	258	246	322	2,490	68.18
.167	160	121	295	278	139	179	307	255	217	225	307	2,323	63.61
.229	220	96	283	273	132	167	292	228	198	204	280	2,153	58.95
.302	290	77	261	256	126	150	258	194	170	184	253	1,929	52.82
.407	390	60	219	206	121	134	224	159	148	167	225	1,663	45.54
.542	520	49	185	164	110	117	179	130	125	137	204	1,400	38.34
.719	690	33	155	125	97	100	145	106	100	104	182	1,147	31.41
.938	900	27	125	104	80	83	112	85	87	85	165	953	26.10
1.25	1,200	20	85	76	62	52	90	56	70	64	131	706	19.33
1.67	1,600	15	55	58	39	31	63	37	51	52	96	497	13.61
2.29	2,200	7	35	42	23	18	39	23	30	37	68	322	8.82
3.02	2,900	4	27	33	17	15	26	16	19	27	47	231	6.33
4.07	3,900	1	19	23	10	11	10	6	7	11	33	131	3.59
5.42	5,200	---	7	16	7	2	3	5	2	7	25	74	2.03
7.19	6,900	---	3	7	7	---	2	---	---	4	14	37	1.01
9.38	9,000	---	2	6	4	---	1	---	---	---	3	16	.44
12.5	12,000	---	---	4	1	---	---	---	---	---	2	7	.19
16.7	16,000	---	---	3	---	---	---	---	---	---	1	4	.11
22.9	22,000	---	---	2	---	---	---	---	---	---	---	2	.055
30.2	29,000	---	---	2	---	---	---	---	---	---	---	2	.055
40.7	39,000	---	---	---	---	---	---	---	---	---	---	-----	------

VERMILION RIVER NEAR DANVILLE

LOCATION.--Lat 40°05′53″, long. 87°35′37″, in SE¼NW¼ sec. 22, T. 19 N., R. 11 W., 1.5 miles upstream from Stony Creek and 2½ miles southeast of Danville.

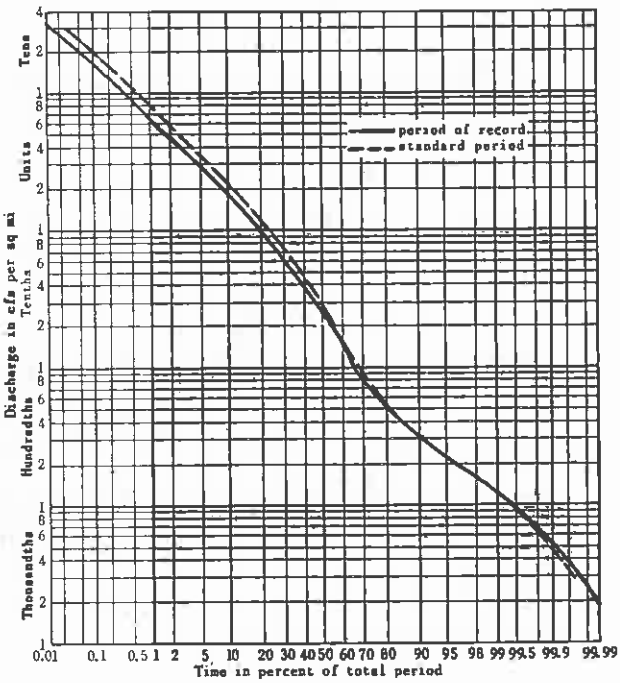
DRAINAGE AREA.--1,280 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1916-20, 1929-50.

AVERAGE DISCHARGE, 1921-45.--1,020 cfs; from correlation of observed mean monthly discharges with concurrent values for Sangamon River at Monticello.

EXTREMES.--1914-21, 1928-50: Maximum discharge, 48,700 cfs Mar. 13, 1939; minimum, 1.9 cfs June 5, 1934.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams." Flow regulated at times by storage on North Fork Vermilion River 4½ miles above the station. Usable storage capacity in 1940 was 7,170 acre-ft.

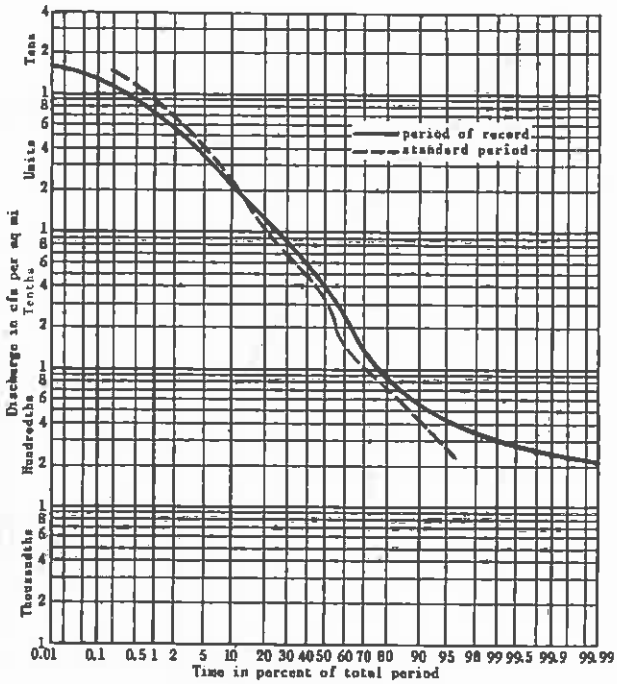


Vermilion River near Danville

Days of duration of discharge for Vermilion River near Danville

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0016	2	365	365	366	365	365	9,862	100.00
.0031	4	365	365	366	365	365	9,859	99.97
.0039	5	365	365	366	365	365	9,858	99.96
.0047	6	365	365	366	365	365	9,858	99.96
.0070	9	365	365	366	365	365	9,832	99.70
.0094	12	365	365	366	365	365	9,791	99.28
.0141	18	365	365	366	365	365	9,693	98.29
.0203	26	365	365	366	365	365	9,479	96.17
.0281	36	365	365	366	365	365	9,037	91.63
.0391	50	358	349	352	365	365	8,372	84.89
.0531	68	336	328	324	333	363	7,824	79.33
.0719	92	327	315	301	290	359	7,186	72.87
.0961	123	319	308	296	272	342	6,722	68.16
.129	165	316	283	274	249	333	6,214	63.01
.173	222	309	256	237	228	317	5,757	58.38
.234	300	289	227	211	211	291	5,235	53.08
0.319	408	249	189	174	196	260	4,579	46.43
.436	558	210	150	148	170	234	3,885	39.39
.598	765	162	118	121	132	198	3,059	31.02
.820	1,050	130	92	97	100	175	2,354	23.87
1.10	1,410	99	58	75	75	148	1,742	17.66
1.52	1,950	71	41	52	59	100	1,212	12.29
2.11	2,700	44	25	26	43	65	785	7.96
2.81	3,600	29	15	18	27	44	518	5.25
3.66	4,680	18	11	10	17	36	351	3.56
4.92	6,300	8	6	5	8	28	196	1.99
7.03	9,000	3	2	1	6	17	92	.93
9.61	12,300	1	---	---	---	5	38	.39
12.9	16,500	---	---	---	---	2	16	.16
17.3	22,200	---	---	---	---	1	7	.071
23.4	30,000	---	---	---	---	---	3	.030
31.2	40,000	---	---	---	---	---	-----	------

SALT FORK VERMILION RIVER NEAR HOMER



Salt Fork Vermilion River near Homer

LOCATION.--Lat 40°03′20″, long. 87°57′30″, in SW¼SW¼ sec. 33, T. 19 N., R. 14 W., at bridge on State Highway 49, 1.1 miles north of Homer.

DRAINAGE AREA.--344 sq mi.

DURATION DATA AVAILABLE.--Water years 1945-50.

AVERAGE DISCHARGE, 1921-45.--269 cfs; from correlation of observed mean annual discharges with concurrent values for Vermilion River near Danville.

EXTREMES.--1944-50: Maximum discharge, 6,170 cfs Jan. 4, 1950; minimum, 7.1 cfs Nov. 17, 1944.

Days of duration of discharge for Salt Fork Vermilion River near Homer

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1945	'46	'47	'48	'49	'50	1945-50	Percent of time
0.0174	6.0	365	365	365	366	365	365	2,191	100.00
.0224	7.7	364	365	365	366	365	365	2,190	99.95
.0291	10	341	365	365	366	365	365	2,167	98.90
.0378	13	300	365	362	366	364	365	2,122	96.85
.0494	17	254	365	354	364	342	364	2,043	93.24
.0640	22	219	352	320	346	312	364	1,913	87.31
.0814	28	198	327	303	304	284	364	1,780	81.24
.105	36	188	316	287	255	267	357	1,670	76.22
.134	46	176	311	263	221	249	341	1,561	71.25
.174	60	164	306	238	204	229	322	1,463	66.77
.224	77	157	285	210	185	214	304	1,355	61.84
.291	100	149	265	185	165	194	281	1,239	56.55
.378	130	138	237	159	147	174	256	1,111	50.71
.494	170	123	203	134	121	142	229	952	43.45
0.640	220	110	163	111	98	108	197	787	35.92
.814	280	89	131	93	76	87	177	653	29.80
1.05	360	66	102	68	61	68	148	513	23.41
1.34	460	52	87	45	47	52	99	382	17.43
1.74	600	32	59	32	33	44	71	271	12.37
2.24	770	25	46	21	24	34	57	207	9.45
2.91	1,000	17	27	13	17	23	42	139	6.34
3.78	1,300	12	15	7	7	18	34	93	4.24
4.94	1,700	5	5	4	4	8	23	49	2.24
6.40	2,200	3	4	1	---	7	16	31	1.41
8.14	2,800	1	2	---	---	3	10	16	.73
10.5	3,600	---	1	---	---	1	4	6	.27
13.4	4,600	---	---	---	---	---	2	2	.091
17.4	6,000	---	---	---	---	---	---	-----	------

WEST BRANCH SALT FORK AT URBANA

LOCATION.--Lat 40°07′12″, long. 88°11′30″, in center of sec. 9, T. 19 N., R. 9 E., at Champaign-Urbana sewage disposal plant, 0.8 mile downstream from Boneyard Creek and 1 mile east of Urbana.

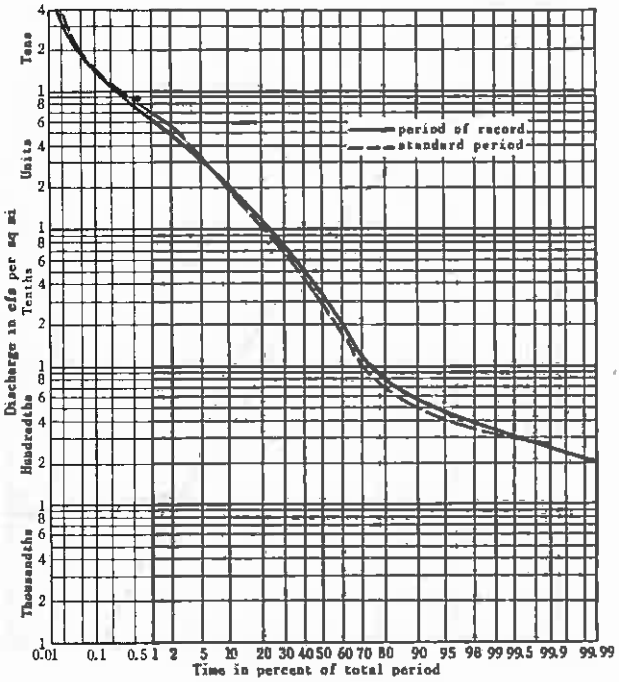
DRAINAGE AREA.--71.4 sq mi.

DURATION DATA AVAILABLE.--Water years 1937-50.

AVERAGE DISCHARGE, 1921-45.--55.2 cfs; from correlation of observed mean annual discharges with concurrent values for Sangamon River at Monticello.

EXTREMES.--1936-50: Maximum discharge, 3,410 cfs Mar. 12, 1939; minimum, 1.19 cfs Aug. 19, Oct. 20, 1936, Oct. 8, 1938.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

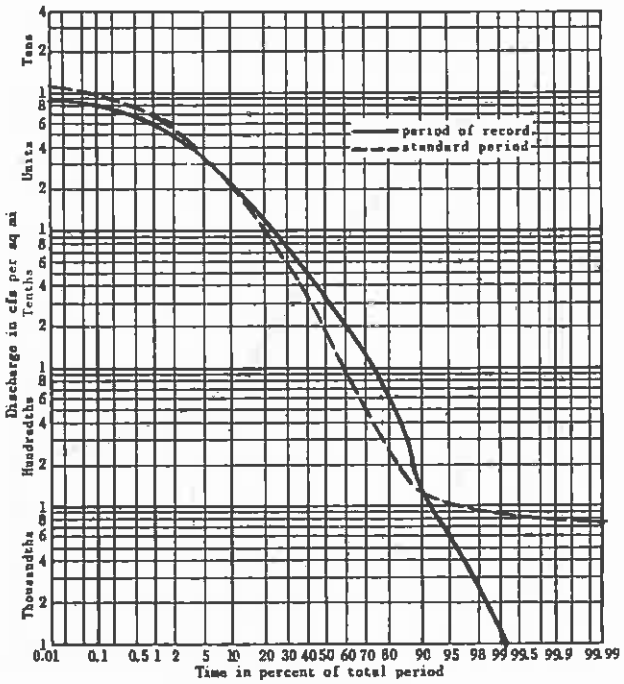


West Branch Salt Fork at Urbana

Days of duration of discharge for West Branch Salt Fork at Urbana

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0210	1.50	365	365	366	365	365	5,113	100.00
.0315	2.25	365	365	366	365	365	5,085	99.45
.0420	3	362	364	366	364	365	4,981	97.42
.0560	4	356	344	360	349	364	4,646	90.87
.0700	5	342	338	346	325	362	4,323	84.55
.0840	6	331	327	313	307	353	3,975	77.74
.112	8	322	297	264	267	337	3,595	70.31
.140	10	313	283	233	252	333	3,412	66.73
.168	12	309	275	219	239	324	3,265	63.86
.210	15	297	230	194	223	308	3,024	59.14
.280	20	266	186	168	202	281	2,734	53.47
.378	27	234	146	149	172	245	2,356	46.08
.476	34	194	136	132	148	220	2,054	40.17
.588	42	164	114	108	124	201	1,743	34.09
.700	50	138	109	99	104	183	1,527	29.87
0.840	60	118	101	83	88	171	1,295	25.33
1.05	75	91	85	70	70	137	1,033	20.20
1.26	90	78	60	57	58	103	830	16.23
1.54	110	62	46	39	46	86	663	12.97
1.96	140	44	26	28	38	65	495	9.68
2.66	190	28	13	13	24	43	323	6.32
3.64	260	17	5	7	9	28	183	3.58
5.04	360	8	3	4	3	17	91	1.78
6.72	480	4	---	---	2	7	51	1.00
8.68	620	3	---	---	2	4	29	.57
11.5	820	1	---	---	1	2	13	.25
15.4	1,100	1	---	---	---	---	5	.098
22.4	1,600	---	---	---	---	---	2	.039
30.8	2,200	---	---	---	---	---	1	.020
42.0	3,000	---	---	---	---	---	1	.020
56.0	4,000	---	---	---	---	---	-----	------

EMBARRASS RIVER NEAR OAKLAND



Embarrass River near Oakland

LOCATION.--Lat 39°40′50″, long. 88°02′25″, in NW¼NW¼ sec. 12, T. 14 N., R. 10 E., on the county line road to Hindsboro and Arcola, at highway bridge about 2 miles northwest of Oakland, Coles County, and about 5 miles below the mouth of Brush Creek.

DRAINAGE AREA.--535 sq mi.

DURATION DATA AVAILABLE.--Water years 1910-12, 1915.

AVERAGE DISCHARGE, 1921-45.--409 cfs; from synthetic duration curve, using Embarrass River at Ste. Marie as index station.

EXTREMES.--1909-12, 1914-15: Maximum discharge, 4,700 cfs Aug. 4, 1915; no flow Aug. 25-29, Sept. 12 to Oct. 13, 1914.

Days of duration of discharge for Embarrass River near Oakland

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1910	'11	'12	'15	Total	Percent of time
0	0	365	365	366	---	365	1,461	100.00
.0002	.1	365	365	366	---	352	1,448	99.11
.0004	.2	365	365	366	---	352	1,448	99.11
.0006	.3	365	365	366	---	352	1,448	99.11
.0009	.5	365	365	366	---	349	1,445	98.90
.0013	.7	365	365	366	---	348	1,444	98.84
.0019	1.0	365	365	366	---	347	1,443	98.77
.0026	1.4	365	365	366	---	330	1,426	97.60
.0037	2.0	365	365	366	---	323	1,419	97.13
.0054	2.9	365	365	366	---	291	1,387	94.93
.0077	4.1	365	355	366	---	279	1,365	93.43
.0110	5.9	365	334	366	---	277	1,342	91.85
.0157	8.4	349	311	366	---	275	1,301	89.05
.0224	12	337	307	365	---	258	1,267	86.72
.0318	17	331	296	365	---	258	1,250	85.56
0.0449	24	327	279	352	---	258	1,216	83.23
.0654	35	298	268	333	---	242	1,141	78.10
.0916	49	282	230	329	---	242	1,083	74.13
.131	70	262	182	295	---	224	963	65.91
.187	100	235	170	280	---	209	894	61.19
.262	140	211	159	265	---	186	821	56.19
.374	200	159	139	250	---	153	701	47.98
.542	290	119	122	231	---	126	598	40.93
.766	410	73	93	155	---	96	417	28.54
1.10	590	47	59	111	---	73	290	19.85
1.57	840	33	39	89	---	55	216	14.78
2.24	1,200	20	28	61	---	37	146	9.99
3.18	1,700	12	18	36	---	28	94	6.43
4.46	2,400	8	7	20	---	18	53	3.63
6.54	3,500	1	1	2	---	7	11	.75
9.16	4,900	---	---	---	---	---	-----	------

EMBARRASS RIVER NEAR DIONA

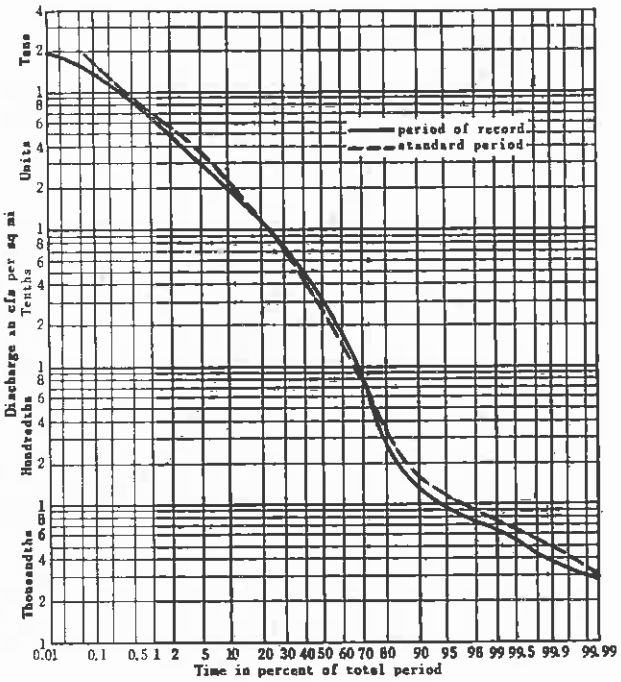
LOCATION.--Lat 39°20′40″, long. 88°10′15″, in NW¼ sec. 2, T. 10 N., R. 9 E., at Ryans Bridge, 2¾ miles southwest of Diona, 7 miles downstream from Indian Creek, and 9 miles upstream from Hurricane Creek.

DRAINAGE AREA.--903 sq mi.

DURATION DATA AVAILABLE.--Water years 1939-40, 1945-47.

AVERAGE DISCHARGE, 1921-45.--706 cfs; from synthetic duration curve, using Embarrass River at Ste. Marie as index station.

EXTREMES.--1938-40, 1944-47: Maximum discharge, 14,600 cfs Mar. 14, 1939; minimum, 2.6 cfs Sept. 17, 1944.

