

1962

# 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 with other agencies

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

SURFACE WATER RECORDS  
OF  
MARYLAND AND DELAWARE

1962

Prepared in cooperation with

Delaware Geological Survey  
Delaware State Highway Department  
Maryland Department of Geology, Mines and Water Resources  
City of Baltimore  
Corps of Engineers, U. S. Army  
National Park Service, U. S. Department of the Interior  
District of Columbia

Copies of this report may be obtained from  
District Engineer, Surface Water Branch  
U. S. Geological Survey  
106 Engineering Building  
University of Maryland  
College Park, Maryland

# CALENDAR FOR WATER YEAR 1962

## OCTOBER 1961

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
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## NOVEMBER 1961

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## DECEMBER 1961

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31						

## JANUARY 1962

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## FEBRUARY 1962

S	M	T	W	T	F	S
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25	26	27	28			

## MARCH 1962

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## APRIL 1962

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## MAY 1962

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## JUNE 1962

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## JULY 1962

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22	23	24	25	26	27	28
29	30	31				

## AUGUST 1962

S	M	T	W	T	F	S
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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 1962

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
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## SURFACE WATER RECORDS OF MARYLAND AND DELAWARE, 1962

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### INTRODUCTION

The surface-water records for the 1962 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 W. E. Forrest, district engineer, Surface Water Branch.

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

Beginning with the 1961 water year, streamflow records and related data are being released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports is limited and primarily for local needs. 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: Delaware Geological Survey, J. J. Groot, State geologist; State Highway Department, E. A. Davidson, chief engineer.

Maryland: Department of Geology, Mines and Water Resources, J. T. Singewald, Jr., director, succeeded by Ernst Cloos, acting director; city of Baltimore, L. V. Schuerholz, water engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 19 gaging stations published in this report.

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

The following organizations aided in collecting records:

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

## DEFINITION OF TERMS AND ABBREVIATIONS

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

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

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

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

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

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

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

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

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

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural 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 indentation in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indentation shows which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

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

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

#### EXPLANATION OF DATA

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

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

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

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

The data in this report generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar for the 1962 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.

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

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

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

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

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

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

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

#### ACCURACY OF FIELD DATA AND COMPUTED RESULTS

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

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

Discharge at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, 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.

## GAGING-STATION RECORDS

## DELAWARE RIVER BASIN

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 1962.

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

Average discharge.--19 years, 26.7 cfs. *1.30 cfsm*

Extremes.--Maximum discharge during year, 1,300 cfs Mar. 12 (gage height, 9.95 ft); minimum daily, 0.8 cfs Sept. 16.

1943-62: 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 good. Low and medium flow regulated by mill above station.

Rating tables, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 6

Jan. 7 to Sept. 30

2.0	1.2	3.0	35	1.9	0.6	3.5	69
2.1	2.5	3.5	66	2.0	1.3	4.0	107
2.2	4.3	4.0	105	2.1	2.6	5.0	199
2.4	9.8	5.0	199	2.2	4.3	6.0	325
2.7	22	6.0	325	2.4	9.8	7.0	487
				2.7	23	8.0	700
				3.0	38		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	4.7	7.0	8.0	10	*32	259	16	8.8	5.8	5.7	2.3
2	6.3	2.7	5.5	9.5	8.6	21	47	16	5.1	8.4	4.1	1.0
3	8.2	6.7	4.6	7.3	7.9	17	26	19	6.3	6.5	3.6	4.8
4	*7.6	4.6	*8.2	7.0	10	16	21	15	8.3	5.6	4.8	6.4
5	4.6	4.1	6.2	9.8	12	15	20	13	6.8	6.7	3.9	4.0
6	4.8	6.0	7.2	238	13	28	19	12	7.4	5.2	18	6.1
7	4.2	16	6.7	203	8.9	42	133	11	7.2	4.4	16	3.7
8	2.2	9.2	5.3	31	9.7	39	170	11	6.9	3.0	15	2.7
9	6.5	7.2	5.0	21	8.9	32	37	12	4.3	7.7	27	1.2
10	5.3	5.5	8.1	15	9.2	39	27	11	5.0	5.1	12	6.0
11	3.6	3.5	10	11	7.9	31	27	11	7.3	5.0	6.0	*3.4
12	4.9	4.0	38	10	9.8	563	56	11	46	4.9	5.3	2.9
13	4.1	7.4	18	9.4	7.9	62	161	11	33	5.3	7.8	1.6
14	4.7	6.2	12	8.9	10	31	47	11	13	3.5	4.6	2.6
15	8.0	9.6	6.7	36	10	25	30	11	47	2.1	4.3	2.6
16	8.5	*6.5	7.1	*32	11	21	25	10	17	7.3	2.8	.8
17	4.1	8.5	27	15	11	19	22	9.2	9.0	5.5	16	7.1
18	5.1	7.3	134	12	13	18	21	9.4	7.6	6.0	5.6	8.0
19	4.3	4.6	30	12	60	18	20	8.6	4.5	5.7	4.0	4.1
20	5.6	11	17	10	51	19	31	8.2	9.4	5.6	5.4	4.4
21	16	13	13	10	31	144	24	9.2	26	4.1	5.4	3.8
22	12	7.5	11	12	69	77	20	8.4	11	5.7	4.0	2.4
23	8.6	4.8	9.2	12	85	28	*19	*7.3	24	13	5.2	1.0
24	4.9	39	11	10	166	22	*17	39	57	8.9	4.2	4.5
25	4.5	14	10	9.8	41	19	16	12	14	5.8	2.5	4.2
26	5.5	8.9	9.2	13	335	18	16	8.5	9.2	4.6	1.5	3.4
27	5.3	12	9.3	19	99	*17	15	7.8	9.8	4.4	5.6	16
28	3.1	7.5	12	13	59	16	15	8.6	7.0	3.5	4.1	20
29	3.2	7.1	11	11	-	15	14	6.9	7.5	2.1	2.8	8.1
30	7.3	6.8	8.1	12	-----	15	20	7.4	5.2	9.4	2.8	4.2
31	5.2	-----	7.3	8.1	-----	17	-----	8.2	-----	*6.2	3.9	-----
Total	180.2	255.9	474.7	835.8	1174.8	1476	1375	359.7	430.6	177.0	213.9	143.3
Mean	5.81	8.53	15.3	27.0	42.0	47.6	45.8	11.6	14.4	5.71	6.90	4.78
Cfsm	0.283	0.416	0.746	1.32	2.05	2.32	2.23	0.566	0.702	0.279	0.337	0.234
In.	0.33	0.46	0.86	1.52	2.13	2.68	2.49	0.65	0.78	0.32	0.39	0.26

Calendar year 1961: Max 743 Min 2.0 Mean 29.3 Cfsm 1.43 In. 19.43  
 Water year 1961-62: Max 563 Min 0.8 Mean 19.4 Cfsm 0.946 In. 12.87

Peak discharge (base, 1000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge
3-12	1215	9.95	1,300

## DELAWARE RIVER BASIN

9

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

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

Drainage area--66.7 sq mi.

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

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

Average discharge--7 years (1952-59), 79.6 cfs. *1.19 cfs*

Extremes--Maximum discharge during period, 275 cfs Aug. 9 (gage height, 2.20 ft); minimum, 16 cfs part of each day Sept. 12-17 (gage height, 0.91 ft).  
1952-59, 1962: Maximum discharge, 4,050 cfs Aug. 18, 1955 (gage height, 9.21 ft), from rating curve extended above 1,800 cfs by logarithmic plotting; minimum, 4.6 cfs Dec. 7, 1954 (gage height, 0.55 ft), result of freezeup; minimum daily, 10 cfs Aug. 3, 4, 1955.

Remarks--Records good except those for period of doubtful gage-height record, which are fair. Records do not include a negligible diversion above station by plant of E. I. du Pont de Nemours & Co.

Rating table, July 1 to Sept. 30, 1962 (gage height, in feet, and discharge, in cubic feet per second)

0.9	16	1.6	107
1.1	31	2.0	212
1.3	54		

Discharge, in cubic feet per second, July to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										30	23	18
2										28	20	18
3										28	19	22
4										29	19	21
5										28	19	26
6										27	22	24
7										27	22	20
8										26	22	19
9										28	144	18
10										24	59	18
11										23	46	*18
12										24	32	16
13										24	28	16
14										23	26	16
15										25	24	16
16										25	24	16
17										27	67	20
18										29	29	22
19										31	25	20
20										26	24	20
21										24	25	19
22										26	25	19
23										24	22	19
24										24	22	19
25										22	22	19
26										24	22	19
27										20	20	d50
28										18	22	d70
29										20	21	32
30										26	18	26
31		-----			-----		-----		-----	*25	18	-----
Total										785	931	676
Mean										25.3	30.0	22.5
Cfsm										0.379	0.450	0.337
In.										0.44	0.52	0.38

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

Peak discharge (base, 1,500 cfs)--No peak above base.

\* Discharge measurement made on this day.  
d Doubtful gage-height record.

## DELAWARE RIVER BASIN

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 1962.

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

Gage.--Water-stage recorder (digital). Datum of gage is 11.6 ft above mean sea level, datum of 1929. Nov. 17, 1931, to Sept. 30, 1936, at site 15 ft downstream at same datum.

Average discharge.--22 years, 110 cfs. / *2.5 cfsm*

Extremes.--Maximum discharge during year, 1,970 cfs Mar. 12 (gage height, 10.46 ft, from high-water mark in well); minimum, 17 cfs Dec. 9 (gage height, 4.06 ft), result of freezeup; minimum daily, 20 cfs Sept. 7, 8, 10.

1931-36, 1943-57, 1959-62: 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, and those for periods of no gage-height record, which are poor. Slight diurnal fluctuation at low flow caused by mills above station. Records do not include a negligible diversion above station by plant of E. I. du Pont de Nemours & Co.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 11-20, June 1 to July 1, Sept. 1-30)

4.1	19	6.0	355
4.3	38	7.0	600
4.5	65	8.0	900
5.0	155	9.0	1,300

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	37	40	b43	49	163	577	119	53	43	27	23
2	33	36	39	b47	49	*105	196	118	48	37	22	21
3	42	36	39	b45	51	96	137	126	46	37	21	27
4	37	37	*39	47	53	87	121	108	45	40	23	23
5	32	39	41	48	58	80	114	101	46	34	22	34
6	31	39	41	335	67	100	110	96	62	34	45	30
7	31	68	39	675	51	107	283	89	45	36	44	20
8	31	46	37	180	49	98	365	83	41	39	33	20
9	*32	39	35	120	53	98	168	88	39	34	154	21
10	30	38	49	82	56	112	148	83	38	32	86	*20
11	29	38	50	62	47	137	144	80	39	31	58	21
12	28	37	115	60	49	920	177	78	141	31	41	22
13	28	*36	87	56	42	350	400	76	150	32	34	21
14	38	42	54	54	46	167	190	75	74	30	30	22
15	50	53	47	110	49	140	156	75	93	35	27	22
16	36	47	44	*140	55	125	145	72	67	33	27	24
17	31	54	88	78	54	116	131	72	53	38	94	39
18	31	46	296	64	62	109	124	71	47	41	38	47
19	30	40	143	60	122	103	120	67	44	42	30	32
20	31	54	89	58	145	104	132	74	52	32	28	33
21	64	58	71	54	116	240	121	67	72	33	28	30
22	76	55	62	58	116	249	113	61	52	33	29	30
23	42	50	58	64	221	136	*107	58	58	39	26	33
24	36	181	64	56	650	118	101	*161	115	32	25	32
25	35	85	b55	56	240	109	99	85	60	27	24	31
26	35	56	b53	64	600	*102	96	69	*50	27	25	32
27	35	51	b53	76	409	97	94	67	46	25	25	71
28	34	46	b58	62	285	93	93	63	42	23	26	104
29	35	41	b51	*54	-	90	100	60	41	24	27	47
30	37	40	b46	56	-----	88	125	58	42	*39	23	34
31	38	-----	b42	47	-----	93	-----	57	-----	31	21	-----
Total	1,130	1,525	2,025	3,011	3,844	4,802	4,987	2,557	1,801	1,044	1,163	966
Mean	36.5	50.8	65.3	97.1	137	155	166	82.5	60.0	33.7	37.5	32.2
Cfsm	0.416	0.579	0.744	1.11	1.56	1.77	1.89	0.940	0.683	0.384	0.427	0.367
In.	0.48	0.65	0.86	1.28	1.63	2.03	2.11	1.08	0.76	0.44	0.49	0.41
Calendar year 1961: Max	1,270	Min	28	Mean	116	Cfsm	1.32	In.	17.92			
Water year 1961-62: Max	990	Min	20	Mean	79.1	Cfsm	.901	In.	12.22			

Peak discharge (base, 2,000 cfs).--No peak above base.

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Jan. 6 to Mar. 14.

## DELAWARE RIVER BASIN

11

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 1962.

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

Average discharge.--19 years, 64.3 cfs. *1.37 cfs/m*

Extremes.--Maximum discharge during year, 1,870 cfs Mar. 12 (gage height, 5.67 ft); minimum, 10 cfs Sept. 15; minimum daily, 11 cfs Sept. 16.

1943-62: 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, which are fair. Some diurnal fluctuation at low flow caused by mills above station.

Rating table, water year 1961-62, 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 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	19	26	24	28	92	376	69	29	23	17	13
2	20	19	26	26	28	*67	117	69	27	22	15	15
3	29	20	26	25	29	59	83	70	26	21	15	18
4	26	20	*25	26	30	57	73	59	26	22	16	16
5	22	20	27	28	33	51	69	54	27	21	15	26
6	22	20	25	253	38	66	67	51	42	20	18	19
7	20	28	25	284	29	63	178	51	27	20	19	16
8	20	24	24	75	28	61	216	50	25	19	20	15
9	*20	21	24	55	30	58	107	52	23	24	139	15
10	19	20	29	44	32	85	91	47	22	19	99	*15
11	19	20	31	35	b27	91	94	48	23	18	61	14
12	19	20	79	b33	b28	788	106	49	89	18	27	12
13	19	*21	52	b31	b24	160	250	47	116	18	23	12
14	22	24	36	b30	b26	104	116	46	50	17	21	12
15	28	27	32	b70	28	84	96	44	46	19	19	12
16	21	25	28	*67	31	75	92	43	40	19	19	11
17	20	28	51	41	30	67	83	43	33	21	79	17
18	20	24	192	36	32	61	78	42	30	27	24	21
19	21	22	69	34	68	59	74	40	29	29	20	14
20	20	26	49	33	73	60	86	38	32	21	19	16
21	45	29	40	31	64	183	80	40	38	19	20	14
22	41	28	35	33	57	151	71	36	30	21	20	13
23	24	25	34	36	122	84	*66	35	33	19	17	14
24	22	106	35	32	483	71	62	*90	44	20	17	13
25	21	49	30	32	101	64	61	41	32	18	16	13
26	21	36	29	36	509	61	59	34	*28	18	16	14
27	20	33	29	43	200	58	59	33	27	16	16	37
28	20	30	32	35	147	56	57	31	25	15	17	72
29	20	27	28	31	-	54	56	32	24	16	17	26
30	20	27	25	32	-----	53	67	31	24	*23	15	19
31	20	-----	23	27	-----	56	-----	30	-----	20	14	-----
Total	700	838	1,216	1,618	2,355	3,099	3,090	1,445	1,067	623	870	544
Mean	22.6	27.9	39.2	52.2	84.1	100	103	46.6	35.6	20.1	28.1	18.1
Cfs/m	0.481	0.594	0.834	1.11	1.79	2.13	2.19	0.991	0.757	0.428	0.598	0.385
In.	0.55	0.66	0.96	1.28	1.86	2.45	2.45	1.14	0.84	0.49	0.69	0.43

Calendar year 1961: Max 795 Min 19 Mean 69.1 Cfs/m 1.47 In. 19.97  
 Water year 1961-62: Max 788 Min 11 Mean 47.8 Cfs/m 1.02 In. 13.80

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1500	5.28	1,550	3-12	1230	5.67	1,870

\* Discharge measurement made on this day.  
 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 1962. Prior to December 1946, monthly discharge only, published in WSP 1302.

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

Average discharge.--16 years, 466 cfs. *1,48 cfsm*

Extremes.--Maximum discharge during year, 9,750 cfs Mar. 13 (gage height, 9.28 ft); minimum, 78 cfs Sept. 16, 24; minimum daily, 82 cfs Sept. 16.

1946-62: 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 table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 24 to Mar. 12)

2.5	78	4.0	1,030
2.7	122	5.0	2,100
3.0	231	6.0	3,450
3.5	595	7.0	5,100

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	133	128	145	187	174	1,230	2,180	455	224	172	122	86
2	132	125	145	184	181	*658	1,320	461	229	151	107	91
3	*158	125	147	172	198	474	767	479	220	149	96	181
4	169	128	147	187	197	405	630	415	195	150	93	121
5	148	131	*148	181	218	364	622	386	208	159	99	124
6	139	131	148	957	232	384	539	370	334	134	106	122
7	136	162	145	2,910	189	358	917	361	247	142	110	107
8	139	158	137	1,120	177	354	1,530	343	209	143	125	98
9	134	142	130	578	b183	360	907	348	194	140	507	97
10	131	131	151	380	b191	396	932	321	189	129	598	*94
11	128	125	162	b227	b148	515	743	329	176	121	569	*91
12	125	128	313	b236	b187	5,000	859	353	556	122	206	86
13	122	134	414	b227	b169	4,910	1,790	338	815	120	143	83
14	139	*142	239	b227	200	1,370	1,100	315	513	116	130	83
15	187	176	184	311	196	1,020	873	314	336	133	118	83
16	151	162	151	*544	191	895	787	301	282	126	114	82
17	136	169	228	312	196	746	695	296	243	132	191	90
18	134	165	1,110	255	196	640	642	289	206	153	122	113
19	131	145	932	245	274	591	604	274	195	171	108	97
20	128	148	480	243	344	540	656	266	201	138	101	95
21	180	165	335	212	318	998	627	248	237	123	106	90
22	298	162	268	230	292	1,750	570	245	206	126	116	87
23	196	158	233	243	524	857	*547	240	211	116	103	88
24	162	728	239	224	a 4,140	680	511	542	229	134	98	87
25	145	488	216	219	*a 2,040	613	487	353	351	134	95	84
26	139	246	208	231	2,880	*541	457	268	229	121	96	86
27	136	196	201	268	3,630	540	441	252	*233	113	92	139
28	134	174	228	247	2,300	491	427	229	199	103	102	372
29	139	159	203	*204	-	458	430	239	175	103	103	229
30	131	152	166	224	-----	455	447	236	171	*121	96	140
31	131	-----	171	172	-----	461	-----	233	-----	118	89	-----
Total	4,591	5,483	3,124	12,157	20,185	29,054	24,037	10,099	8,013	4,113	4,861	3,426
Mean	148	183	262	392	721	937	801	326	267	133	157	114
Cfsm	0.471	0.583	0.834	1.25	2.30	2.98	2.55	1.04	0.850	0.424	0.500	0.363
In.	0.54	0.65	0.96	1.44	2.39	3.44	2.85	1.20	0.95	0.49	0.58	0.41

Calendar year 1961: Max 5,120 Min 122 Mean 536 Cfsm 1.71 In. 23.20  
Water year 1961-62: Max 5,000 Min 82 Mean 368 Cfsm 1.17 In. 15.90

Peak discharge (base, 4,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	1100	6.71	4,610	2-27	0345	8.05	6,780
2-24	About 2130	7.95	6,580	3-13	0115	9.28	9,750

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

## DELAWARE RIVER BASIN

13

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 1962.

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

Average discharge.--16 years (1946-62), 9.35 cfs. 1.25 cfs

Extremes.--Maximum discharge during year, 730 cfs Mar. 12 (gage height, 3.72 ft); minimum, 0.2 cfs Sept. 13. 1945-62: Maximum discharge, 4,080 cfs July 9, 1952 (gage height, 7.97 ft in gage well, 8.6 ft from floodmarks), from rating curve extended above 620 cfs on basis of computation of flow over dam at gage height 6.52 ft, and contracted-opening measurements at gage heights 6.52 and 7.97 ft; minimum, 0.1 cfs July 4, 1958, Oct. 25, 26, 1959; minimum gage height, 1.13 ft Oct. 25, 26, 1959. Maximum stage known since at least 1940, that of July 9, 1952. Flood of Aug. 1, 1945, reached a stage of about 8.5 ft, from floodmarks.

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

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 19, 20)

Oct. 1 to Jan. 6

Jan. 7 to Sept. 30

1.3	0.5	1.8	15	1.2	0.2	1.8	17
1.4	1.2	2.0	36	1.3	.4	2.0	36
1.5	2.6	2.2	70	1.4	1.4	2.2	70
1.6	4.8	2.5	150	1.5	3.1	2.5	150
1.7	8.6			1.6	6.0	2.8	270
				1.7	10		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	0.6	1.6	2.0	2.3	11	72	4.4	1.2	0.9	0.7	0.5
2	* 2.1	.6	1.6	2.0	2.2	* 6.6	11	4.9	1.1	.9	.5	1.2
3	7.6	.7	1.6	1.8	2.4	6.1	6.4	6.7	.9	.7	.5	1.6
4	2.0	.7	1.5	2.1	3.1	6.6	5.2	3.2	1.2	.7	.5	1.1
5	1.2	.6	* 1.8	2.4	4.6	6.8	4.7	2.6	1.4	.8	.4	5.7
6	1.1	.6	1.6	122	4.4	13	4.4	2.3	2.1	.8	.6	1.2
7	.9	10	1.2	60	2.1	19	62	2.0	1.2	.7	3.3	.5
8	.7	1.7	1.1	11	2.0	18	28	2.2	.8	.8	3.6	.4
9	.8	1.1	1.2	7.4	2.0	17	10	2.4	.7	.9	68	.4
10	.8	.9	3.9	4.4	b2.1	29	7.1	1.8	.7	.7	6.1	*.4
11	.8	1.0	2.7	3.5	b1.5	19	11	2.0	.8	.5	4.9	.4
12	.6	1.0	3.2	3.1	b1.8	232	37	2.1	.6	.6	1.4	.4
13	.6	.9	6.8	2.9	b1.6	18	4.1	1.7	23	.7	1.2	.3
14	8.3	* 2.6	3.2	2.8	b2.1	9.8	11	1.7	3.2	.6	1.1	.4
15	4.8	2.5	2.5	23	b2.3	7.4	8.0	1.6	3.4	.5	.8	.4
16	1.2	2.5	2.0	* 9.9	b2.1	6.4	6.6	1.6	2.3	.6	1.1	.4
17	1.0	5.2	23	4.8	b3.0	5.5	5.8	1.5	1.5	.6	22	5.9
18	.9	1.5	* 7.7	3.5	b3.2	4.7	5.1	1.6	1.4	4.1	1.1	1.7
19	.9	1.1	10	3.0	b1.2	4.5	4.9	1.5	2.6	2.1	.6	.8
20	.9	5.7	6.1	3.0	15	4.6	16	1.4	2.7	.8	1.2	.7
21	19	4.0	3.8	2.6	8.5	63	7.8	2.0	3.4	.7	1.1	.5
22	7.3	3.0	3.0	3.8	19	18	5.3	1.2	1.4	1.4	1.0	.4
23	2.0	1.8	2.7	3.8	2.4	8.2	* 4.5	1.4	37	4.4	.5	.4
24	1.3	4.9	3.3	2.8	58	6.3	3.6	* 1.5	12	1.7	.4	.4
25	1.2	5.0	2.9	3.0	12	5.3	3.6	1.9	2.5	.7	.4	.4
26	1.2	2.8	2.9	8.6	105	* 4.7	3.1	1.4	1.6	.6	.4	.4
27	1.0	2.4	3.0	8.3	38	4.2	3.0	1.2	* 1.3	.5	1.1	20
28	.9	2.0	6.9	3.9	2.4	3.8	2.8	1.2	1.2	.5	4.9	18
29	.8	1.7	3.3	* 2.9	-	3.5	2.9	1.1	1.1	1.3	.9	1.6
30	.8	1.6	2.3	3.0	-----	3.4	4.9	1.5	1.0	* 3.7	.5	.7
31	.7	-----	1.9	2.3	-----	6.3	-----	1.3	-----	1.1	.5	-----
Total	74.1	114.8	218.4	319.6	360.3	571.9	398.7	78.4	177.7	35.6	131.3	67.2
Mean	2.39	3.83	7.05	10.3	12.9	18.5	13.3	2.53	5.92	1.15	4.24	2.24
Cfsm	0.320	0.513	0.945	1.38	1.73	2.48	1.78	0.339	0.794	0.154	0.568	0.301
In.	0.37	0.57	1.09	1.59	1.80	2.85	1.99	0.39	0.89	0.18	0.65	0.34

Calendar year 1961: Max 394 Min 0.6 Mean 10.2 Cfsm 1.37 In. 18.63  
Water year 1961-62: Max 232 Min 0.3 Mean 6.98 Cfsm 0.936 In. 12.71

Peak discharge (base, 550 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-12	1000	3.72	730	8-9	0315	3.68	710
6-23	2030	3.44	590				

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

## DELAWARE RIVER BASIN

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 1962.

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.--6 years (1956-62), 5.34 cfs. *1.39 csm*

Extremes.--Maximum discharge during year, 56 cfs Mar. 12 (gage height, 1.53 ft); minimum, 0.1 cfs Aug. 30, 31, Sept. 1, 2, 11, 12.

1951-62: Maximum discharge, 510 cfs Sept. 12, 1960 (gage height, 4.10 ft).

1956-62: Minimum discharge, that of Aug. 30, 31, Sept. 1, 2, 11, 12, 1962; minimum gage height, 0.10 ft July 7, 8, 9, 10, 1959, July 6, 7, 9, 10, 13, 1960.

Remarks.--Records good.

Rating tables, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 22 to Nov. 13, July 31, Aug. 1, Sept. 27-30)

Oct. 1 to Feb. 26

Feb. 27 to Sept. 30

0.2	0.4	0.5	2.8	0.8	10	0.16	0.2	0.5	4.3	0.9	15
.3	.8	.6	4.7	1.0	19	.2	.3	.6	6.7	1.0	19
.4	1.6	.7	7.1	1.2	30	.3	1.0	.7	9.3	1.3	36
						.4	2.2	.8	12		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.4	1.6	2.3	2.7	8.8	2.3	5.0	1.9	1.1	0.6	0.2
2	.8	1.4	1.6	2.5	2.7	7.2	1.3	5.3	1.8	1.0	*.4	.3
3	2.7	1.5	1.6	2.3	2.8	7.0	8.0	5.5	3.4	1.2	.4	2.4
4	1.4	1.6	1.5	2.5	3.4	7.0	7.0	5.7	2.0	1.2	.4	.5
5	1.0	1.8	*1.7	2.5	3.5	7.0	6.7	4.1	1.9	1.1	.4	.6
6	.9	1.8	1.7	10	3.2	13	6.5	3.8	1.9	1.1	1.6	.6
7	.8	2.6	1.7	2.5	2.5	14	10	3.6	1.5	1.0	2.8	.4
8	.9	2.2	1.7	7.4	2.5	12	15	3.6	1.4	1.0	2.0	.4
9	.9	1.8	1.7	4.7	2.7	10	11	3.6	1.3	.9	1.7	.3
10	.8	1.7	2.5	3.7	2.7	11	8.0	3.4	1.2	.8	1.5	.3
11	.9	1.6	2.3	3.2	2.7	8.8	7.7	4.3	1.2	.8	.8	.3
12	1.0	1.6	5.7	3.0	2.8	3.5	9.7	4.3	1.5	1.0	.6	.2
13	1.0	1.7	3.5	2.8	2.7	18	19	4.3	3.9	1.0	.4	*2
14	1.3	*2.1	2.2	2.8	2.8	10	12	3.6	2.3	1.0	.4	.2
15	2.6	2.7	2.0	6.2	3.0	8.3	8.8	3.1	4.9	1.2	.3	.2
16	1.5	2.0	1.7	8.1	3.0	7.7	7.7	3.1	3.4	1.1	.4	.2
17	1.4	2.2	5.0	*4.3	3.4	7.2	7.5	2.9	1.6	1.3	.4	1.1
18	1.4	1.7	8.8	3.5	3.7	7.0	7.0	2.7	1.3	1.4	.5	.9
19	1.3	1.6	5.7	3.4	12	6.5	6.7	2.3	1.4	1.3	.3	.5
20	1.4	2.7	3.2	3.5	14	7.2	7.0	2.2	5.6	.9	.2	.4
21	3.4	3.9	2.6	3.4	6.9	14	6.7	2.2	5.4	.8	.2	.3
22	4.1	2.8	2.3	3.9	15	19	6.2	1.9	2.2	1.2	.3	.3
23	2.2	2.2	2.3	3.9	9.7	10	6.0	1.9	3.6	1.2	.3	.2
24	1.5	5.5	4.5	3.2	8.1	8.0	5.5	10	2.2	1.4	.2	.2
25	1.4	3.0	3.4	3.4	5.7	7.2	*5.5	3.1	3.8	1.0	.2	.2
26	1.4	2.1	2.7	3.5	15	7.0	5.3	2.2	2.0	1.1	.2	.2
27	1.3	1.8	2.7	3.7	17	*6.5	5.0	4.2	1.8	.7	.2	5.0
28	1.3	1.7	3.7	3.0	*12	6.2	4.8	*2.3	1.4	.6	.4	3.4
29	1.3	1.7	2.8	2.8	-	6.0	4.8	2.0	*1.3	.8	.4	.3
30	1.4	1.6	2.2	*3.0	-----	6.0	4.8	2.9	1.2	1.0	.2	.2
31	1.4	-----	2.0	2.6	-----	7.2	-----	2.2	-----	.8	.2	-----
Total	45.4	64.0	88.6	140.1	168.2	309.8	255.9	111.3	90.1	32.0	18.9	20.5
Mean	1.46	2.13	2.86	4.52	6.01	9.99	8.53	3.59	3.00	1.03	0.61	0.68
Cfsm	0.379	0.553	0.743	1.17	1.56	2.59	2.22	0.932	0.779	0.268	0.016	0.018
In.	0.44	0.62	0.86	1.35	1.62	2.99	2.47	1.08	0.87	0.31	0.18	0.20

Calendar year 1961: Max 66 Min 0.6 Mean 5.88 Cfsm 1.53 In. 20.72  
Water year 1961-62: Max 35 Min 0.2 Mean 3.68 Cfsm 0.96 In. 12.99

Peak discharge (base, 50 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge
3-12	1750	1.53	56

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 1962.

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

Extremes.--Maximum discharge during year, 276 cfs Mar. 13; maximum gage height, 6.09 ft Mar. 7 (backwater from high tide); no flow part of each day Nov. 2, 3.

1958-62: 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, no gage-height record, or when pumpage bypassed the control, which are fair. Flow affected by Silver Lake.

Rating tables, water year 1961-62, except periods of backwater from tide (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Dec. 2-8)

Oct. 1-31

Nov. 1 to Sept. 30

2.1	2.0	2.3	0.3	2.8	10
2.2	4.5	2.35	.5	2.9	17
2.4	11	2.4	.8	3.1	40
2.6	20	2.45	1.3	3.3	70
2.8	34	2.5	1.8	3.5	122
3.0	56	2.6	3.7	4.0	240
		2.7	6.6	4.5	340

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.2	e 0.5	1.5	17	15	*114	80	46	14	5.6	7.2	2.6
2	8.5	e .4	1.5	17	16	67	140	34	12	4.2	5.3	2.8
3	52	.4	1.5	17	16	44	96	32	26	3.9	4.4	5.3
4	52	3.0	1.5	19	16	35	51	28	16	4.2	3.9	3.9
5	51	3.2	1.5	21	21	35	43	24	11	3.5	4.4	6.6
6	50	4.2	1.5	43	27	c100	39	20	10	3.7	4.7	5.9
7	48	2.5	1.5	110	20	c240	52	16	8.4	4.7	7.2	3.7
8	46	1.7	1.6	138	16	c215	159	15	7.2	3.9	6.6	3.5
9	44	*1.6	1.6	91	*16	c125	218	16	6.9	3.9	9.1	3.2
10	43	1.4	2.0	53	17	99	161	14	6.6	3.0	14	3.2
11	41	1.4	*1.8	27	14	80	93	16	5.6	2.1	a11	3.5
12	*37	1.4	3.2	20	14	148	88	22	7.6	2.5	a6.0	3.2
13	36	1.4	2.0	17	14	260	184	21	19	3.2	a6.0	1.8
14	35	2.0	9.0	16	16	214	220	18	28	2.5	a4.0	2.1
15	32	1.8	14	27	18	132	158	16	21	3.5	a3.0	2.5
16	32	1.6	9.6	48	22	78	88	14	16	3.2	a4.0	1.8
17	28	1.6	19	54	22	59	60	14	11	4.2	a5.0	4.7
18	25	1.7	47	*35	27	50	50	13	8.0	4.7	a3.0	4.7
19	*11	1.8	59	26	53	44	47	11	7.6	5.9	a1.8	3.0
20	c2.0	3.0	51	22	109	43	47	10	9.1	5.3	a2.4	3.0
21	c7.0	2.8	29	21	104	69	48	8.7	11	5.3	2.8	1.7
22	c26	2.6	19	22	70	156	43	7.6	9.1	12	2.6	*1.6
23	c45	2.6	19	26	68	166	40	8.0	8.4	9.1	1.7	2.1
24	c17	3.5	30	24	64	101	33	15	11	8.0	1.4	2.1
25	c8.0	1.8	41	22	47	60	30	16	11	6.2	2.1	2.3
26	c15	1.5	35	22	56	48	29	13	9.6	6.9	2.0	3.4
27	22	1.5	29	25	122	44	28	14	10	4.4	2.5	2.6
28	17	1.5	29	22	151	40	27	9.1	7.6	3.7	3.7	2.1
29	13	1.5	26	19	-	*36	26	8.7	5.3	3.9	4.2	1.6
30	11	1.5	22	19	-----	34	*49	9.6	5.3	7.6	2.8	9.6
31	4.8	-----	17	16	-----	36	-----	9.6	-----	8.0	2.1	-----
Total	862.5	57.4	527.3	1,056	1,171	2,972	2,427	519.3	339.3	152.8	140.9	156.8
Mean	27.8	1.91	17.0	34.1	41.8	95.9	80.9	16.8	11.3	4.93	4.55	5.23
Cfsm	0.871	0.060	0.533	1.07	1.31	3.01	2.54	0.527	0.354	0.155	0.143	0.164
In.	1.01	0.07	0.61	1.23	1.37	3.46	2.83	0.61	0.40	0.18	0.16	0.18

Calendar year 1961: Max 468 Min 0 Mean 50.0 Cfsm 1.57 In. 21.26

Water year 1961-62: Max 260 Min 0.4 Mean 28.4 Cfsm 0.890 In. 12.11

\* Discharge measurement made on this day.

a No gage-height record.

c Backwater from tide.

e No flow over control; discharge computed on basis of rated capacity of pumps used to bypass control during period when concrete cap was placed on control.

## MURDERKILL RIVER BASIN

1-4840. Murderkill River near Felton, Del.

Location.--Lat 38°58'33", long 75°34'03", on left bank 30 ft downstream from northbound lane of bridge on U. S. Highway 13, 400 ft downstream from Black Swamp Creek, 1.3 miles upstream from Killen Pond and 2.2 miles south of Felton, Kent County.

Drainage area.--13.6 sq mi (revised).

Records available.--July 1931 to October 1933. Monthly discharge only for July to September 1931, published in WSP 1302. Annual maximum, water years 1952-60, and occasional low-flow measurements, water years 1952-53, 1955-57, 1959-60. June 1960 to September 1962.

Gage.--Water-stage recorder. Altitude of gage is 23 ft (from topographic map). July 1931 to October 1933, staff gage read twice daily at bridge 200 ft upstream at datum 2.00 ft higher. March 1951 to May 1960, wire-weight gage and crest-stage gage at bridge 200 ft upstream at datum 2.00 ft higher.

Extremes.--1959-60: Maximum discharge during year, 805 cfs Sept. 12 (gage height, 6.87 ft).

1960-61: Maximum discharge during year, 292 cfs Jan. 1 (gage height, 5.39 ft); minimum, 3.4 cfs Sept. 26, 27, 29, 30.

1961-62: Maximum discharge during year, 219 cfs Apr. 8 (gage height, 5.07 ft); minimum, 2.4 cfs Sept. 15, 16.

1931-33, 1951-62: Maximum discharge, that of Sept. 12, 1960.

1931-33, 1960-62: Minimum discharge observed, 1.3 cfs several times in September and October 1932.

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

Rating tables, June 1, 1960 to Sept. 30, 1962 (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Apr. 13 to June 14, Oct. 23 to Nov. 20, 1961, Jan. 9 to Feb. 19, May 24 to June 12, 1962)

June 1, 1960 to Sept. 12, 1960      Sept. 13, 1960 to Jan. 6, 1962      Jan. 7, 1962 to Sept. 30, 1962

2.0	3.0	4.5	125	2.0	2.5	3.5	39	1.9	1.6	3.5	46
2.5	12	5.0	205	2.3	6.5	4.0	72	2.0	3.4	4.0	75
3.0	23	6.0	460	2.6	11	4.5	125	2.5	14	4.5	125
3.5	39			2.9	18	5.0	205	3.0	28	5.0	205
4.0	72			3.2	28	6.0	460				

Discharge, in cubic feet per second, June to September 1960

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									8.6	5.2	8.0	13
2									8.0	5.0	*6.8	5.9
3									8.0	4.5	6.8	4.8
4									7.7	4.3	8.4	4.5
5									7.7	*4.3	7.9	4.2
6									7.5	4.5	7.0	*4.3
7									7.1	4.8	6.1	4.5
8									7.0	4.5	*6.1	4.5
9									7.0	4.3	7.0	4.7
10									6.6	4.2	11	6.6
11									6.1	6.2	7.9	6.6
12									5.9	5.5	7.0	*4.03
13									5.9	5.0	7.7	*3.19
14									9.4	7.3	7.1	*1.23
15									7.0	6.2	7.0	*4.2
16									6.2	4.8	6.2	24
17									5.9	4.5	5.9	19
18									5.5	4.7	5.7	18
19									5.2	5.0	5.3	18
20									5.3	4.8	5.0	20
21									5.2	4.7	5.0	21
22									5.3	4.7	5.0	17
23									5.7	4.3	5.0	15
24									5.3	4.0	5.0	14
25									4.7	4.2	4.8	13
26									4.5	4.3	4.8	13
27									4.7	8.2	4.7	12
28									4.7	8.8	4.3	13
29									5.0	5.9	4.5	14
30									5.0	*26	4.5	15
31									-----	16	8.4	-----
Total									187.7	260.7	195.9	1196.6
Mean									6.26	8.41	6.32	39.9
Cfs/m									0.460	0.618	0.465	2.93
In.									0.51	0.71	0.54	3.27

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
7-30	1100	4.63	144	9-12	1700	6.87	805

\* Discharge measurement made on this day.

## MURDERKILL RIVER BASIN

17

1-4840. Murderkill River near Felton, Del.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	22	14	186	15	50	84	18	10	5.5	5.5	* 4.4
2	11	21	13	175	14	42	48	24	10	5.0	* 4.7	4.6
3	11	17	12	85	15	34	30	19	24	5.1	4.8	4.2
4	11	16	12	54	* 38	31	25	16	12	4.8	4.6	4.2
5	11	15	12	36	33	29	22	15	9.8	6.2	4.4	4.3
6	11	16	12	33	30	27	20	15	9.4	6.6	4.6	4.4
7	11	15	12	34	25	26	19	15	9.1	6.4	4.8	4.4
8	10	14	11	33	46	39	17	18	* 9.2	5.5	4.6	4.4
9	10	14	11	29	63	105	16	15	9.4	4.8	4.2	4.2
10	10	18	10	23	63	56	34	14	8.6	4.8	4.4	4.1
11	10	21	11	22	61	33	26	19	7.9	4.7	4.4	4.2
12	* 9.2	16	16	22	49	29	20	24	7.9	4.7	4.1	4.2
13	9.4	15	14	21	43	26	186	18	7.6	5.1	4.1	4.2
14	10	* 14	14	22	73	66	124	15	7.8	5.9	4.1	4.3
15	9.4	14	14	51	92	69	58	14	14	4.8	4.2	4.6
16	9.4	14	16	44	88	* 46	48	20	8.0	5.1	3.9	4.2
17	9.8	14	a 17	33	70	33	38	20	6.9	5.4	4.1	3.8
18	9.6	13	a 14	28	117	29	31	14	6.4	5.0	4.1	4.1
19	12	13	a 13	28	132	95	28	13	6.4	4.4	3.9	4.4
20	35	12	* a 12	24	69	72	* 26	12	6.2	4.4	5.8	4.4
21	20	12	34	23	70	42	23	11	6.9	4.4	7.6	6.1
22	13	12	43	20	70	45	22	13	10	4.2	5.4	4.4
23	12	12	21	19	172	121	20	11	6.9	4.1	7.7	3.9
24	12	12	16	18	100	77	19	10	6.8	4.7	6.9	3.7
25	12	12	15	16	82	46	18	9.8	6.8	4.8	6.5	4.1
26	11	11	16	16	65	33	17	14	9.4	4.4	7.5	3.7
27	11	11	22	16	43	30	16	30	7.9	4.2	6.5	3.5
28	17	11	18	16	42	27	17	14	7.2	4.3	5.2	4.1
29	56	13	19	15	-	25	28	12	6.6	5.8	5.0	3.8
30	26	19	56	15	-----	22	20	11	6.1	5.5	4.4	3.5
31	18	-----	42	14	-----	25	-----	10	-----	5.8	4.6	-----
Total	439.8	439	562	1,171	1,780	1,430	1,100	483.8	265.2	156.4	156.6	126.4
Mean	14.2	14.6	18.1	37.8	63.6	46.1	36.7	15.6	8.84	5.05	5.05	4.21
Cfsm	1.04	1.07	1.33	2.78	4.68	3.39	2.70	1.15	0.650	0.371	0.371	0.310
In.	1.20	1.20	1.54	3.20	4.87	3.91	3.01	1.32	0.73	0.43	0.43	0.35

Calendar year 1960: Max - Min - Mean - Cfsm - In. -  
 Water year 1960-61: Max 186 Min 3.5 Mean 22.2 Cfsm 1.63 In. 22.19

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 1	1700	5.39	292	3-19	1700	4.55	132
2-18	2230	4.94	194	3-23	0800	4.55	132
2-23	1100	5.00	205	4-13	1400	5.10	267

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

## 1-4840. Murderkill River near Felton, Del.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	3.5	5.8	11	15	4.4	a 85	16	5.6	4.2	6.0	3.2
2	6.0	3.7	5.7	12	15	3.1	a 45	16	4.8	4.2	5.0	3.2
3	19	3.7	5.4	11	15	2.6	a 35	16	4.2	4.6	4.8	4.6
4	6.1	3.9	5.5	* 11	17	2.4	*a 28	15	4.8	4.2	4.2	4.6
5	* 5.0	3.7	5.8	12	* 17	2.4	25	13	5.2	4.2	4.2	5.0
6	4.7	3.9	5.7	35	15	1.01	24	12	5.2	4.2	* 4.8	4.8
7	4.2	5.0	5.7	142	13	1.10	30	12	4.6	3.6	6.2	4.4
8	4.2	4.2	* 5.7	58	13	* 85	176	12	4.2	3.2	6.0	3.6
9	4.3	* 4.3	5.4	34	15	61	127	12	3.6	3.4	9.8	3.4
10	4.3	4.3	8.6	26	18	58	66	12	3.2	3.2	10	3.8
11	4.1	4.2	7.3	22	14	4.4	50	14	3.6	3.0	7.1	3.8
12	4.3	3.9	15	20	14	89	61	13	5.8	3.0	5.8	3.0
13	4.4	4.4	10	19	13	91	113	12	24	3.0	5.8	3.4
14	4.6	4.8	7.9	18	15	50	77	12	11	3.4	5.6	* 3.6
15	6.1	6.2	7.3	23	18	3.9	48	12	14	4.2	5.2	3.0
16	4.8	5.2	6.4	41	18	3.4	38	11	11	4.6	5.6	2.8
17	4.8	5.5	23	27	18	3.0	33	11	7.1	6.2	5.8	5.2
18	4.6	4.7	28	22	18	2.7	30	11	6.7	5.6	5.0	5.2
19	4.6	4.3	21	20	47	2.6	28	10	6.0	5.4	4.4	3.8
20	4.4	9.1	13	19	42	2.7	28	9.4	7.9	4.2	4.8	4.0
21	11	7.8	11	18	31	4.2	25	9.6	9.4	19	5.0	4.2
22	24	6.4	10	19	39	7.3	23	9.4	7.9	106	4.6	3.8
23	7.7	6.1	12	20	33	4.2	23	9.7	6.7	13	5.0	3.4
24	4.7	9.8	23	18	29	3.3	21	* 12	6.0	18	5.0	3.8
25	3.9	7.5	16	19	24	2.9	20	9.2	5.8	8.8	4.4	3.4
26	3.7	6.4	13	18	40	2.7	19	7.1	5.8	8.8	4.0	4.2
27	3.7	6.4	13	19	70	a25	18	8.8	5.6	6.2	4.8	14
28	3.3	6.2	13	17	66	a24	16	7.3	* 5.2	5.0	5.4	5.6
29	3.0	6.1	12	16	-	a23	15	7.1	5.2	5.2	4.4	3.0
30	3.3	5.8	11	16	-----	a22	* 16	6.7	4.8	7.7	4.0	2.4
31	3.5	-----	10	14	-----	a21	-----	6.2	-----	7.1	3.8	-----
Total	179.8	161.0	342.2	777	702	1,382	1,343	344.5	204.9	286.4	166.5	126.2
Mean	5.80	5.37	11.0	25.1	25.1	44.6	44.8	11.1	6.83	9.24	5.37	4.21
Cfsm	0.426	0.395	0.809	1.85	1.85	3.28	3.29	0.816	0.502	0.679	0.395	0.310
In.	0.49	0.44	0.94	2.12	1.92	3.78	3.67	0.94	0.56	0.78	0.46	0.35

Calendar year 1961: Max 186 Min 3.0 Mean 20.1 Cfsm 1.48 In. 20.12  
 Water year 1961-62: Max 176 Min 2.4 Mean 16.5 Cfsm 1.21 In. 16.45

## Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 7	0715	4.90	187	4-13	1000	4.54	131
3- 6	2015	4.75	162	7-22	0230	4.91	187
4- 8	1100	5.07	219				

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

## MISPILLION RIVER BASIN

19

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 1962.

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

Extremes.--Maximum discharge during year, 63 cfs Jan. 7 (gage height, 3.94 ft); minimum daily, 0.9 cfs Oct. 1, 19, Sept. 24, 25, 29, 30.  
1958-62: 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 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	2.0	1.6	3.1	4.6	7.2	13	5.1	3.1	2.2	1.8	1.2
2	1.0	2.0	1.6	3.2	4.6	6.2	8.1	5.1	3.0	2.1	1.7	1.2
3	1.9	2.0	1.6	3.2	4.6	6.0	6.8	5.1	3.0	2.1	1.6	1.2
4	1.3	2.0	1.6	* 3.4	4.8	6.0	* 6.4	4.9	2.8	2.1	1.7	1.2
5	1.1	1.9	1.6	3.6	4.8	6.0	6.2	4.8	3.0	2.1	1.7	1.2
6	*1.1	1.8	1.6	2.1	4.6	2.4	6.0	4.8	3.0	2.0	*1.7	1.2
7	1.0	2.0	1.6	4.0	4.4	1.6	7.3	4.6	2.8	2.0	1.7	1.1
8	1.0	2.0	*1.6	9.5	*4.4	1.1	2.3	4.6	2.8	2.0	1.6	1.1
9	1.0	1.9	1.7	7.4	4.8	1.0	1.1	4.6	2.8	1.9	1.9	1.1
10	1.0	*1.9	1.8	6.6	4.9	1.0	8.1	4.6	2.6	1.9	1.7	1.1
11	1.0	1.8	1.9	6.2	4.6	8.8	7.9	4.4	2.5	1.9	1.6	1.1
12	1.0	1.8	3.2	6.0	4.6	2.1	1.0	4.4	2.6	1.8	1.5	1.0
13	1.0	1.8	2.2	5.6	4.4	1.3	1.6	4.4	4.8	1.8	1.5	1.0
14	1.1	1.8	2.0	5.4	4.9	1.0	1.0	4.4	3.1	1.9	1.4	*1.0
15	1.2	1.8	2.0	8.5	4.9	*9.2	8.1	4.2	3.0	1.9	1.4	1.1
16	1.1	1.7	2.0	7.7	4.9	8.6	7.2	4.0	2.6	1.9	1.4	1.1
17	1.0	1.7	3.9	6.2	4.9	8.1	6.8	4.0	2.6	2.0	1.4	1.3
18	1.0	1.7	6.0	5.6	4.9	7.9	6.6	3.9	2.5	1.9	1.4	1.2
19	.9	1.6	3.9	5.4	1.3	7.7	6.4	3.9	2.4	1.9	1.4	1.0
20	1.0	1.9	3.1	5.4	7.2	7.7	6.2	3.7	3.2	1.8	1.4	1.0
21	2.1	1.8	3.0	5.3	6.0	1.1	6.0	3.7	3.1	2.2	1.4	1.0
22	1.9	1.7	3.0	5.4	7.7	1.0	6.0	3.6	2.8	3.3	1.3	1.0
23	3.2	1.6	3.7	5.3	6.4	8.1	5.8	3.6	2.6	1.9	1.3	1.0
24	2.6	2.0	4.9	5.1	6.2	7.4	5.6	*3.4	2.4	1.9	1.3	.9
25	2.5	1.8	3.7	5.1	5.6	7.0	5.6	3.4	2.4	1.8	1.2	.9
26	2.4	1.7	3.2	4.9	1.1	6.8	5.4	3.2	2.2	1.8	1.2	1.0
27	2.4	1.7	3.2	5.3	1.1	6.8	5.3	3.4	2.2	1.8	1.2	1.3
28	2.2	1.7	3.4	5.1	9.0	6.4	5.1	3.2	*2.2	1.7	1.4	1.1
29	2.2	1.7	3.2	4.9	-	6.4	5.1	3.2	2.2	1.7	1.3	.9
30	2.2	1.6	3.1	4.9	-----	6.4	*5.1	3.1	2.2	1.8	1.2	.9
31	2.1	-----	3.1	4.8	-----	6.8	-----	3.1	-----	1.8	1.2	-----
Total	64.5	54.4	84.0	219.1	167.7	287.5	236.1	126.4	82.5	60.9	45.5	32.4
Mean	2.08	1.81	2.71	7.07	5.99	9.27	7.87	4.08	2.75	1.96	1.47	1.08
Cfsm	0.735	0.640	0.958	2.50	2.12	3.28	2.78	1.44	0.972	0.693	0.519	0.382
In.	0.85	0.71	1.10	2.88	2.20	3.78	3.10	1.66	1.08	0.80	0.60	0.43

Calendar year 1961: Max 44 Min 0.9 Mean 5.36 Cfsm 1.89 In. 25.72  
Water year 1961-62: Max 40 Min 0.9 Mean 4.00 Cfsm 1.41 In. 19.19

Peak discharge (base, 30 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1960-61				1961-62			
1-1	1430	3.75	54	1-7	0445	3.94	63
2-19	0700	3.82	60	3-6	1145	3.35	37
2-23	1700	3.66	52	3-12	1145	3.17	31
3-8	1930	3.17	30	4-8	0445	3.26	32
3-22	2345	3.28	32				
4-13	0930	3.68	50				

\* Discharge measurement made on this day.  
Note.--Backwater from aquatic vegetation  
Oct. 1 to Feb. 19, June 1 to Sept. 30.

## BROADKILL RIVER BASIN

1-4843. Sowbridge Branch near Milton, Del.

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

Drainage area.--7.08 sq mi.

Records available.--October 1956 to September 1962.

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

Average discharge.--6 years, 11.9 cfs. *1.54 cfs*

Extremes.--Maximum discharge during year, 26 cfs Jan. 6 (gage height, 5.04 ft); minimum, 3.7 cfs July 9, 10. 1956-62: 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 doubtful or no gage-height record, which are fair. Flow regulated by Reynolds Pond.

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-24 and Dec. 11 to Feb. 9)

3.7	2.5	4.7	20
3.9	5.6	5.0	28
4.1	8.8		
4.4	14		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	9.4	a7.8	10	12	17	17	*13	8.6	7.2	6.9	4.8
2	*6.8	9.1	a7.8	11	13	16	*17	13	8.3	6.7	6.1	4.8
3	13	9.1	a7.8	11	12	15	16	13	8.0	6.4	5.9	5.4
4	9.4	9.1	a7.4	11	12	15	15	12	7.8	5.9	6.4	5.0
5	8.6	9.1	a7.8	*11	13	15	15	12	8.2	4.0	7.0	5.3
6	8.2	9.0	a7.4	16	12	19	14	12	8.3	4.2	8.5	5.0
7	7.7	*9.1	a7.4	20	12	20	16	11	7.8	4.2	*8.0	5.0
8	7.4	9.0	a6.4	20	*11	20	20	9.1	7.7	4.0	7.4	5.0
9	6.7	8.6	a6.4	19	12	19	20	9.4	7.0	4.0	7.5	5.0
10	6.2	8.2	a7.8	18	13	19	19	9.4	6.9	4.0	7.7	5.0
11	6.1	8.2	*a7.5	d16	d12	18	18	9.8	6.6	8.0	7.4	4.8
12	5.9	8.2	12	d15	d11	*21	18	9.8	7.0	6.1	7.2	4.3
13	5.9	8.2	12	d15	d12	21	19	9.8	13	5.6	6.9	4.3
14	6.1	8.2	10	d15	12	20	19	9.8	13	5.8	6.6	4.5
15	6.9	8.3	9.1	16	12	19	19	9.6	14	5.8	5.8	4.3
16	6.1	8.3	8.5	16	12	19	18	9.6	12	6.1	4.5	4.0
17	5.9	a8.2	11	16	12	18	17	9.8	11	6.4	4.5	5.6
18	5.9	a7.4	14	15	12	18	17	9.8	9.9	6.4	4.3	5.0
19	5.8	a7.4	13	15	15	17	16	9.4	9.4	7.0	4.3	*4.5
20	5.6	a10	12	14	16	17	16	9.1	10	6.6	4.3	4.5
21	9.0	a10	11	14	15	18	15	9.0	10	6.8	4.5	4.5
22	14	a8.6	10	14	15	19	15	8.6	10	14	4.5	4.6
23	11	a8.0	11	14	15	19	15	8.6	9.6	15	4.6	4.6
24	11	a9.2	12	14	14	18	14	9.4	9.3	12	4.6	4.6
25	20	a9.0	12	14	14	17	14	*8.6	8.8	10	4.8	4.6
26	17	a8.6	11	14	15	17	14	8.3	*9.6	9.4	4.8	5.0
27	14	a7.8	11	14	17	16	13	8.5	9.1	8.3	4.8	6.9
28	12	a7.8	11	13	17	16	13	8.3	8.3	7.4	5.1	6.1
29	11	a7.8	10	13	-	15	13	8.3	7.7	6.4	5.0	5.6
30	11	a7.8	10	13	-	15	13	8.5	7.4	5.8	4.8	5.6
31	9.9	-	9.9	12	-	15	-	8.6	-	7.2	4.8	-
Total	278.6	256.7	302.0	449	370	548	485	305.1	274.3	216.7	179.5	148.2
Mean	8.99	8.56	9.74	14.5	13.2	17.7	16.2	9.84	9.14	6.99	5.79	4.94
Cfsm	1.27	1.21	1.38	2.05	1.86	2.50	2.29	1.39	1.29	0.987	0.818	0.698
In.	1.46	1.35	1.59	2.36	1.94	2.88	2.55	1.60	1.44	1.14	0.94	0.78

Calendar year 1961: Max 32 Min 4.5 Mean 13.7 Cfsm 1.94 In. 26.37  
Water year 1961-62: Max 21 Min 4.0 Mean 10.4 Cfsm 1.47 In. 20.03

\* Discharge measurement made on this day.

a No gage-height record.

d Doubtful gage-height record.

INDIAN RIVER BASIN

21

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 1962.

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

Average discharge.--19 years, 7.52 cfs.

Extremes.--Maximum discharge during year, 92 cfs Jan. 7 (gage height, 3.50 ft); minimum, 1.4 cfs Sept. 14, 15. 1943-62: Maximum discharge, 132 cfs June 4, 1948 (gage height, 5.0 ft, from graph based on gage readings), from rating curve extended above 50 cfs by logarithmic plotting; minimum observed, 0.13 cfs Sept. 1-11, 1944.

Remarks.--Records good.

