

**1969**

**Water Resources Data**  
**for**  
**Maryland and Delaware**

**Part 2. Water Quality Records**



**UNITED STATES**  
**DEPARTMENT OF THE INTERIOR**  
**GEOLOGICAL SURVEY**

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

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Delaware Geological Survey  
Maryland Geological Survey  
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Water resources records, 1969 for Maryland and Delaware  
are in the following reports of the U.S. Geological Survey:

1. Water Resources Data for Maryland and Delaware  
Part 1. Surface Water Records
2. Water Resources Data for Maryland and Delaware  
Part 2. Water Quality Records

Copies of this report may be obtained from  
District Chief, Water Resources Division  
U.S. Geological Survey  
8809 Satyr Hill Road  
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IV WATER-QUALITY STATIONS IN DOWNSTREAM ORDER  
FOR WHICH RECORDS ARE PUBLISHED

(Letters after station name designate type of data;  
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# WATER RESOURCES DATA FOR MARYLAND AND DELAWARE, 1969

## Part 2. Water Quality Records

### INTRODUCTION

Water resources data for the 1969 water year for Maryland and Delaware include records of data for the chemical and physical characteristics of surface water. Data on the quality of surface water (chemical, temperature, and sediment) were collected from designated sampling sites at predetermined intervals such as once daily, weekly, monthly or less frequently, and at some sites data were recorded on punched paper tape at 15-, 30-, or 60-minute intervals. Locations of surface water-quality stations are shown in Figure 1. A few pertinent stations (not included above) in bordering States are also included. The records were collected by the Water Resources Division of the U.S. Geological Survey under the direction of W. F. White, district chief, Parkville, Md., and N. H. Beamer, district chief, Harrisburg Pa. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Maryland and Delaware.

The Geological Survey has published records of chemical quality, water temperatures, and sediment since 1941 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Beginning with the 1964 water year, water-quality records have been released by the Geological Survey in annual reports on a State-boundary basis. These reports are for limited distribution and are designed primarily for rapid release of data shortly after the end of the water year. These records will be published later in Geological Survey water-supply papers.

## COOPERATION

This report was prepared by the U.S. Geological Survey under cooperative agreement with the following organizations:

Delaware: Delaware Geological Survey,  
R. R. Jordan, State geologist.

Maryland: Maryland Geological Survey,  
Kenneth N. Weaver, Director; Maryland National  
Capital Park and Planning Commission, R. C. McDonell,  
executive director; Washington Suburban Sanitary  
Commission, Robert J. McLeod, acting general manager  
and chief engineer.

District of Columbia: Department of Sanitary  
Engineering, N. E. Jackson, director.

Agencies furnishing assistance were: Soil Conservation  
Service, U.S. Department of Agriculture, Federal Water  
Pollution Control Administration, U.S. Department of the  
Interior.

## DEFINITION OF TERMS

Terms related to water-quality and hydrologic data, as used in this report are defined as follows:

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, approximately 1.9835 acre-feet, or about 646,000 gallons, and represents a runoff of approximately 0.0372 inches from 1 square mile.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate or delayed incubation membrane filter method.

Cubic foot per second (cfs, CFS) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

Mean discharge is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time. If this discharge is reported instead of the daily mean, the heading of the discharge column in the tables is "Discharge (cfs)."

Drainage area of a stream at a specified location is that area, measured in horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface stream and bodies of impounded surface water.

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 computed.

Hardness of water is a physical-chemical characteristic attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per liter ( $\mu\text{g/l}$ ,  $\text{UG/L}$ ) is a unit expressing the concentration of chemical constituents in solution as weight (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter ( $\text{mg/l}$ ,  $\text{MG/L}$ ) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume of water. Milligrams or micrograms per liter may be converted to milliequivalents (one thousandth of a gram-equivalent weight of a constituent) per liter by multiplying by the factors in table 1, page 5. Concentration of suspended sediment also is expressed in  $\text{mg/l}$ , and is based on the weight of sediment per liter of water-sediment mixture. Sediment concentrations may be converted to parts per million by using the factors in table 2, p. 5.

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

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling) (Guy, 1969).

Particle-size classification, used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

Table 1.--Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

<u>Ion</u>	<u>Multi- ply by</u>	<u>Ion</u>	<u>Multi- ply by</u>
Aluminum ( $\text{Al}^{+3}$ )* ...	0.11119	Iodide ( $\text{I}^{-1}$ ).....	0.00788
Ammonia as $\text{NH}_4^{+1}$ .....	.05544	Iron ( $\text{Fe}^{+3}$ )*.....	.05372
Barium ( $\text{Ba}^{+2}$ ).....	.01456	Lead ( $\text{Pb}^{+2}$ )*.....	.00965
Bicarbonate ( $\text{HCO}_3^{-1}$ ).....	.01639	Lithium ( $\text{Li}^{+1}$ )*.....	.14411
Bromide ( $\text{Br}^{-1}$ ).....	.01251	Magnesium ( $\text{Mg}^{+2}$ )..	.08226
Calcium ( $\text{Ca}^{+2}$ ).....	.04990	Manganese ( $\text{Mn}^{+2}$ )*.	.03640
Carbonate ( $\text{CO}_3^{-2}$ )....	.03333	Nickel ( $\text{Ni}^{+2}$ )*.....	.03406
Chloride ( $\text{Cl}^{-1}$ ).....	.02821	Nitrate ( $\text{NO}_3^{-1}$ )....	.01613
Chromium ( $\text{Cr}^{+6}$ )*....	.11539	Nitrite ( $\text{NO}_2^{-1}$ )....	.02174
Cobalt ( $\text{Co}^{+2}$ )*.....	.03394	Phosphate ( $\text{PO}_4^{-3}$ )..	.03159
Copper ( $\text{Cu}^{+2}$ )*.....	.03148	Potassium ( $\text{K}^{+1}$ )...	.02557
Cyanide ( $\text{CN}^{-1}$ ).....	.03844	Sodium ( $\text{Na}^{+1}$ ).....	.04350
Fluoride ( $\text{F}^{-1}$ ).....	.05264	Strontium ( $\text{Sr}^{+2}$ )*.	.02283
Hydrogen ( $\text{H}^{+1}$ ).....	.99209	Sulfate ( $\text{SO}_4^{-2}$ )....	.02082
Hydroxide ( $\text{OH}^{-1}$ )....	.05880	Zinc ( $\text{Zn}^{+2}$ )*.....	.03060

\*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Table 2.--Factors for conversion of sediment concentration in milligrams per liter to parts per million\*  
(All values calculated to three significant figures)

<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>	<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>	<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>	<u>Range of concentration in 1000 mg/l</u>	<u>Di- vide by</u>
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	427-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

\*Based on water density of 1.000 g/ml and a specific gravity of sediment of 2.65.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis (Guy, 1969).

Sediment is solid material that originates mostly from disintegrated rocks and is transformed by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time. It is computed by multiplying discharge times mg/l times 0.0027.

Total sediment discharge or total sediment load is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that is discharged during a given time (Colby and Hembree, 1955).

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams or dry sediment per liter of water-sediment mixture (mg/l).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the dissolved-solids content in the water. Commonly, the amount of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may even vary in the same source with changes in the composition of the water.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff." Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the location of the thermograph or a digital mechanism that automatically records water temperature on paper tape.

#### DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of water-quality stations in the front of this report the rank of tributaries is indicated by indentation, each indentation representing one rank.

As an added means of identification, each water-quality station, gaging station, and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continuous-record stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations

have the same number as the gaging or partial-record station. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station, such as 01481500 which appears just to left of the station name includes the 2-digit part number "01" plus the 6-digit downstream order number "481500." In this report the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 1 (North Atlantic Slope basins) and Part 3 (Ohio River basin). 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.

#### COLLECTION AND EXAMINATION OF DATA

Water samples for analyses usually are collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the chemical constituents and sediment loads. Discharge records for streams in Maryland and Delaware have been released in the report, "Water Resources Data for Maryland and Delaware, 1969, Part 1. Surface Water Records.

The data in this report include a description of the sampling station and tabulations of the samples analyzed. The description of the sampling station gives the location, drainage area, periods of record for the various water-quality data, extremes of the pertinent data, and general remarks, in a format similar to that used for streamflow gaging stations.

Water-quality information is presented for chemical quality, microbiological, water temperature, and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, specific conductance, and pH. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water-temperature data represent once-daily observations except for stations where a continuous temperature recorder furnishes information from which daily minimums and maximums are obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations and for particle-size distribution of suspended sediment and bed material.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the U.S. Geological Survey began to use the metric system; data for chemical constituents and concentrations of suspended sediment are now reported in milligrams per liter (mg/l) and water temperatures are given in degrees Celsius (centigrade, °C). In waters with a density of 1.000 g/ml (grams per milliliter), parts per millions and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter. To convert temperature in degrees Celsius to degrees Fahrenheit, see table 3 below.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. (See "Definitions of Terms," p. 4.)

Table 3.--Degrees Celsius (°C) to degrees Fahrenheit (°F)\*  
(Temperature reported to nearest 0.5°)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

$$^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32) \text{ or } ^{\circ}\text{F} = 9/5 (^{\circ}\text{C}) + 32$$

### Solutes

The methods of collecting and analyzing water samples for determining the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970). One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge depending on the source of material and the turbulence and the mixing of the stream. Some must be sampled at several verticals across the channel to determine accurately the solute load.

At chemical quality stations where monitors are installed, the records consist of daily maximum, minimum, and mean values for each constituent measured. More detailed records (hourly values) may be obtained from the district office of the U.S. Geological Survey at the address given on page II of this report.

### Temperature

Water temperatures are measured at most of the water-quality stations. For daily stations, the water temperatures are taken at about the same time each day when sample is collected. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where continuously recording thermographs are present, the records consist of maximum and minimum temperatures for each day and the monthly averages.

### Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the sub-divided day



method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the sub-divided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

#### WATER SUPPLY PAPERS

The annual series of water-supply papers that give information on quality of surface waters in Maryland and Delaware are shown in the following table.

Table 4.--Water-supply paper numbers and parts, water years, 1947-68

<u>Year</u>	<u>WSP No.</u>	<u>Year</u>	<u>WSP No.</u>
1947	1102	1958	1571
1948	1132	1959	1641, 1642
1949	1162	1960	1741, 1742
1950	1186	1961	1881, 1882
1951	1197	1962	1941, 1942
1952	1250	1963	1947, 1948
1953	1290	1964	1954, 1955
1954	1350	1965	1961, 1962
1955	1400	1966	1991, 1992
1956	1450	1967	2011, 2012
1957	1520	1968	A2092, 2093

A in press.

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- Hem, J. D., 1970, Study and interpretation of the chemical characteristics of natural water, Revised edition: U.S. Geological Survey Water-Supply Paper 1473, 363 p.
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## WATER-QUALITY RECORDS

## DELAWARE BAY

15

01412350 DELAWARE BAY AT SHIP JOHN SHOAL LIGHTHOUSE, N. J.

LOCATION.--Lat 39°18'19", long 75°22'37", Cumberland County, water-quality recorder on light ship in bay opposite Bombay Hook Island, Del., and 3 miles south southwest of mouth of Cohansey River, N.J.  
 PERIOD OF RECORD.--Chemical analyses: April to September 1969.  
 EXTREMES, 1969.--Specific Conductance: Maximum, 35,000 micromhos Sept. 23; minimum, 2,500 micromhos Aug. 7.

## SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) OF WATER, APRIL TO SEPTEMBER 1969

DAY	APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1...	--	--	--	25200	19000	22013	27000	18400	22017	24600	17400	20883	15500	7000	11254	26000	20500	23483
2...	--	--	--	24800	17400	20867	25900	18000	21692	24600	16600	21029	13600	6200	10658	26000	20200	23329
3...	21600	12800	--	22000	15700	19033	26200	17400	20750	26400	18100	22042	15400	6200	10875	25100	19600	22892
4...	21600	15000	17979	22800	15400	19000	24200	16700	20629	25100	17700	21750	14400	4900	9933	29200	16900	24083
5...	21700	13700	17588	24600	16300	19925	24800	17500	20613	23900	18100	21213	12500	2900	8692	28500	18600	25242
6...	23200	14000	18167	22800	14800	19409	23700	17200	20821	24800	16000	21058	13700	2700	8454	29100	19300	25154
7...	20600	13000	17657	22800	14700	19488	22600	17000	20292	24500	16700	21692	15700	2500	8646	28800	18600	24746
8...	20800	12000	16838	23300	15600	19317	23300	16300	20554	24900	19900	22425	20200	5300	11692	30100	21000	25296
9...	21500	12800	--	21000	14300	17917	24400	17500	20938	24500	15400	21342	17500	6300	12096	30200	24600	27142
10...	20400	9900	--	19900	12600	17533	23900	15400	20646	25400	17600	21283	18400	8200	13383	31900	24400	28225
11...	19800	10600	15667	20200	14400	17754	24500	17000	21517	25200	17500	21979	19800	11800	15021	32700	26000	29467
12...	--	--	--	20700	11700	17321	23900	17500	21004	25400	18200	22375	21000	12000	17254	31800	27800	30042
13...	19300	11800	--	20800	12200	17358	23000	16100	--	25400	18600	22375	21900	14400	18129	32200	26400	29613
14...	19200	12000	15968	22000	13800	17779	22800	15000	19725	25900	18500	22675	22200	15400	18646	32500	27000	29796
15...	19500	11200	15718	22200	13800	18517	22800	15800	19704	26300	18300	22863	21400	15300	18588	32400	25900	30017
16...	19700	11400	16363	21400	12600	17808	21600	15500	18550	25700	18800	22958	20200	14000	18254	31600	26300	28900
17...	19800	11200	16332	25600	12100	16575	23000	12300	19067	25400	19300	22592	19700	15300	17771	31100	25300	28067
18...	19900	10600	16350	20400	11300	15596	24200	15500	19833	24500	19200	22708	20400	14000	17933	32500	25100	29129
19...	20000	12600	15679	19200	12000	16204	23200	12700	19504	25900	19500	23075	20100	13600	17350	33700	27200	30433
20...	20800	11300	16346	19800	10300	15150	22100	12400	18429	27000	20200	23900	25300	14500	19358	32800	27200	30338
21...	19900	9500	15008	17400	8900	14421	22000	11400	18642	24800	19300	22904	24200	15700	19638	34500	26500	30667
22...	18200	9500	14667	19800	11100	16275	23400	16000	20046	25600	20000	23146	24100	14200	19742	34200	26000	30754
23...	18000	6800	13133	20500	11100	16608	23100	15400	20238	25900	17500	23188	25900	15900	21346	35000	28500	31767
24...	19800	8000	12908	19600	11000	15371	22900	15600	19779	26300	19100	23421	27200	19000	22646	34700	28500	31621
25...	23000	6100	14250	19800	10700	15521	23300	17200	20058	26000	18800	23213	27500	18500	23800	34600	27700	31029
26...	25600	7600	15979	18600	12200	15925	23600	13400	19729	27000	20200	23204	29500	21900	24946	34500	28700	31554
27...	25600	14600	19929	20700	10800	16913	23700	16000	20196	26300	20500	22846	29000	22400	25392	34000	27900	31138
28...	22600	15100	20008	22600	14700	18771	23800	17000	20342	24400	18400	21721	29100	21600	24929	33400	26600	30475
29...	25200	14600	21413	23400	15500	19404	23800	16500	20121	22000	13700	18350	28700	21000	24192	33300	22300	30000
30...	25200	19900	22333	28400	18200	22175	25200	16700	20913	18400	10100	14304	26500	20800	23983	33400	26800	30775
31...	--	--	--	25000	18000	21700	--	--	--	18600	7200	12146	26500	21100	23946	--	--	--

## DELAWARE RIVER BASIN

01478500 WHITE CLAY CREEK ABOVE NEWARK, DEL.

LOCATION,--Lat 39°42'50", long 75°45'35", New Castle County, gaging station 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 Delaware State Line, 2.2 miles north of Newark, and at mile 12.8.

DRAINAGE AREA,--66.7 sq mi.

PERIOD OF RECORD,--Sediment records: October 1964 to September 1969 (periodic).

REMARKS,--Specific conductance, pH, and temperature of sediment samples are on file at the WRD district office in Parkville, Md. Flow affected by ice Dec. 25, 26, 31, Jan. 2-18, 27-28, Feb. 6, 8-11, 13-19.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	MEAN DIS- CHARGE	SILICA	TOTAL IRON	TOTAL MAN- GANESE	DIS- SOLVED CAL- CIUM	DIS- SOLVED MAG- NE- SIUM	SODIUM	PO- TAS- SIUM	BICAR- BONATE	CAR- BONATE	SULFATE
DATE	(CFS)	(SiO2) (MG/L)	(FE) (UG/L)	(MN) (UG/L)	(CA) (MG/L)	(MG) (MG/L)	(NA) (MG/L)	(K) (MG/L)	(HCO3) (MG/L)	(CO3) (MG/L)	(SO4) (MG/L)
OCT. 07...	150	13	140	110	19	7.5	5.3	10	51	0	22
	CHLO- RIDE	DIS- SOLVED FLUO- RIDE	NITRATE	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS)	HARD- NESS	NON- CAR- BONATE HARD- NESS	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH	COLOR (PLAT- INUM- COBALT UNITS)	
DATE	(CL) (MG/L)	(MG/L)	(NO3) (MG/L)	(MG/L)	(MG/L)	(CA,MG) (MG/L)	(MG/L)	(MG/L)	(UNITS)		
OCT. 07...	16	.2	13	164	131	79	37	220	7.5	7	

## SUSPENDED-SEDIMENT FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
OCT.			
04...	22	3	.18
07...	150	170	69
11...	20	4	.22
14...	24	2	.13
18...	23	3	.19
19...	110	29	8.6
24...	23	10	.62
25...	100	150	41
NOV.			
04...	31	10	.84
07...	54	70	10
08...	80	170	37
10...	150	85	34
12...	150	145	59
18...	110	250	74
DEC.			
02...	64	67	12
04...	250	54	36
09...	43	7	.81
13...	45	6	.73
14...	130	230	81
23...	78	265	56
JAN., 1969			
03...	47	3	.38
06...	45	2	.24
09...	56	1	.15
13...	42	1	.11
17...	50	1	.14
19...	68	42	7.7
21...	93	318	80
27...	46	4	.50
30...	62	72	12
31...	96	93	24
FEB.			
01...	78	140	29
02...	76	240	49
03...	66	60	11
04...	61	85	14
13...	42	1	.11
17...	36	1	.10

## SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
FEB.			
21...	46	500	62
22...	47	50	6.3
24...	108	1000	292
28...	63	2	.34
MAR.			
02...	57	50	7.7
03...	57	490	75
04...	65	140	25
10...	62	12	2.0
14...	49	10	1.3
17...	49	7	.93
21...	52	4	.56
24...	55	23	3.4
25...	177	250	119
26...	89	48	12
28...	55	3	.45
31...	49	3	.40
APR.			
04...	44	3	.36
07...	45	2	.24
14...	41	1	.11
16...	61	53	8.7
17...	71	42	8.1
21...	51	3	.41
MAY			
05...	39	1	.11
12...	37	1	.10
20...	201	2300	1250
21...	102	1900	523
26...	36	2	.19
30...	30	1	.08
JUNE			
09...	43	500	58
16...	27	370	27
17...	24	20	1.3
19...	65	635	111
20...	31	380	32
25...	306	1620	1340
26...	67	1000	181
30...	26	9	.63
JULY			
01...	25	2	.14
04...	26	2	.14
11...	25	4	.27
17...	24	2	.13
26...	31	15	1.3
28...	952	1600	4110
29...	280	1200	907
AUG.			
01...	56	5	.76
04...	104	340	95
05...	208	365	205
10...	91	215	53
15...	38	3	.31
22...	31	2	.17
25...	28	3	.23
26...	27	2	.15
30...	26	4	.28
SEP.			
03...	131	490	173
04...	190	720	369
12...	36	2	.19
15...	32	1	.09
19...	30	1	.08
22...	29	2	.16
26...	29	1	.08
30...	29	1	.08

## DELAWARE RIVER BASIN

01480000 RED CLAY CREEK AT WOODDALE, DEL.

LOCATION.--Lat 39°45'52", long 75°38'08", New Castle County, temperature recorder at gaging station on right bank 12 ft upstream from bridge on State Highway 48, 0.3 mile south of Wooddale, 2.3 miles north of Marshallton, and at mile 4.9.

DRAINAGE AREA.--47.0 sq mi.

PERIOD OF RECORD.--Water temperatures: April 1953 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 29.0°C July 18; minimum, freezing point on many days during December and January.

EXTREMES, 1953-69.--Water temperatures: Maximum, 30.5°C July 17, Aug. 2, 6, 1955, July 19, 1963; minimum, freezing point on many days during winter period.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(Continuous ethyl alcohol-actuated thermograph)

	OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	18.0	14.5		9.5	7.0	7.0	5.0	3.0	0.5	4.5	4.0	5.0	4.0
2	18.5	16.0		13.0	9.5	6.0	5.5	0.5	0	4.5	4.0	4.0	2.0
3	18.5	17.0		12.0	11.5	7.0	6.0	0.5	0	4.0	3.0	4.5	2.0
4	18.5	15.0		11.5	11.0	9.0	7.0	0.5	0	3.0	1.5	5.5	3.5
5	15.0	13.0		12.0	11.0	8.5	5.0	0.5	0	2.0	1.0	5.0	3.5
6	13.5	11.0		12.0	12.0	5.0	3.0	0.5	0	2.0	0.5	4.5	3.0
7	15.0	13.0		13.0	12.0	3.0	2.0	0	0	4.0	1.5	4.5	3.5
8	15.5	14.0		13.0	11.0	3.0	1.5	0	0	3.0	1.5	5.0	3.0
9	15.5	14.5		11.0	10.0	1.5	0	0	0	3.0	2.0	5.0	4.5
10	15.0	14.5		10.0	8.0	0	0	0.5	0	3.0	0.5	5.0	3.5
11	15.5	15.0		8.0	7.0	0	0	0.5	0	3.0	0.5	4.5	3.0
12	16.5	15.0		0	6.0	0	0	0.5	0	4.0	2.0	4.0	1.0
13	17.0	16.0		6.0	5.5	0.5	0	0.5	0	3.0	1.5	5.0	3.0
14	16.5	16.0		6.5	5.0	4.0	0.5	0	0	1.5	0.5	6.0	3.5
15	17.0	16.0		9.0	6.5	3.5	0.5	0	0	1.5	0.5	6.5	4.0
16	18.0	15.5		10.0	9.0	0.5	0	0.5	0	3.0	1.0	7.0	4.0
17	18.5	16.0		10.0	10.0	0	0	1.0	0	3.0	1.0	8.0	4.0
18	19.0	17.0		10.5	10.0	1.0	0	3.0	1.0	2.0	2.0	9.0	5.5
19	20.0	19.0		10.5	9.0	3.0	1.0	4.0	3.0	3.0	2.0	10.5	8.0
20	19.0	16.0		9.0	6.0	3.5	3.0	3.5	2.0	3.0	1.5	9.5	9.0
21	16.0	14.0		6.0	4.5	3.5	3.0	3.5	3.0	4.0	2.0	12.0	9.5
22	14.0	12.0		5.0	4.0	3.5	3.5	4.0	3.5	4.0	3.0	11.0	9.5
23	15.5	13.5		5.0	4.0	4.5	3.5	5.5	4.0	3.5	3.0	10.5	7.0
24	15.5	13.5		6.5	5.0	3.5	1.0	6.0	5.5	4.5	3.0	9.5	8.5
25	16.0	14.5		8.0	6.5	1.5	0.5	6.0	4.5	4.5	4.0	10.0	8.5
26	14.5	12.0		6.5	5.5	0.5	0.5	4.5	1.0	4.5	3.0	9.5	8.5
27	12.0	10.5		7.0	5.5	0.5	0	1.0	0.5	4.5	3.0	9.0	6.5
28	12.0	10.5		8.5	7.0	4.0	0	0.5	0.5	5.0	4.0	9.5	6.0
29	11.5	10.0		10.0	8.5	4.0	2.0	1.5	0.5	---	---	10.5	8.5
30	10.5	9.0		9.0	7.0	2.0	1.0	3.5	1.5	---	---	10.0	8.0
31	9.5	7.0		---	---	2.0	1.0	4.5	3.5	---	---	8.5	5.5
AVG	15.5	14.0		9.0	8.0	3.0	2.0	2.0	1.0	3.5	2.0	7.5	5.5
	APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	5.0		17.0	13.5	23.5	20.0	25.5	24.0	24.0	22.0	24.5	22.0
2	10.0	9.0		18.0	14.0	25.5	21.5	25.5	21.5	24.5	23.5	23.5	22.0
3	12.0	9.0		19.5	15.0	24.0	20.5	25.5	23.0	24.5	23.5	23.0	21.5
4	10.5	9.0		21.0	18.0	21.0	19.0	25.5	21.5	24.5	23.5	21.5	21.0
5	11.5	10.5		20.5	18.0	20.5	19.0	25.0	23.5	23.5	22.0	23.0	21.0
6	13.5	11.0		20.0	16.0	23.0	19.0	25.0	23.5	23.5	21.5	23.5	22.0
7	13.5	9.0		18.5	16.0	23.5	21.0	24.5	21.5	24.0	21.5	24.5	23.0
8	15.0	10.5		19.5	17.0	23.5	21.0	21.5	20.5	24.5	23.0	24.0	22.0
9	16.0	12.0		19.0	18.0	22.0	20.5	22.0	19.5	25.0	23.5	22.0	21.0
10	15.0	14.0		18.0	15.0	21.5	19.0	21.5	20.5	24.5	23.0	21.0	19.0
11	16.5	14.0		17.0	15.5	22.0	20.0	24.5	21.0	23.0	21.5	19.5	18.0
12	15.5	11.5		15.5	13.5	24.5	21.0	24.0	23.0	23.5	21.0	19.0	18.0
13	15.0	11.0		15.5	13.5	25.5	22.0	24.5	21.5	24.0	21.5	20.0	17.0
14	14.5	11.0		16.5	14.0	26.5	24.0	25.0	21.5	23.0	21.5	21.0	19.0
15	14.0	12.0		18.5	15.0	26.5	24.5	25.5	21.5	24.5	22.0	21.5	20.0
16	14.5	13.5		19.0	15.5	25.0	23.0	27.0	23.0	25.5	24.0	21.5	19.5
17	16.0	14.0		20.5	16.0	23.5	19.5	28.0	24.0	25.5	24.5	23.5	20.5
18	16.0	15.0		20.5	18.0	21.5	20.0	29.0	25.5	25.5	24.0	23.0	20.0
19	18.5	16.0		20.0	19.5	23.0	20.0	27.0	26.0	24.5	24.0	20.0	18.0
20	16.5	13.5		19.5	19.0	24.5	21.0	26.5	24.5	24.5	23.0	18.5	17.0
21	16.0	13.0		20.5	18.5	24.0	22.0	24.5	24.0	23.0	20.5	19.0	17.0
22	14.5	13.5		20.0	17.0	24.0	20.0	24.5	24.0	22.0	19.5	18.0	15.0
23	13.5	11.5		19.0	18.0	23.0	21.5	24.5	21.5	23.0	19.5	17.0	14.5
24	13.0	11.0		19.0	18.0	24.0	21.0	21.5	20.5	24.0	20.5	17.0	15.0
25	15.0	10.0		20.0	18.0	24.0	21.5	21.5	20.5	24.5	21.0	18.5	17.0
26	16.5	12.0		20.5	18.0	23.0	21.0	23.0	21.5	24.0	22.0	19.0	17.0
27	19.0	14.0		19.0	16.0	25.0	22.0	25.5	22.0	22.0	20.0	19.0	16.5
28	20.5	16.0		20.5	16.5	27.0	24.0	24.5	21.5	21.5	19.0	19.0	18.0
29	19.5	18.0		24.0	19.5	27.0	24.5	23.0	21.5	22.0	19.5	18.0	15.5
30	18.0	15.0		25.0	21.5	27.0	23.0	23.5	22.0	23.5	20.5	16.5	14.5
31	---	---		24.5	20.5	---	---	24.0	22.0	24.5	21.5	---	---
AVG	15.0	12.0		19.5	17.0	24.0	21.0	24.5	22.5	24.0	22.0	20.5	18.5

## 01481000 BRANDYWINE CREEK AT CHADDS FORD, PA.

LOCATION.--Lat 39°52'10", long 75°35'35", Delaware County, at gaging station located on left bank 27 feet upstream from Pennsylvania Railroad bridge at Chadds Ford, and 1,200 feet downstream from highway bridge on U. S. Highway 1. Sediment samples collected at U.S. Highway 1 bridge.

DRAINAGE AREA.--287 sq mi.

PERIOD OF RECORD.--Specific conductance: June 1966 to Sept. 1969.

Water temperatures: October 1964 to September 1969.

Sediment records: July 1963 to September 1969.

EXTREMES, 1968-69.--Specific conductance: Maximum daily, 285 micromhos Mar. 4; minimum daily, 125 micromhos July 28.

Water temperatures: Maximum, 27.0°C June 30, 31, July 1, 16, 18, 19, Aug. 18; freezing point on many days during December.

Sediment concentrations: Maximum daily, 1,120 mg/l July 28; minimum daily, 1 mg/l Dec. 27, 28, 30, 31, Jan. 1, 2.

Sediment loads: Maximum daily, 14,300 tons July 28; minimum daily, 0.44 tons Jan. 2.

EXTREMES, 1963-69.--Specific conductance (June 1966-69): Maximum daily, 285 micromhos Sept. 2 and Sept. 5, 1966, Mar. 4, 1969; minimum daily, 122 micromhos Aug. 10, 1967.

Water temperatures (1964-69): Maximum 29.0°C Aug. 9, 17, 1965; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily 2,000 (estimated) mg/l Feb. 8, 1965; minimum daily, 1 mg/l on several days 1964 and 1968 to 1969.

Sediment loads: Maximum daily, 20,000 (estimated) tons Feb. 8, 1965; minimum daily, 0 tons Oct. 7, 8, 1967.

