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MARYLAND STREAMFLOW CHARACTERISTICS

FLOOD FREQUENCY, LOW FLOW FREQUENCY, AND FLOW DURATION

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ABSTRACT

This report presents data on the characteristics (flood frequency, low-flow frequency, and flow duration) of Maryland streams in a manner readily usable for planning and designing projects that depend on or are affected by surface water.

The section on magnitude and frequency of floods presents a guide for developing flood-frequency curves for any stream in Maryland. Composite frequency curves are shown that express the relation of mean annual floods to floods having recurrence intervals from 1.1 to 50 years. Other curves are shown that indicate the magnitude of the mean annual flood for each hydrologic area in the State. By combining these two types of curves, a flood-frequency relation may be obtained for any site in the State, within the range of drainage area delimited by the data.

The section on low-flow frequency includes the development of low-flow characteristics for each gaging station in Maryland. A method is presented, with an example, for developing low-flow frequency data for a site with a minimum of streamflow information. This information must include a number of discharge measurements made during periods of base flow.

The section on flow duration consists of the development of duration tables for each gaging station adjusted to a common reference period. The method used for developing low-flow characteristics for an ungaged site is used to develop duration data also.

The section on gaging station data contains a description and three sets of tables for the stations used in this study. The first table lists annual peaks; the second, low-flow frequency data; and the third, duration data.

INTRODUCTION

Purpose and Scope

In general, Maryland has an ample supply of water. Nevertheless, water problems exist and more problems can be expected as the State develops. Therefore, it is important to have a thorough knowledge of the surface-water resources in the State.

Streamflow records have been collected at more than 100 sites in Maryland and adjacent areas (figs. 1 and 2). A few of the records have been continuous since 1895, but most of them are less than 25 years in length. The records have been published by the U. S. Geological Survey in water-supply papers in the form of daily discharges.

The purpose of this report is to analyze the records and delineate the characteristics of Maryland streamflow. The characteristics of high and low flows, including both frequency and duration, are presented so as to be more easily used for planning and designing projects dependent upon or affected by streamflow. It was prepared by John M. Darling with assistance from E. H. Mohler and E. F. Sharff under the direction of J. W. Odell, district engineer.

Description of Area

Location and Extent

Maryland stretches from the Atlantic Ocean to the crest of the Allegheny Mountains and lies between 37°53′ and 39°43′ north latitude and 75°4′ and 79°29′ west longitude.

The extreme dimensions of the State are 240 miles in an east to west direction and 125 miles from north to south. Toward the west the State narrows to about 1½ miles in width at Hancock and then gradually widens to 35 miles at the extreme western boundary. The total area is 12,303 square miles of which 9,887 square miles is land; Chesapeake and Chincoteague Bays comprise the major part of the remaining area.

Physiography

Although Maryland is one of the smaller States, it extends across five well-defined physiographic provinces—the Coastal Plain, the Piedmont, the Blue Ridge, the Valley and Ridge, and the Appalachian Plateau—which more or less parallel the Atlantic shore in belts of varying width from New England southward almost to the Gulf of Mexico (fig. 3). The land rises slowly from the Atlantic Ocean across the Coastal Plain, then more rapidly over the Piedmont and the ridges of the Appalachians and reaches its peak in the highlands of the Allegheny Mountains in Garrett County.

The Coastal Plain Province in Maryland is divided into two parts, Eastern

Shore and Western Shore. The Eastern Shore is flat and low, whereas the Western Shore is rolling, resembling the Piedmont. The streams in the Coastal Plain are sluggish. The boundary between the Coastal Plain and the Piedmont is the Fall Line which runs approximately from Wilmington, Delaware, through Maryland via Havre de Grace and Baltimore to Washington, D. C.

The Piedmont Province, comprising one fourth of the land area of the State, is bounded on the east by the Fall Line and on the west by the slopes of Catoctin Mountain. It has a broad undulating surface with low knobs and ridges rising above the general level. The elevation increases gradually from the Fall Line and culminates in Parrs Ridge which has an average elevation of 800 to 900 feet. Parrs Ridge forms the divide between streams flowing directly into the Chesapeake Bay and those flowing into the Potomac River. It also divides the Piedmont into eastern and western parts. In the eastern part the streams have relatively steep gradients and rapids. In the western part, with the exception of a few streams to the south that flow directly into the Potomac River, the drainage is by way of the Monocacy River which receives numerous tributaries that flow almost directly east or west from the bordering ridges.

The Blue Ridge Province is bordered on the east by the Piedmont Province and on the west by the Valley and Ridge Province. It consists of the Catoctin and Blue Ridge (or South) Mountains which unite to form the greater highland of South Mountain in the southern part of Pennsylvania. The eastern slopes of Catoctin Mountain drain into the Monocacy River except for the southern part which drains more or less directly into the Potomac River. The valley between Catoctin and South Mountains is drained by Catoctin Creek, which runs southward to the Potomac River.

The Valley and Ridge Province is separated into two areas in Maryland, the Hagerstown Valley on the east and the Allegheny Ridges on the west. The Hagerstown Valley lies between South Mountain on the east and Powell and Fairview Mountains on the west. The valley is a broad lowland with a gently rolling floor and an average elevation of 500 to 600 feet, gradually increasing in height from the Potomac River toward the Pennsylvania State line. Conococheague and Antietam Creeks have their sources in Pennsylvania, the former draining the western part of the Hagerstown Valley and the latter draining the eastern part as they flow southward into the Potomac River. These streams are characterized by meanders and gentle slopes. The Allegheny Ridges extend westward from Powell and Fairview Mountains to Dans Mountain and are characterized by a series of northeasterly trending ridges. A distinctive feature is the uniformity of the ridges and the similarity of their elevations. The valleys between them drain southward into the Potomac River by streams with somewhat steeper slopes than those in the Hagerstown Valley.

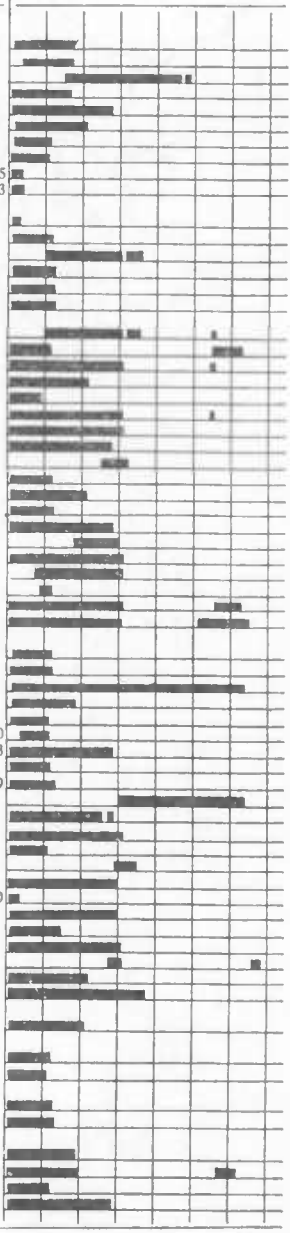
The Appalachian Plateau is bordered by Dans Mountain on the east and extends westward beyond the State boundary. It is a broad upland across

FIGURE 1. Bar Chart of Gaging Station Records

Map No.	Gaging Station	Drainage Area (sq mi)	Period of Record
			1950 1940 1930 1920 1910 1900 1890
	Pocomoke River basin:		
1	Pocomoke River near Willards, Md.	60.5	
2	Nassawango Creek near Snow Hill, Md.	44.9	
	Manokin River basin:		
3	Manokin Branch near Princess Anne, Md.	5.8	
	Wicomico River basin:		
4	Beaverdam Creek near Salisbury, Md.	19.5	
	Nonticoke River basin:		
5	Nanticoke River near Bridgeville, Del.	75.4	
6	Faulkner Branch at Federalsburg, Md.	7.10	
7	Rewastico Creek near Hebron, Md.	12.2	
	Transquoking River basin:		
8	Chicamacomico River near Salem, Md.	15.0	
	Choptank River basin:		
9	Choptank River near Greensboro, Md.	113	
10	Tuckahoe Creek near Ruthsburg, Md.	85.2	
11	Beaverdam Branch at Matthews, Md	5.85	
	Wye River basin:		
12	Sallie Harris Creek near Carmichael, Md.	8.09	
	Chester River basin:		
13	Unicorn Branch near Millington, Md.	22.3	
14	Morgan Creek near Kennedyville, Md.	10.5	
15	Southeast Creek at Church Hill, Md.	12.5	
	Sassafras River basin:		
16	Jacobs Creek near Sassafras, Md.	5.39	
	Elk River basin:		
17	Big Elk Creek at Elk Mills, Md.	52.6	
18	Little Elk Creek at Childs, Md.	26.8	
	Northeast River basin:		
19	Northeast Creek at Leslie, Md.	24.3	
	Susquehanna River basin:		
20	Broad Creek at Mill Green, Md.	16.4	
21	Octoraro Creek near Rising Sun, Md.	193	
22	Basin Run at Liberty Grove, Md.	5.31	
23	Deer Creek at Rocks, Md.	94.4	
24	Deer Creek near Churchville, Md.	141	
	Bush River basin:		
25	Bynum Run near Bel Air, Md.	7.50	
26	Bynum Run at Bel Air, Md.	8.52	
	Gunpowder River basin:		
27	Little Falls at Blue Mount, Md.	52.9	
28	Gunpowder Falls at Glencoe, Md.	160	
	Western Run:		
	Delaware Run:		
29	Slade Run near Glyndon, Md.	2.09	
30	Western Run at Western Run, Md.	59.8	
31	Gunpowder Falls near Carney, Md.	314	
32	Little Gunpowder Falls at Laurel Brook, Md.	36.1	
33	Little Gunpowder Falls near Bel Air, Md.	43	
34	Whitemarsh Run at White Marsh, Md.	7.61	
	Bock River basin:		
35	West Branch Herring Run at Idlewylde, Md.	2.13	
36	Stemmers Run at Rossville, Md.	4.94	
37	Brien Run at Stemmers Run, Md.	1.97	
	Patapsco River basin:		
	East Branch of North Branch Patapsco River:		
	West Branch of North Branch Patapsco River:		
38	Cranberry Branch near Westminster, Md.	3.29	
39	North Branch Patapsco River at Cedarhurst, Md.	56.6	
40	North Branch Patapsco River near Reisterstown, Md.	91.0	
41	North Branch Patapsco River near Marriottsville, Md.	165	
42	South Branch Patapsco River at Henryton, Md.	64.4	
43	Piney Run near Sykesville, Md.	11.4	
44	Patapsco River at Woodstock, Md.	251	
45	Patapsco River at Hollofield, Md.	285	
	Herbert Run:		
46	East Branch Herbert Run at Arbutus, Md.	2.47	
47	Gwynns Falls near Owings Mills, Md.	4.90	
48	Gwynns Falls at Villa Nova, Md.	32.5	
49	Dead Run at Franklintown, Md.	5.52	
	Curtis Creek:		
50	Sawmill Creek at Glen Burnie, Md.	5.1	
	South River basin:		
51	North River near Annapolis, Md.	8.5	
52	Bacon Ridge Branch at Chesterfield, Md.	6.92	

FIGURE 1—*Continued*

Map No.	Gaging Station	Drainage Area (sq mi)
	Patuxent River basin:	
53	Patuxent River near Unity, Md.	34.8
54	Cattail Creek at Roxbury Mills, Md.	27.7
55	Patuxent River near Burtonsville, Md.	127
56	Patuxent River near Laurel, Md.	133
57	Little Patuxent River at Guilford, Md.	38.0
58	Little Patuxent River at Savage, Md.	98.4
59	Dorsey Run near Jessup, Md.	11.6
60	Western Branch near Largo, Md.	30.2
61	Cocktown Creek near Huntingtown, Md.	3.85
62	St. Leonard Creek near St. Leonard, Md.	6.73
	Potomac River basin:	
63	North Branch Potomac River at Steyer, Md.	73.0
64	North Branch Potomac River at Kitzmiller, Md.	225
65	North Branch Potomac River at Bloomington, Md.	287
66	Savage River near Barton, Md.	49.1
67	Crabtree Creek near Swanton, Md.	16.7
68	Savage River below Savage River Dam near Bloomington, Md.	106
69	Savage River at Bloomington, Md.	115
70	North Branch Potomac River at Luke, Md.	404
71	Georges Creek at Franklin, Md.	72.4
72	North Branch Potomac River at Pinto, Md.	596
73	Wills Creek below Hyndman, Pa.	146
74	Wills Creek near Cumberland, Md.	247
75	North Branch Potomac River near Cumberland, Md.	875
76	Evitts Creek near Centerville, Pa.	30.2
77	Town Creek near Oldtown, Md.	148
78	Sawpit Run near Oldtown, Md.	5.0
79	Potomac River at Paw Paw, W. Va.	3,109
80	Little Tonoloway Creek near Hancock, Md.	16.9
81	Potomac River at Hancock, Md.	4,073
82	Licking Creek near Sylvan, Pa.	158
83	Conococheague Creek at Fairview, Md.	494
84	Potomac River at Shepherdstown, W. Va.	5,936
85	Antietam Creek near Waynesboro, Pa.	93.5
86	Antietam Creek near Sharpsburg, Md.	281
87	Shenandoah River at Millville, W. Va.	3,040
	Catoctin Creek:	
88	Little Catoctin Creek at Harmony, Md.	8.9
89	Catoctin Creek near Middletown, Md.	66.9
90	Potomac River at Point of Rocks, Md.	9,651
91	Monocacy River at Bridgeport, Md.	173
92	Big Pipe Creek at Bruceville, Md.	102
93	Little Pipe Creek at Avondale, Md.	8.10
94	Owens Creek at Lantz, Md.	5.93
95	Hunting Creek at Jimtown, Md.	18.4
96	Fishing Creek near Lewistown, Md.	7.29
97	Monocacy River near Frederick, Md.	665
98	Linganore Creek near Frederick, Md.	82.3
99	Monocacy River at Jug Bridge, near Frederick, Md.	817
100	Bennett Creek at Park Mills, Md.	62.8
101	Great Seneca Creek near Gaithersburg, Md.	41.0
102	Seneca Creek at Dawsonville, Md.	101
103	Watts Branch at Rockville, Md.	3.70
104	Potomac River near Washington, D. C.	11,560
105	Little Falls Branch near Bethesda, Md.	4.1
106	Rock Creek at Sherrill Drive, Washington, D. C.	62.2
107	Rock Creek at Q Street, Washington, D. C.	75.8
108	Northeast Branch Anacostia River at Riverdale, Md.	72.8
109	Northwest Branch Anacostia River near Colesville, Md.	21.3
110	Northwest Branch Anacostia River near Hyattsville, Md.	49.4
111	Henson Creek at Oxon Hill, Md.	16.7
112	Mattawoman Creek near Pomonkey, Md.	57.7
	Wicomico River:	
113	Chaptico Creek at Chaptico, Md.	10.7
114	St. Marys River at Great Mills, Md.	24.0
	Monongahela River basin:	
115	Youghiogheny River near Oakland, Md.	134
116	Youghiogheny River at Friendsville, Md.	295
117	Casselman River at Grantsville, Md.	62.5
118	Big Piney Run near Salisbury, Pa.	24.5



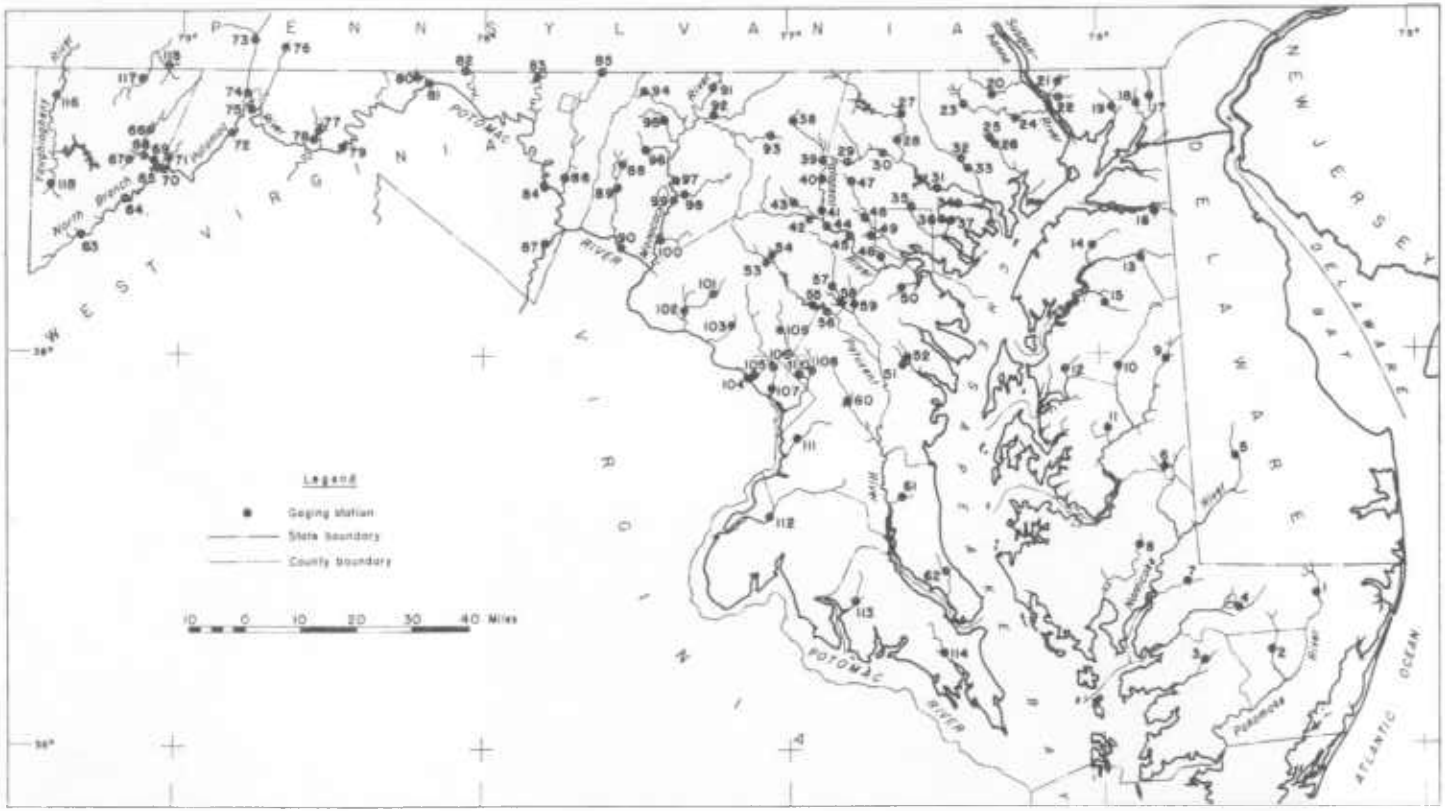


FIGURE 2. Map of Maryland and Adjacent Area Showing Location of Stream-Gaging Stations

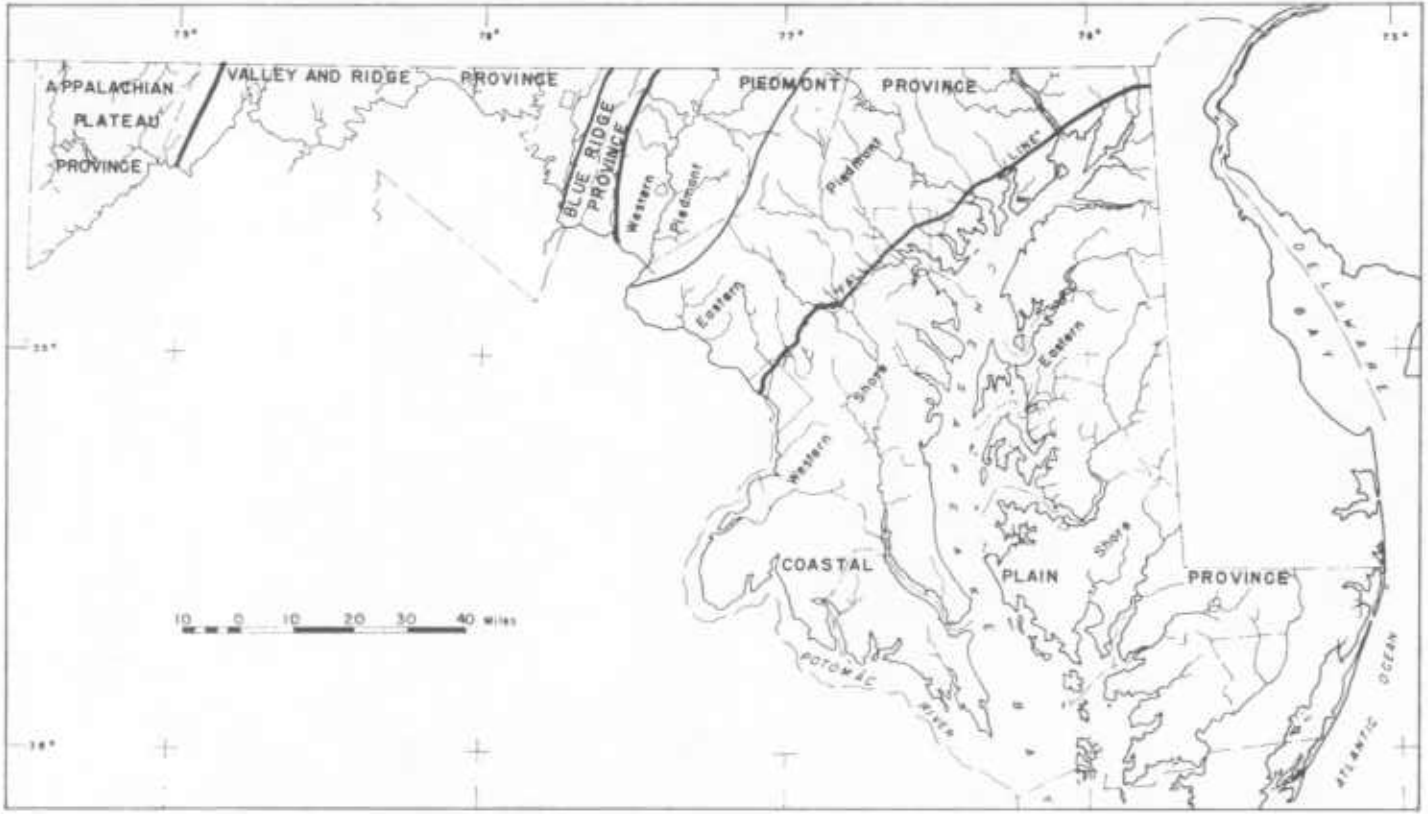


FIGURE 3. Physiographic Divisions of Maryland

which ranges of mountains extend in a northeast-southwest direction, reaching elevations of 3000 feet or more. Streams drain this area in part to the southward or eastward into the Potomac River and in part northward through the Youghiogheny Valley into the Monongahela River and thence into the Ohio River. The area of northward drainage within the state is entirely within Garrett County and comprises the larger part of the county. The streams are characterized by steep gradients, rapids, and water falls.

Climate

Maryland has a continental type climate, since the general flow of the atmosphere in temperate latitudes is from west to east and the State lies in the eastern part of the North American continent. In middle latitudes this type of climate is marked by well defined seasons. The climate is characterized by rather hot summers, mild winters, and without a dry season.

The Appalachian Mountains tend to give some protection in the winter from the icy blasts of cold air from the Arctic. This mountain barrier sometimes has a considerable modifying influence on the passage of a storm from the Ohio Valley. The higher precipitation on the Appalachian Plateau is due to the orographic effect of the mountain barrier which causes moisture to precipitate as the air masses ascend the mountain slopes from the Ohio Valley. The reverse is true on the leeward slopes as the air warms in descent which causes clouds to dissipate and a rain shadow to form east of the mountains. The average annual precipitation ranges from 36 inches in the Cumberland area, which is in the rain shadow of the Appalachian Plateau to 49 inches at places on the Appalachian Plateau. The Snow Hill area of southern Eastern Shore has an average annual precipitation of 48 inches. The range in precipitation over the rest of the State is between 40 inches and 46 inches (fig. 4). The heaviest precipitation occurs in the summer, and yet, this is the season when severe droughts are most frequent. Summer precipitation comes principally in the form of thunderstorms and, therefore, is less dependable and more variable than winter precipitation. Storms of tropical origin occasionally move up from the south, usually in the summer months. They are frequently accompanied by heavy rain and strong winds. The Coastal Plain section usually is affected most by these storms as generally they do not penetrate very far inland.

Definition of Terms and Abbreviations

Terms used in streamflow and other hydrologic data are defined as follows:

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

Cubic feet per second per square mile (*cfsm*) is the average number of cubic

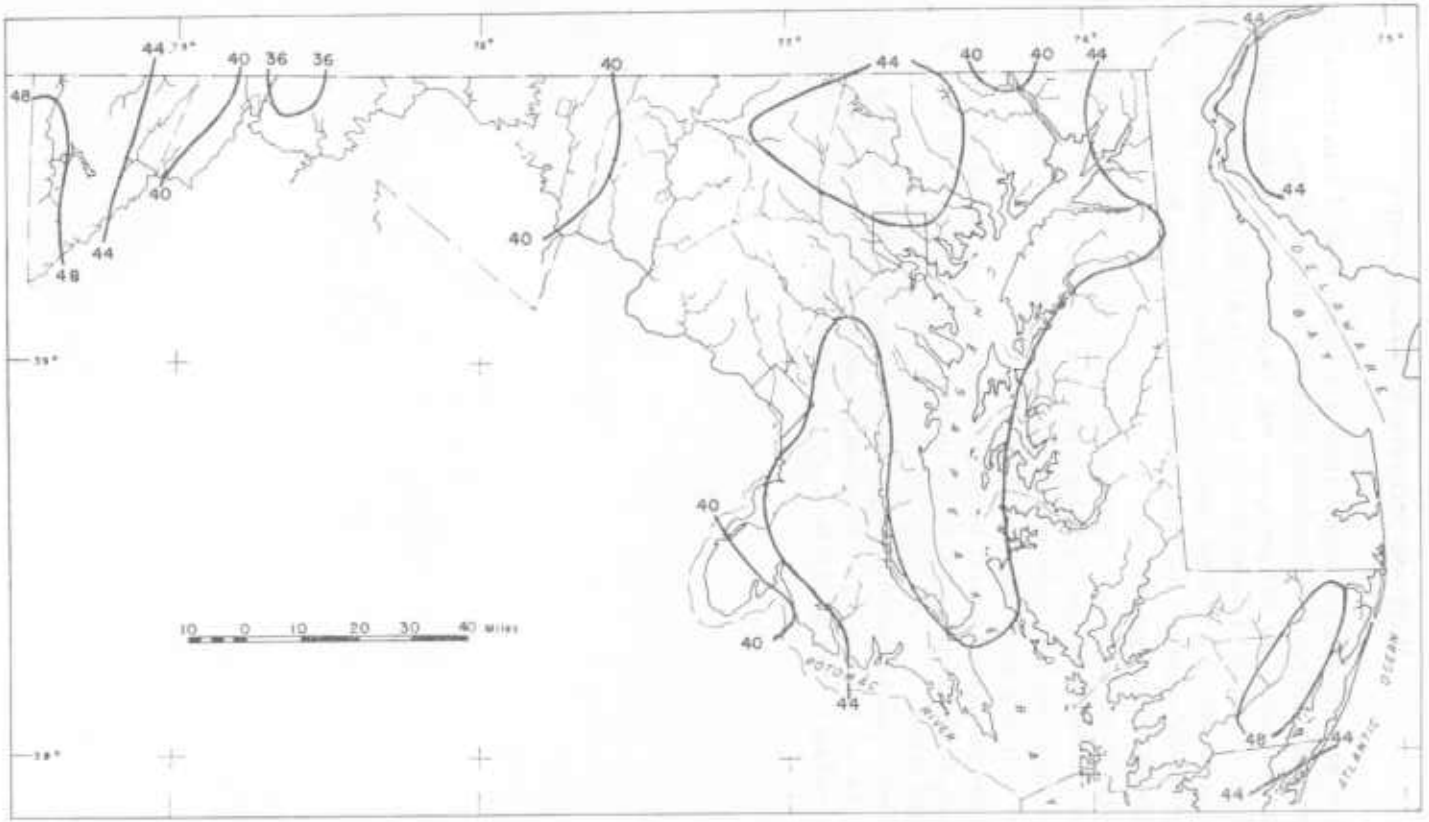


FIGURE 4. Mean Annual Precipitation in Maryland, in Inches, Based on Period 1931–55

feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Million gallons per day per square mile (*mgdsm*) is the average number of millions of gallons of water flowing per day from each square mile of area drained, assuming a uniform runoff distribution. One million gallons a day (mgd) is equivalent to 1.5472 cfs. Conversely, 1 cfs flowing for one day is equal to 0.646317 million gallons (mg).

Stage or gage-height of a stream is the height of the water surface above a chosen datum corresponding to the zero of the gage. The elevation of the gage above mean sea level is determined either by leveling to an established bench mark or from a topographic map.

Water year is the 12-month period commencing October 1 and ending September 30. It was selected so as to end during a low-water period in most of the United States.

Climatic year as used in this report is the 12-month period beginning April 1. This period was selected as it normally contains the entire low-flow season, thus making it more suitable for study of low-flow characteristics.

MAGNITUDE AND FREQUENCY OF FLOODS

Discussion

A knowledge of the magnitude and frequency of floods is necessary for the structural and economic design of structures bordering on stream channels or encroaching on flood plains. With a knowledge of flood frequency, the design flood may be selected on a sound economic basis.

The ideal situation would be to have long-term systematic records of flood events at the site of each proposed structure. Rarely is such a situation realized because it is impracticable to maintain stream-gaging stations at all points where flood data might be desired. Even for important structures that would warrant a special gaging station it is impossible to anticipate the need sufficiently in advance to secure a record of adequate length. Thus, there is need not only for a method of relating flood magnitudes and frequencies at points where flood data are available, but also for a method of transferring this information to other points. This report provides the data to meet these needs in Maryland.

Flood-Frequency Analysis

Data Used

Streamflow records for Maryland and adjacent areas of 5 or more years and not affected by excessive regulation were used for this analysis. These records consist of 87 within the State and 27 along the boundaries, ranging in length from 5 to 63 years, plus some historical information.

Flood Frequency at Gaging Stations

A flood-frequency curve based on regional characteristics is considered to be superior to a frequency curve based only on the floods at a particular site. There might be exceptions for isolated stations on large streams or on streams having characteristics radically different from those of adjacent streams.

The flood history at a particular gaging station is an accurate record of past events at the site. However, if the period of record is not typical of a long-term period, the record could be a poor basis for predicting future events.

Flood-frequency curves for individual stations are necessary in deriving the regional curve. When a number of station records are combined, the dependability of the frequency graphs is greatly improved. This study combines records for those stations whose basins are shown, by tests, to be hydrologically similar. Because of the random nature of large floods and because of the possibility of changes in flood events owing to changing land use and to climatic trends and cycles, flood-frequency graphs for different periods of time may be different; therefore, definite base periods are used in this report.

TABLE 1.

Recurrence Intervals in Years

Annual flood series	Partial-duration series
1.16	0.5
1.58	1.0
2.00	1.45
2.54	2.0
5.52	5.0
10.5	10
20.5	20
50.5	50
100.5	100

Types of Flood Series

Flood data for a gaging station may be analyzed in two ways: as an annual flood series and as a partial-duration series. The latter is often termed "floods above a base." In the annual flood series the recurrence interval is the average interval of time within which a flood equal to or greater than a given magnitude will occur once as the maximum flood in the water year. In the partial-duration series the recurrence interval is the average interval between floods of a given magnitude regardless of their relation to the year or any other period of time. For floods having recurrence intervals of 10 years or more both series give essentially the same results.

Table 1 gives the comparative values of recurrence intervals for the two series and a means of transforming one to the other.

The annual flood series has been used in this study. The annual peaks for each station are listed on pages 30–130.

Significant features of the method used by the Geological Survey for computing flood frequency are:

(1) Only the maximum momentary peak discharge for each water year is used.

(2) Recurrence intervals are computed by the formula $T = (n + 1)/m$, where T is in years, n is number of years of record, and m is the order number of each flood, the greatest being numbered *1*.

(3) Curves are fitted graphically.

(4) The mean annual flood is defined as the flood having a recurrence interval of 2.33 years.

In accordance with the definition of recurrence interval in the annual flood series explained above, a "25-year" flood will be equaled or exceeded as an annual maximum on the average once in 25 years. Frequency of occurrence may also be expressed in terms of probability. For example, a 25-year flood

can be considered as one that has a 4 per cent chance of occurring in any one year.

Regional Flood-Frequency Curves

This study revealed three regional divisions for Maryland as indicated on figure 5. These regions are designated as A, B, and C. A fourth region D was defined which applies only to the main stem of the Potomac River. The regions are represented by curves designated as A, B, C and D, as shown in figures 6 and 7. These curves show the ratio of discharge to the mean annual flood for various recurrence intervals.

Region A.—This region consists of the mountainous area in Western Maryland. Two base periods (1928–58 and 1948–58) were used in defining the regional curve for this area. A curve was defined by all stations for the short base period (1948–58) and then adjusted to the long base period (1928–58) on the basis of curves defined by the stations with the longer records.

Region B.—This region consists principally of the area in Maryland known as the Piedmont. Two base periods (1928–58 and 1948–58) were used to define the curve B. This curve was adjusted to the base period 1928–58 in the same manner as for region A.

Region C.—This region consists principally of the coastal area of Maryland. As only a few stations have sufficient record to compute frequency curves for the base period 1928–58 for this region, the regional curve C is defined by using only the base period 1948–58. Therefore, the curve for this region cannot be considered as reliable as those for the other regions.

Region D.—This region pertains only to the main stem of the Potomac River. Curve D was computed for the base period 1928–58 and adjusted to the base period 1895–1958 on the basis of the station with the longest record.

Mean Annual Flood

The mean annual flood is influenced by many factors, a few of which are the drainage area; the shape of the basin and its alignment with the prevailing direction of storm travel; land and stream slopes; elevation; geology of the basin; floodwater storage in stream channels, swamps, and lakes; type of vegetal cover; and land use. The drainage area is usually the dominant factor influencing the mean annual flood.

In Maryland the relation of the mean annual flood to drainage area varies considerably. Five hydrologic areas numbered 1 to 5 were defined as shown on figure 5. A curve of mean annual flood versus drainage area was drawn for each area. The larger rivers may drain parts of several hydrologic areas and reflect the differences between areas; therefore, separate curves were drawn for the main stems of the Monocacy and Potomac Rivers. Seven curves presented in figures 8 and 9 define the relation of mean annual flood versus drainage

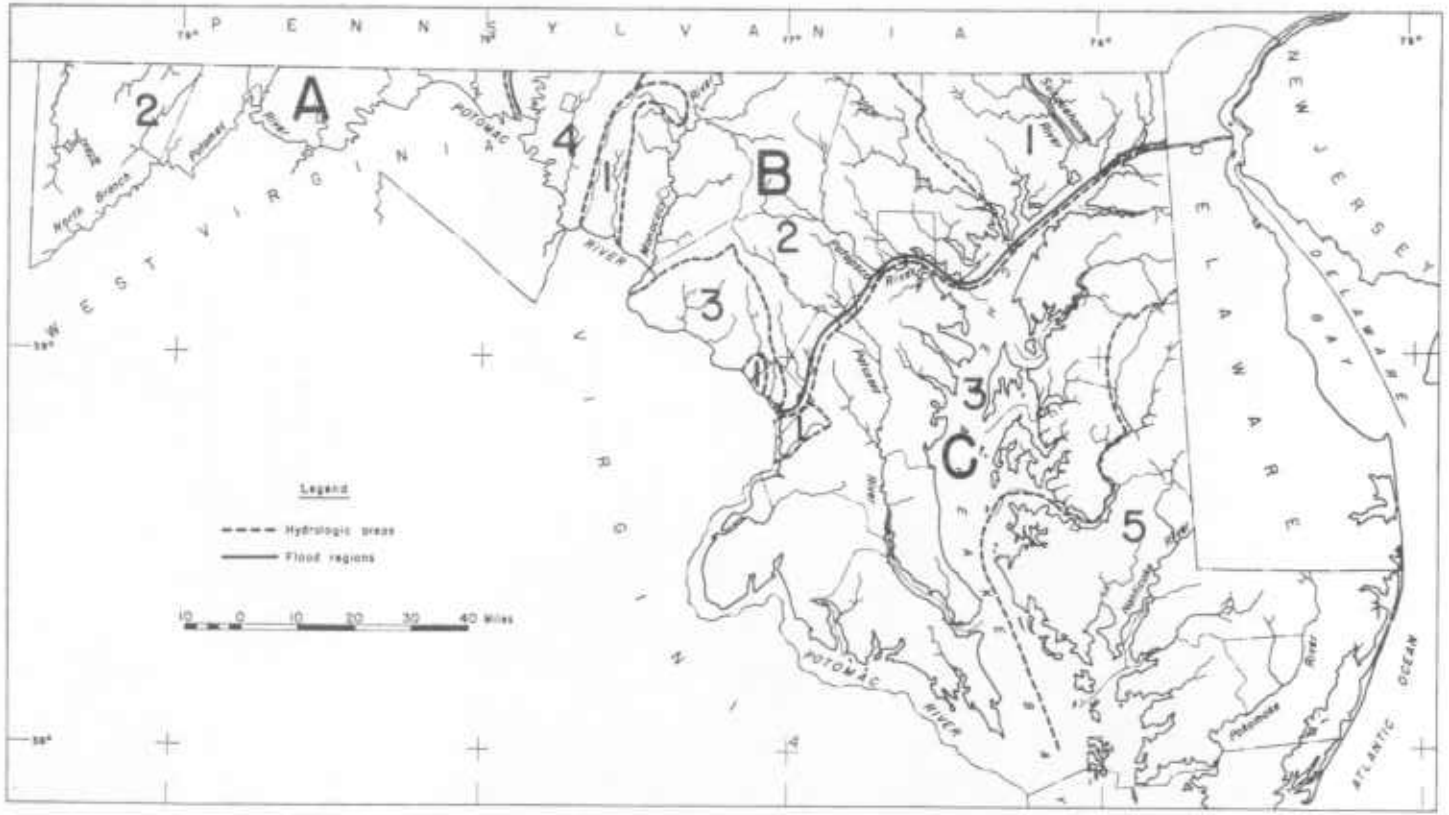


FIGURE 5. Map Showing Hydrologic Areas and Flood-Frequency Regions of Maryland

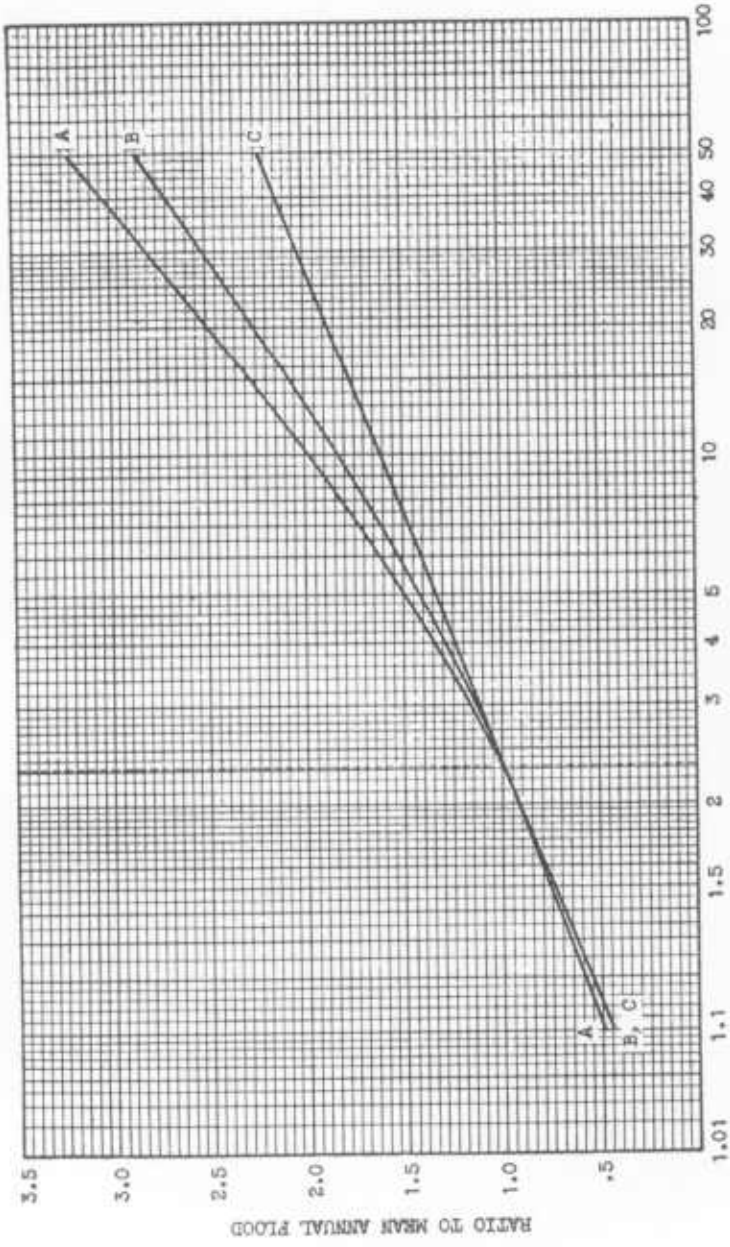


FIGURE 6. Frequency of Annual Floods, Regions A and B, Period 1928–58, and Region C, Period 1948–58

