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

SURFACE WATER RECORDS OF MARYLAND AND DELAWARE

1964

Prepared in cooperation with

Delaware Geological Survey
Delaware State Highway Department
Maryland Geological Survey
Maryland State Roads Commission
City of Baltimore
Corps of Engineers, U. S. Army
National Park Service, U. S. Department of the Interior
District of Columbia

Copies of this report may be obtained from
District Chief
Water Resources Division
U. S. Geological Survey
724 York Road
Towson, Maryland 21204

CALENDAR FOR WATER YEAR 1964

OCTOBER 1963

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

NOVEMBER 1963

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

DECEMBER 1963

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

JANUARY 1964

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

FEBRUARY 1964

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

MARCH 1964

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

APRIL 1964

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

MAY 1964

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

JUNE 1964

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

JULY 1964

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

AUGUST 1964

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

SEPTEMBER 1964

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

CONTENTS

ILLUSTRATIONS

SURFACE WATER RECORDS OF MARYLAND AND DELAWARE, 1964

INTRODUCTION

The surface-water records for the 1964 water year for gaging stations, partial-record stations, and miscellaneous sites within the States of Maryland and Delaware are given in this report. For convenience there are also included records for a few pertinent gaging stations in bordering States. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey, under the direction of J. W. Wark, district chief.

Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes or reservoirs were published in an annual series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Since 1951 there have been 20 volumes in the series; each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records in Maryland and Delaware were contained in Parts 1B (North Atlantic Slope basins, New York to York River) and 3A (Ohio River basin except Cumberland and Tennessee River basins) of that series.

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

COOPERATION

Cooperative agreements between the U.S. Geological Survey and organizations of the State of Maryland for the systematic collection of streamflow records began in 1896, continued through 1909, and, after a lapse of 15 years, resumed in 1924. Similar agreements between the Survey and organizations of the State of Delaware began in 1943. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Delaware: Delaware Geological Survey, J. J. Groot, Stage geologist; State Highway Department, J. S. Robinson, chief engineer.

Maryland: Maryland Geological Survey, K. N. Weaver, director; State Roads Commission, David H. Fisher, chief engineer; city of Baltimore, L. V. Schuerholz, water engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 20 gaging stations published in this report.

Assistance was also furnished by the Weather Bureau, U.S. Department of Commerce, the National Park Service, U.S. Department of the Interior, and the District of Columbia.

The following organizations aided in collecting records:

Maryland: Upper Potomac River Commission; Washington Suburban Sanitary Commission; Baltimore County; municipalities of Bel Air, Cumberland, Frederick, and Salisbury; Celanese Fibers Co.; Congoleum-Nairn Inc.; W. J. Dickey and Sons, Inc.; Kelly-Springfield Tire Co.; Potomac Edison Co.; Potomac Electric Power Co.; and West Virginia Pulp and Paper Co.

DEFINITION OF TERMS AND ABBREVIATIONS

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

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

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

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

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

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

Acre-foot (ac-ft) is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

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

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

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

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

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

DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in the same downstream order used in the water-supply papers. Records are listed in a downstream direction along the main stem with all stations on a tributary entering above a main-stem station listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention shows which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

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

The complete number for each station, such as 1-6385.00, includes the part number "1" and a six digit station number. In this report, the part number and only the essential digits of the station number are shown. For example, the complete number 1-6385.00 would appear as 1-6385, just to the left of the station name. In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. Records of stage are obtained from a water-stage recorder that gives a continuous chart of the fluctuations (for digital recorders, a tape punched at 15- or 30-minute intervals) or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, or computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is in effect the shifting-control method.

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

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

The data in this report generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the 1964 water year is shown on page II to facilitate finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Records available" are given periods for which there are published records for the present station or for stations generally equivalent to the present one. Under "Gage" are given the type of gage currently in use and the datum of the gage above mean sea level, and a condensed history of the types, locations and datums of previous gages used during the period of records available. The references to "datum of 1929" and adjustments of other years are to the datum and adjustments of the U.S. Coast and Geodetic Survey. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height if it is significant. In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and to conditions which affect the natural flow at the gaging station is given under "Remarks."

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

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

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

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Discharge for the month may be expressed in cubic feet per second per square mile (line headed "Cfsm"), or in inches (line headed "In.").

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

Peak discharges and the times of their occurrence (expressed in 24-hour time) and corresponding gage heights for most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any stream for which the peaks are subject to substantial control by man.

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

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage, contents, and change in contents.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

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

SUPPLEMENTAL DATA

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

Information of a more detailed nature than that published for most of the gaging stations is on file in the district office, such as discharge measurements and recorder charts or nonrecording-gage readings. Most gaging-station records in the States through 1960 have been analyzed with an electronic computer to give: (1) the number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; (3) the highest mean discharge for selected numbers of consecutive days in each year; and (4) the lowest daily discharge not exceeded during selected numbers of consecutive days in each year. At many gaging stations water samples are collected from streams for the purpose of making chemical analyses; computing dissolved solids, suspended sediment loads, and particle-size distribution; or measuring water temperatures. For most of these samples the results are published in an annual series of U.S. Geological Survey water-supply papers entitled "Quality of Surface Waters of the United States." Information on the availability of electronic computer analyses, unpublished data, or quality of water records may generally be obtained from the district office.

DELAWARE RIVER BASIN

1-4778. Shellpot Creek at Wilmington, Del.

Location.--Lat 39°45'39", long 75°31'10", on right bank 100 ft northeast of intersection of Forty-fourth and Pine Streets in Sellers Park, 700 ft downstream from highway bridge on North Market Street in Wilmington, New Castle County, and 0.2 mile downstream from Matson Run.

Drainage area.--7.46 sq mi.

Records available.--December 1945 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 25 ft (from topographic map).

Average discharge.--18 years (1946-64), 9.08 cfs.

Extremes.--Maximum discharge during year, 1,020 cfs Jan. 9 (gage height, 4.31 ft); minimum daily, 0.2 cfs Sept. 3, 6-8, 18, 19, 21, 26, 27; minimum gage height, 1.18 ft Sept. 27, 28.
1945-64: Maximum discharge, 4,080 cfs July 9, 1952 (gage height, 7.97 ft in gage well, 8.6 ft from floodmarks), from rating curve extended above 620 cfs on basis of computation of flow over dam at gage height 6.52 ft, and contracted-opening measurements at gage heights 6.52 and 7.97 ft; minimum, 0.1 cfs July 4, 1958, Oct. 25, 26, 1959; minimum gage height, 1.13 ft Oct. 25, 26, 1959.
Maximum stage known since at least 1940, that of July 9, 1952. Flood of Aug. 1, 1945, reached a stage of about 8.5 ft, from floodmarks.

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

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

1.2	0.2	1.6	10	2.1	80
1.3	.8	1.7	18	2.3	130
1.4	1.8	1.8	28	2.5	190
1.5	4.7	1.9	41	2.7	260

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	6.4	5.7	b 5.2	7.4	a 6.2	2.9	76	2.2	0.5	1.4	0.8
2	.6	8.1	3.5	b 17	5.7	*a 23	5.2	18	2.0	.5	1.4	.4
3	*.7	.9	2.9	b 14	b 3.8	30	* 9.2	8.6	2.0	.7	18	.2
4	1.0	.7	2.2	b 19	b 2.2	21	5.2	5.2	2.0	.6	2.0	.3
5	.6	1.2	*2.2	b 7.4	2.2	16	2.4	2.4	2.0	.5	.8	.3
6	.5	60	1.6	*b 6.2	41	5.2	51	2.4	2.0	.4	.6	.2
7	.6	165	1.6	36	16	3.8	68	2.6	2.4	.4	.5	.2
8	.6	20	21	7.8	5.7	3.5	104	2.9	5.2	50	.6	.2
9	.6	4.2	35	232	3.8	3.5	19	3.8	1.8	6.2	.5	.3
10	.6	2.4	5.1	28	3.8	3.5	6.0	3.8	.7	1.2	.5	.4
11	.5	2.0	2.8	8.0	3.5	3.2	3.5	3.5	.6	.9	.6	.3
12	.5	1.6	5.7	5.2	3.8	9.2	2.8	2.0	.6	.8	.7	.3
13	.6	1.5	4.6	4.2	2.9	5.7	2.5	2.2	.6	19	.6	.4
14	.8	1.3	6.8	b 3.8	5.7	5.7	* 23	2.0	.8	2.6	.5	.4
15	.7	1.3	3.5	b 4.7	4.7	6.8	32	1.2	.8	2.4	.5	.3
16	.6	1.3	2.2	b 5.7	38	4.7	8.4	1.2	.7	1.0	.5	.4
17	.6	1.3	b 1.8	6.2	11	4.2	4.1	1.2	.7	* .9	.6	.3
18	.6	1.3	b 1.5	6.2	6.2	3.2	2.9	1.4	.7	.9	9.8	.2
19	.5	1.3	b 1.3	8.0	* 12	2.9	3.6	1.6	1.1	.8	1.6	.2
20	.5	1.2	b 1.2	47	16	2.9	35	2.0	2.0	.9	.5	.3
21	.6	1.1	b 1.3	* 90	b 9.2	12	29	2.0	.7	1.2	.4	.2
22	.5	1.1	b 1.5	27	b 5.7	63	9.2	* 2.0	.6	1.4	.6	.3
23	.5	41	b 1.8	16	b 4.7	43	5.4	2.2	.5	1.3	1.4	.3
24	.8	16	b 2.2	12	b 3.8	15	3.8	2.0	.6	1.3	1.6	.4
25	.7	3.2	b 2.0	98	b 3.5	8.0	3.4	2.0	.8	1.2	.5	.4
26	.5	2.0	b 1.8	22	b 4.7	7.4	3.6	2.0	.5	1.2	.5	.2
27	.6	1.6	b 1.6	b 11	b 5.7	5.2	3.7	1.6	.5	1.3	.5	.2
28	.9	1.5	b 1.3	b 9.8	b 5.2	3.5	45	1.8	.4	1.4	* .4	2.0
29	.6	72	b 1.2	b 8.6	b 5.7	3.8	77	1.8	.4	1.6	.4	20
30	.5	38	b 1.1	b 6.8	------	3.2	*134	1.8	.5	2.0	.4	9.4
31	.5	------	b 1.0	b 4.7	------	2.4	------	2.0	------	1.4	.7	-------
Total	19.2	460.5	129.0	777.5	243.6	330.7	704.8	165.2	36.4	106.5	49.6	39.8
Mean	0.62	15.4	4.16	25.1	8.40	10.7	23.5	5.33	1.21	3.44	1.60	1.33
Cfsm	0.083	2.06	0.558	3.36	1.13	1.43	3.15	0.715	0.162	0.461	0.215	0.178
In.	0.10	2.30	0.64	3.88	1.21	1.65	3.51	0.82	0.18	0.53	0.25	0.20

Calendar year 1963: Max 165 Min 0.4 Mean 5.90 Cfsm 0.791 In. 10.73
Water year 1963-64: Max 232 Min 0.2 Mean 8.37 Cfsm 1.12 In. 15.27

Peak discharge(base, 550 cfs)

Date	Time	Gage height	Discharge
11-7	0500	3.50	620
1-9	1400	4.31	1,020

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

1-4780. Christina River at Coochs Bridge, Del.

Location.--Lat 39°38'16", long 75°43'46", on left bank at downstream side of highway bridge, 0.3 mile south of Coochs Bridge, New Castle County, 3.3 miles upstream from Muddy Run, and 3.5 miles south of Newark.

Drainage area.--20.5 sq mi.

Records available.--April 1943 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 25.6 ft above mean sea level, datum of 1929. Prior to Sept. 14, 1944, wire-weight gage and crest-stage gage on upstream side of bridge at same datum.

Average discharge.--21 years, 25.9 cfs.

Extremes.--Maximum discharge during year, 1,410 cfs Jan. 9 (gage height, 10.22 ft); minimum daily, 0.4 cfs Oct. 6. 1943-64: Maximum discharge, 2,620 cfs May 1, 1947 (gage height, 12.41 ft); minimum daily, 0.4 cfs July 26, 1944, Aug. 1, 1954, Oct. 6, 1964.

Remarks.--Records good. Low and medium flow regulated by mill above station.

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

1.8	0.2	2.4	9.8	5.0	199
1.9	.6	2.7	23	6.0	325
2.0	1.3	3.0	38	7.0	487
2.1	2.6	3.5	69	8.0	700
2.2	4.3	4.0	107		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.2	7.5	21	18	18	28	16	60	4.4	4.6	2.8	3.0
2	2.1	16	12	46	17	*51	18	32	8.0	3.6	*.7	2.1
3	2.7	4.0	11	38	14	55	27	24	5.4	3.4	16	2.5
4	6.0	7.4	8.2	47	12	45	24	22	7.9	3.7	12	4.1
5	2.9	4.1	8.6	32	13	44	18	19	11	3.9	3.5	1.5
6	.4	32	7.5	24	177	23	63	18	5.4	5.6	6.7	.9
7	4.3	363	7.4	126	74	18	132	18	6.3	1.7	4.1	1.1
8	.9	33	17	30	26	18	175	17	6.7	28	3.0	1.2
9	3.6	12	77	552	18	18	66	16	6.2	16	1.2	1.4
10	.5	8.0	17	85	17	18	29	14	6.3	7.6	4.6	2.4
11	1.8	9.3	13	26	15	15	23	13	6.5	3.6	3.5	3.2
12	2.6	7.7	11	17	17	19	20	13	7.7	3.6	3.3	.9
13	.6	6.0	11	12	15	21	*18	17	5.3	15	5.1	1.0
14	1.5	3.5	13	16	20	19	26	25	4.7	9.0	1.8	1.0
15	2.8	6.2	9.8	15	22	24	57	14	4.6	8.5	3.4	3.4
16	1.6	4.9	9.4	13	94	19	29	13	5.4	6.6	.6	1.7
17	2.7	2.6	5.9	13	38	16	22	12	4.8	4.9	5.4	1.3
18	1.4	7.7	8.2	12	24	15	19	11	3.0	3.0	5.1	1.5
19	*2.9	5.1	7.8	11	41	14	18	10	5.7	3.0	10	.7
20	1.1	3.4	6.6	51	41	14	42	9.5	4.4	5.1	3.7	.7
21	3.9	4.1	7.1	237	31	26	77	9.5	4.1	9.2	3.5	1.5
22	1.1	7.8	3.9	59	21	146	37	9.4	7.6	7.9	2.6	1.1
23	2.2	18	3.5	32	16	132	26	*8.2	4.2	5.9	1.0	1.0
24	1.8	28	8.6	25	15	57	21	7.9	4.0	7.8	6.6	3.6
25	1.9	12	7.8	221	15	34	18	8.6	6.7	5.5	4.0	.9
26	2.4	6.2	9.0	52	19	29	17	7.6	5.3	4.8	2.0	2.3
27	1.1	6.1	6.5	24	25	26	16	7.5	3.0	3.5	1.6	.7
28	3.2	4.9	9.0	20	20	20	56	9.6	1.8	2.9	2.7	4.4
29	2.2	50	4.3	16	22	20	62	6.7	5.4	3.3	3.2	20
30	2.4	99	7.1	15	------	18	163	8.7	3.2	5.4	.9	22
31	2.1	------	4.5	14	------	17	------	5.4	------	3.8	4.3	------
TOTAL	69.9	779.5	353.7	1,899	897	1,019	1,335	466.6	165.0	200.4	128.9	93.1
MEAN	2.26	26.0	11.4	61.3	30.9	32.9	44.5	15.1	5.50	6.47	4.16	3.10
CFSM	.110	1.27	.556	2.99	1.51	1.60	2.17	.737	.268	.316	.203	.151
IN	.13	1.41	.64	3.45	1.63	1.85	2.42	.85	.30	.36	.23	.17

CALENDAR YEAR 1963 MAX 388 MIN .4 MEAN 15.9 CFSM .776 INCHES 10.51
WATER YEAR 1963-64 MAX 552 MIN .4 MEAN 20.2 CFSM .985 INCHES 13.44

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge
1-09	1830	10.22	1,410

* Discharge measurement made on this day.

1-4785. White Clay Creek above Newark, Del.

Location.--Lat 39°42'50", long 75°45'35", on right bank at downstream wingwall of abandoned bridge, 0.9 mile downstream from small tributary, 1.7 miles southeast of Delaware-Maryland-Pennsylvania State corner, 2.1 miles downstream from Pennsylvania-Delaware State line, and 2.2 miles north of Newark, New Castle County.

Drainage area.--66.7 sq mi.

Records available.--February 1952 to September 1959, July 1962 to September 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 78.6 ft above mean sea level, datum of 1929.

Average discharge.--9 years, 75.1 cfs.

Extremes.--Maximum discharge during year, 3,480 cfs Jan. 9 (gage height, 8.50 ft); minimum, 12 cfs Sept. 16, 17, 18.

1952-59, 1962-64: Maximum discharge, 4,050 cfs Aug. 18, 1955 (gage height, 9.21 ft), from rating curve extended above 1,800 cfs by logarithmic plotting; minimum, 4.6 cfs Dec. 7, 1954 (gage height, 0.55 ft), result of freezeup; minimum daily, 8.4 cfs Aug. 16, 1963.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Records do not include a negligible diversion above station by plant of E. I. du Pont de Nemours & Co.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 5, Sept. 29, 30)

0.8	10	1.3	54	3.0	555
.9	16	1.6	107	4.0	920
1.1	31	2.0	212	5.0	1,360

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	25	70	b 40	62	58	73	* 207	46	26	* 25	21
2	18	39	52	b 80	64	76	71	155	49	26	26	* 17
3	17	25	47	b 58	60	135	77	123	48	29	39	15
4	17	21	44	b 68	55	* 199	82	110	47	52	49	15
5	* 16	20	42	b 74	* 55	324	77	101	43	32	31	15
6	16	45	39	b 64	282	131	91	95	43	28	29	13
7	17	450	38	b 200	155	98	165	92	46	26	26	13
8	16	* 87	40	b 110	85	89	281	89	49	98	a 27	14
9	16	51	144	1,250	68	88	186	87	46	85	a 24	14
10	16	41	57	241	64	86	124	82	43	43	a 23	14
11	16	38	47	111	61	76	105	79	39	36	a 27	14
12	16	34	47	b 80	b 58	80	93	78	38	33	a 26	13
13	16	32	45	b 60	b 58	88	* 88	84	39	62	23	16
14	17	31	45	b 48	62	91	96	94	39	52	22	16
15	17	29	43	b 70	62	94	140	71	35	46	20	14
16	17	29	b 38	b 82	98	81	105	70	36	36	20	13
17	17	29	b 35	b 86	76	75	90	65	33	32	22	13
18	17	29	b 32	b 82	65	71	85	62	33	31	32	13
19	17	28	b 31	b 80	76	67	80	60	34	31	32	14
20	17	26	b 30	b 150	68	67	91	58	47	30	23	17
21	18	28	b 31	487	62	72	175	55	39	34	22	16
22	18	28	b 32	170	58	118	136	55	34	35	22	16
23	18	38	b 35	125	b 58	186	112	* 54	34	30	21	15
24	19	77	b 40	94	b 56	165	97	52	49	29	22	a 14
25	19	39	b 38	530	b 54	135	87	49	64	31	20	a 14
26	20	34	b 34	172	55	107	84	47	35	31	19	a 14
27	20	33	b 32	120	60	96	82	48	32	30	18	a 17
28	21	31	b 31	89	55	83	121	46	29	29	18	a 25
29	20	116	b 30	70	58	81	156	46	28	29	19	*a 92
30	19	196	b 29	65	------	78	446	44	27	40	20	52
31	19	------	b 28	61	------	74	------	44	------	27	22	------
Total	548	1,729	1,326	5,017	2,150	3,269	3,696	2,402	1,204	1,179	769	569
Mean	17.7	57.6	42.8	162	74.1	105	123	77.5	40.1	38.0	24.8	19.0
Cfsm	0.265	0.864	0.642	2.43	1.11	1.57	1.84	1.16	0.601	0.570	0.372	0.285
In.	0.31	0.96	0.74	2.80	1.20	1.82	2.06	1.34	0.67	0.66	0.43	0.32

Calendar year 1963: Max 923 Min 8.4 Mean 50.5 Cfsm 0.757 In. 10.29
Water year 1963-64: Max 1,250 Min 13 Mean 65.2 Cfsm 0.978 In. 13.30

Peak discharge(base,1,500 cfs)

Date	Time	Gage height	Discharge
1-9	1730	8.50	3,480

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

1-4790. White Clay Creek near Newark, Del.

Location.--Lat 39°42'00", long 75°41'10", on left bank 300 ft upstream from Baltimore & Ohio Railroad bridge, 0.4 mile downstream from Pike Creek, and 3.5 miles east of Newark, New Castle County.
Drainage area.--87.8 sq mi.
Records available.--October 1931 to September 1936, June 1943 to September 1957, October 1959 to September 1964. Monthly discharge only for some periods, published in WSP 1302.
Gage.--Water-stage recorder (digital). Datum of gage is 11.6 ft above mean sea level, datum of 1929. Nov. 17, 1931, to Sept. 30, 1936, at site 15 ft downstream at same datum.
Average discharge.--24 years, 107 cfs.
Extremes.--Maximum discharge during year, 3,610 cfs Jan. 9 (gage height, 12.98 ft); minimum, 9.7 cfs Oct. 6; minimum daily, 13 cfs Sept. 11, 12.
1931-36, 1943-57, 1959-64: Maximum discharge, 6,340 cfs Sept. 12, 1960 (gage height, 16.11 ft); minimum, 9.1 cfs Sept. 18, 1932; minimum gage height, 3.66 ft July 26, 1954; minimum daily discharge, 12 cfs Sept. 18, 26, 1932.
Maximum stage known, 23 ft in July 1937 (probably affected by backwater from railroad bridge which has since been raised and widened), from information by Baltimore & Ohio Railroad.
Remarks.--Records good except those for periods of ice effect, which are fair. Slight diurnal fluctuation at low flow caused by mills above station. Records do not include a negligible diversion above station by plant of E. I. du Pont de Nemours & Co.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 27 to Feb. 5, Feb. 8 to Mar. 2, May 1 to June 12)

3.9	10	6.0	355
4.1	19	7.0	600
4.3	38	8.0	900
4.5	65	10.0	1,740
5.0	155		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	27	29	96	b 40	87	74	84	251	54	23	26	20
2	21	57	64	b 100	85	96	87	155	58	23	28	16
3	23	31	55	b 72	76	151	118	129	54	26	48	16
4	* 17	20	50	b 84	70	*205	105	118	52	54	65	15
5	16	19	45	b 90	* 68	329	89	109	47	34	37	16
6	17	79	42	b 76	330	151	133	102	46	26	31	14
7	16	613	39	*b 180	252	109	229	98	50	25	27	14
8	16	138	53	130	102	102	331	96	54	107	28	14
9	16	71	189	1,390	78	102	247	89	51	140	25	15
10	16	52	76	502	74	98	137	87	46	55	24	14
11	16	44	58	192	70	89	120	85	39	42	30	13
12	17	37	57	b 120	b 68	93	111	82	57	41	30	14
13	18	33	54	b 80	b 68	102	*105	91	93	77	25	16
14	15	32	56	b 60	b 72	103	126	107	100	71	22	16
15	16	30	b 52	b 80	72	107	171	82	52	61	21	15
16	16	29	b 45	b 94	141	93	126	80	37	45	21	15
17	17	29	b 39	b 100	100	82	111	77	34	39	24	18
18	16	27	b 35	b 94	78	77	105	71	33	36	53	18
19	17	27	b 32	b 90	107	72	103	68	35	36	47	20
20	18	25	b 30	b 130	100	72	143	64	50	35	25	23
21	18	25	b 32	b 520	82	93	211	62	41	61	23	20
22	19	26	b 34	250	b 68	209	157	64	34	47	23	20
23	16	56	b 38	155	b 68	213	135	* 62	34	35	20	20
24	17	110	b 43	120	b 66	189	120	59	39	32	26	20
25	18	49	b 40	579	b 66	151	111	57	74	35	20	17
26	19	39	b 36	257	b 68	124	107	54	34	37	19	18
27	20	36	b 33	126	74	114	105	54	32	34	17	21
28	19	33	b 31	105	68	96	163	51	28	31	17	30
29	17	125	b 29	85	72	96	197	52	25	32	*18	131
30	17	265	b 28	85	------	93	489	52	24	44	19	100
31	16	------	b 27	80	------	85	------	52	------	*30	19	------
TOTAL	547	2,186	1,538	6,066	2,730	3,770	4,576	2,660	1,407	1,414	858	719
MEAN	17.6	72.9	49.6	196	94.1	122	153	85.8	46.9	45.6	27.7	24.0
CFSM	.201	.830	.565	2.23	1.07	1.39	1.74	.977	.534	.519	.316	.273
IN	.23	.93	.65	2.57	1.16	1.60	1.94	1.13	.60	.60	.36	.30

CALENDAR YEAR 1963 MAX 1,120 MIN 9.4 MEAN 64.8 CFSM .738 INCHES 10.02
WATER YEAR 1963-64 MAX 1,390 MIN 13 MEAN 77.8 CFSM .886 INCHES 12.06

Peak discharge(base,2,000 cfs)

Date	Time	Gage height	Discharge
1-9	2100	12.98	3,610

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

1-4800. Red Clay Creek at Wooddale, Del.

Location.--Lat 39°45'52", long 75°38'08", on right bank 12 ft upstream from bridge on State Highway 48, 0.3 mile south of Wooddale, New Castle County, and 2.3 miles north of Marshallton.

Drainage area.--47.0 sq mi.

Records available.--April 1943 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 90 ft (from topographic map). Prior to Sept. 21, 1950, wire-weight gage and crest-stage gage at site 10 ft downstream at same datum.

Average discharge.--21 years, 62.5 cfs.

Extremes.--Maximum discharge during year, 2,870 cfs Jan. 9 (gage height, 6.86 ft); minimum, 6.3 cfs Sept. 5, 6, 26, 27; minimum daily, 7.1 cfs Sept. 26.
1943-64: Maximum discharge, 6,000 cfs Sept. 12, 1960 (gage height, 9.93 ft), from rating curve extended above 1,600 cfs on basis of contracted-opening measurement of peak flow; minimum, 4.5 cfs Sept. 11, 1951, July 31, Aug. 1, 1955; minimum daily, that of Sept. 26, 1964.

Remarks.--Records good except those for periods of ice effect, which are fair. Some diurnal fluctuation at low flow caused by mills above station.

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

2.2	4.5	3.0	150
2.3	10	4.0	710
2.5	29	5.0	1,350
2.7	62		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	19	14	48	b20	57	55	56	190	35	19	19	15
2	16	36	35	b46	57	*77	56	116	38	18	19	12
3	15	17	32	b35	49	119	79	92	35	19	58	11
4	*13	14	29	b40	46	157	70	81	34	23	42	11
5	12	13	27	b46	*48	216	58	76	30	20	25	11
6	12	40	25	b40	207	94	80	69	32	18	23	8.9
7	12	409	24	*b90	133	72	144	67	32	17	21	9.4
8	12	72	26	60	74	68	227	67	42	76	20	9.8
9	11	38	127	934	62	67	149	64	41	55	18	10
10	11	29	40	186	60	69	92	58	34	27	18	9.5
11	11	25	32	78	60	61	80	57	29	23	22	9.7
12	10	23	32	b52	55	65	74	57	28	22	25	9.5
13	10	21	30	b35	55	72	71	60	29	51	19	11
14	9.9	21	32	b30	58	70	*94	72	28	35	18	11
15	9.8	19	27	b45	56	73	102	57	26	30	17	10
16	11	19	23	b52	94	63	78	55	27	24	17	8.6
17	9.6	19	b21	55	73	59	72	53	24	21	18	8.6
18	10	18	b20	51	62	55	68	51	24	20	21	8.7
19	10	18	b19	48	78	51	67	48	25	19	19	9.7
20	11	17	b18	123	68	51	95	46	29	19	17	12
21	9.7	18	b19	325	60	63	143	42	25	101	16	11
22	9.6	18	b21	120	55	121	98	*42	24	52	16	11
23	10	35	b23	81	51	145	83	41	24	29	15	10
24	10	72	b25	68	50	116	75	40	38	27	15	8.6
25	11	28	b24	352	48	88	69	40	42	27	15	7.5
26	10	25	b22	126	51	78	66	36	24	26	14	7.1
27	11	24	b21	79	54	72	63	36	22	25	13	7.6
28	10	22	b20	67	51	63	105	35	20	23	13	13
29	10	91	b19	57	54	63	163	34	20	23	*13	86
30	9.3	133	b18	55	------	60	338	34	20	24	14	44
31	9.0	------	b17	53	------	56	------	34	------	*20	16	------
TOTAL	344.9	1,348	896	3,449	1,926	2,539	3,015	1,850	881	933	616	412.2
MEAN	11.1	44.9	28.9	111	66.4	81.9	101	59.7	29.4	30.1	19.9	13.7
CFSM	.236	.955	.615	2.36	1.41	1.74	2.15	1.27	.626	.640	.423	.292
IN	.27	1.07	.71	2.73	1.52	2.01	2.39	1.46	.70	.74	.49	.33

CALENDAR YEAR 1963 MAX 661 MIN 8.0 MEAN 38.6 CFSM .821 INCHES 11.15
WATER YEAR 1963-64 MAX 934 MIN 7.1 MEAN 49.8 CFSM 1.06 INCHES 14.41

Peak discharge(base,1,200 cfs)

Date	Time	Gage height	Discharge
1-9	1900	6.86	2,870

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

1-4801. Little Mill Creek at Elsmere, Del.

Location.--Lat 39°44'05", long 75°35'14", on left bank at downstream side of highway bridge on North du Pont Road at Elsmere, New Castle County, 0.5 mile downstream from unnamed tributary, and 2.2 miles upstream from mouth.

Drainage area.--6.70 sq mi.

Records available.--October 1963 to September 1964.

Gage.--Water-stage recorder. Prior to March 19, 1964, staff gage at same site and datum. Datum of gage is 48.62 ft above mean sea level.

Extremes.--Maximum discharge during year, 735 cfs Jan. 9 (gage height, 5.75 ft, from graph based on gage readings); minimum, 1.0 cfs Sept. 6, 7, 8 (gage height, 1.36 ft).

Remarks.--Records fair during period of recorder operation and poor during period of staff-gage operation.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 12, 13, 17, 18, 24-27)

1.36	1.0	2.0	28
1.4	1.5	2.5	67
1.5	2.6	3.0	123
1.6	4.6	3.5	195
1.7	8.0	4.0	285

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 1.2	5.3	6.6	35	7.7	6.6	5.3	*39	4.0	3.8	2.8	1.8
2	1.2	3.4	4.6	12	4.6	12	7.3	9.8	4.4	3.8	2.6	1.6
3	a 1.4	1.2	4.6	8.6	4.6	*12	10	7.3	4.6	6.1	37	1.5
4	1.5	1.6	4.4	14	5.3	13	6.3	6.3	4.6	4.0	3.6	1.6
5	a 1.5	1.5	4.0	9.2	* 4.6	7.0	5.3	6.0	4.6	3.4	2.4	1.4
6	a 1.5	41	4.0	8.0	55	6.6	33	5.6	4.6	3.2	2.4	1.1
7	a 1.5	119	3.0	*33	6.3	6.0	42	5.3	4.6	3.4	2.3	1.0
8	1.5	*15	11	8.0	6.6	6.0	52	5.3	18	50	2.4	1.4
9	1.5	4.4	17	224	5.3	6.0	22	5.3	7.2	6.6	2.0	1.7
10	1.6	3.0	6.0	23	6.6	6.0	16	4.9	4.6	4.2	2.0	1.8
11	*1.5	3.0	4.9	8.0	7.3	5.3	12	4.9	4.4	4.2	3.1	1.8
12	1.2	2.6	11	6.3	7.3	6.0	11	4.9	4.6	3.8	*2.2	1.7
13	1.2	2.5	7.7	6.0	6.0	6.6	11	10	4.6	30	1.9	1.7
14	1.5	2.5	17	b5.8	6.0	6.3	*20	7.0	4.6	5.4	2.0	1.7
15	1.7	4.4	4.9	b8.0	5.6	8.6	24	4.9	4.9	4.4	1.9	1.8
16	1.6	2.5	b4.3	b10	32	6.0	13	4.9	4.9	3.0	1.8	1.8
17	1.5	2.5	b3.8	b13	8.0	6.6	11	4.9	4.9	3.0	2.2	2.0
18	1.6	2.6	b3.5	b11	6.6	5.6	10	4.6	4.6	2.8	14	2.0
19	1.7	2.6	b3.3	b10	*23	5.3	12	4.6	5.3	2.8	2.2	2.0
20	1.4	3.0	b3.2	53	21	5.3	26	4.4	8.6	2.8	1.6	2.4
21	1.6	3.0	b3.3	*58	10	18	21	4.4	4.0	5.2	1.5	2.3
22	1.7	3.0	b3.4	18	6.6	54	14	*4.2	3.6	3.6	1.9	2.5
23	1.9	39	b4.0	9.2	6.6	20	12	4.0	3.8	3.0	1.8	2.4
24	1.9	14	b5.2	7.0	5.6	12	10	3.8	4.0	3.2	6.8	2.4
25	1.7	4.4	b5.0	67	5.3	7.7	9.8	3.6	4.0	3.4	1.6	2.4
26	1.9	3.4	b4.5	13	6.6	8.0	9.2	3.8	4.0	3.4	1.6	2.3
27	1.5	3.6	b4.0	6.6	4.0	6.3	9.8	3.8	3.8	3.4	1.5	2.2
28	1.9	3.4	b3.5	6.0	6.0	5.6	25	3.6	3.8	3.4	1.6	8.2
29	2.2	59	b3.2	6.0	8.0	5.6	60	3.4	3.8	3.4	*1.6	*27
30	2.8	25	b3.1	4.9	---	5.6	100	3.6	4.0	3.2	1.6	11
31	3.0	---	b3.0	5.3	---	5.3	---	3.8	---	3.2	2.2	---
Total	51.4	381.4	171.0	706.9	288.1	290.9	620.0	191.9	151.4	189.1	116.1	96.5
Mean	1.66	12.7	5.52	22.8	9.93	9.38	20.7	6.19	5.05	6.10	3.75	3.22
Cfsm	0.248	1.90	0.824	3.40	1.48	1.40	3.09	0.924	0.746	0.910	0.552	0.481
In.	0.29	2.12	0.95	3.92	1.60	1.61	3.44	1.07	0.84	1.05	0.64	0.54

Calendar year 1963:	Max	-	Min	-	Mean	-	Cfsm	-	In.	-
Water year 1963-64:	Max	224	Min	1.0	Mean	8.89	Cfsm	1.33	In.	18.07

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

1-4815. Brandywine Creek at Wilmington, Del.

Location.--Lat 39°46'10", long 75°34'20", on right bank in Rockford Park, 0.2 mile downstream from Henry Clay Bridge, in Wilmington, New Castle County, and 4.2 miles upstream from mouth.

Drainage area.--314 sq mi.

Records available.--October 1946 to September 1964. Prior to December 1946, monthly discharge only, published in WSP 1302.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 68.23 ft above mean sea level, datum of 1929.

Average discharge.--18 years, 453 cfs.

Extremes.--Maximum discharge during year, 9,050 cfs Jan. 10 (gage height, 8.93 ft); minimum, 62 cfs Oct. 31; minimum daily, 64 cfs Oct. 31.
1946-64: Maximum discharge, 17,800 cfs Aug. 19, 1955 (gage height, 13.89 ft); minimum, about 30 cfs Dec. 26, 1948, during period of ice effect; minimum daily, 56 cfs Aug. 23, 24, 1957.

Remarks.--Records good except those for periods of ice effect, which are fair. Some diurnal fluctuation at low flow caused by mills above station. No diversion just above station by plant of E. I. du Pont de Nemours & Co. since June 13, 1960.

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

2.4	60	3.0	231	4.0	1,030	6.0	3,450
2.7	122	3.5	595	5.0	2,100	7.0	5,100

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	159	77	642	181	469	380	476	*2,120	360	167	121	107
2	117	148	345	297	467	459	457	1,280	373	155	121	91
3	103	129	271	267	421	813	613	1,040	358	159	197	83
4	*94	98	242	340	371	924	605	910	390	236	348	81
5	87	87	216	328	390	2,450	497	842	338	197	179	79
6	87	185	200	292	602	1,440	553	780	329	167	150	75
7	89	3,050	187	532	1,300	714	1,030	750	352	153	136	71
8	85	1,340	207	591	668	629	1,270	720	390	*276	132	72
9	84	518	909	2,910	531	609	1,400	691	409	604	125	83
10	81	288	493	4,750	471	614	784	651	351	269	117	69
11	75	216	305	830	457	636	670	618	310	209	127	67
12	77	182	273	b 510	410	557	608	597	285	191	144	89
13	76	166	259	b 280	434	576	578	605	283	318	132	116
14	76	155	249	b 218	441	598	*714	629	289	395	121	92
15	74	148	211	b 285	427	616	1,000	568	267	358	116	84
16	76	140	177	352	550	568	776	539	293	242	112	78
17	75	139	b 173	395	531	502	625	529	260	191	113	78
18	73	136	b 173	362	455	474	580	507	241	176	119	76
19	71	134	b 165	343	493	435	567	474	241	165	123	80
20	71	128	b 145	441	497	423	795	456	262	158	119	85
21	73	128	171	1,590	427	463	1,020	432	247	173	111	88
22	72	129	164	1,330	392	705	952	434	221	191	105	86
23	70	184	160	774	358	880	757	423	214	158	102	85
24	72	511	184	644	375	939	671	406	289	148	101	83
25	70	267	192	1,770	361	763	613	389	542	155	97	77
26	71	186	183	1,460	373	655	587	366	235	158	94	72
27	70	169	184	739	399	602	567	367	211	155	92	76
28	70	159	177	626	365	530	744	358	187	148	*91	91
29	*70	454	159	518	397	521	1,230	353	180	145	89	442
30	68	1,050	155	501	------	498	2,410	347	175	*142	92	231
31	64	------	b 145	458	------	475	------	348	------	134	99	------
TOTAL	2,500	10,701	7,716	24,914	13,832	21,448	24,149	19,529	8,882	6,493	3,925	2,987
MEAN	80.6	357	249	804	477	692	805	630	296	209	127	99.6
CFSM	.257	1.14	.793	2.56	1.52	2.20	2.56	2.01	.943	.666	.405	.317
IN	.30	1.27	.91	2.95	1.64	2.54	2.86	2.31	1.05	.77	.46	.35

CALENDAR YEAR 1963 MAX 5,030 MIN 57 MEAN 287 CFSM .914 INCHES 12.41
WATER YEAR 1963-64 MAX 4,750 MIN 64 MEAN 402 CFSM 1.28 INCHES 17.42

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	1600	6.84	4,830	4-30	2100	6.70	4,590
1-10	0545	8.93	9,050				

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

1-4832. Blackbird Creek at Blackbird, Del.

Location.--Lat 39°21'58", long 75°40'10", on right bank 15 ft downstream from highway bridge, 0.5 mile upstream from Barlow Branch, 0.6 mile southwest of Blackbird, New Castle County, and 5.6 miles northwest of Smyrna.

Drainage area.--3.85 sq mi.

Records available.--Annual maximum, water years 1952-56, and occasional low-flow measurements, water years 1952-53, 1955-56. October 1956 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map). Mar. 5, 1951, to Oct. 16, 1956, staff gage and crest-stage gage at site 15 ft upstream at same datum.

Average discharge.--8 years (1956-64), 4.89 cfs.

Extremes.--Maximum discharge during year, 72 cfs Nov. 7 (gage height, 1.65 ft); no flow part of each day Sept. 12, 13, 26, 27.
1951-64: Maximum discharge, 510 cfs Sept. 12, 1960 (gage height, 4.10 ft).
1956-64: Minimum discharge, that of Sept. 12, 13, 26, 27, 1964.

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

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

Oct. 1 to Mar. 22				Mar. 23 to Sept. 30			
0.2	0.6	0.8	15	0.05	0.1	0.6	7.8
.3	1.6	1.0	24	.1	.2	.8	15
.4	3.1	1.3	43	.2	.6	1.0	24
.6	7.8			.3	1.6	1.2	36
				.4	3.1		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	2.0	3.6	7.1	6.8	7.5	5.5	19	1.6	0.6	0.4	a 0.4
2	.8	3.7	2.3	17	5.5	9.5	5.7	10	1.9	.5	.4	*a .4
3	.8	1.8	2.2	11	4.3	11	7.3	7.8	1.9	.5	.7	a .3
4	1.4	1.4	2.0	5.7	*3.9	9.2	6.5	7.0	1.8	.6	.8	.2
5	.7	1.4	1.9	3.9	4.1	7.5	*5.2	6.5	1.4	1.1	.5	.2
6	.6	4.7	1.8	3.3	9.9	6.2	7.5	5.7	1.4	.7	.5	.2
7	*.6	42	1.8	16	13	5.7	18	5.5	1.4	.6	.4	.2
8	.6	*25	2.7	11	6.5	6.0	24	5.2	1.6	2.0	.5	.2
9	.6	6.9	9.8	16	5.0	7.3	20	5.0	1.5	2.2	a .4	.2
10	.6	2.8	3.9	19	4.8	6.2	9.5	4.6	1.1	1.1	a .4	.2
11	.6	2.2	2.4	5.2	b 4.5	5.2	7.5	4.4	1.0	.8	*a .5	.2
12	.6	1.9	2.6	3.7	b 7.0	5.0	6.8	4.4	.9	.7	a .4	.1
13	.6	1.8	2.6	b 2.5	5.0	5.2	6.5	4.8	1.0	2.8	a .3	.4
14	.6	1.6	3.1	b 6.4	6.0	5.2	8.5	5.0	1.0	1.4	a .3	.8
15	.6	1.5	2.6	5.5	6.2	6.0	*12	4.2	1.2	.8	a .3	.4
16	.6	1.5	2.0	5.5	17	5.2	15	3.9	2.0	.7	a .3	.3
17	.6	1.5	1.8	5.2	13	4.8	8.1	3.5	1.1	.6	a .4	.3
18	.6	1.5	1.8	5.0	8.1	4.5	6.8	3.1	1.0	.6	a .4	.2
19	.7	1.4	1.8	4.5	*29	4.3	6.5	2.8	1.0	.6	a .4	.3
20	.8	1.4	1.6	6.3	16	4.3	7.8	2.5	1.0	.5	a .3	.7
21	.8	1.4	1.6	17	9.5	8.7	19	2.2	.8	.5	a .3	.6
22	.8	1.4	1.6	15	7.3	26	14	2.2	.8	.5	a .3	.5
23	1.0	2.0	2.0	8.5	6.2	25	8.8	2.2	.9	.6	a .3	.5
24	1.0	3.3	3.3	6.8	6.2	18	7.3	2.0	1.0	.6	a .3	.4
25	1.0	1.9	2.9	13	6.2	11	6.5	1.8	1.1	.7	a .4	.2
26	1.2	1.6	2.3	11	6.8	8.8	6.2	1.6	.8	.7	a .5	.1
27	1.2	1.5	2.2	6.2	8.1	8.5	6.0	1.6	.8	.5	a .5	.1
28	1.3	1.5	2.0	5.2	6.5	6.8	13	1.4	1.0	.5	a .4	.9
29	1.3	4.0	b 1.7	4.5	7.0	6.5	16	1.5	.8	.7	a .4	3.6
30	1.3	8.1	b 1.5	4.3	------	6.2	27	1.5	.7	1.1	a .4	25
31	1.4	------	1.6	4.3	------	6.0	------	1.4	------	.5	a .5	------
Total	26.4	134.7	77.0	255.6	239.4	257.3	318.5	134.3	35.5	26.3	12.9	38.1
Mean	0.85	4.49	2.48	8.25	8.26	8.30	10.6	4.33	1.18	0.85	0.42	1.27
Cfsm	0.221	1.17	0.644	2.14	2.15	2.16	2.75	1.12	0.306	0.221	0.109	0.330
In.	0.26	1.30	0.74	2.47	2.31	2.49	3.08	1.30	0.34	0.25	0.12	0.37

Calendar year 1963: Max 42 Min 0.2 Mean 2.92 Cfsm 0.758 In. 10.29
Water year 1963-64: Max 42 Min 0.1 Mean 4.25 Cfsm 1.10 In. 15.03

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge
11-7	1400	1.65	72

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

1,556.0

1-4837. St. Jones River at Dover, Del.

Location.--Lat 39°09'49", long 75°31'10", on left bank 150 ft upstream from Division Street Bridge in Dover, Kent County, and 1,950 ft downstream from Silver Lake.

Drainage area.--31.9 sq mi.

Records available.--January 1958 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 5 ft (from topographic map).

Average discharge.--6 years, 34.8 cfs.

Extremes.--Maximum discharge during year, 498 cfs Feb. 19 (gage height, 5.29 ft); minimum, 0.3 cfs Sept. 19, 20, 21, 24, 25.
1958-64: Maximum discharge, 1,900 cfs Sept. 13, 1960 (gage height, 9.45 ft, from floodmark); no flow July 9, 1959, May 9, 10, 1961.

Remarks.--Records good. Flow affected by Silver Lake.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 18, Oct. 27 to Nov. 4, Feb. 19)

2.3	0.3	2.6	3.7	3.3	70
2.35	.5	2.7	6.6	3.5	111
2.4	.8	2.8	10	4.0	221
2.45	1.3	2.9	17	4.5	332
2.5	1.8	3.1	40	5.0	440

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.6	33	17	43	54	46	188	7.6	3.0	4.7	2.6
2	.4	.6	22	44	54	65	43	148	8.7	2.6	4.7	1.4
3	.4	.4	16	74	48	83	48	96	10	2.6	6.2	.9
4	.4	.4	11	50	38	*96	50	65	9.6	3.0	6.6	1.0
5	.4	.4	10	34	33	91	44	51	8.0	3.0	5.9	1.2
6	.4	4.2	10	25	44	70	48	43	7.2	2.6	3.7	.8
7	.4	8.0	9.6	39	87	57	100	38	7.2	1.4	1.8	.7
8	.4	34	13	57	107	50	166	34	6.6	7.2	2.5	8.0
9	.4	129	25	80	68	51	197	32	7.2	9.6	2.8	9.4
10	.4	70	38	93	48	57	*151	26	7.6	7.6	1.6	4.4
11	.4	35	28	91	41	47	93	22	5.6	5.0	1.6	21
12	.4	19	20	59	30	43	59	19	3.7	3.7	2.8	5.9
13	.4	11	16	35	38	39	46	24	5.3	8.0	2.3	6.2
14	.4	9.6	21	16	41	39	47	29	5.9	9.1	1.2	5.6
15	.4	8.7	18	20	48	40	68	28	5.9	6.6	1.0	5.6
16	.4	7.6	15	26	109	40	87	25	7.2	4.7	.9	5.3
17	.4	7.2	12	25	168	38	*74	21	4.7	4.2	2.6	5.3
18	.4	7.2	11	24	151	35	56	18	3.9	4.2	3.2	4.3
19	.4	8.0	11	22	*327	29	43	16	4.7	3.9	4.2	.4
20	.4	6.6	11	29	420	29	47	15	5.3	3.2	2.8	.4
21	.4	6.9	11	54	243	49	100	11	5.9	2.6	1.8	.4
22	.4	7.2	11	113	153	165	144	*12	5.6	6.2	2.1	.6
23	.4	10	11	124	98	265	115	13	5.6	4.4	1.8	1.0
24	.4	13	10	93	78	223	80	11	6.2	3.9	2.1	.4
25	.4	11	11	89	64	175	59	9.6	6.2	3.9	1.3	8.1
26	.4	11	14	115	59	131	47	8.0	4.7	4.2	1.6	28
27	.4	10	15	109	56	91	41	8.7	4.2	3.5	1.0	28
28	.4	8.7	14	72	57	70	53	8.0	3.5	3.5	1.0	27
29	.4	14	13	47	53	60	89	8.0	2.8	4.2	1.3	27
30	.4	22	11	38	---	54	133	7.6	3.0	4.2	1.6	14
31	.4	---	9.6	34	---	47	---	7.2	---	3.9	*1.6	---
Total	12.4	481.3	481.2	1,748	2,804	2,383	2,374	1,042.1	179.6	139.7	80.3	224.9
Mean	0.4	16.0	15.5	56.4	96.7	76.9	79.1	33.6	5.83	4.51	2.59	7.50
Cfsm	0.013	0.502	0.486	1.77	3.03	2.41	2.48	1.05	0.183	0.141	0.081	0.235
In.	0.01	0.56	0.56	2.04	3.27	2.78	2.77	1.21	0.21	0.16	0.09	0.26

Calendar year 1963: Max 272 Min 0.4 Mean 21.8 Cfsm 0.683 In. 9.25
Water year 1963-64: Max 420 Min 0.4 Mean 32.7 Cfsm 1.03 In. 13.92

* Discharge measurement made on this day.

1-4840. Murderkill River near Felton, Del.

Location.--Lat 38°58'33", long 75°34'03", on left bank 30 ft downstream from northbound lane of bridge on U. S. Highway 13, 400 ft downstream from Black Swamp Creek, 1.3 miles upstream from Killen Pond and 2.2 miles south of Felton, Kent County.
Drainage area.--13.6 sq mi (revised).
Records available.--July 1931 to October 1933. Monthly discharge only for July to September 1931, published in WSP 1302. Annual maximum, water years 1952-60, and occasional low-flow measurements, water years 1952-53, 1955-57, 1959-60. June 1960 to September 1964.
Gage.--Water-stage recorder. Altitude of gage is 23 ft (from topographic map). July 1931 to October 1933, staff gage read twice daily at bridge 200 ft upstream at datum 2.00 ft higher. March 1951 to May 1960, wire-weight gage and crest-stage gage at bridge 200 ft upstream at datum 2.00 ft higher.
Average discharge.--6 years, 17.4 cfs.
Extremes.--Maximum discharge during year, 278 cfs Feb. 19 (gage height, 5.33 ft); minimum, 1.3 cfs Sept. 5, 6.
1931-33, 1951-64: Maximum discharge, 805 cfs Sept. 12, 1960 (gage height, 6.87 ft).
1931-33, 1960-64: Minimum discharge, 1.3 cfs several times in September and October 1932, and Sept. 5, 6, 1964.
Remarks.--Records good.

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

Oct. 1 to Mar. 21				Mar. 22 to Sept. 30			
2.0	3.4	4.0	72	1.7	0.7	3.5	42
2.5	13	4.5	125	1.8	1.6	4.0	73
3.0	23	5.0	205	2.0	4.0	4.5	125
3.5	37	6.0	460	2.5	14	5.0	205
				3.0	26		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*5.3	7.6	13	23	30	26	29	*54	7.0	2.7	2.6	*2.6
2	4.7	10	11	26	27	33	28	35	8.5	2.7	2.5	2.4
3	4.4	7.0	11	17	21	58	31	28	7.9	2.6	a 3.4	2.2
4	4.5	7.0	*9.9	15	20	*60	28	25	6.5	2.2	a 3.0	2.1
5	4.2	7.4	9.7	14	*19	38	25	22	6.0	2.2	a 2.8	1.7
6	3.8	17	9.7	14	39	28	30	20	5.3	2.4	*a 2.7	1.4
7	4.4	48	8.9	29	63	24	67	19	4.8	2.4	2.7	1.6
8	4.5	18	10	21	31	24	76	18	5.3	7.3	2.5	1.8
9	4.7	12	21	32	24	28	90	16	5.3	6.1	2.4	2.1
10	4.9	10	15	37	23	26	*48	14	4.8	4.3	2.6	2.1
11	4.9	9.7	13	21	22	22	35	14	4.2	3.6	2.7	2.1
12	4.2	9.5	14	18	20	21	30	14	4.0	3.1	2.5	1.9
13	4.0	9.1	13	19	21	20	28	15	4.0	5.0	2.2	5.0
14	4.7	9.1	14	19	25	19	28	18	3.7	5.0	2.5	3.9
15	5.3	8.5	13	18	28	20	32	14	4.2	3.7	2.1	2.8
16	4.9	8.3	12	17	112	19	33	14	5.6	3.5	2.0	2.6
17	4.9	8.5	12	17	89	18	*27	12	4.0	3.4	2.6	2.6
18	5.3	8.7	11	16	45	17	24	12	3.9	3.2	3.0	2.6
19	5.1	8.5	11	16	207	17	22	10	3.9	3.0	3.0	2.5
20	4.7	8.0	11	23	140	17	24	*9.4	3.7	3.0	2.6	2.5
21	5.5	8.5	10	57	70	35	41	9.0	3.1	3.1	2.6	2.6
22	6.1	8.3	10	70	38	136	31	9.2	3.6	3.1	2.2	2.7
23	6.4	9.7	11	42	29	150	28	8.3	4.3	3.5	2.0	2.6
24	6.6	13	13	32	28	94	24	7.6	3.6	3.6	2.2	2.4
25	6.2	9.5	12	49	26	62	22	7.4	3.5	3.9	2.2	2.4
26	5.9	8.7	13	49	25	48	21	7.4	3.2	3.5	2.1	2.0
27	5.9	8.7	13	28	24	42	20	7.2	2.8	3.4	2.1	1.9
28	6.6	8.2	12	24	23	34	28	6.9	2.6	3.5	2.5	2.6
29	6.8	13	11	21	26	32	45	6.3	2.8	3.5	2.5	10
30	6.6	19	10	20	------	31	66	6.1	2.8	3.2	2.2	21
31	6.8	------	9.5	19	------	30	------	6.1	------	2.8	2.5	------
Total	162.8	338.5	367.7	823	1,295	1,229	1,061	464.9	134.9	108.5	77.5	98.7
Mean	5.25	11.3	11.9	26.5	44.7	39.6	35.4	15.0	4.50	3.50	2.50	3.29
Cfsm	0.386	0.831	0.875	1.95	3.29	2.91	2.60	1.10	0.331	0.257	0.184	0.242
In.	0.45	0.93	1.01	2.25	3.54	3.36	2.90	1.27	0.37	0.30	0.21	0.27

Calendar year 1963: Max 254 Min 2.1 Mean 13.0 Cfsm 0.956 In. 13.03
Water year 1963-64: Max 207 Min 1.4 Mean 16.8 Cfsm 1.24 In. 16.86

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-16	1630	4.74	160	3-23	0345	4.88	184
2-19	1200	5.33	278				

* Discharge measurement made on this day.
a No gage-height record.

6, 16 1.5

1-4841. Beaverdam Branch at Houston, Del.

Location.--Lat 38°54'20", long 75°30'49", on left bank 15 ft upstream from bridge on State Highway 384, 0.8 mile south of Houston, Kent County, 2,000 ft upstream from unnamed stream, and 1¼ miles upstream from Blairs Pond.

Drainage area.--2.83 sq mi.

Records available.--May 1958 to September 1964.

Gage.--Water-stage recorder and timber control. Datum of gage is 35.675 ft above mean sea level.

Average discharge.--6 years, 4.06 cfs.

Extremes.--Maximum discharge during year, 45 cfs Feb. 19 (gage height, 3.58 ft); minimum daily, 0.5 cfs Sept. 5-9, 25-27.
1958-1964: Maximum discharge, 176 cfs Sept. 12, 1960 (gage height, 5.55 ft); minimum daily, that of Sept. 5-9, 25-27, 1964.

Remarks.--Records fair.

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

2.05	0.4	2.4	5.3
2.1	.7	2.7	14
2.2	1.7	3.0	23
2.3	3.1	3.3	33

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*0.7	0.6	1.6	3.5	5.3	6.2	6.2	7.3	2.7	1.7	1.2	0.7
2	.7	.7	1.4	2.7	4.9	7.9	5.9	6.2	3.0	1.7	1.2	.6
3	.7	.7	*1.4	2.0	4.4	11	6.2	5.9	3.0	1.7	1.3	.6
4	.6	.6	1.2	2.0	4.2	*8.5	5.9	5.6	2.7	1.7	1.3	.6
5	.6	.6	1.2	2.0	*4.2	7.9	5.6	5.6	2.4	1.7	1.2	.5
6	.6	1.2	1.2	2.0	8.2	6.5	6.5	5.3	2.4	1.5	*1.2	.5
7	.6	6.5	1.2	4.2	7.0	6.2	10	5.3	2.4	1.5	1.2	.5
8	.6	2.1	1.5	2.7	5.9	6.2	14	5.3	2.4	1.7	1.2	.5
9	.6	1.4	2.8	4.9	5.3	6.5	11	5.3	2.4	1.8	1.1	.5
10	.6	1.2	1.8	3.5	5.1	6.2	*7.0	5.1	2.4	1.6	1.1	.6
11	.6	1.2	1.5	2.8	5.1	5.6	6.2	4.9	2.1	1.5	1.1	.6
12	.6	1.2	1.6	2.8	4.9	5.6	5.6	4.4	*2.1	1.5	1.0	.7
13	.6	1.1	1.6	2.8	4.9	5.3	5.3	4.9	2.1	1.8	1.0	1.1
14	.6	1.1	1.8	2.8	5.6	5.3	5.3	4.9	2.1	2.0	.9	1.0
15	.6	1.1	1.8	2.8	5.9	5.3	8.5	4.2	2.4	1.5	.9	.8
16	.6	1.1	1.6	2.8	16	5.1	*7.3	4.0	2.7	1.6	.9	.7
17	.6	1.1	1.6	2.8	7.6	5.1	6.2	3.8	2.3	1.6	.9	.7
18	.6	1.1	1.6	2.8	7.6	4.9	5.6	3.8	2.1	1.6	.9	.7
19	.6	1.1	1.6	2.8	30	4.6	5.6	3.5	2.0	1.6	1.0	.7
20	.6	1.1	1.6	3.5	11	4.6	5.6	*3.5	2.5	1.6	.9	.7
21	.6	1.1	1.5	8.8	8.8	9.8	7.3	3.3	2.0	1.5	.9	.7
22	.6	1.1	1.5	5.1	7.6	2.3	6.2	3.5	1.8	1.6	.8	.7
23	.6	1.2	1.6	4.4	7.0	15	5.9	3.5	2.0	1.6	.8	.6
24	.6	1.4	1.6	4.6	6.8	9.6	5.6	3.5	1.8	1.6	.8	.6
25	.6	1.2	1.6	7.6	6.5	8.8	5.3	3.3	1.8	1.6	.7	.5
26	.6	1.2	1.6	5.3	6.5	8.2	5.3	3.3	1.8	1.6	.7	.5
27	.6	1.1	1.8	4.6	6.2	7.3	5.3	3.3	1.8	1.4	.8	.5
28	.6	1.1	1.8	4.4	6.2	6.8	6.2	3.0	1.8	1.4	.7	.6
29	.6	1.8	1.6	4.2	6.2	6.8	8.8	3.0	1.8	1.4	.7	1.1
30	.6	2.4	1.6	4.2	------	6.5	8.8	2.7	1.8	1.3	.7	2.4
31	.6	------	1.5	4.2	------	6.2	------	2.7	------	1.2	.7	------
Total	18.9	40.4	49.3	115.6	214.9	232.5	204.2	133.9	66.6	49.1	29.8	21.5
Mean	0.61	1.35	1.59	3.73	7.41	7.50	6.81	4.32	2.22	1.58	0.96	0.72
Cfsm	0.216	0.477	0.562	1.32	2.62	2.65	2.41	1.53	0.784	0.558	0.339	0.254
In.	0.25	0.53	0.65	1.52	2.82	3.06	2.68	1.76	0.88	0.65	0.39	0.28

Calendar year 1963: Max 49 Min 0.6 Mean 2.60 Cfsm 0.919 In. 12.46
Water year 1963:64: Max 30 Min 0.5 Mean 3.22 Cfsm 1.14 In. 15.47

Peak discharge (base, 30 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
02-19	0900	3.58	45	03-22	2230	3.28	32

* Discharge measurement made on this day.

1-4843. Sowbridge Branch near Milton, Del.

Location.--Lat 38°48'51", long 75°19'39", on left bank at downstream side of highway bridge 1 mile downstream from Reynolds Pond, and 2½ miles north of Milton, Sussex County.

Drainage area.--7.08 sq mi.

Records available.--October 1956 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).

Average discharge.--8 years, 10.9 cfs.

Extremes.--Maximum discharge during year, 26 cfs Mar. 21 (gage height, 5.08 ft); maximum gage height, 5.14 ft Jan. 13 (backwater from ice); minimum discharge, 1.9 cfs Nov. 22, 23 (gage height, 3.86 ft).
1956-64: Maximum discharge, 80 cfs Aug. 25, 1958 (gage height, 5.86 ft); minimum, 1.3 cfs Oct. 3, 4, 5, 6, 1957 (gage height, 3.79 ft).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated by Reynolds Pond.

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

3.8	1.2	4.4	10
3.9	2.3	4.8	18
4.1	4.9	5.1	27

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.1	2.7	10	7.8	12	17	18	17	6.5	4.6	4.5	5.1
2	3.1	3.8	8.5	8.7	12	17	18	17	7.1	4.6	4.6	4.8
3	3.0	3.0	7.2	8.3	11	18	18	16	7.2	4.5	4.8	4.5
4	2.9	3.0	6.2	7.6	* 11	18	17	16	6.9	4.5	4.5	4.2
5	2.8	3.0	5.6	6.9	11	18	17	15	6.3	4.5	4.5	4.1
6	2.8	6.4	5.1	6.7	12	* 17	17	14	6.3	4.5	a 4.3	3.5
7	2.8	13	4.9	9.6	13	17	19	14	6.2	4.3	*a 4.3	3.4
8	2.7	17	6.1	8.7	13	17	21	13	6.3	5.3	4.3	* 3.6
9	2.7	14	8.3	11	12	17	21	13	6.3	11	4.2	3.6
10	* 2.8	10	7.4	11	12	17	* 21	13	6.2	9.6	4.2	3.6
11	2.8	8.3	6.7	a 9.9	b 12	16	20	12	6.0	4.8	4.3	3.5
12	2.8	6.9	6.3	a 9.6	b 12	16	20	12	6.0	4.5	4.2	3.3
13	2.8	5.8	6.0	a 12	12	16	19	12	3.8	5.8	3.9	4.3
14	2.8	5.3	6.5	a 12	12	16	18	12	3.5	4.9	3.8	4.9
15	2.8	4.9	6.2	a 11	12	16	21	12	3.6	4.8	3.6	4.1
16	2.8	4.6	5.8	a 10	16	16	* 20	11	4.2	4.8	3.6	3.9
17	2.7	4.5	5.6	a 9.4	15	15	20	11	3.9	5.4	4.1	3.8
18	2.7	4.3	5.6	a 9.0	16	15	19	11	8.0	6.0	4.1	3.6
19	2.9	4.3	5.3	a 9.0	18	14	19	* 10	7.6	5.6	4.5	3.6
20	2.9	4.3	4.9	a 10	18	14	18	9.4	7.8	5.3	3.9	3.6
21	2.9	3.5	4.9	a 12	18	17	19	9.4	8.1	5.1	3.8	3.6
22	2.9	* 2.0	4.5	a 13	17	24	19	9.4	4.9	5.1	3.9	3.5
23	2.9	2.4	4.2	a 13	16	23	19	8.9	4.9	5.1	3.8	3.5
24	2.9	2.7	5.6	12	16	22	19	7.1	4.8	5.1	3.6	3.4
25	3.0	2.3	6.3	13	16	21	18	4.9	4.6	5.6	3.6	3.1
26	3.0	2.7	6.0	13	16	21	17	3.5	4.5	5.3	3.8	3.0
27	3.0	3.3	6.0	12	15	20	16	7.8	4.9	5.3	4.2	3.0
28	3.0	3.3	5.8	12	16	20	17	5.4	6.3	5.4	4.3	3.1
29	2.9	6.0	5.6	11	18	19	17	6.2	4.5	5.3	7.6	4.2
30	2.7	13	5.4	10	---	19	18	6.2	4.3	4.6	5.1	7.8
31	2.4	---	4.9	10	---	18	---	6.3	---	4.3	4.9	---
Total	88.3	170.3	187.4	319.2	410	551	560	335.5	171.5	165.5	132.8	117.2
Mean	2.85	5.68	6.05	10.3	14.1	17.8	18.7	10.8	5.72	5.34	4.28	3.91
Cfsm	0.403	0.802	0.855	1.45	1.99	2.51	2.64	1.53	0.808	0.754	0.605	0.552
In.	0.46	0.89	0.98	1.68	2.15	2.89	2.94	1.76	0.90	0.87	0.70	0.62

Calendar year 1963: Max 28 Min 2.0 Mean 7.07 Cfsm 1.00 In. 13.54
Water year 1963-64: Max 24 Min 2.0 Mean 8.77 Cfsm 1.24 In. 16.84

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

1-4845. Stockley Branch at Stockley, Del.

Location.--Lat 38°38'19", long 75°20'31", on left bank at highway bridge in Stockley, Sussex County, 1.6 miles upstream from mouth and 4.4 miles southeast of Georgetown.

Drainage area.--5.24 sq mi.

Records available.--April 1943 to September 1964.

Gage.--Water-stage recorder and concrete control. Datum of gage is 24.54 ft above mean sea level, datum of 1929. Prior to Aug. 16, 1950, staff gage and crest-stage gage at same site and datum.

Average discharge.--21 years, 7.38 cfs.

Extremes.--Maximum discharge during year, 68 cfs Feb. 19 (gage height, 3.21 ft); minimum, 1.1 cfs Sept. 27, 28. 1943-64: Maximum discharge, 132 cfs June 4, 1948 (gage height, 5.0 ft, from graph based on gage readings), from rating curve extended above 50 cfs by logarithmic plotting; minimum observed, 0.13 cfs Sept. 1-11, 1944.

Remarks.--Records good.

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

1.8	1.1
1.9	2.6
2.0	5.2
2.5	22
3.0	52

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	1.3	2.6	6.4	12	15	13	11	4.0	2.4	1.7	1.4
2	1.7	1.6	2.6	5.5	11	17	13	9.8	4.2	2.4	1.7	1.3
3	1.7	1.6	2.6	4.8	9.8	24	13	9.5	4.2	2.2	1.7	1.3
4	1.6	1.4	2.6	4.8	*9.5	25	12	9.2	4.0	2.2	1.9	1.3
5	1.6	1.4	2.6	4.6	9.5	*21	11	8.9	3.8	2.2	1.7	1.2
6	1.6	3.5	2.6	4.6	12	18	13	8.5	3.8	2.2	1.7	1.2
7	1.6	8.1	2.6	7.9	13	17	20	8.5	3.5	2.2	*1.7	1.2
8	1.6	2.6	3.0	6.4	12	16	31	8.2	3.5	3.0	1.7	*1.2
9	*1.6	2.2	5.8	10	11	16	30	7.9	3.5	3.0	1.6	1.2
10	1.6	2.2	3.5	8.9	11	16	21	7.6	3.3	2.6	1.6	1.2
11	1.6	2.0	3.3	7.9	11	14	18	7.3	3.0	2.4	1.6	1.2
12	1.6	2.0	3.3	7.6	10	14	16	7.0	3.0	2.4	1.7	1.2
13	1.6	2.0	3.3	9.2	10	13	15	6.7	3.0	3.8	1.7	1.9
14	1.6	2.0	3.8	8.5	12	13	14	6.7	3.0	2.6	1.6	2.2
15	1.6	2.0	3.8	7.9	12	13	22	6.4	3.0	2.2	1.6	1.6
16	1.6	2.0	3.5	7.9	38	13	*18	6.1	3.3	2.0	1.6	1.4
17	1.6	2.0	3.5	7.6	25	13	15	6.1	2.8	2.0	1.6	1.4
18	1.4	2.0	3.5	7.6	22	12	14	5.8	2.8	2.0	1.6	1.3
19	1.4	1.9	3.5	a 7.6	49	12	12	*5.2	2.8	2.0	1.6	1.3
20	1.4	*1.9	3.5	a 9.0	31	12	12	4.8	2.8	1.9	1.6	1.3
21	1.4	1.9	3.5	a 18	23	19	14	4.6	2.8	1.9	1.4	1.3
22	1.4	1.9	3.5	a 13	19	46	13	4.6	2.8	1.9	1.4	1.3
23	1.4	2.0	4.0	a 11	17	33	12	4.6	3.0	1.9	1.4	1.3
24	1.4	2.2	4.8	11	16	24	11	4.2	3.0	1.9	1.3	1.3
25	1.4	2.0	4.0	15	14	21	9.8	4.2	3.0	2.0	1.3	1.2
26	1.4	2.0	3.8	15	14	19	9.5	4.0	2.8	1.9	a 1.6	1.2
27	1.4	2.0	3.8	12	13	16	9.5	4.0	2.6	1.9	a 3.5	1.2
28	1.4	2.0	3.8	11	13	15	11	4.0	2.6	2.2	1.6	1.2
29	1.3	3.3	3.8	9.8	15	15	11	4.0	2.6	2.0	1.6	1.7
30	1.3	3.5	3.8	9.8	------	14	11	4.0	2.6	1.9	1.4	16
31	1.3	------	3.8	9.5	------	13	------	4.0	------	1.7	1.4	------
Total	47.0	68.5	108.1	279.8	474.8	549	444.8	197.4	95.1	68.9	51.1	55.0
Mean	1.52	2.28	3.49	9.03	16.4	17.7	14.8	6.37	3.17	2.22	1.65	1.83
Cfsm	0.290	0.435	0.666	1.72	3.13	3.38	2.82	1.22	0.605	0.424	0.315	0.349
In.	0.33	0.49	0.77	1.99	3.37	3.90	3.16	1.40	0.67	0.49	0.36	0.39

Calendar year 1963: Max 49 Min 1.3 Mean 5.52 Cfsm 1.05 In. 14.28
Water year 1963-64: Max 49 Min 1.2 Mean 6.67 Cfsm 1.27 In. 17.32

Peak discharge (base, 45 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-16	0945	3.04	55	2-19	0530	3.21	68
3-22	1945	2.97	52				

* Discharge measurement made on this day.
a No gage-height record.

1-4850. Pocomoke River near Willards, Md.

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 1964.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).

Average discharge.--14 years (1950-64), 70.1 cfs.

Extremes.--Maximum discharge during year, 796 cfs Apr. 9 (gage height, 11.22 ft); minimum, 2.3 cfs Aug. 27, 28; minimum gage height, 2.27 ft Oct. 10, 11.
1949-64: Maximum discharge, 884 cfs Jan. 8, 1962; maximum gage height, 12.03 ft Mar. 21, 1958; minimum discharge, 2.2 cfs Aug. 18, 19, 1957 (gage height, 1.91 ft).

Remarks.--Records fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	4.3	64	67	107	169	99	88	18	6.6	6.6	6.6
2	6.1	6.6	74	116	128	212	92	*82	20	6.1	6.4	5.9
3	5.4	6.8	80	101	108	302	93	73	20	5.9	6.4	3.9
4	4.8	5.4	78	93	94	365	87	68	18	5.9	6.8	3.6
5	4.8	4.8	64	84	87	280	77	64	17	5.7	6.1	3.0
6	4.5	9.0	52	76	109	214	*75	58	16	5.0	5.7	2.8
7	4.3	70	48	115	177	168	141	54	15	4.5	5.4	2.5
8	4.5	44	46	147	177	145	380	51	15	5.2	5.2	*2.5
9	*5.0	32	81	188	174	130	*751	47	15	6.6	5.0	2.5
10	5.0	26	85	334	149	114	687	43	14	5.4	4.5	2.5
11	4.8	24	89	212	148	100	*443	40	13	5.9	4.5	2.8
12	4.8	22	79	155	166	90	297	38	12	11	5.0	2.8
13	4.8	20	a74	181	164	82	*201	37	12	9.8	4.3	5.4
14	*4.8	18	a78	249	195	76	161	36	12	9.5	3.9	7.3
15	4.8	17	a84	173	218	78	221	33	12	7.3	*3.9	5.0
16	4.8	16	a74	139	481	79	254	31	12	5.9	3.9	4.1
17	4.8	15	a68	126	455	73	193	29	11	5.0	4.3	3.6
18	4.8	14	63	115	320	68	153	28	10	4.8	4.1	3.6
19	4.8	13	60	112	517	61	127	27	10	4.5	3.6	3.6
20	4.8	13	56	167	*455	58	121	*26	10	4.3	3.2	3.6
21	4.8	13	52	390	*313	102	144	24	10	5.0	3.0	3.4
22	5.4	13	50	292	*231	506	142	23	9.5	5.7	3.0	3.6
23	5.2	14	51	204	182	555	127	22	9.0	5.0	3.0	3.9
24	5.0	24	70	166	155	420	110	22	10	5.0	2.8	3.9
25	*5.0	20	66	210	137	310	97	21	11	5.4	2.5	3.4
26	5.4	18	63	235	123	218	87	21	9.2	5.2	2.8	3.2
27	4.8	17	63	160	109	177	79	20	8.3	4.8	2.5	3.4
28	*4.3	17	62	*128	101	140	84	20	7.6	13	2.5	3.6
29	4.3	35	60	104	153	123	94	19	6.8	12	2.8	5.0
30	4.1	65	56	93	------	112	91	19	6.8	8.8	3.0	22
31	4.1	------	52	85	------	104	------	18	------	7.3	5.9	------
Total	151.9	616.9	2,042	5,017	5,933	5,631	5,708	1,182	370.2	202.1	132.6	133.0
Mean	4.90	20.6	65.9	162	205	182	190	38.1	12.3	6.52	4.28	4.43
Cfsm	0.081	0.340	1.09	2.68	3.39	3.01	3.14	0.630	0.203	0.108	0.071	0.073
In.	0.09	0.38	1.26	3.08	3.65	3.46	3.51	0.73	0.23	0.12	0.08	0.08

Calendar year 1963: Max 685 Min 3.0 Mean 57.7 Cfsm 0.954 In. 12.95
Water year 1963-64: Max 751 Min 2.5 Mean 74.1 Cfsm 1.22 In. 16.67

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-16	1930	10.06	551	3-23	0400	10.36	569
2-19	1630	10.05	541	4- 9	2200	11.22	796

* Discharge measurement made on this day.
a No gage-height record.