REMARKS.--Records of specific conductance, pH, and temperature of sediment samples available in the WRD office at Harrisburg, Pa. Flow affected by ice Dec. 11-13, 26, 27, Jan. 3-17, 27-29, Feb. 7-13, Mar. 11.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO <sub>3</sub> ) (MG/L)	CAR-BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO-RIDE (CL) (MG/L)
OCT.										
07...	453	--	20	6.0	--	--	62	--	30	17
NOV.										
15...	335	--	12	6.0	--	--	53	--	30	20
DEC.										
19...	213	--	9.0	5.5	--	--	50	--	26	15
JAN.										
16...	172	--	20	7.0	--	--	56	4	29	15
FEB.										
15...	102	--	20	6.5	--	--	64	--	27	20
APR.										
04...	213	6.8	20	4.2	9.5	2.7	57	--	14	17
MAY										
09...	291	7.6	20	7.1	10	2.6	60	--	30	16
JUNE										
24...	169	8.0	20	3.2	11	4.0	46	8	29	13
AUG.										
08...	282	11	20	5.4	8.0	3.1	60	--	24	16
SEP.										
05...	291	12	19	6.0	8.0	4.0	56	--	22	16

DATE	DIS-SOLVED FLUORIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)
OCT.									
07...	--	11	148	--	75	24	240	7.8	7
NOV.									
15...	--	7.9	163	--	55	11	241	7.8	7
DEC.									
19...	--	12	147	--	45	4	218	7.8	3
JAN.									
16...	--	13	163	--	79	33	238	8.9	5
FEB.									
15...	--	.4	139	--	77	24	237	7.0	6
APR.									
04...	.2	10	136	112	68	21	220	7.6	5
MAY									
09...	.1	9.7	142	133	79	30	226	7.7	6
JUNE									
24...	.2	.2	136	111	63	26	206	9.2	5
AUG.									
08...	.4	2.9	120	120	72	23	201	7.5	5
SEP.									
05...	.4	8.0	128	123	72	26	217	7.3	10



01481000 BRANDYWINE CREEK AT CHADDS FORD, PA.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	239	224	---	---	---	212	213	198	230	220	250
2	240	242	---	---	---	---	225	---	---	232	---	250
3	253	249	213	232	234	---	220	220	203	---	---	237
4	257	248	200	262	232	285	222	218	---	240	192	215
5	265	239	182	245	237	---	---	214	220	248	172	227
6	263	244	206	248	---	---	---	217	230	240	205	237
7	239	248	214	---	---	---	210	220	230	226	235	259
8	199	237	221	---	---	---	210	222	---	226	245	249
9	209	223	219	---	---	---	212	225	232	228	258	220
10	234	222	221	---	---	---	215	210	224	237	214	230
11	244	202	244	---	---	243	211	190	211	243	216	248
12	241	208	244	---	---	239	---	220	240	218	233	254
13	249	235	---	---	---	251	218	211	232	---	238	260
14	247	248	---	222	---	237	200	210	248	224	250	---
15	238	243	---	---	---	---	220	218	---	---	252	261
16	240	237	192	---	---	224	220	220	250	233	259	250
17	254	219	222	---	---	220	204	---	228	---	259	255
18	248	216	222	---	---	212	204	230	232	250	248	260
19	225	192	214	---	---	224	---	228	230	242	242	265
20	209	213	212	---	---	213	197	194	237	209	247	258
21	227	219	211	215	---	226	203	180	230	230	256	267
22	223	231	215	233	---	227	215	220	230	232	257	---
23	240	227	221	---	---	226	210	228	240	236	272	242
24	241	228	225	228	---	227	208	---	163	168	270	252
25	239	226	---	238	---	222	216	230	168	193	262	255
26	---	222	224	232	221	208	---	---	190	---	252	252
27	---	225	219	---	---	230	---	220	223	220	259	267
28	234	225	221	---	---	232	219	230	230	125	267	270
29	238	224	243	---	---	---	223	236	235	152	259	240
30	242	218	222	---	---	234	221	231	240	165	254	234
31	231	---	222	---	---	222	---	---	---	192	270	---
AVG	238	228	218	---	---	---	213	218	223	217	244	249

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	10.0	7.0	1.0	---	---	7.0	15.0	---	27.0	26.0	26.5
2	18.0	11.0	---	---	4.0	---	10.0	---	21.0	24.0	---	25.5
3	19.0	12.0	8.0	---	5.0	3.0	10.0	20.0	23.0	24.0	---	24.0
4	18.0	11.0	9.0	---	2.0	4.5	11.0	22.0	---	24.0	24.0	21.5
5	15.0	11.0	7.0	---	2.0	---	---	20.5	21.0	25.0	23.0	24.5
6	13.0	12.0	4.0	1.0	---	5.0	---	20.0	21.0	23.0	24.0	24.0
7	14.0	12.0	3.0	---	---	5.0	13.0	18.5	21.0	23.0	24.0	25.0
8	15.0	12.0	3.0	---	---	5.0	14.5	20.0	---	21.0	25.0	23.5
9	16.0	9.0	1.0	1.0	---	5.5	15.0	19.0	24.0	22.0	25.0	22.0
10	15.0	8.0	1.0	1.0	---	5.0	16.0	17.0	23.0	21.0	24.0	23.5
11	15.0	7.0	1.0	---	---	4.0	15.0	17.0	---	23.0	23.0	20.0
12	16.0	5.0	---	---	3.0	3.0	---	16.0	24.0	23.0	24.0	20.0
13	18.0	5.0	---	---	---	4.0	13.5	15.0	26.0	---	24.0	23.0
14	17.0	6.0	---	1.0	1.0	5.0	15.0	17.0	25.0	24.0	23.0	---
15	17.0	7.0	---	---	---	---	14.5	18.0	---	---	25.0	21.5
16	16.0	10.0	1.0	---	---	5.5	14.5	18.0	25.0	27.0	25.0	22.0
17	18.0	9.0	1.0	---	2.0	6.5	16.0	---	23.0	---	23.0	24.0
18	19.0	10.0	1.0	1.0	---	10.0	16.0	20.0	22.5	27.0	27.0	21.5
19	20.0	10.0	---	2.0	2.5	9.0	---	20.0	21.0	27.0	26.5	19.5
20	18.0	6.0	---	3.0	2.5	9.5	15.0	21.0	26.0	25.0	26.5	18.0
21	17.0	5.0	---	3.0	3.5	11.0	15.0	20.0	24.0	25.0	25.5	18.0
22	14.0	6.0	4.0	4.0	3.5	10.5	13.5	21.0	23.0	25.0	23.5	---
23	15.0	---	5.0	6.0	4.0	10.5	13.0	23.0	23.0	24.0	26.5	16.0
24	15.0	8.0	2.0	6.0	4.5	8.5	12.0	---	23.0	21.0	23.0	18.0
25	14.0	9.0	---	6.0	5.0	10.0	12.0	21.0	22.0	22.0	26.5	18.0
26	---	7.0	0	2.0	4.0	8.0	---	---	22.0	---	26.5	18.5
27	---	7.0	---	---	4.5	7.0	---	20.0	24.0	25.0	24.5	---
28	12.0	9.0	0	---	5.0	8.0	20.0	20.0	24.0	23.0	24.5	---
29	11.0	11.0	3.0	---	---	---	20.0	23.0	27.0	23.0	26.0	18.0
30	---	9.0	2.0	2.0	---	8.5	16.0	23.0	27.0	23.5	26.5	17.0
31	9.0	---	---	4.0	---	7.0	---	---	---	24.0	24.0	---
AVG	16.0	9.0	---	---	---	7.0	14.0	19.5	23.5	24.0	25.0	21.5

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA.--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	105	7	2.0	138	5	1.9	194	9	4.7
2	105	9	2.6	138	9	3.4	265	7	5.0
3	102	12	3.3	141	9	3.4	261	6	4.2
4	105	7	2.0	138	9	3.4	750	80	225
5	99	11	2.9	138	9	3.4	568	35	54
6	99	9	2.4	134	9	3.3	313	12	10
7	340	19	17	176	9	4.3	253	5	3.4
8	194	13	6.8	217	12	7.0	236	3	1.9
9	141	12	4.6	172	10	4.6	205	3	1.7
10	128	11	3.8	424	20	23	176	3	1.4
11	125	13	4.4	462	24	30	170	3	1.4
12	125	13	4.4	573	24	37	160	3	1.3
13	128	10	3.5	583	21	33	170	3	1.4
14	125	12	4.1	386	10	10	438	25	30
15	125	13	4.4	335	10	9.0	558	40	60
16	125	11	3.7	391	14	15	244	8	5.3
17	121	13	4.2	308	12	10	291	6	4.7
18	121	12	3.9	443	23	38	228	4	2.5
19	340	46	69	785	82	174	213	4	2.3
20	344	31	29	358	29	28	224	5	3.0
21	176	14	6.7	269	10	7.3	217	4	2.3
22	145	11	4.3	240	5	3.2	213	4	2.3
23	134	11	4.0	221	5	3.0	335	6	5.4
24	128	12	4.1	217	9	5.3	322	5	4.3
25	433	26	30	236	9	5.7	197	3	1.6
26	209	11	6.2	217	9	5.3	180	2	.97
27	165	10	4.5	201	8	4.3	180	1	.49
28	155	7	2.9	197	8	4.3	228	1	.62
29	197	7	3.7	213	8	4.6	274	2	1.5
30	155	7	2.9	205	10	5.6	217	1	.59
31	141	4	1.5	--	--	--	213	1	.58
TOTAL	5135	--	248.8	8660	--	490.3	8493	--	443.85
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	183	1	.49	354	28	27	240	14	9.1
2	162	1	.44	363	20	20	224	13	7.9
3	150	6	2.4	286	26	20	232	14	8.8
4	140	11	4.2	349	30	28	236	15	9.6
5	130	9	3.2	240	21	14	244	15	9.9
6	140	10	3.8	190	12	6.2	224	14	8.5
7	140	10	3.8	170	11	5.0	261	16	11
8	150	10	4.1	150	10	4.1	248	15	10
9	160	10	4.3	140	9	3.4	261	15	11
10	140	10	3.8	130	8	2.8	248	13	8.7
11	130	9	3.2	140	9	3.4	220	12	7.1
12	140	9	3.4	150	10	4.1	201	12	6.5
13	145	9	3.5	140	9	3.4	213	10	5.8
14	140	9	3.4	130	8	2.8	228	9	5.5
15	130	8	2.8	120	9	2.9	291	16	13
16	140	9	3.4	136	8	2.9	265	16	11
17	150	10	4.1	140	9	3.4	257	13	9.0
18	183	10	4.9	150	10	4.1	248	12	8.0
19	240	12	7.8	158	10	4.3	240	12	7.8
20	217	12	7.0	176	12	5.7	232	12	7.5
21	190	11	5.6	176	12	5.7	224	12	7.3
22	154	11	5.8	176	12	5.7	217	12	7.0
23	201	11	6.0	190	12	6.2	201	12	6.5
24	236	12	7.6	265	15	11	240	15	9.7
25	253	13	8.9	510	44	61	875	148	356
26	205	11	6.1	405	32	35	578	60	102
27	150	10	4.1	253	15	10	344	16	15
28	130	9	3.2	232	14	8.8	278	10	7.5
29	150	10	6.1	--	--	--	257	12	8.3
30	228	11	6.8	--	--	--	257	12	8.3
31	443	33	39	--	--	--	232	9	5.6
TOTAL	5490	--	171.23	6019	--	310.9	8516	--	708.9

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

APRIL				MAY				JUNE			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)		
1	217	7	4.1	221	20	12	134	24	8.7		
2	224	9	5.4	201	16	8.7	131	29	10		
3	224	10	6.0	197	14	7.4	438	57	75		
4	209	10	5.6	190	15	7.7	201	32	17		
5	221	11	6.6	179	17	8.2	162	24	10		
6	265	12	8.6	172	23	11	151	25	10		
7	221	10	6.0	169	21	9.6	150	30	13		
8	201	9	4.9	172	19	8.8	145	29	11		
9	194	11	5.8	286	26	20	228	28	17		
10	194	15	7.9	278	31	23	172	24	11		
11	286	18	14	205	27	15	148	26	10		
12	224	14	8.5	183	22	11	141	20	7.6		
13	197	13	6.9	176	18	8.6	138	19	7.1		
14	187	16	8.1	165	17	7.8	134	21	7.6		
15	183	17	8.4	165	18	8.0	141	21	8.0		
16	265	18	13	158	18	7.7	169	21	9.6		
17	448	28	34	155	18	7.5	145	21	8.2		
18	295	19	15	151	18	7.3	138	23	8.6		
19	810	50	109	155	17	7.1	169	25	11		
20	448	32	39	641	109	224	138	16	6.0		
21	313	28	24	313	63	53	125	10	3.4		
22	326	28	25	205	30	17	118	11	3.5		
23	377	26	26	179	29	14	205	54	30		
24	304	18	15	183	27	13	805	644	1400		
25	269	13	9.4	179	19	9.2	1100	797	2920		
26	244	14	9.2	169	21	9.6	367	210	208		
27	228	15	9.2	155	23	9.6	228	70	43		
28	217	17	10	151	20	8.2	190	58	30		
29	228	19	12	148	15	6.0	169	35	16		
30	232	21	13	141	12	4.6	148	30	12		
31	--	--	--	134	18	6.5	--	--	--		
TOTAL	8251	--	469.6	6180	--	571.1	6836	--	4932.3		
JULY				AUGUST				SEPTEMBER			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)		
1	138	25	9.3	358	22	21	134	13	4.7		
2	134	26	9.4	322	20	17	134	13	4.7		
3	125	27	9.1	286	18	14	377	26	30		
4	118	29	9.2	980	192	666	481	35	46		
5	115	27	8.4	830	133	357	291	18	14		
6	115	24	7.5	429	44	51	205	19	11		
7	176	35	17	326	32	28	187	20	10		
8	179	33	16	278	38	29	295	28	22		
9	141	25	9.5	253	28	19	453	58	71		
10	125	25	8.4	661	130	299	217	32	19		
11	121	29	9.5	358	55	53	183	26	13		
12	194	40	21	265	25	18	169	15	6.8		
13	257	50	35	240	24	16	162	16	7.0		
14	155	33	14	228	14	8.6	155	17	7.1		
15	118	28	8.9	224	10	6.0	148	18	7.2		
16	109	25	7.4	224	15	9.1	145	18	7.0		
17	102	25	6.9	217	14	8.2	141	19	7.2		
18	102	18	5.0	213	12	6.9	145	19	7.4		
19	261	44	31	205	10	5.5	151	18	7.3		
20	197	32	17	157	10	5.3	141	17	6.5		
21	190	24	12	183	9	4.4	134	14	5.1		
22	155	23	9.6	176	11	5.2	131	14	5.0		
23	462	80	178	165	21	9.4	131	14	5.0		
24	637	129	284	162	24	10	128	15	5.2		
25	244	42	28	162	13	5.7	131	15	5.3		
26	179	30	14	155	10	4.2	128	14	4.8		
27	165	32	14	145	12	4.7	125	13	4.4		
28	3430	1120	14300	145	13	5.1	145	14	5.5		
29	2900	486	4790	141	13	4.9	128	13	4.5		
30	795	125	268	138	14	5.2	128	13	4.5		
31	467	50	63	141	14	5.3	--	--	--		
TOTAL	12606	--	20220.1	8811	--	1701.7	5623	--	358.2		
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									90620		
TOTAL LOAD FOR YEAR (TONS)									30626.9		

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)  
TOTAL LOAD FOR YEAR (TONS)

90620  
30626.98

01481000 BRANDYWINE CREEK AT CHADDS FORD, PA.--Continued

## PARTICLE SIZE-DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	DIS- CHARGE (CFS)	TEMP- ERATURE (DEG C)	SUS- PENDE SEDI- MENT (MG/L)	SUS- PENDE SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
OCT.								
19...	1830	656	20.0	100	177	52	67	82
MAR.								
25...	1745	1060	10.0	181	518	34	45	59
MAY								
20...	1115	1060	21.0	224	641	28	46	62
JUNE								
24...	1250	438	23.0	534	632	57	77	92
25...	1120	2030	22.0	1310	7190	--	49	68
JULY								
28...	1615	6940	24.0	2760	51700	--	35	51
29...	0645	3630	22.0	482	4730	24	34	44
AUG.								
04...	1225	1570	24.0	319	1350	23	39	56
10...	1320	1070	24.0	147	425	44	60	77

DATE	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM	SUS. SED. FALL DIAM. % FINER THAN 2.00 MM
OCT.								
19...	93	97	100	100	100	100	100	100
MAR.								
25...	74	87	95	100	100	100	100	100
MAY								
20...	79	91	98	100	100	100	100	100
JUNE								
24...	98	99	100	100	100	100	100	100
25...	84	93	98	100	100	100	100	100
JULY								
28...	66	82	89	95	99	100	100	100
29...	55	62	67	69	72	86	96	100
AUG.								
04...	75	89	98	100	100	100	100	100
10...	90	96	100	100	100	100	100	100

## DELAWARE RIVER BASIN

01481500 BRANDYWINE CREEK AT WILMINGTON, DEL.

LOCATION.--Lat 39°46'10", long 75°34'20", New Castle County, at gaging station on right bank in Rockford Park, 0.2 mile downstream from Henry Clay Bridge, in Wilmington, and at mile 4.2. Sediment samples are collected at the Henry Clay Bridge.

DRAINAGE AREA.--314 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1947 to September 1950, November 1951 to September 1952, October 1956 to September 1969.

Water temperatures: November 1956 to September 1961.

Sediment records: December 1946 to September 1961, July 1962 to September 1969.

EXTREMES, 1968-69.--Sediment concentrations: Maximum daily, 848 mg/l June 25; minimum daily, 1 mg/l on April 2-4.

Sediment loads: Maximum daily, 9,340 tons July 29; minimum daily, 0.68 tons April 4.

EXTREMES, 1946-61, 1962-69.--Water temperatures (1956-61): Maximum, 30.0°C June 17, 1957; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 1,700 mg/l Feb. 14, 1966; minimum daily, 1 mg/l on many days.

Sediment loads: Maximum daily, 33,000 tons Feb. 14, 1966; minimum daily, less than 0.50 ton on many days.

REMARKS.--Published and unpublished chemical-quality data and specific conductance, pH, and temperature of sediment samples available in WRD district at Parkville, Md.

## CHEMICAL ANALYSIS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)
OCT.										
07...	544	8.1	20	7.5	12	3.6	61	0	27	15
28...	169	12	19	6.8	9.4	5.2	55	0	29	16
NOV.										
22...	257	13	20	7.2	9.5	4.1	53	0	31	17
DEC.										
23...	388	--	18	6.5	--	--	52	0	28	16
JAN.										
27...	178	12	18	6.6	12	2.9	51	0	27	19
FEB.										
24...	254	9.6	19	7.0	15	2.6	49	0	24	23
MAR.										
24...	241	--	19	6.6	--	--	62	0	26	14
APR.										
24...	354	12	17	6.6	8.5	2.4	46	0	25	18
MAY										
27...	187	12	21	7.6	9.3	2.6	66	0	23	17
JUNE										
23...	133	--	20	7.1	--	--	72	0	24	15
JULY										
24...	779	--	16	5.1	--	--	45	0	23	12
AUG.										
25...	178	8.0	23	8.1	12	3.1	62	0	33	16
SEP.										
25...	155	9.6	22	7.9	11	3.0	66	0	26	18

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HAR- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.									
07...	--	8.1	154	132	86	36	226	7.6	2
28...	.3	8.7	139	134	76	31	211	8.1	10
NOV.									
22...	.1	10	142	138	80	36	207	7.8	7
DEC.									
23...	--	11	--	--	72	29	209	7.8	2
JAN.									
27...	.2	12	138	135	72	30	217	7.8	5
FEB.									
24...	.2	11	167	136	77	37	239	7.7	2
MAR.									
24...	--	10	140	--	75	24	219	8.0	7
APR.									
24...	.1	7.8	144	120	70	32	191	7.9	3
MAY									
27...	.2	9.5	142	135	84	30	218	7.7	2
JUNE									
23...	--	6.9	141	--	79	20	222	8.1	--
JULY									
24...	--	8.6	122	--	61	24	177	7.4	30
AUG.									
25...	.3	9.4	172	144	91	40	238	7.7	2
SEP.									
25...	.2	9.6	156	140	88	34	234	7.9	3

01481500 BRANDYWINE CREEK AT WILMINGTON, DEL.--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	111	24	7.2	153	3	1.2	197	5	2.7
2	110	17	5.0	153	3	1.2	275	4	3.0
3	109	10	2.9	146	4	1.6	309	3	2.5
4	111	9	2.7	153	5	2.1	713	82	197
5	102	7	1.9	150	6	2.4	644	75	130
6	99	5	1.3	148	5	2.0	355	21	20
7	436	28	33	184	11	5.5	262	12	8.5
8	271	9	6.6	285	16	12	232	8	5.0
9	161	10	4.3	208	9	5.1	198	7	3.7
10	133	11	4.0	444	32	38	149	7	2.8
11	132	11	3.9	633	38	65	167	6	2.7
12	130	10	3.5	648	40	70	175	6	2.8
13	124	12	4.0	725	45	88	186	6	3.0
14	134	14	5.1	522	14	20	351	18	17
15	129	16	5.6	440	4	4.8	637	41	71
16	129	15	5.2	491	32	42	264	14	10
17	127	14	4.8	425	21	24	262	12	8.5
18	124	12	4.0	468	32	40	218	12	7.1
19	320	22	19	837	106	240	221	12	7.2
20	517	35	49	454	56	69	225	12	7.3
21	230	18	11	315	20	17	214	12	6.9
22	166	17	7.6	263	12	8.5	210	12	6.8
23	152	14	5.7	235	10	6.3	366	14	14
24	140	12	4.5	226	9	5.5	377	11	11
25	450	35	43	250	8	5.4	226	9	5.5
26	287	24	19	231	7	4.4	225	8	4.9
27	193	13	6.8	212	7	4.0	241	7	4.6
28	173	6	2.8	200	7	3.8	248	6	4.0
29	219	8	4.7	216	7	4.1	298	10	8.0
30	184	6	3.0	219	7	4.1	245	9	6.0
31	157	4	1.7	--	--	--	228	8	4.9
TOTAL	5860	--	282.8	10038	--	797.0	8918	--	588.4
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	238	10	6.4	415	19	21	298	12	9.7
2	151	6	2.4	401	14	15	274	11	8.1
3	217	8	4.7	259	8	6.5	274	10	7.4
4	201	7	3.8	380	12	12	284	9	6.9
5	182	6	2.9	273	9	6.6	296	9	7.2
6	183	6	3.0	207	8	4.5	268	9	6.5
7	199	6	3.2	239	8	5.2	314	9	7.6
8	186	7	3.5	201	8	4.3	310	9	7.5
9	205	7	3.9	237	8	5.1	321	9	7.8
10	201	6	3.3	200	8	4.3	298	9	7.2
11	171	6	2.8	187	8	4.0	309	9	7.5
12	177	6	2.9	226	8	4.9	242	9	5.9
13	177	6	2.9	202	7	3.8	257	9	6.2
14	176	6	2.9	171	7	3.2	261	9	6.3
15	184	6	3.0	179	7	3.4	330	10	8.9
16	176	6	2.9	194	6	3.1	314	7	5.9
17	186	7	3.5	186	5	2.5	305	5	4.1
18	204	10	5.5	193	5	2.6	294	4	3.2
19	266	12	8.6	186	5	2.5	285	6	4.6
20	252	12	8.2	205	5	2.8	275	9	6.7
21	240	11	7.1	203	5	2.7	267	8	5.8
22	232	11	6.9	195	4	2.1	256	7	4.8
23	232	11	6.9	222	5	3.0	245	6	4.0
24	264	11	7.8	280	6	4.5	287	16	12
25	294	10	7.9	545	26	38	941	107	272
26	245	9	6.0	496	15	20	781	42	89
27	193	8	4.2	310	15	13	522	10	14
28	197	7	3.7	276	15	11	332	6	5.4
29	217	7	4.1	--	--	--	297	4	3.2
30	235	10	6.3	--	--	--	302	5	4.1
31	452	27	33	--	--	--	277	3	2.2
TOTAL	6733	--	174.2	7312	--	211.6	10316	--	551.7

## DELAWARE RIVER BASIN

01481500 BRANDYWINE CREEK AT WILMINGTON, DEL.--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

APRIL				MAY				JUNE			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)		
1	254	2	1.4	258	4	2.8	158	2	.85		
2	256	1	.69	246	6	4.0	157		1.7		
3	261	1	.7C	237	9	5.8	558	4	75		
4	250	1	.68	238	12	7.7	258	28	20		
5	252	2	1.4	224	15	9.1	178	21	10		
6	315	8	6.8	211	12	6.8	167	16	7.2		
7	271	6	4.4	201	11	6.0	176	12	5.7		
8	250	5	3.4	208	11	6.2	165	10	4.5		
9	242	3	2.0	316	23	20	230	15	9.3		
10	236	2	1.3	351	32	30	201	8	4.3		
11	324	11	9.6	252	18	12	170	8	3.7		
12	277	10	7.5	229	16	9.9	158	8	3.4		
13	246	9	6.0	215	15	8.7	156	8	3.4		
14	229	9	5.6	205	12	6.6	154	7	2.9		
15	225	9	5.5	205	11	6.1	154	7	2.9		
16	293	14	11	192	10	5.2	174	6	2.8		
17	608	22	36	188	9	4.6	164	6	2.7		
18	366	12	12	181	8	3.9	156	6	2.5		
19	865	390	911	182	7	3.4	205	20	11		
20	642	360	624	763	96	252	165	10	4.5		
21	368	40	40	437	48	57	150	9	3.6		
22	355	31	30	252	32	22	138	8	3.0		
23	421	48	55	217	14	8.2	135	8	2.9		
24	353	25	24	208	11	6.2	898	504	1280		
25	312	17	14	207	11	6.1	1180	848	3380		
26	289	9	7.0	197	11	5.9	547	480	709		
27	268	9	6.5	180	8	3.9	256	210	145		
28	250	9	6.1	174	8	3.8	220	120	71		
29	257	9	6.2	176	6	2.9	188	60	30		
30	262	7	5.0	168	2	.91	168	20	9.1		
31	--	--	--	159	2	.86	--	--	--		
TOTAL	9797	--	1844.77	7477	--	528.57	7784	--	5811.95		
JULY				AUGUST				SEPTEMBER			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)		
1	165	16	7.1	387	24	25	159	11	4.7		
2	165	14	6.2	343	20	19	163	11	4.8		
3	152	12	4.9	309	18	15	764	145	299		
4	140	10	3.8	1040	180	505	854	170	392		
5	138	9	3.4	1110	240	719	427	22	25		
6	141	9	3.4	553	45	67	270	21	15		
7	209	20	11	369	22	22	239	15	9.7		
8	228	25	15	309	20	17	310	30	25		
9	171	15	6.9	279	16	12	598	43	69		
10	165	12	5.3	735	150	298	280	18	14		
11	159	10	4.3	476	62	80	237	11	7.0		
12	215	20	12	310	36	30	213	10	5.8		
13	282	40	30	271	14	10	199	8	4.3		
14	204	24	13	255	12	8.3	193	6	3.1		
15	160	14	6.0	250	12	8.1	182	5	2.5		
16	146	8	3.2	258	12	8.4	178	3	1.4		
17	136	8	2.9	245	11	7.3	175	3	1.4		
18	138	8	3.0	254	10	6.9	173	3	1.4		
19	295	25	20	243	9	5.9	181	5	2.4		
20	224	20	12	233	7	4.4	172	8	3.7		
21	241	15	9.8	215	4	2.3	160	8	3.5		
22	194	19	10	208	4	2.2	161	8	3.5		
23	403	116	126	199	4	2.1	157	13	5.5		
24	824	223	496	193	4	2.1	156	12	5.1		
25	308	75	62	189	4	2.0	156	11	4.6		
26	221	42	25	181	4	2.0	153	10	4.1		
27	198	30	16	167	8	3.6	149	9	3.6		
28	3310	748	9190	164	12	5.3	162	10	4.4		
29	4210	618	9340	166	12	5.4	165	10	4.5		
30	963	120	312	161	12	5.2	148	8	3.2		
31	604	40	65	166	12	5.4	--	--	--		
TOTAL	15109	--	19825.2	10238	--	1905.9	7534	--	933.2		
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									107116		
TOTAL LOAD FOR YEAR (TONS)									33455.2		

## PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	TEMP- ERATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PENDE SED- MENT (MG/L)	SUS- PENDE SED- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
JUNE 24...	1130	20.0	886	589	1410	--	67	87
JULY 29...	1030	23.0	3750	312	3160	44	55	68

DATE	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM
JUNE 24...	96	99	100	--	--	--	--
JULY 29...	80	88	93	96	97	99	100



## 01482100 DELAWARE RIVER AT DELAWARE MEMORIAL BRIDGE, WILMINGTON, DEL.

LOCATION.--Lat 39°41'18", long 75°31'06", New Castle County, at center of the navigational channel at bridge between Pigeon Point, Del. and Deepwater Point, N. J. Water-quality recorder (39°41'21", 75°31'19") at tidal-gaging station located on channel side of west tower of south bridge.

DRAINAGE AREA.--11,030 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1955 to September 1969.

Water temperatures: October 1956 to September 1969.

EXTREMES, 1968-69.--Specific conductance: Maximum daily recorded, 10,800 micromhos Mar. 7; minimum daily recorded, 120 micromhos May 10.

Dissolved oxygen: Maximum daily recorded, 11.6 mg/l Mar. 13-14; minimum daily, 0.0 mg/l June 8.

Water temperatures: Maximum recorded, 28.0°C July 18-19; minimum, freezing point on many days during winter months.

NOTE.--Number of missing days of record exceeded twenty percent of the year.

EXTREMES, 1955-69.--Specific conductance: Maximum daily, 14,600 micromhos Oct. 6, 1957; minimum daily, 100 micromhos on several days during the spring of most years.

Dissolved oxygen (1962-69): Maximum daily, 13.3 mg/l Mar. 2, 1967; minimum daily, 0.0 mg/l on many days during summer months.

Water temperatures (1956-69): Maximum, 31.0°C Aug. 9, 1968; minimum, freezing point on many days during winter months.

REMARKS.--Samples collected approximately 3 feet from surface. Records of discharge are available for 01463500 Delaware River at Trenton, N. J. in, "Water Resources Data for New Jersey, Part 1, Surface Water Records."

## SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7440	3720	5170	6240	2820	4420	1480	440	862	1060	300	569
2	7600	3740	5360	6320	3000	4600	1920	380	806	680	320	419
3	7020	3880	5390	6320	3060	4580	1280	360	710	880	320	515
4	6060	3320	4910	6260	3140	4650	2540	440	1010	1480	340	648
5	6100	3300	4840	7360	3380	4960	1520	300	640	2080	360	831
6	6660	3420	5160	7460	3520	5270	440	280	349	2660	400	1130
7	7040	3180	5180	7100	3840	5400	540	280	265	2640	380	1290
8	6480	3260	4870	7300	3220	5250	440	280	352	1440	340	788
9	6840	3580	5110	6680	3220	4780	460	280	335	1560	460	---
10	6940	3760	5170	7300	3220	5120	780	260	353	---	---	---
11	7480	3440	5110	6640	2860	4830	1180	300	---	---	---	---
12	6640	3560	4960	7720	2960	5420	---	---	---	---	---	---
13	6160	3300	4740	5340	1900	3440	---	---	---	---	---	---
14	6540	3340	---	6100	1480	3250	---	---	---	---	---	---
15	6500	3320	4640	6860	1880	4180	---	---	---	---	---	---
16	5900	3280	4450	6560	1980	4140	---	---	---	---	---	---
17	6340	3120	4480	7380	2460	4860	---	---	---	---	---	---
18	6680	3200	4730	9200	2760	5130	1160	320	---	---	---	---
19	7180	3280	4900	7100	1540	4230	2360	320	508	---	---	---
20	6080	2860	4560	5200	820	2530	3080	340	1100	---	---	---
21	6640	2840	4670	3780	740	1800	2780	320	541	---	---	---
22	7140	2860	4610	2840	740	1560	3360	380	1290	---	---	---
23	6860	2940	4790	2880	720	1430	3160	400	1410	---	---	---
24	7460	3180	5100	3060	740	1500	1600	300	748	---	---	---
25	7500	3280	5360	1920	720	1230	680	300	433	---	---	---
26	6560	2960	4940	1780	440	1070	1260	300	638	---	---	---
27	7260	3040	4590	1660	400	907	1600	360	854	---	---	---
28	6300	2840	4410	1760	440	1010	2340	380	1190	---	---	---
29	5930	2920	4510	1600	380	861	1980	360	866	---	---	---
30	5560	2820	4190	1200	320	679	1180	320	698	---	---	---
31	5880	2820	4340	---	---	---	1860	380	880	---	---	---
MONTH	7600	2820	4840	9200	320	3440	3360	260	---	---	---	---

01482100 DELAWARE RIVER AT DELAWARE MEMORIAL BRIDGE. WILMINGTON. DEL.--Continued

FEBRUARY				MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	102C	28C	---	---	---	---
2	---	---	---	---	---	---	124C	26C	53C	---	---	---
3	---	---	---	---	---	---	102C	22C	45A	---	---	---
4	---	---	---	---	---	---	174C	26C	63S	---	---	---
5	---	---	---	---	---	---	246C	26C	69C	118C	16C	---
6	---	---	---	10C6C	48C0	---	152C	24C	56S	214C	16C	76C
7	---	---	---	1082C	448C	772C	162C	22C	626	189C	20C	866
8	---	---	---	1052C	438C	735C	86C	20C	383	182C	18C	873
9	---	---	---	1012C	429C	700C	56C	22C	346	162C	18C	747
10	---	---	---	1036C	372C	669C	78C	22C	394	116C	12C	611
11	---	---	---	962C	374C	621C	48C	26C	333	144C	16C	653
12	---	---	---	868C	278C	535C	56C	26C	349	90C	14C	485
13	---	---	---	970C	308C	636C	60C	26C	381	84C	16C	446
14	---	---	---	996C	402C	652C	54C	26C	363	92C	18C	442
15	---	---	---	998C	353C	664C	64C	24C	338	108C	20C	486
16	---	---	---	818C	359C	---	62C	26C	393	104C	18C	486
17	---	---	---	---	---	---	72C	26C	458	110C	18C	488
18	---	---	---	958C	454C	---	74C	26C	413	98C	20C	483
19	---	---	---	998C	426C	719C	58C	26C	363	94C	20C	511
20	---	---	---	10C2C	436C	7C0C	54C	26C	358	94C	16C	453
21	---	---	---	734C	518C	---	58C	24C	36C	58C	16C	325
22	---	---	---	---	---	---	44C	24C	313	56C	18C	349
23	---	---	---	---	---	---	44C	24C	285	72C	22C	419
24	---	---	---	---	---	---	38C	26C	283	68C	26C	418
25	---	---	---	630C	346C	---	28C	26C	274	62C	24C	395
26	---	---	---	656C	44C	3C0C	30C	26C	281	68C	26C	391
27	---	---	---	136C	36C	616	36C	26C	292	84C	28C	444
28	---	---	---	66C	32C	---	---	---	---	104C	28C	516
29	---	---	---	---	---	---	---	---	---	132C	48C	77C
30	---	---	---	---	---	---	---	---	---	188C	32C	833
31	---	---	---	---	---	---	---	---	---	258C	20C	---
MCNTH	---	---	---	---	---	---	246C	20C	4C2	258C	12C	546
JUNE				JULY			AUGUST			SEPTEMBER		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	298C	40C	121C	---	---	---	---	---	---
2	---	---	---	258C	46C	137C	---	---	---	---	---	---
3	---	---	---	346C	56C	165C	---	---	---	---	---	---
4	---	---	---	31C0	58C	173C	---	---	---	---	---	---
5	---	---	---	322C	68C	187C	---	---	---	---	---	---
6	262C	60C	---	318C	62C	185C	---	---	---	---	---	---
7	266C	48C	156C	314C	80C	198C	---	---	---	---	---	---
8	274C	52C	158C	328C	86C	192C	---	---	---	---	---	---
9	292C	60C	162C	346C	76C	186C	---	---	---	100C	22C	---
10	269C	68C	157C	376C	88C	204C	---	---	---	102C	24C	552
11	330C	72C	184C	4C0C	88C	2C7C	---	---	---	92C	28C	---
12	338C	80C	188C	368C	94C	217C	---	---	---	---	---	---
13	362C	56C	180C	440C	94C	218C	---	---	---	---	---	---
14	324C	72C	183C	462C	89C	241C	---	---	---	---	---	---
15	286C	78C	183C	432C	92C	247C	---	---	---	158C	46C	---
16	238C	34C	96C	404C	88C	221C	---	---	---	122C	46C	788
17	162C	38C	---	394C	84C	224C	---	---	---	194C	56C	109C
18	---	---	---	414C	96C	234C	---	---	---	142C	48C	90C
19	---	---	---	404C	104C	252C	---	---	---	198C	78C	128C
20	---	---	---	400C	102C	264C	---	---	---	186C	92C	134C
21	---	---	---	322C	184C	---	---	---	---	152C	80C	108C
22	---	---	---	---	---	---	---	---	---	486C	84C	219C
23	---	---	---	---	---	---	---	---	---	502C	108C	269C
24	---	---	---	---	---	---	---	---	---	448C	126C	286C
25	---	---	---	---	---	---	---	---	---	428C	116C	273C
26	148C	4C	---	---	---	---	---	---	---	480C	134C	298C
27	132C	42C	67A	---	---	---	---	---	---	472C	144C	311C
28	140C	42C	70C	---	---	---	---	---	---	460C	144C	307C
29	148C	4C	65C	---	---	---	---	---	---	446C	142C	294C
30	188C	44C	952	---	---	---	---	---	---	514C	182C	327C
31	---	---	---	---	---	---	---	---	---	---	---	---
MCNTH	---	---	---	---	---	---	---	---	---	---	---	---