Rating table, water year 1961-62 (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
3.5	92

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	4.0	3.5	8.2	9.2	21	15	*8.9	4.8	3.5	2.4	1.9
2	2.4	3.8	3.5	8.5	9.2	17	14	9.2	4.6	3.5	2.4	1.9
3	*5.2	3.5	3.5	8.5	8.9	15	13	9.2	4.6	3.5	2.2	2.2
4	2.8	3.5	3.3	8.5	9.2	13	13	8.9	4.6	3.5	2.2	2.0
5	2.6	3.5	3.5	*8.9	9.5	13	12	8.2	4.6	3.3	2.2	2.0
6	2.4	3.5	3.3	2.5	9.2	*5.5	12	7.9	4.6	3.3	2.4	1.9
7	2.4	*3.5	3.3	6.8	8.5	4.9	13	7.6	4.6	3.3	*2.6	1.9
8	2.4	3.5	3.0	3.4	*8.2	3.4	17	7.6	4.6	3.3	2.4	1.7
9	2.4	3.5	3.0	2.6	9.2	2.8	18	7.6	4.2	3.3	4.3	1.7
10	2.2	3.5	3.5	2.1	10	2.4	15	7.6	4.0	3.0	3.5	1.7
11	2.2	3.5	*3.3	1.7	8.9	2.0	15	7.3	4.0	3.0	2.8	1.7
12	2.2	3.3	7.3	1.6	8.9	3.4	15	7.3	4.0	3.0	2.6	1.7
13	2.2	3.3	6.1	1.4	8.2	3.0	2.0	7.0	9.8	3.0	2.6	1.6
14	2.2	3.3	5.2	1.3	8.9	2.2	1.8	6.7	5.8	3.0	2.4	1.6
15	2.4	3.3	4.8	1.6	9.2	2.0	1.5	6.7	5.2	3.0	2.4	1.6
16	2.2	3.3	4.6	2.0	8.9	1.8	1.4	6.4	4.8	3.3	2.4	1.6
17	2.0	3.3	8.9	1.6	9.2	1.6	1.3	6.4	4.2	3.0	2.4	2.4
18	2.0	3.0	1.2	1.4	8.9	1.5	1.2	6.1	4.2	3.0	2.2	2.2
19	2.0	3.0	1.1	1.3	1.6	1.5	1.2	6.1	4.0	3.0	2.2	*1.7
20	2.0	5.5	1.0	1.3	1.5	1.4	1.2	5.8	4.6	2.8	2.2	1.9
21	5.2	4.2	9.5	1.2	1.3	1.8	1.1	5.5	4.8	2.8	2.0	1.9
22	1.4	3.8	9.2	1.2	1.4	2.2	1.1	5.2	4.2	5.2	2.4	1.9
23	6.7	3.5	9.2	1.2	1.3	1.8	1.0	4.8	4.0	2.8	2.2	1.9
24	5.5	4.2	1.1	1.0	1.2	1.6	1.0	5.2	4.8	2.8	2.2	1.7
25	4.8	4.0	1.0	1.0	1.1	1.5	9.8	*5.5	4.8	2.6	2.2	1.7
26	4.6	3.8	9.5	1.0	1.6	1.4	9.5	5.2	*4.0	2.6	2.0	1.9
27	4.2	3.5	9.5	1.0	2.4	1.4	9.2	5.2	3.8	2.4	2.0	2.2
28	4.2	3.5	9.5	1.0	2.5	1.3	9.2	4.8	3.8	2.2	2.2	2.0
29	4.2	3.5	9.2	9.8	-	1.3	8.9	4.8	3.5	2.2	2.0	1.7
30	4.0	3.5	8.5	9.8	-----	*1.2	8.9	5.2	3.5	2.4	1.9	1.6
31	4.0	-----	8.2	9.2	-----	1.3	-----	5.2	-----	2.4	1.9	-----
Total	109.2	108.1	209.9	483.4	321.2	641	385.5	205.1	137.0	94.0	73.8	55.4
Mean	3.52	3.60	6.77	15.6	11.5	20.7	12.8	6.62	4.57	3.03	2.38	1.85
Cfsm	0.672	0.687	1.29	2.98	2.19	3.95	2.44	1.26	0.872	0.578	0.454	0.355
In.	0.78	0.77	1.49	3.43	2.28	4.55	2.74	1.46	0.97	0.67	0.52	0.39

Calendar year 1961: Max 45 Min 1.6 Mean 9.20 Cfsm 1.76 In. 23.83  
Water year 1961-62: Max 68 Min 1.6 Mean 7.74 Cfsm 1.48 In. 20.05

Peak discharge (base, 45 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	0600	3.50	92	3-6	1545	3.34	78

## POCOMOKE RIVER BASIN

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 Whaleyville.

Drainage area.--60.5 sq mi.

Records available.--December 1949 to September 1962.

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

Average discharge.--12 years (1950-62), 70.8 cfs.

Extremes.--Maximum discharge during year, 884 cfs Jan. 8 (gage height, 11.87 ft); minimum, 3.0 cfs Sept. 15, 16, 17.

1949-62: Maximum discharge, that of Jan. 8, 1962; maximum gage height, 12.03 ft Mar. 21, 1958; minimum discharge, 2.2 cfs Aug. 18, 19, 1957 (gage height, 1.91 ft).

Remarks.--Records fair.

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 22, 23, Nov. 6-20, Jan. 8-12, Mar. 6-13, Apr. 8 to May 25, June 13 to July 19)

2.0	2.1	5.0	136
2.5	14	7.0	306
3.0	28	9.0	496
3.5	46	11.0	710
4.0	71	12.5	897

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	55	41	86	94	292	107	41	20	22	95	34
2	*16	49	40	89	90	205	*141	*41	19	21	88	34
3	108	44	38	87	88	159	118	42	19	20	83	87
4	113	42	36	84	101	135	97	38	18	20	78	64
5	84	40	35	a100	*126	121	85	36	18	19	76	54
6	55	39	34	a500	118	*535	77	34	19	18	73	45
7	40	*39	33	a800	97	*825	97	32	18	17	73	43
8	33	40	32	*a844	85	*733	197	33	17	17	*71	41
9	29	38	31	*666	87	*474	297	40	16	16	83	41
10	26	37	35	437	151	324	216	34	16	16	92	41
11	23	35	*46	*241	120	*278	176	33	15	15	78	36
12	22	34	101	*191	101	*468	195	32	15	14	73	34
13	20	33	160	165	88	538	249	30	96	14	68	32
14	20	32	129	141	92	357	217	29	103	13	66	32
15	20	33	105	176	113	237	166	28	80	14	64	30
16	19	33	85	305	110	181	135	27	64	14	61	30
17	18	34	191	232	121	149	114	27	47	14	59	87
18	17	34	395	179	109	128	100	26	39	14	57	11
19	17	32	466	150	225	113	93	25	34	13	57	*76
20	17	49	333	137	298	103	88	24	31	12	54	64
21	38	73	231	124	213	129	79	23	31	12	52	57
22	*354	67	174	118	223	251	72	23	30	12	57	52
23	388	60	148	118	208	198	67	22	28	11	50	52
24	280	69	222	109	182	158	60	23	28	11	48	50
25	188	77	207	107	149	130	56	26	30	11	45	48
26	140	67	165	100	157	114	52	22	*27	11	45	48
27	108	62	140	104	275	100	49	23	26	10	43	73
28	88	56	130	107	362	89	46	*21	24	95	45	80
29	75	50	120	101	-	81	44	20	23	95	45	64
30	67	44	102	102	-----	75	42	20	22	10	41	57
31	62	-----	92	104	-----	70	-----	20	-----	10	39	-----
Total	2498	1397	4097	6804	4183	7750	3532	895	973	4400	1959	1596
Mean	80.6	46.6	132	219	149	250	118	28.9	32.4	14.2	6.32	5.32
Cfsm	1.33	0.770	2.18	3.62	2.46	4.13	1.95	0.478	0.536	0.235	0.104	0.088
In.	1.54	0.86	2.52	4.18	2.57	4.76	2.17	0.55	0.60	0.27	0.12	0.10

Calendar year 1961: Max 697 Min 5.7 Mean 105 Cfsm 1.74 In. 23.45  
Water year 1961-62: Max 844 Min 3.0 Mean 90.2 Cfsm 1.49 In. 20.24

Peak discharge (base, 500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-18	2300	9.29	525	3-7	2000	11.44	850
1-8	About 0200	11.87	884	3-12	2200	9.82	663

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

## POCOMOKE RIVER BASIN

23

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 1962.

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

Average discharge.--12 years (1950-62), 55.9 cfs.

Extremes.--Maximum discharge during year, 669 cfs Jan. 7 (gage height, 7.14 ft); minimum, 2.2 cfs Sept. 1, 2, 12-17.

1949-62: 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 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

(Shifting-control method used Dec. 18 to Jan. 5)

1.45	2.0	3.0	75
1.5	3.0	4.0	119
1.6	5.7	5.0	200
1.7	9.5	6.0	345
2.0	29	7.0	615
2.4	55	8.0	1,090

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	23	23	51	81	225	a90	26	23	9.5	3.8	2.2
2	*13	20	22	45	81	193	*a130	*25	14	7.8	3.5	2.2
3	46	18	21	42	81	139	151	24	11	6.7	3.2	4.0
4	24	18	20	47	83	104	137	23	10	6.7	3.2	4.2
5	19	18	20	63	*93	89	104	22	10	6.3	2.8	3.5
6	16	*17	18	97	110	198	85	20	9.5	6.0	2.6	3.0
7	13	16	18	381	110	507	87	18	8.6	5.7	2.8	2.6
8	11	16	17	*638	93	583	124	18	7.8	5.4	*3.2	2.4
9	9.0	15	16	472	85	*419	216	27	7.0	5.1	3.2	2.4
10	8.2	15	27	312	109	292	255	27	6.3	4.5	3.8	2.4
11	7.4	16	*33	211	110	216	218	26	5.7	4.2	3.8	2.4
12	7.0	16	60	145	110	248	200	25	6.0	4.2	3.5	2.2
13	6.6	16	76	109	89	394	224	23	92	4.5	3.2	2.2
14	6.3	17	86	92	85	401	238	22	105	4.5	3.0	2.2
15	7.0	19	88	98	90	296	204	20	77	4.8	3.0	2.2
16	7.0	18	75	137	94	206	150	18	63	5.1	3.0	2.2
17	6.6	18	89	178	101	147	110	17	45	7.0	3.0	1.5
18	6.3	18	134	171	96	a120	89	16	31	5.7	2.6	*1.5
19	6.0	17	*218	134	120	a100	75	14	23	5.4	2.4	7.4
20	5.7	32	246	106	213	a90	68	13	18	4.8	2.4	5.1
21	54	31	188	91	256	a82	64	12	17	4.5	2.4	4.2
22	86	28	131	82	220	a160	59	11	16	4.2	2.4	3.8
23	75	29	97	81	181	a195	54	10	13	3.5	2.4	3.2
24	75	40	105	78	161	a170	48	10	11	3.5	2.4	3.0
25	86	39	112	78	137	a140	43	10	*10	3.8	2.4	2.8
26	71	35	110	76	116	a110	38	9.0	9.5	4.2	2.4	3.0
27	57	32	98	75	136	a90	35	11	9.0	3.8	2.4	9.5
28	40	30	84	75	182	a80	31	*10	8.2	3.2	3.0	14
29	32	27	72	76	-	a70	29	10	7.4	3.2	2.8	7.8
30	28	26	64	77	-----	a65	27	10	8.6	3.2	2.6	5.7
31	25	-----	54	83	-----	a60	-----	30	-----	3.5	2.4	-----
Total	857.6	680	2422	4401	3423	6189	3383	557.0	682.6	154.5	89.6	141.8
Mean	27.7	22.7	78.1	142	122	200	113	18.0	22.8	4.98	2.89	4.73
Cfs	0.617	0.506	1.74	3.16	2.72	4.45	2.52	0.401	0.508	0.111	0.064	0.105
In.	0.71	0.56	2.01	3.65	2.84	5.13	2.80	0.46	0.57	0.13	0.07	0.12

Calendar year 1961: Max 626 Min 3.2 Mean 78.1 Cfs 1.74 In. 23.63  
 Water year 1961-62: Max 638 Min 2.2 Mean 63.0 Cfs 1.40 In. 19.05

Peak discharge (base, 280 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	1000	7.14	669	3-14	0100	6.42	434
3-7	0200	7.04	630				

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

## MANOKIN RIVER BASIN

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 1962.

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

Average discharge.--11 years, 4.39 cfs.

Extremes.--Maximum discharge during year, 218 cfs Jan. 7 (gage height, 5.21 ft), from rating curve extended above 83 cfs by logarithmic plotting; minimum daily, 0.1 cfs Oct. 1, 11, 12, Aug. 3-8, 31, Sept. 1, 2, 7-16.  
1951-62: 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 poor.

Rating tables, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 3-20, Nov. 3-20, Nov. 25 to Dec. 18, Jan. 6)

Oct. 1 to Jan. 6				Jan. 7 to Sept. 30			
0.8	0.1	1.5	6.5	0.82	0.1	2.1	17
.9	.5	2.0	16	.9	.4	2.6	34
1.0	1.1	2.5	27	1.0	1.0	3.1	58
1.2	2.7			1.2	2.5	4.1	129
				1.6	7.0		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.8	0.9	a 2.9	6.4	12	16	1.7	0.6	0.4	0.2	0.1
2	.7	.8	.8	a 2.7	5.9	8.2	*16	*1.7	.5	.4	.2	.1
3	*1.0	.8	.8	a 2.5	6.2	6.9	9.0	1.7	.6	.4	.1	.4
4	.6	.7	.8	a 3.5	9.0	6.0	6.6	1.4	.6	.4	.1	.2
5	.4	.6	.9	a 9.3	13	5.7	5.4	1.3	.6	.4	.1	.2
6	.3	*.6	.9	65	*9.9	73	4.6	1.2	.6	.4	.1	.2
7	.2	.7	.8	126	6.7	60	9.7	1.2	.5	.4	.1	.1
8	.2	.8	.8	*3.7	5.5	27	24	1.2	.4	.3	.1	.1
9	.2	.7	.7	18	8.8	16	20	1.8	.4	.3	.2	.1
10	.2	.7	1.2	12	16	13	10	1.4	.4	.2	.2	.1
11	.1	.7	1.3	9.7	8.5	10	15	1.3	.4	.2	.2	.1
12	.1	.6	*4.1	8.0	6.6	*60	16	1.2	.5	.3	.2	.1
13	.2	.6	4.6	6.9	5.6	30	21	1.1	1.5	.3	.2	.1
14	.2	.6	2.6	6.0	7.2	15	13	1.0	1.2	.3	.2	.1
15	.3	.8	1.8	13	8.4	10	8.4	1.0	.8	.4	.2	.1
16	.3	.6	1.4	17	7.3	8.2	6.3	1.0	.7	.4	.2	.1
17	.3	.6	1.2	10	8.8	6.9	5.0	.9	.6	.4	.2	.4
18	.4	.6	a 2.3	7.9	6.7	5.7	4.4	.8	.5	.3	.2	*.2
19	.4	.6	*a 1.7	6.9	36	5.1	4.0	.8	.4	.3	.2	.2
20	.5	1.9	11	6.3	22	4.9	4.0	.7	.5	.2	.2	.2
21	1.9	2.0	7.6	5.4	13	16	3.8	.7	.6	.2	.2	.2
22	4.3	1.6	5.9	5.2	14	20	3.3	.6	.5	.2	.2	.2
23	2.4	1.6	5.5	6.0	11	12	3.0	.6	.4	.2	.2	.2
24	1.5	1.8	10	5.4	9.7	8.4	2.5	.6	.4	*.2	.2	.2
25	1.1	1.2	7.3	5.6	7.4	6.7	2.3	.6	*.4	.2	.2	.2
26	1.0	1.1	a 5.4	5.0	11	5.6	2.2	.6	.6	.2	.2	.2
27	1.0	1.1	a 4.5	5.7	18	4.9	2.0	.6	.4	.2	.2	.5
28	.9	1.1	a 4.0	5.9	17	4.2	1.9	*.6	.4	.2	.4	.3
29	.9	1.0	a 3.7	5.5	-	3.8	1.7	.6	.4	.2	.2	.2
30	.9	.9	a 3.4	7.4	-----	3.4	1.8	.6	.4	.2	.2	.2
31	.8	-----	a 3.1	8.5	-----	3.3	-----	.6	-----	.2	.1	-----
Total	23.4	28.2	147.8	436.2	305.6	471.9	242.9	31.1	16.8	8.9	5.7	5.6
Mean	0.755	0.940	4.77	14.1	10.9	15.2	8.10	1.00	0.560	0.287	0.184	0.187
Cfsm	0.130	0.162	0.822	2.43	1.88	2.62	1.40	0.172	0.097	0.049	0.032	0.032
In.	0.15	0.18	0.95	2.80	1.96	3.03	1.56	0.20	0.11	0.06	0.04	0.04

Calendar year 1961: Max 70 Min 0.1 Mean 5.45 Cfsm 0.940 In. 12.76  
Water year 1961-62: Max 126 Min 0.1 Mean 4.72 Cfsm 0.814 In. 11.08

Peak discharge (base, 50 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 7	0100	5.21	218	3- 6	0815	4.00	121
2-19	1300	3.31	71	3-12	1315	3.87	111

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

## WICOMICO RIVER BASIN

25

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 1962. 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.--27 years (1929-32, 1938-62), 23.9 cfs.

Extremes.--Maximum discharge during year, 487 cfs Jan. 7; maximum gage height, 11.82 ft Jan. 7; minimum daily discharge, 1.2 cfs Sept. 22 (leakage under dam and flow through spillway valve following closing of floodgate).

1929-62: 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, period of construction when the 3 wooden floodgates were replaced by one metal floodgate, 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), flow over or through floodgates since July 1938, and flow through spillway valve. Occasional regulation at low and medium flow caused by mill above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	15	15	28	38	79	52	25	16	14	12	7.9
2	1.4	15	14	28	38	67	56	26	16	13	12	7.9
3	*27	14	14	25	37	56	53	*26	15	14	12	11
4	28	14	14	26	38	48	49	25	15	14	12	10
5	17	14	13	29	40	45	42	24	15	13	12	9.0
6	8.3	16	13	64	*37	130	40	23	15	12	12	8.4
7	7.9	*22	12	e 338	36	e 207	44	23	15	12	12	8.0
8	7.9	23	12	*e 263	35	e 186	59	24	14	12	a75	8.0
9	7.9	25	12	e84	38	e81	78	29	14	12	a12	7.9
10	7.9	22	18	68	42	73	74	24	13	12	a12	7.8
11	7.9	20	a18	62	38	a58	66	24	13	12	a11	7.5
12	7.9	19	*a28	54	37	*a104	64	23	14	12	a11	7.3
13	7.9	18	30	45	36	144	68	22	53	12	a11	7.2
14	7.9	18	30	45	38	102	67	22	*50	12	a10	7.1
15	9.6	19	28	49	37	71	59	21	32	13	a10	7.0
16	8.7	18	24	63	35	59	51	19	31	13	a10	7.1
17	8.3	18	40	62	37	52	38	19	26	14	a10	15
18	7.9	18	64	61	43	46	29	19	21	13	a10	*22
19	7.6	17	*88	50	67	44	35	18	18	13	a10	14
20	7.6	24	75	47	72	43	36	18	16	12	a10	11
21	22	22	55	45	72	52	35	17	17	12	a11	a 4.1
22	54	21	43	43	63	70	33	16	16	11	a11	a 1.2
23	43	21	35	39	58	74	31	16	15	11	a10	a 1.5
24	39	23	38	39	54	64	30	20	20	11	a10	a 9.0
25	32	20	38	41	50	53	29	18	16	11	a10	a 13
26	24	19	33	38	50	48	28	17	16	12	a10	a 10
27	21	19	34	40	63	44	28	21	15	11	a10	16
28	16	17	33	39	77	41	27	*18	14	11	*a10	18
29	15	16	31	38	-	39	27	18	14	11	a9.4	13
30	16	15	24	38	-----	38	26	20	14	12	a8.8	12
31	16	-----	19	38	-----	37	-----	18	-----	12	*a8.1	-----
Total	494.4	562	945	1929	1306	2255	1354	653	579	379	394.3	288.9
Mean	15.9	18.7	30.5	62.2	46.6	72.7	45.1	21.1	19.3	12.2	12.7	9.63
Cfsm	0.815	0.959	1.56	3.19	2.39	3.73	2.31	1.08	0.990	0.626	0.651	0.494
In.	0.94	1.07	1.80	3.68	2.49	4.30	2.58	1.25	1.10	0.72	0.75	0.55

Calendar year 1961: Max 309 Min 1.4 Mean 32.0 Cfsm 1.64 In. 22.24  
 Water year 1961-62: Max 338 Min 1.2 Mean 30.5 Cfsm 1.56 In. 21.23

\* Discharge measurement made on this day.

a No record of gage heights or of operation of spillway valve or new floodgate.

e Discharge computed on basis of flow through 1 or 2 floodgates, through spillway valve, over spillway and leakage through closed floodgates.

## NANTICOKE RIVER BASIN

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 1962. 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.--19 years, 94.4 cfs.

Extremes.--Maximum discharge during year, 985 cfs Jan. 7 (gage height, 6.99 ft); minimum, 19 cfs Sept. 15, 16, 17 (gage height, 2.23 ft).

1943-62: Maximum discharge, 2,300 cfs Aug. 26, 1958 (gage height, 8.84 ft); minimum observed, 6.3 cfs Sept. 29, 1943.

Maximum stage known, about 11.0 ft in September 1935, from information by local residents.

Remarks.--Records fair.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	73	44	88	91	318	198	*88	52	42	49	26
2	35	69	43	90	90	*232	240	88	50	40	44	24
3	80	65	42	87	89	168	202	88	45	39	40	26
4	58	60	42	88	93	133	160	84	44	40	36	26
5	*46	54	42	a 96	97	121	138	82	50	38	34	28
6	46	50	42	a 300	94	395	131	80	61	37	*42	27
7	48	49	42	a 240	88	*584	138	78	50	36	63	27
8	46	48	*42	a 740	87	508	252	78	48	35	50	26
9	48	48	43	520	*96	*386	350	84	45	34	62	24
10	48	*46	53	392	122	330	278	79	42	32	54	25
11	47	44	58	292	110	278	228	78	41	32	48	26
12	44	43	89	222	98	338	218	77	44	32	42	25
13	42	42	104	170	94	395	278	74	106	33	40	24
14	38	42	85	138	96	332	292	73	81	32	40	*24
15	40	40	75	158	108	265	240	71	63	33	38	22
16	36	38	70	275	109	228	208	69	62	34	38	20
17	38	36	103	242	108	202	176	67	56	38	38	28
18	39	34	198	182	110	180	154	66	52	40	35	28
19	39	32	240	145	192	162	141	63	49	52	31	27
20	38	50	170	128	318	152	137	58	65	41	30	27
21	65	52	124	119	220	170	126	56	120	40	32	26
22	186	44	104	114	192	240	119	53	77	52	32	27
23	202	41	99	116	192	228	114	53	63	48	30	27
24	122	56	192	112	168	198	107	58	56	51	30	28
25	93	57	198	109	138	170	102	*56	53	48	30	28
26	84	48	145	106	170	149	100	54	50	50	27	29
27	80	47	119	106	345	135	96	59	50	47	27	38
28	79	46	109	105	371	127	92	55	*48	44	30	35
29	78	44	105	100	-	*124	90	55	46	40	30	30
30	78	44	96	97	-----	120	90	56	44	44	28	27
31	77	-----	90	94	-----	118	-----	54	-----	46	27	-----
Total	2028	1,442	3,008	6,471	4,086	7,486	5,195	2,134	1,713	1,257	1,177	805
Mean	65.4	48.1	97.0	209	146	241	173	68.8	57.1	40.5	38.0	26.8
Cfsm	0.867	0.638	1.29	2.77	1.94	3.20	2.29	0.912	0.757	0.537	0.504	0.355
In.	1.00	0.71	1.48	3.19	2.02	3.69	2.56	1.05	0.84	0.62	0.58	0.40

Calendar year 1961: Max 688 Min 28 Mean 131 Cfsm 1.74 In. 23.52

Water year 1961-62: Max 940 Min 20 Mean 101 Cfsm 1.34 In. 18.14

Peak discharge (base, 360 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	Unknown	6.99	985	3-7	0300	6.42	596
2-28	0400	5.63	374	3-13	0300	5.98	407

\* 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 1962.

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

Average discharge---11 years, 17.8 cfs.

Extremes---Maximum discharge during year, 462 cfs Jan. 7 (gage height, 3.55 ft); minimum, 0.1 cfs Sept. 23.  
1951-62: Maximum discharge, that of Jan. 7, 1962; 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 1961-62 (gage height, in feet,  
and discharge, in cubic feet per second)

0.55	0.2	1.7	40
.6	.4	2.0	69
.8	2.5	2.3	110
.9	4.1	2.5	146
1.1	9.1	3.0	271
1.4	21	3.5	450

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	8.0	8.3	a18	a22	79	32	11	6.6	5.0	2.0	0.5
2	4.9	7.7	8.0	a17	a21	56	38	12	5.0	4.3	2.0	.6
3	*22	7.4	8.0	a16	a20	40	31	*15	4.1	3.9	1.7	.4
4	8.0	6.9	8.0	a16	a27	34	25	12	4.1	4.3	1.5	.4
5	4.5	6.9	7.1	*19	*a29	32	21	10	5.2	3.9	1.5	.4
6	3.5	*6.9	6.9	67	26	140	20	9.4	6.1	3.6	1.5	.4
7	3.0	8.3	6.3	35.5	23	228	24	8.5	4.5	3.3	1.4	.5
8	2.8	7.7	5.9	149	20	136	40	9.4	3.6	3.1	1.5	.5
9	2.7	6.9	6.9	88	23	89	70	11	3.3	2.5	1.8	.4
10	2.7	6.6	10	61	35	69	53	10	3.0	2.2	2.5	.5
11	2.5	6.6	10	44	34	57	41	9.8	2.7	2.1	1.8	.5
12	2.3	6.3	*19	37	26	80	41	9.8	3.4	2.0	1.5	.5
13	2.5	6.6	22	32	23	*107	48	8.8	5.4	1.8	1.3	.5
14	2.8	6.9	19	28	25	71	50	8.5	4.9	2.0	1.2	.6
15	4.3	7.7	14	33	29	53	37	8.5	2.7	2.8	1.2	.6
16	2.8	7.1	13	57	30	41	29	7.4	18	3.5	1.2	.5
17	2.5	6.6	25	56	29	35	25	6.9	13	3.6	1.1	.4
18	2.4	5.9	45	40	28	32	22	7.1	11	3.0	1.0	.5
19	2.3	6.1	63	32	40	28	21	6.3	8.5	3.3	1.0	.5
20	2.7	16	44	29	68	27	20	6.1	10	2.2	1.0	.5
21	17	14	a30	26	51	37	18	5.4	12	2.0	1.2	.5
22	3.7	12	a24	25	46	70	17	5.0	9.4	1.5	1.1	.5
23	3.2	11	a22	25	50	63	15	4.8	8.3	1.4	.9	.2
24	19	12	a30	a25	40	45	14	6.3	8.3	1.6	1.0	.2
25	14	12	a29	a27	34	36	14	12	9.1	1.8	.9	.2
26	11	11	a24	a25	36	32	13	7.7	7.4	1.6	.8	.2
27	9.8	9.4	a22	a25	64	27	12	9.8	6.6	1.2	.8	.2
28	9.4	8.8	a21	a24	95	25	12	6.6	5.2	1.1	.7	.2
29	9.1	8.5	a23	a22	-	23	12	5.4	5.0	1.2	.6	.2
30	9.1	8.3	a22	a22	-----	*21	11	5.9	5.0	1.4	.7	.2
31	8.8	-----	a20	a22	-----	20	-----	8.0	-----	1.7	.6	-----
Total	258.0	256.1	616.4	1462	994	1833	826	264.4	318.4	78.9	39.0	12.3
Mean	8.32	8.54	19.9	47.2	35.5	59.1	27.5	8.53	10.6	2.55	1.26	0.41
Cfsm	0.498	0.511	1.19	2.83	2.13	3.54	1.65	0.511	0.635	0.153	0.075	0.025
In.	0.57	0.57	1.37	3.26	2.21	4.08	1.84	0.59	0.71	0.18	0.09	0.03

Calendar year 1961: Max 215 Min 0.5 Mean 22.7 Cfsm 1.36 In. 18.41  
Water year 1961-62: Max 355 Min 0.2 Mean 19.1 Cfsm 1.14 In. 15.50

Peak discharge (base, 100 cfs)

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

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	0830	3.55	462	3-6	2300	3.06	283
2-28	0830	2.29	106	3-12	0200	2.38	120

## NANTICOKE RIVER BASIN

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 1962.

Gage.--Water-stage recorder (digital). 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.--19 years, 55.2 cfs.

Extremes.--Maximum discharge during year, 762 cfs Jan. 7 (gage height, 8.83 ft); minimum, 2.1 cfs Sept. 13, 14. 1943-62: Maximum discharge, 2,270 cfs Aug. 26, 1958 (gage height, 11.55 ft); minimum, 2.0 cfs Sept. 13, 1961.

Maximum stage known, 14.5 ft in September 1935, from information by local residents.

Remarks.--Records good except those for periods of shifting control, which are fair.

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Oct. 1-21, Oct. 24 to Dec. 16, Dec. 21-23, Dec. 27 to Jan. 5, Sept. 26-30)

2.6	2.4	6.0	123
2.8	6.2	7.0	225
3.0	10	8.0	470
4.0	36	9.0	630
5.0	72		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	10	10	32	39	229	143	*29	11	8.7	6.6	3.1
2	5.1	9.6	9.9	32	38	*133	231	28	11	8.2	5.6	3.1
3	12	9.5	9.1	30	37	93	155	28	11	8.0	5.1	4.1
4	11	9.6	8.7	*30	39	76	97	26	10	8.0	5.0	4.0
5	*7.8	9.4	8.6	36	44	67	75	25	10	7.7	4.9	4.2
6	5.8	9.2	*8.4	104	44	240	64	24	10	7.4	5.3	4.0
7	4.8	9.8	8.1	621	38	*481	69	23	9.7	7.2	*6.7	3.6
8	4.3	9.6	7.8	602	34	438	283	22	9.1	7.0	7.5	3.2
9	4.0	8.9	7.5	338	35	320	436	21	8.5	6.9	11	3.1
10	3.8	*8.6	9.5	181	46	228	327	20	8.3	6.6	13	3.1
11	3.8	8.4	10	114	44	163	188	20	8.0	6.4	9.6	2.9
12	4.1	8.3	18	88	37	233	171	20	9.2	6.2	7.7	*2.7
13	4.3	8.2	31	74	*35	339	298	19	21	6.1	6.6	2.5
14	5.6	8.2	22	65	37	241	323	19	19	6.6	6.0	2.4
15	8.9	8.6	17	77	50	142	201	18	17	7.7	5.4	2.5
16	9.0	8.1	15	160	51	104	122	17	20	7.8	5.1	2.5
17	8.3	7.9	42	125	50	84	90	17	14	8.4	5.0	4.8
18	8.0	7.3	93	91	55	71	74	16	12	8.0	4.9	5.5
19	7.8	7.0	113	75	112	63	65	15	11	7.6	4.4	4.8
20	7.8	11	77	68	201	59	58	15	14	6.8	4.2	4.3
21	13	12	53	61	146	72	53	14	18	6.3	4.0	4.1
22	53	11	43	59	132	160	48	13	14	10	3.9	3.8
23	61	11	39	62	134	129	45	13	12	18	3.6	3.4
24	23	13	99	58	108	94	41	13	12	14	3.5	3.3
25	15	15	93	55	87	75	38	*13	11	11	3.3	3.1
26	13	14	69	52	109	64	36	12	10	9.8	3.2	2.9
27	12	13	52	53	242	57	34	13	9.9	7.6	3.4	5.6
28	11	12	48	54	295	51	32	12	*9.4	6.5	4.6	5.1
29	11	11	46	48	-	*46	30	12	9.2	6.1	4.6	3.7
30	10	11	39	45	-----	43	30	12	9.0	6.7	3.6	2.8
31	10	-----	34	42	-----	42	-----	12	-----	6.9	3.2	-----
Total	361.8	300.2	1140.6	3532	2319	4637	3857	561	358.3	250.2	170.5	108.2
Mean	11.7	10.0	36.8	114	82.8	150	129	18.1	11.9	8.07	5.50	3.61
Cfs/m	0.261	0.223	0.821	2.55	1.55	3.35	2.88	0.404	0.266	0.180	0.123	0.081
In.	0.30	0.25	0.95	2.83	1.83	3.85	3.20	0.47	0.30	0.21	0.14	0.09

Calendar year 1961: Max 742 Min 2.2 Mean 60.5 Cfs/m 1.35 In. 18.35  
Water year 1961-62: Max 621 Min 2.4 Mean 48.2 Cfs/m 1.08 In. 14.62

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	2015	8.83	762	4-9	0845	7.95	455
3-7	1830	8.10	500				

\* Discharge measurement made on this day.

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 1962.

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

Average discharge.--12 years, 9.56 cfs.

Extremes.--Maximum discharge during year, 203 cfs Jan. 7 (gage height, 3.32 ft); minimum, 0.7 cfs Sept. 11, 12, 13, 14, 15 (gage height, 1.14 ft).  
1950-62: 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 1961-62 (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		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	2.1	2.0	8.2	9.0	*29	42	7.8	2.6	4.0	1.9	0.8
2	2.2	2.1	2.0	8.2	8.6	19	31	7.8	2.4	3.4	1.8	.8
3	7.1	2.1	2.0	7.8	8.6	16	20	7.1	2.2	3.4	*1.4	1.1
4	2.7	2.1	2.0	*8.2	9.0	15	17	6.8	2.2	3.4	1.6	1.1
5	1.9	2.1	1.9	9.4	9.4	15	15	6.4	3.0	3.2	1.6	1.1
6	*1.7	2.1	*1.9	37	*8.6	94	14	6.1	3.2	3.0	1.9	1.0
7	1.6	2.8	2.0	126	7.4	61	19	6.1	2.4	2.8	2.2	1.0
8	1.4	*1.9	1.9	35	7.4	42	59	6.4	2.2	2.8	2.0	.8
9	1.4	1.7	2.0	23	9.4	31	42	6.1	2.0	2.6	2.2	.8
10	1.3	1.7	3.0	19	11	27	26	5.5	1.9	2.4	2.0	.8
11	1.3	1.7	2.8	16	8.2	23	23	5.5	1.9	2.2	1.9	.8
12	1.3	1.7	7.4	15	8.2	52	25	5.5	2.6	2.2	1.8	.8
13	1.3	1.7	5.8	14	7.8	39	40	5.2	11	2.2	1.6	.8
14	1.5	2.1	4.7	13	9.4	26	31	5.2	4.7	2.2	1.4	.8
15	2.6	3.1	4.2	19	10	21	22	5.0	3.9	2.4	1.4	.8
16	1.8	2.3	4.0	25	9.4	19	18	4.7	3.2	2.6	1.3	.8
17	1.6	1.9	11	18	9.4	16	16	4.4	3.0	2.8	1.3	1.2
18	1.6	1.8	17	15	9.0	15	15	4.4	2.6	2.6	1.3	1.1
19	1.4	1.8	14	14	23	14	14	4.2	2.6	2.4	1.2	*1.0
20	1.4	3.3	11	14	22	14	13	3.7	29	2.2	1.2	*.8
21	4.1	3.3	9.0	12	16	20	12	3.7	32	2.2	1.2	.8
22	7.4	2.5	8.2	13	18	24	12	3.4	8.6	3.2	1.2	.8
23	4.7	2.4	9.6	13	16	18	11	*3.4	6.4	2.2	1.2	.8
24	3.7	3.5	18	12	16	15	10	3.2	5.5	3.2	1.2	.8
25	3.0	2.5	14	12	14	14	9.8	3.2	5.0	2.4	1.2	1.0
26	2.6	2.2	12	11	29	13	9.4	2.6	4.7	2.2	1.1	1.0
27	2.4	2.1	11	11	46	12	*9.0	3.7	*4.4	1.9	1.4	1.9
28	2.3	2.0	10	11	40	11	8.6	2.8	4.2	1.8	1.6	1.4
29	2.2	2.0	9.4	9.8	-	11	8.2	2.8	4.2	1.9	1.2	1.1
30	2.2	2.0	8.6	9.8	-----	*11	8.2	2.8	4.2	2.2	1.0	1.0
31	2.2	-----	7.8	9.0	-----	12	-----	2.8	-----	2.0	1.0	-----
Total	75.0	66.6	220.2	568.4	399.8	749	600.2	148.3	167.8	80.0	46.3	28.8
Mean	2.42	2.22	7.10	18.3	14.3	24.2	20.0	4.78	5.59	2.58	1.49	0.96
Cfsm	0.341	0.313	1.00	2.58	2.01	3.41	2.82	0.673	0.787	0.363	0.210	0.135
In.	0.39	0.35	1.15	2.98	2.09	3.92	3.14	0.78	0.88	0.42	0.24	0.15

Calendar year 1961: Max 175 Min 0.8 Mean 11.7 Cfsm 1.65 In. 22.29  
Water year 1961-62: Max 126 Min 0.8 Mean 8.63 Cfsm 1.22 In. 16.49

Peak discharge (base, 60 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	0330	3.32	203	3-12	1600	2.33	76
2-26	2330	2.23	65	4-8	2045	2.35	78
3-6	1315	3.08	162	6-20	2200	2.80	125

\* Discharge measurement made on this day.

Note.--No gage-height record Oct. 24 to Dec. 6.

## TRANSQUAKING RIVER BASIN

1-4900. Chicamacomico River near Salem, Md.

Location.--Lat 38°30'45", long 75°52'50", on left bank 30 ft downstream from Big Mill Pond dam, 1.6 miles east of Salem, Dorchester County, 3.5 miles northwest of Vienna, and 13 miles upstream from mouth.

Drainage area.--15.0 sq mi.

Records available.--April 1951 to September 1962.

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

Average discharge.--11 years, 18.2 cfs.

Extremes.--1960-61: Maximum discharge during year, 470 cfs Jan. 1 (gage height, 4.40 ft); minimum, 1.6 cfs Sept. 1, result of regulation; minimum daily, 1.9 cfs Sept. 2.

1961-62: Maximum discharge during year, 157 cfs Jan. 7 (gage height, 3.24 ft); minimum, 1.6 cfs Aug. 3, result of regulation; minimum daily, 2.6 cfs Aug. 3.

1951-62: Maximum discharge, that of Jan. 1, 1961; minimum, 1.0 cfs Dec. 7, 22, 1954, result of freezeup; minimum daily, 1.8 cfs June 2, 1951, July 25, 1955.

Remarks.--Records good except those for periods of no gage-height record, which are fair, or those for periods of backwater from tide, which are poor. Some regulation by Big Mill Pond.

Rating tables, water years 1960-61, 1961-62 except periods of backwater from tide (gage height, in feet, and discharge, in cubic feet per second)

(Shifting-control method used Oct. 20-28, Oct. 30 to Dec. 21, Dec. 26-30, 1960, Sept. 4-6, 16-18, Nov. 3-6, Dec. 13, 18-21, 24-29, 1961, Jan. 2, Jan. 4 to Mar. 6, 1962)

Oct. 1, 1960 to Sept. 30, 1961

Oct. 1, 1961 to Sept. 30, 1962

0.3	1.6	2.4	50	0.3	2.2	1.7	29
.5	3.0	2.7	77	.5	4.2	2.1	44
.9	7.5	3.0	115	.9	9.5	2.5	70
1.3	14	3.5	215	1.3	18	3.0	130
1.7	23	4.0	350				
2.1	34						

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	25	17	294	a23	47	89	20	a17	12	6.7	4.2
2	14	28	16	231	a23	40	61	26	a19	11	6.5	1.9
3	13	23	16	88	a23	34	38	24	a18	11	6.9	3.2
4	*13	20	15	59	50	32	33	20	a15	10	6.7	5.0
5	13	19	15	40	40	31	30	18	a13	10	6.5	5.2
6	14	20	15	36	a33	30	27	18	a12	12	6.7	5.2
7	15	18	15	33	a32	29	26	20	a16	12	6.7	5.3
8	14	*18	15	32	a105	45	25	25	a15	11	6.1	5.2
9	15	17	15	30	245	100	24	24	a13	10	5.6	5.1
10	16	20	14	28	155	66	35	21	a12	9.2	5.3	5.0
11	14	13	15	27	101	40	34	37	a13	8.9	5.5	4.9
12	13	23	52	26	77	33	29	76	*a12	8.8	5.1	4.6
13	12	20	36	26	61	30	106	62	11	9.0	4.7	4.4
14	12	19	25	26	62	41	74	47	10	*14	4.8	4.8
15	12	18	21	48	57	*47	42	32	16	11	4.8	5.9
16	12	18	23	59	48	40	37	27	14	10	4.7	4.9
17	12	18	30	46	38	34	35	25	11	*9.2	4.4	4.7
18	12	17	22	37	40	29	*31	22	11	8.5	4.3	4.8
19	12	17	*19	34	116	58	28	20	10	7.9	4.4	5.3
20	18	17	18	77	75	58	26	19	9.2	7.8	6.3	5.9
21	18	17	40	a45	58	38	25	18	12	7.5	18	6.1
22	15	17	a30	a34	59	45	24	17	25	7.4	9.5	6.3
23	14	17	a22	a30	154	156	23	16	20	7.1	7.6	5.6
24	14	17	a19	28	145	79	23	15	19	7.1	6.8	5.2
25	13	16	a17	26	80	52	21	15	22	8.8	6.7	5.0
26	13	16	19	a25	72	37	20	25	18	7.6	7.0	4.9
27	13	16	20	a24	45	33	18	51	18	7.0	a7.0	4.6
28	36	16	18	a23	40	31	19	29	17	6.8	*a6.8	4.4
29	74	16	18	a23	-	29	24	23	15	7.0	5.7	4.1
30	33	18	45	a23	-----	30	20	20	14	7.1	5.3	4.1
31	21	-----	46	a25	-----	28	-----	a18	-----	6.9	4.9	-----
Total	538	574	708	1583	2067	1422	1047	830	467.2	283.6	198.0	145.8
Mean	17.4	19.1	22.8	51.1	73.8	45.9	34.9	26.8	15.6	9.15	6.39	4.86
Cfsm	1.16	1.27	1.52	3.41	4.92	3.06	2.33	1.79	1.04	0.610	0.426	0.324
In.	1.33	1.42	1.76	3.92	5.12	3.53	2.60	2.06	1.16	0.70	0.49	0.36

Calendar year 1960: Max 246 Min 6.4 Mean 21.9 Cfsm 1.46 In. 19.88  
 Water year 1960-61: Max 294 Min 1.9 Mean 27.0 Cfsm 1.80 In. 24.45

\* Discharge measurement made on this day.

a No gage-height record.

Note.--Backwater from tide Aug. 25 to Sept. 3, Sept. 7 to 15 and Sept. 19 to 30.

## TRANSQUAKING RIVER BASIN

31

1-4900. Chicamacomico River near Salem, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	8.6	9.8	14	16	62	72	15	9.7	7.7	6.2	5.0
2	*8.4	8.6	9.8	15	16	39	*70	*15	8.9	7.2	5.1	5.3
3	27	8.6	10	14	16	30	46	15	21	7.4	2.6	5.4
4	11	8.6	9.7	14	18	26	36	14	14	8.3	4.4	5.6
5	7.0	8.6	11	16	18	24	32	13	11	a8.0	5.6	6.1
6	*6.3	*8.6	9.8	41	*17	99	30	13	15	a7.6	5.8	4.6
7	5.7	10	*9.7	118	16	121	37	12	11	a7.4	6.9	3.9
8	5.4	11	9.4	44	15	90	61	13	9.8	a7.2	*9.8	4.0
9	5.3	10	9.5	30	17	68	70	21	8.8	a6.8	9.8	4.0
10	5.4	10	13	24	20	61	48	15	8.3	a6.4	11	4.2
11	5.2	10	14	21	17	51	43	14	9.0	a6.0	7.3	4.0
12	5.2	11	19	19	16	92	48	14	9.5	a5.6	6.3	3.3
13	5.4	11	16	19	16	*90	67	13	42	a5.6	5.7	3.1
14	6.5	11	12	18	18	58	66	13	28	a6.0	5.8	3.2
15	8.3	13	11	21	20	46	46	12	17	a6.6	5.1	3.2
16	6.7	11	11	29	18	40	38	11	13	a7.2	4.8	3.1
17	6.0	11	20	22	19	36	32	11	11	a7.6	4.9	4.3
18	6.3	9.8	21	20	18	32	30	11	9.7	a7.2	4.3	*6.5
19	6.2	9.7	18	19	37	30	28	11	9.4	a6.8	4.1	4.5
20	6.2	18	16	18	42	30	33	9.5	13	6.6	4.6	4.0
21	15	14	14	18	28	40	42	9.2	20	6.7	4.3	3.7
22	24	11	14	18	29	60	33	9.5	14	6.3	4.2	3.7
23	16	11	15	18	28	46	28	9.4	12	5.7	3.7	3.7
24	13	15	21	17	25	39	24	11	11	5.6	3.7	3.8
25	15	13	17	17	21	34	22	17	*9.5	5.7	4.0	5.3
26	16	11	15	17	32	31	20	12	8.8	6.2	3.9	6.0
27	13	11	15	18	76	29	18	14	8.6	5.3	3.9	7.6
28	9.7	11	15	18	92	27	17	*12	8.2	4.9	6.9	8.4
29	9.4	10	14	17	-	25	16	11	8.0	5.1	5.8	7.0
30	8.6	9.8	14	17	-----	24	16	11	7.9	6.1	4.6	6.0
31	8.6	-----	13	16	-----	25	-----	10	-----	6.1	4.2	-----
Total	296.1	324.9	426.7	727	721	1505	1169	391.6	387.1	202.9	169.3	142.5
Mean	9.55	10.8	13.8	23.5	25.8	48.5	39.0	12.6	12.9	6.55	5.46	4.75
Cfsm	0.637	0.720	0.920	1.57	1.72	3.23	2.60	0.840	0.860	0.437	0.364	0.317
In.	0.73	0.81	1.06	1.80	1.79	3.73	2.90	0.97	0.96	0.50	0.42	0.35

Calendar year 1961: Max 294 Min 1.9 Mean 24.9 Cfsm 1.66 In. 22.54  
 Water year 1961-62: Max 121 Min 2.6 Mean 17.7 Cfsm 1.18 In. 16.02

\* Discharge measurement made on this day.

a No gage-height record.

Note.--Backwater from tide Oct. 1, 2, July 20 to Aug. 7, Aug. 11 to Sept. 20 and Sept. 22 to 30.

## 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 1962.

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

Average discharge.--14 years, 132 cfs.

Extremes.--Maximum discharge during year, 1,580 cfs Apr. 9 (gage height, 7.93 ft); minimum, 7.6 cfs Sept. 12, 13, 14, 15 (gage height, 1.83 ft).  
1948-62: 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, which are fair. Slight diurnal fluctuation at low flow caused by mill above station.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 27 to Mar. 2)

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

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	17	28	66	80	*534	138	102	48	21	26	10
2	13	16	32	66	76	336	345	87	47	19	23	10
3	33	16	28	62	74	213	314	76	44	19	*24	12
4	32	14	27	60	76	172	217	72	44	20	23	12
5	20	16	27	*62	82	158	172	68	44	19	23	12
6	*17	16	*26	76	89	273	150	62	47	17	21	12
7	17	17	*28	262	85	*788	158	55	44	17	23	10
8	17	*20	27	558	*74	*822	869	53	40	17	24	10
9	17	19	30	328	72	*639	1,400	53	39	16	21	10
10	17	17	34	209	76	*465	779	52	39	13	24	9.2
11	16	17	38	b150	b74	368	463	52	38	12	24	8.8
12	16	17	45	b132	b70	458	369	56	36	12	23	8.4
13	17	19	52	b112	b64	948	609	53	45	13	23	8.0
14	17	20	42	b98	66	719	838	53	44	14	21	8.0
15	27	36	40	100	76	408	528	53	42	17	20	8.0
16	23	47	38	140	87	259	329	52	42	19	20	8.8
17	19	45	50	197	91	215	239	52	33	20	20	11
18	17	40	76	168	102	190	199	52	30	19	20	12
19	17	38	140	132	150	168	170	50	28	20	17	11
20	17	40	175	112	300	155	132	48	30	17	16	*10
21	23	44	112	102	330	162	102	47	38	17	12	9.2
22	34	39	91	98	251	279	96	45	32	115	12	10
23	32	36	80	100	241	411	91	*44	30	70	11	11
24	24	44	89	105	229	276	128	55	28	52	10	11
25	20	42	100	100	201	207	125	55	27	39	9.2	11
26	19	33	100	100	190	175	110	48	26	33	9.2	12
27	17	30	96	100	391	155	*82	52	*26	27	14	30
28	17	28	89	102	656	*140	72	48	23	24	20	36
29	17	26	85	98	-	128	68	48	21	24	14	17
30	17	30	78	91	-----	120	85	50	21	30	12	10
31	17	-----	b74	85	-----	112	-----	50	-----	27	10	-----
Total	618	839	1,977	4,171	4,353	10,453	9,377	1,743	1,076	799	5,694	3,584
Mean	19.9	28.0	63.8	135	155	337	313	56.2	35.9	25.9	18.4	11.9
Cfsm	0.176	0.243	0.565	1.19	1.37	2.98	2.77	0.497	0.318	0.228	0.163	0.105
In.	0.20	0.28	0.65	1.37	1.43	3.44	3.09	0.57	0.35	0.26	0.19	0.12

Calendar year 1961: Max 2,200 Min 12 Mean 159 cfsm 1.41 In. 19.10  
Water year 1961-62: Max 1,400 Min 8.0 Mean 99.5 cfsm 0.88 In. 11.95

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-13	1545	6.71	1,050	4-9	0400	7.93	1,580

\* Discharge measurement made on this day.  
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 1962.

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

Average discharge.--12 years, 7.15 cfs.

Extremes.--Maximum discharge during year, 162 cfs April 8 (gage height, 3.15 ft); no flow for part of each day Sept. 13-17.

1950-62: 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, Sept. 13-17, 1962.

Remarks.--Records fair.

Rating table, water year 1961-62, except period of backwater from tide  
(gage height, in feet, and discharge, in cubic feet per second)

1.04	0.1	1.5	9.0
1.1	.3	1.6	15
1.2	1.1	2.0	57
1.3	2.4	3.0	147
1.4	5.0		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.4	0.7	1.8	2.3	*13	40	3.0	0.8	0.3	0.3	0.1
2	.8	.4	.7	2.0	2.4	8.6	13	3.2	.6	.3	.3	.1
3	1.4	.4	.7	2.0	2.8	7.4	7.8	3.2	.7	.3	.3	.2
4	.7	.4	.7	*2.4	4.0	7.0	6.6	2.4	.6	.4	.3	.2
5	.4	.4	.7	4.0	4.4	7.0	6.2	2.1	.7	.3	.3	.3
6	*.3	.4	*.6	3.2	3.0	7.7	5.8	1.8	.9	.3	.2	.2
7	.3	.7	.7	5.8	2.0	4.6	2.5	1.7	.6	.4	.3	.2
8	.3	*.5	.6	9.6	*2.3	c 29	10.6	1.8	.4	.4	.3	.1
9	.3	.4	.6	5.8	2.8	c 22	3.3	2.8	.4	.4	1.3	.1
10	.3	.4	2.0	4.4	3.8	1.9	1.6	1.8	.4	.3	.4	.1
11	.3	.4	2.1	3.8	2.4	1.3	1.7	1.8	.4	.3	.4	.1
12	.3	.4	6.6	3.5	2.1	6.7	2.5	1.8	9.1	.4	.3	.1
13	.3	.4	3.2	3.5	2.1	3.0	4.8	1.6	1.1	.4	.2	.1
14	.5	.6	1.8	3.0	4.2	1.5	1.9	1.6	2.5	.4	.2	.1
15	.8	1.0	1.4	8.5	7.4	1.2	1.3	1.3	1.4	.5	.2	.1
16	.4	.8	1.1	9.7	5.0	1.0	9.6	1.2	.9	.7	.2	.1
17	.4	.8	1.1	5.0	5.4	8.6	8.6	1.1	.6	.6	.2	.3
18	.4	.7	2.3	3.5	5.0	7.8	8.2	1.1	.4	.2	.2	.2
19	.4	.6	7.0	3.5	3.5	7.8	7.8	1.0	.4	.5	.2	*.1
20	.4	1.6	3.5	3.5	1.2	8.2	7.4	.8	.7	.3	.2	.1
21	1.1	1.7	2.6	3.0	7.0	2.8	7.0	.7	1.1	.3	.1	.1
22	2.1	1.1	2.1	3.8	1.1	2.1	6.2	.7	.8	.9	.1	.2
23	1.0	.9	4.4	4.4	8.2	1.1	5.8	*.6	.6	.4	.1	.2
24	.5	2.6	9.6	3.2	7.4	8.6	4.6	.7	.5	.3	.1	.2
25	.4	1.4	4.6	3.5	5.4	7.4	4.4	.8	.4	.4	.2	.2
26	.4	1.0	3.0	3.0	3.7	7.0	4.0	.6	.4	.4	.1	.2
27	.4	1.0	2.6	4.0	4.3	6.6	*3.5	1.8	.4	.3	1.3	1.3
28	.3	.9	3.0	3.2	2.6	5.8	3.0	1.0	.3	.3	1.0	.5
29	.3	.8	2.4	2.8	-	5.4	3.0	1.0	.3	.4	.3	.2
30	.4	.7	1.8	2.8	-----	*5.4	3.2	1.1	.3	.4	.2	.2
31	.4	-----	1.6	2.1	-----	6.2	-----	.9	-----	.4	.1	-----
Total	16.6	23.8	106.4	205.3	255.4	527.8	467.7	47.0	38.6	12.9	9.9	6.2
Mean	0.535	0.793	3.43	6.62	9.12	17.0	15.6	1.52	1.29	0.416	0.319	0.207
Cfsm	0.091	0.136	0.586	1.13	1.56	2.91	2.67	0.260	0.221	0.071	0.055	0.035
In.	0.11	0.15	0.68	1.31	1.62	3.36	2.97	0.30	0.25	0.08	0.06	0.04

Calendar year 1961: Max 145 Min 0.2 Mean 8.19 Cfsm 1.40 In. 19.04  
Water year 1961-62: Max 106 Min 0.1 Mean 4.71 Cfsm 0.805 In. 10.93

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge
4-8	0600	3.15	162

\* Discharge measurement made on this day.  
c Backwater from tide.

## CHESTER RIVER BASIN

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 1962.

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

Average discharge.--14 years, 25.3 cfs.

Extremes.--Maximum discharge during year, 246 cfs March 13 (gage height, 3.88 ft); minimum, 7.2 cfs Sept. 12, 13, 14, 15, 16; minimum daily, 7.2 cfs Sept. 13-15.

1948-62: 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 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

1.6	4.4	2.7	71
1.9	8.4	3.0	100
2.0	14	3.5	174
2.2	33	4.0	270
2.4	51		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	10	11	13	16	53	74	24	13	12	11	8.0
2	13	10	11	13	16	37	83	24	13	11	*10	8.4
3	16	11	11	13	16	31	47	24	15	12	10	15
4	13	10	11	13	16	28	36	23	13	12	10	10
5	12	10	*11	13	19	28	32	23	13	11	10	10
6	11	10	10	22	19	55	31	22	13	11	11	9.0
7	11	11	10	86	16	132	38	21	13	11	12	8.4
8	10	11	10	58	15	105	80	21	12	11	11	8.0
9	10	11	10	32	17	74	93	21	12	11	13	8.0
10	*10	10	11	28	16	60	57	21	11	10	12	8.0
11	10	11	11	23	14	51	42	23	11	10	11	7.6
12	10	11	17	20	14	105	46	23	13	11	11	7.6
13	10	11	17	19	14	182	123	21	23	10	10	*7.2
14	11	*11	13	17	16	78	100	20	19	10	10	7.2
15	13	12	12	23	17	53	60	19	19	11	9.0	7.2
16	11	11	12	32	18	43	43	19	18	11	9.0	7.6
17	11	11	17	*29	19	38	37	18	15	11	9.0	11
18	10	11	26	23	21	36	33	18	13	11	8.4	11
19	10	11	27	21	33	33	33	17	13	12	8.4	10
20	10	12	20	20	57	33	33	16	17	11	8.4	9.0
21	13	12	16	19	42	42	33	16	20	10	8.4	8.4
22	16	12	14	20	39	82	30	15	16	11	8.0	8.4
23	13	12	16	21	42	60	29	15	16	11	8.4	8.4
24	12	14	22	20	36	43	28	25	21	11	8.0	9.0
25	12	13	21	20	30	36	28	19	16	11	8.4	9.0
26	11	12	17	20	38	33	*27	16	14	11	8.4	9.0
27	11	12	16	20	22	31	25	17	13	10	8.4	19
28	11	11	16	19	*72	29	24	*15	13	10	11	17
29	11	11	15	18	-	28	24	14	*12	10	10	11
30	11	11	14	*17	-----	*27	24	14	12	11	9.0	10
31	11	-----	13	17	-----	29	-----	14	-----	11	8.4	-----
Total	356	336	458	729	780	1695	1393	598	442	337	300.6	287.4
Mean	11.5	11.2	14.8	23.5	27.9	54.7	46.4	19.3	14.7	10.9	9.70	9.58
Cfsm	0.516	0.502	0.664	1.05	1.25	2.45	2.08	0.665	0.659	0.469	0.435	0.430
In.	0.59	0.56	0.76	1.22	1.30	2.83	2.32	1.00	0.74	0.56	0.50	0.48

Calendar year 1961: Max 325 Min 10 Mean 37.3 Cfsm 1.67 In. 22.72

Water year 1961-62: Max 182 Min 7.2 Mean 21.1 Cfsm 0.946 In. 12.86

Peak discharge (base, 180 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge
3-13	0100	3.88	246

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 1962.

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

Average discharge.--11 years, 10.3 cfs.

Extremes.--Maximum discharge during year, 198 cfs June 24 (gage height, 4.71 ft); minimum, 3.0 cfs Jan. 31, Feb. 7 (result of freezeup).

1951-62: Maximum discharge, 1,530 cfs Sept. 12, 1960 (gage height, 8.88 ft), from rating curve extended above 440 cfs by logarithmic plotting; minimum, 1.3 cfs Aug. 2, 7, 17, 1957.