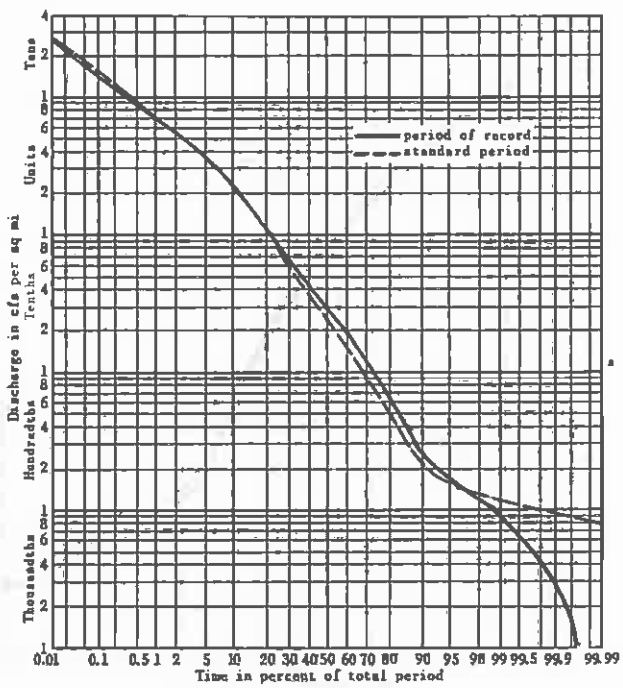


Embarrass River near Diona

Days of duration of discharge for Embarrass River near Diona

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1939	'40	'45	'46	'47	Total	Percent of time	Cfs per sq mi	Cfs	1939	'40	'45	'46	'47	Total	Percent of time
0.0028	2.5	365	366	---	365	365	365	1,826	100.00	0.277	250	200	80	---	151	258	234	923	50.55
.0038	3.4	365	366	---	362	365	365	1,823	99.84	.376	340	171	59	---	140	228	221	819	44.85
.0051	4.6	365	366	---	357	365	365	1,818	99.56	.509	460	143	48	---	120	192	189	692	37.90
.0070	6.3	365	366	---	336	365	363	1,795	98.30	.698	630	118	36	---	109	139	142	544	29.79
.0095	8.6	365	348	---	300	363	342	1,718	94.08	.952	860	98	26	---	91	105	107	427	23.38
.0133	12	359	333	---	260	359	322	1,633	89.43	1.33	1,200	78	17	---	72	71	75	313	17.14
.0177	16	349	306	---	238	355	311	1,559	85.38	1.77	1,600	64	15	---	48	48	44	219	11.99
.0232	21	344	265	---	228	353	303	1,493	81.76	2.32	2,100	49	9	---	36	37	23	154	8.43
.0321	29	343	223	---	222	346	297	1,431	78.37	3.21	2,900	30	3	---	28	12	10	83	4.54
.0443	40	332	208	---	213	342	291	1,386	75.90	4.43	4,000	19	---	---	17	3	3	42	2.30
.0598	54	309	182	---	204	339	285	1,319	72.23	5.98	5,400	10	---	---	9	1	---	20	1.10
.0819	74	297	162	---	198	329	282	1,268	69.44	8.19	7,400	6	---	---	4	---	---	10	.55
.111	100	277	149	---	188	318	279	1,211	66.32	11.1	10,000	4	---	---	---	---	---	4	.22
.155	140	259	141	---	173	303	262	1,138	62.32	15.5	14,000	1	---	---	---	---	---	1	.055
.199	180	237	118	---	167	286	251	1,059	58.00	19.9	18,000	---	---	---	---	---	---	-----	------

EMBARRASS RIVER AT STE. MARIE



Embarrass River at Ste. Marie

LOCATION.--Lat 38°56′10″, long. 88°01′10″, in NW¼NW¼ sec. 30, T. 6 N., R. 14 W., at highway bridge at Ste. Marie.

DRAINAGE AREA.--1,540 sq mi.

DURATION DATA AVAILABLE.--Water years 1910-12, 1915-50.

AVERAGE DISCHARGE, 1921-45.--1,230 cfs.

EXTREMES.--1909-12, 1914-50: Maximum discharge, 44,800 cfs Jan. 4, 1950; minimum, 1 cfs Oct. 5-9, 1914.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Embarrass River at Ste. Marie

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1946	'47	'48	'49	'50	Total	Percent of time
0.0006	1	365	365	366	365	365	14,245	100.00
.0013	2	365	365	366	365	365	14,240	99.96
.0019	3	365	365	366	365	365	14,239	99.96
.0032	5	365	365	366	365	365	14,191	99.62
.0052	8	365	365	366	365	365	14,173	99.49
.0071	11	365	365	366	365	365	14,165	99.44
.0110	17	365	365	366	365	365	14,119	99.11
.0162	25	365	365	366	365	365	13,752	96.54
.0227	35	365	364	362	364	365	13,260	93.09
.0357	55	365	347	332	344	365	12,507	87.80
.0519	80	354	328	304	327	357	11,806	82.88
.0779	120	342	305	291	303	347	10,896	76.49
.130	200	318	285	225	280	315	9,595	67.36
0.195	300	288	271	189	236	298	8,432	59.19
.260	400	259	245	166	211	275	7,561	53.08
.360	555	230	228	142	180	249	6,528	45.83
.519	800	185	176	116	137	212	5,192	36.45
.779	1,200	120	122	72	89	171	3,807	26.73
1.17	1,800	80	80	51	66	118	2,681	18.82
1.75	2,700	54	44	33	48	93	1,814	12.73
2.60	4,000	27	16	19	36	70	1,221	8.57
3.90	6,000	12	4	13	26	47	651	4.57
5.52	8,500	3	---	7	16	26	255	1.79
7.79	12,000	---	---	3	4	16	99	.69
11.7	18,000	---	---	2	1	7	36	.25
16.9	26,000	---	---	---	---	1	7	.049
26.0	40,000	---	---	---	---	---	-----	------

EMBARRASS RIVER AT LAWRENCEVILLE

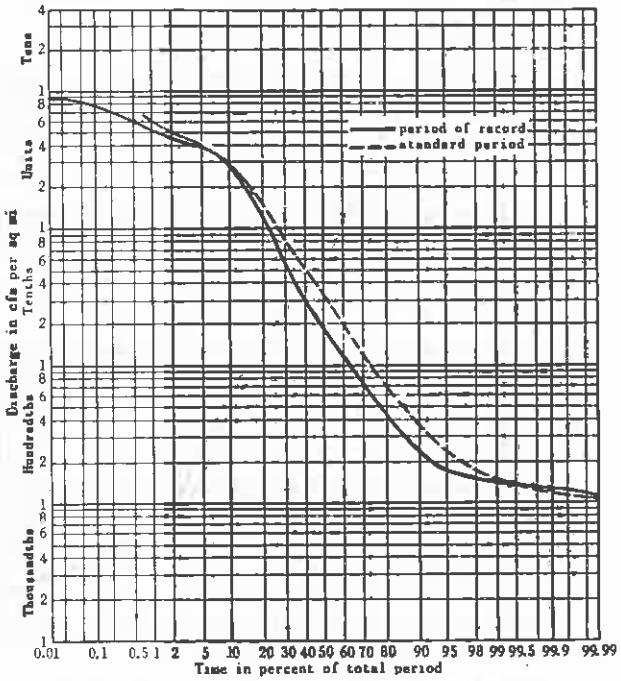
LOCATION.--Lat 38°43'25", long. 87°39'50", in NE¼SW¼ sec. 5, T. 3 N., R. 11 W., at highway bridge on U. S. route 50, 1 mile east of Lawrenceville, Lawrence County, and 11 miles above mouth.

DRAINAGE AREA.--2,260 sq mi.

DURATION DATA AVAILABLE.--Water years 1931-33.

AVERAGE DISCHARGE, 1921-45.--2,090 cfs; from synthetic duration curve, using Embarrass River at Ste. Marie as index station.

EXTREMES.--1930-33: Maximum discharge, 18,400 cfs May 19, 1933; minimum, 30 cfs Nov. 29, 1930.

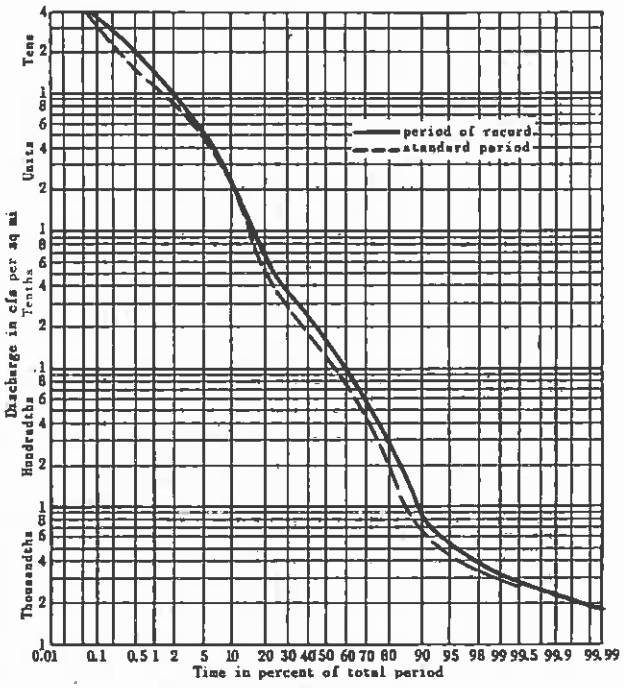


Embarrass River at Lawrenceville

Days of duration of discharge for Embarrass River at Lawrenceville

Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1931	'32	'33	---	1931-33	Percent of time	Cfs per sq mi	Cfs	Days equalled or exceeded Water year 1931	'32	'33	---	1931-33	Percent of time
0.0111	25	365	366	365	---	1,096	100.00	0.350	790	30	167	208	---	405	36.95
.0142	32	362	366	365	---	1,093	99.73	.442	1,000	21	141	198	---	360	32.85
.0177	40	300	366	365	---	1,031	94.07	.575	1,300	17	120	181	---	318	29.01
.0221	50	261	366	365	---	992	90.51	.708	1,600	16	109	167	---	292	26.64
.0279	63	226	366	362	---	954	87.04	.885	2,000	13	96	149	---	258	23.54
.0350	79	210	360	349	---	919	83.85	1.11	2,500	13	87	129	---	229	20.89
.0442	100	196	352	329	---	877	80.02	1.42	3,200	9	72	115	---	196	17.88
.0575	130	173	338	309	---	820	74.82	1.77	4,000	3	56	105	---	164	14.96
.0708	160	151	324	295	---	770	70.26	2.21	5,000	2	44	91	---	137	12.50
.0885	200	126	317	283	---	726	66.24	2.79	6,300	---	36	76	---	112	10.22
.111	250	98	307	275	---	680	62.04	3.50	7,900	---	21	53	---	74	6.75
.142	320	80	290	260	---	630	57.48	4.42	10,000	---	12	14	---	26	2.37
.177	400	67	267	251	---	585	53.38	5.75	13,000	---	---	6	---	6	.55
.221	500	47	233	233	---	513	46.81	7.08	16,000	---	---	3	---	3	.27
.279	630	37	196	223	---	456	41.61	8.85	20,000	---	---	---	---	-----	-----

NORTH FORK EMBARRASS RIVER NEAR OBLONG



North Fork Embarrass River near Oblong

LOCATION.--Lat 39°00′35″, long. 87°56′45″, in extreme northwest corner of sec. 35, T. 7 N., R. 14 W., at 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.--304 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--267 cfs from correlation of observed mean annual discharges with concurrent values for Embarrass River at Ste. Marie.

EXTREMES.--1940-50: Maximum discharge, 27,100 cfs Jan. 4, 1950; minimum, 0.5 cfs Oct. 21, 1944.

Days of duration of discharge for North Fork Embarrass River near Oblong

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0.0016	0.5	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0023	.7	364	365	365	366	362	365	364	366	365	365	3,647	99.86
.0036	1.1	358	365	360	363	343	365	359	366	365	365	3,609	98.82
.0056	1.7	336	364	333	326	279	365	351	366	365	365	3,450	94.47
.0082	2.5	308	364	323	283	253	365	337	366	365	365	3,329	91.16
.0122	3.7	285	364	320	254	249	365	321	366	365	365	3,254	89.10
.0184	5.6	265	363	307	222	241	362	304	360	363	365	3,152	86.31
.0270	8.2	241	347	271	184	217	336	288	313	344	365	2,906	79.57
.0395	12	221	333	261	173	204	301	274	294	337	365	2,763	75.66
.0592	18	155	318	245	153	191	272	258	265	325	356	2,538	69.50
.0921	28	107	299	231	135	173	241	223	191	291	334	2,225	60.93
.135	41	75	262	203	113	159	204	189	150	227	301	1,883	51.56
.197	60	50	235	153	95	144	184	161	123	181	246	1,572	43.04
.296	90	34	186	111	73	127	157	136	92	150	205	1,271	34.80
.441	134	23	142	90	56	102	126	105	70	111	171	996	27.27
.651	198	16	115	69	35	79	102	73	58	81	138	766	20.97
.970	295	10	89	52	23	62	80	55	49	65	108	593	16.24
1.45	440	5	70	44	16	56	60	38	36	48	87	460	12.60
2.17	660	3	51	35	12	46	42	30	29	33	69	350	9.58
3.19	970	---	39	27	8	39	25	22	21	26	55	262	7.17
4.77	1,450	---	27	20	6	32	14	13	13	21	43	189	5.18
7.07	2,150	---	17	14	6	20	8	6	8	15	31	125	3.42
10.5	3,200	---	8	11	5	10	3	2	3	7	18	67	1.83
15.6	4,750	---	1	8	2	4	3	---	2	4	10	34	.93
23.4	7,100	---	---	4	1	2	1	---	---	2	3	13	.36
34.5	10,500	---	---	1	---	---	---	---	---	1	2	4	.11
51.0	15,500	---	---	---	---	---	---	---	---	---	1	1	.027
75.7	23,000	---	---	---	---	---	---	---	---	---	---	-----	------

BONPAS CREEK AT BROWNS

LOCATION.--Lat 38°22′50″, long. 87°58′35″, in SW¼SE¼ sec. 33, T. 1 S., R. 14 W., at Browns, 30 ft upstream from concrete dam of Albion municipal water plant, 100 ft upstream from Nigger Creek, 300 ft upstream from State Highway 15, and a quarter of a mile upstream from Southern Railway bridge.

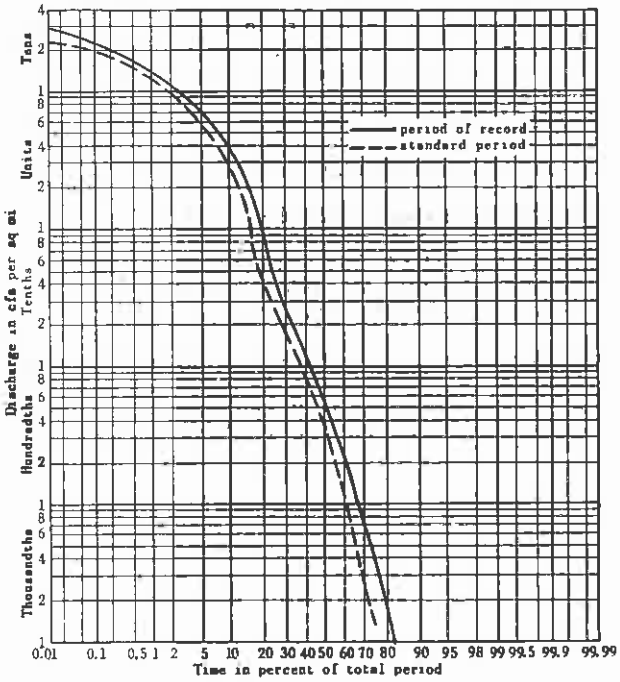
DRAINAGE AREA.--235 sq mi.

DURATION DATA AVAILABLE.--Water years 1941-50.

AVERAGE DISCHARGE, 1921-45.--203 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1940-50: Maximum discharge, 5,490 cfs Mar. 7, 1945; no flow at times most years.

REMARKS.--Albion municipal water plant diverts about 0.1 cfs at gage; diversion not included in records.



Bonpas Creek at Browns

Days of duration of discharge for Bonpas Creek at Browns

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1941-50	Percent of time
0	0	365	365	365	366	365	365	365	366	365	365	3,652	100.00
.0004	.1	145	340	292	220	276	365	336	333	345	362	3,014	82.53
.0008	.2	141	339	291	215	275	364	333	326	341	361	2,986	81.76
.0013	.3	132	337	290	210	274	363	330	320	332	357	2,945	80.64
.0021	.5	122	335	285	203	260	362	320	315	316	355	2,873	78.67
.0030	.7	111	332	280	181	253	352	310	304	309	345	2,777	76.04
.0042	1.0	105	319	274	168	248	337	301	297	303	341	2,693	73.74
.0064	1.5	96	315	268	160	243	327	290	289	294	336	2,618	71.69
.0094	2.2	76	302	262	148	230	313	276	271	274	326	2,478	67.85
.0136	3.2	69	296	257	138	224	302	269	254	267	314	2,390	65.44
.0196	4.6	60	283	247	134	212	281	261	233	257	296	2,264	61.99
.0289	6.8	51	255	232	123	195	261	255	210	247	276	2,105	57.64
.0426	10	44	230	215	115	186	238	237	193	233	262	1,953	53.48
.0638	15	35	203	176	110	178	222	219	178	224	247	1,792	49.07
.0936	22	29	184	150	103	167	215	201	158	209	220	1,636	44.80
.136	32	20	162	128	91	152	192	174	142	181	201	1,443	39.51
.196	46	14	145	108	74	143	170	143	126	152	185	1,260	34.50
.289	68	11	122	90	63	121	139	126	100	130	168	1,070	29.30
.426	100	8	106	78	54	109	116	103	88	115	151	928	25.41
.638	150	5	86	62	46	103	100	97	76	99	146	820	22.45
.936	220	5	74	56	39	96	86	88	62	85	135	726	19.88
1.36	320	4	65	46	32	90	79	74	54	74	125	643	17.61
1.96	460	1	53	41	25	82	72	63	41	66	114	558	15.28
2.89	680	---	38	34	20	75	58	46	31	57	88	447	12.24
4.26	1,000	---	28	26	10	61	42	26	21	50	66	330	9.04
6.38	1,500	---	8	14	8	46	19	8	10	35	40	188	5.15
9.36	2,200	---	2	12	5	29	7	---	3	16	30	104	2.85
13.6	3,200	---	---	2	---	9	---	---	---	5	10	26	.71
19.6	4,600	---	---	---	---	1	---	---	---	---	---	1	.027
28.9	6,800	---	---	---	---	---	---	---	---	---	---	-----	------

LITTLE WABASH RIVER AT WILCOX

LOCATION.--Lat 38°38′05″, long. 88°17′50″, in SE¼ sec. 3, T. 2 N., R. 8 E., 300 ft downstream from highway bridge at Wilcox and 0.3 mile downstream from Big Muddy Creek.

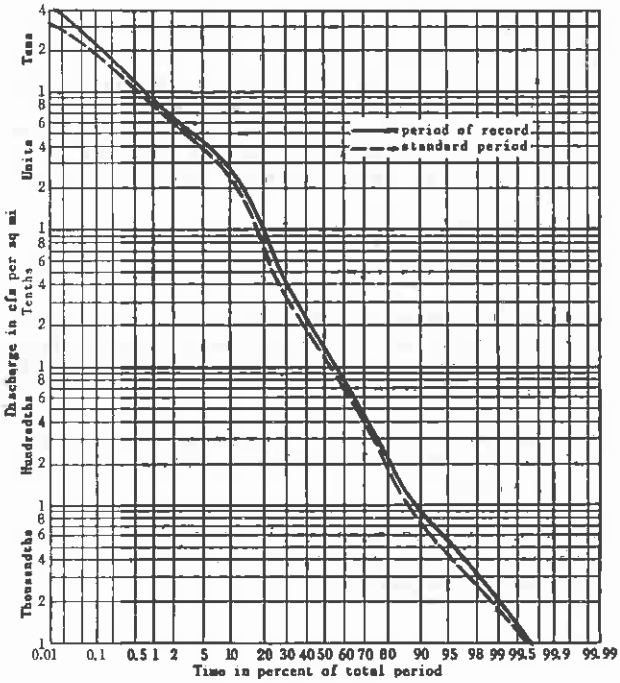
DRAINAGE AREA.--1,130 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1915-50.