01482100 DELAWARE RIVER AT DELAWARE MEMORIAL BRIDGE, WILMINGTON, DEL.--Continued  
 DISSOLVED OXYGEN (DO), IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	6.9	2.0	4.3	7.8	5.0	6.2	---	---	---
2	---	---	---	6.5	2.0	4.3	6.7	4.1	5.6	---	---	---
3	---	---	---	6.2	1.3	3.7	6.2	3.9	5.0	---	---	---
4	---	---	---	6.2	1.2	3.6	7.6	4.4	5.6	---	---	---
5	---	---	---	6.9	1.6	4.0	7.3	4.4	5.7	---	---	---
6	---	---	---	6.7	1.9	4.3	7.0	5.6	6.2	---	---	---
7	---	---	---	6.9	2.6	4.7	7.5	5.7	6.4	---	---	---
8	5.9	3.0	---	6.5	2.2	4.6	7.5	5.8	6.6	---	---	---
9	6.6	3.0	4.6	6.5	2.2	4.3	8.3	6.0	7.1	---	---	---
10	6.2	2.9	4.5	7.5	2.9	5.0	9.0	6.4	7.6	---	---	---
11	5.7	1.9	3.9	7.1	2.0	5.2	9.2	7.4	---	---	---	---
12	5.1	1.7	3.4	8.7	3.4	6.8	---	---	---	---	---	---
13	4.2	1.0	2.8	7.7	4.5	6.4	---	---	---	---	---	---
14	5.9	1.0	---	8.6	5.0	6.8	---	---	---	---	---	---
15	3.6	0.6	1.8	8.3	5.4	7.0	---	---	---	---	---	---
16	3.1	0.3	1.3	8.3	4.7	6.5	---	---	---	---	---	---
17	4.4	0.2	1.5	8.1	5.2	6.7	---	---	---	---	---	---
18	4.7	0.3	2.0	8.4	5.2	6.7	---	---	---	---	---	---
19	5.2	0.6	2.5	7.6	4.3	6.1	---	---	---	---	---	---
20	4.1	0.4	2.3	7.3	3.5	5.5	---	---	---	---	---	---
21	5.0	0.8	2.7	7.5	3.5	5.3	---	---	---	---	---	---
22	5.7	0.9	3.1	7.2	4.2	5.5	---	---	---	---	---	---
23	6.6	1.3	3.4	6.8	4.1	5.2	---	---	---	---	---	---
24	7.2	1.3	3.9	6.7	3.7	5.0	---	---	---	---	---	---
25	6.7	1.5	4.0	6.4	3.7	4.9	---	---	---	---	---	---
26	6.2	1.3	3.8	6.5	3.9	5.3	---	---	---	---	---	---
27	7.5	2.0	4.3	6.2	3.9	5.0	---	---	---	---	---	---
28	6.9	1.8	4.6	6.5	3.9	5.2	---	---	---	---	---	---
29	7.1	2.2	4.7	6.5	4.4	5.4	---	---	---	---	---	---
30	6.8	2.2	4.4	7.2	4.5	5.7	---	---	---	---	---	---
31	7.3	2.3	4.6	---	---	---	---	---	---	---	---	---
MCNTH	---	---	---	8.7	1.2	5.3	---	---	---	---	---	---
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	6.9	5.9	---	---	---	---
2	---	---	---	---	---	---	7.2	6.1	6.6	---	---	---
3	---	---	---	---	---	---	7.1	6.1	6.5	---	---	---
4	---	---	---	---	---	---	7.8	5.8	6.5	---	---	---
5	---	---	---	---	---	---	7.9	5.4	6.2	3.9	2.0	---
6	---	---	---	10.7	8.6	---	7.1	5.4	6.1	4.7	1.6	2.9
7	---	---	---	10.9	8.3	9.8	7.3	4.9	6.0	4.0	1.8	3.0
8	---	---	---	10.7	8.1	9.6	6.1	4.1	5.1	4.3	1.7	3.1
9	---	---	---	10.5	8.0	9.4	5.8	4.0	5.1	4.8	2.3	3.7
10	---	---	---	10.6	7.8	9.3	6.7	4.2	5.7	5.2	2.6	3.9
11	---	---	---	10.7	7.5	9.4	6.4	4.8	5.4	6.4	3.7	5.0
12	---	---	---	10.8	7.7	9.6	6.5	4.7	5.5	6.0	3.7	4.9
13	---	---	---	11.6	8.4	10.2	6.3	4.3	5.3	5.5	3.4	4.6
14	---	---	---	11.6	9.1	10.3	5.7	3.9	4.9	5.1	2.7	4.1
15	---	---	---	11.4	8.8	10.4	5.5	1.8	4.2	5.3	2.2	3.4
16	---	---	---	10.6	8.5	---	5.3	3.1	4.2	5.3	1.9	3.3
17	---	---	---	---	---	---	5.3	2.5	3.9	4.9	2.1	3.4
18	---	---	---	10.8	8.5	---	5.0	1.9	3.3	5.0	2.7	3.9
19	---	---	---	10.7	7.7	9.4	5.2	1.7	3.4	5.5	3.6	4.4
20	---	---	---	10.6	7.5	9.1	5.1	2.5	3.8	5.7	3.4	4.4
21	---	---	---	9.2	8.0	---	6.1	1.5	4.2	4.7	2.8	4.0
22	---	---	---	---	---	---	5.4	1.9	3.8	4.7	3.0	3.9
23	---	---	---	---	---	---	4.5	2.1	3.4	4.7	1.8	3.4
24	---	---	---	---	---	---	5.1	2.0	3.3	3.7	2.0	2.8
25	---	---	---	8.6	7.0	---	4.3	2.1	3.3	3.0	1.4	2.3
26	---	---	---	8.1	2.3	5.5	4.0	2.0	3.0	2.6	1.3	2.0
27	---	---	---	4.4	2.6	3.5	3.6	1.9	2.7	2.8	1.2	2.0
28	---	---	---	4.9	3.6	---	---	---	---	2.6	1.4	2.0
29	---	---	---	---	---	---	---	---	---	2.1	1.2	1.7
30	---	---	---	---	---	---	---	---	---	1.5	0.5	0.9
31	---	---	---	---	---	---	---	---	---	1.5	0.3	---
MCNTH	---	---	---	---	---	---	7.9	1.7	4.7	6.4	0.3	3.3

DISSOLVED OXYGEN (DO), IN MILLIGRAMS PER LITER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

pH (UNITS), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969[illegible]

01482100 DELAWARE RIVER AT DELAWARE MEMORIAL BRIDGE, WILMINGTON, DEL.--Continued

pH (UNITS), WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	6.5	6.3	---	---	---	---
2	---	---	---	---	---	---	6.5	6.0	6.4	---	---	---
3	---	---	---	---	---	---	6.5	6.1	6.3	---	---	---
4	---	---	---	---	---	---	6.6	6.0	6.3	---	---	---
5	---	---	---	---	---	---	6.6	5.9	6.3	6.7	6.5	---
6	---	---	---	---	---	---	6.5	5.9	6.2	6.7	6.4	6.6
7	---	---	---	---	---	---	6.4	5.8	6.1	6.7	6.4	6.6
8	---	---	---	---	---	---	6.2	5.8	6.0	6.7	6.4	6.6
9	---	---	---	---	---	---	6.1	5.8	6.0	6.8	6.4	6.6
10	---	---	---	---	---	---	6.2	5.8	6.0	6.8	6.5	6.6
11	---	---	---	---	---	---	6.1	5.6	6.0	6.9	6.4	6.7
12	---	---	---	---	---	---	6.1	5.8	5.9	6.8	6.5	6.6
13	---	---	---	---	---	---	6.1	5.8	6.0	6.7	6.4	6.5
14	---	---	---	---	---	---	6.1	5.8	6.0	6.7	6.3	6.5
15	---	---	---	---	---	---	6.1	5.5	6.0	6.7	6.4	6.6
16	---	---	---	---	---	---	6.1	5.9	6.0	6.7	6.4	6.5
17	---	---	---	---	---	---	6.1	5.8	5.9	6.7	6.4	6.6
18	---	---	---	6.4	6.1	---	6.0	5.8	5.9	6.7	6.4	6.6
19	---	---	---	6.4	5.9	6.1	6.1	5.8	5.9	6.8	6.5	6.6
20	---	---	---	6.3	5.9	6.1	6.1	6.0	6.0	6.8	6.2	6.5
21	---	---	---	6.0	5.9	---	6.2	6.0	6.1	6.6	6.4	6.5
22	---	---	---	---	---	---	6.2	6.1	6.2	6.6	6.3	6.5
23	---	---	---	---	---	---	6.2	6.1	6.2	6.6	6.4	6.4
24	---	---	---	---	---	---	6.3	6.1	6.2	6.4	6.2	6.3
25	---	---	---	6.3	6.0	---	6.3	6.1	6.3	6.3	6.1	6.2
26	---	---	---	6.4	6.0	6.2	6.3	6.2	6.3	6.3	6.0	6.2
27	---	---	---	6.5	6.0	6.2	6.3	6.2	6.2	6.3	5.9	6.1
28	---	---	---	6.4	6.3	---	---	---	---	6.4	5.9	6.1
29	---	---	---	---	---	---	---	---	---	6.4	6.1	6.2
30	---	---	---	---	---	---	---	---	---	6.4	6.0	6.2
31	---	---	---	---	---	---	---	---	---	6.2	5.8	---
MCNTH	---	---	---	---	---	---	6.6	5.6	6.1	6.9	5.8	6.5
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	6.4	6.1	6.3	---	---	---	---	---	---
2	---	---	---	6.4	6.2	6.3	---	---	---	---	---	---
3	---	---	---	6.4	6.2	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	6.5	6.0	---
6	6.1	6.0	---	---	---	---	---	---	---	6.2	5.6	5.9
7	6.1	5.9	6.0	6.3	6.0	---	---	---	---	6.4	6.0	6.1
8	6.0	5.8	5.9	6.4	6.1	6.2	---	---	---	6.3	6.1	6.2
9	6.1	5.7	5.9	6.4	6.1	6.2	---	---	---	6.4	6.0	6.1
10	6.0	5.8	5.9	6.5	6.1	6.2	---	---	---	6.3	6.0	6.1
11	6.1	5.8	5.9	6.5	6.1	6.2	---	---	---	6.4	6.0	6.2
12	6.2	5.8	5.9	6.3	6.0	6.2	---	---	---	6.4	6.0	6.2
13	6.2	5.7	5.9	6.3	5.9	6.1	---	---	---	6.4	6.0	6.2
14	6.2	5.8	5.9	6.4	5.9	6.2	---	---	---	6.5	6.0	6.2
15	6.1	5.7	5.9	6.3	6.0	6.1	---	---	---	6.6	6.0	6.3
16	6.1	5.7	5.9	6.3	5.9	6.1	---	---	---	6.7	6.1	6.3
17	6.1	5.9	---	6.3	5.9	6.1	---	---	---	6.8	6.1	6.4
18	---	---	---	6.3	5.9	6.1	---	---	---	6.8	6.1	6.4
19	---	---	---	6.2	5.9	6.0	---	---	---	6.9	6.2	6.5
20	---	---	---	6.2	5.9	6.0	---	---	---	6.8	6.2	6.5
21	---	---	---	6.0	5.8	---	---	---	---	6.9	6.1	6.5
22	---	---	---	---	---	---	---	---	---	6.9	6.2	6.5
23	---	---	---	---	---	---	---	---	---	6.9	6.1	6.5
24	---	---	---	---	---	---	---	---	---	6.7	6.1	6.4
25	---	---	---	---	---	---	---	---	---	6.6	6.1	6.4
26	6.6	6.1	---	---	---	---	---	---	---	6.7	6.1	6.4
27	6.6	6.2	6.3	---	---	---	---	---	---	6.7	6.1	6.4
28	6.5	6.3	6.4	---	---	---	---	---	---	6.7	6.1	6.4
29	6.4	6.2	6.3	---	---	---	---	---	---	6.7	6.1	6.3
30	6.4	6.2	6.3	---	---	---	---	---	---	6.8	6.2	6.4
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	6.9	5.6	6.3

01482100 DELAWARE RIVER AT DELAWARE MEMORIAL BRIDGE, WILMINGTON, DEL.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	23.0	22.0	21.0	15.0	12.0	14.0	8.0	8.0	8.0	2.0	0	1.0
2	23.0	23.0	23.0	15.0	14.0	14.0	8.0	8.0	8.0	1.0	0	0
3	23.0	23.0	23.0	15.0	14.0	14.0	9.0	8.0	8.0	0	0	0
4	23.0	21.0	22.0	15.0	14.0	14.0	9.0	8.0	8.0	0	0	0
5	22.0	20.0	21.0	14.0	14.0	14.0	8.0	8.0	8.0	0	0	0
6	21.0	19.0	21.0	14.0	13.0	14.0	8.0	7.0	7.0	0	0	0
7	21.0	19.0	20.0	14.0	13.0	14.0	7.0	6.0	7.0	0	0	0
8	21.0	19.0	20.0	14.0	13.0	13.0	7.0	6.0	6.0	0	0	0
9	20.0	19.0	19.0	14.0	13.0	13.0	6.0	5.0	6.0	0	0	0
10	19.0	19.0	19.0	13.0	12.0	13.0	5.0	4.0	4.0	---	---	---
11	19.0	19.0	19.0	13.0	12.0	12.0	4.0	3.0	---	---	---	---
12	19.0	19.0	19.0	12.0	11.0	11.0	---	---	---	---	---	---
13	20.0	19.0	19.0	12.0	10.0	11.0	---	---	---	---	---	---
14	20.0	19.0	---	11.0	9.0	10.0	---	---	---	---	---	---
15	20.0	19.0	19.0	11.0	9.0	10.0	---	---	---	---	---	---
16	20.0	19.0	19.0	11.0	9.0	10.0	---	---	---	---	---	---
17	21.0	19.0	20.0	10.0	9.0	10.0	---	---	---	---	---	---
18	21.0	20.0	20.0	11.0	9.0	10.0	3.0	2.0	---	---	---	---
19	21.0	20.0	20.0	11.0	9.0	10.0	3.0	1.0	2.0	---	---	---
20	21.0	19.0	20.0	10.0	9.0	9.0	3.0	2.0	2.0	---	---	---
21	20.0	19.0	19.0	9.0	8.0	9.0	3.0	2.0	2.0	---	---	---
22	19.0	19.0	19.0	9.0	8.0	9.0	3.0	2.0	2.0	---	---	---
23	19.0	18.0	19.0	9.0	8.0	9.0	3.0	2.0	2.0	---	---	---
24	19.0	18.0	18.0	9.0	8.0	9.0	3.0	2.0	2.0	---	---	---
25	19.0	18.0	18.0	9.0	8.0	9.0	2.0	1.0	2.0	---	---	---
26	18.0	17.0	18.0	9.0	8.0	8.0	1.0	0	1.0	---	---	---
27	18.0	16.0	17.0	9.0	8.0	8.0	1.0	0	1.0	---	---	---
28	17.0	16.0	17.0	9.0	8.0	8.0	2.0	0	1.0	---	---	---
29	17.0	15.0	16.0	9.0	9.0	9.0	2.0	1.0	1.0	---	---	---
30	16.0	14.0	15.0	9.0	8.0	9.0	2.0	1.0	1.0	---	---	---
31	15.0	14.0	14.0	---	---	---	2.0	1.0	1.0	---	---	---
MONTH	23.0	14.0	19.0	15.0	8.0	11.0	9.0	0	---	---	---	---
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	8.0	8.0	---	---	---	---
2	---	---	---	---	---	---	9.0	8.0	9.0	---	---	---
3	---	---	---	---	---	---	9.0	8.0	8.0	---	---	---
4	---	---	---	---	---	---	9.0	8.0	9.0	---	---	---
5	---	---	---	---	---	---	9.0	9.0	9.0	18.0	18.0	---
6	---	---	---	4.0	3.0	---	9.0	9.0	9.0	18.0	18.0	18.0
7	---	---	---	3.0	3.0	3.0	10.0	9.0	9.0	18.0	18.0	18.0
8	---	---	---	4.0	2.0	3.0	11.0	9.0	10.0	19.0	18.0	18.0
9	---	---	---	4.0	3.0	3.0	11.0	10.0	11.0	19.0	18.0	18.0
10	---	---	---	4.0	3.0	4.0	12.0	11.0	11.0	18.0	18.0	18.0
11	---	---	---	4.0	3.0	3.0	12.0	11.0	12.0	18.0	18.0	18.0
12	---	---	---	4.0	2.0	3.0	12.0	11.0	12.0	18.0	17.0	18.0
13	---	---	---	4.0	3.0	3.0	13.0	12.0	12.0	18.0	17.0	18.0
14	---	---	---	4.0	3.0	3.0	13.0	12.0	12.0	18.0	17.0	18.0
15	---	---	---	4.0	3.0	3.0	13.0	12.0	13.0	18.0	18.0	18.0
16	---	---	---	5.0	4.0	---	14.0	13.0	13.0	18.0	18.0	18.0
17	---	---	---	---	---	---	14.0	13.0	13.0	19.0	18.0	18.0
18	---	---	---	5.0	4.0	---	14.0	14.0	14.0	19.0	18.0	19.0
19	---	---	---	5.0	4.0	4.0	15.0	14.0	14.0	19.0	19.0	19.0
20	---	---	---	6.0	4.0	5.0	15.0	14.0	14.0	20.0	19.0	19.0
21	---	---	---	6.0	6.0	---	16.0	14.0	15.0	21.0	19.0	20.0
22	---	---	---	---	---	---	16.0	14.0	15.0	21.0	20.0	21.0
23	---	---	---	---	---	---	16.0	14.0	15.0	21.0	20.0	21.0
24	---	---	---	---	---	---	16.0	14.0	15.0	21.0	20.0	20.0
25	---	---	---	7.0	7.0	---	16.0	14.0	15.0	21.0	20.0	21.0
26	---	---	---	8.0	7.0	8.0	16.0	15.0	16.0	21.0	20.0	21.0
27	---	---	---	9.0	8.0	8.0	17.0	16.0	16.0	21.0	20.0	21.0
28	---	---	---	9.0	8.0	---	---	---	---	21.0	20.0	21.0
29	---	---	---	---	---	---	---	---	---	23.0	21.0	22.0
30	---	---	---	---	---	---	---	---	---	23.0	22.0	23.0
31	---	---	---	---	---	---	---	---	---	23.0	22.0	---
MONTH	---	---	---	---	---	---	17.0	8.0	12.5	23.0	17.0	19.5

## DELAWARE RIVER BASIN

01482100 DELAWARE RIVER AT DELAWARE MEMORIAL BRIDGE, WILMINGTON, DEL.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	27.0	27.0	27.0	---	---	---	---	---	---
2	---	---	---	27.0	27.0	27.0	---	---	---	---	---	---
3	---	---	---	27.0	27.0	27.0	---	---	---	---	---	---
4	---	---	---	27.0	27.0	27.0	---	---	---	---	---	---
5	---	---	---	27.0	26.0	27.0	---	---	---	26.0	26.0	---
6	23.0	23.0	---	27.0	27.0	27.0	---	---	---	26.0	26.0	26.0
7	23.0	23.0	23.0	27.0	26.0	26.0	---	---	---	27.0	26.0	26.0
8	24.0	23.0	23.0	26.0	25.0	26.0	---	---	---	26.0	26.0	26.0
9	23.0	23.0	23.0	26.0	25.0	26.0	---	---	---	26.0	25.0	26.0
10	24.0	23.0	23.0	26.0	24.0	25.0	---	---	---	26.0	24.0	25.0
11	24.0	23.0	23.0	26.0	25.0	25.0	---	---	---	25.0	24.0	24.0
12	24.0	23.0	23.0	26.0	25.0	26.0	---	---	---	25.0	24.0	24.0
13	24.0	24.0	24.0	26.0	25.0	26.0	---	---	---	25.0	24.0	24.0
14	25.0	24.0	24.0	26.0	25.0	26.0	---	---	---	25.0	24.0	24.0
15	25.0	24.0	25.0	27.0	26.0	26.0	---	---	---	25.0	24.0	24.0
16	25.0	24.0	25.0	27.0	26.0	27.0	---	---	---	25.0	24.0	24.0
17	25.0	24.0	---	27.0	27.0	27.0	---	---	---	25.0	24.0	25.0
18	---	---	---	28.0	27.0	27.0	---	---	---	25.0	24.0	24.0
19	---	---	---	28.0	27.0	27.0	---	---	---	24.0	23.0	23.0
20	---	---	---	27.0	27.0	27.0	---	---	---	23.0	22.0	22.0
21	---	---	---	27.0	27.0	---	---	---	---	22.0	21.0	22.0
22	---	---	---	---	---	---	---	---	---	22.0	21.0	22.0
23	---	---	---	---	---	---	---	---	---	22.0	21.0	22.0
24	---	---	---	---	---	---	---	---	---	22.0	21.0	22.0
25	---	---	---	---	---	---	---	---	---	22.0	21.0	22.0
26	26.0	25.0	---	---	---	---	---	---	---	22.0	21.0	21.0
27	26.0	25.0	26.0	---	---	---	---	---	---	22.0	21.0	22.0
28	27.0	26.0	26.0	---	---	---	---	---	---	22.0	21.0	21.0
29	27.0	26.0	27.0	---	---	---	---	---	---	21.0	21.0	21.0
30	27.0	26.0	27.0	---	---	---	---	---	---	21.0	21.0	21.0
31	---	---	---	---	---	---	---	---	---	---	---	---
MCNTH	---	---	---	---	---	---	---	---	---	27.0	21.0	23.5

## DELAWARE RIVER BASIN

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01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DEL.

LOCATION.--Lat 39°30'03", long 75°34'07", New Castle County, water-quality recorder located on platform about 0.4 mile downstream from Reedy Island near Port Penn.

DRAINAGE AREA.--11,222 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1963 to September 1969.

EXTREMES, 1968-69.--Specific conductance: Maximum daily, 24,500 micromhos Mar. 3; minimum daily, 100 micromhos on several days in August.

EXTREMES, 1963-69.--Specific conductance: Maximum daily, 35,400 micromhos Nov. 7, 1963; minimum daily, 100 micromhos on several days in August 1969.

REMARKS.--Records of discharge are available for Delaware River at Trenton, N. J.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)
OCT. 03...	1.9	112	300	2600	104	40	0	681	4750
NOV. 01...	2.7	113	240	2350	92	38	0	681	4260

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH	COLOR (PLAT- INUM- COBALT UNITS)
OCT. 03...	.7	7.8	9520	8580	1520	1480	13800	6.7	6
NOV. 01...	.7	8.0	8390	7770	1270	1240	13100	6.8	9

## SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	16200	9000	12050	12700	4500	7550	10000	3800	7150
2	19400	11500	---	16000	9200	12760	12000	1000	7080	9400	1700	5300
3	16700	11300	13920	16700	9500	12610	10100	4500	6630	11800	2900	7120
4	16200	9600	12340	16500	10200	12680	14500	5500	8770	13500	4500	8980
5	16100	9900	12610	17300	10700	13420	11000	1000	6170	14900	6200	9720
6	17900	10800	13880	17700	11000	13720	6200	1200	2840	15000	6700	10320
7	18000	10600	14270	17800	11200	14100	6500	1200	2550	15700	7200	10790
8	17500	10700	13080	17300	10700	13510	8700	1500	3800	11100	5100	7600
9	18200	11300	14190	17100	10700	13020	10300	2700	5690	12500	6200	9320
10	16300	10500	13420	19500	12000	14780	10500	3900	7060	13900	7100	10640
11	15900	10100	12500	19500	11600	15010	13500	6000	9920	13000	5800	9170
12	15200	9900	12160	21600	11500	16370	14200	7000	10280	14500	4700	10360
13	15800	9000	11860	16500	10000	13160	12500	7000	9290	17000	6800	12170
14	16000	9000	12190	17300	9800	13300	12000	5600	8500	17500	8200	12860
15	16300	9300	12600	19200	10800	15050	11500	5200	7960	19800	8500	13780
16	15700	8700	12310	18000	10800	14700	13000	5500	8670	19000	9600	13450
17	17500	8700	12620	19200	11700	15500	12500	4400	7600	18800	10400	13730
18	17300	9100	13200	19500	12700	15640	13000	3700	7360	18500	10600	13830
19	15800	10700	13090	18000	11300	14500	14500	4500	7520	16900	10500	12960
20	17300	9200	12780	14700	7200	11180	15000	5000	9120	17500	10300	12970
21	17000	10100	13170	12800	5700	8790	12900	5200	8270	17500	10900	13870
22	16500	10000	12620	11800	4600	7790	15000	5500	9040	17400	11400	14530
23	16200	10000	12430	12300	4600	7030	13500	6800	10040	17200	11000	14370
24	17800	10500	13050	13800	4700	7690	9500	4300	6900	16900	11200	14050
25	17600	11000	13770	10700	4700	6920	7200	3600	4570	16500	10700	13350
26	16000	10300	12990	11800	4300	7540	11500	2800	6900	15000	9700	11950
27	15000	10000	11600	11300	4100	7240	14400	4400	9300	15600	9100	12430
28	14400	8700	10920	12700	3500	7570	14500	5500	10250	15500	8700	12640
29	14900	8700	11620	11300	4800	7360	11500	5000	8350	16600	9100	12850
30	15200	8800	10980	10200	3300	5750	11400	3800	6870	17000	9100	12830
31	16400	9000	12120	---	---	---	14300	4700	8650	16300	9100	12460
MONTH	19400	8700	12700	21600	3300	11720	15000	1000	7560	19800	1700	11530



## DELAWARE RIVER BASIN

01482800 DELAWARE RIVER AT REEDY ISLAND JETTY, DEL.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) OF WATER. WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969--Continued

	FEBRUARY			MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	1580C	860C	1185C	22500	16700	1945C	10900	320C	630C	11000	3100	6410
2	16400	820C	11600	23000	16900	19780	11000	3600	6320	11600	3600	6190
3	15600	9300	11720	24500	16500	2050C	7500	280C	463C	10600	3200	5410
4	10900	5800	8390	22600	15200	1911C	10300	3000	5610	8400	2800	4450
5	10300	510C	7080	2110C	1530C	18C40	10100	3100	5590	9600	2900	4970
6	1300C	5000	880C	2120C	14800	1740C	9100	270C	4660	9600	3100	5130
7	1360C	613C	9650	1930C	15000	17C40	1050C	280C	5610	9200	3600	5420
8	1360C	650C	9580	2140C	14000	1712C	8000	210C	388C	8000	3500	5280
9	13400	650C	9400	19600	14000	15950	6700	2200	3640	7400	3000	4480
10	1100C	430C	6550	2C200	1400C	1652C	7200	2100	3730	6400	2400	3930
11	1850C	6400	14020	19500	13200	15810	3500	1300	2140	7300	2500	4330
12	1950C	830C	14520	18000	12300	15C20	5700	1200	2440	5800	2100	3470
13	1760C	9620	12860	2130C	12800	1740C	5000	1200	266C	6500	1800	3230
14	1500C	750C	11240	2250C	14700	1810C	4200	130C	237C	7100	1700	3060
15	1800C	813C	1238C	2090C	1400C	1717C	430C	1100	2050	7200	1800	3230
16	18600	930C	12980	2150C	13500	16940	5200	1200	2230	5900	1800	3180
17	1780C	10250	1357C	21000	13500	16650	580C	1100	2310	5300	1700	2790
18	1910C	11400	15030	20000	13100	1627C	550C	1100	210C	4500	1500	2380
19	1930C	1160C	15080	19900	13100	1668C	6300	1000	2030	5500	1400	2470
20	1950C	1290C	15600	21000	13000	17C20	600C	1100	2280	3500	1200	2030
21	2C000	1240C	16120	1950C	13300	1632C	6900	1000	2650	4500	800	1780
22	19500	11800	15190	18300	11800	14800	550C	900	2490	6200	1100	2650
23	1800C	12000	14750	18400	10800	14C7C	51C0	1100	2430	5500	1300	2920
24	19100	12300	1573C	17700	11400	14220	5700	900	2270	5700	1400	2740
25	2010C	1250C	15950	17700	11000	1450C	900C	80C	4930	6700	1200	2880
26	2000C	12500	16540	1620C	8300	12C4C	1000C	700	6150	7500	1300	3400
27	23800	12030	18500	11900	4500	8640	1190C	250C	7720	10000	1600	4760
28	23000	16000	2004C	12400	4200	807C	11900	3200	7200	8700	1900	4900
29	---	---	---	1300C	4100	8430	1150C	2200	5830	10100	1800	4690
30	---	---	---	1200C	2800	7100	1200C	290C	637C	11500	2400	5980
31	---	---	---	1060C	2900	6410	---	---	---	7400	2900	---
MONTH	23800	4300	13030	24500	2800	1526C	1200C	70C	4020	11600	800	3950
	JUNE			JULY			AUGUST			SEPTEMBER		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	9800	2900	5100	1000	200	513	10000	5100	7260
2	---	---	---	8700	3000	5C4C	70C	200	358	10500	4900	7040
3	---	---	---	9900	3400	577C	500	20C	288	9800	4900	6820
4	---	---	---	9000	3500	568C	400	200	254	10800	4500	6650
5	---	---	---	9500	3800	5980	30C	100	208	10900	4400	6440
6	---	---	---	8700	360C	5310	900	100	233	10900	4100	6640
7	---	---	---	8400	390C	5800	260C	10C	579	11400	3700	6730
8	---	---	---	10100	450C	6320	4600	100	1390	13000	3700	7090
9	---	---	---	1010C	4300	6290	660C	200	2240	13600	4900	7830
10	9600	3900	---	11000	4400	6510	670C	90C	3150	1250C	4600	8000
11	10100	3900	590C	11900	4600	663C	8200	1100	3250	12000	4900	8080
12	970C	410C	5810	11000	4700	6800	8100	1500	3590	12300	5300	8300
13	930C	3700	545C	1120C	4800	6930	7500	1600	3750	12500	5100	7960
14	9500	350C	527C	11700	4900	7090	720C	1800	3480	12300	5300	8230
15	820C	3500	527C	12300	4700	732C	650C	1800	3490	13500	5400	8800
16	820C	2800	441C	12300	4800	767C	680C	1900	3630	12000	5700	8290
17	8300	2600	4420	11500	4750	7200	5900	2000	3480	11800	5400	7850
18	900C	2500	459C	10800	4600	6820	5900	1800	3210	12000	4800	7470
19	7500	2400	4060	11100	4700	7340	5600	1700	3220	13200	6100	8920
20	750C	220C	3940	11400	5100	7720	8200	1800	3640	12200	6400	8870
21	6700	2100	3810	10800	5300	7750	960C	260C	5050	13500	6600	8910
22	8300	2300	5320	11800	5200	7920	10500	2500	5410	14000	6600	9300
23	8700	320C	5560	1010C	6100	7850	11500	2600	5700	14700	7000	9730
24	8100	2500	4820	12900	6400	8880	11500	3100	6020	13600	7100	9970
25	870C	2400	4700	1260C	5800	8850	12100	3500	6590	1310C	7000	9380
26	10000	2600	5090	12100	5800	820C	11600	420C	6930	13500	7100	9720
27	9400	2700	4720	12500	6000	8130	12000	4800	7540	13400	7200	9850
28	9200	240C	455C	1080C	5400	7590	11400	5200	7600	12800	7100	9600
29	910C	230C	4100	7100	1900	4460	1160C	5200	7550	13400	7000	9330
30	9500	260C	4720	3700	600	189C	10300	5000	7090	13600	7200	9740
31	---	---	---	260C	200	813	10300	4900	7160	---	---	---
MONTH	---	---	---	12900	200	6510	12100	100	3760	14700	3700	8290
YEAR	24500	10C	8670									

## ST. JONES RIVER BASIN

37

01483700 ST. JONES RIVER AT DOVER, DEL.

LOCATION.--Lat 39°09'49", long 75°31'10", Kent County, at gaging station 150 ft upstream from Division Street Bridge in Dover, and 1,950 feet downstream from Silver Lake.

DRAINAGE AREA.--31.9 sq mi.

PERIOD OF RECORD.--Chemical analyses: February 1965 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NESIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)
OCT.										
02...	.90	33	34	5.0	23	4.9	106	0	30	23
NOV.										
01...	4.3	17	22	4.2	36	5.1	23	0	47	44
DEC.										
04...	1.6	17	19	3.4	12	3.2	56	0	20	13
31...	5.6	27	23	4.2	20	3.0	35	0	23	35
FEB.										
03...	12	20	19	3.3	19	2.8	9	0	31	34
MAR.										
03...	22	--	16	3.1	--	--	21	0	30	42
27...	69	--	14	2.8	--	--	13	0	30	21
MAY										
01...	22	17	16	3.0	26	2.9	65	0	19	17
JUNE										
02...	6.8	17	20	3.3	15	3.3	38	0	19	23
JULY										
01...	3.5	--	19	3.8	--	--	38	0	18	29
AUG.										
01...	45	15	13	2.5	10	3.2	9	0	24	18
SEP.										
04...	110	17	13	2.4	10	3.1	12	0	22	20

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.									
02...	.1	24	235	229	106	19	350	8.0	7
NOV.									
01...	.3	26	236	213	73	54	360	7.3	10
DEC.									
04...	.3	13	135	129	62	16	199	7.5	9
31...	.3	16	204	169	75	47	280	7.8	8
FEB.									
03...	.4	22	193	156	61	54	255	6.9	4
MAR.									
03...	--	22	186	--	53	36	271	7.2	9
27...	--	11	132	--	47	36	186	6.9	15
MAY									
01...	.1	18	170	151	53	0	236	7.7	35
JUNE									
02...	.2	20	192	140	64	33	216	7.5	30
JULY									
01...	--	9.5	--	--	63	32	241	7.5	50
AUG.									
01...	.2	15	132	105	43	36	162	6.8	34
SEP.									
04...	.3	12	134	106	43	33	159	6.9	45

## WICOMICO RIVER BASIN

01486500 BEAVERDAM CREEK NEAR SALISBURY, MD.

LOCATION.--Lat 38°21'05", long 75°34'11", Wicomico County, at gaging station three-quarters of a mile upstream from Beaglin Branch and 2 miles southeast of Salisbury.  
 DRAINAGE AREA.--19.5 sq mi.  
 PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	SODIUM PLUS PO- TAS- SIUM (NA+K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)
OCT.										
09...	6.2	--	4.0	2.5	--	--	10	26	0	4.6
NOV.										
15...	9.6	--	4.6	3.1	--	--	9.4	28	0	4.8
DEC.										
20...	10	--	4.6	1.1	--	--	22	25	0	3.7
JAN.										
21...	24	--	6.7	1.7	--	--	9.9	15	--	12
FEB.										
27...	34	--	5.8	1.9	--	--	11	9	0	17
APR.										
03...	20	--	6.7	1.4	--	--	17	35	0	11
22...	64	8.9	4.4	1.5	5.7	2.4	--	8	0	12
MAY										
09...	19	13	4.0	1.5	7.3	2.5	--	17	0	3.7
JUNE										
05...	9.7	--	3.6	1.3	--	--	12	23	0	3.7
JULY										
29...	9.7	--	4.4	1.4	--	--	11	25	0	4.2

DATE	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.										
09...	10	--	2.7	--	--	21	0	77	7.4	8
NOV.										
15...	10	--	3.9	77	--	24	11	84	7.7	20
DEC.										
20...	8.8	--	6.5	--	--	16	0	86	7.4	5
JAN.										
21...	11	--	5.4	--	--	24	11	99	6.9	10
FEB.										
27...	11	--	7.1	--	--	23	15	100	6.9	25
APR.										
03...	10	--	6.5	--	--	23	0	116	7.7	20
22...	8.1	.1	4.5	74	52	17	11	72	6.7	50
MAY										
09...	8.5	.1	4.4	73	53	16	2	76	7.4	18
JUNE										
05...	9.9	--	3.8	--	--	15	0	78	7.6	20
JULY										
29...	10	--	1.8	71	--	17	0	83	7.2	45

01487000 NANTICOKE RIVER NEAR BRIDGEVILLE, DEL.

LOCATION.--Lat 38°43'42", long 75°33'44", Sussex County, at gaging station, 800 feet downstream from Gum Branch, 2.5 miles southeast of Bridgeville, and at mile 50.5.  
 DRAINAGE AREA.--75.4 sq mi.  
 PERIOD OF RECORD.--Chemical analyses: October 1961 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)
OCT.										
01...	28	17	4.0	1.8	13	3.8	16	0	5.4	18
NOV.										
01...	28	17	4.2	1.8	14	7.4	38	0	6.1	12
DEC.										
05...	34	22	6.4	2.3	13	2.6	20	0	8.8	16
31...	33	18	4.6	1.8	8.4	2.2	10	0	8.8	10
FEB.										
03...	47	19	4.6	2.0	6.9	2.4	10	0	10	13
28...	71	--	5.2	1.8	--	--	12	0	12	10
APR.										
01...	90	--	7.2	1.5	--	--	49	0	10	7.9
JUNE										
02...	56	--	4.2	1.6	--	--	13	0	6.8	10
JULY										
01...	40	--	4.8	1.7	--	--	11	0	6.3	3.6
AUG.										
01...	58	17	4.0	1.8	11	3.4	22	0	5.0	10
SEP.										
04...	94	17	4.2	1.8	9.2	2.7	11	0	4.4	12

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED ORTHO- PHOS- PHATE (PO <sub>4</sub> ) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.										
01...	.0	9.2	--	85	80	18	5	122	7.2	5
NOV.										
01...	.1	7.2	--	84	89	18	0	125	7.7	5
DEC.										
05...	.1	14	--	93	95	26	9	126	7.6	3
31...	.1	14	--	84	73	19	11	91	6.9	2
FEB.										
03...	.1	13	--	89	76	20	12	94	7.0	2
28...	--	11	--	90	--	21	11	100	6.9	5
APR.										
01...	--	10	.01	145	--	24	0	138	7.9	20
JUNE										
02...	--	10	.00	63	--	17	7	83	7.1	8
JULY										
01...	--	9.2	--	--	--	19	10	82	7.1	28
AUG.										
01...	.1	12	--	89	75	18	0	106	7.3	3
SEP.										
04...	.1	10	--	83	67	18	9	99	6.8	3

## CHOPTANK RIVER BASIN

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD.