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

Rating table, water year 1961-62, except periods of backwater from tide (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		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	5.6	6.0	a5.6	5.6	13	36	8.0	5.3	6.0	6.0	4.5
2	5.6	5.3	6.0	a5.6	6.0	9.0	24	8.0	5.0	5.6	5.3	4.5
3	10	5.0	6.0	a5.6	6.5	8.5	9.5	8.0	4.8	6.0	5.3	14
4	9.5	5.3	6.0	a5.6	8.5	9.0	8.5	7.0	4.8	6.5	5.3	6.0
5	6.5	5.3	*6.0	a5.6	8.5	9.5	8.5	6.5	5.3	6.5	5.3	5.6
6	6.0	5.3	6.0	a4.0	7.5	c31	8.5	6.0	6.0	6.0	5.3	5.0
7	5.6	9.0	6.0	a8.0	4.8	c35	14	6.0	4.8	6.0	6.0	4.5
8	5.6	7.0	5.6	a3.5	5.0	c31	18	5.6	4.5	6.0	7.0	4.5
9	5.6	5.6	5.3	a15	5.0	c26	11	6.0	4.5	5.6	5.6	4.5
10	*5.6	5.6	8.5	a9.0	7.0	c20	9.0	6.0	4.2	5.3	6.0	4.2
11	5.6	5.3	8.5	a8.0	6.0	11	9.5	8.0	4.2	5.0	6.0	4.2
12	5.6	5.3	21	a7.0	6.5	112	15	8.5	5.3	5.3	5.6	4.0
13	5.6	5.6	13	a5.4	6.5	52	39	7.5	10	5.6	5.3	*3.6
14	8.0	*7.5	6.5	a6.0	7.5	19	20	7.0	7.0	5.3	5.0	3.6
15	14	9.0	6.5	a20	8.5	13	11	6.5	6.0	6.0	4.8	3.8
16	7.5	7.5	5.3	a24	8.0	12	9.5	6.0	5.3	6.0	4.8	3.8
17	6.0	8.0	17	*a9.6	8.5	11	9.0	6.0	4.8	6.5	4.8	7.4
18	6.0	6.5	29	6.5	9.5	11	9.0	6.0	4.5	9.2	4.8	7.5
19	6.0	6.5	20	6.5	24	11	9.0	5.3	4.8	9.5	4.5	4.5
20	6.0	11	9.0	7.0	31	12	9.0	5.3	13	6.0	4.5	4.5
21	13	13	7.5	6.5	18	24	9.0	7.0	19	5.3	4.5	4.2
22	21	8.0	7.0	8.5	34	32	8.5	5.3	6.5	6.0	6.0	4.2
23	c9.5	7.0	7.0	9.5	32	12	8.0	5.3	13	11	5.0	4.5
24	c6.0	25	14	7.0	23	9.5	7.5	17	107	15	4.8	4.8
25	c5.6	13	10	7.5	14	8.5	7.5	7.5	20	7.0	4.8	4.5
26	5.6	7.0	7.5	8.0	52	8.5	*7.5	5.3	8.5	7.0	4.8	4.8
27	5.3	7.0	7.5	9.0	57	8.5	7.5	9.0	7.5	5.3	5.0	15
28	5.3	6.5	9.0	7.0	*23	*8.0	7.0	*5.6	6.5	5.0	6.0	13
29	5.3	6.5	a7.4	6.0	-	8.0	7.0	5.6	*6.0	5.0	5.3	5.0
30	5.3	6.0	a6.0	*7.0	-----	8.0	7.5	5.3	6.0	8.5	4.8	4.2
31	5.6	-----	a5.0	5.3	-----	9.0	-----	5.3	-----	*7.0	4.5	-----
Total	222.8	230.2	285.1	389.3	433.4	592.0	364.0	211.4	314.1	206.0	162.7	168.4
Mean	7.19	7.67	9.20	12.6	15.5	19.1	12.1	6.92	10.5	6.65	5.25	5.61
Cfsm	0.685	0.730	0.876	1.20	1.48	1.82	1.15	0.650	1.00	0.633	0.500	0.534
In.	0.79	0.82	1.01	1.38	1.54	2.10	1.29	0.75	1.11	0.73	0.58	0.60

Calendar year 1961: Max 222 Min 4.8 Mean 13.6 Cfsm 1.30 In. 17.56  
 Water year 1961-62: Max 112 Min 3.6 Mean 9.81 Cfsm 0.934 In. 12.68

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

a No gage-height record.  
 c Backwater from tide.

## ELK RIVER BASIN

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 1962. Monthly discharge only for some periods, published in WSP 1302.

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

Average discharge---30 years, 70.6 cfs.

Extremes---Maximum discharge during year, 2,180 cfs Mar. 12 (gage height, 6.61 ft); minimum, 7.2 cfs Jan. 31 (gage height, 2.32 ft), result of freezeup.

1932-62: 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 ft Sept. 19, 22-24, 1932.

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

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

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 11

Mar. 12 to Sept. 30

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

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

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	20	27	34	35	*94	384	58	32	26	16	15
2	19	20	27	29	27	b62	131	61	30	23	14	16
3	24	20	27	27	31	b57	88	61	28	23	13	20
4	26	22	*25	28	31	b52	80	53	28	24	13	18
5	21	22	26	28	33	b46	80	49	30	23	13	26
6	20	22	26	265	36	56	80	46	42	22	14	23
7	19	33	25	368	b24	b55	191	45	30	22	25	18
8	19	24	24	86	b28	b55	210	44	27	21	22	16
9	*19	20	28	58	24	56	107	46	25	24	127	16
10	19	20	30	b46	33	76	91	43	24	20	145	16
11	18	19	31	b44	26	89	86	44	24	18	95	*15
12	18	20	68	48	37	935	109	45	69	19	30	14
13	18	20	55	45	29	191	235	45	98	19	23	13
14	21	24	35	45	36	113	121	43	45	18	21	14
15	29	31	30	*b70	33	91	96	42	71	20	19	14
16	20	*25	30	b96	31	80	88	41	45	19	20	13
17	19	30	50	b55	31	73	78	41	33	24	63	22
18	19	25	187	40	32	61	74	39	29	24	25	24
19	19	21	86	39	68	61	71	38	28	25	20	17
20	19	28	53	40	81	61	75	36	41	21	20	18
21	36	33	41	35	89	141	70	39	47	19	24	16
22	44	33	36	39	72	155	65	35	32	20	22	15
23	22	28	b36	38	168	83	61	*34	113	18	19	16
24	19	146	39	b34	639	73	*57	96	182	19	18	15
25	19	57	b40	b32	145	61	56	48	*45	18	18	15
26	19	37	b44	b39	682	*61	55	38	35	18	17	16
27	19	33	b41	42	246	61	53	35	31	15	17	35
28	19	30	b37	35	167	61	52	34	28	14	19	49
29	20	28	b39	b33	-	60	53	34	27	17	18	27
30	20	27	27	b30	-----	61	57	34	27	20	16	20
31	20	-----	29	b24	-----	64	-----	33	-----	*19	15	-----
Total	661	918	1299	1872	2914	3245	3054	1380	1346	632	941	572
Mean	21.3	30.6	41.9	60.4	104	105	102	44.5	44.9	20.4	30.4	19.1
Cfs/m	0.405	0.582	0.797	1.15	1.98	2.00	1.94	0.846	0.854	0.388	0.578	0.363
In.	0.47	0.65	0.92	1.32	2.06	2.29	2.16	0.98	0.95	0.45	0.67	0.40

Calendar year 1961: Max 884 Min 18 Mean 74.4 Cfs/m 1.41 In. 19.23

Water year 1961-62: Max 935 Min 13 Mean 51.6 Cfs/m 0.981 In. 13.32

Peak discharge (base, 1,700 cfs)

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

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1515	6.53	2,110	3-12	1145	6.61	2,180

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 miles 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 1962.

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

Average discharge.--14 years, 35.3 cfs.

Extremes.--Maximum discharge during year, 838 cfs Mar. 12 (gage height, 3.93 ft); minimum, 3.1 cfs Aug. 3. 1948-62: 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used June 24, 25)

1.5	3.3	2.3	87
1.6	6.0	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 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.3	6.2	8.6	13	13	*51	313	22	12	5.5	4.1	5.6
2	5.4	6.0	8.6	b12	13	31	71	22	11	4.9	3.6	5.1
3	6.0	5.9	8.9	b12	13	b27	33	24	10	4.9	3.3	5.7
4	*6.7	6.3	*8.2	12	14	b27	27	20	9.8	5.4	3.3	5.7
5	6.2	6.5	8.6	14	17	b23	25	17	10	5.0	3.3	7.5
6	5.7	6.8	8.3	154	21	30	24	17	14	4.6	3.4	8.1
7	5.6	13	6.3	339	b14	34	131	16	11	4.8	5.0	5.9
8	5.5	10	5.8	45	b14	36	148	15	9.6	4.7	5.4	5.5
9	5.4	7.4	b7.0	28	b12	37	45	17	9.0	5.7	142	5.2
10	5.4	6.9	7.9	22	b11	50	36	15	8.4	4.9	85	5.1
11	5.2	6.8	10	b20	b14	64	34	15	8.4	4.2	136	5.0
12	5.0	6.8	30	b17	b15	468	55	16	*30	4.3	18	4.7
13	5.0	7.3	25	b19	b17	150	195	16	39	4.3	12	4.5
14	5.5	8.9	14	b15	b19	44	66	16	18	4.0	9.4	4.5
15	9.8	14	12	*b26	b16	33	37	16	38	5.1	8.0	4.4
16	7.0	*11	b13	b48	15	29	33	14	21	4.4	7.5	4.2
17	5.7	12	17	b22	15	26	28	15	11	5.0	28	6.1
18	5.7	11	130	b15	17	24	27	14	8.1	5.4	10	6.9
19	5.7	8.4	48	b12	40	23	26	13	8.0	5.4	7.3	5.0
20	5.7	10	25	b11	56	25	28	14	11	4.5	7.0	4.9
21	10	13	19	b12	36	89	32	13	50	4.3	11	4.8
22	21	13	15	15	39	114	26	12	12	4.5	10	4.4
23	9.0	11	14	18	92	38	24	*12	13	4.4	6.8	4.5
24	6.7	85	15	15	261	31	*21	31	93	4.7	6.2	4.5
25	6.4	23	b15	b15	98	27	21	19	18	4.2	6.5	4.3
26	6.1	13	b15	17	249	*25	20	14	10	4.4	6.3	4.4
27	6.0	12	b14	23	275	24	20	13	8.0	3.7	5.7	11
28	6.0	11	17	18	100	23	19	12	6.6	3.4	12	18
29	6.1	9.2	b18	*b14	-	22	19	12	6.3	3.6	6.9	9.5
30	6.3	8.7	b15	15	-----	22	20	12	6.0	4.4	5.5	5.7
31	6.1	-----	b13	b14	-----	23	-----	12	-----	*4.4	5.7	-----
Total	207.2	370.1	572.2	1,032	1,516	1,670	1,604	496	520.2	1,430	584.2	180.7
Mean	6.68	12.3	18.5	33.3	54.1	53.9	53.5	16.0	17.3	4.61	18.9	6.02
Cfsm	0.275	0.506	0.761	1.37	2.23	2.22	2.20	0.658	0.712	0.190	0.778	0.248
In.	0.32	0.57	0.88	1.58	2.32	2.56	2.45	0.76	0.80	0.22	0.89	0.28

Calendar year 1961: Max 616 Min 5.0 Mean 32.8 Cfsm 1.35 In. 18.37  
Water year 1961-62: Max 468 Min 3.3 Mean 24.4 Cfsm 1.00 In. 13.63

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge
3-12	1915	3.93	838

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

## SUSQUEHANNA RIVER BASIN

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 1962. Monthly discharge only for November and December 1926, published in WSP 1302.

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

Average discharge.--36 years, 123 cfs.

Extremes.--Maximum discharge during year, 2,470 cfs Feb. 26 (gage height, 7.33 ft); minimum, 21 cfs Sept. 13 (gage height, 1.84 ft), but may have been less during period of ice effect.

1926-62: 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 1961-62, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

1.8	18	3.0	225
2.0	35	3.5	404
2.3	71	4.0	650
2.7	147	6.0	1,740

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	49	56	b 60	b 58	205	387	123	79	61	*46	27
2	47	47	56	b 56	b 60	b 150	203	132	76	57	42	30
3	55	47	56	b 54	60	b 130	164	132	73	58	42	33
4	55	47	55	56	63	b 110	147	119	73	63	43	32
5	50	49	55	57	65	b 100	140	113	74	57	45	44
6	49	50	53	b 220	73	b 115	136	113	77	55	46	38
7	47	64	52	551	*b 48	b 110	222	111	70	53	57	34
8	46	56	51	171	b 50	b 105	234	109	67	52	46	31
9	47	51	b 46	*121	b 54	107	189	111	65	52	49	32
10	46	50	58	b 95	b 52	113	176	105	64	49	81	32
11	45	49	56	b 85	b 50	129	171	107	63	47	69	32
12	44	50	89	b 75	b 50	1500	214	107	87	61	51	29
13	44	50	77	74	b 50	496	361	103	79	67	47	27
14	51	57	58	75	b 62	294	231	101	73	50	45	28
15	64	64	b 52	108	b 60	*237	203	100	85	52	44	24
16	50	56	b 48	b 95	b 60	203	184	96	71	52	41	26
17	*47	63	71	b 76	b 60	174	169	94	65	58	44	34
18	46	55	201	b 72	b 68	157	*161	92	61	66	41	37
19	46	52	129	b 68	174	145	154	89	211	100	38	31
20	45	57	94	73	147	154	216	87	132	58	37	33
21	104	60	81	b 70	111	259	176	85	94	53	37	32
22	110	55	71	73	98	248	157	82	73	64	39	31
23	58	53	65	73	185	179	149	*84	309	123	35	32
24	53	178	73	b 65	814	159	138	133	216	186	37	36
25	52	88	b 64	b 65	232	145	134	94	100	58	29	27
26	52	70	b 58	67	909	138	132	87	*84	46	33	34
27	49	*64	b 56	73	582	132	127	89	76	50	33	51
28	49	60	70	65	319	123	125	85	68	47	34	65
29	49	57	b 54	b 64	-	119	123	85	65	47	35	43
30	50	57	b 50	63	-----	115	134	84	64	51	28	37
31	50	-----	b 48	b 48	-----	119	-----	82	-----	50	30	-----
Total	1646	1805	2103	2968	4614	6470	5457	3134	2794	1943	1324	1022
Mean	53.1	60.2	67.8	95.7	165	209	182	101	93.1	62.7	42.7	34.1
Cfs/m	0.562	0.638	0.718	1.01	1.75	2.21	1.93	1.07	0.986	0.664	0.452	0.361
In.	0.65	0.71	0.83	1.17	1.82	2.55	2.15	1.23	1.10	0.77	0.52	0.40

Calendar year 1961: Max 880 Min 44 Mean 145 Cfs/m 1.54 In. 20.86  
Water year 1961-62: Max 1,500 Min 24 Mean 96.7 Cfs/m 1.02 In. 13.90

Peak discharge (base, 1,900 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1500	7.33	2,470	3-12	1130	7.22	2,410

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

## BUSH RIVER BASIN

39

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 1962. October 1950 to September 1955 at site 0.5 mile upstream, published as "near Bel Air"; records not equivalent.

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

Average discharge.--13 years (1944-50, 1955-62), 11.0 cfs.

Extremes.--Maximum discharge during year, 702 cfs Mar. 12 (gage height, 4.18 ft); minimum, 0.3 cfs Sept. 12, 13, 15, 16 (gage height, 0.80 ft).  
1944-51, 1955-62: 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, 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 1961-62, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

0.8	0.3	1.5	28
.9	1.5	1.7	46
1.0	3.3	2.0	93
1.1	6.1	2.5	185
1.2	9.8	3.0	305
1.3	15	3.5	450

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	2.1	3.1	4.4	4.1	15	186	7.4	3.4	2.4	*1.4	.5
2	2.0	2.0	3.1	4.3	4.2	b 9.0	20	8.3	3.1	2.1	1.1	.6
3	2.1	2.0	3.1	4.0	4.5	b 7.5	13	8.6	2.9	2.3	1.1	1.0
4	2.1	2.1	3.1	4.5	5.3	b 7.0	11	6.5	2.9	2.5	1.1	.8
5	2.0	2.1	3.1	5.3	6.2	7.0	10	5.9	3.4	2.2	1.1	1.9
6	1.8	2.1	2.9	163	7.0	b 10	10	5.6	3.6	2.0	1.1	1.0
7	1.8	7.4	2.8	76	*b 4.2	b 14	75	5.4	2.7	2.0	3.6	.7
8	1.8	2.7	2.7	13	b 3.9	13	24	5.4	2.7	1.9	1.7	.7
9	2.0	2.3	2.6	*8.8	b 4.1	13	16	5.6	2.5	1.8	2.9	.6
10	1.6	2.2	3.6	b 6.2	b 4.0	26	12	5.0	2.3	1.6	5.8	.6
11	1.5	2.1	3.9	b 4.8	b 3.9	32	16	5.6	2.3	1.6	2.6	.5
12	1.6	2.1	18	4.7	b 3.8	322	54	5.5	6.8	2.0	1.6	.4
13	1.6	2.6	7.4	4.3	b 3.7	31	54	5.3	9.3	2.4	1.5	.4
14	3.8	5.2	4.6	4.3	b 4.9	*17	19	5.1	3.8	1.7	1.3	.4
15	2.5	5.1	3.9	17	b 4.9	13	14	4.8	4.3	1.9	1.2	.4
16	2.0	3.6	3.3	11	b 4.9	11	12	4.6	3.3	1.8	1.1	.5
17	*1.8	4.0	10	6.4	6.4	9.6	10	4.5	2.5	2.3	1.1	1.7
18	1.8	2.9	7.4	5.2	7.4	8.7	*9.8	4.3	2.3	3.4	1.0	.9
19	1.8	2.7	13	4.8	50	8.6	9.3	4.0	2.5	2.9	.9	.6
20	1.8	4.3	8.3	5.0	20	9.4	10	3.8	6.4	1.9	.9	.7
21	30	4.5	6.3	4.7	11	72	9.1	3.6	7.5	1.7	1.0	1.0
22	12	3.6	5.4	5.6	26	25	8.2	*3.4	3.1	3.4	1.0	.8
23	2.9	3.2	4.9	6.3	24	14	7.7	3.8	8.7	3.5	.8	.9
24	2.4	50	5.8	5.1	53	11	7.1	21	25	4.3	.7	.6
25	2.2	6.6	5.2	5.3	15	9.4	7.0	5.4	4.6	1.9	.7	.6
26	2.0	4.6	5.0	6.6	178	9.0	6.8	4.1	*3.6	1.9	.7	.6
27	2.0	*4.1	5.0	8.0	46	8.6	6.5	4.2	2.9	1.5	.7	4.8
28	2.0	3.6	8.1	5.9	28	7.8	6.4	3.7	2.6	1.4	.8	2.9
29	2.1	3.3	5.8	5.0	-	7.4	9.3	3.8	2.6	1.5	.7	1.2
30	2.1	3.1	4.6	5.1	-----	7.4	9.4	3.7	2.6	1.7	.5	.9
31	2.1	-----	4.1	b 3.3	-----	35	-----	3.7	-----	1.6	.5	-----
Total	101.0	148.2	236.7	417.9	538.4	790.4	662.6	171.6	214.5	67.1	42.2	29.2
Mean	3.26	4.94	7.64	13.5	19.2	25.5	22.1	5.54	7.15	2.16	1.36	.97
Cfsm	0.383	0.580	0.897	1.58	2.25	2.99	2.59	0.650	0.839	0.254	0.160	0.114
In.	0.44	0.65	1.03	1.82	2.35	3.45	2.89	0.75	0.94	0.29	0.18	0.13

Calendar year 1961: Max 293 Min 1.6 Mean 12.4 Cfsm 1.46 In. 19.71  
Water year 1961-62: Max 322 Min 0.4 Mean 9.37 Cfsm 1.10 In. 14.92

Peak discharge (base, 440 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1200	4.15	690	4-1	0430	3.88	583
3-12	0900	4.18	702	6-23	2300	3.95	610

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

## GUNPOWDER RIVER BASIN

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 1962.

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

Average discharge.--18 years, 69.3 cfs.

Extremes.--Maximum discharge during year, 1,940 cfs Feb. 26 (gage height, 5.92 ft); minimum, 8.0 cfs Jan. 31, result of freezeup.

1944-62: Maximum discharge, 5,730 cfs Sept. 10, 1950 (gage height, 11.93 ft in gage well, 13.32 ft from floodmark); from rating curve extended above 1,300 cfs on basis of contracted-opening measurement of peak flow; minimum, 6.0 cfs Feb. 20, 1947; minimum daily, 12 cfs Aug. 3, 1955.

Flood 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 1961-62, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 26

Feb. 27 to Sept. 30

0.7	19	1.5	155	0.5	11	1.5	155
.8	29	2.0	280	.6	17	2.0	280
1.0	60	3.0	600	.8	37	3.0	600
				1.0	63	4.0	990

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	30	31	37	b28	111	204	73	47	36	29	16
2	29	29	31	33	b29	b82	106	77	45	34	*26	18
3	32	30	30	31	31	b72	89	75	44	37	26	20
4	35	32	30	32	34	b66	82	68	43	37	29	20
5	32	32	30	32	36	b60	79	65	46	34	32	31
6	30	35	29	170	40	b75	77	64	47	32	31	23
7	29	52	28	250	*b24	b68	114	63	42	32	30	20
8	29	35	b27	93	b27	b64	107	63	40	31	27	19
9	29	32	b26	69	b28	64	98	63	39	32	36	19
10	29	29	33	50	b27	72	89	60	38	28	46	19
11	28	29	33	b47	b27	81	92	62	39	27	36	18
12	28	29	66	b44	b27	811	122	61	60	29	30	16
13	28	30	45	b43	b27	233	168	60	47	66	29	16
14	37	39	35	45	b32	155	119	59	45	32	28	16
15	39	42	32	67	b32	*125	109	57	55	32	26	16
16	32	37	b30	*b52	b32	106	99	55	43	34	25	15
17	*30	42	41	b42	b33	94	92	55	39	36	25	21
18	28	36	126	b37	b39	85	*87	53	38	50	24	20
19	29	32	76	b35	104	81	83	51	102	43	22	18
20	29	36	59	36	81	84	132	50	68	33	22	20
21	60	37	48	b40	59	154	95	51	54	31	23	18
22	50	35	42	37	60	121	87	49	44	36	23	18
23	35	33	39	38	115	96	83	*50	194	174	21	19
24	33	113	43	34	448	87	78	79	98	88	21	18
25	32	52	38	b32	106	80	76	54	53	40	20	19
26	32	40	b36	36	539	77	74	50	45	36	20	*19
27	30	37	b35	38	322	73	72	53	*43	32	19	29
28	30	*35	40	34	163	69	71	52	39	30	20	43
29	30	33	33	33	-	67	80	50	38	30	19	24
30	30	32	b31	32	-----	65	78	50	38	32	17	22
31	32	-----	b30	b24	-----	69	-----	49	-----	31	16	-----
Total	1.004	1.135	1.253	1.623	2.550	3.547	2.942	1.821	1.613	1.275	798	610
Mean	32.4	37.8	40.4	52.4	91.1	114	98.1	58.7	53.8	41.1	25.7	20.3
Cfsm	0.612	0.715	0.764	0.991	1.72	2.16	1.85	1.11	1.02	0.777	0.486	0.384
In.	0.71	0.80	0.88	1.14	1.79	2.49	2.07	1.28	1.13	0.90	0.56	0.43

Calendar year 1961: Max 550 Min 28 Mean 80.8 Cfsm 1.53 In. 20.74  
Water year 1961-62: Max 811 Min 15 Mean 55.3 Cfsm 1.05 In. 14.18

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1345	5.92	1,910	6-23	2200	5.40	1,650
3-12	1000	4.94	1,420	7-23	2145	5.19	1,545

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

## GUNPOWDER RIVER BASIN

41

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 1962.

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

Average discharge.--15 years, 2.35 cfs.

Extremes.--Maximum discharge during year, 107 cfs Feb. 26 (gage height, 2.66 ft); minimum, 0.3 cfs Sept. 11-16 (gage height, 1.20 ft).

1947-62: 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, Sept. 12-16, 1962.

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

Rating table, water year 1961-62, except periods of ice effect (gage height in feet, and discharge, in cubic feet per second)

1.15	0.2	1.6	9.6
1.2	.4	1.7	15
1.3	1.2	1.8	22
1.4	2.8	1.9	30
1.5	5.5		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	1.0	* 1.1	1.1	1.2	2.8	6.5	2.2	1.5	1.0	0.8	0.4
2	.9	1.0	1.1	1.1	1.2	2.3	3.0	2.4	1.4	.7	.7	.4
3	1.0	1.0	1.1	1.1	1.2	2.1	2.5	2.2	1.4	1.0	*.7	.5
4	1.0	1.0	1.1	1.2	1.3	2.0	2.4	2.1	1.4	1.0	.8	.5
5	.9	1.0	1.1	1.2	1.3	1.9	2.3	2.0	1.2	.9	.8	.7
6	.9	1.0	1.0	.67	1.4	b 2.1	2.3	2.0	2.1	.9	.8	.5
7	.9	1.2	1.0	.49	b 1.3	b 2.0	3.6	1.9	1.5	.9	.8	.5
8	1.0	1.0	1.0	2.2	b 1.3	2.0	2.8	1.9	1.4	.9	.7	.4
9	1.0	1.0	1.0	1.8	1.2	1.9	2.6	2.1	1.3	.8	.9	.4
10	.9	1.0	1.2	*b 1.6	b 1.1	2.2	2.4	1.9	1.3	.8	.9	.4
11	.9	1.0	1.2	b 1.3	b 1.0	2.4	2.6	2.1	1.3	.7	.9	.4
12	.9	1.0	1.9	b 1.2	b 1.0	3.0	5.0	2.1	1.6	.8	.7	.3
13	.9	1.0	1.3	b 1.2	*b 1.1	5.8	5.2	1.9	1.8	.7	.7	.3
14	1.2	1.3	1.2	b 1.1	1.3	4.3	3.3	1.9	1.4	.8	.7	.3
15	1.1	1.2	1.1	b 1.7	1.2	3.6	2.9	1.7	1.4	.8	.6	.3
16	1.0	1.2	b 1.1	1.6	1.2	* 3.0	2.7	1.7	1.3	1.0	.6	.3
17	1.0	1.2	1.3	1.4	1.3	2.7	2.6	1.7	1.2	1.0	.6	.5
18	*.9	1.1	1.1	b 1.3	1.3	2.6	2.4	1.6	1.1	1.3	.6	.5
19	.9	1.1	2.0	1.2	3.1	2.4	* 2.3	1.6	1.2	1.1	.5	.4
20	.9	1.3	1.6	1.3	2.4	2.4	2.5	1.4	1.5	.9	.5	.4
21	2.1	1.2	1.4	b 1.3	1.7	6.7	2.3	1.4	1.3	1.3	.6	.4
22	1.3	1.1	1.3	1.3	2.3	3.7	2.2	1.4	1.2	1.1	.5	.4
23	1.1	1.1	1.3	1.3	3.0	2.9	2.2	1.6	1.2	2.6	.5	.4
24	1.0	2.4	1.3	1.3	6.2	2.6	2.1	* 4.0	1.2	1.3	.5	.4
25	1.0	1.3	1.2	1.3	2.4	2.3	2.1	1.7	1.1	1.1	.4	*.4
26	1.0	1.2	1.2	1.4	1.8	2.3	2.1	1.6	1.1	1.0	.5	.4
27	1.0	1.2	1.2	1.4	7.4	2.2	2.1	1.7	* 1.3	.9	.5	.6
28	1.0	1.1	1.3	1.3	3.7	2.2	2.0	1.7	1.0	.8	.5	.6
29	1.0	1.1	b 1.2	1.3	-	2.2	2.8	1.6	1.0	.9	.4	.5
30	1.0	1.1	b 1.1	1.4	-----	2.1	2.3	1.6	1.0	1.0	.4	.5
31	1.0	-----	b 1.1	b 1.2	-----	2.3	-----	1.4	-----	.9	.4	-----
Total	31.5	34.4	40.1	50.7	72.1	112.0	84.1	58.1	41.7	30.9	19.5	13.0
Mean	1.02	1.15	1.29	1.64	2.58	3.61	2.80	1.87	1.39	1.00	0.63	0.43
Cfsm	0.488	0.550	0.617	0.785	1.23	1.73	1.34	0.895	0.665	0.478	0.301	0.206
In.	0.56	0.61	0.71	0.90	1.28	1.99	1.50	1.03	0.74	0.55	0.35	0.23

Calendar year 1961: Max 16 Min 0.7 Mean 2.27 Cfsm 1.09 In. 14.71  
 Water year 1961-62: Max 30 Min 0.3 Mean 1.61 Cfsm 0.770 In. 10.45

Peak discharge (base, 90 cfs)

Date	Time	Gage height	Discharge
2-26	1200	2.66	107

\* Discharge measurement made on this day.  
 b Stage-discharge relation affected by ice.  
 Note.--Shifting-control method used Aug. 3 to Sept. 30.

## GUNPOWDER RIVER BASIN

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

Location.--Lat 39°30'38", long 76°40'37", on right bank 100 ft downstream from bridge on Western Run Road, 0.3 mile southeast of Western Run, Baltimore County, 2.5 miles northwest of Cockeysville, and 3.2 miles upstream from Beaverdam Run.

Drainage area.--59.8 sq mi.

Records available.--September 1944 to September 1962.

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

Average discharge.--18 years, 68.8 cfs.

Extremes.--Maximum discharge during year, 1,600 cfs Feb. 26 (gage height, 5.81 ft); minimum, 3.4 cfs Jan. 31, Feb. 7, 11 (gage height, 0.41 ft), result of freezeup.

1944-62: Maximum discharge, 5,590 cfs July 21, 1956 (gage height, 10.84 ft), from rating curve extended above 1,100 cfs on basis of slope-area measurements at gage heights 8.55 and 9.88 ft; minimum, that of Jan. 31, Feb. 7, 11, 1962.

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

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 6

Jan. 7 to Sept. 30

0.9	13	0.6	11	1.7	150
1.1	33	.8	22	2.0	240
1.4	78	1.1	49	3.0	575
1.7	150	1.4	86	4.0	890

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	21	26	25	32	97	183	65	43	28	21	14
2	21	20	27	b 23	30	76	98	67	41	26	* 19	15
3	27	21	26	b 21	30	b 66	82	65	40	28	19	18
4	31	22	25	b 22	31	b 61	76	60	39	30	20	17
5	23	22	25	b 23	32	58	73	57	42	27	21	29
6	21	22	23	140	36	74	71	56	53	26	21	22
7	20	39	22	244	b 24	67	97	54	40	25	26	18
8	19	27	21	78	b 28	63	89	54	38	24	21	17
9	20	24	b 20	58	b 28	62	80	55	36	23	28	17
10	17	22	29	* 48	b 28	67	74	53	35	21	25	16
11	17	22	30	b 45	b 24	77	79	56	35	21	31	14
12	17	22	83	b 42	29	853	107	55	48	21	22	13
13	18	23	52	b 40	* b 27	252	174	53	45	21	21	12
14	32	37	34	b 42	b 33	160	108	52	41	21	20	12
15	46	48	b 28	b 55	33	* 125	94	50	45	23	18	12
16	24	32	b 25	48	30	105	84	49	37	23	18	11
17	22	40	b 36	39	33	93	79	48	34	26	18	15
18	* 22	30	b 115	b 35	37	86	77	47	33	35	19	17
19	21	27	71	b 34	97	82	* 74	45	32	29	19	15
20	21	33	51	34	80	83	78	44	39	25	19	17
21	88	36	39	33	59	163	73	44	39	24	19	15
22	70	30	34	34	58	131	70	42	34	36	20	15
23	30	28	32	36	88	96	67	* 43	41	27	17	17
24	26	135	34	33	240	86	65	91	52	58	17	16
25	25	55	30	33	77	80	64	50	35	27	17	15
26	23	37	b 28	34	439	76	62	45	32	26	16	* 17
27	22	34	b 27	37	301	73	61	51	* 31	22	16	25
28	21	31	31	34	149	69	60	48	29	21	18	27
29	22	* 28	b 22	32	-	67	79	47	29	22	17	19
30	23	27	b 28	32	-----	65	70	46	29	* 24	* 15	17
31	24	-----	b 26	b 25	-----	67	-----	45	-----	23	14	-----
Total	830	995	1,100	1,459	2,133	3,580	2,548	1,637	1,154	813	612	504
Mean	26.8	33.2	35.5	47.1	76.2	115	84.9	52.8	38.5	26.2	19.7	16.8
Cfsm	0.448	0.555	0.594	0.788	1.27	1.92	1.42	0.883	0.644	0.438	0.329	0.281
In.	0.52	0.62	0.68	0.91	1.33	2.23	1.58	1.02	0.72	0.51	0.38	0.31

Calendar year 1961: Max 390 Min 16 Mean 60.6 Cfsm 1.01 In. 13.74  
 Water year 1961-62: Max 853 Min 11 Mean 47.6 Cfsm 0.796 In. 10.81

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1545	5.81	1,600	3-12	1200	5.27	1,380

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

## GUNPOWDER RIVER BASIN

43

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  $\frac{1}{2}$  miles downstream from Loch Raven Dam.

Drainage area.--314 sq mi.

Records available.--September 1949 to September 1962.

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

Extremes.--Maximum discharge during year, 3,040 cfs Mar. 13 (gage height, 6.34 ft); minimum daily, 2.6 cfs Sept. 1.

1949-62: 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 May 28 to Sept. 30, which are fair, and those for periods of no gage-height record, which are poor. Figures of discharge do not include water diverted at Loch Raven Dam for municipal supply of Baltimore and occasional small diversions just below Loch Raven Dam to maintain Lake Montebello at capacity. Flow completely regulated by Prettyboy and Loch Raven Reservoirs (combined usable capacity, 43,270,000,000 gal; dead storage 300,000,000 gal).

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)

1.3	2.6	1.8	24	3.5	540
1.4	4.3	2.0	47	4.0	835
1.5	7.1	2.3	108	5.0	1,640
1.6	11	2.6	186	6.0	2,670
1.7	17	3.0	319		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.8	5.8	5.6	b 24	23	1,060	649	210	95	18	5.0	2.6
2	5.6	5.8	5.6	b 24	21	639	698	190	84	15	4.6	2.8
3	5.8	6.2	5.6	22	18	432	535	200	72	13	5.0	3.8
4	5.8	6.4	5.6	20	19	319	422	180	58	12	5.3	4.6
5	5.6	7.1	* 6.2	18	22	268	354	160	55	9.8	4.8	4.4
6	5.3	5.8	6.2	100	* 27	327	312	140	74	8.9	4.8	4.2
7	5.0	15	5.8	641	b 24	358	393	120	68	7.8	5.3	4.0
8	5.0	7.1	5.8	698	18	286	481	110	49	8.9	5.0	3.6
9	5.6	6.2	5.6	472	17	251	472	100	36	5.8	4.8	3.8
10	5.0	6.2	6.4	331	17	248	427	95	27	5.8	5.3	4.0
11	4.8	6.8	6.8	* 180	b 15	265	387	100	25	5.6	5.6	3.4
12	4.8	6.8	18	90	14	1,440	432	105	31	5.6	5.0	3.1
13	4.8	6.4	8.9	60	b 13	* 2,540	698	115	62	5.3	4.4	3.1
14	7.8	8.2	7.1	50	14	1,530	698	110	* 60	4.8	4.8	3.6
15	7.8	9.3	6.8	100	18	982	578	100	62	5.0	4.6	3.1
16	5.0	7.4	6.2	80	b 17	698	486	97	58	5.3	4.4	2.9
17	5.0	7.8	9.8	60	18	546	* 422	94	49	5.6	4.4	4.0
18	* 5.0	6.8	34	50	21	436	370	90	39	7.8	3.8	4.4
19	5.6	6.2	13	50	58	371	310	86	30	7.8	3.6	4.0
20	6.2	7.1	10	50	172	* 338	350	82	56	5.8	3.2	4.2
21	2.8	7.4	14	56	186	438	350	80	132	5.8	3.8	4.2
22	13	6.4	17	52	210	680	300	* 80	104	10	4.2	3.8
23	6.8	6.8	21	47	219	578	270	80	82	5.8	3.8	4.4
24	6.2	4.4	41	43	433	578	240	200	269	11	3.4	4.0
25	5.8	9.3	60	40	926	400	220	200	213	6.2	3.0	4.0
26	5.3	7.4	55	37	1,060	354	200	160	* 142	6.8	3.0	4.6
27	5.6	6.8	46	43	1,980	312	180	150	80	6.2	* 3.6	1.1
28	5.6	6.4	56	44	1,760	275	170	* 132	47	5.6	3.8	7.4
29	5.6	5.8	44	43	-	251	190	120	30	5.6	3.6	4.8
30	5.6	5.8	30	b 40	-----	232	230	110	24	5.3	3.2	4.2
31	5.6	-----	b 25	b 30	-----	251	-----	108	-----	* 5.3	2.8	-----
Total	2034	250.5	588.0	3595	7340	17,683	11,824	3904	2213	2372	1319	1260
Mean	6.56	8.35	19.0	116	262	570	394	126	73.8	7.65	4.25	4.20
(†)	42,110	42,600	43,400	43,400	44,570	43,830	43,780	43,590	43,390	43,000	41,260	39,410
(‡)	+176	+167	+167	+183	+183	+174	+160	+171	+186	+186	+189	+175

Calendar year 1961: Max 2,060 Min 4.7 Mean 228  
 Water year 1961-62: Max 2,540 Min 2.6 Mean 132

\* Discharge measurement made on this day.

† Combined month-end contents, in millions of gallons, in Prettyboy and Loch Raven Reservoirs (contents on Sept. 30, 1961, 42,460 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.

b Stage-discharge relation affected by ice.

Note.--No gage-height record Jan. 11-23, Apr. 18 to May 27. Discharge computed from twice-daily staff gage readings May 28 to Sept. 30.

## GUNPOWDER RIVER BASIN

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 1962. 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.--36 years, 47.4 cfs.

Extremes.--Maximum discharge during year, 1,170 cfs Feb. 26 (gage height, 4.80 ft); minimum, 10 cfs Sept. 15-17, but may have been less during period of ice effect.

1926-62: 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.8	8.1	2.5	186
1.0	16	3.0	311
1.2	26	3.5	480
1.5	50	4.0	690
2.0	105		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	25	25	28	26	61	205	48	32	25	*18	12
2	18	25	25	26	26	48	78	50	30	23	17	12
3	21	24	25	24	26	b 41	61	54	30	24	16	14
4	20	24	24	25	27	b 38	55	45	30	26	18	14
5	18	24	24	25	28	b 37	53	43	30	24	18	20
6	18	24	24	150	* 29	b 42	51	41	35	23	18	16
7	17	30	24	200	b 21	b 48	108	40	29	22	42	14
8	17	27	23	70	b 24	b 45	94	40	28	22	24	13
9	17	26	22	* 42	b 26	b 44	66	42	27	20	21	13
10	17	25	25	38	b 25	50	59	39	26	20	26	13
11	16	25	27	35	b 25	62	62	43	26	19	24	12
12	16	25	50	33	b 25	586	85	43	40	20	20	11
13	16	25	35	31	b 24	134	145	40	35	25	19	11
14	22	30	28	33	26	* 85	76	40	32	21	18	11
15	30	34	26	60	27	69	64	39	34	22	18	11
16	20	27	b 24	45	28	61	59	37	30	21	17	10
17	18	28	33	35	30	55	* 55	37	26	24	17	14
18	18	25	108	30	35	51	54	35	25	48	16	14
19	*18	24	51	29	118	50	52	34	25	36	16	13
20	18	26	40	30	61	52	74	33	51	24	15	13
21	71	28	35	34	43	108	59	32	44	21	16	13
22	62	26	32	30	69	92	53	* 32	31	33	16	13
23	29	25	30	31	72	61	50	32	35	24	14	14
24	26	25	32	28	149	54	48	83	88	47	14	13
25	25	40	30	b 28	57	50	47	40	34	23	13	13
26	24	32	b28	30	324	49	46	35	* 29	22	13	13
27	23	* 30	b27	34	138	47	45	38	26	19	13	21
28	24	27	32	30	91	45	44	35	26	18	13	26
29	24	26	b26	b 26	-	44	48	35	26	18	13	18
30	25	25	24	28	-----	43	50	34	26	20	12	15
31	25	-----	23	b 23	-----	51	-----	35	-----	20	12	-----
Total	729	877	982	1,311	1,600	2,303	2,046	1,254	986	754	547	420
Mean	23.5	29.2	31.7	42.3	57.1	74.3	68.2	40.5	32.9	24.3	17.6	14.0
Cfsm	0.651	0.809	0.878	1.17	1.58	2.06	1.89	1.12	0.911	0.673	0.488	0.388
In.	0.75	0.90	1.01	1.35	1.65	2.37	2.11	1.29	1.02	0.78	0.56	0.43

Calendar year 1961: Max 375 Min 16 Mean 51.1 Cfsm 1.42 In. 19.20  
 Water year 1961-62: Max 586 Min 10 Mean 37.8 Cfsm 1.05 In. 14.22

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1400	4.80	1,170	3-12	1030	4.77	1,150

\* Discharge measurement made on this day.  
 b Stage-discharge relation affected by ice.  
 Note.--No gage-height record Dec. 30 to Jan. 23.

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

Note.--Records for the 1962 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report.

BACK RIVER BASIN

45

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 1962.

Average discharge.--5 years, 2.23 cfs.

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

Extremes.--Maximum discharge during year, 525 cfs July 23 (gage height, 5.34 ft); minimum, 0.1 cfs Oct. 7, 9, 10 (gage height, 1.23 ft).  
1957-62: 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 culbert; no flow Aug. 14-24, 1957.

Remarks.--Records fair. Slight diurnal fluctuation caused by ready-mixed concrete plant above station.

Rating table, water year 1961-62, (gage height, in feet, and discharge, in cubic feet per second)

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

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.6	0.6	0.6	0.7	2.4	18	2.0	1.0	0.8	0.6	0.3
2	1.1	.5	.6	.6	.8	1.8	26	2.8	1.1	.6	.6	.9
3	.7	.6	.5	.6	1.1	1.7	2.2	1.8	.8	1.1	.6	.4
4	.6	.6	.6	.8	.9	1.5	2.1	1.5	.9	.7	.6	.8
5	.4	.4	* .5	.7	1.1	1.7	2.0	1.2	1.6	.6	.6	.6
6	.3	3.9	.4	10	*.8	4.2	2.0	1.2	1.4	.7	.6	.4
7	.3	7.4	.4	5.5	.6	5.5	9.4	1.1	.9	.7	1.9	.3
8	.3	5.0	.4	2.0	.7	4.2	2.8	1.4	.9	.7	.6	.3
9	.2	1.0	.4	1.4	.8	3.5	2.5	1.1	.8	.6	.8	.3
10	.2	.6	2.0	1.1	.7	6.2	2.1	1.1	.8	.6	* 2.2	.3
11	.3	.6	.6	* 1.0	.6	8.1	3.6	1.4	.8	.6	.7	.3
12	.4	.4	7.9	.8	.6	27	12	1.1	2.0	.6	.6	.3
13	.4	.5	1.0	.7	.8	* 4.2	6.9	1.1	2.1	.6	.6	.2
14	6.0	3.6	.8	.8	2.0	2.9	2.9	1.1	1.1	.6	.6	.2
15	.6	.7	.7	2.4	2.3	2.5	2.4	1.1	1.7	.5	.6	.3
16	.4	1.4	.6	1.1	1.1	2.4	2.1	1.1	1.5	.7	.6	.3
17	.4	.8	4.5	.9	3.4	2.2	* 1.8	1.0	.8	.6	.6	4.6
18	.4	.6	1.1	.8	1.4	2.0	1.8	1.0	.7	3.2	.5	.4
19	*.3	.5	1.7	.8	8.6	2.0	1.8	.9	7.4	.7	.5	.3
20	.4	2.5	1.2	1.0	1.8	2.1	4.0	.9	17	.6	.4	.4
21	21	.7	1.0	.7	1.4	14	2.0	1.2	3.2	2.5	.7	.3
22	16	.6	.9	.9	6.5	3.1	1.8	*.8	1.1	1.5	.4	.3
23	.6	.7	.8	.8	2.8	2.2	1.7	1.9	5.1	17	.4	1.5
24	.6	8.8	1.8	1.0	3.2	1.8	1.7	13	1.6	2.3	.5	.3
25	.6	.9	1.2	.9	2.5	1.8	1.8	1.2	1.2	1.2	.4	.3
26	.6	.7	.8	2.0	17	1.7	1.7	1.1	*.9	.9	.6	.4
27	.6	.7	.9	1.1	8.5	1.7	1.5	2.4	.8	.7	.4	7.9
28	.6	1.5	2.0	.8	3.9	1.7	1.5	1.2	.8	.6	.5	.8
29	.4	.6	.8	.8	-	1.5	3.9	1.0	.9	.9	.4	.3
30	.6	.6	.7	.8	-----	1.5	2.1	1.0	.9	.7	.4	.3
31	.6	-----	.6	.8	-----	4.4	-----	1.2	-----	.6	.4	-----
Total	41.9	48.0	47.9	44.2	76.6	123.5	104.7	51.9	61.8	44.7	19.9	24.3
Mean	1.35	1.60	1.55	1.43	2.74	3.98	3.49	1.67	2.06	1.44	0.64	0.81
Cfsm	9.634	0.751	0.728	0.671	1.29	1.87	1.64	0.784	0.967	0.676	0.300	0.380
In.	0.73	0.84	0.84	0.77	1.34	2.16	1.83	0.91	1.08	0.78	0.35	0.42

Calendar year 1961: Max 52 Min 0.2 Mean 2.18 Cfsm 1.02 In. 13.94  
Water year 1961-62 Max 27 Min 0.2 Mean 1.89 Cfsm 0.887 In. 12.05

Peak discharge (base, 190 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
5-24	0045	4.14	321	6-23	2100	3.38	195
6-19	1745	4.18	328	7-23	1930	5.34	525
6-20	1945	3.61	232				

## BACK RIVER BASIN

1-5853. Stemmers Run at Rossville, Md.

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

Drainage area.--4.94 sq mi.

Records available.--December 1958 to September 1962

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

Extremes.--1959-60: Maximum discharge during year, 1,170 cfs Sept. 12 (gage height, 7.40 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum, 0.6 cfs July 5 (gage height, 1.23 ft).

1960-61: Maximum discharge during year, 449 cfs Apr. 13 (gage height, 4.32 ft); minimum, 0.3 cfs Sept. 27-29; minimum gage height, 1.19 ft Sept. 28.

1961-62: Maximum discharge during year, 586 cfs Feb. 26 (gage height, 4.97 ft); minimum daily, 0.1 cfs many days in August and September.

1959-62: Maximum discharge, that of Sept. 12, 1960; minimum daily, 0.1 cfs many days in August and September 1962.

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

Rating table, water years 1959-60, 1960-61, and 1961-62 except periods of ice effect or indefinite stage-discharge relation (gage height, in feet and discharge, in cubic feet per second)

1.13	0	1.4	3.2	2.0	41
1.16	.1	1.5	6.3	2.5	102
1.2	.3	1.6	11	3.0	185
1.3	1.3	1.8	24	4.0	382

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	d2.3	2.1	* 1.9	2.9	2.9	3.7	3.2	5.3	2.7	1.1	2.5	4.3
2	d1.2	1.8	1.9	2.9	2.7	3.4	2.7	2.3	2.3	1.1	2.1	2.7
3	d1.1	1.6	1.9	52	2.3	b3.0	49	2.1	2.3	1.0	2.7	1.9
4	d1.1	1.5	1.8	67	2.3	b3.0	56	2.1	2.9	1.0	18	1.8
5	d1.1	1.5	1.8	4.3	8.4	b3.0	*104	1.9	2.9	.7	8.3	1.9
6	d1.0	2.6	4.1	3.4	5.3	b3.0	13	1.9	2.1	.7	3.4	1.9
7	d1.0	9.5	40	3.2	6.3	b3.0	7.5	1.9	1.6	1.1	2.7	1.8
8	d8.0	2.5	4.3	2.9	4.3	b3.0	5.6	136	1.5	.8	2.9	1.6
9	d9.0	2.1	2.7	2.5	3.7	b3.2	4.6	95	1.5	1.0	2.3	5.8
10	d1.2	1.9	2.3	2.5	3.7	b3.8	4.3	9.7	1.3	1.5	* 22	5.8
11	d5.5	1.8	2.1	2.5	20	b3.0	3.7	4.9	1.3	3.6	2.9	4.7
12	d1.7	1.6	70	2.9	4.6	b3.0	3.4	11	2.6	2.3	3.2	*355
13	1.2	1.6	15	4.9	b3.4	b3.5	3.2	6.3	2.5	3.6	5.8	1.3
14	1.4	1.6	4.6	3.4	b3.0	b4.2	3.2	3.7	10	6.9	2.9	6.0
15	2.5	1.5	3.2	2.7	3.4	b5.6	3.2	2.9	6.8	4.3	2.5	3.7
16	1.6	1.5	2.9	7.1	4.3	b6.0	3.2	3.2	1.8	2.7	2.7	2.9
17	1.5	2.3	2.7	4.0	9.1	4.4	3.2	2.5	1.6	2.3	1.9	2.7
18	1.3	1.6	9.4	4.7	2.4	2.9	5.5	a 3.5	1.3	2.3	1.9	4.0
19	1.2	1.5	4.6	4.9	4.7	1.4	3.2	a 2.5	1.3	1.9	1.8	9.1
20	1.2	1.5	2.9	3.2	9.7	8.8	2.9	a 2.0	1.3	1.9	1.6	3.8
21	1.2	1.5	2.9	2.3	6.3	6.0	2.9	a 2.5	1.1	1.9	2.5	2.3
22	1.3	1.5	2.9	b 2.3	*5.6	4.9	2.7	a 8.0	2.1	1.8	20	1.9
23	1.1	1.6	2.3	b 2.3	4.3	4.0	2.5	*a 20	1.6	1.6	4.9	1.8
24	20	21	2.1	b 2.3	3.7	4.0	2.5	3.2	4.7	1.6	2.3	1.8
25	4.3	6.6	2.3	b 2.2	5.1	3.2	2.5	2.7	2.1	1.6	1.9	1.6
26	2.5	2.7	2.3	2.3	4.2	2.9	9.6	2.1	1.1	1.6	1.9	2.1
27	4.6	2.7	2.3	3.3	7.5	2.9	6.7	1.9	*1.1	9.8	1.8	1.6
28	2.1	8.5	1.5	1.5	5.3	* 2.9	2.9	3.7	1.2	2.5	1.8	1.6
29	1.8	3.2	3.3	4.3	4.6	2.9	2.3	2.1	1.1	1.9	1.8	4.3
30	1.8	2.3	6.3	3.4	-----	3.2	2.1	7.1	1.5	4.7	1.7	2.9
31	2.3	-----	4.0	2.9	-----	8.4	-----	4.0	-----	3.2	2.3	-----
Total	111.6	95.2	255.5	190.5	418.4	198.5	321.3	410.2	69.2	210.8	173.0	498.6
Mean	3.60	3.17	8.24	6.15	14.4	6.40	10.7	13.2	2.31	6.80	5.58	16.6
Cfsm	0.729	0.642	1.67	1.24	2.91	1.30	2.17	2.67	0.468	1.38	1.13	3.36
In.	0.84	0.72	1.92	1.43	3.15	1.49	2.42	3.09	0.52	1.59	1.30	3.75

Calendar year 1959: Max 80 Min 0.3 Mean 5.24 Cfsm 1.06 In. 14.38  
 Water year 1959-60: Max 355 Min 0.7 Mean 8.07 Cfsm 1.63 In. 22.22

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-18	2215	4.18	420	5-8	2215	6.33	902
2-25	2345	4.34	453	9-12	0930	7.40	1,170

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record.

BACK RIVER BASIN

47

1-5853. Stemmers Run at Rossville, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	* 17	1.2	103	b 2.3	9.2	2.3	4.7	2.3	1.3	d 1.1	1.0
2	1.5	1.9	1.2	16	b 2.1	8.4	6.3	11	1.8	1.2	d 1.1	.8
3	2.1	2.3	1.1	8.8	b 2.3	6.0	4.6	4.3	1.9	1.2	d 1.1	1.5
4	1.5	1.6	1.0	4.9	b 6.5	6.3	4.0	3.4	1.9	1.1	d 1.1	1.2
5	1.5	1.8	1.1	3.7	b 6.4	8.4	3.7	3.2	1.6	1.1	d 1.1	.8
6	1.5	2.1	1.1	4.6	b 5.0	* 8.0	3.4	4.6	1.6	2.1	d 2.1	.8
7	1.3	1.9	1.2	6.3	b 4.7	8.8	3.2	6.7	1.6	1.3	d 2.6	.7
8	1.3	1.5	1.2	7.1	b 8.2	4.2	3.2	4.6	1.6	1.3	* d 1.7	.7
9	1.3	1.3	1.1	b 3.4	1.4	2.2	3.6	1.4	2.8	1.1	1.6	.7
10	1.3	1.5	b 1.1	b 3.0	1.8	7.5	7.3	9.8	8.0	1.0	4.2	.7
11	1.5	2.3	b .9	3.2	1.7	5.6	7.9	1.8	3.7	.7	1.3	.8
12	1.2	1.6	b 1.2	2.9	1.1	4.9	1.9	2.0	2.3	1.0	1.2	.7
13	1.1	1.3	b 3.2	2.9	9.2	4.6	1.50	6.7	1.8	4.6	1.0	.7
14	1.1	1.3	b 1.9	4.3	2.6	2.2	1.4	6.0	4.4	1.5	.8	* 1.0
15	1.2	1.3	b 1.5	2.3	3.0	7.5	8.4	4.0	5.9	5.0	.8	1.0
16	1.3	1.3	b 3.8	1.3	3.1	5.3	1.4	2.7	1.6	2.1	.8	.6
17	1.3	1.2	b 3.2	8.4	2.7	4.3	7.5	2.5	1.5	2.6	.8	.6
18	1.2	1.3	b 1.5	6.7	7.6	6.2	4.9	2.3	1.5	2.7	.7	.6
19	1.5	1.3	1.5	b 3.2	7.8	2.6	4.6	2.3	1.5	1.1	.8	.7
20	2.6	1.3	1.3	b 3.0	2.3	8.8	* 3.7	2.3	1.3	1.1	2.0	1.6
21	2.5	1.5	7.8	b 3.0	1.6	5.3	3.4	2.1	* 3.4	1.0	9.6	1.6
22	1.6	1.5	3.4	b 3.0	5.4	2.2	4.6	2.1	5.3	.8	1.6	.6
23	1.6	2.1	b 1.7	b 3.2	* 6.0	2.7	4.8	* 2.1	2.3	.8	7.2	.5
24	1.5	1.8	b 1.4	* b 3.2	1.9	1.0	3.7	1.9	2.1	2.9	5.4	.6
25	1.5	1.8	b 1.4	b 2.8	4.7	6.7	3.2	1.9	3.0	3.7	2.1	.6
26	1.5	1.6	b 1.7	b 2.7	1.8	5.3	1.2	7.7	2.3	d 1.3	3.2	.6
27	1.5	1.6	b 2.8	b 2.7	9.2	4.9	3.4	3.7	7.3	d 1.2	4.6	.3
28	1.8	1.6	b 1.8	b 2.6	9.7	4.6	9.0	1.9	1.9	d 1.1	2.5	.3
29	2.5	3.2	b 5.0	b 2.6	-	4.9	9.3	2.1	* 1.6	d 1.1	1.5	.3
30	1.5	1.9	2.1	b 2.5	-----	4.0	3.7	2.3	1.3	d 1.1	1.2	.4
31	3.6	-----	7.5	b 2.5	-----	2.4	-----	1.8	-----	d 1.1	1.1	-----
Total	7.34	7.92	8.68	262.2	630.6	340.5	419.1	162.7	136.9	77.3	161.5	23.0
Mean	2.37	2.64	2.80	8.46	22.5	11.0	14.0	5.25	4.56	2.49	5.21	0.77
Cfs/m	0.480	0.534	0.567	1.71	4.55	2.23	2.83	1.06	0.923	0.504	1.05	0.156
In.	0.55	0.60	0.65	1.97	4.75	2.56	3.16	1.22	1.03	0.58	1.22	0.17

Calendar year 1960: Max 355 Min 0.7 Mean 7.46 Cfs/m 1.51 In. 20.54  
 Water year 1960-61: Max 150 Min 0.3 Mean 6.72 Cfs/m 1.36 In. 18.46

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 1	0430	4.27	439	8-23	1545	4.22	428
4-13	0400	4.32	449				

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

## BACK RIVER BASIN

1-5853. Stemmers Run at Rossville, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.0	1.2	b 1.4	b 1.4	7.5	80	2.7	1.2	0.8	0.6	a 0.1
2	1.0	.8	1.2	b 1.4	b 1.4	b 4.0	10	3.2	1.1	.7	.6	a.1
3	1.1	.8	1.2	b 1.4	1.8	b 3.0	5.3	3.2	1.1	1.0	1.1	a.3
4	1.6	1.0	* 1.2	1.6	1.9	b 2.8	4.6	1.9	1.0	1.0	1.3	a.1
5	.6	1.0	1.1	1.5	* 1.9	b 2.9	4.3	1.9	1.6	.7	2.7	a.1
6	.6	1.0	1.1	6.7	b 2.0	b 3.3	4.0	1.9	2.4	.7	2.3	a.1
7	.6	7.1	1.1	2.8	b 1.1	2.5	3.8	1.8	1.0	.6	1.0	a.1
8	.6	1.2	1.0	* 5.6	b 1.3	1.9	12	2.1	.8	.6	1.1	a.1
9	.6	1.0	1.0	2.9	b 1.2	1.7	8.4	2.3	.8	.6	1.2	a.1
10	.6	1.0	2.5	b 1.8	b 1.4	3.1	6.0	1.6	.7	.5	2.3	a.1
11	.5	1.0	1.5	b 1.7	b 1.1	2.2	6.6	1.9	.8	.5	1.9	a.1
12	.6	1.0	1.8	b 1.5	b 1.1	14.8	5.5	1.8	3.6	.5	.6	a.1
13	.4	1.1	2.7	b 1.5	b 1.1	1.5	3.1	1.5	4.4	.5	.5	a.1
14	6.6	4.1	b 1.5	b 1.5	b 2.4	* 7.5	10	1.2	1.9	.4	.4	a.1
15	1.8	2.9	1.3	b 1.2	b 4.7	5.3	7.5	1.2	1.1	.7	.3	a.1
16	*.8	2.1	1.2	b 4.3	b 3.0	4.3	* 6.0	1.2	2.1	.7	.3	a.1
17	.7	1.8	1.1	b 2.1	8.6	4.0	4.0	1.1	.8	1.0	.4	e 7.0
18	.7	1.1	4.1	b 1.9	4.9	3.7	3.7	1.1	.8	4.9	.3	a.6
19	.7	1.1	4.9	b 1.8	4.6	4.0	3.7	1.0	9.3	1.4	.2	a.1
20	.7	4.3	2.9	b 2.0	1.0	4.9	6.7	1.0	2.7	.6	.2	a.1
21	3.4	1.6	2.1	b 1.7	5.3	5.3	4.0	* 1.2	7.1	1.2	.3	e.1
22	6.7	1.2	1.8	b 2.0	3.5	1.4	3.7	1.0	1.9	2.0	.4	e.2
23	2.1	1.2	1.8	b 1.9	1.1	6.0	3.4	1.2	2.4	3.2	.2	e 1.2
24	1.1	3.3	4.6	b 1.9	1.5	4.6	3.2	2.9	4.0	4.8	.2	e.5
25	1.1	2.3	2.5	b 1.8	4.9	4.0	3.2	1.6	* 1.9	2.5	.1	e.2
26	1.0	1.8	1.9	b 3.5	12.1	3.7	3.2	1.3	1.1	2.3	.2	e.3
27	1.0	1.6	b 2.1	3.4	3.6	3.4	3.4	3.9	1.0	.7	.2	e 1.2
28	1.1	1.3	6.2	1.9	1.8	3.2	2.9	1.6	.8	.6	.2	* e 1.3
29	1.1	1.3	b 1.8	b 1.6	-	3.4	1.1	1.5	.8	.7	.2	e.8
30	1.1	1.2	b 1.5	b 1.5	-----	3.4	3.7	1.3	.8	1.0	.1	e.4
31	1.1	-----	b 1.4	b 1.1	-----	8.1	-----	1.3	-----	*.7	a.1	-----
Total	72.8	82.9	126.3	165.2	344.5	470.7	348.5	80.5	85.3	66.9	21.5	26.6
Mean	2.35	2.76	4.07	5.33	12.3	15.2	11.6	2.60	2.84	2.16	0.69	0.89
Cfsm	0.476	0.559	0.824	1.08	2.49	3.08	2.35	0.526	0.575	0.437	0.140	0.180
In.	0.55	0.62	0.95	1.24	2.59	3.54	2.62	0.61	0.64	0.50	0.16	0.20

Calendar year 1961: Max 150 Min 0.3 Mean 6.84 Cfsm 1.38 In. 18.78  
 Water year 1961-62: Max 148 Min 0.1 Mean 5.18 Cfsm 1.05 In. 14.22

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1230	4.97	586	7-23	2100	4.91	573
3-12	0730	4.28	441				

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

# BACK RIVER BASIN

49

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 1962.