AVERAGE DISCHARGE, 1921-45.--791 cfs.

EXTREMES.--1914-50: Maximum discharge, 47,000 cfs Jan. 5, 1950; minimum observed, 0.09 cfs Oct. 30, 1944.

REMARKS.--Duration data for 1930-45, published in "Water-supply characteristics of Illinois streams," is republished with minor revision to the 1930 and 1932 data.



Little Wabash River at Wilcox

Days of duration of discharge for Little Wabash River at Wilcox

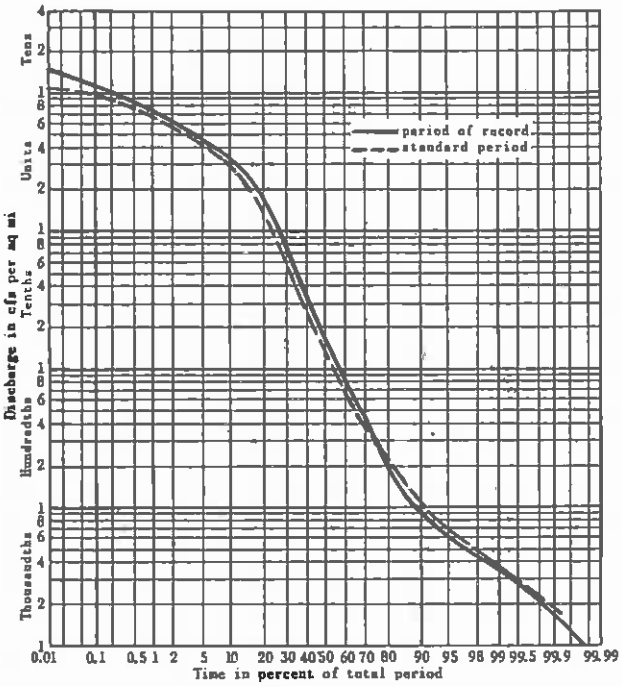
Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
0.0001	0.11	365	366	365	365	365	366	365	365	365	366	365	365	365
.0002	.17	365	366	365	365	365	366	365	365	365	366	365	365	365
.0002	.27	365	366	365	365	365	366	365	365	365	366	365	365	365
.0004	.43	365	366	365	365	365	366	365	365	365	366	365	365	365
.0006	.67	365	366	365	365	365	366	365	365	365	366	365	365	365
.0009	1.05	365	366	365	365	365	366	365	365	365	366	365	365	365
.0015	1.65	365	366	365	365	365	366	365	365	365	366	365	365	365
.0023	2.6	365	366	365	365	365	366	365	365	365	366	365	364	365
.0035	4.0	365	366	365	365	365	366	365	356	347	366	365	364	365
.0057	6.4	359	366	365	357	365	366	364	340	327	366	365	359	365
.0088	10.0	347	359	343	335	349	365	349	317	309	366	347	349	365
.0137	15.5	322	351	305	287	337	347	307	288	299	366	307	330	364
.0212	24	304	332	276	269	327	335	290	269	296	351	268	312	361
.0336	38	277	303	241	241	309	308	263	249	285	336	222	276	354
.0531	60	248	260	216	217	278	289	227	233	276	311	183	240	340
.0832	94	235	225	186	189	246	254	177	207	237	265	160	197	320
.128	145	208	176	166	148	211	225	148	181	190	227	133	177	293
.204	230	184	149	143	119	161	199	126	145	138	189	101	150	260
.319	360	125	122	91	104	124	171	95	111	106	166	74	120	215
.496	560	100	101	66	92	100	144	73	91	81	120	48	97	180
.779	880	88	89	60	76	82	119	55	72	61	94	35	81	147
1.24	1,400	73	64	52	62	61	99	33	56	51	77	25	64	119
1.95	2,200	56	44	46	51	38	79	21	49	36	53	18	47	87
3.01	3,400	40	30	32	31	29	58	11	43	22	23	5	22	58
4.73	5,350	23	14	8	15	18	16	5	27	8	2	1	6	22
7.43	8,400	8	9	3	9	5	5	---	12	3	---	---	2	3
11.5	13,000	4	4	1	6	1	---	---	5	2	---	---	1	2
18.6	21,000	3	2	---	---	---	---	---	2	---	---	---	---	1
29.2	33,000	2	1	---	---	---	---	---	---	---	---	---	---	---
45.1	51,000	---	---	---	---	---	---	---	---	---	---	---	---	---

Days of duration of discharge for Little Wabash River at Wilcox--continued

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940
0.0001	0.11	366	365	365	365	366	365	365	365	366	365	365	365	366
.0002	.17	366	365	365	365	366	365	365	365	366	365	365	365	366
.0002	.27	366	365	365	365	366	365	365	365	366	365	365	365	366
.0004	.43	366	365	363	365	366	365	365	365	366	365	365	365	366
.0006	.67	366	365	363	365	366	365	365	365	365	365	365	365	366
.0009	1.05	366	365	361	365	366	365	365	365	361	365	365	365	366
.0015	1.65	366	365	357	365	366	364	363	365	352	365	365	365	361
.0023	2.6	366	365	338	365	366	356	342	365	334	365	365	365	350
.0035	4.0	366	365	316	365	366	350	329	361	312	364	365	365	344
.0057	6.4	366	365	303	356	366	337	307	357	293	356	363	349	298
.0088	10	366	364	297	328	365	321	278	335	269	341	360	320	220
.0137	15	360	352	268	267	340	309	256	328	244	329	356	308	198
.0212	24	350	330	260	240	320	297	231	317	230	293	328	299	185
.0336	38	339	321	234	186	287	274	193	295	187	253	293	273	178
.0531	60	325	302	200	142	262	249	154	272	163	225	259	235	154
.0832	94	302	278	181	99	221	224	115	254	141	199	217	207	130
.128	145	276	254	158	81	188	207	91	221	111	186	188	178	98
.204	230	227	220	130	57	150	186	62	193	90	148	155	141	75
.319	360	201	179	107	37	109	164	50	159	70	127	125	116	54
.496	560	165	163	88	23	92	140	38	125	55	110	104	94	38
.779	880	138	143	72	16	73	118	28	102	44	96	80	77	28
1.24	1,400	101	108	59	12	57	102	14	80	33	74	68	64	19
1.95	2,200	63	76	45	8	39	85	4	65	16	54	53	44	16
3.01	3,400	39	48	32	6	34	65	---	49	9	30	32	29	11
4.73	5,350	14	30	23	---	20	27	---	26	---	13	11	11	---
7.43	8,400	2	8	12	---	3	5	---	9	---	5	7	3	---
11.5	13,000	---	4	5	---	---	1	---	1	---	---	3	1	---
18.6	21,000	---	---	2	---	---	---	---	---	---	---	1	---	---
29.2	33,000	---	---	---	---	---	---	---	---	---	---	---	---	---
45.1	51,000	---	---	---	---	---	---	---	---	---	---	---	---	---

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1915-50	Percent of time
0.0001	0.11	365	365	365	366	365	365	365	366	365	365	13,149	100.00
.0002	.17	365	365	365	366	362	365	365	366	365	365	13,146	99.98
.0002	.27	365	365	365	366	357	365	365	366	365	365	13,141	99.94
.0004	.43	365	365	365	366	357	365	365	366	365	365	13,139	99.92
.0006	.67	365	365	365	366	354	365	365	366	365	365	13,135	99.89
.0009	1.05	364	365	365	366	351	365	365	366	365	365	13,125	99.82
.0015	1.65	363	365	365	365	347	365	365	366	365	365	13,098	99.61
.0023	2.6	353	364	361	352	343	365	365	366	365	365	12,988	98.78
.0035	4.0	338	364	354	323	310	365	361	366	365	365	12,799	97.34
.0057	6.4	316	363	309	260	279	365	356	366	365	365	12,424	94.49
.0088	10	300	354	287	234	270	365	353	350	352	365	11,894	90.46
.0137	15	281	347	282	209	249	354	350	334	346	365	11,242	85.50
.0212	24	257	340	275	192	235	353	335	321	337	356	10,671	81.15
.0336	38	209	332	267	165	217	342	311	308	319	348	9,795	74.49
.0531	60	159	312	253	139	191	309	296	269	299	324	8,811	67.01
.0832	94	116	293	230	125	172	258	254	228	274	283	7,699	58.55
.128	145	80	247	191	100	155	217	225	187	245	247	6,614	50.30
.204	230	57	205	142	84	144	197	190	155	207	214	5,493	41.78
.319	360	40	169	107	68	126	156	159	128	169	185	4,429	33.68
.496	560	30	143	87	57	103	132	130	109	139	165	3,623	27.55
.779	880	18	118	72	40	91	103	99	83	106	145	2,949	22.43
1.24	1,400	14	91	57	23	80	80	73	63	82	125	2,315	17.61
1.95	2,200	3	67	45	15	69	58	55	43	65	96	1,745	13.27
3.01	3,400	---	34	28	13	56	31	19	28	52	69	1,118	8.50
4.73	5,350	---	10	19	11	38	15	5	14	30	41	523	3.98
7.43	8,480	---	---	15	6	16	9	---	8	14	14	195	1.48
11.5	13,000	---	---	8	---	4	2	---	---	1	7	63	.48
18.6	21,000	---	---	6	---	1	---	---	---	---	4	22	.17
29.2	33,000	---	---	1	---	---	---	---	---	---	2	6	.046
45.1	51,000	---	---	---	---	---	---	---	---	---	---	-----	------

LITTLE WABASH RIVER AT CARMI



Little Wabash River at Carmi

LOCATION.--Lat 38°03'40", long. 88°09'35", near center of E½ sec. 25, T. 5 S., R. 9 E., at Possum Bridge, 2.3 miles south of Main Street Bridge in Carmi, and 7¾ miles downstream from Skillet Fork.

DRAINAGE AREA.--3,090 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--2,590 cfs; from correlation of observed mean annual discharges with concurrent values for Skillet Fork at Wayne City.

EXTREMES.--1939-50: Maximum discharge, 39,400 cfs Jan. 11, 1950; minimum, 4.7 cfs Oct. 30, to Nov. 2, 1944.

Days of duration of discharge for Little Wabash River at Carmi

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
0.0010	3.2	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0015	4.6	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
.0022	6.8	366	357	365	365	366	360	365	365	366	365	365	4,005	99.68
.0032	10	360	353	365	365	364	355	365	365	366	365	365	3,988	99.25
.0049	15	333	353	365	352	341	339	365	365	366	365	365	3,909	97.29
.0071	22	279	335	365	322	277	296	365	365	366	365	365	3,700	92.09
.0104	32	208	310	357	296	244	285	365	365	362	355	365	3,512	87.41
.0149	46	176	285	348	291	227	270	365	361	343	349	365	3,380	84.12
.0220	68	161	242	338	281	200	253	364	335	337	346	365	3,222	80.19
.0324	100	151	197	330	273	161	237	352	327	327	339	358	3,052	75.96
.0485	150	145	157	315	255	143	210	332	309	311	318	337	2,832	70.48
.0712	220	132	113	299	235	132	194	305	291	275	294	307	2,577	64.14
.104	320	105	85	263	190	112	181	260	265	237	272	284	2,254	56.10
.149	460	92	57	244	161	99	173	238	245	218	261	261	2,049	51.00
.220	680	79	41	218	146	84	161	219	214	197	229	239	1,827	45.47
.324	1,000	67	31	196	127	76	149	190	187	168	196	218	1,605	39.95
.485	1,500	58	25	174	110	65	139	171	167	139	166	213	1,427	35.52
.712	2,200	51	16	163	96	60	132	157	147	114	149	200	1,285	31.98
1.04	3,200	39	1	133	74	53	125	134	115	96	138	178	1,086	27.03
1.49	4,600	30	---	97	55	38	118	106	83	83	125	164	899	22.37
2.20	6,800	24	---	52	35	32	101	74	30	50	90	131	619	15.41
3.24	10,000	15	---	---	29	24	74	39	9	18	65	83	356	8.86
4.85	15,000	---	---	---	19	---	36	---	---	---	18	45	118	2.94
7.12	22,000	---	---	---	10	---	---	---	---	---	10	15	35	.87
10.4	32,000	---	---	---	2	---	---	---	---	---	1	6	9	.22
14.9	46,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

SKILLET FORK AT WAYNE CITY

LOCATION.--Lat 38°21′25″, long. 88°35′00″, in SW¼ sec. 7, T. 2 S., R. 6 E., an eighth of a mile downstream from Shoe Creek, half a mile downstream from bridge on State Highway 15, 0.9 mile upstream from Southern Railway bridge, and 1 mile north of Wayne City.

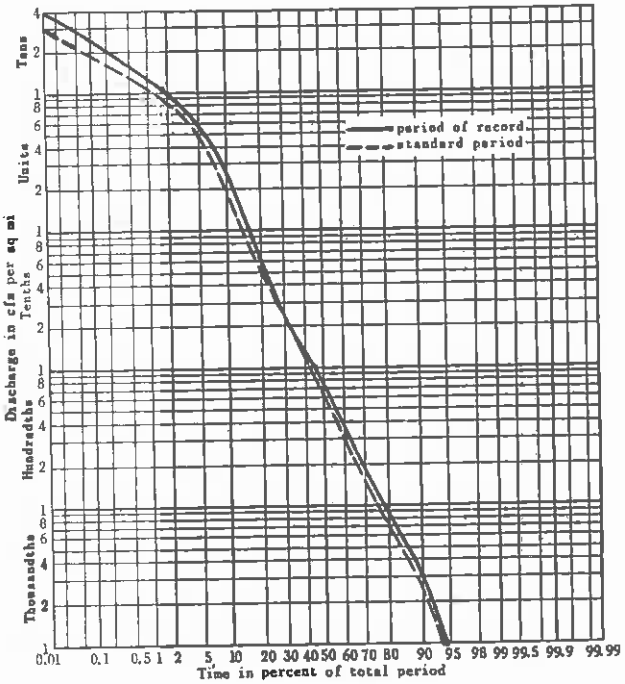
DRAINAGE AREA.--475 sq mi.

DURATION DATA AVAILABLE.--Water years 1909-12, 1915-21, 1929-50.

AVERAGE DISCHARGE, 1921-45.--384 cfs; from multiple correlation of observed mean monthly discharges with concurrent values for Big Muddy River at Plumfield and Kaskaskia River at Vandalia.

EXTREMES.--1908-12, 1914-21, 1928-50: Maximum discharge, 20,000 cfs Jan. 5, 1950; no flow at times during 1908, 1936, 1937, 1940, 1944.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

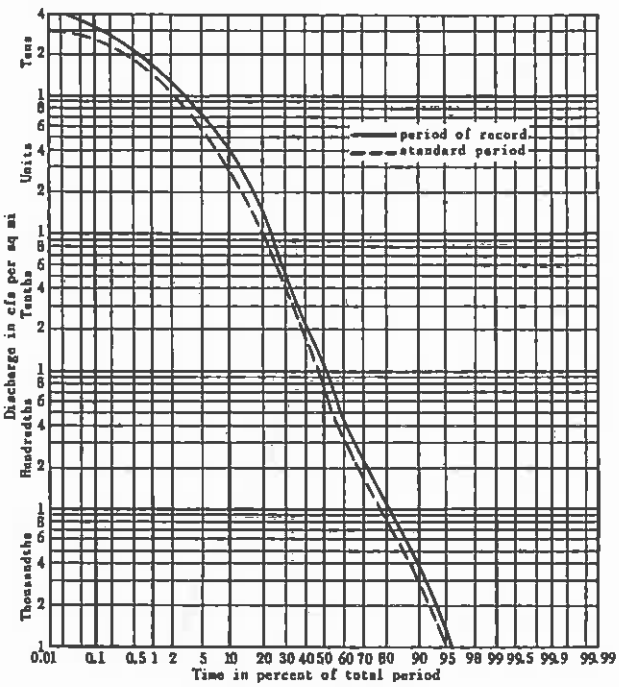


Skillet Fork at Wayne City

Days of duration of discharge for Skillet Fork at Wayne City

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1946	'47	'48	'49	'50	Total	Percent of time
0	0	365	365	366	365	365	12,053	100.00
.0021	1	361	360	364	365	365	11,233	93.20
.0042	2	347	346	360	363	358	10,565	87.65
.0063	3	338	332	355	354	352	10,059	83.46
.0084	4	334	328	350	346	347	9,661	80.15
.0126	6	323	315	333	324	332	8,913	73.95
.0168	8	315	306	307	317	325	8,453	70.13
.0232	11	306	301	294	305	319	7,963	66.07
.0337	16	286	287	282	287	299	7,290	60.48
.0484	23	262	272	235	273	276	6,544	54.29
.0653	31	232	256	215	255	245	5,970	49.53
.0905	43	208	230	187	236	225	5,335	44.26
.122	58	194	195	168	220	212	4,792	39.76
.164	78	176	176	152	198	194	4,333	35.95
.221	105	151	157	132	176	174	3,846	31.91
.295	140	134	138	120	158	167	3,404	28.24
0.400	190	117	124	107	139	160	2,997	24.87
.543	258	99	99	89	119	144	2,611	21.66
.737	350	86	86	71	102	126	2,244	18.62
1.02	485	76	68	56	96	113	1,911	15.85
1.40	665	61	49	45	84	103	1,614	13.39
1.88	895	49	36	37	66	93	1,354	11.23
2.61	1,240	41	23	32	57	84	1,133	9.40
3.60	1,710	29	14	21	46	73	904	7.50
4.80	2,280	24	10	14	33	59	734	6.09
6.23	2,960	18	6	9	26	41	544	4.51
8.40	3,990	12	3	4	20	17	307	2.55
12.0	5,700	5	1	2	8	6	126	1.05
16.4	7,800	2	---	---	4	5	36	.30
22.1	10,500	1	---	---	2	2	15	.12
29.5	14,000	---	---	---	---	1	6	.050
40.0	19,000	---	---	---	---	1	1	.008
54.7	26,000	---	---	---	---	---	-----	------

SALINE RIVER NEAR JUNCTION



Saline River near Junction

LOCATION.--Lat 37°41′52″, long. 88°16′00″, in NE¼ sec. 36, T. 9 S., R. 8 E., at old Island Ripple Bridge site, 2½ miles southwest of Junction, 4 miles downstream from North Fork, and 13¾ miles upstream from mouth.

DRAINAGE AREA.--1,040 sq mi, approximately.

DURATION DATA AVAILABLE.--Water years 1940-50.

AVERAGE DISCHARGE, 1921-45.--983 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1939-50: Maximum discharge, 37,400 cfs Mar. 19, 1945; maximum daily reverse flow, 6,260 cfs Apr. 21, 1948; minimum uneffected by backwater, 0.9 cfs Sept. 22, 23, 1944.

REMARKS.--Backwater from Ohio River frequently causes reversal of flow at station and occasionally, at extremely high stages, causes diversion from Wabash River to Saline River just above station.