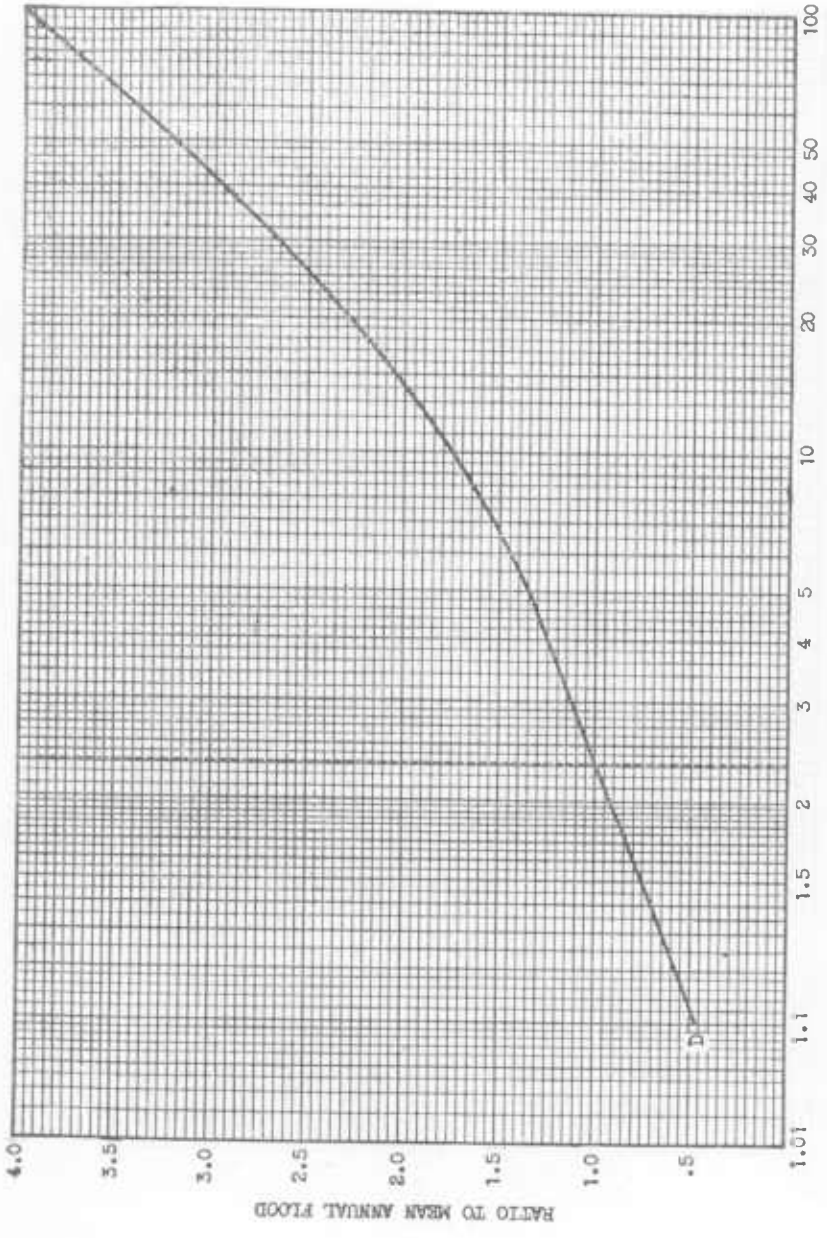


FIGURE 7. Frequency of Annual Floods, Main Stem Potomac River, Period 1895–1958

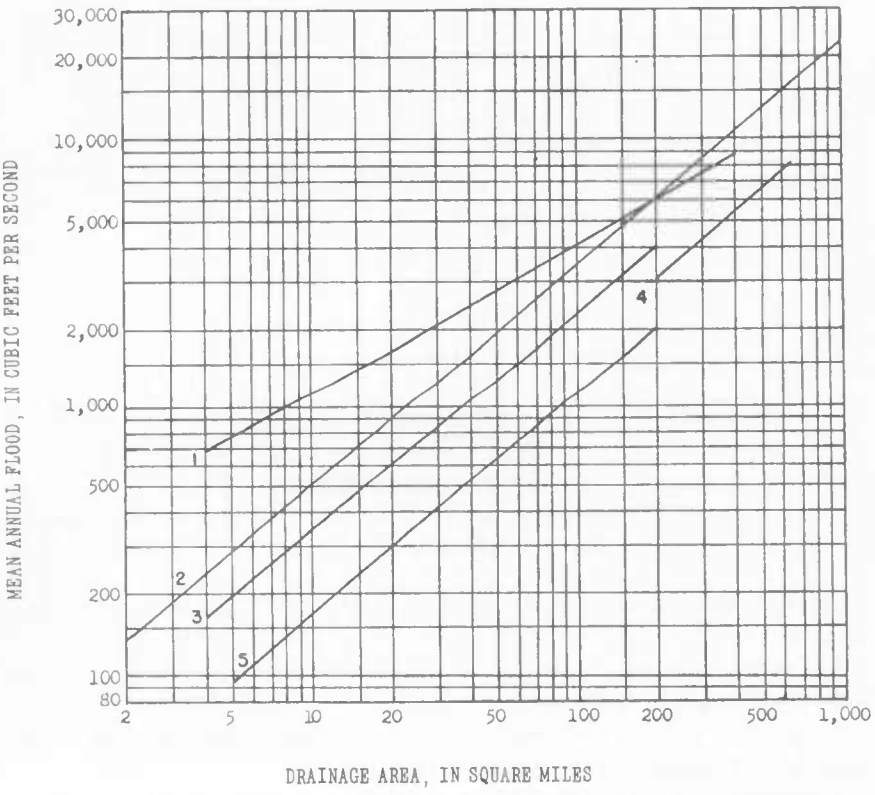


FIGURE 8. Variation of Mean Annual Flood with Drainage Area in Hydrologic Areas 1–5

area for the respective area or stream, and should be used as discussed below.

Curves 1–5 apply to areas as indicated on figure 5.

Curve 6 applies only to the main stem of the Monocacy River.

Curve 7 applies only to the main stem of the Potomac River.

Determination of Design Flood

Once the recurrence interval of the design flood is decided upon, its magnitude may be determined by the following procedure:

1. Determine drainage area in square miles of stream above desired site.
2. From figure 5 determine the number of the hydrologic area in which the site is located.
3. Determine the mean annual flood for the site from the proper curve in figure 8 or 9.

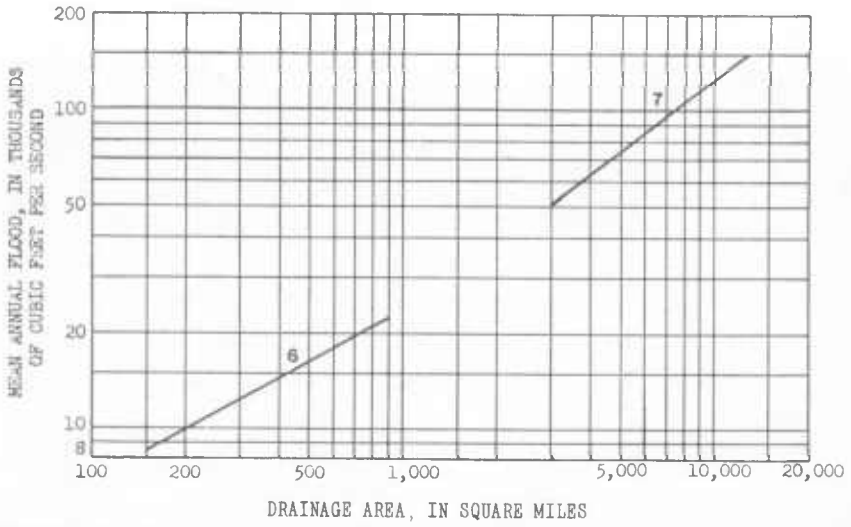


FIGURE 9. Variation of Mean Annual Flood with Drainage Area on Main Stem Monocacy (No. 6) and Potomac (No. 7) Rivers

4. From figure 5 identify the flood-frequency region in which the site is located.

5. Determine ratio to mean annual flood for the selected recurrence interval from proper curve in figure 6 or 7.

6. Multiply the ratio to mean annual flood (step 5) by the mean annual flood (step 3) to obtain the design-flood magnitude.

A complete annual flood-frequency curve for any site on streams in Maryland may be obtained by repeating steps 5 and 6 for various recurrence intervals. The frequency curve derived in this manner is a better indication of the frequency of future floods at the site than a curve obtained from streamflow records at the site alone. All curves shown in this report have been extended to limits warranted by base data. Results based on further extensions may be subject to considerable error.

LOW-FLOW FREQUENCY

Discussion

The low-flow characteristics of a stream govern its utilization and affect the cost of its development. When a gaging station has been operated for a long period, the minimum discharge that occurred during the period of record is useful information, especially if the record includes periods of severe drought. However, the minimum discharge of record is of limited value to the designer without additional study, because it is important for him to know how long the minimum flow lasted and how frequently such a flow can be expected.

The low-flow frequency curve is useful in answering questions about the frequency of low-flows of a particular severity. It shows the average intervals of time between the recurrence of low flows of selected periods. In this report the low-flow frequency data are derived from a family of curves for selected periods of 7, 14, 30, 60, 120, 183 and 274 consecutive days.

The flow-duration curve described on page 26 indicates the percentages of time various rates of flow were equaled or exceeded.

Low-Flow Frequency Analysis

Data Used

Before making the low-flow frequency analysis presented in this report, an inventory of the discharge records (fig. 1) in Maryland was made, and the daily discharges for all complete years of record, for stations with four or more years of record, were punched on a special tape designed to use in an electronic computer. The climatic year, April 1 to March 31, was used for obtaining annual low-flow as it contains the complete low-flow season. The electronic computer was programed to compute and tabulate for each year of record the lowest average rate of discharge for each of the selected periods, 7, 14, 30, 120, 183, and 274 consecutive days.

Frequency Plot

The period 1913–57 was selected as a common reference period so as to use the longest records in Maryland and adjacent States. Frequency curves for stations with shorter records were adjusted to represent flow characteristics for the reference period.

Low-flow frequency curves for the long-term stations were smoothed by comparing the annual lows observed from 1913 to 1959 with those at two or more other long-term stations. This smoothing minimizes the effect of chance occurrences that cause the flow of one stream to be lower or higher in relation to nearby streams than it would be were the drought of equal severity over the entire area. For example, local rains during a drought might affect the low

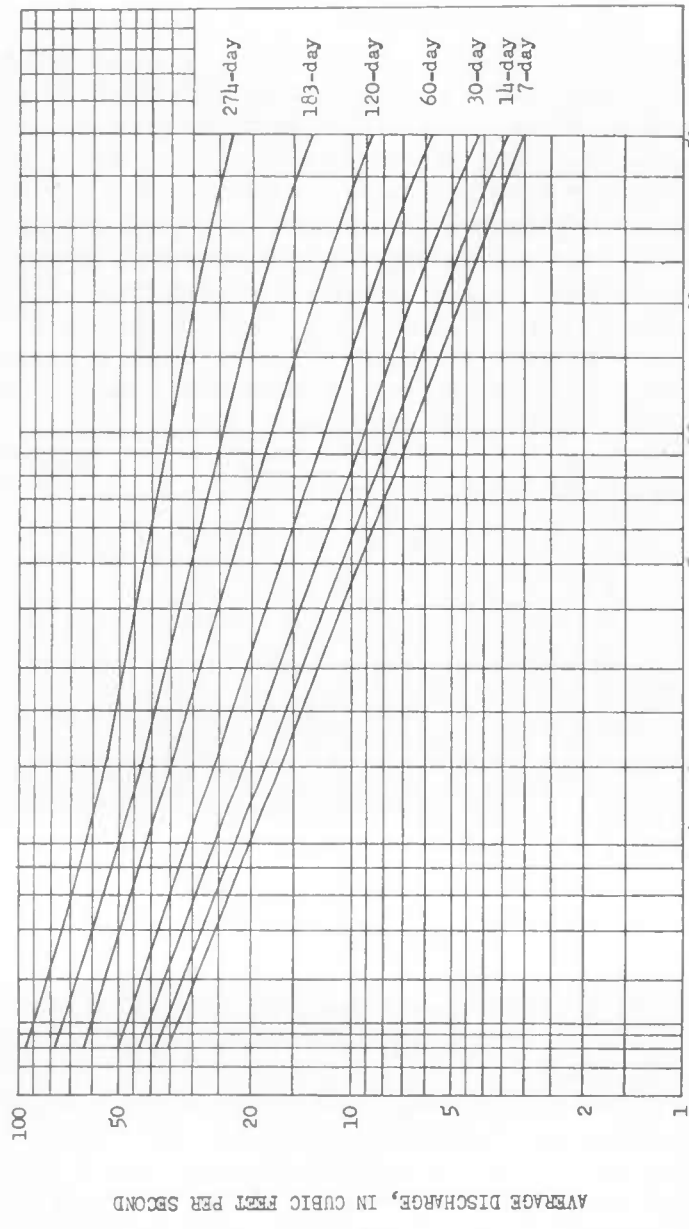


FIGURE 10. Low-Flow Frequency Curves for South Branch Patapsco River at Henryton, Md. (Adjusted to base period 1913-57)

TABLE 2

Magnitude and Frequency of Annual Low Flow for South Branch Patapsco River at Henryton, Md. (Data adjusted to reference period 1913–57 on basis of relation with records at other stations)

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	36	26	16	9.4	6.6	4.7	3.0
14	39	28	18	11	7.6	5.4	3.4
30	44	32	21	13	9.0	6.7	4.2
60	50	38	26	16	12	9.0	5.7
120	63	50	35	23	17	13	8.8
183	78	60	43	30	25	19	13
274	96	74	56	42	35	30	23

TABLE 3

Magnitude and Frequency of Annual Low Flow for South Branch Patapsco River at Henryton, Md. (Data adjusted to reference period 1913–57 on basis of relation with records at other stations)

Period (consecutive days)	Discharge, in cubic feet per second, per square mile, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	0.559	0.404	0.248	0.146	0.102	0.073	0.047
14	.606	.435	.280	.171	.118	.084	.053
30	.683	.497	.326	.202	.140	.104	.065
60	.776	.590	.404	.248	.186	.140	.088
120	.978	.776	.543	.357	.264	.202	.137
183	1.21	.932	.668	.466	.388	.295	.202
274	1.49	1.15	.870	.652	.543	.466	.357

flow of one stream but not of another. The method used for smoothing the low-flow frequency curves retains the individual characteristics of each stream while removing the effect of chance occurrences.

Low-flow frequency curves for the shorter term stations were obtained by relating the observed annual low flows to the annual low flows for one or more long-term stations. Relations based on the period of concurrent record were used to transpose the long-term frequency curves while still retaining the low-flow characteristics of each of the short term stations. A typical family of low-flow frequency curves developed by this technique is shown in figure 10. The data shown by these curves can also be presented in tabular form as in Table 2.

The tabular form of presentation has been used in this report. The tables

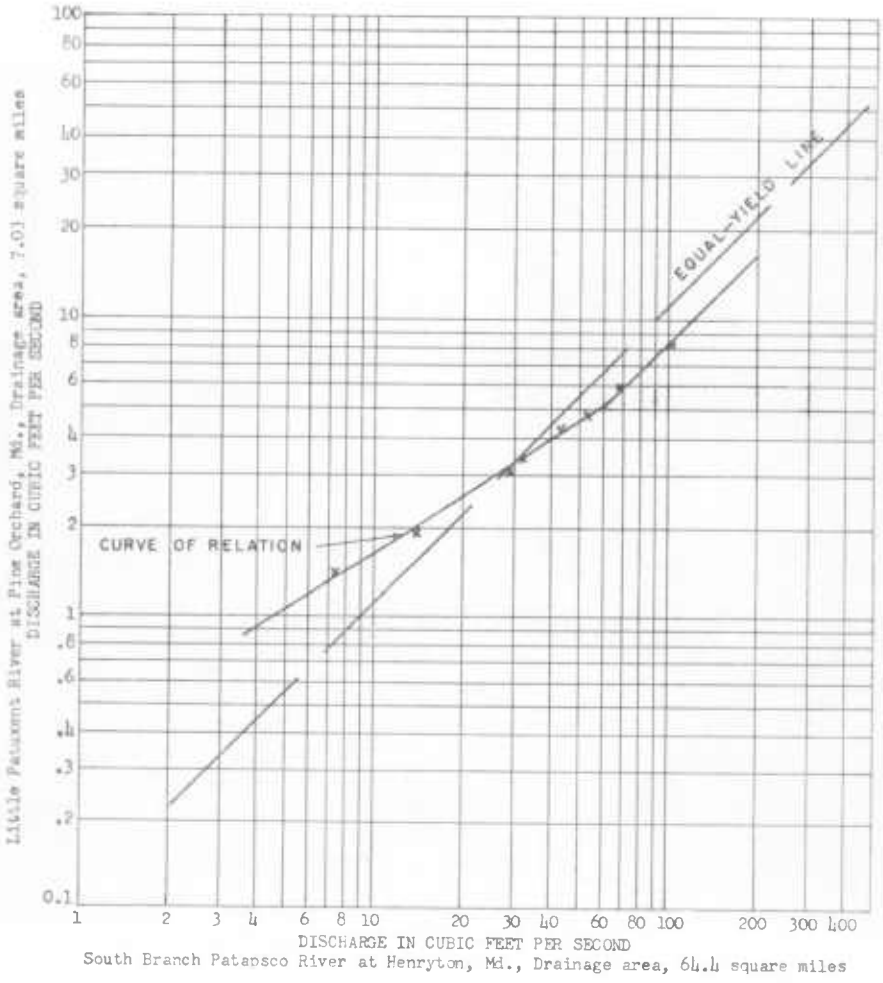


FIGURE 11. Relation of Discharge Measurements of Little Patuxent River and Discharge of South Branch Patapsco River

appear on pages 30–130. Curves such as those in figure 10 can be reproduced from the tables. The flow at various frequencies in cfsm can be determined by dividing the flow by the drainage area with the results as shown in Table 3.

In contrast to the flood frequency study, it is not possible to develop low-flow frequency curves for ungaged areas. The reason is that in most cases the geology of a basin affects low flows far more than it affects flood flows. The effect of geology on the low flows from each basin must always be considered while in flood flow the effect of geology can usually be handled satisfactorily by careful selection of hydrologic areas.

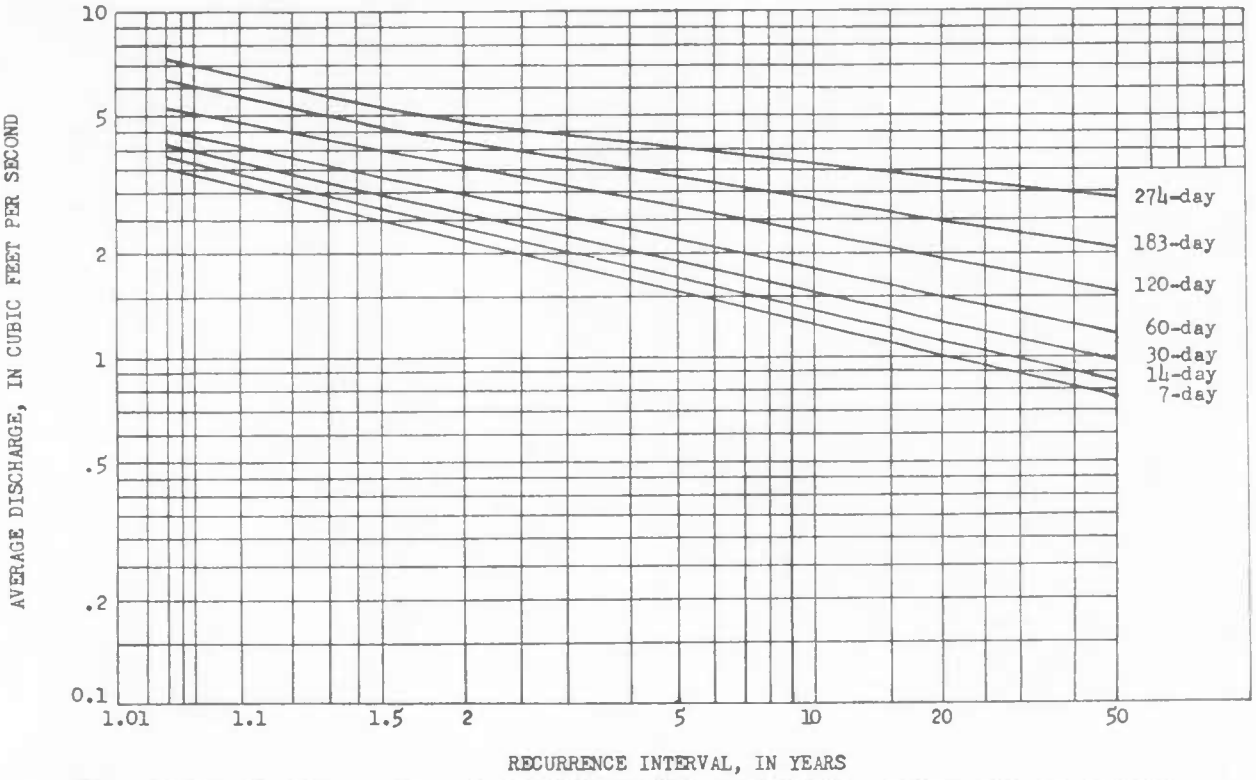


FIGURE 12. Low-Flow Frequency Curves for Partial Record Station on Little Patuxent River at Pine Orchard, Md. (Adjusted to base period 1913–57)

TABLE 4

Magnitude and Frequency of Annual Low Flow for Partial-Record Station on Little Patuxent River at Pine Orchard, Md. (Data adjusted to reference period 1913–57 on basis of relation with nearby station)

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	3.5	2.9	2.2	1.6	1.2	1.0	0.8
14	3.8	3.1	2.4	1.7	1.4	1.1	.8
30	4.1	3.4	2.6	1.9	1.5	1.3	1.0
60	4.5	3.8	3.0	2.2	1.8	1.5	1.2
120	5.3	4.5	3.6	2.7	2.3	1.9	1.5
183	6.3	5.2	4.2	3.3	2.8	2.5	2.0
274	7.3	6.0	4.8	4.0	3.6	3.3	2.8

Low-flow frequency curves can be developed at sites other than regular gaging stations by making a series of discharge measurements during periods of base flow. These discharge measurements can be related to the flow at a nearby gaging station. If a good relationship exists, the frequency data from the gaging station can be transposed by employing this relationship curve. The data developed in this manner cannot be expected to be as reliable as that from a gaging station. However, if a relatively good range in flow is experienced and a good relationship exists, the data developed will be useful.

A method of relating periodic measurements of base flow to the flow at a stream gaging station is illustrated in figure 11. Eight discharge measurements of Little Patuxent River at Pine Orchard, Md., a low-flow partial record station, are related to the discharge for the same day at the gaging station South Branch Patapsco River at Henryton, Md. The upper end of the relationship curve has been drawn as a 45 degree line to make the discharge at the two stations have a constant ratio, and the lower end has been drawn as another straight line (Searcy, 1959, p. 17–21). The line of equal yield per square mile is shown for comparison. The curve of relation was used to transpose the low flow frequency curve from the station at Henryton to the partial record station as shown in figure 12 and Table 4. Data collected at other partial record stations in Maryland can be related to the flow at a stream gaging station in similar manner, but the relations may not all be as well defined as the one in figure 11. Results of base flow measurements at the following low flow partial record stations in Maryland are published annually (U. S. Geological Survey Water-Supply Papers, Surface-water supply of the United States, Part 1-B):

Broad Creek at Pylesville
Swan Creek at Swan Creek

Grays Run at Stepney
Bynum Run at Bush
James Run at Bush
Winters Run near Bel Air
Georges Run at Armacost
Blackrock Run at Coopersville
Beaver Dam Run at Coopersville
Little Gunpowder Falls at Hess
Beaver Run at Finksburg
Morgan Run near Gamber
Cattail Creek tributary at Carrs Mill
Little Patuxent River at Pine Orchard
Middle Patuxent River near West Friendship
Hammond Branch at Scaggsville
Piney Creek at Taneytown
Big Pipe Creek at Bachman Mills
Big Pipe Creek at Pipe Creek
Meadow Branch near Uniontown
Wolf Pit Branch at Linwood
Little Pipe Creek at Union Bridge

FLOW DURATION

Discussion

The flow characteristics of a stream play a large part in a stream's utilization and will greatly influence the cost of its development. The low-flow frequency curves answer some questions as to the severity of a drought by showing how frequently a certain minimum flow can be expected to occur, on the average. The flow-duration curve shows the percentage of time a given flow will be equaled or exceeded.

The duration curve presents a generalized picture of the flow and the relation of flows of various magnitudes to the duration of time. For this reason, it has widespread use among engineers in many countries. Duration studies had their earliest use in connection with hydroelectric power development but now are recognized as useful in studying problems such as water supply and the dilution and disposal of domestic and industrial wastes. The shape of the duration curve is indicative of the variability of the flows; the steeper the slope the more variable the flows. A flat slope indicates the presence of storage either in lakes, ponds, or swamps or as ground-water storage.

Comparisions of duration curves of different streams is often made to detect differences in runoff characteristics, since duration curves reflect drainage basin characteristics. The duration curves should represent the same periods at the stations being compared in order to reveal differences in drainage basin characteristics rather than variations in weather.

Flow Duration Analysis

Data Used

The discharge records used in the low-flow frequency study were used also for the duration study except that the water year was used instead of the climatic year. Class intervals were selected to provide about thirty well distributed points on the curve with the extremes picked to barely include the extreme daily discharges for the period. This information was programed into an electronic computer for selection and tabulation of the number of days a year that fell in each class for each station.

Duration Plot

The same reference period 1913–57 was used as in the low-flow frequency study, and the records for the short-term stations were extended to be representative of the base period by correlation with the long-term station in a similar manner. Figure 13 shows a typical duration curve. These same data are produced in tabular form in Table 5, indicating the discharge in cubic feet per second at fifteen percentage points, from 0.5 percent to 99.5 percent, that is

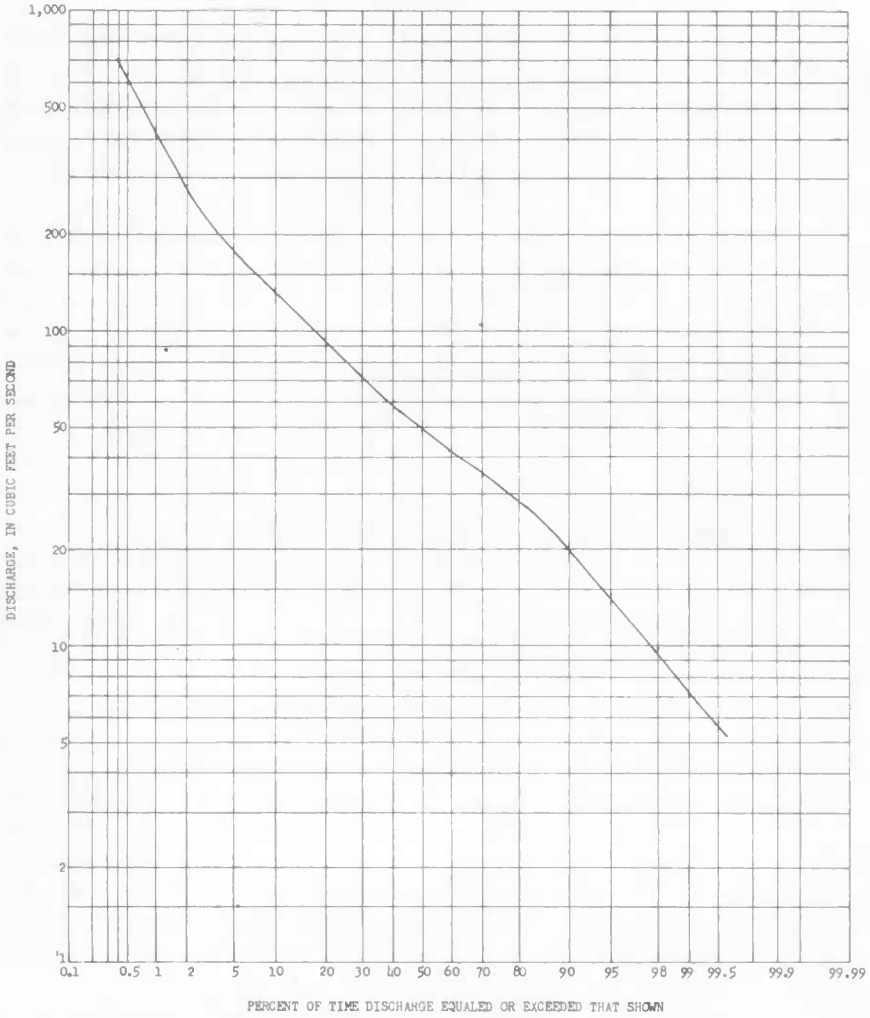


FIGURE 13. Duration Curve of Daily Flow, South Branch Patapsco River at Henryton, Md. (Adjusted to base period 1913–57)

equaled or exceeded for the indicated percent of time. These data can also be converted to cfsm, by dividing the discharge in Table 5 by the drainage area.

Tabular form of presentation has been used for this report. The tables appear on pages 30–130. These tables contain two sets of figures: the first set shows the smoothed figures for the base period 1913–57 and the second set shows figures based only on the period of record indicated. Curves similar to that shown in figure 13 can be constructed from the tables.

Flow-duration curves cannot be developed for an ungaged site without

TABLE 5

Duration of Daily Flow for South Branch Patapsco River at Henryton, Md. (Data adjusted to reference period 1913–57 on basis of relation with records at other stations)

Water Years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913–57	615	420	278	177	132	92	72	49	35	29	20	14	9.4	7.2	5.6

TABLE 6

Duration of Daily Flow for Partial-Record Station on Little Patuxent River at Pine Orchard, Md. (Data adjusted to reference period 1913–57 on basis of relation with records at nearby station)

Water Years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913–57	53	36	23	15	11	7.8	6.0	4.4	3.6	3.2	2.5	2.0	1.5	1.3	1.1

actual flow information. As with the low-flow frequency, a duration curve can be developed for such a site if a series of base-flow measurements is made. These data must be correlated with daily flow records from a nearby gaging station. If a good correlation exists such as shown in figure 11, the duration data from the gaging station can be transposed, within the limits of definition of the relationship curve, to develop the duration curve for the ungaged site (fig. 14). In turn, these data can be produced in tabular form (Table 6).

GAGING STATION DATA

In the following pages the stream gaging stations used in this study are published in downstream order. The number preceding the station name is the location number in figure 2 and the number on the bar graph in figure 1. The number following the station name is the U. S. Geological Survey identification number in the stream gaging network throughout the United States. There is a brief description for each station similar to that published in the U. S. Geological Survey Water-Supply Papers.

Under "Remarks", the records are qualified as "regulated" or "unregulated." The flow at a regulated station may be affected by storage, diversion, or other regulation. Where known, the type and amount of regulation is shown. The flow at an "unregulated" station is either natural flow or any small regulation that may exist has an insignificant effect on the flow pattern. As water resources become more fully developed, there will be fewer streams that are not affected at least slightly by farm ponds, occasional pumping for irrigation,

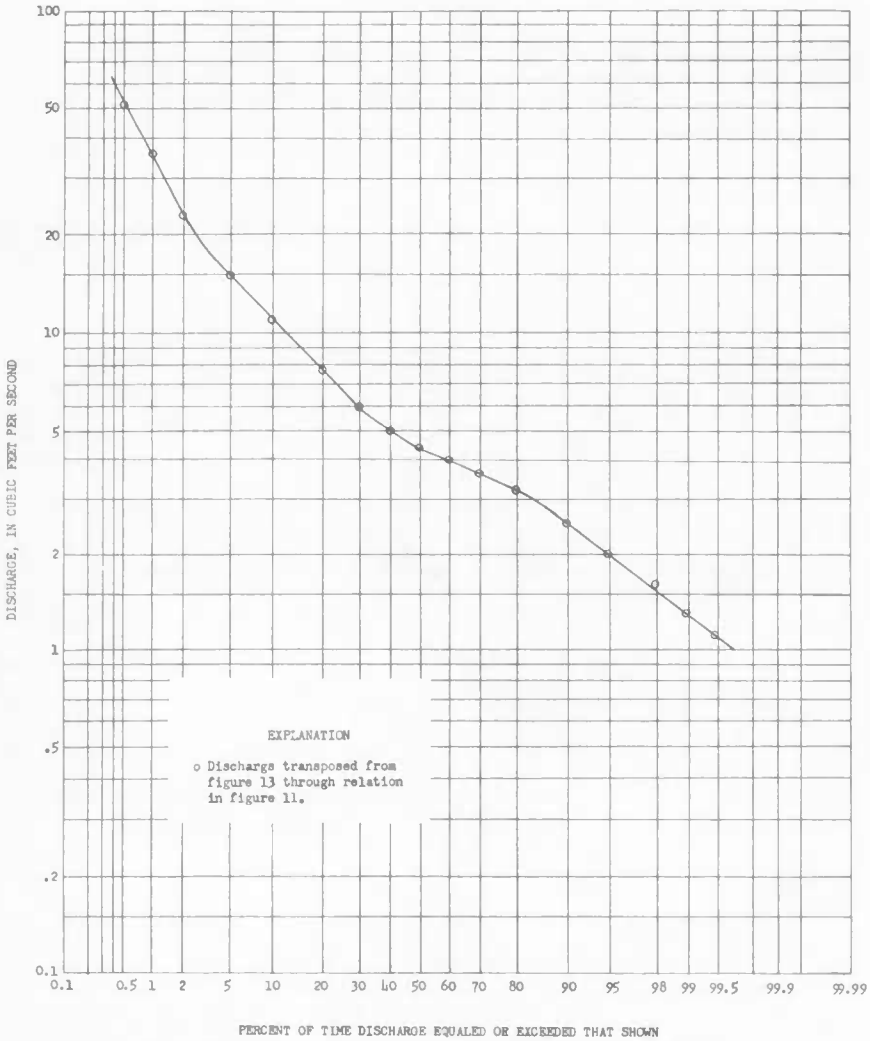


FIGURE 14. Duration Curve of Daily Flow for Partial-Record Station on Little Patuxent River at Pine Orchard, Md. (Adjusted to base period 1913–57)

or other forms of regulation. For some stations low-flow frequency and flow-duration relations have been developed for both natural conditions and regulated conditions when sufficient length of record was available under each condition.

The station description is followed by three sets of tables: annual peaks, magnitude and frequency of annual low flow, and duration table of daily flow.