LOCATION.--Lat 38°59'50", long 75°47'10", Caroline County, at gaging station, 0.1 mile upstream from Gravelly Branch, 2.0 miles northeast of Greensboro, and at mile 60.

DRAINAGE AREA.--113 sq mi.

PERIOD OF RECORD.--Chemical analyses: February 1965 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)
OCT. 23...	16	--	15	3.4	--	--	35	0	21	21
DEC. 23...	42	--	13	3.1	--	--	28	0	27	14
JAN. 23...	81	--	8.8	2.1	--	--	15	0	19	12
FEB. 24...	136	15	10	2.9	6.8	1.9	13	0	21	12
MAR. 24...	99	--	11	2.7	--	--	27	0	25	12
MAY 23...	188	14	9.2	2.3	5.5	2.3	12	0	18	10
JUNE 24...	31	--	11	2.7	--	--	25	0	19	13
JULY 24...	63	--	10	2.6	--	--	22	0	18	12
AUG. 22...	131	16	7.6	2.2	3.9	2.4	13	0	16	8.8
SEP. 24...	26	17	12	3.2	6.1	2.5	28	0	16	12

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT. 23...	--	3.8	--	--	52	23	170	7.8	17
DEC. 23...	--	5.0	--	--	46	23	152	7.3	2
JAN. 23...	--	5.1	--	--	31	18	118	7.0	5
FEB. 24...	.1	4.8	102	81	40	29	123	7.0	1
MAR. 24...	--	2.8	--	--	39	17	142	7.7	10
MAY 23...	.1	4.1	93	71	33	23	101	7.0	50
JUNE 24...	--	4.9	--	--	39	18	132	7.4	25
JULY 24...	--	3.4	106	--	36	18	123	7.3	40
AUG. 22...	.2	3.5	91	67	28	18	85	6.8	45
SEP. 24...	.1	5.8	101	89	43	20	133	7.6	5

## FIELD ANALYSES

DATE	TIME	DIS- CHARGE (CFS)	TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	FECAL COLI- FORM (COL. PER 100 ML)
JULY 12...	1600	80	22.5	7.0	7.4	100	100
AUG. 25...	0810	75	21.0	6.8	6.4	105	68
SEP. 18...	1600	34	21.0	7.4	6.4	120	25

01587500 SOUTH BRANCH PATAPSCO RIVER AT HENRYTON, MD.

LOCATION.--Lat 39°21'05", long 76°54'50", Howard County, at gaging station at bridge on Henryton Road at Henryton, 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.

PERIOD OF RECORD.--Chemical analyses: November 1965 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
OCT. 11....	19	7.0	170	60	10	2.8	4.6	3.3	36	0
NOV. 25....	54	8.3	170	30	8.0	2.7	4.4	1.8	24	0
JAN. 09....	34	8.3	--	--	7.9	3.0	4.2	1.3	20	0
FEB. 19....	34	5.2	200	40	7.6	3.0	4.5	1.2	21	0
APR. 11....	49	4.0	--	--	8.4	3.1	4.4	1.6	25	0
MAY 22....	29	6.4	400	60	9.2	3.0	3.7	2.5	31	0
JUNE 27....	14	6.9	--	--	9.6	2.8	4.8	2.1	34	0
AUG. 20....	28	9.1	310	80	11	3.0	4.5	4.5	38	0
SEP. 12....	18	8.0	240	60	9.5	3.0	4.8	3.4	34	0
25....	18	9.7	280	80	10	2.9	4.7	2.6	37	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT. 11....	6.9	7.7	.1	5.7	66	37	7	105	7.6	3
NOV. 25....	8.1	6.9	.1	7.0	59	31	12	98	6.5	5
JAN. 09....	8.5	6.9	.1	8.5	59	33	16	86	7.1	1
FEB. 19....	10	6.9	.1	6.4	55	32	15	84	7.1	3
APR. 11....	7.4	7.7	1.0	5.8	55	34	14	92	7.2	3
MAY 22....	7.2	7.2	.1	4.3	59	36	10	104	7.3	3
JUNE 27....	6.1	7.0	.1	4.2	61	36	8	105	7.1	3
AUG. 20....	8.7	8.0	.1	5.0	73	40	9	121	7.2	7
SEP. 12....	7.3	8.6	.1	4.6	66	36	8	113	7.0	5
25....	6.7	7.5	.1	5.0	67	37	7	121	7.3	5

## PATUXENT RIVER BASIN

01594700 PATUXENT RIVER AT BENEDICT, MD.

LOCATION.--Lat 38°30'46", long 76°40'10", Charles County, on bridge at State Highway 231 at Benedict, about 2 miles downstream from Swanson Creek.

DRAINAGE AREA.--742 sq mi.

PERIOD OF RECORD.--Chemical analyses: June 1963 to April 1964.

Water temperatures: October 1963 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 31.0°C July 20, 31; minimum, freezing point on several days

during December and January.

EXTREMES, 1963-69.--Water temperatures: Maximum, 32.5°C Aug. 8, 1965; Aug. 8, 1968; minimum, freezing point on several days during winter months.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(Recorder with temperature sensor attachment, thermocouple probe at river surface)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	25.5	23.0	14.5	12.0	10.0	9.0	4.0	2.5	6.0	4.5	4.0	3.0
2	26.0	23.5	15.0	13.0	11.0	9.0	2.5	1.5	6.0	4.5	3.5	2.5
3	26.0	23.5	15.5	14.0	10.5	9.5	2.5	0.5	5.5	4.0	3.5	2.5
4	23.5	20.5	15.5	15.0	11.0	9.5	2.0	1.0	5.0	3.5	4.5	3.0
5	21.5	18.5	16.0	15.0	10.5	8.5	1.5	0	4.5	3.0	4.5	3.0
6	20.5	19.0	15.0	15.0	9.0	7.0	1.0	0	4.5	3.0	5.0	3.0
7	20.5	19.0	15.5	15.0	9.0	6.5	1.5	0.5	4.5	3.5	5.0	3.5
8	20.0	18.5	16.0	14.5	8.5	6.5	1.5	0	4.0	3.0	5.0	3.0
9	19.5	19.0	15.0	13.5	---	---	2.5	1.0	4.5	3.5	5.0	3.5
10	19.5	18.5	13.5	11.5	---	---	3.0	1.0	---	1.5	4.0	3.0
11	19.5	18.5	12.0	11.0	4.0	---	1.5	0.5	3.5	1.0	4.0	2.5
12	20.5	19.0	12.0	9.0	4.0	2.0	2.0	0	4.0	2.0	3.5	1.5
13	21.0	19.5	9.0	8.0	5.5	3.5	1.5	0	2.5	1.5	3.5	2.0
14	21.5	19.5	9.5	7.0	6.0	5.0	1.5	0	2.0	1.0	4.5	2.0
15	21.5	20.0	9.5	8.5	---	3.5	1.5	0	2.5	0.5	4.5	3.0
16	22.0	20.5	11.0	9.5	3.5	---	1.5	0	2.5	1.5	6.0	3.0
17	22.5	20.5	11.5	10.0	2.5	1.0	3.0	0.5	2.5	1.5	7.0	3.5
18	22.0	21.0	11.5	10.5	3.0	1.0	3.5	1.0	2.5	2.0	7.0	5.0
19	22.5	21.5	11.5	10.5	3.5	2.0	4.5	2.0	2.5	1.5	8.0	5.5
20	21.5	20.5	10.0	9.5	4.0	---	4.0	2.0	2.5	2.0	7.0	6.5
21	20.5	19.5	9.5	8.0	4.0	3.5	3.5	2.0	2.5	2.0	9.5	6.5
22	20.0	18.5	9.5	7.5	4.0	3.0	4.0	2.0	3.0	2.0	9.5	8.0
23	20.0	18.5	9.5	7.5	4.5	3.5	4.5	3.0	3.5	2.5	10.5	7.5
24	19.5	18.5	10.0	8.5	4.0	2.0	5.0	3.5	4.0	2.5	9.0	8.0
25	19.0	18.0	10.5	9.0	3.0	0	6.5	3.5	4.0	2.5	10.0	8.0
26	18.0	15.5	9.5	8.5	1.5	0	5.0	3.0	3.5	3.0	10.0	8.5
27	16.0	15.0	10.5	10.0	2.0	0.5	3.5	2.5	3.5	2.5	9.5	8.0
28	15.0	14.5	10.5	9.5	3.0	1.5	3.5	1.5	5.0	2.5	9.5	7.5
29	14.5	13.5	12.0	10.0	5.5	3.0	3.5	2.5	---	---	10.5	8.0
30	13.5	12.0	11.0	9.5	4.5	3.0	4.5	2.5	---	---	10.0	8.5
31	13.5	11.5	---	---	4.0	3.0	6.5	3.5	---	---	9.5	8.0
AVG	20.0	18.5	11.5	10.5	---	---	3.0	1.5	---	---	6.5	5.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	7.0	---	---	---	---	30.0	28.0	29.5	27.5	---	---
2	11.5	8.0	18.0	---	---	---	30.0	27.5	29.0	27.5	---	---
3	12.5	9.5	19.0	16.5	---	---	30.5	27.5	29.0	27.5	---	---
4	11.5	10.0	21.0	17.5	27.0	---	30.0	28.5	28.5	27.5	---	---
5	13.5	10.0	21.5	18.5	25.5	24.0	29.0	28.0	28.0	26.5	29.5	27.0
6	14.0	10.0	21.5	18.5	26.0	24.0	---	---	28.0	26.5	29.5	27.5
7	15.0	10.5	21.5	19.0	26.5	24.5	---	---	---	27.0	29.5	27.5
8	15.5	11.5	21.5	19.0	28.0	25.0	---	---	29.0	27.5	28.5	27.5
9	16.0	12.5	21.5	19.5	26.0	24.5	27.5	26.5	29.0	27.5	27.5	26.0
10	16.0	13.5	21.0	19.5	25.0	24.0	27.0	26.0	28.5	27.0	26.5	24.5
11	17.0	15.0	20.0	18.5	25.0	23.5	27.5	26.0	28.5	27.0	---	---
12	16.5	14.0	19.5	17.5	26.5	23.5	29.0	26.0	28.5	26.5	---	---
13	15.5	13.5	20.0	17.5	27.5	24.5	28.0	26.5	28.5	27.0	---	---
14	---	14.0	20.0	18.0	---	---	28.5	26.0	28.5	27.0	---	---
15	---	---	20.0	18.0	---	---	29.5	26.5	29.5	27.5	---	---
16	---	14.5	21.0	18.5	---	---	30.0	27.0	29.0	27.5	25.5	---
17	17.5	15.5	21.5	19.0	---	---	29.5	27.5	29.5	28.0	26.5	25.0
18	17.5	---	22.0	20.0	25.5	---	30.0	28.0	30.0	28.5	---	---
19	18.5	16.5	22.0	20.5	27.0	24.0	30.5	28.5	29.5	27.5	---	---
20	18.5	15.5	24.0	20.5	28.0	25.0	31.0	29.0	28.5	26.5	---	---
21	16.5	14.0	23.5	21.5	27.0	25.0	---	---	27.0	25.5	---	---
22	16.0	15.0	23.5	21.0	27.0	24.5	---	---	27.5	25.5	---	---
23	15.5	14.5	23.5	21.5	---	---	---	---	29.0	25.5	---	---
24	15.0	14.0	23.0	21.0	---	---	---	---	29.0	26.0	---	---
25	---	---	24.0	21.0	---	---	28.0	26.0	29.0	27.0	---	---
26	---	---	24.0	21.5	---	---	29.0	26.5	28.0	26.0	---	---
27	---	---	23.0	21.5	29.0	26.5	29.0	27.0	27.5	24.5	23.0	21.5
28	---	---	23.5	21.5	30.5	27.0	28.0	27.5	---	---	---	---
29	---	---	25.0	22.0	30.5	28.5	28.0	26.5	---	---	---	---
30	---	---	25.5	23.0	30.0	27.5	29.5	26.5	---	---	---	---
31	---	---	---	---	---	---	31.0	27.0	---	---	---	---
AVG	---	---	---	---	---	---	---	---	---	---	---	---

01595500 NORTH BRANCH POTOMAC RIVER AT KITZMILLER, MD.

LOCATION.--Lat 39°23'36", long 79°10'55", Garrett County, temperature recorder at gaging station on left bank 0.6 mile downstream from bridge on State Highway 38 in Kitzmiller, 1.5 miles downstream from Wolfden Run, and at mile 68.9.

DRAINAGE AREA.--225 sq mi.

PERIOD OF RECORD.--Water temperatures: August 1961 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 30.5° June 30; minimum, freezing point on many days during winter months.

EXTREMES, 1961-69.--Water temperatures: Maximum, 32°C Aug. 15, 16, 18, 1965; minimum freezing point on many days during winter months.

REMARKS.--Records fair, probably because of friction in recorder.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(Continuous ethyl alcohol actuated thermograph)

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	18.5	9.0	12.0	6.0	4.0	1.5	1.0	0	3.5	3.5	1.5	1.0
2	18.5	11.5	14.0	10.0	5.5	3.0	0	0	3.5	3.5	2.0	1.0
3	17.0	14.5	11.5	11.0	5.5	5.5	0	0	3.5	2.0	4.5	0.5
4	15.0	10.5	11.5	10.5	5.5	4.5	0	0	2.0	1.0	4.0	0.5
5	13.5	7.0	13.0	10.5	4.5	1.5	0	0	2.0	1.0	3.5	0.5
6	11.0	7.0	11.5	11.5	1.5	0	0	0	3.0	1.5	2.0	0.5
7	11.5	11.0	11.5	11.0	0	0	0	0	3.5	3.0	3.0	1.0
8	15.0	10.5	11.0	7.0	0	0	0	0	3.5	3.0	3.0	0.5
9	16.0	10.5	7.0	6.0	0	0	0	0	3.0	0.5	2.0	1.5
10	14.5	13.0	6.0	5.5	0	0	0	0	0.5	0.5	2.0	0.5
11	16.0	13.0	5.5	4.0	0	0	0	0	0.5	0.5	1.0	0
12	17.5	15.0	5.0	1.5	0	0	0	0	0.5	0.5	0.5	0
13	18.5	14.0	2.0	1.5	0	0	0	0	0.5	0.5	1.0	0.5
14	19.5	15.0	2.0	1.5	0	0	0	0	0.5	0.5	1.0	0.5
15	20.5	16.5	5.0	2.0	0	0	0	0	0.5	0	2.0	0.5
16	19.5	16.0	6.0	5.0	0	0	0	0	0	0	3.5	0.5
17	20.5	17.5	7.0	6.0	0	0	0	0	0.5	0	5.5	1.0
18	18.5	16.5	8.5	7.0	0	0	0	0	1.0	0.5	4.5	1.0
19	17.5	15.5	8.0	4.0	0	0	0	0	1.0	0	6.5	2.0
20	15.5	13.0	4.0	2.0	0	0	0	0	0.5	0.5	5.5	3.0
21	15.0	11.5	2.0	1.5	0	0	0	0	4.0	0.5	5.5	4.5
22	14.5	9.5	5.0	2.0	0	0	0	0	1.5	0.5	5.0	3.0
23	15.0	11.5	5.0	4.0	0.5	0	0	0	1.5	1.0	5.5	2.0
24	12.0	11.0	5.5	5.0	0.5	0	1.5	0	2.0	1.5	5.5	4.5
25	11.5	9.5	5.5	4.5	0	0	1.5	0.5	2.0	1.0	5.0	4.5
26	9.5	8.0	5.0	3.5	0	0	0.5	0	1.5	0	4.5	3.5
27	11.0	6.0	5.5	5.0	0	0	0	0	2.0	0	3.5	2.0
28	9.5	7.0	8.5	5.5	1.5	0	0	0	2.0	0.5	5.5	1.5
29	7.0	6.0	8.5	6.0	1.5	0.5	0	0	---	---	5.5	4.5
30	9.0	6.0	6.0	4.0	0.5	0.5	3.5	0	---	---	4.5	2.0
31	9.0	4.0	---	---	1.0	0.5	3.5	3.5	---	---	3.5	0.5
AVG	14.5	11.0	7.5	5.5	1.0	0.5	0.5	0	2.0	1.0	3.5	1.5
DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	1.0	13.5	6.5	26.5	19.0	27.0	23.5	26.0	21.0	26.5	20.0
2	8.5	4.5	15.5	9.0	25.5	21.0	27.0	19.5	25.5	21.0	24.5	21.5
3	9.0	6.5	17.5	11.0	21.0	17.0	25.5	20.5	24.5	21.0	23.0	21.0
4	9.5	6.0	17.5	13.5	21.0	13.5	27.0	20.0	21.5	20.0	23.5	21.0
5	11.0	9.0	19.5	14.5	20.5	14.5	25.5	22.0	25.0	20.0	24.5	21.0
6	11.0	8.0	20.0	14.5	24.5	16.5	24.0	21.5	25.5	19.0	22.0	20.0
7	10.0	5.5	21.0	15.5	23.0	18.5	23.5	22.0	26.5	19.0	24.5	20.0
8	11.0	6.5	20.0	16.5	23.0	18.5	22.0	20.0	26.0	20.0	22.0	19.5
9	12.0	9.0	18.5	14.0	20.5	17.5	20.0	19.0	23.5	21.0	19.5	17.0
10	12.0	11.0	14.0	11.5	17.5	15.5	21.0	19.0	21.0	19.0	17.5	15.5
11	12.0	10.0	13.0	10.5	22.0	15.5	27.0	20.0	21.5	16.5	17.5	13.0
12	11.0	8.0	12.0	9.5	25.5	18.5	26.5	23.0	21.0	17.5	18.5	13.0
13	12.0	8.0	14.0	9.5	25.5	21.0	26.0	20.5	24.5	17.5	19.5	13.5
14	11.0	9.5	14.0	11.5	26.0	21.0	27.0	20.0	24.5	18.5	21.0	14.5
15	11.0	10.0	16.5	10.5	24.5	21.0	28.5	20.5	24.5	20.5	21.0	15.5
16	13.0	10.5	18.5	14.0	21.0	18.5	29.0	21.0	22.0	19.5	22.0	16.0
17	15.5	9.5	19.5	15.0	22.0	14.5	29.0	23.0	23.0	19.0	23.5	16.5
18	14.5	13.0	19.5	16.0	20.0	16.5	29.5	23.5	22.0	19.5	21.0	17.0
19	13.5	10.5	19.5	17.0	23.5	17.0	28.0	23.5	19.5	17.5	17.0	14.5
20	13.0	8.5	20.0	16.5	24.5	19.0	28.5	23.5	20.0	18.5	15.5	13.5
21	13.0	8.0	21.0	16.5	23.0	19.5	26.0	23.5	20.0	16.5	15.5	13.5
22	11.5	9.5	20.0	15.5	23.0	17.0	24.5	22.0	20.0	15.5	19.5	15.0
23	9.5	7.0	18.5	16.5	23.5	20.0	25.5	23.5	21.0	15.5	19.0	14.0
24	7.0	6.0	19.0	16.5	26.5	20.5	23.5	21.0	23.5	16.5	17.5	16.5
25	10.5	5.0	21.0	16.0	26.5	22.0	26.5	21.0	24.5	18.5	19.0	16.5
26	13.0	8.0	22.0	16.0	29.0	21.5	28.0	21.0	24.0	19.5	20.0	16.5
27	15.0	9.5	21.0	14.0	30.0	23.5	28.0	21.0	23.5	16.5	17.5	14.5
28	14.5	11.5	22.0	14.5	30.0	23.5	26.5	23.0	23.5	16.5	17.5	14.5
29	14.0	10.5	25.5	17.5	29.5	21.5	26.5	20.5	24.5	17.5	16.5	11.0
30	10.5	9.0	26.5	20.0	30.5	21.0	24.5	20.5	25.5	19.0	16.5	11.0
31	---	---	26.0	17.5	---	---	26.0	19.0	26.5	20.0	---	---
AVG	11.5	8.5	19.0	14.0	24.5	19.0	26.0	21.5	23.5	18.5	20.0	16.5



## POTOMAC RIVER BASIN

01595800 NORTH BRANCH POTOMAC RIVER AT BARNUM, W. VA.

LOCATION.--Lat 39°26'44", 79°06'39", Garrett County, Md., on left bank at bridge at Barnum, W. Va., 0.45 mile upstream from Folly Run, and 4.0 miles southwest of Piedmont, W. Va.

DRAINAGE AREA.--226 sq mi.

PERIOD OF RECORD.--Chemical analyses: April 1967 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	DIS- SOLVED ALUM- INUM (AL) (UG/L)	TOTAL ALUM- INUM (AL) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)
OCT.								
03...	12	19	--	22000	--	1700	5100	5100
NOV.								
01...	30	14	--	15000	--	3500	3800	3800
DEC.								
16...	299	6.3	4000	4000	--	4100	900	900
JAN.								
13...	170	7.2	5000	5200	--	3500	1100	1100
FEB.								
07...	678	5.6	3100	3100	--	5600	810	810
JULY								
22...	164	--	15000	--	11000	--	2700	--
AUG.								
19...	1080	--	5800	--	4600	--	6700	--
SEP.								
02...	68	--	12000	--	3700	--	5000	--

DATE	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)
OCT.									
03...	72	24	3.7	2.1	0	0	442	2.7	.7
NOV.									
01...	57	19	3.2	.6	0	0	347	3.4	.6
DEC.									
16...	16	5.8	2.3	.8	0	0	100	4.9	.2
JAN.									
13...	20	7.0	2.5	.8	0	0	130	4.9	.3
FEB.									
07...	16	5.2	1.8	.8	0	0	89	4.1	.2
JULY									
22...	--	--	--	--	--	--	337	--	--
AUG.									
19...	--	--	--	--	--	--	89	--	--
SEP.									
02...	--	--	--	--	--	--	240	--	--

DATE	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH	COLOR (PLAT- INUM- COBALT UNITS)
OCT.								
03...	1.4	596	278	278	.6	938	3.1	2
NOV.								
01...	.0	468	220	220	.7	900	3.0	5
DEC.								
16...	1.4	143	64	106	.4	369	3.3	0
JAN.								
13...	1.2	180	79	138	.6	445	3.2	0
FEB.								
07...	1.4	128	62	62	.3	273	3.4	0
JULY								
22...	--	--	--	--	4.1	--	2.9	--
AUG.								
19...	--	--	--	--	1.3	--	--	--
SEP.								
02...	--	--	--	--	2.7	--	3.0	--

## FIELD ANALYSIS

DATE	TIME	DIS- CHARGE (CFS)	TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PH	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	FECAL COLI- FORM (COL. PER 100 ML)
JULY							
22...	0900	164	23.0	8.0	2.8	860	--
AUG.							
19...	0915	1080	19.0	8.7	3.2	370	33
SEP.							
02...	0828	68	22.0	8.1	2.9	750	0

## 01598500 NORTH BRANCH POTOMAC RIVER AT LUKE MD.

LOCATION.--Lat 39°28'45", long 79°03'55", Mineral County, W. Va., temperature recorder at gaging station on right bank, 0.2 mile downstream from Savage River and 0.5 mile northwest of Luke, Md., and at mile 53.3.

DRAINAGE AREA.--404 sq mi.

PERIOD OF RECORD.--Water temperatures: December 1961 to December 1962, July to September 1963, December 1963 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 29.5°C July 15-16; minimum, freezing point on many days during winter months.

EXTREMES, 1961-69.--Water temperatures: Maximum, 33° July 3, 1966; minimum, freezing point on many days during winter months.

REMARKS.--Records fair, probably because of friction in recorder.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(Continuous ethyl alcohol actuated thermograph)

OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.5	12.0	10.0	8.0	4.5	3.5	0	0	3.5	3.5	2.0	1.0
2	17.0	13.5	11.5	9.5	5.5	3.5	0	0	3.5	3.5	2.0	1.0
3	15.5	14.5	11.0	11.0	5.0	4.5	0	0	3.5	2.0	4.5	0.5
4	14.5	11.5	11.5	11.0	5.0	5.0	0	0	2.0	0.5	4.5	1.0
5	13.0	9.5	12.0	11.0	5.0	1.5	0	0	1.5	0.5	4.0	0.5
6	11.5	9.5	12.0	12.0	1.5	0	0	0	1.5	1.0	2.0	1.0
7	11.5	10.5	12.0	11.5	0	0	0	0	2.0	1.5	3.5	1.5
8	14.0	10.5	11.5	9.0	0	0	0	0	2.0	2.0	2.0	2.0
9	14.0	10.5	9.0	6.5	0	0	0	0	2.0	1.0	3.5	2.0
10	13.5	12.0	6.5	6.0	0	0	0	0	1.0	0	3.5	1.5
11	13.5	12.0	6.0	4.5	0	0	0	0	1.0	0	2.0	1.5
12	15.5	13.5	5.0	2.0	0	0	0	0	1.0	0.5	3.0	1.0
13	15.5	13.5	4.5	3.0	0	0	0	0	0.5	0	4.0	1.0
14	15.5	14.5	3.5	2.0	0	0	0	0	0	0	3.0	1.0
15	16.5	15.0	6.5	3.5	0	0	0	0	0	0	3.0	1.0
16	16.0	14.0	6.0	5.5	0	0	0	0	0	0	5.0	1.0
17	17.0	15.5	8.0	6.0	0	0	0	0	0.5	0	6.5	1.5
18	15.5	15.0	8.5	8.0	0	0	0	0	2.0	0	5.5	4.0
19	16.0	15.0	8.0	4.5	0	0	0	0	1.5	0.5	6.0	4.0
20	15.0	13.0	4.5	3.0	0	0	0	0	1.0	0.5	6.0	4.5
21	14.0	11.0	3.5	2.0	0	0	0	0	3.5	0.5	6.0	5.0
22	13.0	9.5	4.5	3.5	0	0	0	0	3.0	1.5	6.0	4.5
23	13.0	10.5	4.5	4.0	0	0	0	0	1.5	1.5	6.5	4.5
24	13.0	10.5	5.5	4.5	0	0	0	0	2.0	1.5	6.5	6.0
25	11.5	10.0	5.5	4.5	0	0	0	0	2.0	2.0	6.5	6.0
26	10.5	9.5	5.0	4.0	0	0	0	0	2.0	1.0	6.5	5.5
27	10.5	8.0	5.5	4.5	0	0	0	0	1.5	1.0	5.5	4.5
28	11.0	9.5	8.0	5.5	0	0	0	0	2.0	1.0	6.5	3.5
29	9.5	9.0	8.0	6.5	0	0	0	0	---	---	6.5	6.0
30	10.0	9.0	6.5	4.5	0	0	1.5	0	---	---	6.0	4.5
31	9.0	6.5	---	---	0	0	3.5	1.5	---	---	4.5	2.0
AVG	13.5	11.5	7.5	6.0	1.0	0.5	0	0	1.5	1.0	4.5	2.5
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	3.5	14.0	9.5	26.0	20.0	23.0	20.0	26.5	22.0	26.5	21.5
2	9.0	4.5	16.5	11.0	25.5	22.0	24.0	17.0	26.0	21.5	24.5	23.0
3	9.0	7.0	19.0	13.5	22.0	19.0	24.0	19.5	24.5	21.0	23.5	21.5
4	9.5	7.0	20.0	15.5	22.0	16.0	23.5	19.0	22.0	20.5	23.0	21.5
5	10.5	9.0	20.5	16.5	22.0	16.5	23.0	20.0	25.5	20.0	23.5	21.0
6	10.5	9.0	21.0	16.5	25.0	18.5	27.0	21.5	26.5	20.5	22.0	21.0
7	10.0	7.0	21.5	17.5	24.5	20.0	25.0	22.0	26.5	9.5	23.5	20.5
8	10.5	8.0	21.0	19.0	22.0	19.5	22.0	20.5	24.0	20.0	23.0	20.0
9	12.0	9.5	19.5	16.0	20.5	18.5	20.5	19.5	23.0	19.5	20.0	17.5
10	12.0	11.5	16.0	13.5	19.0	17.0	20.5	19.5	22.0	20.0	19.0	16.5
11	12.0	11.0	14.0	12.0	23.5	16.0	26.5	20.5	22.0	19.0	19.0	15.0
12	12.0	9.0	13.5	11.0	25.0	20.0	27.0	23.0	23.0	19.5	19.5	14.5
13	12.0	9.0	14.5	11.0	24.5	21.0	26.5	23.5	25.5	20.0	20.5	15.0
14	12.0	10.5	14.5	13.5	28.0	21.0	28.0	22.0	25.5	20.5	21.0	16.5
15	11.0	11.0	17.5	12.0	25.0	22.0	29.5	22.0	25.5	22.0	21.5	17.0
16	13.5	11.0	19.5	15.5	22.0	19.5	29.5	23.0	24.0	21.5	22.0	17.5
17	16.5	11.5	20.0	16.5	23.0	16.5	28.0	23.5	24.0	20.5	23.0	18.5
18	16.0	14.5	21.0	17.5	21.5	18.5	27.0	23.5	23.5	21.0	23.0	20.0
19	14.5	13.0	21.0	19.5	24.0	18.5	26.5	23.5	21.0	19.0	20.0	17.0
20	14.5	10.0	20.5	18.5	25.0	20.0	28.0	23.5	21.0	19.0	17.0	16.0
21	13.5	10.0	21.0	17.5	23.0	20.5	27.0	24.5	21.0	17.5	16.0	15.0
22	13.5	11.5	21.0	17.5	24.0	18.5	25.5	24.5	21.5	17.5	19.5	16.0
23	11.5	10.0	20.0	18.5	24.5	20.5	26.5	24.0	22.0	18.5	19.5	16.0
24	10.0	8.0	19.0	17.5	26.0	20.5	24.0	22.0	24.5	19.0	19.0	18.5
25	11.0	6.5	21.0	16.5	27.0	21.0	26.5	21.5	25.0	20.5	20.5	18.5
26	14.5	9.5	22.0	17.5	28.5	21.0	28.5	23.0	25.0	21.0	21.0	19.0
27	16.5	11.0	22.0	15.5	27.0	22.0	28.5	23.5	24.5	19.5	19.0	16.0
28	16.5	13.5	22.0	16.5	27.0	21.0	28.0	24.0	23.5	19.0	18.5	16.0
29	15.5	13.5	25.5	19.5	26.5	20.5	26.5	23.0	25.5	20.0	19.5	14.0
30	13.5	11.0	26.5	21.0	26.5	19.0	26.0	22.0	25.5	21.0	18.5	14.0
31	---	---	26.5	19.0	---	---	28.0	21.0	26.5	21.0	---	---
AVG	12.0	9.5	19.5	16.0	24.5	19.5	26.0	22.0	24.0	19.5	21.0	18.0

## POTOMAC RIVER BASIN

01600000 NORTH BRANCH POTOMAC RIVER AT PINTO, MD.

LOCATION.--Lat 39°33'55", long 78°50'25", Mineral County, West Virginia, at gaging station on right bank at downstream side of Western Maryland Railroad bridge at Pinto, 2.8 miles downstream from Mill Run, and at mile 32.6  
 DRAINAGE AREA.--596 sq mi.  
 PERIOD OF RECORD.--Chemical analyses: July to September 1969

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
JULY										
01...	96	8.6	1100	1000	112	9.6	89	5.1	76	0
31...	167	6.7	1400	1200	72	8.6	62	4.7	37	0
SEP.										
12...	327	7.6	1700	1600	64	9.4	37	2.4	0	0
DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
JULY										
01...	208	163	.4	1.3	634	319	257	1080	7.4	50
31...	188	89	.3	.9	450	215	185	760	7.0	15
SEP.										
12...	176	70	.3	.3	367	198	198	625	4.6	5

## FIELD ANALYSES

DATE	TIME	DIS- CHARGE (CFS)	TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	FECAL COLI- FORM (COL. PER 100 ML)
JULY							
22...	1325	257	27.0	6.2	7.1	850	730
AUG.							
18...	1400	411	25.0	6.6	3.6	530	<4
20...	0952	2070	20.0	8.3	4.0	230	62
SEP.							
01...	1853	162	27.0	6.3	6.2	850	190

## 01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD.

LOCATION.--Lat 39°37'16", long 78°46'24", Allegany County, at Wiley Ford Bridge, 2 miles south of Cumberland, 2.1 miles downstream from Willis Creek, and at mile 19.6.

DRAINAGE AREA.--875 sq mi.

PERIOD OF RECORD.--Chemical analyses: December 1964 to September 1969.

Water temperatures: October 1964 to September 1969.

Sediment records: October 1964 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum 32.0°C June 27-30, July 18, 19; minimum, freezing point Jan. 1, 2, 4-7, 11-13.

Sediment concentrations: Maximum daily, 370 mg/l Aug. 19; minimum daily, 3 mg/l Aug. 13.

Sediment loads: Maximum daily, 3,730 tons Mar. 25, minimum daily, 2.5 tons Aug. 13.

