1961

Surface Water Records of Maryland and Delaware

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the States of Maryland and Delaware and other agencies

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

SURFACE WATER RECORDS OF MARYLAND AND DELAWARE

1961

Prepared under the direction of J. W. Odell, District Engineer
Surface Water Branch, succeeded by W. E. Forrest,
in cooperation with the States of
Maryland and Delaware and other agencies

Copies of this report may be obtained from
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University of Maryland
College Park, Maryland

CALENDAR FOR WATER YEAR 1961

OCTOBER 1960

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 1960

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 1960

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 1961

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 1961

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				

MARCH 1961

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 1961

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 1961

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 1961

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 1961

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 1961

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 1961

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

SURFACE WATER RECORDS OF MARYLAND AND DELAWARE, 1961

INTRODUCTION

The surface-water records for the 1961 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. Odell, district engineer, Surface Water Branch, succeeded by W. E. Forrest.

This report marks the beginning of a new method of presenting, annually, basic data on surface-water records by States. Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes or reservoirs were published in an annual series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Since 1951 there have been 20 volumes in the series; each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records in Maryland and Delaware were contained in Parts 1B and 3A of that series.

Beginning with the 1961 water year, streamflow records and related data will be released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports will be limited and primarily for local needs. The records later will be published in Geological Survey water-supply papers at 5-year intervals. These 5-year water-supply papers will show daily discharge and will be compiled on the same geographical areas previously used for the annual series; however, some of the 14 parts of conterminous United States will be further subdivided.

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: University of Delaware, J. A. Perkins, president, through the Delaware Geological Survey, J. J. Groot, State geologist; State Highway Department, W. J. Miller, Jr., director of operations, through R. A. Haber, chief engineer, succeeded by E. A. Davidson.

Maryland: State Board of Natural Resources, Department of Geology, Mines and Water Resources, J. T. Singewald, Jr., director; city of Baltimore, L. V. Schuerholz, water engineer.

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

Assistance was also furnished by the Weather Bureau of the United States Department of Commerce, the National Park Service of the United States 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 Corporation of America; 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 hight 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 constriction of the channel, a long reach of the channel, or an artificial structure.

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

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

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

DOWNSTREAM ORDER AND STATION NUMBERS

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

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

The complete number for each station, such as 1-6385.00, includes the part number "1" and a six digit station number. In this report, 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. The records of stage are obtained either from a water-stage recorder that gives a continuous record of fluctuations or from direct readings on a nonrecording gage. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge.

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

At some gaging stations the stage-discharge relation is affected by 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 1961 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 little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height if it is significant. In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder, a crest-stage 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.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such a fluctuation, the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, which is an instrument for obtaining the daily mean discharge from a continouous gage-height graph and containing, as an essential element, a curve representing the stage-discharge relation at the station.

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 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 avarage 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 following footnotes and their corresponding symbols have been standardized for use throughout this report. The methods used in computing data for such footnoted periods have been explained in preceding paragraphs.

* Discharge measurement made on this day. Used to indicate days on which discharge measurements were made at a gaging station unless they were made at frequent regular intervals, two or more times monthly, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

** Field estimate made on this day. Used to indicate days on which an estimate of the flow was made at the gaging station.

a No gage-height record. Used to indicate periods when there was no gage-height record or the available record was such that it could not be used to compute the daily discharge. No mention is made of periods of no gage-height record if they are few and of short duration, no more than 4 days in succession and not more than 12 days distributed throughout the water year, and if the degree of accuracy of records for those days is not changed.

b Stage-discharge relation affected by ice. Used to indicate periods when the stage-discharge relation is affected by ice forming on stream, control, or streambed. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

c Backwater from aquatic growth (or debris or other conditions). Used only when records for the periods affected are rated down in accuracy.

e Shifting-control method used, stage-discharge relation indefinite, or flow through floodgates. Used only when records for the periods affected are rated down in accuracy.

g Computed from once-daily (twice-daily, etc.) staff (or chain, wire-weight, etc.) gage readings. Used only for recording stations for periods when the water-stage recorder graph was not used but readings of a nonrecording gage were used. The symbol is not used for periods of short duration if the degree of accuracy of records for the periods involved are not changed.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published each year for all reservoirs for which records are published on a daily basis, but it is not published for reservoirs for which only monthly data are given.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

Discharge at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are

not published unless satisfactory adjustments can be made for 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 the 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.

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 1961.

Gage.--Water-stage recorder 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 site of bridge at same datum.

Average discharge.--18 years, 27.1 cfs.

Extremes.--Maximum discharge during year, 1,290 cfs Apr. 13 (gage height, 9.92 ft); minimum daily, 2.9 cfs Sept. 17.
1943-61: Maximum discharge, 2,620 cfs May 1, 1947 (gage height, 12.41 ft); minimum daily, 0.4 cfs July 26, 1944, Aug. 1, 1954.

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

Rating tables, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 13						Apr. 13 to Sept. 30			
2.3	4.2	3.5	61	7.0	487	2.1	2.5	3.0	35
2.5	9.8	4.0	105	8.0	700	2.2	4.3	3.5	66
2.7	17	5.0	199	9.0	1,000	2.4	9.8	4.0	105
3.0	30	6.0	325			2.7	22		

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	11	33	16	544	14	52	116	27	15	12	7.5	5.9
2	9.8	21	14	89	b13	57	34	45	14	14	8.4	5.2
3	*11	18	11	35	13	36	27	28	13	10	5.5	3.3
4	8.7	15	14	26	19	38	25	25	15	8.6	10	5.2
5	13	13	14	19	26	76	24	23	13	8.8	5.4	7.2
6	6.6	18	12	19	21	74	24	23	14	8.3	7.3	5.0
7	11	*17	14	25	19	46	24	30	14	8.4	11	5.9
8	12	16	12	32	19	*257	23	29	13	6.5	7.9	7.4
9	5.0	18	12	25	22	183	22	29	16	8.2	8.4	5.3
10	11	94	9.0	17	28	43	193	45	37	10	7.3	3.0
11	8.0	36	13	16	34	33	42	33	15	8.1	6.4	6.3
12	9.2	23	12	16	27	30	30	40	13	7.4	6.3	5.4
13	9.1	20	16	16	24	28	*743	32	12	24	5.4	4.7
14	5.8	18	14	19	34	209	85	28	18	12	9.1	6.3
15	11	17	13	95	65	51	44	24	30	9.4	4.6	*9.9
16	5.6	16	15	61	78	36	68	29	13	14	6.1	5.5
17	11	16	15	34	80	29	42	22	11	38	5.2	2.9
18	8.3	14	11	36	191	27	34	20	11	14	4.6	6.5
19	8.8	14	*11	31	667	113	31	22	12	11	5.3	5.4
20	255	14	11	18	137	45	29	21	9.8	6.6	4.4	3.8
21	31	14	45	26	60	32	27	19	21	11	27	9.8
22	20	14	37	20	81	36	27	18	32	5.9	10	6.4
23	18	14	18	*17	183	222	30	18	14	7.9	13	5.3
24	18	13	16	19	74	65	27	17	13	*10	13	4.8
25	14	15	14	15	168	38	27	16	12	10	7.1	4.5
26	14	11	12	16	111	31	61	33	13	8.6	16	4.9
27	13	13	15	17	45	29	29	24	18	6.6	18	7.2
28	14	15	13	16	44	28	36	18	14	7.0	10	4.3
29	79	16	15	13	-	29	52	17	11	74	6.3	4.7
30	23	27	51	14	---	26	29	18	12	14	6.4	3.9
31	16	---	35	14	---	34	---	*15	---	11	5.8	---
Total	690.9	603	530.0	1,360	2,297	2,033	2,005	788	468.8	405.3	268.7	165.9
Mean	22.3	20.1	17.1	43.9	82.0	65.6	66.8	25.4	15.6	13.1	8.67	5.53
Cfsm	1.09	0.980	0.834	2.14	4.00	3.20	3.26	1.24	0.761	0.639	0.423	0.270
In.	1.25	1.09	0.96	2.47	4.17	3.69	3.64	1.43	0.85	0.74	0.49	0.30

Calendar year 1960: Max 1,120 Min 5.0 Mean 31.5 Cfsm 1.54 In. 20.92
Water year 1960-61: Max 743 Min 2.9 Mean 31.8 Cfsm 1.55 In. 21.08

Peak discharge (base, 1,000 cfs).--Jan. 1 (2 p.m.) 1,170 cfs (9.58 ft); Feb. 19 (6:30 p.m.) 1,050 cfs (9.17 ft); Apr. 13 (8 to 9 a.m.) 1,290 cfs (9.92 ft).

* Discharge measurement made on this day.
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 1961. Monthly discharge only for some periods, published in WSP 1302.
Gage.--Water-stage recorder. 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.--21 years (1931-36, 1943-57, 1959-61), 111 cfs.
Extremes.--Maximum discharge during year, 2,300 cfs Jan. 1 (gage height, 11.06 ft); minimum, 26 cfs Sept. 30 (gage height, 4.18 ft); minimum daily, 29 cfs Sept. 27-30.
1931-36, 1943-57, 1959-61: 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 tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 1		Jan. 2 to Sept. 30			
4.4	44	4.2	28	7.0	600
4.5	57	4.5	65	8.0	900
5.0	142	5.0	155	9.0	1,300
6.0	333	6.0	355		
8.0	900				

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	d79	124	77	b900	b90	231	312	155	96	66	52	38
2	d74	99	72	348	b82	239	187	189	93	70	50	39
3	*d75	94	70	171	b86	199	165	153	93	64	51	37
4	d72	87	70	133	b98	193	155	145	98	61	54	36
5	d72	79	70	b105	b110	245	149	135	87	59	52	36
6	86	91	70	b100	b92	*215	147	135	91	58	52	34
7	86	*80	70	124	b88	185	139	163	89	59	61	48
8	80	74	69	145	b88	398	135	155	84	59	51	39
9	80	72	66	b116	b90	542	135	155	98	57	47	38
10	80	209	64	b100	b100	225	404	225	149	48	44	37
11	79	140	70	b98	b140	187	207	167	91	48	48	35
12	75	103	b56	96	b110	179	169	189	82	48	48	34
13	75	94	b96	98	b96	169	1,270	165	77	91	44	*33
14	75	89	115	102	b100	389	376	153	216	155	39	38
15	75	86	101	195	b125	223	239	137	163	72	38	65
16	75	86	103	183	b133	185	279	151	93	133	37	41
17	74	82	b82	131	b151	165	227	127	80	211	36	36
18	70	79	b64	129	259	163	195	122	76	89	35	34
19	70	79	b64	137	1,140	320	183	120	72	71	35	34
20	412	77	b70	b86	307	215	173	120	70	64	43	37
21	129	77	*b131	b140	288	177	165	116	100	61	105	64
22	98	75	b135	b110	255	177	163	112	167	57	55	44
23	91	77	b77	b100	441	446	175	109	94	55	109	35
24	89	77	b74	b110	339	283	159	105	82	*58	94	34
25	82	75	b80	b100	491	209	159	100	76	62	59	32
26	80	74	b82	b90	504	183	263	143	76	52	105	31
27	77	74	b86	b98	257	175	167	129	112	48	84	29
28	80	74	b80	b92	231	169	167	107	89	48	54	29
29	165	84	b92	b88	-	181	243	103	77	188	48	29
30	108	108	b140	b86	---------	157	165	105	70	72	43	29
31	86	---------	b110	b84	---------	169	---------	*98	---------	58	41	---------
Total	2,949	2,719	2,606	4,595	6,291	7,193	7,072	4,288	2,941	2,342	1,714	1,125
Mean	95.1	90.6	84.1	148	225	232	236	138	98.0	75.5	55.3	37.5
Cfsm	1.08	1.03	0.958	1.69	2.56	2.64	2.69	1.57	1.12	0.860	0.630	0.427
In.	1.25	1.15	1.10	1.95	2.66	3.05	3.00	1.82	1.25	0.99	0.73	0.48

Calendar year 1960: Max 3,580 Min 38 Mean 123 Cfsm 1.40 In. 19.06
Water year 1960-61: Max 1,270 Min 29 Mean 126 Cfsm 1.44 In. 19.43

Peak discharge (base, 2,000 cfs).--Jan. 1 (2:30 p.m.) 2,300 cfs (11.06 ft).

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

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 1961.

Gage.--Water-stage recorder 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.--18 years, 65.2 cfs.

Extremes.--Maximum discharge during year, 1,390 cfs Apr. 13 (gage height, 5.06 ft); minimum, 17 cfs Sept. 30; minimum daily, 19 cfs Sept. 30.
1943-61: 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, 7.5 cfs July 25, Aug. 1, 1954.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

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

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	51	81	49	500	a52	123	183	104	57	41	35	26
2	48	62	46	157	a47	130	113	126	*55	48	32	25
3	48	60	44	95	a49	104	101	104	57	42	32	27
4	46	53	44	76	a56	98	98	95	57	40	34	25
5	*44	53	44	64	a64	123	95	92	53	38	32	24
6	46	58	44	62	a54	113	92	92	53	36	32	23
7	46	53	44	76	a50	107	86	119	53	38	34	23
8	44	49	42	86	a50	*229	84	107	51	45	29	24
9	44	48	41	69	a52	299	81	102	57	38	28	24
10	44	136	40	57	a60	130	253	155	67	34	27	22
11	42	81	44	57	a80	107	130	113	53	32	29	22
12	41	62	b41	57	a62	104	110	130	51	32	29	*21
13	41	57	b60	57	a56	101	795	107	49	63	26	20
14	41	55	b72	60	a60	253	243	101	123	170	24	27
15	42	53	b69	116	a70	136	158	92	101	60	24	41
16	42	53	b60	95	a74	116	213	110	55	95	24	27
17	42	51	b44	74	a82	101	154	89	49	113	24	24
18	41	49	b38	76	a130	95	133	79	46	62	23	23
19	42	49	b38	84	638	204	123	76	44	51	23	23
20	276	48	b42	b48	181	133	116	76	42	46	25	24
21	76	48	b79	b80	81	110	110	72	74	44	77	49
22	60	48	b62	b60	75	107	110	74	92	40	35	28
23	55	49	b42	b56	143	256	116	69	58	38	76	24
24	53	46	b42	b60	116	147	107	67	51	47	65	23
25	49	46	b48	*b58	255	116	107	62	46	48	42	23
26	48	46	b49	b52	230	104	180	85	46	*38	84	23
27	46	46	51	b56	130	101	110	81	71	34	42	20
28	49	46	b44	b52	116	98	120	67	53	32	34	20
29	104	54	b51	a50	-	107	146	62	46	97	30	20
30	64	68	81	a49	----------	92	107	64	42	51	29	19
31	55	----------	67	a48	----------	95	----------	58	----------	38	27	----------
Total	1,770	1,708	1,562	2,587	3,113	4,139	4,574	2,830	1,752	1,631	1,107	744
Mean	57.1	56.9	50.4	83.5	111	134	152	91.3	58.4	52.6	35.7	24.8
Cfsm	1.21	1.21	1.07	1.78	2.36	2.85	3.23	1.94	1.24	1.12	0.760	0.528
In.	1.40	1.35	1.24	2.05	2.46	3.28	3.62	2.24	1.39	1.29	0.88	0.59

Calendar year 1960: Max 2,430 Min 23 Mean 77.9 Cfsm 1.66 In. 22.56
Water year 1960-61: Max 795 Min 19 Mean 75.4 Cfsm 1.60 In. 21.79

Peak discharge (base, 1,200 cfs).--Apr. 13 (8 a.m.) 1,390 cfs (5.06 ft).

* 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 1961. Prior to December 1946, monthly discharge only, published in WSP 1302.

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

Average discharge.--15 years, 473 cfs.

Extremes.--Maximum discharge during year, 7,660 cfs Apr. 14 (gage height, 8.30 ft); minimum, 107 cfs Dec. 12, result of freezeup; minimum daily, 128 cfs Sept. 30.
1946-61: 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 or no gage-height record, 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 tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 1		Jan. 2 to Sept. 30			
2.6	98	2.7	122	5.0	2,100
2.7	128	3.0	231	6.0	3,450
3.0	280	3.5	595	8.0	7,000
4.0	1,100	4.0	1,030		
5.0	2,100				

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	a310	410	350	1,660	b285	1,080	1,270	782	493	324	298	176
2	a305	425	287	1,510	b269	1,080	940	859	484	425	258	176
3	a300	365	268	745	b269	895	765	782	518	330	258	242
4	a295	329	274	544	292	824	722	722	561	311	269	187
5	*294	308	262	434	350	976	706	697	484	298	258	173
6	301	350	268	418	330	859	688	680	476	285	269	162
7	308	329	262	544	324	886	663	833	459	292	330	162
8	a301	301	250	527	324	*1,400	638	782	459	317	253	158
9	a294	287	238	476	324	2,440	620	731	652	285	222	165
10	a287	638	220	388	358	1,270	1,470	922	586	253	218	165
11	a274	663	256	365	388	967	1,110	782	510	247	209	145
12	262	425	b145	358	365	895	765	*877	442	242	222	148
13	262	372	b215	344	330	808	5,120	790	425	357	222	*148
14	262	343	b280	365	350	1,510	4,260	740	811	1,040	183	420
15	256	336	268	518	476	1,120	1,440	688	672	613	183	440
16	268	329	280	646	484	895	1,570	740	459	844	180	173
17	250	315	274	484	510	774	1,460	646	395	596	180	158
18	256	308	256	476	892	722	1,050	604	372	395	176	139
19	256	301	226	510	3,630	1,730	1,010	604	337	324	169	145
20	1,210	301	232	284	4,040	1,340	1,000	604	330	481	196	151
21	618	280	431	b388	1,430	895	931	586	399	468	358	285
22	380	287	536	b402	1,080	824	895	578	680	304	269	209
23	336	287	b322	b358	1,960	1,410	985	570	476	263	784	162
24	329	287	b287	b365	1,820	1,550	868	552	425	274	445	155
25	308	280	294	b344	2,430	1,030	833	527	372	292	274	142
26	294	280	274	b304	3,440	868	1,210	578	388	*231	464	142
27	287	280	294	b298	1,490	816	910	629	551	209	369	134
28	294	268	b256	b304	1,140	790	808	561	476	209	231	134
29	522	294	280	b285	-	859	1,300	527	380	1,890	222	131
30	395	502	402	b285	--------	765	850	552	337	1,100	209	128
31	329	--------	358	b280	--------	740	--------	510	--------	395	183	--------
Total	10,643	10,480	8,845	15,209	29,380	33,018	36,857	21,035	14,409	13,894	8,361	5,455
Mean	343	349	285	491	1,049	1,065	1,229	679	480	448	270	182
Cfsm	1.09	1.11	0.908	1.56	3.34	3.39	3.91	2.16	1.53	1.43	0.860	0.580
In.	1.26	1.24	1.05	1.80	3.48	3.91	4.37	2.49	1.71	1.65	0.99	0.65

Calendar year 1960: Max 7,500 Min 145 Mean 549 Cfsm 1.75 In. 23.81
Water year 1960-61: Max 5,120 Min 128 Mean 569 Cfsm 1.81 In. 24.60

Peak discharge (base, 4,000 cfs).--Feb. 20 (4 to 5 a.m.) 6,080 cfs (7.54 ft); Feb. 26 (5:30 a.m.) 5,280 cfs (7.10 ft); Apr. 14 (1 to 2 a.m.) 7,660 cfs (8.30 ft); July 29 (8 p.m.) 4,900 cfs (6.88 ft).

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

1-4820. 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 1961.

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

Average discharge.--15 years (1946-61), 9.51 cfs.

Extremes.--Maximum discharge during year, 1,210 cfs Apr. 13 (gage height, 4.68 ft); minimum, 0.6 cfs Aug. 18.
1945-61: 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, 1948, 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, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	0.5	2.0	36
1.4	1.2	2.2	70
1.5	2.6	2.5	150
1.6	4.8	3.0	370
1.7	8.6	3.5	620
1.8	15		

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	2.1	17	3.0	170	b1.7	18	37	5.5	2.3	1.9	2.1	1.7
2	1.8	6.4	2.3	20	b1.6	13	8.1	11	*2.0	3.2	1.8	6.7
3	2.3	6.4	2.1	10	b1.6	8.6	6.0	5.4	2.1	1.6	1.3	4.5
4	1.7	3.8	2.1	6.4	b7.2	14	5.4	4.5	2.3	1.3	1.5	1.7
5	*1.7	3.5	2.1	5.4	b4.3	17	4.8	4.0	1.7	1.1	1.5	1.8
6	1.6	5.1	2.1	6.0	b4.0	21	4.8	4.3	2.0	1.1	2.3	1.5
7	1.8	3.2	2.1	9.7	b3.8	12	4.5	16	1.8	1.1	3.3	1.3
8	1.6	2.5	2.0	9.7	4.3	*95	4.3	9.2	1.6	12	1.6	1.1
9	1.5	*2.3	1.8	5.4	7.0	57	4.3	20	12	2.1	1.5	1.1
10	1.5	38	1.8	4.0	13	13	59	20	12	1.2	1.5	1.0
11	1.5	7.7	b1.8	3.6	12	8.6	11	12	2.3	1.0	4.9	1.1
12	1.5	4.3	b1.7	3.6	7.6	7.2	9.1	14	1.7	.9	2.3	1.2
13	1.3	3.8	b3.4	3.4	6.8	6.4	394	8.1	1.7	22	1.5	*1.2
14	1.3	3.4	b3.2	4.8	21	58	33	6.0	10	51	.9	39
15	1.5	3.2	b2.5	20	25	13	14	5.1	8.2	18	.8	34
16	1.5	3.0	b3.2	13	29	8.6	43	19	2.0	21	.9	2.7
17	1.5	3.0	b3.0	8.1	23	6.0	15	5.1	1.6	25	.8	1.6
18	1.7	2.6	b2.1	9.7	116	7.4	9.7	3.8	1.5	3.6	.7	1.3
19	2.1	2.6	b1.8	b6.4	110	49	8.1	3.8	1.3	2.5	.8	1.3
20	68	2.3	b1.8	b3.6	21	13	6.4	3.4	1.3	2.3	8.5	1.8
21	6.0	2.3	*b3.9	b5.1	14	7.6	6.0	3.2	12	2.1	26	26
22	4.5	2.3	b2.2	b4.3	32	8.1	6.0	2.8	18	2.1	2.0	2.8
23	3.4	2.6	b4.8	b5.1	37	51	6.8	2.6	2.6	2.0	83	1.7
24	3.0	2.3	b3.4	b4.3	17	18	5.4	2.6	2.5	10	12	1.5
25	2.3	2.1	b3.4	b2.1	45	10	6.2	2.5	1.6	5.2	5.8	1.3
26	2.5	1.8	b4.3	b2.1	18	7.6	19	18	1.3	*1.8	22	1.2
27	2.6	1.8	b6.0	b2.8	10	6.8	5.7	6.0	7.3	1.6	13	1.0
28	4.7	2.0	b3.8	b2.1	14	6.8	12	3.4	2.0	1.3	2.9	1.0
29	42	7.9	b10	b1.8	-	8.1	13	3.6	1.5	77	13	.9
30	6.4	6.7	b30	b1.8	--------	5.7	5.7	3.4	1.3	4.5	4.0	.8
31	4.5	--------	b14	b1.7	--------	12	--------	2.6	--------	2.5	1.9	--------
Total	181.4	155.9	186.6	356.0	606.9	587.5	767.3	230.9	121.5	284.0	226.1	145.8
Mean	5.85	5.20	6.02	11.5	21.7	19.0	25.6	7.45	4.05	9.16	7.29	4.86
Cfsm	0.784	0.697	0.807	1.54	2.91	2.55	3.43	0.999	0.543	1.23	0.977	0.651
In.	0.90	0.78	0.93	1.77	3.03	2.93	3.83	1.15	0.61	1.42	1.13	0.73

Calendar year 1960: Max 471 Min 0.6 Mean 9.22 Cfsm 1.24 In. 16.84
Water year 1960-61: Max 394 Min 0.7 Mean 10.5 Cfsm 1.41 In. 19.21

Peak discharge (base, 550 cfs).--Jan. 1 (5 a.m.) 650 cfs (3.56 ft); Apr. 13 (9 a.m.) 1,210 cfs (4.68 ft); July 29 (10:30 a.m.) 940 cfs (4.14 ft).

* 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 1961.

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.--5 years (1956-61), 5.68 cfs.

Extremes.--Maximum discharge during year, 131 cfs Apr. 13 (gage height, 2.18 ft); minimum, 0.7 cfs Aug. 9, 17-19, Oct. 26-30.
1951-61: Maximum discharge, 510 cfs Sept. 12, 1960 (gage height, 4.10 ft).
1956-61: Minimum discharge, 0.3 cfs July 22, 23, 1957, July 7, 8, 9, 10, 1959; minimum gage height, 0.10 ft July 7, 8, 9, 10, 1959, July 6, 7, 9, 10, 13, 1960.

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

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 19 to Sept. 9)

Oct. 1 to Feb. 18				Feb. 19 to Sept. 30					
0.5	2.0	1.0	15	0.2	0.4	0.6	4.7	1.2	30
.6	3.3	1.2	27	.3	.8	.7	7.1	1.5	52
.7	5.1	1.5	52	.4	1.6	.8	10	1.7	73
.8	7.6			.5	2.8	1.0	19		

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	10	a 8.2	4.9	52	b 4.1	16	24	6.1	2.5	1.4	1.0	0.8
2	5.6	a 6.4	4.3	26	b 3.8	14	12	10	2.3	1.4	1.0	.8
3	4.7	a 5.0	4.1	12	b 3.8	12	8.8	6.4	2.5	1.4	1.0	.8
4	4.5	*a 4.5	4.1	8.6	b 10	11	8.1	5.4	2.3	2.0	1.0	.9
5	*a 4.5	4.5	4.1	6.8	b 11	11	7.4	4.9	*2.0	1.4	1.0	.9
6	a 4.3	5.1	4.1	6.8	b 7.4	10	7.1	5.2	2.0	1.5	1.0	.9
7	a 4.3	4.5	4.1	9.8	5.8	10	6.6	6.1	2.0	1.6	1.0	.9
8	a 4.1	4.3	3.9	9.2	6.1	29	6.4	5.7	2.0	1.4	.9	.9
9	a 4.1	4.3	3.8	7.4	7.4	48	6.4	4.9	4.3	1.3	.8	1.0
10	a 3.9	9.6	b 3.4	5.6	8.2	*18	22	4.5	11	1.2	1.4	.8
11	a 3.9	10	b 3.2	5.6	8.6	12	13	6.0	2.8	1.1	2.5	*.6
12	a 3.8	5.8	b 3.4	5.8	7.4	11	8.8	8.4	2.2	1.0	3.2	.6
13	a 3.6	5.1	b 3.4	5.8	6.8	9.7	*66	7.1	2.0	1.4	2.9	.6
14	a 3.6	4.9	b 3.2	6.6	8.6	21	20	5.9	5.5	1.4	1.1	1.4
15	a 3.8	4.7	b 3.8	17	12	16	12	4.7	31	5.6	1.0	4.6
16	a 3.8	4.7	b 4.3	14	13	12	12	4.5	3.7	13	.9	1.4
17	a 3.8	4.7	b 5.0	8.9	12	9.7	10	3.9	2.3	2.1	.8	.9
18	a 3.8	4.5	b 4.3	7.6	35	91	8.1	3.4	2.0	2.0	.8	.9
19	a 3.8	4.5	b 3.8	6.4	*58	32	7.1	3.4	1.6	*1.4	.8	.9
20	a 7.4	4.5	b 3.8	b 5.4	24	17	6.6	3.4	1.5	1.2	1.4	1.0
21	a 12	4.3	12	b 6.6	17	12	6.4	3.2	2.3	1.1	3.0	2.1
22	a 6.4	4.3	*11	b 5.4	18	13	6.1	3.2	4.7	1.0	1.4	1.0
23	a 4.9	4.5	5.8	b 5.4	50	29	6.4	2.8	2.2	1.0	1.4	.8
24	a 4.5	4.3	4.5	b 6.4	26	19	5.7	2.6	2.2	1.4	1.3	.8
25	a 4.3	4.3	4.5	b 5.8	26	13	5.4	2.5	2.0	1.4	2.7	.8
26	a 4.1	4.1	4.7	*b 5.6	24	10	7.8	5.4	2.3	1.0	6.4	.7
27	a 4.1	4.1	5.6	b 5.8	15	9.7	5.7	8.7	2.5	1.0	5.9	.7
28	a 4.3	4.1	b 4.7	b 4.9	14	9.4	6.2	3.5	2.2	1.0	1.3	.7
29	a 7.6	5.5	5.0	b 4.7	-	9.7	15	2.8	1.7	1.4	1.0	.7
30	a 6.4	8.6	13	b 4.5	--------	9.4	7.1	2.7	1.5	1.2	1.0	.7
31	a 5.2	--------	8.9	b 4.5	--------	10	--------	2.5	--------	1.1	.8	--------
Total	155.1	157.9	158.7	286.9	443.0	472.7	344.2	149.8	111.1	57.4	51.7	30.6
Mean	5.00	5.26	5.12	9.25	15.8	15.2	11.5	4.83	3.70	1.85	1.67	1.02
Cfsm	1.30	1.37	1.33	2.40	4.10	3.95	2.99	1.25	0.961	0.481	0.434	0.265
In.	1.50	1.53	1.53	2.77	4.28	4.57	3.32	1.45	1.07	0.55	0.50	0.30

Calendar year 1960: Max 227 Min 0.5 Mean 4.95 Cfsm 1.29 In. 17.53
Water year 1960-61: Max 66 Min 0.6 Mean 6.63 Cfsm 1.72 In. 23.37

Peak discharge (base, 50 cfs).--Jan. 1 (5:30 p.m.) 84 cfs (1.80 ft); Feb. 19 (1:30 a.m.) 92 cfs (1.87 ft); Feb. 23 (5:30 p.m.) 74 cfs (1.71 ft); Mar. 8 (11 p.m.) 83 cfs (1.79 ft); Apr. 13 (11:15 a.m.) 131 cfs (2.18 ft); June 15 (7 a.m.) 52 cfs (1.50 ft).

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

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 1961.

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

Extremes.--Maximum discharge during year, 602 cfs Apr. 13 (gage height, 5.71 ft); no flow May 9, 10.
1958-61: 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 except those for periods of backwater from tide or no gage-height record, and those below 10 cfs, which are fair. Flow affected by Silver Lake.

Rating table, water year 1960-61, except periods of backwater from tide (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 11-15, June 3-7)

1.9	0	2.4	11	3.5	140
1.95	.1	2.6	20	4.0	240
2.0	.3	2.8	34	5.0	440
2.1	2.0	3.0	56	6.0	675
2.2	4.5	3.2	85		

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	120	c55	57	240	32	94	112	52	11	13	9.5	5.7
2	82	c48	41	*466	31	100	166	52	11	11	7.5	5.4
3	48	44	30	290	32	88	98	52	13	9.2	6.9	5.1
4	32	36	26	160	39	73	64	52	20	8.7	6.6	5.1
5	25	32	25	97	34	64	54	51	13	7.8	6.0	4.5
6	*25	30	25	74	63	63	50	50	9.9	12	6.6	4.2
7	24	30	25	70	80	63	46	50	8.2	22	6.6	4.2
8	23	29	24	78	86	104	45	*c19	*9.2	28	7.2	4.2
9	23	30	22	74	85	334	45	c0	a12	20	6.0	4.2
10	23	34	21	57	110	276	52	c0	a120	14	6.0	4.2
11	22	41	24	50	114	142	162	15	a150	8.9	5.7	4.0
12	21	54	32	45	100	86	108	36	a70	6.9	6.3	4.5
13	20	40	14	44	84	69	366	42	a40	9.5	6.0	4.0
14	20	32	30	45	86	88	468	32	a80	13	4.0	4.8
15	21	28	30	78	120	122	224	28	a280	21	3.5	6.3
16	21	*28	32	142	168	104	128	25	a360	86	4.0	3.8
17	21	28	32	126	174	*73	102	21	113	110	3.8	2.2
18	20	25	33	88	220	55	85	18	35	59	3.8	c1.6
19	24	25	29	70	*378	118	67	16	19	24	3.5	c3.2
20	39	24	25	40	284	210	59	15	13	14	6.9	c6.9
21	a56	24	37	42	170	134	*55	14	13	10	22	c13
22	a66	23	43	48	138	94	52	13	26	8.5	22	c6.3
23	a45	23	*68	42	242	214	52	12	31	9.2	17	c4.0
24	a30	22	50	40	404	258	52	11	24	14	13	c3.2
25	24	22	32	38	252	146	51	9.9	25	17	14	c3.0
26	24	22	26	34	190	88	52	15	24	16	16	c2.8
27	24	22	28	*32	138	69	51	30	30	8.5	34	2.5
28	34	22	33	32	100	60	51	35	32	6.6	32	3.8
29	c45	31	36	32	-	57	54	21	24	8.9	16	3.2
30	c78	42	43	32	---	67	51	15	17	10	11	2.8
31	c72	---	74	32	---	57	---	11	---	8.9	6.9	---
Total	1,152	946	1,047	2,738	3,954	3,570	3,022	812.9	1,633.3	615.6	320.3	132.7
Mean	37.2	31.5	33.8	88.3	141	115	101	26.2	54.4	19.9	10.3	4.42
Cfsm	1.17	0.987	1.06	2.77	4.42	3.61	3.17	0.821	1.71	0.624	0.323	0.139
In.	1.34	1.10	1.22	3.19	4.61	4.16	3.52	0.95	1.90	0.72	0.37	0.15

Calendar year 1960: Max 1,460 Min 1.6 Mean 43.8 Cfsm 1.37 In. 18.67
Water year 1960-61: Max 468 Min 0 Mean 54.6 Cfsm 1.71 In. 23.23

* Discharge measurement made on this day.
a No gage-height record.
c Backwater from tide.

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 1961.

Gage.--Water-stage recorder and timber control. Altitude of gage is 38 ft (from topographic map).

Extremes.--Maximum discharge during year, 60 cfs Feb. 19 (gage height, 3.82 ft); minimum daily, 0.9 cfs Sept. 11-13, 19 and 26-30.
1958-61: Maximum discharge, 176 cfs Sept. 12, 1960, (gage height, 5.55 ft); minimum daily, 0.8 cfs July 5, 1959.

Remarks.--Records fair.

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	5.8	4.6	3.4	34	5.3	12	19	6.8	4.9	3.1	2.1	1.1
2	5.4	4.4	3.2	16	*4.9	11	11	7.4	4.6	3.1	2.0	1.0
3	5.1	4.0	3.2	9.7	5.3	10	9.0	6.4	4.9	3.2	2.0	1.3
4	4.8	3.9	3.1	8.4	8.6	9.7	8.4	6.0	4.2	3.1	2.0	1.6
5	*4.6	4.0	3.1	7.7	7.0	9.2	7.7	5.8	3.7	3.2	1.9	1.1
6	4.6	4.2	3.1	7.4	6.6	9.0	7.4	5.8	3.7	3.4	2.0	1.1
7	4.6	3.9	3.1	7.2	6.4	8.8	7.0	6.0	*3.7	3.1	1.9	1.0
8	4.2	3.7	3.0	7.0	9.1	17	6.8	7.2	3.9	3.1	1.7	1.0
9	4.2	3.7	3.0	6.6	11	18	6.8	6.4	4.0	3.1	1.7	1.0
10	4.2	4.8	3.0	6.4	11	11	8.6	6.0	3.7	3.0	1.7	1.0
11	4.0	4.4	3.1	6.2	11	9.7	7.4	7.0	3.6	2.8	1.6	.9
12	3.9	4.0	5.3	6.2	9.5	9.0	7.4	8.4	3.6	2.8	1.6	.9
13	3.7	3.9	4.6	6.2	8.6	8.8	34	7.0	3.6	2.8	1.6	.9
14	3.7	3.9	4.2	6.2	14	*14	13	6.6	3.6	3.0	1.5	1.1
15	3.6	3.9	4.2	9.7	15	11	9.0	6.2	4.6	2.8	1.5	1.2
16	3.4	*3.9	4.4	8.1	13	11	8.8	7.4	3.9	2.8	1.4	1.0
17	3.4	3.9	4.6	7.2	12	12	7.9	7.2	3.7	2.6	1.4	1.0
18	3.4	3.9	4.0	6.8	15	9.0	7.0	6.4	3.6	2.6	1.4	1.0
19	3.4	3.9	4.0	6.8	44	19	*6.8	6.2	3.6	2.5	1.4	.9
20	4.6	3.7	*3.7	8.4	19	10	6.4	6.2	3.4	2.4	1.5	1.1
21	3.9	3.7	8.6	7.2	18	9.0	6.4	6.0	3.7	2.4	1.7	1.5
22	3.6	3.7	6.0	6.2	17	13	6.4	5.8	4.0	2.2	1.5	1.1
23	3.4	3.7	4.9	6.0	41	24	6.6	5.6	3.7	3.1	1.4	1.1
24	3.4	3.7	4.6	5.8	28	14	7.0	5.4	3.9	2.8	1.4	1.1
25	3.2	3.6	4.6	5.4	23	11	7.2	5.4	3.6	2.5	1.3	1.0
26	3.2	3.4	4.9	5.4	19	9.2	7.2	7.0	3.6	2.4	2.2	.9
27	3.2	3.4	5.1	5.4	13	8.6	7.0	9.0	3.6	2.2	2.4	.9
28	4.6	3.4	4.9	5.3	13	8.1	7.2	6.8	3.6	2.2	1.5	.9
29	6.2	3.7	5.3	5.3	-	7.7	8.6	6.0	3.4	2.4	1.3	.9
30	4.6	3.9	9.5	5.1	-------	7.4	7.0	5.4	3.2	2.2	1.2	.9
31	4.2	-------	6.4	5.1	-------	8.9	-------	4.9	-------	*2.1	*1.2	-------
Total	128.1	116.8	138.1	244.4	408.3	350.1	270.0	199.7	114.8	85.0	51.0	31.5
Mean	4.13	3.90	4.45	7.88	14.6	11.3	9.00	6.44	3.83	2.74	1.65	1.05
Cfsm	1.46	1.38	1.57	2.78	5.16	3.99	3.18	2.28	1.35	0.968	0.583	0.371
In.	1.68	1.53	1.81	3.21	5.37	4.60	3.55	2.62	1.51	1.12	0.67	0.41

Calendar year 1960: Max 80 Min 1.8 Mean 5.02 Cfsm 1.77 In. 24.13
Water year 1960-61: Max 44 Min 0.9 Mean 5.86 Cfsm 2.07 In. 28.08

* Discharge measurement made on this day.
Note.--Backwater from aquatic vegetation Oct. 1 to Dec. 31, Apr. 14 to Sept. 30.

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 Reynold's Pond, and 2½ miles north of Milton, Sussex County.

Drainage area.--7.08 sq mi.

Records available.--October 1956 to September 1961.

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

Average discharge.--5 years, 12.2 cfs.

Extremes.--Maximum discharge during year, 41 cfs Dec. 12 (gage height, 5.40 ft); minimum, 4.4 cfs July 25, 26. 1956-61: 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 ice effect, which are fair. Flow regulated by Reynold's Pond.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.7	3.9	4.7	20
3.9	5.7	5.0	28
4.1	8.1	5.4	45
4.4	13		

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	11	13	9.3	21	a13	25	27	17	15	10	6.8	6.5
2	11	12	9.2	23	a13	24	27	17	14	9.6	6.8	6.4
3	10	11	9.2	21	a17	23	25	17	14	9.2	7.6	7.1
4	10	11	9.2	18	22	22	23	16	14	9.0	9.2	8.7
5	*9.8	11	9.0	17	23	21	22	15	14	8.8	8.7	8.4
6	9.9	11	9.0	16	22	21	21	14	13	9.3	8.4	8.0
7	10	11	9.0	15	21	20	20	14	13	9.6	8.1	7.6
8	10	10	8.8	15	25	23	20	22	13	9.6	7.8	7.3
9	10	*10	8.6	14	31	28	19	22	a15	9.8	7.6	6.9
10	10	12	8.4	14	31	28	20	20	a16	9.3	7.4	6.8
11	9.8	12	b10	13	29	26	20	19	a14	8.8	7.2	6.6
12	9.3	12	b16	13	27	24	19	21	a13	8.4	6.9	6.5
13	9.2	12	b12	13	25	22	26	20	*a13	8.4	6.7	6.4
14	9.0	11	b10	13	23	24	28	19	12	9.2	6.5	6.4
15	8.8	11	b9.0	15	23	24	26	17	16	9.0	6.4	6.5
16	8.7	11	b9.4	16	22	*24	24	21	17	8.8	6.4	6.4
17	8.8	10	b9.8	16	21	23	*22	25	14	8.6	6.2	6.2
18	8.7	10	b9.8	15	22	22	21	23	13	8.1	6.2	6.4
19	8.8	11	9.8	16	24	25	20	21	12	7.8	6.1	6.7
20	11	11	*9.4	18	23	25	19	19	9.9	7.3	7.3	7.6
21	10	10	12	a19	24	24	19	18	10	6.9	8.2	9.8
22	11	10	13	a19	24	24	18	18	12	6.8	7.7	6.2
23	10	10	12	a17	29	30	18	17	12	7.4	7.6	5.9
24	9.6	10	11	a16	31	32	17	16	12	*7.4	7.3	5.6
25	8.7	9.9	11	a15	30	31	17	15	12	4.7	7.4	5.3
26	8.8	9.8	11	a15	29	28	16	16	11	4.5	8.1	5.1
27	8.8	9.6	11	a14	26	26	16	21	12	4.7	8.1	4.8
28	12	9.6	11	a14	25	25	16	20	12	5.1	7.8	4.7
29	14	9.9	11	a14	-	23	17	18	11	5.7	*7.4	4.5
30	15	9.9	14	a13	---	23	17	17	11	6.2	7.1	4.5
31	14	---	14	*a13	---	23	---	16	---	6.7	6.7	---
Total	315.7	321.7	325.9	491	675	763	620	571	389.9	244.7	227.7	195.8
Mean	10.2	10.7	10.5	15.8	24.1	24.6	20.7	18.4	13.0	7.89	7.35	6.53
Cfsm	1.44	1.51	1.48	2.23	3.40	3.47	2.92	2.60	1.84	1.11	1.04	0.922
In.	1.66	1.69	1.71	2.58	3.55	4.01	3.26	3.00	2.05	1.29	1.20	1.03

Calendar year 1960: Max 30 Min 6.7 Mean 11.2 Cfsm 1.58 In. 21.57
Water year 1960-61: Max 32 Min 4.5 Mean 14.1 Cfsm 1.99 In. 27.03

* 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 1961.

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 indicator at same site and datum.

Average discharge.--18 years, 7.50 cfs.

Extremes.--Maximum discharge during year, 75 cfs Feb. 8 (gage height, 3.30 ft); minimum, 1.6 cfs Sept. 13, 14, 26-30.

1943-61: Maximum discharge, 132 cfs June 4, 1948 (gage height, 5.0 feet, from graph based on gage readings readings), from rating curve extended above 50 cfs by logarithmic plotting; minimum observed, 0.13 cfs Sept. 1-11, 1944.

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

Rating table, water year 1960-61 (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 1960 to September 1961

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.8	6.4	4.6	36	a8.4	20	24	10	9.2	4.6	3.3	1.9
2	4.6	6.1	4.2	26	a8.0	19	21	12	8.9	4.2	3.0	1.9
3	4.6	6.4	4.0	20	a12	17	18	11	9.2	4.2	3.0	2.2
4	4.2	5.8	4.0	17	32	16	16	10	8.2	4.2	3.3	2.4
5	*4.0	6.4	4.0	15	19	15	15	9.8	7.6	4.2	3.0	2.0
6	4.0	7.3	4.0	14	17	14	14	9.8	7.3	4.8	2.8	2.0
7	3.8	6.4	4.0	13	15	13	13	9.8	7.3	4.2	2.8	2.0
8	3.8	6.1	3.8	12	37	20	13	23	7.3	4.8	2.8	1.9
9	3.8	*5.2	3.8	11	45	32	12	17	7.6	5.5	2.6	1.9
10	3.8	7.9	3.5	9.8	33	23	13	14	7.3	4.2	2.6	1.9
11	3.8	7.6	3.8	9.5	26	19	13	13	6.7	4.0	2.4	1.7
12	3.8	6.1	12	9.2	23	17	12	18	6.7	3.8	2.4	1.7
13	3.5	5.8	8.2	9.2	20	15	32	17	*6.4	3.8	2.2	1.7
14	3.5	5.5	7.0	9.2	20	16	23	14	6.1	4.0	2.2	1.9
15	3.5	5.2	6.7	15	19	16	19	13	8.9	3.8	2.2	2.0
16	3.5	5.2	8.2	15	17	*16	17	15	7.3	3.8	2.2	1.9
17	3.5	5.2	8.2	13	15	15	15	18	6.7	3.5	2.2	1.7
18	3.5	4.9	7.3	12	16	14	14	14	6.4	3.5	2.2	1.7
19	3.3	4.6	7.0	12	*21	19	13	12	6.1	3.3	2.2	1.7
20	5.4	4.6	*6.7	24	18	18	13	12	5.8	3.3	2.4	2.4
21	3.8	4.6	13	17	17	16	12	11	6.1	3.0	2.8	4.0
22	3.5	4.6	13	14	17	17	12	10	6.7	3.0	2.2	2.0
23	3.5	4.6	9.5	13	34	43	12	9.8	5.8	4.0	2.2	1.9
24	3.5	4.2	8.5	12	31	34	12	9.2	5.8	*4.0	2.2	1.7
25	3.3	4.2	8.2	a11	27	26	11	8.9	5.5	3.8	2.2	1.7
26	3.3	4.2	8.2	a11	33	21	11	10	5.2	3.3	2.4	1.6
27	3.3	4.2	8.2	a10	22	19	10	16	5.5	3.3	2.4	1.6
28	9.8	4.0	7.6	a9.4	20	17	10	13	5.2	3.3	2.2	1.6
29	10	4.2	7.6	a9.0	-	16	11	10	5.2	4.2	*2.2	1.6
30	7.3	5.5	10	a8.8	--------	15	10	9.8	4.8	3.8	1.9	1.6
31	6.1	--------	10	*a8.6	--------	15	--------	9.2	--------	3.3	1.9	--------
Total	136.1	163.0	218.8	425.7	622.4	593	441	389.3	202.8	120.7	76.4	57.8
Mean	4.39	5.43	7.06	13.7	22.2	19.1	14.7	12.6	6.76	3.89	2.46	1.93
Cfsm	0.838	1.04	1.35	2.61	4.24	3.65	2.81	2.40	1.29	0.742	0.469	0.368
In.	0.97	1.16	1.55	3.02	4.42	4.21	3.13	2.76	1.44	0.86	0.54	0.41

Calendar year 1960: Max 30 Min 2.4 Mean 7.38 Cfsm 1.41 In. 19.17
Water year 1960-61: Max 45 Min 1.6 Mean 9.44 Cfsm 1.80 In. 24.47

Peak discharge (base, 45 cfs).--Jan. 1 (1:00 p.m.) 54 cfs (3.03 ft); Feb. 8 (9 to 11 p.m.) 75 cfs (3.30 ft); Feb. 23 (3 to 5 p.m.) 47 cfs (2.93 ft); Mar. 23 (1:30 to 3:30 p.m.) 55 cfs (3.00 ft).

* 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 1961.

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

Average discharge.--11 years (1950-61), 69.1 cfs.