1. Pocomoke River near Willards, Md. (01B4850)

Location.--Lat 38°23'20", long 75°19'30", on left bank 30 ft downstream from bridge on U. S. Highway 50, at Wicomico-Worcester County line, 0.6 mile upstream from Burnt Mill Branch, 1.3 miles east of Willards, Wicomico County, and 1.3 miles west of Whaleysville.
Drainage area.--60.5 sq mi.
Records available.--December 1949 to September 1959.
Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).
Average discharge.--9 years (1950-59), 65.7 cfs.
Extremes.--Maximum discharge, 882 cfs Mar. 21, 1958 (gage height, 12.03 ft); maximum daily, 864 cfs Mar. 21, 1958; minimum, 2.2 cfs Aug. 18, 19, 1957 (gage height, 1.91 ft); minimum daily 2.4 cfs Aug. 18, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	June 11, 1951	8.85	391	1956	Oct. 15, 1955	10.71	670
1952	June 1, 1952	10.37	830	1957	Oct. 31, 1956	10.15	559
1953	Mar. 13, 1953	10.94	816	1958	Mar. 21, 1958	12.03	882
1954	Apr. 28, 1954	11.33	679	1959	July 16, 1958	9.65	562
1955	June 12, 1955	10.54	645				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	22	13	5.8	2.5	2.0	1.7	1.3
14	26	15	7.2	3.0	2.2	1.9	1.5
30	33	19	8.7	3.4	2.4	2.1	1.7
60	39	22	10	4.2	3.0	2.5	1.9
120	48	29	14	5.9	4.2	3.3	2.4
183	64	40	20	9.0	6.2	4.5	3.0
274	108	64	35	19	13	8.6	5.2

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	560	430	323	210	142	86	60	31	17	11	6.6	3.9	2.2	1.4	1.0
1951-58	618	493	372	213	145	93	67	39	20	13	9.2	7.0	4.9	3.7	3.1

2. Nassawango Creek near Snow Hill, Md. (01B4855)

Location.--Lat 38°13'45", long 75°28'20", on right bank 15 ft downstream from bridge on State Highway 12, 0.5 mile upstream from Furnace Branch, 0.6 mile downstream from Millville Creek, and 5.5 miles northwest of Snow Hill, Worcester County.
Drainage area.--44.9 sq mi.
Records available.--December 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map).
Average discharge.--9 years (1950-59), 52.5 cfs.
Extremes.--Maximum discharge, 988 cfs Aug. 16, 1953 (gage height, 7.82 ft); maximum daily, 913 cfs Aug. 16, 1953; minimum, 1.4 cfs Aug. 16, 1954, Aug. 6, 7, 1957; minimum daily, 1.6 cfs for several days in Aug., Sept. 1954 and Aug. 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	June 12, 1951	5.75	258	1956	Oct. 16, 1955	6.19	348
1952	Mar. 26, 1952	6.70	486	1957	Nov. 2, 1956	6.79	542
1953	Aug. 16, 1953	7.82	988	1958	Mar. 21, 1958	7.36	761
1954	Apr. 30, 1954	6.51	430	1959	July 17, 1959	6.95	597
1955	Aug. 14, 1955	7.57	920				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	14	8.3	2.3	1.2	1.0	.8	.6
14	17	7.9	2.9	1.4	1.1	.9	.7
30	23	11	4.0	1.7	1.2	1.0	.8
60	29	14	5.3	2.1	1.5	1.2	.9
120	38	19	7.6	3.0	2.1	1.6	1.2
183	55	28	12	5.0	3.2	2.3	1.5
274	89	52	26	11	7.0	4.5	2.5

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	452	350	266	175	118	70	45	20	8.9	5.4	2.8	1.8	1.4	1.2	1.0
1951-58	485	405	300	194	119	74	53	27	11	6.7	3.9	2.6	2.0	1.9	1.8

3. Manokin Branch near Princess Anne, Md. (01B4860)

Location.--Lat 38°12'50", long 75°40'18", on right bank 5 ft downstream from farm bridge, 1.4 miles northeast of Princess Anne, Somerset County, and 1.6 miles upstream from confluence with Loretta Branch.
Drainage area.--5.8 sq mi, approximately.
Records available.--April 1951 to September 1959.
Gage.--Water-stage recorder. Altitude of gage is 15 ft (from topographic map).
Average discharge.--8 years, 4.14 cfs.
Extremes.--Maximum discharge, 237 cfs Aug. 13, 1955 (gage height, 6.63 ft), from rating curve extended above 120 cfs by logarithmic plotting; maximum daily, 175 cfs Aug. 13, 1955; no flow Aug. 4, 8, 14, 1954, part of several days in August 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 24, 1952	3.65	84	1956	Feb. 4, 1956	3.37	54
1953	Aug. 14, 1953	5.96	210	1957	Oct. 31, 1956	5.20	154
1954	Apr. 17, 1954	3.03	41	1958	May 7, 1958	5.49	174
1955	Aug. 13, 1955	6.63	237	1959	Aug. 8, 1959	4.51	111

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	1.6	0.7	0.2	0	0	0	0
14	2.0	.9	.3	.1	0	0	0
30	2.2	1.0	.3	.1	0	0	0
60	2.6	1.3	.4	.1	0	0	0
120	3.0	1.4	.5	.1	.1	0	0
183	4.4	2.1	.8	.2	.1	0	0
274	7.2	4.1	1.9	.8	.4	.2	.1

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	41	30	22	14	9.2	5.2	3.1	1.2	0.5	0.3	0.2	0.1	0.1	0	0
1952-57	40	32	25	15	8.6	5.3	3.7	1.8	.6	.4	.2	.2	.1	.1	.1

4. Beaverdam Creek near Salisbury, Md. (01B4865)

Location.--Lat 38°21'05", long 75°34'11", on upstream side of Schumaker Dam between spillway and emergency floodgates, three-quarters of a mile upstream from Beaglin Branch and 2 miles southeast of Salisbury, Wicomico County.
Drainage area.--19.5 sq mi.
Records available.--October 1929 to September 1959. Prior to October 1948, published as "East Branch Wicomico River near Salisbury".
Gage.--Water-stage recorder and concrete spillway of dam for control. Datum of gage is 8.93 ft above mean sea level (city of Salisbury benchmark). Prior to Sept. 28, 1938, at site on left bank at datum 9.02 ft higher.
Average discharge.--23 years (1930-32, 1938-59), 23.8 cfs.
Extremes.--Maximum discharge not determined, occurred Aug. 23, 1933, when dam was partially washed out; maximum gage height, 14.31 ft Aug. 4, 1948, from highwater mark in well; minimum daily discharge recorded, 0.6 cfs during several periods in 1938 and 1939 (leakage under dam and through floodgates following closing of floodgates).
Remarks.--Records include flow over spillway plus leakage through floodgates. Occasional regulation at low and medium flow by mill above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Mar. 19, 1930	1.76	76	1947	Apr. 18, 1947	10.64	69
1931	May 7, 1931	1.48	36	1948	Aug. 4, 1948	14.31	1,480
1932	Mar. 8, 1932	1.98	115	1949	Dec. 5, 1948	11.44	217
1933	Aug. 23, 1933	5.00		1950	Mar. 24, 1950	10.80	95
1937	July 1, 1937	2.97	334	1951	May 24, 1951	11.09	143
1938	July 26, 1938		443	1952	Mar. 26, 1952	11.42	207
1939	Oct. 15, 1938		283	1953	Aug. 14, 1953	11.96	653
1940	June 7, 1940		234	1954	Apr. 28, 1954	11.45	502
1941	Apr. 7, 1941	10.91	111	1955	Aug. 13, 1955	11.30	338
1942	Mar. 30, 1942	12.10	392	1956	Oct. 3, 1955	10.71	209
1943	Feb. 6, 1943	10.76	86	1957	Oct. 31, 1956	11.43	300
1944	Sept. 15, 1944	10.37	260	1958	Mar. 21, 1958	11.96	337
1945	July 18, 1945	10.93	115	1959	Aug. 9, 1959	12.12	733
1946	Dec. 30, 1945	11.60	252				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	12	8.7	6.0	4.4	3.9	3.5	3.0
14	13	9.9	6.8	5.0	4.4	3.9	3.4
30	16	12	8.3	6.0	5.3	4.7	4.0
60	19	14	9.4	7.0	6.1	5.4	4.6
120	24	16	11	8.2	7.0	6.1	5.1
183	28	19	13	9.0	7.6	6.5	5.4
274	38	26	18	13	10	8.6	6.8

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	180	138	104	68	48	33	25	17	12	9.8	7.3	5.6	3.9	3.0	2.4
1930-31 1939-57	153	116	88	61	44	31.4	24.7	16.8	11.2	8.9	6.9	5.6	3.7	2.9	2.3

5. Nanticoke River near Bridgeville, Del. (01B4870)

Location.--Lat 38°43'43", long 75°33'44", on left bank at highway bridge, 800 ft downstream from Gum Branch, and 2.5 miles southeast of Bridgeville, Sussex County.
Drainage area.--75.4 sq mi.
Records available.--April 1943 to September 1959. Prior to October, 1955, published as Gravelly Fork near Bridgeville.
Gage.--Water-stage recorder and timber control. Altitude of gage is 15 ft (from topographic map). Prior to Apr. 19, 1947, staff gage at same site and datum.
Average discharge.--16 years, 90.2 cfs.
Extremes.--Maximum discharge, 2,300 cfs Aug. 26, 1958 (gage height, 8.84 ft); maximum daily, 2,070 cfs Aug. 26, 1958; minimum observed, 6.3 cfs Sept. 29, 1943; minimum daily, 6.6 cfs Sept. 29, 1943. Maximum stage known, about 11.0 ft in September 1935, from information by local residents.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Mar. 14, 1944	5.13	420	1952	Dec. 22, 1951	6.21	776
1945	July 24, 1945	5.24	435	1953	Mar. 17, 1953	5.39	468
1946	Dec. 30, 1945	6.20	730	1954	Mar. 5, 1954	4.53	248
1947	May 27, 1947	4.98	386	1955	Aug. 15, 1955	6.12	680
1948	June 5, 1948	6.40	830	1956	Mar. 17, 1956	4.84	270
1949	Dec. 5, 1948	5.81	590	1957	Nov. 3, 1956	6.15	635
1950	Mar. 24, 1950	3.91	216	1958	Aug. 26, 1958	8.84	2,300
1951	June 12, 1951	4.15	240	1959	July 16, 1959	6.88	930

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	34	26	19	14	12	10	8.0
14	38	29	21	15	13	11	8.6
30	44	33	23	17	14	12	9.5
60	56	39	27	19	16	14	11
120	77	51	34	24	20	17	13
183	94	63	42	29	24	21	16
274	126	88	60	41	33	28	22

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	588	465	362	250	178	119	89	56	37	30	23	19	15	13	12
1944-58	555	468	379	261	192	132	98.	61	39	31	24	21	17	15	13

6. Faulkner Branch at Federalsburg, Md. (01B4890)

Location.--Lat 38°42'45", long 75°47'35", on right bank 25 ft downstream from highway bridge on Nichols Road, 0.9 mile upstream from mouth, and 1 mile northwest of Federalsburg, Caroline County.
Drainage area.--7.10 sq mi.
Records available.--July 1950 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).
Average discharge.--9 years, 8.90 cfs.
Extremes.--Maximum discharge, 440 cfs Aug. 25, 1958 (gage height, 4.12 ft), from rating curve extended above 210 cfs on basis of slope-area measurement at gage height 4.10 ft; maximum daily, 241 cfs Aug. 13, 1955; no flow for part or all of many days in 1954, 1955, 1957, 1959 (result of pumpage for irrigation).
Remarks.--Diversion for irrigation of about 100 acres above station during some years.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	July 28, 1951	1.93	39	1956	July 9, 1956	2.50	94
1952	Dec. 21, 1951	3.16	212	1957	Nov. 2, 1956	3.21	198
1953	Jan. 9, 1953	2.14	58	1958	Aug. 25, 1958	4.12	440
1954	Mar. 2, 1954	2.00	45	1959	July 15, 1959	3.53	250
1955	Aug. 13, 1955	4.10	433				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	3.4	2.5	1.6	0.7	0.4	0.2	0.1
14	3.8	2.8	1.8	1.0	.5	.3	.1
30	4.3	3.0	2.0	1.2	.7	.4	.1
60	5.6	3.8	2.4	1.5	1.0	.5	.2
120	8.6	5.3	2.9	1.7	1.2	.9	.5
183	10	6.4	3.6	2.1	1.6	1.2	.8
274	12	8.4	5.2	3.4	2.5	1.9	1.4

Duration table of daily flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	62	46	34	24	17	11	8.5	5.3	3.4	2.6	1.8	1.2	0.8	0.5	0.3
1951-57	59	40	31	23	18	12	9.1	5.8	3.5	2.5	1.6	1.3	1.0	.7	.5

7. Rewastico Creek near Hebron, Md. (01B4895)

Location.--Lat 38°24'40", long 75°45'15", on left wingwall of old mill sluiceway, 10 ft upstream from bank of stoplogs, on right bank of Rewastico Pond at outlet, 1.5 miles upstream from Little Creek, 2.8 miles north of Quantico, and 3.5 miles southwest of Hebron, Wicomico County.
Drainage area.--12.2 sq mi.
Records available.--December 1949 to September 1956 (discontinued).
Gage.--Water-stage recorder. Datum of gage is 1.8 ft above mean sea level, datum of 1929. Prior to May 16, 1950, staff gage at same site and datum.
Average discharge.--6 years, 8.88 cfs.
Extremes.--Maximum discharge, 153 cfs Aug. 13, 1955 (gage height, 5.21 ft) from rating curve extended above 82 cfs by rectangular plotting and Weir formula; maximum daily, 128 cfs Aug. 13, 1955; minimum, 0.8 cfs Oct. 18, 19, 1954 (gage height, 2.16 ft); minimum daily, 0.9 cfs Oct. 19, 1954.
Remarks.--Records comprised of flow through sluiceway and through 42-in. culvert.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Mar. 20, 1951	3.90	49	1954	Apr. 28, 1954	4.44	91
1952	Jan. 28, 1952	4.78	98	1955	Aug. 13, 1955	5.21	153
1953	Aug. 14, 1953	4.58	88	1956	June 3, 1956	3.84	56

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	4.8	2.9	1.5	0.7	0.5	0.4	0.3
14	5.3	3.3	1.8	.8	.6	.5	.4
30	6.2	4.0	2.2	1.0	.7	.6	.4
60	6.9	4.5	2.6	1.3	.8	.7	.5
120	7.6	5.2	3.1	1.7	1.2	.9	.7
183	9.6	6.6	3.7	2.3	1.7	1.2	.8
274	16	9.9	5.6	3.5	2.6	2.0	1.4

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	62	50	40	28	20	13	9.1	5.7	3.7	2.8	1.9	1.3	1.0	0.8	0.7
1951-56	61	47	36	25	18	13	9.4	6.2	4.2	3.2	2.3	2.0	1.6	1.4	1.3

8. Chicamacomico River near Salem, Md. (0184900)

Location.--Lat 38°30'45", long 75°52'50", on left bank 30 ft downstream from Big Mill Pond dam, 1.6 miles east of Salem, Dorchester County, 3.5 miles northwest of Vienna, and 13 miles upstream from mouth.
Drainage area.--15.0 sq mi.
Records available.--April 1951 to September 1959.
Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).
Average discharge.--8 years, 16.6 cfs.
Extremes.--Maximum discharge, 326 cfs Jan. 28, 1952 (gage height, 3.92 ft); maximum daily, 264 cfs Aug. 13, 1955; minimum, 1.0 cfs Dec. 7, 22, 1954, result of freezeup; minimum gage height, 0.24 ft Dec. 7, 1954; minimum daily, 1.8 cfs June 2, 1951, July 25, 1955.
Remarks.--Some regulation by Big Mill Pond.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Jan. 28, 1952	3.92	326	1956	Mar. 14, 1956	2.71	78
1953	Jan. 9, 1953	3.22	152	1957	June 6, 1957	3.68	260
1954	Apr. 28, 1954	2.85	106	1958	May 7, 1958	3.78	285
1955	Aug. 13, 1955	3.88	314	1959	Aug. 9, 1959	3.45	202

Magnitude and frequency of annual low flow
[Dete adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	6.1	5.0	4.0	3.2	2.8	2.5	2.2
14	6.5	5.4	4.3	3.4	3.0	2.7	2.4
30	7.1	5.7	4.5	3.6	3.2	2.9	2.5
60	9.3	6.8	5.0	4.0	3.5	3.2	2.7
120	12	8.5	6.0	4.6	4.1	3.6	3.0
183	16	11	7.6	5.8	5.0	4.3	3.5
274	19	13	9.4	7.3	6.3	5.5	4.6

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	119	86	60	40	29	20	16	11	7.2	5.8	4.6	3.8	3.3	3.1	2.8
1953-58	119	80	61	42	30	22	17	12	7.5	5.7	4.5	4.0	3.5	3.3	3.0

9. Choptank River near Greensboro, Md. (01B4910)

Location.--Lat 38°59'50", long 75°47'10", on left bank at highway bridge, 0.1 mile upstream from Gravelly Branch and 2.0 miles northeast of Greensboro, Caroline County.
Drainage area.--113 sq mi.
Records available.--January 1948 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 5 ft (from topographic map).
Average discharge.--11 years, 129 cfs.
Extremes.--Maximum discharge, 4,380 cfs Aug. 26, 1958 (gage height, 11.74 ft); maximum daily, 4,210 cfs Aug. 26, 1958; minimum, 5.2 cfs Sept. 3-7, 1957 (gage height, 1.74 ft), minimum daily, 5.2 cfs Sept. 4-6, 1957.
Remarks.--Some regulation at low flow by mill above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Dec. 31, 1948	8.24	1,700	1955	Aug. 14, 1955	7.41	1,140
1950	Mar. 24, 1950		1,050	1956	Mar. 15, 1956	6.78	989
1951	June 11, 1951	5.40	840	1957	Nov. 3, 1956	11.47	4,140
1952	Dec. 22, 1951	9.99	3,640	1958	Aug. 26, 1958	11.74	4,380
1953	Feb. 16, 1953	7.08	1,330	1959	Jan. 3, 1959	5.71	758
1954	Dec. 15, 1953	6.62	1,180				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	29	18	9.3	4.2	2.5	1.5	0.8
14	34	21	11	5.0	3.0	1.8	1.0
30	44	28	15	6.7	4.0	2.5	1.3
60	63	37	19	9.4	5.9	3.8	2.1
120	96	50	26	14	9.5	6.6	4.0
183	137	73	36	21	14	10	6.7
274	190	120	66	35	25	18	12

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,280	946	680	417	268	158	107	57	31	23	15	11	7.7	6.0	4.8
1949-57	1,170	925	752	460	274	165	117	56	31	23	16	12	9.4	7.8	6.8

10. Tuckahoe Creek near Ruthsburg, Md. (01B4915)

Location.--Lat 38°58'00", long 75°56'35", on downstream side of right abutment of highway bridge 0.1 mile downstream from Blockston Branch, 2.6 miles downstream from confluence of German Branch and Mason Branch, 2.6 miles south of Ruthsburg, Queen Annes County, and 3.4 miles north of Queen Anne.
Drainage area.--85.2 sq mi.
Records available.--March 1951 to September 1956 (discontinued).
Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).
Average discharge.--5 years, 94.3 cfs.
Extremes.--Maximum discharge, 1,620 cfs Aug. 13, 1955 (gage height, 5.87 ft); maximum daily, 1,420 cfs Apr. 28, 1952; minimum, 13 cfs Sept. 15, 1955; minimum gage height, 0.18 ft Aug. 4, 5, Oct. 13, 14, 1954; minimum daily, 14 cfs for several days in 1954, 1955, and 1956.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 22, 1951	5.56	1,570				
1953	Mar. 16, 1953	4.47	828	1955	Aug. 13, 1955	5.87	1,620
1954	Dec. 15, 1953	4.11	666	1956	Mar. 15, 1956	3.96	473

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	31	21	12	7.2	5.0	3.5	2.2
14	36	24	14	8.1	5.6	4.0	2.5
30	44	30	18	10	6.9	4.8	3.1
60	58	38	22	13	9.1	6.6	4.4
120	81	49	29	17	13	9.8	6.8
183	108	65	38	24	18	14	9.9
274	144	96	60	37	28	22	16

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	787	579	417	269	187	120	88	52	31	24	18	14	11	9.1	7.8
1952-56	740	622	482	312	200	132	94	52	32	26	20	17	16	16	16

11. Beaverdam Branch at Matthews, Md. (01B4920)

Location.--Lat 38°48'40", long 75°58'15", on left bank 50 ft upstream from bridge on State Highway 328, 1 mile west of Matthews, Talbot County, 1.2 miles upstream from mouth, and 6 miles northeast of Easton.
Drainage area.--5.85 sq mi.
Records available.--July 1950 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map).
Average discharge.--9 years, 6.97 cfs.
Extremes.--Maximum discharge, 1,050 cfs July 31, 1958 (gage height, 7.24 ft) from rating curve extended above 440 cfs on basis of contracted-opening measurement at gage height 7.15 ft; maximum daily, 458 cfs Nov. 2, 1956; no flow for part of each day Aug. 14-16, Sept. 8, 9, 1950, Sept. 8-11, 13, 14, 1951, Aug. 3, 1957; minimum daily, 0.01 cfs Aug. 3, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1951	Nov. 25, 1950	3.01	148	1956	Mar. 14, 1956	2.60	109
1952	Sept. 1, 1952	4.11	276	1957	Nov. 2, 1956	7.15	1,020
1953	May 20, 1953	3.66	222	1958	July 31, 1958	7.24	1,050
1954	Apr. 28, 1954	2.85	133	1959	July 27, 1959	3.74	231
1955	Aug. 12, 1955	5.19	476				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	1.2	0.5	0.2	0.1	0	0	0
14	1.6	.7	.2	.1	.1	0	0
30	2.4	1.0	.3	.1	.1	0	0
60	4.1	1.6	.5	.2	.1	.1	0
120	6.8	3.1	1.1	.3	.2	.1	.1
183	8.3	4.2	1.6	.5	.3	.2	.1
274	11	6.5	3.2	1.4	.8	.4	.2

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	100	69	46	25	15	7.6	4.7	2.1	0.7	0.4	0.2	0.1	0.1	0	0
1951-58	109	75	51	26	16	8.5	6.0	2.7	.9	.4	.2	.1	.1	.1	0

12. Sallie Harris Creek near Carmichael, Md. (01B4925)

Location.--Lat 38°57'55", long 76°06'30", on left bank 30 ft upstream from bridge on U. S. Highway 50, 2 miles northeast of Carmichael, Queen Annes County, 2.2 miles northwest of Wye Mills, and 2.4 miles upstream from mouth.
Drainage area.--8.09 sq mi.
Records available.--June 1951 to September 1956 (discontinued).
Gage.--Water-stage recorder. Altitude of gage is 15 ft (from topographic map).
Average discharge.--5 years, 8.22 cfs.
Extremes.--Maximum discharge, 1,030 cfs Aug. 13, 1955 (gage height, 7.02 ft), from rating curve extended above 370 cfs by logarithmic plotting; maximum daily, 428 cfs Aug. 13, 1955; minimum, 1.3 cfs Sept. 29, 1954; minimum gage height, 0.38 ft Aug. 1, 4, 1954, July 23, 1955, minimum daily, 1.5 cfs Aug. 3-6, 1955.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Apr. 27, 1952	5.65	327	1955	Aug. 13, 1955	7.02	1,030
1953	Aug. 17, 1953	4.85	214	1956	Mar. 14, 1956	3.27	91
1954	Dec. 14, 1953	3.97	116				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	3.4	2.6	1.9	1.4	1.2	1.0	0.8
14	3.7	2.8	2.0	1.5	1.3	1.1	.9
30	4.4	3.2	2.3	1.7	1.4	1.2	1.0
60	5.9	3.9	2.6	1.9	1.6	1.3	1.1
120	8.5	5.2	3.3	2.3	1.9	1.6	1.3
183	10	6.5	4.2	3.0	2.5	2.1	1.7
274	13	8.5	5.6	4.0	3.3	2.8	2.3

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	103	72	48	27	16	8.4	6.0	4.2	3.0	2.6	2.1	1.8	1.5	1.3	1.2
1952-55	112	83	52	30	17	9.4	7.0	4.6	3.2	2.7	2.2	2.0	1.8	1.7	1.6

13. Unicorn Branch near Millington, Md. (01B4930)

Location.--Lat 39°15'00", long 75°51'40", on right bank 50 ft upstream from bridge on State Highway 313, 0.9 mile upstream from mouth and 1.4 miles southwest of Millington, Kent County.
Drainage area.--22.3 sq mi.
Records available.--January 1948 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).
Average discharge.--11 years, 23.6 cfs.
Extremes.--Maximum discharge, 630 cfs Nov. 2, 1956 (gage height, 5.49 ft); maximum daily, 410 cfs Nov. 2, 1956; minimum, 1.3 cfs Sept. 15, 1949 (gage height, 1.70 ft); minimum daily, 4.8 cfs Aug. 6, 1955.
Remarks.--Occasional regulation at low flow by fish hatchery above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Dec. 31, 1948	4.62	277	1955	Aug. 13, 1955	4.30	359
1950	Mar. 23, 1950	4.08	222	1956	Mar. 15, 1956	3.30	167
1951	July 20, 1951	4.12	282	1957	Nov. 2, 1956	5.49	630
1952	Apr. 28, 1951	4.41	383	1958	Feb. 28, 1958	4.50	370
1953	June 14, 1953	3.92	253	1959	Jan. 2, 1959	2.92	116
1954	Dec. 14, 1953	3.32	157				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	11	8.8	7.2	6.2	5.8	5.3	4.8
14	12	9.4	7.5	6.5	6.0	5.6	5.0
30	13	10	8.0	6.8	6.2	5.7	5.2
60	16	12	9.0	7.2	6.6	6.1	5.5
120	20	14	10	8.0	7.2	6.6	6.0
183	23	17	12	9.0	8.0	7.4	6.8
274	28	22	16	12	9.8	8.6	7.8

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	169	128	96	60	42	28	22	15	10	8.9	7.6	7.0	6.4	6.0	5.6
1949-58	185	150	110	68	46	32	25	16	10	8.9	7.5	6.7	6.2	5.9	5.6

14. Morgan Creek near Kennedyville, Md. (01B4935)

Location.--Lat 39 16'50", long 76°00'55", on right bank 200 ft upstream from highway bridge, 2 miles southwest of Kennedyville, Kent County, and 4½ miles upstream from mouth.
Drainage area.--10.5 sq mi.
Records available.--May 1951 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).
Average discharge.--8 years, 9.88 cfs.
Extremes.--Maximum discharge, 834 cfs Aug. 25, 1958 (gage height, 7.11 ft); maximum daily, 378 cfs Aug. 25, 1958; minimum, 1.3 cfs Aug. 2, 7, 17, 1957; minimum daily, 1.7 cfs Aug. 2, 17, 18, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Dec. 21, 1951	6.49	414	1956	July 21, 1956	5.23	258
1953	Dec. 11, 1952	5.82	328	1957	Nov. 2, 1956	5.24	293
1954	Dec. 14, 1953	5.12	244	1958	Aug. 25, 1958	7.11	834
1955	Aug. 13, 1955	6.87	463	1959	Sept. 2, 1959	5.89	446

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	7.2	5.2	3.5	2.6	2.2	1.9	1.5
14	7.6	5.6	3.9	2.8	2.4	2.0	1.6
30	8.4	6.4	4.4	3.1	2.6	2.2	1.8
60	10	7.6	5.2	3.5	2.9	2.4	2.0
120	12	9.0	6.3	4.3	3.5	2.9	2.4
183	12	9.7	7.0	5.0	4.2	3.6	3.1
274	14	11	8.4	6.2	5.2	4.6	3.9

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	95	66	45	25	15	9.5	7.5	5.8	4.6	4.2	3.7	3.3	2.6	2.3	2.0
1952-57	140	75	43	23	15	10	8.3	5.8	4.4	3.9	3.3	2.9	2.4	2.2	2.0

15. Southeast Creek at Church Hill, Md. (01B4940)

Location.--Lat 39°07'57" long 75°58'51", on right bank 10 ft upstream from culvert on private road, 600 ft downstream from small tributary, 0.7 mile south of Church Hill, Queen Annes County, and 5½ miles upstream from mouth.
Drainage area.--12.5 sq mi.
Records available.--June 1951 to September 1956 (discontinued).
Gage.--Water-stage recorder. Altitude of gage is 20 ft (from topographic map).
Average discharge.--5 years, 12.6 cfs.
Extremes.--Maximum discharge, 990 cfs Aug. 13, 1955 (gage height, 8.34 ft), from rating curve extended above 66 cfs on basis of computation of flow through culverts and over road at gage heights, 4.80, 6.32, 6.36, 7.09 and 7.91 ft; maximum daily, 510 cfs Aug. 13, 1955; minimum, 1.3 cfs July 23, 1955; minimum gage height, 1.9 cfs Sept. 20, 21, 23, 24, 1956; minimum daily, 1.6 cfs Sept. 6, 7, 1954.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Aug. 13, 1952	7.91	804	1955	Aug. 13, 1955	8.34	990
1953	Mar. 16, 1953	6.36	413	1956	Mar. 14, 1956	5.23	253
1954	Dec. 14, 1953	5.58	297				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	5.0	3.8	2.8	2.3	2.1	1.9	1.6
14	5.4	4.0	3.0	2.4	2.2	2.0	1.7
30	6.4	4.7	3.3	2.6	2.3	2.1	1.8
60	8.2	5.7	3.8	2.8	2.5	2.2	2.0
120	10	7.0	4.6	3.2	2.8	2.5	2.2
183	13	8.9	5.8	3.9	3.2	2.9	2.6
274	18	12	8.1	5.3	4.3	3.7	3.1

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	157	108	72	39	23	14	9.9	5.8	4.2	3.6	3.0	2.7	2.4	2.2	2.0
1952-55	180	135	74	42	27	16	12	6.8	4.5	3.7	3.0	2.5	2.2	2.0	1.9

16. Jacobs Creek near Sassafras, Md. (01B4945)

Location.--Lat 39°21'50", long 75°49'13", on upstream right wing wall of bridge on State Highway 290, 1.2 miles southwest of Sassafras, Kent County, and 1.4 miles upstream from mouth.
Drainage area.--5.39 sq mi.
Records available.--June 1951 to September 1956 (discontinued).
Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).
Average discharge.--5 years, 5.00 cfs.
Extremes.--Maximum discharge, 229 cfs Aug. 13, 1955 (gage height, 5.59 ft), from rating curve extended above 73 cfs by logarithmic plotting; maximum daily, 107 cfs Aug. 13, 1955; minimum, 1.2 cfs Aug. 5, 1955; minimum daily, 1.5 cfs Aug. 4, 5, 1955.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	July 9, 1952	4.68	166	1955	Aug. 13, 1955	5.59	229
1953	May 26, 1953	3.60	96	1956	Aug. 13, 1956	4.93	179
1954	May 3, 1954	3.41	86				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	4.2	3.3	2.7	2.3	2.1	2.0	1.8
14	4.5	3.6	2.8	2.4	2.2	2.0	1.8
30	5.0	3.9	3.0	2.5	2.3	2.1	1.9
60	6.0	4.5	3.4	2.7	2.4	2.2	2.0
120	6.3	4.8	3.5	2.8	2.6	2.4	2.2
183	6.5	5.1	3.8	3.0	2.7	2.5	2.4
274	6.8	5.5	4.3	3.3	3.0	2.8	2.6

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	34	25	18	11	7.8	6.0	5.2	4.0	3.2	2.8	2.6	2.4	2.3	2.2	2.2
1952-55	38	27	20	12	8.2	6.6	5.7	4.3	3.1	2.8	2.5	2.4	2.2	2.1	2.0

17. Big Elk Creek at Elk Mills, Md. (01B4950)

Location.--Lat 39°39'26", long 75°49'20", on right bank 100 ft downstream from highway bridge at Elk Mills, Cecil County, 3½ miles north of Elkton, and 7 miles upstream from confluence with Little Elk Creek.

Drainage area.--52.6 sq mi.

Records available.--April 1932 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 68.5 ft above mean sea level, datum of 1929. Prior to May 17, 1946, wire-weight gage and crest-stage indicator at bridge 100 ft upstream at same datum.

Average discharge.--26 years (1932-35, 1936-59), 69.5 cfs.

Extremes.--Maximum discharge, 10,600 cfs July 5, 1937 (gage height, 14.5 ft, from floodmarks), from rating curve extended above 1,700 cfs on basis of velocity-area and conveyance studies; maximum daily, 2,860 cfs Aug. 23, 1933; minimum, 4.5 cfs Jan. 21, 1955 (result of freezeup); minimum daily discharge, 7 cfs Sept. 23, 24, 1932; minimum gage height, 2.09 ft Sept. 19, 22-24, 1932.

Maximum stage known, about 19 ft in June 1884, from information by local residents.

Remarks.--Slight diurnal fluctuation caused by mills above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1884	June 1884	19	18,000	1947	Apr. 30, 1947	9.47	5,100
1933	Aug. 23, 1933	12.4	7,530	1948	Feb. 14, 1948	7.08	2,120
1934	Mar. 3, 1934	7.5	2,620	1949	Aug. 5, 1949	6.04	1,720
1935	July 9, 1935	9.8	4,720	1950	Aug. 3, 1950	7.94	3,400
1937	July 5, 1937	14.5	10,600	1951	Nov. 25, 1950	7.10	2,620
1938	Oct. 23, 1937	7.17	2,310	1952	Dec. 21, 1951	7.78	3,280
1939	Aug. 19, 1939	7.5	2,620	1953	Nov. 22, 1952	7.23	2,740
1940	Mar. 15, 1940	7.55	2,700	1954	Dec. 14, 1953	5.61	1,340
1941	July 2, 1941	10.35	5,680	1955	Aug. 14, 1955	10.13	5,860
1942	Aug. 13, 1942	8.36	3,380	1956	Jan. 30, 1956	5.86	1,540
1943	May 12, 1943	7.75	2,860	1957	Nov. 2, 1956	7.38	2,880
1944	Sept. 13, 1944	7.2	2,380	1958	Jan. 25, 1958	7.07	2,590
1945	Sept. 18, 1945	10.48	6,030	1959	Sept. 3, 1959	7.92	3,420
1946	July 23, 1946	11.14	7,080				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	37	26	19	13	11	9.2	7.4
14	40	29	20	14	12	9.9	8.0
30	48	34	24	17	14	12	9.2
60	56	40	28	19	16	13	11
120	66	49	34	24	20	16	13
183	76	58	41	29	23	19	15
274	93	74	55	40	33	27	21

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	835	540	332	165	111	79	65	47	34	28	22	18	14	12	11
1933-57	830	530	322	170	116	80	66	48	35	29	22	18	15	13	12

18. Little Elk Creak at Childe, Md. (01B4955)

Location.--Lat 39°38'30", long 75°52'00", on rigbt bank at downstream side of highway bridge, 0.2 mile eoutheast of Childs, Cecil County, 1.6 miles upstream from Laurel Run, 2.4 miles northwest of Elkton, and 6.1 miles upstream from confluenca with Big Elk Craak.
Drainage area.--26.8 sq mi.
Records availabla.--October 1948 to Septembar 1958 (discontinued).
Gaga.--Watar-etage recorder and concrete control. Datum of gaga is 66.72 ft above mean sea level, datum of 1929.
Average discharge.--10 years, 38.2 cfs.
Extremas.--Maximum discharga, 5,400 cfs Aug. 12, 1955 (gage beight, 8.37 ft), from rating curve extended above 690 cfs on basis of slope-araa measurement at gage height 5.24 ft and computation of peak flow over dam three-quartare of a mile upstream for same flood, and conveyance studies; maximum daily, 1,030 cfs Aug. 13, 1955; minimum, 0.4 cfs July 31, Sept. 5, 1954 (gage beight, 1.31 ft); minimum daily, 3.3 cfs July 31, 1954.
Remarks.--Some regulation by paper mills above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	July 13, 1949	4.19	1,120	1954	Dec. 14, 1953	4.49	1,280
1950	Aug. 3, 1950	5.24	1,700	1955	Aug. 12, 1955	8.37	5,400
1951	July 5, 1951	5.05	1,540	1956	July 21, 1956	4.95	1,520
1952	Sept. 1, 1952	6.36	2,420	1957	Sept. 10, 1957	5.48	1,890
1953	Jan. 24, 1953	5.05	1,600	1958	Fab. 27, 1958	5.10	1,620

Magnitude and frequency of annual low flow
[Dete adjustad to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	17	12	8.5	6.1	5.1	4.2	3.4
14	19	14	9.3	6.6	5.5	4.6	3.7
30	22	16	11	7.8	6.4	5.4	4.3
60	26	19	13	8.9	7.4	6.2	4.9
120	32	23	16	11	9.0	7.5	5.8
183	40	30	21	15	12	9.9	7.6
274	48	38	28	21	17	14	11

Duration table of daily flow
[Deta adjusted to reference period 1913-57 on basis of ralation with records at other stations]

Watar years	Discharge, in cubic feat per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	566	367	229	112	60	39	31	22	16	13	10	8.4	6.7	5.8	5.1
1949-57	430	305	190	100	59	40	33	22	16	13	10	8.2	6.5	5.6	5.1

19. Northeast Creek at Leelia, Md. (01B4960)

Location.--Lat 39°37'40", long 75°56'40", on left bank at downstream aids of highway bridga, 0.7 mils northeast of Leslie, Cecil County, 1.5 milee southeast of Bay Viaw, and 1.7 milas upstream from confluanca with Little Northeast Creak.

Drainage area.--24.3 sq mi.

Records availabla.--October 1948 to September 1959.

Gage.--Watar-stage recorder and concrete control. Datum of gags is 115.0 ft abova mean sea laval, datum of 1929.

Average discharge.--11 yeare, 35.9 cfe.

Extremes.--Maximum discharga, 3,220 cfs July 27, 1958 (gage height, 6.92 ft), from rating curve extendad above 640 cfs on baaia of slope-arsa measurement at gaga haight 5.06 ft; maximum daily, 1,530 cfs Aug. 13, 1955; minimum, 1.4 cfs Mar. 3, 1950, rasult of freazaup; minimum daily , 1.8 cfe Sept. 6, 1957.

Ramarks.--Slight regulation at low flow by powar plant abeve station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	July 13, 1949	4.71	1,340	1955	Aug. 13, 1955	6.30	2,590
1950	Aug. 3, 1950	5.06	1,640	1956	Mar. 14, 1956	3.83	858
1951	Nov. 25, 1950	4.85	1,460	1957	Nov. 2, 1956	5.36	1,850
1952	Dec. 21, 1951	6.08	2,410	1958	July 27, 1958	6.92	3,220
1953	Jan. 24, 1953	5.38	1,870	1959	Sept. 3, 1959	4.52	1,210
1954	May 4, 1954	3.79	834				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	12	8.3	5.4	3.6	2.9	2.4	1.8
14	14	9.2	6.0	4.0	3.2	2.6	2.0
30	17	11	7.4	4.8	3.8	3.1	2.4
60	20	14	8.8	5.7	4.5	3.6	2.7
120	25	17	11	7.4	5.8	4.6	3.4
183	34	24	16	11	8.3	6.5	4.8
274	48	37	26	18	14	11	8.4

Duration table of daily flow
[Date adjusted to referenca period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	702	468	278	113	52	31	24	16	11	8.6	6.6	5.2	4.0	3.4	2.9
1949-57	552	378	211	107	54	33	26	17	11	8.8	6.6	5.0	3.8	3.2	2.8

21. Octoraro Creek near Rising Sun, Md. (01B5785)

Location.--Lat 39°41'27", long 76°07'38", on right bank 10 ft downstream from Porter Bridge, 300 ft downstream from Love Run, 3½ miles upstream from mouth, and 3½ miles west of Rising Sun, Cecil County.

Drainage area.--193 sq mi.

Records available.--April 1932 to September 1958 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 73.77 ft above mean sea level, adjustment of 1912. Prior to May 19, 1946, wire-weight gage at bridge 10 ft upstream at same datum.

Average discharge.--25 years (1932-35, 1936-58), 253 cfs (adjusted for storage and diversion since October 1951).

Extremes.--Maximum discharge, 35,000 cfs Aug. 9, 1942 (gage height, 17.57 ft), from rating curve extended above 5,000 cfs on basis of velocity-area studies; maximum daily, 15,000 cfs Aug. 9, 1942; minimum, 18 cfs July 30, 31, Aug. 2, 1954; minimum daily, 22 cfs Aug. 2, 1954.

Floods of 1884 and 1918 reached stages of 24.3 and 16.5 ft, respectively, from floodmarks.

Remarks.--Slight diurnal fluctuation caused by mills above station. Flow regulated by Pine Grove Reservoir beginning Feb. 22, 1951 (capacity, 2,800,000,000 gal). Diversion above station by Octoraro Water Co., and from Pine Grove Reservoir beginning November 1951 by Chester Municipal Authority for municipal supply of Chester and surrounding boroughs.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Aug. 24, 1933	17.50	34,500	1946	Nov. 28, 1945	9.92	5,900
1934	Apr. 1, 1934	8.13	2,910	1947	July 7, 1947	8.15	3,550
1935	July 9, 1935	13.76	17,200	1948	Feb. 14, 1948	8.47	4,040
1936	Mar. 12, 1936	11.40	9,340	1949	July 12, 1949	8.17	3,550
1937	July 6, 1937	7.58	2,280	1950	Aug. 3, 1950	7.50	2,900
1938	June 27, 1938	9.98	5,970	1951	July 13, 1951	9.00	5,600
1939	June 14, 1939	8.98	4,250	1952	July 10, 1952	10.56	9,240
1940	Oct. 2, 1939	9.46	5,080	1953	Nov. 22, 1952	9.37	6,400
1941	Feb. 7, 1941	8.64	3,630	1954	Mar. 2, 1954	6.80	1,930
1942	Aug. 9, 1942	17.57	35,000	1955	Aug. 13, 1955	10.05	7,960
1943	July 21, 1943	8.01	2,780	1956	Feb. 7, 1956	6.91	2,090
1944	Jan. 4, 1944	10.95	8,300	1957	Nov. 2, 1956	6.38	1,450
1945	July 18, 1945	10.81	7,820	1958	Jan. 25, 1958	9.58	6,870

Magnitude and frequency of annual low flow for conditions existing prior to February 1951

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	143	108	75	49	38	30	22
14	155	119	84	55	43	33	24
30	180	140	100	67	52	41	30
60	200	155	109	74	58	46	34
120	236	179	124	82	65	52	39
183	272	209	146	100	79	63	47
274	323	264	200	144	116	94	71

Duration table of daily flow for conditions existing prior to February 1951

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,830	1,320	940	575	405	294	240	181	137	115	92	74	55	45	38
1933-50	1,780	1,370	973	588	423	304	248	188	143	122	98	76	63	53	46

21. Octoraro Creek near Rising Sun, Md. (01B5785)--Concluded

Magnitude and frequency of annual low flow for conditions existing since November 1951

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	112	80	56	39	33	27	22
14	123	88	61	43	35	29	23
30	150	106	73	51	42	35	28
60	175	124	85	58	48	40	31
120	219	154	106	73	59	48	37
183	255	182	120	78	64	52	40
274	349	255	171	114	92	75	57

Duration table of daily flow for conditions existing since November 1951

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	2,060	1,420	970	570	400	278	220	150	103	82	61	49	39	34	30
1952-57	1,870	1,230	870	572	433	317	232	150	102	74	49	40	35	33	30

22. Basin Run at Liberty Grove, Md. (01B5790)

Location.--Lat 39°39'30", long 76°06'10", on left bank 100 ft upstream from highway bridge, 0.9 mile east of Liberty Grove, Cecil County, 1.0 mile southwest of Colora, and 3 miles upstream from mouth.
Drainage area.--5.31 sq mi.
Records available.--October 1948 to December 1958 (discontinued).
Gage.--Water-stage recorder and concrete control. Altitude of gage is 220 ft (from topographic map).
Average discharge.--10 years, (1948-58) 6.74 cfs.
Extremes.--Maximum discharge, 1,560 cfs July 27, 1958 (gage height, 6.33 ft), from rating table extended above 150 cfs on basis of slope-area measurements at gage heights 3.80 ft and 6.06 ft; maximum daily, 143 cfs Aug. 18, 1955; minimum 0.02 cfs Aug. 3, 1955 (gage height, 0.69 ft); minimum daily, 0.5 cfs Sept. 5, 1957; minimum daily, 0.5 cfs Sept. 5, 1957.
Remarks.--Occasional diversions for irrigation of about 60 acres above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	July 13, 1949	3.20	354	1954	May 3, 1954	3.58	460
1950	Aug. 3, 1950	3.80	511	1955	Aug. 18, 1955	5.08	967
1951	July 4, 1951	6.06	1,440	1956	Mar. 14, 1956	2.10	176
1952	July 9, 1952	4.07	596	1957	Sept. 10, 1957	4.44	724
1953	Jan. 24, 1953	3.40	425	1958	July 27, 1958	6.33	1,560

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	3.1	2.3	1.7	1.2	1.0	0.9	0.7
14	3.3	2.5	1.8	1.3	1.1	.9	.8
30	3.9	3.0	2.1	1.5	1.3	1.1	.9
60	5.0	3.7	2.6	1.8	1.5	1.2	1.0
120	6.0	4.6	3.2	2.2	1.8	1.5	1.2
183	7.0	5.3	3.8	2.7	2.2	1.8	1.4
274	8.5	6.7	5.1	3.7	3.0	2.5	2.0

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	86	57	36	19	10	7.1	5.8	4.1	2.9	2.5	2.0	1.6	1.3	1.2	1.0
1949-57	67	49	31	16	10	7.4	6.0	4.2	3.0	2.5	2.0	1.6	1.3	1.1	1.0

23. Deer Creek at Rocks, Md. (01B5800)

Location.--Lat 39°37'49", long 76°24'13", on right bank a quarter of a mile downstream from Maryland and Pennsylvania Railroad bridge, three-quarters of a mile southeast of Rocks, Harford County, 1.2 miles upstream from Stirrup Run, and 7 miles northwest of Bel Air.

Drainage area.--94.4 sq mi.