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

Extremes.-- Maximum discharge during year, 185 cfs Feb. 26 (gage height, 2.96 ft); no flow part of many days in August; minimum daily, 0.2 cfs many days in August.

1958-62 Maximum discharge, 506 cfs Sept. 12, 1960 (gage height, 5.03 ft), from rating extended above 180 cfs on basis of logarithmic plotting and velocity-area study; no flow part of Sept. 6, 1958, June 20, 1961 and many days in August 1962; minimum daily, 0.2 cfs many days in August 1962.

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

Rating table, water year 1961-62, except periods of ice effect or backwater from irrigation dam (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 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.5	0.5	0.5	0.5	0.8	3.3	0.7	0.5	0.4	0.3	0.4
2	6	.5	.5	.5	.5	.7	2.8	6	.5	.4	.2	1.4
3	6	.5	.5	.7	.5	.6	1.3	.5	.4	.4	.2	.5
4	6	.5	*.5	.9	.5	.6	1.0	.5	.4	.4	.2	.4
5	.5	.5	.5	.7	*.6	6	1.0	.5	.7	.4	.2	.4
6	.5	.5	.5	3.0	.7	15	1.0	.5	1.0	.4	.2	.4
7	.4	1.4	.5	11	.5	10	17	.5	.4	.4	.3	.4
8	.4	.5	.5	2.0	.5	8.0	3.3	.5	.4	.4	.2	.4
9	.4	.5	.5	*.9	.5	7.0	1.8	.5	.4	.4	.2	c .4
10	.4	.5	1.0	.7	.5	14	1.1	.5	.4	.4	.2	c .4
11	.4	.5	.8	6	.5	9.0	2.0	.6	.4	.4	.4	c .4
12	.4	.5	8.0	6	.5	*5.0	21	.5	1.5	.4	.4	c .4
13	.4	.5	1.0	.5	.5	6.0	13	.5	1.9	.4	.4	c .3
14	2.6	1.4	.7	.5	1.1	3.0	2.5	.5	.6	.4	.4	c .3
15	.7	.9	.7	4.3	2.5	1.5	1.6	.5	.7	.5	.4	c .3
16	*.5	.9	.7	1.4	1.4	.9	*1.3	.5	.5	.5	.4	c .3
17	.5	.9	6.0	.9	3.7	.7	1.1	.5	.4	.5	.4	c .3
18	.5	.5	1.8	6	2.2	6	.9	.5	.4	1.8	.3	.4
19	.5	.5	2.0	6	21	.6	.7	.4	4.0	.6	.3	.3
20	.5	2.1	1.0	6	5.2	.9	1.9	.3	12	.5	.2	.3
21	1.5	.7	.9	6	2.0	23	1.0	*.4	3.0	.5	.3	.4
22	2.2	.6	.9	6	17	4.4	.9	.3	.6	.6	.2	.3
23	6	.6	.9	.9	4.4	1.8	.7	.5	.7	.9	.2	c .4
24	6	1.4	2.0	.7	8.1	1.3	.6	1.9	1.7	1.1	c .3	.4
25	6	.7	1.2	.7	1.8	1.0	.6	.7	*.6	.5	c .3	.4
26	.5	.6	.7	1.0	4.7	.9	6	.6	.5	.5	c .4	c .4
27	.5	.5	.7	1.0	5.0	.9	.6	1.7	.5	.5	c .4	c .6
28	.5	.5	2.5	.7	1.0	.7	.6	.5	.4	.5	c .4	*.5
29	.5	.5	.7	.6	-	.7	1.5	.5	.4	.5	.4	.4
30	.5	.5	6	.5	-----	.7	1.3	.5	.4	.4	.4	.3
31	.5	-----	.5	.5	-----	2.6	-----	.5	-----	.3	.4	-----
Total	33.9	33.8	56.0	66.3	130.2	168.5	117.7	35.3	36.3	25.3	9.5	20.6
Mean	1.09	1.13	1.81	2.14	4.65	5.44	3.92	1.14	1.21	0.82	0.31	0.69
Cfs/m	0.553	0.574	0.919	1.09	2.36	2.76	1.99	0.579	0.614	0.416	0.157	0.350
In.	0.64	0.64	1.06	1.25	2.46	3.18	2.22	0.67	0.69	0.48	0.18	0.39

Calendar year 1961: Max 43 Min 0.4 Mean 2.33 Cfs/m 1.18 In. 16.08  
Water year 1961-62: Max 50 Min 0.2 Mean 2.01 Cfs/m 1.02 In. 13.86

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1430	2.96	185	5-24	0030	2.62	144
3-12	unknown	unknown	unknown				

\* Discharge measurement made on this day.  
c Backwater from irrigation dam.  
Note.--No gage-height record Dec. 9 to Jan. 9, Feb. 27 to Mar. 15, May 28 to June 25.

## PATAPSCO RIVER BASIN

1-5855. Cranberry Branch near Westminster, Md.

Location.--Lat 39°35'35", long 76°58'05", on left bank 80 ft upstream from small wooden bridge, half a mile upstream from mouth, and 1.8 miles northeast of Westminster, Carroll County.

Drainage area.--3.29 sq mi.

Records available.--September 1949 to September 1962.

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

Average discharge.--13 years, 3.88 cfs (adjusted for storage since August 1957).

Extremes.--1960-61: Maximum discharge during water year, 74 cfs June 14 (gage height, 2.75 ft); minimum, 0.6 cfs Jan. 19, Feb. 8, result of freezeup; minimum daily, 1.0 cfs Feb. 2.

1961-62: Maximum discharge during water year, 159 cfs Feb. 26 (gage height, 3.81 ft); minimum, 0.4 cfs Jan. 30, result of freezeup; minimum daily, 1.0 cfs Sept. 12-16.

1949-62: Maximum discharge, 720 cfs July 4, 1951 (gage height, 5.14 ft, from high-water mark in well), from rating curve extended above 200 cfs; minimum, 0.4 cfs Jan. 20, 1955, Jan. 30, 1962, result of freezeup; minimum daily, 0.7 cfs July 31 to Aug. 2, 1954.

Flood of July 12, 1949, reached a stage of 5.2 ft, from floodmarks (discharge, 750 cfs).

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

Rating table, water years 1960-61 and 1961-62, except periods of ice effect or backwater from unknown cause (gage height, in feet, and discharge, in cubic feet per second)

1.4	0.5	1.9	10
1.5	1.3	2.0	14
1.6	2.5	2.1	19
1.7	4.2	2.2	25
1.8	6.6	2.4	41

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	2.5	4.8	2.2	1.0	a 1.5	5.6	8.2	6.3	4.0	3.0	2.2	2.0
2	2.5	* 2.4	2.1	4.6	a 1.0	5.1	5.8	7.2	3.8	3.0	2.5	2.0
3	2.5	2.7	2.1	3.5	a 1.2	3.8	5.6	5.8	4.2	3.3	2.5	4.4
4	2.5	2.2	2.1	3.0	a 1.6	5.0	5.3	5.6	4.0	3.1	2.4	4.9
5	2.5	2.2	2.1	2.5	a 1.3	5.3	5.1	5.3	3.6	3.0	2.4	2.4
6	2.5	2.4	2.1	2.5	a 1.1	5.6	5.1	6.1	4.0	3.0	2.2	2.2
7	2.4	2.4	2.0	3.1	a 1.1	4.6	4.9	6.9	3.8	3.0	2.2	2.1
8	2.2	2.2	2.0	3.3	b 1.1	* 9.9	4.6	6.1	3.6	2.8	2.1	2.1
9	2.2	2.2	1.9	b 2.5	b 1.2	8.8	5.1	5.8	4.0	2.7	2.1	2.1
10	2.2	4.2	1.9	2.4	b 1.2	5.6	1.5	5.3	3.8	2.7	* 2.0	2.1
11	2.1	2.0	b 1.8	2.4	b 1.4	4.9	6.3	6.1	3.6	2.5	1.7	2.0
12	2.1	2.0	b 1.4	2.5	b 1.5	4.6	6.6	4.8	3.5	2.5	1.9	1.9
13	2.1	2.4	b 2.0	2.7	b 2.3	4.0	2.3	5.1	3.3	3.3	1.9	1.9
14	2.1	2.2	2.0	3.1	3.3	5.6	9.6	5.6	1.0	2.8	1.9	1.9
15	2.1	2.2	2.0	5.3	3.8	4.2	7.5	5.1	5.1	2.7	1.9	1.9
16	2.1	2.2	2.1	3.1	4.2	3.8	1.3	4.9	3.8	2.8	1.9	1.9
17	2.1	2.1	2.0	2.3	4.4	3.6	* 7.8	4.4	3.5	7.6	2.0	1.9
18	2.1	2.1	b 1.7	3.5	1.1	4.0	7.5	4.4	3.5	3.1	2.0	1.9
19	2.1	2.1	1.9	2.4	2.1	7.2	6.9	4.6	3.3	2.7	2.0	1.9
20	3.3	2.1	1.9	1.9	1.1	4.9	6.6	4.4	3.3	2.7	2.1	2.0
21	2.4	2.0	b 1.7	b 2.4	6.1	4.9	5.5	4.2	3.2	2.5	3.3	* 1.7
22	2.4	2.0	b 1.5	b 2.3	7.1	9.6	4.8	4.2	3.2	2.5	2.4	1.6
23	2.4	2.2	b 1.5	a 2.2	1.4	8.8	5.1	4.2	3.6	2.4	2.5	1.6
24	2.4	2.1	1.7	a 2.2	1.1	6.9	5.6	4.0	3.5	6.8	2.4	1.6
25	2.4	2.1	1.9	a 2.2	1.9	6.1	7.0	4.0	5.2	2.2	3.5	1.6
26	2.2	2.1	2.0	a 2.2	1.1	5.6	1.3	4.3	4.0	c 2.7	3.1	1.6
27	2.2	2.1	2.1	a 2.2	7.2	5.6	6.6	4.4	* 6.1	c 2.7	2.5	1.6
28	2.2	2.0	b 1.8	a 2.2	6.1	5.6	7.2	4.2	3.5	2.5	2.2	1.6
29	2.2	4.1	2.1	a 2.1	-	5.6	6.9	4.4	3.1	2.7	2.2	1.6
30	2.2	2.8	2.5	a 1.9	-	5.1	6.1	4.2	3.8	2.5	2.1	1.6
31	2.4	-----	2.4	a 1.7	-----	7.7	-----	3.8	-----	2.4	2.1	-----
Total	71.6	72.6	60.5	90.2	157.7	177.6	227.3	155.7	120.9	94.2	70.2	61.6
Mean	2.31	2.42	1.95	2.91	5.63	5.73	7.58	5.02	4.03	3.04	2.26	2.05
(†)	0	+0.34	0	+0.11	+1.13	+1.17	+0.44	+0.20	+0.12	+0.10	+0.04	0
Mean†	2.31	2.76	1.95	3.02	6.76	6.90	8.02	5.22	4.15	3.14	2.30	2.05
Cfsm†	0.702	0.839	0.593	0.918	2.05	2.10	2.44	1.59	1.26	0.954	0.699	0.623
In.†	0.81	0.94	0.68	1.06	2.14	2.42	2.72	1.83	1.41	1.10	0.81	0.70

Calendar year 1960: Max 17 Min 1.0 Mean 3.31 Mean† 3.67 Cfsm† 1.12 In.† 15.15  
 Water year 1960-61: Max 23 Min 1.0 Mean 3.73 Mean† 4.03 Cfsm† 1.22 In.† 16.62

Peak discharge (base, 80 cfs).--No peak above base.

\* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Cranberry Reservoir. Records furnished by Maryland Water Works Co.

‡ Adjusted for change in contents

a No gage-height record.

b State-discharge relation affected by ice.

c Backwater from unknown cause.

## 1-5855. Cranberry Branch near Westminster, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	1.5	1.7	2.0	2.0	3.6	1.3	3.6	2.5	1.9	1.5	1.1
2	1.6	1.5	1.7	1.9	2.0	b 3.9	5.8	4.9	2.4	1.7	1.4	1.2
3	1.9	1.5	1.7	1.9	2.1	3.6	4.6	4.0	2.4	2.0	1.4	1.2
4	2.0	1.5	1.6	2.0	2.2	3.3	4.4	* 3.5	2.4	2.0	1.6	1.4
5	1.7	2.6	* 1.6	2.0	2.5	3.3	4.2	3.3	3.9	1.7	1.6	2.0
6	1.7	2.2	1.6	1.7	b 2.1	b 2.6	4.2	3.3	3.1	1.7	1.5	1.3
7	1.6	3.7	1.6	1.2	b 1.9	b 3.5	9.7	3.1	2.5	1.6	1.5	1.3
8	1.6	2.0	1.6	3.4	1.9	b 3.5	6.9	3.3	2.4	1.6	1.4	1.2
9	1.6	1.9	1.6	3.5	2.0	3.5	6.1	3.3	2.2	1.5	2.2	1.2
10	1.5	1.7	1.9	b 2.6	b 1.6	3.6	5.1	3.1	2.1	1.5	1.7	1.2
11	1.5	1.7	2.0	b 2.2	2.0	4.0	5.8	3.5	* 2.2	1.5	1.6	1.1
12	1.5	1.7	3.6	2.2	1.9	* 3.3	9.0	3.3	3.9	1.5	1.5	1.0
13	1.5	1.7	2.4	2.1	b 1.8	10	9.2	3.1	2.8	1.7	1.5	1.0
14	2.5	2.1	1.9	2.1	b 2.0	6.9	6.3	3.1	2.5	1.9	1.4	1.0
15	2.0	2.1	1.9	4.4	2.1	5.1	5.8	3.0	2.8	1.5	1.3	1.0
16	1.7	2.0	b 1.6	* 3.0	2.0	3.8	5.3	2.8	2.4	1.9	1.3	1.0
17	1.7	2.1	b 2.1	2.5	2.1	3.3	4.9	2.8	2.1	1.7	1.3	1.2
18	1.6	1.9	6.8	2.2	2.1	3.0	4.6	2.8	2.1	2.6	1.2	1.1
19	1.6	1.7	4.0	2.1	3.6	2.7	4.6	2.8	2.4	* 2.0	1.3	1.1
20	1.6	2.0	3.1	2.2	* 4.0	2.8	5.1	2.7	3.0	1.7	1.2	1.2
21	2.4	2.0	2.7	2.1	3.1	9.2	4.4	2.7	2.8	1.8	* 1.2	1.1
22	2.1	1.9	2.4	2.2	3.5	4.6	4.2	2.7	2.5	3.5	1.1	1.1
23	* 1.7	1.7	2.2	2.5	7.6	3.0	4.0	2.5	3.9	2.1	1.2	1.1
24	1.7	4.9	2.4	2.2	2.4	2.7	3.8	3.9	2.8	2.0	1.2	1.1
25	1.7	2.2	2.2	2.2	3.1	2.4	3.6	2.8	c 2.4	1.9	1.1	1.1
26	1.6	2.0	2.1	2.4	3.0	2.2	3.6	2.7	c 2.2	1.7	1.1	1.1
27	1.6	2.0	2.1	2.5	1.9	2.1	3.5	3.0	c 2.1	1.6	1.1	1.4
28	1.6	1.7	2.4	2.2	6.1	2.0	3.5	3.0	c 2.1	1.6	2.0	1.5
29	1.6	1.7	b 2.0	2.1	-	1.9	3.5	2.8	c 2.0	1.6	1.3	1.2
30	1.6	1.7	b 1.9	b 2.0	-----	2.6	3.5	2.7	c 2.0	1.6	1.1	1.2
31	1.6	-----	1.9	b 1.7	-----	4.0	-----	2.7	-----	1.6	1.1	-----
Total	53.2	60.9	70.3	97.4	140.3	145.7	162.2	96.8	76.9	56.2	42.9	35.7
Mean	1.72	2.03	2.27	3.14	5.01	4.70	5.41	3.12	2.56	1.81	1.38	1.19
(†)	0	0	+0.22	+0.37	+0.79	+2.48	0	0	0	0	-0.05	0
Mean*	1.72	2.03	2.49	3.51	5.80	7.18	5.41	3.12	2.56	1.81	1.33	1.19
Cfsm*	0.523	0.617	0.757	1.07	1.76	2.18	1.64	0.948	0.778	0.550	0.404	0.362
In.*	0.60	0.69	0.87	1.23	1.83	2.51	1.83	1.09	0.87	0.63	0.47	0.40

Calendar year 1961: Max 23 Min 1.0 Mean 3.67 Mean\* 3.96 Cfsm\* 1.20 In.\* 16.35  
 Water year 1961-62: Max 33 Min 1.0 Mean 2.85 Mean\* 3.17 Cfsm\* 0.964 In.\* 13.02

Peak discharge (base, 80 cfs).

Date	Time	Gage height	Discharge
2-26	1200	3.81	159

\* Discharge measurement made on this day.

† Change in contents, equivalent in cubic feet per second, in Cranberry Reservoir. Records furnished by Maryland Water Works Co.

\* Adjusted for change in contents in Cranberry Reservoir.

b Stage-discharge relation affected by ice.

c Backwater from unknown cause.

## PATAPSCO RIVER BASIN

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 1962.

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

Average discharge.--17 years, 64.8 cfs.

Extremes.--Maximum discharge during year, 1,660 cfs Feb. 26 (gage height, 5.65 ft); minimum daily, 8.9 cfs Sept. 14.

1945-62: 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. 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 1.4 cfs diverted above station for municipal supply of Westminster; sewage effluent discharged into Little Pipe Creek.

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

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

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	20	*22	b25	b25	108	174	52	32	22	17	10
2	19	19	22	b23	b26	b75	92	65	29	21	16	11
3	22	19	23	24	28	b62	76	56	28	23	15	13
4	26	20	21	24	30	b58	71	50	28	24	18	13
5	21	20	21	b25	32	b54	68	47	46	22	18	22
6	21	28	20	b150	34	b56	65	45	51	21	18	14
7	20	43	20	282	b18	b62	107	44	31	20	16	13
8	20	25	19	79	b24	b55	103	44	29	19	*16	12
9	19	22	b18	54	b24	b55	85	44	27	18	27	12
10	18	21	b23	*b32	b24	57	78	40	26	16	20	12
11	18	20	b24	b28	b18	63	83	46	26	16	19	11
12	18	21	56	b28	b23	688	120	43	50	16	18	9.4
13	18	21	36	b27	*b23	251	167	41	35	16	16	9.4
14	27	27	26	b25	28	166	109	40	32	16	16	8.9
15	30	31	b22	b45	30	131	98	39	34	18	15	9.0
16	21	25	b20	b46	29	*110	88	38	29	19	14	9.7
17	20	30	b27	b30	31	96	81	37	27	21	14	13
18	20	24	b95	b28	35	86	78	36	25	32	13	13
19	*19	22	67	b30	75	80	*75	35	25	25	13	11
20	19	25	48	b30	79	82	77	35	33	20	13	13
21	29	26	37	b28	60	166	70	34	33	24	13	11
22	31	23	35	33	60	124	66	32	27	36	13	11
23	22	23	b26	35	111	93	63	33	40	50	12	13
24	20	66	b32	b28	418	82	60	*59	57	39	13	12
25	21	33	b27	b28	100	76	58	37	30	23	11	*11
26	20	27	b24	32	*517	72	55	34	27	22	12	12
27	20	26	b24	35	371	67	55	40	*25	19	11	16
28	20	24	32	31	173	63	53	37	24	18	17	22
29	20	22	b20	b26	-	60	53	36	23	18	13	14
30	20	22	b24	b25	-----	58	54	34	23	20	11	14
31	21	-----	b23	b17	-----	61	-----	34	-----	19	11	-----
Total	658	775	934	1353	2446	3317	2482	1287	952	693	469	375.4
Mean	21.2	25.8	30.1	43.6	77.4	107	82.7	41.5	31.7	22.4	15.1	12.5
Cfs/m	0.375	0.468	0.532	0.770	1.54	1.89	1.48	0.733	0.560	0.398	0.267	0.221
In.	0.43	0.51	0.61	0.89	1.61	2.16	1.63	0.85	0.63	0.46	0.31	0.25

Calendar year 1961: Max 536 Min 17 Mean 61.1 Cfs/m 1.08 In. 14.64

Water year 1961-62: Max 688 Min 8.9 Mean 43.1 Cfs/m 0.761 In. 10.36

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1400	5.65	1,660	3-12	1745	5.08	1,370

\* 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 State Highway 101 at Henryton, Carroll County, 1.3 miles upstream from Piney Run, 2.3 miles upstream from confluence with North Branch, and 3.2 miles southeast of Sykesville.

Drainage area.--64.4 sq mi.

Records available.--August 1948 to September 1962.

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

Average discharge.--14 years, 70.8 cfs.

Extremes.--Maximum discharge during year, 1,280 cfs Feb. 26 (gage height, 4.65 ft); minimum, 7.4 cfs Sept. 16, 17 (gage height, 1.50 ft).  
1948-62: 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, result of freezeup; minimum daily, 6.8 cfs Aug. 18, 19, 24, 1957.

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

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 26

Feb. 27 to Sept. 30

1.7	11	2.3	102	1.5	7.4	2.1	54
1.8	17	2.5	170	1.6	11	2.3	102
1.9	24	3.0	470	1.7	15	2.5	170
2.1	51			1.9	28	3.3	640

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	21	22	b 27	29	133	239	63	48	27	22	10
2	15	20	23	b 25	28	98	119	132	44	26	20	11
3	18	21	23	b 25	29	83	96	86	42	30	20	13
4	21	22	22	b 26	30	75	88	70	42	35	21	14
5	17	22	* 23	30	32	70	85	65	44	29	22	18
6	16	22	22	174	36	82	83	61	59	27	21	16
7	16	33	22	246	b 23	87	129	59	42	26	30	13
8	15	25	21	86	27	* d 80	114	59	39	25	22	12
9	16	23	b 19	57	27	75	98	61	37	24	32	12
10	15	22	b 24	b 40	b 28	77	88	57	36	22	* 24	12
11	14	21	b 26	b 30	a 21	91	95	54	36	21	27	9.7
12	14	22	69	32	a 25	599	141	54	43	21	22	8.3
13	15	22	41	31	a 25	345	262	53	77	21	20	8.4
14	22	24	30	b 30	a 30	244	146	52	46	22	20	8.0
15	28	29	b 26	* 48	a 31	190	124	50	46	25	18	7.9
16	18	25	b 22	55	33	d 145	113	47	40	25	18	7.6
17	18	28	b 32	36	35	d 125	102	47	37	27	17	10
18	18	24	116	34	41	d 115	99	* 46	35	101	17	14
19	16	23	61	32	101	d 105	94	44	33	61	15	11
20	18	25	43	32	86	d 110	94	43	58	31	15	12
21	46	28	35	30	65	d 230	89	42	53	27	16	11
22	40	25	32	34	86	d 180	84	41	39	27	15	11
23	* 23	24	b 29	39	97	128	79	45	37	57	14	14
24	22	63	b 29	32	171	114	74	271	37	88	13	* 13
25	22	34	b 29	34	99	104	* 72	64	34	31	13	12
26	21	28	b 28	34	427	98	67	52	32	30	13	13
27	21	26	b 26	36	313	92	67	98	31	25	13	19
28	20	24	33	34	216	86	65	61	29	24	14	24
29	21	23	b 25	31	-	81	65	57	* 28	24	12	17
30	22	23	b 26	31	-----	78	65	52	28	25	11	15
31	22	-----	b 24	b 22	-----	83	-----	50	-----	25	11	-----
Total	624	772	1.003	1.453	2.191	4.203	3.136	2.036	1.232	1.009	568	376.9
Mean	20.1	25.7	32.4	46.9	78.2	136	105	65.7	41.1	32.5	18.3	12.6
Cfsm	0.312	0.399	0.503	0.728	1.21	2.11	1.63	1.02	0.636	0.505	0.284	0.196
In.	0.36	0.45	0.58	0.84	1.27	2.43	1.81	1.18	0.71	0.58	0.33	0.22

Calendar year 1961: Max 672 Min 13 Mean 73.0 Cfsm 1.13 In. 15.40  
Water year 1961-62: Max 599 Min 7.6 Mean 51.0 Cfsm 0.792 In. 10.76

Peak discharge (base, 950 cfs)

Date	Time	Gage height	Discharge
2-26	1500	4.65	1,280

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

## PATAPSCO RIVER BASIN

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 1962.

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

Extremes.--Maximum discharge during year, 1,880 cfs Feb. 26 (gage height, 4.01 ft); minimum, 14 cfs Sept.

12, 13, 14, 15 (gage height, 0.99 ft); minimum daily, 15 cfs Sept. 13-16.

1944-62: 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, 15 cfs Sept. 13-16, 1962.

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

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by Liberty Reservoir beginning July 22, 1954 (usable capacity, 42,070,000,000 gal; dead storage, 1,260,000,000 gal). Diversion above station for municipal supply of Westminster (sewage effluent discharged into Little Pipe Creek) and from Liberty Reservoir beginning Feb. 26, 1953, for municipal supply of Baltimore.

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 12

Mar. 13 to Sept. 30

1.1	21	2.5	457	1.0	15	2.0	216
1.4	54	3.0	830	1.2	31	2.5	457
1.7	115	4.0	1,870	1.4	59	3.0	830
2.0	211			1.7	127		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	46	47	52	51	208	420	115	84	47	35	17
2	30	45	47	b 50	49	149	219	178	76	44	31	17
3	37	47	47	b 48	50	127	168	148	72	47	29	20
4	41	48	47	51	52	114	153	122	71	62	30	22
5	36	50	* 47	55	56	111	146	111	76	51	32	28
6	33	49	45	284	62	141	142	107	116	45	32	28
7	33	71	45	465	b 44	162	204	104	76	43	65	23
8	32	62	44	154	* b 51	* 130	198	100	68	42	40	20
9	32	49	42	102	b 53	129	164	106	63	40	51	20
10	32	46	52	75	b 51	136	152	98	59	36	* 42	20
11	31	46	54	b 53	b 44	172	155	97	59	34	44	19
12	30	46	127	b 54	b 46	1340	218	99	73	34	36	16
13	30	48	97	b 54	b 46	606	432	95	143	35	31	15
14	41	55	62	b 56	56	348	241	95	86	35	31	15
15	62	67	55	77	63	281	200	91	84	42	28	15
16	40	57	49	107	b 62	241	182	85	71	41	27	15
17	36	60	69	b 68	65	201	167	84	62	46	27	20
18	37	55	234	b 61	b 73	183	160	* 83	58	59	26	25
19	36	50	143	b 57	194	172	154	77	58	151	24	22
20	37	57	89	57	172	181	161	74	97	52	23	21
21	95	62	71	b 54	120	325	152	73	114	42	26	21
22	113	56	62	61	158	320	141	70	71	40	26	21
23	51	53	57	67	184	204	136	72	65	53	22	26
24	* 45	140	62	b 66	247	182	128	415	62	176	21	* 27
25	42	82	59	b 62	184	167	* 125	119	59	55	21	24
26	42	60	b 54	59	803	158	122	92	53	48	21	25
27	40	55	54	62	517	149	120	155	52	39	21	41
28	41	51	67	59	349	143	116	107	49	36	21	48
29	43	48	b 57	52	-	136	123	103	* 47	35	22	33
30	45	47	b 57	54	-----	133	124	93	48	40	19	28
31	47	-----	b 51	b 44	-----	139	-----	87	-----	38	18	-----
Total	1317	1708	2093	2620	3902	7188	5323	3455	2172	1588	922	692
Mean	42.5	56.9	67.5	84.5	139	232	177	112	72.4	51.2	29.7	23.1
(+)	36,830	35,090	33,990	33,730	35,540	39,210	41,070	40,390	39,070	36,850	33,930	31,250
(+)	+157	+153	+149	+152	+151	+152	+157	+177	+175	+180	+183	+173

Calendar year 1961: Max 1,030 Min 27 Mean 140 ± +155  
 Water year 1961-62: Max 1,340 Min 15 Mean 90.4 ± +163

\* Discharge measurement made on this day.

† Month-end total contents, in millions of gallons, in Liberty Reservoir (contents on Sept. 30, 1961, 38,620 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.

b Stage-discharge relation affected by ice.

## PATAPSCO RIVER BASIN

55

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.--February 1957 to September 1962.

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

Average discharge.--5 years, 32.2 cfs.

Extremes.--Maximum discharge during year, 921 cfs Mar. 12 (gage height, 5.91 ft); minimum daily, 5.2 cfs Sept. 12-18.

1957-62: Maximum discharge, 1,280 cfs Sept. 12, 1960 (gage height, 7.00 ft); minimum, 3.3 cfs Jan. 19, 1961, result of freezeup. Minimum daily, 3.6 cfs Sept. 18-28, Oct. 7, 1959.

Maximum discharge known, 5,270 cfs July 21, 1956, by contracted-opening measurement.

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

Slight diurnal fluctuation at times from unknown source. Small diversion for irrigation above station.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 12

Mar. 13 to Sept. 30

1.5	7.0	3.0	209	1.45	4.4	2.0	56
1.6	13	4.0	414	1.5	6.4	3.0	209
1.8	34	6.0	949	1.6	12	4.0	414
2.3	95						

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	14	11	b 13	b 11	44	235	31	15	12	11	56
2	8.9	13	11	b 12	b 12	b 32	a 80	40	14	11	10	60
3	11	13	11	b 12	b 12	b 26	a 55	37	14	14	10	68
4	11	14	11	b 13	14	b 24	a 40	30	14	14	10	73
5	8.9	16	11	16	16	24	a 33	26	30	12	11	10
6	8.4	16	11	187	18	b 32	a 31	25	47	11	27	8.3
7	8.4	32	11	163	b 12	b 40	a 85	24	15	11	56	6.4
8	7.9	15	11	40	b 12	38	51	25	14	11	20	60
9	8.4	13	b 10	28	b 12	* 36	38	26	12	9.4	* 14	60
10	8.4	14	15	b 20	b 11	52	33	24	11	8.8	15	60
11	7.9	12	16	b 18	b 10	76	41	28	13	8.8	20	5.6
12	7.9	13	58	* b 17	b 10	* 674	120	29	25	8.8	12	52
13	8.9	13	26	b 17	b 12	148	151	28	32	8.8	10	52
14	20	21	16	b 17	* b 15	77	55	29	16	11	10	52
15	21	22	15	b 30	b 18	58	42	28	22	10	9.4	52
16	10	18	b 14	b 23	b 16	45	37	26	15	9.4	9.4	52
17	9.5	21	28	b 18	22	38	34	25	12	11	8.8	9.4
18	9.5	16	122	* b 15	b 22	35	32	24	11	25	9.4	8.3
19	9.5	15	41	b 15	b 72	34	31	21	13	11	8.3	6.4
20	* 9.5	22	28	b 15	44	37	40	19	53	8.8	8.3	6.8
21	7.8	21	20	b 14	32	154	32	19	31	10	8.8	6.0
22	34	16	18	14	66	86	29	16	16	13	8.3	6.0
23	13	16	16	18	51	43	28	20	15	80	8.3	9.4
24	11	86	18	14	85	37	25	* 125	14	63	6.8	7.3
25	11	22	16	15	43	35	25	24	13	14	7.3	6.8
26	11	16	b 16	16	347	34	* 25	19	12	14	6.8	* 7.8
27	11	14	b 16	18	159	32	25	36	13	11	6.8	28
28	12	13	b 22	15	81	30	26	21	13	11	7.3	18
29	12	12	b 16	15	-	29	35	21	13	10	7.3	8.8
30	13	* 11	b 14	14	-----	28	43	19	13	12	6.4	7.8
31	14	-----	b 13	b 10	-----	39	-----	18	-----	11	6.0	-----
Total	4220	560	662	852	1235	2117	1557	883	551	4758	3697	2368
Mean	13.6	18.7	21.4	27.5	44.1	68.3	51.9	28.5	18.4	15.3	11.9	7.89
Cfsm	0.418	0.575	0.658	0.848	1.36	2.10	1.60	0.877	0.566	0.471	0.366	0.243
In.	0.48	0.64	0.78	0.97	1.41	2.42	1.78	1.01	0.63	0.54	0.42	0.27

Calendar year 1961: Max 436 Min 6.6 Mean 31.1 Cfsm 0.957 In. 13.00  
 Water year 1961-62: Max 674 Min 5.2 Mean 27.2 Cfsm 0.837 In. 11.33

Peak discharge (base, 540 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1730	5.85	902	7-23	1945	5.53	812
3-12	1300	5.91	921				

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

## SOUTH RIVER BASIN

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 1962.

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.--30 years (1932-62), 10.7 cfs.

Extremes.--Maximum discharge during year, 75 cfs Mar. 12 (gage height, 2.13 ft); minimum, 2.3 cfs Aug. 30, 31, Sept. 1, 2 (gage height, 0.99 ft).

1931-62: 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 period of fragmentary gage-height record, which are fair.

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

1.0	2.4	1.5	22
1.1	4.0	2.0	62
1.2	7.1		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	5.6	6.3	6.2	5.6	14	30	11	7.1	3.6	3.4	2.5
2	4.5	5.6	6.3	6.5	5.6	9.8	18	12	5.0	3.4	3.1	2.8
3	6.0	5.6	6.3	5.8	6.0	9.3	13	10	6.0	4.0	3.1	6.4
4	6.0	5.6	6.3	6.1	7.1	9.3	11	8.8	5.0	4.5	3.3	4.0
5	4.7	5.6	6.3	6.3	7.5	9.3	11	7.5	5.3	3.8	3.3	4.5
6	4.5	5.6	6.3	17	6.7	22	10	7.1	6.0	3.6	5.5	3.8
7	4.5	8.5	6.0	19	5.0	22	21	6.7	4.7	3.6	* 8.8	3.4
8	4.5	6.7	5.8	11	5.4	19	31	7.1	4.2	3.6	4.2	3.3
9	4.5	6.0	5.8	8.0	6.2	16	17	7.1	4.2	3.4	4.7	3.3
10	4.5	6.0	13	6.0	5.6	16	14	6.7	4.0	3.1	4.5	3.3
11	4.2	5.6	9.8	5.2	5.0	16	14	6.7	4.0	3.1	4.2	3.3
12	4.2	5.6	19	5.0	5.6	5.1	17	6.7	5.0	3.1	3.8	3.0
13	4.2	5.6	11	4.8	5.6	30	23	6.7	9.8	3.3	3.6	2.8
14	5.5	7.0	8.0	5.2	7.9	18	16	6.7	6.0	3.3	3.4	2.8
15	7.2	8.0	6.7	13	9.8	14	13	6.0	5.0	4.0	3.3	2.8
16	5.3	7.1	5.7	12	* 8.0	13	* 12	5.6	4.5	6.1	3.3	2.7
17	5.0	7.5	16	7.3	8.4	12	11	5.6	4.0	6.0	3.4	5.6
18	5.0	6.7	24	6.3	8.4	11	10	5.6	3.8	5.7	3.6	4.7
19	5.0	6.3	14	6.3	18	11	10	5.3	4.5	7.5	3.1	3.4
20	5.0	8.9	9.8	6.3	15	12	11	5.0	11	4.2	3.1	3.3
21	20	8.4	8.0	6.0	12	24	11	5.3	8.8	4.0	3.0	* 3.1
22	18	6.7	* 7.1	7.5	11	17	9.8	5.0	5.0	5.3	3.0	3.1
23	8.4	7.6	7.4	8.0	11	13	9.3	5.0	4.5	4.0	2.8	3.6
24	6.3	19	11	6.3	11	11	8.8	* 12	4.5	6.3	2.8	3.4
25	6.0	9.6	8.8	6.3	9.3	10	8.4	8.4	4.0	4.0	2.8	3.3
26	6.0	7.5	7.1	6.7	25	9.8	8.4	5.0	4.0	4.5	2.8	3.4
27	5.6	7.1	6.7	7.1	23	9.3	8.0	7.5	* 3.8	3.6	2.8	10
28	5.6	6.7	8.0	6.3	18	8.8	8.0	5.6	3.8	3.3	2.8	7.5
29	5.6	6.3	6.2	6.0	-	8.8	13	5.3	3.6	3.6	2.7	4.2
30	5.6	6.3	5.2	6.0	-----	8.8	18	5.3	3.8	4.0	2.5	3.6
31	5.6	-----	5.0	5.1	-----	10	-----	6.3	-----	3.8	2.5	-----
Total	191.0	214.3	272.9	234.6	272.7	465.2	415.7	214.6	154.9	129.3	109.2	116.9
Mean	6.16	7.14	8.80	7.57	9.74	15.0	13.9	6.92	5.16	4.17	3.52	3.90
Cfs/m	0.725	0.840	1.04	0.891	1.15	1.76	1.64	0.814	0.607	0.491	0.414	0.459
In.	0.84	0.94	1.19	1.03	1.19	2.04	1.82	0.94	0.68	0.57	0.48	0.51

Calendar year 1961: Max 106 Min 3.8 Mean 10.3 Cfs/m 1.21 In. 16.44  
 Water year 1961-62: Max 51 Min 2.5 Mean 7.65 Cfs/m 0.900 In. 12.23

Peak discharge (base, 75 cfs)

Date	Time	Gage height	Discharge
3-12	1130	2.13	75

\* Discharge measurement made on this day.  
 Note.--Fragmentary gage-height record Oct. 1 to Mar. 2.

## PATUXENT RIVER BASIN

57

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 1962.

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

Average discharge.--18 years, 37.4 cfs.

Extremes.--Maximum discharge during year, 716 cfs May 24 (gage height, 5.39 ft); minimum, 3.4 cfs Sept. 15 (gage height, 1.83 ft).

1944-62: 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 1961-62, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.8	2.8	3.0	105
1.9	5.2	3.5	187
2.0	8.6	4.0	295
2.2	20	5.0	575
2.5	46		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	9.8	12	14	14	69	115	33	24	12	8.8	5.0
2	7.8	9.6	12	14	14	53	64	67	22	11	7.9	5.1
3	9.6	9.8	11	14	15	46	51	45	20	14	7.8	5.8
4	11	10	11	* 14	16	42	47	36	20	16	8.1	6.4
5	8.6	10	11	16	* 17	39	45	33	21	13	8.5	8.3
6	8.2	10	10	8.5	18	50	44	31	22	12	* 8.3	7.1
7	7.8	20	10	11.5	b 12	50	68	30	18	12	11	6.4
8	7.8	13	9.9	4.5	b 13	43	61	29	17	11	17	6.2
9	7.8	11	b 9.6	30	b 15	42	52	30	16	10	31	6.1
10	7.8	11	12	b 20	b 13	43	47	28	16	9.0	11	* 6.0
11	7.4	10	14	b 18	b 10	51	52	28	16	8.8	10	5.5
12	7.1	10	44	b 17	b 13	42.2	75	28	18	8.8	9.3	4.7
13	a 7.1	11	23	b 16	b 13	171	119	27	25	8.6	8.6	4.6
14	a 9.0	13	16	b 15	16	* 108	75	26	20	9.5	8.3	4.5
15	a 13	15	15	b 26	18	89	65	25	24	11	7.7	4.3
16	a 9.0	13	b 13	b 28	19	78	59	24	18	13	7.6	3.7
17	* a 8.2	15	19	b 22	19	68	* 54	23	17	14	7.4	5.4
18	8.2	12	6.4	b 20	21	62	50	23	15	16	7.2	6.1
19	8.2	12	33	b 17	53	59	47	21	15	16	6.8	5.5
20	7.8	13	23	17	45	60	47	20	32	11	6.9	5.6
21	30	14	19	b 17	35	112	44	* 19	25	11	7.1	5.4
22	22	13	17	18	51	86	44	19	18	12	7.1	5.3
23	12	12	16	21	52	66	42	23	17	18	6.5	7.2
24	11	3.8	17	18	70	60	39	21.4	17	27	6.4	6.7
25	11	19	16	18	50	55	38	37	15	12	6.3	6.1
26	10	15	15	18	22.3	52	37	28	* 14	12	6.2	6.4
27	10	14	b 14	18	147	49	35	60	13	9.9	6.1	8.3
28	9.9	* 13	18	17	104	46	34	34	13	9.2	6.2	8.9
29	10	12	15	16	-	44	34	30	12	9.1	6.0	7.2
30	10	12	b 14	16	-----	42	34	27	12	9.7	5.4	6.8
31	10	-----	b 13	b 13	-----	46	-----	25	-----	9.7	5.1	-----
Total	314.4	400.2	546.5	753	1106	2303	1618	1123	552	376.3	267.6	1806
Mean	10.1	13.3	17.6	24.3	39.5	74.3	53.9	36.2	18.4	12.1	8.63	6.02
Cfs/m	0.290	0.382	0.506	0.698	1.14	2.14	1.55	1.04	0.529	0.348	0.248	0.173
In.	0.34	0.43	0.58	0.80	1.18	2.46	1.73	1.20	0.59	0.40	0.29	0.19

Calendar year 1961: Max 400 Min 7.1 Mean 37.4 Cfs/m 1.07 In. 14.61  
 Water year 1961-62: Max 422 Min 3.7 Mean 26.1 Cfs/m 0.750 In. 10.19

Peak discharge (base, 770 cfs).--No peak above base.

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

## PATUXENT RIVER BASIN

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 1962.

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, 1,820 cfs March 13 (gage height, 7.75 ft); minimum, 2.0 cfs Apr. 27 (gage height, 0.92 ft); minimum daily, 9.3 cfs Oct. 20, March 4, 5.  
1944-62: 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 1961-62, (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		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	12	10	12	11	11	152	16	52	12	12	13
2	12	12	10	12	11	11	158	58	52	12	12	13
3	* 12	12	10	12	11	11	143	56	31	12	12	12
4	12	12	11	12	11	9.3	148	50	14	12	12	12
5	12	12	12	12	11	9.3	152	49	14	12	12	11
6	12	12	11	12	11	12	158	50	14	12	* 12	11
7	12	12	12	12	11	13	152	50	14	12	12	11
8	11	40	12	12	11	27	148	50	14	12	12	11
9	11	62	12	12	11	52	148	50	14	12	13	10
10	11	35	12	12	11	52	148	50	14	12	13	10
11	11	11	12	12	11	52	148	45	14	12	13	* 10
12	12	11	12	12	11	828	148	28	14	12	13	10
13	11	11	12	12	11	715	176	13	13	12	13	10
14	11	11	13	12	11	155	165	12	13	12	13	11
15	11	17	13	12	11	188	172	12	13	12	13	11
16	11	22	13	12	11	* 180	160	12	13	12	13	11
17	11	44	13	12	11	180	150	12	13	12	13	11
18	11	42	13	13	11	172	* 148	12	14	12	13	11
19	9.5	22	12	13	11	162	148	12	14	12	13	10
20	9.3	11	12	13	11	160	148	12	13	12	13	11
21	11	11	12	13	11	305	141	12	14	12	13	10
22	11	11	12	13	11	170	148	12	13	12	13	10
23	11	11	12	13	11	170	148	* 13	14	12	13	10
24	11	20	12	13	11	170	145	13	14	12	13	10
25	11	34	12	12	11	170	148	14	14	12	13	10
26	13	11	12	12	11	170	103	41	* 13	12	13	10
27	12	10	12	12	11	170	30	196	13	12	13	10
28	12	10	12	12	11	160	12	168	13	12	13	10
29	12	10	12	12	-	155	12	160	12	12	13	10
30	12	10	12	12	-----	155	12	154	12	12	13	10
31	12	-----	12	11	-----	155	-----	77	-----	12	13	-----
Total	3528	561	369	378	308	4,949.6	3,969	1,509	499	372	395	320
Mean	11.4	18.7	11.9	12.2	11.0	160	132	48.7	16.6	12.0	12.7	10.7
(+)	10,340	9,820	10,120	10,720	12,090	12,930	12,960	12,930	12,620	11,710	10,250	8,980
(*)	+78.2	+72.8	+70.7	+71.2	+71.6	+74.8	+77.6	+88.6	+84.7	+85.6	+94.4	+83.2
Calendar year 1961:	Max	1,480	Min	8.6	Mean	77.4	* +77.7					
Water year 1961-62:	Max	828	Min	9.3	Mean	38.3	* +79.5					

\* 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, 1961, 11, 190 million gallons); furnished by Washington Suburban Sanitary Commission.

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

## PATUXENT RIVER BASIN

59

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

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

Drainage area.--38.0 sq mi.

Records available.--April 1932 to September 1962. Monthly discharge only for April 1932, published in WSP 1302.

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

Average discharge.--30 years, 40.5 cfs.

Extremes.--Maximum discharge during year, 1,280 cfs Mar. 12 (gage height, 9.12 ft); minimum, 5.2 cfs Sept. 16 (gage height, 2.48 ft).

1932-62: 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 gage-height record, which are fair.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.4	2.8	3.2	59
2.5	5.8	4.0	205
2.6	9.4	8.0	932
2.8	22		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	15	17	b 22	b 21	67	246	36	23	13	10	5.8
2	12	15	17	22	b 20	50	77	42	21	12	9.1	6.1
3	15	15	17	b 20	22	b 44	55	44	23	15	8.7	8.2
4	14	15	17	22	b 24	b 40	50	35	21	16	9.1	7.6
5	12	15	16	24	b 25	b 40	47	32	22	14	9.1	8.8
6	12	15	15	161	b 24	69	46	31	24	13	* 8.7	8.0
7	12	27	15	181	b 19	70	102	29	19	12	9.2	7.2
8	12	20	15	64	b 21	59	70	29	18	12	22	6.9
9	12	17	b 16	40	b 24	58	58	31	17	11	48	6.7
10	11	16	18	b 31	b 21	72	49	29	16	10	13	6.7
11	10	15	20	b 27	b 16	107	51	29	17	9.7	12	* 6.2
12	11	15	60	b 25	b 19	914	84	29	19	9.9	11	5.5
13	11	15	32	24	19	289	165	28	44	9.7	10	5.4
14	17	19	22	23	26	91	77	28	24	11	9.6	5.4
15	24	21	21	46	30	69	62	26	22	12	8.8	5.4
16	13	18	b 20	46	30	* 61	57	25	19	13	8.6	5.2
17	12	20	36	b 32	34	55	52	25	17	16	8.9	9.4
18	12	17	165	* b 28	39	50	* 47	24	16	40	8.2	8.2
19	* 12	16	59	b 25	170	47	45	22	15	27	7.8	6.7
20	12	20	38	25	87	51	50	21	41	13	7.8	6.8
21	66	22	30	b 24	59	157	46	21	48	15	8.0	6.5
22	43	18	26	26	86	105	42	20	22	17	8.3	6.7
23	22	18	25	30	73	66	41	* 24	20	14	7.3	7.3
24	19	75	27	25	81	60	38	69	18	23	7.2	7.3
25	18	30	25	25	65	52	37	27	17	13	7.1	6.9
26	17	23	23	25	378	46	37	23	* 16	13	6.8	7.5
27	16	21	b 23	28	276	42	36	62	15	11	6.7	17
28	16	* 19	32	25	119	39	35	30	14	10	6.8	15
29	15	18	b 27	23	-	37	36	28	14	10	6.6	8.9
30	15	17	b 24	24	-----	35	40	26	14	12	6.0	8.2
31	16	-----	b 20	b 19	-----	42	-----	25	-----	12	5.8	-----
Total	519	607	918	1,162	1,828	2,984	1,878	950	636	439.3	316.2	227.5
Mean	16.7	20.2	29.6	37.5	65.3	96.3	62.6	30.7	21.2	14.2	10.2	7.58
Cfsm	0.439	0.532	0.779	0.987	1.72	2.53	1.65	0.808	0.558	0.374	0.268	0.199
In.	0.51	0.59	0.90	1.14	1.79	2.92	1.84	0.93	0.62	0.43	0.31	0.22

Calendar year 1961: Max 683 Min 10 Mean 47.4 Cfsm 1.25 In. 16.93  
 Water year 1961-62: Max 914 Min 5.2 Mean 34.2 Cfsm 0.900 In. 12.20

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1745	6.89	731	3-12	1800	9.12	1,280

\* Discharge measurement made on this day.  
 b Stage-discharge relation affected by ice.  
 Note.--Doubtful gage-height record Oct. 23 to Nov. 15, Dec. 19, 20, Jan. 16, Mar. 1, 14-16, 23-31, Apr. 2, 3, 8-12, 14-18, July 20-23, July 25 to Aug. 6.

## PATUXENT RIVER BASIN

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 1962. Monthly discharge only for some periods, published in WSP1302.

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

Average discharge.--13 years, 30.0 cfs.

Extremes.--Maximum discharge during year, 532 cfs Mar. 12 (gage height, 5.11 ft); minimum, 0.6 cfs Sept. 16 (gage height, 1.15 ft).

1949-62: Maximum discharge, 1,580 cfs Aug. 13, 1955 (gage height, 8.51 ft, from high-water mark in well); minimum, that of Sept. 16, 1962.

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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	0.3	1.7	16
1.2	1.0	1.8	23
1.3	2.0	2.0	41
1.4	3.2	3.0	160
1.5	5.7	4.0	328
1.6	9.9	5.0	510

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	4.7	6.9	12	9.1	66	163	25	a 25	2.8	2.0	0.7
2	28	4.4	6.8	12	9.4	44	116	26	a 15	2.5	1.7	.9
3	34	4.2	6.8	11	9.9	32	60	25	a 15	2.9	1.6	1.8
4	37	4.4	6.4	10	12	27	42	23	a 11	4.0	1.6	1.5
5	2.9	4.6	6.6	* 11	14	24	34	20	a 11	3.2	1.6	1.9
6	28	4.7	6.3	25	14	52	30	16	a 11	2.7	1.6	1.7
7	2.7	7.3	6.0	65	9.1	71	61	14	a 8.5	2.5	* 1.5	1.3
8	2.7	6.4	5.8	55	9.4	83	89	15	6.3	2.3	1.4	1.3
9	2.5	5.5	b 5.4	33	9.3	68	68	21	5.3	2.2	1.6	1.2
10	2.5	5.3	11	b 18	b 8.7	65	49	15	4.5	1.9	2.2	1.1
11	2.4	5.0	14	b 15	8.4	75	41	14	4.1	1.8	2.0	1.1
12	2.5	5.0	37	14	8.4	359	47	13	5.7	1.8	1.8	.9
13	2.5	5.3	36	11	8.4	235	86	13	12	1.9	1.6	.8
14	4.0	5.9	24	9.8	13	84	72	13	9.1	2.1	1.5	.8
15	7.2	7.7	16	23	21	55	51	11	7.4	4.0	1.3	.7
16	4.4	6.7	b 11	32	b 20	43	* 39	9.9	6.1	3.7	1.4	.6
17	4.2	7.9	29	23	24	36	32	9.3	5.1	4.7	1.8	2.6
18	4.4	7.0	68	19	28	31	29	8.8	4.1	3.9	1.4	2.2
19	3.9	6.2	64	16	* 62	* 28	27	7.6	4.3	4.5	1.2	1.5
20	3.6	8.4	41	15	75	29	28	6.7	12	3.6	1.2	1.3
21	22	10	25	13	56	57	31	6.3	14	8.8	1.3	* 1.2
22	37	8.0	19	14	42	85	28	5.8	12	20	1.3	1.1
23	29	7.8	16	18	35	62	27	5.7	8.5	30	1.1	2.4
24	* 15	26	21	14	31	42	23	11	6.4	2.5	1.1	1.7
25	9.8	19	19	14	26	33	22	* a 8.0	5.0	2.5	1.1	1.5
26	7.0	16	16	13	119	29	20	a 7.0	3.9	3.0	.9	1.6
27	5.8	13	15	14	151	26	19	a 12	* 36	2.2	.9	5.8
28	5.0	9.9	17	13	105	23	18	a 8.0	31	2.0	1.0	4.2
29	4.8	8.4	b 14	12	-	22	19	a 7.5	30	2.0	.9	2.9
30	4.9	7.4	b 12	12	-----	21	25	a 7.0	30	2.4	.8	2.5
31	4.9	-----	b 10	20	-----	25	-----	a 10	-----	2.3	.7	-----
Total	212.5	242.1	592.0	575.8	938.1	1932	1396	394.6	245.0	109.7	43.1	50.8
Mean	6.85	8.07	19.1	18.6	33.5	62.3	46.5	12.7	8.17	3.54	1.39	1.69
Cfsm	0.227	0.267	0.632	0.616	1.11	2.06	1.54	0.421	0.271	0.117	0.046	0.056
In.	0.26	0.30	0.73	0.71	1.16	2.38	1.72	0.49	0.30	0.14	0.05	0.06

Calendar year 1961: Max 544 Min 2.0 Mean 32.3 Cfsm 1.07 In. 14.54  
 Water year 1961-62: Max 359 Min 0.6 Mean 18.4 Cfsm 0.609 In. 8.30

Peak discharge (base, 340 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1515	4.07	340	3-12	0945	5.11	532

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

## PATUXENT RIVER BASIN

61

1-5946. Cocktown Creek near Huntingtown, Md.

Location.--Lat 38°38'27", long 76°38'07", on right bank at downstream side of bridge on State Highway 510, 2 miles northwest of Huntingtown, Calvert County, 2½ miles southeast of Lower Marlboro, and about 3½ miles upstream from mouth

Drainage area.--3.85 sq mi.

Records available.--December 1956 to September 1962.

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

Average discharge.--5 years (1957-62), 5.16 cfs.

Extremes.--Maximum discharge during year, 45 cfs Jan. 6 (gage height, 3.31 ft); minimum daily, 0.1 cfs Aug. 31, Sept. 1, 11, 13-16, 20-25.

1957-62: 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 good except those for periods of ice effect and doubtful gage-height record, which are fair, or those for periods of no gage-height record, which are poor.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.4	1.2	b 1.1	b 2.7	7.6	1.9	d 7.3	3.5	1.6	0.7	0.1
2	1.3	1.3	1.3	b 1.2	b 2.7	6.6	9.3	d 6.7	2.5	1.6	.6	.2
3	1.6	1.5	1.3	b 1.2	3.1	b 6.2	8.4	d 6.2	2.5	2.0	.6	.5
4	1.2	1.6	1.2	2.0	3.6	b 5.8	8.1	d 5.7	2.5	2.5	.6	.3
5	1.0	1.6	1.3	2.0	3.5	5.9	7.7	d 5.2	2.5	1.6	.6	.3
6	.9	1.6	1.1	1.2	3.3	1.2	7.7	d 4.9	* 2.0	1.2	.8	.2
7	.8	2.1	* 1.1	8.2	b 2.4	9.3	11	d 4.7	2.0	1.2	.6	.2
8	.8	1.6	1.0	5.5	* b 2.7	8.5	13	d 8.2	2.0	.8	.7	.2
9	.8	1.5	b 1.0	4.6	3.7	8.4	9.7	d 6.2	1.8	.8	.7	.2
10	.8	1.5	2.5	* b 4.0	b 3.4	9.2	8.4	d 5.4	1.8	* .6	* .6	.2
11	.8	1.5	1.9	3.8	b 2.8	9.3	11	d 5.4	2.0	.6	.6	.1
12	.8	1.5	5.5	3.7	b 2.9	2.0	12	d 5.4	d 6.5	.6	.5	.2
13	.8	1.6	2.3	3.6	b 2.8	11	12	d 5.8	d 1.1	.6	.4	.1
14	1.7	1.7	1.7	3.5	5.0	9.8	9.2	d 5.2	4.0	1.0	.4	.1
15	1.7	1.6	1.6	b 6.5	4.4	9.2	8.8	4.6	3.0	1.0	.3	.1
16	1.0	1.6	b 1.3	4.5	b 3.9	8.5	8.4	4.2	2.5	.8	.3	.1
17	.9	1.7	7.9	b 3.8	4.1	8.1	8.0	3.9	2.1	.8	.4	1.2
18	.9	1.4	9.6	b 3.5	3.9	7.7	7.6	3.6	1.9	d 2.1	.3	.4
19	.9	1.3	3.8	3.5	8.4	7.6	7.2	3.4	2.2	d 1.3	.3	.2
20	1.1	3.5	2.7	3.4	4.8	* 7.6	7.8	3.2	d 4.5	.9	.3	.1
21	6.8	1.9	2.2	b 3.3	4.4	1.4	7.2	3.0	2.7	.8	.3	.1
22	3.2	1.4	2.0	3.6	4.5	9.7	6.8	3.0	2.3	.8	.2	.1
23	1.6	1.3	3.7	3.5	4.4	8.4	6.6	3.0	2.1	.8	.2	.1
24	1.2	4.7	3.4	3.2	4.3	7.9	* d 6.5	4.0	1.9	.8	.2	.1
25	1.1	1.9	2.3	3.2	4.0	7.6	d 6.4	4.0	1.8	d 2.1	.2	.1
26	* 1.1	1.6	2.0	3.2	1.5	7.3	d 6.3	3.4	1.9	d 2.3	.2	.3
27	1.1	1.5	2.0	3.3	1.3	7.1	d 6.2	6.0	1.9	.7	.2	2.9
28	1.3	1.4	2.2	3.0	9.0	6.8	d 6.2	4.0	1.7	.7	* .2	1.1
29	1.4	1.3	b 1.4	3.0	-	6.6	d 9.1	3.5	1.8	.9	.2	.5
30	1.4	1.2	b 1.0	3.1	-----	6.6	d 8.1	3.5	2.0	.9	.2	.4
31	1.4	-----	b 1.0	b 2.4	-----	8.6	-----	3.5	-----	.7	.1	-----
Total	42.1	51.3	74.5	116.4	132.7	268.9	263.7	146.1	82.9	35.1	12.5	10.7
Mean	1.36	1.71	2.40	3.75	4.74	8.67	8.79	4.71	2.76	1.13	0.40	0.36
Cfsm	0.353	0.444	0.623	0.974	1.23	2.25	2.28	1.22	0.717	0.294	0.104	0.094
In.	0.41	0.50	0.72	1.12	1.28	2.60	2.55	1.41	0.80	0.34	0.12	0.10

Calendar year 1961: Max 64 Min 0.3 Mean 5.81 Cfsm 1.51 In. 20.51

Water year 1961-62: Max 20 Min 0.1 Mean 3.39 Cfsm 0.881 In. 11.95

Peak discharge (base, 80 cfs).--No peak above base.