Extremes.--Maximum discharge during year, 709 cfs Feb. 9 (gage height, 10.99 ft); minimum, 5.7 cfs Aug. 18-20, 25. 1949-61: Maximum discharge, 882 cfs Mar. 21, 1958 (gage height, 12.03 ft); minimum, 2.2 cfs Aug. 18, 19, 1957 (gage height, 1.91 ft).

Remarks.--Records good.

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1-20, Jan. 24 to Feb. 3, Mar. 9, 10, Apr. 17 to May 7, June 2 to July 7)

2.1	4.3	4.0	71
2.5	14	5.0	136
3.0	28	7.0	306
3.5	46	11.0	710

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	21	339	45	442	54	208	249	37	81	20	9.0	12
2	19	252	41	557	49	196	227	80	70	19	8.5	10
3	18	177	38	391	50	169	173	93	60	18	9.8	11
4	18	136	37	269	450	147	140	79	52	18	14	21
5	17	109	36	197	370	132	121	63	46	17	10	16
6	*16	105	35	165	285	123	104	54	42	20	9.5	13
7	16	96	34	149	212	113	93	53	40	19	9.8	11
8	16	79	33	137	361	166	82	181	38	18	11	10
9	16	*69	31	120	697	*356	75	153	37	17	9.0	9.8
10	16	67	31	105	673	258	80	121	36	16	8.3	9.2
11	15	85	32	97	528	180	82	208	33	15	8.0	8.8
12	15	81	269	93	372	147	75	522	*32	14	7.6	8.3
13	14	70	266	87	284	126	310	434	30	14	7.3	7.8
14	14	66	195	87	248	124	265	284	28	15	6.8	9.5
15	14	61	157	179	211	128	191	189	34	14	6.6	19
16	13	58	176	212	183	123	149	149	35	13	6.4	13
17	13	56	216	191	160	116	124	199	31	13	6.1	12
18	13	53	167	160	165	99	*100	145	29	12	5.9	11
19	12	50	137	140	279	173	85	114	27	12	5.7	11
20	23	47	117	291	228	192	75	95	26	11	6.6	14
21	32	47	191	220	211	156	67	80	25	11	7.8	40
22	29	44	288	165	238	154	61	69	27	10	6.6	34
23	26	42	191	130	490	501	56	60	26	10	6.1	25
24	25	41	142	109	686	501	52	52	24	*10	6.1	21
25	23	40	118	90	613	338	47	45	24	10	5.9	19
26	21	38	107	78	500	225	43	57	23	9.8	39	17
27	20	37	109	73	333	173	40	266	23	9.2	39	16
28	176	36	101	67	236	144	38	220	22	9.2	21	15
29	657	36	95	63	-	126	40	151	22	9.5	*17	14
30	608	43	161	60	--------	109	38	118	21	10	15	14
31	473	--------	185	*56	--------	99	--------	94	--------	9.0	13	--------
Total	2,409	2,460	3,781	5,180	9,166	5,802	3,282	4,465	1,044	422.7	342.4	452.4
Mean	77.7	82.0	122	167	327	187	109	144	34.8	13.6	11.0	15.1
Cfsm	1.28	1.36	2.02	2.76	5.40	3.09	1.80	2.38	0.575	0.225	0.182	0.250
In.	1.48	1.51	2.32	3.18	5.63	3.57	2.02	2.74	0.64	0.26	0.21	0.28

Calendar year 1960: Max 657 Min 6.1 Mean 70.7 Cfsm 1.17 In. 15.90
Water year 1960-61: Max 697 Min 5.7 Mean 106 Cfsm 1.75 In. 23.84

Peak discharge (base, 500 cfs).--Oct. 29 (11 a.m. to 1 p.m.) 669 cfs (10.72 ft); Jan. 1 (8 to 10 p.m.) 625 cfs (10.23 ft); Feb. 4 (11 a.m. to 12 m.) 526 cfs (9.30 ft); Feb. 9 (9 to 12 p.m.) 709 cfs (10.99 ft); Feb. 24 (11 a.m. to 1 p.m.) 691 cfs (10.83 ft); Mar. 23 (7 to 9 p.m.) 580 cfs (9.82 ft); May 12 (1 to 3 p.m.) 552 cfs (9.56 ft).

* Discharge measurement made on this day.

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 1961.

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

Average discharge.--11 years (1950-61), 55.2 cfs.

Extremes.--Maximum discharge during year, 653 cfs Feb. 10 (gage height, 7.10 ft); minimum, 3.0 cfs Sept. 12, 13, 14.

1949-61: Maximum discharge, 988 cfs Aug. 16, 1953 (gage height, 7.82 ft); minimum, 1.4 cfs Aug. 16, 1954, Aug. 6, 7, 1957.

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

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1-21, Dec. 12 to Jan. 1, Apr. 17, 18)

1.5	3.0	3.0	75
1.6	5.7	4.0	119
1.7	9.5	5.0	200
2.0	29	6.0	345
2.4	55	7.1	653

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	16	239	25	196	42	a160	118	43	65	11	6.6	4.2
2	14	170	24	383	44	a150	166	102	52	9.0	5.7	4.0
3	13	121	24	387	56	a130	184	148	40	7.8	6.3	4.0
4	*12	92	23	288	155	a115	144	156	33	7.0	15	4.8
5	12	76	23	198	310	a100	110	121	28	6.0	10	4.8
6	11	66	23	142	405	a93	91	91	24	11	10	4.2
7	12	59	22	116	298	a85	78	77	32	15	9.0	4.2
8	12	*52	23	98	266	a110	70	70	38	17	8.2	4.0
9	12	48	22	87	489	a130	66	66	31	25	7.0	3.5
10	12	49	20	74	626	202	67	59	28	19	6.0	3.5
11	11	54	23	67	469	200	69	90	27	14	6.0	3.2
12	11	52	77	64	335	148	70	482	*23	11	5.1	3.2
13	10	49	106	60	252	112	117	601	20	9.5	4.5	3.2
14	10	47	137	60	205	97	198	424	18	9.5	4.0	3.2
15	9.5	45	157	86	174	*90	237	281	24	8.2	3.5	4.2
16	9.5	43	157	127	149	87	175	186	23	7.0	3.5	4.2
17	8.6	41	136	184	128	85	121	127	18	*6.0	3.5	3.8
18	8.6	36	119	175	130	78	95	91	14	5.4	3.5	3.5
19	9.5	32	104	140	220	96	80	73	12	4.8	3.5	3.5
20	31	30	82	154	259	126	70	63	11	4.2	5.1	12
21	31	27	82	172	253	151	63	56	11	4.2	11	27
22	26	27	115	162	238	146	59	49	20	22	7.8	13
23	24	26	139	133	294	249	54	43	19	30	6.3	7.8
24	23	25	125	97	a380	387	47	38	16	12	6.3	5.7
25	22	25	88	84	a530	359	45	34	16	8.6	5.4	4.8
26	20	24	69	68	a380	258	40	39	18	6.6	13	4.5
27	19	23	64	56	a250	179	38	101	18	5.7	12	4.2
28	82	23	59	50	a180	133	37	157	18	5.1	*7.4	4.2
29	260	23	55	45	-	106	46	179	16	5.1	6.3	3.8
30	367	27	71	*42	---	90	40	127	13	5.1	5.1	3.5
31	343	---	98	41	---	82	---	87	---	5.1	4.5	---
Total	1,461.7	1,651	2,292	4,036	7,517	4,534	2,795	4,261	726	316.9	211.1	163.7
Mean	47.2	55.0	73.9	130	268	146	93.2	137	24.2	10.2	6.81	5.46
Cfsm	1.05	1.22	1.65	2.90	5.97	3.25	2.08	3.05	0.539	0.227	0.152	0.122
In.	1.21	1.37	1.90	3.34	6.23	3.76	2.32	3.53	0.60	0.26	0.17	0.14

Calendar year 1960: Max 367 Min 2.4 Mean 52.1 Cfsm 1.16 In. 15.78
Water year 1960-61: Max 626 Min 3.2 Mean 82.1 Cfsm 1.83 In. 24.83

Peak discharge (base, 280 cfs).--Oct. 30 (4 to 10 p.m.) 381 cfs (6.19 ft); Jan. 2 to 3 (10 p.m. to 3 a.m.) 419 cfs (6.36 ft); Feb. 6 (10 to 11 a.m.) 434 cfs (6.42 ft); Feb. 10 (4 to 7 a.m.) 653 cfs (7.10 ft); Feb. 25 (time unknown) 559 cfs (6.84 ft); Mar. 24 (4 to 10 p.m.) 407 cfs (6.31 ft); May 13 (2 to 4 a.m.) 649 cfs (7.09 ft).

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

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 1961.

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

Average discharge.--10 years, 4.36 cfs.

Extremes.--Maximum discharge during year, 152 cfs Feb. 8 (gage height, 5.17 ft); minimum, 0.1 cfs Aug. 31, Sept. 1, 2, 3, 4, 5, 6, 7, 8-14, 16, 17, 18, 23-30.
1951-61: Maximum discharge, 237 cfs Aug. 13, 1955 (gage height, 6.63 ft), from rating curve extended above 120 cfs by logarithmic plotting; no flow Aug. 4, 8, 14, 1954.

Remarks.--Records good.

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)

0.8	0.1	2.0	16
.9	.5	2.5	27
1.0	1.1	3.0	41
1.2	2.7	4.0	82
1.5	6.5		

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	2.4	14	2.8	56	3.0	11	20	3.9	2.2	0.8	0.4	0.2
2	1.7	11	2.2	31	2.8	12	12	28	2.0	.7	.4	.2
3	1.5	8.3	2.2	19	4.0	8.6	8.1	14	1.7	.7	.5	.2
4	*1.3	6.2	2.1	14	32	7.1	d6.4	8.1	1.6	.6	.5	.2
5	1.3	5.2	1.9	10	17	6.1	d5.9	5.7	1.6	.6	.4	.2
6	1.3	5.9	1.8	9.0	13	5.4	d6.2	4.8	1.4	.9	.4	.2
7	1.3	d4.7	1.8	7.9	10	4.7	d6.1	6.2	1.4	.8	.4	.2
8	1.3	*d3.8	1.7	7.3	64	12	d5.5	5.1	1.3	.8	.4	.1
9	1.3	3.6	1.6	6.1	67	21	d5.8	3.6	1.5	1.0	.4	.1
10	1.2	5.4	1.6	5.2	31	d16	d6.8	2.7	a1.4	.7	.3	.1
11	1.1	9.0	2.5	5.0	20	d9.6	d6.4	34	a1.2	.6	.4	.1
12	1.1	6.5	3.4	5.0	15	7.9	d5.5	45	a1.1	.6	.3	.1
13	1.1	5.2	16	5.0	13	6.7	20	22	*a1.1	.6	.3	.1
14	1.0	4.6	9.6	5.5	11	d7.5	11	12	1.1	.7	.3	.3
15	1.0	4.1	7.1	22	8.8	*d6.2	7.5	7.6	1.1	.6	.3	.4
16	1.0	3.8	12	17	7.3	6.5	6.8	5.8	1.1	.6	.3	.2
17	1.0	3.6	10	13	6.2	5.5	d5.1	4.4	1.0	*.6	.3	.1
18	1.0	3.1	7.0	9.8	14	4.3	*d4.1	3.7	1.0	.6	.3	.2
19	1.0	3.0	*5.5	8.6	24	17	3.5	3.4	1.0	.6	.3	.2
20	5.5	2.7	4.4	20	14	14	3.0	3.0	.9	.6	.4	.6
21	6.5	2.5	13	11	17	9.0	2.7	2.8	1.0	.5	.4	.4
22	3.5	2.3	13	7.8	17	18	2.6	2.7	1.2	.5	.3	.2
23	2.6	2.3	7.0	6.7	70	38	2.4	2.7	1.0	.5	.3	.2
24	2.2	2.4	4.7	6.4	38	21	2.4	2.4	1.0	.5	.3	.1
25	1.9	2.3	3.9	5.4	30	15	2.2	2.2	1.0	.5	.4	.1
26	1.6	2.2	4.1	d4.6	26	10	2.2	2.7	1.0	.4	.4	.1
27	1.5	2.2	4.7	d4.7	15	7.8	2.1	13	1.0	.4	.3	.1
28	37	2.1	4.1	d3.6	11	6.4	2.2	7.0	1.0	.4	*.2	.1
29	42	2.2	4.1	d3.5	-	5.5	3.5	4.4	.9	.4	.2	.1
30	22	3.4	15	*d3.0	----------	4.6	2.9	3.2	.8	.4	.2	.1
31	14	----------	11	2.9	----------	5.9	----------	2.6	----------	.4	.2	----------
Total	164.2	137.6	212.4	336.0	601.1	330.3	180.9	268.7	36.6	18.6	10.5	5.5
Mean	5.30	4.59	6.85	10.8	21.5	10.7	6.03	8.67	1.22	0.600	0.339	0.183
Cfsm	0.914	0.791	1.18	1.86	3.71	1.84	1.04	1.49	0.210	0.103	0.058	0.032
In.	1.05	0.88	1.36	2.15	3.85	2.12	1.16	1.74	0.23	0.12	0.07	0.04

Calendar year 1960: Max 104 Min 0.3 Mean 4.90 Cfsm 0.845 In. 11.49
Water year 1960-61: Max 70 Min 0.1 Mean 6.31 Cfsm 1.09 In. 14.75

Peak discharge (base, 50 cfs).--Oct. 28 (7 p.m.) 84 cfs (4.04 ft); Jan. 1 (10:30 a.m.) 107 cfs (4.45 ft); Feb. 8 (9 p.m.) 152 cfs (5.17 ft); Feb. 23 (2 p.m.) 134 cfs (4.90 ft); Mar. 22 (11 p.m.) 53 cfs (3.35 ft); May 11 (6:30 p.m.) 89 cfs (4.12 ft).

* Discharge measurement made on this day.
a No gage-height record.
d Doubtful 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 floodgates, three-quarters of a mile upstream from Beaglin Branch and 2 miles southeast of Salisbury, Wicomico County.

Drainage area.--19.5 sq mi.

Records available.--October 1929 to August 1933, May 1934 to September 1935, May 1936 to September 1961. 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.--26 years (1929-32, 1938-61), 23.6 cfs.

Extremes.--Maximum discharge during year, 337 cfs Feb. 9 (gage height, 11.62 ft); minimum daily discharge, 1.5 cfs Apr. 19 (leakage under dam and through floodgates following closing of floodgates).
1929-61: 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, 0.6 cfs during several periods in 1938 and 1939 (leakage under dam and through floodgates following closing of floodgates).

Remarks.--Records good except for periods of no gage-height record, periods when floodgates were operated, and days when flow was less than 5 cfs, which are poor. Records represent total flow and include flow over spillway plus leakage through floodgates (installed in 1934), and flow over or through floodgates since July 1938. Occasional regulation at low and medium flow caused by mill above station.

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	11	a26	17	87	21	60	60	25	23	14	8.6	8.1
2	9.6	a28	23	125	21	57	64	56	2.0	14	8.3	7.8
3	9.0	a25	19	92	23	e61	60	48	2.7	13	12	9.4
4	*8.7	a23	17	52	89	e46	50	42	18	13	25	15
5	8.2	a21	14	41	97	e48	45	29	20	13	23	11
6	7.7	a22	16	37	85	e46	41	30	19	17	22	19
7	8.8	a21	11	33	61	e37	37	32	18	e22	a22	19
8	7.8	a20	12	30	101	e53	35	30	19	3.8	a20	11
9	7.8	*23	12	28	e309	e68	35	*29	21	12	a18	9.4
10	7.8	25	13	27	e198	e71	43	28	21	12	a16	9.0
11	7.3	26	15	26	87	e70	41	46	19	11	13	8.7
12	7.1	24	40	24	54	e64	41	112	19	10	10	8.7
13	6.9	24	39	24	58	60	58	108	*17	11	9.3	8.4
14	6.7	24	40	24	54	50	60	82	17	14	8.6	11
15	6.5	23	44	39	50	45	62	48	19	11	8.3	13
16	6.5	23	36	41	48	35	52	40	17	11	8.3	10
17	6.5	22	34	44	43	45	45	38	16	*11	8.3	9.4
18	6.5	21	32	42	44	40	25	34	16	10	8.0	e74
19	6.3	21	*30	39	60	74	1.5	32	16	9.7	8.0	e24
20	a12	20	26	47	59	70	3.7	30	15	9.7	11	e9.4
21	a15	20	34	46	63	68	25	28	17	9.3	12	e9.3
22	a10	19	50	41	66	66	26	27	21	9.7	9.7	e20
23	a9.0	17	44	34	122	110	27	26	18	24	9.3	e16
24	a8.0	13	40	30	e260	130	26	24	17	21	9.3	e7.7
25	a7.4	14	34	27	e148	100	26	23	16	13	15	e3.8
26	a7.0	15	29	25	119	70	25	26	17	11	21	2.0
27	a6.4	16	23	24	89	56	24	52	17	10	15	2.0
28	a15	16	24	a23	70	50	22	51	17	11	11	2.0
29	a37	17	24	a22	-	46	23	34	16	13	*9.8	1.8
30	a29	18	35	a22	----------	41	23	35	15	11	9.0	1.8
31	a25	----------	40	*21	----------	43	----------	66	----------	9.0	8.4	----------
Total	327.5	627	867	1,217	2,499	1,880	1,106.2	1,311	505.7	384.2	397.2	361.7
Mean	10.6	20.9	28.0	39.3	89.2	60.6	36.9	42.3	16.9	12.4	12.8	12.1
Cfsm	0.544	1.07	1.44	2.02	4.57	3.11	1.89	2.17	0.867	0.636	0.656	0.621
In.	0.62	1.20	1.65	2.32	4.77	3.59	2.11	2.50	0.96	0.73	0.76	0.69

Calendar year 1960: Max 123 Min 3.7 Mean 22.3 Cfsm 1.14 In. 15.54
Water year 1960-61: Max 309 Min 1.5 Mean 31.5 Cfsm 1.62 In. 21.90

* Discharge measurement made on this day.
a No gage-height record.
e Discharge computed on basis of flow through 1 or 2 floodgates, over spillway and leakage through closed floodgates.
Note.--No record of floodgate operation Mar. 13 to Apr. 18; discharge estimated on basis of gage heights, weather records, and records for nearby stations.

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 1961. 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.--18 years, 94.0 cfs.

Extremes.--Maximum discharge during year, 728 cfs Jan. 2 (gage height, 6.47 ft); minimum, 28 cfs Sept. 30 (gage height, 2.45 ft).
1943-61: 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 good except those for periods of no gage-height record, which are fair.

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)

2.4	26	4.5	141
3.0	54	5.0	250
3.5	75	6.0	540
4.0	98	7.0	990

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	96	198	81	557	a96	342	268	94	74	51	94	38
2	88	174	79	688	*a94	310	371	103	72	46	*65	38
3	82	152	77	568	a90	270	322	104	81	44	58	40
4	83	128	75	449	154	230	248	93	75	42	56	62
5	86	113	75	348	238	198	188	86	68	42	55	44
6	90	106	74	278	205	178	149	83	64	50	50	*37
7	100	105	74	225	170	162	127	83	*65	50	48	34
8	102	102	73	192	252	218	119	145	65	44	49	34
9	102	96	71	164	413	395	110	192	63	42	49	34
10	103	102	69	137	455	395	127	131	62	39	48	32
11	103	118	72	124	452	312	145	113	58	38	46	32
12	102	134	98	117	416	242	124	164	58	36	44	32
13	100	123	108	112	356	168	388	172	56	40	38	32
14	100	*110	107	111	353	*172	524	126	56	49	37	36
15	96	105	98	174	398	242	440	105	94	40	38	41
16	90	100	98	260	398	268	345	102	85	39	39	37
17	86	96	107	255	365	242	288	119	70	37	38	33
18	83	93	103	212	386	194	220	104	65	36	39	33
19	81	89	97	188	568	245	*170	92	62	34	38	38
20	92	85	90	270	536	356	138	86	60	32	44	43
21	99	83	117	a280	482	342	123	80	63	31	58	56
22	97	81	212	a250	473	292	116	77	76	33	48	46
23	91	81	222	a150	652	407	111	74	74	33	48	41
24	88	81	154	a100	660	485	106	71	86	108	46	35
25	85	79	116	a90	572	449	102	68	74	268	48	32
26	84	78	105	a94	508	362	98	72	67	69	54	31
27	84	77	112	a98	428	280	93	118	66	53	61	30
28	107	76	114	a98	359	218	90	113	65	48	46	30
29	192	76	108	a98	-	182	98	88	61	48	42	30
30	252	81	168	a98	---	156	101	82	56	59	38	29
31	232	---	245	a98	---	140	---	75	---	67	38	---
Total	3,276	3,122	3,399	6,883	10,529	8,452	5,849	3,215	2,041	1,648	1,500	1,110
Mean	106	104	110	222	376	273	195	104	68.0	53.2	48.4	37.0
Cfsm	1.41	1.38	1.46	2.94	4.99	3.62	2.59	1.38	0.902	0.706	0.642	0.491
In.	1.62	1.54	1.68	3.39	5.19	4.17	2.88	1.59	1.01	0.81	0.74	0.55

Calendar year 1960: Max 1,440 Min 29 Mean 113 Cfsm 1.50 In. 20.47
Water year 1960-61: Max 688 Min 29 Mean 140 Cfsm 1.86 In. 25.17

Peak discharge (base, 360 cfs).--Jan. 2 (1 to 3 a.m.) 728 cfs (6.47 ft); Feb. 9 to 10 (9 p.m. to 4 a.m.) 458 cfs (5.76 ft); Feb. 15 (4 to 9 p.m.) 407 cfs (5.59 ft); Feb. 19 (7 to 9 p.m.) 588 cfs (6.12 ft); Feb. 23 (9 to 11 p.m.) 700 cfs (6.40 ft); Mar. 9 to 10 (8 p.m. to 1 a.m.) 443 cfs (5.71 ft); Mar. 20 (1 to 10 p.m.) 371 cfs (5.47 ft); Mar. 24 (9 a.m. to 5 p.m.) 488 cfs (5.86 ft); Apr. 2 (9 a.m. to 1 p.m.) 380 cfs (5.50 ft); Apr. 14 (6 to 9 a.m.) 540 cfs (6.00 ft); July 25 (4 to 5 a.m.) 413 cfs (5.61 ft).

* Discharge measurement made on this day.
a No 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 1961.

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

Average discharge.--10 years, 17.7 cfs.

Extremes.--Maximum discharge during year, 265 cfs Feb. 9 (gage height, 2.98 ft); minimum, 0.4 cfs Aug. 20, 21, 22, Sept. 21 (flashboards installed on dam Sept. 21).
1951-61: Maximum discharge, 315 cfs Mar. 21, 1958 (gage height, 3.14 ft); no flow Aug. 12-14, Sept. 6, 1957.

Remarks.--Records good except those below 5 cfs or those for periods of no gage-height record, which are fair. Flow regulated by Trap Pond.

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)

0.6	0.4	1.7	40
.8	2.5	2.0	69
.9	4.1	2.3	110
1.1	9.1	2.5	146
1.4	21	3.0	271

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	5.9	30	14	78	17	50	57	16	18	5.9	1.4	1.5
2	5.0	27	13	125	16	48	69	26	16	5.0	1.2	1.2
3	4.3	23	12	70	20	44	49	32	15	4.1	1.2	1.1
4	*4.1	21	11	49	88	38	38	25	12	3.8	2.0	1.1
5	4.3	19	11	39	96	34	32	20	11	3.8	1.7	1.3
6	4.3	18	11	33	66	32	26	18	10	7.7	1.7	3.0
7	4.5	17	10	30	51	30	24	17	13	6.9	3.6	2.4
8	4.1	*16	9.8	27	81	37	a22	47	16	5.4	5.2	2.1
9	4.8	15	9.4	25	215	74	a20	54	14	5.2	2.5	2.0
10	4.8	18	9.1	23	131	67	a22	34	12	3.8	1.7	2.1
11	3.9	20	14	21	92	49	a22	33	10	3.3	1.3	2.5
12	3.6	20	37	21	71	38	a21	71	*9.4	3.3	1.1	2.4
13	3.5	19	50	20	58	33	a76	75	9.8	3.5	1.0	2.2
14	3.3	17	35	20	54	32	a94	50	8.5	3.9	.9	2.2
15	3.3	16	28	38	51	*36	a60	35	19	3.3	.9	2.2
16	3.3	15	28	52	44	34	a40	29	16	2.5	.9	2.1
17	2.8	14	32	45	39	33	a31	32	12	2.4	1.1	2.0
18	3.0	14	30	36	39	29	26	27	9.8	2.1	1.2	1.7
19	3.3	12	24	34	55	39	24	21	8.5	2.0	.8	1.7
20	17	12	21	54	57	58	21	19	7.7	1.6	.5	1.8
21	13	12	30	58	49	45	20	17	9.1	1.7	.5	1.0
22	7.7	12	55	40	55	42	19	15	14	1.8	.7	.5
23	5.9	12	40	32	130	110	18	14	11	3.0	.7	.6
24	4.3	11	29	27	178	129	17	12	9.4	2.3	.7	.9
25	4.3	11	24	23	110	80	16	12	8.3	1.7	1.2	.8
26	4.8	11	22	21	106	56	14	17	7.7	1.4	1.8	.7
27	4.8	11	22	20	74	44	14	53	8.0	1.2	1.1	.6
28	30	10	21	18	56	36	14	57	8.0	1.3	7.9	.6
29	84	12	20	17	-	32	16	34	7.1	1.3	17	.6
30	57	15	28	*17	------	28	16	25	6.3	1.4	4.3	.6
31	37	------	35	17	------	29	------	20	------	*1.4	2.0	------
Total	345.9	480	735.3	1,130	2,099	1,466	938	957	336.6	98.0	69.8	45.5
Mean	11.2	16.0	23.7	36.5	75.0	47.3	31.3	30.9	11.2	3.16	2.25	1.52
Cfsm	0.671	0.958	1.42	2.19	4.49	2.83	1.87	1.85	0.671	0.189	0.135	0.091
In.	0.77	1.07	1.64	2.52	4.67	3.26	2.09	2.13	0.75	0.22	0.16	0.10

Calendar year 1960: Max 100 Min 0.6 Mean 15.5 Cfsm 0.928 In. 12.61
Water year 1960-61: Max 215 Min 0.5 Mean 23.8 Cfsm 1.43 In. 19.38

Peak discharge (base, 100 cfs).--Jan. 2 (12:30 a.m.) 163 cfs (2.58 ft); Feb. 4 (6 to 9 p.m.) 127 cfs (2.40 ft); Feb. 9 (5 to 7 a.m.) 265 cfs (2.98 ft); Feb. 23 (11 to 12 p.m.) 248 cfs (2.92 ft); Mar. 23 (10 to 11 p.m.) 165 cfs (2.59 ft); Apr. 14 (time unknown) 115 cfs (2.33 ft).

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

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 1961.

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.--18 years, 55.6 cfs.

Extremes.--Maximum discharge during year, 805 cfs Jan. 2 (gage height, 8.88 ft); minimum, 2.0 cfs Sept. 13.
1943-61: Maximum discharge, 2,270 cfs Aug. 26, 1958 (gage height, 11.55 ft); minimum, that of Sept. 13, 1961.
Maximum stage known, 14.5 ft in September 1935, from information by local residents.

Remarks.--Records fair.

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 21, Jan. 1-3, Mar. 15-26, Sept. 5-30)

2.6	2.0	6.0	122
2.7	3.8	7.0	219
3.0	9.4	8.0	405
4.0	36	9.0	755
5.0	72		

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	28	59	32	432	a33	138	190	43	26	18	11	6.0
2	25	64	27	*742	*a32	126	204	50	25	17	*8.2	5.6
3	24	54	24	448	a32	106	126	53	39	16	7.6	12
4	22	45	22	299	74	91	92	44	36	15	7.2	22
5	21	39	22	168	a100	82	75	38	27	15	7.0	8.6
6	21	39	21	119	a94	76	64	35	24	16	6.7	5.2
7	22	39	20	105	a90	71	56	34	*22	16	6.5	4.2
8	20	35	20	98	104	85	50	57	21	14	6.1	3.8
9	20	32	18	86	198	253	45	57	22	14	5.8	3.4
10	20	33	18	72	240	234	62	44	21	13	5.4	3.3
11	20	48	18	63	261	133	76	39	20	12	5.2	2.9
12	*19	47	29	59	253	96	61	71	18	12	5.2	2.5
13	18	40	40	56	200	79	268	71	18	12	4.9	2.2
14	18	*36	38	56	209	*136	393	59	17	12	4.9	2.5
15	17	34	37	80	307	213	265	48	51	12	4.5	3.1
16	17	33	38	136	331	169	152	49	38	11	4.3	2.5
17	17	32	50	117	283	126	120	80	26	11	4.2	2.5
18	17	30	46	96	252	89	90	57	22	10	3.8	2.5
19	17	28	38	81	452	197	*74	43	20	10	3.8	3.1
20	28	26	33	88	408	272	64	36	18	9.6	5.4	4.0
21	42	25	59	87	283	176	57	32	19	9.4	9.0	4.9
22	32	24	187	a74	247	135	52	29	25	9.8	7.6	4.0
23	26	23	a150	a50	357	311	49	27	24	8.8	7.0	3.4
24	24	22	a100	a35	430	331	45	25	25	8.8	7.0	3.3
25	23	22	a80	a30	329	216	42	23	23	9.0	7.8	3.8
26	22	22	a60	a32	274	131	39	24	22	8.4	9.9	3.8
27	21	21	77	a33	181	96	36	56	22	7.8	14	3.6
28	25	20	77	a33	128	81	35	55	22	7.6	9.0	3.6
29	84	20	66	a33	-	71	47	38	20	7.4	7.6	3.4
30	83	30	191	a33	--------	63	51	32	19	8.4	6.9	3.4
31	63	--------	215	a33	--------	59	--------	28	--------	8.8	*6.1	--------
Total	856	1,022	1,853	3,874	6,182	4,442	2,980	1,377	732	359.8	209.6	139.1
Mean	27.6	34.1	59.8	125	221	143	99.3	44.4	24.4	11.6	6.76	4.64
Cfsm	0.616	0.761	1.33	2.79	4.93	3.19	2.22	0.991	0.545	0.259	0.151	0.104
In.	0.71	0.85	1.54	3.22	5.13	3.69	2.47	1.14	0.61	0.30	0.17	0.12

Calendar year 1960: Max 1,250 Min 5.2 Mean 57.8 Cfsm 1.29 In. 17.54
Water year 1960-61: Max 742 Min 2.2 Mean 65.8 Cfsm 1.47 In. 19.95

Peak discharge (base, 450 cfs).--Jan. 2 (5 to 7 a.m.) 805 cfs (8.88 ft); Feb. 19 (7 to 8 p.m.) 522 cfs (8.42 ft); Feb. 24 (2 to 5 a.m.) 467 cfs (8.24 ft).

* 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 1961.

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

Average discharge.--11 years, 9.64 cfs.

Extremes.--Maximum discharge during year, 298 cfs Jan. 1 (gage height, 3.73 ft); minimum, 0.8 cfs Sept. 11, 12, 13, 14 (gage height, 1.18 ft).
1950-61: 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 (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, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)

1.1	0.5	1.7	21
1.2	1.6	2.0	44
1.3	3.4	2.5	93
1.4	6.1	3.0	150
1.5	9.8	3.5	242

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	7.1	13	5.8	a175	*a8.4	a31	41	12	7.4	6.4	5.5	1.3
2	6.8	12	5.5	a60	8.2	a25	28	13	6.8	5.8	3.7	1.2
3	6.4	9.8	5.2	31	a9.0	a19	21	11	9.4	5.5	3.2	1.2
4	6.1	8.6	5.2	24	a20	a18	19	9.8	7.1	5.2	2.8	1.3
5	5.8	8.6	5.2	20	a22	a17	17	9.4	6.1	5.2	2.6	1.2
6	5.5	9.0	5.2	19	a18	a17	16	9.4	*5.8	5.5	2.6	*1.1
7	*5.5	8.2	5.2	18	a16	a20	15	13	7.8	5.5	2.4	1.0
8	5.8	7.4	5.2	16	a35	a30	14	47	6.4	5.0	2.2	1.0
9	6.1	7.1	a5.2	15	a50	a60	14	20	6.1	4.7	2.0	1.0
10	5.8	9.0	a5.2	14	a44	a25	23	14	5.8	4.2	1.9	1.0
11	5.5	9.8	a5.0	13	a40	a19	19	16	7.6	4.2	1.8	.8
12	5.5	8.6	a15	13	a35	a17	17	18	19	4.2	1.8	.8
13	5.2	8.2	a13	12	a30	*15	80	18	7.8	6.1	1.8	.8
14	5.0	7.8	a12	12	a35	23	36	16	6.8	6.4	1.8	1.0
15	5.0	*7.1	a11	20	a45	24	25	13	17	6.4	1.6	1.3
16	5.0	7.1	a13	19	a46	23	23	13	9.8	6.8	1.6	1.1
17	5.0	7.1	a14	16	a41	19	20	12	7.4	4.4	1.4	1.1
18	4.7	6.8	a12	15	a45	17	18	9.8	6.8	4.2	1.6	1.1
19	4.4	6.4	a11	15	a50	35	16	9.4	5.8	3.7	1.6	1.3
20	7.8	6.1	a10	25	a45	28	15	9.0	5.5	3.7	3.4	1.4
21	6.4	6.1	a15	a20	a40	21	14	8.2	8.2	3.0	4.4	1.4
22	5.8	6.1	a14	a15	a40	28	14	7.8	13	2.8	2.2	1.1
23	5.8	6.1	a13	a11	a92	61	13	7.4	13	2.6	2.0	1.1
24	5.5	5.8	a11	a9.0	a50	34	13	7.1	15	3.2	1.8	1.1
25	5.2	5.8	a11	a7.0	a40	26	13	6.8	11	4.0	1.9	1.1
26	5.0	5.5	a10	a6.2	a30	22	12	9.3	9.4	*3.0	1.9	1.1
27	5.0	5.5	a11	a6.4	a22	20	11	15	9.0	3.0	1.9	1.1
28	12	5.2	a10	a6.4	a27	18	12	9.8	8.6	3.0	1.6	1.1
29	21	6.8	a12	a6.4	-	17	12	8.2	7.4	2.6	1.4	1.1
30	14	7.1	a25	a6.4	--------	16	11	8.2	7.1	2.6	1.3	1.1
31	12	--------	a25	a8.0	--------	17	--------	7.1	--------	11	1.4	--------
Total	211.7	227.7	325.9	653.8	983.6	762	602	387.7	263.9	143.9	69.1	33.3
Mean	6.83	7.59	10.5	21.1	35.1	24.6	20.1	12.5	8.80	4.64	2.23	1.11
Cfsm	0.962	1.07	1.48	2.97	4.94	3.46	2.83	1.76	1.24	0.654	0.314	0.156
In.	1.11	1.19	1.71	3.42	5.15	3.99	3.15	2.03	1.38	0.75	0.36	0.17

Calendar year 1960: Max 293 Min 0.5 Mean 11.8 Cfsm 1.66 In. 22.53
Water year 1960-61: Max 175 Min 0.8 Mean 12.8 Cfsm 1.80 In. 24.41

Peak discharge (base, 60 cfs).--Jan. 1 (time unknown) 298 cfs (3.73 ft); Feb. 19 (time unknown) 140 cfs (2.95 ft); Feb. 23 (time unknown) 159 cfs (3.09 ft); Mar. 23 (3 to 4 a.m.) 91 cfs (2.50 ft); Apr. 13 (9:30 a.m.) 137 cfs (2.90 ft); May 8 (9 a.m.) 81 cfs (2.38 ft).

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

1-4900. Chicamacomico River near Salem, Md.

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

CHOPTANK RIVER BASIN

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 1961.

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

Average discharge.--13 years, 134 cfs.

Extremes.--Maximum discharge during year, about 2,400 cfs Jan. 2; minimum, 12 cfs Sept. 26-30.
1948-61: 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, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

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
3.0	237		

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	219	197	172	a1,700	*120	309	324	148	82	55	42	20
2	239	197	179	*a2,200	118	316	555	145	58	47	45	20
3	175	165	102	1,190	a108	290	341	172	96	42	47	19
4	100	172	74	661	160	250	251	217	110	53	36	20
5	68	155	85	420	233	201	170	138	82	50	28	24
6	87	120	112	213	b310	190	145	80	*66	50	28	21
7	*125	96	102	225	b430	193	142	76	66	82	27	*17
8	87	122	74	278	278	225	155	80	62	91	26	17
9	66	112	72	268	418	740	132	120	64	56	24	23
10	70	110	66	241	573	798	150	152	70	53	24	19
11	66	166	68	170	b590	456	319	110	138	50	24	19
12	60	195	b66	155	b550	241	293	162	148	39	23	17
13	60	182	b140	150	b410	*217	600	148	76	36	21	17
14	58	162	125	168	b400	248	1,340	184	74	40	20	16
15	56	*142	82	199	563	413	702	150	135	48	20	21
16	55	122	93	487	812	384	332	130	345	53	19	20
17	48	100	b110	447	720	275	339	152	309	82	19	17
18	70	98	b115	257	641	233	255	105	177	105	19	17
19	78	98	b115	253	987	312	244	89	78	78	19	21
20	89	98	b120	b180	884	725	199	72	52	52	21	47
21	150	96	130	b175	543	471	160	60	53	*44	45	23
22	150	89	b200	b170	453	293	155	58	120	30	33	17
23	122	93	438	b130	654	641	128	74	102	30	26	14
24	120	76	a400	b102	1,260	782	100	76	70	36	24	14
25	76	55	a250	110	792	505	132	72	70	33	23	13
26	58	78	a200	115	593	314	118	70	100	30	26	12
27	87	102	a190	118	426	233	105	112	148	27	33	12
28	91	66	a180	a120	275	188	122	152	160	27	26	12
29	186	80	a200	a120	-	177	135	93	87	27	34	12
30	307	125	a350	a120	--------	188	179	66	62	33	23	12
31	268	--------	a1,000	a120	--------	170	--------	87	--------	33	21	--------
Total	3,491	3,669	5,610	11,262	14,301	10,978	8,322	3,550	3,260	1,512	846	553
Mean	113	122	181	363	511	354	277	115	109	48.8	27.3	18.4
Cfsm	1.00	1.08	1.60	3.21	4.52	3.13	2.45	1.02	0.965	0.432	0.242	0.163
In.	1.15	1.21	1.85	3.71	4.71	3.61	2.74	1.17	1.07	0.50	0.28	0.18

Calendar year 1960: Max 3,400 Min 11 Mean 147 Cfsm 1.30 In. 17.64
Water year 1960-61: Max 2,200 Min 12 Mean 185 Cfsm 1.64 In. 22.18

Peak discharge (base, 1,000 cfs).--Jan. 2 (time unknown) about 2,400 cfs; Feb. 19 (3 p.m.) 1,080 cfs (6.89 ft); Feb. 24 (9:30 a.m.) 1,180 cfs (7.05 ft); Apr. 14 (7 to 8 a.m.) 1,540 cfs (7.85 ft).

* 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 1961.

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

Average discharge.--11 years, 7.37 cfs.

Extremes.--Maximum discharge during year, 251 cfs Jan. 1 (gage height, 3.89 ft); minimum, 0.1 cfs Sept. 24. 1950-61: 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 for part of each day Aug. 14-16, Sept. 8, 9, 1950, Sept. 8-11, 13, 14, 1951, Aug. 3, 1957.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.07	0.2	1.5	9.0
1.1	.3	1.6	15
1.2	1.1	2.0	57
1.3	2.4	3.0	147
1.4	5.0		

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	5.0	22	5.4	145	*b6.2	20	49	4.4	4.8	1.3	2.3	0.3
2	3.2	11	4.0	43	b5.2	16	14	12	8.9	1.0	1.2	.3
3	2.8	7.4	3.8	25	b6.0	12	9.6	5.8	25	1.0	1.0	.2
4	2.4	5.8	3.5	14	37	11	8.6	4.0	4.6	.9	.9	.3
5	2.3	5.8	3.5	11	21	11	7.8	3.5	3.5	.8	.8	.3
6	2.6	7.8	3.5	11	14	10	7.0	3.8	*2.0	1.7	.7	.3
7	*4.6	5.8	3.5	12	11	11	6.6	5.0	1.7	1.7	.6	.4
8	2.8	4.6	3.2	12	42	44	5.8	29	1.7	1.2	.5	.4
9	3.0	4.6	2.8	9.0	64	47	5.8	7.0	2.6	1.0	.5	.4
10	3.0	10	2.8	7.0	48	14	17	5.0	4.9	.7	.6	.4
11	2.3	9.6	b2.6	7.4	34	11	9.0	14	1.8	.6	.4	.4
12	1.8	6.6	b16	8.2	23	9.6	8.2	22	1.3	.5	.4	.4
13	1.8	5.4	14	8.2	20	*8.6	77	13	1.1	.6	.4	.4
14	1.7	4.6	11	9.6	43	37	16	11	9.9	1.0	.4	.5
15	1.8	*4.6	8.6	31	55	17	11	6.6	18	.8	.4	1.1
16	1.8	4.6	9.6	18	45	18	15	5.0	2.8	.8	.4	.7
17	1.8	4.6	9.6	13	32	11	10	3.5	1.6	.8	.4	.3
18	1.7	4.0	5.4	10	54	10	7.8	3.0	1.2	.6	.3	.3
19	3.4	4.0	5.0	9.6	80	62	7.4	3.0	1.0	.5	.3	.4
20	47	3.8	5.0	b10	24	18	6.6	2.8	.8	.4	.6	.4
21	10	3.8	33	b11	31	13	5.8	2.4	4.3	*a4.8	7.1	.4
22	5.4	3.8	16	b9.0	32	37	5.8	2.3	12	1.2	1.4	.3
23	4.4	4.0	7.8	b6.2	96	51	5.4	2.0	3.8	.7	1.0	.3
24	3.8	3.8	8.2	b5.0	38	20	5.0	1.7	11	8.4	.7	.2
25	3.0	3.8	7.4	b4.0	32	14	4.6	1.6	3.5	2.4	.6	.2
26	2.8	3.8	6.6	b3.8	23	11	4.0	14	6.0	1.0	1.8	.2
27	2.8	3.8	11	b4.0	13	10	3.5	21	5.4	.7	1.6	.3
28	35	3.5	6.6	b4.0	20	9.6	4.4	5.0	3.8	.6	.9	.3
29	65	6.8	7.0	b4.0	-	8.6	7.8	3.0	2.3	.6	.5	.3
30	14	13	38	b4.0	---	7.8	4.6	4.0	1.8	.7	.4	.3
31	9.0	---	14	b5.8	---	20	---	2.4	---	14	.3	---
Total	252.0	186.7	278.4	474.8	949.4	600.2	350.1	222.8	153.1	53.0	29.4	11.0
Mean	8.13	6.22	8.98	15.3	33.9	19.4	11.7	7.19	5.10	1.71	0.948	0.367
Cfsm	1.39	1.06	1.54	2.62	5.79	3.32	2.00	1.23	0.872	0.292	0.162	0.063
In.	1.60	1.19	1.77	3.02	6.04	3.82	2.23	1.42	0.97	0.34	0.19	0.07

Calendar year 1960: Max 696 Min 0.3 Mean 9.14 Cfsm 1.56 In. 21.27
Water year 1960-61: Max 145 Min 0.2 Mean 9.76 Cfsm 1.67 In. 22.66

Peak discharge (base, 120 cfs).--Jan. 1 (9:15 a.m.) 251 cfs (3.89 ft); Feb. 19 (3:30 a.m.) 134 cfs (2.89 ft); Feb. 23 (4 p.m.) 134 cfs (2.89 ft); Apr. 13 (9 a.m.) 121 cfs (2.76 ft); June 14 (11 p.m.) 125 cfs (2.81 ft).

* Discharge measurement made on this day.
a No gage-height record.
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 1961.

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

Average discharge.--13 years, 25.6 cfs.

Extremes.--Maximum discharge during year, 429 cfs June 15 (gage height, 4.62 ft); minimum, 9.9 cfs Sept. 25; minimum daily, 12 cfs Sept. 7-14, 17-20, 22, 25-30.
1948-61: Maximum discharge, 1,060 cfs Sept. 12, 1960 (gage height, 7.17 ft); minimum, 1.3 cfs Sept. 15, 1949 (gage height, 1.70 ft); minimum daily, 4.8 cfs Aug. 6, 1955.

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

Rating table, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 9-11)

1.9	7.8
2.0	16
3.0	128
4.0	293
5.0	514

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	102	44	23	154	28	71	129	41	23	23	17	13
2	52	48	20	252	28	69	102	46	22	21	16	13
3	40	39	18	118	28	59	63	44	30	21	16	15
4	35	*34	17	71	30	51	52	37	26	20	16	16
5	34	28	17	50	34	50	47	35	*20	20	16	14
6	*31	27	16	39	35	48	45	35	20	24	16	13
7	31	26	16	41	35	48	42	36	20	34	17	12
8	31	23	16	47	37	71	41	42	20	27	16	12
9	31	22	15	45	45	224	41	41	27	23	16	12
10	31	27	14	35	53	*109	64	37	91	20	18	12
11	30	42	16	31	57	64	66	37	31	18	16	*12
12	28	35	18	30	54	53	52	47	23	17	16	12
13	28	27	16	30	47	46	227	54	20	19	14	12
14	27	24	16	31	50	70	190	58	40	20	14	12
15	27	23	17	73	77	83	88	44	325	36	13	17
16	26	22	18	126	108	63	66	37	164	39	13	14
17	26	21	19	75	107	48	65	34	57	35	13	12
18	24	20	19	52	140	42	53	31	37	26	13	12
19	24	20	18	45	236	132	47	30	31	*21	13	12
20	41	19	18	35	139	130	45	28	26	19	18	12
21	51	18	27	32	88	71	42	27	31	17	31	14
22	35	18	*42	32	85	62	42	27	40	16	23	12
23	31	18	34	32	181	158	41	26	36	16	18	13
24	30	18	24	32	214	138	40	24	32	18	19	13
25	28	18	21	30	129	85	37	22	34	28	20	12
26	27	18	20	*28	136	63	39	26	39	21	35	12
27	26	17	22	28	81	57	36	32	40	18	51	12
28	27	17	22	28	62	53	37	27	35	17	22	12
29	53	20	22	28	-	52	52	24	30	18	17	12
30	73	28	40	28	--------	48	48	23	26	19	16	12
31	47	--------	51	28	--------	51	--------	22	--------	19	14	--------
Total	1,127	761	672	1,706	2,344	2,369	1,939	1,074	1,396	690	573	383
Mean	36.4	25.4	21.7	55.0	83.7	76.4	64.6	34.6	46.5	22.3	18.5	12.8
Cfsm	1.63	1.14	0.973	2.47	3.75	3.43	2.90	1.55	2.09	1.00	0.830	0.574
In.	1.88	1.27	1.12	2.85	3.91	3.95	3.23	1.79	2.33	1.15	0.96	0.64

Calendar year 1960: Max 685 Min 9.1 Mean 35.7 Cfsm 1.60 In. 21.78
Water year 1960-61: Max 325 Min 12 Mean 41.2 Cfsm 1.85 In. 25.08

Peak discharge (base, 180 cfs).--Jan. 2 (1 a.m.) 330 cfs (4.25 ft); Feb. 19 (8 a.m.) 268 cfs (3.95 ft); Feb. 23 (10 to 11 p.m.) 322 cfs (4.20 ft); Mar. 9 (10 a.m.) 276 cfs (3.99 ft); Mar. 19 (6:30 p.m.) 203 cfs (3.61 ft); Apr. 13 (4 to 6 p.m.) 348 cfs (4.25 ft); June 15 (12:30 p.m.) 429 cfs (4.62 ft).

