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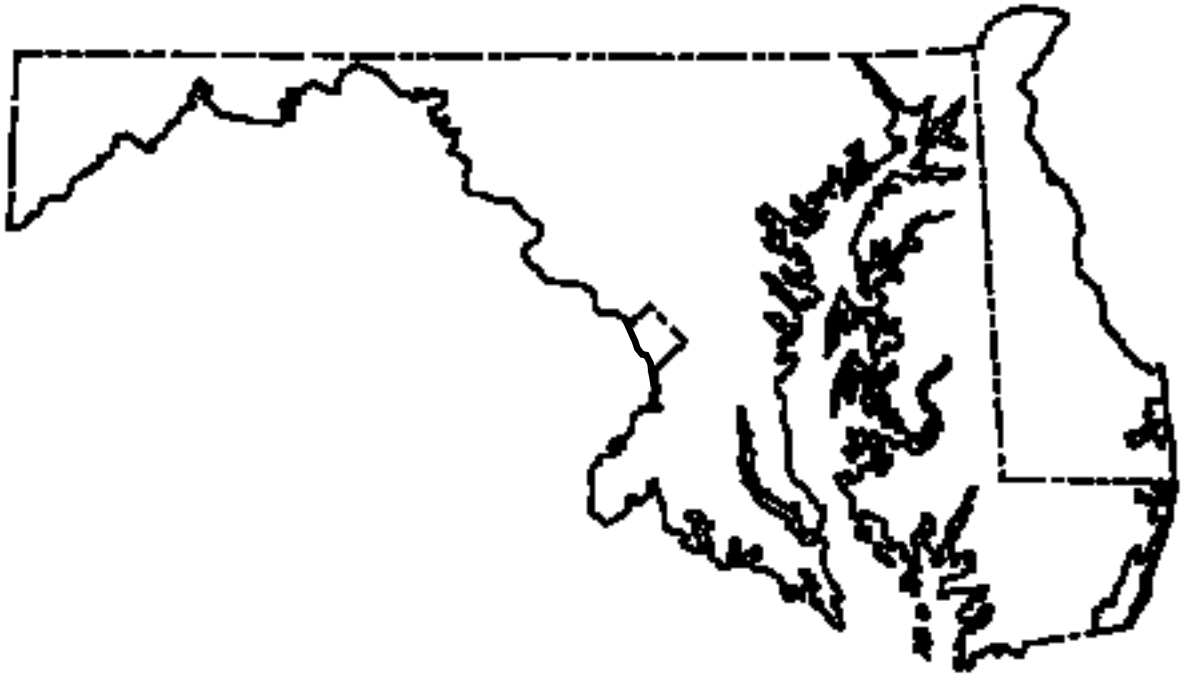
Water Resources Data Maryland, Delaware, and Washington, D.C. Water Year 2003

Volume 1.
Surface-Water Data



Water-Data Report MD-DE-DC-03-1

U.S. Department of the Interior
U.S. Geological Survey

CALENDAR FOR WATER YEAR 2003

2002

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2003

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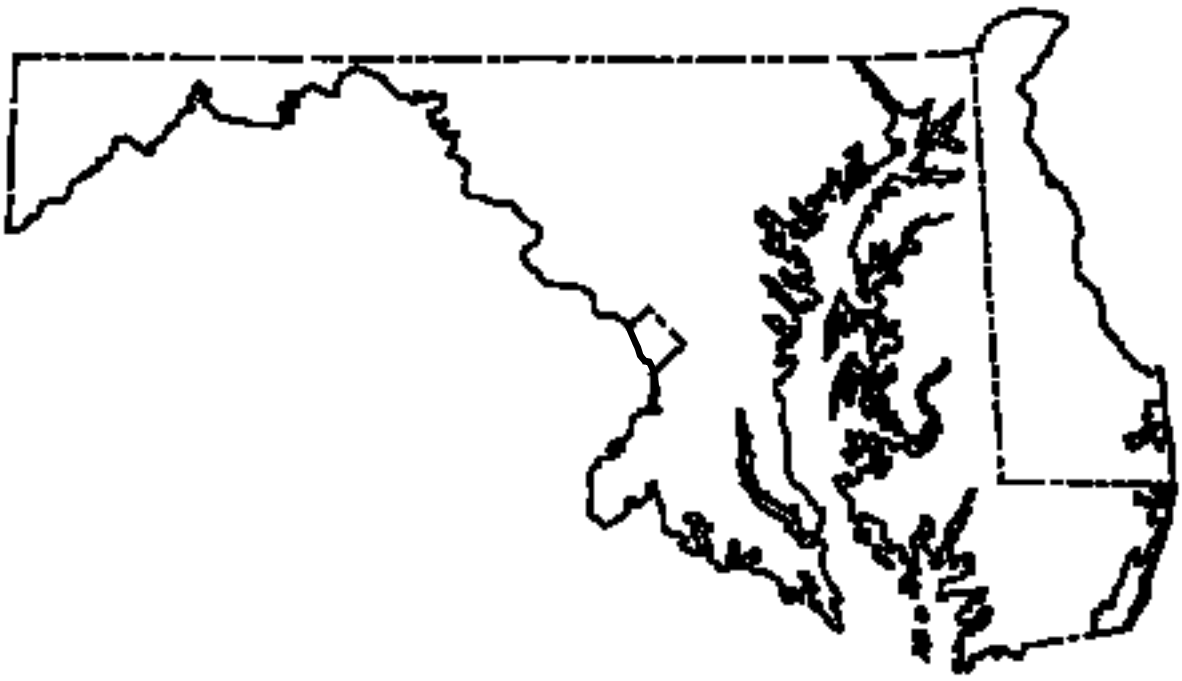
Water Resources Data
Maryland, Delaware, and Washington, D.C.
Water Year 2003

Volume 1. Surface-Water Data

By Robert W. James, Jr.,Richard W. Saffer, Robert H. Pentz, Anthony J. Tallman

Water-Data Report MD-DE-DC-03-1



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U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of the Interior
Gale A. Norton, Secretary

U.S. Geological Survey
Charles G. Groat, Director

2003

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PREFACE

This volume of the annual hydrologic data report for Maryland, Delaware, and Washington, D.C. is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Maryland, Delaware, and Washington, D.C. are contained in two volumes:

Volume 1. Surface-Water Data

Volume 2. Ground-Water Data

This report (Volume 1) is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Maryland Geological Survey, and Delaware Geological Survey, who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

S. M.	Baker	E. J. Doheny	B. F. Majedi
J. E.	Beman	J. B. Evans	J. J. Manning
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J. J. A.	Dillow	J. J. Kvech	A. J. Tallman
J. R.	Dine	W. C. Lewis	

This report was prepared under the general supervision of J. M. Gerhart, District Chief, MD-DE-DC District, and Cathrine A. Hill, Northeastern Regional Executive, and in cooperation with the States of Maryland and Delaware, Washington, D.C., and with other agencies.

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13. ABSTRACT *(Maximum 200 words)*

Water resources data for the 2003 water year for Maryland, Delaware, and Washington, D.C. consist of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs. This volume (Volume 1. Surface-Water Data) contains records for water discharge at 140 gaging stations; stage and contents of 1 reservoir; and water quality at 17 gaging stations. Also included are stage and discharge for 3 crest-stage partial-record stations and stage only for 10 tidal crest-stage partial-record stations. Additional water data were collected at various sites not involved in the systematic data-collection program and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, local, and Federal agencies in Maryland, Delaware, and Washington, D.C.

14. SUBJECT TERMS
*Maryland, *Delaware, *Washington, D.C., *District of Columbia, * Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses.

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CONTENTS

ILLUSTRATIONS

[Letters after station name designate type of data collected: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevation and contents]

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[Letters after station name designate type of data collected: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevation and contents]

The following continuous-record surface-water discharge (gaging stations) in Maryland, Delaware, and the District of Columbia have been discontinued. Daily streamflow records (discharge) were collected and published for the period of record, expressed in water years, shown for each station.

NORTH ATLANTIC SLOPE BASINS	Station number	Drainage area (mi^2)	Period of record
DELAWARE RIVER BASIN			
Delaware River:			
Christina River near Bear, DE	01478040	40.6	1977-82
White Clay Creek above Newark, DE	01478500	66.7	1952-59, 1962-80
Mill Creek at Mill Creek Road at Hockessin, DE	01479197	3.66	1990-95
Mill Creek at Stanton, DE	01479500	12.4	1931-33
Little Mill Creek near Newport, DE	01480095	5.24	1991-95, 1997-98
Little Mill Creek at Elsmere, DE	01480100	6.70	1964-80
Army Creek at State Road, DE	01482200	2.42	1978-81
Red Lion Creek near Red Lion, DE	01482298	3.08	1978-81
Wiggins Millpond Outlet (head of Appoquinimink River):			
Noxontown Lake Outlet:			
Drawyer Creek tributary near Odessa, MD	01483170	4.68	1978-80
LEIPSIC RIVER BASIN			
Leipsic River near Cheswold, DE	01483500	9.35	1931-33, 1943-57
ST. JONES RIVER BASIN			
Fork Branch (head of St. Jones River)			
Mudstone Branch at Chestnut Grove, DE	01483670	8.96	1993-94
MURDERKILL RIVER BASIN			
Murderkill River near Felton, DE	01484000	13.6	1931-34, 1960-85, 1997-99
BROADKILL RIVER BASIN			
Broadkill River:			
Sowbridge Branch (head of Primehook Creek) near Milton, DE	01484300	7.08	1957-78
INDIAN RIVER BASIN			
Cow Bridge Branch (head of Indian River):			
Swan Creek near Millsboro, DE	01484534	5.20	1998-2000
Vines Creek at Omar, DE	01484548	13.6	1985-88
Blackwater Creek near Clarkesville, DE	01484600	3.47	1998-2000
Bundicks Branch at Robinsville, DE	01484654	6.90	1998-2000
Munchy Branch near Rehoboth Beach, DE	01484668	0.52	1998-2000
NANTICOKE RIVER BASIN			
Nanticoke River:			
Broad Creek:			
Holly Ditch near Laurel, DE	01488000	2.19	1951-56
Marshyhope Creek near Adamsville, DE	01488500	43.9	1943-69, 1972-2002
Marshyhope Creek at Adamsville, DE	01488600	60.4	1969-71
Faulkner Branch at Federalsburg, MD	01489000	7.10	1950-92
Rewastico Creek near Hebron, MD	01489500	12.2	1950-56
TRANSQUAKING RIVER BASIN			
Transquaking River:			
Chicamacomico River near Salem, MD	01490000	15.0	1951-80
CHOPTANK RIVER BASIN			
Tappahanna Ditch (head of Choptank River):			
Tidy Island Creek (continuation of Tappahanna Ditch):			
Culbreth Marsh Ditch near Chapeltown, DE	01490500	11.6	1951-56
Choptank River:			
Kings Creek:			
Beaverdam Branch at Matthews, MD	01492000	5.85	1950-81
CHESTER RIVER BASIN			
Chester River:			
Southeast Creek at Church Hill, MD	01494000	12.5	1951-56
Chesterville Branch near Crumpton, MD	01493112	6.12	1996-2002
SASSAFRAS RIVER BASIN			
Sassafras River:			
Jacobs Creek near Sassafras, MD	01494500	5.39	1951-56

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
ELK RIVER BASIN			
Big Elk Creek (head of Elk River):			
Little Elk Creek at Childs, MD	01495500	26.8	1949-58
Long Creek near Chesapeake City, MD	01495800	4.36	1978-81
NORTHEAST RIVER BASIN			
Northeast Creek (head of Northeast River) at Leslie, MD	01496000	24.3	1949-84
PRINCIPIO CREEK BASIN			
Principio Creek near Principio Furnace, MD	01496200	9.03	1967-92
SUSQUEHANNA RIVER BASIN			
Susquehanna River:			
Broad Creek at Mill Green, MD	01578000	16.4	1905-09
Octoraro Creek near Rising Sun, MD	01578500	193	1932-58, 1969-77
Basin Run at Liberty Grove, MD	01579000	5.31	1949-58
Octoraro Creek at Rowlandsville, MD	01579500	210	1896-99
Deer Creek near Kalmia, MD	01580200	125	1967-77
Deer Creek near Churchville, MD	01580500	141	1905-09
BUSH RIVER BASIN			
Bynum Run near Bel Air, MD (head of Bush River)	01581000	7.7	1950-55
Church Creek:			
Cranberry Run at Aberdeen, MD	01581657	4.16	1988-89
Cranberry Run at Perryman, MD	01581658	5.22	1987-89
GUNPOWDER RIVER BASIN			
Gunpowder Falls (head of Gunpowder River):			
Western Run:			
Delaware Run:			
Slade Run near Glyndon, MD	01583000	2.09	1947-81
Gunpowder Falls near Carney, MD	01584000	314	1949-64
Little Gunpowder Falls near Bel Air, MD	01585000	43	1904-09
Bird River:			
Whitemarsh Run (head of Bird River):			
Honeygo Run at White Marsh, MD	01585105	2.65	1990-93
Windlass Run near White Marsh, MD	01585107	2.03	1992-93
BACK RIVER BASIN			
Herring Run (head of Back River):			
Stemmers Run (head of Northeast Creek) at Rossville, MD	01585300	4.46	1959-72, 1974-89
Brien Run at Stemmers Run, MD	01585400	1.97	1958-87
PATAPSCO RIVER BASIN			
North Branch Patapsco River near Reistertown, MD	01586500	91.0	1927-54
North Branch Patapsco River near Marriottsville, MD	01587000	165	1930-60
South Branch Patapsco River at Henryton, MD	01587500	64.4	1948-80
Piney Run near Sykesville, MD	01588000	11.4	1931-58
Patapsco River at Woodstock, MD	01588500	251	1896-1909
Gwynns Falls near Owings Mills, MD	01589200	4.90	1958-75
Jones Falls near mouth at Baltimore, MD	01589480	60.4	1981-82
Curtis Creek:			
Furnace Creek:			
Sawmill Creek at Crain Highway at Glen Burnie, MD	01589512	8.24	1984-85, 1990-94
Marley Creek at Harundale, MD	01589522	4.79	1984-85
SOUTH RIVER BASIN			
North River (head of South River) near Annapolis, MD	01590000	8.50	1932-74
Bacon Ridge Branch at Chesterfield, MD	01590500	6.92	1943-52, 1975-90
RHODE RIVER BASIN			
Rhode River:			
Muddy Creek:			
North Fork Muddy Creek at South River, MD	01590700	0.88	1972-76

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
PATUXENT RIVER BASIN			
Patuxent River:			
Cattail Creek near Cookesville, MD	01591350	8.37	1977-81
Cattail Creek at Roxbury Mills, MD	01591500	27.7	1944-56
Patuxent River near Burtonsville, MD	01592000	127	1911-45
Little Patuxent River:			
Middle Patuxent River near Simpsonville, MD	01593710	48.4	1987-95
Dorsey Run near Jessup, MD	01594400	11.6	1948-58
Western Branch near Largo, MD	01594500	30.2	1950-75
Cocktown Creek near Huntingtown, MD	01594600	3.85	1957-76
Hunting Creek near Huntingtown, MD	01594670	9.38	1989-98
Killpeck Creek at Huntersville, MD	01594710	3.26	1986-98
St. Leonard Creek near St. Leonard, MD	01594800	6.73	1957-68
POTOMAC RIVER BASIN			
North Branch Potomac River:			
South Fork Sand Run near Wilson, MD	01594934	1.55	1980-86
North Branch Potomac River at Kitzmiller, MD	01595500*	225	1950-85
North Branch Potomac River at Barnum, WV	01595800*	266	1966-85
North Branch Potomac River at Bloomington, MD	01596000	287	1925-27, 1929-50
Savage River:			
Crabtree Creek near Swanton, MD	01597000	16.7	1948-81
Savage River at Bloomington, MD	01598000	115	1906-07, 1925-27, 1929-50
North Branch Potomac River at Pinto, MD	01600000*	596	1939-85
Wills Creek below Hyndman, PA	01601000	146	1951-67
North Branch Potomac River at Cumberland, MD	01602500	873	1894-97
Evitts Creek near Centerville, PA	01603500	30.2	1932-82
Evitts Creek near Cumberland, MD	01604000	89.0	1929-32
Sawpit Run near Oldtown, MD	01609500	5.08	1948-58
Little Tonoloway Creek near Hancock, MD	01612500	16.9	1947-63
Antietam Creek near Waynesboro, PA	01619000	93.5	1948-51, 1966-81
Beaver Creek:			
Albert Powell Fish Hatchery Spring at Beaver Creek, MD	01619320		1987-98
Catoctin Creek:			
Little Catoctin Creek at Harmony, MD	01637000	8.83	1947-59, 1968
Catoctin Creek near Jefferson, MD	01638000	111	1928-31
Monocacy River:			
Piney Creek near Taneytown, MD	01639140	31.3	1990-2002
Toms Creek at Emmitsburg, MD	01639375	41.3	1986-90
Big Pipe Creek (head of Double Pipe Creek):			
Little Pipe Creek at Avondale, MD	01640000	8.10	1947-56
Owens Creek near Foxville, MD	01640456	1.01	1986-87
Owens Creek at Lantz, MD	01640500	5.93	1932-84
Hunting Creek near Foxville, MD	01640965	2.14	1982-94
Hunting Creek tributary near Foxville, MD	01640970	4.01	1982-91
Hunting Creek near Thurmont, MD	01640975	7.08	1982-86
Bear Branch near Thurmont, MD	01640980	0.38	1990-95
Hunting Creek at Jimtown, MD	01641000	18.4	1950-92
Fishing Creek near Lewistown, MD	01641500	7.29	1948-84
Fishing Creek Tributary near Lewistown, MD	01641510	0.40	1988-95
Monocacy River near Frederick, MD	01642000	665	1896-1930
Linganore Creek near Frederick, MD	01642500	82.3	1932, 1934-82
Bennett Creek:			
Bennett Creek tributary at Park Mills, MD	01643495	0.15	1992-93
Broad Run at Elmer, MD	01643615	14	(b) 1978-80
Seneca Creek:			
Great Seneca Creek near Gaithersburg, MD	01644500	41.0	1925-31
Watts Branch at Rockville, MD	01645200	3.70	1957-87
Little Falls Branch near Bethesda, MD	01646550	4.10	1944-59, 1962-79
Rock Creek:			
North Branch Rock Creek:			
Williamsburg Run near Olney, MD	01647685	2.25	1967-74
North Branch Rock Creek near Norbeck, MD	01647720	9.73	1967-77
Manor Run near Norbeck, MD	01647725	1.01	1967-74
North Branch Rock Creek near Rockville, MD	01647740	12.5	1967-77

***** Currently operated as a crest-stage partial-record station.
a Estimated daily discharges October 1953 to June 1964.
b Daily values data unpublished, available at Baltimore, MD office.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
POTOMAC RIVER BASIN--Continued			
Potomac River--Continued			
Rock Creek--Continued:			
Rock Creek near Beech Drive at Kensington, MD	01647970	46.7	**(b)** 2001
Rock Creek at Beech Drive near Kensington, MD	01647975	49.0	**(b)** 2001
Rock Creek at Cedar Lane near Kensington, MD	01647976	51.3	**(b)** 2001
Rock Creek at Q Street, Washington, DC	01649000	75.8	1892-94, 1929-33
Northeast Branch Anacostia River:			
Northwest Branch Anacostia River at Norwood, MD	01650050	2.45	1967-74
Browns Creek:			
Nursery Run at Cloverly, MD	01650085	0.35	1967-74
North Creek:			
Batchellors Run at Oakdale, MD	01650190	0.47	**(a)** 1967-70
Bel Pre Creek at Lay Hill, MD	01650450	1.69	1967-74
Lutes Run at Lutes, MD	01650470	0.47	**(a)** 1967-70
Anacostia River:			
Beaverdam Branch Anacostia River at Kenilworth Avenue, Washington, DC	01652000	14	1911-12
Henson Creek (head of Broad Creek) at Oxon Hill, MD	01653500	16.7	1948-78
Wicomico River:			
Chaptico Creek at Chaptico, MD	01661000	10.4	1947-72
OHIO RIVER BASIN			
MONONGAHELA RIVER BASIN			
Monongahela River:			
Youghiogheny River:			
South Branch Casselman River near Bittenger, MD	03077940	3.22	1976-81
Casselman River:			
Big Piney Run near Salisbury, PA	03078500	24.5	1932-70

a Daily values data unpublished, available at Baltimore, MD office.
b Daily values data unpublished, available at Baltimore, MD office.

The following crest-stage partial-record stations in Maryland and Delaware have been discontinued. Annual maximum discharge and gage-height data were collected and published for the period of record, expressed in water years, shown for each station.

NORTH ATLANTIC SLOPE BASINS	Station number	Drainage area (mi^2)	Period of record
DELAWARE RIVER BASIN			
Delaware River:			
Christina River near Bear, DE	01478040	40.6	1983-91
White Clay Creek:			
Pike Creek near Newark, DE	01478950	6.04	1969-75
Mill Creek at Hockessin, DE	01479200	**a**4.19	1966-75
West Branch Red Clay Creek:			
Red Clay Creek tributary near Yorklyn, DE	01479950	0.38	1966-75
Brandywine Creek:			
Brandywine Creek tributary near Centerville, DE	01481200	0.97	1966-75
Husbands Run:			
Willow Run at Rockland, DE	01481450	0.37	1966-75
Red Lion Creek:			
Doll Run at Red Lion, DE	01482310	**b**1.2	1966-75
SMYRNA RIVER BASIN			
Providence Creek (head of Smyrna River):			
Paw Paw Branch:			
Paw Paw Branch tributary near Clayton, DE	01483290	**b**1.3	1966-75
Smyrna River:			
Sawmill Branch:			
Sawmill Branch tributary near Blackbird, DE	01483400	**b**0.6	1966-75
LEIPSIC RIVER BASIN			
Leipsic River near Cheswold, DE	01483500	9.35	1958-75
ST. JONES RIVER BASIN			
St. Jones River:			
Puncheon Branch at Dover, DE	01483720	**b**2.3	1966-75
MURDERKILL RIVER BASIN			
Murderkill River:			
Murderkill River tributary near Felton, DE	01484002	**b**1.0	1966-75
Hudson Branch (head of Spring Creek):			
Pratt Branch near Felton, DE	01484050	3.29	1966-75
BROADKILL RIVER BASIN			
Broadkill River:			
Beaverdam Creek near Milton, DE	01484270	6.10	1966-75
INDIAN RIVER BASIN			
Indian River:			
Whartons Branch near Millsboro, DE	01484531	5.8	1986-88
Pepper Creek at Dagsboro, DE	01484550	8.78	1960-75
Blackwater Creek near Clarksville, DE	01484600	3.5	1986-88
WICOMICO RIVER BASIN			
Andrews Branch (head of Wicomico River) near Delmar, MD	01486100	**b**4.1	1966-76
NANTICOKE RIVER BASIN			
Nanticoke River:			
Bridgeville Branch:			
Bridgeville Branch tributary at Bridgeville, DE	01486900	**b**0.8	1966-68
Gum Branch:			
Toms Dam Branch near Greenwood, DE	01486980	**b**6.4	1966-75
James Branch (head of Broad Creek):			
Trap Pond Outlet (head of Hitch Pond Branch) near Laurel, DE	01487500	16.7	1972-73, 1975
Broad Creek:			
Little Creek:			
Meadow Branch near Delmar, DE	01487900	**b**3.9	1967-75
Holly Ditch near Laurel, DE	01488000	2.19	1959-75
CHOPTANK RIVER BASIN			
Tappahanna Ditch (head of Choptank River) near Hartly, DE	01490470	5.93	1961-73
Tidy Island Creek (continuation of Tappahanna Creek):			
Culbreth Marsh Ditch:			
Beachy Neidig Ditch near Willow Grove, DE	01490490	**b**2.3	1966-75
Culbreth Marsh Ditch (Shades Branch) near Chapeltown, DE	**c**01490500	11.6	1957-68
Cow Marsh:			
Meredith Branch near Sandtown, DE	01490600	**b**8.4	1966-75
Broadway Branch:			
Oldtown Branch at Goldsboro, MD	01490800	3.9	1967-76
Gravelly Branch:			
Sangston Prong near Whiteleysburg, DE	01491010	**b**1.9	1966-75
Spring Branch near Greensboro, MD	01491050	**b**3.8	1966-76
Hunting Creek:			
Gravel Run at Beulah, MD	01492050	8.4	1966-76

a 0.15 square miles is probably noncontributing.
b Approximately.
c Prior to 1956 published as "Shades Branch".

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
WYE RIVER BASIN			
Wye River:			
Wye East River:			
Sallie Harris Creek near Carmichael, MD	01492500	8.09	1957-81
Skipton Creek:			
Mill Creek near Skipton, MD	01492550	**b**4.6	1966-76
CHESTER RIVER BASIN			
Andover Branch (head of Chester River):			
Southeast Creek at Church Hill, MD	01494000	12.5	1957-65
Browns Branch:			
Browns Branch tributary near Church Hill, MD	01494020	**b**1.7	1971-78
NORTHEAST RIVER BASIN			
Northeast Creek (head of Northeast River):			
Northeast River tributary near Charlestown, MD	01496080	**b**1.7	1967-76
SUSQUEHANNA RIVER BASIN			
Susquehanna River:			
Broad Creek:			
Broad Creek tributary at Whiteford, MD	01577940	0.77	1971-86
Octoraro Creek:			
Basin Run at West Nottinhgam, MD	01578800	**b**1.3	1967-76
Basin Run at Liberty Grove, MD	01579000	5.31	1965-76
Bush River Basin			
Bynum Run (head of Bush River) at Bel Air, MD	01581500	8.52	1971-72
GUNPOWDER RIVER BASIN			
Gunpowder Falls (head of Gunpowder River):			
Piney Creek near Hereford, MD	01582510	**b**1.5	1966-79
Western Run:			
Western Run tributary at Western Run, MD	01583495	0.26	1966-76
Beaverdam Run:			
Baisman Run at Broadmoor, MD	01583580	1.47	1970-76
Little Gunpowder Falls at Laurel Brook, MD	01584500	36.1	1971-86
PATAPSCO RIVER BASIN			
North Branch Patapsco River:			
South Branch Patapsco River:			
Hay Meadow Branch:			
Hay Meadow Branch tributary at Poplar Springs, MD	01587050	0.54	1966-76
Piney Run near Sykesville, MD	01588000	11.4	1959-74
Patapsco River:			
Gwynns Falls at Owings Mills, MD	01589220	9.12	1958-65, 1967-68
Gwynns Falls at McDonough, MD	01589240	19.3	1958-68, 1971-84
Jones Falls at Brooklandville, MD	01589400	19.7	1958-65, 1968
PATUXENT RIVER BASIN			
Patuxent River:			
Little Patuxent River:			
Little Patuxent River tributary at Guilford Downs, MD	01593350	0.95	1966-76
Dorsey Run near Jessup, MD	01594400	11.6	1959-68
Mill Branch near Mitchellville, MD	01594445	**b**1.1	1967-76
POTOMAC RIVER BASIN			
North Branch Potomac River:			
Savage River near Frostburg, MD	01596005	**b**1.5	1971-86
Wills Creek below Hyndman, PA	01601000	146	1968-86
Potomac River:			
Town Creek:			
Sawpit Run near Oldtown, MD	01609500	5.08	1963-76
Fifteen Mile Creek:			
Pratt Hollow:			
Pratt Hollow tributary at Pratt, MD	01610105	0.70	1971-86
Sideling Hill Creek:			
Bear Creek at Forest Park, MD	01610150	10.4	1965-69, 1971-83
Little Tonoloway Creek near Hancock, MD	01612500	16.9	1964
Ditch Run near Hancock, MD	01613150	**b**4.8	1965-86
Potomac River tributary near Hancock, MD	01613160	**b**1.2	1965-76
Antietam Creek:			
Little Antietam Creek:			
Dog Creek:			
Dog Creek tributary near Locust Grove, MD	01619475	0.10	1966-76

b Approximately.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
POTOMAC RIVER BASIN --Continued			
Catoctin Creek:			
Little Catoctin Creek at Harmony, MD	01637000	8.8	1961-67, 1969-77
Hollow Road Creek (head of Cone Branch) near Middletown, MD	01637600	2.3	1965-74, 1977
Monocacy River:			
Piney Creek:			
Piney Creek tributary at Taneytown, MD	01639095	0.62	1967-76
Big Pipe Creek:			
Little Pipe Creek at Avondale, MD	01640000	8.10	1959-65, 1967-80
Owens Creek:			
Owens Creek tributary near Rocky Ridge, MD	01640700	**b**1.2	1967-77
Linganore Creek:			
Dollyhyde Creek at Libertytown, MD	01642400	**b**2.7	1969-76
Little Seneca Creek (head of Seneca Creek):			
Bucklodge Branch:			
Bucklodge Branch tributary near Barnesville, MD	01644420	0.27	1967-76
Little Falls Branch near Bethesda, MD	01646550	**b**4.1	1979-84
Northeast Branch Anacostia River:			
Northwest Branch Anacostia River at Norwood, MD	01650050	2.45	1975-76
Browns Creek:			
Nursery Run at Cloverly, MD	01650085	0.35	1975-76
North Creek:			
Batchellors Run at Oakdale, MD	01650190	0.47	1967-76
Mattawoman Creek near Pomonkey, MD	01658000	57.7	1973-86
Zekiah Swamp Run (head of Wicomico River):			
Wolf Den Branch near Cedarville, MD	01660900	**b**2.3	1966-80
Clark Run near Bel Alton, MD	01660930	10.4	1966-76
Herring Creek:			
Glebe Branch at Valley Lee, MD	01661430	**b**0.3	1968-78
OHIO RIVER BASIN			
MONONGAHELA RIVER BASIN			
Monongahela River:			
Youghiogheny River:			
Little Youghiogheny River:			
Little Youghiogheny River tributary near Deer Park, MD	03075450	0.57	1965-76
Toliver Run:			
Toliver Run tributary near Hoyes Run, MD	03075600	0.53	1965-86
Youghiogheny River tributary near Friendsville, MD	03076505	0.22	1965-76
North Branch Casselman River:			
North Branch Casselman River tributary at Foxtown, MD	03077700	**b**1.0	1965-77
Casselman River:			
Big Piney Run near Salisbury, PA	03078500	24.5	1974-86

b Approximately.

The following continuous-record surface-water-quality stations have been discontinued in Maryland and Delaware. Daily records of specific conductance (SC), water temperature (T), pH, dissolved oxygen (DO), and sediment (SED) were collected for the period (in water years) shown for each station.

NORTH ATLANTIC SLOPE BASINS	Station number	Drainage area (mi^2)	Type of record	Period of record
DELAWARE RIVER BASIN				
Delaware River:				
Christina River:				
White Clay Creek:				
Red Clay Creek at Wooddale, DE	01480000	47.0	T	1953-81
Brandywine Creek at Wilmington, DE	01481500	314	T	1957-61
				1971-73
				1975-80
			SED	1947-61
				1964-80
Delaware Bay near Lewes, DE	01484450		SC, T	1993-98
CHOPTANK RIVER BASIN				
Choptank River near Greensboro, MD	01491000	113	SC, T	1975-91
			SED	1981-91
ELK RIVER BASIN				
Elk River near Town Point, MD	01495900		SC, T	1982-98
SUSQUEHANNA RIVER BASIN				
Susquehanna River at Conowingo, MD	01578310	27,100	SC, T	1979-81
				1984-92
			SED	1980-81
				1984-92
RHODE RIVER BASIN				
Rhode River:				
Muddy Creek:				
North Fork Muddy Creek at South River, MD	01590710	0.89	T	1971-78
Rhode River near South River, MD	01590720	18.0	SC, pH, T, DO	1971-83
PATUXENT RIVER BASIN				
Patuxent River near Bowie, MD	01594440	348	SC, T	1978-80
				1986-91
			SED	1986-91
Patuxent River at Benedict, MD	01594700	742	T	1964-69
POTOMAC RIVER BASIN				
North Branch Potomac River:				
Laurel Run at Dobbin Road near Wilson, MD	01594930	8.23	SC, T	1981-88
			pH	1984-88
Sand Run:				
South Fork Sand Run near Wilson, MD	01594934	1.55	SC, pH, T	1981-86
North Fork Sand Run near Wilson, MD	01594936	1.91	SC, T	1981-88
			pH	1985-88
McMillan Fork near Fort Pendelton, MD	01594950	2.30	SC, pH, T	1987-97
North Branch Potomac River at Kitzmiller, MD	01595500	225	SC, pH, DO	1981-85
			T	1961-85
North Branch Potomac River at Barnum, WV	01595800	266	SC, pH, T, DO	1981-85
North Branch Potomac River at Luke, MD	01598500	404	T	1961-81
North Branch Potomac River at Pinto, MD	01600000	596	SC, pH, T, DO	1981-85
North Branch Potomac River near Cumberland, MD	01603000	875	T, SED	1965-79
Potomac River at Hancock, MD	01613000	4,073	T	1952-64
				1966-75
Conococheague Creek at Fairview, MD	01614500	495	T, SED	1967-80
Potomac River at Shepherdstown, WV	01618000	5,936	SC, T	1981
Antietam Creek near Sharpsburg, MD	01619500	281	T	1963-75
Shenandoah River at Millville, WV	01636500	3,040	SC, T	1980-83
Potomac River at Point of Rocks, MD	01638500	9,651	T, SED	1961-93
Monocacy River at Bridgeport, MD	01639000	173	T, SED	1990-93
Hunting Creek near Foxville, MD	01640965	2.14	SC, T	1988-91
Hunting Creek tributary near Foxville, MD	01640970	4.01	SC, T	1988-91
Fishing Creek:				
Fishing Creek tributary near Lewistown, MD	01641510	0.40	SC, T	1988-90
Monocacy River at Reich's Ford Bridge near Frederick, MD	01643020		T, SED	1961-93
Watts Branch at Rockville, MD	01645200	3.70	T	1957-67
Potomac River at Great Falls, MD	01645500	11,430	SC, T	1973-78

NORTH ATLANTIC SLOPE BASINS	Station number	Drainage area (mi^2)	Type of record	Period of record
POTOMAC RIVER BASIN--Continued				
Potomac River at Chain Bridge at Washington, DC	01646580	11,570	SC, pH, T, DO	1978-81
			SED	1979-81
Rock Creek:				
North Branch Rock Creek:				
Williamsburg Run near Olney, MD	01647685	2.25	SED	1967-68
North Branch Rock Creek near Rockville, MD	01647740	12.5	SED	1967-77
Northeast Branch Anacostia River:				
Northwest Branch Anacostia River:				
Browns Creek:				
Nursery Run at Cloverly, MD	01650085	0.35	SED	1967-68
Northwest Branch Anacostia River near Colesville, MD	01650500	21.1	SED	1967-75
Potomac River at Indian Head, MD	01655480	12,160	SC, pH, T, DO	1978-81
Potomac River at Piney Point, MD	01661475	---	SC, pH, T, DO	1980-81
OHIO RIVER BASIN				
MONONGAHELA RIVER BASIN				
Monongahela River:				
Youghiogheny River at Friendsville, MD	03076500	295	T	1963-75

The following low-flow, partial-record stations have been operated in Maryland, Delaware, and the District of Columbia. Measurements at these sites were made during periods of base flow when streamflow was primarily from ground-water storage. The column headed "Period of record" shows the water years in which measurements were made.

NORTH ATLANTIC SLOPE BASINS	Station number	Drainage area (mi^2)	Period of record
DELAWARE RIVER BASIN			
Delaware River:			
Naaman Creek:			
South Branch Naaman Creek near Claymont, DE	01477400	3.83	1955-66, 1968-71
Christina River near Newark, DE	01477850	3.76	1981-83, 2002
West Branch Christina River near Newark, DE	01477860	4.20	1981-83, 2002
Belltown Run near Glasgow, DE	01478009	3.35	1978-81, 2002
Muddy Run at Glasgow, DE	01478024	5.43	1978-81, 2002
Muddy Run near Cooches Bridge, DE	01478028	8.21	1978-80, 2002
White Clay Creek:			
White Clay Creek tributary near Ogletown, DE	01478878	3.68	1978-80, 2002
Brandywine Creek:			
Rocky Run at Talleyville, DE	01481350	1.76	1957-59, 1966
Wilson Run at Guyencort, DE	01481400	1.62	1957-59, 2002
North Fork Wilson Run at Guyencort, DE	01481430	1.12	1957-59, 2002
Wilson Run at Rockland, DE	01481440	3.05	1957-63
Husbands Run at Rockland, DE	01481460	1.28	1957-59, 2002
Squirrel Run at Montchanin, DE	01481480	1.67	1957-59
Alapocas Run at Concord, DE	01481530	0.81	1957-59, 2002
Red Lion Creek at Red Lion, DE	01482300	3.20	1955-60, 1962-71
Dragon Creek at Kirkwood, DE	01482400	1.93	1978-81
Dragon Creek tributary at Kirkwood, DE	01482405	0.16	1978-81
Joy Run near Summit Bridge, DE	01482670	1.26	1978-80
Scott Run near Boyds Corner, DE	01482690	2.18	1978-81
Appoquinimink River:			
Wiggins Millpond Outlet (head of Appoquinimink River) at Townsend, DE	01483150	3.82	1957-60, 1962-66, 1968-71, 1978-80
Drawyer Creek near Mt. Pleasant, DE	01483160	1.54	1978-80
Spring Mill Branch near Armstrong, DE	**a**01483165@	4.68	1979-80
Dove Nest Branch near Odessa, DE	**a**01483170@	4.68	1978-80
SMYRNA RIVER BASIN			
Providence Creek (head of Smyrna River) at Clayton, DE	01483300	11.8	1955-60, 1962-63, 1966, 1968-69
Smyrna River:			
Mill Creek at Smyrna, DE	01483350	4.77	1955-57, 1959-60, 1962-63, 1966, 1968-69
ST. JONES RIVER BASIN			
Fork Branch (head of St. Jones River) at Dupont, DE	01483650	7.50	1955-57, 1959-60, 1962-66, 1968-71
Maidstone Branch at Dupont, DE	01483680	17.3	1955-57, 1959-60, 1962-66, 1968-71

a Prior to 2001 published as "Drawyer Creek tributary".
@ Currently a surface-water discharge station.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
MURDERKILL RIVER BASIN			
Murderkill River:			
Browns Branch near Houston, DE	01484020	12.4	1955-71
Spring Creek:			
Hudson Branch (head of Spring Creek) near Canterbury, DE	01484040	8.40	1955-60
Pratt Branch near Felton, DE	01484050*	3.29	1955-57, 1959-60, 1962-71
Double Run near Magnolia, DE	01484060	5.68	1955-57, 1959-60, 1962-64, 1966-71
MISSPILLION RIVER BASIN			
Beaverdam Branch (head of Misspillion River):			
Cedar Creek near Lincoln, DE	01484200	7.21	1955-60, 1962-63, 1966, 1968-69
BROADKILL RIVER BASIN			
Pemberton Branch (head of Broadkill River) near Milton, DE	01484240	6.68	1955-66, 1968-71
Broadkill River:			
Beaverdam Creek near Milton, DE	01484270	6.10	1955-71
INDIAN RIVER BASIN			
Indian River:			
Sheep Pen Ditch near Shortly, DE	01484510	**b**5.4	1986-88, 1997-98
Iron Branch at Millsboro, DE	01484530	**b**8.0	1985-88, 1997-99, 2000
Whartons Branch near Millsboro, DE	01484531*	**b**5.8	1968-69, 1971, 1985-88, 1999-2000
Swan Creek near Warwick, DE	01484535	**b**5.6	1985-88, 1997-98
Pepper Creek at Dagsboro, DE	01484550*	8.78	1955-71, 1985-88, 1997-99, 2000
Blackwater Creek near Clarkesville, DE	01484600*	**b**3.5	1968-69, 1971, 1985-88, 1997-98
Love Creek at Robinsonville, DE	01484655	**b**11.1	1985-88, 1997-99, 2000
Chapel Branch at Angola, DE	01484677	**b**8.0	1985-88, 1997-99, 1997-99, 2000
Unity Branch at Angola, DE	01484678	4.2	1999-2000
MILLER CREEK BASIN			
Beaverdam Ditch (head of Miller Creek) near Millville, DE	01484695@	2.2	1997-98
DIRICKSON CREEK BASIN			
Bearhole Ditch (head of Dirickson Creek) at Bunting, DE	01484700	**b**6.4	1968-71, 1985-88, 1997-98
ST. MARTIN RIVER BASIN			
St. Martin River:			
Buntings Branch near Selbyville, DE	01484710	4.15	1999
Taylorville Creek near Berlin, MD	01484714	0.94	1999
TRAPPE CREEK BASIN			
Trappe Creek:			
Bottle Branch at Berlin, MD	01484716	0.35	1999-2000
NEWPORT CREEK BASIN			
Newport Creek near Berlin, MD	01484717	0.51	1999-2000
Beaverdam Creek at Ironshire, MD	01484718	1.33	1999-2000
BASSETT CREEK BASIN			
Bassett Creek near Ironshire, MD	01484719	1.22	1999-2000
Porter Creek near Newark, MD	01484720	0.76	1999-2000

@ Currently a surface-water discharge station.
b Approximately.
***** Also a crest-stage partial-record station.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
MARSHALL CREEK BASIN			
Marshall Creek at Newark, MD	01484721	1.30	1999-2000
Massey Branch near Newark, MD	01484722	0.54	1999-2000
WATERWORKS CREEK BASIN			
Waterworks Creek:			
Waterworks Creek tributary near Cedartown, MD	01484723	0.09	1999-2000
SCARBORO CREEK BASIN			
Scarboro Creek at Spence, MD	01484725	0.27	1999-2000
PAWPAW CREEK BASIN			
Pawpaw Creek at Spence, MD	01484726	1.48	1999-2000
TANHOUSE CREEK BASIN			
Tanhouse Creek near Boxiron, MD	01484727	0.45	1999-2000
BROCKATONORTON BAY BASIN			
Boxiron Creek (head of Brockatonorton Bay) at Boxiron, MD	01484728	0.41	1999-2000
Brockatonorton Bay tributary at Boxiron, MD	01484729	0.26	1999-2000
PIKES CREEK BASIN			
Pikes Creek near Stockton, MD	01484730	0.86	1999-2000
RILEY CREEK BASIN			
Riley Creek at Stockton, MD	01484731	0.12	1999-2000
SWANS GUT CREEK BASIN			
Little Mill Creek (head of Swans Gut Creek) near Stockton, MD	01484732	0.81	1999-2000
Marshall Ditch near Stockton, MD	01484733	0.28	1999-2000
LITTLE MOSQUITO CREEK BASIN			
Little Mosquito Creek:			
Wattsville Branch:			
Wattsville Branch tributary No. 1 at Wattsville, VA	0148473510	0.34	1999-2000
Snead Branch near Horntown, VA	0148474010	0.77	1999-2000
WICOMICO RIVER BASIN			
Andrews Branch (head of Wicomico River):			
Leonard Pond Run near Delmar, MD	01486200	13.4	1950-51, 1964, 1969-71
NANTICOKE RIVER BASIN			
Nanticoke River (Gravelly Fork):			
Deep Creek at Old Furnace, DE	01487100	33.0	1955-60, 1962-63, 1968
Tyndall Branch near Hardscrabble, De	01487120	12.7	1955-63, 1966
Lewes Creek:			
Butler Mill Branch near Woodland, De	01487300	6.96	1955-63, 1966, 1968-69
James Branch (head of Broad Creek):			
Elliott Pond Branch (Chipman Pond Branch) near Laurel, DE	01487700	8.55	1955-66, 1968-71
Chicone Creek at Reids Grove, MD	01489395	4.69	1951-53, 1969-71
Baron Creek at MD-DE State Corner	01489400	8.93	1950-52, 1969-70
CHOPTANK RIVER BASIN			
Choptank River near Choptank Mills, DE	01490550	**b**58	1985-87
Forge Branch at Greensboro, MD	01491060	9.84	1952-53
Watts Creek near Denton, MD	01491180	**b**11	1964-75
Tuckahoe CreeK:			
Knott Millpond near Hillsboro, MD	01491800	8.45	1952-53, 1968-71
Cabin Creek at Cabin Creek, MD	01492080	6.05	1952-53
WYE RIVER BASIN			
Wye River:			
Wye East River:			
Skipton Creek:			
Mill Creek near Wye Mills, MD	01492560	5.72	1952-53, 1982

b Approximately.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
CHESTER RIVER BASIN			
Andover Branch (head of Chester River):			
Cypress Branch at Millington, MD	01492980	**b**38	1964-66, 1968-75
Mills Branch near Millington, MD	01492990	9.98	1953-54, 1968-71
Chester River:			
Foreman Branch at Ewingville, MD	01493480	5.27	1953-54
Langford Creek:			
East Fork Langford Creek:			
Mill Pond Outlet near Langford, MD	01494035	5.10	1953-54, 1968-71
Old Mill Stream Branch (head of Corsica River) at Centerville, MD	01494100	11.2	1964-71
SASSAFRAS RIVER BASIN			
Sassafras River:			
Sassafras River tributary at Ginns Corner, MD	01494450	3.81	1982-83
Duffy Creek near Cecilton, MD	01494480	1.45	1968-71
WORTON CREEK BASIN			
Mill Creek (head of Worton Creek) at Hanesville, MD	01494600	4.63	1953-54, 1968-71
ELK RIVER BASIN			
Big Elk Creek (head of Elk River):			
Gramies Run at Elk Mills, MD	01494995	3.05	1981-83
Little Elk Creek at Rock Church, MD	01495480	17.8	1982-83
Laurel Run near Elkton, MD	01495520	3.87	1982-83
Dogwood Run at Elkton, MD	01495525	1.62	1982-83
Mill Creek near Elkton, MD	01495540	4.32	1968-70, 1982
Elk River:			
Perch Creek near Elkton, MD	01495550	**b**6.0	1964-75, 1978-80, 1982-83
Back Creek near Mt. Pleasant, DE	01495700	4.40	1968-69
Bohemia River:			
Sandy Branch at Bohemia Creek, MD	01495925	2.58	1968-70, 1982
Little Bohemia Creek near Warwick, MD	01495935	2.45	1953-54
Scotchman Creek:			
Scotchman Creek tributary near Cecilton, MD	01495950	1.40	1982-83
NORTHEAST RIVER BASIN			
Northeast Creek (head of Northeast River):			
Little Northeast Creek:			
West Branch Little Northeast Creek at Zion, MD	01496030	3.32	1981-83
Little Northeast Creek at Mechanic Valley, MD	01496050	**b**14	1964-75
Northeast River:			
Northeast River tributary at North East, MD	01496055	1.55	1982-83
Stony Run near North East, MD	01496060	8.23	1982-83
Northeast River tributary at Charlestown, MD	01496085*	1.03	1982-83
Hance Point Creek at Hance Point, MD	01496100	1.36	1983
PRINCIPIO CREEK BASIN			
Principio Creek:			
Principio Creek tributary at Belvedere, MD	01496225	2.08	1982-83
MILL CREEK BASIN			
Mill Creek at Jackson, MD	01496250	3.73	1982-83
SUSQUEHANNA RIVER BASIN			
Susquehanna River:			
Broad Creek at Pylesville, MD	01577950	11.3	1956-59, 1962-63, 1966
Conowingo Creek at Oakwood, MD	01578300	34.4	1982-83
Octoraro Creek:			
Stone Run near Rising Sun, MD	01578475	2.24	1982-83
Stone Run at Rising Sun, MD	01578480	6.71	1982-83
Love Run at Richardsmere, MD	01578490	3.55	1982-83
Octoraro Creek tributary at Richardsmere, MD	01578515	3.27	1982-83
Deer Creek at Gorsuch Mills, MD	01579875	**b**25	1975-79, 2002
Big Branch at Harkins, MD	01579900	6.39	1975-79, 2002
Little Deer Creek near Federal Hill, MD	01579925	14.0	1975-79, 2002
Stout Bottle Branch near Ady, MD	01580170	7.13	1980-82, 2002

b Approximately.
***** Also a crest-stage partial-record station.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
SWAN CREEK BASIN			
Swan Creek at Swan Creek, MD	01580700	13.2	1956-59, 1962-63, 1966
BUSH RIVER BASIN			
Bynum Run (head of Bush River) at Bush, MD	01581600	22.5	1956-59, 1962-63, 1966
James Run at Bush, MD	01581650	11.1	1956-59, 1962-63, 1966
Bush River:			
Grays Run at Stepney, MD	01581660	5.35	1956-59, 1962-63, 1966
Winters Run (head of Otter Point Creek) near Bel Air, MD	01581750	37.0	1954-59, 1962-63, 1966
GUNPOWDER RIVER BASIN			
Gunpowder Falls (head of Gunpowder River):			
Grave Run near Beckleysville, MD	01581830@	7.68	1977-82, 2002
Georges Run at Armacost, MD	01581850	13.0	1956-59, 1962, 1966, 2002
Georges Run near Beckleysville, MD	01581870@	15.8	1977-82, 2002
Little Falls:			
Beetree Run at Bentley Springs, MD	01581960@	9.72	1975-79, 2002
Third Mine Branch near Stablersville, MD	01581980	5.27	1975-79, 2002
Green Branch at Phoenix, MD	01582900	4.45	1973, 1975-79, 2002
Western Run:			
Piney Run at Dover, MD	01583100@	12.3	1975-79, 2002
Blackrock Run at Coopersville, MD	01583200	9.38	1956-59, 1962-63, 1966, 2002
Beaverdam Run at Cockeysville, MD	01583600@	20.9	1956-59, 1962-63, 1966, 2002
Little Gunpowder Falls at Hess, MD	01584200	16.5	1956-59, 1962-63, 1966, 2002
PATAPSCO RIVER BASIN			
North Branch Patapsco River:			
Deep Run at Lawndale, MD	01585700	6.70	1975-82, 2002
Beaver Run at Finksburg, MD	01586200	12.7	1957-59, 1961-63, 1966, 2002
Middle Run near Finksburg, MD	01586550	6.18	1973, 1975-79, 2002
Morgan Run near Gamber, MD	01586600	26.0	1957-59, 1961-63, 1966, 2002
Little Morgan Run near Eldersburg, MD	01586650	7.13	1973, 1975-79, 2002
South Branch Patapsco River at Woodbine, MD	01587070	11.4	1975-79, 1988-90, 2002
Gillis Falls at Woodbine, MD	01587170	19.4	1975-79, 2002
Rockburn Branch at Elkridge, MD	01589040	3.69	1988-90, 2002
Deep Run at Hanover, MD	01589080	18.0	1975-79, 1988-90, 2002

@ Currently a surface-water discharge station.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
PATAPSCO RIVER BASIN--Continued			
Patapsco River--Continued			
Stony Run at Elkridge, MD	01589090	**b**9.4	1955, 1964-67 2002
Gwynns Falls:			
Red Run near Owings Mills, MD	01589230	7.39	1975-79 2002
Gwynns Falls at Baltimore, MD	01589345	50.7	1980-82 2002
Jones Falls at Eccleston, MD	01589370	2.86	1976-79 2002
SEVERN RIVER BASIN			
Severn Run (head of Severn River) at Benfield, MD	01589800	**b**24	1964-67
PATUXENT RIVER BASIN			
Patuxent River at Mullinix, MD	01590800	10.7	1988-90
Cabin Branch near Florence, MD	01590900	8.36	1975-79 1988-90 2002
Cattail Creek:			
Cattail Creek tributary at Carrs Mill, MD	01591200	3.93	1956-59 1961-63 1966, 1988-90
Cattail Creek tributary at Daisy, MD	01591375	3.12	1977-82 1988-90 2002
Dorsey Branch near Knollwood, MD	01591475	3.78	1964, 1988-90 2002
Hawlings River near Unity, MD	01591650	5.08	1977-82 2002
Little Patuxent River at Pine Orchard, MD	01593200	7.03	1956-59 1961-64 1966, 1988-90 2002
Red Hill Branch at Columbia, MD	01593300	5.98	1988-90 2002
Middle Patuxent River near West Friendship, MD	01593600	11.4	1956-59 1961-64 1966, 1988-90
Middle Patuxent River tributary near Dayton, MD	01593650	4.25	1977-82
Middle Patuxent River tributary near Columbia, MD	01593675	9.12	1988-90
Middle Patuxent River tributary near Clarksville, MD	01593700	6.24	1977-82 1988-90 2002
Hammond Branch at Scaggsville, MD	01594100	3.01	1956-59 1962-64 1966, 1988-90 2002
Hammond Branch near Laurel, MD	01594200	6.83	1988-90 2002
Dorsey Run at Jessup, MD	01594395	6.59	1964, 1989-91 2002
Towsers Branch at Conoways, MD	01594423	5.69	1975-80
Stocketts Run near Hardesty, MD	01594455	6.68	1977-80
Rock Branch at Bayard, MD	01594465	6.73	1977-80
Western Branch:			
Northeast Branch at Kolbes, MD	01594490	7.74	1977-80
Collington Branch at Upper Marlboro, MD	01594525	22.9	1964-66 1975-79
Mataponi Creek near Naylor, MD	01594535	**b**14	1964-66 1982
Lyons Creek at Lyons Creek, MD	01594545	**b**15	1964-67

b Approximately.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
POTOMAC RIVER BASIN			
North Branch Potomac River:			
Glade Run at Steyer, MD	01594975	8.86	1977-82
Savage River:			
Little Savage River near Avilton, MD	01596200	1.95	1979-82
Big Run near Swanton, MD	01596600	13.4	1977-82
Crabtree Creek:			
Middle Fork near Swanton, MD	01597100	10.8	1977-82
Georges Creek near Midland, MD	01598770	13.1	1979-82
Woodland Creek at Ocean, MD	01598775	5.49	1979-82
Mill Run at Morrison, MD	01598980	7.35	1979-82
Mill Run at Rawlings, MD	01599800	2.84	1979-82
Wills Creek at Ellerslie, MD	01601100	185	1979-82
Jennings Run:			
North Branch Jennings Run at Barrelsville, MD	01601300	**b**12	1964-74
Jennings Run at Corriganville, MD	01601325	37.7	1975-79
Collier Run at Spring Gap, MD	01604150	**b**11	1964-74
Mill Run at Oldtown, MD	01605425	10.6	1975-79
Seven Springs Run at Oldtown, MD	01605475	9.16	1975-82
Town Creek:			
Murley Branch near Flintstone, MD	01608950	11.9	1977-78 1980-82
Maple Run near Town Creek, MD	01608975	7.10	1977-78 1980-82
Fifteen Mile Creek near Piney Grove, MD	01610060	20.2	1975-79
Deep Run near Little Orleans, MD	01610065	6.26	1975-79
Fifteen Mile Creek at Little Orleans, MD	01610075	61.6	1975-79
Sideling Hill Creek:			
Bear Creek at Forest Park, MD	01610150*	10.4	1975-79 1985-87
Potomac River tributary at Woodmont, MD	01610170	3.29	1985-87
Tonoloway Creek at Hancock, MD	01613100	113	1985-87
Ditch Run near Hancock, MD	01613150*	4.80	1975-79
Licking Creek:			
Lanes Run near Forsythe, MD	01613540	9.98	1980-82 1985-87
Licking Creek near Pectonville, MD	01613545	212	1985-87
Conococheague Creek:			
Little Conocoheague Creek near Charlton, MD	01614050	18.1	1985-87
Rockdale Run at Fairview, MD	01614525	9.67	1976-79 1981-82 1985-87
Rush Run near Huyett, MD	01614575	5.20	1976-79 1981-82 1985-87
Meadow Brook at Conococheague, MD	01614625	6.77	1976-79 1981-82 1985-87
Conococheague Creek tributary near Huyett, MD	01614675	7.94	1977-79 1981-82 1985-87
Conococheague Creek at Williamsport, MD	01614705	564	1985-87
Downey Branch near Downesville, MD	01617600	3.00	1976-79 1981-82
Marsh Run:			
St. James Run at Spielman, MD	01617780	7.14	1977-79 1981-82 1985-87
Antietam Creek:			
Little Antietam Creek at Leitersburg, MD	01619050	24.5	1976-79 1981-82 1985-87
West Branch at Paramount, MD	01619145	5.07	1977-79 1981-82
Marsh Run at Fiddlesburg, MD	01619150	**b**31	1965-74 1976-79 1985-87
Landis Spring Branch near Benevola, MD	01619275	6.60	1976-79 1981-82 1985-87
Beaver Creek at Benevola, MD	01619325	22.9	1975-79 1985-87
Little Beaver Creek at Benevola, MD	01619350	8.70	1975-79 1985-87

b Approximately.
* Also a crest-stage partial-record station.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
POTOMAC RIVER BASIN--Continued			
Potomac River-Continued			
Antietam Creek-Continued			
Little Antietam Creek at Keedysville, MD	01619480	**b**24	1964-67, 1976-79, 1985-87
Sharmans Branch near Antietam, MD	01619525	4.62	1977-79, 1981-82
Isreal Creek at Weverton, MD	01636730	13.2	1975-79, 1985-87
Catoctin Creek:			
Little Catoctin Creek near Brunswick, MD	01636850	8.64	1977-83
Middle Creek at Ellerton, MD	01636975	22.7	1977-82
Catoctin Creek at Olive, MD	01638050	112	1977-83
Potomac River tributary at Point of Rocks, MD	01638520	3.04	1982-83
Tuscarora Creek at Tuscarora, MD	01638600	20.3	1975-79, 1982-83
Monocacy River:			
Piney Creek at Taneytown, MD	01639100	22.9	1956-59, 1961-63, 1966, 2002
Piney Creek near Keysville, MD	01639150	34.4	1982-83, 2002
Toms Creek:			
Friends Creek near Emmitsburg, MD	01639325	12.2	1977-83, 2002
Toms Creek near Keysville, MD	01639390	88.1	1982-83, 2002
Double Pipe Creek:			2002
Big Pipe Creek (head of Double Pipe Creek) at Bachman Mills, MD	01639400	9.39	1956-59, 1961-63, 1966, 2002
Deep Run at Union Mills, MD	01639420	5.46	1975-79, 2002
Silver Run near Silver Run, MD	01639440	8.77	1975-82, 2002
Big Pipe Creek near Mayberry, MD	01639450	51.6	1956-59, 1962-63, 1966, 2002
Bear Branch near Mayberry, MD	01639465	13.9	1975-82, 2002
Meadow Branch near Uniontown, MD	01639470	12.6	1956-59, 1961-63, 1966, 2002
Little Pipe Creek:			
Wolfpit Branch at Linwood, MD	01640100	2.01	1956-59, 1961-63, 1966, 2002
Little Pipe Creek at Union Bridge, MD	01640150	40.4	1956-59, 1962-63, 1966, 2002
Beaver Dam Creek near Union Bridge, MD	01640160	7.04	1977-82, 2002
Little Pipe Creek at Keymar, MD	01640200	80.0	1982-83, 2002

b Approximately.

NORTH ATLANTIC SLOPE BASINS--Continued	Station number	Drainage area (mi^2)	Period of record
POTOMAC RIVER BASIN--Continued			
Potomac River-Continued			
Monocacy River--Continued			
Owens Creek near Thurmont, MD	01640600	14.4	1975-79, 2002
Little Owens Creek near Thurmont, MD	01640650	6.16	1975-79, 2002
Beaver Branch at Rocky Ridge, MD	01640720	6.53	1977-82, 2002
Owens Creek near Rocky Ridge, MD	01640750	38.8	1982-83, 2002
Fishing Creek near Utica, MD	01641600	17.9	1982-83, 2002
Tuscarora Creek near Frederick, MD	01641900	16.5	1975-79, 1982-83, 2002
Israel Creek near Walkersville, MD	01642050	**b**29	1964-66, 1975-79, 1982-83, 2002
Linganore Creek near New London, MD	01642430	45.2	1980-82, 2002
Bens Branch near New Market, MD	01642450	11.8	1975-82, 2002
Bush Creek at Ijamsville, MD	01643100	**b**17.5	1964-66, 2002
Bush Creek at Reels, MD	01643110	29.7	1982-83, 2002
Ballenger Creek near Lime Kiln, MD	01643125	20.2	1977-83, 2002
Bennett Creek:			
Little Bennett Creek at Hyattstown, MD	01643400	12.8	1968-69, 1975-79
Broad Run at Elmer, MD	01643615	14.0	1975-82
Seneca Creek:			
Little Seneca Creek at Boyds, MD	01644400	**b**21	1964-67
Bucklodge Branch near Dawsonville, MD	01644425	8.47	1975-82
Great Seneca Creek:			
Goshen Branch at Goshen, MD	01644480	7.63	1975-77, 1979
Dry Seneca Creek near Seneca, MD	01645050	19.2	1975-82
Rock Run near Cabin John, MD	01646220	**b**4.8	1964-67
Rock Creek at Redland, MD	01647620	7.45	1977-82
Northeast Branch Anacostia River:			
Paint Branch at College Park, MD	01649200	17.5	1980-82
Oxon Run (head of Oxon Creek) at Washington, DC	01652580	6.84	1980-82
Piscataway Creek:			
Tinkers Creek at Piscataway, MD	01653625	15.9	1975-82
Mattawoman Creek near Waldorf, MD	01657900	16.9	1980-82
Chicamuxen Creek:			
Reeder Run at Chicamuxen, MD	01658300	**b**5.6	1964-67
Nanjemoy Creek:			
Burgess Creek:			
Mill Run (head of Nanjemoy Creek) Welcome, MD	01660650	9.89	1980-82
Port Tobacco Creek (head of Port Tobacco River) near Marshalls Corner, MD	01660740	15.8	1977-82
Wicomico River:			
Zekiah Swamp Run (head of Wicomico River) near Malcolm, MD	01660905	12.1	1975-82
Clark Run near Bel Alton, MD	01660930	10.4	1975-79
Gilbert Swamp Run near Olivers Shop, MD	01660950	**b**32	1964-65
McIntosh Run:			
Brooks Run near Hollywood, MD	01661200	5.76	1980-82
Mcintosh Run at Tintop Hill, MD	01661300	12.1	1964-66, 1982
Glebe Run at Leonardtown, MD	01661410	5.81	1980-82

b Approximately.

OHIO RIVER BASIN	Station number	Drainage area (mi^2)	Period of record
MONONGAHELA RIVER BASIN			
Monongahela River:			
Youghiogheny River:			
Cherry Creek near Crellin, MD	03075350	16.7	1977-82
Snowy Creek:			
Laurel Run at Crellin, MD	03075400	10.9	1964-74
Little Youghiogheny River at Loch Lynn Heights, MD	03075475	13.2	1975-79
Muddy Creek at Swallow Falls State Park, MD	03075700	17.8	1977-82
Cherry Creek near McHenry, MD	03075900	12.3	1973, 1975-79
Bear Creek:			
South Branch Bear Creek near Accident, MD	03076580	6.01	1964-74
South Branch Bear Creek near Friendsville, MD	03076590	16.8	1975-79
Casselman River:			
North Branch Casselman River near Grantsville, MD	03077925	24.4	1975-80
South Branch Casselman River near Grantsville, MD	03077950	20.8	1975-79

Photo by W.C. Lewis

Low Flow measurement on the Potomac River below Little Falls Dam, July 9, 2002.

WATER RESOURCES DATA - MARYLAND, DELAWARE, AND WASHINGTON, D.C., 2003

VOLUME 1. SURFACE-WATER DATA

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Maryland and Delaware each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled **"Water Resources Data - Maryland, Delaware, and Washington, D.C."**

This report series includes records of stage, discharge, and water quality of streams and stage, contents, and water quality of lakes and reservoirs. This volume contains records for water discharge at 140 gaging stations; stage and contents at 1 reservoir; and water quality at 17 gaging stations. Also included are stage and discharge for 3 crest-stage partial-record stations, and stage only for 10 tidal crest-gage partial-record stations. Locations of these sites are shown on figure 3. Locations of discontinued gaging stations are shown on figure 4. Additional water data were collected at various sites not part of the systematic data-collection program. These data represent that part of the National Water-Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Maryland, Delaware and Washington, D.C.

This series of annual reports for Maryland, Delaware, and Washington, D.C. began with a report for the 1961 water year that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels. In the 1989 water year, the report format was changed to two volumes. Both volumes contained data on quantities of surface water, quality of surface and ground water, and ground-water levels. Volume 1 contained data on the Atlantic Slope Basins (Delaware River through Patuxent River) and Volume 2 contained data on the Monongahela and Potomac River Basins. Beginning with the 1991 water year, Volume 1 contains all information on quantities of surface water and surface-water-quality data and Volume 2 contains ground-water levels and ground-water-quality data.

Prior to the introduction of this series and for several water years concurrent with it, water resources data for Maryland and Delaware were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage, and on lake or reservoir contents and stage, through September 1960, were published annually under the title **"Surface-Water Supply of the United States, Parts 6A and 6B."** For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title **"Quality of Surface Waters of the United States,"** and water levels for the 1935 through 1974 water years were published under the title **"Ground-Water Levels in the United States."** The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States, and may be purchased from the U.S. Geological Survey, Branch of Information Services, Federal Center, Box 25286, Denver, CO 80225.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example,this volume is identified as **"U.S. Geological Survey Water-Data Report MD-DE-DC-03-1".** For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or on microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information including current prices for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone at (410) 238-4200.

COOPERATION

The U.S. Geological Survey and agencies of the State of Maryland had cooperative agreements for the collection of water-resource records from 1896 to 1909 and since 1924. Similar cooperative agreements have existed between the Survey and agencies of the State of Delaware since 1943. Organizations that assisted in collecting the data in this report through cooperative agreements with the Survey are:

Maryland Geological Survey, Emery T. Cleaves, Director.

Delaware Geological Survey, John H. Talley, Interim State Geologist.

Maryland Department of the Environment, Chesapeake Bay and Special Projects Program, Robert M. Summers, Division Chief.

Metropolitan Washington Council of Governments, David J. Robinson, Executive Director

District of Columbia Department of Health, James A. Buford, Director.

Maryland State Highway Administration, Neil J. Pedersen, Administrator.

Assistance with funds or services was given by the U.S. Army Corps of Engineers for collecting records at 10 gaging stations and 3 water-quality stations within Maryland.

The following organizations also aided in collecting records:

Delaware: Department of Natural Resources and Environmental Control, Water Resources Agency for New Castle County.

Maryland: Maryland Water Resources Administration, Washington Suburban Sanitary Commission, Interstate Commission Potomac River Basin, Upper Potomac River Commission, City of Aberdeen, Baltimore City, Anne Arundel County, Baltimore County, Harford County, Howard County, Montgomery County, Prince Georges County.

Organizations that provided data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow at the beginning of the 2003 water year was in the normal range throughout Maryland, Delaware, and Washington, D.C. and remained in the normal range throughout October 2002. During November 2002, flows were in the normal range except for the Potomac River basin and the Eastern Shore where flows moved into the excessive range (upper 25 percent of the record) following above-normal rainfall (1.0 to 2.2 inches). In December 2002 flows returned to the normal range throughout the area except for the Eastern Shore where flows remained in the excessive range following above-normal rainfall (1.0 to 2.0 inches). While rainfall was below normal (0.5 to 2.6 inches) throughout the area during January 2003, flows remained in the normal range. During February 2003, flows were in the normal range except for the Eastern Shore and Central Maryland where flows moved into the excessive range following above-normal rainfall (2.5 to 5.5 inches). Flows in March were in the excessive range throughout Maryland, Delaware, and Washington, D.C. following above-normal rainfall (0.5 to 2.2 inches). Flows in April and May 2003 remined in the excessive range except for Central and Northeast Maryland where flows retutrned to the normal range. Rainfalll was above normal (as much as 1.0 to 6.3 inches each month) during the June to September 2003 time frame.

During the 2003 water year, flows were in the excessive range at all five index stations:Potomac River at Paw Paw, WV, in western Maryland; Potomac River near Washington,D.C., in central Maryland; Deer Creek at Rocks, in northeastern Maryland; Choptank River at Greensboro, on the Eastern Shore of Maryland; and Seneca Creek at Dawsonville, in central Maryland. Record daily, monthly, and yearly means were set several stations. Potomac River at Paw Paw, WV set a new monthly maximum in June 2003. The new record monthly mean was 138 percent higher than the record set in 1972. A new record yearly mean was set. The new record yearly mean was 101 percent higher than the record set in 1996. Deer Creek at Rocks set a new record daily minimum for October 2002. The new record daily minimum was 19 percent lower than the record set in 1931. Choptank River at Greensboro set a new record monthly maximum for the month of June 2003. The new record monthly maximum was 116 percent higher than the record set in 2001. A new record yearly mean was set. The new record yearly mean was 131 percent higher than the record set in 1952 & 1972.

Monthly and annual-mean discharges for water year 2003 were compared to long-term averages (reference period 1971-2000) for two representative streamflow-gaging stations in figure 1. Data for the station, Potomac River at Point of Rocks, in central Maryland, reflect runoff conditions in the Potomac River Basin, excluding the Coastal Plain. Data for the station, Choptank River near Greensboro, on the Eastern Shore of Maryland, reflect runoff from a 113 mi^2 (square mile) area, of which 21.6 mi^2 is located in Delaware in the central part of the Delmarva Peninsula.

Average freshwater inflow to the Chesapeake Bay was estimated to be 117,900 ft^3/s (cubic feet per second), on the basis of flows for the James, Potomac, and Susquehanna Rivers. This is 153 percent of the long-term average during the reference period (water years) 1952-2003. Flows for October averaged 102 percent of normal. During November, flows averaged 153 percent of normal. December flows averaged 124 percent of normal. For January, flows averaged 116 percent of normal. Flows in February averaged 91 percent of normal. Flows in March were 147 percent of normal while flows in April were 112 percent of normal. Flows for May were 139 percent of normal. June flows were 296 percent of normal. During July, flows were 194 percent of normal. August flows were 244 percent of normal. September flows were 404 percent of normal. No new flow records were set during the 2003 water year. However, several months were the second or third highest flows of record.

The combined storage in the three major water-supply reservoirs in the Baltimore City Municipal System (combined usable capacity of 76,050 million gallons [previously 85,430 million gallons, decrease in storage capacity due to increase in sediment storage]) increased from 42 percent of capacity on September 30, 2002 to 89 percent of capacity on September 30, 2003.

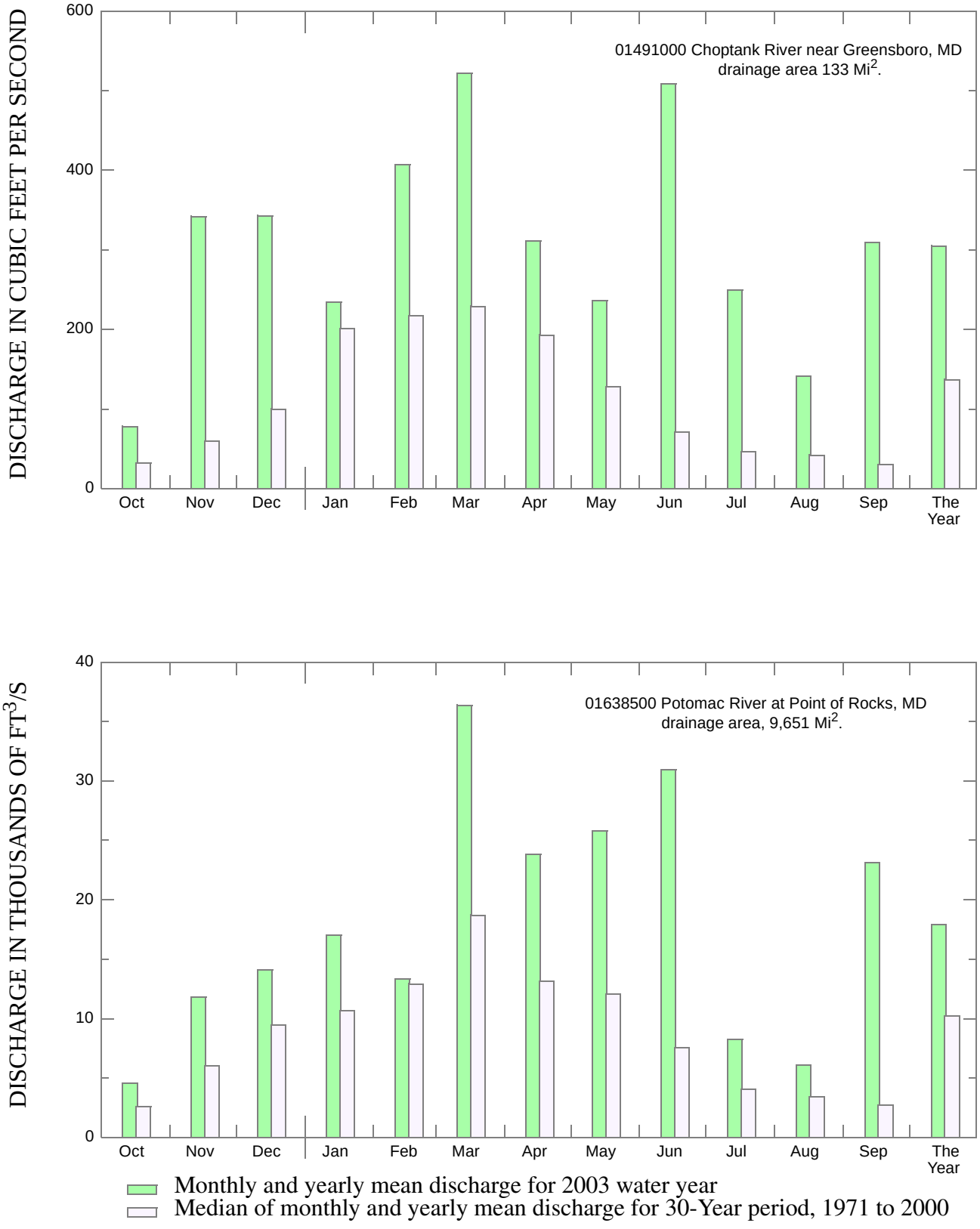

FIGURE 1. COMPARISON OF DISCHARGE AT TWO LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 2003 WATER YEAR WITH MEDIAN DISCHARGE FOR INDICATED PERIOD.

SPECIAL NETWORKS AND PROGRAMS

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations were operated in the Mississippi, Columbia, Colorado, and Rio Grande. From 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (**NAWQA**); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

Additional information about the NASQAN Program can be found at:

http://water.usgs.gov/nasqan/

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and Federal interests are critical components of the NAWQA program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water-resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to coordinate efforts among the agencies.

Additional information about the NAWQA program is available through the world wide web at:

http://water.usgs.gov/nawqa/nawqa_home.html

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 2002 water year that began October 1, 2002, and ended September 30, 2003. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The locations of the stations where the data were collected are shown in figure 3. The following sections of introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations are based on geographic location. The **"downstream order"** system is used for regular surface-water stations and the **"latitude-longitude"** system is used for surface-water stations where only miscellaneous measurements are made.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the **"List of Stations"** in the front of this report. Each indentation represents one rank. This downstream order and system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 01477800, which appears just to the left of the station name, includes the two-digit part number **"01"** plus the six-digit downstream-order number **"477800."** The part number designates the major river basin; for example, part **"01"** is the North Atlantic Slope Basin.

Latitude-Longitude System

The identification numbers for miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the **LOCATION** paragraph of the station description (See figure 2 below).

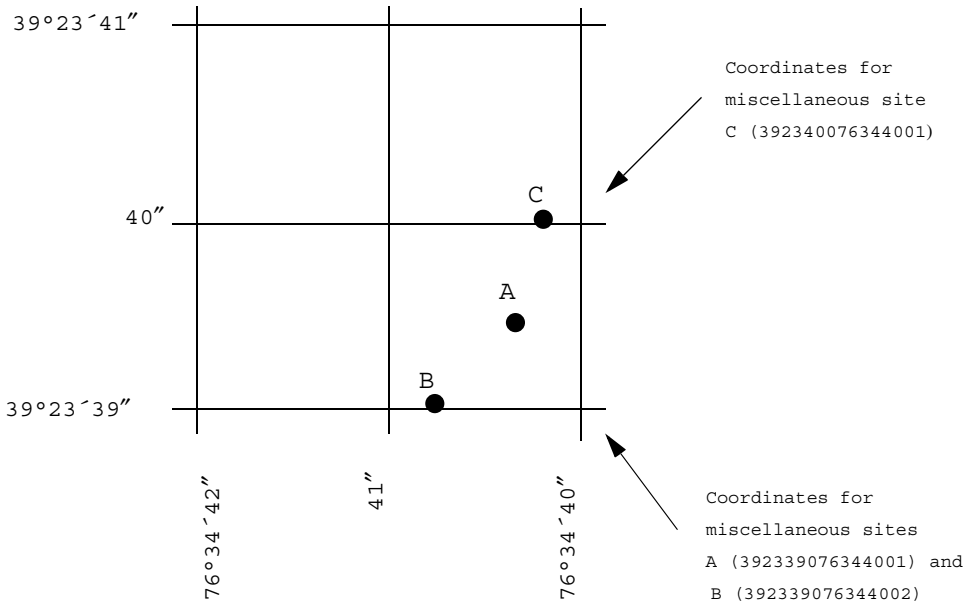

Figure 2. --System for numbering miscellaneous sites (latitude and longitude)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean-daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because mean-daily discharges and end-of-day contents commonly are published for such stations, they are referred to as **"daily stations."**

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as **"Crest-stage partial records,"** or **"Low-flow partial records."** Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered partial records, but they are presented separately in this report. Locations of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figure 3.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relation between stage and discharge. These data, together with supplemental information such as weather records are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the U.S. Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (**TWRI**'s), Book 3, Chapters A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (**ASTM**) standards and generally follow the standards of the International Organization for Standards (**ISO**).