1-4855. Nassawango Creek near Snow Hill, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map).

Average discharge.--14 years (1950-64), 55.6 cfs.

Extremes.--Maximum discharge during year, 597 cfs Apr. 10 (gage height, 6.95 ft); minimum, 1.4 cfs Sept. 8-11.
1949-64: Maximum discharge, 988 cfs Aug. 16, 1953 (gage height, 7.82 ft); minimum, 1.4 cfs Aug. 16, 1954, Aug. 6, 7, 1957, Sept. 8-11, 1964.

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

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

1.4	1.2	3.0	75
1.5	3.0	4.0	119
1.6	5.7	5.0	200
1.7	9.5	6.0	345
2.0	29	7.0	615
2.4	55		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.3	3.5	51	a 50	83	124	76	66	5.4	2.6	6.6	5.1
2	5.4	4.5	58	a 90	93	154	73	65	6.3	2.4	5.1	3.8
3	4.8	4.8	64	a 94	97	222	71	60	7.8	2.2	4.0	2.8
4	5.4	4.2	61	a 88	97	328	70	56	7.4	2.4	3.8	2.4
5	5.1	4.0	50	a 84	87	*335	67	51	6.3	2.4	3.8	*2.0
6	4.5	18	41	a 82	88	260	68	46	5.7	2.2	3.2	1.7
7	4.0	53	37	a 90	116	182	90	41	5.1	1.8	3.0	1.7
8	*3.5	34	36	a110	152	134	191	38	4.5	2.0	2.8	1.6
9	3.5	23	65	a130	180	109	488	32	4.2	2.8	2.6	1.4
10	3.5	20	64	a250	163	95	559	29	4.0	2.6	2.4	1.4
11	3.5	19	70	a260	145	85	*395	25	3.8	2.4	2.2	1.4
12	3.5	18	75	a180	153	76	263	23	3.5	2.2	2.2	1.6
13	3.5	17	67	a190	154	70	*168	23	3.2	2.8	2.6	3.0
14	3.2	16	63	a220	154	66	122	22	3.2	3.5	2.4	5.7
15	3.2	14	62	a210	157	68	129	20	3.0	2.8	*2.2	3.5
16	3.2	13	57	a130	273	72	167	19	4.5	2.6	2.4	2.6
17	3.0	12	53	a100	392	69	184	18	5.4	2.4	2.4	2.2
18	3.0	11	47	a 86	358	66	152	*16	4.2	2.2	2.2	2.0
19	2.8	*11	40	a 84	359	63	113	14	3.5	2.2	2.2	1.8
20	3.0	11	35	a130	*415	59	100	13	3.2	2.0	2.2	1.8
21	3.0	11	31	a280	354	73	95	11	5.1	2.0	2.2	1.8
22	3.0	11	29	a290	255	257	93	10	4.5	2.2	2.2	1.7
23	3.5	15	27	a200	175	429	90	10	3.8	2.6	2.2	1.7
24	3.8	23	44	a150	129	403	83	8.6	4.0	2.6	2.0	1.7
25	3.8	18	b 45	a150	107	288	75	7.8	8.2	2.6	1.8	1.6
26	3.8	17	b 45	a160	97	201	67	6.6	7.8	2.6	1.7	1.6
27	3.8	16	b 43	*a160	90	144	62	6.3	5.7	2.2	1.8	1.6
28	3.5	16	b 41	138	85	112	63	6.0	4.2	30	1.8	1.6
29	3.5	28	b 39	110	106	95	65	5.7	3.5	42	2.0	1.6
30	3.2	55	a 40	91	------	85	65	5.7	2.8	19	2.2	1.7
31	3.2	------	a 43	79	------	79	------	5.4	------	10	4.2	------
Total	116.0	521.0	1,523	4,466	5,114	4,803	4,304	760.1	143.8	166.3	84.4	66.1
Mean	3.74	17.4	49.1	144	176	155	143	24.5	4.79	5.36	2.72	2.20
Cfsm	0.083	0.388	1.09	3.21	3.92	3.45	3.18	0.546	0.107	0.119	0.061	0.049
In.	0.10	0.43	1.26	3.70	4.24	3.98	3.56	0.63	0.12	0.14	0.07	0.05

Calendar year 1963: Max 559 Min 1.7 Mean 47.2 Cfsm 1.05 In. 14.30
Water year 1963-64: Max 559 Min 1.4 Mean 60.3 Cfsm 1.34 In. 18.28

Peak discharge (base, 280 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-22	unknown	5.67	292	3- 5	0200	6.05	354
2-17	1830	6.30	405	3-23	1900	6.52	461
2-20	1500	6.37	422	4-10	0300	6.95	597

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

1-4860. Manokin Branch near Princess Anne, Md.

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 Loretto Branch.

Drainage area.--5.8 sq mi, approximately.

Records available.--April 1951 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 8.03 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 4.38 cfs.

Extremes.--Maximum discharge during year, 140 cfs Feb. 16, from rating curve extended above 40 cfs by logarithmic plotting (gage height, 4.38 ft); no flow Aug. 24, 25, Sept. 4-7, 25, 26.
1951-64: Maximum discharge, 237 cfs Aug. 13, 1955 (gage height, 6.63 ft), from rating curve extended above 120 cfs by logarithmic plotting; no flow at times in 1954, 1963, 1964.

Remarks.--Records fair.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 23 to Nov. 6)

Oct. 1 to Jan. 20				Jan. 21 to Sept. 30			
0.86	0.2	1.4	4.4	0.8	0	2.0	12
.9	.4	1.6	7.0	.9	.3	2.5	27
1.0	1.0	2.0	14	1.0	.7	3.0	46
1.1	1.6	2.5	30	1.2	1.9	3.5	73
1.2	2.5	3.0	53	1.5	4.7	4.0	108

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.4	5.0	7.7	9.1	14	3.7	3.5	0.5	0.3	0.2	0.7
2	.2	.6	3.7	10	8.9	18	3.4	*3.2	.6	.3	.2	.2
3	.5	.5	3.6	6.9	6.4	47	3.5	3.1	.6	.3	.2	.1
4	.4	.5	3.9	5.6	5.4	25	3.2	2.5	.5	.3	.2	0
5	.2	.5	3.4	4.6	4.9	*16	2.9	2.3	.5	.3	.2	*0
6	.2	1.8	3.0	4.3	11	9.6	3.4	2.1	.5	.2	.2	0
7	.2	2.8	2.8	17	12	7.2	12	1.9	.5	.2	.2	0
8	*.2	1.5	3.2	12	15	6.4	*63	1.7	.4	.3	.2	.1
9	.2	1.2	11	36	11	6.2	*43	1.6	.4	.3	.1	.1
10	.2	.9	6.3	27	8.7	5.7	18	1.4	.4	.2	.2	.1
11	.2	.8	4.5	a11	11	4.4	10	1.3	.4	.2	.2	.1
12	.2	.8	4.5	a7.0	13	4.0	7.4	1.2	.4	.2	.2	.1
13	.2	.7	4.5	a5.6	11	3.6	*6.2	1.2	.4	.4	.2	.3
14	.2	.7	5.4	a10	17	3.6	5.7	1.2	.4	.7	.1	.1
15	.2	.6	5.9	a8.0	12	6.0	13	1.1	.4	.3	.1	.1
16	.2	.6	4.3	a7.6	77	7.1	11	1.0	.4	.2	.2	.1
17	.2	.6	3.6	a7.4	24	5.5	7.4	1.0	.3	.2	.2	.1
18	.2	*.6	3.5	a7.4	16	4.5	5.7	*1.0	.3	.2	.1	.1
19	.2	.6	3.3	a8.0	45	3.8	4.8	.9	.3	.2	.1	.1
20	.2	.5	3.0	a28	21	3.5	8.0	.8	a.3	.2	.1	.1
21	.2	.5	2.7	a50	12	20	7.2	.8	a.3	.2	.1	.1
22	.2	.5	2.5	a20	8.7	40	6.2	.7	a.3	.2	.1	.1
23	.2	.7	3.2	a12	7.1	18	5.2	.7	.3	.3	.1	.1
24	.2	1.2	6.9	a10	6.3	11	4.4	.7	.4	.3	0	.1
25	.2	1.0	5.5	a20	5.7	8.1	3.7	.6	.4	.2	0	0
26	.2	.9	4.6	a12	6.0	6.9	3.2	.6	.3	*.2	.1	0
27	.2	.9	4.4	*7.8	5.3	5.8	3.0	.6	.3	.2	.1	.1
28	*.2	.9	4.1	6.4	5.8	4.7	4.6	.6	.3	.2	.1	.1
29	.2	3.2	3.7	5.2	13	4.5	4.7	.6	.3	.3	.1	.1
30	.3	8.4	3.2	4.7	------	4.2	3.9	.5	.3	.2	.1	.1
31	.3	------	3.0	4.4	------	4.0	------	.5	------	.2	1.0	------
Total	6.9	35.4	132.2	383.6	409.3	328.3	281.4	40.9	11.7	8.0	5.2	3.3
Mean	0.22	1.18	4.26	12.4	14.1	10.6	9.38	1.32	0.39	0.26	0.17	0.11
Cfsm	0.038	0.203	0.734	2.14	2.43	1.83	1.62	0.228	0.067	0.045	0.029	0.019
In.	0.04	0.23	0.85	2.46	2.62	2.11	1.80	0.26	0.08	0.05	0.03	0.02

Calendar year 1963: Max 132 Min 0 Mean 3.99 Cfsm 0.688 In. 9.33
Water year 1963-64: Max 77 Min 0 Mean 4.50 Cfsm 0.776 In. 10.55

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 9	1630	3.33	72	3- 3	1300	3.58	78
1-21	unknown	3.40	67	3-21	2130	3.29	60
2-16	0530	4.38	140	4- 8	1800	4.32	135
2-19	0330	3.46	71				

* Discharge measurement made on this day.
a No gage-height record.

1-4865. Beaverdam Creek near Salisbury, Md.

Location.--Lat 38°21'05", long 75°34'11", on upstream side of Schumaker Dam between spillway and emergency floodgate, 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 August 1933, May 1934 to September 1935, May 1936 to September 1964. 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.--29 years (1929-32, 1938-64), 23.9 cfs.

Extremes.--Maximum discharge during year, 631 cfs Apr. 8; maximum gage height, 11.58 ft Apr. 10; minimum daily discharge, 0.4 cfs Dec. 17 (leakage under dam following closing of floodgate).
1929-64: Maximum discharge not determined, occurred Aug. 23, 1933, when dam was partly washed out; maximum gage height, 14.31 ft Aug. 4, 1948, from high-water mark in well; minimum daily discharge recorded, that of Dec. 17, 1963.

Remarks.--Records good except those for periods of no gage-height record or those below 1 cfs, which are poor. Records represent total flow and include flow over spillway, through spillway valve, and over floodgate, and leakage under dam. Occasional regulation at low and medium flow caused by mill above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.5	5.8	e 27	24	35	49	34	34	15	8.6	6.4	8.2
2	7.7	7.3	e 25	28	35	59	34	32	17	8.2	6.4	5.4
3	7.7	6.6	e 25	27	35	96	34	32	17	7.8	7.2	5.2
4	7.7	6.2	e 24	27	34	135	32	31	15	8.2	6.6	4.9
5	6.9	6.2	e 21	25	32	110	30	30	14	8.6	6.2	* 4.7
6	6.9	7.7	e 21	23	37	79	33	28	13	7.8	5.9	4.5
7	6.6	7.7	e 20	34	44	60	43	27	12	7.5	5.9	4.5
8	6.2	*59	e 21	36	49	48	163	26	12	9.4	5.9	4.5
9	*6.2	*e 37	e 41	63	52	43	299	25	12	12	5.6	4.5
10	6.2	e 14	e 30	103	48	41	211	24	12	9.8	5.6	4.5
11	6.6	e 13	e 30	81	50	39	99	23	11	8.6	5.9	4.7
12	6.6	e 12	e 29	60	49	36	67	16	10	8.2	5.9	4.7
13	6.6	e 12	e 26	53	47	35	59	18	11	9.8	5.4	12
14	6.2	e 11	e 27	50	52	34	52	19	11	15	5.4	15
15	*a 6.2	e 11	e 26	45	54	36	68	20	11	9.8	* 5.4	10
16	a 6.2	e 10	*e 8.4	41	125	35	77	20	13	8.6	5.4	8.6
17	a 6.2	e 10	e .4	36	160	34	77	20	12	7.8	6.2	5.4
18	a 6.2	e 10	e .5	29	98	32	62	*20	11	7.8	5.6	7.2
19	a 6.2	*e 10	1.0	24	131	31	51	18	11	7.8	5.2	5.4
20	a 7.3	e 10	12	35	*158	30	49	17	12	7.5	5.2	* 9.8
21	a 8.2	e 10	14	79	* 95	44	48	17	15	7.2	5.2	e 27
22	a 6.6	e 10	*14	112	* 61	125	46	17	12	7.8	5.2	e 5.8
23	a 5.8	e 12	17	44	55	145	46	18	11	7.8	5.2	e .5
24	5.5	e 18	23	36	48	113	43	17	15	7.5	5.2	e .5
25	5.5	e 14	20	47	* 43	79	39	* 16	26	7.2	5.4	e .5
26	6.2	e 13	20	57	42	90	30	14	14	6.9	6.4	e .5
27	6.2	e 13	20	52	39	e 60	29	13	11	6.6	5.6	e .5
28	6.2	e 13	20	* 44	40	81	34	13	9.8	10	5.4	2.4
29	7.7	e 26	19	37	48	37	34	14	9.0	12	5.4	4.0
30	6.9	e 51	18	33	------	37	34	14	8.6	7.8	5.4	27
31	7.7	------	17	30	------	35	------	14	------	6.6	12	------
Total	207.4	446.5	617.3	1,415	1,796	1,835.1	1,957	647	383.4	266.2	183.7	202.4
Mean	6.69	14.9	19.9	45.6	61.9	59.2	65.2	20.9	12.8	8.59	5.93	6.75
Cfsm	0.343	0.764	1.02	2.34	3.17	3.04	3.34	1.07	0.656	0.441	0.304	0.346
In.	0.40	0.85	1.18	2.70	3.43	3.50	3.73	1.23	0.73	0.51	0.35	0.39

Calendar year 1963: Max 211 Min 0.4 Mean 22.6 Cfsm 1.16 In. 15.74
Water year 1963-64: Max 299 Min 0.4 Mean 27.2 Cfsm 1.39 In. 19.00

* Discharge measurement made on this day.
a No gage-height record.
e Discharge computed on basis of flow through floodgate and/or leakage under dam, and/or flow through spillway valve.

1-4870. Nanticoke River near Bridgeville, Del.

Location.--Lat 38°43'42", 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 1964. Prior to October 1955, published as Gravelly Fork near Bridgeville.

Gage.--Water-stage recorder. Timber control since Sept. 3, 1947. Datum of gage is 13.64 ft above mean sea level (levels by Soil Conservation Service). Prior to Apr. 19, 1947, staff gage and crest-stage gage at same site and datum.

Average discharge.--21 years, 93.2 cfs.

Extremes.--Maximum discharge during year, 572 cfs Feb. 19 (gage height, 6.43 ft); minimum, 21 cfs Sept. 9, 10; minimum gage height, 2.57 ft Oct. 20, 21.
1943-64: Maximum discharge, 2,300 cfs Aug. 26, 1958 (gage height, 8.84 ft); minimum observed, 6.3 cfs Sept. 29, 1943.
Maximum stage known, about 11.0 ft in September 1935, from information by local residents.

Remarks.--Records fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	33	60	a 70	122	167	177	199	59	40	33	d 25
2	36	38	47	a100	131	183	177	178	61	38	31	d 25
3	*35	34	*47	a 76	114	273	182	160	61	38	32	d 24
4	33	35	47	a 66	105	305	170	149	58	36	32	d 24
5	31	36	43	a 60	102	260	156	137	56	33	31	d 23
6	29	47	42	a 54	132	226	*154	129	54	34	31	d 22
7	29	111	39	a100	*212	192	216	124	53	33	29	d 22
8	29	75	40	a130	184	178	305	120	53	37	30	d 22
9	29	47	80	a120	158	178	382	114	53	41	30	d 21
10	29	39	59	a170	141	177	292	105	51	37	28	d 21
11	29	35	49	a130	132	159	241	99	49	34	28	d 22
12	29	33	48	a110	125	147	214	95	47	33	28	d 22
13	28	32	48	a100	123	141	192	94	47	41	27	d 30
14	27	31	a 54	a140	132	135	182	104	49	42	25	33
15	28	31	a 60	a150	154	137	258	94	51	35	25	27
16	27	30	a 52	a140	354	132	*295	88	83	33	d 23	27
17	27	30	a 48	a130	320	127	247	84	53	35	d 24	28
18	28	29	a 45	a130	242	123	218	80	48	46	d 26	28
19	27	29	a 42	a130	502	116	194	*76	47	37	d 25	29
20	27	29	a 39	a140	460	113	180	74	46	33	*d 25	27
21	27	29	a 38	a220	*342	144	218	69	45	31	d 24	27
22	29	30	a 37	a240	266	413	218	68	43	32	d 23	27
23	30	31	a 37	a180	*223	502	202	67	45	36	d 23	27
24	31	41	a 38	153	198	385	185	65	46	38	d 23	26
25	32	33	a 40	182	182	320	173	63	47	40	d 22	25
26	32	31	a 42	198	174	274	159	61	45	39	d 22	25
27	29	39	a 45	158	165	247	149	60	43	36	d 22	25
28	29	35	a 45	136	158	216	154	59	41	42	d 23	26
29	30	47	a 42	119	170	199	174	59	41	42	d 24	36
30	31	79	a 38	111	------	190	200	58	39	37	d 24	70
31	32	------	a 36	105	------	182	------	58	------	35	d 25	------
Total	926	1,199	1,427	4,048	5,823	6,541	6,264	2,990	1,514	1,144	818	816
Mean	29.9	40.0	46.0	131	201	211	209	96.5	50.5	36.9	26.4	27.2
Cfsm	0.397	0.531	0.610	1.74	2.67	2.80	2.77	1.28	0.670	0.489	0.350	0.361
In.	0.46	0.59	0.70	2.00	2.87	3.23	3.09	1.47	0.75	0.56	0.40	0.40

Calendar year 1963: Max 642 Min 24 Mean 70.1 Cfsm 0.930 In. 12.61
Water year 1963-64: Max 502 Min 21 Mean 91.6 Cfsm 1.21 In. 16.52

Peak discharge (base, 360 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-16	1400	6.01	423	4- 9	0400	5.98	414
2-19	1300	6.43	572	3-23	0200	6.41	564

* Discharge measurement made on this day.
a No gage-height record.
d Doubtful gage-height record.

1-4875. Trap Pond Outlet near Laurel, Del.

Location.--Lat 38°31'40", long 75°29'00", on left bank at downstream end of concrete spillway channel, 200 ft downstream from Trap Pond Dam and 5 miles southeast of Laurel, Sussex County.

Drainage area.--16.7 sq mi.

Records available.--June 1951 to September 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (from topographic map).

Average discharge.--13 years, 17.4 cfs.

Extremes.--Maximum discharge during year, 265 cfs Apr. 9 (gage height, 2.98 ft); minimum daily, 0.1 cfs Sept. 20-28.
1951-64: Maximum discharge, 462 cfs Jan. 7, 1962 (gage height, 3.55 ft); no flow Aug. 12-14, Sept. 6, 1957.

Remarks.--Records good. Flow regulated by Trap Pond.

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

0.53	0.1	1.4	21
.55	.2	1.7	40
.6	.4	2.0	69
.8	2.5	2.3	110
.9	4.1	2.5	146
1.1	9.1	3.0	271

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.4	9.4	18	28	45	28	28	6.1	1.4	1.3	1.1
2	.6	.4	7.7	21	31	52	28	25	9.5	1.4	1.1	1.0
3	.5	.4	9.8	17	28	88	27	23	9.1	1.4	.9	.7
4	.4	.4	10	15	24	110	26	21	6.9	1.6	1.0	.6
5	.5	.5	8.8	14	22	*74	24	20	5.6	1.6	1.0	.5
6	.4	7.0	7.7	13	30	56	26	19	5.2	1.4	1.0	.4
7	.4	15	7.7	24	*39	42	46	18	4.8	1.4	1.1	.3
8	.4	7.4	11	25	43	36	118	17	5.2	2.0	1.2	.2
9	.4	3.8	23	35	40	34	218	16	5.6	2.8	1.1	.2
10	.4	3.1	17	47	34	30	115	13	4.3	2.2	1.0	.2
11	.4	2.5	13	37	35	28	75	13	3.6	2.1	1.0	.2
12	.4	2.4	14	27	34	24	54	13	3.5	2.0	1.0	.2
13	.4	2.4	13	31	32	23	42	13	3.5	1.8	.9	.2
14	.4	2.3	15	34	36	23	37	12	3.6	2.0	.9	.2
15	.4	2.3	14	28	49	24	*57	12	4.5	2.0	1.3	.2
16	.4	2.5	13	23	127	24	73	12	5.4	2.0	2.0	.2
17	.5	2.8	12	22	120	23	56	11	3.3	1.8	*1.5	.2
18	.5	2.5	12	20	76	20	41	9.8	3.0	2.0	1.4	.2
19	.6	2.4	11	20	129	19	34	9.4	2.7	2.0	1.2	.2
20	.5	2.5	10	31	112	19	34	8.3	2.5	2.0	1.1	.1
21	.4	2.5	9.8	63	74	33	46	8.5	2.5	1.8	1.1	.1
22	.2	2.8	9.1	54	53	133	46	8.3	3.9	1.8	1.0	.1
23	.3	4.5	13	38	42	140	40	8.0	4.8	1.8	.9	.1
24	.4	6.3	16	30	36	91	34	7.7	4.1	1.5	.9	.1
25	.5	4.1	14	38	34	63	28	6.3	4.1	1.4	.9	.1
26	.5	3.5	12	46	32	50	25	6.3	2.8	1.4	.9	.1
27	.5	4.5	12	38	30	43	24	5.9	2.3	1.3	.8	.1
28	.4	4.1	12	29	32	38	32	5.6	2.1	1.3	.8	.1
29	.3	12	11	25	40	34	32	6.1	1.8	1.4	.8	.2
30	.2	16	10	22	------	32	31	5.9	1.5	1.5	.9	.4
31	.3	------	9.8	21	-----	30	-----	5.6	------	1.4	1.2	-------
Total	13.3	123.3	367.8	906	1,442	1,481	1,497	387.7	127.8	53.5	33.2	8.5
Mean	0.43	4.11	11.9	29.2	49.7	47.8	49.9	12.5	4.26	1.73	1.07	0.28
Cfsm	0.026	0.246	0.713	1.75	2.98	2.86	2.99	0.749	0.255	0.104	0.064	0.017
In.	0.03	0.27	0.82	2.02	3.21	3.30	3.33	0.86	0.28	0.12	0.07	0.02

Calendar year 1963: Max 144 Min 0.2 Mean 12.3 Cfsm 0.737 In. 9.98
Water year 1963-64: Max 218 Min 0.1 Mean 17.6 Cfsm 1.05 In. 14.33

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-16	2030	2.64	176	3-22	2000	2.59	165
2-19	1700	2.55	156	4- 9	0515	2.98	265
3- 4	0500	2.38	124				

* Discharge measurement made on this day.

1-4885. Marshy Hope Creek near Adamsville, Del.

Location.--Lat 38°51'00", long 75°40'29", on left bank 10 ft upstream from highway bridge 1.5 miles northeast of Adamsville, Kent County, 1.7 miles upstream from Saulsbury Creek, and 5.3 miles northwest of Greenwood.

Drainage area.--44.8 sq mi.

Records available.--April 1943 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 28.21 ft above mean sea level, datum of 1929. Prior to Nov. 24, 1953, wire-weight gage and crest-stage gage at site 10 ft downstream at same datum.

Average discharge.--21 years, 53.8 cfs.

Extremes.--Maximum discharge during year, 618 cfs Feb. 20 (gage height, 8.45 ft); minimum, 1.0 cfs Sept. 9, 10.
1943-64: Maximum discharge, 2,270 cfs Aug. 26, 1958 (gage height, 11.55 ft); minimum, that of Sept. 9, 10, 1964.
Maximum stage known, 14.5 ft in September 1935, from information by local residents.

Remarks.--Records fair.

Rating tables (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Jan. 20, June 15 to Sept. 30)

Oct. 1 to Jan. 22				Jan. 23 to Sept. 30					
2.7	4.2	5.0	72	2.6	1.0	3.2	12	6.0	115
2.8	6.2	6.0	123	2.7	2.0	3.5	20	7.0	225
3.0	10	7.0	225	2.8	3.4	4.0	34	8.0	470
4.0	36			3.0	7.4	5.0	68	9.0	830

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.3	14	40	36	76	66	65	152	9.7	9.5	4.3	2.6
2	7.2	15	26	74	99	91	63	115	10	9.0	4.3	2.0
3	*6.2	14	*22	48	77	186	65	84	11	9.0	4.8	1.7
4	5.8	14	20	38	64	251	63	69	9.5	8.8	5.0	1.7
5	6.0	14	19	32	*58	199	56	58	8.3	8.3	4.1	1.4
6	6.0	17	18	28	89	*129	*54	50	7.6	7.4	3.6	1.3
7	6.0	61	17	78	214	92	118	44	7.2	7.2	3.6	1.3
8	5.8	69	17	106	182	77	220	40	7.4	9.2	3.4	1.3
9	6.0	38	46	102	121	79	320	36	7.2	11	3.3	*1.2
10	6.4	24	41	176	90	77	255	31	6.5	9.7	3.1	1.2
11	6.4	20	29	118	79	66	139	28	5.9	8.6	3.3	1.3
12	6.4	17	26	78	66	57	94	26	5.4	7.9	3.1	1.7
13	6.6	15	26	64	65	52	75	26	5.2	9.2	2.6	3.9
14	7.0	14	27	a130	73	49	67	30	5.2	9.0	2.4	5.6
15	7.0	14	32	a110	109	49	74	28	15	7.9	2.4	4.1
16	7.0	13	26	a 94	278	48	94	25	34	7.4	2.3	3.6
17	7.5	13	23	a 90	408	44	*77	23	22	7.2	2.7	3.4
18	7.7	13	21	a 84	308	42	65	21	16	7.0	2.6	3.3
19	8.1	12	20	a 80	467	38	57	*20	14	7.0	2.6	3.4
20	8.7	12	18	a130	576	37	52	18	14	6.3	*2.3	3.8
21	10	12	17	197	400	53	74	16	16	5.6	2.1	3.6
22	11	12	16	335	242	250	79	16	15	5.9	2.1	3.6
23	12	12	16	312	a129	488	69	14	14	7.2	1.8	3.6
24	12	14	18	199	a 96	440	60	14	13	7.2	1.8	2.8
25	12	14	18	189	a 88	310	52	12	13	7.4	1.6	2.6
26	13	13	18	236	a 77	196	45	12	12	7.2	1.6	2.6
27	14	13	20	153	a 68	133	41	11	11	6.3	1.7	2.6
28	14	12	19	103	a 62	98	43	11	11	6.1	1.9	2.8
29	14	15	18	79	65	82	67	10	10	6.3	2.3	4.1
30	14	40	16	66	------	73	121	9.7	9.7	5.0	2.3	5.4
31	14	------	15	60	------	69	------	9.5	------	4.7	2.6	------
Total	276.1	580	705	3,625	4,726	3,921	2,724	1,059.2	345.8	235.5	87.6	83.5
Mean	8.91	19.3	22.7	117	163	126	90.8	34.2	11.5	7.60	2.83	2.78
Cfsm	0.199	0.431	0.507	2.61	3.64	2.81	2.03	0.763	0.257	0.170	0.063	0.062
In.	0.23	0.48	0.59	3.01	3.92	3.25	2.26	0.88	0.29	0.20	0.07	0.07

Calendar year 1963: Max 933 Min 2.4 Mean 33.4 Cfsm 0.746 In. 10.12
Water year 1963-64: Max 576 Min 1.2 Mean 50.2 Cfsm 1.12 In. 15.25

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-20	0500	8.45	618	3-23	1800	8.16	518

* Discharge measurement made on this day.
a No gage-height record.

1-4890. Faulkner Branch at Federalsburg, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).

Average discharge.--14 years, 9.16 cfs.

Extremes.--Maximum discharge during year, 138 cfs Feb. 19 (gage height, 2.91 ft); no flow all or part of many days in June, July, August and September.
1950-64: Maximum discharge, 672 cfs Sept. 12, 1960 (gage height, 4.73 ft) from rating curve extended above 210 cfs on basis of slope-area measurement at gage height 4.10 ft; no flow at times in 1954, 1955, 1957, 1959, 1960, 1964 (result of pumpage for irrigation).

Remarks.--Records good except those for periods of no gage-height record, which are poor. Diversion for irrigation of about 100 acres above station during some years.

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

1.0	0	1.5	9.8
1.1	.5	1.7	21
1.2	1.6	2.0	44
1.3	3.4	2.5	93
1.4	6.1	3.0	150

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	1.6	9.0	14	16	16	12	12	3.0	0.3	0.8	1.2
2	1.8	2.4	*7.4	13	15	20	12	9.8	3.4	.4	.8	1.0
3	*1.6	2.0	7.4	9.4	13	33	13	9.0	3.4	.2	.8	.8
4	1.6	2.0	7.1	9.0	12	30	11	8.6	3.0	.1	.8	.8
5	1.4	2.2	6.4	7.8	11	*25	10	7.8	2.6	.1	.8	.4
6	1.4	5.5	6.1	7.8	18	20	12	7.1	2.4	.2	.8	0
7	1.4	19	6.1	17	23	18	22	7.1	2.4	0	.8	0
8	1.4	16	8.5	15	18	17	30	6.8	2.4	1.4	1.1	.2
9	1.4	7.8	21	20	15	18	32	6.4	2.2	1.6	1.2	.1
10	1.4	6.1	13	26	14	17	19	5.5	2.2	1.1	.8	0
11	1.4	5.8	10	16	14	14	15	5.0	1.9	1.0	*1.0	0
12	1.4	5.2	11	14	*13	13	14	5.0	1.9	1.0	1.0	0
13	1.3	5.0	9.8	14	14	13	13	5.5	1.9	1.4	.8	1.1
14	1.3	4.7	11	12	16	13	13	6.1	1.9	1.3	.8	1.3
15	1.3	4.4	10	a11	18	13	16	5.2	1.9	1.0	.8	1.1
16	1.3	4.4	9.0	a11	61	12	16	5.0	1.8	1.0	.8	.8
17	1.3	4.2	8.2	a10	31	11	*13	5.0	1.3	.8	.8	1.1
18	1.2	4.2	8.6	a10	25	10	12	*4.2	.7	1.0	1.0	1.1
19	1.2	4.0	7.8	a11	89	9.8	11	4.4	.6	.8	1.0	.8
20	1.2	3.7	7.1	a17	42	9.8	11	4.2	1.4	.8	.8	.8
21	1.3	3.7	6.8	a35	28	17	15	4.0	1.4	.8	.8	.8
22	1.2	3.7	6.8	a23	22	47	13	4.0	1.4	.8	.8	.8
23	1.3	4.2	7.1	a20	20	35	12	4.0	.8	1.0	.8	.7
24	1.3	5.0	8.2	a22	18	22	11	3.4	.9	1.0	.8	.6
25	1.4	4.0	7.4	a28	16	19	9.8	3.4	1.0	1.1	.8	.6
26	1.4	3.7	7.4	a21	16	18	9.0	3.2	.4	1.0	.4	.6
27	1.4	4.4	7.4	a18	15	15	8.6	3.2	.7	.8	0	.7
28	1.3	4.0	6.8	15	14	13	9.4	3.2	.9	1.0	0	.8
29	1.4	8.5	6.4	13	15	13	10	3.2	.5	1.0	0	1.4
30	1.4	15	5.8	13	------	12	12	3.0	.1	1.1	0	7.8
31	1.6	------	5.8	12	------	12	------	3.0	------	1.1	.1	------
Total	43.2	166.4	260.4	485.0	642	555.6	416.8	167.3	50.4	26.2	22.0	27.4
Mean	1.39	5.55	8.40	15.6	22.1	17.9	13.9	5.40	1.68	0.85	0.71	0.91
Cfsm	0.196	0.782	1.18	2.20	3.11	2.52	1.96	0.761	0.237	0.120	0.100	0.128
In.	0.23	0.87	1.36	2.54	3.36	2.91	2.18	0.88	0.26	0.14	0.12	0.14

Calendar year 1963: Max 148 Min 0.7 Mean 6.48 Cfsm 0.913 In. 12.38
Water year 1963-64: Max 89 Min 0 Mean 7.82 Cfsm 1.10 In. 14.99

Peak discharge (base, 60 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-16	1100	2.56	99	2-19	0730	2.91	138

* Discharge measurement made on this day.
a No gage-height record.

1-4900. Chicamacomico River near Salem, Md.

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 1964.

Gage.--Water-stage recorder. Altitude of gage is 10 ft (from topographic map).

Average discharge.--13 years, 17.6 cfs.

Extremes.--1963-64: Maximum discharge during year, 176 cfs Feb. 16 (gage height, 3.28 ft); minimum, 0.4 cfs May 23, result of regulation; minimum daily, 0.6 cfs May 23, 24.
1951-64: Maximum discharge, 470 cfs Jan. 1, 1961 (gage height, 4.40 ft); minimum, that of May 23, 1964; minimum daily, that of May 23, 24, 1964.

Remarks.--Records fair. Occasional regulation by Big Mill Pond.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 18-29, Dec. 3-8, 12, 13, Apr. 13, 14, July 4, Aug. 3, 23, Sept. 21-26)

0	0.4	1.3	14
.1	.7	1.6	20
.2	1.2	1.9	29
.4	2.6	2.2	43
.7	5.2	2.5	65
1.0	8.8	3.0	130

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.2	a 6.4	20	a 16	26	37	22	27	6.3	3.7	4.3	4.1
2	4.6	a 6.4	16	a 19	28	44	21	22	8.2	3.5	4.2	2.9
3	4.6	a 6.6	14	a 18	23	63	23	20	9.4	3.4	4.2	2.9
4	4.1	a 8.8	14	a 18	21	67	19	19	8.5	3.3	5.4	2.9
5	3.4	a 7.4	13	a 17	20	* 51	19	17	6.9	3.2	5.6	* 2.8
6	3.5	a 7.0	12	a 17	25	41	20	16	6.3	3.1	5.4	2.0
7	3.6	a 7.0	11	a 21	45	31	32	15	6.3	3.0	4.7	2.0
8	* 3.7	a 8.0	12	a 22	40	28	50	15	6.3	10	5.0	2.1
9	3.6	a 30	21	a 31	34	28	* 78	14	6.1	14	5.2	2.1
10	3.7	a 25	19	a 40	29	28	63	13	5.9	6.8	4.0	2.0
11	4.2	a 16	16	a 35	28	24	44	11	5.1	5.2	4.7	2.2
12	4.2	a 10	14	a 30	24	22	36	11	4.6	4.8	5.6	2.2
13	4.0	a 7.0	14	a 28	26	21	31	12	4.9	16	5.1	5.0
14	4.2	a 6.0	36	a 26	29	21	* 29	13	5.1	22	3.6	7.3
15	4.3	a 5.2	24	a 24	38	23	35	11	5.4	9.6	3.2	5.7
16	4.2	a 5.0	17	a 22	128	23	25	11	6.0	5.9	3.2	4.4
17	4.4	a 5.0	15	a 20	100	21	27	11	4.6	4.7	3.4	3.5
18	4.5	*a 5.4	14	a 18	56	20	24	10	4.3	4.2	3.4	3.4
19	4.7	6.3	14	a 18	116	18	20	* 9.4	4.5	4.1	3.1	3.0
20	5.0	6.7	13	a 25	96	18	21	9.1	7.3	4.0	2.8	3.0
21	5.2	7.2	13	a 45	59	27	31	8.2	20	4.0	2.8	2.9
22	5.5	7.4	13	a 50	44	102	30	5.2	8.8	4.4	2.8	2.8
23	5.7	8.7	14	a 29	36	87	26	.6	6.1	20	2.7	2.7
24	6.1	14	17	a 25	32	50	22	.6	8.5	13	2.5	2.6
25	6.0	12	16	a 30	29	36	20	.7	9.8	8.0	2.4	2.5
26	6.2	9.8	16	a 33	27	33	19	.7	5.8	* 7.4	2.7	2.5
27	6.2	11	16	*a 32	26	30	18	.7	4.8	7.3	2.5	2.5
28	a 6.7	12	15	27	26	30	20	1.6	4.4	7.4	2.4	2.8
29	a 6.2	13	15	23	36	29	27	4.6	4.0	6.6	2.7	8.1
30	a 6.2	23	13	21	---	23	29	5.6	3.9	5.2	2.9	30
31	a 6.4	---	a 13	21	---	22	---	6.0	---	4.4	3.5	---
Total	151.1	303.3	490	801	1,247	1,098	881	321.0	198.1	222.2	116.0	124.9
Mean	4.87	10.1	15.8	25.8	43.0	35.4	29.4	10.4	6.60	7.17	3.74	4.16
Cfsm	0.325	0.673	1.05	1.72	2.87	2.36	1.96	0.693	0.440	0.478	0.249	0.277
In.	0.37	0.75	1.21	1.99	3.09	2.72	2.18	0.80	0.49	0.55	0.29	0.31

Calendar year 1963: Max 149 Min 1.0 Mean 12.7 Cfsm 0.847 In. 11.47
Water year 1963-64: Max 128 Min .6 Mean 16.3 Cfsm 1.09 In. 14.75

* Discharge measurement made on this day.
a No gage-height record.

1-4910. Choptank River near Greensboro, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5 ft (from topographic map).

Average discharge.--16 years, 128 cfs.

Extremes.--Maximum discharge during year, 1,890 cfs Feb. 20 (gage height, 8.47 ft); minimum, 6.1 cfs Sept. 10, 11 (gage height, 1.77 ft).
1948-64: Maximum discharge, 5,040 cfs Sept. 13, 1960 (gage height, 12.45 ft, from high-water mark in well); minimum, 5.2 cfs Sept. 3-7, 1957 (gage height, 1.74 ft).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Slight diurnal fluctuation at low flow caused by mill above station.

Rating table, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3, 4)

1.7	4.0	3.0	237
1.8	7.2	4.0	413
1.9	13	6.0	830
2.2	58	8.0	1,610
2.5	125	10.0	2,960

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*23	*12	156	59	*165	172	165	615	19	12	13	8.8
2	20	17	87	193	225	207	152	492	23	12	13	8.8
3	16	14	56	251	227	283	152	332	*27	12	*14	13
4	16	12	53	158	184	408	168	*250	24	12	16	9.2
5	14	10	60	89	155	364	155	205	24	12	14	8.4
6	14	16	82	108	155	271	145	160	20	12	13	7.2
7	14	122	76	168	290	203	271	135	19	12	12	7.2
8	14	323	72	288	393	175	569	120	20	17	11	7.6
9	13	366	115	359	266	177	740	105	20	34	11	6.8
10	13	190	154	577	203	190	643	93	19	27	10	6.8
11	13	96	173	526	175	179	391	78	17	21	11	6.4
12	12	50	116	242	b 162	152	260	70	14	19	10	6.8
13	12	44	70	142	b 150	140	207	66	16	23	9.2	8.4
14	12	42	68	a 135	158	132	*197	76	17	28	8.8	16
15	12	42	138	a 140	188	130	203	78	17	23	9.2	11
16	12	40	145	a 135	398	135	246	68	26	21	11	10
17	*12	40	b 95	a 130	808	128	242	62	23	19	10	9.2
18	12	52	60	a 125	*595	120	199	58	20	17	10	9.2
19	12	64	b 60	a 120	890	110	170	50	19	19	13	9.2
20	13	50	b 62	a 110	*1,670	105	158	*45	24	16	12	12
21	14	42	b 58	a 200	944	115	186	42	20	14	11	12
22	14	40	b 54	a 540	530	380	346	39	17	14	10	12
23	16	42	53	585	339	944	322	32	39	16	9.2	9.2
24	12	55	58	462	244	980	239	27	42	16	9.2	8.8
25	12	50	58	409	209	712	197	27	26	16	8.8	8.0
26	12	45	58	563	201	513	168	24	20	17	8.4	7.2
27	12	*44	62	501	188	379	145	21	17	16	8.4	7.2
28	12	42	64	304	168	288	140	20	16	14	8.4	8.4
29	12	50	55	221	160	221	172	20	13	16	8.8	19
30	12	138	*42	182	------	*203	363	20	13	19	10	52
31	11	------	b 40	160	------	*184	------	20	------	19	*8.8	------
Total	418	2,150	2,500	8,182	10,440	8,700	7,711	3,450	631	545	332.2	325.8
Mean	13.5	71.7	80.6	264	360	281	257	111	21.0	17.6	10.7	10.9
Cfsm	0.119	0.635	0.713	2.34	3.19	2.49	2.27	0.982	0.186	0.156	0.095	0.096
In.	0.14	0.71	0.82	2.69	3.44	2.86	2.54	1.14	0.21	0.18	0.11	0.11

Calendar year 1963: Max 1,670 Min 6.2 Mean 79.7 Cfsm 0.705 In. 9.59
Water year 1963-64: Max 1,670 Min 6.4 Mean 124 Cfsm 1.10 In. 14.95

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-20	0800	8.47	1,890	3-23	2100	6.79	1,080

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

1-4920. Beaverdam Branch at Matthews, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map).

Average discharge.--14 years, 6.91 cfs.

Extremes.--Maximum discharge during year, 116 cfs Feb. 19 (gage height, 2.70 ft); no flow for all or part of each day Sept. 3-12, 24-27.
1950-64: Maximum discharge, 2,200 cfs Sept. 12, 1960 (gage height, 10.24 ft, from high-water mark in gage shelter) from rating curve extended above 440 cfs on basis of contracted-opening measurement at gage height 7.15 ft; no flow at times during 1950, 1951, 1957, 1962, 1963 and 1964.

Remarks.--Records fair.

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

1.0	0	1.4	5.0
1.05	.1	1.5	9.0
1.1	.3	1.6	15
1.2	1.1	2.0	57
1.3	2.4	3.0	147

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	0.5	4.6	32	21	14	11	16	0.4	0.3	0.2	0.2
2	.4	.8	*2.8	19	11	20	11	9.6	.8	.3	.2	.1
3	*.3	.4	2.8	6.6	7.8	56	11	7.4	.9	.3	.3	0
4	.3	.3	2.6	5.8	6.6	27	7.4	6.2	.7	.3	.3	0
5	.4	.3	2.3	4.4	6.6	*16	6.2	5.4	.5	.2	.2	0
6	.4	6.6	2.1	4.0	26	10	13	4.4	.4	.2	.2	0
7	.4	60	2.1	39	23	8.2	50	3.8	.4	.2	.1	0
8	.4	14	7.1	10	11	9.6	44	3.5	.4	1.7	.3	0
9	.4	4.0	26	45	9.0	12	27	2.6	.4	1.2	.4	*0
10	.4	2.3	5.8	25	8.2	9.6	10	2.1	.4	.4	.3	0
11	.4	1.8	4.0	7.8	7.4	7.4	8.2	1.8	.3	.3	*.2	0
12	.4	1.6	4.4	5.8	8.2	6.6	7.0	1.7	.3	.2	.2	0
13	.4	1.3	4.4	4.4	8.2	6.2	6.6	2.1	.4	4.1	.2	.3
14	.4	1.3	6.6	b 4.0	15	6.6	8.2	3.0	.3	.9	.1	.3
15	.4	1.2	5.0	b 4.0	14	8.6	11	2.1	.3	.4	.2	.1
16	.4	1.1	3.0	b 4.4	82	7.4	10	2.0	.9	.3	.2	.1
17	.4	1.1	2.4	b 4.6	25	6.6	*7.0	1.8	.3	.3	.3	.1
18	.4	1.2	2.4	5.0	20	5.4	5.8	*1.6	.3	.2	.2	.1
19	.4	1.3	2.4	5.4	93	5.0	6.6	1.2	.3	.2	.2	.1
20	.4	1.3	b 2.0	28	46	5.0	9.6	1.0	.3	.2	.1	.1
21	.4	1.3	b 1.8	62	19	35	17	.8	.3	.2	.1	.1
22	.4	1.3	1.8	25	13	83	9.0	.9	.2	.2	.1	.1
23	.4	2.9	2.1	13	10	43	7.4	.8	.3	.2	.1	.1
24	.4	5.8	4.4	11	9.6	14	6.2	.7	.3	.3	.1	0
25	.4	2.3	4.4	38	9.0	11	5.0	.5	.3	.3	.1	0
26	.4	1.8	4.6	20	9.0	12	4.4	.4	.2	.3	.1	0
27	.4	1.7	5.4	10	8.2	10	4.4	.4	.2	.2	.1	0
28	.3	1.6	4.4	8.2	8.2	7.8	7.4	.4	.2	.3	.1	.1
29	.4	9.4	3.2	6.6	9.6	7.8	13	.4	.2	.2	.3	1.3
30	.4	19	2.3	6.6	------	8.2	60	.4	.3	.1	.3	6.6
31	.4	------	1.8	6.2	------	8.2	------	.4	------	.2	.2	------
Total	12.4	149.5	131.0	470.8	544.6	487.2	404.4	85.4	11.5	14.7	6.0	9.8
Mean	0.40	4.98	4.23	15.2	18.8	15.7	13.5	2.75	0.38	0.47	0.19	0.33
Cfsm	0.068	0.851	0.723	2.60	3.21	2.68	2.31	0.470	0.065	0.080	0.032	0.056
In.	0.08	0.95	0.83	2.99	3.46	3.10	2.57	0.54	0.07	0.09	0.04	0.06

Calendar year 1963: Max 172 Min 0.1 Mean 4.65 Cfsm 0.795 In. 10.78
Water year 1963-64: Max 93 Min 0 Mean 6.36 Cfsm 1.09 In. 14.78

Peak discharge (base, 120 cfs).--No peak above base.

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

1-4930. Unicorn Branch near Millington, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).

Average discharge.--16 years, 24.6 cfs.

Extremes.--Maximum discharge during year, 226 cfs Feb. 19 (gage height, 3.76 ft); minimum, 4.4 cfs Sept. 25; minimum daily, 5.2 cfs Sept. 25, 26.
1948-64: Maximum discharge, 1,060 cfs Sept. 12, 1960 (gage height, 7.17 ft); minimum daily, 0.3 cfs Oct. 11, 1963, caused by installation of new floodgates at Unicorn Lake dam.

Remarks.--Records good. Occasional regulation at low flow by fish hatchery above station.

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

1.8	4.4	2.4	51
1.9	8.4	2.7	71
2.0	14	3.0	100
2.2	33	3.5	174

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	6.8	19	18	30	35	29	138	12	9.0	8.0	6.4
2	*8.0	8.0	13	71	33	40	29	75	13	9.0	8.0	6.4
3	8.0	7.2	13	30	27	46	33	56	13	9.0	9.0	6.4
4	7.6	6.8	*12	26	24	50	33	45	12	9.5	9.0	*6.0
5	7.2	6.8	12	23	24	*42	29	37	12	9.5	8.0	5.6
6	7.2	12	11	21	28	36	34	31	12	9.0	7.6	5.6
7	7.2	75	11	35	49	31	66	28	12	9.0	7.6	5.6
8	7.2	71	12	62	35	30	114	27	11	14	7.6	5.6
9	7.2	33	35	42	28	32	138	24	11	14	7.6	5.6
10	7.2	17	24	105	26	32	72	22	11	11	7.2	5.6
11	7.2	13	16	63	25	29	54	21	11	9.5	7.6	5.6
12	6.8	12	15	35	24	28	42	20	10	9.0	7.6	5.6
13	6.8	12	15	b 36	25	28	36	21	10	11	7.2	7.2
14	6.8	11	16	b 82	28	27	37	24	10	10	8.0	6.8
15	6.8	11	17	a 53	32	28	*45	21	11	9.0	7.6	6.4
16	6.8	11	14	a 30	73	28	53	20	15	8.4	8.0	6.4
17	6.8	10	12	a 19	100	26	38	19	11	8.4	9.0	6.4
18	6.8	10	12	a 14	57	25	31	*18	11	8.4	9.0	6.0
19	6.8	9.5	12	13	140	24	29	16	11	8.0	9.5	6.4
20	6.8	9.5	b 11	27	171	23	35	15	11	8.0	8.4	6.8
21	6.8	9.5	b 11	*59	93	29	82	15	11	*8.0	8.0	6.4
22	7.2	9.5	b 11	90	64	83	78	15	11	8.4	7.6	6.4
23	7.2	11	11	67	49	154	61	14	11	9.0	7.2	6.0
24	7.2	13	12	54	42	160	46	13	11	8.4	6.8	5.6
25	7.2	11	12	64	37	110	37	13	11	8.4	8.0	5.2
26	7.2	10	12	102	34	75	31	13	10	8.4	7.2	5.2
27	7.2	10	12	61	33	61	28	12	10	7.6	6.4	5.6
28	6.8	10	12	42	31	46	38	12	10	8.0	6.4	6.8
29	6.8	13	12	31	33	38	54	13	9.5	9.0	6.8	10
30	6.4	24	11	27	------	33	112	12	9.0	13	7.2	41
31	6.0	------	b 11	25	------	32	------	12	------	9.0	6.8	------
Total	220.2	473.6	429	1,427	1,395	1,461	1,544	822	333.5	289.9	239.9	220.6
Mean	7.10	15.8	13.8	46.0	48.1	47.1	51.5	26.5	11.1	9.35	7.74	7.35
Cfsm	0.318	0.709	0.619	2.06	2.16	2.11	2.31	1.19	0.498	0.419	0.347	0.330
In.	0.37	0.79	0.72	2.38	2.33	2.44	2.57	1.37	0.56	0.48	0.40	0.37

Calendar year 1963: Max 150 Min 4.8 Mean 15.8 Cfsm 0.709 In. 9.60
Water year 1963-64: Max 171 Min 5.2 Mean 24.2 Cfsm 1.09 In. 14.78

Peak discharge (base, 180 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-19	1900	3.76	226	3-24	0700	3.57	189
4-30	2245	3.66	199				

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

1-4935. Morgan Creek near Kennedyville, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (from topographic map).

Average discharge.--13 years, 9.98 cfs.

Extremes.--Maximum discharge during year, 160 cfs Jan. 10 (gage height, 4.37 ft); minimum, 2.3 cfs Sept. 5, 6, 7, 8.
1951-64: Maximum discharge, 1,530 cfs Sept. 12, 1960 (gage height, 8.88 ft), from rating curve extended above 440 cfs by logarithmic plotting; minimum, 1.3 cfs Aug. 2, 7, 17, 1957.

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

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

1.2	1.4	1.7	22
1.3	2.8	2.0	34
1.4	5.0	3.0	66
1.5	9.5	4.0	125

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	4.0	8.5	3.8	9.0	9.5	7.5	27	4.8	3.8	3.2	3.0
2	*3.2	7.5	4.5	50	8.0	10	8.0	13	5.3	3.8	3.2	2.8
3	3.2	4.0	4.5	54	6.0	13	11	9.5	5.6	3.8	3.4	2.6
4	3.2	3.2	*4.5	35	5.6	12	9.0	9.0	7.0	4.2	4.2	*2.6
5	3.0	3.4	4.2	16	6.5	*10	7.5	8.0	5.0	4.2	3.6	2.4
6	3.0	10	4.0	9.0	9.0	7.5	12	7.5	4.8	4.0	3.4	2.3
7	3.0	61	4.0	23	12	7.0	21	7.0	5.3	3.8	3.2	2.3
8	3.0	40	7.5	49	7.5	7.5	25	7.0	5.3	9.0	3.2	2.3
9	3.0	15	35	22	6.0	8.5	24	7.0	5.6	9.0	3.2	2.4
10	3.0	5.0	10	97	6.0	8.0	10	6.0	5.0	4.5	3.0	2.4
11	3.0	4.2	4.5	34	4.5	6.0	8.5	5.6	4.2	4.0	*3.0	2.4
12	3.0	4.0	4.8	9.5	8.0	6.0	8.0	5.6	4.0	3.6	3.2	2.4
13	3.0	3.8	5.0	5.3	7.0	6.5	8.0	6.5	4.5	5.0	3.0	3.2
14	3.0	3.8	6.0	4.0	9.0	7.0	11	8.0	4.5	5.0	2.8	3.6
15	3.0	3.6	5.0	7.0	8.5	8.5	11	5.6	4.5	4.0	2.8	3.0
16	2.8	3.6	3.6	a7.0	24	7.5	*8.0	5.6	5.0	3.6	2.8	2.8
17	2.8	3.6	3.4	a6.6	18	6.5	7.0	5.3	4.2	3.6	3.8	2.6
18	2.8	3.6	3.4	a6.2	11	6.0	7.0	*5.0	4.2	3.6	3.6	2.6
19	2.8	3.6	3.6	a6.0	43	5.3	7.5	5.0	4.2	3.6	3.4	2.8
20	2.8	3.6	3.4	a8.0	36	5.6	11	4.8	4.5	3.4	3.2	3.2
21	2.8	3.4	3.0	*a34	16	11	32	4.5	4.2	3.2	3.0	3.2
22	2.8	3.4	3.2	43	8.5	29	17	4.8	4.0	3.4	2.8	3.0
23	3.0	4.8	b4.5	22	6.5	39	10	4.8	4.2	3.8	2.8	3.0
24	3.0	9.5	b9.0	13	7.5	39	8.0	4.8	4.8	3.8	2.8	2.8
25	3.0	4.2	b8.0	33	7.0	20	7.5	4.5	5.0	3.8	5.3	2.4
26	3.0	3.8	b6.0	35	8.0	12	7.5	4.2	4.2	4.0	6.5	2.4
27	3.0	3.8	b5.4	12	8.0	9.5	7.0	4.2	4.2	3.8	3.4	2.4
28	3.0	3.8	4.8	8.0	7.5	8.0	10	4.2	4.0	3.6	3.0	4.8
29	2.8	12	4.2	5.6	9.5	8.5	13	4.2	3.8	3.8	3.0	8.5
30	2.8	27	3.8	6.0	---	8.0	35	4.5	3.8	15	3.0	37
31	2.8	---	3.4	5.6	---	8.0	---	4.5	---	3.8	3.2	---
Total	92.4	266.2	184.7	669.6	323.1	349.9	369.0	207.2	139.7	141.5	104.0	123.2
Mean	2.98	8.87	5.96	21.6	11.1	11.3	12.3	6.68	4.66	4.56	3.35	4.11
Cfsm	0.284	0.845	0.568	2.06	1.06	1.08	1.17	0.636	0.444	0.434	0.319	0.391
In.	0.33	0.94	0.65	2.37	1.14	1.24	1.31	0.73	0.49	0.50	0.37	0.44

Calendar year 1963: Max 161 Min 1.7 Mean 7.85 Cfsm 0.748 In. 10.14
Water year 1963-64: Max 97 Min 2.3 Mean 8.12 Cfsm 0.773 In. 10.51

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

a No gage-height record.
b Stage-discharge relation affected by ice.

1-4950. Big Elk Creek at Elk Mills, Md.

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 1964. Monthly discharge only for some periods, published in WSP 1302.

Gage.--Water-stage recorder (digital). Datum of gage is 68.5 ft above mean sea level, datum of 1929. Prior to Oct. 7, 1939, wire-weight gage and Oct. 7, 1939, to May 16, 1946, wire-weight gage and crest-stage gage at bridge 100 ft upstream at same datum.

Average discharge.--32 years, 69.0 cfs.

Extremes.--Maximum discharge during year, 3,030 cfs Jan. 9 (gage height, 7.53 ft); minimum, 8.2 cfs Sept. 25, 26; minimum daily, 8.6 cfs Sept. 26.
1932-64: 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; minimum, 4.5 cfs Jan. 21, 1955 (result of freezeup); minimum daily, 6.0 cfs Aug. 12, Sept. 3, 1963; minimum gage height observed, 2.09 ft Sept. 19, 22-24, 1932.
Maximum stage known, about 19 ft in June 1884, from information by local residents.

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

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

2.3	6.5	3.0	83
2.4	10	3.5	210
2.5	15	4.0	380
2.6	24	5.0	890
2.8	47	6.0	1,650

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	14	14	58	b 20	48	b 38	53	195	36	18	*17	14
2	12	29	36	b 45	47	57	54	121	38	17	18	12
3	12	17	32	b 32	41	98	76	97	38	20	32	*10
4	12	12	29	b 36	*b 38	*146	67	87	37	89	38	11
5	* 10	12	26	b 40	39	262	55	79	34	27	22	10
6	10	34	24	b 35	156	96	76	73	33	22	19	9.5
7	11	373	23	b 140	122	71	138	70	35	20	17	9.4
8	11	68	26	b 70	55	65	209	66	39	71	16	9.7
9	11	36	114	892	43	65	160	63	37	84	15	9.8
10	10	27	42	190	41	62	89	59	33	33	16	9.5
11	11	22	32	b 74	b 40	54	76	56	30	26	17	9.5
12	11	20	32	b 52	b 39	56	69	55	28	23	17	9.4
13	11	19	30	b 40	b 39	62	*65	59	29	53	14	11
14	11	17	31	b 30	b 40	65	81	67	29	46	13	11
15	11	17	24	b 37	b 39	69	126	56	27	48	14	9.9
16	11	16	b 21	b 43	72	59	80	54	27	30	14	9.4
17	11	16	b 20	b 46	54	52	68	52	25	26	41	9.3
18	11	16	b 19	b 37	b 42	49	62	49	24	24	23	9.3
19	10	15	b 18	b 35	b 52	46	61	46	26	23	15	10
20	11	15	b 17	b 110	b 45	46	88	45	34	22	14	12
21	11	16	b 19	b 350	b 40	56	147	*43	27	22	14	12
22	11	15	b 21	150	b 37	111	103	43	24	22	14	11
23	11	24	b 23	88	b 35	151	82	43	24	21	15	10
24	12	62	b 25	68	b 34	136	71	41	28	21	13	9.8
25	11	26	b 23	404	b 33	114	64	39	49	23	13	8.7
26	12	21	b 21	139	b 35	82	61	37	25	23	12	8.6
27	12	20	b 19	75	b 37	74	59	37	23	22	12	9.1
28	12	19	b 18	62	b 35	61	107	36	21	21	13	13
29	12	100	b 17	b 50	b 36	59	149	35	19	20	13	104
30	10	201	b 16	b 47	------	57	416	35	19	28	14	46
31	* 9.4	------	b 15	b 45	------	53	------	35	------	19	14	------
TOTAL	345.4	1,299	871	3,482	1,414	2,472	3,012	1,873	898	964	539	437.9
MEAN	11.1	43.3	28.1	112	48.8	79.7	100	60.4	29.9	31.1	17.4	14.6
CFSM	.211	.823	.534	2.13	.928	1.52	1.90	1.15	.568	.591	.331	.278
IN	.24	.92	.62	2.46	1.00	1.75	2.13	1.32	.63	.68	.38	.31

CALENDAR YEAR 1963 MAX 765 MIN 6.0 MEAN 40.2 CFSM .764 INCHES 10.39
WATER YEAR 1963-64 MAX 892 MIN 8.6 MEAN 48.1 CFSM .914 INCHES 12.45

Peak discharge (base,1,700 cfs)

Date	Time	Gage height	Discharge
1-9	1630	7.53	3,030

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

1-4960. Northeast Creek at Leslie, Md.

Location.--Lat 39°37'40", long 75°56'40", on left bank at downstream side of highway bridge, 0.7 mile northeast of Leslie, Cecil County, 1.5 miles southeast of Bay View, and 1.7 miles upstream from confluence with Little Northeast Creek.

Drainage area.--24.3 sq mi.

Records available.--October 1948 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 115.0 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 33.8 cfs.

Extremes.--Maximum discharge during year, 1,020 cfs Jan. 9 (gage height, 4.23 ft); minimum, 2.0 cfs Sept. 25-28; minimum daily, 2.0 cfs Sept. 26, 27.
1948-64: Maximum discharge, 3,220 cfs July 27, 1958 (gage height, 6.92 ft), from rating curve extended above 640 cfs on basis of slope-area measurement at gage height 5.06 ft; minimum, 1.4 cfs Mar. 3, 1950, result of freezeup; minimum daily, 1.8 cfs Sept. 6, 1957.

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

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

1.4	1.7	2.1	48
1.5	3.3	2.3	87
1.6	6.0	2.5	142
1.7	11	3.0	340
1.9	26		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	6.0	30	b 9.0	22	24	22	189	12	5.4	*6.2	4.0
2	4.8	12	17	b 25	24	38	22	57	13	5.1	6.0	*3.4
3	5.4	8.8	15	b 18	20	103	33	37	13	5.4	7.0	3.2
4	6.8	5.2	14	b 21	b 17	141	28	32	14	60	9.1	3.0
5	*4.8	4.8	12	b 25	18	174	23	28	11	13	7.3	3.0
6	4.0	16	12	b 21	80	48	33	26	11	7.8	6.3	2.8
7	3.9	218	11	b 70	102	30	81	25	12	6.7	5.8	2.6
8	3.8	36	15	*46	31	28	157	24	12	17	5.7	2.6
9	3.9	16	80	321	25	30	110	22	12	26	5.4	2.7
10	3.9	11	24	283	23	28	37	21	11	12	4.9	2.8
11	4.2	9.5	16	31	22	23	29	19	9.4	8.5	5.6	2.6
12	3.9	8.2	15	b 24	b 21	23	26	19	8.2	7.4	5.9	2.4
13	3.9	7.6	15	b 20	b 21	28	*25	21	8.8	27	5.8	2.5
14	3.9	7.1	16	b 17	23	29	33	26	9.4	29	5.0	2.5
15	4.2	7.3	b 13	b 20	24	32	82	20	8.8	27	4.8	2.5
16	4.2	7.0	b 11	b 25	49	27	37	19	8.2	14	4.8	2.4
17	4.2	7.1	b 9.6	b 27	40	24	28	18	7.2	9.6	5.2	2.2
18	4.2	6.6	b 8.6	b 25	28	22	25	17	7.2	8.4	6.5	2.3
19	4.2	6.1	b 8.0	b 23	29	20	24	16	7.7	7.8	9.2	2.3
20	4.2	5.9	b 7.6	b 40	29	20	38	15	12	7.5	5.5	2.7
21	4.2	5.9	b 8.0	b 200	25	24	86	*14	8.9	7.0	4.6	2.9
22	3.9	6.1	b 8.6	105	b 22	63	51	14	7.3	6.8	4.3	2.8
23	3.9	12	b 9.6	45	b 22	122	35	14	7.1	6.9	4.1	2.6
24	4.5	33	b 11	35	b 23	81	29	14	8.6	6.8	4.7	2.4
25	4.5	14	b 10	262	b 21	44	25	13	9.4	7.3	4.1	2.2
26	4.5	10	b 9.2	145	b 20	33	24	12	7.2	7.7	3.8	2.0
27	4.5	9.7	b 8.8	35	23	30	23	12	6.6	7.4	3.4	2.0
28	4.5	8.6	b 8.2	28	22	25	54	12	6.1	6.9	3.2	2.6
29	4.5	73	b 7.8	22	22	24	57	12	5.6	7.2	3.3	14
30	4.5	134	b 7.6	22	------	23	303	11	5.6	8.5	3.5	16
31	4.8	------	b 7.4	21	------	22	------	12	------	6.9	3.9	------
Total	137.5	712.5	446.0	2,011.0	848	1,383	1,580	791	280.3	384.0	164.9	104.0
Mean	4.44	23.8	14.4	64.9	29.2	44.6	52.7	25.5	9.34	12.4	5.32	3.47
Cfsm	0.183	0.979	0.593	2.67	1.20	1.84	2.17	1.05	0.384	0.510	0.219	0.143
In.	0.21	1.09	0.68	3.08	1.30	2.12	2.42	1.21	0.43	0.59	0.25	0.16

Calendar year 1963: Max 382 Min 2.5 Mean 20.7 Cfsm 0.852 In. 11.58
Water year 1963-64: Max 321 Min 2.0 Mean 24.2 Cfsm 0.996 In. 13.53

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge
1-9	2315	4.23	1,020

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

1-5800. Deer Creek at Rocks, Md.

Location.--Lat 39°37'49", long 76°24'13", on right bank a quarter of a mile downstream from Maryland & 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 1964. Monthly discharge only for November and December 1926, published in WSP 1302.

Gage.--Water-stage recorder (digital). Concrete control since Sept. 7, 1938. Datum of gage is 250.40 ft above mean sea level (city of Baltimore bench mark).

Average discharge.--38 years, 121 cfs.

Extremes.--Maximum discharge during year, 2,610 cfs Jan. 9 (gage height, 7.59 ft); minimum, 18 cfs Oct. 15, 19, 22-23, 29-30 (gage height, 1.74 ft).
1926-64: 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; 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.--Records good except those for periods of ice effect, which are fair. Some regulation at low flow by mills above station.

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

1.7	16	3.0	225
1.9	28	3.5	404
2.2	60	4.0	650
2.6	127	5.0	1,180

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	36	30	99	71	89	75	* 118	262	85	51	51	39
2	30	38	69	97	88	85	118	206	87	50	51	34
3	29	32	61	84	81	180	149	184	83	112	59	31
4	* 28	30	55	101	77	260	119	171	81	251	68	30
5	26	* 26	52	101	75	603	110	161	78	88	53	30
6	26	60	49	87	212	267	132	152	79	63	53	28
7	28	322	47	216	174	185	156	148	84	58	49	28
8	24	100	53	133	119	160	201	144	104	280	49	29
9	27	59	144	950	98	155	182	140	85	122	46	28
10	26	47	73	296	92	146	146	133	79	78	45	28
11	25	43	61	140	b 86	131	134	128	73	67	49	28
12	23	39	* 60	b 120	b 94	125	126	* 125	71	62	51	29
13	24	38	56	b 100	90	128	122	143	73	150	46	32
14	29	35	54	b 200	86	129	214	162	72	80	44	31
15	24	35	54	b 170	83	136	196	129	69	165	42	30
16	24	34	b 52	b 160	98	117	154	123	67	75	42	28
17	26	34	b 50	b 150	92	110	142	118	64	67	43	29
18	27	34	47	137	86	104	134	113	63	62	42	27
19	21	33	43	138	90	99	131	109	69	59	43	29
20	25	33	39	158	b 86	98	153	105	74	58	40	36
21	28	33	41	483	b 80	109	287	102	65	57	40	34
22	28	32	41	380	b 74	148	212	101	62	57	39	32
23	23	64	46	184	b 70	192	182	99	* 62	56	37	31
24	24	117	57	137	b 70	206	163	96	80	55	36	30
25	24	54	61	439	*b 70	200	150	92	66	56	36	27
26	25	46	57	214	b 74	170	143	90	61	57	35	27
27	26	46	54	146	80	146	137	90	57	57	34	27
28	28	42	51	124	75	132	152	87	54	54	34	35
29	23	114	43	103	79	126	167	86	52	55	36	105
30	24	213	47	96	------	125	387	85	52	96	36	65
31	24	------	50	89	------	121	------	84	------	55	56	------
TOTAL	805	1,863	1,766	6,004	2,668	4,968	4,917	3,968	2,151	2,653	1,387	1,017
MEAN	26.0	62.1	57.0	194	92.0	160	164	128	71.7	85.6	44.7	33.9
CFSM	.275	.658	.604	2.06	.975	1.69	1.74	1.36	.760	.907	.474	.359
IN	.32	.73	.70	2.37	1.05	1.96	1.94	1.56	.85	1.05	.55	.40

CALENDAR YEAR 1963 MAX 1,100 MIN 16 MEAN 69.2 CFSM .733 INCHES 9.94
WATER YEAR 1963-64 MAX 950 MIN 21 MEAN 93.4 CFSM .989 INCHES 13.46

Peak discharge (base, 1,900 cfs)

Date	Time	Gage height	Discharge
1-9	1600	7.59	2,610

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

1-5815. Bynum Run at Bel Air, Md.

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 available.--June 1944 to April 1951, July 1955 to September 1964. October 1950 to September 1955 at site 0.5 mile upstream, published as "near Bel Air"; records not equivalent.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 251.94 ft above mean sea level (Maryland State Roads Commission bench mark).

Average discharge.--15 years (1944-50, 1955-64), 10.6 cfs.

Extremes.--Maximum discharge during year, 772 cfs. Jan. 9 (gage height, 4.35 ft); minimum, 0.5 cfs Sept. 25, 26 (gage height, 0.81).
1944-51, 1955-64: 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; minimum, 0.2 cfs Sept. 5, 1957, Sept. 2, 3, 10-15, 1963.

Remarks.--Records good except those for periods of ice effect or doubtful or no gage-height record, which are fair. Prior to April 1955, small diversion above station for municipal supply of Bel Air; no diversion since April 1955, when pumping plant was put on standby basis.

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

0.8	0.4	1.5	28
.9	1.5	1.7	46
1.0	3.3	2.0	93
1.1	6.1	2.5	185
1.2	9.8	3.0	305
1.3	15		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.4	2.2	7.0	b7.0	7.7	8.5	*7.7	45	a3.4	1.8	1.8	1.2
2	1.1	3.9	4.6	14	7.1	20	10	16	a3.5	1.9	1.9	1.0
3	3.3	1.5	4.1	9.8	5.6	80	15	13	a3.4	35	3.6	1.0
4	*2.2	1.1	3.6	14	5.3	61	8.8	12	a3.3	66	2.9	.80
5	1.1	*1.1	3.2	12	5.6	64	7.5	10	3.3	5.2	2.1	.80
6	1.0	39	3.0	16	40	16	19	9.1	3.4	2.8	2.0	.70
7	.80	87	2.9	53	16	12	24	8.6	3.6	2.3	2.0	.60
8	.80	7.8	12	13	9.6	11	50	8.1	6.2	57	2.0	.70
9	.80	3.7	23	212	7.2	12	20	7.6	3.7	10	1.6	.70
10	.80	2.7	6.2	25	b6.5	9.8	12	6.9	3.3	4.5	1.7	.70
11	.70	2.2	4.4	b9.0	b6.0	7.7	9.6	6.7	2.8	3.3	1.8	.70
12	.70	2.1	*b4.6	b6.0	b6.0	9.4	8.6	*a6.7	2.6	3.0	*2.6	.80
13	.70	2.0	b4.6	b5.0	b6.5	9.4	8.2	a7.6	3.1	25	1.5	.80
14	.70	1.8	b4.6	b8.0	b6.7	9.5	34	a7.3	2.9	5.3	1.4	.70
15	.70	1.7	3.8	6.4	8.1	10	58	a6.6	3.7	5.6	1.4	.60
16	.70	1.7	3.1	6.4	22	7.8	14	a5.7	3.1	3.2	1.4	.60
17	.70	1.7	2.9	6.1	13	7.3	11	a5.4	2.4	2.9	1.6	.60
18	.70	1.7	b2.7	5.5	9.7	6.3	8.9	a5.1	2.3	2.7	1.6	.60
19	.70	1.7	b2.5	5.2	10	6.0	8.9	a5.0	3.1	2.6	1.5	.70
20	.70	1.6	b2.5	17	9.0	6.1	22	a4.9	3.0	2.4	1.3	1.2
21	.70	1.7	b2.5	*b50	8.0	9.4	57	a4.3	2.3	2.3	1.2	.80
22	1.0	1.7	b2.3	a10	6.8	36	22	a4.0	2.8	2.3	1.2	.80
23	1.2	15	2.5	a9.0	a6.0	54	14	a3.8	*3.9	2.1	1.2	.70
24	1.0	9.5	3.1	a8.0	a6.0	29	11	a3.8	15	2.2	1.1	.60
25	.70	3.6	3.6	a160	*a6.0	19	9.2	a3.7	4.5	2.4	1.1	.60
26	.80	2.8	3.3	22	7.1	14	8.6	a3.7	2.8	2.5	1.0	.60
27	.80	2.6	3.3	12	8.3	11	8.2	a3.6	2.5	2.4	1.0	.60
28	.70	2.4	b3.0	9.3	7.2	8.9	16	a3.6	2.2	2.1	1.0	4.6
29	.70	52	b2.7	7.1	7.8	8.4	95	a3.5	2.0	5.7	1.1	8.4
30	.70	30	b2.5	7.0	------	8.8	128	a3.4	2.0	5.3	3.0	6.0
31	.70	------	b2.5	6.4	------	8.1	------	a3.4	------	2.0	2.4	------
TOTAL	29.30	289.5	136.6	751.2	272.8	580.4	726.2	240.1	106.1	273.8	53.0	39.20
MEAN	.95	9.65	4.41	24.2	9.41	18.7	24.2	7.75	3.54	8.83	1.71	1.31
CFSM	.111	1.13	.518	2.84	1.10	2.19	2.84	.910	.416	1.04	.201	.154
IN	.13	1.26	.60	3.28	1.19	2.53	3.17	1.05	.46	1.20	.23	.17

CALENDAR YEAR 1963 MAX 247 MIN .20 MEAN 6.12 CFSM .718 INCHES 9.76
WATER YEAR 1963-64 MAX 212 MIN .60 MEAN 9.56 CFSM 1.12 INCHES 15.27

Peak discharge (base, 440 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 9	1230	4.35	772	7-3	2400	4.32	759
1-25	About 1200	4.01	630				

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-5820. Little Falls at Blue Mount, Md.

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 1964.

Gage.--Water-stage recorder (digital). Altitude of gage is 305 ft (from topographic map).

Average discharge.--20 years, 67.0 cfs.

Extremes.--Maximum discharge during year, 1,960 cfs Jan. 9 (gage height, 6.02 ft); minimum, 13 cfs Sept. 6, 10, 12.
1944-64: 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; minimum, 6.0 cfs Feb. 20, 1947; minimum daily, 12 cfs Aug. 3, 1955.
Flood in August 1933 reached a stage of about 14 ft, from information by Pennsylvania Railroad.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Slight diurnal fluctuation at low flow caused by mill above station.