Records available.--October 1926 to September 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 250.40 ft above mean sea level (city of Baltimore bench mark).

Average discharge.--33 years, 123 cfs.

Extremes.--Maximum discharge, 13,600 cfs Aug. 23, 1933 (gage height, 17.7 ft, from floodmarks), from rating curve extended above 3,000 cfs on basis of slope-area measurements at gage heights, 13.3 and 17.7 ft; maximum daily, 4,370 cfs Aug. 23, 1933; minimum, 8 cfs Dec. 16, 1930, Jan. 26, 1939; minimum daily, 13 cfs Aug. 2, 1931.

Maximum stage known since at least 1888, that of Aug. 23, 1933.

Remarks.--Some regulation at low flow by mills above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Nov. 16, 1926	15.45	9,080	1944	Nov. 9, 1943	11.16	4,820
1928	Aug. 17, 1928	11.08	4,760	1945	Jan. 1, 1945	9.47	3,730
1929	Feb. 26, 1929	7.05	2,280	1946	June 2, 1946	9.32	3,610
1930	Oct. 22, 1929	9.61	3,790	1947	June 14, 1947	8.41	3,070
1931	Aug. 10, 1931	7.50	2,560	1948	July 23, 1948	9.42	3,670
1932	Mar. 28, 1932	7.6	2,620	1949	July 13, 1949	11.53	5,040
1933	Aug. 23, 1933	17.7	13,600	1950	Aug. 31, 1950	9.48	3,730
1934	Sept. 17, 1934	15.9	9,900	1951	Aug. 10, 1951	13.13	6,420
1935	Sept. 4, 1935	13.4	6,600	1952	Sept. 1, 1952	9.43	3,670
1936	Mar. 11, 1936	8.71	3,250	1953	Nov. 21, 1952	8.62	3,200
1937	July 5, 1937	13.2	6,420	1954	May 2, 1954	6.71	2,130
1938	Nov. 13, 1937	11.8	5,260	1955	Aug. 18, 1955	10.25	4,190
1939	June 13, 1939	9.04	3,430	1956	July 21, 1956	7.30	2,450
1940	Sept. 25, 1940	8.26	3,010	1957	Nov. 2, 1956	9.45	3,700
1941	June 23, 1941	13.91	7,100	1958	Jan. 25, 1958	9.51	3,740
1942	May 22, 1942	8.77	3,310	1959	June 25, 1959	7.40	2,500
1943	July 13, 1943	8.94	3,370				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	75	60	47	36	31	27	23
14	80	64	49	38	33	29	24
30	88	70	54	42	36	32	27
60	102	80	61	47	40	35	30
120	120	95	72	55	48	42	34
183	139	109	82	62	53	46	38
274	168	134	103	80	68	59	49

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,008	700	460	278	203	151	124	93	72	62	50	43	36	31	28
1927-57	950	660	445	274	199	152	127	95	72	60	49	40	34	31	28

26. Bynum Run at Bel Air, Md. (01B5815)

Location.--Lat 39°32'30", long 76°19'50", on right bank 30 ft downstream from bridge on State Highway 22, and 1.0 mile east of Bel Air, Harford County.
Drainage area.--8.52 sq mi.
Records availeble.--June 1944 to April 1951, July 1955 to September 1959. October 1950 to September 1955 at site 0.5 mile upstream, published as "near Bel Air"; records not equivalent.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 235 ft (from topographic map).
Average discharge.--10 years (1944-50, 1955-59, 10.8 cfs.
Extremes.--Maximum discharge, 3,620 cfs July 19, 1945 (gage height, 6.25 ft), from rating curve extended above 560 cfs on basis of contracted-opening measurement at gage height 6.18 ft; maximum daily, 434 cfs Aug. 13, 1955; minimum, 0.2 cfs Sept. 5, 1957; minimum daily, 0.3 cfs Sept. 4-6, 1957.
Remarks.--Diversion above station for municipal supply of Bel Air.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	July 19, 1945	6.25	3,620	1953	Nov. 21, 1952	-	-
1946	Dec. 25, 1945	5.40	565	1954	Dec. 14, 1953	-	-
1947	Apr. 14, 1947	6.01	1,920	1955	Aug. 13, 1955	4.86	1,010
1948	Jan. 1, 1948	5.48	633	1956	Sept. 6, 1956	3.86	576
1949	Mar. 23, 1949	5.40	565	1957	Nov. 2, 1956	6.04	1,700
1950	Sept. 10, 1950	6.18	3,080	1958	Dec. 20, 1957	4.75	955
1951	July 4, 1951	-	-	1959	Sept. 2, 1959	6.05	1,700
1952	July 9, 1952	-	-				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	2.9	1.9	1.0	0.5	0.3	0.1	0.1
14	3.3	2.2	1.2	.6	.3	.2	.1
30	4.4	3.0	1.7	.8	.4	.3	.1
60	5.9	3.9	2.3	1.2	.7	.4	.2
120	8.8	5.8	3.5	2.0	1.2	.7	.3
183	14	9.4	5.6	3.2	2.2	1.4	.8
274	19	13	8.2	5.0	3.7	2.7	1.6

Duration table of daily flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	242	145	82	36	20	11	8.2	5.0	3.1	2.3	1.5	0.9	0.4	0.3	0.2
(1945-49, 1956-57)	128	91	61	32	20	11	8.3	5.1	3.4	2.7	2.1	1.7	1.2	0.9	0.6

27. Little Falls at Blue Mount, Md. (01B5820)

Location.--Lat 39°36'16", long 76°37'16", on left bank at downstream side of Pennsylvania Railroad bridge, 0.2 mile north of Blue Mount, Baltimore County, 0.6 mile upstream from mouth, 0.9 mile downstream from First Mine Branch, and 1.2 miles south of White Hall.
Drainage area.--52.9 sq mi.
Records available.--June 1944 to September 1959.
Gage.--Water-stage recorder. Altitude of gage is 305 ft (from topographic map).
Average discharge.--15 years, 69.3 cfs.
Extremes.--Maximum discharge, 5,730 cfs Sept. 10, 1950 (gage height, 11.93 ft in gage well, 13.32 ft from floodmark), from rating curve extended above 1,300 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 1,220 cfs July 13, 1949; minimum, 6.0 cfs Feb. 20, 1947; minimum daily, 12 cfs Aug. 3, 1955.
Flood of August 1933 reached a stage of about 14 ft, from information by Pennsylvania Railroad.
Remarks.--Slight diurnal fluctuation at low flow caused by mill above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Apr. 26, 1945	8.07	3,210	1953	July 23, 1953	7.24	2,670
1946	June 2, 1946	6.27	2,130	1954	May 2, 1954	4.88	1,390
1947	July 19, 1947	4.68	1,250	1955	Aug. 13, 1955	7.41	2,800
1948	July 23, 1948	8.45	3,390	1956	July 21, 1956	6.63	2,330
1949	July 13, 1949	11.10	5,170	1957	May 26, 1957	9.14	3,830
1950	Sept. 10, 1950	11.93	5,730	1958	Jan. 25, 1958	7.28	2,720
1951	Dec. 4, 1950	7.45	2,790	1959	Jan. 2, 1959	4.95	1,420
1952	Sept. 1, 1952	7.83	3,030				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	43	35	26	20	17	15	12
14	46	37	28	21	18	16	13
30	50	40	31	23	20	17	14
60	58	46	35	26	22	20	16
120	68	54	41	31	27	23	19
183	78	63	47	36	30	26	21
274	93	76	59	46	39	33	27

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	500	343	230	150	112	83	68	53	41	35	28	24	20	17	15
1945-57	475	308	225	150	116	90	75	56	42	37	30	24	21	19	18

29. Slade Run near Glyndon, Md. (01B5830)

Location.--Lat 39°29'40", long 76°47'45", on left bank at downstream side of bridge on Longenecker Road, 1.1 miles upstream from mouth, 1.6 miles northeast of Glyndon, Baltimore County, and 2.6 miles northeast of Reisterstown.
Drainage area.--2.09 sq mi.
Records available.--September 1947 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 420 ft (from topographic map).
Average discharge.--12 years, 2.46 cfs.
Extremes.--Maximum discharge, 485 cfs July 21, 1956 (gage height, 4.68 ft), from rating curve extended above 92 cfs by logarithmic plotting; maximum daily, 70 cfs Aug. 13, 1955; minimum, 0.02 cfs Aug. 18, 1954, caused by regulation from unknown source; minimum daily, 0.3 cfs Sept. 5, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 19, 1948	2.80	124	1954	July 5, 1954	2.71	113
1949	Mar. 23, 1949	2.94	142	1955	Aug. 13, 1955	3.42	214
1950	Sept. 10, 1950	2.96	145	1956	July 21, 1956	4.68	485
1951	June 13, 1951	3.06	158	1957	Sept. 13, 1957	2.67	108
1952	Sept. 1, 1952	4.53	448	1958	Jan. 25, 1958	2.86	132
1953	Mar. 15, 1953	3.12	167	1959	Sept. 2, 1959	3.34	201

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	1.5	1.1	0.7	0.5	0.4	0.3	0.2
14	1.6	1.2	.8	.5	.4	.3	.3
30	1.7	1.3	.9	.6	.5	.4	.3
60	1.9	1.5	1.1	.7	.6	.5	.4
120	2.3	1.8	1.4	1.0	.8	.6	.5
183	2.7	2.2	1.6	1.2	1.0	.8	.6
274	3.3	2.7	2.1	1.6	1.4	1.2	.9

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	20	14	10	5.9	4.1	3.0	2.5	1.9	1.5	1.2	0.9	0.7	0.5	0.4	0.4
1948-57	20	14	9.0	5.5	4.3	3.3	2.7	2.0	1.5	1.3	1.0	.8	.6	.6	.5

30. Western Run at Western Run, Md. (01B5835)

Location.--Lat 39°30'38", long 76°40'37", on right bank 100 ft downstream from bridge on Western Run Road, 0.3 mile southeast of Western Run, Baltimore County, 2.5 miles northwest of Cockeysville, and 3.2 miles upstream from Beaverdam Run.
Drainage area.--59.8 sq mi.
Records available.--September 1944 to September 1959.
Gage.--Water-stage recorder. Altitude of gage is 260 ft (from topographic map).
Average discharge.--15 years, 71.9 cfs.
Extremes.--Maximum discharge, 5,590 cfs July 21, 1956 (gage height, 10.84 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurements at gage heights 8.55 and 9.88 ft; maximum daily, 2,080 cfs Aug. 13, 1955; minimum, 7.5 cfs Jan. 5, 1959, result of freezeup; minimum daily, 11 cfs Aug. 3, Sept. 25, 26, 1959.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	July 27, 1945	9.02	3,700	1953	Nov. 21, 1952	8.55	3,390
1946	Aug. 8, 1946	10.52	5,320	1954	Mar. 1, 1954	4.07	914
1947	June 8, 1947	3.97	850	1955	Aug. 13, 1955	9.29	4,030
1948	Jan. 1, 1948	7.77	2,600	1956	July 21, 1956	10.84	5,590
1949	July 13, 1949	5.68	1,440	1957	Oct. 23, 1956	4.36	1,020
1950	Sept. 10, 1950	9.88	4,600	1958	Jan. 25, 1958	7.82	2,810
1951	July 4, 1951	7.2	2,170	1959	Jan. 2, 1959	4.69	1,150
1952	Sept. 1, 1952	9.75	4,500				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	44	32	23	18	15	14	12
14	47	35	25	19	16	15	12
30	52	40	28	20	18	16	14
60	60	46	33	23	20	17	15
120	71	56	41	30	24	21	17
183	80	63	46	32	27	23	18
274	98	78	60	44	37	31	25

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	505	369	260	160	119	88	74	54	40	33	26	21	18	16	14
1945-57	530	344	250	158	121	94	77	57	44	38	30	24	20	19	18

31. Gunpowder Falls near Carney, Md. (01B5840)

Location.--Lat 39°25'25", long 76°30'40", on left bank 1 mile downstream from Cowen Run, 2 miles north of Carney, Baltimore County, and 2-3/4 miles downstream from Loch Raven Dam.
Drainage area.--314 sq mi.
Records available.--September 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 135 ft (from topographic map).
Extremes.--Maximum discharge, 7,000 cfs July 9, 1952 (gage height, 9.50 ft), from rating curve extended above 2,800 cfs by logarithmic plotting; maximum daily, 4,320 cfs Sept. 2, 1952; minimum, 1.2 cfs Sept. 7, 1954; minimum daily, 1.4 cfs Sept. 7, 8, 1954.
Remarks.--Figures of discharge do not include water diverted at Loch Raven Dam for municipal supply of Baltimore and occasional small diversions just below Loch Raven Dam to maintain Lake Montebello at capacity. Flow completely regulated by Prettyboy and Loch Raven Reservoirs (combined usable capacity, 43,270,000,000 gal).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Sept. 10, 1950	6.88	3,720	1955	Aug. 18, 1955	5.90	2,620
1951	Feb. 7, 1951	5.38	2,140	1956	July 21, 1956	8.29	5,430
1952	July 9, 1952	9.50	7,000	1957	Apr. 6, 1957	5.03	1,690
1953	Nov. 22, 1952	8.04	5,100	1958	Feb. 28, 1958	7.14	3,590
1954	Dec. 14, 1953	3.74	748	1959	Sept. 2, 1959	3.65	630

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	6.8	5.0	3.4	2.2	1.7	1.3	.9
14	7.4	5.5	3.7	2.4	1.8	1.4	1.0
30	9.0	6.2	4.3	2.8	2.2	1.7	1.2
60	16	8.2	5.1	3.4	2.7	2.1	1.5
120	82	28	7.4	4.3	3.3	2.6	1.9
183	130	61	22	11	7.8	5.6	3.7
274	201	108	46	19	13	9.1	5.8

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,620	1,220	897	530	320	170	90	9.8	6.1	5.0	3.8	2.9	2.1	1.7	1.4
1950-57	1,710	1,230	875	545	370	215	108	10	6.5	5.3	3.9	3.0	2.4	2.0	1.8

32. Little Gunpowder Falls at Laurel Brook, Md. (01B5845)

Location.--Lat 39°30'18", long 76°25'56", on right bank 700 ft upstream from Laurel Brook, 0.4 mile southwest of Laurel Brook railroad station, Harford County, 1 mile downstream from Maryland and Pennsylvania Railroad bridge, and 5 miles southwest of Bel Air.
Drainage area.--36.1 sq mi.
Records available.--December 1926 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 261.43 ft above mean sea level (city of Baltimore bench mark).
Average discharge.--32 years (1927-59), 47.4 cfs.
Extremes.--Maximum discharge, 9,200 cfs Aug. 23, 1933 (gage height, 10.3 ft), from rating curve extended above 2,300 cfs on basis of slope-area measurements at gage heights 5.70, 6.15, and 10.3 ft; maximum daily, 2,800 cfs Aug. 23, 1933; minimum, 3.1 cfs Feb. 15, 1931, Mar. 15, 1932, Feb. 20, 1947; minimum daily, 5.8 cfs Aug. 1, 2, 8, 9, 1931; minimum gage height, 0.59 ft Feb. 20, 1947.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1927	Nov. 16, 1926	9.3	7,800	1944	Nov. 9, 1943	7.02	4,050
1928	June 14, 1928	9.64	8,220	1945	July 19, 1945	7.34	4,580
1929	Feb. 26, 1929	4.66	1,520	1946	July 23, 1946	5.41	1,680
1930	Oct. 22, 1929	5.90	3,050	1947	June 7, 1947	6.02	2,490
1931	July 20, 1931	4.22	1,100	1948	May 30, 1948	6.07	2,570
1932	Mar. 28, 1932	5.1	2,030	1949	July 13, 1949	5.13	1,440
1933	Aug. 23, 1933	10.3	9,200	1950	Sept. 11, 1950	6.20	2,810
1934	Sept. 17, 1934	7.6	5,520	1951	July 4, 1951	6.62	3,450
1935	July 10, 1935	4.65	1,560	1952	Sept. 1, 1952	8.25	5,920
1936	Mar. 11, 1936	5.76	2,270	1953	Nov. 21, 1952	6.20	2,810
1937	Aug. 11, 1937	6.85	4,740	1954	Mar. 1, 1954	4.13	755
1938	Nov. 13, 1937	5.71	2,680	1955	Aug. 13, 1955	6.57	3,400
1939	Apr. 26, 1939	5.76	2,780	1956	Oct. 14, 1955	5.56	1,860
1940	May 20, 1940	6.34	3,970	1957	Nov. 2, 1956	5.99	2,470
1941	June 23, 1941	4.93	1,540	1958	Jan. 25, 1958	6.18	2,780
1942	July 11, 1942	5.14	1,790	1959	Sept. 2, 1959	5.10	1,400
1943	May 21, 1943	5.38	2,160				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	29	22	16	11	9.0	7.3	5.5
14	31	24	18	12	9.8	7.9	6.0
30	34	27	20	14	11	9.0	6.8
60	39	30	23	16	13	11	8.2
120	46	36	27	20	16	13	10
183	54	42	32	24	19	16	13
274	64	52	40	30	25	21	17

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	466	309	194	108	77	56	47	35	27	22	18	14	11	9.1	7.8
1927-58	470	305	188	109	78	57	47	35	26	22	17	13	9.7	8.5	7.7

38. Cranberry Branch near Westminster, Md. (01B5855)

Location.--Lat 39°35'25", long 76°58'05", on left bank 80 ft upstream from small wooden bridge, half a mile upstream from mouth, and 1.8 miles northeast of Westminster, Carroll County.
Drainage area.--3.29 sq mi.
Records available.--September 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 670 ft (from topographic map).
Average discharge.--10 years, 3.95 cfs (adjusted for storage).
Extremes.--Maximum discharge, 720 cfs July 4, 1951 (gage height, 5.14 ft, from high-water mark in well), from rating curve extended above 200 cfs by logarithmic plotting; maximum daily, 70 cfs Aug. 13, 1955; minimum, 0.4 cfs Jan. 20, 1955, result of freezeup; minimum daily, 0.7 cfs July 31 to Aug. 2, 1954.
Flood of July 12, 1949 reached a stage of 5.2 ft, from floodmarks (discharge, 750 cfs).
Remarks.--Flow regulated by Cranberry Reservoir, 1 mile above station, since Aug. 1957 (capacity, 113,700,000 gal).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Sept. 10, 1950	4.17	263	1955	Aug. 13, 1955	4.17	263
1951	July 4, 1951	5.14	720	1956	July 21, 1956	4.00	200
1952	June 23, 1952	3.88	169	1957	Apr. 6, 1957	3.00	80
1953	Nov. 21, 1952	3.98	195	1958	Jan. 25, 1958	3.75	144
1954	Mar. 1, 1954	3.0	75	1959	May 19, 1959	4.66	480

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	2.4	1.8	1.3	1.0	0.9	0.7	0.6
14	2.5	2.0	1.4	1.1	.9	.8	.7
30	2.8	2.2	1.6	1.2	1.0	.9	.7
60	3.2	2.5	1.8	1.4	1.2	1.0	.8
120	3.7	3.0	2.2	1.7	1.4	1.2	1.0
183	4.4	3.5	2.6	2.0	1.6	1.4	1.1
274	5.4	4.4	3.4	2.6	2.2	1.9	1.5

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	38	26	18	10	6.9	4.8	4.0	3.0	2.2	1.9	1.5	1.2	1.0	0.9	0.8
1950-57	32	24	16	9.5	6.6	5.0	4.1	2.9	2.2	2.0	1.6	1.3	1.1	1.1	1.0

39. North Branch Patapsco River at Cedarhurst, Md. (01B5860)

Location.--Lat 39°30'00", long 76°53'00", on left bank at downstream side of private footbridge at Cedarhurst, Carroll County, 0.8 mile downstream from Roaring Run and 8 miles southeast of Westminster.

Drainage area.--56.6 sq mi.

Records available.--September 1945 to September 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 425 ft (from topographic map).

Average discharge.--14 years, 67.2 cfs.

Extremes.--Maximum discharge, 4,130 cfs Aug. 13, 1955 (gage height, 10.38 ft), from rating curve extended above 1,700 cfs by logarithmic plotting; maximum daily, 2,240 cfs Aug. 13, 1955; minimum daily, 8.5 cfs Aug. 22, 24, 1957.

Remarks.--Slight diurnal fluctuation at low and medium flow caused by mill above station. Low flow affected slightly by Cranberry Reservoir since August 1957 (see p.). Records do not include a mean discharge of 1.28 cfs diverted above station for municipal supply of Westminster; sewage effluent discharged into Little Pipe Creek.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1946	Aug. 6, 1946	8.33	3,130	1954	Dec. 7, 1953	5.44	1,250
1947	June 7, 1947	5.63	1,550	1955	Aug. 13, 1955	10.38	4,130
1948	Jan. 1, 1948	6.84	2,190	1956	July 21, 1956	9.47	3,420
1949	July 12, 1949	7.82	2,790	1957	Oct. 23, 1956	4.72	958
1950	Mar. 23, 1950	4.92	1,200	1958	Feb. 27, 1958	7.37	2,100
1951	July 4, 1951	9.59	3,510	1959	May 19, 1959	6.87	1,860
1952	Sept. 1, 1952	8.38	2,700	1960	July 10, 1960	4.83	1,000
1953	Nov. 21, 1952	7.90	2,400				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	36	26	19	13	10	8.6	6.7
14	39	29	20	14	12	9.5	7.4
30	44	33	23	16	13	11	8.4
60	50	38	27	19	15	12	9.7
120	62	47	34	24	20	16	12
183	74	57	41	29	24	20	15
274	91	72	54	41	34	28	22

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	598	422	290	168	117	82	65	46	34	28	21	17	13	11	9.4
1945-57	580	430	290	167	120	87	69	48	36	30	24	20	16	15	13

40. North Branch Patapsco River near Reisteretown, Md. (01B5865)

Location.--Lat 39°26'31", long 76°53'14", on left bank at upstream eide of highway bridge on Louieville-Delight road, 600 ft upstream from Cooks Branch and 3½ miles southwest of Reisterstown, Baltimore County.
Drainage area.--91.0 eq mi.
Records available.--June 1927 to December 1953 (discontinued).
Gage.--Water-stage recorder and concrete control. Datum of gage ie 344.35 ft above mean eea level, adjustment of 1912.
Average discharge.--26 years, 103 cfs.
Extremes.--Maximum diecharge, 11,000 cfs Aug. 24, 1933 (gage height, 14.6 ft), from rating curve extended above 2,400 cfs; maximum daily, 3,550 cfs Aug. 24, 1933; minimum, 8.0 cfs Feb. 21, 1947 (gage height, 1.34 ft); minimum daily, 11 cfs Aug. 9, 1931, Aug. 28, 29, 1932.
Remarks.--Slight diurnal fluctuation at low and medium flow caueed by mill above etation. Recorde do not include a mean diachargs of 0.70 cfs diverted above station for municipal eupply of Westminster; sewage effluent discharged into Little Pipe Creek.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	July 12, 1928	6.18	1,830	1942	Aug. 14, 1942	8.67	3,290
1929	June 22, 1929	7.00	2,230	1943	Oct. 16, 1942	6.40	1,870
1930	Oct. 2, 1929	7.50	2,500	1944	Jan. 4, 1944	10.87	5,300
1931	Aug. 10, 1931	5.25	1,340	1945	July 18, 1945	7.35	2,440
1932	Mar. 28, 1932	5.70	1,550	1946	June 2, 1946	9.96	4,400
1933	Aug. 24, 1933	14.6	11,000	1947	June 8, 1947	4.91	1,120
1934	Sept. 17, 1934	11.55	6,880	1948	Jan. 1, 1948	7.90	2,740
1935	Sept. 4, 1935	7.1	2,250	1949	July 12, 1949	8.05	2,800
1936	Feb. 26, 1936	7.8	2,640	1950	Mar. 23, 1950	5.83	1,570
1937	Apr. 26, 1937	7.9	2,700	1951	Feb. 7, 1951	7.81	2,680
1938	Nov. 13, 1937	10.7	5,710	1952	May 26, 1952	9.20	3,680
1939	Jan. 30, 1939	6.15	1,800	1953	Nov. 22, 1952	9.20	3,680
1940	Sept. 25, 1940	7.37	2,400	1954	Dec. 7, 1953	5.94	1,620
1941	Apr. 5, 1941	4.45	968				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	56	41	29	20	16	13	10
14	60	45	31	22	18	15	12
30	68	51	36	25	20	17	13
60	78	60	42	29	24	20	15
120	95	74	52	38	30	25	20
183	109	84	60	42	34	29	22
274	132	106	79	60	50	41	33

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	820	570	386	240	175	124	100	71	52	42	32	26	20	17	15
1928-52	815	573	400	238	176	129	105	75	54	43	32	26	20	17	16

41. North Branch Patapsco River near Marriotteville, Md. (01B5870)

Location.--Lat 39°21'56", long 76°53'06", on left bank at downstream side of highway bridge 0.9 mile downstream from Liberty Dam, 1.2 miles northeast of Marriotteville, Howard County, and 2.3 miles upstream from confluence with South Branch.

Drainage area.--165 sq mi.

Records available.--October 1929 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 269.78 ft above mean sea level (city of Baltimore bench mark).

Extremes.--Maximum discharge, 19,500 cfs Aug. 24, 1933 (gage height, 20.8 ft, from high-water mark in gage house), from rating curve extended above 2,700 cfs on basis of slope-area measurement at gage height 13.93 ft and velocity-area study of peak flow; maximum daily, 6,850 cfs Aug. 24, 1933; minimum, 0.2 cfs many days in September, October 1954, November 1957, January, September 1959.

Remarks.--Flow regulated by Liberty Reservoir beginning July 22, 1954 (usable capacity, 42,872,000,000 gal). Diversion above station for municipal supply of Westminster (sewage effluent discharge into Little Pipe Creek) and from Liberty Reservoir beginning Feb. 26, 1953, for municipal supply of Baltimore. Low flow frequency and duration tables for this station represent flow conditions prior to 1954.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Oct. 2, 1929	-	3,600	1945	July 31, 1945	14.46	7,650
1931	Aug. 10, 1931	6.50	1,590	1946	June 2, 1946	14.00	7,100
1932	Mar. 28, 1932	7.2	2,060	1947	May 19, 1947	7.09	1,820
1933	Aug. 24, 1933	20.8	19,500	1948	Jan. 1, 1948	10.37	3,960
1934	Sept. 17, 1934	14.0	7,950	1949	July 13, 1949	8.60	2,720
1935	Sept. 4, 1935	8.3	2,710	1950	Sept. 10, 1950	10.25	3,680
1936	Feb. 27, 1936	8.14	2,600	1951	Feb. 7, 1951	9.32	2,870
1937	Apr. 26, 1937	9.8	3,840	1952	May 26, 1952	13.10	6,150
1938	Nov. 13, 1937	13.93	7,830	1953	Nov. 22, 1952	13.45	6,500
1939	Jan. 30, 1939	8.73	2,780	1954	May 4, 1954	7.77	1,870
1940	Apr. 20, 1940	9.07	3,050	1955	Aug. 13, 1955	3.56	138
1941	Nov. 27, 1940	6.53	1,470	1956	July 21, 1956	14.20	7,330
1942	Aug. 14, 1942	9.80	3,540	1957	Apr. 6, 1957	5.57	855
1943	Oct. 16, 1942	8.01	2,360	1958	Feb. 28, 1958	6.60	1,280
1944	Jan. 4, 1944	13.38	6,500	1959	Sept. 2, 1959	4.15	66

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	96	74	50	32	24	18	13
14	104	78	54	35	26	20	14
30	118	88	62	40	31	24	17
60	135	103	73	50	38	30	22
120	167	130	96	66	52	42	31
183	204	159	115	84	68	56	43
274	245	195	148	114	96	82	66

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,430	1,000	675	440	333	239	188	133	98	81	62	48	36	29	24
1932-53	1,360	980	702	460	334	246	198	139	98	80	61	48	36	30	26

42. South Branch Patapaco Rivar at Henryton, Md. (01B5875)

Location.--Lat 39°21'05", long 76°54'50", on right bank at downetream side of bridge on State Highway 101 at Henryton, Carroll County, 1.3 miles upstream from Piney Run, 2.3 miles upetream from confluence with North Branch, and 3.2 milee eoutheast of Sykesville.
Orainage area.--64.4 sq mi.
Recorda available.--Auguet 1948 to September 1959.
Gage.--Water-etage recorder and concrete control. Oatum of gage ie 289.15 ft above mean eaa levsl, datum of 1929.
Average discharge.--11 yeare, 73.5 cfs.
Extremes.--Maximum diecharge, 12,100 cfs July 21, 1956 (gage height, 19.40 ft), from rating curve extended above 1,900 cfe on basis of elope-area meaeurement at gaga height 7.88 ft and contracted-opening measurements at gage heights 10.12 and 19.40 ft; maximum daily, 3,010 cfe July 21, 1956; minimum, 5.3 cfe Jan. 28, 1955, rseult of freezeup; minimum daily, 6.8 cfs Aug. 24, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Oischarge (cfs)
1949	May 15, 1949	7.10	2,400	1955	Aug. 13, 1955	10.12	3,920
1950	Sept. 10, 1950	7.88	2,920	1956	July 21, 1956	19.40	12,100
1951	Nov. 25, 1950	7.80	2,760	1957	Sept. 13, 1957	7.65	2,600
1952	May 26, 1952	11.04	4,930	1958	Oec. 26, 1957	7.99	2,760
1953	Nov. 22, 1952	8.37	3,200	1959	Sept. 2, 1959	6.14	1,920
1954	May 3, 1954	4.18	1,070				

Magnitude and fraquency of annual low flow
[Oata adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Oischarge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	36	26	16	9.4	6.6	4.7	3.0
14	39	28	18	11	7.6	5.4	3.4
30	44	32	21	13	9.0	6.7	4.2
60	50	38	26	16	12	9.0	5.7
120	63	50	35	23	17	13	8.8
183	78	60	43	30	25	19	13
274	96	74	56	42	35	30	23

Duration table of daily flow
[Oata adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Oischarge, in cubic faat per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	615	420	278	177	132	92	72	49	35	29	20	14	9.4	7.2	5.6
1949-57	560	410	270	181	137	100	80	52	37	31	22	17	12	9.6	8.8

43. Piney Run near Sykesville, Md. (01B5880)

Location.--Lat 39°22'55", long 76°58'00", on left bank 75 ft downstream from highway bridge 1¼ miles north of Sykesville, Carroll County, and 5¼ miles upstream from mouth.
Drainage area.--11.4 sq mi.
Records available.--September 1931 to September 1958 (discontinued).
Gage.--Water-stage recorder and concrete control. Altitude of gage is 450 ft (from topographic map).

Prior to July 21, 1956, water-stage recorder at same site and datum, July 22 to Nov. 26, 1956, staff gage and crest stage indicator at same site and datum.

Average discharge.--27 years, 12.9 cfs.
Extremes.--Maximum discharge, 7,380 cfs July 20, 1956 (gage height, 12.0 ft, from flood marks), from rating curve extended above 1,200 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 600 cfs July 21, 1956; minimum, 0.1 cfs Aug. 17, 1957, result of regulation caused by construction work above station; minimum daily, 1.2 cfs Sept. 17-21, 25, 26, 1932.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	June 15, 1932	4.48	715	1946	July 24, 1946	6.95	2,100
1933	Aug. 23, 1933	6.30	1,800	1947	June 8, 1947	5.31	945
1934	Sept. 16, 1934	5.8	1,460	1948	June 27, 1948	6.31	1,590
1935	July 20, 1935	4.44	690	1949	May 15, 1949	4.64	608
1936	Jan. 3, 1936	4.16	476	1950	May 31, 1950	5.87	1,280
1937	June 17, 1937	4.66	790	1951	Nov. 25, 1950	4.64	608
1938	Nov. 13, 1938	5.52	1,280	1952	May 25, 1952	6.16	1,480
1939	Jan. 30, 1939	4.31	647	1953	Nov. 21, 1952	5.07	808
1940	Sept. 25, 1940	4.10	528	1954	May 3, 1954	3.80	275
1941	Nov. 26, 1940	3.25	232	1955	Aug. 13, 1955	5.95	1,230
1942	Aug. 9, 1942	5.10	835	1956	July 20, 1956	12.0	7,380
1943	Oct. 16, 1942	4.40	500	1957	Sept. 13, 1957	5.70	1,080
1944	Nov. 8, 1943	6.53	1,780	1958	Jan. 25, 1958	4.92	704
1945	July 31, 1945	4.94	755	1959			

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	6.9	5.2	3.5	2.2	1.6	1.2	0.8
14	7.4	5.6	3.8	2.4	1.8	1.3	.9
30	8.3	6.4	4.4	2.8	2.1	1.6	1.1
60	9.5	7.4	5.3	3.5	2.7	2.1	1.5
120	12	9.4	6.8	4.7	3.6	2.9	2.1
183	14	11	8.4	6.1	4.9	4.0	3.1
274	18	14	10	8.1	6.9	5.9	4.8

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	132	88	57	33	23	16	13	8.8	6.4	5.2	4.0	3.1	2.2	1.8	1.5
1932-57	124	84	52	30	22	16	13	8.7	6.3	5.2	3.9	3.0	2.3	1.9	1.7

45. Patapsco River at Hollofield, Md (01B5890)

Location.--Lat 39°18'36", long 76°47'39", on right bank at downstream side of highway bridge at Hollofield, Howard County, 0.3 mile downstream from Dogwood Run and 3.0 miles north of Ellicott City.

Drainage area.--285 sq mi.

Records available.--May 1944 to September 1959.

Gage.--Water-stage recorder. Altitude of gage is 190 ft (from topographic map).

Extremes.--Maximum discharge, 19,000 cfs July 21, 1956 (gage height, 15.88 ft); maximum daily, 9,000 cfs July 21, 1956; minimum, 6 cfs Sept. 6, 1944 (gage height, 0.83 ft); minimum daily, 16 cfs Aug. 20, 21, 24, 1957.

Flood of August 1933 reached a stage of 19.5 ft, from information by Maryland State Roads Commission.

Remarks.--Flow regulated by Liberty Reservoir beginning July 22, 1954 (useable capacity, 42,072,000,000 gal). Diversion above station for municipal supply of Westminster (sewage effluent discharged into Little Pipe Creek) and from Liberty Reservoir beginning Feb. 26, 1953, for municipal supply of Baltimore. Low-flow frequency and duration tables for this station represent the conditions of flow prior to 1954.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	July 18, 1945	9.01	9,700	1953	Nov. 22, 1952	9.72	10,800
1946	June 2, 1946	11.62	13,500	1954	May 4, 1954	4.80	2,900
1947	May 19, 1947	5.89	4,540	1955	Aug. 13, 1955	7.86	7,860
1948	Jan. 1, 1948	7.38	7,080	1956	July 21, 1956	15.88	19,000
1949	Dec. 30, 1949	5.91	4,540	1957	Sept. 13, 1957	5.06	3,260
1950	Sept. 10, 1950	7.71	7,590	1958	Dec. 21, 1957	4.75	2,830
1951	Feb. 7, 1951	6.81	6,060	1959	Sept. 2, 1959	4.76	2,840
1952	May 26, 1952	10.69	12,300				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	168	120	76	44	31	22	14
14	183	132	84	49	34	24	16
30	204	151	98	58	42	30	20
60	235	176	119	74	54	40	27
120	295	228	159	104	78	60	42
183	345	274	201	139	110	88	65
274	425	332	255	196	165	140	113

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	2,390	1,770	1,280	800	590	417	322	222	158	129	90	64	43	33	26
1945-53	2,400	1,970	1,380	870	640	472	387	260	187	158	128	109	91	81	74

50. Sawmill Creek at Glen Burnie, Md. (01B5895)

Location.--Lat 39°10'12", long 76°37'51", on left bank 300 ft upstream from bridge on State Highway 301 and 0.5 mile northwest of Glen Burnie, Anne Arundel County.
Drainage area.--5.1 sq mi.
Records available.--May 1944 to September 1952 (discontinued).
Gage.--Water-stage recorder and concrete control. Datum of gage is 26.07 ft above mean sea level, datum of 1929.
Average discharge.--8 years, 8.26 cfs.
Extremes.--Maximum discharge, 157 cfs Sept. 1, 1952 (gage height, 4.77 ft), from rating curve extended above 72 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 84 cfs Sept. 1, 1952; minimum, about 1.1 cfs sometime during period July 14 to Aug. 5, 1949 (gage height, 1.72 ft, from recorded range in stage), result of regulation from unknown source; minimum daily, 3.6 cfs Sept. 7, 8, 1950.
Flood of August 1933 reached a stage of about 4 ft.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	July 18, 1945	2.55	36	1949	May 23, 1949	2.79	54
1946	July 22, 1946	2.46	30	1950	Aug. 20, 1950	3.31	74
1947	June 14, 17, 1947	2.38	24	1951	Sept. 2, 1951	3.27	82
1948	Aug. 1, 1948	2.67	45	1952	Sept. 1, 1952	4.77	157

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	6.6	5.7	4.7	3.8	3.4	3.1	2.7
14	7.0	6.0	4.9	4.0	3.6	3.2	2.8
30	7.3	6.3	5.2	4.3	3.8	3.4	3.0
60	7.8	6.8	5.7	4.7	4.2	3.8	3.3
120	8.6	7.5	6.3	5.3	4.7	4.2	3.7
183	9.6	8.4	7.0	6.0	5.4	4.9	4.4
274	11	9.5	8.0	6.9	6.3	5.7	5.0

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	22	20	17	14	12	9.7	8.6	7.4	6.3	5.7	5.0	4.5	4.0	3.6	3.4
1945-51	23	20	17	14	12	9.5	8.5	7.4	6.3	6.0	5.5	5.4	5.2	5.0	5.0

51. North River near Annapolis, Md. (01B5900)

Location.--Lat 38°59'09", long 76°37'21", on left bank 500 ft downstream from bridge on State Highway 450, 0.8 mile upstream from mouth, and 7 miles west of Annapolis, Anne Arundel County.
Drainage area.--8.5 sq mi, approximately.
Records available.--December 1931 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map). Prior to Nov. 2, 1933, staff gage at same site and datum.
Average discharge.--27 years (1932-59), 10.9 cfs.
Extremes.--Maximum discharge, 5,000 cfs Aug. 2, 1944 (gage height, 6.22 ft), from rating curve extended above 260 cfs on basis of velocity-area studies; maximum daily, 652 cfs Aug. 2, 1944; minimum, 1.5 cfs Sept. 1, 2, 4, 1932; minimum daily, 1.5 cfs Sept. 4, 1932.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	May 13, 1932	2.35	104	1946	Dec. 6, 1945	2.37	111
1933	Aug. 23, 1933	2.40	120	1947	June 14, 1947	2.42	129
1934	Sept. 8, 1934	2.51	171	1948	Nov. 3, 1947	2.64	244
1935	Apr. 9, 1935	2.46	147	1949	May 3, 1949	2.52	181
1936	Jan. 3, 1936	———	———	1950	June 21, 1950	2.23	101
1937	Apr. 26, 1937	2.78	342	1951	June 14, 1951	2.33	118
1938	Nov. 13, 1937	2.76	329	1952	Sept. 1, 1952	2.87	404
1939	June 14, 1939	2.40	120	1953	Aug. 9, 1953	2.54	192
1940	Apr. 20, 1940	2.45	139	1954	May 4, 1954	2.29	110
1941	Apr. 5, 1941	1.96	59	1955	Aug. 13, 1955	3.22	678
1942	Aug. 9, 1942	2.76	329	1956	July 21, 1956	2.58	163
1943	Oct. 16, 1942	2.58	213	1957	Nov. 2, 1956	1.86	50
1944	Aug. 2, 1944	6.22	5,000	1958	Aug. 25, 1958	2.64	196
1945	July 29, 1945	2.57	207	1959	Aug. 8, 1959	2.65	202

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	7.7	5.9	4.1	2.9	2.3	1.8	1.3
14	8.2	6.4	4.6	3.2	2.5	2.0	1.5
30	8.8	7.0	5.1	3.5	2.8	2.2	1.7
60	9.7	7.8	5.9	4.2	3.3	2.7	2.1
120	11	9.3	7.1	5.2	4.3	3.6	2.8
183	13	11	8.4	6.3	5.3	4.5	3.6
274	15	12	10	7.8	6.7	5.8	4.8

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	69	50	36	24	18	14	12	8.9	7.0	5.9	4.7	3.7	2.9	2.4	2.1
1933-58	68	49	36	24	19	14	12	8.7	6.8	5.8	4.7	3.9	3.0	2.7	2.5