* Discharge measurement made on this day.

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 1961.

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

Average discharge.--10 years, 10.4 cfs.

Extremes.--Maximum discharge during year, 625 cfs June 15 (gage height, 6.50 ft); minimum, 3.6 cfs Dec. 9 (result of freezeup).
1951-61: 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 ice effect, which are fair.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	2.8	2.0	34
1.4	5.0	3.0	66
1.5	9.5	4.0	125
1.7	22	5.0	245

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	7.0	12	7.0	156	a6.5	18	31	12	7.5	8.0	6.0	5.3
2	5.6	8.5	6.5	88	a6.0	18	10	16	7.5	7.5	5.6	5.0
3	5.6	7.0	6.5	33	a6.5	15	7.5	11	7.0	7.5	6.0	5.3
4	5.3	*6.5	6.5	16	a9.0	14	7.5	10	7.5	7.5	6.0	7.0
5	5.3	6.5	6.0	11	a16	15	7.0	9.5	*6.5	7.5	6.5	5.6
6	*5.3	7.5	5.3	11	a10	14	7.0	11	6.5	9.5	6.5	5.3
7	5.3	7.5	5.6	14	a8.0	15	6.5	13	7.0	10	8.0	5.0
8	5.3	6.0	4.5	15	a8.4	35	6.0	13	9.0	9.0	7.0	5.3
9	5.3	6.0	4.5	13	a10	75	6.0	11	34	8.5	6.0	5.3
10	5.3	15	a4.5	8.5	a13	*22	24	11	105	7.5	11	5.0
11	5.3	15	a5.0	8.5	a14	8.5	10	13	28	7.0	9.5	*5.0
12	5.3	8.5	a6.0	9.5	13	8.5	8.5	18	10	7.0	9.5	5.0
13	5.0	7.5	a5.3	9.5	12	7.5	122	15	8.5	9.5	7.5	4.8
14	5.0	7.0	a5.0	12	15	24	44	13	78	10	6.0	5.3
15	5.3	7.0	a5.6	28	20	15	18	11	222	53	6.0	47
16	5.3	7.0	a7.0	27	24	9.0	15	9.5	29	25	5.6	26
17	5.3	7.0	a10	15	24	7.0	14	8.5	11	14	5.6	7.5
18	5.3	6.5	6.0	12	a34	8.0	12	8.0	9.0	9.5	5.6	6.0
19	5.3	6.0	5.6	9.0	a60	46	12	8.5	8.5	*7.5	5.6	6.0
20	28	6.0	5.6	6.5	44	23	12	8.5	8.0	6.5	8.0	7.0
21	18	6.0	14	b8.0	21	9.0	11	8.5	13	6.5	41	7.0
22	8.0	6.0	*b11	a6.5	20	18	12	8.0	28	6.0	20	6.0
23	7.0	7.0	b8.0	a6.5	70	39	13	8.0	13	6.0	8.5	5.3
24	6.5	7.0	5.6	a7.5	46	21	12	7.5	44	6.0	16	5.3
25	5.6	7.0	5.6	a7.0	26	9.5	11	7.0	16	7.5	10	5.3
26	5.6	6.5	6.5	*a6.5	37	8.0	16	11	27	6.0	38	5.3
27	5.6	6.5	8.5	a6.5	18	7.5	12	15	13	5.3	18	5.0
28	7.0	6.5	7.5	a6.5	15	7.5	12	8.5	11	5.3	7.0	5.0
29	11	7.5	8.0	a6.5	-	8.0	23	8.0	9.5	10	6.0	5.0
30	9.0	12	21	a6.5	---	7.5	14	8.5	8.5	17	5.6	5.0
31	7.0	---	20	a7.0	---	12	---	7.5	---	7.5	5.3	---
Total	220.7	232.0	233.7	577.5	606.4	544.5	516.0	328.0	792.5	314.6	312.9	227.9
Mean	7.12	7.73	7.54	18.6	21.7	17.6	17.2	10.6	26.4	10.1	10.1	7.60
Cfsm	0.678	0.736	0.718	1.77	2.07	1.68	1.64	1.01	2.51	0.962	0.962	0.724
In.	0.78	0.82	0.83	2.05	2.15	1.93	1.83	1.16	2.81	1.11	1.11	0.81

Calendar year 1960: Max 624 Min 3.8 Mean 11.0 Cfsm 1.05 In. 14.24
Water year 1960-61: Max 222 Min 4.5 Mean 13.4 Cfsm 1.28 In. 17.39

Peak discharge (base, 200 cfs).--Jan. 1 (6 to 7 p.m.) 263 cfs (5.09 ft); Feb. 18 (time unknown) about 300 cfs; June 15 (1 a.m.) 477 cfs (6.50 ft).

* Discharge measurement made on this day.
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 1961. Monthly discharge only for some periods, published in WSP 1302.
Gage.--Water-stage recorder. 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.--28 years (1932-35, 1936-61), 70.1 cfs.
Extremes.--Maximum discharge during year, 1,610 cfs Jan. 1 (gage height, 5.67 ft); minimum, 18 cfs Sept. 26-30; minimum gage height, 2.55 ft Sept. 29, 30.
1932-61: 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, 7 cfs Sept. 23, 24, 1932; minimum gage height observed, 2.09 cfs 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, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 1, Feb. 19, 20, 25, 26, Mar. 9, Apr. 13)

2.5	14	3.5	210
2.6	20	4.0	380
2.8	47	5.0	890
3.0	82		

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	50	72	50	b600	b50	148	193	108	63	43	32	23
2	47	60	46	194	b47	148	115	135	61	43	30	23
3	*49	58	46	98	b52	120	103	105	60	41	33	26
4	47	50	46	b72	b58	122	98	98	65	40	33	24
5	47	49	46	b68	b64	155	94	94	58	39	33	22
6	47	55	44	b62	b70	*135	91	96	61	37	34	24
7	47	*55	44	b72	b64	128	87	115	60	39	54	48
8	44	53	43	b88	b56	217	82	108	57	37	33	27
9	46	52	b36	b68	b60	316	82	100	61	36	29	24
10	44	144	b34	b60	b66	140	276	138	79	33	28	23
11	43	89	b32	b72	b74	118	130	108	58	32	29	22
12	43	65	b36	b54	b64	115	110	120	53	30	29	20
13	41	58	b46	b58	b54	108	*878	110	52	48	27	20
14	43	57	b54	61	b60	217	222	100	149	88	24	30
15	43	55	b49	143	b92	138	152	91	105	47	23	33
16	43	53	b45	109	b84	115	192	87	60	86	23	24
17	43	52	b42	76	b92	100	150	80	53	134	22	20
18	43	50	b39	76	194	98	130	76	50	53	20	20
19	44	50	*b36	b72	884	193	120	76	47	44	20	*20
20	273	49	b36	b54	388	135	112	76	46	40	26	23
21	72	47	b84	b98	175	110	110	72	71	39	46	30
22	55	47	b92	b78	161	115	110	71	102	36	34	24
23	52	49	b52	*b70	310	219	118	69	58	33	65	19
24	53	47	b42	b76	274	159	105	67	52	*34	60	19
25	47	47	b42	b66	434	122	110	65	50	39	36	19
26	46	46	b45	b60	323	108	199	86	49	33	55	19
27	47	46	b42	b56	165	105	115	80	77	32	43	18
28	47	46	b38	b54	150	103	125	67	58	32	30	18
29	80	52	b41	b52	-	112	185	65	49	60	28	18
30	63	69	b120	b50	---	98	115	69	44	39	27	18
31	53	---	b110	b50	---	105	---	*63	---	33	24	---
Total	1,742	1,722	1,558	2,867	4,565	4,322	4,709	2,795	1,908	1,400	1,030	698
Mean	56.2	57.4	50.3	92.5	163	139	157	90.2	63.6	45.2	33.2	23.3
Cfsm	1.07	1.09	0.956	1.76	3.10	2.64	2.98	1.71	1.21	0.859	0.631	0.443
In.	1.23	1.22	1.10	2.03	3.23	3.06	3.33	1.98	1.35	0.99	0.73	0.49

Calendar year 1960: Max 2,250 Min 24 Mean 75.0 Cfsm 1.43 In. 19.39
Water year 1960-61: Max 884 Min 18 Mean 80.3 Cfsm 1.53 In. 20.74

Peak discharge (base, 1,700 cfs).--No peak above the base.

* 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 1961.

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

Average discharge.--13 years, 36.1 cfs.

Extremes.--Maximum discharge during year, 1,020 cfs Apr. 13 (gage height, 4.23 ft); minimum, 5.7 cfs Sept. 29, 30. 1948-61: 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, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.5	4.9	2.3	87
1.6	7.4	2.5	142
1.7	11	3.0	340
1.9	26	4.0	880
2.1	48		

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	18	33	20	259	b19	62	135	30	17	12	9.4	9.0
2	16	26	17	242	b18	78	47	49	18	12	8.6	8.6
3	*16	26	16	47	b19	47	36	32	17	11	9.0	8.6
4	14	22	16	b32	b21	46	34	28	22	11	9.4	9.0
5	14	20	17	b22	b23	105	33	26	18	10	9.9	8.6
6	14	24	17	b21	b27	*72	32	26	18	10	10	8.3
7	14	*22	16	b27	b24	56	31	35	20	10	22	9.0
8	14	19	15	b33	b20	151	29	34	17	10	11	8.3
9	14	18	15	b25	b22	277	28	30	19	9.9	9.4	8.0
10	14	82	b14	b22	b27	60	214	43	38	9.9	9.0	8.0
11	14	40	b13	b26	b32	43	63	32	19	9.4	9.0	7.7
12	14	25	b14	b20	b28	42	42	49	16	9.4	9.0	7.7
13	13	22	19	b21	b24	38	616	36	15	12	8.6	7.7
14	14	22	22	b22	b26	129	206	31	23	21	8.3	12
15	14	20	20	b78	b40	58	51	26	40	15	8.0	12
16	14	19	19	b48	b36	45	105	25	18	20	7.7	9.0
17	14	19	18	b26	b40	35	60	22	15	81	7.4	7.7
18	14	18	16	b28	120	34	40	20	13	18	7.4	7.7
19	14	18	*15	b26	551	106	35	20	12	14	7.4	*7.7
20	286	17	15	b20	388	60	33	19	12	12	8.0	7.7
21	32	17	34	b35	105	43	31	18	23	11	11	8.0
22	22	17	49	b28	101	47	31	18	44	10	9.9	8.0
23	19	18	22	*b26	242	139	35	17	19	9.4	70	6.8
24	18	18	18	b28	148	74	30	16	15	*11	47	6.8
25	17	17	18	b24	214	47	31	15	14	12	14	6.5
26	15	16	18	b22	177	36	99	23	14	9.9	33	6.5
27	15	16	18	b21	62	36	36	24	23	9.4	19	5.9
28	16	17	16	b20	53	35	36	18	19	9.0	12	5.9
29	33	18	17	b18	-	44	72	16	14	14	11	5.7
30	28	36	48	b19	---	34	33	17	13	13	9.9	5.7
31	22	---	45	b18	---	38	---	*16	---	9.9	9.4	---
Total	796	702	637	1,304	2,607	2,117	2,304	811	585	436.2	434.7	238.1
Mean	25.7	23.4	20.5	42.1	93.1	68.3	76.8	26.2	19.5	14.1	14.0	7.94
Cfsm	1.06	0.963	0.844	1.73	3.83	2.81	3.16	1.08	0.802	0.580	0.576	0.327
In.	1.22	1.07	0.97	2.00	3.99	3.24	3.53	1.24	0.90	0.67	0.67	0.36

Calendar year 1960: Max 1,150 Min 9.0 Mean 37.9 Cfsm 1.56 In. 21.21
Water year 1960-61: Max 616 Min 5.7 Mean 35.5 Cfsm 1.46 In. 19.86

Peak discharge (base, 800 cfs).--Apr. 13 (3 p.m.) 1,020 cfs (4.23 ft).

* 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 1961. Monthly discharge only for November and December 1926, published in WSP 1302.

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

Average discharge.--35 years, 124 cfs.

Extremes.--Maximum discharge during year, about 1,740 cfs Jan. 1 (gage height 6.0 ft); minimum, 40 cfs Oct. 8, but may have been less during a period of ice effect.
1926-61: 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, water year 1960-61, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

2.0	35	3.5	404
2.3	71	4.0	650
2.7	147	4.5	910
3.0	225		

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	111	178	89	880	85	315	322	243	*157	117	82	67
2	105	111	85	644	75	290	225	265	149	111	82	65
3	105	111	84	180	80	265	208	237	152	117	85	68
4	*101	96	82	130	105	265	203	222	157	121	111	77
5	100	94	84	110	115	304	194	214	143	107	87	67
6	110	96	82	100	100	271	194	211	164	121	117	63
7	98	100	82	111	85	*265	187	228	149	119	159	63
8	80	*96	81	123	95	322	179	222	145	127	92	64
9	94	92	77	110	95	484	176	214	154	107	84	63
10	94	162	70	96	100	290	483	217	161	101	82	60
11	91	125	70	98	105	261	261	208	138	98	82	57
12	87	107	60	98	100	246	231	271	132	96	84	58
13	87	101	50	96	90	231	879	234	127	148	76	56
14	87	96	55	101	110	271	465	217	149	129	70	53
15	87	94	60	192	130	243	345	203	222	113	67	53
16	85	92	75	159	134	222	431	197	134	201	68	51
17	85	89	68	127	138	205	334	189	123	210	67	51
18	84	87	66	125	196	203	301	181	119	132	65	51
19	82	85	64	118	633	277	281	184	115	111	65	52
20	230	84	*62	110	478	234	268	181	113	105	67	55
21	107	84	85	105	281	211	255	176	216	101	101	55
22	96	84	75	100	255	225	255	174	222	96	79	*50
23	94	87	70	95	413	304	268	166	149	116	177	49
24	94	84	65	*95	498	258	249	160	152	142	120	49
25	87	84	62	90	814	228	252	150	175	*250	105	47
26	87	82	66	85	685	214	388	190	136	105	149	46
27	87	82	75	85	422	205	261	165	209	96	109	46
28	87	81	65	85	357	205	261	150	145	87	85	45
29	89	108	75	85	-	219	330	170	125	122	77	44
30	85	136	100	85	-------	197	258	170	121	107	71	44
31	87	-------	85	85	-------	206	-------	150	-------	87	68	-------
Total	3,003	3,008	2,269	4,703	6,774	7,936	8,944	6,159	4,553	3,800	2,833	1,669
Mean	96.9	100	73.2	152	242	256	298	199	152	123	91.4	55.6
Cfsm	1.03	1.06	0.775	1.61	2.56	2.71	3.16	2.11	1.61	1.30	0.968	0.589
In.	1.18	1.19	0.89	1.85	2.67	3.13	3.52	2.43	1.79	1.50	1.12	0.66

Calendar year 1960: Max 1900 Min 50 Mean 129 Cfsm 1.37 In. 18.67
Water year 1960-61: Max 880 Min 44 Mean 152 Cfsm 1.61 In. 21.93

Peak discharge (base, 1,900 cfs).--No peak above base.

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 1, Jan. 3-6, 9-13, Jan. 20 to Feb. 15.

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 1961. October 1950 to September 1955 at site 0.5 mile upstream published as "near Bel Air;" records not equivalent.

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

Average discharge.--12 years (1944-50, 1955-61), 11.2 cfs.

Extremes.--Maximum discharge during year, 759 cfs July 24 (gage height, 4.32 ft), from rating curve extended above 720 cfs by logarithmic plotting; minimum, 1.5 cfs September 26, 27.
1944-51, 1955-61: 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.

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

Rating table, water year 1960-61, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

0.9	1.5	1.5	28
1.0	3.3	1.7	46
1.1	6.1	2.0	93
1.2	9.8	2.5	185
1.3	15	3.0	305

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	4.6	36	5.5	b 170	a 6.5	22	45	12	* 4.9	3.6	2.9	2.9
2	4.6	7.1	4.9	33	a 5.5	19	15	25	4.6	3.3	3.6	3.4
3	4.3	6.8	4.6	15	a 6.0	14	12	12	4.9	6.9	3.3	3.7
4	* 3.8	5.2	4.6	10	a 8.0	17	11	10	4.9	4.9	3.1	3.3
5	3.8	5.2	4.6	7.8	b 8.5	22	9.8	9.4	4.3	3.6	3.3	2.5
6	4.0	5.8	4.6	9.0	b 7.5	20	9.8	11	5.8	3.6	10	2.3
7	3.8	5.5	4.6	14	b 7.0	* 16	9.0	15	4.9	3.8	7.0	2.3
8	3.6	*4.9	4.3	16	7.8	79	8.6	12	5.2	4.0	3.3	2.3
9	3.8	4.6	3.8	9.4	9.0	48	9.7	11	7.6	3.1	2.9	2.3
10	3.8	28	3.8	7.1	12	17	131	21	6.1	2.9	3.1	2.3
11	3.6	9.8	b 3.8	6.8	13	14	18	14	4.6	2.7	19	2.3
12	3.6	7.1	b 3.3	7.8	11	13	19	20	4.0	2.7	5.8	2.1
13	3.8	6.1	b 3.1	8.2	10	12	293	15	4.0	5.3	3.3	2.0
14	3.8	6.1	b 3.3	11	17	30	29	11	9.8	3.8	2.7	2.0
15	3.8	6.1	b 4.3	65	22	16	19	9.8	9.4	8.3	2.5	2.3
16	4.0	6.1	b 5.5	20	24	13	45	8.2	4.6	4.3	2.5	2.0
17	4.0	5.8	5.2	15	24	11	19	7.1	3.8	9.6	2.5	2.0
18	3.6	5.2	4.6	16	91	11	15	6.8	3.6	4.6	2.3	2.0
19	3.3	5.2	4.3	b 9.8	207	30	13	7.1	3.3	3.3	2.3	2.0
20	42	4.9	* 4.0	b 9.0	58	16	12	6.8	3.3	3.3	3.0	2.3
21	5.8	4.9	b12	b 8.0	29	13	11	6.4	33	2.9	8.2	2.3
22	4.6	4.9	8.6	b 7.5	65	18	12	6.1	12	2.5	3.8	*1.8
23	4.3	5.2	4.9	b 7.2	112	31	12	6.1	5.8	2.5	2.3	1.8
24	4.6	4.9	4.3	b 7.2	51	18	11	5.5	4.9	98	6.1	1.8
25	4.0	4.9	4.6	6.8	101	14	11	5.2	6.9	* 20	4.3	1.8
26	4.0	4.6	4.9	a 6.5	33	12	25	8.1	4.9	4.9	29	1.6
27	4.3	4.3	5.2	a 6.5	19	11	11	6.1	13	3.8	6.4	1.6
28	5.2	4.3	4.3	a 6.5	20	11	21	5.2	5.8	3.6	4.3	1.6
29	6.4	11	6.0	a 6.5	-	14	22	5.8	4.3	5.3	3.6	1.6
30	4.6	9.0	16	a 6.5	-------	10	12	5.8	3.8	4.6	3.1	1.6
31	5.2	-------	10	a 6.5	-------	30	-------	4.6	-------	3.3	2.9	-------
Total	168.6	229.5	167.5	535.6	984.8	622	890.9	309.1	198.0	239.0	183.1	65.8
Mean	5.44	7.65	5.40	17.3	35.2	20.1	29.7	9.97	6.60	7.71	5.91	2.19
Cfsm	0.638	0.898	0.634	2.03	4.13	2.36	3.49	1.17	0.775	0.905	0.694	0.257
In.	0.74	1.00	0.73	2.34	4.30	2.72	3.89	1.35	0.86	1.04	0.80	0.29

Calendar year 1960: Max 583 Min 1.8 Mean 12.7 Cfsm 1.49 In. 20.30
Water year 1960-61: Max 293 Min 1.6 Mean 12.6 Cfsm 1.48 In. 20.06

Peak discharge (base, 440 cfs).--Apr. 10 (4:45 a.m.) 534 cfs (3.74 ft); Apr. 13 (5 a.m.) 606 cfs (3.94 ft); July 24 (8:30 p.m.) 759 cfs (4.32 ft).

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

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 1961.

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

Average discharge.--17 years, 70.1 cfs.

Extremes.--Maximum discharge during year about 1,200 cfs Jan. 1 (gage height, 5.05 ft, ice jam); minimum daily 28 cfs Sept. 23-30.
1944-61: 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, 6.0 cfs Feb. 20, 1947; minimum daily, 12 cfs Aug. 3, 1955.
Flood of August 1933 reached a stage of about 14 ft, from information by Pennsylvania Railroad.

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

Rating tables, water year 1960-61, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 1				Jan. 2 to Sept. 30			
0.8	27	1.5	135	0.7	21	2.0	280
.9	35	2.0	270	.9	40	3.0	600
1.0	45	3.0	600	1.5	155		

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	52	97	48	550	45	165	172	139	*87	63	46	38
2	52	57	44	350	40	153	133	151	83	59	48	36
3	54	58	44	85	43	141	125	135	89	71	50	39
4	*51	50	42	71	55	147	119	129	87	65	50	41
5	50	50	44	63	60	155	115	125	81	59	48	36
6	51	52	42	57	54	143	113	131	99	73	76	34
7	50	57	42	61	45	*135	109	135	83	71	67	35
8	48	*51	41	69	50	213	105	131	83	89	47	36
9	48	48	38	59	51	225	105	127	91	59	44	36
10	48	90	38	56	52	160	254	135	89	51	43	34
11	46	63	35	54	55	145	145	131	77	50	50	33
12	45	57	32	52	52	139	135	141	73	50	48	33
13	45	54	30	51	48	133	394	131	71	83	43	32
14	46	51	32	55	60	155	220	123	107	69	39	32
15	46	50	36	101	73	137	182	119	121	57	39	32
16	46	50	45	81	73	131	205	115	79	127	38	30
17	46	46	42	69	75	119	172	109	71	126	38	30
18	45	46	40	71	124	117	158	107	69	71	36	30
19	46	45	39	62	284	153	147	107	65	61	36	32
20	108	45	*38	58	210	129	141	105	63	57	38	33
21	56	45	52	54	145	121	137	103	122	51	59	32
22	50	44	46	52	139	143	139	103	107	50	44	*29
23	50	46	42	50	208	172	141	101	79	85	126	28
24	50	44	40	50	240	145	135	99	75	86	57	28
25	46	44	41	47	448	133	145	95	87	*95	67	28
26	45	42	43	45	328	127	195	111	75	53	93	28
27	46	42	45	45	220	123	141	99	115	50	57	28
28	46	42	40	45	188	123	149	93	79	48	46	28
29	46	73	50	45	-	127	178	93	69	77	43	28
30	45	63	60	45	--------	115	143	91	71	61	40	28
31	48	--------	55	45	--------	135	--------	85	--------	50	38	--------
Total	1,551	1,602	1,306	2,598	3,465	4,459	4,752	3,599	2,547	2,117	1,594	967
Mean	50.0	53.4	42.1	83.8	124	144	158	116	84.9	68.3	51.4	32.2
Cfsm	0.945	1.01	0.796	1.58	2.34	2.72	2.99	2.19	1.60	1.29	0.972	0.609
In.	1.09	1.13	0.92	1.83	2.44	3.13	3.34	2.53	1.79	1.49	1.12	0.68

Calendar year 1960: Max 673 Min 30 Mean 70.0 Cfsm 1.32 In. 18.03
Water year 1960-61: Max 550 Min 28 Mean 83.7 Cfsm 1.58 In. 21.49

Peak discharge (base, 1,000 cfs).--Jan. 1,(10:30 a.m.) about 1,200 cfs (4.5 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 2, Jan. 10-12, Jan. 19 to Feb. 14.

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 1961.

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

Average discharge.--14 years, 2.41 cfs.

Extremes.--Maximum discharge during year, 102 cfs July 17 (gage height, 2.62 ft); minimum daily, 0.7 cfs Dec. 22-25, Sept. 23-30.

1947-61: 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, 0.3 cfs Sept. 5, 1957.

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

Rating tables, water year 1960-61, except periods of ice effect or backwater from unknown cause (gage height in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 1 July 17 to Sept. 30		Jan. 1 to July 16	
1.2	0.4	1.2	0.5
1.3	1.2	1.3	1.5
1.4	2.8	1.4	3.7
1.5	5.5	1.5	7.1
1.6	9.6	1.6	11
1.7	15	1.7	17

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	2.8	1.4	1.5	1.0	4.0	5.4	4.0	2.6	2.2	1.1	0.9
2	1.4	*1.6	1.3	2.6	.9	3.7	4.0	4.9	2.4	2.2	1.2	.9
3	1.4	1.4	1.3	2.2	.9	3.4	3.4	3.7	2.4	2.2	1.3	1.4
4	1.4	1.3	1.3	2.0	1.0	3.7	3.1	3.4	2.4	2.2	1.2	2.8
5	1.4	1.3	1.3	1.8	1.2	4.0	3.1	3.4	2.4	2.2	1.2	1.1
6	1.3	1.3	1.3	1.8	1.1	3.7	3.1	3.7	2.6	2.6	1.3	1.0
7	1.3	1.3	1.3	2.0	1.0	*3.4	3.1	3.7	2.4	2.6	1.2	1.0
8	1.3	1.2	1.3	2.0	1.0	8.6	3.1	3.7	2.4	2.4	1.1	1.0
9	1.3	1.2	1.2	1.8	1.0	6.4	3.1	3.4	2.9	2.2	1.1	1.0
10	1.2	*2.4	1.2	1.6	1.1	4.0	8.3	3.4	2.6	2.2	*1.0	1.0
11	1.2	1.7	1.1	1.6	1.0	3.7	4.3	3.7	2.6	2.0	1.1	.9
12	1.2	1.6	1.0	1.6	.9	3.7	4.0	4.6	2.4	2.0	1.1	.9
13	1.2	1.4	.9	1.8	.9	3.4	1.6	4.0	2.4	2.0	1.0	.9
14	1.2	1.4	.9	1.8	1.1	4.0	5.4	3.7	3.4	1.8	.9	.9
15	1.2	1.4	.9	3.4	1.5	3.4	4.3	3.4	3.1	2.0	.9	.9
16	1.1	1.4	1.0	2.6	2.2	3.1	5.0	3.4	2.6	3.0	1.0	.8
17	1.1	1.3	.9	2.4	2.4	3.1	4.3	3.1	2.4	6.5	1.0	.8
18	1.1	1.3	.9	2.4	5.4	3.4	*3.7	2.9	2.4	1.9	.9	.8
19	1.1	1.3	.9	1.8	12	4.3	*3.4	2.9	2.0	1.6	1.0	.9
20	2.1	1.3	.8	1.7	5.7	3.7	3.1	2.9	1.8	1.4	1.0	*1.0
21	1.3	1.3	1.0	1.6	c 3.7	3.4	3.1	2.9	2.9	1.3	1.7	.9
22	1.2	1.3	.7	1.5	c 4.0	5.7	3.7	2.6	2.6	1.9	1.2	.8
23	1.3	1.4	.7	1.5	6.8	5.4	4.0	2.6	2.4	1.6	2.2	.7
24	1.2	1.4	.7	1.5	6.6	4.0	3.7	2.6	2.2	1.6	1.3	.7
25	1.2	1.3	.7	1.5	12	3.7	3.7	*2.6	2.6	1.4	1.2	.7
26	1.2	1.3	.8	*1.5	7.5	3.4	4.7	2.9	2.4	1.2	2.0	.7
27	1.2	1.3	.8	1.5	4.6	3.4	3.4	2.6	*3.3	1.2	1.3	.7
28	1.2	1.3	.8	1.4	4.3	3.4	4.0	2.6	2.4	1.2	1.1	.7
29	1.2	2.5	1.0	1.3	–	3.4	4.0	2.9	2.2	1.4	1.1	.7
30	1.2	1.7	1.1	1.2	--------	3.1	3.4	2.6	2.2	1.3	1.1	.7
31	1.1	-------	1.0	1.1	--------	4.8	--------	2.4	--------	1.2	1.0	--------
Total	39.2	44.7	31.5	69.5	92.8	124.4	130.9	101.2	75.4	62.5	36.8	28.2
Mean	1.26	1.49	1.02	2.24	3.31	4.01	4.36	3.26	2.51	2.02	1.19	0.94
Cfsm	0.603	0.713	0.488	1.07	1.58	1.92	2.09	1.56	1.20	0.967	0.569	0.450
In.	0.70	0.80	0.56	1.24	1.65	2.21	2.33	1.80	1.34	1.11	0.65	0.50

Calendar year 1960: Max 26 Min 0.7 Mean 1.93 Cfsm 0.923 In. 12.59
Water year 1960-61: Max 15 Min 0.7 Mean 2.29 Cfsm 1,10 In. 14.89

Peak discharge (base, 90 cfs).--July 17 (12:30 a.m.) 102 cfs (2.62 ft).

* Discharge measurement made on this day.
c Backwater from unknown cause.
Note.--Stage-discharge relation affected by ice Dec. 9-14, 20-25, 28; Jan. 1, 5, 9, 10; Jan 19 to Feb. 13 (no gage-height record Jan. 21 to Feb. 13) and Feb. 18, 19.

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 Beaver Dam Run.

Drainage area.--59.8 sq mi.

Records available.--September 1944 to September 1961.

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

Average discharge.--17 years 70.1 cfs.

Extremes.--Maximum discharge during year, 869 cfs Apr. 13 (gage height, 3.93 ft); minimum, 15 cfs Sept. 29 (gage height 0.86 ft), but may have been less during a period of ice effect.
1944-61: Maximum discharge, 5,590 cfs July 21, 1956 (gage height, 10.84 ft), from rating curve extended above 1,100 cfs on basis of slop-area measurements at gage heights 8.55 and 9.88 ft; minimum, 7.5 cfs Jan. 5, 1959, result of freezeup.

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

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 13		Apr. 14 to Sept. 30	
1.1	20	0.9	13
1.4	60	1.1	33
1.7	125	1.4	78
2.0	225	1.8	180
2.5	400	2.5	400

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	34	70	36	300	35	126	150	93	64	50	35	27
2	34	*42	34	130	*31	113	97	118	62	48	36	26
3	34	42	32	64	33	104	91	93	64	48	39	28
4	34	38	32	51	42	106	86	86	65	50	39	38
5	34	36	32	44	46	113	82	84	62	46	39	28
6	34	38	32	43	42	106	82	88	64	50	39	26
7	34	38	32	44	35	101	78	91	82	50	40	27
8	32	36	31	51	38	138	78	86	74	52	36	27
9	32	35	30	44	39	231	78	84	73	45	34	27
10	31	*60	30	42	40	*121	214	88	74	42	*33	26
11	31	48	26	40	43	106	109	88	62	41	38	25
12	30	39	24	39	40	99	99	111	57	41	34	31
13	30	38	22	40	37	95	382	93	56	46	31	32
14	31	36	*25	42	46	109	153	86	104	44	27	25
15	31	35	28	72	50	95	123	82	114	42	27	24
16	31	35	34	64	51	91	142	80	65	51	28	22
17	31	34	32	54	52	84	118	76	58	91	28	22
18	30	34	31	54	92	82	106	74	56	50	26	22
19	30	34	30	50	316	113	*99	74	54	44	26	23
20	54	32	29	46	183	95	95	74	52	42	28	25
21	36	32	40	42	102	86	93	73	80	41	45	*25
22	34	32	35	40	100	110	93	71	78	39	35	21
23	32	35	32	38	197	145	99	71	60	54	56	20
24	34	34	30	38	214	113	91	*69	56	61	42	20
25	31	32	26	36	390	99	91	67	69	59	42	20
26	31	32	28	35	291	93	126	74	56	42	50	20
27	32	32	29	35	162	88	93	71	*78	39	40	19
28	32	32	25	35	139	86	101	67	58	39	34	18
29	34	39	40	35	-	91	111	67	52	44	32	16
30	32	51	48	35	--------	82	95	69	54	41	30	17
31	34	--------	42	35	--------	93	--------	64	--------	39	27	--------
Total	1,024	1,151	977	1,718	2,886	3,314	3,455	2,512	2,003	1,471	1,096	727
Mean	33.0	38.4	31.5	55.4	103	107	115	81.0	66.8	47.5	35.4	24.2
Cfsm	0.552	0.642	0.527	0.926	1.72	1.79	1.92	1.35	1.12	0.794	0.592	0.405
In.	0.64	0.72	0.61	1.07	1.79	2.06	2.15	1.56	1.25	0.91	0.68	0.45

Calendar year 1960: Max 360 Min 22 Mean 51.3 Cfsm 0.858 In. 11.69
Water year 1960-61: Max 390 Min 16 Mean 61.2 Cfsm 1.02 In. 13.89

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

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11 to Jan. 2, Jan. 10, 11, Jan. 19 to Feb. 15.

1-5840. Gunpowder Falls near Carney, Md.

Location.--Lat 39°25'25", long 76°30'40", on left bank 1 mile downstream from Cowen Run, 2 miles north of Carney, Baltimore County, and 2 3/4 miles downstream from Loch Raven Dam.

Drainage area.--314 sq mi.

Records available.--September 1949 to September 1961.

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

Extremes.--Maximum discharge during year, 2,190 cfs Feb. 26 (gage height, 5.54 ft); minimum, 4.3 cfs Sept. 23. 1949-61: Maximum discharge, 7,000 cfs July 9, 1952 (gage height, 9.50 ft), from rating curve extended above 2,800 cfs by logarithmic plotting; minimum, 1.2 cfs Sept. 7, 1954.

Remarks.--Records good except those for periods of ice effect and those for Mar. 7 to Sept. 18, which are fair. 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, water year 1960-61, except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)

1.3	3.2	1.8	26	3.5	559
1.4	5.2	2.0	50	4.0	860
1.5	8.0	2.3	112	5.0	1,660
1.6	12	2.6	199	6.0	2,700
1.7	18	3.0	339		

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	92	136	126	220	75	902	569	530	248	190	48	25
2	73	171	123	506	b 67	751	554	600	248	171	31	17
3	71	159	120	425	b 70	643	479	554	241	154	31	16
4	56	136	128	324	b 90	579	425	488	262	154	32	20
5	48	112	174	238	b 100	610	387	447	258	142	34	23
6	46	105	115	190	b 95	605	363	425	251	134	56	a 20
7	43	100	77	156	b 90	511	343	461	262	134	162	a 16
8	39	86	62	156	b 100	535	324	474	262	139	*112	a 14
9	40	77	48	156	b 100	881	312	461	276	168	71	a 12
10	47	134	35	123	107	758	700	470	290	154	54	a 10
11	48	180	b 35	102	107	595	758	461	276	117	37	a 10
12	42	165	b 35	97	112	511	621	506	241	90	39	a 10
13	35	142	b 30	92	115	465	1,260	516	199	93	40	a 10
14	33	128	b 35	88	117	479	1,330	493	246	145	28	a a8.0
15	33	112	b 45	159	139	470	986	456	493	128	16	*a7.0
16	37	110	55	241	168	443	881	425	425	136	12	a 6.0
17	40	95	50	228	196	396	846	387	320	251	8.4	a 5.0
18	36	77	43	202	276	355	713	343	251	283	6.8	a 5.0
19	34	71	36	b 195	626	434	*621	331	205	199	5.4	5.0
20	92	65	29	b 170	1,180	461	549	335	162	156	6.0	5.2
21	112	62	43	b 160	972	408	506	324	218	115	14	5.7
22	90	56	46	b 155	770	404	493	316	359	86	11	5.2
23	73	90	b 35	151	881	564	479	294	316	83	409	4.7
24	86	136	b 30	126	1,020	574	506	279	294	170	465	5.2
25	65	83	31	*120	1,360	525	493	262	287	309	269	5.0
26	48	63	32	102	2,060	461	643	276	265	238	324	4.7
27	42	63	37	102	1,560	421	616	309	283	151	276	4.7
28	47	63	b 38	b 95	1,140	400	559	272	287	92	190	4.7
29	48	64	36	95	-	413	654	265	*241	73	115	4.7
30	47	112	56	88	--------	387	584	272	202	79	70	4.7
31	*52	--------	63	77	--------	383	--------	258	--------	67	40	--------
Total	1,695	3,153	1,848	5,339	13,693	16,324	18,554	12,290	8,168	4,601	3,012.6	293.5
Mean	54.7	105	59.6	172	489	527	618	396	272	148	97.2	9.78
(†)	43,520	43,610	43,540	43,520	44,360	44,070	44,080	43,770	43,750	43,520	43,440	42,460
(‡)	+167	+157	+162	+177	+184	+169	+162	+162	+176	+193	+193	+192

Calendar year 1960: Max 2,110 Min 6.5 Mean 181
Water year 1960-61: Max 2,060 Min 4.7 Mean 244

* Discharge measurement made on this day.
† Combined month-end contents, in millions of gallons, in Pretty Boy and Loch Raven Reservoirs (contents on Sept. 30, 1960, 43,550 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.

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 & Pennsylvania Railroad bridge, and 5 miles southwest of Bel Air.

Drainage area.--36.1 sq mi.

Records available.--October 1926 to September 1961. Monthly discharge only for some periods published in WSP 1302.

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

Average discharge.--35 years, 47.6 cfs.

Extremes.--Maximum discharge during year, 785 cfs April 13 (gage height, 4.19 ft); minimum daily 16 cfs September 27-30.
1926-61: 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.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.0	16	2.5	186
1.2	26	3.0	311
1.5	50	3.5	480
2.0	105		

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	35	63	32	350	b 32	90	118	76	* 52	39	28	27
2	33	39	31	150	b 28	85	69	102	49	38	30	26
3	32	38	31	60	b 30	74	63	77	50	49	30	28
4	* 32	34	30	50	39	76	60	71	53	46	32	29
5	32	33	30	42	43	85	57	68	48	38	32	25
6	32	34	30	37	38	82	56	72	53	41	37	24
7	31	33	30	40	b 32	* 76	54	80	49	40	45	24
8	30	* 32	30	45	35	109	53	77	48	37	31	25
9	30	32	b 27	40	36	153	54	72	50	34	29	24
10	30	65	b 27	37	37	80	204	70	53	32	30	23
11	30	44	b 24	36	39	70	81	72	45	31	36	22
12	29	39	b 22	35	36	68	74	90	43	31	36	22
13	29	36	b 21	35	35	64	375	77	40	61	29	22
14	30	35	b 22	36	41	84	121	70	58	47	26	21
15	29	34	b 26	70	b 45	70	93	66	66	38	25	21
16	30	34	32	55	b 48	64	136	65	46	48	25	20
17	30	32	30	45	b 50	58	96	61	42	78	24	18
18	30	32	29	45	94	59	91	60	39	45	23	18
19	29	32	28	40	291	89	86	61	39	38	23	20
20	57	31	* 27	38	154	69	77	60	38	36	24	21
21	35	31	39	36	91	62	74	58	100	32	45	21
22	32	30	35	34	94	72	74	57	74	30	33	* 18
23	32	32	31	33	187	104	79	56	78	31	126	18
24	32	32	28	* 34	167	76	72	54	74	101	53	18
25	31	31	29	32	253	64	73	52	117	*76	52	17
26	30	30	31	31	165	61	115	60	54	36	90	17
27	30	30	32	32	106	59	76	58	85	32	48	16
28	31	30	28	31	95	61	91	54	52	30	36	16
29	32	48	35	32	-	67	105	53	45	42	32	16
30	32	39	45	32	--------	58	77	55	42	42	30	16
31	32	--------	40	b 32	--------	72	--------	51	--------	31	28	--------
Total	989	1,085	932	1,645	2,341	2,361	2,854	2,055	1,682	1,330	1,168	633
Mean	31.9	36.2	30.1	53.1	83.6	76.2	95.1	66.3	56.1	42.9	37.7	21.1
Cfsm	0.884	1.00	0.834	1.47	2.32	2.11	2.63	1.84	1.55	1.19	1.04	0.584
In.	1.02	1.12	0.96	1.69	2.41	2.43	2.94	2.12	1.73	1.37	1.20	0.65

Calendar year 1960: Max 1,280 Min 21 Mean 48.2 Cfsm 1.34 In. 18.17
Water year 1960-61: Max 375 Min 16 Mean 52.3 Cfsm 1.45 In. 19.64

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 Dec. 23 to Jan. 24, Aug. 6,7.

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

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

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

Location.--Lat 39°22'25", long 76°35'05", 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 1961.

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

Extremes.--Maximum discharge during year, 413 cfs Aug. 23 (gage height, 4.68 ft); minimum, 0.1 cfs Aug. 18, 19 (gage height, 1.20 ft).
1957-61: 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 fair except those for periods of ice effect or doubtful or no gage-height record, which are poor. Slight diurnal fluctuation caused by ready-mixed concrete plant above station.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.2	0.1	1.7	6.7
1.3	.4	1.9	14
1.4	1.2	2.1	28
1.5	2.6	2.4	57
1.6	4.2		

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	1.1	6.5	0.7	7.0	0.9	3.2	5.2	2.2	1.2	0.9	0.7	0.6
2	1.1	5.5	.6	2.5	.8	2.6	2.2	3.5	1.6	.9	.7	1.0
3	1.1	2.1	.6	2.0	.9	2.5	2.1	1.7	1.5	1.2	.8	2.5
4	1.1	.7	.6	1.4	1.0	2.9	2.0	1.5	1.0	.9	2.9	1.0
5	1.0	1.2	.6	1.2	1.0	2.5	1.7	1.5	.9	.9	1.0	.7
6	1.0	.8	.6	1.9	1.0	*5.6	1.7	2.0	1.5	2.1	2.0	1.0
7	1.0	1.2	.6	2.0	1.0	5.7	1.7	2.0	1.0	.9	1.5	1.5
8	1.0	.7	.6	1.5	1.1	9.2	1.5	1.5	1.7	.9	1.0	1.0
9	1.0	.9	.6	1.0	1.8	4.5	3.5	1.5	8.0	.8	.9	.7
10	.9	6.7	.6	1.1	3.4	2.8	1.3	2.0	1.7	.7	*.8	.7
11	.9	1.1	.6	1.0	2.2	2.5	2.5	3.0	1.1	.8	.5	.6
12	.9	.9	.6	1.0	1.5	2.4	5.5	4.0	1.1	.7	.4	.6
13	.9	.8	.6	1.0	1.8	2.4	12	2.5	2.1	2.4	.4	.5
14	.9	.8	.7	1.2	6.0	5.2	3.2	2.0	6.4	.7	.4	.5
15	1.0	.7	.7	5.2	4.8	2.4	2.8	1.6	1.9	4.1	.3	*.7
16	.9	.7	1.0	2.8	5.2	2.2	6.1	1.4	1.1	1.2	.4	.4
17	.8	.7	.9	2.1	4.8	2.0	2.4	1.3	1.1	2.2	.3	.5
18	.8	.7	.8	1.5	1.7	3.1	2.2	1.3	.9	.9	.4	.4
19	1.0	.7	.7	.8	16	6.4	2.1	1.3	.9	.6	.3	.6
20	7.6	.6	.7	1.0	4.2	2.5	*2.0	1.2	.8	.6	3.1	.6
21	.9	.7	3.6	1.0	3.6	2.0	2.0	1.2	1.5	.6	2.6	.5
22	.8	.7	.8	1.0	8.5	5.7	3.3	1.2	2.1	.6	.5	.4
23	.8	1.8	.6	1.0	10	5.8	2.1	1.2	1.2	1.5	52	.4
24	.7	1.2	.6	1.0	4.1	2.6	1.8	*1.1	1.0	6.1	1.5	.4
25	.7	1.2	.7	*1.0	8.1	2.2	1.9	1.0	2.6	1.3	1.5	.3
26	.7	1.4	.8	1.0	3.7	2.2	4.5	2.7	1.1	.9	18	.4
27	.7	1.4	.9	1.0	2.8	2.1	1.8	1.1	4.5	.8	1.5	.4
28	1.1	1.4	.7	1.0	3.6	2.7	2.4	1.2	1.2	.8	1.0	.4
29	1.1	2.9	1.5	1.0	-	2.3	2.8	1.6	*1.0	.8	.8	.4
30	.7	.8	4.7	1.0	--------	1.8	1.5	1.1	.9	.8	.7	.4
31	*5.6	--------	1.4	1.0	--------	6.6	--------	.9	--------	.7	.6	--------
Total	39.8	47.5	29.7	50.2	120.8	108.6	99.5	53.3	68.1	39.3	99.5	20.1
Mean	1.28	1.58	0.958	1.62	4.31	3.50	3.32	1.72	2.27	1.27	3.21	0.670
Cfsm	0.601	0.742	0.450	0.761	2.02	1.64	1.56	0.808	1.07	0.596	1.51	0.315
In.	0.69	0.83	0.52	0.88	2.11	1.90	1.74	0.93	1.19	0.69	1.74	0.35

Calendar year 1960: Max 59 Min 0.3 Mean 2.26 Cfsm 1.06 In. 14.47
Water year 1960-61: Max 52 Min 0.3 Mean 2.13 Cfsm 1.00 In. 13.57

Peak discharge (base, 190 cfs).--June 13 (12 p.m.) 206 cfs (3.45 ft); July 24 (8 p.m.) 217 cfs (3.52 ft); Aug. 23 (2 p.m.) 413 cfs (4.68 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12-14, 16, 22-29, Jan. 18 to Feb. 7 (no gage-height record Dec. 23-26, Jan. 25 to Feb. 7). Doubtful or no gage-height record Dec. 29, 30, Jan. 1, 2, Mar. 8 to Apr. 2, Apr. 10, 12-19, Apr. 26 to May 25, Aug. 5-8, 24, 25, Aug. 27 to Sept. 14.

1-5853. Stemmers Run at Rossville, Md.

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

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 1961.