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily-mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations, the stage-discharge relation is affected by changing stage; at these stations, the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available curves or tables defining the relation of stage and content based on bathymetric surveys. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes are then determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic re-surveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly inaccurate as the time lapsed since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relations, similar to the methods by which other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, **"Data Presentation"** (**REMARKS** paragraph) and **"Identifying Estimated Daily Discharge."**

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table, and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily-mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly-mean flow data for a designated period, by water years; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

Station manuscript

The manuscript provides descriptive information under various headings such as station location, period of record, historical extremes outside the period of record, record accuracy, and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments which follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gaging station in relation to the cultural and physical features in the vicinity and to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in **"River Mileage Measurement,"** Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the maps available vary from one drainage basin to another, the accuracy of drainage areas also varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which records have been published for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that flow could reasonably be considered equivalent to flow at the present station.

REVISED RECORDS.--Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: **"(M)"** means that only the instantaneous maximum discharge was revised; **"(m)"** that only the instantaneous minimum was revised; and **"(P)"** that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see Glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, **"Identifying Estimated Daily Discharge"**). If a **REMARKS** paragraph is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, and to conditions that affect natural flow at the station. In addition, information may be presented pertaining to average discharge data for the period of record, to extreme data for the period of record and the current year, and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included in this section is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

PEAK DISCHARGE(S) FOR CURRENT YEAR.--The maximum instantaneous discharge and any secondary peaks occurring during the current year are given. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, the records of a discontinued gaging station may occasionally need revision. Because there would be no current or, possibly, future station manuscript published for these stations to document the revision in a **"Revised Records"** entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District Office (address given on the back of the title page of this report) to determine if the published records were ever revised after the station was discontinued. If the data for a discontinued station were obtained by computer retrieval, however, the data would be current and there would be no need to check because any published revision of data is always accompanied by a revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the **"REMARKS"** and in the inclusion of a skeleton stage-capacity table when daily contents are given.

Headings for **AVERAGE DISCHARGE** and **EXTREMES FOR THE PERIOD OF RECORD** have been deleted and the information contained in these paragraphs is now presented in the tabular summaries following the discharge table or in the **REMARKS** paragraph, as appropriate. No changes have been made to the data presentation of lake contents.

Data table of daily-mean values

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed **"TOTAL"** gives the sum of the daily figures for each month, the line headed **"MEAN"** gives the average flow in cubic feet per second for the month, and the lines headed **"MAX"** and **"MIN"** give the maximum and minimum daily discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed **"CFSM"**), or in inches (line headed **"IN."**), or in acre-feet (line headed **"AC-FT"**). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulation or diversion, or if the drainage area includes large non-contributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Statistics of monthly-mean data

A tabular summary of the mean (line headed **"MEAN"**), maximum (line headed **"MAX"**), and minimum (line headed **"MIN"**) of monthly-mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period is expressed as **"FOR WATER YEARS ____-____, BY WATER YEAR (WY),"** and lists the first and last water years of the range of years selected from the **PERIOD OF RECORD** paragraph in the station manuscript. It consists of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled **"SUMMARY STATISTICS"** follows the statistics of monthly-mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, **"WATER YEARS ____-____,"** will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed are consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated **ANNUAL** (see line headings below), except for the **"ANNUAL 7-DAY MINIMUM"** statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the **REMARKS** paragraph of the manuscript or in footnotes. Because the designated period may not be the same as in the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the **REMARKS** paragraph or in footnotes. Selected streamflow-duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage area.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments below clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily-mean values of discharge for the year. At some stations, the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily-mean discharges for the year noted or for the designated period. At some stations the yearly mean is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual-mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual-mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily-mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily-mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.-- The lowest mean discharge for 7 consecutive days for a calendar year or a water year. (Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year, April 1 to March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

MAXIMUM PEAK FLOW.--The maximum instantaneous peak discharge occurring for the water year or designated period. Occasionally the maximum flow for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak flow is given in the table and the maximum flow may be reported in a footnote or in the **REMARKS** paragraph in the manuscript.

MAXIMUM PEAK STAGE.-- The maximum instantaneous peak stage occurring for the water year or designated period. Occasionally the maximum stage for a year may occur at midnight at the beginning or end of the year, on a recession from or rise toward a higher peak in the adjoining year. In this case, the maximum peak stage is given in the table and the maximum stage may be reported in the REMARKS paragraph in the manuscript or in a footnote. If the dates of occurrence of the maximum peak stage and maximum peak flow are different, the **REMARKS** paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM, $ft^3/s/mi^2$) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inch (IN., in.) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that has been exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that has been exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that has been exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made during times of drought or flood to give better areal coverage of those events. These measurements and others collected for some special reasons are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol **"e"** and printing a table footnote, **"e Estimated,"** or by listing the dates of the estimated record in the **REMARKS** paragraph of the station description.

Accuracy of the Records

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

The accuracy attributed to the records is indicated under **"REMARKS." "Excellent"** means that about 95 percent of the daily discharges are within 5 percent of their true values; **"good,"** within 10 percent; and **"fair,"** within 15 percent. Records that do not meet the criteria mentioned are rated **"poor."** Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second (ft^3/s) for values less than 1 ft^3/s; to the nearest tenth between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

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

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Maryland and Delaware offices of the MD-DE-DC District. In addition, most of the daily-mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the offices whose addresses are given on the back of the title page of this report.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A **continuing-record station** is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A **partial-record station** is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A **miscellaneous** sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between **"continuing records,"** as used in this report, and **"continuous recordings,"** which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 3.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available, or where the water quality differs significantly from that of the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-Site Measurements and Sample Collection

In obtaining water-quality data, a major concern is to insure that the data obtained represent the in situ quality of the water. For this reason, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made on-site when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are given in publications on **"Techniques of Water-Resources Investigations,"** Book 1, Chap. D2; Book 3, Chap. A1, A3, and A4; Book 9, Chap. A1-A9. These references are listed under **"PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS"** (TWRI) section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the U.S. Geological Survey Maryland and Delaware offices.

One sample can adequately define 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 mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream-Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured, and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey Maryland office whose address is given on the back of the title page of this report.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may closely follow the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Maryland and Delaware Offices of the U.S. Geological Survey.

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 subdivided-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 subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after these periods, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

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

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

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (**BOD**), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the U.S. Geological Survey laboratory in Arvada, Colorado. Methods used to analyze sediment samples and to compute sediment records are described in TWRI Book 5, Chapter C1. Methods used by the U.S. Geological Survey laboratories are given in TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters that are currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of **"daily values"** of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge-gaging station, neither the **LOCATION** nor the **DRAINAGE AREA** statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments below describe information presented under the various headings of the station description.

LOCATION.--See Data Presentation under **"Records of Stage and Water Discharge;"** same comments apply.

DRAINAGE AREA.--See Data Presentation under **"Records of Stage and Water Discharge;"** same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the U.S. Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made in the U.S. Geological Survey's distributed data system, **NWIS**, and subsequently to its web-based National data system, **NWISWeb [http://water.usgs.gov/nwis/nwis]**. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from **NWIS** or **NWISWeb** to ensure the most recent updates. Updates to **NWISWeb** are currently made on an annual basis.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant
V	Analyte was detected in both the environmental sample and the associated blank.
M	Presence of material verified but not quantified.

WATER-QUALITY CONTROL DATA

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this District are described in the following section. Procedures have been established for the storage of water-quality-control data within the U.S. Geological Survey. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this District are:

Source solution blank - a blank solution that is transferred to a sample bottle in an area of the office laboratory with an atmosphere that is relatively clean and protected with respect to target analytes.

Ambient blank - a blank solution that is put in the same type of bottle used for an environmental sample, kept with the set of sample bottles before sample collection, and opened at the site and exposed to the ambient conditions.

Field blank - a blank solution that is subjected to all aspects of sample collection, field-processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank - a blank solution that is processed through the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank -a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank, but normally done in the more controlled conditions of the office.)

Sampler blank - a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Filter blank - a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank - a blank solution that is treated with the sampler preservatives used for an environmental sample.

Reference Samples

A Reference sample is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to insure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

Replicate Samples

Replicate samples are a set of environmental samples collected in a manner so that the samples are considered to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this District are:

Concurrent sample - a type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating collection of samples into two or more compositing containers.

Sequential sample - a type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample - a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

Concurrent sample - a type of spike sample that is collected at the same time with the same sampling and compositing devices then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

Split sample - a type of spike sample in which a sample is split into subsamples contemporaneous in time and space then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

ACCESS TO USGS DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for the most current or discontinued gaging stations on the world wide web (**WWW**). These data may be accessed at

http://water.usgs.gov/

Some water-quality and ground-water data also are available on the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (See address for MD-DE-DC District office on back of the title page).

DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Definitions of common terms such as algae, water level, and precipitation are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting inch/pound units to International System (**SI**) units on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

Acre-foot (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (**See also "Annual runoff"**)

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "**filtered**" sample.

Annual runoff is the total quantity of water that is discharged ("**runs off**") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

Annual 7-day minimum is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 to September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Aroclor is the registered trademark for a group of polychlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Recolors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type and the last two digits represent the weight percent of the hydrogen substituted chlorine.

Artificial substrate is a device that is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (**made of wire cages filled with clean streamside rocks**) and multiplate samplers (**made of hardboard**) for benthic organism collection, and plexiglass strips for periphyton collection. (**See also "Substrate"**)

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter (**g/m^3**), and periphyton and benthic organisms in grams per square meter (**g/m^2**). (**See also "Biomass"**)

Aspect is the direction toward which a slope faces with respect to the compass.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Bankfull stage, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

Base discharge (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peaks per year will be published.

Base flow is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

Bedload is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 ft) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler may also contain a component of the suspended load.

Bedload discharge (tons per day) is rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (**See also "Bedload" and "Sediment"**)

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed. (**See also "Bedload" and "Sediment"**)

Benthic organisms are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as mass per unit area or volume of habitat.

Biomass pigment ratio is an indicator of the total proportion of periphyton which are autotrophic (plants). This is also called the Autotrophic Index.

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bulk electrical conductivity is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved solids content of the pore water and lithology and porosity of the rock.

Cells/volume refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (**mL**) or liter (**L**).

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements on cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } 4/3\,\pi r^3 \qquad \text{cone } 1/3\,\pi r^3 h \qquad \text{cylinder } \pi r^2 h.$$

pi is the ratio of the circumference to the diameter of a circle; pi = 3.14159…
From cell volume, total algal biomass expressed as biovolume ($\mu m^3/mL$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes over all species.

Cfs-day (**See "Cubic foot per second-day"**)

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [**See also "Biochemical oxygen demand (BOD)"**]

Channel bars, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

Clostridium perfringens (C. perfringens) is a spore-forming bacterium that is common in the feces of human and other warm-blooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (**See also "Bacteria"**)

Coliphages are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of waters and of the survival and transport of viruses in the environment.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

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

Continuous-record station is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

Control designates a feature in the channel downstream from a gaging station that physically influences the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

Cubic foot per second (CFS, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term "**second-feet**" sometimes is used synonymously with "**cubic feet per second**" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, [(ft^3/s)/d]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily-mean discharges reported in the daily-value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

Cubic foot per second per square mile [CFSM, (ft^3/s)/mi^2] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (**See also "Annual runoff"**)

Daily mean suspended-sediment concentration is the time-weighted concentration of suspended sediment passing a stream cross section during a 24-hour day. (**See also "Daily mean suspended-sediment concentration," "Sediment," and "Suspended-sediment concentration"**)

Daily-record station is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

Data Collection Platform (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

Data logger is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded from onsite data loggers for entry into office data systems.

Datum is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (**See also "Gage datum," "Land-surface datum," "National Geodetic Vertical Datum of 1929," and "North American Vertical Datum of 1988"**)

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (**cells/mL**) of sample. (**See also "Phytoplankton"**)

Diel is of or pertaining to a 24-hour period of time; a regular daily cycle.

Discharge, or **flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediments or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (**cubic feet per second**). Discharge also can apply to the rate at which constituents such as suspended sediment, bedload, and dissolved or suspended chemical constituents, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (**tons per day**).

Dissolved refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of "**dissolved**" constituent concentrations are made on sample water that has been filtered.

Dissolved oxygen (DO) is the molecular oxygen (**oxygen gas**) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the "**residue-on-evaporation**" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (**as mg/L $CaCO_3$**) can be converted to carbonate concentration by multiplying by 0.60.

Diversity index (H) (Shannon Index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i \approx 1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (**See "Drainage area"**)

Dry mass refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (**See also "Ash mass," "Biomass," and "Wet mass"**)

Dry weight refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (**See also "Wet weight"**)

Embeddedness is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (**See also "Substrate embeddedness class"**)

Enterococcus bacteria are commonly found in the feces of humans and other warm-blooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar and subsequent transfer to EIA medium. Enterococci include ***Streptococcus feacalis, Streptococcus feacium, Streptococcus avium***, and their variants. (**See also "Bacteria**")

EPT Index is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive, the index usually decreases with pollution.

Escherichia coli (E. coli) are bacteria present in the intestine and feces of warm-blooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium. Their concentrations are expressed as number of colonies per 100 mL of sample. (**See also "Bacteria"**)

Estimated (E) concentration value is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (**MDL**), an '**E**' code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an '**E**' code even though the measured value is greater than the **MDL**. A value reported with an '**E**' code should be used with caution. When no analyte is detected in a sample, the default reporting value is the **MDL** preceded by a less than sign (<).

Euglenoids (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (**See also "Phytoplankton"**)

Extractable organic halides (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semi-volatile and extractable by ethyl acetate from air-dried streambed sediments. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediments.

Fecal coliform bacteria are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (**See also "Bacteria"**)

Fecal streptococcal bacteria are present in the intestine of warm-blooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (**See also "Bacteria"**)

Fire algae (Pyrrhophyta) are free-swimming unicells characterized by a red pigment spot.(**See also "Phytoplankton"**)

Flow-duration percentiles are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

Gage datum is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly larger than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any National geodetic datum. However, if the elevation of the gage datum relative to the National datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929 has been determined, then the gage readings can be converted to elevations above the National datum by adding the elevation of the gage datum to the gage reading.

Gage height (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height is often used interchangeably with the more general term "**stage**," although gage height is more appropriate when used in reference to a reading on a gage.

Gage values are values that are recorded, transmitted and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

Gaging station is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data 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.

Gas chromatography/flame ionization detector (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

Geomorphic channel units, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (**NAWQA**) Program habitat sampling.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "**moss**" in lakes. Their concentrations are expressed as number of cells per milliliter (**cells/mL**) of sample. (**See also "Phytoplankton"**)

Habitat, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat are typically made over a wider geographic scale than are measurements of species distribution.

Habitat quality index is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

High tide is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. ***See NOAA web site: http://www.co-ops.nos.noaa.gov/tideglos.html***

Hilsenhoff's Biotic Index (HBI) is an indicator of organic pollution which uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = sum\frac{(n)(a)}{N}$$

where n is the number of individuals of each taxon, a is the tolerance value of each taxon, and N is the total number of organisms in the sample.

Horizontal datum (**See "Datum"**)

Hydrologic index stations referred to in this report are four continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the USGS. Each hydrologic unit is identified by an 8-digit number.

Inch (IN., in.), as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it. (**See also "Annual runoff"**)

Instantaneous discharge is the discharge at a particular instant of time. (**See also "Discharge"**)

Island, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year on average, and remains stable except during large flood events.

Laboratory Reporting Level (LRL) is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The **LRL** controls false negative error. The probability of falsely reporting a non-detection for a sample that contained an analyte at a concentration equal to or greater than the **LRL** is predicted to be less than or equal to 1 percent. The value of the **LRL** will be reported with a "less than" (**<**) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually based on the most current quality-control data and may, therefore, change. **[Note: In several previous NWQL documents (Connor and others, 1998; NWQL Technical Memorandum 98.07, 1998), the LRL was called the non-detection value or NDV—a term that is no longer used.)**

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Latent heat flux (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

Light-attenuation coefficient, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation

$$I = I_o e^{-\lambda L} ,$$

where I_o is the source light intensity, I is the light intensity at length L (in meters) from the source, λ is the light-attenuation coefficient, and e is the base of the natural logarithm. The light attenuation coefficient is defined as

$$\lambda = -\frac{1}{L}\log_e \frac{I}{I_o} .$$

Lipid is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

Long-Term Method Detection Level (LT-MDL) is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (**MDL**) spike sample measurements over an extended period of time. **LT-MDL** data are collected on a continuous basis to assess year-to-year variations in the **LT-MDL**. The **LT-MDL** controls false positive error. The chance of falsely reporting a concentration at or greater than the **LT-MDL** for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

Low tide is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. ***See NOAA web site: http://www.co-ops.nos.noaa.gov/tideglos.html***

Macrophytes are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that are usually arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

Mean concentration of suspended sediment (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (**See also "Daily mean suspended-sediment concentration" and "Suspended-sediment concentration"**)

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (**See also "Discharge"**)

Mean high or low tide is the average of all high or low tides, respectively, over a specific period.

Mean sea level is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (**See also "Datum"**)

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the **MDL** concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

Microsiemens per centimeter (US/CM, µS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

Minimum Reporting Level (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method (**Timme, 1995**).

Miscellaneous site, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

Nanograms per liter (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place. ***See NOAA web site: http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88*** **(See "North American Vertical Datum of 1988")**

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate.")

Nekton are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

Nephelometric turbidity unit (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of Formazin. Turbidity measured in **NTU** uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

North American Vertical Datum of 1988 (NAVD 1988) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the U.S. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and U.S. first-order terrestrial leveling networks.

Organic carbon (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediments. May be reported as dissolved organic carbon (**DOC**), particulate organic carbon (**POC**), or total organic carbon (**TOC**).

Organic mass or **volatile mass** of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (**See also "Ash mass," "Biomass," and "Dry mass"**)

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (**mL**) or liter (**L**). Numbers of planktonic organisms can be expressed in these terms.

Organochlorine compounds are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

Parameter Code is a 5-digit number used in the USGS computerized data system, National Water Information System (**NWIS**), to uniquely identify a specific constituent or property.

Partial-record station is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

Particle size is the diameter, in millimeters (**mm**), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes Law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, Sedigraph) 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**).

Particle-size classification, as used in this report, agrees with the recommendation 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	0.004 - 0.062	Sedimentation
Sand	0.062 - 2.0	Sedimentation/sieve
Gravel	2.0 -64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter 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.

Peak flow (peak stage) is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation to the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

Percent composition or **percent of total** is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, mass, or volume.

Percent shading is determined by using a clinometer to estimate left and right bank shading. The values are added together and divided by 180 to determine percent shading relative to a horizontal surface.

Periodic-record station is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year, but at a frequency insufficient to develop a daily record.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7 are termed "acidic," and solutions with a pH greater than 7 are termed "basic." Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

Phytoplankton is the plant part of the plankton. They are usually microscopic, and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae. (See also "Plankton")

Picocurie (PC, pCi) is one trillionth ($\mathbf{1 \times 10^{-12}}$) of the amount of radioactive nuclide represented by a curie (**Ci**). A curie is the quantity of radioactive nuclide that yields 3.7×10^{10} radioactive disintegrations per second (**dps**). A picocurie yields 0.037 dps, or 2.22 dpm (**disintegrations per minute**).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (**cells/mL of sample**).

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Polychlorinated naphthalenes (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (**PCBs**) and have been identified in commercial **PCB** preparations.

Pool, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (**chiefly, green plants**). The rate of primary production is estimated by measuring the amount of oxygen released (**oxygen method**) or the amount of carbon assimilated (**carbon method**) by the plants.

Primary productivity (carbon method) is expressed as milligrams of carbon per area per unit time [**mg C/(m^2/time)**] for periphyton and macrophytes or per volume [**mg C/(m^3/time)**] for phytoplankton. Carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (**carbon-14**). The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period. (**See also "Primary productivity"**)

Primary productivity (oxygen method) is expressed as milligrams of oxygen per area per unit time [**mg O/(m^2/time)**] for periphyton and macrophytes or per volume [**mg O/(m^3/time)**] for phytoplankton. Oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (**See also "Primary productivity"**)

Radioisotopes are isotopic forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

Reach, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

Recoverable from bed (bottom) material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. (**See also "Bed material"**)

Recurrence interval, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or non-exceedance of a specified low flow). The terms "return period" and "**recurrence interval**" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day 10-year low flow ($7Q_{10}$) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the non-exceedances of the $7Q_{10}$ occur less than 10 years after the previous non-exceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous non-exceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the $7Q_{10}$.

Replicate samples are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

Return period (**See "Recurrence interval"**)

Riffle, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

River mileage is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (**October 1968**) of the Water Resources Council, and typically used to denote location along a river.

Run, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

Runoff is the quantity of water that is discharged ("runs off") from a drainage basin in a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (**See also "Annual runoff"**)

Sea level, as used in this report, refers to one of the two commonly used national vertical datums, (**NGVD 1929 or NAVD 1988**). See separate entries for definitions of these datums. See conversion of units page (inside back cover) for identification of the datum used in this report.

Sediment is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "**fluvial sediment**." Sediment 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 and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of precipitation.

Sensible heat flux (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

Seven-day 10-year low flow (7Q10) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-run average. The recurrence interval of the 7Q10 is 10 years; the chance that the annual 7-day minimum flow will be less than the 7Q10 is 10 percent in any given year. (**See also "Recurrence interval" and "Annual 7-day minimum**")

Shelves, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

Soil heat flux (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

Soil-water content is the water lost from the soil upon drying to constant mass at 105 ×C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (**in milligrams per liter**) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stable isotope ratio (per MILL/MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific waters, to evaluate mixing of different waters, as an aid in determining reaction rates, and other chemical or hydrologic processes.

Stage (**See "Gage height"**)

Stage-discharge relation is the relation between the water-surface elevation, termed stage (gage height), and the volume of water flowing in a channel per unit time.

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" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Substrate embeddedness class is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (**<2mm, sand or finer**). Below are the class categories expressed as percent covered by fine sediment:

0	< no gravel or larger substrate	
1	> 75%	
2	51-75%	45-25%
3	26-50%	5 < 5%

Surface area of a lake is that area (**acres**) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

Surficial bed material is the upper surface (**0.1 to 0.2 ft**) of the bed material such as that material which is sampled using U.S. Series Bed-Material Samplers.

Suspended (**as used in tables of chemical analyses**) refers to the amount (**concentration**) of undissolved material in a water-sediment mixture. It is operationally defined as the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by directly analyzing the suspended material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also "Suspended")

Suspended sediment is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (**See also "Sediment"**)

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 of dry sediment per liter of water-sediment mixture (**mg/L**). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (**See also "Sediment" and "Suspended sediment"**)

Suspended-sediment discharge (tons/day) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (**mg/L**) x discharge (**ft^3/s**) x 0.0027. (**See also "Sediment," "Suspended sediment," and "Suspended-sediment concentration"**)

Suspended-sediment load is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as "**annual suspended-sediment load**" or "**sand-size suspended-sediment load**," and so on. It is not synonymous with either suspended-sediment discharge or concentration. (**See also "Sediment"**)

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "**suspended, total**." Determinations of "**suspended, total**" constituents are made either by directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent. (**See also "Suspended"**)

Suspended solids, total residue at 105 °C concentration is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (**mg/L**). An aliquot of the sample is used for this analysis.

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Taxa (Species) richness is the number of species (**taxa**) present in a defined area or sampling unit.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, ***Hexagenia limbata***, is the following:

Kingdom:	Animal
Phylum:	Arthropoda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	*Hexagenia*
Species:	*Hexagenia limbata*

Thalweg is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder' is used in the table descriptions and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

Tons per acre-foot (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

Total is the amount of a given constituent in a representative whole-water (**unfiltered**) sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "**total**." (**Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined at least 95 percent of the constituent in the sample.**)

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (**See also "Bacteria"**)

Total discharge is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as "total sediment discharge," "**total chloride discharge**," and so on.

Total in bottom material is the amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total length (fish) is the straight-line distance from the anterior point of a fish specimen's snout, with the mouth closed, to the posterior end of the caudal (**tail**) fin, with the lobes of the caudal fin squeezed together.

Total load refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

Total organism count is the number of organisms collected and enumerated in any particular sample. (**See also "Organism count/volume**")

Total recoverable is the amount of a given constituent in a whole-water sample after a sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (**that is, less than 95 percent**) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

Total sediment discharge is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (**See also "Sediment," "Suspended sediment," "Suspended-Sediment Concentration," "Bedload," and "Bedload discharge"**)

Total sediment load or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as "**annual suspended-sediment load**" or "**sand-size suspended-sediment load**," and so on. It differs from total sediment discharge in that load refers to the material whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (**See also "Sediment," "Suspended-Sediment Load," and "Total load"**)

Transect, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

Turbidity is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values. Consequently, the method of measurement and type of instrument used to derive turbidity records should be included in the "**REMARKS**" column of the Annual Data Report.

Ultraviolet (UV) absorbance (absorption) at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of **UV** absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. **UV** absorbance (**absorption**) at 254 or 280 nanometers is measured in **UV** absorption units per centimeter of pathlength of UV light through a sample.

Vertical datum (**See "Datum"**)

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many **VOCs** are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. **VOC** contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens (**U.S. Environmental Protection Agency, 1996**).

Water year in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2003, is called the "**2003 water year**."

WDR is used as an abbreviation for "**Water-Data Report**" in the "**REVISED RECORDS**" paragraph to refer to State annual hydrologic-data reports. (**WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976.**)

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

Wet mass is the mass of living matter plus contained water. (**See also "Biomass" and "Dry mass"**)

Wet weight refers to the weight of animal tissue or other substance including its contained water. (**See also "Dry weight"**)

WSP is used as an acronym for "**Water-Supply Paper**" in reference to previously published reports.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (**See also "Plankton"**)

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals, the **"Techniques of Water-Resources Investigations",** that describe procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. Each chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility when revision and publication as the need arises.

Reports in the Techniques of Water-Resources Investigations series, which are listed below, are online at ***http://water.usgs.gov/pubs/twri/***. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office), telephone **"1-888-ASK-USGS". Please telephone "1-888-ASK-USGS"** for current prices, and refer to the title, book number, chapter number, and mention the **"U.S. Geological Survey Techniques of Water-Resources Investigations."** Products can then be ordered by telephone, or online at **http://www.usgs.gov/sales.html**, or by FAX to (303)236-4693 of an order form available online at ***http://mac.usgs.gov/isb/pubs/forms/***. Prepayment by major credit card or by a check or money order payable to the **"U.S. Geological Survey"** is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

1-D1. **Water temperature--influential factors, field measurements, and data presentation**, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. **Guidelines for collection and field analysis of ground-water samples for selected unstable constituents**, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

2-D1. **Application of surface geophysics to ground-water investigations**, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-D2. **Application of seismic-refraction techniques to hydrologic studies**, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

Section E. Subsurface Geophysical Methods

2-E1. **Application of borehole geophysics to water-resources investigations**, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

2-E2. **Borehole geopphysics applied to ground-water investigations**, by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.

Section F. Drilling and Sample Methods

2-F1. **Application of drilling, coring, and sampling techniques to test holes and wells**, by Eugene Shuter and W. E. Teasdale: USGS-TWRI Book 2, Chapter F1. 1989. 97 pages.

Book 3. Application of Hydraulics

Section A. Surface-Water Techniques

3-A1. **General field and office procedures for indirect discharge measurements**, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. **Measurement of peak discharge by the slope-area method**, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. **Measurement of peak discharge at culverts by indirect methods**, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. **Measurement of peak discharge at width contractions by indirect methods**, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. **Measurement of peak discharge at dams by indirect methods**, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. **General procedure for gaging streams**, by R. W. Carter and Jacob Dividian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. **Stage measurements at gaging stations**, T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. **Discharge measurements at gaging stations**, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. **Measurement of time of travel and dispersion in streams by dye tracing**, by F. A. Kilpatrick, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

3-A10. **Discharge ratings at gaging stations**, E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. **Measurement of discharge by moving-boat method**, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

Book 3. Application of Hydraulics--Continued

***Section A. Surface-Water Techniques**--Continued*

3-A12. **Flurometric procedures for dye tracing**, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 34 pages.

3-A13. **Computation of continuous records of streamflow**, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. **Use of flumes in measuring discharge**, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. **Computation of water-surface profiles in open channels**, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-A16. **Measurement of discharge using tracers**, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.

3-A17. **Acoustic velocity meter systems**, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.

3-A18. **Determination of stream reaeration coefficients by use of tracers**, by F. A. Kilpatrick, R. E. Rathbun, Nobuhiro Yotsukura, G. W. Parker, and L. L. Delong: USGS-TWRI Book 3, Chapter 18. 1989. 52 pages.

3-A19. **Levels of streamflow gaging stations**, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 31 pages.

3-A20. **Simulation of soluble waste transport and buildup in surface waters using tracers**, by F. A. Kilpratrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.

3-A21. **Stream-gaging cableways**, by C. Russell Wagner: USGS--TWRI Book 3, Chapter A21. 1995. 56 pages.

Section B. Ground-Water Techniques

3-B1. **Aquifer-test design, observation, and data analysis**, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pges.

3-B2. **Introduction to ground-water hydraulics, a programmed text for self-instruction**, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. **Type curves for selected problems of flow to wells in confined aquifers**, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. **Regression modeling of ground-water flow**, by R. L. Cooley and Richard L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.

3-B4. **Supplement 1. Regression modeling of ground-water flow - Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems**, by R. L. Cooley: USGS--TWRI Book 3, Chapter B4. 1993. 8 pages.

3-B5. **Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction**, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.

3-B6. **The principle of superposition and its application in ground-water hydraulics**, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

3-B7. **Analytical solutions for one-, two-, and three dimensional solute transport in ground-water systems with uniform flow**, by E. J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 190 pages.

3-B8. **System and boundary conceptualization in ground-water flow simulation**, by T.E. Reilly: USGS-TWRI Book 3, Chapter B8. 2001. 29 pages.

Section C. Sedimentation and Erosion Techniques

3-C1. **Fluvial sediment concepts**, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. **Field methods of measurement of fluvial sediment**, by T.K. Edwards and G.D. Glysson: USGS-TWRI book 3, Chapter C2. 1999. 89 p.

3-C3. **Computation of fluvial-sediment discharge**, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

Book 4. Htdrologic Analysis and Interpretation

Section A. Statistical Analysis

4-A1. **Some statistical tools in hydrology**, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. **Frequency curves**, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-A3. **Statistical methods in water resources**, by D.R. Helsel and R.M. Hirsch: USGS-TWRI book 4, chap. A3. 1991. Available only online at **http://water.usgs.gov/pubs/twri/twri4a3/**. (Accessed August 30, 2002.)

TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

Book 4. Hydrologic Analysis and Interpretation--Continued

Section B. Surface Water

4-B1. **Low-flow investigations**, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. **Storage analyses for water supply**, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. **Regional analyses of streamflow characteristics**, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

Section D. Interrelated Phases of the Hydrologic Cycle

4-D1. **Computation of rate and volume of stream depletion by wells**, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

Book 5. Laboratory Analysis

Section A. Water Analysis

5-A1. **Methods for determination of inorganic substances in water and fluvial sediments**, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.

5-A2. **Determination of minor elements in water by emission spectroscopy**, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. **Methods for determination of organic substances in water** and fluvial sediments, by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.

5-A4. **Methods for collection and analysis of aquatic biological and microbiological samples**, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.

5-A5. **Methods for determination of radioactive substances in water and fluvial sediments**, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. **Quality assurance practices for the chemical and biological analyses of water and fluvial sediments**, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

Section C. Sediment Analysis

5-C1. **Laboratory theory and methods for sediment analysis**, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

Book 6. Modeling Techniques

Section A. Ground Water

6-A1. **A modular three-dimensional finite-difference ground-water flow model**, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.

6-A2. **Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model**, by S. A. Leake and D. E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.

6-A3. **A modular finite-element model (MODFE) for areal and axisymetric ground-water-flow problems, Part 1: Model Description and User's Manual**, by L. J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.

6-A4. **A modular finite-element model (MODFE) for areal and axisymetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions**, by R. L. Cooley: USGS-TWRI Book 6, Chapter A4. 1992. 108 pages.

6-A5. **A modular finite-element model (MODFE) for areal and axisymetric ground-water-flow problems, Part 3: Design philosophy and programming details**, by L. J. Torak: USGS--TWRI Book 6, Chapter A5. 1993. 243 pages.

6-A6. **A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction**, by E.D. Swain and E.J. Wexler: USGS--TWRI Book 6, Chapter A6. 1995. 125 pages.

6-A7. **User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow,** by Weixing Guo and C. D. Langevin: USGS-TWRI book 6, Chapter A7, 2002. 77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

7-C1. **Finite difference model for aquifer simulation in two dimensions with results of numerical experiments**, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. **Computer model of two-dimensional solute transport and dispersion in ground water**, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. **A model for simulation of flow in singular and interconnected channels**, by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

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Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

8-A1. **Methods of measuring water levels in deep wells**, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. **Installation and service manual for U. S. Geological Survey manometers**, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

Section B. Instruments for Measurement of Discharge

8-B2. **Calibration and maintenance of vertical-axis type current meters**, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

9-A1. **National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling**, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A1. 1998. 47 p.

9-A2. **National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling**, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A2. 1998. 94 p.

9-A3. **National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling**, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A3. 1998. 75 p.

9-A4. **National Field Manual for the Collection of Water-Quality Data: Collection of Water Samples**, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A4. 1999. 156 p.

9-A5. **National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples**, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS--TWRI Book 9, Chapter A5. 1999. 149 p.

9-A6. **National Field Manual for the Collection of Water-Quality Data: Field Measurements**, edited by F.D. Wilde and D.B. Radtke: USGS--TWRI Book 9, Chapter A6. 1998. Variously paginated.

9-A7. **National Field Manual for the Collection of Water-Quality Data: Biological Indicators**, edited by D.N. Myers and F.D. Wilde: USGS--TWRI Book 9, Chapter A7. 1997 and 1999. Variously paginated.

9-A8. **National Field Manual for the Collection of Water-Quality Data: Bottom-material samples**, edited by D.B. Radtke: USGS--TWRI Book 9, Chapter A8. 1998. 48 p.

9-A9. **National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities**, edited by S.L. Lane and R.G. Fay: USGS--TWRI Book 9, Chapter A9. 1998. 60 p.

SELECTED U.S. GEOLOGICAL SURVEY REPORTS ON SURFACE-WATER RESOURCES IN DELAWARE

Listed below is a selection of reports on surface-water resources in Delaware which are available through the U.S. Geological Survey, Book and Open-File Reports, Federal Center, Building 41, Box 25425, Denver, Colorado 80225. **An asterick (*) indicates that the publication is out of print and is not purchasable from any official source.**

PROFESSIONAL PAPERS

P-822 Cushing, E.M., Kantrowitz, I.H., and Taylor K.R., 1973, **Water resources of the Delmarva Peninsula**, 58 p.

P-750-D Johnston, R. H., 1971, **Base flow as an indicator of aquifer characteristics in the Coastal Plain of Delaware**: Geological Survey Research, p. D212-D215.

P-600-B Williams, O.O., 1968, **Reservoir effects on downstream water temperatures in the upper Delaware River basin**: Geological Survey Research, p. B195-B199.

P-485-A* Sigafoos, R.S., 1964, **Botanical evidence of floods and flood-plain deposition**, p. A1-A35.

P-450-E Giustic, E.V., and Schneider. W.J., 1962, **Comparison of drainage on topographic maps of the Piedmont province in Short papers in geology, hydrology, and topography**: Geological Survey Research, article 212, p. E1-E189.

P-424-B Carter, R.W., 1961, **Magnitude and frequency of floods in suburban areas in Short papers in the geologic and hydrologic sciences**: Geological Survey Research, article 5, p. B9-B11.

P-417-B* Hely, A.G., and Olmsted, F.H., 1963, **Some relations between streamflow characteristics and the environment in the Delaware River region**, p. B1-B25.

P-381* Parker, G.G., Hely, A.G., Keighton, W.B., Olmsted, F.H., and others, 1965, **Water resources of the Delaware River basin**, 200 p.

WATER-SUPPLY PAPERS

W-2425 Hayes, M.A., 1997, **Delaware wetland resources, National Water Summary--Wetland Resources**, p. 147-152.

W-2400 **Delaware: Surface-Water Resources**

W-2375 **National Water Summary 1988-89--Floods and Droughts: Delaware**

W-2355-A Robert J. Shedlock, Judith M. Denver, Marta A. Hayes, Pixie A. Hamilton, Michael T. Koterba, Leon Joseph Bachman, Patrick J. Phillips, and William S.L. Banks, 1999, **Water-quality assessment of the Delmarva Peninsula, Delaware, Maryland, and Virginia: Results of Investigations**, 1987-91 41 p.

W-2300 Simmons, R.H., **Delaware surface-water resources *in* U.S. Geological Survey, 1986, National Water Summary 1985--Hydrologic events**, p. 181-186.

W-1871 Schneider, W.J., 1968, **Water data for metropolitan areas-A summary of data from 222 areas in the United States**, 397 p.

W-1849 Barnes, H.H., Jr., 1967, **Roughness characteristics of natural channels**, 213 p.

W-1838 Martin, R.O.R., and Hanson, R.L., 1966, **Reservoirs in the United States**, 115 p.

W-1813 Dalrymple, Tate, 1965, **Flood peak runoff and associated precipitation in selected drainage basins in the United States**, 406 p.

W-1812 Durfor, C.N., and Becker, Edith, 1964, **Public water supplies of the 100 largest cities in the United States, 1962**, 364 p.

W-1809-O Keighton, W.B., 1965, **Delaware River water quality, Bristol to Marcus Hook, Pennsylvania, August 1949 to December 1963**, 57 p.

W-1767* Rasmussen, W.C., Odell, J.W., and Beamer, N.H., 1966, **Delaware water**, 106 p.

W-1699-N Hardison, C.H., and Martin, R.O.R., 1963, **Water-supply characteristics of streams in the Delaware River basin and in southern New Jersey**, p. N1-N45.

W-1619-T Slaughter, T.H., 1962, **Beach-area water supplies between Ocean City, Maryland, and Rehoboth Beach, Delaware**, p. T1-T10.

W-1594-B Boggess, D.H., and Rima, D.H., 1962, **Experiments in water spreading at Newark, Delaware**, p. B1-B15.

W-1586-B* Cohen, Bernard, and McCarthy, L.T., Jr., 1962, **Salinity of the Delaware estuary**, p. B1-B57.

W-1586-C Miller, E.G., 1962, **Observations of tidal flow in the Delaware River**, p. C1-C26.

W-1586-E Lendo, A.C., 1966, **Record low tide of December 31, 1962, on the Delaware River**, p. E1-E20.

W-1586-G Keighton, W.B., 1966, **Fresh-water discharge-salinity relations in the tidal Delaware River**, p. G1-G16.

W-1473 Hem, J.D., 1959, **Study and interpretation of the chemical characteristics of natural water**, p. 269.

W-1420* Bogart, D.B., 1960, **Floods of August-October 1955, New England to North Carolina**, 854 p.

W-1302 Geological Survey Research, 1960, **Compilation of records of surface waters of the United States through September 1950-Part 1B, North Atlantic slope basins, New York to York River**, 679 p.

SELECTED U.S. GEOLOGICAL SURVEY REPORTS ON SURFACE-WATER RESOURCES IN DELAWARE--Contimued

WATER-SUPPLY PAPERS--Continued

W-1299 Lohr, E.W., and Love, S.K., 1954, **The industrial utility of public water supplies in the United States, 1952 *in* Part 1, States east of...**

W-1262 Durfor, C.N., and Keighton, W.B., 1954, **Chemical characteristics of Delaware River water, Trenton, New Jersey, to Marcus Hook, Pennsylvania**, 173 p.

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W-340* Wood, B.D., 1916, **Stream-gaging stations and publications relating to water resources, 1885-1913**, 195 p.

W-236* Dole, R.B., 1909, **The quality of the surface waters in the United States *in* Part 1, Analyses of waters east of the one-hundredth meridian**, 123 p.

W-57 U.S. Geological Survey, 1902, **Deep borings in the United States, Part I, Delaware**, p. 21.

W-44* Gannett, Henry, 1901, **Profiles of rivers in the United States**, 100 p.

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C-381* Knox, C.F., 1956, **Index to surface-water records to September 30, 1955 *in* Part 1, North Atlantic slope basins**, 30 p.

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B-1245* Heck, l.W., Wraight, A.J., Orth, D.R., Carter, J.R., VanWinkle, L.G., 1966, **Delaware place names**, 124 p.

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WRIR 82-32 Lang, D.J., **Water quality of the three major tributaries to the Chesapeake Bay, the Susquehanna, Potomac, and James Rivers, January 1979 - April 1981**, 64 p.

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OFR 84-426 Hilleary, J.T., Hydrologic data: **South Branch Casselman River, Garrett County, and Marsh Run, Washington County, Maryland**, 63 p.

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REPORTS OF INVESTIGATIONS

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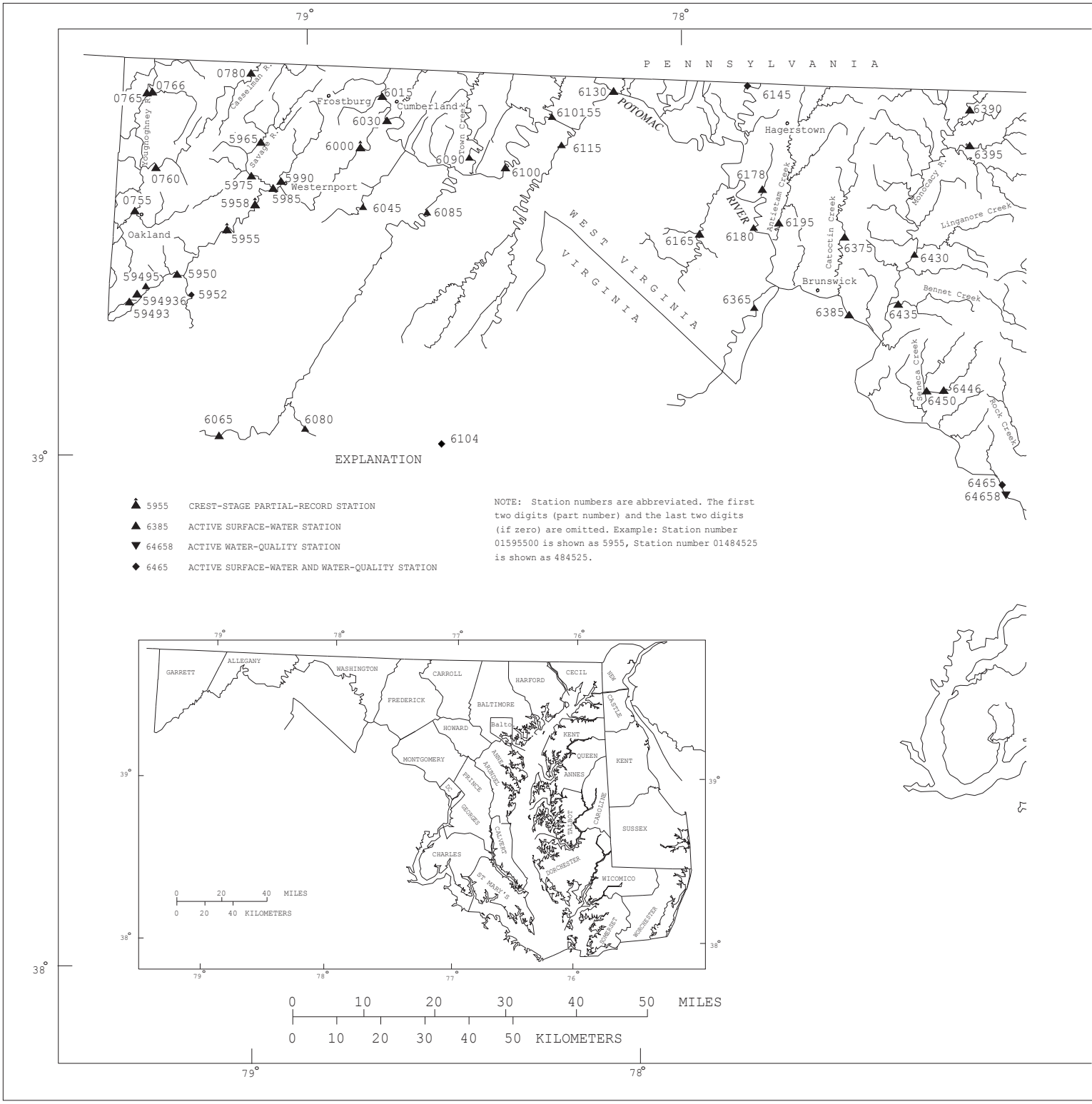
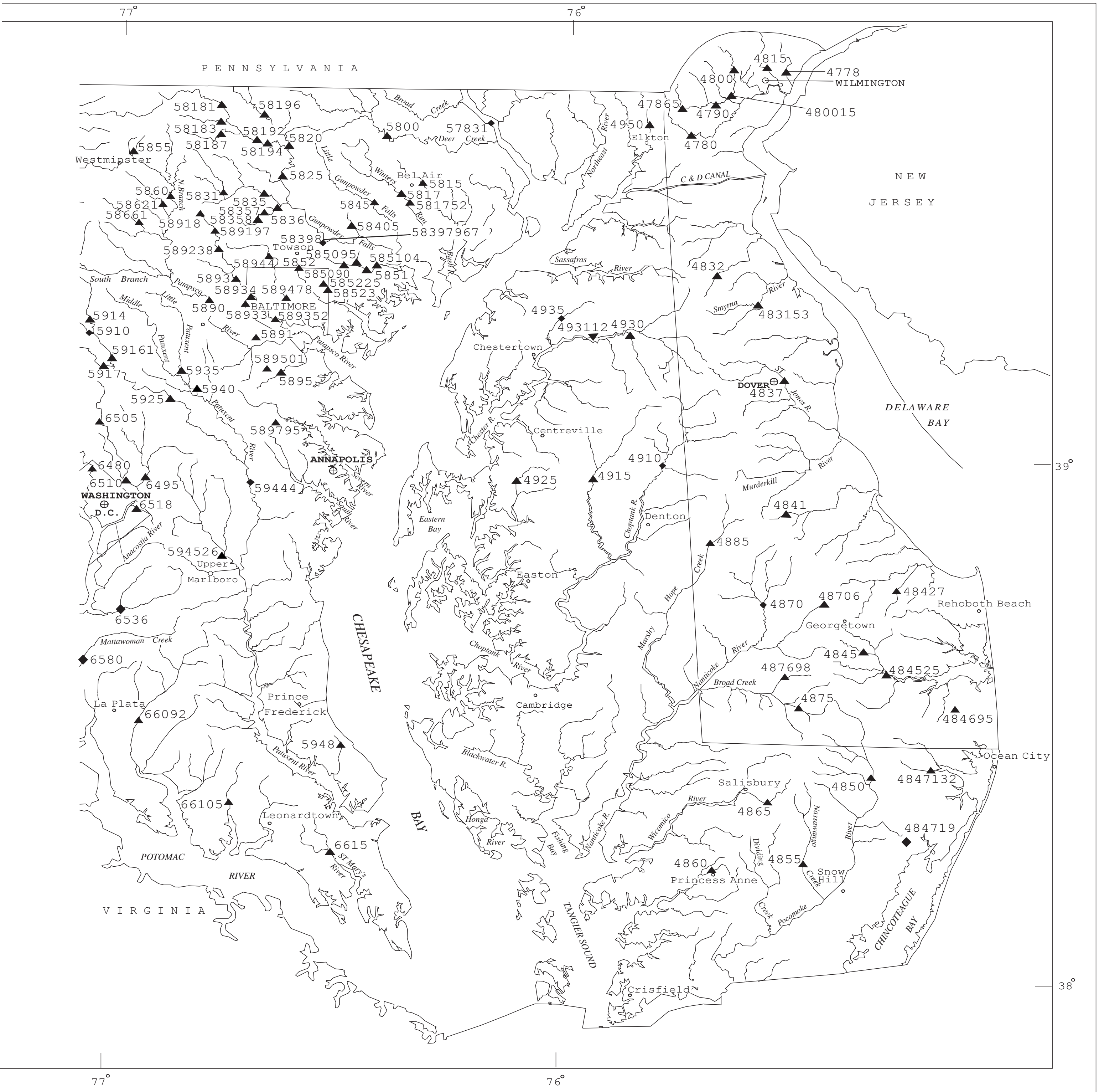


Base map modified from U.S. Geological Survey 1:100,000 DLG

Figure 3. Map of Maryland, Delaware, and Washington, D.C. showing location of surface-water, water-quality and crest-stage partial-record stations.


PENNSYLVANIA
NEW JERSEY
DELAWARE BAY
CHESAPEAKE BAY
TANGIER SOUND
CHINCOTEAGUE BAY
VIRGINIA
POTOMAC RIVER
WASHINGTON D.C.
BALTIMORE
ANNAPOLIS
DOVER
WILMINGTON
Westminster
Bel Air
Towson
Elkton
Chestertown
Centreville
Denton
Easton
Cambridge
Upper Marlboro
La Plata
Prince Frederick
Leonardtown
Salisbury
Princess Anne
Snow Hill
Crisfield
Georgetown
Rehoboth Beach
Ocean City
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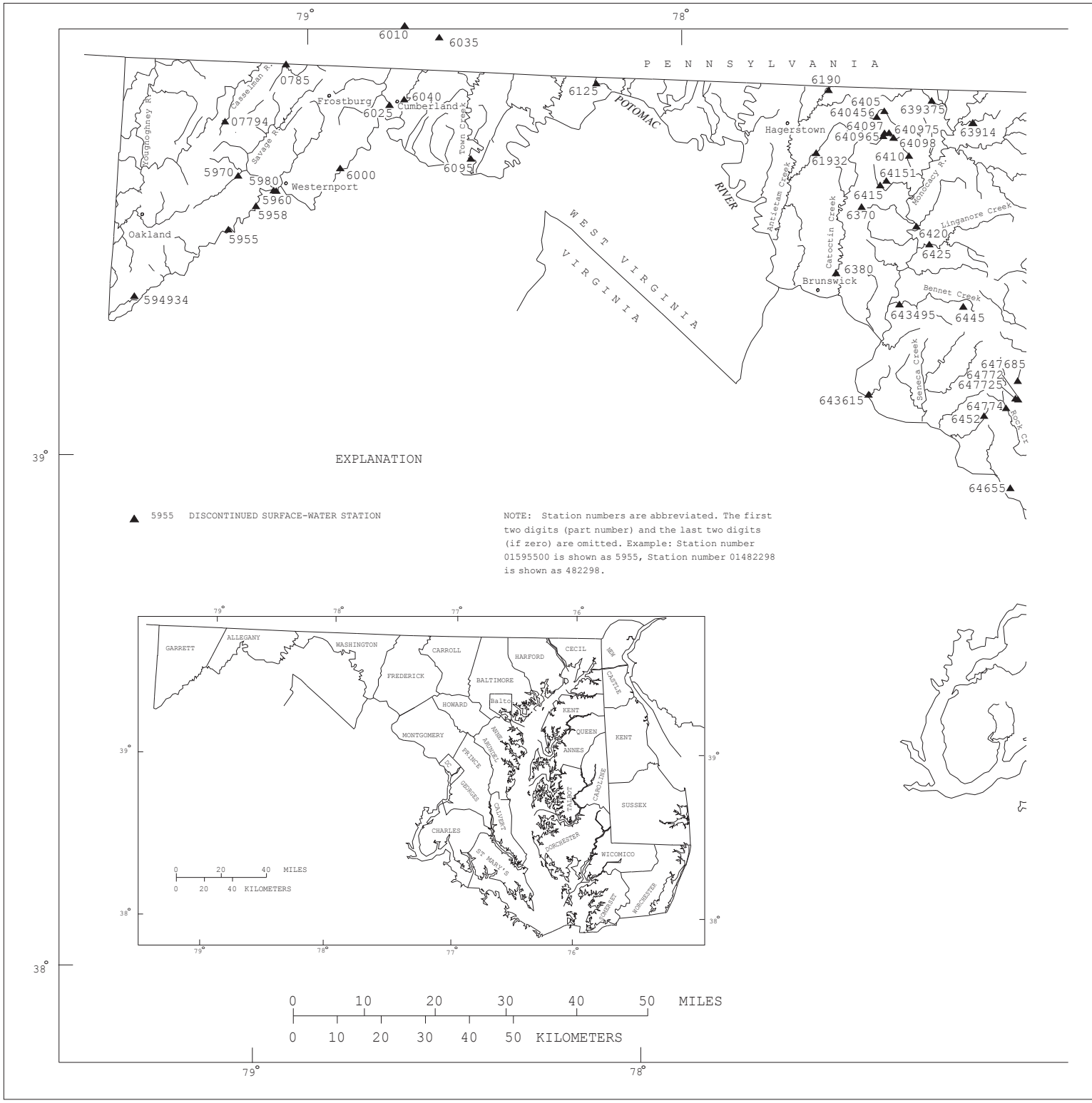
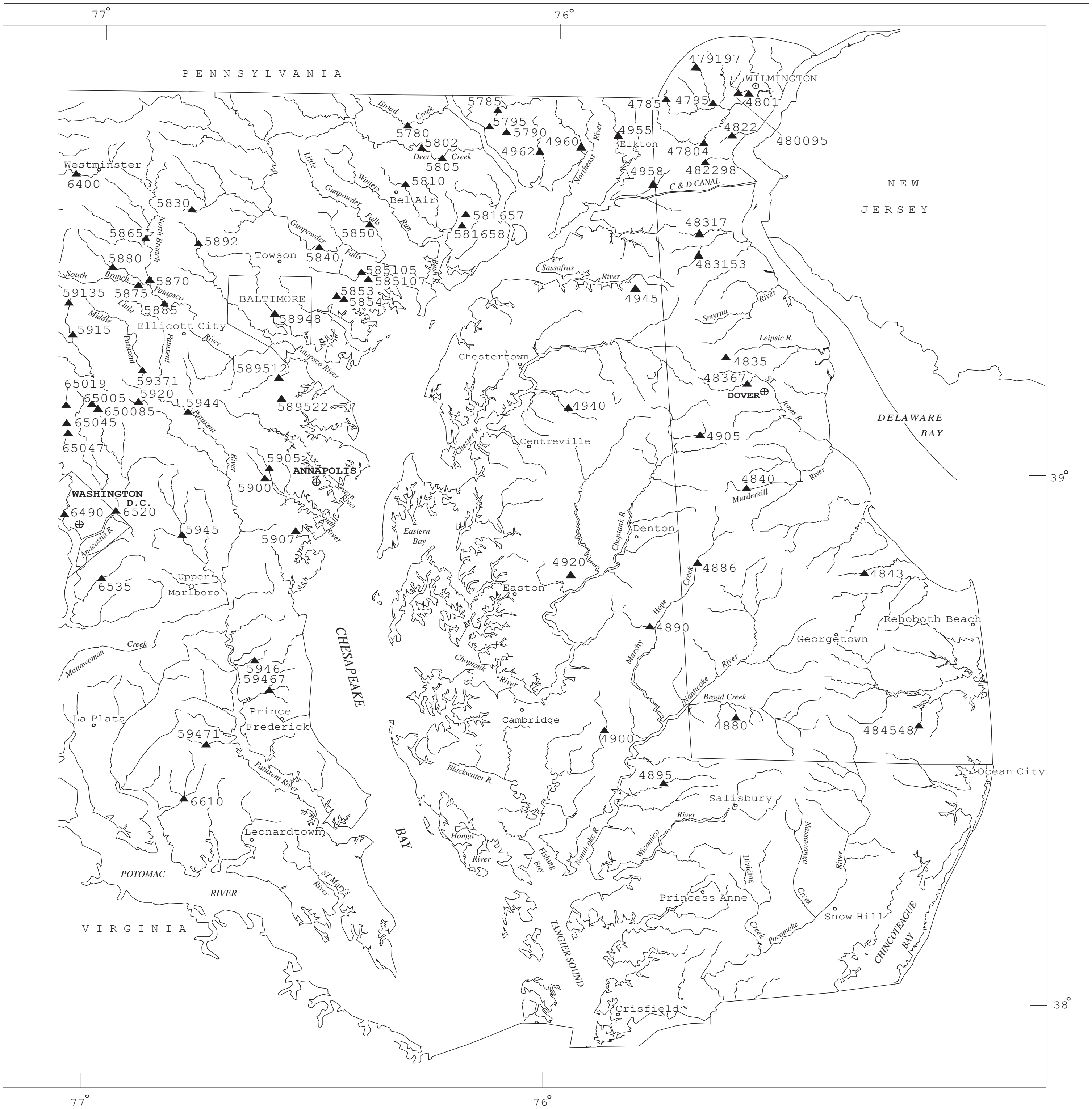


Base map modified from U.S. Geological Survey 1:100,000 DLG

Figure 4. Map of Maryland, Delaware, and Washington, D.C. showing location of discontinued surface-water stations.


77°
76°
PENNSYLVANIA
NEW JERSEY
DELAWARE BAY
VIRGINIA
CHESAPEAKE BAY
TANGIER SOUND
CHINCOTEAGUE BAY
POTOMAC RIVER
WASHINGTON D.C.
ANNAPOLIS
BALTIMORE
DOVER
WILMINGTON
Westminster
Towson
Bel Air
Ellicott City
Elkton
Chestertown
Centreville
Denton
Easton
Cambridge
Upper Marlboro
La Plata
Prince Frederick
Leonardtown
Salisbury
Princess Anne
Snow Hill
Crisfield
Ocean City
Rehoboth Beach
Georgetown
C & D CANAL
39°
38°
479197
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480095
47804
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Photo by Jim Jeffries

Discharge measurement being made using an AquaCalc and Flowtracker at Conococheague Creek at Fairview, Md (01614500).

SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

REMARK CODES

The following remark codes may appear with the water-quality data in this section:

PRINTED OUTPUT	REMARK
E	Estimated value
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count egual to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.
V	Analyte was detected in both the environmental sample and the associated blank.
M	Presence of material verified but not quantified.

Dissolved Trace-Element Concentrations

NOTE--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (ug/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the ug/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols in water year 1994.

Change in National Trends Network Procedures

NOTE--Sample handling procedures at all national Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80523 (Telephone: 303-491-5643).

NORTH ATLANTIC SLOPE BASINS

DELAWARE RIVER BASIN

01477800 SHELLPOT CREEK AT WILMINGTON, DE

LOCATION.--Lat 39°45'39.5", long 75°31'07.3", New Castle County, Hydrologic Unit 02040205, on right bank 100 ft east of intersection of 44th and Pine Streets in Clifton Park, 700 ft downstream from bridge on North Market Street in Wilmington, 0.2 mi downstream from Matson Run, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--7.46 mi^2.

PERIOD OF RECORD.--December 1945 to current year.

REVISED RECORDS.--WSP 1382: 1948(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 15.16 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those between 100 and 4,000 ft^3/s, which are fair, and those for estimated daily discharges (ice effect, plugged intake), which are poor. Occasional regulation at low flow from unknown source upstream from station. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1940, that of July 5, 1989. Flood of Aug. 1, 1945, reached a stage of about 8.5 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1700	1,080	4.48	Jun 20	1655	*4,270	*8.75
Feb 22	1400	1,570	5.36	Aug 11	1740	3,990	8.44
Mar 20	1955	2,250	6.35	Sep 15	1605	2,650	6.88
Apr 11	0835	1,260	4.80	Sep 28	0130	1,330	4.93
Jun 20	1310	1,160	4.61				

Minimum discharge, 0.31 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.42	3.4	2.3	130	e7.0	5.1	5.7	2.9	13	e2.0	2.2	14
2	0.41	2.4	2.3	30	e5.4	130	5.0	2.6	3.1	1.8	6.4	15
3	0.40	1.7	2.3	31	4.5	25	4.4	2.3	4.8	20	2.3	3.9
4	1.4	1.5	2.1	16	19	9.8	4.0	2.3	123	2.6	10	27
5	0.57	3.0	2.4	9.6	5.7	72	e3.9	2.2	22	2.3	12	3.4
6	0.42	28	3.0	14	e5.0	123	e3.8	2.4	5.9	2.9	3.8	1.6
7	0.36	3.7	2.7	9.7	e4.2	16	e10	2.3	137	6.8	10	1.3
8	0.31	2.5	3.3	13	e3.6	15	e9.0	6.4	18	2.7	18	1.1
9	0.31	2.1	4.7	12	e3.2	20	29	4.4	8.2	1.9	65	0.93
10	37	2.1	2.3	8.5	e2.8	8.8	8.7	3.1	5.4	2.0	11	0.84
11	180	11	185	6.7	e2.6	5.7	181	2.4	4.5	2.6	350	0.82
12	10	64	50	5.4	e2.4	5.4	25	2.2	40	1.6	12	2.0
13	2.3	16	67	e4.8	e2.2	6.5	8.7	2.0	16	1.4	4.3	28
14	1.2	5.4	63	e4.4	e2.2	5.6	6.2	2.0	14	3.8	2.6	4.1
15	0.95	3.5	11	e4.0	e2.0	4.2	4.1	1.9	7.4	1.7	1.7	367
16	35	34	7.2	e3.6	e2.0	4.4	3.3	8.0	3.5	1.3	5.2	14
17	5.0	136	5.0	3.3	34	8.5	3.7	5.2	3.6	1.1	3.1	5.0
18	2.2	41	4.1	e3.2	26	4.7	6.0	2.1	64	1.2	1.4	68
19	1.2	6.9	3.8	e3.0	12	3.4	4.1	1.8	8.1	1.9	1.2	59
20	0.98	4.5	94	e2.8	7.8	310	3.1	1.6	729	1.1	1.0	12
21	0.83	4.0	11	e2.6	14	61	3.2	8.2	63	1.0	0.96	8.5
22	0.78	12	5.5	e2.4	385	13	3.4	4.4	e14	1.4	9.7	5.7
23	0.78	4.9	4.0	e2.4	159	8.0	3.0	4.6	e10	1.8	3.1	101
24	0.81	3.3	3.3	e2.4	28	6.0	2.6	5.0	e8.0	3.8	0.55	18
25	2.0	2.7	141	e2.2	12	5.1	3.4	6.9	e5.8	1.1	0.51	9.8
26	30	2.4	18	e2.2	7.0	7.8	23	183	e4.4	0.85	0.52	4.2
27	2.2	11	7.3	e2.0	5.2	7.1	4.5	9.1	e3.6	1.3	0.57	3.3
28	1.3	3.2	5.0	e2.0	6.2	5.3	3.4	5.1	e3.0	1.5	0.50	112
29	18	2.7	4.1	e2.0	---	11	2.9	3.6	e2.5	0.86	0.50	6.0
30	19	2.5	3.4	e1.8	---	20	2.6	2.9	e2.2	0.83	39	3.6
31	14	---	3.2	e1.8	---	9.4	---	4.4	---	3.1	2.2	---
TOTAL	370.13	421.4	723.3	338.8	770.0	936.8	380.7	297.3	1,347.0	80.24	581.31	901.09
MEAN	11.9	14.0	23.3	10.9	27.5	30.2	12.7	9.59	44.9	2.59	18.8	30.0
MAX	180	136	185	130	385	310	181	183	729	20	350	367
MIN	0.31	1.5	2.1	1.8	2.0	3.4	2.6	1.6	2.2	0.83	0.50	0.82
CFSM	1.60	1.88	3.13	1.47	3.69	4.05	1.70	1.29	6.02	0.35	2.51	4.03
IN.	1.85	2.10	3.61	1.69	3.84	4.67	1.90	1.48	6.72	0.40	2.90	4.49

e Estimated

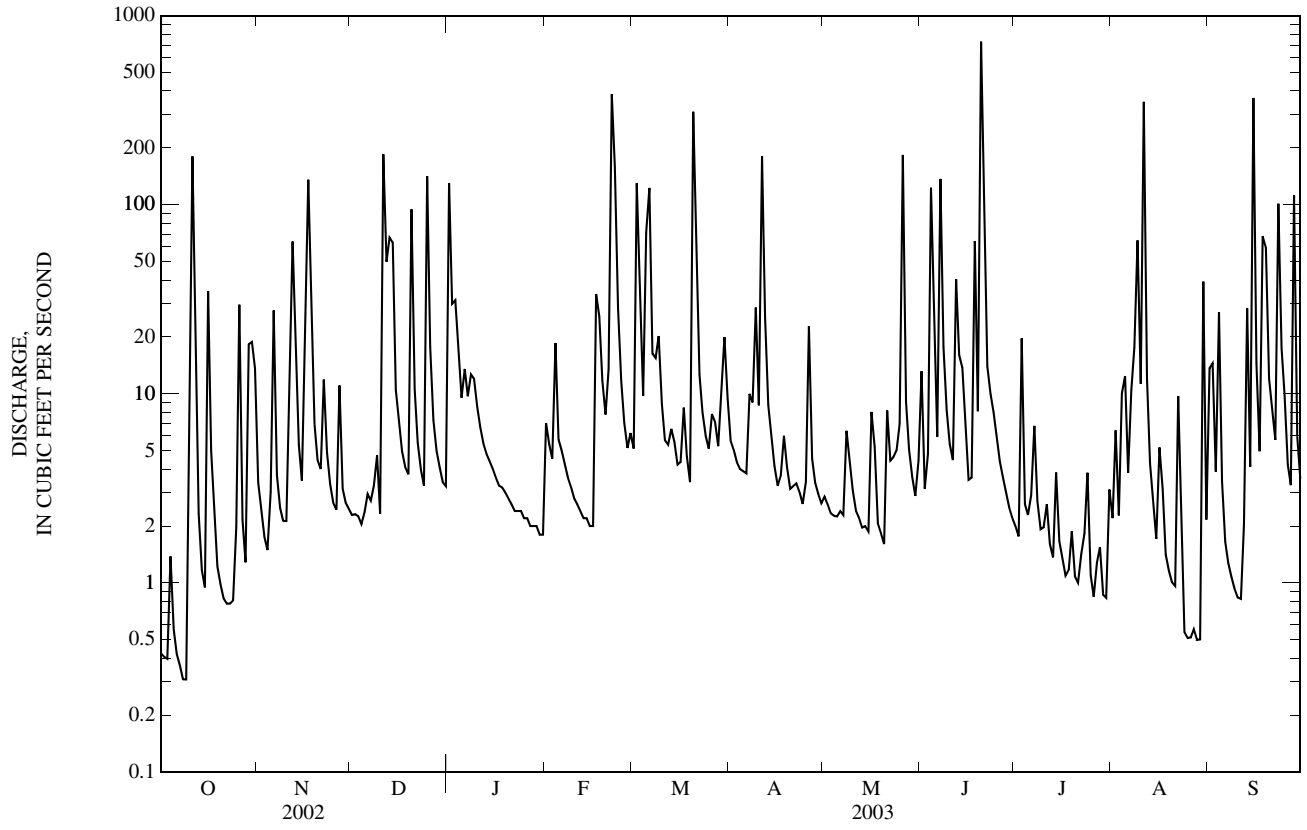
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	5.13	8.40	11.7	12.5	13.1	16.7	12.7	10.6	7.86	8.21	7.06	7.79
MAX	22.5	27.7	48.7	37.9	34.1	46.4	32.7	31.6	44.9	69.5	62.8	58.3
(WY)	(1996)	(1973)	(1997)	(1979)	(1979)	(2000)	(1983)	(1947)	(2003)	(1989)	(1967)	(1971)
MIN	0.62	1.35	1.03	1.18	1.80	2.93	2.55	1.76	1.09	0.65	0.32	0.90
(WY)	(1964)	(1966)	(1956)	(1981)	(2002)	(1985)	(1985)	(1955)	(1966)	(1957)	(1966)	(1951)

01477800 SHELLPOT CREEK AT WILMINGTON, DE--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	2,784.07		7,148.07			
ANNUAL MEAN	7.63		19.6		10.1	
HIGHEST ANNUAL MEAN					19.6	2003
LOWEST ANNUAL MEAN					3.93	2002
HIGHEST DAILY MEAN	185	Dec 11	729	Jun 20	1,480	Sep 16, 1999
LOWEST DAILY MEAN	0.22	Aug 12	0.31	(a)	0.09	(b)
ANNUAL SEVEN-DAY MINIMUM	0.23	Aug 7	0.54	Oct 3	0.10	Aug 27, 1966
MAXIMUM PEAK FLOW			4,270	Jun 20	(c)8,040	Jul 5, 1989
MAXIMUM PEAK STAGE			8.75	Jun 20	13.76	Jul 5, 1989
INSTANTANEOUS LOW FLOW			0.31	(d)	0.09	Oct 2, 1968
ANNUAL RUNOFF (CFSM)	1.02		2.63		1.36	
ANNUAL RUNOFF (INCHES)	13.88		35.64		18.44	
10 PERCENT EXCEEDS	16		34		18	
50 PERCENT EXCEEDS	1.6		4.2		2.9	
90 PERCENT EXCEEDS	0.35		1.2		0.79	

a Oct. 8, 9.
b Oct. 2, 4, 1968.
c From rating curve extended above 200 ft^3/s on basis of culvert and flow-over-road measurements at gage heights 9.10 and 11.91 ft.
d Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01478000 CHRISTINA RIVER AT COOCHS BRIDGE, DE

LOCATION.--Lat 39°38'14.6", long 75°43'40.4", New Castle County, Hydrologic Unit 02040205, on right bank 60 ft downstream from highway bridge, 0.5 mi southeast of Coochs Bridge, 3.3 mi south of Newark, 3.6 mi upstream from Belltown Run, and 22.6 mi upstream from mouth.

DRAINAGE AREA.--20.5 mi^2.

PERIOD OF RECORD.--April 1943 to current year.

REVISED RECORDS.--WDR MD-DE-79-1: 1943-70(P). WDR MD-DE-87-1: 1980-82(P).

GAGE.--Water-stage recorder. Datum of gage is 25.54 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 14, 1944, nonrecording gage on upstream side of bridge at same datum. Sept. 14, 1944, to May 13, 1969, recording gage at site on left bank at downstream side of highway bridge at same datum. May 26, 1969, to Dec. 5, 1973, recording gage on left bank 82 ft downstream from highway bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Low and medium flow regulated by mill upstream from station. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0245	1,340	10.94	Jun 7	1800	1,420	11.08
Dec 11	1830	1,470	11.18	Jun 20	1930	2,140	12.01
Dec 25	1445	1,240	10.74	Sep 15	1230	1,720	11.58
Feb 22	1930	*2,340	*12.19	Sep 19	0000	1,580	11.38
Mar 20	2130	1,590	11.40	Sep 23	1100	1,650	11.50
May 26	0915	1,010	10.23				

Minimum discharge, 0.29 ft^3/s, Feb. 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR
OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	12	8.1	159	19	25	27	16	23	17	13	10
2	2.6	6.7	7.5	69	16	228	25	16	15	16	28	16
3	2.5	5.5	7.0	84	13	135	23	15	15	36	9.5	10
4	2.5	5.2	6.1	73	41	43	21	14	183	18	12	77
5	2.8	5.6	7.3	28	19	160	20	14	84	16	24	17
6	2.6	55	11	32	11	351	19	15	25	42	12	10
7	2.4	12	8.9	24	13	79	43	15	452	25	21	8.1
8	2.3	6.5	9.2	27	12	82	48	20	93	15	25	7.4
9	2.1	5.9	10	30	11	134	96	20	38	17	126	6.8
10	16	5.3	7.4	21	12	56	41	16	24	19	80	6.1
11	344	14	455	17	11	32	267	17	20	21	29	6.1
12	29	103	196	14	9.6	29	75	15	59	14	31	7.9
13	8.5	48	133	14	8.4	36	36	14	83	15	13	74
14	5.2	16	212	13	8.5	35	27	12	90	14	11	27
15	4.5	10	35	13	10	26	25	12	40	12	9.5	713
16	78	88	22	11	3.4	26	23	38	21	12	18	48
17	23	467	17	12	6.8	55	21	29	19	11	25	20
18	7.8	121	14	10	21	30	23	16	152	11	11	225
19	5.0	27	13	10	17	23	20	14	33	11	9.1	387
20	4.4	18	188	11	18	435	19	12	819	10	8.3	28
21	4.2	15	45	10	28	318	18	24	229	10	7.8	19
22	3.9	23	21	8.7	e930	55	22	19	58	10	14	16
23	4.0	17	16	8.1	e660	35	19	18	37	13	12	523
24	4.1	12	14	7.6	e160	29	17	24	27	22	6.6	41
25	5.4	10	447	8.1	70	25	17	26	23	11	6.2	22
26	44	9.3	104	8.7	41	32	86	353	21	9.4	8.8	18
27	8.1	24	34	8.2	30	33	33	45	21	8.9	8.6	17
28	5.1	13	23	7.1	30	27	21	25	19	9.0	6.5	66
29	24	10	19	9.0	---	31	19	20	18	9.1	5.9	18
30	62	9.2	17	9.7	---	78	17	17	18	8.1	56	15
31	44	---	16	11	---	49	---	16	---	8.3	17	---
TOTAL	756.8	1,174.2	2,123.5	768.2	2,229.7	2,732	1,168	927	2,759	470.8	664.8	2,459.4
MEAN	24.4	39.1	68.5	24.8	79.6	88.1	38.9	29.9	92.0	15.2	21.4	82.0
MAX	344	467	455	159	930	435	267	353	819	42	126	713
MIN	2.1	5.2	6.1	7.1	3.4	23	17	12	15	8.1	5.9	6.1
CFSM	1.19	1.91	3.34	1.21	3.88	4.30	1.90	1.46	4.49	0.74	1.05	4.00
IN.	1.37	2.13	3.85	1.39	4.05	4.96	2.12	1.68	5.01	0.85	1.21	4.46

e Estimated

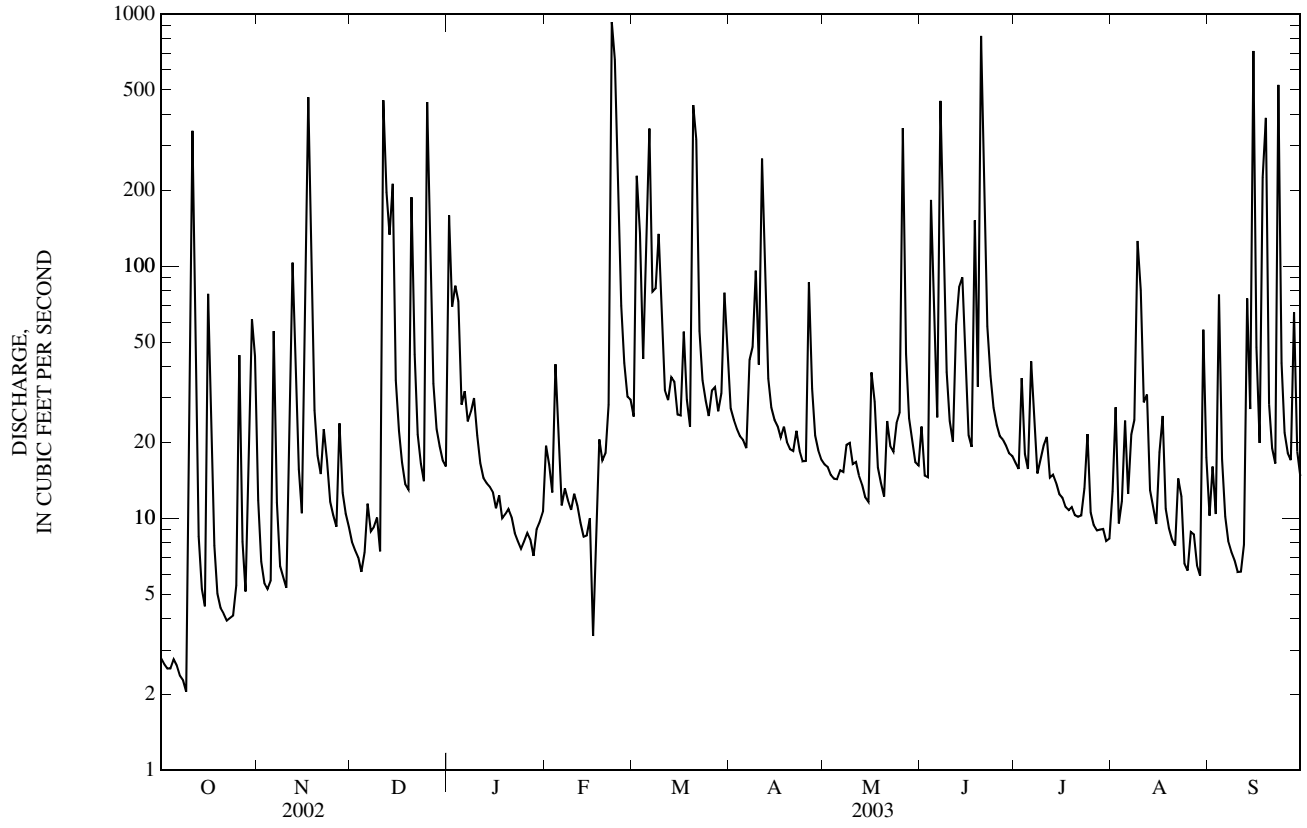
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2003, BY WATER YEAR (WY)

MEAN	14.7	23.8	34.5	39.3	42.0	48.9	36.2	30.8	21.9	21.0	17.2	17.3
MAX	62.9	82.8	122	165	154	121	107	77.6	92.0	165	117	107
(WY)	(1972)	(1973)	(1997)	(1979)	(1979)	(1978)	(1983)	(1990)	(2003)	(1989)	(1967)	(1999)
MIN	2.25	2.76	3.98	5.35	6.95	8.35	10.5	8.10	4.57	2.48	1.29	2.85
(WY)	(1964)	(1966)	(1966)	(1981)	(2002)	(1981)	(1963)	(1965)	(1966)	(1963)	(1966)	(1965)

01478000 CHRISTINA RIVER AT COOCHS BRIDGE, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	7,339.1		18,233.4			
ANNUAL MEAN	20.1		50.0		28.9	
HIGHEST ANNUAL MEAN					53.4	1978
LOWEST ANNUAL MEAN					10.4	2002
HIGHEST DAILY MEAN	467	Nov 17	930	Feb 22	2,650	Sep 16, 1999
LOWEST DAILY MEAN	(e)1.0	(a)	2.1	Oct 9	0.20	(b)
ANNUAL SEVEN-DAY MINIMUM	1.1	Aug 10	2.5	Oct 3	0.50	Aug 25, 1966
MAXIMUM PEAK FLOW			2,340	Feb 22	(c)7,050	Sep 16, 1999
MAXIMUM PEAK STAGE			12.19	Feb 22	13.73	Sep 16, 1999
INSTANTANEOUS LOW FLOW			(d)0.29	Feb 16	0.15	Aug 20, 1966
ANNUAL RUNOFF (CFSM)	0.98		2.44		1.41	
ANNUAL RUNOFF (INCHES)	13.32		33.09		19.13	
10 PERCENT EXCEEDS	37		91		48	
50 PERCENT EXCEEDS	7.0		18		13	
90 PERCENT EXCEEDS	2.3		6.9		4.3	

e Estimated.
a Aug. 13, 14.
b Aug. 7, 17, 18, 21, 27, 28, 1966.
c From rating curve extended above 1,500 ft^3/s.
d Freezeout.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01478650 WHITE CLAY CREEK AT NEWARK, DE

LOCATION.--Lat 39°41'21.2", long 75°44'55.5", New Castle County, Hydrologic Unit 02040205, on right bank 200 ft upstream from highway bridge on Paper Mill Road, at Newark, and 10.3 mi upstream from mouth.