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

Oct. 1 to Jan. 9				Jan. 10 to Sept. 30			
0.5	11	1.5	155	0.5	14	1.5	165
.6	17	2.0	280	.6	20	2.0	280
.8	37	3.0	600	.8	38	2.5	430
1.0	63			1.0	67		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	18	22	63	41	53	43	a 70	132	48	27	26	18
2	16	28	47	56	51	53	a 75	111	48	27	26	16
3	16	17	42	44	46	127	*a 85	102	47	45	36	15
4	15	16	37	56	43	154	68	96	45	84	34	15
5	15	* 16	34	47	43	318	63	90	44	34	27	15
6	15	49	32	44	116	133	81	85	46	30	26	14
7	15	186	31	100	88	101	85	83	48	28	25	14
8	* 15	56	43	56	67	89	111	81	56	126	25	14
9	15	35	89	592	57	85	95	80	46	49	23	14
10	15	29	46	147	54	82	81	76	43	36	24	14
11	15	25	40	b 85	b 45	71	76	73	39	32	25	14
12	15	24	40	b 60	b 55	73	71	72	39	31	26	15
13	16	22	37	b 40	b 50	72	69	* 90	41	75	* 23	17
14	16	22	36	b 55	49	74	128	85	39	37	22	16
15	16	21	28	b 50	47	76	107	73	37	87	21	15
16	16	20	b 28	b 45	59	65	86	70	36	35	21	15
17	16	20	b 28	b 44	52	62	80	67	34	35	22	15
18	16	20	28	b 42	50	58	76	64	34	31	21	14
19	17	19	* 26	b 40	b 55	56	76	62	40	29	21	16
20	17	19	23	b 100	50	55	91	59	43	28	20	20
21	17	19	24	229	46	64	163	57	35	28	20	18
22	18	19	23	* 114	43	93	119	57	34	28	19	17
23	19	59	27	83	b 43	115	103	55	35	27	19	17
24	19	55	34	71	b 43	119	93	54	* 47	27	18	16
25	19	32	32	255	b 43	111	86	51	34	28	18	15
26	19	28	30	117	b 43	a 96	82	50	32	29	18	15
27	19	26	29	86	* 44	a 80	80	50	31	28	17	15
28	18	24	27	73	43	a 74	90	49	29	27	* 17	24
29	18	86	24	61	45	a 72	90	48	28	42	18	58
30	18	152	24	57	------	a 72	204	48	28	46	18	36
31	18	------	22	51	------	a 70	------	47	------	26	18	------
TOTAL	517	1,166	1,074	2,941	1,523	2,813	2,784	2,217	1,186	1,242	694	537
MEAN	16.7	38.9	34.6	94.9	52.5	90.7	92.8	71.5	39.5	40.1	22.4	17.9
CFSM	.316	.735	.654	1.79	.992	1.71	1.75	1.35	.747	.758	.423	.338
IN	.36	.82	.76	2.07	1.07	1.98	1.96	1.56	.83	.87	.49	.38

CALENDAR YEAR	1963	MAX	643	MIN	13	MEAN	39.5	CFSM	.747	INCHES 10.14
WATER YEAR	1963-64	MAX	592	MIN	14	MEAN	51.1	CFSM	.966	INCHES 13.14

Peak discharge(base,1,000 cfs)

Date	Time	Gage height	Discharge
1-9	1330	6.02	1,960

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

1-5830. Slade Run near Glyndon, Md.

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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 420 ft (from topographic map).

Average discharge.--17 years, 2.28 cfs.

Extremes.--Maximum discharge during year, 192 cfs June 24 (gage height, 3.28 ft); minimum, 0.3 cfs Oct. 20 (gage height, 1.18 ft).
1947-64: Maximum discharge, 485 cfs July 21, 1956 (gage height, 4.68 ft), from rating curve extended above 92 cfs by logarithmic plotting; minimum, 0.02 cfs Aug. 18, 1954, caused by regulation from unknown source; minimum daily, 0.2 cfs Aug. 12, Sept. 11-14, 1963.

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

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

Oct. 1 to Jan. 9				Jan. 10 to Sept. 30			
1.2	0.4	1.6	9.6	1.2	0.4	1.6	11
1.3	1.2	1.7	15	1.3	1.4	1.8	23
1.4	2.8	1.9	30	1.4	3.7	2.1	48
1.5	5.5	2.1	48				

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.50	0.60	1.4	b0.90	1.8	2.0	2.2	2.9	1.4	1.0	0.80	0.60
2	.50	.70	1.2	b1.4	1.7	2.4	2.6	2.4	1.4	1.0	.80	.50
3	.50	.50	1.1	1.2	1.6	7.2	*3.0	2.2	1.4	3.6	1.1	.50
4	.50	.50	1.0	1.4	1.6	6.5	2.3	2.2	1.3	1.7	.90	.50
5	.50	.50	1.0	1.2	1.6	13	2.0	2.0	1.3	1.0	.80	.50
6	.50	8.6	.90	1.3	6.4	3.5	2.7	2.0	1.5	.90	.70	.40
7	.40	*19	.90	3.1	2.9	2.8	2.8	2.0	1.5	.90	.80	.40
8	.40	1.2	2.5	1.5	2.4	2.7	4.2	2.0	1.4	4.9	.70	.40
9	*.50	.80	2.2	42	2.0	2.6	3.1	2.0	1.4	1.5	.60	.40
10	.40	.60	1.2	4.9	a1.9	2.4	2.6	1.8	1.2	1.2	.70	.40
11	.40	.60	1.1	2.4	a1.8	2.2	2.5	1.8	1.2	1.0	.80	.40
12	.40	.60	1.1	a1.9	a2.4	2.4	2.4	1.8	1.2	1.0	.70	.50
13	.40	.60	1.1	a1.1	a2.2	2.3	2.4	*2.2	1.2	2.6	*.70	.50
14	.40	.60	1.1	a2.0	a2.1	2.5	3.6	2.1	1.2	1.2	.60	.50
15	.40	.60	b1.0	a1.9	2.0	2.4	2.8	1.9	1.2	1.2	.60	.40
16	.40	.60	b1.0	a1.7	2.6	2.2	2.5	1.9	1.1	1.0	.60	.40
17	.40	.60	b1.0	a1.6	2.2	2.2	2.4	1.9	1.1	1.0	.70	.40
18	.40	.60	*b.90	a1.5	2.2	2.0	2.3	1.8	1.0	.90	.70	.40
19	.40	.50	b.70	a1.4	2.4	1.9	2.3	1.7	1.2	.90	.70	.50
20	.40	.50	b.60	a3.0	2.0	2.0	4.7	1.7	1.3	.90	.60	.70
21	.40	.60	b.60	a10	2.0	2.3	10	1.7	1.0	.90	.60	.50
22	.40	.60	b.60	*a3.5	1.8	3.5	3.6	1.6	1.0	.90	.60	.50
23	.50	1.1	b.70	*2.5	1.8	4.8	3.0	1.6	1.1	.90	.60	.50
24	.50	.80	b.70	2.3	1.8	4.5	2.6	1.5	*14	.90	.50	.50
25	.50	.60	.80	12	1.8	3.3	2.5	1.4	1.4	1.0	.50	.50
26	.50	.60	.80	2.9	2.0	2.9	2.4	1.4	1.2	1.0	.50	.50
27	.50	.60	.80	2.2	*2.0	2.5	2.4	1.4	1.2	.90	.50	.40
28	.50	.60	.80	2.0	2.0	2.4	2.6	1.4	1.1	.90	.50	.80
29	.50	4.7	b.70	1.8	1.8	2.3	2.4	1.4	1.0	2.9	.50	2.2
30	.40	7.9	b.70	1.8	------	2.3	7.0	1.4	1.0	1.0	1.8	1.0
31	.50	------	b.60	1.7	------	2.2	------	1.4	------	.70	.70	------
TOTAL	13.90	56.90	30.80	120.10	62.8	100.5	93.9	56.5	49.5	41.40	21.90	16.70
MEAN	.45	1.90	.99	3.87	2.17	3.24	3.13	1.82	1.65	1.34	.71	.56
CFSM	.214	.909	.476	1.85	1.04	1.55	1.50	.871	.790	.641	.338	.267
IN	.25	1.01	.55	2.14	1.12	1.79	1.67	1.01	.88	.74	.39	.30

CALENDAR YEAR 1963 MAX 40 MIN .20 MEAN 1.46 CFSM .699 INCHES 9.48
WATER YEAR 1963-64 MAX 42 MIN .40 MEAN 1.82 CFSM .871 INCHES 11.63

Peak discharge (base, 90 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	0130	2.55	94	6-24	0915	3.28	192
1-9	1245	3.01	151				

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

Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-5835. Western Run at Western Run, Md.

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 1964.

Gage.--Water-stage recorder (digital). Altitude of gage is 260 ft (from topographic map).

Average discharge.--20 years, 66.5 cfs.

Extremes.--Maximum discharge during year, 2,210 cfs Jan. 9 (gage height, 6.93 ft); minimum, 13 cfs Sept. 6, 7, 10-12 (gage height, 0.54 ft).
1944-1964: 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; minimum, 3.4 cfs Jan. 31, Feb. 7, 11, 1962 (gage height, 0.41 ft), result of freezeup.

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

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

Oct. 1 to Jan. 9				Jan. 10 to Mar. 4		Mar. 5 to Sept. 30			
0.7	14	2.0	225	1.0	39	0.5	11	1.2	74
.9	27	2.5	300	1.3	72	.7	22	1.5	122
1.1	44	3.0	575	1.7	150	.9	38	1.8	185
1.4	82	3.5	740	2.2	300				
1.7	140								

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	19	20	56	b 40	a 54	48	67	99	50	26	22	19
2	17	29	43	67	a 50	55	69	84	52	26	23	15
3	17	21	39	50	a 47	139	* 88	78	49	29	27	15
4	18	19	36	61	a 45	173	69	74	48	79	30	15
5	16	19	34	b 54	a 45	285	65	69	47	30	25	14
6	16	37	32	b 50	a130	146	74	66	49	27	23	13
7	16	*182	31	b120	a 90	105	82	65	54	26	22	13
8	* 16	52	36	63	a 70	93	109	63	52	97	22	14
9	16	34	86	712	a 64	94	94	62	45	50	20	14
10	15	29	45	186	a 60	87	79	59	41	35	21	13
11	16	27	39	85	a 52	78	73	57	38	30	22	13
12	15	25	39	66	a 60	78	69	56	38	28	22	14
13	15	24	38	b 50	a 56	82	68	* 73	41	64	* 20	16
14	16	23	38	b 80	a 55	81	100	73	40	36	19	15
15	16	22	33	b 75	a 52	87	85	60	40	38	19	14
16	16	22	b 30	b 70	a 64	78	73	58	42	30	19	14
17	16	22	b 27	66	a 58	74	69	55	37	29	20	14
18	16	21	b 25	63	a 56	70	66	54	37	28	20	14
19	16	21	*b 25	63	a 60	68	66	51	42	27	21	15
20	16	21	b 25	101	a 56	62	74	49	46	26	19	20
21	16	21	b 25	b250	a 50	65	152	48	37	27	19	18
22	16	21	b 27	*110	a 46	96	106	48	38	27	18	17
23	17	34	33	79	a 46	124	89	47	37	26	17	17
24	17	47	39	69	a 47	122	81	46	*c 75	26	17	15
25	17	29	37	236	a 46	106	74	44	36	27	16	14
26	17	27	35	103	a 48	88	71	43	31	26	16	14
27	18	25	34	72	*a 49	77	69	43	29	26	15	15
28	17	24	b 32	64	48	72	76	42	29	24	* 16	17
29	17	76	b 28	a 58	49	70	74	43	27	25	17	42
30	16	152	b 26	a 54	------	70	143	46	27	40	17	31
31	16	------	b 25	a 50	------	67	------	48	------	23	19	------
TOTAL	508	1,126	1,098	3,267	1,653	2,940	2,474	1,803	1,254	1,058	623	494
MEAN	16.4	37.5	35.4	105	57.0	94.8	82.5	58.2	41.8	34.1	20.1	16.5
CFSM	.274	.627	.592	1.76	.953	1.59	1.38	.973	.699	.570	.336	.276
IN	.32	.70	.68	2.03	1.03	1.83	1.54	1.12	.78	.66	.39	.31

CALENDAR YEAR 1963 MAX 744 MIN 6.9 MEAN 38.1 CFSM .637 INCHES 8.64
WATER YEAR 1963-64 MAX 712 MIN 13 MEAN 50.0 CFSM .836 INCHES 11.38

Peak discharge(base,1,000 cfs)

Date	Time	Gage height	Discharge
1-9	1700	6.93	2,210

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

1-5840. Gunpowder Falls near Carney, Md.

Location.--Lat 39°25'28", long 76°30'42", on left bank 1 mile downstream from Cowen Run, 2 miles north of Carney, Baltimore County, and 2¾ miles downstream from Loch Raven Dam.

Drainage area.--314 sq mi.

Records available.--September 1949 to June 1964 (discontinued).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 135 ft (from topographic map).

Extremes.--Maximum discharge during period, 790 cfs Apr. 30 (gage height, 3.93 ft, from graph based on gage readings); minimum, 4.5 cfs Oct. 2, June 29-30, but may have been less during period of ice effect.
1949-64: Maximum discharge, 7,000 cfs July 9, 1952 (gage height, 9.50 ft), from rating curve exteneded above 2,800 cfs by logarithmic plotting; minimum, 1.2 cfs Sept. 7, 1954.

Remarks.--Records fair except those for periods of ice effect, no gage-height record, or backwater from aquatic growth, which are poor. 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; dead storage, 300,000,000 gal).

Rating table, Oct. 1, 1963, to June 30, 1964, except periods of ice effect and backwater from aquatic growth (gage height, in feet, and discharge, in cubic feet per second)

1.4	3.0	2.3	102
1.5	5.5	2.6	180
1.6	9.9	3.0	310
1.8	22	3.5	540
2.0	45	4.0	835

Discharge, in cubic feet per second, October 1963 to June 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	18	13	b35	14	12	174	612	12			
2	4.8	21	9.9	50	13	22	*163	495	12			
3	*6.8	13	9.0	42	12	32	204	422	12			
4	5.2	11	8.1	42	12	26	216	359	11			
5	5.0	11	8.1	18	12	27	180	303	9.9			
6	5.0	49	7.7	18	59	221	192	258	9.0			
7	5.0	60	7.7	44	27	395	240	219	9.5			
8	5.2	10	16	16	18	368	264	207	9.5			
9	5.9	6.4	23	113	a16	338	382	192	9.5			
10	7.7	5.2	10	30	a15	303	310	183	8.6			
11	8.6	5.0	9.0	b18	a14	258	258	160	8.6			
12	9.9	*5.0	9.9	b14	a15	222	225	*142	8.1			
13	11	5.5	*9.0	b13	a14	198	213	121	8.1			
14	12	5.2	b9.0	b15	a13	177	292	230	8.1			
15	12	5.0	b7.3	b13	a14	201	386	210	8.1			
16	12	5.0	b7.3	b12	a20	195	338	158	8.1			
17	12	5.0	b7.3	a11	a18	183	264	147	7.7			
18	13	5.0	b7.3	a11	a15	147	225	134	6.8			
19	13	5.2	b7.7	a11	a17	114	222	109	7.7			
20	13	5.0	b7.7	28	a16	89	216	100	8.6			
21	14	5.2	b9.9	33	a14	108	315	69	8.1			
22	14	5.2	b11	18	a13	276	604	48	8.6			
23	14	18	b12	14	a12	377	505	41	*8.1			
24	14	11	18	13	a13	422	422	40	12			
25	14	6.4	13	114	a12	436	322	36	13			
26	14	5.9	12	29	*13	426	278	27	12			
27	14	6.4	11	21	13	350	254	21	6.8			
28	14	5.9	9.9	18	13	278	264	18	5.9			
29	14	38	b8.6	b15	14	247	282	16	4.8			
30	15	38	b8.0	14	---	225	688	14	4.5			
31	15	---	b7.0	13	---	192	---	13	---			---
Total	328.1	395.5	314.4	856	471	6,865	8,898	5,104	266.7			
Mean	10.6	13.2	10.1	27.6	16.2	221	297	165	8.89			
(†)	34,040	35,490	35,340	40,910	42,110	43,660	44,160	43,230	41,800			
(‡)	+186	+173	+168	+256	+276	+261	+257	+260	+276			

Calendar year 1963: Max 2,700 Min 3.5 Mean 77.4 ‡ 185
Water year 1963-64: Max - Min - Mean -

* Discharge measurement made on this day.
† Combined month-end contents, in millions of gallons, in Prettyboy and Loch Raven Reservoirs (contents on Sept. 30, 1963, 36,130 million gallons); furnished by Baltimore Department of Public Works.
‡ Diversion, in cubic feet per second, above station from Loch Raven Reservoir, for municipal supply of Baltimore. Records furnished by Baltimore Department of Public Works.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Records computed from twice-daily staff gage readings from Feb. 26 to June 30. Backwater from aquatic growth May 16 to June 30.

1-5845. Little Gunpowder Falls at Laurel Brook, Md.

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.--October 1926 to September 1964. Monthly discharge only for some periods, published in WSP 1302.

Gage.--Water-stage recorder (digital). Datum of gage is 261.43 ft above mean sea level (city of Baltimore bench mark).

Average discharge.--38 years, 46.4 cfs.

Extremes.--Maximum discharge during year, 976 cfs Jan. 9 (gage height, 4.51 ft); minimum, 6.6 cfs Oct. 19 (gage height, 0.67 ft).
1926-64: 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; minimum, 3.1 cfs Feb. 15, 1931, Mar. 15, 1932, Feb. 20, 1947, result of freezeup; minimum gage height, 0.59 ft Feb. 20, 1947, Aug. 13, 1963.

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

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

0.7	7.0	1.5	50
.8	9.3	2.0	105
1.0	16	2.5	186
1.2	26	3.0	311

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	12	11	33	22	32	30	*37	82	29	20	17	13
2	12	18	26	38	32	37	38	61	30	20	17	11
3	11	12	24	28	28	103	53	54	29	35	20	10
4	*12	11	22	36	b 26	114	38	51	28	50	22	10
5	11	*11	20	34	27	159	36	48	27	30	18	9.9
6	10	29	20	32	101	66	47	46	27	25	17	9.3
7	10	155	20	103	65	51	55	45	29	22	16	9.4
8	10	33	25	44	43	47	82	43	33	80	16	9.5
9	9.6	23	67	307	35	48	62	42	29	40	15	9.6
10	9.6	20	29	86	34	45	47	39	27	30	15	9.4
11	9.6	18	25	b 45	b 30	40	43	38	25	27	17	9.4
12	9.3	16	*24	b 33	b 35	42	40	*38	24	25	18	9.5
13	9.3	16	24	b 18	b 33	43	39	50	26	50	14	11
14	9.3	16	24	b 32	33	43	79	57	25	30	14	10
15	9.3	15	20	b 30	32	45	87	42	25	50	14	9.6
16	9.3	15	b 20	26	44	39	52	40	24	28	14	9.3
17	9.0	15	b 18	25	b 38	37	46	39	23	25	14	9.3
18	9.0	14	17	24	35	35	43	37	22	23	15	9.1
19	9.7	14	b 16	23	37	33	41	35	26	22	16	10
20	9.3	14	b 15	34	36	33	49	34	27	21	14	12
21	9.3	14	15	105	b 31	39	106	32	23	21	14	12
22	9.3	14	14	70	b 26	65	69	33	22	20	14	11
23	9.3	22	15	51	b 26	93	55	32	*23	20	13	11
24	9.8	37	17	43	b 26	74	49	31	34	20	13	9.7
25	9.8	20	18	169	*b 26	60	45	30	28	20	12	8.6
26	9.8	20	18	66	28	50	44	29	24	21	12	8.5
27	10	20	18	45	31	42	42	29	25	20	12	8.9
28	9.8	19	18	39	30	39	52	28	21	20	12	12
29	9.6	58	16	33	31	38	62	28	21	22	13	38
30	9.3	81	15	32	------	38	164	28	20	30	13	28
31	9.3	------	14	b 29	------	37	------	28	------	18	13	------
TOTAL	305.6	781	667	1,702	1,031	1,665	1,702	1,249	776	885	464	348.0
MEAN	9.86	26.0	21.5	54.9	35.6	53.7	56.7	40.3	25.9	28.5	15.0	11.6
CFSM	.273	.720	.596	1.52	.986	1.49	1.57	1.12	.718	.790	.416	.321
IN	.31	.80	.69	1.75	1.06	1.72	1.75	1.29	.80	.91	.48	.36

CALENDAR YEAR 1963	MAX 421	MIN 6.0	MEAN 25.3	CFSM .701	INCHES 9.51
WATER YEAR 1963-64	MAX 307	MIN 8.5	MEAN 31.6	CFSM .875	INCHES 11.93

Peak discharge (base, 1,000 cfs).--No peak above base.

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record June 26 to Aug. 11.

1-5851. Whitemarsh Run at White Marsh, Md.

Location.--Lat 39°22'15", long 76°26'46", on left bank at upstream side of bridge on State Highway 7, 1 mile southwest of White Marsh, Baltimore County, and $1\frac{3}{4}$ miles upstream from Honeygo Run.

Drainage area.--7.61 sq mi.

Records available.--February 1959 to September 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 40 ft (from topographic map).

Average discharge.--5 years, 9.28 cfs.

Extremes.--Maximum discharge during year, 686 cfs Jan. 9 (gage height 4.09 ft) from rating curve extended as explained below; minimum, 0.2 cfs Sept. 6; minimum daily, 0.5 cfs many days in September.
1959-1964: Maximum discharge, 1,580 cfs Sept. 12, 1960 (gage height 6.60 ft) from rating curve extended above 350 cfs on basis of computation of peak flow over broad-crested weir; minimum, 0.2 cfs probably Sept. 21, 1962, Sept. 6, 1964, result of regulation. Minimum daily, 0.5 cfs many days in Sept. 1964.

Remarks.--Records good except those above 350 cfs, and those for periods of ice effect, which are fair. Low flow affected by operations of sand and gravel plant in vicinity of gage.

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

1.2	0.3	1.6	9.6	2.2	84
1.3	1.0	1.7	16	2.4	124
1.4	2.6	1.8	24	2.7	202
1.5	5.4	2.0	50		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	6.7	7.6	19	9.0	11	6.4	21	2.8	1.4	1.5	1.6
2	2.8	12	6.0	28	6.0	17	8.0	11	3.0	1.4	1.6	.5
3	*6.2	2.8	5.3	26	4.6	32	11	9.0	3.0	1.4	2.4	.6
4	3.2	*2.9	4.6	36	5.3	16	6.4	8.5	2.6	2.4	2.4	.6
5	2.4	2.4	4.0	14	5.3	14	5.3	7.6	2.2	1.1	1.5	.5
6	1.8	62	3.7	15	66	8.0	17	6.8	3.0	1.1	1.4	.5
7	2.4	115	3.0	74	20	7.2	21	6.4	3.0	1.1	1.5	.7
8	2.2	9.0	19	14	9.1	7.2	36	6.0	3.7	32	2.2	.5
9	2.2	4.9	31	192	6.1	8.5	17	5.6	2.8	4.9	.8	.8
10	2.0	3.5	6.8	34	6.9	7.2	9.0	4.3	2.6	2.8	1.4	.7
11	2.0	4.3	*4.9	9.5	4.4	5.6	7.2	*4.9	1.8	1.8	*1.5	.8
12	2.0	3.5	7.2	6.0	7.7	6.8	6.4	4.3	1.8	1.4	1.6	1.1
13	1.5	3.2	6.0	3.5	7.3	6.0	6.0	16	2.6	17	1.1	1.8
14	2.2	3.0	9.0	7.0	12	7.6	35	11	2.0	3.7	.9	1.4
15	1.8	3.0	4.0	6.0	8.6	7.6	65	5.6	3.5	1.8	.8	1.0
16	1.8	2.8	3.2	5.0	45	6.4	13	5.3	2.6	1.6	.9	.9
17	2.0	2.6	3.0	4.5	17	5.6	9.0	4.6	1.8	1.6	2.0	.9
18	2.2	3.2	3.0	4.0	9.5	4.9	7.6	4.6	1.6	1.4	2.2	1.0
19	1.8	2.8	2.8	4.0	35	4.9	8.0	3.7	3.0	1.2	1.8	1.0
20	1.5	2.6	2.6	*31	32	4.9	30	3.5	2.6	1.5	1.2	1.6
21	2.2	3.0	2.2	54	16	14	88	3.5	1.5	1.4	1.1	1.6
22	2.0	2.8	2.2	19	9.1	93	35	3.7	*1.8	1.4	.9	1.4
23	2.0	23	2.0	12	6.9	44	14	3.5	1.8	1.4	.6	1.0
24	2.0	9.2	2.8	9.5	*8.2	16	10	2.6	4.1	1.4	.9	.8
25	2.0	3.7	4.0	141	7.2	11	8.5	3.0	2.4	1.5	.8	.5
26	2.2	4.0	3.2	22	11	11	7.2	2.6	1.5	1.5	.8	.6
27	1.8	4.0	3.5	11	11	8.0	7.6	3.5	1.5	1.8	.7	.5
28	2.2	2.8	3.0	10	8.0	6.8	15	2.8	1.2	1.4	.9	3.9
29	2.0	61	2.8	6.8	11	6.0	25	2.8	.9	3.1	1.0	19
30	1.8	45	2.4	6.8	------	7.6	66	2.2	1.5	7.7	.7	*41
31	2.0	------	2.2	6.4	------	*5.6	------	3.0	------	1.5	2.4	------
Total	69.2	410.7	167.0	831.0	405.2	411.4	600.6	182.9	70.2	106.7	41.5	88.8
Mean	2.23	13.7	5.39	26.8	14.0	13.3	20.0	5.90	2.34	3.44	1.34	2.96
Cfsm	0.293	1.80	0.708	3.52	1.84	1.75	2.63	0.775	0.307	0.452	0.176	0.389
In.	0.34	2.01	0.82	4.06	1.98	2.01	2.94	0.89	0.34	0.52	0.20	0.43

Calendar year 1963: Max 143 Min 1.2 Mean 7.56 Cfsm 0.993 In. 13.50
Water year 1963-64: Max 192 Min 0.5 Mean 9.25 Cfsm 1.22 In. 16.54

Peak discharge (base, 390 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 9	1420	4.09	686	1-25	1330	3.32	417

* Discharge measurement made on this day.
Note.--Stage-discharge relationship affected by ice from Jan. 13, to Mar. 2.

1-5852. West Branch Herring Run at Idlewylde, Md.

Location.--Lat 39°22'25", long 76°35'35", on left bank at downstream side of highway bridge on Regester Avenue, 0.1 mile north of Baltimore city limits, and 1.3 miles east of U. S. Highway 111 in Idlewylde, Baltimore County.

Drainage area.--2.13 sq mi.

Records available.--July 1957 to September 1964.

Gage.--Water-stage recorder. Concrete control since July 30, 1958. Altitude of gage is 285 ft (from topographic map).

Average discharge.--7 years, 2.16 cfs.

Extremes.--Maximum discharge during year, 268 cfs Jan. 25 (gage height, 3.83 ft); minimum daily, 0.2 cfs Oct. 13. 1957-64: Maximum discharge, 602 cfs July 6, 1958 (gage height, 5.78 ft), from rating curve extended above 110 cfs on basis of computation of peak flow through culvert; no flow Aug. 14-24, 1957.

Remarks.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair, and those for no gage-height record, which are poor. Slight diurnal fluctuation (occasionally extensive) caused by ready-mixed concrete plant above station.

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

1.25	0.2	1.6	4.2
1.3	.4	1.7	6.7
1.4	1.2	1.9	14
1.5	2.6	2.1	28

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	5.5	1.1	5.5	2.9	2.6	1.7	2.8	d 1.1	d 0.7	0.4	d 2.4
2	.6	3.0	.9	3.1	1.7	4.5	4.3	2.1	d 1.1	d .6	.4	d 1.4
3	2.4	.3	1.0	4.3	1.5	8.5	2.2	1.8	d .9	d .6	3.0	d 1.0
4	.5	.4	.7	3.4	1.5	3.7	1.5	1.7	d .9	1.4	.6	d .7
5	.4	1.1	.7	1.7	1.5	3.6	1.4	d 1.6	d .9	.4	.5	d .4
6	.4	2.4	.6	6.1	21	2.2	5.4	d 1.7	1.9	.4	.4	d .3
7	.4	12	.6	7.2	2.9	2.2	4.3	d 1.5	.9	.5	1.1	d .4
8	* .3	1.4	7.8	1.5	2.1	3.2	6.1	d 1.4	.9	9.6	.6	d .4
9	.3	.8	1.7	28	1.8	2.0	2.4	d 1.3	.9	.7	.6	d .3
10	.3	.7	.8	2.8	1.8	1.8	2.0	d 1.2	.8	.6	.6	d .3
11	.3	.6	.7	1.7	b 2.1	1.5	1.8	* 2.5	.7	.5	.5	d .3
12	.3	* .6	2.4	1.2	2.5	2.6	1.8	2.5	.7	.7	1.6	d 1.4
13	.2	.6	*.8	1.0	2.4	1.5	1.7	9.4	.8	5.1	.6	d 1.1
14	2.5	.5	2.1	1.4	3.5	3.0	a 11	2.2	.8	1.0	.4	d .8
15	.4	.5	.7	1.2	2.0	1.8	a 13	1.7	d 1.3	.6	.4	d .6
16	.4	.5	.6	a 1.0	9.7	1.4	2.0	1.5	.7	.6	.6	d .5
17	.3	.5	.6	a .9	2.4	1.4	1.8	1.4	.6	.5	1.0	d .4
18	.4	.4	b .5	a .8	2.5	1.2	1.7	1.8	.6	.4	1.7	d .3
19	.3	.4	b .4	a .8	6.0	1.2	1.8	1.4	d 1.8	.5	1.2	d .6
20	.3	.4	b .4	10	6.0	1.2	8.9	1.2	d 1.8	.4	1.0	d 2.0
21	.3	.6	b .4	6.1	2.8	3.6	11	1.2	1.2	1.5	.9	d 1.1
22	.5	.4	a .4	2.4	2.2	12	3.2	1.2	* .9	.8	.9	d .7
23	.3	9.0	a .4	*1.8	2.1	9.4	2.2	1.1	.9	d .6	.6	d .5
24	.3	.8	a .5	1.7	2.2	4.1	2.1	1.1	2.7	d .6	.7	d .4
25	.4	.6	a .6	27	1.8	2.8	1.8	1.1	1.0	d .5	.6	d .3
26	.4	.6	b .7	2.9	*3.5	3.2	1.8	1.0	.9	d .5	.3	d .3
27	.3	.5	b .6	2.1	2.4	2.1	1.8	d 1.0	1.0	d .4	.3	d .3
28	.3	.4	b .4	1.8	2.1	1.8	d 4.0	d .9	1.0	d .4	.4	4.2
29	.3	16	b .3	1.7	2.9	1.8	3.5	d .9	d .9	d 1.3	.4	6.6
30	.3	7.7	b .3	1.7	------	2.4	16	d .8	d .8	.5	d .7	* 3.6
31	.3	------	a .3	1.5	-----	1.5	------	d 1.1	------	.4	d 1.8	-------
Total	15.3	90.8	30.0	134.3	99.8	95.8	124.2	54.1	31.4	33.3	24.8	33.6
Mean	0.49	3.03	0.97	4.33	3.44	3.09	4.14	1.75	1.05	1.07	0.80	1.12
Cfsm	0.230	1.42	0.455	2.03	1.62	1.45	1.94	0.822	0.493	0.502	0.376	0.526
In.	0.27	1.59	0.52	2.34	1.74	1.67	2.17	0.94	0.55	0.58	0.43	0.59

Calendar year 1963: Max 27 Min 0.2 Mean 1.78 Cfsm 0.836 In. 11.37
Water year 1963-64: Max 28 Min 0.2 Mean 2.10 Cfsm 0.986 In. 13.39

Peak discharge (base, 230 cfs)

Date	Time	Gage height	Discharge
1-25	1100	3.83	268

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

1-5853. Stemmers Run at Rossville, Md.

Location.--Lat 39°20'20", long 76°29'15", on left bank at downstream side of bridge on State Highway 7, at Rossville, Baltimore County, 0.8 mile upstream from Brien Run, and 1 mile northwest of Stemmers Run.

Drainage area.--4.94 sq mi.

Records available.--December 1958 to September 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (from topographic map).

Average discharge.--5 years, 6.13 cfs.

Extremes.--Maximum discharge during year, 615 cfs Jan. 9 (gage height †5.10 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum daily, 0.1 cfs many days in August and September.
1959-64: Maximum discharge, 1,170 cfs Sept. 12, 1960 (gage height, 7.40 ft), from rating curve extended as explained above; minimum daily, 0.1 cfs many days in August and September 1962, 1964.

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

Rating table, except periods of ice effect or backwater from unknown cause
(gage height, in feet, and discharge, in cubic feet per second)

1.2	0.1	1.8	20
1.3	.6	2.0	38
1.4	2.2	2.5	101
1.5	4.6	3.0	185
1.6	8.2		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.2	6.7	3.1	20	b3.0	5.2	2.5	12	1.0	0.50	0.30	0.50
2	1.1	6.8	2.3	12	b2.5	6.5	5.6	5.5	1.0	.40	.30	.10
3	*2.6	1.0	2.1	14	b2.0	24	5.7	3.5	.90	.40	1.8	.10
4	1.0	*.70	1.9	17	b1.8	11	3.2	3.2	.90	1.1	1.1	.10
5	.60	.80	1.7	7.5	2.0	9.3	2.2	3.2	.70	.40	.40	.10
6	.60	71	1.5	15	49	3.5	13	3.5	1.4	.30	.30	.10
7	.60	42	1.4	44	12	3.1	17	3.2	1.4	.30	.60	.10
8	.60	3.3	13	5.8	6.2	4.6	30	3.0	1.1	22	1.2	.10
9	.50	1.9	10	a150	b4.0	5.7	8.2	2.6	.90	1.5	.30	.10
10	.50	1.6	2.7	a35	b2.5	4.5	3.7	2.2	.80	.70	.30	.10
11	.50	1.5	*2.1	a20	b3.0	2.4	3.0	*2.0	.70	.60	*.30	.20
12	.50	1.3	4.1	a8.0	b3.0	3.7	2.8	1.9	.70	.50	.80	.70
13	.50	1.2	2.6	a2.5	b2.5	3.2	2.7	12	1.3	14	.20	.40
14	.50	1.2	5.8	a5.0	b3.5	5.1	25	3.8	.70	1.4	.20	.30
15	.50	1.1	2.4	3.1	b3.0	4.9	40	2.0	1.6	.60	.10	.10
16	.50	1.1	1.9	2.8	44	3.2	4.9	1.8	.90	.40	.20	.10
17	.50	1.1	1.5	b2.7	11	2.4	3.6	1.8	.60	.60	.60	.10
18	.50	1.1	1.5	b2.6	8.6	2.0	3.1	2.4	.50	.50	1.6	.10
19	.50	1.2	1.4	b2.5	35	2.0	5.9	1.7	2.1	.40	1.2	.20
20	.50	1.0	1.0	*29	36	2.0	36	1.4	2.5	.40	.20	.90
21	.50	1.1	1.2	34	b21	13	51	1.4	.50	.50	.20	.30
22	.50	1.1	1.1	9.0	b11	82	16	1.4	*1.2	.40	.30	1.6
23	.50	15	1.3	5.0	b7.8	24	7.2	1.3	.80	.40	.20	1.1
24	.50	2.9	1.5	3.9	b6.2	8.7	4.3	1.3	3.9	.40	.10	.70
25	.60	1.5	1.8	82	b3.0	4.8	3.4	1.2	1.0	.40	.20	.10
26	.50	1.3	1.8	12	b3.5	6.3	3.2	1.1	.50	.50	.10	.10
27	.50	1.3	1.9	6.6	b3.5	4.3	3.1	1.1	1.0	.50	.10	.10
28	.50	1.1	1.6	4.2	3.5	2.9	11	1.0	.60	.30	.10	3.9
29	.50	41	1.4	2.7	5.6	2.8	28	.90	1.2	4.7	.10	29
30	.50	27	1.2	2.5	------	3.1	55	.80	.70	2.4	.20	*20
31	.50	------	1.0	b2.0	------	*2.5	------	1.0	------	.40	1.2	------
TOTAL	19.90	240.90	79.7	562.4	299.7	262.7	400.3	85.20	33.10	57.90	14.80	61.40
MEAN	.64	8.03	2.57	18.1	10.3	8.47	13.3	2.75	1.10	1.87	.48	2.05
CFSM	.130	1.63	.520	3.66	2.09	1.71	2.69	.557	.223	.379	.097	.415
IN	.15	1.81	.60	4.23	2.26	1.98	3.01	.64	.25	.44	.11	.46

CALENDAR YEAR 1963 MAX 95 MIN .20 MEAN 4.62 CFSM .935 INCHES 12.70
WATER YEAR 1963-64 MAX 150 MIN .10 MEAN 5.79 CFSM 1.17 INCHES 15.95

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge
1-9	-	†5.10	615

* Discharge measurement made on this day.
† Gage-height obtained from crest-stage gage.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant. Backwater from unknown cause from Oct. 6-30.

1-5854. Brien Run at Stemmers Run, Md.

Location.--Lat 39°20'01", long 76°28'23", on right bank a quarter of a mile upstream from mouth and 0.3 mile north of Stemmers Run, Baltimore County.

Drainage area.--1.97 sq mi.

Records available.--May 1958 to September 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (from topographic map).

Average discharge.--6 years, 2.07 cfs.

Extremes.--Maximum discharge during year, 119 cfs Apr. 15 (gage height, 2.41 ft); minimum daily, 0 cfs May 23-31, June 4, 5; minimum gage height, 0.84 ft May 29, June 4, 5.
1958-64: Maximum discharge, 506 cfs Sept. 12, 1960 (gage height, 5.03 ft), from rating extended above 180 cfs on basis of logarithmic plotting and velocity-area study; no flow part of Sept. 6, 1958, June 20, 1961, and many days in August 1962, May 23-31 and June 4, 5; minimum daily, 0 cfs May 23-31 and June 4, 5.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Occasional small diversion for irrigation of truck garden in vicinity of station.

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

0.9	0.1	1.2	5.6
1.0	.7	1.3	10
1.1	2.2	1.6	32

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.5	1.1	3.0	1.8	1.8	0.8	3.2	0.1	0.4	0.4	.4
2	.6	2.2	.8	5.0	1.2	1.8	1.1	1.4	.1	.3	.4	.4
3	*.6	.6	.8	3.0	.8	8.2	1.7	1.0	.1	1.3	.6	.4
4	.4	*.5	.8	4.0	.8	3.2	.8	.8	0	.8	.5	.3
5	.3	.5	.8	1.5	1.0	2.8	.8	.8	0	.4	.4	.3
6	.3	21	.7	2.5	12	1.4	4.9	.7	.1	.3	.4	.3
7	.3	20	.5	20	3.5	1.1	8.2	.7	.2	.3	.6	.3
8	.3	1.2	6.5	2.5	1.6	1.4	12	.7	.2	1.5	.5	.3
9	.3	.8	5.5	50	1.1	1.6	3.5	.7	.3	.8	.4	.3
10	.3	.8	1.2	10	1.1	1.4	1.6	.6	.3	.5	.4	.4
11	.3	.7	*.7	2.5	1.0	1.0	1.1	*.5	.3	.4	*.4	.4
12	.3	.7	1.2	1.0	1.1	.8	.8	.4	.3	.4	.4	.4
13	.3	.7	1.1	.8	1.6	.8	.8	1.9	.4	5.4	.4	.5
14	.3	.7	2.2	1.3	4.8	1.1	9.4	.7	.3	.6	.4	.4
15	.3	.6	.8	.8	2.0	1.2	2.2	.3	.5	.4	.4	.4
16	.3	.6	.6	1.0	17	.8	1.7	.2	.4	.3	.4	.4
17	.3	.5	.4	1.0	3.0	.8	1.0	.2	.3	.3	.4	.4
18	.3	.5	.4	1.0	2.5	.8	.8	.2	.3	.3	1.0	.4
19	.3	.5	.4	1.0	20	.8	1.3	.1	.4	.3	.5	.4
20	.3	.6	.4	*11	12	.8	12	.1	.4	.4	.4	.5
21	.3	.6	.4	14	3.5	4.9	19	.1	.3	.4	.4	.4
22	.3	.6	.4	3.8	1.8	35	4.4	.1	*.4	.4	.4	.4
23	.3	5.1	.4	1.8	1.4	7.7	1.8	0	.4	.4	.4	.4
24	.3	1.6	.5	1.4	*1.4	2.5	1.1	0	2.8	.4	.4	.4
25	.3	.7	.8	29	1.2	1.7	.8	0	.6	.4	.4	.4
26	.3	.7	.6	3.5	1.6	1.8	.8	0	.4	.4	.4	.4
27	.3	.6	.7	1.7	1.7	1.2	.7	0	.5	.4	.4	.4
28	.3	.6	.7	1.2	1.2	1.0	4.6	0	.4	.4	.4	.8
29	.3	12	.6	.8	1.8	1.0	8.6	0	.4	1.0	.4	5.7
30	.4	9.0	.5	.8	------	1.0	14	0	.4	.5	.4	*5.9
31	.4	------	.4	.8	------	*.8	------	0	------	.4	.4	------
Total	10.6	86.7	32.9	181.7	105.5	92.2	142.1	15.4	11.6	34.0	13.7	22.8
Mean	0.34	2.89	1.06	5.86	3.64	2.97	4.74	0.50	0.39	1.10	0.44	0.76
Cfsm	0.173	1.47	0.538	2.97	1.85	1.51	2.41	0.254	0.198	0.558	0.223	0.386
In.	0.20	1.64	0.62	3.43	1.99	1.74	2.68	0.29	0.22	0.64	0.26	0.43

Calendar year 1963: Max 26 Min .2 Mean 1.61 Cfsm 0.817 In. 11.08
Water year 1963-64: Max 50 Min 0 Mean 2.05 Cfsm 1.04 In. 14.14

Peak discharge (base, 120 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--No gage-height record Dec. 24 to Jan. 14.

1-5855. Cranberry Branch near Westminster, Md.

Location.--Lat 39°35'35", 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, Caroll County.

Drainage area.--3.29 sq mi.

Records available.--September 1949 to September 1964.

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

Average discharge.--15 years, 3.69 cfs (unadjusted for storage).

Extremes.--Maximum discharge during year, 98 cfs Jan. 9 (gage height, 3.11 ft); minimum daily, 0.4 cfs Dec. 15 (regulated).
1949-64: 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; minimum, 0.4 cfs Jan. 20, 1955, Jan. 30, 1962, Feb. 15, 1963 result of freezeup, but may have been less during period of no gage-height record during Jan. to Feb. 1963, and Dec. 16, 1963; minimum daily, 0.4 cfs July 31 to Aug. 2, 1954, and Dec. 15, 1963.
Flood of July 12, 1949, reached a stage of 5.2 ft, from floodmarks (discharge, 750 cfs).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by Cranberry Reservoir, 1 mile above station, since August 1957 (capacity, 113,700,000 gal).

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

1.4	0.4	1.8	6.6
1.5	1.2	1.9	10
1.6	2.5	2.1	19
1.7	4.2	2.3	32

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.0	1.1	1.3	1.9	1.2	2.5	3.6	6.4	1.9	1.7	1.6	1.0
2	1.0	1.6	1.0	1.9	1.2	3.3	4.8	5.3	2.7	1.7	1.6	1.0
3	.90	1.1	.90	2.0	b1.0	9.2	5.1	5.0	2.5	2.0	2.3	1.0
4	.90	1.0	1.0	2.5	b1.0	11	3.8	4.7	2.5	2.0	1.9	1.0
5	.80	1.0	.80	2.0	1.1	17	3.6	4.3	2.4	1.8	1.7	.90
6	.80	4.5	.70	2.4	3.7	5.1	4.6	4.1	2.9	1.7	1.6	.90
7	.70	*7.4	.70	4.9	2.9	3.5	*4.4	4.0	2.7	1.7	1.6	.90
8	.70	1.8	5.6	.90	2.0	3.3	7.6	3.8	2.6	3.3	1.5	.90
9	*.80	1.3	4.6	29	1.6	3.1	4.9	3.8	2.5	1.4	1.4	1.6
10	.80	1.2	1.8	4.6	b1.0	3.8	3.2	3.5	2.4	2.0	1.4	2.0
11	.80	1.2	.60	b1.7	b1.5	2.5	2.1	2.6	2.2	1.8	1.6	.90
12	.80	1.2	.60	b1.3	b2.5	2.6	1.9	1.4	3.2	1.9	1.6	1.0
13	.80	1.1	.60	b1.2	b2.3	2.5	1.8	*2.0	2.2	3.2	1.4	1.0
14	.80	1.1	.60	a1.8	1.8	3.0	7.2	2.5	2.2	2.7	*1.3	1.0
15	.80	1.1	.40	a1.5	.90	2.9	6.8	3.6	2.2	3.3	1.3	1.0
16	.80	1.1	.70	a1.2	b1.8	2.3	4.5	3.4	2.1	2.1	1.3	.90
17	.80	1.1	1.3	a1.0	b1.2	2.0	4.1	3.3	2.0	2.0	1.3	.90
18	.80	1.1	*1.3	a.60	b1.4	2.3	4.1	3.2	2.0	1.8	1.4	.90
19	.80	1.0	b1.1	a.60	b2.5	3.1	4.2	3.0	2.4	1.8	1.3	1.0
20	.80	1.0	b1.0	b3.0	2.8	3.1	5.4	2.9	3.0	1.8	1.2	1.2
21	.80	1.0	b1.0	6.6	2.6	3.6	9.1	2.8	2.3	1.8	1.2	1.1
22	.80	1.0	b1.0	3.9	b2.2	5.3	6.1	2.8	2.2	1.8	1.2	1.1
23	.90	3.2	b1.1	*3.1	b2.0	7.4	5.1	4.1	2.2	1.7	1.2	1.1
24	.90	2.0	b1.2	2.6	b2.0	7.7	4.6	4.8	2.1	1.8	1.1	.90
25	.90	1.4	b1.3	16	b2.0	6.1	4.3	1.8	1.9	1.8	1.1	1.0
26	.90	1.3	b1.3	4.0	b2.3	5.1	4.1	1.1	1.9	1.9	1.1	.90
27	.90	1.2	b1.3	2.3	*b2.5	4.2	4.1	1.1	1.9	1.8	1.1	.90
28	.90	1.2	b1.3	1.6	2.3	3.8	4.6	1.0	1.8	1.7	1.1	1.2
29	.90	7.2	b1.2	b1.0	2.4	3.6	5.3	1.1	1.8	2.3	1.1	2.1
30	.90	5.8	b1.0	b1.0	------	3.8	13	1.1	1.7	1.8	1.1	1.7
31	.90	------	b1.0	b.90	------	3.6	------	1.1	------	1.6	1.2	------
TOTAL	26.10	58.3	39.30	109.00	55.70	142.3	148.0	95.6	68.4	61.7	42.8	33.00
MEAN	.84	1.94	1.27	3.52	1.92	4.59	4.93	3.08	2.28	1.99	1.38	1.10

CALENDAR YEAR 1963 MAX 40 MIN .40 MEAN 2.11
WATER YEAR 1963-64 MAX 29 MIN .40 MEAN 2.41

Peak discharge (base, 80 cfs)

Date	Time	Gage height	Discharge
1-9	1330	3.11	98

* Discharge measurement made on this day.
a Doubtful or no gage-height record
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-5860. North Branch Patapsco River at Cedarhurst, Md.

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 1964.

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

Average discharge.--19 years, 62.5 cfs.

Extremes.--Maximum discharge during year, 2,280 cfs Jan. 9 (gage height, 6.75 ft); minimum, 3.3 cfs Nov. 22 (gage height 1.13 ft), result of filling pond above station; minimum daily, 9.2 cfs Sept. 10.
1945-64: Maximum discharge, 4,130 cfs Aug. 13, 1955 (gage height, 10.38 ft), from rating curve extended above 1,700 cfs by logarithmic plotting; minimum, 2.8 cfs July 17, 1953 (gage height, 1.17 ft), result of filling pond above station; minimum daily, 8.4 cfs Sept. 13, 1963.

Remarks.--Records good. Slight diurnal fluctuation at low and medium flow caused by mill above station. Low flow affected slightly by Cranberry Reservoir since August 1957 (capacity, 113,700,000 gal). Records do not include a mean discharge of 1.31 cfs diverted above station for municipal supply of Westminster; sewage effluent discharged into Little Pipe Creek.

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

1.2	5.4	2.0	125
1.3	9.9	2.5	290
1.4	17	3.0	480
1.6	40	4.0	880

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	14	15	52	23	50	40	73	122	36	21	19	13
2	13	27	34	39	48	47	77	100	39	21	20	12
3	13	16	31	33	43	144	99	91	37	42	26	11
4	13	13	29	48	40	177	75	85	35	49	28	11
5	12	13	26	46	40	362	69	79	34	24	22	11
6	12	39	24	40	77	140	79	75	36	22	20	9.6
7	12	*214	24	119	73	107	*84	73	42	20	19	10
8	11	39	38	62	55	95	112	70	37	83	19	9.4
9	*11	25	124	708	47	95	90	69	35	37	17	9.4
10	11	22	40	152	45	95	77	63	33	28	17	9.2
11	11	20	32	76	42	81	73	62	30	25	19	9.3
12	11	18	31	55	45	81	67	58	29	24	20	9.3
13	11	17	30	35	43	81	65	64	30	64	17	11
14	11	17	28	50	45	90	104	*66	30	29	16	11
15	11	16	21	54	43	92	117	58	30	60	15	9.9
16	11	16	21	48	57	77	84	55	29	27	15	9.9
17	11	16	20	47	52	71	77	54	26	25	*16	9.8
18	11	16	*22	43	47	65	75	52	26	24	16	9.7
19	11	16	21	42	50	63	77	48	29	23	17	11
20	11	15	19	63	50	63	88	46	40	23	15	16
21	12	16	19	158	43	73	182	44	28	24	14	12
22	12	15	18	120	40	92	122	41	31	24	14	11
23	12	44	19	*88	37	128	104	42	28	23	13	12
24	12	46	22	73	40	143	95	40	30	22	13	11
25	12	24	24	304	38	117	86	40	*26	23	12	9.4
26	13	21	23	107	42	102	81	38	24	24	12	9.7
27	13	20	24	79	43	88	79	38	25	23	12	9.8
28	13	19	23	67	*39	81	88	37	24	21	12	14
29	12	91	20	55	42	79	89	37	22	22	12	40
30	12	163	20	52	------	79	228	36	22	37	14	30
31	12	------	16	47	------	75	------	36	------	20	17	------
TOTAL	367	1,049	895	2,933	1,356	3,123	2,816	1,819	923	934	518	371.4
MEAN	11.8	35.0	28.9	94.6	46.8	101	93.9	58.7	30.8	30.1	16.7	12.4
CFSM	.209	.618	.511	1.67	.827	1.78	1.66	1.04	.544	.532	.295	.219
IN	.24	.69	.59	1.93	.89	2.05	1.85	1.20	.61	.61	.34	.24

CALENDAR YEAR 1963 MAX 667 MIN 8.4 MEAN 37.1 CFSM .656 INCHES 8.91
WATER YEAR 1963-64 MAX 708 MIN 9.2 MEAN 46.7 CFSM .825 INCHES 11.24

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge
1-9	1430	6.75	2,280

* Discharge measurement made on this day.

1-5875. South Branch Patapsco River at Henryton, Md.

Location.--Lat 39°21'05", long 76°54'50", on right bank at downstream side of bridge on State Highway 101 at Henryton, Carroll County, 1.3 miles upstream from Piney Run, 2.3 miles upstream from confluence with North Branch, and 3.2 miles southeast of Sykesville.

Drainage area.--64.4 sq mi.

Records available.--August 1948 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 289.15 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 68.0 cfs.

Extremes.--Maximum discharge during year, 2,160 cfs Jan. 9 (gage height, 6.69); minimum, 6.1 cfs Sept. 10-12 (gage height, 1.45 ft).
1948-64: Maximum discharge, 12,100 cfs July 21, 1956 (gage height, 19.40 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurement at gage height 7.88 ft and contracted-opening measurements at gage heights 10.12 and 19.40 ft; minimum, 2.8 cfs Aug. 12, 13, 1963.

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

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

Oct. 1 to Nov. 6		Nov. 7 to Sept. 30			
1.6	11	1.5	4.2	2.2	74
1.8	20	1.6	7.0	2.5	160
1.9	28	1.8	16	3.0	450
2.1	54	2.0	38	4.0	990

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	16	15	69	27	63	55	85	139	40	19	10	10
2	13	28	46	48	65	65	80	124	41	19	12	8.2
3	14	19	40	43	57	*256	95	112	38	19	65	7.2
4	17	16	36	65	51	280	95	100	37	18	55	7.1
5	14	15	32	63	51	380	82	87	36	18	24	6.5
6	13	46	31	b54	90	176	80	77	38	16	20	5.7
7	13	225	29	b300	103	133	90	72	45	15	19	5.5
8	13	50	34	b100	71	124	145	70	38	59	20	5.6
9	12	31	103	875	61	115	136	70	37	33	17	5.5
10	12	25	46	210	59	109	115	66	34	24	16	5.4
11	*12	23	38	109	b56	98	100	60	31	21	18	5.3
12	12	21	37	b80	b60	90	92	54	29	19	18	6.5
13	12	19	36	b56	b56	85	87	53	31	45	15	8.9
14	12	18	35	a74	57	80	109	64	32	26	15	8.0
15	12	*17	28	a80	59	98	130	62	34	25	14	7.0
16	12	17	27	a72	75	92	109	60	33	20	14	7.1
17	12	16	26	a70	73	82	92	58	28	20	16	7.2
18	12	16	27	a66	67	77	82	*68	27	18	17	6.6
19	12	16	25	a64	b70	71	77	57	28	17	*19	8.0
20	12	15	23	a84	71	67	87	53	31	16	14	15
21	12	16	22	235	63	67	225	50	26	16	14	9.4
22	12	16	21	157	57	133	133	50	27	16	13	7.8
23	13	26	22	118	b50	188	121	48	27	15	12	7.4
24	13	41	24	*95	b52	148	109	46	48	15	12	6.4
25	13	25	27	268	b51	133	95	45	29	16	11	4.5
26	13	22	27	139	b54	124	85	41	25	17	10	5.0
27	13	21	28	103	b58	109	77	41	23	16	10	5.3
28	13	20	27	90	55	95	77	41	22	15	10	8.2
29	13	124	24	73	59	90	80	41	20	14	10	38
30	12	215	23	69	------	85	250	40	20	12	10	31
31	12	------	18	63	------	87	------	38	------	10	12	------
TOTAL	396	1,174	1,031	3,950	1,814	3,792	3,220	1,987	955	629	542	269.3
MEAN	12.8	39.1	33.3	127	62.6	122	107	64.1	31.8	20.3	17.5	8.98
CFSM	.199	.607	.517	1.97	.972	1.89	1.66	.995	.494	.315	.272	.139
IN	.23	.68	.60	2.28	1.05	2.19	1.86	1.15	.55	.36	.31	.16

CALENDAR YEAR 1963 MAX 803 MIN 3.1 MEAN 42.3 CFSM .657 INCHES 8.91
WATER YEAR 1963-64 MAX 875 MIN 4.5 MEAN 54.0 CFSM .839 INCHES 11.41

Peak discharge (base, 950 cfs)

Date	Time	Gage height	Discharge
1-9	1400	6.69	2,160

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

1-5890. Patapsco River at Hollofield, Md.

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 1964.

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

Extremes.--Maximum discharge during year, 3,960 cfs Jan. 9 (gage height, 5.54 ft); minimum, 15 cfs Sept. 25 (gage height 1.00 ft).
1944-64: Maximum discharge, 19,000 cfs July 21, 1956 (gage height, 15.88 ft); minimum, 6 cfs Sept. 6, 1944 (gage height, 0.83 ft); minimum daily, 9.6 cfs Aug. 12, 1963.
Flood in August 1933 reached a stage of 19.5 ft, from information by Maryland State Roads Commission.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by Liberty Reservoir beginning July 22, 1954 (usable capacity, 42,070,000,000 gal; dead storage, 1,260,000,000 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.

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

1.0	15	2.0	216
1.2	31	2.5	457
1.4	59	3.0	830
1.7	127	3.5	1,310

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	30	42	139	b55	112	b95	139	253	74	38	24	27
2	23	66	91	114	112	b120	138	198	79	37	26	20
3	22	50	76	98	98	394	182	178	75	38	52	17
4	27	35	68	126	b80	380	143	168	71	39	115	16
5	24	33	60	130	b80	489	129	156	68	38	43	18
6	22	91	54	117	173	276	146	147	76	34	34	17
7	22	521	52	b450	193	204	180	142	93	32	31	21
8	23	123	67	213	128	187	*234	139	76	92	36	26
9	23	66	190	b1,450	108	194	218	132	72	89	29	25
10	24	51	99	456	104	173	166	127	67	50	27	22
11	*25	44	75	181	b95	156	152	118	59	43	30	20
12	25	39	73	b150	b85	149	144	116	56	39	31	20
13	25	36	75	b120	b85	150	139	152	58	90	27	24
14	26	35	72	b130	b90	145	207	146	59	57	25	23
15	29	*32	b55	b140	b95	170	187	120	64	46	24	20
16	29	32	b50	b120	b130	143	151	115	65	42	23	18
17	29	32	b45	b100	140	131	141	111	54	39	27	18
18	29	32	b40	b90	b120	122	133	*120	51	37	32	19
19	30	31	b35	b90	b135	116	132	104	54	36	*38	21
20	30	30	b35	b145	142	115	162	97	60	35	28	33
21	32	31	b30	383	b115	135	367	91	52	34	25	32
22	33	32	b30	b290	b100	235	242	90	50	35	24	24
23	33	47	b35	b190	b80	317	196	87	51	34	23	22
24	34	86	b40	b150	b80	265	173	85	108	32	22	20
25	36	51	50	495	b80	209	157	81	70	35	20	17
26	36	42	49	253	b80	184	151	77	50	37	20	16
27	37	39	50	173	b100	161	146	76	47	37	18	16
28	37	37	50	*150	b95	147	171	74	44	33	23	24
29	36	153	b40	122	b90	143	170	75	41	31	26	85
30	35	436	b35	b110	------	144	404	72	40	28	25	77
31	33	------	b30	107	------	145	------	73	------	25	30	------
TOTAL	899	2,375	1,890	6,898	3,125	5,994	5,400	3,720	1,884	1,312	958	758
MEAN	29.0	79.2	61.0	223	108	193	180	120	62.8	42.3	30.9	25.3
(†)	18,210	17,610	16,280	20,370	22,360	27,430	32,220	33,820	33,400	32,720	31,520	29,520
(‡)	+157	+151	+154	+91	+67	+68	+69	+92	+114	+109	+106	+125

CALENDAR YEAR 1963 MAX 1,310 MIN 9.6 MEAN 76.1 ‡ +164
WATER YEAR 1963-64 MAX 1,450 MIN 16 MEAN 96.2 ‡ +109

* Discharge measurement made on this day.
† Month-end total contents, in millions of gallons, in Liberty Reservoir (contents on Sept. 30, 1963 20,760 million gallons); furnished by Baltimore Department of Public Works.
‡ Diversions, in cubic feet per second, above station for municipal supply of Westminster, and from Liberty Reservoir for municipal supply of Baltimore. Records furnished by City of Westminster and Baltimore Department of Public Works, respectively.
b Stage-discharge relation affected by ice.

1-5891. East Branch Herbert Run at Arbutus, Md.

Location.--Lat 39°14'24", long 76°41'33", on right bank at downstream side of highway bridge on Tom Day Boulevard at U. S. Route 1 in Arbutus, Baltimore County, and 2 miles south of Baltimore city limits.
Drainage area.--2.47 sq mi.
Records available.--August 1957 to September 1964.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 45 ft (from topographic map)
Average discharge.--7 years, 3.04 cfs
Extremes.--Maximum discharges and minimum daily discharges for the water years 1958-64 are contained in the following table.

Water year	Maximum			Minimum daily		
	Date	Discharge (cfs)	Gage height (feet)	Date	Discharge (cfs)	Gage height (feet)
1958	July 12, 1958	824	4.83	Oct. 5, 1957	0.8	1.30
1959	July 20, 1959	519	3.78	Sept. 20, 1959	0.6	1.26
1960	Sept. 12, 1960	443	3.56	Oct. 5,6,7,1959	0.5	(a)
1961	June 9, 1961	662	4.29	Sept. 24,30,1961	0.7	1.28
1962	July 23, 1962	368	3.31	Aug. 26, 1962 Sept. 16, 1962	0.5	1.24
1963	Aug. 13, 1963	374	3.33	Aug. 11, 1963	0.4	1.22
1964	July 3, 1964	458	3.61	Sept. 6,7,27,1964	0.4	1.22

a No gage-height record.

1958-1964: Maximum discharge, 824 cfs July 12, 1958 (gage height 4.83 ft), from rating curve extended above 250 cfs on basis of slope-area measurement made prior to establishment of station at gage height 5.7 ft; minimum daily, 0.4 cfs Aug. 11, 1963, Sept. 6, 7, 27, 1964.

Flood of July 20, 1956, reached a stage of 5.7 ft, from flood marks (discharge 1,090 cfs from rating curve extended as explained above).

Remarks.--Records good except those for periods of ice effect, which are fair, or those for Aug. 1957 to Dec. 10, 1959, or those for periods of doubtful or no gage-height record, which are poor. Slight regulation at low flow from unknown source above station.

Rating tables, Aug. 1, 1957, to Sept. 30, 1964, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Aug. 1, 1957 to July 20, 1959

1.3	0.8	1.9	20
1.4	1.9	2.0	30
1.5	3.7	2.1	49
1.6	6.2	2.2	77
1.7	9.5	2.3	105
1.8	14		

July 20, 1959 to June 9, 1961
July 24, 1962 to Nov. 6, 1963
June 27, 1964 to Sept. 30, 1964

Same as preceding table below 1.8 ft.

1.9	19	2.3	64
2.1	38	2.6	125

June 9, 1961 to July 23, 1962
Nov. 7, 1963 to June 27, 1964

1.2	0.3	1.4	1.7	1.6	5.4	1.8	14	2.0	27
1.3	.8	1.5	3.2	1.7	8.8	1.9	19	2.2	50

Discharge, in cubic feet per second, 1957

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0.8	0.7	9	0.8	1.4	17	0.7	50	25	3.5	1.0
2	.7	.7	10	.7	*55	18	.7	2.0	26	2.0	.9
3	.7	.7	11	.7	1.7	19	1.0	1.5	27	1.1	.8
4	1.5	.7	12	*1.5	4.6	20	1.5	1.2	28	1.0	.8
5	.8	.7	13	.8	8.0	21	.9	1.0	29	.9	.8
6	.7	.8	14	.8	2.4	22	.8	2.0	30	.8	1.0
7	.7	5.0	15	.8	1.7	23	.7	1.5	31	.8	
8	.7	.8	16	.7	25	24	.7	1.2			

Total	30.5	175.6
Mean	0.98	5.85
Cubic feet per second per square mile	0.397	2.37
Runoff in inches	0.46	2.64

* Discharge measurement made on this day.

1-5891. East Branch Herbert Run at Arbutus, Md.

Discharge, in cubic feet per second, water year October 1957 to September 1958

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	4.5	2.5	2.8	7.0	6.5	6.9	3.2	3.3	*1.7	4.0	2.0
2	1.1	1.7	1.5	2.8	4.4	5.7	5.2	2.8	5.2	1.6	2.1	1.7
3	1.0	1.1	*1.8	2.6	3.5	6.0	4.4	5.0	1.8	1.6	2.0	1.6
4	1.0	1.1	3.0	2.4	3.2	5.0	4.2	6.0	1.7	15	2.5	1.6
5	.8	1.3	3.3	2.4	3.0	4.5	3.7	45	1.7	2.4	2.0	1.5
6	9.0	1.4	4.4	2.4	3.0	4.2	25	10	1.6	36	2.0	1.4
7	3.0	1.3	20	2.4	20	4.0	7.2	19	1.4	6.8	2.0	1.3
8	2.0	4.0	6.0	*2.2	5.9	3.8	5.0	7.0	1.4	48	*2.0	1.3
9	1.7	2.0	15	2.0	2.7	3.6	4.4	4.4	1.7	10	1.9	1.2
10	1.5	1.4	5.0	2.0	*2.2	3.8	5.2	3.5	2.1	3.7	1.8	1.2
11	1.4	1.3	3.0	1.8	2.1	4.0	9.2	4.0	13	6.5	2.1	1.2
12	1.3	1.2	2.4	1.8	2.0	4.0	5.0	3.5	3.2	70	30	1.2
13	1.2	1.2	2.1	1.7	2.0	4.2	4.0	*3.0	4.3	8.0	3.0	1.2
14	1.2	9.0	1.9	*40	2.0	*14	3.7	2.8	1.5	18	1.9	1.2
15	*1.1	5.0	1.8	5.0	2.0	5.2	*3.7	2.8	1.4	4.7	2.1	1.4
16	1.1	1.8	1.8	3.5	2.0	4.2	3.2	2.8	1.5	3.5	20	1.6
17	1.5	1.5	1.7	2.5	2.0	3.7	3.0	2.4	1.5	3.2	2.2	2.0
18	7.0	1.3	1.7	2.2	2.1	3.7	3.0	2.3	1.9	3.2	2.1	2.0
19	1.4	4.0	1.7	2.0	2.2	9.0	2.6	2.1	1.5	3.2	2.0	1.6
20	1.0	2.0	35	2.0	2.4	95	2.4	3.8	6.5	2.4	2.0	1.6
21	1.0	1.7	9.1	7.0	3.0	27	5.7	2.3	5.0	2.6	2.5	20
22	1.0	1.5	4.2	10	6.0	21	6.9	2.1	3.5	5.5	3.5	2.0
23	1.0	3.0	3.3	5.0	10	13	4.2	2.1	2.0	3.7	2.2	1.7
24	2.5	2.0	3.2	4.0	25	8.5	3.2	1.9	1.6	9.6	3.5	1.6
25	1.2	1.8	3.0	40	8.0	10	2.8	2.8	1.5	2.8	80	1.6
26	1.0	1.6	25	6.9	6.0	13	2.4	2.1	3.0	2.3	3.0	1.6
27	1.0	1.5	7.5	5.0	62	13	9.0	2.1	2.0	2.1	2.3	1.6
28	1.0	5.0	4.0	4.5	12	6.5	20	2.3	1.6	2.3	2.1	1.6
29	1.0	3.0	3.5	4.2	-	5.4	5.6	1.8	1.5	2.3	1.9	*1.6
30	1.0	8.0	3.0	4.0	---	6.2	4.0	1.7	1.6	2.1	1.8	1.7
31	1.0	---	2.8	3.5	---	13	---	1.7	---	3.5	2.0	---
Total	53.1	77.2	184.2	180.6	207.7	330.7	174.8	158.3	81.5	288.3	194.5	64.8
Mean	1.71	2.57	5.94	5.83	7.42	10.7	5.83	5.11	2.72	9.30	6.27	2.16
Cfsm	0.692	1.04	2.40	2.36	3.00	4.33	2.36	2.07	1.10	3.77	2.54	0.874
In.	0.80	1.16	2.77	2.72	3.13	4.98	2.63	2.38	1.23	4.34	2.93	0.98

Calendar year 1957: Max - Min - Mean - Cfsm - In. -
Water year 1957-58: Max 95 Min 0.8 Mean 5.47 Cfsm 2.21 In. 30.05

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
6-11	1500	3.14	340	7- 4	2000	3.43	421
7- 6	1630	4.26	654	7- 8	1700	3.38	407
7-12	1500	4.83	824	8-12	1400	3.59	466
8-25	0300	3.27	377				

* Discharge measurement made on this day.

1-5891. East Branch Herbert Run at Arbutus, Md.

Discharge, in cubic feet per second, water year October 1958 to September 1959

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	1.7	1.8	20	1.5	1.5	1.6	1.4	1.1	1.5	1.3	1.5
2	2.4	20	1.8	5.5	1.5	1.6	15	1.4	*30	1.0	1.2	6.5
3	2.2	5.0	2.7	1.8	1.8	1.7	5.0	1.8	1.7	.9	1.1	2.0
4	2.1	2.0	4.5	1.6	7.0	1.6	10	1.3	1.3	.9	1.1	1.4
5	2.1	1.9	2.4	1.4	4.5	1.9	2.3	1.3	1.1	.9	5.0	1.2
6	2.0	1.8	1.8	1.4	1.9	25	1.9	1.3	1.0	.9	1.2	1.0
7	2.0	1.7	1.5	*1.6	*1.7	3.3	1.8	1.3	1.0	.9	1.3	1.0
8	2.0	2.0	1.6	1.8	1.6	2.1	1.7	1.3	1.0	.9	8.0	1.1
9	1.8	1.8	1.8	1.6	2.1	2.1	2.3	*1.2	1.0	.9	1.5	1.2
10	1.8	1.7	1.7	1.4	5.0	1.9	2.4	1.1	1.0	7.3	1.2	1.2
11	1.8	1.7	1.5	1.4	2.3	1.9	6.0	1.2	1.0	1.1	*1.2	1.1
12	1.7	1.7	1.8	1.5	1.9	20	10	3.0	2.0	1.8	1.2	.8
13	1.6	1.7	1.6	1.6	8.0	3.0	4.2	9.8	2.0	1.2	1.2	.7
14	1.6	1.7	1.6	1.9	10	2.3	2.6	1.6	1.0	5.1	1.1	1.0
15	1.6	2.0	1.7	1.6	3.2	1.9	1.9	1.3	1.1	6.5	1.0	1.1
16	1.6	1.8	1.5	2.1	2.3	1.8	1.8	1.2	1.5	1.4	1.0	1.1
17	1.6	*2.2	1.5	1.4	2.3	1.8	1.6	1.1	1.6	1.3	1.1	1.2
18	1.6	1.9	1.6	1.3	2.1	1.7	1.6	1.2	1.2	1.2	1.1	1.1
19	1.6	1.8	1.7	1.2	1.7	1.7	2.0	2.0	1.0	5.5	1.0	.8
20	1.6	1.8	1.6	3.8	1.6	1.7	1.6	1.6	.9	26	1.0	.6
21	1.6	1.8	1.5	1.9	1.6	1.8	1.7	1.4	.9	1.8	1.0	.8
22	1.3	1.7	1.5	9.0	1.6	1.6	1.7	1.2	1.0	1.4	3.3	*1.0
23	3.0	1.6	1.7	1.9	2.5	1.5	1.8	1.3	1.0	1.3	2.5	1.0
24	1.9	1.9	1.8	2.1	1.9	1.5	1.7	1.0	1.2	4.0	1.4	1.0
25	1.8	1.9	1.5	1.7	1.8	*1.5	1.6	1.0	1.2	1.7	1.1	1.0
26	1.7	1.8	1.4	1.8	1.7	1.5	1.6	1.0	1.8	1.3	1.0	.8
27	1.8	1.6	1.5	2.1	1.7	3.0	1.9	1.0	1.0	1.2	1.0	.7
28	1.9	7.1	1.5	1.9	1.6	1.5	3.3	1.0	.9	1.1	1.0	.8
29	1.8	2.5	12	1.7	-	1.4	1.6	1.9	*1.0	1.7	1.2	1.6
30	1.7	1.7	2.5	1.7	---------	4.5	1.5	1.0	2.5	1.3	1.5	1.3
31	1.7	----------	1.8	1.6	---------	1.7	----------	1.1	----------	4.0	7.3	----------
Total	73.6	81.5	66.4	83.3	78.4	102.0	95.7	50.3	66.0	88.0	56.1	37.6
Mean	2.37	2.72	2.14	2.69	2.80	3.29	3.19	1.62	2.20	2.84	1.81	1.25
Cfsm	0.960	1.10	0.866	1.09	1.13	1.33	1.29	0.656	0.891	1.15	0.733	0.506
In.	1.11	1.23	1.00	1.25	1.18	1.54	1.44	0.76	0.99	1.32	0.84	0.57

Calendar year 1958: Max 95 Min 1.2 Mean 5.21 Cfsm 2.11 In. 28.66
Water year 1958-59: Max 30 Min 0.6 Mean 2.41 Cfsm 0.976 In. 13.23

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge
7-20	1600	3.78	519

* Discharge measurement made on this day.

1-5891. East Branch Herbert Run at Arbutus, Md.