52. Bacon Ridge Branch at Chesterfield, Md. (01B5905)

Location.--Lat 39°00'07", long 76°36'53", on left bank 50 ft downstream from timber highway bridge, 0.5 mile east of Chesterfield, Anne Arundel County, 1.4 miles upstream from confluence with North River, and 6.8 miles northwest of Annapolis.
Drainage area.--6.92 sq mi.
Records available.--November 1942 to September 1952 (discontinued).
Gage.--Water-stage recorder and concrete control.
Average discharge.--9 years (1943-52), 10.4 cfs.
Extremes.--Maximum discharge, 2,100 cfs Aug. 2, 1944 (gage height, 5.49 ft), from rating curve extended above 140 cfs by velocity-area studies and logarithmic plotting; maximum daily, 430 cfs Aug. 2, 1944; minimum, 3.0 cfs Aug. 4, 16, 19-27, 1943, July 13, 1944 (gage height, 1.75 ft); minimum daily, 3.0 cfs Aug. 4, 19-26, 1953.
Remarks.--Records include sewage from Crownsville State Hospital, which obtains its water supply from wells.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1944	Aug. 2, 1944	5.49	2,100	1949	Dec. 4, 1948	3.34	251
1945	May 29, 1945	4.16	708	1950	June 21, 1950	2.97	119
1946	Dec. 6, 1945	3.15	180	1951	June 14, 1951	3.31	239
1947	June 14, 1947	3.07	152	1952	Sept. 1, 1952	3.83	498
1948	Nov. 3, 1947	3.87	522				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	6.6	5.0	3.8	3.2	2.9	2.6	2.3
14	7.1	5.4	4.1	3.4	3.0	2.7	2.4
30	7.6	6.0	4.4	3.5	3.2	2.9	2.6
60	8.4	6.6	5.0	3.8	3.4	3.1	2.8
120	10	8.1	6.0	4.5	3.9	3.6	3.1
183	12	9.4	7.1	5.3	4.5	4.0	3.6
274	13	11	8.7	6.6	5.7	5.0	4.2

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	70	48	32	20	15	11	9.7	7.5	5.9	5.1	4.1	3.6	3.2	3.0	2.8
1943-51	74	44	31	21	16	12	10	8.0	6.4	5.5	4.4	3.9	3.6	3.5	3.4

53. Patuxent River near Unity, Md. (01B5910)

Location.--Lat 39°14'18", long 77°03'23", on right bank at downstream side of bridge on State Highway 97, 0.6 mile upstream from Cattail Creek, 0.8 mile upstream from Triadelphia Reservoir, and 1.1 miles northeast of Unity, Montgomery County.
Drainage area.--34.8 sq mi.
Records available.--July 1944 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 364.76 ft above mean sea level (Washington Suburban Sanitary Commission bench mark). Prior to Aug. 14, 1946, wire-weight gage and crest-stage indicator at same site and datum.
Average discharge.--15 years, 38.6 cfs.
Extremes.--Maximum discharge, 10,700 cfs July 21, 1956, (gage height, 14.35 ft), from rating curve extended above 870 cfs on basis of slope-area measurement at gage height, 13.58 ft; maximum daily, 2,150 cfs July 21, 1956; minimum, 2.1 cfs Aug. 25-28, 1944; minimum daily, 2.8 cfs Oct. 14, 1954, Aug. 18, 24, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Aug. 1, 1945	13.58	8,060	1953	Nov. 22, 1952	8.09	2,220
1946	June 2, 1946	8.02	1,920	1954	Mar. 1, 1954	4.78	494
1947	Aug. 21, 1947	6.14	1,300	1955	Aug. 13, 1955	8.06	2,200
1948	Jan. 1, 1948	5.73	1,080	1956	July 21, 1956	14.35	10,700
1949	Dec. 30, 1948	5.81	1,100	1957	Feb. 10, 1957	3.75	240
1950	Mar. 23, 1950	6.03	1,240	1958	Dec. 20, 1957	8.17	2,290
1951	Nov. 25, 1950	6.99	1,830	1959	Sept. 3, 1959	5.57	788
1952	Sept. 1, 1952	8.95	3,490				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	19	13	8.6	5.3	4.1	3.2	2.3
14	21	15	9.5	5.9	4.5	3.5	2.5
30	24	17	11	6.6	5.0	3.9	2.8
60	28	20	13	8.4	6.4	4.9	3.5
120	35	26	17	11	8.5	6.6	4.8
183	43	32	22	15	12	9.4	7.1
274	53	41	30	21	16	13	10

Ouration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	327	226	150	100	73	52	40	27	18	14	10	7.6	5.5	4.5	3.7
1945-57	360	240	152	96	70	51	40	26	18	15	11	8.0	5.4	4.5	3.9

54. Cattail Creek at Roxbury Mills, Md. (01B5915)

Location.--Lat 39 15'17", long 77 02'43", on left bank 0.2 mile downstream from unnamed tributary from left bank and highway bridge, 0.5 mile southeast of Roxbury Mills, Howard County, and 1.3 miles upstream from mouth.
Drainage area.--27.7 sq mi.
Records available.--July 1944 to September 1956 (discontinued).
Gage.--Water-stage recorder. Prior to Oct. 19, 1945, staff gage at same site and datum. Altitude of gage is 370 ft (from topographic map).
Average discharge.--12 years, 28.6 cfs.
Extremes.--Maximum discharge, 10,100 cfs July 21, 1956 (gage height, 14.19 ft), from rating curve extended above 350 cfs on basis of slope area measurement of peak flow; maximum daily, 1,230 cfs July 21, 1956; minimum, 2.9 cfs Aug. 26, Sept. 8, 1944 (gage height, 0.76 ft); minimum daily, 3.2 cfs Aug. 3, 1955.
Remarks.--Diurnal fluctuation at low flow caused by mill at Roxbury Mills.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	Aug. 1, 1945	8.97	1,010	1951	Nov. 25, 1950	7.80	830
1946	June 2, 1946	7.87	845	1952	May 25, 1952	9.29	1,060
1947	Aug. 16, 1947	7.00	710	1953	Nov. 21, 1952	7.49	785
1948	Feb. 14, 1948	6.74	668	1954	Dec. 14, 1953	5.19	436
1949	Dec. 30, 1948	5.98	570	1955	Aug. 13, 1955	8.40	920
1950	Sept. 10, 1950	7.18	740	1956	July 21, 1956	14.19	10,100

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	17	12	7.7	4.7	3.4	2.7	1.9
14	19	14	8.6	5.2	3.8	2.9	2.1
30	21	15	9.7	5.9	4.4	3.3	2.4
60	23	18	12	7.6	5.7	4.3	3.0
120	26	21	15	10	7.7	6.0	4.3
183	31	25	19	13	11	8.7	6.6
274	37	31	24	18	15	12	9.6

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	200	153	115	74	51	36	29	22	16	13	9.0	6.6	4.7	3.7	3.0
1945-55	235	172	110	72	51	37	30	21	16	14	9.8	7.9	5.4	4.2	3.9

55. Patuxent River near Burtonsville, Md. (01B5920)

Location.--Water-stage recorder and concrete control, lat 39° 07'47", long 76° 55'04", 150 feet upstream from highway bridge, 1½ miles northeast of Burtonsville, Montgomery County, 4 miles northwest of Laurel, and 8 miles downstream from Hawlings River. Datum of gage is 232.79 feet above mean sea level, adjustment of 1912.

Drainage area.--127 square miles.

Records available.--July 1911 to June 1912, July 1913 to February 1945.

Extremes.--Maximum discharge, 11,000 second-feet Aug. 24, 1933 (gage height, 21.7 feet, from floodmarks), from rating curve extended above 3,800 second-feet; maximum daily, 6,010 cfs Aug. 24, 1933; minimum, 4.6 second-feet Oct. 9, 10, 1942; minimum daily, 4.8 cfs Oct. 9, 1941.

Remarks.--Daily discharge does not include diversion, by pumps, of part of low flow into Anacostia River Basin to augment water supply of Washington Suburban Sanitary District. Storage in Brighton Reservoir (usable capacity 2,913 million gallons between elevations 327.0 and 350.0 feet) began June 27, 1942.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1914	Apr. 26, 1914	5.6	1,320	1930	Apr. 7, 1930	8.67	1,820
1915	Jan. 13, 1915	14.58	5,100	1931	July 21, 1931	12.23	3,180
1916	July 25, 1916	8.75	2,260	1932	Mar. 28, 1932	8.20	1,570
1917	July 13, 1917	10.45	3,060	1933	Aug. 24, 1933	21.7	11,000
1918	Jan. 12, 1918	9.84	2,750	1934	Sept. 17, 1934	11.81	3,230
1919	May 22, 1919	11.6	3,650	1935	May 7, 1935	9.39	2,280
1920	Mar. 5, 1920	11.6	3,650	1936	Jan. 4, 1936	10.99	3,000
1921	May 12, 1921	7.93	1,590	1937	Apr. 26, 1937	11.95	3,500
1922	July 19, 1922	7.35	1,460	1938	Nov. 13, 1937	12.42	3,710
1923	July 31, 1923			1939	Jan. 30, 1939	8.66	2,000
1924	Sept. 30, 1924	12.90	3,390	1940	Apr. 20, 1940	9.5	2,300
1925	Feb. 10, 1925	8.5	1,730	1941	Nov. 27, 1940	6.65	1,170
1926	Sept. 5, 1926	15.27	5,480	1942	Aug. 10, 1942	8.02	1,720
1927	Nov. 16, 1926	12.40	3,270	1943	Oct. 14, 1942	10.38	2,730
1928	June 19, 1928	15.30	5,480	1944	Jan. 4, 1944	7.97	1,720
1929	June 22, 1929	9.28	2,060				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	72	48	27	14	9.2	6.5	4.2
14	80	54	31	16	11	7.4	4.7
30	91	62	36	19	12	8.7	5.5
60	107	76	47	26	18	12	7.8
120	128	95	64	39	28	19	12
183	145	112	80	52	40	30	22
274	178	140	102	72	57	46	35

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,100	788	540	320	223	159	128	91	64	52	35	24	15	11	8.4
1914-43	1,050	790	540	317	221	158	128	92	62	48	34	23	15	10	7.9

57. Little Patuxent River at Guilford, Md. (01B5935)

Location.--Lat 39°10'04", long 76°51'07", on left bank 75 ft upstream from bridge on State Highway 32, 1 mile west of Guilford, Howard County, 3 miles upstream from Middle Patuxent River, and 4 miles north of Laurel.
Drainage area.--38.0 sq mi.
Records available.--May 1932 to September 1959.
Gage.--Water-stage recorder. Concrete control since June 20, 1946. Altitude of gage is 260 ft (from topographic map). Prior to June 25, 1946, staff gage at same site and datum.
Average discharge.--27 years, 40.5 cfs.
Extremes.--Maximum discharge, 5,300 cfs Sept. 1, 1952 (gage height, 13.26 ft), from rating curve extended above 1,800 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 1,930 cfs Sept. 1, 1952; minimum recorded, 2.8 cfs Sept. 6, 1957; minimum daily, 3.1 cfs Aug. 18, 19, 1957; minimum gage height, 1.38 ft Sept. 29, 1941.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Aug. 23, 1933	12.5	4,210	1947	May 1, 1947	8.02	815
1934	Sept. 17, 1934	9.4	1,480	1948	Feb. 14, 1948	9.91	1,550
1935	July 21, 1935	7.7	915	1949	Jan. 6, 1949	7.27	703
1936	Jan. 3, 1936	9.0	1,320	1950	Sept. 11, 1950	6.39	560
1937	Apr. 26, 1937	10.3	2,000	1951	June 3, 1951	10.47	1,970
1938	Nov. 13, 1937	10.1	1,820	1952	Sept. 1, 1952	13.26	5,300
1939	Jan. 30, 1939	7.9	968	1953	Nov. 22, 1952	10.20	2,000
1940	Apr. 20, 1940	11.5	2,740	1954	Dec. 14, 1953	6.28	645
1941	June 24, 1941	6.14	563	1955	Aug. 13, 1955	12.11	3,790
1942	July 11, 1942	10.66	2,180	1956	Oct. 14, 1955	8.37	1,010
1943	May 12, 1943	9.17	1,400	1957	Apr. 5, 1957	6.23	612
1944	Nov. 9, 1943	10.46	2,060	1958	July 12, 1958	9.02	1,230
1945	July 18, 1945	12.22	3,810	1959	Sept. 2, 1959	7.03	756
1946	Dec. 6, 1945	8.28	1,080				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	21	15	9.3	5.8	4.4	3.5	2.6
14	23	16	11	6.5	4.8	3.8	2.8
30	27	19	12	7.4	5.5	4.3	3.1
60	31	22	15	9.2	7.0	5.4	3.9
120	38	28	19	12	9.4	7.4	5.3
183	47	35	24	16	13	10	7.8
274	58	45	32	23	18	15	11

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	447	305	201	108	68	48	38	27	19	15	11	8.5	6.2	5.0	4.2
1933-57	460	315	205	104	66	47	38	27	18	14	10	8.4	6.2	5.2	4.5

58. Little Patuxent River at Savage, Md. (01B5940)

Location.--Lat 39°08'00", long 76°48'58", on left bank 400 ft downstream from bridge on U. S. Highway 1, half a mile southeast of Savage, Howard County, and 1 mile downstream from Middle Patuxent River.
Drainage area.--98.4 sq mi.
Records available.--November 1939 to September 1958 (discontinued).
Gage.--Water-stage recorder and concrete control. Altitude of gage is 125 ft (from topographic map).
Average discharge.--18 years (1940-58), 102 cfs.
Extremes.--Maximum discharge, 6,280 cfs Sept. 1, 1952 (gage heigbt, 13.15 ft); maximum daily, 4,090 cfs Aug. 13, 1955; minimum daily, 7.0 cfs Sept. 19, 1943.
Maximum stage known, about 17.5 ft in August 1933, from information by local residents.
Remarks.--Occasional regulation from unknown source above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Weter year	Oate	Gage height (feet)	Oischarge (cfs)
1940	Apr. 20, 1940	7.91	2,920	1950	Sept. 11, 1950	7.54	2,460
1941	Nov. 27, 1940	5.32	1,430	1951	Nov. 25, 1950	7.32	2,720
1942	July 14, 1942	6.76	2,260	1952	Sept. 1, 1952	13.15	6,280
1943	May 12, 1943	8.58	3,040	1953	Nov. 22, 1952	10.42	4,580
1944	Nov. 9, 1943	9.35	3,480	1954	Dec. 14, 1953	5.63	1,710
1945	July 18, 1945	12.14	5,080	1955	Aug. 13, 1955	12.95	6,150
1946	Oec. 6, 1945	7.41	2,410	1956	July 21, 1956	9.14	3,130
1947	May 1, 1947	5.92	1,660	1957	Apr. 5, 1957	6.22	2,060
1948	Feb. 14, 1948	9.10	3,320	1958	July 12, 1958	7.79	3,000
1949	Jan. 6, 1949	6.24	1,810				

Magnitude and frequency of annual low flow
[Oata adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	54	39	26	16	12	9.5	7.1
14	62	44	28	17	13	10	7.7
30	72	51	32	20	15	12	8.5
60	82	60	39	25	19	15	11
120	101	74	50	33	25	20	14
183	125	94	64	44	35	28	21
274	152	118	85	60	49	39	30

Duration table of daily flow
[Dete adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	965	700	490	288	184	127	102	71	50	40	29	23	17	14	12
1940-57	1,010	700	470	253	172	121	96	66	46	37	28	21	15	13	12

59. Dorsey Run near Jessup, Md. (01B5944)

Location.--Lat 39°07'15", long 76°47'00", on left bank at downstream side of bridge on State Highway 32 (formerly State Highway 647), 0.6 mile southeast of Fort George G. Meade Junction (formerly Annapolis Junction), 1.0 upstream from mouth, and 2 miles south of Jessup, Anne Arundel County.
Drainage area.--11.6 sq mi.
Records available.--July 1948 to September 1958 (discontinued). Prior to October 1951, published as "at Annapolis Junction".
Gage.--Water-stage recorder and concrete control. Altitude of gage is 120 ft (from topographic map).
Average discharge.--10 years, 14.5 cfs.
Extremes.--Maximum discharge, 1,400 cfs Aug. 13, 1955 (gage height, 12.77 ft), from rating curve extended above 390 cfs on basis of contracted-opening measurement at gage height 11.09 ft; maximum daily, 708 cfs Aug. 13, 1955; minimum, 1.1 cfs Jan. 9, 1956, result of freezeup; minimum daily, 1.4 cfs Aug. 14, 15, 18, 19, 1957.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	May 23, 1949	6.09	381	1954	Dec. 14, 1953	5.21	340
1950	Aug. 20, 1950	7.30	441	1955	Aug. 13, 1955	12.77	1,400
1951	June 10, 1951	6.50	401	1956	Mar. 14, 1956	5.70	374
1952	Sept. 1, 1952	11.99	1,250	1957	Sept. 10, 1957	4.69	299
1953	Aug. 8, 1953	10.1	870	1958	July 8, 1958	7.39	499

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	5.8	4.0	2.8	2.2	1.9	1.7	1.4
14	6.5	4.5	3.0	2.3	2.0	1.8	1.5
30	8.6	5.9	3.7	2.5	2.1	1.8	1.6
60	10	7.0	4.6	3.0	2.4	2.1	1.8
120	12	9.1	5.9	3.8	3.0	2.5	2.1
183	16	12	7.8	5.1	4.0	3.3	2.5
274	19	15	11	7.2	5.7	4.5	3.4

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	164	113	75	41	26	16	12	8.0	5.1	4.0	3.1	2.7	2.2	2.0	1.8
1949-55	167	122	78	40	25	17	13	7.9	5.2	4.1	3.0	2.6	2.2	2.0	1.8

60. Western Branch near Largo, Md. (01B5945)

Location.--Lat 38°52'34", long 76°47'54", on right bank 85 ft upstream from bridge on State Highway 202, 200 ft downstream from small tributary, 0.1 mile upstream from Southwest Branch, 2.3 miles southeast of Largo, Prince Georges County, and 4.8 miles northwest of Upper Marlboro.
Drainage area.--30.2 sq mi.
Records available.--November 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 46.50 ft above mean sea level (levels by private consultant engineers).
Average discharge.--9 years (1950-59), 31.2 cfs.
Extremes.--Maximum discharge, 1,580 cfs Aug. 13, 1955 (gage height, 8.51 ft, from high-water mark in well); maximum daily, 1,260 cfs Aug. 13, 1955; minimum, 0.9 cfs Aug. 18, 1957; minimum daily, 1.0 cfs Aug. 17, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Sept. 11, 1950	7.16	1,130	1955	Aug. 13, 1955	8.51	1,580
1951	June 10, 1951	5.63	456	1956	Oct. 14, 1955	6.29	587
1952	Sept. 1, 1952	8.06	1,380	1957	Nov. 1, 1956	3.88	286
1953	Nov. 21, 1952	7.68	1,500	1958	Aug. 25, 1958	7.66	1,140
1954	May 4, 1954	6.38	614	1959	Aug. 8, 1959	8.21	1,420

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	11	5.8	2.8	1.7	1.3	1.0	0.7
14	13	7.0	3.4	1.9	1.5	1.1	.8
30	17	9.9	4.7	2.3	1.7	1.3	.9
60	24	15	7.7	3.4	2.2	1.6	1.2
120	34	22	12	5.9	3.6	2.5	1.5
183	42	30	18	9.7	6.4	4.3	2.6
274	52	41	27	16	11	7.4	4.6

Duration table of daily flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	322	231	162	98	66	42	31	18	10	7.1	4.4	3.0	1.9	1.4	1.1
1950-58	340	254	175	99	66	40	29	16	8.8	6.2	3.8	2.4	1.6	1.4	1.4

64. North Branch Potomac River at Kitzmiller, Md. (01B5955)

Location.--Lat 39°23'38", long 79°10'55", on left bank 0.6 mile downstream from bridge on State Highway 38 in Kitzmiller, Garrett County, and 1.5 miles downstream from Wolfden Run.
Drainage area.--225 sq mi.
Records available.--October 1949 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 1,572.26 ft above mean sea level, datum of 1929, Parkersburg-Uniontown supplementary adjustment of 1944. Prior to October 15, 1954, water-stage recorder at site 0.3 mile upstream at datum 7.58 ft higher. Oct. 15, 1954, to Nov. 20, 1955, wire-weight gage at bridge half a mile upstream at datum 21.51 ft higher.
Average discharge.--10 years, 431 cfs (adjusted for storage).
Extremes.--Maximum discharge, 33,400 cfs Oct. 15, 1954 (gage height, 13.73 ft, from floodmarks, present site and datum); maximum daily, 13,200 cfs Aug. 18, 1955; minimum, 4.6 cfs Oct. 3-7, 1953; minimum daily, 4.6 cfs Oct. 3-6, 1953.
Remarks.--Regulation at low flow by Stony River Reservoir, 30 miles above station (usable capacity, 1,681,000,000 gal.).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Jan. 31, 1950	7.74	6,170	1955	Oct. 15, 1954	16.5	33,400
1951	Dec. 7, 1950	8.71	8,510	1956	Aug. 6, 1956	9.02	8,310
1952	Dec. 31, 1951	8.15	7,190	1957	Feb. 10, 1957	8.61	7,110
1953	Jan. 24, 1953	7.14	4,920	1958	Apr. 6, 1958	7.97	5,430
1954	Mar. 1, 1954	9.02	9,280	1959	Jan. 22, 1959	7.39	4,170

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	78	48	32	22	14	5.5	1.5
14	100	58	35	24	18	7.9	2.4
30	142	79	44	30	24	14	4.2
60	204	114	60	38	29	21	8.0
120	288	190	109	60	43	32	21
183	402	281	174	96	64	46	31
274	515	400	289	193	148	105	58

Duration table of daily flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	4,460	3,320	2,450	1,540	1,020	620	434	238	114	69	45	35	27	22	12
1950-57	4,050	3,300	2,350	1,520	1,030	670	475	255	97	56	36	28	21	14	7.6

65. North Branch Potomac River at Bloomington, Md. (0185960)

Location.--Water-stage recorder, lat 39°28'48", long 79°04'08", at highway bridge at Bloomington, Garrett County, 600 feet upstream from Savage River and 2 miles upstream from Piedmont, W. Va. Datum of gage is 951.98 feet above mean sea level, adjustment of 1912.
Drainage area.--287 square miles.
Records available.--October 1924 to September 1927, July 1929 to September 1950 (discontinued).
Average discharge.--23 years (1925-27, 1929-50), 498 second-feet (unadjusted).
Extremes.--Maximum discharge, 22,500 second-feet Mar. 17, 1936, Oct. 28, 1937 (gage height, 14.85 feet), by slope-area determination at peak flow of 1936; maximum daily, 17,900 cfs Oct. 28, 1937; minimum, 5.4 second-feet Sept. 22, 1932 (gage height, 1.81 feet); minimum daily, 5.4 cfs Sept. 22, 1932.

Maximum stage known, 20.3 feet on left bank from floodmarks (equivalent to stage of about 17 feet in gage well on right bank), Mar. 29, 1924 (discharge, 29,000 second-feet, from rating curve extended above 10,000 second-feet on basis of slope-area measurement at gage height 14.85 feet).

Remarks.--Low flow affected by Stony River Reservoir, about 45 miles above station (see No.64).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Mar. 29, 1924	20.3	29,000	1939	Feb. 3, 1939	11.2	11,600
1925	Feb. 12, 1925	7.5	3,520	1940	Apr. 17, 1940	9.88	8,310
1926	Aug. 18, 1926	9.5	6,250	1941	July 4, 1941	8.70	5,660
1927	Jan. 21, 1927	8.4	4,700	1942	May 16, 1942	9.17	7,200
1930	Oct. 2, 1929	8.85	9,290	1943	Oct. 15, 1942	12.84	16,100
1931	Mar. 29, 1931	6.73	3,090	1944	Feb. 23, 1944	8.88	6,600
1932	Feb. 4, 1932	10.45	17,400	1945	Mar. 7, 1945	9.02	6,800
1933	Aug. 24, 1933	9.10	10,400	1946	June 19, 1946	7.72	4,360
1934	Jan. 7, 1934	8.3	7,180	1947	Mar. 14, 1947	7.50	4,100
1935	Jan. 21, 1935	8.8	9,080	1948	Feb. 14, 1948	9.51	7,800
1936	Mar. 17, 1936	13.2	22,500	1949	June 18, 1949	11.18	11,600
1937	Apr. 26, 1937	10.85	11,400	1950	Jan. 31, 1950	7.90	4,740
1938	Oct. 28, 1937	14.85	22,500				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	88	61	41	29	20	13	7.8
14	102	69	46	33	25	18	9.7
30	132	85	53	37	30	21	12
60	199	127	74	48	41	34	20
120	300	200	119	72	59	48	34
183	412	295	186	107	80	66	52
274	570	445	320	212	160	123	80

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	4,500	3,460	2,590	1,670	1,130	718	510	284	139	89	57	43	32	26	21
1930-49	4,250	3,330	2,550	1,630	1,110	696	510	268	128	83	50	37	29	24	20

66. Savage River near Barton, Md. (01B5965)

Location.--Lat 39°34'05", long 79°06'10", on right bank 0.9 mile upstream from Bear Pen Run, 1.5 miles downstream from Poplar Lick Run, and 5.4 miles northwest of Barton, Allegany County.
Drainage area.--49.1 sq mi.
Records available.--September 1948 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 1605 ft (from topographic map).
Average discharge.--11 years, 75.0 cfs.
Extremes.--Maximum discharge, 7,510 cfs Oct. 15, 1954 (gage height 8.45 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurement of peak flow; maximum daily, 1,950 cfs Oct. 15, 1954; minimum, 0.6 cfs Sept. 2, 1953; minimum daily, 0.7 cfs Aug. 31, Sept. 1, 1953, Sept. 16, 1959.
Remarks.--City of Frostburg diverts about 0.5 cfs from headwaters of stream for municipal supply.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Dec. 19, 1948	3.49	819	1955	Oct. 15, 1954	8.45	7,510
1950	Sept. 21, 1950	5.00	2,630	1956	Aug. 6, 1956	4.49	1,920
1951	June 13, 1951	4.43	1,860	1957	Feb. 10, 1957	3.72	1,140
1952	Mar. 11, 1952	4.70	2,270	1958	May 5, 1958	4.20	1,660
1953	Mar. 24, 1953	3.73	1,110	1959	Feb. 10, 1959	3.49	942
1954	Mar. 1, 1954	4.52	2,030				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	8.0	5.2	3.1	1.8	1.2	0.9	0.5
14	10	6.4	3.7	2.1	1.4	1.0	.6
30	16	8.8	4.8	2.7	1.8	1.2	.8
60	24	14	7.1	3.7	2.4	1.6	1.0
120	38	24	13	6.6	4.2	2.7	1.5
183	64	44	27	15	9.5	5.9	3.0
274	86	69	51	35	27	19	11

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	864	635	457	273	175	100	64	30	14	8.9	4.7	3.0	2.0	1.6	1.4
1949-57	770	590	458	275	193	117	78	33	12	6.8	3.6	2.3	1.7	1.4	1.2

67. Crabtree Creek near Swanton, Md. (01B5970)

Location.--Lat 39°30'00", long 79°09'35", on left bank 0.9 mile upstream from Middle Fork, 1.0 mile downstream from Springlick Run, and 5.0 miles northeast of Swanton, Garrett County.
Drainage area.--16.7 sq mi.
Records available.--September 1948 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 1,529.06 ft above mean sea level (Corps of Engineers bench mark).
Average discharge.--11 years, 28.8 cfs.
Extremes.--Maximum discharge, 3,260 cfs July 12, 1949 (gage height, 5.01 ft), from rating curve extended above 210 cfs on basis of slope-area and contracted-opening measurements of peak flow; maximum daily, 717 cfs July 12, 1949; minimum, 0.1 cfs Dec. 3, 1953 (gage height, 0.56 ft); minimum daily, 0.8 cfs Nov. 6, 1953.
Remarks.--Small diversion above station by Baltimore and Ohio Railroad.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Wetar year	Date	Gage height (feet)	Discharge (cfs)
1949	July 12, 1949	5.01	3,260	1955	Oct. 15, 1954	4.90	2,290
1950	Mar. 28, 1950	2.53	336	1956	Aug. 5, 1956	3.12	651
1951	June 13, 1951	2.81	615	1957	Feb. 10, 1957	2.92	568
1952	Jan. 2, 1952	2.70	530	1958	Aug. 3, 1958	2.45	346
1953	Jan. 24, 1953	2.37	319	1959	Feb. 10, 1959	2.19	202
1954	Mar. 1, 1954	2.55	426				

Magnitude and frequency of annual low flow
[Date adjustad to reference period 1913-57 on basis of ralation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in yaars						
	1.03	1.2	2	5	10	20	50
7	4.2	2.5	1.6	1.2	1.0	0.8	0.7
14	5.4	3.0	1.7	1.3	1.1	.9	.7
30	7.7	4.1	2.1	1.4	1.2	1.0	.8
60	11	6.3	3.2	1.8	1.4	1.1	.9
120	17	11	5.9	2.9	1.8	1.4	1.0
183	24	17	10	5.7	3.8	2.6	1.6
274	33	25	17	11	8.1	5.9	3.5

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feat per second, which was aqualed or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	337	250	181	111	70	41	28	14	6.6	4.3	2.4	1.8	1.5	1.3	1.1
1949-57	312	237	177	111	73	45	31	15	6.0	3.4	2.0	1.4	1.3	1.2	1.1

69. Savage River at Bloomington, Md. (01B5980)

Location.--Water-stage recorder, lat 39°29'00", long 79°04'24", at Bloomington, Garrett County, 2,200 feet upstream from mouth and 2 miles upstream from Piedmont, W. Va. Datum of gage is 978.76 feet above mean sea level (Corps of Engineers bench mark).
Drainage area.--115 square miles.
Records available.--May 1905 to July 1906, October 1924 to September 1927, August 1929 to September 1950 (discontinued).
Average discharge.--23 years (1925-27, 1929-50), 166 second-feet.
Extremes.--Maximum discharge, 14,800 second-feet Mar. 17, 1936 (gage height, 10.8 feet), by slope-area measurement; maximum daily, 7,170 cfs Mar. 17, 1936; minimum, 0.7 second-foot Sept. 21, 1932, Dec. 16, 1943; minimum daily, 0.7 cfs Sept. 21, 1932.
Remarks.--Diversion above station by Baltimore and Ohio Railroad and by cities of Frostburg, Piedmont, and Westernport for municipal supply.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1925	Feb. 11, 1925	6.8	2,480	1939	Feb. 3, 1939	6.65	3,210
1926	Nov. 13, 1925	7.00	2,730	1940	Apr. 20, 1940	6.24	2,620
1927	Feb. 24, 1927	6.5	3,100	1941	June 4, 1941	8.77	7,290
1930	Oct. 2, 1929	5.52	2,050	1942	May 16, 1942	7.47	4,560
1931	May 13, 1931	5.63	2,220	1943	Oct. 15, 1942	9.47	8,950
1932	May 12, 1932	6.48	3,800	1944	May 7, 1944	6.17	2,450
1933	Mar. 14, 1933	7.9	6,860	1945	Feb. 27, 1945	6.37	2,740
1934	Jan. 7, 1934	6.5	4,000	1946	June 2, 1947	5.60	1,700
1935	Sept. 4, 1935	5.40	2,350	1947	May 4, 1947	5.30	1,370
1936	Mar. 17, 1936	10.8	14,800	1948	Apr. 13, 1948	7.07	3,840
1937	Apr. 26, 1937	9.6	9,200	1949	July 12, 1949	6.69	3,270
1938	Oct. 28, 1937	8.92	7,520	1950	Sept. 22, 1950	6.18	2,520

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	18	11	5.3	2.7	1.8	1.2	0.7
14	22	13	6.5	3.3	2.1	1.4	.8
30	29	17	8.3	4.2	2.7	1.7	1.0
60	47	28	15	6.9	4.3	2.7	1.4
120	84	52	28	14	8.4	5.3	2.9
183	132	86	48	24	15	9.6	5.4
274	186	139	93	56	38	26	16

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	2,180	1,560	1,090	645	405	230	153	76	31	17	8.0	4.2	2.0	1.2	0.8
1930-49	1,870	1,350	1,010	605	380	226	152	70	27	16	7.7	4.5	2.5	1.7	1.4

70. North Branch Potomac River at Luke, Md. (01B5985)

Location.--Lat 39° 28'45", long 79° 03'55", on right bank 0.2 mile downstream from Savage River and 0.5 mile northwest of Luke, Allegany County.
Drainage area.--404 sq mi.
Records available.--June 1899 to July 1906 (published as "at Piedmont, W. Va."), October 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 946.25 ft above mean sea level, adjustment of 1912. June 27, 1899, to July 15, 1906, chain gage at bridge 1.1 miles downstream at datum about 35 feet lower.
Average discharge.--16 years (1899-1905, 1949-59), 684 cfs (adjusted for storage since 1949).
Extremes.--Maximum discharge, 39,400 cfs Oct. 15, 1954 (gage height, 17.15 ft); maximum daily, 18,400 cfs Aug. 18, 1955; minimum daily, 6 cfs Sept. 4, 1904.
Remarks.--Flow regulated since 1913 by Stony River Reservoir, 45 miles above station (see No.64) and, since December 1950, by Savage River Reservoir, 5 miles above station (capacity, 20,280 acre-ft). Some regulation at low flow by West Virginia Pulp and Paper Company at site used 1899-1906. Low flow frequency and durations tables for this station represent the flow pattern since December 1950.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1900	June 17, 1900	7.9	6,980	1951	June 13, 1951	10.28	11,200
1901	Nov. 26, 1900	8.8	9,070	1952	Mar. 11, 1952	8.30	7,260
1902	Feb. 28, 1902	11.4	16,000	1953	Jan. 24, 1953	7.78	6,400
1903	Feb. 28, 1903	9.0	9,550	1954	Mar. 1, 1954	9.35	10,500
1904	Jan. 22, 1904	7.9	6,980	1955	Oct. 15, 1955	17.15	39,400
1905	Mar. 21, 1905	8.5	8,350	1956	Aug. 6, 1956	11.48	15,800
1906	Jan. 23, 1906	8.8	8,990	1957	Feb. 10, 1957	10.58	13,200
1924	Mar. 29, 1924	-	51,000	1958	Apr. 7, 1958	9.82	11,100
1936	Mar. 17, 1936	-	37,400	1959	Feb. 10, 1959	7.31	5,560
1950	Mar. 28, 1950	8.36	6,830				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	220	143	94	67	48	34	21
14	244	159	105	77	56	38	24
30	290	185	119	86	67	47	29
60	406	253	148	98	80	61	38
120	610	381	215	127	102	81	51
183	670	430	250	152	122	98	71
274	905	665	438	285	215	165	117

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water-years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	5,900	4,620	3,530	2,370	1,660	1,030	690	356	183	127	92	78	58	45	35
1950-57	5,200	4,330	3,500	2,560	1,750	1,120	765	368	163	110	88	74	56	48	44

71. Georges Creek at Franklin, Md. (01B5990)

Location.--Lat 39°29'38", long 79°02'42", on right bank at Franklin, Allegany County, 1¼ miles upstream from Westernport and mouth.
Drainage area.--72.4 sq mi.
Records availeble.--May 1905 to July 1906 (published as "at Westernport"), October 1929 to September 1959.
Gage.--Water-stege recorder. Datum of gage ie 958.96 ft ebove mean sea level (West Virginia Pulp and Paper Co. Bench mark), May 4, 1905, to July 15, 1906, chain gage at bridge three-quarters of a mile downstream at different datum. Oct. 16, 1929, to Oct. 1, 1937, water-stage recorder et site 95 ft downstream et present datum.
Average discbarge.--30 years (1929-59), 76.3 cfe.
Extremes.--Maximum discharge, 8,500 cfs Mar. 17, 1936 (gage height, 9.6 ft, eite then in use), from rating curve extended ebove 2,000 cfs on basis of slope-area measurement of peak flow; maximum daily, 4,130 cfs Mar. 17, 1936; minimum, 1.6 cfs Sept. 29 to Oct. 13, 1930.
Flood of Mar. 29, 1924, reached e stege of about 10 ft, from floodmarks, at site 95 ft downstream.
Remarks.--Recorde include about half a cubic foot per second of sewage from city of Frostburg, which obtaine ite water supply from Big Piney Run (Monongahele River basin) and Savage River. A negligible discharge diverted above station by Frostburg Water Co. for municipal supplies of Eckhert and Welch Hill. Records include drainage from numerous active and abandoned coal mines.