DRAINAGE AREA.--69.0 mi^2.

PERIOD OF RECORD.--March 1994 to current year.

GAGE.--Water-stage recorder. Datum of gage is 56.45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (backwater, ice effect), which are fair. Flow affected by City of Newark municipal water plant upstream from station. Records do not include a negligible diversion upstream from station by MBNA America. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1645	3,690	10.08	Sep 15	1100	*9,980	*14.56
Mar 20	2230	2,230	8.94	Sep 23	1000	3,160	9.66

Minimum discharge, Unknown.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	49	46	305	e70	85	115	81	112	80	46	59
2	13	40	42	270	e66	386	108	80	84	79	46	89
3	e12	35	e38	187	e62	457	102	77	68	120	44	64
4	e12	34	e34	264	104	152	98	76	388	92	54	121
5	e12	34	e38	135	90	358	98	77	237	80	61	90
6	e11	80	e50	122	63	886	92	81	120	78	74	58
7	e11	49	e40	109	e60	282	106	80	345	80	54	49
8	e11	40	e38	105	e54	270	129	83	249	74	58	47
9	11	38	e42	117	e52	477	160	84	146	67	103	44
10	18	36	e40	99	e50	229	133	86	109	71	465	42
11	345	43	278	85	e48	143	354	84	97	83	116	42
12	132	88	385	78	e46	134	198	75	103	68	91	41
13	41	125	201	76	e44	159	135	67	134	64	68	130
14	28	55	503	75	e42	157	111	65	112	61	60	129
15	25	50	152	71	e40	125	105	65	99	60	52	3,940
16	113	80	101	65	34	124	99	81	84	54	65	286
17	97	330	81	e60	40	171	93	93	81	48	99	129
18	39	232	70	e56	95	132	95	69	226	49	59	167
19	31	86	67	e54	84	108	95	65	125	52	51	664
20	29	65	220	e50	81	479	91	61	e1,430	48	47	156
21	27	55	154	e46	83	663	90	75	e890	45	47	116
22	29	59	96	e44	1,140	204	96	92	239	43	51	98
23	26	63	82	e42	1,290	156	88	78	172	49	69	995
24	25	52	71	e40	492	137	83	96	139	58	45	201
25	27	50	369	e38	208	123	83	85	118	46	43	138
26	72	48	249	e36	135	120	157	408	105	42	43	117
27	41	62	131	e36	101	135	116	145	98	42	46	114
28	31	57	103	e34	93	112	92	104	91	42	45	189
29	35	51	93	e34	---	117	84	87	86	43	42	120
30	93	50	87	e32	---	166	83	76	83	41	116	100
31	78	---	89	e30	---	155	---	67	---	48	93	---
TOTAL	1,489	2,136	3,990	2,795	4,767	7,402	3,489	2,843	6,370	1,907	2,353	8,535
MEAN	48.0	71.2	129	90.2	170	239	116	91.7	212	61.5	75.9	284
MAX	345	330	503	305	1,290	886	354	408	1,430	120	465	3,940
MIN	11	34	34	30	34	85	83	61	68	41	42	41
CFSM	0.70	1.03	1.87	1.31	2.47	3.46	1.69	1.33	3.08	0.89	1.10	4.12
IN.	0.80	1.15	2.15	1.51	2.57	3.99	1.88	1.53	3.43	1.03	1.27	4.60

e Estimated

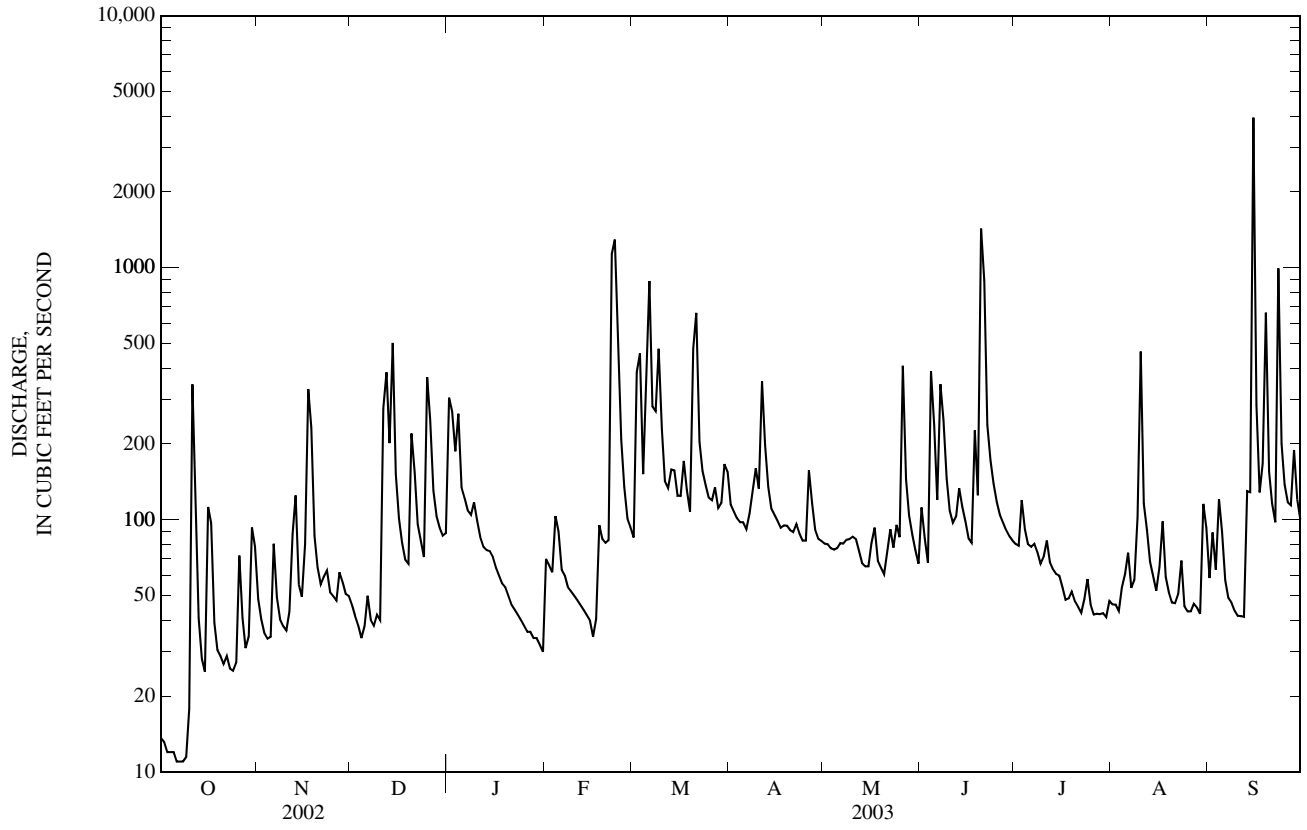
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2003, BY WATER YEAR (WY)

MEAN	57.0	59.7	94.1	114	102	167	107	84.6	73.4	44.1	43.6	85.2
MAX	185	144	326	256	170	345	171	145	212	104	119	284
(WY)	(1997)	(1997)	(1997)	(1996)	(2003)	(1994)	(1996)	(1996)	(2003)	(1996)	(1996)	(2003)
MIN	23.1	23.8	29.0	43.6	38.1	63.4	45.3	45.7	25.7	14.6	12.1	14.7
(WY)	(2002)	(2002)	(1999)	(2002)	(2002)	(2002)	(1995)	(2002)	(1995)	(2002)	(2002)	(2002)

01478650 WHITE CLAY CREEK AT NEWARK, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1994 - 2003	
ANNUAL TOTAL	17,168.4		48,076			
ANNUAL MEAN	47.0		132		84.9	
HIGHEST ANNUAL MEAN					132	2003
LOWEST ANNUAL MEAN					32.9	2002
HIGHEST DAILY MEAN	503	Dec 14	3,940	Sep 15	5,750	Sep 16, 1999
LOWEST DAILY MEAN	3.8	Aug 17	(e)11	(a)	3.8	Aug 17, 2002
ANNUAL SEVEN-DAY MINIMUM	5.4	Aug 11	11	Oct 3	5.4	Aug 11, 2002
MAXIMUM PEAK FLOW			9,980	Sep 15	(b)16,800	Sep 16, 1999
MAXIMUM PEAK STAGE			14.56	Sep 15	(c)17.13	Sep 16, 1999
INSTANTANEOUS LOW FLOW			UNKNOWN		2.6	Sep 13, 1995
ANNUAL RUNOFF (CFSM)	0.68		1.91		1.23	
ANNUAL RUNOFF (INCHES)	9.26		25.92		16.72	
10 PERCENT EXCEEDS	87		234		149	
50 PERCENT EXCEEDS	36		81		52	
90 PERCENT EXCEEDS	9.0		38		21	

e Estimated
a Oct. 6-9.
b From rating curve extended above 2,500 ft^3/s on basis of runoff comparison with White Clay Creek above Newark, DE (01478500).
c From high-water mark..



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01479000 WHITE CLAY CREEK NEAR NEWARK, DE

LOCATION.--Lat 39°41'57.2" long 75°40'30.1", New Castle County, Hydrologic Unit 02040205, on left bank 35 ft downstream from bridge on private road at Delaware Park Race Track, 0.4 mi downstream from the Baltimore and Ohio Railroad bridge, 1.1 mi downstream from Pike Creek, 3.8 mi east of Newark, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--89.1 mi^2.

PERIOD OF RECORD.--October 1931 to September 1936, June 1943 to September 1957, October 1959 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1051: 1933(M). WSP 1382: 1932, 1934. WDR MD-DE-83-1: 1978-82(P).

GAGE.--Water-stage recorder. Datum of gage is 9.00 ft above National Geodetic Vertical Datum of 1929. Nov. 17, 1931, to Sept. 30, 1936, June 4, 1943, to Sept. 30, 1957, and Oct. 1, 1959, to Apr. 7, 1976, at site 0.5 mi upstream at datum 2.6 ft higher.

REMARKS.--Records good except those for estimated daily discharges (ice effect, backwater), which are fair. Flow affected by City of Newark municipal water plant upstream from station. Slight diurnal fluctuation at low flow caused by mills upstream from station. Records do not include a negligible diversion upstream from station by MBNA America. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 23 ft, previous site and datum, in July 1937 (probably affected by backwater from railroad bridge which has since been raised and widened), from information by Baltimore & Ohio Railroad.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	2145	4,390	14.29	Sep 15	1500	*13,900	*16.79
Mar 20	2345	2,260	12.01	Sep 23	1230	3,220	13.34
Jun 20	1915	5,780	14.99				

Minimum discharge, 11 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND,
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	71	55	331	e80	133	157	112	134	128	66	76
2	15	54	51	325	e74	482	150	110	117	125	96	105
3	14	47	e46	225	e70	565	143	107	102	176	62	98
4	14	43	e40	287	e120	200	139	105	457	133	71	177
5	14	43	e44	157	e100	389	137	105	301	114	111	111
6	14	125	e60	153	e90	992	133	107	162	138	97	74
7	13	66	e54	134	e80	359	158	113	503	112	85	64
8	12	48	e50	130	e72	285	171	120	329	98	101	60
9	11	44	e52	140	e66	506	217	115	191	95	360	57
10	43	41	e46	124	e62	294	175	112	145	98	480	54
11	642	56	503	111	e58	175	462	113	127	110	164	53
12	194	149	528	103	e56	160	256	105	205	92	117	57
13	66	162	307	104	e54	180	173	100	212	e98	88	160
14	44	78	587	102	e53	187	150	98	170	e95	78	150
15	35	62	196	96	e52	152	141	96	132	e91	70	6,650
16	171	153	135	e90	e51	151	137	125	115	86	78	531
17	138	666	112	e82	e50	206	129	121	108	79	122	260
18	60	303	99	e76	e150	159	138	102	297	76	77	405
19	43	116	96	e70	e120	137	130	98	155	81	68	888
20	38	87	308	e64	e100	597	126	94	2,170	74	64	235
21	35	77	202	e58	e90	842	123	112	1,400	71	61	181
22	33	85	124	e56	1,530	266	129	119	309	71	73	155
23	31	82	109	e53	1,660	208	123	109	225	79	88	1,260
24	28	66	98	e50	612	184	117	123	192	100	60	285
25	30	62	563	e48	277	170	116	117	169	70	56	187
26	119	59	324	e48	186	171	199	590	157	63	55	160
27	62	86	165	e47	150	183	147	194	149	62	58	160
28	45	70	133	e46	142	158	123	137	140	63	56	288
29	72	61	120	e46	---	167	118	123	142	61	54	160
30	150	59	112	e45	---	221	115	110	137	58	178	130
31	120	---	111	e44	---	200	---	104	---	68	118	---
TOTAL	2,322	3,121	5,430	3,445	6,205	9,079	4,732	3,996	9,152	2,865	3,312	13,231
MEAN	74.9	104	175	111	222	293	158	129	305	92.4	107	441
MAX	642	666	587	331	1,660	992	462	590	2,170	176	480	6,650
MIN	11	41	40	44	50	133	115	94	102	58	54	53
CFSM	0.84	1.17	1.97	1.25	2.49	3.29	1.77	1.45	3.42	1.04	1.20	4.95
IN.	0.97	1.30	2.27	1.44	2.59	3.79	1.98	1.67	3.82	1.20	1.38	5.52

e Estimated

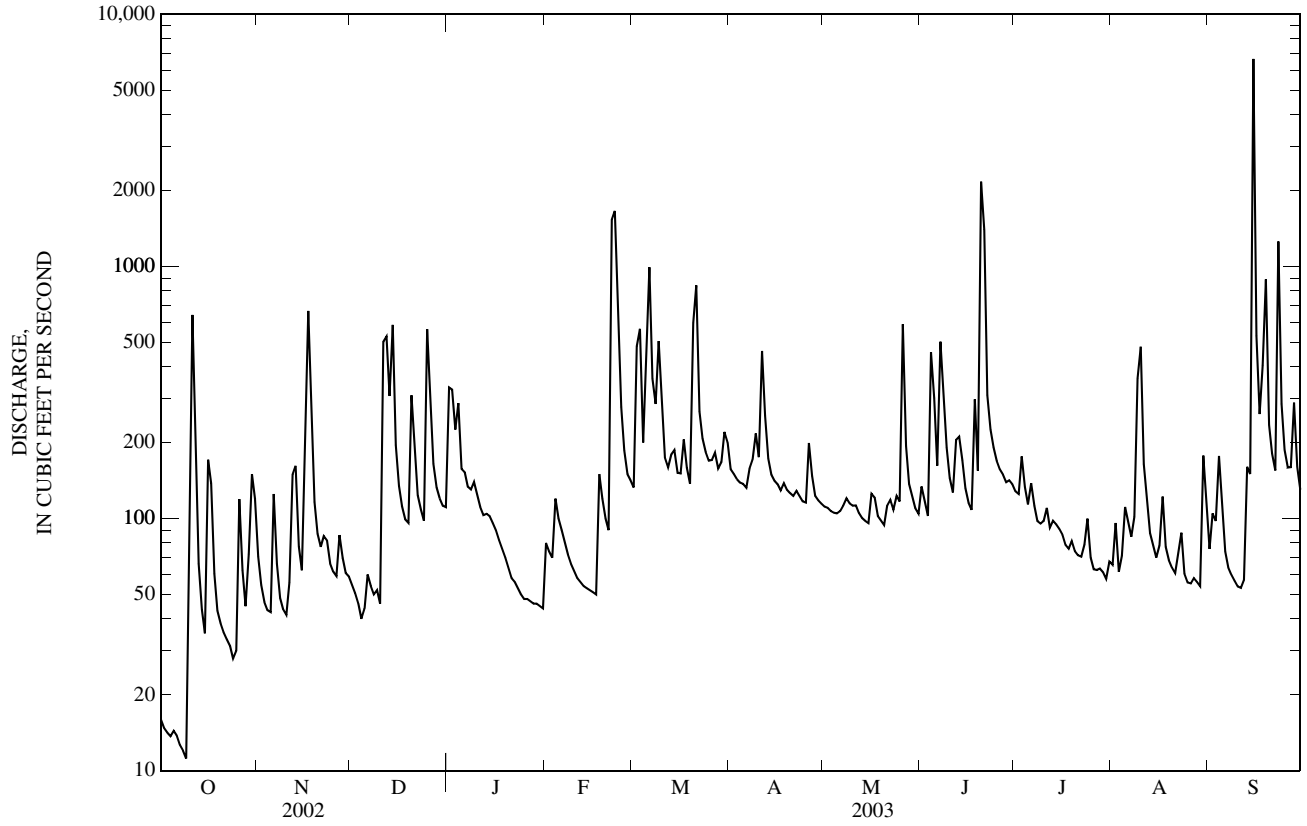
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1936, 1943 - 1957, 1960 - 2003, BY WATER YEAR (WY)

MEAN	65.2	90.4	115	146	159	177	150	127	100	92.9	77.7	81.9
MAX	234	221	405	493	542	402	342	265	311	540	301	441
(WY)	(1997)	(1973)	(1997)	(1979)	(1979)	(1994)	(1983)	(1989)	(1972)	(1975)	(1967)	(2003)
MIN	17.6	28.4	28.1	32.8	40.8	57.5	59.7	42.3	33.7	16.6	13.6	15.0
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(1981)	(1963)	(1955)	(1995)	(1963)	(1966)	(1932)

01479000 WHITE CLAY CREEK NEAR NEWARK, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 1936 1943 - 1957, 1960 - 2003	
ANNUAL TOTAL	24,913.1		66,890			
ANNUAL MEAN	68.3		183		115	
HIGHEST ANNUAL MEAN					193	1975
LOWEST ANNUAL MEAN					47.6	2002
HIGHEST DAILY MEAN	666	Nov 17	6,650	Sep 15	8,220	Sep 16, 1999
LOWEST DAILY MEAN	5.4	Aug 17	11	Oct 9	5.0	Sep 10, 1966
ANNUAL SEVEN-DAY MINIMUM	6.5	Aug 11	13	Oct 3	5.7	Sep 7, 1966
MAXIMUM PEAK FLOW			13,900	Sep 15	(a)19,500	Sep 16, 1999
MAXIMUM PEAK STAGE			16.79	Sep 15	(b)17.74	Jun 22, 1972
INSTANTANEOUS LOW FLOW			11	(c)	4.7	Sep 11, 1966
ANNUAL RUNOFF (CFSM)	0.77		2.06		1.29	
ANNUAL RUNOFF (INCHES)	10.40		27.93		17.56	
10 PERCENT EXCEEDS	123		307		192	
50 PERCENT EXCEEDS	48		112		76	
90 PERCENT EXCEEDS	12		48		32	

a From rating curve extended above 6,700 ft^3/s on basis of contracted-opening and flow-over-road measurement at a gage height of 15.9 ft and on basis of runnoff comparisons with nearby stations.
b At previous site and datum.
c Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01480000 RED CLAY CREEK AT WOODDALE, DE

LOCATION.--Lat 39°45'46.1", long 75°38'11.4", New Castle County, Hydrologic Unit 02040205, on right bank 12 ft upstream from bridge on State Highway 48, 0.3 mi south of Wooddale, 2.3 mi north of Marshallton, and 4.9 mi upstream from mouth.

DRAINAGE AREA.--47.0 mi^2.

PERIOD OF RECORD.--April 1943 to current year.

REVISED RECORDS.--WSP 1141: 1948. WSP 1272: 1951(m). WSP 1432: 1944(M), 1945, 1946(M), 1948, 1949(M). WSP 2102: 1960(M), 1964(M), 1966-67(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 81.46 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1950, nonrecording gage at site 10 ft downstream at same datum.

REMARKS.--Records good, except those for estimated daily discharges (ice effect), which are fair. Low flows augmented at times by inflow from Hoopes Reservoir located 1.7 miles upstream from gage on unnamed tributary to Red Clay Creek, capacity 2,000,000,000 gal. Water from Brandywine Creek is pumped into Hoopes Reservoir and is released into Red Clay Creek during periods of low flow. No releases were observed during the 2003 water year. Water from Red Clay Creek is used for municipal supply. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	2000	1,450	5.03	Jun 20	1930	4,820	10.10
Feb 22	1815	2,750	7.42	Sep 15	1045	*a32,400	*17.62
Mar 6	1515	1,330	4.79	Sep 19	0315	1,510	5.89
Mar 20	2245	2,050	6.72	Sep 23	1015	2,400	7.21

a From rating curve extended above 3,900 ft^3/s on basis of runoff comparison and drainage area ratios with Red Clay Creek nr Kennett Square, PA (01479820).

Minimum discharge, 9.9 ft^3/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	30	27	186	e40	61	83	58	93	75	42	43
2	11	26	25	158	e36	359	79	58	63	73	47	72
3	11	24	25	121	52	313	75	57	56	113	70	55
4	14	23	25	142	74	100	73	54	312	81	72	98
5	13	22	e27	85	60	305	72	55	154	73	107	60
6	12	64	e24	81	45	685	68	57	86	75	72	43
7	11	32	e26	74	e40	201	78	56	242	73	52	39
8	11	26	e28	72	e38	198	91	62	157	68	77	37
9	11	24	e27	78	e36	341	112	62	100	62	124	35
10	19	24	e27	67	e34	155	91	62	82	63	317	33
11	352	29	337	60	e32	97	269	58	72	70	133	33
12	91	80	318	56	e31	94	144	55	92	60	94	34
13	28	86	144	e52	e30	111	98	50	134	56	65	84
14	21	37	366	e50	e29	105	86	47	99	55	55	90
15	17	29	98	e48	e28	88	81	46	82	53	49	5,980
16	120	50	73	e46	e28	87	77	52	69	52	49	259
17	64	431	60	e43	e60	113	73	56	65	49	58	105
18	26	190	52	e40	e80	88	78	50	166	48	47	138
19	22	67	50	e38	e58	75	76	48	91	52	43	677
20	20	51	197	e35	e50	412	71	45	1,600	46	40	116
21	18	42	100	e32	e48	509	69	61	894	45	38	91
22	17	46	62	e30	1,070	177	72	65	229	44	51	83
23	17	48	55	e29	949	127	65	56	161	46	57	754
24	16	36	51	e28	326	102	62	65	131	56	37	139
25	17	34	323	e27	130	90	62	59	112	44	35	102
26	65	30	161	e26	86	91	107	349	101	41	35	91
27	28	44	86	e26	70	100	78	122	93	40	36	112
28	21	35	72	e25	64	84	67	79	86	40	34	207
29	22	30	66	e24	---	86	64	70	82	40	33	101
30	77	29	63	e24	---	114	60	60	80	38	96	86
31	57	---	63	e23	---	104	---	56	---	44	63	---
TOTAL	1,240	1,719	3,058	1,826	3,624	5,572	2,581	2,130	5,784	1,775	2,128	9,797
MEAN	40.0	57.3	98.6	58.9	129	180	86.0	68.7	193	57.3	68.6	327
MAX	352	431	366	186	1,070	685	269	349	1,600	113	317	5,980
MIN	11	22	24	23	28	61	60	45	56	38	33	33
CFSM	0.85	1.22	2.10	1.25	2.75	3.82	1.83	1.46	4.10	1.22	1.46	6.95
IN.	0.98	1.36	2.42	1.45	2.87	4.41	2.04	1.69	4.58	1.40	1.68	7.75

e Estimated

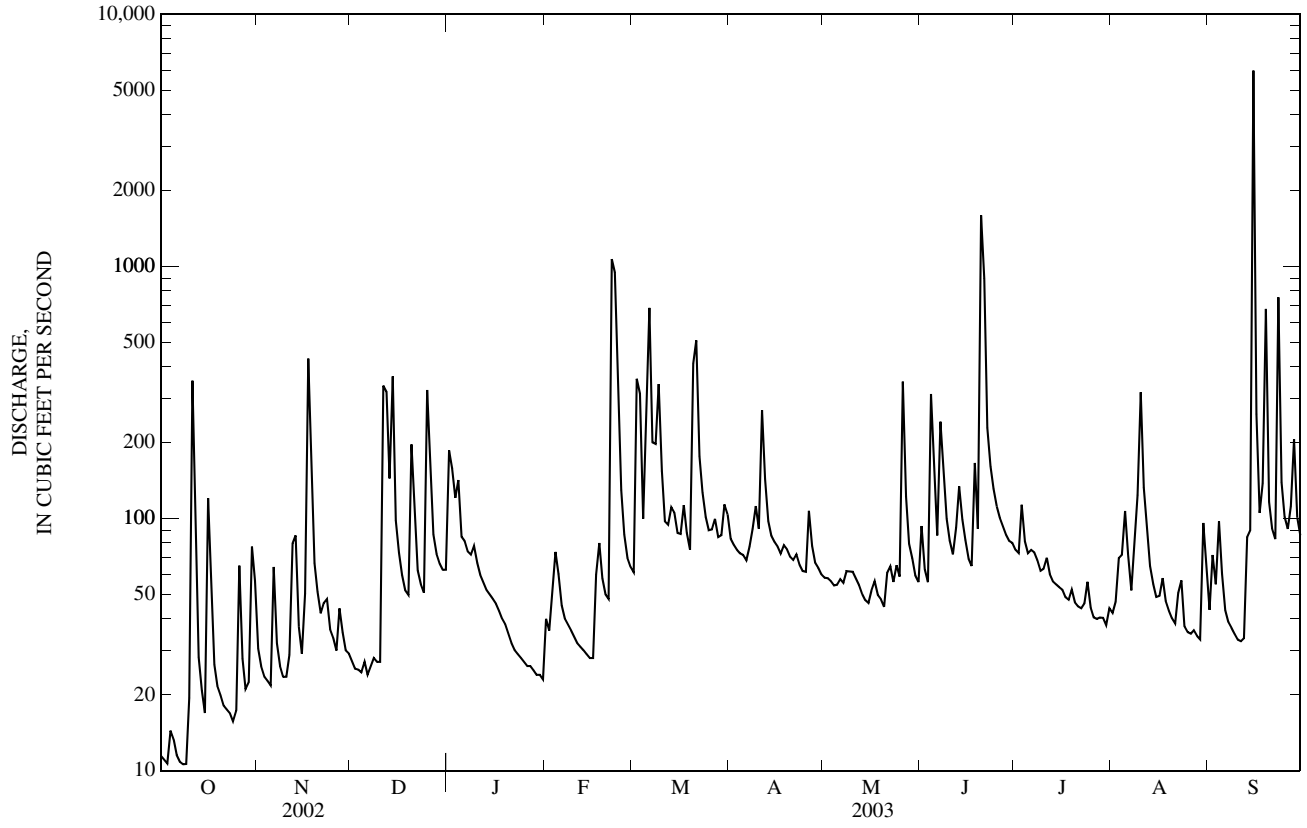
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2003, BY WATER YEAR (WY)

MEAN	36.2	48.5	63.2	76.3	86.1	94.6	83.9	72.2	58.1	49.6	42.8	46.6
MAX	129	115	212	232	237	209	167	156	193	279	180	327
(WY)	(1972)	(1973)	(1997)	(1979)	(1979)	(1994)	(1958)	(1958)	(2003)	(1975)	(1955)	(2003)
MIN	11.1	17.1	16.5	16.8	24.4	27.3	31.6	24.2	21.7	12.7	9.79	13.7
(WY)	(1964)	(1999)	(1999)	(1981)	(2002)	(1981)	(2002)	(1955)	(1966)	(1963)	(1966)	(1964)

01480000 RED CLAY CREEK AT WOODDALE, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	13,909.9		41,234			
ANNUAL MEAN	38.1		113		63.1	
ANNUAL MEAN‡	37.4		113		63.0	
HIGHEST ANNUAL MEAN					113	2003
LOWEST ANNUAL MEAN					27.0	2002
HIGHEST DAILY MEAN	431	Nov 17	5,980	Sep 15	5,980	Sep 15, 2003
LOWEST DAILY MEAN	8.8	Sep 19	11	(a)	4.5	Sep 4, 1966
ANNUAL SEVEN-DAY MINIMUM	9.3	Sep 6	12	Oct 1	4.9	Sep 7, 1966
MAXIMUM PEAK FLOW			(b)32,400	Sep 15	(b)32,400	Sep 15, 2003
MAXIMUM PEAK STAGE			17.62	Sep 15	17.62	Sep 15, 2003
INSTANTANEOUS LOW FLOW			9.9	Oct 4	2.9	Sep 4, 1966
ANNUAL RUNOFF (CFSM)	0.81		2.40		1.34	
ANNUAL RUNOFF (CFSM)‡	0.79		2.40		1.34	
ANNUAL RUNOFF (INCHES)	11.01		32.64		18.23	
ANNUAL RUNOFF (INCHES)‡	10.72		32.64		18.20	
10 PERCENT EXCEEDS	68		163		107	
50 PERCENT EXCEEDS	24		62		43	
90 PERCENT EXCEEDS	12		26		19	

‡ Adjusted for inflow since June 1994.
a Oct. 1-3, 7-9.
b From rating curve extended above 3,900 ft^3/s on basis of runoff comparison and drainage area ratios with Red Clay Creek nr Kennett Square, PA (01479820).



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01480015 RED CLAY CREEK NEAR STANTON, DE

LOCATION.--Lat 39°42'56.7", long 75°38'23.8", New Castle County, Hydrologic Unit 02040205, on right bank at downstream side of westbound lane of bridge on State Highway 4, near Stanton, and 0.9 mi upstream from mouth.

DRAINAGE AREA.--52.4 mi^2.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 0.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are fair. Low flows augmented at times by inflow from Hoopes Reservoir located 5.7 miles upstream from gage on unnamed tributary to Red Clay Creek, capacity 2,000,000,000 gal. Water from Brandywine Creek is pumped into Hoopes Reservoir and is released into Red Clay Creek during periods of low flow. No releases were observed during the 2003 water year. Water from Red Clay Creek is used for municipal supply. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	2130	2,490	15.41	Sep 15	----	*a35,600	*b25.52
Mar 20	2330	1,690	13.77	Sep 19	0315	1,360	12.74
Jun 20	2130	4,730	18.51	Sep 23	1200	1,990	14.28
Aug 11	1645	1,410	12.87				

a From rating curve extended above 5,000 ft^3/s on basis of runoff comparison and drainage area ratios with Red Clay Creek nr Kennett Square, PA (01479820).

b From floodmarks.

Minimum discharge, 8.8 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	49	41	169	e45	75	93	64	99	85	43	44
2	13	42	37	173	e40	283	88	64	72	81	53	77
3	13	37	38	128	58	278	84	62	65	130	65	74
4	17	36	36	150	80	114	81	60	328	89	83	117
5	18	30	e40	101	71	240	80	60	187	82	113	68
6	12	100	e36	98	51	531	77	63	101	87	80	45
7	10	63	e38	91	e46	208	88	61	251	87	51	42
8	10	34	e40	87	e44	179	105	67	191	85	e80	41
9	9.7	23	e38	94	e42	285	130	69	116	73	143	39
10	26	23	e38	84	e40	171	106	69	94	72	323	38
11	340	29	298	75	e38	115	283	65	84	81	259	39
12	105	71	306	71	e36	109	172	63	115	68	122	43
13	40	90	152	70	e36	123	122	59	167	61	77	103
14	29	40	312	65	e34	122	109	55	117	62	63	118
15	24	32	111	60	e32	101	104	54	100	59	54	e6,000
16	110	54	85	e55	e32	101	99	63	85	57	54	e450
17	86	393	71	e50	e65	124	94	66	81	52	67	e130
18	40	178	64	e46	e85	102	99	58	195	50	52	e200
19	32	83	64	e44	e68	90	96	57	112	57	48	684
20	29	64	177	e42	e62	358	86	54	1,570	50	44	177
21	e26	57	115	e40	e58	530	73	70	1,120	47	42	139
22	e24	62	75	e36	992	170	76	79	302	47	51	127
23	e22	64	66	e34	828	129	71	67	215	48	71	750
24	e22	51	62	e34	288	113	67	77	174	66	40	182
25	e28	47	298	e32	144	103	67	71	146	46	37	127
26	e70	45	170	e32	103	103	120	365	126	41	37	112
27	e40	59	102	e30	84	114	84	120	112	40	37	135
28	e30	49	86	e30	80	96	72	88	100	41	35	272
29	38	44	79	e28	---	99	69	79	92	40	33	128
30	102	43	76	e28	---	129	66	70	89	37	114	105
31	80	---	75	e28	---	122	---	67	---	48	76	---
TOTAL	1,459.7	1,992	3,226	2,105	3,582	5,417	2,961	2,386	6,606	1,969	2,447	10,606
MEAN	47.1	66.4	104	67.9	128	175	98.7	77.0	220	63.5	78.9	354
MAX	340	393	312	173	992	531	283	365	1,570	130	323	6,000
MIN	9.7	23	36	28	32	75	66	54	65	37	33	38
CFSM	0.90	1.27	1.99	1.30	2.44	3.33	1.88	1.47	4.20	1.21	1.51	6.75
IN.	1.04	1.41	2.29	1.49	2.54	3.85	2.10	1.69	4.69	1.40	1.74	7.53

e Estimated

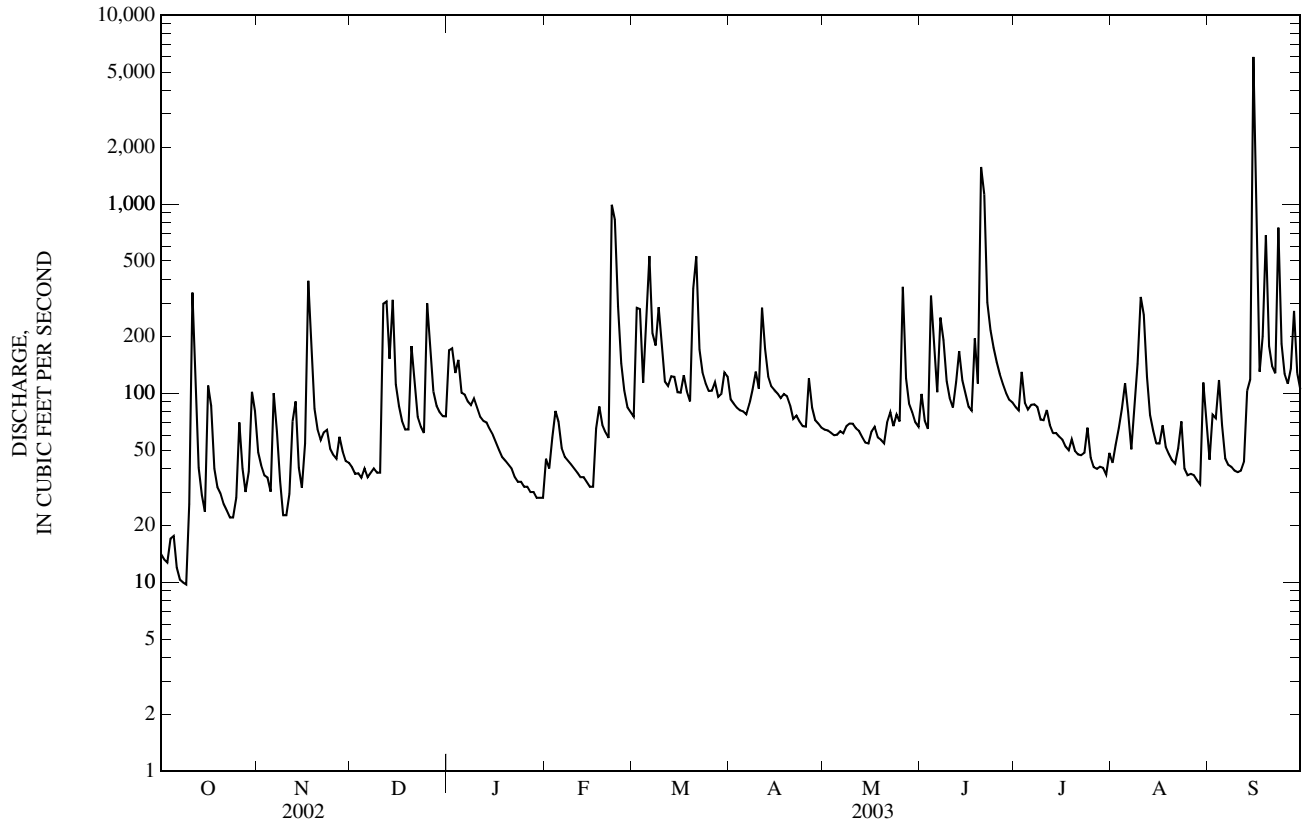
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2003, BY WATER YEAR (WY)

MEAN	44.0	51.3	69.8	89.3	76.5	117	87.6	73.9	68.6	53.6	43.3	75.4
MAX	120	91.5	240	220	151	229	191	138	220	246	97.7	354
(WY)	(1997)	(1997)	(1997)	(1996)	(1994)	(2000)	(1993)	(1989)	(2003)	(1989)	(1996)	(2003)
MIN	19.6	19.8	19.1	34.6	24.5	50.6	38.0	39.7	23.7	14.4	19.8	17.7
(WY)	(2002)	(1999)	(1999)	(2002)	(2002)	(2002)	(2002)	(1995)	(1999)	(2002)	(2002)	(2002)

01480015 RED CLAY CREEK NEAR STANTON, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 2003	
ANNUAL TOTAL	15,299.1		44,756.7			
ANNUAL MEAN	41.9		123		70.8	
ANNUAL MEAN‡	41.1		123		70.5	
HIGHEST ANNUAL MEAN					123	2003
LOWEST ANNUAL MEAN					29.3	2002
HIGHEST DAILY MEAN	393	Nov 17	(e)6,000	Sep 15	(e)6,000	Sep 15, 2003
LOWEST DAILY MEAN	7.3	Sep 12	9.7	Oct 9	7.0	Sep 12, 1995
ANNUAL SEVEN-DAY MINIMUM	9.2	Sep 6	13	Oct 3	9.2	Sep 6, 2002
MAXIMUM PEAK FLOW			(a)35,600	Sep 15	(a)35,600	Sep 15, 2003
MAXIMUM PEAK STAGE			(b)25.52	Sep 15	(b)25.52	Sep 15, 2003
INSTANTANEOUS LOW FLOW			8.8	Oct 9	(c)6.8	Sep 12, 2002
ANNUAL RUNOFF (CFSM)	0.80		2.34		1.35	
ANNUAL RUNOFF (CFSM)‡	0.78		2.34		1.34	
ANNUAL RUNOFF (INCHES)	10.86		31.77		18.37	
ANNUAL RUNOFF (INCHES)‡	10.65		31.77		18.27	
10 PERCENT EXCEEDS	79		184		117	
50 PERCENT EXCEEDS	29		71		47	
90 PERCENT EXCEEDS	13		34		21	

‡ Adjusted for inflow since June 1994.
e Estimated
a From rating curve extended above 5,000 ft^3/s on basis of runoff comparison and drainage area ratios with Red Clay Creek nr Kennett Square, PA (01479820).
b From floodmarks.
c May have been lower during periods of missing gage-height record.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01481500 BRANDYWINE CREEK AT WILMINGTON, DE

LOCATION.--Lat 39°46'09.9", long 75°34'25.0", New Castle County, Hydrologic Unit 02040205, on right bank in Rockford Park, 0.2 mi downstream from Rising Sun Bridge, in Wilmington, and 4.2 mi upstream from mouth.

DRAINAGE AREA.--314 mi^2.

PERIOD OF RECORD.--October 1946 to current year. Prior to December 1946 monthly discharge only, published in WSP 1302.

REVISED RECORDS.--WSP 1432: 1948, 1950.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 68.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect, questionable gage-height record), which are fair. Some diurnal fluctuation at low flow caused by mills upstream from station. Flow regulated since November 1973 by Marsh Creek Reservoir, capacity 7,230,000,000 gal, about 27 mi upstream. No diversion just upstream from station by plant of E. I. du Pont de Nemours & Co. since June l3, 1960. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 23	0700	6,890	8.67	Aug 10	1430	5,300	7.85
Mar 6	2045	4,360	7.23	Aug 11	1700	5,770	8.11
Mar 21	0530	4,360	7.23	Sep 15	1945	*17,900	*12.73
Jun 4	1815	4,470	7.33	Sep 23	2045	4,840	7.58
Jun 21	0900	14,800	11.79				

Minimum discharge, 61 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	360	243	865	e300	543	632	408	846	602	330	e400
2	78	236	225	1,750	e290	1,080	566	400	681	569	415	e860
3	73	199	215	974	e280	2,160	585	352	428	689	404	500
4	97	179	224	1,170	e320	947	556	318	2,450	593	1,120	872
5	97	172	255	832	e450	1,030	548	324	2,220	525	817	849
6	81	305	315	764	e360	3,210	538	357	1,030	537	836	494
7	73	280	279	726	e330	1,870	532	350	1,230	537	509	386
8	68	197	e260	700	e300	1,110	612	468	1,580	584	565	362
9	66	173	e240	755	e290	1,760	674	398	929	470	790	382
10	95	161	239	713	e270	1,890	715	395	825	449	3,320	360
11	1,020	171	625	625	e260	925	1,240	364	744	487	1,740	336
12	955	316	2,010	555	e260	811	1,140	335	668	438	920	331
13	318	741	989	530	e250	1,010	774	313	724	461	646	502
14	182	403	1,770	517	e250	1,110	666	291	1,180	385	578	944
15	137	308	1,100	499	e240	870	624	280	935	373	497	8,200
16	306	364	743	457	e230	858	597	289	720	355	430	4,440
17	745	1,490	627	e430	119	1,020	552	340	630	340	470	1,170
18	278	1,200	528	e400	314	834	566	305	878	328	399	1,090
19	182	667	489	e380	440	722	562	286	708	336	e370	2,260
20	153	491	925	e360	e400	1,150	454	266	2,980	e370	e350	994
21	139	416	1,120	e340	e390	2,980	433	306	11,000	e330	e360	758
22	129	389	664	e320	2,120	1,220	483	330	2,990	319	e400	717
23	121	414	570	e300	5,430	942	442	291	1,940	e500	366	2,610
24	116	370	516	e290	3,030	834	398	355	1,420	e350	e330	1,680
25	118	346	970	e280	1,370	765	381	357	1,190	281	e310	917
26	338	328	1,120	e270	925	707	582	2,000	1,000	244	e300	828
27	267	371	762	e260	707	754	565	1,080	792	231	e340	798
28	169	369	677	e260	608	671	495	654	728	214	e300	1,130
29	154	278	623	e250	---	650	450	545	672	199	e290	838
30	386	249	585	e250	---	784	432	405	639	189	e900	718
31	671	---	577	e240	---	794	---	351	---	286	e500	---
TOTAL	7,694	11,943	20,485	17,062	20,533	36,011	17,794	13,513	44,757	12,571	19,902	36,726
MEAN	248	398	661	550	733	1,162	593	436	1,492	406	642	1,224
MAX	1,020	1,490	2,010	1,750	5,430	3,210	1,240	2,000	11,000	689	3,320	8,200
MIN	66	161	215	240	119	543	381	266	428	189	290	331
(†)	+14.2	+1.3	-5.4	-9.6	+17.7	+4.4	-0.5	+4.1	-1.0	-2.6	-3.4	+2.5
MEAN‡	262	399	656	540	751	1166	592	440	1491	403	639	1226
CFSM‡	0.83	1.27	2.09	1.72	2.39	3.71	1.89	1.40	4.75	1.28	2.04	3.90
IN.‡	0.96	1.42	2.41	1.98	2.49	4.28	2.11	1.61	5.30	1.48	2.35	4.35

e Estimated

† Change in contents in Marsh Creek Reservoir, equivalent in cubic feet per second, provided by Pennsylvania Department of Environmental Resources.

‡ Adjusted for change in reservoir contents.

01481500 BRANDYWINE CREEK AT WILMINGTON, DE—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1973, BY WATER YEAR (WY) (UNREGULATED)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	222	356	434	498	681	734	696	559	435	330	315	284
MAX	860	794	979	1,052	1,454	1,206	1,406	1,087	1,343	749	1,436	1,403
(WY)	(1972)	(1972)	(1973)	(1953)	(1971)	(1958)	(1958)	(1958)	(1972)	(1958)	(1955)	(1971)
MIN	80.6	117	129	173	225	333	259	190	149	92.5	81.9	99.6
(WY)	(1964)	(1966)	(1966)	(1955)	(1954)	(1969)	(1963)	(1963)	(1963)	(1963)	(1957)	(1964)

SUMMARY STATISTICS	WATER YEARS 1947 - 1973	
ANNUAL TOTAL		
ANNUAL MEAN	461	
HIGHEST ANNUAL MEAN	732	1972
LOWEST ANNUAL MEAN	252	1954
HIGHEST DAILY MEAN	14,300	Jun 23, 1972
LOWEST DAILY MEAN	56	Aug 23, 1957
ANNUAL SEVEN-DAY MINIMUM	59	Aug 18, 1957
MAXIMUM PEAK FLOW	(a)29,000	Jun 23, 1972
MAXIMUM PEAK STAGE	15.49	Jun 23, 1972
INSTANTANEOUS LOW FLOW	(b)30	Dec 26, 1948
ANNUAL RUNOFF (CFSM)	1.47	
ANNUAL RUNOFF (INCHES)	19.93	
10 PERCENT EXCEEDS	864	
50 PERCENT EXCEEDS	316	
90 PERCENT EXCEEDS	125	

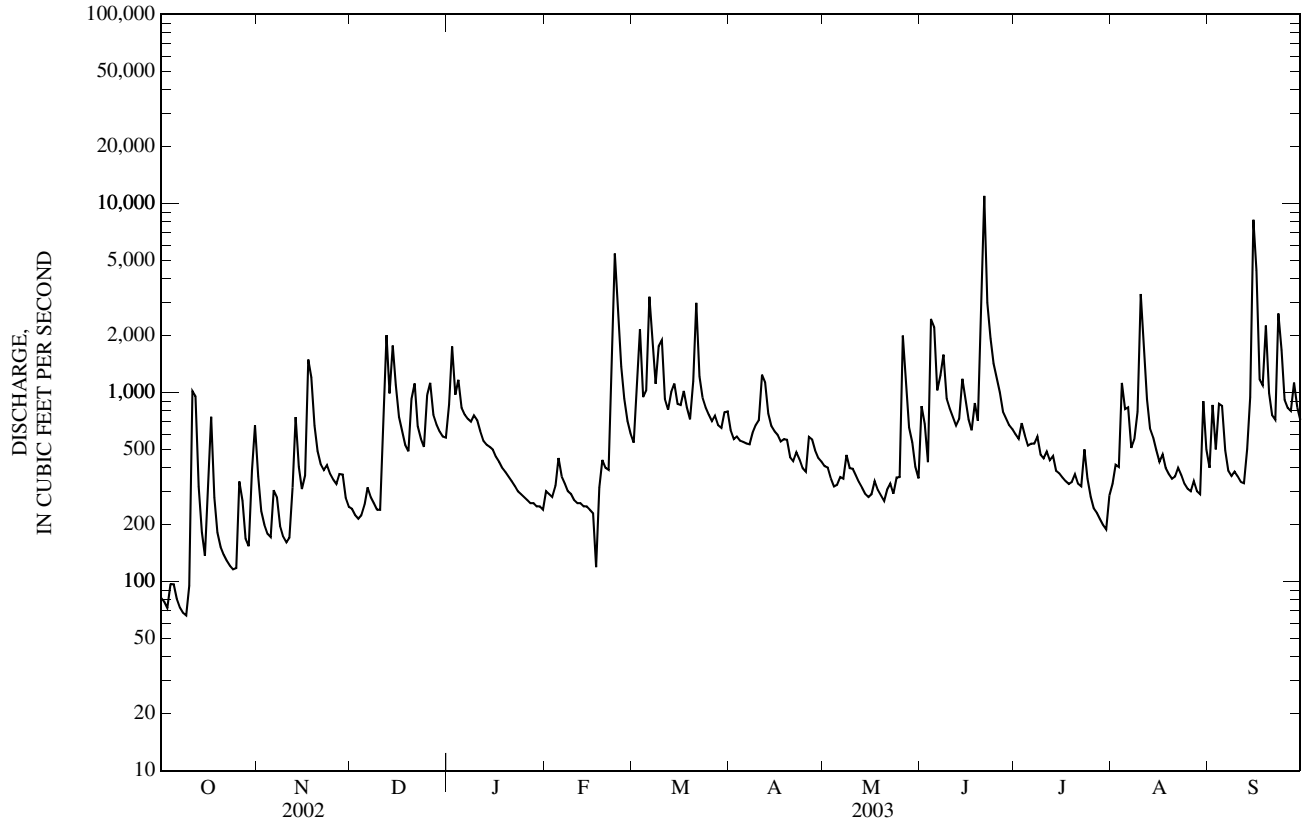
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2003, BY WATER YEAR (WY) (REGULATED)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	296	356	523	612	621	765	702	580	467	371	267	340
MAX	1,022	856	1,927	1,868	1,610	1,839	1,773	1,168	1,492	1,243	642	1,224
(WY)	(1997)	(1997)	(1997)	(1979)	(1979)	(1994)	(1983)	(1989)	(2003)	(1975)	(2003)	(2003)
MIN	115	116	145	119	162	230	221	304	172	79.3	64.2	84.4
(WY)	(2002)	(2002)	(1981)	(1981)	(2002)	(1981)	(2002)	(1977)	(1985)	(2002)	(2002)	(2002)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1974 - 2003	
ANNUAL TOTAL	90,047		258,991			
ANNUAL MEAN	247		710		491	
ANNUAL MEAN‡	248		711		491	
HIGHEST ANNUAL MEAN					835	1984
LOWEST ANNUAL MEAN					168	2002
HIGHEST DAILY MEAN	2,010	Dec 12	11,000	Jun 21	14,200	Sep 17, 1999
LOWEST DAILY MEAN	35	(c)	66	Oct 9	35	(c)
ANNUAL SEVEN-DAY MINIMUM	37	Aug 17	79	Oct 3	37	Aug 17, 2002
MAXIMUM PEAK FLOW			17,900	Sep 15	(a)28,700	Sep 17, 1999
MAXIMUM PEAK STAGE			12.73	Sep 15	15.43	Sep 17, 1999
INSTANTANEOUS LOW FLOW			61	Oct 9	(d)32	Jul 27, 2002
ANNUAL RUNOFF (CFSM)	0.79		2.26		1.56	
ANNUAL RUNOFF (CFSM)‡	0.79		2.27		1.57	
ANNUAL RUNOFF (INCHES)	10.67		30.68		21.24	
ANNUAL RUNOFF (INCHES)‡	10.73		30.76		21.25	
10 PERCENT EXCEEDS	542		1,170		906	
50 PERCENT EXCEEDS	173		491		343	
90 PERCENT EXCEEDS	54		231		137	

a From rating curve extended above 18,000 ft^3/s.
b During period of ice effect.
‡ Adjusted for change in reservoir contents since November 1973.
c Aug. 22, 23, 2002.
d Result of regulation from Hagley Museum and Library.

01481500 BRANDYWINE CREEK AT WILMINGTON, DE—Continued



DAILY MEAN DISCHARGE - 2003 WATER YEAR

Photo by A.J. Tallman

Gage house at 01481500 Brandywine Creek at Wlmington, DE

01483153 NOXONTOWN LAKE OUTLET NEAR MIDDLETOWN, DE

LOCATION.--Lat 39°26'00.4", long 75°41'59.8", New Castle County, Hydrologic Unit 02040205, on right bank just upstream from Noxontown Lake Dam, 15 ft upstream from from bridge on State Road 38, 2.0 mi southwest of Odessa, 2.4 mi southeast of Middletown, and 10.1 mi upstream from mouth of Appoquinimink River.

DRAINAGE AREA.--8.85 mi^2.

PERIOD OF RECORD.--October 1992 to September 1994, November 1999 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are poor. Outflow of lake controlled by stop logs at outlet. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 256 ft^3/s, June 20, gage height, 2.33 ft; minimum discharge, 0.20 ft^3/s, Oct. 5, 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.84	13	e9.0	19	e13	21	22	16	20	14	13	17
2	0.70	12	e9.0	22	e15	57	20	17	19	15	13	15
3	0.69	11	e8.5	e28	13	97	19	18	18	20	13	13
4	0.71	11	e8.0	e30	16	38	18	16	24	18	13	20
5	0.56	11	e9.0	e18	17	34	18	16	24	16	15	20
6	0.38	16	e14	e14	14	92	18	16	21	16	16	15
7	0.39	14	11	13	15	74	21	17	54	20	15	12
8	0.44	12	11	13	13	33	24	28	81	17	18	11
9	0.58	11	11	13	13	34	25	24	29	15	15	9.2
10	2.1	11	11	13	13	30	25	23	23	22	15	8.8
11	12	e11	e14	12	13	25	42	20	20	21	14	8.8
12	e10	e15	e40	12	13	24	37	18	21	20	12	9.7
13	e9.0	e18	e25	11	12	24	26	16	27	21	12	18
14	e8.0	e11	e40	11	12	23	23	15	28	21	12	18
15	6.9	e10	e20	11	13	22	21	15	24	20	11	26
16	14	e12	e16	11	e25	21	19	21	20	17	12	30
17	14	e50	e14	11	e20	23	19	28	18	15	16	27
18	11	e40	e12	11	16	20	19	23	63	e12	14	21
19	9.0	16	e12	11	14	19	20	20	39	e14	12	56
20	7.1	14	e14	11	16	29	19	18	87	e13	11	27
21	7.0	13	e18	11	19	55	19	19	140	e12	9.8	18
22	7.0	e12	13	11	49	28	18	22	36	e11	11	15
23	6.1	e14	12	10	144	24	18	21	25	e15	17	23
24	5.5	12	11	9.9	123	22	17	21	21	e22	13	17
25	6.6	12	30	10	58	20	17	21	19	e20	10	13
26	16	11	43	11	33	20	23	102	17	e16	9.6	12
27	13	12	23	10	25	22	23	56	13	e14	9.7	14
28	11	12	17	11	24	20	19	26	9.7	e13	9.5	11
29	11	11	16	11	---	21	18	23	10	12	9.7	7.4
30	e11	e10	15	e11	---	23	17	21	12	11	15	5.4
31	e14	---	15	e12	---	24	---	20	---	12	23	---
TOTAL	216.59	438	521.5	412.9	771	1,019	644	737	962.7	505	409.3	518.3
MEAN	6.99	14.6	16.8	13.3	27.5	32.9	21.5	23.8	32.1	16.3	13.2	17.3
MAX	16	50	43	30	144	97	42	102	140	22	23	56
MIN	0.38	10	8.0	9.9	12	19	17	15	9.7	11	9.5	5.4
CFSM	0.79	1.65	1.90	1.51	3.11	3.71	2.43	2.69	3.63	1.84	1.49	1.95
IN.	0.91	1.84	2.19	1.74	3.24	4.28	2.71	3.10	4.05	2.12	1.72	2.18

e Estimated

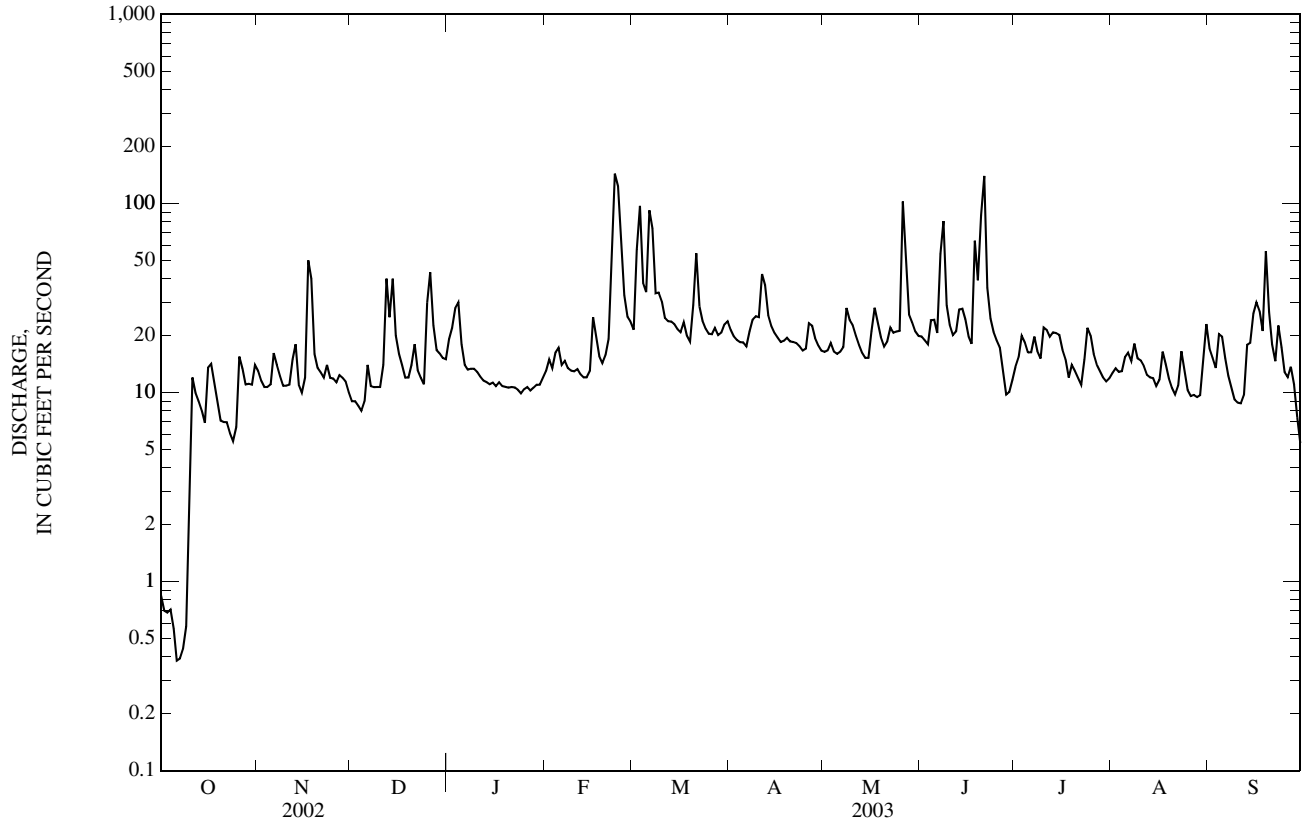
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1994, 2000 - 2003, BY WATER YEAR (WY)

MEAN	4.81	8.88	11.4	11.9	17.6	24.6	16.8	14.0	12.0	6.54	7.87	8.22
MAX	6.99	14.6	16.8	21.1	32.7	37.4	27.9	23.8	32.1	16.3	13.6	17.3
(WY)	(2003)	(2003)	(2003)	(1994)	(1994)	(1994)	(1993)	(2003)	(2003)	(2003)	(2000)	(2003)
MIN	1.67	5.35	4.56	5.72	4.81	6.10	6.25	8.76	5.76	1.22	0.93	2.11
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01483153 NOXONTOWN LAKE OUTLET NEAR MIDDLETOWN, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1993 - 1994, 2000 - 2003	
ANNUAL TOTAL	2,439.77		7,155.29			
ANNUAL MEAN	6.68		19.6		12.1	
HIGHEST ANNUAL MEAN					19.6	2003
LOWEST ANNUAL MEAN					4.43	2002
HIGHEST DAILY MEAN	50	Nov 17	144	Feb 23	359	Mar 3, 1994
LOWEST DAILY MEAN	(e)0.10	(a)	0.38	Oct 6	(e)0.10	(a)
ANNUAL SEVEN-DAY MINIMUM	0.13	Aug 20	0.54	Oct 3	0.13	Aug 20, 2002
MAXIMUM PEAK FLOW			256	Jun 20	(b)602	Mar 3, 1994
MAXIMUM PEAK STAGE			2.33	Jun 20	2.92	Mar 3, 1994
INSTANTANEOUS LOW FLOW			0.20	(c)	(d)0.00	Oct 26, 2001
ANNUAL RUNOFF (CFSM)	0.76		2.22		1.36	
ANNUAL RUNOFF (INCHES)	10.26		30.08		18.52	
10 PERCENT EXCEEDS	14		29		22	
50 PERCENT EXCEEDS	5.0		16		8.4	
90 PERCENT EXCEEDS	0.52		9.8		2.0	

e Estimated.
a Aug. 22-24, 2002.
b From rating curve extended above 250 ft^3/s.
c Oct. 5, 7.
d Wind effect.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01483200 BLACKBIRD CREEK AT BLACKBIRD, DE

LOCATION.--Lat 39°21'58.6", long 75°40'09.8", New Castle County, Hydrologic Unit 02040205, on left bank 15 ft downstream from highway culverts, 0.5 mi upstream from Barlow Branch, 0.6 mi southwest of Blackbird, 5.6 mi northwest of Smyrna, and 13.8 mi upstream from mouth.

DRAINAGE AREA.--3.85 mi^2.

PERIOD OF RECORD.--Annual maximum, water years 1952-56, and occasional low-flow measurements, water years 1952-53, 1955-56. October 1956 to current year.

REVISED RECORDS.--WRD MD-DE-89-1: 1987-88(P).

GAGE.--Water-stage recorder. Concrete control since May 23, 1968. Datum of gage is 17.89 ft above National Geodetic Vertical Datum of 1929. Mar. 5, 1951, to Oct. 16, 1956, nonrecording gage and crest-stage gage at site 15 ft upstream at datum 1.0 ft higher. Oct. 17, 1956, to June 16, 1986, recording gage at same site on right bank at datum 1.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Occasional regulation at low and medium flow by Blackbird Lake Dam upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 26	0000	54	2.20	May 26	1315	135	3.37
Feb 23	1545	79	2.59	Jun 18	1300	72	2.49
Mar 2	2330	70	2.46	Jun 20	2300	*149	*3.51
Mar 6	1845	81	2.61	Aug 17	0045	63	2.35
Mar 21	0345	54	2.20				

Minimum discharge, 0.20 ft^3/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.31	2.8	3.3	11	5.6	11	10	5.0	8.9	4.1	2.5	3.5
2	0.31	1.7	3.2	15	7.3	37	9.0	5.0	6.8	4.1	2.9	5.4
3	0.32	1.5	3.2	16	5.4	39	8.4	5.1	5.9	11	2.4	3.6
4	0.30	1.3	3.0	17	9.8	17	7.5	4.7	13	7.5	2.6	12
5	0.27	1.5	3.5	10	11	23	7.5	4.4	12	4.7	4.0	8.2
6	0.26	7.9	3.9	9.1	5.4	57	7.2	4.9	8.0	4.6	5.7	3.8
7	0.24	5.2	3.8	8.1	4.8	30	12	5.6	19	4.9	4.3	2.8
8	0.24	2.4	3.6	8.0	4.9	19	14	12	25	4.1	7.9	2.3
9	0.27	1.9	3.8	8.7	4.5	23	16	6.9	13	4.3	4.0	2.2
10	0.25	1.6	3.3	7.5	4.6	19	16	6.7	8.5	14	4.0	1.9
11	5.3	2.7	12	6.1	4.6	15	34	5.6	6.9	7.7	4.1	1.7
12	6.6	7.1	22	5.4	4.4	14	24	4.9	9.8	4.9	3.5	2.2
13	2.3	9.1	16	5.3	4.1	13	16	4.2	25	5.9	3.0	8.2
14	1.2	5.6	22	5.3	3.9	12	12	3.9	21	15	2.6	5.7
15	0.90	3.2	11	5.0	4.3	11	9.8	3.7	11	11	2.4	7.6
16	8.2	9.6	6.9	4.7	3.6	11	9.3	11	7.6	5.7	14	6.9
17	7.0	29	5.4	4.9	2.6	17	8.1	16	6.6	4.4	28	3.9
18	2.7	18	4.9	4.4	3.1	14	8.1	8.0	45	4.0	5.8	7.4
19	1.5	8.5	4.9	4.2	3.8	11	8.2	5.5	22	4.2	3.4	32
20	1.1	4.8	10	4.4	5.3	20	7.3	4.6	52	3.6	3.1	9.9
21	1.0	4.1	11	4.4	7.3	36	6.9	6.8	60	3.4	2.8	4.2
22	0.91	5.1	6.5	4.0	30	17	6.7	12	e22	3.1	2.7	3.8
23	0.80	5.5	5.3	3.7	69	13	6.3	7.9	e14	3.2	4.1	25
24	0.72	4.3	5.0	3.4	52	12	5.7	8.8	e10	4.9	2.9	19
25	0.82	3.6	26	3.5	29	10	5.7	9.2	7.2	3.6	2.1	5.0
26	8.8	3.5	27	3.8	18	10	11	78	6.2	2.7	1.7	3.9
27	5.7	4.2	11	4.1	14	12	9.6	24	5.5	2.5	1.9	5.2
28	1.9	3.9	7.3	3.3	12	9.9	6.3	15	5.0	2.5	2.0	4.9
29	2.4	3.5	6.5	4.0	---	11	5.7	14	4.7	2.6	2.0	4.0
30	6.0	3.5	6.0	4.1	---	15	5.4	11	4.5	2.2	4.7	3.6
31	5.4	---	5.9	4.3	---	14	---	8.3	---	2.1	8.7	---
TOTAL	74.02	166.6	267.2	202.7	334.3	572.9	313.7	322.7	466.1	162.5	145.8	209.8
MEAN	2.39	5.55	8.62	6.54	11.9	18.5	10.5	10.4	15.5	5.24	4.70	6.99
MAX	8.8	29	27	17	69	57	34	78	60	15	28	32
MIN	0.24	1.3	3.0	3.3	2.6	9.9	5.4	3.7	4.5	2.1	1.7	1.7
CFSM	0.62	1.44	2.24	1.70	3.10	4.80	2.72	2.70	4.04	1.36	1.22	1.82
IN.	0.72	1.61	2.58	1.96	3.23	5.54	3.03	3.12	4.50	1.57	1.41	2.03

e Estimated

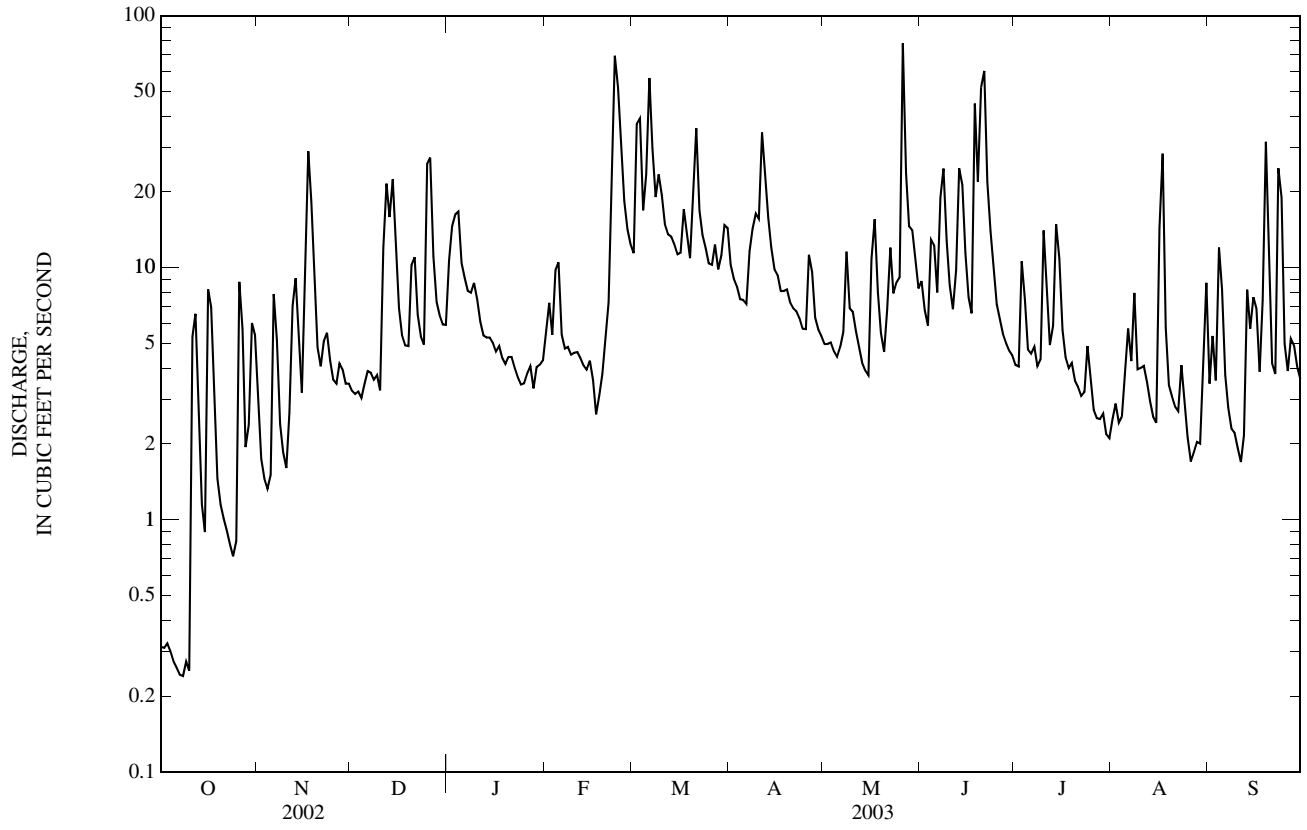
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2003, BY WATER YEAR (WY)

MEAN	2.42	3.46	5.07	6.16	7.24	8.99	7.53	5.47	3.91	2.88	2.15	2.59
MAX	8.83	10.4	23.5	18.1	19.2	20.3	21.0	13.9	24.4	17.0	7.10	20.1
(WY)	(1972)	(1957)	(1997)	(1978)	(1979)	(1958)	(1983)	(1989)	(1972)	(1989)	(2000)	(1999)
MIN	0.30	0.73	0.71	1.51	1.49	1.98	2.16	1.26	0.54	0.077	0.013	0.21
(WY)	(1969)	(1966)	(1966)	(1981)	(2002)	(1966)	(1966)	(1977)	(1966)	(1966)	(1966)	(1968)

01483200 BLACKBIRD CREEK AT BLACKBIRD, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 2003	
ANNUAL TOTAL	1,006.52		3,238.32			
ANNUAL MEAN	2.76		8.87		4.81	
HIGHEST ANNUAL MEAN					9.05	1972
LOWEST ANNUAL MEAN					1.40	1966
HIGHEST DAILY MEAN	29	Nov 17	78	May 26	397	Sep 16, 1999
LOWEST DAILY MEAN	0.02	Aug 22	0.24	(a)	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.04	Aug 21	0.26	Oct 4	0.00	Jul 17, 1966
MAXIMUM PEAK FLOW			149	Jun 20	(c)789	Sep 16, 1999
MAXIMUM PEAK STAGE			3.51	Jun 20	6.47	Sep 16, 1999
INSTANTANEOUS LOW FLOW			0.20	Oct 7	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.72		2.30		1.25	
ANNUAL RUNOFF (INCHES)	9.73		31.29		16.97	
10 PERCENT EXCEEDS	6.5		18		9.9	
50 PERCENT EXCEEDS	1.6		5.6		2.8	
90 PERCENT EXCEEDS	0.13		2.2		0.51	

a Oct. 7, 8.
b Sept. 11, 1965; July 12-15, 17-31, Aug. 1-12, 14, 15, 18-31, Sept. 1-20, 1966.
c From rating curve extended above 600 ft^3/s.
d No flow at times during 1964-66.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01483700 ST. JONES RIVER AT DOVER, DE

LOCATION.--Lat 39°09'49.4", long 75°31'08.7", Kent County, Hydrologic Unit 02040207, on left bank 150 ft upstream from Division Street Bridge in Dover, 1,950 ft downstream from Silver Lake, and 12.5 mi upstream from mouth.

DRAINAGE AREA.--31.9 mi^2.

PERIOD OF RECORD.--January 1958 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 0.00 ft above National Geodetic Vertical Datum of 1929. Prior to June 1973, at datum 0.50 ft higher.