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

Extremes.--Maximum discharge during year, 132 cfs Apr. 13 (gage height, 2.52 ft); no flow part of June 20; minimum daily, 0.4 cfs many days.
1958-61: Maximum discharge, 506 cfs Sept. 12, 1960 from rating curve extended above 180 cfs on basis of logarithmic plotting and velocity-area study; no flow part of Sept. 6, 1958, June 20, 1961; minimum daily, 0.3 cfs Sept. 8, 9, Dec. 24-27, 1958, July 8, Aug. 17, Sept. 14, 1959.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.9	0.1	1.3	10
1.0	.6	1.5	24
1.1	2.2	2.0	72
1.2	5.6		

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	0.6	7.8	0.5	39	0.7	2.2	8.3	1.7	0.7	0.5	0.4	0.4
2	.5	.9	.5	4.4	.9	1.8	1.4	3.4	.5	.5	.4	.5
3	.5	1.1	.5	2.5	b .7	1.1	1.0	1.0	.5	.5	.5	.5
4	.5	.6	.5	1.6	.7	1.3	.9	.7	.5	.5	.5	.5
5	.5	.7	.5	1.1	.7	1.4	.7	.6	.5	.5	.5	.4
6	.6	.7	.5	1.4	.9	*1.3	.7	.9	.5	1.0	.8	.4
7	.6	.6	.5	1.8	.9	1.0	.6	1.4	.5	.7	.7	.4
8	.6	.6	.5	2.0	.7	17	.6	1.1	.5	.6	* .5	.5
9	.6	.6	.5	1.1	a 1.2	7.0	.7	2.9	6.8	.5	.5	.5
10	.6	7.1	.5	.7	4.4	1.3	26	2.2	2.6	.5	.9	.5
11	.6	1.0	b .5	.6	6.0	1.0	2.0	66	1.1	.5	.5	.5
12	.5	.7	a .5	.7	3.3	.7	5.8	9.9	.7	.5	.5	.5
13	.5	.6	a .5	.7	3.3	.5	43	22	.6	2.7	.5	.5
14	.5	.6	a .5	1.0	12	12	3.3	1.3	1.4	.6	.5	* .5
15	2.3	.6	.6	9.1	15	2.2	1.6	.9	3.3	6.4	.4	.5
16	.7	.5	1.0	4.4	13	1.3	3.0	.7	.6	3.2	.4	.4
17	.6	.5	.9	2.2	11	.7	1.4	.7	.6	3.7	.4	.4
18	.6	.5	.6	1.6	30	1.5	1.1	.5	.6	2.5	.4	.4
19	.5	.5	.5	b .9	17	12	1.0	.5	.5	.6	.4	.4
20	* 1.2	.5	.5	b .6	4.0	2.0	* .9	.5	.4	.5	.6	.5
21	.7	.5	2.5	b .6	3.0	1.1	.9	.5	14	.5	2.5	.5
22	.6	.5	1.0	b .6	19	9.5	1.4	.5	16	.5	.6	.5
23	.6	.6	.5	.6	* 22	11	1.1	* .6	.9	.5	15	.5
24	.6	.5	.5	* .6	3.3	2.5	.9	.6	.5	14	7.3	.5
25	.6	.5	.5	* .5	15	1.3	.7	.5	2.3	2.6	.6	.5
26	.6	.5	.9	.5	7.3	1.0	4.0	2.7	1.0	.6	16	.5
27	.6	.5	1.4	.5	1.4	.9	1.0	.7	2.9	.5	.9	.5
28	1.2	.5	.7	.7	1.8	1.0	3.1	.6	.5	.5	.6	.5
29	1.0	.7	2.2	b .7	–	.9	2.7	.6	* .5	.5	.5	.5
30	.6	.5	9.9	.7	-------	.7	1.0	.6	* .5	.5	.5	.5
31	1.8	-------	2.5	.7	-------	10	-------	.5	-------	.4	.4	-------
Total	33.3	32.0	33.7	84.1	199.2	109.6	120.8	48.1	48.1	48.1	55.2	14.2
Mean	1.07	1.07	1.09	2.71	7.11	3.54	4.03	1.55	1.60	1.55	1.78	0.47
Cfsm	0.543	0.543	0.553	1.38	3.61	1.80	2.05	0.787	0.812	0.787	0.904	0.239
In.	0.63	0.60	0.64	1.59	3.76	2.07	2.28	0.91	0.91	0.91	1.04	0.27

Calendar year 1960: Max 161 Min 0.4 Mean 2.44 Cfsm 1.24 In. 16.87
Water year 1960-61: Max 33 Min 0.4 Mean 2.26 Cfsm 1.15 In. 15.61

Peak discharge (base, 120 cfs).--Apr. 13 (4:30 a.m.) 132 cfs (2.52 ft); July 24 (8:30 p.m.) 129 cfs (2.49 ft).

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

1-5855. Cranberry Branch near Westminster, Md.

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

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 1961.

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

Average discharge.--16 years, 66.1 cfs.

Extremes.--Maximum discharge during year, 1,020 cfs Feb. 25 (gage height, 4.35), minimum 5.5 cfs Oct. 22 (gage height, 1.18 ft), result of filling pond above station; minimum daily 17 cfs Sept. 25, 29, 30.
1945-61: 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, 8.5 cfs Aug. 22, 24, 1957.

Remarks.--Records good except those for periods of ice effect, which are fair. 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 1.3 cfs diverted above station for municipal supply of Westminster; sewage effluent discharged into Little Pipe Creek.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.4	17	2.5	290
1.6	40	3.0	480
2.0	125	3.5	680

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	37	75	33	b 100	38	149	155	97	59	48	28	23
2	36	*38	33	b 75	34	134	102	117	53	46	30	23
3	36	41	34	b 58	34	117	92	95	61	48	33	36
4	36	33	30	b 48	32	122	90	90	63	48	32	66
5	34	33	30	b 40	b 41	131	86	88	51	43	30	28
6	36	34	29	41	b 40	120	86	90	61	44	34	25
7	34	34	29	46	38	115	81	99	53	46	30	24
8	34	32	29	59	38	*155	73	92	55	43	28	26
9	36	32	25	b 40	41	196	75	99	63	37	27	24
10	34	73	b 25	b 36	43	125	248	99	61	36	* 27	23
11	34	46	b 25	38	43	109	112	95	50	34	28	23
12	34	37	b 18	41	43	104	104	109	48	34	29	22
13	32	36	b 27	41	41	99	412	97	46	43	27	22
14	34	34	b 27	44	46	120	182	90	102	40	25	21
15	34	33	b 27	79	67	102	146	84	103	36	25	21
16	33	33	b 32	69	71	92	213	81	51	43	25	20
17	32	32	b 28	57	77	84	*146	77	48	89	26	21
18	30	30	b 26	57	b 130	84	128	75	46	43	23	22
19	32	30	b 25	b 49	360	125	117	75	44	38	23	23
20	59	30	b 24	b 33	262	99	109	73	41	37	24	22
21	38	29	b 33	b 55	161	88	104	71	70	34	40	*25
22	33	29	b 29	b 50	152	144	104	69	71	33	28	20
23	34	33	b 24	b 46	294	158	112	67	51	33	41	18
24	33	30	b 25	b 42	311	120	99	* 65	43	55	32	18
25	33	30	b 26	40	536	107	104	63	55	59	38	17
26	32	29	28	* 38	364	99	182	75	50	34	47	18
27	32	29	30	40	220	95	107	65	*79	32	33	18
28	33	29	27	40	176	92	112	61	53	32	29	18
29	33	47	29	38	-	95	120	65	48	36	31	17
30	32	50	40	37	--------	86	99	63	72	33	25	17
31	33	--------	b 36	37	--------	104	--------	57	--------	30	23	--------
Total	1,073	1,101	883	1,514	3,733	3,570	3,900	2,543	1,751	1,287	921	701
Mean	34.6	36.7	28.5	48.8	133	115	130	82.0	58.4	41.5	29.7	23.4
Cfsm	0.611	0.648	0.504	0.862	2.35	2.03	2.30	1.45	1.03	0.733	0.525	0.413
In.	0.71	0.72	0.58	0.99	2.45	2.35	2.56	1.67	1.15	0.85	0.61	0.46

Calendar year 1960: Max ~~288~~ 336 Min 18 Mean 53.6 Cfsm 0.947 In. 12.88
Water year 1960-61: Max 536 Min 17 Mean 63.0 Cfsm 1.11 In. 15.10

Peak discharge (base, 1,000 cfs).--Feb. 25 (9 p.m.) 1,020 cfs (4.35 ft).

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

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 Stage 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 1961.

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

Average discharge.--13 years, 72.3 cfs.

Extremes.--Maximum discharge during year, 1,400 cfs Feb. 25 (gage height, 4.91 ft); minimum, 10 cfs Dec. 12 (gage height 1.65 ft), result of freezeup; minimum daily 13 cfs Sept. 26-30.
1948-61: 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, 5.3 cfs Jan. 28, 1955, (gage height 1.59 ft), result of freezeup; minimum daily 6.8 cfs Aug. 18, 19, 24, 1957.

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

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Aug. 1				Aug. 2 to Sept. 30	
1.8	17	2.5	170	1.75	13
1.9	24	3.0	470	1.8	16
2.1	51	3.5	740	1.9	24
2.3	102			2.1	51

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	27	56	33	150	39	200	229	119	73	46	*26	20
2	26	33	28	110	35	170	127	155	68	42	*27	20
3	25	33	28	80	35	150	116	116	68	45	29	46
4	24	29	28	60	33	142	110	108	71	48	29	38
5	25	28	28	43	42	146	105	105	60	42	28	23
6	25	29	27	45	41	134	105	113	60	81	31	21
7	25	*29	27	48	39	130	99	119	58	53	44	23
8	24	27	26	56	39	198	92	113	56	45	28	36
9	25	27	24	45	42	266	92	108	76	46	26	24
10	25	69	23	38	44	150	280	124	79	46	26	22
11	24	46	22	39	44	130	130	119	66	39	26	20
12	24	36	17	42	44	124	122	182	53	36	25	20
13	24	32	25	39	42	119	672	154	50	45	24	20
14	24	31	25	45	50	142	286	127	56	40	*22	19
15	24	29	25	89	80	122	220	116	53	36	21	18
16	24	29	31	81	90	113	302	110	48	41	21	17
17	24	28	28	63	105	102	210	99	45	64	42	16
18	24	27	27	68	200	105	*166	94	43	79	24	16
19	24	27	25	63	600	150	150	94	42	40	23	17
20	41	27	25	38	382	122	142	89	40	36	24	19
21	28	27	32	65	226	108	130	86	67	35	39	18
22	25	26	31	55	225	242	130	84	71	32	28	15
23	25	28	24	50	458	286	142	81	48	31	40	15
24	26	27	25	45	410	170	127	79	45	37	28	14
25	24	26	26	40	595	146	119	76	67	45	31	14
26	24	26	28	40	458	130	203	100	*71	32	44	*13
27	25	26	31	40	304	124	122	89	90	28	31	13
28	27	25	28	*40	250	122	129	79	56	28	26	13
29	26	38	29	39	-	124	134	79	46	29	24	13
30	25	58	45	38	--------	108	113	81	75	28	23	13
31	26	--------	43	38	--------	140	--------	71	--------	26	21	--------
Total	789	979	864	1,732	4,952	4,615	5,104	3,269	1,801	1,301	881	596
Mean	25.5	32.6	27.9	55.9	177	149	170	105	60.0	42.0	28.4	19.9
Cfsm	0.396	0.506	0.433	0.868	2.75	2.31	2.64	1.63	0.932	0.652	0.441	0.309
In.	0.46	0.57	0.50	1.00	2.86	2.67	2.95	1.89	1.04	0.75	0.51	0.34

Calendar year 1960: Max 411 Min 17 Mean 54.2 Cfsm 0.842 In. 11.46
Water year 1960-61: Max 672 Min 13 Mean 73.7 Cfsm 1.14 In. 15.54

Peak discharge (base, 950 cfs).--Feb. 25 (8:30 p.m.) 1,400 cfs. (4.91 ft); Apr. 13 (7:30 a.m.) 1,390 cfs (4.89 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 10-15, 25, Jan. 1-5, 9-13, Jan. 20 to Feb. 13, Feb. 15, 16, 18, (no gage-height record Jan. 22 to Feb. 13).

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 1961.

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

Extremes.--Maximum discharge during year, about 2,200 cfs Feb. 25 or Apr. 13 (gage height uncertain); minimum, 27 cfs Sept. 26, 27, 29, 30, but may have been less during period of ice effect.
1944-61: 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, 16 cfs Aug. 20, 21, 24, 1957.
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, or those for period of no gage-height record which are poor. 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 tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 13				Apr. 14 to Sept. 30			
1.2	24	2.5	457	1.1	21	2.5	457
1.4	47	3.0	830	1.3	40	3.0	830
1.7	106	3.5	1,310	1.6	91	3.5	1,310
2.0	207			2.0	211		

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	50	120	63	300	80	380	450	186	146	103	50	40
2	46	76	55	250	72	330	220	266	140	85	47	39
3	47	65	53	159	70	300	200	200	132	79	54	40
4	46	60	53	118	78	280	185	186	146	89	54	106
5	46	55	52	94	86	290	175	175	129	79	53	47
6	47	57	52	92	84	260	170	197	123	120	61	40
7	47	*57	52	96	84	260	160	264	123	108	77	39
8	46	57	50	109	78	350	140	295	113	87	54	55
9	46	55	46	94	90	590	140	282	145	77	48	46
10	47	114	39	76	92	300	440	346	162	89	50	40
11	46	108	38	72	92	260	220	320	143	71	47	39
12	43	72	33	74	90	250	195	437	121	68	47	38
13	42	63	47	74	88	230	1,020	416	108	77	43	38
14	44	60	49	82	95	280	500	366	108	81	40	36
15	44	58	49	184	160	240	350	315	135	71	*38	34
16	44	57	58	180	170	220	470	291	115	75	37	32
17	44	55	55	132	180	200	320	264	98	93	53	31
18	44	53	50	132	310	205	*251	219	91	146	41	31
19	44	53	49	130	1,030	295	235	207	87	81	38	32
20	80	52	47	90	780	240	215	207	81	71	40	*37
21	69	52	72	140	400	215	204	189	114	66	69	38
22	52	52	69	120	340	550	207	189	146	61	56	33
23	52	53	47	110	780	650	235	179	103	57	78	29
24	55	55	50	100	730	330	200	172	91	64	59	29
25	52	53	53	95	1,000	270	193	156	105	83	53	28
26	50	53	56	90	800	230	317	178	146	61	122	28
27	50	52	64	90	570	200	207	227	160	54	73	27
28	53	52	57	87	460	200	212	159	*126	53	51	27
29	55	58	58	82	-	200	246	149	103	54	47	27
30	52	115	100	82	--------	180	193	169	127	57	43	27
31	53	--------	95	82	--------	250	--------	149	--------	51	40	--------
Total	1,536	1,942	1,711	3,616	8,889	9,035	8,270	7,355	3,667	2,411	1,663	1,133
Mean	49.5	64.7	55.2	117	317	291	276	237	122	77.8	53.6	37.8
(†)	30,500	29,620	28,260	28,810	33,770	38,260	43,100	43,330	43,310	42,390	40,820	38,620
(‡)	+144	+142	+149	+141	+148	+143	+145	+150	+163	+169	+169	+170

Calendar year 1960: Max 880 Min 33 Mean 105 ‡ +150
Water year 1960-61: Max 1,030 Min 27 Mean 140 ‡ +153

* Discharge measurement made on this day.
† Month-end total contents, in millions of gallons, in Liberty Reservoir (contents on Sept. 30, 1960, 31,910 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 Maryland Water Works Co. and Baltimore Department of Public Works respectively.
Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 5, 9-14, 19-31. No gage-height record Feb. 1 to Apr. 17.

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

Location.--Lat 39°20'46", long 76°44'04", on right bank at downstream side of bridge on Essex Road, 300 ft north of State Highway 26 (Liberty Road), in Villa Nova, Baltimore County, and 1.2 miles west of Baltimore City limits.

Drainage area.--32.5 sq mi.

Records available.--Feburary 1957 to September 1961.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map).

Extremes.--Maximum discharge during year, 771 cfs Apr. 13 (gage height, 5.40 ft); minimum, 3.3 cfs, Jan. 19, result of freezeup; minimum daily, 6.6 cfs Sept. 29, 30.
1957-61: Maximum discharge, 1,280 cfs Sept. 12, 1960 (gage height 7.00 ft); minimum, that of Jan. 19, 1961; minimum daily, 3.6 cfs Sept. 18-28, Oct. 7, 1959.
Maximum discharge known, 5,270 cfs July 21, 1956, by contracted-opening measurement.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-20)

1.4	3.3	2.3	95
1.5	7.0	3.0	209
1.6	13	4.0	414
1.8	34	5.0	661

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	15	* 56	16	280	14	50	120	41	28	16	7.9	8.4
2	15	18	14	55	13	43	50	70	25	15	9.5	8.4
3	15	18	14	29	14	35	35	38	25	16	11	9.5
4	14	15	14	22	15	38	30	35	24	15	10	72
5	15	14	12	19	17	45	26	33	21	15	10	13
6	15	16	14	21	16	37	25	37	24	25	15	9.5
7	15	15	14	27	16	34	25	38	23	20	32	8.9
8	14	15	13	34	15	113	24	37	26	18	13	9.5
9	15	15	11	24	17	135	27	34	35	15	*11	9.5
10	15	53	11	17	19	* 47	209	34	32	15	12	8.9
11	14	24	10	17	18	35	65	44	22	14	*11	8.4
12	14	18	90	18	17	31	56	74	21	13	10	8.4
13	14	16	86	19	18	28	436	41	18	19	9.5	7.9
14	14	16	11	22	22	55	95	37	34	16	7.0	7.4
15	14	16	13	80	34	39	60	33	32	13	8.4	7.4
16	14	16	16	48	38	32	87	31	23	16	7.9	7.0
17	14	16	14	34	50	24	50	26	21	17	8.4	7.0
18	14	15	13	36	147	34	42	26	18	18	7.9	7.0
19	17	15	12	23	342	82	39	26	18	13	8.9	8.2
20	47	14	12	18	162	48	* 37	25	16	11	10	* 8.4
21	16	14	22	17	69	37	36	24	43	11	23	8.9
22	14	14	17	16	106	115	40	24	39	10	13	7.9
23	14	16	12	16	235	120	54	23	25	11	36	7.9
24	16	15	13	17	141	50	40	22	20	15	15	7.4
25	14	15	14	16	260	35	40	* 20	41	16	16	7.4
26	14	14	16	15	136	28	97	* 31	31	11	85	7.9
27	14	14	18	* 16	58	25	41	24	45	9.5	18	7.4
28	16	13	14	16	51	28	65	23	*25	10	11	7.4
29	16	26	18	15	-	41	62	27	18	11	9.5	6.6
30	15	28	65	15	--------	26	40	30	18	10	9.5	6.6
31	18	--------	50	14	--------	58	--------	26	--------	8.9	8.9	--------
Total	491	570	5106	1.016	2.060	1.548	2.053	1.034	791	443.4	465.3	310.1
Mean	15.8	19.0	16.5	32.8	73.6	49.9	68.4	33.4	26.4	14.3	15.0	10.3
Cfsm	0.486	0.585	0.508	1.01	2.26	1.54	2.10	1.03	0.812	0.440	0.462	0.317
In.	0.56	0.65	0.58	1.16	2.36	1.77	2.35	1.18	0.91	0.51	0.53	0.35

Calendar year 1960: Max 678 Min 8.6 Mean 31.7 Cfsm 0.975 In. 13.26
Water year 1960-61: Max 436 Min 6.6 Mean 30.9 Cfsm 0.951 In. 12.92

Peak discharge (base, 540 cfs).--Apr. 13 (10:30 a.m.) 771 cfs (5.40 ft)

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 6, Jan. 9-12, 19, 20, Feb. 8-17 (no gage-height record Jan. 21 to Feb. 7. Doubtful or no gage-height record Oct. 20, Feb. 20 to Apr. 20, Apr. 29, 30, May 2, 3, 6, 11-25.

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 1961.

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.--29 years (1932-61), 10.8 cfs.

Extremes.--Maximum discharge during year, 160 cfs Apr. 13 (gage height, 2.57 ft); minimum, daily 3.8 cfs Sept. 27, 30.
1931-61: 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 ice effect or no gage-height record, which are fair.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second).

1.0	2.4	1.7	36
1.1	4.0	2.0	62
1.2	7.1	2.2	84
1.4	16	2.4	115

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	6.7	15	7.5	26	7.3	14	25	13	11	7.1	5.0	4.2
2	6.3	11	6.7	18	6.1	13	15	17	10	6.3	4.7	4.2
3	6.3	8.0	6.7	14	6.7	12	13	13	14	6.3	5.0	4.2
4	6.0	7.5	6.7	11	9.5	11	12	12	10	6.7	5.3	22
5	6.0	7.1	7.1	9.3	10	11	12	12	8.8	6.7	5.3	9.7
6	6.3	8.4	7.1	9.0	9.3	10	12	14	* 8.0	8.9	6.1	*5.6
7	6.3	8.0	7.1	9.5	8.6	10	11	15	8.0	8.8	8.2	5.3
8	5.6	* 7.1	6.7	9.9	9.1	17	11	24	10	7.1	6.0	5.3
9	6.0	6.7	6.1	9.1	11	26	11	16	12	6.3	5.0	5.0
10	6.3	11	5.6	7.6	12	15	32	14	11	6.0	9.1	4.7
11	6.0	11	5.5	7.3	12	13	18	21	8.4	5.6	6.7	4.7
12	5.6	8.4	4.0	8.0	11	12	15	25	7.5	5.3	5.6	4.7
13	5.6	7.5	5.6	8.0	9.8	11	108	18	7.1	6.0	5.3	4.5
14	6.0	7.5	6.8	96	12	16	37	16	8.8	10	4.5	4.5
15	6.0	7.1	8.0	26	15	15	23	14	8.4	8.8	4.2	5.6
16	6.0	7.1	8.6	20	16	*12	21	13	7.5	9.3	4.2	5.3
17	6.0	7.1	7.5	14	16	11	18	12	6.7	9.3	4.2	4.5
18	6.0	7.1	6.7	12	30	11	16	11	6.3	9.3	4.2	4.2
19	6.0	7.1	6.7	9.8	47	26	14	11	6.3	6.7	4.0	4.5
20	20	7.1	5.9	7.7	31	16	14	11	6.0	6.0	4.2	5.0
21	12	6.7	9.5	7.3	23	14	14	10	15	6.0	7.9	5.3
22	7.5	7.1	8.4	6.9	21	22	14	10	19	6.7	7.1	4.5
23	7.1	7.5	6.0	7.4	32	27	14	9.8	9.3	5.6	6.7	4.2
24	7.1	7.5	5.0	7.6	23	19	13	9.3	8.4	5.3	6.3	4.2
25	6.3	7.5	5.4	6.4	23	16	13	8.8	8.7	6.0	5.3	4.2
26	6.3	7.1	5.9	6.4	20	14	14	13	23	6.0	7.7	4.0
27	6.3	7.1	7.0	6.6	14	14	12	15	12	5.0	12	3.8
28	8.0	7.1	6.7	6.8	14	13	14	10	10	5.0	6.0	4.0
29	10	7.5	7.1	7.1	-	13	*16	9.3	8.4	5.0	4.7	4.0
30	8.0	9.8	17	7.5	----	12	13	9.3	7.5	6.3	4.5	3.8
31	7.5	----	12	7.3	----	14	----	8.4	----	5.3	4.5	----
Total	221.1	241.7	222.6	323.1	459.4	460	575	414.9	297.1	208.7	179.5	159.7
Mean	7.13	8.06	7.18	10.4	16.4	14.8	19.2	13.4	9.90	6.73	5.79	5.32
Cfsm	0.839	0.948	0.845	1.22	1.93	1.74	2.26	1.58	1.16	0.792	0.681	0.626
In.	0.97	1.06	0.97	1.14	2.01	2.01	2.52	1.82	1.30	0.91	0.79	0.70

Calendar year 1960: Max 93 Min 3.6 Mean 9.35 Cfsm 1.10 In. 14.97
Water year 1960-61: Max 108 Min 3.8 Mean 10.3 Cfsm 1.21 In. 16.47

Peak discharge (base, 75 cfs) Apr. 13 (about 9 a.m.) 160 cfs (2.57 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 9-31, Jan. 4-14, Jan. 19 to Feb. 9. No gage-height record Dec. 19, 20, 23, 24, Jan. 26-28, Feb. 2, Mar. 5-16, Apr. 13.

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 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 364.76 ft above mean sea level (Washington Suburban Sanitary Commission bench mark). Prior to Aug. 14, 1946, wire-weight gage and crest-stage gage at same site and datum.

Average discharge.--17 years, 38.1 cfs.

Extremes.--Maximum discharge during year, 828 cfs Apr. 13 (gage height, 5.67 ft); minimum, 7.2 cfs Sept. 24, 29, 30.
1944-61: 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 no gage-height record, which are fair.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.8	5.0	3.0	105
1.9	7.9	3.5	187
2.0	12	4.0	295
2.2	23	5.0	575
2.5	47		

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	13	*27	16	100	19	92	103	55	36	24	13	9.0
2	13	17	15	62	18	82	65	*74	33	24	14	9.0
3	13	17	14	36	18	73	58	55	31	26	15	9.4
4	12	15	14	30	22	69	56	51	33	24	15	11
5	12	15	14	27	24	69	53	48	28	21	15	9.4
6	12	15	14	26	22	67	52	52	28	49	15	8.6
7	12	15	14	26	22	67	49	54	26	30	17	42
8	11	15	13	31	22	98	47	53	*29	24	14	27
9	13	14	11	29	24	119	47	50	108	21	12	15
10	13	35	9.0	27	27	74	126	59	47	20	13	12
11	12	25	8.0	29	30	66	67	56	34	18	13	11
12	11	19	7.0	22	28	62	62	97	28	17	13	11
13	11	17	12	23	27	59	400	88	26	40	11	9.4
14	11	16	12	25	32	68	124	66	57	25	9.8	9.4
15	12	16	12	51	40	59	96	58	30	22	9.4	9.0
16	12	16	17	45	*50	54	124	53	27	37	9.4	8.6
17	12	15	16	36	56	50	90	47	24	54	11	8.6
18	11	14	15	36	120	50	78	44	23	59	9.8	8.6
19	11	14	14	32	383	75	72	44	22	27	9.4	9.0
20	23	14	14	26	208	59	66	42	22	23	11	9.8
21	16	*14	17	32	116	52	62	41	33	20	18	9.8
22	14	13	15	26	140	125	64	39	33	18	14	8.6
23	14	14	13	24	279	129	66	38	25	17	15	7.9
24	14	14	11	22	204	86	59	36	22	30	14	7.9
25	13	14	12	20	291	73	56	36	27	27	15	7.6
26	13	13	14	20	212	66	75	40	26	18	22	8.2
27	13	13	*16	20	128	62	56	37	39	16	16	7.6
28	14	13	15	20	106	60	63	35	25	*15	13	7.6
29	14	18	16	20	-	60	65	36	22	15	11	7.2
30	13	25	25	20	-------	54	54	36	46	15	11	7.2
31	12	-------	22	20	-------	*67	-------	33	-------	15	9.8	-------
Total	400	502	437.0	963	2,668	2,246	2,455	1,553	990	791	408.6	326.4
Mean	12.9	16.7	14.1	31.1	95.3	72.4	81.8	50.1	33.0	25.5	13.2	10.9
Cfsm	0.371	0.480	0.405	0.894	2.74	2.08	2.35	1.44	0.948	0.733	0.379	0.313
In.	0.43	0.54	0.47	1.03	2.85	2.40	2.62	1.66	1.06	0.85	0.44	0.35

Calendar year 1960: Max 243 Min 7.0 Mean 36.4 Cfsm 1.05 In. 11.78
Water year 1960-61: Max 400 Min 7.0 Mean 37.6 Cfsm 1.08 In. 14.70

Peak discharge (base, 770 cfs).--Apr. 13 (10:30 a.m.) 828 cfs (5.67 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 6, Jan. 9, 10, 12, 13, 19-28. No gage-height record Oct. 5-12, 23-30, Jan. 29 to Feb. 15.

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 1961.

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, 2,790 cfs Apr. 13 (gage height, 9.32 ft); minmum, 1.1 cfs July 28; minimum daily, 8.6 cfs July 3, Aug. 3-5.
1944-61: Maximum discharge, 11,800 cfs July 21, 1956 (gage height, 17.7 ft, from floodmarks, present site and datum); minimum, 0.2 cfs Mar. 3, 4, 1959; 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, water year 1960-61 except for period of backwater from rocks
(gage height, in feet, and discharge, in cubic feet per second)

1.3	7.8	3.5	175
1.5	11	4.0	320
2.0	23	5.0	635
2.5	42	6.0	1,000
3.0	78	8.0	1,970

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	11	12	13	11	11	155	301	148	49	48	c 8.8	12
2	11	13	14	11	11	165	180	158	50	20	c 8.8	12
3	11	12	13	11	11	155	148	159	48	8.6	c 8.6	12
4	11	12	13	11	11	150	162	150	47	9.0	c 8.6	12
5	11	12	13	11	11	160	165	152	* 46	9.5	c 8.6	12
6	11	12	13	11	51	150	168	147	46	9.5	c 8.8	12
7	11	12	13	11	99	152	158	145	46	9.5	c 9.9	12
8	11	12	13	11	138	170	160	175	48	9.5	c10	12
9	11	12	12	11	150	209	158	150	49	9.5	c 9.9	11
10	11	13	11	11	155	198	162	145	49	10	c 9.9	11
11	11	13	11	11	155	182	170	148	49	11	11	12
12	9.4	13	11	11	155	182	172	145	49	11	10	12
13	11	13	11	11	155	182	1,480	262	49	11	10	12
14	12	13	11	11	* 155	182	282	165	50	11	11	12
15	12	13	12	11	158	182	251	160	169	11	12	12
16	12	13	11	11	165	180	315	155	129	40	13	12
17	12	13	11	11	168	175	185	155	129	84	13	12
18	12	13	11	11	168	158	192	156	132	277	13	12
19	12	13	11	11	165	152	178	155	132	162	13	12
20	13	13	11	11	352	158	175	135	75	162	13	12
21	13	13	11	11	383	160	188	145	47	162	12	12
22	13	13	11	11	205	343	175	110	50	162	12	12
23	13	13	11	11	836	330	165	88	49	114	12	12
24	13	13	11	11	344	175	155	83	49	65	12	12
25	12	13	11	11	606	178	152	83	48	50	12	12
26	12	13	11	11	763	175	162	85	48	50	12	12
27	12	13	* 11	11	175	152	160	87	48	51	12	12
28	13	13	11	11	170	150	160	88	48	c 20	12	12
29	14	13	11	11	-	158	* 168	65	48	c 8.6	12	12
30	14	13	11	11	--------	170	144	48	48	c 8.8	12	12
31	14	--------	11	11	--------	175	--------	48	--------	c 8.8	12	--------
Total	369.4	382	360	341	5,926	5,563	6,791	4,095	1,924	1,623.3	342.9	358
Mean	11.9	12.7	11.6	11.0	212	179	226	132	64.1	52.4	11.1	11.9
(†)	11,660	11,390	11,110	12,030	12,880	13,220	13,220	12,830	12,840	12,630	12,290	11,190
(‡)	+74.8	+72.3	+71.1	+72.1	+73.1	+73.3	+75.5	+79.8	+81.0	+85.9	+83.4	+85.9

Calendar year 1960: Max 626 Min 8.8 Mean 46.7 ‡ +75.6
Water year 1960-61: Max 1,480 Min 8.6 Mean 76.9 ‡ +77.4

* 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, 1960, 12,280 million gallons); furnished by Washington Suburban Sanitary Commission.
‡ Diversion, in cubic feet per second, above station at Patuxent (formerly Willis School) filtration plant for water supply of Washington Suburban Sanitary District. Records furnished by Washington Suburban Sanitary Commission.

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

Location.--39°10'04", long 76°51'07", on left bank 75 ft upstream from bridge on State Highway 32, 1 mile west of Guilford, Howard County, 3 miles upstream from Middle Patuxent River, and 4 miles north of Laurel.

Drainage area.--38.0 sq mi.

Records available.--May 1932 to September 1961.

Gage.--Water-stage recorder. Concrete control since June 20, 1946. Altitude of gage is 260 ft (from topographic map). Prior to June 25, 1946, staff gage at same site and datum.

Average discharge.--29 years, 40.7 cfs.

Extremes.--Maximum discharge during year, 967 cfs Apr. 13 (gage height, 8.18 ft); minimum daily, 10 cfs Dec. 11, 12.

1932-61: 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; minimum gage height, 1.38 ft Sept. 29, 1941.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.6	9.4	4.0	205
2.8	22	5.0	391
3.0	39	6.0	571
3.5	111	7.0	751

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	20	45	20	375	24	70	157	47	30	22	15	18
2	19	25	18	145	23	d66	69	76	28	21	15	17
3	19	22	18	52	22	d64	59	48	27	23	17	17
4	18	20	18	41	28	d60	54	44	31	26	17	19
5	18	20	17	32	30	d62	49	42	*25	21	17	17
6	18	20	17	32	28	d60	47	44	24	45	18	15
7	18	20	17	36	27	d56	44	51	23	30	33	15
8	17	19	17	44	28	d90	43	66	30	25	17	16
9	20	19	15	31	30	d175	43	47	140	21	15	16
10	20	40	15	27	33	d67	250	46	210	26	20	15
11	18	31	10	25	37	d58	82	55	d44	20	17	14
12	*17	23	10	27	34	d54	75	91	33	19	18	14
13	17	22	13	27	33	d51	683	67	28	42	15	14
14	17	21	14	34	44	d62	115	55	66	35	14	13
15	17	20	16	124	70	d57	79	46	119	22	13	14
16	17	20	19	72	88	d51	84	44	d40	51	12	13
17	17	20	18	57	*102	d48	d67	39	d30	57	13	12
18	17	19	17	51	294	*d44	d61	37	27	d130	12	12
19	16	19	16	39	618	102	d57	37	d24	d34	12	13
20	38	18	16	32	257	64	d55	36	d22	26	14	14
21	c21	*18	23	38	115	51	d51	34	d47	22	27	14
22	c17	18	22	32	167	176	d51	34	d47	20	17	12
23	c17	20	15	30	491	d185	59	33	d29	19	*94	12
24	c17	19	14	28	171	d70	50	31	d25	26	43	12
25	c16	19	16	25	257	d62	47	30	d31	41	26	12
26	16	19	17	24	175	56	72	35	d38	20	557	12
27	17	18	21	25	82	52	50	34	41	18	75	12
28	17	18	17	25	73	51	55	31	31	17	39	12
29	20	19	19	25	-	54	*63	30	27	17	27	11
30	18	26	40	24	--------	47	47	31	25	17	22	12
31	18	--------	29	24	--------	59	--------	28	--------	19	20	--------
Total	572	657	554	1603	3381	2224	2718	1369	1342	932	1271	419
Mean	18.5	21.9	17.9	51.7	121	71.7	90.6	44.2	44.7	30.1	41.0	14.0
Cfsm	0.487	0.576	0.471	1.36	3.18	1.89	2.38	1.16	1.18	0.792	1.08	0.368
In.	0.56	0.64	0.54	1.57	3.31	2.18	2.66	1.34	1.31	0.91	1.24	0.41

Calendar year 1960: Max 710 Min 10 Mean 38.8 Cfsm 1.02 In. 13.89
Water year 1960-61: Max 683 Min 10 Mean 46.7 Cfsm 1.23 In. 16.67

Peak discharge (base, 600 cfs).--Jan. 1 (4 p.m.) 648 cfs (6.43 ft); Feb. 19 (9 p.m.) 686 cfs (6.64 ft); Apr. 13 (8:30 a.m.) 967 cfs (8.18 ft); Aug. 26 (6:30 a.m.) 787 cfs (7.20 ft).

* Discharge measurement made on this day.
c Backwater from debris.
d Doubtful or no gage-height record; discharge computed or estimated on basis of appearance of recorder graph, weather records, and records for nearby stations.
Note.--Stage-discharge relation affected by ice Dec. 9-20, 22-26, 28-31, Jan. 2, 3, 5, 6, 9-13, 15, 16, Jan. 19 to Feb. 7.

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 1961.

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

Average discharge.--12 years, 31.0 cfs.

Extremes.--Maximum discharge during year, 784 cfs Apr. 13 (gage height, 6.18 ft); minimum, 1.9 cfs Sept. 29, 30 (gage height, 1.31 ft).
1949-61: Maximum discharge, 1,580 cfs Aug. 13, 1955 (gage height, 8.51 ft, from high-water mark in well); minimum, 0.9 cfs Aug. 18, 1957.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

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	5.0	510
1.7	15	6.0	735
1.8	22		

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	10	29	12	230	19	55	112	29	20	8.5	5.8	7.2
2	9.5	24	11	180	18	52	76	46	29	7.6	4.7	6.4
3	9.0	21	11	80	17	44	50	34	49	8.5	4.7	18
4	8.5	17	11	48	21	39	40	28	28	9.0	4.4	40
5	8.5	*15	11	35	25	36	34	26	20	8.0	4.2	14
6	9.0	15	11	28	25	35	31	29	16	12	6.0	6.0
7	9.0	14	12	31	25	40	28	34	14	11	5.3	* 4.0
8	8.0	13	11	33	32	88	27	107	26	9.5	4.4	4.0
9	9.0	12	9.5	31	44	141	26	64	55	7.6	4.4	3.6
10	9.5	20	8.5	26	48	83	166	65	68	6.3	5.6	3.4
11	8.5	22	7.6	23	51	52	106	91	32	5.6	4.7	3.1
12	7.6	20	7.2	22	52	41	63	114	19	5.0	4.2	3.0
13	7.1	18	9.2	21	52	35	544	83	15	6.0	3.8	2.8
14	7.6	16	11	24	67	52	287	57	13	11	3.1	3.1
15	7.6	15	12	62	101	50	110	44	13	21	2.8	4.7
16	7.6	14	14	95	137	41	74	35	12	11	2.8	3.1
17	7.6	13	13	65	146	*33	58	28	10	9.0	2.7	2.8
18	7.1	12	13	44	254	30	50	24	9.5	8.5	2.4	2.7
19	7.1	12	13	32	348	112	42	24	9.0	7.6	2.4	3.0
20	85	12	12	23	132	90	38	21	8.5	6.3	2.8	3.8
21	45	12	17	27	107	58	35	21	19	5.5	6.0	3.8
22	27	11	18	26	96	147	34	19	24	5.3	4.7	3.0
23	19	12	12	24	192	194	32	18	17	4.7	11	2.7
24	15	12	9.5	23	156	108	31	17	13	4.7	13	2.5
25	12	12	9.5	22	125	66	29	16	12	4.4	9.5	2.4
26	11	11	11	21	150	50	31	22	29	4.2	100	2.1
27	11	11	15	23	84	42	27	29	16	5.3	45	2.0
28	14	12	14	21	60	38	28	22	14	4.7	20	2.1
29	17	12	16	19	-	36	*33	19	11	7.5	13	2.0
30	13	16	80	18	-------	32	28	19	10	10	10	2.0
31	13	-------	75	19	-------	46	-------	16	-------	8.0	8.5	-------
Total	439.8	455	497.0	1,376	2,584	1,966	2,270	1,201	631.0	243.3	321.9	163.3
Mean	14.2	15.2	16.0	44.4	92.3	63.4	75.7	38.7	21.0	7.85	10.4	5.44
Cfsm	0.470	0.503	0.530	1.47	3.06	2.10	2.51	1.28	0.695	0.260	0.344	0.180
In.	0.54	0.56	0.61	1.69	3.18	2.42	2.80	1.48	0.78	0.30	0.40	0.20

Calendar year 1960: Max 697 Min 1.8 Mean 32.8 Cfsm 1.09 In. 14.77
Water year 1960-61: Max 544 Min 2.0 Mean 33.3 Cfsm 1.10 In. 14.96

Peak discharge (base, 340 cfs).-- Jan. 1 (about 8:30 a.m.) 360 cfs (4.1 ft); Feb 18 (10:30 p.m.) 433 cfs (4.58 ft); Mar. 22 (8 p.m.) 354 cfs (4.09 ft); Apr. 13 (9:30 a.m.) 784 cfs (6.18 ft); Aug. 26 (time unknown) 382 cfs (4.26 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11 to Jan. 6, Jan. 9-11, Jan. 20 to Feb. 8. No gage-height record Aug. 25 to Sept. 5.

1-5946. Cocktown Creek near Huntingtown, Md.

Location.--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 1961.

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

Extremes.--Maximum discharge during year, 482 cfs, July 13 (gage height, 6.95 ft); minimum, 0.2 cfs Sept. 26.
1957-61: 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.

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

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	4.0	8.2	4.0	27	1.6	16	15	9.1	4.4	3.5	3.0	0.9
2	3.5	5.4	3.5	9.8	*1.4	15	11	11	4.5	3.2	2.5	.8
3	3.2	4.6	3.4	7.8	1.2	14	11	8.4	5.5	3.0	2.5	1.1
4	3.0	4.4	3.4	6.9	5.6	14	11	*6.4	3.9	2.9	2.3	1.6
5	3.0	4.8	3.4	6.0	2.1	14	9.8	6.9	3.4	3.2	2.2	1.2
6	3.0	4.8	3.2	6.2	1.5	13	9.6	7.5	*3.2	10	2.2	1.0
7	2.9	4.2	3.2	6.0	2.1	13	9.4	7.5	2.9	5.0	2.0	1.0
8	2.9	*4.0	3.0	5.6	6.8	20	8.9	6.9	3.0	3.7	1.7	1.1
9	3.4	4.0	2.9	5.0	7.8	15	9.1	6.0	2.8	3.2	1.5	1.0
10	3.0	4.2	2.8	4.6	7.1	12	16	6.0	19	3.0	1.4	.9
11	2.6	4.4	1.7	4.6	6.4	11	9.6	20	8.2	2.7	1.3	.8
12	2.5	4.4	3.7	4.4	6.0	10	11	13	4.6	2.5	1.2	.6
13	2.5	4.2	2.9	4.4	5.8	9.4	64	9.8	4.3	48	.9	.5
14	2.5	4.0	2.6	5.0	7.4	13	18	8.7	9.0	22	.7	.6
15	2.5	3.9	2.6	12	8.4	11	16	7.5	21	4.4	.6	.8
16	2.5	3.9	3.4	6.9	10	12	16	7.5	7.0	3.2	.6	.7
17	2.3	3.7	2.8	5.8	11	11	14	6.4	5.0	2.9	1.0	.6
18	2.3	3.7	1.8	5.4	25	10	13	6.0	4.2	2.6	.6	.8
19	2.5	3.5	1.6	5.0	27	17	12	6.0	3.6	2.5	.6	1.2
20	11	3.4	1.5	4.6	18	*12	12	5.8	3.3	2.3	2.5	1.1
21	3.7	3.4	5.4	2.6	16	11	11	5.6	12	2.3	2.5	.9
22	3.2	3.4	2.3	1.3	17	23	11	5.4	6.4	2.1	1.4	.7
23	3.0	3.5	.7	.8	30	18	11	5.2	22	20	1.3	.6
24	2.8	3.4	.6	.8	20	15	10	4.8	13	2.2	1.1	.5
25	2.8	3.2	.8	.7	20	13	9.8	4.8	6.4	*2.5	1.2	.5
26	2.8	3.2	1.2	.6	17	13	9.4	8.3	5.6	2.2	6.9	*.3
27	2.8	3.2	2.6	.6	16	12	9.1	6.2	6.6	2.0	3.0	.3
28	15	3.2	2.0	.8	17	12	9.9	5.2	5.4	2.0	2.0	.4
29	9.2	7.4	2.9	1.1	-	10	9.4	4.8	4.5	3.8	1.2	.3
30	5.6	5.6	6.6	1.2	--------	9.4	8.4	4.8	4.0	3.4	.9	.5
31	5.7	--------	3.9	1.6	--------	16	--------	4.2	--------	3.5	.9	--------
Total	121.7	127.2	86.4	155.1	315.2	414.8	395.4	225.7	208.7	161.8	53.7	23.3
Mean	3.93	4.24	2.79	5.00	11.3	13.4	13.2	7.28	6.96	5.22	1.73	0.777
Cfsm	1.02	1.10	0.725	1.30	2.94	3.48	3.43	1.89	1.81	1.36	0.449	0.202
In.	1.18	1.23	0.83	1.50	3.04	4.01	3.82	2.18	2.02	1.56	0.52	0.23

Calendar year 1960: Max 144 Min 0.6 Mean 5.42 Cfsm 1.41 In. 19.16
Water year 1960-61: Max 64 Min 0.3 Mean 6.27 Cfsm 1.63 In. 22.11

Peak discharge (base, 80 cfs).--Feb. 23 (10 a.m.) 90 cfs (4.67 ft); Apr. 13 (4 a.m.) 235 cfs (6.05 ft); June 10 (8:30 p.m.) 137 cfs (5.35 ft); June 15 (1 a.m.) 134 cfs (5.31 ft); June 23 (3:30 p.m.) 103 cfs (4.91 ft); July 13 (11 p.m.) 482 cfs (6.95 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 10-20, 22-28, Jan. 19 to Feb. 9 (no gage-height record Mar. 3-19, Apr. 27, 28, May 3, 4, June 15 to July 24, Aug. 8, 9, 16, Aug. 28 to Sept. 25.

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 1961.

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

Extremes.--Maximum discharge during year, 114 cfs Oct. 28 (gage height, 4.77 ft); minimum, 1.6 cfs Sept. 26, 27. 1956-61: Maximum discharge, 288 cfs July 30, 1960 (gage height, 6.35 ft); Minimum, 0.8 cfs July 8, 9, 1959; minimum daily, 0.8 cfs July 19-22, 1957.

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

Rating tables, 1960-61 water year, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 8		May 9 to Sept. 30	
2.8	4.4	2.7	1.6
3.0	11	2.8	3.2
3.5	32	2.9	5.8
4.0	55	3.0	10
4.5	91	3.4	29
		4.0	54

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	6.9	21	9.4	54	10	22	39	15	10	6.4	5.2	2.8
2	6.6	12	8.7	18	8.7	20	31	27	9.1	6.8	4.1	2.7
3	6.6	11	9.1	13	9.0	18	25	21	8.6	7.6	9.0	7.1
4	6.3	9.8	9.1	12	40	18	21	19	8.6	6.0	9.4	7.5
5	6.6	10	9.1	11	30	18	18	16	7.6	6.4	5.4	3.4
6	6.6	13	9.1	11	18	18	16	20	*8.1	16	4.8	2.8
7	8.7	10	9.1	11	16	18	14	18	8.1	9.1	4.4	2.8
8	6.9	9.8	8.7	11	30	28	14	16	8.1	7.2	4.1	3.0
9	9.4	10	8.3	10	50	27	14	*14	8.6	6.0	3.8	2.8
10	7.9	16	8.1	10	29	18	23	12	9.1	5.8	3.6	2.6
11	6.9	13	6.6	10	22	17	18	46	8.6	5.2	3.6	2.4
12	6.6	11	26	10	18	17	16	32	7.6	5.2	4.1	2.2
13	6.3	10	15	10	16	16	50	20	6.8	6.6	3.4	2.1
14	6.6	10	12	11	18	25	35	19	6.4	19	3.0	2.2
15	6.6	9.8	11	25	20	18	24	16	11	7.2	3.0	2.6
16	6.6	9.8	12	14	21	20	23	16	7.6	8.1	2.8	2.5
17	6.3	9.8	12	11	20	16	21	13	6.4	5.8	3.2	2.2
18	6.3	9.4	11	11	28	17	19	13	6.0	5.2	2.8	2.6
19	7.2	9.4	9.6	13	57	28	18	13	6.0	4.8	2.8	3.5
20	23	9.4	8.2	21	24	*21	17	12	5.8	4.6	8.1	3.4
21	9.8	9.4	15	13	24	17	17	12	22	4.4	11	3.0
22	7.9	9.4	9.5	11	23	34	16	12	17	4.4	4.6	2.5
23	7.5	11	8.6	10	47	47	15	11	14	4.1	4.1	2.3
24	7.2	10	8.0	9.2	27	31	15	11	24	4.8	3.8	2.3
25	6.9	10	8.9	8.8	26	27	15	11	11	4.8	3.6	2.2
26	6.9	10	11	86	22	24	14	17	12	6.4	6.4	*2.1
27	7.5	9.8	14	8.4	20	22	13	17	13	4.1	5.8	1.8
28	39	9.8	12	8.4	22	20	15	11	10	3.8	4.1	2.1
29	47	11	11	8.0	-	19	18	11	8.1	3.8	3.4	1.8
30	14	14	17	8.0	--------	17	16	11	7.2	5.4	3.0	2.0
31	13	--------	12	9.0	--------	23	--------	10	--------	7.5	3.0	--------
Total	321.6	328.6	339.1	399.4	695.7	681	610	512	296.4	202.5	143.4	85.3
Mean	10.4	11.0	10.9	12.9	24.8	22.0	20.3	16.5	9.88	6.53	4.63	2.84
Cfsm	1.55	1.63	1.62	1.92	3.68	3.27	3.02	2.45	1.47	0.970	0.688	0.422
In.	1.78	1.82	1.87	2.21	3.84	3.76	3.37	2.83	1.64	1.12	0.79	0.47

Calendar year 1960: Max 124 Min 3.7 Mean 10.4 Cfsm 1.55 In. 21.14
Water year 1960-61: Max 57 Min 1.8 Mean 12.6 Cfsm 1.87 In. 25.50

Peak discharge (base, 100 cfs).--Oct. 28 (11 p.m.) 114 cfs (4.77 ft); Jan. 1 (10 a.m.) 110 cfs (4.72 ft); Feb. 19 (3:30 a.m.) 104 cfs (4.65 ft); May 11 (8:30 p.m.) 110 cfs (4.77 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 10-31, Jan. 2, 9-14, Jan. 20 to Feb. 7 (no gage-height record Dec. 13-19, 22-29, Jan. 21 to Feb. 3. No gage-height record Mar.21 to May 5, Sept. 15-25.