Annuel peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	May 13, 1931	5.95	1,840	1946	June 2, 1946	5.95	890
1932	May 12, 1932	6.45	2,360	1947	Aug. 22, 1947	6.63	1,280
1933	Mar. 13, 1933	6.45	2,360	1948	Apr. 13, 1948	8.02	2,220
1934	Jan. 7, 1934	5.3	1,310	1949	July 12, 1949	9.77	3,630
1935	July 26, 1935	5.67	1,580	1950	Sept. 21, 1950	5.56	748
1936	Mar. 17, 1936	9.6	8,500	1951	June 13, 1951	8.62	2,710
1937	Apr. 26, 1937	9.0	7,800	1952	Mar. 11, 1952	8.57	2,680
1938	Oct. 28, 1937	9.85	3,510	1953	Mar. 24, 1953	6.9	1,540
1939	Apr. 17, 1939	6.84	1,350	1954	Mar. 1, 1954	7.87	2,190
1940	Apr. 20, 1940	6.72	1,260	1955	Oct. 15, 1954	10.84	4,340
1941	June 4, 1941	8.88	2,760	1956	Aug. 6, 1956	6.59	1,350
1942	May 16, 1942	7.50	1,870	1957	Feb. 9, 1957	8.47	2,590
1943	Oct. 15, 1942	11.08	4,830	1958	May 5, 1958	6.85	1,510
1944	May 7, 1944	7.68	2,010	1959	Sept. 30, 1959	6.84	1,500
1945	Feb. 27, 1945	7.03	1,560				

Magnitude and frequency of annual low flow
[Data adjueted to reference period 1913-57 on baeis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	11	7.9	5.4	3.6	2.7	2.1	1.5
14	14	8.8	6.0	4.0	3.0	2.3	1.7
30	18	11	7.0	4.7	3.6	2.8	2.0
60	28	16	9.4	6.0	4.5	3.5	2.4
120	43	26	15	8.6	6.1	4.4	2.9
183	66	43	24	12	8.5	5.9	3.8
274	88	66	44	27	19	13	7.6

Duration table of daily flow
[Deta adjusted to reference period 1913-57 on basis of relation with recorde et other stations]

Weter years	Discherge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	838	624	456	286	188	116	77	36	16	10	6.8	5.2	3.9	3.2	2.6
1930-57	780	580	435	280	186	113	75	34	14	9.3	6.0	4.6	3.3	2.6	2.0

72. North Branch Potomac River at Pinto, Md. (01B6000)

Location.--Lat 39°33'59", long 78°50'25", on right bank at downstream side of Western Maryland Railway bridge at Pinto, Allegany County, 2.8 miles downstream from Mill Run.
Drainage area.--596 sq mi.
Records available.--October 1938 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 648.23 ft above mean sea level (Corps of Engineers bench mark). Prior to Dec. 10, 1938, wire-weight gage at highway bridge 250 ft downstream at same datum.
Average discharge.--21 years, 861 cfs (unadjusted).
Extremes.--Maximum discharge, 37,000 cfs Oct. 16, 1954 (gage height, 23.23 ft); maximum daily, 21,500 cfs Oct. 16, 1942; minimum, 31 cfs Dec. 18, 19, 1943 (gage height, 1.37 ft), result of freezeup; minimum daily, 35 cfs Dec. 19, 1943, Aug. 13, 20, 1944.
Flood of Mar. 29, 1924, reached a stage of about 24 ft (discharge, about 55,000 cfs). Flood of Mar. 17, 1936, reached a stage of about 23.5 ft, from floodmarks (discharge, about 50,000 cfs.
Remarks.--Some regulation at low flow by Stony River Reservoir, 66 miles above station (see No.64) and since December 1950, by Savage River Reservoir (see No.70).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Feb. 3, 1939	16.65	20,200	1950	Jan. 31, 1950	10.30	8,950
1940	Apr. 17, 1940	12.95	13,000	1951	June 13, 1951	14.92	16,800
1941	June 4, 1941	13.35	13,800	1952	Mar. 11, 1952	12.30	11,800
1942	May 16, 1942	12.9	12,800	1953	Jan. 24, 1953	10.00	8,400
1943	Oct. 16, 1942	22.87	35,200	1954	Mar. 1, 1954	13.00	13,000
1944	May 7, 1944	11.96	11,500	1955	Oct. 16, 1954	23.23	37,000
1945	Mar. 7, 1945	13.36	13,800	1956	Aug. 6, 1956	14.86	16,200
1946	June 19, 1946	8.88	6,850	1957	Feb. 10, 1957	14.46	15,500
1947	Mar. 15, 1947	9.51	7,750	1958	Apr. 7, 1958	11.96	11,300
1948	Apr. 13, 1948	13.33	13,600	1959	Feb. 11, 1959	8.35	6,020
1949	July 13, 1949	15.34	17,600				

Magnitude and frequency of annual low flow for conditions existing prior to December 1950

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	138	94	62	39	22	11	4.4
14	158	107	70	46	30	14	5.9
30	200	129	80	52	39	21	8.7
60	315	193	115	73	56	38	16
120	495	309	183	110	81	60	34
183	695	468	288	169	121	90	60
274	945	725	505	326	245	187	130

Duration table of daily flow for conditions existing prior to December 1950

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	9,250	6,950	5,020	3,120	2,050	1,220	850	458	218	136	85	61	39	25	16
1939-50	8,200	6,500	4,650	2,860	1,930	1,200	860	458	218	144	92	71	55	48	44

72. North Branch Potomac River at Pinto, Md. (01B6000)—Concluded

Magnitude and frequency of annual low flow for conditions existing since December 1950

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	257	168	113	73	54	40	28
14	285	188	126	85	62	46	31
30	324	217	142	99	73	54	36
60	465	292	174	117	90	66	44
120	700	440	250	151	120	92	66
183	800	540	325	198	158	127	92
274	1,110	810	550	360	275	210	150

Duration table of daily flow for conditions existing since December 1950

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	7,980	6,200	4,760	3,160	2,200	1,350	897	455	233	164	122	100	73	56	43
1951-57	7,050	5,500	4,500	3,290	2,370	1,470	975	444	204	141	114	94	69	56	49

73. Wills Creek below Hyndman, Pa. (01B601D)

Location.--Lat 39°48'43", long 78°43'00", on left bank 150 ft upstream from county highway bridge, 150 ft downstream from Pennsylvania Railroad bridge, 0.35 mile downstream from Little Wills Creek, and half a mile south of Hyndman, Bedford County.
Drainage area.--146 sq mi.
Records available.--June 1951 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 891.37 ft above mean sea level (Pennsylvania Railroad bench mark).
Average discharge.--8 years, 185 cfs.
Extremes.--Maximum discharge, 11,600 cfs Oct. 15, 1954 (gage height, 11.02 ft), from rating curve extended above 6,000 cfs by logarithmic plotting; maximum daily, 4,310 cfs; minimum, 0.8 cfs Sept. 9, 1957 (gage height, 1.16 ft); minimum daily, 0.9 cfs Sept. 7-9, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1952	Mar. 11, 1952	8.05	6,080	1956	Apr. 7, 1956	5.56	2,680
1953	May 31, 1953	8.98	7,680	1957	Dec. 14, 1956	6.50	3,810
1954	Mar. 1, 1954	8.42	6,680	1958	May 5, 1958	7.47	5,160
1955	Oct. 15, 1954	11.02	11,600	1959	Feb. 10, 1959	6.27	3,460

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	29	16	6.0	1.8	0.8	0.4	0.1
14	33	20	8.1	2.5	1.2	.6	.2
30	42	26	12	2.8	1.8	.9	.4
60	54	34	18	6.7	3.2	1.6	.6
120	92	58	32	14	7.2	3.0	1.0
183	150	95	52	28	18	9.6	3.0
274	235	160	98	58	42	30	20

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	2,420	1,790	1,270	760	485	262	169	82	35	20	9.8	5.4	2.6	1.4	.8
1952-57	2,280	1,560	1,140	730	487	280	176	69	22	12	5.7	3.8	2.2	1.5	1.3

74. Wills Creek near Cumberland, Md. (01B6015)

Location.--Lat 39°40'07", long 78°47'18", on right bank at downstream side of Western Maryland Railway bridge, 2 miles upstream from Cumberland, Allegany County, and mouth.
Drainage area.--247 sq mi.
Records available.--May 1905 to July 1906 (published as "at Cumberland"), October 1929 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 640.89 ft above mean sea level (Corps of Engineers bench mark). May 6, 1905, to July 14, 1906, chain gage at highway bridge 700 ft upstream at different datum. Oct. 18, 1929, to Mar. 17, 1936, water-stage recorder, and Apr. 1, 1936, to Mar. 19, 1937, tape gage, on left bank 200 ft upstream at present datum.
Average discharge.--30 years (1929-59), 312 cfs.
Extremes.--Maximum discharge, 38,100 cfs Mar. 17, 1936 (gage height, 20.2 ft, from floodmarks at present site), from rating curve extended above 6,500 cfs on basis of slope-area measurements at gage heights 13.45 and 20.2 ft; maximum daily, 15,700 cfs October 15, 1942; minimum, 9 cfs Oct. 14, 1930; minimum daily, 10 cfs Oct. 8-10, 14, 1930, Sept. 21, 1932.
Remarks.--Records include drainage from numerous active and abandoned coal mines. Slight diurnal fluctuation at low flow caused by quarry upstream.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Oct. 22, 1929	7.02	4,170	1945	Feb. 27, 1946	7.28	5,030
1931	May 13, 1931	7.25	4,820	1946	June 2, 1946	6.25	3,320
1932	Mar. 31, 1932	7.15	4,560	1947	Aug. 26, 1947	6.06	3,030
1933	Mar. 14, 1933	8.8	7,320	1948	Apr. 13, 1948	7.61	5,560
1934	Jan. 7, 1934	7.6	5,040	1949	Jan. 26, 1949	6.50	3,700
1935	Feb. 15, 1935	6.25	2,590	1950	Mar. 28, 1950	6.17	3,180
1936	Mar. 17, 1936	22.2	38,100	1951	Dec. 7, 1950	8.32	6,860
1937	Apr. 26, 1937	13.4	18,600	1952	Mar. 11, 1952	9.17	8,650
1938	Oct. 28, 1937	8.94	8,040	1953	May 31, 1953	9.47	9,280
1939	July 29, 1939	7.65	5,570	1954	Mar. 1, 1954	8.70	7,640
1940	Mar. 31, Apr 20, 1940	7.11	4,710	1955	Oct. 16, 1954	10.70	11,900
1941	June 4, 1941	8.68	7,640	1956	Apr. 7, 1956	6.72	4,050
1942	Apr. 10, 1942	6.81	4,230	1957	Dec. 14, 1956	7.19	4,840
1943	Oct. 15, 1942	15.14	23,300	1958	May 5, 1958	8.53	7,300
1944	Apr. 24, 1944	6.85	4,180	1959	Feb. 10, 1959	6.93	4,400

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	55	36	22	15	12	9.9	7.6
14	62	41	25	17	14	11	8.5
30	78	50	30	19	15	13	9.6
60	96	64	39	23	18	15	11
120	156	103	60	33	24	18	13
183	242	159	93	54	38	27	18
274	370	258	163	104	77	58	40

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	3,520	2,670	1,960	1,240	797	440	290	144	72	48	30	23	17	14	12
1930-57	3,300	2,550	1,810	1,130	758	455	304	138	63	43	28	21	16	14	13

75. North Branch Potomac River near Cumberland, Md. (01B6030)

Location.--Lat 39°37'16", long 78°46'24", on left bank at downstream side of Wiley Ford Bridge, 2 miles south of Cumberland, Allegany County, and 2.1 miles downstream from Wills Creek.
Drainage area.--875 sq mi.
Records available.--May 1929 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 585.22 ft above mean sea level (Corps of Engineers bench mark). Prior to June 18, 1929, chain gage at same site and datum.
Average discharge.--30 years, 1,205 cfs (unadjusted).
Extremes.--Maximum discharge, 88,200 cfs Mar. 17, 1936 (gage height, 29.1 ft), from rating curve extended above 21,000 cfs on basis of slope-area measurement of peak flow; maximum daily, 47,400 cfs Mar. 18, 1936; minimum (river only), 12 cfs Sept. 22, 1932; minimum daily (including flow in canal), 38 cfs Sept. 24, 1932.
Maximum stage known, 29.2 ft June 1, 1889 (discharge, about 89,000 cfs). Flood of Mar. 29, 1924, reached a stage of 28.4 ft (discharge, about 82,000 cfs).
Remarks.--Regulation by reservoir on Stony River, about 79 miles above station (see No.64), and since December 1950, by reservoir on Savage River (see No.70). Prior to July 1957, small amount of inflow from industrial wastes and sewage from City of Cumberland from water diverted from Evitts Creek, mouth of which is below station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Oct. 3, 1929	-	11,000	1945	Feb. 27, 1945	15.30	18,200
1931	May 13, 1931		13,500	1946	June 20, 1946	10.05	8,610
1932	May 13, 1932	19.2	28,200	1947	Mar. 15, 1947	10.49	9,460
1933	Mar. 14, 1933	17.8	23,400	1948	Apr. 13, 1948	16.00	19,600
1934	Jan. 7, 1934	14.6	16,800	1949	Dec. 16, 1948	15.50	18,600
1935	Jan. 22, 1935	12.5	12,800	1950	Mar. 28, 1950	12.06	11,900
1936	Mar. 17, 1936	29.1	88,200	1951	June 13, 1951	17.65	23,100
1937	Apr. 26, 1937	24.2	51,700	1952	Mar. 11, 1952	16.69	20,700
1938	Oct. 28, 1937	25.1	57,400	1953	Jan. 24, 1953	12.05	11,500
1939	Feb. 4, 1939	16.75	21,500	1954	Mar. 1, 1954	15.96	19,000
1940	Apr. 20, 1940	14.57	16,800	1955	Oct. 16, 1954	23.85	38,500
1941	June 4, 1941	16.54	20,800	1956	Aug. 6, 1956	14.82	16,500
1942	Apr. 10, 1942	14.58	16,800	1957	Feb. 10, 1957	16.00	18,700
1943	Oct. 15, 1942	24.04	50,500	1958	May 6, 1958	15.19	17,200
1944	May 7, 1944	13.75	15,300	1959	Feb. 11, 1959	8.88	7,630

Magnitude and frequency of annual low flow for conditions existing prior to December 1950
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	201	145	102	70	42	23	11
14	228	161	113	80	54	30	14
30	286	190	128	90	70	42	20
60	430	270	173	118	93	70	33
120	670	438	262	167	130	103	62
183	972	642	398	241	180	140	101
274	1,340	1,020	712	464	348	264	183

Duration table of daily flow for conditions existing prior to December 1950
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	12,700	9,560	6,950	4,350	2,870	1,740	1,210	632	302	202	135	102	70	48	34
1930-50	11,700	8,900	6,500	4,070	2,620	1,690	1,190	600	281	188	124	91	57	41	32

75. North Branch Potomac River near Cumberland, Md. (01B6030)--Concluded

Magnitude and frequency of annual low flow for conditions existing since December 1950
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	333	210	140	109	93	80	66
14	368	242	157	118	100	85	70
30	438	286	179	129	109	92	75
60	620	385	220	144	121	104	84
120	950	590	335	190	151	124	96
183	1,100	720	420	253	200	160	121
274	1,540	1,120	740	475	355	270	186

Duration table of daily flow for conditions existing since December 1950
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	11,000	8,590	6,560	4,350	3,040	1,900	1,250	630	323	223	156	130	108	96	86
1951-57	9,750	8,070	6,200	4,300	3,180	2,080	1,430	613	282	188	142	123	106	98	94

76. Evitts Creek near Centerville, Pa. (01B6035)

Location.--Lat 39°47'23", long 78°38'48", on left bank 2 miles upstream from Thomas W. Koon Dam, 3 miles south of Centerville, Bedford County, and 7 miles upstream from Rock Gully Creek.
Drainage area.--30.2 sq mi.
Records available.--September 1932 to September 1959. Prior to October 1952, published as "near Bedford Valley".
Gage.--Water-stage recorder and concrete control. Datum of gage is 1,027.59 ft above mean sea level (city of Cumberland bench mark).
Average discharge.--27 years, 30.2 cfs.
Extremes.--Maximum discharge, 5,240 cfs Mar. 17, 1936 (gage height, 7.13 ft), from rating curve extended above 400 cfs on basis of slope-area measurements at gage heights 4.64 and 7.13 ft; maximum daily, 1,990 cfs Mar. 17, 1936; minimum, 0.7 cfs Dec. 17, 1958 (gage height, 0.79 ft), result of freezeup; minimum daily, 1.5 cfs July 27, 1934.
Maximum stage known, about 8 ft, from floodmark, date unknown.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Mar. 14, 1933	3.55	905	1947	Oct. 26, 1946	2.56	249
1934	Jan. 7, 1934	2.90	441	1948	Apr. 13, 1948	2.90	455
1935	Feb. 15, 1935	2.79	381	1949	June 28, 1949	3.12	630
1936	Mar. 17, 1936	7.13	5,240	1950	Mar. 24, 1950	2.51	226
1937	Apr. 26, 1937	4.64	2,040	1951	Dec. 7, 1950	3.85	1,270
1938	Oct. 28, 1937	3.58	1,030	1952	Mar. 11, 1952	3.95	1,300
1939	July 29, 1939	5.18	2,600	1953	May 31, 1953	4.39	1,740
1940	Mar. 31, 1940	3.12	631	1954	Mar. 1, 1954	4.35	1,700
1941	June 4, 1941	3.32	797	1955	Oct. 15, 1954	4.98	2,650
1942	Mar. 9, 1942	3.53	982	1956	July 19, 1956	3.56	1,030
1943	Oct. 15, 1942	4.26	1,660	1957	Apr. 25, 1957	3.32	808
1944	May 7, 1944	3.58	1,030	1958	May 5, 1958	3.73	1,050
1945	July 31, 1945	3.77	1,200	1959	Feb. 10, 1959	2.85	435
1946	Feb. 27, 1946	2.85	420				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	5.4	4.0	2.9	2.2	1.9	1.7	1.4
14	5.9	4.3	3.2	2.4	2.1	1.8	1.5
30	7.2	5.0	3.5	2.6	2.3	2.0	1.6
60	10	6.6	4.4	3.1	2.6	2.3	1.9
120	16	10	6.2	4.1	3.3	2.7	2.1
183	26	16	9.3	5.8	4.5	3.6	2.7
274	36	26	17	11	8.4	6.6	4.7

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	369	258	174	106	69	42	28	14	7.0	5.1	3.6	2.9	2.4	2.1	1.8
1933-57	340	240	165	98	68	43	30	14	6.9	4.9	3.7	3.1	2.6	2.4	2.2

77. Town Creek naar Oldtown, Md. (01B6090)

Location.--Chain gage, lat 39 33'14", long 79 33'20", on highway bridge 2 miles abova Sawpit Run and 3 miles northaast of Oldtown, Allegany County.
Drainage area.--148 squara milas.
Racords availabla.--July 1928 to Septamber 1935 (discontinuad).
Extremas.--Maximum discharga observed about 8,500 second-faet Oct. 23, 1929 (gage height, 13.4 faet); maximum daily, 4,210 cfs Apr. 16, 1929; minimum, 0.9 sacond-foot Aug. 2, 3, 7-14, 1930 (gage height, 1.41 feat).
Remarks.--Unragulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	July 14, 1928	12.56	7,170	1933	Mar. 14, 1933	10.01	3,900
1929	Apr. 16, 1929	12.5	7,020	1934	Jan. 7, 1934	7.5	1,860
1930	Oct. 23, 1929	14.0	9,700	1935	Feb. 17, 1935	6.8	1,510
1931	July 18, 1931	10.14	4,000	1936	Mar. 17 or 18, 1936	19.0	27,000
1932	May 12, 1932	10.5	4,420				

Magnitude and frequency of annual low flow
[Data adjustad to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	14	8.0	4.0	2.0	1.3	0.8	0.4
14	18	9.7	4.9	2.5	1.6	1.0	.5
30	24	13	6.5	3.2	2.1	1.4	.7
60	40	22	11	5.3	3.3	2.1	1.1
120	74	41	20	9.5	6.0	3.7	1.9
183	128	74	38	18	11	6.8	3.3
274	182	126	75	41	27	18	10

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Watar years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,760	1,270	910	550	350	194	120	54	24	15	7.7	5.0	3.1	2.2	1.7
1929-35	1,730	1,280	910	510	292	158	93	40	16	11	4.9	3.0	2.0	1.4	1.1

78. Sawpit Run near Oldtown, Md. (01B6095)

Location.--Lat 39°32'50", long 78°33'20", on left bank 900 ft upstream from bridge on State Highway 51, 1.0 mila upstream from mouth, and 3.0 miles aast of Oldtown, Allegany County.
Orainaga area.--5.0 eq mi, approximately.
Records availablo.-- October 1947 to December 1958 (discontinuad).
Gage.--Water-staga recorder and concrete control. Oatum of gaga is 574.06 ft abova mean sea level, datum of 1929.
Averago discharge.--11 years, 4.11 cfs.
Extremes.--Maximum dischargo, 770 cfs Oct. 15, 1954 (gage height, 4.72 ft), from rating curve extended above 110 cfs on basis of slope-area maasurament of peak flow; maximum daily, 164 cfs June 8, 1955, no flow at times each year.
Ramarks.--Unragulated.

Annual peaks

Water year	Date	Gage height (faat)	Oischarge (cfs)	Water year	Date	Gage height (feet)	Oischarge (cfs)
1948	Jan. 1, 1948	2.95	164	1954	Mar. 1, 1954	4.30	590
1949	July 12, 1949	3.59	319	1955	Oct. 15, 1954	4.72	770
1950	May 28, 1950	3.41	272	1956	June 18, 1956	2.95	164
1951	Mar. 30, 1951	3.76	366	1957	Feb. 10, 1957	3.10	198
1952	May 11, 1952	3.12	202	1958	May 5, 1958	3.40	275
1953	May 31, 1953	3.85	392				

Magnitude and frequency of annual low flow
[Oata adjusted to refarance period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Oischarge, in cubic feet per sacond, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	0.1	0	0	0	0	0	0
14	.1	0	0	0	0	0	0
30	.3	.1	0	0	0	0	0
60	.7	.2	0	0	0	0	0
120	1.5	.7	.1	0	0	0	0
183	3.1	1.6	.5	.1	0	0	0
274	4.9	3.1	1.6	.8	.4	.2	0

Duration table of daily flow
[Oata adjusted to reference period 1913-57 on basis of ralation with records at other stations]

Water years	Discharge, in cubic faat per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	84	60	42	20	9.5	3.9	2.0	0.6	0.1	0	0	0	0	0	0
1948-57	72	55	38	19	10	4.8	2.7	.8	.1	0	0	0	0	0	0

79. Potomac River at Paw Paw, W. Va. (01B6100)

Location.--Lat 39°32'13", long 78°27'28", on left bank 250 ft upstream from bridge on Maryland State Highway 51 at Paw Paw, Morgan County, and 3.3 miles downstream from Little Cacapon River.
Drainage area.--3,109 sq mi.
Records available.--October 1938 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 487.88 ft above mean sea level (Corps of Engineers bench mark). Prior to Mar. 25, 1939, wire-weight gage at bridge 250 ft downstream at same datum.
Average discharge.--21 years, 3,077 cfs.
Extremes.--Maximum discharge, 111,000 cfs Oct. 16, 1942 (gage height, 38.36 ft); maximum daily, 104,000 cfs Oct. 16, 1942; minimum, 189 cfs Sept. 28, 29, 1959; minimum daily, 192 cfs Sept. 28, 29, 1959.
Maximum stage known, 54.0 cf Mar. 18, 1936 (discharge, 240,000 cfs, from rating curve extended above 85,000 cfs on basis of slope-area measurement of peak flow at site 5 miles upstream at Okonoke, W. Va.).
Remarks.--Low flow affected by Stony River Reservoir (see No.64) and, since December 1950, by Savage River Reservoir (see No.70).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Feb. 4, 1939	28.2	66,100	1950	Feb. 2, 1950	19.30	30,900
1940	June 1, 1940	24.90	50,400	1951	June 14, 1951	25.87	53,400
1941	June 5, 1941	18.62	29,600	1952	Apr. 28, 1952	22.53	41,300
1942	May 23, 1942	26.98	58,500	1953	Mar. 26, 1953	18.25	27,800
1943	Oct. 16, 1942	38.36	111,000	1954	Mar. 2, 1954	25.06	50,300
1944	May 7, 1944	19.52	31,600	1955	Aug. 19, 1955	35.35	91,600
1945	Sept. 19, 1945	23.52	45,000	1956	Apr. 8, 1956	19.03	30,100
1946	Jan. 8, 1946	15.35	19,700	1957	Feb. 10, 1957	21.79	38,900
1947	Mar. 15, 1947	15.55	20,300	1958	May 6, 1958	21.16	36,800
1948	Apr. 15, 1948	24.74	49,500	1959	June 3, 1959	13.93	16,300
1949	June 19, 1949	33.91	85,200				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	545	390	280	209	173	145	115
14	625	435	307	228	189	158	123
30	775	510	342	255	210	177	140
60	1,130	720	450	322	264	219	169
120	1,730	1,170	710	446	353	283	212
183	2,540	1,750	1,080	650	496	385	278
274	3,450	2,610	1,830	1,220	935	730	525

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	31,800	23,800	17,300	10,800	7,150	4,280	2,950	1,610	835	562	356	273	219	188	163
1939-57	28,400	22,300	16,500	10,500	7,300	4,650	3,200	1,660	790	550	372	297	260	243	232

80. Little Tonoloway Creek near Hancock, Md. (01B6125)

Location.--Lat 39 42 45", long 78°13'55", on right bank at downstream side of highway bridge, 100 ft downstream from unnamed tributary and 2.8 miles northwest of Hancock, Washington County.
Drainage area.--16.9 sq mi.
Records available.--August 1947 to September 1959. Prior to October 1951, published as Tonoloway Creek near Hancock.
Gage.--Water-stage recorder and concrete control. Datum of gage is 457.51 ft above mean sea level, datum of 1929.
Average discharge.--12 years, 15.8 cfs.
Extremes.--Maximum discharge, 1,470 cfs Oct. 15, 1954 (gage height, 7.10 ft), from rating curve extended above 440 cfs on basis of slope-area measurement of peak flow; maximum daily, 602 cfs July 13, 1951; no flow at times.
Remarks.--Occasional small diversions for irrigation of peach orchards above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Apr. 14, 1948	2.41	216	1954	Mar. 1, 1954	6.96	1,170
1949	July 17, 1949	4.44	764	1955	Oct. 15, 1954	7.10	1,470
1950	May 28 or 29, 1950	2.89	329	1956	Apr. 7, 1956	3.38	268
1951	Mar. 30, 1951	6.26	987	1957	Feb. 10, 1957	2.96	225
1952	Aug. 31, 1952	5.08	499	1958	May 5, 1958	4.88	719
1953	Nov. 21, 1952	7.01	1,180	1959	Aug. 29, 1959	3.71	426

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	1.6	0.5	0.1	0	0	0	0
14	1.8	.8	.1	0	0	0	0
30	2.6	1.2	.2	0	0	0	0
60	4.4	2.2	.9	.1	0	0	0
120	8.6	4.7	2.0	.7	.2	0	0
183	14	8.4	4.2	1.7	.9	.3	0
274	24	17	9.7	5.1	3.4	2.2	1.1

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	402	262	167	84	46	22	13	4.4	1.6	0.8	0.2	0.1	0	0	0
1948-57	314	223	147	84	46	24	15	5.5	1.4	.6	.2	.1	0	0	0

81. Potomac River at Hancock, Md. (01B6130)

Location.--Lat 39°41'49", long 78°10'39", on left bank 0.2 mile downstream from Little Tonoloway Creek, half a mile downstream from bridge on U. S. Highway 522 at Hancock, Washington County, and 1.1 miles upstream from Tonoloway Creek (formerly called Great or Big Tonoloway Creek).
Drainage area.--4,073 sq mi.
Records available.--October 1932 to September 1959. Gage height records collected at same site since June 1925 are contained in reports of U. S. Weather Bureau.
Gage.--Water-stage recorder. Datum of gage is 383.46 ft above mean sea level, adjustment of 1912. Oct. 1, 1932, to Aug. 27, 1934, chain gage, and Aug. 28, 1934, to Jan. 5, 1935, Mar. 18, 1936, to Jan. 20, 1937, wire-weight gage, on former highway bridge just upstream at same datum. Jan. 6, 1935, to Mar. 18, 1936, water-stage recorder at present site and datum.
Average discharge.--27 years, 3,993 cfs.
Extremes.--Maximum discharge, 340,000 cfs Mar. 18, 1936 (gage height, 47.6 ft), from rating curve extended above 120,000 cfs on basis of slope-area measurement of peak flow; maximum daily, 261,000 cfs Mar. 18, 1936; minimum observed, 180 cfs Oct. 4, 1932 (gage height, 2.01 ft); minimum daily, 233 cfs Sept. 8, 1957.
Maximum stage known prior to 1932, about 40 ft in May 1889 (discharge, about 220,000 cfs).
Remarks.--Slight regulation at low flow from powerplant upstream. Low flow affected slightly by Stony River Reservoir (see No.64) and since December 1950 by Savage River Reservoir (see No.70).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Apr. 21, 1933	23.1	64,400	1947	Mar. 16, 1947	13.05	23,000
1934	Jan. 8, 1934	14.2	27,700	1948	Apr. 15, 1948	22.27	62,500
1935	Jan. 23, 1935	17.3	38,600	1949	June 19, 1949	26.86	88,400
1936	Mar. 18, 1936	47.6	340,000	1950	Feb. 2, 1950	17.61	40,300
1937	Apr. 27, 1937	35.7	153,000	1951	June 14, 1951	23.61	67,300
1938	Oct. 29, 1937	31.8	122,000	1952	Apr. 29, 1952	21.89	58,600
1939	Feb. 4, 1939	24.85	76,600	1953	Nov. 22, 1952	17.35	38,300
1940	June 1, 1940	21.33	58,100	1954	Mar. 2, 1954	24.52	72,100
1941	Apr. 6, 1941	16.48	36,500	1955	Aug. 19, 1955	32.40	123,000
1942	May 23, 1942	23.18	67,000	1956	Apr. 8, 1956	17.82	40,300
1943	Oct. 16, 1942	36.63	155,000	1957	Feb. 11, 1957	19.43	47,200
1944	May 8, 1944	18.10	42,400	1958	May 6, 1958	18.85	44,600
1945	Sept. 19, 1945	21.98	61,000	1959	June 4, 1959	13.11	22,700
1946	June 3, 1946	13.62	25,000				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	665	470	335	252	222	196	171
14	770	525	365	270	235	209	178
30	940	620	410	299	254	226	194
60	1,360	835	525	360	295	254	212
120	2,140	1,440	860	520	400	335	268
183	3,190	2,180	1,330	800	620	480	350
274	4,400	3,200	2,220	1,520	1,180	935	680

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	40,000	30,000	21,800	13,300	8,750	5,200	3,550	1,910	1,030	705	430	320	257	228	205
1933-57	38,500	29,300	21,700	13,700	9,300	5,720	3,940	2,060	990	700	477	385	330	298	281

82. Licking Creek near Sylvan, Pa. (01B6135)

Location.--Lat 39°43'20", long 78°03'35", at highway bridge 200 ft upstream from Pennsylvania-Maryland State line, 3 miles southwest of Sylvan, Franklin County, and 10 miles upstream from mouth.
Drainage area.--158 sq mi.
Records available.--June 1930 to January 1942.
Gage.--Chain gage. Datum of gage is 434.16 ft above mean sea level, adjustment of 1907.
Average discharge.--11 years (1930-41), 166 cfs.
Extremes.--Maximum discharge, 20,700 cfs Mar. 18, 1936 (gage height, 17.4 ft, from floodmark), from rating curve extended above 5,500 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 9,570 cfs Mar. 18, 1936; minimum observed, 30 cfs Aug. 8, 1930 (gage height, 0.64 ft); minimum daily, 3.0 cfs Aug. 8, 1930.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	July 18, 1931	8.1	2,970	1937	Apr. 26, 1937	15.20	14,500
1932	May 13, 1932	8.6	3,390	1938	Oct. 28, 1937	10.0	4,800
1933	Aug. 23, 1933	9.2	3,950	1939	Feb. 3, 1939	10.3	5,160
1934	Sept. 17, 1934	9.4	4,150	1940	Jan. 15, 1940	8.60	3,390
1935	Dec. 1, 1934	10.2	5,040	1941	Apr. 5, 1941	6.8	2,010
1936	Mar. 18, 1936	17.4	20,700				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	28	18	12	8.2	6.5	5.2	3.9
14	32	21	14	9.2	7.2	5.8	4.3
30	40	26	16	11	8.4	6.7	5.0
60	63	38	23	14	11	8.6	6.4
120	102	60	34	20	15	11	8.1
183	162	102	62	38	29	23	17
274	220	151	98	64	50	40	30

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	2,300	1,670	1,170	682	425	238	158	80	41	27	18	13	9.6	7.8	6.4
1931-40	2,170	1,630	1,130	630	370	210	135	66	32	22	14	9.1	6.6	5.6	4.9

83. Conococheague Creek at Fairview, Md. (01B6145)

Location.--Lat 39°42'57", long 77°49'28", on right bank 0.7 mile upstream from highway bridge in Fairview, Washington County, 2 miles upstream from Rockdale Run, and 6½ miles northwest of Hagerstown.

Drainage area.--494 sq mi.

Records available.--June 1928 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 391.77 ft above mean sea level, adjustment of 1912. Prior to Dec. 6, 1932, chain gage at highway bridge 0.7 mile downstream at datum 2.85 ft lower. Dec. 6, 1932 to Oct. 7, 1933, staff gage at site 200 ft downstream from former site at datum 4.84 ft lower than present datum.

Average discharge.--31 years, 570 cfs.

Extremes.--Maximum discharge, 17,100 cfs Nov. 22, 1952 (gage height, 15.16 ft, from high-water mark in well); maximum daily, 13,000 cfs Nov. 22, 1952; minimum, 22 cfs Dec. 16, 1930; minimum daily, 25 cfs Nov. 28, 1930.

Maximum stage known, about 16.5 ft sometime in 1889, from information by local residents (discharge, about 22,000 cfs).

Remarks.--Low flow partly regulated by small powerplants near Mercersburg, Pa.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	June 26, 1928	11.1	7,580	1944	Jan. 4, 1944	8.60	5,640
1929	Apr. 16, 1929	11.3	7,780	1945	Sept. 18, 1945	10.30	7,950
1930	Oct. 22, 1929	10.8	7,280	1946	May 28, 1946	9.06	6,280
1931	Apr. 2, 1931	7.8	4,500	1947	July 12, 1947	7.75	4,700
1932	May 13, 1932	8.0	4,680	1948	Jan. 2, 1948	7.50	4,370
1933	Aug. 24, 1933	13.3	9,000	1949	July 18, 1949	9.35	6,670
1934	Sept. 17, 1934	11.60	10,700	1950	May 19, 1950	8.30	5,280
1935	Dec. 1, 1934	14.80	16,300	1951	Nov. 25, 1950	11.72	10,200
1936	Mar. 18, 1936	13.27	13,700	1952	Mar. 12, 1952	14.44	15,500
1937	Apr. 28, 1937	13.84	14,200	1953	Nov. 22, 1952	15.16	17,100
1938	Oct. 28, 1937	9.53	6,810	1954	Mar. 1, 1954	7.82	4,600
1939	Feb. 4, 1939	9.30	6,540	1955	Mar. 22, 1955	10.21	7,820
1940	Apr. 9, 1940	9.54	6,810	1956	Feb. 7, 1956	7.59	4,350
1941	Apr. 5, 1941	7.34	4,150	1957	Nov. 2, 1956	9.15	6,320
1942	May 23, 1942	9.15	6,410	1958	May 6, 1958	10.00	7,510
1943	Oct. 16, 1942	12.17	11,100	1959	Jan. 22, 1959	8.29	5,170

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	156	117	86	64	54	45	36
14	172	127	92	70	58	49	38
30	203	147	105	78	65	54	44
60	290	198	134	94	78	66	52
120	424	278	180	120	98	80	64
183	604	405	262	172	137	112	88
274	785	570	394	274	224	184	142

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	5,570	4,200	3,080	1,940	1,300	820	595	348	203	148	106	84	66	56	48
1929-57	5,120	3,900	2,900	1,840	1,260	815	590	340	188	140	102	81	61	52	45

84. Potomac River at Shepherdstown, W. Va. (01B6180)

Location.--Let 39°26'04", long 77°48'07", on right bank 0.1 mile downstream from Rumsey Bridge at Shepherdstown, Jefferson County, and 3.3 miles upstream from Antietam Creek.
Drainage area.--5,936 sq mi.
Records available.--August 1928 to September 1953 (discontinued).
Gage.--Water-stage recorder. Datum of gage is 281.00 ft above mean sea level, adjustment of 1912.
Average discharge.--25 years, 5,804 cfs.
Extremes.--Maximum discharge, 335,000 cfs Mar. 19, 1936 (gage height, 42.1 ft, from floodmarks), from rating curve extended above 200,000 cfs on basis of slope-area measurements at gage heights 32.68 and 42.1 ft; maximum daily, 287,000 cfs Mar. 19, 1936; minimum, 231 cfs Aug. 17, 19, 1930; minimum daily, 252 cfs Oct. 2, 1932.
Floods of June 1889 and May 1924 reached stages of 392 and 298 ft, respectively, from floodmarks (discharges, about 290,000 and 168,000 cfs respectively, from rating curve extended as explained above).
Remarks.--Some regulation at low flow by power plants above station, Stony River Reservoir (see No. 44), and since December 1950 by Savage River Reservoir (see No. 70).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1929	Apr. 17, 1929	25.53	126,000	1945	Sept. 19, 1945	19.31	79,000
1930	Oct. 23, 1929	19.83	82,400	1946	June 3, 1946	12.65	40,600
1931	May 24, 1931	10.92	32,200	1947	Mar. 16, 1947	9.95	28,200
1932	May 14, 1932	24.75	119,000	1948	Apr. 15, 1948	18.49	73,800
1933	Apr. 21, 1933	19.1	77,800	1949	June 19, 1949	19.84	82,300
1934	Jan. 8, 1934	11.2	33,600	1950	Feb. 3, 1950	14.36	49,900
1935	Dec. 2, 1934	17.0	64,400	1951	June 15, 1951	19.60	81,000
1936	Mar. 19, 1936	42.07	335,000	1952	Apr. 29, 1952	19.09	77,800
1937	Apr. 27, 1937	33.2	207,000	1953	Nov. 23, 1952	19.98	83,600
1938	Oct. 29, 1937	26.78	138,000	1954	Mar. 3, 1954	19.47	80,200
1939	Feb. 5, 1939	20.36	86,500	1955	Aug. 20, 1955	25.26	124,000
1940	Apr. 21, 1940	17.75	69,400	1956	Apr. 8, 1956	14.79	52,000
1941	Apr. 6, 1941	13.53	45,200	1957	Feb. 11, 1957	15.28	54,700
1942	May 24, 1942	18.97	77,100	1958	May 7, 1958	15.88	58,100
1943	Oct. 16, 1942	32.68	201,000	1959	June 4, 1959	10.32	29,600
1944	May 8, 1944	14.94	52,600				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	1,220	910	630	450	394	348	294
14	1,360	995	680	482	420	370	312
30	1,610	1,160	775	535	460	400	342
60	2,230	1,560	990	645	535	460	380
120	3,290	2,290	1,440	915	745	620	485
183	4,700	3,290	2,080	1,300	1,050	845	645
274	6,450	4,860	3,360	2,280	1,820	1,480	1,130

Duration table of daily flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	55,300	41,200	30,200	19,200	12,800	7,900	5,540	3,090	1,720	1,210	785	595	462	408	363
1929-52	52,800	39,400	30,000	18,800	12,700	8,000	5,600	3,100	1,660	1,220	835	608	455	384	360

86. Antietam Creek near Sharpsburg, Md. (01B6195)

Location.--Lat 39°27'01", long 77°43'52", on left bank 400 ft downstream from Burnside Bridge, 1 mile southeast of Sharpsburg, Washington County, and 4 miles upstream from mouth.
Drainage area.--281 sq mi. At site used prior to 1928, 279 sq mi.
Records available.--June 1897 to August 1905. August 1928 to September 1959.
Gage.--Water-stage recorder, concrete control since Mar. 29, 1934. Datum of gage is 311.00 ft above mean sea level, adjustment of 1912. June 24, 1897, to Aug. 25, 1905, staff gage a few hundred feet downstream from Middle Bridge, 1.2 miles upstream at datum about 12 ft higher. Aug. 21, 1928, to July 13, 1933, staff gage at Burnside Bridge at same datum.
Average discharge.--31 years (1928-59), 258 cfs (adjusted for inflow since 1934).
Extremes.--Maximum discharge, 12,600 cfs July 20, 1956 (gage height, 16.73 ft), from rating curve extended above 4,300 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 6,835 cfs Feb. 26, 1902; minimum 9.4 cfs Nov. 22, 1957, result of regulation caused by construction work above station; minimum daily, 50 cfs Sept. 29, 1930, Feb. 1, Oct. 4, 1931.
Remarks.--Flow slightly regulated by powerplant above station. Regulation greater prior to 1936. Since 1928, records include pumpage from Potomac River for municipal supply of Hagerstown. This water later enters Antietam Creek above station as sewage.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1928	July 11 or 12, 1928	11.9	6,300	1944	Jan. 4, 1944	8.53	3,910
1929	May 3, 1929	9.8	4,330	1945	Dec. 12, 1944	5.08	1,320
1930	Oct. 23, 1929	7.9	2,860	1946	June 3, 1946	6.27	2,050
1931	July 9, 1931	8.3	3,140	1947	June 8, 1947	3.98	745
1932	Sept. 2, 1932	7.14	2,360	1948	Feb. 14, 1948	4.82	1,160
1933	Aug. 24, 1933	10.4	5,690	1949	July 18, 1949	11.23	6,470
1934	Sept. 30, 1934	5.40	1,390	1950	Dec. 27, 1949	4.88	1,220
1935	Dec. 1, 1934	10.8	5,730	1951	Nov. 26, 1950	9.22	4,720
1936	Mar. 18, 1936	8.88	3,930	1952	May 25, 1952	10.32	5,480
1937	Apr. 27, 1937	10.67	6,040	1953	Nov. 22, 1952	9.17	4,680
1938	Oct. 28, 1937	6.74	2,330	1954	Mar. 2, 1954	4.20	880
1939	June 22, 1939	6.26	2,050	1955	Oct. 15, 1954	8.75	4,180
1940	July 23, 1940	7.21	2,710	1956	July 20, 1956	16.73	12,600
1941	Nov. 15, 1940	4.87	1,190	1957	Nov. 1, 1956	7.17	2,440
1942	May 22, 1942	7.03	2,550	1958	May 6, 1958	6.54	2,220
1943	Oct. 16, 1942	6.32	2,050	1959	Jan. 22, 1959	4.58	1,080

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	156	121	93	78	72	66	60
14	169	130	98	80	74	68	62
30	197	149	108	84	78	72	66
60	209	159	118	93	85	78	71
120	244	181	130	100	90	84	76
183	305	224	156	113	100	92	83
274	360	280	203	146	123	110	97

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,520	1,160	883	650	500	368	294	204	142	120	98	88	79	73	68
1929-57	1,420	1,090	850	630	500	370	300	195	138	117	96	86	76	71	67

87. Shenandoah River at Millville, W. Va. (01B6365)

Location.--Lat 39°16'55", long 77°47'22", on left bank 0.4 mile downstream from Cattail Run, 1 mile upstream from Millville, Jefferson County, and 5 miles upstream from Harpers Ferry and mouth.
Drainage area.--3,040 sq mi.
Records available.--April 1895 to March 1909, August 1928 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 293.00 ft above mean sea level, adjustment of 1912. April 15, 1895, to Mar. 31, 1909, staff gage at site three-quarters of a mile downstream at datum 0.32 ft higher.
Average discharge.--31 years (1928-59), 2,504 cfs.
Extremes.--Maximum discharge, 230,000 cfs Oct. 16, 1942 (gage height, 32.4 ft, from floodmarks); maximum daily, 192,000 cfs Oct. 16, 1942; minimum, about 59 cfs Oct. 4, 1930 (gage height, 0.39 ft); minimum daily, 194 cfs July 24, 1930.
Flood in 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft (discharge, 151,000 cfs).
Remarks.--Regulation by hydroelectric plants, particularly that of Potomac Edison Company, half a mile above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1896	Jan. 25, 1896	6.6	16,900	1939	Feb. 5, 1939	12.24	31,800
1897	Oct. 1, 1896	19.72	105,000	1940	Aug. 18, 1940	13.7	40,100
1898	Aug. 1, 1898	13.0	52,000	1941	Apr. 7, 1941	9.16	18,000
1900	Mar. 3, 1900	7.0	19,200	1942	May 24, 1942	16.28	56,100
1901	Apr. 22, 1901	16.0	74,000	1943	Oct. 16, 1942	32.4	230,000
1903	Jan. 4, 1903	11.0	39,100	1944	May 8, 1944	10.13	21,400
1904	July 11, 1904	6.0	14,200	1945	Sept. 20, 1945	17.10	61,800
1905	June 25, 1905	6.5	16,500	1946	May 6, 1946	7.86	13,200
1906	Aug. 28, 1906	6.1	14,700	1947	Mar. 16, 1947	8.79	16,400
1907	Oct. 20, 1906	13.0	52,000	1948	Feb. 16, 1948	11.08	26,000
1908	Jan. 13, 1908	12.9	51,300	1949	June 20, 1949	15.92	53,400
1929	Apr. 17, 1929	13.70	39,900	1950	Feb. 3, 1950	8.76	16,300
1930	Oct. 24, 1929	10.25	22,000	1951	Dec. 5, 1950	14.72	45,700
1931	Aug. 24, 1931	6.05	7,710	1952	Apr. 29, 1952	14.24	42,900
1932	May 13, 1932	12.62	33,900	1953	Mar. 27, 1953	13.42	38,300
1933	Apr. 21, 1933	13.67	39,900	1954	Mar. 3, 1954	12.12	31,200
1934	Sept. 18, 1934	7.58	12,300	1955	Aug. 19, 1955	21.45	99,000
1935	Dec. 2, 1934	17.40	64,800	1956	Mar. 16, 1956	6.56	9,030
1936	Mar. 18, 1936	26.36	151,000	1957	Apr. 7, 1957	11.00	25,500
1937	Apr. 27, 1937	20.20	87,400	1958	Apr. 24, 1958	9.50	19,000
1938	Oct. 29, 1937	12.72	34,400	1959	June 4, 1959	11.86	29,800