EXTREMES, 1964-69.--Water temperatures: Maximum, 33.0°C July 13, 14, 1966, July 16, 18, Aug. 19, 23, 1968; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 1,600 mg/l Feb. 13, 1966; minimum daily, 3 mg/l Aug. 13, 1969.

Sediment loads: Maximum daily, 61,000 tons Mar. 6, 1967; minimum daily, 2.5 tons Aug. 13, 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SiO2) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	SODIUM (NA) (MG/L)	PO-TASIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)
OCT. 01...	142	7.4	770	620	97	17	72	5.0	88	0
NOV. 01...	138	7.0	830	1100	106	18	68	5.4	62	0
DEC. 01...	402	5.1	1800	920	36	8.1	19	2.1	2	0
JAN. 05...	499	5.7	1500	720	35	7.9	14	1.5	11	0
FEB. 02...	2440	5.1	2300	520	19	4.9	8.1	1.4	2	0
MAR. 02...	471	6.3	2700	870	52	11	29	2.5	5	0
APR. 02...	1190	5.5	3100	590	32	7.2	14	1.4	0	0
MAY 02...	520	4.2	760	700	48	9.7	28	2.0	11	0
JUNE 01...	205	6.1	1300	910	77	15	37	3.2	54	0
JULY 02...	138	.7	320	880	96	17	78	6.1	102	0
AUG. 02...	358	6.3	--	--	47	9.5	26	3.0	57	0
SEP. 01...	248	5.5	--	--	63	12	33	3.1	36	0

DATE	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARDNESS (CA, MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)
OCT. 01...	209	134	.4	.5	576	312	240	925	7.1	60
NOV. 01...	209	151	.5	1.0	596	339	288	1000	7.2	70
DEC. 01...	107	38	.2	1.4	218	124	122	382	5.2	5
JAN. 05...	96	27	.2	1.1	193	120	111	342	6.7	5
FEB. 02...	60	15	.2	2.0	117	68	66	206	5.9	5
MAR. 02...	145	53	.4	.7	302	175	171	529	6.2	2
APR. 02...	98	30	.2	1.4	190	110	110	342	4.6	5
MAY 02...	142	45	.2	.2	284	160	151	436	7.0	5
JUNE 01...	169	89	.4	.2	424	254	209	717	7.1	20
JULY 02...	234	107	.4	.4	590	310	226	982	7.5	20
AUG. 02...	112	40	.3	1.4	274	157	110	466	7.8	3
SEP. 01	159	69	.3	.8	364	207	177	633	7.0	5

## FIELD ANALYSES

DATE	TIME	DIS-CHARGE (CFS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECIFIC CONDUCTANCE (MICROMHOS)	FECAL COLIFORM (COL. PER 100 ML)
JULY 21...	1445	389	27.0	2.4	7.0	750	78000
AUG. 18...	1500	624	26.0	7.3	4.2	380	--
20...	1015	4880	19.0	8.3	5.8	210	500
SEP. 01...	1800	248	29.0	3.5	6.5	570	3400

## POTOMAC RIVER BASIN

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(ONCE-DAILY MEASUREMENT AT 1800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	16.0	7.0	0	4.0	8.0	10.0	17.0	28.0	28.0	26.0	24.0
2	---	18.0	10.0	0	4.0	9.0	10.0	18.0	27.0	29.0	26.0	26.0
3	21.0	13.0	8.0	1.0	4.0	9.0	10.0	24.0	23.0	28.0	26.0	27.0
4	19.0	14.0	10.0	0	3.0	9.0	13.0	24.0	25.0	29.0	24.0	27.0
5	19.0	16.0	7.0	0	3.0	8.0	14.0	22.0	24.0	27.0	28.0	27.0
6	16.0	16.0	4.0	0	4.0	10.0	13.0	22.0	28.0	27.0	27.0	27.0
7	17.0	16.0	4.0	0	4.0	9.0	13.0	24.0	27.0	27.0	28.0	27.0
8	19.0	13.0	3.0	2.0	4.0	9.0	17.0	22.0	26.0	23.0	27.0	24.0
9	18.0	10.0	2.0	2.0	3.0	8.0	17.0	20.0	24.0	23.0	27.0	21.0
10	19.0	10.0	2.0	1.0	3.0	8.0	17.0	19.0	23.0	24.0	27.0	20.0
11	19.0	9.0	1.0	0	4.0	7.0	16.0	17.0	26.0	26.0	24.0	23.0
12	21.0	7.0	2.0	0	3.0	7.0	16.0	16.0	24.0	27.0	27.0	20.0
13	21.0	6.0	2.0	0	3.0	7.0	16.0	17.0	28.0	29.0	26.0	24.0
14	20.0	6.0	4.0	1.0	3.0	10.0	16.0	17.0	28.0	28.0	28.0	25.0
15	23.0	10.0	3.0	2.0	4.0	7.0	16.0	18.0	27.0	29.0	28.0	26.0
16	22.0	9.0	2.0	2.0	4.0	11.0	17.0	22.0	24.0	31.0	27.0	26.0
17	24.0	10.0	3.0	4.0	4.0	9.0	19.0	---	24.0	31.0	27.0	24.0
18	23.0	11.0	2.0	3.0	8.0	11.0	16.0	23.0	24.0	32.0	27.0	23.0
19	21.0	8.0	3.0	6.0	8.0	13.0	17.0	---	27.0	32.0	23.0	21.0
20	21.0	6.0	4.0	4.0	7.0	12.0	17.0	22.0	27.0	29.0	23.0	18.0
21	19.0	6.0	4.0	4.0	10.0	9.0	17.0	21.0	27.0	28.0	26.0	21.0
22	20.0	8.0	3.0	6.0	7.0	8.0	16.0	22.0	24.0	28.0	21.0	21.0
23	19.0	7.0	4.0	6.0	6.0	9.0	14.0	22.0	27.0	24.0	24.0	23.0
24	17.0	8.0	1.0	7.0	8.0	9.0	13.0	22.0	29.0	24.0	23.0	23.0
25	16.0	8.0	---	3.0	8.0	8.0	17.0	22.0	29.0	26.0	27.0	23.0
26	14.0	8.0	1.0	4.0	6.0	7.0	16.0	22.0	31.0	28.0	27.0	25.0
27	---	10.0	1.0	1.0	9.0	7.0	18.0	23.0	32.0	28.0	28.0	23.0
28	16.0	11.0	2.0	1.0	9.0	8.0	18.0	24.0	32.0	27.0	27.0	20.0
29	13.0	11.0	3.0	3.0	---	10.0	18.0	27.0	32.0	27.0	28.0	20.0
30	16.0	8.0	2.0	4.0	---	9.0	19.0	27.0	32.0	27.0	28.0	21.0
31	16.0	---	4.0	4.0	---	7.0	---	27.0	---	27.0	28.0	---
AVG	19.0	10.5	3.5	2.5	5.5	9.0	15.5	21.5	27.0	27.5	26.0	23.5

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	TEMP- ERATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PEN- DED SED- IMENT (MG/L)	SUS- PEN- DED SED- IMENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
AUG. 19...	2345	20.0	5790	807	3080	42	54
DATE		SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM	SUS. SED. SIEVE DIAM. % FINER THAN .250 MM	SUS. SED. SIEVE DIAM. % FINER THAN .500 MM
AUG. 19...		69	78	88	95	98	100

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	138	20	7.4	138	37	14	430	17	20
2	142	21	8.0	142	43	15	457	18	22
3	142	19	7.3	142	38	15	600	20	32
4	142	26	10	138	34	13	806	44	102
5	155	21	8.8	129	31	11	1230	55	183
6	147	30	12	147	34	13	1020	25	69
7	178	40	19	257	48	33	806	12	26
8	164	32	14	469	60	78	689	17	32
9	151	33	13	552	67	100	608	19	31
10	160	53	23	376	26	26	492	19	25
11	147	32	13	253	10	6.8	423	14	16
12	133	23	8.3	272	25	18	402	17	18
13	133	24	8.6	267	30	22	464	21	26
14	129	22	7.7	229	41	25	560	25	38
15	129	20	7.0	219	41	24	851	27	62
16	124	21	7.0	801	63	156	568	14	22
17	115	22	6.8	1260	63	214	499	20	27
18	119	20	6.4	1230	70	232	513	40	55
19	262	44	31	1770	97	464	520	40	56
20	272	48	35	1180	38	125	616	38	63
21	272	38	28	806	17	37	716	28	54
22	169	33	15	624	14	24	608	11	18
23	151	31	13	560	12	18	742	20	47
24	147	24	9.5	499	14	19	1120	42	127
25	138	23	8.6	457	14	17	1010	26	71
26	138	25	9.3	568	23	35	820	14	31
27	138	29	11	698	33	62	932	22	55
28	138	29	11	698	18	34	923	28	70
29	129	34	12	664	7	12	1790	338	1720
30	133	40	14	528	15	21	1450	120	470
31	138	36	13	--	--	--	1160	34	106
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	1010	40	109	2250	112	681	471	18	23
2	716	27	52	2560	122	844	471	10	13
3	656	21	37	1950	70	369	450	16	19
4	656	14	25	2040	62	342	443	25	30
5	499	12	16	1750	41	194	402	23	25
6	464	19	24	1460	34	134	382	24	25
7	464	20	25	1330	30	108	423	28	32
8	423	25	29	1060	28	80	430	21	24
9	443	20	24	950	25	64	430	25	29
10	485	32	42	770	20	42	436	34	40
11	471	32	41	707	17	32	409	37	41
12	382	16	16	743	15	30	328	26	23
13	352	20	19	664	11	20	311	45	38
14	300	26	21	552	12	18	340	57	52
15	272	35	26	471	14	18	380	57	62
16	238	34	22	471	7	8.9	526	102	156
17	224	34	21	485	15	20	436	69	87
18	267	36	26	464	16	20	409	23	25
19	383	42	50	457	14	17	734	30	60
20	1050	39	111	436	11	13	1420	63	267
21	770	16	33	402	11	12	2550	290	2220
22	664	11	20	416	16	18	2630	270	1920
23	672	8	14	464	20	25	1830	49	242
24	860	13	30	471	20	25	1940	32	170
25	1130	20	61	485	23	30	6060	224	3730
26	1050	25	71	492	20	27	5590	152	2300
27	806	28	61	464	15	19	3800	59	606
28	680	20	37	471	21	27	2820	43	328
29	648	24	42	--	--	--	2220	47	282
30	1170	58	185	--	--	--	1900	44	226
31	1930	92	483	--	--	--	1510	35	143
TOTAL	20135	--	1773	25235	--	3237.9	42481	--	13238

## POTOMAC RIVER BASIN

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

APRIL				MAY				JUNE			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)		
1	1260	31	105	568	19	29	201	14	7.6		
2	1200	33	107	513	18	25	201	12	6.5		
3	1510	50	208	478	16	21	191	15	7.7		
4	1520	51	209	443	17	20	191	15	7.7		
5	1360	49	180	416	15	17	191	12	6.2		
6	2270	84	568	389	12	13	178	12	5.8		
7	2080	71	399	358	25	24	169	16	7.3		
8	1630	40	176	328	30	27	169	15	6.8		
9	1420	27	104	486	44	58	178	16	7.7		
10	1310	24	85	842	52	118	201	15	8.1		
11	1260	22	75	707	39	74	224	20	12		
12	1130	21	64	664	26	47	205	21	12		
13	995	15	40	672	23	42	210	24	14		
14	815	7	15	624	19	32	334	30	27		
15	734	9	18	608	14	23	340	32	29		
16	779	11	23	552	10	15	334	33	30		
17	788	13	28	506	7	9.6	300	26	21		
18	725	12	23	457	10	12	243	23	15		
19	752	20	41	506	18	26	219	20	12		
20	743	16	32	1090	100	294	205	18	10		
21	664	9	16	833	58	130	205	21	12		
22	640	13	22	592	14	22	187	20	10		
23	698	14	26	499	20	27	191	18	9.3		
24	860	15	35	464	23	29	201	19	10		
25	959	14	36	436	24	28	182	16	7.9		
26	833	10	22	389	22	23	182	17	8.4		
27	734	9	18	340	23	21	173	18	8.4		
28	672	15	27	309	20	16	160	18	7.8		
29	648	24	42	278	17	13	155	20	8.4		
30	640	24	42	253	11	7.5	164	19	8.4		
31	--	--	--	224	12	7.3	--	--	--		
TOTAL	31629	--	2786	15815	--	1250.4	6284	--	344.0		
JULY				AUGUST				SEPTEMBER			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)		
1	155	15	6.3	370	81	116	248	20	13		
2	147	21	8.3	396	100	107	251	39	30		
3	147	18	7.2	300	54	44	330	56	51		
4	155	17	7.1	294	43	34	499	49	66		
5	178	20	9.6	306	40	33	450	20	24		
6	248	23	15	284	35	27	436	19	25		
7	350	31	29	248	30	20	640	22	38		
8	389	39	41	266	40	29	671	25	49		
9	464	44	55	224	41	25	1340	56	206		
10	340	32	29	463	52	91	770	28	58		
11	370	31	31	1040	84	254	471	28	36		
12	322	33	29	478	17	22	430	20	23		
13	248	30	20	311	3	2.5	385	10	10		
14	316	30	26	248	6	4.0	358	10	9.7		
15	210	18	10	205	10	5.5	339	15	14		
16	173	19	8.9	421	100	137	322	15	13		
17	164	12	5.3	1010	110	300	307	16	13		
18	160	9	3.9	696	10	19	286	25	19		
19	160	10	4.3	2380	370	3080	280	29	22		
20	182	16	7.9	4450	253	3520	328	25	22		
21	286	26	20	2340	43	279	361	27	26		
22	396	59	63	1080	22	64	515	37	52		
23	980	153	437	752	11	22	347	15	14		
24	752	85	173	576	18	28	276	9	6.7		
25	648	58	101	471	14	18	237	8	5.1		
26	464	44	55	396	10	11	205	10	5.5		
27	376	30	30	352	11	10	336	32	29		
28	402	44	48	316	12	10	508	64	88		
29	409	55	61	294	11	8.7	466	83	104		
30	402	39	42	278	15	11	225	28	17		
31	300	35	28	267	19	14	--	--	--		
TOTAL	10293	--	1411.8	21512	--	8345.7	12617	--	1089.0		
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									230672		
TOTAL LOAD FOR YEAR (TONS)									39451		

## 01613000 POTOMAC RIVER AT HANCOCK, MD.

LOCATION.--Lat 39°41'49", long 78°10'39", Washington County, temperature recorder at gaging station on left bank 0.2 mile downstream from Little Tonoloway Creek, half a mile downstream from bridge on U.S. Highway 522 at Hancock, 1.1 miles upstream from Tonoloway Creek (formerly called Great or Big Tonoloway Creek), and at mile 239.

DRAINAGE AREA.--4,073 sq mi.

PERIOD OF RECORD.--Water temperatures: July 1952 to February 1964, July 1966 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 32°C June 28-29; minimum, freezing point on many days during winter months.

EXTREMES, 1952 to February 1964, July 1966 to September 1969.--Water temperatures: Maximum, 34°C July 22, 1952; minimum, freezing point on many days during winter months.

REMARKS.--Records fair, probably because of friction in recorder. No temperature record Oct. 1-4.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1969  
(Continuous ethyl alcohol actuated thermograph)

OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	10.5	6.5	6.0	5.0	0	0	1.0	0	4.0	4.0
2	---	---	13.0	9.5	5.5	5.0	0	0	1.5	1.0	4.0	3.5
3	---	---	11.5	10.5	6.0	5.5	0	0	3.0	1.5	4.5	3.5
4	---	---	11.5	10.5	6.0	6.0	0	0	3.0	2.0	5.0	4.0
5	15.0	11.5	11.5	11.0	6.0	4.5	0	0	2.0	1.5	5.0	4.0
6	13.0	10.5	11.5	11.0	4.5	3.5	0	0	2.0	1.5	4.5	4.0
7	13.5	11.5	11.0	10.5	3.5	2.0	0	0	2.0	1.5	4.5	4.0
8	15.5	11.5	10.5	9.5	2.0	1.5	0	0	2.0	1.5	4.5	4.0
9	14.0	12.0	10.0	8.5	1.5	0.5	0	0	1.5	1.5	5.0	4.5
10	13.5	13.5	9.5	8.5	0.5	0	0	0	1.5	1.0	4.5	4.0
11	14.5	13.5	8.5	7.0	0	0	0	0	1.0	1.0	4.0	3.0
12	16.0	14.0	7.0	5.0	0	0	0	0	1.5	1.0	3.5	2.0
13	16.5	15.0	5.5	5.0	0	0	0	0	1.0	0.5	4.0	3.0
14	16.0	15.0	5.0	4.0	0.5	0	0	0	1.0	0	4.0	3.5
15	17.5	15.0	6.5	5.0	0.5	0	0	0	0.5	0	4.5	3.5
16	17.5	16.0	6.5	6.5	0	0	0	0	1.0	0	5.5	4.0
17	19.5	17.0	8.0	6.5	0	0	0	0	1.5	0.5	6.5	5.0
18	19.0	17.5	9.0	8.0	0	0	0	0	3.0	2.0	8.0	6.0
19	18.5	17.0	8.5	7.0	0	0	0	0	3.5	3.0	9.5	6.5
20	18.5	15.5	7.0	6.0	0	0	0	0	3.5	3.0	10.0	8.5
21	17.0	14.5	6.0	5.5	0	0	0	0	4.0	3.0	10.5	9.5
22	15.5	13.5	6.0	5.5	0.5	0	0	0	4.0	3.5	10.5	9.5
23	16.0	14.0	5.5	5.5	1.0	0.5	0	0	4.0	3.5	9.5	8.5
24	14.0	13.0	6.0	5.5	1.0	0	0	0	4.0	3.5	9.0	7.0
25	13.5	11.5	6.5	5.5	0	0	0	0	4.5	4.0	7.0	7.0
26	12.0	10.5	5.5	5.0	0	0	0	0	4.5	4.0	7.0	6.0
27	12.0	9.5	5.5	5.0	0	0	0	0	4.0	3.5	6.5	5.5
28	12.0	10.0	6.5	5.5	0	0	0	0	4.5	3.5	6.0	5.0
29	10.5	9.0	7.0	6.5	0	0	0	0	---	---	6.0	5.5
30	9.5	8.0	7.0	6.0	0	0	0	0	---	---	6.0	5.0
31	10.0	6.5	---	---	0	0	0	0	---	---	5.5	4.5
AVG	---	---	8.0	7.0	1.5	1.0	0	0	2.5	2.0	6.0	5.0

APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	4.5	16.5	14.0	26.0	21.0	30.0	27.0	27.0	25.5	30.0	26.0
2	6.5	5.5	17.5	14.5	26.5	22.0	30.0	24.5	26.5	25.0	28.5	26.5
3	8.0	7.0	19.0	15.5	25.0	22.0	29.0	25.0	26.5	25.5	26.5	25.5
4	10.0	7.0	20.0	17.5	23.0	20.0	28.5	24.0	25.5	23.0	27.0	25.0
5	10.5	9.5	21.0	18.5	23.5	20.0	26.5	24.5	24.5	23.0	28.0	26.0
6	11.5	10.0	21.0	19.0	25.0	20.5	27.0	23.5	25.5	23.5	28.5	26.0
7	13.0	10.5	21.0	19.0	25.5	21.5	25.5	23.5	26.0	24.0	29.0	26.0
8	13.0	11.0	20.5	19.5	25.5	21.5	23.5	22.0	26.0	24.5	28.0	25.5
9	14.0	11.5	20.0	17.5	23.5	21.0	22.0	21.5	25.5	24.5	25.5	24.5
10	14.0	13.5	17.5	16.0	22.0	20.0	22.0	21.5	25.5	24.0	24.5	23.0
11	14.5	13.0	16.5	15.5	23.5	19.5	26.0	22.0	26.0	23.5	23.0	21.5
12	14.5	13.0	15.5	14.5	26.0	21.0	28.0	23.5	25.5	24.0	23.0	21.0
13	14.5	13.0	15.5	14.0	26.0	23.0	29.0	24.5	25.0	23.5	23.5	21.0
14	14.0	13.0	15.5	14.5	28.0	23.5	29.5	25.0	25.5	24.0	24.0	21.5
15	14.5	14.0	16.5	14.5	27.0	25.0	30.0	25.5	26.5	24.5	24.5	22.0
16	15.0	14.0	19.0	15.5	25.5	23.0	30.0	26.5	26.5	25.5	25.5	22.0
17	17.5	14.5	20.0	17.5	24.0	21.0	31.0	27.0	28.5	25.0	26.0	23.0
18	17.5	16.5	20.0	18.5	23.0	21.5	31.5	28.0	28.0	26.5	25.5	23.0
19	17.5	16.5	20.0	19.0	24.5	21.0	30.0	28.0	26.5	24.5	23.0	21.0
20	17.0	15.0	22.0	19.5	26.0	23.0	29.5	26.5	24.5	23.0	21.0	19.5
21	16.5	15.0	22.0	20.0	25.0	23.0	28.0	26.0	24.5	21.5	20.5	18.5
22	16.0	14.5	21.5	19.5	23.5	21.5	27.0	25.5	23.5	21.5	22.0	19.0
23	14.5	13.0	21.0	20.0	25.0	21.5	26.5	24.5	24.5	22.0	21.5	19.5
24	13.0	11.0	20.5	19.5	28.0	23.0	24.5	23.5	25.0	23.0	21.0	20.5
25	13.5	10.5	21.0	19.0	29.0	24.5	25.5	23.0	26.0	24.0	22.0	20.5
26	14.5	12.0	21.5	19.0	29.5	25.0	27.0	24.5	26.5	24.5	22.0	21.0
27	16.0	13.5	21.5	18.5	30.5	26.0	28.5	25.5	26.0	24.0	22.0	20.5
28	16.5	15.0	23.0	19.0	32.0	27.0	28.0	26.0	25.5	23.5	22.0	20.5
29	16.0	15.5	25.0	20.5	32.0	26.5	29.0	26.0	27.0	24.0	21.0	19.0
30	16.0	14.5	26.0	21.5	31.5	26.0	28.0	25.0	28.5	25.0	20.0	18.5
31	---	---	26.0	20.5	---	---	26.5	24.5	29.0	25.5	---	---
AVG	14.0	12.0	20.0	18.0	26.0	22.5	27.5	25.0	26.0	24.0	24.5	22.0



01614500 CONOCOCHIEAGUE CREEK AT FAIRVIEW, MD.

LOCATION.--Lat 39°42'29", long 77°50'00", Washington County, at highway bridge at Fairview, 0.7 mile downstream from gaging station, 1.3 miles upstream from Rockdale Run, 6 miles northwest of Hagerstown, and at mile 18.7.

DRAINAGE AREA.--494 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1969.

Water temperatures: November 1966 to September 1969.

Sediment records: October 1966 to September 1969.

EXTREMES, 1966-69.--Water temperatures: Maximum, 30.0°C July 17; minimum, 0° many days during winter months.

Sediment concentrations: Maximum daily, 940 mg/l March 25; minimum daily, 1 mg/l July 17.

Sediment loads: Maximum daily, 10,700 tons March 25; minimum daily, 0.19 ton July 17.

EXTREMES, 1966-69.--Water temperatures: Maximum, 30.0°C July 17, 1969; minimum, 0° many days during winter months.

Sediment concentrations: Maximum daily, 940 mg/l March 25, 1969; minimum daily, 1 mg/l on many days in 1967 water year, and July 17, 1969.

Sediment loads: Maximum daily, 11,000 tons March 7, 1967; minimum daily, 0.17 ton Nov. 24, 26, 27, 1966.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
OCT.										
03...	83	1.0	--	--	61	13	8.8	3.1	208	0
30...	99	5.3	120	10	58	13	8.8	3.0	186	8
NOV.										
19...	1810	9.4	1600	330	32	6.6	5.4	3.4	87	0
29...	318	5.9	80	0	48	9.8	6.8	2.1	152	0
DEC.										
30...	270	6.1	60	0	52	11	8.0	2.2	164	0
JAN.										
15...	254	3.0	--	--	67	8.1	6.7	2.0	180	0
29...	220	.2	100	0	49	11	8.3	2.0	150	4
FEB.										
07...	322	5.3	--	--	46	9.6	8.3	2.1	136	0
26...	353	1.8	120	30	43	9.2	8.3	2.0	131	0
MAR.										
11...	292	1.3	130	40	43	9.3	8.1	1.9	130	0
30...	800	6.1	80	0	36	7.7	5.6	2.0	104	0
APR.										
02...	559	2.5	130	10	37	7.8	4.6	1.8	118	0
29...	353	.2	60	30	18	7.6	4.8	1.6	70	0
JUNE										
23...	121	7.5	120	40	43	9.8	9.1	2.4	149	0
JULY										
15...	81	4.5	50	30	47	11	7.1	2.8	170	0
SEP.										
10...	216	7.2	--	--	40	9.9	6.5	2.8	145	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.										
03...	24	15	.2	11	239	206	35	432	8.1	5
30...	25	15	.2	10	237	198	32	413	8.4	2
NOV.										
19...	28	9.1	.1	11	148	107	36	244	7.5	10
29...	25	12	.2	8.7	194	161	36	337	8.1	2
DEC.										
30...	27	14	.2	8.9	210	175	40	365	8.1	0
JAN.										
15...	23	25	.2	12	235	201	53	376	7.9	1
29...	25	13	.2	8.1	195	168	38	351	8.5	0
FEB.										
07...	28	15	.2	9.2	191	155	43	332	8.1	0
26...	26	15	.2	7.7	177	146	38	320	8.0	0
MAR.										
11...	25	15	.2	7.5	175	146	40	315	8.0	0
30...	22	11	.1	8.8	150	122	37	265	7.7	3
APR.										
02...	20	11	.1	4.5	147	125	28	278	7.7	3
29...	18	10	.1	.2	94	77	19	188	8.0	5
JUNE										
23...	22	15	.2	4.6	187	148	26	338	7.7	3
JULY										
15...	21	11	.2	3.9	193	163	23	348	8.2	5
SEP.										
10...	20	13	.2	5.6	176	141	22	311	8.1	2

01614500 CONOCOCHIEGUE CREEK AT FAIRVIEW, MD.-- Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(ONCE-DAILY MEASUREMENT AT 0900)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.5	8.0	4.5	0.5	3.0	1.0	8.5	15.5	26.0	26.0	21.0	21.0
2	15.0	9.0	5.0	0	3.0	1.0	9.5	15.0	22.0	18.5	21.0	21.5
3	17.0	10.0	4.5	1.0	2.0	1.0	8.5	15.5	18.5	24.5	21.5	22.0
4	15.5	11.0	8.0	0	1.0	1.0	11.0	15.5	---	26.0	20.5	21.5
5	10.0	10.0	5.0	0	2.0	1.0	---	16.5	21.0	22.0	21.0	---
6	15.0	9.0	4.0	0	2.0	1.0	13.5	16.0	---	21.0	20.5	23.5
7	15.5	10.0	4.0	0.5	3.0	1.0	9.5	17.0	20.5	21.0	19.5	21.0
8	10.0	9.0	4.0	0.5	3.0	1.0	13.0	16.0	18.0	18.5	20.5	22.0
9	11.0	8.0	4.0	0.5	2.0	1.0	14.5	14.5	17.0	19.0	21.5	17.0
10	14.0	6.0	4.0	0.5	1.5	0.5	13.5	13.5	17.0	19.0	20.5	18.0
11	13.0	5.0	0	0	0.5	1.0	14.0	12.0	18.5	19.5	20.5	16.5
12	14.0	4.0	2.0	0.5	1.0	0	12.0	11.0	21.0	22.0	20.0	17.0
13	16.0	4.0	0	---	0.5	1.0	10.0	12.0	22.0	21.5	21.0	16.5
14	16.0	3.0	2.0	---	0.5	0.5	10.0	12.0	26.0	21.0	21.0	16.0
15	15.0	5.0	2.0	1.0	0.5	1.0	14.0	15.0	24.5	22.0	20.0	17.0
16	15.0	9.0	0	0.5	0	1.0	14.5	15.5	23.5	24.0	25.0	16.5
17	16.0	7.0	0	0.5	0	1.0	9.5	16.0	19.5	30.0	23.5	17.0
18	16.0	9.0	0	0	0.5	2.0	15.5	16.5	19.5	27.0	20.0	17.0
19	17.0	8.0	0.5	0	0.5	3.5	15.0	18.0	23.0	26.0	23.0	15.5
20	15.5	6.5	0	0	0.5	5.0	9.5	19.0	21.0	26.0	20.5	15.5
21	13.0	8.0	4.0	---	0.5	4.5	9.5	18.0	21.0	24.5	19.0	10.0
22	10.0	8.0	4.0	0.5	0.5	7.0	5.5	20.0	21.0	22.0	18.0	13.0
23	13.0	5.0	3.5	1.5	3.5	7.0	10.0	18.0	21.0	25.0	20.0	16.0
24	11.0	9.0	3.5	1.5	3.0	5.5	9.5	16.5	22.0	21.5	19.5	15.5
25	13.0	6.0	4.0	1.5	4.0	8.0	10.0	16.5	21.5	22.0	20.0	16.5
26	9.0	5.5	1.0	---	1.0	5.5	10.5	15.5	23.5	21.0	21.0	16.0
27	10.0	8.0	1.0	0.5	0.5	5.5	15.0	16.0	27.0	22.0	18.0	15.5
28	9.0	8.5	1.0	---	1.0	5.0	16.0	15.0	28.5	22.0	18.0	16.0
29	8.0	8.5	0	1.0	---	6.0	15.5	19.0	24.0	21.5	21.0	13.5
30	6.0	7.0	0.5	1.5	---	5.5	15.5	22.0	22.0	23.5	18.5	11.0
31	5.0	---	1.0	3.0	---	4.5	---	25.0	---	21.0	19.0	---
AVG	13.0	7.5	2.5	0.5	1.5	3.0	12.0	16.0	22.0	22.5	20.5	17.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	TEMP- ERATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM
MAR. 25...	1615	7.0	4560	618	10700	63	80	94	96	100

## POTOMAC RIVER BASIN

01614500 CONCOCOCHIEAGUE CREEK AT FAIRVIEW, MD.--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	89	2	.48	95	4	1.0	279	8	6.0
2	94	2	.45	94	7	1.8	340	14	13
3	84	2	.45	96	5	1.3	378	19	19
4	84	2	.45	96	5	1.3	593	60	96
5	82	2	.44	96	6	1.6	949	82	210
6	83	2	.45	95	8	2.0	712	71	136
7	97	2	.52	130	44	15	553	22	33
8	117	3	.95	984	298	792	468	12	15
9	106	3	.86	728	89	175	403	9	9.8
10	98	2	.53	459	30	37	338	12	11
11	97	3	.79	345	15	14	314	11	9.3
12	98	3	.79	419	21	24	300	9	7.3
13	96	2	.52	696	52	98	310	7	5.9
14	94	5	1.3	674	35	64	320	7	6.0
15	93	2	.50	659	30	53	293	8	6.3
16	93	2	.50	845	61	139	280	7	5.3
17	88	2	.48	972	83	218	270	5	3.6
18	85	4	.92	1160	111	348	260	10	7.0
19	213	26	15	1740	247	1160	280	10	7.6
20	487	80	105	1220	72	237	274	19	14
21	276	29	22	867	22	52	241	11	7.2
22	181	13	6.4	695	17	32	230	11	6.8
23	150	9	3.6	573	16	25	280	12	9.1
24	133	7	2.5	493	15	20	279	12	9.0
25	128	7	2.4	447	15	18	300	12	9.7
26	124	6	2.0	405	14	15	260	12	8.4
27	114	4	1.2	363	12	12	270	12	8.7
28	110	6	1.8	332	11	9.9	300	5	4.0
29	107	7	2.0	316	11	9.4	310	8	6.7
30	100	5	1.4	303	9	7.4	270	18	13
31	96	5	1.3	--	--	--	260	8	5.6
TOTAL	3887	--	177.98	16397	--	3583.7	10914	--	709.3
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	250	13	8.8	340	39	36	250	11	7.4
2	250	20	14	310	28	23	250	10	6.8
3	260	24	17	300	7	5.7	240	6	3.9
4	260	28	20	280	4	3.0	240	6	3.9
5	240	24	16	260	10	7.0	250	7	4.7
6	220	9	5.4	250	14	9.5	240	7	4.5
7	230	3	1.9	260	12	8.4	260	7	4.9
8	250	2	1.4	250	8	5.4	250	6	4.0
9	230	2	1.2	273	8	5.9	250	6	4.0
10	220	3	1.8	242	8	5.2	250	7	4.7
11	220	4	2.4	270	8	5.8	250	6	4.0
12	210	4	2.3	253	8	5.5	242	6	3.9
13	200	3	1.6	215	8	4.6	245	6	4.0
14	200	4	2.2	206	7	3.9	237	6	3.8
15	200	3	1.6	208	6	3.4	223	3	1.8
16	200	12	6.5	224	5	3.0	211	2	1.1
17	210	6	3.4	198	5	2.7	205	3	1.7
18	230	5	3.1	198	5	2.7	207	3	1.7
19	250	6	4.1	199	5	2.7	213	7	4.0
20	230	11	6.8	207	5	2.8	228	4	2.5
21	230	7	4.4	208	4	2.2	235	4	2.5
22	230	3	1.9	221	4	2.4	232	4	2.5
23	230	2	1.2	222	5	3.0	220	3	1.8
24	270	2	1.5	246	6	4.0	235	5	3.2
25	250	4	2.7	280	5	3.8	3450	940	10700
26	220	10	5.9	260	10	7.0	2800	350	2640
27	210	8	4.5	240	18	12	1620	150	656
28	200	4	2.2	230	17	11	1180	100	319
29	220	5	3.0	--	--	--	941	45	114
30	460	8	9.9	--	--	--	793	25	54
31	390	30	32	--	--	--	676	17	31
TOTAL	7470	--	190.7	6850	--	191.6	17123	--	14601.3

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

APRIL				MAY				JUNE			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)		
1	602	12	20	303	24	20	120	5	1.6		
2	562	8	12	282	19	14	125	7	2.4		
3	525	8	11	268	13	9.4	144	12	4.7		
4	478	10	13	254	11	7.5	136	8	2.9		
5	462	8	10	243	11	7.2	133	4	1.4		
6	545	9	13	232	14	8.8	120	5	1.6		
7	485	12	16	223	18	11	115	7	2.2		
8	420	12	14	219	52	31	117	9	2.8		
9	393	12	13	341	107	99	117	8	2.5		
10	386	10	10	480	36	47	135	10	3.6		
11	437	9	11	340	15	14	126	7	2.4		
12	422	5	5.7	286	12	9.3	115	5	1.6		
13	365	5	4.9	266	13	9.3	107	4	1.2		
14	345	8	7.4	250	14	9.4	192	19	9.8		
15	339	9	8.2	236	14	8.9	271	110	81		
16	372	10	10	220	13	7.7	406	190	208		
17	442	14	17	207	15	8.4	386	119	124		
18	406	15	16	197	17	9.0	227	48	29		
19	413	18	20	212	12	6.9	191	33	17		
20	410	10	11	252	15	10	170	31	14		
21	353	17	16	229	22	14	147	25	9.9		
22	367	16	16	198	18	9.6	130	14	4.9		
23	444	18	22	180	14	6.8	123	13	4.3		
24	421	23	26	176	12	5.7	121	12	3.9		
25	390	14	15	171	11	5.1	119	10	3.2		
26	358	15	14	163	10	4.4	135	8	2.9		
27	337	13	12	155	5	2.1	122	7	2.3		
28	325	16	14	146	4	1.6	112	5	1.5		
29	347	18	17	141	4	1.5	98	3	.79		
30	338	21	19	133	6	2.2	88	4	.95		
31	--	--	--	122	5	1.6	--	--	--		
TOTAL	12498	--	414.2	7125	--	402.4	4648	--	548.34		
JULY				AUGUST				SEPTEMBER			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)		
1	84	5	1.1	436	77	91	124	4	1.3		
2	79	5	1.1	685	155	287	121	4	1.3		
3	78	4	.84	993	185	496	130	4	1.4		
4	73	4	.79	1380	223	886	144	4	1.6		
5	73	5	.99	1540	145	603	153	5	2.1		
6	89	6	1.4	919	76	189	243	21	14		
7	90	5	1.2	637	61	105	228	20	12		
8	97	3	.79	484	55	72	193	15	7.8		
9	94	4	1.0	407	48	53	235	31	20		
10	91	5	1.2	392	35	37	223	16	9.6		
11	91	4	.98	335	28	25	169	7	3.2		
12	90	5	1.2	280	29	22	150	7	2.8		
13	96	5	1.3	241	25	16	138	7	2.6		
14	95	5	1.3	216	17	9.9	126	7	2.4		
15	86	2	.46	199	12	6.4	121	5	1.6		
16	77	2	.42	188	10	5.1	122	5	1.6		
17	70	1	.19	192	20	10	110	5	1.5		
18	69	2	.37	235	62	39	115	5	1.6		
19	60	2	.32	349	96	90	113	4	1.2		
20	96	12	3.1	499	115	155	111	3	.90		
21	206	16	8.9	323	51	44	104	3	.84		
22	171	16	7.4	242	20	13	100	5	1.4		
23	155	11	4.6	209	5	2.8	101	5	1.4		
24	473	45	58	186	7	3.5	96	3	.78		
25	320	53	46	170	8	3.7	97	3	.79		
26	498	136	236	168	9	4.1	100	3	.81		
27	482	133	173	151	8	3.3	101	3	.82		
28	1300	533	2240	143	4	1.5	93	3	.75		
29	1360	277	1020	138	4	1.5	87	3	.70		
30	797	37	80	133	5	1.8	90	3	.73		
31	680	120	220	127	5	1.7	--	--	--		
TOTAL	8120	--	4113.95	12597	--	3278.3	4038	--	99.52		
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									111657		
TOTAL LOAD FOR YEAR (TONS)									28311.2		

## POTOMAC RIVER BASIN

01619000 ANTIETAM CREEK NEAR WAYNESBORO, PA.

LOCATION.--Lat 39°42'59", long 77°36'28", Washington County, Md., on right bank 100 ft upstream from highway bridge at Rocky Forge, 0.4 mile downstream from Pennsylvania-Maryland State line, 0.7 mile downstream from confluence of west and east branches, 1.9 miles northeast of Leitersburg, Md., 2.5 miles southwest of Waynesboro, Pa., and at mile 36.6.