Discharge, in cubic feet per second, water year October 1959 to September 1960

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	1.2	0.8	1.3	1.3	1.9	1.8	a3.7	1.8	1.4	a1.4	1.4
2	1.0	1.0	.8	1.4	b1.1	1.9	1.7	1.5	1.9	1.1	a1.4	1.3
3	.7	.6	.8	10	b1.0	b1.7	13	1.6	1.7	.8	a12	1.2
4	.6	.7	.8	2.1	b1.0	b1.7	17	1.6	1.5	.8	a4.0	5.2
5	.5	.7	.7	1.8	5.9	b1.6	25	1.6	1.4	.8	a1.8	2.3
6	.5	1.0	2.7	1.6	7.9	b1.5	5.0	1.6	1.5	.8	a1.4	1.3
7	.5	5.0	7.9	1.7	1.7	b1.5	3.5	1.4	1.5	.8	a1.4	1.3
8	2.0	1.5	1.3	1.5	1.6	b1.5	3.2	45	1.5	.8	a1.4	1.3
9	4.5	1.0	1.2	1.2	1.5	b1.5	2.6	15	1.5	.8	a1.4	3.9
10	1.0	.9	*1.2	1.1	2.1	b1.7	2.3	3.7	1.5	3.1	a5.5	1.9
11	1.5	.9	1.2	1.2	3.3	b1.6	2.4	2.8	1.2	14	*1.4	19
12	.7	.8	1.5	2.5	1.5	b1.6	2.4	4.7	1.1	1.4	1.4	*101
13	1.0	*.8	2.3	*2.6	1.4	b1.8	2.4	2.6	1.4	6.5	4.7	4.2
14	8.4	1.5	1.6	1.5	b1.4	b2.5	2.3	2.1	5.1	11	1.3	2.6
15	1.5	.9	1.4	7.2	b1.7	3.0	2.3	1.8	2.3	1.5	1.4	2.3
16	1.0	.8	1.3	1.6	3.0	2.8	1.9	*2.4	1.3	1.3	2.0	2.1
17	.8	1.7	1.4	1.3	4.0	13	1.8	2.1	1.3	1.2	1.4	1.9
18	.7	.8	4.4	2.0	27	7.5	3.1	1.9	1.0	a1.2	1.4	6.8
19	.6	.8	1.4	2.0	9.6	4.4	1.8	1.8	.8	a1.3	1.3	5.0
20	.6	.7	1.0	b1.2	3.0	3.0	1.8	1.7	1.1	a1.3	1.1	2.6
21	.6	.7	1.4	b1.1	2.3	2.8	1.8	6.9	1.1	a1.3	1.1	2.1
22	1.2	.6	b1.1	b1.0	2.3	2.4	1.8	6.0	1.3	a1.2	2.6	*1.9
23	3.5	1.6	b.8	b1.0	1.9	2.1	1.6	4.1	1.3	a1.1	1.3	1.8
24	10	8.0	b.8	b1.1	1.8	2.1	1.5	2.1	3.6	a.8	1.3	2.5
25	1.5	1.0	.8	b1.1	16	2.1	1.6	2.1	1.1	a1.1	1.2	1.4
26	1.2	.6	.8	1.3	*7.6	1.9	4.6	1.9	.8	a1.2	1.3	1.6
27	5.0	.6	.8	3.8	2.8	1.7	2.9	1.8	1.0	a10	1.0	1.7
28	1.4	6.6	6.4	2.8	2.3	1.6	1.6	8.1	1.1	a1.5	.8	1.7
29	1.1	.8	6.3	1.5	2.3	1.8	1.6	2.6	1.3	a1.2	1.1	6.4
30	1.0	.8	1.9	1.4	----------	2.5	1.4	2.1	1.3	a28	3.3	1.9
31	1.5	----------	1.7	1.2	----------	3.7	----------	1.9	----------	a1.5	6.8	----------
Total	60.6	44.6	72.0	64.1	120.3	82.4	117.7	140.2	46.3	100.8	70.9	191.6
Mean	1.95	1.49	2.32	2.07	4.15	2.66	3.92	4.52	1.54	3.25	2.29	6.39
Cfsm	0.789	0.603	0.939	0.838	1.68	1.08	1.59	1.83	0.623	1.32	0.927	2.59
In.	0.91	.067	1.08	0.97	1.81	1.24	1.77	2.11	0.70	1.52	1.07	2.88

Calendar year 1959: Max 30 Min 0.5 Mean 2.29 Cfsm 0.927 In. 12.55
Water year 1959-60: Max 101 Min 0.5 Mean 3.04 Cfsm 1.23 In. 16.73

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
5- 8	2000	3.31	368	7-27	1600	3.04	274
8- 3	about 1800	3.53	434	8-30	2400	3.26	351
9-12	0800	3.56	443				

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

1-5891. East Branch Herbert Run at Arbutus, Md.

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	6.6	1.3	2.6	b1.4	4.4	5.7	a5.5	2.2	1.2	1.3	1.4
2	1.3	1.8	1.3	4.2	b1.3	3.3	3.0	a4.3	1.6	1.2	1.2	1.2
3	1.5	1.9	1.2	3.2	b1.5	3.2	2.6	2.4	2.5	1.4	1.3	1.2
4	1.5	1.6	1.1	b2.4	b2.0	3.3	2.6	2.3	1.6	1.0	1.2	5.8
5	1.5	1.6	1.2	b2.0	b2.6	3.2	2.4	2.1	1.6	1.2	1.0	1.2
6	1.5	1.4	1.3	b1.9	b2.3	3.5	2.4	3.0	1.7	4.6	2.4	1.3
7	1.4	1.9	1.4	b2.2	b2.1	3.2	2.1	2.9	1.6	1.2	1.6	1.4
8	1.4	1.5	1.4	b2.1	b2.1	a11	1.9	2.6	2.1	1.2	1.2	1.3
9	1.3	1.6	b1.3	b1.8	3.5	6.5	4.4	4.1	3.5	1.0	3.8	1.2
10	1.4	6.5	b1.2	b1.6	5.7	4.0	19	2.8	2.6	1.2	1.8	1.1
11	1.4	1.7	b1.2	b1.6	4.0	3.5	3.5	8.2	1.6	1.2	1.3	1.2
12	1.4	1.5	b1.1	b1.6	2.8	3.2	9.9	4.7	1.6	1.2	1.0	1.3
13	1.4	1.4	b1.0	b1.7	3.3	*3.2	40	2.8	1.6	3.7	.8	1.3
14	1.5	1.5	b1.2	1.8	10	6.4	5.4	2.4	6.4	1.5	1.1	*1.3
15	1.3	1.5	b1.5	9.2	11	3.3	4.2	2.6	2.7	1.1	1.2	1.4
16	1.2	1.5	b2.0	4.2	10	3.0	8.7	2.8	1.6	4.9	1.2	1.0
17	1.4	1.4	1.6	2.8	8.8	3.0	*3.7	2.4	1.4	11	1.2	.8
18	1.4	1.4	1.3	2.4	18	7.1	3.3	2.4	1.3	2.1	1.2	1.0
19	1.5	1.3	b1.2	b1.8	11	7.5	3.3	2.6	1.5	1.4	.9	1.1
20	13	1.3	b1.2	b1.5	5.4	3.3	3.2	2.1	1.5	1.4	3.1	1.2
21	1.7	1.3	4.9	b1.5	5.7	3.2	3.0	a1.9	*8.5	1.3	2.7	1.1
22	1.3	1.4	b1.4	b1.5	12	12	3.9	a1.7	2.2	1.1	1.2	1.0
23	1.4	1.8	b1.2	a1.5	15	7.5	2.7	a1.6	1.5	1.0	*1.9	.8
24	1.3	1.3	b1.2	a1.5	5.7	4.2	2.6	a1.6	1.2	a7.0	1.7	.7
25	1.4	1.3	b1.5	a1.5	12	3.2	2.7	a1.5	3.8	3.0	3.3	1.0
26	1.4	1.3	b2.0	a1.5	5.4	3.0	5.3	*a5.4	1.6	1.3	a15	1.1
27	1.4	1.1	b2.5	a1.5	4.0	3.0	2.4	1.6	3.6	1.3	a1.8	1.0
28	2.2	13	b1.4	b1.5	4.4	3.2	5.3	1.4	*1.6	1.3	1.6	1.0
29	1.5	1.6	5.5	a1.5	-	2.6	2.8	1.8	1.5	1.2	1.6	1.0
30	1.1	1.4	6.4	a1.5	---	2.4	1.9	1.5	1.6	1.1	1.4	.7
31	*4.0	---	2.1	b1.4	---	12	---	1.6	---	1.2	1.4	---
Total	58.6	54.7	56.1	92.4	173.0	145.4	163.9	86.6	100.8	65.5	80.5	38.1
Mean	1.89	1.82	1.81	2.98	6.18	4.69	5.46	2.79	3.36	2.11	2.60	1.27
Cfsm	0.765	0.737	0.733	1.21	2.50	1.90	2.21	1.13	1.36	0.854	1.05	0.514
In.	0.88	0.82	0.84	1.39	2.60	2.19	2.47	1.30	1.52	0.99	1.21	0.57

Calendar year 1960: Max 101 Min 0.8 Mean 3.02 Cfsm 1.22 In. 16.61
Water year 1960-61: Max 40 Min 0.7 Mean 3.06 Cfsm 1.24 In. 16.78

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
6- 9	1800	4.29	662	7-17	2130	3.08	288
8-26	0100	3.55	440				

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

1-5891. East Branch Herbert Run at Arbutus, Md.

Discharge, in cubic feet per second, water year October 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.1	1.2	b1.1	b0.9	3.4	1.9	2.0	1.4	0.8	1.4	0.7
2	1.6	1.1	1.1	b1.2	b.9	b2.3	3.2	3.8	1.2	.8	1.3	2.1
3	1.4	1.1	.9	b1.3	b1.0	b2.0	2.6	2.0	1.0	1.6	1.4	.9
4	1.3	.9	1.2	1.5	1.2	b1.8	2.3	1.7	1.3	.8	1.1	1.4
5	1.2	.8	1.2	1.5	1.7	b3.4	2.3	1.5	3.4	.8	.8	1.4
6	1.2	1.1	1.2	20	b1.3	16	2.1	1.4	1.6	.8	4.3	1.0
7	.9	4.1	1.2	5.3	b1.0	10	9.7	1.6	1.2	.8	1.5	1.1
8	.7	1.2	1.2	2.3	b1.2	5.4	2.8	2.2	1.2	.7	1.9	.7
9	1.1	1.2	1.4	b1.7	*b1.3	*6.5	2.4	1.7	1.0	.8	*1.5	.6
10	1.2	1.2	1.9	b1.5	b1.1	6.4	2.3	1.7	.9	.8	1.2	.8
11	1.2	1.1	1.3	b1.3	b.9	5.8	3.5	1.8	1.2	.8	.8	1.0
12	1.1	.9	8.7	b1.2	b1.0	37	16	1.5	1.7	.8	.6	1.1
13	1.2	1.1	1.6	b1.1	b1.1	5.4	8.7	1.3	4.1	.8	.8	1.1
14	7.5	2.7	1.4	b1.1	b4.7	3.4	3.4	1.5	1.3	1.5	1.1	1.1
15	1.1	1.3	b1.3	*b5.0	2.9	3.0	2.6	1.5	1.3	.9	1.0	.7
16	1.1	1.9	b1.3	1.8	2.2	2.8	2.4	1.5	1.1	1.5	1.0	.5
17	1.2	1.5	7.4	b1.5	2.7	2.3	2.4	1.5	.8	1.4	1.1	6.3
18	1.2	1.1	1.3	b1.3	1.5	2.2	2.4	*1.5	1.2	2.4	.7	1.2
19	1.2	.9	2.3	b1.2	15	2.4	2.3	1.2	1.2	1.2	.6	*1.0
20	1.2	2.9	1.7	b1.1	3.2	2.6	4.0	1.1	11	1.1	.8	1.1
21	22	1.2	1.6	b1.2	4.0	16	2.2	1.4	2.3	2.0	1.7	1.0
22	1.7	1.2	1.4	1.5	9.2	4.3	1.7	1.4	1.2	1.0	1.1	.7
23	*1.3	1.0	1.5	1.6	3.4	2.9	1.7	3.1	1.0	7.5	.8	1.1
24	1.2	14	3.2	b1.4	6.0	2.4	2.0	11	.8	1.7	1.0	.8
25	1.2	1.4	1.5	1.5	2.2	2.2	2.0	1.5	1.1	1.5	.8	1.0
26	1.2	1.1	1.3	1.9	36	2.3	*2.0	2.0	1.2	1.4	.5	1.2
27	1.2	1.2	1.5	1.5	15	2.2	1.8	3.5	1.2	1.3	.8	9.2
28	1.1	1.3	3.0	b1.2	7.0	2.2	1.7	1.8	*1.2	1.0	1.1	1.6
29	.8	*1.2	b1.5	b1.2	—	2.2	2.7	1.5	1.2	.8	.8	.8
30	1.1	1.3	b1.1	b1.1	---	2.0	2.0	1.2	.8	1.6	.8	.6
31	1.2	---	b1.0	b1.0	---	5.2	---	1.5	---	1.3	1.0	---
Total	63.2	54.1	71.1	69.1	129.6	168.0	116.2	63.9	51.1	42.2	35.3	43.8
Mean	2.04	1.80	2.29	2.23	4.63	5.42	3.87	2.06	1.70	1.36	1.14	1.46
Cfsm	0.826	0.729	0.927	0.903	1.87	2.19	1.57	0.834	0.688	0.551	0.462	0.591
In.	0.95	0.81	1.07	1.04	1.95	2.53	1.75	0.96	0.77	0.64	0.53	0.66

Calendar year 1961: Max 40 Min 0.6 Mean 3.11 Cfsm 1.26 In. 17.07
Water year 1961-62: Max 37 Min 0.5 Mean 2.49 Cfsm 1.01 In. 13.66

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge
7-23	2000	3.31	368

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

1-5891. East Branch Herbert Run at Arbutus, Md.

Discharge, in cubic feet per second, water year October 1962 to September 1963

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	1.2	1.4	b1.0	1.6	1.9	2.6	1.6	1.1	1.0	1.8	0.5
2	1.1	1.1	1.1	b1.3	3.8	2.3	2.3	1.4	8.1	3.3	.8	.5
3	1.1	12	1.4	1.7	2.8	1.5	1.8	1.3	*28	1.0	.9	.7
4	33	1.2	1.5	1.9	b1.7	1.9	1.7	1.1	3.2	.7	.5	.8
5	2.4	2.8	1.5	1.6	2.4	7.6	1.7	.8	3.5	.7	.6	1.2
6	1.2	1.3	21	1.5	2.4	26	1.6	1.2	1.7	.7	.7	.8
7	.7	1.2	3.3	1.8	2.3	4.4	1.4	1.2	1.6	.6	.7	.7
8	1.1	1.3	1.9	1.8	b1.6	3.0	1.5	1.3	1.6	.7	.7	.6
9	1.2	10	1.6	1.9	b1.3	2.4	2.1	1.3	1.3	.7	.7	.7
10	1.3	32	b1.5	2.1	1.4	1.9	1.6	1.4	2.0	.7	.5	.7
11	1.2	1.8	b1.4	2.6	2.4	4.8	1.5	1.1	*1.6	.7	.4	.8
12	1.2	*1.6	b1.3	12	11	*18	1.4	.8	1.2	.8	.5	.8
13	.8	1.6	b1.2	5.6	b2.6	4.7	1.2	1.2	1.2	.7	13	*.7
14	.7	1.5	b1.2	2.4	b1.8	3.2	1.1	1.8	1.3	4.2	1.2	.7
15	1.0	1.4	b1.2	1.9	b1.5	2.6	1.1	1.2	1.1	.8	.8	3.2
16	1.3	1.5	1.3	1.8	b1.3	5.3	1.3	1.2	1.0	.8	.8	11
17	1.2	1.3	*1.5	1.7	b1.3	9.8	1.9	3.3	1.2	.8	.7	1.3
18	1.2	10	1.5	1.7	b1.5	3.2	1.5	3.0	1.2	.8	.5	.8
19	1.2	2.1	1.4	2.3	7.1	6.4	1.4	.8	1.2	.8	7.5	.8
20	1.0	2.1	1.3	5.2	7.9	5.4	1.3	1.8	6.7	1.0	6.6	.8
21	.8	9.8	b1.1	b2.4	b2.5	3.2	1.1	2.3	1.3	.6	1.5	1.3
22	1.1	20	b1.9	b1.7	b1.7	2.6	1.3	1.2	.8	3.6	1.5	.6
23	1.2	2.6	2.1	b2.2	b1.4	2.1	2.6	1.0	.7	*.8	.8	.7
24	1.2	1.8	1.1	b1.4	b1.7	1.8	1.4	1.0	1.0	.8	.7	.8
25	1.4	1.4	1.0	b1.3	b1.8	2.1	*1.3	.8	1.1	.7	.6	.8
26	1.3	1.7	2.5	b1.3	b1.3	5.0	1.3	.8	1.1	.7	.7	.8
27	.8	1.7	b1.4	b1.3	b1.2	3.4	1.1	.8	1.1	.6	.8	.8
28	.7	1.7	b1.3	b1.3	b1.5	2.3	.8	1.1	1.1	.7	.8	.8
29	1.0	1.6	b1.0	b1.3	-	2.1	3.2	2.1	3.8	1.0	1.7	30
30	1.5	1.6	b.9	b1.4	---	1.8	5.6	1.8	2.0	.7	.8	1.3
31	1.6	---	b.9	b1.5	---	1.6	---	.8	---	.7	.8	---
Total	67.3	132.9	64.7	70.9	72.8	144.3	51.7	42.5	83.8	32.4	50.6	66.0
Mean	2.17	4.43	2.09	2.29	2.60	4.65	1.72	1.37	2.79	1.05	1.63	2.20
Cfsm	0.879	1.79	0.846	0.927	1.05	1.88	0.696	0.555	1.13	0.425	0.660	0.891
In.	1.01	2.00	0.97	1.07	1.10	2.17	0.78	0.64	1.26	0.49	0.76	0.99

Calendar year 1962: Max 37 Min 0.5 Mean 2.70 Cfsm 1.09 In. 14.81
Water year 1962-63: Max 33 Min 0.4 Mean 2.41 Cfsm 0.976 In. 13.24

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10- 4	1600	3.17	320	11-10	0300	3.02	267
8-13	1830	3.33	374				

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

1-5891. East Branch Herbert Run at Arbutus, Md.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	5.9	1.6	7.5	3.4	1.7	1.6	3.6	1.2	1.0	0.7	0.7
2	1.0	2.9	1.4	3.5	1.6	*1.8	3.4	2.4	1.2	1.2	.6	.7
3	1.2	.7	1.4	3.8	1.6	5.7	2.0	2.2	1.2	12	4.4	.7
4	.8	.8	1.2	3.5	1.6	2.6	1.6	2.2	1.2	3.2	1.0	.7
5	.8	1.2	1.2	2.0	1.6	2.3	1.4	2.0	1.2	.8	.8	.6
6	.7	28	1.2	5.7	22	1.7	*4.8	1.7	2.2	.8	.8	.4
7	*.7	13	1.1	14	3.9	1.6	5.0	1.8	1.1	.8	2.2	.4
8	.8	*1.6	7.9	2.9	2.4	2.7	7.3	1.7	1.3	8.8	1.0	.6
9	.8	1.2	2.4	40	1.8	2.0	2.8	1.6	1.3	1.3	.6	.7
10	.8	1.0	1.4	4.7	b1.7	1.7	2.2	1.4	1.1	1.0	.7	.7
11	.8	1.0	1.3	b2.4	b1.6	1.6	1.8	1.6	1.1	.8	.8	.7
12	.8	1.1	2.3	b1.7	b2.7	1.7	1.6	1.6	1.1	.9	1.0	.8
13	.6	1.0	1.3	b1.3	b2.4	1.5	1.7	9.8	.9	7.6	*.7	.8
14	.7	1.0	2.9	b1.3	4.2	2.9	5.8	1.8	.8	1.2	.7	.6
15	.8	1.0	b1.1	b1.3	2.7	1.6	5.0	1.5	1.8	.8	.6	.6
16	.8	.9	b1.0	b1.3	9.6	1.5	1.8	1.4	1.0	.8	1.7	.6
17	.8	.9	b1.0	b1.5	2.8	1.5	1.8	1.3	.9	.8	1.1	.6
18	1.0	.8	b1.0	b2.0	4.9	1.4	1.6	1.4	.8	.7	1.0	.7
19	.8	.9	b.9	b2.0	17	1.4	2.3	*1.3	1.6	.6	.8	1.9
20	.6	.9	b.8	11	5.2	1.4	5.8	1.2	5.0	.8	.8	1.4
21	.8	1.1	b.7	8.1	3.0	8.6	5.0	1.2	.7	4.5	.8	.7
22	.8	.9	b.7	3.4	b2.3	19	2.8	1.2	.8	1.1	.7	.8
23	.8	7.0	b.8	2.4	b1.7	4.1	2.2	1.2	1.0	.8	.5	.8
24	.8	1.1	b1.2	2.3	b1.6	2.6	1.8	1.1	2.6	.8	.6	.7
25	.8	.9	b1.4	19	b1.6	2.3	1.7	1.2	1.1	.7	.7	.6
26	.8	.9	b1.8	3.2	b1.6	3.3	1.5	1.2	.9	.7	.7	.6
27	.7	.9	b1.4	2.4	b1.7	1.8	1.8	1.2	6.0	.8	.7	.4
28	.8	.8	b1.1	2.0	b2.0	1.6	3.5	1.2	.8	.8	.7	4.6
29	.8	19	b.8	1.7	b2.5	1.5	3.9	1.2	*.8	.9	.6	13
30	.8	12	b.7	*1.7	---	2.5	17	1.1	1.0	.8	.6	*8.2
31	.8	---	b.7	1.7	---	1.6	---	1.0	---	.7	.7	---
Total	25.1	110.4	45.7	161.3	112.7	89.2	102.5	56.3	43.7	58.5	29.3	45.3
Mean	0.81	3.68	1.47	5.20	3.89	2.88	3.42	1.82	1.46	1.89	0.96	1.51
Cfsm	0.328	1.49	0.595	2.11	1.57	1.17	1.38	0.737	0.591	0.765	0.389	0.611
In.	0.38	1.66	0.69	2.43	1.70	1.34	1.54	0.85	0.66	0.88	0.44	0.68

Calendar year 1963: Max 30 Min 0.4 Mean 2.18 Cfsm 0.883 In. 11.99
Water year 1963-64: Max 40 Min 0.4 Mean 2.40 Cfsm 0.972 In. 13.25

Peak discharge (base, 260 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
6-27	1600	3.14	309	7-3	2300	3.61	458

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

1-5892. Gwynns Falls near Owings Mills, Md.

Location.--Lat 39°26'16", long 76°46'57", on left bank at downstream side of bridge on railroad siding, 0.4 mile upstream from small tributary, and 1¼ miles north of Owings Mills, Baltimore County.
Drainage area.--4.90 sq mi.
Records available.--July 1958 to September 1964.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 520 ft (from topographic map).
Average discharge.--6 years, 4.42 cfs.
Extremes.--Maximum discharges and minimum daily discharges for the water years 1959-64 are contained in the following table.

Water year	Maximum			Minimum daily		
	Date	Discharge (cfs)	Gage height (feet)	Date	Discharge (cfs)	Gage height (feet)
1959	Sept. 2, 1959	158	2.32	Aug. 2,28,29, 1959	1.1	1.15
1960	May 8, 1960	148	2.28	† October, 1960	1.8	1.18
1961	April 13, 1961	137	2.23	Dec. 13, 1960 Aug. 1, 1961	2.0	1.19
1962	Feb. 26, 1962	161	2.33	Sept. 14, 1962	1.3	1.16
1963	Mar. 6, 1963	205	2.49	† Aug. Sept., 1963	1.0	1.14
1964	Jan. 9, 1964	240	2.60	† Oct. 1963 † Sept. 1964	1.3	1.16

† Many days.
1958-1964: Maximum discharge, 240 cfs Jan. 9, 1964 (gage height 2.60 ft), from rating curve extended above 100 cfs by logarithmic plotting; minimum daily, 1.0 cfs Aug. 5-7, 9-12, and Sept. 11-14, 1963.
Remarks.--Records fair except those for periods of ice effect, or no gage-height record, which are poor. Occasional diversion from gage pool to nearby fire-control reservoir.

Rating table, July 1, 1958 to Sept. 30, 1964, except periods of ice effect and backwater from debris
(Gage height, in feet, and discharge, in cubic feet per second)

1.1	0.4	1.4	16
1.15	1.1	1.6	34
1.2	2.5	1.8	58
1.3	8.0	2.0	90

Discharge, in cubic feet per second, July to September 1958

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										a5.4	8.0	a6.0
2										a5.2	6.0	a5.0
3										a5.0	6.0	a5.0
4										a10	6.0	a5.0
5										a15	5.4	a5.0
6										a6.0	*4.8	a4.8
7										a6.0	4.8	a4.8
8										a25	4.8	a4.6
9										a20	4.8	a4.6
10										a7.0	4.8	a4.5
11										a9.0	4.8	a4.5
12										a25	a10	a4.5
13										a15	a10	a4.5
14										a20	a6.0	a4.5
15										a10	a5.0	a4.5
16										a15	a5.0	a4.5
17										*6.0	a5.0	a7.0
18										5.4	a5.0	*a4.3
19										5.4	a5.0	3.8
20										4.8	a5.0	3.8
21										5.4	a5.0	8.2
22										7.3	a7.0	4.3
23										31	a5.0	3.8
24										9.5	a7.0	3.8
25										9.5	a20	3.8
26										6.6	a8.0	3.8
27										6.0	a6.0	3.8
28										6.0	a5.0	3.8
29										5.4	a5.0	3.8
30					------					5.4	a5.0	4.3
31		------			------		-----		------	6.0	a5.0	------
Total										318.3	194.2	138.6
Mean										10.3	6.26	4.62
Cfsm										2.10	1.28	0.943
In.										2.42	1.47	1.05

* Discharge measurement made on this day.
a Doubtful or no gage-height record.

1-5892. Gwynns Falls near Owings Mills, Md.--Continued

Discharge, in cubic feet per second, water year October 1958 to September 1959

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.8	4.8	4.3	15	3.3	3.8	4.3	4.3	2.9	2.5	1.6	1.6
2	4.8	18	4.3	18	b3.3	3.8	7.5	3.8	7.6	2.2	1.1	20
3	4.3	12	4.8	5.4	b3.3	3.8	5.4	4.3	4.6	2.2	1.3	6.0
4	4.3	4.8	11	4.8	14	4.3	9.9	*3.8	2.9	2.2	1.6	1.8
5	4.3	4.3	6.0	4.3	8.8	3.8	4.8	3.8	17	2.2	2.5	1.3
6	3.8	4.0	4.8	b3.8	4.3	19	4.3	3.3	4.5	2.2	1.8	1.3
7	4.3	4.0	4.3	b3.8	3.8	6.6	4.3	3.3	2.5	2.2	1.8	1.6
8	4.3	4.0	4.3	b3.8	3.8	4.8	4.3	3.3	2.5	2.2	7.1	1.6
9	4.3	4.0	4.3	3.8	3.8	4.8	4.3	3.3	2.5	2.2	2.2	*1.6
10	4.3	*3.8	a3.8	3.8	8.2	4.8	4.3	3.3	2.5	2.7	2.2	5.5
11	4.3	3.8	a3.5	3.8	5.4	4.3	7.7	3.3	2.5	2.2	1.6	2.2
12	4.3	3.8	a3.5	3.8	4.3	13	6.6	3.8	3.6	2.2	1.3	1.8
13	4.8	3.8	a3.2	3.8	9.8	6.6	8.1	*8.9	4.4	2.2	1.6	1.6
14	4.8	3.8	a3.2	3.8	12	5.4	6.0	4.8	2.5	3.8	1.6	1.8
15	4.8	3.8	a3.0	4.3	8.0	5.4	4.8	3.8	2.5	2.5	1.6	1.8
16	4.8	3.8	a3.0	4.3	5.4	4.8	4.3	3.3	2.5	1.8	1.8	2.2
17	4.3	3.8	*a2.9	3.8	4.8	4.8	4.3	2.9	*2.5	1.6	2.8	1.8
18	3.8	3.8	2.9	a3.5	4.8	4.8	4.3	2.9	2.5	1.6	2.6	2.2
19	4.3	3.8	3.3	a3.5	b4.3	4.3	4.3	3.3	2.5	2.3	1.6	2.5
20	4.3	3.8	3.3	a5.0	b3.8	4.8	4.3	3.3	2.5	3.6	1.3	2.5
21	4.3	3.8	3.3	13	b3.8	4.8	3.8	2.9	2.5	1.8	1.3	2.5
22	14	3.8	3.3	14	3.8	4.8	3.8	2.9	2.5	1.6	2.0	2.5
23	8.0	3.8	3.3	4.8	4.3	4.8	3.8	3.6	2.5	1.6	1.3	2.5
24	4.8	3.8	3.3	4.3	3.8	4.8	3.8	4.0	2.5	2.3	e1.3	2.5
25	4.8	3.8	3.2	4.3	3.8	4.3	3.8	2.9	2.5	1.6	e1.3	2.5
26	4.8	3.8	2.8	4.3	3.8	4.3	3.8	2.9	2.5	1.6	e1.3	2.9
27	4.8	3.8	3.0	4.3	3.8	*4.3	4.3	2.9	2.5	1.6	e1.3	2.9
28	4.8	9.3	3.3	3.8	3.8	4.3	5.7	2.5	2.9	1.3	a1.1	2.5
29	4.8	11	4.3	3.8	-	3.8	5.6	2.5	2.5	1.7	a1.1	2.9
30	4.8	4.8	4.8	4.3	------	5.4	4.3	2.5	2.2	*1.6	a1.3	2.9
31	4.8	------	4.3	3.8	------	4.3	------	2.5	------	1.6	a1.5	------
Total	155.7	153.4	122.6	170.8	150.1	167.6	150.8	108.9	102.6	64.9	55.8	89.3
Mean	5.02	5.11	3.95	5.51	5.36	5.41	5.03	3.51	3.42	2.09	1.80	2.98
Cfsm	1.02	1.04	0.806	1.12	1.09	1.10	1.03	0.716	0.698	0.427	0.367	0.608
In.	1.18	1.16	0.93	1.30	1.14	1.27	1.14	0.83	0.78	0.49	0.42	0.68

Calendar year 1958: Max - Min - Mean - Cfsm - In. -
Water year 1958-59: Max 20 Min 1.1 Mean 4.09 Cfsm 0.835 In. 11.32

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-1	2330	2.16	122	6-5	1545	2.13	115
9-2	0315	2.32	158				

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
e Indefinite stage-discharge relation.

1-5892. Gwynns Falls near Owings Mills, Md.--Continued

Discharge, in cubic feet per second, water year October 1959 to September 1960

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.8	2.2	2.5	3.8	3.3	b3.8	5.4	a5.5	a3.8	*2.9	3.3	4.8
2	2.2	2.2	2.2	3.8	b3.3	b3.5	4.8	a5.0	a3.5	2.9	3.3	2.9
3	2.2	2.2	2.2	19	b2.9	b3.0	16	a4.5	a3.5	2.9	3.3	2.9
4	1.8	2.2	*2.2	4.3	b2.9	b3.0	20	a4.5	a3.5	2.5	5.3	4.6
5	1.8	2.2	2.2	3.8	2.9	b3.0	*33	a4.0	a3.5	2.5	5.6	6.5
6	1.8	2.5	2.6	3.3	15	b3.0	a9.5	a4.0	a3.5	2.5	3.8	3.3
7	2.2	5.4	6.5	3.3	5.4	b3.0	a6.6	a4.0	a3.5	*2.5	3.3	3.3
8	3.0	2.5	4.3	2.9	3.8	b3.0	a6.0	a45	3.3	2.5	3.3	2.9
9	5.1	2.2	3.8	2.9	3.8	b3.0	a5.4	a30	3.3	2.5	2.9	5.2
10	2.9	2.2	3.8	2.9	3.8	b3.5	a5.4	a9.0	3.3	2.9	7.3	6.4
11	4.5	2.0	4.8	3.3	4.8	b3.0	a4.8	a7.0	3.3	8.9	3.8	5.8
12	2.5	2.2	24	3.3	4.3	b3.0	a4.8	a8.0	3.3	3.3	3.3	*54
13	2.2	2.2	9.6	3.8	b3.3	b3.0	a4.8	a7.0	3.8	5.3	4.3	6.0
14	8.1	2.5	4.8	3.8	b3.0	b3.0	a4.8	a6.0	18	16	3.8	3.8
15	2.9	2.2	4.3	8.2	b3.0	b3.5	a4.5	a5.0	23	3.8	3.3	3.3
16	2.5	2.2	3.8	4.3	b3.5	b4.0	a4.5	a4.5	4.3	3.3	4.1	3.3
17	2.2	2.5	3.8	3.8	4.3	6.5	a4.5	a4.5	3.3	2.9	2.9	3.3
18	1.8	2.2	6.5	4.3	28	8.8	a7.0	a5.0	3.3	2.9	2.9	4.3
19	1.8	2.2	4.8	4.8	17	10	a5.0	a4.0	3.3	2.9	2.9	8.6
20	1.8	2.2	3.8	3.8	6.0	9.5	a4.5	a4.0	2.9	2.9	2.9	*5.4
21	1.8	2.2	3.8	b3.3	4.8	7.3	a4.5	a4.5	2.9	2.9	2.9	3.8
22	1.8	2.2	b3.3	b2.5	4.8	6.6	a4.5	a7.0	3.3	2.9	2.9	3.3
23	2.5	2.2	b3.0	b2.5	*4.8	5.4	a4.5	a10	3.3	2.9	2.9	3.3
24	6.4	8.6	b3.0	b2.5	4.3	6.0	a4.5	a6.0	3.8	2.9	2.5	3.3
25	2.2	4.4	3.3	b2.5	9.5	5.0	a4.5	a5.0	2.9	2.9	2.5	3.3
26	1.8	2.5	3.8	2.5	19	4.5	a5.5	a4.0	2.5	2.9	2.5	3.3
27	2.2	2.6	4.3	2.5	5.4	4.5	a8.0	a4.0	2.5	3.3	2.9	3.3
28	1.8	15	6.4	7.8	4.8	4.5	a5.0	a7.0	2.5	3.3	2.9	3.3
29	1.8	3.3	12	4.8	4.3	4.5	a5.0	a13	2.9	2.9	2.9	3.8
30	1.8	2.5	4.8	3.8	------	5.4	a4.5	a6.0	2.9	13	3.3	3.8
31	2.2	------	4.3	3.8	------	8.4	------	a4.5	------	3.3	12	------
Total	84.4	93.7	154.5	131.9	186.0	148.2	211.8	241.5	132.7	122.0	115.8	175.1
Mean	2.72	3.12	4.98	4.25	6.41	4.78	7.06	7.79	4.42	3.94	3.74	5.84
Cfsm	0.555	0.637	1.02	0.867	1.31	0.976	1.44	1.59	0.902	0.804	0.763	1.19
In.	0.64	0.71	1.17	1.00	1.41	1.12	1.61	1.83	1.01	0.93	0.88	1.33

Calendar year 1959: Max 24 Min 1.1 Mean 3.82 Cfsm 0.780 In. 10.57
Water year 1959-60 Max 54 Min 1.8 Mean 4.91 Cfsm 1.00 In. 13.64

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-18	2030	2.10	109	5- 8	1730	2.28	148
7-14	0030	2.12	113	9-12	1030	2.26	144

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

1-5892. Gwynns Falls near Owings Mills, Md.--Continued

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	c3.3	c8.4	2.9	2.3	a2.8	7.3	12	7.0	4.3	a3.5	a2.0	c2.5
2	c3.3	c2.9	2.9	9.2	a2.5	7.3	7.3	10	3.8	a3.5	a2.5	c2.5
3	c3.3	c3.8	2.9	6.0	a2.8	6.0	6.0	6.0	4.3	a3.5	a2.8	c4.4
4	c3.3	c2.9	2.9	b4.8	a3.0	7.3	6.0	5.4	4.3	a3.5	a2.5	c8.9
5	c3.3	3.3	2.9	b4.3	a3.5	8.0	5.4	5.4	3.8	a3.5	a2.5	c2.9
6	c3.3	3.3	2.9	5.4	a3.2	7.3	5.4	6.6	4.8	a5.0	a5.0	c2.5
7	c3.3	3.3	2.9	6.5	a3.2	*6.6	5.4	6.6	4.3	a4.5	a7.0	c2.5
8	c3.3	3.3	2.9	5.4	*a3.0	19	5.4	6.0	4.8	a4.5	a4.0	c2.9
9	c3.3	3.3	a2.5	b4.3	a3.5	13	6.1	6.0	5.9	a4.0	*a3.5	c2.5
10	c3.3	9.6	a2.5	b3.3	a3.8	7.3	28	6.6	4.8	a4.0	c3.3	c2.5
11	c3.3	4.3	a2.4	b3.8	a3.6	6.6	8.0	8.0	4.3	a3.5	c3.3	c2.9
12	c3.3	3.8	a2.2	b4.3	a3.5	6.0	9.2	11	3.8	a3.5	c3.3	c2.9
13	c2.9	3.3	a2.0	b4.3	a3.8	6.0	53	8.0	3.8	a4.5	c2.9	c2.5
14	c2.9	3.3	a2.2	4.8	5.3	8.0	10	6.6	7.0	a4.0	c2.9	c2.5
15	c2.9	3.3	a2.5	12	6.6	6.6	8.0	6.0	6.4	a3.5	c2.5	c2.5
16	c2.9	3.3	a3.0	6.6	7.3	6.0	11	6.0	4.3	a4.0	c3.3	c2.5
17	c2.9	3.3	a2.8	5.4	7.3	5.4	7.3	5.4	3.8	a4.2	c3.3	c2.5
18	c2.9	3.3	a2.6	6.0	23	6.0	6.6	5.4	3.3	a4.5	c3.3	c2.5
19	c2.9	3.3	*a2.5	b4.5	57	11	*6.0	5.4	3.3	a3.5	c3.3	c2.5
20	c6.7	3.3	a2.5	a3.5	16	7.3	6.0	5.4	3.3	a3.0	c3.8	*c2.9
21	c2.9	3.3	a4.5	a3.2	9.5	6.0	5.4	5.4	*9.2	a2.6	c5.4	c2.9
22	c2.9	3.3	a3.5	a3.2	14	16	6.6	5.4	5.4	a2.5	c3.8	c2.9
23	c2.9	3.8	a2.5	a3.2	*23	12	6.6	4.8	4.3	a2.6	c6.1	c2.9
24	c3.3	3.3	a2.5	a3.5	15	8.0	6.0	4.8	3.8	a3.5	c3.8	c2.9
25	c2.9	2.9	a3.0	a3.2	27	6.6	5.4	*4.6	6.2	a4.5	c3.3	c2.9
26	c2.9	2.9	a3.5	a3.0	15	6.0	13	5.9	4.3	a3.0	c5.6	c2.9
27	c2.9	2.9	a4.0	a3.2	8.8	6.0	6.0	4.8	*8.5	a2.5	c2.9	c2.9
28	c2.9	2.9	a3.0	a3.2	8.0	6.0	9.0	4.3	4.3	a2.5	c2.5	c2.9
29	c3.3	6.3	a4.0	a3.0	-	6.6	8.0	4.8	a4.0	a2.8	c2.5	c2.9
30	c2.9	4.2	a10	a3.0	------	5.4	6.0	4.3	a4.0	a2.5	c2.5	c2.9
31	c3.4	------	a8.0	a2.8	------	12	------	4.3	------	a2.2	c2.5	-------
Total	99.8	114.4	101.4	161.9	285.0	248.6	284.1	186.2	142.4	108.9	107.9	89.3
Mean	3.22	3.81	3.27	5.22	10.2	8.02	9.47	6.01	4.75	3.51	3.48	2.98
Cfsm	0.657	0.778	0.667	1.07	2.08	1.64	1.93	1.23	0.969	0.716	0.710	0.608
In.	0.76	0.87	0.77	1.23	2.16	1.89	2.16	1.41	1.08	0.83	0.82	0.68

Calendar year 1960: Max 54 Min 2.0 Mean 4.87 Cfsm 0.994 In. 13.52
Water year 1960-61: Max 57 Min 2.0 Mean 5.29 Cfsm 1.08 In. 14.66

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-19	1615	2.05	100	4-13	0500	2.23	137

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from debris.

1-5892. Gwynns Falls near Owings Mills, Md.--Continued

Discharge, in cubic feet per second, water year October 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	c2.9	c4.3	*a2.0	a2.0	b2.0	b4.8	25	4.3	2.9	2.5	1.8	2.2
2	c3.3	c3.3	a2.0	a2.2	b2.2	b3.8	7.3	5.6	2.9	2.5	2.2	2.5
3	c3.8	c3.3	a2.0	a2.5	b2.5	b3.3	5.4	3.8	2.9	2.9	*2.0	2.2
4	c3.8	c3.8	a2.0	a3.0	2.9	b2.9	4.3	3.8	2.9	2.9	1.8	1.8
5	c2.9	c3.8	a2.0	a3.0	2.9	b2.9	4.3	3.8	8.7	2.5	2.2	2.4
6	c2.9	c3.3	a2.0	a20	2.9	b3.3	4.3	3.8	6.3	2.5	2.2	1.8
7	c2.9	a5.8	a2.0	a5.0	b2.2	b3.8	11	3.8	3.3	2.5	8.2	1.8
8	c2.9	a4.0	a2.0	a3.5	b2.2	b3.8	6.6	4.3	2.9	2.5	2.5	1.8
9	c2.9	a3.5	a1.8	a3.0	b2.2	b3.3	5.4	4.3	2.9	2.5	3.3	1.8
10	c2.9	a3.5	a2.5	a2.5	b2.2	b4.6	4.3	3.8	2.5	2.5	3.3	1.8
11	c2.9	a3.0	a3.0	a2.5	b1.8	5.8	6.2	4.3	3.3	2.5	3.3	1.6
12	c2.9	a3.2	a10	*a2.5	a1.8	*78	17	4.3	5.3	2.5	2.2	1.8
13	c2.9	a3.5	a4.0	a2.5	a2.0	18	16	4.3	5.4	2.5	2.2	1.8
14	c4.9	a4.5	a3.0	a2.5	*a2.5	12	6.6	4.3	3.8	2.9	2.2	1.3
15	c2.8	a5.0	a2.6	a4.5	b2.4	8.8	5.4	3.8	5.0	2.9	2.2	1.8
16	c2.5	a4.5	a2.5	a4.0	b2.2	6.6	4.8	3.8	3.3	3.3	2.2	2.2
17	c2.5	a4.5	a4.0	a2.5	b3.5	6.0	4.3	3.8	2.9	3.8	2.5	2.5
18	c2.5	a4.0	a15	a2.2	2.9	5.4	4.3	3.8	2.9	4.8	2.5	2.2
19	c2.5	a4.0	a6.0	b2.2	9.1	4.8	4.3	3.3	3.4	2.5	2.5	2.2
20	*c4.1	a4.5	a4.0	b2.2	4.8	5.4	4.8	3.3	8.0	2.2	2.2	a2.2
21	c14	a5.0	a3.5	b2.2	3.3	24	4.3	3.3	4.5	2.7	2.5	a1.8
22	c5.4	a4.0	a3.2	2.5	6.6	10	3.8	3.3	3.3	3.4	2.5	a1.8
23	c3.8	a4.0	a3.0	2.9	6.1	6.6	3.8	3.8	2.9	9.0	2.2	a2.5
24	c3.8	a15	a3.5	b2.5	12	5.4	3.8	*19	2.9	4.6	2.2	a1.8
25	c3.8	a6.0	a3.0	2.5	4.8	5.4	3.8	3.8	2.9	2.5	2.5	*a1.5
26	c3.8	a3.0	a3.0	2.9	*42	4.8	*3.8	3.3	2.9	2.2	2.2	1.6
27	c3.8	a2.5	a3.0	3.3	20	4.8	3.3	4.5	2.5	1.8	2.2	3.0
28	c4.8	a2.2	a4.5	2.9	9.2	4.8	3.3	3.8	*2.5	2.2	2.2	2.2
29	c5.4	a2.1	a3.0	b2.5	-	4.8	8.2	3.8	2.5	2.2	1.8	1.8
30	c5.4	a2.0	a2.2	b2.5	------	4.8	3.8	3.3	2.5	2.2	1.8	1.8
31	c4.8	------	a2.0	b1.8	------	5.6	------	3.3	------	2.2	1.8	------
Total	120.5	125.1	108.3	102.8	161.2	268.3	193.5	135.5	110.9	90.7	77.4	59.5
Mean	3.89	4.17	3.49	3.32	5.76	8.65	6.45	4.37	3.70	2.93	2.50	1.98
Cfsm	0.794	0.851	0.712	0.678	1.18	1.77	1.32	0.892	0.755	0.598	0.510	0.404
In.	0.91	0.95	0.82	0.78	1.22	2.04	1.47	1.03	0.84	0.69	0.59	0.45

Calendar year 1961: Max 57 Min 1.8 Mean 5.39 Cfsm 1.10 In. 14.94
Water year 1961-62: Max 78 Min 1.3 Mean 4.26 Cfsm 0.869 In. 11.79

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1400	2.33	161	3-12	1630	2.21	132
5-24	0145	2.07	103				

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from debris.

1-5892. Gwynns Falls near Owings Mills, Md.--Continued

Discharge, in cubic feet per second, water year October 1962 to September 1963

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	c2.0	2.5	b1.8	a2.5	a2.0	4.3	3.8	1.8	1.8	1.3	e1.2
2	2.2	c2.0	2.5	a2.0	a4.0	18	4.3	2.9	4.5	1.6	1.1	e1.2
3	2.9	c11	2.5	a2.0	a6.0	13	4.3	2.5	30	1.6	1.1	e1.2
4	49	c3.8	2.5	a2.0	a3.0	12	3.8	2.5	8.0	1.3	e1.1	e1.2
5	7.8	c2.5	2.9	a2.0	a5.0	29	3.3	2.5	3.8	c1.3	e1.0	e1.1
6	c3.5	c2.2	14	a2.0	a7.0	*71	3.3	2.5	3.3	c1.3	e1.0	e1.1
7	c3.0	c2.0	4.8	a2.0	b4.0	6.6	3.8	2.5	2.9	c1.3	e1.0	e1.1
8	c2.8	c2.2	3.8	a2.0	b2.5	4.8	3.8	2.5	7.2	c1.3	e1.1	e1.1
9	c2.6	*4.3	3.3	a2.0	a2.0	4.3	4.3	2.5	3.3	c1.3	e1.0	e1.1
10	c2.5	47	b2.5	a2.5	a2.5	4.8	3.8	2.5	2.9	c1.3	e1.0	e1.1
11	c2.0	4.8	b2.2	a4.0	6.7	4.3	3.3	2.5	*2.8	c1.3	e1.0	e1.0
12	c2.0	3.3	b2.1	18	b14	*21	3.3	2.2	2.5	c1.3	e1.0	e1.0
13	c2.0	2.9	b2.0	12	b4.0	7.3	3.3	2.2	2.2	c1.3	e3.5	*e1.0
14	c2.0	2.5	b2.0	b4.0	b3.0	5.4	3.3	2.9	2.2	4.2	e1.6	e1.0
15	c2.0	2.5	b2.0	b3.0	a2.5	4.3	3.3	2.2	1.8	c1.3	e1.3	e1.3
16	c2.0	2.5	b2.2	b2.5	a2.0	5.4	3.3	2.2	1.8	c1.1	e1.1	3.8
17	c2.0	2.5	2.5	b2.5	a2.0	11	3.3	2.6	1.8	c1.1	e1.1	1.8
18	c2.0	11	2.5	b2.5	a2.0	6.0	3.3	6.2	1.8	*c1.1	e1.1	1.6
19	c2.0	4.8	*2.5	b2.9	a3.0	8.3	2.9	2.5	1.6	1.1	e3.5	1.3
20	c2.0	3.3	2.5	9.8	a9.4	21	2.9	2.5	3.7	1.5	e6.6	1.1
21	c2.0	4.2	b2.0	b4.8	b5.0	6.0	2.9	2.9	2.2	c1.1	e1.8	1.6
22	c2.0	10	b2.5	b2.5	b3.0	4.8	2.9	2.5	1.6	c1.1	e1.6	1.6
23	c2.0	3.3	b2.5	b2.2	b2.5	4.3	3.8	2.5	1.6	c1.3	e1.5	1.6
24	c2.0	2.9	b2.5	b2.1	a2.2	4.3	*2.5	2.2	1.6	c1.3	e1.4	1.8
25	c2.0	2.9	b2.2	b2.0	a2.0	4.3	2.5	2.5	1.6	c1.1	e1.3	2.2
26	c2.0	2.9	b2.5	b2.0	a2.0	6.0	2.5	2.5	1.8	c1.1	e1.3	2.2
27	c2.0	2.5	b2.5	b2.0	a2.0	7.3	2.5	2.5	1.8	c1.1	e1.3	1.8
28	c2.0	2.5	b2.2	a2.0	a2.0	4.8	2.5	2.9	1.6	2.2	e1.3	1.8
29	c2.0	2.5	b2.2	a2.0	-	4.3	2.8	2.5	1.8	2.4	e2.5	21
30	c4.0	2.5	b2.0	a2.0	------	4.3	6.6	2.8	2.2	1.6	e1.6	2.2
31	c3.0	------	b1.5	a2.0	------	4.3	------	2.2	------	1.1	e1.3	------
Total	123.5	155.3	88.4	107.1	107.8	314.2	102.7	82.7	107.7	44.8	49.4	64.1
Mean	3.98	5.18	2.85	3.45	3.85	10.1	3.42	2.67	3.59	1.45	1.59	2.14
Cfsm	0.812	1.06	0.582	0.704	0.786	2.06	0.698	0.545	0.733	0.296	0.324	0.437
In.	0.94	1.18	0.67	0.81	0.82	2.38	0.78	0.63	0.82	0.34	0.37	0.49

Calendar year 1962: Max 78 Min 1.3 Mean 4.29 Cfsm 0.876 In. 11.90
Water year 1962-63: Max 71 Min 1.0 Mean 3.69 Cfsm 0.753 In. 10.23

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10-4	1830	2.48	202	11-10	0345	2.39	176
3-6	0745	2.49	205	9-29	0915	2.08	105

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from debris.
e Indefinite stage-discharge relation.

1-5892. Gwynns Falls near Owings Mills, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	c1.5	c4.0	3.8	a2.0	b3.8	b3.8	4.3	7.3	3.3	1.8	2.2	2.2
2	c1.4	c4.0	2.9	a3.0	3.3	7.9	*6.0	6.0	3.3	2.2	2.2	1.8
3	c3.7	c2.0	2.9	a3.5	b2.5	24	6.8	5.4	3.3	3.3	4.6	1.8
4	c1.5	c1.5	2.5	a6.0	b2.5	16	4.3	4.8	3.3	5.8	2.9	1.8
5	c1.3	c1.5	2.5	a5.4	3.3	14	3.8	4.8	2.9	2.5	2.5	2.2
6	c1.3	17	2.2	a6.8	16	5.4	6.9	4.8	3.6	2.2	2.2	2.2
7	c1.3	45	2.2	15	6.6	4.8	7.4	4.3	3.8	2.2	2.5	1.8
8	c1.3	c5.4	8.8	5.4	4.3	4.8	15	4.3	2.9	17	2.5	1.6
9	c1.3	c2.9	7.4	75	3.8	4.8	6.6	4.3	2.9	3.8	2.5	1.6
10	*c1.3	c2.2	2.9	8.8	3.8	4.8	4.8	4.3	2.5	2.9	2.5	1.6
11	c1.3	c2.0	2.5	a4.3	b3.0	3.8	4.8	4.3	2.5	2.5	2.9	1.6
12	c1.3	c1.8	2.9	a3.0	b4.0	5.4	4.3	4.3	2.5	2.5	2.5	2.2
13	c1.3	c1.6	2.9	a2.5	b3.5	4.8	4.3	9.2	2.5	9.0	2.5	1.8
14	c1.3	*c1.6	b2.9	a3.5	b4.3	6.0	11	5.4	2.2	3.3	2.2	1.6
15	c1.3	c1.6	b2.2	a4.5	b4.0	5.4	6.6	3.8	2.5	4.3	2.2	1.3
16	c1.3	c1.6	b2.0	a4.0	6.9	4.3	4.8	3.3	2.2	2.9	2.2	1.6
17	c1.3	c1.6	a2.0	a3.5	b5.4	4.3	4.3	3.3	2.2	2.5	2.5	1.6
18	c1.3	c1.6	a2.0	a3.5	b4.0	3.8	4.3	*3.3	2.2	2.5	4.9	1.6
19	c1.3	c1.6	a2.0	a3.5	b5.0	3.8	4.8	2.9	2.5	2.5	2.2	1.8
20	c1.3	c1.6	a1.8	a9.0	b4.5	3.3	13	2.9	3.2	3.4	1.8	c2.5
21	c1.3	c1.6	a1.8	16	b4.0	4.8	24	2.9	2.2	2.9	1.8	c1.6
22	c1.3	c1.6	a1.8	9.5	b3.5	11	9.5	2.9	2.2	2.5	1.8	c1.6
23	c1.3	c6.0	a1.8	*6.6	b3.0	16	6.6	2.9	2.5	2.5	1.8	c1.6
24	c1.5	3.0	a2.0	5.4	b3.0	13	5.4	3.3	6.8	2.5	1.8	c1.6
25	c1.5	1.8	a2.0	23	b3.0	7.3	5.4	3.3	2.5	2.5	1.8	c1.6
26	c1.5	1.8	a2.0	5.4	*b4.0	5.4	4.8	3.3	2.2	2.5	2.2	c1.6
27	c1.5	1.8	a1.9	3.8	b3.8	4.3	4.8	3.3	4.7	2.5	2.2	c1.6
28	c1.5	1.8	a1.8	3.3	b3.3	3.8	6.0	3.3	2.5	2.5	2.2	c2.5
29	c1.5	16	a1.8	b2.9	b3.8	3.8	6.0	2.9	*2.2	3.4	2.2	7.2
30	c1.5	18	a1.7	b2.9	------	4.3	18	3.3	1.8	3.3	4.7	*4.5
31	c1.5	------	a1.6	b2.9	------	4.3	------	3.3	------	2.2	2.9	-------
Total	44.8	155.5	81.5	253.9	125.9	213.2	218.6	127.7	85.9	108.4	77.9	61.6
Mean	1.45	5.18	2.63	8.19	4.34	6.88	7.29	4.12	2.86	3.50	2.51	2.05
Cfsm	0.296	1.06	0.537	1.67	0.886	1.40	1.49	0.841	0.584	0.714	0.512	0.418
In.	0.34	1.18	0.62	1.93	0.96	1.62	1.66	0.97	0.65	0.82	0.59	0.47

Calendar year 1963: Max 71 Min 1.0 Mean 3.46 Cfsm 0.706 In. 9.58
Water year 1963-64: Max 75 Min 1.3 Mean 4.25 Cfsm 0.867 In. 11.81

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	0230	2.32	158	1-9	1345	2.60	240

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from debris.

1-5893. Gwynns Falls at Villa Nova, Md.

Location.--Lat 39°20'45", long 76°44'01", on right bank 300 ft downstream from bridge on Essex Road, 300 ft north of State Highway 26 (Liberty Road), in Villa Nova, Baltimore County, and 1.1 miles west of Baltimore City limits.

Drainage area.--32.5 sq mi.

Records available.--February 1957 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 361.32 above mean sea level (Baltimore County bench mark). Prior to Aug. 27, 1963, water-stage recorder at site 300 ft upstream at same datum.

Average discharge.--7 years, 30.8 cfs.

Extremes.--Maximum discharge during year, 885 cfs Jan. 9 (gage height, 5.65); minimum daily, 5.0 cfs Sept. 6, 7, 8, 10, 11.
1957-64: Maximum discharge, 1,280 cfs Sept. 12, 1960 (gage height, 7.00 ft); minimum, 3.3 cfs Jan. 19, 1961, result of freezeup. Minimum daily, 3.6 cfs Sept. 18-28, Oct. 7, 1959.
Maximum discharge known, 5,270 cfs July 21, 1956 (gage height, 12.6 ft) by contracted-opening measurement.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Slight diurnal fluctuation at times from unknown source above station. Small diversion for irrigation above station.

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

Oct. 1 to May 19				May 20 to Sept. 30			
0.7	4.7	2.0	115	0.6	3.7	1.0	19
.8	7.5	3.0	271	.7	6.2	1.5	57
1.0	17	4.0	470	.8	9.6		
1.5	57						

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.3	17	43	a15	26	b25	31	63	16	10	7.2	7.6
2	6.9	28	21	b35	25	*54	37	45	17	10	7.9	6.2
3	11	9.9	19	b30	21	*176	56	38	16	10	16	6.0
4	10	8.3	16	b42	20	117	34	34	16	17	15	5.7
5	6.7	8.7	15	b40	20	118	31	31	15	11	9.6	5.4
6	6.1	104	13	b35	131	52	*51	30	20	9.3	8.2	5.0
7	6.1	275	12	b140	61	41	66	29	21	8.9	8.6	5.0
8	6.1	53	40	44	35	41	121	28	16	56	8.6	5.0
9	5.8	21	79	454	27	46	63	26	15	22	7.2	5.4
10	*6.1	15	26	*108	26	38	42	23	14	14	7.2	5.0
11	6.1	13	19	b40	b24	31	36	23	13	11	7.9	5.0
12	6.1	11	22	a25	b30	35	33	23	12	11	8.2	7.0
13	6.1	10	20	a20	b28	36	31	73	13	50	6.9	7.2
14	6.1	*10	21	a25	31	39	89	*48	13	14	6.9	6.2
15	6.1	9.9	b14	a30	30	42	52	28	14	14	6.2	5.4
16	6.1	9.5	b14	a28	61	33	37	26	14	11	6.5	5.4
17	6.1	9.5	b13	a27	41	29	33	26	11	10	7.6	5.4
18	5.8	9.1	b13	a26	b30	26	30	24	11	9.6	*29	5.4
19	6.7	9.1	b13	a25	b35	24	31	22	13	9.3	16	6.9
20	6.7	10	a13	a40	42	24	72	20	18	8.9	8.6	12
21	6.9	9.1	a12	b160	34	34	214	19	12	13	7.9	7.2
22	7.5	9.1	a12	b70	b25	105	84	18	11	9.6	7.9	6.2
23	7.5	32	a13	49	b20	131	54	18	11	8.9	6.9	6.2
24	7.5	29	b14	41	b20	89	43	18	35	8.9	6.9	5.7
25	7.5	14	15	217	b20	64	41	17	16	9.6	6.5	5.4
26	7.5	12	15	62	b22	47	34	16	12	9.6	6.5	5.4
27	7.5	11	15	37	b24	38	33	16	19	9.3	6.2	5.4
28	8.3	11	14	*31	b25	33	50	16	17	8.6	*6.5	14
29	8.3	120	a13	27	b25	32	46	16	*11	8.6	6.9	45
30	8.3	161	a12	24	------	34	137	16	11	11	6.9	*34
31	8.3	------	a10	22	-----	33	-----	16	----	7.6	15	------
Total	220.1	1,049.2	591	1,969	959	1,667	1,712	846	453	421.7	283.4	256.7
Mean	7.10	35.0	19.1	63.5	33.1	53.8	57.1	27.3	15.1	13.6	9.14	8.56
Cfsm	0.218	1.08	0.588	1.95	1.02	1.66	1.76	0.840	0.465	0.418	0.281	0.263
In.	0.25	1.20	0.68	2.25	1.10	1.91	1.96	0.97	0.52	0.48	0.32	0.29

Calendar year 1963: Max 372 Min 4.2 Mean 23.9 Cfsm 0.735 In. 9.97
Water year 1963-64: Max 454 Min 5.0 Mean 28.5 Cfsm 0.877 In. 11.93

Peak discharge (base, 540 cfs)

Date	Time	Gage height	Discharge
1-9	1300	5.65	885

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

1-5893.3. Dead Run at Franklintown, Md.

Location.--Lat 39°18'40", long 76°43'02", on right bank at downstream side of bridge on Colonial Road at Security Boulevard at Franklintown, Baltimore County, 0.3 mile west of Baltimore City limits, 1.2 miles southeast of Woodlawn, and 2⅔ miles upstream from mouth.
Drainage area.--5.52 sq mi.
Records available.--October 1959 to September 1964.
Gage.--Water-stage recorder and concrete control. Altitude of gage is 310 ft (from topographic map).
Average discharge.--5 years, 6.05 cfs.
Extremes.--Maximum and minimum discharges for the water years 1960-64 are contained in the following table.

Water year	Maximum			Minimum		
	Date	Discharge (cfs)	Gage height (feet)	Date	Discharge (cfs)	Gage height (feet)
1960	Sept. 12, 1960	1,580	5.75	July 10, 1960	0.3	0.65
1961	Jan. 1, 1961	1,960	6.16	Aug. 19, 1961	* .3	.65
1962	Feb. 26, 1962	792	4.48	(†)	.2	.62
1963	Nov. 10, 1962	990	4.88	Aug. 6, 1963	.2	.59
1964	Jan. 25, 1964	1,330	5.43	Sept. 6-7, 1964	.2	.61

* May have been less during period of no gage-height record Dec. 11-15, 1960.
† Aug. 2-3, 18, 29-30, Sept. 16, 1962.
1959-1964: Maximum discharge, 1,960 cfs Jan. 1, 1961 (gage height 6.16 ft), from rating curve extended above 770 cfs on basis of logarithmic plotting; minimum, 0.2 cfs Aug. 2-3, 18, 29-30, Sept. 16, 1962, Aug. 6, 1963, Sept. 6-7, 1964.
Remarks.--Records good except those below 2 cfs or those for periods of ice effect or doubtful or no gage-height record which are fair. Occasional regulation at low flow from unknown source above station.

Rating table, Oct. 1, 1959, to Sept. 30, 1964, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.6	0.2	1.0	19	3.0	362
.7	.5	1.2	52	4.0	615
.8	2.2	1.5	105		
.9	7.0	2.0	190		

Discharge, in cubic feet per second, water year October 1959 to September 1960

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	1.2	1.4	a2.0	2.5	2.5	3.7	3.2	1.9	1.2	1.7	.9
2	.5	1.1	1.4	a2.0	b2.0	2.5	2.8	1.9	1.4	.9	1.4	.8
3	.4	.7	1.2	46	b1.6	b1.8	44	1.7	1.4	.7	20	.7
4	.4	.8	1.4	5.7	b1.6	b1.8	61	1.7	1.9	.6	6.5	7.0
5	.4	.8	1.2	3.7	7.8	b1.8	*104	1.7	1.4	.5	6.9	13
6	.4	1.3	3.4	2.8	71.0	b1.7	14	1.7	1.2	.4	2.2	1.2
7	.6	7.1	21	2.8	6.3	b1.7	7.0	1.7	1.2	.4	1.7	1.1
8	.8	1.4	5.2	2.8	3.7	b1.7	5.2	108	1.2	.4	1.4	1.1
9	2.5	1.2	3.7	2.2	3.2	b1.7	4.2	59	1.1	.4	1.4	2.6
10	.7	1.1	*2.5	a2.0	3.2	b1.8	3.7	9.4	1.1	5.7	53	2.5
11	1.3	.9	a2.0	a2.0	9.4	b1.7	3.2	4.7	1.1	30	2.8	~~100~~ 98
12	.8	.9	a40	a2.0	3.2	b1.7	3.2	8.2	1.1	1.7	2.2	*~~418~~ 352
13	.6	*.8	a10	*a5.0	b2.5	b1.8	2.8	5.7	1.2	7.1	14	7.0
14	11	.9	a4.0	3.7	b2.3	b2.0	3.2	4.2	4.9	44	3.7	3.2
15	1.4	1.1	a2.8	33	b2.2	b2.5	2.5	3.2	6.3	2.5	*2.8	2.2
16	.8	.8	a2.5	8.2	b2.2	b3.0	2.5	3.2	1.7	1.4	2.8	1.9
17	.7	1.2	a2.0	4.2	4.2	b13	2.8	2.5	1.2	1.2	1.9	1.7
18	.6	.8	a4.0	4.2	117	34	3.7	2.8	1.1	1.2	1.7	3.2
19	.6	.8	a3.5	5.2	48	36	2.5	1.9	.9	1.1	1.4	9.6
20	.6	.7	a2.5	3.2	b5.0	13	2.5	1.9	.8	.9	1.2	6.3
21	.6	.8	a2.0	b2.0	b4.0	15	2.2	2.5	.8	.8	1.2	3.2
22	.9	.9	a1.8	b1.7	b4.0	12	2.2	5.9	1.1	.8	1.4	2.5
23	2.5	1.1	a1.5	b1.6	3.2	7.0	2.2	8.2	1.1	.8	1.7	2.2
24	11	13	a1.5	b1.5	2.5	7.0	1.9	2.5	6.6	.7	1.2	1.9
25	1.9	3.7	a1.6	b1.5	20	4.7	1.9	1.9	1.2	.7	1.1	1.7
26	1.1	1.4	a1.8	b1.7	*38	3.2	4.2	1.9	.8	.6	1.1	1.7
27	2.2	1.2	a2.0	4.8	5.7	3.2	4.7	1.7	.8	14	1.1	1.7
28	*.9	18	a4.0	18	4.2	3.2	2.5	18	.8	1.4	.9	1.4
29	1.1	2.8	a20	4.7	3.7	*2.8	1.9	13	*.8	.9	.9	3.2
30	1.2	1.9	a3.5	3.2	------	4.2	1.7	4.7	.8	60	.9	2.2
31	1.4	------	a2.5	2.5	------	11	------	3.2	------	2.2	3.6	------
Total	64.9	70.4	157.9	185.9	384.2	201.0	303.9	291.8	48.9	185.2	145.8	~~605.7~~
Mean	2.09	2.35	5.09	6.00	13.2	6.48	10.1	9.41	1.63	5.97	4.70	~~20.2~~
Cfsm	0.379	0.426	0.922	1.09	2.39	1.17	1.83	1.70	0.295	1.08	0.851	~~3.66~~
In.	0.44	0.47	1.06	1.25	2.59	1.35	2.05	1.97	0.33	1.25	0.98	~~4.08~~

Calendar year 1959: Max - Min - Mean ~~9.04~~ Cfsm - In. -
Water year 1959-60: Max ~~418~~ Min 0.4 Mean ~~7.23~~ Cfsm ~~1.31~~ In. ~~17.82~~

Peak discharge (base, 550 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-18	2100	4.00	~~615~~	9-11	1015	4.76	930
5- 8	2200	4.26	706	9-12	0900	5.75	~~1,580~~

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

1-5893.3 Dead Run at Franklintown, Md.--Continued

Discharge, in cubic feet per second, water year October 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	*14	1.4	a550	a1.6	9.4	25	5.7	2.2	.9	.9	.9
2	1.2	2.5	1.2	b40	a1.5	7.0	5.2	12	1.2	.7	.7	1.2
3	1.2	2.8	1.2	b6.0	a2.0	4.7	4.2	3.7	1.7	.9	.9	1.7
4	1.2	1.9	1.2	b3.5	b2.5	4.7	4.2	2.8	1.2	.7	1.2	100
5	1.2	2.2	1.2	b2.5	b3.5	5.7	2.8	2.8	1.2	.7	.9	2.5
6	1.4	2.2	1.1	b3.0	b3.2	5.7	2.8	3.7	1.2	4.1	11	1.4
7	1.2	2.5	1.1	b7.0	b3.0	5.7	2.8	4.7	1.2	.9	1.7	1.4
8	1.2	1.9	1.1	b4.0	b3.0	40	2.2	4.7	2.2	.7	.7	1.1
9	1.2	1.9	1.1	b2.5	b3.5	*29	2.8	3.7	30	.7	1.8	1.1
10	1.4	14	1.1	b2.0	b7.0	5.7	77	2.8	7.5	.7	2.0	1.1
11	1.2	3.7	a1.0	b2.0	b5.0	4.7	7.0	12	2.2	.5	*.9	.8
12	1.2	2.2	a.9	b2.1	b4.0	3.7	20	14	2.2	.5	.7	.8
13	1.2	1.9	a.8	b2.3	b4.5	3.7	169	5.2	1.7	1.4	.5	.6
14	1.2	1.9	a1.0	3.7	b50	13	12	4.2	2.8	.9	.4	1.1
15	1.2	1.9	a1.4	31	b65	5.7	5.7	3.2	2.2	.7	.4	1.1
16	1.2	1.7	b1.8	13	b35	3.7	21	2.5	1.2	1.8	.9	.6
17	1.2	1.7	b1.5	8.2	38	2.8	7.0	1.9	.9	11	.4	.6
18	1.2	1.4	b1.3	8.2	138	5.2	4.7	1.9	.9	4.9	.4	.6
19	1.2	1.4	b1.2	b3.5	137	22	4.2	1.9	.9	1.2	.4	*.7
20	7.9	1.4	b1.2	b2.5	32	7.0	*3.7	1.9	1.2	.7	1.8	.9
21	1.4	1.4	b3.0	a2.0	24	4.7	3.7	1.9	12	.7	7.0	.9
22	1.2	1.4	b2.0	a1.8	58	45	5.4	1.9	3.7	.7	.9	.7
23	1.2	1.9	b1.2	a1.8	*72	30	5.7	1.4	1.7	.7	51	.7
24	1.7	1.4	b1.3	a1.9	19	9.4	3.7	1.4	1.2	2.5	2.8	.7
25	1.4	1.4	b1.4	a1.8	53	5.7	3.7	1.4	1.2	2.1	2.7	.7
26	1.2	1.4	b1.7	a1.7	19	4.7	8.8	*3.2	1.7	.9	116	.7
27	1.2	1.4	b2.0	a1.7	9.4	4.7	4.7	1.7	3.7	.7	2.8	.5
28	1.7	1.4	b1.6	a1.8	9.4	4.7	13	1.2	*1.7	.7	2.2	.5
29	1.7	3.7	b2.2	a1.7	—	5.7	7.0	1.7	1.2	.9	1.2	.5
30	1.2	2.2	b6.0	a1.7	------	3.7	3.7	1.7	*1.2	.9	1.2	.5
31	3.7	------	b4.7	a1.6	------	31	------	1.2	------	.9	1.2	-------
Total	48.9	82.7	50.9	716.5	803.1	338.4	442.7	114.0	95.1	46.3	217.6	126.6
Mean	1.58	2.76	1.64	23.1	28.7	10.9	14.8	3.68	3.17	1.49	7.02	4.22
Cfsm	0.286	0.500	0.297	4.18	5.20	1.97	2.68	0.667	0.574	0.270	1.27	0.764
In.	0.33	0.56	0.34	4.83	5.41	2.28	2.98	0.77	0.64	0.31	1.47	0.85

Calendar year 1960: Max 418 Min 0.4 Mean 6.93 Cfsm 1.26 In. 17.08
Water year 1960-61: Max 550 Min 0.4 Mean 8.45 8.20 Cfsm 1.53 In. 20.77

Peak discharge (base, 550 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 1	0600	6.16	1,960	8-26	0200	4.90	1,00
4-13	0400	4.30	720	9- 4	0430	5.76	1,590

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

1-5893.3 Dead Run at Franklintown, Md.--Continued

Discharge, in cubic feet per second, water year October 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.8	0.9	b0.9	b0.7	5.2	82	1.4	1.2	0.7	0.3	0.3
2	1.8	1.1	.9	b1.0	b.8	2.5	5.7	3.0	.9	.5	.3	.5
3	1.2	1.1	.9	b1.1	b1.0	b2.0	3.7	2.2	.9	1.2	.3	.7
4	.9	1.1	.9	1.7	b1.5	b2.0	2.8	1.2	.9	.7	.3	.5
5	.7	1.1	.9	1.7	b2.0	b2.0	2.8	1.2	2.3	.5	.4	.9
6	.7	1.2	.9	87	b1.5	b6.0	2.8	1.2	1.7	.5	17	.4
7	.5	7.2	.9	18	b1.1	b13	29	.9	.9	.5	.9	.3
8	.7	1.2	.7	3.7	*b1.0	b10	5.7	1.7	.7	.5	1.4	.4
9	.7	.9	.7	b2.0	b.9	*7.0	4.7	1.2	.7	.4	*1.1	.4
10	.7	.9	2.2	b1.5	b.8	25	2.8	.9	.7	.4	1.3	.5
11	.5	.9	1.2	b1.2	b.7	49	4.7	1.2	.9	.4	.7	.4
12	.5	.9	18	b1.1	b.8	*248	45	1.2	1.9	.5	.4	.4
13	.5	.9	2.2	b1.1	b1.0	17	27	1.2	5.3	.4	.4	.4
14	7.4	3.7	b1.2	b1.1	b4.0	7.0	7.0	1.2	1.2	1.3	.4	.4
15	1.2	2.2	b1.1	b14	b3.0	4.7	4.7	1.2	1.2	.7	.4	.3
16	.9	2.2	b1.0	b3.5	b2.0	4.7	3.7	1.2	.9	.9	.4	.3
17	.8	1.7	9.4	b1.8	b4.0	3.7	2.8	1.2	.7	.9	.4	3.9
18	.6	1.2	50	b1.2	b4.5	2.8	2.8	1.2	.7	2.7	.3	.4
19	.6	.9	4.7	b1.0	42	3.7	2.8	1.2	1.5	.7	.3	*.3
20	*.9	3.7	2.8	b1.0	9.4	4.7	9.9	1.2	20	.4	.3	.4
21	37	1.7	2.2	b1.1	4.7	67	2.8	1.2	2.8	.7	1.3	.3
22	2.5	1.2	1.7	1.7	27	12	2.2	.9	1.2	.7	.4	.3
23	1.1	1.2	b1.5	2.2	12	4.7	1.7	1.6	1.2	14	.3	1.0
24	1.1	41	b2.5	b1.4	14	3.7	1.7	*23	.9	1.2	.3	.4
25	1.1	2.2	b1.8	b1.5	4.7	2.8	*1.7	1.2	.9	.7	.3	.3
26	1.1	1.7	b1.3	1.7	131	2.8	1.7	1.2	.9	.6	.3	.4
27	.8	1.7	b1.8	2.2	34	2.2	1.7	4.5	.7	.4	.3	7.8
28	.8	1.2	4.7	1.2	14	2.2	1.7	1.7	*.7	.3	.3	1.2
29	.8	*1.2	b2.0	b1.1	—	2.2	2.2	1.2	.7	.4	.3	.5
30	.8	.9	b1.2	b1.0	------	2.2	1.4	1.2	.7	.9	.3	.4
31	.8	------	b.9	b.7	------	8.9	------	1.2	------	.5	.3	------
Total	70.2	88.9	123.1	161.4	324.1	530.7	271.2	65.8	55.9	35.2	31.7	24.7
Mean	2.26	2.96	3.97	5.21	11.6	17.1	9.04	2.12	1.86	1.14	1.02	0.82
Cfsm	0.409	0.536	0.719	0.944	2.10	3.10	1.64	0.384	0.337	0.207	0.185	0.149
In.	0.47	0.60	0.83	1.09	2.18	3.58	1.83	0.44	0.38	0.24	0.21	0.17

Calendar year 1961: Max 550 Min 0.4 Mean 8.72 Cfsm 1.60 In. 21.44
Water year 1961-62 Max 248 Min 0.3 Mean 4.88 Cfsm 0.884 In. 12.02

Peak discharge (base, 550 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1200	4.48	792	3-12	0800	4.38	752

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

1-5893.3 Dead Run at Franklintown, Md.--Continued

Discharge, in cubic feet per second, water year October 1962 to September 1963

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.7	1.1	b0.7	b1.0	b0.9	2.2	1.7	1.1	0.8	0.8	0.3
2	.4	.5	.9	b.8	b2.0	b3.5	2.2	1.1	5.8	.7	.4	.3
3	.4	15	.9	b.9	b6.0	b3.0	1.7	.9	83	.6	.4	.3
4	97	1.4	.9	b.9	1.7	3.7	1.4	.8	4.2	.4	.3	.3
5	2.8	1.9	1.1	b.9	14	19	1.1	.8	2.5	.4	.2	.6
6	1.2	1.1	41	b1.0	4.0	80	1.2	.8	1.9	.4	.2	.4
7	.9	.8	4.2	b1.1	b2.0	3.2	1.2	.7	1.2	.4	.3	.4
8	.8	.8	2.5	b1.5	b1.2	2.2	1.1	.7	1.4	.4	.3	.3
9	.8	17	1.9	1.9	b1.0	1.9	1.7	.8	1.1	.4	.2	.3
10	.7	145	1.4	2.5	1.2	2.2	1.2	.8	1.0	.4	.2	.3
11	.7	2.8	1.2	4.7	2.7	2.2	1.1	.8	*1.2	.4	.2	.2
12	.6	*1.7	.9	49	16	*36	1.1	.7	.8	.4	.2	.3
13	.6	1.4	.8	20	b2.5	5.7	1.1	.7	.8	.4	33	*.3
14	.5	1.2	b.8	b3.0	b1.5	4.7	.9	.9	1.2	5.8	1.4	.2
15	.5	1.1	.8	b2.0	b1.0	3.2	.8	.8	.7	1.1	.5	1.8
16	.5	.9	.9	b1.2	b.8	6.3	.8	.8	.7	.7	.4	13
17	.6	.9	*.9	b1.7	b.9	17	1.1	2.5	.7	.7	.4	1.4
18	.5	24	1.1	1.9	b1.0	4.2	.9	5.8	.6	.4	.3	.7
19	.6	3.2	1.1	2.5	b1.2	7.8	.9	.9	.7	.4	9.8	.5
20	.7	2.2	1.1	13	27	10	.6	2.5	22	.8	12	.4
21	.7	12	.8	b3.0	b2.0	4.2	.5	1.2	1.9	.4	3.3	.4
22	.5	44	1.2	b2.0	b1.1	2.8	.4	.9	.9	*.6	1.7	.5
23	.5	2.5	1.7	b1.5	b1.0	2.5	1.9	.7	.7	.4	.5	.4
24	.4	1.7	1.2	b1.2	b.9	2.2	.8	.7	.7	.4	.4	.4
25	.7	1.4	1.1	b1.1	b.9	1.7	*.8	.7	.6	.4	.4	.5
26	.6	1.2	b1.1	b1.0	b.8	5.9	.8	.7	.6	.4	.4	.4
27	.5	1.2	b1.0	b1.0	b.8	5.2	.8	.7	.5	.3	.4	.4
28	.4	1.2	b.9	b1.0	b.8	2.5	.7	.7	.5	.4	.4	.4
29	.4	1.1	b.8	b1.0	-	1.9	1.6	.9	7.1	.5	1.9	81
30	.6	1.1	b.7	b1.0	------	1.9	5.5	2.3	1.7	.4	.6	.4
31	1.4	------	b.6	b1.0	------	1.7	------	.6	------	.3	.4	------
Total	117.9	291.0	76.6	126.0	97.0	249.2	38.1	35.6	147.8	20.5	71.9	107.1
Mean	3.80	9.70	2.47	4.06	3.46	8.04	1.27	1.15	4.93	0.66	2.32	3.57
Cfsm	0.688	1.76	0.447	0.736	0.627	1.46	0.230	0.208	0.893	0.120	0.420	0.647
In.	0.79	1.96	0.52	0.85	0.65	1.68	0.26	0.24	1.00	0.14	0.48	0.72

Calendar year 1962: Max 248 Min 0.3 Mean 5.44 Cfsm 0.986 In. 13.39
Water year 1962-63: Max 145 Min 0.2 Mean 3.78 Cfsm 0.685 In. 9.29

Peak discharge (base, 550 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10-4	1700	4.35	740	11-10	0330	4.88	990

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

1-5893.3 Dead Run at Franklintown, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	2.8	2.8	b12	4.2	5.7	2.8	6.3	1.4	0.9	0.4	1.0
2	.3	3.0	1.9	b7.0	2.8	*19	5.8	4.7	1.7	.9	.6	.3
3	.5	.5	1.9	b20	b1.8	*48	7.0	3.7	1.7	1.1	6.4	.3
4	.4	.4	1.2	b30	b1.5	14	3.2	3.2	1.4	4.4	1.4	.3
5	.3	.4	1.4	b5.0	1.9	12	2.5	2.5	1.4	.9	.8	.3
6	.3	71	1.2	b22	71	4.7	*11	2.5	4.1	.8	.5	.2
7	.3	55	1.2	69	8.2	4.2	12	2.2	2.5	.8	5.0	.3
8	.3	*3.2	22	b5.0	3.7	6.0	25	2.2	2.2	22	1.4	.3
9	.3	1.7	8.1	*209	2.8	5.2	5.7	1.9	1.4	1.9	.5	.3
10	*3	1.4	2.5	b12	b2.5	4.2	4.2	1.7	1.2	1.2	.5	.3
11	.3	1.4	1.9	b4.0	b2.0	3.2	3.2	1.7	1.1	1.1	.7	.4
12	.3	1.2	3.7	b2.0	b2.5	3.7	2.8	1.7	.9	1.1	1.2	2.2
13	.3	1.1	2.2	b1.5	b2.5	3.2	2.8	63	.9	22	*.4	1.2
14	.3	1.1	3.8	a1.5	b5.0	6.0	19	6.5	1.1	1.4	.3	.4
15	.3	1.1	1.7	a1.5	b3.5	5.2	6.3	3.2	2.1	1.1	.3	.3
16	.3	1.1	1.2	a1.5	29	3.2	3.7	2.8	1.1	1.1	.7	.3
17	.4	.9	1.1	a2.0	b7.0	2.8	3.2	2.8	.8	1.1	1.4	.3
18	.3	.9	1.2	a2.0	b4.0	2.5	3.2	*2.2	.8	1.1	4.3	.2
19	.4	.9	1.1	a2.0	b13	2.5	4.9	1.9	4.6	1.1	.9	2.2
20	.4	.9	.8	b18	b15	2.2	23	1.7	3.8	.9	.5	1.9
21	.3	1.2	b.8	b40	b5.5	6.1	20	1.7	1.2	5.7	.4	.4
22	.3	.8	b.8	13	b3.0	49	9.4	1.7	1.1	1.7	.7	.3
23	.3	12	.9	7.0	b1.5	34	4.7	1.7	1.1	1.1	.4	.3
24	.3	2.5	1.2	6.3	b1.5	11	3.7	1.7	25	1.1	.4	.3
25	.4	1.4	1.7	140	b2.0	6.3	3.2	1.4	1.8	1.1	.4	.2
26	.4	1.2	1.7	8.2	b5.0	5.2	3.2	1.4	1.2	1.1	.3	.2
27	.4	1.1	1.9	4.2	b5.0	3.7	3.8	1.4	6.4	.9	.3	.3
28	.3	1.1	b1.5	*3.7	b4.0	2.8	6.8	1.4	1.4	.9	.3	7.7
29	.3	79	b1.2	b2.2	b4.0	2.8	23	1.4	*1.1	.8	.4	24
30	.3	44	b.9	b2.0	------	4.2	36	1.4	1.1	.5	.4	*21
31	.3	------	b.7	b1.8	------	3.2	------	1.4	------	.5	2.3	-------
Total	10.2	294.3	76.2	655.4	215.4	285.8	265.1	135.0	77.6	82.3	34.5	67.6
Mean	0.33	9.81	2.46	21.1	7.43	9.22	8.84	4.35	2.59	2.65	1.11	2.25
Cfsm	0.060	1.78	0.446	3.82	1.35	1.67	1.60	0.788	0.469	0.480	0.201	0.408
In.	0.07	1.98	0.51	4.42	1.45	1.93	1.79	0.91	0.52	0.55	0.23	0.46

Calendar year 1963: Max 83 Min 0.2 Mean 3.49 Cfsm 0.632 In. 8.58
Water year 1963-64: Max 209 Min 0.2 Mean 6.01 Cfsm 1.09 In. 14.82

Peak discharge (base, 550 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 1	†1200	†5.1	†1120	5-13	1700	3.93	590
1-25	†1230	†5.43	†1330				

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

1-5900. North River near Annapolis, Md.