\* Discharge measurement made on this day.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record.

Note.--No gage-height record Jan. 11-14, Apr. 16-23, May 15 to June 11, June 14-19, June 21 to July 17, July 20-24, July 27 to Aug. 27, Sept. 3-11.

## PATUXENT RIVER BASIN

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, 1½ miles south of St. Leonard, Calvert County.

Drainage area.--6.73 sq mi.

Records available.--December 1956 to September 1962.

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

Average discharge.--5 years (1957-62), 10.1 cfs.

Extremes.--Maximum discharge during year, 105 cfs Jan. 7 (gage height, 4.71 ft); minimum, 1.0 cfs Sept. 1, 2 (gage height, 2.59 ft).  
1956-62: 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, backwater from tide, or no gage-height record, which are fair.

Rating table, 1961-62 water year, except periods of ice effect or backwater from tide (gage height, in feet, and discharge, in cubic feet per second)

2.6	1.0	2.9	5.8
2.7	1.9	3.0	10
2.8	3.3	4.0	54

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	3.5	3.7	b 4.5	b 4.3	12	25	12	5.5	4.3	3.1	1.5
2	3.5	3.3	3.7	b 5.0	b 4.3	b 7.8	11	11	4.3	4.3	2.8	1.4
3	6.6	3.5	3.7	b 6.0	b 5.0	b 8.1	9.2	10	4.6	6.2	2.7	5.5
4	3.7	3.5	3.5	7.4	7.4	b 7.9	8.7	9.2	4.6	5.8	2.8	3.1
5	2.8	3.5	3.5	7.8	6.6	7.8	8.3	8.3	9.6	4.6	2.7	3.0
6	2.7	3.5	3.5	2.7	5.5	b 18	8.7	7.8	* 9.9	3.5	9.9	2.4
7	2.7	4.3	* 3.5	4.1	4.6	e 25	16	7.4	5.1	3.1	6.6	2.3
8	2.5	3.9	3.5	10	* 5.5	e 18	4.3	9.6	4.6	3.0	3.5	2.0
9	2.5	3.5	3.5	7.0	8.1	e 15	21	13	4.1	2.8	3.7	2.0
10	2.5	3.5	8.7	a 6.5	b 8.3	14	14	8.3	3.9	* 2.5	* 3.5	2.0
11	2.5	3.5	5.5	a 6.0	a 4.5	13	16	8.3	3.9	2.4	3.3	1.8
12	2.4	3.5	2.3	a 5.5	a 4.8	26	17	8.3	12	2.5	3.0	* 1.6
13	2.5	3.7	7.4	a 5.0	a 4.5	14	24	10	2.4	2.4	2.7	1.6
14	3.6	4.1	5.1	a 5.0	8.6	11	15	8.3	8.3	3.1	2.5	1.5
15	7.0	4.6	4.6	a 11	6.6	11	13	7.4	6.2	7.2	2.4	1.4
16	3.1	4.1	4.6	9.2	5.5	9.6	12	6.6	5.1	5.5	2.4	1.5
17	3.0	4.1	20	b 6.5	6.2	8.7	12	6.2	4.6	4.6	2.5	4.0
18	2.8	3.7	20	b 5.2	5.1	7.8	11	5.8	4.1	4.3	2.7	2.7
19	2.8	3.7	8.7	b 5.0	13	8.3	11	5.5	4.8	3.9	2.2	2.0
20	2.8	9.3	6.2	b 4.8	7.0	* 8.7	12	5.1	1.4	3.5	2.0	1.9
21	9.1	4.8	5.1	b 4.8	5.8	30	11	4.8	9.3	4.1	1.9	1.8
22	11	4.3	4.8	5.5	7.0	14	10	4.8	5.5	3.3	1.8	1.8
23	e 4.8	4.1	8.9	5.8	7.0	11	10	5.1	4.8	3.0	1.7	2.0
24	e 3.7	1.3	12	4.8	6.6	9.2	* 9.6	5.5	4.3	4.1	1.7	1.9
25	e 3.5	5.1	5.8	4.6	5.5	9.2	9.6	4.8	3.9	3.7	1.7	1.9
26	* 3.3	4.3	b 5.1	4.6	18	8.7	9.6	4.6	4.1	3.7	1.7	2.3
27	3.3	4.1	4.8	5.8	21	8.3	9.6	11	4.1	2.7	1.8	2.3
28	3.3	3.7	5.1	4.8	14	8.3	9.2	5.8	3.7	2.5	2.2	5.1
29	3.5	3.7	b 4.6	4.6	-	7.8	14	5.5	4.1	4.2	1.8	3.1
30	3.5	3.7	b 4.2	4.6	-----	7.8	19	5.5	4.6	4.8	1.5	2.7
31	3.5	-----	b 4.2	b 3.2	-----	9.6	-----	5.5	-----	3.7	1.5	-----
Total	116.7	131.1	210.5	238.5	210.3	375.6	419.5	231.0	191.6	119.3	86.3	90.8
Mean	3.76	4.37	6.79	7.69	7.51	12.1	14.0	7.45	6.39	3.85	2.78	3.03
Cfsm	0.559	0.649	1.01	1.14	1.12	1.80	2.08	1.11	0.949	0.572	0.413	0.450
In.	0.64	0.72	1.16	1.32	1.16	2.08	2.32	1.28	1.06	0.66	0.48	0.50

Calendar year 1961: Max 57 Min 1.8 Mean 11.2 Cfsm 1.66 In. 22.55  
Water year 1961-62 Max 43 Min 1.4 Mean 6.63 Cfsm 0.985 In. 13.38

Peak discharge (base, 100 cfs)

Date	Time	Gage Height	Discharge
1-7	0100	4.71	105

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

e Stage-discharge relation affected by tide.

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 1962.

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.--6 years, 164 cfs.

Extremes.--Maximum discharge during year, 2,080 cfs Jan. 7 (gage height, 5.95 ft); minimum, 5.6 cfs Aug. 31 (gage height, 2.14 ft).

1956-62: 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 fair.

Rating tables, water year 1961-62, except periods of ice effect (gage-height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 6

Jan. 7 to Sept. 30

2.2	7.7	2.8	104	2.1	4.5	2.8	100
2.3	15	3.0	161	2.2	10	3.0	153
2.4	26	3.5	355	2.3	19	3.5	335
2.5	40	4.0	610	2.4	30	4.0	575
2.6	59	5.0	1,300	2.5	43	5.0	1,250
				2.6	59	6.0	2,130

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 9.0	17	46	b 120	172	452	238	a 102	96	33	31	6.2
2	a 8.5	16	42	b 110	147	335	224	a 120	76	29	27	13
3	a 10	15	40	b 100	142	287	206	a 102	68	99	24	22
4	a 5.6	14	39	b 105	220	238	192	91	68	96	30	20
5	a 32	24	44	140	344	210	202	85	648	49	26	30
6	* 20	26	48	957	376	241	216	76	586	36	23	22
7	17	26	40	1,480	220	213	719	70	267	38	21	15
8	15	23	b 32	564	200	179	412	78	179	28	20	14
9	13	21	b 30	344	169	139	340	108	133	26	20	13
10	12	20	b 68	227	136	115	271	78	108	22	20	12
11	11	20	164	213	b 130	96	402	72	230	19	20	11
12	11	18	420	b 205	125	619	412	67	279	27	18	9.4
13	10	18	250	b 200	b 108	456	531	65	402	31	38	8.9
14	24	20	168	b 195	112	255	448	61	311	27	38	8.9
15	46	25	149	b 320	b 108	213	389	57	213	128	* 27	8.9
16	40	35	b 135	b 360	b 90	166	323	93	163	153	21	8.4
17	34	63	306	b 205	78	120	302	112	128	87	23	9.4
18	24	42	825	b 180	b 76	105	327	74	100	85	20	13
19	21	34	555	b 170	213	112	362	184	93	78	16	11
20	20	31	460	b 165	252	458	384	147	188	48	14	10
21	18	29	307	b 160	153	1,430	335	112	145	48	13	10
22	18	29	238	b 360	335	1,340	307	85	98	110	* 12	9.4
23	17	32	201	b 800	353	780	263	78	80	82	10	21
24	16	269	178	425	335	732	220	416	67	199	9.4	15
25	15	155	152	335	225	608	182	210	61	91	15	14
26	17	94	b 170	279	602	470	156	145	72	74	8.9	21
27	18	76	134	553	780	394	131	169	68	57	7.8	47
28	17	67	b 130	358	936	319	110	147	46	46	7.2	63
29	16	61	120	275	-	315	a 90	131	40	42	* 7.2	a 49
30	* 15	107	120	255	-----	* 248	a * 115	118	35	40	6.7	a 30
31	17	-----	b 130	* 192	-----	255	-----	* 133	-----	* 36	6.2	-----
Total	617.5	1,427	5,811	10,352	7,137	11,900	9,809	3,586	5,048	1,964	580.4	545.5
Mean	19.9	47.6	187	334	255	384	294	116	168	63.4	18.7	18.2
Cfsm	0.273	0.652	2.56	4.59	3.49	5.26	4.03	1.59	2.30	0.868	0.256	0.249
In.	0.31	0.73	2.96	5.27	3.64	6.06	4.49	1.83	2.57	1.00	0.30	0.28

Calendar year 1961: Max 2,030 Min 8.5 Mean 202 Cfsm 2.77 In. 37.56  
 Water year 1961-62 Max 1,480 Min 6.2 Mean 158 Cfsm 2.16 In. 29.44

Peak discharge (base, 2,200 cfs).--No peak above base.

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

## POTOMAC RIVER BASIN

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 1962.

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.--13 years, 435 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 4,560 cfs Mar. 21 (gage height, 7.58 ft); minimum discharge, 13 cfs Sept. 17 (gage height 2.13 ft).

1949-62: 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 1961-62, (gage height, in feet, and discharge, in cubic feet per second)

2.1	10	3.0	130	6.0	1,990
2.2	19	3.5	260	7.0	3,430
2.3	28	4.0	440	8.0	5,500
2.4	38	4.5	682		
2.7	76	5.0	1,010		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	51	143	248	452	1,790	889	416	350	93	97	48
2	30	48	141	221	400	1,260	770	510	279	84	88	53
3	44	45	129	202	392	926	704	372	227	399	81	71
4	261	44	123	224	580	752	635	310	211	492	86	72
5	150	57	123	254	942	585	580	282	904	279	86	97
6	93	68	136	1,420	1,130	482	546	254	1,200	182	81	84
7	68	67	123	2,470	610	528	1,520	231	650	173	75	71
8	50	67	105	1,200	532	428	1,260	293	448	145	71	64
9	45	59	95	770	496	408	998	436	350	123	70	63
10	42	54	200	531	416	372	826	307	279	105	68	62
11	41	51	464	385	300	342	1,070	268	388	95	66	* 58
12	38	50	1,000	370	338	913	1,380	248	610	109	62	36
13	36	52	692	369	310	1,390	1,610	318	* 1,330	138	75	16
14	43	53	416	307	314	889	1,370	307	990	104	104	14
15	87	57	346	566	310	668	1,210	254	625	546	81	14
16	86	87	244	812	272	585	1,010	350	464	523	74	14
17	76	153	430	436	244	518	903	541	369	369	68	14
18	62	127	1,570	342	221	482	910	350	296	388	67	16
19	53	102	1,270	318	374	523	926	446	251	335	62	19
20	47	92	1,030	307	758	1,330	974	698	432	221	59	18
21	48	88	704	272	448	3,380	903	420	482	168	57	17
22	50	80	536	771	804	3,470	805	335	300	262	54	17
23	47	92	456	1,680	1,200	2,250	710	279	227	190	53	26
24	44	523	432	903	1,920	2,190	600	938	182	444	52	36
25	43	388	365	740	1,230	1,980	518	680	244	234	54	30
26	44	234	332	605	1,620	1,630	464	428	171	202	54	30
27	47	190	332	1,050	2,250	1,430	416	536	231	158	53	41
28	45	173	342	777	2,170	1,200	380	482	148	132	51	127
29	43	150	276	590	-	1,090	353	505	119	119	* 51	95
30	42	* 123	248	550	-----	* 1,050	* 469	400	102	115	50	64
31	* 45	-----	221	* 452	-----	1,010	-----	585	-----	* 107	48	-----
Total	1,882	3,425	13,024	20,142	21,033	35,851	25,709	12,779	12,859	7,034	2,098	1,387
Mean	60.7	114	420	650	751	1,156	857	412	429	227	67.7	46.2
†	1,429	1,357	1,304	1,293	1,562	1,409	1,266	1,572	1,800	1,488	857	642

Calendar year 1961: Max 4,250 Min 30 Mean 497 Cfsm 2.21 In. 29.99  
 Water year 1961-62: Max 3,470 Min 14 Mean 431 Cfsm 1.92 In. 25.99

Peak discharge (base, 3,400 cfs)

Date	Time	Gage height	Discharge
3-21	1400	7.58	4,560

\* Discharge measurement made on this day.

† Month-end contents, in millions of gallons, in Stony River Reservoir (contents on Sept. 30, 1961, 1,489 million gallons); furnished by West Virginia Pulp and Paper Co.

POTOMAC RIVER BASIN

65

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 1962.

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

Average discharge.--14 years, 74.9 cfs.

Extremes.--Maximum discharge during year, 1,450 cfs Mar. 21 (gage height, 4.03 ft); minimum daily discharge, 1.0 cfs Aug. 30 to Sept. 1.

1948-62: 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Aug. 20-30)

Oct. 1 to July 26

July 27 to Sept. 30

0.95	1.8	1.7	54	0.85	1.0
1.0	2.4	2.0	108	0.90	1.2
1.1	4.1	2.3	192	1.0	2.7
1.2	7.5	2.6	311	1.1	5.4
1.3	12	3.0	540	1.2	10
1.4	20	4.0	1,400	1.3	17
1.5	30	5.0	2,540	1.4	25

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	3.9	* 5.5	b 26	b 37	360	175	* 49	* 35	5.1	* 2.6	1.0
2	* 1.8	3.5	5.5	* 24	b 34	219	135	48	28	* 4.6	2.1	1.1
3	3.1	3.1	5.5	22	b 34	158	106	43	22	23	1.9	2.1
4	9.0	3.1	4.9	21	b 70	118	87	38	19	49	2.0	3.9
5	5.5	4.6	4.6	22	168	92	77	34	27	26	7.0	14
6	3.9	5.8	4.1	65	162	72	77	32	25	15	6.5	7.8
7	3.1	4.9	3.9	215	112	b 64	385	30	19	11	3.9	5.8
8	3.1	3.9	3.0	156	b 90	b 58	359	31	15	8.8	3.7	4.2
9	2.6	3.3	2.4	99	b 70	b 52	248	33	12	7.3	2.8	3.4
10	2.5	3.1	3.5	75	59	b 46	180	27	11	6.0	4.2	3.2
11	2.4	3.0	6.6	b 62	48	40	169	26	15	5.1	4.5	3.2
12	2.2	3.0	b 60	b 48	b 42	164	210	24	* 17	5.3	2.7	3.0
13	2.1	3.0	b 42	b 36	b 38	245	369	24	161	5.2	4.2	2.5
14	2.8	3.1	b 30	b 33	b 40	172	320	25	116	6.2	* 6.3	2.1
15	3.1	3.7	b 20	b 41	35	* 127	257	21	76	11	4.5	1.9
16	3.1	5.4	b 16	b * 52	29	105	202	23	54	15	3.4	1.8
17	3.0	13	b 20	b 41	25	92	173	27	39	13	2.7	* 1.6
18	2.8	7.9	123	b 37	24	96	166	22	29	* 9.6	2.1	1.8
19	2.6	5.3	136	b 34	23	120	154	20	23	7.2	1.8	1.6
20	2.5	4.9	128	b 32	29	219	149	18	26	5.4	1.8	1.9
21	2.4	3.8	93	b 30	29	976	136	18	22	4.6	* 2.5	1.8
22	2.2	3.3	68	b 62	70	853	123	17	16	4.2	2.7	1.9
23	2.2	3.8	52	b 170	195	506	113	18	13	4.0	2.1	3.9
24	2.1	28	41	b 112	489	456	93	31	11	3.8	1.8	3.4
25	2.1	20	31	b 84	295	402	79	21	10	3.5	1.4	3.4
26	2.4	12	b 30	b 70	412	307	69	17	9.4	3.3	1.3	3.4
27	2.4	9.3	b 29	b 76	679	261	61	16	9.2	3.1	1.3	7.2
28	2.4	7.1	25	61	696	217	54	23	6.9	3.4	1.2	23
29	2.2	5.6	22	b 52	-	197	49	26	5.8	3.2	1.1	10
30	3.0	5.5	b 22	b 44	-----	198	45	25	5.3	3.3	1.0	7.2
31	4.1	-----	b 22	39	-----	192	-----	41	-----	3.2	1.0	-----
Total	90.6	189.9	1,059.5	1,941	4,034	7,184	4,820	848	877.6	278.4	88.1	133.1
Mean	2.92	6.33	34.2	62.6	144	232	161	27.4	29.3	8.98	2.84	4.44
Cfs/m	0.059	0.129	0.697	1.27	2.93	4.73	3.28	0.558	0.597	0.183	0.058	0.090
In.	0.07	0.14	0.80	1.47	3.06	5.44	3.65	0.64	0.66	0.21	0.07	0.10

Calendar year 1961: Max 1,320 Min 1.8 Mean 80.6 Cfs/m 1.64 In. 22.29  
Water year 1961-62: Max 976 Min 1.0 Mean 59.0 Cfs/m 1.20 In. 16.31

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	0630	3.35	845	3-21	1730	4.03	1,450

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

## POTOMAC RIVER BASIN

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 1962.

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

Average discharge.--14 years, 29.5 cfs.

Extremes.--Maximum discharge during year, 542 cfs Mar. 21 (gage height, 2.83 ft); minimum 1.0 cfs Dec. 9 (gage height, 0.70 ft) result of freezeup.  
1948-62: 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, doubtful or no gage-height record, which are fair. Small diversion above station by Baltimore & Ohio Railroad.

Rating table, water year 1961-62, 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	3.0	640

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	1.8	*3.9	14	a 34	164	60	27	*14	4.9	*2.8	1.4
2	*1.6	1.7	3.4	9.7	a 29	106	*50	26	12	4.6	3.2	1.8
3	3.9	1.7	3.2	2.3	a 28	77	43	24	11	15	3.1	2.0
4	6.0	1.8	3.0	9.6	a 38	56	37	*22	10	11	3.1	3.1
5	2.7	2.6	3.5	9.9	74	45	33	21	24	6.9	3.1	*4.7
6	2.1	2.5	3.2	52	85	40	34	19	25	5.5	2.9	2.6
7	2.0	2.2	2.9	139	a 60	33	135	18	22	5.0	2.7	1.7
8	2.0	2.0	2.3	104	a 52	28	159	18	20	4.6	2.7	1.6
9	1.8	2.0	1.6	62	a 41	24	123	18	17	4.3	2.7	1.6
10	1.8	1.9	3.3	51	a 32	22	85	16	14	4.0	2.8	1.7
11	1.7	1.8	8.9	43	a 28	20	98	15	17	3.8	2.5	1.6
12	1.6	2.2	b 37	33	a 24	90	142	15	15	4.4	2.3	1.5
13	1.6	2.3	b 19	28	a 21	128	202	17	*163	4.1	3.1	1.4
14	2.6	2.0	b 11	23	a 19	87	170	15	112	6.3	*2.8	1.4
15	2.9	2.1	b 9.6	26	a 17	62	141	15	64	25	2.4	1.4
16	2.9	2.9	b 8.4	36	a 16	48	110	15	43	17	2.2	1.4
17	2.4	3.9	b 9.2	32	14	41	90	15	31	13	2.0	1.4
18	2.3	2.8	71	28	13	41	86	14	24	*13	1.9	1.5
19	2.1	2.7	85	24	16	52	77	13	20	10	1.7	1.4
20	2.0	2.6	67	21	25	d 134	66	13	20	8.1	1.7	1.4
21	2.1	2.5	50	19	22	d 420	57	12	15	7.2	1.6	1.3
22	2.0	2.3	38	36	65	368	53	11	12	6.4	1.6	1.4
23	1.8	2.7	29	67	124	252	51	11	11	9.1	1.6	2.3
24	1.8	14	24	71	d 238	215	43	14	9.7	12	1.5	1.7
25	1.8	9.6	20	57	d 169	190	37	11	9.3	7.0	1.5	1.7
26	2.7	7.4	18	46	d 210	140	32	9.4	7.6	6.3	1.5	1.6
27	2.0	6.2	15	54	d *285	116	29	9.4	6.7	5.4	1.5	4.3
28	1.7	5.4	14	50	d 265	92	27	11	5.9	4.9	1.5	3.9
29	1.6	4.9	12	46	-	75	25	9.6	5.5	4.8	1.5	2.5
30	1.8	4.2	12	43	-----	68	23	14	5.2	4.7	1.4	2.0
31	2.0	-----	13	41	-----	65	-----	18	-----	4.4	1.4	-----
Total	68.9	104.7	601.4	1,284.5	2,044	3,299	2,318	486.4	765.9	242.7	69.3	59.3
Mean	2.22	3.49	19.4	41.4	73.0	106	77.3	15.7	25.5	7.83	2.24	1.98
Cfsm	0.133	0.209	1.16	2.48	4.37	6.35	4.63	0.940	1.53	0.469	0.134	0.119
In.	0.15	0.23	1.34	2.86	4.55	7.35	5.16	1.08	1.71	0.54	0.15	0.13

Calendar year 1961: Max 318 Min 1.6 Mean 34.0 Cfsm 2.04 In. 27.64  
Water year 1961-62: Max 420 Min 1.3 Mean 31.1 Cfsm 1.86 In. 25.25

Peak discharge (base, 330 cfs)

Date	Time	Gage height	Discharge
3-21	1430	2.83	542

\* Discharge measurement made on this day.  
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.  
b Stage-discharge relation affected by ice.  
d Doubtful gage-height record.

## POTOMAC RIVER BASIN

67

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 1962.

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.--14 years, 166 cfs (adjusted for storage).

Extremes.--Maximum discharge during year, 3,400 cfs Mar. 23 (gage height, 5.82 ft); minimum, 5.2 cfs Mar. 5 (gage height, 0.85 ft); minimum daily, 11 cfs Dec. 1-11, 13-17, Jan. 17.  
1948-62: Maximum discharge, 6,530 cfs Oct. 16, 1954 (gage height, 7.70 ft); minimum, 0.4 cfs Nov. 13, 1958 (gage height 0.58 ft); minimum daily, 0.6 cfs July 27-31, Aug. 5, 6, 9, 10, 1951.

Remarks.--Records good. Diversions above station by Baltimore & Ohio Railroad and by cities of Frostburg and Westernport for municipal supply. Flow regulated by Savage River Reservoir beginning December 1950 (capacity, 20,280 acre-ft).

Rating tables, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 22

Mar. 23 to Sept. 30

1.0	11	3.0	435	1.0	14	3.0	436
1.2	25	3.5	685	1.2	26	3.5	685
1.5	50	4.0	1,070	1.5	52	4.0	1,070
2.0	117	5.0	2,210	2.0	129	5.0	2,210
2.5	254	6.0	3,690	2.5	251	6.0	3,690

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	92	* 11	37	83	1,920	116	* 18	64	19	* 18	91
2	102	94	11	37	83	1,160	* 118	20	54	* 18	18	91
3	102	94	11	37	83	585	120	20	44	30	20	91
4	100	92	11	37	83	525	86	20	40	78	21	71
5	100	92	11	37	* 88	218	22	19	67	52	21	62
6	100	92	11	64	315	90	22	19	70	36	21	62
7	98	90	11	86	512	90	105	19	54	29	45	62
8	98	71	11	451	355	90	133	19	45	24	33	62
9	98	58	11	631	90	90	131	19	40	27	27	62
10	98	58	11	291	90	90	129	20	36	18	27	62
11	98	58	11	83	90	90	129	42	38	18	27	* 62
12	98	56	13	83	90	98	135	54	* 51	* 18	36	89
13	98	56	11	83	90	757	875	59	283	18	43	106
14	96	49	11	83	90	734	870	58	272	18	* 43	106
15	96	34	11	83	90	535	122	58	184	32	43	106
16	96	31	11	37	90	246	471	47	129	34	43	106
17	96	16	11	11	89	94	643	58	96	37	43	106
18	95	12	64	36	89	94	605	54	74	33	43	106
19	95	12	459	83	89	96	225	54	58	27	43	106
20	95	12	625	83	88	440	68	51	62	22	52	106
21	95	12	615	83	88	442	116	46	52	20	59	104
22	95	12	600	83	89	1,480	116	39	41	19	59	104
23	94	13	253	86	90	2,550	116	39	36	18	59	104
24	94	13	84	86	991	1,870	116	54	33	20	59	104
25	94	12	84	88	1,520	1,040	116	50	30	18	59	104
26	94	12	83	416	912	620	116	39	26	20	59	104
27	94	12	83	413	1,260	620	116	37	25	18	59	104
28	92	12	83	86	944	285	49	43	23	18	59	104
29	92	12	83	86	-	116	17	47	21	17	57	104
30	92	12	56	395	-----	115	17	50	20	18	80	102
31	90	-----	37	268	-----	115	-----	* 77	-----	18	91	-----
Total	2,985	1,291	3,398	4,463	8,571	17,295	6,020	1,249	2,068	792	1,367	2,753
Mean	96.3	43.0	110	144	306	558	201	40.3	68.9	25.5	44.1	91.8
†	7,860	6,100	4,480	4,150	7,660	8,790	19,100	20,360	20,280	20,160	17,820	13,200

Calendar year 1961: Max 3,020 Min 11 Mean 191 Cfsm 1.80 In. 24.40

Water year 1961-62: Max 2,550 Min 11 Mean 143 Cfsm 1.35 In. 18.33

\* Discharge measurement made on this day.

† Month-end contents, in acre-ft, in Savage River Reservoir (contents on Sept. 30, 1961, 13,350 acre-ft).  
Records furnished by Corps of Engineers.

## POTOMAC RIVER BASIN

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 1962.

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.---19 years (1899-1905, 1949-62), 697 cfs (adjusted for storage since 1949).

Extremes.---Maximum discharge during year, 8,800 cfs Mar. 22 (gage height, 8.91 ft); minimum, 80 cfs Nov. 15 (gage height, 1.36 ft).  
1899-1906, 1949-62: 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. 64) 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used May 25 to June 4, July 4-14)

1.3	72	2.5	375	6.0	3,470
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

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	128	130	151	b 320	650	4,550	1,250	525	686	126	121	134
2	130	134	149	b 300	578	2,890	1,100	* 662	530	114	112	140
3	140	130	140	b 270	560	1,830	* 1,020	525	428	239	* 110	153
4	347	125	134	b 300	788	1,530	881	424	387	216	110	153
5	371	128	132	379	1,200	1,090	740	383	1,290	520	117	159
6	220	142	146	1,490	1,670	806	704	343	1,710	321	110	153
7	182	146	136	3,290	1,250	836	2,080	318	902	238	128	132
8	153	134	125	1,930	1,050	710	1,750	223	620	214	114	123
9	142	108	92	1,560	728	668	1,390	505	475	192	* 98	119
10	138	103	123	986	632	602	1,210	424	383	168	26	119
11	132	100	525	555	b 500	555	1,450	367	442	149	97	* 117
12	132	98	1,050	530	b 580	1,310	2,040	363	* 758	* 146	98	123
13	132	98	800	505	b 580	2,740	2,940	371	2,340	192	108	121
14	134	97	470	446	b 560	2,130	2,820	475	1,600	173	124	115
15	153	81	375	535	485	* 1,520	1,880	383	1,040	568	134	112
16	185	* 96	b 310	1,060	428	1,160	1,880	371	770	668	128	112
17	* 180	144	b 540	572	407	895	1,950	752	590	578	* 119	112
18	162	155	1,300	b 440	367	848	1,890	555	460	424	114	112
19	149	121	1,840	b 410	428	923	1,440	415	367	475	112	112
20	140	107	1,740	b 390	1,030	1,620	1,310	979	485	300	114	114
21	140	102	1,410	b 380	668	5,780	1,290	590	698	217	123	114
22	138	97	1,210	b 720	941	7,800	1,190	505	415	253	117	114
23	138	97	794	b 2,200	1,600	6,500	1,040	367	324	244	115	117
24	134	409	572	1,170	3,340	5,360	923	832	259	470	114	117
25	132	510	500	979	3,150	4,120	752	1,330	286	318	112	128
26	130	282	451	1,100	3,150	2,840	728	746	238	244	115	126
27	132	220	460	1,530	4,120	2,560	656	403	268	198	114	125
28	134	190	475	1,020	5,470	2,090	545	480	205	162	* 112	185
29	132	173	b 410	812	---	1,520	460	776	164	146	110	205
30	130	142	b 370	1,010	---	1,420	555	614	140	142	121	180
31	130	---	b 300	836	---	1,380	---	* 824	---	136	134	---
Total	4,920	4,599	17,230	28,025	35,910	70,583	39,864	16,900	19,260	9,251	3,561	3,946
Mean	159	153	556	904	1,318	2,277	1,329	545	642	298	115	132

Calendar year 1961: Max 7,140 Min 81 Mean 825 Cfsm 2.04 In. 27.71  
Water year 1961-62: Max 7,800 Min 81 Mean 699 Cfsm 1.73 In. 23.48

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

POTOMAC RIVER BASIN

69

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 1962.

Gage.--Water-stage recorder (digital). 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.--33 years (1929-62), 78.2 cfs.

Extremes.--Maximum discharge during year, 1,660 cfs Mar. 21 (gage height, 7.10 ft); minimum, 3.4 cfs Aug. 28, 29. 1905-6, 1929-62: Maximum discharge, 8,500 cfs Mar. 17, 1936 (gage height, 9.6 ft, site then in use), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; minimum, 1.6 cfs Sept. 29 to Oct. 13, 1930.

Flood of Mar. 29, 1924, reached a stage of about 10 ft, from floodmarks, at site 95 ft downstream.

Remarks.--Records good except those for periods of ice effect, 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, 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

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		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.7	6.0	6.8	11	26	523	263	79	* 47	12	7.6	3.8
2	4.5	6.0	6.8	10	24	357	217	82	39	11	7.2	7.5
3	12	6.0	6.8	10	29	261	183	95	33	58	6.8	7.6
4	10	6.3	6.6	12	66	208	153	72	29	93	6.4	13
5	6.8	8.0	6.8	12	91	179	134	62	33	42	6.4	32
6	6.3	7.9	6.4	62	78	157	135	60	38	24	6.4	11
7	6.1	7.2	6.2	141	42	139	470	58	37	17	6.4	7.5
8	6.0	7.0	5.1	76	51	119	386	* 58	31	14	6.4	6.6
9	6.0	6.6	4.9	44	44	111	357	63	26	15	6.4	6.4
10	6.1	6.4	6.7	b 28	38	97	280	55	21	13	6.4	6.4
11	6.0	6.4	10	b 22	b 28	82	293	52	20	12	6.4	* 6.0
12	6.0	6.4	65	b 19	b 26	378	* 402	52	23	* 13	6.1	5.5
13	5.7	6.4	27	14	25	421	520	52	224	12	6.0	5.3
14	6.7	6.9	14	13	32	323	447	49	114	13	6.0	5.3
15	6.6	6.8	11	27	29	254	390	44	69	20	6.0	5.3
16	6.4	9.6	9.4	* 39	25	232	353	52	55	27	6.0	5.2
17	6.1	10	10	23	23	215	291	51	50	20	6.0	5.8
18	5.6	7.4	79	19	21	225	247	42	41	15	6.0	5.7
19	5.6	6.7	72	15	27	244	219	38	35	13	6.0	5.3
20	5.6	6.7	74	15	30	420	210	37	47	10	6.0	5.7
21	5.9	6.8	46	14	27	1,240	186	33	39	9.5	* 5.7	5.5
22	5.7	6.5	32	37	97	1,120	162	30	29	9.4	5.2	5.9
23	5.2	7.3	24	69	178	742	155	29	25	8.9	5.2	10
24	5.4	21	21	43	641	671	126	58	20	8.9	4.8	7.1
25	5.6	12	17	38	300	584	118	45	18	8.4	4.4	6.7
26	6.0	8.8	15	33	546	493	109	32	16	8.4	4.1	6.8
27	5.9	8.1	15	42	* 835	423	94	31	15	7.7	3.7	22
28	5.8	7.3	b 13	35	918	379	88	38	13	7.4	* 3.4	34
29	5.8	* 6.8	b 11	29	-	338	83	57	13	7.5	3.4	24
30	6.4	6.8	11	32	-----	294	85	48	12	7.8	3.7	12
31	* 7.0	-----	11	20	-----	267	-----	50	-----	7.6	3.8	-----
Total	193.5	232.1	650.5	1,004	4,297	11,503	7,156	1,604	1,212	545.5	174.3	290.9
Mean	6.24	7.74	21.0	32.4	153	371	239	51.7	40.4	17.6	5.62	9.38
Cfs/m	0.086	0.107	0.290	0.448	2.11	5.12	3.30	0.714	0.558	0.243	0.079	0.130
In.	0.10	0.12	0.33	0.52	2.21	5.91	3.68	0.82	0.62	0.28	0.09	0.15

Calendar year 1961: Max 1,610 Min 4.5 Mean 104 Cfs/m 1.44 In. 19.48

Water year 1961-62: Max 1,240 Min 3.4 Mean 79.1 Cfs/m 1.09 In. 14.83

Peak discharge (base, 1,200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	0415	6.49	1,290	3-21	1200	7.10	1,660

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

## POTOMAC RIVER BASIN

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 1962.

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.--24 years, 874 cfs (unadjusted).

Extremes.--Maximum discharge during year, 12,100 cfs Mar. 21 (gage height, 12.45 ft); minimum, 93 cfs Nov. 16 (gage height, 1.70 ft).

1938-62: 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. 64), and since December 1950, by Savage River Reservoir (see p. 67).

Rating table, water year 1961-62, 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 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	145	148	163	332	700	5,740	1,690	746	752	175	154	145
2	145	154	175	319	655	3,960	1,520	* 800	565	157	137	160
3	151	154	172	* 287	606	2,380	* 1,350	818	461	194	126	178
4	207	151	163	307	800	2,030	1,210	644	405	1,010	137	204
5	412	160	157	332	1,270	1,570	1,020	575	966	717	137	224
6	287	166	157	755	1,780	1,170	950	529	2,000	442	151	204
7	228	185	169	3,970	1,420	992	2,590	489	1,110	315	129	172
8	201	175	151	2,300	1,210	* 956	2,790	461	776	260	151	151
9	172	151	132	1,600	854	890	2,160	655	601	253	* 123	142
10	166	129	108	1,100	740	812	1,820	601	489	214	118	140
11	160	121	317	670	554	752	2,090	509	442	175	113	137
12	157	118	1,000	580	554	2,040	2,880	499	* 824	163	106	129
13	154	118	1,070	560	534	3,990	4,370	499	2,690	* 178	118	140
14	154	118	606	560	570	3,290	4,100	612	2,270	218	140	134
15	154	118	433	560	606	2,390	2,730	509	1,420	392	188	129
16	194	106	332	1,020	549	2,020	2,440	504	1,010	872	157	129
17	204	142	315	760	499	1,530	2,500	908	794	836	140	126
18	197	194	1,340	520	465	1,470	2,270	717	633	529	132	126
19	181	172	2,200	490	485	1,570	2,010	554	509	606	129	126
20	169	140	1,930	470	992	2,230	1,630	1,080	514	437	121	126
21	163	123	1,600	470	836	8,840	1,630	* 705	848	319	123	126
22	160	118	1,340	460	800	10,800	1,450	559	591	275	129	126
23	160	116	1,040	1,800	2,040	8,400	1,320	475	437	344	126	145
24	160	163	644	1,450	4,280	6,730	1,190	968	353	470	123	142
25	157	717	575	1,140	4,090	5,660	1,040	1,210	323	451	123	142
26	157	392	499	1,050	3,830	3,790	944	729	353	319	118	148
27	154	283	494	1,610	6,160	3,290	866	666	295	272	123	157
28	154	238	499	1,240	8,130	2,650	794	770	307	218	* 121	242
29	* 157	* 214	470	932	—	2,050	661	854	228	191	118	272
30	157	191	387	944	—	1,870	544	689	197	175	116	232
31	157	—	319	1,080	—	1,780	—	938	—	169	137	—
Total	5,581	5,475	18,957	29,668	46,009	97,642	54,559	21,272	23,163	11,346	4,064	4,761
Mean	180	182	612	957	1,643	3,150	1,819	686	772	366	131	159

Calendar year 1961: Max 10,200 Min 106 Mean 1,039 Cfsm 1.74 In. 23.65  
 Water year 1961-62 Max 10,800 Min 106 Mean 884 Cfsm 1.48 In. 20.12

\* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Jan. 9-22; no gage-height record Jan. 18-21.

## POTOMAC RIVER BASIN

71

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 1962.

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

Average discharge.--11 years, 193 cfs.

Extremes.--Maximum discharge during year, 4,680 cfs Mar. 21 (gage height, 7.16 ft); minimum, 1.7 cfs Aug. 31, Sept. 1, (gage height, 1.37 ft).  
1951-62: 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 table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 24-27, Aug. 6-8)

1.3	1.0	2.2	64
1.4	2.0	2.5	136
1.5	3.8	3.0	320
1.6	6.6	3.5	600
1.7	10	4.0	955
1.8	16	5.0	1,900
1.9	24	6.0	3,070
2.0	35		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	7.5	13	49	b 68	1,340	542	139	204	19	5.5	1.8
2	1.9	6.8	13	40	b 70	695	467	160	163	16	4.6	11
3	3.1	6.2	12	37	b 80	452	380	*173	131	34	4.6	33
4	10	6.1	11	38	181	334	310	162	104	110	5.3	24
5	9.9	9.0	10	41	243	274	272	160	131	51	23	59
6	5.6	10	9.3	64	b 120	221	262	157	161	35	*19	36
7	4.0	10	8.9	274	b 76	209	1,220	153	120	30	9.5	19
8	3.1	9.0	6.3	250	b 80	166	1,270	150	99	26	7.5	12
9	2.7	8.4	5.2	180	b 80	144	810	151	84	*29	39	9.5
10	2.5	7.6	8.2	97	b 64	138	554	127	69	26	66	8.6
11	2.4	7.4	12	b 68	b 54	119	488	117	*63	19	34	8.4
12	2.2	7.2	98	b 58	b 70	529	755	110	63	18	23	*8.9
13	2.1	7.4	86	b 62	b 70	800	1,640	110	267	21	21	6.2
14	3.6	10	47	b 70	b 74	564	1,170	102	264	23	31	5.0
15	5.0	18	44	b 88	80	437	880	94	187	32	24	4.3
16	5.7	21	33	b 120	69	*407	672	105	137	28	16	3.6
17	4.9	44	39	b 80	62	380	535	238	102	26	12	3.9
18	4.3	24	114	b 64	60	425	458	187	82	35	9.7	4.2
19	3.9	16	236	b 54	58	480	405	146	65	31	8.1	4.3
20	3.5	13	267	b 54	58	726	365	122	72	20	6.8	4.5
21	3.3	10	200	b 52	58	3,040	306	98	62	15	5.8	4.2
22	3.1	9.3	146	b 70	82	2,970	271	84	49	12	*4.8	4.1
23	3.0	8.9	101	b 180	347	1,790	251	89	44	12	4.2	7.5
24	3.1	80	96	b 135	1,770	1,380	217	150	38	17	3.6	9.3
25	3.2	56	81	b 130	1,140	1,160	189	106	36	15	3.2	7.0
26	3.6	35	68	b 120	*1,120	912	176	89	32	12	2.8	6.0
27	3.8	26	61	b 130	2,190	759	157	81	29	10	2.6	13
28	4.0	*21	57	b 120	2,770	*631	145	*117	25	7.8	2.6	64
29	4.3	17	39	b* 110	---	556	136	120	22	6.4	2.5	30
30	*5.2	12	47	b 84	-----	526	128	109	21	6.2	2.2	23
31	6.5	-----	48	b 50	-----	513	-----	218	-----	6.1	1.9	-----
Total	125.4	523.8	2,016.9	2,969	11,194	23,077	15,431	4,124	2,926	7,485	405.8	435.3
Mean	4.05	17.5	65.1	95.8	400	744	514	133	97.5	24.2	13.1	14.5
Cfs/m	0.028	0.120	0.446	0.656	2.74	5.10	3.52	0.911	0.668	0.166	0.090	0.099
In.	0.03	0.13	0.52	0.76	2.85	5.88	3.93	1.05	0.75	0.19	0.10	0.11

Calendar year 1961: Max 3,660 Min 1.9 Mean 218 Cfs/m 1.49 In. 20.25  
Water year 1961-62 Max 3,040 Min 1.8 Mean 175 Cfs/m 1.20 In. 16.30

Peak discharge (base, 2,100 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	0630	5.22	2,340	3-21	1745	7.16	4,680
2-28	0630	6.42	3,670				

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

## POTOMAC RIVER BASIN

1-6015. Wills Creek near Cumberland, Md.

Location.--Lat 33°40'07", long 73°47'13", 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 1962.

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.--33 years (1929-62), 317 cfs.

Extremes.--Maximum discharge during year, 7,400 cfs Mar. 21 (gage height 9.58 ft); minimum, 14 cfs Oct. 2, 26, 27 (gage height 1.40 ft).

1905-6, 1929-62: Maximum discharge, 39,100 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 1961-62, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 21				Mar. 22 to Sept. 30			
1.4	14	3.0	305	1.4	22	3.0	305
1.5	20	4.0	330	1.5	29	4.0	830
1.7	34	5.0	1,710	1.7	45	5.0	1,710
2.0	64	6.0	2,960	2.0	73	6.0	2,960
2.5	151	8.0	6,290	2.5	151	8.0	6,290

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	23	33	65	b 100	2,170	810	258	251	63	39	26
2	16	23	34	59	b 100	1,200	705	289	206	59	39	35
3	19	24	33	53	122	804	579	* 337	172	128	38	51
4	30	25	29	58	169	623	485	293	145	218	44	58
5	28	29	29	63	333	515	426	285	153	123	80	90
6	30	30	27	109	b 270	430	404	273	212	93	* 70	87
7	27	25	26	376	b 140	381	1,880	258	160	80	54	59
8	26	25	25	350	b 150	* 258	2,030	244	138	75	51	47
9	24	25	27	230	b 150	a 240	1,400	254	119	* 73	47	42
10	21	25	27	124	b 150	a 230	986	215	108	68	78	37
11	18	26	33	b 84	122	a 200	872	200	* 104	61	98	39
12	20	26	162	b 84	b 100	a 900	1,350	192	137	59	66	* 35
13	20	25	165	b 86	122	a 1,300	2,640	190	645	58	54	34
14	20	23	81	b 88	126	a 920	2,010	177	485	63	59	35
15	23	28	84	126	143	a 760	1,500	162	333	70	56	33
16	21	43	48	169	128	a 700	1,160	158	240	76	50	33
17	23	64	59	124	119	a 620	921	293	190	66	43	30
18	21	59	196	92	109	a 700	784	265	153	66	42	31
19	21	40	363	78	108	a 800	699	215	128	72	38	28
20	21	32	381	78	120	a 1,200	663	187	136	60	33	29
21	21	31	273	74	117	a 5,000	574	158	126	54	32	28
22	22	30	197	b 80	113	5,000	500	145	106	53	* 29	29
23	21	33	140	b 230	172	2,950	460	149	97	48	31	35
24	20	112	134	b 165	530	2,150	408	218	90	48	30	35
25	20	111	104	b 145	1,420	1,840	358	169	83	50	31	36
26	19	67	92	b 130	1,500	1,450	321	145	82	48	31	35
27	19	48	* 92	b 175	2,760	1,200	293	134	76	47	28	55
28	19	* 41	94	169	3,910	* 963	273	149	70	44	28	93
29	20	38	62	* 149	-	851	254	200	66	43	30	72
30	22	34	60	b 110	-----	798	237	160	65	43	27	58
31	* 22	-----	67	b 86	-----	753	-----	254	-----	41	26	-----
Total	674	1,165	3,177	4,009	13,403	37,906	25,982	5,626	5,076	2,150	1,402	1,335
Mean	21.7	38.8	102	129	479	1,223	866	214	169	69.4	45.2	44.5
Cfs/m	0.088	0.157	0.413	0.522	1.94	4.95	3.51	0.866	0.684	0.281	0.183	0.180
In.	0.10	0.18	0.48	0.60	2.02	5.71	3.91	1.00	0.76	0.32	0.21	0.20

Calendar year 1961: Max 6,000 Min 16 Mean 376 Cfs/m 1.52 In. 20.65  
 Water year 1961-62: Max 5,000 Min 16 Mean 282 Cfs/m 1.14 In. 15.49

Peak discharge (base, 3,500 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	0830	7.22	4,890	3-21	Unknown	8.58	7,400

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

POTOMAC RIVER BASIN

73

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 1960. Gage-height records collected at various sites about 2 miles upstream from September 1901 to December 1932, and thereafter at present site, are contained in reports of U.S. Weather Bureau.

Gage.--Water-stage recorder (digital). 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.--33 years, 1,221 cfs (unadjusted).

Extremes.--Maximum discharge during year, 20,300 cfs Mar. 21 (gage height, 16.15 ft); minimum, 140 cfs Nov. 16, Dec. 10, 11 (gage height 2.28 ft).  
1929-62: Maximum discharge, 88,200 cfs Mar. 17, 1936 (gage height, 29.1 ft), from rating curve extended above 21,000 cfs on basis of slope-area measurement of peak flow; minimum (river only), 12 cfs Sept. 22, 1932 (gage height, 2.38 ft); minimum daily (including flow in canal), 38 cfs Sept. 24, 1932.  
Maximum stage known, 29.2 ft June 1, 1889 (discharge, about 89,000 cfs). Flood of Mar. 29, 1924, reached a stage of 28.4 ft (discharge, about 82,000 cfs).

Remarks.--Records good. Regulation by reservoir on Stony River, about 79 miles above station (see p. 64 ), and since December 1950, by reservoir on Savage River (see p. 67 ). Prior to July 1957, small amount of inflow from industrial wastes and sewage from City of Cumberland from water diverted from Evitts Creek, mouth of which is below station. Diversion to Chesapeake and Ohio Canal prior to 1935.

Rating tables, water year 1961-62, (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Dec. 19, 20, Jan. 7, 8, Feb. 23-27, July 18 - Sept. 30)

Oct. 1 to Mar. 21				Mar. 22 to Sept. 30			
2.2	120	5.0	2,510	2.2	149	5.0	2,920
2.5	262	7.0	5,130	2.5	300	7.0	5,720
3.0	585	9.0	8,260	3.0	650	10.0	10,000
4.0	1,450	12.0	13,100	4.0	1,610	15.0	18,200

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	184	187	208	418	808	8,590	2,820	1,110	1,120	290	199	184
2	174	184	215	426	789	5,770	2,500	1,150	877	266	180	230
3	196	* 193	211	375	727	3,280	2,100	1,270	732	399	166	230
4	244	201	203	377	909	2,620	1,850	1,040	637	1,170	220	289
5	427	214	191	414	1,420	2,130	1,590	955	889	992	250	348
6	355	216	182	548	1,870	1,600	1,470	900	2,400	668	235	318
7	284	230	202	4,260	1,600	1,360	4,620	847	1,490	500	194	250
8	247	222	185	2,830	1,360	1,270	5,790	802	1,020	416	189	204
9	212	204	172	2,060	1,100	1,180	4,140	951	822	401	* 245	184
10	196	165	146	1,400	902	1,090	* 3,270	937	695	362	262	180
11	189	155	285	786	705	1,020	2,920	809	626	309	194	180
12	186	150	959	695	656	2,850	4,640	788	* 967	279	161	171
13	182	148	1,350	651	671	5,840	7,490	777	3,290	* 278	176	166
14	187	148	778	655	720	4,870	7,260	861	3,210	342	199	171
15	183	150	582	649	750	3,430	5,020	784	1,970	394	240	166
16	203	169	454	1,160	698	3,030	4,120	732	1,400	981	225	161
17	245	198	406	939	636	2,290	3,970	1,210	1,100	909	199	166
18	240	263	1,090	632	597	2,250	3,480	1,110	894	658	180	161
19	225	253	2,740	581	617	3,360	3,150	873	747	658	171	157
20	206	194	2,270	567	997	2,990	2,530	1,270	721	535	161	157
21	198	163	1,880	563	970	12,400	2,440	* 987	1,010	395	157	161
22	193	150	1,480	578	903	17,200	2,140	803	825	324	161	161
23	189	163	1,220	2,060	2,310	12,900	1,960	735	640	381	157	180
24	189	284	800	1,700	6,720	9,700	1,760	1,040	542	402	157	184
25	187	744	714	1,270	6,500	8,490	1,540	1,620	477	586	157	176
26	181	526	622	1,130	5,480	5,980	1,400	996	519	388	153	184
27	182	371	602	1,610	8,770	5,130	1,270	824	426	330	153	230
28	180	305	* 609	1,430	12,000	4,250	1,180	1,030	466	278	153	354
29	* 186	* 268	572	1,070	-	3,290	1,030	1,110	370	240	153	354
30	191	243	457	996	-----	3,010	993	954	321	220	* 148	289
31	191	-----	426	* 1,200	-----	2,850	-----	1,200	-----	214	157	-----
Total	5,632	7,061	22,211	34,030	62,185	145,020	90,443	30,475	31,203	14,565	5,752	6,346
Mean	214	235	716	1,098	2,221	4,678	3,015	983	1,040	470	186	212

Calendar year 1961: Max 18,900 Min 146 Mean 1,461 Cfsm 1.67 In. 22.66  
Water year 1961-62: Max 17,200 Min 146 Mean 1,249 Cfsm 1.43 In. 19.38

Peak discharge (base, 10,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	1145	12.24	13,500	3-21	2200	16.15	20,300

\* Discharge measurement made on this day.

## POTOMAC RIVER BASIN

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 1962. 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.--30 years, 30.8 cfs.

Extremes.--Maximum discharge during year, 961 cfs Mar. 21 (gage height, 3.49 ft); minimum, 1.9 cfs Dec. 8 (gage height, 0.97 ft), result of freezeup.

1932-62: 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 doubtful gage-height record, which are fair.

Rating table, water year 1961-62, (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		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.5	3.0	3.1	5.1	7.4	153	87	29	15	5.1	2.9	2.5
2	2.5	2.8	3.1	4.7	7.4	92	71	38	12	4.7	2.6	5.3
3	3.1	2.8	3.1	4.3	7.8	73	58	*d 49	11	8.4	2.6	7.4
4	* 4.1	2.8	3.1	5.3	13	59	51	29	11	9.6	2.8	5.3
5	3.3	3.6	3.1	7.8	16	53	48	26	20	6.6	3.9	11
6	3.0	3.8	3.1	19	11	42	49	25	18	5.3	* 4.3	7.2
7	2.9	3.4	3.3	42	7.4	53	221	24	12	4.9	3.8	3.8
8	2.9	3.1	2.9	22	8.4	45	163	25	9.6	4.9	3.4	3.3
9	2.9	3.0	3.0	13	8.4	34	137	26	8.8	* 4.5	9.1	3.1
10	2.8	2.9	3.3	8.4	8.4	32	104	22	7.8	4.1	9.6	3.1
11	2.8	2.9	4.3	7.4	6.8	30	99	22	* 9.2	3.8	5.1	3.3
12	2.6	2.9	19	8.4	9.2	115	159	21	13	3.9	4.1	* 2.9
13	2.6	2.9	11	11	8.8	166	250	20	6.4	4.1	5.1	2.6
14	2.9	3.4	5.3	11	10	131	183	19	26	5.1	6.8	2.6
15	3.0	4.3	4.1	19	10	117	140	18	19	5.6	4.5	2.6
16	3.0	4.1	3.6	19	9.6	112	115	19	15	5.1	3.9	2.6
17	3.0	6.6	3.9	9.6	8.8	102	92	19	12	4.9	3.6	2.8
18	2.9	3.9	2.9	7.4	8.4	128	79	16	11	7.4	3.6	2.9
19	2.9	3.3	2.6	6.8	12	120	71	15	10	5.6	3.3	2.8
20	2.8	3.1	2.2	6.8	15	187	67	14	12	4.1	3.3	2.8
21	2.8	3.1	12	6.6	16	596	56	14	11	3.8	3.1	2.8
22	2.8	3.1	8.8	8.1	15	491	49	12	9.6	3.6	* 3.0	2.8
23	2.8	3.7	6.8	16	61	276	45	19	8.8	3.6	2.9	3.6
24	2.8	2.2	6.6	8.8	194	201	41	21	8.1	3.9	2.9	3.1
25	2.8	8.1	6.0	8.8	112	159	37	15	7.8	3.9	2.8	2.9
26	2.8	5.1	5.6	8.4	* 117	128	34	12	6.8	3.6	2.8	2.9
27	2.8	4.3	* 5.8	10	194	107	32	12	6.6	3.3	2.6	5.6
28	2.8	3.6	7.4	8.1	295	* 90	31	*d 27	5.8	3.1	2.6	7.8
29	2.8	3.4	5.3	* 8.1	-	79	30	18	5.3	3.0	2.6	4.1
30	3.0	3.3	4.7	8.4	-----	69	28	17	5.3	3.1	2.6	3.4
31	* 3.1	-----	4.7	5.8	-----	71	-----	21	-----	3.1	2.5	-----
Total	89.8	128.3	233.0	342.1	1,197.8	4,111	2,627	664	391.5	145.7	118.7	118.9
Mean	2.90	4.28	7.52	11.0	42.8	133	87.6	21.4	13.0	4.70	3.83	3.96
Cfsm	0.096	0.142	0.249	0.364	1.42	4.40	2.90	0.709	0.430	0.156	0.127	0.131
In.	0.11	0.16	0.29	0.42	1.48	5.06	3.24	0.82	0.48	0.18	0.15	0.15

Calendar year 1961: Max 596 Min 2.5 Mean 34.8 Cfsm 1.15 In. 15.63  
 Water year 1961-62: Max 596 Min 2.5 Mean 27.9 Cfsm 0.924 In. 12.54

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	1130	3.16	668	3-21	1800	3.49	961

\* Discharge measurement made on this day.  
 d Doubtful gage-height record.

## POTOMAC RIVER BASIN

75

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 1962.

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.--24 years, 3,131 cfs.

Extremes.--Maximum discharge during year, 57,500 cfs Mar. 22 (gage height, 27.01 ft); minimum, 272 cfs Sept. 1. 1938-62: 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 the period of twice-daily potentiometer readings, which are fair. Low flow affected by Stony River Reservoir (see p. 64) and, since December 1950, by Savage River Reservoir (see p. 67).

Rating table, water year 1961-62, (gage height, in feet, and discharge, in cubic feet per second)

3.1	250	8.0	4,850
3.5	440	10.0	7,870
4.0	735	15.0	18,700
5.0	1,490	20.0	33,100
6.0	2,440	27.0	57,500

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	370	550	912	1,430	2,200	23,600	6,260	2,640	2,550	652	446	277
2	365	550	835	1,390	1,990	17,100	6,240	5,070	2,170	592	425	304
3	365	728	787	1,320	1,880	9,310	5,420	5,800	1,740	592	400	430
4	425	709	742	1,230	1,820	7,170	4,720	4,170	1,660	1,120	405	435
5	446	670	696	1,250	2,540	6,060	4,180	3,230	2,010	1,940	562	622
6	676	646	664	1,650	3,370	5,190	3,820	2,750	3,180	1,440	610	610
7	634	658	616	5,870	3,570	4,520	6,950	2,470	3,620	1,120	* 534	544
8	586	1,200	604	11,400	2,860	4,190	12,600	2,260	2,560	884	490	441
9	517	1,530	574	7,340	* 2,780	3,860	10,000	2,260	2,040	735	484	400
10	441	1,230	586	5,130	2,330	3,650	* 3,310	2,410	1,700	709	598	375
11	* 420	1,010	568	3,490	1,950	3,450	7,050	2,080	1,460	821	598	365
12	400	891	1,110	2,490	1,680	7,760	3,700	2,000	1,430	690	456	345
13	410	800	6,900	2,200	1,590	24,900	15,100	1,860	5,340	574	405	326
14	g 390	735	5,140	2,090	1,770	23,600	15,600	1,960	5,810	562	456	318
15	g 390	702	3,410	2,040	1,800	15,100	11,600	2,420	* 4,150	640	430	318
16	g 390	664	2,530	2,680	1,950	14,100	9,300	2,110	2,980	1,010	484	308
17	g 390	696	2,040	3,100	1,820	11,500	7,900	2,520	2,300	1,420	495	295
18	g 390	683	2,490	2,270	1,740	10,700	6,930	2,730	1,880	1,370	456	290
19	g 415	696	3,900	1,850	1,730	10,400	6,280	2,200	1,550	1,210	405	290
20	g 390	670	8,020	1,710	2,050	10,900	5,660	2,380	1,380	1,230	375	290
21	g 390	604	6,090	1,670	2,840	24,300	5,400	2,400	1,580	933	365	286
22	g 2,710	562	4,570	1,580	2,640	54,800	4,850	* 1,840	1,900	748	340	286
23	g 2,040	544	3,750	2,500	3,650	42,000	4,560	1,680	1,440	683	336	290
24	g 1,400	640	2,960	3,560	11,200	23,400	4,390	2,850	1,190	748	318	322
25	g 1,040	968	2,470	3,250	16,600	18,000	3,890	3,750	1,020	849	318	331
26	g 905	1,840	2,140	2,850	13,000	13,200	3,470	2,620	933	856	308	336
27	g 735	1,520	1,870	2,860	25,000	10,700	3,120	2,010	912	702	300	355
28	g 702	1,270	1,810	3,270	33,000	9,010	2,860	2,110	807	622	295	473
29	g 670	1,110	1,840	2,760	—	7,340	2,630	2,420	774	550	295	574
30	g 610	996	1,660	2,450	—	6,560	2,440	2,440	716	512	* 295	550
31	g 550	—	1,500	2,470	—	6,220	—	2,430	—	468	277	—
Total	20,562	26,072	79,784	91,150	151,350	433,590	200,230	81,870	63,782	26,982	12,961	11,386
Mean	663	869	2,541	2,940	5,405	13,990	6,674	2,641	2,126	870	418	380

Calendar year 1961: Max 43,300 Min 365 Mean 3,681 Cfsm 1.18 In. 16.02  
Water year 1961-62: Max 54,800 Min 277 Mean 3,284 Cfsm 1.06 In. 14.39

Peak discharge (base, 20,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	1100	20.72	35,400	3-22	1700	27.01	57,500
3-13	1800	18.08	27,200				

\* Discharge measurement made on this day.  
g Computed from twice-daily potentiometer readings.