DRAINAGE AREA.--93.5 sq mi.

PERIOD OF RECORD.--Chemical analysis: October 1968 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG)	SODIUM (NA) (MG/L)	PO-TAS- SIUM (K) (MG/L)	BICAR-BONATE (HCO <sub>3</sub> ) (MG/L)	CAR-BONATE (CO <sub>3</sub> ) (MG/L)
OCT. 26...	32	8.3	--	--	52	16	6.0	3.2	190	0
JAN. 15...	42	5.7	--	--	46	14	4.8	2.4	165	0
MAR. 10...	49	5.7	60	20	43	13	3.8	2.0	155	0
JULY 15...	32	6.4	200	20	41	13	6.3	2.4	160	0
SEP. 09...	45	8.3	--	--	42	13	4.9	2.4	163	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH	COLOR (PLAT-INUM-COBALT UNITS)
OCT. 26...	20	10	.3	16	225	196	40	395	8.2	5
JAN. 15...	18	7.5	.3	18	198	173	38	347	8.2	0
MAR. 10...	19	16	.2	10	189	161	34	325	8.0	2
JULY 15...	16	13	.2	8.7	186	156	25	323	8.1	3
SEP. 09...	17	7.8	.2	10	186	159	25	323	7.9	3

## FIELD ANALYSES

DATE	TIME	DIS-CHARGE (CFS)	TEMP-ERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PH	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	FECAL COLI-FORM (COL. PER 100 ML)
JULY 24...	0900	62	18.0	7.8	7.7	260	10000
AUG. 21...	1125	53	17.0	9.3	7.6	325	840
SEP. 01...	1130	37	19.0	9.6	7.5	400	320

## 01619500 ANTIETAM CREEK NEAR SHARPSBURG, MD.

LOCATION.--Lat 39°27'01", long 77°43'52", Washington County, temperature recorder at gaging station on left bank 400 ft downstream from Burnside Bridge, 1 mile southeast of Sharpsburg, and at mile 4.0.

DRAINAGE AREA.--281 sq mi.

PERIOD OF RECORD.--Chemical analysis: August 1965 to September 1969.

Water temperatures: October 1962 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 28°C June 28; minimum, 0°C Jan. 2-6, 8, 12-14.

EXTREMES, 1962-69.--Water temperatures: Maximum, 28°C June 28, July 1-3, 1963, Aug. 21, 23, 24, 1968, June 28, 1969; freezing point on many days during winter months.

REMARKS.--Temperature records poor, probably because of friction in recorder.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS-CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
OCT. 03...	101	6.8	--	--	73	16	14	4.4	244	0
NOV. 20...	290	8.4	140	30	47	10	7.4	4.0	149	0
JAN. 16...	97	3.5	60	50	66	15	10	3.4	224	0
MAR. 10...	138	4.0	90	90	66	14	12	3.3	209	0
APR. 22...	170	6.5	250	60	51	11	7.3	3.1	162	0
MAY 29...	112	9.4	110	30	59	12	11	3.5	204	0
JULY 16...	85	5.8	180	40	57	13	8.8	3.7	196	4
SEP. 10...	133	8.6	140	20	62	13	10	4.4	207	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH	COLOR (PLAT- INUM- COBALT UNITS)
OCT. 03...	34	22	.4	12	303	248	48	520	8.2	5
NOV. 20...	27	14	.2	11	202	159	37	355	7.8	10
JAN. 16...	28	17	.3	20	273	226	43	485	8.0	3
MAR. 10...	30	20	.3	17	270	222	51	453	8.1	3
APR. 22...	25	14	.3	12	210	177	44	364	7.8	2
MAY 29...	27	8.0	.3	11	241	197	30	436	8.0	5
JULY 16...	27	16	.3	9.6	241	196	29	430	8.3	5
SEP. 10...	32	17	.3	11	260	208	39	452	8.0	5

## FIELD ANALYSES

DATE	TIME	DIS- CHARGE (CFS)	TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PH	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	FECAL COLI- FORM (COL. PER 100 ML)
JULY 17...	0930	82	24.5	6.8	7.9	425	90
AUG. 28...	1010	122	19.0	8.0	8.1	460	210
SEP. 24...	1215	101	17.0	8.0	7.7	440	160

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	401	388	470	465	391	383	470	458	440	403	462	452
2	391	387	472	467	391	385	481	470	410	387	460	447
3	488	481	477	472	386	380	487	450	399	387	467	447
4	487	474	477	470	390	380	457	446	414	400	514	470
5	479	467	474	470	391	370	474	458	431	411	514	479
6	483	467	469	460	390	370	---	---	440	431	479	449
7	477	454	462	435	397	386	---	---	447	438	458	447
8	458	449	434	426	397	394	---	---	452	444	450	444
9	455	395	426	184	404	396	---	---	450	447	465	452
10	470	457	386	385	407	401	---	---	454	449	462	458
11	475	454	---	---	410	406	---	---	483	449	460	450
12	470	452	---	---	416	408	---	---	475	462	455	450
13	485	460	---	---	420	413	---	---	462	460	454	449
14	475	469	---	---	428	419	---	---	462	458	458	452
15	474	463	---	---	428	423	---	---	460	455	457	452
16	470	463	---	---	425	422	460	450	457	449	452	443
17	481	470	---	---	422	414	462	444	455	452	443	435
18	500	477	---	---	417	413	460	443	455	452	454	441
19	474	394	---	---	420	416	460	440	458	452	462	454
20	434	355	353	324	423	419	485	435	458	452	463	457
21	388	355	357	320	429	423	441	414	455	449	457	450
22	408	388	371	357	431	426	450	407	458	452	450	446
23	425	408	381	370	426	417	477	426	458	450	449	441
24	438	426	410	382	428	420	432	417	452	443	441	432
25	452	440	416	395	422	416	441	426	472	452	438	396
26	463	454	395	379	423	420	447	437	441	435	462	397
27	470	460	382	379	426	422	441	435	438	432	512	---
28	470	463	382	380	426	417	434	428	450	438	496	---
29	469	465	388	381	440	425	438	423	---	---	---	---
30	467	460	387	385	443	440	440	431	---	---	506	---
31	467	462	---	---	457	440	514	---	---	---	514	---
MCNTH	500	355	---	---	457	370	514	---	483	387	514	---
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	498	---	401	385	---	---	---	---	---	---	---	---
2	---	---	425	401	---	---	---	---	---	---	---	---
3	---	---	454	425	---	---	---	---	---	---	---	---
4	---	---	463	397	---	---	---	---	---	---	---	---
5	---	---	394	385	---	---	---	---	---	---	---	---
6	---	---	395	385	---	---	---	---	---	---	---	---
7	419	---	413	395	---	---	---	---	---	---	---	---

01619500 ANTIETAM CREEK NEAR SHARPSBURG, MD.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(Continuous ethyl alcohol actuated thermograph)

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	18.5	17.0	10.5	8.0	8.5	7.0	4.5	1.0	7.0	6.5	6.5	5.0
2	19.5	18.0	13.0	10.5	9.5	7.5	1.0	0	6.5	6.0	6.5	4.5
3	19.0	18.0	13.5	12.5	9.5	9.0	0.5	0	7.0	5.5	8.0	5.5
4	18.0	14.5	13.0	12.5	10.0	9.0	1.0	0	5.5	3.0	8.0	6.0
5	14.5	13.0	13.5	13.0	9.0	6.0	0.5	0	4.5	3.0	7.5	5.5
6	13.0	13.0	13.5	13.0	6.0	4.5	0.5	0	4.5	3.0	7.0	4.5
7	14.5	13.0	14.5	14.5	5.0	4.0	1.0	0.5	6.0	4.5	8.0	6.0
8	15.0	13.5	14.5	13.5	5.0	4.0	1.0	0	5.0	4.0	7.0	6.0
9	15.0	14.0	13.5	11.0	4.0	2.5	3.0	1.0	4.5	3.5	8.0	6.5
10	15.0	14.5	11.0	10.0	2.5	1.0	2.5	1.5	3.5	2.0	6.5	5.5
11	16.0	15.0	10.0	9.0	1.0	0.5	1.5	0.5	4.0	1.5	5.5	3.5
12	17.5	15.5	9.0	5.5	2.0	0.5	0.5	0	5.5	3.5	5.5	2.5
13	18.5	16.5	6.5	5.0	5.5	2.0	0.5	0	5.0	3.0	7.0	3.5
14	17.5	17.0	6.5	5.5	7.0	5.5	1.0	0	3.0	1.5	7.0	5.0
15	18.5	17.0	9.0	6.5	6.0	2.0	2.0	0.5	3.0	0.5	7.5	5.0
16	18.5	16.5	10.0	9.0	2.0	1.0	1.5	1.0	4.5	2.0	8.5	5.0
17	19.5	17.0	10.5	9.5	2.0	0.5	3.5	1.5	5.0	3.0	10.0	6.0
18	20.0	18.5	11.0	10.5	2.5	1.0	5.5	3.5	6.0	4.0	10.5	7.5
19	20.0	19.5	10.5	9.5	4.5	2.5	6.5	5.5	6.5	4.5	13.0	9.5
20	19.5	16.5	9.5	7.0	5.5	4.0	5.5	4.5	6.0	5.0	13.0	10.5
21	16.5	15.0	7.0	6.0	6.0	5.0	5.0	4.5	7.0	4.5	13.5	11.0
22	15.0	13.5	7.5	6.5	5.0	4.5	6.5	4.5	6.5	5.0	13.0	10.5
23	15.5	14.0	7.5	6.5	6.0	4.5	7.5	6.5	5.5	5.0	12.5	8.5
24	15.0	14.0	9.5	7.5	5.0	2.0	8.0	7.0	7.5	5.5	11.5	10.5
25	14.0	13.0	9.5	8.0	2.0	0.5	7.5	5.5	7.5	6.5	11.5	10.5
26	13.0	11.5	8.0	7.5	0.5	0.5	5.5	2.0	6.5	5.5	11.0	9.5
27	12.5	10.5	10.0	8.0	2.5	0.5	2.0	1.0	6.0	5.0	9.5	7.5
28	13.0	11.5	11.5	10.0	6.0	2.5	1.5	0.5	7.0	5.0	10.0	7.5
29	12.0	11.0	12.0	10.5	6.0	4.5	3.5	1.5	---	---	10.5	10.0
30	11.0	9.0	10.5	8.5	4.5	3.5	5.0	3.5	---	---	9.5	8.5
31	9.5	8.0	---	---	4.5	3.5	7.0	0	---	---	9.5	7.0
AVG	16.0	14.5	10.5	9.0	5.0	3.5	3.5	2.0	5.5	4.0	9.0	7.0
DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.5	7.0	18.5	15.0	24.5	20.5	26.0	24.5	25.5	24.0	24.0	22.0
2	12.0	10.5	19.0	16.0	25.5	20.0	25.0	22.5	25.5	23.5	23.0	22.5
3	13.0	11.5	20.5	17.0	24.0	21.0	24.5	22.5	24.0	23.0	22.5	22.0
4	14.0	11.5	22.0	19.0	22.5	19.5	24.5	21.0	23.0	22.5	23.0	21.5
5	14.5	13.5	22.5	19.5	22.5	19.5	24.0	23.0	22.5	22.0	24.0	22.0
6	16.0	13.5	22.0	19.5	24.0	20.0	24.5	22.5	23.0	21.5	24.0	23.0
7	15.0	13.0	22.5	19.5	24.5	21.0	23.5	22.5	24.5	22.0	25.0	22.5
8	16.5	13.5	21.0	20.0	24.5	21.0	22.5	20.5	24.5	23.5	23.5	21.5
9	18.5	15.5	21.0	19.0	22.0	20.0	21.0	20.0	24.0	23.0	21.5	20.5
10	17.0	16.0	19.0	17.5	20.5	19.0	21.0	20.5	23.5	22.5	20.5	19.0
11	17.5	15.5	18.5	16.0	21.5	18.0	23.0	20.5	23.5	22.0	19.5	17.5
12	17.0	15.0	16.5	15.0	25.0	21.0	25.0	22.0	23.5	21.5	19.0	17.0
13	17.0	14.5	16.5	14.5	26.0	23.5	24.5	22.0	24.0	21.5	19.5	17.5
14	16.0	14.5	19.0	16.0	25.5	23.0	25.0	22.5	23.5	21.5	20.0	18.0
15	15.0	14.5	19.5	16.0	25.0	23.5	25.5	22.5	24.5	22.5	21.0	18.5
16	16.0	15.0	21.0	17.5	23.5	21.0	26.0	23.5	25.5	23.5	21.5	19.0
17	20.0	15.5	23.0	19.5	21.0	20.0	26.5	24.5	25.5	23.5	21.5	19.5
18	19.5	18.5	22.5	20.0	20.0	19.5	27.5	25.0	24.0	21.5	21.5	19.5
19	19.5	17.0	21.0	20.5	22.0	19.5	26.5	25.0	22.5	21.5	19.5	18.0
20	17.5	15.5	23.0	20.5	24.0	21.0	25.5	24.5	22.0	21.5	18.5	17.0
21	17.0	15.0	24.0	21.0	22.0	21.0	25.5	24.0	21.5	20.5	18.0	16.0
22	16.0	14.5	21.5	19.5	21.0	20.0	25.0	24.0	22.0	20.0	18.5	16.0
23	14.5	13.5	20.0	19.0	23.0	20.5	24.5	23.5	22.0	19.5	17.5	15.5
24	14.0	12.0	19.0	18.0	24.5	22.0	23.5	22.0	22.5	20.5	17.5	16.5
25	15.0	11.0	21.0	17.5	25.5	24.0	23.5	22.0	23.5	21.0	19.0	16.5
26	17.5	14.0	21.5	18.5	26.5	23.5	25.5	22.5	24.0	21.5	19.5	17.5
27	19.5	16.0	21.0	17.5	27.5	24.0	26.5	23.5	22.0	20.5	19.5	17.0
28	20.5	18.5	21.5	18.0	28.0	24.5	25.0	24.0	21.5	19.0	18.0	17.0
29	19.5	17.0	24.5	19.5	27.0	24.5	24.0	23.5	22.0	20.0	17.0	15.5
30	17.5	16.0	25.0	21.5	27.0	24.0	23.5	23.0	23.0	21.5	16.0	14.0
31	---	---	24.5	20.5	---	---	25.0	23.5	23.5	21.5	---	---
AVG	15.5	14.5	21.0	18.5	24.0	21.5	25.0	23.0	23.5	21.5	20.5	18.5



01638500 POTOMAC RIVER AT POINT OF ROCKS, MD.

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, at gaging station at bridge on U.S. Highway 15 at Point of Rocks, 0.3 mile downstream from Catoctin Creek (Virginia), 6 miles upstream from Monocacy River and at mile 159.5.

DRAINAGE AREA.--9,651 sq mi.

PERIOD OF RECORD.--Chemical analyses: December 1964 to September 1969.

Water temperatures: October 1960 to September 1969.

Sediment records: October 1960 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum, 32°C July 18, 23; minimum, freezing point on several days during winter months.

Sediment concentrations: Maximum daily, 241 mg/l Aug. 22; minimum daily, 2 mg/l on several days during December and January.

Sediment loads: Maximum daily, 12,100 tons Aug. 22; minimum daily, 8.6 tons Nov. 4.

EXTREMES, 1960-69.--Water temperatures: Maximum, 33.5° Aug. 24, 1964; minimum, freezing point on many days during winter months.

Sediment concentrations: Maximum daily, 1,180 mg/l Feb. 20, 1961; minimum daily, 1 mg/l on many days.

Sediment loads: Maximum daily, 340,000 tons Mar. 8, 1967; minimum daily, 2 tons on several days during September 1964, July to September 1966, November 1967, January and December 1968, and January 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO2) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)
OCT.										
01...	1060	.2	80	30	47	13	38	2.8	144	0
NOV.										
01...	1500	.8	--	--	57	14	29	3.7	164	0
DEC.										
01...	3600	6.6	60	0	38	7.1	6.9	2.1	95	0
JAN.										
01...	3600	2.8	190	70	45	8.2	14	1.8	100	0
FEB.										
01...	8010	5.0	430	180	32	6.5	11	2.6	65	0
MAR.										
01...	3920	.4	240	40	40	7.6	9.7	1.7	92	0
APR.										
01...	9280	4.7	200	50	22	4.6	4.9	1.3	54	0
MAY										
01...	4610	2.4	190	50	32	6.4	7.6	1.7	77	0
JUNE										
01...	1950	.6	100	120	37	8.1	13	2.0	90	0
JULY										
01...	1280	.3	140	190	39	11	29	2.7	104	0
AUG.										
01...	8200	6.9	240	100	38	7.2	14	3.6	103	0
SEP.										
01...	2810	.1	--	--	34	7.3	10	1.8	97	0

DATE	SULFATE (SO4) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.										
01...	103	26	.3	.5	302	171	53	493	8.2	5
NOV.										
01...	82	32	.3	1.2	301	200	65	514	7.6	10
DEC.										
01...	38	10	.2	5.3	161	124	46	289	8.0	5
JAN.										
01...	61	20	.2	2.8	205	146	64	364	8.1	5
FEB.										
01...	43	18	.2	6.1	156	107	54	274	8.0	15
MAR.										
01...	46	19	.2	2.1	172	161	86	313	7.8	1
APR.										
01...	28	7.3	.2	4.4	104	74	30	189	7.7	3
MAY										
01...	41	15	.2	2.4	147	107	44	259	7.6	5
JUNE										
01...	55	16	.2	.9	177	126	52	327	7.3	4
JULY										
01...	82	25	.2	1.3	241	143	58	432	7.3	7
AUG.										
01...	44	19	.2	4.1	188	125	40	336	7.9	7
SEP.										
01...	44	10	.2	1.8	157	115	36	277	7.5	5

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD.--Continued

 TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
 (ONCE-DAILY MEASUREMENT AT 1700)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	11.0	---	0	4.0	3.0	10.0	18.0	27.0	28.0	26.0	27.0
2	19.0	15.0	7.0	0	4.0	4.0	10.0	18.0	27.0	29.0	27.0	26.0
3	21.0	13.0	7.0	0	3.0	4.0	10.0	21.0	25.0	28.0	25.0	24.0
4	16.0	12.0	---	0	1.0	6.0	12.0	22.0	25.0	29.0	23.0	23.0
5	16.0	12.0	6.0	---	---	5.0	12.0	21.0	25.0	22.0	24.0	24.0
6	15.0	12.0	5.0	---	3.0	5.0	13.0	21.0	27.0	27.0	24.0	25.0
7	16.0	12.0	4.0	1.0	4.0	5.0	13.0	22.0	27.0	24.0	25.0	26.0
8	17.0	11.0	3.0	---	2.0	6.0	15.0	21.0	27.0	22.0	25.0	24.0
9	16.0	8.0	2.0	---	1.0	5.0	17.0	21.0	23.0	22.0	25.0	24.0
10	15.0	8.0	0	---	1.0	4.0	15.0	19.0	22.0	22.0	24.0	23.0
11	17.0	7.0	0	---	3.0	4.0	16.0	17.0	24.0	27.0	24.0	23.0
12	18.0	5.0	4.0	---	2.0	4.0	16.0	18.0	27.0	27.0	25.0	23.0
13	18.0	5.0	4.0	---	2.0	5.0	15.0	19.0	28.0	25.0	25.0	23.0
14	19.0	6.0	3.0	---	1.0	4.0	15.0	19.0	28.0	28.0	25.0	23.0
15	18.0	9.0	0	---	2.0	6.0	14.0	20.0	27.0	29.0	---	24.0
16	19.0	9.0	0	---	1.0	6.0	16.0	21.0	24.0	29.0	25.0	24.0
17	20.0	---	---	---	---	8.0	18.0	22.0	25.0	30.0	26.0	25.0
18	20.0	9.0	---	4.0	4.0	9.0	17.0	20.0	22.0	31.0	26.0	24.0
19	19.0	7.0	2.0	3.0	3.0	10.0	18.0	20.0	25.0	28.0	25.0	24.0
20	18.0	6.0	2.0	---	3.0	10.0	15.0	24.0	24.0	28.0	25.0	24.0
21	17.0	6.0	2.0	2.0	4.0	12.0	16.0	23.0	24.0	27.0	21.0	20.0
22	18.0	9.0	1.0	---	3.0	8.0	15.0	23.0	24.0	---	24.0	21.0
23	18.0	8.0	---	3.0	2.0	11.0	14.0	21.0	25.0	26.0	24.0	20.0
24	15.0	8.0	---	3.0	4.0	10.0	14.0	21.0	28.0	25.0	25.0	20.0
25	15.0	---	---	0	2.0	11.0	16.0	21.0	---	26.0	24.0	---
26	13.0	8.0	0	0	2.0	9.0	18.0	21.0	27.0	28.0	24.0	---
27	13.0	8.0	1.0	1.0	3.0	8.0	18.0	23.0	28.0	26.0	25.0	20.0
28	12.0	8.0	3.0	1.0	5.0	9.0	18.0	24.0	31.0	26.0	24.0	20.0
29	10.0	9.0	7.0	1.0	---	8.0	17.0	26.0	27.0	27.0	25.0	20.0
30	10.0	9.0	1.0	3.0	---	7.0	17.0	25.0	30.0	25.0	25.0	19.0
31	11.0	---	---	4.0	---	8.0	---	27.0	---	28.0	27.0	---
AVG	16.5	9.0	---	---	2.5	7.0	15.0	21.5	26.0	26.5	24.5	23.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	TEMP- ERATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- ENT (MG/L)	SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
MAR. 26...	2230	7.0	25900	205	14300	49	65
AUG. 05...	1700	24.0	14000	105	3970	56	70
23...	2000	21.0	12700	120	4110	54	62
DATE		SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM
MAR. 26...		79	87	92	95	98	100
AUG. 05...		85	93	98	99	100	--
23...		83	91	99	99	100	--

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD.--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	1060	20	57	1510	4	16	3660	4	40
2	1070	13	38	1350	4	15	3630	3	29
3	1020	7	19	1300	4	14	3450	3	28
4	1020	7	19	1060	3	8.6	3510	6	57
5	1030	7	19	1310	3	11	3790	8	82
6	1020	9	25	1380	6	22	5280	7	100
7	1130	24	73	1660	8	36	5720	6	93
8	1190	12	39	1730	8	37	5250	5	71
9	1230	13	43	1800	6	29	4580	6	74
10	1180	9	29	2640	14	100	4060	5	55
11	1210	6	20	2680	11	80	3220	5	43
12	1230	12	40	3300	20	178	2890	4	31
13	1300	8	28	3730	12	121	2660	3	22
14	1250	7	24	4260	14	161	3100	3	25
15	1220	8	26	4440	15	180	3390	3	27
16	1210	6	20	4780	16	206	2800	4	30
17	1210	6	20	6510	34	598	2790	3	23
18	1200	6	19	8090	40	874	2660	3	22
19	1620	25	109	11600	77	2410	2890	2	16
20	1800	15	73	13400	43	1560	2890	2	16
21	2110	26	148	12800	32	1110	2970	2	16
22	2510	44	298	10800	21	612	3050	2	16
23	2990	36	291	8480	10	229	3390	3	27
24	2580	26	181	6960	8	150	3400	4	50
25	2350	20	127	5930	11	176	3000	7	57
26	2100	11	62	5100	12	165	2600	2	14
27	1860	6	30	4500	28	340	3080	5	42
28	1600	6	26	4160	20	225	3600	4	39
29	1670	10	45	3950	13	139	3600	3	29
30	1660	4	18	3790	8	82	3800	4	41
31	1610	4	17	--	--	--	4000	5	54
TOTAL	47240	--	1983	145000	--	9884.6	108710	--	1269
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	3400	4	37	7120	31	596	3930	5	53
2	2800	3	23	10100	26	709	3990	5	54
3	3000	4	32	12300	30	996	3890	5	53
4	3000	3	24	11900	27	868	3890	5	53
5	2800	2	15	10400	17	477	3920	6	64
6	2800	2	15	9370	17	430	3920	6	64
7	2600	2	14	8220	16	355	3950	6	64
8	2600	3	21	7430	10	201	4040	5	55
9	2600	4	28	6920	5	93	4120	6	67
10	2400	3	19	6290	8	136	4290	6	70
11	2400	3	19	5560	6	90	4550	5	61
12	2200	2	12	5300	5	72	4670	4	50
13	2200	2	12	5170	5	70	4730	5	64
14	2200	2	12	4760	4	51	4470	4	48
15	2200	2	12	4300	4	46	4160	5	56
16	2200	2	12	4010	4	43	3940	15	160
17	2150	2	12	3920	4	42	3790	7	72
18	2190	2	12	3630	5	49	3740	6	61
19	2260	2	12	3490	5	47	3750	7	71
20	2200	2	12	3480	5	47	3590	9	87
21	2340	2	13	3420	5	46	3610	11	107
22	2760	3	22	3330	3	27	4220	14	160
23	3470	5	47	3330	3	27	6280	27	458
24	4310	6	70	3430	16	148	8440	35	798
25	4550	11	135	3640	72	708	9330	26	655
26	4950	6	80	3730	21	212	21300	113	7190
27	5720	12	185	3890	11	116	27100	142	10400
28	6330	10	171	3920	6	64	22200	87	5210
29	5880	8	127	--	--	--	16600	48	2150
30	5170	5	70	--	--	--	13300	26	934
31	5570	6	90	--	--	--	11100	19	569
TOTAL	101250	--	1365	162360	--	6766	224810	--	29958

DAILY SUSPENDED SEDIMENT. WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)	1593658
TOTAL LOAD FOR YEAR (TONS)	156864.6

## POTOMAC RIVER BASIN

01643000 MONOCACY RIVER AT JUG BRIDGE, NEAR FREDERICK, MD.

LOCATION.--Lat 39°23'16", long 77°22'40", Frederick County, at Reich's Ford Bridge, 1 mile downstream from U.S. Hi U.S. Highway 40, 1.2 miles downstream from gaging station, 2 miles southeast of Frederick, and at mile 16.6.  
 DRAINAGE AREA.--817 sq mi, upstream from gaging station.  
 PERIOD OF RECORD.--Chemical analyses: December 1964 to September 1969.  
 Water temperatures: October 1960 to September 1969.  
 Sediment records: October 1960 to September 1969.  
 EXTREMES, 1968-69.--Water temperatures: Maximum, 29.0°C June 28, 30, July 15, 17; minimum, freezing point Dec. 11, 16, 27, Jan. 1, 26, Feb. 14, and probably several other days during period of missing record.  
 Sediment concentrations: Maximum daily, 1,510 mg/l July 21; minimum daily, 2 mg/l Jan. 18.  
 Sediment loads: Maximum daily, 7,210 tons July 28; minimum daily 0.9 ton Oct. 6.  
 EXTREMES, 1960-69.--Water temperatures: Maximum, 30.5°C July 2, 12-13, 26, Aug. 27, 1966; minimum, freezing point on many days during winter months.  
 Sediment concentrations: Maximum daily, 1,510 mg/l July 21, 1969; minimum daily, 1 mg/l on many days.  
 Sediment loads: Maximum daily, 45,000 tons Mar. 7, 1967; minimum daily, less than 0.50 ton on many days.  
 REMARKS.--No appreciable inflow between sampling point and gaging station during periods of heavy local runoff.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO2) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	SULFATE (SO4) (MG/L)
OCT. 01...	86	1.8	39	6.5	9.4	3.3	125	0	19
NOV. 01...	128	5.3	36	6.5	8.6	3.8	114	0	19
DEC. 02...	512	7.2	25	5.1	5.4	2.0	64	0	20
FEB. 02...	990	6.5	23	5.5	7.4	4.0	48	0	26
MAR. 02...	691	.0	25	5.9	10	2.6	61	0	26
APR. 01...	600	6.2	22	5.3	5.6	1.7	57	0	21
MAY 04...	324	.5	25	5.4	5.9	1.7	--	--	16
JUNE 05...	220	4.4	28	3.7	6.7	3.0	--	--	13
JULY 01...	91	.3	32	6.0	8.6	3.0	108	3	17
AUG. 02...	205	3.6	27	5.8	6.9	3.9	84	0	20

DATE	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- NUM- COBALT UNITS)
OCT. 01...	14	.2	9.6	164	124	22	290	7.6	2
NOV. 01...	15	.2	10	160	117	23	280	7.8	5
DEC. 02...	9.1	.1	9.4	114	84	31	202	8.0	0
FEB. 02...	15	.2	12	124	80	41	216	7.5	15
MAR. 02...	20	.1	7.4	127	87	37	235	7.8	5
APR. 01...	9.7	.1	7.9	108	77	31	193	7.4	0
MAY 04...	9.1	.1	1.7	105	85	19	195	--	--
JUNE 05...	12	.2	.2	117	85	9	223	--	15
JULY 01...	13	.2	2.4	138	105	11	263	8.5	10
AUG. 02...	11	.2	5.1	124	92	23	221	7.6	10

## FIELD ANALYSES

DATE	TIME	DIS- CHARGE (CFS)	TEMP- ERATURE (DEG C)	DIS- SOLVED OXYGEN (MG/L)	PH (UNITS)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	FECAL COLI- FORM (COL. PER 100 ML)
JULY 17...	1330	97	29.0	10.6	8.3	250	6000
AUG. 28...	1320	106	23.0	8.6	7.5	290	43000
SEP. 24...	1000	174	17.0	6.2	6.8	260	87000

01643000 MONOCACY RIVER AT JUG BRIDGE, NEAR FREDERICK, MD.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(ONCE-DAILY MEASUREMENT AT 1800)