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 1961.

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.--5 years, 165 cfs.

Extremes.--Maximum discharge during year, 4,650 cfs Aug. 11 (gage height, 8.00 ft); minimum, not determined.
1956-61: Maximum discharge, 5,800 cfs Aug. 6, 1956 (gage height, 8.84 ft), from rating curve extended above 2,000 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 good for the periods May 23 to July 19 and July 26 to Sept. 20. Records considered poor for the remainder of year.

Rating table, water year 1960-61, except periods of ice effect (gage-height, in feet, and discharge, in cubic feet per second)

2.2	7.7	3.0	161
2.3	15	3.5	355
2.4	26	4.0	610
2.5	40	5.0	1,300
2.6	59	6.0	2,200
2.8	104		

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	31	131	61	210	b 64	430	324	420	104	40	31	14
2	29	78	59	200	b 60	*355	253	351	481	34	204	15
3	27	128	57	190	b 60	337	208	257	522	44	205	17
4	25	85	65	180	b 68	598	208	* 226	386	44	109	15
5	23	85	63	170	b 64	951	174	187	253	46	70	15
6	23	131	59	160	b 60	814	234	311	191	94	74	15
7	27	107	65	200	b 68	533	201	455	155	72	52	36
8	25	85	60	270	b 66	577	164	415	171	44	39	36
9	28	92	35	230	b 64	930	164	324	201	35	89	22
10	40	313	26	205	b 62	544	386	315	516	31	97	16
11	30	261	36	187	b 60	465	572	257	346	28	580	14
12	24	174	30	178	b 60	490	450	246	282	26	1,080	12
13	20	134	36	171	b 74	405	360	216	428	35	242	12
14	17	104	41	164	b 102	378	506	201	467	44	149	12
15	15	92	58	208	b 280	315	916	184	511	34	112	16
16	14	80	56	250	b 230	273	1,130	164	315	32	87	16
17	14	74	54	201	b 210	216	743	149	234	34	76	12
18	13	65	50	168	b 800	226	425	143	184	38	72	11
19	14	59	48	128	2,030	640	386	269	146	29	59	12
20	60	55	45	b 120	1,050	572	410	194	118	50	50	23
21	70	52	52	b 115	522	962	410	164	146	46	42	50
22	44	48	60	b 110	610	1,320	485	155	128	35	38	22
23	46	46	56	b 104	1,500	640	386	137	94	42	39	16
24	52	46	50	b 100	1,260	511	303	123	90	34	38	13
25	42	40	56	b 96	1,500	435	246	109	70	31	31	12
26	36	36	64	b 90	1,480	378	847	120	65	* 24	35	11
27	44	34	250	b 82	688	320	480	137	61	23	26	11
28	57	31	230	b 78	646	355	410	118	52	21	23	10
29	48	56	210	b 74	-	440	290	102	44	35	20	10
30	39	92	*b 310	b 70	--------	290	391	102	* 40	34	17	9.5
31	* 40	--------	b 230	b 66	--------	* 269	--------	* 80	--------	24	* 15	--------
Total	1,017	2,814	2,572	4,775	13,738	15,969	12,462	6,631	6,801	1,183	3,801	505.5
Mean	32.8	93.8	83.0	154	491	515	415	214	227	38.2	123	16.8
Cfsm	0.449	1.28	1.14	2.11	6.73	7.05	5.68	2.93	3.11	0.523	1.68	0.230
In.	0.52	1.43	1.31	2.43	7.00	8.14	6.35	3.38	3.46	0.60	1.94	0.26

Calendar year 1960: Max 2,600 Min 11 Mean 150 Cfsm 2.05 In. 27.91
Water year 1960-61: Max 2,030 Min 9.5 Mean 198 Cfsm 2.71 In. 36.82

Peak discharge (base, 2,200 cfs).--Feb. 19 (3 p.m.) 2,970 cfs (6.61 ft); Feb. 25 (9 p.m.) 2,530 cfs (6.31 ft); Aug. 11 (11 p.m.) 4,650 cfs (8.00 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 1-27, Dec. 8-29, Jan. 1-8, Sept. 21-30.

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 1961.

Gage.--Water-stage recorder. Datum of gage is 1,572.26 ft above mean sea level, datum of 1929, Parkersburg - Uniontown supplementary adjustment of 1944. Prior to 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.--12 years, 435 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 5,880 cfs Feb. 25 (gage height, 8.15 ft); minimum discharge, 32 cfs Sept. 30 (gage height, 2.33 ft).
1949-61: 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. 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 table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.3	28	3.5	260	6.0	1,990
2.4	38	4.0	440	7.0	3,430
2.7	76	4.5	682	8.0	5,500
3.0	130	5.0	1,010		

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	63	304	123	314	b170	1,310	1,140	982	307	109	78	42
2	58	221	111	279	b165	*1,130	942	*910	960	97	316	41
3	57	279	104	240	163	998	812	692	1,240	109	444	42
4	54	231	117	211	188	1,350	791	580	958	111	258	41
5	47	182	115	211	b180	2,150	662	487	620	100	148	38
6	46	258	113	211	163	1,980	710	717	482	190	148	118
7	63	237	119	254	163	1,480	630	1,050	396	282	119	229
8	60	199	113	365	166	1,550	605	1,170	432	141	97	166
9	54	202	82	282	185	2,080	600	805	510	100	181	87
10	119	493	82	231	182	1,450	914	847	910	81	450	64
11	87	500	98	244	179	1,230	1,260	674	698	70	224	53
12	70	342	86	234	182	1,310	1,190	854	702	63	1,970	46
13	190	279	104	218	218	1,080	1,090	1,030	882	71	662	42
14	218	221	111	221	231	1,070	1,240	728	1,010	97	357	41
15	215	190	155	276	b 600	934	1,950	600	1,010	95	254	41
16	211	171	153	357	620	812	2,820	662	650	93	196	57
17	208	158	150	314	b 560	668	1,940	528	492	95	168	44
18	205	141	141	300	b1,900	590	1,440	456	396	95	158	36
19	205	132	136	282	4,250	1,510	1,200	674	324	87	136	35
20	335	121	132	234	2,690	1,520	1,150	523	276	109	121	50
21	318	113	148	251	1,760	1,600	1,070	492	321	105	115	193
22	248	107	163	231	1,650	2,270	1,330	444	357	105	111	119
23	138	104	160	224	3,070	1,520	1,220	380	262	99	107	72
24	104	102	160	b210	2,940	1,430	942	335	240	148	132	56
25	97	97	163	199	3,310	1,470	734	300	188	100	111	47
26	82	93	179	196	2,900	1,470	1,640	296	166	* 84	123	43
27	86	88	b 400	b 190	1,900	1,510	1,120	342	153	72	102	42
28	115	86	314	b 185	1,710	1,360	950	310	141	68	78	38
29	107	134	282	b 180	-	1,520	1,200	254	119	87	59	36
30	93	*193	*428	b 180	-------	1,050	942	254	*107	104	52	34
31	* 92	-------	318	b 175	-------	* 903	-------	218	-------	76	* 45	-------
Total	4,045	5,978	5,060	7,499	32,395	42,305	34,234	18,594	15,309	3,243	7,520	1,993
Mean	130	199	163	242	1,157	1,365	1,141	600	510	105	243	66.4
†	563	703	803	996	1,475	1,367	1,326	1,800	1,800	1,546	1,449	1,489

Calendar year 1960: Max 5,080 Min 23 Mean 373 Cfsm 1.66 In. 22.59
Water year 1960-61: Max 4,250 Min 34 Mean 488 Cfsm 2.17 In. 29.45

Peak discharge (base, 3,400 cfs).--Feb. 19 (5p.m.) 5,800 cfs (8.12 ft); Feb. 22 (10 p.m.) 4,230 cfs (7.42 ft); Feb. 25 (10:30 p.m.) 5,880 cfs (8.15 ft); Apr. 16 (1:00 p.m.) 3,800 cfs (7.20 ft)

* Discharge measurement made on this day
† Month-end contents, in millions of gallons, in Stony River Reservoir (contents on Sept. 30, 1960, 1,533 million gallons); furnished by West Virginia Pulp and Paper Co.
b Stage-discharge relation affected by ice.

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 1961.

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

Average discharge.--13 years, 76.1 cfs.

Extremes.--Maximum discharge during year, 2,770 cfs Feb. 25 (gage height, 5.18 ft); minimum discharge, 1.9 cfs Sept. 14, 29, 30 (gage height, 0.96 ft).
1948-61: 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.

Remarks.--Records good except those for periods of ice effect, which are fair. City of Frostburg diverts about 0.5 cfs from headwaters of stream for municipal supply.

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 25				Feb. 26 to Sept. 30	
1.0	1.6	1.7	54	0.96	1.9
1.1	3.5	2.0	108	1.0	2.4
1.2	6.9	2.3	192	1.1	4.1
1.3	12	2.6	311	1.2	7.5
1.4	20	3.0	540	1.3	12
1.5	30	4.0	1,400	Note.--Same as preceding table above 1.3 feet	

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	5.2	14	5.2	14	10	*216	161	133	69	11	* 8.5	3.5
2	4.8	9.5	4.3	14	10	176	139	*120	123	9.5	19	4.1
3	*4.0	7.4	3.5	14	9.4	153	128	113	213	10	28	3.7
4	3.5	6.0	3.7	13	9.4	400	126	98	199	9.5	18	3.3
5	3.2	5.5	4.5	12	9.0	733	113	83	153	8.0	12	3.0
6	3.5	7.4	4.3	13	9.0	482	108	93	113	42	10	2.6
7	3.5	7.4	4.8	20	9.0	331	95	110	89	27	8.0	3.9
8	3.2	6.0	4.0	60	9.0	289	87	116	74	18	6.6	4.9
9	3.0	6.0	3.2	36	10	345	83	113	76	12	5.8	3.5
10	5.2	6.5	4.0	30	11	259	113	104	128	10	5.8	3.1
11	12	6.9	4.5	24	12	216	161	89	104	9.0	6.2	2.6
12	4.3	6.0	4.5	22	13	247	213	91	89	8.5	16	2.4
13	3.5	6.0	8.4	21	14	220	210	108	110	11	10	2.1
14	3.5	6.0	6.9	21	20	186	227	98	87	18	6.6	2.5
15	3.5	5.2	7.4	30	25	147	451	95	76	12	5.5	5.8
16	6.5	4.8	7.9	70	36	123	993	116	58	10	4.9	3.9
17	4.0	4.8	6.5	50	72	98	547	95	48	10	4.6	3.1
18	4.0	4.8	6.0	54	439	89	316	89	38	10	4.4	3.7
19	3.5	4.5	5.2	50	813	192	227	116	32	9.5	4.6	9.0
20	5.2	4.3	5.2	40	575	307	196	106	27	7.5	3.9	* 4.6
21	4.5	4.0	5.5	43	280	247	183	102	38	7.5	3.5	6.2
22	4.0	4.0	5.5	33	239	213	183	100	34	6.2	3.3	4.9
23	3.7	4.0	*5.5	28	534	176	224	85	26	5.8	*3.3	3.7
24	3.5	3.7	6.0	24	773	164	206	74	22	5.8	3.7	3.1
25	3.2	3.7	6.9	22	1,320	183	186	64	18	5.5	21	2.8
26	*3.5	3.7	7.9	20	845	302	382	69	17	5.2	19	2.4
27	3.5	3.7	13	18	376	398	285	63	16	4.6	9.0	2.2
28	3.7	3.7	14	16	298	350	213	54	15	3.9	6.2	2.1
29	3.7	4.8	14	14	-	276	180	49	*12	24	5.2	2.0
30	3.2	6.0	14	12	-------	210	136	46	12	17	4.6	1.9
31	4.0	-------	13	11	-------	164	-------	40	-------	9.5	3.9	-------
Total	129.6	170.3	209.3	849	6779.8	7,892	6872	2832	2116	357.5	271.1	106.6
Mean	4.18	5.68	6.75	27.4	242	255	229	91.4	70.5	11.5	8.75	3.55
Cfsm	0.085	0.116	0.137	0.558	4.93	5.19	4.66	1.86	1.44	0.234	0.178	0.072
In.	0.10	0.13	0.16	0.64	5.14	5.98	5.21	2.15	1.60	0.27	0.21	0.08

Calendar year 1960: Max 1,600 Min 1.2 Mean 66.9 Cfsm 1.36 In. 18.55
Water year 1960-61: Max 1,320 Min 1.9 Mean 78.3 Cfsm 1.59 In. 21.67

Peak discharge (base, 800 cfs).--Feb. 19 (6 p.m.) 1,330 cfs (3.93 ft); Feb. 25 (7 p.m.) 2,770 cfs (5.18 ft); Mar. 4 (11:30 p.m.) 922 cfs (3.49 ft); Apr. 16 (1:30 p.m.) 1,350 cfs (3.95 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice, Dec. 28 to Feb. 17.

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 1961.

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

Average discharge.--13 years, 29.3 cfs.

Extremes.--Maximum discharge during year, 598 cfs Feb. 25 (gage height, 2.97 ft); minimum 1.2 cfs Dec. 8 (gage height, 0.72 ft), result of freeze up.
1948-61: 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 periods of ice effect or no gage-height record, which are fair. Small diversion above station by Baltimore & Ohio Railroad.

Rating table, water year 1960-61, except periods of ice effect(gage height, in feet, and discharge, in cubic feet per second)

0.7	1.0	1.1	10	1.7	90
.8	2.1	1.2	16	2.0	175
.9	3.9	1.3	24	2.5	370
1.0	6.5	1.5	50		

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	3.7	12	*3.9	a 12	7.9	* 86	81	52	* 24	7.9	*3.1	*2.3
2	3.2	8.7	3.4	a 12	7.6	66	77	*49	76	6.8	15	2.3
3	* 3.9	8.3	3.4	12	a 7.2	57	68	47	234	10	37	2.6
4	3.2	6.2	3.4	11	a 7.2	81	61	40	142	7.2	16	2.6
5	2.9	6.2	3.7	11	6.5	151	50	33	93	6.5	16	2.4
6	3.7	7.9	3.7	12	5.9	163	44	37	66	15	8.3	2.3
7	3.2	7.2	3.7	16	5.9	111	37	37	47	9.1	6.5	3.7
8	2.9	6.8	3.4	30	5.9	108	33	41	40	7.2	5.3	5.9
9	3.4	6.8	2.6	26	6.5	157	32	43	40	6.5	5.3	2.9
10	3.4	7.6	3.7	b 22	6.5	130	43	40	55	5.3	5.9	2.4
11	2.9	6.8	3.7	b 20	6.5	90	61	33	54	4.8	5.0	2.1
12	2.7	6.2	5.0	18	6.8	88	88	33	49	4.8	11	2.1
13	2.6	5.6	6.8	17	6.8	77	90	38	40	6.8	6.5	1.8
14	2.6	5.3	6.2	17	10	64	98	40	36	5.9	5.3	2.0
15	2.6	5.0	5.6	24	20	49	186	49	34	5.3	5.0	3.7
16	2.6	4.8	4.8	29	24	41	253	95	30	5.0	4.3	2.1
17	2.6	4.6	4.1	29	30	32	196	98	27	4.6	3.9	1.7
18	2.4	4.1	3.9	27	108	30	119	79	23	4.3	3.9	1.7
19	2.6	3.9	3.7	26	281	52	88	70	20	3.4	3.7	2.0
20	4.8	3.7	3.7	b 23	200	93	72	63	17	3.4	3.2	3.1
21	3.2	3.4	4.1	b 23	122	106	68	61	21	3.4	3.2	4.8
22	2.9	3.2	b 4.1	a 20	95	166	64	55	16	3.2	3.1	2.6
23	2.9	3.2	*b 4.3	a 18	182	133	75	44	14	3.7	3.1	2.3
24	3.1	3.1	4.3	a 16	217	103	77	37	12	3.4	3.1	2.0
25	2.7	2.9	5.0	a 14	318	111	77	31	11	3.4	3.2	1.8
26	* 2.6	2.9	5.6	a 12	277	169	182	30	10	3.1	3.9	1.8
27	3.2	2.9	b 11	a 11	139	166	139	27	10	2.9	2.9	1.7
28	3.1	2.9	b 13	a 10	122	136	90	24	8.7	2.6	2.7	1.7
29	2.9	4.3	a 13	a 9.0	- -	111	70	21	7.9	5.0	2.6	1.6
30	2.6	4.3	a 12	a 8.4	-------	* 93	52	19	8.3	3.2	2.4	1.6
31	4.6	-------	a 11	a 8.0	-------	81	-------	17	-------	3.1	2.3	-------
Total	95.7	160.8	169.8	543.4	2,232.2	3,101	2,671	1,383	1,265.9	166.8	202.7	73.6
Mean	3.09	5.36	5.48	17.5	79.7	100	89.0	44.6	42.2	5.38	6.54	2.45
Cfsm	0.185	0.321	0.328	1.05	4.77	5.99	5.33	2.67	2.53	0.322	0.392	0.147
In.	0.21	0.36	0.38	1.21	4.97	6.91	5.95	3.08	2.82	0.37	0.45	0.16

Calendar year 1960: Max 574 Min 2.4 Mean 27.6 Cfsm 1.65 In. 22.49
Water year 1960-61: Max 318 Min 1.6 Mean 33.1 Cfsm 1.98 In. 26.87

Peak discharge (base, 330 cfs).--Feb. 19 (4:30 p.m.) 400 cfs (2.56 ft); Feb. 25 (6 p.m.) 598 cfs (2.97 ft).

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

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 1961.

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.--13 years, 168 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 3,640 cfs Apr. 17 (gage height, 5.97 ft); minimum, 2.7 cfs Oct. 3 (gage height, 0.75 ft); minimum daily, 15 cfs July 28, Aug. 17-20, 22-26.
1948-61: 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 except those for the period Apr. 22-30, which are fair. 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, 20,280 acre-ft).

Rating tables, water year 1960-61 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-24		Oct. 25 to Sept. 30			
1.5	50	0.7	1.8	2.5	254
2.0	120	0.8	3.7	3.0	435
		0.9	6.7	3.5	685
		1.0	11	4.0	1,070
		1.2	25	5.0	2,210
		1.5	50	6.0	3,690
		2.0	117		

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	107	98	*34	64	*40	980	104	320	122	30	20	109
2	107	98	41	75	41	711	104	320	251	27	34	109
3	*93	98	41	75	41	466	106	304	643	32	102	109
4	105	96	41	75	41	489	108	257	560	27	76	109
5	105	96	41	63	41	1,250	108	212	403	24	49	109
6	105	96	40	58	41	1,640	55	227	294	50	39	109
7	105	95	40	58	41	589	20	264	215	63	30	109
8	103	95	40	58	41	273	20	*274	177	44	25	109
9	103	95	40	58	41	550	20	280	174	33	21	109
10	103	95	40	58	41	550	22	254	270	27	22	108
11	103	95	40	58	41	555	23	218	239	23	23	108
12	101	95	40	77	41	565	24	215	212	20	34	108
13	101	94	40	88	40	570	94	245	218	27	33	106
14	101	94	41	88	40	575	117	239	183	34	22	106
15	101	47	41	88	40	261	466	251	156	32	20	106
16	101	30	41	88	60	90	811	344	117	28	19	106
17	101	30	41	88	83	90	2,410	317	95	27	15	106
18	101	30	41	355	545	90	1,720	284	81	27	15	106
19	100	30	41	76	804	94	522	307	71	22	15	106
20	100	30	41	83	1,590	425	115	277	63	21	15	*106
21	100	30	41	83	1,860	625	115	267	79	20	16	106
22	100	30	41	83	998	631	g113	257	77	20	15	104
23	100	30	70	83	465	610	g113	215	58	27	15	104
24	58	30	89	83	742	260	g113	186	49	28	15	104
25	52	30	88	83	1,220	96	g115	158	42	*22	15	102
26	*35	30	88	83	2,080	102	g122	158	42	19	15	102
27	35	30	86	83	3,020	794	g713	148	38	16	17	106
28	35	30	56	83	1,970	1,120	g525	117	34	15	88	102
29	35	30	40	62	-	678	g403	*109	31	24	111	100
30	34	30	40	40	---------	*367	g313	108	33	38	111	100
31	73	--------	40	40	---------	104	--------	90	--------	29	109	--------
Total	2,703	1,837	1,484	2,537	16,048	16,200	9,614	7,222	5,027	876	1,156	3,183
Mean	87.2	61.2	47.9	81.8	573	523	320	233	168	28.3	37.3	106
†	9,060	6,420	4,580	3,910	4,920	8,800	20,450	20,390	20,330	20,320	19,550	13,350

Calendar year 1960: Max 2,290 Min 7.0 Mean 149 Cfsm 1.41 In. 19.12
Water year 1960-61: Max 3,020 Min 15 Mean 186 Cfsm 1.75 In. 23.82

* Discharge measurement made on this day.
† Month-end contents, in acre-ft, in Savage River Reservoir (contents on Sept. 30, 1960, 14,030 acre-ft).
Records furnished by Corp of Engineers.
g Computed from twice-daily telemark readings.

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 1961.

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.--18 years (1899-1905, 1949-61), 697 cfs (adjusted for storage since 1949).

Extremes.--Maximum discharge during year, 10,600 cfs Feb. 19 (gage height, 9.64 ft); maximum gage-height, 14.21 ft Feb. 18 (result of ice jam); minimum, 82 cfs Oct. 3 (gage height, 1.38 ft).
1899-1906, 1949-61: 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 ice effect, which are fair. Flow regulated since 1913 by Stony River Reservoir, 45 miles above station (see p. 54) 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, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.4	85	3.0	620	7.0	5,000
1.7	136	4.0	1,300	8.0	6,900
2.0	205	5.0	2,250	9.0	9,000
2.5	375	6.0	3,470		

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	175	392	188	470	260	2,760	1,630	1,490	500	146	100	149
2	175	399	168	460	250	2,030	1,400	1,470	1,370	130	190	146
3	155	367	153	395	220	1,800	1,210	1,210	2,060	142	764	146
4	173	391	153	351	200	2,110	1,160	1,030	1,560	149	433	146
5	162	321	166	321	230	3,850	1,020	867	1,110	128	241	144
6	157	375	164	328	260	4,320	972	993	818	214	195	174
7	*159	379	171	375	230	2,650	842	1,440	716	420	173	322
8	178	343	168	520	260	*2,090	788	1,720	710	229	132	335
9	164	328	138	451	250	3,330	782	1,280	806	151	114	226
10	192	517	112	371	250	2,550	1,080	1,280	1,280	121	555	182
11	220	710	146	363	260	2,160	1,620	1,070	1,070	102	420	162
12	182	495	118	367	260	2,260	1,600	1,190	945	91	2,740	151
13	226	420	125	359	270	1,960	1,630	1,520	1,220	100	800	144
14	324	371	145	363	300	1,920	1,880	1,230	1,270	126	438	142
15	328	286	185	420	450	1,450	3,120	1,080	1,180	130	314	140
16	328	232	180	555	600	1,140	5,220	1,280	806	128	253	149
17	324	214	166	515	700	1,000	5,270	1,120	596	126	205	151
18	318	192	162	743	1,700	881	3,730	965	475	121	188	142
19	318	180	151	433	6,600	1,900	2,110	1,160	391	119	159	138
20	387	168	151	420	5,960	2,380	1,610	1,040	351	117	142	147
21	460	159	157	380	4,330	2,520	1,430	930	515	132	132	286
22	375	151	160	360	3,150	3,850	1,750	902	442	136	126	272
23	310	144	160	340	5,040	2,560	1,680	764	339	126	126	192
24	171	142	190	320	5,290	2,140	1,360	674	314	173	*140	164
25	175	138	200	310	7,100	2,080	1,130	584	272	*132	138	151
26	132	134	215	300	7,140	2,230	2,380	555	226	114	138	*142
27	128	128	439	310	5,860	2,780	2,230	584	208	97	128	138
28	155	126	530	320	4,410	3,000	1,740	530	*190	91	155	136
29	162	132	403	300	-	2,820	1,950	*451	166	108	173	132
30	146	*219	530	280	--------	* 1,810	1,520	428	151	155	159	130
31	175	--------	465	270	--------	1,320	--------	379	--------	121	153	--------
Total	7,034	8,553	6,559	12,070	61,830	71,651	55,844	31,216	22,057	4,375	10,124	5,179
Mean	227	285	212	389	2,208	2,311	1,861	1,007	735	141	327	173

Calendar year 1960: Max 10,700 Min 85 Mean 659 Cfsm 1.63 In. 22.22
Water year 1960-61: Max 7,430 Min 91 Mean 812 Cfsm 2.01 In. 27.28

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 12-14, 22-26, Jan. 20 to Feb. 19.

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 1961.

Gage.--Water-stage recorder. Datum of gage is 958.96 ft above mean sea level (West Virginia Pulp & 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.--32 years (1929-61), 78.1 cfs.

Extremes.--Maximum discharge during year, 3,320 cfs Feb. 25 (gage height, 9.49 ft); minimum, 3.7 cfs Dec. 10, 11, (gage height 3.03 ft), result of freezeup.
1905-6, 1929-61: 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.
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 ice effect, doubtful, or no gage-height record, which are fair. Records include about half a cubic foot per second 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. Records include drainage from numerous active and abandoned coal mines.

Rating table, water year, 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 17 to May 16)

3.0	2.8	3.3	18	4.0	119	6.0	1,000
3.1	6.4	3.5	36	4.5	265	7.0	1,600
3.2	11	3.7	62	5.0	475	8.0	2,280

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	7.2	32	7.6	16	16	385	345	170	82	19	11	6.4
2	7.2	17	7.2	16	16	313	285	*159	89	17	23	7.2
3	7.2	12	6.8	16	16	273	237	133	104	20	36	7.2
4	7.2	9.4	6.4	15	16	422	227	112	108	16	19	6.4
5	6.8	9.4	6.4	14	15	585	203	101	101	16	14	6.8
6	7.2	11	6.4	19	15	506	191	99	91	43	17	6.4
7	* 6.8	11	6.4	36	15	412	165	126	82	26	12	22
8	6.8	9.4	6.4	62	15	448	146	129	76	18	10	13
9	6.8	9.4	5.6	39	16	452	133	124	d412	15	10	8.4
10	7.2	10	5.6	b 32	19	398	209	129	d185	13	10	7.6
11	6.4	9.9	5.6	30	23	341	254	124	d148	13	10	* 7.2
12	6.0	9.4	5.6	28	26	341	262	119	d126	13	16	6.4
13	6.0	8.9	8.0	26	26	285	345	131	d104	20	11	6.4
14	6.0	8.4	7.6	26	b 32	281	416	138	d 89	16	9.4	6.4
15	6.0	8.4	7.6	49	51	237	498	141	d 75	13	8.9	6.8
16	6.8	8.0	8.4	84	58	209	970	293	d 62	14	8.9	6.8
17	6.4	7.6	7.6	65	73	176	615	313	d 51	15	8.4	6.4
18	6.0	7.2	7.2	65	225	156	434	289	* 42	13	8.0	6.0
19	6.4	7.2	7.2	61	728	254	341	269	36	12	7.6	6.0
20	11	7.2	b 7.2	b 50	560	265	297	251	32	11	7.6	7.6
21	7.2	6.8	b 7.2	b 48	337	237	244	230	62	12	7.2	8.9
22	6.4	6.8	b 7.2	b 45	329	273	227	215	56	11	7.2	6.8
23	6.4	6.8	b 6.8	b 41	635	237	227	197	41	12	8.9	6.4
24	6.4	6.4	6.4	b 36	764	240	212	179	34	11	8.4	6.0
25	6.0	6.4	7.2	b 32	1,610	333	188	162	28	* 10	21	6.0
26	6.0	6.4	8.4	b 28	1,100	426	381	146	26	9.9	16	* 6.0
27	6.4	6.4	16	a 25	605	470	293	133	26	9.4	8.9	5.2
28	6.4	6.4	*16	a 23	*480	448	248	121	* 25	9.4	8.0	5.2
29	6.0	8.0	17	a 21	-	398	224	108	22	31	7.2	5.2
30	6.0	*8.9	15	a 18	-------	321	188	97	21	16	6.8	5.2
31	8.9	-------	13	16	-------	281	-------	88	-------	12	6.4	-------
Total	209.5	282.1	257.0	1,082	7,821	10,403	9,005	5,026	2,436	486.7	363.8	218.3
Mean	6.76	9.40	8.29	34.9	279	336	300	162	81.2	15.7	11.7	7.28
Cfsm	0.093	0.130	0.115	0.482	3.85	4.64	4.14	2.24	1.12	0.217	0.162	0.101
In.	0.11	0.14	0.13	0.56	4.02	5.34	4.63	2.58	1.25	0.25	0.19	0.11

Calendar year 1960: Max 1,750 Min 5.6 Mean 86.7 Cfsm 1.20 In. 16.30
Water year 1960-61: Max 1,610 Min 5.2 Mean 103 Cfsm 1.42 In. 19.31

Peak discharge (base, 1,200 cfs).--Feb. 25 (5 p.m.) 3,320 cfs (9.49 ft); Apr. 15 (10 a.m.) 1,580 cfs (7.04 ft).

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

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 1961.

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.--23 years, 874 cfs (unadjusted).

Extremes.--Maximum discharge during year, 14,600 cfs Feb. 25 (gage height, 13.95 ft); minimum, 93 cfs July 29 (gage height, 1.70 ft).

1938-61: 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 or no gage-height record, which are fair. Some regulation at low flow by Stony River Reservoir, 66 miles above station (see p. 54), and since December 1950, by Savage River Reservoir (see p. 57).

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	93	4.0	1,220
2.0	175	6.0	3,050
2.5	361	10.0	8,400
3.0	601	14.0	14,700

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	194	322	257	485	a 340	3,450	2,290	1,800	504	185	132	169
2	191	509	201	485	a 320	2,850	2,070	1,840	949	178	126	163
3	194	379	181	433	a 250	2,210	1,740	1,530	2,150	166	730	163
4	172	470	169	392	a 220	2,390	1,620	1,300	1,970	172	617	163
5	175	370	181	353	a 300	4,610	1,420	1,120	1,370	181	357	160
6	181	370	185	348	a 330	5,160	1,300	1,200	1,040	214	257	160
7	* 181	428	188	410	a 290	3,660	1,150	1,750	848	456	232	272
8	191	396	191	580	a 320	2,690	1,040	2,040	758	353	181	465
9	194	353	181	570	a 300	4,630	998	1,670	860	224	151	303
10	191	401	137	410	a 300	3,480	1,490	1,590	1,280	175	432	228
11	253	788	b 140	405	a 310	2,750	2,270	1,390	1,370	142	370	*194
12	221	591	b 145	410	a 310	2,810	2,250	1,430	968	121	2,890	178
13	197	485	b 110	414	a 320	2,440	2,820	1,960	1,370	132	1,110	169
14	332	433	b 110	414	a 350	2,330	2,690	1,720	1,310	142	575	160
15	340	365	b 155	442	a 600	2,050	3,990	1,470	1,380	166	392	157
16	348	275	218	655	a 920	1,550	6,940	1,730	1,070	166	311	154
17	344	253	b 200	655	a 1,100	1,320	6,730	1,530	830	157	253	169
18	336	232	197	848	2,100	1,170	5,200	1,270	672	157	214	160
19	332	214	175	628	8,490	2,080	3,030	1,470	* 565	148	201	148
20	365	201	169	524	8,200	3,040	2,180	1,370	480	145	172	160
21	519	188	181	461	5,210	2,800	1,880	1,200	480	154	157	210
22	428	181	172	b 430	3,870	4,850	2,060	1,150	655	157	148	387
23	379	169	b 140	405	5,580	3,360	2,130	992	499	163	151	253
24	260	163	b 175	446	6,900	2,950	1,780	866	405	175	148	204
25	194	160	b 250	b 400	9,480	3,060	1,520	770	365	214	172	178
26	178	154	270	b 340	10,200	3,530	2,810	705	307	148	188	166
27	145	142	287	a 360	6,920	3,740	2,930	740	283	129	166	157
28	* 154	* 140	682	a 400	*4,780	3,970	*2,260	689	260	110	137	*157
29	185	142	442	a 400	-	3,780	2,380	601	228	126	201	148
30	175	197	433	a 370	---------	2,430	2,000	544	201	185	185	148
31	166	---------	499	a 350	---------	1,810	---------	499	---------	175	172	---------
Total	7,715	9,471	7,021	14,223	78,610	92,950	74,968	39,936	25,427	5,516	11,528	5,903
Mean	249	316	226	459	2,808	2,998	2,499	1,288	848	178	372	197

Calendar year 1960: Max 13,200 Min 103 Mean 850 Cfsm 1.43 In. 19.42
Water year 1960-61: Max 10,200 Min 110 Mean 1,023 Cfsm 1.72 In. 23.29

* Discharge measurement made on this day.
a No gage-height record.
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 1961.

Gage.--Water-stage recorder. Datum of gage is 891.37 ft above mean sea level (Pennsylvania Railroad bench mark).

Average discharge.--10 years, 195 cfs.

Extremes.--Maximum discharge during year, 7,450 cfs Feb. 25 (gage height, 8.85 ft); minimum, 2.0 cfs Sept. 29, 30 (gage height, 1.40 ft).
1951-61: 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 periods of ice effect, which are fair.

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 25				Feb. 26 to Sept. 30			
1.4	3.8	2.3	110	1.4	2.0	2.2	64
1.5	6.7	2.6	200	1.5	3.8	2.5	136
1.6	12	3.0	376	1.6	6.6	3.0	320
1.7	18	4.0	996	1.7	10	3.5	600
1.8	27	5.0	1,900	1.8	16	4.0	955
2.0	50	7.0	4,440	1.9	24	5.0	1,900
				2.0	35	7.0	4,440

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	16	40	18	34	24	655	505	405	163	29	15	3.0
2	15	29	14	50	23	505	* 481	345	199	26	33	3.6
3	14	19	14	42	22	426	442	288	239	31	74	4.1
4	14	15	13	40	21	844	400	*247	251	30	44	3.6
5	14	14	17	42	21	1,800	345	213	221	24	29	3.4
6	14	16	14	50	20	1,300	306	213	179	56	23	3.0
7	14	23	16	60	20	932	267	267	154	44	18	37
8	13	19	14	197	21	812	228	267	166	32	15	32
9	12	19	9.1	190	22	1,050	206	280	196	28	12	16
10	12	27	7.6	145	26	835	320	288	529	24	10	10
11	11	33	10	145	30	714	365	255	390	20	11	7.4
12	10	30	12	136	36	646	487	247	298	20	21	6.3
13	8.6	28	15	120	42	587	749	239	217	23	20	5.0
14	7.7	26	18	120	50	511	850	217	196	25	13	*4.1
15	7.2	24	18	120	80	410	1,530	199	169	21	9.7	3.6
16	6.7	23	18	190	280	335	3,340	247	128	22	8.2	4.1
17	* 7.2	21	17	157	320	267	1,940	228	103	23	7.0	4.1
18	7.7	19	16	142	660	228	985	217	89	25	6.1	3.4
19	7.2	18	15	128	2,320	380	639	224	78	21	5.5	3.2
20	9.6	16	14	115	1,800	672	487	186	68	19	5.0	3.8
21	14	16	12	125	763	652	426	169	84	17	*5.0	5.5
22	11	15	10	84	542	580	400	160	91	15	5.0	6.6
23	9.6	14	9.0	72	1,020	470	535	145	64	15	5.0	5.8
24	9.6	14	8.2	62	2,000	431	505	130	56	24	5.0	4.4
25	9.6	13	9.0	52	3,660	561	568	116	48	15	7.0	3.4
26	9.6	13	10	* 45	3,260	865	1,700	*116	45	13	22	2.8
27	9.6	12	12	38	1,300	910	1,010	111	43	11	14	2.6
28	9.6	*12	15	32	902	820	679	96	38	* 9.7	8.6	2.4
29	9.6	15	20	29	-	626	561	89	34	16	6.0	*2.2
30	9.1	24	28	27	--------	493	431	89	31	28	4.7	2.0
31	9.6	--------	25	25	--------	436	--------	78	--------	16	3.6	--------
Total	331.8	607	447.9	2,814	19,285	20,753	21,687	6,371	4,567	722.7	465.4	198.4
Mean	10.7	20.2	14.4	90.8	689	669	723	206	152	23.3	15.0	6.61
Cfsm	0.073	0.138	0.099	0.622	4.72	4.58	4.95	1.41	1.04	0.160	0.103	0.045
In.	0.08	0.15	0.11	0.72	4.91	5.29	5.52	1.62	1.16	0.18	0.12	0.05

Calendar Year 1960: Max 4,500 Min. 3.2 Mean 191 Cfsm 1.31 In. 17.82
Water Year 1960-61: Max 3,660 Min. 2.0 Mean 214 Cfsm 1.47 In. 19.91

Peak discharge (base, 2,100 cfs).--Feb. 19 (6:15 p.m.) 3,560 cfs (6.38 ft); Feb. 25 (7 p.m.) 7,450 cfs (8.85 ft); Apr. 16 (11 a.m.) 5,100 cfs (7.44 ft); Apr. 25 (11:30 p.m.) 2,100 cfs (5.18 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 10 to Jan. 7, Jan. 21 to Feb. 18.

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 1961.

Gage.--Water-stage recorder. Datum of gage is 640.89 ft above mean sea level (Corps of Engineers bench mark). May 6, 1905, to July 14, 1906, chain gage at highway bridge 700 ft upstream at different datum. Oct. 18, 1929, to Mar. 17, 1936, water-stage recorder, and Apr. 1, 1936, to Mar. 19, 1937, tape gage, on left bank 200 ft upstream at present datum.

Average discharge.--32 years (1929-61), 318 cfs.

Extremes.--Maximum discharge during year, occurred on Feb. 26, stage and discharge unknown, minimum, 16 cfs Sept. 30 (gage height 1.45 ft).
1905-6, 1929-61: 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 or no gage-height record, which are fair. Records include drainage from numerous active and abandoned coal mines. Slight diurnal fluctuation at low flow caused by quarry upstream.

Rating tables, water year 1960-61, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to 31		Nov. 1 to Sept. 30			
1.5	23	1.4	14	3.0	305
1.7	38	1.5	20	4.0	830
2.0	70	1.7	34	5.0	1,710
		2.0	64	6.0	2,960
		2.5	151	9.0	8,240

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	42	60	39	80	58	1,400	978	699	258	74	44	28
2	40	62	33	84	56	1,000	907	618	293	71	58	31
3	36	42	32	77	54	840	810	520	341	68	120	28
4	36	36	29	70	52	1,200	729	445	368	70	89	28
5	36	34	31	67	52	2,700	634	394	325	63	64	25
6	36	35	33	74	50	2,600	557	394	273	130	54	36
7	36	37	32	115	50	2,100	495	475	237	120	45	65
8	36	39	32	206	52	1,690	430	455	248	84	40	75
9	36	37	28	184	56	1,830	394	470	265	75	38	48
10	32	40	b 24	143	60	*1,410	705	480	657	64	36	38
11	32	47	b 28	134	70	1,070	804	426	557	60	34	32
12	29	47	36	132	80	1,030	978	422	390	58	48	29
13	29	45	37	115	94	921	1,610	430	354	64	48	26
14	29	42	38	126	110	844	1,700	394	305	68	40	26
15	28	*40	38	172	258	645	2,270	381	269	63	34	26
16	27	40	38	262	289	579	4,490	440	212	58	32	26
17	*26	39	36	240	394	460	2,850	390	174	58	31	25
18	28	37	34	240	717	426	1,690	368	160	58	30	22
19	30	36	32	206	3,150	735	1,150	390	143	56	30	22
20	36	34	30	158	2,710	1,030	886	333	132	51	30	24
21	35	33	28	136	1,360	1,030	784	313	162	50	*28	28
22	36	33	27	145	1,120	994	759	293	174	48	28	25
23	34	32	26	110	1,760	844	893	*269	130	48	31	27
24	32	31	25	100	3,000	844	830	244	120	48	30	26
25	31	30	24	90	6,000	1,160	921	221	108	49	43	22
26	31	30	27	82	6,000	1,560	2,180	*218	99	45	45	20
27	32	30	33	76	3,200	1,560	1,480	218	96	42	42	20
28	34	28	48	70	2,400	1,340	1,110	195	88	39	34	19
29	33	35	39	66	-	1,110	949	179	81	67	*28	*18
30	32	37	74	62	---	865	753	177	77	60	28	19
31	34	---	72	60	---	778	---	160	---	49	26	---
Total	1,024	1,148	1,083	3,882	33,252	36,595	35,726	11,411	7,096	1,958	1,308	884
Mean	33.0	38.3	34.9	125	1,188	1,180	1,191	368	237	63.2	42.2	29.5
Cfsm	0.134	0.155	0.141	0.506	4.81	4.78	4.82	1.49	0.960	0.256	0.171	0.119
In.	0.15	0.17	0.16	0.58	5.01	5.51	5.38	1.72	1.07	0.29	0.20	0.13

Calendar year 1960: Max 6,540 Min 25 Mean 345 Cfsm 1.40 In. 18.98
Water year 1960-61: Max 6,000 Min 18 Mean 371 Cfsm 1.50 In. 20.37

Peak discharge (base, 3,500 cfs).--Feb. 19 (3:30 p.m.) 6,060 cfs (7.88 ft); Feb. 26 (unknown); Apr. 16 (2 p.m.) 6,480 cfs (8.10 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record; Dec. 13-27, Jan. 23 to Feb. 14, and Feb. 25 to Mar. 7.

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 1961.

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.--32 years, 1,220 cfs (unadjusted).

Extremes.--Maximum discharge during year, 25,300 cfs Feb. 26 (gage height, 18.84 ft); minimum, 120 cfs Dec. 14, result of freezeup.

1929-61: 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, 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 reservoir on Stony River, about 79 miles above station (see p. 54), and since December 1950, by reservoir on Savage River (see p. 57). 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.

Rating table, water year 1960-61, (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 11		Nov. 12 to Sept. 30			
2.2	148	2.2	120	5.0	2,510
2.5	290	2.5	262	7.0	5,130
3.0	620	3.0	585	10.0	9,860
4.0	1,500	4.0	1,450	16.0	20,000

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	265	351	297	571	408	4,960	3,300	2,460	796	291	203	203
2	250	604	251	585	395	3,980	3,010	2,490	1,070	279	219	213
3	250	477	219	550	326	3,090	2,580	2,090	2,390	262	701	208
4	235	505	198	495	285	3,620	2,330	1,780	2,320	257	764	208
5	240	457	198	454	357	7,380	2,060	1,550	1,770	274	495	203
6	*235	418	219	440	382	7,780	1,810	1,510	1,380	461	357	213
7	240	484	208	536	345	5,960	1,640	2,190	1,160	550	303	314
8	235	477	219	764	376	4,260	1,470	2,420	1,050	529	262	571
9	255	438	213	796	363	6,930	1,350	2,190	1,150	363	208	414
10	245	444	174	592	388	5,380	2,070	2,060	1,810	279	347	308
11	280	760	152	557	408	4,050	3,000	1,850	1,970	235	495	262
12	290	668	189	557	414	3,920	3,160	1,800	1,460	208	2,280	235
13	255	557	144	557	414	3,420	5,000	2,310	1,640	208	1,250	213
14	328	495	148	550	461	3,180	4,720	2,170	1,590	230	684	203
15	399	*428	194	638	700	3,060	6,740	1,870	1,590	240	481	198
16	399	345	235	909	1,250	2,300	11,900	2,100	1,330	240	376	189
17	399	297	251	900	1,450	1,890	11,300	1,980	1,040	240	320	194
18	393	279	230	990	2,940	1,650	7,910	1,700	868	230	274	208
19	393	262	224	972	9,480	1,930	4,670	1,760	748	219	246	189
20	424	235	203	708	12,600	4,160	3,210	1,770	645	213	224	198
21	540	224	208	592	7,460	3,820	2,710	1,530	668	208	198	230
22	505	208	198	571	5,480	5,980	2,810	1,470	828	240	*189	408
23	444	203	160	529	7,110	4,460	3,060	1,310	692	224	230	339
24	369	184	203	585	10,300	3,980	2,700	1,160	564	224	203	262
25	245	189	279	501	13,800	4,370	2,430	1,040	508	297	224	230
26	270	184	303	434	18,900	5,390	5,060	972	447	219	257	203
27	212	179	326	447	10,200	5,400	4,780	981	421	184	235	194
28	* 202	174	680	481	* 8,500	5,620	* 3,520	927	388	165	198	189
29	231	189	*515	481	-----	* 5,160	3,390	836	351	240	219	*184
30	235	189	495	434	--------	3,390	2,800	788	*314	240	235	184
31	231	--------	608	414	--------	2,830	--------	*740	--------	257	213	--------
Total	9,494	10,904	8,141	18,590	115,492	133,300	116,490	51,804	32,958	8,306	12,890	7,367
Mean	306	363	263	600	4,125	4,300	3,883	1,671	1,099	268	416	246

Calendar year 1960: Max 20,600 Min 135 Mean 1,219 Cfsm 1.39 In. 18.96
Water year 1960-61: Max 18,900 Min 135 Mean 1,440 Cfsm 1.65 In. 22.35

Peak discharge (base, 10,000 cfs).--Feb. 20 (4:30 p.m.) 17,000 cfs (14.27 ft); Feb. 26 (1 a.m.) 25,300 cfs (18.84 ft); Apr. 16 (8:30 p.m.) 15,200 cfs (13.22 ft).

* 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 1961. Prior to October 1952, published as "near Bedford Valley".

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,027.59 ft above mean sea level (city of Cumberland bench mark).

Average discharge.--29 years, 30.9 cfs.

Extremes.--Maximum discharge during year, 1,050 cfs Apr. 16 (gage height, 3.58 ft); minimum, 2.3 cfs Dec. 9 (gage height, 1.02 ft), result of freezeup.
1932-61: 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 no gage-height record, which are fair.