REMARKS.--Records good except those for estimated daily discharges (backwater from tides), which are fair. Flow affected by Silver Lake. Flow occasionally affected by tide and wind effect. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 554 ft^3/s, June 22, gage height, 5.59 ft; minimum discharge, 1.6 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	54	40	93	37	127	89	32	67	29	27	32
2	3.9	35	36	e162	55	165	72	33	52	30	25	25
3	3.5	26	35	e160	56	310	62	45	43	128	30	e22
4	e2.8	21	31	e148	57	231	57	36	56	132	33	36
5	e3.0	21	38	128	64	203	54	29	67	73	48	35
6	e2.2	68	37	101	55	350	51	28	60	48	39	25
7	e1.9	69	39	87	48	400	62	28	94	171	42	18
8	e1.8	50	38	79	41	235	86	28	319	156	88	e13
9	e1.7	33	37	72	38	195	124	29	238	75	76	e11
10	e26	26	34	68	41	189	e173	31	119	183	47	e10
11	e180	35	67	61	39	142	e287	32	71	303	41	e9.2
12	e103	59	146	53	37	107	e267	28	63	159	52	e14
13	e58	91	166	48	32	95	182	24	73	83	51	e38
14	25	92	208	45	31	87	115	20	133	119	40	38
15	e14	65	180	43	36	79	83	18	132	169	29	54
16	e56	88	123	38	37	73	71	e87	81	116	39	60
17	78	301	79	40	e30	107	e62	e176	54	65	183	74
18	51	309	62	35	e19	121	e58	127	112	46	199	e65
19	25	189	55	33	24	e91	e54	70	200	37	82	e79
20	17	117	79	32	39	e98	50	46	e200	33	46	99
21	12	82	116	32	53	e170	48	39	e420	30	35	87
22	10	75	105	30	158	170	48	47	500	27	30	e56
23	9.2	73	76	27	343	115	46	52	267	28	30	39
24	8.1	66	61	24	470	85	41	55	138	38	24	61
25	9.0	58	118	23	387	71	38	54	81	37	21	62
26	e59	51	267	25	270	69	48	163	59	28	20	44
27	55	49	192	27	192	78	50	254	49	23	19	73
28	36	45	117	24	145	78	45	159	41	25	20	e55
29	32	43	84	26	---	84	39	127	35	70	19	e46
30	57	42	69	28	---	111	34	113	32	49	32	36
31	69	---	61	29	---	108	---	79	---	33	48	---
TOTAL	1,014.4	2,333	2,796	1,821	2,834	4,544	2,496	2,089	3,856	2,543	1,515	1,316.2
MEAN	32.7	77.8	90.2	58.7	101	147	83.2	67.4	129	82.0	48.9	43.9
MAX	180	309	267	162	470	400	287	254	500	303	199	99
MIN	1.7	21	31	23	19	69	34	18	32	23	19	9.2
CFSM	1.03	2.44	2.83	1.84	3.17	4.60	2.61	2.11	4.03	2.57	1.53	1.38
IN.	1.18	2.72	3.26	2.12	3.30	5.30	2.91	2.44	4.50	2.97	1.77	1.53

e Estimated

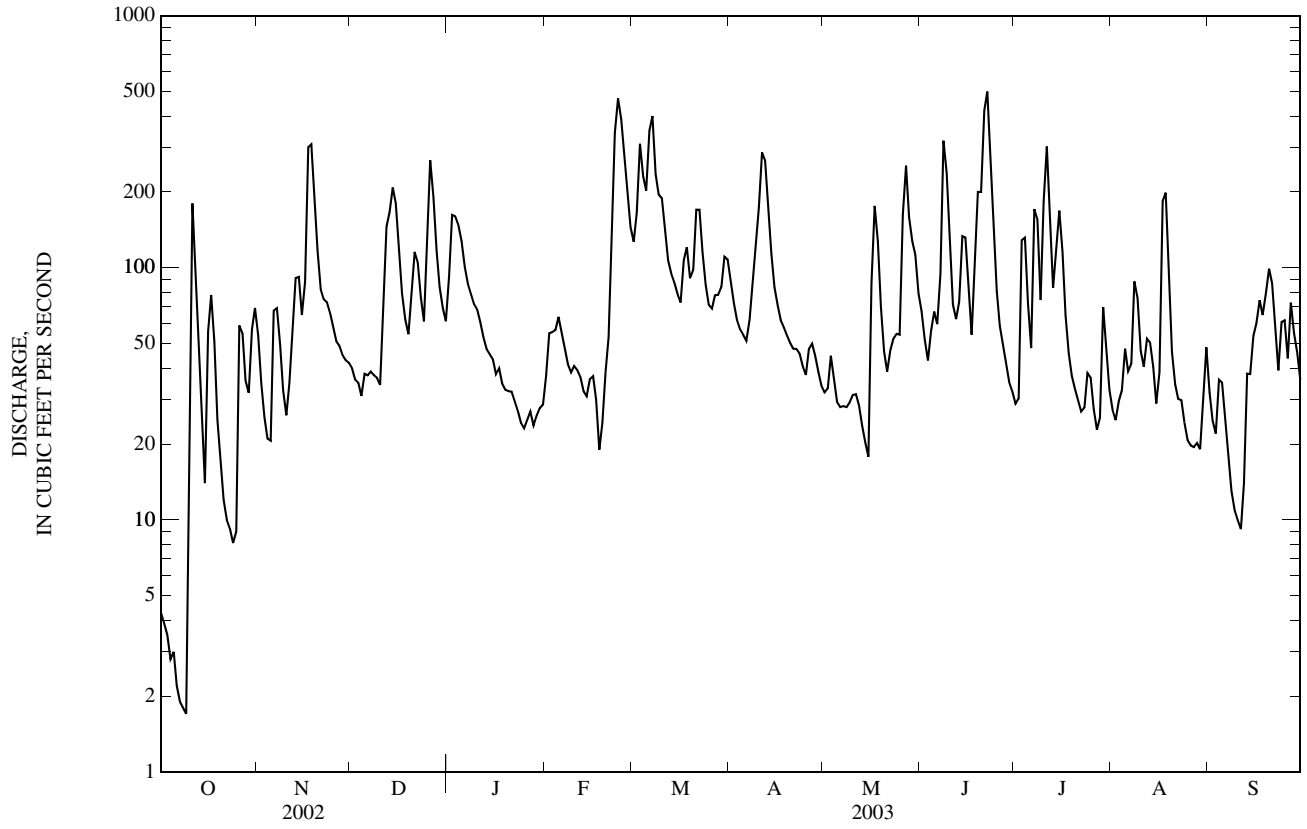
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2003, BY WATER YEAR (WY)

MEAN	19.0	24.5	37.3	49.5	60.1	77.1	57.9	37.7	31.0	19.1	24.4	20.9
MAX	93.5	103	145	156	143	187	180	117	138	88.6	144	128
(WY)	(1972)	(1973)	(1997)	(1978)	(1998)	(1994)	(1983)	(1989)	(1996)	(1975)	(1958)	(1960)
MIN	0.40	0.56	1.35	1.64	6.70	10.7	13.5	9.86	4.36	2.10	0.69	1.92
(WY)	(1964)	(2002)	(1966)	(1966)	(2002)	(1966)	(1966)	(1963)	(1986)	(1966)	(1966)	(1970)

01483700 ST. JONES RIVER AT DOVER, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1958 - 2003	
ANNUAL TOTAL	9,902.05		29,157.6			
ANNUAL MEAN	27.1		79.9		37.4	
HIGHEST ANNUAL MEAN					79.9	2003
LOWEST ANNUAL MEAN					6.14	1966
HIGHEST DAILY MEAN	309	Nov 18	500	Jun 22	1,460	Sep 13, 1960
LOWEST DAILY MEAN	0.54	Aug 27	(e)1.7	Oct 9	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.59	Aug 21	2.4	Oct 3	0.34	Nov 1, 2001
MAXIMUM PEAK FLOW			554	Jun 22	1,900	Sep 13, 1960
MAXIMUM PEAK STAGE			5.59	Jun 22	(b)9.45	Sep 13, 1960
INSTANTANEOUS LOW FLOW			(c)1.6	Oct 9	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.85		2.50		1.17	
ANNUAL RUNOFF (INCHES)	11.55		34.00		15.94	
10 PERCENT EXCEEDS	70		178		84	
50 PERCENT EXCEEDS	10		54		20	
90 PERCENT EXCEEDS	1.8		24		3.7	

e Estimated
a July 9, 1959, May 9, 10, 1961.
b From floodmark.
c May have been lower.
d No flow at times in 1959, 1961, 1962.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484100 BEAVERDAM BRANCH AT HOUSTON, DE

LOCATION.--Lat 38°54'20.8", long 75°30'45.9", Kent County, Hydrologic Unit 02040207, on left bank 15 ft upstream from culverts on State Highway 384, 0.8 mi south of Houston, and 1.2 mi upstream from Blairs Pond and mouth.

DRAINAGE AREA.--2.83 mi^2.

PERIOD OF RECORD.--May 1958 to current year.

REVISED RECORDS.--WDR MD-DE-84-1: 1981, 1983 (M).

GAGE.--Water-stage recorder and concrete control; timber control prior to Nov. 8, 1979. Datum of gage is 35.67 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diversion for irrigation of about l50 acres upstream from station during some years. Several measurements of water temperature were made during this year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0745	50	3.70	Mar 2	2030	34	3.38
Dec 11	2230	37	3.45	Apr 11	0830	38	3.47
Feb 23	2000	63	3.95	Jun 7	2300	*64	*3.96
Feb 24	2200	33	3.35	Jul 3	0700	53	3.76

Minimum discharge, 1.0 ft^3/s, Oct. 5-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	5.2	5.5	7.4	5.6	10	6.8	4.5	10	5.4	3.9	2.9
2	1.3	4.7	5.4	8.9	5.7	21	6.6	4.4	6.5	7.0	3.7	2.8
3	1.2	4.6	5.2	9.4	4.7	18	6.2	4.1	5.9	31	4.3	3.0
4	1.2	4.6	5.0	8.6	6.7	11	6.1	4.0	8.3	10	4.2	4.1
5	1.1	4.6	5.6	7.3	5.5	17	5.9	4.0	13	7.4	6.7	3.4
6	1.1	8.0	5.5	7.1	4.9	22	5.7	4.1	7.3	6.3	5.3	2.9
7	1.1	5.5	5.2	6.7	5.0	15	6.7	4.8	22	5.8	5.3	2.8
8	1.1	4.7	5.1	6.7	4.7	12	7.0	5.4	35	5.4	5.7	2.7
9	1.1	4.6	4.9	6.4	4.6	11	16	4.6	13	5.3	4.7	2.5
10	3.8	4.6	4.7	6.1	4.8	9.5	11	4.3	9.7	5.6	4.7	2.5
11	7.4	6.1	14	5.7	4.7	8.7	25	4.3	8.4	5.0	4.3	2.5
12	5.4	12	16	5.7	4.5	8.4	18	4.0	8.3	4.6	4.2	3.2
13	3.5	12	9.4	5.7	4.4	8.0	11	3.9	7.6	4.4	4.1	4.8
14	2.9	7.2	17	5.6	4.4	7.4	9.1	4.0	7.3	4.8	3.7	3.6
15	2.8	6.0	9.2	5.4	4.8	7.0	8.3	3.9	6.8	4.5	3.6	3.4
16	8.4	7.4	8.0	5.3	4.7	7.1	7.5	11	6.6	4.2	4.4	3.1
17	5.0	34	7.1	5.4	5.4	11	6.8	7.3	6.6	3.9	4.3	2.7
18	4.0	17	6.8	5.1	5.0	8.4	6.5	6.0	8.5	3.8	3.7	5.3
19	3.8	9.7	6.6	5.1	4.9	7.5	6.3	5.4	9.8	6.0	3.5	8.7
20	3.7	8.3	9.0	5.1	5.2	8.8	6.1	5.1	11	4.3	3.4	4.2
21	3.6	7.8	8.2	4.9	5.6	10	5.9	5.2	10	4.0	3.3	3.8
22	3.4	10	7.0	4.8	14	8.8	5.7	5.6	8.9	3.9	3.2	3.6
23	3.4	8.5	6.6	4.6	43	7.7	5.3	6.2	7.6	4.0	3.1	5.0
24	3.3	7.4	6.3	4.5	33	7.1	5.1	6.0	6.8	4.3	3.0	4.2
25	3.3	6.7	12	4.6	22	6.8	5.1	5.7	6.3	3.7	2.9	3.7
26	6.5	6.5	9.4	4.6	14	6.8	5.4	13	6.1	3.5	2.9	3.6
27	4.2	6.5	7.4	4.5	11	6.7	5.0	7.3	5.9	3.6	3.1	4.0
28	3.8	6.0	6.9	4.5	10	6.5	4.8	8.9	5.7	3.8	3.0	4.0
29	4.3	5.9	6.7	4.6	---	6.7	4.7	7.9	5.6	5.4	2.8	3.6
30	7.2	5.9	6.3	4.6	---	7.6	4.5	6.9	5.4	4.3	3.0	3.4
31	6.7	---	6.2	4.6	---	7.3	---	6.6	---	4.1	3.2	---
TOTAL	110.9	242.0	238.2	179.5	252.8	310.8	234.1	178.4	279.9	179.3	121.2	110.0
MEAN	3.58	8.07	7.68	5.79	9.03	10.0	7.80	5.75	9.33	5.78	3.91	3.67
MAX	8.4	34	17	9.4	43	22	25	13	35	31	6.7	8.7
MIN	1.1	4.6	4.7	4.5	4.4	6.5	4.5	3.9	5.4	3.5	2.8	2.5
CFSM	1.26	2.85	2.72	2.05	3.19	3.54	2.76	2.03	3.30	2.04	1.38	1.30
IN.	1.46	3.18	3.13	2.36	3.32	4.09	3.08	2.35	3.68	2.36	1.59	1.45

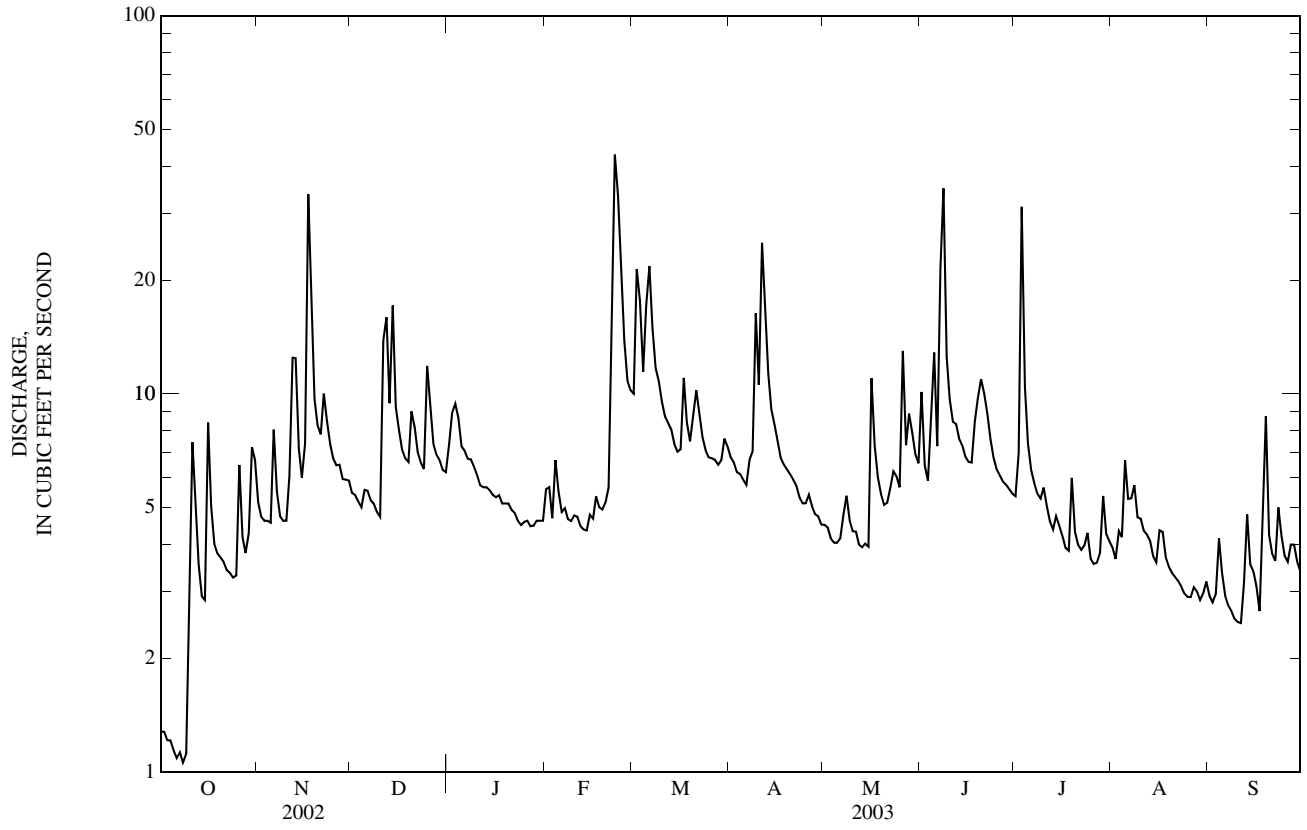
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2003, BY WATER YEAR (WY)

MEAN	1.87	2.28	3.24	4.46	5.47	6.48	5.62	4.40	3.20	2.76	2.40	2.13
MAX	4.69	8.07	11.5	10.7	16.2	18.0	11.0	10.5	9.33	16.8	9.38	10.1
(WY)	(1959)	(2003)	(1973)	(1978)	(1998)	(1994)	(1983)	(1984)	(2003)	(1975)	(1967)	(1960)
MIN	0.37	0.44	0.48	0.57	1.06	1.57	1.90	1.88	1.22	0.42	0.42	0.44
(WY)	(1987)	(1988)	(1966)	(1966)	(1966)	(2002)	(1985)	(1977)	(1986)	(1977)	(2002)	(1986)

01484100 BEAVERDAM BRANCH AT HOUSTON, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1958 - 2003	
ANNUAL TOTAL	1,072.92		2,437.1			
ANNUAL MEAN	2.94		6.68		3.65	
HIGHEST ANNUAL MEAN					6.68	2003
LOWEST ANNUAL MEAN					1.20	1966
HIGHEST DAILY MEAN	34	Nov 17	43	Feb 23	98	May 30, 1984
LOWEST DAILY MEAN	0.04	Aug 27	1.1	(a)	(b)0.00	Jul 28, 1977
ANNUAL SEVEN-DAY MINIMUM	0.16	Aug 22	1.1	Oct 3	0.06	Jul 19, 1977
MAXIMUM PEAK FLOW			64	Jun 7	(c)176	Sep 12, 1960
MAXIMUM PEAK STAGE			3.96	Jun 7	5.55	Sep 12, 1960
INSTANTANEOUS LOW FLOW			1.0	(a)	(b)0.00	(d)
ANNUAL RUNOFF (CFSM)	1.04		2.36		1.29	
ANNUAL RUNOFF (INCHES)	14.10		32.04		17.54	
10 PERCENT EXCEEDS	6.7		10		6.7	
50 PERCENT EXCEEDS	1.8		5.5		2.8	
90 PERCENT EXCEEDS	0.70		3.4		0.83	

a Oct. 5-9.
b Result of pumpage for irrigation.
c From rating curve extended above 75 ft^3/s.
d July 18-30, 1977.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484270 BEAVERDAM CREEK NEAR MILTON, DE

LOCATION.--Lat 38°45'41", long 75°16'03", Sussex County, Hydrologic Unit 02040207, on left bank, at downstream side of culverts on state road (maintenance No. 88), 2.3 mi east of Milton, and 3.2 mi upstream from mouth.

DRAINAGE AREA.--6.10 mi^2.

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1955-71, and annual maximums, water years 1966-71. May 1971 to September 1980, March 2002 to September 2003.

GAGE.--Water-stage recorder. Datum of gage is 0.91 ft above National Geodetic Vertical Datum of 1929. Pror to Jan. 14, 1966, nonrecording gage at same site at different datum. Jan. 14, 1966 to Aoril 1977nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Several measurements of water temperature were made during this year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR MARCH 2002 - SEPTEMBER 2002.--Peak discharges greater than base discharge of 25 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 2	2130	52	4.45	Sep 1	1245	*142	*5.15
Jul 27	2245	30	4.21				

Minimum discharge, 3.1 ft^3/s, Aug. 23, 27.

DISCHARGE, CUBIC FEET PER SECOND
MARCH 2002 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	e8.8	13	9.4	8.0	4.6	5.7	77
2	---	---	---	---	---	e9.0	8.7	26	6.4	4.6	5.3	49
3	---	---	---	---	---	e15	7.8	35	6.0	4.8	5.2	17
4	---	---	---	---	---	e11	7.6	23	6.5	4.8	4.7	9.9
5	---	---	---	---	---	e10	7.3	19	7.0	4.5	4.3	9.0
6	---	---	---	---	---	9.8	7.4	16	8.5	4.4	4.3	8.7
7	---	---	---	---	---	9.6	8.3	18	9.2	4.3	4.0	8.6
8	---	---	---	---	---	9.4	8.9	18	8.4	4.2	4.2	8.1
9	---	---	---	---	---	9.3	8.1	18	6.6	4.1	4.1	7.6
10	---	---	---	---	---	9.9	7.9	17	5.9	4.3	4.0	8.5
11	---	---	---	---	---	10	7.6	16	6.4	4.5	3.8	9.0
12	---	---	---	---	---	9.5	7.9	13	6.5	4.4	3.6	8.7
13	---	---	---	---	---	7.8	8.1	13	7.7	4.3	3.6	8.8
14	---	---	---	---	---	7.8	8.4	16	7.7	4.2	3.8	8.8
15	---	---	---	---	---	8.3	9.3	15	8.0	4.1	3.7	9.5
16	---	---	---	---	---	8.4	8.4	14	6.5	3.9	3.8	10
17	---	---	---	---	---	9.2	7.7	13	5.5	4.0	3.8	9.6
18	---	---	---	---	---	8.4	8.0	15	5.6	4.1	3.4	9.1
19	---	---	---	---	---	7.6	8.2	12	5.7	4.1	3.2	9.3
20	---	---	---	---	---	8.7	8.4	10	5.6	4.1	3.2	9.3
21	---	---	---	---	---	8.9	8.9	11	5.6	3.8	3.5	9.1
22	---	---	---	---	---	7.8	8.9	12	5.3	3.7	3.6	8.0
23	---	---	---	---	---	8.1	8.5	12	5.1	3.6	3.6	8.0
24	---	---	---	---	---	9.4	8.5	11	4.8	4.0	3.6	8.8
25	---	---	---	---	---	10	7.7	10	4.9	4.3	3.6	9.0
26	---	---	---	---	---	9.2	7.8	8.8	5.1	4.2	3.3	9.9
27	---	---	---	---	---	12	8.2	7.9	5.3	11	3.2	10
28	---	---	---	---	---	7.7	10	7.5	5.3	20	3.8	9.2
29	---	---	---	---	---	7.8	8.6	8.4	5.3	7.6	6.5	8.4
30	---	---	---	---	---	8.4	8.8	8.7	4.9	6.4	4.6	7.8
31	---	---	---	---	---	8.7	---	8.6	---	6.2	4.1	---
TOTAL	---	---	---	---	---	285.5	252.9	442.3	189.3	161.1	125.1	383.7
MEAN	---	---	---	---	---	9.21	8.43	14.3	6.31	5.20	4.04	12.8
MAX	---	---	---	---	---	15	13	35	9.2	20	6.5	77
MIN	---	---	---	---	---	7.6	7.3	7.5	4.8	3.6	3.2	7.6
CFSM	---	---	---	---	---	1.51	1.38	2.34	1.03	0.85	0.66	2.10
IN.	---	---	---	---	---	1.74	1.54	2.70	1.15	0.98	0.76	2.34

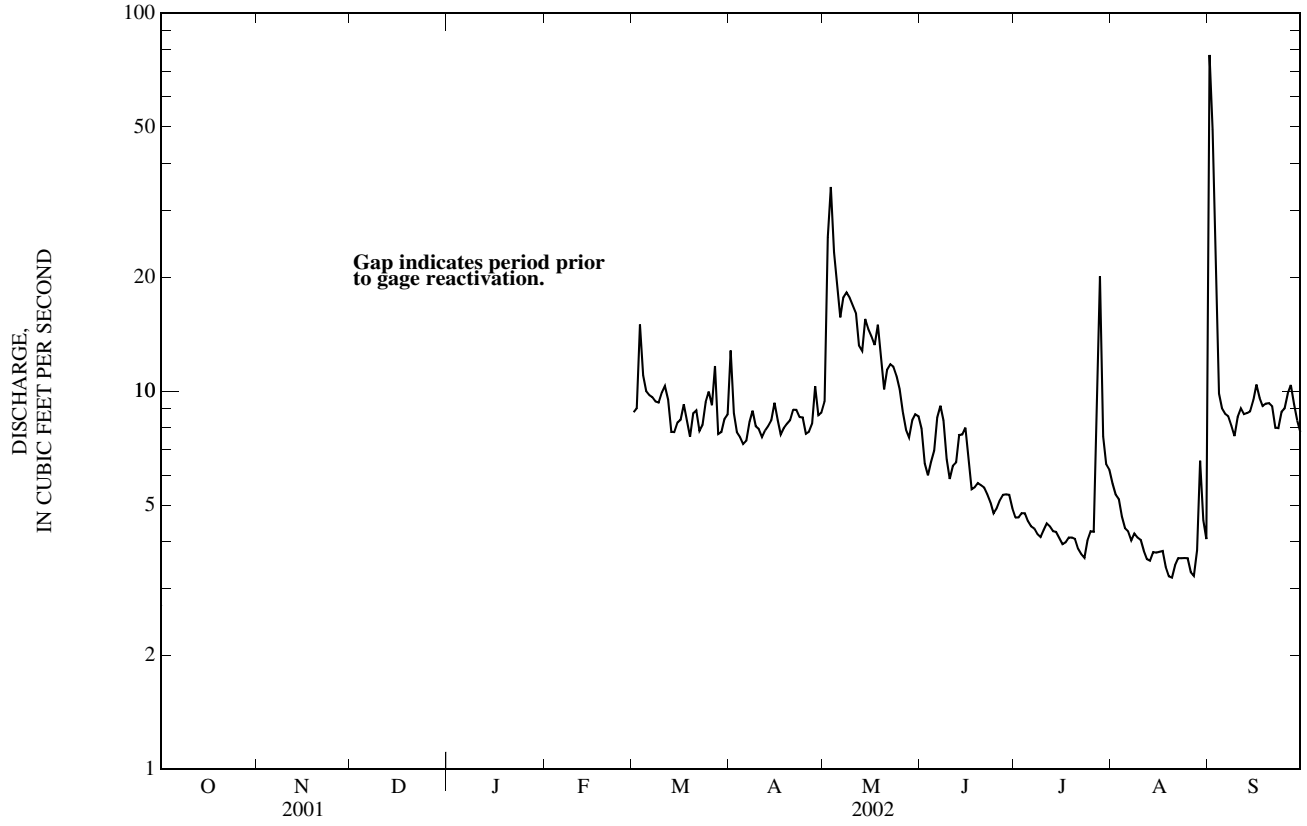
e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1980, MARCH - SEPTEMBER 2002, BY WATER YEAR (WY)

MEAN	8.93	9.51	10.8	13.0	14.4	15.5	15.2	14.6	12.4	10.4	9.39	9.42
MAX	12.2	15.1	17.5	18.6	20.0	28.9	21.0	21.5	18.3	16.5	13.3	12.8
(WY)	(1980)	(1980)	(1973)	(1978)	(1973)	(1979)	(1979)	(1978)	(1972)	(1972)	(1972)	(2002)
MIN	4.83	5.85	7.05	8.45	9.33	8.86	8.43	8.06	6.31	5.20	4.04	5.52
(WY)	(1978)	(1978)	(1979)	(1975)	(1977)	(1977)	(2002)	(1977)	(2002)	(2002)	(2002)	(1977)

SUMMARY STATISTICS	WATER YEARS 1971-1980, 2002	
ANNUAL MEAN	12.2	
HIGHEST ANNUAL MEAN	14.2	1980
LOWEST ANNUAL MEAN	8.28	1977
HIGHEST DAILY MEAN	77	Sep 1, 2002
LOWEST DAILY MEAN	3.2	(a)
ANNUAL SEVEN-DAY MINIMUM	3.4	Aug 18, 2002
MAXIMUM PEAK FLOW	(b)142	Sep 1, 2002
MAXIMUM PEAK STAGE	5.15	Sep 1, 2002
INSTANTANEOUS LOW FLOW	3.1	(c)
ANNUAL RUNOFF (CFSM)	2.01	
ANNUAL RUNOFF (INCHES)	27.28	
10 PERCENT EXCEEDS	18	
50 PERCENT EXCEEDS	11	
90 PERCENT EXCEEDS	6.6	

a Aug. 19, 20, 27, 2002.
b From rating curve extended above 23 ft^3/s.
c Aug. 23, 27, 2002.



DAILY MEAN DISCHARGE - MARCH 2002 - SEPTEMBER 2002

01484270 BEAVERDAM CREEK NEAR MILTON, DE—Continued

EXTREMES FOR WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003.--Peak discharges greater than base discharge of 25 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0045	41	4.35
Nov 22	0615	25	4.15
Dec 11	2045	26	4.16
Feb 23	1115	*65	*4.58
Mar 6	1430	36	4.26
Mar 20	2015	28	4.14
Mar 30	0415	27	4.12
Apr 11	0245	59	4.53
Apr 12	0700	58	4.52
Apr 18	1100	28	4.18
Apr 26	0415	28	4.17
Jun 7	2015	42	4.30
Jun 19	1900	26	4.05
Jul 3	0845	30	4.13
Jul 15	1045	27	4.06
Jul 29	0945	28	4.10
Aug 5	1400	35	4.17

Minimum discharge, 6.9 ft^3/s, Oct. 21.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	11	16	e16	e9.6	25	24	22	16	15	15	12
2	8.7	10	16	e18	e10	27	23	21	14	16	14	12
3	8.7	10	16	e19	11	28	23	21	15	28	12	13
4	8.6	9.4	17	e17	13	26	23	19	16	22	14	16
5	8.7	10	19	e17	12	27	23	19	17	17	21	16
6	8.1	13	20	e16	12	32	22	e18	15	15	26	13
7	7.7	11	18	e15	12	32	22	e20	24	15	21	12
8	8.0	11	17	e14	12	28	24	e22	37	16	19	11
9	8.4	11	16	e14	11	26	30	21	31	16	17	12
10	10	11	17	e14	11	24	31	21	23	19	15	12
11	12	11	20	e13	12	24	44	19	21	17	15	12
12	11	16	23	e13	12	24	49	18	21	16	16	13
13	9.3	18	20	e13	12	24	39	18	20	14	15	15
14	8.1	15	22	e15	13	24	28	e17	19	18	15	13
15	8.8	14	19	e14	14	23	27	e17	18	26	14	14
16	14	16	18	e13	14	22	25	e20	17	21	15	15
17	11	32	e17	e15	20	24	25	e24	18	17	19	13
18	8.5	25	e16	e14	19	24	27	e21	20	16	15	16
19	8.3	20	e16	e13	17	24	25	e18	23	15	15	18
20	7.8	17	e17	e12	18	25	24	e17	24	14	14	13
21	7.2	18	e20	e11	18	27	23	e16	21	13	14	13
22	8.0	24	e18	e11	31	25	24	e18	20	14	14	12
23	8.4	21	e17	e10	54	22	24	e20	18	15	13	15
24	8.4	18	e16	e10	48	22	24	19	18	14	12	17
25	8.6	17	e18	e9.8	29	23	24	17	17	13	12	15
26	13	18	e20	e9.8	26	23	26	20	17	13	13	13
27	8.5	18	e19	e9.6	25	24	24	19	17	12	13	13
28	7.8	18	e17	e9.6	27	23	21	19	16	12	13	13
29	9.6	16	e16	e9.4	---	23	23	20	15	25	13	12
30	15	16	e15	e9.2	---	26	23	19	15	19	13	12
31	14	---	e15	e9.2	---	25	---	17	---	17	13	---
TOTAL	292.6	475.4	551	403.6	522.6	776	794	597	583	520	470	406
MEAN	9.44	15.8	17.8	13.0	18.7	25.0	26.5	19.3	19.4	16.8	15.2	13.5
MAX	15	32	23	19	54	32	49	24	37	28	26	18
MIN	7.2	9.4	15	9.2	9.6	22	21	16	14	12	12	11
CFSM	1.55	2.60	2.91	2.13	3.06	4.10	4.34	3.16	3.19	2.75	2.49	2.22
IN.	1.78	2.90	3.36	2.46	3.19	4.73	4.84	3.64	3.56	3.17	2.87	2.48

e Estimated

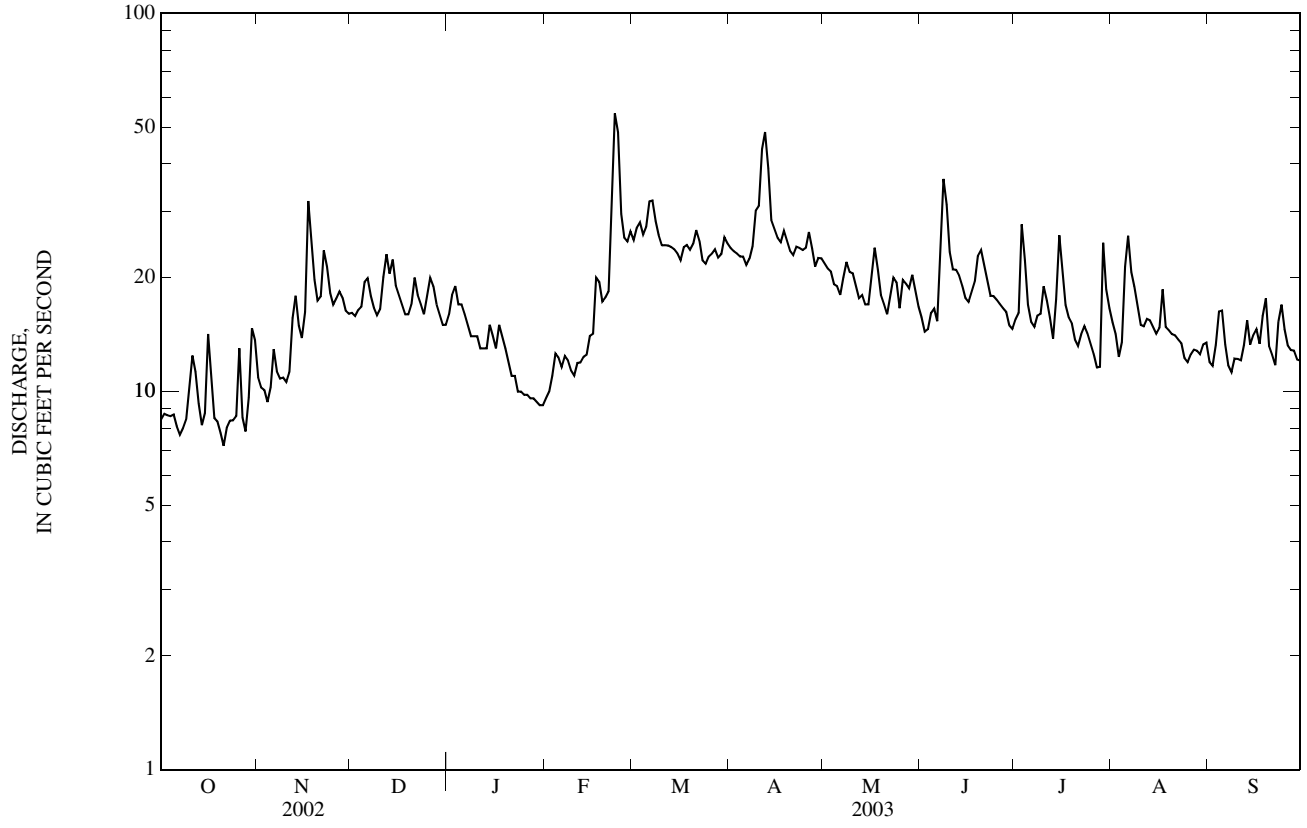
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1980, 2002 - 2003, BY WATER YEAR (WY)

MEAN	8.98	10.1	11.5	13.0	14.8	16.4	16.2	15.0	13.0	10.9	9.87	9.77
MAX	12.2	15.8	17.8	18.6	20.0	28.9	26.5	21.5	19.4	16.8	15.2	13.5
(WY)	(1980)	(2003)	(2003)	(1978)	(1973)	(1979)	(2003)	(1978)	(2003)	(2003)	(2003)	(2003)
MIN	4.83	5.85	7.05	8.45	9.33	8.86	8.43	8.06	6.31	5.20	4.04	5.52
(WY)	(1978)	(1978)	(1979)	(1975)	(1977)	(1977)	(2002)	(1977)	(2002)	(2002)	(2002)	(1977)

01484270 BEAVERDAM CREEK NEAR MILTON, DE—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 1971 - 1980, 2002 - 2003	
ANNUAL TOTAL	91.2			
ANNUAL MEAN	17.5		12.8	
HIGHEST ANNUAL MEAN			17.5	2003
LOWEST ANNUAL MEAN			8.28	1977
HIGHEST DAILY MEAN	54	Feb 23	77	Sep 1, 2002
LOWEST DAILY MEAN	7.2	Oct 21	3.2	(a)
ANNUAL SEVEN-DAY MINIMUM	8.1	Oct 18	3.4	Aug 18, 2002
MAXIMUM PEAK FLOW	65	Feb 23	(b)142	Sep 1, 2002
MAXIMUM PEAK STAGE	4.58	Feb 23	5.15	Sep 1, 2002
INSTANTANEOUS LOW FLOW	6.9	Oct 21	3.1	(c)
ANNUAL RUNOFF (CFSM)	2.87		2.09	
ANNUAL RUNOFF (INCHES)	38.98		28.45	
10 PERCENT EXCEEDS	25		20	
50 PERCENT EXCEEDS	17		12	
90 PERCENT EXCEEDS	10		6.8	

a Aug 19, 20, 27, 2002.
b From rating curve extended above 23 ft^3/s.
c Aug 23, 27, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484500 STOCKLEY BRANCH AT STOCKLEY, DE

LOCATION.--Lat 38°38'19.9", long 75°20'31.1", Sussex County, Hydrologic Unit 02060010, on left bank at highway bridge in Stockley, 1.6 mi upstream from mouth, and 4.4 mi southeast of Georgetown.

DRAINAGE AREA.--5.24 mi^2.

PERIOD OF RECORD.--April 1943 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 24.54 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 16, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Natural flow of stream affected by inflow from sand mine dewatering process. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 45 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	1000	73	3.93	Jun 8	0430	81	4.06
Feb 23	0230	101	4.33	Jul 14	1845	*205	*5.44
Apr 11	1115	58	3.68	Sep 19	0700	79	4.02

Minimum discharge, 2.7 ft^3/s, Oct. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	14	19	18	13	22	19	16	16	8.9	9.6	15
2	3.3	7.7	15	18	13	26	18	16	8.6	11	7.2	12
3	4.8	9.4	13	18	8.7	26	17	15	12	22	7.8	9.7
4	e5.5	9.2	12	18	10	22	10	11	18	19	14	12
5	5.1	9.0	15	17	10	26	16	5.8	18	16	18	14
6	5.0	13	18	14	8.5	32	16	6.0	14	15	25	8.4
7	5.1	11	18	12	9.3	31	17	14	23	11	24	8.9
8	5.0	9.7	18	12	9.0	19	15	12	55	14	29	14
9	5.0	9.6	17	12	10	18	21	9.8	27	13	21	14
10	5.6	9.4	15	11	13	21	27	10	22	19	20	14
11	10	13	16	10	12	21	46	9.7	20	18	20	14
12	8.5	23	26	11	8.3	21	38	9.3	20	17	20	15
13	6.7	30	21	14	12	21	30	13	18	15	22	17
14	6.2	21	25	14	8.5	20	24	15	17	85	19	16
15	6.2	17	20	14	9.4	17	25	14	17	78	11	16
16	13	19	15	13	9.5	15	24	21	9.6	25	13	16
17	7.0	57	14	12	19	19	21	15	7.7	23	22	15
18	6.0	43	13	9.2	22	17	18	14	15	20	20	22
19	11	28	13	10	20	18	16	13	19	20	19	65
20	11	23	15	13	21	20	15	13	16	18	18	32
21	8.6	24	17	13	22	23	15	14	19	17	e16	24
22	7.2	34	14	9.9	41	21	19	20	20	16	e9.3	24
23	6.9	25	15	8.1	92	20	19	20	18	16	7.4	32
24	6.4	20	16	10	45	19	17	20	17	17	7.5	28
25	6.2	18	20	12	29	17	16	18	15	16	13	20
26	11	17	22	12	25	10	14	21	15	7.9	15	24
27	8.1	17	19	12	24	9.2	13	15	11	7.8	15	23
28	7.4	17	18	11	23	17	12	15	9.7	14	15	25
29	8.5	19	18	5.3	---	18	15	21	9.2	18	15	23
30	19	19	12	5.3	---	22	16	20	8.9	18	16	21
31	20	---	17	11	---	21	---	19	---	17	16	---
TOTAL	246.8	586.0	526	379.8	547.2	629.2	589	455.6	515.7	632.6	504.8	594.0
MEAN	7.96	19.5	17.0	12.3	19.5	20.3	19.6	14.7	17.2	20.4	16.3	19.8
MAX	20	57	26	18	92	32	46	21	55	85	29	65
MIN	3.3	7.7	12	5.3	8.3	9.2	10	5.8	7.7	7.8	7.2	8.4
CFSM	1.52	3.73	3.24	2.34	3.73	3.87	3.75	2.80	3.28	3.89	3.11	3.78
IN.	1.75	4.16	3.73	2.70	3.88	4.47	4.18	3.23	3.66	4.49	3.58	4.22

e Estimated

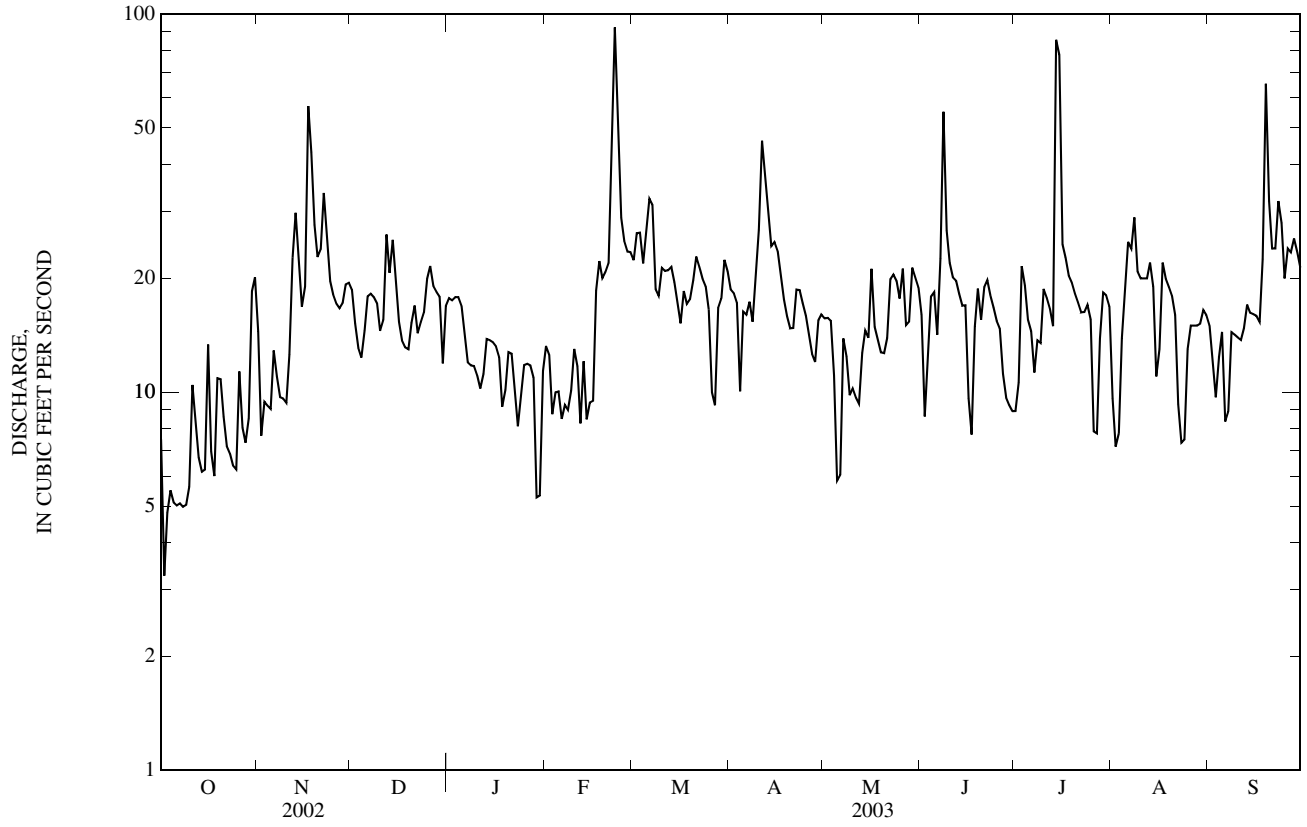
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2003, BY WATER YEAR (WY)

MEAN	3.62	5.00	6.85	9.37	10.6	12.7	10.6	7.92	5.92	4.52	5.32	3.99
MAX	10.5	19.5	22.8	24.8	29.9	31.2	24.4	19.7	25.3	20.4	24.8	19.8
(WY)	(1972)	(2003)	(1946)	(1978)	(1998)	(1994)	(1983)	(1948)	(1948)	(2003)	(1989)	(2003)
MIN	0.67	0.77	0.76	0.92	1.19	4.05	3.78	2.36	1.80	1.21	0.65	0.67
(WY)	(1989)	(1989)	(1989)	(1989)	(1989)	(1966)	(1985)	(1985)	(1977)	(1977)	(1944)	(1988)

01484500 STOCKLEY BRANCH AT STOCKLEY, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	2,709.32		6,206.7			
ANNUAL MEAN	7.42		17.0		7.21	
HIGHEST ANNUAL MEAN					17.0	2003
LOWEST ANNUAL MEAN					3.24	1966
HIGHEST DAILY MEAN	84	Sep 1	92	Feb 23	195	Mar 3, 1994
LOWEST DAILY MEAN	0.07	Aug 27	3.3	Oct 2	0.07	Aug 27, 2002
ANNUAL SEVEN-DAY MINIMUM	1.4	Aug 21	4.8	Oct 2	0.13	Sep 2, 1944
MAXIMUM PEAK FLOW			205	Jul 14	(a)303	Mar 3, 1994
MAXIMUM PEAK STAGE			5.44	Jul 14	5.63	Aug 14, 2001
INSTANTANEOUS LOW FLOW			2.7	(b)	0.00	(c)
ANNUAL RUNOFF (CFSM)	1.42		3.25		1.38	
ANNUAL RUNOFF (INCHES)	19.23		44.06		18.69	
10 PERCENT EXCEEDS	17		24		14	
50 PERCENT EXCEEDS	5.3		16		5.3	
90 PERCENT EXCEEDS	2.5		8.5		1.6	

a From rating curve extended above 150 ft^3/s.
b Oct. 2, 3.
c Aug. 22, 27, 28, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484525 MILLSBORO POND OUTLET AT MILLSBORO, DE

LOCATION.--Lat 38°35'40.4", long 75°17'27.7" Hydrologic Unit 02060010, on right bank just upstream from Millsboro Pond Dam, 10 ft upstream from bridge on State Highway 24, at Millsboro.

DRAINAGE AREA.--66.0 mi^2.

PERIOD OF RECORD.--May 1986 to September 1988, March 1991 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.98 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily values (gates open), which are poor. Outflow from lake controlled by sluice gates at outlet. Gates open March 7 to July 2 and September 15-23. Natural flow of stream affected by inflow from sand mine dewatering process. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the period.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 755 ft^3/s, Feb. 23, gage height, 4.08 ft; minimum discharge, UNKNOWN.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	144	154	148	111	228	267	201	210	85	131	147
2	51	138	145	157	132	227	224	195	198	68	120	122
3	48	92	139	157	121	265	225	193	181	167	118	158
4	45	88	135	157	118	245	205	190	180	194	118	199
5	44	86	143	156	124	235	194	184	194	156	129	229
6	44	106	155	146	110	285	208	180	191	127	185	197
7	44	106	154	138	115	325	215	181	222	147	195	152
8	44	96	148	133	114	270	231	189	466	135	195	135
9	44	90	148	130	108	215	269	182	472	126	188	129
10	44	84	148	129	109	188	373	179	297	151	172	124
11	81	88	152	120	116	174	499	172	220	160	166	123
12	106	106	198	116	107	165	648	162	188	140	156	128
13	79	153	215	113	104	161	575	152	187	127	184	147
14	64	174	213	118	100	155	417	151	176	189	188	148
15	55	162	222	116	116	146	343	151	162	587	164	163
16	84	158	201	113	136	143	317	214	134	383	148	e140
17	108	245	178	117	181	163	282	297	148	246	169	e110
18	85	423	166	115	202	186	272	260	163	190	169	e110
19	67	350	154	107	203	175	265	224	187	180	153	e200
20	67	272	162	105	193	159	262	198	206	172	147	e340
21	64	204	176	107	199	176	249	189	184	166	136	e150
22	58	233	174	103	272	181	244	214	176	142	130	e110
23	59	281	158	97	613	166	244	225	165	127	123	144
24	57	243	152	93	578	147	236	227	164	142	123	177
25	57	204	167	93	359	186	221	224	133	139	116	192
26	84	191	178	93	276	221	227	223	126	130	113	158
27	88	186	172	95	243	220	227	246	106	120	114	144
28	76	179	158	90	244	222	217	234	85	118	128	142
29	76	165	157	88	---	223	208	236	88	126	116	144
30	111	162	149	88	---	295	206	249	103	143	132	140
31	143	---	139	92	---	306	---	227	---	139	165	---
TOTAL	2,128	5,209	5,110	3,630	5,404	6,453	8,570	6,349	5,712	5,222	4,591	4,702
MEAN	68.6	174	165	117	193	208	286	205	190	168	148	157
MAX	143	423	222	157	613	325	648	297	472	587	195	340
MIN	44	84	135	88	100	143	194	151	85	68	113	110
CFSM	1.04	2.63	2.50	1.77	2.92	3.15	4.33	3.10	2.88	2.55	2.24	2.37
IN.	1.20	2.94	2.88	2.05	3.05	3.64	4.83	3.58	3.22	2.94	2.59	2.65

e Estimated

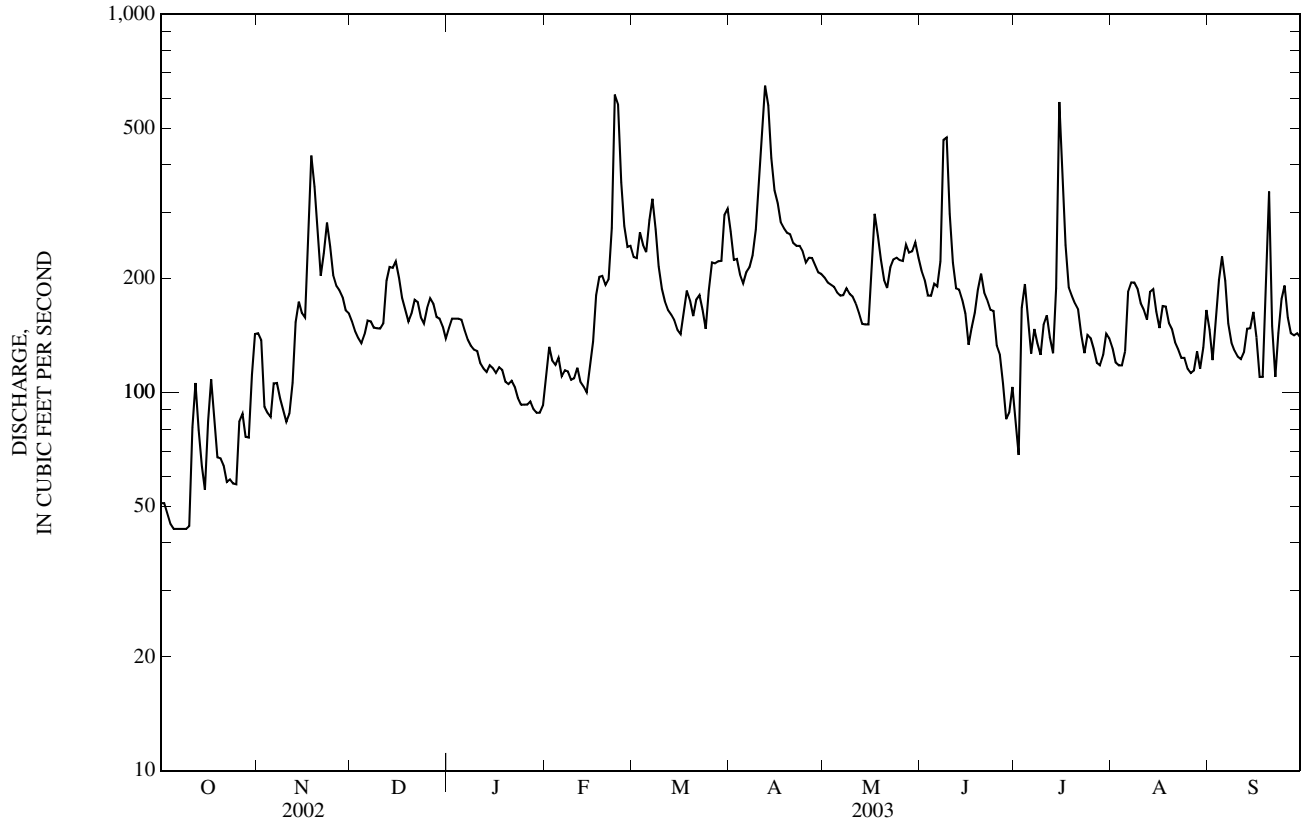
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 -1988, 1991 - 2003, BY WATER YEAR (WY)

MEAN	52.2	61.5	81.3	99.2	140	161	142	103	73.2	55.8	60.4	62.1
MAX	109	174	198	174	428	373	286	205	190	168	148	157
(WY)	(1997)	(2003)	(1997)	(1998)	(1998)	(1994)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	20.8	24.3	33.2	40.5	33.5	44.5	69.1	47.3	30.1	15.9	15.3	20.1
(WY)	(1987)	(1988)	(1988)	(2002)	(2002)	(2002)	(1995)	(1986)	(2002)	(2002)	(2002)	(1986)

01484525 MILLSBORO POND OUTLET AT MILLSBORO, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 1988, 1991 - 2003	
ANNUAL TOTAL	24,652.3		63,080			
ANNUAL MEAN	67.5		173		92.3	
HIGHEST ANNUAL MEAN					173	2003
LOWEST ANNUAL MEAN					42.3	2002
HIGHEST DAILY MEAN	536	Sep 2	648	Apr 12	1,260	Mar 4, 1994
LOWEST DAILY MEAN	9.5	Aug 14	44	(a)	(b, e)0.00	Aug 30, 1998
ANNUAL SEVEN-DAY MINIMUM	10	Aug 9	44	Oct 4	10	Aug 9, 2002
MAXIMUM PEAK FLOW			755	Feb 23	(c)1,770	Mar 3, 1994
MAXIMUM PEAK STAGE			4.08	Feb 23	4.94	Mar 3, 1994
INSTANTANEOUS LOW FLOW			UNKNOWN		(b)0.00	(d)
ANNUAL RUNOFF (CFSM)	1.02		2.62		1.40	
ANNUAL RUNOFF (INCHES)	13.89		35.55		19.01	
10 PERCENT EXCEEDS	156		253		172	
50 PERCENT EXCEEDS	47		158		72	
90 PERCENT EXCEEDS	15		88		28	

a Oct. 5-10.
b As a result of lake being refilled.
e Estimated.
c From rating curve extended above 1,500 ft^3/s.
d Aug. 29-31, 1998.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484695 BEAVERDAM DITCH NEAR MILLVILLE, DE

LOCATION.--Lat 38°31'17.2", long 75°08'00.2", Sussex County, Hydrologic Unit 02060010, at culverts on Road No. 368, 1.6 mi upstream from mouth, and 2.1 mi southwest of Millville.

DRAINAGE AREA.--2.24 mi^2.

PERIOD OF RECORD.--August 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929. from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Flow occasionally affected by releases from sand pits located upstream from station. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 31	0615	64	3.59	Feb 22	2330	87	4.05
Nov 17	0815	73	3.79	Apr 11	0745	*102	*4.31
Feb 18	0045	57	3.43	Apr 12	0945	97	4.22

Minimum discharge, 0.24 ft^3/s, Oct. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.51	24	5.3	6.2	4.3	14	9.8	2.5	6.4	1.4	0.94	0.91
2	0.46	13	4.9	9.1	6.9	14	7.9	2.3	5.1	1.5	0.81	0.75
3	0.42	9.3	4.6	8.2	5.7	14	6.6	2.3	4.2	14	0.66	0.72
4	0.39	7.8	4.2	7.6	5.6	9.1	5.7	2.1	4.1	8.4	0.53	1.4
5	0.36	7.0	6.7	6.3	5.5	15	5.1	2.1	4.4	4.9	0.56	2.2
6	0.31	12	12	5.8	4.5	15	4.8	2.1	3.7	3.5	1.4	1.7
7	0.28	11	8.4	5.4	5.4	12	6.8	2.3	5.9	2.7	1.3	1.2
8	0.27	8.0	7.0	5.1	6.4	9.2	12	6.4	14	2.3	1.2	0.89
9	0.31	6.7	6.2	4.9	5.3	8.0	29	4.5	8.9	1.9	0.99	0.74
10	0.43	6.1	5.6	4.6	5.0	6.8	26	3.7	6.2	1.9	0.87	0.60
11	1.2	6.2	13	4.2	5.3	5.9	78	3.3	4.8	1.8	0.73	0.49
12	e3.0	14	23	3.9	4.8	5.7	74	2.9	3.9	1.5	0.70	0.63
13	e8.0	28	12	3.7	4.1	5.3	23	2.4	3.3	1.3	1.3	1.1
14	e7.0	16	17	3.6	3.6	4.9	11	2.0	3.0	2.7	1.3	1.00
15	5.5	11	11	3.5	4.7	4.4	8.2	1.8	2.6	2.6	0.90	1.0
16	e20	9.5	8.3	3.3	5.9	4.3	6.8	12	2.3	2.2	2.4	0.92
17	e13	63	6.9	3.4	26	5.4	5.7	22	2.2	1.8	6.1	0.75
18	8.0	45	6.1	3.3	47	5.5	5.7	11	2.6	1.5	4.0	2.9
19	6.1	18	5.7	3.1	27	4.7	6.2	7.7	6.3	1.4	2.1	13
20	5.2	11	6.8	3.1	28	4.7	5.4	6.1	9.1	1.3	1.5	7.8
21	4.7	9.8	8.3	3.1	24	7.5	4.9	5.0	7.4	1.1	1.2	4.5
22	4.1	26	6.8	3.0	51	6.8	4.5	8.0	5.8	0.94	0.88	3.3
23	3.7	16	6.0	2.8	66	5.6	4.0	10	4.5	1.1	0.67	7.8
24	3.3	10	5.5	2.6	22	4.7	3.5	12	3.5	1.0	0.51	9.8
25	3.0	8.3	13	2.5	13	4.6	3.2	8.1	2.8	0.91	0.43	6.2
26	19	7.3	12	2.5	9.8	3.8	4.3	12	2.3	0.75	0.36	4.2
27	13	6.8	7.9	2.6	9.7	3.7	4.2	11	2.0	0.64	0.40	2.8
28	8.3	6.1	6.8	2.4	17	3.5	3.5	15	1.8	0.51	0.71	4.5
29	8.7	5.7	6.2	2.3	---	3.5	3.1	22	1.6	0.76	0.47	3.9
30	34	5.5	5.6	2.2	---	22	2.8	11	1.5	1.0	0.98	2.9
31	56	---	5.3	2.6	---	16	---	7.7	---	1.1	1.3	---
TOTAL	238.54	428.1	258.1	126.9	423.5	249.6	375.7	223.3	136.2	70.41	38.20	90.60
MEAN	7.69	14.3	8.33	4.09	15.1	8.05	12.5	7.20	4.54	2.27	1.23	3.02
MAX	56	63	23	9.1	66	22	78	22	14	14	6.1	13
MIN	0.27	5.5	4.2	2.2	3.6	3.5	2.8	1.8	1.5	0.51	0.36	0.49
CFSM	3.44	6.37	3.72	1.83	6.75	3.59	5.59	3.22	2.03	1.01	0.55	1.35
IN	3.96	7.11	4.29	2.11	7.03	4.15	6.24	3.71	2.26	1.17	0.63	1.50

e Estimated

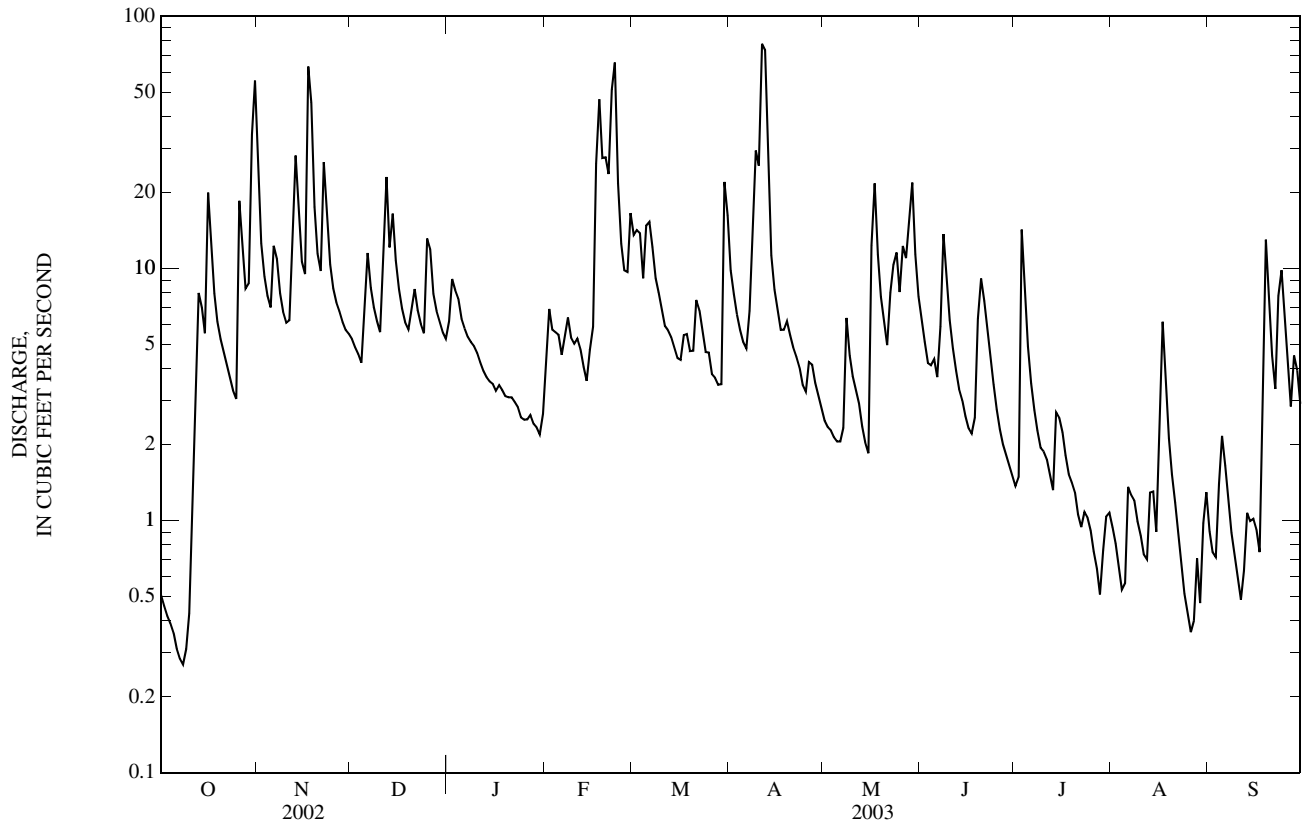
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2003, BY WATER YEAR (WY)

MEAN	3.27	3.63	2.83	3.37	6.27	7.39	6.14	2.95	3.33	2.23	2.04	3.01
MAX	7.69	14.3	8.33	5.13	15.1	11.3	12.5	7.20	6.73	7.47	4.74	5.88
(WY)	(2003)	(2003)	(2003)	(1999)	(2003)	(2000)	(2003)	(2003)	(2000)	(2000)	(2000)	(2000)
MIN	0.095	0.094	0.25	0.77	0.71	2.15	2.76	0.78	0.14	0.13	0.058	0.15
(WY)	(1999)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1999)	(2002)	(1999)	(2002)	(1998)

01484695 BEAVERDAM DITCH NEAR MILLVILLE, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1998 - 2003	
ANNUAL TOTAL	1,345.44		2,659.15			
ANNUAL MEAN	3.69		7.29		3.90	
HIGHEST ANNUAL MEAN					7.29	2003
LOWEST ANNUAL MEAN					1.19	2002
HIGHEST DAILY MEAN	63	Nov 17	78	Apr 11	119	Mar 22, 2000
LOWEST DAILY MEAN	0.00	(a)	0.27	Oct 8	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.01	Jul 12	0.33	Oct 3	0.01	Jul 12, 2002
MAXIMUM PEAK FLOW			102	Apr 11	(b)147	Mar 22, 2000
MAXIMUM PEAK STAGE			4.31	Apr 11	4.97	Mar 22, 2000
INSTANTANEOUS LOW FLOW			0.24	(c)	0.00	(d)
ANNUAL RUNOFF (CFSM)	1.65		3.25		1.74	
ANNUAL RUNOFF (INCHES)	22.34		44.16		23.65	
10 PERCENT EXCEEDS	9.4		14		8.8	
50 PERCENT EXCEEDS	1.1		4.8		1.6	
90 PERCENT EXCEEDS	0.03		0.89		0.10	

a July 17, 18, 2002.
b From rating curve extended above 55 ft^3/s.
c Oct. 7.8.
d July 8-13, 15-18, Aug. 14, 22, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

0148471320 BIRCH BRANCH AT SHOWELL, MD

LOCATION.--Lat 38°24'33.6", long 75°12'44.6", Worchester County, Hydrologic Unit 02060010, on right bank at downstream side of bridge on U.S. Highway 113, 0.75 mi north of Showell, and 1.1 mi upstream from mouth.

DRAINAGE AREA.--6.38 mi^2.

PERIOD OF RECORD.--December 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0400	175	7.71	Apr 11	0400	*300	*8.50
Nov 18	0015	109	7.13	Apr 12	0730	177	7.73
Dec 11	2000	126	7.30	May 16	1500	185	7.79
Feb 17	1845	163	7.62	May 28	1745	145	7.47
Feb 22	2045	175	7.71	Jul 3	0415	140	7.43
Mar 30	0615	125	7.29	Sep 4	1800	291	8.45
Apr 9	1630	156	7.56	Sep 18	2200	298	8.49

Minimum discharge, 0.48 ft^3/s, Oct. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.59	14	8.1	12	9.2	25	20	4.5	12	2.0	1.8	7.9
2	0.57	9.8	7.4	15	11	35	15	4.3	9.2	2.7	1.7	5.3
3	0.55	7.8	7.0	14	8.4	28	12	4.0	7.8	63	1.6	5.9
4	0.53	6.9	6.7	12	9.0	18	10	3.5	8.2	16	1.6	88
5	0.52	6.5	11	9.7	8.6	34	8.9	3.3	9.1	8.5	3.3	68
6	0.50	22	18	8.8	6.9	31	8.0	3.4	7.1	5.9	3.4	23
7	0.54	12	13	8.0	10	22	19	3.5	21	4.7	3.4	14
8	0.54	9.2	11	7.7	11	16	25	14	35	3.8	e3.1	10
9	0.55	8.0	9.7	7.3	8.5	14	80	8.4	17	3.2	e2.7	8.1
10	0.64	7.6	8.9	6.7	8.7	11	49	7.3	11	3.0	e2.5	7.0
11	1.4	10	41	6.0	9.5	9.7	149	6.6	8.3	2.9	e3.2	6.0
12	3.5	35	47	5.4	8.6	9.4	118	5.5	6.7	2.4	e3.0	7.7
13	3.6	43	23	5.2	7.1	8.8	40	4.5	5.6	1.8	e2.8	27
14	2.7	21	33	5.1	6.2	8.1	23	3.7	4.7	15	e1.7	18
15	2.0	14	19	5.0	13	7.5	18	3.1	3.9	16	1.5	18
16	10	17	14	4.6	12	8.0	15	82	3.5	8.0	5.0	13
17	7.4	110	11	4.9	89	18	12	89	3.4	5.6	24	9.6
18	4.9	63	9.3	4.6	78	15	12	32	5.0	4.2	10	69
19	3.7	26	8.6	4.3	47	11	13	22	31	8.3	5.6	114
20	3.3	18	11	4.5	48	13	10	15	24	5.8	4.2	34
21	2.9	16	13	4.4	39	22	9.2	12	20	3.8	3.4	18
22	2.4	47	10	4.0	100	16	8.6	31	12	3.2	2.8	12
23	2.1	25	8.8	3.7	97	12	7.5	27	8.6	3.4	2.2	38
24	1.8	17	8.3	3.3	37	9.6	6.5	23	6.4	3.2	1.6	23
25	1.8	13	26	3.1	23	8.2	6.1	16	5.0	2.7	1.4	12
26	9.4	12	18	3.2	18	7.4	8.5	27	4.1	2.1	1.3	9.3
27	7.0	11	12	3.3	19	7.3	7.9	19	3.4	1.8	1.4	7.7
28	5.3	9.7	10	3.0	39	6.8	6.6	50	2.7	1.6	e2.0	11
29	7.2	8.9	9.0	3.3	---	7.0	5.8	42	2.3	1.9	e1.4	8.8
30	31	8.6	7.9	3.8	---	78	5.0	23	2.1	2.0	11	6.8
31	36	---	7.6	6.0	---	36	---	15	---	2.0	18	---
TOTAL	154.93	629.0	448.3	191.9	781.7	552.8	728.6	604.6	300.1	210.5	132.6	700.1
MEAN	5.00	21.0	14.5	6.19	27.9	17.8	24.3	19.5	10.0	6.79	4.28	23.3
MAX	36	110	47	15	100	78	149	89	35	63	24	114
MIN	0.50	6.5	6.7	3.0	6.2	6.8	5.0	3.1	2.1	1.6	1.3	5.3
CFSM	0.78	3.29	2.27	0.97	4.38	2.80	3.81	3.06	1.57	1.06	0.67	3.66
IN.	0.90	3.67	2.61	1.12	4.56	3.22	4.25	3.53	1.75	1.23	0.77	4.08

e Estimated

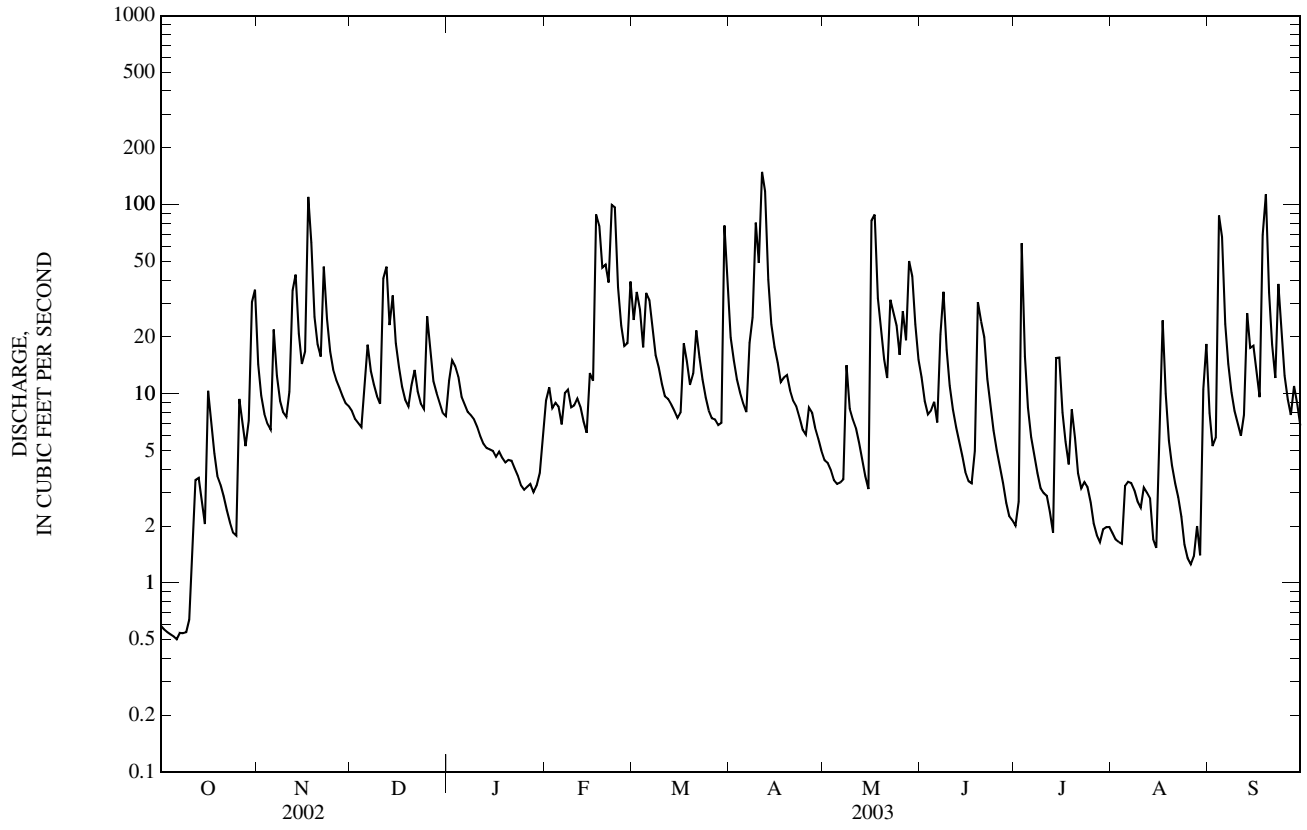
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	2.45	7.63	6.05	4.97	13.2	15.9	12.9	7.82	5.78	4.10	2.98	8.49
MAX	5.00	21.0	14.5	7.98	27.9	25.7	24.3	19.5	10.0	6.79	5.00	23.3
(WY)	(2003)	(2003)	(2003)	(2001)	(2003)	(2000)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)
MIN	0.59	0.44	0.53	1.19	1.41	3.37	4.69	3.10	0.83	0.28	0.18	0.63
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2000)	(2002)	(2002)	(2002)	(2001)

0148471320 BIRCH BRANCH AT SHOWELL, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	1,849.68		5,435.13			
ANNUAL MEAN	5.07		14.9		7.53	
HIGHEST ANNUAL MEAN					14.9	2003
LOWEST ANNUAL MEAN					1.82	2002
HIGHEST DAILY MEAN	110	Nov 17	149	Apr 11	311	Mar 22, 2000
LOWEST DAILY MEAN	0.14	(a)	0.50	Oct 6	0.14	(a)
ANNUAL SEVEN-DAY MINIMUM	0.14	Aug 21	0.53	Oct 3	0.14	Aug 21, 2002
MAXIMUM PEAK FLOW			300	Apr 11	(b)563	Mar 22, 2000
MAXIMUM PEAK STAGE			8.50	Apr 11	9.38	Mar 22, 2000
INSTANTANEOUS LOW FLOW			0.48	(c)	0.14	(d)
ANNUAL RUNOFF (CFSM)	0.79		2.33		1.18	
ANNUAL RUNOFF (INCHES)	10.78		31.69		16.03	
10 PERCENT EXCEEDS	12		34		16	
50 PERCENT EXCEEDS	1.6		8.6		3.3	
90 PERCENT EXCEEDS	0.23		2.2		0.49	

a Aug. 21-23, 26, 27, 2002.
b From rating curve extended above 230 ft^3/s.
c Oct. 5, 6.
d Aug. 19-28, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484719 BASSETT CREEK NEAR IRONSHIRE, MD

LOCATION.--Lat 38°16'04", long 75°14'41", Worcester County Hydrologic Unit 02060010, upstream side of bridge on U.S. Highway 113, 1.4 mi south of Ironshire, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--1.22 mi^2.

WATER-DISCHARGE RECORDS

PPERIOD OF RECORD.--October 2002 to September 2003.