DAY	CCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	11.0	7.0	0	3.0	3.0	9.0	18.0	---	27.0	27.0	28.0
2	21.0	12.0	7.0	---	3.0	3.0	10.0	19.0	27.0	23.0	26.0	27.0
3	19.0	12.0	7.0	---	3.0	5.0	12.0	---	23.0	---	25.0	23.0
4	17.0	12.0	8.0	---	2.0	5.0	---	21.0	23.0	---	23.0	23.0
5	16.0	13.0	6.0	---	2.0	---	12.0	22.0	24.0	25.0	22.0	23.0
6	14.0	12.0	4.0	---	3.0	5.0	---	22.0	26.0	27.0	25.0	25.0
7	15.0	---	4.0	---	3.0	5.0	15.0	22.0	26.0	23.0	25.0	---
8	14.0	11.0	3.0	---	2.0	5.0	17.0	21.0	25.0	22.0	27.0	22.0
9	15.0	10.0	1.0	---	3.0	4.0	17.0	20.0	28.0	22.0	25.0	22.0
10	16.0	8.0	---	---	---	5.0	16.0	18.0	21.0	22.0	25.0	19.0
11	---	8.0	0	---	2.0	3.0	17.0	17.0	24.0	26.0	25.0	20.0
12	---	4.0	2.0	---	2.0	3.0	17.0	17.0	26.0	26.0	27.0	---
13	---	5.0	4.0	---	1.0	4.0	17.0	17.0	27.0	26.0	27.0	21.0
14	---	5.0	2.0	---	0	5.0	15.0	20.0	24.0	27.0	---	22.0
15	---	8.0	---	---	3.0	---	14.0	20.0	24.0	29.0	27.0	23.0
16	---	9.0	0	---	4.0	7.0	---	22.0	23.0	28.0	27.0	24.0
17	20.0	12.0	1.0	2.0	3.0	7.0	18.0	23.0	24.0	29.0	26.0	24.0
18	19.0	10.0	3.0	2.0	3.0	10.0	17.0	21.0	---	---	24.0	20.0
19	19.0	9.0	3.0	2.0	4.0	10.0	18.0	21.0	23.0	28.0	23.0	19.0
20	18.0	7.0	---	---	3.0	11.0	16.0	23.0	26.0	27.0	25.0	17.0
21	---	5.0	3.0	2.0	4.0	12.0	17.0	23.0	25.0	23.0	26.0	---
22	18.0	6.0	1.0	2.0	3.0	11.0	14.0	22.0	24.0	25.0	24.0	18.0
23	17.0	8.0	3.0	3.0	4.0	10.0	13.0	21.0	25.0	23.0	---	19.0
24	14.0	8.0	2.0	4.0	4.0	8.0	13.0	20.0	27.0	23.0	25.0	19.0
25	15.0	7.0	---	2.0	4.0	8.0	14.0	22.0	28.0	24.0	27.0	19.0
26	12.0	7.0	2.0	0	4.0	7.0	17.0	22.0	28.0	23.0	27.0	20.0
27	14.0	8.0	0	1.0	3.0	7.0	---	22.0	28.0	26.0	25.0	20.0
28	12.0	9.0	4.0	2.0	4.0	8.0	---	23.0	29.0	24.0	24.0	20.0
29	11.0	9.0	2.0	2.0	---	9.0	19.0	26.0	---	23.0	26.0	18.0
30	10.0	---	2.0	2.0	---	8.0	18.0	27.0	29.0	25.0	27.0	18.0
31	10.0	---	2.0	3.0	---	7.0	---	28.0	---	27.0	---	---
AVG	---	9.0	3.0	---	3.0	6.5	15.5	21.5	25.5	25.0	25.5	21.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	TIME	TEMP- ERATURE (DEG C)	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- ENT (MG/L)	SUS- PENDE SEDIM- ENT DIS- CHARGE (T/DAY)	SUS- PENDE SED. FALL DIAM. % FINER THAN .002 MM	SUS- PENDE SED. FALL DIAM. % FINER THAN .004 MM	SUS- PENDE SED. FALL DIAM. % FINER THAN .008 MM
NOV. 19...	1830	9.0	4580	167	2070	51	62	78
MAR., 1969								
26...	1745	7.0	2160	146	851	45	56	71
JUNE 14...	1730	24.0	1610	1100	4780	---	73	90
JULY 21...	2000	23.0	675	1200	2190	---	78	94
AUG. 04...	2140	22.0	3760	766	7780	---	58	78
SEP. 04...	1800	23.0	912	617	1520	41	59	77
08...	1800	22.0	3710	755	7560	---	57	79
DATE		SUS- PENDE SED. FALL DIAM. % FINER THAN .016 MM	SUS- PENDE SED. FALL DIAM. % FINER THAN .031 MM	SUS- PENDE SED. SIEVE DIAM. % FINER THAN .062 MM	SUS- PENDE SED. SIEVE DIAM. % FINER THAN .125 MM	SUS- PENDE SED. SIEVE DIAM. % FINER THAN .250 MM	SUS- PENDE SED. SIEVE DIAM. % FINER THAN .500 MM	SUS- PENDE SED. SIEVE DIAM. % FINER THAN 1.00 MM
NOV. 19...		89	93	94	95	96	98	100
MAR., 1969								
26...		81	87	89	89	90	90	100
JUNE 14...		97	97	100	---	---	---	---
JULY 21...		97	98	100	100	100	100	100
AUG. 04...		92	97	99	100	---	---	---
SEP. 04...		91	98	99	99	99	100	---
08...		92	94	99	99	100	---	---

## POTOMAC RIVER BASIN

01643000 MONOCACY RIVER AT JUG BRIDGE, NEAR FREDERICK, MD.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	88	23	5.5	128	9	3.1	348	8	7.5
2	87	21	4.9	131	6	2.1	430	8	9.3
3	88	12	2.9	125	9	3.0	694	23	43
4	85	8	1.8	128	13	4.5	900	40	115
5	81	5	1.1	131	11	3.9	1700	109	541
6	82	4	.90	131	6	2.1	828	28	64
7	143	31	12	176	12	5.7	610	14	23
8	178	38	18	374	36	39	490	11	15
9	153	38	16	614	61	105	412	9	10
10	135	24	8.7	426	30	35	280	6	4.5
11	120	19	6.2	576	35	54	280	5	3.8
12	112	19	5.7	712	45	87	280	6	4.5
13	110	18	5.3	1140	59	182	280	10	7.6
14	107	18	5.2	1060	34	97	360	15	15
15	108	17	5.0	930	23	58	630	30	51
16	108	17	5.0	1470	77	321	380	13	13
17	108	22	6.4	1190	59	190	360	17	17
18	110	16	4.8	1360	78	364	340	13	12
19	346	91	122	3970	237	2680	344	14	13
20	754	164	352	1500	85	358	328	14	12
21	379	55	56	920	25	62	332	10	9.0
22	228	32	20	731	20	39	324	8	7.0
23	184	32	16	618	14	23	645	29	51
24	162	32	14	540	11	16	884	36	86
25	164	22	9.7	545	12	18	416	12	13
26	203	22	12	547	9	13	380	8	8.2
27	174	38	18	457	10	12	360	8	7.8
28	155	25	10	418	13	15	420	10	11
29	146	18	7.1	403	17	18	560	8	12
30	137	11	4.1	380	16	16	575	10	16
31	128	9	3.1	--	--	--	420	16	18
TOTAL	5163	--	759.40	21831	--	4826.4	15590	--	1220.2
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	360	13	13	957	50	129	785	29	61
2	320	12	10	977	44	116	713	22	42
3	280	12	9.1	841	33	75	645	21	37
4	240	11	7.1	831	26	58	818	26	57
5	220	11	6.5	530	30	43	924	33	82
6	220	10	5.9	440	18	21	730	25	49
7	220	10	5.9	474	18	23	697	20	38
8	220	9	5.3	434	13	15	812	21	46
9	230	9	5.6	385	12	12	856	28	65
10	240	9	5.8	324	8	7.0	818	31	68
11	230	8	5.0	360	4	3.9	660	17	30
12	220	7	4.2	340	10	9.2	521	20	28
13	210	7	4.0	300	12	9.7	463	22	28
14	211	6	3.4	260	10	7.0	458	12	15
15	200	5	2.7	260	8	5.6	449	10	12
16	180	4	1.9	260	7	4.9	420	13	15
17	202	3	1.6	260	7	4.9	416	12	13
18	220	2	1.2	280	6	4.5	432	26	30
19	271	4	2.9	285	7	5.4	449	15	18
20	299	8	6.5	288	8	6.2	472	15	19
21	302	10	8.2	309	8	6.7	476	18	23
22	437	20	24	331	8	7.1	458	16	20
23	480	24	31	369	8	8.0	424	24	27
24	440	16	19	431	16	19	404	16	17
25	484	19	25	851	44	109	2890	442	5080
26	408	9	9.9	1280	68	235	3200	363	3710
27	292	6	4.7	852	40	92	1350	54	197
28	280	5	3.8	697	28	53	984	29	77
29	280	10	7.6	--	--	--	829	31	69
30	316	6	5.1	--	--	--	779	17	36
31	779	47	117	--	--	--	697	10	19
TOTAL	9291	--	362.9	14206	--	1090.1	25029	--	10028

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DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

APRIL				MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	600	10	16	392	25	26	166	9	4.0
2	590	9	14	363	22	22	166	34	15
3	550	10	15	341	23	21	250	55	37
4	517	10	14	325	24	21	292	42	33
5	499	10	13	306	30	25	244	48	32
6	575	15	23	288	21	16	196	28	15
7	555	13	19	274	18	13	178	14	6.7
8	458	9	11	260	21	15	175	16	7.6
9	424	12	14	342	37	35	166	16	7.2
10	408	12	13	535	41	59	158	13	5.5
11	454	14	17	449	26	32	169	11	5.0
12	494	12	16	332	17	15	175	18	8.5
13	412	8	8.9	299	22	18	169	13	5.9
14	368	6	6.0	282	20	15	983	662	2390
15	360	15	15	264	12	8.6	605	840	1370
16	400	20	22	254	10	6.9	332	250	224
17	469	24	30	247	12	8.0	647	332	680
18	481	22	29	238	10	6.4	306	108	89
19	870	114	288	244	13	8.6	250	83	56
20	1050	88	264	526	45	64	238	60	39
21	659	44	78	677	64	117	211	54	31
22	592	35	56	363	34	33	184	58	29
23	771	38	79	296	27	22	166	48	22
24	707	35	67	264	20	14	160	36	16
25	593	32	51	257	17	12	153	18	7.4
26	521	34	48	241	17	11	150	14	5.7
27	475	23	29	223	12	7.2	151	22	9.0
28	441	27	32	211	10	5.7	154	40	17
29	436	31	36	205	12	6.6	124	50	17
30	427	35	40	193	14	7.3	112	52	16
31	--	--	--	181	11	5.4	--	--	--
TOTAL	16156	--	1363.9	9672	--	676.7	7430	--	5200.5
JULY				AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	98	42	11	249	60	40	99	17	4.5
2	92	16	4.0	220	64	38	114	18	5.5
3	90	9	2.2	221	79	47	309	115	170
4	86	8	1.9	1770	713	5180	4140	531	6410
5	92	7	1.7	1310	349	1380	1600	222	959
6	90	8	1.9	530	133	190	826	161	359
7	92	13	3.2	352	66	63	763	200	412
8	103	15	4.2	262	47	33	2580	520	4200
9	127	19	6.5	216	35	20	1570	288	1320
10	127	29	9.9	221	50	30	728	119	234
11	124	27	9.0	219	38	22	473	103	132
12	124	13	4.4	213	35	20	369	70	70
13	175	36	17	182	23	11	309	52	43
14	214	42	24	158	24	10	273	49	36
15	142	35	13	149	30	12	246	38	25
16	106	19	5.4	142	29	11	228	35	22
17	96	11	2.9	138	23	8.6	218	32	19
18	92	11	2.7	509	205	311	589	139	334
19	86	11	2.6	458	154	206	591	284	469
20	151	53	115	343	105	97	300	142	115
21	1530	1510	6700	256	83	57	240	75	49
22	437	511	642	206	51	28	216	65	38
23	542	399	642	172	36	17	202	58	32
24	399	228	246	154	48	20	193	45	23
25	310	195	163	138	58	22	188	51	26
26	1290	823	4240	130	31	11	186	46	23
27	334	190	196	116	14	4.4	174	43	20
28	2190	1220	7210	109	23	6.8	168	45	20
29	1450	640	2810	102	21	5.8	158	44	19
30	531	205	294	103	10	2.8	152	38	16
31	326	92	81	102	12	3.3	--	--	--
TOTAL	11646	--	23466.5	9450	--	7907.7	18202	--	15605.0
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									163666
TOTAL LOAD FOR YEAR (TONS)									72507.30



## POTOMAC RIVER BASIN

01645000 SENECA CREEK AT DAWSONVILLE, MD.

LOCATION.--Lat 39°07'41", long 77°20'13", Montgomery County, at gaging station 60 ft downstream from bridge on State Highway 28, 150 ft downstream from mouth of Great Seneca Creek, 0.5 mile east of Dawsonville, and at mile 5.8.

DRAINAGE AREA.--101 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1965 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
OCT. 24...	28	9.6	240	10	9.7	2.9	4.5	3.5	39	0
NOV. 24...	57	9.5	260	80	9.8	3.2	4.4	2.0	28	0
DEC. 26...	57	10	140	110	9.7	3.4	4.5	1.7	26	0
FEB. 24...	191	8.0	540	160	11	4.0	8.5	2.1	22	0
MAR. 24...	56	6.1	280	70	7.2	3.4	3.7	1.4	25	0
MAY 26...	32	11	--	--	9.5	3.3	5.1	1.9	33	0
JULY 29...	94	8.0	470	220	12	2.8	4.5	5.5	37	0
SEP. 11...	48	10	190	80	12	3.4	5.0	2.6	38	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT. 24...	6.7	7.4	.1	2.5	66	36	4	110	7.5	7
NOV. 24...	11	7.5	.1	7.2	69	38	15	106	7.4	0
DEC. 26...	13	7.6	.1	6.4	69	38	17	112	7.7	5
FEB. 24...	18	17	.1	5.6	86	44	26	149	7.2	4
MAR. 24...	6.4	7.2	.1	6.4	55	32	12	88	7.3	4
MAY 26...	5.0	8.0	.1	5.2	65	37	10	108	7.4	--
JULY 29...	11	9.9	.2	3.4	75	42	11	128	6.9	20
SEP. 11...	13	7.6	.1	3.9	77	44	13	137	7.4	2

## POTOMAC RIVER BASIN

69

01647685 WILLIAMSBURG RUN NEAR OLNEY, MD.

LOCATION.--Lat 39°08'32", long 77°05'48", Montgomery County, on right bank 200 ft downstream from vehicle bridge on golf course of Norbeck County Club, 0.2 mile downstream from Cashell Road, 0.5 mile upstream from mouth, and 1.8 miles southwest of Olney.

DRAINAGE AREA.--2.25 sq mi.

PERIOD OF RECORD.--Sediment records: November 1966 to September 1968, October 1968 to September 1969 (partial-record station).

## SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
NOV.			
18...	9.6	340	16
19...	2.5	50	.34
JAN.			
21...	6.2	283	7.9
FEB.			
24...	8.2	170	5.9
25...	3.2	50	.43
MAY			
20...	1.9	405	2.7
21...	1.4	151	.97
JUNE			
02...	1.3	354	13
03...	12	205	24
18...	8.6	733	44
19...	2.5	60	1.4
JULY			
20...	7.5	231	21
21...	.66	60	.11
22...	21	230	57
23...	1.6	39	.22
AUG.			
01...	2.5	110	2.8
02...	40	271	121
03...	3.3	103	1.4
04...	3.1	80	1.4
09...	4.9	127	17
10...	28	166	50
18...	22	460	58
SEP.			
03...	8.7	2480	31
04...	35	269	53

01647720 NORTH BRANCH ROCK CREEK NEAR NORBECK, MD.

LOCATION.--Lat 39°06'59", long 77°06'09", Montgomery County, at gaging station 550 ft downstream from bridge on Muncaster Mill Road (State Highway 115), 0.7 mile upstream from Manor Run, 1.5 miles northwest of Norbeck, and at mile 2.0.

DRAINAGE AREA.--9.73 sq mi.

PERIOD OF RECORD.--Sediment records: November 1966 to September 1969 (partial-record station).

## SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
OCT.			
19...	8.8	26	1.2
20...	3.0	12	.10
JAN.			
21...	20	134	11
22...	12	20	.70
JUNE			
02...	2.7	63	3.7
03...	36	900	249
18...	11	480	139
19...	26	520	147
JULY			
20...	14	450	82
21...	3.1	150	1.3
22...	50	1130	465
23...	17	140	15
AUG.			
02...	78	480	316
03...	64	120	70
09...	7.1	190	36
10...	116	840	786
18...	61	790	220
19...	15	170	7.9
20...	26	270	32
SEP.			
03...	19	410	121
04...	164	1230	1180
05...	10	30	.79

## POTOMAC RIVER BASIN

01647725 MANOR RUN NEAR NORBECK, MD.

LOCATION.--Lat 39°06'36", long 77°06'00", Montgomery County, at gaging station 100 ft downstream from ford on farm lane, 0.5 mile upstream from mouth and 1.2 miles west of Norbeck.

DRAINAGE AREA.--1.01 sq mi.

PERIOD OF RECORD.--Sediment records: November 1966 to September 1969 (partial-record station).

## SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
JAN.			
21...	4.2	1240	22
22...	1.4	30	.11
MAY			
20...	7.8	915	335
21...	1.7	97	1.3
JUNE			
02...	7.5	981	419
03...	11	781	184
08...	2.3	454	22
09...	.48	180	.23
18...	4.2	1210	114
19...	.82	145	.44
JULY			
22...	1.8	1260	63
23...	.60	252	.53
28...	3.4	806	90
AUG.			
09...	16	1500	664
10...	10	794	109
18...	11	1440	222
SEP.			
03...	4.8	776	111
04...	6.6	1490	132

## 71

LOCATION.--Lat 39°06'09", long 77°07'12", Montgomery County, at gaging station 170 ft downstream from outlet of Bernard Frank Lake, 370 ft upstream from mouth, and 2.4 miles northeast of Rockville.

DRAINAGE AREA.--12.5 sq mi.

PERIOD OF RECORD.--Sediment records: September 1967 to September 1969.

EXTREMES, 1967-69.--Sediment concentrations: Maximum daily, 450 mg/l Nov. 2, 1967; minimum daily, 4 mg/l Jan. 12-15, 1968.

Sediment: Maximum daily, 23 tons Jan. 24, 1968; Minimum daily, 0.01 tons Sept. 11-16, 1968.

REMARKS.--Flow completely regulated by dam above station; drain gage open at times; variable backwater at times from Rock Creek.

DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1							30	33	2.7
2							15	50	1.6
3							5.5	145	2.2
4							4.9	195	2.6
5							4.7	225	2.9
6							4.1	250	2.8
7							4.1	270	3.0
8							4.1	288	3.2
9							4.1	305	3.4
10							4.1	315	3.5
11							4.1	330	3.7
12							4.0	340	3.7
13							3.5	350	3.3
14							3.3	350	3.1
15							3.3	335	3.0
16							3.3	320	2.9
17							3.5	290	2.7
18							3.6	260	2.5
19							3.6	230	2.2
20							3.0	200	1.6
21							3.0	170	1.4
22							4.0	165	1.8
23							3.0	135	1.1
24							2.8	115	.87
25							2.8	101	.76
26							2.6	94	.66
27							2.6	90	.63
28							2.7	87	.63
29							3.0	84	.68
30							2.9	81	.63
31							—	—	—
TOTAL							145.2	—	65.76
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									145.2
TOTAL LOAD FOR YEAR (TONS)									65.76

## POTOMAC RIVER BASIN

01647740 NORTH BRANCH ROCK CREEK NEAR ROCKVILLE, MD.--Continued

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	2.6	79	.55	3.0	18	.15	4.3	19	.22
2	2.6	77	.54	4.2	450	5.1	4.5	18	.22
3	2.6	76	.53	6.1	310	5.1	5.9	120	1.9
4	2.6	75	.53	6.2	90	1.5	8.5	200	4.6
5	2.6	74	.52	6.3	48	.82	10	110	3.0
6	2.6	73	.51	6.2	38	.64	10	67	1.8
7	2.6	72	.51	6.0	35	.57	10	50	1.4
8	2.6	71	.50	5.6	33	.50	10	42	1.1
9	2.6	70	.49	5.2	31	.44	10	37	1.0
10	6.3	116	2.5	4.9	29	.38	10	35	.94
11	5.0	130	1.8	4.5	27	.33	14	284	11
12	3.3	85	.76	4.3	25	.29	16	165	7.1
13	2.8	67	.51	4.2	24	.27	17	95	4.4
14	2.8	64	.48	4.1	23	.25	17	85	3.9
15	2.8	62	.47	4.1	23	.25	17	58	2.7
16	2.8	60	.45	3.9	23	.24	16	40	1.7
17	2.8	58	.44	3.8	23	.24	16	28	1.2
18	4.4	95	1.1	3.8	22	.23	16	23	.99
19	4.9	90	1.2	3.8	22	.23	16	20	.86
20	3.4	55	.50	4.0	27	.29	16	19	.82
21	3.0	52	.42	4.1	26	.29	16	19	.82
22	3.0	51	.41	4.1	25	.28	16	25	1.1
23	3.0	50	.40	4.3	30	.35	16	22	.95
24	3.0	49	.40	4.3	26	.30	16	20	.86
25	5.3	79	1.4	4.3	23	.27	16	18	.78
26	7.6	310	6.4	4.3	22	.26	15	17	.69
27	4.3	130	1.5	4.3	21	.24	14	16	.60
28	3.0	55	.45	4.3	20	.23	14	15	.57
29	3.0	30	.24	4.3	20	.23	18	75	3.6
30	3.0	22	.18	4.3	19	.22	19	78	4.0
31	3.0	20	.16	--	--	--	21	68	3.9
TOTAL	105.9	--	26.85	136.8	--	20.49	425.2	--	68.72
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	22	88	5.2	16	80	3.5	2.8	8	.06
2	22	51	3.0	15	60	2.4	2.8	8	.06
3	22	31	1.8	20	65	3.5	2.9	8	.06
4	21	23	1.3	14	40	1.5	3.0	8	.06
5	21	20	1.1	11	30	.89	3.0	7	.06
6	21	17	.96	10	25	.68	3.0	7	.06
7	20	14	.76	6.2	22	.37	3.0	7	.06
8	19	11	.56	1.1	21	.06	3.0	8	.06
9	17	8	.37	1.5	20	.08	3.0	8	.06
10	16	6	.26	1.7	19	.09	3.2	8	.07
11	15	5	.20	1.8	18	.09	3.5	8	.08
12	14	4	.15	2.0	18	.10	3.6	35	.34
13	14	4	.15	2.0	17	.09	4.1	250	2.8
14	21	127	8.4	2.2	16	.10	4.1	180	2.0
15	26	150	11	2.2	15	.09	4.1	125	1.4
16	25	90	6.1	2.2	13	.08	4.1	88	.97
17	25	67	4.5	2.4	11	.07	11	186	6.7
18	25	59	4.0	2.5	10	.07	26	86	5.9
19	24	51	3.3	2.6	9	.06	31	66	5.5
20	24	44	2.9	2.6	10	.07	25	56	3.8
21	24	37	2.4	2.6	12	.08	21	45	2.6
22	24	31	2.0	2.6	11	.08	19	38	1.9
23	43	70	12	2.6	11	.08	17	40	1.8
24	80	105	23	2.6	10	.07	18	55	2.7
25	61	60	9.9	2.6	10	.07	18	36	1.7
26	24	35	2.3	2.8	9	.07	16	33	1.4
27	11	25	.74	2.8	9	.07	15	34	1.5
28	12	22	.71	2.8	8	.06	15	35	1.4
29	13	20	.70	2.8	8	.06	13	33	1.2
30	14	50	1.9	--	--	--	12	32	1.0
31	19	130	6.7	--	--	--	12	31	1.0
TOTAL	739	--	118.36	143.2	--	14.53	322.2	--	48.30

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

APRIL				MAY				JUNE			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)		
1	12	30	.97	9.2	9	.22	22	49	2.9		
2	11	29	.86	8.8	9	.21	17	44	2.0		
3	11	27	.80	8.4	9	.20	13	39	1.4		
4	11	25	.74	8.3	9	.20	12	34	1.1		
5	12	31	1.0	7.9	8	.17	11	29	.86		
6	13	22	.77	7.6	9	.18	9.5	25	.64		
7	13	21	.74	7.4	8	.16	8.4	21	.48		
8	12	21	.68	7.2	7	.14	7.8	20	.42		
9	11	20	.59	7.2	6	.12	7.2	19	.37		
10	11	20	.59	7.0	5	.09	7.2	17	.33		
11	11	19	.56	6.7	5	.09	6.9	15	.28		
12	10	17	.46	6.5	6	.11	6.3	12	.20		
13	10	14	.38	6.5	18	.32	9.9	8	.21		
14	9.5	11	.28	6.5	10	.18	10	8	.22		
15	9.5	9	.23	6.5	6	.11	9.2	9	.22		
16	9.0	7	.17	6.5	5	.09	10	10	.27		
17	8.5	6	.14	6.5	5	.09	19	60	3.1		
18	8.3	5	.11	6.5	6	.11	19	65	3.3		
19	8.3	6	.13	6.5	31	.54	16	53	2.3		
20	3.3	6	.13	6.5	15	.26	33	230	20		
21	8.3	7	.16	6.5	6	.11	22	180	11		
22	3.1	7	.15	6.5	6	.11	17	105	4.8		
23	7.9	8	.17	6.5	9	.16	12	60	1.9		
24	8.1	9	.20	3.0	11	.24	10	40	1.1		
25	11	21	.62	8.6	10	.23	9.1	32	.79		
26	11	46	1.4	9.6	9	.21	8.1	25	.55		
27	11	40	1.2	8.9	10	.24	13	24	.84		
28	10	20	.54	48	89	15	44	140	17		
29	10	18	.49	73	95	19	28	162	12		
30	9.5	16	.41	45	65	7.9	19	138	7.1		
31	--	--	--	30	54	4.4	--	--	--		
TOTAL	304.3	--	15.67	393.8	--	51.19	436.6	--	97.68		
JULY				AUGUST				SEPTEMBER			
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)		
1	11	90	2.7	3.8	95	.97	3.8	29	.30		
2	6.7	50	.90	3.8	90	.92	3.8	32	.33		
3	19	100	4.9	3.8	85	.87	3.8	28	.29		
4	14	70	2.6	3.8	80	.82	3.8	24	.25		
5	10	60	1.6	3.8	78	.80	3.8	20	.21		
6	8.4	50	1.1	3.8	77	.79	3.8	27	.28		
7	7.5	47	.95	3.8	60	.62	3.8	34	.35		
8	6.9	44	.82	3.8	50	.51	3.8	40	.41		
9	6.7	42	.76	3.8	35	.36	3.8	35	.36		
10	6.3	41	.70	3.8	21	.22	3.0	50	.41		
11	6.0	40	.65	3.8	20	.21	.02	125	.01		
12	5.5	42	.62	3.8	19	.19	.03	100	.01		
13	5.5	44	.65	3.8	19	.19	.04	90	.01		
14	5.2	45	.63	3.8	20	.21	.04	83	.01		
15	5.2	45	.63	3.8	21	.22	.05	78	.01		
16	5.0	46	.62	3.8	20	.21	.07	75	.01		
17	5.0	51	.69	4.1	18	.20	.09	74	.02		
18	5.0	56	.76	4.1	16	.18	.10	69	.02		
19	5.0	56	.76	4.2	18	.20	.70	64	.12		
20	5.0	56	.76	3.8	20	.21	1.0	58	.16		
21	5.0	68	.92	3.5	22	.21	1.0	58	.16		
22	5.0	56	.76	3.5	22	.21	1.0	58	.16		
23	5.0	44	.59	3.5	21	.20	1.0	58	.16		
24	5.0	48	.65	3.5	21	.20	1.0	57	.15		
25	5.2	44	.62	3.5	21	.20	1.0	57	.15		
26	5.4	40	.58	3.5	20	.19	1.1	57	.17		
27	5.5	37	.55	3.5	20	.19	1.3	57	.20		
28	5.8	35	.55	3.5	21	.20	1.3	50	.18		
29	5.8	85	1.3	3.5	22	.21	1.5	43	.17		
30	4.3	135	1.6	3.5	23	.22	1.9	36	.18		
31	3.9	110	1.2	3.5	26	.25	--	--	--		
TOTAL	203.8	--	33.12	115.5	--	11.18	51.44	--	5.25		
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									3377.7		
TOTAL LOAD FOR YEAR (TONS)									511.7		

01647740 NORTH BRANCH ROCK CREEK NEAR ROCKVILLE, MD.--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	1.7	36	.17	1.8	29	.14	5.5	12	.18
2	1.7	36	.17	1.9	25	.13	5.6	12	.18
3	1.7	36	.17	1.9	24	.12	5.8	12	.19
4	1.8	19	.09	1.9	23	.12	9.9	24	.64
5	1.9	13	.07	1.9	23	.12	12	30	.97
6	1.9	11	.06	2.0	23	.12	9.6	23	.60
7	1.9	62	.32	2.0	30	.16	8.2	20	.44
8	1.9	160	.82	2.3	29	.18	7.2	17	.33
9	1.9	93	.48	2.7	29	.21	6.5	16	.28
10	1.9	56	.29	6.0	71	1.4	5.9	16	.25
11	1.9	41	.21	8.6	57	1.3	5.8	17	.27
12	1.9	35	.18	18	95	5.1	5.4	18	.26
13	1.9	36	.18	24	54	3.5	5.2	21	.29
14	1.9	31	.16	19	28	1.4	9.5	42	1.2
15	1.9	24	.12	13	22	.77	14	100	3.8
16	1.9	21	.11	10	19	.51	11	60	1.8
17	1.9	19	.10	8.3	18	.40	8.7	38	.89
18	1.9	18	.09	12	28	1.1	7.6	28	.57
19	1.9	22	.11	23	43	2.7	6.6	23	.41
20	1.9	32	.16	16	38	1.6	6.2	18	.30
21	1.9	24	.12	11	38	1.1	6.2	17	.28
22	1.9	20	.10	8.8	37	.88	6.4	15	.26
23	1.8	20	.10	7.7	35	.73	13	28	.98
24	1.5	21	.09	6.7	32	.58	11	40	1.2
25	1.5	38	.15	6.5	31	.54	9.3	28	.70
26	1.5	34	.14	6.3	27	.46	7.9	21	.45
27	1.5	27	.11	6.2	23	.38	7.4	18	.36
28	1.5	27	.11	5.9	18	.29	7.2	16	.31
29	1.6	33	.14	5.8	15	.23	7.2	14	.27
30	1.7	46	.21	5.7	13	.20	7.2	13	.25
31	1.7	36	.17	--	--	--	7.0	13	.25
TOTAL	55.4	--	5.50	246.9	--	26.47	246.0	--	19.16
DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	6.8	13	.24	9.3	20	.50	10	14	.38
2	6.3	13	.22	10	22	.59	10	14	.38
3	6.0	12	.19	10	15	.40	10	19	.51
4	5.8	12	.19	9.5	14	.36	11	17	.50
5	5.6	12	.18	8.6	13	.30	12	15	.49
6	5.5	12	.18	8.3	12	.27	11	14	.42
7	5.5	11	.16	8.1	12	.26	10	14	.38
8	5.5	11	.16	7.9	13	.28	12	13	.42
9	5.5	11	.16	7.9	14	.30	12	13	.42
10	5.5	11	.16	7.9	14	.30	11	13	.39
11	5.5	10	.15	7.9	15	.32	10	13	.35
12	5.3	10	.14	7.9	15	.32	9.2	13	.32
13	5.0	10	.14	7.9	15	.32	8.5	13	.30
14	4.9	10	.13	7.9	15	.32	8.2	13	.29
15	4.9	9	.12	7.6	15	.31	8.0	13	.28
16	4.9	9	.12	7.6	17	.35	7.8	13	.27
17	4.9	9	.12	7.6	20	.41	7.6	12	.25
18	5.0	9	.12	7.6	25	.51	7.5	12	.24
19	7.0	9	.17	7.6	20	.41	7.5	11	.22
20	7.6	9	.18	7.6	15	.31	7.5	12	.24
21	13	16	.68	7.6	9	.18	7.5	13	.26
22	21	27	1.5	7.6	9	.18	7.5	14	.28
23	16	23	.99	11	12	.36	7.5	14	.28
24	13	22	.77	26	15	1.1	7.5	14	.28
25	11	21	.62	29	25	2.0	11	13	.39
26	9.8	21	.56	21	19	1.1	13	12	.42
27	8.3	20	.45	15	16	.65	11	11	.33
28	7.7	20	.42	12	15	.49	9.5	10	.26
29	7.6	17	.35	--	--	--	9.0	9	.22
30	7.6	14	.29	--	--	--	8.5	9	.21
31	8.0	12	.26	--	--	--	8.0	9	.19
TOTAL	236.0	--	10.12	293.9	--	13.20	290.8	--	10.17

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	7.5	9	.18	6.5	9	.16	3.0	13	.11
2	7.5	9	.18	6.0	10	.16	4.1	13	.14
3	7.5	9	.18	5.5	11	.16	32	16	1.4
4	7.5	9	.18	5.0	12	.16	20	15	.81
5	7.5	9	.18	5.0	14	.19	12	15	.49
6	8.0	10	.22	4.5	12	.15	7.9	16	.34
7	9.0	11	.27	4.5	10	.12	5.8	16	.25
8	8.0	12	.26	4.5	8	.10	5.2	15	.21
9	7.5	10	.20	6.9	12	.22	7.2	13	.23
10	7.0	8	.15	8.0	14	.30	6.1	14	.25
11	7.0	7	.13	6.0	12	.19	5.3	15	.21
12	7.0	7	.13	5.0	12	.16	4.8	16	.21
13	7.0	6	.11	4.5	12	.15	4.3	17	.20
14	7.0	6	.11	4.3	11	.13	4.0	18	.19
15	7.0	6	.11	4.0	13	.14	3.5	19	.18
16	7.0	5	.09	3.8	15	.15	3.0	19	.15
17	7.5	5	.10	3.7	17	.17	3.0	19	.15
18	8.0	6	.13	3.6	14	.14	3.5	18	.17
19	8.4	6	.14	3.5	11	.10	24	13	.84
20	9.2	7	.17	6.4	16	.28	15	13	.53
21	9.0	7	.17	16	28	1.2	9.6	14	.36
22	8.5	7	.16	11	17	.50	7.1	15	.29
23	8.5	7	.16	8.2	12	.27	5.9	15	.24
24	8.0	8	.17	6.5	11	.19	5.4	16	.23
25	7.5	9	.18	5.0	11	.15	4.6	17	.21
26	7.0	11	.21	5.0	11	.15	4.0	18	.19
27	7.0	10	.19	4.5	12	.15	3.5	19	.18
28	6.5	9	.16	4.0	13	.14	3.0	20	.16
29	6.5	8	.14	3.5	14	.13	3.0	21	.17
30	6.5	9	.16	3.2	14	.12	2.5	22	.15
31	--	--	--	3.0	13	.11	--	--	--
TOTAL	227.1	--	4.92	171.1	--	6.44	222.3	--	9.24
DAY	JULY			AUGUST			SEPTEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	LOAD (TONS)
1	2.5	23	.16	7.2	18	.35	11	26	.77
2	2.5	24	.16	12	20	.73	10	32	.86
3	2.5	25	.17	62	85	14	10	38	1.0
4	2.2	26	.15	50	56	7.6	18	44	2.1
5	2.0	27	.15	32	48	4.1	19	40	2.1
6	2.0	28	.15	18	45	2.2	18	31	1.5
7	2.5	29	.20	11	43	1.3	17	26	1.2
8	3.0	30	.24	8.1	41	.90	17	24	1.1
9	3.0	32	.26	8.0	39	.84	17	22	1.0
10	2.5	34	.23	69	86	16	17	21	.96
11	2.5	36	.24	55	69	10	17	20	.92
12	2.0	38	.21	34	58	5.3	16	20	.86
13	2.5	40	.27	14	61	2.3	16	20	.86
14	3.0	41	.33	7.6	55	1.1	15	19	.77
15	2.5	42	.28	7.6	49	1.0	15	16	.65
16	2.0	44	.24	7.6	43	.88	15	14	.57
17	1.5	46	.19	7.4	37	.74	14	12	.45
18	1.5	48	.19	9.5	30	.77	13	14	.49
19	1.5	50	.20	11	24	.71	13	16	.56
20	2.0	52	.28	15	27	1.1	12	17	.55
21	3.0	54	.44	16	28	1.2	12	17	.55
22	5.0	56	.76	15	26	1.1	12	17	.55
23	31	46	3.9	15	25	1.0	11	17	.50
24	16	35	1.5	14	24	.91	11	17	.50
25	10	29	.78	14	23	.87	10	32	.86
26	7.8	25	.53	13	21	.74	9.9	34	.91
27	6.8	21	.39	13	19	.67	9.7	26	.68
28	9.8	20	.53	12	18	.58	9.0	21	.51
29	15	20	.81	12	19	.62	8.5	18	.41
30	11	19	.56	11	20	.59	8.0	16	.35
31	8.5	19	.44	11	22	.65	--	--	--
TOTAL	169.6	--	14.94	552.0	--	80.85	401.1	--	25.09
TOTAL DISCHARGE FOR YEAR (CFS-DAYS)									3152.2
TOTAL LOAD FOR YEAR (TONS)									226.2



## POTOMAC RIVER BASIN

01650050 NORTHWEST BRANCH ANACOSTIA RIVER AT NORWOOD, MD.

LOCATION.--Lat 39°07'36", long 77°01'15", Montgomery County, at gaging station 20 ft downstream from bridge on Ednor Road, 0.2 mile downstream from tributary, 0.4 mile east of Norwood, 1.6 miles south of Sandy Spring, and at mile 19.