Days of duration of discharge for Saline River near Junction

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1940-50	Percent of time
-14.4	-15,000	366	365	365	365	366	365	365	365	366	365	365	4,018	100.00
-2.50	-2,600	365	365	365	362	366	365	365	365	362	365	363	4,008	99.75
-.433	-450	355	365	365	349	366	364	365	365	357	361	361	3,973	98.88
-.0769	-80	350	357	364	338	364	360	362	365	357	354	361	3,932	97.86
-.0135	-14	347	355	364	338	364	359	362	365	357	354	360	3,925	97.69
-.0019	-2.0	346	355	364	338	364	358	362	365	357	354	360	3,923	97.64
0	0	346	355	364	338	364	358	362	365	357	354	360	3,923	97.64
.0003	.3	339	350	357	331	360	349	359	360	349	353	356	3,863	96.14
.0010	1.0	339	346	357	331	360	349	359	360	349	353	356	3,859	96.04
.0022	2.3	309	298	356	329	324	324	359	360	349	353	356	3,717	92.51
.0041	4.3	284	283	354	320	299	284	359	360	349	353	356	3,601	89.62
.0073	7.6	212	260	345	295	271	265	359	353	346	349	356	3,411	84.89
.0125	13	166	233	332	257	221	248	356	329	338	339	356	3,175	79.02
.0202	21	151	180	313	245	154	237	329	312	302	325	352	2,900	72.18
.0336	35	136	128	287	232	134	219	315	285	276	295	346	2,653	56.03
.0548	57	121	101	255	218	124	199	303	264	245	275	334	2,439	60.70
.0885	92	106	82	226	210	113	186	264	243	212	254	307	2,203	54.83
.144	150	89	51	191	189	96	171	237	212	177	230	272	1,915	47.66
.231	240	79	37	155	169	84	164	197	171	144	206	234	1,640	40.82
.375	390	67	26	131	145	61	157	160	140	111	175	212	1,385	34.47
.606	630	56	14	106	113	54	139	127	101	100	149	197	1,156	28.77
.962	1,000	49	9	92	88	47	127	103	77	84	133	187	996	24.79
1.54	1,600	39	4	66	62	33	105	79	56	67	104	161	776	19.31
2.50	2,600	30	1	41	42	27	84	60	40	59	85	136	605	15.06
4.14	4,300	20	---	24	28	12	72	38	16	38	70	111	429	10.68
6.64	6,900	12	---	6	19	5	54	17	1	17	39	73	243	6.05
10.6	11,000	---	---	2	3	2	32	---	---	2	4	47	92	2.29
17.3	18,000	---	---	---	---	---	14	---	---	---	---	26	40	1.00
27.9	29,000	---	---	---	---	---	9	---	---	---	---	11	20	.50
44.2	46,000	---	---	---	---	---	---	---	---	---	---	---	-----	------

MIDDLE FORK OF SALINE RIVER NEAR HARRISBURG

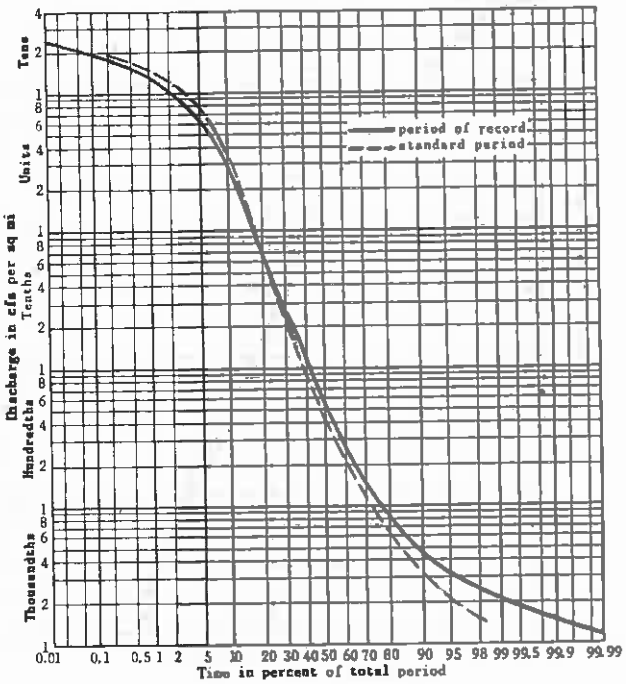
LOCATION.--Lat 37°44′25″, long. 88°30′00″, in NW¼SW¼ sec. 13, T. 9 S., R. 6 E., at highway bridge 2 miles east of Harrisburg, Saline County.

DRAINAGE AREA.--198 sq mi.

DURATION DATA AVAILABLE.--Water years 1923-26, 1928, 30-32.

AVERAGE DISCHARGE, 1921-45.--201 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1922-32; Maximum discharge, 4,050 cfs June 21, 1928; minimum 0.2 cfs Sept. 21, 22, 26, 27, 1931.

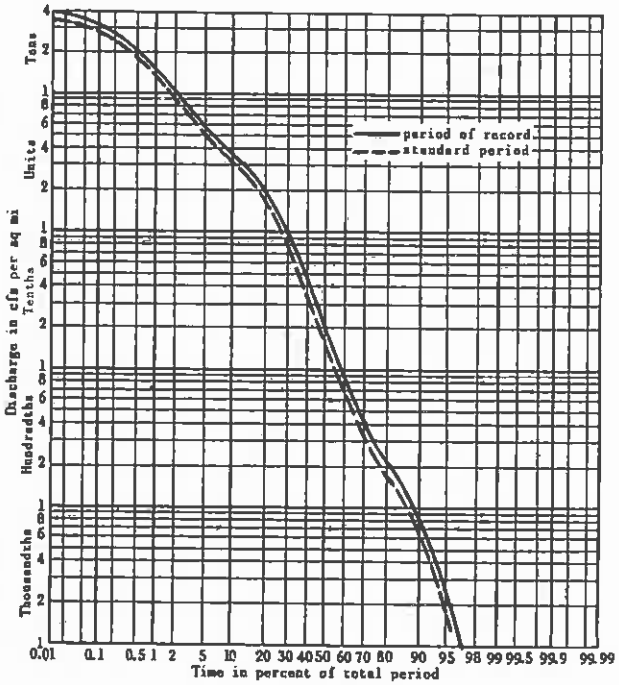


Middle Fork of Saline River near Harrisburg

Days of duration of discharge for Middle Fork of Saline River near Harrisburg

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	Total	Percent of time
0.0010	0.2	365	366	365	365	---	366	---	365	365	366	2,923	100.00
.0015	.3	365	366	365	365	---	366	---	365	361	366	2,919	99.86
.0025	.5	360	366	362	365	---	364	---	335	336	360	2,848	97.43
.0035	.7	358	365	357	355	---	354	---	315	327	329	2,760	94.42
.0050	1.0	349	353	317	331	---	343	---	276	309	315	2,593	88.71
.0071	1.4	326	332	268	296	---	328	---	259	269	302	2,380	81.42
.0101	2.0	296	312	201	283	---	323	---	247	243	277	2,182	74.65
.0146	2.9	274	293	163	266	---	312	---	231	214	253	2,006	68.63
.0207	4.1	260	288	136	262	---	298	---	218	163	244	1,869	63.94
.0298	5.9	236	280	119	257	---	279	---	191	141	232	1,735	59.36
.0424	8.4	226	272	110	244	---	265	---	176	122	222	1,637	56.00
.0606	12	218	259	93	227	---	255	---	163	104	207	1,526	52.21
.0859	17	191	232	64	208	---	234	---	148	78	202	1,357	46.42
.121	24	166	205	52	188	---	221	---	137	60	172	1,201	41.09
.177	35	148	181	41	166	---	193	---	128	52	151	1,060	36.26
.248	49	135	155	32	144	---	161	---	100	39	130	896	30.65
.354	70	120	129	27	121	---	133	---	91	35	109	765	26.17
.505	100	103	117	25	100	---	111	---	78	27	97	658	22.51
.707	140	92	103	22	87	---	92	---	71	24	85	576	19.71
1.01	200	83	89	20	71	---	83	---	61	21	68	496	16.97
1.46	290	73	77	18	63	---	70	---	55	16	55	427	14.61
2.07	410	65	60	14	54	---	63	---	46	14	44	360	12.32
2.98	590	50	42	9	48	---	57	---	36	11	34	287	9.82
4.24	840	35	32	4	40	---	45	---	30	6	25	217	7.42
6.06	1,200	23	21	---	27	---	27	---	26	4	19	147	5.03
8.59	1,700	17	14	---	12	---	18	---	13	2	13	89	3.04
12.1	2,400	3	5	---	3	---	12	---	4	---	4	31	1.06
17.7	3,500	---	---	---	---	---	4	---	---	---	---	4	.14
24.8	4,900	---	---	---	---	---	---	---	---	---	---	-----	------

CACHE RIVER AT FORMAN



Cache River at Forman

LOCATION.--Lat 37°21'00", long. 88°54'50", in NW¼ sec. 31, T. 13 S., R. 3 E., 75 ft upstream from Chicago, Burlington & Quincy Railroad bridge at Forman and 1 mile downstream from Dutchman Creek.

DRAINAGE AREA.--242 sq mi.

DURATION DATA AVAILABLE.--Water years 1924-50.

AVERAGE DISCHARGE, 1921-45.--216 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1922-50: Maximum discharge, 9,120 cfs Mar. 13, 1935; no flow at times.

REMARKS.--For summary of data prior to 1946, see "Water-supply characteristics of Illinois streams."

Days of duration of discharge for Cache River at Forman

Cfs per sq mi	Cfs	Days equalled or exceeded, Water year 1946	'47	'48	'49	'50	Total	Percent of time
0	0	365	365	366	365	365	9,862	100.00
.0004	.1	365	365	366	365	365	9,693	98.29
.0008	.2	365	364	366	365	365	9,607	97.41
.0012	.3	365	358	365	365	365	9,554	96.88
.0021	.5	365	351	355	361	365	9,448	95.80
.0029	.7	365	331	351	356	365	9,335	94.66
.0041	1.0	365	320	348	352	364	9,203	93.32
.0062	1.5	365	315	338	344	363	8,985	91.11
.0091	2.2	362	303	323	337	362	8,734	88.56
.0132	3.2	356	296	315	327	359	8,455	85.73
.0190	4.6	344	287	302	318	351	8,084	81.97
.0281	6.8	330	277	292	306	344	7,568	76.74
.0413	10	320	264	273	299	337	7,079	71.78
.0620	15	305	252	253	283	318	6,508	65.99
.0909	22	284	233	232	258	301	6,059	61.44
0.132	32	264	210	200	237	288	5,586	56.64
.190	46	228	189	176	216	278	5,113	51.85
.281	68	201	161	158	199	262	4,607	46.71
.413	100	166	138	137	179	245	4,089	41.46
.620	150	137	108	111	164	231	3,542	35.92
.909	220	118	89	95	141	210	3,001	30.43
1.32	320	97	71	79	126	188	2,459	24.93
1.90	460	84	57	69	102	161	1,949	19.76
2.81	680	61	37	52	87	133	1,382	14.01
4.13	1,000	37	20	30	60	89	818	8.29
6.20	1,500	12	3	13	28	49	425	4.31
9.09	2,200	4	---	6	15	27	220	2.23
13.2	3,200	---	---	3	6	22	127	1.29
19.0	4,600	---	---	---	2	12	62	.63
28.1	6,800	---	---	---	---	2	15	.15
41.3	10,000	---	---	---	---	---	-----	------

BIG CREEK NEAR WETAUG

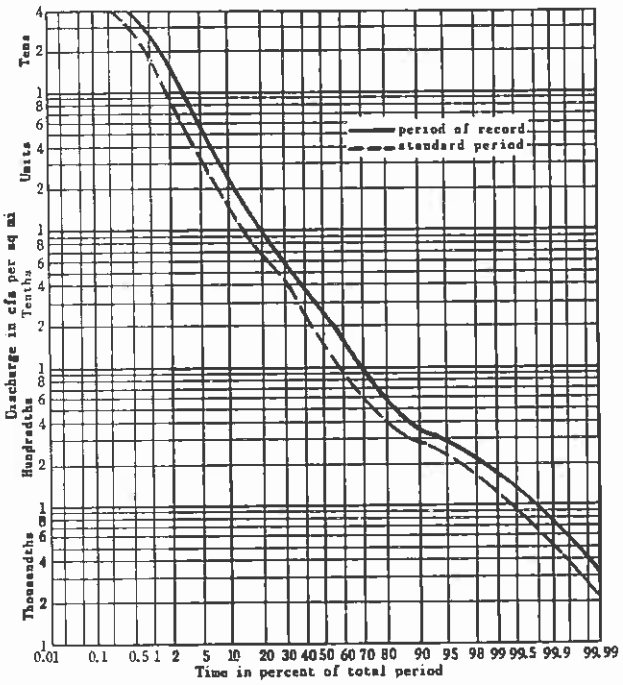
LOCATION.--Lat 37°19′00″, long. 89°07′55″, in SW¼ sec. 5, T. 14 S., R. 1 E., 300 ft upstream from highway bridge, 1 mile upstream from Little Creek, and 2 miles southeast of Wetaug.

DRAINAGE AREA.--32.2 sq mi.

DURATION DATA AVAILABLE.--Water years 1942-50.

AVERAGE DISCHARGE, 1921-45.--35.1 cfs; from correlation of observed mean annual discharges with concurrent values for Big Muddy River at Plumfield.

EXTREMES.--1941-50: Maximum discharge, 7,200 cfs Mar. 19, 1943; minimum, 0.4 cfs on many days in 1948.



Big Creek near Wetaug

Days of duration of discharge for Big Creek near Wetaug

Cfs per sq mi	Cfs	Days when discharge equalled or exceeded that shown — Water year 1942	1943	1944	1945	1946	1947	1948	1949	1950	1942-50	Percent of time
0.0031	0.10	365	365	366	365	365	365	366	365	365	3,287	100.00
.0047	.15	365	365	366	364	365	365	366	365	365	3,286	99.97
.0068	.22	365	365	366	361	365	365	366	365	365	3,283	99.88
.0100	.32	365	365	366	361	365	365	366	365	365	3,283	99.88
.0143	.46	365	365	366	353	365	365	356	365	365	3,265	99.33
.0211	.68	357	365	363	339	365	354	345	365	365	3,218	97.90
.0311	1.0	334	344	321	304	365	313	324	355	365	3,025	92.03
.0466	1.5	313	312	222	279	356	281	313	335	359	2,770	84.27
.0683	2.2	299	286	188	240	339	273	282	316	349	2,572	78.25
.0994	3.2	272	262	140	200	309	253	241	275	330	2,282	69.43
.143	4.6	233	238	122	175	268	228	193	261	317	2,035	61.91
.211	6.8	196	202	110	151	226	190	154	226	259	1,714	52.14
.311	10	162	157	94	137	183	154	130	195	226	1,438	43.75
.466	15	132	110	73	126	131	115	101	156	194	1,138	34.62
.683	22	108	83	60	107	93	92	81	119	166	909	27.65
.994	32	77	59	40	82	67	61	62	92	129	669	20.35
1.43	46	54	35	28	63	43	42	45	67	101	478	14.54
2.11	68	40	28	19	46	33	32	28	42	80	348	10.59
3.11	100	29	20	13	42	27	16	20	33	63	263	8.00
4.66	150	20	12	8	31	19	13	11	26	49	189	5.75
6.83	220	15	8	2	27	16	7	9	22	40	146	4.44
9.94	320	6	5	2	21	11	5	6	17	35	108	3.29
14.3	460	5	4	1	15	8	2	5	12	21	73	2.22
21.1	680	4	3	1	11	5	1	5	6	14	50	1.52
31.1	1,000	3	2	1	5	3	---	2	2	8	26	.79
46.6	1,500	---	2	1	2	1	---	---	1	4	11	.33
68.3	2,200	---	1	---	---	---	---	---	---	1	2	.061
99.4	3,200	---	1	---	---	---	---	---	---	---	1	.030
143	4,600	---	---	---	---	---	---	---	---	---	-----	------

REGIONAL ANALYSES

PARAMETERS OF THE FLOW-DURATION CURVE

As will be noted from the preceding sections of this report, flow-duration curves, when plotted on logarithmic-probability coordinates, tend to approach straight lines. If it be assumed that the curves truly are straight lines throughout their entire range, they may be completely defined by two parameters: the variability, and the average discharge. The variability fixes the slope of the curve; the mean discharge fixes the location. It is readily conceded that, at its extremities, the duration curve may depart appreciably from the logarithmic-probability straight line. The importance of such departures, and techniques for providing for them, subsequently will be considered. But attention first should be given to the two fundamental parameters: variability, and average discharge.

VARIABILITY INDEX

Variability, as the name implies, refers to the variations which occur among the daily discharges of a given stream. It is conveniently expressed in terms of a numerical index, as proposed by Lane and Lei (1950). Briefly stated, this variability index is the standard deviation of the logarithms of 10 discharges, namely, the discharges which are equalled or exceeded 5%, 15%, 25%, ... 95% of the time. (For further details, see page 182.)

The variability index for the standard-period (1921-45) duration curve was computed for each of the station records presented in the preceding section. Values were found to be as shown in Table 4, pages 162-63. Study of these values discloses not only that the index value varies from region to region, but also that, within a given region, the index value tends to decrease as the size of the drainage area increases. To minimize the effect of size of area, each computed index was adjusted to an area of 100 sq mi. These adjusted values then were plotted on a map, each at the center of its area, and used as the basis for drawing lines of equal variability as shown by Figure 8, page 165. (The extent of agreement between values from Figure 8 and the values computed from station data is discussed in a subsequent paragraph. (See page 164.)