Rating table, water year 1960-61, (gage height, in feet, and discharge, in cubic feet per second)

1.0	2.1	1.8	48
1.1	3.1	2.0	85
1.2	4.9	2.2	137
1.3	7.4	2.5	245
1.4	11	2.8	400
1.5	16	3.1	620
1.6	24	3.5	970

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	4.3	8.1	4.3	4.7	7.0	117	107	75	26	8.1	4.3	3.0
2	3.9	5.3	3.9	5.3	6.8	97	75	64	20	7.4	5.6	3.0
3	3.9	4.3	3.8	5.6	6.8	81	61	56	19	8.1	15	3.1
4	3.9	3.9	3.8	5.6	6.6	200	56	* 51	17	7.4	7.8	3.1
5	3.9	3.9	3.6	5.6	6.6	166	49	45	15	7.4	5.1	3.1
6	4.1	4.5	3.6	5.6	6.6	187	45	49	14	11	4.3	3.0
7	4.1	4.9	3.6	7.4	6.6	150	42	56	16	8.1	4.1	5.9
8	3.9	4.7	3.6	19	6.8	*178	37	53	27	7.4	3.8	6.8
9	3.9	4.7	3.0	12	7.0	270	58	49	32	6.6	3.6	4.3
10	3.9	5.1	3.1	10	7.4	170	143	48	64	6.0	3.4	3.6
11	3.8	4.9	3.1	10	7.8	145	83	42	28	6.0	3.9	3.3
12	3.6	4.3	3.3	10	8.2	125	191	41	22	5.6	5.3	3.3
13	3.4	4.1	3.8	10	8.8	110	217	41	20	7.2	4.3	3.1
14	3.4	4.1	4.7	10	9.6	88	163	39	20	6.6	3.6	*2.9
15	3.4	4.1	4.3	14	11	68	213	37	19	6.0	3.9	3.1
16	3.4	4.1	4.3	19	14	54	596	49	16	6.0	3.6	2.9
17	* 3.4	3.9	4.3	19	22	48	281	37	15	6.8	3.4	2.8
18	3.4	3.9	4.3	21	34	43	180	35	14	6.6	3.3	2.6
19	3.6	3.9	3.8	15	224	64	134	38	13	6.0	3.1	2.6
20	4.3	3.8	3.1	13	241	74	107	34	12	6.0	3.1	3.0
21	4.1	3.8	3.1	19	120	70	90	33	22	5.6	* 3.1	3.6
22	3.9	3.8	3.0	16	123	66	85	33	18	5.1	3.4	3.1
23	3.9	3.8	3.0	14	205	60	112	30	14	6.0	4.7	2.9
24	3.9	3.8	2.9	12	233	56	77	28	12	5.1	4.9	2.8
25	3.9	3.8	3.0	10	465	64	73	26	11	6.8	9.6	2.6
26	3.9	3.8	3.0	*9.2	352	90	225	25	10	5.3	7.2	2.5
27	3.9	3.8	3.9	8.6	205	*97	123	23	10	4.3	4.3	2.5
28	3.9	*3.6	*4.9	8.2	153	95	107	21	9.2	3.9	3.8	2.5
29	3.9	5.1	4.7	7.8	-	85	115	20	8.8	6.6	* 3.3	2.5
30	3.9	5.3	4.5	7.4	----------	71	83	19	8.8	6.0	3.1	2.5
31	4.5	----------	4.5	7.2	----------	71	----------	17	----------	4.9	3.1	----------
Total	119.2	131.1	115.8	341.2	2,504.6	3,260	3,928	1,214	552.8	199.9	145.0	96.0
Mean	3.85	4.37	3.74	11.0	89.4	105	131	39.2	18.4	6.45	4.68	3.20
Cfsm	0.127	0.145	0.124	0.364	2.96	3.48	4.34	1.30	0.609	0.214	0.155	0.106
In.	0.15	0.16	0.14	0.42	3.08	4.01	4.84	1.49	0.68	0.25	0.18	0.12

Calendar year 1960: Max 909 Min 2.2 Mean 35.9 Cfsm 1.19 In. 16.16
Water year 1960-61: Max 596 Min 2,5 Mean 34.5 Cfsm 1.14 In. 15.52

Peak discharge (base, 400 cfs).--Feb. 19 (11:45 p.m.) 421 cfs (2.83 ft); Feb. 25 (7 p.m.) 808 cfs (3.32 ft); Apr. 16 (11 p.m.) 1,050 cfs (3.58 ft).

* Discharge measurement made on this day.
Note.--No gage-height record, Jan. 23 to Feb. 18 and Mar. 9-26.

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 1961.

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.--23 years, 3,112 cfs.

Extremes.--Maximum discharge during year, 49,800 cfs Feb. 26 (gage height, 24.92 ft); minimum, 370 cfs Sept. 30.
1938-61: 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 excellent except those for periods of ice effect or once-daily potentiometer readings, which are fair. Low flow affected by Stony River Reservoir (see p. 54) and, since December 1950, by Savage River Reservoir (see p. 57).

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

3.3	340	8.0	4,850
4.0	735	10.0	7,870
5.0	1,490	15.0	18,700
6.0	2,440	24.0	46,500

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	676	574	478	1,150	980	12,000	8,120	5,850	1,720	891	556	473
2	634	748	562	1,200	950	9,390	9,300	5,780	1,970	807	517	506
3	598	940	500	1,250	850	7,660	7,870	5,700	2,810	780	598	473
4	586	780	495	1,200	800	6,970	6,800	5,140	3,610	761	1,340	440
5	544	870	484	1,150	880	11,200	6,030	4,440	3,060	768	1,220	500
6	*539	754	473	1,050	920	13,300	5,210	3,980	2,610	961	905	478
7	539	742	490	1,000	880	12,700	4,580	5,240	2,240	1,080	794	709
8	512	800	484	1,540	950	9,580	4,020	7,680	2,090	1,200	933	1,100
9	500	774	473	1,860	950	14,200	3,620	8,010	2,160	1,030	787	1,070
10	517	748	456	1,530	1,000	13,700	5,260	7,100	3,450	821	664	800
11	522	814	440	1,300	1,050	10,000	10,400	6,420	4,630	696	821	640
12	598	1,170	430	1,250	1,100	8,430	9,690	5,880	3,820	658	1,280	568
13	574	1,050	500	1,160	1,200	7,420	15,600	7,630	3,330	646	2,760	490
14	517	989	380	1,140	1,350	6,750	19,500	8,650	3,430	610	1,350	441
15	598	884	470	1,170	2,160	6,450	17,800	6,830	3,550	610	1,080	435
16	652	807	540	1,680	5,330	5,420	22,100	6,000	3,040	610	849	446
17	634	709	550	2,070	7,020	5,160	30,000	5,560	2,440	610	683	415
18	616	634	500	2,220	11,600	4,680	19,500	4,700	2,030	628	610	395
19	622	634	490	2,610	26,900	5,700	12,400	4,350	1,740	652	544	*390
20	670	586	490	2,190	41,700	7,870	8,600	4,350	1,490	622	500	385
21	676	550	470	1,720	20,400	7,600	7,100	3,730	1,420	622	495	410
22	835	517	490	1,550	13,800	11,000	6,570	3,480	1,590	628	484	456
23	735	517	440	1,300	16,200	10,700	7,010	3,180	2,000	652	490	761
24	683	512	380	1,200	24,300	11,300	6,450	2,810	1,760	640	534	768
25	568	495	420	1,250	29,600	14,400	5,740	2,540	1,610	800	506	598
26	468	490	550	1,050	*43,300	14,600	8,900	2,350	1,440	800	580	517
27	490	478	600	1,000	26,700	11,900	9,860	2,260	1,270	761	622	456
28	440	473	650	1,000	16,800	11,200	7,660	2,180	1,160	670	534	420
29	440	473	1,100	1,050	–	9,820	7,070	2,000	1,100	670	468	400
30	534	490	1,150	1,100	--------	7,900	6,530	1,820	982	652	484	380
31	539	--------	1,050	1,000	--------	6,600	--------	*1,690	--------	592	478	--------
Total	18,056	21,002	16,985	42,940	299,670	295,600	299,290	147,330	69,552	22,928	24,466	16,320
Mean	582	700	548	1,385	10,700	9,535	9,976	4,753	2,318	740	789	544
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1960: Max 56,200 Min 326 Mean 3,241 Cfsm 1.04 In. 14.19
Water year 1960-61: Max 43,300 Min 380 Mean 3,217 Cfsm 1.03 In. 14.05

Peak discharge (base, 20,000 cfs).--Feb. 20 (9 a.m.) 48,200 cfs (24.48 ft); Feb. 26 (3 p.m.) 49,800 cfs (24.92 ft); Apr. 17 (3 a.m.) 35,500 cfs (20.76 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12 to Jan. 7, Jan. 23 to Feb. 14. Discharge computed from once-daily potentiometer readings July 13-30.

1-6125. Little Tonoloway Creek near Hancock, Md.

Location.--Lat 39°42'45", long 78°13'55", on right bank at downstream side of highway bridge, 100 ft downstream from unnamed tributary and 2.8 miles northwest of Hancock, Washington County.

Drainage area.--16.9 sq mi.

Records available.--August 1947 to September 1961. Prior to October 1951, published as Tonoloway Creek near Hancock.

Gage.--Water-stage recorder and concrete control. Datum of gage is 457.51 ft above mean sea level, datum of 1929.

Average discharge.--14 years, 15.9 cfs.

Extremes.--Maximum discharge during year, 348 cfs Feb. 25 (gage height, 3.65 ft); no flow, Aug. 12, 13, Sept. 13, 14, 16-30; minimum gage height 0.78 ft Sept. 29.
1947-61: Maximum discharge, 1,470 cfs Oct. 15, 1954 (gage height, 7.10 ft), from rating curve extended above 440 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks.--Records fair, except those for periods of ice effect or no gage-height record, which are poor. Occasional small diversions for irrigation of peach orchards above station.

Rating tables, water year 1960-61, except periods of ice effect (gage-height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 25				Feb. 26 to Sept. 30			
0.9	0.3	1.5	28	0.8	0	1.5	31
1.0	1.4	1.7	44	.9	0.5	1.7	49
1.1	3.8	2.0	75	1.0	2.3	2.0	80
1.2	8.0	2.5	140	1.1	6.3	2.5	147
1.3	14	3.0	221	1.2	12	3.0	224
				1.3	18	4.0	433

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	0.8	3.8	0.7	1.4	1.9	50	55	24	4.8	0.8	0.1	0.8
2	.7	1.4	.6	2.6	1.6	39	57	21	3.6	.5	.2	1.8
3	.7	1.1	.6	2.4	1.6	30	46	18	5.3	.5	.5	1.0
4	.6	5.1	.6	1.9	1.4	69	35	15	5.8	.4	.3	1.0
5	.7	4.6	.6	1.9	1.4	98	28	12	3.3	.4	.2	.8
6	.7	1.2	.6	1.9	1.4	85	23	14	7.8	9.5	.2	.6
7	.7	1.0	.6	7.2	1.2	85	20	16	10	3.0	.1	.8
8	.6	.7	.5	13	1.2	91	17	16	6.3	1.8	.1	.6
9	.6	.7	.4	6.8	1.4	134	26	15	9.5	1.2	.1	.5
10	.7	1.1	.3	5.4	1.6	90	72	14	17	1.0	.1	.5
11	.5	1.0	.3	4.6	1.9	61	67	12	11	.8	.1	*.2
12	.3	.8	.4	4.2	2.1	42	75	14	7.3	.6	0	.1
13	.3	.7	.5	3.8	2.6	33	247	17	4.4	2.6	0	0
14	.3	.7	.9	3.6	3.3	32	122	16	3.3	4.4	.1	0
15	.4	.6	.8	5.4	4.6	26	70	16	3.0	1.6	.2	.1
16	.4	.7	.7	20	9.0	23	152	15	2.0	1.4	.2	0
17	.3	.8	.8	19	15	19	102	12	1.6	1.2	.2	0
18	.3	.8	.9	22	30	18	62	11	1.6	1.0	.1	0
19	.4	.8	.7	15	170	58	41	13	1.4	.8	.2	0
20	.6	.8	.5	10	163	69	31	10	1.2	*.6	.2	0
21	.6	.8	.4	8.0	85	57	28	8.9	4.8	.5	.2	0
22	.4	.7	.4	6.4	73	52	25	8.3	4.8	.5	.2	0
23	.4	.7	.3	5.0	118	49	24	7.3	2.3	.5	.2	0
24	.4	.6	.3	4.2	144	90	23	6.3	1.8	.4	.2	0
25	.4	.6	.4	3.6	204	165	28	5.3	1.4	.2	1.6	0
26	.3	.6	.6	3.0	170	119	78	6.3	1.2	.2	1.4	0
27	.3	.6	.9	2.8	88	70	57	5.3	1.4	.1	1.6	0
28	* .4	.6	1.6	2.6	67	* 49	44	4.0	1.0	.1	1.0	0
29	.4	* 1.0	1.5	2.4	-	37	34	3.6	* .9	.2	.6	* 0
30	.4	1.0	* 1.4	* 2.1	-------	28	27	3.3	.8	.3	.5	0
31	.6	-------	1.2	1.9	-------	29	-------	2.6	-------	*.2	.5	-------
Total	15.2	35.6	21.0	194.1	1,365.2	1,897	1,716	362.2	130.6	37.3	11.2	8.8
Mean	0.490	1.19	0.677	6.26	48.8	61.2	57.2	11.7	4.35	1.20	0.361	0.293
Cfsm	0.029	0.070	0.041	0.370	2.89	3.62	3.38	0.692	0.257	0.071	0.021	0.017
In.	0.03	0.08	0.05	0.43	3.00	4.17	3.78	0.80	0.29	0.08	0.02	0.02

Calendar year 1960: Max 468 Min 0.2 Mean 15.0 Cfsm 0.888 In. 12.05
Water year 1960-61: Max 247 Min 0 Mean 15.9 Cfsm 0.941 In. 12.75

Peak discharge (base, 200 cfs).--Feb. 19 (6 p.m.) 328 cfs (3.56 ft); Feb. 25 (6 p.m.) 348 cfs (3.65 ft); Apr. 13 (11 a.m.) 313 cfs (3.49 ft); Apr. 16 (3 p.m.) 249 cfs (3.17 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice; Dec. 11 to Jan. 15, Jan. 18 to Feb. 19 (no gage-height record Dec. 13 to Jan. 1, 4-6, Jan. 21 to Feb. 15).

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 1961. 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.--29 years, 4,020 cfs.

Extremes.--Maximum discharge during year, 56,500 cfs Feb. 20 (gage height, 22.10 ft); minimum discharge 431 cfs Sept. 30 (gage height, 2.56 ft).

1932-61: 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. Slight regulation at low flow from power plants upstream. Low flow affected slightly by Stony River Reservoir (see p. 54) and since December 1950 by Savage River Reservoir (see p. 57).

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.5	395	4.0	1,750	10.0	12,900	23.0	61,000
3.0	780	6.0	4,500	15.0	27,900		

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	789	664	573	1,350	1,200	16,000	8,500	7,260	2,000	1,250	762	557
2	762	690	557	1,400	1,150	11,900	12,100	6,800	*2,140	1,100	690	549
3	762	861	639	1,450	1,150	9,840	10,600	6,800	2,340	1,020	648	605
4	699	1,000	630	1,500	1,050	8,410	8,870	6,300	3,720	960	834	605
5	673	897	573	1,550	1,000	12,300	7,700	5,510	3,660	933	1,520	597
6	656	978	565	1,500	1,100	15,100	6,600	4,840	3,090	1,070	1,380	605
7	648	897	565	1,400	1,150	15,800	5,720	4,930	2,770	1,240	1,080	622
8	614	897	565	1,300	1,100	12,700	4,980	7,860	2,490	1,280	915	879
9	605	897	557	1,800	1,200	15,200	4,500	9,140	2,430	1,400	1,000	1,310
10	614	897	557	2,100	1,300	17,500	5,340	8,240	3,120	1,210	870	1,210
11	622	852	549	1,800	1,350	13,300	11,900	7,760	4,980	969	735	960
12	630	996	520	1,600	1,400	10,500	13,400	6,960	5,020	861	960	735
13	717	1,240	550	1,550	1,500	9,290	18,300	7,740	3,830	807	2,060	656
14	717	1,170	460	1,400	1,600	8,140	27,800	11,300	3,880	771	2,140	573
15	656	*1,060	520	1,350	2,500	7,700	24,400	9,510	3,660	753	1,370	533
16	717	996	580	1,400	5,500	6,940	23,900	7,580	3,550	726	1,150	497
17	762	915	620	2,100	9,600	5,960	37,200	7,120	2,950	798	942	504
18	771	807	640	2,500	15,000	5,690	26,300	6,030	2,500	798	780	541
19	744	708	610	2,850	27,200	5,830	17,100	5,240	2,120	762	690	476
20	771	708	600	3,100	50,900	8,630	11,800	5,130	1,840	*798	622	476
21	807	699	580	2,600	31,500	9,270	9,180	4,660	1,720	735	622	476
22	807	656	560	2,100	18,100	9,770	7,920	4,140	1,800	726	565	476
23	933	622	580	1,800	18,800	12,800	7,960	3,850	2,380	735	622	525
24	888	605	520	1,600	28,400	12,800	7,880	3,420	2,610	798	605	798
25	807	622	460	1,600	30,600	18,700	6,960	3,090	2,240	744	605	870
26	735	549	560	1,400	43,800	20,400	*8,920	2,790	2,000	780	656	690
27	605	565	640	1,300	*39,400	16,400	13,000	2,620	1,750	906	656	605
28	597	589	700	1,200	21,600	14,000	10,300	2,540	1,540	897	744	541
29	549	* 565	850	1,200	-	12,100	8,740	2,430	1,420	897	673	*490
30	525	573	1,200	1,250	--------	10,500	8,260	2,210	1,330	762	589	455
31	597	--------	1,250	1,300	--------	8,180	--------	2,010	--------	807	557	--------
Total	21,779	24,175	19,330	52,350	360,150	361,650	376,130	175,810	80,880	28,293	28,042	19,416
Mean	703	806	624	1,689	12,860	11,670	12,540	5,671	2,696	913	905	647
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1960: Max 63,000 Min 401 Mean 3,991 Cfsm 0.980 In. 13.34
Water year 1960-61: Max 50,900 Min 455 Mean 4,241 Cfsm 1.04 In. 14.13

Peak discharge (base, 23,000 cfs).--Feb. 20 (6:30 p.m.) 56,500 cfs (22.10 ft); Feb. 26 (11 p.m.) 53,800 cfs (21.52 ft); Apr. 17 (11:30 a.m.) 40,800 cfs (18.44 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 12 to Feb. 18.

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 1961.

Gage.--Water-stage recorder. Datum of gage is 391.77 ft above mean sea level, adjustment of 1912. Prior to Dec. 6, 1932, chain gage at highway bridge 0.7 mile downstream at datum 2.85 ft lower. Dec. 6, 1932, to Oct. 7, 1933, staff gage 150 ft downstream from former site at datum 4.84 ft lower than present datum.

Average discharge.--33 years, 570 cfs.

Extremes.--Maximum discharge during year, 9,630 cfs Feb. 26 (gage height, 11.43 ft); minimum, 66 cfs Sept 29, 30, but may have been less during period of ice effect.
1928-61: 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 ice effect, which are poor. Low flow partly regulated by small powerplants near Mercersburg, Pa.

Rating tables, water year 1960-61, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	54	4.0	1,220
1.5	124	6.0	2,810
2.0	254	8.0	4,810
3.0	650	11.0	9,030

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	160	241	158	200	130	2,230	1,410	944	325	230	148	95
2	151	248	131	250	120	1,770	1,460	892	310	216	139	93
3	148	178	124	200	110	1,470	1,200	804	304	207	199	108
4	151	142	116	150	120	1,450	1,090	728	362	202	199	126
5	142	126	110	130	140	2,290	986	665	*314	196	163	118
6	137	118	112	130	140	2,020	898	630	293	193	142	114
7	135	126	114	130	140	2,760	821	685	310	188	135	621
8	131	128	108	150	140	2,330	744	685	276	193	133	286
9	128	118	102	200	160	3,530	690	630	347	180	122	186
10	122	126	100	150	160	2,540	1,740	755	491	*165	116	151
11	128	144	100	140	160	1,850	2,130	640	408	165	114	146
12	116	151	95	140	160	1,550	1,600	625	307	153	114	124
13	114	131	85	140	160	1,300	4,390	1,310	270	160	108	112
14	114	124	90	140	160	1,400	4,880	1,210	267	183	106	104
15	112	124	100	150	200	1,210	3,100	944	423	233	104	97
16	116	120	100	200	300	1,050	3,630	838	332	196	*100	95
17	110	114	100	300	700	898	4,730	744	264	221	100	93
18	*114	112	100	250	1,300	832	3,060	650	242	207	97	*90
19	112	112	100	200	2,500	1,370	2,220	640	227	186	95	90
20	144	108	100	170	4,440	1,570	1,710	586	218	204	91	88
21	165	108	100	150	2,890	1,260	1,420	539	248	202	99	91
22	144	112	90	140	2,070	1,350	1,260	511	1,160	175	104	91
23	124	110	80	130	3,150	1,590	1,280	487	642	151	100	84
24	120	108	80	130	3,950	2,180	1,090	459	491	146	142	84
25	122	106	90	130	5,270	3,060	986	431	408	156	120	79
26	116	110	100	130	8,930	2,380	1,880	412	347	142	147	84
27	114	106	110	130	4,720	1,900	1,610	416	321	133	158	79
28	112	100	110	130	2,970	1,610	1,260	392	290	126	124	74
29	110	*116	110	130	-	1,460	1,240	369	260	178	120	72
30	104	193	110	130	--------	1,230	1,060	354	245	216	102	74
31	112	--------	110	130	--------	1,080	--------	332	--------	175	99	--------
Total	3,928	3,960	3,235	4,980	45,390	54,520	55,575	20,307	10,702	5,678	3,840	3,749
Mean	127	132	104	161	1,621	1,759	1,852	655	357	183	124	125
Cfsm	0.257	0.267	0.211	0.326	3.28	3.56	3.75	1.33	0.723	0.370	0.251	0.253
In.	0.30	0.30	0.24	0.37	3.42	4.10	4.18	1.53	0.81	0.43	0.29	0.28

Calendar year 1960: Max 5,830 Min 80 Mean 531 Cfsm 1.07 In. 14.64
Water year 1960-61: Max 8,930 Min 72 Mean 591 Cfsm 1.20 In. 16.25

Peak discharge (base, 4,300 cfs).--Feb. 20 (4:30 a.m.) 4,790 cfs (7.98 ft); Feb. 26 (5:30 a.m.) 9,630 cfs (11.43 ft); Apr. 13 (10 p.m.) 6,490 cfs (9.27 ft); Apr. 16 (9 p.m.) 5,470 cfs (8.52 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 10 to Feb. 19 (no gage-height record Jan. 23-31).

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 1961. Monthly discharge only for some periods, published in WSP 1302.
Gage.--Water-stage recorder. Concrete control since Mar. 29, 1934. Datum of gage is 311.00 ft above mean sea level, adjustment of 1912. June 24, 1897, to Aug. 25, 1905, staff gage a few hundred feet downstream from Middle Bridge, 1.2 miles upstream at datum about 12 ft higher. Aug. 21, 1928, to July 13, 1933, staff gage at Burnside Bridge at same datum.
Average discharge.--38 years (1897-1903, 1904-5, 1930-61), 268 cfs (adjusted for inflow since 1930).
Extremes.--Maximum discharge during year, 1,790 cfs Apr. 13 (gage height, 5.86 ft); minimum daily, 55 cfs Dec. 23, 24.
1928-61: 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 no 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, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.1	48	3.0	290
2.4	110	4.0	780
2.7	184	6.0	1,870

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	108	135	103	122	95	705	725	570	290	206	155	110
2	106	143	97	140	90	635	675	*570	290	190	145	112
3	103	110	92	119	80	580	615	520	290	187	147	117
4	101	101	86	110	90	545	585	500	300	187	157	189
5	101	99	86	99	110	685	560	470	*294	181	147	143
6	103	97	88	99	110	610	530	450	290	218	138	122
7	103	97	88	99	110	645	510	460	290	200	147	122
8	101	99	86	110	110	615	480	460	282	187	138	155
9	99	99	86	119	120	785	465	450	299	181	131	143
10	99	106	86	*108	135	700	865	500	308	170	135	119
11	99	117	80	106	135	615	810	450	290	170	140	108
12	97	119	75	103	131	580	710	450	258	168	135	112
13	95	106	65	106	126	540	1,290	700	246	173	133	112
14	92	99	75	103	126	545	1,440	650	243	184	126	110
15	95	99	80	106	145	535	1,220	600	326	173	124	106
16	95	99	88	145	152	490	1,170	550	274	184	124	103
17	90	97	85	155	162	450	1,220	500	240	229	*124	101
18	90	97	80	133	290	425	986	450	232	209	122	*99
19	92	95	80	145	820	490	875	450	226	187	122	99
20	*135	95	75	125	1,040	520	785	420	218	173	122	97
21	185	92	75	110	730	470	715	400	246	173	131	101
22	117	92	70	105	605	530	685	380	317	165	135	101
23	103	92	55	100	720	655	705	360	270	155	126	97
24	101	95	55	100	895	720	660	350	243	155	126	95
25	99	92	70	100	1,110	755	660	340	222	173	128	92
26	95	90	80	95	1,390	720	860	340	212	160	126	101
27	99	90	84	100	1,000	685	740	350	212	147	126	97
28	95	90	80	100	820	650	665	330	206	145	115	101
29	95	90	84	100	-	*660	685	320	203	179	117	97
30	95	*101	90	100	-------	595	620	310	218	179	115	92
31	92	-------	84	100	-------	580	-------	300	-------	155	110	-------
Total	3,180	3,033	2,508	3,462	11,447	18,715	23,511	13,950	7,835	5,543	4,067	3,353
Mean	103	101	80.9	112	409	604	784	450	261	179	131	112
(†)	-8.1	-7.9	-8.1	-9.0	-9.0	-6.3	-6.3	-5.9	-6.6	-6.8	-8.5	-8.9
Mean‡	94.9	93.1	72.8	103	400	598	778	444	254	172	122	103
Csm‡	0.338	0.331	0.259	0.367	1.42	2.13	2.77	1.58	0.904	0.612	0.434	0.367
In.‡	0.39	0.37	0.30	0.42	1.48	2.46	3.09	1.82	1.01	0.71	0.50	0.14

Calendar year 1960: Max 1,500 Min. 55 Mean 226 Mean‡ 219 Csm‡ 0.779 In.‡ 10.60
Water year 1960-61: Max 1,440 Min. 55 Mean 276 Mean‡ 268 Csm‡ 0.954 In.‡ 12.96
Peak discharge (base, 1,500 cfs).--Feb. 26 (12 m.) 1,530 cfs (5.40 ft); Apr. 13 (7 p.m.) 1,790 cfs (5.86 ft).

* 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
Note.--Stage-discharge relation affected by ice Dec. 11-15, 17-25, 28, Jan. 20 to Feb. 9. No gage-height record May 3 to June 4.

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 1961.

Gage.--Water-stage recorder. Datum of gage is 293.00 ft above mean sea level, adjustment of 1912. April 15, 1895, to Mar. 31, 1909, staff gage at site three-quarters of a mile downstream at datum 0.32 ft higher.

Average discharge.--46 years (1895-1908, 1928-61), 2,693 cfs.

Extremes.--Maximum discharge during year, 27,000 cfs Apr. 14 (gage height, 11.29 ft); minimum, 385 cfs Aug. 21 (gage height, 1.27 ft); minimum daily 460 cfs Dec. 14.
1895-1909, 1928-61: Maximum discharge, 230,000 cfs Oct. 16, 1942 (gage height, 32.4 ft, from flood-marks); 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 Edison Co., half a mile above station.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 20				Feb. 21 to Sept. 30			
1.4	450	4.0	3,250	1.5	515	6.0	7,600
1.7	625	6.0	7,490	2.0	900	8.0	13,500
2.0	835	8.0	13,100	3.0	1,920	11.0	25,500
3.0	1,820	11.0	25,500	4.0	3,380		

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	760	664	541	851	600	7.740	4.410	2.780	1.810	1.250	706	990
2	775	644	565	899	590	6.220	5.280	2.830	1.700	1.090	674	837
3	739	613	547	1.040	590	5.210	5.710	3.010	1.600	1.040	658	786
4	739	607	571	1.000	600	4.470	5.130	2.980	1.510	1.080	846	714
5	704	601	571	1.000	620	4.010	4.610	2.830	1.520	1.050	873	682
6	632	577	541	920	680	3.800	4.080	2.690	1.420	1.060	1.120	762
7	670	619	505	798	740	3.650	3.610	2.700	1.410	1.050	1.050	1.160
8	677	553	535	770	820	3.580	3.230	3.090	*1.380	1.150	1.360	1.130
9	632	607	529	760	900	3.990	2.940	3.870	1.590	1.060	1.050	945
10	690	595	511	760	900	4.710	4.350	4.010	2.220	1.060	918	722
11	670	565	510	746	900	4.770	7.040	4.200	3.280	1.170	828	927
12	684	583	500	*697	900	4.230	8.440	5.540	2.600	1.020	945	909
13	670	571	480	697	950	3.740	12.100	10.100	2.290	918	918	855
14	677	613	460	625	1.000	3.420	23.800	12.200	1.940	1.120	722	762
15	632	559	500	658	1.200	3.210	17.600	10.200	1.940	1.250	738	674
16	638	583	600	828	1.600	3.060	12.800	7.670	2.020	1.040	706	594
17	553	559	600	958	2.400	2.910	11.600	6.150	1.860	999	*629	574
18	577	565	590	974	3.800	2.660	13.000	5.260	1.740	1.060	643	574
19	595	547	580	1.140	13.000	2.600	9.800	4.510	1.590	918	601	567
20	*644	553	580	1.200	23.000	2.540	7.380	3.970	1.390	936	601	560
21	632	577	580	983	16.900	2.520	6.000	3.540	1.300	855	636	594
22	664	541	570	891	10.500	2.960	5.170	3.180	1.480	927	643	666
23	638	535	560	780	9.510	3.950	4.690	2.910	1.720	819	650	864
24	638	529	560	730	10.800	6.310	4.270	2.660	1.660	918	636	1.030
25	601	535	560	700	11.200	7.770	3.910	2.450	1.560	1.310	714	846
26	607	535	651	670	12.600	8.140	3.690	2.290	1.470	1.040	864	762
27	589	535	684	650	15.600	7.530	3.420	2.150	1.350	1.120	674	650
28	577	541	700	630	10.900	6.420	3.210	2.040	1.410	900	836	594
29	577	583	720	620	-	5.560	3.070	1.960	1.260	828	1.410	541
30	589	583	739	610	--------	4.820	2.910	1.930	1.310	810	1.070	548
31	583	--------	753	600	--------	4.250	--------	1.780	--------	828	762	--------
Total	20.053	17.272	17.893	25.185	153.800	140.750	207.250	127.480	51.330	31.676	25.481	22.819
Mean	647	576	577	812	5,493	4,540	6,908	4,112	1,711	1,022	822	761
Cfsm	0.213	0.189	0.190	0.267	1.81	1.49	2.27	1.35	0.563	0.336	0.270	0.250
In.	0.25	0.21	0.22	0.31	1.88	1.72	2.54	1.56	0.63	0.39	0.31	0.28

Calendar year 1960: Max 34,500 Min 460 Mean 2,685 Cfsm 0.883 In. 12.02
Water year 1960-61: Max 23,800 Min 460 Mean 2,304 Cfsm 0.758 In. 10.29

Peak discharge (base, 15,000 cfs).--Feb. 20 (10 a.m.) 24,300 cfs (10.73 ft); Feb. 27 (10 a.m.) 16,900 cfs (8.95 ft); Apr. 14 (2 p.m.) 27,000 cfs (11.29 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11-25, 28, 29, Jan. 4-6, 8, 9, Jan. 23 to Feb. 19.

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 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 385 ft (from topographic map).

Average discharge.--14 years, 74.3 cfs.

Extremes.--Maximum discharge during year, 1,260 cfs Apr. 13 (gage height, 4.23 ft); maximum gage height, 7.02 ft Feb. 19 (backwater from ice); minimum daily, 2.9 cfs Sept. 18, 19.
1947-61: 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, 1.3 cfs Aug. 19, 1957.

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

Rating tables, water year 1960-61, except periods of ice effect or shifting control (gage height in feet, and discharge, in cubic feet per second)

Oct. 1 to Aug. 31				Sept. 1-30	
0.29	3.2	1.7	161	0.8	2.9
.5	6.5	2.1	294	.9	4.5
.7	13	2.5	462	1.0	7.4
.8	17	3.0	705	1.1	12
1.0	33	4.0	1,160		
1.3	72				

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	6.1	25	10	20	10	203	212	135	50	19	10	4.1
2	5.3	18	7.7	30	90	170	161	148	46	16	8.0	3.9
3	5.2	11	7.5	20	90	148	145	121	49	16	9.1	4.3
4	5.0	8.5	7.2	15	10	151	133	*107	60	16	9.4	7.7
5	5.2	7.7	7.0	11	11	176	121	100	41	14	8.0	* 8.0
6	5.2	8.0	7.0	11	12	153	109	103	*40	34	7.4	4.7
7	5.2	8.2	6.7	11	12	153	100	107	38	26	6.5	4.3
8	5.0	7.7	6.5	13	13	164	90	103	39	18	5.5	7.0
9	5.0	7.4	4.7	18	14	196	86	90	43	16	5.0	7.4
10	5.2	11	5.3	13	*15	158	557	98	60	18	4.7	6.0
11	5.0	18	4.5	12	15	140	261	83	45	13	5.0	4.5
12	4.7	13	4.0	12	15	128	242	122	33	11	5.5	3.8
13	4.5	10	5.0	12	15	113	829	422	28	* 13	4.7	3.6
14	4.5	8.8	6.0	12	20	121	476	219	27	16	4.0	3.3
15	4.5	8.2	6.0	12	30	107	370	184	29	12	3.4	3.3
16	4.5	8.0	7.0	30	30	92	508	164	26	21	3.2	3.0
17	4.5	7.4	6.5	25	40	*81	325	138	23	100	4.6	3.0
18	4.5	7.2	6.0	18	100	79	261	121	20	49	* 5.2	2.9
19	* 4.5	7.2	5.5	15	500	109	216	118	19	27	4.8	2.9
20	14	7.0	5.0	13	350	103	181	103	18	20	4.7	3.3
21	15	6.7	5.5	17	226	88	158	92	46	17	6.7	* 3.4
22	9.1	6.7	5.0	14	206	123	156	85	63	14	7.8	3.3
23	7.4	7.2	4.0	12	345	187	170	77	32	12	7.7	3.2
24	7.2	7.2	4.0	11	481	229	135	70	42	11	8.2	3.0
25	6.3	7.2	5.5	10	768	226	125	66	27	13	24	3.0
			7.0									
26	6.1	7.0	8.0	10	562	187	272	87	23	10	13	5.4
27	6.1	6.7	8.0	10	325	164	164	77	23	8.2	11	7.4
28	6.5	6.7	7.5	10	257	151	167	61	20	7.6	8.8	5.2
29	6.5	8.6	8.0	10	-	153	176	56	18	17	7.2	4.7
30	6.1	11	9.0	10	--------	125	145	54	24	16	5.9	4.5
31	6.7	--------	8.0	10	--------	136	--------	47	--------	16	* 5.1	--------
Total	1906	282.3	1966	447	4,400	4,514	7,051	3,558	1,052	616.8	224.1	134.1
Mean	6.15	9.41	6.34	14.4	157	146	235	115	35.1	19.9	7.23	4.47
Cfsm	0.092	0.141	0.095	0.215	2.35	2.18	3.51	1.72	0.525	0.297	0.108	0.067
In.	0.11	0.16	0.11	0.25	2.45	2.51	3.92	1.98	0.58	0.34	0.12	0.07

Calendar year 1960: Max 921 Min 4.0 Mean 63.7 Cfsm 0.952 In. 12.98
Water year 1960-61: Max 829 Min 2.9 Mean 62.1 Cfsm 0.928 In. 12.60

Peak discharge (base, 1,200 cfs).--Apr. 10 (4:30 a.m.) 1,250 cfs (4.20 ft); Apr. 13 (6 a.m.) 1,260 cfs (4.23 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge affected by ice Dec. 2-4, Dec. 9 to Feb. 20 (no gage-height record Dec. 23 to Jan. 11). Shifting control method used July 28 to Sept. 1.

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 1961.

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.--66 years (1895-1961), 9,249 cfs.

Extremes.--Maximum discharge during year, 102,000 cfs Feb. 21 (gage height, 17.90 ft); minimum, 1,110 cfs Dec. 12, minimum daily 1,310 cfs Sept. 20.
1895-1961: 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 except those for periods of ice effect, which are fair. Low flow affected slightly since 1913 by Stony River Reservoir (see p. 54) and since December 1950 by Savage River Reservoir (see p. 57).

Rating table, water year 1960-61, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.7	1,110	4.0	12,400
1.0	1,720	7.0	27,000
1.5	2,920	12.0	57,000
2.0	4,490	17.0	95,000

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	2,080	1,550	1,510	2,400	2,500	38,700	19,100	16,200	5,830	3,760	2,390	1,870
2	2,060	1,830	1,530	3,000	2,500	29,600	22,100	15,100	5,680	3,380	2,270	1,960
3	2,030	1,870	1,550	3,400	2,500	23,600	24,800	14,500	5,610	3,170	2,240	1,870
4	1,990	1,920	1,510	3,800	2,600	19,900	21,700	14,100	5,760	3,000	2,290	1,720
5	1,940	1,900	1,530	3,700	2,700	19,300	18,900	13,200	6,860	2,840	2,010	1,720
6	1,990	1,940	1,530	3,600	2,800	24,300	16,700	12,100	7,090	3,030	2,390	1,990
7	1,790	1,990	1,490	3,600	3,000	27,300	14,800	11,400	6,520	3,060	2,870	2,190
8	1,680	2,010	1,470	3,500	3,500	27,900	13,200	12,000	6,120	3,170	3,380	2,640
9	1,620	1,900	1,450	3,000	4,000	26,500	11,900	15,700	6,520	3,300	2,840	3,500
10	1,680	1,850	1,400	3,500	4,000	32,400	14,600	17,100	6,820	3,200	2,640	2,980
11	1,700	1,900	1,400	4,000	4,000	30,500	22,700	16,200	9,400	* 3,290	2,440	3,000
12	1,680	1,900	1,350	4,200	4,000	24,200	30,000	16,400	10,300	3,000	2,440	2,840
13	1,640	1,870	1,350	3,800	4,200	20,100	37,500	21,100	9,740	2,710	2,340	2,610
14	1,700	1,900	1,300	3,500	4,500	18,000	69,200	25,700	8,080	2,710	1,990	2,360
15	1,660	2,270	1,350	3,300	5,000	16,500	62,900	27,400	7,520	2,980	3,030	1,960
16	1,700	2,170	1,500	3,700	6,000	15,400	49,900	22,200	7,720	2,710	3,060	1,790
17	1,550	2,080	1,550	4,400	9,500	13,900	54,200	18,400	7,440	3,200	2,580	1,680
18	1,530	1,870	1,500	5,200	18,000	12,500	60,600	16,400	6,590	3,140	2,270	1,450
19	1,590	1,920	1,550	6,500	40,000	12,300	43,700	14,500	5,650	3,030	2,120	1,350
20	1,830	1,810	1,500	6,500	85,900	13,800	31,600	13,000	5,020	2,870	2,100	1,310
21	1,870	1,740	1,500	5,200	88,800	16,800	24,100	12,300	4,520	2,580	1,870	1,430
22	1,960	1,700	1,450	4,500	49,600	18,100	20,200	11,300	4,840	2,510	2,080	1,570
23	1,810	1,640	1,400	4,000	40,400	21,500	18,400	10,200	6,190	2,480	1,740	1,590
24	1,920	1,590	1,350	3,600	48,000	27,100	17,900	9,480	6,300	2,310	1,450	1,850
25	* 2,170	1,570	1,300	3,300	61,300	33,500	16,700	8,720	6,220	2,690	1,530	1,920
26	1,920	1,530	1,250	3,100	73,400	42,200	16,500	8,200	5,540	2,710	1,900	1,850
27	1,790	1,510	1,300	2,900	87,500	39,000	21,500	7,640	4,980	2,440	1,920	1,900
28	1,720	1,510	1,450	2,800	56,400	31,100	22,800	7,090	4,600	2,310	1,850	* 1,850
29	1,620	1,550	1,600	2,700	-	26,900	19,600	6,780	4,120	2,410	2,580	1,660
30	1,590	1,620	1,800	2,600	--------	23,300	17,500	6,480	3,820	2,360	2,410	1,530
31	1,550	--------	2,300	2,600	--------	20,300	--------	6,040	--------	2,540	2,080	--------
Total	55,360	54,410	46,020	115,900	716,600	746,500	835,300	426,930	191,400	88,890	71,100	59,940
Mean	1,786	1,814	1,485	3,739	25,590	24,080	27,840	13,770	6,380	2,867	2,294	1,998
Cfsm	0.185	0.188	0.154	0.387	2.65	2.50	2.88	1.43	0.661	0.297	0.238	0.207
In.	0.21	0.21	0.18	0.45	2.76	2.88	3.22	1.65	0.74	0.34	0.27	0.23

Calendar year 1960: Max 113,000 Min 1,250 Mean 9,235 Cfsm 0.957 In. 13.02
Water year 1960-61: Max 88,800 Min 1,250 Mean 9,338 Cfsm 0.968 In. 13.14

Peak discharge (base, 35,000 cfs).--Feb. 21 (2:30 a.m.) 102,000 cfs (17.90 ft); Feb. 27 (11 a.m.) 91,800 cfs (16.60 ft); Mar. 26 (10 a.m.-2 p.m.) 42,400 cfs (9.65 ft); Apr. 14 (6 p.m.) 80,400 cfs (15.18 ft); Apr. 18 (4 a.m.) 65,700 cfs (13.24 ft).

* Discharge measurement made this day.
Note.--Stage-discharge relation affected by ice Dec. 12 to Feb. 19.

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 1961.

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

Average discharge.--19 years, 196 cfs.

Extremes.--Maximum discharge during year, 6,260 cfs Apr. 13 (gage height, 11.71 ft); minimum, 3.2 cfs Sept. 30.
1942-61: 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 no gage-height record, which are fair. Occasional regulation at low flow from unknown source above station.

Rating table, water year 1960-61, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	1.8	2.3	18	4.0	425
1.8	3.5	2.5	34	5.0	950
1.9	5.5	2.8	68	6.0	1,600
2.0	7.7	3.2	148	8.0	3,000
2.1	10	3.6	268	11.0	5,550

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	17	223	53	92	a 80	376	1,210	178	42	16	13	4.9
2	18	117	33	1,180	a 65	329	520	216	40	11	9.2	4.5
3	15	58	27	674	a 65	261	261	164	39	13	8.4	4.9
4	15	41	24	325	a 65	365	213	134	77	13	20	38
5	16	32	24	192	a 80	1,200	184	120	50	18	14	27
6	15	28	24	129	a 80	590	172	114	39	15	11	12
7	13	32	23	114	a 80	949	148	159	34	14	9.4	318
8	12	36	22	459	a 80	906	129	175	31	13	13	479
9	13	35	19	523	a 95	1,560	116	136	34	12	9.2	50
10	12	35	16	210	118	443	1,760	151	41	12	7.9	23
11	11	129	18	126	148	282	688	120	54	11	7.0	15
12	9.7	64	15	105	178	248	335	209	43	* 10	6.7	12
13	9.2	50	15	* 114	184	204	5,050	548	24	9.4	7.7	9.2
14	8.7	42	17	126	198	510	1,560	292	96	9.2	6.7	7.4
15	8.1	38	21	420	364	329	570	192	302	11	5.7	6.7
16	8.7	34	21	1,110	776	* 220	1,450	181	63	11	5.1	5.9
17	* 9.4	31	24	528	1,080	159	731	143	40	27	4.5	5.3
18	7.9	28	23	542	1,700	143	420	114	30	17	4.3	4.9
19	8.7	26	19	560	3,820	785	310	118	26	14	3.9	4.5
20	120	23	17	122	4,720	507	248	105	21	19	3.9	4.3
21	98	23	17	a 250	2,380	252	210	86	23	39	4.1	* 4.3
22	37	21	18	a 150	1,310	526	195	79	265	14	4.3	4.3
23	24	21	18	a 120	2,300	1,510	274	71	79	11	* 5.1	4.1
24	20	21	15	a 95	2,260	866	190	67	56	21	7.7	4.1
25	18	21	14	a 80	3,260	452	164	60	66	17	42	4.5
26	17	21	17	a 80	2,050	282	965	60	38	11	62	4.7
27	16	21	20	a 80	770	235	282	94	30	11	21	4.5
28	15	19	23	a 80	515	210	216	63	27	8.7	14	4.1
29	15	21	25	a 80	-	255	410	53	23	17	9.7	3.9
30	15	77	25	a 80	--------	184	216	50	19	27	7.2	3.3
31	15	--------	27	a 80	--------	168	--------	46	--------	21	6.1	--------
Total	637.4	1,368	674	8,826	28,821	15,306	19,197	4,298	1,752	473.3	353.8	1,078.3
Mean	20.6	45.6	21.7	285	1,029	494	640	139	58.4	15.3	11.4	35.9
Cfsm	0.119	0.264	0.125	1.65	5.95	2.86	3.70	0.803	0.338	0.088	0.066	0.208
In.	0.14	0.29	0.14	1.90	6.20	3.29	4.13	0.92	0.38	0.10	0.08	0.23

Calendar year 1960: Max 3,860 Min 7.9 Mean 168 Cfsm 0.971 In. 13.23
Water year 1960-61: Max 5,050 Min 3.3 Mean 227 Cfsm 1.31 In. 17.80

Peak discharge (base, 3,800 cfs).--Feb. 20 (2 a.m.) 6,220 cfs (11.67 ft); Feb. 25 (9 p.m.) 5,190 cfs (10.64 ft); Apr. 13 (9 a.m.) 6,260 cfs (11.71).

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

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 3½ miles upstream from Detour and confluence with Little Pipe Creek.

Drainage area.--102 sq mi.

Records available.--October 1947 to September 1961. Prior to December 1947 monthly discharge only, published in WSP 1302.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 340 ft (from topographic map).

Average discharge.--14 years, 107 cfs.

Extremes.--Maximum discharge during year, 2,210 cfs Feb. 25 (gage height, 6.19 ft); maximum gage height, 7.58 ft Feb. 19 (ice jam); minimum daily 19 cfs Dec. 12.
1947-61: 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, 7.4 cfs Aug. 1, 1954.

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

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 7		Dec. 8 to Sept. 30			
0.9	19	0.9	18	2.0	198
1.0	28	1.0	26	3.0	522
1.2	50	1.2	48	4.0	970
1.5	98	1.5	95	6.0	2,100

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	35	71	40	150	60	241	344	142	73	51	33	30
2	33	44	33	314	50	214	172	167	72	46	32	29
3	34	35	32	138	50	179	146	*134	75	46	38	55
4	34	33	31	97	50	181	136	122	111	58	36	113
5	32	30	31	73	60	235	126	117	73	44	34	47
6	32	32	31	64	60	211	124	121	88	47	34	35
7	31	33	31	62	60	216	115	142	*78	52	34	128
8	31	35	30	102	60	298	106	134	67	55	32	40
9	31	32	28	92	65	340	102	124	73	46	29	36
10	31	58	23	58	70	201	546	132	85	43	28	33
11	29	61	27	56	65	167	208	121	67	40	28	31
12	28	41	19	61	65	159	174	161	59	* 37	34	29
13	27	36	28	61	60	142	1,250	159	56	44	32	28
14	27	34	28	67	70	172	474	138	119	56	27	26
15	27	33	28	155	120	146	297	122	271	40	* 25	26
16	27	32	33	172	*140	*130	416	113	80	40	25	24
17	*26	31	31	110	170	115	284	104	65	161	30	24
18	26	30	29	110	380	111	230	97	59	81	27	24
19	26	30	27	70	1,500	233	201	97	56	51	26	24
20	39	30	26	50	800	170	179	93	52	47	26	24
21	40	30	25	85	430	132	165	90	59	43	37	*25
22	30	30	34	75	411	342	163	86	90	40	40	24
23	30	30	27	70	785	418	186	85	62	38	35	21
24	30	31	25	65	802	246	150	81	58	165	42	21
25	29	30	27	60	1,380	193	144	78	62	98	161	20
26	28	30	29	60	768	163	397	88	59	47	93	24
27	28	30	32	60	381	152	179	88	74	40	61	23
28	30	30	30	60	285	144	169	78	61	37	40	21
29	30	*31	28	60	-	156	196	75	54	38	35	20
30	29	90	35	60	-------	128	150	83	54	40	32	20
31	30	-------	40	60	-------	147	-------	73	-------	35	31	-------
Total	940	1,123	918	2,777	9,197	6,082	7,529	3,445	2,312	1,706	1,217	1,025
Mean	30.3	37.4	29.6	89.6	328	196	251	111	77.1	55.0	39.3	34.2
Cfsm	0.297	0.367	0.290	0.878	3.22	1.92	2.46	1.09	0.756	0.539	0.385	0.335
In.	0.34	0.41	0.33	1.01	3.35	2.22	2.75	1.26	0.84	0.62	0.44	0.37

Calendar year 1960: Max 1,000 Min 19 Mean 84.0 Cfsm 0.824 In. 11.22
Water year 1960-61: Max 1,500 Min 19 Mean 105 Cfsm 1.03 In. 13.94

Peak discharge (base, 1,600 cfs).--Feb. 19 (time unknown) about 2,000 cfs (ice jam); Feb. 25 (2 p.m.) 2,210 cfs (6.19 ft); Apr. 13 (3.30 p.m.) 1,850 cfs (5.58).