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 confluence with Bacon Ridge Branch, and 7 miles west of Annapolis, Anne Arundel County.

Drainage area.--8.5 sq mi, approximately.

Records available.--December 1931 to September 1964.

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.--32 years (1932-1964), 10.5 cfs.

Extremes.--Maximum discharge during year, 125 cfs Jan. 9 (gage height, 2.45 ft); minimum, 2.3 cfs Sept. 6, 7 (gage height, 0.99 ft).
1931-64: 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; minimum, 1.5 cfs Sept. 1, 2, 4, 1932.

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

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

1.0	2.4	1.5	22
1.1	4.0	1.8	44
1.2	7.1	2.1	72

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	4.2	14	7.0	12	13	12	15	5.6	4.0	3.1	3.1
2	4.5	10	10	11	11	14	12	12	6.3	4.0	3.3	2.8
3	4.2	14	9.3	9.3	9.3	18	14	12	6.3	4.0	4.7	2.7
4	4.0	6.7	8.8	9.3	8.4	16	12	11	6.0	4.0	7.5	2.7
5	3.8	5.0	8.0	7.1	9.3	*14	11	10	5.3	4.0	4.5	2.7
6	3.8	5.0	7.1	6.0	20	12	14	10	5.3	3.6	3.8	2.4
7	3.8	27	7.1	19	20	11	20	9.8	6.0	3.6	3.6	2.4
8	3.8	65	7.8	12	14	12	24	9.8	6.0	11	4.0	2.5
9	3.8	21	16	56	11	14	19	9.3	7.1	8.8	4.5	2.5
10	3.6	12	10	43	a9.0	12	*15	8.4	5.6	5.3	3.8	2.5
11	3.6	8.8	8.0	18	7.5	10	14	7.5	5.0	4.7	4.0	2.7
12	3.8	8.0	8.8	14	11	9.8	13	7.5	4.7	4.5	*3.8	2.4
13	3.6	7.1	8.4	8.8	12	9.8	12	9.3	4.7	a6.0	3.6	3.6
14	3.6	6.7	11.0	12	12	10	16	14	5.3	a8.0	3.3	4.2
15	3.8	6.0	8.8	a11	12	12	16	9.3	7.1	a6.0	3.1	3.3
16	*4.0	6.0	6.7	a10	24	10	13	8.4	10	a5.0	3.3	3.1
17	4.0	6.0	*6.0	a9.5	16	9.8	12	8.0	5.6	a5.0	4.0	a3.0
18	4.0	*6.0	6.3	a9.0	14	9.3	12	9.3	5.0	a6.0	4.0	a2.8
19	4.0	6.0	6.0	a9.0	37	8.8	13	7.5	5.3	a5.0	3.6	a3.5
20	4.0	5.6	5.3	a13	27	8.8	16	6.7	6.3	a4.5	3.3	a5.0
21	4.0	6.0	5.0	22	18	14	18	6.3	5.3	a4.2	3.1	a4.0
22	4.0	6.0	4.7	19	15	28	14	6.7	4.7	a4.0	3.1	a3.7
23	4.2	8.7	4.7	16	12	29	13	6.3	4.7	a4.0	3.1	3.6
24	4.2	14	4.0	14	12	23	12	6.0	5.3	a4.0	3.0	3.4
25	4.2	8	4.5	26	12	19	11	5.6	5.3	a4.0	3.1	3.1
26	4.5	6.7	4.5	21	12	16	11	5.3	4.5	a4.5	3.3	3.0
27	4.5	6.7	4.5	14	12	13	11	5.3	4.2	a4.0	*3.0	3.1
28	4.5	6.3	4.5	12	12	12	13	5.3	4.5	4.0	*3.0	4.7
29	4.5	16	4.0	10	12	12	14	5.3	4.0	3.6	3.3	11
30	4.5	28	3.4	*10	------	12	16	5.3	4.0	3.4	3.3	25
31	4.2	------	a3.4	9.3	------	12	------	5.3	------	3.1	3.3	------
Total	126.3	342.5	220.6	467.3	413.5	424.3	423.0	257.5	165.0	149.8	113.4	124.5
Mean	4.07	11.4	7.12	15.1	14.3	13.7	14.1	8.31	5.50	4.83	3.66	4.15
Cfsm	0.479	1.34	0.838	1.78	1.68	1.61	1.66	0.978	0.647	0.568	0.431	0.488
In.	0.55	1.50	0.97	2.04	1.81	1.86	1.85	1.13	0.72	0.66	0.50	0.54

Calendar year 1963: Max 90 Min 2.1 Mean 7.92 Cfsm 0.932 In. 12.66
Water year 1963-64: Max 65 Min 2.4 Mean 8.82 Cfsm 1.04 In. 14.13

Peak discharge (base, 75 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	about 2300	2.35	106	1-9	1500	2.45	125

* Discharge measurement made on this day.
a No gage-height record.

3,227.7

1-5910. Patuxent River near Unity, Md.

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 1964.

Gage.--Water-stage recorder (digital) 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 gage at same site and datum.

Average discharge.--20 years, 36.2 cfs.

Extremes.--Maximum discharge during year, 1,340 cfs Jan. 9 (gage height 6.75 ft); minimum, 3.6 cfs Sept. 6, 11-12 (gage height, 1.79 ft).
1944-64: 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; minimum, 2.1 cfs Aug. 25-28, 1944.

Remarks.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair.

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

1.7	2.3	2.5	52
1.8	4.2	3.0	111
1.9	6.6	3.5	187
2.0	10	4.0	295
2.1	15	4.5	425
2.3	30	5.0	575

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	7.7	6.6	47	22	44	35	49	69	18	9.4	5.9	5.6
2	7.0	14	31	38	42	45	50	59	20	9.4	6.4	4.9
3	6.6	8.4	27	29	35	144	60	54	18	9.4	35	4.4
4	6.4	7.0	22	47	33	134	47	51	17	9.4	22	4.4
5	6.1	6.6	20	42	33	180	44	49	16	9.1	10	4.2
6	6.1	27	18	43	68	106	51	44	16	8.4	8.7	4.0
7	5.9	146	17	158	62	83	*56	43	20	8.0	9.8	4.2
8	*5.6	27	22	57	47	77	74	42	18	25	11	4.2
9	5.4	17	57	524	41	*74	64	40	17	15	8.4	4.0
10	5.6	14	28	d124	38	69	55	36	16	12	8.0	4.0
11	5.4	13	23	d60	40	60	51	35	14	11	8.7	4.0
12	5.4	12	b20	d40	43	59	47	34	13	9.8	8.7	4.4
13	5.4	*11	b18	d25	40	56	46	*36	14	29	7.7	5.4
14	5.6	11	b20	d45	37	60	66	37	15	14	*7.3	5.2
15	5.9	10	b17	d35	36	62	56	33	19	13	7.0	4.7
16	5.9	9.8	b16	d30	53	54	47	31	18	11	7.0	4.4
17	5.9	9.8	b15	d27	47	51	45	30	14	12	8.0	4.2
18	5.9	9.8	b15	d26	44	46	42	29	13	11	7.7	4.0
19	5.9	9.4	b16	d25	50	44	45	27	14	11	7.3	4.9
20	5.9	9.1	b15	d40	46	44	54	25	14	9.4	7.0	9.4
21	5.9	9.8	b14	d120	42	53	88	23	13	9.4	6.6	6.1
22	6.1	9.4	b14	d73	37	88	62	23	15	9.4	6.4	5.6
23	6.1	16	b14	d61	35	81	56	22	13	9.4	6.1	5.6
24	6.6	24	b17	d55	36	66	51	22	37	9.1	5.9	5.4
25	6.4	14	b16	d135	33	60	47	20	16	9.4	5.6	4.9
26	6.4	12	b15	d77	34	58	45	20	13	9.8	5.4	4.9
27	6.4	12	b15	*d60	38	52	44	19	12	9.4	5.2	4.9
28	6.4	11	b14	53	36	49	51	19	11	8.7	*5.4	6.4
29	6.1	98	b13	45	36	47	52	19	9.8	8.0	5.4	16
30	5.9	176	b11	43	------	50	116	18	9.8	7.0	5.4	14
31	5.6	------	b10	40	------	50	------	18	------	5.9	6.6	------
TOTAL	187.5	760.7	617	2,199	1,206	2,137	1,661	1,027	475.6	341.8	265.6	168.3
MEAN	6.05	25.4	19.9	70.9	41.6	68.9	55.4	33.1	15.9	11.0	8.57	5.61
CFSM	.174	.730	.572	2.04	1.20	1.98	1.59	.951	.457	.316	.246	.161
IN	.20	.81	.66	2.35	1.29	2.28	1.78	1.10	.51	.37	.28	.18

CALENDAR YEAR 1963 MAX 390 MIN 2.9 MEAN 21.5 CFSM .618 INCHES 8.40
WATER YEAR 1963-64 MAX 524 MIN 4.0 MEAN 30.2 CFSM .868 INCHES 11.81

Peak discharge (base, 770 cfs)

Date	Time	Gage height	Discharge
1-9	1930	6.75	1,340

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
c Doubtful gage-height record.

1-5925. Patuxent River near Laurel, Md.

Location.--Lat 39°06'56", long 76°52'27", on right bank at Rocky Gorge pumping station, 600 ft downstream from Rocky Gorge Dam, 0.7 mile upstream from Walker Branch, and 1.3 miles northwest of Laurel, Prince Georges County.

Drainage area.--132 sq mi.

Records available.--Oct. 1944 to September 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 160 ft (from topographic map). Prior to October 1, 1955, water-stage recorder and concrete control at site 0.3 mile downstream at different datum. Oct. 1, 1955, to Sept. 30, 1956, vertical staff gage at present site at datum 1.2 ft lower. Oct. 1, 1956, to Jan. 27, 1957, inclined staff gage at present site and datum.

Extremes.--Maximum discharge during year, 600 cfs Jan. 25 (gage height, 4.90 ft); minimum daily 7.6 cfs Sept. 29.

1944-64: Maximum discharge, 11,800 cfs July 21, 1956 (gage height, 17.7 ft, from floodmarks, present site and datum); minimum, 0.1 cfs Sept. 25, 1964 (valve closed for repair); minimum daily, 1.1 cfs June 26, 1956.

Remarks.--Records fair. Records do not include diversion at Patuxent (formerly Willis School) filtration plant for supply of Washington Suburban Sanitary District. Flow regulated by Triadelphia Reservoir, and since March 1954, by Rocky Gorge Reservoir (combined usable capacity, 12,500,000,000 gal; dead storage, 80,000,000 gal).

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

1.2	6.2	2.5	42
1.3	7.8	3.0	78
1.5	11	3.5	175
2.0	23	4.0	320

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	9.9	11	13	121	11	107	160	11	12	12	11
2	11	9.9	11	13	78	11	105	155	11	12	12	11
3	11	9.9	11	13	52	34	105	160	11	12	12	11
4	11	9.9	11	13	51	111	105	128	11	12	12	11
5	11	9.9	12	13	51	152	78	99	11	12	12	11
6	11	9.9	12	13	52	*170	63	99	11	12	12	11
7	*11	10	12	13	53	165	62	72	11	12	12	11
8	11	11	12	13	52	162	107	58	10	12	12	11
9	11	11	12	13	50	162	170	58	9.5	12	12	11
10	11	11	12	13	50	170	160	58	9.5	12	12	11
11	11	11	12	13	92	168	158	27	9.7	12	*12	11
12	11	11	12	13	148	162	158	12	9.5	12	11	11
13	11	11	12	13	152	162	155	12	9.5	12	11	11
14	11	*11	12	13	160	134	140	38	9.5	12	11	11
15	11	11	12	13	150	115	95	57	10	12	11	11
16	10	11	12	13	119	115	94	58	11	12	11	11
17	11	11	12	12	65	108	73	57	11	12	11	11
18	10	11	12	12	97	111	61	25	11	12	11	11
19	10	11	13	12	155	111	61	*11	11	12	11	11
20	10	11	13	15	152	66	60	11	11	12	11	11
21	10	11	13	14	152	71	73	11	11	12	11	11
22	10	11	13	40	121	115	135	11	11	12	11	11
23	10	11	13	75	65	125	150	11	11	12	11	8
24	10	11	13	89	51	148	150	11	12	12	11	8
25	10	11	13	214	44	155	158	11	12	12	11	8
26	10	11	13	190	46	162	118	11	12	12	11	9.5
27	10	11	13	158	48	165	72	11	12	12	11	9.5
28	10	11	13	162	37	125	61	11	12	12	11	9.7
29	10	11	13	162	13	107	63	11	12	12	11	7.6
30	10	11	13	172	---	107	126	11	12	12	11	8.1
31	9.9	---	13	170	---	107	---	11	---	12	11	---
Total	325.9	322.4	381	1,705	2,477	3,787	3,223	1,476	326.2	372	352	310.4
Mean	10.5	10.7	12.3	55.0	85.4	122	107	47.6	10.9	12.0	11.4	10.3
(†)	8,510	9,530	9,970	12,710	12,560	13,050	13,210	12,830	12,530	11,500	10,640	9,680
(‡)	+47.0	+43.1	48.5	+68.0	+77.4	+78.0	+81.3	+90.2	+76.7	+82.4	+70.0	+65.1

Calendar year 1963: Max 15 Min 8.6 Mean 12.0 ‡ 68.0
Water year 1963-64: Max 214 Min 7.6 Mean 41.1 ‡ 68.9

* Discharge measurement made on this day

† Combined month-end total contents, in millions of gallons, in Triadelphia and Rocky Gorge Reservoirs (contents on Sept. 30, 1963, 9,220 million gallons); furnished by Washington Suburban Sanitary Commission.

‡ Diversion, in cubic feet per second, above station at Patuxent (formerly Willis School) filtration plant for supply of Washington Suburban Sanitary District. Records furnished by Washington Suburban Sanitary Commission.

15,057.9

1-5935. Little Patuxent River at Guilford, Md.

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.--April 1932 to September 1964. Monthly discharge only for April 1932, published in WSP 1302.

Gage.--Water-stage recorder (digital). 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.--32 years, 40.0 cfs.

Extremes.--Maximum discharge during year, 1,160 cfs Jan. 9 (gage height, 8.86 ft); minimum, 4.0 cfs Sept. 6, 10, 12 (gage height, 2.42 ft).
1932-64: 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; minimum recorded, 2.8 cfs Sept. 6, 1957, Aug. 13, 1963; minimum gage height, 1.38 ft Sept. 29, 1941.

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

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

Oct. 1 to Mar. 3				Mar. 4 to Sept. 30			
2.5	5.8	4.0	205	2.4	2.9	3.2	63
2.6	9.4	5.0	391	2.5	6.3	4.0	205
2.8	22	7.0	751	2.6	10	5.0	391
3.2	59			2.8	22		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	10	10	52	22	42	44	41	85	21	12	5.9	6.2
2	8.7	22	32	42	38	67	42	66	23	11	5.9	5.6
3	8.2	11	27	43	33	161	56	62	22	11	13	5.3
4	8.4	9.4	24	108	31	*108	43	58	20	16	19	5.0
5	7.6	9.4	21	76	31	94	38	49	19	12	11	4.6
6	7.6	34	20	64	107	61	50	43	23	11	9.6	4.3
7	*7.6	344	19	354	80	50	64	40	33	9.9	10	4.6
8	7.2	45	24	81	50	50	94	39	22	26	15	4.6
9	7.4	25	83	581	40	60	*73	37	21	20	9.6	4.6
10	7.2	19	33	289	37	49	51	35	19	14	8.8	4.3
11	7.3	17	26	64	35	40	45	34	17	12	9.6	4.6
12	7.3	15	26	b45	54	40	41	31	16	11	*9.6	4.3
13	7.2	14	27	b25	48	39	39	297	17	21	8.5	6.2
14	7.4	13	27	b50	40	42	73	176	17	14	8.1	6.5
15	7.5	13	b22	38	40	46	58	63	21	12	7.7	5.6
16	7.6	13	b19	29	76	40	45	48	23	11	8.1	5.0
17	7.5	13	b18	28	65	38	41	40	16	11	10	5.0
18	7.5	*13	b15	27	53	34	38	36	15	10	8.8	4.6
19	7.5	12	b16	27	82	33	38	*32	18	10	8.5	5.6
20	7.7	12	a15	60	78	33	46	29	21	10	7.7	11
21	7.8	12	a14	273	65	44	90	27	16	9.6	7.7	7.3
22	7.7	12	a14	99	50	132	59	26	*20	10	6.9	6.5
23	7.8	23	a14	a62	43	127	51	25	16	9.6	6.5	6.5
24	7.8	33	a17	a48	40	79	44	25	35	9.6	6.5	a6.0
25	7.8	17	a17	380	38	63	39	23	28	10	6.2	a5.5
26	7.9	15	a17	118	44	60	38	22	16	10	5.9	a5.0
27	8.1	15	a16	a57	52	50	37	22	17	10	5.9	a5.0
28	8.0	14	a16	a44	42	44	49	21	15	8.8	*5.9	a10
29	7.8	98	b16	*a40	41	42	52	21	13	8.5	6.2	a50
30	7.6	187	b15	37	------	43	*184	20	12	7.7	6.5	a45
31	7.7	------	b13	34	------	43	------	20	------	6.5	6.9	------
TOTAL	240.4	1,089.8	715	3,245	1,475	1,858	1,659	1,552	592	365.2	265.5	254.3
MEAN	7.76	36.3	23.1	105	50.9	59.9	55.3	50.1	19.7	11.8	8.57	8.48
CFSM	.204	.955	.608	2.76	1.34	1.58	1.46	1.32	.518	.311	.226	.223
IN	.24	1.07	.70	3.18	1.44	1.82	1.62	1.52	.58	.36	.26	.25

CALENDAR YEAR	1963	MAX	528		MIN	3.5		MEAN	28.2	CFSM	.742	INCHES 10.06
WATER YEAR	1963-64	MAX	581		MIN	4.3		MEAN	36.4	CFSM	.958	INCHES 13.03

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 9	2230	8.86	1,160	5-13	2000	8.75	1,120
1-25	1800	6.54	668				

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

1-5945. Western Branch near Largo, Md.

Location.--Lat 38°52'34", long 76°47'54", on right bank 200 ft upstream from culvert 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.--October 1949 to September 1964. Monthly discharge only for some periods, published in WSP 1302.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 46.50 ft above sea level (levels by private consultant engineers).

Average discharge.--15 years, 29.4 cfs.

Extremes.--Maximum discharge during year, 612 cfs Jan. 9 (gage height, 5.51 ft); minimum, 0.5 cfs Sept. 12, 13 (gage height, 1.15 ft).
1949-64: Maximum discharge, 1,580 cfs Aug. 13, 1955 (gage height, 8.51 ft, from high-water mark in well); minimum, that of Sept. 12, 13, 1964.

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

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

1.1	0.3	1.7	15
1.2	.8	1.8	22
1.3	1.8	2.0	40
1.4	3.1	3.0	185
1.5	5.3	4.0	340
1.6	9.5		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	22	4.9	108	26	30	34	28	61	5.0	2.0	1.6	1.6
2	14	20	51	60	28	35	28	46	5.6	2.0	1.8	1.1
3	9.0	14	35	79	25	47	39	36	6.0	2.0	6.0	1.0
4	6.3	11	27	79	23	56	35	31	5.6	2.0	12	.8
5	5.0	8.5	22	57	23	51	30	27	5.0	1.9	10	.8
6	4.2	78	19	45	65	*36	38	24	4.7	1.8	5.6	.7
7	3.8	311	17	116	98	32	77	22	5.3	1.5	4.0	.7
8	3.6	162	18	97	65	31	137	21	5.6	17	11	.7
9	3.3	60	44	294	42	37	131	19	5.3	11	16	.7
10	3.1	34	37	253	33	35	*74	17	4.5	7.6	7.1	.7
11	3.0	24	29	97	27	29	50	15	3.6	4.5	5.6	.7
12	3.0	19	27	51	29	28	39	14	3.3	3.3	*4.2	.5
13	2.7	15	24	37	28	25	34	19	3.3	6.7	3.1	1.2
14	2.7	13	28	40	32	26	39	40	3.3	7.1	2.5	1.6
15	2.8	12	28	32	38	33	46	31	3.3	5.0	4.7	1.0
16	*2.8	11	23	30	131	30	39	24	6.7	3.8	10	.9
17	2.7	11	*19	27	103	29	34	20	6.7	3.6	12	.8
18	2.7	*10	17	24	85	24	30	17	4.7	7.1	11	.8
19	2.7	9.5	15	23	250	22	31	14	4.0	4.0	9.5	64
20	2.8	9.0	14	44	175	21	41	*12	9.0	3.4	a6.7	46
21	2.8	9.0	13	140	97	34	60	10	5.0	3.0	a1.4	18
22	2.8	9.0	11	134	62	136	51	9.5	3.8	3.0	1.2	8.5
23	2.8	20	11	89	46	148	42	8.5	3.4	2.7	1.1	6.0
24	3.0	35	14	61	39	85	35	8.0	9.3	2.5	1.1	4.2
25	3.0	26	14	121	34	56	30	6.7	6.0	2.7	1.1	3.3
26	3.1	20	14	119	33	45	28	6.0	3.6	3.0	1.1	2.7
27	3.2	17	b14	67	30	35	26	5.6	3.1	2.8	*1.0	2.4
28	3.3	15	b13	44	28	30	28	5.0	3.0	2.4	.9	3.0
29	3.4	77	b12	33	31	28	35	5.0	2.4	2.5	1.1	9.0
30	3.0	212	b12	*29	------	28	52	5.0	2.2	2.1	1.1	73
31	3.0	------	11	27	------	28	------	4.7	------	1.6	1.1	------
TOTAL	135.6	1,276.9	741	2,375	1,730	1,315	1,387	584.0	142.3	125.6	156.60	256.40
MEAN	4.37	42.6	23.9	76.6	59.7	42.4	46.2	18.8	4.74	4.05	5.05	8.55
CFSM	.145	1.41	.791	2.54	1.98	1.40	1.53	.623	.157	.134	.167	.283
IN	.17	1.57	.91	2.92	2.13	1.62	1.71	.72	.18	.15	.19	.32

CALENDAR YEAR 1963 MAX 544 MIN .8 MEAN 25.6 CFSM .848 INCHES 11.51
WATER YEAR 1963-64 MAX 311 MIN .5 MEAN 27.9 CFSM .924 INCHES 12.59

Peak discharge (base, 340 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	0130	4.78	468	1-9	1530	5.51	612

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

1-5946. Cocktown Creek near Huntingtown, Md.

Location.--Lat 38°38'27", long 76°38'07", on right bank at downstream side of bridge on State Highway 510, 2 miles northwest of Huntingtown, Calvert County, 2¾ miles southeast of Lower Marlboro, and about 3½ miles upstream from mouth.

Drainage area.--3.85 sq mi.

Records available.--December 1956 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 40 ft (from topographic map).

Average discharge.--7 years (1957-64), 4.70 cfs.

Extremes.--Maximum discharge during year, 96.0 cfs Nov. 6 (gage height, 4.79 ft); no flow during July, August, and September.
1956-64: Maximum discharge, 1,120 cfs June 14, 1960 (gage height, 7.96 ft), from rating curve extended above 150 cfs on basis of contracted-opening measurement of peak flow; no flow many days in July and August 1957, September 1963, July, August, and September 1964.

Remarks.--Records good except those for periods of ice effect which are fair, and those for periods of no gage-height record, or daily discharge below 1.0 cfs, which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.8	3.9	10	5.0	9.1	6.7	8.6	1.6	0.3	0.1	0.1
2	.4	2.9	3.0	9.1	4.1	8.9	7.1	7.3	2.3	.3	.1	0
3	.4	.9	2.6	6.5	3.4	12	6.9	7.0	2.0	.3	1.0	0
4	.4	.8	2.1	5.1	3.6	9.1	5.7	6.4	1.6	.4	.7	0
5	.3	.8	1.9	4.1	3.1	8.2	5.5	6.0	1.4	.3	.3	0
6	.3	11	1.7	3.6	9.8	6.9	9.0	5.8	1.3	.2	.2	0
7	.3	19	1.6	9.8	5.3	6.9	11	5.5	1.2	.2	.2	0
8	.3	4.4	3.1	4.4	4.1	7.8	14	5.2	2.2	2.5	.2	0
9	.3	2.6	4.7	16	3.4	7.5	11	4.9	1.9	.9	.1	0
10	.3	2.0	2.4	6.5	3.1	6.5	*8.9	4.3	1.6	.6	.2	0
11	.4	1.7	2.1	4.1	3.1	5.7	7.8	4.2	1.3	.4	.2	0
12	.3	1.6	3.0	3.6	3.4	5.9	7.1	4.5	1.0	.3	.3	0
13	.3	1.5	2.4	4.2	3.8	5.5	6.7	6.5	.8	.8	.1	.1
14	.3	1.4	3.9	4.6	4.8	6.1	8.8	*5.2	.7	.7	.1	0
15	.3	1.3	2.6	4.5	5.0	6.3	7.1	4.3	1.3	.3	.1	0
16	.3	1.2	1.6	4.2	19	5.3	6.1	4.0	1.5	.3	.1	0
17	.3	1.2	1.5	4.0	9.1	5.1	5.7	3.9	1.2	.2	.2	0
18	.3	1.2	2.0	3.8	12	4.8	5.3	3.4	.9	.2	.1	0
19	.3	1.2	6.0	3.7	26	4.6	9.3	3.2	.6	.2	.1	1.5
20	.3	1.2	5.0	5.8	15	4.6	10	2.8	1.2	.2	.1	.6
21	*.4	*1.2	4.5	7.3	12	9.2	7.5	2.7	1.4	.2	.1	.2
22	.4	1.2	4.0	5.7	11	18	8.6	2.6	1.2	.3	0	.1
23	.5	4.2	10	4.9	9.8	12	7.5	2.4	1.0	.2	0	*.1
24	.5	3.6	8.6	4.8	9.3	8.9	7.1	2.3	2.4	.2	0	.1
25	.5	1.7	4.6	12	8.9	7.8	6.4	2.2	1.5	.3	*0	0
26	.5	1.6	3.9	6.1	8.6	11	6.1	2.0	1.0	.4	0	0
27	.6	1.5	3.6	4.8	7.8	8.2	6.4	1.8	.7	.3	0	.1
28	.6	1.3	2.4	4.4	8.6	7.3	7.1	1.7	.5	.4	.1	.1
29	.6	9.1	1.9	3.9	9.1	7.1	11	1.6	*.4	.2	.1	4.0
30	.5	12	*1.7	*3.9	------	7.8	12	1.6	.4	.1	.1	*19
31	.6	------	1.4	3.7	------	7.3	------	1.6	------	0	.1	------
Total	12.3	96.1	103.7	179.1	231.2	241.4	239.4	125.5	38.1	12.2	5.0	26.0
Mean	0.40	3.20	3.35	5.78	7.97	7.79	7.98	4.05	1.27	0.39	0.16	0.87
Cfsm	0.104	0.831	0.870	1.50	2.07	2.02	2.07	1.05	0.330	0.101	0.042	0.226
In.	0.12	0.93	1.00	1.73	2.23	2.33	2.31	1.21	0.37	0.12	0.05	0.25

Calendar year 1963: Max 77 Min 0 Mean 3.47 Cfsm 0.901 In. 12.23
Water year 1963-64: Max 26 Min 0 Mean 3.58 Cfsm 0.930 In. 12.65

1,3,100

Peak discharge (base, 80 cfs)

Date	Time	Gage height	Discharge
11-6	2315	4.79	96

* Discharge measurement made on this day.
Note.--No gage-height record Jan. 13-19, May 25 to June 28.
Stage-discharge relation affected by ice Dec. 16-25, Dec. 30 to Jan. 1, Feb. 11-13, (no gage-height record Dec. 18-23, Dec. 31, Jan. 1).
Indefinite stage-discharge relation Oct. 1 to Nov. 1, Nov. 3-5, June 13, 14, 18, 19, June 27 to July 7, July 9 to Aug. 2, Aug. 4 to Sept. 13, Sept. 15-28.

1-5948. St. Leonard Creek near St. Leonard, Md.

Location.--Lat 38°26'57", long 76°29'43", on left bank at downstream side of highway bridge, 1¾ miles south of St. Leonard, Calvert County.

Drainage area.--6.73 sq mi.

Records available.--December 1956 to September 1964.

Gage.--Water-stage recorder. Timber control since June 13, 1958. Altitude of gage is 5 ft (from topographic map).

Average discharge.--7 years (1957-64), 8.95 cfs.

Extremes.--Maximum discharge during year, 103 cfs Nov. 7 (gage height, 4.69 ft); no flow for part of each day Aug. 19-25, Sept. 4-13, 26.
1956-64: Maximum discharge, 288 cfs July 30, 1960 (gage height, 6.35 ft); no flow for part of many days in August and September 1963, August and September 1964.

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

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

2.5	0.2	3.0	10
2.6	.9	3.2	20
2.7	1.8	3.5	32
2.8	3.5	4.0	54
2.9	6.2	4.5	87

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	2.7	6.5	22	8.9	11	9.8	12	3.9	1.7	1.2	1.7
2	2.4	8.9	5.2	24	6.5	12	9.3	10	8.0	1.7	1.2	1.0
3	3.8	3.9	5.5	8.9	5.8	18	9.3	9.3	6.5	1.6	3.6	1.0
4	4.8	3.1	5.2	7.2	b5.5	12	7.6	9.3	4.9	1.6	5.7	.8
5	2.6	2.9	4.6	6.2	b5.2	9.8	7.2	8.4	4.4	1.6	2.6	.4
6	2.4	18	4.4	6.2	12	8.4	12	8.0	3.9	1.4	1.7	.2
7	2.3	60	4.4	14	9.3	8.0	16	8.0	3.7	1.2	1.5	.3
8	2.1	11	5.3	7.6	7.2	8.9	16	8.0	4.6	13	1.4	.3
9	1.8	5.8	13	19	6.5	9.8	15	7.2	4.6	8.4	1.3	.4
10	1.8	4.9	5.5	13	b4.4	8.4	*9.3	6.5	3.5	3.7	1.4	.4
11	2.1	4.4	4.9	8.0	3.5	7.2	9.3	6.2	2.9	2.7	1.6	.5
12	2.0	4.1	5.5	7.2	6.9	7.6	8.9	6.2	2.7	2.3	1.5	.3
13	1.8	3.9	4.9	7.2	a7.2	*7.6	8.9	7.2	2.9	16	1.0	3.0
14	2.0	3.7	7.2	8.0	a8.0	7.6	11	7.2	2.9	7.6	1.0	3.1
15	1.8	3.7	5.8	a7.0	8.9	9.3	9.8	6.2	2.9	3.3	.9	1.4
16	2.1	3.5	5.2	a6.5	35	8.0	8.4	6.2	4.4	2.7	1.0	1.2
17	2.1	3.7	4.9	a6.0	13	7.6	8.4	5.8	2.9	2.4	1.6	1.1
18	2.1	3.5	a4.5	a5.8	12	7.2	8.0	5.5	2.7	2.6	1.3	1.0
19	2.1	3.5	a4.5	a5.8	36	7.2	11	5.2	3.1	2.4	.8	1.2
20	2.1	3.3	a3.8	a11	16	7.2	17	4.9	3.5	2.1	.5	1.5
21	*2.1	*3.4	a3.5	16	12	13	14	4.6	3.3	2.3	.5	1.3
22	2.0	3.5	a3.5	13	11	20	11	4.6	2.4	3.1	.5	1.1
23	2.0	4.3	a4.0	9.8	b10	12	9.8	4.4	2.7	3.1	.4	1.1
24	2.1	9.8	a9.0	7.6	b9.8	8.9	9.3	4.1	7.7	2.7	.3	.9
25	2.3	4.4	10	13	b8.0	8.4	8.4	3.7	8.6	3.3	*1.0	.5
26	2.4	3.9	7.6	7.6	8.9	8.4	8.4	3.5	3.7	3.1	1.3	.5
27	2.4	4.1	6.5	6.5	8.0	7.6	8.4	3.7	3.1	2.4	.8	.7
28	2.4	3.7	a5.5	6.2	8.0	7.6	10	3.7	3.1	2.3	.8	1.0
29	2.4	14	a5.0	6.5	11	7.6	11	3.9	*2.3	2.0	1.2	4.4
30	2.3	20	a4.0	*6.9	------	8.9	22	3.9	2.1	1.4	1.3	19
31	2.3	------	a3.5	6.2	------	8.9	------	3.7	------	1.2	1.5	------
Total	71.6	229.6	172.9	299.9	304.5	294.1	324.5	191.1	117.9	106.9	42.4	51.3
Mean	2.31	7.65	5.58	9.67	10.5	9.49	10.8	6.16	3.93	3.45	1.37	1.71
Cfsm	0.343	1.14	0.829	1.44	1.56	1.41	1.60	0.915	0.584	0.513	0.204	0.254
In.	0.40	1.27	0.96	1.66	1.68	1.63	1.79	1.06	0.65	0.59	0.23	0.28

Calendar year 1963: Max 60 Min 0.3 Mean 5.78 Cfsm 0.859 In. 11.68
Water year 1963-64: Max 60 Min 0.2 Mean 6.03 Cfsm 0.896 In. 12.20

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge
11-7	0500	4.69	103

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

2,206.7

1-5950. North Branch Potomac River at Steyer, Md.

Location.--Lat 39°18'07", long 79°18'26", on left bank 0.3 mile southeast of Steyer, Garrett County, 0.35 mile downstream from Steyer Run, and 2 miles northeast of Gorman.

Drainage area.--73.0 sq mi.

Records available.----July 1956 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 2,276.01 ft above mean sea level, datum of 1929, Parkersburg - Uniontown supplementary adjustment of 1944.

Average discharge.--8 years, 165 cfs.

Extremes.--Maximum discharge during year, 3,900 cfs Mar. 5 (gage height, 7.47 ft); minimum, 3.4 cfs Sept. 14, 15 (gage height, 2.07 ft).
1956-64: Maximum discharge, 6,240 cfs Mar. 5 1963 (gage height, 9.13 ft) from curve extended above 2,900 cfs by logarithmic plotting; minimum 3.0 cfs Aug. 31, 1957, Sept. 27, 28, 1959.
Flood of Oct. 15, 1954 reached a stage of 13.0 ft, from floodmarks.

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

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

Oct. 1 to Apr. 29				Apr. 30 to Sept. 30			
2.2	8.8	3.5	355	2.08	3.7	2.7	82
2.3	16	4.0	610	2.1	4.5	3.0	161
2.5	42	5.0	1,300	2.2	10	3.5	355
2.7	80	6.0	2,200	2.3	19	4.0	610
3.0	161	7.0	3,340	2.5	45	5.0	1,300

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	15	181	56	178	66	140	620	36	18	9.3	9.3
2	16	23	146	64	171	130	240	410	45	26	8.0	8.0
3	15	20	137	66	137	460	847	290	33	23	63	6.9
4	*15	15	123	180	120	980	591	230	29	19	81	6.4
5	15	13	112	170	118	3,230	382	*180	27	18	30	6.9
6	14	23	104	165	115	1,230	397	144	30	14	19	5.4
7	12	*470	102	780	*107	782	405	124	63	13	13	4.9
8	12	511	159	500	97	840	1,020	114	39	23	12	4.5
9	13	349	230	520	84	1,180	572	99	30	35	10	4.9
10	13	174	164	920	74	1,650	378	84	* 24	52	8.0	* 4.1
11	13	120	*155	500	70	790	282	76	23	26	13	4.1
12	13	94	240	320	66	475	226	78	20	24	38	3.7
13	13	78	234	240	70	378	194	78	20	44	22	3.7
14	13	67	178	220	74	633	500	82	26	28	17	3.7
15	12	56	140	180	70	828	307	84	60	20	11	3.7
16	12	50	130	145	100	500	238	64	223	16	9.3	4.1
17	12	47	120	125	90	400	201	57	68	13	8.6	4.1
18	12	42	106	115	86	315	168	52	45	12	9.3	4.1
19	12	47	82	100	82	242	276	47	39	10	16	8.0
20	12	42	90	110	78	*208	411	62	47	*11	11	26
21	11	39	84	130	76	201	634	50	82	17	8.6	12
22	11	36	70	160	74	187	364	42	76	39	11	9.3
23	11	42	66	200	72	178	277	38	54	27	8.0	6.4
24	11	65	68	260	70	216	219	34	38	18	8.0	5.8
25	11	49	68	840	66	194	181	36	38	13	* 5.8	4.9
26	11	44	68	720	66	184	155	32	29	10	6.9	4.9
27	10	41	80	400	66	161	149	30	27	9.3	7.4	4.5
28	11	39	74	273	66	137	235	32	26	12	6.9	60
29	13	258	66	219	66	171	1,060	30	22	16	14	219
30	13	306	56	187	------	158	1,020	28	20	21	13	109
31	12	-----	52	161	-----	137	-----	28	----	11	11	-------
Total	396	3,175	3,685	9,026	2,609	17,241	12,069	3,355	1,339	638.3	509.1	562.3
Mean	12.8	106	119	291	90.0	556	402	108	44.6	20.6	16.4	18.7
Cfsm	0.175	1.45	1.63	3.99	1.23	7.62	5.51	1.48	0.611	0.282	0.225	0.256
In.	0.20	1.62	1.88	4.60	1.33	8.78	6.15	1.71	0.68	0.33	0.26	0.29

Calendar year 1963: Max 4,300 Min 10 Mean 176 Cfsm 2.41 In. 32.69
Water year 1963-64: Max 3,230 Min 3.7 Mean 149 Cfsm 2.04 In. 27.83

54,604.7

Peak discharge (base, 2,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	0830	7.47	3,900	3-10	1200	6.29	2,510

* Discharge measurement made on this day.
Note.--No gage-height record Jan. 2-27, Apr. 30 to May 5. Stage-discharge relation affected by ice Dec. 15 to Jan. 2, Feb. 4, 5, Feb. 9 to Mar. 3.

1-5955. North Branch Potomac River at Kitzmiller, Md.

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 1964.

Gage.--Water-stage recorder. Datum of gage is 1572.26 ft above mean sea level, datum of 1929, Parkersburg - Uniontown supplementary adjustment of 1944. Prior to Oct. 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.--15 years, 432 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 7,280 cfs Mar. 5 (gage height, 8.06 ft); minimum, 17 cfs July 28 (gage height, 2.19 ft).
1949-64: Maximum discharge, 33,400 cfs Oct. 15, 1954 (gage height, 13.73 ft, from floodmarks, present site and datum); minimum, 4.6 cfs Oct. 3-7, 1953.

Remarks.--Records good except those above 1,000 cfs and those for periods of no gage-height record or ice effect, which are fair. Regulation at low flow by Stony River Reservoir, 30 miles above station (capacity, 1,948,000,000 gal, of which 1,681,000,000 gal is controlled storage above minimum pool).

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting control method used Nov. 7, 8, 29, Jan. 7, 9, 10, 25, 26, Mar. 3, 4)

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
2.2	19	4.0	460	2.2	17	4.0	485
2.3	28	4.5	710	2.3	24	4.5	800
2.5	50	5.0	1,070	2.5	42	5.0	1,250
2.7	75	6.0	2,030	2.7	66	6.0	2,520
3.0	127	7.0	3,430	3.0	118	7.0	4,420
3.5	272			3.5	258	8.0	7,100

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	28	408	b 130	396	179	362	1,540	72	30	37	47
2	68	40	314	b 155	408	* 299	488	1,100	102	36	36	42
3	62	45	296	b 190	321	1,320	1,740	832	75	43	50	38
4	59	38	272	b 240	266	2,230	1,370	665	63	35	153	36
5	57	34	248	b 330	293	*5,360	936	546	57	31	74	37
6	54	45	221	b 250	300	3,040	982	452	60	27	54	35
7	53	1,140	202	b 1,750	296	2,090	1,170	380	133	23	45	34
8	52	1,140	291	740	268	2,250	2,270	335	90	31	41	33
9	53	700	505	b 1,000	248	2,920	1,460	299	74	47	41	34
10	52	372	357	2,030	234	4,160	1,020	251	*58	67	38	32
11	52	254	b* 300	847	202	*2,220	765	221	50	48	40	32
12	51	188	372	600	163	1,430	613	218	44	44	68	31
13	52	143	456	b 440	224	1,080	524	224	41	156	63	31
14	51	119	353	b 390	218	1,470	1,190	224	41	74	47	31
15	50	107	240	353	171	1,940	816	221	74	45	43	* 30
16	48	100	234	342	276	1,300	626	182	324	33	39	31
17	30	90	211	324	262	1,090	518	155	127	28	37	32
18	24	82	b 210	296	234	888	436	142	75	26	39	32
19	23	82	b 190	276	234	678	596	129	63	27	48	42
20	23	82	b 160	304	218	* 576	1,000	152	a 82	23	46	75
21	23	76	b 165	428	196	534	1,540	129	a 130	23	42	58
22	23	74	b 175	388	188	496	960	110	a 106	51	40	47
23	* 23	72	b 170	478	176	452	744	98	a 106	45	41	41
24	23	98	b 150	575	179	613	594	91	a 76	32	37	37
25	23	88	b 155	1,990	163	570	485	86	a 60	26	36	35
26	22	78	b 165	1,390	193	540	410	78	a 48	20	34	34
27	23	76	b 180	* 819	176	452	400	72	a 40	19	36	33
28	25	74	b 190	640	168	390	817	72	a 38	18	34	96
29	28	506	b 175	500	202	458	*a 3,750	69	a 34	20	37	466
30	30	735	b 145	440	------	430	2,380	62	a* 32	26	54	304
31	27	------	b 135	376	------	* 376	------	60	------	* 30	* 65	------
Total	1,266	5,706	7,645	19,011	6,873	42,831	30,962	9,195	2,375	1,184	1,495	1,886
Mean	40.8	224	247	613	237	1,382	1,032	297	79.2	38.2	48.2	62.9
(†)	645	1,270	1,102	1,335	1,217	1,285	1,382	1,417	1,510	1,530	995	749

Calendar year 1963: Max 7,920 Min 22 Mean 433 Cfsm 1.92 In. 26.09
Water year 1963-64: Max 6,360 Min 18 Mean 359 Cfsm 1.60 In. 21.72

Peak discharge (base, 3,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	0930	8.06	7,280	4-29	about 0800	7.16	4,790
3-10	1230	7.48	5,620				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
† Month-end contents, in millions of gallons, in Stony River Reservoir (contents on Sept. 30, 1963, 876 million gallons); furnished by West Virginia Pulp and Paper Co.

131,429

1-5965. Savage River near Barton, Md.

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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 1,605 ft (from topographic map).

Average discharge.--16 years, 73.4 cfs.

Extremes.--Maximum discharge during year, 2,390 cfs Apr. 29 (gage height, 4.88 ft); minimum, 0.6 cfs Sept. 16-18. 1948-64: 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; minimum, 0.6 cfs Sept. 2, 1953, Sept. 16-18, 1964.

Remarks.--Records good except those for periods of doubtful or no gage-height record, backwater from dam built by swimmers, or indefinite stage-discharge relation, which are fair, and those for periods of ice effect, which are poor. City of Frostburg diverts about 0.5 cfs from headwaters of stream for municipal supply.

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

Oct. 1 to Apr. 29

0.87	1.2	1.7	55
.9	1.5	2.0	109
1.0	2.8	2.3	192
1.1	5.2	2.6	311
1.2	8.9	3.0	540
1.3	14	3.5	930
1.5	31	4.0	1,400

Apr. 30 to Sept. 16

0.79	0.8
.8	.9
.9	1.5

Note.--Same as preceding table above 0.9 ft.

Sept. 17 to Sept. 30

1.11	1.8	1.5	26
1.2	5.0	1.6	36
1.3	11	1.7	49
1.4	18	1.8	64

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.5	2.1	29	b13	62	b32	76	351	13	8.0	4.6	3.6
2	2.1	2.2	b 19	b14	57	b50	87	206	14	8.4	3.6	3.0
3	2.0	2.7	18	b17	b40	b240	218	149	11	7.6	5.0	*2.3
4	*1.7	*2.9	* 15	b50	b30	624	291	116	9.8	7.6	9.0	1.9
5	1.5	2.9	14	b45	b42	1,410	212	93	9.0	6.8	6.7	1.5
6	1.5	5.0	12	b60	55	692	249	75	12	c 5.8	4.5	1.4
7	1.4	46	b 11	b140	47	405	389	63	20	c 4.4	3.4	1.2
8	1.3	33	b 18	b100	39	410	342	*55	18	c11	3.0	1.1
9	1.4	17	41	b120	b38	480	257	48	13	c16	2.6	1.0
10	1.4	12	30	178	36	827	*186	39	10	c11	2.4	a .9
11	*1.3	8.4	27	b130	31	472	141	34	a9.2	c 6.4	2.8	a .9
12	1.3	6.6	23	b100	b28	275	109	33	a8.4	c36	5.2	a .9
13	1.4	5.5	20	b60	b38	192	96	51	a8.0	c60	4.4	a .9
14	1.4	4.8	b 16	b50	b32	183	161	46	a7.6	c38	3.7	a .8
15	1.4	4.3	b 12	b45	b27	230	150	41	*a9.0	c26	3.0	*a .8
16	1.3	4.0	b 14	b40	34	229	131	37	14	c20	2.5	*e .6
17	1.3	3.6	b 13	b45	29	*211	109	35	8.3	c16	2.3	e .6
18	1.3	3.4	b 13	b37	26	183	90	31	6.2	c14	2.0	e .6
19	1.3	3.3	b 12	b35	b33	139	90	27	15	c11	1.8	e1.3
20	1.3	3.2	b 11	b40	b32	114	180	25	48	c 9.0	1.6	8.9
21	1.5	3.0	b 12	b50	b23	103	451	21	118	c 7.6	1.9	7.9
22	1.6	3.1	b 12	b60	b25	87	298	19	63	*c 6.8	2.5	*5.0
23	1.5	3.4	b 12	b90	b24	78	203	17	38	*c 6.0	2.2	3.7
24	1.4	3.9	b 12	b130	b28	93	147	16	28	c 4.8	2.1	3.0
25	1.5	3.5	b 12	b220	b25	114	111	16	20	5.3	1.7	2.6
26	1.5	3.2	b 14	272	b30	140	90	13	16	4.5	1.5	1.8
27	1.5	3.0	b 20	163	b30	128	83	12	13	3.9	1.5	1.6
28	1.6	3.0	b 18	121	b26	106	121	12	12	5.8	1.3	15
29	1.6	31	b 16	b92	b35	105	1,300	11	10	4.7	5.0	56
30	1.6	54	b 14	b72	------	92	575	10	8.9	8.2	11	27
31	1.7	------	b 13	*b66	------	82	------	9.7	------	5.2	5.3	------
TOTAL	47.1	264.0	523	2,755	1,015	8,534	6,943	1,711.7	590.4	405.6	110.1	158.0
MEAN	1.52	9.47	16.9	88.9	35.0	275	231	55.2	19.7	13.1	3.55	5.27
CFSM	.031	.193	.344	1.81	.713	5.60	4.70	1.12	.401	.267	.072	.107
IN	.04	.22	.40	2.09	.77	6.46	5.26	1.30	.45	.31	.08	.12

CALENDAR YEAR 1963 MAX 1,080 MIN .9 MEAN 56.5 CFSM 1.15 INCHES 15.61
WATER YEAR 1963-64 MAX 1,410 MIN .6 MEAN 63.1 CFSM 1.29 INCHES 17.48

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	1730	4.35	1,760	4-29	0645	4.88	2,390
3-10	1245	3.66	1,070				

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from swimmers dam.
e Indefinite stage-discharge relation.

1-5970. Crabtree Creek near Swanton, Md.

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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 1,529.06 ft above mean sea level (Corps of Engineers bench mark).

Average discharge.--16 years, 28.9 cfs.

Extremes.--Maximum discharge during year, 498 cfs Mar. 5 (gage height, 2.75 ft); minimum, 1.0 cfs Sept. 11, 12, 14-18 (gage height, 0.68 ft).
1948-64: 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; minimum, 0.1 cfs Dec. 3, 1953 (gage height, 0.56 ft); minimum daily, 0.8 cfs Nov. 6, 1953.

Remarks.--Records good except those for period of doubtful gage-height record, which are fair, and those for periods of no gage-height record or ice effect, which are poor. Small diversion above station by Baltimore and Ohio Railroad.

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

Oct. 1 to Mar. 4				Mar. 5 to Sept. 30			
0.7	1.3	1.2	16	0.68	1.0	1.2	14
.8	2.6	1.3	23	.7	1.2	1.3	20
.9	4.5	1.5	48	.8	2.4	1.5	42
1.0	7.2	1.8	116	.9	4.0	1.7	83
1.1	11	2.2	245	1.0	6.2	2.0	175
				1.1	9.2	2.6	420

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.8	2.0	12	a 5.0	28	12	21	180	8.0	2.5	2.1	1.8
2	1.7	2.0	9.5	a 5.2	25	22	24	110	7.1	3.5	2.1	1.6
3	1.5	1.8	8.9	5.9	20	119	41	67	6.2	2.7	2.0	* 1.5
4	* 1.5	1.6	*7.9	21	b 17	238	60	49	5.8	3.0	2.5	1.4
5	1.4	1.6	7.3	18	18	390	52	38	5.3	2.7	2.5	1.3
6	1.4	3.2	6.6	23	20	230	62	33	5.8	2.4	2.1	1.2
7	1.4	11	6.2	76	20	160	106	* 31	6.5	2.2	2.0	1.2
8	1.4	9.9	10	43	18	160	170	* 27	5.6	3.2	1.8	1.2
9	1.4	7.6	10	60	16	185	130	23	4.9	3.0	1.8	1.2
10	1.4	5.7	16	122	15	240	* 70	20	4.5	2.7	1.7	1.1
11	1.3	4.6	13	a 70	b 14	160	52	17	4.3	2.4	2.4	1.1
12	1.3	3.8	12	a 35	b 12	102	38	18	3.9	6.0	3.5	1.1
13	1.3	3.4	12	a 22	14	58	33	17	3.9	4.5	2.1	1.1
14	1.3	3.1	9.7	a 18	13	64	106	17	3.7	3.5	2.0	1.1
15	1.3	2.8	a 6.0	a 16	b 11	116	94	15	* 5.1	2.8	1.7	* 1.1
16	1.3	2.5	a 5.4	a 15	13	102	60	14	5.0	2.5	1.7	1.1
17	1.4	2.4	a 5.4	a 16	b 11	* 70	49	14	4.1	3.7	1.7	1.1
18	1.4	2.4	a 5.8	14	11	48	38	14	3.5	4.5	1.6	1.0
19	1.4	2.3	a 5.2	13	b 12	37	35	13	4.5	3.2	1.6	2.4
20	1.4	2.2	a 4.5	15	12	32	42	13	5.8	2.7	1.7	5.1
21	1.4	2.2	a 4.8	19	10	29	92	11	6.0	15	2.1	2.7
22	1.4	2.1	a 5.0	* 21	b 9.2	26	92	10	4.5	* 10	1.7	2.0
23	* 1.4	2.3	a 5.0	33	b 8.8	23	62	10	3.9	4.0	1.5	1.7
24	1.4	2.4	a 5.0	47	10	26	48	9.6	3.7	4.5	1.4	1.5
25	1.4	2.1	a 5.0	179	b 9.2	30	38	8.9	3.5	3.7	1.4	1.4
26	1.4	2.0	a 6.0	150	11	33	33	8.0	3.0	3.2	1.3	1.3
27	1.4	2.1	a 8.0	79	11	30	33	8.0	3.0	* 3.0	1.4	1.4
28	1.5	1.9	a 7.0	51	b 9.6	27	56	7.4	3.2	2.7	1.3	9.6
29	1.6	13	a 6.0	40	13	27	300	6.8	2.7	2.7	1.8	14
30	1.6	16	a 5.4	34	------	25	260	6.5	2.7	3.0	2.4	8.0
31	1.5	------	a 4.8	28	------	23	------	6.2	------	2.2	4.1	------
TOTAL	44.3	122.0	244.4	1,293.1	411.8	2,844	2,297	822.4	140.6	121.7	63.0	73.3
MEAN	1.43	4.07	7.88	41.7	14.2	91.7	76.6	26.5	4.69	3.93	2.03	2.44
CFSM	.086	.244	.472	2.50	.850	5.49	4.59	1.59	.281	.235	.122	.146
IN	.10	.27	.54	2.88	.92	6.33	5.12	1.83	.31	.27	.14	.16

CALENDAR YEAR 1963 MAX 450 MIN 1.3 MEAN 25.8 CFSM 1.54 INCHES 20.93
WATER YEAR 1963-64 MAX 390 MIN 1.0 MEAN 23.2 CFSM 1.39 INCHES 18.88

Peak discharge (base, 330 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	1530	2.75	498	4-29	1030	2.45	348

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Doubtful gage-height record Mar. 5 to May 7.

1-5975. Savage River below Savage River Dam, near Bloomington, Md.

Location.--Lat 39°30'05", long 79°07'25", on left bank 0.7 mile downstream from Savage River Dam, 1.1 miles downstream from Crabtree Creek, and 3.2 miles northwest of Bloomington, Garrett County.

Drainage area.--106 sq mi.

Records available.--October 1948 to September 1964.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,276.40 ft above mean sea level (Corps of Engineers bench mark).

Average discharge.--16 years, 163 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 3,790 cfs Apr. 29 (gage height, 6.06 ft); minimum, 3.5 cfs Jan. 31 (gage height, 0.78 ft); minimum daily, 10 cfs Nov. 9, Dec. 6.
1948-64: Maximum discharge, 6,530 cfs Oct. 16, 1954 (gage height, 7.70 ft); minimum 0.4 cfs Nov. 13, 1958 (gage height, 0.58 ft); minimum daily, 0.6 cfs July 27-31, Aug. 5, 6, 9, 10, 1951.

Remarks.--Records good. Diversions above station by Baltimore & Ohio Railroad and by cities of Frostburg and Westernport for municipal supply. Flow regulated by Savage River Reservoir beginning December 1950 (capacity, 20,000 acre-ft).

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

Oct. 1 to Apr. 29

0.9	7.1	2.5	251
1.0	11	3.0	436
1.2	22	3.5	685
1.4	37	4.0	1,070
1.7	71	5.0	2,210
2.0	122	6.0	3,690

Apr. 30 to Sept. 30

1.0	12	1.6	62
1.2	26	1.8	87
1.4	43	2.0	122

Note.--Same as preceding table above 2.0 ft.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*74	88	11	68	91	30	101	1,200	53	68	77	70
2	74	68	11	68	91	*57	101	893	36	72	64	70
3	74	67	11	47	91	93	103	741	27	73	63	70
4	74	61	11	35	91	857	105	360	38	74	39	69
5	74	71	11	35	91	619	109	124	47	73	16	69
6	72	56	*10	35	91	1,460	111	69	48	73	45	69
7	72	33	11	35	91	2,320	116	*17	48	73	59	69
8	72	12	12	75	91	2,160	120	*16	28	75	59	68
9	72	10	53	407	91	1,710	122	16	34	62	63	68
10	72	11	100	590	91	1,350	120	16	51	52	70	68
11	71	11	100	585	93	1,360	120	16	80	48	70	68
12	71	16	100	400	93	1,310	120	27	89	57	70	75
13	71	20	98	91	93	526	120	95	83	15	55	78
14	71	22	98	91	93	93	122	105	78	14	55	78
15	71	16	96	91	93	96	124	87	78	67	66	78
16	70	11	96	91	91	100	124	79	*45	58	66	78
17	68	13	96	91	91	100	124	79	18	63	66	77
18	72	22	94	91	91	400	124	74	26	70	66	77
19	92	37	94	91	91	605	124	66	38	73	66	77
20	76	45	94	91	91	595	126	66	38	74	66	60
21	87	44	94	91	89	271	405	48	38	80	66	40
22	96	45	94	*91	89	96	762	41	38	80	66	*47
23	96	38	60	91	88	96	755	44	38	63	66	51
24	96	34	57	93	88	96	755	52	39	59	66	59
25	96	26	71	409	88	96	327	63	51	74	72	67
26	94	21	71	925	84	98	120	36	51	79	70	69
27	94	26	71	972	84	100	112	38	52	79	79	69
28	94	26	70	459	48	100	122	41	63	*82	84	57
29	94	27	70	89	30	100	2,120	42	58	87	84	28
30	93	19	70	91	----------	101	1,660	42	72	87	84	12
31	*93	----------	70	84	----------	*101	----------	48	----------	79	*69	----------
Total	2,496	996	2,005	6,503	2,518	17,096	9,474	4,641	1,483	2,083	2,007	1,935
Mean	80.5	33.2	64.7	210	86.8	551	316	150	49.4	67.2	64.7	64.5
(†)	6,740	6,160	4,370	4,200	3,340	7,220	20,420	19,880	19,130	16,420	12,930	9,700

Calendar year 1963: Max 2,150 Min 7.5 Mean 132 Cfsm 1.25 In. 16.88
Water year 1963-64: Max 2,320 Min 10 Mean 145 Cfsm 1.37 In. 18.68

53,237

* Discharge measurement made on this day.
† Month-end contents, in acre-ft, in Savage River Reservoir (contents on Sept. 30, 1963, 11,560 acre-ft).
Records furnished by Corps of Engineers.

1-5985. North Branch Potomac River at Luke, Md.

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 1964.

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.--21 years (1899-1905, 1949-64), 692 cfs (adjusted for storage since 1949).

Extremes.--Maximum discharge during year, 11,200 cfs Mar. 5 (gage height, 10.00 ft); minimum, 72 cfs Oct. 19 (gage height, 1.11 ft).
1899-1906, 1949-64: Maximum discharge, 39,400 cfs Oct. 15, 1954 (gage height, 17.15 ft); minimum daily, 6 cfs Sept. 4, 1904.

Remarks.--Records good except those for periods of twice-daily telemark readings, which are fair, and those for periods of ice effect, which are poor.
Flow regulated since 1913 by Stony River Reservoir, 45 miles above station (see p. 80) and, since December 1950, by Savage River Reservoir, 5 miles above station (see preceding page). Some regulation at low flow by West Virginia Pulp and Paper Company at site used 1899-1906.

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

1.2	84	3.0	595
1.4	113	4.0	1,190
1.6	149	5.0	2,070
2.0	241	7.0	4,760
2.5	392	10.0	11,200

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 172	120	g 510	b 180	590	251	590	3,730	*140	102	104	138
2	153	102	368	b 200	631	* 409	618	2,680	157	106	95	120
3	141	110	338	b 230	510	1,700	1,720	2,080	130	113	101	115
4	134	* 102	307	b 320	422	3,630	1,700	1,530	113	115	183	110
5	130	108	281	b 420	454	9,080	1,220	1,010	116	106	113	107
6	128	101	* 254	360	482	* 6,000	1,180	825	125	102	100	108
7	127	689	228	1,740	*478	5,440	1,560	649	177	98	110	106
8	125	1,430	281	b 1,000	462	5,440	2,610	577	183	107	104	106
9	125	907	592	b 1,400	400	5,600	1,960	514	128	110	104	104
10	123	494	530	2,860	403	6,920	1,440	442	127	104	112	104
11	123	316	454	1,660	360	4,700	1,170	388	147	115	110	104
12	122	238	454	1,180	298	3,430	978	360	140	146	123	108
13	122	181	658	b 580	354	2,170	849	450	138	234	132	112
14	120	149	522	b 520	371	g 1,760	1,470	466	127	*141	106	112
15	120	128	b 380	b 480	307	g 2,480	1,230	434	138	118	113	112
16	118	116	b 310	b 460	374	g 1,740	1,000	371	317	104	106	112
17	115	104	b 300	470	411	g 1,460	874	328	240	97	104	112
18	102	98	b 290	426	371	g 1,460	765	295	123	101	102	112
19	119	102	b 270	392	368	g 1,500	765	264	118	102	104	127
20	102	113	b 210	407	374	g 1,380	1,250	264	147	102	112	157
21	109	106	b 220	590	338	g 1,020	2,260	249	166	104	108	125
22	122	102	b 230	568	310	g 750	2,090	* 204	190	118	102	*101
23	120	104	b 220	667	292	g 670	1,820	190	166	125	100	100
24	118	118	b 200	831	304	g 840	1,640	179	123	101	100	98
25	118	g 130	b 220	2,520	273	g 810	1,100	194	118	102	102	101
26	118	g 100	b 240	2,800	304	g 750	730	149	113	104	101	106
27	118	g 106	b 280	2,170	310	g 680	* 700	138	101	98	107	106
28	118	g 104	b 280	1,450	244	g 610	1,100	140	108	97	116	136
29	120	g 250	b 250	741	262	g 650	7,630	130	97	104	115	466
30	122	g1,020	b 230	667	---------	g 640	5,690	122	108	106	143	430
31	122	---------	b 190	568	---------	g 590	---------	118	---------	102	*151	---------
Total	3,826	7,848	10,097	28,857	11,057	74,560	49,709	19,470	4,321	3,484	3,483	4,055
Mean	123	262	326	931	381	2,405	1,657	628	144	112	112	135

Calendar year 1963: Max 10,000 Min 98 Mean 649 Cfsm 1.61 In. 21.81
Water year 1963-64: Max 9,080 Min 95 Mean 603 Cfsm 1.49 In. 20.32

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
g Computed from twice-daily telemark readings.

220,767

1-5990. Georges Creek at Franklin, Md.

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 available.--May 1905 to July 1906 (Published as "at Westernport"), October 1929 to September 1964.

Gage.--Water-stage recorder. Datum of gage is 958.96 ft above 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 at site 95 ft downstream at present datum.

Average discharge.--35 years, (1929-64), 78.0 cfs.

Extremes.--Maximum discharge during year, 4,780 cfs Apr. 29 (gage height, 11.38 ft); minimum, 4.2 cfs Aug. 26-30, Sept. 11-19 (gage height, 3.03 ft).
1905-6, 1929-64: Maximum discharge, 8,500 cfs Mar. 17, 1936 (gage height, 9.6 ft, site then in use), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; minimum, 1.6 cfs Sept. 29 to Oct. 13, 1930.
Flood of Mar. 29, 1924, reached a stage of about 10 ft, from floodmarks, at site 95 ft downstream.

Remarks.--Records good except those for periods of no gage-height record or ice effect, which are fair. Records include about 0.5 cfs of sewage from city of Frostburg, which obtains its water supply from Big Piney Run (Monongahela River Basin) and Savage River. A negligible discharge diverted above station by Frostburg Water Co. for municipal supplies of Eckhart and Welch Hill. An undetermined amount of water is diverted from the upper third of basin into the Wills Creek basin by the Hoffman drainage tunnel. Records include drainage from numerous active and abandoned coal mines.

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

Oct. 1 to Apr. 29				Apr. 30 to Sept. 30			
3.06	4.6	4.0	111	3.03	4.2	3.7	57
3.2	11	4.5	260	3.1	7.7	4.0	106
3.3	17	5.0	475	3.2	14	4.5	257
3.5	34	7.0	1,600	3.3	20	5.0	475
3.7	58	9.0	2,980	3.5	36	7.0	1,600

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 5.6	6.0	24	a 7.0	53	b 33	78	680	31	10	7.7	11
2	4.9	6.0	15	a 7.4	57	88	87	511	30	12	7.2	8.8
3	4.9	6.0	13	a 9.0	48	352	155	408	26	10	9.9	* 7.2
4	4.9	* 5.6	12	a 11	39	511	152	340	23	12	15	6.7
5	4.6	5.6	11	a 25	43	1,070	133	265	20	10	11	6.2
6	4.6	9.2	* 9.7	a 24	49	700	181	209	32	9.4	8.8	5.7
7	4.6	65	8.7	a 40	57	535	246	179	38	8.8	8.2	5.2
8	4.6	31	11	45	55	511	275	155	29	12	8.2	5.2
9	4.6	14	24	82	45	605	228	129	23	13	7.7	5.2
10	4.6	11	15	124	45	924	199	104	18	12	7.2	5.2
11	4.6	9.2	13	57	41	590	172	91	15	9.9	7.7	* 4.7
12	4.6	8.2	13	b 40	33	421	146	87	14	42	8.2	4.2
13	4.6	7.7	13	b 23	40	302	135	91	14	69	7.2	4.7
14	4.6	7.3	12	b 23	40	311	250	85	14	* 24	7.7	4.2
15	4.6	6.9	b 8.2	b 22	33	311	199	* 70	19	a 15	6.7	4.2
16	4.6	6.9	8.7	b 26	38	264	175	60	27	a 12	6.2	4.2
17	4.6	6.4	7.3	b 24	33	246	149	53	16	a 12	6.2	4.2
18	4.6	6.4	a 7.2	22	31	219	128	49	14	a 10	6.2	4.2
19	4.6	6.4	a 7.0	b 21	32	184	133	46	20	a 9.9	6.2	13
20	4.9	6.4	a 6.0	24	40	157	239	43	27	a 8.8	5.7	21
21	4.9	6.0	a 6.4	43	34	149	385	40	39	a 7.7	6.7	13
22	4.9	6.0	a 6.6	* 54	b 28	133	287	37	23	*a 21	6.2	9.4
23	4.9	6.9	a 6.6	70	b 28	121	242	34	17	a 19	5.2	7.7
24	4.9	7.3	a 6.4	77	b 31	128	209	32	15	a 10	5.2	6.7
25	4.9	6.9	a 6.2	233	b 30	123	178	31	14	a 9.4	4.7	* 5.7
26	4.9	6.4	a 7.0	193	b 31	118	152	29	12	a 7.6	4.2	5.7
27	4.9	6.0	a 9.0	113	b 30	107	163	27	12	*a 7.2	4.2	5.2
28	4.9	6.0	a 10	93	* b 23	97	268	26	12	a 6.6	4.2	38
29	4.9	53	a 9.0	68	b 36	97	2,730	25	10	*a 12	4.2	* 70
30	4.9	54	a 8.0	b 58	------	89	1,210	25	10	9.4	36	32
31	4.9	-----	a 7.0	*b 50	-----	* 82	-----	26	-----	8.2	36	-----
Total	148.1	389.7	321.0	1,708.4	1,123	9,578	9,284	3,987	614	439.9	275.7	328.4
Mean	4.78	13.0	10.4	55.1	38.7	309	309	129	20.5	14.2	8.89	10.9
Cfsm	0.066	0.180	0.144	0.761	0.535	4.27	4.27	1.78	0.283	0.196	0.123	0.151
In.	0.08	0.20	0.16	0.88	0.58	4.92	4.77	2.05	0.32	0.23	0.14	0.17

Calendar year 1963 : Max 1,400 Min 4.6 Mean 69.7 Cfsm 0.963 In. 13.07
Water year 1963-64: Max 2,730 Min 4.2 Mean 77.0 Cfsm 1.06 In. 14.50

28,192

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	1730	6.93	1,560	4-29	0500	11.38	4,780
3-10	1200	6.37	1,220				

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

1-6000. North Branch Potomac River at Pinto, Md.