DRAINAGE AREA.--2.45 sq mi.

PERIOD OF RECORD.--Sediment records: March 1967 to September 1969 (partial-record station).

## SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
JUNE			
02...	1.4	101	7.5
03...	9.7	423	85
18...	4.6	408	39
19...	1.7	122	.97
JULY			
20...	4.6	280	36
21...	.60	16	.03
AUG.			
02...	27	288	181
03...	2.5	125	1.1
09...	8.0	115	44
10...	35	382	234
18...	14	250	34

## POTOMAC RIVER BASIN

77

01650085 NURSERY RUN AT CLOVERLY, MD.

LOCATION.--Lat 39°07'05", long 77°00'24", Montgomery County, at gaging station 300 ft upstream from culvert on Bryants Nursery Road, 350 ft upstream from mouth, 0.8 mile northwest of Cloverly, and 2.4 miles southeast of Sandy Spring.

DRAINAGE AREA.--0.35 sq mi.

PERIOD OF RECORD.--Sediment records: December 1966 to September 1968, October 1968 to September 1969 (partial-record station).

SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
JAN.			
21...	.94	56	.22
22...	.39	10	.01
MAY			
20...	.57	21	.06
21...	.48	11	.02
JUNE			
02...	.19	11	.02
03...	.72	43	.23
18...	1.5	428	21
19...	.42	60	.14
JULY			
20...	1.2	259	7.8
21...	.19	28	.01
22...	1.0	126	1.9
23...	.30	21	.01
28...	.77	81	.26
29...	.34	16	.01
AUG.			
02...	3.7	413	32
03...	.85	65	.33
04...	.80	32	.11
09...	1.1	88	3.4
10...	2.3	124	4.5
18...	2.1	175	3.6
SEP.			
02...	.76	142	1.6
03...	.64	38	.12
04...	2.5	172	6.6

01650450 BEL PRE CREEK AT LAYHILL, MD.

LOCATION.--Lat 39°05'27", long 77°03'11", Montgomery County, at gaging station 130 ft upstream from bridge on Bel Pre Road, 0.5 mile west of Layhill, 1.2 miles upstream from Lutes Run, 1.8 miles southeast of Norbeck, and at mile 2.9.

DRAINAGE AREA.--1.69 sq mi.

PERIOD OF RECORD.--Sediment records: November 1962 to September 1969 (partial-record station).

SUSPENDED-SEDIMENT DISCHARGE FOR SELECTED DAYS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SUS- PENDE SEDIM- MENT (MG/L)	SUS- PENDE SEDIM- MENT DIS- CHARGE (T/DAY)
OCT.			
06...	.17	15	.03
07...	4.5	195	8.2
JAN.			
21...	9.8	334	14
22...	2.7	115	.91
MAY			
20...	10	927	122
21...	4.8	151	7.2
JUNE			
02...	7.0	391	75
03...	22	355	75
18...	5.7	644	62
19...	1.5	183	1.8
JULY			
20...	13	1550	435
21...	1.2	175	.87
22...	4.3	937	66
23...	1.7	442	3.1
AUG.			
09...	24	608	216
10...	34	404	112
SEP.			
02...	1.2	1050	16
03...	1.6	728	9.8
04...	9.3	2310	57

## POTOMAC RIVER BASIN

01650500 NORTHWEST BRANCH ANACOSTIA RIVER NEAR COLESVILLE, MD.

LOCATION.--Lat 39°03'55", long 77°01'48", Montgomery County, at gaging station 400 ft upstream from bridge on State Highway 183, 1.5 miles southwest of Colesville, 3 miles upstream from Burnt Mills, 10 miles upstream from Sligo Branch, and 12.5 miles upstream from mouth.

DRAINAGE AREA.--21.1 sq mi.

PERIOD OF RECORD.--Sediment records: October 1962 to September 1969.

EXTREMES, 1968-69.--Sediment concentrations: Maximum daily, 2,010 mg/l June 3; minimum daily, 1 mg/l October 18.

Sediment loads: Maximum daily, 1,380 tons June 3; minimum daily, .01 ton Oct. 1-2, 18.

EXTREMES, 1962-1969.--Sediment concentrations: Maximum daily, 4,340 mg/l Aug. 25, 1965; minimum daily, no flow on several days during August and September 1966.

Sediment loads: Maximum daily, 4,670 tons Mar. 5, 1965; minimum daily, no flow on several days during August and September 1966.

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	OCTOBER			NOVEMBER			DECEMBER		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	1.3	2	.01	4.8	3	.04	7.6	2	.04
2	1.3	2	.01	4.8	3	.04	17	200	9.2
3	1.8	10	.05	4.8	3	.04	10	20	.54
4	1.2	6	.02	5.0	2	.03	44	464	68
5	1.4	4	.02	5.5	2	.03	16	50	2.2
6	1.7	4	.02	5.5	2	.03	11	20	.59
7	28	433	70	11	170	9.5	9.7	15	.39
8	4.1	24	.27	16	274	14	8.8	10	.24
9	3.2	20	.17	6.8	30	.55	7.5	8	.16
10	3.2	15	.13	34	445	57	7.5	6	.12
11	3.8	10	.10	14	60	2.3	7.5	4	.08
12	3.5	8	.08	71	736	139	7.6	3	.06
13	3.2	6	.05	32	100	8.6	8.0	2	.04
14	3.2	5	.04	20	25	1.4	43	332	66
15	3.5	4	.04	13	15	.53	17	50	2.3
16	3.5	3	.03	10	10	.27	10	20	.54
17	3.8	2	.02	9.2	8	.20	9.7	15	.39
18	4.8	1	.01	51	517	90	9.2	15	.37
19	22	303	26	28	60	4.5	9.2	58	1.4
20	8.4	20	.45	12	20	.65	9.7	30	.79
21	5.1	15	.21	10	15	.40	8.8	20	.48
22	4.4	10	.12	9.2	10	.25	12	185	24
23	4.1	8	.09	8.4	8	.18	34	107	13
24	4.1	20	.22	8.4	10	.23	12	20	.65
25	18	318	23	10	8	.22	9.0	15	.36
26	6.2	15	.25	8.4	5	.11	8.5	10	.23
27	5.1	10	.14	8.0	4	.09	9.2	8	.20
28	6.8	80	1.5	8.4	3	.07	12	10	.32
29	7.2	20	.39	8.4	3	.07	11	5	.15
30	5.1	10	.14	7.6	2	.04	8.8	4	.10
31	4.8	5	.06	--	--	--	8.5	3	.07
TOTAL	177.8	--	123.64	445.2	--	330.37	403.8	--	193.01

01650500 NORTHWEST BRANCH ANACOSTIA RIVER NEAR COLESVILLE, MD,--Continued

## DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DAY	JANUARY			FEBRUARY			MARCH		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	7.0	3	.06	22	100	5.9	14	5	.19
2	6.8	3	.06	16	20	.86	16	5	.22
3	6.5	3	.05	16	15	.65	18	4	.19
4	6.5	3	.05	12	22	.71	20	4	.22
5	6.5	2	.04	11	20	.59	18	4	.19
6	6.5	2	.04	11	15	.45	15	4	.16
7	6.5	2	.04	11	10	.30	26	50	3.5
8	6.5	2	.04	10	10	.27	22	15	.89
9	6.5	2	.04	14	10	.38	20	10	.54
10	6.2	2	.03	9.5	20	.51	16	7	.30
11	6.2	3	.05	11	35	1.0	13	6	.21
12	6.0	3	.05	11	35	1.0	11	6	.18
13	6.0	4	.06	9.5	40	1.0	12	6	.19
14	6.0	4	.06	8.5	25	.57	11	5	.15
15	6.0	5	.08	8.0	15	.32	11	5	.15
16	6.0	5	.08	8.0	10	.22	11	5	.15
17	6.8	5	.09	9.0	6	.15	11	5	.15
18	11	10	.30	9.2	4	.10	11	5	.15
19	18	10	.49	9.2	3	.07	11	6	.18
20	11	5	.15	11	2	.06	11	6	.18
21	67	888	190	11	2	.06	11	6	.18
22	31	50	4.2	11	2	.06	10	7	.19
23	18	20	.97	56	496	127	9.7	7	.18
24	17	15	.69	66	450	87	15	100	4.0
25	14	10	.38	33	40	3.6	37	200	20
26	11	8	.24	20	10	.54	18	15	.73
27	9.5	6	.15	16	8	.35	13	12	.42
28	9.2	5	.12	14	6	.23	12	10	.32
29	11	5	.15	--	--	--	12	8	.26
30	12	10	.32	--	--	--	11	7	.21
31	14	29	1.1	--	--	--	11	7	.21
TOTAL	362.2	--	200.18	453.9	--	233.95	457.7	--	34.79
DAY	APRIL			MAY			JUNE		
	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS)
1	11	6	.18	8.8	8	.19	4.1	14	.15
2	11	6	.18	8.0	8	.17	8.4	46	3.2
3	11	5	.15	8.4	8	.18	94	2010	1380
4	10	5	.14	8.0	8	.17	9.7	60	1.6
5	12	10	.32	7.6	8	.16	7.2	30	.58
6	14	10	.38	6.8	8	.15	6.2	20	.33
7	11	6	.18	6.5	8	.14	5.8	15	.23
8	10	4	.11	7.2	8	.16	17	1120	154
9	10	4	.11	22	377	43	8.8	100	2.4
10	11	10	.30	9.7	30	.79	6.8	50	.92
11	13	10	.35	8.0	20	.43	6.5	25	.44
12	10	8	.22	6.8	15	.28	5.8	20	.31
13	9.2	6	.15	6.8	12	.22	5.1	17	.23
14	9.2	5	.12	6.5	10	.18	5.1	15	.21
15	9.7	4	.10	7.2	9	.17	8.0	100	2.2
16	13	12	.42	6.5	9	.16	6.5	24	.42
17	12	8	.26	6.5	8	.14	4.8	15	.19
18	12	6	.19	5.8	8	.13	32	914	572
19	16	20	.86	8.0	8	.17	45	1850	467
20	12	12	.39	25	702	357	8.8	150	3.6
21	11	9	.27	40	1250	389	6.5	80	1.4
22	18	25	1.2	9.2	60	1.5	6.2	40	.67
23	14	12	.45	8.0	30	.65	5.8	30	.47
24	12	11	.36	7.2	25	.49	5.1	25	.34
25	10	10	.27	7.2	20	.39	4.4	20	.24
26	9.7	9	.24	6.5	16	.28	4.1	18	.20
27	9.2	8	.20	5.8	15	.23	3.0	16	.13
28	8.8	8	.19	5.4	15	.22	3.2	15	.13
29	9.2	8	.20	5.1	15	.21	2.4	15	.10
30	8.8	8	.19	4.8	14	.18	2.0	15	.08
31	--	--	--	4.1	14	.15	--	--	--
TOTAL	337.8	--	8.68	283.4	--	797.29	338.3	--	2593.77

DAILY SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

[illegible]

01661000 CHAPTICO CREEK AT CHAPTICO, MD.

LOCATION.--Lat 38°22'45", long 76°46'56", St. Marys County, at gaging station 0.8 mile north of Chaptico, and 0.8 mile upstream from Chaptico Bay.

DRAINAGE AREA.--10.7 sq mi.

PERIOD OF RECORD.--Chemical analyses: December 1965 to September 1969.

## CHEMICAL ANALYSIS, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
OCT.										
17...	1.1	11	690	60	9.0	2.5	3.4	2.9	36	0
DEC.										
02...	8.9	12	810	30	9.2	2.2	3.1	1.8	26	0
JAN.										
15...	3.1	11	480	70	9.3	2.3	3.1	1.3	24	0
FEB.										
13...	5.9	10	490	150	8.7	2.4	3.1	1.3	20	0
MAR.										
25...	36	8.0	1500	210	8.1	1.9	2.9	1.6	12	0
MAY										
08...	3.6	9.2	--	--	10	2.6	3.2	1.5	30	0
JUNE										
20...	1.6	10	1100	80	8.4	2.2	3.1	1.7	27	0
AUG.										
06...	9.3	13	1600	230	9.4	2.3	3.0	1.8	24	0
SEP.										
17...	.63	12	1100	80	9.9	2.7	3.4	1.9	35	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT.										
17...	5.6	6.7	.2	.3	60	33	4	93	7.3	7
DEC.										
02...	10	6.5	.1	.9	59	32	11	94	7.4	15
JAN.										
15...	10	6.0	.1	2.0	57	33	13	93	7.2	5
FEB.										
13...	13	6.0	.1	2.2	57	32	15	92	7.1	5
MAR.										
25...	13	6.2	.1	2.9	51	28	18	79	6.5	30
MAY										
08...	8.0	5.8	.1	.8	56	36	11	88	7.0	5
JUNE										
20...	7.4	5.8	.1	1.1	53	30	8	89	7.2	20
AUG.										
06...	13	5.9	.2	1.1	62	33	14	93	6.7	45
SEP.										
17...	6.9	6.2	.2	.7	61	36	7	101	7.3	5

## MISCELLANEOUS ANALYSES OF STREAMS IN NORTH ATLANTIC SLOPE BASINS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)
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## POTOMAC RIVER BASIN

0159872Q - SAND SPRING RUN AT FROSTBURG MD (LAT 39 39 30 LONG 078 56 24)

MAY, 1969

06... 1.5 13 2.8 8 0 30 38

JUNE

06... 1.5 13 2.8 8 0 30 38

0159874Q - GEORGES CREEK AT BORDEN SHAFT MD (LAT 39 37 37 LONG 078 56 22)

JUNE, 1969

06... 1.5 19 3.7 19 0 39 40

0159876Q - STAUB RUN AT CARLOS MD (LAT 39 37 30 LONG 078 57 58)

JUNE, 1969

06... 1.0 3.6 1.2 9 0 6.5 .8

0159877Q - GEORGES CREEK AT OCEAN MD (LAT 39 36 11 LONG 078 56 55)

JUNE, 1969

05... 2.1 16 4.2 15 0 41 24

0159878Q - MATTHEW RUN AT MILLER MD (LAT 39 36 01 LONG 078 55 32)

JUNE, 1969

05... 1.3 5.4 1.6 14 0 8.6 1.0

0159894Q - GEORGES CREEK AT RT 36 BARTON MD (LAT 39 31 57 LONG 079 00 58)

JUNE, 1969

05... 20 60 20 26 0 187 7.6

0160140Q - HOFFMAN TUNNEL NEAR CLARYSVILLE MD (LAT 39 38 18 LONG 078 53 38)

MAY, 1969

05... 16 115 42 38 0 400 6.9

13... 12 119 42 38 0 410 6.9

DATE	NITRATE (NO <sub>3</sub> ) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
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0159872Q - SAND SPRING RUN AT FROSTBURG MD (LAT 39 39 30 LONG 078 56 24)

MAY, 1969

06... .7 44 38 221 6.7 .00

JUNE

06... .7 44 38 221 6.7 .00

0159874Q - GEORGES CREEK AT BORDEN SHAFT MD (LAT 39 37 37 LONG 078 56 22)

JUNE, 1969

06... 3.0 63 47 254 7.3 .00

0159876Q - STAUB RUN AT CARLOS MD (LAT 39 37 30 LONG 078 57 58)

JUNE, 1969

06... .3 14 7 46 6.9 .00

0159877Q - GEORGES CREEK AT OCEAN MD (LAT 39 36 11 LONG 078 56 55)

JUNE, 1969

05... 1.4 58 45 212 6.9 .00

0159878Q - MATTHEW RUN AT MILLER MD (LAT 39 36 01 LONG 078 55 32)

JUNE, 1969

05... .5 20 9 49 7.1 .00

0159894Q - GEORGES CREEK AT RT 36 BARTON MD (LAT 39 31 57 LONG 079 00 58)

JUNE, 1969

05... 1.0 232 211 472 7.2 .00

0160140Q - HOFFMAN TUNNEL NEAR CLARYSVILLE MD (LAT 39 38 18 LONG 078 53 38)

MAY, 1969

05... .2 460 429 816 6.0 .00

13... .2 470 439 838 5.9 .00

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO2) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)
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## POTOMAC RIVER BASIN

01637600 - LITTLE CATOCTIN CREEK AT HARMONY MD (LAT 39 28 55 LONG 077 32 20)

DEC., 1968										
19...	2.6	16	--	--	12	4.9	3.8	2.4	32	0

01639000 - MONOCACY RIVER AT BRIDGEPORT MD (LAT 39 40 43 LONG 077 14 06)

NOV., 1968										
01...	8.4	6.1	260	60	30	8.1	11	4.9	92	0

01641500 - FISHING CREEK NEAR LEWISTON MD (LAT 39 31 35 LONG 077 28 00)

NOV., 1968										
01...	1.4	5.9	80	0	1.0	.4	.6	.7	3	0

01642500 - LINGANORE CREEK NEAR FREDERICK MD (LAT 39 24 55 LONG 077 20 00)

NOV., 1968										
04...	19	4.3	140	20	19	4.5	2.8	2.2	66	0

01647720 - N B ROCK C NR NORBECK MD (LAT 39 07 05 LONG 077 00 24)

OCT., 1968										
16...	1.6	14	380	80	7.5	3.4	4.5	2.3	40	0

01647740 - NORTH BRANCH ROCK CREEK NEAR ROCKVILLE, MD. (LAT 39 06 09 LONG 077 07 12)

OCT., 1968										
16...	2.0	7.8	1400	1300	12	4.7	6.0	2.6	50	0

DATE	SULFATE (SO4) (MG/L)	CHLOR- IDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTITU- ENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH	COLOR (PLAT- INUM- COBALT UNITS)
------	----------------------------	---------------------------------	--	----------------------------	---	-------------------------------------	---	---	----	--

01637000 - LITTLE CATOCTIN CREEK AT HARMONY MD (LAT 39 28 55 LONG 077 32 20)

DEC., 1968										
19...	16	8.9	.1	8.6	89	50	24	137	7.6	10

01639000 - MONOCACY RIVER AT BRIDGEPORT MD (LAT 39 40 43 LONG 077 14 06)

NOV., 1968										
01...	35	15	.1	.8	156	109	33	270	8.0	20

01641500 - FISHING CREEK NEAR LEWISTON MD (LAT 39 31 35 LONG 077 28 00)

NOV., 1968										
01...	2.1	1.2	.1	.2	16	4	0	15	6.6	2

01642500 - LINGANORE CREEK NEAR FREDERICK MD (LAT 39 24 55 LONG 077 20 00)

NOV., 1968										
04...	7.0	5.4	.2	5.9	83	66	12	145	7.4	3

01647720 - N B ROCK C NR NORBECK MD (LAT 39 07 05 LONG 077 00 24)

OCT., 1968										
16...	4.3	5.9	.1	.9	63	33	0	96	7.4	5

01647740 - NORTH BRANCH ROCK CREEK NEAR ROCKVILLE, MD. (LAT 39 06 09 LONG 077 07 12)

OCT., 1968										
16...	13	8.2	.2	1.4	84	50	9	140	8.1	7



## 03076500 YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD.

LOCATION.--Lat 39°39'13", long 79°24'31", Garrett County, temperature recorder at gaging station on left bank 0.7 mile upstream from bridge on State Highway 42 at Friendsville, and 1½ miles upstream from Bear Creek.

DRAINAGE AREA.--295 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1962 to September 1969.

EXTREMES, 1968-69.--Water temperatures: Maximum 29.5°C June 27, 28; minimum, freezing point on many days during winter months.

EXTREMES, 1962-69.--Water temperatures: Maximum 29.5°C June 27, 28, 1969; minimum, freezing point on many days during winter months.

REMARKS.--Records fair, probably because of friction in recorder.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969  
(Continuous ethyl alcohol actuated thermograph)

OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	23.5	14.5	10.5	9.0	4.5	3.5	1.0	0	5.5	4.5	3.0	3.0
2	18.5	15.5	13.0	11.0	5.5	3.5	0	0	5.0	5.0	3.0	3.0
3	17.5	16.5	11.5	11.0	5.5	5.5	0	0	5.0	4.0	3.0	1.5
4	16.5	13.0	12.0	10.0	5.5	5.0	0	0	4.0	2.0	3.0	1.5
5	13.5	11.0	12.0	10.5	5.0	3.5	0	0	2.0	1.5	3.0	1.5
6	12.0	9.5	11.0	11.0	3.5	1.5	0	0	3.5	1.5	3.0	3.0
7	12.0	11.0	11.0	11.0	2.0	1.0	0	0	3.5	3.0	3.0	3.0
8	14.5	11.5	11.0	9.0	1.0	1.0	0	0	3.5	3.5	3.0	3.0
9	15.0	12.0	9.0	7.0	1.0	1.0	0	0	3.5	2.0	3.0	3.0
10	14.5	13.5	7.0	6.5	1.0	1.0	0	0	2.0	1.5	3.0	1.5
11	16.5	14.0	6.5	5.5	1.0	1.0	0.5	0	3.0	1.5	2.0	1.0
12	16.5	15.0	6.5	3.5	1.5	1.0	0.5	0.5	2.0	1.5	1.0	1.0
13	16.5	14.5	4.5	3.5	2.0	1.5	0.5	0.5	1.5	1.5	3.0	1.0
14	17.0	15.0	5.5	3.0	2.0	1.0	0.5	0.5	2.0	1.5	2.0	1.5
15	17.5	15.0	7.0	5.0	1.0	1.0	0.5	0.5	2.0	2.0	3.0	1.5
16	17.5	15.0	6.5	6.0	1.0	1.0	0.5	0.5	2.0	2.0	4.0	1.0
17	19.5	16.0	8.5	6.5	1.0	1.0	0.5	0.5	2.0	2.0	4.5	3.0
18	18.5	16.5	9.0	8.0	1.0	1.0	1.5	0.5	3.5	2.0	4.5	3.5
19	17.5	16.0	8.0	5.5	1.5	1.0	1.0	0.5	3.5	2.0	5.5	3.5
20	16.0	13.5	5.5	4.5	1.5	1.0	1.0	0.5	3.0	2.0	6.5	5.0
21	14.0	12.0	4.5	3.5	1.0	1.0	1.5	1.0	5.0	3.0	6.0	5.5
22	13.5	11.5	5.5	4.5	1.5	1.0	2.0	1.5	4.5	3.5	6.0	5.0
23	14.0	13.0	5.0	4.5	2.0	1.5	4.0	2.0	4.0	3.5	7.0	5.0
24	13.5	12.0	5.5	5.0	2.0	0	5.0	4.0	3.5	3.5	6.5	6.0
25	12.0	11.0	5.5	5.0	0	0	4.0	2.0	3.5	3.5	6.0	5.5
26	11.0	9.5	5.5	4.5	0	0	2.0	1.0	3.5	2.0	5.5	5.0
27	10.0	8.5	5.5	5.5	1.5	0	1.0	1.0	3.0	2.0	5.0	4.0
28	10.0	9.0	8.0	5.5	3.0	1.5	1.5	1.0	3.0	2.0	5.5	3.5
29	9.5	8.5	8.0	6.0	3.0	1.0	3.0	1.5	---	---	5.0	5.0
30	9.5	8.5	6.0	4.5	1.0	0.5	4.5	3.0	---	---	5.0	4.0
31	9.0	7.0	---	---	1.5	1.0	5.0	4.5	---	---	4.0	3.0
AVG	14.5	12.5	8.0	6.5	2.0	1.5	1.5	1.0	3.5	2.5	4.0	3.0
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	3.5	12.0	8.5	24.5	19.0	28.5	21.5	23.5	20.5	25.5	20.5
2	7.0	5.0	14.0	10.0	24.5	21.0	25.5	19.5	25.0	21.5	24.5	20.5
3	8.0	6.0	15.5	12.0	21.0	17.0	24.5	21.0	23.5	21.5	22.0	20.0
4	9.5	6.0	16.5	14.5	20.0	15.0	25.5	21.0	22.0	20.5	22.0	20.5
5	10.0	9.5	17.5	15.0	19.5	16.0	25.0	23.0	22.0	19.5	23.0	20.5
6	10.0	8.5	18.5	15.5	23.0	17.5	25.5	21.5	23.0	19.5	22.0	20.5
7	9.5	8.0	19.5	16.5	22.0	19.5	24.0	22.0	23.0	19.5	23.0	21.0
8	10.5	8.0	19.0	17.5	22.0	19.5	22.0	21.0	23.5	20.0	22.0	20.0
9	12.0	8.5	17.5	14.5	21.5	19.5	21.0	20.5	21.5	20.0	20.0	18.5
10	13.0	10.0	14.5	12.0	20.0	17.5	21.0	20.5	20.5	19.5	18.5	16.5
11	11.5	9.5	13.0	10.5	22.0	17.0	24.5	20.5	20.0	18.5	17.5	15.0
12	11.5	8.5	11.5	10.0	24.5	19.5	25.5	23.0	20.0	17.5	17.5	15.5
13	13.0	9.5	13.0	10.0	23.5	19.0	24.5	21.0	21.5	17.5	19.5	16.0
14	13.0	10.5	13.5	11.5	25.0	20.0	26.0	22.0	22.0	18.5	20.0	16.0
15	12.0	10.0	15.5	10.5	23.0	21.0	27.0	22.0	22.0	19.5	20.0	16.5
16	13.5	10.5	16.5	14.0	21.5	19.5	28.5	23.0	21.5	20.0	21.0	17.5
17	15.0	10.0	16.5	15.5	21.0	17.5	26.0	21.0	23.0	20.5	21.0	18.5
18	14.5	12.0	16.5	16.0	21.0	17.5	26.5	21.0	23.0	20.0	21.0	18.5
19	14.0	11.5	19.0	16.5	23.5	19.5	22.0	20.0	20.0	19.0	19.0	16.0
20	12.0	10.0	19.0	17.5	25.0	20.5	24.5	21.0	20.0	19.0	17.0	16.0
21	12.0	10.0	19.5	17.5	24.0	21.0	25.0	23.5	19.5	17.5	17.5	14.5
22	12.0	10.0	19.0	17.5	23.5	19.0	24.5	23.0	20.0	16.5	18.5	16.0
23	10.5	8.5	19.0	17.5	23.5	21.0	23.5	21.0	20.0	17.0	19.0	16.5
24	8.5	8.0	17.5	17.5	25.5	21.5	23.5	22.0	21.0	19.0	19.0	17.5
25	10.0	6.5	19.5	17.0	25.5	22.0	24.5	21.5	22.0	20.0	19.0	17.5
26	12.0	8.5	20.5	17.5	29.0	23.0	25.5	22.0	21.0	19.0	19.0	16.5
27	14.5	10.0	20.0	16.0	29.5	24.0	27.0	23.0	21.0	18.5	18.5	16.5
28	14.5	12.0	20.5	16.0	29.5	25.5	25.0	23.5	20.5	17.5	17.5	16.5
29	13.5	10.5	23.0	19.0	28.5	23.5	24.0	21.0	22.0	18.5	17.0	14.0
30	10.5	10.0	21.5	17.5	29.0	23.0	23.5	20.5	22.0	19.0	17.0	14.5
31	---	---	23.5	17.5	---	---	24.5	19.0	24.5	20.0	---	---
AVG	11.5	9.0	17.5	15.0	24.0	20.0	25.0	21.5	21.5	19.0	20.0	17.5

## 03078000 CASSELMAN RIVER AT GRANTSVILLE, MD.

LOCATION.--Lat 39°42'08", long 79°08'12", Garrett County, at gaging station 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.

DRAINAGE AREA.--62.5 sq mi.

PERIOD OF RECORD.--Chemical analyses: August 1965 to September 1969.

## CHEMICAL ANALYSES, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969

DATE	DIS- CHARGE (CFS)	SILICA (SiO <sub>2</sub> ) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO <sub>3</sub> ) (MG/L)	CAR- BONATE (CO <sub>3</sub> ) (MG/L)
OCT. 07...	9.2	3.2	--	--	29	8.4	13	2.8	41	0
DEC. 11...	85	4.8	160	200	11	3.2	5.1	1.0	6	0
JAN. 20...	314	3.7	190	200	8.6	2.3	4.1	1.0	4	0
30...	280	3.6	810	330	8.9	2.2	6.2	1.4	4	0
APR. 09...	137	3.7	--	--	11	2.8	4.5	1.0	7	0
JUNE 06...	9.8	2.8	640	250	13	3.9	8.2	1.8	20	0
JULY 07...	30	4.7	430	210	15	3.8	9.8	1.6	19	0
AUG. 15...	24	4.0	--	--	16	4.2	6.5	1.8	21	0

DATE	SULFATE (SO <sub>4</sub> ) (MG/L)	CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	NITRATE (NO <sub>3</sub> ) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	HARD- NESS (CA, MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPECI- FIC COND- UCTANCE (MICRO- MHOS)	PH (UNITS)	COLOR (PLAT- INUM- COBALT UNITS)
OCT. 07...	67	23	.2	5.0	172	107	74	301	7.4	2
DEC. 11...	27	14	.1	2.4	72	41	36	127	6.5	5
JAN. 20...	22	9.4	.1	2.6	56	31	28	88	6.3	2
30...	21	14	.1	2.7	62	31	28	110	6.6	5
APR. 09...	20	15	.1	1.9	63	39	34	100	6.7	2
JUNE 06...	30	16	.1	.9	87	49	32	169	6.7	0
JULY 07...	31	20	.1	1.2	96	53	38	179	6.5	0
AUG. 15...	34	15	.2	1.1	93	58	41	172	7.1	2

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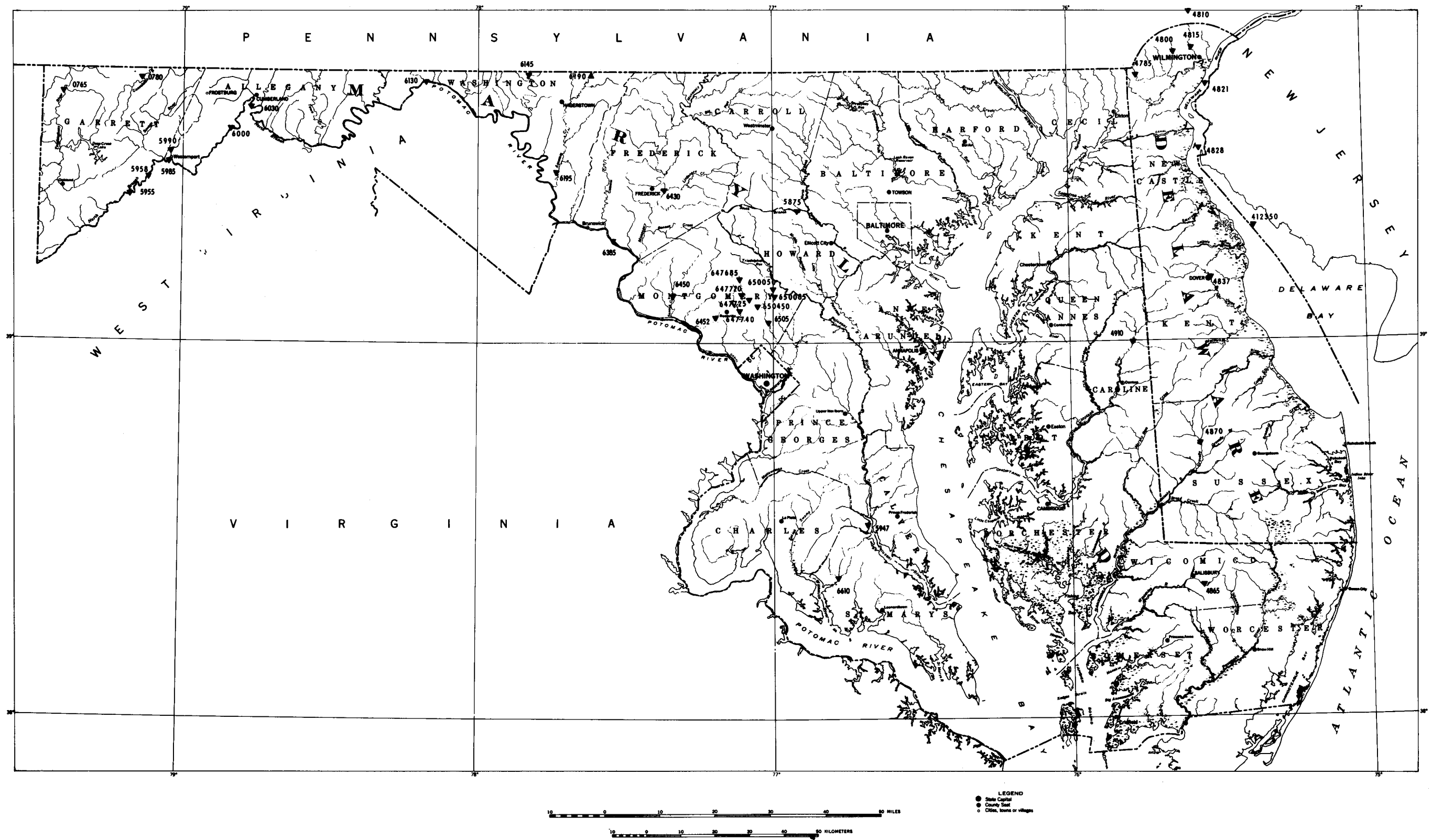


Plate 1. — Map showing location of quality of water stations.