* Discharge measurement made on this day
Note.--Stage-discharge relation affected by ice Dec. 10-31, Jan. 17 to Feb. 21.

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 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 965 ft (from topographic map).

Average discharge.--30 years, 9.03 cfs (adjusted for diversion).

Extremes.--Maximum discharge during year, 183 cfs May 13 (gage height, 3.15 ft); minimum, 0.3 cfs Sept. 30 (gage height, 1.03 ft).
1931-61: 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, 0.18 cfs Sept. 20, 1932, Sept. 30, Oct. 7, 8, 1941.

Remarks.--Records good except those for periods of ice effect or doubtful 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 table, water year 1960-61, except periods of ice effect or backwater from rocks (gage height, in feet, and discharge, in cubic feet per second)

1.0	0.3	1.5	2.6	2.0	17
1.1	.5	1.6	3.9	2.2	31
1.2	.7	1.7	5.8	2.5	67
1.3	1.1	1.8	8.4	3.0	152
1.4	1.7				

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	0.8	6.2	1.1	8.0	1.6	26	32	21	7.8	2.7	1.0	0.6
2	.8	1.5	.9	3.4	1.5	23	26	21	7.0	2.5	1.5	1.2
3	.8	1.1	1.0	2.2	1.5	21	23	*19	13	2.5	1.6	1.4
4	.7	.9	.9	1.8	1.6	28	21	16	10	2.2	1.3	.9
5	.7	.9	1.0	1.5	1.7	30	18	16	7.0	2.4	1.1	.7
6	.8	1.2	.9	1.5	1.7	27	17	16	6.6	3.7	1.3	.6
7	.7	1.1	.9	2.0	1.7	24	16	17	*6.0	2.7	1.0	8.6
8	.7	1.1	.9	2.5	1.9	29	14	16	7.2	2.6	.9	2.1
9	.7	1.0	.7	2.5	*2.0	29	15	17	7.6	2.2	.8	1.2
10	.7	3.2	.6	2.0	2.0	23	38	18	9.0	2.0	.8	.9
11	.6	1.8	.6	1.5	2.0	19	*36	16	5.8	1.8	.8	.8
12	.6	1.3	.8	1.5	2.1	18	47	27	5.2	*1.8	1.0	.7
13	.6	1.2	.9	*1.5	2.1	16	82	72	4.2	2.4	.9	.6
14	.6	1.1	.9	1.7	2.9	19	71	37	5.3	2.2	.8	.6
15	.6	1.1	.9	6.0	4.8	*16	59	29	6.0	2.4	.7	.6
16	.6	1.0	1.0	6.0	4.6	15	82	32	4.2	3.3	* .7	.5
17	.6	1.0	.9	4.2	4.6	14	53	25	3.9	8.5	.7	.5
18	*.6	1.0	.9	4.4	25	14	41	22	3.6	4.8	.7	.5
19	.7	1.0	.8	2.7	75	21	34	20	3.3	2.8	.7	.5
20	4.0	.9	.8	2.1	51	18	29	18	3.2	2.6	.7	*.8
21	1.1	.9	.9	2.7	33	16	26	17	10	2.1	1.5	.7
22	.9	.9	.8	2.7	29	18	26	16	9.2	1.9	1.0	.5
23	.9	1.0	.7	2.1	50	19	26	14	4.8	1.7	1.0	.4
24	.8	.9	.6	1.8	70	29	21	13	4.8	1.8	.9	.4
25	.7	.9	.7	1.6	114	32	24	12	3.6	1.8	4.7	.5
26	.7	.9	.8	1.6	67	29	43	16	3.4	1.5	1.5	.8
27	.7	.9	1.0	1.6	40	26	26	13	3.4	1.3	1.1	.4
28	.8	.9	1.0	1.6	32	24	26	11	2.9	1.3	.8	.4
29	.8	1.5	1.0	1.6	-	24	26	9.4	2.7	2.9	.7	.4
30	.7	1.7	1.2	1.6	--------	19	21	8.7	2.9	1.5	.6	.4
31	1.0	--------	1.1	1.6	--------	21	--------	7.8	--------	1.2	.6	--------
Total	26.0	40.1	27.2	79.5	626.3	687	1,019	612.9	173.6	77.1	33.4	29.2
Mean	0.84	1.34	0.88	2.56	22.4	22.2	34.0	19.8	5.79	2.49	1.08	0.97
Cfsm	0.142	0.226	0.148	0.432	3.78	3.74	5.73	3.34	0.976	0.420	0.182	0.164
In.	0.16	0.25	0.17	0.50	3.93	4.31	6.39	3.84	1.09	0.48	0.21	0.18

Calendar year 1960: Max 118 Min 0.6 Mean 7.66 Cfsm 1.29 In. 17.59
Water year 1960-61: Max 114 Min 0.4 Mean 9.40 Cfsm 1.59 In. 21.51

Peak discharge (base, 120 cfs).--Feb. 25 (7 p.m.) 160 cfs (3.04 ft); Apr. 12 (12 p.m.) 137 cfs (2.94 ft); Apr. 16 (10:30 a.m.) 162 cfs (3.06 ft); May 13 (2 a.m.) 183 cfs (3.15 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 2, 4, Dec. 9 to Jan. 1, Jan. 3-17, Jan. 19 to Feb. 4, Feb. 18, 19. Backwater from rocks Feb. 26 to Mar. 14. Doubtful gage-height record July 30 to Aug. 15.

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 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 355 ft (from topographic map).

Average discharge.--12 years, 24.8 cfs.

Extremes.--Maximum discharge during year, 706 cfs Sept. 7 (gage height, 3.89 ft); minimum daily, 1.8 cfs Sept. 12,13, Dec. 12.
1949-61: 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.

Remarks.--Records good except those for periods of ice effect, or no gage-height record, which are fair. Slight regulation at irregular intervals caused by pumpage at recreation camp near Foxville.

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 1		Jan. 2 to Apr. 13				April 14 to Sept. 30			
1.28	1.8	1.3	3.2	1.8	52	1.29	2.3	1.8	52
1.3	2.2	1.4	8.1	2.0	89	1.4	7.0	2.0	89
1.4	6.2	1.5	16	2.5	213	1.5	15	2.5	213
1.5	13	1.6	26	3.0	367	1.6	24	3.0	367
1.6	23								

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	2.2	13	3.2	20	5.5	65	89	52	17	6.4	3.6	2.9
2	2.0	4.2	2.5	10	5.0	57	64	57	16	5.9	4.9	3.2
3	2.0	3.2	2.5	7.5	5.0	52	59	*46	23	5.9	5.9	8.7
4	2.0	3.2	2.5	6.0	6.0	59	50	41	21	5.9	4.9	4.9
5	2.0	3.2	2.5	5.0	7.0	71	43	38	16	5.4	4.0	3.6
6	2.0	3.5	2.5	5.0	7.0	65	42	40	16	8.3	4.0	3.2
7	2.2	3.5	2.5	6.0	7.0	64	37	40	*14	7.6	4.0	67
8	2.0	3.5	2.5	10	7.0	71	35	37	16	5.9	3.2	13
9	2.0	3.2	2.2	8.0	7.0	77	35	34	17	4.9	3.2	6.4
10	2.2	5.6	2.2	*6.0	7.0	55	106	34	21	4.9	2.9	4.9
11	2.0	5.6	2.0	6.0	8.0	48	73	32	14	4.4	3.2	4.0
12	1.8	3.8	1.8	5.0	8.8	43	92	48	12	*4.4	2.9	3.6
13	1.8	3.5	2.2	5.0	8.8	39	307	184	10	4.9	2.9	3.2
14	2.0	3.2	3.0	6.4	12	48	155	73	10	5.4	2.3	3.2
15	2.0	3.2	3.0	20	*21	39	121	62	13	4.9	*2.3	2.9
16	2.0	3.2	3.5	22	27	*35	216	54	9.7	7.0	3.2	2.9
17	2.0	2.8	3.0	14	29	34	130	46	9.0	20	4.0	2.6
18	2.0	2.5	2.5	15	61	34	98	41	8.3	15	2.9	2.6
19	*2.0	2.5	2.0	10	147	55	79	40	8.3	10	2.6	2.9
20	8.0	2.5	2.0	7.0	93	43	67	37	7.6	6.4	2.9	*2.9
21	5.9	2.5	2.5	9.0	54	37	60	34	45	5.4	3.6	2.9
22	2.8	2.5	2.2	9.0	52	57	60	32	28	4.9	3.6	2.6
23	2.8	2.5	2.0	7.5	83	71	59	31	16	4.9	3.2	2.3
24	3.2	2.5	1.8	6.5	113	69	52	28	17	4.9	9.9	2.3
25	3.2	2.5	2.2	5.5	244	75	50	24	12	4.9	2.3	2.6
26	3.5	2.5	2.5	5.5	176	65	112	29	9.7	4.0	7.0	3.6
27	3.5	2.5	3.0	5.5	107	57	62	26	9.7	3.6	5.4	2.6
28	3.5	2.5	2.7	5.5	81	54	65	22	8.3	3.2	4.0	2.3
29	3.2	3.5	2.7	5.5	–	54	69	21	7.6	8.0	3.6	2.3
30	3.2	4.2	3.0	5.5	-------	45	55	19	7.0	5.4	3.2	2.3
31	3.5	-------	3.0	5.5	-------	56	-------	17	-------	4.0	3.2	-------
Total	84.5	106.6	77.7	264.4	1,389.1	1,694	2,542	1,319	439.2	196.7	139.5	174.4
Mean	2.73	3.55	2.51	8.53	49.6	54.6	84.7	42.5	14.6	6.35	4.50	5.81
Cfsm	0.148	0.193	0.136	0.464	2.70	2.97	4.60	2.31	0.793	0.345	0.245	0.316
In.	0.17	0.22	0.16	0.53	2.81	3.42	5.14	2.67	0.89	0.40	0.28	0.35

Calendar year 1960: Max 250 Min 1.8 Mean 19.4 Cfsm 1.05 In. 14.38
Water year 1960-61: Max 307 Min 1.8 Mean 23.1 Cfsm 1.26 In. 17.04

Peak discharge (base, 350 cfs).--Feb. 25 (7 p.m.) 401 cfs (3.10 ft); Apr. 13 (5 a.m.) 499 cfs (3.37 ft); Apr. 16 (12 m.) 514 cfs (3.41 ft); Sept. 7 (2 p.m.) 706 cfs (3.89 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 11-23, Jan. 1-13, 19-23, Feb. 11. No gage-height record record Dec. 24-31, Jan. 24 to Feb. 10.

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 4.5 miles west of Lewistown, Frederick County.

Drainage area.--7.29 sq mi.

Records available.--October 1947 to September 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 735 ft (from topographic map).

Average discharge.--14 years, 11.3 cfs.

Extremes.--Maximum discharge during year, 98 cfs Feb. 25 (gage height, 2.30 ft); minimum, 0.8 cfs Dec. 12 (result of freezeup).
1947-61: 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, water year 1960-61, except periods of ice effect
(gage height, in feet, and discharge, in cubic feet per second)

1.17	1.1	1.5	9.9
1.2	1.5	1.6	16
1.3	3.0	1.8	31
1.4	5.7	2.1	66

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	4.2	1.5	5.3	b 1.8	a 22	30	28	12	4.2	2.4	1.6
2	1.6	1.8	1.5	2.2	b 1.8	a 21	28	29	10	4.0	2.7	1.8
3	1.6	1.6	1.5	1.9	b 1.8	a 20	28	25	11	4.2	2.8	2.2
4	1.5	1.5	1.5	1.6	b 2.2	a 25	27	* 24	10	4.0	2.7	2.0
5	1.5	1.5	1.5	1.5	2.4	a 35	25	22	9.4	3.8	2.5	1.8
6	1.5	1.5	1.5	1.5	2.4	a 35	24	23	* 8.9	5.7	2.5	1.6
7	1.5	1.5	1.5	1.8	2.4	a 25	22	22	8.4	4.5	2.4	1.8
8	1.5	1.5	1.4	2.0	b 2.5	a 30	21	22	8.9	3.8	2.2	1.9
9	1.5	1.5	1.4	1.6	2.5	a 30	21	21	8.9	3.5	2.0	1.8
10	1.5	2.0	1.4	1.6	2.5	a 25	30	20	11	3.5	2.0	1.6
11	1.5	1.8	b 1.4	* 1.6	2.5	a 22	25	19	8.0	3.2	2.0	1.6
12	1.5	1.5	b 1.4	1.6	2.5	a 21	28	23	7.2	3.2	2.0	1.8
13	1.5	1.5	1.4	1.6	2.5	a 20	58	34	6.4	* 3.5	1.9	1.6
14	1.5	1.5	1.4	1.6	3.6	a 25	49	31	6.8	3.5	1.9	1.6
15	1.5	1.4	1.4	3.3	* 4.2	a 20	48	31	7.2	3.2	1.8	1.6
16	1.5	1.4	1.4	2.8	4.5	a 19	55	29	6.0	3.8	1.9	1.5
17	1.5	1.4	1.4	2.5	4.8	* 18	46	27	5.7	8.0	1.9	1.5
18	1.5	1.2	1.2	2.5	14	17	40	25	5.4	4.2	* 1.8	1.5
19	* 1.5	1.2	1.2	2.4	b 25	20	37	24	5.4	3.5	1.8	1.5
20	2.7	1.2	1.2	b 2.2	29	18	34	22	5.1	3.2	1.8	* 1.5
21	1.6	1.4	1.4	2.7	25	17	30	20	12	3.0	2.2	1.4
22	1.6	1.4	1.2	3.2	23	19	29	19	7.6	2.8	2.0	1.2
23	1.6	1.4	b 1.1	2.4	28	22	29	18	6.0	2.8	2.0	1.2
24	1.6	1.4	b 1.1	2.0	38	24	25	17	5.7	2.8	4.1	1.2
25	1.5	1.4	b 1.2	b 1.8	55	26	25	16	5.1	2.8	6.4	1.4
26	1.5	1.4	b 1.3	b 1.8	40	28	33	17	5.1	2.7	2.5	2.6
27	1.5	1.4	1.6	b 1.8	29	29	30	15	4.8	2.5	2.2	1.5
28	1.5	1.4	1.5	b 1.8	a 25	29	30	14	4.8	2.5	2.0	1.4
29	1.5	2.2	1.5	b 1.8		28	32	13	4.5	4.0	1.9	1.4
30	1.5	2.0	1.6	b 1.8		25	29	12	4.2	2.8	1.8	1.2
31	1.8		1.4	b 1.8		26		12		2.5	1.6	
Total	48.7	48.1	43.0	66.0	377.9	741	968	674	221.5	111.7	71.7	48.3
Mean	1.57	1.60	1.39	2.13	13.5	23.9	32.3	21.7	7.38	3.60	2.31	1.61
Cfsm	0.215	0.219	0.191	0.292	1.85	3.28	4.43	2.98	1.01	0.494	0.317	0.221
In.	0.25	0.25	0.22	0.34	1.93	3.78	4.94	3.44	1.13	0.57	0.37	0.25

Calendar year 1960: Max 65 Min 1.1 Mean 9.79 Cfsm 1.34 In. 18.29
Water year 1960-61: Max 58 Min 1.1 Mean 9.37 Cfsm 1.29 In. 17.47

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.

1-6425. Linganore Creek near Frederick, Md.

Location.--Lat 39°24'55", long 77°20'00", on left bank 2¼ 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 1961.

Gage.--Water-stage recorder. Concrete control since Sept. 23, 1946. Altitude of gage is 270 ft (from topographic map). Nov. 27, 1931, to Mar. 26, 1932, staff gage at Frederick pumping station, 1½ miles downstream at datum about 20 ft lower. Sept. 12, 1934, to Sept. 25, 1946, staff gage at present site and datum.

Average discharge.--27 years (1934-61), 83.6 cfs.

Extremes.--Maximum discharge during year, 1,800 cfs Apr. 13 (gage height, 6.90 ft); maximum gage height 8.91 ft Feb. 18 (ice jam); minimum daily, 14 cfs Dec. 12, Sept. 28-30.
1931-32, 1934-61: 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 discharge observed, 6.0 cfs Oct. 9, 1941.
Flood of Aug. 23 or 24, 1933, reached a stage of 10.5 ft from floodmarks (discharge, 2,920 cfs).

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.6	12	3.0	125
1.8	18	3.5	232
2.0	26	4.0	365
2.2	36	5.0	726
2.5	58	6.0	1,280

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	23	51	28	120	48	244	288	*125	65	43	23	19
2	21	28	24	182	40	215	172	163	62	41	24	18
3	21	26	23	98	40	190	152	122	66	53	28	26
4	21	22	22	76	40	187	144	113	68	49	28	45
5	21	21	22	57	48	199	134	108	58	41	25	23
6	21	22	22	54	48	185	131	117	58	77	25	22
7	21	21	21	64	48	179	120	120	*56	51	25	100
8	20	21	20	92	48	230	111	116	57	45	22	174
9	20	20	17	65	52	267	110	110	102	40	21	36
10	21	51	19	55	56	183	456	118	86	39	21	28
11	19	38	16	55	52	160	174	108	61	36	20	25
12	18	28	14	56	52	150	163	167	55	35	21	23
13	18	24	20	55	50	138	954	168	52	*42	20	21
14	18	23	20	59	55	164	343	134	51	38	17	20
15	18	22	20	137	95	142	267	116	55	36	17	20
16	18	21	24	140	110	127	329	108	49	61	18	18
17	18	21	22	100	135	111	237	99	47	160	45	18
18	17	20	21	100	240	110	203	93	46	58	22	17
19	18	20	20	70	800	179	187	92	45	41	20	*18
20	32	20	19	40	501	*142	168	88	43	41	20	20
21	*25	19	18	70	321	120	158	85	56	36	*30	20
22	20	19	22	60	319	345	156	81	77	34	25	18
23	21	21	20	56	666	333	171	78	51	32	23	17
24	21	21	18	52	683	232	146	74	47	32	31	16
25	20	20	19	48	1,070	196	138	72	70	33	83	16
26	19	20	21	48	658	183	235	105	64	28	51	16
27	20	20	23	48	374	168	144	83	77	28	33	15
28	20	20	21	48	296	160	152	72	53	25	25	14
29	21	60	20	48	-	158	154	69	47	28	23	14
30	20	62	25	48	-------	136	129	70	46	29	21	14
31	20	-------	30	48	-------	194	-------	63	-------	24	20	-------
Total	631	802	651	2,249	6,945	5,727	6,426	3,237	1,770	1,356	827	851
Mean	20.4	26.7	21.0	72.5	248	185	214	104	59.0	43.7	26.7	28.4
Cfsm	0.248	0.324	0.255	0.881	3.01	2.25	2.60	1.26	0.717	0.531	0.324	0.345
In.	0.29	0.36	0.29	1.02	3.14	2.59	2.90	1.46	0.80	0.61	0.37	0.38

Calendar year 1960: Max 667 Min 14 Mean 56.7 Cfsm 0.689 In. 9.36
Water year 1960-61: Max 1,070 Min 14 Mean 86.2 Cfsm 1.05 In. 14.21

Peak discharge (base, 1,400 cfs).--Feb. 25 (7 p.m.) 1,600 cfs (6.50 ft); Apr. 13 (7 a.m.) 1,800 cfs (6.90 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 1, Jan. 9-11, Jan. 19 to Feb. 19.

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 2½ miles east of Frederick, Frederick County.

Drainage area.--817 sq mi.

Records available.--October 1929 to September 1961. 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.--32 years, 901 cfs.

Extremes.--Maximum discharge during year, 13,700 cfs Apr. 14 (gage height, 14.12 ft); minimum, 100 cfs Sept. 29, 30.
1929-61: Maximum discharge, 51,000 cfs Aug. 24, 1933 (gage height, 28.1 ft); minimum, 35 cfs Oct. 1, 1930. Maximum stage known, 30 ft in June 1889, from floodmarks (discharge, 56,000 cfs).

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second) (Shifting control method used Oct. 1 to Dec. 10, 26-31, May 29 to June 21, Aug. 21 to Sept. 30)

1.6	90	5.0	2,190
1.7	115	7.0	4,220
2.0	202	10.0	7,650
2.5	405	13.0	11,900
3.0	675		

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	154	244	356	420	350	2,500	3,160	1,290	445	219	177	120
2	139	632	233	800	350	2,160	2,650	1,380	430	209	168	118
3	131	389	186	1,600	300	1,830	1,710	1,230	430	228	165	118
4	131	259	165	960	300	1,660	1,450	*1,020	500	209	180	420
5	131	216	156	640	300	3,060	1,300	921	500	209	171	418
6	137	196	156	470	350	2,260	1,200	886	* 420	296	177	246
7	145	186	156	420	350	2,920	1,110	984	430	259	171	488
8	137	180	156	480	350	2,300	991	1,080	396	226	159	2,660
9	137	180	148	860	350	4,900	907	963	463	216	148	603
10	145	232	118	820	400	2,600	3,660	921	491	219	148	287
11	131	305	120	540	450	1,860	3,660	886	460	202	145	212
12	128	418	110	* 420	550	1,630	1,940	1,070	392	193	145	174
13	120	270	120	420	700	1,420	8,690	2,300	328	* 205	142	154
14	123	226	140	445	850	1,560	9,820	2,030	307	212	142	145
15	120	202	150	615	1,050	1,880	3,800	1,440	1,080	229	128	137
16	123	199	160	1,610	1,420	1,350	3,540	1,220	651	240	134	128
17	128	196	180	1,550	1,900	1,100	4,920	1,100	374	678	174	123
18	123	180	170	1,250	2,750	956	2,680	914	299	553	139	120
19	128	177	160	1,470	6,000	1,620	2,200	852	266	270	128	* 112
20	180	168	145	760	10,200	2,190	1,860	806	247	202	118	112
21	356	159	140	550	6,460	1,430	1,630	735	279	183	* 139	115
22	351	156	135	470	3,860	1,760	1,510	681	727	190	137	115
23	216	165	145	420	5,930	4,660	1,660	639	681	171	165	112
24	177	168	140	400	7,260	3,600	1,520	593	374	154	174	108
25	* 154	165	130	370	8,890	2,440	1,310	560	351	281	273	102
26	145	159	148	350	10,800	1,890	2,620	612	369	240	564	105
27	139	159	165	350	4,730	1,640	2,380	633	328	168	438	108
28	148	156	177	350	3,300	1,480	1,620	571	307	148	240	108
29	154	220	186	350	-	1,500	1,820	500	251	154	162	105
30	148	* 280	202	350	--------	1,330	1,700	485	236	174	139	102
31	148	--------	212	* 350	--------	1,220	--------	460	--------	190	126	--------
Total	4,827	6,842	5,065	20,860	80,500	64,706	79,018	29,762	12,812	7,327	5,616	7,975
Mean	156	228	163	673	2,875	2,087	2,634	960	427	236	181	266
Cfsm	0.191	0.279	0.200	0.824	3.52	2.55	3.22	1.18	0.523	0.289	0.222	0.326
In.	0.22	0.31	0.23	0.95	3.66	2.95	3.60	1.35	0.58	0.33	0.26	0.36

Calendar year 1960: Max 10,400 Min 105 Mean 736 Cfsm 0.901 In. 12.26
Water year 1960-61: Max 10,800 Min 102 Mean 891 Cfsm 1.09 In. 14.80

Peak discharge (base, 8,800 cfs).--Feb. 20 (8:30 p.m.) 10,800 cfs (12.25 ft); Feb. 26 (9:30 a.m.) 12,700 cfs (13.53 ft); Apr. 14 (2 a.m.) 13,700 cfs (14.12 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11-25, Jan. 2-13, Jan. 20 to Feb. 14, Feb. 18,19.

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 confluence of Great Seneca and Little Seneca Creeks, and half a mile east of Dawsonville, Montgomery County.

Drainage area.--101 sq mi.

Records available.--September 1930 to September 1961.

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.--31 years, 93.9 cfs.

Extremes.--Maximum discharge during year, 3,070 cfs June 10 (gage height, 7.98 ft); minimum daily, 22 cfs Dec. 12.

1930-61: 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 excellent except those for periods of ice effect which are fair. Small diversion for irrigation above station.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.8	19	2.5	166
1.9	29	3.0	372
2.0	43	4.0	770
2.2	82	6.0	1,460

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	* 37	65	* 42	200	52	* 206	245	123	* 92	* 74	47	* 32
2	33	43	37	225	48	188	153	166	82	67	47	32
3	33	40	36	125	47	184	134	128	78	72	52	33
4	32	37	36	100	43	156	128	117	78	93	50	36
5	32	36	36	75	52	156	123	112	74	72	47	35
6	33	36	36	65	56	156	120	123	72	115	47	33
7	33	37	36	67	54	163	114	137	72	84	50	69
8	32	36	35	78	56	213	106	213	78	74	43	140
9	36	35	32	62	59	352	109	137	219	67	42	50
10	39	84	30	50	63	180	369	150	1,060	67	42	39
11	33	67	26	50	67	153	160	137	326	61	42	37
12	32	47	22	55	69	144	147	256	126	59	42	36
13	30	43	33	55	67	134	1,090	280	101	74	40	35
14	30	40	33	62	76	150	301	177	509	112	36	33
15	30	39	33	150	125	137	222	147	214	67	36	35
16	30	37	45	140	160	126	255	134	120	110	36	32
17	30	37	37	110	180	114	198	120	101	121	36	32
18	30	36	36	110	380	114	170	117	92	210	35	32
19	29	36	33	100	1,150	191	156	114	87	82	35	32
20	59	35	33	70	578	147	144	109	82	74	36	37
21	42	35	45	85	332	128	137	106	101	67	57	36
22	35	35	38	65	410	366	137	106	112	63	43	30
23	35	37	32	60	856	413	140	99	89	59	43	28
24	35	36	33	55	502	229	131	94	80	57	42	27
25	32	36	34	50	670	184	128	89	78	89	43	25
26	33	35	35	50	480	163	144	101	78	57	57	28
27	33	35	37	50	287	153	123	99	104	54	48	28
28	35	35	33	50	233	147	134	87	82	52	39	26
29	35	41	35	50	–	147	144	89	74	59	36	26
30	33	68	48	50	----	128	120	99	91	61	35	* 25
31	35	----	55	* 50	----	* 152	----	84	----	48	33	----
Total	1,056	1,259	1,112	2,564	7,152	5,574	5,782	4,050	4,552	2,421	1,317	1,119
Mean	34.1	42.0	35.9	82.7	255	180	193	131	152	78.1	42.5	37.3
Cfsm	0.338	0.416	0.355	0.819	2.52	1.78	1.91	1.30	1.50	0.773	0.421	0.369
In.	0.39	0.46	0.41	0.94	2.63	2.05	2.13	1.49	1.68	0.89	0.48	0.41

Calendar year 1960: Max 810 Min 22 Mean 75.1 Cfsm 0.744 In. 10.14
Water year 1960-61: Max 1,150 Min 22 Mean 104 Cfsm 1.03 In. 13.96

Peak discharge (base, 1,300 cfs).--Apr. 13 (10:30 a.m.) 1,840 cfs (6.71 ft); June 10 (7 p.m.) 3,070 cfs (7.98 ft); June 14 (3 a.m.) 1,460 cfs (6.01 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Dec. 10 to Jan. 5, Jan. 9-31, Feb. 15-19.

1-6452. Watts Branch at Rockville, Md.

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

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 1961.

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

Average discharge.--31 years, 11,120 cfs (adjusted for diversions).

Extremes.--Maximum discharge during year, 116,000 cfs Feb. 21 (gage height, 13.15 ft); minimum, 875 cfs Dec. 13.
1930-61: Maximum discharge, 484,000 cfs Mar. 19, 1936 (gage height, 28.1 ft); minimum daily, 448 cfs Aug. 25, 1930 (does not include 334 cfs diverted at Great Falls for water supply).
Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.

Remarks.--Records good except those for period of ice effect, 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, and since April 1961, at Potomac Filtration Plant, for water supply of Washington Suburban Sanitary District. Low flow affected slightly by Stony River Reservoir (see p. 54) and since December 1950, by Savage River Reservoir (see p. 57).

Rating table, water year 1960-61, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.7	1,050	6.0	22,500
3.2	2,970	9.0	55,500
4.0	7,200	13.0	113,000

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	2,890	1,960	2,110	3,450	3,300	51,700	25,200	19,900	7,020	4,450	2,800	2,350
2	2,680	1,920	2,000	4,650	3,300	*39,200	26,900	18,800	6,900	4,300	2,720	2,070
3	2,470	2,310	1,960	4,650	3,200	31,200	30,100	17,500	6,540	3,920	2,680	2,150
4	2,430	2,430	1,960	4,800	3,300	26,200	27,600	16,700	6,540	3,870	2,680	2,270
5	2,390	2,350	1,880	4,650	3,500	23,400	23,800	15,800	6,720	3,690	2,680	2,150
6	2,350	2,270	1,880	4,450	3,700	28,200	21,000	14,600	7,860	3,640	2,470	2,230
7	2,310	2,310	1,880	4,300	3,900	32,100	18,400	13,800	7,680	3,820	2,890	2,390
8	2,230	2,350	1,850	4,250	4,300	35,500	16,300	14,200	7,140	3,780	3,230	3,540
9	2,110	2,350	1,730	3,750	4,500	35,900	14,700	15,900	7,080	3,730	3,550	5,290
10	2,040	2,430	1,730	4,200	4,500	39,100	19,200	19,300	9,520	3,780	3,190	4,250
11	2,000	2,470	1,730	5,100	4,700	38,700	27,300	*19,400	11,500	3,640	2,840	3,410
12	2,000	2,430	1,550	5,200	4,900	31,800	34,500	19,600	10,800	3,640	2,720	3,190
13	2,000	2,470	1,100	4,650	5,000	26,000	53,100	24,100	11,100	3,500	2,680	3,010
14	2,000	2,390	1,350	4,300	5,200	22,700	77,800	30,800	10,800	4,910	2,550	2,760
15	*1,960	2,350	1,750	4,750	6,000	21,200	81,000	33,600	9,450	4,000	2,230	2,550
16	1,960	2,630	2,000	6,400	6,960	19,400	61,400	28,900	9,240	3,550	3,010	2,150
17	1,960	2,590	1,850	6,700	9,310	17,400	60,400	23,200	8,640	3,500	3,190	2,040
18	1,850	2,470	1,850	7,400	16,900	15,400	70,700	19,800	7,860	4,350	2,760	1,920
19	1,770	2,230	1,810	8,350	45,700	15,700	56,600	17,400	6,900	4,110	2,470	1,770
20	2,040	2,310	1,770	8,200	90,600	16,600	41,400	15,400	6,000	3,690	2,350	1,730
21	2,150	2,190	2,000	7,200	110,000	19,000	31,600	14,100	5,520	3,370	2,550	1,690
22	2,230	2,110	1,750	6,000	71,600	23,400	25,800	13,400	5,520	3,010	2,270	1,650
23	2,430	2,110	1,650	5,200	58,600	*30,600	22,700	12,000	6,240	2,890	2,510	1,730
24	2,230	2,040	1,550	4,600	60,800	35,600	21,600	11,200	7,440	2,840	2,190	1,770
25	2,070	1,960	1,550	4,300	74,400	37,700	20,600	10,400	7,020	2,800	2,040	1,880
26	2,350	1,960	1,550	4,000	87,200	47,300	19,500	9,660	6,840	3,060	2,720	2,040
27	2,230	1,920	1,500	3,800	98,400	47,500	24,200	9,310	6,300	3,100	2,630	1,960
28	2,070	1,880	1,550	3,600	78,400	39,600	27,800	8,580	*5,580	2,840	2,510	1,960
29	2,040	1,850	1,750	3,600	-	33,500	25,000	8,120	5,120	2,800	2,270	1,880
30	1,920	2,040	2,200	3,500	--------	29,300	21,900	7,800	4,650	2,760	2,630	1,810
31	1,880	--------	2,300	3,400	--------	25,600	--------	7,380	--------	2,720	2,630	--------
Total	67,040	67,080	55,090	153,400	872,170	936,500	1,028,100	510,650	225,520	110,060	82,640	71,590
Mean	2,163	2,236	1,777	4,948	31,150	30,210	34,270	16,470	7,517	3,550	2,666	2,386
(†)	304	322	329	341	332	341	357	335	327	328	327	324
Mean‡	2,467	2,558	2,106	5,289	31,480	30,550	34,630	16,800	7,844	3,878	2,993	2,710
Csm‡	0.213	0.221	0.182	0.458	2.72	2.64	3.00	1.45	0.679	0.335	0.259	0.234
In.	0.25	0.25	0.21	0.53	2.83	3.04	3.35	1.67	0.76	0.39	0.30	0.26

Calendar year 1960: Max. 116,000 Min. 1,100 Mean 10,830 Mean‡ 11,120 Cfsm‡ 0.962 In.‡ 13.09
Water year 1960-61: Max. 110,000 Min. 1,100 Mean 11,450 Mean‡ 11,780 Cfsm‡ 1.02 In.‡ 13.84

Peak discharge (base, 45,000 cfs).--Feb. 21 (9 a.m.) 116,000 cfs (13.15 ft); Feb. 27 (7 p.m.) 101,000 cfs (12.23 ft); Mar. 26 (9 p.m.) 49,300 cfs (8.48 ft); Apr. 14 (11:30 p.m.) 92,600 cfs (11.71 ft); Apr. 18 (11 a.m.) 73,200 cfs (10.37 ft).

* Discharge measurement made on this day.

† Diversion, in cubic feet per second, for municipal supply of Washington, D. C., Washington Suburban Sanitary District and city of Rockville; records furnished by Corps of Engineers, Washington Sububan Sanitary Commision and city of Rockville.

Note.--Stage-discharge relation affected by ice Dec. 11 to Feb. 15.

1-6470. Little Falls Branch near Bethesda, Md.

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be publihsed in a subsequent annual report.

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 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 148.99 ft above mean sea level, adjustment of 1912.

Average discharge.--32 years, 56.4 cfs.

Extremes.--Maximum discharge during year, 1,750 cfs Apr. 13 (gage height, 7.19 ft); minimum daily, 11 cfs Sept. 30.
1929-61: Maximum discharge, 7,220 cfs July 21, 1956 (gage height, 13.19 ft, from high-water mark in gage house), from rating curve extended above 4,400 cfs on basis of contracted-opening measurement of peak flow; 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, water year, 1960-61, (gage height, in feet, and discharge, in cubic feet per second)

1.2	7.8	2.5	307
1.3	16	3.5	604
1.5	41	4.5	865
1.8	103	5.0	1,085
2.1	187	7.0	1,670

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	24	58	23	250	35	93	196	64	65	45	22	20
2	22	29	21	170	32	86	84	108	44	30	25	18
3	21	24	21	75	31	75	66	64	41	33	25	25
4	21	22	21	60	33	71	66	56	42	31	28	27
5	21	23	21	50	40	73	62	53	39	31	83	26
6	21	24	21	46	40	77	60	68	38	58	31	18
7	21	26	20	*50	37	96	58	80	39	42	166	18
8	20	24	*20	54	38	147	54	*247	57	33	25	21
9	23	23	19	47	40	245	56	84	82	29	33	18
10	23	68	18	35	56	91	383	75	99	28	61	16
11	21	44	17	34	84	73	96	108	149	26	25	16
12	20	25	15	34	64	68	108	282	44	26	25	15
13	18	24	19	35	53	64	1,330	260	39	41	22	*15
14	18	23	21	36	100	*91	198	108	189	114	20	14
15	18	23	21	146	144	75	113	79	222	34	18	18
16	18	24	25	116	183	64	124	77	51	60	18	14
17	18	23	22	68	182	56	101	62	41	66	20	13
18	18	21	21	62	458	66	79	58	36	165	18	14
19	18	21	19	52	694	203	73	58	34	39	16	14
20	120	20	18	35	333	96	68	54	34	30	26	28
21	30	20	26	40	169	71	66	53	125	29	98	18
22	*21	22	21	35	192	333	66	53	*68	28	26	14
23	21	24	17	33	584	346	64	49	41	39	144	13
24	20	22	19	32	234	121	62	47	35	28	132	12
25	21	22	21	31	405	91	60	44	36	69	25	15
26	20	21	25	32	267	77	88	69	63	30	*496	16
27	21	21	30	35	111	73	64	54	53	25	61	13
28	24	21	25	34	98	71	83	44	39	24	29	13
29	24	24	32	33	-	75	89	46	36	69	25	12
30	22	36	100	32	-------	75	62	49	67	43	22	11
31	24	-------	60	31	-------	110	-------	39	-------	22	21	-------
Total	752	802	779	1,823	4,737	3,353	4,079	2,592	1,948	1,367	1,786	505
Mean	24.3	26.7	25.1	58.8	169	108	136	83.6	64.9	44.1	57.6	16.8
Cfsm	0.391	0.429	0.404	0.945	2.72	1.74	2.19	1.34	1.04	0.709	0.926	0.270
In.	0.45	0.48	0.47	1.09	2.83	2.00	2.44	1.55	1.16	0.82	1.07	0.30

Calendar year 1960: Max 857 Min 14 Mean 56.3 Cfsm 0.905 In. 12.32
Water year 1960-61: Max 1,330 Min 11 Mean 67.2 Cfsm 1.08 In. 14.66

Peak discharge (base, 800 cfs).--Feb. 19 (3:30 a.m.) 910 cfs (4.66 ft), Feb. 25 (11 p.m.) 966 cfs (4.86 ft), Apr. 13 (1:30 p.m.) 1,750 cfs (7.19 ft), Aug. 26 (9 a.m.) 1,300 cfs (5.99 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 9 to Jan. 2, Jan. 4-8, 10-13, Jan. 19 to Feb. 12, Feb. 15.

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, 1 3/4 miles downstream from Indian Creek and 1 3/4 miles upstream from confluence with Northwest Branch.

Drainage area.--72.8 sq mi.

Records available.--August 1938 to September 1961.

Gage.--Water-stage recorder. Datum of gage is 14.00 ft above mean sea level (Washington Suburban Sanitary Commission bench mark). Prior to June 12, 1942, wire-weight gage at same site and datum.

Average discharge.--23 years, 78.8 cfs.

Extremes.--Maximum discharge during year, 2,340 cfs Apr. 13 (gage height, 5.44 ft); minimum, 10 cfs Aug. 18-19, but may have been less during period of no gage-height record.
1938-61: Maximum discharge, 3,680 cfs July 18, 1945; maximum gage height, 12.93 ft Oct. 16, 1942; minimum discharge observed, 5.6 cfs Sept. 29, 30, Oct. 1, 1941.
Maximum stage known, about 15.5 ft Aug. 23 or 24, 1933, from floodmarks (discharge, 10,500 cfs, from rating curve extended above 3,000 cfs on basis of velocity-area study).

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)

1.84	10	3.0	190
1.9	14	3.5	390
2.1	28	4.0	715
2.3	50	4.5	1,160
2.5	80	5.0	1,750

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	30	84	29	380	45	131	241	75	55	28	18	23
2	28	56	27	299	45	120	145	116	64	24	17	23
3	28	41	27	142	40	104	102	84	47	32	19	27
4	26	35	28	100	60	94	91	67	38	28	19	28
5	28	35	27	75	70	89	80	61	33	24	18	22
6	30	37	* 28	65	70	94	75	77	32	46	23	19
7	27	37	27	* 74	70	104	70	100	36	34	38	30
8	26	35	28	80	60	194	67	234	62	28	22	25
9	28	34	25	70	60	291	69	147	53	24	37	22
10	28	79	22	55	120	154	441	121	57	19	46	20
11	26	67	20	50	110	106	212	173	42	19	24	18
12	24	51	25	45	90	93	151	208	32	19	22	18
13	24	42	30	45	80	82	*1,630	152	29	27	22	16
14	24	37	35	50	* 200	117	443	114	80	34	16	18
15	24	36	35	188	241	104	167	89	73	26	15	20
16	24	35	35	217	334	89	157	77	41	35	17	17
17	22	34	35	131	333	75	133	64	34	34	17	15
18	* 22	33	35	96	674	93	* 110	58	29	* 29	13	15
19	22	31	30	75	846	291	94	57	26	23	12	16
20	154	30	30	65	350	187	85	56	24	21	20	20
21	67	30	50	70	205	136	80	51	75	18	50	20
22	44	27	50	60	222	376	78	47	* 74	17	25	15
23	36	30	45	55	596	457	75	46	44	25	256	14
24	33	32	35	50	327	202	72	42	34	71	85	14
25	30	31	35	45	462	136	69	40	30	83	57	13
26	28	30	40	40	504	110	85	65	46	35	* 790	13
27	28	31	45	50	190	94	70	58	41	23	190	13
28	34	30	40	55	145	91	82	49	36	18	60	13
29	35	34	60	55	-	89	93	42	32	42	36	12
30	33	33	164	50	-------	78	74	42	36	35	28	12
31	34	-------	118	47	-------	130	-------	37	-------	22	24	-------
Total	1,047	1,177	1,260	2,879	6,549	4,511	5,341	2,649	1,335	943	2,036	551
Mean	33.8	39.2	40.6	92.9	234	146	178	85.5	44.5	30.4	65.7	18.4
Cfsm	0.464	0.538	0.558	1.28	3.21	2.01	2.45	1.17	0.611	0.418	0.902	0.253
In.	0.53	0.60	0.64	1.47	3.35	2.30	2.73	1.35	0.68	.048	1.04	0.28

Calendar year 1960: Max 2,000 Min 13 Mean 79.2 Cfsm 1.09 In. 14.79
Water year 1960-61: Max 1,630 Min 12 Mean 83.0 Cfsm 1.14 In. 15.45

Peak discharge (base, 1,250 cfs).--Apr. 13 (12:30 p.m.) 2,340 cfs (5.44 ft); Aug. 26 (2:00 a.m.) 1,490 cfs (4.79).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 9-29, Jan. 1, 6, Jan. 8-14, Jan. 19-29, Jan. 31 to Feb. 6. No gage-height record Feb. 7-14, Sept. 7-30.

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 1961. Monthly discharge only for some periods, published in WSP 1302.
Gage.--Water-stage recorder and concrete control. Datum of gage is 264.85 ft above mean sea level, adjustment of 1912. Prior to April 22, 1932, staff gages in same general vicinity at different datum. April 22, 1932 to April 11, 1934, staff gage at present site and datum.
Average discharge.--38 years, 22.4 cfs (unadjusted).
Extremes.--Maximum discharge during year, 1,060 cfs Apr. 13 (gage height, 7.75 ft); minimum, 3.6 cfs Sept. 29 (but may have been less during period of ice effect).
1924-61: 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, 0.4 cfs Aug. 11, 12, 1930, Sept. 2, 1932, Aug. 18, 1957.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Records include inflow pumped from Patuxent River to augment water supply for Washington Suburban Sanitary District, which began Aug. 12, 1939. Pumpage plant on stand-by basis after August 1960; no pumpage during 1961 water year.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.6	3.8	2.4	70
1.7	7.0	3.0	169
1.8	12	4.0	320
2.0	25	5.0	465

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	8.3	*16	7.8	b140	13	32	71	25	*16	19	6.6	6.3
2	7.0	9.8	7.8	42	13	30	32	*30	13	14	6.3	6.0
3	7.0	9.3	7.8	24	12	27	27	24	13	13	7.4	6.0
4	7.0	8.3	7.8	b 20	17	26	25	22	13	12	7.4	6.6
5	7.0	8.3	7.8	b 15	20	26	25	21	11	12	7.4	6.0
6	7.0	8.8	* 7.4	b 15	20	31	24	25	11	17	8.0	5.6
7	7.0	8.8	7.8	b 18	20	35	23	29	11	14	12	7.6
8	6.6	8.8	7.8	b 20	17	60	21	102	14	11	7.4	7.0
9	7.8	8.3	7.4	b 15	17	78	22	29	25	10	11	6.3
10	7.8	21	b 6.5	14	35	32	128	27	34	9.8	16	6.0
11	7.0	14	b 5.5	13	30	27	36	39	21	9.3	8.3	5.3
12	6.6	11	b 7.0	12	25	25	44	42	13	8.8	7.4	5.3
13	6.6	9.8	9.0	12	20	24	*427	51	12	13	6.6	5.0
14	6.6	9.3	10	15	30	30	53	30	27	25	6.0	4.7
15	7.0	9.3	10	50	* 50	26	38	25	85	10	5.6	5.6
16	6.6	9.3	10	35	59	24	40	22	20	11	5.3	4.7
17	6.3	8.8	10	30	66	21	33	19	15	15	* 5.3	4.4
18	6.3	8.8	10	25	243	23	30	18	13	56	5.0	4.4
19	6.3	8.8	9.0	22	244	67	27	18	13	13	5.0	4.7
20	17	8.3	9.0	20	76	35	26	16	12	10	6.0	5.6
21	8.8	8.3	15	20	54	27	25	16	38	9.3	13	5.6
22	7.8	8.3	14	17	72	129	25	16	26	8.3	7.8	4.4
23	7.4	8.8	12	16	184	87	25	15	18	7.8	19	4.1
24	7.4	8.8	10	15	62	42	23	14	14	8.3	10	4.1
25	7.0	8.3	10	14	213	32	22	14	14	10	7.8	3.8
26	7.4	8.8	12	12	89	28	28	18	21	7.8	83	3.8
27	7.8	8.3	15	15	39	26	23	16	20	7.0	16	3.8
28	8.3	8.3	10	17	34	25	28	14	16	7.0	10	3.8
29	8.8	9.3	20	17	-	25	30	14	13	7.8	8.3	3.8
30	8.3	9.8	40	15	-------	23	24	14	61	8.8	7.8	3.8
31	8.3	-------	20	14	-------	39	-------	13	-------	7.0	7.0	-------
Total	236.1	291.8	343.4	729	1,774	1,162	1,405	778	633	392.0	339.7	154.1
Mean	7.62	9.73	11.1	23.5	63.4	37.5	46.8	25.1	21.1	12.6	11.0	5.14
Cfsm	0.358	0.457	0.521	1.10	2.98	1.76	2.20	1.18	0.991	0.592	0.516	0.241
In.	0.41	0.51	0.60	1.27	3.10	2.03	2.45	1.36	1.11	0.68	0.59	0.27

Calendar year 1960: Max 248 Min 5.0 Mean 19.0 Cfsm ——— ——— † -0.11
Water year 1960-61: Max 427 Min 3.8 Mean 22.6 Cfsm 1.06 In. 14.38

Peak discharge (base, 600 cfs).--Feb. 25 (10:30 p.m.) 714 cfs (6.37 ft); Apr. 13 (7:30 a.m.) 1,060 cfs (7.75 ft).