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 1964.

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.--26 years, 870 cfs (unadjusted).

Extremes.--Maximum discharge during year, 19,300 cfs Apr. 29 (gage height, 16.53 ft); minimum, 92 cfs Sept. 12 (gage height, 1.77 ft).
1938-64: Maximum discharge, 37,000 cfs Oct. 16, 1954 (gage height, 23.23 ft); minimum, 31 cfs Dec. 18, 19, 1943 (gage height, 1.37 ft), result of freezeup.
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.--Records good except those for periods of ice effect, which are fair. Some regulation at low flow by Stony River Reservoir, 66 miles above station (see p. 80), and since December 1950, by Savage River Reservoir (see p. 83).

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

Oct. 1 to Nov. 7, July 14 to Sept. 30		Nov. 8 to Apr. 29				Apr. 30 to July 13			
1.8	103	1.7	91	4.0	1,160	1.8	118	4.0	1,220
2.0	155	2.0	170	6.0	2,870	2.0	175	6.0	3,050
2.5	326	2.5	348	9.0	6,700	2.5	361	8.0	5,530
3.5	833	3.0	575	14.0	14,700	3.0	601	11.0	9,900

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	217	*136	630	b205	680	386	735	5,470	204	134	113	*176
2	173	128	443	b220	746	686	740	3,870	*238	145	116	144
3	155	113	382	289	647	2,180	1,570	2,850	224	134	123	126
4	147	123	356	356	536	4,120	2,010	2,220	185	142	136	118
5	142	116	324	493	517	10,600	1,480	1,480	172	134	204	110
6	139	136	297	430	560	8,160	1,300	1,230	175	123	118	106
7	136	399	270	1,280	595	6,260	1,960	992	260	121	106	108
8	133	1,650	274	1,230	610	6,120	2,780	884	291	123	113	108
9	131	1,010	512	1,150	512	*6,040	2,560	794	201	137	106	110
10	128	610	610	3,110	507	8,050	1,870	683	175	129	110	106
11	128	399	*493	1,940	484	5,950	1,500	601	178	132	120	106
12	128	308	474	1,470	403	3,810	1,240	549	172	132	120	103
13	128	245	636	b680	416	2,720	1,080	606	185	353	139	116
14	126	195	575	b580	470	1,890	*1,640	661	169	262	131	118
15	*128	170	448	b560	443	2,800	1,600	601	172	150	110	118
16	128	153	b360	b540	456	2,200	1,260	524	260	147	116	118
17	126	141	356	b580	536	1,800	1,100	461	419	123	110	118
18	118	128	348	536	521	1,750	976	428	197	110	108	118
19	110	119	324	b470	493	1,780	928	387	160	118	108	147
20	123	119	b240	456	517	1,600	1,410	357	188	116	113	262
21	108	122	b260	620	456	1,380	2,750	370	228	120	120	204
22	118	114	b260	808	403	1,020	2,670	311	253	120	116	*147
23	128	112	b260	910	382	922	2,300	279	210	161	108	120
24	131	114	b225	*1,020	403	988	2,010	257	185	131	108	118
25	131	141	b260	2,230	365	1,010	1,590	268	157	113	103	108
26	131	130	278	3,290	373	970	1,020	238	148	118	108	116
27	131	112	316	2,440	421	904	940	197	140	133	106	116
28	131	109	340	1,870	390	808	1,370	197	129	128	116	157
29	131	161	297	940	*328	802	*13,300	197	*132	131	123	487
30	131	1,020	263	826	----------	826	8,620	191	121	*126	123	648
31	128	----------	b220	724	----------	762	----------	185	----------	123	426	----------
Total	4,143	8,533	11,331	32,253	14,170	89,294	66,309	28,338	5,928	4,369	3,977	4,757
Mean	134	284	366	1,040	489	2,880	2,210	914	198	141	128	159

Calendar year 1963: Max 14,700 Min 108 Mean 840 Cfsm 1.41 In. 19.14
Water year 1963-64: Max 13,300 Min 103 Mean 747 Cfsm 1.25 In. 17.06

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

1-6010. Wills Creek below Hyndman, Pa.

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 1964.

Gage.--Water-stage recorder (digital). Datum of gage is 891.37 ft above mean sea level (Pennsylvania Railroad bench mark).

Average discharge.--13 years, 190 cfs.

Extremes.--Maximum discharge during year, 5,250 cfs Apr. 29 (gage height, 7.53 ft); minimum, 1.0 cfs Sept. 18 (gage height, 1.43 ft).
1951-64: Maximum discharge, 11,600 cfs Oct. 15, 1954 (gage height, 11.02 ft), from rating curve extended above 6,000 cfs by logarithmic plotting; minimum, 0.8 cfs Sept. 9, 1957 (gage height, 1.16 ft).

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 31 to Nov. 6)

Oct. 1 to Nov. 6		Nov. 7 to Sept. 30			
1.4	1.8	1.44	1.1	2.2	37
1.5	3.1	1.5	1.7	2.4	84
1.6	5.3	1.6	3.0	2.7	167
1.7	8.6	1.7	5.1	3.0	288
		1.8	7.9	3.5	570
		1.9	12	4.0	935
		2.0	17	5.0	1,900
		2.1	24	7.0	4,440

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	7.8	5.0	108	22	151	71	174	1,160	35	31	12	7.5
2	5.0	5.8	69	22	141	116	178	739	47	30	11	5.4
3	3.9	6.4	52	25	108	795	385	531	32	28	38	* 3.7
4	3.3	6.4	37	35	91	*1,710	616	409	27	24	54	2.8
5	3.0	6.1	29	90	103	3,600	550	324	24	22	30	2.3
6	2.8	8.6	24	84	111	2,290	604	* 262	25	19	22	1.8
7	2.7	116	20	150	138	1,280	1,210	221	28	16	18	1.7
8	* 2.7	*82	26	140	127	1,230	919	194	* 58	22	15	1.6
9	2.7	29	42	200	108	1,370	635	169	34	35	13	1.5
10	2.7	18	29	463	103	2,390	469	146	24	23	11	* 1.3
11	2.7	14	37	300	91	1,620	* 368	130	19	18	14	1.3
12	2.7	11	40	210	75	903	293	129	17	36	* 21	1.2
13	2.7	9.4	37	120	91	616	257	148	17	305	16	1.2
14	2.7	8.3	30	80	89	564	312	127	18	109	12	1.1
15	2.7	7.3	15	76	70	649	257	110	29	71	11	1.1
16	2.7	6.1	18	74	82	677	240	98	83	56	8.8	1.1
17	2.7	5.6	18	80	66	628	228	90	34	* 37	7.7	1.1
18	2.7	5.4	22	70	66	557	211	84	23	29	7.0	1.1
19	2.7	5.4	20	60	89	418	363	78	759	24	7.1	2.4
20	2.7	5.1	18	66	86	326	919	71	699	* 21	* 6.3	9.6
21	2.7	4.9	20	110	73	284	2,980	65	408	19	5.9	16
22	2.7	4.9	20	150	73	248	1,830	61	269	17	5.8	*10
23	* 2.8	5.4	20	230	57	215	952	55	178	18	6.5	7.0
24	3.0	5.9	20	300	69	232	622	49	135	16	7.2	5.2
25	3.0	6.4	20	743	62	262	451	46	108	14	5.4	4.0
26	3.1	5.6	23	818	71	358	347	39	80	13	4.4	3.2
27	3.1	5.1	28	493	66	341	302	37	67	14	3.7	3.1
28	3.3	5.1	35	*347	62	270	374	36	61	12	3.3	8.2
29	3.5	189	32	248	89	253	3,670	33	42	54	4.1	88
30	3.3	211	* 27	199	------	219	2,130	30	35	23	6.2	46
31	3.7	------	24	161	------	189	------	27	------	16	9.6	------
TOTAL	97.8	804.2	960	6,166	2,608	24,681	22,846	5,698	3,415	1,172	397.0	241.5
MEAN	3.16	26.8	31.0	199	89.9	796	762	184	114	37.8	12.8	8.05
CFSM	.022	.184	.212	1.36	.616	5.45	5.22	1.26	.781	.259	.088	.055
IN	.02	.20	.24	1.57	.66	6.29	5.82	1.45	.87	.30	.10	.06

CALENDAR YEAR 1963 MAX 3,000 MIN 1.7 MEAN 149 CFSM 1.02 INCHES 13.81
WATER YEAR 1963-64 MAX 3,670 MIN 1.1 MEAN 189 CFSM 1.29 INCHES 17.60

Peak discharge (base, 2,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	1700	7.25	4,620	4-29	0915	7.53	5,250
3-10	1230	5.91	2,950	6-19	1000	5.30	2,230
4-21	1115	6.45	3,660				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 9, Jan. 11-24, Feb. 15, 17.

1-6015. Wills Creek near Cumberland, Md.

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 1964.

Gage.--Water-stage recorder (digital). 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, at site 200 ft upstream at present datum.

Average discharge.--35 years (1929-64), 315 cfs.

Extremes.--Maximum discharge during year, 8,690 cfs Apr. 29 (gage height, 9.22 ft); minimum, 9.2 cfs Oct. 25 (gage height, 1.30 ft) result of regulation from unknown source.
1905-6, 1929-64: 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; minimum, 9 cfs Oct. 14, 1930.

Remarks.--Records good except those for periods of ice effect, which are poor. Records include drainage from numerous active and abandoned coal mines. An undetermined amount of water is diverted into basin from Georges Creek basin by Hoffman drainage tunnel. Slight diurnal fluctuation at low flow caused by quarry upstream.

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

1.3	9.5	2.0	69	4.0	825
1.4	14	2.5	159	5.0	1,710
1.6	26	3.0	307	7.0	4,520
1.8	44	3.5	525	9.0	8,240

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	17	17	169	38	243	129	297	2,060	94	70	38	25
2	21	21	110	40	237	250	307	1,360	106	73	36	22
3	19	21	89	45	184	1,290	586	986	92	67	59	*21
4	18	18	76	60	144	*2,430	860	773	83	64	97	19
5	20	20	66	167	177	4,910	793	630	79	57	68	17
6	17	26	59	152	203	3,520	874	515	88	51	52	17
7	13	119	53	279	262	1,930	1,770	448	96	46	43	16
8	14	*152	59	300	259	1,800	1,550	394	*104	54	40	16
9	*13	76	83	403	206	1,860	1,080	354	95	71	37	15
10	13	53	72	647	203	3,180	819	310	76	62	31	*13
11	14	38	66	426	177	2,370	641	279	66	51	39	14
12	14	33	75	290	133	1,430	525	265	60	77	47	13
13	15	29	73	162	172	1,000	480	291	59	365	41	13
14	13	27	69	140	172	948	*647	262	61	164	*35	13
15	13	24	42	135	139	1,010	536	*233	66	111	32	13
16	13	26	40	130	172	978	485	211	125	90	31	13
17	14	24	40	135	133	903	453	195	89	76	26	12
18	14	20	45	120	137	799	412	182	68	65	25	12
19	16	20	40	110	137	619	591	169	743	57	24	25
20	16	20	35	117	167	500	1,480	158	840	48	23	58
21	13	21	36	200	137	462	4,740	148	514	45	24	40
22	14	20	36	286	121	426	3,020	139	338	45	24	*33
23	14	24	36	408	99	377	1,680	130	237	43	23	25
24	15	23	36	*505	121	385	1,120	122	187	42	21	23
25	17	22	35	1,050	96	408	825	115	157	41	22	22
26	18	20	40	1,170	110	495	647	108	124	38	21	19
27	17	20	45	708	121	490	569	101	107	36	20	19
28	15	23	50	515	79	403	734	99	101	52	19	47
29	15	220	45	369	141	385	6,610	96	*83	74	19	144
30	15	349	40	307	------	341	3,760	91	74	*63	24	105
31	16	------	38	250	------	307	------	87	------	44	27	------
TOTAL	476	1,526	1,798	9,664	4,682	36,335	38,891	11,311	5,012	2,242	1,068	844
MEAN	15.4	50.9	58.0	312	161	1,172	1,296	365	167	72.3	34.5	28.1
CFSM	.062	.206	.235	1.26	.652	4.74	5.25	1.48	.676	.293	.140	.114
IN	.07	.23	.27	1.46	.70	5.47	5.86	1.70	.75	.34	.16	.13

CALENDAR YEAR 1963 MAX 5,100 MIN 13 MEAN 247 CFSM 1.00 INCHES 13.58
WATER YEAR 1963-64 MAX 6,610 MIN 12 MEAN 311 CFSM 1.26 INCHES 17.14

Peak discharge (base, 3,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	2015	8.20	6,670	4-21	1345	7.72	5,780
3-10	1500	6.70	4,020	4-29	1100	9.22	8,690

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 4, Jan. 14-19 (no gage-height record Dec. 23-27).

1-6030. North Branch Potomac River near Cumberland, Md.

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 1964. Gage-height records collected at various sites about 2 miles upstream from September 1901 to December 1932, and thereafter at present site, are contained in reports of U. S. Weather Bureau.

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.--35 years, 1,217 cfs (unadjusted).

Extremes.--Maximum discharge during year, 26,600 cfs Apr. 29 (gage height, 19.48 ft); minimum, 111 cfs Sept. 13 (gage height, 2.25 ft).

1929-64: 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; minimum (river only), 12 cfs Sept. 22, 1932 (gage height, 2.38 ft); 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.--Records good. Regulation by Stony River Reservoir, about 79 miles above station (see p. 80), and since December 1950, by Savage River Reservoir (see p. 83). 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. Diversion to Chesapeake and Ohio Canal prior to 1935.

Rating table, (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 8, Sept. 16-30)

2.18	119	3.0	605	9.0	8,520
2.2	129	4.0	1,580	12.0	13,100
2.6	334	6.0	4,320	16.0	20,000

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	267	170	894	220	923	545	1,060	8,310	*300	210	157	*241
2	225	170	613	273	950	814	1,070	5,930	346	241	147	195
3	200	143	481	328	860	3,350	2,010	4,280	340	210	210	161
4	175	143	441	434	702	6,420	3,230	3,410	295	210	241	143
5	161	147	402	629	694	14,000	2,490	2,290	267	205	284	134
6	161	161	365	621	762	12,700	2,290	1,870	278	185	200	124
7	157	440	334	1,320	860	8,650	4,030	1,520	353	166	152	124
8	152	1,670	328	1,680	887	8,230	4,520	1,330	415	190	157	129
9	147	*1,180	488	1,480	736	* 8,160	4,260	1,200	340	215	147	129
10	147	774	736	3,840	719	10,900	3,050	1,050	267	215	143	124
11	147	509	590	2,530	685	9,590	2,350	932	236	180	190	124
12	147	390	552	1,850	*568	6,070	1,900	851	252	240	190	119
13	147	317	685	975	582	4,540	1,680	905	246	746	180	119
14	143	262	685	779	653	3,160	2,280	950	241	502	*185	134
15	* 143	215	516	736	613	4,210	2,420	851	241	317	152	134
16	143	195	402	710	613	3,680	1,900	762	340	257	152	138
17	143	175	409	728	685	3,020	1,660	677	502	225	143	138
18	138	157	396	677	685	2,750	1,470	629	317	190	138	143
19	129	143	377	629	653	2,700	1,600	575	900	180	134	211
20	138	* 143	273	605	694	2,290	3,070	*530	1,070	*170	138	346
21	129	161	306	770	621	2,050	8,090	523	797	170	152	278
22	129	157	300	1,130	552	1,560	6,450	474	637	185	152	*215
23	147	152	295	*1,310	502	1,400	4,500	428	502	185	143	157
24	152	147	273	1,470	538	1,400	3,480	396	422	195	134	143
25	152	157	300	2,650	495	1,500	2,780	384	340	161	138	134
26	152	180	*317	5,010	474	1,540	1,800	371	289	147	134	134
27	152	143	353	3,410	560	1,500	1,590	328	262	186	147	143
28	152	138	384	2,660	502	1,300	2,160	306	246	217	138	249
29	152	443	359	1,360	481	1,230	19,400	300	*225	225	157	575
30	* 147	1,250	306	1,150	------	1,230	*14,800	289	200	*195	161	788
31	152	------	262	995	-----	*1,120	-----	278	----	170	441	------
Total	4,826	10,432	13,422	42,959	19,249	131,609	113,390	42,929	11,466	7,090	5,337	5,926
Mean	156	348	433	1,386	664	4,245	3,780	1,385	382	229	172	198

Calendar year 1963: Max 19,700 Min 129 Mean 1,116 Cfsm 1.28 In. 17.31
Water year 1963-64: Max 19,400 Min 119 Mean 1,116 Cfsm 1.28 In. 17.37

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	2130	15.52	19,100	4-29	1500	19.48	26,600
3-10	2230	12.31	13,600				

* Discharge measurement made on this day.

1-6035. Evitts Creek near Centerville, Pa.

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 1964. Prior to October 1952, published as "near Bedford Valley".

Gage.--Water-stage recorder (digital) and concrete control. Datum of gage is 1,027.59 ft above mean sea level (city of Cumberland bench mark).

Average discharge.--32 years, 30.4 cfs.

Extremes.--Maximum discharge during year, 628 cfs Apr. 21 (gage height, 3.11 ft); minimum, 1.5 cfs Sept. 11, 12 (gage height, 0.96 ft).
1932-64: 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; minimum, 0.7 cfs Dec. 17, 1958 (gage height, 0.79 ft), result of freezeup.
Maximum stage known, about 8 ft, from floodmark, date unknown.

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

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

0.97	1.6	1.4	11	1.9	64
1.0	1.8	1.5	16	2.0	85
1.1	2.9	1.6	24	2.2	137
1.2	4.6	1.7	34	2.5	245
1.3	7.2	1.8	48	2.9	470

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.2	2.3	10	b 2.8	28	14	29	195	12	4.5	2.3	2.0
2	2.1	2.2	6.3	b 3.0	30	40	36	137	11	4.8	2.3	1.9
3	1.9	2.2	5.4	b 4.5	b 21	193	59	107	9.6	4.5	5.1	* 1.8
4	1.9	2.1	4.7	18	b 20	269	44	89	9.0	4.4	6.3	1.8
5	1.9	2.1	4.2	14	b 18	417	38	74	8.5	3.9	3.4	1.7
6	1.9	2.7	3.8	11	26	273	60	63	10	3.5	2.7	1.7
7	1.9	21	3.5	16	56	161	104	* 55	12	3.3	2.5	1.7
8	1.9	13	5.2	14	39	129	87	49	* 12	6.4	2.4	1.7
9	* 1.9	5.0	11	84	26	124	70	44	8.5	6.7	2.3	1.7
10	1.9	3.4	6.5	77	23	189	61	38	7.0	4.5	* 2.3	* 1.7
11	1.9	2.9	5.0	b28	20	137	* 54	34	6.0	3.7	3.4	1.7
12	2.0	2.7	5.2	b17	b 17	* 110	48	34	5.6	12	* 7.3	1.6
13	1.9	2.5	5.0	b12	b 18	98	47	39	6.0	23	3.3	1.7
14	1.9	2.4	b 4.0	b11	19	105	65	37	6.2	7.1	2.8	1.7
15	1.9	2.4	b 2.9	b10	18	94	50	29	10	4.8	2.5	1.7
16	1.9	2.3	b 2.9	b11	18	75	46	26	13	4.9	2.4	1.7
17	1.9	2.4	3.0	b11	18	69	44	24	6.6	4.0	2.4	1.7
18	a 2.0	2.4	3.2	b10	16	60	42	22	5.5	3.6	2.3	1.7
19	a 2.0	2.4	3.0	11	17	52	83	20	99	3.3	2.3	2.4
20	a 2.0	2.3	2.6	15	19	47	160	18	35	* 3.2	2.2	3.2
21	a 2.0	2.3	b 2.7	74	16	49	389	17	15	3.0	2.3	2.6
22	a 2.0	2.4	b 3.0	108	b 14	50	229	16	12	2.9	2.2	2.3
23	*a 2.0	2.9	b 3.0	152	b 12	44	153	15	9.7	3.1	2.1	2.2
24	2.0	3.0	b 3.0	118	14	40	112	14	9.1	2.9	2.1	2.0
25	2.0	2.7	b 3.0	178	12	37	89	13	7.9	2.9	2.0	1.9
26	2.0	2.5	b 3.5	110	12	36	74	12	6.7	2.8	2.0	1.8
27	2.0	2.4	b 5.0	63	12	32	70	12	6.0	2.8	2.0	1.9
28	2.3	2.4	b 4.5	* 51	10	31	94	11	5.5	2.8	1.9	4.5
29	2.5	34	b 3.5	b 39	15	33	436	11	4.9	2.7	2.0	13
30	* 2.0	33	*b 2.9	33	------	30	339	10	4.7	2.7	2.0	5.4
31	2.0	------	b 2.7	b 28	------	28	------	9.6	------	2.4	2.1	------
TOTAL	61.7	168.3	134.2	1,334.3	584	3,066	3,212	1,274.6	374.0	147.1	85.2	74.4
MEAN	1.99	5.61	4.33	43.0	20.1	98.9	107	41.1	12.5	4.75	2.75	2.48
CFSM	.066	.186	.143	1.42	.666	3.27	3.54	1.36	.414	.157	.091	.082
IN	.08	.21	.17	1.64	.72	3.78	3.96	1.57	.46	.18	.10	.09

CALENDAR YEAR 1963 MAX 449 MIN 1.8 MEAN 20.9 CFSM .692 INCHES 9.39
WATER YEAR 1963-64 MAX 436 MIN 1.6 MEAN 28.7 CFSM .950 INCHES 12.95

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	2315	2.92	484	4-29	0945	3.10	620
4-21	1000	3.11	628				

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

1-6100. Potomac River at Paw Paw, W. Va.

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 1964.

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.--26 years, 3,106 cfs.

Extremes.--Maximum discharge during year, 52,700 cfs Apr. 30 (gage height, 25.70 ft); minimum, 210 cfs Sept. 14 (gage height, 3.00 ft).
1938-64: Maximum discharge, 111,000 cfs Oct. 16, 1942 (gage height, 38.36 ft); minimum, 189 cfs Sept. 28, 29, 1959.
Maximum stage known, 54.0 ft 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 Okonoko, W. Va.).

Remarks.--Records good except those for periods of once daily potentiometer readings, which are fair, and those for periods of no gage-height record and ice effect, which are poor. Low flow affected by Stony River Reservoir (see p. 80) and, since December 1950, by Savage River Reservoir (see p. 83).

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

3.0	210	7.0	3,550
3.5	440	10.0	7,870
4.0	735	15.0	18,700
5.0	1,490	24.0	46,500

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 370	300	g 4,000	a720	2,860	1,900	2,560	22,100	748	420	375	568
2	415	313	2,680	a700	2,730	2,800	2,500	13,900	787	435	331	380
3	410	308	1,920	a800	2,600	11,500	3,000	9,780	849	440	345	420
4	380	295	1,590	a 1,100	2,190	24,100	5,090	7,940	821	410	484	350
5	350	290	1,360	a 2,000	* 1,900	30,700	5,260	6,200	754	415	462	308
6	326	322	1,190	a 4,000	1,980	40,800	4,600	5,030	690	405	500	282
7	308	652	1,070	a 4,000	2,730	21,800	5,970	4,240	728	360	440	268
8	304	2,090	975	a 3,500	3,500	15,500	7,170	3,690	856	355	425	250
9	295	2,860	1,100	a 4,600	3,140	14,500	7,990	3,320	912	370	385	246
10	295	2,040	1,550	a 12,200	2,700	20,300	6,330	2,960	835	395	336	242
11	286	1,380	1,580	9,640	2,470	25,400	5,210	2,590	709	395	313	234
12	286	1,000	1,450	6,000	2,150	14,900	4,380	2,340	616	385	370	226
13	286	800	1,390	4,170	1,930	10,600	3,820	2,320	586	664	350	222
14	282	g 680	1,600	2,780	2,000	7,870	4,020	2,710	568	1,050	350	214
15	282	g 560	a 1,600	2,440	2,130	8,640	4,880	2,480	574	1,060	365	246
16	282	g 500	a 1,200	2,320	2,260	9,190	4,400	2,160	592	761	331	259
17	282	g 480	a 920	2,250	2,520	7,710	3,950	1,900	728	610	331	259
18	282	g 460	a 860	2,190	2,780	6,630	3,550	1,720	835	528	318	254
19	282	g 440	a 780	1,910	2,640	5,960	3,260	1,610	702	446	304	282
20	277	g 440	a 740	1,920	2,750	5,240	* 4,520	1,450	1,740	405	290	506
21	277	g 430	a 800	2,410	2,490	4,790	13,100	1,350	1,480	375	295	616
22	277	g 420	a 800	4,770	2,120	4,530	13,400	1,300	1,110	410	308	506
23	272	g 410	a 780	6,800	1,820	4,130	9,390	1,180	1,100	* 425	295	451
24	290	g 400	a 780	6,200	1,760	3,750	7,310	1,090	912	385	272	400
25	295	g 400	a 800	7,090	1,720	3,670	5,980	989	800	390	254	360
26	295	g 390	a 820	15,400	1,620	3,600	4,600	982	664	355	* 250	326
27	295	g 390	a 880	10,400	1,660	3,510	3,920	898	604	350	242	295
28	295	g 400	a 960	7,360	1,750	3,270	4,310	849	544	410	242	331
29	295	g 660	a 1,050	5,190	1,750	3,030	24,400	814	490	462	238	716
30	290	g 2,700	a 900	3,830	------	2,920	*43,900	780	* 456	468	259	1,480
31	286	------	a 800	3,250	------	2,750	------	761	------	451	277	-------
Total	9,447	22,810	38,925	141,940	66,650	325,990	222,770	111,433	23,790	14,790	10,337	11,497
Mean	305	760	1,256	4,579	2,298	10,520	7,426	3,595	793	477	333	383

Calendar year 1963: Max 57,500 Min 264 Mean 2,698 Cfsm 0.868 In. 11.78
Water year 1963-64: Max 43,900 Min 214 Mean 2,733 Cfsm 0.879 In. 11.97

Peak discharge (base, 20,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 6	1000	23.92	46,200	4-30	0400	25.70	52,700
3-11	0600	18.74	29,200				

* Discharge measurement made on this day.
a No gage-height record.
g Computed from once-daily potentiometer readings.
Note.--Stage-discharge relation affected by ice Dec. 19 to Jan. 8.

1-6130. Potomac River at Hancock, Md.

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 1964. 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.--32 years, 3,981 cfs.

Extremes.--Maximum discharge during year, 62,200 cfs Apr. 30 (gage height, 22.61 ft); minimum, 263 cfs Sept. 15, 16 (gage height, 2.24 ft).
1932-64: 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; minimum observed, 180 cfs Oct. 4, 1932 (gage height, 2.01 ft).
Maximum stage known prior to 1932, about 40 ft in May 1889 (discharge, about 220,000 cfs).

Remarks.--Records good except those for periods of ice effect, which are fair. Slight regualtion at low flow from power plants upstream. Low flow affected slightly by Stony River Reservoir (see p. 80) and since December 1950 by Savage River Reservoir (see p. 83).

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

2.2	245	4.0	1,830	10.0	13,500
2.5	395	5.0	3,130	15.0	29,300
3.0	790	7.0	6,650	22.0	59,100

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 425	356	3,220	900	3,840	2,350	3,240	34,800	920	549	518	340
2	431	351	4,070	840	3,490	2,760	3,080	20,200	930	504	437	531
3	469	368	2,760	1,100	3,330	8,860	3,250	13,800	960	490	431	431
4	462	368	2,110	1,400	2,970	29,600	4,600	10,700	1,020	497	443	443
5	462	368	1,810	2,280	* 2,520	36,600	5,210	8,600	980	469	518	395
6	401	368	1,590	4,660	2,430	48,400	5,760	5,850	920	469	589	362
7	425	605	1,400	4,780	3,130	31,400	5,970	5,780	880	462	573	335
8	378	1,630	1,290	4,390	4,760	19,300	8,090	4,960	1,110	455	518	330
9	378	3,670	1,260	5,440	4,870	16,600	9,410	4,410	1,170	449	490	315
10	356	2,980	1,470	10,500	4,020	19,300	8,380	3,930	1,190	437	437	300
11	362	2,110	2,080	14,800	3,520	29,000	5,830	3,440	1,060	449	401	295
12	335	1,570	2,000	8,640	3,110	20,200	5,720	3,020	* 900	490	390	290
13	346	1,220	1,810	7,000	2,710	13,800	4,910	2,870	771	605	395	290
14	351	990	1,750	3,800	2,560	10,600	4,600	3,310	752	860	425	* 281
15	346	860	1,830	3,100	2,670	9,990	5,360	3,780	733	1,200	390	268
16	346	724	1,600	2,800	2,830	11,700	5,650	3,140	733	1,150	425	268
17	340	614	1,210	2,600	2,950	10,100	* 5,070	2,730	724	880	390	305
18	346	614	1,080	2,500	3,250	8,600	4,600	2,400	890	695	378	315
19	351	557	920	2,300	3,500	7,470	4,240	2,220	1,000	614	368	330
20	330	525	920	2,300	3,380	6,650	5,030	2,050	1,150	525	362	413
21	368	511	1,000	3,000	3,440	5,980	14,400	1,850	1,940	476	356	541
22	340	497	1,000	4,500	2,950	5,780	19,600	1,730	1,610	455	356	704
23	340	504	960	6,400	2,530	5,410	13,500	1,630	1,280	449	362	650
24	330	476	940	9,620	2,300	5,020	10,100	1,490	1,250	476	356	549
25	346	511	1,000	9,280	2,230	4,670	8,070	1,380	1,050	443	335	483
26	351	476	1,040	18,200	2,200	4,550	6,590	1,260	930	462	* 315	425
27	351	476	1,100	15,800	2,110	4,410	5,320	1,200	790	462	310	401
28	356	490	1,200	10,300	2,240	4,200	5,110	1,100	724	413	300	419
29	351	677	1,350	7,590	2,300	3,900	* 18,100	1,040	650	425	295	497
30	346	1,050	1,150	5,380	------	3,630	56,400	990	581	518	295	870
31	340	------	1,000	4,440	------	3,420	------	950	------	518	315	------
Total	11,459	26,516	47,920	180,640	88,140	394,250	267,190	157,610	29,598	17,346	12,473	12,376
Mean	370	884	1,546	5,827	3,039	12,720	8,906	5,084	987	560	402	413

Calendar year 1963: Max 68,800 Min 315 Mean 3,271 Cfsm 0.803 In. 10.90
Water year 1963-64: Max 56,400 Min 268 Mean 3,403 Cfsm 0.836 In. 11.37

Peak discharge (base, 23,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 6	1600	20.37	51,400	4-30	1330	22.61	62,200
3-11	1400	15.51	31,200				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 20 to Jan. 4, Jan. 9, Jan. 14-23.

1-6145. Conococheague Creek at Fairview, Md.

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 1964.

Gage.--Water-stage recorder (digital). 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 150 ft downstream from former site at datum 4.84 ft lower than present datum.

Average discharge.--36 years, 558 cfs.

Extremes.--Maximum discharge during year, 6,250 cfs Mar. 5 (gage height, 9.10 ft); minimum, 38 cfs Oct. 11.
1928-64: Maximum discharge, 17,100 cfs Nov. 22, 1952 (gage height, 15.16 ft, from high-water mark in well); minimum, 22 cfs Dec. 16, 1930; minimum daily, 25 cfs Nov. 28, 1930.
Maximum stage known, about 16.5 ft (present datum) sometime in 1889, from information by local residents (discharge, about 22,000 cfs).

Remarks.--Records good except those for periods of backwater from aquatic vegetation, which are fair, and those for periods of ice effect, which are poor. Low flow partly regulated by small powerplants near Mercersburg, Pa.

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	86	61	780	130	625	322	527	3,130	256	121	84	71
2	70	62	416	140	611	345	504	2,240	261	117	78	89
3	*64	65	295	140	578	871	588	1,750	251	117	107	75
4	58	59	234	170	500	2,470	559	1,480	239	109	186	69
5	55	62	196	175	473	4,370	496	1,270	233	107	199	69
6	51	76	168	170	668	4,730	491	1,110	227	108	139	65
7	49	173	151	210	1,370	2,680	659	996	273	105	113	60
8	55	440	144	220	1,220	1,970	756	913	314	115	102	61
9	51	222	322	500	925	1,720	704	839	302	146	95	63
10	49	131	425	2,000	788	1,890	640	754	248	142	88	60
11	47	102	306	1,200	699	2,040	592	697	209	122	94	60
12	51	95	254	460	602	1,600	546	651	*191	113	89	58
13	51	*80	231	260	564	1,450	527	663	186	262	92	54
14	44	76	204	230	536	1,440	1,130	812	183	348	88	53
15	51	73	145	220	504	1,770	1,370	664	191	195	85	*56
16	54	68	130	210	500	1,450	1,050	578	243	147	77	58
17	56	65	120	210	482	1,240	892	535	214	142	77	58
18	54	65	130	210	464	1,080	788	505	184	134	83	58
19	47	68	120	230	420	958	745	480	210	120	78	62
20	55	64	110	300	504	876	1,060	441	291	115	75	77
21	54	65	120	660	433	848	3,820	412	234	110	70	91
22	55	64	115	740	386	914	3,820	395	217	*105	72	83
23	54	67	115	680	333	832	2,440	376	214	107	73	77
24	56	73	140	620	345	761	1,800	353	180	101	70	71
25	59	78	135	1,600	329	725	1,420	337	163	98	71	64
26	62	76	130	2,780	310	699	1,210	316	153	93	68	62
27	61	68	135	1,610	314	645	1,070	303	143	97	*66	58
28	56	65	135	1,230	295	602	1,190	289	136	100	61	68
29	59	129	125	936	302	583	*2,180	278	130	96	63	127
30	61	1,360	115	*788	------	573	3,790	268	131	91	63	159
31	56	------	110	679	------	555	------	259	------	86	66	------
TOTAL	1,731	4,152	6,256	19,708	16,080	43,009	37,364	24,094	6,407	3,969	2,772	2,136
MEAN	55.8	138	202	636	554	1,387	1,245	777	214	128	89.4	71.2
CFSM	.113	.279	.409	1.29	1.12	2.81	2.52	1.57	.433	.259	.181	.144
IN	.13	.31	.47	1.48	1.21	3.24	2.81	1.81	.48	.30	.21	.16

CALENDAR YEAR 1963 MAX 7,000 MIN 40 MEAN 381 CFSM .771 INCHES 10.46
WATER YEAR 1963-64 MAX 4,730 MIN 44 MEAN 458 CFSM .927 INCHES 12.62

Peak discharge (base, 4,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	2300	9.10	6,250	4-21	2030	8.00	4,810

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 24. Backwater from aquatic vegetation Oct. 1 to Nov. 30, June 1 to Sept. 30.

1-6178. Marsh Run at Grimes, Md.

Location.--Lat 39°30'53", long 77°46'38", on right bank 220 ft upstream from bridge on Sprecher Road, 0.1 mile downstream from unnamed tributary, 0.5 mile southwest of Grimes, Washington County, 1.5 miles upstream from mouth, and 2.2 miles southwest of Fairplay.

Drainage area.--18.9 sq mi.

Records available.--October 1963 to September 1964.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map).

Extremes.--Maximum discharge during year, 105 cfs Jan. 9 (gage height, 2.42 ft); minimum, not determined (occurred during period of ice effect); minimum daily, 2.4 cfs Oct. 30, 31, Nov. 3-5.

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

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

0.9	2.2	1.2	10
1.0	4.2	1.4	20
1.1	6.9	1.8	48

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.3	2.6	5.0	b 3.1	12	12	16	34	13	8.6	5.8	4.2
2	3.1	2.6	4.2	b 3.5	12	13	16	31	13	8.6	5.8	4.2
3	3.1	2.4	4.2	b 3.5	11	20	17	27	13	8.6	6.9	4.2
4	3.1	* 2.4	4.0	b 4.2	11	26	15	25	13	8.3	* 7.2	4.2
5	3.1	2.4	3.8	b 4.2	10	29	15	23	12	7.9	6.3	4.2
6	3.1	3.4	3.5	b 4.0	19	21	16	23	13	7.9	6.0	4.2
7	2.9	8.9	3.5	b 5.0	18	19	16	21	13	7.9	6.0	4.2
8	2.9	4.7	4.2	b 5.6	15	19	18	20	14	9.3	6.0	4.2
9	3.1	3.8	5.8	*48	13	19	16	20	14	8.9	5.8	4.2
10	3.1	3.5	4.4	17	13	25	16	19	12	8.6	5.8	4.2
11	3.1	3.3	4.2	b 10	14	21	15	18	* 11	7.9	5.8	4.2
12	3.1	* 3.1	4.4	8.6	b 13	21	14	18	12	8.3	5.8	4.2
13	3.1	3.1	4.4	b 6.0	13	* 20	14	20	12	*15	5.5	4.2
14	3.3	3.1	b 4.2	b 5.0	13	22	19	22	12	9.6	5.5	4.2
15	3.5	3.1	b 3.5	b 4.6	13	24	20	19	14	8.6	5.5	* 4.0
16	3.5	3.1	b 3.2	b 4.6	14	21	17	18	13	8.3	5.5	4.0
17	3.5	3.1	b 3.0	b 5.0	13	20	16	18	12	8.3	5.5	4.0
18	3.1	2.9	b 3.2	b 6.0	13	18	16	17	12	7.9	5.2	4.0
19	3.1	2.9	b 3.0	8.9	13	17	16	16	12	7.9	5.0	4.2
20	3.1	2.7	b 3.0	* 8.9	12	17	19	16	13	7.6	5.0	4.7
21	2.9	2.7	b 3.0	16	12	19	23	15	11	7.2	5.0	4.2
22	2.9	2.7	b 3.0	16	12	20	21	15	11	* 7.2	5.0	4.2
23	2.9	3.1	b 3.0	14	b 11	18	20	15	11	7.2	4.7	4.2
24	2.7	2.9	b 3.4	13	11	17	18	14	11	6.9	4.4	3.8
25	2.7	2.7	b 3.3	33	11	17	17	14	10	6.9	4.2	3.8
26	2.7	2.7	b 3.2	19	11	17	17	13	10	6.9	4.4	3.8
27	2.7	2.7	b 3.3	16	11	16	17	14	9.3	6.6	* 4.2	3.8
28	2.6	2.7	b 3.3	15	12	16	*19	14	8.9	6.3	4.2	5.2
29	2.6	7.3	b 3.1	13	12	16	*28	14	8.6	6.0	4.4	5.5
30	2.4	7.6	b 2.9	*13	------	16	47	13	8.6	5.8	4.4	4.7
31	* 2.4	------	b 2.6	12	------	16	------	13	------	5.8	4.7	------
Total	92.7	104.2	112.8	345.7	368	592	554	579	352.4	246.8	165.5	126.9
Mean	2.99	3.47	3.64	11.2	12.7	19.1	18.5	18.7	11.7	7.96	5.34	4.23
Cfsm	0.158	0.184	0.193	0.593	0.672	1.01	0.979	0.989	0.619	0.421	0.283	0.224
In.	0.18	0.21	0.22	0.68	0.72	1.16	1.09	1.14	0.69	0.49	0.33	0.25

Calendar year 1963: Max - Min - Mean - Cfsm - In. -
Water year 1963-64: Max 48 Min 2.4 Mean 9.95 Cfsm 0.526 In. 7.16

Peak discharge (base, 40 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-9	1330	2.42	105	4-30	0400	2.01	66

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

1-6180. Potomac River at Shepherdstown, W. Va.

Location.--Lat 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, July 1964 to September 1964.

Gage.--Water-stage recorder. Datum of gage 281.00 ft above mean sea level, adjustment of 1912.

Average discharge.--25 years (1929-1953), 5,804 cfs.

Extremes.--Maximum discharge during year, 72,600 cfs Apr. 30 (gage height 18.30 ft); minimum July to September, 375 cfs Sept. 15 (gage height, 1.39 ft).
1928-53, 1964: 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 of peak flow at gage heights 32.68 and 42.1 ft; minimum, 231 cfs Aug. 17, 19, 1930; minimum daily, 252 cfs Oct. 2, 1932.

Remarks.--Records fair. Some regulation at low flow by powerplants above station, Stony River Reservoir (see p. 80), and since December 1950 by Savage River Reservoir (see p. 83).

Discharge, in cubic feet per second, July to September 1964

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										1,070	832	435
2										1,020	846	444
3										806	886	482
4										792	*945	678
5										806	960	960
6										832	1,020	765
7										873	1,050	607
8										873	975	640
9										900	960	640
10										930	1,210	454
11										945	945	435
12										945	900	473
13										1,230	752	435
14										1,920	740	*444
15										1,750	715	401
16										1,920	728	563
17										1,810	728	585
18										1,660	752	585
19										1,260	728	607
20										1,190	652	596
21										1,080	678	678
22										975	690	886
23										832	665	1,050
24										873	665	1,020
25										1,050	652	930
26										2,020	678	860
27										1,420	665	702
28										1,050	*678	702
29										886	652	846
30					------					900	690	832
31		------			------		------		------	832	607	------
Total										35,450	24,644	19,735
Mean										1,144	795	658
Cfsm										0.193	0.134	0.111
In.										0.22	0.15	0.12

Peak discharge (base, 23,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-27	0500	10.88	32,200	4-22	1230	11.25	33,900
3- 6	1900	16.94	64,300	4-30	2230	18.30	72,600
3-12	0030	12.11	38,100				

* Discharge measurement made on this day.
Note.--Backwater from aquatic vegetation July 1 to Sept. 30.

1-6195. Antietam Creek near Sharpsburg, Md.

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.
Records available.--June 1897 to September 1905. August 1928 to September 1964. Monthly discharge only for some periods, published in WSP 1302.
Gage.--Water-stage recorder (digital). 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 feet higher. Aug. 21, 1928, to July 13, 1933, staff gage at Burnside Bridge at present datum.
Average discharge.--41 years (1897-1903, 1904-5, 1930-1964), 264 cfs (adjusted for inflow since 1930).
Extremes.--Maximum discharge during year, 1,380 cfs Apr. 30 (gage height, 5.13 ft); minimum, 40 cfs Dec. 20, 31, result of freezeup.
1928-64: 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; 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.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair. Some diurnal fluctuation caused by powerplant above station.
Since 1928, records include pumpage from Potomac River for municipal supply of Hagerstown. This water later enters Antietam Creek above station as sewage.

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

2.1	48	3.2	380
2.3	88	4.0	780
2.7	184	5.0	1,310

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	92	65	173	74	253	192	340	1,120	235	d 135	109	115
2	*77	74	112	80	240	197	334	907	237	d 135	109	116
3	77	68	97	80	225	406	380	788	232	d 130	125	100
4	77	61	89	98	212	664	362	714	225	d 125	203	93
5	68	62	84	99	203	933	320	651	218	d 120	145	89
6	68	75	80	96	336	1,120	322	597	215	d 120	121	85
7	67	209	77	120	674	775	364	559	222	d 125	115	84
8	68	201	79	122	449	651	387	532	232	151	113	86
9	66	108	129	*633	364	612	374	502	229	176	109	90
10	65	85	149	575	325	670	349	473	212	159	105	85
11	66	76	105	258	308	763	336	449	*196	148	106	87
12	65	74	97	192	279	602	321	429	186	145	112	88
13	63	70	98	b 110	266	572	314	431	184	361	115	83
14	61	68	89	b 100	257	*556	410	490	184	267	107	83
15	64	67	82	b 94	244	641	557	427	200	175	104	*84
16	65	65	b 70	b 90	253	591	459	387	204	159	102	83
17	65	63	b 66	b 90	248	541	428	371	191	151	101	82
18	65	63	72	b 90	236	508	408	359	177	142	104	83
19	67	63	*67	b 100	245	474	395	350	183	138	104	86
20	62	63	60	b 130	251	444	430	335	233	132	100	106
21	60	63	67	274	233	449	653	318	195	127	100	100
22	60	62	64	311	215	475	818	308	180	*124	99	91
23	61	66	65	290	202	439	684	300	d 170	123	96	86
24	61	80	80	262	197	422	609	289	d 165	121	92	84
25	61	72	77	620	197	412	550	278	d 160	122	94	80
26	62	66	74	810	193	403	504	269	d 155	121	92	78
27	61	63	76	461	194	397	478	264	d 150	120	*91	77
28	60	63	76	379	191	371	*506	257	d 145	122	91	88
29	59	134	70	321	189	361	720	252	d 145	119	92	155
30	58	239	63	287	------	363	1,210	245	d 140	116	91	135
31	*58	------	59	*264	------	358	------	237	------	112	89	------
TOTAL	2,029	2,588	2,646	7,510	7,679	16,362	14,322	13,888	5,800	4,521	3,336	2,782
MEAN	65.5	86.3	85.4	242	265	528	477	448	193	146	108	92.7
(†)	-10.8	-10.0	-8.6	-8.0	-7.3	-7.6	-7.4	-8.3	-10.5	-12.2	-11.8	-12.3
MEAN‡	54.7	76.3	76.8	234	258	520	470	440	182	134	96.2	80.4
CFSM‡	0.195	0.272	0.273	0.833	0.918	1.85	1.67	1.57	0.648	0.477	0.342	0.286
IN. ‡	0.22	0.30	0.32	0.96	0.99	2.13	1.87	1.81	0.72	0.55	0.39	0.32

CALENDAR YEAR	1963	MAX	1,920	MIN	58	MEAN	187	MEAN‡	178	CFSM‡	0.633	IN.‡ 8.60
WATER YEAR	1963-64	MAX	1,210	MIN	58	MEAN	228	MEAN‡	218	CFSM‡	0.776	IN.‡ 10.56

Peak discharge (base 1,500 cfs).--No peak above base.

* Discharge measurement made on this day.
† Pumpage, in cubic feet per second, from Potomac River for municipal supply of Hagerstown; furnished by city of Hagerstown.
‡ Adjusted for pumpage.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record.

1-6365. Shenandoah River at Millville, W. Va.

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 1964.

Gage.--Water-stage recorder (digital). 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.--49 years (1895-1908, 1928-1964), 2,662 cfs.

Extremes.--Maximum discharge during year, 21,400 cfs Mar. 5 (gage height, 10.08 ft); minimum, 268 cfs Oct. 9, (gage height, 1.03 ft); minimum daily, 315 cfs Oct. 11.
1895-1909, 1928-64: Maximum discharge, 230,000 cfs Oct. 16, 1942 (gage height, 32.4 ft, from floodmarks); 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.--Records good except those for periods of ice effect, which are fair. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Co., half a mile above station.

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

Oct. 1 to Mar. 5

1.1	300	4.0	3,380
1.5	515	6.0	7,600
2.0	900	8.0	13,500
3.0	1,920	10.0	21,000

Mar. 6 to Sept. 30

1.0	300	2.0	940
1.5	585	3.0	1,920

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

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	473	365	2,000	b 600	3,360	2,810	2,120	4,850	964	555	390	420
2	*503	390	2,500	602	3,030	2,850	2,080	4,940	1,030	537	495	* 370
3	515	422	2,000	871	2,780	5,440	2,150	4,800	996	525	495	380
4	497	428	1,500	955	2,500	14,800	2,170	4,140	980	592	549	477
5	485	404	1,200	1,060	2,320	20,300	2,120	3,610	932	573	624	465
6	433	477	1,100	1,500	2,430	19,600	2,030	3,220	924	537	501	471
7	375	1,570	900	1,490	3,340	17,100	2,030	2,890	964	519	549	495
8	375	3,450	900	2,670	4,270	10,900	2,010	2,590	916	549	489	425
9	325	2,970	900	3,640	4,610	8,170	2,230	2,350	924	592	549	380
10	340	1,860	900	8,930	3,880	7,550	2,280	2,220	908	598	507	345
11	315	1,320	1,100	10,900	3,440	7,800	2,180	2,030	815	489	495	355
12	370	796	1,100	7,190	3,080	7,330	2,070	1,880	868	501	471	370
13	365	878	1,100	4,850	2,840	6,220	2,000	1,810	845	964	425	385
14	355	636	1,050	2,860	2,680	5,360	1,980	1,900	785	1,160	395	355
15	350	521	1,000	2,210	2,630	4,980	2,180	2,150	743	670	400	385
16	345	500	900	1,890	2,710	5,000	2,520	2,270	650	764	400	380
17	355	450	800	2,200	2,970	4,700	3,070	1,990	800	*729	420	365
18	355	450	700	2,450	3,410	4,230	2,960	1,760	743	670	435	370
19	375	450	b 650	2,290	3,840	3,830	2,720	1,640	689	579	471	420
20	355	450	b 620	2,170	3,700	3,510	2,620	1,640	778	513	430	507
21	370	450	b 600	2,580	3,550	3,330	3,080	1,590	663	525	455	598
22	375	450	b 700	7,070	3,230	3,320	3,880	1,370	715	507	430	709
23	385	450	1,010	9,640	2,870	3,340	3,760	1,290	689	489	425	585
24	360	450	834	7,280	2,610	3,270	3,470	1,310	676	501	425	555
25	375	450	987	7,700	* 2,440	3,010	3,180	1,260	757	561	410	579
26	380	450	835	13,000	2,280	2,750	2,850	1,080	838	489	395	471
27	380	450	951	13,200	2,430	2,610	2,540	1,090	657	561	395	440
28	370	450	882	8,360	2,730	2,480	2,460	1,040	624	592	375	460
29	360	500	b 750	6,090	2,850	2,350	2,800	1,030	683	549	400	477
30	380	1,000	b 650	4,780	------	2,280	3,880	1,020	598	465	400	549
31	380	------	b 600	3,890	------	2,210	------	972	------	400	395	------
Total	11,976	23,887	31,719	144,918	88,810	193,430	77,420	67,732	24,154	18,255	13,995	13,543
Mean	386	796	1,023	4,675	3,062	6,240	2,581	2,185	805	589	451	451
Cfsm	0.127	0.262	0.337	1.54	1.01	2.05	0.849	0.719	0.265	0.194	0.148	0.148
In.	0.15	0.29	0.39	1.77	1.09	2.37	0.95	0.83	0.30	0.22	0.17	0.17

Calendar year 1963 : Max 29,900 Min 315 Mean 1,783 Cfsm 0.587 In. 7.96
Water year 1963-64: Max 20,300 Min 315 Mean 1,939 Cfsm 0.638 In. 8.68

Peak discharge (base, 15,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-10	0530	8.70	16,000	1-26	2030	8.72	16,100
1-22	1815	8.43	15,000	3-05	0815	10.08	21,400

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

1-6375. Catoctin Creek near Middletown, Md.

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 2¼ miles downstream from Little Catoctin Creek.

Drainage area.--66.9 sq mi.

Records available.--August 1947 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 385 ft (from topographic map).

Average discharge.--17 years, 71.4 cfs.

Extremes.--Maximum discharge during year, 1,320 cfs Jan. 9, July 13 (maximum gage height, 4.27 ft July 13), minimum discharge 0.7 cfs Sept. 12 (gage height, 0.84 ft).
1947-64: 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; minimum, 0.1 cfs Sept. 15, 1963.

Remarks.--Records good except those for periods of ice effect, doubtful gage-height record, or indefinite stage-discharge relation, which are fair.

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

Oct. 1 to Feb. 6				Feb. 7 to Aug. 26				Aug. 27 to Sept. 30			
0.7	0.8	1.5	72	0.3	1.5	1.2	35	0.8	0.5	1.1	6.0
.8	2.8	2.0	225	.5	3.3	1.5	82	.9	1.0	1.2	11
.9	5.6	2.5	440	.7	6.3	2.0	235	1.0	2.8	1.3	23
1.1	15	3.0	690	.8	8.6	2.5	440				
1.3	36			.9	12	3.0	690				
				1.0	18	3.5	940				

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	5.6	5.4	48	19	80	57	*84	394	23	4.3	3.4	*5.4
2	3.7	8.8	31	23	76	73	92	306	26	4.3	3.8	3.4
3	3.6	7.1	27	22	62	312	131	250	22	4.2	16	2.4
4	3.4	5.3	24	54	b55	498	96	214	21	4.4	30	1.9
5	2.7	*4.1	21	51	50	772	87	183	19	4.5	11	1.5
6	2.5	14	19	41	466	493	94	160	19	3.9	6.7	1.2
7	2.5	131	17	82	317	323	109	140	28	3.5	5.2	1.0
8	2.0	35	23	66	228	275	147	128	25	6.3	4.7	1.0
9	1.8	17	106	625	190	258	137	114	24	11	4.2	.9
10	*1.8	11	48	248	163	293	126	96	18	7.6	4.1	.9
11	1.9	8.6	35	136	137	222	114	87	13	5.3	4.3	.8
12	2.1	7.2	34	b110	123	203	106	80	11	6.3	4.8	1.2
13	2.0	6.3	32	92	106	183	99	89	11	400	4.3	1.9
14	2.0	5.9	27	108	99	211	215	99	12	d66	4.1	1.4
15	2.1	5.4	19	b120	87	235	297	74	20	d46	3.6	1.2
16	2.2	5.0	b18	b110	99	196	211	65	19	d24	3.3	*1.0
17	2.1	5.0	17	69	87	180	186	60	12	d18	3.6	.8
18	2.2	4.8	17	87	87	156	163	55	10	d16	3.3	.9
19	2.3	4.6	15	60	114	137	153	*50	17	d12	3.2	1.9
20	2.3	4.4	*15	61	120	128	180	45	21	d10	3.0	4.4
21	2.3	4.6	16	*b200	104	134	300	41	13	d8.6	3.0	4.4
22	2.2	4.7	18	182	92	140	250	40	9.7	d7.4	e2.5	3.8
23	2.4	10	19	158	82	137	220	38	8.9	d7.2	e2.5	2.8
24	2.4	25	23	137	78	134	193	35	8.7	d6.0	e2.5	2.3
25	2.5	14	23	466	*66	123	166	32	7.2	d5.8	*e2.0	1.5
26	2.6	9.7	21	285	66	120	147	29	6.6	d6.1	e2.0	1.2
27	2.5	8.0	19	192	63	107	137	28	5.8	d6.1	*.9	1.2
28	2.6	7.2	17	155	60	96	150	27	5.2	d5.8	1.0	3.1
29	3.1	60	13	117	61	92	432	26	4.8	d5.3	1.0	16
30	3.9	133	12	99	------	92	615	24	4.6	*d4.2	1.9	18
31	4.0	------	11	83	------	87	------	23	------	3.5	5.4	------
TOTAL	81.3	572.1	785	4,258	3,418	6,467	5,437	3,032	445.5	723.6	151.3	89.4
MEAN	2.62	19.1	25.3	137	118	209	181	97.8	14.9	23.3	4.88	2.98
CFSM	.039	.286	.378	2.05	1.76	3.12	2.71	1.46	.223	.348	.073	.045
IN	.05	.32	.44	2.37	1.90	3.60	3.02	1.69	.25	.40	.08	.05

CALENDAR YEAR 1963 MAX 700 MIN .20 MEAN 44.7 CFSM .668 INCHES 9.06
WATER YEAR 1963-64 MAX 772 MIN .80 MEAN 69.6 CFSM 1.04 INCHES 14.15

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-9	1330	4.25	1,320	7-13	0230	4.27	1,320

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record.
e Indefinite stage-discharge relation.

1-6385. Potomac River at Point of Rocks, Md.

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 1964.

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.--69 years, 9,195 cfs.

Extremes.--Maximum discharge during year, 87,000 cfs Mar. 6 (gage height, 16.00 ft); minimum, 650 cfs Sept. 15 (gage height, 0.40 ft).
1895-1964: 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; minimum, 540 cfs Sept. 10, 1914 (gage height, 0.38 ft).
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.--Records good. Low flow affected slightly since 1913 by Stony River Reservoir (see p. 80) and since December 1950 by Savage River Reservoir (see p. 83).

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

0.4	650	1.5	3,020	8.0	32,500
.5	800	2.0	4,610	12.0	57,000
1.0	1,820	4.0	12,400	16.0	87,000

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,180	1,000	5,370	b 2,400	11,500	7,600	8,800	*73,700	3,020	1,930	1,320	1,040
2	* 1,220	1,040	9,080	b 2,600	10,300	7,860	8,440	46,900	3,080	1,840	1,340	940
3	1,260	1,060	9,000	b 2,800	9,520	12,300	8,520	32,300	3,050	1,740	1,550	800
4	1,200	1,080	6,700	b 3,000	8,880	40,500	8,760	25,000	3,050	1,570	1,780	860
5	1,160	1,080	5,250	b 4,000	8,200	72,000	9,960	20,400	2,890	1,630	1,820	1,020
6	1,140	1,240	4,190	5,900	9,430	83,400	11,500	17,300	2,970	1,550	1,860	1,160
7	1,100	2,680	3,790	9,440	12,100	78,600	11,100	14,800	2,990	1,480	1,720	1,200
8	1,060	5,000	3,300	12,800	15,400	48,000	12,300	13,000	2,990	1,610	1,740	1,140
9	980	7,630	3,510	b18,000	16,300	35,400	15,200	11,700	3,050	1,670	1,630	1,000
10	1,000	7,480	3,540	22,400	14,200	*32,000	16,300	10,700	3,300	1,740	1,630	880
11	960	6,180	4,120	b30,000	12,200	39,000	14,600	9,680	3,100	1,690	1,690	800
12	940	4,470	4,540	b29,000	10,800	43,300	12,600	8,800	2,860	1,590	1,630	710
13	940	3,270	4,720	18,900	9,560	31,700	11,200	8,200	2,840	7,720	1,500	695
14	840	2,840	4,360	11,000	8,840	25,100	10,700	8,200	2,510	3,130	1,340	680
15	820	2,340	4,060	b 8,000	8,480	22,300	12,400	9,240	2,490	3,100	1,240	665
16	880	2,110	3,760	b 7,500	8,760	22,600	14,200	9,520	2,390	2,660	1,200	* 680
17	900	1,950	3,420	b 7,000	9,120	22,800	13,800	8,440	2,200	2,940	1,140	695
18	900	1,820	2,840	b 7,000	9,640	19,800	12,800	7,440	2,510	2,660	1,300	740
19	920	1,890	2,510	b 7,000	10,900	17,300	11,700	6,700	2,200	2,340	1,320	884
20	920	1,840	b 2,400	7,560	10,600	15,600	11,300	6,290	2,460	2,060	1,260	1,060
21	920	1,890	b 2,200	8,860	10,500	14,500	15,900	5,860	2,790	1,860	1,200	1,120
22	940	1,920	b 2,100	14,000	9,920	14,000	36,300	5,360	3,160	1,820	1,220	1,320
23	940	1,820	b 2,400	23,300	8,800	13,900	33,000	4,890	3,420	1,690	1,180	1,530
24	940	1,740	b 2,400	25,600	7,860	13,400	24,500	4,640	3,020	1,550	1,140	1,500
25	980	1,590	b 2,300	25,400	7,330	12,500	19,500	4,540	2,710	1,550	1,000	1,570
26	1,000	1,500	b 2,500	35,600	6,880	11,800	16,400	3,990	2,760	1,690	*1,140	1,550
27	1,000	1,460	b 2,700	45,500	7,030	11,200	14,100	3,790	2,440	2,290	1,060	1,400
28	* 980	1,500	b 2,600	31,000	7,290	10,600	12,700	3,600	2,200	2,200	1,040	1,320
29	980	1,800	b 2,700	22,100	7,480	10,000	15,100	3,420	2,180	1,930	1,020	1,440
30	920	2,740	b 2,400	17,000	------	9,640	47,500	3,270	2,060	1,670	1,180	1,610
31	920	------	b 2,300	13,300	------	9,160	------	3,130	------	1,420	1,300	------
Total	30,840	75,860	117,060	477,960	287,820	807,860	471,180	394,800	82,690	66,320	42,490	32,009
Mean	995	2,529	3,776	15,420	9,925	26,060	15,710	12,735	2,756	2,139	1,371	1,067
Cfsm	0.103	0.262	0.391	1.60	1.03	2.70	1.63	1.32	0.286	0.222	0.142	0.111
In.	0.12	0.29	0.45	1.84	1.11	3.11	1.82	1.52	0.32	0.26	0.16	0.12

Calendar year 1963: Max 116,000 Min 820 Mean 6,808 Cfsm 0.705 In. 9.57
Water year 1963-64: Max 83,400 Min 665 Mean 7,888 Cfsm 0.817 In. 11.12

2,886,889

Peak discharge (base, 35,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-27	0800	10.64	48,300	4-22	1630	9.28	40,200
3- 6	2200	16.00	87,000	5- 1	0530	15.27	81,200

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

1-6390. Monocacy River at Bridgeport, Md.

Location.--Lat 39°40'43", long 77°14'06", on right bank 60 ft downstream from bridge on State Highway 97, 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 1964.

Gage.--Water-stage recorder (digital). 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 gages at site 0.3 mile downstream at datum 0.98 ft lower.

Average discharge.--22 years, 194 cfs.

Extremes.--Maximum discharge during year, 6,540 cfs Jan. 9 (gage height, 11.99 ft); minimum, 1.0 cfs Aug. 28-29 (gage height, 1.65 ft).

1942-64: 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; minimum, 0.1 cfs Aug. 27, 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.--Records good except those for periods of ice effect, which are fair. Occasional regulation at low flow from unknown source above station.

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

1.6	0.6	2.1	12	3.6	270
1.7	1.5	2.3	22	4.0	425
1.8	3.0	2.5	36	5.0	950
1.9	5.0	2.8	70	7.0	2,300
2.0	8.0	3.2	160	9.0	3,800

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	14	4.4	181	13	153	86	113	1,090	22	5.0	5.0	3.0
2	9.6	5.3	78	15	b150	b105	110	557	23	4.6	4.4	5.0
3	6.5	5.0	55	20	b130	642	*271	363	23	4.0	6.2	8.0
4	4.0	4.4	46	39	b115	1,670	172	289	21	4.4	64	5.9
5	3.0	4.8	37	65	b115	3,610	124	233	21	7.7	30	4.4
6	2.3	7.1	31	81	1,150	1,130	119	192	19	12	15	3.4
7	2.0	*116	26	122	1,650	494	255	166	26	6.8	10	2.6
8	2.0	90	27	238	603	378	304	146	36	6.2	7.7	2.4
9	*2.0	33	610	2,580	283	403	247	129	50	19	5.9	2.1
10	1.3	18	175	2,130	236	726	159	107	29	23	4.8	1.7
11	1.4	12	96	b380	201	492	130	93	19	12	4.6	1.7
12	1.5	11	79	b175	b170	317	113	84	15	8.1	4.6	1.8
13	1.4	14	84	b60	178	429	102	92	13	536	4.4	2.1
14	1.5	9.1	75	b70	166	642	958	185	14	102	5.9	2.7
15	1.8	7.9	45	b80	166	859	783	100	15	*36	5.6	2.6
16	2.0	7.4	41	b75	223	393	284	80	14	21	4.6	2.1
17	2.0	7.4	31	b75	280	263	209	70	25	15	3.8	2.0
18	2.0	7.1	*26	b70	230	201	168	64	15	11	3.6	1.7
19	2.1	7.1	22	b65	157	163	152	57	11	9.7	3.2	1.7
20	2.1	6.5	20	80	214	150	479	51	15	8.0	2.7	2.3
21	2.3	7.1	16	b541	b145	160	2,800	45	21	7.5	2.4	3.0
22	2.6	7.4	14	1,380	b135	383	955	42	16	7.8	2.6	4.8
23	2.7	8.2	14	884	109	870	541	40	11	11	3.0	3.4
24	2.9	15	15	552	110	414	349	37	10	9.1	3.0	2.6
25	2.9	23	16	2,860	93	260	252	33	9.5	7.7	2.6	2.0
26	3.2	15	21	1,650	93	237	213	29	8.6	7.4	2.3	1.7
27	3.8	12	24	623	b95	235	182	27	7.1	7.1	*1.7	1.5
28	3.6	9.7	24	478	*82	157	258	25	6.8	7.4	1.1	2.7
29	4.0	18	22	b225	90	138	1,610	24	6.2	8.0	1.1	7.1
30	3.8	804	17	b195	------	124	2,980	23	4.8	7.1	1.2	20
31	4.0	------	14	158	------	117	------	22	------	6.2	1.4	------
TOTAL	100.3	1,296.9	1,982	15,979	7,522	16,248	14,992	4,495	527.0	937.8	218.4	108.0
MEAN	3.24	43.2	63.9	515	259	524	500	145	17.6	30.3	7.05	3.60
CFSM	.019	.250	.369	2.98	1.50	3.03	2.89	.838	.102	.175	.041	.021
IN	.02	.28	.43	3.44	1.62	3.49	3.22	.97	.11	.20	.05	.02

CALENDAR YEAR 1963 MAX 5,800 MIN 1.3 MEAN 138 CFSM .798 INCHES 10.82
WATER YEAR 1963-64 MAX 3,610 MIN 1.1 MEAN 176 CFSM 1.02 INCHES 13.85

Peak discharge (base, 3,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 9	2145	11.99	6,540	3- 5	1715	11.31	5,860
1-25	1715	11.22	5,770	4-30	0900	9.52	4,220
2- 6	2330	10.22	4,800				

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

1-6395. Big Pipe Creek at Bruceville, Md.

Location.--Lat 39°36'45", long 77°14'10", on left bank 300 ft downstream from bridge on State Highway 194, 800 ft downstream from Bruceville, Carroll County, and 3 miles upstream from Detour and confluence with Little Pipe Creek.

Drainage area.--102 sq mi.

Records available.--October 1947 to September 1964. Prior to December 1947 monthly discharge only, published in WSP 1302.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 340 ft (from topographic map).

Average discharge.--17 years, 104 cfs.

Extremes.--Maximum discharge during year, 3,540 cfs Jan. 9 (gage height, 8.11 ft); maximum gage height, 8.24 ft (ice jam); minimum discharge, 6.0 cfs Sept. 19; minimum daily, 8.0 cfs Sept. 13.
1947-64: 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 gage height 8.38 ft and slope-conveyance study; minimum, 2.4 cfs July 28, 1954; minimum daily, 5.4 cfs Sept. 13, 1963.

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

Rating tables, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 30 to July 9, July 22 to Sept. 17)

Oct. 1 to Jan. 9				Jan. 10 to Sept. 30			
0.7	7.0	2.0	214	0.7	7.0	1.5	95
.9	19	3.0	520	.8	12	2.0	198
1.0	28	4.0	970	1.0	26	3.0	522
1.2	54	6.0	2,100	1.2	48	5.0	1,500
1.5	105						

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	21	19	92	38	a90	75	115	288	46	22	17	14
2	16	27	58	52	a100	92	117	211	49	21	17	15
3	16	33	49	58	a85	409	*184	176	46	22	32	11
4	14	23	44	73	a75	580	121	159	43	23	36	10
5	13	22	38	91	a70	1,070	108	144	42	21	25	10
6	13	25	35	79	a225	354	115	130	41	20	22	10
7	12	*210	33	206	a200	235	138	122	49	44	20	9
8	12	63	37	169	a150	203	216	115	48	76	20	8
9	*11	35	204	1,520	a100	196	174	109	43	56	19	12
10	14	28	81	552	a90	252	136	100	41	32	17	13
11	15	25	59	161	a85	179	124	93	36	24	20	10
12	14	22	55	b100	a80	176	115	90	33	24	30	13
13	14	22	56	b60	a82	174	109	95	34	132	20	13
14	15	21	50	b70	a85	198	267	102	37	54	16	11
15	15	21	39	b90	a90	224	405	85	34	104	16	12
16	14	22	b35	b80	a120	163	193	81	33	40	16	12
17	15	19	34	b70	a110	144	165	78	31	33	23	14
18	16	22	*33	67	a90	126	146	73	29	28	25	10
19	15	20	28	62	a100	115	140	68	31	28	22	10
20	13	20	26	93	a95	111	170	65	38	29	21	16
21	17	19	27	722	a90	126	573	*61	36	28	19	16
22	14	21	26	344	a85	227	309	59	35	31	17	13
23	15	27	29	*244	a80	316	232	58	33	24	16	13
24	15	82	33	196	a75	261	191	55	33	23	14	14
25	16	36	40	950	a70	216	163	52	29	24	14	14
26	16	29	38	a500	a65	186	148	49	26	25	16	18
27	18	27	37	a250	a80	156	138	49	26	25	*12	20
28	18	26	36	a150	*72	136	152	47	24	23	11	23
29	15	81	30	a90	78	128	159	47	24	37	13	47
30	16	286	29	a80	------	124	559	44	23	46	13	37
31	13	------	24	a70	------	119	------	47	------	21	14	------
TOTAL	461	1,333	1,435	7,287	2,817	7,073	5,882	2,952	1,073	1,140	593	448.0
MEAN	14.9	44.4	46.3	235	97.1	228	196	95.2	35.8	36.8	19.1	14.9
CFSM	.146	.435	.454	2.30	.952	2.24	1.92	.933	.351	.361	.187	.146
IN	.17	.49	.52	2.66	1.03	2.58	2.14	1.08	.39	.42	.22	.16

CALENDAR YEAR 1963 MAX 1,690 MIN 5.4 MEAN 74.9 CFSM .734 INCHES 9.97
WATER YEAR 1963-64 MAX 1,520 MIN 8.0 MEAN 88.8 CFSM .871 INCHES 11.85

Peak discharge (base, 1,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 9	1500	8.11	3,540	3-5	1030	5.62	1,870
1-21	1630	5.56	1,840				

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Shifting-control method used June 30 to July 9, July 22 to Sept. 17.

1-6405. Owens Creek at Lantz, Md.

Location.--Lat 39°40'36", long 77°27'50", 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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 965 ft (from topographic map).

Average discharge.--33 years, 8.79 cfs (adjusted for diversion).

Extremes.--Maximum discharge during year, 181 cfs July 13 (gage height, 3.14 ft); minimum, 0.2 cfs many days in Oct., Sept.; minimum gage height, 0.90 ft Sept. 17-19.
1931-64: 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; 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.--Records good except those for periods of ice effect or no gage-height record, which are fair. A small diversion is occasionally made to Victor Cullen State Hospital at Cullen, half a mile above station.

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

Oct. 1 to May 19						May 20 to Sept. 30	
1.0	0.2	1.5	2.7	2.2	31	0.9	0.2
1.1	.5	1.6	4.1	2.5	67	1.0	.3
1.2	.8	1.7	6.2	3.0	152	1.1	.5
1.3	1.2	1.8	9.0				
1.4	1.8	2.0	17			Note.--Same as preceding table above 1.1 ft.	

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.30	0.60	4.2	1.2	a9.0	b5.5	14	42	3.8	1.2	0.60	1.3
2	.30	1.2	2.6	1.6	a9.0	6.2	16	32	3.7	1.2	.70	.50
3	.30	.60	2.3	1.9	a8.0	18	19	28	3.4	1.9	6.1	.40
4	.40	.40	2.1	3.7	a8.0	29	15	25	3.2	2.3	2.6	.30
5	.30	.40	1.8	2.6	a8.0	94	14	22	3.0	1.3	1.1	.30
6	.30	2.6	1.6	2.5	a35	*46	17	20	3.8	1.1	.90	.20
7	.20	*17	1.6	6.0	a28	34	17	18	3.6	1.1	.80	.20
8	.20	2.5	9.0	6.0	a23	32	19	17	3.7	2.5	.80	.20
9	*.20	1.2	12	29	a18	37	16	15	3.0	1.8	.70	.20
10	.30	.90	4.2	b16	a15	48	15	14	2.5	1.3	.70	.20
11	.30	.70	3.0	b9.5	a14	32	14	13	2.3	1.2	.80	.20
12	.30	.70	2.8	b8.0	a12	27	13	12	2.2	1.5	1.0	.20
13	.30	.60	2.4	b8.5	a10	24	13	15	2.3	33	.70	.20
14	.30	.60	2.0	b8.0	a10	28	27	14	2.3	2.6	.60	.20
15	.30	.60	1.7	b6.0	a9.5	29	25	11	2.4	*1.6	.60	.20
16	.30	.60	1.4	b4.5	a10	23	20	10	2.4	1.3	.60	.20
17	.30	.60	1.3	3.7	a9.5	21	18	9.3	1.9	1.2	.60	*.20
18	.30	.60	b1.3	3.4	a9.0	19	16	8.3	1.8	1.1	1.2	.20
19	.30	.50	*b1.3	3.3	a9.0	17	17	7.5	2.8	1.1	.90	1.4
20	.30	.50	1.3	7.9	a8.5	16	25	*6.7	3.1	1.1	.60	1.5
21	.30	.60	1.1	9.5	a7.5	16	54	6.2	3.1	1.0	.60	.60
22	.30	.60	1.1	*b8.0	a7.0	16	38	6.0	3.7	1.0	.50	.40
23	.40	2.3	1.2	b8.0	a6.5	18	29	5.4	2.2	.90	.40	.30
24	.40	2.4	1.5	8.3	a6.0	19	24	5.1	1.9	.90	.40	.20
25	.40	1.1	1.5	a30	a6.0	18	21	4.6	1.6	1.1	.40	.20
26	*.40	.90	b1.4	a24	a6.0	20	19	4.3	1.5	1.1	.30	.20
27	.40	.80	b1.4	a18	a6.0	17	19	4.2	1.4	1.0	*.30	.20
28	.40	.70	b1.4	a15	a5.5	16	20	4.0	1.3	.90	.30	1.8
29	.40	26	b1.4	a12	a5.3	15	50	3.8	1.3	.80	.30	2.4
30	.40	12	b1.3	a10	------	15	63	3.7	1.2	.70	.30	1.3
31	.30	------	b1.0	a9.0	------	14	------	3.7	------	.60	.70	------
TOTAL	9.90	80.80	74.2	285.1	318.3	771.7	687	390.8	76.4	71.40	27.10	15.90
MEAN	.32	2.69	2.39	9.20	11.0	24.9	22.9	12.6	2.55	2.30	.87	.53
CFSM	.054	.454	.403	1.55	1.86	4.20	3.86	2.12	.430	.388	.147	.089
IN	.06	.51	.47	1.79	2.00	4.84	4.31	2.45	.48	.45	.17	.10

CALENDAR YEAR 1963 MAX 60 MIN .10 MEAN 5.02 CFSM .847 INCHES 11.49
WATER YEAR 1963-64 MAX 94 MIN .20 MEAN 7.67 CFSM 1.29 INCHES 17.61

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-5	1130	2.94	141	7-13	0215	3.14	181

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-6410. Hunting Creek at Jimtown, Md.