## POTOMAC RIVER BASIN

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 1962. Prior to October 1951, published as Tonoloway Creek near Hancock.

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

Average discharge.--15 years, 15.6 cfs.

Extremes.--Maximum discharge during year, 367 cfs Feb. 28 (gage height, 3.73 ft); no flow many days during October, November, July, August, and September.

1947-62: 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. Occasional small diversions for irrigation of peach orchards above station.

Rating table, water year 1961-62, (gage-height, in feet,  
and discharge, in cubic feet per second)  
(Shifting-control method used Feb. 27)

0.8	0	1.5	31
.9	.5	1.7	49
1.0	2.3	2.0	80
1.1	6.3	2.5	147
1.2	12	3.0	224
1.3	18	4.0	433

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.4	1.6	2.7	95	17	13	1.5	0.3	0	0
2		0	.5	1.4	* 2.6	55	12	22	1.0	.2	0	0
3		* 0	.5	1.3	2.4	40	8.9	24	.9	.8	0	0
4		0	.4	1.7	3.1	32	7.6	21	.8	.9	0	.3
5		0	.6	1.6	5.5	27	7.6	17	1.1	* .5	0	.9
6		0	.8	1.3	4.6	28	8.3	14	1.3	.3	0	.2
7		.1	.7	3.8	4.1	24	88	11	.7	.2	0	0
8		.1	.5	2.1	4.1	21	78	10	.5	.2	0	.2
9		.1	.4	1.2	3.7	22	51	8.7	.3	.2	0	0
10		.1	.7	5.3	3.4	20	33	6.6	.3	.2	0	0
11		0	1.3	4.8	3.1	20	34	5.5	.3	.2	0	0
12		0	8.9	4.4	3.5	160	41	4.7	12	.2	0	0
13		0	4.1	4.0	2.9	152	171	5.0	35	.3	.1	0
14		.1	1.8	3.3	3.6	130	88	3.7	* 14	.1	0	0
15		.1	1.2	10	6.0	116	58	3.1	9.7	.2	0	0
16		.2	.9	11	7.1	101	38	2.7	5.3	.4	0	0
17		.3	1.1	* 6.9	8.2	74	28	2.1	3.0	.3	0	0
18		.1	1.4	4.6	13	67	23	1.7	1.9	.2	0	0
19		.1	1.3	3.6	16	60	19	1.3	1.3	.1	0	0
20		.2	10	3.5	19	63	18	7.6	1.8	.0	0	0
21		.2	6.6	2.8	18	170	14	6.5	1.5	0	*	0
22		.2	4.3	3.6	18	186	11	3.3	1.0	0	0	0
23		.3	3.2	5.2	26	91	9.3	2.6	.8	0	0	0
24		4.1	2.8	4.1	137	58	7.5	6.7	.7	0	0	0
25		1.2	2.0	4.4	73	42	6.6	3.2	.7	0	0	0
26		.6	1.6	4.0	93	32	5.9	1.9	.6	0	0	0
27		.5	1.8	4.4	* 190	26	5.1	1.9	.7	0	0	.2
28		.4	2.9	3.9	241	21	4.7	6.0	.4	0	1.3	.3
29		* .4	2.3	3.7	* 18	* 6.3	* 15	.3	0	0	.1	.1
30	(*)	.4	1.7	3.4	-----	13	* 5.8	2.9	.3	* 0	0	0
31		-----	1.5	2.9	-----	13	-----	2.1	-----	0	0	-----
Total	0	9.8	92.5	195.4	914.6	1977	905.6	236.8	99.7	5.8	1.5	2.2
Mean	0	0.327	2.98	6.30	32.7	63.8	30.2	7.64	3.32	0.187	0.048	0.073
Cfsm	0	0.019	0.176	0.373	1.93	3.78	1.79	0.452	0.196	0.011	0.003	0.0043
In.	0	0.02	0.20	0.43	2.01	4.35	1.99	0.52	0.22	0.01	0.003	0.0050

Calendar year 1961: Max 247 Min 0 Mean 16.0 Cfsm 0.947 In. 12.81  
 Water year 1961-62: Max 241 Min 0 Mean 12.2 Cfsm 0.722 In. 9.75

Peak discharge (base, 200 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	0600	3.05	232	3-21	2000	3.44	302
2-28	0500	3.73	367	4-13	0200	2.99	222
3-12	1900	3.14	247	6-12	2030	2.86	202

\* Discharge measurement or observation of no flow made on this day.

POTOMAC RIVER BASIN

77

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 1962. 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.--30 years, 4,017 cfs.

Extremes.--Maximum discharge during year, 68,800 cfs Mar. 22 (gage height, 24.50 ft); minimum discharge 305 cfs Sept. 1 (gage height 2.33 ft).

1932-62: Maximum discharge, 340,000 cfs Mar. 18, 1936 (gage height, 47.6 ft), from rating curve extended above 120,000 cfs on basis of slope-area measurement of peak flow; minimum observed, 180 cfs Oct. 4, 1932 (gage height, 2.01 ft).

Maximum stage known prior to 1932, about 40 ft in May 1889 (discharge, about 220,000 cfs).

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

Slight regulation at low flow from power plants upstream. Low flow affected slightly by Stony River Reservoir (see p. 64) and since December 1950 by Savage River Reservoir (see p. 67).

Rating table, water year 1961-62, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

2.3	290	3.0	780	6.0	4,500	15.0	27,900
2.5	395	4.0	1,750	10.0	12,900	23.0	61,000

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	431	656	1,100	1,780	2,570	32,600	7,380	2,830	3,020	780	525	330
2	462	630	978	1,670	2,150	19,000	7,660	4,370	2,790	744	497	340
3	437	648	915	1,600	2,070	12,500	7,060	2,250	2,300	717	469	401
4	462	789	879	1,500	1,970	8,980	6,030	7,500	1,960	735	462	469
5	462	789	807	1,400	2,120	7,380	5,290	5,240	2,180	1,560	511	565
6	511	780	780	1,570	3,080	6,700	4,760	4,260	2,390	2,020	614	708
7	726	771	735	3,020	3,620	5,470	6,240	3,490	3,960	1,600	* 735	708
8	726	969	690	12,600	3,270	4,930	15,000	3,090	3,300	1,290	690	630
9	690	1,590	656	9,820	* 2,920	4,810	13,300	2,880	2,500	1,010	664	565
10	614	1,550	656	6,620	2,660	4,450	10,800	3,020	2,050	879	597	511
11	549	1,320	682	4,500	2,280	4,140	9,000	2,790	1,750	879	771	443
12	518	1,110	753	3,160	2,020	6,220	9,840	2,500	1,600	1,020	708	413
13	511	969	2,350	2,520	1,750	24,600	18,200	2,390	2,680	879	589	395
14	497	897	7,220	2,520	1,850	31,700	20,100	2,330	* 7,700	744	511	395
15	504	861	4,430	2,590	1,970	22,800	15,600	2,690	5,700	717	533	351
16	511	798	3,120	2,720	2,020	19,800	11,700	2,720	3,970	870	518	373
17	476	780	2,490	3,330	2,120	15,000	9,690	2,510	2,950	1,340	557	373
18	476	780	2,200	3,380	2,010	14,400	9,370	3,010	2,370	1,660	565	373
19	511	771	5,140	b 2,500	2,000	14,100	7,440	2,760	1,960	1,520	504	362
20	541	825	10,500	b 2,200	2,130	14,400	6,880	2,440	1,700	1,410	483	346
21	541	762	7,580	b 1,900	2,690	24,900	6,300	2,810	1,550	1,280	* 437	346
22	541	682	5,650	b 1,850	3,130	61,000	5,870	* 2,440	1,970	1,050	419	340
23	2,960	639	4,400	b 1,800	3,190	55,400	5,250	2,060	2,120	870	401	340
24	1,990	789	3,670	3,090	3,200	31,200	5,020	2,140	1,640	780	384	362
25	1,470	870	2,870	3,660	a 15,000	22,500	4,670	4,130	1,400	843	373	390
26	1,210	1,230	2,510	3,170	15,700	17,800	4,080	4,160	1,180	942	340	407
27	1,010	1,920	2,200	2,850	25,500	13,200	3,700	2,880	1,090	933	378	431
28	879	1,570	1,980	3,160	40,800	11,500	3,340	2,660	1,100	762	356	455
29	807	1,340	1,990	3,090	-	* 9,470	3,090	2,870	942	673	340	525
30	780	1,210	1,990	2,690	-----	8,160	2,920	3,220	852	656	340	605
31	726	-----	1,880	2,460	-----	7,540	-----	3,020	-----	573	340	-----
Total	23,529	29,295	84,801	100,720	161,790	537,650	244,580	104,460	72,674	31,736	15,611	13,252
Mean	759	976	2,736	3,249	5,778	17,340	8,153	3,370	2,422	1,024	504	442

Calendar year 1961: Max 50,900 Min 431 Mean 4,439 Cfsm 1.09 In. 14.79  
Water year 1961-62: Max 61,000 Min 330 Mean 3,891 Cfsm 0.955 In. 12.97

Peak discharge (base, 23,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	1700	19.27	44,100	3-22	2000	24.50	68,800
3-14	0030	16.81	34,600				

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

## POTOMAC RIVER BASIN

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 1962.

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.--34 years, 566 cfs.

Extremes.--Maximum discharge during year, 5,140 cfs Mar. 22 (gage height, 8.27 ft); minimum, 51 cfs Oct. 28, 30, but may have been less during period of ice effect.

1928-62: 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 table, water year 1961-62, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.0	40	3.0	650
1.3	86	4.0	1,220
1.7	170	6.0	2,810
2.2	321	8.0	4,810

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	65	84	b110	b135	3,440	950	476	216	114	104	69
2	76	70	83	b110	b150	1,820	1,010	1,000	218	112	95	68
3	81	70	81	b110	b140	1,310	832	*1,080	188	120	93	83
4	88	70	78	b110	b140	1,070	750	782	180	133	90	100
5	84	75	81	b110	b165	920	700	645	193	116	90	197
6	78	80	* 78	b160	b195	865	665	578	242	110	108	188
7	72	88	b75	b1200	b135	799	1,770	543	213	110	118	142
8	72	93	b70	1,350	b150	722	1,980	503	* 186	106	112	110
9	72	91	b70	b660	b140	665	2,220	483	165	102	104	93
10	74	81	b75	b380	b130	615	1,720	447	156	106	108	90
11	71	76	b80	b240	b120	610	1,390	419	153	97	126	106
12	68	71	136	b220	b110	2,190	1,490	404	165	95	112	91
13	64	71	239	b210	b120	3,780	3,170	385	391	95	108	79
14	72	83	b 175	b200	b150	2,900	2,400	369	293	102	108	76
15	69	90	b 130	b300	b190	2,380	1,800	366	227	104	99	72
16	66	95	b 125	b450	b180	2,180	1,460	354	193	114	95	76
17	71	126	b 135	b350	b170	1,680	1,210	321	175	* 122	83	71
18	72	124	229	b250	b190	1,520	1,060	307	160	151	88	79
19	69	102	690	b220	242	1,370	950	286	158	165	81	79
20	63	95	531	b210	293	1,360	876	270	153	139	79	78
21	64	95	388	b200	304	2,200	799	273	153	118	81	69
22	63	90	290	b190	286	4,740	706	264	151	110	79	69
23	64	86	227	b210	428	*3,110	645	245	148	106	78	69
24	71	138	199	b180	3,100	2,250	591	280	142	128	76	72
25	68	221	b 175	188	2,610	1,770	555	293	151	139	72	76
26	62	170	b 165	180	*2,210	1,470	523	245	146	133	72	71
27	60	120	b 160	170	3,260	1,250	487	230	137	116	66	78
28	60	108	b 170	170	4,520	1,090	467	233	131	106	272	105
29	60	95	b 135	158	-	962	447	239	118	95	114	204
30	63	90	b 120	b 155	-----	870	455	221	118	100	79	151
31	* 65	-----	b 110	b 145	-----	821	-----	207	-----	110	* 68	-----
Total	2151	2929	5384	8896	19,963	52,729	36,078	12,748	5,420	3,574	3,058	2,911
Mean	69.4	97.6	174	287	713	1,701	1,203	411	181	115	98.6	97.0
Cfsm	0.140	0.198	0.352	0.581	1.44	3.44	2.44	0.832	0.366	0.233	0.200	0.196
In.	0.16	0.22	0.41	0.67	1.50	3.97	2.72	0.96	0.41	0.27	0.23	0.22

Calendar year 1961: Max 8,930 Min 60 Mean 590 Cfsm 1.19 In. 16.20  
 Water year 1961-62: Max 4,740 Min 60 Mean 427 Cfsm 0.864 In. 11.74

Peak discharge (base, 4,300 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	2300	7.55	4,300	3-22	0700	8.27	5,140
2-28	1430	8.23	5,090	4-8	0930	7.94	4,740
3-13	0130	7.72	4,490	4-13	0700	7.61	4,370

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

## 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 1962. 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.--39 years (1897-1903, 1904-5, 1930-62), 267 cfs (adjusted for inflow since 1930).

Extremes.--Maximum discharge during year, 1,320 cfs Mar. 22 (gage height, 5.02 ft); minimum 59 cfs Sept. 23.

1928-62: 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 backwater from unknown cause, 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 1961-62, except periods of ice effect or backwater from unknown cause  
(gage height, in feet, and discharge, in cubic feet per second)

2.2	67	4.0	780
2.7	184	5.0	1,310
3.2	380		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	90	84	92	101	b 120	940	510	335	190	140	119	86
2	92	92	90	103	131	705	495	* 455	190	135	117	86
3	95	92	84	101	128	585	440	430	181	145	115	97
4	106	90	86	101	128	515	415	362	179	160	117	99
5	97	104	88	108	128	475	395	330	181	145	119	124
6	95	170	86	197	b 125	485	390	317	212	140	117	117
7	90	173	* 86	509	b 125	465	482	312	200	138	117	101
8	92	128	84	425	119	425	692	308	* 184	140	115	95
9	88	101	82	290	126	395	575	308	176	135	112	90
10	88	97	86	b 210	128	380	535	294	173	133	128	86
11	88	90	90	b 160	b 110	376	515	286	170	126	c 240	88
12	86	90	133	b 160	b 100	777	549	282	196	126	c 128	97
13	86	90	143	b 165	b 105	1,090	761	278	184	128	c 112	88
14	88	92	119	165	b 120	895	705	270	184	128	c 106	86
15	99	112	106	183	133	810	635	290	200	128	c 101	84
16	90	110	99	246	124	755	595	274	176	* 133	c 99	82
17	88	115	95	200	122	690	555	254	165	* 145	c 97	80
18	86	108	155	168	126	640	525	246	157	152	c 99	86
19	84	99	181	* 157	135	625	505	240	157	179	c 95	92
20	86	97	157	152	147	640	485	232	165	150	c 92	90
21	86	101	135	147	147	778	470	226	170	133	c 95	84
22	112	97	126	143	152	1,180	440	218	165	150	c 92	82
23	92	92	122	147	179	* 960	420	218	157	133	c 90	80
24	92	132	122	155	459	815	400	326	186	128	c 90	82
25	86	135	115	150	565	710	385	258	190	133	c 88	82
26	80	119	108	145	511	655	376	215	162	131	84	86
27	* 80	99	108	143	* 916	610	362	212	157	124	82	86
28	84	99	115	140	975	560	348	206	150	122	* 84	115
29	86	95	b 110	135	-	520	344	206	145	119	126	119
30	84	92	b 100	133	-----	495	335	196	143	119	95	92
31	84	-----	b 100	b 125	-----	475	-----	193	-----	122	88	-----
Total	2780	3195	3403	5464	6384	20426	14639	8577	5245	4220	3359	2762
Mean	89.7	106	110	176	228	659	488	277	175	136	108	92.1
(†)	-9.5	-10.0	-8.9	-6.6	-6.2	-6.2	-5.9	-6.9	-8.5	-9.8	-11.7	-10.5
Mean*	80.2	96.0	101	169	222	653	482	270	166	126	96.3	81.6
Csm†	0.285	0.342	0.359	0.601	0.790	2.32	1.72	0.961	0.591	0.448	0.343	0.290
In.†	0.33	0.38	0.41	0.69	0.82	2.68	1.92	1.11	0.66	0.52	0.40	0.32

Calendar year 1961: Max 1,440 Min 80 Mean 277 Mean\* 269 Cfsm† 0.957 In.† 13.02  
Water year 1961-62: Max 1,180 Min 80 Mean 220 Mean\* 212 Cfsm† 0.754 In.† 10.24

Peak discharge (base, 1,500 cfs).--No peak above base.

\* Discharge measurement made on this day.

† Pumpage, in cubic feet per second, from Potomac River for municipal supply of Hagerstown; furnished by city of Hagerstown.

\* Adjusted for pumpage.

b Stage-discharge relation affected by ice.

c Backwater from unknown cause.

## POTOMAC RIVER BASIN

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 1962.

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.--47 years (1895-1908, 1928-62), 2,694 cfs.

Extremes.--Maximum discharge during year, 29,200 cfs Mar. 23 (gage height, 11.75 ft); minimum, 296 cfs Sept. 12 (gage height, 1.09 ft); minimum daily 440 cfs Sept. 16.  
1895-1909, 1928-62: 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. Regulation by hydroelectric plants, particularly that of Potomac Edison Co., half a mile above station

Rating table, water year 1961-62, (gage height, in feet,  
and discharge, in cubic feet per second)

1.3	400	4.0	3,380
1.5	515	6.0	7,600
2.0	900	8.0	13,500
3.0	1,920	12.0	30,500

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	534	1,040	1,310	2,120	1,670	10,900	5,450	* 2,460	1,810	1,210	706	548
2	528	990	1,220	2,050	1,660	8,590	7,430	3,070	1,760	1,080	698	509
3	554	990	1,090	1,890	1,620	6,650	8,140	4,980	1,790	1,160	706	554
4	574	936	1,060	1,860	1,600	5,410	7,020	5,110	1,600	1,280	730	580
5	554	909	1,040	1,840	1,590	4,670	6,040	4,310	2,660	1,400	658	629
6	560	972	972	2,000	1,350	4,570	5,360	3,540	2,540	1,420	666	658
7	580	1,080	909	4,090	1,400	4,290	5,050	3,120	2,100	1,590	698	666
8	580	1,190	945	10,600	1,500	3,950	5,490	2,860	2,010	1,510	762	706
9	580	1,150	909	10,100	1,460	3,610	7,110	2,640	1,790	1,180	865	572
10	554	1,760	927	6,890	1,390	3,360	8,060	2,480	1,500	1,140	794	560
11	534	1,540	954	5,090	1,350	3,310	7,230	2,410	1,410	1,310	722	504
12	522	1,290	1,040	3,950	1,370	4,580	6,530	2,280	1,430	1,360	828	448
13	503	1,230	1,780	3,250	1,380	14,000	7,890	2,190	1,540	1,200	945	528
14	528	1,200	3,650	3,080	1,370	25,000	9,450	2,180	3,180	1,060	738	572
15	515	1,090	3,970	2,900	1,400	21,000	8,820	2,220	2,980	999	690	467
16	528	1,080	2,980	2,900	1,450	16,300	7,470	2,320	2,880	1,110	636	440
17	522	1,040	2,500	2,910	1,460	13,900	6,400	2,200	2,390	1,090	629	473
18	503	1,030	2,480	3,140	1,500	12,800	5,560	2,240	2,070	1,010	706	485
19	509	999	5,490	2,700	1,520	11,700	4,940	2,460	1,600	1,160	690	497
20	503	945	9,570	2,500	1,580	10,600	4,550	2,240	1,760	1,090	629	509
21	528	945	6,710	2,350	1,730	11,800	4,290	2,050	1,880	990	682	503
22	2,320	1,100	4,960	2,250	2,160	21,900	3,990	2,050	2,740	936	615	515
23	9,920	936	3,890	2,180	2,030	26,800	3,630	2,150	2,310	* 855	594	515
24	4,660	999	3,330	* 2,150	2,110	17,800	3,330	2,110	2,020	927	601	491
25	2,960	1,040	2,880	2,090	2,830	12,800	3,090	1,850	1,520	846	650	515
26	2,160	1,010	2,600	2,100	3,160	10,400	2,910	1,670	2,060	837	682	497
27	1,790	1,290	2,320	2,020	7,030	8,650	2,770	1,920	1,740	802	615	528
28	1,540	1,660	2,190	1,900	10,400	7,460	2,640	2,970	1,340	778	587	534
29	1,360	1,540	2,220	1,860	---	6,510	2,520	2,540	1,390	714	* 567	522
30	1,220	1,400	2,250	1,790	---	5,820	2,450	2,180	1,390	978	509	548
31	1,100	---	2,280	1,730	---	5,340	---	2,010	---	690	491	---
Total	40,323	34,381	80,426	98,280	61,070	324,470	165,610	80,810	59,190	33,712	21,089	16,073
Mean	1,301	1,146	2,594	3,170	2,181	10,470	5,520	2,607	1,973	1,087	680	536
Cfs/m	0.428	0.377	0.853	1.04	0.717	3.44	1.82	0.858	0.649	0.358	0.224	0.176
In.	0.49	0.42	0.98	1.20	0.75	3.97	2.03	0.99	0.72	0.41	0.26	0.20

Calendar year 1961: Max 23,800 Min 503 Mean 2,578 Cfs/m 0.848 In. 11.51  
Water year 1961-62: Max 26,800 Min 440 Mean 2,782 Cfs/m 0.915 In. 12.42

Peak discharge (base, 15,000 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-14	1000	11.21	26,600	3-23	0400	11.75	29,200

## POTOMAC RIVER BASIN

81

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 2½ miles downstream from Little Catoctin Creek.

Drainage area.--66.9 sq mi.

Records available.--August 1947 to September 1962.

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

Average discharge.--15 years, 73.3 cfs.

Extremes.--Maximum discharge during year, 1,350 cfs Feb. 26 (gage height, 4.32 ft); minimum, 0.3 cfs Sept. 1 (gage height 0.66 ft).

1947-62: 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, that of Sept. 1, 1962.

Remarks.--Records good except those for periods of ice effect, which are fair, or those for period of backwater from unknown cause, which are poor.

Rating table, water year 1961-62, except periods of ice effect  
or backwater from unknown cause (gage  
height in feet, and discharge, in cubic feet per second)

0.68	0.5	1.0	9.6	1.7	124
.7	.8	1.1	15	2.1	265
.8	2.8	1.2	24	2.5	440
.9	5.6	1.4	52	3.0	690

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	5.0	10	b 21	b 31	329	166	65	24	65	2.5	0.5
2	5.5	5.0	10	b 20	b 31	237	121	* 118	21	57	1.7	1.0
3	7.0	5.0	9.7	b 20	b 31	196	99	87	19	97	2.0	2.4
4	9.0	5.0	9.2	21	b 34	170	91	69	18	14	3.0	3.0
5	9.0	28	8.9	29	b 36	151	87	63	21	10	3.4	10
6	7.0	* 66	8.3	b 210	b 35	142	86	59	27	8.0	4.7	8.3
7	5.5	46	8.1	423	b 23	144	223	56	20	7.0	5.7	4.5
8	5.0	23	b 67	224	b 31	126	257	54	16	6.3	3.6	3.3
9	4.6	13	b 62	150	b 27	114	207	56	14	5.6	3.1	2.7
10	4.2	10	9.9	b 100	b 24	106	178	49	13	5.0	10	2.5
11	3.8	8.7	11	b 76	b 21	107	188	47	13	4.4	1.4	2.0
12	3.5	8.0	66	b 68	b 24	629	235	46	21	4.0	8.0	1.4
13	3.5	7.9	47	b 62	b 24	* 493	330	44	* 22	3.8	4.9	1.2
14	4.5	9.9	b 25	b 60	b 27	387	264	43	19	4.2	3.8	1.2
15	7.0	18	b 17	b 90	31	339	232	40	21	5.4	3.0	1.1
16	7.0	16	b 16	b 95	30	297	200	36	17	7.0	2.5	.9
17	5.5	20	b 20	b 72	38	253	174	35	13	* 7.3	2.1	2.3
18	5.0	18	* b 78	b 60	38	235	156	34	11	8.8	2.2	2.6
19	4.5	12	80	b 52	76	223	141	31	10	21	1.6	1.9
20	4.5	12	60	b 48	66	247	139	29	19	11	1.4	3.1
21	6.0	12	48	b 48	59	435	126	28	23	6.7	1.2	2.5
22	11	12	39	b 42	97	417	109	26	15	5.8	* 1.4	2.6
23	11	11	b 28	52	212	310	98	27	13	6.0	.9	2.6
24	5.0	42	b 31	b 44	531	258	87	64	11	5.7	.9	2.3
25	4.5	34	b 28	* 44	240	219	80	52	11	4.4	.7	2.4
26	4.0	21	b 26	42	637	188	75	31	9.3	4.3	.7	2.9
27	4.0	17	b 25	44	* 683	* 167	71	42	8.8	3.4	.7	4.3
28	4.5	14	b 29	42	510	148	67	34	8.0	3.0	.7	9.2
29	4.5	12	b 25	b 35	-	132	67	31	7.1	2.8	.8	8.0
30	5.0	11	b 22	b 35	-----	119	73	28	6.8	3.1	.8	5.2
31	5.0	-----	b 20	b 25	-----	114	-----	26	-----	3.0	.8	-----
Total	174.6	522.5	828.0	235.4	364.7	743.2	442.7	145.0	472.0	202.9	92.8	97.9
Mean	5.63	17.4	26.7	7.59	130	240	148	46.8	15.7	6.55	2.99	3.26
Cfsm	0.084	0.260	0.399	1.13	1.94	3.59	2.21	0.700	0.235	0.098	0.045	0.049
In.	0.10	0.29	0.46	1.31	2.03	4.13	2.46	0.81	0.26	0.11	0.05	0.05

Calendar year 1961: Max 829 Min 2.9 Mean 64.4 Cfsm 0.963 In. 13.07  
Water year 1961-62: Max 683 Min 0.5 Mean 59.5 Cfsm 0.889 In. 12.06

Peak discharge (base 1,200 cfs)

Date	Time	Gage Height	Discharge
2-26	1430	4.32	1,350

\* Discharge measurement made on this day.  
b Stage-discharge relation affected by ice.  
Note.--Backwater from unknown cause Oct. 1 to Nov. 5.

## POTOMAC RIVER BASIN

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 1962.

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.--67 years, 9,246 cfs.

Extremes.--Maximum discharge during year, 116,000 cfs Mar. 23 (gage height, 19.45 ft); minimum, 996 cfs probably Aug. 29-30 (gage height, 0.64 ft).

1895-1962: Maximum discharge, 480,000 cfs Mar. 19, 1936 (gage height, 41.03 ft), from rating curve extended above 300,000 cfs on basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum, 540 cfs Sept. 10, 1914 (gage height, 0.38 ft). Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks (discharge about 460,000 cfs from rating curve extended as explained above).

Remarks.--Records good. Low flow affected slightly since 1913 by Stony River Reservoir (see p. 64) and since December 1950 by Savage River Reservoir (see p. 67).

Rating table, water year 1961-62 (gage height in feet, and discharge in cubic feet per second)

0.6	920	4.0	12,400
1.0	1,720	7.0	27,000
1.5	2,920	12.0	57,000
2.0	4,490	19.0	112,000

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,350	2,080	3,090	4,980	5,440	70,300	17,600	*8,160	6,710	2,690	1,810	1,130
2	1,290	1,990	2,820	4,700	5,470	49,900	19,200	9,000	6,260	2,540	1,620	1,150
3	1,310	1,990	2,540	4,460	5,120	33,600	20,600	15,500	6,190	2,610	1,620	1,130
4	1,410	1,870	2,480	4,460	4,770	24,100	18,400	19,900	5,440	2,610	1,620	1,210
5	1,450	1,850	2,360	4,420	4,740	19,000	16,200	16,200	5,680	2,740	1,590	1,310
6	1,390	2,170	2,270	5,050	4,560	17,200	14,700	12,700	6,440	2,820	1,510	1,510
7	1,390	2,510	2,060	8,720	5,330	15,700	14,200	10,800	*6,120	3,630	1,430	1,790
8	1,390	2,660	*2,030	19,400	6,190	13,900	22,400	9,690	7,090	4,180	1,660	1,830
9	1,350	2,410	2,060	29,600	6,190	12,900	32,100	8,840	6,900	3,470	1,850	1,740
10	1,410	2,950	2,030	21,200	5,440	12,300	28,600	8,200	5,470	2,920	1,920	1,640
11	1,530	3,760	2,010	14,700	4,940	11,600	24,700	8,040	4,660	2,760	1,940	1,510
12	1,490	3,260	2,240	10,300	4,560	16,200	22,000	7,680	4,290	2,920	1,950	1,430
13	1,410	2,920	2,790	8,280	4,350	37,800	29,200	7,130	4,250	2,310	2,150	1,350
14	1,410	2,660	6,160	7,200	3,820	74,000	43,500	6,860	6,280	2,390	2,050	1,390
15	1,350	2,540	11,500	6,900	3,920	67,400	38,600	6,820	13,000	2,360	1,800	1,210
16	1,290	2,410	9,650	7,440	4,460	52,400	30,100	7,090	10,800	2,460	1,700	1,150
17	1,310	2,340	7,360	7,720	5,050	44,800	24,600	7,320	8,560	2,540	1,600	1,130
18	1,290	2,290	6,670	8,280	5,050	38,300	20,900	6,900	6,740	*2,360	1,550	1,150
19	1,250	2,270	9,080	8,000	5,190	*35,400	18,600	7,280	5,540	2,710	1,550	1,130
20	1,230	2,190	20,100	6,780	5,330	34,000	16,900	7,200	5,190	3,350	1,450	1,130
21	1,290	2,120	20,800	5,970	5,680	35,900	16,000	6,410	4,940	3,200	1,500	1,090
22	1,430	2,190	15,600	*5,650	6,900	77,000	15,100	6,480	5,330	2,950	1,750	1,070
23	10,800	2,190	12,200	5,680	*7,720	112,000	13,900	6,560	5,120	2,760	1,600	1,130
24	7,680	2,190	10,100	5,790	10,100	79,300	12,700	6,590	5,400	2,660	1,500	1,110
25	6,630	2,240	8,560	6,370	27,000	50,800	11,900	6,150	4,560	2,440	1,350	1,110
26	4,770	2,310	7,280	8,040	33,800	40,400	11,100	7,640	4,180	2,270	1,350	1,130
27	3,820	2,760	6,440	7,440	37,700	32,600	10,300	8,720	4,180	1,940	1,200	1,130
28	3,200	3,820	5,860	6,710	58,500	27,100	9,570	7,800	3,380	1,940	1,150	1,210
29	2,820	3,980	5,580	6,520	-	23,300	8,960	7,200	3,060	1,960	1,050	1,210
30	2,340	3,440	5,440	6,450	-----	20,100	8,480	6,900	3,120	2,170	1,100	1,230
31	*2,080	-----	5,350	5,850	-----	18,100	-----	7,130	-----	2,030	*1,130	-----
Total	74,160	76,360	206,510	263,060	287,320	1,197,400	591,110	268,890	174,880	82,690	49,050	38,440
Mean	2,392	2,545	6,662	8,486	10,260	38,630	19,700	8,674	5,829	2,667	1,582	1,281
Cfsm	0.248	0.264	0.690	0.879	1.06	4.03	2.04	0.899	0.604	0.276	0.164	0.133
In.	0.29	0.29	0.80	1.01	1.11	4.61	2.28	1.04	0.67	0.32	0.19	0.15

Calendar year 1961: Max 88,800 Min 1,230 Mean 9,889 Cfsm 1.02 In. 13.92  
 Water year 1961-62: Max 112,000 Min 1,050 Mean 9,068 Cfsm 0.940 In. 12.76

Peak discharge (base, 35,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-1	0830	14.37	74,000	3-23	0900	19.45	116,000
3-14	1530	14.98	78,800	4-14	1330	10.04	44,700

\* Discharge measurement made on this day.

POTOMAC RIVER BASIN

83

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 1962.

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

Average discharge.--20 years, 196 cfs.

Extremes.--Maximum discharge during year, 5,380 cfs Feb. 26 (gage height, 10.83 ft); minimum, 0.7 cfs Aug. 27 (gage height, 1.60 ft).

1942-62: Maximum discharge, 15,000 cfs May 21, 1943 (gage height, 20.53, 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. Occasional regulation at low flow from unknown source above station.

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

1.6	0.7	2.1	10	3.6	268
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	7.0	2,300
2.0	7.7	3.2	148	9.0	3,800

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.9	4.6	15	39	53	913	215	63	35	7.3	4.2	3.6
2	2.7	4.7	14	37	40	351	211	149	38	6.5	3.7	3.1
3	3.2	5.4	13	36	42	225	134	175	23	6.5	3.2	3.1
4	4.0	6.3	13	35	46	181	112	112	17	6.5	3.0	4.1
5	5.3	6.1	*13	38	104	160	103	83	17	6.6	2.8	6.5
6	6.1	8.8	11	342	108	130	99	71	24	7.8	2.7	25
7	5.1	35	11	3700	58	167	1220	65	24	7.2	3.1	17
8	4.9	45	10	1310	51	169	1310	58	16	5.8	3.0	9.5
9	4.6	22	9.5	475	42	154	491	59	13	4.8	17	6.2
10	4.1	14	9.8	150	40	147	385	53	11	4.1	3.6	5.1
11	3.6	10	11	100	34	163	324	50	*9.0	3.1	2.2	4.4
12	3.3	8.4	63	84	33	2210	1070	51	11	2.2	9.8	3.6
13	3.4	7.8	167	63	30	2510	2040	46	25	1.7	7.7	2.8
14	3.6	8.1	62	53	34	1680	623	43	30	2.4	6.5	2.4
15	4.8	9.5	38	109	43	1650	355	41	25	6.4	5.0	2.3
16	7.5	15	24	*414	46	1280	261	36	26	6.7	3.7	2.2
17	6.2	27	28	142	44	863	208	33	16	7.4	3.2	2.3
18	4.7	45	336	97	62	657	181	31	12	15	2.9	2.0
19	4.9	24	589	79	88	444	160	28	10	31	2.2	2.0
20	12	17	343	64	*169	*530	154	26	9.7	*22	1.8	2.9
21	6.5	15	192	49	267	1770	148	25	9.9	14	*1.5	2.7
22	5.9	16	111	61	166	1420	121	21	13	9.4	1.5	2.6
23	5.6	15	69	131	466	551	106	19	12	6.8	1.5	2.9
24	*6.6	97	62	95	3760	374	92	46	139	78	1.4	2.9
25	6.4	120	68	93	1100	281	82	58	39	38	1.4	3.1
26	6.0	47	60	86	2570	231	77	30	19	16	1.1	3.2
27	5.2	31	56	97	2490	198	71	23	14	9.5	.8	4.2
28	4.4	24	65	97	2440	169	67	23	11	7.1	2.6	23
29	4.0	20	45	62	-	148	63	23	9.4	5.9	7.1	58
30	4.7	16	55	73	-----	132	72	23	8.2	5.4	6.7	18
31	4.6	-----	39	50	-----	123	-----	21	-----	4.8	4.8	-----
Total	1568	724.7	2602.3	8261	14,426	19,981	10,555	1,585	666.2	355.9	173.9	230.7
Mean	5.06	24.2	83.9	266	515	645	352	51.1	22.2	11.5	5.61	7.69
Cfs/m	0.029	0.140	0.485	1.54	2.98	3.73	2.04	0.295	0.128	0.066	0.032	0.045
In.	0.03	0.16	0.56	1.78	3.10	4.30	2.27	0.34	0.14	0.08	0.04	0.05

Calendar year 1961: Max 5,050 Min 2.7 Mean 229 Cfs/m 1.32 In. 17.98  
Water year 1961-62: Max 3,760 Min 0.8 Mean 164 Cfs/m 0.948 In. 12.85

Peak discharge (base, 3,800 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	0515	9.61	4,290	3-21	2030	9.44	4,150
2-24	1145	10.07	4,660	4-7	2215	9.41	4,130
2-26	1745	10.83	5,380	4-13	0100	9.57	4,260
3-12	2145	10.29	4,860				

## POTOMAC RIVER BASIN

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 1962. Prior to December 1947 monthly discharge only, published in WSP 1302.

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

Average discharge.--15 years, 106 cfs.

Extremes.--Maximum discharge during year, 3,060 cfs Feb. 26 (gage height, 7.47 ft); minimum, 5.7 cfs Jan. 31, result of freezeup; minimum daily, 13 cfs Sept. 16.

1947-62: 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 24

Feb. 25 to Sept. 30

0.9	18	2.0	198	0.8	13	2.0	214
1.0	26	3.0	522	1.0	28	3.0	520
1.2	48	4.0	970	1.2	50	4.0	970
1.5	95	6.0	2,100	1.5	98	6.0	2,100

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	24	33	b 40	b 42	303	269	83	46	32	28	17
2	22	23	32	b 40	b 47	203	167	112	44	29	25	16
3	27	24	32	b 38	47	167	127	98	41	30	25	20
4	32	25	32	40	51	145	115	* 82	41	36	25	21
5	28	76	* 31	43	60	131	111	76	168	32	29	40
6	25	186	30	b 290	62	140	109	73	145	29	30	31
7	24	116	30	1,070	b 35	147	313	72	52	27	27	20
8	23	56	29	313	b 40	133	335	69	44	27	27	21
9	24	39	b 24	169	b 40	125	225	73	40	26	85	20
10	24	34	34	b 108	b 45	120	187	67	38	22	51	20
11	23	31	34	b 85	b 36	143	193	68	39	23	36	19
12	22	30	99	b 86	b 38	1,540	344	71	* 65	22	29	19
13	22	30	77	b 82	b 38	885	448	65	55	24	27	* 15
14	24	32	b 46	b 74	48	512	260	65	47	22	28	15
15	40	53	b 38	134	50	438	215	62	107	24	26	16
16	28	39	b 32	138	b 50	330	184	58	48	27	23	13
17	25	49	45	* b 84	b 50	259	163	56	42	31	23	15
18	25	41	198	b 67	b 65	219	151	56	39	50	23	19
19	24	35	159	b 62	122	194	141	52	36	* 58	20	18
20	24	35	108	b 60	* 163	* 198	147	53	54	33	21	17
21	25	40	80	b 58	123	407	137	50	57	27	18	17
22	39	36	65	65	122	327	120	47	41	66	19	18
23	31	34	b 52	75	401	216	111	48	75	34	19	16
24	* 26	99	b 55	b 60	1,370	184	102	96	135	81	17	17
25	24	67	b 55	60	347	161	98	70	49	35	17	16
26	24	47	b 45	60	1,380	148	94	53	41	31	16	17
27	23	42	b 45	69	1,120	137	90	54	38	26	* 16	20
28	23	39	b 55	62	560	126	87	52	35	26	37	32
29	23	35	b 45	52	-	117	84	55	33	25	25	25
30	24	34	b 40	55	-----	110	85	49	30	30	20	20
31	24	-----	b 40	b 35	-----	108	-----	49	-----	31	17	-----
Total	792	1,451	1,720	3,674	6,552	8,373	5,212	2,034	1,725	1,016	829	590
Mean	25.6	48.4	55.5	119	234	270	174	65.6	57.5	32.8	26.7	19.7
Cfsm	0.251	0.475	0.544	1.17	2.29	2.65	1.71	0.643	0.564	0.322	0.262	0.193
In.	0.29	0.53	0.63	1.34	2.39	3.05	1.90	0.74	0.63	0.37	0.30	0.22

Calendar year 1961: Max 1,500 Min 20 Mean 108 Cfsm 1.06 In. 14.31  
 Water year 1961-62: Max 1,540 Min 13 Mean 93.1 Cfsm 0.913 In. 12.39

Peak discharge (base, 1,600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	0545	5.99	2,090	3-12	1745	6.99	2,720
2-26	1330	7.47	3,060				

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

POTOMAC RIVER BASIN

85

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 north-west of Thurmont.

Drainage area.--5.93 sq mi.

Records available.--October 1931 to September 1962.

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

Average discharge.--31 years, 8.94 cfs (adjusted for diversion).

Extremes.--Maximum discharge during year, 179 cfs Apr. 7 (gage height, 3.13 ft); minimum, 0.2 cfs Sept. 15, 16 (gage height, 0.94 ft).  
1931-62: 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, 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 1961-62 except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.94	0.2	1.4	1.8	2.0	17
1.0	.3	1.5	2.7	2.2	31
1.1	.5	1.6	4.1	2.5	67
1.2	.8	1.7	6.2	3.0	152
1.3	1.2	1.8	9.0		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.8	1.0	b 1.6	3.4	32	21	9.1	2.6	0.9	0.5	0.3
2	.5	.8	1.0	b 1.5	3.4	b 22	17	16	2.5	.8	.4	.5
3	.7	.8	1.0	b 1.5	3.5	b 18	15	11	2.5	1.4	.4	.6
4	1.0	.9	.9	b 1.8	5.2	b 16	14	* 9.4	2.5	1.4	.5	1.1
5	.6	1.1	.9	2.2	6.0	b 13	13	8.7	3.3	1.1	.5	1.8
6	.5	3.2	*.8	1.8	b 5.2	b 11	13	8.2	3.4	.9	.4	.6
7	.4	3.7	.8	4.1	b 4.0	b 11	5.2	7.6	2.3	1.1	.4	.4
8	.4	1.2	.7	1.5	b 3.2	b 10	3.8	7.9	2.1	1.1	.4	.3
9	.5	.8	b .6	b 8.7	b 3.4	b 10	2.9	7.6	2.0	.8	.7	.3
10	.4	.7	.9	b 5.6	b 3.4	10	2.4	6.8	1.9	.7	2.8	.7
11	.4	.7	1.4	b 4.0	b 3.0	9.4	2.6	6.8	2.0	.6	1.8	.6
12	.4	.7	1.2	b 3.5	b 3.1	5.4	4.1	6.2	* 2.7	.7	.7	.3
13	.4	.7	.6	b 3.3	b 3.1	2.7	4.5	6.2	2.2	.6	.6	.3
14	.6	2.1	b 1.8	b 3.3	3.3	2.4	3.2	5.8	2.2	.7	.6	*.3
15	.8	2.1	b 1.2	b 1.1	3.3	2.2	2.7	5.2	2.6	.8	.5	.2
16	.5	1.6	b 1.0	b 9.4	3.1	2.0	2.2	4.9	1.8	1.4	.4	.2
17	.4	3.1	1.3	b 5.4	3.3	1.9	2.0	4.7	1.6	1.1	.4	.4
18	.4	1.3	8.6	b 4.8	b 3.0	2.1	1.8	4.3	1.4	5.3	.4	.4
19	.4	1.1	7.0	b 4.2	3.3	2.1	1.7	3.8	1.3	* 2.9	.4	.3
20	.5	1.1	5.6	b 4.0	3.4	3.2	1.7	3.8	2.2	1.0	.4	.4
21	.9	1.1	3.5	b 3.8	* 3.3	* 8.9	1.5	3.5	2.0	.9	.3	.3
22	1.3	1.2	2.5	4.7	4.1	7.0	1.4	3.4	1.6	1.3	.3	.3
23	.7	1.2	b 1.7	8.4	7.5	4.9	1.3	3.7	1.7	.9	.3	.3
24	*.6	9.1	b 2.1	b 5.2	3.0	4.0	1.2	7.0	1.7	.9	.3	.3
25	.7	2.5	b 1.9	4.7	1.4	3.3	1.1	4.1	1.4	.8	.3	.3
26	.7	1.7	b 1.7	4.9	4.2	2.9	1.0	3.4	1.2	.8	.3	.4
27	.7	1.4	b 1.7	6.0	5.7	2.5	1.0	3.8	1.1	.6	*.4	1.0
28	.8	1.2	b 2.1	4.9	5.1	2.2	9.4	3.8	1.0	.6	*.9	1.6
29	.8	1.0	b 1.8	b 4.1	-	1.9	9.7	3.5	1.0	.6	.4	.6
30	.8	1.0	b 1.6	b 4.0	-----	1.8	9.4	3.3	1.0	.6	.3	.4
31	.8	-----	b 1.4	b 3.5	-----	1.8	-----	3.0	-----	.6	.3	-----
Total	190	49.9	74.1	204.0	281.5	794.4	615.5	186.5	58.8	33.9	17.3	15.5
Mean	0.61	1.66	2.39	6.58	10.1	25.6	20.5	6.02	1.96	1.09	0.56	0.52
Cfsm	0.103	0.280	0.403	1.11	1.70	4.32	3.46	1.02	0.331	0.184	0.094	0.088
In.	0.12	0.31	0.46	1.28	1.77	4.98	3.86	1.17	0.37	0.21	0.11	0.10

Calendar year 1961: Max 114 Min 0.4 Mean 9.54 Cfsm 1.61 In. 21.82  
Water year 1961-62: Max 89 Min 0.2 Mean 6.44 Cfsm 1.09 In. 14.74

Peak discharge (base, 120 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-21	1600	2.93	139	4-7	1730	3.13	179

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

## POTOMAC RIVER BASIN

1-6410. Hunting Creek at Jintown, Md.

Location.--Lat 39°35'40", long 77°23'50", on right bank just downstream from highway bridge, 0.4 mile southwest of Jintown, Frederick County, about 2½ miles southeast of Thurmont, and 2½ miles upstream from Little Hunting Creek.

Drainage area.--18.4 sq mi.

Records available.--October 1949 to September 1962.

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

Average discharge.--13 years, 24.4 cfs.

Extremes.--Maximum discharge during year, about 430 cfs Mar. 21 (gage height, 3.19 ft); minimum, 1.0 cfs Aug. 27 (gage height 1.23 ft)

1949-62: Maximum discharge, 1,170 cfs Sept. 1, 1952 (gage height, 4.94 ft), from rating curve extended above 500 cfs by logarithmic plotting; minimum, 1.0 cfs Aug. 1, 2, 1954, Sept. 5, 1957, Aug. 27, 1962.

Remarks.--Records good except those for periods of ice effect, or doubtful gage-height record, which are fair. Slight regulation at irregular intervals caused by pumpage at recreation camp near Foxville.

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 21

Mar. 21 to Sept. 30

1.26	1.6	1.8	52	1.23	1.0	1.6	26
1.3	2.6	2.0	89	1.3	2.7	1.8	54
1.4	7.0	2.5	213	1.4	7.4	2.0	89
1.5	15	3.0	367	1.5	16	2.5	213
1.6	24						

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	3.4	4.0	b 5.8	b 10	94	d 57	29	8.5	3.2	1.9	1.2
2	2.1	3.3	4.0	b 5.6	11	65	d 42	45	7.6	3.1	1.7	1.7
3	2.7	3.6	3.5	b 5.6	10	b 51	d 38	34	6.9	5.0	1.8	2.1
4	3.6	4.1	3.6	b 6.2	13	b 44	d 36	* 29	7.0	5.4	2.5	3.7
5	2.6	8.7	* 3.4	8.1	16	b 39	d 35	26	7.9	3.9	2.3	6.5
6	2.1	12	3.3	d 87	b 15	b 37	35	25	8.6	3.4	2.4	2.5
7	2.0	17	3.2	d 108	b 8.2	b 37	113	24	6.6	3.2	2.4	1.8
8	2.0	5.3	b 2.6	b 4.0	b 11	b 32	80	23	6.0	3.7	2.0	1.6
9	2.0	3.8	2.3	b 2.5	b 10	31	68	23	5.6	3.0	2.7	1.6
10	1.9	3.3	3.0	b 1.5	b 9.0	31	57	21	5.5	2.5	5.9	1.6
11	1.7	3.0	4.3	b 1.2	b 8.0	32	62	20	5.5	2.3	5.1	1.5
12	1.8	2.9	3.7	b 1.0	b 9.0	d 162	135	20	* 8.0	2.4	2.6	1.4
13	1.8	2.9	1.6	b 9.5	b 9.0	d 113	136	19	6.9	2.3	2.1	1.3
14	2.5	3.8	b 7.5	b 9.0	b 1.2	d 88	89	18	6.6	2.4	2.0	1.4
15	3.0	5.8	b 5.8	b 2.7	1.2	d 71	73	17	7.5	2.6	1.7	1.3
16	2.9	5.6	b 4.4	2.9	1.1	d 62	61	15	5.8	3.3	1.6	1.3
17	2.3	9.1	6.4	* 1.9	1.4	d 54	54	14	4.9	3.8	1.6	2.0
18	2.3	5.4	4.1	b 1.5	1.4	d 52	51	13	4.4	1.2	1.5	2.0
19	2.3	4.1	2.6	b 1.3	2.1	d 53	48	12	4.0	* 1.0	1.4	2.0
20	2.3	4.8	1.9	b 1.2	1.9	d 70	49	11	8.1	3.8	1.4	2.0
21	3.7	4.8	1.4	b 1.2	* 1.5	d 238	43	10	7.2	3.3	1.4	1.8
22	4.7	4.5	1.0	1.5	2.0	d 171	39	10	5.1	7.4	1.3	1.7
23	2.9	4.2	b 7.5	2.0	4.4	d 104	36	10	8.6	3.8	1.3	1.8
24	2.3	3.5	b 8.5	1.5	1.22	d 83	34	25	8.2	3.0	1.2	1.7
25	2.5	1.1	7.6	1.4	5.7	d 69	33	15	5.3	2.7	1.2	1.7
26	3.0	6.9	7.2	1.4	d 163	d 62	32	10	4.4	2.7	1.2	1.9
27	3.1	5.9	7.0	1.6	d 179	d 55	30	12	4.0	2.3	* 1.2	4.6
28	3.1	5.0	9.6	1.4	* d 149	d 51	29	11	3.6	2.2	1.8	6.2
29	3.2	4.4	b 7.0	1.2	-	d 45	32	10	3.6	2.2	1.6	2.9
30	3.3	4.0	b 6.0	b 1.1	-----	d 43	30	10	3.4	2.3	1.3	2.1
31	3.4	-----	b 5.6	b 8.0	-----	d 42	-----	9.5	-----	2.2	1.2	-----
Total	81.0	197.6	290.3	612.8	991.2	2181	1657	570.5	185.3	115.4	61.3	66.9
Mean	2.61	6.59	9.36	19.8	35.4	70.4	55.2	18.4	6.18	3.72	1.98	2.23
Cfsm	0.142	0.358	0.509	1.08	1.92	3.83	3.00	1.00	0.336	0.202	0.108	0.121
In.	0.16	0.40	0.59	1.24	2.00	4.41	3.35	1.15	0.37	0.23	0.12	0.14

Calendar year 1961: Max 307 Min 1.7 Mean 23.9 Cfsm 1.30 In. 17.64  
 Water year 1961-62: Max 238 Min 1.2 Mean 19.2 Cfsm 1.04 In. 14.16

Peak discharge (base, 350 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1100	+3.0	+380	3-21	1500	+3.2	+430

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

POTOMAC RIVER BASIN

87

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 1962.

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

Average discharge.--15 years, 11.1 cfs.

Extremes.--Maximum discharge during year, about 110 cfs Mar. 21 (gage height, 2.35 ft); minimum, 0.8 cfs

Aug. 31, Sept. 1, 13, 14, 15, 16, 17 (gage height 1.14 ft).

1947-62: 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, doubtful gage-height record, or backwater from cofferdam, which are fair.

Rating table, water year 1961-62, except periods of ice effect or backwater from cofferdam (gage height, in feet, and discharge, in cubic feet per second)

1.14	0.8	1.6	16
1.2	1.6	1.8	31
1.3	3.3	2.0	52
1.4	6.1	2.3	98
1.5	10		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	1.2	1.4	1.7	5.4	47	25	15	6.1	2.7	1.7	0.9
2	1.4	1.2	1.4	1.7	5.4	39	20	19	5.8	2.5	1.6	1.2
3	1.6	1.2	1.2	1.7	5.8	33	19	15	5.8	4.0	1.7	1.4
4	1.6	1.2	1.2	1.8	6.1	29	18	14	5.8	3.3	1.8	2.2
5	1.2	4.1	1.2	2.0	6.4	26	17	* 13	5.4	2.9	1.8	3.3
6	1.2	4.0	1.2	9.3	6.1	25	17	13	5.4	2.9	2.2	1.4
7	1.2	3.3	1.2	13	b 5.1	22	d 29	13	4.8	2.9	2.2	1.2
8	1.2	1.7	1.2	9.2	b 5.1	20	d 29	13	4.8	2.7	1.7	1.1
9	1.1	1.6	1.2	7.6	5.4	19	d 28	13	4.6	2.5	1.7	1.2
10	1.1	1.4	1.3	b 6.3	5.4	17	d 27	12	4.3	2.3	2.7	1.2
11	1.1	1.4	1.6	b 5.4	b 4.8	17	d 29	11	4.3	2.3	2.5	1.2
12	1.1	1.2	5.0	b 5.4	5.1	34	d 37	11	5.4	2.3	1.7	c 1.1
13	1.0	1.2	2.2	5.4	b 5.1	31	d 51	11	* 4.8	2.3	1.7	c 1.0
14	1.4	1.7	1.7	5.1	5.4	31	d 45	10	4.6	2.3	1.7	c .9
15	1.4	1.8	1.6	8.0	5.4	31	d 41	9.7	4.8	2.3	1.6	c .9
16	1.1	1.8	1.4	7.2	5.1	30	d 37	9.7	4.0	2.7	1.6	c .8
17	1.1	2.3	1.6	6.1	5.1	29	d 33	9.2	3.8	2.5	1.4	c 1.4
18	1.1	1.6	3.4	* 5.8	4.8	29	d 31	9.2	3.6	4.0	1.4	c 1.1
19	1.1	1.6	* 2.9	5.8	5.1	29	d 27	8.8	3.6	3.3	1.2	c .9
20	1.1	1.6	2.7	6.1	5.1	33	d 26	8.4	5.1	* 2.3	1.2	c 1.0
21	1.8	1.6	2.3	5.8	* 5.1	d 65	22	8.0	4.3	2.5	1.2	c .9
22	2.0	1.6	2.2	6.1	5.4	* d 87	21	7.6	3.8	2.5	1.2	c .9
23	1.4	1.6	2.0	7.2	7.3	d 70	20	7.6	3.8	2.2	1.1	c .9
24	1.2	5.7	2.2	6.4	18	d 52	19	12	3.6	2.2	1.1	c .9
25	* 1.1	2.2	2.0	6.4	13	d 43	18	8.4	3.3	2.2	1.1	c .9
26	1.0	1.7	2.0	6.4	25	* d 38	17	7.6	3.3	2.2	1.1	c .9
27	1.0	1.6	2.0	6.4	41	d 34	16	9.7	2.9	2.0	1.2	c 1.8
28	1.1	1.4	2.2	6.1	49	d 30	16	7.6	2.9	2.0	* 1.1	c 1.9
29	1.1	1.4	2.0	6.1	-	d 26	16	7.2	2.9	2.0	1.1	1.1
30	1.1	1.4	1.8	6.1	-----	d 25	15	6.8	2.9	2.0	1.0	1.1
31	1.2	-----	1.7	5.8	-----	d 23	-----	6.4	-----	2.0	.9	-----
Total	38.3	57.3	59.0	183.4	271.0	1.064	766	326.9	130.5	78.8	47.2	36.7
Mean	1.24	1.91	1.90	5.92	9.68	34.3	25.5	10.5	4.35	2.54	1.52	1.22
Cfs/m	0.170	0.262	0.261	0.812	1.33	4.71	3.50	1.44	0.597	0.348	0.209	0.167
In.	0.20	0.29	0.30	0.94	1.38	5.43	3.91	1.67	0.67	0.40	0.24	0.19

Calendar year 1961: Max 58

Min 1.0

Mean 9.41

Cfs/m 1.29

In. 17.54

Water year 1961-62: Max 87

Min 0.8

Mean 8.38

Cfs/m 1.15

In. 15.62

Peak discharge (base, 100 cfs)

Date	Time	Gage height	Discharge
3-21	1900	†2.35	†110

\* Discharge measurement made on this day.

† About.

b Stage-discharge relation affected by ice.

c Backwater from cofferdam.

d Doubtful gage-height record.

## POTOMAC RIVER BASIN

1-6425. Linganore Creek near Frederick, Md.

Location.--Lat 39°24'55", long 77°20'00", on left bank 2½ miles upstream from mouth and 4 miles east of Frederick, Frederick County.

Drainage area.--82.3 sq mi.

Records available.--November 1931 to March 1932, September 1934 to September 1962.

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

Average discharge.--28 years (1934-62), 82.9 cfs.

Extremes.--Maximum discharge during year, 1,790 cfs Feb. 26 (gage height, 6.88 ft); minimum, 8.0 cfs Sept. 16 (gage height, 1.46 ft).