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	900	710	530	410	368	330	290
14	980	760	560	430	385	348	300
30	1,120	860	620	466	412	372	325
60	1,460	1,080	750	540	470	415	355
120	1,970	1,430	960	680	580	500	410
183	2,600	1,860	1,220	855	720	605	490
274	3,480	2,530	1,730	1,250	1,050	880	705

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	24,800	17,700	12,300	7,450	5,000	3,280	2,520	1,640	1,070	820	602	492	413	372	338
(1896-1907 1929-57)	26,800	18,300	12,600	7,600	5,270	3,470	2,600	1,620	1,030	830	642	535	434	383	348

88. Little Catoctin Creek at Harmony, Md. (01B6370)

Location.--Lat 39°28'55", long 77°32'20", on right bank at upstream side of county highway bridge, 0.9 mile southwest of Harmony, Frederick County, 2.6 miles north of Middletown, and 2.8 miles upstream from mouth.
Drainage area.--8.9 sq mi, approximately.
Records available.--July 1947 to October 1958 (discontinued).
Gage.--Water-stage recorder and concrete control. Altitude of gage is 540 ft (from topographic map).
Average discharge.--11 years, 10.1 cfs.
Extremes.--Maximum discharge, 5,400 cfs Aug. 20, 1952 (gage height, 8.49 ft in gage well, 9.82 ft from floodmark), from rating curve extended above 220 cfs on basis of slope-area measurements at gage heights 3.87, 5.58, and 6.82 ft, and contracted-opening measurement of peak flow; maximum daily, 286 cfs Nov. 21, 1952; minimum, 0.4 cfs July 28 to Aug. 2, Oct. 12-14, 1954, Aug. 17, 18, 1957.
Remarks.--Small diversion above station for municipal water supply of Middletown.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	June 30, 1948	3.61	271	1954	Mar. 1, 1954	2.86	135
1949	July 12, 1949	6.82	2,240	1955	Aug. 18, 1955	4.68	722
1950	Mar. 22, 1950	3.87	378	1956	July 20, 1956	4.18	494
1951	Nov. 25, 1950	5.58	1,260	1957	Nov. 1, 1956	7.25	2,940
1952	Aug. 20, 1952	8.49	5,400	1958	July 11, 1958	4.03	435
1953	Nov. 21, 1952	6.36	1,870				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	2.4	1.6	1.0	0.6	0.5	0.3	0.2
14	2.8	1.7	1.1	.7	.5	.4	.3
30	3.4	2.1	1.3	.8	.6	.5	.3
60	4.6	2.7	1.6	1.0	.8	.6	.4
120	7.6	4.4	2.4	1.4	1.1	.8	.6
183	11	6.5	3.4	1.9	1.5	1.2	.8
274	15	9.8	5.7	3.2	2.4	1.9	1.4

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	98	68	46	30	21	14	9.3	4.6	2.4	1.8	1.2	0.9	0.6	0.5	0.4
1948-57	97	67	44	30	23	16	11	5.5	2.6	2.0	1.4	1.0	.8	.7	.6

89. Catoctin Creek near Middletown, Md. (01B6375)

Location.--Lat 39°25'35", long 77°33'25", on right bank 300 ft downstream from bridge on State Highway 17, 1.3 miles south of Middletown, Frederick County, and 2½ miles downstream from Little Catoctin Creek.
Drainage area.--66.9 sq mi.
Records available.--August 1947 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 385 ft (from topographic map).
Average discharge.--12 years, 75.7 cfs.
Extremes.--Maximum discharge, 7,760 cfs July 18, 1949 (gage height, 11.18 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurement of peak flow; maximum daily 1,930 cfs Dec. 4, 1950; minimum, 1.3 cfs Aug. 19, 1957; minimum daily, 1.4 cfs Aug. 18, 19, 24, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 1, 1948	5.10	1,700	1954	Aug. 30, 1954	4.26	1,280
1949	July 18, 1949	11.18	7,760	1955	Aug. 18, 1955	6.20	2,290
1950	May 23, 1950	4.62	1,450	1956	July 21, 1956	5.55	1,920
1951	Dec. 4, 1950	8.91	4,210	1957	Nov. 1, 1956	9.56	4,880
1952	May 27, 1952	8.11	3,530	1958	Feb. 27, 1958	5.25	1,780
1953	Nov. 21, 1952	9.77	5,130	1959	Aug. 8, 1959	3.85	1,090

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	19	9.2	3.7	1.4	0.8	0.5	0.3
14	22	11	4.3	1.7	1.0	.7	.4
30	29	15	6.2	2.4	1.4	.9	.5
60	43	23	9.7	3.8	2.2	1.4	.7
120	67	40	19	8.2	4.6	2.7	1.3
183	90	60	34	16	9.4	5.5	2.8
274	117	86	56	34	24	17	9.3

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	990	705	490	282	178	105	72	39	19	12	5.6	3.1	1.6	1.0	0.7
1948-57	770	580	397	250	181	117	82	41	20	13	7.2	4.7	3.3	2.7	2.1

90. Potomac River at Point of Rocks, Md. (01B6385)

Location.--Lat 39°16'25", long 77°32'35", on left bank at downstream side of bridge on U. S. Highway 15 at Point of Rocks, Frederick County, a third of a mile downstream from Catoctin Creek (Virginia) and 6 miles upstream from Monocacy River.

Drainage area.--9,651 sq mi.

Records available.--February 1895 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 200.54 ft above mean sea level, adjustment of 1912. Prior to Sept. 2, 1902, wire-weight gage on downstream side of bridge at datum about 0.45 ft higher. Sept. 2, 1902, to Oct. 28, 1929, chain gage at same site at present datum.

Average discharge.--63 years (1896-1959), 9,288 cfs.

Extremes.--Maximum discharge, 480,000 cfs Mar. 19, 1936 (gage height, 41.03 ft), from rating curve extended above 300,000 cfs on basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; maximum daily, 434,000 cfs Mar. 19, 1936; minimum, 540 cfs Sept. 10, 1914 (gage height, 0.38 ft); minimum daily, 540 cfs Sept. 10, 1914.

Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks (discharge about 460,000 cfs, from rating curve extended as explained above).

Remarks.--Low flow affected slightly since 1913 by Stony River Reservoir (see No.64) and since Dec. 1950 by Savage River Reservoir (see No.70).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1895	Apr. 10, 1895	10.9	68,500	1928	May 2, 1928	21.3	145,000
1896	July 26, 1896	9.4	56,000	1929	Apr. 18, 1929	24.94	180,000
1897	Oct. 1, 1896	27.2	204,000	1930	Oct. 23, 1929	17.4	110,000
1898	Aug. 12, 1898	18.0	127,000	1931	May 24, 1931	8.16	36,800
1899	Mar. 6, 1899	18.1	128,000	1932	May 14, 1932	23.34	158,000
1900	Mar. 21, 1900	9.6	57,700	1933	Apr. 21, 1933	19.30	123,000
1901	Apr. 22, 1901	22.0	161,000	1934	Jan. 9, 1934	8.06	36,700
1902	Mar. 2, 1902	29.0	219,000	1935	Dec. 2, 1934	19.78	128,000
1903	Mar. 1, 1903	16.6	110,000	1936	Mar. 19, 1936	41.03	480,000
1904	June 1, 1904	8.6	44,500	1937	Apr. 27, 1937	33.86	310,000
1905	Mar. 11, 1905	11.9	71,400	1938	Oct. 30, 1937	24.93	175,000
1906	Mar. 29, 1906	13.1	81,300	1939	Feb. 5, 1939	19.39	124,000
1907	Mar. 15, 1907	17.6	119,000	1940	Apr. 21, 1940	15.67	93,600
1908	Jan. 13, 1908	21.6	152,000	1941	Apr. 7, 1941	12.56	69,000
1909	Apr. 16, 1909	13.3	83,000	1942	May 24, 1942	21.13	125,000
1910	June 18, 1910	23.5	168,000	1943	Oct. 16, 1942	40.43	418,000
1911	Sept. 1, 1911	16.1	106,000	1944	May 8, 1944	13.92	70,300
1912	Feb. 28, 1912	14.8	95,400	1945	Sept. 20, 1945	21.98	139,000
1913	Mar. 28, 1913	20.0	139,000	1946	June 3, 1946	11.40	53,100
1914	Mar. 19, 1914	12.2	73,900	1947	Mar. 16, 1947	9.65	42,100
1915	June 4, 1915	20.0	139,000	1948	Apr. 15, 1948	16.04	87,000
1916	Mar. 29, 1916	18.3	124,000	1949	June 20, 1949	21.20	132,000
1917	Mar. 13, 1917	18.1	123,000	1950	Feb. 3, 1950	13.09	64,700
1918	Apr. 16, 1918	18.6	127,000	1951	Dec. 5, 1950	20.75	128,000
1919	May 11, 1919	13.0	80,500	1952	Apr. 29, 1952	20.67	127,000
1920	Mar. 6, 1920	16.4	109,000	1953	Nov. 23, 1952	19.68	118,000
1921	May 6, 1921	14.0	88,800	1954	Mar. 3, 1954	18.65	109,000
1922	Mar. 17, 1922	12.8	78,800	1955	Aug. 20, 1955	29.08	214,000
1923	Apr. 16, 1923	8.8	40,700	1956	Apr. 9, 1956	12.54	60,800
1924	May 13, 1924	32.2	277,000	1957	Apr. 7, 1957	13.74	69,200
1925	Feb. 13, 1925	15.0	89,000	1958	May 7, 1958	14.13	72,000
1926	Feb. 27, 1926	11.5	60,500	1959	June 4, 1959	11.80	55,700
1927	Nov. 17, 1926	15.1	89,900				

90. Potomac River at Point of Rocks, Md. (01B6385)—Concluded

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	2,330	1,780	1,270	944	837	741	640
14	2,570	1,930	1,360	1,000	881	782	673
30	2,980	2,200	1,530	1,100	955	852	736
60	4,010	2,900	1,930	1,310	1,110	961	803
120	5,690	4,100	2,700	1,800	1,490	1,250	1,010
183	7,910	5,600	3,670	2,470	2,040	1,680	1,310
274	10,400	8,000	5,740	4,110	3,360	2,750	2,150

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	81,800	60,300	43,900	28,100	19,500	12,500	9,040	5,370	3,170	2,300	1,580	1,220	963	860	773
1896-1958	86,000	64,000	46,000	29,200	20,100	12,800	9,300	5,400	3,100	2,370	1,700	1,330	1,040	900	800

91. Monocacy River at Bridgeport, Md. (01B6390)

Location.--Lat 39°40'43", long 77°14'06", on right bank 60 ft downstream from bridge on State Highway 32, at Bridgeport, Carroll County, 0.9 mile upstream from Cattail Branch, 3.4 miles northwest of Taneytown, and 4.8 miles downstream from confluence of Rock and Marsh Creeks at Pennsylvania-Maryland State line.

Drainage area.--173 sq mi.

Records available.--May 1942 to September 1959.

Gage.--Water-stage recorder. Concrete control since Sept. 15, 1947. Datum of gage is 340.83 ft above mean sea level (Corps of Engineers bench mark). Prior to May 3, 1946, staff gage and crest-stage indicators at site 0.3 mile downstream at datum 0.98 ft lower.

Average discharge.--17 years, 198 cfs.

Extremes.--Maximum discharge, 15,000 cfs May 21, 1943 (gage height, 20.53 ft, former site and datum), from rating curve extended above 6,700 cfs on basis of logarithmic plotting and velocity-area studies; maximum daily, 7,640 cfs May 21, 1943; minimum, 0.1 cfs Aug. 27, 28, 1944; minimum daily, 0.2 cfs Aug. 24-28, 1944.

Maximum stage known, about 25 ft present site and datum, Aug. 24, 1933, from floodmarks; stage exceeded that of June 1889 from information by local residents.

Remarks.--Occasional regulation at low flow from unknown source above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Aug. 14, 1942	13.92	8,830	1951	Dec. 4, 1950	15.52	10,600
1943	May 21, 1943	20.53	15,000	1952	Mar. 11, 1952	16.15	11,600
1944	Nov. 9, 1943	18.10	12,400	1953	Nov. 22, 1952	14.36	9,230
1945	Dec. 12, 1944	12.55	7,140	1954	Mar. 1, 1954	9.28	4,020
1946	June 2, 1946	16.01	11,300	1955	Mar. 22, 1955	13.66	8,390
1947	May 22, 1947	12.23	6,770	1956	Mar. 14, 1956	11.47	6,020
1948	Jan. 2, 1948	13.38	8,090	1957	Dec. 14, 1956	10.80	5,350
1949	July 18, 1949	14.12	8,920	1958	Dec. 21, 1957	14.30	9,160
1950	Mar. 23, 1950	12.51	7,100	1959	Mar. 6, 1959	10.86	5,410

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	20	9.4	3.2	0.7	0.2	0.1	0
14	25	12	4.2	1.0	.3	.1	0
30	40	19	7.0	2.1	.8	.3	.1
60	70	35	14	4.5	2.1	.9	.2
120	131	72	31	11	5.7	2.8	.9
183	192	121	64	26	14	8.1	3.8
274	272	200	130	74	49	31	16

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	3,350	2,500	1,800	900	450	207	128	61	27	15	6.4	3.1	1.1	0.4	0.2
1943-57	3,000	2,290	1,670	820	422	216	138	64	26	16	8.0	4.6	2.4	1.4	.8

92. Big Pipe Creek at Bruceville, Md. (01B6395)

Location.--Lat 39°36'45", long 77°14'10", on left bank 300 ft downstream from bridge on State Highway 71, 800 ft downstream from Bruceville, Carroll County, and 3½ miles upstream from Detour and confluence with Little Pipe Creek.
Drainage area.--102 sq mi.
Records available.--December 1947 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 340 ft (from topographic map).
Average discharge.--11 years (1948-59), 107 cfs.
Extremes.--Maximum discharge, 9,500 cfs July 12, 1949 (gage height, 11.92 ft); from rating curve extended above 2,300 cfs on basis of slope-area measurement at gege height 8.38 ft and slope-conveyance study; maximum daily, 2,700 cfs July 12, 1949; minimum, 2.4 cfs July 28, 1954; minimum daily, 7.4 cfs Aug. 1, 1954.
Remarks.--Diurnal fluctuation caused by mills above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	Jan. 1, 1948	8.50	3,870	1954	Dec. 7, 1953	7.09	2,790
1949	July 12, 1949	11.92	9,500	1955	Aug. 31, 1955	8.97	4,320
1950	Mar. 23, 1950	8.38	3,780	1956	July 21, 1956	6.72	2,530
1951	Dec. 4, 1950	8.45	3,780	1957	Apr. 6, 1957	4.79	1,130
1952	Apr. 27, 1952	8.76	4,150	1958	Dec. 20, 1957	9.68	5,140
1953	Aug. 8, 1953	7.98	3,430	1959	July 14, 1959	4.32	1,130

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	44	29	17	10	7.2	5.2	3.4
14	47	31	19	11	7.8	5.6	3.6
30	57	39	24	14	10	7.4	5.0
60	66	49	32	20	14	10	6.9
120	102	73	47	29	22	16	11
183	156	104	66	43	33	26	19
274	172	120	80	59	48	40	31

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,510	983	606	330	218	140	105	67	44	34	24	17	12	9.3	7.4
1948-57	1,190	835	530	304	210	148	113	69	44	36	27	21	17	14	13

93. Little Pipe Creek at Avondale, Md. (01B6400)

Location.-- Lat 39°33'40", long 77°02'38", on left bank at downstream side of private bridge, 0.1 mile downstream from Copps Branch, ½ mile northwest of Avondale, Carroll County, and 3 miles southwest of Westminster.
Drainage area.--8.10 sq mi.
Records available.--August 1947 to September 1956 (discontinued).
Gage.--Water-stage recorder and concrete control. Altitude of gage is 525 ft (from topographic map).
Average discharge.--9 years, 9.21 cfs (adjusted for inflow).
Extremes.--Maximum discharge, 1,880 cfs July 4, 1956 (gage height, 8.47 ft), from rating curve extended above 130 cfs on basis of elope-area determinations at gage heights 3.85 and 5.50 ft, and contracted-opening determination at 7.60 ft; maximum daily, 204 cfs Aug. 13, 1955; minimum, 1.4 cfs July 1, 1954, result of storage behind temporary earth dam upstream; minimum daily, 3.0 cfs Sept. 13, 1947.
Remarks.--Records include pumpage from Patapsco River basin for municipal supply of Westminster which is discharged as sewage into Little Pipe Creek above station.

Annual peaks

Water year	Date	Gage height (feet)	Oischarge (cfs)	Water year	Oate	Gage height (feet)	Discharge (cfs)
1948	May 29, 1948	4.81	480	1953	Nov. 21, 1952	5.00	532
1949	July 12, 1949	4.99	532	1954	July 5, 1954	4.26	361
1950	Mar. 22, 1950	3.85	286	1955	Aug. 13, 1955	7.05	1,260
1951	Dec. 4, 1950	5.50	687	1956	July 4, 1956	8.47	1,880
1952	Sept. 1, 1952	7.60	1,480				

Magnitude and frequency of annual low flow
[Oata adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	5.8	4.7	3.9	3.4	3.1	2.8	2.5
14	6.1	5.0	4.1	3.5	3.2	3.0	2.7
30	6.7	5.4	4.4	3.8	3.4	3.1	2.8
60	7.2	6.0	4.8	4.0	3.7	3.4	3.0
120	8.5	7.0	5.5	4.5	4.1	3.8	3.4
183	10	8.0	6.1	4.9	4.5	4.1	3.7
274	12	9.9	7.6	6.1	5.5	4.9	4.3

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Oischarge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	73	53	37	22	16	11	8.9	6.8	5.4	4.8	4.3	3.8	3.4	3.2	2.9
1948-55	75	52	35	22	17	13	10	7.6	5.7	5.0	4.6	4.2	3.9	3.8	3.6

94. Owens Creek at Lantz, Md. (01B6405)

Location.--Lat 39°40'36", long 77°27'52", on right bank half a mile west of Lantz Post Office (Deerfield station on Western Maryland Railway), Frederick County, 1½ miles south of Sabillasville, and 4½ miles northwest of Thurmont.
Drainage area.--5.93 sq mi.
Records available.--October 1931 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 965 ft (from topographic map).
Average discharge.--28 years, 9.05 cfs (adjusted for diversion).
Extremes.--Maximum discharge, 3,270 cfs Dec. 1, 1934 (gage height, 8.4 ft), from rating curve extended above 750 cfs on basis of slope-area measurements at gage heights 5.11 and 6.30 ft; maximum daily, 451 cfs Apr. 26, 1937; minimum, 0.06 cfs Oct. 8, 1941, Sept. 7, 1944, not including water diverted above gage; minimum daily, including water diverted above gage, 0.18 cfs Sept. 20, 1932, Sept. 30, Oct. 7, 8, 1941.
Remarks.--A small diversion is occasionally made to Victor Cullen State Hospital at Cullen, half a mile above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1932	May 12, 1932	2.84	169	1946	May 27, 1946	3.53	260
1933	Aug. 23, 1933	6.52	1,600	1947	June 7, 1947	2.97	120
1934	Sept. 29, 1934	4.25	552	1948	Jan. 1, 1948	3.36	209
1935	Dec. 1, 1934	8.4	3,270	1949	July 18, 1949	5.59	1,190
1936	Mar. 11, 1936	4.04	456	1950	Dec. 27, 1949	2.98	121
1937	Feb. 21, 1937	5.14	945	1951	Dec. 7, 1950	6.16	1,520
1938	Oct. 28, 1937	3.69	316	1952	Sept. 1, 1952	6.30	1,620
1939	Feb. 3, 1939	3.28	187	1953	Nov. 21, 1952	5.12	930
1940	Sept. 25, 1940	3.61	288	1954	Mar. 1, 1954	3.62	308
1941	Apr. 5, 1941	3.52	257	1955	Aug. 18, 1955	4.34	566
1942	May 22, 1942	3.53	260	1956	Apr. 29, 1956	3.54	284
1943	May 20, 1943	5.66	1,220	1957	Nov. 1, 1956	5.86	1,350
1944	Nov. 8, 1943	3.59	282	1958	Apr. 6, 1958	2.92	137
1945	Dec. 12, 1944	3.97	428	1959	Mar. 6, 1959	2.63	87

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	2.9	1.5	0.6	0.2	0.1	0.1	0
14	3.5	1.9	.8	.3	.1	.1	0
30	4.5	2.4	1.0	.4	.2	.1	0
60	6.0	3.4	1.6	.6	.3	.2	.1
120	9.1	5.4	2.6	1.1	.6	.4	.2
183	12	7.6	4.2	2.0	1.3	.8	.4
274	14	10	6.4	3.8	2.7	1.9	1.2

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	86	62	44	29	21	14	10	5.6	2.9	1.7	0.8	0.5	0.2	0.2	0.1
1932-57	81	56	41	28	20	14	10	5.6	2.7	1.7	.9	.5	.3	.2	.2

95. Hunting Creek at Jimtown, Md. (01B6410)

Location.--Lat 39°35'40", long 77°23'50", on right bank just downstream from highway bridge, 0.4 mile southwest of Jimtown, Frederick County, about 2½ miles southeast of Thurmont, and 2½ miles upstream from Little Hunting Creek.
Drainage area.--18.4 sq mi.
Records available.--October 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 355 ft (from topographic map).
Average discharge.--10 years, 25.4 cfs.
Extremes.--Maximum discharge, 1,170 cfs Sept. 1, 1952, (gage height, 4.94 ft), from rating curve extended above 500 cfs by logarithmic plotting; maximum daily, 598 cfs Mar. 11, 1952; minimum, 1.0 cfs Aug. 1, 2, 1954, Sept. 5, 1957; minimum daily, 1.2 cfs July 30, Aug. 1, 2, 14, 1954, Aug. 18, Sept. 5, 1957.
Remarks.--Slight regulation at irregular intervals caused by pumpage at recreation camp near Foxville, Md.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Mar. 23, 1950	3.72	395	1955	Aug. 18, 1955	4.62	1,010
1951	Dec. 7, 1950	4.83	668	1956	July 21, 1956	4.42	918
1952	Sept. 1, 1952	4.94	1,170	1957	Nov. 1, 1956	4.88	1,140
1953	Nov. 21, 1952	4.86	1,130	1958	May 5, 1958	3.16	422
1954	Mar. 1, 1954	2.86	321	1959	Mar. 6, 1959	2.73	280

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	5.2	3.3	2.2	1.3	0.9	0.6	0.4
14	5.9	3.9	2.4	1.4	1.0	.7	.4
30	7.7	4.9	2.9	1.8	1.3	.9	.6
60	12	7.3	4.1	2.4	1.8	1.4	.9
120	19	12	6.7	3.7	2.7	2.0	1.4
183	26	18	11	6.0	4.3	3.2	2.2
274	35	27	19	12	8.9	6.8	4.7

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	290	213	151	89	61	39	28	14	7.5	5.0	2.8	2.1	1.4	1.1	0.8
1950-57	270	186	132	84	59	40	30	15	6.9	4.9	3.2	2.5	1.9	1.6	1.4

96. Fishing Creek near Lewistown, Md. (01B6415)

Location.--Lat 39°31'35", long 77°28'00", on left bank immediately upstream from Fishing Creek Reservoir, 50 ft downstream from Little Fishing Creek, and 4.5 miles west of Lewistown, Frederick County.
Drainage area.--7.29 sq mi.
Records available.--October 1947 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 735 ft (from topographic map).
Average discharge.--12 years, 11.6 cfs.
Extremes.--Maximum discharge, 500 cfs July 12, 1949 (gage height, 3.73 ft), from rating curve extended above 100 cfs on basis of slope-area measurement of peak flow; maximum daily, 207 cfs Aug. 18, 1955; minimum, 0.7 cfs Sept. 22, 1959; minimum daily, 0.8 cfs Oct. 13, 1954.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	May 7, 1948	2.02	54	1954	Apr. 17, 1954	2.10	65
1949	July 12, 1949	3.73	500	1955	Aug. 18, 1955	3.51	424
1950	May 15, 1950	2.15	72	1956	July 20, 1956	2.73	190
1951	Dec. 4, 1950	2.66	172	1957	Nov. 1, 1956	2.70	182
1952	May 25, 1952	2.85	220	1958	Apr. 1, 1958	2.05	59
1953	Nov. 21, 1952	2.85	220	1959	Mar. 6, 1959	1.88	39

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	4.7	2.7	1.5	0.9	0.7	0.5	0.3
14	5.4	3.1	1.7	1.0	.7	.6	.4
30	6.7	3.8	2.0	1.3	.9	.7	.5
60	8.6	5.0	2.6	1.6	1.2	.8	.6
120	9.9	5.9	3.3	2.0	1.5	1.2	.8
183	12	8.6	5.4	3.0	2.2	1.7	1.2
274	16	12	9.0	6.1	4.5	3.3	2.2

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	96	70	50	35	26	18	14	7.6	4.2	2.8	1.8	1.4	1.0	0.8	0.6
1948-57	84	62	46	33	26	19	15	7.9	4.1	2.9	2.0	1.6	1.4	1.2	1.1

97. Monocecy River near Frederick, Md. (01B6420)

Location.--Lat 39°27'09", long 77°22'16", near right bank on downstream side of bridge on State Highway 26 at Ceresville, 1,200 ft upstream from Isreel Creek, and 3.3 miles northeast of Frederick, Frederick County.

Drainage area.--665 sq mi.

Records available.--August 1896 to September 1930 (discontinued).

Gage.--Chain gage. Datum of gage is 242.45 ft above mean sea level (levels by Corps of Engineers). Prior to Sept. 3, 1902, wire-weight gage at same site and datum.

Average discharge.--34 years (1896-1930), 943 cfs.

Extremes.--Maximum discharge, 26,600 cfs Sept. 1, 1911 (gage height, 27.5 ft, from graph based on gage readings), from rating curve extended above 4,700 cfs on basis of curve of relation with station at Jug Bridge; maximum daily, 20,900 cfs Jan. 13, 1915; minimum, 15 cfs several days in October 1910 (gage height, 3.54 ft).

Maximum stage known, about 35 ft in June 1889, from floodmark (discharge, about 46,000 cfs, from rating curve extended as explained above.)

Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1897	Feb. 7, 1897	18.5	13,400	1914	Feb. 1, 1914	15.2	9,600
1898	Nov. 2, 1897	18.0	12,900	1915	Jan. 13, 1915	27.2	23,400
1899	Dec. 5, 1898	19.0	14,000	1916	June 17, 1916	23.5	17,300
1900	Feb. 22, 1900	22.1	18,100	1917	Mar. 12, 1917	20.4	12,700
1901	Mar. 11, 1901	23.4	20,000	1918	Feb. 20, 1918	22.1	14,300
1902	Mar. 1, 1902	27.0	25,700	1919	Dec. 23, 1918	18.0	10,500
1903	June 29, 1903	26.5	24,800	1920	Mar. 13, 1920	19.8	12,200
1904	Mar. 8, 1904	23.6	20,300	1921	May 13, 1921	23.0	16,600
1905	Aug. 26, 1905	22.0	18,000	1922	Mar. 8, 1922	16.0	8,650
1906	Apr. 15, 1906	23.5	20,200	1923	July 21, 1923	21.0	14,000
1907	Mar. 14, 1907	19.5	14,500	1924	Jan. 17, 1924	23.5	17,300
1908	Feb. 16, 1908	25.0	22,400	1925	Feb. 12, 1925	21.5	14,600
1909	Feb. 24, 1909	17.0	11,800	1926	Feb. 26, 1926	22.0	15,300
1910	Jan. 22, 1910	24.0	20,900	1927	Nov. 16, 1926	27.0	23,000
1911	Sept. 1, 1911	27.5	26,600	1928	Oct. 19, 1927	26.0	21,200
1912	Sept. 25, 1912	23.9	20,800	1929	May 3, 1929	25.0	19,500
1913	Mar. 27, 1913	26.0	24,000	1930	Oct. 3, 1929	23.0	16,600

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	198	130	76	44	34	26	19
14	226	147	84	49	38	29	21
30	290	181	102	60	45	35	25
60	415	255	140	78	58	44	31
120	635	400	220	118	87	65	44
183	860	570	330	182	132	97	66
274	1,070	810	550	345	252	188	128

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	10,400	7,300	5,000	2,800	1,700	1,000	700	386	214	150	96	69	48	38	30
1897-1930	11,600	9,500	6,800	3,600	2,060	1,110	738	412	224	163	110	74	52	40	35

98. Linganore Creek near Frederick, Md. (01B6425)

Location.--Lat 39°24'55", long 77°20'00", on left bank 2½ miles upstream from mouth and 4 miles east of Frederick, Frederick County.
Drainage area.--82.3 sq mi.
Records available.--November 1931 to March 1932, September 1934 to September 1959.
Gage.--Water-stage recorder. Concrete control since Sept. 23, 1946. Altitude of gage is 270 ft (from topographic map). Nov. 27, 1931, to Mar. 26, 1932, staff gage at Frederick pumping station, 1½ miles downstream at datum about 20 ft lower. Sept. 12, 1934, to Sept. 25, 1946, staff gage at present site and datum.
Average discharge.--25 years (1934-59), 84.5 cfs.
Extremes.--Maximum discharge, 4,130 cfs Aug. 13, 1955 (gage height, 11.39 ft) from rating curve extended above 1,500 cfs on basis of slope-area measurement at gage height 10.01 ft; maximum daily, 2,950 cfs Apr. 27, 1952; maximum gage height, 12.22 ft June 2, 1946; minimum discharge observed, 6.0 cfs Oct. 9, 1941; minimum daily, 6.0 cfs Oct. 9, 1941.
Flood of Aug. 23 or 24, 1933, reached a stage of 10.5 ft, from floodmarks (discharge, 2,920 cfs).
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1934	Sept. 16, 1934	10.0	2,720	1947	Aug. 20, 1947	7.37	2,050
1935	Dec. 1, 1934	5.56	1,080	1948	Jan. 1, 1948	9.19	2,950
1936	Mar. 11, 1936	7.40	1,680	1949	Dec. 30, 1948	8.13	2,400
1937	June 17, 1937	8.30	2,040	1950	Mar. 23, 1950	8.75	2,750
1938	Nov. 13, 1937	8.50	2,120	1951	Nov. 25, 1950	10.01	3,350
1939	Jan. 30, 1939	7.80	1,840	1952	Apr. 27, 1952	11.34	4,100
1940	Sept. 35, 1940	9.40	2,480	1953	Nov. 22, 1952	8.76	2,730
1941	Apr. 5, 1941	7.07	1,560	1954	May 3, 1954	7.67	2,180
1942	Aug. 14, 1942	11.72	3,400	1955	Aug. 13, 1955	11.39	4,130
1943	Oct. 16, 1942	8.04	1,920	1956	July 4, 1956	9.03	2,860
1944	Jan. 4, 1944	10.68	3,000	1957	Apr. 6, 1957	6.52	1,610
1945	Aug. 1, 1945	10.60	2,960	1958	Dec. 20, 1958	10.74	3,740
1946	June 2, 1946	12.22	3,600	1959	Aug. 23, 1959	5.69	1,090

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	37	26	17	11	8.0	6.1	4.2
14	40	28	19	12	9.1	6.9	4.8
30	47	33	21	14	10	8.1	5.7
60	55	40	26	17	13	10	7.5
120	74	54	36	23	18	14	10
183	93	68	46	31	24	19	14
274	120	88	62	45	36	30	23

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	850	583	390	242	172	114	85	54	37	29	20	15	11	8.6	7.0
1935-57	800	575	378	238	168	113	86	54	35	27	20	16	12	10	9.2

99. Monocacy River at Jug Bridge near Frederick, Md. (01B6430)

Location.--Lat 39°24'13", long 77°21'58", on right bank a quarter of a mile upstream from Jug Bridge, 0.35 mile downstream from Linganore Creek, and 2½ miles east of Frederick, Frederick County.
Drainage area.--817 sq mi.
Records available.--November 1929 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 231.92 ft above mean sea level (Corps of Engineers bench mark).
Average discharge.--30 years, 905 cfs.
Extremes.--Maximum discharge, 51,000 cfs Aug. 24, 1933 (gage height, 28.1 ft); maximum daily, 42,100 cfs Aug. 24, 1933; minimum, 35 cfs Oct. 1, 1930; minimum daily, 39 cfs Sept. 30, 1930.
Maximum stage known, 30 ft in June 1889, from floodmarks (discharge, 56,000 cfs).
Remarks.--Unregulated

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Oct. 3, 1929	-	18,500	1945	Sept. 19, 1945	15.50	16,300
1931	Apr. 2, 1931	11.37	10,800	1946	June 3, 1946	19.27	24,600
1932	May 13, 1932	13.76	14,900	1947	May 22, 1947	12.57	11,000
1933	Aug. 24, 1933	28.1	51,000	1948	Jan. 2, 1948	15.43	16,100
1934	Sept. 17, 1934	21.6	33,500	1949	July 13, 1949	21.30	29,700
1935	Dec. 2, 1934	17.2	22,800	1950	Mar. 23, 1950	15.09	15,500
1936	Mar. 12, 1936	16.4	20,900	1951	Dec. 5, 1950	17.30	20,100
1937	Apr. 27, 1937	21.7	33,800	1952	Apr. 27, 1952	18.41	22,500
1938	Nov. 14, 1937	16.75	21,800	1953	Nov. 22, 1952	17.73	21,000
1939	Feb. 4, 1939	14.46	16,800	1954	Mar. 2, 1954	9.37	6,590
1940	Sept. 1, 1940	17.85	24,100	1955	Mar. 23, 1955	16.17	17,700
1941	Apr. 6, 1941	14.35	16,500	1956	Mar. 15, 1956	13.2	12,200
1942	Aug. 14, 1942	20.29	27,900	1957	Apr. 6, 1957	12.37	11,000
1943	May 21, 1943	18.74	24,600	1958	Dec. 21, 1957	16.41	18,200
1944	Jan. 4, 1944	19.01	25,300	1959	Mar. 7, 1959	9.88	7,510

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	262	172	105	64	50	39	29
14	298	195	116	71	55	44	32
30	370	241	140	85	66	52	38
60	518	332	188	108	82	64	46
120	778	506	288	160	120	91	64
183	1,030	701	419	240	176	133	92
274	1,280	980	679	437	327	249	173

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	12,300	8,620	5,880	3,270	2,020	1,210	851	486	277	201	132	96	68	56	46
1930-57	10,800	7,700	5,150	3,000	1,930	1,180	840	475	262	190	125	89	64	56	50

100. Bennett Creek at Park Mills, Md. (01B6435)

Location.--Lat 39°17'40", long 77°24'30", on left bank 75 ft downstream from highway bridge, 0.2 mile south of Park Mills, Frederick County, 1.8 miles upstream from mouth, and 3.7 miles southwest of Urbana.
Drainage area.--62.8 sq mi.
Records available.--July 1948 to September 1958 (discontinued).
Gage.--Water-stage recorder and concrete control. Altitude of gage is 240 ft (from topographic map).
Average discharge.--10 years, 65.8 cfs.
Extremes.--Maximum discharge, 3,230 cfs Nov. 21, 1952 (gage height, 10.34 ft in gage well, 10.77 ft from outside gage), from rating curve extended above 1,500 cfs on basis of slope-area measurement at gage height 8.12 ft; maximum daily, 1,580 cfs Aug. 13, 1955; minimum, 4.8 cfs Aug. 1, 2, 1954; minimum daily, 5.2 cfs Aug. 1, 2, 1954, Aug. 18, 1957.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1949	Dec. 30, 1948	5.92	1,640	1954	June 26, 1954	4.32	1,150
1950	Mar. 23, 1950	6.82	1,950	1955	Aug. 13, 1955	8.65	2,600
1951	Dec. 4, 1950	8.12	2,400	1956	July 4, 1956	8.80	2,650
1952	Sept. 1, 1952	7.26	2,120	1957	Apr. 6, 1957	4.42	1,180
1953	Nov. 21, 1952	10.34	3,230	1958	Dec. 20, 1957	8.26	2,460

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	23	16	10	7.2	5.8	4.2	2.6
14	26	18	11	8.0	6.4	4.8	3.0
30	29	20	14	10	8.2	6.4	4.1
60	35	24	16	12	9.8	8.0	5.4
120	44	32	22	16	14	12	9.1
183	58	42	29	20	16	14	12
274	76	60	45	31	25	20	16

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	648	462	320	185	118	76	58	36	23	18	13	10	7.6	6.3	5.3
1949-57	655	480	290	187	128	84	64	39	24	19	14	11	8.2	7.1	6.4

101. Great Seneca Creek near Gaithersburg, Md. (01B6445)

Location.--Lat 39°10'01", long 77°13'37", at highway bridge 0.1 mile downstream from Whetstone Run and 2 miles northwest of Gaithersburg, Montgomery County.
Drainage area.--41.0 sq mi.
Records available.--March 1925 to January 1931.
Gage.--Chain gage. Datum of gage is 305.37 ft above mean sea level (Washington Suburban Sanitary Commission benchmark).
Average discharge.--5 years (1925-30), 36.6 cfs.
Extremes.--Maximum observed discharge, 800 cfs Nov. 16, 1926 (gage height, 8.80 ft); maximum daily, 598 cfs Nov. 16, 1926; minimum, 1.3 cfs Sept. 28, 1930 (gage height, 0.94 ft); minimum daily, 1.3 cfs September 28, 1930.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1926	Jan. 18, 1926	7.20	520	1929	Apr. 16, 1929	6.45	450
1927	Nov. 16, 1926	8.80	800	1930	Oct. 22, 1929	6.70	489
1928	June 14, 1928	8.70	726				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	21	15	7.1	2.9	1.6	0.9	0.4
14	24	17	8.5	3.6	2.0	1.2	.6
30	27	19	11	4.6	2.6	1.5	.7
60	30	23	15	6.7	3.9	2.3	1.2
120	38	28	19	12	7.0	4.3	2.2
183	40	30	21	14	11	8.1	5.0
274	48	38	27	19	15	12	9.3

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	306	207	136	88	64	48	38	27	19	16	10	5.7	3.1	2.0	1.4
1926-29	275	212	147	90	67	50	43	32	25	21	16	13	9.8	8.2	5.9

102. Seneca Creek at Dawsonville, Md. (01B6450)

Location.--Lat 39°07'41", long 77°20'13", on right bank 60 ft downstream from bridge on State Highway 28, 150 ft downstream from confluence of Great Seneca and Little Seneca Creeks, and half a mile east of Dawsonville, Montgomery County.
Drainage area.--101 sq mi.
Records available.--September 1930 to September 1959.
Gage.--Water-stage recorder. Concrete control since Mar. 3, 1934. Datum of gage is 214.15 ft above mean sea level, adjustment of 1912. Sept. 26 to Nov. 9, 1930, chain gage and Nov. 10, 1930 to Apr. 6, 1934, water-stage recorder, at highway bridge at same datum.
Average discharge.--29 years, 94.1 cfs.
Extremes.--Maximum discharge, 15,000 cfs July 21, 1956 (gage height, 12.17 ft), from rating curve extended above 2,700 cfs on basis of contracted-opening and flow-over-road measurement at gage height 9.78 ft; maximum daily, 4,780 cfs July 21, 1956; minimum observed, 1.7 cfs. Sept. 28, 29, 1930 (gage height, 0.56 ft); minimum daily 2.9 cfs Sept. 19, 1932.
Remarks.--Small diversion for irrigation above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	June 1, 1931	6.08	1,730	1946	June 2, 1946	7.73	2,940
1932	Mar. 28, 1932	5.56	1,380	1947	Aug. 20, 1947	6.75	1,990
1933	Aug. 24, 1933	10.30	9,300	1948	June 30, 1948	6.78	1,990
1934	Sept. 17, 1934	7.3	2,410	1949	July 16, 1949	7.03	2,240
1935	May 7, 1935	6.1	1,420	1950	Mar. 23, 1950	7.12	2,280
1936	Jan. 3, 1936	6.88	2,020	1951	Dec. 4, 1950	7.26	2,420
1937	Aug. 27, 1937	7.45	2,610	1952	Sept. 1, 1952	7.77	2,810
1938	Oct. 23, 1937	7.08	2,280	1953	Nov. 22, 1952	9.78	7,330
1939	Jan. 30, 1939	6.93	2,150	1954	Dec. 14, 1953	5.45	1,240
1940	Apr. 20, 1940	6.41	1,740	1955	Aug. 13, 1955	7.6	2,620
1941	June 23, 1941	5.5	1,300	1956	July 21, 1956	12.17	15,000
1942	May 22, 1942	5.86	1,460	1957	Apr. 5, 1957	4.54	959
1943	Oct. 16, 1942	8.31	3,620	1958	Dec. 21, 1957	8.35	3,640
1944	Nov. 9, 1943	7.52	2,660	1959	Aug. 8, 1959	6.9	1,970
1945	Aug. 1, 1945	6.90	2,110				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	56	38	22	11	6.4	3.2	1.2
14	62	43	26	14	8.1	4.3	1.6
30	70	50	31	17	11	6.3	2.4
60	74	54	34	20	14	9.0	3.8
120	92	67	45	28	21	16	8.6
183	112	83	56	37	28	22	15
274	136	108	78	55	44	35	26

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	940	665	460	265	181	126	99	67	46	36	26	18	11	7.3	5.1
1931-57	890	630	415	245	174	123	97	64	43	34	24	16	9.8	6.9	5.2

104. Potomac River near Washington, D. C. (01B6465)

Location.--Lat 38°57'36", long 77°08'33", on right bank 1 mile upstream from Little Falls Dam, 1¼ miles northeast of Langley, Fairfax County, Va., 2 miles upstream from District of Columbia boundary line, and 2½ miles upstream from Chain Bridge.