GAGE.--Water-stage recorder. Datum of gage is 3.33 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for estimated daily discharges (backwater, missing record), which are poor. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 25 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 17	1800	43	13.48	May 22	0145	26	12.90
Apr 9	1515	27	12.97	Jun 19	1230	52	13.68
Apr 11	0400	*85	*14.35	Sep 18	1815	27	12.97
Apr 12	0630	43	13.46				

Minimum discharge, 0.06 ft^3/s, Oct. 3-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.15	3.3	1.7	2.6	e1.9	4.1	3.5	1.5	2.1	0.58	1.0	1.1
2	0.15	2.6	1.5	3.3	3.4	6.1	2.7	1.5	1.8	1.4	0.65	0.85
3	0.10	2.2	1.5	3.1	2.9	4.9	2.4	1.4	1.4	6.0	0.52	6.1
4	0.06	1.8	1.5	3.1	2.7	3.0	2.3	1.3	1.6	2.0	0.48	7.9
5	0.06	1.7	3.0	2.9	2.5	9.6	2.2	0.99	2.0	1.2	0.98	3.4
6	0.06	5.9	3.5	2.7	2.2	7.6	2.0	0.97	1.4	0.86	0.80	1.9
7	0.06	3.3	2.8	2.5	2.7	5.3	6.8	1.0	3.7	0.65	1.3	2.2
8	e0.06	2.6	2.3	2.4	2.6	4.0	5.4	1.6	4.0	0.69	1.1	1.0
9	0.06	2.3	2.1	e2.2	2.3	3.6	16	1.4	2.2	0.55	0.82	0.77
10	0.08	2.0	1.9	e2.1	2.1	3.2	9.3	1.3	1.8	0.58	0.68	0.65
11	e0.21	1.9	7.8	e1.9	2.1	2.9	35	1.3	1.4	0.58	0.59	0.49
12	e0.48	4.6	6.3	e1.8	1.9	2.8	e25	1.0	1.1	0.57	0.58	0.81
13	e1.0	5.5	3.6	e1.7	1.6	2.6	8.9	0.78	1.0	0.51	0.59	1.5
14	e0.77	3.4	4.3	e1.6	1.4	2.4	5.4	0.68	0.91	0.68	0.58	1.1
15	e0.62	2.6	3.3	e1.6	3.2	2.3	3.7	0.59	0.82	0.76	0.54	1.2
16	e2.5	2.8	2.8	e1.5	2.1	2.6	3.1	7.5	0.77	0.61	0.81	1.1
17	e2.1	14	e2.6	e1.5	28	4.9	2.5	5.9	0.75	0.52	1.7	0.70
18	e1.8	7.7	2.5	e1.5	14	3.6	2.5	2.7	1.5	0.45	0.79	9.6
19	e1.5	3.7	2.3	e1.4	7.8	3.0	2.3	2.4	20	0.80	0.58	10
20	e1.3	3.2	3.1	e1.4	6.8	3.6	2.1	1.9	10	0.90	0.52	2.3
21	e1.2	2.8	3.3	e1.4	4.7	4.4	2.0	2.6	6.6	0.57	0.49	1.8
22	e1.2	4.4	2.8	e1.3	11	3.3	1.9	18	3.4	0.54	0.45	1.3
23	e1.1	3.4	2.4	e1.1	11	2.9	1.8	9.9	2.5	0.68	0.44	7.9
24	e1.0	2.9	2.3	e1.1	4.8	2.7	1.8	7.1	1.7	0.65	e0.41	2.8
25	0.97	2.5	7.1	e1.0	2.7	2.5	1.9	3.7	1.2	0.59	0.41	1.9
26	2.0	2.3	3.5	e0.99	2.3	2.4	2.5	5.7	0.92	0.58	0.41	1.5
27	1.5	2.0	3.1	e0.98	3.0	2.7	2.2	3.6	0.78	0.58	0.47	1.3
28	1.3	2.0	2.9	e0.90	8.9	2.4	1.9	3.7	0.68	0.94	0.59	9.6
29	1.8	1.9	2.7	e0.85	---	2.8	1.7	3.4	0.68	2.0	0.45	2.0
30	4.8	1.8	2.5	e0.88	---	10	1.5	2.6	0.63	0.98	1.4	1.5
31	7.3	---	2.2	e1.0	---	5.5	---	2.1	---	0.81	2.5	---
TOTAL	37.29	103.1	95.2	54.30	142.6	123.7	162.3	100.11	79.34	29.81	23.63	86.27
MEAN	1.20	3.44	3.07	1.75	5.09	3.99	5.41	3.23	2.64	0.96	0.76	2.88
MAX	7.3	14	7.8	3.3	28	10	35	18	20	6.0	2.5	10
MIN	0.06	1.7	1.5	0.85	1.4	2.3	1.5	0.59	0.63	0.45	0.41	0.49
CFSM	0.99	2.82	2.52	1.44	4.17	3.27	4.43	2.65	2.17	0.79	0.62	2.36
IN.	1.14	3.14	2.90	1.66	4.35	3.77	4.95	3.05	2.42	0.91	0.72	2.63

e Estimated

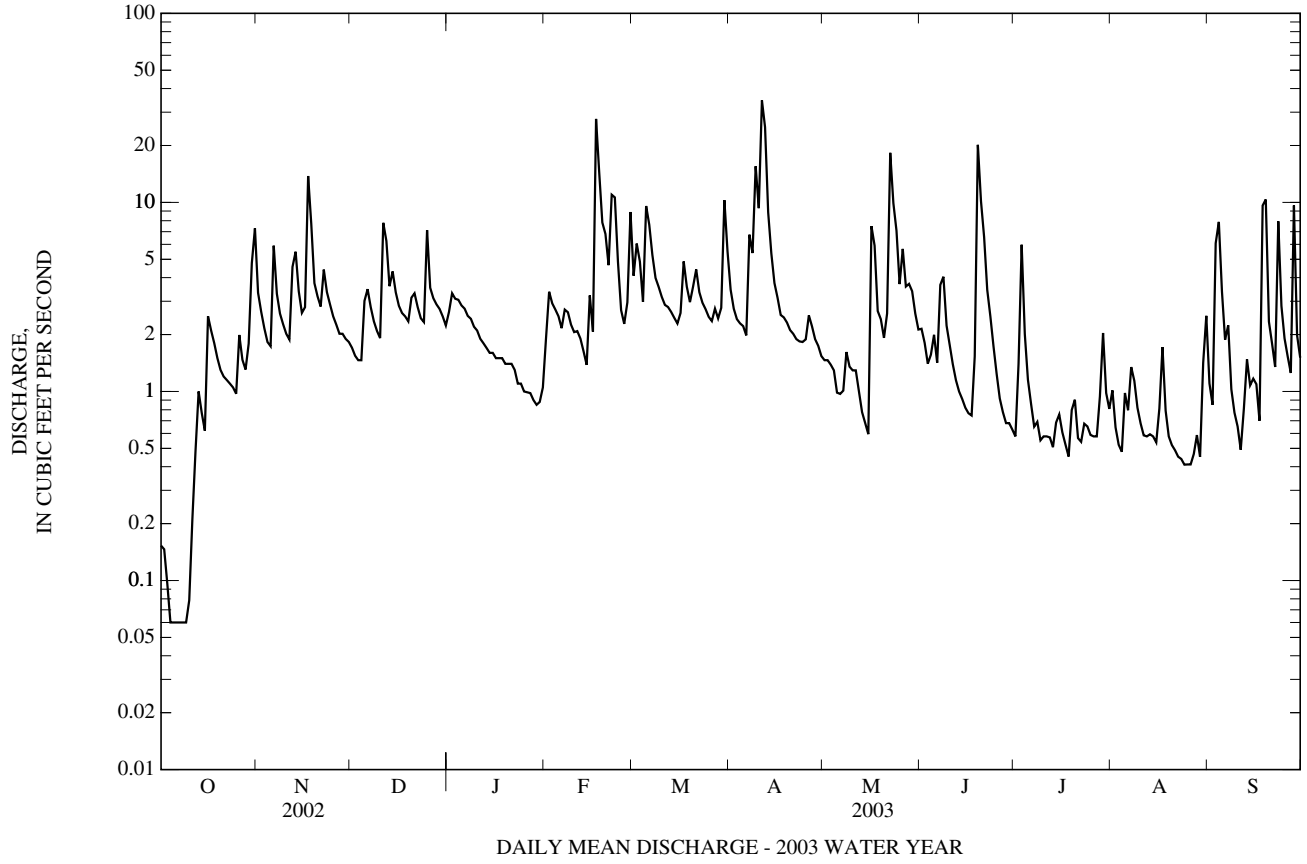
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	1.20	3.44	3.07	1.75	5.09	3.99	5.41	3.23	2.64	0.96	0.76	2.88
MAX	1.20	3.44	3.07	1.75	5.09	3.99	5.41	3.23	2.64	0.96	0.76	2.88
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	1.20	3.44	3.07	1.75	5.09	3.99	5.41	3.23	2.64	0.96	0.76	2.88
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR	
ANNUAL TOTAL	1037.65	
ANNUAL MEAN	2.84	
HIGHEST ANNUAL MEAN		
LOWEST ANNUAL MEAN		
HIGHEST DAILY MEAN	35	Apr 11
LOWEST DAILY MEAN	0.06	(a)
ANNUAL SEVEN-DAY MINIMUM	0.06	Oct 4
MAXIMUM PEAK FLOW	(b)85	Apr 11
MAXIMUM PEAK STAGE	14.35	Apr 11
INSTANTANEOUS LOW FLOW	0.06	(c)
ANNUAL RUNOFF (CFSM)	2.33	
ANNUAL RUNOFF (INCHES)	31.64	
10 PERCENT EXCEEDS	6.0	
50 PERCENT EXCEEDS	2.0	
90 PERCENT EXCEEDS	0.58	

a Oct. 4-9, 2002.
b From rating curve extended above 46 ft^3/s.
c Oct. 3-10, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01484719 BASSETT CREEK NEAR IRONSHIRE, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1989 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 2002 to September 2003.
pH: October 2002 to September 2003
WATER TEMPERATURE: October 2002 to September 2003.
DISSOLVED OXYGEN: October 2002 to September 2003

INSTRUMENTATION.--Water-quality monitor since October 2002.

REMARKS.-- Missing record due to instrument malfunction. Records good.

EXTREMES FOR WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003.--
SPECIFIC CONDUCTANCE: Maximum, 242 microsiemens/cm, Aug. 25; minimum, 55 microsiemens/cm, Feb. 17.
pH: Maximum, 5.9 units, on several days; minimum, 4.6 units, Apr. 13.
WATER TEMPERATURE: Maximum, 24.2°C, Aug. 30; minimum, 0.0°C, Jan. 22-25, 27, 28, Feb. 16.
DISSOLVED OXYGEN: Maximum, 11.7 mg/L, Dec. 17; minimum, 0.7 mg/L, Feb. 18.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
OCT												
31...	1014	Environmental	8.0	--	8.0	--	6.2	157	11.5	10.5	0.76	1.1
DEC												
17...	1245	Environmental	2.6	--	10.6	--	5.7	125	--	4.7	--	0.56
JAN												
16...	1325	Environmental	1.5	769	10.4	73	5.8	178	-2.0	1.0	--	0.34
29...	1115	Environmental	0.77	765	10.6	77	5.8	184	3.0	2.2	--	0.32
MAR												
03...	1115	Environmental	4.8	755	9.1	71	5.4	137	--	4.5	--	0.56
05...	1015	Environmental	15	745	9.9	82	5.5	120	15.0	6.5	--	1.1
21...	1045	Environmental	4.3	747	8.7	80	5.3	156	15.9	11.0	--	0.68
31...	1000	Environmental	5.7	752	9.5	80	5.0	180	7.0	7.2	--	1.2
APR												
11...	0945	Environmental	30	740	8.9	76	5.0	144	10.3	7.2	--	1.1
MAY												
01...	*0900*	*Blank*	--	--	--	--	--	--	--	--	--	*0.12*
01...	1015	Environmental	2.0	754	8.3	82	5.2	211	19.8	14.5	--	0.55
08...	1050	Environmental	2.0	749	7.0	69	5.1	207	22.2	14.1	--	0.57
22...	0945	Environmental	22	757	4.1	40	5.0	85	13.8	13.4	--	2.3
JUN												
04...	1250	Environmental	1.6	749	5.0	51	5.2	177	19.2	15.6	--	0.66
JUL												
03...	1055	Environmental	4.3	747	5.9	67	5.1	159	25.6	20.8	--	E1.3
08...	0900	Environmental	0.82	752	6.6	75	5.4	196	25.3	20.8	--	1.1
29...	0808	Environmental	2.2	--	6.3	--	5.4	186	--	20.8	--	1.4
AUG												
20...	1210	Environmental	0.48	--	7.0	--	5.6	224	25.0	20.3	--	1.3
21...	1020	Environmental	0.48	755	7.2	81	5.6	228	27.2	20.6	--	1.0
SEP												
04...	0815	Environmental	11	751	5.8	68	5.2	140	24.3	22.2	--	1.2
11...	1250	Environmental	0.41	--	7.6	--	5.7	225	22.0	17.7	--	0.68

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)
OCT										
31...	E.02	--	0.53	E.004	--	0.21	0.23	0.40	1.3	1.6
DEC										
17...	E.03	--	1.08	E.004	--	0.02	--	0.039	--	1.6
JAN										
16...	0.05	--	2.07	<0.008	0.30	<0.02	--	0.021	--	2.4
29...	E.04	--	2.46	E.004	--	<0.02	--	0.015	--	2.8
MAR										
03...	E.03	--	2.04	<0.008	--	E.01	--	0.075	--	2.6
05...	0.06	--	1.14	<0.008	1.0	0.09	--	0.27	--	2.2
21...	E.02	--	1.22	<0.008	--	0.02	--	0.105	--	1.9
31...	0.05	--	0.81	E.004	1.1	0.06	--	0.181	--	2.0
APR										
11...	E.04	--	0.95	<0.008	--	0.09	--	0.39	--	2.0
MAY										
01...	*<0.04*	--	*<0.06*	*<0.008*	--	*<0.02*	--	*<0.004*	--	--
01...	<0.04	--	1.72	<0.008	--	E.01	--	0.049	--	2.3
08...	<0.04	--	1.39	E.004	--	<0.02	--	0.048	--	2.0
22...	0.75	1.86	1.89	0.027	1.5	0.10	--	0.26	--	4.1
JUN										
04...	0.05	--	1.42	E.006	0.61	E.02	--	0.059	--	2.1
JUL										
03...	E.13	--	E1.35	E.026	--	E.06	--	E.189	--	--
08...	0.09	--	2.24	E.007	1.0	0.04	--	0.136	--	3.4
29...	0.08	0.98	0.99	0.013	1.3	E.02	--	0.151	--	2.4
AUG										
20...	0.07	2.58	2.59	0.008	1.2	E.01	--	0.140	--	3.9
21...	0.06	3.01	3.02	0.010	0.95	<0.18	--	0.089	--	4.0
SEP										
04...	E.03	--	0.40	E.005	--	0.13	--	0.37	--	1.6
11...	0.07	--	2.79	E.007	0.61	0.03	--	0.079	--	3.5

Remark codes used in this table:
< -- Less than
E -- Estimated value

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

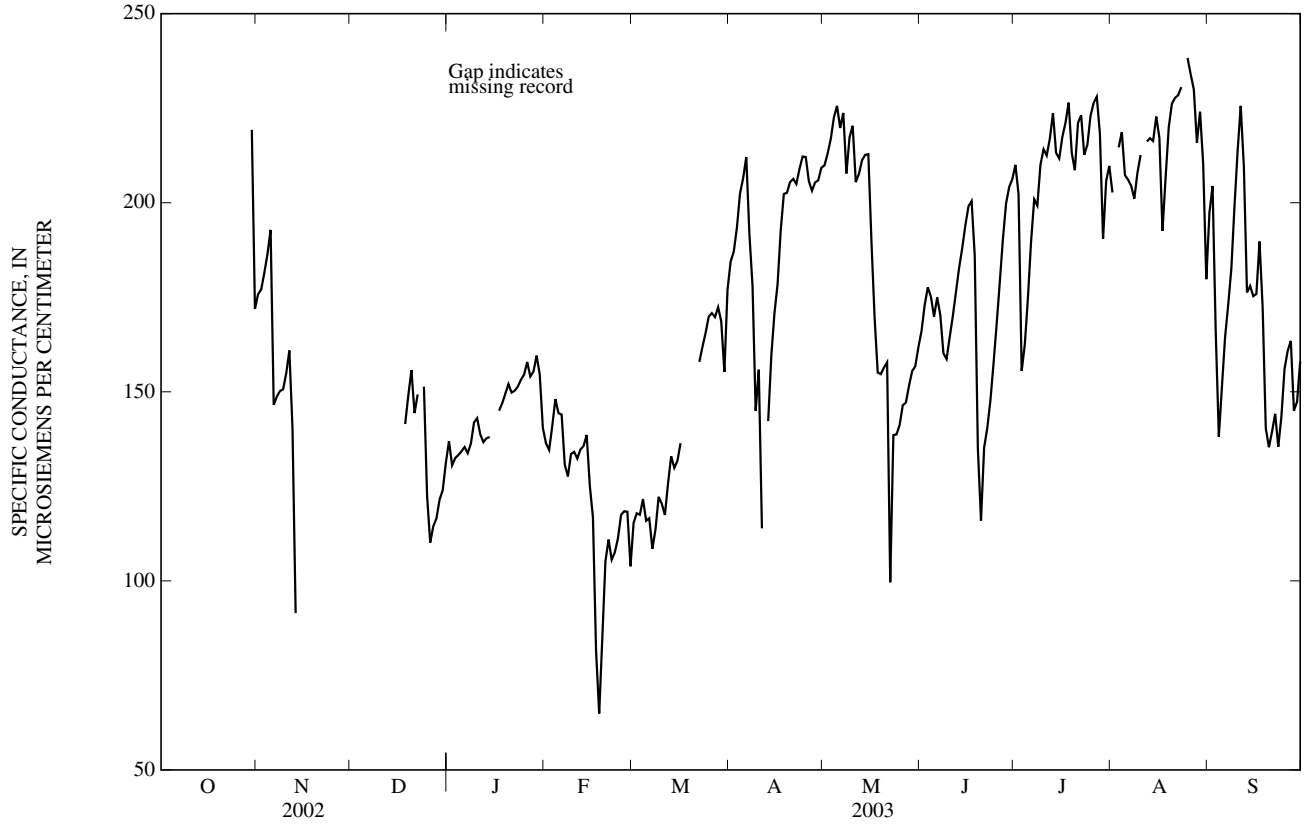
SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	178	174	176	---	---	---	139	134	137
2	---	---	---	180	175	177	---	---	---	134	130	131
3	---	---	---	183	180	181	---	---	---	135	130	132
4	---	---	---	189	183	186	---	---	---	136	132	133
5	---	---	---	199	188	193	---	---	---	136	132	134
6	---	---	---	203	119	147	---	---	---	138	134	135
7	---	---	---	150	147	149	---	---	---	136	132	134
8	---	---	---	152	148	150	---	---	---	140	133	136
9	---	---	---	152	149	151	---	---	---	146	138	142
10	---	---	---	158	152	155	---	---	---	146	142	143
11	---	---	---	166	156	161	---	---	---	142	136	139
12	---	---	---	165	96	140	---	---	---	140	134	137
13	---	---	---	98	86	91	---	---	---	142	135	138
14	---	---	---	---	---	---	---	---	---	141	136	138
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	148	140	145
18	---	---	---	---	---	---	146	138	141	150	144	147
19	---	---	---	---	---	---	158	142	149	150	148	149
20	---	---	---	---	---	---	165	140	156	157	149	152
21	---	---	---	---	---	---	147	141	144	152	149	150
22	---	---	---	---	---	---	152	146	149	153	148	150
23	---	---	---	---	---	---	---	---	---	153	150	151
24	---	---	---	---	---	---	154	150	151	155	152	153
25	---	---	---	---	---	---	151	99	123	156	152	155
26	---	---	---	---	---	---	116	97	110	162	155	158
27	---	---	---	---	---	---	116	113	114	158	152	154
28	---	---	---	---	---	---	119	114	117	158	153	155
29	---	---	---	---	---	---	125	119	122	162	157	160
30	233	195	219	---	---	---	128	121	124	157	148	155
31	196	157	172	---	---	---	137	127	131	148	138	140
MONTH	---	---	---	---	---	---	---	---	---	162	130	144
		FEBRUARY			MARCH			APRIL			MAY	
1	139	129	136	121	110	115	188	182	184	214	206	210
2	140	130	135	123	109	118	190	183	187	220	208	213
3	146	136	141	121	115	117	200	190	193	224	209	217
4	154	144	148	128	115	122	207	200	202	228	218	223
5	149	142	144	126	97	116	209	203	206	232	219	226
6	148	141	144	121	109	117	217	208	212	225	213	220
7	146	118	131	110	106	108	221	156	192	230	210	224
8	133	120	128	120	109	114	185	168	178	221	197	208
9	139	129	134	131	115	122	185	93	145	222	203	217
10	137	130	134	124	118	120	167	135	156	229	206	220
11	137	128	132	119	116	117	135	85	114	213	203	205
12	141	131	135	133	118	126	---	---	---	213	201	208
13	140	133	136	141	127	133	153	134	142	218	206	211
14	143	134	139	134	127	130	166	152	160	218	209	213
15	142	108	125	139	125	132	176	166	171	221	209	213
16	120	111	117	142	130	136	183	176	178	216	164	190
17	135	55	81	---	---	---	203	183	193	188	158	170
18	76	57	65	---	---	---	209	200	202	158	153	155
19	100	65	85	---	---	---	206	200	203	157	153	155
20	112	99	105	---	---	---	209	201	205	158	155	156
21	114	107	111	---	---	---	210	203	206	162	138	158
22	114	95	106	160	156	158	208	201	205	147	80	100
23	111	99	108	165	160	162	212	205	209	145	90	139
24	117	106	111	169	162	166	217	208	212	143	129	139
25	121	114	117	173	166	170	215	209	212	143	138	141
26	120	116	118	174	167	171	210	204	206	155	137	146
27	123	101	118	173	166	170	205	200	203	149	146	147
28	110	92	104	175	170	172	209	202	205	158	145	152
29	---	---	---	173	151	169	208	203	206	157	154	155
30	---	---	---	170	112	155	213	206	209	159	155	157
31	---	---	---	182	170	177	---	---	---	164	159	162
MONTH	154	55	121	182	97	139	221	85	190	232	80	182

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	171	164	166	215	207	210	212	192	203	204	186	197
2	176	170	173	215	143	202	---	---	---	214	183	204
3	179	176	178	160	132	156	218	212	215	200	117	166
4	180	169	175	169	160	162	221	217	219	147	123	138
5	172	168	170	183	169	175	222	188	207	159	145	151
6	180	172	175	197	183	190	217	192	206	169	159	164
7	182	157	170	207	197	201	219	184	204	196	162	173
8	168	157	160	207	196	199	210	195	201	189	175	183
9	162	158	159	215	207	210	212	204	208	206	189	199
10	169	161	164	216	212	214	215	211	213	221	206	214
11	173	169	170	216	210	212	---	---	---	228	221	226
12	180	173	176	223	212	217	220	214	216	227	187	209
13	186	180	183	227	222	224	221	211	217	195	172	176
14	192	185	188	224	201	213	222	213	216	180	174	178
15	198	191	194	218	206	212	226	220	223	184	164	175
16	203	196	199	220	214	217	227	178	217	182	172	176
17	204	191	200	226	218	221	201	189	193	193	182	190
18	193	178	186	228	224	226	216	197	207	195	136	172
19	189	73	135	227	181	213	225	216	220	149	133	140
20	138	86	116	220	201	209	228	223	226	138	133	135
21	139	133	135	224	218	221	229	226	228	143	136	139
22	145	136	140	225	221	223	230	227	228	146	143	144
23	154	144	148	221	210	213	236	229	231	148	122	135
24	165	153	157	224	211	215	---	---	---	153	133	144
25	175	164	168	226	219	223	242	235	238	158	153	156
26	185	175	179	229	222	226	236	231	234	163	158	161
27	197	185	190	230	226	228	234	194	230	166	156	163
28	206	196	200	230	172	218	225	195	216	156	139	145
29	208	199	204	208	175	190	226	222	224	151	146	147
30	210	202	206	211	199	206	225	155	210	164	151	158
31	---	---	---	214	205	210	190	160	180	---	---	---
MONTH	210	73	172	230	132	208	242	155	215	228	117	169



DAILY MEAN SPECIFIC CONDUCTIVITY - 2003 WATER YEAR

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

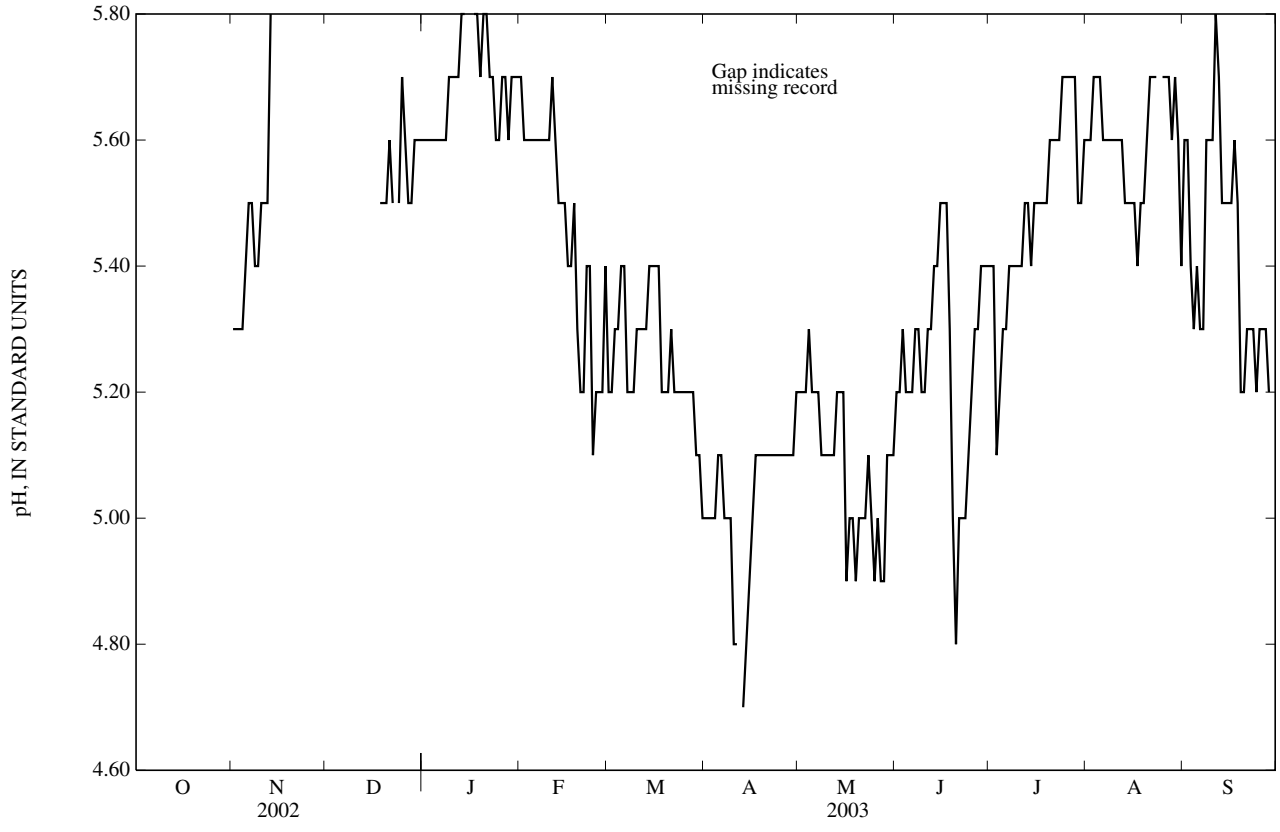
PH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	5.4	5.3	5.3	---	---	---	5.6	5.5	5.6
2	---	---	---	5.4	5.3	5.3	---	---	---	5.7	5.5	5.6
3	---	---	---	5.3	5.3	5.3	---	---	---	5.6	5.5	5.6
4	---	---	---	5.4	5.3	5.3	---	---	---	5.6	5.6	5.6
5	---	---	---	5.4	5.4	5.4	---	---	---	5.6	5.6	5.6
6	---	---	---	5.8	5.2	5.5	---	---	---	5.6	5.6	5.6
7	---	---	---	5.5	5.4	5.5	---	---	---	5.6	5.6	5.6
8	---	---	---	5.5	5.4	5.4	---	---	---	5.7	5.6	5.6
9	---	---	---	5.4	5.4	5.4	---	---	---	5.7	5.7	5.7
10	---	---	---	5.5	5.4	5.5	---	---	---	5.7	5.7	5.7
11	---	---	---	5.5	5.5	5.5	---	---	---	5.7	5.7	5.7
12	---	---	---	5.9	5.4	5.5	---	---	---	5.8	5.7	5.7
13	---	---	---	5.9	5.7	5.8	---	---	---	5.8	5.7	5.8
14	---	---	---	---	---	---	---	---	---	5.8	5.8	5.8
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	5.9	5.7	5.8
18	---	---	---	---	---	---	5.6	5.4	5.5	5.8	5.7	5.8
19	---	---	---	---	---	---	5.6	5.4	5.5	5.8	5.6	5.7
20	---	---	---	---	---	---	5.8	5.4	5.5	5.9	5.8	5.8
21	---	---	---	---	---	---	5.7	5.5	5.6	5.9	5.7	5.8
22	---	---	---	---	---	---	5.6	5.5	5.5	5.8	5.6	5.7
23	---	---	---	---	---	---	---	---	---	5.8	5.6	5.7
24	---	---	---	---	---	---	5.6	5.5	5.5	5.6	5.5	5.6
25	---	---	---	---	---	---	5.9	5.5	5.7	5.7	5.6	5.6
26	---	---	---	---	---	---	5.6	5.5	5.6	5.8	5.7	5.7
27	---	---	---	---	---	---	5.6	5.5	5.5	5.8	5.7	5.7
28	---	---	---	---	---	---	5.6	5.5	5.5	5.8	5.6	5.6
29	---	---	---	---	---	---	5.6	5.5	5.6	5.8	5.7	5.7
30	---	---	---	---	---	---	5.6	5.6	5.6	5.7	5.6	5.7
31	---	---	---	---	---	---	5.6	5.6	5.6	5.8	5.6	5.7
MAX	---	---	---	---	---	---	---	---	---	5.9	5.8	5.8
MIN	---	---	---	---	---	---	---	---	---	5.6	5.5	5.6
		FEBRUARY			MARCH			APRIL			MAY	
1	5.8	5.6	5.7	5.3	5.2	5.2	5.0	4.9	5.0	5.2	5.2	5.2
2	5.7	5.6	5.6	5.6	5.2	5.2	5.0	5.0	5.0	5.2	5.2	5.2
3	5.6	5.6	5.6	5.5	5.3	5.3	5.1	5.0	5.0	5.3	5.2	5.2
4	5.6	5.6	5.6	5.3	5.3	5.3	5.1	5.0	5.0	5.3	5.2	5.3
5	5.7	5.6	5.6	5.6	5.2	5.4	5.1	5.0	5.1	5.3	5.2	5.2
6	5.7	5.6	5.6	5.6	5.3	5.4	5.1	5.0	5.1	5.2	5.2	5.2
7	5.8	5.5	5.6	5.3	5.2	5.2	5.1	4.8	5.0	5.2	5.0	5.2
8	5.7	5.6	5.6	5.2	5.2	5.2	5.0	4.9	5.0	5.1	5.0	5.1
9	5.6	5.6	5.6	5.3	5.2	5.2	5.2	4.8	5.0	5.1	5.1	5.1
10	5.6	5.6	5.6	5.3	5.2	5.3	5.1	4.7	4.8	5.1	5.1	5.1
11	5.7	5.6	5.7	5.3	5.2	5.3	5.0	4.7	4.8	5.1	5.0	5.1
12	5.6	5.5	5.6	5.3	5.3	5.3	---	---	---	5.2	5.1	5.1
13	5.6	5.5	5.5	5.4	5.3	5.3	4.8	4.6	4.7	5.2	5.1	5.2
14	5.5	5.5	5.5	5.4	5.3	5.4	4.9	4.8	4.8	5.2	5.2	5.2
15	5.6	5.4	5.5	5.4	5.3	5.4	5.0	4.8	4.9	5.4	5.2	5.2
16	5.5	5.4	5.4	5.4	5.2	5.4	5.0	4.9	5.0	5.2	4.7	4.9
17	5.6	5.1	5.4	5.5	5.2	5.4	5.1	5.0	5.1	5.0	4.9	5.0
18	5.6	5.5	5.5	5.3	5.2	5.2	5.1	5.1	5.1	5.0	4.9	5.0
19	5.5	5.2	5.3	5.3	5.2	5.2	5.1	5.1	5.1	5.0	4.9	4.9
20	5.3	5.1	5.2	5.4	5.1	5.2	5.1	5.1	5.1	5.1	4.9	5.0
21	5.2	5.1	5.2	5.4	5.2	5.3	5.1	5.1	5.1	5.1	4.8	5.0
22	5.5	5.1	5.4	5.3	5.2	5.2	5.1	5.1	5.1	5.1	4.9	5.0
23	5.5	5.2	5.4	5.3	5.2	5.2	5.2	5.1	5.1	5.2	4.9	5.1
24	5.2	5.1	5.1	5.3	5.2	5.2	5.2	5.1	5.1	5.2	4.9	5.0
25	5.2	5.2	5.2	5.3	5.2	5.2	5.2	5.1	5.1	5.0	4.8	4.9
26	5.2	5.2	5.2	5.3	5.2	5.2	5.1	5.1	5.1	5.2	4.8	5.0
27	5.5	5.2	5.2	5.3	5.2	5.2	5.1	5.1	5.1	5.0	4.9	4.9
28	5.5	5.3	5.4	5.3	5.1	5.2	5.2	5.1	5.1	5.1	4.8	4.9
29	---	---	---	5.2	4.9	5.1	5.2	5.1	5.1	5.2	5.1	5.1
30	---	---	---	5.3	4.8	5.1	5.2	5.1	5.2	5.1	5.1	5.1
31	---	---	---	5.1	5.0	5.0	---	---	---	5.2	5.1	5.1
MAX	5.8	5.6	5.7	5.6	5.3	5.4	5.2	5.1	5.2	5.4	5.2	5.3
MIN	5.2	5.1	5.1	5.1	4.8	5.0	4.8	4.6	4.7	5.0	4.7	4.9

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

PH, WATER, UNFILTERED, FIELD, STANDARD UNITS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.2	5.1	5.2	5.5	5.4	5.4	5.7	5.5	5.6	5.6	5.5	5.6
2	5.2	5.2	5.2	5.5	4.9	5.4	5.7	5.6	5.6	5.7	5.4	5.6
3	5.3	5.2	5.3	5.2	4.9	5.1	5.7	5.6	5.7	5.5	5.1	5.4
4	5.3	5.2	5.2	5.2	5.1	5.2	5.7	5.6	5.7	5.4	5.3	5.3
5	5.2	5.2	5.2	5.3	5.2	5.3	5.7	5.5	5.7	5.4	5.3	5.4
6	5.3	5.2	5.2	5.4	5.3	5.3	5.7	5.6	5.6	5.3	5.3	5.3
7	5.4	5.1	5.3	5.4	5.3	5.4	5.6	5.4	5.6	5.8	5.2	5.3
8	5.4	5.2	5.3	5.4	5.4	5.4	5.6	5.5	5.6	5.7	5.5	5.6
9	5.2	5.2	5.2	5.5	5.3	5.4	5.6	5.5	5.6	5.6	5.5	5.6
10	5.2	5.2	5.2	5.5	5.4	5.4	5.6	5.5	5.6	5.6	5.6	5.6
11	5.3	5.2	5.3	5.4	5.4	5.4	5.6	5.5	5.6	5.9	5.6	5.8
12	5.4	5.3	5.3	5.5	5.3	5.5	5.6	5.5	5.6	5.8	5.5	5.7
13	5.4	5.4	5.4	5.5	5.4	5.5	5.5	5.4	5.5	5.5	5.4	5.5
14	5.5	5.4	5.4	5.5	5.3	5.4	5.5	5.5	5.5	5.5	5.5	5.5
15	5.5	5.4	5.5	5.5	5.4	5.5	5.5	5.5	5.5	5.5	5.4	5.5
16	5.6	5.5	5.5	5.5	5.4	5.5	5.6	5.3	5.5	5.6	5.4	5.5
17	5.6	5.5	5.5	5.5	5.4	5.5	5.5	5.4	5.4	5.6	5.6	5.6
18	5.5	5.2	5.3	5.5	5.5	5.5	5.5	5.5	5.5	5.6	5.2	5.5
19	5.3	4.7	5.0	5.6	5.3	5.5	5.5	5.5	5.5	5.3	5.1	5.2
20	5.0	4.7	4.8	5.6	5.5	5.6	5.8	5.5	5.6	5.3	5.1	5.2
21	5.0	4.9	5.0	5.6	5.5	5.6	5.7	5.6	5.7	5.4	5.2	5.3
22	5.0	4.9	5.0	5.7	5.5	5.6	5.7	5.6	5.7	5.4	5.2	5.3
23	5.0	5.0	5.0	5.7	5.5	5.6	5.7	5.6	5.7	5.5	5.2	5.3
24	5.2	5.0	5.1	5.7	5.6	5.7	---	---	---	5.4	5.1	5.2
25	5.2	5.2	5.2	5.7	5.6	5.7	5.8	5.6	5.7	5.4	5.2	5.3
26	5.3	5.2	5.3	5.8	5.7	5.7	5.7	5.6	5.7	5.4	5.3	5.3
27	5.4	5.3	5.3	5.7	5.7	5.7	5.7	5.4	5.7	5.4	5.3	5.3
28	5.5	5.4	5.4	5.7	5.2	5.7	5.7	5.4	5.6	5.3	5.1	5.2
29	5.5	5.4	5.4	5.6	5.2	5.5	5.7	5.6	5.7	---	---	---
30	5.4	5.4	5.4	5.6	5.5	5.5	5.6	5.1	5.6	---	---	---
31	---	---	---	5.7	5.6	5.6	5.5	5.2	5.4	---	---	---
MAX	5.6	5.5	5.5	5.8	5.7	5.7	5.8	5.6	5.7	5.9	5.6	5.8
MIN	5.0	4.7	4.8	5.2	4.9	5.1	5.5	5.1	5.4	5.3	5.1	5.2



DAILY MEDIAN pH - 2003 WATER YEAR

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

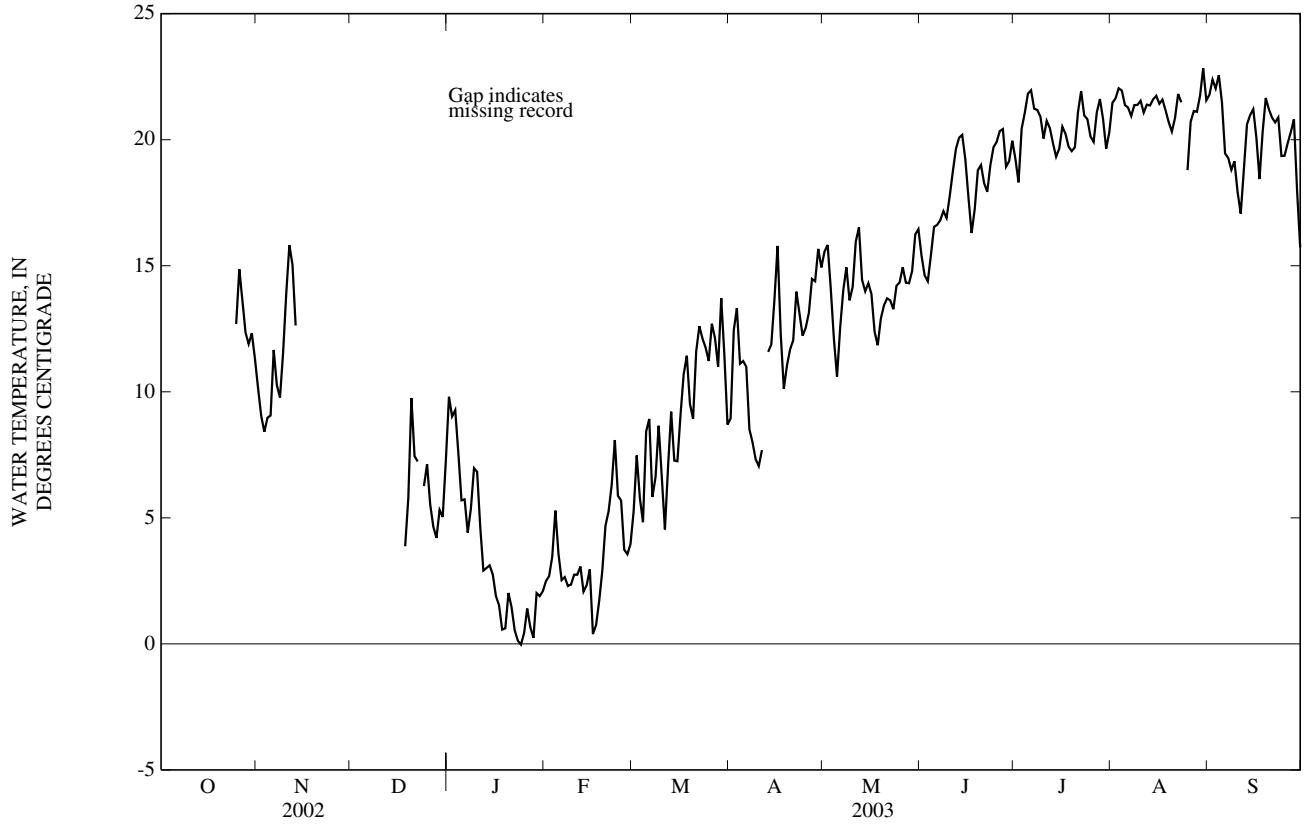
TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	10.7	9.4	10.1	---	---	---	10.6	8.9	9.8
2	---	---	---	10.1	8.4	9.0	---	---	---	10.6	8.4	9.0
3	---	---	---	9.1	7.6	8.4	---	---	---	10.2	8.4	9.3
4	---	---	---	9.8	8.2	9.0	---	---	---	9.1	6.2	7.6
5	---	---	---	10.4	8.2	9.1	---	---	---	6.2	5.0	5.7
6	---	---	---	12.4	10.4	11.7	---	---	---	6.3	5.1	5.7
7	---	---	---	10.7	9.6	10.3	---	---	---	5.7	3.8	4.4
8	---	---	---	10.8	8.7	9.8	---	---	---	6.6	4.0	5.4
9	---	---	---	12.8	10.4	11.6	---	---	---	8.2	5.8	7.0
10	---	---	---	15.0	12.8	13.9	---	---	---	7.7	5.9	6.8
11	---	---	---	16.4	15.0	15.8	---	---	---	5.9	3.3	4.6
12	---	---	---	15.8	13.9	15.0	---	---	---	3.8	2.3	2.9
13	---	---	---	13.9	11.3	12.6	---	---	---	4.4	1.8	3.0
14	---	---	---	---	---	---	---	---	---	3.9	2.5	3.1
15	---	---	---	---	---	---	---	---	---	3.8	1.8	2.8
16	---	---	---	---	---	---	---	---	---	2.6	0.9	1.9
17	---	---	---	---	---	---	---	---	---	2.6	0.2	1.5
18	---	---	---	---	---	---	4.8	2.8	3.9	1.3	0.1	0.6
19	---	---	---	---	---	---	8.3	3.9	5.8	1.4	0.1	0.6
20	---	---	---	---	---	---	10.8	8.3	9.8	3.4	1.0	2.0
21	---	---	---	---	---	---	8.6	6.8	7.5	2.0	0.6	1.5
22	---	---	---	---	---	---	8.0	6.3	7.2	1.4	0.0	0.5
23	---	---	---	---	---	---	---	---	---	0.7	0.0	0.1
24	---	---	---	---	---	---	6.8	5.8	6.3	0.2	0.0	0.0
25	13.9	12.0	12.7	---	---	---	8.0	6.2	7.1	1.1	0.0	0.4
26	15.4	13.9	14.9	---	---	---	6.2	5.0	5.5	2.5	0.3	1.4
27	14.2	12.8	13.6	---	---	---	5.3	4.0	4.6	1.9	0.0	0.7
28	12.8	12.1	12.3	---	---	---	4.9	3.2	4.2	1.2	0.0	0.2
29	12.2	11.8	11.9	---	---	---	6.3	4.7	5.3	2.6	1.2	2.0
30	13.1	11.5	12.3	---	---	---	6.2	3.7	5.0	2.1	1.7	1.9
31	12.8	10.4	11.3	---	---	---	8.9	6.0	7.3	2.3	1.9	2.1
MONTH	---	---	---	---	---	---	---	---	---	10.6	0.0	3.4
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.1	2.5	6.5	4.0	5.2	11.1	6.7	8.9	17.9	13.6	15.6
2	4.1	1.7	2.7	9.4	6.0	7.5	16.1	9.3	12.4	16.5	15.1	15.8
3	4.6	2.3	3.5	7.3	3.8	5.8	16.1	11.7	13.3	15.5	12.0	14.1
4	6.9	4.2	5.3	6.8	2.8	4.8	11.9	10.2	11.1	13.3	10.8	12.1
5	4.8	2.3	3.6	10.9	5.8	8.4	13.2	9.8	11.2	11.2	9.4	10.6
6	3.6	1.4	2.5	9.9	6.5	8.9	13.6	9.4	11.0	14.0	11.2	12.5
7	3.2	2.0	2.6	6.7	5.0	5.8	9.9	7.9	8.5	15.9	12.4	14.0
8	3.2	1.5	2.3	8.8	4.6	6.6	8.5	7.6	8.0	15.9	14.1	14.9
9	3.8	1.0	2.4	11.6	6.5	8.7	7.7	7.0	7.3	14.1	13.3	13.6
10	3.0	2.4	2.7	8.2	5.1	6.6	7.3	6.8	7.1	15.4	13.1	14.2
11	3.8	1.7	2.7	5.1	3.7	4.5	8.6	6.7	7.7	17.2	14.6	16.0
12	4.8	2.0	3.1	9.3	5.1	7.0	---	---	---	17.3	15.2	16.5
13	3.5	0.9	2.1	11.8	7.5	9.2	14.4	9.2	11.6	15.2	13.8	14.4
14	3.6	0.8	2.3	9.0	5.7	7.3	14.8	9.2	11.9	15.4	12.5	14.0
15	3.9	1.8	3.0	9.8	4.6	7.2	17.1	10.6	13.7	15.4	13.1	14.3
16	1.8	0.0	0.4	10.3	7.4	9.1	19.1	12.9	15.8	14.4	13.2	13.9
17	1.1	0.4	0.7	11.9	9.8	10.7	15.8	10.0	12.3	13.2	11.9	12.4
18	2.9	0.9	1.7	13.4	10.2	11.4	10.7	9.5	10.1	12.3	11.5	11.8
19	4.4	1.5	2.9	10.9	8.2	9.5	13.6	9.6	11.0	14.5	11.4	12.9
20	6.3	3.6	4.7	10.1	7.9	8.9	14.3	9.4	11.7	15.1	11.5	13.4
21	6.2	4.2	5.3	12.7	10.1	11.6	13.6	10.5	12.0	14.4	13.0	13.7
22	7.5	5.5	6.3	14.4	10.8	12.6	16.6	11.9	14.0	14.1	13.4	13.6
23	9.8	6.0	8.1	14.2	10.5	12.1	15.3	11.5	13.1	13.5	12.9	13.3
24	7.3	4.4	5.9	14.4	9.8	11.8	14.7	9.8	12.2	15.2	13.4	14.2
25	6.8	4.8	5.7	14.1	8.8	11.2	13.9	11.2	12.5	14.7	13.9	14.3
26	4.8	2.3	3.7	15.8	10.2	12.7	13.9	12.4	13.1	15.7	14.2	14.9
27	4.3	2.4	3.6	14.5	10.5	12.1	16.7	12.8	14.5	15.0	13.7	14.3
28	4.7	3.3	4.0	12.2	10.0	11.0	17.0	11.8	14.4	15.4	13.4	14.3
29	---	---	---	17.2	11.0	13.7	18.2	13.6	15.7	15.9	13.7	14.8
30	---	---	---	14.2	8.3	11.4	16.3	13.9	14.9	17.9	14.8	16.2
31	---	---	---	11.0	7.0	8.7	---	---	---	17.0	15.9	16.5
MONTH	9.8	0.0	3.4	17.2	2.8	9.1	19.1	6.7	11.8	17.9	9.4	14.1

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	16.2	14.7	15.4	19.8	18.2	19.2	22.7	20.1	21.5	22.8	20.9	21.8
2	15.6	13.5	14.6	19.3	17.4	18.3	22.3	20.9	21.6	23.5	21.6	22.4
3	14.9	13.6	14.4	21.2	18.9	20.4	23.3	21.1	22.0	22.9	21.5	22.0
4	15.9	14.7	15.4	22.2	20.0	21.1	22.6	21.3	22.0	22.9	22.2	22.6
5	17.5	15.6	16.5	22.9	20.8	21.8	21.9	20.9	21.4	22.3	20.0	21.5
6	17.4	15.8	16.6	22.8	21.3	22.0	22.1	20.5	21.3	20.1	18.6	19.5
7	18.3	16.0	16.8	22.1	20.5	21.2	21.5	20.4	20.9	21.1	17.8	19.3
8	18.2	16.2	17.2	22.2	20.4	21.2	22.1	20.8	21.4	19.6	17.5	18.8
9	18.3	15.7	16.9	21.9	20.0	20.9	21.8	21.1	21.4	19.4	18.5	19.1
10	18.6	16.7	17.8	20.7	19.7	20.0	22.4	21.0	21.5	18.5	16.5	17.9
11	19.9	17.4	18.7	22.0	19.6	20.7	21.6	20.7	21.1	18.2	15.6	17.1
12	20.8	18.5	19.6	21.4	19.4	20.5	22.4	20.7	21.4	19.8	18.0	18.8
13	21.2	19.2	20.1	20.5	19.1	19.9	22.2	20.8	21.4	21.2	19.8	20.6
14	21.1	19.4	20.2	20.0	18.8	19.3	22.4	20.8	21.6	21.6	20.3	21.0
15	20.1	18.1	19.2	20.4	18.9	19.6	22.7	20.9	21.7	21.6	20.8	21.2
16	18.5	16.7	17.7	21.7	19.3	20.5	22.1	21.0	21.4	21.0	18.8	20.1
17	16.7	16.0	16.3	21.2	19.5	20.2	22.3	21.0	21.6	19.4	17.4	18.4
18	18.1	16.3	17.2	21.0	18.4	19.7	22.1	20.5	21.2	21.8	18.7	20.3
19	20.3	17.3	18.8	20.1	19.0	19.5	21.7	19.9	20.7	22.4	20.9	21.7
20	19.6	18.5	19.0	20.6	18.8	19.7	21.2	19.3	20.3	22.0	20.2	21.2
21	19.3	17.4	18.3	22.4	19.7	21.1	22.0	19.8	20.9	21.6	20.3	20.9
22	18.6	17.3	17.9	23.1	21.2	21.9	23.0	20.8	21.8	21.4	19.9	20.7
23	20.5	17.6	19.0	21.4	20.6	21.0	22.2	19.9	21.5	21.2	20.0	20.9
24	20.9	18.5	19.7	21.5	20.2	20.8	---	---	---	20.0	18.4	19.4
25	21.0	18.6	19.9	21.0	19.3	20.1	20.6	16.7	18.8	20.3	18.3	19.4
26	21.4	19.2	20.3	21.1	18.6	19.9	22.0	19.7	20.7	20.8	19.0	19.9
27	21.5	19.6	20.4	22.4	19.8	21.1	22.3	20.0	21.1	21.3	19.1	20.3
28	19.9	18.3	18.9	22.1	21.2	21.6	22.1	20.3	21.1	21.5	19.5	20.8
29	20.4	17.8	19.1	21.4	19.9	20.8	23.0	20.5	21.7	19.5	16.4	18.0
30	21.3	18.8	20.0	19.9	19.4	19.6	24.2	21.9	22.8	16.4	14.9	15.7
31	---	---	---	20.8	19.9	20.3	22.8	21.0	21.6	---	---	---
MONTH	21.5	13.5	18.1	23.1	17.4	20.4	24.2	16.7	21.3	23.5	14.9	20.0



DAILY MEAN WATER TEMPERATURE - 2003 WATER YEAR

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

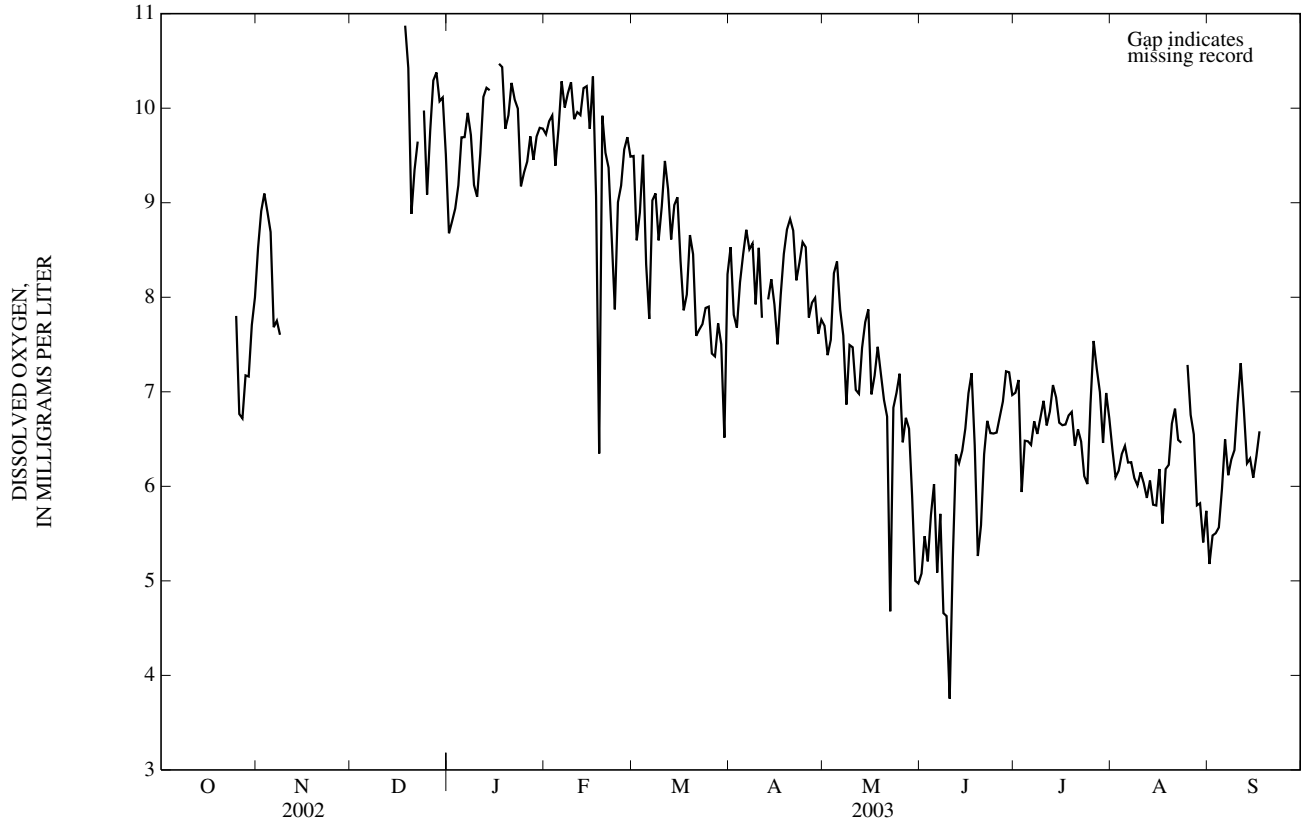
DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	8.6	8.3	8.5	---	---	---	9.2	8.4	8.7
2	---	---	---	9.0	8.6	8.9	---	---	---	9.1	8.3	8.8
3	---	---	---	9.2	9.0	9.1	---	---	---	9.1	8.8	8.9
4	---	---	---	9.1	8.7	8.9	---	---	---	9.5	8.8	9.2
5	---	---	---	8.9	8.3	8.7	---	---	---	9.8	9.5	9.7
6	---	---	---	8.3	7.5	7.7	---	---	---	9.7	9.6	9.7
7	---	---	---	7.8	7.7	7.8	---	---	---	10.2	9.6	10
8	---	---	---	7.8	7.3	7.6	---	---	---	10.1	9.5	9.7
9	---	---	---	---	---	---	---	---	---	9.5	9.0	9.2
10	---	---	---	---	---	---	---	---	---	9.2	8.9	9.1
11	---	---	---	---	---	---	---	---	---	9.9	9.2	9.5
12	---	---	---	---	---	---	---	---	---	10.3	9.9	10.1
13	---	---	---	---	---	---	---	---	---	10.4	10.1	10.2
14	---	---	---	---	---	---	---	---	---	10.3	10.1	10.2
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	10.7	10.2	10.5
18	---	---	---	---	---	---	11.0	10.8	10.9	10.6	10.2	10.4
19	---	---	---	---	---	---	10.8	9.7	10.4	10.3	9.3	9.8
20	---	---	---	---	---	---	9.7	8.3	8.9	10.1	9.7	9.9
21	---	---	---	---	---	---	9.6	8.6	9.3	10.5	10.0	10.3
22	---	---	---	---	---	---	9.7	9.6	9.6	10.4	9.8	10.1
23	---	---	---	---	---	---	---	---	---	10.2	9.7	10.0
24	---	---	---	---	---	---	10.1	9.7	10	9.7	8.9	9.2
25	8.0	7.4	7.8	---	---	---	9.7	8.7	9.1	9.6	9.2	9.3
26	7.4	6.4	6.8	---	---	---	10.1	9.1	9.8	9.7	9.2	9.4
27	6.9	6.5	6.7	---	---	---	10.4	10.1	10.3	10.0	9.4	9.7
28	7.3	6.9	7.2	---	---	---	10.5	10.2	10.4	9.9	9.0	9.5
29	7.5	7.1	7.2	---	---	---	10.2	10.0	10.1	10.0	9.5	9.7
30	8.0	7.5	7.7	---	---	---	10.3	9.8	10.1	10.1	9.6	9.8
31	8.3	7.6	8.0	---	---	---	9.8	9.2	9.5	9.9	9.7	9.8
MONTH	---	---	---	---	---	---	---	---	---	10.7	8.3	9.7
		FEBRUARY			MARCH			APRIL			MAY	
1	9.8	9.7	9.7	9.8	9.1	9.5	9.0	8.0	8.5	8.2	7.2	7.7
2	10.0	9.7	9.9	9.1	7.9	8.6	8.1	7.1	7.8	7.7	7.2	7.4
3	10.0	9.7	9.9	9.4	8.0	8.9	8.4	7.1	7.7	8.0	7.1	7.5
4	9.7	9.2	9.4	9.8	9.1	9.5	8.8	7.6	8.2	8.6	8.0	8.3
5	10.1	9.3	9.8	9.1	7.5	8.3	9.2	8.0	8.5	8.6	8.1	8.4
6	10.5	10.1	10.3	8.2	7.5	7.8	9.6	8.0	8.7	8.1	7.6	7.9
7	10.1	9.9	10.0	9.6	8.2	9.0	8.9	8.1	8.5	7.9	6.9	7.6
8	10.4	9.9	10.2	9.4	8.7	9.1	9.1	8.1	8.6	7.2	6.4	6.9
9	10.3	10.1	10.3	8.8	8.3	8.6	8.9	4.7	7.9	7.7	7.2	7.5
10	10.1	9.8	9.9	9.4	8.3	9.0	9.0	5.6	8.5	7.7	7.1	7.5
11	10.2	9.8	10	9.8	9.1	9.4	9.0	6.1	7.8	7.3	6.6	7.0
12	10.1	9.8	9.9	9.4	8.8	9.1	---	---	---	7.1	6.7	7.0
13	10.3	10.1	10.2	9.0	8.4	8.6	8.3	7.5	8.0	7.7	7.1	7.5
14	10.4	10.1	10.2	9.6	8.4	9.0	8.6	7.9	8.2	7.9	7.6	7.7
15	10.1	9.4	9.8	9.3	8.6	9.1	8.3	7.4	7.9	8.0	7.7	7.9
16	10.5	10.0	10.3	8.8	7.7	8.4	7.9	6.9	7.5	7.9	6.1	7.0
17	10.1	6.3	9.1	8.4	7.4	7.9	8.7	7.0	8.0	7.5	6.6	7.2
18	9.9	0.7	6.3	8.7	7.4	8.0	8.9	8.2	8.5	7.6	7.3	7.5
19	10.2	9.5	9.9	9.4	7.9	8.7	9.5	8.2	8.7	7.4	6.9	7.2
20	9.8	9.2	9.5	9.0	7.5	8.5	9.8	8.1	8.8	7.3	6.5	6.9
21	9.6	9.1	9.4	8.1	7.2	7.6	9.9	7.9	8.7	6.9	6.5	6.7
22	9.1	7.7	8.6	8.4	7.2	7.7	9.2	7.5	8.2	6.5	2.6	4.7
23	8.5	7.5	7.9	8.5	7.2	7.7	9.5	7.4	8.4	7.2	3.7	6.8
24	9.3	8.5	9.0	8.5	7.4	7.9	9.4	8.0	8.6	7.2	6.8	7.0
25	9.4	8.9	9.2	8.4	7.5	7.9	9.3	7.7	8.5	7.3	7.0	7.2
26	9.9	9.2	9.6	7.8	6.8	7.4	8.2	7.4	7.8	7.1	5.7	6.5
27	9.9	9.4	9.7	8.4	6.6	7.4	8.6	7.6	7.9	6.9	6.5	6.7
28	9.8	9.3	9.5	8.5	7.3	7.7	8.6	7.5	8.0	6.9	6.1	6.6
29	---	---	---	8.3	6.3	7.5	8.1	7.2	7.6	6.3	4.4	5.9
30	---	---	---	7.5	5.6	6.5	8.4	7.2	7.8	5.5	4.1	5.0
31	---	---	---	8.9	7.5	8.2	---	---	---	5.3	4.5	5.0
MONTH	10.5	0.7	9.6	9.8	5.6	8.3	9.9	4.7	8.2	8.6	2.6	7.0

01484719 BASSETT CREEK NEAR IRONSHIRE, MD—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	5.4	4.5	5.1	7.1	6.9	7.0	6.9	6.1	6.4	5.6	4.8	5.2
2	5.8	5.2	5.5	7.3	6.5	7.1	6.3	5.9	6.1	5.7	5.1	5.5
3	5.5	5.0	5.2	6.5	5.4	5.9	6.3	6.0	6.2	5.8	5.3	5.5
4	6.5	5.0	5.7	6.6	6.3	6.5	6.6	6.2	6.3	5.7	5.4	5.6
5	6.5	5.3	6.0	6.6	6.3	6.5	6.8	6.1	6.4	6.4	5.5	6.0
6	6.6	4.2	5.1	6.5	6.3	6.4	6.4	6.1	6.3	6.8	6.3	6.5
7	6.8	3.6	5.7	6.9	6.5	6.7	6.5	5.9	6.3	7.2	3.8	6.1
8	5.0	3.7	4.7	6.7	6.4	6.6	6.2	6.0	6.1	6.6	5.9	6.3
9	5.0	4.0	4.6	6.9	6.5	6.7	6.3	5.9	6.0	7.0	6.0	6.4
10	4.2	3.2	3.8	7.0	6.7	6.9	6.4	5.8	6.1	7.1	6.6	6.9
11	6.4	3.2	5.2	7.0	6.3	6.6	6.2	5.8	6.0	7.7	6.8	7.3
12	6.5	6.2	6.3	7.0	6.5	6.8	6.0	5.7	5.9	7.4	6.1	6.8
13	6.4	6.1	6.2	7.2	6.8	7.1	6.3	5.8	6.1	6.3	6.2	6.2
14	6.5	6.2	6.4	7.3	6.5	6.9	6.0	5.6	5.8	6.5	6.1	6.3
15	6.8	6.4	6.6	6.8	6.5	6.7	6.0	5.6	5.8	6.3	6.0	6.1
16	7.2	6.8	7.0	6.9	6.3	6.6	6.4	5.4	6.2	6.5	6.1	6.3
17	7.3	6.9	7.2	6.9	6.5	6.7	5.9	5.3	5.6	6.8	6.4	6.6
18	6.9	6.0	6.4	7.0	6.5	6.8	6.4	5.9	6.2	---	---	---
19	6.6	1.4	5.3	7.0	6.3	6.8	6.4	5.9	6.2	---	---	---
20	6.3	3.0	5.6	6.6	6.3	6.4	7.3	6.3	6.7	---	---	---
21	6.5	5.9	6.3	6.8	6.4	6.6	7.1	6.5	6.8	---	---	---
22	6.8	6.5	6.7	6.7	6.2	6.5	6.7	6.2	6.5	---	---	---
23	6.7	6.3	6.6	6.5	5.8	6.1	6.7	6.3	6.5	---	---	---
24	6.7	6.4	6.6	6.2	5.8	6.0	---	---	---	---	---	---
25	6.8	6.4	6.6	7.4	6.0	6.9	7.7	6.7	7.3	---	---	---
26	6.9	6.4	6.7	7.8	7.3	7.5	7.0	6.5	6.8	---	---	---
27	7.0	6.7	6.9	7.6	6.9	7.2	6.8	6.1	6.5	---	---	---
28	7.4	7.0	7.2	7.1	6.4	7.0	6.1	5.7	5.8	---	---	---
29	7.5	6.9	7.2	6.9	6.1	6.5	6.1	5.4	5.8	---	---	---
30	7.1	6.8	7.0	7.2	6.7	7.0	5.7	4.8	5.4	---	---	---
31	---	---	---	6.8	6.6	6.7	6.0	5.4	5.7			
MONTH	7.5	1.4	6.0	7.8	5.4	6.7	7.7	4.8	6.2			



DAILY MEAN DISSOLVED OXYGEN - 2003 WATER YEAR

01485000 POCOMOKE RIVER NEAR WILLARDS, MD

LOCATION.--Lat 38°23'20.0", long 75°19'28.0", Worcester County, Hydrologic Unit 02060009, on left bank 30 ft downstream from bridge on State Highway 346, 0.6 mi upstream from Burnt Mill Branch, 1.3 mi east of Willards, 1.3 mi west of Whaleysville, and 50.3 mi upstream from mouth.

DRAINAGE AREA.--60.5 mi^2.

PERIOD OF RECORD.--December 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 13.95 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 18	0500	573	10.30	Apr 12	1830	*905	*11.21
Feb 23	1830	837	10.98	Sep 19	2045	553	9.85

Minimum discharge, 13 ft^3/s, Oct. 6-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	273	105	109	65	314	324	58	112	33	19	50
2	16	184	96	133	92	308	243	55	93	32	18	44
3	15	139	90	135	90	341	188	52	79	225	17	41
4	15	120	83	141	94	255	157	49	76	167	17	89
5	14	107	92	124	103	280	142	45	83	109	19	179
6	14	200	128	110	92	318	128	45	79	80	33	115
7	13	207	124	103	96	291	144	43	84	62	40	78
8	13	149	117	97	110	231	234	70	320	51	38	55
9	13	124	109	92	102	193	358	69	247	44	35	42
10	14	112	101	84	102	165	492	64	163	40	32	33
11	28	109	140	76	110	148	695	60	121	38	41	28
12	105	154	321	69	108	141	863	54	100	34	39	27
13	113	345	246	65	100	130	819	47	86	31	36	45
14	79	295	278	63	94	120	552	43	75	31	46	59
15	64	209	230	59	107	111	347	39	65	38	41	56
16	97	169	180	56	127	107	237	134	58	38	37	54
17	150	512	149	56	256	267	174	333	53	33	78	44
18	107	554	131	52	441	254	141	260	56	29	83	73
19	85	429	122	50	390	189	132	200	166	27	61	507
20	74	298	132	49	405	161	123	149	253	26	47	499
21	66	192	177	49	417	240	111	120	201	25	40	358
22	60	429	150	47	537	209	103	154	144	23	35	242
23	55	365	131	44	799	167	93	181	112	23	31	214
24	52	257	121	45	763	142	83	197	88	23	28	250
25	49	194	167	39	531	125	77	156	71	22	25	189
26	112	161	195	40	361	114	84	178	59	20	23	144
27	136	142	149	42	289	106	84	196	51	19	23	117
28	102	128	131	42	328	99	76	177	46	18	26	110
29	98	120	120	43	---	96	69	201	41	19	26	108
30	240	115	109	43	---	428	62	173	37	20	27	94
31	369	---	102	49	---	445	---	136	---	20	46	---
TOTAL	2,384	6,792	4,526	2,206	7,109	6,495	7,335	3,738	3,219	1,400	1,107	3,944
MEAN	76.9	226	146	71.2	254	210	244	121	107	45.2	35.7	131
MAX	369	554	321	141	799	445	863	333	320	225	83	507
MIN	13	107	83	39	65	96	62	39	37	18	17	27
CFSM	1.27	3.74	2.41	1.18	4.20	3.46	4.04	1.99	1.77	0.75	0.59	2.17
IN.	1.47	4.18	2.78	1.36	4.37	3.99	4.51	2.30	1.98	0.86	0.68	2.43

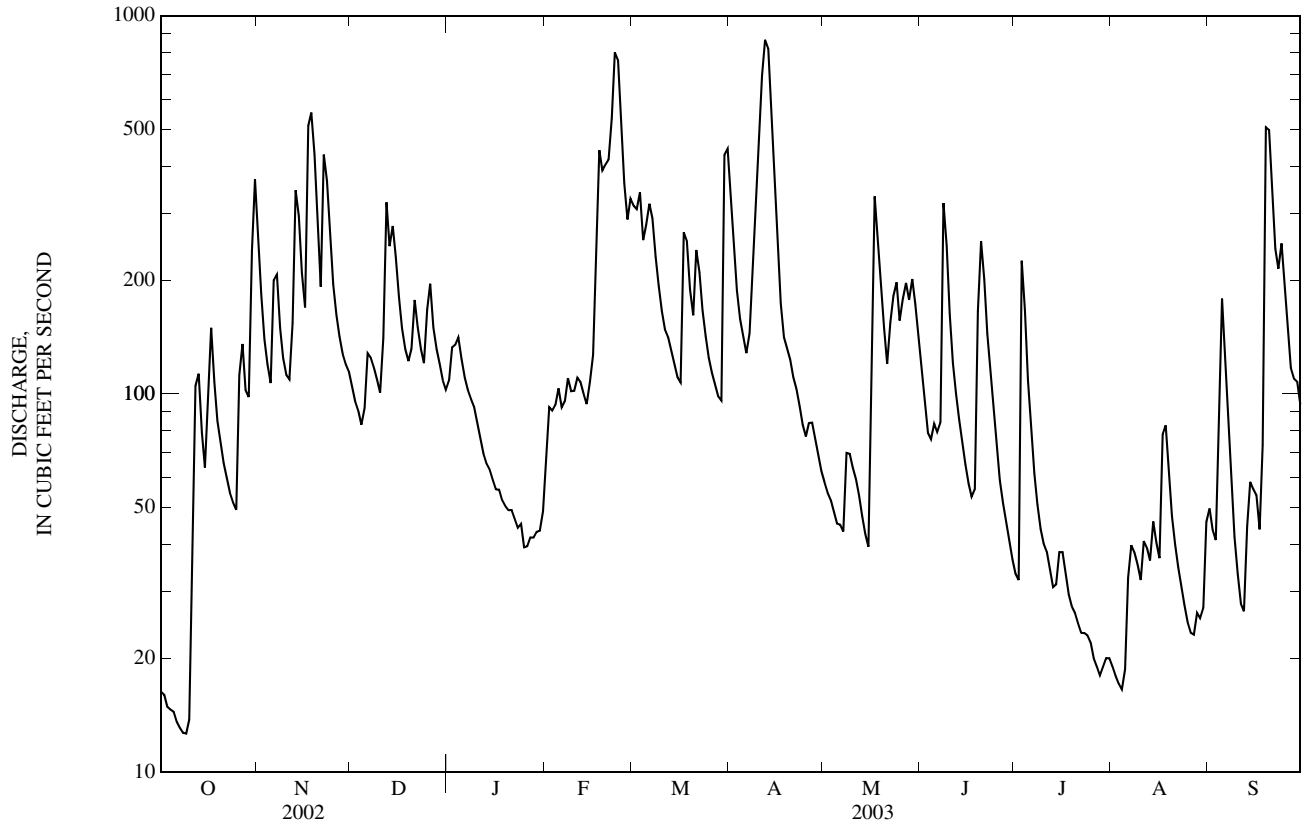
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2003, BY WATER YEAR (WY)

MEAN	36.0	50.8	80.1	109	128	146	103	59.6	44.8	34.4	49.5	29.1
MAX	164	226	306	322	482	393	277	236	216	217	507	131
(WY)	(1977)	(2003)	(1997)	(1978)	(1998)	(1994)	(1983)	(1978)	(1972)	(1975)	(1989)	(2003)
MIN	2.47	3.36	7.11	15.5	19.1	39.3	29.5	16.1	9.31	5.39	2.66	3.13
(WY)	(1999)	(1999)	(2002)	(1981)	(2002)	(2002)	(1995)	(1985)	(1986)	(2002)	(2002)	(1995)

01485000 POCOMOKE RIVER NEAR WILLARDS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1950 - 2003	
ANNUAL TOTAL	22,486.7		50,255			
ANNUAL MEAN	61.6		138		72.9	
HIGHEST ANNUAL MEAN					138	2003
LOWEST ANNUAL MEAN					24.8	1981
HIGHEST DAILY MEAN	682	Sep 2	863	Apr 12	2,580	Aug 20, 1989
LOWEST DAILY MEAN	1.3	(a)	13	(b)	1.3	Sep 15, 1995
ANNUAL SEVEN-DAY MINIMUM	1.5	Aug 20	14	Oct 4	1.5	Aug 20, 2002
MAXIMUM PEAK FLOW			905	Apr 12	(c)2,820	Aug 20, 1989
MAXIMUM PEAK STAGE			11.21	Apr 12	15.41	Aug 20, 1989
INSTANTANEOUS LOW FLOW			13	(d)	0.93	Aug 22, 2002
ANNUAL RUNOFF (CFSM)	1.02		2.28		1.21	
ANNUAL RUNOFF (INCHES)	13.83		30.90		16.38	
10 PERCENT EXCEEDS	150		310		161	
50 PERCENT EXCEEDS	24		102		40	
90 PERCENT EXCEEDS	4.5		28		8.3	

a Aug. 22, 23.
b Oct. 7-9.
c From rating curve extended above 1,600 ft^3/s.
d Oct. 6-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01485500 NASSAWANGO CREEK NEAR SNOW HILL, MD

LOCATION.--Lat 38°13'44.1", long 75°28'17.2", Worcester County, Hydrologic Unit 02060009, on right bank 15 ft downstream from bridge on State Highway 12, 0.5 mi upstream from Furnace Branch, 0.6 mi downstream from Millville Creek, 5.5 mi northwest of Snow Hill, and 7.3 mi upstream from mouth.

DRAINAGE AREA.--44.9 mi^2.

PERIOD OF RECORD.--December 1949 to current year.