Table 4.--Station data for regional analyses

	Station	Area sq mi	Center of area lat.	Center of area long.	Var. index	Cfs/sq mi Avg.	Cfs/sq mi 1.0%	Cfs/sq mi 99%
224	Galena River at Galena	192	42°34'	90°21'	0.282	0.594	----	------
224.5	East Fork Galena River at Council Hill	20.1	42°29'	90°17'	.407	.607	5.40	0.0285
229	Apple River near Hanover	244	42°24'30"	90°09'30"	.412	.668	6.20	.0295
230.2	Plum River below Carroll Creek, near Savanna	231	42°12'	89°56'	.500	.623	6.00	.0192
236	Rock River at Rockton	6,290	42°54'40"	89°14'10"	.333	.574	2.71	.116
237.5	Rock River at Oregon	8,120	42°45'10"	89°09'10"	.311	.571	2.67	.132
239	Rock River at Como	8,700	42°41'40"	89°09'00"	.319	.572	2.69	.102
247	Pecatonica River at Freeport	1,330	42°41'00"	89°56'20"	.283	.656	3.79	.148
247.5	Pecatonica River at Shirland	2,540	42°38'00"	89°43'10"	.288	.642	3.25	.160
248	Sugar River near Brodhead, Wis.	536	42°49'	89°32'	.233	.606	4.00	.179
248.3	Kishwaukee River at Belvidere	525	42°16'30"	88°36'00"	.425	.552	3.78	.0400
248.7	Kishwaukee River near Perryville	1,090	42°09'10"	88°39'20"	.452	.553	3.45	.0640
249	South Branch Kishwaukee River at DeKalb	70	41°52'	88°50'	.997	.660	5.45	------
249.1	South Branch Kishwaukee River near Fairdale	386	41°59'	88°43'	.604	.528	4.50	.0200
249.2	Killbuck Creek near Monroe Center	114	42°01'	88°58'	.505	.489	4.90	.0305
249.3	Leaf River at Leaf River	102	42°09'	89°31'	.323	.584	4.00	.0990
249.4	Kyte River near Flagg Center	125	41°53'	89°04'	.532	.496	4.90	.0280
249.5	Elkhorn Creek near Penrose	153	42°00'40"	89°37'55"	.340	.553	4.20	.0920
249.6	Rock Creek near Coleta	81.6	42°00'	89°50'	.440	.706	----	------
249.7	Rock Creek near Morrison	143	41°57'25"	89°53'00"	.369	.628	4.90	.0660
249.9	Green River at Amboy	199	41°45'00"	89°08'10"	.526	.460	4.35	.0225
250	Green River near Geneseo	958	41°31'50"	89°39'50"	.450	.571	3.60	.0455
250.5	Mill Creek at Milan	62.5	41°22'	90°36'	.597	.573	7.00	.0098
263.5	Edwards River near Orion	163	41°13'40"	90°08'55"	.604	.588	6.40	.0128
264	Edwards River near New Boston	434	41°14'50"	90°26'20"	.560	.590	5.25	.0230
265	Pope Creek near Keithsburg	171	41°09'30"	90°35'00"	.583	.591	6.55	.0160
265.5	Henderson Creek near Little York	151	41°02'10"	90°28'10"	.721	.606	6.65	------
266	Henderson Creek near Oquawka	428	41°01'00"	90°34'30"	.637	.647	7.30	.0087
266.3	North Henderson Creek near Seaton	66.4	41°07'00"	90°34'30"	.732	.577	6.20	.0012
266.6	Cedar Creek at Little York	128	40°55'30"	90°33'00"	.584	.708	6.75	.0132
266.8	South Henderson Creek at Biggsville	81.4	40°50'30"	90°44'30"	.790	.666	6.85	------
289.5	Bear Creek near Marcelline	348	40°12'40"	91°11'40"	.860	.526	10.6	------
309.1	The Sny at Atlas	451	39°42'00"	91°05'40"	.516	.681	----	------
309.2	Hadley Creek at Kinderhook	72.7	39°44'	91°02'	.757	.700	13.2	------
309.25	Hadley Creek near Shinn	73.6	39°44'	91°02'	.976	.700	17.0	------
309.5	Bay Creek at Pittsfield	39.6	39°40'	90°51'	.868	.619	12.5	------
309.7	Bay Creek at Nebo	162	39°33'20"	90°46'40"	.792	.617	10.2	------
311.3	Des Plaines River near Gurnee	215	42°30'00"	87°59'50"	1.36	.651	6.25	------
311.6	Des Plaines River near Des Plaines	374	42°24'50"	87°59'30"	1.12	.583	7.75	------
312	Des Plaines River at Riverside	635	42°13'00"	87°58'50"	.789	.624	5.15	------
325.2	Salt Creek at Western Springs	122	41°58'30"	88°01'50"	.712	.703	6.75	.0098
325.8	Hickory Creek at Joliet	107	41°32'10"	87°54'00"	.524	.723	8.00	.0108
326	Spring Creek at Joliet	19.7	41°34'	88°00'	.401	.766	6.55	.0145
327.5	Du Page River at Troy	325	41°47'10"	88°08'30"	.462	.646	5.60	.0295
330	Kankakee River at Momence	2,340	41°21'30"	86°49'20"	.295	.756	2.85	.182
332	Kankakee River near Wilmington	5,250	41°06'40"	87°17'30"	.412	.726	4.00	.0680
333.2	Singleton Ditch at Illinoi	228	41°18'	87°23'	.480	.645	5.35	.0570
333.5	Iroquois River at Iroquois	682	40°53'40"	87°13'40"	.644	.694	5.00	.0195
334	Iroquois River near Chebanse	2,120	40°48'05"	87°35'40"	.717	.693	5.70	.0088
334.5	Mazon River near Coal City	470	41°05'30"	88°22'20"	1.42	.615	8.25	------
335.5	Fox River at Wilmot, Wis.	880	42°48'10"	88°18'50"	.379	.522	3.25	.0700
336	Fox River at Algonquin	1,364	42°36'20"	88°18'10"	.410	.543	2.71	.0375
340	Fox River at Dayton	2,570	42°12'30"	88°26'30"	.410	.549	2.85	.0680
340.5	North Fork Vermilion River near Charlotte	184	40°49'10"	88°11'50"	1.19	.603	6.40	------
340.7	Vermilion River at Pontiac	568	40°47'10"	88°22'50"	.928	.576	6.40	------
342	Vermilion River at Lowell	1,230	40°53'30"	88°35'50"	.808	.595	6.55	.0058
343	Bureau Creek at Princeton	186	41°32'40"	89°18'40"	.796	.667	6.75	.0035
343.5	Bureau Creek at Bureau	481	41°27'40"	89°23'30"	.477	.653	5.55	.0525

Table 4.--Station data for regional analyses--continued

	Station	Area sq mi	Center of area lat.	Center of area long.	Var. index	Cfs/sq mi Avg.	1.0%	99%
344	West Bureau Creek at Wyanet	83.3	41°28'10"	89°31'50"	0.892	0.595	6.60	------
345	East Bureau Creek near Bureau	101	41°26'20"	89°17'50"	1.25	.482	6.10	------
345.3	Crow Creek near Washburn	123	40°56'30"	89°09'50"	1.37	.476	4.65	------
345.5	Farm Creek at East Peoria	60.9	40°40'30"	89°28'00"	1.18	.688	8.50	------
345.7	Kickapoo Creek near Kickapoo	120	40°51'50"	89°43'50"	.668	.574	5.60	0.0059
345.8	Kickapoo Creek at Peoria	296	40°48'00"	89°47'10"	.676	.591	6.95	.0088
345.9	Mackinaw River near Congerville	764	40°39'30"	88°55'10"	.892	.652	6.80	.0023
346	Mackinaw River near Green Valley	1,100	40°37'10"	89°04'00"	.617	.614	5.80	.0232
347	Money Creek above Lake Bloomington	51.9	40°32'30"	88°51'10"	1.46	.688	10.4	------
347.2	Hickory Creek above Lake Bloomington	10.1	40°36'30"	88°57'20"	1.65	.691	7.00	------
347.8	Spoon River at London Mills	1,070	41°00'30"	89°59'10"	.640	.582	5.90	.0150
348	Spoon River at Seville	1,600	40°54'10"	90°07'10"	.637	.619	6.00	.0132
349	Sangamon River at Monticello	550	40°17'40"	88°26'20"	.752	.775	7.17	.0061
350	Sangamon River at Riverton	2,560	40°00'40"	88°49'10"	.752	.695	5.80	.0100
351	Sangamon River near Oakford	5,120	39°58'40"	89°13'30"	.592	.676	4.25	.0268
352	South Fork Sangamon River near Taylorville	427	39°24'	89°15'	.732	.883	7.40	.0036
353	South Fork Sangamon River at Kincaid	510	39°30'40"	89°11'15"	.930	.733	9.40	.0014
353.9	Salt Creek near Rowell	334	40°16'30"	88°46'50"	.696	.772	6.65	.0116
354.1	Salt Creek near Greenview	1,800	40°14'10"	89°09'00"	.572	.656	4.50	.0350
354.80	Kickapoo Creek near Lincoln	306	40°19'30"	89°01'15"	.732	.660	6.40	.0077
354.90	Sugar Creek near Hartsburg	335	40°25'00"	89°11'20"	.684	.675	6.80	.0134
354.95	La Moine River at Colmar	655	40°29'35"	90°52'30"	.726	.632	7.45	.0031
355	La Moine River at Ripley	1,310	40°22'10"	90°48'45"	.717	.576	5.60	.0077
356	Macoupin Creek near Kane	875	39°17'00"	89°59'40"	.837	.690	10.0	.0045
357.1	Indian Creek at Wanda	37.0	38°55'10"	89°59'30"	1.00	.697	11.4	------
357.2	Canteen Creek at Caseyville	22.5	38°41'00"	89°57'10"	.604	.729	8.90	.0135
357.3	Long Lake at Stallings	5.0	38°44'	90°05'	1.72	.424	----	------
358	Kaskaskia River near Arcola	390	39°55'40"	88°26'00"	1.31	.864	----	------
359	Kaskaskia River at Shelbyville	1,030	39°43'50"	88°32'10"	.924	.738	7.00	.0018
360	Kaskaskia River at Vandalia	1,980	39°30'10"	88°43'50"	.740	.722	6.35	.0094
361	Kaskaskia River at Carlyle	2,680	39°17'30"	88°51'20"	.712	.742	6.75	.0142
362	Kaskaskia River at New Athens	5,220	39°01'50"	89°09'10"	.690	.692	6.50	.0145
363	Shoal Creek near Breese	760	39°03'00"	89°29'50"	.740	.711	7.35	.0165
364	Silver Creek near Lebanon	335	38°48'	89°46'	.860	.940	----	------
364.7	Big Muddy River near Benton	498	38°16'00"	88°58'00"	1.01	.829	10.3	.0017
366	Big Muddy River at Plumfield	753	38°10'20"	88°55'20"	1.10	.845	9.50	------
367	Big Muddy River at Murphysboro	2,170	38°01'30"	89°06'50"	1.01	.894	7.60	------
368	Beaucoup Creek near Pinckneyville	227	38°13'	89°21'	.881	.537	----	------
368.1	Beaucoup Creek near Matthews	291	38°10'40"	89°20'50"	.893	.722	9.60	------
356	Wabash River at Vincennes, Ind.	13,700	40°21'00"	86°37'20"	.453	.825	6.55	.0840
357	Wabash River at Mount Carmel	28,600	39°45'20"	86°35'30"	.500	.902	6.30	.0740
368.5	Vermilion River near Catlin	959	40°14'50"	88°01'10"	.708	.768	7.30	.0150
369	Vermilion River near Danville	1,280	40°15'40"	87°55'00"	.704	.797	7.75	.0119
369.5	Salt Fork Vermilion River near Homer	344	40°10'00"	88°06'50"	.667	.782	8.65	.0125
371	West Branch Salt Fork at Urbana	71.4	40°11'40"	88°14'00"	.608	.773	6.75	.0328
375	Embarrass River near Oakland	535	39°48'50"	88°07'00"	.844	.764	----	------
376.3	Embarrass River near Diona	903	39°43'10"	88°06'20"	.780	.782	6.80	.0068
377	Embarrass River at Ste. Marie	1,540	39°30'00"	88°08'20"	.730	.799	7.20	.0118
378	Embarrass River at Lawrenceville	2,260	39°20'50"	88°02'50"	.692	.925	----	------
378.5	North Fork Embarrass River near Oblong	304	39°11'50"	87°55'20"	.900	.878	11.6	.0028
409.5	Bonpas Creek at Browns	235	38°32'00"	87°56'30"	1.63	.864	11.3	------
412	Little Wabash River at Wilcox	1,130	38°54'40"	88°28'45"	.920	.700	8.20	.0017
413.5	Little Wabash River at Carmi	3,090	38°39'10"	88°27'00"	.949	.838	6.40	.0034
414	Skillet Fork at Wayne City	475	38°33'20"	88°45'00"	1.09	.808	13.0	------
415.5	Saline River near Junction	1,040	37°48'05"	88°33'00"	1.16	.945	14.6	------
416	Middle Fork Saline River near Harrisburg	198	37°47'40"	88°38'30"	1.13	1.02	13.9	.0010
641	Cache River at Forman	242	37°27'50"	89°00'50"	1.07	.893	14.0	------
641.5	Big Creek near Wetaug	32.2	37°23'40"	89°10'10"	.687	1.09	18.2	.0110

AVERAGE DISCHARGE

For each gaging station, the average discharge for the standard (1921-45) period was computed as described on page 22. The results are included in the tabulation on pages 162-63. From these values it is apparent that the average discharge, like the variability index, varies not only from region to region, but also, within a given region, tends to decrease as the size of the drainage area increases. Again, to minimize the effect of size of area, each average discharge, also, was adjusted to an area of 100 sq mi. These adjusted discharges, each plotted on a map at its center of area, provided the basis for drawing lines of equal average discharge as shown by Figure 9, page 167.

ACCURACY OF MAP VALUES

Figures 10 and 11, page 169, indicate the extent of agreement between the map values and the station-data values. In Figure 10, the station-data value of the variability index, for each gaging station, has been divided by the index as read from the map, and the resulting ratio has been plotted against size of drainage area. Figure 11 presents a similar study with respect to average discharge.

For Figure 10, the standard error of estimate is about 12 percent. This indicates that the chances are two to one, on the average, that the variability index read from the map (and adjusted for size of drainage area) will be within 12 percent of the value computed from the station records. In a similar manner, Figure 11 indicates the standard error of estimate for the average discharge is about six percent.

ADJUSTMENT FOR SIZE OF DRAINAGE AREA

Figures 10 and 11 have further significance, in that they indicate the magnitude of the size-adjustment coefficients. The equation of the line of Figure 10 might be expressed as $(V_a/V_m) = (A_a/100)^{-0.05}$, in which V is the variability index, A is the size of the drainage area in square miles, subscript a refers to values for any particular area, and subscript m refers to values read from the map. Likewise, the equation of the line of Figure 11 might be expressed as $(Q_a/Q_m) = (A_a/100)^{-0.022}$. The inconvenience of solving these equations, may, of course, be eliminated by use of the figures, entering with the appropriate value of drainage area, and reading from the curves the corresponding values of the ratios V_a/V_m and Q_a/Q_m. Unfortunately, it is impractical to reproduce the figures to such scale that desired accuracy can be obtained in reading the ordinates. For practical purposes, it will be more con-

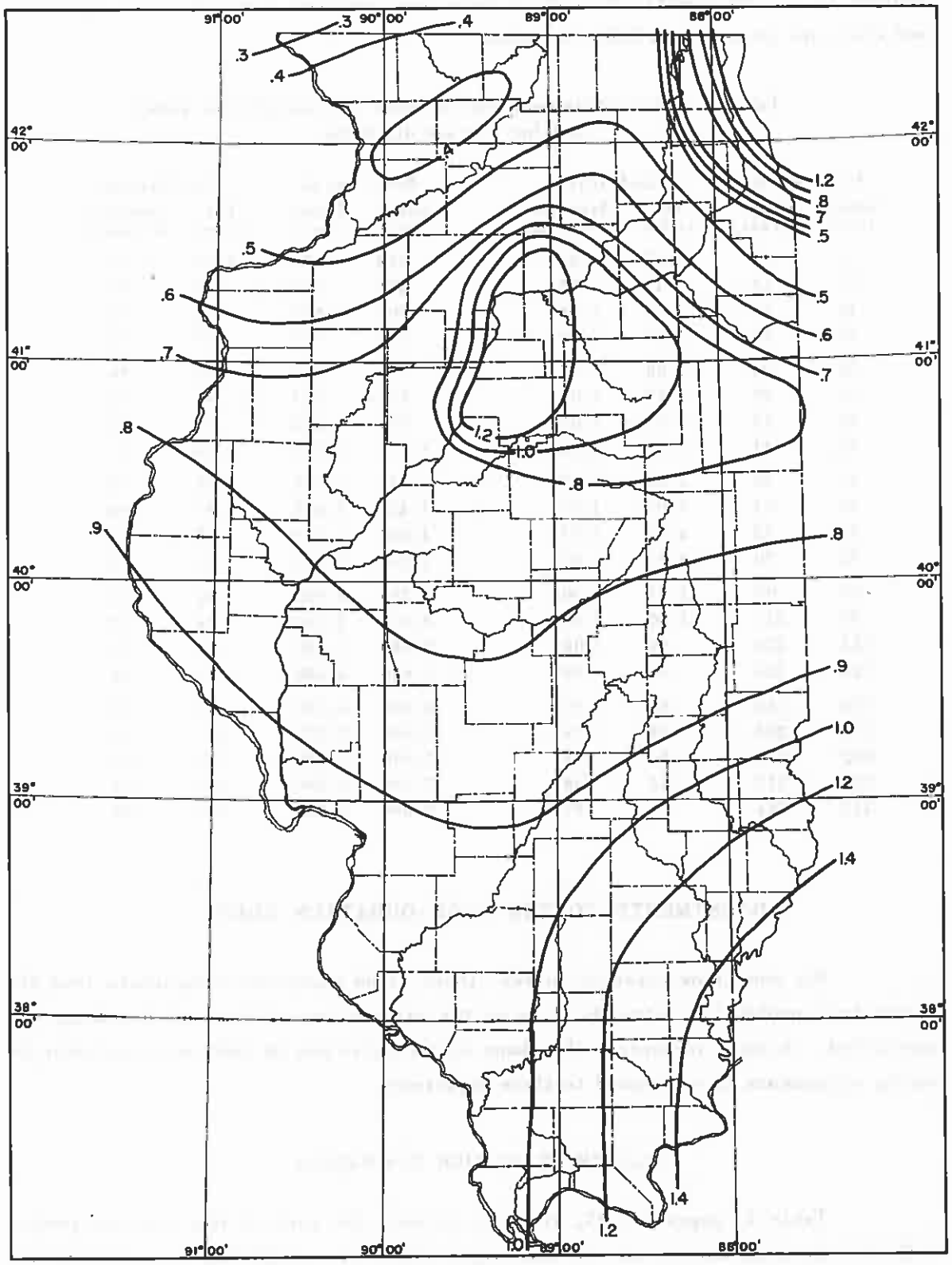


Figure 8.--Regional values of the variability index for Illinois areas of 100 square miles

venient to use the coefficients which have been computed from the above equations, and which are presented in Table 5, below.

Table 5.--Size-adjustment coefficients for variability index and for average discharge

Area, sq mi		Coefficient		Area, sq mi		Coefficient	
Lower limit	Upper limit	Var. index	Average discharge	Lower limit	Upper limit	Var. index	Average discharge
--	11	1.12	1.05	384	476	0.93	0.97
11	13	1.11	1.05	476	507	.92	.97
13	16	1.10	1.04	507	592	.92	.96
16	20	1.09	1.04	592	738	.91	.96
20	24	1.08	1.03	738	811	.90	.96
24	28	1.07	1.03	811	921	.90	.95
28	33	1.06	1.03	921	1,150	.89	.95
33	41	1.05	1.02	1,150	1,310	.88	.95
41	50	1.04	1.02	1,310	1,450	.88	.94
50	61	1.03	1.01	1,450	1,820	.87	.94
61	73	1.02	1.01	1,820	2,120	.86	.94
73	80	1.01	1.01	2,120	2,290	.86	.93
80	90	1.01	1.00	2,290	2,900	.85	.93
90	111	1.00	1.00	2,900	3,480	.84	.93
111	126	.99	1.00	3,480	3,680	.84	.92
126	136	.99	.99	3,680	4,680	.83	.92
136	166	.98	.99	4,680	5,680	.82	.92
166	202	.97	.99	5,680	5,970	.82	.91
202	251	.96	.98	5,970	7,660	.81	.91
251	313	.95	.98	7,660	9,390	.80	.91
313	384	.94	.97	9,390	9,820	.80	.90

ADJUSTMENTS TO THE FLOW-DURATION CURVE

For many flow-duration curves, there is an appreciable departure from the logarithmic-probability straight line as the extremities of time and discharge are approached. In most instances, the shape of the curve may be made more realistic by making adjustments to correspond to these departures.