Drainage area.--11,560 sq mi.

Records available.--March 1930 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 38.00 ft above mean sea level, adjustment of 1912. Prior to June 7, 1930, staff gage at same site and datum.

Average discharge.--29 years, 11,060 cfs (adjusted for diversions).

Extremes.--Maximum discharge, 484,000 cfs Mar. 19, 1936 (gage height, 28.1 ft); maximum daily, 426,000 cfs Mar. 19, 1936; minimum daily, 448 cfs Aug. 25, 1930 (does not include 334 cfs diverted at Great Falls for water supply).

Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.

Remarks.--Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal water supply of Washington, D. C. Low flow affected slightly by Stony River Reservoir (see No.64) and since December 1950, by Savage River Reservoir (see No.70).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1931	Apr. 3, 1931	6.90	37,900	1946	June 4, 1946	9.47	69,000
1932	May 14, 1932	15.25	168,000	1947	Mar. 17, 1947	7.53	43,900
1933	Apr. 22, 1933	12.8	127,000	1948	Apr. 16, 1948	10.69	97,300
1934	Sept. 18, 1934	7.8	53,500	1949	June 20, 1949	13.00	135,000
1935	Dec. 2, 1934	13.5	139,000	1950	Feb. 3, 1950	10.01	77,200
1936	Mar. 19, 1936	28.1	484,000	1951	Dec. 6, 1950	13.85	140,000
1937	Apr. 28, 1937	23.3	347,000	1952	Apr. 29, 1952	14.17	148,000
1938	Dec. 30, 1937	15.6	181,000	1953	Nov. 23, 1952	13.76	140,000
1939	Feb. 5, 1939	12.6	129,000	1954	Mar. 3, 1954	12.47	116,000
1940	Apr. 22, 1940	11.29	107,000	1955	Aug. 20, 1955	17.60	216,000
1941	Apr. 7, 1941	9.07	73,300	1956	July 21, 1956	10.75	72,500
1942	May 24, 1942	13.17	139,000	1957	Apr. 7, 1957	11.40	78,600
1943	Oct. 17, 1942	26.88	447,000	1958	May 7, 1958	12.02	82,100
1944	May 9, 1944	9.43	77,800	1959	June 4, 1959	9.61	61,400
1945	Sept. 30, 1945	13.88	138,000				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	2,820	2,040	1,320	860	705	595	475
14	3,100	2,220	1,450	935	765	640	510
30	3,650	2,600	1,690	1,080	875	730	580
60	4,950	3,480	2,200	1,370	1,090	880	670
120	6,900	4,950	3,200	2,070	1,600	1,270	930
183	9,600	6,950	4,550	3,000	2,320	1,840	1,360
274	12,500	9,600	6,900	4,900	4,000	3,300	2,600

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	92,000	70,500	53,500	34,900	24,000	15,300	11,100	6,530	3,820	2,750	1,770	1,220	875	740	632
1931-58	90,000	67,200	51,700	34,000	23,800	15,500	11,300	6,500	3,640	2,740	1,880	1,390	992	795	658

105. Little Falls Branch near Bethesda, Md. (01B6470)

Location.--Lat 38°57'27", long 77°06'31", on left bank at downstream side of bridge on Massachusetts Avenue, 2.0 miles southwest of Bethesda, Montgomery County.
Drainage area.--4.1 sq mi, approximately.
Records available.--June 1944 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 169.32 ft (Maryland State Roads Commission bench mark).
Average discharge.--15 years, 3.31 cfs.
Extremes.--Maximum discharge, 2,340 cfs July 31, 1945 (gage height, 7.50 ft), from rating curve extended above 630 cfs on basis of slope-area measurement at gage height 5.63 ft; maximum daily, 156 cfs Aug. 12, 1955; no flow at times in 1944, 1954, 1959.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1945	July 31, 1945	7.50	2,340	1953	May 16, 1953	3.96	854
1946	May 28, 1946	5.05	1,180	1954	Aug. 3, 1954	3.48	661
1947	Apr. 30, 1947	3.94	845	1955	Aug. 22, 1955	5.18	1,340
1948	May 30, 1948	4.24	935	1956	Oct. 14, 1955	3.68	742
1949	Nov. 6, 1948	3.77	760	1957	Mar. 15, 1957	3.14	500
1950	June 10, 1950	5.63	1,510	1958	July 22, 1958	5.43	1,440
1951	June 10 or 13, 1951	4.57	1,100	1959	Aug. 8, 1959	5.61	1,510
1952	Sept. 1, 1952	4.28	982				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	0.5	0.3	0.2	0.1	0	0	0
14	.5	.3	.2	.1	0	0	0
30	.9	.6	.4	.2	.1	0	0
60	1.7	1.2	.7	.4	.3	.2	.1
120	3.1	2.1	1.3	.8	.6	.4	.2
183	4.1	2.8	1.8	1.1	.8	.6	.4
274	4.9	3.6	2.5	1.6	1.2	.9	.7

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	63	42	27	13	5.9	3.1	2.0	1.1	0.6	0.4	0.2	0.1	0.1	0	0
1945-57	63	44	27	13	6.3	3.1	2.2	1.2	.6	.4	.3	.1	.1	.1	0

106. Rock Creek at Sherrill Drive, Washington, D. C. (01B6480)

Location.--Lat 38°58'21", long 77°02'25", on left bank 125 ft downstream from new Sherrill Drive Bridge in Rock Creek Park in Washington, and 7½ miles upstream from mouth.
Drainage area.--62.2 sq mi.
Records available.--October 1929 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 148.99 ft above mean sea level, adjustment of 1912.
Average discharge.--30 years, 55.8 cfs.
Extremes.--Maximum discharge, 7,220 cfs July 21, 1956 (gage height, 13.19 ft, from high-water mark in gage house), from rating curve extended above 4,400 cfs on basis of contracted-opening measurement of peak flow; maximum daily, 2,540 cfs July 21, 1956; minimum, 0.5 cfs Oct. 1-7, 1930 (gage height, 1.04 ft).
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1930	Apr. 7, 1930	5.10	1,170	1945	Aug. 1, 1945	7.46	2,020
1931	July 21, 1931	3.47	590	1946	May 28, 1946	4.98	1,120
1932	May 13, 1932	4.15	826	1947	Apr. 30, 1947	3.13	476
1933	Aug. 24, 1933	11.6	4,460	1948	June 20, 1948	4.95	1,120
1934	Mar. 4, 1934	7.00	1,820	1949	May 23, 1949	5.45	1,260
1935	May 7, 1935	6.25	1,540	1950	Mar. 23, 1950	5.17	1,180
1936	Jan. 4, 1936	6.38	1,600	1951	June 13, 1951	5.99	1,460
1937	Apr. 26, 1937	8.15	2,300	1952	Sept. 1, 1952	9.90	3,220
1938	Oct. 23, 1937	8.00	2,220	1953	Nov. 22, 1952	11.15	5,420
1939	Jan. 31, 1939	4.23	852	1954	Apr. 28, 1954	4.51	933
1940	Apr. 20, 1940	4.93	1,080	1955	Aug. 13, 1955	8.57	2,320
1941	Nov. 27, 1940	3.65	644	1956	July 21, 1956	13.19	7,220
1942	Aug. 9, 1942	3.95	748	1957	Apr. 5, 1957	5.46	1,210
1943	Oct. 15, 1942	9.71	3,100	1958	July 9, 1958	7.32	1,810
1944	Jan. 4, 1944	5.71	1,360	1959	Aug. 8, 1959	6.93	1,680

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	28	19	11	4.7	2.4	0.8	0.2
14	31	21	12	6.0	3.2	1.4	.3
30	37	26	15	7.8	4.7	2.4	.5
60	43	30	19	11	7.4	4.4	1.6
120	57	40	26	16	12	8.2	4.4
183	73	51	33	21	15	12	7.8
274	86	66	46	31	24	18	13

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	691	464	300	164	106	71	56	37	25	20	13	8.7	4.6	2.4	1.4
1930-57	635	425	278	150	100	69	54	36	24	18	11	6.8	3.5	2.3	1.5

108. Northeast Branch Anacostia River at Riverdale, Md. (01B6495)

Location.--Lat 38°57'37", long 76°55'34", on right bank at downstream side of bridge on Riverdale Road in Riverdale, Prince Georges County, 1⅝ miles downstream from Indian Creek at 1⅝ miles upstream from confluence with Northwest Branch.
Drainage area.--72.8 sq mi.
Records available.--August 1938 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 14.00 ft above mean sea level (Washington Suburban Sanitary Commission bench mark). Prior to June 12, 1942, wire-weight gage at same site and datum.
Average discharge.--21 years, 78.6 cfs.
Extremes.--Maximum discharge, 3,680 cfs July 18, 1945; maximum gage height, 12.93 ft Oct. 16, 1942; maximum daily 2,600 cfs Oct. 16, 1942; minimum discharge observed, 5.6 cfs Sept. 29, 30, Oct. 1, 1941; minimum daily, 5.6 cfs Sept, 29, 30, 1941.
Maximum stage known, about 15.5 ft Aug. 23 or 24, 1933, from floodmarks (discharge, 10,500 cfs, from rating curve extended above 3,000 cfs on basis of velocity-area study).
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Jan. 30, 1939	8.53	1,580	1950	Sept. 11, 1950	9.63	2,060
1940	Apr. 20, 1940	10.0	2,350	1951	June 13, 1951	9.39	1,980
1941	July 13, 1941	7.07	1,350	1952	Sept. 1, 1952	10.64	2,770
1942	Aug. 9, 1942	11.47	2,980	1953	Nov. 22, 1952	11.11	3,000
1943	Oct. 16, 1942	12.93	3,660	1954	Dec. 14, 1953	6.10	889
1944	Nov. 9, 1943	9.84	2,280	1955	Aug. 13, 1955	7.25	3,120
1945	July 18, 1945	12.72	3,680	1956	Oct. 14, 1955	6.38	2,870
1946	Dec. 6, 1945	8.65	1,660	1957	Apr. 5, 1957	4.30	1,020
1947	June 14, 1947	9.02	1,820	1958	July 22, 1958	6.10	3,400
1948	Aug. 12, 1948	8.93	1,780	1959	Aug. 8, 1959	5.49	2,470
1949	Nov. 29, 1948	7.52	1,280				

Magnitude and frequency of annual low flow
[Dsta adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	27	20	13	8.2	6.4	4.8	3.0
14	30	21	14	9.0	7.0	5.5	3.5
30	45	31	19	11	8.7	6.8	4.2
60	52	36	23	14	11	8.4	6.0
120	76	54	34	21	16	12	8.4
183	101	70	44	27	20	16	12
274	125	92	62	41	31	24	18

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,030	703	468	252	155	97	74	48	31	24	17	12	8.8	7.0	5.7
1939-57	935	605	430	238	147	94	71	45	29	23	16	12	9.2	8.1	7.5

109. Northwest Branch Anacostia River near Colesville, Md. (01B6505)

Location.--Lat 39°03'55", long 77°01'48", on right bank 400 ft upstream from bridge on State Highway 183, 1½ miles southwest of Colesville, Montgomery County, 3 miles upstream from Burnt Mills, and 10 miles upstream from Sligo Branch.

Drainage area.--21.3 sq mi.

Records available.--February 1924 to September 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 264.85 ft above mean sea level, adjustment of 1912. Prior to April 22, 1932, staff gages in same general vicinity at different datum. April 22, 1932, to April 11, 1934, staff gage at present site and datum.

Average discharge.--35 years, 22.0 cfs (unadjusted).

Extremes.--Maximum discharge, 4,910 cfs Aug. 8, 1953 (gage height, 10.99 ft), from rating curve extended above 1,200 cfs on basis of contracted-opening and flow-over-road measurement of peak flow; maximum daily, 1,275 cfs Aug. 23, 1933; minimum, 0.4 cfs Aug. 11-12, 1930, Sept. 2, 1932, Aug. 18, 1957; minimum daily, 0.4 Aug. 11, 12, 1930, Sept. 2, 1932.

Remarks.--Records include inflow pumped from Patuxent River to augment water supply for Washington Suburban Sanitary District, which began Aug. 12, 1939.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1924	Sept. 29, 1924	7.99	2,230	1942	Aug. 11, 1942	4.21	430
1925	Feb. 8, 1925	5.05	692	1943	May 12, 1943	7.06	1,160
1926	Sept. 26, 1926	6.10	1,000	1944	Nov. 8, 1943	7.37	1,320
1927	Nov. 16, 1926	6.50	1,210	1945	July 27, 1945	8.37	2,020
1928	Oct. 3, 1927	6.50	1,210	1946	May 28, 1946	7.33	1,320
1929	June 21 or 22, 1929	5.80	913	1947	Sept. 7, 1947	4.53	500
1930	Mar. 8, Apr. 6, 1930	6.00	964	1948	Jan. 1, 1948	7.10	1,190
1931	July 20, 1931	7.00	1,340	1949	May 23, 1949	8.80	2,030
1932	Mar. 28, 1932	7.5	1,000	1950	Sept. 10, 1950	7.75	1,240
1933	Aug. 23, 1933	9.3	4,500	1951	Nov. 25, 1950	9.70	3,960
1934	Mar. 3, 1934	6.80	1,230	1952	Sept. 1, 1952	9.74	4,110
1935	May 7, 1935	7.00	1,340	1953	Aug. 8, 1953	10.99	4,910
1936	Jan. 3, 1936	6.50	1,110	1954	Apr. 28, 1954	6.66	772
1937	Aug. 27, 1937	8.20	2,550	1955	Aug. 13, 1955	8.73	1,470
1938	Nov. 13, 1937	8.14	2,490	1956	July 21, 1956	8.86	1,550
1939	Jan. 30, 1939	5.60	680	1957	June 5, 1957	7.37	941
1940	Apr. 8, 1940	5.82	730	1958	July 9, 1958	8.34	1,290
1941	Nov. 27, 1940	5.36	680	1959	Aug. 8, 1959	7.37	941

Magnitude and frequency of annual low flow for conditions existing prior to August 12, 1939

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	9.8	6.5	3.7	1.8	1.0	0.6	0.3
14	11	7.3	4.3	2.2	1.3	.8	.4
30	13	8.8	5.2	2.8	1.8	1.0	.5
60	15	10	6.6	3.8	2.6	1.7	.8
120	21	15	9.6	6.0	4.4	3.1	1.8
183	27	19	12	7.8	5.8	4.4	3.0
274	32	24	17	12	8.9	6.9	5.0

Duration table of daily flow for conditions existing prior to August 12, 1939

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	334	215	136	66	37	23	18	12	8.4	6.6	4.8	3.3	1.9	1.2	0.8
1930-38	312	220	131	59	34	23	18	12	7.4	5.3	3.0	1.6	.9	.8	.7

109. Northwest Branch Anacostia River near Colesville, Md. (01B6505)--Concluded

Magnitude and frequency of annual low flow for conditions existing since August 12, 1939

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	16	13	9.4	6.5	4.4	2.6	1.1
14	17	14	10	7.2	5.3	3.4	1.5
30	18	15	11	8.2	6.4	4.3	2.0
60	19	16	13	9.6	7.9	6.1	3.7
120	22	18	15	12	10	8.4	6.1
183	27	22	17	13	12	10	8.2
274	33	26	21	17	14	13	11

Duration table of daily flow for conditions existing since August 12, 1939

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	316	205	127	63	38	25	20	16	13	12	9.6	7.8	5.6	4.1	3.0
1940-55	300	183	122	61	36	24	20	16	13	12	9.8	8.0	6.2	5.3	3.6

110. Northwest Branch Anacostia River near Hyattsville, Md. (01B6510)

Location.--Lat 38°57'09", long 76°58'00", on right bank at downstream side of bridge on Queens Chapel Road (State Highway 210), 0.8 mile downstream from Sligo Branch, and 1 mile west of Hyattsville, Prince Georges County.
Drainage area.--49.4 sq mi.
Records available.--July 1938 to September 1959.
Gage.--Water-stage recorder. Datum of gage is 17.30 ft above mean sea level, adjustment of 1912. Prior to Oct. 22, 1938, wire-weight gage, Oct. 22, 1938, to Sept. 17, 1951, water-stage recorder, Sept. 17, 1951 to Aug. 29, 1952, staff gage and crest-stage indicator, at same site and datum.
Average discharge.--21 years, 38.5 cfs (unadjusted).
Extremes.--Maximum discharge, 4,170 cfs Aug. 8, 1959 (gage height, 12.12 ft); maximum daily, 2,130 cfs Aug. 13, 1955; minimum, 0.8 cfs Oct. 3, 7, 1941, Aug. 26, 1943; minimum daily, 0.9 cfs Oct. 8, 1941.
Maximum stage known, about 13.5 ft, Aug. 24, 1933.
Remarks.--Low flow regulated by storage and diversion (to Morse filtration plant) at Burnt Mills Dam, 7 miles above station, and by inflow pumped from Patuxent River basin as required for water supply of Washington Suburban Sanitary District.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1939	Apr. 26, 1939	6.03	1,880	1950	Sept. 10, 1950	9.86	2,280
1940	Apr. 20, 1940	6.48	1,750	1951	June 13, 1951	9.03	2,130
1941	July 13, 1941	5.11	1,050	1952	Sept. 1, 1952	11.4	3,360
1942	Aug. 9, 1942	9.52	2,180	1953	Nov. 22, 1952	10.16	2,710
1943	Oct. 16, 1942	9.92	2,280	1954	June 15, 1954	10.69	2,980
1944	Nov. 9, 1943	8.82	2,000	1955	Aug. 22, 1955	11.19	2,930
1945	July 27, 1945	10.02	2,300	1956	Oct. 14, 1955	11.32	3,010
1946	June 29, 1946	6.41	1,300	1957	June 5, 1957	9.16	1,550
1947	Sept. 6, 1947	6.37	1,300	1958	July 22, 1958	11.67	3,590
1948	Aug. 3, 1948	8.37	1,900	1959	Aug. 8, 1959	12.12	4,170
1949	May 23, 1949	7.48	1,650				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	8.5	6.2	4.0	2.4	1.5	0.7	0.2
14	9.5	7.0	4.6	2.8	1.8	1.0	.3
30	14	9.9	6.2	3.5	2.4	1.4	.5
60	21	15	9.3	5.5	3.9	2.4	1.1
120	35	24	15	8.9	6.4	4.4	2.4
183	54	36	21	12	8.7	6.3	4.2
274	66	48	31	20	14	11	7.3

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	710	452	277	132	78	48	33	18	10	7.2	4.9	3.6	2.3	1.5	1.0
1939-57	610	400	250	124	72	42	31	17	9.3	6.9	4.8	3.6	2.6	2.2	1.9

111. Heneon Creek at Oxon Hill, Md. (01B6535)

Location.--Lat 38°47'05", long 76°58'50", on left bank 100 ft downstream from bridge on Tucker Road, 1.0 mile south of Oxon Hill, Prince Georgee County, and 1.4 milee upstream from Carey Branch.
Drainage area.--16.7 sq mi.
Records available.--June 1948 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 62 ft (from topographic map).
Average discharge.--11 yeare, 19.9 cfe.
Extremes.--Maximum discharge, 3,000 cfe Aug. 13, 1955 (gage height, 7.33 ft), from rating curve extended above 520 cfe on basis of elope-area meaeurements at gage heighte 6.63 and 7.27 ft; maximum daily, 1,250 cfs Aug. 13, 1955; no flow at timee during July, August, September, and October 1954, July 1955 and August 1957; minimum daily, no flow July 29 to Aug. 4, Sept. 5-11, 17-19, Sept. 30 to Oct. 5, 1954, July 21, 22, 1955.
Remarks.-- Small diversion above etation for irrigation of truck farm. Some regulation at low flow by sand and gravel plant above station.

Annual peaks

Water year	Date	Cage height (feet)	Discharge (cfs)	Water year	Date	Cage height (feat)	Discharge (cfs)
1949	Dec. 4, 1948	4.26	745	1955	Aug. 13, 1955	7.33	3,000
1950	Sept. 11, 1950	6.63	2,200	1956	Oct. 14, 1955	6.02	1,710
1951	Nov. 25, 1950	3.56	602	1957	Nov. 1, 1956	3.15	494
1952	Sept. 1, 1952	6.26	1,890	1958	Aug. 25, 1958	6.07	1,750
1953	May 5, 1953	7.27	2,920	1959	June 2, 1959	4.72	1,010
1954	Dec. 14, 1953	3.06	471				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	7.2	3.8	1.6	0.5	0.2	0	0
14	8.4	4.7	2.1	.8	.3	.1	0
30	11	6.5	3.1	1.2	.5	.2	0
60	15	9.7	5.1	2.3	1.1	.5	.1
120	21	14	7.9	3.9	2.3	1.2	.4
183	26	19	12	6.4	4.3	2.7	1.4
274	31	25	17	9.9	6.9	4.9	3.1

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	260	161	96	54	38	25	19	11	6.6	4.6	2.9	1.8	0.7	0.1	0
1949-57	232	153	92	53	37	25	19	11	5.8	3.8	2.2	1.2	.4	.1	0

112. Mattawoman Creek near Pomonkey, Md. (01B6580)

Location.--Lat 38°35'45", long 77°03'25", on left bank 50 ft downstream from bridge on State Highway 227, 80 ft downstream from Old Womans Run, and 1.2 miles southeast of Pomonkey, Charles County.
Drainage area.--57.7 sq mi.
Records available.--November 1949 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 40 ft (from topographic map).
Average discharge.--9 years (1950-59), 57.9 cfs.
Extremes.--Maximum discharge, 9,300 cfs Aug. 13, 1955 (gage height, 7.52 ft), from rating curve extended above 6,000 cfs; maximum daily, 5,610 cfs Aug. 13, 1955; no flow at times each year.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1950	Sept. 11, 1950	5.88	1,920	1955	Aug. 13, 1955	7.52	9,300
1951	Dec. 5, 1950	4.41	425	1956	Oct. 14, 1955	5.69	2,480
1952	Dec. 22, 1951	5.55	1,380	1957	Nov. 1, 1956	4.34	568
1953	Nov. 22, 1952	5.30	1,100	1958	Mar. 21, 1958	5.04	1,300
1954	Dec. 15, 1953	4.33	485	1959	June 3, 1959	4.13	402

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	9.2	0.8	0	0	0	0	0
14	13	2.1	0	0	0	0	0
30	21	7.0	.3	0	0	0	0
60	38	17	3.1	0	0	0	0
120	61	33	12	.9	0	0	0
183	82	52	24	6.8	1.4	.2	0
274	106	75	44	19	8.7	2.7	.2

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	727	520	359	208	135	81	56	28	10	3.6	0.3	0	0	0	0
1951-58	785	540	410	245	141	80	54	24	6.3	1.8	0	0	0	0	0

113. Chaptico Creek at Chaptico, Md. (01B6610)

Location.--Lat 38°22'45", long 76°46'50", on right bank at downstream side of wooden highway bridge, 0.8 mile north of Chaptico, St. Marys County, and 0.8 mile upstream from Chaptico Bay.
Drainage area.--10.7 sq mi.
Records available.--June 1947 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).
Average discharge.--12 years, 10.8 cfs.
Extremes.--Maximum discharge, 7,800 cfs Sept. 10, 1950 (gage height, 8.56 ft), from rating curve extended above 280 cfs on basis of slope-area measurement of peak flow; maximum daily, 1,140 cfs Sept. 10, 1950; no flow at times in 1954, 1955 and 1957.
Remarks.--Occasional small diversions above station.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Weter year	Date	Gage height (feat)	Discharge (cfs)
1948	Aug. 4, 1948	4.94	265	1954	Oct. 29, 1953	4.88	354
1949	May 3, 1949	5.03	295	1955	Aug. 12, 1955	6.16	1,050
1950	Sept. 10, 1950	8.56	7,800	1956	July 21, 1956	4.79	328
1951	Aug. 8, 1951	4.37	177	1957	Dec. 16, 1956	4.34	230
1952	Sept. 1, 1952	5.10	420	1958	Aug. 25, 1958	6.24	1,130
1953	Jan. 24, 1953	4.70	305	1959	July 15, 1959	4.56	272

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	3.8	1.9	0.6	0	0	0	0
14	4.7	2.6	.9	.1	0	0	0
30	5.8	3.5	1.5	.3	0	0	0
60	7.8	5.1	2.8	1.1	.3	.1	0
120	9.6	6.6	4.0	2.0	1.1	.6	.2
183	12	8.6	5.8	3.9	3.1	2.2	1.4
274	15	12	8.2	6.0	4.9	4.0	2.9

Duration table of daily flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	100	68	45	28	21	14	11	6.8	4.1	2.7	1.1	0.4	0	0	0
1948-57	99	70	43	27	20	15	10	6.6	3.8	2.6	1.1	.3	0	0	0

114. St. Marys River at Great Mills, Md. (01B6615)

Location.--Lat 38°14'36", long 76°30'13", on left bank at downstream side of bridge on State Highway 471 in Great Mills, St. Marys County, 0.3 mile downstream from Western Branch.
Drainage area.--24.0 sq mi.
Records available.--June 1946 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map).
Average discharge.--13 years, 23.8 cfs.
Extremes.--Maximum discharge 4,350 cfs Aug. 13, 1955 (gage height, 11.77 ft); maximum daily, 2,260 cfs Aug. 13, 1955; minimum, 1.2 cfs Aug. 2, 1954, July 24, Aug. 7, 1955; minimum daily, 1.3 cfs Aug. 1, 1954, July 23, 24, Aug. 5, 6, 1955.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1947	Apr. 16, 1947	5.73	420	1954	Jan. 27, 1954	4.55	296
1948	Aug. 4, 1948	9.32	1,560	1955	Aug. 13, 1955	11.77	4,350
1949	July 16, 1949	9.91	2,020	1956	June 2, 1956	4.22	263
1950	Oct. 31, 1949	7.67	659	1957	Nov. 2, 1956	10.66	2,780
1951	Aug. 8, 1951	6.63	520	1958	Aug. 25, 1958	10.87	3,030
1952	Jan. 29, 1952	7.44	620	1959	July 15, 1959	7.09	580
1953	Aug. 14, 1953	7.68	656				

Magnitude and frequency of annual low flow
[Date adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	6.9	4.6	3.1	2.2	1.8	1.4	1.1
14	8.2	5.4	3.5	2.4	1.9	1.6	1.2
30	10	6.5	4.1	2.8	2.2	1.8	1.4
60	14	8.9	5.6	3.7	2.9	2.4	1.9
120	20	14	8.6	5.8	4.6	3.8	2.9
183	25	18	12	8.6	7.2	6.1	5.0
274	33	24	17	12	10	8.6	7.0

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	300	204	137	75	44	27	20	12	7.4	5.4	3.8	3.0	2.2	1.9	1.6
1947-57	300	206	130	74	44	26	19	12	6.8	5.2	3.8	2.9	2.1	1.9	1.7

115. Youghiogheny River near Oakland, Md. (03A0755)

Location.--Lat 39°25'19", long 79°25'32", on left bank 200 ft downstream from Baltimore and Ohio Railroad bridge, 250 ft downstream from Little Youghiogenny River, 1½ miles northwest of Oakland, Garrett County, and 1½ miles upstream from Dunkard Lick Run.
Drainage area.--134 sq mi.
Records available.--August 1941 to September 1959.
Gage.--Water-stage recorder and concrete control. Datum of gage is 2,353.11 ft above mean sea level, unadjusted. Prior to Aug. 1, 1946, wire-weight gage at bridge 200 ft upstream at same datum.
Average discharge.--18 years, 286 cfs.
Extremes.--Maximum discharge, 11,800 cfs Oct. 16, 1954 (gage height, 12.16 ft); maximum daily, 7,620 cfs Oct. 16, 1954; minimum daily, 2.5 cfs Oct. 4, 1953.
Flood in March 1936 reached a stage of 15.3 ft, from floodmarks.
Records.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1942	Apr. 10, 1942	6.37	2,590	1951	Feb. 1, 1951	7.76	4,800
1943	Dec. 29, 1942	7.59	3,780	1952	Jan. 27, 1952	6.56	3,150
1944	Feb. 22, 1944	7.52	3,670	1953	Jan. 24, 1953	6.19	2,700
1945	Feb. 27, 1945	8.28	4,610	1954	Mar. 14, 1954	5.10	1,640
1946	Jan. 7, 1946	5.72	1,990	1955	Oct. 16, 1954	12.16	11,800
1947	Mar. 15, 1947	6.46	3,110	1956	Aug. 6, 1956	10.00	8,000
1948	Feb. 14, 1948	8.38	5,700	1957	Feb. 10, 1957	8.18	5,220
1949	Dec. 16, 1948	9.77	7,800	1958	Dec. 8, 1957	7.04	3,710
1950	Jan. 31, 1950	6.82	3,740	1959	Jan. 22, 1959	6.04	2,530

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	52	28	14	7.4	4.8	3.1	1.8
14	67	36	17	8.8	5.7	3.7	2.2
30	94	50	23	11	7.2	4.7	2.7
60	134	77	38	18	11	6.7	3.6
120	188	127	74	34	20	11	5.5
183	264	187	116	64	40	23	11
274	340	269	190	128	97	68	33

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	2,850	2,150	1,600	1,000	670	410	288	155	76	44	21	13	8.0	5.9	4.4
1942-57	2,530	1,970	1,540	1,020	680	423	300	159	72	42	18	11	7.5	5.4	4.6

116. Youghiogheny River at Friendsville, Md. (03A0765)

Location.--Lat 39°39'17", long 79°24'27", on left bank 0.6 mile upstream from bridge on State Highway 42 at Friendsville, Garrett County, and 1½ miles upstream from Bear Creek.

Drainage area.--295 sq mi.

Records available.--August 1898 to December 1904 and October 1940 to September 1959 in reports of Geological Survey. October, November 1940 monthly discharge only, published in WSP 1305. September 1922 to September 1926 (gage heights only) in reports of Pennsylvania Department of Forests and Waters.

Gage.--Water-stage recorder. Datum of gage is 1,487.33 ft above mean sea level, datum of 1929. Aug. 17, 1898, to Dec. 31, 1904, and Sept. 1, 1922, to Sept. 30, 1926, wire-weight and chain gages at bridge 0.6 mile downstream at datum 16.24 and 16.29 ft lower, respectively.

Average discharge.--25 years (1898-1904, 1940-59), 647 cfs (adjusted for storage since 1940).

Extremes.--Maximum discharge, 13,000 cfs Oct. 16, 1954 (gage height, 8.99 ft), from rating curve extended above 5,800 cfs on basis of slope-area measurement of peak flow; maximum daily, 10,000 cfs Aug. 6, 1956; minimum daily, 10 cfs Sept. 8, 1957.

Maximum stage known, 14.2 ft Mar. 29, 1924, from floodmarks, site and datum then in use, or 10.2 ft, present site and datum (discharge, about 15,600 cfs, from rating curve extended on basis of slope-area measurement for peak of Oct. 16, 1954).

Remarks.--Low and medium flow regulated since 1925 by Deep Creek Reservoir (see p.).

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1899	May 19, 1899	10.3	8,380	1950	Jan. 31, 1950	6.11	6,280
1902	Mar. 1, 1902	11.5	10,800	1951	Feb. 1, 1951	6.55	6,820
1941	June 4, 1941	6.97	7,780	1952	Jan. 27, 1952	5.89	5,630
1942	Apr. 10, 1942	5.48	4,480	1953	Jan. 24, 1953	5.25	3,880
1943	Dec. 30, 1942	6.18	6,620	1954	Jan. 21, 1954	4.60	2,430
1944	Mar. 24, 1944	5.81	5,360	1955	Oct. 16, 1954	8.99	13,000
1945	Feb. 27, 1945	7.21	8,380	1956	Aug. 6, 1956	8.54	11,800
1946	Jan. 7, 1946	5.22	3,720	1957	Feb. 10, 1957	6.98	7,850
1947	Mar. 15, 1947	5.45	4,260	1958	Dec. 26, 1957	6.08	5,730
1948	Apr. 13, 1948	6.80	7,420	1959	Jan. 22, 1959	5.48	4,360
1949	Dec. 16, 1948	7.97	10,400				

Magnitude and frequency of annual low flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	184	134	94	66	52	42	32
14	234	167	116	81	64	51	38
30	284	211	153	104	80	63	46
60	342	256	185	127	99	78	54
120	445	338	247	170	134	105	71
183	580	442	329	235	188	147	101
274	720	570	448	340	287	240	177

Duration table of daily flow

[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	4,870	3,700	2,750	1,770	1,240	837	633	402	256	194	132	97	65	43	30
1942-57	4,350	3,450	2,570	1,780	1,270	855	653	412	250	187	123	86	60	44	30

117. Caeselman River at Grantsville, Md. (03A0780)

Location.--Lat 39°42'08", long 79°08'12", on left bank at downstream side of highway bridge, 0.3 mile upstream from Slaubough Run, 0.7 mile downstream from U. S. Highway 40, and 1.0 mile northeast of Grantsville, Garrett County.
Drainage area.--62.5 sq mi.
Records available.--July 1947 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 2,090 ft (from topographic map).
Average discharge.--12 years, 115 cfs.
Extremes.--Maximum discharge, 8,400 cfs Oct. 15, 1954 (gage height, 10.70 ft), from rating curve extended above 1,600 cfs on basis of contracted-opening measurement at gage height 8.13 ft and logarithmic plotting; maximum daily, 2,630 cfs Oct. 15, 1954; minimum, 0.1 cfs Sept. 29, 1959 (gage height, 0.84 ft), result of regulation from unknown source; minimum daily, 0.3 cfs Sept. 29, 1959.
Remarks.--Unregulated.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1948	July 4, 1948	8.13	5,110	1954	Mar. 1, 1954	4.50	1,610
1949	Dec. 15, 1948	4.60	1,690	1955	Oct. 15, 1954	10.70	8,400
1950	Sept. 21, 1950	6.68	3,620	1956	Aug. 6, 1956	6.25	3,180
1951	June 13, 1951	4.80	1,870	1957	Feb. 10, 1957	4.80	1,870
1952	Mar. 11, 1952	5.14	2,180	1958	Apr. 6, 1958	4.73	1,810
1953	Mar. 24, 1953	3.82	1,110	1959	Feb. 10, 1959	4.62	1,720

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	16	9.4	4.7	2.2	1.4	0.8	0.4
14	22	12	6.0	2.7	1.6	1.0	.5
30	32	18	8.6	3.8	2.3	1.4	.7
60	48	29	14	6.0	3.4	2.0	1.0
120	72	48	27	13	7.2	4.1	1.8
183	105	74	45	24	15	8.6	4.0
274	137	107	77	52	38	26	15

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	1,150	860	634	395	260	157	109	58	28	17	8.2	4.6	2.7	2.0	1.6
1948-57	1,100	815	608	395	273	177	127	65	26	14	6.0	3.4	2.1	1.5	1.4

118. Big Piney Run near Salisbury, Pa. (03A0785)

Location.--Lat 39°43'32", long 79°02'57", on left bank an eighth of a mile upstream from Little Piney Run, a quarter of a mile north of Maryland-Pennsylvania State line, and 2½ miles southeast of Salisbury, Somerset County.
Drainage area.--24.5 sq mi.
Records available.--June 1932 to September 1959.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 2,240 ft (from topographic map).
Average discharge.--27 years, 37.9 cfs (unadjusted).
Extremes.--Maximum discharge, 6,850 cfs Oct. 15, 1954 (gage height, 8.56 ft), from rating curve extended above 500 cfs on basis of slope-area measurements at gage heights 7.5 and 8.56 ft; maximum daily, 2,060 cfs Mar. 17, 1936; maximum gage height, 8.87 ft Feb. 22, 1944 (ice jam); minimum discharge, 0.08 cfs part of each day Sept. 1-4, 1953, Sept. 6-8, 1957; minimum daily, 0.08 cfs Sept. 3, 1953.
Remarks.-- Infrequent regulation at low flow by Frostburg Reservoir. Records do not include a small amount of water diverted 3 miles above station through pumps to city of Frostburg, Md., and from spring 700 ft above station by gravity to city of Salisbury, Pa.

Annual peaks

Water year	Date	Gage height (feet)	Discharge (cfs)	Water year	Date	Gage height (feet)	Discharge (cfs)
1933	Mar. 14, 1933	6.10	1,910	1947	Mar. 14, 1947	3.89	634
1934	Jan. 7, 1934	5.1	968	1948	Apr. 13, 1948	4.26	813
1935	Feb. 15, 1935	4.05	494	1949	Jan. 26, 1949	3.61	466
1936	Mar. 17, 1936	7.50	4,100	1950	Sept. 21, 1950	-	1,300
1937	Apr. 26, 1937	7.63	4,300	1951	Dec. 7, 1950	4.58	998
1938	Oct. 28, 1937	6.04	1,860	1952	Mar. 11, 1952	5.13	1,360
1939	Feb. 3, 1939	4.23	578	1953	Nov. 21, 1952	3.92	675
1940	Aug. 27, 1940	5.69	1,510	1954	Mar. 1, 1954	5.58	1,690
1941	June 4, 1941	5.38	1,260	1955	Oct. 15, 1954	8.56	6,850
1942	May 16, 1942	4.67	1,050	1956	Aug. 6, 1956	4.30	835
1943	Oct. 15, 1942	6.21	2,250	1957	Feb. 10, 1957	3.47	443
1944	May 7, 1944	3.88	628	1958	Apr. 6, 1958	4.15	765
1945	Feb. 27, 1945	4.42	904	1959	Feb. 10, 1959	3.58	463
1946	June 19, 1946	4.26	813				

Magnitude and frequency of annual low flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Period (consecutive days)	Discharge, in cubic feet per second, for indicated recurrence interval, in years						
	1.03	1.2	2	5	10	20	50
7	3.2	1.6	0.7	0.3	0.1	0.1	0
14	4.6	2.3	.9	.4	.2	.1	0
30	7.7	3.8	1.5	.5	.3	.1	.1
60	13	6.7	2.8	1.0	.5	.2	.1
120	21	12	5.9	2.4	1.2	.6	.2
183	32	21	12	5.3	2.8	1.4	.6
274	42	32	22	14	9.3	5.8	3.0

Duration table of daily flow
[Data adjusted to reference period 1913-57 on basis of relation with records at other stations]

Water years	Discharge, in cubic feet per second, which was equaled or exceeded for indicated percent of time														
	0.5	1	2	5	10	20	30	50	70	80	90	95	98	99	99.5
1913-57	432	317	225	135	86	50	33	16	6.2	3.3	1.4	0.7	0.4	0.2	0.2
1933-57	432	307	220	137	93	55	36	17	6.2	3.3	1.2	.6	.3	.2	.2

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