REVISED RECORDS.--WSP 1332: 1953.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 12.29 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 18	2200	437	5.90	Mar 31	1400	351	5.61
Nov 23	2000	297	5.35	Apr 12	1700	500	6.07
Feb 19	1400	379	5.71	Sep 5	1800	348	5.60
Feb 23	2100	*564	*6.21	Sep 20	2100	290	5.31

Minimum discharge, 4.5 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	215	55	66	41	200	280	29	65	8.7	23	30
2	6.6	172	50	83	51	200	192	26	51	11	20	39
3	5.9	114	47	99	58	203	137	25	41	51	21	79
4	5.6	75	43	105	62	190	97	23	37	60	22	118
5	5.5	59	46	93	62	177	75	22	42	62	23	295
6	5.3	79	59	79	57	210	65	22	43	46	26	289
7	4.9	135	68	69	55	225	75	21	44	30	27	188
8	4.7	154	75	61	55	189	135	22	68	20	32	106
9	4.5	122	73	55	53	147	222	23	99	15	28	62
10	5.6	82	66	51	56	113	382	23	111	12	25	46
11	45	65	77	47	56	86	428	24	75	13	23	37
12	62	68	147	43	56	74	480	22	51	11	26	37
13	69	121	207	40	53	66	443	19	39	9.9	107	53
14	69	206	196	38	49	60	286	17	30	11	151	57
15	56	200	171	35	58	54	185	15	25	17	92	61
16	55	147	148	31	66	53	133	25	22	17	72	85
17	61	184	113	31	126	135	95	42	20	14	122	65
18	73	373	84	29	278	236	74	61	24	11	241	69
19	66	385	70	27	370	220	65	69	47	22	173	176
20	49	257	66	27	310	160	58	58	63	27	96	275
21	38	176	72	27	267	159	52	48	92	22	57	261
22	31	185	81	26	282	167	49	79	102	17	42	181
23	26	271	84	24	480	147	45	106	73	23	31	143
24	22	260	73	23	481	109	41	131	50	22	24	134
25	19	183	80	22	291	79	38	124	36	18	19	115
26	34	133	98	22	194	66	41	117	26	14	16	94
27	40	100	117	21	154	60	42	120	19	11	17	77
28	56	78	97	19	168	54	41	117	15	12	20	71
29	61	68	75	21	---	51	38	117	12	22	18	59
30	78	61	65	24	---	156	33	102	9.8	27	17	49
31	160	---	58	32	---	331	---	80	---	29	27	---
TOTAL	1,225.6	4,728	2,761	1,370	4,289	4,377	4,327	1,729	1,431.8	685.6	1,638	3,351
MEAN	39.5	158	89.1	44.2	153	141	144	55.8	47.7	22.1	52.8	112
MAX	160	385	207	105	481	331	480	131	111	62	241	295
MIN	4.5	59	43	19	41	51	33	15	9.8	8.7	16	30
CFSM	0.88	3.51	1.98	0.98	3.41	3.14	3.21	1.24	1.06	0.49	1.18	2.49
IN.	1.02	3.92	2.29	1.14	3.55	3.63	3.58	1.43	1.19	0.57	1.36	2.78

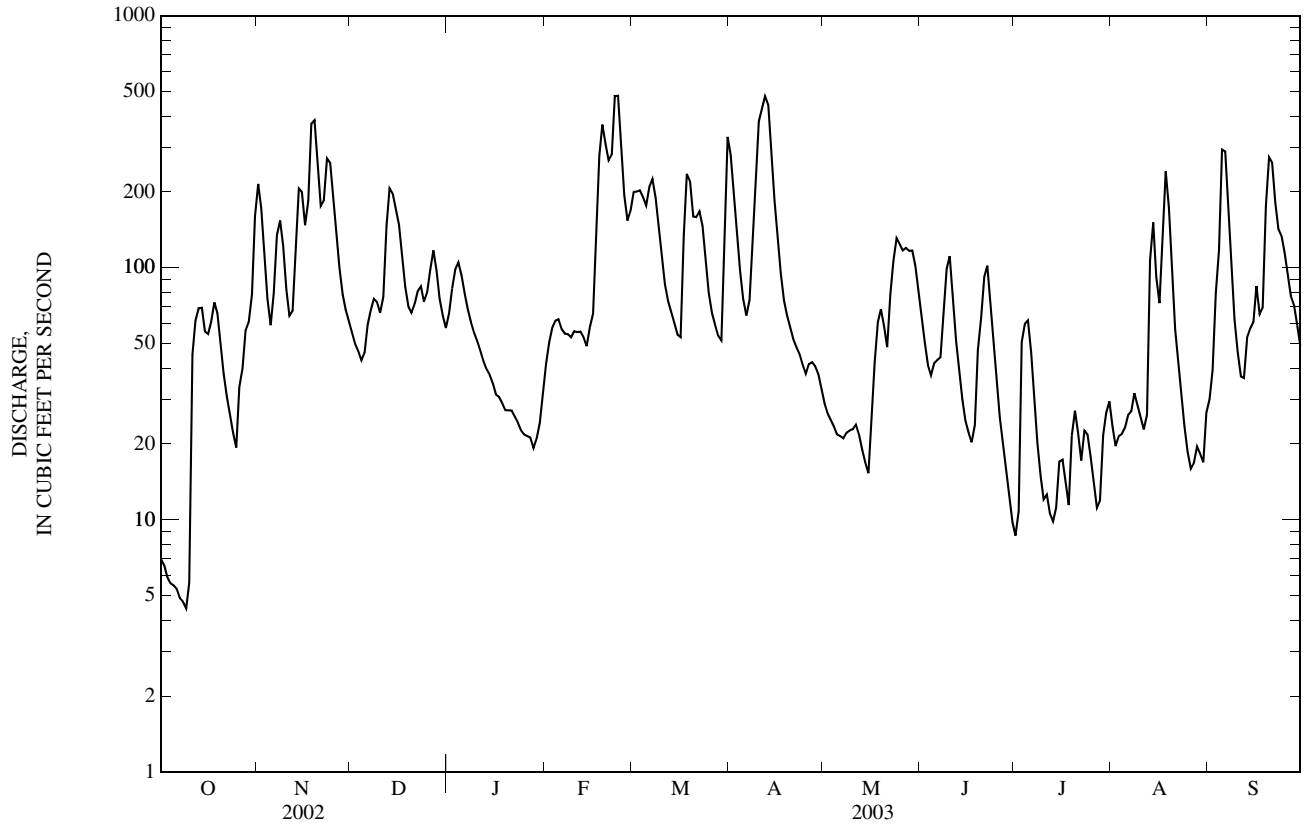
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2003, BY WATER YEAR (WY)

MEAN	25.1	36.6	55.9	82.8	97.1	116	77.3	43.4	27.7	20.9	37.9	21.8
MAX	150	175	196	261	322	302	202	183	160	120	346	177
(WY)	(1977)	(1980)	(1997)	(1978)	(1998)	(1994)	(1983)	(1978)	(1972)	(1975)	(1989)	(1979)
MIN	1.62	2.39	6.08	10.8	12.4	28.3	17.7	7.10	2.52	1.58	1.24	1.64
(WY)	(1999)	(1999)	(2002)	(1966)	(2002)	(2002)	(1985)	(1986)	(1986)	(2002)	(2002)	(1980)

01485500 NASSAWANGO CREEK NEAR SNOW HILL, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1950 - 2003	
ANNUAL TOTAL	15,861.98		31,913.0			
ANNUAL MEAN	43.5		87.4		53.8	
HIGHEST ANNUAL MEAN					116	1979
LOWEST ANNUAL MEAN					20.7	2002
HIGHEST DAILY MEAN	1,050	Sep 2	481	Feb 24	2,590	Aug 19, 1989
LOWEST DAILY MEAN	0.72	Aug 15	4.5	Oct 9	0.72	Aug 15, 2002
ANNUAL SEVEN-DAY MINIMUM	0.74	Aug 11	5.2	Oct 4	0.74	Aug 11, 2002
MAXIMUM PEAK FLOW			564	Feb 23	(a)3,930	Aug 19, 1989
MAXIMUM PEAK STAGE			6.21	Feb 23	9.07	Aug 19, 1989
INSTANTANEOUS LOW FLOW			4.5	(b)	0.63	Aug 14, 2002
ANNUAL RUNOFF (CFSM)	0.97		1.95		1.20	
ANNUAL RUNOFF (INCHES)	13.14		26.44		16.28	
10 PERCENT EXCEEDS	99		200		126	
50 PERCENT EXCEEDS	16		60		26	
90 PERCENT EXCEEDS	1.1		19		3.3	

a From rating curve extended above 1,300 ft^3/s on basis of contracted-opening measurement at gage height 9.07 ft.
b Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01486000 MANOKIN BRANCH NEAR PRINCESS ANNE, MD

LOCATION.--Lat 38°12'50.0", long 75°40'17.0", Somerset County, Hydrologic Unit 02060009, on right bank 45 ft downstream from farm bridge, 1.4 mi northeast of Princess Anne, and 1.6 mi upstream from confluence with Loretto Branch.

DRAINAGE AREA.--4.80 mi^2.

PERIOD OF RECORD.--April 1951 to September 1971, October 1974 to current year.

REVISED RECORDS.--WDR MD-DE-75-1: Drainage area. WDR MD-DE-85-1: 1983-84 (P).

GAGE.--Water-stage recorder. Datum of gage is 7.03 ft above National Geodetic Vertical Datum of 1929. Artificial control since Apr. 30, 1975. Nov. 26, 1968, to Sept. 30, 1971, water-stage recorder above and nonrecording gage below gage height 1.4 ft. Prior to Nov. 26, 1968, recording gage at site 40 ft upstream at datum 1.0 ft higher.

REMARKS.--Records good except those above 170 ft^3/s and estimated daily discharges (questionable record), which are poor. Several measurements of water temperature were made during the year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 17	1730	60	3.17	Apr 11	0300	58	3.15
Feb 22	2015	*72	*3.25	Apr 12	0700	56	3.14
Apr 9	1515	70	3.24				

Minimum discharge, 0.12 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.18	3.3	4.4	10	6.3	18	12	2.7	6.1	2.1	3.1	2.3
2	0.18	2.8	4.1	15	7.2	19	9.3	2.6	4.8	2.5	2.8	2.6
3	0.16	2.7	3.8	13	6.1	17	7.7	2.5	4.0	4.2	2.6	5.7
4	0.15	2.8	3.4	12	6.4	12	6.7	2.3	5.0	3.8	2.4	12
5	0.15	2.9	4.8	9.5	6.5	22	6.2	2.3	7.4	3.1	2.2	24
6	0.16	5.1	7.1	8.5	5.4	27	5.3	2.3	5.4	2.5	2.7	12
7	0.18	4.7	6.5	7.7	6.6	20	13	2.3	8.7	2.2	3.4	7.7
8	0.16	3.7	6.1	7.5	7.7	15	17	2.5	22	2.0	4.0	5.7
9	0.12	3.4	5.6	6.8	6.6	12	42	2.4	13	1.9	3.8	4.4
10	0.24	3.2	5.2	5.9	6.8	9.6	33	2.4	8.5	1.8	3.1	3.6
11	0.63	3.3	15	5.3	7.3	8.4	42	3.0	6.3	1.8	2.7	3.1
12	0.67	5.5	21	4.7	6.9	7.8	43	2.8	4.9	1.7	2.4	3.2
13	0.48	9.7	13	4.6	5.9	7.3	23	2.3	4.7	1.5	2.1	8.3
14	0.41	7.1	14	4.5	5.1	6.5	16	2.1	4.1	9.9	1.9	7.8
15	0.36	5.2	11	4.3	10	6.0	12	1.9	3.6	6.5	1.8	6.1
16	0.49	4.8	9.0	4.1	12	6.1	9.5	3.4	3.3	4.0	2.0	7.1
17	0.49	24	7.4	4.3	39	13	7.2	3.9	3.1	3.0	15	5.5
18	0.42	23	6.4	3.9	33	11	6.3	3.7	3.4	2.5	14	10
19	0.51	12	6.1	3.8	24	8.4	5.8	3.7	8.2	5.1	7.2	e20
20	0.53	8.6	7.2	4.0	23	10	5.3	3.1	16	7.8	4.6	e19
21	0.51	8.1	8.8	3.8	20	17	5.0	3.2	22	4.8	3.5	e14
22	0.45	25	7.3	3.6	42	12	4.7	12	11	3.4	2.9	e12
23	0.42	14	6.3	3.4	42	9.5	4.1	13	7.4	3.4	2.5	e15
24	0.41	9.8	5.9	3.1	23	7.8	3.6	11	5.2	4.2	2.1	e12
25	0.42	8.3	12	3.0	16	6.8	3.4	9.0	4.1	3.7	1.8	e10
26	0.74	7.2	11	3.1	13	6.0	4.1	17	3.4	2.9	1.7	e8.8
27	0.55	6.2	8.2	3.1	13	5.7	3.9	14	3.0	2.5	1.7	e7.0
28	0.49	5.5	7.3	2.9	26	5.4	3.4	11	2.7	2.3	1.8	e7.6
29	0.66	5.2	6.7	3.1	---	5.3	3.1	12	2.4	2.9	1.6	e6.2
30	2.4	5.1	5.8	3.4	---	19	2.9	8.8	2.2	3.2	1.8	e5.6
31	3.4	---	5.6	4.8	---	18	---	6.7	---	3.4	2.4	---
TOTAL	17.12	232.2	246.0	176.7	426.8	368.6	360.5	171.9	205.9	106.6	107.6	268.3
MEAN	0.55	7.74	7.94	5.70	15.2	11.9	12.0	5.55	6.86	3.44	3.47	8.94
MAX	3.4	25	21	15	42	27	43	17	22	9.9	15	24
MIN	0.12	2.7	3.4	2.9	5.1	5.3	2.9	1.9	2.2	1.5	1.6	2.3
CFSM	0.12	1.61	1.65	1.19	3.18	2.48	2.50	1.16	1.43	0.72	0.72	1.86
IN.	0.13	1.80	1.91	1.37	3.31	2.86	2.79	1.33	1.60	0.83	0.83	2.08

e Estimated

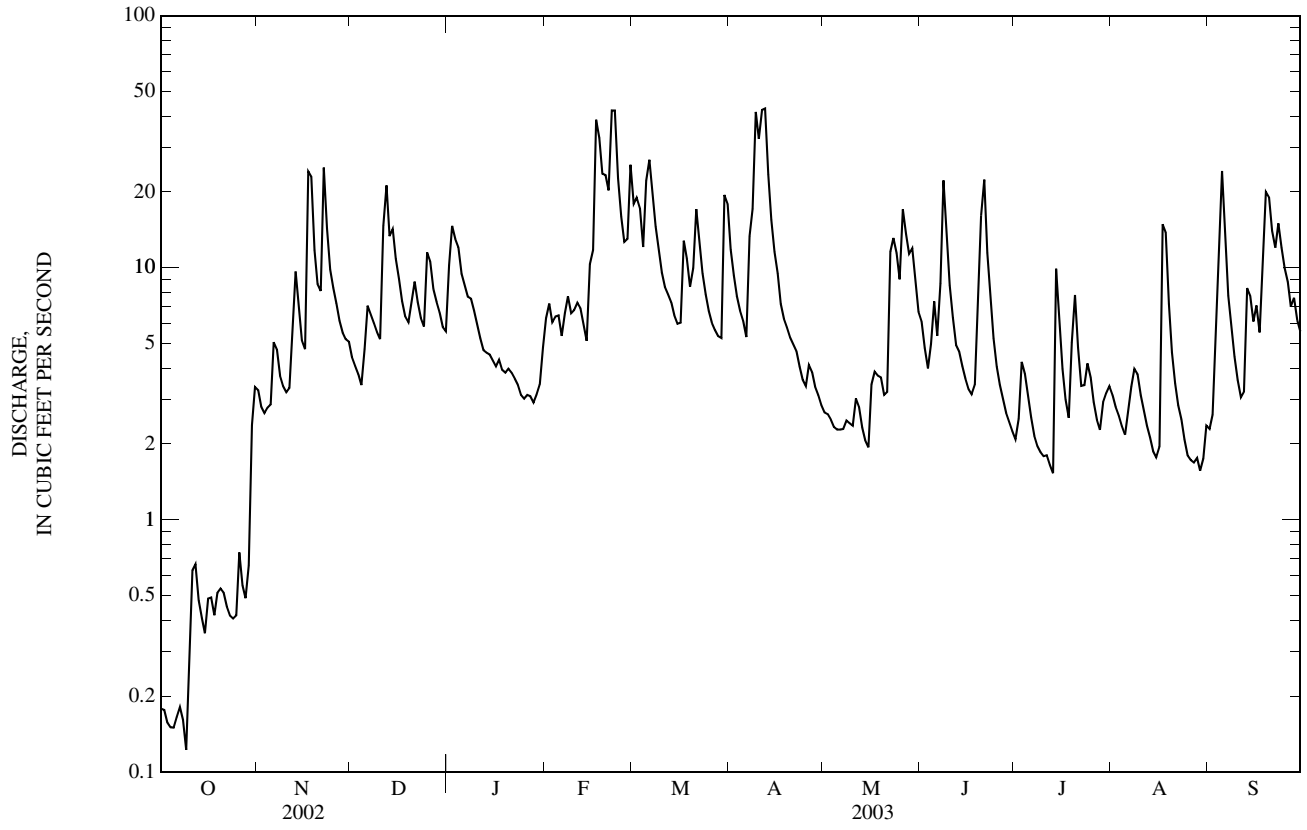
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1971, 1975 - 2003, BY WATER YEAR (WY)

MEAN	1.82	2.52	4.94	8.10	9.39	11.2	7.48	3.93	2.49	1.73	3.56	2.03
MAX	10.5	17.5	22.5	24.9	29.1	30.3	17.3	12.2	12.7	9.20	27.8	18.7
(WY)	(1980)	(1980)	(1997)	(1998)	(1998)	(1994)	(1983)	(1978)	(1979)	(1975)	(1969)	(1979)
MIN	0.030	0.050	0.13	0.51	1.53	2.64	1.64	0.62	0.39	0.16	0.003	0.017
(WY)	(1967)	(1967)	(1967)	(1966)	(2002)	(1981)	(1967)	(1957)	(1964)	(1953)	(1966)	(1966)

01486000 MANOKIN BRANCH NEAR PRINCESS ANNE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 2003	
ANNUAL TOTAL	1,033.49		2,688.22			
ANNUAL MEAN	2.83		7.36		4.91	
HIGHEST ANNUAL MEAN					10.3	1979
LOWEST ANNUAL MEAN					1.41	1981
HIGHEST DAILY MEAN	31	Apr 28	43	Apr 12	255	Jan 28, 1998
LOWEST DAILY MEAN	0.12	Oct 9	0.12	Oct 9	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.15	Oct 3	0.15	Oct 3	0.00	Aug 23, 1963
MAXIMUM PEAK FLOW			72	Feb 22	(b)547	Aug 20, 1969
MAXIMUM PEAK STAGE			3.25	Feb 22	(c)7.08	Aug 19, 1985
INSTANTANEOUS LOW FLOW			0.12	(d)	0.00	(a)
ANNUAL RUNOFF (CFSM)	0.59		1.53		1.02	
ANNUAL RUNOFF (INCHES)	8.01		20.83		13.91	
10 PERCENT EXCEEDS	6.6		16		11	
50 PERCENT EXCEEDS	1.5		5.2		2.2	
90 PERCENT EXCEEDS	0.24		1.8		0.34	

a No flow during 1954, 1963, 1964, 1966.
b From rating curve extended above 170 ft^3/s on basis of channal-conveyance study.
c Gage height of 5.44 ft occurred on Aug. 20, 1969 following ditching of the stream channel.
d Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01486500 BEAVERDAM CREEK NEAR SALISBURY, MD

LOCATION.--Lat 38°21'11.2", long 75°34'21.2", Wicomico County, Hydrologic Unit 02060007, on right bank at downstream side of highway bridge on Schumaker Drive, 0.5 mi upstream from Beaglin Branch, 0.8 mi upstream from mouth, and 2 mi from Salisbury.

DRAINAGE AREA.-- 19.5 mi^2.

PERIOD OF RECORD.--October 1929 to August 1933, May 1934 to September 1935, May 1936 to Setpember 1975, October 2000 to current year. Prior to October 1948, published as East Branch Wicomico River near Salisbury.

REVISED RECORDS.--WSP 741: 1931(m). WSP 1232: Drainage area. WSP 1432: 1931, 1936-37, 1940.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 20 ft above sea level, from topographic map. October 1929 to September 27, 1938, at site on left bank above Lake Schumaker Dam at datum of 17.95 ft above sea level (City of Salisbury bench mark), and from September 28, 1938 to September 1975 at site at upstream side of Schumaker Dam between spillway and emergency floodgate at datum of 8.93 ft above sea level (City of Salisbury bench mark).

REMARKS.--No estimated daily discharges. Records good except those above 80 ft^3/s, which are poor. Outflow from lake controlled by spillway valve. Several measurements of water temperature were made during the year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 689 ft^3/s, Feb. 23, gage height, 2.64 ft; minimum discharge, 0.00 ft^3/s, June 23, 24.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	59	28	39	29	69	72	27	34	4.3	19	26
2	5.1	35	27	44	32	68	52	27	28	11	18	20
3	5.1	24	26	49	28	84	43	26	24	31	17	44
4	5.1	20	25	48	31	65	38	25	27	24	16	70
5	5.2	19	33	43	30	66	35	24	28	19	18	64
6	4.7	45	37	38	29	81	33	24	24	16	26	41
7	4.7	45	36	35	30	77	50	25	45	16	23	28
8	4.7	34	34	34	29	59	71	26	72	17	22	22
9	4.8	25	32	33	28	48	84	24	74	16	19	20
10	11	21	30	31	28	42	152	24	48	16	19	18
11	53	22	47	29	28	38	148	23	34	15	18	17
12	47	40	84	28	28	36	221	21	28	14	18	23
13	35	77	78	29	28	36	145	19	44	14	16	28
14	21	80	68	32	28	34	78	19	22	39	16	25
15	14	54	63	16	29	33	61	18	6.4	22	16	43
16	30	46	52	22	29	35	54	47	17	17	19	57
17	33	143	43	26	47	83	47	48	22	15	61	55
18	27	234	38	24	116	87	42	49	22	18	32	57
19	17	99	36	24	100	62	40	40	52	36	21	39
20	14	61	42	24	86	52	38	32	59	26	18	149
21	12	51	47	23	89	66	36	29	56	19	17	62
22	10	83	44	21	143	65	35	39	52	18	16	39
23	9.9	92	37	21	480	52	33	42	27	21	15	43
24	9.1	63	35	20	141	42	32	46	16	19	13	40
25	9.4	47	47	19	74	37	33	42	23	17	12	37
26	41	39	52	18	56	35	37	55	23	16	12	31
27	26	35	44	18	50	34	34	57	21	14	15	28
28	21	32	37	18	66	32	31	47	19	17	17	30
29	25	31	35	18	---	36	30	40	18	19	16	28
30	49	30	33	20	---	76	28	40	8.9	18	26	25
31	69	---	32	24	---	102	---	43	---	22	31	---
TOTAL	627.9	1,686	1,302	868	1,912	1,732	1,833	1,048	974.3	586.3	622	1,209
MEAN	20.3	56.2	42.0	28.0	68.3	55.9	61.1	33.8	32.5	18.9	20.1	40.3
MAX	69	234	84	49	480	102	221	57	74	39	61	149
MIN	4.7	19	25	16	28	32	28	18	6.4	4.3	12	17
CFSM	1.04	2.88	2.15	1.44	3.50	2.87	3.13	1.73	1.67	0.97	1.03	2.07
IN.	1.20	3.22	2.48	1.66	3.65	3.30	3.50	2.00	1.86	1.12	1.19	2.31

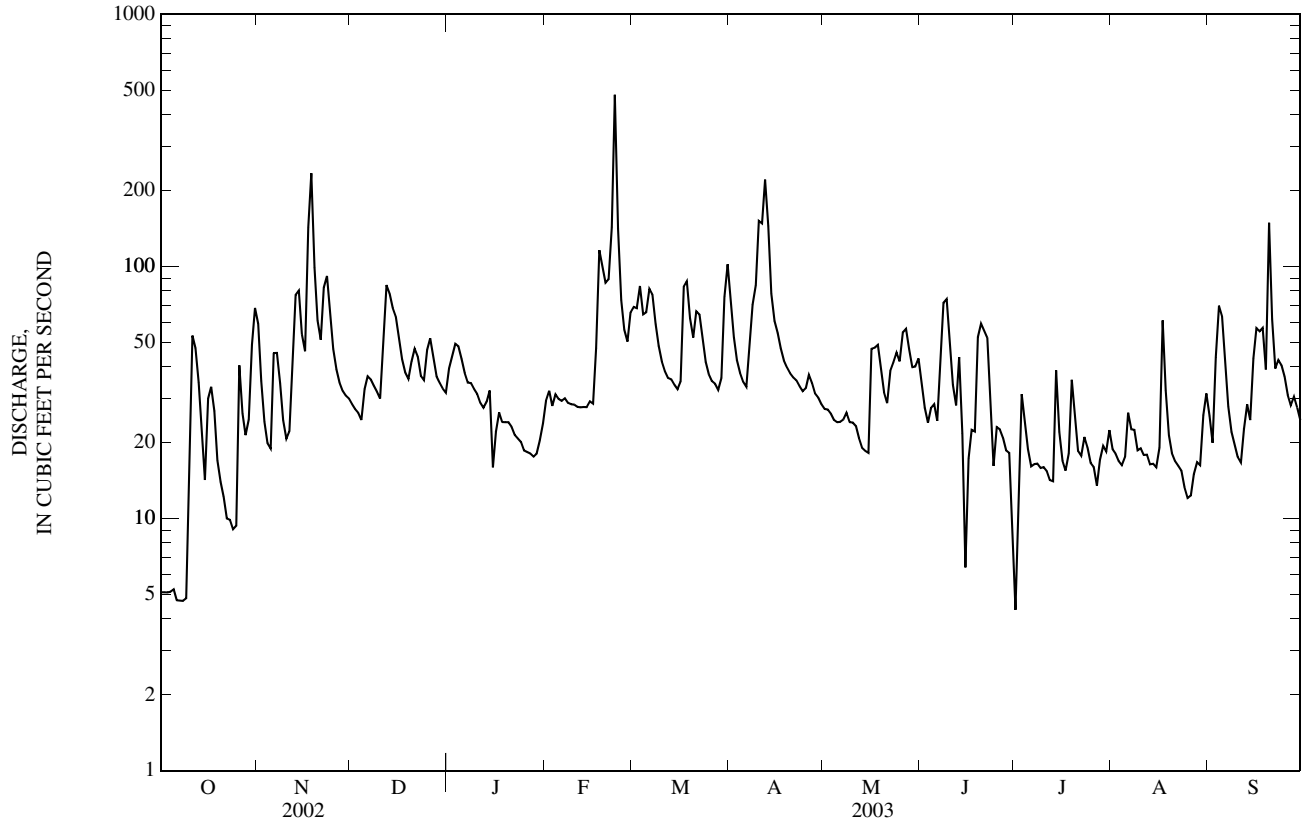
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1933, 1935, 1938 - 1975, 2001 - 2003, BY WATER YEAR (WY)

MEAN	15.1	18.5	23.9	29.7	35.5	41.1	33.1	23.6	18.5	14.3	21.6	15.0
MAX	48.3	58.5	75.8	62.2	89.2	82.4	72.8	74.5	76.1	53.0	104	71.8
(WY)	(1956)	(1949)	(1949)	(1962)	(1961)	(2001)	(1958)	(1958)	(1948)	(1975)	(1948)	(2002)
MIN	3.69	4.02	3.78	4.17	3.96	4.60	11.5	9.02	5.60	2.63	3.68	3.75
(WY)	(1931)	(1931)	(1931)	(1931)	(1931)	(1931)	(1931)	(1930)	(2002)	(2002)	(2002)	(1930)

01486500 BEAVERDAM CREEK NEAR SALISBURY, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 -1933, 1935 1938 - 1975, 2001 - 2003	
ANNUAL TOTAL	8,186.09		14,400.5			
ANNUAL MEAN	22.4		39.5		24.1	
HIGHEST ANNUAL MEAN					42.7	1948
LOWEST ANNUAL MEAN					6.56	1931
HIGHEST DAILY MEAN	1,360	Sep 1	480	Feb 23	1,360	Sep 1, 2002
LOWEST DAILY MEAN	0.00	(a)	4.3	Jul 1	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 21	4.9	Oct 3	0.00	Feb 21, 2002
MAXIMUM PEAK FLOW			689	Feb 23	(b)2,450	Sep 1, 2002
MAXIMUM PEAK STAGE			2.64	Feb 23	(c)14.31	Aug 4, 1948
INSTANTANEOUS LOW FLOW			0.00	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	1.15		2.02		1.24	
ANNUAL RUNOFF (INCHES)	15.62		27.47		16.80	
10 PERCENT EXCEEDS	44		69		46	
50 PERCENT EXCEEDS	11		31		17	
90 PERCENT EXCEEDS	2.1		16		6.7	

a Feb. 21-28, March 1, 2002.
b From rating curve extended above 95 ft^3/s.
c At previous site and datum, from high-water mark in well.
d June 23, 24.
f Jan. 29, 30, 2001, Feb. 20-28, March 1, 2, 4, 5, 2002, June 23, 24, 2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01487000 NANTICOKE RIVER NEAR BRIDGEVILLE, DE

LOCATION.--Lat 38°43'42.0", long 75°33'42.7", Sussex County, Hydrologic Unit 02060008, on left bank at downstream side of highway bridge on county road No. 545, 800 ft downstream from Gum Branch, 2.5 mi southeast of Bridgeville, and 50.5 mi upstream from mouth.

DRAINAGE AREA.--75.4 mi^2.

PERIOD OF RECORD.--April 1943 to current year. Prior to October 1955, published as Gravelly Fork near Bridgeville.

REVISED RECORDS.--WSP 1111: 1947. WSP 1232: 1945-49.

GAGE.--Water-stage recorder. Datum of gage is 13.64 ft above National Geodetic Vertical Datum of 1929 (levels by Soil Conservation Service). Prior to Apr. 19, 1947, nonrecording gage, and Apr. 19, 1947 to Dec. 18, 1969, recording gage at present site and datum. Timber control Sept. 3, 1947 to Dec. 18, 1969. Feb. 18, 1970 to Oct. 1, 1973, recording gage at site 300 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 11.0 ft in September 1935, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 360 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	1645	778	7.22	Mar 6	2015	552	6.54
Dec 12	0530	488	6.55	Apr 9	2230	387	6.13
Dec 14	1200	381	6.24	Apr 11	1200	585	6.64
Feb 24	0015	*1,430	*8.28	Jun 8	1400	743	7.07
Mar 2	2330	593	6.66	Sep 19	1015	427	6.67

Minimum discharge, 42 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	177	193	195	135	310	181	137	214	127	91	101
2	47	165	185	219	168	442	177	136	202	127	87	96
3	47	155	180	220	147	499	173	133	185	250	97	98
4	46	147	172	237	159	334	168	127	186	257	102	119
5	46	142	180	216	176	348	166	123	201	210	120	130
6	44	180	186	207	154	461	160	124	199	184	170	113
7	44	184	178	200	156	448	163	123	243	178	170	103
8	43	163	175	196	149	326	176	141	694	160	181	97
9	42	156	171	193	142	290	258	126	501	151	168	92
10	61	152	167	184	143	262	304	122	321	181	166	89
11	137	166	202	175	143	243	473	120	258	158	156	86
12	173	223	403	169	138	234	464	115	231	143	147	92
13	141	325	276	166	132	224	335	109	215	131	139	118
14	119	264	346	164	128	214	262	104	202	126	132	123
15	107	222	286	160	138	205	236	99	190	121	124	122
16	140	216	246	155	141	205	224	207	180	117	132	153
17	184	634	223	157	165	277	212	296	173	108	173	130
18	149	639	210	151	174	256	201	220	174	102	155	144
19	133	377	204	148	170	226	194	197	e190	101	139	363
20	126	292	216	147	174	221	188	180	e270	97	129	235
21	118	264	238	142	184	271	184	171	e300	89	123	182
22	111	274	216	138	294	249	182	176	e270	88	115	160
23	106	269	204	135	940	225	175	177	e220	96	113	173
24	101	240	197	132	1,080	212	167	182	203	92	107	195
25	98	225	236	128	634	201	164	177	185	85	101	168
26	154	216	277	128	471	197	166	231	171	79	94	153
27	157	211	226	125	370	192	161	249	160	74	98	144
28	140	205	212	120	334	186	152	228	151	76	98	142
29	138	200	204	122	---	184	150	262	142	126	106	136
30	184	199	195	120	---	191	144	230	133	104	117	126
31	193	---	191	120	---	191	---	210	---	97	109	---
TOTAL	3,377	7,282	6,795	5,069	7,339	8,324	6,360	5,232	6,964	4,035	3,959	4,183
MEAN	109	243	219	164	262	269	212	169	232	130	128	139
MAX	193	639	403	237	1,080	499	473	296	694	257	181	363
MIN	42	142	167	120	128	184	144	99	133	74	87	86
CFSM	1.44	3.22	2.91	2.17	3.48	3.56	2.81	2.24	3.08	1.73	1.69	1.85
IN.	1.67	3.59	3.35	2.50	3.62	4.11	3.14	2.58	3.44	1.99	1.95	2.06

e Estimated

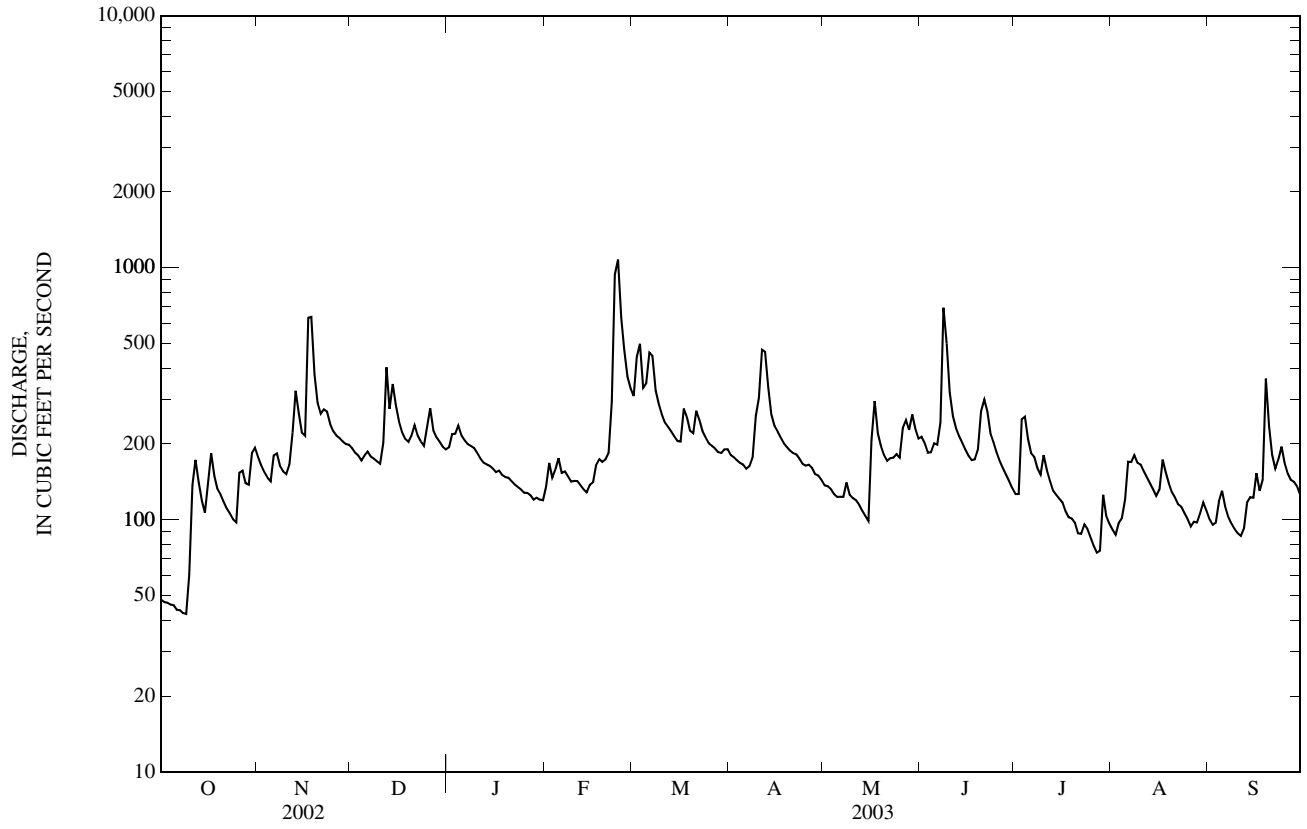
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2003, BY WATER YEAR (WY)

MEAN	47.4	62.7	88.8	118	138	164	141	103	77.6	58.7	64.1	51.1
MAX	137	243	294	311	388	421	300	219	298	210	412	234
(WY)	(1980)	(2003)	(1949)	(1978)	(1998)	(1994)	(1958)	(1990)	(1948)	(1959)	(1967)	(1960)
MIN	17.9	21.2	23.6	23.8	36.3	51.7	47.8	45.8	29.3	17.5	13.6	10.1
(WY)	(1944)	(1988)	(1999)	(1966)	(2002)	(2002)	(1985)	(1951)	(1986)	(1944)	(1943)	(1943)

01487000 NANTICOKE RIVER NEAR BRIDGEVILLE, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1943 - 2003	
ANNUAL TOTAL	32,241		68,919			
ANNUAL MEAN	88.3		189		92.9	
HIGHEST ANNUAL MEAN					189	2003
LOWEST ANNUAL MEAN					43.8	1985
HIGHEST DAILY MEAN	639	Sep 2	1,080	Feb 24	2,880	Feb 26, 1979
LOWEST DAILY MEAN	12	Aug 15	42	Oct 9	6.6	Sep 29, 1943
ANNUAL SEVEN-DAY MINIMUM	12	Aug 20	45	Oct 3	7.8	Sep 23, 1943
MAXIMUM PEAK FLOW			1,430	Feb 24	3,020	Feb 26, 1979
MAXIMUM PEAK STAGE			8.28	Feb 24	10.31	Feb 26, 1979
INSTANTANEOUS LOW FLOW			42	(a)	(b)6.3	Sep 29, 1943
ANNUAL RUNOFF (CFSM)	1.17		2.50		1.23	
ANNUAL RUNOFF (INCHES)	15.91		34.00		16.74	
10 PERCENT EXCEEDS	204		276		180	
50 PERCENT EXCEEDS	53		171		68	
90 PERCENT EXCEEDS	18		101		27	

a Oct. 8, 9.
b Minimum discharge observed.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01487060 MIFFLIN DITCH NEAR GEORGETOWN, DE

LOCATION.--Lat 38°43'41.4", long 75°24'52.7", Sussex County, Hydrologic Unit 02060008, on downstream side of culvert on U.S. highway 113, 3.1 mi north of Georgetown, and 3.7 mi upstream from confluence (mouth) with Deep Creek.

DRAINAGE AREA.--1.25 mi^2.

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 45 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR 2001 WATER YEAR.--Peak discharges greater than base discharge of 20 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 21	1500	39	4.82	Aug 11	1745	92	5.33
Jun 17	0645	41	4.84	Aug 13	2245	*104	*5.45

Minimum discharge, 0.00 ft^3/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.26	0.07	0.19	e0.37	0.76	1.6	4.4	0.39	0.12	0.13	0.00	0.19
2	e0.25	0.07	0.17	e0.34	0.68	1.4	2.9	0.33	0.13	0.10	0.00	0.18
3	e0.24	0.07	0.16	e0.32	0.67	1.3	2.2	0.28	0.20	0.09	0.00	0.17
4	e0.22	0.07	0.16	e0.31	0.60	1.4	1.7	0.23	0.16	0.09	0.00	0.16
5	e0.21	0.06	0.15	e0.30	2.8	3.0	1.2	0.22	0.14	0.08	0.00	0.14
6	e0.21	0.05	0.16	e0.29	3.2	2.6	1.1	0.21	0.12	0.08	0.00	0.09
7	e0.20	0.05	0.17	e0.28	2.2	2.0	0.94	0.19	1.8	0.06	0.00	0.08
8	e0.17	0.05	0.17	e0.27	1.6	1.6	0.87	0.17	0.83	0.06	0.00	0.07
9	e0.16	0.05	0.17	e0.26	1.4	1.6	0.92	0.17	0.45	0.04	0.00	0.06
10	e0.16	0.07	0.16	e0.50	1.3	1.6	1.2	0.15	0.31	0.03	0.00	0.04
11	e0.16	0.07	0.17	e0.43	1.1	1.3	1.9	0.14	0.22	0.02	14	0.02
12	e0.15	0.07	0.19	e0.40	0.95	1.2	3.2	0.13	0.17	0.01	1.3	0.02
13	e0.13	0.07	0.15	0.37	1.1	3.8	2.6	0.12	0.15	0.00	22	0.01
14	e0.13	0.09	0.40	0.36	1.1	3.0	2.0	0.12	0.15	0.00	56	0.01
15	e0.13	0.12	0.47	0.39	1.1	2.5	1.6	0.12	0.13	0.00	30	0.00
16	e0.12	0.12	0.49	0.40	1.0	3.6	1.6	0.12	0.13	0.00	18	0.00
17	e0.12	0.12	0.88	0.37	2.2	2.5	1.6	0.12	16	0.00	11	0.00
18	0.12	0.12	0.94	0.35	1.9	1.9	1.5	0.12	6.6	0.00	5.0	0.00
19	0.12	0.12	0.79	0.55	1.5	1.6	1.3	0.12	2.2	0.00	2.4	0.00
20	0.12	0.10	0.62	2.7	1.2	1.1	1.2	0.12	1.1	0.00	1.5	0.00
21	0.12	0.09	0.56	e2.5	1.1	15	1.1	0.13	0.68	0.00	0.98	0.00
22	0.09	0.07	e0.50	e1.8	1.1	17	1.1	0.15	0.53	0.00	0.69	0.00
23	0.08	0.07	e0.47	1.5	1.1	9.9	0.96	0.21	0.56	0.00	0.54	0.00
24	0.09	0.06	e0.44	1.2	1.1	5.3	0.82	0.17	0.66	0.00	0.53	0.00
25	0.09	0.05	e0.42	0.97	1.7	3.3	0.82	0.13	0.43	0.00	0.40	0.00
26	0.09	0.90	e0.40	0.90	2.5	2.5	0.71	0.14	0.31	0.00	0.34	0.00
27	0.09	0.38	e0.39	0.82	2.1	2.1	0.56	0.22	0.23	0.02	0.28	0.00
28	0.08	0.23	e0.38	0.69	1.8	1.7	0.48	0.19	0.17	0.00	0.23	0.00
29	0.06	0.18	e0.36	0.61	---	1.5	0.44	0.16	0.15	0.00	0.22	0.00
30	0.05	0.21	e0.35	0.75	---	9.6	0.44	0.15	0.14	0.00	0.20	0.00
31	0.06	---	e0.40	0.88	---	7.0	---	0.13	---	0.00	0.20	---
TOTAL	4.28	3.85	11.43	22.18	40.86	115.5	43.36	5.35	34.97	0.81	165.81	1.24
MEAN	0.14	0.13	0.37	0.72	1.46	3.73	1.45	0.17	1.17	0.026	5.35	0.041
MAX	0.26	0.90	0.94	2.7	3.2	17	4.4	0.39	16	0.13	56	0.19
MIN	0.05	0.05	0.15	0.26	0.60	1.1	0.44	0.12	0.12	0.00	0.00	0.00
CFSM	0.11	0.10	0.29	0.57	1.17	2.98	1.16	0.14	0.93	0.02	4.28	0.03
IN.	0.13	0.11	0.34	0.66	1.22	3.44	1.29	0.16	1.04	0.02	4.93	0.04

e Estimated

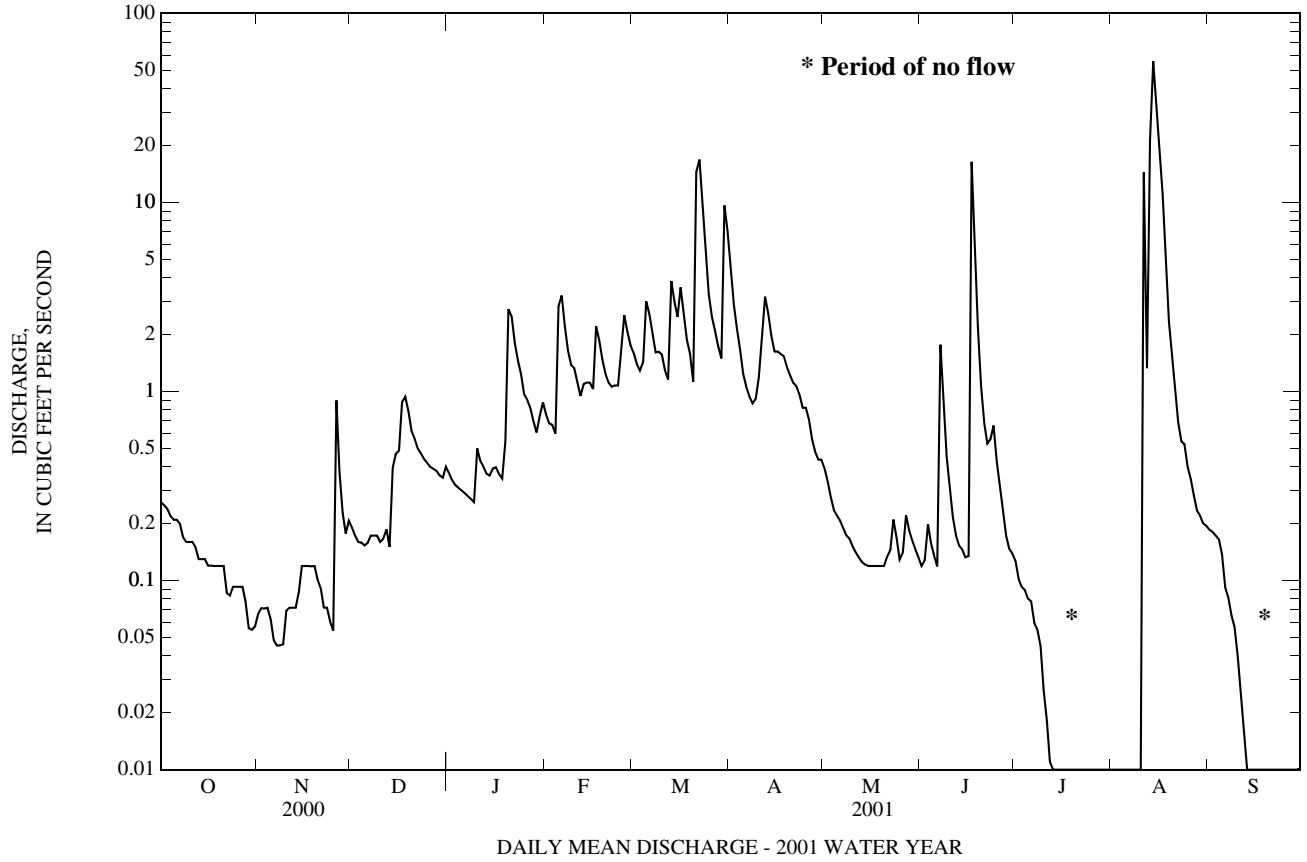
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 2001

MEAN	0.14	0.13	0.37	0.72	1.46	3.73	1.45	0.17	1.17	0.026	5.35	0.041
MAX	0.14	0.13	0.37	0.72	1.46	3.73	1.45	0.17	1.17	0.026	5.35	0.041
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)
MIN	0.14	0.13	0.37	0.72	1.46	3.73	1.45	0.17	1.17	0.026	5.35	0.041
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)

01487060 MIFFLIN DITCH NEAR GEORGETOWN, DE—Continued

SUMMARY STATISTICS	FOR 2001 WATER YEAR	
ANNUAL TOTAL	449.64	
ANNUAL MEAN	1.23	
HIGHEST DAILY MEAN	56	Aug 14
LOWEST DAILY MEAN	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 13
MAXIMUM PEAK FLOW	(b)104	Aug 13
MAXIMUM PEAK STAGE	5.45	Aug 13
INSTANTANEOUS LOW FLOW	.00	(c)
ANNUAL RUNOFF (CFSM)	0.99	
ANNUAL RUNOFF (INCHES)	13.38	
10 PERCENT EXCEEDS	2.2	
50 PERCENT EXCEEDS	0.22	
90 PERCENT EXCEEDS	0.00	

a July 13-26, 28-31, Aug. 1-10, and Sept. 15-30.
b From rating curve extended above 11.5 ft^3/s.
c July 13-31, Aug. 1-11, and Sept. 14-30.



DAILY MEAN DISCHARGE - 2001 WATER YEAR

01487060 MIFFLIN DITCH NEAR GEORGETOWN, DE—Continued

EXTREMES FOR 2002 WATER YEAR.--Peak discharges greater than base discharge of 20 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep 1	1000	*101	*5.43

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

Minimum discharge, 0.00 ft^3/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	0.00	2.1	0.24	0.00	0.00	0.00	19
2	0.00	0.00	0.00	0.00	0.00	0.00	1.2	2.1	0.00	0.00	0.00	0.36
3	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.81	0.00	0.00	0.00	0.01
4	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.45	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.32	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.27	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.23	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.19	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.17	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.15	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.10	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.09	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.07	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.08	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.06	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.05	0.00	0.00	0.00	0.06
17	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.04	0.00	0.00	0.00	0.02
18	0.00	0.00	0.00	0.00	0.00	0.40	0.27	0.08	0.00	0.00	0.00	0.01
19	0.00	0.00	0.00	0.00	0.00	0.22	0.20	0.06	0.00	0.00	0.00	0.01
20	0.00	0.00	0.00	0.00	0.00	0.64	0.17	0.05	0.00	0.00	0.00	0.01
21	0.00	0.00	0.00	0.00	0.00	0.55	0.18	0.04	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.38	0.19	0.03	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.39	0.17	0.02	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.36	0.14	0.01	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.33	0.13	0.01	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.34	0.12	0.01	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	1.1	0.10	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.67	0.56	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	---	0.59	0.39	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	---	0.60	0.28	0.00	0.00	0.00	0.00	0.00
31	0.00	---	0.00	0.00	---	1.3	---	0.00	---	0.00	0.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	7.87	14.33	5.73	0.00	0.00	0.00	19.48
MEAN	0.000	0.000	0.000	0.000	0.000	0.25	0.48	0.18	0.000	0.000	0.000	0.65
MAX	0.00	0.00	0.00	0.00	0.00	1.3	2.1	2.1	0.00	0.00	0.00	19
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
CFSM	0.00	0.00	0.00	0.00	0.00	0.20	0.38	0.15	0.00	0.00	0.00	0.52
IN.	0.00	0.00	0.00	0.00	0.00	0.23	0.43	0.17	0.00	0.00	0.00	0.58

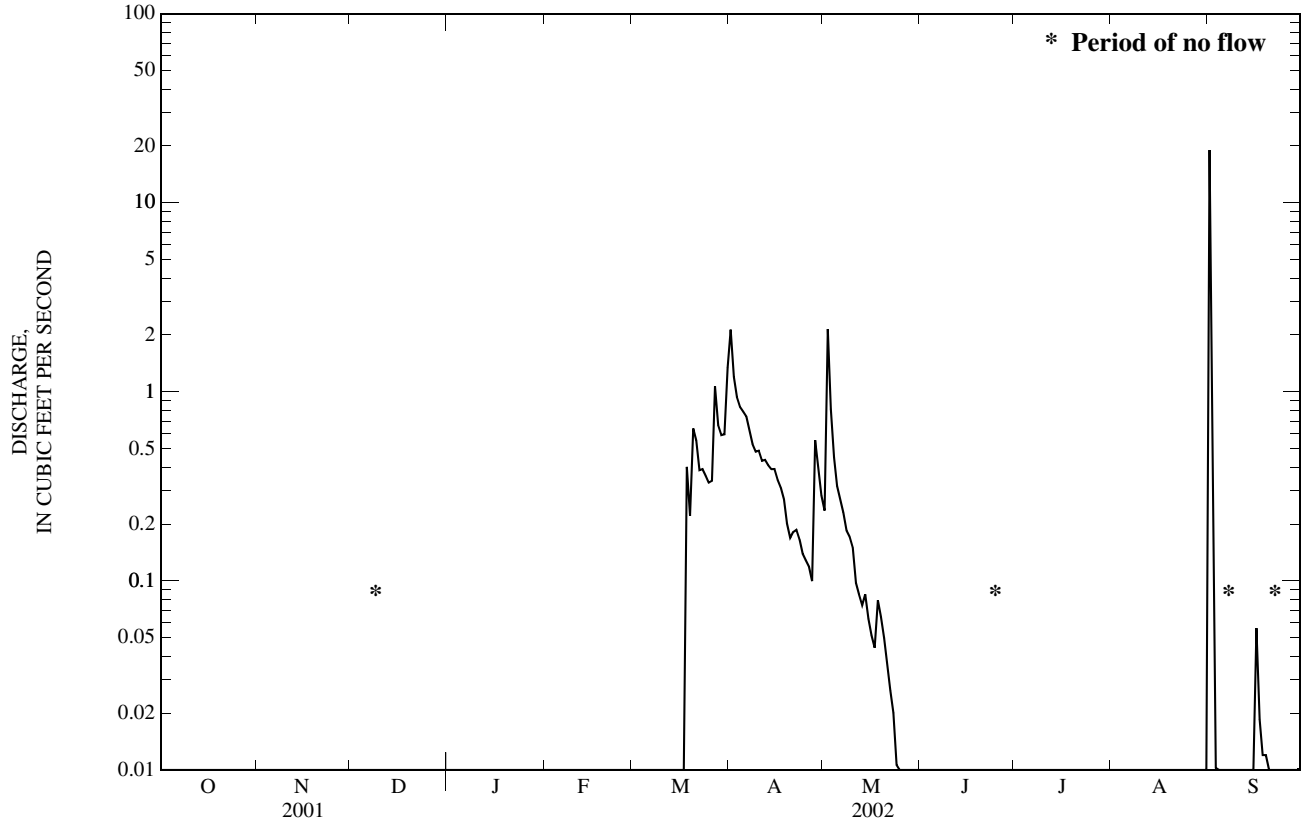
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

MEAN	0.069	0.064	0.18	0.36	0.73	1.99	0.96	0.18	0.58	0.013	2.67	0.35
MAX	0.14	0.13	0.37	0.72	1.46	3.73	1.45	0.18	1.17	0.026	5.35	0.65
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2002)	(2001)	(2001)	(2001)	(2002)
MIN	0.000	0.000	0.000	0.000	0.000	0.25	0.48	0.17	0.000	0.000	0.000	0.041
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2002)	(2002)	(2002)	(2001)

01487060 MIFFLIN DITCH NEAR GEORGETOWN, DE—Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	430.08		47.41			
ANNUAL MEAN	1.18		0.13		0.68	
HIGHEST ANNUAL MEAN					1.23	2001
LOWEST ANNUAL MEAN					0.13	2002
HIGHEST DAILY MEAN	56	Aug 14	19	Sep 1	56	Aug 14, 2001
LOWEST DAILY MEAN	0.00	(a)	0.00	(a)	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	(a)	0.00	(a)	0.00	(a)
MAXIMUM PEAK FLOW			101	Sep 1	(b)104	Aug 13, 2001
MAXIMUM PEAK STAGE			5.43	Sep 1	5.45	Aug 13, 2001
INSTANTANEOUS LOW FLOW			0.00	(a)	0.00	(a)
ANNUAL RUNOFF (CFSM)	0.94		0.10		0.54	
ANNUAL RUNOFF (INCHES)	12.80		1.41		7.40	
10 PERCENT EXCEEDS	2.2		0.32		1.3	
50 PERCENT EXCEEDS	0.15		0.00		0.06	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Many Days.
b From rating curve extended above 11.5 ft^3/s.



DAILY MEAN DISCHARGE - 2002 WATER YEAR

01487060 MIFFLIN DITCH NEAR GEORGETOWN, DE—Continued

EXTREMES FOR 2003 WATER YEAR.--Peak discharges greater than base discharge of 20 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0100	28	4.83	Apr 12	0900	41	4.84
Feb 22	1700	61	5.10	Jun 7	2015	63	5.05
Feb 23	1230	*129	*5.67	Aug 7	2215	22	4.64
Mar 2	1545	21	4.65	Sep 19	0130	29	4.72
Mar 6	1300	24	4.69	Sep 23	1645	24	4.66

Minimum discharge, 0.00 ft^3/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	1.2	1.7	2.2	1.2	13	2.4	0.65	2.0	0.27	0.24	0.27
2	0.00	0.92	1.5	2.6	2.0	17	2.1	0.57	1.4	0.27	0.18	0.23
3	0.00	0.74	1.3	3.3	1.8	18	1.8	0.50	0.95	1.3	0.13	0.22
4	0.00	0.67	1.2	4.4	2.1	13	1.6	0.45	1.1	0.95	0.12	6.4
5	0.00	0.64	1.5	3.2	2.2	15	1.4	0.40	1.3	0.56	0.30	6.4
6	0.00	1.5	2.0	2.6	1.8	20	1.3	0.39	0.97	0.40	2.4	2.0
7	0.00	1.2	1.9	2.4	1.7	19	1.7	0.40	19	0.33	8.5	1.00
8	0.00	0.86	1.8	2.2	1.4	14	2.5	0.72	34	0.29	17	0.60
9	0.00	0.77	1.7	2.0	1.3	10	9.7	0.69	24	0.27	6.6	0.40
10	0.00	0.74	1.6	1.8	1.3	6.8	12	0.67	14	0.35	3.0	0.35
11	0.15	0.89	4.4	1.6	1.4	4.9	30	0.62	6.3	0.33	2.1	0.31
12	0.04	2.5	7.9	1.3	1.3	4.2	36	0.53	3.5	0.24	1.4	0.36
13	0.03	3.7	6.2	1.2	1.2	3.4	26	0.43	2.8	0.20	1.1	0.76
14	0.03	2.6	9.7	1.1	1.0	2.6	19	0.37	2.0	0.62	0.76	0.56
15	0.05	2.0	6.6	1.0	1.5	2.2	11	0.33	1.5	0.65	0.53	0.40
16	0.84	3.4	5.0	0.91	1.4	2.1	6.7	3.9	1.2	0.42	0.96	0.40
17	0.40	17	3.6	0.91	3.0	4.9	4.0	4.7	1.0	0.29	4.0	0.29
18	0.30	11	e1.6	0.87	4.1	4.2	3.1	3.0	1.1	0.20	1.9	6.5
19	0.28	6.3	e1.5	0.82	3.7	3.0	2.9	2.2	5.6	0.18	1.0	23
20	0.27	4.5	e3.0	0.78	4.3	3.3	2.5	1.5	7.7	0.15	0.92	11
21	0.25	3.6	e2.4	0.74	5.4	6.7	2.2	1.2	7.9	0.13	0.55	4.0
22	0.25	6.5	e1.7	0.74	27	7.6	2.1	3.1	4.0	0.10	0.40	2.5
23	0.25	4.9	e1.5	0.74	94	5.0	1.9	4.1	2.2	0.12	0.31	15
24	0.23	3.5	e1.4	0.74	75	3.4	1.6	3.7	1.3	0.13	0.26	19
25	0.20	2.7	e5.7	0.74	60	2.5	1.4	2.6	0.87	0.10	0.21	11
26	0.49	2.5	e3.4	0.71	35	2.1	1.5	6.7	0.68	0.08	0.16	5.8
27	0.40	2.3	e1.9	0.67	22	2.0	1.4	6.0	0.55	0.08	0.14	6.3
28	0.35	2.0	e1.7	0.64	16	1.7	1.1	6.1	0.45	0.09	0.12	14
29	0.53	2.0	e1.5	0.60	---	1.7	0.93	7.3	0.37	0.59	0.11	9.2
30	1.3	1.8	e1.4	0.60	---	3.3	0.77	4.4	0.31	0.35	0.18	4.0
31	1.7	---	e1.3	0.60	---	3.4	---	2.6	---	0.32	0.36	---
TOTAL	8.34	94.93	89.6	44.71	374.1	220.0	192.60	70.82	150.05	10.36	55.94	152.25
MEAN	0.27	3.16	2.89	1.44	13.4	7.10	6.42	2.28	5.00	0.33	1.80	5.08
MAX	1.7	17	9.7	4.4	94	20	36	7.3	34	1.3	17	23
MIN	0.00	0.64	1.2	0.60	1.0	1.7	0.77	0.33	0.31	0.08	0.11	0.22
CFSM	0.22	2.53	2.31	1.15	10.7	5.68	5.14	1.83	4.00	0.27	1.44	4.06
IN.	0.25	2.83	2.67	1.33	11.13	6.55	5.73	2.11	4.47	0.31	1.66	4.53

e Estimated

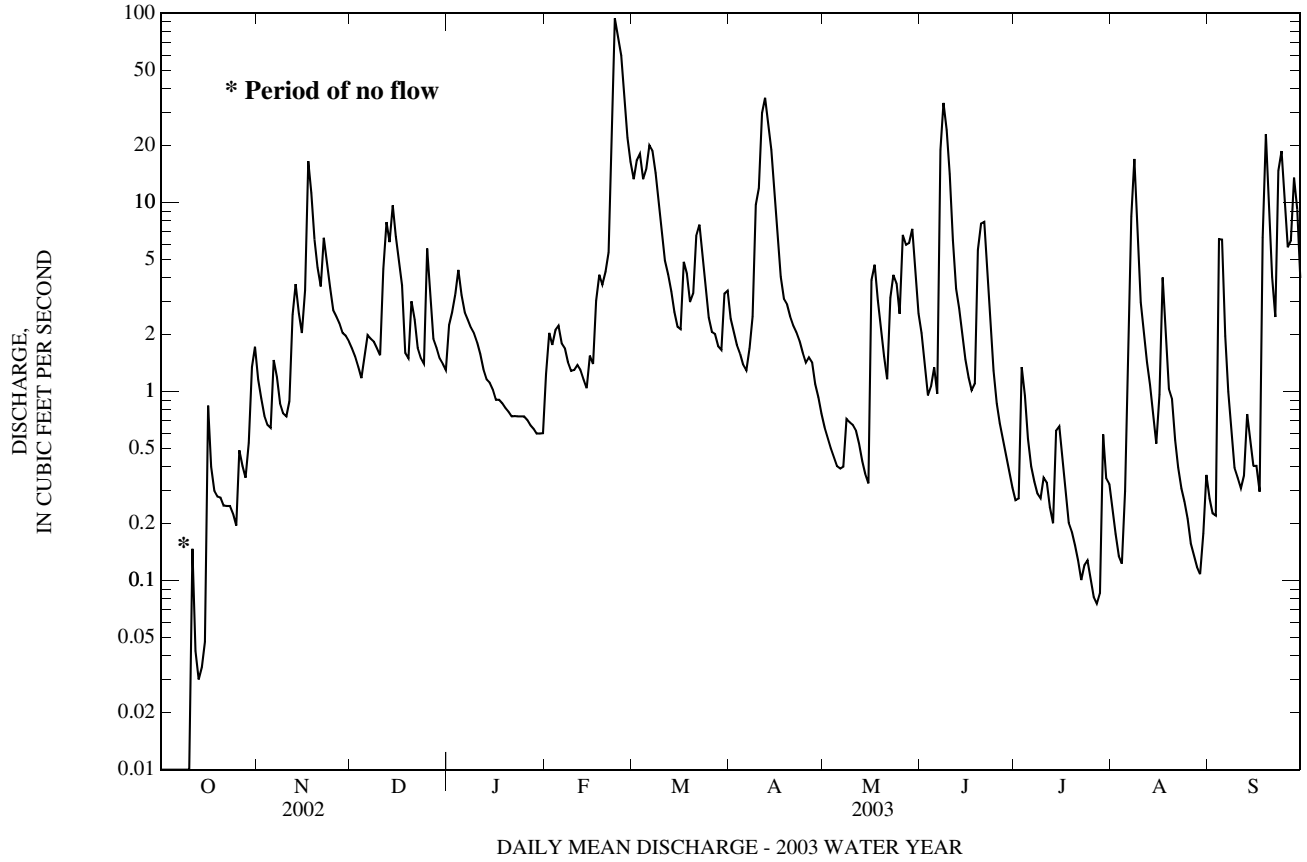
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	0.14	1.10	1.09	0.72	4.94	3.69	2.78	0.88	2.06	0.12	2.38	1.92
MAX	0.27	3.16	2.89	1.44	13.4	7.10	6.42	2.28	5.00	0.33	5.35	5.08
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)
MIN	0.000	0.000	0.000	0.000	0.000	0.25	0.48	0.17	0.000	0.000	0.000	0.041
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2002)	(2002)	(2002)	(2001)

01487060 MIFFLIN DITCH NEAR GEORGETOWN, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	240.28		1,463.70			
ANNUAL MEAN	0.66		4.01		1.79	
HIGHEST ANNUAL MEAN					4.01	2003
LOWEST ANNUAL MEAN					0.13	2002
HIGHEST DAILY MEAN	19	Sep 1	94	Feb 23	94	Feb 23, 2003
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	(a)	0.00	(b)	0.00	(a)
MAXIMUM PEAK FLOW			129	Feb 23	(c)129	Feb 23, 2003
MAXIMUM PEAK STAGE			5.67	Feb 23	5.67	Feb 23, 2003
INSTANTANEOUS LOW FLOW			0.00	(d)	0.00	(a)
ANNUAL RUNOFF (CFSM)	0.53		3.21		1.43	
ANNUAL RUNOFF (INCHES)	7.15		43.56		19.46	
10 PERCENT EXCEEDS	1.8		9.7		3.5	
50 PERCENT EXCEEDS	0.00		1.5		0.23	
90 PERCENT EXCEEDS	0.00		0.21		0.00	

a Many Days.
b Oct. 1-10.
c From rating curve extended above 11.5 ft^3/s.
d Oct. 1-11.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01487500 TRAP POND OUTLET NEAR LAUREL, DE

LOCATION.--Lat 38°31'40.4", long 75°28'56.7", Sussex County, Hydrologic Unit 02060008, on left bank at downstream end of concrete spillway channel, 200 ft downstream from Trap Pond, and 5 mi southeast of Laurel.

DRAINAGE AREA.--16.7 mi^2.

PERIOD OF RECORD.--June 1951 to September 1971, October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 27.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are poor. Several measurements of water temperature were made during the year.

EXTREMES FOR 2001 WATER YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 22	0215	208	2.99	Aug 14	0800	*219	*3.04
Aug 12	0500	116	2.50				

Minimum discharge, 3.2 ft^3/s, July 11, Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e23	5.8	8.6	8.5	19	21	54	11	10	6.1	15	17
2	e20	5.7	8.1	8.2	17	19	43	11	15	5.3	9.9	16
3	e17	6.0	7.7	8.0	16	18	36	9.9	14	5.0	7.4	15
4	e15	5.8	7.7	7.8	14	19	31	9.2	11	5.2	6.4	13
5	e13	5.6	7.6	8.0	28	22	27	8.6	15	6.4	5.9	12
6	e12	5.4	7.5	8.0	47	25	25	7.5	14	8.7	5.4	12
7	e12	5.4	7.4	7.9	37	23	24	7.5	28	6.1	4.7	11
8	e11	5.5	7.4	9.5	28	20	23	8.0	42	4.9	4.2	10
9	e10	6.3	7.1	9.4	25	18	26	7.7	28	4.5	3.7	9.4
10	e10	9.4	7.2	8.0	22	17	28	7.3	19	4.3	3.5	8.7
11	e9.6	6.3	7.7	7.7	19	16	37	6.7	14	4.0	30	8.2
12	e9.6	5.9	7.0	7.7	18	15	59	6.1	10	3.4	93	7.6
13	e9.6	5.7	6.8	7.5	22	27	50	5.6	9.0	3.5	96	6.9
14	e9.6	7.5	13	8.3	22	27	45	5.4	6.6	3.6	186	6.4
15	e9.3	7.4	12	11	22	27	37	5.2	7.6	3.7	108	6.2
16	9.3	6.4	13	10	22	40	31	5.1	8.0	3.8	61	5.8
17	9.3	5.9	20	9.0	28	40	30	4.9	33	e3.8	47	5.5
18	8.6	5.6	25	9.6	29	32	29	5.8	30	e20	49	5.2
19	8.1	5.4	20	21	24	27	26	10	20	e9.4	52	4.9
20	7.6	5.4	17	54	22	24	24	9.4	13	e6.6	54	4.7
21	7.7	5.2	14	69	19	74	22	9.3	12	e5.3	52	4.7
22	7.5	5.1	14	48	20	171	20	18	12	e4.7	46	4.8
23	6.9	5.2	12	33	20	93	19	38	12	e4.4	40	5.5
24	6.8	5.2	11	28	19	58	17	20	16	e4.2	37	6.0
25	7.0	5.8	11	24	22	43	17	14	11	e4.0	33	8.9
26	6.9	23	9.9	22	31	37	15	17	7.8	e10	30	7.9
27	7.0	16	9.9	20	29	34	14	19	6.9	e8.0	27	6.6
28	6.3	11	9.9	19	24	30	13	17	5.9	6.7	25	5.7
29	6.0	10	9.5	17	---	30	12	15	7.7	9.2	23	5.1
30	5.9	9.3	9.9	20	---	62	12	12	8.1	28	21	4.6
31	5.8	---	9.2	20	---	77	---	9.8	---	24	19	---
TOTAL	307.4	218.2	338.1	549.1	665	1,186	846	341.0	446.6	226.8	1,195.1	245.3
MEAN	9.92	7.27	10.9	17.7	23.8	38.3	28.2	11.0	14.9	7.32	38.6	8.18
MAX	23	23	25	69	47	171	59	38	42	28	186	17
MIN	5.8	5.1	6.8	7.5	14	15	12	4.9	5.9	3.4	3.5	4.6
CFSM	0.59	0.44	0.65	1.06	1.42	2.29	1.69	0.66	0.89	0.44	2.31	0.49
IN.	0.68	0.49	0.75	1.22	1.48	2.64	1.88	0.76	0.99	0.51	2.66	0.55

e Estimated

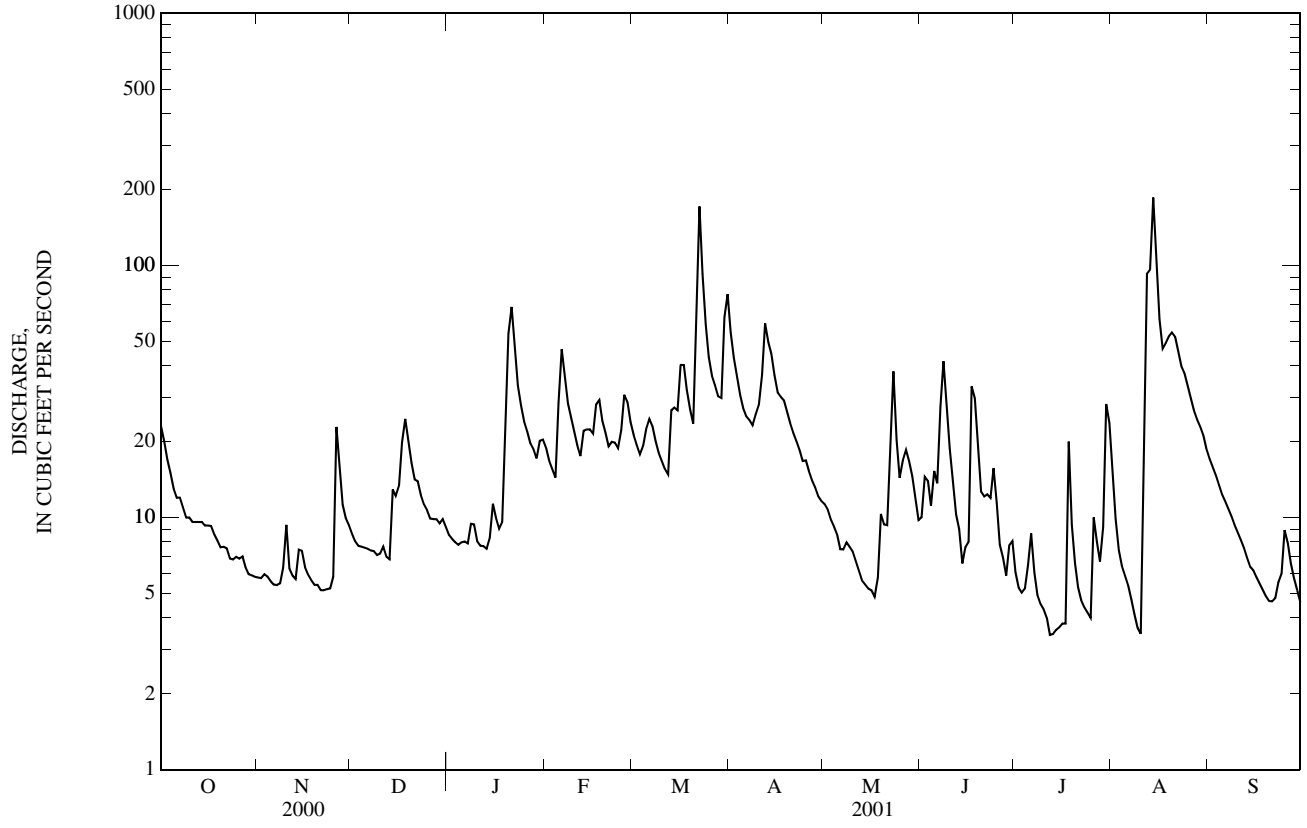
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1971, 2001, BY WATER YEAR (WY)

MEAN	5.28	8.62	15.8	22.8	29.6	36.0	26.1	15.5	9.90	5.02	13.0	4.96
MAX	19.2	30.6	31.6	47.2	75.0	68.2	56.5	45.3	23.2	13.3	70.7	22.0
(WY)	(1956)	(1957)	(1968)	(1962)	(1961)	(1958)	(1958)	(1958)	(1955)	(1958)	(1967)	(1967)
MIN	0.25	0.33	1.56	1.19	14.2	14.9	9.49	6.73	3.31	1.27	0.33	0.20
(WY)	(1958)	(1969)	(1966)	(1966)	(1954)	(1966)	(1967)	(1957)	(1969)	(1957)	(1957)	(1957)

01487500 TRAP POND OUTLET NEAR LAUREL, DE—Continued

SUMMARY STATISTICS	FOR 2001 WATER YEAR		WATER YEARS 1951 - 1971, 2001	
ANNUAL TOTAL	6564.6			
ANNUAL MEAN	18.0		16.0	
HIGHEST ANNUAL MEAN			27.5	1958
LOWEST ANNUAL MEAN			8.62	1966
HIGHEST DAILY MEAN	186	Aug 14	360	Aug 25, 1967
LOWEST DAILY MEAN	3.4	Jul 12	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	3.7	Jul 11	0.06	Aug 9, 1957
MAXIMUM PEAK FLOW	219	Aug 14	608	Aug 25, 1967
MAXIMUM PEAK STAGE	3.04	Aug 14	4.09	Aug 25, 1967
INSTANTANEOUS LOW FLOW	3.2	(b)l	0.00	(c)
ANNUAL RUNOFF (CFSM)	1.08		0.96	
ANNUAL RUNOFF (INCHES)	14.62		13.05	
10 PERCENT EXCEEDS	37		35	
50 PERCENT EXCEEDS	11		10	
90 PERCENT EXCEEDS	5.4		1.3	

a Aug. 12-14, Sept. 6, 1957, Sept. 11-13, 1966, April 20, 21, 1969.
b July 11, Aug. 10.
c Aug. 11-15, 18, 19, Sept. 5-7, 1957, Sept. 11-13, 1966, April 20, 21, 1969.