ADJUSTMENT OF HIGH DISCHARGES

Table 4, pages 162-63, includes values, for each of the standard-period (1921-45) duration curves, of the discharges which are equalled or exceeded for one percent of the time, hereafter referred to as $Q_{1.0}$. The values of $Q_{1.0}$ vary greatly,

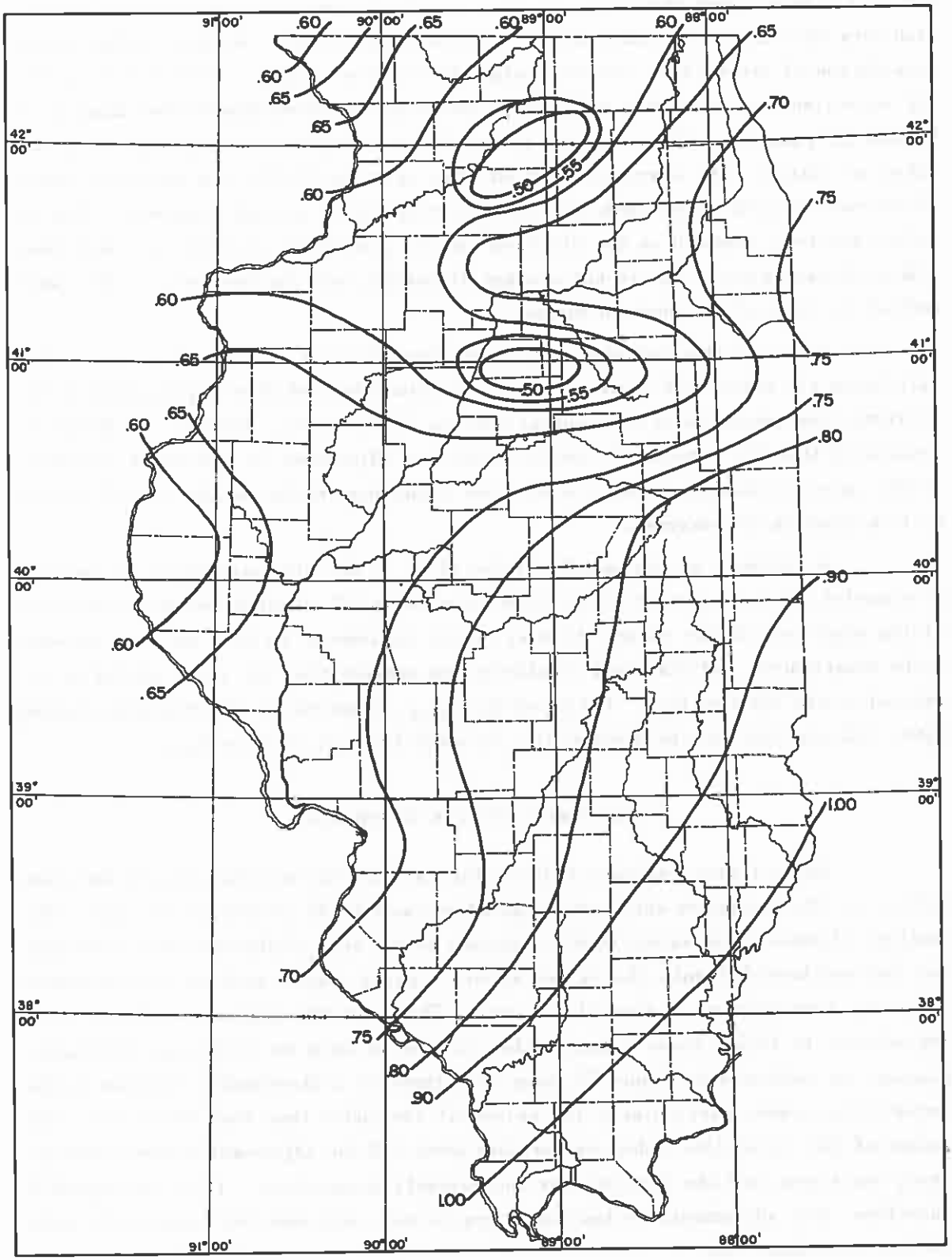


Figure 9.--Regional values of average discharge for Illinois areas of 100 square miles

but it has been found that they are associated, at least to a significant extent, with both the variability index and the average discharge, Q_a. In fact, a statistical correlation of these three factors yields the relation: $Q_{1.0} = 12.06\ V^{0.58}\ Q_a^{0.99}$. For convenience of use, this relation is shown as the three-dimensional diagram of Figure 12, page 171. (In computing points for the diagram, the exponent of Q_a was taken as unity.) The standard error of this relation (0.106 log units, or about 25 percent) is much higher than that for determination of average discharge. This is to be expected, inasmuch as the discharge at one percent of the time is a much less stable characteristic than is the average discharge, and, furthermore, is less well defined for many of the duration curves.

Even with this comparatively large standard error, the adjustment generally will bring the curve much nearer its true position than would be represented by the straight-line extension of the central portion of the curve. Further, it should be remembered that the percent of time to which this adjustment is applicable is small, so that an error in this estimate is of minor importance insofar as the overall pattern of flow-duration is concerned.

An estimate of the probable value of $Q_{0.1}$, the discharge which is equalled or exceeded one tenth percent of the time, also is useful in establishing the position of the upper end of the curve. However, great refinement in this estimate appears to be unwarranted, and practical considerations suggest that the value should be re-related to the value of $Q_{1.0}$. Ratios of $Q_{0.1}/Q_{1.0}$, computed for all available station data, indicate that, on the average, $Q_{0.1}$ is about twice as great as $Q_{1.0}$.

ADJUSTMENT OF LOW DISCHARGES

Table 4 also includes values, for each of the standard-period duration curves, of the discharges which are equalled or exceeded 99 percent of the time. For southern Illinois these values tend to increase as the size of drainage area increases; but for northern Illinois the values within a given region tend to remain nearly constant, irrespective of size of the area. Thus, for the state as a whole, it is impractical to relate these values either to size of area or to average discharge. However, as indicated by Figure 13, page 173, there is a discernable relation to the variability index, particularly for values of the index less than about 0.8. For values of the variability index greater than about 0.8 the adjustment becomes increasingly uncertain, and the need becomes increasingly unimportant. It is recommended, therefore, that adjustments to low discharges be made only when the variability index is less than about 0.8.

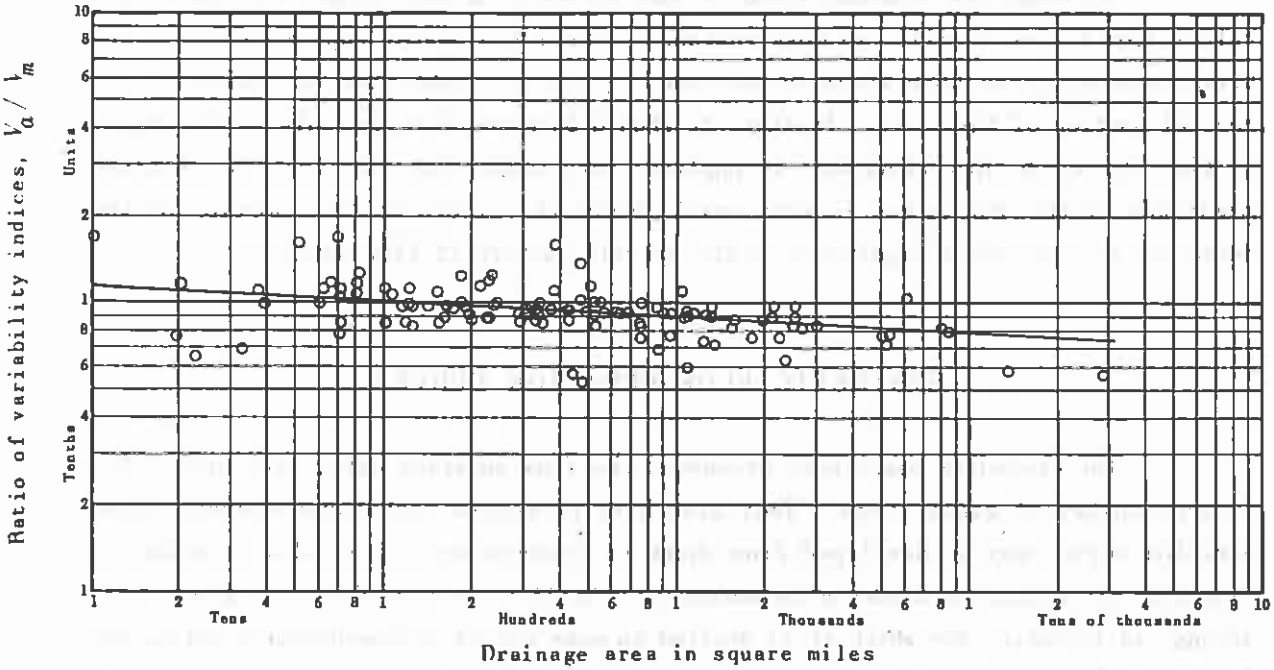


Figure 10.--Variability index versus drainage area

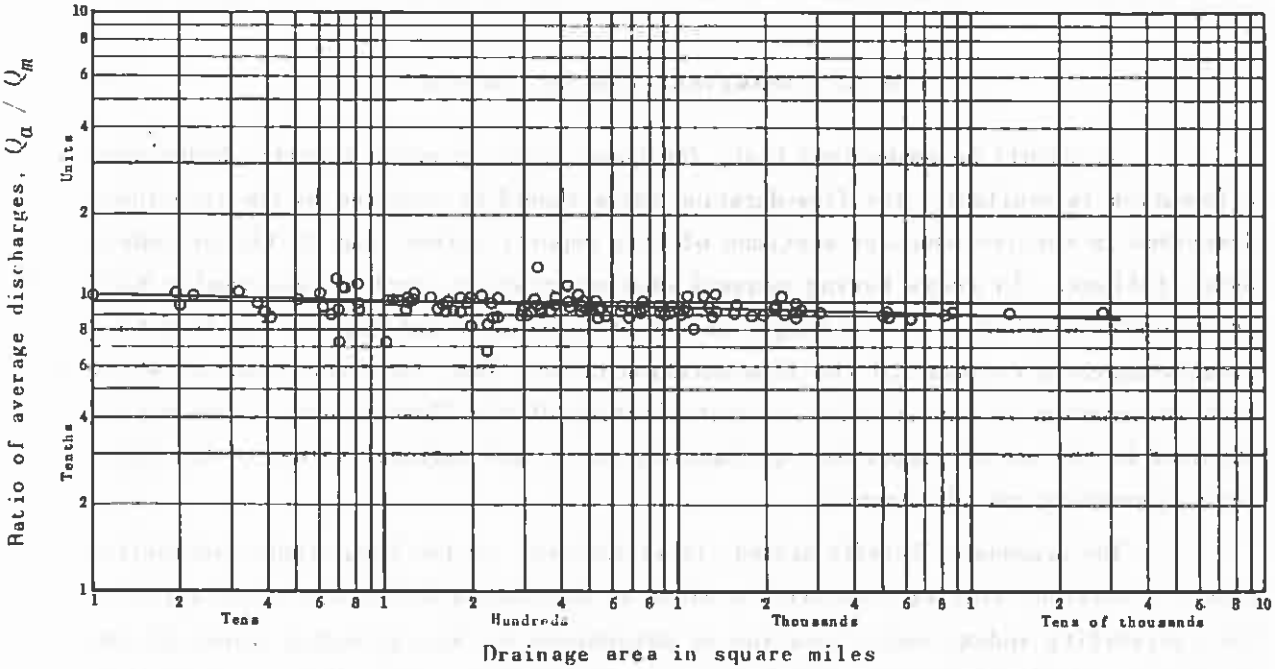


Figure 11.--Average discharge versus drainage area

Although the standard error of the relation is very large, the use of Q_{99} values from Figure 13 will, in most instances, provide a nearer approximation to the true duration curve than would be obtained by the straight-line extension of the central portion of the curve. Further, it should be noted that not only is the extent of time (to which this adjustment is applied) very small, but also that the absolute magnitude of the discharges is very small; hence the errors in this portion of the curve are of very minor importance in the overall pattern of flow duration.

SYNTHETIC FLOW-DURATION CURVES

The preceding pages have presented the flow-duration data, and curves, for a large number of gaged areas. They also have presented techniques whereby flow-duration curves may be developed from short or fragmentary stream-flow records, or even from miscellaneous discharge measurements. Still to be considered are those situations, in Illinois, for which it is desired to make use of a flow-duration curve, but for which there are available no specific hydrologic data for the drainage area. In these instances, with no specific information except the size and geographic location of the area, an approximation of the flow-duration curve may be obtained by completely synthetic methods. The synthesis of the flow-duration curve for Illinois streams constitutes one of the principal uses of the foregoing parameters and adjustments.

USE OF PARAMETERS AND ADJUSTMENTS

It should be emphasized that, for those cases in which specific hydrologic information is available, the flow-duration curve should be prepared by the techniques described in the introductory sections of this report, rather than by the procedure which follows. In areas having unusual characteristics, such as abnormally high ground-water discharge, even a meager amount of hydrologic information may lead to a greatly-improved estimate of the flow-duration curve. But, for those cases in which such information is unavailable, an approximation of the flow-duration curve may be obtained by the use of logarithmic-probability paper, and regional values of the foregoing parameters and adjustments.

The procedure, briefly stated, is as follows: on the logarithmic-probability paper, a straight line is drawn with a slope as determined by the estimated value of the variability index, and a location as determined by the estimated values of the magnitude and plotting position of the average discharge, Q_a. The extremities of this line then are curved to pass through independent estimates of the values of

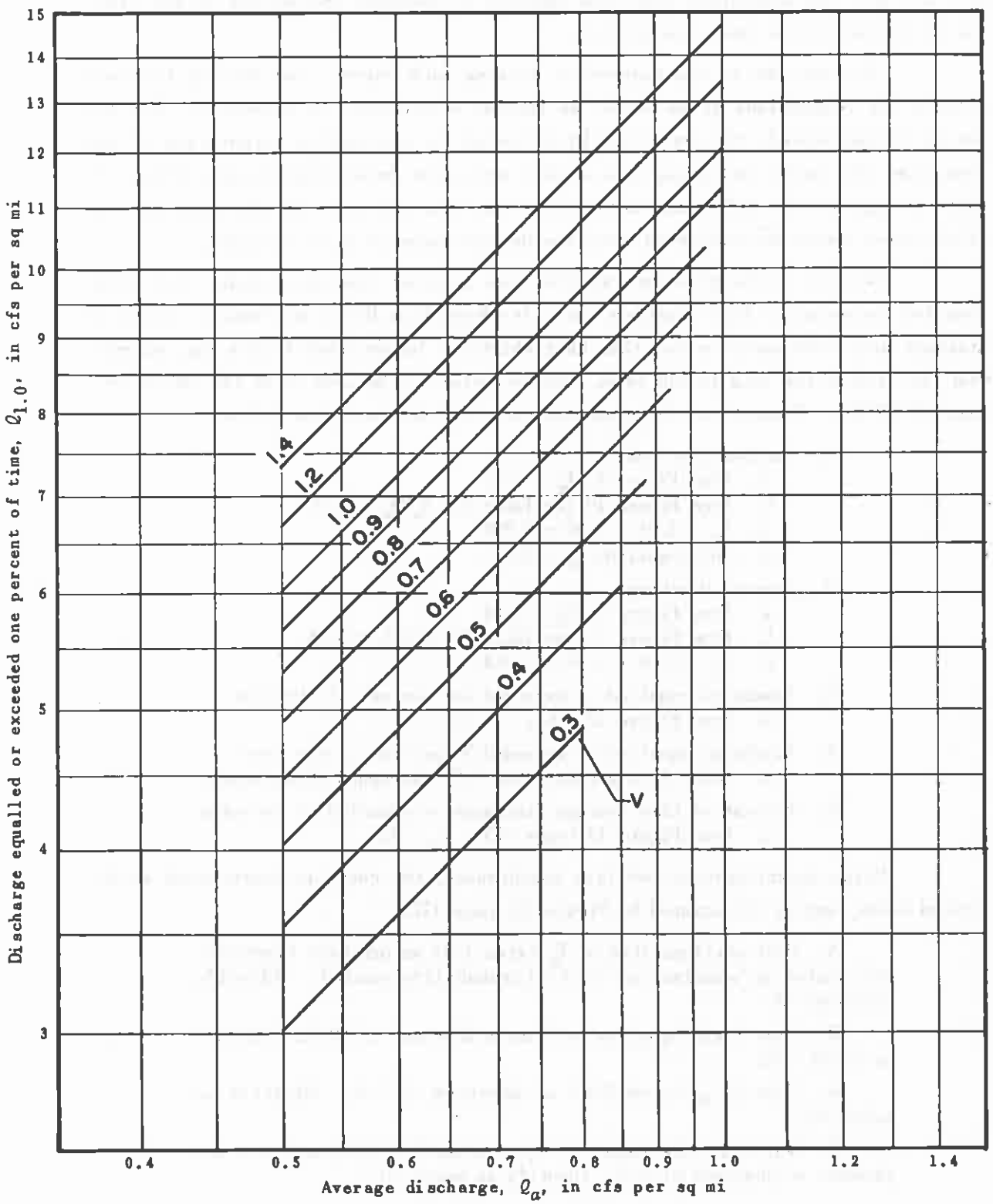


Figure 12.--Discharge equalled or exceeded one percent of time versus variability index and average discharge

$Q_{1.0}$ and Q_{99}, the discharges which are equalled or exceeded one percent of the time, and 99 percent of the time, respectively.

For one who is experienced in drawing such curves, and who has followed closely the suggestions given below, no further work should be necessary. For one who is inexperienced, the curve should be tested by step-method integration of the area under the curve, and comparison of this area with the estimated value of Q_a. If there is appreciable difference between the two, the curvature in the upper portion of the curve should be readjusted until the desired value of Q_a is obtained.

Details of the procedure will be more apparent from an example. Let it be required to obtain a flow-duration curve for Vermilion River at Pontiac, using no drainage-area information other than that which may be obtained from a map, namely, that the size of the area is 568 sq mi, and the center of the area is at lat. 40°47′10″, long. 88°22′50″. Elements of the synthetic curve are determined as follows:

1. Variability index
   a. From Figure 8, $V_m = 1.01$
   b. From Figure 10 (or Table 5), $V_a/V_m = 0.92$
   c. $V_a = 1.01 \times 0.92 = 0.929$
   d. Antilogarithm $V_a = 8.49$
2. Average discharge
   a. From Figure 9, $Q_m = 0.64$
   b. From Figure 11 (or Table 5), $Q_a/Q_m = 0.96$
   c. $Q_a = 0.64 \times 0.96 = 0.614$
3. Discharge equalled or exceeded one percent of the time
   a. From Figure 12, $Q_{1.0} = 7.15$
4. Discharge equalled or exceeded 99 percent of the time
   a. Since V_a is greater than 0.8, disregard this element
5. Percent of time average discharge is equalled or exceeded
   a. From Figure 14 (page 175), $t_a = 21$

Using logarithmic-probability coordinates, the curve is constructed as described below, and as illustrated by Figure 15, page 177.

A. Plot antilogarithm of V_a (item 1-d) as ordinate (logarithmic scale) at abscissa of 15.87 (probability scale). Identify as point "A".

B. Plot 1 cfs/sq mi as ordinate at abscissa of 50.0. Identify as point "B".

C. Plot $Q_{1.0}$ (item 3-a) at abscissa of 1.0. Identify as point "C".

D. Multiply the value of $Q_{1.0}$ (item 3-a) by 2, and plot the product at abscissa of 0.1. Identify as point "D".

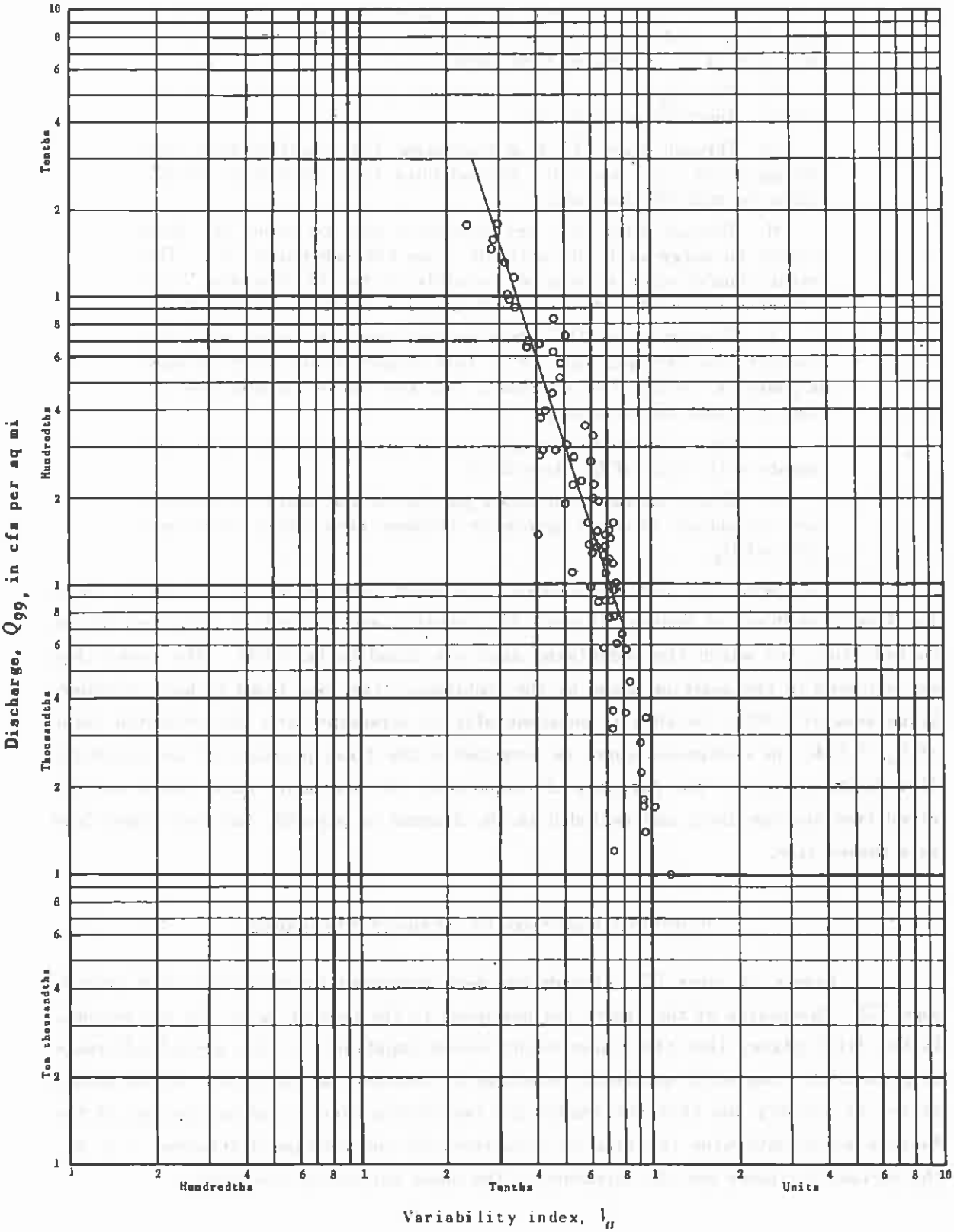


Figure 13.--Discharge equalled or exceeded 99 percent of time versus variability index

E. Plot Q_{99} (item 4-a) at abscissa of 99.0. Identify as point "E". (This step is disregarded if, as in the present case, the value of V_a is greater than about 0.8.)