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 2¼ miles southeast of Thurmont, and 2¼ miles upstream from Little Hunting Creek.

Drainage area.--18.4 sq mi.

Records available.--October 1949 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 355 ft (from topographic map).

Average discharge.--15 years, 23.6 cfs.

Extremes.--Maximum discharge during year, 934 cfs July 13 (gage height, 4.46 ft); minimum, 1.0 cfs Sept. 17 (gage height 1.23 ft).
1949-64: Maximum discharge, 1,170 cfs Sept. 1, 1952 (gage height, 4.94 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum, 1.0 cfs Aug. 1, 2, 1954, Sept. 5, 1957, Aug. 27, 1962, Sept. 17, 1964.

Remarks.--Records good except those for periods of ice effect or backwater from debris, which are fair, or those for periods of doubtful or no gage-height record, which are poor. Slight regulation at irregular intervals caused by pumpage at recreation camp near Foxville, and from occasional draining and refilling of pond near Thurmont by Maryland Game and Inland Fish Commission.

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

Oct. 1 to Feb. 6				Feb. 7 to Sept. 30			
1.25	1.4	1.6	26	1.24	1.2	1.6	24
1.3	2.7	1.8	54	1.3	2.6	1.8	52
1.4	7.4	2.0	89	1.4	7.0	2.0	89
1.5	16	2.5	213	1.5	15	2.5	213

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	c1.8	c3.0	20	a6.0	28	b18	32	118	9.7	2.9	2.3	4.0
2	c2.0	c5.2	12	a9.6	27	27	37	87	10	2.9	2.3	2.3
3	c2.1	c3.4	10	8.6	25	75	47	73	9.0	3.6	19	1.9
4	c1.8	c2.4	8.6	20	b22	93	34	64	8.3	4.9	10	1.8
5	c1.8	c1.8	7.2	17	21	200	33	55	8.3	3.2	4.0	1.7
6	c1.8	c6.8	6.6	16	153	*121	37	49	9.0	2.9	3.2	1.6
7	c1.6	*37	6.2	28	90	83	42	46	11	2.6	2.6	1.6
8	c1.4	9.3	16	21	59	75	54	42	10	5.9	2.6	1.7
9	c1.4	5.0	41	133	46	77	42	40	9.0	5.9	2.3	1.8
10	*c1.4	3.7	17	a72	40	91	37	34	7.6	4.0	2.3	c1.4
11	c1.4	3.2	12	a42	36	67	34	33	6.4	3.2	2.3	c1.6
12	c1.4	3.0	12	a30	b32	60	33	31	5.9	3.2	2.9	c1.6
13	c1.4	2.7	11	a26	31	57	32	36	5.9	154	2.3	c1.4
14	c1.6	2.7	9.3	a29	30	67	83	32	5.9	9.7	2.0	c1.4
15	c1.6	2.6	6.7	a30	27	67	80	27	6.4	5.9	1.8	c1.2
16	c1.6	2.5	6.5	a29	37	55	54	24	6.4	4.9	1.8	c1.2
17	c1.6	2.5	b6.5	a26	30	50	49	23	5.4	4.4	1.8	c1.2
18	c1.7	2.5	6.3	a22	27	46	43	21	4.9	3.6	2.6	1.3
19	c1.6	2.4	*6.2	a21	28	42	44	19	5.9	3.6	2.6	2.7
20	c1.6	2.4	a4.7	a30	26	40	64	*17	7.6	3.6	2.0	6.8
21	c1.8	2.6	a4.7	a57	b22	44	150	17	5.9	3.2	1.8	2.8
22	c1.8	2.6	a4.2	*a48	b21	54	107	16	9.0	3.2	1.8	2.2
23	c2.1	6.3	a5.0	39	b21	47	81	15	5.9	3.2	1.6	2.1
24	c2.1	9.9	a7.2	36	b20	47	69	14	5.4	3.2	1.6	2.2
25	c2.4	4.7	a7.2	132	b19	44	60	13	4.4	3.2	1.6	2.3
26	c2.4	3.6	6.8	73	b19	44	54	11	4.0	3.2	1.4	2.1
27	c2.1	3.3	6.4	51	b18	40	52	11	3.6	3.2	*1.4	2.1
28	c2.4	3.1	6.1	43	b18	36	55	10	3.2	2.9	1.6	5.7
29	c2.4	88	5.6	35	b18	34	192	10	3.2	2.9	1.8	9.7
30	c2.4	82	a5.2	31	------	34	201	9.7	3.2	3.2	6.2	5.6
31	c2.7	------	a4.0	28	------	33	------	9.7	------	2.3	5.4	------
TOTAL	57.2	310.2	288.2	1,191.2	991	1,868	1,932	1,007.4	200.4	268.6	98.9	77.0
MEAN	1.85	10.3	9.30	38.4	34.2	60.3	64.4	32.5	6.68	8.67	3.19	2.57
CFSM	.101	.560	.505	2.09	1.86	3.28	3.50	1.77	.363	.471	.173	.140
IN	.12	.63	.58	2.41	2.00	3.78	3.90	2.04	.41	.54	.20	.16

CALENDAR YEAR 1963	MAX	190	MIN	1.4	MEAN	14.2	CFSM	.772	INCHES	10.48		
WATER YEAR 1963-64	MAX	201	MIN	1.2	MEAN	22.7	CFSM	1.23	INCHES	16.76		

Peak discharge (base, 350 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2- 6	1500	3.13	412	7-13	0245	4.46	934
4-29	0415	3.01	370				

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from debris.

1-6415. Fishing Creek near Lewistown, Md.

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 2.8 miles (revised) west of Lewistown, Frederick County.

Drainage area.--7.29 sq mi.

Records available.--October 1947 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 735 ft (from topographic map).

Average discharge.--17 years, 10.8 cfs.

Extremes.--Maximum discharge during year, 96 cfs July 13 (gage height, 2.29 ft); minimum, 0.8 cfs Sept. 17, 18, 19, (gage height 1.14 ft).
1947-64: 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; minimum, 0.7 cfs Sept. 22, 1959.

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

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

1.14	0.8	1.6	16
1.2	1.6	1.8	31
1.3	3.3	2.0	52
1.4	6.1	2.2	80
1.5	10		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	1.2	1.6	a5.0	b2.0	15	9.8	a16	55	7.9	2.9	1.9	1.4
2	1.2	2.3	a3.5	2.3	14	12	*a17	47	7.7	2.9	2.1	1.3
3	1.2	1.2	a3.0	2.2	13	21	20	41	7.2	3.5	6.3	1.2
4	1.2	1.2	a2.7	2.7	12	26	17	37	6.9	3.7	3.8	1.1
5	1.2	1.2	a2.4	2.3	12	60	17	34	6.5	2.9	2.3	1.0
6	1.2	*4.4	a2.2	2.3	33	*56	18	31	7.1	2.7	2.1	1.0
7	1.2	9.8	a2.0	3.2	38	45	19	30	7.0	2.5	1.9	1.0
8	1.2	2.2	a6.0	2.9	33	41	22	28	6.6	4.3	1.9	1.0
9	*1.1	1.6	a9.0	17	30	39	19	26	6.2	3.2	1.8	1.0
10	1.0	1.4	a5.0	14	28	39	19	24	5.7	2.8	1.8	.90
11	1.0	1.3	a3.2	9.3	26	33	19	22	5.3	2.6	2.0	1.0
12	1.0	1.3	a3.0	7.9	23	30	19	21	5.0	3.1	2.0	1.3
13	1.0	1.3	a2.8	8.4	22	a28	19	23	5.1	25	1.7	1.1
14	1.0	1.3	a2.5	7.4	20	a30	27	21	5.0	3.9	1.7	1.0
15	1.0	1.1	a2.1	6.5	19	a30	27	18	5.6	*3.3	1.6	1.0
16	1.0	1.1	a2.0	5.9	19	a28	27	17	5.0	3.0	1.6	.90
17	1.0	1.1	a2.0	5.5	16	a26	27	16	4.5	2.9	1.7	*.90
18	1.0	1.1	a2.0	5.2	16	a24	26	15	4.4	2.8	1.7	.80
19	1.0	1.1	*a2.0	5.0	16	a22	25	14	4.7	2.7	1.8	3.4
20	1.0	1.1	b1.9	8.0	14	a20	27	13	4.8	2.6	1.5	3.2
21	1.0	1.1	b1.8	*8.1	13	a21	34	12	4.1	2.6	1.5	1.5
22	1.1	1.1	b1.7	8.0	12	a22	35	12	4.0	2.6	1.5	1.2
23	1.2	3.1	b1.8	8.3	12	a22	35	11	4.1	2.5	1.4	1.1
24	1.2	2.2	b2.0	8.8	11	a21	33	11	4.0	2.4	1.4	1.0
25	1.2	1.4	b1.9	27	11	a20	29	10	3.6	2.5	1.3	.90
26	1.2	a1.3	b1.8	27	*11	a20	27	9.3	3.5	2.5	1.2	.90
27	1.2	a1.2	b1.7	23	11	a19	26	9.3	3.3	2.4	1.2	1.0
28	1.2	a1.2	b1.7	20	10	a18	26	9.0	3.1	2.3	1.2	2.3
29	1.1	a1.5	b1.6	18	9.9	a17	60	8.5	3.0	2.2	1.2	3.6
30	1.1	a13	b1.6	16	------	a16	66	8.1	2.9	2.0	1.7	2.5
31	1.1	------	b1.5	15	------	a16	------	8.0	------	1.9	1.9	------
TOTAL	34.3	65.8	83.4	299.2	519.9	831.8	798	641.2	153.8	109.2	58.7	41.50
MEAN	1.11	2.19	2.69	9.65	17.9	26.8	26.6	20.7	5.13	3.52	1.89	1.38
CFSM	.152	.300	.369	1.32	2.46	3.68	3.65	2.84	.704	.483	.259	.189
IN	.17	.34	.43	1.53	2.65	4.24	4.07	3.27	.78	.56	.30	.21

CALENDAR YEAR 1963 MAX 34 MIN .90 MEAN 6.41 CFSM .879 INCHES 11.94
WATER YEAR 1963-64 MAX 66 MIN .80 MEAN 9.94 CFSM 1.36 INCHES 18.55

Peak discharge (base, 100 cfs).--No peak above base.

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-6425. Linganore Creek near Frederick, Md.

Location.--Lat 39°24'55", long 72°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 1964.

Gage.--Water-stage recorder (digital). 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.--30 years (1934-64), 81.6 cfs.

Extremes.--Maximum discharge during year, about 3,250 cfs Jan. 9 (gage height, 9.8 ft, from floodmark); minimum discharge, 8.4 cfs Oct. 30-31 (gage height, 1.45 ft).
1931-32, 1934-64: 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 gage height, 12.22 ft June 2, 1946; minimum, 4.8 cfs Sept. 14, 1963 (gage height, 1.30 ft).
Flood of Aug. 23 or 24, 1933, reached a stage of 10.5 ft, from floodmarks (discharge 2,920 cfs).

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

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

Oct. 1 to Jan. 9

1.4	7.1	3.0	136
1.6	12	3.5	238
1.8	20	4.0	368
2.0	28	5.0	726
2.2	38	6.0	1,280
2.5	64	7.0	1,850

Jan. 10 to Sept. 30

1.42	7.2	1.9	22
1.6	12	2.2	38

Note.--Same as preceding table above 2.2 ft.

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	12	10	80	36	86	70	108	193	49	24	17	*12
2	10	25	51	73	83	89	*110	164	52	24	18	11
3	13	15	45	63	69	386	148	147	49	24	155	10
4	18	11	40	109	62	404	109	137	46	23	86	10
5	11	*11	34	133	63	656	99	126	45	23	31	9.9
6	10	33	31	120	164	290	111	116	53	20	25	9.1
7	10	247	28	b250	155	214	121	112	63	20	22	9.1
8	9.6	47	43	b145	110	191	178	107	53	63	22	9.2
9	9.5	27	143	a1,300	88	186	151	103	48	43	19	9.2
10	*9.4	21	57	a400	84	201	128	96	44	29	19	9.0
11	9.5	19	45	a150	80	157	117	90	40	25	21	8.8
12	9.3	17	47	a90	75	152	108	88	38	24	23	8.7
13	9.1	16	49	a45	78	141	103	89	40	271	18	11
14	9.2	15	43	a50	78	154	170	91	42	47	18	10
15	9.4	15	34	a60	77	164	221	82	45	84	17	10
16	9.4	14	b32	a56	111	136	141	79	43	*40	16	*9.6
17	9.4	14	b30	a54	101	126	127	84	36	35	18	9.2
18	9.4	14	b28	a52	92	114	117	95	35	28	18	8.8
19	9.4	14	*b27	a50	98	106	120	73	36	26	24	10
20	9.3	13	25	a100	94	103	172	67	41	25	17	21
21	9.1	13	25	a350	85	124	329	63	35	24	16	14
22	9.2	14	25	226	76	204	224	63	45	24	16	12
23	9.5	24	26	157	70	221	190	61	44	23	14	11
24	9.7	48	31	133	b65	180	164	58	38	22	a13	11
25	9.6	22	36	414	b60	160	145	56	32	22	a12	9.5
26	9.7	19	33	195	*b60	153	135	53	29	24	a12	9.3
27	9.9	18	33	139	76	133	128	53	28	24	12	9.3
28	9.6	17	32	118	71	120	142	51	27	21	12	13
29	9.3	107	29	93	74	116	151	52	25	20	13	48
30	8.7	370	28	88	------	118	295	50	25	22	12	34
31	8.7	------	25	79	------	113	------	49	------	18	13	------
TOTAL	308.9	1,250	1,235	5,328	2,485	5,682	4,562	2,748	1,226	1,142	749	376.7
MEAN	9.97	41.7	39.8	172	85.7	183	152	88.6	40.9	36.8	24.2	12.6
CFSM	.121	.507	.484	2.09	1.04	2.22	1.85	1.08	.497	.447	.294	.153
IN	.14	.56	.56	2.41	1.12	2.57	2.06	1.24	.55	.52	.34	.17

CALENDAR YEAR 1963 MAX 1,030 MIN 5.2 MEAN 52.7 CFSM .640 INCHES 8.70
WATER YEAR 1963-64 MAX 1,300 MIN 8.7 MEAN 74.0 CFSM .899 INCHES 12.24

Peak discharge(base,1,400 cfs)

Date	Time	Gage height	Discharge
1-9	1530	†9.8	about 3,250

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

1-6430. Monocacy River at Jug Bridge near Frederick, Md.

Location.--Lat 39°24'13", long 77°21'58", on right bank a quarter of a mile upstream from Jug Bridge on U. S. Highway 40, 0.35 mile downstream from Linganore Creek, and 2 miles east of Frederick, Frederick County.

Drainage area.--817 sq mi.

Records available.--October 1929 to September 1964. Monthly discharge only for October, November 1929, published in WSP 1302.

Gage.--Water-stage recorder. Datum of gage is 231.92 ft above mean sea level (Corps of Engineers bench mark).

Average discharge.--35 years, 882 cfs.

Extremes.--Maximum discharge during year, 13,600 cfs Jan. 10 (gage height, 14.08 ft); minimum daily, 55 cfs Sept. 7, 8, 11.
1929-64: Maximum discharge, 51,000 cfs Aug. 24, 1933 (gage height, 28.1 ft); minimum daily, 34 cfs Sept. 15, 16, 1963. Maximum stage known, 30 ft in June 1889, from floodmarks (discharge, 56,000 cfs).

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

Rating table, except periods of ice effect or backwater from aquatic vegetation
(gage height, in feet, and discharge, in cubic feet per second)

1.3	53	5.0	2,190
1.5	90	7.0	4,220
2.0	230	10.0	7,650
3.0	710	13.0	11,900

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	165	60	1,500	134	a850	575	*856	5,670	250	102	108	102
2	104	76	539	165	a850	618	826	2,950	262	102	95	*82
3	86	78	350	207	a700	2,190	1,260	2,180	258	100	309	c80
4	80	88	282	256	a650	5,300	1,180	1,840	238	102	560	c70
5	65	*80	235	426	a650	7,980	874	1,580	220	105	284	c65
6	63	109	200	530	a2,000	7,160	832	1,350	234	92	183	c60
7	62	752	174	819	a3,500	2,780	1,070	1,200	258	86	140	c55
8	60	700	188	1,240	a2,000	2,170	1,460	1,090	254	148	122	c55
9	58	294	1,250	2,280	a1,200	2,120	1,660	990	254	177	110	c60
10	*58	162	1,090	11,300	a1,100	2,160	1,140	886	250	165	102	c60
11	56	118	515	2,330	a1,000	2,640	984	792	195	138	102	c55
12	56	97	400	1,340	a900	1,700	886	738	171	122	112	c60
13	56	88	408	b600	a900	1,830	820	710	162	2,970	112	c63
14	56	82	372	b450	a900	1,820	1,400	880	160	1,090	105	c60
15	56	80	b230	b500	a900	2,820	3,520	782	174	620	100	c56
16	56	78	b200	b500	a1,200	2,080	1,880	655	177	*333	98	c58
17	58	78	b180	b480	a1,300	1,540	1,430	605	158	195	100	*c58
18	58	76	b160	b450	a1,100	1,300	1,220	630	152	155	100	c56
19	58	74	b140	b450	a900	1,100	1,110	*540	150	135	150	c63
20	58	74	b130	b650	a1,000	1,000	1,320	485	168	125	142	c92
21	60	72	b120	b2,000	a900	1,020	5,010	440	171	118	102	c86
22	56	74	b120	*b3,500	a800	1,520	5,170	410	177	118	95	c80
23	56	95	b130	2,740	a700	2,650	2,740	395	183	118	90	c72
24	58	151	b150	a2,100	a700	2,300	2,050	370	152	115	86	c68
25	56	190	171	a7,000	a600	1,650	1,650	346	140	115	84	c65
26	58	134	181	a5,000	a600	1,440	1,400	310	125	115	82	c60
27	60	116	178	a3,000	*620	1,380	1,260	292	118	118	80	c60
28	58	99	b160	a2,000	570	1,110	1,340	284	110	120	80	c74
29	58	218	b150	a1,100	505	990	3,410	279	105	118	82	c152
30	56	2,860	b140	a900	------	938	7,060	270	102	*115	82	c195
31	56	------	b130	a800	------	912	------	258	------	112	90	------
Total	2,001	7,253	10,173	55,247	29,595	66,793	56,818	30,207	5,528	8,344	4,087	2,222
Mean	64.5	242	328	1,782	1,021	2,155	1,894	974	184	269	132	74.1
Cfsm	0.079	0.296	0.401	2.18	1.25	2.64	2.32	1.19	0.225	0.329	0.162	0.091
In.	0.09	0.33	0.46	2.51	1.35	3.04	2.59	1.38	0.25	0.38	0.19	0.10

Calendar year 1963: Max 8,000 Min 34 Mean 514 Cfsm 0.629 In. 8.53
Water year 1963-64: Max 11,300 Min 55 Mean 760 Cfsm 0.930 In. 12.67

278,268

Peak discharge (base, 8,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-10	1100	14.08	13,600	3- 6	0300	12.39	11,000
1-26	†0100	‡11.4	†9,500	4-30	2030	11.11	9,100

* Discharge measurement made on this day.
† About.
‡ From floodmark.
a No gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from aquatic vegetation.

1-6450. Seneca Creek at Dawsonville, Md.

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 mouth of Great Seneca Creek, and half a mile east of Dawsonville, Montgomery County.

Drainage area.--101 sq mi.

Records available.--September 1930 to September 1964.

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 60 ft upstream at same datum.

Average discharge.--34 years, 92.0 cfs.

Extremes.--Maximum discharge during year, 2,520 cfs Jan. 9 (gage height, 7.51 ft); minimum, 7.4 cfs (regulated) Oct. 14 (gage height, 1.67 ft).
1930-64: 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; minimum observed, 1.7 cfs Sept. 28, 29, 1930 (gage height 0.56 ft).

Remarks.--Records good except those for periods of ice effect, which are fair. Small diversion at times for irrigation above station.

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

1.6	5.6	2.5	166
1.7	11	3.0	372
1.9	29	4.0	770
2.0	43	5.0	1,100
2.2	82	6.0	1,460

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*23	20	150	48	101	109	*120	166	*54	28	15	*14
2	18	45	*99	89	99	145	120	137	57	28	17	12
3	19	25	87	78	84	561	160	123	56	32	55	10
4	19	20	78	134	78	365	123	117	52	35	63	10
5	18	20	72	150	80	340	112	109	50	29	26	10
6	18	70	65	126	237	222	123	101	54	27	23	9.0
7	18	510	59	b570	192	177	150	99	67	26	25	8.4
8	17	89	72	166	128	166	237	96	56	61	33	9.0
9	19	56	184	1,290	109	191	184	94	57	45	23	9.6
10	17	45	94	556	104	156	144	89	50	33	21	9.0
11	17	39	76	166	101	131	128	84	43	29	22	9.0
12	17	36	82	128	b95	128	123	82	42	29	23	8.4
13	18	33	82	b85	b95	123	117	87	43	109	20	12
14	15	32	80	b80	101	140	147	94	47	39	20	14
15	16	30	b65	b90	106	166	134	82	54	32	18	12
16	15	29	b60	b90	160	134	117	80	70	29	19	10
17	16	29	54	94	147	123	112	76	42	29	23	9.6
18	15	29	54	84	128	109	106	74	40	27	22	9.0
19	15	28	52	78	150	106	109	69	42	26	26	11
20	15	28	50	110	156	104	129	65	58	25	19	36
21	15	28	54	b360	137	126	198	63	43	25	18	20
22	16	28	52	255	b115	242	140	63	39	24	17	15
23	18	42	57	180	b95	210	128	63	36	23	16	15
24	18	67	65	147	b100	150	117	61	52	21	15	14
25	17	40	61	365	b95	134	106	57	55	21	15	12
26	17	35	54	195	b100	128	101	56	36	23	13	11
27	17	33	48	144	123	117	101	56	33	22	12	12
28	17	32	47	128	109	109	112	56	30	20	12	16
29	17	210	42	106	106	106	117	57	28	20	14	64
30	16	849	39	101	------	112	*287	54	*28	18	14	65
31	*15	-----	*33	94	-----	114	------	54	----	*16	15	------
Total	528	2,577	2,167	6,287	3,431	5,244	4,102	2,564	1,414	951	674	476.0
Mean	17.0	85.9	69.9	203	118	169	137	82.7	47.1	30.7	21.7	15.9
Cfsm	0.168	0.850	0.692	2.01	1.17	1.67	1.36	0.819	0.466	0.304	0.215	0.157
In.	0.19	0.95	0.80	2.31	1.26	1.93	1.51	0.94	0.52	0.35	0.25	0.18

Calendar year 1963: Max 849 Min 7.4 Mean 63.7 Cfsm 0.631 In. 8.57
Water year 1963-64: Max 1,290 Min 8.4 Mean 83.1 Cfsm 0.823 In. 11.19

39415.0

(Peak discharge (base, 1,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-30	0315	6.45	1,680	1-9	1430	7.51	2,520

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

1-6452. Watts Branch at Rockville, Md.

Location.--Lat 39°05'03", long 77°10'38", on left bank 0.2 mile south of State Highway 28 and 1.3 miles west of post office in Rockville, Montgomery County.

Drainage area.--3.70 sq mi.

Records available.--June 1957 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 330 ft (from topographic map).

Average discharge.--7 years, 3.26 cfs.

Extremes.--Maximum discharge during year, 398 cfs Jan. 9 (gage height, 4.26 ft), from rating curve extended above 160 cfs as explained below: minimum, 0.3 cfs Sept. 9 (gage height, 1.14 ft).
1957-64: Maximum discharge, 1,400 cfs July 13, 1960 (gage height, 5.10 ft), from rating curve extended above 160 cfs on basis of velocity-area studies; minimum, 0.1 cfs Aug. 17-19, 23-25, 1957 (gage height, 1.10 ft).

Remarks.--Records good except those for periods of ice effect or backwater from unknown cause or those above 160 cfs, which are fair.

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

1.1	0.1	1.5	8.4
1.2	.8	1.7	20
1.3	2.2	2.0	41
1.4	4.6	2.5	68

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.80	2.3	3.3	4.4	4.1	5.3	3.9	5.4	1.9	1.1	0.70	0.60
2	.80	2.3	2.6	4.2	3.1	10	6.1	4.2	1.9	1.1	.70	.50
3	.80	.70	2.5	7.3	2.8	16	5.7	4.0	1.8	1.1	8.1	.50
4	.80	.70	2.2	11	2.7	7.3	3.7	3.8	1.7	1.1	*1.2	.50
5	.80	.80	2.0	6.6	2.8	6.3	3.4	3.5	1.7	1.0	.90	.50
6	.80	25	1.9	12	19	4.1	6.6	3.2	2.5	1.0	.80	1.4
7	.80	32	1.9	24	5.3	4.0	*7.8	3.2	1.9	.90	3.3	.50
8	.80	2.4	10	4.3	3.8	5.4	17	3.2	1.9	4.8	1.1	.50
9	c.70	1.7	5.4	67	3.4	*5.4	6.0	3.0	1.8	1.3	.80	.40
10	c.70	1.4	2.6	6.6	3.3	3.8	4.3	2.8	1.6	1.1	.80	.40
11	c.70	1.3	2.3	3.8	b3.0	3.3	3.9	2.8	1.5	1.0	.90	.40
12	c.60	1.3	4.0	3.1	b3.0	3.4	c3.8	2.8	1.5	1.9	.80	.70
13	c.50	*1.1	2.7	b2.6	b3.2	3.3	c3.6	*12	1.6	3.6	.80	.60
14	c.50	1.1	3.4	b3.0	4.8	5.7	7.7	3.7	3.7	*1.2	.70	.50
15	c.50	1.0	2.2	b3.0	4.1	4.7	4.9	2.9	3.7	1.0	.70	.40
16	c.50	c1.0	2.0	b2.8	13	3.6	4.1	2.8	1.7	1.0	1.2	.40
17	*c.50	c1.0	1.9	b2.6	5.4	3.4	3.9	2.7	1.5	1.0	1.0	.40
18	c.60	c.90	1.9	2.6	4.6	3.0	3.7	2.6	1.5	.90	.80	.40
19	c.60	c.90	1.9	2.6	6.4	3.0	5.5	2.5	1.9	.90	.70	2.6
20	c.60	c.90	b1.9	13	6.9	3.0	8.1	2.3	2.6	.90	.70	1.2
21	c.60	c.90	b1.8	21	5.1	6.3	6.1	2.3	1.5	.90	.60	.40
22	c.70	c.90	b1.7	7.0	b4.0	17	4.2	2.3	1.4	.90	.60	.40
23	c.70	c4.8	1.8	4.9	b3.0	5.8	3.7	2.2	1.5	3.1	.60	.40
24	c.70	2.0	1.9	4.4	b3.5	4.2	3.4	2.1	5.3	.80	.60	.40
25	c.70	1.4	2.0	26	b3.2	3.9	3.2	2.0	1.5	.90	.50	.40
26	c.80	1.3	1.9	5.5	6.6	3.8	3.1	1.9	1.4	.90	.50	.50
27	.60	1.3	b1.8	*4.1	5.3	3.3	3.2	1.9	1.3	.80	.50	.50
28	.60	1.4	b1.7	3.5	4.1	3.3	3.8	1.9	1.2	.80	.50	3.2
29	.60	42	b1.5	3.0	4.6	3.2	4.4	2.0	1.3	.70	.60	6.0
30	.60	26	b1.4	3.0	------	4.2	18	1.8	1.1	.70	3.7	9.2
31	.60	------	b1.3	2.9	------	4.1	------	1.8	------	.60	.80	------
TOTAL	20.60	161.80	77.4	271.8	144.1	163.1	166.8	95.6	57.4	39.00	36.20	34.80
MEAN	.67	5.39	2.50	8.77	4.97	5.26	5.56	3.08	1.91	1.26	1.17	1.16
CFSM	.180	1.46	.676	2.37	1.34	1.42	1.50	.832	.516	.341	.316	.314
IN	.21	1.63	.78	2.73	1.45	1.64	1.68	.96	.58	.39	.36	.35

CALENDAR YEAR 1963 MAX 120 MIN .40 MEAN 3.12 CFSM .843 INCHES 11.44
WATER YEAR 1963-64 MAX 67 MIN .40 MEAN 3.47 CFSM .938 INCHES 12.75

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11- 6	2300	3.54	144	1- 9	1215	4.26	398
11-29	2215	3.59	149	5-13	1545	3.69	159

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
c Backwater from unknown cause.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-6465. Potomac River near Washington, D. C.

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 2¼ miles upstream from Chain Bridge.
Drainage area.--11,560 sq mi.
Records available.--March 1930 to September 1964.
Gage.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft above mean sea level, datum of 1929. Prior to June 7, 1930, staff gage at same site and datum.
Average discharge.--34 years, 10,990 cfs (adjusted for diversions).
Extremes.--Maximum discharge during year, 94,800 cfs Mar. 6 (gage height, 11.85 ft); minimum daily, 374 cfs Sept. 18 (does not include diversion of 437 cfs for water supply.
1930-64: Maximum discharge, 484,000 cfs Mar. 19, 1936 (gage height, 28.1 ft); minimum daily, that of Sept. 18, 1964; minimum daily (adjusted), 733 cfs Nov. 30, 1930 (includes 171 cfs diverted for water supply).
Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D. C., since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville, since April 1961, at Potomac Filtration Plant, for water supply of Washington Suburban Sanitary District, and since April 1964, at Violets Lock, to Chesapeake and Ohio Canal. Low flow affected slightly by Stony River Reservoir (see p. 80) and since December 1950, by Savage River Reservoir (see p. 83).

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

2.4	247	6.0	22,500
2.5	394	8.0	43,500
2.6	626	10.0	68,200
2.8	1,310	12.0	97,200
3.2	2,970		
4.0	7,200		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,470	808	a6,000	2,970	14,100	8,840	10,900	86,200	3,550	1,830	1,240	977
2	1,390	1,050	a9,000	3,280	12,700	9,380	10,400	*64,000	3,500	1,630	1,090	808
3	1,240	977	a10,500	3,410	11,500	13,600	11,000	43,200	3,460	1,630	1,200	654
4	1,200	872	a8,750	3,690	10,400	34,100	11,100	33,100	3,410	1,550	1,550	626
5	1,160	872	6,480	4,160	9,590	76,000	11,000	26,500	3,320	1,470	2,000	500
6	1,120	1,320	5,180	4,400	10,600	91,300	12,500	22,100	3,190	1,310	2,000	500
7	1,050	4,800	4,350	7,900	19,800	91,000	13,400	18,500	3,410	1,270	1,830	598
8	1,010	5,460	4,060	10,500	20,300	64,800	14,600	16,000	3,410	1,430	1,670	*744
9	977	6,360	4,960	18,200	19,800	45,500	17,800	14,100	3,320	1,590	1,550	776
10	940	7,440	5,400	41,100	17,800	38,400	18,900	12,700	3,320	1,590	1,470	684
11	872	7,080	5,120	36,600	15,400	40,400	18,300	11,600	3,410	1,590	1,430	626
12	872	5,580	5,070	34,400	13,200	50,200	15,700	10,500	3,280	1,630	1,430	*500
13	840	4,250	5,460	22,700	11,800	41,200	*13,700	10,000	2,970	6,480	1,430	522
14	808	3,320	5,460	13,600	10,900	32,000	12,700	9,590	2,930	9,310	1,310	456
15	808	2,880	4,960	9,000	10,400	28,900	14,200	9,660	2,670	4,650	1,240	434
16	714	2,460	3,920	b8,000	11,000	27,700	17,700	10,400	2,630	3,640	1,090	414
17	714	2,160	b3,500	b8,000	11,900	27,400	16,700	10,100	2,540	3,010	1,090	414
18	776	2,040	b3,200	b8,000	12,000	24,700	15,500	8,840	2,330	2,970	1,010	*374
19	744	1,870	b3,000	b8,000	13,000	21,200	14,200	7,930	2,500	2,670	977	456
20	776	1,870	b2,800	8,910	13,600	18,700	13,600	7,140	2,460	2,330	1,120	714
21	776	1,870	b2,600	11,000	13,100	17,300	16,300	6,660	2,410	2,000	1,120	940
22	808	1,870	2,580	17,700	12,300	17,600	36,500	6,180	2,710	1,790	1,010	906
23	808	2,000	2,970	b26,000	11,100	18,700	44,000	5,640	2,930	1,630	872	940
24	840	2,160	2,970	b31,000	9,730	18,000	32,900	5,120	3,410	1,550	906	1,120
25	776	1,960	2,880	b30,000	8,900	16,500	25,500	4,900	3,010	1,470	808	1,160
26	808	1,960	3,100	a40,000	8,450	15,000	21,000	4,600	*2,630	1,390	776	1,200
27	840	1,790	3,320	a52,000	8,580	13,900	17,800	4,160	2,460	1,390	714	1,240
28	808	1,710	3,150	41,800	8,640	13,000	15,500	3,970	2,330	1,710	744	1,200
29	744	1,900	3,280	28,500	8,780	12,200	16,800	3,870	2,080	1,920	776	1,430
30	714	a2,500	3,010	21,300	----------	11,600	37,900	3,690	1,870	1,750	840	1,830
31	744	----------	2,880	16,800	----------	11,200	----------	3,590	----------	1,430	872	----------
Total	28,147	83,189	139,910	572,920	359,370	950,320	548,100	484,540	87,450	71,610	37,165	23,743
Mean	908	2,773	4,513	18,480	12,390	30,660	18,270	15,630	2,915	2,310	1,199	791
(†)	373	340	376	370	371	367	375	568	448	457	422	433
Mean‡	1,281	3,113	4,889	18,850	12,760	31,030	18,640	16,200	3,363	2,767	1,621	1,224
Cfsm‡	0.111	0.269	0.423	1.63	1.10	2.68	1.61	1.40	0.291	0.239	0.140	0.106
In‡	0.13	0.30	0.49	1.88	1.19	3.09	1.80	1.61	0.32	0.28	0.16	0.12

Miller agreed to delete 8-5-75

Calendar year 1963: Max 109,000 Min 702 Mean 7,906 Mean‡ 8,277 Cfsm‡ 0.716 In‡ 9.72
Water year 1963-64: Max 91,300 Min 374 Mean 9,253 Mean‡ 9,662 Cfsm‡ 0.836 In‡ 11.37 3,386,464

Peak discharge (base, 45,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-27	1500	8.88	54,100	4-22	2400	8.33	47,500
3- 6	2000	11.85	94,800	5- 1	1230	11.59	90,800

* Discharge measurement made on this day.
† Diversion, in cubic feet per second, to Chesapeake and Ohio Canal and for municipal supply of Washington, D. C., Washington Surburban Sanitary District, and City of Rockville; records furnished by Corps of Engineers, Washington Suburban Sanitary Commission, and City of Rockville.
‡ Adjusted for diversion
a No gage-height record.
b Stage-discharge relation affected by ice.

1-6470. Little Falls Branch near Bethesda, Md.

Location.--Lat 38°57'27", long 77°06'31", on left bank at downstream side of bridge on Massachusetts Avenue, 0.3 mile downstream from Willett Branch, and 2.0 miles southwest of Bethesda, Montgomery County.
Drainage area.--4.1 sq mi, approximately.
Records available.--June 1944 to September 1959. Annual maximum, water years 1960-62. Occasional low-flow measurements water years 1960-62 (published in "Surface Water Records of Maryland and Delaware"-1962). December 1961 to September 1964.
Gage.--Water-stage recorder and concrete control. Datum of gage is 169.32 ft above mean sea level (Maryland State Roads Commission bench mark). Oct. 1, 1959 to Nov. 30, 1961, crest-stage gage at same site and datum. Prior to Oct. 1, 1959, water-stage recorder and concrete control at site 50 ft upstream at same datum.
Average discharge.--17 years (1945-59, 1963-64), 3.24 cfs.
Extremes.--Maximum discharges for the water years 1960-64 and minimum discharges for the water years 1962-64 are contained in the following table.

Water year	Maximum			Minimum		
	Date	Discharge (cfs)	Gage height (feet)	Date	Discharge (cfs)	Gage height (feet)
1960	Aug. 4, 1960	2,120	5.92	(*)	(*)	(*)
1961	Aug. 26, 1961	(*)	3.94	(*)	(*)	(*)
1962†	Feb. 26, 1962	‡130	‡2.3	Aug. 19, 1962	0.1	1.27
1963	Aug. 21, 1963	‡750	‡3.7	Aug. 19, 1963	0.1	1.26
1964	May 13, 1964	860	3.92	Sept. 6, 7, 25, 26, 1964	0.1	1.28

* Unknown.
† Minimum discharge for period December to September.
‡ About.
1944-64: 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; no flow at times in 1944, 1954, 1959, minimums not available Oct. 1959 to Nov. 1961.
Remarks.--Records good except those below 3 cfs, which are fair, or those for Dec. 1, 1961 to Aug. 12, 1962 or for periods of ice effect or doubtful or no gage-height record, which are poor. Occasional slight regulation at low flow from unknown source above station.

Rating table, Dec. 1, 1961, to Sept. 30, 1964, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	0.2	1.7	11
1.4	1.0	1.8	19
1.5	2.7	1.9	32
1.6	6.0	2.1	73

Discharge, in cubic feet per second, December 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			*0.6	1.0	0.9	2.2	20	2.5	2.0	0.8	0.4	0.2
2			.6	.8	1.1	1.9	2.2	5.0	1.5	1.0	.4	5.3
3			.6	.8	2.2	1.7	1.7	2.0	2.5	5.4	.4	.6
4			.6	.8	1.5	1.5	1.5	1.8	1.5	1.2	.5	1.2
5			.6	.8	2.0	1.5	1.5	1.6	2.5	1.0	.5	1.6
6			.8	24	1.3	12	1.7	1.5	1.5	.9	.5	.3
7			.8	4.2	.8	13	9.7	1.5	1.2	.9	.5	.2
8			.6	1.5	.8	7.3	4.1	4.0	1.0	.9	.7	.2
9			5.7	1.2	1.0	*5.2	2.2	2.0	1.0	.8	.6	.2
10			5.4	1.0	2.2	7.2	1.9	1.5	1.0	.6	.4	.3
11			1.8	.9	.8	14	3.3	1.5	1.0	.6	.4	.2
12			18	.9	.9	*41	13	1.5	5.5	.9	.4	.2
13			1.4	.9	1.5	3.8	7.6	1.5	6.0	.9	.3	.2
14			1.3	.9	8.0	2.4	2.7	1.5	1.2	8.0	.3	.2
15			1.0	10	2.0	2.2	2.4	1.5	2.7	3.0	.3	.2
16			3.0	1.5	1.5	2.0	2.7	1.5	1.0	6.0	.3	.2
17			14	1.0	1.5	1.9	2.5	1.5	1.0	1.2	.3	11
18			*22	.9	2.0	1.9	2.0	1.5	.9	6.0	.2	.4
19			1.7	*.9	15	2.8	*1.7	1.5	4.0	1.5	.2	.3
20			1.3	.9	2.0	2.0	2.8	1.5	20	1.0	.3	.4
21			1.0	.9	*2.0	25	2.0	1.5	3.0	2.5	.2	.2
22			.8	2.0	2.6	2.9	1.7	1.5	2.0	1.4	.2	.2
23			3.5	1.4	2.4	2.0	1.6	3.0	1.5	.9	.2	2.9
24			4.6	1.2	3.2	1.9	1.5	7.0	1.2	.8	.2	*.4
25			1.5	1.1	1.4	1.9	1.5	2.0	1.2	.6	.2	.3
26			1.0	1.6	*30	1.7	1.4	5.0	1.2	.6	.2	1.2
27			1.0	1.2	15	1.5	1.4	8.0	1.0	.6	1.2	16
28			5.6	1.1	*3.5	1.5	1.4	5.0	*1.0	1.0	.4	.8
29			1.3	.9	-	1.7	1.4	3.0	.8	.7	.3	.4
30			.8	.8	---------	1.5	1.4	2.0	.9	.5	*.2	.4
31		----------	.8	.8	---------	6.7	----------	4.0	----------	.4	.2	----------
Total			103.7	67.9	109.1	175.8	102.5	80.4	72.8	52.6	11.4	46.2
Mean			3.35	2.19	3.90	5.67	3.42	2.59	2.43	1.70	0.37	1.54
Cfsm			0.817	0.534	0.951	1.38	0.834	0.632	0.593	0.415	0.090	0.376
In.			0.94	0.62	0.99	1.59	0.93	0.73	0.66	0.48	0.10	0.42

Peak discharge (base, 450 cfs).--No peak above base.

* Discharge measurement made on this day.

1-6465.5

1-6470. Little Falls near Bethesda, Md.

Discharge, in cubic feet per second, water year October 1962 to September 1963

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.6	a0.6	b1.1	a0.8	a1.0	4.0	1.5	0.8	0.8	a1.0	1.2
2	.3	.2	a.6	b1.5	a1.2	a1.5	2.8	1.1	12	.8	.4	1.2
3	.3	21	a.6	b1.5	a2.0	a1.2	1.5	1.0	a40	.8	a.5	1.1
4	a15	.6	a.6	b1.5	a1.0	a1.2	1.7	.9	2.0	.6	.2	1.2
5	.9	10	a.6	b1.2	a5.0	a10	1.4	.9	2.2	.6	.2	3.1
6	.4	.6	a25	b1.4	a1.5	a35	1.4	.9	1.2	.6	.2	.4
7	.3	.3	a1.4	b1.7	a1.0	a1.5	1.4	.9	1.9	.6	*.2	.4
8	.2	.3	a.9	1.3	a.8	a1.1	1.1	.9	1.0	.6	.2	.3
9	.2	a19	a.8	a2.5	a.8	a1.0	1.4	.9	1.0	a.5	.2	.4
10	.2	a23	a.6	2.9	a.8	a1.1	1.2	.9	1.1	a.5	.2	.4
11	.2	a2.0	a.6	5.8	a6.0	a7.0	1.1	.8	1.0	a.5	.2	.3
12	.2	a.9	a.5	a27	a15	a20	1.1	.8	.9	a.4	.2	*.3
13	.3	a.9	a.5	a12	a3.0	a4.0	1.1	.9	.9	.4	a8.0	.2
14	.2	a.6	a.5	1.4	a1.2	a1.5	1.1	a3.0	a6.5	9.4	a1.0	.2
15	.2	a.6	a.5	1.1	a1.0	1.1	1.2	1.0	a1.3	.8	a.6	8.0
16	.2	a.6	a.6	1.0	a.9	6.3	1.2	.9	a1.1	.9	a.4	9.4
17	.2	a.4	a.7	.9	a.8	7.2	2.2	a5.5	1.0	.5	a.3	.6
18	.2	a16	.9	.9	a1.0	1.2	1.4	5.0	.8	*.4	a.3	.4
19	.2	1.0	.8	a3.0	a5.0	a20	1.4	1.0	.8	.3	a15	.4
20	.3	1.7	*.7	a7.5	a20	a4.0	1.0	.9	a11	.3	a20	.3
21	.5	*a18	.5	1.7	a4.0	a2.0	.9	4.3	1.0	.2	a2.5	.6
22	*.2	a17	b1.4	.9	a2.0	a1.6	.9	.9	.8	.2	2.3	.3
23	.2	a1.0	b2.0	*1.5	a1.5	a1.5	a4.0	.8	.6	.2	1.4	.2
24	.2	a.9	b.9	a.9	a1.5	a1.4	.9	.8	.8	.2	2.5	.2
25	.2	a.6	b.6	a.7	*a3.0	1.4	.9	.9	.6	.2	1.1	.2
26	.2	a.5	b1.9	a.8	a1.5	4.5	*.9	.8	.6	.2	1.0	.2
27	.2	a.5	1.4	a1.0	*a1.0	2.2	.9	.9	.6	.2	.8	.2
28	.2	a.7	b1.2	a.7	a.8	1.4	.9	1.0	.6	.5	.3	.2
29	.2	a.6	b2.8	a.6	-	1.4	2.1	3.5	a5.5	.4	12	33
30	.5	a.6	b2.7	a.7	------	1.4	9.2	1.2	a6.2	.2	.6	.8
31	2.4	------	b1.1	a.8	-----	1.2	-----	.8	----	.2	.8	-------
Total	25.4	140.7	54.5	87.5	84.1	146.9	52.3	45.6	105.8	23.0	74.6	65.7
Mean	0.82	4.69	1.76	2.82	3.00	4.74	1.74	1.47	3.53	0.74	2.41	2.19
Cfsm	0.200	1.14	0.429	0.688	0.732	1.16	0.424	0.359	0.861	0.180	0.588	0.534
In.	0.23	1.28	0.49	0.79	0.76	1.33	0.47	0.41	0.96	0.21	0.68	0.60

Calendar year 1962: Max 41 Min 0.2 Mean 2.57 Cfsm 0.627 In. 8.52
Water year 1962-63: Max 40 Min 0.2 Mean 2.48 Cfsm 0.605 In. 8.21

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge
8-21	about 2030	about 3.7	about 750

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

1-6465.5

~~1-6470.~~ Little Falls near Bethesda, Md.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	16	0.6	16	4.2	2.0	2.4	a2.5	1.1	0.6	0.6	0.3
2	.4	5.1	.6	6.0	1.4	2.2	9.1	a2.0	1.1	1.9	.6	.2
3	.4	.5	1.4	a8.5	b1.2	11	3.2	a1.9	1.1	.8	25	.2
4	.4	.4	.9	4.5	b1.2	2.7	1.7	a1.7	1.1	.6	1.1	.2
5	.2	1.6	.9	2.0	b1.2	2.4	1.5	a1.7	1.0	.6	*.6	.2
6	.2	53	.8	7.7	19	1.9	8.2	a1.7	a4.0	.6	.6	.2
7	*.3	18	a1.8	16	2.2	2.0	8.1	a1.7	1.3	.6	.6	.3
8	.3	1.2	14	1.9	1.7	4.8	*16	a1.5	1.0	9.5	2.2	.2
9	.2	.6	2.0	38	1.5	1.9	2.9	a1.5	1.0	.8	.6	.2
10	.2	.6	1.0	2.7	1.5	1.7	2.2	a1.4	.9	.6	.5	.2
11	.3	.6	.9	b1.7	b1.5	1.7	2.0	a1.4	.9	.6	.6	.2
12	.2	.6	6.0	b1.1	b3.8	1.9	1.9	*a1.5	.9	2.7	.5	.2
13	.2	a.6	1.1	b1.0	b2.4	1.7	1.9	21	.9	a7.3	.4	a1.9
14	.2	*.6	5.4	b1.4	5.9	6.9	8.8	2.0	.9	3.2	.4	.2
15	.2	.5	.9	b2.2	6.6	3.0	2.2	1.4	1.7	.6	.3	.2
16	.2	.5	*a.8	b1.4	14	a2.0	1.9	1.4	1.4	.6	1.0	.2
17	.3	.6	a.7	b1.5	2.7	1.5	1.9	a8.0	.8	.6	.6	.2
18	.4	.6	a.7	b1.9	11	1.4	1.7	1.5	.8	.6	.4	.2
19	.3	.5	a.7	2.4	20	1.4	9.2	1.5	2.4	.6	.3	13
20	.2	.6	a.7	22	7.9	1.4	6.7	1.4	a1.2	.6	.4	2.2
21	.3	.8	a.7	11	2.9	a18	2.4	a1.5	a.8	.6	.4	.4
22	.4	.6	a.6	3.8	b2.2	a11	1.9	1.4	a.8	.6	.5	.3
23	.4	14	a.7	2.4	b2.0	2.7	1.7	1.2	*a.9	.6	.3	.2
24	.4	1.2	a.8	2.2	b2.0	2.0	1.7	1.2	2.7	.8	.3	.2
25	.4	.6	a1.0	18	1.9	1.9	1.5	1.2	.8	.6	.3	.2
26	.4	.6	a2.0	2.2	2.0	2.5	1.5	1.1	.8	.6	.3	.2
27	.3	.6	1.9	1.9	1.9	1.5	2.4	1.1	.9	.6	.3	.2
28	.4	a3.5	1.0	1.7	2.0	1.5	3.0	1.0	.6	.8	.3	6.2
29	.4	a52	b.8	1.7	a4.8	1.5	7.6	1.0	.6	.9	.3	15
30	.4	a15	b.5	1.5	---	7.0	a28	1.0	.6	.8	2.6	a11
31	.4	---	b.5	*1.4	---	3.2	---	1.0	---	.6	.4	---
Total	9.7	191.6	52.4	187.7	132.6	108.3	145.2	71.4	35.0	41.5	43.3	54.6
Mean	0.31	6.39	1.69	6.05	4.57	3.49	4.84	2.30	1.17	1.34	1.40	1.82
Cfsm	0.076	1.56	0.412	1.48	1.11	0.851	1.18	0.561	0.285	0.327	0.341	0.444
In.	0.09	1.74	0.48	1.70	1.20	0.98	1.32	0.65	0.32	0.38	0.39	0.50

Calendar year 1963: Max 53 Min 0.2 Mean 2.57 Cfsm 0.627 In. 8.52
Water year 1963-64: Max 53 Min 0.2 Mean 2.93 Cfsm 0.715 In. 9.75

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge
5-13	1600	3.92	860

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

1-6480. Rock Creek at Sherrill Drive, Washington, D. C.

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 1964.

Gage.--Water-stage recorder and concrete control. Datum of gage is 148.87 ft above mean sea level, datum of 1929.

Average discharge.--35 years, 55.9 cfs.

Extremes.--Maximum discharge during year, 1,280 cfs Nov. 7 (gage height, 5.93 ft); minimum, 3.2 cfs Sept. 9, 12, 17 (gage height 1.13 ft).
1929-64: 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 measurment of peak flow; minimum, 0.5 cfs Oct. 1-7, 1930 (gage height, 1.04 ft).

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

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

1.1	2.1	2.0	157
1.2	7.1	3.0	461
1.3	15	4.0	735
1.4	26	5.0	1,005
1.6	58		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	15	51	68	b72	77	b55	71	113	27	15	9.1	8.4
2	13	85	44	101	56	68	84	79	28	16	15	5.4
3	11	20	39	87	46	182	120	66	28	15	172	4.4
4	11	11	34	111	40	175	67	62	27	19	71	4.3
5	9.1	12	30	103	42	119	55	58	25	16	16	4.2
6	9.1	216	27	82	192	83	104	54	40	14	*12	4.0
7	*9.1	*852	26	460	171	64	140	53	51	13	11	3.7
8	9.1	78	64	123	66	75	*224	53	54	93	105	4.4
9	9.1	34	158	652	53	93	179	53	37	30	17	3.8
10	9.1	26	44	315	51	68	76	49	26	17	9.6	3.9
11	9.1	22	34	b70	53	*54	64	46	23	15	9.6	4.2
12	9.1	21	56	b50	b55	54	58	*44	21	18	9.9	3.8
13	9.1	18	42	b35	b55	51	55	135	21	119	8.6	7.0
14	9.1	*17	56	b60	b65	82	113	96	31	27	7.7	6.2
15	11	17	b30	b60	71	89	85	49	39	15	7.7	4.4
16	11	17	*b25	b50	154	62	61	46	54	14	8.5	4.1
17	11	17	b22	b45	126	53	56	51	22	14	18	3.6
18	11	18	b20	b45	96	47	53	42	21	13	9.7	3.7
19	11	18	b20	b40	169	44	86	39	30	12	8.1	47
20	11	18	b20	b140	160	45	97	37	40	14	7.7	66
21	12	18	b25	b230	129	118	144	34	23	13	7.1	9.8
22	12	18	b30	171	75	207	90	36	20	12	7.1	6.2
23	13	84	b37	89	b55	185	66	34	19	12	6.8	5.4
24	14	72	b40	68	b52	76	58	34	36	11	6.5	5.0
25	14	25	b37	357	b50	65	52	33	31	11	6.5	4.3
26	14	20	b30	162	b50	67	50	31	20	12	6.4	4.2
27	14	20	b25	77	b55	58	50	31	18	12	*5.6	4.2
28	14	19	b23	62	b50	51	69	30	16	11	5.1	34
29	13	266	b20	51	b50	52	84	30	16	12	5.1	84
30	12	583	b18	49	------	82	397	28	16	13	5.6	162
31	13	------	b17	*46	------	60	------	28	------	9.1	18	------
TOTAL	352.0	2,693	1,161	4,063	2,364	2,584	2,908	1,574	860	637.1	613.0	515.6
MEAN	11.4	89.8	37.5	131	81.5	83.4	96.9	50.8	28.7	20.6	19.8	17.2
CFSM	.183	1.44	.603	2.11	1.31	1.34	1.56	.817	.461	.331	.318	.277
IN	.21	1.61	.69	2.43	1.41	1.54	1.74	.94	.51	.38	.37	.31

CALENDAR YEAR 1963 MAX 852 MIN 4.2 MEAN 48.9 CFSM .786 INCHES 10.67
WATER YEAR 1963-64 MAX 852 MIN 3.6 MEAN 55.5 CFSM .892 INCHES 12.15

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11- 7	0330	5.93	1,280	1-7	0900	4.66	910
11-30	0345	4.84	960	1-9	1930	5.60	1,180

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

1-6495. Northeast Branch Anacostia River at Riverdale, Md.

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, 1¾ miles downstream from Indian Creek, and 1¾ miles upstream from confluence with Northwest Branch.
Drainage area.--72.8 sq mi.
Records available.--August 1938 to September 1964.
Gage.--Water-stage recorder (digital). 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.--26 years, 77.6 cfs.
Extremes.--Maximum discharge during year, 1,670 cfs Jan. 9 (gage height, 4.94 ft); minimum, 3.4 cfs Sept. 12.
1938-64: Maximum discharge, 5,060 cfs Aug. 20, 1963 (gage height, 6.98 ft), from rating curve extended above 2,100 cfs by logarithmic plotting; maximum gage height, 12.93 ft Oct. 16, 1942; minimum discharge, 3.0 cfs Aug. 27, 28, 1962.
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.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair, or those for the period of no gage-height record, which are poor. Some regulation at low flow by sand and gravel plants above station.

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

Oct. 1 to Sept. 19				Sept. 20-30			
1.6	4.8	2.6	100	1.7	4.4	2.3	50
1.7	7.5	3.0	190	1.8	8.4	2.5	80
1.8	11	3.5	390	1.9	14	3.0	190
2.0	25	4.0	715	2.1	28	3.5	390
2.3	57	4.5	1,160				

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	54	56	176	89	92	a100	77	206	23	14	9.3	8.9
2	31	100	88	113	80	a150	90	119	26	13	11	8.1
3	26	44	69	125	b63	a300	117	89	28	14	114	7.7
4	21	27	59	144	b58	a250	89	78	24	15	72	7.8
5	18	26	52	122	b57	a130	74	71	22	14	25	7.7
6	18	347	45	98	233	*a80	123	66	36	11	16	6.6
7	17	*1,110	43	377	215	77	202	61	53	11	14	6.6
8	*18	*291	76	198	118	88	355	57	d70	63	50	6.1
9	16	97	155	852	85	98	240	55	33	33	37	5.9
10	16	61	89	623	73	87	*127	49	26	20	17	5.1
11	16	47	64	151	71	72	94	43	20	16	16	5.4
12	15	40	73	94	b75	68	81	43	19	16	14	4.8
13	16	34	65	b64	76	64	74	258	20	36	12	13
14	15	31	99	b70	105	84	134	184	25	20	*11	8.8
15	16	29	b70	b70	103	94	133	80	57	15	11	7.2
16	*16	28	b53	b69	338	79	99	63	42	12	12	7.0
17	16	28	b47	b67	216	70	81	58	24	15	18	6.1
18	15	27	b44	b65	182	63	72	49	21	11	14	6.2
19	15	*27	b44	66	518	58	95	44	30	12	12	99
20	16	25	b43	174	a300	57	130	*38	61	10	11	66
21	15	27	b37	354	a200	150	163	33	27	11	12	19
22	16	27	b37	256	a120	311	116	33	19	11	10	11
23	16	107	b37	153	a80	233	96	30	19	11	9.5	9.0
24	16	102	b45	114	a70	127	82	30	27	11	8.6	7.4
25	16	60	b50	381	a70	95	74	26	30	12	9.9	6.2
26	16	43	b53	243	a110	87	70	25	19	14	*9.0	5.8
27	17	38	b51	123	a120	75	66	24	18	12	8.2	5.8
28	16	36	b44	91	a100	67	83	24	16	11	8.8	40
29	16	256	b40	74	a80	66	110	24	13	11	9.6	75
30	14	540	b34	69	------	77	396	24	13	15	10	208
31	15	------	b34	*64	------	72	------	24	------	10	9.1	------
TOTAL	564	3,711	1,916	5,553	4,008	3,429	3,743	2,008	861	500	601.0	681.2
MEAN	18.2	124	61.8	179	138	111	125	64.8	28.7	16.1	19.4	22.7
CFSM	.250	1.70	.849	2.46	1.90	1.52	1.72	.890	.394	.221	.267	.312
IN	.29	1.90	.98	2.84	2.05	1.75	1.91	1.03	.44	.26	.31	.35

CALENDAR YEAR 1963 MAX 1,260 MIN 4.8 MEAN 71.0 CFSM .975 INCHES 13.25
WATER YEAR 1963-64 MAX 1,110 MIN 4.8 MEAN 75.3 CFSM 1.03 INCHES 14.09

Peak discharge (base, 1,250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	0730	4.92	1650	1-9	1300	4.94	1670

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

1-6505. Northwest Branch Anacostia River near Colesville, Md.

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.--October 1923 to September 1964. Monthly discharge only for some periods, published in WSP 1302.

Gage.--Water-stage recorder (digital) 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 datums. April 22, 1932, to April 11, 1934, staff gage at present site and datum.

Average discharge.--41 years, 22.0 cfs (unadjusted).

Extremes.--Maximum discharge during year, 814 cfs Jan. 9 (gage height, 6.77 ft); minimum, 0.3 cfs Sept. 17-18 (gage height 1.26 ft).
1924-64: 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; minimum, that of Sept. 17-18, 1964.

Remarks.--Records good except those for periods of ice effect or doubtful or no gage height record, which are fair. Inflow pumped from Patuxent River to augment water supply for Washington Suburban Sanitary District August 1939 to August 1960. Diversions at low flow since 1962 for irrigation of golf courses above station.

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

1.4	0.8	2.1	32
1.5	1.6	2.5	85
1.6	3.4	3.0	180
1.7	6.4	4.0	338
1.9	16		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	5.7	6.9	24	a15	24	27	23	39	9.0	4.4	2.2	*1.7
2	5.0	15	17	*24	22	48	26	29	9.5	4.4	4.1	1.5
3	4.7	5.7	15	36	17	100	37	24	9.0	4.4	18	1.1
4	4.1	4.7	17	51	b15	54	24	22	8.6	5.0	9.5	1.0
5	4.1	4.7	12	36	16	43	21	21	8.1	4.4	*4.4	.9
6	4.1	d60	12	42	d75	26	37	19	13	3.9	3.6	.9
7	3.9	d260	10	200	72	23	*47	19	13	3.6	5.4	.8
8	*3.4	23	d26	33	38	25	91	18	12	13	8.6	1.0
9	3.4	14	d50	299	25	*34	44	17	9.5	6.9	3.6	.8
10	3.6	11	18	48	20	25	29	15	8.6	5.4	3.4	.8
11	3.6	9.5	14	b22	18	20	24	15	6.9	4.7	3.9	.8
12	3.6	8.6	17	b16	b17	20	22	15	6.9	4.7	3.6	.9
13	3.4	*8.6	17	b13	b17	19	22	22	6.9	19	2.9	1.1
14	3.4	7.7	19	b17	21	25	40	20	11	6.1	2.7	1.5
15	*3.4	7.3	b14	b15	24	29	30	*15	11	4.7	2.9	1.5
16	3.4	7.3	b12	b14	51	22	23	15	12	*4.1	3.1	1.1
17	3.4	7.3	b10	b14	44	21	22	14	7.3	3.9	4.4	.8
18	3.1	7.3	a10	b14	30	18	20	13	6.9	3.9	3.6	1.0
19	3.4	6.9	a11	b15	48	17	22	13	8.1	3.9	3.4	4.7
20	3.4	6.9	a10	b60	51	17	31	12	16	3.6	2.5	5.7
21	3.6	6.9	a9	b120	35	29	46	11	7.3	3.6	2.3	2.3
22	3.6	6.9	a9	47	b24	115	29	12	6.9	3.6	2.0	2.0
23	3.9	22	a9	32	b20	53	24	11	6.9	3.6	1.9	2.2
24	3.9	21	a10	25	b18	31	22	11	12	3.4	1.9	1.6
25	3.9	11	a11	181	b18	26	20	10	9.0	3.9	1.9	1.4
26	3.6	9.5	a13	42	34	25	19	9.5	6.5	4.1	1.6	1.3
27	3.6	9.0	a13	*26	32	22	19	9.0	6.1	3.9	1.5	1.4
28	3.9	8.6	a12	22	b23	20	24	8.6	5.4	3.1	1.5	3.6
29	3.6	d110	a10	18	b22	20	24	9.0	5.0	3.1	2.0	10
30	3.4	d120	a9	18	------	22	114	8.6	4.7	3.4	2.0	24
31	3.9	------	a8	16	------	22	------	8.6	------	2.2	2.2	------
TOTAL	117.0	807.3	448.0	1,531	871	998	976	485.3	263.1	151.9	116.6	79.4
MEAN	3.77	26.9	14.5	49.4	30.0	32.2	32.5	15.7	8.77	4.90	3.76	2.65
CFSM	.177	1.26	.681	2.32	1.41	1.51	1.53	.737	.412	.230	.177	.124
IN	.20	1.41	.78	2.67	1.52	1.74	1.70	.85	.46	.27	.20	.14

CALENDAR YEAR 1963 MAX 260 MIN .9 MEAN 15.8 CFSM .742 INCHES 10.10
WATER YEAR 1963-64 MAX 299 MIN .8 MEAN 18.7 CFSM .878 INCHES 11.95

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-7	0315	5.76	619	1-9	1500	6.77	814

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

1-6510. Northwest Branch Anacostia River near Hyattsville, Md.

Location.--Lat 38°57'09", long 76°58'00", on right bank at downstream side of bridge on Queens Chapel Road (State Highway 500), 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 1964. Monthly discharge only for July 1938 published in WSP 1302.

Gage.--Water-stage recorder (digital). 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 gage, at same site and datum.

Average discharge.--26 years, 39.7 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,700 cfs Nov. 6 (gage height, 8.60 ft); minimum, 1.0 cfs Sept. 27 (gage height, 2.81 ft).
1938-64: Maximum discharge, 4,170 cfs Aug. 8, 1959 (gage height, 12.12 ft); minimum, 0.8 cfs Oct. 3, 7, 1941, Aug. 26, 1943.
Maximum stage known, about 13.5 ft Aug. 24, 1933.

Remarks.--Records good except those for periods of ice effect or doubtful or no gage-height record or those below 5.0 cfs, which are fair. Prior to June 1961, low flow regulated by storage at Burnt Mills Dam, 7 miles above station. Inflow pumped from Patuxent River to augment water supply for Washington Suburban Sanitary District, August 1939 to August 1960. Small diversion since 1962 for irrigation of golf courses above station.

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

Oct. 1 to Nov. 29				Nov. 30 to Sept. 30			
3.0	3.0	3.7	72	2.8	0.8	3.7	84
3.1	6.6	4.0	126	2.9	2.7	4.0	140
3.2	12	5.0	400	3.0	6.0	5.0	400
3.4	30	6.0	710	3.2	17	6.0	710
				3.4	38		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	12	69	54	b80	62	a50	54	80	17	5.6	2.3	3.2
2	9.9	69	36	*76	42	a60	79	62	19	7.2	28	2.8
3	9.3	9.7	34	78	33	a200	84	56	18	6.0	196	2.3
4	7.7	7.1	35	80	b30	a85	50	51	17	6.8	34	2.1
5	7.1	9.2	25	64	b30	a67	42	46	16	5.7	9.7	1.9
6	7.1	399	24	59	156	a48	108	42	48	4.7	7.8	1.4
7	7.1	*565	23	315	77	a41	138	39	37	4.7	*6.7	1.5
8	6.5	*60	86	68	44	55	*228	38	107	90	76	1.6
9	6.2	31	98	628	36	66	102	35	22	15	11	1.7
10	6.1	23	35	*134	b34	46	62	30	14	7.2	6.9	*1.9
11	6.5	20	28	b50	b33	*38	53	27	11	5.9	7.4	2.0
12	6.2	18	51	b35	58	37	48	27	9.8	8.2	7.4	1.8
13	5.9	17	34	b25	45	35	45	*200	10	86	6.5	13
14	6.6	*17	b60	b45	68	66	109	61	16	13	5.3	6.2
15	6.6	15	b25	b35	59	59	67	*33	40	6.3	5.0	3.6
16	6.7	14	b25	b30	176	41	50	31	27	5.2	5.4	2.9
17	6.6	15	b25	b30	76	36	46	39	11	4.5	12	2.6
18	*6.7	14	b20	b30	89	33	44	28	9.7	4.0	6.9	2.2
19	5.9	14	b20	b35	214	31	83	25	25	4.3	6.0	171
20	5.9	14	b15	b130	a132	30	98	23	62	7.8	5.7	45
21	5.5	16	b15	b200	a78	140	100	22	12	4.4	4.7	5.7
22	5.2	14	b15	107	a56	193	61	22	9.1	3.7	4.4	2.8
23	5.5	112	b15	70	a42	106	53	22	9.0	3.6	3.7	2.3
24	5.8	52	b20	55	a40	59	47	21	*18	3.7	3.7	1.8
25	5.8	20	b20	300	a40	49	41	20	16	3.8	*3.7	1.4
26	6.5	17	b25	88	a50	47	39	18	9.0	4.2	3.4	1.5
27	5.8	15	b25	53	a60	42	39	19	7.8	4.0	2.7	1.3
28	6.8	14	b20	45	a50	37	56	17	6.8	3.5	2.5	50
29	5.6	319	b20	38	a40	36	65	17	6.0	4.1	2.7	*92
30	4.0	304	b15	36	------	63	272	17	5.8	6.8	4.0	146
31	4.0	------	b15	*34	------	43	------	16	------	3.4	3.7	------
TOTAL	203.1	2,283.0	958	3,053	1,950	1,939	2,363	1,184	636.0	343.3	485.2	575.5
MEAN	6.55	76.1	30.9	98.5	67.2	62.5	78.8	38.2	21.2	11.1	15.7	19.2
CFSM	.133	1.54	.626	1.99	1.36	1.27	1.60	.773	.429	.225	.318	.389
IN	.15	1.72	.72	2.30	1.47	1.46	1.78	.89	.48	.26	.37	.43

CALENDAR YEAR 1963 MAX 744 MIN 2.5 MEAN 41.6 CFSM .842 INCHES 11.42
WATER YEAR 1963-64 MAX 628 MIN 1.3 MEAN 43.6 CFSM .883 INCHES 12.03

Peak discharge (base, 1,250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11-6	2300	8.60	1,700	5-13	1745	7.77	1,360
1-9	1230	8.37	1,600				

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

1-6535. Henson Creek at Oxon Hill, Md.

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 Georges County, and 1.4 miles upstream from Carey Branch.

Drainage area.--16.7 sq mi.

Records available.--June 1948 to September 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 62 ft (from topographic map).

Average discharge.--16 years, 19.2 cfs.

Extremes.--Maximum discharge during year, 845 cfs Nov. 7 (gage height, 4.30 ft); no flow several days in August and September.
1948-64: Maximum discharge, 3,000 cfs Aug. 13, 1955 (gage height, 7.33 ft), from rating curve extended above 520 cfs on basis of slope-area measurements at gage heights 6.63 and 7.27 ft; no flow at times during July, August, September, and October 1954, July 1955, August 1957, Sept. 1962, Aug. 1963, and August and September 1964.

Remarks.--Records good except those for periods of ice effect or doubtful or no gage-height record, which are fair. Small diversion above station for irrigation of truck farm. Some regulation at low flow by sand and gravel plant above station.

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

0.3	0	1.0	30
.4	.5	1.2	55
.5	1.9	1.5	113
.6	4.3	2.0	218
.7	8.0	3.0	456
.8	14		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	5.2	13	22	30	20	23	20	a23	4.2	0.70	0.60	0.40
2	4.2	30	16	b25	16	21	23	a20	5.1	.80	1.2	.30
3	3.7	6.2	14	*b22	13	32	25	a17	5.0	1.0	39	1.0
4	3.1	4.2	12	b20	13	24	18	a15	3.9	1.3	13	.70
5	3.0	3.8	11	17	13	22	17	a14	3.6	1.4	3.9	.50
6	3.7	134	9.9	16	47	18	34	a13	4.1	.90	2.5	0
7	2.9	253	10	61	26	18	54	a12	4.5	.30	2.1	0
8	2.5	29	21	23	20	22	80	a11	3.5	20	2.6	0
9	2.3	17	28	230	17	22	*38	a10	3.9	5.6	1.9	0
10	2.7	13	13	40	16	19	26	a9.0	2.9	3.2	1.5	0
11	2.2	10	11	23	17	15	23	*a7.5	2.2	2.9	1.8	0
12	2.3	8.4	16	b17	b18	*16	21	9.1	2.3	2.3	1.4	0
13	1.7	7.6	12	b15	b21	15	20	30	2.6	7.9	.60	4.5
14	2.7	7.0	25	b18	b25	21	29	18	3.0	3.4	.40	2.5
15	2.3	6.7	13	b17	26	23	28	12	2.4	1.6	.90	.50
16	2.7	7.1	10	b15	93	17	20	11	2.8	1.9	1.0	.10
17	2.3	6.7	9.4	14	31	15	18	17	1.6	1.9	1.7	0
18	2.4	6.3	9.0	13	54	14	18	12	1.2	1.5	.70	0
19	2.4	5.9	b8.5	18	158	14	28	8.7	1.8	1.8	.50	29
20	2.3	*5.6	b8.0	57	50	13	37	7.2	13	2.8	.30	51
21	*2.8	6.7	b7.5	71	32	46	29	6.6	17	4.3	.10	6.0
22	2.1	5.2	b7.0	37	27	63	21	6.4	3.3	1.5	.10	*3.7
23	2.7	34	7.0	27	24	28	19	6.2	2.5	1.6	0	2.5
24	2.5	20	9.3	24	22	23	a17	7.3	*9.4	1.3	*0	2.2
25	2.7	9.6	10	54	21	21	a15	4.7	4.6	1.9	0	1.6
26	2.9	7.3	b11	28	21	21	a14	4.0	2.3	2.7	0	.90
27	3.8	7.3	b12	21	19	17	a13	4.3	2.2	2.0	*0	1.0
28	3.2	7.5	b10	19	20	17	a15	4.3	4.9	5.4	0	2.1
29	2.2	85	b9.0	*17	25	17	a20	4.2	2.8	3.8	0	23
30	2.0	122	7.1	17	------	22	a25	4.5	.90	3.8	1.7	99
31	1.9	------	6.5	16	------	20	------	4.4	------	.60	1.1	------
TOTAL	85.4	879.1	375.2	1,022	905	679	765	333.4	123.50	92.10	80.60	232.50
MEAN	2.76	29.3	12.1	33.0	31.2	21.9	25.5	10.8	4.12	2.97	2.60	7.75
CFSM	.165	1.75	.725	1.98	1.87	1.31	1.53	.647	.247	.178	.156	.464
IN	.19	1.96	.84	2.28	2.02	1.51	1.70	.74	.28	.21	.18	.52

CALENDAR YEAR	1963	MAX	463	MIN	0	MEAN	16.2	CFSM	.970	INCHES 13.20
WATER YEAR	1963-64	MAX	253	MIN	0	MEAN	15.2	CFSM	.910	INCHES 12.41

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
11- 7	0230	4.30	845	1- 9	1500	3.74	654
11-30	0130	2.86	422	2-19	0130	2.84	418

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundreths column is not significant.

1-6580. Mattawoman Creek near Pomonkey, Md.

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 1964.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 40 ft (from topographic map).

Average discharge.--14 years (1950-64), 56.3.

Extremes.--Maximum discharge during year, 559 cfs Feb. 20 (gage height, 4.49 ft); no flow many days in October, November, June, July, August, and September.
1949-64: Maximum discharge, 9,300 cfs Aug. 13, 1955 (gage height, 7.52 ft), from rating curve extended above 6,000 cfs; no flow at times each year.