DAILY MEAN DISCHARGE - 2001 WATER YEAR

01487500 TRAP POND OUTLET NEAR LAUREL, DE—Continued

EXTREMES FOR 2002 WATER YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr 4	1700	*61	*2.05

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 0.00 ft^3/s, July 25, Aug. 5-31, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	1.7	1.5	1.5	4.1	3.9	53	11	5.7	1.6	0.20	0.64
2	3.8	1.8	1.3	1.6	4.0	3.9	43	11	5.1	1.6	0.16	11
3	3.4	1.7	1.2	2.0	3.9	5.7	30	12	5.8	1.6	0.10	11
4	e3.1	1.5	1.1	1.9	3.6	5.5	24	13	5.6	1.7	0.13	5.4
5	e2.8	1.4	1.1	1.7	3.4	4.9	19	13	5.5	1.7	0.02	3.2
6	e3.1	1.3	1.1	4.9	3.6	4.7	17	13	5.2	1.6	0.01	2.9
7	e2.7	1.2	1.2	7.9	7.0	4.8	14	13	10	1.6	0.00	2.8
8	e2.6	1.2	2.0	4.6	6.5	4.7	12	13	8.3	1.5	0.00	2.7
9	e2.6	1.3	2.2	3.5	5.1	4.5	11	12	6.6	1.3	0.00	2.7
10	e2.5	1.4	1.7	3.1	4.8	4.6	14	12	5.4	1.2	0.00	2.8
11	e2.4	1.3	3.4	3.2	4.7	4.7	14	11	4.8	1.2	0.00	2.3
12	e2.4	1.3	2.6	3.4	4.6	4.7	12	11	4.0	1.1	0.00	2.0
13	e2.3	1.3	2.4	3.9	4.0	4.6	13	10	3.5	0.99	0.00	1.9
14	e2.2	1.3	2.0	3.5	4.0	5.0	13	9.7	3.1	1.0	0.00	1.9
15	e2.4	1.3	1.5	2.9	4.0	5.3	12	9.1	3.0	1.0	0.00	3.1
16	e2.3	1.3	1.4	2.8	4.0	5.3	12	8.7	3.6	0.73	0.00	12
17	e2.2	1.4	1.5	2.8	3.8	4.6	11	8.3	3.3	0.41	0.00	7.9
18	e2.2	1.4	2.8	2.8	3.7	7.6	10	8.0	3.0	0.37	0.00	4.7
19	e2.2	1.5	2.4	4.4	3.7	12	9.5	8.1	2.8	0.32	0.00	3.3
20	e2.1	1.6	1.5	7.1	4.0	15	8.8	7.9	2.9	0.28	0.00	3.0
21	e2.1	1.5	1.2	5.2	3.8	21	8.2	7.8	2.9	0.24	0.00	3.3
22	e2.1	1.3	1.2	4.3	3.6	15	7.7	7.6	3.0	0.22	0.00	3.0
23	e2.1	1.2	1.4	4.0	3.6	13	7.4	7.8	2.8	0.28	0.00	2.4
24	e2.0	1.4	2.9	4.2	3.6	11	7.1	8.2	2.3	0.18	0.00	2.0
25	e2.0	1.8	2.1	5.4	3.6	9.7	7.7	7.4	1.8	0.07	0.00	2.4
26	e2.0	1.4	1.6	4.5	3.8	8.9	8.3	6.8	1.4	0.16	0.00	3.9
27	e1.9	1.4	1.6	4.1	3.8	18	7.6	6.3	1.5	0.19	0.00	5.2
28	e1.8	1.4	1.4	4.1	3.6	17	7.8	5.7	1.5	0.14	0.00	3.4
29	e1.7	1.5	1.3	4.1	---	14	9.4	7.0	1.5	0.21	0.03	2.8
30	1.6	1.7	1.2	4.3	---	12	10	7.3	1.6	0.19	0.00	2.6
31	1.7	---	1.2	4.1	---	26	---	6.4	---	0.22	0.00	---
TOTAL	74.5	42.8	53.0	117.8	115.9	281.6	433.5	293.1	117.5	24.90	0.65	118.24
MEAN	2.40	1.43	1.71	3.80	4.14	9.08	14.4	9.45	3.92	0.80	0.021	3.94
MAX	4.2	1.8	3.4	7.9	7.0	26	53	13	10	1.7	0.20	12
MIN	1.6	1.2	1.1	1.5	3.4	3.9	7.1	5.7	1.4	0.07	0.00	0.64
CFSM	0.14	0.09	0.10	0.23	0.25	0.54	0.87	0.57	0.23	0.05	0.00	0.24
IN.	0.17	0.10	0.12	0.26	0.26	0.63	0.97	0.65	0.26	0.06	0.00	0.26

e Estimated

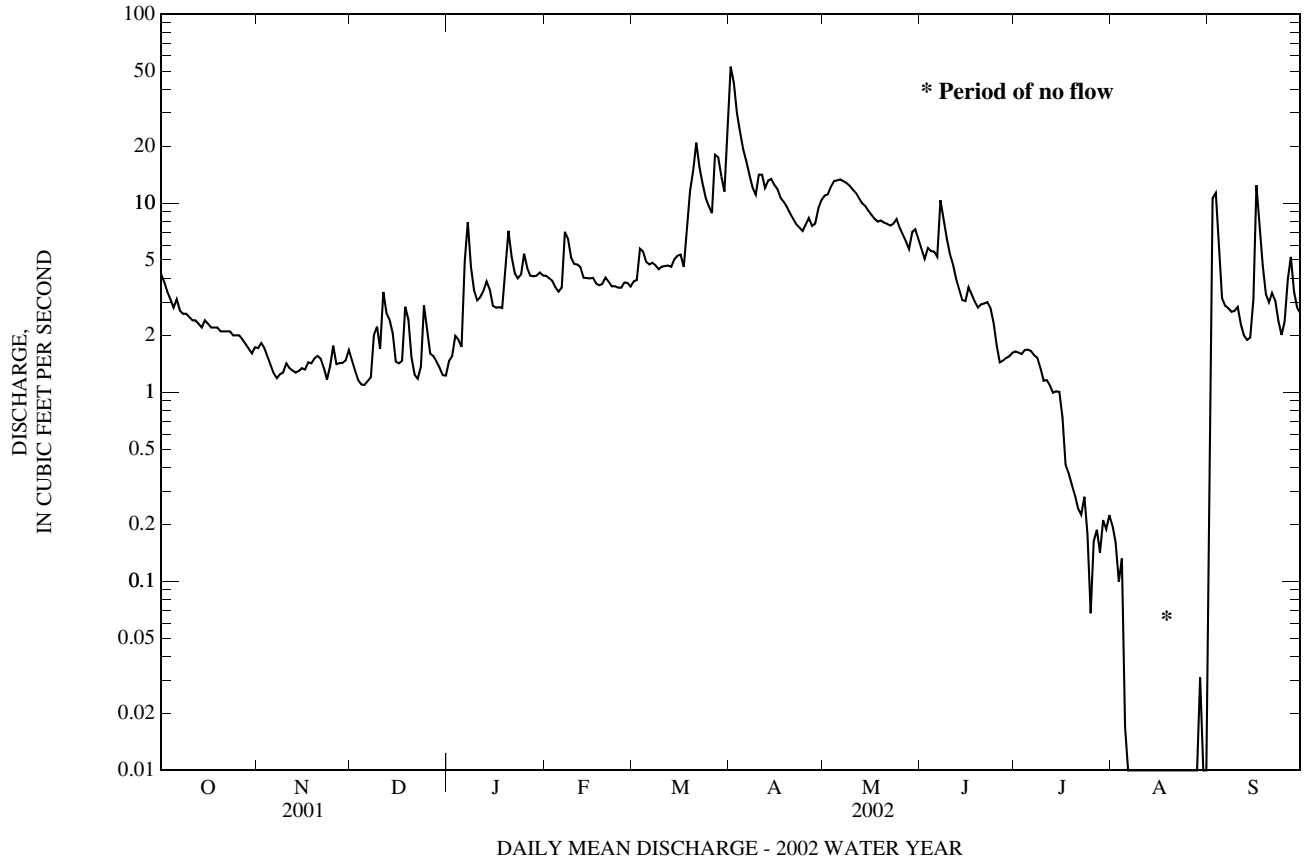
\STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1971, 2001 - 2002, BY WATER YEAR (WY)

MEAN	5.15	8.30	15.2	21.9	28.4	34.8	25.6	15.2	9.62	4.84	12.4	4.91
MAX	19.2	30.6	31.6	47.2	75.0	68.2	56.5	45.3	23.2	13.3	70.7	22.0
(WY)	(1956)	(1957)	(1968)	(1962)	(1961)	(1958)	(1958)	(1958)	(1955)	(1958)	(1967)	(1967)
MIN	0.25	0.33	1.56	1.19	4.14	9.08	9.49	6.73	3.31	0.80	0.021	0.20
(WY)	(1958)	(1969)	(1966)	(1966)	(2002)	(2002)	(1967)	(1957)	(1969)	(2002)	(2002)	(1957)

01487500 TRAP POND OUTLET NEAR LAUREL, DE—Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 1971, 2001 - 2002	
ANNUAL TOTAL	5,871.2		1,673.49			
ANNUAL MEAN	16.1		4.58		15.5	
HIGHEST ANNUAL MEAN					27.5	1958
LOWEST ANNUAL MEAN					4.58	2002
HIGHEST DAILY MEAN	186	Aug 14	53	Apr 1	360	Aug 25, 1967
LOWEST DAILY MEAN	1.1	Dec 4	0.00	(a)	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	1.2	Dec 1	0.00	Aug 7	0.00	Aug 7, 2002
MAXIMUM PEAK FLOW			61	Apr 1	608	Aug 25, 1967
MAXIMUM PEAK STAGE			2.05	Apr 1	4.09	Aug 25, 1967
INSTANTANEOUS LOW FLOW			0.00	(c)	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.96		0.27		0.93	
ANNUAL RUNOFF (INCHES)	13.08		3.73		12.63	
10 PERCENT EXCEEDS	37		11		34	
50 PERCENT EXCEEDS	9.2		2.9		9.7	
90 PERCENT EXCEEDS	1.5		0.20		1.2	

a Aug. 7-31.
b Aug. 12-14, Sept. 6, 1957, Sept. 11-13, 1966, April 20, 21, 1969, Aug. 7-31, 2002.
c July 25, Aug. 5-31, Sept. 1
d Aug. 11-15, 18, 19, Sept. 5-7, 1957, Sept. 11-13, 1966, April 20, 21, 1969,July 25, Aug. 5-31, Sept. 1, 2002.



DAILY MEAN DISCHARGE - 2002 WATER YEAR

01487500 TRAP POND OUTLET NEAR LAUREL, DE—Continued

EXTREMES FOR 2003 WATER YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	1445	168	2.79	Apr 11	1345	188	2.90
Nov 22	1645	114	2.47	May 17	0830	121	2.51
Feb 23	0400	*237	*3.11	Jun 8	0830	164	2.77
Mar 30	2300	117	2.49	Sep 19	0930	138	2.62
Apr 10	0200	145	2.67				

Minimum discharge, 1.2 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	55	23	26	19	66	64	15	31	8.0	5.0	6.9
2	2.0	34	22	32	24	64	45	15	26	11	5.4	6.3
3	2.0	24	19	33	24	74	37	14	22	26	5.3	8.3
4	2.8	23	19	33	25	53	31	13	22	17	5.2	11
5	2.1	20	25	30	26	54	27	12	29	13	5.4	11
6	2.0	23	28	26	23	72	27	12	29	10	6.3	8.5
7	1.5	27	28	24	25	72	33	15	50	9.7	8.7	7.4
8	1.7	22	27	23	23	52	47	27	146	8.4	9.9	6.5
9	1.6	16	25	22	22	42	83	21	93	8.6	8.0	5.9
10	3.3	17	24	20	23	36	126	19	54	9.7	12	5.3
11	27	18	33	18	24	32	160	18	37	8.2	9.3	5.3
12	21	29	71	17	23	31	175	15	29	7.0	8.0	8.2
13	15	73	58	16	21	30	123	12	25	6.2	7.6	11
14	11	61	63	15	19	28	74	11	21	9.3	7.1	9.0
15	10	41	57	15	25	25	52	11	18	10	6.8	11
16	23	37	42	14	32	26	42	53	17	8.7	7.5	15
17	26	134	34	16	46	64	35	114	16	7.4	11	15
18	18	138	28	14	84	74	30	80	17	6.8	8.8	34
19	14	83	26	13	77	50	28	53	29	6.6	7.6	119
20	13	54	30	13	79	43	26	39	42	6.4	6.6	74
21	11	44	36	13	92	56	25	32	36	6.4	5.9	40
22	9.5	90	34	13	143	57	23	38	29	6.6	5.9	27
23	8.4	89	29	12	212	44	21	44	22	6.9	4.9	29
24	8.3	57	26	11	129	36	19	48	17	6.6	3.9	37
25	8.3	43	33	11	83	31	19	42	14	6.2	3.8	30
26	23	35	42	11	61	26	21	47	12	5.9	3.8	24
27	20	31	34	11	51	25	21	54	10	5.7	4.0	20
28	16	28	28	11	57	23	19	42	9.8	6.0	5.9	23
29	20	26	25	11	---	25	16	36	9.1	5.8	5.4	24
30	36	25	23	12	---	73	16	41	8.6	5.1	9.8	20
31	52	---	22	14	---	101	---	42	---	4.8	10	---
TOTAL	411.9	1,397	1,014	550	1,492	1,485	1,465	1,035	920.5	264.0	214.8	652.6
MEAN	13.3	46.6	32.7	17.7	53.3	47.9	48.8	33.4	30.7	8.52	6.93	21.8
MAX	52	138	71	33	212	101	175	114	146	26	12	119
MIN	1.5	16	19	11	19	23	16	11	8.6	4.8	3.8	5.3
CFSM	0.80	2.79	1.96	1.06	3.19	2.87	2.92	2.00	1.84	0.51	0.41	1.30
IN.	0.92	3.11	2.26	1.23	3.32	3.31	3.26	2.31	2.05	0.59	0.48	1.45

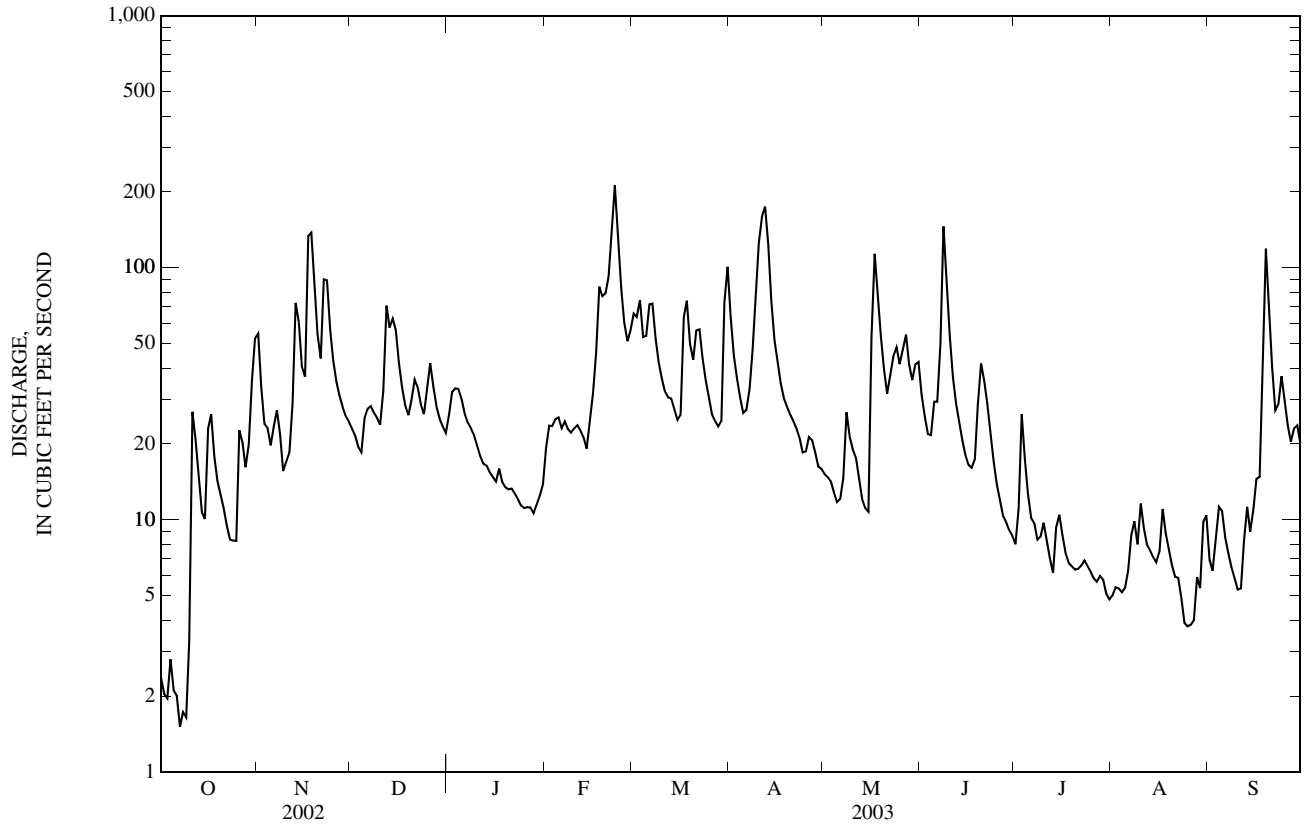
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 -1971, 2001 - 2003, BY WATER YEAR (WY)

MEAN	5.51	9.96	16.0	21.8	29.5	35.3	26.6	16.0	10.5	4.99	12.2	5.61
MAX	19.2	46.6	32.7	47.2	75.0	68.2	56.5	45.3	30.7	13.3	70.7	22.0
(WY)	(1956)	(2003)	(2003)	(1962)	(1961)	(1958)	(1958)	(1958)	(2003)	(1958)	(1967)	(1967)
MIN	0.25	0.33	1.56	1.19	4.14	9.08	9.49	6.73	3.31	0.80	0.021	0.20
(WY)	(1958)	(1969)	(1966)	(1966)	(2002)	(2002)	(1967)	(1957)	(1969)	(2002)	(2002)	(1957)

01487500 TRAP POND OUTLET NEAR LAUREL, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 1971, 2001 - 2003	
ANNUAL TOTAL	4,326.09		10,901.8			
ANNUAL MEAN	11.9		29.9		16.1	
HIGHEST ANNUAL MEAN					29.9	2003
LOWEST ANNUAL MEAN					4.58	2002
HIGHEST DAILY MEAN	138	Nov 18	212	Feb 23	360	Aug 25, 1967
LOWEST DAILY MEAN	0.00	(a)	1.5	Oct 7	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 7	2.0	Oct 3	0.00	Aug 7, 2002
MAXIMUM PEAK FLOW			237	Feb 23	608	Aug 25, 1967
MAXIMUM PEAK STAGE			3.11	Feb 23	4.09	Aug 25, 1967
INSTANTANEOUS LOW FLOW			1.2	Oct 10	0.00	(c)
ANNUAL RUNOFF (CFSM)	0.71		1.79		0.97	
ANNUAL RUNOFF (INCHES)	9.64		24.28		13.13	
10 PERCENT EXCEEDS	29		64		36	
50 PERCENT EXCEEDS	5.1		23		10	
90 PERCENT EXCEEDS	0.20		6.3		1.3	

a Aug. 7-31.
b Aug. 12-14, Sept. 6, 1957, Sept. 11-13, 1966, April 20, 21, 1969, Aug. 7-31, 2002.
c Aug. 11-15, 18, 19, Sept. 5-7, 1957, Sept. 11-13, 1966, April 20, 21, 1969, July 25, Aug. 5-31, Sept. 1, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01487698 DUKES AND JOBS DITCH NEAR LAUREL, DE

LOCATION.--Lat 38°35'15.0", long 75°30'59.1", Sussex County, Hydrologic Unit 02060008, right bank at downstream of highway culverts on Sycamore Road (No. 475), 0.6 mi upstream from Elliott Pond Branch, 0.8 mi downstream from confluence of Dukes Ditch and Jobs Ditch, and 4.0 mi north east of Laurel.

DRAINAGE AREA.--3.23 mi^2.

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 30 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR 2001 WATER YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 21	1415	115	2.91	Aug 13	1545	172	3.45
Aug 11	2000	*551	*5.78	Aug 14	0015	240	4.00

Minimum discharge, 0.75 ft^3/s, Aug. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e8.8	2.0	2.2	2.9	4.8	5.9	7.6	4.7	3.2	2.1	1.3	4.2
2	e7.4	2.0	2.2	2.8	4.8	5.8	7.0	4.7	3.3	2.1	1.3	3.9
3	e6.5	1.9	2.2	2.8	4.7	5.6	6.5	4.6	3.1	2.0	1.3	3.7
4	e5.8	1.9	2.2	2.8	4.7	5.8	6.1	4.6	2.8	2.0	1.2	3.7
5	e5.3	1.9	2.2	2.9	8.4	6.1	5.9	4.5	2.8	2.2	1.1	3.6
6	e4.8	1.8	2.2	2.9	6.8	5.9	5.7	4.4	2.7	2.7	1.1	3.5
7	e4.2	1.7	2.2	2.8	6.1	5.5	5.7	4.4	7.6	2.0	0.97	3.3
8	e3.8	1.7	2.2	2.9	5.8	5.4	5.6	4.4	3.0	2.1	0.90	3.1
9	e3.6	1.8	2.1	2.9	5.7	5.5	5.7	4.4	2.6	2.0	0.83	2.9
10	e3.4	2.8	2.1	2.8	5.7	5.4	5.8	4.4	2.4	1.9	0.81	2.8
11	e3.2	1.7	2.2	2.8	5.3	5.3	7.9	4.4	2.3	1.8	164	2.7
12	3.1	1.7	2.2	2.7	5.1	5.3	7.4	4.3	2.1	1.7	107	2.6
13	3.0	1.7	2.2	2.7	5.3	8.2	6.8	4.1	1.9	1.6	84	2.6
14	3.0	2.0	2.8	2.8	5.3	6.4	6.4	4.0	1.8	1.6	95	2.6
15	2.9	2.0	2.5	3.1	5.4	7.0	6.2	4.0	1.7	1.4	20	2.6
16	2.8	1.9	3.0	3.1	5.3	8.0	6.1	3.8	1.7	1.3	12	2.6
17	2.8	1.9	3.5	3.0	6.3	7.2	6.0	3.7	16	1.2	9.7	2.5
18	2.8	1.8	3.1	3.0	5.5	7.0	5.8	3.7	4.8	5.8	9.0	2.4
19	2.8	1.8	3.0	5.3	5.4	6.7	5.4	3.9	4.2	2.0	10	2.3
20	2.7	1.8	3.0	10	5.4	6.8	5.2	3.7	3.8	1.3	7.7	2.3
21	2.6	1.8	3.0	7.4	5.3	37	5.2	3.9	3.5	1.3	7.0	2.4
22	2.5	1.8	3.1	6.3	5.4	17	5.1	7.5	3.4	1.2	6.2	2.3
23	2.5	1.8	3.0	5.7	5.4	11	5.0	6.6	3.3	1.2	5.7	2.3
24	2.5	1.8	3.0	5.4	5.3	9.2	5.0	4.4	3.3	1.1	5.7	2.3
25	2.4	1.9	3.1	5.2	6.0	8.3	5.0	4.2	3.1	1.0	5.4	2.7
26	2.3	5.4	3.0	5.0	6.3	7.9	4.9	4.7	2.9	1.5	5.2	2.3
27	2.5	2.6	3.1	4.9	5.9	7.2	5.0	4.8	2.7	1.4	5.1	2.3
28	2.2	2.4	3.1	4.7	5.9	6.8	4.9	4.0	2.5	1.1	4.8	2.2
29	2.2	2.3	3.0	4.6	---	6.8	4.7	3.9	2.4	1.5	4.5	2.2
30	2.2	2.2	3.1	5.1	---	11	4.7	3.6	2.2	1.8	4.5	2.2
31	2.1	---	3.0	4.9	---	8.2	---	3.3	---	1.4	4.4	---
TOTAL	108.7	61.8	82.8	126.2	157.3	255.2	174.3	135.6	103.1	55.3	587.71	83.1
MEAN	3.51	2.06	2.67	4.07	5.62	8.23	5.81	4.37	3.44	1.78	19.0	2.77
MAX	8.8	5.4	3.5	10	8.4	37	7.9	7.5	16	5.8	164	4.2
MIN	2.1	1.7	2.1	2.7	4.7	5.3	4.7	3.3	1.7	1.0	0.81	2.2
CFSM	1.09	0.64	0.83	1.26	1.74	2.55	1.80	1.35	1.06	0.55	5.87	0.86
IN.	1.25	0.71	0.95	1.45	1.81	2.94	2.01	1.56	1.19	0.64	6.77	0.96

e Estimated

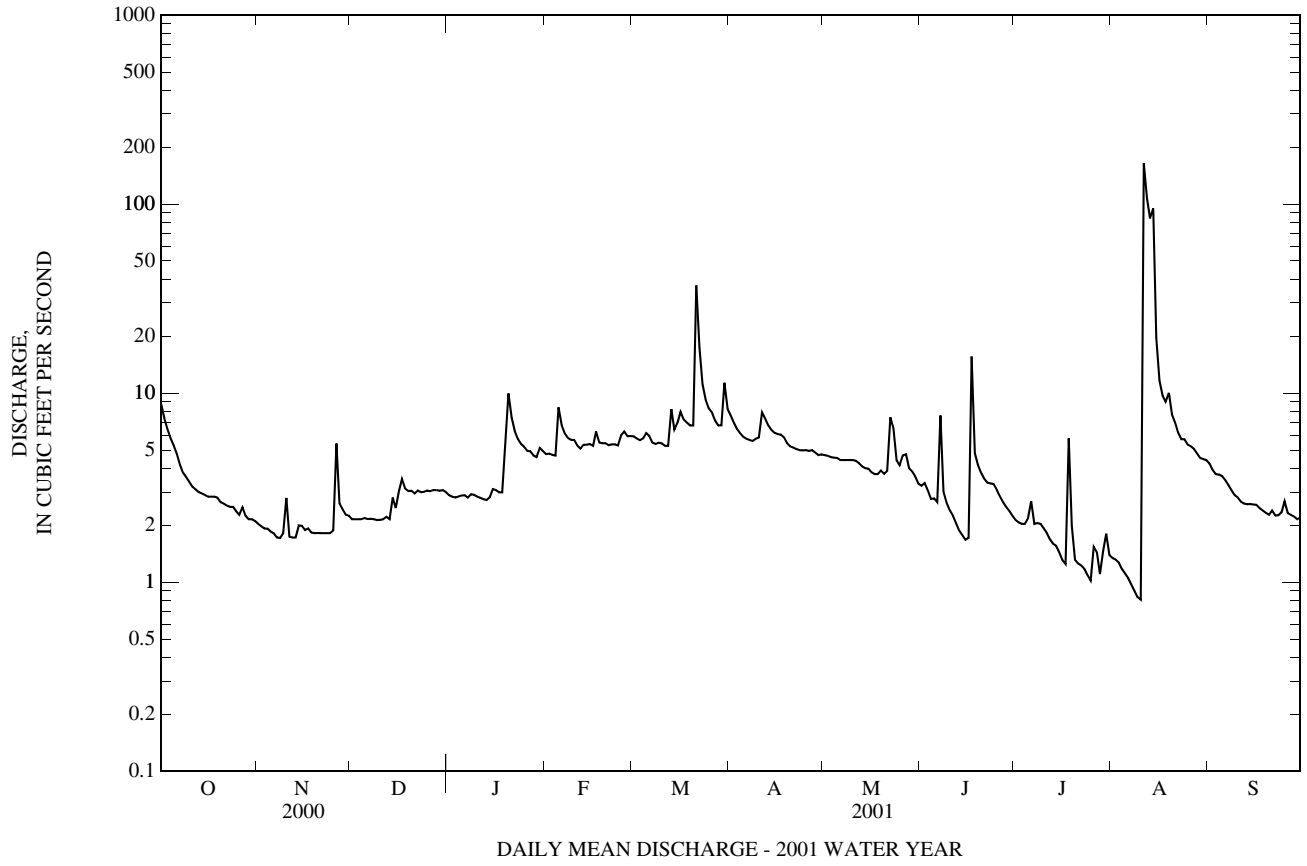
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2001, BY WATER YEAR (WY)

MEAN	3.51	2.06	2.67	4.07	5.62	8.23	5.81	4.37	3.44	1.78	19.0	2.77
MAX	3.51	2.06	2.67	4.07	5.62	8.23	5.81	4.37	3.44	1.78	19.0	2.77
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)
MIN	3.51	2.06	2.67	4.07	5.62	8.23	5.81	4.37	3.44	1.78	19.0	2.77
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)

01487698 DUKES AND JOBS DITCH NEAR LAUREL, DE—Continued

SUMMARY STATISTICS	FOR 2001 WATER YEAR	
ANNUAL TOTAL	1,931.11	
ANNUAL MEAN	5.29	
HIGHEST DAILY MEAN	164	Aug 11
LOWEST DAILY MEAN	0.81	Aug 10
ANNUAL SEVEN-DAY MINIMUM	0.99	Aug 4
MAXIMUM PEAK FLOW	(a)551	Aug 11
MAXIMUM PEAK STAGE	5.78	Aug 11
INSTANTANEOUS LOW FLOW	0.75	Aug 10
ANNUAL RUNOFF (CFSM)	1.64	
ANNUAL RUNOFF (INCHES)	22.24	
10 PERCENT EXCEEDS	7.0	
50 PERCENT EXCEEDS	3.3	
90 PERCENT EXCEEDS	1.8	

a From rating curve extended above 25 ft^3/s.



DAILY MEAN DISCHARGE - 2001 WATER YEAR

01487698 DUKES AND JOBS DITCH NEAR LAUREL, DE—Continued

EXTREMES FOR 2002 WATER YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep 1	0900	*173	*3.46

No other peak greater than base discharge.

Minimum discharge, UNKNOWN.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	1.3	1.0	0.92	1.3	1.2	8.7	3.3	1.3	0.52	e0.21	53
2	2.2	1.3	1.0	0.86	1.3	1.2	4.4	7.0	1.3	0.51	e0.19	9.0
3	2.1	1.3	1.0	0.89	1.3	1.4	4.3	4.2	1.3	0.53	e0.17	2.2
4	2.0	1.3	1.00	0.86	1.3	1.3	4.1	3.9	1.2	0.53	e0.16	1.6
5	2.0	1.3	0.98	0.86	1.3	1.3	4.0	3.8	1.2	0.50	e0.15	1.3
6	2.1	1.3	0.98	2.3	1.3	1.2	4.0	3.7	1.7	0.52	e0.14	1.2
7	1.9	1.2	1.0	1.7	1.6	1.2	3.9	3.5	1.8	0.51	e0.14	1.2
8	1.9	1.2	1.0	1.2	1.4	1.2	3.9	3.4	1.2	0.50	e0.13	1.2
9	1.9	1.2	1.0	1.2	1.3	1.2	3.9	3.3	1.2	e0.48	e0.13	1.2
10	1.9	1.2	0.94	1.2	1.3	1.2	3.9	3.1	1.1	e0.43	e0.12	1.1
11	1.8	1.2	1.1	1.2	1.4	1.2	3.8	2.9	1.0	e0.40	e0.12	1.1
12	1.7	1.2	1.0	1.1	1.4	1.2	3.8	2.8	0.95	e0.39	e0.12	1.1
13	1.7	1.2	0.98	1.2	1.3	1.3	3.9	2.8	1.00	e0.38	e0.11	1.1
14	1.7	1.1	0.98	1.1	1.3	1.2	3.9	3.1	1.1	e0.38	e0.11	1.1
15	1.8	1.1	0.98	1.1	1.3	1.2	3.9	2.6	1.1	e0.41	e0.11	1.2
16	1.8	1.1	0.97	1.1	1.3	1.2	3.8	2.5	0.99	e0.39	e0.11	2.1
17	1.7	1.1	0.97	1.1	1.3	1.2	3.6	2.4	0.95	e0.38	e0.10	1.3
18	1.7	1.1	1.1	1.1	1.3	2.2	3.5	2.8	0.90	e0.36	e0.10	1.1
19	1.7	1.1	0.98	1.2	1.3	1.7	3.4	2.4	0.83	e0.36	e0.10	1.1
20	1.7	1.1	0.98	1.5	1.3	2.6	3.3	2.3	0.78	e0.39	e0.10	1.1
21	1.7	1.1	0.95	1.3	1.3	2.5	3.2	2.3	0.72	e0.37	e0.10	1.1
22	1.7	1.1	0.92	1.3	1.3	2.0	3.2	2.1	0.71	e0.35	e0.10	1.1
23	1.6	1.1	0.92	1.3	1.3	2.0	3.1	2.1	0.70	e0.33	e0.10	1.0
24	1.6	1.0	0.99	1.3	1.3	2.0	3.0	1.9	0.67	e0.35	e0.11	0.96
25	1.6	0.98	0.95	1.3	1.3	2.0	3.0	1.8	0.64	e0.37	e0.12	0.98
26	1.6	0.99	0.92	1.3	1.2	2.0	3.0	1.7	0.60	e0.36	e0.11	1.1
27	1.6	1.0	0.92	1.3	1.2	3.0	3.0	1.7	0.58	e0.33	e0.11	1.1
28	1.5	0.98	0.92	1.3	1.2	2.5	6.9	1.6	0.59	e0.30	e0.11	1.0
29	1.4	0.98	0.92	1.3	---	2.5	4.0	1.5	0.56	e0.27	1.1	0.97
30	1.4	0.99	0.92	1.3	---	2.5	3.5	1.5	0.54	e0.25	e0.40	0.92
31	1.4	---	0.92	1.3	---	4.1	---	1.4	---	e0.23	e0.35	---
TOTAL	54.7	34.12	30.19	37.99	36.7	54.5	117.9	85.4	29.21	12.38	5.33	95.53
MEAN	1.76	1.14	0.97	1.23	1.31	1.76	3.93	2.75	0.97	0.40	0.17	3.18
MAX	2.3	1.3	1.1	2.3	1.6	4.1	8.7	7.0	1.8	0.53	1.1	53
MIN	1.4	0.98	0.92	0.86	1.2	1.2	3.0	1.4	0.54	0.23	0.10	0.92
CFSM	0.55	0.35	0.30	0.38	0.41	0.54	1.22	0.85	0.30	0.12	0.05	0.99
IN.	0.63	0.39	0.35	0.44	0.42	0.63	1.36	0.98	0.34	0.14	0.06	1.10

e Estimated

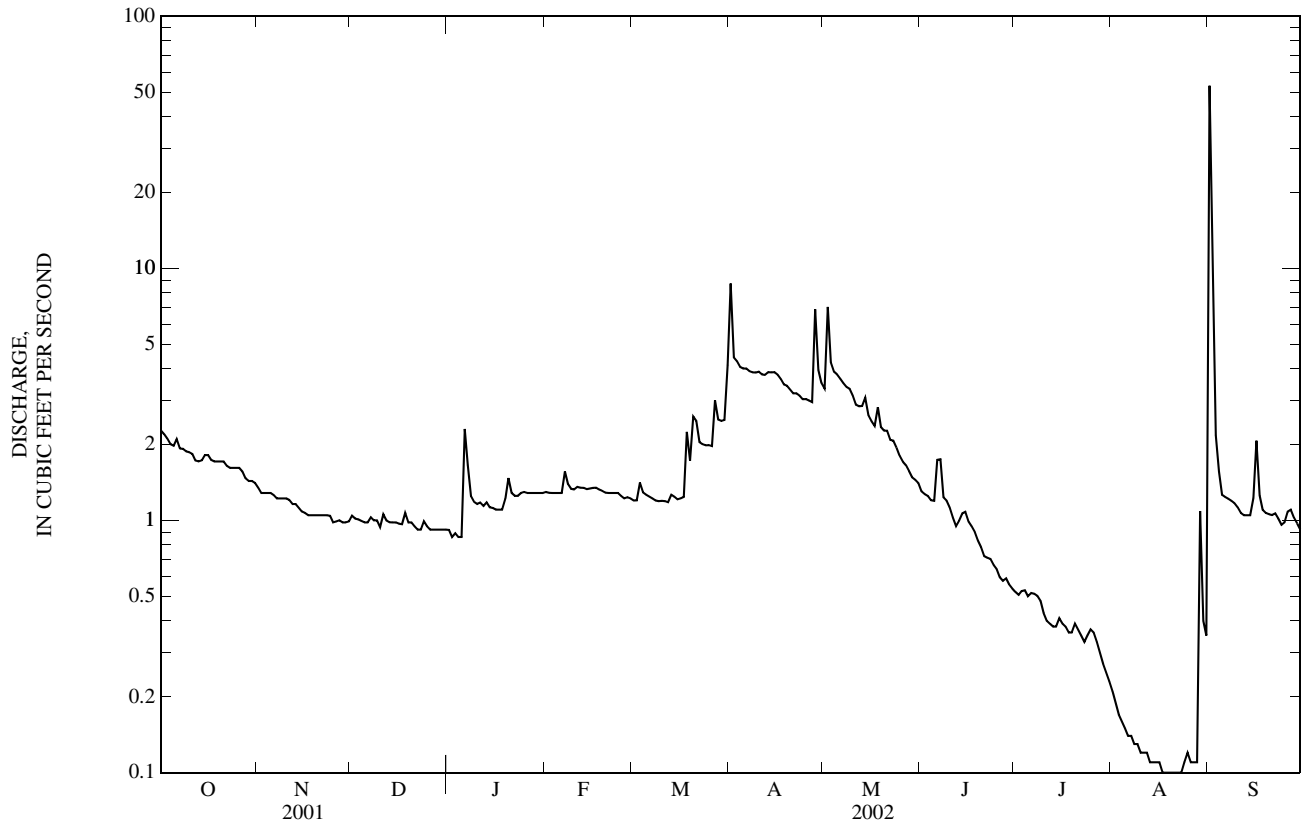
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

MEAN	2.64	1.60	1.82	2.65	3.46	5.00	4.87	3.56	2.21	1.09	9.57	2.98
MAX	3.51	2.06	2.67	4.07	5.62	8.23	5.81	4.37	3.44	1.78	19.0	3.18
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)	(2002)
MIN	1.76	1.14	0.97	1.23	1.31	1.76	3.93	2.75	0.97	0.40	0.17	2.77
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)

01487698 DUKES AND JOBS DITCH NEAR LAUREL, DE—Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	1,796.82		593.95			
ANNUAL MEAN	4.92		1.63		3.46	
HIGHEST ANNUAL MEAN					5.29	2001
LOWEST ANNUAL MEAN					1.63	2002
HIGHEST DAILY MEAN	164	Aug 11	53	Sep 1	164	Aug 11, 2001
LOWEST DAILY MEAN	0.81	Aug 10	(e)0.10	(a)	(e)0.10	(a)
ANNUAL SEVEN-DAY MINIMUM	0.92	Dec 25	0.10	Aug 17	0.10	Aug 17, 2002
MAXIMUM PEAK FLOW			173	Sep 1	(b)551	Aug 11, 2001
MAXIMUM PEAK STAGE			3.46	Sep 1	5.78	Aug 11, 2001
INSTANTANEOUS LOW FLOW			UNKNOWN		UNKNOWN	
ANNUAL RUNOFF (CFSM)	1.52		0.50		1.07	
ANNUAL RUNOFF (INCHES)	20.69		6.84		14.55	
10 PERCENT EXCEEDS	6.8		3.2		5.8	
50 PERCENT EXCEEDS	2.9		1.2		2.1	
90 PERCENT EXCEEDS	1.0		0.35		0.81	

e Estimated
a Aug. 17-23, 2002.
b From rating curve extended above 25 ft^3/s.



DAILY MEAN DISCHARGE - 2002 WATER YEAR

01487698 DUKES AND JOBS DITCH NEAR LAUREL, DE—Continued

EXTREMES FOR 2003 WATER YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0030	148	3.23	Jul 3	2045	133	3.08
Feb 22	1800	145	3.20	Aug 6	0230	93	2.69
Feb 23	0430	123	2.98	Aug 30	2000	169	3.43
Apr 11	0400	75	2.48	Sep 4	1730	136	3.11
May 16	1145	80	2.54	Sep 18	2200	*233	*3.95
Jun 7	1330	60	2.28	Sep 23	1100	88	2.63
Jun 7	2100	222	3.87				

Minimum discharge, 0.64 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.90	4.8	6.7	6.7	5.6	9.0	6.2	5.3	9.1	3.8	3.9	9.8
2	0.84	4.6	6.5	6.9	5.2	13	5.8	5.3	7.9	4.5	3.7	8.4
3	0.83	4.2	6.2	7.3	4.3	9.7	5.5	5.2	7.5	28	3.6	28
4	0.80	4.1	5.9	7.4	5.3	7.7	5.4	5.1	8.0	18	3.6	59
5	0.80	4.0	6.7	6.8	4.7	10	5.4	5.1	7.9	8.0	5.4	36
6	0.75	6.0	6.7	6.7	4.4	14	5.0	5.2	7.1	7.4	25	18
7	0.75	4.5	6.4	6.4	4.8	9.9	6.0	5.0	66	9.5	14	14
8	0.71	4.3	6.3	6.5	4.5	8.1	6.3	5.1	55	7.1	13	12
9	0.66	4.2	5.9	6.2	4.5	7.5	14	5.0	19	9.1	7.7	10
10	0.94	4.2	5.9	5.8	4.8	6.7	11	5.1	13	15	6.9	9.3
11	5.4	4.9	12	5.6	4.6	6.2	34	5.1	10	8.7	6.4	8.6
12	1.7	12	11	5.5	4.5	5.9	29	5.0	9.6	7.3	16	9.1
13	1.3	9.4	9.4	5.5	4.4	5.6	14	4.7	9.2	6.5	9.7	14
14	1.2	6.9	13	5.4	4.2	5.3	11	4.4	8.3	9.6	7.5	11
15	1.3	6.0	9.1	5.3	5.4	5.0	9.4	4.2	7.7	8.2	6.6	17
16	4.3	18	8.2	5.2	5.2	5.3	8.6	26	7.2	7.0	10	18
17	2.4	55	7.2	5.3	8.5	10	7.8	17	6.8	6.2	13	12
18	2.1	22	6.9	4.9	9.8	7.5	7.5	12	6.8	5.7	7.9	66
19	2.0	13	6.8	4.9	9.0	6.4	7.2	10	10	5.5	6.7	88
20	2.0	11	8.8	4.9	11	7.1	6.9	9.2	8.9	5.2	6.2	28
21	2.0	11	8.2	4.7	13	8.6	6.8	8.7	8.6	5.0	5.6	17
22	2.0	16	7.3	4.6	63	7.4	6.7	10	7.6	4.5	5.2	13
23	1.9	11	6.8	4.6	73	6.6	6.3	11	6.8	4.6	4.7	37
24	1.8	9.6	6.6	4.2	20	6.1	6.0	11	6.1	4.5	4.3	20
25	1.8	8.8	9.3	4.2	12	5.7	5.9	10	5.6	4.1	4.2	14
26	3.9	8.1	7.9	4.2	9.3	5.5	6.2	16	5.3	3.9	4.0	12
27	2.5	7.9	7.1	4.0	8.5	5.2	5.9	12	5.1	3.9	4.3	10
28	2.4	7.5	7.0	4.0	9.0	5.1	5.6	13	4.8	3.8	6.1	10
29	3.6	7.4	6.6	4.0	---	5.2	5.5	12	4.6	4.9	4.5	9.2
30	6.3	7.2	6.4	3.8	---	7.5	5.3	11	4.3	4.0	36	8.4
31	5.5	---	6.3	3.9	---	7.0	---	9.6	---	4.0	23	---
TOTAL	65.38	297.6	235.1	165.4	322.5	229.8	266.2	273.3	343.8	227.5	278.7	626.8
MEAN	2.11	9.92	7.58	5.34	11.5	7.41	8.87	8.82	11.5	7.34	8.99	20.9
MAX	6.3	55	13	7.4	73	14	34	26	66	28	36	88
MIN	0.66	4.0	5.9	3.8	4.2	5.0	5.0	4.2	4.3	3.8	3.6	8.4
CFSM	0.65	3.07	2.35	1.65	3.57	2.30	2.75	2.73	3.55	2.27	2.78	6.47
IN.	0.75	3.43	2.71	1.90	3.71	2.65	3.07	3.15	3.96	2.62	3.21	7.22

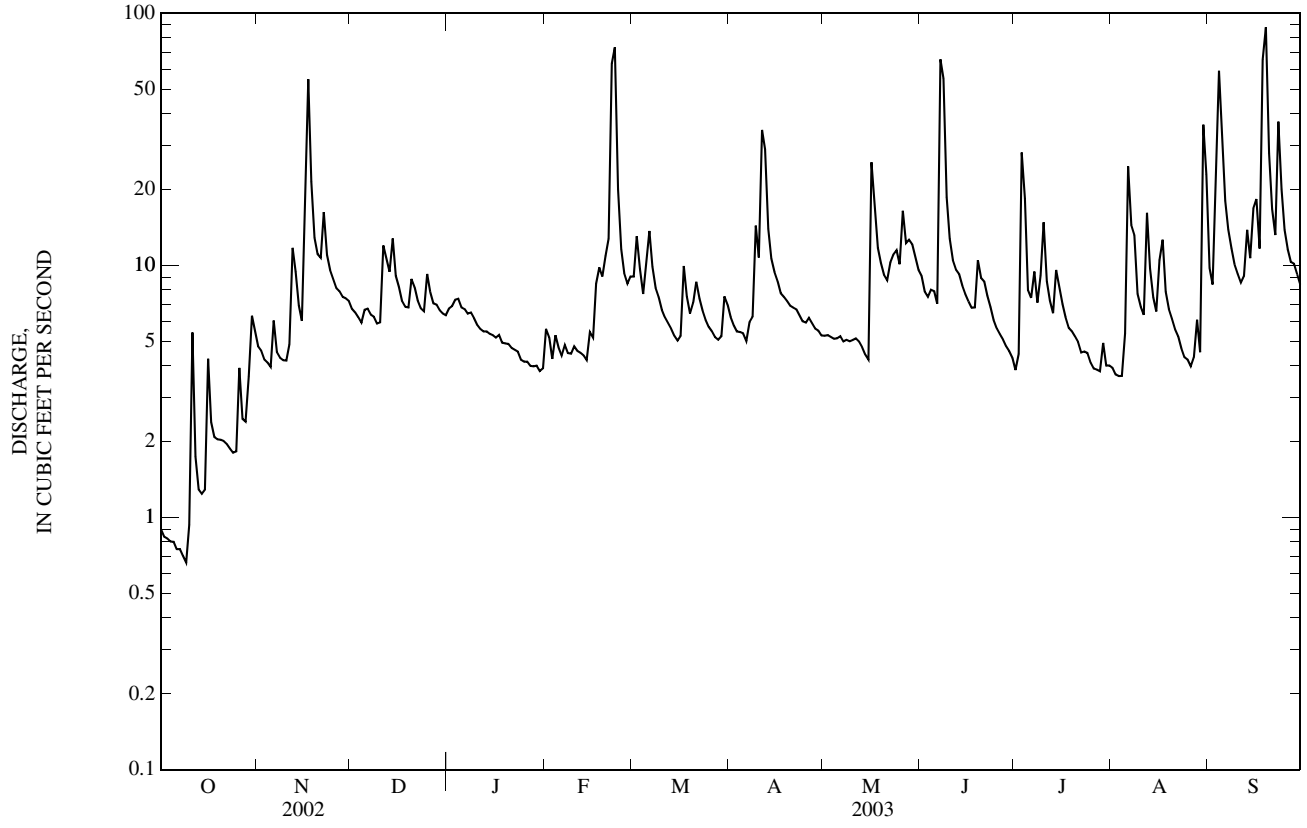
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

MEAN	2.46	4.37	3.74	3.54	6.15	5.80	6.20	5.32	5.29	3.17	9.37	8.95
MAX	3.51	9.92	7.58	5.34	11.5	8.23	8.87	8.82	11.5	7.34	19.0	20.9
(WY)	(2001)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)	(2003)	(2003)	(2003)	(2001)	(2003)
MIN	1.76	1.14	0.97	1.23	1.31	1.76	3.93	2.75	0.97	0.40	0.17	2.77
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)

01487698 DUKES AND JOBS DITCH NEAR LAUREL, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2001 - 2003	
ANNUAL TOTAL	1,073.02		3,332.08			
ANNUAL MEAN	2.94		9.13		5.35	
HIGHEST ANNUAL MEAN					9.13	2003
LOWEST ANNUAL MEAN					1.63	2002
HIGHEST DAILY MEAN	55	Nov 17	88	Sep 19	164	Aug 11, 2001
LOWEST DAILY MEAN	(e)0.10	(a)	0.66	Oct 9	(e)0.10	(a)
ANNUAL SEVEN-DAY MINIMUM	0.10	Aug 17	0.76	Oct 3	0.10	Aug 17, 2002
MAXIMUM PEAK FLOW			233	Sep 18	(b)551	Aug 11, 2001
MAXIMUM PEAK STAGE			3.95	Sep 18	5.78	Aug 11, 2001
INSTANTANEOUS LOW FLOW			0.64	(c)	UNKNOWN	
ANNUAL RUNOFF (CFSM)	0.91		2.83		1.66	
ANNUAL RUNOFF (INCHES)	12.36		38.38		22.50	
10 PERCENT EXCEEDS	6.9		14		9.3	
50 PERCENT EXCEEDS	1.3		6.7		3.4	
90 PERCENT EXCEEDS	0.35		3.9		0.97	

e Estimated.
a Aug. 17-23, 2002.
b From rating curve extended above 25 ft^3/s.
c Oct. 9, 10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01488500 MARSHYHOPE CREEK NEAR ADAMSVILLE, DE

LOCATION.--Lat 38°50'58.9", long 75°40'23.2", Kent County, Hydrologic Unit 02060008, on left bank 45 ft upstream from highway bridge, 1.4 mi upstream from Cattail Branch, 1.6 mi northeast of Adamsville, 4.9 mi northwest of Greenwood, and 33 mi upstream from mouth.

DRAINAGE AREA.--43.9 mi^2.

PERIOD OF RECORD.--April 1943 to March 1969, October 1971 to December 2002 (discontinued)..

REVISED RECORDS.--WSP 1141: 1948(P). WSP 1432: 1946(M), 1948, 1952.

GAGE.--Water-stage recorder. Datum of gage is 26.21 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1953, nonrecording gage and crest-stage gage, and Nov. 24, 1953, to March 1969, recording gage at site on old channel about 240 ft southeast of present site at datum 2.00 ft higher.

REMARKS.--No estimated daily discharges . Records good. Several measurements of water temperature were made during the year. Water-quality data for some prior years have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 16.5 ft, present datum, in September 1935, from information by local residents.

EXTREMES FOR OCTOBER 2002 to DECEMBER 2002.--Peak discharges greater than base discharge of 450 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0600	*1,780	*9.06	Dec 14	0500	518	5.14
Dec 11	2230	701	5.83				

Minimum discharge, 14 ft^3/s, Oct, 1-5, 7.

DISCHARGE, CUBIC FEET PER SECOND
OCTOBER 2002 TO DECEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	103	79	---	---	---	---	---	---	---	---	---
2	17	85	74	---	---	---	---	---	---	---	---	---
3	17	73	70	---	---	---	---	---	---	---	---	---
4	17	67	65	---	---	---	---	---	---	---	---	---
5	17	62	70	---	---	---	---	---	---	---	---	---
6	17	129	69	---	---	---	---	---	---	---	---	---
7	16	109	65	---	---	---	---	---	---	---	---	---
8	16	83	64	---	---	---	---	---	---	---	---	---
9	15	74	63	---	---	---	---	---	---	---	---	---
10	28	69	63	---	---	---	---	---	---	---	---	---
11	173	68	195	---	---	---	---	---	---	---	---	---
12	141	169	336	---	---	---	---	---	---	---	---	---
13	81	312	175	---	---	---	---	---	---	---	---	---
14	61	168	367	---	---	---	---	---	---	---	---	---
15	51	123	191	---	---	---	---	---	---	---	---	---
16	116	176	146	---	---	---	---	---	---	---	---	---
17	137	1,230	118	---	---	---	---	---	---	---	---	---
18	81	609	103	---	---	---	---	---	---	---	---	---
19	65	243	96	---	---	---	---	---	---	---	---	---
20	59	178	132	---	---	---	---	---	---	---	---	---
21	53	150	158	---	---	---	---	---	---	---	---	---
22	49	161	117	---	---	---	---	---	---	---	---	---
23	46	147	102	---	---	---	---	---	---	---	---	---
24	44	121	93	---	---	---	---	---	---	---	---	---
25	42	109	209	---	---	---	---	---	---	---	---	---
26	78	100	216	---	---	---	---	---	---	---	---	---
27	85	96	135	---	---	---	---	---	---	---	---	---
28	65	91	115	---	---	---	---	---	---	---	---	---
29	60	87	104	---	---	---	---	---	---	---	---	---
30	127	86	93	---	---	---	---	---	---	---	---	---
31	135	---	89	---	---	---	---	---	---	---	---	---
TOTAL	1,926	5,278	3,972	---	---	---	---	---	---	---	---	---
MEAN	62.1	176	128	---	---	---	---	---	---	---	---	---
MAX	173	1,230	367	---	---	---	---	---	---	---	---	---
MIN	15	62	63	---	---	---	---	---	---	---	---	---
CFSM	1.42	4.01	2.92	---	---	---	---	---	---	---	---	---
IN.	1.63	4.47	3.37	---	---	---	---	---	---	---	---	---

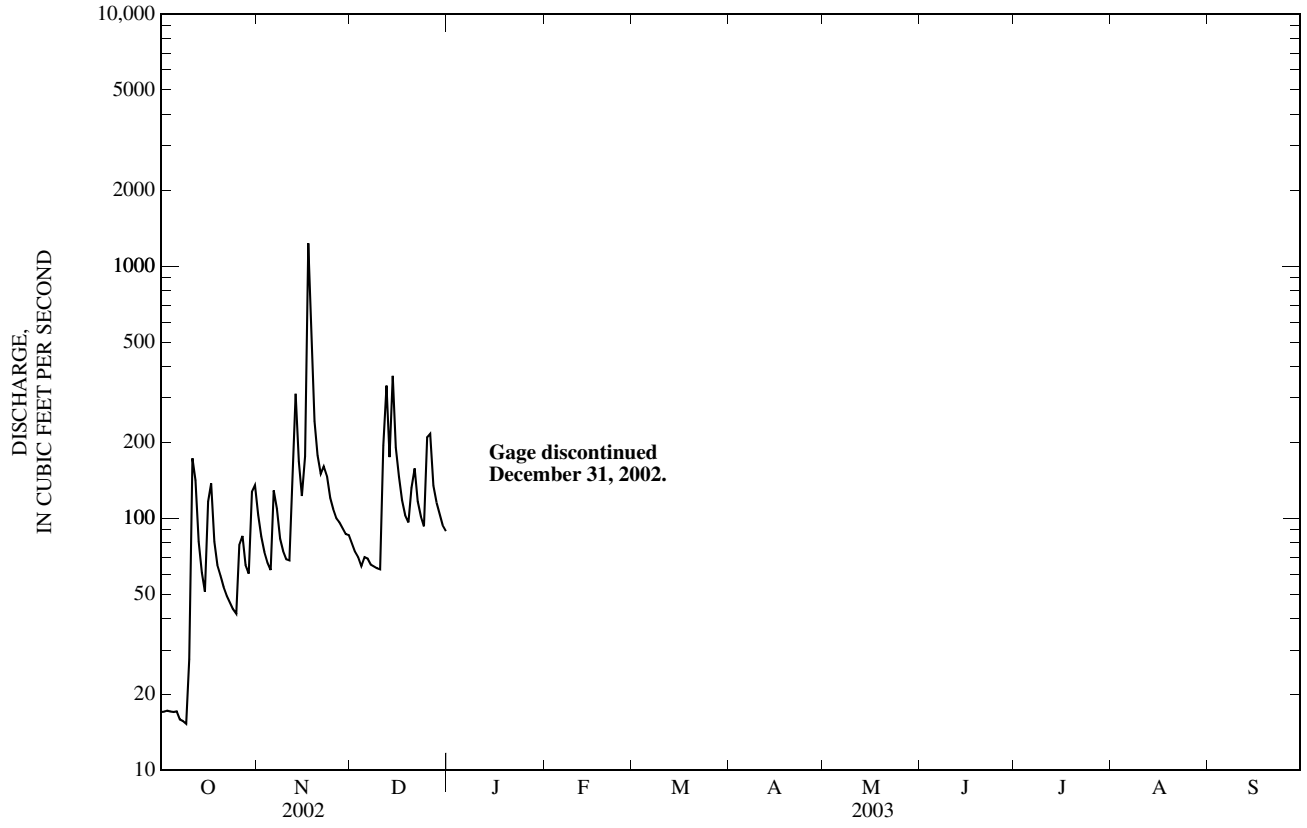
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1969, 1972 - 2003, BY WATER YEAR (WY)

MEAN	20.9	37.0	60.0	82.6	89.3	110	76.8	52.9	36.9	34.3	36.3	24.2
MAX	101	190	219	258	279	284	226	178	156	297	340	197
(WY)	(1972)	(1957)	(1997)	(1978)	(1998)	(1994)	(1983)	(1989)	(1948)	(1975)	(1967)	(1999)
MIN	3.46	4.95	3.22	4.30	16.2	27.8	21.7	15.5	7.32	4.58	2.83	2.78
(WY)	(1966)	(1966)	(1966)	(1966)	(2002)	(1966)	(1985)	(1957)	(1965)	(1944)	(1964)	(1964)

01488500 MARSHYHOPE CREEK NEAR ADAMSVILLE, DE—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR OCTOBER 2002 TO DECEMBER 2002		WATER YEARS 1943 - 1969, 1972 - 2003	
ANNUAL TOTAL	19350.4					
ANNUAL MEAN	53.0				55.2	
HIGHEST ANNUAL MEAN					111	1958
LOWEST ANNUAL MEAN					16.2	1966
HIGHEST DAILY MEAN	1230	Nov 17	1230	Nov 17	2,710	Aug 5, 1967
LOWEST DAILY MEAN	3.2	Aug 11	15	Oct 9	1.2	(a)
ANNUAL SEVEN-DAY MINIMUM	4.1	Aug 18	16	Oct 3	1.3	Sep 5, 1964
MAXIMUM PEAK FLOW			1780	Nov 17	(b)3,700	Jul 13, 1975
MAXIMUM PEAK STAGE			9.06	Nov 17	13.98	Aug 5, 1967
INSTANTANEOUS LOW FLOW	2.7	(c)	14	(d)	1.0	(f)
ANNUAL RUNOFF (CFSM)	1.21				1.26	
ANNUAL RUNOFF (INCHES)	16.40				17.08	
10 PERCENT EXCEEDS	117				114	
50 PERCENT EXCEEDS	26				30	
90 PERCENT EXCEEDS	8.2				7.9	

a Sept. 9, 10, 1964.
b From rating curve extended above 3,300 ft^3/s.
c Aug. 11, 12.
d Oct. 1-5, 7.
f Sept. 9, 10, 1964, Aug. 20, 1965.



DAILY MEAN DISCHARGE - OCTOBER 2002 TO DECEMBER 2002

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD

LOCATION.--Lat 38°59'49.9", long 75°47'08.9", Caroline County, Hydrologic Unit 02060005, on left bank at highway bridge (removed), 0.1 mi upstream from Gravelly Branch, 2.0 mi northeast of Greensboro, and 60 mi upstream from mouth.

DRAINAGE AREA.--113 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1948 to current year.

REVISED RECORDS.--WSP 1622: 1948. WDR MD-DE-79-1: 1961(P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 3.51 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Water-discharges records good. Diversions for irrigation of about 500 acres upstream from station. U.S. Geological Survey gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1935 is believed to have been higher than that of Aug. 4, 1967, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 18	0300	1,770	8.18	May 27	0700	1,140	6.90
Dec 26	1400	1,070	6.72	Jun 8	1715	1,280	7.23
Feb 24	0615	*3,090	*10.23	Jun 21	1245	2,550	9.47
Mar 3	1215	1,600	7.87	Jul 11	0245	1,260	7.17
Mar 7	0615	1,630	7.93	Sep 16	1415	1,560	7.80
Apr 12	0430	1,060	6.71	Sep 19	2230	1,270	7.21

Minimum discharge, 13 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	247	173	276	96	464	386	128	293	141	106	69
2	17	194	162	598	149	592	292	121	280	129	99	82
3	15	153	152	643	163	1,390	255	114	234	280	98	80
4	14	128	143	596	163	858	229	101	218	374	96	93
5	15	116	166	520	209	680	215	95	269	255	92	97
6	15	154	151	402	191	1,230	205	96	298	208	109	85
7	14	247	131	350	169	1,430	206	94	362	219	107	72
8	14	236	151	317	163	781	290	105	1,040	237	189	65
9	13	172	137	291	148	614	471	100	883	199	196	58
10	28	143	129	269	146	592	728	105	521	604	182	55
11	90	137	159	236	150	492	773	101	335	1,000	179	55
12	174	178	520	208	144	372	948	95	419	526	165	55
13	169	437	670	188	133	338	706	85	489	323	205	126
14	92	506	748	181	123	310	477	76	432	254	199	223
15	62	345	786	172	130	282	341	71	454	501	154	396
16	72	277	508	161	130	257	285	172	309	376	151	1,270
17	121	988	363	157	79	307	251	406	229	243	273	785
18	160	1,550	280	155	138	424	222	389	386	197	382	441
19	107	888	241	169	163	376	204	264	751	166	249	967
20	75	548	255	140	173	328	191	201	901	149	172	1,020
21	67	406	427	133	182	597	182	168	2,220	132	142	568
22	61	342	422	131	329	607	179	175	1,360	118	117	369
23	57	330	303	145	1,550	444	171	186	820	112	103	328
24	52	297	251	111	2,720	335	161	206	502	127	83	448
25	50	247	364	108	1,510	278	150	217	320	128	73	421
26	87	220	926	100	949	248	165	495	252	94	68	285
27	154	207	660	100	659	256	182	994	212	80	74	222
28	146	195	426	96	535	259	165	637	182	80	79	194
29	103	185	321	96	---	245	151	504	162	154	74	184
30	138	179	278	98	---	336	141	455	149	170	69	171
31	222	---	245	93	---	458	---	352	---	134	77	---
TOTAL	2,422	10,252	10,648	7,240	11,394	16,180	9,322	7,308	15,282	7,710	4,362	9,284
MEAN	78.1	342	343	234	407	522	311	236	509	249	141	309
MAX	222	1,550	926	643	2,720	1,430	948	994	2,220	1,000	382	1,270
MIN	13	116	129	93	79	245	141	71	149	80	68	55
CFSM	0.69	3.02	3.04	2.07	3.60	4.62	2.75	2.09	4.51	2.20	1.25	2.74
IN.	0.80	3.37	3.51	2.38	3.75	5.33	3.07	2.41	5.03	2.54	1.44	3.06

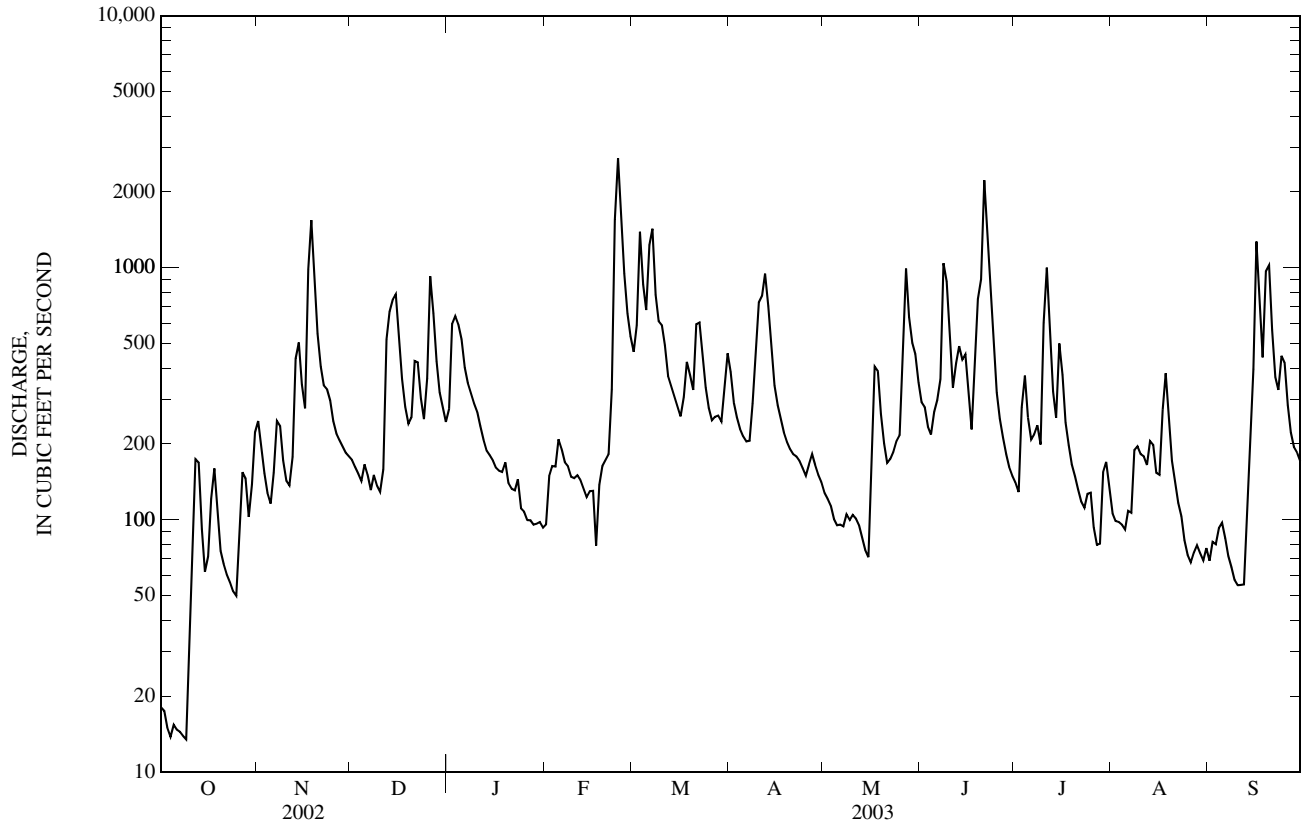
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

MEAN	54.6	90.4	151	197	226	274	202	135	106	61.7	82.3	59.6
MAX	402	476	680	559	646	826	649	457	509	421	829	425
(WY)	(1972)	(1957)	(1997)	(1978)	(1979)	(1994)	(1983)	(1989)	(2003)	(1975)	(1967)	(1999)
MIN	9.85	10.9	13.3	17.9	31.2	43.7	47.2	30.3	19.5	9.49	5.31	9.38
(WY)	(1966)	(1966)	(1966)	(1966)	(2002)	(1966)	(1966)	(1977)	(1986)	(1977)	(1966)	(1987)

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003	
ANNUAL TOTAL	37,252.17		111,404			
ANNUAL MEAN	102		305		136	
HIGHEST ANNUAL MEAN					305	2003
LOWEST ANNUAL MEAN					26.6	1966
HIGHEST DAILY MEAN	1,550	Nov 18	2,720	Feb 24	6,160	Aug 4, 1967
LOWEST DAILY MEAN	(e)0.35	Aug 19	13	Oct 9	(e)0.35	Aug 19, 2002
ANNUAL SEVEN-DAY MINIMUM	0.64	Aug 17	14	Oct 3	0.64	Aug 17, 2002
MAXIMUM PEAK FLOW			3,090	Feb 24	(a)6,970	Aug 4, 1967
MAXIMUM PEAK STAGE			10.23	Feb 24	14.47	Aug 4, 1967
INSTANTANEOUS LOW FLOW			13	(b)	0.26	(c)
ANNUAL RUNOFF (CFSM)	0.90		2.70		1.20	
ANNUAL RUNOFF (INCHES)	12.26		36.67		16.30	
10 PERCENT EXCEEDS	243		649		290	
50 PERCENT EXCEEDS	43		197		74	
90 PERCENT EXCEEDS	8.9		80		16	

e Estimated.
a From rating curve extended above 3,600 ft^3/s.
b Oct. 8, 9.
c Aug. 19, 20, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981, October 1984 to September 1991.
WATER TEMPERATURE: October 1974 to September 1991.
SUSPENDED-SEDIMENT DISCHARGE: October 1980 to September 1991.

REMARKS.--On May 5 and Nov. 15, 1994 samples were collected and analyzed using ultraclean methodologies. Data on trace metals for these dates are available from the University of Delaware. Data on organics for these dates are available from George Mason University.Sample for Sept. 17, 1999 was collected at highway bridge on MD State Rte. 287, approximately 3 mi upstream from gaging station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1975-81, 1988, 1990-91): Maximum daily, 313 microsiemens/cm, Dec. 20, 1987; minimum daily, 40 microsiemens/cm, Jan. 31, 1980.
WATER TEMPERATURE (water years 1975-81, 1985, 1988-91): Maximum daily, 28.5°C, Aug. 14, 1988; minimum daily, 0.0°C, on many days during winter periods.
SEDIMENT CONCENTRATION: Maximun daily mean, 107 mg/L, Dec. 26, 1986; minimum daily mean, 1 mg/L, on many days during water years 1982-91.
SEDIMENT LOAD: Maximum daily, 448 tons, Dec. 26, 1986; minimum daily, 0.02 ton, Aug. 30, Sept. 7, 1982, July 25, 1986, Oct. 16, 23, 26, 27, 1987, Sept. 23, 1988.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
OCT												
01...	0945	Environmental	18	767	7.9	83	7.2	184	24.5	18.0	61	17.0
11...	1215	Environmental	97	765	7.7	81	7.2	191	20.0	18.0	--	--
31...	1200	Environmental	228	762	9.5	81	6.6	141	8.0	8.5	--	--
NOV												
07...	1115	Environmental	257	761	9.3	80	7.0	142	11.0	9.0	--	--
13...	1245	Environmental	439	760	6.9	65	7.2	138	10.0	12.5	--	--
DEC												
04...	1100	Environmental	145	776	13.1	92	7.0	138	-1.0	1.5	--	--
12...	1600	Environmental	608	--	--	--	--	--	--	--	--	--
JAN												
02...	1200	Environmental	621	760	10.1	86	7.0	109	5.0	8.0	--	--
13...	1230	Environmental	187	762	--	--	6.8	130	5.0	1.0	36	9.19
FEB												
05...	1345	Environmental	216	764	12.2	91	7.1	149	1.5	3.5	--	--
05...	*1350*	*Replicate*	--	--	--	--	--	--	--	--	--	--
24...	1200	Environmental	2,900	760	--	--	6.8	66	--	--	--	--
MAR												
26...	1030	Environmental	247	757	9.6	93	7.1	116	21.5	13.5	--	--
APR												
10...	1145	Environmental	777	762	10.9	90	6.9	96	9.0	7.0	--	--
16...	1045	Environmental	340	759	8.3	87	6.8	106	27.5	17.0	30	7.59
16...	*1050*	*Replicate*	--	--	--	--	--	--	--	--	*31*	*7.75*
MAY												
13...	*1155*	*Blank*	--	--	--	--	--	--	--	--	--	--
13...	*1156*	*Blank*	--	--	--	--	--	--	--	--	--	--
13...	1200	Environmental	85	754	8.2	--	7.2	133	20.0	E16.5	--	--
13...	*1201*	*Replicate*	--	--	--	--	--	--	--	--	--	--
27...	1030	Environmental	1,120	761	8.6	84	7.0	85	17.0	14.5	--	--
27...	*1031*	*Replicate*	--	--	--	--	--	--	--	--	--	--
27...	*1035*	*Replicate*	--	--	--	--	--	--	--	--	--	--
27...	*1036*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUN												
24...	1000	Environmental	514	762	7.1	79	6.8	90	27.5	20.5	--	--
24...	*1001*	*Replicate*	--	--	--	--	--	--	--	--	--	--
24...	*1005*	*Replicate*	--	--	--	--	--	--	--	--	--	--
24...	*1006*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUL												
17...	*1025*	*Blank*	--	--	--	--	--	--	--	--	--	*0.01*
17...	*1026*	*Blank*	--	--	--	--	--	--	--	--	--	--
17...	1030	Environmental	247	763	7.3	86	7.1	102	26.5	23.5	34	8.85
17...	*1031*	*Replicate*	--	--	--	--	--	--	--	--	--	--
AUG												
05...	0900	Environmental	85	756	6.7	81	--	135	24.5	24.5	--	--
05...	*0901*	*Replicate*	--	--	--	--	--	--	--	--	--	--
SEP												
16...	1045	Environmental	1,460	763	4.6	53	--	68	24.0	21.5	--	--
16...	*1046*	*Replicate*	--	--	--	--	--	--	--	--	--	--

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
OCT													
01...	4.56	3.40	8.33	--	--	16.1	<0.17	15.8	23.1	123	<10	0.26	0.25
11...	--	--	--	--	--	--	--	13.7	--	--	<10	0.36	0.55
31...	--	--	--	--	--	--	--	17.5	--	--	<10	0.39	0.49
NOV													
07...	--	--	--	--	--	--	--	17.6	--	--	<10	0.33	0.49
13...	--	--	--	--	--	--	--	16.3	--	--	<10	0.49	0.69
DEC													
04...	--	--	--	--	--	--	--	20.7	--	--	<10	0.27	0.34
12...	--	--	--	--	--	--	--	14.3	--	--	15	0.47	0.82
JAN													
02...	--	--	--	--	--	--	--	13.7	--	--	<10	0.44	0.58
13...	3.22	2.15	6.88	--	--	10.9	<0.17	18.1	16.9	97	<10	0.31	0.35
FEB													
05...	--	--	--	--	--	--	--	15.8	--	--	<10	0.47	0.66
05...	--	--	--	--	--	--	--	*15.8*	--	--	*11*	*0.48*	*0.71*
24...	--	--	--	--	--	--	--	5.3	--	--	<10	0.61	0.81
MAR													
26...	--	--	--	--	--	--	--	12.3	--	--	<10	0.39	0.46
APR													
10...	--	--	--	--	--	--	--	9.9	--	--	14	0.68	0.86
16...	2.74	2.02	5.75	12	15	9.31	0.06	11.7	13.0	90	<10	0.43	0.56
16...	*2.77*	*2.06*	*5.86*	--	--	*9.32*	*0.07*	*11.9*	*13.0*	*84*	*<10*	*0.45*	*0.56*
MAY													
13...	--	--	--	--	--	--	--	*<0.2*	--	--	*<10*	*<0.10*	*<0.10*
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	16.3	--	--	<10	0.45	0.65
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	9.4	--	--	22	0.84	1.1
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	*9.8*	--	--	*22*	*0.82*	*1.2*
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
24...	--	--	--	--	--	--	--	12.8	--	--	<20	0.87	0.89
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	*12.8*	--	--	*<20*	*0.86*	*0.98*
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
17...	*E.003*	*<0.16*	*<0.10*	--	--	*<0.20*	*<0.2*	*0.04*	*<0.2*	*<10*	*<10*	*<0.10*	*<0.10*
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	2.99	2.84	5.40	--	--	9.18	<0.2	16.0	10.3	98	<10	0.55	0.75
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
05...	--	--	--	--	--	--	--	17.4	--	--	<10	0.37	0.48
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
16...	--	--	--	--	--	--	--	8.5	--	--	32	0.60	1.1
16...	--	--	--	--	--	--	--	--	--	--	--	--	--

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, water, unfltrd mg/L (00680)
OCT													
01...	<0.04	1.23	1.23	0.005	--	--	0.019	0.029	0.053	1.5	1.5	--	3.7
11...	E.03	0.97	0.97	0.008	--	--	0.026	0.037	0.107	1.3	1.5	--	7.3
31...	<0.04	1.16	1.17	0.004	--	--	0.018	0.032	0.090	1.6	1.7	--	7.2
NOV													
07...	<0.04	1.38	1.38	0.005	--	--	0.015	0.025	0.073	1.7	1.9	--	5.8
13...	<0.04	0.90	0.90	0.006	--	--	0.026	0.041	0.102	1.4	1.6	--	10.7
DEC													
04...	0.05	2.08	2.09	0.007	0.22	0.29	0.009	0.013	0.044	2.4	2.4	--	4.5
12...	0.11	1.47	1.48	0.010	0.36	0.71	0.013	0.025	0.142	2.0	2.3	--	--
JAN													
02...	0.06	1.40	1.41	0.010	0.37	0.52	0.019	0.030	0.117	1.8	2.0	--	9.3
13...	E.04	2.00	2.00	0.009	--	--	0.018	0.023	0.052	2.3	2.4	4.5	5.7
FEB													
05...	0.18	1.75	1.76	0.016	0.29	0.49	E.006	0.015	0.072	2.2	2.4	--	5.7
05...	*0.17*	*1.74*	*1.75*	*0.016*	*0.31*	*0.54*	*0.009*	*0.018*	*0.072*	*2.2*	*2.5*	--	*5.9*
24...	0.24	0.75	0.76	0.006	0.36	0.57	0.032	0.046	0.132	1.4	1.6	--	--
MAR													
26...	E.02	1.27	1.27	0.006	--	--	0.017	0.02	0.057	1.7	1.7	6.9	8.0
APR													
10...	0.13	0.96	0.97	0.009	0.55	0.73	0.025	0.042	0.124	1.6	1.8	--	12.4
16...	E.04	1.17	1.18	0.008	--	--	0.019	0.026	0.075	1.6	1.7	9.2	9.4
16...	*E.03*	*1.17*	*1.18*	*0.008*	--	--	*0.020*	*0.028*	*0.075*	*1.6*	*1.7*	*9.2*	*9.7*
MAY													
13...	*<0.04*	--	*<0.06*	*<0.002*	--	--	*<0.007*	*<0.004*	*E.002*	--	--	*0.5*	*<0.4*
13...	--	--	--	--	--	--	--	*<0.01*	--	--	--	--	--
13...	0.07	1.25	1.27	0.023	0.38	0.58	0.025	0.032	0.107	1.7	1.9	6.5	7.2
13...	--	--	--	--	--	--	--	*0.03*	--	--	--	--	--
27...	0.16	0.83	0.85	0.025	0.68	0.95	0.047	0.069	0.21	1.7	2.0	10.7	17.6
27...	--	--	--	--	--	--	--	*0.07*	--	--	--	--	--
27...	*0.17*	*0.84*	*0.87*	*0.026*	*0.65*	*1.0*	*0.048*	*0.069*	*0.20*	*1.7*	*2.1*	*10.7*	*16.9*
27...	--	--	--	--	--	--	--	*0.07*	--	--	--	--	--
JUN													
24...	0.04	0.86	0.87	0.017	0.83	0.85	0.075	0.095	0.183	1.7	1.8	--	19.0
24...	--	--	--	--	--	--	--	*0.08*	--	--	--	*17.1*	--
24...	*0.04*	*0.85*	*0.87*	*0.017*	*0.82*	*0.94*	*0.073*	*0.093*	*0.182*	*1.7*	*1.9*	--	*22.5*
24...	--	--	--	--	--	--	--	*0.08*	--	--	--	*16.7*	--
JUL													
17...	*<0.04*	--	*<0.06*	*<0.002*	--	--	*<0.007*	*<0.004*	*E.002*	--	--	--	*<0.4*
17...	--	--	--	--	--	--	--	*<0.01*	--	--	--	*0.4*	--
17...	E.03	1.04	1.05	0.010	--	--	0.045	0.056	0.154	1.6	1.8	--	13.8
17...	--	--	--	--	--	--	--	*0.07*	--	--	--	*10.6*	--
AUG													
05...	E.02	1.27	1.28	0.010	--	--	0.032	0.015	0.127	1.7	1.8	--	7.1
05...	--	--	--	--	--	--	--	*0.04*	--	--	--	*5.6*	--
SEP													
16...	0.04	0.38	0.39	0.007	0.56	1.0	0.046	0.063	0.29	0.99	1.5	--	13.6
16...	--	--	--	--	--	--	--	*0.06*	--	--	--	*8.7*	--

01491000 CHOPTANK RIVER NEAR GREENSBORO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT					
01...	235	42.0	--	1	0.05
11...	--	--	--	11	2.9
31...	--	--	--	11	6.5
NOV					
07...	--	--	81	11	7.6
13...	--	--	--	12	14
DEC					
04...	--	--	--	0.7	0.27
12...	--	--	--	--	--
JAN					
02...	--	--	--	18	30
13...	476	52.2	--	2	1.1
FEB					
05...	--	--	--	7	4.1
05...	--	--	--	*7*	--
24...	--	--	74	22	172
MAR					
26...	--	--	--	4	2.5
APR					
10...	--	--	--	16	33
16...	578	49.7	--	6	6.0
16...	*609*	*50.5*	--	*6*	--
MAY					
13...	--	--	--	--	--
13...	--	--	--	--	--
13...	--	--	--	7	1.6
13...	--	--	--	--	--
27...	--	--	90	25	76
27...	--	--	--	--	--
27...	--	--	*92*	*30*	--
27...	--	--	--	--	--
JUN					
24...	--	--	--	12	16
24...	--	--	--	--	--
24...	--	--	--	*10*	--
24...	--	--	--	--	--
JUL					
17...	*E6*	*<0.4*	--	*0.0*	--
17...	--	--	--	--	--
17...	1,310	78.9	--	6	3.7
17...	--	--	--	--	--
AUG					
05...	--	--	--	6	1.3
05...	--	--	--	--	--
SEP					
16...	--	--	74	43	170
16...	--	--	--	--	--

Remark codes used in this table:
< -- Less than
E -- Estimated value

01491500 TUCKAHOE CREEK NEAR RUTHSBURG, MD

LOCATION.--Lat 38°58'00.5", long 75°56'35.0", Queen Annes County, Hydrologic Unit 02060005, on right bank 100 ft upstream from highway bridge on Crouse Mill Road, 0.1 mi downstream from Blockston Branch, 2.6 mi downstream from confluence of German Branch and Mason Branch, and 2.6 mi south of Ruthsburg.