F. Plot Q_a (item 2-c) as ordinate at t_a (item 5-a) as abscissa. Identify as point "F".

G. Through point "F" draw a straight line parallel to a line through points "A" and "B"; extend this line from near 5% abscissa to near 95% abscissa.

H. Through point "C", and through or near to point "D", draw a curve to merge with the straight line through point "F". The merger should occur as near as possible to the 5% abscissa. Use a reverse curve if necessary, but avoid a reversal if possible.

I. Through point "E", draw another curve to merge with the straight line through point "F". This merger should occur as near as possible to the 95% abscissa, but the curve should have at least a slight negative slope.

J. Make step-method integration of area under the curve, and compare with value of Q_a (item 2-c).

K. Revise curvature in upper portion of the curve, if nescessary, to obtain desired agreement between area under curve and value of Q_a.

Following the above procedure, the upper portion of the synthetic curve for Vermilion River at Pontiac (Figure 15) initally was located as indicated by the dotted line, for which the underlying area was found to be 0.648. The curve then was adjusted to the position shown by the continuous line, and found to have an underlying area of 0.616. As this is substantially in agreement with the estimated value of Q_a, 0.614, the continuous curve is accepted as the final position of the synthetic flow-duration curve. For purposes of comparison, the synthetic curve which was derived from station data, and included in the diagram on page 93, has been added here as a dashed line.

PLOTTING POSITION OF AVERAGE DISCHARGE

Figure 14, page 175, already has been mentioned in connection with item 5, page 172. Discussion of the figure was postponed to the present point for two reasons. In the first place, lest the reader might become impatient, it has seemed desirable to present the completely synthetic technique as concisely as possible. In the second place, it is only now that the reader has been given even a modest concept of the factors which determine the time of occurrence of the average discharge -- i. e., the variability index and the curvature in the upper portion of the curve.

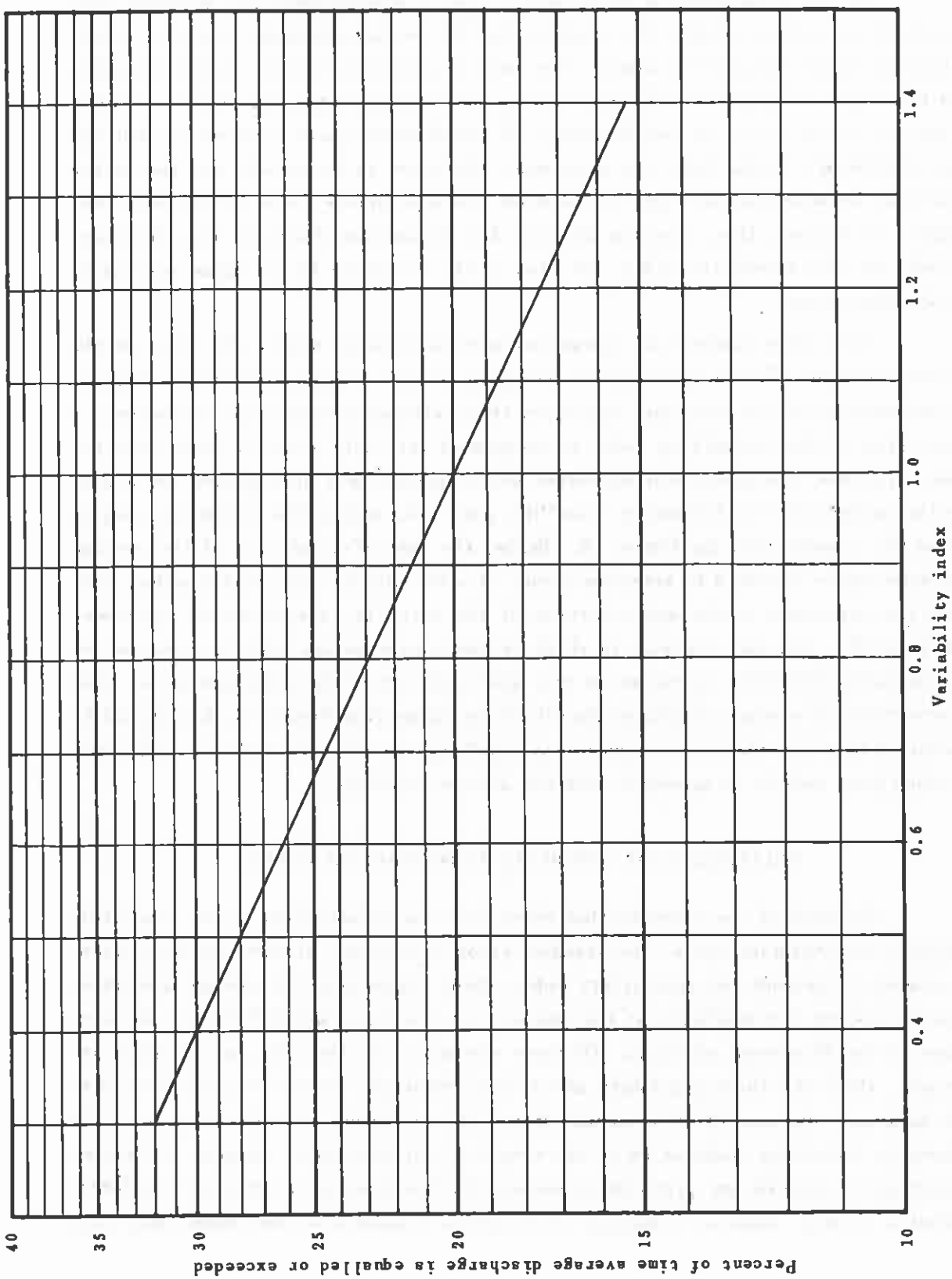


Figure 14.--Percent of time average discharge is equalled or exceeded versus variability index

If the flow-duration curve were a logarithmic-probability straight line throughout its entire extent, the abscissa for the average discharge would be solely a function of the variability index. The curve of relation, however, would not agree with the curve of Figure 14. (It would have a much steeper slope, and would be slightly concave to the origin of coordinates.) If the duration curve is drawn so that the upper end breaks to the left, the area under the curve is decreased, and the entire curve must be moved to the right to maintain the appropriate value of the mean discharge. It follows, then, that the abscissa for the average discharge is a function, not only of the variability index, but also of the curvature in the upper portion of the duration curve.

If a wide variety of curvatures were associated with each value of the variability index, Figure 14 would, of necessity, become a three-dimensional diagram. But examination of the base data discloses that, with only occasional exceptions, a given value of the variability index is associated with only a narrow range of curvature. Further, the particular curvature which appears most appropriate for a particular variability is defined by item "H", page 174, and is the curvature used in making the computations for Figure 14. Hence, the time of occurrence of the average discharge may be obtained by entering Figure 14 with only the variability index, provided the curvature in the upper portion of the curve is in substantial agreement with item "H". For any instance in which reliable information justifies the use of substantially different curvature in the upper portion of the duration curve, time of occurrence of average discharge should not be taken from Figure 14, but should be determined by trial-and-error computations, shifting the curve to right or left until the underlying area is in agreement with the average discharge.

RELIABILITY OF SYNTHETIC FLOW-DURATION CURVES

For each of the elements that enter into the construction of the completely synthetic flow-duration curve, the standard error of estimate already has been given; it is about 12 percent for variability index, about six percent for average discharge, about 25 percent for discharge at the one-percent abscissa, and much higher for discharge at the 99-percent abscissa. Of these elements, the first two are of major importance, while the third and fourth are of less importance in the overall pattern of flow duration. Because of this varying degree of importance, and also because of the apparently fortuitous combination of the errors in any particular example, it becomes impractical to provide any quantitative measure for the expected accuracy of completely synthetic curves. However, numerous verification studies have been made, and, from

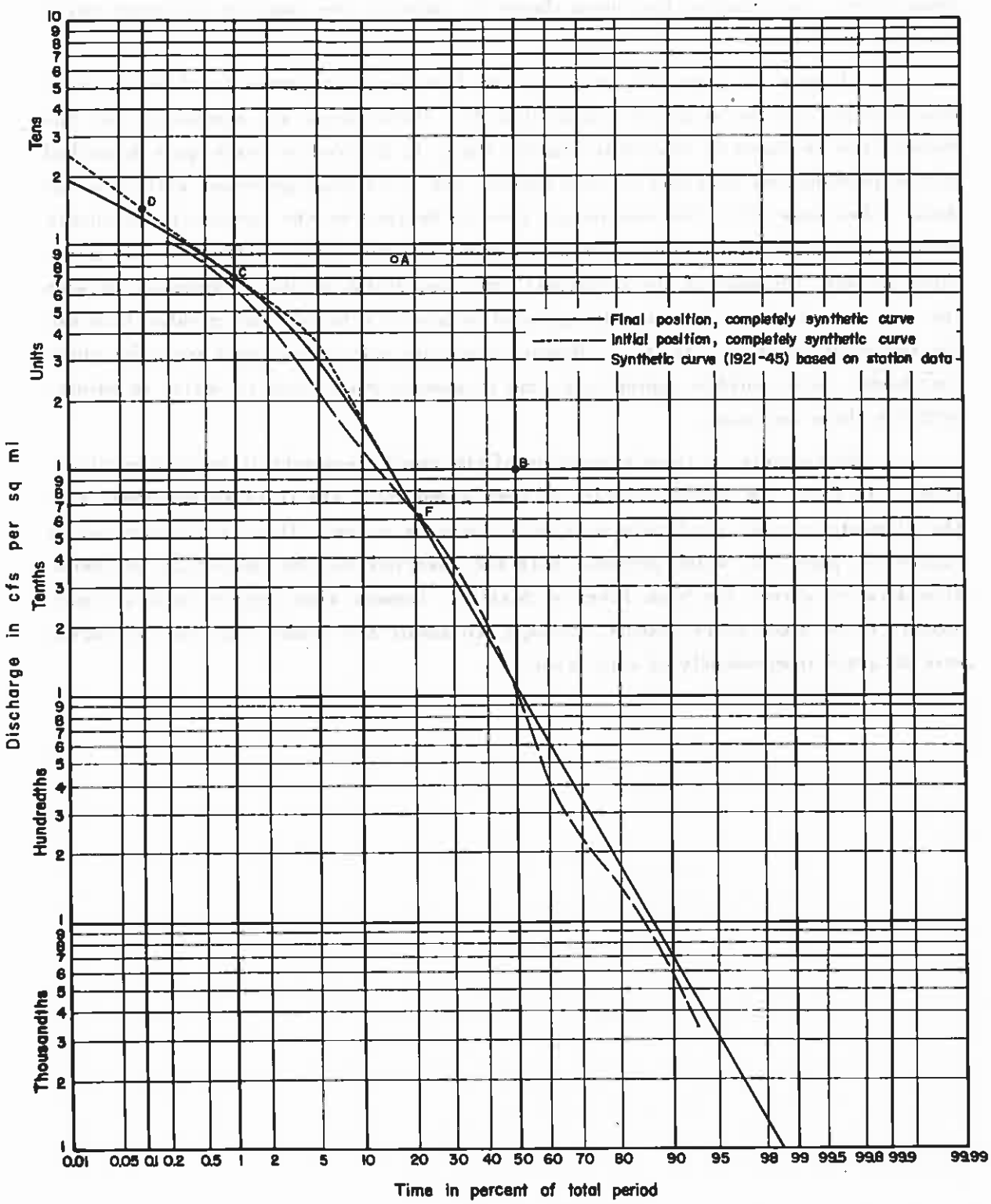


Figure 15.--Synthetic duration curve for Vermilion River at Pontiac

among these, two examples have been chosen to indicate the range of agreement which has been encountered.

Figure 16, page 179, presents two flow-duration curves for Elkhorn Creek near Penrose for the standard period 1921-45. Both curves are synthetic, but the dashed line is based on available station data, is derived by techniques described in the introductory sections of this report, and is in good agreement with observed data. (See page 50.) The continuous line is derived by the completely synthetic methods now under discussion. The areas under the two curves differ by only about three percent, but many of the individual ordinates differ greatly. Agreement between the curves might have been greatly improved by use of a factor much greater than two for the relation of $Q_{0.1}$ to $Q_{1.0}$. However there are only a few gaged areas for which this higher ratio would be appropriate, and it appears impractical to devise an adjustment for these few cases.

Fortunately, a large proportion of the gaged areas exhibit no such peculiarities. In fact, the characteristics of many gaged areas are in close agreement with the elements of the completely synthetic duration curve. This is illustrated by Figure 17, page 180, which presents both the observed and the completely synthetic flow-duration curves for Spoon River at Seville. Comment with respect to this figure appears to be unnecessary, except, perhaps, to assure the reader that the two curves were obtained independently of each other!

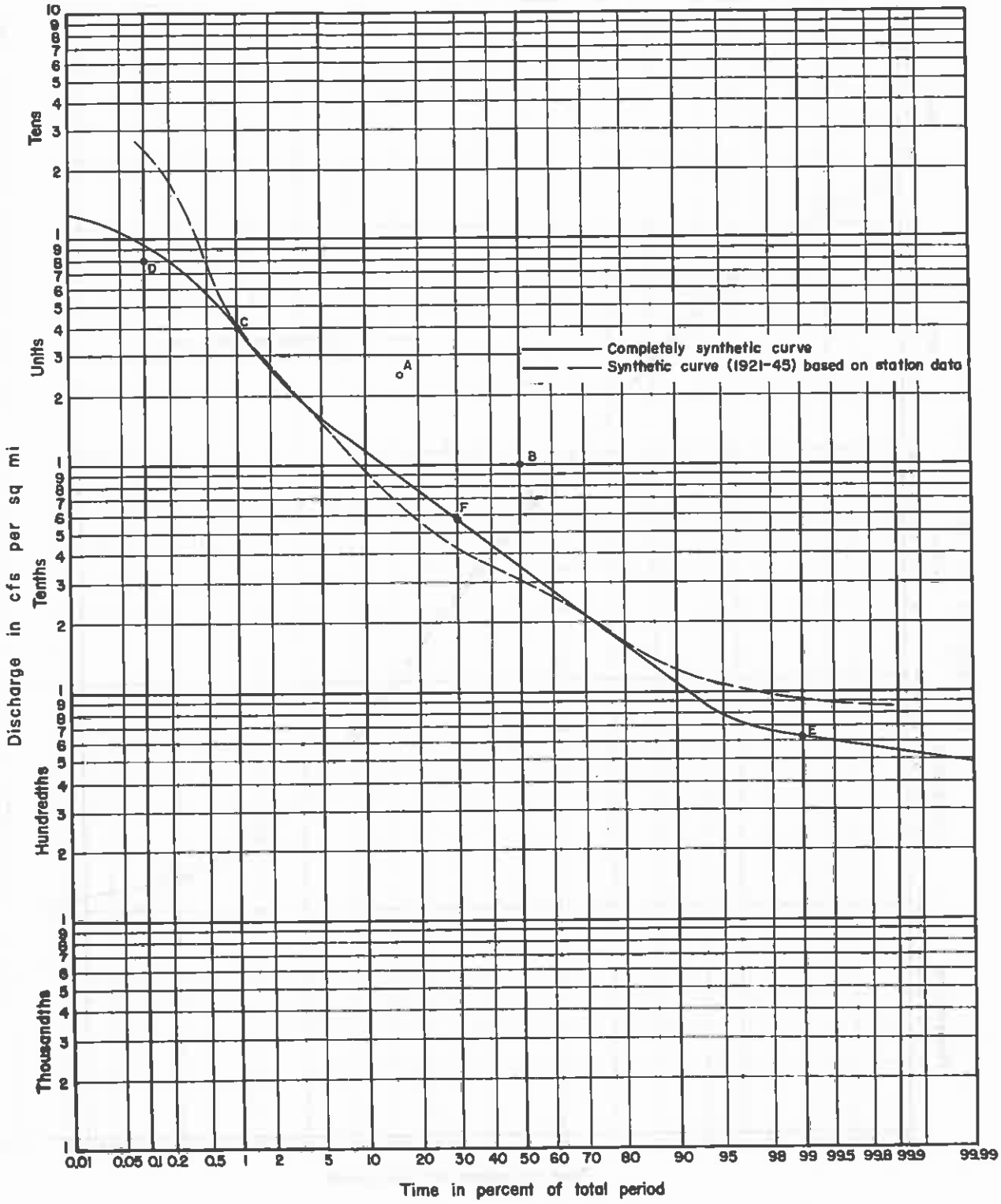


Figure 16.--Synthetic duration curve for Elkhorn Creek near Penrose

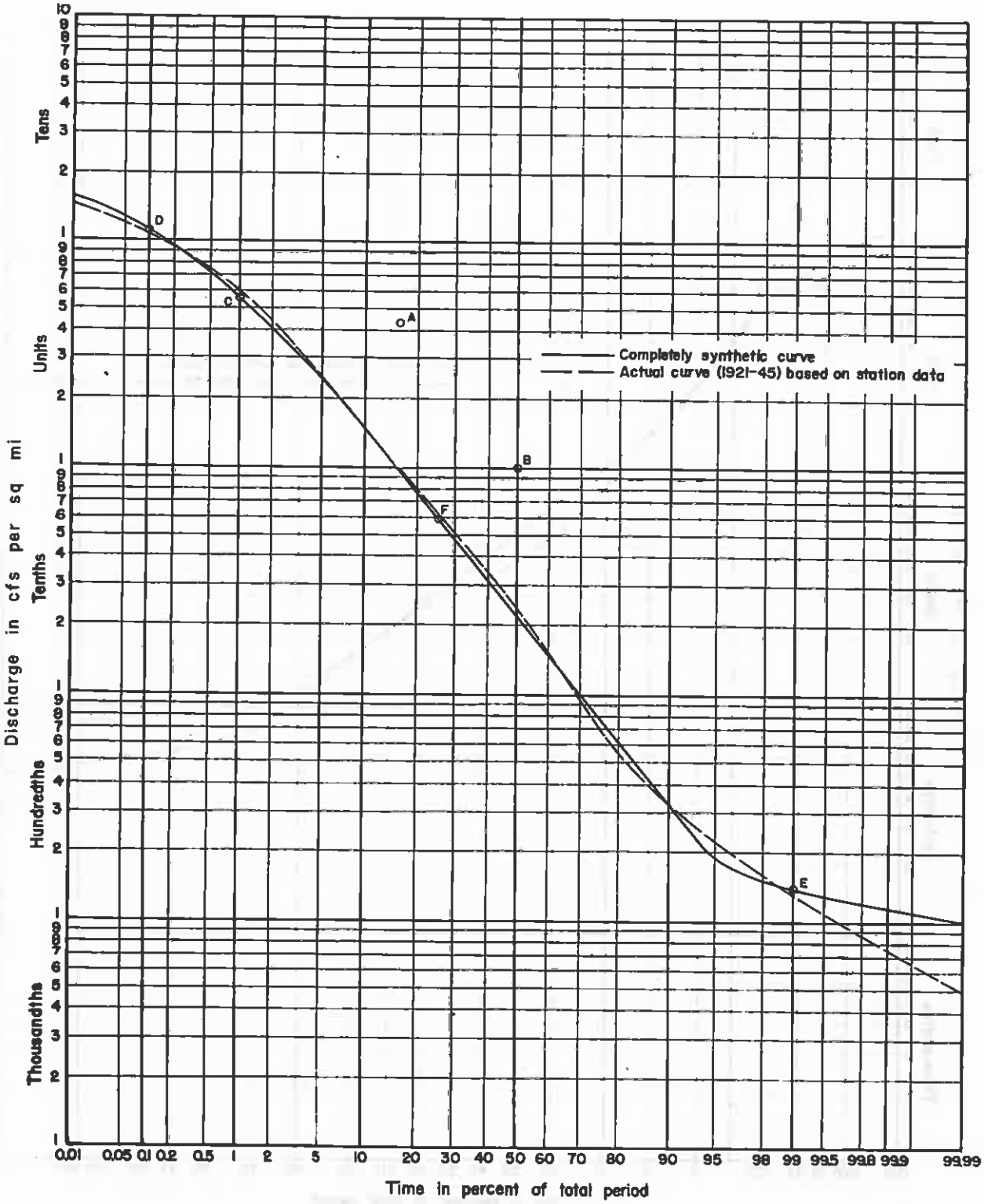


Figure 17.--Synthetic duration curve for Spoon River at Seville

REVIEW

In the foregoing sections of this report, discussion has been confined to that required for an understanding of the adopted procedures. Further information, with respect both to the procedures which were used and to alternate procedures which might have been used, may be of interest to the reader, and of assistance to those who later may undertake similar studies.