1931-32, 1934-62: 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Feb. 27				Feb. 28 to Sept. 30			
1.6	12	3.0	125	1.47	8.2	3.0	136
1.8	18	3.5	232	1.6	12	3.5	238
2.0	26	4.0	365	1.8	18	4.0	368
2.2	36	5.0	726	2.0	28	5.0	726
2.5	58			2.2	38	6.0	1,280
				2.5	64		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	16	18	b 26	b 29	201	229	80	46	26	16	8.7
2	15	16	19	b 24	30	148	144	139	42	24	14	8.9
3	20	16	19	b 23	30	127	120	98	40	31	14	11
4	22	16	18	b 25	32	114	112	83	40	39	15	12
5	17	22	18	b 27	35	107	108	* 76	43	29	17	24
6	17	28	17	b 250	37	130	106	73	73	26	16	16
7	16	48	17	474	b 25	123	193	70	42	24	15	12
8	15	25	16	159	b 31	112	171	68	38	23	15	12
9	16	20	b 15	97	b 30	109	146	71	36	21	14	11
10	15	18	20	61	b 28	109	128	64	34	19	15	11
11	14	18	21	b 52	b 26	131	133	65	34	19	32	11
12	14	17	85	b 61	b 28	1,140	237	63	45	19	18	92
13	14	18	44	56	28	473	350	61	* 46	19	16	90
14	17	20	28	47	33	327	215	60	41	18	15	8.7
15	29	26	25	72	36	270	192	57	49	22	14	8.5
16	17	21	23	74	37	228	164	53	38	22	13	8.2
17	16	27	31	49	b 35	194	147	52	34	25	13	9.7
18	16	22	* 160	44	b 40	171	138	51	32	* 84	13	12
19	16	19	73	40	126	158	131	48	30	67	12	10
20	15	21	49	39	108	165	130	46	56	27	12	11
21	19	24	39	38	77	290	121	45	57	23	11	10
22	36	21	33	39	* 102	229	112	43	37	23	* 12	98
23	19	20	b 28	45	129	180	106	45	35	21	11	10
24	17	71	b 34	* 37	308	160	98	145	36	39	11	10
25	* 17	34	b 29	36	136	145	95	57	32	22	10	10
26	16	25	b 27	36	660	* 136	91	50	30	22	10	11
27	16	23	b 30	40	615	128	87	88	34	18	9.9	13
28	15	21	34	36	324	118	84	55	28	17	11	24
29	16	19	b 29	32	--	112	83	53	27	17	11	14
30	16	19	b 28	33	----	105	82	49	27	18	9.7	12
31	17	-----	b 25	b 26	----	104	-----	47	-----	17	9.0	-----
Total	539	711	1,052	2,098	3,155	6,244	4,253	2,055	1,182	821	424.6	347.7
Mean	17.4	23.7	33.9	67.7	113	201	142	66.3	39.4	26.5	13.7	11.6
Cfsm	0.211	0.288	0.412	0.823	1.37	2.44	1.73	0.806	0.479	0.322	0.166	0.141
In.	0.24	0.32	0.48	0.95	1.43	2.82	1.92	0.93	0.53	0.37	0.19	0.16

Calendar year 1961: Max 1,070 Min 14 Mean 86.8 Cfsm 1.05 In. 14.31  
 Water year 1961-62: Max 1,140 Min 8.2 Mean 62.7 Cfsm 0.762 In. 10.34

Peak discharge (base, 1,400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1400	6.88	1,790	3-12	1745	6.83	1,760

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

1-6430. Monocacy River at Jug Bridge near Frederick, Md.

Location.--Lat. 39°24'13", long 77°21'58", on right bank a quarter of a mile upstream from Jug Bridge on U. S. Highway 40, 0.35 mile downstream from Linganore Creek, and 2½ miles east of Frederick, Frederick County.

Drainage area.--817 sq mi.

Records available.--October 1929 to September 1962. 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.--33 years, 896 cfs.

Extremes.--Maximum discharge during year, 11,900 cfs Feb. 13 (gage height, 12.97 ft); minimum, 61 cfs Sept. 16 (gage height 1.66 ft).  
1929-62: 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.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	134	171	307	324	4,630	1,470	576	286	131	123	78
2	92	126	162	266	315	2,290	1,550	780	282	120	120	78
3	110	126	156	259	282	1,620	1,070	914	303	139	120	83
4	126	131	154	247	303	1,360	907	729	282	159	*123	92
5	126	154	154	278	351	1,210	846	593	290	151	120	162
6	123	585	151	b 1,070	485	1,160	806	522	777	139	120	148
7	110	510	142	6810	346	1,130	1,530	490	414	131	123	134
8	108	465	134	5800	278	1,160	5,080	465	270	128	115	115
9	108	286	128	2,310	294	1,100	2,300	470	229	131	108	100
10	108	209	134	b 1,160	251	1,010	2,010	445	205	120	195	90
11	102	171	145	b 640	b 225	1,080	1,630	420	196	112	278	85
12	102	154	475	b 590	b 220	5,020	2,340	415	222	112	190	76
13	102	145	879	b 580	b 200	10,100	6,830	410	* 311	110	131	72
14	123	156	560	b 575	b 220	6,070	3,530	392	255	108	110	67
15	139	174	328	b 650	b 260	4,840	2,300	374	286	112	98	67
16	137	216	219	1,510	b 285	4,450	1,890	346	320	112	90	65
17	128	233	247	1,070	b 310	2,810	1,590	324	229	120	85	83
18	112	255	859	b 630	420	2,530	1,400	315	202	* 194	83	78
19	115	247	2,160	b 515	732	2,050	1,280	294	183	294	76	74
20	112	216	* 1,390	470	1,210	2,010	1,200	278	226	240	74	81
21	128	199	1,020	405	1,270	3,000	1,200	274	286	165	72	74
22	168	196	675	405	* 991	* 6,930	1,030	263	244	134	* 74	69
23	159	183	505	* 516	1,620	3,440	914	266	209	177	67	69
24	145	613	410	566	7,080	2,490	813	486	710	156	67	72
25	126	852	396	480	5,840	2,010	742	510	601	236	65	69
26	* 123	485	382	495	4,860	1,690	711	392	294	216	65	78
27	120	320	351	480	9,400	1,440	663	420	233	151	65	85
28	115	259	430	505	7,950	1,260	621	338	177	126	67	123
29	115	216	324	415	-	1,140	593	* 315	151	118	83	148
30	115	186	b 295	378	-----	1,040	593	307	137	118	120	190
31	126	-----	b 300	282	-----	977	-----	294	-----	118	92	-----
Total	3,718	8,202	13,836	30,664	46,322	83,047	49,439	13,417	8,810	4,578	3,319	2,805
Mean	120	273	446	989	1,654	2,679	1,648	433	294	148	107	93.5
Cfsm	0.147	0.334	0.546	1.21	2.02	3.28	2.02	0.530	0.360	0.181	0.131	0.114
In.	0.17	0.37	0.63	1.40	2.11	3.78	2.25	0.61	0.40	0.21	0.15	0.13

Calendar year 1961: Max 10,800 Min 92 Mean 916 Cfsm 1.12 In. 15.21

Water year 1961-62: Max 10,100 Min 65 Mean 735 Cfsm 0.900 In. 12.21

Peak discharge (base, 8,800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	2230	11.09	9,080	3-13	0900	12.97	11,900
2-27	0630	12.43	11,000				

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

## POTOMAC RIVER BASIN

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 1962.

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.--32 years, 93.3 cfs.

Extremes.--Maximum discharge during year, 1,920 cfs Mar. 12 (gage height, 6.83 ft); minimum, 14 cfs Sept. 16-17 (gage height 1.77 ft).

1930-62: Maximum discharge, 15,000 cfs July 21, 1956 (gage height, 12.17 ft), from rating curve extended above 2,700 cfs on basis of contracted-opening and flow-over-road measurement at gage height 9.78 ft; minimum observed, 1.7 cfs Sept. 28, 29, 1930 (gage height, 0.56 ft).

Remarks.--Records good except those for periods of ice effect which are fair. Small diversion for irrigation above station.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.7	11	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 1961 to September 1962

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	30	36	54	*b 45	*188	291	*88	67	45	30	15
2	27	30	36	47	45	137	163	223	61	42	29	15
3	28	30	36	45	47	117	126	120	57	50	28	17
4	30	32	35	47	48	106	114	101	59	57	28	20
5	27	32	35	52	50	104	109	92	65	48	29	26
6	26	32	33	b 250	54	166	104	87	75	43	29	24
7	25	66	33	306	b 32	163	166	82	59	42	32	21
8	24	42	33	126	b 40	137	156	82	56	39	29	20
9	24	36	33	94	b 45	131	128	84	54	36	33	19
10	24	35	40	b 65	b 42	137	114	78	52	33	30	19
11	24	33	45	b 60	b 30	195	123	78	52	32	29	18
12	22	33	138	b 60	b 40	1450	190	78	59	32	28	15
13	23	35	76	b 55	b 38	488	357	78	255	32	27	15
14	28	39	54	b 50	b 48	262	198	76	89	33	26	15
15	47	47	46	b 75	67	202	160	72	135	42	25	15
16	27	40	b 42	94	b 65	173	140	69	69	48	23	15
17	25	43	65	63	61	153	128	67	59	47	23	19
18	25	37	b 220	57	78	137	123	67	56	43	21	22
19	25	36	114	56	179	128	120	63	103	58	20	18
20	25	40	80	56	150	131	117	59	287	37	20	19
21	65	43	67	52	106	291	109	56	138	35	20	18
22	79	40	61	57	128	236	104	54	80	42	20	17
23	36	39	57	65	140	160	99	73	72	62	18	20
24	32	102	61	57	150	140	94	263	72	175	18	22
25	32	61	56	56	117	128	92	82	61	43	17	20
26	29	47	52	56	521	123	89	69	57	42	16	20
27	29	43	b 50	56	426	114	87	296	52	35	16	26
28	29	40	67	54	301	109	84	89	48	33	16	30
29	29	39	b 54	50	-	104	84	76	*47	32	16	23
30	29	*36	b 54	50	-----	*101	84	69	47	33	15	22
31	30	-----	47	b 40	-----	101	-----	*67	-----	*33	*15	-----
Total	950	1,245	1,856	2,305	3,093	6,312	4,053	2,938	2,440	1,404	726	585
Mean	30.6	41.5	59.9	74.4	110	204	135	94.8	81.3	45.3	23.4	19.5
Cfsm	0.303	0.411	0.593	0.737	1.09	2.02	1.34	0.939	0.805	0.449	0.232	0.193
In.	0.35	0.46	0.68	0.85	1.14	2.33	1.49	1.08	0.90	0.52	0.27	0.22

Calendar year 1961: Max 1,150 Min 22 Mean 106 Cfsm 1.05 In. 14.19  
 Water year 1961-62: Max 1,450 Min 15 Mean 76.5 Cfsm 0.757 In. 10.29

Peak Discharge (base 1,300 cfs)

Date	Time	Gage height	Discharge
3-12	1300	6.83	1,920

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

POTOMAC RIVER BASIN

91

1-6452, Watts Branch at Rockville, Md.

Location.--Lat 39°05'03", long 77°10'38" on left bank 0.2 mile south of State Highway 28, and 1.3 miles west of post office in Rockville, Montgomery County.

Drainage area.--3.70 sq mi.

Records available.--June 1957 to September 1962.

Gage.--Water-stage recorder (digital) and concrete control. Altitude of gage is 330 ft (from topographic map).

Average discharge.--5 years, 3.31 cfs.

Extremes.--Maximum and minimum discharges for the water years 1958-62 are contained in the following table.

Water year	Maximum			Minimum		
	Date	Discharge (cfs)	Gage height (feet)	Date	Discharge (cfs)	Gage height (feet)
1958	July 8, 1958	1,220	4.98	Oct. 1, 1957	0.3	1.14
1959	Sept. 2, 1959	278	4.07	(a)	0.3	1.14
1960	July 13, 1960	1,400	5.10	Oct. 2-8, 1959	0.6	1.18
1961	Apr. 13, 1961	454	4.33	Sept. 29, 30, 1961	0.6	1.18
1962	Mar. 12, 1962	180	3.80	Aug. 30, 1962	0.2	1.125

a Occurred Aug. 2, 3, 4, 17, 28, 29, Sept. 23-24, 1959.

1957-62: Maximum discharge, 1,400 cfs July 13, 1960 (gage height, 5.10 ft), from rating curve extended above 160 cfs on basis of velocity-area studies

Remarks.--Records good except those for periods of ice effect, fragmentary gage-height record, or those above 160 cfs, which are fair, or those for periods of no gage-height record, which are poor.

Rating table, Oct. 1, 1957, to Sept. 30, 1962 except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.1	0.1	1.7	20
1.2	.8	2.0	41
1.3	2.2	2.5	68
1.4	4.6	3.0	99
1.5	8.4	3.5	140

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*0.4	*0.4	0.6	2.0	3.2	4.8	6.2	*3.8	4.9	1.8	*7.3	1.7
2	.4	.5	.7	b1.6	2.6	4.0	4.8	3.5	4.0	1.6	3.0	1.6
3	.4	.4	.8	1.4	*2.4	4.0	4.6	4.0	2.4	1.6	3.4	1.6
4	.4	.4	1.1	b1.3	b2.3	3.8	4.6	1.2	*2.4	a1.5	6.6	1.6
5	.4	.4	.9	b1.3	b2.3	3.2	4.2	2.2	2.2	a1.4	2.8	1.6
6	*2.3	.4	1.1	1.4	2.8	3.0	2.5	1.3	2.2	a1.4	2.6	1.6
7	.7	.4	9.4	1.4	1.2	2.8	8.9	1.4	2.2	a4.5	2.4	1.6
8	.4	.5	4.8	1.3	4.8	2.8	5.4	6.6	2.2	13.9	2.4	1.4
9	.4	.6	*5.1	1.3	b2.6	2.6	4.8	4.8	2.2	7.6	2.2	1.4
10	.4	.5	2.2	1.1	b2.4	2.6	*4.6	4.2	1.5	3.5	2.0	1.4
11	.4	.4	1.7	1.1	b2.2	2.6	7.1	6.2	f2.5	8.8	2.0	1.4
12	.4	.4	1.3	1.0	b2.2	2.4	5.4	4.6	f3.5	2.0	2.8	1.4
13	.4	.4	1.1	1.0	b2.1	2.6	4.6	3.5	f7.0	6.2	2.8	1.4
14	.4	.9	1.3	3.7	b1.9	3.5	4.0	3.2	f3.0	3.1	2.4	1.4
15	.4	.9	1.3	4.8	b1.9	4.8	3.8	3.2	f2.6	4.6	2.4	1.4
16	.4	.6	1.3	2.8	b1.8	3.8	3.8	3.2	f2.4	3.5	2.4	1.3
17	.4	.6	1.3	2.4	b1.5	3.5	3.8	3.0	f2.0	3.2	2.0	1.6
18	.7	.6	1.3	2.0	b1.5	3.0	3.5	3.2	f2.2	3.2	1.8	1.7
19	.4	1.7	1.3	1.7	b1.8	4.2	3.5	3.8	f2.2	3.2	1.7	1.3
20	.4	.8	*3.1	1.6	b2.1	1.2	3.5	3.8	f1.4	2.8	1.7	1.3
21	.4	.7	8.1	2.6	*b2.3	1.2	3.8	3.0	5.7	3.0	1.7	3.6
22	.4	.7	2.6	9.9	2.6	1.8	4.0	2.6	3.8	5.5	1.7	1.7
23	.4	.8	2.2	3.0	3.2	2.1	4.0	2.6	3.0	1.0	1.8	1.4
24	.6	.7	1.8	2.6	4.8	1.1	3.8	2.6	2.6	4.2	3.1	1.3
25	.4	.7	1.6	2.6	6.6	2.8	3.5	3.0	2.4	3.5	5.6	1.3
26	.4	.7	3.6	4.8	4.8	2.8	3.2	2.8	5.2	3.2	2.4	1.3
27	.4	.7	4.2	3.5	2.4	1.7	5.0	2.6	3.2	3.2	2.0	1.3
28	.4	.7	3.0	3.0	8.9	8.0	1.3	2.6	2.4	2.8	1.8	1.3
29	.4	.7	2.4	2.8	-	5.8	4.8	2.6	2.2	2.6	1.7	1.3
30	.4	.7	2.2	2.6	-----	5.8	4.0	2.2	2.0	2.6	1.7	1.3
31	.4	-----	2.2	2.4	-----	1.3	-----	2.2	-----	5.0	1.7	-----
Total	15.1	18.9	135.9	132.7	113.6	243.6	165.2	154.4	136.1	345.5	81.9	45.5
Mean	0.49	0.63	4.38	4.28	4.06	7.86	5.51	4.98	4.54	11.1	2.64	1.52
Cfsm	0.132	0.170	1.18	1.16	1.10	2.12	1.49	1.35	1.23	3.00	0.714	0.411
In.	0.15	0.19	1.37	1.33	1.14	2.45	1.66	1.55	1.37	3.47	0.82	0.46

Calendar year 1957: Max - Min - Mean - Cfsm - In. -  
 Water year 1957-58: Max 139 Min 0.4 Mean 4.35 Cfsm 1.18 In. 15.96

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
12-20	1715	3.55	145	7-8	1730	4.98	1,220
12-26	0900	3.58	148	7-14	0330	4.09	286
1-14	1415	3.54	144	7-22	2200	4.76	902
6-10	1730	3.78	176				

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

## POTOMAC RIVER BASIN

1-6452, Watts Branch at Rockville, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	*1.1	1.4	5.5	1.7	1.8	1.8	1.7	1.3	0.8	0.5	8.9
2	1.6	2.8	1.4	6.6	b 1.5	1.7	4.3	1.7	4.1	.7	.4	2.3
3	1.4	2.8	1.6	2.2	b 1.5	1.7	3.4	1.8	2.0	.6	.4	1.8
4	1.4	1.6	4.4	2.0	2.8	1.7	1.2	1.7	1.4	.5	.4	.7
5	1.3	1.4	1.8	b 1.4	3.2	1.7	3.2	1.6	2.4	.5	.8	.6
6	1.3	1.4	1.7	b 1.4	2.0	9.8	2.6	1.6	1.7	.6	.4	.6
7	1.3	1.4	1.6	b 1.3	1.8	3.0	2.2	* 1.4	1.4	.6	.4	.6
8	1.3	1.4	b 1.6	b 1.3	1.8	2.4	2.2	1.4	1.1	*.4	* 1.8	.6
9	1.3	1.4	b 1.6	b 1.3	1.7	2.2	2.2	1.4	1.1	.4	1.1	.6
10	1.1	1.4	b 1.5	b 1.3	2.0	2.2	2.4	1.4	1.1	.7	.7	.6
11	1.0	1.4	b 1.4	1.3	* 1.8	2.2	6.6	1.4	1.0	.7	.6	.5
12	1.0	1.4	1.4	1.3	1.6	6.4	6.4	2.7	1.4	.6	.6	.5
13	1.1	1.4	1.4	1.4	5.1	3.0	5.8	6.4	2.3	.7	.5	.5
14	1.1	1.4	1.3	1.4	5.2	2.6	3.8	2.4	1.3	.7	.5	.5
15	1.3	1.6	1.3	1.7	3.8	2.4	3.0	1.7	1.0	.8	.4	.5
16	1.1	1.6	b 1.2	b 1.8	2.8	2.2	2.8	1.7	1.0	.8	.4	.4
17	1.1	1.6	1.3	b 1.2	2.6	2.0	2.6	1.6	1.1	.6	.4	.4
18	1.1	1.6	1.4	b 1.2	2.4	1.8	2.4	1.6	1.1	.6	.4	.4
19	1.1	1.4	1.4	b 1.3	2.0	1.8	2.4	4.7	1.0	1.7	.4	.4
20	1.1	1.4	1.4	4.6	b 1.7	1.8	2.4	2.2	.9	1.8	.4	.4
21	1.1	1.4	1.3	5.8	1.8	1.8	2.2	1.7	.9	.9	.4	.4
22	3.0	1.4	1.3	8.7	1.8	1.7	2.2	1.6	.9	.6	.4	.4
23	1.8	1.4	1.4	2.4	2.2	1.7	2.2	2.6	.9	.5	.7	.3
24	1.4	1.4	1.6	2.2	2.2	1.7	2.2	1.7	.8	.9	.5	.3
25	1.3	1.4	1.4	2.0	1.8	1.7	2.0	1.4	1.5	.7	.4	.4
26	1.3	1.4	b 1.3	2.0	1.8	1.6	2.0	1.4	1.4	.5	.4	.4
27	1.3	1.4	1.4	2.0	1.8	2.0	2.0	1.4	.9	.4	.4	.4
28	1.1	4.2	1.4	1.8	1.8	2.0	2.8	1.3	.8	.4	.4	.4
29	1.1	3.2	2.2	1.8	-	1.8	2.2	1.1	.7	.4	.4	*.6
30	1.1	1.6	2.6	2.0	-----	2.2	2.0	1.1	.7	.4	.4	1.1
31	1.1	-----	2.0	1.8	-----	2.0	-----	1.1	-----	.7	.4	-----
Total	40.8	50.3	50.0	74.0	64.2	74.6	96.3	58.5	39.2	21.2	32.5	47.2
Mean	1.32	1.68	1.61	2.39	2.29	2.41	3.21	1.89	1.31	0.68	1.05	1.57
Cfsm	0.357	0.454	0.435	0.646	0.619	0.651	0.868	0.511	0.354	0.184	0.284	0.424
In.	0.41	0.51	0.50	0.74	0.65	0.75	0.97	0.59	0.39	0.21	0.33	0.47

Calendar year 1958: Max 139 Min 1.0 Mean 4.27 Cfsm 1.15 In. 15.67  
 Water year 1958-59: Max 23 Min 0.3 Mean 1.78 Cfsm 0.481 In. 6.52

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
8-8	1030	3.46	136	9-2	0015	4.07	278

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

## POTOMAC RIVER BASIN

93

1-6452. Watts Branch at Rockville, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.1	0.8	1.8	2.2	2.2	2.8	3.2	3.5	* 3.0	2.4	* 1.7	1.6
2	.6	.8	1.7	2.2	2.0	b 2.7	3.0	* 2.8	1.0	2.2	1.7	1.6
3	.6	.8	1.7	1.4	1.8	b 2.5	9.8	2.6	4.0	2.0	2.0	1.4
4	.6	.8	1.6	3.5	1.8	b 2.4	2.3	2.4	3.2	1.8	5.3	1.3
5	.6	.8	1.6	2.8	2.5	b 2.4	3.7	2.6	2.8	1.6	2.4	1.4
6	.6	.9	1.8	2.6	7.7	b 2.3	8.4	2.4	2.8	1.6	1.8	1.4
7	.6	2.2	5.7	2.6	2.8	b 2.2	5.4	2.4	2.6	1.4	1.8	1.4
8	2.6	1.0	2.2	2.4	2.4	b 2.2	4.8	1.2	2.4	1.4	1.7	1.3
9	5.4	.8	1.8	* 2.0	* 2.4	b 2.2	4.2	* 1.3	2.4	1.4	1.6	1.6
10	1.4	.8	1.7	2.0	2.2	b 2.4	3.8	4.2	2.2	1.8	1.7	1.7
11	1.1	.8	1.7	2.0	3.2	b 2.3	3.8	4.8	2.2	1.1	1.6	1.8
12	.9	.8	8.2	2.4	2.4	b 2.6	3.5	7.9	2.2	2.4	1.6	* 3.7
13	1.1	.8	3.5	3.2	b 2.2	b 2.7	3.2	4.6	2.4	6.2	4.8	3.5
14	8.4	.9	2.4	2.6	b 2.2	b 2.9	3.2	3.8	4.9	3.7	2.0	2.6
15	1.7	.9	2.2	1.3	b 2.2	3.2	3.2	3.5	2.0	3.2	4.8	2.4
16	1.3	.9	2.2	3.8	b 2.4	3.5	3.2	3.0	3.8	2.6	1.1	2.2
17	1.1	1.0	2.2	2.6	3.5	6.1	3.2	2.8	2.8	2.4	2.2	2.2
18	.9	.9	5.8	2.6	2.8	8.6	3.8	2.8	2.6	2.2	1.8	3.1
19	.8	.9	3.2	3.0	2.2	1.1	3.2	2.6	2.6	2.2	1.7	3.8
20	.8	.9	2.4	2.4	4.8	9.5	3.0	2.6	2.4	2.0	1.7	2.8
21	.8	.9	2.4	2.2	4.0	6.6	3.0	4.4	2.4	1.7	8.1	2.4
22	.9	.9	2.2	2.0	4.0	5.8	3.0	8.1	2.6	1.7	3.2	2.4
23	1.0	1.1	1.8	2.0	3.5	4.6	2.8	5.2	2.4	1.7	2.2	2.2
24	1.1	9.0	1.8	2.0	3.2	5.2	2.8	2.8	* 3.3	1.6	2.3	2.0
25	1.0	3.0	2.0	1.8	7.9	4.0	2.6	2.8	2.0	1.4	1.7	2.0
26	.9	1.7	2.2	2.0	9.0	3.8	4.8	2.6	1.8	1.4	1.6	2.0
27	1.3	2.9	2.2	2.4	4.0	3.8	5.8	2.4	1.8	3.0	1.6	2.0
28	.9	1.6	3.6	4.6	3.5	3.8	3.2	3.3	1.8	1.7	1.6	1.8
29	.8	3.0	4.3	2.8	3.5	3.5	3.0	6.2	3.0	1.6	1.8	2.0
30	.9	2.0	2.8	2.4	-----	3.5	2.8	4.8	2.4	5.6	1.6	2.2
31	.9	-----	2.4	2.2	-----	3.5	-----	4.0	-----	1.8	2.8	-----
Total	67.1	59.0	83.1	100.3	143.3	124.6	169.7	162.6	104.8	167.8	83.4	113.3
Mean	2.16	1.97	2.68	3.24	4.94	4.02	5.66	5.25	3.49	5.41	2.69	3.78
Cfsm	0.584	0.532	0.724	0.876	1.34	1.09	1.53	1.42	0.943	1.46	0.727	1.02
In.	0.67	0.59	0.84	1.01	1.44	1.25	1.71	1.63	1.05	1.69	0.84	1.14

Calendar year 1959: Max 26 Min 0.3 Mean 1.96 Cfsm 0.530 In. 7.20  
Water year 1959-60: Max 62 Min 0.6 Mean 3.77 Cfsm 1.02 In. 13.86

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
10-8	2130	4.36	478	7-13	2315	5.10	1,400

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

## POTOMAC RIVER BASIN

1-6452. Watts Branch at Rockville, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	* 1.8	* 3.0	1.7	28	2.4	5.8	7.6	a 4.0	* 3.5	* 1.8	1.4	1.1
2	1.7	1.7	1.6	5.4	2.2	5.2	4.8	a 6.0	3.0	1.8	1.6	1.0
3	1.7	1.7	1.6	4.6	b 2.0	4.6	4.2	a 4.0	3.0	2.0	1.7	1.0
4	1.6	1.6	1.6	3.5	b 2.0	4.6	4.2	a 4.0	2.8	1.8	1.6	1.6
5	1.6	1.6	1.6	3.0	b 2.3	4.8	4.0	* a 4.0	2.8	1.8	1.6	1.1
6	1.6	1.7	1.6	3.2	2.4	6.5	4.0	a 5.0	2.8	2.6	2.1	1.1
7	1.6	1.8	1.6	3.8	2.4	5.2	3.8	a 5.5	2.8	2.2	1.7	2.6
8	1.6	1.7	1.6	4.0	2.8	1.4	3.5	a 1.2	2.8	1.8	1.4	1.4
9	1.8	1.7	1.6	3.0	2.6	9.8	4.0	a 5.5	3.0	1.7	2.2	1.3
10	1.7	4.5	b 1.5	2.6	3.0	5.2	1.7	a 5.2	5.2	1.7	1.8	1.1
11	1.6	2.2	b 1.4	2.4	3.2	4.6	5.2	a 6.0	3.2	1.6	1.6	1.0
12	1.6	1.8	b 1.2	2.6	3.0	4.8	1.1	a 9.0	2.8	1.6	1.6	1.0
13	1.6	1.8	b 1.5	2.6	2.8	5.2	7.0	a 1.4	3.0	3.2	1.6	.9
14	1.6	1.8	b 1.5	2.8	4.2	* 7.3	7.6	a 6.0	8.7	2.4	1.3	.9
15	1.6	1.7	b 1.5	9.4	* 6.6	4.6	5.8	a 5.0	8.3	1.8	1.3	1.0
16	1.6	1.7	1.8	5.4	8.9	4.0	6.6	* a 4.5	3.0	2.0	1.3	.8
17	1.6	1.7	1.7	4.6	1.0	3.8	5.2	a 4.5	2.8	9.3	1.0	.8
18	1.4	1.7	1.6	4.0	3.5	5.2	4.8	a 4.2	2.6	4.1	1.0	.8
19	1.4	1.7	1.6	b 3.0	5.0	9.9	4.6	a 4.0	2.4	2.2	1.0	.8
20	3.7	1.7	1.4	b 2.8	1.5	5.2	4.6	a 3.9	2.4	2.0	1.4	1.6
21	1.8	1.7	2.0	b 2.8	1.2	4.6	4.2	a 3.8	* 3.5	1.8	2.2	1.0
22	1.7	1.7	b 1.7	b 2.6	1.8	2.6	4.2	a 3.8	3.0	1.7	1.4	.8
23	1.7	1.7	b 1.3	b 2.6	* 3.1	1.2	4.2	a 3.5	2.4	1.7	1.8	.8
24	1.7	1.7	b 1.4	b 2.6	1.2	6.6	4.0	a 3.2	2.0	4.2	1.3	.7
25	1.7	1.7	b 1.5	b 2.6	1.8	5.2	4.0	* a 3.0	2.6	2.0	1.3	.8
26	1.7	1.7	b 1.6	b 2.6	8.9	4.8	a 5.2	a 4.0	2.4	1.7	* 6.2	.9
27	1.7	1.6	b 1.9	b 2.6	7.6	4.6	a 4.0	a 3.5	2.8	1.6	1.6	.7
28	1.7	1.6	1.6	b 2.6	6.2	4.6	a 4.5	a 3.0	2.2	1.4	1.3	.7
29	1.7	2.2	2.2	b 2.6	-	4.6	a 5.2	3.2	2.0	1.8	1.1	.7
30	1.7	1.8	4.6	b 2.6	-----	4.2	a 4.0	3.0	2.0	1.6	1.1	* .7
31	1.7	-----	* 2.8	2.6	-----	8.8	-----	2.8	-----	1.4	1.1	-----
Total	53.2	56.2	53.8	129.5	276.5	206.3	226.0	153.1	95.8	70.3	50.6	30.7
Mean	1.72	1.87	1.74	4.18	9.88	6.65	7.53	4.94	3.19	2.27	1.63	1.02
Cfsm	0.465	0.505	0.470	1.13	2.67	1.80	2.04	1.34	0.862	0.614	0.441	0.276
In.	0.53	0.56	0.54	1.30	2.78	2.07	2.27	1.54	0.96	0.71	0.51	0.31

Calendar year 1960: Max 62 Min 1.2 Mean 3.64 Cfsm 0.984 In. 13.39  
 Water year 1960-61: Max 70 Min 0.7 Mean 3.84 Cfsm 1.04 In. 14.08

## Peak discharge (base, 130 cfs)

Date	Time	Gage Height	Discharge
4-13	0300	4.33	454

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

1-6452. Watts Branch at Rockville, Md.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.0	1.1	1.7	* 1.7	4.6	2.4	* 3.2	2.4	1.3	0.8	0.3
2	.8	* 1.0	1.1	* 1.6	1.7	3.8	5.2	5.4	2.0	1.3	.8	.5
3	.9	.9	1.1	1.4	1.8	3.5	4.2	3.8	2.7	1.9	.8	.4
4	.9	.9	1.1	1.6	2.0	3.2	3.8	3.5	2.0	1.6	.9	.6
5	.8	.9	1.1	1.7	2.2	3.2	3.5	3.2	2.6	1.4	.9	.5
6	.8	.9	1.0	2.3	2.0	4.8	3.5	3.0	2.4	1.3	.8	.4
7	.7	2.8	1.1	7.6	b 1.4	4.6	7.2	3.0	1.8	1.3	.8	.4
8	.8	1.1	1.0	3.2	1.7	4.6	5.8	3.2	1.7	1.1	1.4	.4
9	.8	1.0	1.1	2.6	1.7	4.6	4.6	3.2	1.6	1.0	1.2	.4
10	.8	1.0	1.7	b 2.1	1.6	5.9	3.8	3.2	1.6	1.0	.8	.4
11	.7	1.1	1.7	b 2.0	b 1.3	1.2	4.2	3.2	1.6	.9	.8	.3
12	.8	1.1	8.4	b 1.9	1.7	* 6.9	11	3.2	1.7	.9	.8	.3
13	.9	1.1	2.0	b 1.9	1.7	10	9.6	3.2	2.4	.8	.7	.3
14	2.0	1.6	1.6	b 1.9	3.6	6.2	4.6	3.2	1.8	1.3	.7	.3
15	1.0	1.3	1.4	5.3	3.2	5.2	4.0	3.0	4.2	1.1	.6	.3
16	.9	1.4	1.4	2.8	2.6	4.6	4.0	3.0	1.7	2.1	.6	.3
17	.8	1.3	4.0	2.2	3.2	3.8	3.8	3.0	1.6	1.3	.6	1.1
18	.8	1.1	1.5	b 1.9	2.8	3.8	3.5	3.0	1.4	4.1	.5	.4
19	.8	1.1	3.2	b 1.9	1.3	3.8	3.5	2.8	1.5	1.7	.5	.3
20	.8	1.7	2.4	b 1.9	4.2	3.8	3.8	2.8	2.2	1.3	.5	.3
21	7.8	1.4	2.2	b 1.9	3.5	1.8	3.8	2.8	3.5	1.3	.4	.3
22	1.4	1.3	2.0	2.2	4.2	5.4	3.2	2.6	2.2	1.3	.4	.3
23	1.1	1.4	2.0	2.2	4.0	4.0	3.0	5.3	2.0	1.4	.4	.4
24	1.0	6.6	2.2	2.0	10	3.5	2.8	3.6	1.8	1.3	.4	.4
25	1.0	1.7	2.0	2.0	4.0	3.2	2.8	2.2	1.7	1.3	.4	.4
26	1.0	1.6	1.8	2.0	3.0	3.2	2.8	4.7	1.7	1.1	.4	.4
27	1.0	1.4	2.0	2.0	1.6	3.0	2.8	8.1	1.6	1.0	.4	1.1
28	1.0	1.3	2.4	1.8	9.2	3.0	2.8	3.0	1.4	1.0	.5	.5
29	1.0	1.3	1.7	1.8	-	3.0	2.8	2.4	1.4	1.0	.4	.4
30	1.0	* 1.3	b 1.5	1.7	-----	* 3.0	2.8	2.2	1.4	1.0	.4	.4
31	1.0	-----	1.6	b 1.5	-----	5.3	-----	* 4.9	-----	* .9	.4	-----
Total	35.8	43.6	73.9	91.3	136.0	219.6	147.2	106.9	92.9	41.3	20.0	12.8
Mean	1.15	1.45	2.38	2.95	4.86	7.08	4.91	3.45	3.10	1.33	0.65	0.43
Cfsm	0.311	0.392	0.643	0.797	1.31	1.91	1.33	0.932	0.838	0.359	0.176	0.116
In.	0.36	0.44	0.74	0.92	1.37	2.21	1.48	1.07	0.93	0.42	0.20	0.13

Calendar year 1961: Max 70 Min 0.7 Mean 3.81 Cfsm 1.03 In. 13.99  
 Water year 1961-62: Max 69 Min 0.3 Mean 2.80 Cfsm 0.757 In. 10.27

Peak discharge (base, 130 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1130	3.47	137	6-19	1800	3.68	158
3-12	0745	3.80	180				

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

## POTOMAC RIVER BASIN

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, 1½ miles north-east of Langley, Fairfax County, Va., 2 miles upstream from District of Columbia boundary line, and 2½ miles upstream from Chain Bridge.

Drainage area.--11,560 sq mi.

Records available.--March 1930 to September 1962.

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.--32 years, 11,120 cfs (adjusted for diversions).

Extremes.--Maximum discharge during year, 120,000 cfs Mar. 23 (gage height, 13.43 ft); minimum, 1,020 cfs Aug. 31.

1930-62: 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. 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. 64) and since December 1950, by Savage River Reservoir (see p. 67).

Rating table, water year 1961-62 (gage height, in feet, and discharge, in cubic feet per second)

2.7	1,050	8.0	43,500
3.2	2,970	10.0	68,200
4.0	7,200	14.0	130,000
6.0	22,500		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,690	2,430	3,870	5,600	6,180	78,900	22,000	9,730	8,000	3,370	2,190	1,120
2	1,540	2,310	3,590	5,500	5,940	64,100	22,500	11,300	7,200	2,970	1,960	1,160
3	* 1,440	2,270	3,280	5,400	6,000	43,100	23,700	13,100	6,900	2,800	1,810	1,260
4	1,440	2,310	3,060	5,020	5,580	32,300	22,400	21,400	6,600	2,970	1,730	1,220
5	1,500	2,310	3,060	5,020	5,400	24,300	19,500	20,700	5,880	3,100	1,770	1,330
6	1,580	2,190	2,760	6,000	5,400	21,600	17,400	16,200	7,200	2,970	1,810	1,500
7	1,580	2,470	2,720	12,900	5,290	19,900	16,600	13,200	7,500	2,970	1,730	1,610
8	1,580	3,150	2,470	22,900	6,120	17,800	21,900	11,600	6,780	3,690	1,580	1,880
9	1,580	* 3,280	2,470	33,800	* 6,900	16,400	37,700	10,600	7,620	4,060	1,690	1,960
10	1,540	2,930	2,760	28,900	6,600	15,400	35,500	9,800	6,840	3,410	1,880	1,960
11	1,540	3,280	2,630	19,200	5,880	15,300	30,600	9,240	5,580	2,970	2,040	1,770
12	1,650	3,970	3,410	13,400	5,460	27,800	27,400	9,100	5,020	2,840	2,150	1,650
13	1,690	3,640	4,010	10,200	5,070	49,500	35,100	8,710	4,960	2,890	* 2,150	1,540
14	1,610	3,320	4,250	8,710	5,180	78,400	50,700	8,190	5,120	2,630	2,190	1,400
15	1,730	3,150	9,300	7,930	4,800	82,400	48,500	7,860	9,990	2,680	2,150	1,440
16	1,580	3,010	11,600	8,520	5,070	66,600	39,200	7,860	13,200	2,720	1,960	1,360
17	1,540	2,890	9,240	9,380	5,700	55,300	31,300	8,000	10,500	2,760	1,880	1,330
18	1,540	2,760	10,000	9,100	6,300	47,100	26,100	7,800	8,120	2,800	1,730	1,260
19	1,580	2,760	10,100	9,310	6,720	42,300	22,800	7,380	6,840	2,720	1,650	1,260
20	1,500	2,840	15,000	8,380	6,900	40,000	20,400	7,860	6,840	3,150	1,610	1,220
21	1,810	2,760	24,800	7,260	7,560	41,000	19,300	7,440	7,620	3,590	1,470	1,220
22	1,960	2,630	19,200	6,600	8,450	67,300	18,100	6,660	* 6,000	3,460	1,440	1,190
23	2,350	2,720	14,700	6,420	9,450	114,000	16,800	6,840	5,940	3,190	1,610	1,190
24	10,200	3,230	12,000	6,540	12,500	99,500	15,100	8,190	5,760	3,100	1,690	1,190
25	7,200	3,280	10,200	6,660	28,100	64,600	13,900	7,620	5,760	2,930	1,540	* 1,260
26	6,240	3,460	8,580	7,680	43,000	49,300	13,200	6,960	5,180	2,680	1,500	1,220
27	4,700	3,230	7,500	9,580	51,100	40,900	12,400	10,100	4,450	2,430	1,400	1,360
28	3,920	3,320	7,020	8,000	65,200	33,400	11,500	9,240	4,350	2,150	1,300	1,400
29	3,410	4,160	6,540	7,260	-	28,500	10,800	8,450	3,690	2,040	1,190	1,400
30	3,150	4,250	6,060	7,200	-----	24,500	10,200	7,740	3,370	2,040	1,120	1,400
31	2,800	-----	5,800	6,720	-----	21,500	-----	7,740	-----	2,150	1,050	-----
Total	79,170	90,310	231,980	314,090	341,850	1,423,000	712,600	306,610	198,810	90,230	52,970	42,060
Mean	2,554	3,010	7,483	10,130	12,210	45,900	23,750	9,891	6,627	2,911	1,709	1,402
(†)	329	346	335	366	336	367	350	353	311	340	376	348
Mean†	2,883	3,356	7,818	10,500	12,550	46,270	24,100	10,240	6,938	3,251	2,085	1,750
Cfsm†	0.249	0.290	0.676	0.908	1.09	4.00	2.08	0.886	0.600	0.281	0.180	0.151
In.†	0.29	0.32	0.78	1.05	1.14	4.64	2.32	1.02	0.67	0.32	0.21	0.17

Calendar year 1961: Max. 110,000 Min. 1,440 Mean 12,360 Mean† 12,030 Cfsm† 1.07 In.† 14.52

Water year 1961-62: Max. 114,000 Min. 1,050 Mean 10,640 Mean† 10,990 Cfsm† 0.951 In.† 12.90

Peak discharge (base, 45,000cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-1	1330	11.05	82,800	3-23	1800	13.43	120,000
3-14	2230	11.42	88,300	4-14	1830	8.78	52,900

\* 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 Suburban Sanitary Commission and city of Rockville.

\* Adjusted for diversion.

## POTOMAC RIVER BASIN

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

Note.--Records for the 1962 water year have been withheld pending better definition of the stage-discharge relation. They will be published in a subsequent annual report. Base flow discharge measurements for the water years 1960-62 are contained in this report (see p. 113).

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 1962.

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

Average discharge.--33 years, 56.2 cfs.

Extremes.--Maximum discharge during year, 1,200 cfs Mar. 12 (gage height, 5.68 ft); minimum, 4.5 cfs Sept. 16-17 (gage height 1.16 ft).

1929-62: 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 or backwater from unknown cause, which are fair.

Rating table, water year, 1961-62, except periods of ice effect or backwater from unknown cause (gage height, in feet, and discharge, in cubic feet per second)

1.1 2.1 1.3 16 1.8 103 2.5 307 4.5 865  
1.2 7.8 1.5 41 2.1 187 3.5 604 5.0 1,085

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	18	20	30	28	93	402	46	56	25	16	6.4
2	16	18	20	b28	28	66	124	143	36	23	14	13
3	20	18	20	b26	b30	54	73	64	124	32	14	14
4	18	18	20	*b26	31	49	64	49	35	36	13	10
5	16	16	20	28	b31	49	60	44	55	25	14	18
6	14	16	18	236	35	109	58	41	67	23	14	11
7	12	62	18	233	b20	141	127	41	36	22	13	8.5
8	12	25	18	64	b23	108	101	47	30	21	*14	7.1
9	12	18	b20	44	b25	93	73	46	29	21	28	6.4
10	12	18	b58	b34	b25	103	62	39	26	18	16	6.4
11	11	16	29	b28	b18	142	66	38	26	18	14	6.4
12	11	16	174	b34	b24	*978	112	39	39	18	13	5.7
13	11	18	49	31	b24	*362	222	44	89	18	12	5.1
14	61	30	30	29	b75	116	96	39	36	45	12	5.1
15	44	29	26	b95	60	86	71	36	66	34	10	5.1
16	14	25	b23	68	44	75	64	35	31	48	10	4.5
17	14	27	b105	b35	47	66	60	35	28	33	12	56
18	12	20	271	b33	49	60	56	35	26	42	10	23
19	12	18	76	b31	215	60	*56	33	80	61	8.5	7.1
20	*11	38	42	31	118	66	67	31	505	23	8.5	7.8
21	221	25	34	b28	*58	240	58	31	293	22	8.5	6.4
22	76	22	31	31	64	155	54	*33	53	29	8.5	5.7
23	25	21	33	36	73	77	53	29	38	20	7.8	14
24	20	158	47	33	93	66	49	239	34	44	c 7.8	10
25	18	37	34	31	66	60	49	50	30	22	c 7.1	18
26	18	25	29	31	461	58	47	36	29	20	c 7.1	*13
27	16	*24	29	31	325	54	47	287	26	16	c 7.8	8.3
28	18	22	53	29	188	53	46	58	*26	16	14	27
29	18	21	b31	28	-	51	56	47	25	16	7.8	11
30	18	18	b24	28	-----	49	54	38	29	16	7.1	8.5
31	20	-----	b26	b22	-----	74	-----	181	-----	16	64	-----
Total	812	837	1,428	1,492	2,278	3,813	2,527	1,954	2,003	823	3,559	4,232
Mean	26.2	27.9	46.1	48.1	81.4	123	84.2	63.0	66.8	26.5	11.5	14.1
Cfsm	0.421	0.449	0.741	0.773	1.31	1.98	1.35	1.01	1.07	0.426	0.185	0.227
In.	0.49	0.50	0.85	0.89	1.36	2.28	1.51	1.17	1.20	0.49	0.21	0.25

Calendar year 1961: Max 1,330 Min 11 Mean 69.2 Cfsm 1.11 In. 15.10  
Water year 1961-62: Max 978 Min 4.5 Mean 51.4 Cfsm 0.826 In. 11.20

Peak discharge (base, 800 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1730	4.54	876	6-21	0215	4.43	845
3-12	1700	5.68	1,200				

\* Discharge measurement made on this day.  
b Stage-discharge relation affected by ice.  
c Backwater from unknown cause.

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 1962.

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

Average discharge.--24 years, 78.1 cfs.

Extremes.--Maximum discharge during year, 1,940 cfs Mar. 12 (gage height, 5.15 ft); minimum, 3.0 cfs Aug. 27, 28, 1938-62; Maximum discharge, 3,680 cfs July 18, 1945; maximum gage height, 12.93 ft Oct. 16, 1942; minimum that of Aug. 27, 28, 1962.

Maximum stage known, about 15.5 ft Aug. 23 or 24, 1933, from floodmarks (discharge, 10,500 cfs, from rating curve extended above 3,000 cfs on basis of velocity-area study).

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Some regulation at low flow by sand and gravel plants above station.

Rating table, water year 1961-62 except periods of ice effect (gage height, in feet and discharge, in cubic feet per second)

1.7	4.4	3.0	190
1.8	8.4	3.5	390
1.9	14	4.0	715
2.1	28	4.5	1,160
2.3	50	5.0	1,750
2.5	80		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a 11	20	25	37	32	154	436	49	63	17	12	50
2	a 15	19	26	36	33	98	225	69	41	*15	9.9	13
3	a 21	20	25	34	36	78	117	58	45	21	9.1	19
4	a 20	20	24	34	39	68	87	49	29	24	9.2	10
5	a 16	21	25	35	46	65	77	43	50	20	11	12
6	a 14	19	24	195	42	209	71	39	57	16	9.2	12
7	a 13	42	23	285	b 30	275	262	36	33	16	*10	9.3
8	a 12	30	22	128	b 29	* 223	209	45	26	14	9.7	8.0
9	a 12	25	32	72	31	182	139	39	23	13	13	8.1
10	a 13	23	67	53	b 35	197	99	36	21	12	11	7.0
11	a 12	22	50	b 42	b 29	248	93	34	20	11	10	6.5
12	a 11	22	191	*b 42	b 30	1,450	166	36	29	12	10	5.7
13	a 11	21	99	b 36	b 32	547	294	36	45	12	8.4	5.3
14	a 30	29	54	b 34	80	176	171	33	31	23	8.2	5.1
15	a 40	31	40	b 90	86	122	111	32	29	22	7.4	5.4
16	a 18	30	36	99	75	99	* 86	29	23	37	9.1	5.5
17	a 17	32	149	64	71	84	75	27	20	27	9.9	4.1
18	a 17	28	316	48	76	75	70	27	18	27	7.6	2.0
19	a 17	27	168	42	* 296	73	67	25	52	23	7.0	1.4
20	*a 16	45	90	42	296	78	93	23	277	17	6.2	1.1
21	242	37	59	39	148	290	95	21	148	18	5.6	9.7
22	127	30	47	42	113	263	77	* 21	53	25	5.9	9.3
23	55	29	52	49	95	138	67	21	36	15	5.4	12
24	32	169	66	42	99	98	58	196	29	13	5.3	12
25	26	71	56	40	77	81	55	56	25	14	5.3	11
26	23	45	45	40	459	73	53	36	23	15	5.5	18
27	21	* 34	42	43	526	67	51	56	21	13	4.7	7.7
28	21	30	66	38	304	61	49	38	19	10	5.2	4.3
29	21	28	51	34	-	58	53	34	18	12	5.7	3.0
30	20	25	39	35	-----	58	50	31	18	12	*5.0	2.1
31	21	-----	b 34	b 27	-----	74	-----	141	-----	13	4.6	-----
Total	945	1,024	2,043	1,877	3,245	5,762	3,556	1,416	1,322	539	246.1	465.9
Mean	30.5	34.1	65.9	60.5	116	186	119	45.7	44.1	17.4	7.94	15.5
Cfsm	0.419	0.468	0.905	0.831	1.59	2.56	1.64	0.628	0.606	0.239	0.109	0.213
In.	0.48	0.52	1.04	0.96	1.66	2.94	1.82	0.72	0.68	0.28	0.13	0.24

Calendar year 1961: Max 1,630 Min 11 Mean 84.4 Cfsm 1.16 In. 15.72  
 Water year 1961-62 Max 1,450 Min 4.6 Mean 61.5 Cfsm 0.845 In. 11.47

Peak discharge (base, 1,250 cfs)

Date	Time	Gage Height	Discharge
3-12	1430	5.15	1,940

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

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 1962. 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 datums. April 22, 1932, to April 11, 1934, staff gage at present site and datum.

Average discharge.--39 years, 22.2 cfs(unadjusted).

Extremes.--Maximum discharge during year, 798 cfs Mar. 12 (gage height, 6.79 ft); minimum, 1.2 cfs Sept. 15 (gage height 1.42 ft).

1924-62: 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, which are fair, or those for doubtful or no gage-height record, which are poor. No pumped inflow from Patuxent River to augment water supply for Washington Suburban Sanitary District (pumpage began Aug. 12, 1939) since pumping plant was put on standby basis as of August 1960.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.4	1.0	2.0	24
1.5	2.1	2.4	69
1.6	3.9	3.0	168
1.7	6.6	4.0	320
1.8	11	5.0	465

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.9	5.4	7.4	10	9.5	29	144	19	16	8.2	4.8	1.6
2	4.4	5.7	7.4	*b9.0	10	22	39	47	12	9.5	4.4	2.0
3	5.4	5.7	7.4	b8.2	10	b 18	26	24	35	9.5	4.1	2.5
4	5.4	5.7	7.4	9.5	11	b 16	23	20	15	10	4.6	3.4
5	4.8	6.0	7.4	10	* 12	b 15	22	16	15	8.6	4.8	4.4
6	4.6	6.0	7.4	d 92	12	30	21	14	19	7.8	*4.6	3.9
7	4.4	11	7.4	d 68	b 8.5	32	44	14	12	7.4	4.1	3.0
8	4.1	7.0	7.0	21	b 9.0	28	32	14	11	7.0	4.1	2.9
9	a4.0	6.0	9.0	15	b 9.5	28	26	14	10	6.6	4.6	2.7
10	a4.0	6.0	10	12	b 9.0	33	22	13	9.5	6.0	4.8	2.5
11	a4.0	6.0	11	b 11	b 8.2	61	23	13	9.0	6.0	4.6	2.4
12	a3.5	6.0	4.5	b 10	b 9.0	d 458	d 49	13	11	6.0	4.1	2.0
13	a3.5	6.0	15	b 9.0	b 9.5	69	d 73	13	36	5.7	3.9	2.0
14	a6.0	7.4	10	b 8.5	15	* 38	34	12	15	6.6	3.6	1.8
15	a8.5	7.4	9.0	b 28	22	29	26	12	22	7.8	3.4	1.6
16	a5.0	7.0	b 8.2	21	20	24	22	11	12	11	3.2	1.6
17	*4.6	7.8	24	14	d 24	21	* 21	11	10	9.0	3.2	4.2
18	4.6	6.6	d 8.5	12	19	20	20	10	11	9.4	3.0	4.1
19	4.6	6.6	24	12	d 110	20	19	9.5	53	11	2.9	2.9
20	4.6	8.2	16	12	37	21	20	9.0	123	7.8	2.7	2.9
21	34	9.0	13	b 11	24	84	20	* 9.0	78	8.2	2.7	2.9
22	14	7.4	12	12	29	43	18	8.6	21	7.8	2.5	2.9
23	6.6	7.4	12	13	28	27	17	40	15	6.3	2.5	3.4
24	5.7	3.5	12	12	d 50	23	16	85	13	9.2	2.4	3.4
25	d 5.1	12	12	12	24	21	16	17	12	6.3	2.4	3.0
26	4.6	9.0	11	12	d 183	20	15	13	10	6.3	2.4	3.0
27	4.6	8.2	11	12	d 100	19	15	97	10	5.4	2.4	8.6
28	4.8	*7.4	17	11	d 55	18	14	21	9.0	4.8	2.4	6.0
29	4.8	7.4	b 11	10	-	17	35	18	*8.6	4.8	2.2	4.1
30	8.0	7.4	b 9.0	10	-----	17	24	15	8.6	5.4	2.1	3.4
31	5.4	-----	b 8.6	b 7.8	-----	26	-----	22	-----	5.4	*1.8	-----
Total	191.5	243.7	453.6	515.0	867.2	1,327	896	654.1	641.7	230.8	105.3	95.1
Mean	6.18	8.12	14.6	16.6	31.0	42.8	29.9	21.1	21.4	7.45	3.40	3.17
Cfsm	0.290	0.381	0.685	0.779	1.46	2.01	1.40	0.991	1.00	0.350	0.160	0.149
In.	0.33	0.43	0.79	0.90	1.51	2.32	1.56	1.14	1.12	0.40	0.18	0.17

Calendar year 1961: Max 427 Min 3.5 Mean 22.6 Cfsm 1.06 In. 14.41

Water year 1961-62: Max 458 Min 1.6 Mean 17.0 Cfsm 0.789 In. 10.85

Peak discharge (base, 600 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1500	5.80	600	3-12	1000	6.79	798

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record.

## POTOMAC RIVER BASIN

1-6510. Northwest Branch Anacostia River near Hyattsville, Md.

Location.--Lat 38°57'09", long 76°58'00", on right bank at downstream side of bridge on Queens Chapel Road (State Highway 500), 0.8 mile downstream from Sligo Branch and 1 mile west of Hyattsville, Prince Georges County.

Drainage area.--49.4 sq mi.

Records available.--July 1938 to September 1962. Monthly discharge only for July 1938 published in WSP 1302.

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

Average discharge.--24 years, 39.5 cfs (unadjusted).

Extremes.--Maximum discharge during year, 1,810 cfs May 31 (gage height, 8.82 ft); minimum 1.6 cfs Aug. 28 (gage height, 2.85 ft).

1938-62: 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. Prior to June 1961, low flow regulated by storage at Burnt Mills Dam, 7 miles above station.

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.4	8.7	* 14	21	19	67	334	38	70	15	90	30
2	13	8.1	13	b 19	19	46	73	77	37	* 14	7.6	26
3	14	8.7	12	b 16	25	39	48	* 47	92	29	7.6	14
4	11	8.3	12	18	23	35	43	37	29	21	7.3	8.4
5	7.6	8.3	12	19	25	34	41	31	61	16	7.9	11
6	6.8	8.5	11	229	*b 21	118	41	29	53	14	7.7	8.3
7	6.4	49	11	152	b 14	131	167	27	28	13	7.2	6.1
8	6.1	14	11	* 46	b 14	* 91	74	45	23	12	6.8	5.1
9	6.8	10	34	30	b 15	75	55	30	21	12	* 6.8	4.8
10	6.7	9.9	57	b 20	b 25	86	43	26	20	11	8.1	4.7
11	6.1	9.7	23	b 19	b 19	118	51	25	20	11	7.7	4.2
12	6.0	9.7	166	b 18	b 20	* 984	127	27	30	10	7.1	3.4
13	* 6.1	9.9	37	b 17	b 21	193	157	31	67	10	6.5	2.8
14	7.3	28	21	b 16	b 80	85	68	25	45	48	6.2	2.7
15	20	18	17	b 84	47	66	52	24	38	23	5.8	2.6
16	8.2	22	b 19	57	39	59	45	22	34	46	6.0	2.3
17	6.8	18	125	b 26	45	55	41	21	23	22	6.0	7.6
18	7.5	13	250	b 25	42	52	40	21	21	41	5.6	9.2
19	6.6	13	57	b 23	260	57	39	20	80	25	5.0	5.2
20	6.5	36	35	b 22	93	55	59	19	367	14	5.0	5.2
21	264	17	* 26	b 20	48	302	43	18	233	22	5.0	4.0
22	48	15	24	b 25	52	109	37	* 17	47	27	4.6	3.9
23	15	17	33	27	51	57	35	17	32	12	4.2	17
24	11	256	46	22	71	50	32	180	26	13	3.9	6.1
25	9.9	61	b 26	22	46	44	32	32	23	12	3.9	4.9
26	20	28	b 21	25	450	41	* 31	28	21	12	3.9	* 7.1
27	10	22	b 20	24	241	39	30	141	20	95	* 4.2	111
28	8.3	a 17	51	20	130	36	29	39	18	84	3.6	2.1
29	8.2	a 15	b 22	b 18	-	37	38	27	16	96	3.9	7.9
30	9.9	a 14	b 20	18	-----	36	53	22	15	10	3.6	6.0
31	12	-----	b 18	b 13	-----	58	-----	188	-----	10	3.0	-----
Total	646.9	772.8	1,244	1,111	1,955	3,255	1,958	1,331	1,610	552.5	180.7	393.9
Mean	20.9	25.8	40.1	35.8	69.8	105	65.3	42.9	53.7	17.8	5.83	13.1
Cfsm	0.423	0.522	0.812	0.725	1.41	2.13	1.32	0.868	1.09	0.360	0.118	0.265
In.	0.49	0.58	0.94	0.84	1.47	2.45	1.47	1.00	1.21	0.42	0.14	0.30

Calendar year 1961: Max 1,200 Min 5.4 Mean 53.6 † 0.10  
 Water year 1961-62: Max 984 Min 2.3 Mean 41.1 Cfsm 0.832 In. 11.31

Peak discharge (base, 1,250 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
3-12	0815	7.99	1,450	6-20	1200	7.90	1,410
5-31	1530	8.82	1,810				

\* 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.  
 b Stage-discharge relation affected by ice.

POTOMAC RIVER BASIN

101

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 1962.

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

Average discharge.--14 years, 19.7 cfs.

Extremes.--Maximum discharge during year, 648 cfs May 31 (gage height, 3.72 ft); no flow Sept. 14-16.

1948-62: Maximum discharge, 3,000 cfs Aug. 13, 1955 (gage height, 7.33 ft), from rating curve extended above 520 cfs on basis of slope-area measurements at gage heights 6.63 and 7.27 ft; no flow at times during July, August, September, and October 1954, July 1955, August 1957, and Sept. 1962.