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

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

0.98	0	1.4	2.5	3.0	144
1.0	.2	1.5	5.5	3.5	214
1.1	.5	1.6	12	4.0	335
1.2	.9	2.0	56	4.5	565
1.3	1.5	2.5	97		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1		0	195	37	70	76	57	87	1.3	0		0
2		.50	101	109	72	81	56	70	2.3	0		0
3		.50	57	112	58	100	73	57	4.3	0		0
4		.40	38	109	50	119	63	48	4.0	0		0
5		.40	30	84	48	106	49	40	2.2	0		0
6		4.3	27	66	77	83	57	34	1.4	0		0
7		87	23	114	141	67	109	30	1.1	0		0
8		*111	23	156	121	64	155	29	.80	0		0
9		60	63	291	91	80	*214	27	.60	0		0
10		23	57	480	74	77	191	22	.50	0		0
11		12	35	*470	65	59	108	*20	0	0		0
12		8.5	34	192	64	*51	80	19	0	0		0
13		6.1	38	91	63	45	68	22	0	1.0		0
14		4.9	42	*a80	77	48	74	53	0	12		0
15		4.0	b35	a60	101	70	80	33	0	8.5		0
16		4.0	b30	a50	272	68	66	27	0	2.0		0
17		4.3	27	a45	363	57	54	22	0	.60		0
18		4.6	25	a40	299	48	47	21	0	0		0
19		4.9	23	a38	433	a46	53	18	0	0		0
20		*4.3	21	a80	535	a44	111	14	1.3	0		0
21		3.7	19	151	398	a80	151	11	12	0		0
22	(*)	4.0	17	258	189	a185	144	9.7	4.0	0		*0
23		9.7	19	238	115	a165	107	7.9	1.3	0		0
24		68	24	154	94	150	82	6.1	*1.2	0	(*)	0
25		57	25	170	80	103	66	4.6	2.3	0		0
26		28	24	188	74	82	55	3.1	1.3	0		0
27		17	b23	132	67	66	48	2.3	.70	0		0
28		13	b21	97	62	54	53	1.9	.10	*0		0
29		47	b20	*75	64	49	62	1.9	0	0		0
30		185	b18	66	------	48	91	1.5	0	0		*5.0
31		------	b15	59	------	52	------	1.4	------	0		------
TOTAL	0	777.10	1,149	4,292	4,217	2,423	2,624	744.4	42.70	24.10	0	5.0
MEAN	0	25.9	37.1	138	145	78.2	87.5	24.0	1.42	.78	0	.17
CFSM	0	.449	.643	2.39	2.51	1.36	1.52	.416	.025	.014	0	.0029
IN	0	.50	.74	2.77	2.72	1.56	1.69	.48	.03	.02	0	0

CALENDAR YEAR 1963 MAX 1,400 MIN 0 MEAN 45.3 CFSM .785 INCHES 10.65
WATER YEAR 1963-64 MAX 535 MIN 0 MEAN 44.5 CFSM .771 INCHES 10.50

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-10	2200	4.48	553	2-20	1700	4.49	559

* Discharge measurement made on this day.
a No gage-height record.
b Stage-discharge relation affected by ice.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-6610. Chaptico Creek at Chaptico, Md.

Location.--Lat 38°22'45", long 76°46'56", on right bank at downstream side of highway culvert, 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 1964.

Gage.--Water-stage recorder. Concrete control prior to Oct. 25, 1961. Altitude of gage is 15 ft (from topographic map).

Average discharge.--17 years, 10.5 cfs.

Extremes.--Maximum discharge during year, 192 cfs Feb. 16 (gage height, 4.33 ft); no flow for several days in August and September.
1947-64: Maximum discharge, 7,800 cfs Sept. 10, 1950 (gage height, 8.56 ft), from rating curve extended above 410 cfs on basis of slope-area measurement of peak flow; no flow at times in 1954, 1955, 1957, 1962, 1963, and 1964.

Remarks.--Records good except those for periods of ice effect or backwater from debris or doubtful or no gage-height record, which are fair. Occasional small diversion above station for irrigation.

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

1.23	0	2.0	23
1.3	.6	2.5	41
1.4	2.7	3.0	57
1.5	5.2	3.5	76
1.7	12	4.0	128

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	2.1	c4.0	11	33	15	13	13	13	a1.8	1.0	0.30	1.7
2	1.9	10	7.6	19	10	15	13	11	a6.7	.90	.40	.60
3	1.6	3.0	6.7	10	b8.0	27	14	10	8.1	1.2	4.2	.40
4	1.4	1.9	5.8	7.3	b6.7	17	11	9.6	5.2	.80	7.0	.30
5	1.4	2.3	5.2	7.0	b7.0	15	10	8.9	3.1	1.0	1.8	.10
6	1.4	17	5.0	6.4	16	12	18	7.9	2.6	.60	1.3	0
7	1.6	56	4.7	22	12	12	32	7.6	2.3	.50	.90	0
8	1.4	12	7.2	9.6	10	13	35	7.3	2.1	21	.90	0
9	1.4	5.8	21	47	8.9	14	*27	6.4	1.9	12	.80	0
10	1.2	4.4	7.9	18	8.2	12	17	5.5	1.6	3.9	.60	0
11	c1.4	4.0	6.1	8.9	b7.5	10	15	5.2	.90	2.6	1.0	0
12	c1.4	3.4	8.2	7.6	12	*9.9	13	5.8	.90	1.9	1.4	0
13	c1.4	3.2	7.0	11	11	9.6	13	7.9	1.1	4.6	.60	1.6
14	c1.4	3.0	11	13	12	11	18	*7.3	1.4	4.6	.40	2.8
15	c1.4	3.0	b6.5	b7.0	12	a13	15	6.0	1.0	2.3	.40	.60
16	c1.4	3.0	b6.0	a6.0	90	a12	12	a5.0	2.3	1.7	.30	.40
17	c1.4	3.0	b5.5	a5.5	26	a11	12	a4.5	.90	1.3	.80	.30
18	c1.4	2.7	b5.0	a5.5	25	a10	11	a4.0	.80	1.2	.60	.30
19	c1.4	2.7	b5.5	8.9	56	a9.5	19	a3.5	1.5	1.3	.50	.50
20	c1.4	*3.2	5.2	14	20	a9.0	24	a3.2	5.0	1.0	.30	2.9
21	c1.4	2.7	5.5	20	15	a20	20	a3.0	8.2	1.0	.20	1.2
22	*c1.4	2.7	7.0	14	13	a30	15	a3.5	2.0	1.1	.10	*.70
23	c1.9	4.7	8.9	11	b11	a19	13	a3.0	1.6	1.5	0	.60
24	c2.3	13	21	9.6	b10	15	12	a2.5	18	1.3	*0	.50
25	c2.5	4.2	16	20	10	14	11	a2.2	19	1.8	0	.30
26	c2.7	3.7	11	12	10	13	10	2.0	3.8	1.8	0	.20
27	c3.2	3.7	11	9.6	9.6	11	10	2.1	2.6	1.4	0	0
28	c3.2	3.2	b7.5	8.9	10	10	12	2.0	2.6	1.1	.30	.10
29	c3.0	19	b5.5	*b7.0	11	11	14	2.3	*1.6	1.6	.40	8.9
30	c2.7	40	b5.0	b7.5	------	12	16	a1.9	1.3	.70	1.3	*34
31	c2.7	------	*b5.5	b7.5	------	13	------	a1.9	------	.40	2.1	------
TOTAL	56.4	244.5	252.0	393.8	472.9	423.0	475	166.0	111.90	79.10	28.90	59.00
MEAN	1.82	8.15	8.13	12.7	16.3	13.6	15.8	5.36	3.73	2.55	.93	1.97
CFSM	.170	.762	.760	1.19	1.52	1.27	1.48	.501	.349	.238	.087	.184
IN	.20	.85	.88	1.37	1.64	1.47	1.65	.58	.39	.27	.10	.21

CALENDAR YEAR 1963 MAX 202 MIN 0 MEAN 8.70 CFSM .813 INCHES 11.04
WATER YEAR 1963-64 MAX 90 MIN 0 MEAN 7.55 CFSM .706 INCHES 9.60

Peak discharge (base, 160 cfs)

Date	Time	Gage height	Discharge
2-16	0740	4.33	192

* Discharge measurement made on this day.
a Doubtful or no gage-height record.
b Stage-discharge relation affected by ice.
c Backwater from debris.
Note.--Where daily discharge is less than 1.0 cfs the zero in the hundredths column is not significant.

1-6615. St. Marys River at Great Mills, Md.

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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 10 ft (from topographic map).

Average discharge.--18 years, 24.6 cfs.

Extremes.--Maximum discharge during year, 473 cfs Feb. 16 (gage height, 6.18 ft); minimum, 1.8 cfs Aug. 24 (gage height, 1.28 ft).
1946-1964: Maximum discharge, 4,900 cfs July 30, 1960 (gage height 12.08 ft), from rating curve extended above 1,500 cfs on basis of contracted-opening measurement of peak flow; minimum 1.2 cfs Aug. 2, 1954, July 24, Aug. 7, 1955, Sept. 12, 1963.

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

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

1.3	2.1	2.2	74
1.4	4.6	2.5	106
1.5	8.4	3.0	151
1.7	20	4.0	241
1.9	38	5.0	343
		6.0	453

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	3.8	3.3	17	60	25	33	28	66	5.2	4.6	3.9	6.2
2	2.8	9.2	10	51	20	a40	29	39	11	4.2	3.9	4.1
3	2.8	6.3	9.5	24	16	a80	29	28	14	3.9	11	3.3
4	2.8	4.4	9.4	18	14	a30	22	24	9.3	3.9	23	2.9
5	2.3	3.9	8.0	14	13	a25	19	20	6.9	3.7	8.8	2.7
6	2.3	35	7.4	12	35	a20	26	18	6.1	3.3	6.4	2.4
7	2.5	81	7.1	49	44	a20	54	17	5.7	3.2	5.2	2.2
8	2.3	23	8.6	37	36	a30	171	16	5.8	37	4.9	2.2
9	2.3	9.9	27	103	28	a25	164	15	7.2	28	5.2	2.2
10	2.3	7.1	13	79	21	a20	*63	13	5.8	11	4.6	2.3
11	2.5	6.3	9.3	31	19	a17	39	11	4.7	7.4	4.4	2.4
12	2.8	5.8	11	20	19	a17	29	13	4.0	5.8	4.6	2.3
13	2.3	5.5	10	17	19	*a17	25	28	4.2	21	3.9	8.5
14	2.3	5.3	14	15	31	18	27	*21	4.4	22	3.4	11
15	2.5	5.0	14	12	44	25	27	15	4.1	12	3.2	5.2
16	2.8	4.9	9.5	11	354	22	22	13	4.8	6.8	3.2	4.0
17	2.8	5.1	7.9	11	118	19	20	12	4.0	5.4	4.3	3.5
18	2.5	5.2	7.7	11	84	17	19	11	3.7	4.9	4.0	3.3
19	2.5	5.2	7.5	11	245	16	35	9.2	5.1	4.8	3.2	3.4
20	2.8	4.8	6.4	30	98	16	88	8.2	73	4.4	3.0	3.5
21	*2.8	*4.9	5.4	61	55	31	52	7.4	47	5.6	2.8	3.7
22	2.5	4.9	5.3	41	37	63	37	7.3	11	8.5	2.5	3.4
23	2.8	6.2	6.8	24	28	54	29	7.2	7.2	9.2	2.3	3.3
24	2.9	15	16	19	25	33	25	6.7	56	6.5	*2.1	2.8
25	3.0	8.5	14	31	22	26	22	6.0	84	6.1	3.4	2.4
26	3.4	6.6	12	25	23	23	19	5.4	18	6.0	4.0	2.2
27	3.6	6.7	14	19	20	19	19	5.3	11	5.1	3.2	2.1
28	3.2	6.0	12	16	21	18	23	5.2	8.1	12	2.9	2.2
29	3.2	26	9.3	14	27	17	25	5.5	6.1	9.0	3.0	6.1
30	3.0	49	*7.8	*14	------	19	94	5.5	5.2	5.2	3.4	49
31	3.0	------	7.0	13	------	21	------	5.3	------	4.2	4.4	------
TOTAL	85.4	370.0	323.9	893	1,541	831	1,281	464.2	442.6	274.7	148.1	154.8
MEAN	2.76	12.3	10.4	28.8	53.1	26.8	42.7	15.0	14.8	8.86	4.73	5.16
CFSM	.115	.513	.433	1.20	2.21	1.12	1.78	.625	.617	.369	.199	.215
IN	.13	.57	.50	1.38	2.39	1.29	1.99	.72	.69	.43	.23	.24

CALENDAR YEAR 1963	MAX 524	MIN 1.4	MEAN 18.3	CFSM .763	INCHES 10.35
WATER YEAR 1963-64	MAX 354	MIN 2.1	MEAN 18.6	CFSM .775	INCHES 10.55

Peak discharge(base,400 cfs)

Date	Time	Gage height	Discharge
2-16	1130	6.18	473

* Discharge measurement made on this day.
a No gage-height record.

3-755. Youghiogheny River near Oakland, Md.

Location.--Lat 39°25'19", long 79°25'32", on left bank 200 ft downstream from Baltimore & Ohio Railroad bridge, 250 ft downstream from Little Youghiogheny River, 1¼ 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 1964.

Gage.--Water-stage recorder (digital) 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.--23 years, 289 cfs.

Extremes.--Maximum discharge during year, 7,100 cfs Mar. 5 (gage height, 9.44 ft); minimum, 2.6 cfs Sept. 18 (gage height, 1.74 ft).
1941-64: Maximum discharge, 11,800 cfs Oct. 16, 1954 (gage height, 12.16 ft); minimum daily, 2.5 cfs Oct. 4, 1953.
Flood in March 1936 reached a stage of 15.3 ft, from floodmarks.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Town of Oakland diverted an average of 0.4 cfs for water supply. The diversion is returned above station as sewage.

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

Oct. 1 to Mar. 5				Mar. 6 to Sept. 30			
1.8	7.1	3.0	330	1.75	3.0	2.7	192
1.9	13	3.5	595	1.8	4.9	3.0	310
2.0	24	4.0	900	1.9	11	3.5	580
2.2	57	5.0	1,620	2.0	21	4.0	900
2.4	103	7.0	3,660	2.2	55	5.0	1,620
2.7	198	9.0	6,420	2.4	99	7.0	3,660

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	a 26	17	439	98	297	b100	242	1,050	49	22	11	12
2	a 25	24	337	111	331	b140	391	694	74	81	11	8.9
3	a 23	25	304	114	240	b750	1,230	502	51	68	40	7.6
4	a 20	21	270	315	b 190	b1,550	1,280	385	42	47	135	7.0
5	18	19	240	296	b 200	*5,570	809	*315	36	44	47	7.0
6	17	31	215	286	210	3,110	768	242	38	33	27	5.9
7	17	300	199	b1,300	206	1,330	*1,130	203	99	27	19	4.9
8	16	626	267	872	b 175	1,260	1,710	178	66	34	17	4.9
9	16	590	523	905	b 165	1,460	1,220	154	*51	57	15	4.9
10	15	311	403	1,580	b 140	1,940	788	129	38	42	14	*4.4
11	14	207	328	868	b 125	1,410	562	115	31	36	13	3.6
12	14	153	*435	556	b 118	865	420	118	27	34	19	3.6
13	13	122	537	400	126	664	340	129	24	126	30	3.6
14	13	102	407	b390	134	895	538	135	24	68	19	4.0
15	14	88	306	b310	122	1,400	415	148	74	44	15	4.0
16	14	77	b 235	b250	b 160	1,020	325	110	207	33	12	3.6
17	13	68	b 210	b215	b 150	748	278	97	83	28	10	3.3
18	13	63	b 180	b210	b 140	580	234	88	53	30	10	3.0
19	13	65	b 140	b175	b 130	425	302	78	47	27	15	7.0
20	13	62	b 145	184	b 120	350	538	107	55	*21	19	16
21	13	56	b 140	306	b 115	330	1,150	85	110	18	14	21
22	14	54	121	*278	b 110	330	730	72	126	18	12	14
23	13	56	114	352	b 105	306	526	63	90	24	11	9.7
24	18	97	118	452	b 105	395	390	61	66	24	9.7	7.0
25	13	77	117	1,420	b 100	375	302	66	59	18	*9.7	5.9
26	12	66	117	1,230	b 100	355	246	57	44	14	8.9	5.4
27	11	64	140	682	b 100	302	226	47	36	14	8.2	4.9
28	13	61	128	521	b 100	258	460	47	34	13	7.6	49
29	13	337	111	391	b 100	290	1,930	44	30	14	7.6	380
30	14	701	98	b300	------	270	1,830	40	25	15	11	234
31	* 16	------	89	b240	------	238	------	38	------	14	16	------
TOTAL	477	4,542	7,413	15,607	4,414	29,016	21,310	5,597	1,789	1,088	613.7	950.1
MEAN	15.4	151	239	503	152	936	710	181	59.6	35.1	19.8	28.3
CFSM	.115	1.13	1.78	3.75	1.13	6.99	5.30	1.35	.445	.262	.148	.211
IN	.13	1.26	2.06	4.33	1.23	8.05	5.91	1.55	.50	.30	.17	.24

CALENDAR YEAR 1963 MAX 7,900 MIN 11 MEAN 304 CFSM 2.27 INCHES 30.80
WATER YEAR 1963-64 MAX 5,570 MIN 3.0 MEAN 253 CFSM 1.89 INCHES 25.73

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-25	1945	5.51	2,050	3-10	1830	5.75	2,270
3- 5	1445	9.44	7,100	4-30	0330	5.69	2,210

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

Reservoirs in Monongahela River Basin

3-760.--Deep Creek Reservoir.--Lat 39°30'34", long 79°23'28", on Deep Creek at dam, 1.8 miles upstream from mouth and 7 miles north of Oakland, Garrett County, Md. Drainage area, 64.7 sq mi. Records available, July 1925 to September 1964 (prior to October 1950, month-end contents published in WSP 1305, and October 1950 to September 1955, month-end contents published in WSP 1385). Gage, water-stage recorder at right end of spillway. Datum of gage is at mean sea level (unadjusted). Maximum contents during year, 91,900 acre-ft Apr. 30 (elevation, 2,461.70 ft); minimum, 56,600 acre-ft Jan. 6 (elevation, 2,451.60 ft). Maximum contents since storage began, 93,258 acre-ft July 24, 25, 1949 (elevation, 2,462.075 ft); minimum observed, 11,763 acre-ft Sept. 30, 1925 (elevation, 2,433.45 ft).

Reservoir is formed by an earthfill dam completed January 1925. Usable capacity, 92,975 acre-ft between elevations 2,425 ft (top of intake to outlet tunnel) and 2,462 ft (crest of spillway). Dead storage, 13,085 acre-ft. Figures given herein represent usable contents. Reservoir is used for hydroelectric power. Records furnished by Pennsylvania Electric Co.

Month-end elevation and contents, water year October 1963 to September 1964

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet
Sept. 30	2,456.70	73,600	-
Oct. 31	2,454.20	65,000	- 8,600
Nov. 30	2,452.80	60,400	- 4,600
Dec. 31	2,451.80	57,200	- 3,200
Calendar year 1963	-	-	+ 900
Jan. 31	2,453.40	62,400	+ 5,200
Feb. 29	2,453.60	63,000	+ 600
Mar. 31	2,459.40	83,300	+20,300
Apr. 30	2,461.70	91,900	+ 8,600
May 31	2,460.40	87,000	- 4,900
June 30	2,459.50	83,700	- 3,300
July 31	2,458.30	79,300	- 4,400
Aug. 31	2,456.80	73,900	- 5,400
Sept. 30	2,455.40	69,100	- 4,800
Water year 1963-64	-	-	- 4,500

† Elevation at 2400.

3-765. Youghiogheny River at Friendsville, Md.

Location.--Lat 39°39'13", long 79°24'31", on left bank 0.7 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 1964 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 (digital). 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.--30 years (1898-1904, 1940-1964), 641 cfs (adjusted for storage since 1940).

Extremes.--Maximum discharge during year, 9,620 cfs Mar. 5 (gage height, 7.70 ft); minimum, 10 cfs Sept. 14 (gage height, 1.50 ft); minimum daily, 13 cfs Sept. 7, 13.
1898-1904, 1940-64: 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; 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.--Records good except those for periods of ice effect, which are fair. Low and medium flow regulated since 1925 by Deep Creek Reservoir (see preceding page).

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

1.6	12	2.4	107	3.5	870
1.8	22	2.6	174	4.0	1,570
2.0	38	2.8	270	5.0	3,310
2.2	64	3.0	400	7.0	7,900

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	225	206	740	b 150	489	b 190	570	2,390	250	179	39	134
2	211	102	710	230	579	306	670	1,790	300	235	27	131
3	206	45	642	312	543	1,120	1,970	1,470	288	276	134	128
4	* 197	156	597	379	b 450	2,650	2,240	1,180	245	119	255	137
5	88	206	552	642	464	7,370	1,430	804	235	95	225	58
6	33	230	516	660	489	5,300	1,440	670	83	192	167	18
7	137	* 489	337	2,140	489	2,530	* 2,190	489	134	170	152	13
8	192	1,090	408	1,680	b 360	2,360	2,650	534	300	174	41	93
9	197	978	906	1,400	b 290	2,740	2,220	351	* 260	192	29	131
10	192	516	793	2,790	b 370	3,670	1,510	276	152	* 197	128	152
11	192	489	680	1,670	330	2,940	966	379	179	70	137	141
12	88	416	740	1,060	b 300	1,870	750	393	179	75	141	33
13	29	365	*1,040	720	b 350	1,380	771	507	63	318	144	13
14	131	330	680	b 720	330	1,430	966	480	48	276	137	88
15	188	306	b 480	b 560	b 230	2,530	870	507	183	206	41	116
16	188	152	b 560	b 540	b 260	2,080	730	300	424	183	28	116
17	188	119	b 580	b 520	b 380	1,590	651	235	306	167	116	116
18	192	240	b 540	b 420	b 360	1,280	448	344	220	57	119	119
19	85	265	b 440	b 310	372	990	424	372	225	48	100	31
20	31	270	b 350	408	344	837	882	300	270	100	122	20
21	131	250	b 150	588	318	651	1,860	358	312	102	144	113
22	192	250	122	* 579	b 250	588	1,340	324	424	97	40	141
23	192	131	188	660	b 220	651	1,020	206	351	125	30	134
24	192	131	202	826	b 300	815	804	137	300	113	* 125	156
25	197	276	131	1,790	*b 320	793	570	306	250	51	125	128
26	85	270	240	2,250	b 340	793	456	282	230	36	122	31
27	29	265	312	1,340	b 320	700	516	265	152	128	128	16
28	152	131	b 205	1,020	b 330	507	606	225	144	141	128	137
29	197	570	b 175	782	b 210	507	2,780	225	156	148	32	570
30	183	1,290	b 245	680	------	642	3,230	134	188	148	22	498
31	202	------	b 270	579	------	597	------	83	------	144	128	------
TOTAL	4,742	10,534	14,531	28,405	10,387	52,407	37,530	16,316	6,851	4,562	3,306	3,712
MEAN	153	351	469	916	358	1,691	1,251	526	228	147	107	124
†	-140	-77.3	-52.0	+84.5	+10.4	+330	+145	-79.7	-55.5	-71.5	-87.8	-80.7
MEAN‡	13.0	274	417	1,000	368	2,021	1,396	446	172	75.5	19.2	43.3
CFSM‡	0.044	0.929	1.41	3.39	1.25	6.85	4.73	1.51	0.583	0.256	0.065	0.147
IN.‡	0.05	1.04	1.63	3.91	1.35	7.90	5.28	1.75	0.65	0.30	0.07	0.16

CALENDAR YEAR 1963 MAX 9,220 MIN 29 MEAN 592 MEAN‡ 593 CFSM‡ 2.01 IN.‡ 27.33
WATER YEAR 1963-64 MAX 7,370 MIN 13 MEAN 528 MEAN‡ 522 CFSM‡ 1.77 IN.‡ 24.08

* Discharge measurement made on this day.
† Change in contents, equivalent in cubic feet per second, in Deep Creek Reservoir, furnished by Pennsylvania Electric Co.
‡ Adjusted for change in contents.
b Stage-discharge relation affected by ice.

3-780. Casselman River at Grantsville, Md.

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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 2,090 ft (from topographic map).

Average discharge.--17 years, 116 cfs.

Extremes.--Maximum discharge during year, 2,840 cfs Mar. 5 (gage height, 5.88 ft); minimum, 0.9 cfs Sept. 11, 12, 13, 15, 16 (gage height, 0.95 ft).
1947-64: 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; no flow Aug. 31, 1962, result of regulation from unknown source.

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

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

Oct. 1 to Mar. 5				Mar. 6 to Sept. 30			
0.96	1.1	1.7	69	Same as preceding table			
1.0	2.0	2.0	139	below 1.7 ft			
1.1	5.7	2.5	325	1.7	69	3.5	840
1.2	11	3.0	585	2.0	134	4.0	1,180
1.3	18	4.0	1,230	2.5	300	5.0	2,000
1.5	38	6.0	2,950	3.0	550		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	5.3	5.6	109	27	140	40	127	450	28	21	11	3.6
2	4.5	5.7	74	27	150	56	175	318	40	43	9.2	2.9
3	3.8	6.1	67	40	110	290	545	249	27	27	16	2.9
4	3.4	5.7	60	120	* 90	840	485	207	21	21	24	2.3
5	2.7	5.6	54	120	84	2,240	292	172	19	21	17	1.7
6	2.5	8.4	49	135	78	1,040	435	* 150	21	16	12	1.5
7	2.4	139	46	350	70	702	644	120	48	14	9.2	1.2
8	* 2.5	* 225	75	235	64	726	600	99	39	21	7.6	1.2
9	2.7	127	150	230	70	828	* 370	86	* 25	27	6.2	1.2
10	2.5	54	89	440	63	1,490	272	73	18	* 20	5.3	1.2
11	3.0	33	79	260	56	786	217	64	14	16	5.7	* 1.1
12	2.8	25	70	180	46	465	175	64	12	19	8.1	1.1
13	3.2	20	* 69	110	54	350	155	132	12	62	* 9.2	1.2
14	2.8	17	54	120	51	430	235	122	12	29	8.6	1.5
15	3.2	15	27	110	46	644	175	103	14	19	6.7	1.1
16	2.3	14	40	96	53	440	139	77	54	15	5.7	1.1
17	2.4	13	38	86	48	395	122	64	26	12	5.3	1.2
18	2.5	12	37	78	43	318	108	56	16	10	4.8	1.2
19	2.9	13	32	70	49	235	124	50	110	21	4.0	2.0
20	2.6	12	27	76	52	200	272	47	204	13	4.0	4.8
21	2.1	12	30	125	46	181	* 605	43	390	67	6.2	5.7
22	3.8	11	30	135	40	160	332	39	228	103	5.7	4.4
23	* 2.4	12	29	150	38	157	246	34	122	50	6.7	4.0
24	2.3	16	28	200	36	214	193	34	82	25	6.7	3.2
25	2.9	14	28	560	35	228	163	34	62	17	4.8	2.6
26	2.7	13	30	540	35	228	139	28	47	14	4.0	2.0
27	2.5	12	35	300	35	187	134	25	39	12	4.0	3.2
28	2.7	12	40	230	34	155	204	23	37	11	3.6	20
29	2.9	210	36	170	33	175	846	22	28	14	4.0	122
30	3.5	259	32	150	------	150	714	21	23	29	6.7	54
31	4.4	------	28	125	------	132	------	20	------	14	5.3	------
TOTAL	92.2	1,327.1	1,592	5,595	1,749	14,482	9,243	3,026	1,818	803	237.3	257.1
MEAN	2.97	44.2	51.4	180	60.3	467	308	97.6	60.6	25.9	7.66	8.57
CFSM	.048	.707	.822	2.88	.965	7.47	4.93	1.56	.970	.414	.123	.137
IN	.05	.79	.95	3.33	1.04	8.62	5.50	1.80	1.08	.48	.14	.15

CALENDAR YEAR 1963 MAX 1,650 MIN 2.0 MEAN 98.8 CFSM 1.58 INCHES 21.47
WATER YEAR 1963-64 MAX 2,240 MIN 1.1 MEAN 110 CFSM 1.76 INCHES 23.93

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	1730	5.88	2,840	4-29	1115	3.97	1,160
3-10	1500	4.86	1,870				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 9, Jan. 11 to Feb. 9, Feb. 12, Feb. 21 to Mar. 4 (no gage-height record Jan. 17 to Feb. 4, Mar. 4).

3-785. Big Piney Run near Salisbury, Pa.

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 1964.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 2,240 ft (from topographic map).

Average discharge.--32 years 37.8 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,240 cfs Apr. 29 (gage height, 4.95 ft); maximum gage height, 6.15 ft Mar. 4 (ice jam); minimum, 0.1 cfs many days in Oct. and Sept.; minimum gage height 0.99 ft Sept. 11-15.
1932-64: 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 gage height, 8.87 ft Feb. 22, 1944 (ice jam); minimum, 0.08 cfs Sept. 1, 2, 3, 4, 1953, Sept. 6, 7, 8, 1957.

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

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

1.0	0.1	1.5	7.4	3.0	231
1.1	.6	1.7	16	3.5	425
1.2	1.4	2.0	40	4.0	671
1.3	2.7	2.3	73	4.5	950
1.4	4.6	2.6	125		

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

DAY	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
1	0.3	0.3	18	3.0	30	10	44	189	7.3	4.4	1.2	0.8
2	.2	.4	14	3.0	28	14	60	127	8.5	4.8	1.0	.6
3	.2	.5	12	5.0	21	80	190	91	5.1	4.1	4.7	.4
4	.2	.4	9.8	15	*23	540	170	84	4.0	3.4	9.8	.4
5	.2	.4	8.3	18	22	* 879	100	60	3.5	2.7	4.1	.4
6	.1	.7	6.9	16	22	423	150	*47	6.3	2.1	2.3	.4
7	.2	18	6.0	40	23	258	220	40	11	1.8	1.6	.6
8	* .1	* 14	10	30	18	248	210	37	7.4	4.0	1.3	.3
9	.2	11	17	35	17	294	* 130	24	* 5.1	6.0	1.2	.2
10	.1	5.6	12	80	16	547	103	15	3.5	* 3.5	1.0	.2
11	.1	3.3	14	50	13	284	78	13	2.6	2.5	1.4	* .1
12	.1	2.3	13	30	13	160	61	18	2.1	16	4.7	.1
13	.1	2.0	11	21	14	113	54	32	1.9	63	* 2.7	.1
14	.2	1.6	7.4	24	13	121	79	25	2.2	20	1.5	.1
15	.2	1.3	3.5	22	12	160	60	21	3.2	12	1.2	.2
16	.1	1.1	5.2	* 21	14	139	54	17	7.6	9.2	1.0	.2
17	.1	1.0	5.0	19	13	129	48	15	3.3	6.8	1.0	.2
18	.1	.9	4.8	17	10	110	41	14	2.1	4.9	.8	.2
19	.2	.8	3.8	16	12	80	50	13	50	3.8	.7	.3
20	.2	.7	3.5	18	13	70	117	12	66	3.4	.6	1.3
21	.2	.7	3.2	28	12	62	* 294	10	69	2.8	.7	1.3
22	.2	.7	3.1	32	11	56	202	8.6	52	3.0	.9	.7
23	* .1	.9	3.1	35	9.7	54	127	7.7	34	4.0	1.6	.6
24	.1	1.2	3.1	46	9.2	74	89	7.6	25	2.5	1.1	.5
25	.1	1.2	3.1	160	9.0	80	67	7.8	18	2.0	.9	.4
26	.2	.7	3.5	160	9.0	80	53	6.0	13	1.8	.7	.3
27	.2	.7	4.0	97	8.8	64	49	5.7	11	1.4	.6	.4
28	.4	.7	4.5	75	8.4	54	68	5.0	9.3	2.2	.5	4.2
29	.2	40	4.0	50	8.2	60	664	4.6	6.3	2.7	.6	16
30	.1	36	3.5	39	------	52	333	4.2	5.2	4.0	.9	13
31	.1	------	3.2	34	------	46	------	3.9	------	1.9	.9	------
TOTAL	5.1	149.1	223.5	1,239.0	432.3	5,341	3,965	965.1	445.5	206.7	53.2	44.5
MEAN	.17	4.97	7.21	40.0	14.9	172	132	31.1	14.9	6.67	1.72	1.48

CALENDAR YEAR 1963 MAX 520 MIN .1 MEAN 25.0 CFSM 1.02 IN. 13.85
WATER YEAR 1963-64 MAX 879 MIN .1 MEAN 35.7 CFSM 1.46 IN. 19.84

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3- 5	1530	4.80	1,130	4-29	0930	4.95	1,240
3-10	1400	4.17	762				

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 15 to Jan. 26, Jan. 29 to Feb. 6, Feb. 24-27, Feb. 29 to Mar. 4. No gage-height record Mar. 18 to Apr. 9.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low-flow and high flow are given in a third table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1964, in North Atlantic Slope basins

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Delaware River basin				
4774	South Branch Naaman Creek near Claymont, Del.	Lat 39°49'00", long 75°29'40", at dam, 800 ft above bridge on Marsh Road, 2.2 miles west of Claymont, New Castle County.	3.83	1955-64	8-28-64	** 0.1
4795	Mill Creek at Stanton, Del.	Lat 39°42'50", long 75°40'00", at highway bridge, 1.2 miles west of Stanton, New Castle County.	12.4	1931-34‡ 1955-64	8-28-64	2.54
4823	Red Lion Creek at Red Lion, Del.	Lat 39°36'20", long 75°39'55", at bridge on State Highway 7, 0.2 mile south of Red Lion, New Castle County.	3.20	1955-60 1962-64	8-27-64	**.05
4831.5	Wiggins Millpond Outlet at Townsend, Del.	Lat 39°24'12", long 75°42'16", at bridge on State Highway 446, 0.8 mile northwest of Townsend, New Castle County.	3.82	1957-60 1962-64	8-27-64	2.38
		St. Jones River basin				
4836.5	Fork Branch at Dupont, Del.	Lat 39°11'56", long 75°34'40", at highway bridge, 0.8 mile northwest of Dupont, Kent County.	7.50	1955-57 1959-60 1962-64	8-27-64	**.01
4836.8	Maidstone Branch at Dupont, Del.	Lat 39°11'18", long 75°34'04", at highway bridge, 0.4 mile southwest of Dupont, Kent County.	17.3	1955-57 1959-60 1962-64	8-27-64	** 1.5
		Murderkill River basin				
4840.2	Browns Branch near Houston, Del.	Lat 38°57'31", long 75°30'33", at highway bridge, 2.9 miles north of Houston, Kent County.	12.4	1955-64	8-25-64	4.03
4840.5	Pratt Branch near Felton, Del.	Lat 39°00'37", long 75°31'46", at highway bridge, 2.6 miles east of Felton, Kent County.	3.29	1955-57 1959-60 1962-64	8-25-64	.90
4840.6	Double Run near Magnolia, Del.	Lat 39°03'16", long 75°29'43", at highway bridge, 1.5 miles southwest of Magnolia, Kent County.	5.68	1955-57 1959-60 1962-64	8-25-64	1.78
		Broadkill River basin				
4842.4	Pemberton Branch near Milton, Del.	Lat 38°46'26", long 75°20'29", at highway bridge, 1.5 miles west of Milton, Sussex County.	6.68	1955-64	8-26-64	2.83
4842.7	Beaverdam Creek near Milton, Del.	Lat 38°45'41", long 75°16'03", at highway bridge, 2.5 miles east of Milton Sussex County.	6.10	1955-64	8-26-64	7.18
		Indian River basin				
*4845.5	Pepper Creek at Dagsboro, Del.	Lat 38°32'50", long 75°14'40", at bridge on State Highway 26, at Dagsboro, Sussex County.	8.78	1955-64	8-26-64	.89

* Also a crest-stage partial-record station.
** Field estimate.
‡ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1964, in North Atlantic Slope basins--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Nanticoke River basin				
4877	Chipman Pond Branch near Laurel, Del. a/	Lat 38°34'39", long 75°31'42", at highway bridge, 2.9 miles northeast of Laurel, Sussex County.	8.55	1955-64	8-26-64	2.74
		Choptank River basin				
4911.8	Watts Creek near Denton, Md.	Lat 38°52'29", long 75°47'38", at bridge on State Highway 474, 1.6 miles southeast of Denton, Caroline County.	b11	1964	9-10-64	0.26
		Chester River basin				
4929.8	Cypress Branch at Millington, Md.	Lat 39°15'28", long 75°50'01", at bridge on State Highway 291, 0.04 mile east of Millington, Kent County.	b38	1964	9-10-64	2.53
4941	Old Mill Stream Branch at Centreville, Md.	Lat 39°02'23", long 76°04'22", at bridge on U.S. Highway 213, at Centreville, Queen Annes County.	11.2	c1953-54 1964	9-11-64	3.78
		Elk River basin				
4955.5	Perch Creek near Elkton, Md.	Lat 39°34'16", long 75°48'53", at bridge on U.S. Highway 213, 2.5 miles south of Elkton, Cecil County.	b6.0	1964	9- 8-64	.48
		Northeast River basin				
4960.5	Little Northeast Creek at Mechanic Valley, Md.	Lat 39°38'26", long 75°55'49", at highway bridge, 0.8 mile northwest of Mechanic Valley, Cecil County.	b14	1964	9- 8-64	1.47
		Patapsco River basin				
5890.9	Stony Run at Elkridge, Md.	Lat 39°12'43", long 76°41'46", at highway bridge on Elkridge-Patapsco Road, 0.9 mile east of Elkridge, Howard County.	b9.4	c1935,55 1964	8-20-64	4.13
		Severn River basin				
5898	Severn Run at Benfield, Md.	Lat 39°04'51", long 76°37'36", at bridge on Maryland State Highway 3, 0.5 mile south of Benfield, Anne Arundel County.	b24	c1955, c1961-62, 1964	8-20-64	13.6
		Patuxent River basin				
5932	Little Patuxent River at Pine Orchard, Md.	Lat 39°16'42", long 76°51'11", at bridge on U.S. Highway 40, 0.4 mile east of Pine Orchard, Howard County.	7.03	1955-59 1961-64	11-26-63	3.35
5936	Middle Patuxent River near West Friendship, Md.	Lat 39°17'14", long 76°57'33", at bridge on State Highway 32, 1.1 miles south of West Friendship, Howard County.	11.4	1956-59 1961-64	11-27-63	4.35
5941	Hammond Branch at Scaggsville, Md.	Lat 39°09'13", long 76°53'35", at bridge on U.S. Highway 29, 0.7 mile northeast of Scaggsville, Howard County.	3.01	1956-59 1962-64	10-22-63	.78
5945.25	Collington Branch at Upper Marlboro, Md.	Lat 38°49'16", long 76°44'40", at railroad bridge, 0.1 mile above mouth at Upper Marlboro, Prince Georges County.	22.9	1964	8-21-64	1.78
5945.35	Mataponi Creek near Naylor, Md.	Lat 38°43'47", long 76°45'18", at bridge on State Highway 382, 1.3 miles northwest of Naylor, Prince Georges County.	b14	1964	8-21-64	.06
5945.45	Lyons Creek at Lyons Creek, Md.	Lat 38°45'53", long 76°39'27", at bridge on State Highway 4, 0.1 mile east of Lyons Creek, Anne Arundel County.	b15	1964	8-24-64	.004
		Potomac River basin				
6013	North Branch Jennings Run at Barrelville, Md.	Lat 39°42'13", long 78°50'38" at bridge on State Highway 47, at Barrelville, Allegany County.	b12	1964	8-20-64	.47
6041.5	Collier Run at Spring Gap, Md.	Lat 39°34'03", long 78°43'23" at culvert on State Highway 51, 0.6 mile west of Spring Gap, Allegany County.	b11	1964	8-20-64	.12

a Prior to 1958 published as "Elliot Pond Branch".
b Approximately.
c Miscelllaneous measurements during this period.

Discharge measurements made at low-flow partial-record stations during water year 1964, in North Atlantic Slope basins--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Potomac River basin--Continued				
6194.8	Little Antietam Creek at Keedysville, Md.	Lat 39°29'10", long 77°42'05" at bridge on Koffman Lane, at Keedysville, Washington County.	b24	d1956, 1964	9- 9-64	5.48
6420.5	Israel Creek near Walkersville, Md.	Lat 39°28'27", long 77°20'26", at bridge on Crum Road, 1.1 miles southeast of Walkersville, Frederick County.	b29	1964	8-25-64	2.86
6431	Bush Creek at Ijamsville, Md.	Lat 39°21'32", long 77°19'27", at bridge on Mussetter Road, at Ijamsville, Frederick County.	b17.5	1964	8-25-64	3.57
6444	Little Seneca Creek at Boyds, Md.	Lat 39°10'29", long 77°18'01", at bridge on State Highway 117, 0.9 mile southeast of Boyds, Montgomery County.	b21	1964	8-26-64	2.62
6463.5	Rock Run near Cabin John, Md.	Lat 38°58'30", long 77°10'58", at bridge on east access road from MacArthur Blvd. to David Taylor Model Basin, 1.1 miles west of Cabin John, Montgomery County.	b4.8	1964	8-26-64	.36
6583	Reeder Run at Chicamuxen, Md.	Lat 38°31'58", long 77°13'39", at bridge on State Highway 224, 0.8 mile west of Chicamuxen, Charles County.	b5.6	1964	8-18-64	.52
6609.5	Gilbert Swamp Run near Olivers Shop, Md.	Lat 38°27'18", long 76°52'23", at bridge on State Highway 232, 1.8 miles south of Olivers Shop, Charles County.	b32	1964	8-18-64	.72
6613	McIntosh Run at Tintop Hill, Md.	Lat 38°20'02", long 76°37'57", at bridge on McIntosh Road, 1.0 mile northwest of Tintop Hill, St. Marys County.	12.1	1964	8-19-64	.37

b Approximately.
d Miscellaneous flood measurement during this period.

Discharge measurements made at low-flow partial-record stations during water year 1964, in Ohio River basin

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Monongahela River basin				
3-754	Laurel Run near Crellin, Md.	Lat 39°23'04", long 79°28'25", 800 ft above mouth, 0.5 mile southwest of Crellin, Garrett County.	10.9	1964	6- 9-64 7-20-64 9-10-64	4.74 1.59 .404
3-765.8	South Branch Bear Creek near Accident, Md.	Lat 39°36'39", long 79°20'02", at culvert on U. S. Highway 219, 1.5 miles southwest of Accident, Garrett County.	b6.0	1964	9-11-64	.19

b Approximately.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1964, in North Atlantic Slope basins

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Leipsic River basin					
4835	Leipsic River near Cheswold, Del.	Lat 39°13'58", long 75°37'57", at bridge, 1.9 miles east of Kenton and 2.6 miles northwest of Cheswold, Kent County.	9.35	1931-33‡ 1943-57‡ 1958-64	1-10-64	2.92	111
		Indian River basin					
*4845.5	Pepper Creek at Dagsboro, Del.	See previous table.	8.78	1960-64	4- 8-64	5.16	(†)
		Nanticoke River basin					
4880	Holly ditch near Laurel, Del.	Lat 38°32'20", long 75°35'55", 10 ft above culvert, 1½ miles southwest of Laurel, Sussex County.	2.19	1951-56‡ 1959-64	4- 8-64	2.19	(†)
		Choptank River basin					
4904.7	Tappahanna ditch near Hartly, Del.	Lat 39°08'07", long 75°41'30", 100 ft below bridge on State Highway 103, 2.7 miles southeast of Hartly, Kent County.	5.93	1952-64	11- 3-56 2-19-64	c7.78 6.67	(†)
4905	Culbreth Marsh ditch near Chapeltown, Del. a/	Lat 39°04'45", long 75°41'05", 40 ft below bridge on State Highway 223, 1.6 miles south of Chapeltown, Kent County.	11.6	1951-56‡ 1957-64	2-19-64	7.22	(†)
		Wye River basin					
4925	Sallie Harris Creek near Carmichael, Md.	Lat 38°57'55", long 76°06'30", 50 ft above bridge on U. S. Highway 50, 2.0 miles northeast of Carmichael, Queen Annes County, and 2.2 miles northwest of Wye Mills.	8.09	1952-56‡ 1957-64	1- 9-64	3.02	71
		Chester River basin					
4940	Southeast Creek at Church Hill, Md.	Lat 39°07'57", long 75°58'51", at bridge on private road, 0.7 mile south of Church Hill, Queen Annes County.	12.5	1952-56‡ 1957-64	2-19-64	5.69	313
		Susquehanna River basin					
5785	Octoraro Creek near Rising Sun, Md.	Lat 39°41'27", long 76°07'38", at Porter Bridge, 3½ miles west of Rising Sun, Cecil County.	193	1932-58‡ 1963-64	1964	-	Unknown
		Patapsco River basin					
5880	Piney Run near Sykesville, Md.	Lat 39°22'55", long 76°58'00", 75 ft below bridge on State Highway 32, 1¼ miles north of Sykesville, Carroll County, and 5½ miles above mouth.	11.4	1932-58‡ 1959-64	4-30-64	3.25	132
5892.2	Gwynns Falls at Owings Mills, Md.	Lat 39°25'14", long 76°46'56", at bridge on U. S. Highway 140, at Owings Mills, Baltimore County.	9.12	1958-64	1964	b<3.98	(†)
5892.4	Gwynns Falls at McDonogh, Md.	Lat 39°23'28", long 76°45'56", at bridge on McDonogh Road, at McDonogh, Baltimore County.	19.3	1958-64	1- 9-64	6.81	(†)
5894	Jones Falls at Brooklandville,	Lat 39°24'51", long 76°40'04", at bridge on State Highway 25, at Brooklandville, Baltimore County.	19.7	1958-64	1964	b<3.11	(†)

* Also a low-flow partial-record station.
† Discharge not determined.
‡ Operated as a continuous-record gaging station.
a Prior to 1956 published as "Shades Branch".
b Peak stage did not reach bottom of gage.
c Corrected.

Annual maximum discharge at crest-stage partial-record stations during water year 1964, in North Atlantic Slope basins--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Patapsco River basin--Continued					
5894.4	Jones Falls at Sorrento, Md.	Lat 39°23'30", long 76°39'42", 50 ft east of State Highway 25, 0.4 mile below Slaughterhouse Branch and Sorrento, Baltimore County.	25.2	1958-64	1- 9-64	10.12	(†)
		Patuxent River basin					
5940	Little Patuxent River at Savage, Md.	Lat 39°08'00", long 76°48'58", 200 ft below northbound lane of bridge on U. S. Highway 1, ½ mile southeast of Savage, Howard County, and 1 mile below Middle Patuxent River.	98.4	1940-58‡ 1959-64	1- 9-64	9.09	3,780
5944	Dorsey Run near Jessup, Md.	Lat 39°07'15", long 76°47'00", at bridge on State Highway 32, 0.6 mile southeast of Fort George G. Meade Junction, 1.0 mile above mouth, and 2 miles south of Jessup, Anne Arundel County.	11.6	1948-58‡ 1959-64	11- 7-63	d 4.34	268
		Potomac River basin					
6095	Sawpit Run near Oldtown, Md.	Lat 39°32'50", long 78°33'20", 900 ft above bridge on State Highway 51, 1.0 mile above mouth, and 3.0 miles east of Oldtown, Allegany County.	5.08	1948-58‡ 1964	4-29-64	2.67	110
6125	Little Tonoloway Creek near Hancock, Md.	Lat 39°42'45", long 78°13'55", 10 ft below bridge on Reel Road, 2.8 miles northwest of Hancock, Washington County.	16.9	1948-63‡ 1964	4-29-64	4.15	443
6370	Little Catoctin Creek at Harmony, Md.	Lat 39°28'54", long 77°32'17" (revised), at county highway bridge, 0.9 mile southwest of Harmony, Frederick County, and 2.8 miles above mouth.	8.83	1947-58‡ 1959-64	7-13-64	5.38	1,060
6400	Little Pipe Creek at Avondale, Md.	Lat 39°33'40", long 77°02'38", at private bridge, 0.1 mile below Copps Branch, ½ mile northwest of Avondale, Carroll County, and 3 miles southwest of Westminster.	8.10	1948-56‡ 1959-64	1- 9-64	3.39	199
6435	Bennett Creek at Park Mills, Md.	Lat 39°17'40", long 77°24'30", 75 ft below highway bridge, 0.2 mile south of Park Mills, Frederick County, 1.8 miles above mouth, and 3.7 miles southwest of Urbana.	62.8	1948-58‡ 1960-64	1- 9-64	7.87	2,200

† Discharge not determined.
‡ Operated as a continuous-record gaging station.
d May have been higher Jan. 9.

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. All measurements in this table were made during periods of base flow, except as otherwise noted.

Discharge measurements made at miscellaneous sites during water year 1964, in North Atlantic Slope basins

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wicomico River basin				
Andrews Branch	North Prong Leonard Pond Run	Lat 38°26'15", long 75°32'11", at culvert 0.7 mile upstream from Williams Pond, 2.0 miles southeast of Delmar, Wicomico County, Md.	a4.5	-	10-15-63 4- 2-64	0.36 7.02
Williams Pond Outlet	North Prong Leonard Pond Run	Lat 38°26'03", long 75°33'13", at bridge at lower end of Williams Pond, 1.5 miles southeast of Delmar, Wicomico County, Md.	a6.8	-	10-15-63	.32
Leonard Pond Run	North Prong Wicomico River	Lat 38°25'24", long 75°33'56", at Leonard Pond, 0.6 mile above Wood Creek, 2.4 miles southeast of Delmar, Wicomico County, Md.	13.4	1950-51 1962-63	10-15-63 4- 2-64 7-31-64 8-28-64	2.03 17.9 3.16 1.54
Wood Creek	Leonard Pond Run	Lat 38°25'29", 75°34'24", 950 ft upstream from mouth, 2.8 miles north of Salisbury, Wicomico County, Md.	1.44	-	10-15-63	.59
Connelly Mill	Leonard Pond Run	Lat 38°25'59", long 75°35'41", at culvert 1.4 miles upstream from mouth, 3.4 miles north of Salisbury, Wicomico County, Md.	3.66	-	10-15-63 4- 2-64	.89 5.90
Little Burnt Branch	North Prong Wicomico River	Lat 38°25'25", long 75°36'28", just below dirt road at Culver Farm 3.0 miles northwest of Salisbury, Wicomico County, Md.	2.74	-	4- 2-64	1.51
Little Burnt Branch	North Prong Wicomico River	Lat 38°24'49", long 75°36'04", at culvert on secondary road 0.5 mile upstream from Nailers Pond, 2.1 miles northwest of Salisbury, Wicomico County, Md.	3.39	-	10-15-63 4- 2-64	1.32 4.90
North Prong Wicomico River	Wicomico River	Lat 38°24'32", long 75°35'42", at bridge on Nailers Mill Road, 0.14 mile below confluence of Leonard Pond Run and Little Burnt Branch, and 1.9 miles north of Salisbury, Wicomico County, Md.	24.8	1963	10-15-63 11-20-63 4- 2-64 5-12-64 5-20-64 8- 3-64 8-28-64	15.7 17.1 58.0 50.0 40.6 22.4 17.2
Brewington Branch	North Prong Wicomico River	Lat 38°23'36", long 75°34'32", at downstream end of culvert at U.S. Highway 13, 0.7 mile northeast of Salisbury, Wicomico County, Md.	2.89	-	10-15-63	.32
Brewington Branch	North Prong Wicomico River	Lat 38°23'22", long 75°35'12", 500 ft upstream from railroad bridge, 0.5 mile north of Salisbury, Wicomico County, Md.	3.89	-	10-15-63	.40
Middle Neck Branch	North Prong Wicomico River	Lat 38°23'18", long 75°33'01", 0.4 mile north of U.S. Highway 50, 1.1 miles upstream from Peggy Branch, 0.6 mile south of Middle Neck, Wicomico County, Md.	a2.1	-	10-15-63 4- 2-64	.69 4.53
Middle Neck Branch	North Prong Wicomico River	Lat 38°23'16", long 75°33'40", at culvert on dirt road, 0.5 mile upstream from Peggy Branch, 1.1 miles northeast of Salisbury, Wicomico County, Md.	a2.5	-	10-15-63	1.71
Peggy Branch	Middle Neck Branch	Lat 38°22'46", long 75°32'28", at culvert on an unimproved road, 2.0 miles upstream from mouth, 2.0 miles west of Walston, Wicomico County, Md.	a0.9	-	10-15-63 4- 2-64	1.37 2.38
Peggy Branch	Middle Neck Branch	Lat 38°22'54", long 75°33'16", at culvert on an unimproved road, 1.2 miles upstream from mouth, 1.4 miles east of Salisbury, Wicomico County, Md.	a1.4	-	10-15-63	1.09
Peggy Branch	Middle Neck Branch	Lat 38°22'56", long 75°33'46", 0.7 mile upstream from mouth, 0.9 mile east of Salisbury, Wicomico County, Md.	a1.6	-	10-15-63	1.19
Middle Neck Branch	North Prong Wicomico River	Lat 38°23'01", long 75°35'18", at culvert under railroad, 700 ft upstream from mouth, at Salisbury, Wicomico County, Md.	a5.6	-	10-15-63	4.40

a Approximately.

Discharge measurements made at miscellaneous sites during water year 1964, in North Atlantic Slope basins--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wicomico River basin--Continued				
North Prong Wicomico River	Wicomico River	Lat 38°22'18", long 75°36'11", at Isabella Street bridge in Salisbury, Wicomico County, Md.	37.1	1962-63	10-15-63	25.9
					5-13-64	68.3
					5-19-64	59.7
					5-25-64	52.1
					8- 3-64	34.5
					8-28-64	27.3
Beaverdam Creek	South Prong Wicomico River	Lat 38°21'53", long 75°31'39", 1.1 miles upstream from Parker Pond, 0.8 mile upstream from State Highway 350, 0.5 mile northwest of Mt. Hermon, Wicomico County, Md.	a9.1	-	10-15-63	.53
Beaverdam Creek	South Prong Wicomico River	Lat 38°20'41", long 75°32'54", at culvert on secondary road at outlet of Parker Pond, 900 ft upstream from Walston Branch, 1.3 miles southwest of Mt. Hermon, Wicomico County, Md.	a11	-	10-15-63	2.16
Walston Branch Tributary	Walston Branch	Lat 38°20'06", long 75°31'21", at culvert on State Highway 585, 0.6 mile upstream from mouth, 3.8 miles east of Salisbury, Wicomico County, Md.	0.92	-	10-15-63	.15
Walston Branch Tributary	Walston Branch	Lat 38°20'35", long 75°31'11", at culvert on State Highway 585, 1.2 miles upstream from mouth, 0.8 mile southeast of Mt. Hermon and 3.8 miles east of Salisbury, Wicomico County, Md.	a1.1	-	10-15-63	.08
Walston Branch	Beaverdam Creek	Lat 38°20'34", long 75°32'55", at bridge on secondary road, 300 ft upstream from mouth, 2.3 miles southeast of Salisbury, Wicomico County, Md.	a6.0	-	10-15-63	2.38
Beaglin Branch	Beaverdam Creek	Lat 38°21'27", long 75°34'25", at culvert on North Park Drive, 800 ft above mouth, at Salisbury, Wicomico County, Md.	a2.1	1963	†8-23-63	.82
					12-16-63	.65
					12-22-63	.63
					3-28-64	2.79
Beaverdam Creek	South Prong Wicomico River	Lat 38°21'29", long 75°34'36", 0.6 mile downstream from Schumaker Pond, at Salisbury, Wicomico County, Md.	a22	-	12-16-63	3.12
					12-17-63	3.34
					12-22-63	15.6
					12-22-63	14.9
					2-25-64	45.8
					3-27-64	6.19
					9-20-64	6.62
					9-21-64	8.70
South Prong Wicomico River	Wicomico River	Lat 38°21'44", long 75°35'06", at bridge on Beaverdam Drive, at Salisbury, Wicomico County, Md.	a23	1963	†8-23-63	27.5
					12-22-63	16.3
					12-22-63	16.5
Coty Cox Branch	Wicomico River	Lat 38°22'15", long 75°36'37", at Isabella Street, at Salisbury, Wicomico County, Md.	2.27	-	10-15-63	.13
Owens Branch	Coty Cox Branch	Lat 38°22'36", long 75°37'37", 1.1 miles upstream from mouth, 0.7 mile northwest of Salisbury, Wicomico County, Md.	.89	-	10-15-63	.84
Tonytank Creek	Wicomico River	Lat 38°19'03", long 75°34'17", 1.2 miles upstream from Fooks Pond, 0.75 mile northeast of Union Church, Wicomico County, Md.	a3.0	-	10-15-63	.30
					5-11-64	2.56
					5-25-64	.98
					6- 9-64	*.76
Tonytank Creek	Wicomico River	Lat 38°19'18", long 75°34'56", 0.75 mile upstream from Fooks Pond, 2.0 miles east of Fruitland, Wicomico County, Md.	a3.3		10-15-63	2.08
					5-11-64	5.63
					5-25-64	3.19
					6- 9-64	*2.94
Tonytank Creek	Wicomico River	Lat 38°19'52", long 75°35'54", at dam, at Fooks Pond Outlet, 1.0 mile northeast of Fruitland, and 1.1 miles south of Salisbury, Wicomico County, Md.	4.98	1950-51 1953, 1962-63	10-15-63	2.72
					3-20-64	10.2
					5-11-64	9.08
					5-25-64	5.87
					6- 9-64	*6.69
					6-10-64	*4.48
					7-31-64	3.96
					8-28-64	2.85
Slab Bridge Creek	Tonytank Creek	Lat 38°18'42", long 75°35'42", at culvert on dirt road to farm house, 0.4 mile upstream from mouth, 1.4 miles southeast of Fruitland, Wicomico County, Md.	1.36	-	10-15-63	**.001

* Not base flow.
** Field estimate.
† Not previously published.
a Approximately.

Discharge measurements made at miscellaneous sites during water year 1964, in North Atlantic Slope basins--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wicomico River basin--Continued				
Rockawalking Creek	Wicomico River	Lat 38°22'44", long 75°40'36", at bridge on secondary road, 0.8 mile upstream from State Highway 349, 2.5 miles south of Hebron, 1.8 miles southwest of Rockawalking, Wicomico County, Md.	2.17	-	10-15-63	.08
Passerdyke Creek	Wicomico Creek	Lat 38°17'39", long 75°39'10", 0.7 mile downstream from U.S. Highway 13, 0.9 mile south of Crows Nest, Wicomico County, Md.	6.62	-	10-15-63	.23
Passerdyke Creek	Wicomico Creek	Lat 38°17'35", long 75°40'52", at unimproved road bridge, 175 ft south of State Highway 529, 0.5 mile northeast of Allen, Wicomico County, Md.	7.88	1963	10-15-63 11-18-63 5-12-64 7-30-64	.41 1.30 1.89 .92
		Nanticoke River basin				
Gales Creek	Nanticoke River	Lat 38°34'01", long 75°42'49", at outlet to Galestown Millpond on State Highway 531 at Galestown, Dorchester County, Md.	-	-	8-25-64	2.09
Davis Millpond Branch	Marshy Hope Creek	Lat 38°40'32", long 75°46'20", at bridge on unimproved road, 400 ft upstream from mouth, 0.8 mile south of Federalsburg, Caroline County, Md.	-	-	8-25-64	2.20
Skinners Run	Marshy Hope Creek	Lat 38°39'46", long 75°48'38", at bridge on unimproved road, 0.6 mile upstream from mouth, 1.0 mile northeast of Williamsburg, Dorchester County, Md.	-	-	8-26-64	1.33
Quantico Creek	Nanticoke River	Lat 38°24'02", long 75°42'08", at bridge on secondary road, 0.4 mile southeast of State Highway 347, 0.9 mile southwest of Hebron, Wicomico County, Md.	4.62	-	10-15-63	.47
Quantico Creek	Nanticoke River	Lat 38°23'05", long 75°43'18", at bridge on dirt road, 0.5 mile upstream from Peters Creek, 1.3 miles northeast of Quantico, Wicomico County, Md.	6.81	-	10-15-63	.59
Peters Creek	Quantico Creek	Lat 38°23'18", long 75°41'41", at culvert on secondary road, 1.9 miles upstream from mouth, 1.6 miles south of Hebron, Wicomico County, Md.	.95	-	10-15-63	.00
Quantico Creek	Nanticoke River	Lat 38°22'12", long 75°44'23", at bridge on State Highway 347, at Quantico, Wicomico County, Md.	11.3	1950-53 1963	10-15-63 11-18-63 7-30-64	.63 2.01 1.40
		Choptank River basin				
Gravel Run	Hunting Creek	Lat 38°40'56", long 75°53'57", at culvert on State Route 16, at Beulah, Dorchester County, Md.	a8.4	-	8-26-64	4.44
		Wye River basin				
Mill Creek	Skipton Creek	Lat 38°54'36", long 76°04'26", at bridge on State Route 662, 1.4 miles northwest of Skipton, Talbot County, Md.	-	-	8-25-64	3.47
		Patuxent River basin				
Patuxent River	Chesapeake Bay	Lat 39°18'33", long 77°09'56", at bridge on Long Corner Road, 2.2 miles below bridge on State Highway 28, and 2.5 miles northeast of Damascus, Montgomery County, Md.	7.31	-	10-23-63 3-26-64	0.52 16.9
Cabin Branch	Patuxent River	Lat 39°18'46", long 77°08'06", at culvert on Florence Road, 1.4 miles west of Florence, Howard County, Md., and 4.7 miles above mouth.	3.32	-	10-22-63	0.30
Cattail Creek Tributary	Cattail Creek	Lat 39°16'34", long 77°04'22", at bridge on Daisy Road, 0.6 mile above mouth, and 1.2 miles south of Daisy, Howard County, Md.	1.91	-	10-22-63 3-26-64	0.38 1.97
Dorsey Branch	Cattail Creek	Lat 39°15'41", long 77°02'17", at bridge on Roxbury Road, 0.9 mile above mouth, and 0.9 mile east of Roxbury Mills, Howard County, Md.	3.68	-	10-22-63 3-26-64	0.75 4.95

a Approximately.

Discharge measurements made at miscellaneous sites during water year 1964, in North Atlantic Slope basins--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Patuxent River basin--Continued				
Hawlings River	Patuxent River	Lat 39°13'03", long 77°06'19", 150 ft below bridge on Sundown Road, 2.1 miles east of Laytonsville, Montgomery County, Md., and 2.7 miles above State Highway 97.	6.49	-	10-22-63	0.90
Reddy Branch	Hawlings River	Lat 39°10'54", long 77°03'44", at bridge on State Highway 97, 0.2 mile northwest of Brookeville, Montgomery County, Md.	3.52	-	10-22-63	0.52
Patuxent River Tributary	Patuxent River	Lat 39°09'20", long 76°58'36", at culvert on Tucker's Lane, at mouth, and 2.0 miles east of Ashton, Montgomery County, Md.	1.58	-	10-22-63 3-26-64	0.49 2.24
Little Patuxent River	Patuxent River	Lat 39°14'21", long 76°50'51", at bridge on State Highway 108, 3.3 miles southwest of Ellicott City, Howard County, Md.	21.4	1956	11-26-63	9.77
Little Patuxent River	Patuxent River	Lat 39°11'59", long 76°51'18", at bridge on Owen Brown Road, 0.5 mile below bridge on U. S. Highway 29, and 1.6 miles northeast of Simpsonville, Howard County, Md.	29.2	-	11-27-63	12.4
Middle Patuxent River	Little Patuxent River	Lat 39°13'46", long 76°55'03", at bridge on State Highway 108, 2.1 miles northeast of Clarksville, Howard County, Md.	37.5	-	11-27-63	14.2
Middle Patuxent River Tributary	Middle Patuxent River	Lat 39°12'41", long 76°55'07", 300 ft below culvert on Trotter Road, 0.8 mile above mouth, and 1.4 miles east of Clarksville, Howard County, Md.	0.30	-	10-22-63	0.08
Middle Patuxent River Tributary	Middle Patuxent River	Lat 39°12'03", long 76°55'07", at culvert on Trotter Road, 1.0 mile above mouth, and southeast of clarksville, Howard County, Md.	6.47	-	10-22-63	1.61
Little Patuxent River	Patuxent River	Lat 39°08'05", long 76°49'30", at bridge on Savage Road, at Savage, Howard County, Md., and 0.6 mile below Middle Patuxent River.	98.0	-	11-27-63	14.2
Little Patuxent River	Patuxent River	Lat 39°07'14", long 76°48'42", at bridge on Brock Bridge Road, 0.3 mile below Hammond Branch, and 1.2 miles southeast of Savage, Howard County, Md.	109	-	7-21-64 9-23-64	28.8 17.5
Dorsey Run	Little Patuxent River	Lat 39°08'57", long 76°47'14", at bridge on Dorsey Run Road, 0.5 mile above B & O Railroad bridge, and Jessup, Howard County, Md.	6.53	-	10-22-63	0.99
Towsers Branch	Little Patuxent River	Lat 39°02'50", long 76°41'11", at culvert on Waugh Chapel Road, 1.8 miles southwest of Gambrills, Anne Arundel County, Md., and 2.1 miles above mouth.	3.67	-	10-22-63 3-26-64	0.49 2.00
Little Patuxent River	Patuxent River	Lat 38°59'28", long 76°42'24", 0.1 mile above mouth and bridge on State Highway 3, and 3.2 miles northeast of Collington, Prince Georges County, Md.	162	-	7-21-64 9-23-64	39.5 26.5
Patuxent River Tributary	Patuxent River	Lat 38°56'50", long 76°40'52", at culvert on Sands Road, 0.9 mile above mouth, and 3.5 miles northwest of Davidsonville, Anne Arundel County, Md.	1.84	-	10-22-63 3-26-64	0.62 2.56
Rock Branch	Patuxent River	Lat 38°51'10", long 76°40'03", at bridge on Polling House Road, 0.1 mile above Deep Run Branch, and 0.8 mile northeast of Bayard, Anne Arundel County, Md.	4.01	-	10-22-63	0.04
Bald Hill Branch	Western Branch	Lat 38°56'56", long 76°50'28", at bridge on State Highway 704, 1.5 miles southeast of Lanham, Prince Georges County, Md.	3.22	-	10-22-63	0.12
Folly Branch	Western Branch	Lat 38°58'00", long 76°49'36", 0.8 mile above bridge on State Highway 450, 1.4 miles south of Glenn Dale, Prince Georges County, Md.	4.54	-	10-22-63	0.01
Lottsford Branch	Western Branch	Lat 38°56'45", long 76°48'31", at bridge on U. S. Highway 50, 2.9 miles southeast of Lanham, Prince Georges County, Md.	1.88	-	10-22-63 3-26-64	0.21 2.72

Discharge measurements made at miscellaneous sites during water year 1964, in North Atlantic Slope basins--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Patuxent River basin--Continued				
Western Branch	Patuxent River	Lat 38°49'12", long 76°44'49", 200 ft above Collington Branch and bridge on Main Street, at Upper Marlboro, Prince Georges County, Md.	66.1	-	10-23-63	7.56
Black Branch	Collington Branch	Lat 38°52'30", long 76°44'51" at Pennsylvania Railroad Bridge, 0.1 mile above mouth, and 0.1 mile northeast of Leeland, Prince Georges County, Md.	3.00	-	10-22-63 3-26-64	0.49 4.66
Charles Branch	Western Branch	Lat 38°47'33", long 76°48'49", at highway bridge, 1.4 miles above U. S. Highway 301, and 1.4 miles southeast of Mellwood, Prince Georges County, Md.	3.11	-	10-22-63 3-26-64	0.20 5.22
Cabin Branch	Lynns Creek	Lat 38°47'22", long 76°38'57", at bridge on State Highway 258, 1.1 miles east of Bristol, Anne Arundel County, Md.	1.96	-	10-22-63	0.08
Chew Creek	Patuxent River	Lat 38°40'09", long 76°37'02", at bridge on State Highway 4, 2.0 miles southeast of Chaneyville, Calvert County, Md.	1.31	-	10-22-63	0.12
Chew Creek	Patuxent River	Lat 38°39'30", long 76°38'42", at bridge on State Highway 262, 2.0 miles east of Lower Marlboro, Calvert County, Md.	3.75	-	10-22-63	0.38
Swanson Creek	Patuxent River	Lat 38°33'29", long 76°44'23", at bridge on State Highway 381, 1.4 miles north of Patuxent, Charles County, Md.	20.2	-	10-22-63	1.72
Hunting Creek	Patuxent River	Lat 38°35'23", long 76°34'42", 1.0 mile southwest of Parran, Calvert County, Md., and 1.9 miles above Sewell Branch.	4.16	-	10-22-63	0
Hunting Creek	Patuxent River	Lat 38°35'03", long 76°36'20", at bridge on State Highway 263, 0.1 mile above Sewell Branch, and 2.2 miles south of Huntingtown, Calvert County, Md.	9.32	-	10-22-63	0.16
Sewell Branch	Hunting Creek	Lat 38°36'27", long 76°35'16", at bridge on Coxs Road, 0.9 mile northwest of Parran, Calvert County, Md., and 2.2 miles above mouth.	4.05	-	10-22-63 3-26-64	0.06 6.84
Sewell Branch	Hunting Creek	Lat 38°35'05", long 76°36'25", at bridge on State Highway 2, 50 ft above mouth, and 2.2 miles south of Huntingtown, Calvert County, Md.	6.58	-	10-22-63	0
Killpeck Creek	Trent Hall Creek	Lat 38°28'47", long 76°45'03", 1.5 miles east of Charlotte Hall, St. Marys County, Md., and 3.4 miles above mouth.	2.15	-	10-22-63 3-26-64	0.47 3.28
Killpeck Creek	Trent Hall Creek	Lat 38°28'54", long 76°43'18", 1.1 miles northeast of Huntersville, St. Marys County, Md., and 1.6 miles above mouth.	4.20	-	10-22-63	0.68
Locks Swamp Creek	Trent Hall Creek	Lat 38°27'18", long 76°44'34", at culvert on Locks Hill Rd., north of Mechanicsville, St. Marys County, Md., and 1.9 miles above State Highway 6.	1.89	-	10-22-63	0.42
Locks Swamp Creek	Trent Hall Creek	Lat 38°27'49", long 76°42'50", at bridge on State Highway 6, 2.3 miles northeast of Mechanicsville, St. Marys County, Md.	4.62	-	10-22-63 3-26-64	0.98 6.70
Persimmon Creek	Patuxent River	Lat 38°26'32", long 76°41'45", 1.2 miles above State Highway 6, 2.7 miles east of Mechanicsville, St. Marys County, Md.	2.49	-	10-22-63	.04
Persimmon Creek	Patuxent River	Lat 38°27'02", long 76°40'47", at bridge on State Highway 6, 3.6 miles east of Mechanicsville, St. Marys County, Md.	5.62	-	10-22-63	1.14
		Potomac River basin				
Mill Run	North Branch Potomac River	Lat 39°32'08", long 78°53'20", just above abandoned B & O Railroad water intake, 900 ft northwest of U. S. Highway 220, at Rawlings, Allegany County, Md.	2.64	1960-62	10- 4-63	.14
Rocky Gap Run	Evitts Creek	Lat 39°42'04", long 78°39'46", 0.9 mile northwest of Yonkers, Allegany County, Md., and 2.6 miles above mouth.	8.91	-	3-14-64 5-31-64 8-11-64	14.2 1.13 .15
Potomac Blue Spring	North Branch Potomac River	Lat 39°34'26", long 78°43'50", 200 ft below abandoned C & O Canal Lock, 1.1 miles northwest of Spring Gap, Allegany County, Md.	-	1958-63	9- 9-64	7.16

Discharge measurements made at miscellaneous sites during water year 1964, in North Atlantic Slope basins--Continued

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Potomac River basin--Continued						
Murley Branch Spring	Murley Branch	Lat 39°39'38", long 78°37'08", below dam at spring house of farm on Williams Road, 4.0 miles southwest of Flintstone, Allegany County, Md.	-	1958-63	9- 9-64	.90
Little Catoctin Creek b/	Catoctin Creek	Lat 39°32'10", long 77°34'34", at bridge on Ward Kline Road, 2.1 miles northwest of Myersville, Frederick County, Md., and 2.6 miles above mouth.	5.19	-	7-30-64 9-16-64	.50 .17
Little Catoctin Creek	Catoctin Creek	Lat 39°28'54", long 77°32'17", at county highway bridge, 0.9 mile southwest of Harmony, Frederick County, Md., and 2.8 miles above mouth.	8.83	1947-58‡ 1963	7-30-64 9-16-64	1.04 .42
Northwest Branch Anacostia River Tributary	Northwest Branch Anacostia River Tributary	Lat 39°04'23", long 77°03'09", at culvert on Lutes Lane, 0.2 mile above mouth, and 1.0 mile north of Glenmont, Montgomery County, Md.	0.47	-	7- 7-64 9- 1-64	.04 .01
Northwest Branch Anacostia River Trib.	Northwest Branch Anacostia River	Lat 39°05'25", long 77°03'10", at bridge on Bel Pre Road, 1.4 miles above State Highway 182, 1.9 miles southeast of Norbeck, Montgomery County, Md.	1.70	-	9- 1-64	.03
Mattawoman Creek	Potomac River	Lat 38°39'35", long 76°51'24", at bridge on Cedarville Road, 1.1 miles above U. S. Highway 301, and 2.6 miles south of Brandywine, Prince Georges County, Md.	5.67	-	10-22-63	0

‡ Operated as a continuous-record gaging station.
b Not the same stream as next site.

Discharge measurements made at miscellaneous sites during water year 1964, in Ohio River basin

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Monongahela River basin						
Bear Creek	Youghiogheny River	Lat 39°39'22", long 79°23'41", 0.2 mile below bridge on Accident-Friendsville Road, 0.8 mile southeast of Friendsville, Garrett County, Md., and 1.2 miles above mouth.	48.9	a1963	9-11-64	2.23

a 0.2 mile upstream.

Plate 1.--Map showing location of gaging stations.

GPO 915-193