* Discharge measurement made on this day.
† Inflow from pumpage, in cubic feet per second, from Patuxent River basin. Pumpage plant on standby basis after August 1960; no pumpage during 1961 water year. Records furnished by Washington Suburban Sanitary Commission.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Dec. 13-30, Jan. 10 to Feb. 15.

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 210), 0.8 mile downstream from Sligo Branch and 1 mile west of Hyattsville, Prince Georges County.

Drainage area.--49.4 sq mi.

Records available.--July 1938 to September 1961. Monthly discharge only for July 1938 published in WSP 1302.

Gage.--Water-stage recorder. Datum of gage is 17.30 ft above mean sea level, adjustment of 1912. Prior to Oct. 22, 1938, wire-weight gage, Oct. 22, 1938, to Sept. 17, 1951, water-stage recorder, Sept. 17, 1951, to Aug. 29, 1952, staff gage and crest-stage gage, at same site and datum.

Average discharge.--23 years, 39.4 cfs (unadjusted).

Extremes.--Maximum discharge during year, 2,210 cfs Apr. 13 (gage height, 9.68 ft); minimum daily, 6.2 cfs Sept. 29-30.
1938-61: 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 no gage-height record, which are fair. Low flow regulated by storage at Burnt Mills Dam, 7 miles above station.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-19, Mar. 27-31, Apr. 2-9)

3.1	3.7	4.0	105
3.2	7.5	5.0	345
3.3	13	6.0	620
3.5	28	8.0	1,350
3.7	52		

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	16	69	14	365	22	65	131	63	50	28	12	15
2	15	18	13	109	22	58	63	84	*42	21	11	14
3	15	*15	13	54	20	*49	52	48	26	36	14	19
4	15	14	13	40	30	47	49	42	26	21	14	16
5	15	16	14	34	35	48	46	39	24	*19	13	14
6	16	16	14	30	35	58	43	58	23	47	19	13
7	16	19	14	*35	35	60	*40	92	27	24	40	28
8	15	14	*13	40	30	148	39	184	58	20	14	20
9	17	14	11	35	30	*169	44	*66	70	18	*52	14
10	17	74	10	30	*70	58	*283	58	52	17	56	13
11	16	26	90	25	65	47	55	122	52	15	16	12
12	14	19	12	25	46	43	97	123	26	*14	13	11
13	14	16	15	25	40	39	*1,200	100	22	44	12	11
14	14	17	18	28	130	63	*140	60	95	39	9.2	*12
15	14	20	18	131	146	44	90	47	140	19	8.6	14
16	14	19	18	79	174	38	106	43	*31	56	8.6	11
17	14	16	18	46	147	35	77	39	25	23	14	9.7
18	*13	14	16	a40	440	94	68	37	25	69	7.0	9.7
19	14	15	15	a35	506	149	65	36	25	21	6.6	10
20	163	14	15	a35	164	63	60	*34	22	17	34	23
21	21	15	25	a35	103	47	54	34	116	16	47	12
22	16	14	22	30	144	328	60	32	48	15	14	9.2
23	19	18	18	28	*388	194	57	30	26	101	239	8.0
24	18	16	15	25	119	79	55	30	22	*70	26	7.5
25	16	15	15	25	353	58	52	29	31	32	36	7.5
26	15	15	20	20	265	55	78	53	32	14	598	7.5
27	16	15	25	25	79	55	48	35	32	12	a80	6.6
28	24	15	20	30	73	54	81	29	23	11	a30	6.6
29	25	20	69	30	-	54	68	33	20	76	a20	*6.2
30	16	19	110	25	----	47	49	31	67	24	16	6.2
31	19	----	36	25	----	119	----	27	----	14	*16	----
Total	652	607	658.0	1,539	3,711	2,465	3,350	1,738	1,278	953	1,496.0	366.7
Mean	21.0	20.2	21.2	49.6	133	79.5	112	56.1	42.6	30.7	48.3	12.2
(†)	-0.01	-1.16	0	0	+0.04	0	-0.01	+1.12	0	0	0	0

Calendar year 1960: Max 865 Min 4.8 Mean 45.0 (†) -0.002
Water year 1960-61: Max 1,200 Min 6.2 Mean 51.5 (†) 0

Peak discharge (base, 1,250 cfs).--Apr. 13 (4:30 a.m.) 2,210 cfs (9.68 ft); Aug. 23 (5 a.m.) 1,260 cfs (7.77 ft); Aug. 26 (10 a.m.) 2,200 cfs (9.66 ft).

* Discharge measurement made on this day.
† Change in contents in Burnt Mills Reservoir, equivalent in cubic feet per second. Records furnished by Washington Suburban Sanitary Commission.
a No gage-height record;
Note.-- Stage-discharge relation affected by ice Dec. 2-4, 8-28, Jan. 6-13, Jan. 22 to Feb. 10.

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 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 62 ft (from topographic map).

Average discharge.--13 years, 20.1 cfs.

Extremes.--Maximum discharge during year, 852 cfs Apr. 13 (gage height, 4.32 ft); minimum, 0.7 cfs Aug. 19.
1948-61: 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 and August 1957.

Remarks.--Records good except those for periods of ice effect or doubtful 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 tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-20		Oct. 21 to Sept. 30			
0.6	3.2	0.4	0.6	1.2	54
.8	10	.5	1.7	1.5	113
1.0	24	.6	3.5	2.0	218
1.2	54	.8	10	3.0	456
1.5	113	1.0	24		

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	7.0	29	8.5	100	9.5	47	70	26	15	6.5	4.0	3.5
2	7.0	13	7.6	34	9.0	42	36	45	42	6.2	2.7	4.0
3	5.7	11	8.0	23	8.5	34	30	21	64	7.2	3.1	4.9
4	5.1	9.5	8.0	19	12	32	29	19	15	8.0	4.2	6.9
5	5.4	*10	6.8	16	13	30	26	18	10	5.9	4.2	3.5
6	8.1	11	6.5	15	14	29	24	25	9.5	13	4.0	3.1
7	9.0	9.5	6.8	16	*15	28	22	26	8.0	8.5	3.3	3.5
8	6.5	8.5	7.2	15	19	67	22	24	8.0	7.2	2.5	3.5
9	10	9.0	6.5	13	24	62	22	38	8.0	5.6	2.7	3.8
10	8.7	21	6.8	12	35	33	131	43	66	4.2	5.6	3.3
11	6.1	12	5.8	12	43	29	36	83	25	3.5	3.1	2.7
12	5.1	10	5.0	12	36	27	36	63	11	3.5	3.2	2.4
13	5.1	9.5	7.0	12	29	24	396	36	9.5	48	2.7	2.3
14	5.4	8.5	7.5	12	56	40	69	29	8.5	50	1.9	2.4
15	6.1	8.5	8.0	47	82	28	50	23	14	11	1.7	9.4
16	6.1	8.5	8.5	31	108	*24	55	20	9.0	7.6	1.8	3.3
17	5.1	7.6	9.0	19	113	22	36	16	9.0	7.0	1.7	2.5
18	4.4	7.2	7.5	16	215	28	34	14	8.0	11	1.2	2.4
19	4.7	8.0	6.5	14	138	108	30	14	*5.9	5.9	1.6	2.5
20	90	8.0	6.0	12	69	38	28	14	4.8	5.3	2.9	3.8
21	17	7.2	17	13	71	30	26	13	36	4.0	10	3.3
22	14	6.8	13	12	75	161	28	11	16	4.0	3.8	2.4
23	12	7.6	9.0	12	171	96	24	10	9.0	4.0	8.4	2.4
24	10	8.0	7.5	11	73	50	23	10	8.5	4.0	4.8	2.2
25	8.0	7.2	7.5	10	161	36	22	10	9.6	5.6	4.2	1.9
26	9.0	7.6	11	9.0	85	33	22	17	34	2.9	223	1.2
27	10	7.6	18	11	48	29	19	14	13	2.7	19	1.3
28	14	6.8	11	10	50	28	28	11	10	2.2	8.5	2.1
29	15	13	22	9.5	-	27	27	10	8.0	8.4	5.6	1.6
30	11	15	52	9.5	-------	24	22	13	7.2	13	4.0	1.7
31	10	-------	21	9.0	-------	58	-------	9.0	-------	8.3	3.5	-------
Total	340.6	306.1	332.5	566.0	1782.0	1344	1423	725.0	501.5	284.2	352.9	93.8
Mean	11.0	10.2	10.7	18.3	63.6	43.4	47.4	23.4	16.7	9.17	11.4	3.13
Cfsm	0.659	0.611	0.641	1.10	3.81	2.60	2.84	1.40	1.00	0.549	0.683	0.187
In.	0.76	0.68	0.74	1.26	3.97	2.99	3.17	1.61	1.12	0.63	0.79	0.21

Calendar year 1960: Max 764 Min 0.2 Mean 20.5 Cfsm 1.23 In. 16.70
Water year 1960-61: Max 396 Min 1.2 Mean 22.1 Cfsm 1.32 In. 17.93

Peak discharge (base, 400 cfs).--Feb. 25 (7 p.m.) 468 cfs (3.05 ft); Apr. 13 (8 a.m.) 852 cfs (4.32 ft); June 10 (6:45 p.m.) 522 cfs (3.26 ft); Aug. 26 (2 p.m.) 572 cfs (3.45 ft).

* Discharge measurement made on this day

Note.--Stage-discharge relation affected by ice Dec. 11-21, 23-25, Dec. 28 to Jan. 1, Jan. 10, 11, Jan. 20 to Feb. 7 (doubtful gage-height record Feb. 4-7).

1-6580. Mattawoman Creek near Pomonkey, Md.

Location.--Lat 38°35'45", long 77°03'25", on left bank 50 ft downstream from State Highway 227, 80 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 1961.

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

Average discharge.--11 years (1950-61), 59.4 cfs.

Extremes.--Maximum discharge during year 1,280 cfs Feb. 19 (gage height, 5.03 ft); no flow many days in July and August.
1949-61: 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, which are fair.

Rating tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 14		Apr. 15 to Sept. 30			
1.6	12	1.09	0	2.0	56
3.0	172	1.2	.1	2.5	97
3.5	255	1.3	.4	3.0	144
4.0	390	1.4	1.2	3.5	214
4.5	690	1.5	4.2	4.0	335
5.0	1,240	1.6	12	4.5	560

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	27	70	42	b240	a37	166	225	41	31	17	3.9	0
2	23	74	33	b430	a35	148	204	73	30	12	2.7	0
3	22	50	30	b440	a34	125	121	56	27	8.6	.8	0
4	19	40	27	195	a40	106	90	*42	31	9.5	.3	52
5	18	37	27	121	a50	94	74	38	25	6.8	.1	54
6	18	37	27	92	a49	84	64	42	21	12	0	27
7	21	*34	26	88	62	77	54	56	18	19	0	16
8	21	33	26	84	67	112	48	52	16	15	0	8.6
9	23	32	24	72	82	249	46	42	15	8.6	0	4.7
10	32	38	23	b50	106	236	268	50	16	4.2	.2	3.8
11	27	52	b22	b47	130	128	355	56	38	2.1	2.7	2.7
12	22	44	b21	b47	131	96	216	124	27	1.1	1.0	1.2
13	19	37	b21	44	127	78	597	123	19	11	.1	.3
14	18	33	b23	45	135	87	900	102	15	113	0	0
15	18	32	b27	95	176	88	358	72	16	142	0	0
16	17	32	b32	182	313	86	172	50	29	49	0	0
17	17	31	b32	169	486	69	133	39	19	32	0	0
18	15	29	b31	123	*682	59	99	34	14	25	0	0
19	14	29	29	89	1,160	185	81	32	9.5	21	0	0
20	70	27	26	b65	784	210	71	31	6.0	16	0	0
21	132	27	34	b65	430	*132	63	29	15	12	.8	0
22	66	26	48	b55	305	257	61	27	76	9.5	8.8	0
23	39	27	b37	b55	406	522	56	25	50	5.3	9.5	0
24	33	27	b27	a50	534	498	52	24	69	*1.8	12	0
25	29	27	b26	a48	460	255	48	22	47	3.7	4.7	0
26	26	26	29	a44	450	139	43	65	34	7.6	12	0
27	25	26	38	a44	290	111	40	124	45	1.8	16	0
28	38	26	b45	a41	175	92	41	60	39	.5	8.6	0
29	90	29	b40	a39	-	83	54	39	30	.2	2.7	0
30	69	49	110	a36	-------	71	44	37	22	.2	.7	0
31	46	-------	137	a36	-------	80	-------	32	-------	.1	.1	-------
Total	1,054	1,081	1,120	3,231	7,736	4,723	4,678	1,639	849.5	567.6	87.7	170.3
Mean	34.0	36.0	36.1	104	276	152	156	52.9	28.3	18.3	2.83	5.68
Cfsm	0.589	0.624	0.626	1.80	4.78	2.63	2.70	0.917	0.490	0.317	0.049	0.098
In.	0.68	0.70	0.72	2.08	4.99	3.04	3.02	1.06	0.55	0.37	0.06	0.11

Calendar year 1960: Max 1,400 Min 0 Mean 63.6 Cfsm 1.10 In. 15.00
Water year 1960-61: Max 1,160 Min 0 Mean 73.8 Cfsm 1.28 In. 17.38

Peak discharge (base, 400 cfs).--Jan. 2 (10 p.m.) 582 cfs (4.36 ft); Feb. 19 (6 p.m.) 1,280 cfs (5.03 ft); Feb. 24 (4 p.m.) 554 cfs (4.32 ft); Mar. 23 (8-10 p.m.) 596 cfs (4.38 ft); Apr. 14 (8 a.m.) 1,150 cfs (4.93 ft).

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

1-6610. Chaptico Creek at Chaptico, Md.

Note.--Records for the 1961 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

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 1961.

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

Average discharge.--15 years, 25.2 cfs.

Extremes.--Maximum discharge during year, 712 cfs Jan. 1 (gage height, 7.66 ft); minimum, 2.1 cfs Sept. 24 (gage height, 1.31).
1946-61: 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.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	2.1	2.5	106
1.4	4.6	4.0	241
1.5	8.4	5.0	343
1.7	20	7.0	580
1.9	38		

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	12	35	15	411	a 18	45	112	32	15	9.3	5.2	3.8
2	9.3	26	13	128	a 17	40	67	88	14	8.4	4.9	3.5
3	8.8	19	12	64	b 17	36	46	48	12	7.9	5.2	4.0
4	7.9	16	12	43	b 84	34	38	30	12	7.5	6.3	8.8
5	7.9	15	12	33	b 75	34	32	26	11	7.9	5.6	5.2
6	8.8	19	12	28	b 39	32	29	30	11	26	5.2	4.0
7	17	*16	12	26	b 30	30	26	31	*11	18	4.9	3.8
8	11	13	12	23	b 135	75	25	26	12	12	4.6	4.0
9	11	13	11	20	b 180	101	24	22	11	9.8	5.2	3.8
10	10	52	11	b 18	143	67	50	19	14	7.9	6.7	3.8
11	8.8	60	12	b 18	105	45	35	180	21	7.1	5.9	3.5
12	7.9	29	82	18	81	36	31	237	13	6.7	10	3.2
13	7.5	21	b 49	18	70	32	140	117	10	7.5	5.9	3.0
14	7.9	19	b 25	19	91	54	80	68	11	26	4.3	3.2
15	7.9	17	b 20	86	101	44	49	46	13	11	4.0	4.0
16	8.4	17	24	80	99	50	48	39	11	7.9	4.0	3.8
17	8.4	16	24	56	85	38	40	29	9.8	6.7	4.0	3.2
18	7.9	14	18	37	84	34	33	24	9.3	6.3	3.8	3.8
19	8.4	14	b 15	46	112	82	29	23	8.4	6.3	3.8	5.6
20	30	14	*b 14	b 120	74	*62	26	22	7.9	5.9	15	5.6
21	17	14	39	b 51	66	44	25	20	34	5.6	20	4.9
22	11	13	b 44	b 26	60	100	25	19	45	5.2	8.4	3.8
23	9.8	14	b 19	b 24	199	152	24	18	21	5.2	6.7	3.2
24	9.8	14	b 16	b 19	126	86	24	17	48	8.8	6.3	3.0
25	8.4	14	17	b 15	87	63	23	16	21	11	5.6	*3.0
26	8.4	13	19	a 12	69	46	22	39	17	6.7	7.5	2.8
27	8.8	13	26	a 12	49	39	20	57	20	5.6	9.8	2.8
28	97	12	22	a 13	46	36	24	26	16	5.2	6.3	2.8
29	101	15	21	a 14	-	33	40	19	13	5.2	4.9	2.8
30	38	19	75	a 15		30	24	20	11	6.3	3.8	2.8
31	24		57	a 17		45		16		5.6	4.0	
Total	540.0	586	760	1,510	2,342	1,645	1,211	1,404	483.4	276.5	197.8	115.5
Mean	17.4	19.5	24.5	48.7	83.6	53.1	40.4	45.3	16.1	8.92	6.38	3.85
Cfsm	0.725	0.813	1.02	2.03	3.48	2.21	1.68	1.89	0.671	0.372	0.266	0.160
In.	0.84	0.91	1.18	2.34	3.63	2.55	1.88	2.18	0.75	0.43	0.31	0.18

Calendar year 1960: Max 1,550 Min 3.8 Mean 30.7 Cfsm 1.28 In. 17.41
Water year 1960-61: Max 411 Min 2.8 Mean 30.3 Cfsm 1.26 In. 17.18

Peak discharge (base, 400 cfs).--Jan. 1 (12:30 p.m.) 712 cfs (7.66 ft); May 11 (11:45 p.m.) 508 cfs (6.50 ft).

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

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 1961.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,353.11 ft above mean sea level, unadjusted. Prior to Aug. 1, 1946, wire-weight gage at bridge 200 ft upstream at same datum.

Average discharge.--20 years, 289 cfs.

Extremes.--Maximum discharge during year, 6,680 cfs Aug. 12 (gage height, 9.17 ft); minimum, 16 cfs Sept. 30 (gage height, 1.93 ft).
1941-61: 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.

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

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

(Shifting-control method used Mar. 23-27)

1.9	13	3.0	330
2.0	24	4.0	900
2.2	57	5.0	1,620
2.4	103	6.0	2,520
2.7	198	8.0	4,970

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	46	159	86	330	114	758	606	628	242	86	81	32
2	42	114	79	278	106	639	524	551	735	66	989	42
3	39	128	72	234	109	606	458	458	1,420	103	1,440	48
4	37	109	75	191	123	800	441	380	1,100	96	716	37
5	35	98	81	184	117	1,520	380	311	680	77	395	32
6	35	180	89	173	109	1,360	405	463	507	169	282	29
7	42	166	96	218	106	998	360	568	380	166	194	35
8	37	143	91	395	106	942	345	*600	365	98	146	51
9	39	*156	75	306	111	1,640	330	502	529	75	131	34
10	59	306	70	264	111	1,050	666	425	1,050	* 64	159	26
11	46	370	68	238	106	818	893	340	837	55	405	24
12	35	269	72	210	103	824	728	311	578	50	4,410	22
13	29	206	86	187	111	662	752	269	474	77	970	21
14	26	169	81	176	166	584	907	226	446	134	518	20
15	24	146	79	238	446	485	1,230	198	562	81	345	28
16	22	128	81	306	375	410	1,130	335	365	79	242	35
17	22	117	84	269	380	320	907	242	278	81	191	24
18	20	101	77	251	1,280	296	704	230	230	93	166	20
19	21	91	77	234	2,770	812	644	395	191	75	128	21
20	75	84	75	202	3,190	921	644	296	156	79	111	26
21	84	77	86	b 210	1,240	998	600	287	206	106	98	55
22	50	72	*91	b 185	1,110	2,460	770	282	198	91	86	39
23	51	72	86	b 175	2,200	1,140	865	234	140	86	75	28
24	57	70	84	b 170	2,200	794	680	198	114	* 70	70	24
25	48	66	84	156	2,140	617	556	173	103	81	72	21
26	41	61	98	143	2,580	496	935	*191	93	66	93	20
27	50	57	493	143	* 1,260	*430	812	222	91	57	64	19
28	68	*55	360	137	1,050	400	668	184	79	44	* 51	18
29	53	84	320	125	-	644	680	162	68	78	44	18
30	46	125	556	123	-------	496	584	176	70	89	39	17
31	46	-------	375	117	-------	441	-------	140	-------	61	35	---------
Total	1,325	3,979	4,227	6,568	23,819	25,361	20,204	9,977	12,287	2,633	12,746	866
Mean	42.7	133	136	212	851	818	673	322	410	84.9	411	28.9
Cfsm	0.319	0.993	1.01	1.58	6.35	6.10	5.02	2.40	3.06	0.634	3.07	0.216
In.	0.37	1.10	1.17	1.82	6.61	7.04	5.61	2.77	3.41	0.73	3.54	0.24

Calendar year 1960: Max 5,030 Min 17 Mean 246 Cfsm 1.84 In. 24.94
Water year 1960-61: Max 4,410 Min 17 Mean 340 Cfsm 2.54 In. 34.41

Peak discharge (base, 2,000 cfs).--Feb. 19 (9 p.m.) 5,450 cfs (8.34 ft); Feb. 26 (1:30 a.m.) 3,730 cfs (7.06 ft); Mar. 22 (5 a.m.) 3,060 cfs (6.58 ft); Aug. 2 (9 p.m.) 2,350 cfs (5.83 ft); Aug. 12 (6 a.m.) 6,680 cfs (9.17 ft).

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

Reservoirs in Monongahela River Basin

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 1961 (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, 91,500 acre-ft June 8 (elevation, 2,461.60 ft); minimum, 55,000 acre-ft Dec. 31 (elevation, 2,451.10 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. Record furnished by Pennsylvania Electric Co.

Month-end elevation and contents, water year October 1960 to September 1961

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,454.10	64,700	- - - -
Oct. 31	2,452.60	59,800	- 4,900
Nov. 30	2,451.65	56,700	- 3,100
Dec. 31	2,451.10	55,000	- 1,700
Calendar year 1960			-11,200
Jan. 31	2,451.75	57,100	+ 2,100
Feb. 28	2,457.50	76,400	+19,300
Mar. 31	2,459.85	85,000	+ 8,600
Apr. 30	2,460.90	88,900	+ 3,900
May 31	2,460.75	88,300	- 600
June 30	2,460.90	88,900	+ 600
July 31	2,460.40	87,000	- 1,900
Aug. 31	2,459.45	83,500	- 3,500
Sept. 30	2,457.50	76,400	- 7,100
Water year 1960-61			+11,700

† Elevation at 12 p.m.

3-765. Youghiogheny River at Friendsville, Md.

Location.--Lat 39°39'17", long 79°24'27", on left bank 0.6 mile upstream from bridge on State Highway 42 at Friendsville, Garrett County, and 1¼ miles upstream from Bear Creek.

Drainage area.--295 sq mi.

Records available.--August 1898 to December 1904 and October 1940 to September 1961 in reports of Geological Survey. October, November 1940 monthly discharge only, published in WSP 1305. September 1922 to September 1926 (gage heights only) in reports of Pennsylvania Department of Forests and Waters.

Gage.--Water-stage recorder. Datum of gage is 1,487.33 ft above mean sea level, datum of 1929. Aug. 17, 1898, to Dec. 31, 1904, and Sept. 1, 1922, to Sept. 30, 1926, wire-weight and chain gages at bridge 0.6 mile downstream at datum 16.24 and 16.29 ft lower, respectively.

Average discharge.--27 years (1898-1904, 1940-61), 648 cfs (adjusted for storage since 1940).

Extremes.--Maximum discharge during year, 7,180 cfs Feb. 19 (gage height, 6.70 ft); minimum, 27 cfs Sept. 30 (gage height, 1.84 ft); minimum daily, 47 cfs Oct. 16, Sept. 17, 24.

1898-1904, 1940-61: 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 or no gage-height record, which are fair. Low and medium flow regulated since 1925 by Deep Creek Reservoir (see preceding page).

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.0	43	2.4	108	2.8	270	3.5	870	5.0	3,310	
2.2	69	2.6	174	3.0	400	4.0	1,570	6.0	5,550	

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	141	305	163	588	274	1,620	1,180	1,470	450	342	264	197
2	62	347	137	516	a280	1,340	1,030	1,450	778	134	852	62
3	172	316	a122	592	231	1,220	1,150	1,210	2,410	248	2,490	72
4	216	312	a130	510	273	1,550	1,150	1,050	2,530	257	1,340	71
5	219	179	137	a390	170	2,790	1,040	916	1,710	246	615	192
6	175	235	125	a300	194	2,740	1,070	694	1,150	357	432	203
7	174	375	141	a330	336	2,190	1,010	960	1,040	499	375	193
8	83	344	152	552	308	1,940	677	1,010	817	232	266	208
9	54	344	a160	597	370	3,030	594	884	795	171	206	72
10	*148	442	a175	507	396	2,410	1,320	814	1,080	*298	324	54
11	198	698	a165	a470	320	1,550	2,090	726	1,990	230	421	186
12	185	432	a230	a440	192	1,630	1,740	660	1,550	211	4,000	193
13	198	344	a260	a380	256	1,610	1,760	517	1,180	243	1,480	194
14	168	394	a240	324	392	1,440	1,810	394	925	356	824	182
15	97	360	a250	416	924	1,220	2,360	455	856	198	624	189
16	47	338	a220	562	922	1,100	1,990	751	1,080	150	507	57
17	99	318	170	518	908	953	2,050	752	864	276	460	47
18	144	298	a130	486	2,030	682	1,650	690	562	318	410	174
19	170	179	a245	470	5,370	1,550	1,470	924	379	260	226	194
20	172	148	a245	414	5,250	2,070	1,520	590	470	152	163	241
21	274	234	a260	a360	2,440	1,810	1,180	472	422	250	275	236
22	106	241	a235	a245	1,910	4,000	1,440	762	501	170	217	262
23	76	242	a185	a240	3,650	2,560	1,810	498	513	141	287	102
24	154	141	a150	a250	4,070	1,950	1,630	379	390	*264	276	47
25	234	211	a134	a220	3,920	1,250	1,400	330	211	242	275	184
26	*163	122	144	b220	4,490	1,060	2,510	*386	181	243	156	166
27	197	101	552	b210	2,510	*1,190	1,910	456	305	212	106	229
28	234	*95	541	b200	2,120	1,090	1,520	386	296	202	*230	228
29	101	104	540	b190	–	1,510	1,580	344	275	131	222	221
30	81	197	1,000	*192	--------	1,240	1,070	344	278	188	219	84
31	165	--------	760	322	--------	1,090	--------	390	--------	241	178	--------
Total	4,707	8,396	8,098	12,011	44,506	53,385	44,711	21,664	25,988	7,462	18,720	4,740
Mean	152	280	261	387	1,590	1,722	1,490	699	866	241	604	158
†	-79.7	-51.0	-28.0	+33.2	+349	+139	+65.5	-9.1	+9.4	-30.2	-57.0	-119
Mean‡	72.3	229	233	420	1,939	1,861	1,556	690	875	211	547	39
Cfsm‡	0.245	0.776	0.790	1.42	6.57	6.31	5.27	2.34	2.97	0.715	1.85	0.132
In ‡	0.28	0.87	0.91	1.64	6.84	7.28	5.88	2.70	3.31	0.82	2.13	0.15

Calendar year 1960:	Max	7,830	Min	35	Mean	535	Mean‡	520	Cfsm‡	1.76	In.‡	23.98
Water year 1960-61:	Max	5,370	Min	47	Mean	697	Mean‡	713	Cfsm‡	2.42	In.‡	32.81

* 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.
a No gage-height record.
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 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 2,090 ft (from topographic map).

Average discharge.--14 years, 117 cfs.

Extremes.--Maximum discharge during year, 3,130 cfs Feb. 25 (gage height, 6.20 ft); Minimum, 3.4 cfs Sept. 30 (gage height 1.05 ft); minimum daily, 3.8 cfs Sept. 29, 30.
1947-61: 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; minimum 0.1 cfs Sept. 29, 1959 (gage height 0.84 ft result of regulation from unknown source); minimum daily 0.3 cfs Sept. 29, 1959.

Remarks.--Records fair prior to Sept. 15, good thereafter.

Rating table, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.0	1.9	1.5	42	3.0	570
1.1	5.4	1.7	77	4.0	1,230
1.2	11	2.0	149	5.0	2,050
1.3	19	2.5	319		

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	10	45	21	99	30	345	283	299	197	42	47	8.4
2	9.0	33	19	88	30	*291	228	253	336	32	106	7.9
3	9.0	36	14	79	29	291	196	202	485	58	205	7.9
4	9.6	28	17	75	29	729	208	166	367	39	121	7.3
5	8.4	23	19	75	28	1,030	174	*144	242	28	73	7.3
6	8.4	41	23	75	28	703	208	180	192	274	58	7.9
7	9.6	37	22	106	28	458	180	211	157	141	47	14
8	8.4	28	16	186	28	438	166	192	133	77	38	14
9	7.3	27	9.6	133	28	642	152	160	152	55	62	12
10	7.9	34	10	111	28	403	265	141	264	44	68	9.6
11	7.3	39	11	106	28	353	345	121	169	36	56	7.9
12	9.0	30	13	92	28	408	323	121	123	30	152	6.3
13	6.8	26	15	81	30	336	275	128	155	42	88	5.4
14	5.4	25	16	86	52	291	427	106	169	111	55	5.0
15	5.8	23	17	136	200	249	648	92	189	50	42	5.4
16	7.3	21	18	192	180	208	1,080	139	123	48	37	5.4
17	5.0	20	19	133	180	174	624	104	97	47	33	5.0
18	4.6	18	18	101	370	166	408	95	81	60	29	4.2
19	5.0	18	16	88	1,320	423	358	169	69	38	26	4.6
20	9.6	16	19	80	885	433	345	126	60	33	24	6.3
21	12	16	23	82	438	332	303	109	102	29	24	14
22	12	17	*25	72	413	423	332	146	126	26	22	9.0
23	9.0	16	26	64	1,190	311	403	116	73	40	19	6.8
24	9.6	14	28	56	1,100	319	291	97	58	58	18	5.8
25	9.0	* 14	32	50	1,690	367	288	*84	50	34	18	5.0
26	9.0	14	38	*44	1,280	362	624	113	45	48	20	4.6
27	12	13	136	40	606	303	328	136	42	30	15	5.0
28	17	13	109	37	501	279	283	116	36	23	13	4.6
29	14	16	92	35	-	336	303	95	*32	214	11	38
30	12	27	121	33	---------	235	253	95	36	118	*10	3.8
31	11	---------	99	31	---------	211	---------	77	---------	62	10	---------
Total	280.0	728	1,061.6	2,666	10,777	11,849	10,301	4,333	4,360	1,967	1,547	214.2
Mean	9.03	24.3	34.2	86.0	385	382	343	140	145	63.5	49.9	7.14
Cfsm	0.144	0.389	0.547	1.38	6.16	6.11	5.49	2.24	2.32	1.02	0.798	0.114
In.	0.17	0.43	0.63	1.59	6.41	7.05	6.13	2.58	2.59	1.17	0.92	0.13

Calendar Year 1960: Max 2,050 Min 3.6 Mean 102 Cfsm 1.63 In. 22.10
Water year 1960-61: Max 1,690 Min 3.8 Mean 137 Cfsm 2.19 In. 29.80

Peak discharge (base, 1,000 cfs).--Feb. 19 (6 p.m.) 1,980 cfs (4.92 ft); Feb. 25 (8:30 p.m.) 3,130 cfs (6.20 ft); Mar. 4 (11 p.m.) 1,510 cfs (4.36 ft); Apr. 16 (12:30 p.m.) 1,440 cfs (4.27 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 10-28, Jan. 20 to Feb. 19 (no gage-height record Feb. 4-13).

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 1961.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 2,240 ft (from topographic map).

Average discharge.--29 years, 38.4 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,400 cfs Feb. 25 (gage height, 5.18 ft); maximum gage height, 6.12 ft Feb. 19 (ice jam); minimum discharge, 0.32 cfs Sept. 29, 30 (gage height 1.08 ft).
1932-61: 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 discharge, 0.08 cfs part of each day Sept. 1-4, 1953, Sept. 6-8, 1957.

Remarks.--Records good except those for periods of ice effect, which are fair, and those for periods of 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 tables, water year 1960-61, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 19				Feb. 20 to Sept. 30					
1.1	.64	1.6	12	1.08	.32	1.5	7.0	2.6	127
1.2	1.6	1.8	23	1.1	.41	1.6	10	3.0	231
1.3	2.8	2.0	40	1.2	1.2	1.8	22	3.5	425
1.4	4.6	2.3	75	1.3	2.5	2.0	39	4.0	671
1.5	7.4	2.6	127	1.4	4.4	2.3	75	5.0	1,270

Note.--Same as following table above 2.60 ft.

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	3.2	14	3.5	12	14	125	88	68	29	4.4	6.7	1.3
2	2.6	4.9	3.2	12	14	*100	71	57	44	4.2	6.7	1.3
3	2.2	4.3	3.0	11	15	88	66	49	86	6.0	19	1.4
4	2.5	3.5	2.8	11	15	226	68	42	100	4.4	13	1.2
5	2.5	3.0	3.7	11	13	407	63	*35	80	3.6	9.4	.83
6	2.1	5.2	4.3	11	10	285	63	41	60	74	7.7	.83
7	2.1	4.3	4.1	17	9.8	194	56	46	47	27	6.0	11
8	2.1	3.3	2.5	34	9.8	175	51	44	36	18	4.0	6.2
9	2.2	4.1	2.1	28	11	165	47	39	44	13	3.2	2.8
10	1.8	6.6	1.6	24	10	129	58	39	60	9.8	4.9	1.9
11	1.2	5.8	1.7	22	9.0	115	74	34	38	7.7	4.2	1.4
12	1.4	4.9	2.2	20	8.2	127	90	47	31	6.7	8.8	1.0
13	1.6	3.9	3.5	16	7.1	115	92	67	27	8.8	10	1.1
14	1.2	4.1	3.3	18	14	100	104	60	43	9.4	4.2	.83
15	1.1	4.1	3.2	29	59	84	230	55	44	6.2	3.0	.83
16	1.0	3.5	2.4	49	56	70	681	61	32	5.4	2.4	1.0
17	1.0	3.2	2.5	42	56	57	315	47	27	6.0	2.1	.68
18	1.0	2.6	2.0	37	125	48	175	41	23	5.4	1.8	.61
19	1.1	2.6	2.2	35	620	120	129	54	19	4.0	1.4	.54
20	1.4	2.4	2.2	30	359	145	111	41	16	4.2	1.3	.91
21	1.6	2.0	2.5	32	168	127	104	37	22	3.8	1.1	4.7
22	1.6	2.0	3.1	30	150	111	105	37	19	3.4	1.0	2.1
23	1.4	*2.0	3.3	28	339	92	127	31	13	3.0	1.0	1.1
24	1.4	2.0	3.4	26	434	86	105	26	11	4.0	1.1	1.1
25	1.4	1.8	3.5	24	728	93	98	*23	10	3.4	25	.75
26	1.2	1.8	3.7	22	521	132	172	27	8.0	6.2	13	.41
27	1.4	1.7	13	*22	237	180	125	25	8.0	*3.8	6.5	.36
28	1.8	1.4	11	21	172	*188	102	22	7.0	2.4	4.0	.36
29	1.7	3.0	*11	18	-	150	87	20	*6.5	29	3.0	.32
30	1.4	4.9	15	15	------	107	68	19	5.2	14	*2.7	.32
31	1.6	------	12	14	------	88	------	16	------	7.7	1.9	------
Total	51.8	112.9	137.5	721	4,183.9	4,229	3,725	1,250	995.7	308.9	180.1	49.18
Mean	1.67	3.76	4.44	23.3	149	136	124	40.3	33.2	9.96	5.81	1.64
Cfsm	-	-	-	-	-	-	-	-	-	-	-	-
In.	-	-	-	-	-	-	-	-	-	-	-	-

Calendar year 1960: Max 962 Min 0.35 Mean 34.7 Cfsm 1.42 In. 19.30
Water year 1960-61: Max 728 Min 0.32 Mean 43.7 Cfsm 1.78 In. 24.20

Peak discharge (base, 450 cfs).--Feb. 19 (6:30 a.m.) 750 cfs (6.12 ft); Feb. 25 (8:30 p.m.) 1,400 cfs (5.18 ft); Mar. 4 (10 p.m.) 510 cfs (3.68 ft); Apr. 16 (12 m) 1,020 cfs (4.62 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 11-20 and Jan. 21 to Feb. 19 (no gage-height record Dec. 21-29).

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 1961

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.	3.83	1955-61	9-13-61	1.13
4795	Mill Creek at Stanton, Del.	Lat 39°42'50", long 75°40'00", at highway bridge, 1.2 miles west of Stanton.	12.4	1931-34‡ 1955-61	9-13-61	3.75
4814.4	Wilson Run at Rockland, Del.	Lat 39°48'04", long 75°35'01", at bridge on private road, 200 ft north of State Highway 232, 0.5 mile northwest of Rockland.	3.05	1957-61	9-13-61	1.72
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.	12.4	1955-61	9-14-61	6.29
Broadkill River basin						
4843.7	Pemberton Branch near Milton, Del.	Lat 38°46'26", long 75°20'29", at highway bridge, 1.5 miles west of Milton.	6.68	1955-61	9-12-61	5.84
4844	Beaverdam Creek near Milton, Del.	Lat 38°45'41", long 75°16'03", at highway bridge, 2.5 miles east of Milton.	6.10	1955-61	9-12-61	8.95
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.	8.78	1955-61	9-12-61	2.68
Nanticoke River basin						
4871.2	Tyndall Branch near Hardscrabble, Del.	Lat 38°37'54", long 75°29'30", at highway bridge, 1.4 miles northeast of Hardscrabble and 6.5 miles east of Seaford.	12.7	1955-61	9-12-61	4.16
4873	Butler Mill Branch near Woodland, Del.	Lat 38°37'56", long 75°39'35", at highway bridge, 2.2 miles north of Woodland.	6.96	1955-61	9-12-61	2.95

‡ Operated as a continuous-record gaging station.
* Also a crest-stage station.

Discharge measurements made at low-flow partial-record stations during water year 1961--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Nanticoke River basin--Continued				
4877	Chipman Pond Branch near Laurel, Del. b/	Lat 38°34'39", long 75°31'42", at highway bridge, 2.9 miles northeast of Laurel	8.55	1955-61	9-12-61	2.46
		Patapsco River basin				
5862	Beaver Run at Finksburg, Md.	Lat 39°29'44", long 76°54'09", at highway bridge 0.7 mile northwest of Finksburg.	12.7	1957-59	9-28-61	3.25
5866	Morgan Run near Gamber, Md.	Lat 39°27'58", long 76°58'16", at bridge on Klee Mill Road, 1.9 miles west of Gamber.	26.0	1957-59 1961	9-28-61	5.91
		Patuxent River basin				
5912	Cattail Creek tributary at Carrs Mill, Md.	Lat 39°18'57", long 77°03'41", at bridge on State Highway 96, 0.5 mile west of Carrs Mill.	3.93	1956-59 1961	9- 6-61	1.85
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.	7.03	1956-59 1961	9- 6-61	2.44
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.	11.4	1956-59 1961	9- 6-61	4.62
		Potomac River basin				
6391	Piney Creek at Taneytown, Md.	Lat 39°39'56", long 77°10'04", 50 ft northwest of culvert under State Highway 194, 0.6 mile northeast of Taneytown.	22.9	1956-59 1961	8-15-61 9-28-61	.45 .05
6394	Big Pipe Creek at Bachman Mills, Md.	Lat 39°39'39", long 76°56'54", at bridge on State Highway 496, at Bachman Mills.	9.39	1956-59 1961	8-15-61 9-28-61	5.64 4.81
6394.7	Meadow Branch near Uniontown, Md.	Lat 39°36'32", long 77°06'52", at bridge on State Highway 84, 1.1 miles north of Uniontown.	12.6	1956-59 1961	8-15-61	3.79
6401	Wolfpit Branch at Linwood, Md.	Lat 39°33'57", long 77°08'44", at bridge on State Highway 75, ¼ mile northwest of Linwood.	2.01	1956-59 1961	9-28-61	.87

b Prior to 1958 published as "Elliot Pond Branch".

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 1961

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.	9.35	1931-33‡ 1943-57‡ 1958-61	6-15-61	4.26	306
		Murderkill River basin					
*4840	Murderkill River near Felton, Del.	Lat 38°58'33", long 75°34'03", at bridge on U. S. Highway 13, 2.2 miles south of Felton.	13.6	1932-33‡ 1952-61	1- 1-61	3.39	292
		Indian River basin					
*4845.5	Pepper Creek at Dagsboro, Del.	Lat 38°32'50", long 75°14'40", on right abutment of bridge on State Highway 26, at Dagsboro.	8.78	1960-61	2- 8-61	4.62	(†)
		Nanticoke River basin					
4880	Holly Ditch near Laurel, Del.	Lat 38°32'20", long 75°35'55", 10 ft upstream from culvert, 1½ miles southwest of Laurel.	2.19	1951-56‡ 1959-61	2- 8-61	3.30	(†)
		Choptank River basin					
4904.7	Tappahanna Ditch near Hartly, Del.	Lat 39°08'07", long 75°41'30", 100 ft downstream from bridge on State Highway 103, 2.7 miles southeast of Hartly.	5.93	1952-61	4-13-61	8.57	(†)
4905	Culbreth Marsh Ditch near Chapeltown, Del.	Lat 39°04'45", long 75°41'05", 40 ft downstream from bridge on State Highway 223, 1.6 miles south of Chapeltown.	11.6	1951-56‡ 1957-61	2-18-61	7.64	(†)
		Wye River basin					
4925	Sallie Harris Creek near Carmichael, Md.	Lat 38°57'55", long 76°06'30", 50 ft upstream from bridge on U. S. Highway 50, 2.0 miles northeast of Carmichael, Md., and 2.2 miles northwest of Wye Mills.	8.09	1952-56‡ 1957-61	2-18-61	3.89	(†)
		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.	12.5	1952-56‡ 1957-61	2-18-61	7.35	(†)

* Also a low-flow partial-record station.
† Discharge not determined.
‡ Operated as a continuous-record gaging station.

Annual maximum discharge at crest-stage partial-record stations during water year 1961--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		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, and 5½ miles above mouth.	11.4	1932-58‡ 1959-61	2-25-61	4.20	410
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	9.12	1958-61	1961	<3.98	(†)
5892.4	Gwynns Falls at McDonogh,	Lat 39°23'28", long 76°45'56", at bridge on McDonogh.	19.3	1958-61	1961	<5.04	(†)
5894	Jones Falls at Brooklandville, Md.	Lat 39°24'51", long 76°40'04", at bridge on State Highway 25 at Brooklandville.	19.7	1958-61	1961	<3.11	(†)
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 downstream from Slaughterhouse Branch and Sorrento.	25.2	1958-61	1961	<8.20	(†)
		Patuxent River basin					
5940	Little Patuxent River at Savage Md.	Lat 39°08'00", long 76°48'58, 400 ft below bridge on U. S. Highway 1, half a mile southeast of Savage, and 1 mile below Middle Patuxent.	98.4	1940-58‡ 1959-61	4-13-61	8.71	3,560
5944	Dorsey Run near Jessup, Md.	Lat 39°07'15", long 76°47'00", at bridge on State Highway 32, 0.6 mile southeat of Fort George G. Meade Junction, 1.0 mile upstream from mouth, and 2 miles south of Jessup.	11.6	1948-58‡ 1959-61	4-13-61	7.20	484
		Potomac River basin					
6180	Potomac River at Shepherdstown, W. Va.	Lat 39°26'04", long 77°48'07", 0.1 mile downstream from Rumsey Bridge at Shepherdstown.	5,936	1929-53‡ 1954-61	3-20-61	18.57	74,300
6370	Little Catoctin Creek at Harmony, Md.	Lat 39°28'55", long 77°32'20", at county highway bridge, 0.9 mile southwest of Harmony, upstream from mouth.	8.9	1947-58‡	4-13-61	3.38	233
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 and 3 miles southwest of Westminster.	8.10	1948-56‡ 1959-60	4-13-61	3.08	167
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, 1.8 miles upstream from mouth, and 3.7 miles southwest of Urbana.	62.8	1948-58‡ 1959-61	4-13-61	5.34	1,470

† Discharge not determined.
‡ Operated as a continuous-record gaging station.

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 1961

Stream	Tributary to	Location	Drainage area	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Severn River basin						
Severn Run	Severn River	Lat 39°04'51", long 76°37'35", at bridge on U. S. Highway 301, ½ mile south of Benfield.	23.9	1955	9-21-61	15.0
Patuxent River basin						
Patuxent River	Chesapeake Bay	Lat 38°57'15", long 76°41'36", at bridge on U. S. Highway 50, 4 miles northwest of Davidsonville.	348	1955-56	3-16-61 6-19-61	*462 *272
Potomac River basin						
Mill Run	North Branch Potomac River	Lat 39°33'18", long 78°55'15", at headwaters below Mill Run Spring, at forest service trail, 1,500 ft below top of ridge, 2.5 miles northwest of Rawlings, Md.	-	-	8- 3-61	.38
Mill Run	North Branch Potomac River	Lat 39°32'50", long 78°54'38", at trail crossing, ¼ mile inside state game preserve, Rawlings, Md.	-	1960	8- 3-61 8-22-61	*.41 .25
Mill Run tributary	Mill Run	Lat 39°32'12", long 78°53'42", 100 ft above confluence with main stream, 50 ft below forest service trail, 0.6 mile west of Rawlings, Md.	-	-	8- 3-61	.20
Mill Run	North Branch Potomac River	Lat 39°32'08", long 78°53'20", just above abondoned B&O Railroad water intake, 900 ft northwest of U. S. Highway 220 at Rawlings, Md.	-	1960	8- 3-61	.57
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 mile northwest of Spring Gap, Md.	-	1958-60	7-21-61	11.8
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, Md.	-	1958-60	8-22-61	1.00
Rock Run	Potomac River	Lat 39°00'30", long 77°12'40", 150 ft beyond end of Newhall Road, 0.6 mile south of Potomac, Md.	-	-	9- 7-61	.19
Piney Branch	Mattawoman Creek	Lat 38°38'22", long 76°57'31", 50 ft upstream from bridge on Cat Pond Road, 2.9 miles northwest of Waldorf, Md.	-	-	10-19-60 11-15-60 1- 4-61 2-18-61 ..do... 2-24-61 2-28-61 5- 4-61 6- 7-61 7-26-61 9-21-61	.82 1.11 *12.5 *84.8 *88.7 *37.5 *17.7 4.49 1.50 .87 .28

* Not base flow.

Discharge measurements made at miscellaneous sites during water year 1961--Continued

Stream	Tributary to	Location	Drainage area	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Potomac River basin--Continued				
Piney Branch	Zekiah Swamp Run	Lat 38°33'29", long 76°52'29", at bridge on State Highway 488, 1.8 miles west of Bryantown, Md.	-	-	10-11-60	3.99
					10-26-60	4.43
					11-15-60	5.39
					1- 4-61	*12.2
					2-18-61	*30.7
					..do...	*51.2
					2-28-61	*17.9
					5- 4-61	9.64
					6- 7-61	3.33
					7-26-61	*3.51
					8- 8-61	1.41
					9-26-61	.08

*Not base flow.

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