Remarks.--Records good except those for periods of ice effect or doubtful gage-height record, which are fair, or those for periods of no gage-height record, which are poor. 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 1,  
June 1 to Sept. 30

Apr. 2 to May 31

0.3	0	0.8	11	0.6	3.5	1.2	54
.4	.5	.9	18	.7	6.2	1.5	113
.5	1.7	1.2	54	.8	10	1.8	174
.6	3.5	2.1	241	1.0	24		
.7	6.2						

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	3.4	4.7	9.1	6.8	d 32	171	13	41	36	1.4	a 0.1
2	3.8	3.2	4.9	7.7	7.4	d 25	45	20	20	2.7	1.0	a .1
3	3.5	*3.4	5.6	7.2	9.4	22	29	14	34	* 5.1	* 1.0	a .6
4	4.1	4.4	4.5	7.4	11	21	25	12	12	6.4	1.5	1.0
5	2.5	4.8	4.0	7.5	9.8	19	22	12	* 12	3.8	2.0	1.3
6	* 2.5	4.1	4.0	5.7	9.6	6.7	21	11	12	2.8	1.7	1.0
7	2.1	9.0	4.1	d 4.9	b 6.4	5.9	9.7	9.2	* 7.7	2.5	1.1	.4
8	2.2	4.3	4.1	d 1.9	b 6.5	5.2	10.1	1.7	6.4	2.8	1.1	.7
9	2.1	3.8	5.6	d 1.5	b 7.3	4.4	4.6	1.4	5.6	2.6	3.0	.7
10	1.7	3.6	1.6	b 1.4	b 9.0	5.4	3.0	1.0	5.6	1.4	3.2	.9
11	2.0	3.5	8.3	*b 1.0	b 7.5	7.2	3.1	1.0	4.4	1.3	2.0	.9
12	1.9	3.8	d 4.0	9.8	7.2	d 2.41	5.7	9.9	1.9	1.4	1.7	a .1
13	1.4	3.5	d 1.3	8.8	6.9	d 6.0	8.3	1.2	3.8	1.8	1.4	a .1
14	6.6	4.4	d 8.4	8.8	2.4	d 3.7	3.9	9.0	1.2	2.0	.7	* a 0
15	7.0	6.1	d 7.6	3.7	2.3	*d 3.1	2.8	8.0	8.6	4.4	.3	a 0
16	2.5	5.4	7.8	1.8	1.5	2.9	2.3	7.4	7.8	3.5	.4	a 0
17	1.6	5.7	4.7	1.3	1.8	2.6	2.2	7.4	6.1	4.2	.7	7.8
18	1.6	4.6	6.7	1.0	1.6	2.4	2.1	6.8	4.6	4.2	1.5	2.7
19	1.5	4.6	1.9	9.8	7.6	2.2	2.0	6.6	9.5	4.2	.8	1.2
20	1.5	1.2	1.3	1.1	* 2.4	2.3	* 2.4	6.0	4.0	2.4	.7	.8
21	5.6	6.7	1.1	9.7	1.7	7.7	2.3	4.9	1.4	9.3	a .1	.5
22	1.7	4.8	1.0	1.3	1.8	4.0	1.9	4.4	7.6	4.1	a .1	.7
23	5.8	5.4	1.6	1.4	1.5	2.9	1.7	4.7	6.9	4.6	a .1	5.6
24	3.6	d 2.4	1.9	1.0	1.5	2.6	1.6	1.2	5.9	2.7	a .1	1.9
25	3.2	d 9.6	1.2	9.4	1.2	2.3	1.5	8.1	4.6	3.0	a .1	1.3
26	3.4	d 7.6	9.0	1.0	1.34	2.1	1.4	6.6	4.0	3.8	a .1	1.4
27	3.4	d 6.0	8.8	1.2	8.4	2.0	1.3	2.5	4.4	2.1	a .1	2.0
28	4.2	d 5.1	1.5	8.9	5.4	1.9	1.3	7.8	3.8	1.7	*a .1	6.5
29	3.8	d 4.8	9.7	7.2	-	1.8	2.6	6.8	3.4	2.8	a .1	2.6
30	3.4	4.5	b 9.2	7.8	-----	1.7	1.7	7.2	3.5	2.5	a .1	2.3
31	3.4	-----	b 9.1	6.9	-----	4.6	-----	1.73	-----	1.7	a .1	-----
Total	161.6	176.1	417.4	438.0	649.8	1296	1108	475.8	364.4	138.3	28.3	63.2
Mean	5.21	5.87	13.5	14.1	23.2	41.8	36.9	15.4	12.2	4.46	0.91	2.11
Cfs/m	0.312	0.351	0.808	0.844	1.39	2.50	2.21	0.922	0.731	0.267	0.054	0.126
In.	0.36	0.39	0.93	0.98	1.45	2.89	2.47	1.06	0.81	0.31	0.06	0.14

Calendar year 1961: Max 396 Min 1.2 Mean 21.4 Cfs/m 1.28 In. 17.43  
Water year 1961-62: Max 241 Min 0 Mean 14.6 Cfs/m 0.874 In. 11.85

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-26	1330	2.89	430	5-31	2100	3.72	648
3-12	0845	3.08	476				

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

## POTOMAC RIVER BASIN

1-6580. Mattawoman Creek near Pomonkey, Md.

Location.--Lat 38°35'45", long 77°03'25", on left bank 50 ft downstream from bridge on State Highway 227, 80 ft downstream from Oldwomans Run, and 1.2 miles southeast of Pomonkey, Charles County.

Drainage area.--57.7 sq mi.

Records available.--November 1949 to September 1962.

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

Average discharge.--12 years (1950-62), 58.1 cfs.

Extremes.--Maximum discharge during year 948 cfs Mar. 13 (gage height, 4.88 ft); no flow many days in October, July, August and September.

1949-62: 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 no gage-height record, which are fair.

Rating table, water year 1961-62, (gage height, in feet, and discharge, in cubic feet per second)

1.0	0	2.5	97
1.2	.6	3.0	144
1.3	.9	3.5	214
1.4	1.6	4.0	335
1.5	4.2	4.5	560
1.6	12	5.0	960
2.0	56		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.3	7.7	a 25	25	464	210	46	62	06		
2	0	1.3	6.8	a 25	24	* 208	304	43	30	.4		
3	0	1.0	6.8	a 25	a 25	106	251	41	15	* .3	(*)	
4	0	1.0	6.8	a 30	a 30	83	107	38	86	.9		
5	0	1.1	6.8	a 25	a 40	76	81	32	* 7.7	1.1		
6	0	1.3	6.0	a 50	a 50	132	71	27	21	.7		
7	0	3.0	* 6.0	135	* 34	249	104	24	12	.4		
8	0	10	5.3	156	30	275	204	24	60	.2		
9	0	9.5	4.7	* 92	37	255	234	37	30	* 0		
10	0	5.3	8.6	54	38	230	168	32	16	0		
11	0	3.8	18	44	32	242	108	25	10	0		
12	0	3.0	34	43	34	520	107	23	16	0		
13	0	3.0	44	37	27	818	161	23	11.3	0		(*)
14	0	3.4	31	34	45	472	172	23	75	0		
15	0	4.2	25	48	79	211	112	19	38	10		
16	0	5.3	21	87	72	119	188	12	22	.5		
17	0	6.0	47	65	62	93	70	12	12	.6		
18	0	5.3	110	48	65	79	62	8.6	68	.5		
19	0	4.7	130	43	114	71	56	6.8	4.2	.7		
20	0	8.6	91	41	175	70	57	4.7	15	.3		
21	.4	17	48	38	126	109	80	3.4	52	.2		
22	17	17	38	40	91	* 221	65	2.5	30	0		
23	18	12	36	42	79	209	52	2.2	16	0		
24	8.6	24	48	40	73	115	46	3.4	86	0		
25	4.7	27	43	37	63	86	* 44	12	60	0		
26	2.8	21	37	32	181	74	42	12	38	0		
27	1.9	16	33	34	474	65	41	30	30	0		
28	1.4	12	33	34	* 658	56	40	23	20	0	(*)	
29	1.3	10	32	31	-	52	45	16	12	0		
30	1.3	8.6	25	31	-----	50	64	12	8	0		
31	* 1.3	-----	a 25	24	-----	54	-----	14	-----	0		
Total	58.7	246.7	1,014.5	1,490	2,783	5,864	3,346	6,316	593.3	8.4	0	0
Mean	1.89	8.22	32.7	48.1	99.4	189	112	20.4	19.8	0.271	0	0
Cfsm	0.033	0.142	0.567	0.834	1.72	3.28	1.94	0.354	0.343	0.0047	0	0
In.	0.04	0.16	0.65	0.96	1.79	3.78	2.16	0.41	0.38	0.01	0	0

Calendar year 1961: Max 1,160 Min 0 Mean 68.5 Cfsm 1.19 In. 16.13  
 Water year 1961-62 Max 818 Min 0 Mean 43.9 Cfsm 0.761 In. 10.34

Peak discharge (base, 400 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	0700	4.67	703	3-13	1200	4.88	948

\* Discharge measurement or observation of no flow made on this day.  
 a No gage-height record.

1-6610. Chaptico Creek at Chaptico, Md.

Location.--Lat 38°22'45", long 76°46'50", on right bank at downstream side of highway culvert, 0.8 mile north of Chaptico, St. Marys County, and 0.8 mile upstream from Chaptico Bay.

Drainage area.--10.7 sq mi.

Records available.--June 1947 to September 1962.

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

Average discharge.--15 years, 10.7 cfs.

Extremes.--1960-61: Maximum discharge during year 341 cfs Feb. 19 (gage height, 4.87 ft); minimum, 0.2 cfs Sept. 27 (gage height 1.11 ft).

1961-62: Maximum discharge during year 175 cfs Mar. 12 (gage height, 4.25 ft); no flow Sept. 1, 2.

1947-62: Maximum discharge, 7,800 cfs Sept. 10, 1950 (gage height, 8.56 ft); from rating curve extended above 410 cfs on basis of slope-area measurement of peak flow; no flow at times in 1954, 1955, 1957 and 1962.

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

Rating table, water years 1960-61 and 1961-62, except periods of ice effect  
(gage height, in feet, and discharge, in cubic feet per second)

1.1	0	1.6	7.2	2.8	37
1.2	.2	1.7	11	3.2	46
1.3	1.1	1.8	16	3.5	65
1.4	2.5	2.0	22	3.8	100
1.5	4.4	2.4	29	4.1	145

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	8.2	19	8.6	84	a 10	24	34	17	8.6	4.2	1.8	1.0
2	6.0	12	7.5	23	a 9.0	23	22	23	7.2	4.0	1.7	.8
3	5.4	9.4	7.2	20	b 9.0	21	21	17	6.9	4.2	2.0	1.0
4	4.9	8.6	6.9	18	b 27	21	20	* 15	6.6	3.8	2.3	3.0
5	4.9	9.4	6.9	15	a 24	21	20	14	6.3	3.8	2.2	1.4
6	5.2	14	6.9	14	a 17	20	19	20	6.3	15	2.3	1.1
7	6.0	* 8.2	6.6	14	a 15	20	18	19	* 6.0	7.5	1.7	1.0
8	4.9	7.5	6.3	14	31	32	18	16	6.3	5.7	1.6	1.4
9	6.9	7.5	5.7	12	35	28	18	15	5.7	4.2	1.1	1.2
10	5.4	15	b 5.5	b 12	33	22	28	14	6.0	3.6	1.1	1.0
11	4.7	11	b 5.5	b 11	29	21	20	35	6.3	3.0	1.1	.7
12	4.2	8.6	b 23	b 10	b 23	20	20	25	5.4	3.0	1.3	.6
13	4.0	7.9	b 21	10	20	20	109	37	4.7	4.1	1.1	.5
14	4.0	7.9	b 13	11	21	25	25	22	4.4	5.7	.7	1.3
15	3.8	7.5	12	21	23	21	23	20	6.3	4.1	.7	1.8
16	3.6	7.5	14	18	26	22	24	18	5.2	7.7	6	1.0
17	3.6	7.2	b 12	14	26	20	21	15	4.4	3.6	1.5	.7
18	3.2	6.9	b 10	12	59	20	20	14	4.2	3.0	1.0	.7
19	3.8	6.9	b 9.0	14	141	31	20	14	3.6	2.8	.7	1.3
20	19	6.6	b 8.5	21	27	22	19	12	3.2	2.5	3.4	1.8
21	7.2	6.6	19	b 14	25	* 21	19	12	18	2.3	5.7	1.4
22	5.2	6.3	b 16	b 11	27	64	19	11	16	2.0	2.6	.7
23	4.9	7.9	b 10	b 10	96	44	18	10	13	2.0	2.2	.5
24	4.9	6.9	b 9.0	b 9.0	31	24	19	9.4	14	* 4.6	1.8	.5
25	4.4	6.9	b 9.0	b 8.0	32	22	18	9.0	6.6	3.8	1.7	* .4
26	4.4	6.3	11	a 7.0	26	21	16	14	6.9	7.4	10	.4
27	4.7	6.3	12	a 7.0	23	21	15	17	10	2.8	4.0	.3
28	3.2	6.3	b 10	a 7.0	24	20	18	11	7.5	2.3	2.3	.4
29	3.2	10	b 9.2	a 7.5	-	20	19	9.4	5.7	2.2	1.7	.3
30	14	18	22	a 8.0	-----	19	16	9.8	4.7	2.8	1.3	.3
31	12	-----	16	a 9.5	-----	28	-----	8.2	-----	2.0	1.1	-----
Total	237.4	270.1	339.3	466.0	889.0	758	696	502.8	216.0	129.7	64.3	28.5
Mean	7.66	9.00	10.9	15.0	31.8	24.5	23.2	16.2	7.20	4.18	2.07	0.95
Cfsm	0.716	0.841	1.02	1.40	2.97	2.29	2.17	1.51	0.673	0.391	0.193	0.089
In.	0.83	0.94	1.18	1.62	3.09	2.63	2.42	1.75	0.75	0.45	0.22	0.10

Calendar year 1960: Max 164 Min 1.3 Mean 11.4 Cfsm 1.07 In. 14.47  
Water year 1960-61: Max 141 Min 0.3 Mean 12.6 Cfsm 1.18 In. 15.98

Peak discharge (base, 160 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1- 1	1000	4.36	200	3-22	2230	4.33	192
2-19	0230	4.87	341	4-13	0830	4.57	252
2-23	1515	4.38	205				

\* 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.--Continued

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	2.6	3.2	b 4.9	b 5.2	d 20	3.3	9.4	10	2.2	1.7	0
2	1.4	2.5	3.2	b 5.1	b 5.8	d 14	20	9.8	4.4	1.7	1.2	0
3	3.1	2.8	3.2	b 4.7	7.5	d 13	17	9.0	3.6	3.1	1.2	11
4	1.7	2.8	3.2	5.4	11	d 12	16	7.9	4.0	4.4	1.6	2.3
5	1.2	2.8	3.4	6.6	11	d 12	14	6.9	* 1.4	2.8	1.3	1.8
6	1.2	3.0	3.0	3.9	9.0	d 23	14	6.3	9.7	2.2	1.1	1.4
7	1.0	4.2	3.0	d 5.5	*b 5.5	25	21	6.0	4.2	2.0	6.6	1.2
8	1.0	3.0	* 2.8	d 1.6	b 6.0	21	3.7	6.0	3.2	1.7	3.2	1.2
9	1.0	2.6	2.8	*d 1.1	b 1.1	21	2.4	6.6	2.6	* 1.6	* 2.5	1.2
10	.8	2.6	8.7	b 8.3	1.6	2.2	20	6.0	2.3	1.3	2.5	1.2
11	.7	2.6	6.5	b 7.5	b 9.5	2.5	21	6.3	3.6	1.1	2.5	1.1
12	.7	2.8	2.4	b 6.9	b 8.0	1.12	2.3	6.0	1.9	1.1	2.0	* .6
13	1.1	2.8	8.6	b 6.5	b 7.5	d 30	2.8	6.3	2.9	1.2	1.7	.4
14	2.2	3.2	5.7	b 6.4	1.5	d 21	2.1	5.7	1.2	1.4	1.6	.4
15	6.8	4.0	4.9	1.6	1.2	d 18	1.9	4.9	7.2	4.2	1.2	.2
16	1.8	3.2	4.4	1.6	9.4	d 14	1.7	4.4	5.4	4.4	1.2	.2
17	1.6	3.4	2.4	b 9.4	1.1	d 12	1.6	4.2	4.2	3.8	6.0	3.0
18	1.7	2.8	2.8	8.6	9.8	d 11	1.4	4.0	3.4	5.6	3.6	1.8
19	1.4	2.8	1.3	7.9	2.3	d 10	1.4	3.6	3.0	4.8	1.2	.8
20	1.6	8.6	9.0	b 7.6	1.6	d 10	1.6	3.2	10	7.4	1.0	.6
21	20	6.0	7.2	b 7.0	1.2	*d 34	1.6	3.2	7.2	6.9	.6	.5
22	1.4	3.6	6.3	b 8.2	1.4	d 22	1.4	3.0	4.0	2.8	.6	.5
23	4.4	3.4	9.6	9.4	1.4	d 19	1.2	3.4	3.4	2.0	.3	.8
24	3.2	1.3	1.4	7.5	1.4	d 16	1.1	4.2	2.8	7.0	.3	1.0
25	3.0	4.7	8.2	7.2	1.0	d 15	* 1.1	3.8	2.6	3.2	.3	.7
26	2.6	4.0	6.6	7.2	3.4	d 15	1.1	2.8	2.6	3.8	.3	1.1
27	2.3	4.0	6.0	9.0	4.1	d 14	9.8	1.3	3.0	1.8	.5	1.5
28	2.3	3.6	6.3	7.2	2.4	1.4	9.4	4.9	2.3	1.4	* 1.2	3.6
29	2.5	3.2	b 5.2	6.6	-	1.3	9.8	4.4	2.2	1.8	.5	1.8
30	2.5	3.2	b 4.9	6.6	-----	1.2	1.1	4.2	2.3	2.6	.1	1.4
31	* 2.6	-----	b 4.9	b 5.1	-----	1.4	-----	7.9	-----	2.2	.1	-----
Total	91.9	11.38	24.38	32.98	37.22	63.4	520.0	177.3	187.2	93.5	59.6	56.8
Mean	2.96	3.79	7.86	10.6	13.3	20.5	17.3	5.72	6.24	3.02	1.92	1.89
Cfsm	0.277	0.354	0.735	0.991	1.24	1.92	1.62	0.535	0.583	0.282	0.179	0.177
In.	0.32	0.39	0.84	1.14	1.29	2.19	1.80	0.61	0.65	0.32	0.21	0.20

Calendar year 1961: Max 141 Min 0.3 Mean 11.5 Cfsm 1.07 In. 14.58  
 Water year 1961-62: Max 112 Min 0 Mean 7.89 Cfsm 0.737 In. 9.96

Peak discharge (base, 160 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-7	0030	4.22	169	3-12	1230	4.25	175

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

POTOMAC RIVER BASIN

105

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 1962.

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

Average discharge.--16 years, 25.2 cfs.

Extremes.--Maximum discharge during year, 798 cfs Jan. 7 (gage height, 7.96 ft); minimum, 2.3 cfs Sept. 15, 16 (gage height, 1.29 ft).

1946-62: 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.

Rating tables, water year 1961-62, (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 6

Jan. 7 to Sept. 30

1.3	2.1	1.3	2.5	1.9	38
1.4	4.6	1.4	4.7	2.5	106
Note.--Same as following table above 1.4 ft		1.5	8.4	4.0	241
		1.7	20	6.0	453

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	6.4	7.5	13	16	78	144	50	13	6.4	6.4	2.3
2	8.1	6.0	7.9	14	16	50	83	35	8.8	5.6	4.7	3.1
3	17	6.4	7.9	14	17	36	46	28	7.9	6.4	4.2	7.1
4	9.3	6.4	7.5	16	23	30	34	22	8.4	10	4.2	5.0
5	5.9	6.4	7.9	26	29	28	29	19	17	7.5	4.4	4.4
6	4.9	6.7	7.5	217	24	107	27	17	* 21	6.0	5.3	3.7
7	4.7	7.5	* 7.1	410	18	127	44	16	11	5.3	8.4	3.2
8	4.4	7.1	6.7	88	* 16	99	157	15	8.4	5.0	5.6	3.2
9	4.7	6.7	6.7	* 49	30	89	120	16	7.1	* 5.0	* 4.4	3.0
10	4.4	6.4	21	34	45	101	64	14	6.7	4.2	4.7	3.0
11	4.4	6.4	19	25	25	102	62	14	6.4	3.9	4.7	2.8
12	4.4	6.4	78	22	21	268	76	14	15	3.9	4.4	* 2.5
13	4.7	7.1	36	19	19	129	111	15	71	3.9	3.9	2.5
14	8.7	7.5	18	18	29	73	69	14	26	3.7	3.7	2.5
15	19	9.3	14	43	29	51	48	12	16	5.0	3.5	2.3
16	7.9	7.9	12	52	23	39	36	11	11	8.5	3.2	2.3
17	5.9	7.9	84	32	25	34	31	11	8.8	9.3	3.7	7.8
18	5.6	7.1	118	24	24	30	29	10	7.5	7.1	4.4	6.4
19	5.3	6.7	62	21	79	27	28	9.8	9.1	7.5	3.5	3.9
20	5.3	23	31	19	75	27	33	8.8	21	5.6	3.0	3.5
21	56	14	21	18	40	* 96	32	8.4	22	6.7	2.8	3.2
22	57	9.3	17	18	35	111	26	7.9	11	5.0	3.2	3.2
23	20	8.4	34	22	30	61	25	7.9	9.8	4.2	3.0	3.7
24	11	31	73	18	29	42	22	8.8	8.4	4.4	2.8	3.7
25	8.8	15	34	17	23	34	* 21	7.5	7.5	5.3	2.6	3.5
26	7.5	11	22	16	58	30	20	7.1	7.5	5.6	2.6	4.3
27	6.7	9.8	18	21	159	27	19	21	8.4	3.9	3.2	40
28	6.3	8.8	18	19	130	25	19	12	6.7	3.7	4.2	14
29	6.7	7.9	16	18	-	23	57	10	6.0	4.5	3.7	6.7
30	6.7	7.5	13	18	-----	22	126	10	6.4	9.3	3.0	5.0
31	* 6.7	-----	12	17	-----	25	-----	11	-----	7.1	2.6	-----
Total	331.2	278.0	837.7	1358	1087	2021	1638	463.2	394.8	179.5	124.0	161.8
Mean	10.7	9.27	27.0	43.8	38.8	65.2	54.6	14.9	13.2	5.79	4.00	5.39
Cfsm	0.446	0.386	1.12	1.82	1.62	2.72	2.28	0.621	0.550	0.241	0.167	0.225
In.	0.51	0.43	1.30	2.10	1.68	3.13	2.54	0.72	0.61	0.28	0.19	0.25

Calendar year 1961: Max 411 Min 2.8 Mean 29.1 Cfsm 1.21 In. 16.49  
 Water year 1961-62: Max 410 Min 2.3 Mean 24.3 Cfsm 1.01 In. 13.74

Peak discharge (base 400 cfs)

\* Discharge measurement made on this day.

Date	Time	Gage height	Discharge
1-7	0300	7.96	798

## MONONGAHELA RIVER BASIN

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, 1½ miles northwest of Oakland, Garrett County, and 1½ miles upstream from Dunkard Lick Run.

Drainage area.--134 sq mi.

Records available.--August 1941 to September 1962.

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

Average discharge.--21 years, 288 cfs.

Extremes.--Maximum discharge during year, 3,880 cfs Mar. 21 (gage height, 7.18 ft); minimum, 7.1 cfs Aug. 31 (gage height, 1.85 ft).

1941-62: 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, or no gage-height record, which are fair.

Rating table, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.8	7.1	3.0	330
1.9	13	4.0	900
2.0	24	5.0	1,620
2.2	57	6.0	2,520
2.4	103	8.0	4,970
2.7	198		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	29	91	a 160	b 300	1,220	299	147	116	40	34	10
2	15	26	84	a 150	b 250	770	272	155	95	36	29	10
3	29	22	79	a 135	244	551	274	129	82	84	25	24
4	116	23	75	a 160	395	441	253	* 111	76	147	26	24
5	56	33	91	a 210	* 657	365	233	102	781	75	28	42
6	*	35	46	98	a 600	726	264	253	95	805	* 52	30
7	27	43	79	a 1,850	512	316	1,090	90	426	43	25	20
8	22	39	64	a 780	b 400	256	963	110	257	37	21	14
9	20	35	52	a 500	314	200	727	191	184	32	22	11
10	19	31	180	a 400	258	179	563	120	142	27	24	10
11	17	30	340	a 340	b 200	161	595	109	268	24	20	9.7
12	16	28	662	a 280	188	706	695	102	372	27	18	9.7
13	15	30	556	a 250	162	1,160	891	122	1,000	39	* 35	9.1
14	32	34	380	a 230	186	724	843	111	845	33	57	8.6
15	88	40	282	a 630	168	533	770	99	494	369	32	8.1
16	79	64	b 200	687	146	423	641	252	330	* 306	22	8.1
17	66	150	512	394	131	350	587	177	231	206	18	8.1
18	44	98	1,360	290	125	311	606	136	174	169	18	8.6
19	34	71	1,230	230	336	555	590	146	141	184	17	10
20	27	* 62	912	208	674	920	583	247	186	109	14	9.7
21	25	57	644	182	380	2,650	568	165	178	81	12	9.7
22	27	50	491	651	662	3,160	508	133	117	128	11	10
23	25	57	386	1,480	900	1,660	455	112	95	103	9.7	12
24	23	628	328	863	1,640	1,150	363	595	83	325	9.7	15
25	23	425	268	643	1,080	959	290	469	138	156	9.1	15
26	25	238	b* 225	530	1,140	732	242	279	89	109	8.6	14
27	29	180	204	834	1,410	594	208	253	70	75	8.6	41
28	28	146	b 195	645	1,780	469	184	* 218	56	57	* 8.6	120
29	24	120	187	490		382	163	185	48	48	7.6	121
30	* 24	98	a 180	438		326	158	141	42	46	7.6	66
31	26		a 170	353		325		135		41	7.6	
Total	1,052	2,933	10,612	15,573	15,364	22,612	14,867	5,436	7,921	3,208	615.1	713.4
Mean	33.9	97.8	342	502	549	729	496	175	264	103	19.8	23.8
Cfsm	0.253	0.730	2.55	3.75	4.10	5.44	3.70	1.31	1.97	0.769	0.148	0.178
In.	0.29	0.81	2.95	4.32	4.26	6.28	4.13	1.51	2.20	0.89	0.17	0.20

Calendar year 1961: Max 4,410 Min 15 Mean 354 Cfsm 2.64 In. 35.82  
 Water year 1961-62: Max 3,160 Min 7.6 Mean 276 Cfsm 2.06 In. 28.01

Peak discharge (base, 2,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
1-9	**	5.86	2,380	3-21	2130	7.18	3,880

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

\*\* Probably between 0400 and 0800.

## Reservoirs in Monongahela River Basin

3-760.--Deep Creek Reservoir.--Lat 39°30'34", long 79°23'28", on Deep Creek at dam, 1.8 miles upstream from mouth and 7 miles north of Oakland, Garrett County, Md. Drainage area, 64.7 sq mi. Records available, July 1925 to September 1962 (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, 89,600 acre-ft Apr. 23 (elevation, 2,461.10 ft); minimum, 58,500 acre-ft Dec. 16, 17 (elevation, 2,452.20 ft). Maximum contents since storage began, 93,258 acre-ft July 24, 25, 1949 (elevation, 2,462.075 ft); minimum observed, 11,763 acre-ft Sept. 30, 1925 (elevation, 2,433.45 ft).

Reservoir is formed by an earthfill dam completed January 1925. Usable capacity, 92,975 acre-ft between elevations 2,425 ft (top of intake to outlet tunnel) and 2,462 ft (crest of spillway). Dead storage, 13,085 acre-ft. Figures given herein represent usable contents. Reservoir is used for hydroelectric power. Records furnished by Pennsylvania Electric Co.

Month-end elevation and contents, water year October 1961 to September 1962			
Date	Elevation (feet)†	Contents (acre- feet)	Change in contents (acre-feet)
Sept. 30 . . . . .	2,457.50	76,400	-
Oct. 31 . . . . .	2,455.00	67,700	- 8,700
Nov. 30 . . . . .	2,453.20	61,700	- 6,000
Dec. 31 . . . . .	2,452.90	60,700	- 1,000
Calendar year 1961. . . . .	-	-	+ 5,700
Jan. 31 . . . . .	2,455.20	68,400	+ 7,700
Feb. 28 . . . . .	2,458.20	78,900	+10,500
Mar. 31 . . . . .	2,460.40	87,000	+ 8,100
Apr. 30 . . . . .	2,461.00	89,300	+ 2,300
May 31 . . . . .	2,460.70	88,100	- 1,200
June 30 . . . . .	2,460.90	88,900	+ 800
July 31 . . . . .	2,459.80	84,800	- 4,100
Aug. 31 . . . . .	2,458.00	78,200	- 6,600
Sept. 30 . . . . .	2,457.00	74,700	- 3,500
Water year 1961-62. . . . .	-	-	- 1,700
† Elevation at 2400.			

## MONONGAHELA RIVER BASIN

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 1½ miles upstream from Bear Creek.

Drainage area.--295 sq mi.

Records available.--August 1898 to December 1904 and October 1940 to September 1962 in reports of Geological Survey. October, November 1940 monthly discharge only, published in WSP 1305. September 1922 to September 1926 (gage heights only) in reports of Pennsylvania Department of Forests and Waters.

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

Average discharge.--28 years (1898-1904, 1940-1962), 645 cfs (adjusted for storage since 1940).

Extremes.--Maximum discharge during year, 6,010 cfs Mar. 21 (gage height, 6.17 ft); minimum, 13 cfs Sept. 2 (gage height, 1.63 ft); minimum daily, 20 cfs Aug. 26, Sept. 16.

1898-1904, 1940-62: 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 no gage-height record, which are fair. Low and medium flow regulated since 1925 by Deep Creek Reservoir (see p. 107).

Rating table, water year 1961-62, (gage height, in feet, and discharge, in cubic feet per second)

1.7	16	2.4	108	3.5	870
1.8	22	2.6	174	4.0	1,570
2.0	43	2.8	270	5.0	3,310
2.2	69	3.0	400	6.0	5,550

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	251	402	333	a 520	2,570	970	550	189	70	183	31
2	153	246	185	473	a 430	1,670	914	552	160	147	174	21
3	224	241	163	403	a 420	1,060	882	477	134	196	167	27
4	293	79	352	341	a 680	815	861	420	211	248	55	156
5	279	50	329	399	a*1,200	867	814	287	605	266	53	183
6	192	226	410	1,060	1,310	761	822	250	1,140	211	170	188
7	82	263	381	3,480	890	736	1,820	328	684	81	170	127
8	39	259	357	2,240	806	597	1,800	347	458	69	163	48
9	175	254	164	1,310	657	615	1,430	463	267	165	a 160	30
10	228	248	215	883	530	393	1,190	291	210	159	a 160	71
11	* 223	79	781	600	364	337	1,090	278	* 357	155	a 44	84
12	221	49	1,190	746	400	1,000	1,340	255	651	156	a 40	78
13	225	210	1,220	489	357	2,080	1,740	234	1,250	160	a 150	85
14	93	102	882	487	406	1,430	1,560	347	1,510	69	192	131
15	78	77	725	584	446	1,080	1,420	325	833	294	183	37
16	293	123	395	1,290	360	906	1,300	436	516	* 596	163	20
17	241	487	789	850	281	633	1,190	426	375	496	156	110
18	273	277	2,500	634	254	552	1,220	356	358	333	42	130
19	253	164	2,540	573	367	818	1,180	214	302	374	35	128
20	245	* 288	2,040	456	1,100	1,440	1,080	322	334	290	144	131
21	91	317	1,520	413	681	4,050	1,060	328	368	144	137	128
22	44	290	1,180	a 1,100	953	5,180	934	284	274	122	137	32
23	192	126	753	a 2,500	1,780	3,240	985	257	169	265	131	27
24	234	1,100	644	a 1,500	2,770	2,510	893	506	145	401	131	118
25	223	894	542	a 1,100	2,130	2,000	766	723	262	379	22	139
26	157	480	589	a 920	2,190	1,750	665	385	291	276	* 20	142
27	151	551	525	a 1,450	2,760	1,490	597	478	245	240	* 114	180
28	92	508	534	a 1,100	3,130	1,270	400	* 357	220	104	141	303
29	45	459	503	a 840	-	1,110	358	343	177	84	137	221
30	206	423	351	a 760	-----	1,030	438	229	79	188	148	168
31	* 265	-----	341	a 600	-----	997	-----	256	-----	188	137	-----
Total	5,536	9,121	21,502	29,914	28,172	44,987	31,719	11,304	12,774	6,926	3,859	3,274
Mean	179	304	758	965	1,006	1,451	1,057	365	426	223	124	109
†	-142	-161	-15.8	+125	+190	+131	+37.5	-18.1	+12.5	-66.4	-107	-59.8
Mean†	37	203	742	1,090	1,196	1,582	1,094	347	438	157	17.0	49.2
Cfsm†	0.125	0.688	2.52	3.69	4.05	5.36	3.71	1.18	1.48	0.532	0.058	0.167
In. ‡	0.14	0.77	2.90	4.26	4.22	6.19	4.14	1.35	1.66	0.61	0.07	0.19
Calendar year 1961:	Max	5,370	Min	26	Mean	743	Mean†	751	Cfsm†	2.55	In. ‡	34.56
Water year 1961-62:	Max	5,180	Min	20	Mean	578	Mean†	576	Cfsm†	1.95	In. ‡	26.50

\* 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.

## MONONGAHELA RIVER BASIN

109

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 1962.

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

Average discharge---15 years, 117 cfs.

Extremes---Maximum discharge during year, 1,760 cfs Mar. 21 (gage height, 4.67 ft); no flow Aug. 31, result of regulation from unknown source.

1947-62: 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, that of Aug. 31, 1962.

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

Rating tables, water year 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 21

Mar. 22 to Sept. 30

1.0	1.9	2.0	149	0.83	0.1	1.5	57
1.1	5.4	2.5	319	0.90	0.8	1.7	94
1.2	11	3.0	570	1.0	4.2	2.0	171
1.3	19	4.0	1,230	1.1	9.5	2.5	339
1.5	42			1.2	18	3.0	585
1.7	77			1.3	28	4.0	1,230

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.1	10	21	b 56	136	544	275	139	71	13	6.5	0.2
2	3.8	7.5	19	b 50	112	336	231	163	48	12	5.3	1.1
3	6.1	6.6	17	b 45	121	253	200	117	38	91	4.4	3.3
4	2.6	6.4	16	b 54	216	204	172	* 96	34	129	5.0	7.2
5	13	8.1	15	66	306	172	154	85	69	54	7.4	35
6	9.4	8.3	14	188	* 296	121	159	78	72	32	6.3	18
7	7.1	7.9	13	516	b 180	156	600	74	44	24	5.1	8.3
8	5.5	7.1	7.9	258	b 165	150	416	81	31	19	4.9	5.6
9	* 4.8	7.0	9.0	b 155	139	b 135	308	102	25	18	5.0	4.0
10	4.6	6.5	13	b 130	124	110	259	78	21	14	* 4.3	3.3
11	4.3	5.9	53	b 110	105	92	254	70	26	12	4.8	4.8
12	4.6	6.0	238	b 92	102	282	358	64	51	13	3.8	6.6
13	4.5	5.9	144	a 82	b 96	364	469	64	261	15	7.4	4.1
14	6.5	7.7	b 96	a 76	b 84	237	400	63	186	20	13	3.1
15	9.6	13	84	b 78	b 76	183	351	56	101	40	10	2.6
16	8.7	23	56	b 150	b 70	* 156	305	111	73	56	7.0	1.9
17	* 8.4	65	111	b 115	63	140	298	113	58	* 49	5.2	2.1
18	6.8	27	484	b 94	62	141	325	70	48	34	4.0	2.4
19	5.7	16	357	b 82	72	164	320	57	40	28	3.5	2.6
20	5.0	13	325	b 76	124	367	333	61	54	21	3.0	3.0
21	4.7	11	203	b 74	b 100	1,140	329	55	50	16	2.9	3.7
22	4.8	9.2	148	b 280	317	1,140	285	45	38	13	2.8	3.5
23	5.2	13	120	b 400	415	762	259	74	32	11	3.1	8.0
24	4.8	195	106	b 270	862	710	218	105	28	11	2.6	8.7
25	4.6	91	94	b 185	414	612	184	64	26	11	2.1	6.8
26	5.1	43	b 84	b 155	531	484	159	48	22	9.7	1.7	5.9
27	6.0	33	* 77	301	919	411	140	* 46	19	8.7	* 1.6	23
28	5.6	27	78	201	1,010	341	127	69	17	8.0	1.3	54
29	5.0	24	62	156	-	* 308	115	67	15	7.9	1.1	26
30	8.0	22	b 62	144	---	281	106	62	14	7.9	.9	16
31	17	---	b 62	119	---	284	---	143	---	7.6	0.0	---
Total	219.3	726.1	3,188.9	4,758	7,217	10,787	9,109	2,520	1,612	805.8	136.0	274.8
Mean	7.07	24.2	103	153	258	348	270	81.3	53.7	26.0	4.39	9.16
Cfsm	0.113	0.387	1.65	2.45	4.13	5.57	4.32	1.30	0.859	0.416	0.070	0.147
In.	0.13	0.43	1.90	2.83	4.30	6.42	4.83	1.50	0.96	0.48	0.08	0.16

Calendar year 1961: Max 1,690 Min 3.8 Mean 143 Cfsm 2.29 In. 31.03  
 Water year 1961-62: Max 1,140 Min 0 Mean 111 Cfsm 1.78 In. 24.02

Peak discharge (base, 1,000 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-24	1000	3.83	1,110	3-21	1745	4.67	1,760
2-28	0730	3.98	1,220				

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

## MONONGAHELA RIVER BASIN

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 1962.

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

Average discharge.--30 years, 38.2 cfs (unadjusted).

Extremes.--Maximum discharge during year, 824 cfs Mar. 21 (gage height, 4.28 ft); minimum discharge, 0.2 cfs Aug. 29 to Sept. 2 (gage height 0.98 ft).

1932-62: 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 1961-62, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 17				Dec. 18 to Sept. 30			
1.08	0.3	1.5	7.0	1.0	0.2	2.0	41
1.1	.4	1.6	10	1.1	1.0	2.3	79
1.2	1.2	1.8	22	1.2	2.3	2.6	133
1.3	2.5	2.0	39	1.3	4.1	3.0	233
1.4	4.4	2.3	75	1.4	6.5	3.5	425
				1.6	14	4.0	671
				1.8	25		

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

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.7	3.0	b 9.0	a 24	185	105	32	13	1.1	0.9	0.2
2	.5	.5	2.8	b 7.0	a 23	119	83	35	11	1.0	.8	.7
3	1.4	.5	2.8	b 6.0	a 22	b 92	66	51	8.8	20	.8	1.4
4	4.2	.5	3.0	b 6.5	a 25	b 72	53	24	8.1	30	.9	1.9
5	2.1	.9	2.5	b 13	a 53	51	47	* 14	13	12	4.3	3.9
6	1.2	1.6	1.8	41	b 52	36	50	14	14	* 7.2	2.1	2.0
7	.9	.8	1.6	114	b 40	45	220	18	8.3	5.8	1.3	1.2
8	.7	.7	1.3	87	b 36	b 38	185	21	6.4	5.3	1.0	1.0
9	* .6	.8	.8	b 64	b 30	b 36	137	22	5.5	8.7	1.1	.9
10	.5	.6	1.0	b 43	b 27	29	100	18	4.0	5.1	3.2	.9
11	.4	.5	6.2	b 39	b 25	25	97	17	5.1	3.6	2.5	1.0
12	.3	.5	51	32	24	76	131	17	8.0	3.6	1.4	.7
13	.5	.5	35	26	21	105	205	16	29	3.9	2.0	.5
14	.8	.7	b 20	22	19	78	175	15	22	5.0	2.7	.4
15	.8	1.8	13	32	17	62	139	15	15	8.2	2.4	.4
16	.7	2.9	9.1	32	16	52	114	18	12	8.6	1.5	.4
17	* .8	4.7	11	22	16	45	99	21	9.2	* 8.0	1.1	.5
18	.5	3.8	91	17	14	43	95	16	7.6	6.3	.8	.6
19	.4	2.3	89	15	16	47	90	15	6.2	5.6	.8	.4
20	.4	1.7	89	16	20	95	97	15	9.8	3.5	.8	.4
21	.5	* 1.8	63	14	16	485	95	13	7.3	3.1	.7	.4
22	.4	1.2	45	53	68	497	88	11	5.1	3.3	.6	.4
23	.4	1.9	b 37	61	108	296	81	17	4.3	2.5	.5	1.5
24	.5	28	b 30	a 39	286	261	65	25	3.4	2.0	.4	1.3
25	.4	12	b 24	a 36	155	227	53	15	3.0	1.7	.4	.9
26	.5	7.8	b 22	a 30	240	182	45	13	2.3	1.5	.4	.8
27	.5	6.4	* 21	a 44	357	155	38	12	2.0	1.3	* .4	4.6
28	.5	4.6	19	a 36	368	129	35	17	1.8	1.1	.4	8.2
29	.4	3.7	14	a 31	-	* 119	32	* 16	1.6	1.1	.2	4.7
30	.8	3.2	b 12	a 28	-----	119	30	13	1.2	1.3	.2	3.0
31	1.1	-----	b 11	a 25	-----	117	-----	19	-----	1.2	.2	-----
Total	24.1	97.6	732.9	1,040.5	2,118	3,918	2,850	585	248.0	1,726	368	452
Mean	0.78	3.25	23.6	33.6	75.6	126	95.0	18.9	8.27	5.57	1.19	1.51

Calendar year 1961: Max 728 Min 0.3 Mean 45.2 Cfsm 1.84 In. 25.03  
 Water year 1961-62: Max 497 Min 0.2 Mean 32.5 Cfsm 1.33 In. 18.04

Peak discharge (base, 450 cfs)

Date	Time	Gage height	Discharge	Date	Time	Gage height	Discharge
2-28	0545	3.62	482	3-21	1900	4.28	824

\* Discharge measurement made on this day.

a No gage-height record.

b Stage-discharge relation affected by ice.

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 1962

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Delaware River basin						
4774	South Branch Naaman Creek near Claymont, Del.	Lat 39°49'00", long 75°29'40", at dam 800 ft above bridge on Marsh Road, 2.2 miles west of Claymont, New Castle County.	3.83	1955-62	9-24-62	0.29
4795	Mill Creek at Stanton, Del.	Lat 39°42'50", long 75°40'00", at highway bridge, 1.2 miles west of Stanton, New Castle County.	12.4	1931-34† 1955-62	9-24-62	2.35
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, New Castle County.	3.05	1957-62	9-24-62	.46
4823	Red Lion Creek at Red Lion, Del.	Lat 39°36'20", long 75°39'55", at bridge on State Highway 7, 0.2 mile south of Red Lion, New Castle County.	3.20	1955-62	9-24-62	.28
4831.5	Wiggins Millpond Outlet at Townsend, Del.	Lat 39°24'12", long 75°42'16", at bridge on State Highway 446, 0.8 mile northwest of Townsend, New Castle County.	3.82	1957-62	9-24-62	2.85
Smyrna River basin						
4833	Providence Creek at Clayton, Del.	Lat 39°18'05", long 75°38'28", at highway bridge 0.8 mile north of Clayton, Kent County.	11.8	1955-62	9-24-62	3.80
4833.5	Mill Creek at Smyrna, Del.	Lat 39°17'09", long 75°36'45", at old dam 500 ft above highway bridge, 1 mile south of Smyrna, Kent County.	4.77	1955-57 1959-62	9-24-62	1.11
St. Jones River basin						
4836.5	Fork Branch at Dupont, Del.	Lat 39°11'56", long 75°34'40", at highway bridge 0.8 mile northwest of Dupont, Kent County.	7.50	1955-57 1959-62	9-25-62	0.18
4836.8	Maidstone Branch at Dupont, Del.	Lat 39°11'18", long 75°34'04", at highway bridge, 0.4 mile southwest of Dupont, Kent County.	17.3	1955-57 1959-62	9-25-62	1.06
Murderkill River basin						
4840.2	Browns Branch near Houston, Del.	Lat 38°57'31", long 75°30'33", at highway bridge, 2.9 miles north of Houston, Kent County.	12.4	1955-62	9-24-62	5.47
4840.5	Pratt Branch near Felton, Del.	Lat 39°00'37", long 75°31'46", at highway bridge, 2.6 miles east of Felton, Kent County.	3.29	1955-57 1959-62	9-24-62	1.34
4840.6	Double Run near Magnolia, Del.	Lat 39°03'16", long 75°29'43", at highway bridge 1.5 miles southwest of Magnolia, Kent County.	5.68	1955-57 1959-62	9-24-62	2.44
Cedar Creek basin						
4842	Cedar Creek near Lincoln, Del.	Lat 38°51'03", long 75°25'05", at highway bridge 1.2 miles south of Lincoln, Sussex County.	7.21	1955-62	9-24-62	6.31

† Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1962--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
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, Sussex County.	6.68	1955-62	9-24-62	3.36
4844	Beaverdam Creek near Milton, Del.	Lat 38°45'41", long 75°16'03", at highway bridge, 2.5 miles east of Milton, Sussex County.	6.10	1955-62	5- 8-62 9-24-62	12.5 7.45
Indian River basin						
*4845.5	Pepper Creek at Dagsboro, Del.	Lat 38°32'50", long 75°14'40", at bridge on State Highway 26, at Dagsboro, Sussex County.	8.78	1955-62	9-24-62	1.13
Nanticoke River basin						
4871	Deep Creek at Old Furnace, Del	Lat 38°40'01", long 75°31'02", at highway bridge at Old Furnace, 5.6 miles northeast of Seaford, Sussex County.	33.0	1955-62	9-24-62	3.58
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, Sussex County.	12.7	1955-62	5- 8-62 9-24-62	11.7 2.58
4873	Butler Mill Branch near Woodland, Del.	Lat 38°37'56", long 75°39'35", at highway bridge, 2.2 miles north of Woodland, Sussex County.	6.96	1955-62	5- 8-62 9-24-62	6.45 1.50
4877	Chipman Pond Branch near Laurel, Del. a/	Lat 38°34'39", long 75°31'42", at highway bridge, 2.9 miles northeast of Laurel, Sussex County.	8.55	1955-62	5- 8-62 9-24-62	7.86 1.90
Susquehanna River basin						
5779.5	Broad Creek at Pylesville, Md.	Lat 39°41'16", long 76°22'24", 400 ft below bridge on State Highway 165, at Pylesville, Harford County.	11.3	1956-59 1962	7-30-62	3.84
Swan Creek basin						
5807	Swan Creek at Swan Creek, Md.	Lat 39°31'21", long 76°08'33", at bridge on U. S. Highway 40 at Swan Creek, Harford County	13.2	1956-59 1962	7-31-62	1.90
Bush River basin						
5809	Grays Run at Stepney, Md.	Lat 39°29'18", long 76°12'52", at bridge on State Highway 7, 0.9 mile west of Stepney, Harford County.	5.35	1956-59 1962	7-31-62	.23
5816	Bynum Run at Bush, Md.	Lat 39°28'19", long 76°16'01", at bridge on State Highway 7, 0.2 mile southwest of Bush, Harford County.	22.5	1956-59 1962	7-31-62	8.13
5816.5	James Run at Bush, Md.	Lat 39°28'35", long 76°15'38", at bridge on State Highway 7, 0.2 mile northeast of Bush, Harford County.	11.1	1956-59 1962	7-31-62	1.95
5817.5	Winters Run near Bel Air, Md.	Lat 39°30'55", long 76°22'10", at bridge on U. S. Highway 1, 1½ miles southwest of Bel Air, Harford County.	37.0	1954-59 1962	7-31-62	18.2
Gunpowder River basin						
5822	Georges Run at Armacost, Md.	Lat 39°36'55", long 76°47'26" at bridge on State Highway 25 below Beckleysville Rd., 0.7 mile northeast of Armacost, Baltimore County.	13.0	1956-59 1962	7-13-62 8-30-62	4.82 2.76
5832	Blackrock Run at Coopersville, Md.	Lat 39°32'36", long 76°44'00", at bridge on State Highway 401, ½ mile southeast of Coopersville, Baltimore County.	9.38	1956-59 1962	7-30-62 8-30-62	4.59 2.90
5836	Beaverdam Run at Cockeysville, Md.	Lat 39°29'08", long 76°38'45", at bridge on U. S. Highway 111, at Cockeysville, Baltimore County.	20.8	1955-59 1962	7-30-62	11.4
5842	Little Gunpowder Falls at Hess, Md.	Lat 39°32'37", long 76°31'53", at bridge on State Highway 146, ¾ mile south of Hess, Baltimore County.	16.5	1956-59 1962	7-30-62	8.36
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, Carroll County.	12.7	1957-59 1961-62	7-13-62 8-29-62	3.56 3.10

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

b Includes 0.8 cfs diverted 125 ft upstream.

Discharge measurements made at low-flow partial-record stations during water year 1962--Continued

Discharge measurements made at low-flow partial-record stations during water year 1962--Continued						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
Patapsco River basin--Continued						
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, Carroll County	26.0	1957-59 1961-62	7-13-62 8-29-62	7.01 5.10
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, Howard County.	3.93	1956-59 1961-62	7-13-62	1.49
5932	Little Patuxent River at Pine Orchard, Md.	Lat 39°16'42", long 76°51'11", at bridge on U. S. Highway 40, 0.4 mile east of Pine Orchard, Howard County.	7.03	1956-59 1961-62	8- 1-62 8-30-62	2.47 1.55
5936	Middle Patuxent River near West Friendship, Md.	Lat 39°17'14", long 76°57'33", at bridge on State Highway 32, 1.1 miles south of West Friendship, Howard County.	11.4	1956-59 1961-62	8- 1-62	3.83
5941	Hammond Branch at Scaggsville, Md.	Lat 39°09'13", long 76°53'35", at bridge on State Highway 196, 0.7 mile north-east of Scaggsville, Howard County.	3.01	1956-59 1962	8- 1-62	1.09
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, Carroll County.	22.9	1956-59 1961-62	7-12-62	.19
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, Carroll County.	9.39	1956-59 1961-62	7-13-62 8-30-62	4.91 3.34
6394.5	Big Pipe Creek at Pipe Creek, Md.	Lat 39°40'01", long 77°06'23", below Silver Run, 1,000 ft west of Pipe Creek, Carroll County.	51.6	1956-59 1962	7-12-62 8-29-62	13.6 12.0
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, Carroll County.	12.6	1956-59 1961-62	7-12-62 8-29-62	4.24 3.90
6401	Wolfpit Branch at Linwood, Md.	Lat 39°33'57", long 77°08'44", at bridge on State Highway 75, $\frac{1}{4}$ mile northwest of Linwood, Carroll County.	2.01	1956-59 1961-62	7-12-62 8-29-62	1.02 .87
6401.5	Little Pipe Creek at Union Bridge, Md.	Lat 39°34'20", long 77°10'35", at bridge on State Highway 75, 0.1 mile north of Union Bridge, Carroll County.	40.4	1956-59 1962	7-12-62 8-29-62	13.9 12.0
6470	Little Falls Branch near Bethesda, Md.	Lat 38°57'27", long 77°06'31", at bridge on Massachusetts Avenue, 2.0 miles southwest of Bethesda, Montgomery County.	c 4.1	1944-59* 1960-62	10-20-59 12-21-59 1-30-60 3-29-60 4-21-60 5- 4-60 7-18-60 8- 8-60 8-25-60 9- 7-60 9-29-60 10-15-60 10-22-60 11- 3-60 11-15-60 5-20-61 7- 5-61 7-20-61 8-17-61 11-30-61 4-19-62 6-28-62	.26 .85 1.01 1.20 1.44 .79 .58 .59 .71 .36 .60 .41 .52 .79 .67 1.64 .93 .71 .50 .73 1.67 .54

\* Operated as a continuous-record gaging station.

c Approximately

## Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1962

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
Leipsic River basin							
4835	Leipsic River near Cheswold, Del.	Lat 39°13'58", long 75°37'57", at bridge 1.9 miles east of Kenton and 2.6 miles northwest of Cheswold, Kent County.	9.35	1931-33* 1943-57* 1958-62	3-12-62	2.99	118
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, Sussex County.	8.78	1960-62	3- 6-62	5.25	(+)
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, Sussex County.	2.19	1951-56* 1959-62	3- 6-62	2.20	(+)
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, Kent County.	5.93	1952-62	3-12-62	6.18	(+)
4905	Culbreth Marsh Ditch near Chapel town, Del.	Lat 39°04'45", long 75°41'05", 40 ft downstream from bridge on State Highway 223, 1.6 miles south of Chapeltown, Kent County.	11.6	1951-56* 1957-62	4- 8-62	6.42	(+)
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, Queen Annes County, and 2.2 miles northwest of Wye Mills.	8.09	1952-56* 1957-62	3- 7-62	3.73	(+)
Chester River basin							
4940	Southeast Creek at Church Hill, Md.	Lat 39°07'57", long 75°58'51", at bridge on private road, 0.7 mile south of Church Hill, Queen Annes County.	12.5	1952-56* 1957-62	3-12-62	6.10	(+)
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, 1½ miles north of Sykesville, Carroll County, and 5½ miles above mouth.	11.4	1932-58* 1959-62	2-26-62	4.16	396
5892.2	Gwynns Falls at Owings Mills, Md.	Lat 39°25'14", long 76°46'56", at bridge on U. S. Highway 140 at Owings Mills, Baltimore County.	9.12	1958-62	1962	<3.98	(+)
5892.4	Gwynns Falls at McDonogh, Md.	Lat 39°23'28", long 76°45'56", at bridge on McDonogh Road at McDonogh, Baltimore County.	19.3	1958-62	3-12-62	6.01	(+)
5894	Jones Falls at Brooklandville, Md.	Lat 39°24'51", long 76°40'04", at bridge on State Highway 25 at Brooklandville, Baltimore County.	19.7	1958-62	1962	<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, Baltimore County.	25.2	1958-62	7-23-62	11.07	(+)

\* 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 1962--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (cfs)
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, ½ mile southeast of Savage, Howard County, and 1 mile below Middle Patuxent River.	98.4	1940-58# 1959-62	3-12-62	9.41	3,980
5944	Dorsey Run near Jessup, Md.	Lat 39°07'15", long 76°47'00", at bridge on State Highway 32, 0.6 mile southeast of Fort George G. Meade Junction, 1.0 mile upstream from mouth, and 2 miles south of Jessup, Anne Arundel County.	11.6	1948-58# 1959-62	9- 2-59 9-12-60 3-12-62	7.58 9.10 7.09	a516 a692 475
Potomac River basin							
6180	Potomac River at Shephardstown, W. Va.	Lat 39°26'04", long 77°48'07". 0.1 mile downstream from Rumsey Bridge at Shephardstown, Jefferson County.	5,936	1929-53# 1954-62	3-23-62	19.90	83,000
6370	Little Catoclin Creek at Harmony, Md.	Lat 39°28'55", long 77°32'20", at county highway bridge, 0.9 mile southwest of Harmony, Frederick County, and 2.8 miles upstream from mouth.	d8.9	1947-58# 1959-62	8- 8-59 6-18-60 4-13-61 2-26-62	3.39 4.5 3.38 3.29	212 b590 c210 190
6400	Little Pipe Creek at Avondale, Md.	Lat 39°33'40", long 77°02'38", at private bridge 0.1 mile below Copps Branch, ½ mile northwest of Avondale, Carroll County, and 3 miles southwest of Westminster.	8.10	1948-56# 1959-62	6- 6-62	3.18	182
6435	Bennett Creek at Park Mills, Md.	Lat 39°17'40", long 77°24'30", 75 ft below highway bridge, 0.2 mile south of Park Mills, Frederick County, 1.8 miles upstream from mouth, and 3.7 miles southwest of Urbana.	62.8	1948-58# 1959-62	1959 9-12-60 3-13-62	- 4.71 5.20	Unknown 1,210 1,350

† Discharge not determined

\* Operated as a continuous-record gaging station

a Not previously published

b About

c Revised

d Approximately

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## 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 1962

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Wicomico River basin						
Tonytank Creek	Wicomico River	Lat 38°19'52", long 75°35'54", on upstream side of dam 5 ft right of right overflow culvert, at Fooks Pond outlet, 1 mile northeast of Fruitland and 1.1 miles south of Salisbury, Wicomico County.	5.0	1950-51	8-28-62	3.85
North Prong Wicomico River	Wicomico River	Lat 38°22'18", long 75°36'11", at downstream side of bridge at Isabella Street in Salisbury, Wicomico County.	42.0	-	8-28-62	33.7
Severn River basin						
Severn Run	Severn River	Lat 39°04'51", long 76°37'35", at bridge on State Highway 3, $\frac{1}{2}$ mile south of Benfield, Anne Arundel County.	23.9	1955 1961	10-10-61	15.4
Potomac River basin						
Warrior Run	North Branch Potomac River	Lat 39°36'09", long 78°51'51", 0.1 mile above old dam, 1.7 miles northwest of Cresaptown, Allegeny County, and 3.4 miles above mouth.	1.46	-	8- 9-62	.14
Mill Run	North Branch Potomac River	Lat 39°32'08", long 78°53'20", just above abandoned B & O Railroad water intake, 900 ft northwest of U. S. Highway 220 at Rawlings, Allegany County.	2.64	1960-61	9-11-62	a.18 b.13
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, Allegany County.	-	1958-61	8- 9-62	9.38
Murley Branch Spring	Murley Branch	Lat 39°39'38", long 78°37'08", below dam at spring house of farm on Williams Road, 4.0 miles southwest of Flintstone, Allegany County.	-	1958-61	8- 9-62	1.09
Sawpit Run	North Branch Potomac River	Lat 39°32'50", long 78°33'20", 900 ft upstream from bridge on State Highway 51, 1.0 mile upstream from mouth, and 3.0 miles east of Oldtown, Allegany County.	c5.0	1947-58*	8- 9-62	.002
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, Charles County.	c5.3	1961	10-24-61 12- 8-61 3-22-62 4-23-62 5-28-62 7- 5-62 8- 3-62	*.73 .37 *24.4 *5.22 *1.50 *.55 .09
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, Charles County.	c6.7	1961	10-24-61 12- 8-61 1-10-62 3-23-62 4-23-62 5-28-62 7- 5-62 8-10-62	*1.07 *.94 *4.25 *16.6 *8.97 *4.29 *1.52 .53

\* Not base flow.

† Operated as a continuous-record station.

a Upstream from intake.

b Downstream from intake.

c Approximately

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