Further comment might be made concerning the reliability of the duration relation. (See pages 8-10.) As with most other hydrologic relations, this relation becomes more dependable with an increase in the number of supporting data. Hence, duration relations always should be based on all available data. In many instances a measure of the reliability of the relation is of only secondary importance; even though the relation is only approximate it still may be the best means of obtaining a required estimate. But even in these cases some measure of the reliability of the result may be a source of comfort and reassurance. As indicated on page 10, data for the duration relation are such that it is not feasible to compute the standard error of the graph, but experience indicates that it is about the same as the standard error of the graph of relation between monthly mean discharges. The latter not only may be computed, but also may be predicted with reasonable confidence. According to a widely-used statistical formula,

$$E = S / \sqrt{N - Ldf},$$

in which E is the standard error of the graph at its midpoint, S is the standard error of estimate, N is the number of data (in this case, the number of months of concurrent record), and Ldf is the number of lost degrees of freedom. Experience indicates that, for practical use, Ldf may be taken as 6. Analyses of monthly data for many Illinois streams indicates

$$S = 0.11\, d^{0.33}\, V_s^{0.80},$$

in which d is distance, in miles, between centers of areas of the stations, V_s is the variability index at the short-term station, and S is expressed in log units. Thus, if d is 27 miles for two stations in a region with a variability index of 0.70, the standard error of the graph based on four years of record might be estimated as:

$$E = (0.11 \times 27^{0.33} \times 0.70^{0.80}) / \sqrt{48 - 6},$$

whence E is 0.038 log units, or about nine percent. It will be noted that such an

estimate of reliability is in reasonable agreement with the results which are shown in the last column of Table 2, page 21.

A brief statement on page 161 defined the variability index as "the standard deviation of the logarithms of 10 discharges, namely, the discharges which are equalled or exceeded 5%, 15%, 25%, ... 95% of the time." There are a variety of methods by which this standard deviation may be computed. Two of the methods are illustrated in Table 6, below. The first method, which utilizes columns 1-5 of the table, is presented because it shows most clearly the true nature of the computations. It

Table 6.--Computations for variability index, Big Creek near Wetaug

Percent of time (1)	Ordinate Cfs/sq mi (2)	Ordinate Logarithm (3)	Departure from mean (4)	Square of departures (5)	Ordinate, inches (6)	Square of ordinate (7)
5	3.00	0.477	1.240	1.537	6.18	38.19
15	.85	- .071	.692	.479	4.85	23.52
25	.51	- .292	.471	.222	4.27	18.23
35	.34	- .468	.295	.087	3.77	14.21
45	.20	- .699	.064	.004	3.21	10.30
55	.12	- .921	- .158	.025	2.69	7.24
65	.079	-1.102	- .339	.115	2.16	4.66
75	.045	-1.347	- .584	.341	1.60	2.56
85	.031	-1.509	- .764	.584	1.24	1.54
95	.020	-1.699	- .936	.876	0.77	0.59
Sums		-7.631		4.270	30.74	121.04

involves tabulating the appropriate ordinates from the duration curve (column 2), taking the logarithm of each ordinate (column 3), computing departures from the mean, which, in this case, is -0.763 (column 4), and obtaining the sum of the squares of the departures (column 5). The index is then obtained by dividing by one less than the number of ordinates, and taking the square root of the quotient. Thus, in this example, the index is $\sqrt{4.270 / 9}$, or 0.688. This method, however, is unnecessarily tedious and slow. The second method, which utilizes columns 1, 6, and 7 of the table, is recommended as both easier and faster. Column 6 is obtained by selecting any arbitrary horizontal line as a base, and scaling the distance, in inches, along the appropriate ordinate from base line to curve. (For the example, readings were made from a plot for which the log-cycle dimension was 2.5 in.; the base line was chosen at 0.01 cfs/sq mi.) After squaring each ordinate, to obtain column 7, and after obtaining the sums for both columns 6 and 7, the standard deviation, in inches, is computed by the formula:

$$s_y = \sqrt{\Sigma(Y^2) - (\Sigma Y)^2} / \sqrt{N - 1} \ .$$

Substituting the appropriate values from Table 6 into this formula, the standard deviation for this example is:

$$s_y = \sqrt{121.04 - 30.74^2} / \sqrt{10 - 1} ,$$

or 1.717 in. As stated above, the ordinates were measured on a plot for which one log cycle was 2.5 in. Therefore, the standard deviation, in log units, is 1.717 / 2.5, or 0.687, in substantial agreement with the first computation.

Another item of interest with respect to the variability index is its relation to the log standard deviation of the monthly mean discharges. At present, sufficient studies have not been completed to provide a firm conclusion. An exploratory examination suggests that the relationship may be quite close; that one may be transformed to the other by a coefficient that does not depart from unity by more than 5 or 10 percent; and that the standard error of the relation may be small.

Finally, brief consideration might be given to the possibility of a relation between at least one point on the flow-duration curve, and a corresponding point on the flood-frequency curve. It is of interest to note that the mean annual flood has a recurrence interval of 2.33 years (see Mitchell, 1954, p. 373), and that one day in each 2.33 years is approximately one-tenth percent of the time. Of course the mean annual flood does not have a duration of precisely one calander day. For small streams, the mean annual flood may have a duration of only a few hours, or even only a few minutes. Even for larger floods, it is possible that no average daily discharge will be as great as the mean annual flood. On the other hand, for large streams it is possible that floods only slightly greatly than the mean annual may provide more than one day for which the average discharge is approximately equal to the mean annual flood. These considerations suggest the possibility of a relation between size of drainage area, the mean annual flood, and the discharge which is equalled or exceeded one-tenth percent of the time. Exploratory studies indicate that, for Illinois areas of about 200 sq mi, $Q_{0.1}$ may be expected to be about equal to the mean annual flood; for larger areas, $Q_{0.1}$ tends to be greater, and for smaller areas it tends to be smaller, than the mean annual flood. The data suggest a three-dimensional relationship which might be accompanied by only a moderately high standard error, but additional studies will be required before a firm conclusion may be stated.

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INDEX

[All figures refer to page numbers]

Accuracy of map values, 164
Adjustment for size of drainage area, 164
  of high discharges, 166
  of low discharges, 168
Adjustments to the flow-duration curve, 166
Algonquin, Fox River at, 90
Amboy, Green River at, 53
Apple River near Hanover, 33
Arcola, Kaskaskia River near, 126
Atlas, The Sny at, 65
Available stream-flow data, 23
Average discharge, 161, 164
  computation of, 18
  map of, 167
  plotting position of, 174
  size adjustment coefficients for, 166
  1921-45, 22

Bay Creek at Nebo, 69
  at Pittsfield, 68
Bear Creek near Marcelline, 64
Beaucoup Creek near Matthews, 137
  near Pinckneyville, 136
Belvidere, Kishwaukee River at, 43
Benton, Big Muddy River near, 133
Big Creek near Wetaug, 6, 7, 9, 10, 13, 19, 20, 21, 159, 182
Biggsville, South Henderson Creek at, 63
Big Muddy River at Murphysboro, 135
  at Plumfield, 9, 10, 11, 13, 20, 134
  near Benton, 133
Bonpas Creek at Browns, 151
Breese, Shoal Creek near, 131
Brodhead, Wis., Sugar River near, 28, 40
Browns, Bonpas Creek at, 151
Bureau, Bureau Creek at, 97
  East Bureau Creek near, 99
Bureau Creek at Bureau, 97
  at Princeton, 96

Cache River at Forman, 158
Canteen Creek at Caseyville, 124
Carlyle, Kaskaskia River at, 129
Carmi, Little Wabash River at, 154
Caseyville, Canteen Creek at, 124
Catlin, Vermilion River near, 142
Cedar Creek at Little York, 62
Charlotte, North Fork Vermilion River near, 92
Chebanse, Iroquois River near, 87
Chicago Sanitary & Ship Canal at Lockport, 23
Coal City, Mazon River near, 88
Coleta, Rock Creek near, 51
Colmar, La Moine River at, 120
Como, Rock River at, 37
Computation of long-term average discharge, 18
Congerville, Mackinaw River near, 104
Cooperation and division of work, 1
Council Hill, East Fork Galena River at, 32
Crow Creek near Washburn, 100

Danville, Vermilion River near, 143
Data, station; *See name of station or stream*
  extent and arrangement of, 23
Dayton, Fox River at, 91
DeKalb, South Branch Kishwaukee River at, 45
Des Plaines, Des Plaines River near, 71
Des Plaines River at Riverside, 72
  near Des Plaines, 71
  near Gurnee, 70
Diona, Embarrass River near, 147
Downstream order, 28
Du Page River at Troy, 81
Duration curves, 3
  data, 23
  relation, 8, 181

East Bureau Creek near Bureau, 99
East Fork Galena River at Council Hill, 32
East Peoria, Farm Creek at, 101
Edwards River near New Boston, 57
  near Orion, 21, 56
Elkhorn Creek near Penrose, 50, 178, 179
Embarrass River at Lawrenceville, 149
  at Newton, 23
  at Ste. Marie, 23, 148
  near Diona, 147
  near Oakland, 146
  North Fork, near Oblong, 150

Fairdale, South Branch Kishwaukee River near, 46
Farm Creek at East Peoria, 101
Flagg Center, Kyte River near, 49
Flow-duration curves; *See name of station or stream*
  from miscellaneous measurements, 12
  from short-term records, 8
  integration of, 18
  parameters of, 161
  synthetic, 170
Flow-duration studies, 3
Forman, Cache River at, 158
Foster, A. A., 3
Fox River at Algonquin, 90
  at Dayton, 91
  at Wilmot, Wis., 28, 89
Freeport, Pecatonica River at, 15, 16, 38

Galena River at Galena, 31
Gates, Mrs. Joanne, 2
Geneseo, Green River near, 54
Godfrey, R. G., 2
Golconda, Ohio River at, 138
Green River at Amboy, 53
  near Geneseo, 54
Green Valley, Mackinaw River near, 105
Greenview, Salt Creek near, 116
Gurnee, Des Plaines River near, 70

Hadley Creek at Kinderhook, 66
  near Shinn, 67
Hanover, Apple River near, 33
Harrisburg, Middle Fork Saline River near, 157
Hartsburg, Sugar Creek near, 119
Henderson Creek near Little York, 59
  near Oquawka, 60
Heyworth, Kickapoo Creek near, 28, 117
Hickory Creek above Lake Bloomington, 107
Hickory Creek at Joliet, 79
Homer, Salt Fork Vermilion River near, 144
Hoyt, W. G., 3

Illinois, Department of Public Works and Buildings, Division of Waterways, 1
Illinoi, Singleton Ditch at, 85
Illinois River at Kingston Mines, 75
at Marseilles, 73 74
at Meredosia, 76, 77
Illinois State Sanitary Water Board, 4
Index station, 8, 18
Indian Creek at Wanda, 123
Integration of flow-duration curve, 18
Introduction, 1
Iroquois River at Iroquois, 86
near Chebanse, 87

Joliet, Hickory Creek at, 79
Spring Creek at, 80
Junction, Saline River near, 156

Kane, Macoupin Creek near, 122
Kankakee River at Momence, 82
near Wilmington, 83, 84
Kaskaskia River near Arcola, 126
at Carlyle, 129
at New Athens, 130
at Shelbyville, 127
at Vandalia, 128
Keithsburg, Pope Creek near, 58
Kickapoo, Kickapoo Creek near, 102
Kickapoo Creek at Peoria, 103
near Kickapoo, 102
Kickapoo Creek near Heyworth, 28, 117
near Lincoln, 118
Killbuck Creek near Monroe Center, 47
Kincaid, South Fork Sangamon River at, 114
Kinderhook, Hadley Creek at, 66
Kingston Mines, Illinois River at, 75
Kishwaukee River at Belvidere, 43
near Perryville, 44
South Branch, at DeKalb, 45
near Fairdale, 46
Kyte River near Flagg Center, 49

Lake Bloomington, Hickory Creek above, 107
Money Creek above, 106
La Moine River at Colmar, 120
at Ripley, 121
Lane, E. W., 161
Larson, Mrs. Helen, 2
Lawrenceville, Embarrass River at, 149
Leaf River at Leaf River, 48
Lebanon, Silver Creek near, 132
Lei, Kai, 161
Lincoln, Kickapoo Creek near, 118
Little Wabash River at Carmi, 154
at Wilcox, 4, 152, 153
Little York, Cedar Creek at, 62
Henderson Creek near, 59
Lockport, Chicago Sanitary & Ship Canal at, 23
Logarithmic-probability coordinates, use of, 172
London Mills, Spoon River at, 108
Long Lake at Stallings, 125
Lowell, Vermilion River at, 94

Mackinaw River near Congerville, 104
near Green Valley, 105
Macoupin Creek near Kane, 122
Marcelline, Bear Creek near, 64
Marseilles, Illinois River at, 73
Matthews, Beaucoup Creek near, 137
Mazon River near Coal City, 88
Meredosia, Illinois River at, 76
Metropolis, Ohio River at, 139
Middle Fork Saline River near Harrisburg, 157
Mill Creek at Milan, 55
Mitchell, W. D., 1, 2, 5, 6, 12, 22, 23, 183
Momence, Kankakee River at, 82
Money Creek above Lake Bloomington, 106
Monroe Center, Killbuck Creek near, 47
Monthly mean discharge, 181
Monticello, Sangamon River at, 110
Morgan, J. H., 2
Morrison, Rock Creek near, 14, 15, 16, 17, 21, 22, 52
Mount Carmel, Wabash River at, 141
Murphysboro, Big Muddy River at, 135

Nebo, Bay Creek at, 69
New Athens, Kaskaskia River at, 130
New Boston, Edwards River near, 57
Newton, Embarrass River at, 23
North Fork Embarrass River; *See* Embarrass River
North Fork Vermilion River; *See* Vermilion River
North Henderson Creek near Seaton, 61

Oakford, Sangamon River near, 112
Oakland, Embarrass River near, 146
Oblong, North Fork Embarrass River near, 150
Ohio River at Golconda, 138
at Metropolis, 139
Oquawka, Henderson Creek near, 60
Oregon, Rock River at, 36
Orion, Edwards River near, 21, 56

Parameters of the flow-duration curve, 161
Pecatonica River at Freeport, 15, 16, 38
at Shirland, 39
Penrose, Elkhorn Creek near, 50, 178, 179
Peoria, Kickapoo Creek at, 103
Periods used for preparation of flow-duration curves, 16
Perryville, Kishwaukee River near, 44
Pinckneyville, Beaucoup Creek near, 136
Pittsfield, Bay Creek at, 68
Plotting position of average discharge, 174
Plumfield, Big Muddy River at, 9, 10, 11, 13, 20, 134
Plum River below Carroll Creek, near Savanna, 34
Pontiac, Vermilion River at, 93, 172, 174, 177
Pope Creek near Keithsburg, 58
Preparation of data, 5
Presentation of results, 6
Princeton, Bureau Creek at, 96
Purpose and scope, 1

Regional analyses, 161
Reliability of duration relation, 10, 181
of synthetic flow-duration curves, 176
Review, 181
Ripley, La Moine River at, 121
Riverside, Des Plaines River at, 72
Riverton, Sangamon River at, 111
Rock Creek near Coleta, 51
near Morrison, 14, 15, 16, 17, 21, 22, 52
Rock River at Como, 37
at Oregon, 36
at Rockton, 35
Rowell, Salt Creek near, 115

Ste. Marie, Embarrass River at, 23, 148
Saline River near Junction, 156
Salt Creek at Western Springs, 78
Salt Creek near Greenview, 116
near Rowell, 115
Salt Fork Vermilion River; *See* Vermilion River
Salt Fork, West Branch, at Urbana, 145
Sangamon River at Monticello, 110
at Riverton, 111

Sangamon River near Oakford, 112
South Fork, at Kincaid, 114
near Taylorville, 113
Savanna, Plum River near, 34
Seaton, North Henderson Creek near, 61
Selected bibliography, 185
Seville, Spoon River at, 21, 109, 178, 180
Shelbyville, Kaskaskia River at, 127
Shinn, Hadley Creek near, 67
Shirland, Pecatonica River at, 39
Sugar River at, 28, 42
Shoal Creek near Breese, 131
Short-term station, 8
Silver Creek near Lebanon, 132
Singleton Ditch at Illinoi, 85
Skillet Fork at Wayne City, 155
South Branch Kishwaukee River; *See* Kishwaukee River
South Fork Sangamon River; *See* Sangamon River
South Henderson Creek at Biggsville, 63
Spoon River at London Mills, 108
at Seville, 21, 109, 178, 180
Spring Creek at Joliet, 80
Stallings, Long Lake at, 125
Standard period, 18, 22
Streamflow data, 23
criteria for inclusion of, 23
Sugar Creek near Hartsburg, 119
Sugar River at Shirland, 28, 42
near Brodhead, Wis., 28, 40, 41
Synthetic flow-duration curves, 170

Taylorville, South Fork Sangamon River near, 113
The Sny at Atlas, 65
Troy, Du Page River at, 81
Urbana, West Branch Salt Fork at, 145
Use of flow-duration curves and tables, 3
of logarithmic-probability coordinates, 172
of parameters and adjustments, 170

Vandalia, Kaskaskia River at, 128
Variability index, 161, 182
map of, 165
size adjustment coefficients for, 166
Variation of flow duration with period of record, 6
Vermilion River at Lowell, 94, 95
at Pontiac, 93, 172, 174, 177
North Fork, near Charlotte, 92
Vermilion River near Catlin, 142
near Danville, 143
Salt Fork, near Homer, 144
Vincennes, Ind., Wabash River at, 140

Wabash River at Mount Carmel, 141
at Vincennes, Ind., 140
Wanda, Indian Creek at, 123
Washburn, Crow Creek near, 100
Water--supply characteristics of Illinois streams, 1, 5, 6, 12, 22, 23
Wayne City, Skillet Fork at, 155
West Branch Salt Fork at Urbana, 145
West Bureau Creek at Wyanet, 98
Western Springs, Salt Creek at, 78
Wetaug, Big Creek near, 6, 7, 9, 10, 13, 19, 20, 21, 159, 182
Wilcox, Little Wabash River at, 152
Wilmington, Kankakee River near, 83
Wilmot, Wis., Fox River at, 28, 89
Wyanet, West Bureau Creek at, 98