DRAINAGE AREA.--85.2 mi^2.

PERIOD OF RECORD.--March 1951 to September 1956, November 2000 to current year.

REVISED RECORDS.--WDR MD-DE-02-1.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	1915	990	5.16
Dec 14	1515	872	4.97
Dec 26	0345	1,180	5.43
Feb 24	0330	*1,750	*6.11
Mar 3	0445	1,560	5.90
Mar 7	0100	1,290	5.58
Mar 21	0900	802	4.85
May 26	2200	1,550	5.89
Jun 8	0715	977	5.14
Jun 18	2245	830	4.90
Jun 21	0845	1,370	5.68
Jul 7	1645	1,060	5.26
Jul 10	2100	933	5.07

Minimum discharge, 14 ft^3/s, Oct. 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	120	101	227	102	278	242	111	259	99	89	79
2	17	91	93	605	144	586	197	108	213	105	99	77
3	18	74	88	384	121	1,210	175	102	165	343	98	79
4	19	64	84	480	134	525	161	94	178	257	103	109
5	19	59	91	304	190	552	154	87	200	152	228	94
6	17	113	95	239	131	1,040	148	88	174	127	248	72
7	16	152	91	242	118	912	169	94	272	641	134	65
8	14	103	88	213	109	462	266	109	827	485	204	58
9	16	80	86	199	100	394	363	99	430	224	167	54
10	26	72	82	183	101	343	507	106	262	632	216	52
11	112	73	135	162	104	268	513	98	195	705	161	50
12	116	130	620	144	100	238	505	89	447	366	122	52
13	75	317	528	132	93	223	347	83	503	268	108	120
14	52	247	689	129	87	204	232	81	363	281	100	140
15	39	151	442	124	97	187	196	78	257	440	91	92
16	54	145	242	115	83	180	181	256	187	234	104	80
17	91	650	185	115	59	244	167	535	162	169	205	68
18	71	726	155	109	101	247	149	276	471	144	120	91
19	54	373	142	103	122	203	143	181	666	131	93	473
20	42	206	182	102	128	235	133	144	667	117	83	297
21	37	167	393	100	133	655	128	128	1,140	102	77	143
22	33	153	219	94	294	382	129	143	570	93	72	105
23	31	142	170	87	1,290	260	123	148	329	90	69	203
24	31	128	149	80	1,410	211	114	165	226	106	63	362
25	32	117	319	81	840	184	111	162	179	103	55	182
26	77	111	878	81	554	173	147	804	156	88	52	122
27	101	112	351	82	366	211	190	1,010	144	77	57	105
28	74	109	238	76	307	192	143	460	131	71	63	97
29	61	103	201	80	---	193	123	523	117	180	77	89
30	112	104	176	80	---	299	115	379	108	128	73	80
31	144	---	162	80	---	385	---	263	---	96	110	---
TOTAL	1,619	5,192	7,475	5,232	7,418	11,676	6,271	7,004	9,998	7,054	3,541	3,690
MEAN	52.2	173	241	169	265	377	209	226	333	228	114	123
MAX	144	726	878	605	1,410	1,210	513	1,010	1,140	705	248	473
MIN	14	59	82	76	59	173	111	78	108	71	52	50
CFSM	0.61	2.03	2.83	1.98	3.11	4.42	2.45	2.65	3.91	2.67	1.34	1.44
IN.	0.71	2.27	3.26	2.28	3.24	5.10	2.74	3.06	4.37	3.08	1.55	1.61

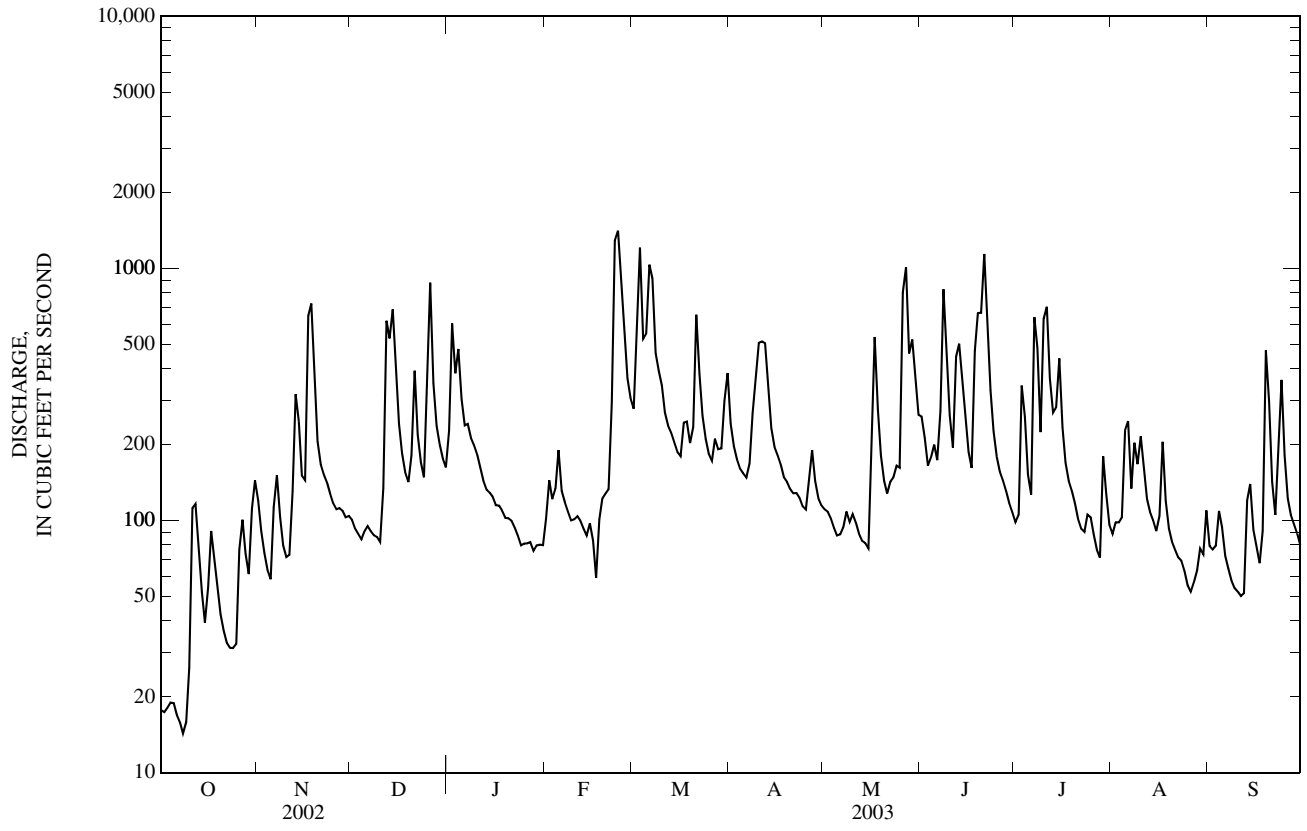
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1956, 2001 - 2003, BY WATER YEAR (WY)

MEAN	33.7	76.6	112	121	139	201	142	108	99.6	66.9	70.8	47.6
MAX	52.2	173	241	230	265	377	266	226	333	228	181	123
(WY)	(2003)	(2003)	(2003)	(1952)	(2003)	(2003)	(1952)	(2003)	(2003)	(2003)	(1955)	(2003)
MIN	18.1	27.9	28.8	32.1	25.8	40.2	47.1	34.5	24.3	3.45	4.61	16.5
(WY)	(1955)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1955)	(2002)	(2002)	(2002)	(1956)

01491500 TUCKAHOE CREEK NEAR RUTHSBURG, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 1956, 2001 - 2003	
ANNUAL TOTAL	23,031.2		76,170			
ANNUAL MEAN	63.1		209		102	
HIGHEST ANNUAL MEAN					209	2003
LOWEST ANNUAL MEAN					31.2	2002
HIGHEST DAILY MEAN	878	Dec 26	1,410	Feb 24	1,610	Mar 22, 2001
LOWEST DAILY MEAN	1.6	(a)	14	Oct 8	1.6	(a)
ANNUAL SEVEN-DAY MINIMUM	1.7	Aug 4	17	Oct 3	1.7	Aug 4, 2002
MAXIMUM PEAK FLOW			1,750	Feb 24	(b)2,110	Mar 22, 2001
MAXIMUM PEAK STAGE			6.11	Feb 24	6.46	Mar 22, 2001
INSTANTANEOUS LOW FLOW			14	Oct 8	1.5	(c)
ANNUAL RUNOFF (CFSM)	0.74		2.45		1.19	
ANNUAL RUNOFF (INCHES)	10.06		33.26		16.20	
10 PERCENT EXCEEDS	142		476		225	
50 PERCENT EXCEEDS	31		133		53	
90 PERCENT EXCEEDS	2.9		69		18	

a Aug. 7-9, 2002.
b From rating curve extended above 1,730 ft^3/s.
c Aug. 8, 9, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01492500 SALLIE HARRIS CREEK NEAR CARMICHAEL, MD

LOCATION.--Lat 38°57'53.6", long 76°06'31.8", Queen Anne County, Hydrologic Unit 02060002, on left bank at downstream side of eastbound lanes of bridge on U.S. Highway 50, 2.0 mi northeast of Carmichael, 2.2 mi northwest of Wye Mills, and 2.4 mi upstream from mouth.

DRAINAGE AREA.--8.09 mi^2.

PERIOD OF RECORD.--June 1951 to September 1956. Annual maximum, water years 1957-81. October 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 5.96 ft above National Geodetic Vertical Datum of 1929. June 1951 to September 1956 recording gage at site 30 ft upstream from present site at datum 9.38 ft higher.

REMARKS.--No estimated daily discharges. Records good. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	0945	182	4.34	May 26	1300	203	4.52
Feb 23	2045	199	4.49	Jun 20	2130	222	4.66
Mar 2	2145	180	4.32	Aug 9	1615	198	4.48
May 16	1730	259	4.90	Sep 19	0145	*273	*4.99

Minimum discharge, 1.9 ft^3/s, Oct. 5-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	8.8	5.0	28	11	16	15	7.6	19	6.2	7.4	5.5
2	2.2	5.7	4.8	38	13	83	13	7.6	12	7.9	8.1	5.5
3	2.1	4.7	4.8	27	9.9	88	12	7.0	10	43	6.8	6.1
4	2.1	4.2	4.6	35	15	26	11	6.7	12	15	6.5	8.0
5	2.1	4.3	5.0	16	14	53	11	6.5	13	9.0	9.5	7.2
6	1.9	24	5.6	14	9.0	81	11	6.5	9.7	7.5	8.8	5.4
7	2.0	12	5.6	14	8.4	46	18	6.7	35	8.3	6.7	5.1
8	1.9	6.8	5.6	12	8.2	22	24	8.4	53	7.5	8.6	4.6
9	1.9	5.5	6.0	11	7.7	20	49	8.4	17	8.8	85	4.6
10	3.9	5.3	5.5	10	8.2	16	35	9.3	11	34	19	4.5
11	25	12	25	9.1	8.5	14	43	8.8	9.7	13	9.8	4.3
12	8.7	30	71	8.3	8.3	14	28	7.2	29	8.9	8.5	5.6
13	4.4	43	41	8.0	7.6	14	16	6.3	32	7.4	7.5	14
14	3.3	16	59	7.9	7.3	13	12	5.9	15	43	7.0	9.4
15	2.9	9.4	21	7.7	9.9	12	12	5.9	11	11	6.6	30
16	15	21	12	6.9	8.5	12	11	99	9.2	8.4	14	15
17	11	119	9.3	7.3	11	18	10	73	8.9	6.8	19	6.7
18	4.8	58	7.9	7.0	11	15	9.6	17	64	6.2	8.0	45
19	3.7	18	7.6	6.8	11	12	9.5	12	43	6.2	6.6	155
20	3.3	10	21	7.0	11	33	9.5	9.6	90	6.1	6.0	22
21	3.0	8.0	25	6.9	13	66	9.3	9.1	81	5.7	5.5	9.5
22	2.8	7.3	12	6.3	50	23	9.3	12	18	5.7	5.4	7.9
23	2.7	6.4	9.4	5.9	170	15	8.8	11	13	5.8	5.3	58
24	2.7	5.8	8.2	5.5	113	12	8.2	14	10	6.7	4.9	27
25	2.8	5.7	63	5.3	56	11	8.0	13	8.9	6.3	4.5	11
26	12	5.5	54	5.8	29	11	12	117	8.3	6.1	4.8	8.4
27	7.1	5.7	16	6.1	18	16	12	47	7.6	5.8	5.8	7.6
28	4.7	5.6	11	5.8	16	14	9.3	20	7.3	7.1	5.6	7.2
29	5.4	5.2	10	6.3	---	20	8.5	19	7.1	13	7.9	6.6
30	18	5.2	9.4	6.5	---	37	8.0	15	6.7	7.5	6.4	6.1
31	16	---	9.1	6.9	---	32	---	12	---	6.9	6.0	---
TOTAL	181.6	478.1	554.4	348.3	663.5	865	453.0	608.5	671.4	340.8	321.5	512.8
MEAN	5.86	15.9	17.9	11.2	23.7	27.9	15.1	19.6	22.4	11.0	10.4	17.1
MAX	25	119	71	38	170	88	49	117	90	43	85	155
MIN	1.9	4.2	4.6	5.3	7.3	11	8.0	5.9	6.7	5.7	4.5	4.3
CFSM	0.72	1.97	2.21	1.39	2.93	3.45	1.87	2.43	2.77	1.36	1.28	2.11
IN.	0.84	2.20	2.55	1.60	3.05	3.98	2.08	2.80	3.09	1.57	1.48	2.36

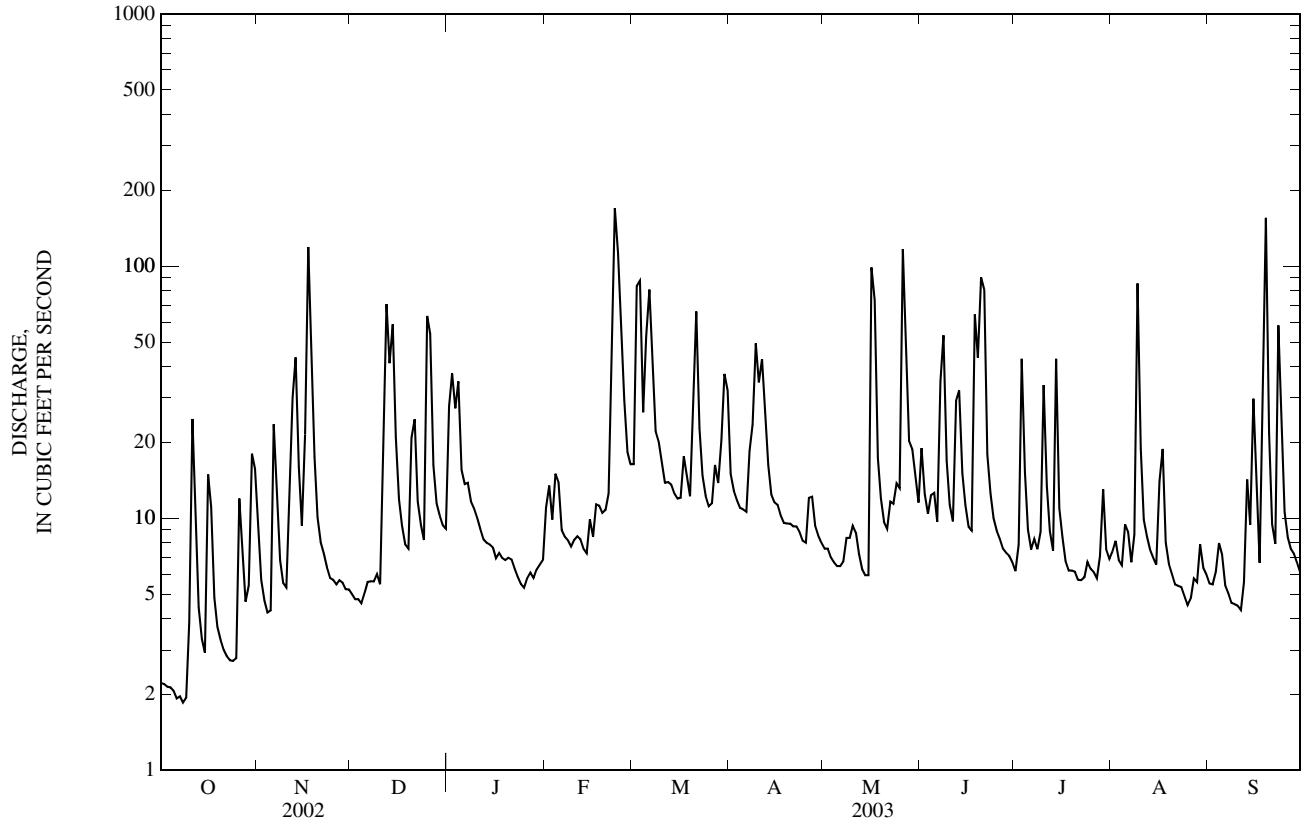
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1956, 2001 - 2003, BY WATER YEAR (WY)

MEAN	3.96	7.69	9.78	9.53	11.4	15.7	12.3	9.72	7.68	4.73	7.61	5.72
MAX	5.86	15.9	17.9	17.2	23.7	27.9	29.8	19.6	22.4	11.0	24.3	17.1
(WY)	(2003)	(2003)	(2003)	(1953)	(2003)	(2003)	(1952)	(2003)	(2003)	(2003)	(1955)	(2003)
MIN	2.15	3.84	3.66	3.65	3.27	6.67	5.03	2.68	2.67	2.16	1.57	2.03
(WY)	(1955)	(2002)	(1956)	(1955)	(2002)	(2002)	(1955)	(1955)	(1956)	(2002)	(2002)	(1954)

01492500 SALLIE HARRIS CREEK NEAR CARMICHAEL, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 1956, 2001 - 2003	
ANNUAL TOTAL	2,323.3		5,998.9			
ANNUAL MEAN	6.37		16.4		8.91	
HIGHEST ANNUAL MEAN					16.4	2003
LOWEST ANNUAL MEAN					3.98	2002
HIGHEST DAILY MEAN	119	Nov 17	170	Feb 23	428	Aug 13, 1955
LOWEST DAILY MEAN	1.2	(a)	1.9	(b)	1.2	(a)
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 15	2.0	Oct 3	1.2	Aug 15, 2002
MAXIMUM PEAK FLOW			273	Sep 19	(c)1,030	Aug 13, 1955
MAXIMUM PEAK STAGE			4.99	Sep 19	(d)7.02	Aug 13, 1955
INSTANTANEOUS LOW FLOW			1.9	(f)	0.67	Aug 21, 2002
ANNUAL RUNOFF (CFSM)	0.79		2.03		1.10	
ANNUAL RUNOFF (INCHES)	10.68		27.58		14.97	
10 PERCENT EXCEEDS	12		37		16	
50 PERCENT EXCEEDS	3.3		9.1		4.8	
90 PERCENT EXCEEDS	1.9		5.0		2.2	

a Aug. 17-20, 2002.
b Oct. 6, 8, 9.
c From rating curve extended above 370 ft^3/s by logrithmic plotting at previous site and datum.
d At previous site and datum.
f Oct. 5-9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01493000 UNICORN BRANCH NEAR MILLINGTON, MD

LOCATION.--Lat 39°14'58.9", long 75°51'40.7", Queen Annes County, Hydrologic Unit 02060002, on right bank 20 ft upstream from bridge on State Highway 313, 0.9 mi upstream from mouth, and 1.4 mi southwest of Millington.

DRAINAGE AREA.--19.7 mi^2.

PERIOD OF RECORD.--January 1948 to current year.

REVISED RECORDS.--WSP 1382: 1952(P). WRD MD-DE-95-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 3.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (backwater), which are poor. Occasional regulation at low and medium flow by Unicorn Lake Dam upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 180 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 17	1645	190	3.58
Dec 26	0415	291	4.12
Feb 23	2345	307	4.18
Mar 3	0330	350	4.33
Mar 7	0015	371	4.40
Mar 21	0915	187	3.56
May 26	1930	427	4.57
May 29	0515	246	3.92
Jun 19	1745	240	3.89
Jun 21	0515	451	4.64
Jun 22	0715	*775	*5.41
Jul 7	1215	296	4.14
Jul 14	0530	258	3.99

Minimum discharge, 2.9 ft^3/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	15	24	48	24	66	56	29	57	33	32	21
2	5.8	12	22	112	32	127	48	28	46	34	33	21
3	5.7	11	21	91	38	262	44	27	39	68	34	20
4	4.7	10	21	113	37	131	41	25	46	52	33	25
5	5.5	11	23	72	37	123	41	25	50	39	32	20
6	5.3	26	22	56	34	253	38	25	41	34	32	18
7	4.8	19	22	53	28	238	43	25	54	166	33	17
8	4.1	14	21	48	28	128	54	24	129	83	47	16
9	3.6	12	21	51	27	116	67	25	80	47	40	16
10	8.0	12	21	43	25	104	100	27	49	104	41	16
11	29	13	38	38	23	75	117	27	39	109	34	16
12	16	21	117	41	23	65	123	23	60	69	34	18
13	11	49	110	41	23	59	84	22	154	52	30	34
14	8.9	32	140	35	23	53	54	21	86	190	27	30
15	8.3	21	108	29	23	49	47	21	53	121	25	47
16	13	31	59	29	23	48	45	49	41	60	26	92
17	14	135	46	29	23	68	41	114	36	45	45	47
18	11	135	36	29	23	73	38	60	144	38	31	47
19	9.2	76	33	29	23	54	37	41	201	37	26	e18
20	8.6	45	43	25	23	63	36	32	179	34	23	e48
21	8.1	36	72	11	24	156	34	32	355	32	20	36
22	7.2	36	49	20	43	108	34	38	511	30	19	29
23	6.9	34	39	39	232	72	32	38	151	31	19	56
24	6.6	30	35	39	243	54	30	40	83	38	19	69
25	6.6	28	76	39	174	49	30	38	56	31	18	39
26	18	26	212	39	137	47	43	211	47	29	17	30
27	14	28	96	39	95	53	46	220	42	29	19	27
28	11	26	57	39	77	49	38	104	39	29	20	27
29	11	25	47	38	---	51	33	192	37	31	19	24
30	18	25	42	38	---	68	30	101	35	29	19	22
31	19	---	38	29	---	85	---	61	---	31	23	---
TOTAL	308.9	994	1,711	1,382	1,565	2,947	1,504	1,745	2,940	1,755	870	946
MEAN	9.96	33.1	55.2	44.6	55.9	95.1	50.1	56.3	98.0	56.6	28.1	31.5
MAX	29	135	212	113	243	262	123	220	511	190	47	92
MIN	3.6	10	21	11	23	47	30	21	35	29	17	16
CFSM	0.51	1.68	2.80	2.27	2.84	4.83	2.55	2.86	4.98	2.88	1.43	1.60
IN.	0.58	1.88	3.23	2.61	2.96	5.57	2.84	3.30	5.56	3.32	1.64	1.79

e Estimated

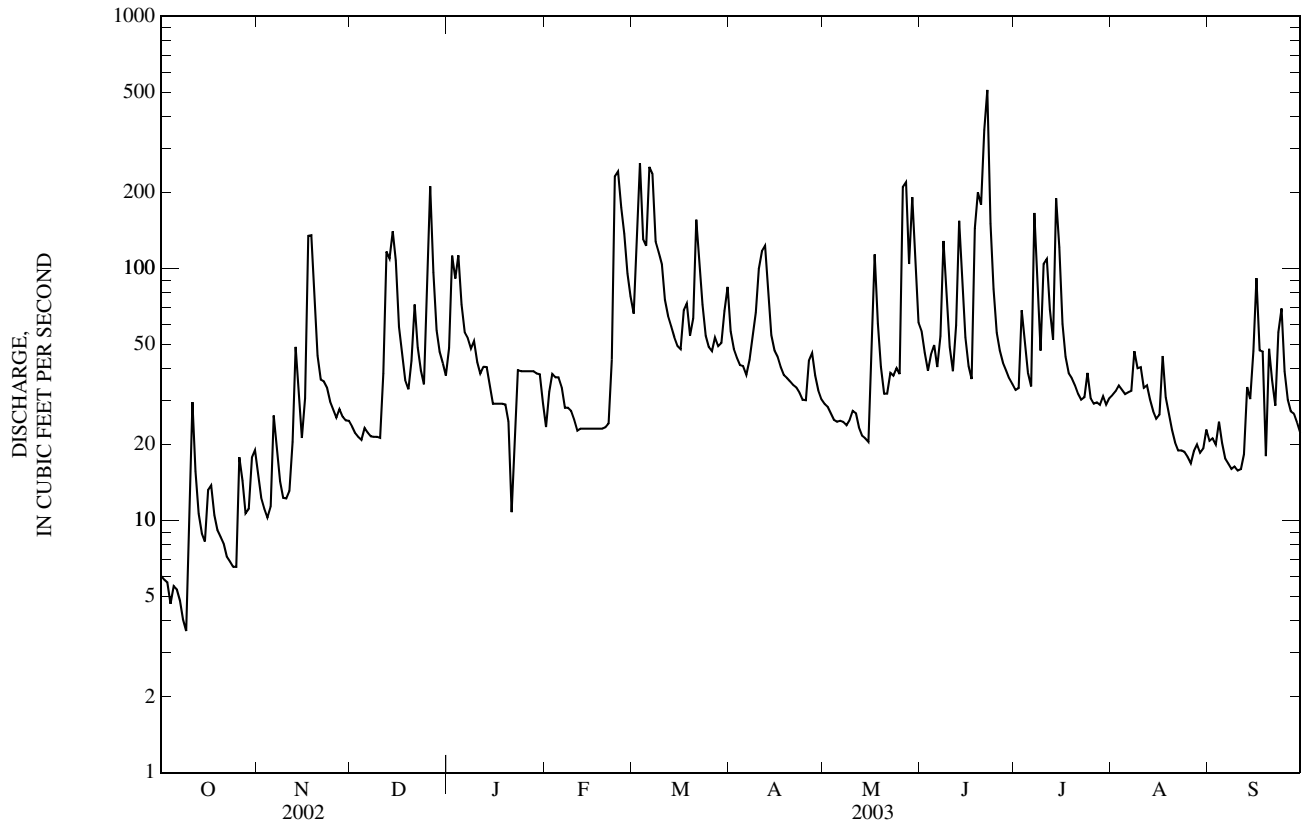
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

MEAN	14.6	17.4	25.9	32.2	36.8	44.6	36.8	27.2	22.7	17.0	17.5	16.7
MAX	91.5	65.4	124	83.7	83.7	105	109	66.8	98.0	56.6	62.5	112
(WY)	(1972)	(1972)	(1997)	(1978)	(1961)	(1994)	(1983)	(1989)	(2003)	(2003)	(1967)	(1999)
MIN	5.27	4.99	5.32	5.80	8.22	9.29	10.7	8.64	4.51	5.22	3.15	4.79
(WY)	(1966)	(1966)	(1966)	(1966)	(2002)	(1966)	(1966)	(1977)	(1966)	(1977)	(1966)	(1977)

01493000 UNICORN BRANCH NEAR MILLINGTON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003	
ANNUAL TOTAL	5,699.4		18,667.9			
ANNUAL MEAN	15.6		51.1		25.7	
HIGHEST ANNUAL MEAN					51.8	1972
LOWEST ANNUAL MEAN					7.08	1966
HIGHEST DAILY MEAN	212	Dec 26	511	Jun 22	1,200	Sep 16, 1999
LOWEST DAILY MEAN	1.7	Jan 17	3.6	Oct 9	0.10	Jun 9, 1965
ANNUAL SEVEN-DAY MINIMUM	3.1	Aug 11	4.8	Oct 3	0.14	Jun 8, 1965
MAXIMUM PEAK FLOW			775	Jun 22	(a)2,600	Sep 16, 1999
MAXIMUM PEAK STAGE			5.41	Jun 22	9.40	Sep 16, 1999
INSTANTANEOUS LOW FLOW			2.9	Oct 4	0.00	(b)
ANNUAL RUNOFF (CFSM)	0.79		2.60		1.30	
ANNUAL RUNOFF (INCHES)	10.77		35.29		17.72	
10 PERCENT EXCEEDS	30		112		48	
50 PERCENT EXCEEDS	9.5		36		16	
90 PERCENT EXCEEDS	4.8		16		7.3	

a From rating curve extended above 600 ft^3/s on basis of USGS Cap Culvert Analysis Program of peak flow.
b No flow for part of each day June 13, 14, 1965, and Jan. 6, 7, 10, 13-16, 20, 21, 23, 24, 27, 31, Feb. 2, 3, 14, 20, 1997, caused by regulation at Unicorn Lake Dam.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01493112 CHESTERVILLE BRANCH NEAR CRUMPTON, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1996 to September 2003. (Discontinued)

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
OCT												
04...	0915	Environmental	764	7.1	76	7.1	184	28.0	18.5	67	19.8	4.31
11...	1400	Environmental	764	6.0	63	6.8	138	22.0	17.5	--	--	--

Date	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)
OCT													
04...	3.48	5.53	24	29	12.4	<0.17	10.1	2.6	115	<10	0.16	0.21	<0.04
11...	--	--	--	--	--	--	7.3	--	--	45	0.68	1.3	0.05

Date	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)
OCT													
04...	7.60	7.62	0.015	--	--	<0.007	0.008	0.025	7.8	7.8	1.6	35	99.2
11...	2.39	2.41	0.021	0.64	1.2	0.160	0.191	0.43	3.1	3.7	13.3	--	--

Date	Suspended sediment concentration mg/L (80154)
OCT	
04...	2
11...	76

Remark codes used in this table:
< -- Less than

Photo by Tony Tallman

Chesterville Branch near Crumpton, MD

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD

LOCATION.--Lat 39°16'48.1", long 76°00'52.4", Kent County, Hydrologic Unit 02060002, on right bank 200 ft upstream from highway bridge, 2.0 mi southwest of Kennedyville, and 4.5 mi upstream from mouth.

DRAINAGE AREA.--12.7 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 1552: 1952, 1953(P), 1954(M), 1955, 1956-57(M). WDR MD-DE-76-1: Drainage area. WDR MD-DE- 79-1: 1961(M). WDR MD-DE-80-1: 1976(P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for estimated daily discharges (backwater from storm tides), which are fair. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 6	2030	221	4.30	Sep 19	0900	TIDE	*6.05
Jun 8	0015	*308	5.02				

Minimum discharge, 2.0 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	6.9	5.2	23	11	13	14	9.7	13	8.7	9.8	9.7
2	2.6	5.5	4.8	33	11	59	12	11	12	15	15	11
3	2.4	4.8	4.8	e27	8.9	113	11	9.8	9.4	22	11	11
4	2.4	4.3	4.8	32	18	36	11	8.8	16	12	9.1	e21
5	e2.4	4.6	5.7	16	17	41	11	8.0	15	10	10	20
6	2.2	19	7.9	13	9.2	128	10	8.5	9.0	9.5	11	11
7	2.3	10	6.6	11	9.0	83	18	8.6	96	21	9.8	7.8
8	2.1	6.6	6.3	11	8.2	29	18	12	145	12	24	8.0
9	2.1	5.4	6.1	11	7.9	46	23	11	28	16	13	7.0
10	4.6	4.9	5.4	9.4	8.3	33	20	12	17	56	17	6.8
11	21	6.4	28	8.2	7.9	18	26	9.7	11	24	16	6.7
12	15	13	61	7.6	7.4	17	25	8.0	13	16	12	8.8
13	6.9	16	45	7.6	6.8	14	17	9.9	17	22	10	e32
14	4.6	9.1	59	7.7	6.6	13	13	7.1	22	64	11	22
15	3.6	6.6	21	7.6	7.3	11	12	7.2	15	42	9.8	13
16	13	e16	11	6.5	4.3	11	12	25	11	e23	10	12
17	13	87	7.7	7.2	4.6	20	12	27	9.8	16	15	11
18	6.4	60	7.0	6.7	8.1	14	11	13	64	11	15	15
19	4.7	19	7.6	6.6	9.4	12	11	10	63	11	8.9	e47
20	4.0	9.0	22	6.6	12	32	11	5.9	67	10	6.6	23
21	3.4	7.1	17	6.6	12	61	11	14	109	9.1	6.5	11
22	3.3	6.8	9.6	6.4	49	23	10	16	33	8.6	6.6	8.7
23	3.3	5.9	7.7	5.6	164	15	10	12	19	9.1	6.8	57
24	3.2	5.4	6.9	5.3	132	13	9.2	13	12	14	6.8	43
25	3.3	4.8	47	5.6	65	11	9.6	13	11	11	6.2	15
26	19	4.9	53	6.3	33	12	16	100	9.9	7.7	6.3	10
27	10	5.9	16	6.1	19	14	13	52	9.5	7.6	8.0	10
28	5.9	5.1	11	5.8	14	13	11	21	8.9	8.6	9.7	14
29	6.5	5.0	9.5	6.7	---	15	10	13	9.0	11	8.6	10
30	13	5.6	8.0	6.7	---	22	9.6	13	8.9	7.7	8.6	7.9
31	10	---	7.8	7.3	---	21	---	9.6	---	7.7	9.7	---
TOTAL	198.7	370.6	520.4	327.1	670.9	963	407.4	498.8	883.4	523.3	327.8	490.4
MEAN	6.41	12.4	16.8	10.6	24.0	31.1	13.6	16.1	29.4	16.9	10.6	16.3
MAX	21	87	61	33	164	128	26	100	145	64	24	57
MIN	2.1	4.3	4.8	5.3	4.3	11	9.2	5.9	8.9	7.6	6.2	6.7
CFSM	0.50	0.97	1.32	0.83	1.89	2.45	1.07	1.27	2.32	1.33	0.83	1.29
IN.	0.58	1.09	1.52	0.96	1.97	2.82	1.19	1.46	2.59	1.53	0.96	1.44

e Estimated

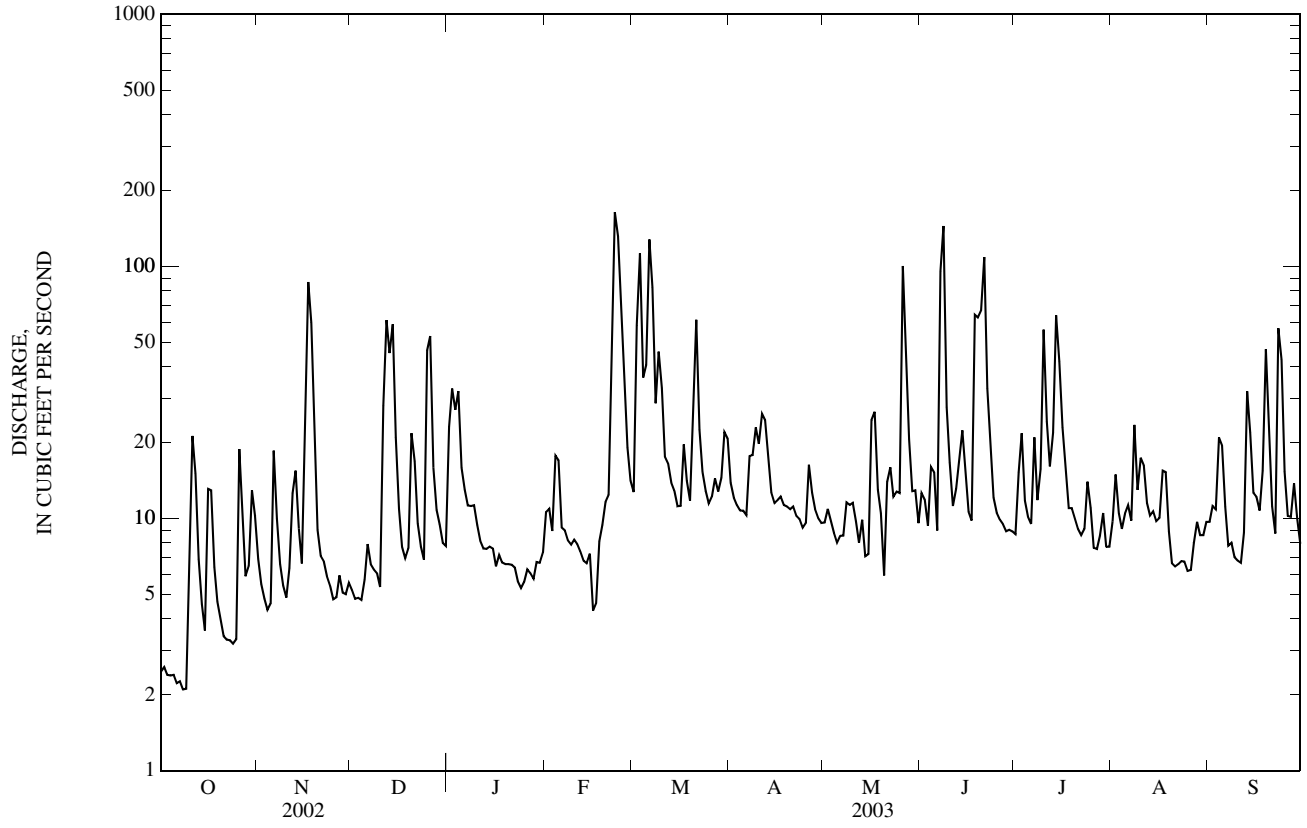
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2003, BY WATER YEAR (WY)

MEAN	7.51	9.08	12.0	13.6	14.1	14.7	11.0	9.52	13.2	8.66	8.44	10.2
MAX	32.3	30.7	51.3	45.6	47.1	36.7	29.5	20.6	113	26.9	27.8	135
(WY)	(1972)	(1973)	(1997)	(1978)	(1979)	(1994)	(1983)	(1990)	(1972)	(1989)	(1971)	(1999)
MIN	2.98	3.14	3.21	3.74	5.09	4.47	4.49	3.77	1.96	1.11	1.41	2.07
(WY)	(1964)	(1966)	(1966)	(1966)	(1968)	(1966)	(1966)	(1955)	(1966)	(1966)	(1966)	(1967)

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 2003	
ANNUAL TOTAL	2,487.9		6,181.8			
ANNUAL MEAN	6.82		16.9		11.0	
HIGHEST ANNUAL MEAN					24.2	1972
LOWEST ANNUAL MEAN					3.67	1966
HIGHEST DAILY MEAN	87	Nov 17	164	Feb 23	3,600	Sep 16, 1999
LOWEST DAILY MEAN	1.1	(a)	2.1	(b)	0.70	(c)
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 9	2.3	Oct 3	0.71	Sep 7, 1966
MAXIMUM PEAK FLOW			308	Jun 8	(d)11,200	Sep 16, 1999
MAXIMUM PEAK STAGE			(f)6.05	Sep 19	(g)15.03	Sep 16, 1999
INSTANTANEOUS LOW FLOW			2.0	(b)	0.60	(h)
ANNUAL RUNOFF (CFSM)	0.54		1.33		0.87	
ANNUAL RUNOFF (INCHES)	7.29		18.11		11.77	
10 PERCENT EXCEEDS	12		33		17	
50 PERCENT EXCEEDS	5.1		11		6.5	
90 PERCENT EXCEEDS	2.1		5.4		3.2	

a Aug. 4, 9.
b Oct. 8, 9.
c July 21, Aug. 28-31, Sept. 4, 8-13, 1966.
d From rating curve extended above 640 ft^3/s on basis of USGS Cap Culvert Analysis and flow-over-road measurement of peak flow.
f Backwater from Hurricane Isabel storm surge.
g From floodmark.
h Aug. 28, 29, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-80, 1991, 1998 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
OCT												
07...	0900	Environmental	2.2	--	--	--	--	--	--	--	--	--
07...	1000	Environmental	2.2	--	--	--	--	--	--	--	--	--
11...	1100	Environmental	23	--	--	--	--	--	--	--	--	--
11...	1130	Environmental	23	--	--	--	--	--	--	--	--	--
17...	0900	Environmental	14	--	--	--	--	--	--	--	--	--
17...	0930	Environmental	14	--	--	--	--	--	--	--	--	--
23...	0900	Environmental	3.1	--	--	--	--	--	--	--	--	--
23...	1100	Environmental	3.1	770	9.2	81	7.5	185	14.5	10.0	63	16.6
28...	1000	Environmental	5.8	--	--	--	--	--	--	--	--	--
28...	1030	Environmental	5.8	--	--	--	--	--	--	--	--	--
NOV												
14...	1000	Environmental	9.1	768	8.9	75	7.4	177	13.0	8.0	57	14.5
DEC												
13...	1030	Environmental	39	769	11.5	80	7.5	151	2.5	1.0	40	9.57
JAN												
07...	1100	Environmental	11	767	--	--	6.4	161	0.0	0.0	45	10.5
FEB												
05...	1130	Environmental	23	767	--	--	6.4	191	1.5	0.4	50	12.2
MAR												
06...	1130	Environmental	92	756	17.0	126	6.8	98	1.0	2.5	24	5.78
06...	*1200*	*Replicate*	--	--	--	--	--	--	--	--	--	--
18...	1100	Environmental	15	759	11.5	112	6.8	176	21.0	14.0	54	13.3
APR												
04...	*1100*	*Blank*	--	--	--	--	--	--	--	--	--	*0.12*
07...	1000	Environmental	16	775	11.5	93	6.2	188	1.5	7.0	59	14.4
APR												
09-10	0400	Composite (time)	--	--	--	--	--	--	--	--	53	12.9
21...	0930	Environmental	11	765	9.9	96	7.2	177	21.0	14.0	62	15.4
MAY												
08...	0300	Environmental	11	--	6.4	--	6.8	170	--	18.0	61	15.2
MAY												
08-08	0300	Composite (time)	--	--	--	--	--	--	--	--	60	14.9
08...	0800	Environmental	13	--	6.8	--	6.8	172	--	17.0	60	14.9
08...	1300	Environmental	13	--	7.2	--	7.0	172	--	19.5	59	14.7
08...	1800	Environmental	11	--	6.8	--	6.9	171	--	22.0	60	14.8
MAY												
09-10	1345	Composite (time)	--	--	--	--	--	--	--	--	59	14.8
09...	2145	Environmental	14	--	6.9	--	6.8	168	--	16.5	59	14.9
10...	0145	Environmental	13	--	6.7	--	6.8	177	--	16.0	60	15.2
15...	1000	Environmental	4.7	765	--	--	6.9	183	--	15.0	62	15.5
MAY												
16-17	0800	Composite (time)	--	--	--	--	--	--	--	--	51	12.6
16...	1200	Environmental	33	--	7.3	--	6.7	138	--	14.0	42	10.3
16...	1600	Environmental	33	--	7.0	--	6.7	141	--	14.0	45	11.2
17...	0000	Environmental	35	--	6.6	--	6.7	178	--	13.0	54	13.4
17...	1200	Environmental	25	--	7.5	--	6.7	170	--	12.5	52	13.1
22...	*1000*	*Blank*	--	--	--	--	--	--	--	--		*0.05*
MAY												
25-27	1900	Composite (time)	--	--	--	--	--	--	--	--	42	10.3
26...	0000	Environmental	17	--	6.0	--	6.8	181	--	15.5	62	15.2
26...	0500	Environmental	59	--	6.3	--	6.7	145	--	14.0	44	10.3
26...	2200	Environmental	140	--	6.1	--	6.5	120	--	15.5	39	9.55

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)
OCT													
07...	--	--	--	--	--	--	--	--	--	--	0.55	0.07	2.16
07...	--	--	--	--	--	--	--	--	--	--	0.51	0.07	2.16
11...	--	--	--	--	--	--	--	--	--	--	1.5	0.12	1.47
11...	--	--	--	--	--	--	--	--	--	--	1.3	0.12	1.47
17...	--	--	--	--	--	--	--	--	--	--	1.2	0.29	1.34
17...	--	--	--	--	--	--	--	--	--	--	1.1	0.29	1.33
23...	--	--	--	--	--	--	--	--	--	--	0.51	0.11	2.56
23...	5.33	5.50	6.93	35	43	17.1	<0.17	13.1	12.1	113	0.60	0.10	2.55
28...	--	--	--	--	--	--	--	--	--	--	0.93	0.42	1.85
28...	--	--	--	--	--	--	--	--	--	--	0.88	0.43	1.86
NOV													
14...	5.14	7.89	7.25	36	44	19.0	<0.17	11.5	14.0	125	1.2	0.49	1.34
DEC													
13...	3.91	7.86	6.54	25	31	15.1	<0.17	6.74	11.2	132	1.8	0.82	1.83
JAN													
07...	4.46	5.40	6.13	29	35	14.1	<0.17	8.01	9.5	97	0.86	0.31	2.97
FEB													
05...	4.69	6.16	7.59	27	33	18.6	0.09	8.24	10.1	106	2.0	0.81	3.17
MAR													
06...	2.44	5.81	4.65	20	24	7.81	0.10	3.37	5.7	58	1.7	0.57	1.33
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	5.16	4.60	7.38	31	37	15.9	0.12	6.89	9.7	108	0.86	0.14	3.00
APR													
04...	*E.006*	*<0.10*	*0.32*	--	--	*0.23*	*0.07*	*1.58*	*<0.2*	*<10*	*<0.10*	*<0.04*	--
07...	5.67	5.07	7.33	40	49	15.8	0.12	5.32	7.2	111	1.9	0.80	3.03
APR													
09-10	5.14	6.04	7.52	--	--	15.9	0.15	6.34	8.3	110	2.0	0.65	2.57
21...	5.79	3.99	7.14	40	49	17.2	0.12	6.78	6.3	107	0.65	0.12	2.73
MAY													
08...	5.58	3.25	7.04	--	--	16.7	<0.17	9.86	5.0	108	1.1	0.30	2.26
MAY													
08-08	5.50	3.26	7.35	--	--	16.2	<0.17	10.1	4.9	109	0.97	0.22	2.23
08...	5.46	3.37	6.90	--	--	16.8	<0.17	9.76	5.0	109	1.1	0.23	2.15
08...	5.44	3.37	7.12	--	--	16.8	<0.17	9.78	5.0	112	1.0	0.20	2.11
08...	5.50	3.36	7.07	--	--	17.1	<0.17	9.74	5.1	111	1.2	0.21	2.12
MAY													
09-10	5.28	3.83	6.90	--	--	15.5	<0.17	9.70	5.6	114	1.7	0.48	2.04
09...	5.27	3.57	7.01	--	--	16.7	<0.17	9.81	5.1	104	1.4	0.32	1.87
10...	5.36	4.34	7.01	--	--	16.1	<0.17	9.73	6.2	125	1.7	0.53	1.96
15...	5.69	3.45	6.84	45	55	16.5	<0.17	11.2	5.3	118	0.91	0.31	2.98
MAY													
16-17	4.66	6.82	6.32	40	49	14.2	<0.2	8.48	7.9	127	3.2	0.66	1.89
16...	3.94	7.61	5.45	38	46	10.5	<0.2	7.01	6.0	116	2.6	0.29	1.23
16...	4.16	6.04	5.58	36	44	10.9	<0.2	7.15	6.9	97	2.7	0.55	1.85
17...	4.91	7.68	6.88	40	49	15.4	<0.2	8.52	9.1	129	3.0	0.97	2.08
17...	4.81	6.45	6.44	40	49	15.6	<0.2	8.51	8.7	126	2.4	0.87	1.92
22...	*0.016*	*<0.16*	*0.12*	--	--	*<0.20*	*<0.2*	*0.92*	*<0.2*	*<10*	*E.07*	*<0.04*	--
MAY													
25-27	3.94	7.73	4.54	--	--	9.54	<0.2	6.45	7.0	98	3.0	0.50	2.47
26...	5.80	7.03	7.29	--	--	15.7	<0.2	10.2	7.2	117	2.1	0.53	2.23
26...	4.37	9.23	5.55	--	--	9.95	<0.2	7.15	6.0	100	4.3	0.15	1.36
26...	3.59	6.80	4.21	--	--	8.72	<0.2	6.14	6.7	85	2.2	0.25	2.23

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitro-gen, water, unfltrd mg/L (00605)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Iron, water, fltrd, ug/L (01046)	Manga-nese, water, fltrd, ug/L (01056)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)
OCT													
07...	2.17	0.015	0.48	0.02	0.094	2.7	--	--	--	--	--	--	--
07...	2.17	0.014	0.44	E.02	0.093	2.7	--	--	--	--	--	--	--
11...	1.49	0.021	1.4	0.08	0.45	3.0	--	--	--	--	--	--	--
11...	1.49	0.021	1.2	0.08	0.40	2.8	--	--	--	--	--	--	--
17...	1.37	0.031	0.89	0.03	0.19	2.5	--	--	--	--	--	--	--
17...	1.36	0.032	0.80	0.02	0.19	2.4	--	--	--	--	--	--	--
23...	2.58	0.022	0.40	E.01	0.077	3.1	--	--	--	--	--	--	--
23...	2.57	0.021	0.51	E.01	0.078	3.2	0.3	3.8	322	209	<0.006	E.025	0.05
28...	1.88	0.029	0.52	0.02	0.102	2.8	--	--	--	--	--	--	--
28...	1.88	0.028	0.46	0.02	0.101	2.8	--	--	--	--	--	--	--
NOV													
14...	1.37	0.025	0.70	E.01	0.128	2.6	0.8	6.5	163	99.7	<0.006	E.024	<0.05
DEC													
13...	1.85	0.021	1.0	0.03	0.26	3.7	1.3	22.2	284	146	<0.006	E.025	<0.05
JAN													
07...	2.99	0.017	0.55	E.01	0.164	3.9	1.1	4.1	220	101	<0.006	E.031	<0.05
FEB													
05...	3.21	0.035	1.2	<0.02	0.20	5.2	1.7	5.9	187	431	<0.006	E.061	<0.05
MAR													
06...	1.35	0.016	1.1	0.11	0.42	3.1	1.6	5.1	219	65.5	<0.006	E.024	<0.05
06...	--	--	--	--	--	--	--	--	--	--	*<0.006*	*E.024*	*<0.05*
18...	3.05	0.045	0.72	0.02	0.123	3.9	1.0	4.4	332	149	<0.006	E.092	0.10
APR													
04...	*<0.06*	*<0.008*	--	*E.01*	*E.003*	--	--	*<0.3*	*14*	*E1.6*	*<0.006*	*<0.006*	*<0.05*
07...	3.07	0.040	1.1	0.05	0.19	4.9	2.3	7.7	832	265	<0.006	E.083	<0.05
APR													
09-10	2.61	0.036	1.3	0.04	0.32	4.6	3.7	--	364	186	<0.006	E.061	<0.05
21...	2.77	0.046	0.53	0.02	0.115	3.4	0.8	4.1	983	351	<0.006	E.089	<0.05
MAY													
08...	2.36	0.104	0.77	0.02	0.196	3.4	0.9	--	753	281	<0.006	E.087	<0.05
MAY													
08-08	2.33	0.100	0.75	E.02	0.177	3.3	0.9	--	461	226	<0.006	E.072	<0.05
08...	2.27	0.120	0.85	E.01	0.182	3.4	0.7	--	630	305	<0.006	E.077	<0.05
08...	2.20	0.085	0.81	E.01	0.180	3.2	0.6	--	695	264	<0.006	E.079	<0.05
08...	2.21	0.094	0.95	E.02	0.184	3.4	0.5	--	658	268	<0.006	E.081	<0.05
MAY													
09-10	2.13	0.089	1.2	0.03	0.23	3.8	1.6	--	1,150	236	<0.006	E.081	<0.05
09...	1.96	0.086	1.1	E.02	0.23	3.3	1.1	--	946	254	<0.006	E.087	<0.05
10...	2.06	0.101	1.2	0.04	0.25	3.8	1.2	--	1,070	250	<0.006	E.106	<0.05
15...	3.06	0.083	0.59	0.02	0.127	4.0	0.4	3.9	865	414	<0.006	E.071	<0.05
MAY													
16-17	1.97	0.083	2.5	0.02	0.68	5.1	6.5	--	659	245	<0.006	E.216	<0.05
16...	1.28	0.051	2.3	E.01	0.87	3.9	9.4	--	592	300	<0.006	E.062	<0.05
16...	1.91	0.063	2.1	0.04	0.72	4.6	4.7	--	452	260	<0.006	E.280	0.08
17...	2.18	0.102	2.0	0.03	0.66	5.2	5.9	--	609	287	<0.006	E.259	<0.05
17...	2.00	0.089	1.6	0.03	0.47	4.4	3.7	--	586	228	<0.006	E.200	0.12
22...	*<0.06*	*<0.008*	--	*<0.02*	*0.014*	--	--	*<0.3*	*71*	*8.6*	*<0.006*	*<0.006*	*<0.05*
MAY													
25-27	2.54	0.076	2.5	E.01	0.78	5.5	7.1	--	340	151	<0.006	E.545	0.07
26...	2.34	0.102	1.5	0.07	0.40	4.4	4.7	--	645	219	<0.006	E.424	0.08
26...	1.41	0.053	4.2	0.02	1.91	5.7	55.5	--	420	139	<0.006	E.192	0.05
26...	2.29	0.065	1.9	0.04	0.57	4.5	4.2	--	641	116	<0.006	E.404	0.07

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Acetochlor OA, water, fltrd 0.7u GF ug/L (61030)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor ESA, water, fltrd 0.7u GF ug/L (50009)	Alachlor OA, water, fltrd 0.7u GF ug/L (61031)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)
OCT													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.05	<0.006	0.44	0.07	<0.004	<0.005	95.7	0.040	<0.050	<0.010	<0.002	<0.041	<0.020
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
14...	<0.05	<0.009	0.35	0.14	0.013	<0.005	103	0.105	<0.050	<0.010	<0.002	<0.041	<0.020
DEC													
13...	<0.05	<0.006	0.12	0.06	0.020	<0.005	89.1	0.100	<0.050	<0.010	<0.002	<0.041	<0.020
JAN													
07...	<0.05	0.012	0.39	0.10	0.026	<0.005	101	0.108	<0.050	<0.010	<0.002	<0.041	<0.020
FEB													
05...	<0.05	<0.006	0.36	0.23	0.053	<0.005	91.7	0.051	<0.050	<0.010	0.008	<0.041	<0.020
MAR													
06...	<0.05	E.005	0.07	<0.05	0.014	<0.005	88.7	0.064	<0.050	<0.010	<0.002	<0.041	<0.020
06...	*<0.05*	*<0.006*	*0.07*	*<0.05*	*0.014*	*<0.005*	*91.4*	*0.063*	*<0.050*	*<0.010*	*<0.002*	*<0.041*	*<0.020*
18...	<0.05	E.006	0.39	0.13	0.058	<0.005	81.4	0.076	<0.050	<0.010	E.006	<0.041	E.010
APR													
04...	*<0.05*	*<0.006*	*<0.05*	*<0.05*	*<0.004*	--	--	*<0.007*	*<0.050*	*<0.010*	--	*<0.041*	--
07...	<0.05	<0.006	0.38	0.15	0.056	<0.005	83.3	0.052	<0.050	<0.010	0.005	<0.041	E.008
APR													
09-10	<0.05	<0.006	0.32	0.14	0.044	--	--	0.067	<0.050	<0.010	--	<0.041	--
21...	<0.05	<0.006	0.47	0.17	0.061	<0.005	105	0.052	<0.050	<0.010	0.007	<0.041	<0.020
MAY													
08...	<0.05	0.013	0.52	0.18	0.057	--	--	0.388	<0.050	<0.010	--	<0.041	--
MAY													
08-08	<0.05	0.010	0.55	0.17	0.056	--	--	0.462	<0.050	<0.010	--	<0.041	--
08...	<0.05	0.010	0.55	0.16	0.057	--	--	0.684	<0.050	<0.010	--	<0.041	--
08...	<0.05	0.009	0.57	0.16	0.053	--	--	0.672	<0.050	<0.010	--	<0.041	--
08...	<0.05	0.009	0.53	0.17	0.057	--	--	0.493	<0.050	<0.010	--	<0.041	--
MAY													
09-10	<0.05	0.009	0.46	0.17	0.049	--	--	0.739	<0.050	<0.010	--	<0.041	--
09...	<0.05	0.009	0.50	0.19	0.063	--	--	0.454	<0.050	<0.010	--	<0.041	--
10...	<0.05	0.009	0.50	0.17	0.048	--	--	1.45	<0.050	<0.010	--	<0.041	--
15...	<0.05	E.004	0.46	0.25	0.073	<0.005	98.5	0.241	<0.050	<0.010	0.006	<0.041	E.024
MAY													
16-17	<0.05	0.022	0.37	0.13	0.029	--	--	5.37	<0.050	<0.010	--	<0.041	--
16...	<0.05	0.029	0.25	0.08	0.024	--	--	0.277	<0.050	<0.010	--	<0.041	--
16...	<0.05	0.026	0.31	0.12	0.039	--	--	6.42	<0.050	<0.010	--	E.004	--
17...	<0.05	0.020	0.43	0.10	0.024	--	--	6.53	<0.050	<0.010	--	E.006	--
17...	<0.05	0.017	0.39	0.13	0.034	--	--	4.56	<0.050	<0.010	--	<0.041	--
22...	*<0.05*	*<0.006*	*<0.05*	*<0.05*	*<0.004*	*<0.005*	*104*	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*	*<0.020*
MAY													
25-27	<0.05	0.010	0.22	0.08	0.022	--	--	5.73	<0.050	<0.010	--	<0.041	--
26...	<0.05	E.005	0.38	0.14	0.036	--	--	6.14	<0.050	<0.010	--	<0.041	--
26...	<0.05	<0.006	0.22	0.07	0.020	--	--	3.12	<0.050	<0.010	--	<0.041	--
26...	<0.05	0.010	0.16	<0.05	0.010	--	--	4.82	<0.050	<0.010	--	<0.041	--

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazi-non, water, fltrd, ug/L (39572)	Diazi-non-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Diel-drin, water, fltrd, ug/L (39381)	Dimeth-enamid ESA, water, fltrd, ug/L (61951)	Dimeth-enamid OA, water, fltrd, ug/L (62482)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)
OCT													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.005	<0.006	<0.018	<0.003	<0.005	116	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
14...	<0.005	<0.006	<0.018	<0.003	<0.005	105	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
DEC													
13...	<0.005	<0.006	<0.018	<0.003	<0.005	128	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
JAN													
07...	<0.005	<0.006	<0.018	<0.003	<0.005	125	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
FEB													
05...	<0.005	<0.006	<0.018	<0.003	<0.005	111	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
MAR													
06...	<0.005	<0.006	<0.018	<0.003	<0.005	114	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
06...	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*114*	*<0.005*	*<0.05*	*<0.05*	*<0.02*	*<0.002*	*<0.009*	*<0.005*
18...	<0.005	<0.006	<0.018	<0.003	<0.005	105	<0.005	<0.05	<0.05	<0.02	0.002	<0.009	<0.005
APR													
04...	*<0.005*	*<0.006*	--	*<0.003*	*<0.005*	--	*<0.005*	*<0.05*	*<0.05*	--	--	--	--
07...	<0.005	<0.006	<0.018	<0.003	0.010	102	<0.005	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005
APR													
09-10	<0.005	<0.006	--	<0.003	0.020	--	<0.005	<0.05	<0.05	--	--	--	--
21...	<0.005	<0.006	<0.018	E.002	E.004	129	<0.005	<0.05	<0.05	<0.02	0.005	<0.009	<0.005
MAY													
08...	<0.005	<0.006	--	M	<0.005	--	<0.005	<0.05	<0.05	--	--	--	--
MAY													
08-08	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	<0.05	<0.05	--	--	--	--
08...	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	<0.05	<0.05	--	--	--	--
08...	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	<0.05	<0.05	--	--	--	--
08...	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	<0.05	<0.05	--	--	--	--
MAY													
09-10	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	<0.05	0.06	--	--	--	--
09...	<0.005	<0.006	--	E.001	<0.005	--	<0.005	<0.05	<0.05	--	--	--	--
10...	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	0.08	0.13	--	--	--	--
15...	<0.005	<0.006	<0.018	<0.003	<0.005	108	<0.005	<0.05	<0.05	<0.02	--	<0.009	<0.005
MAY													
16-17	<0.005	<0.006	--	E.001	0.006	--	<0.005	0.17	0.27	--	--	--	--
16...	<0.005	<0.006	--	E.001	E.004	--	<0.005	<0.05	<0.05	--	--	--	--
16...	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	0.15	0.18	--	--	--	--
17...	<0.005	<0.006	--	M	0.008	--	<0.005	0.25	0.32	--	--	--	--
17...	<0.005	<0.006	--	<0.003	0.007	--	<0.005	0.19	0.29	--	--	--	--
22...	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*118*	*<0.005*	*<0.05*	*<0.05*	*<0.02*	*<0.002*	*<0.009*	*<0.005*
MAY													
25-27	<0.005	<0.006	--	<0.003	0.007	--	<0.005	0.31	0.33	--	--	--	--
26...	<0.005	<0.006	--	E.001	<0.005	--	<0.005	0.16	0.20	--	--	--	--
26...	<0.005	<0.006	--	<0.003	<0.005	--	<0.005	0.11	0.13	--	--	--	--
26...	<0.005	<0.006	--	<0.003	0.007	--	<0.005	0.36	0.39	--	--	--	--

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Flufenacet ESA, water, fltrd, ug/L (61952)	Flufenacet OA, water, fltrd, ug/L (62483)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	2.93	0.41	0.047	<0.006	<0.002	<0.007
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
14...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	3.23	0.62	0.233	<0.006	<0.002	<0.007
DEC													
13...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	1.85	0.36	0.691	0.028	<0.002	<0.007
JAN													
07...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	2.04	0.44	0.725	0.015	<0.002	<0.007
FEB													
05...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	2.81	0.39	0.402	<0.006	<0.002	<0.007
MAR													
06...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	0.51	0.15	0.316	0.007	<0.004	<0.007
06...	*<0.05*	*<0.05*	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*0.53*	*0.16*	*0.320*	*<0.010*	*<0.002*	*<0.007*
18...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	2.78	0.49	0.447	<0.006	<0.002	<0.007
APR													
04...	*<0.05*	*<0.05*	*<0.003*	--	--	*<0.027*	*<0.006*	*<0.05*	*<0.05*	*<0.013*	*<0.006*	--	--
07...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	2.70	0.43	0.323	<0.006	<0.002	<0.007
APR													
09-10	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.76	0.45	0.350	<0.006	--	--
21...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	3.08	0.40	0.392	<0.006	<0.004	<0.007
MAY													
08...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.29	0.42	0.450	<0.006	--	--
MAY													
08-08	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.16	0.45	0.452	<0.006	--	--
08...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.35	0.43	0.449	<0.006	--	--
08...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.41	0.46	0.535	<0.006	--	--
08...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.18	0.47	0.535	<0.006	--	--
MAY													
09-10	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.12	0.51	0.629	0.006	--	--
09...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.00	0.43	0.473	<0.006	--	--
10...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	3.16	0.57	0.801	0.011	--	--
15...	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006	3.13	0.46	0.462	<0.006	<0.002	<0.007
MAY													
16-17	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.76	0.82	2.36	0.051	--	--
16...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.23	0.40	0.347	<0.006	--	--
16...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.40	0.56	2.08	<0.006	--	--
17...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.84	0.88	3.12	0.089	--	--
17...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.76	0.94	2.35	0.075	--	--
22...	*<0.05*	*<0.05*	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.05*	*<0.05*	*<0.013*	*<0.006*	*<0.002*	*<0.007*
MAY													
25-27	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.34	1.62	4.67	0.053	--	--
26...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.98	1.23	2.07	0.022	--	--
26...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	1.86	0.72	1.18	0.015	--	--
26...	<0.05	<0.05	<0.003	--	--	<0.027	<0.006	2.23	1.29	3.36	0.042	--	--

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
OCT													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.013	<0.02	<0.034
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
14...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.025	<0.02	<0.034
DEC													
13...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.024	<0.02	<0.034
JAN													
07...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.060	<0.02	<0.034
FEB													
05...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.030	<0.02	<0.034
MAR													
06...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.031	<0.02	<0.034
06...	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*	*E.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*0.031*	*<0.02*	*<0.034*
18...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.040	<0.02	<0.034
APR													
04...	--	--	--	*<0.022*	*<0.011*	*<0.01*	*<0.004*	--	--	--	*<0.005*	*<0.02*	--
07...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.024	<0.02	E.029
APR													
09-10	--	--	--	<0.022	<0.011	<0.01	<0.004	--	--	--	0.034	<0.02	--
21...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.176	<0.02	E.048
MAY													
08...	--	--	--	<0.022	<0.011	<0.01	<0.004	--	--	--	0.084	<0.02	--
MAY													
08-08	--	--	--	<0.022	<0.011	0.03	<0.004	--	--	--	0.303	<0.02	--
08...	--	--	--	<0.022	<0.011	0.05	<0.004	--	--	--	0.286	<0.02	--
08...	--	--	--	<0.022	<0.011	0.06	<0.004	--	--	--	0.552	<0.02	--
08...	--	--	--	<0.022	<0.011	0.03	<0.004	--	--	--	0.500	<0.02	--
MAY													
09-10	--	--	--	<0.022	<0.011	0.09	<0.004	--	--	--	0.440	<0.02	--
09...	--	--	--	<0.022	<0.011	0.02	<0.004	--	--	--	0.153	<0.02	--
10...	--	--	--	<0.022	<0.011	0.13	<0.004	--	--	--	1.01	<0.02	--
15...	<0.003	<0.010	<0.004	<0.022	<0.011	0.04	<0.004	<0.010	<0.011	<0.02	0.157	<0.02	E.032
MAY													
16-17	--	--	--	E.017	<0.011	0.46	<0.004	--	--	--	1.90	<0.02	--
16...	--	--	--	<0.022	<0.011	E.01	<0.004	--	--	--	0.048	<0.02	--
16...	--	--	--	E.022	<0.011	E.01	<0.004	--	--	--	1.53	<0.02	--
17...	--	--	--	E.018	<0.011	0.72	<0.004	--	--	--	2.44	<0.02	--
17...	--	--	--	E.014	<0.011	0.63	<0.004	--	--	--	1.95	<0.02	--
22...	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*
MAY													
25-27	--	--	--	0.025	<0.011	0.40	<0.004	--	--	--	4.33	<0.02	--
26...	--	--	--	E.010	<0.011	0.24	<0.004	--	--	--	4.72	<0.02	--
26...	--	--	--	<0.022	<0.011	0.11	<0.004	--	--	--	2.01	<0.02	--
26...	--	--	--	E.020	<0.011	0.26	<0.004	--	--	--	2.90	<0.02	--

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Terbuthylazine, water, fltrd, ug/L (04022)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT							
07...	--	--	--	--	--	--	--
07...	--	--	--	--	--	8	0.05
11...	--	--	--	--	--	--	--
11...	--	--	--	--	--	132	8.2
17...	--	--	--	--	--	--	--
17...	--	--	--	--	--	18	0.68
23...	--	--	--	--	--	--	--
23...	<0.02	<0.01	<0.005	<0.002	<0.009	8	0.07
28...	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--
NOV							
14...	<0.02	<0.01	<0.005	<0.002	<0.009	9	0.22
DEC							
13...	<0.02	<0.01	<0.005	<0.002	<0.009	35	3.7
JAN							
07...	<0.02	<0.01	<0.005	<0.002	<0.009	19	0.56
FEB							
05...	<0.02	<0.01	<0.005	<0.002	<0.009	49	3.0
MAR							
06...	<0.02	<0.01	<0.005	<0.002	<0.009	116	29
06...	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*	--	--
18...	<0.02	<0.01	<0.005	<0.002	<0.009	13	0.53
APR							
04...	*<0.02*	*<0.01*	--	--	*<0.009*	--	--
07...	<0.02	<0.01	<0.005	<0.002	<0.009	23	0.99
APR							
09-10	<0.02	<0.01	--	--	<0.009	170	--
21...	<0.02	<0.01	<0.005	<0.002	<0.009	13	0.39
MAY							
08...	<0.02	<0.01	--	--	<0.009	46	1.4
MAY							
08-08	<0.02	<0.01	--	--	<0.009	135	--
08...	<0.02	<0.01	--	--	<0.009	40	1.4
08...	<0.02	<0.01	--	--	<0.009	34	1.2
08...	<0.02	<0.01	--	--	<0.009	70	2.1
MAY							
09-10	<0.02	<0.01	--	--	<0.009	--	--
09...	<0.02	<0.01	--	--	<0.009	--	--
10...	<0.02	<0.01	--	--	<0.009	117	4.1
15...	<0.02	<0.01	<0.005	<0.002	<0.009	16	0.20
MAY							
16-17	<0.02	<0.01	--	--	<0.009	330	--
16...	<0.02	<0.01	--	--	<0.009	409	36
16...	<0.02	<0.01	--	--	<0.009	290	26
17...	<0.02	<0.01	--	--	<0.009	190	18
17...	<0.02	<0.01	--	--	<0.009	84	5.7
22...	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*	--	--
MAY							
25-27	<0.02	<0.01	--	--	<0.009	319	--
26...	<0.02	<0.01	--	--	<0.009	83	3.8
26...	<0.02	<0.01	--	--	<0.009	847	135
26...	<0.02	<0.01	--	--	<0.009	214	81

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
JUN												
04...	1200	Environmental	15	750	--	--	6.1	--	14.0	--	58	14.4
17...	1000	Environmental	9.1	765	--	--	7.0	181	18.0	17.0	64	15.4
17...	*1005*	*Replicate*	--	--	--	--	--	--	--	--	*63*	*15.3*
JUN												
18-18	0700	Composite (time)	--	--	--	--	--	--	--	--	46	11.6
JUN												
20-21	1230	Composite (time)	--	--	--	--	--	--	--	--	29	7.08
JUL												
09-11	1907	Composite (time)	--	--	--	--	--	--	--	--	44	10.7
10...	0307	Environmental	58	--	2.7	--	6.5	147	--	24.0	41	10.2
10...	1107	Environmental	70	--	3.4	--	6.5	139	--	23.0	42	10.3
10...	2307	Environmental	30	--	4.1	--	6.5	147	--	22.0	47	11.4
17...	*1030*	*Blank*	--	--	--	--	--	--	--	--	--	*0.07*
17...	1100	Environmental	17	765	6.3	74	6.7	147	27.0	23.5	55	13.7
24...	1005	Environmental	13	--	--	--	--	--	--	--	--	--
31...	1100	Environmental	8.0	767	6.3	72	6.5	183	25.0	22.0	70	17.5
31...	*1130*	*Blank*	--	--	--	--	--	--	--	--	--	--
AUG												
08-08	0227	Composite (time)	--	--	--	--	--	--	--	--	56	14.1
AUG												
08-08	*0230*	*Replicate*	--	--	--	--	--	--	--	--	*56*	*14.1*
08...	1027	Environmental	29	--	5.1	--	--	155	--	22.5	54	13.6
08...	1427	Environmental	24	--	5.3	--	--	160	--	25.0	57	14.2
08...	*1430*	*Replicate*	--	--	--	--	--	--	--	--	--	--
14...	*0930*	*Blank*	--	--	--	--	--	--	--	--	--	--
14...	1000	Environmental	11	776	5.1	58	7.0	189	29.0	23.0	70	17.3
14...	*1030*	*Replicate*	--	--	--	--	--	--	--	--	--	--
SEP												
05...	1000	Environmental	21	767	6.0	66	6.9	207	26.0	20.5	67	16.8
30...	1100	Environmental	7.1	767	8.1	79	5.7	177	--	14.5	65	16.0

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Bicarbonate, wat unf incrm. titr., field, mg/L (00450)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
JUN													
04...	5.37	5.40	6.64	--	44	54	--	14.7	<0.2	10.6	6.0	119	1.7
17...	6.06	4.98	6.22	--	52	63	--	13.9	<0.2	12.1	4.9	118	1.1
17...	*5.99*	*4.96*	*6.18*	--	--	--	--	*14.7*	*<0.2*	*12.1*	*4.8*	*118*	*1.1*
JUN													
18-18	4.09	7.52	4.65	--	34	42	--	10.2	0.2	6.55	5.8	103	2.5
JUN													
20-21	2.79	6.55	2.88	--	30	37	--	6.64	0.2	4.32	5.0	58	2.2
JUL													
09-11	4.22	7.02	5.10	--	--	--	--	12.8	0.2	7.62	5.9	105	1.7
10...	3.90	7.81	4.90	--	--	--	--	11.1	0.3	6.69	5.2	95	2.9
10...	4.02	6.56	4.94	--	--	--	--	13.4	0.3	7.36	5.7	108	1.9
10...	4.46	7.10	4.90	--	--	--	--	11.4	0.2	7.78	5.9	113	1.3
17...	*E.005*	*<0.16*	*0.14*	--	--	--	--	*<0.20*	*<0.2*	*0.36*	*<0.2*	*<10*	*<0.10*
17...	5.12	5.69	5.42	--	45	55	--	11.7	<0.2	9.68	4.4	81	0.83
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
31...	6.36	3.56	6.75	45	--	--	54	17.2	<0.2	12.0	3.7	114	0.55
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	5.12	5.44	5.70	--	49	59	--	14.4	<0.2	9.64	3.6	110	1.2
AUG													
08-08	*5.07*	*5.46*	*5.70*	--	--	--	--	*14.6*	*<0.2*	*9.63*	*3.6*	*119*	*<0.10*
08...	4.91	5.29	5.61	--	42	52	--	14.5	<0.2	9.54	3.5	113	1.2
08...	5.20	5.43	6.05	--	--	--	--	15.6	0.2	9.98	4.4	115	1.0
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	6.42	4.83	7.42	--	53	64	--	16.1	<0.2	11.8	3.0	119	0.66
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	6.16	8.86	7.40	--	58	71	--	19.8	<0.2	11.4	5.7	127	1.5
30...	6.19	6.67	6.81	--	54	66	--	17.8	<0.2	11.7	2.8	122	--

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, unfltrd mg/L (00605)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
JUN													
04...	0.39	2.09	2.19	0.103	1.3	E.01	0.30	3.9	3.1	5.5	--	--	--
17...	0.22	2.46	2.58	0.111	0.86	<0.18	0.22	3.7	--	--	--	--	--
17...	*0.21*	*2.45*	*2.56*	*0.109*	*0.85*	*<0.18*	*0.22*	*3.6*	--	--	--	--	--
JUN													
18-18	<0.04	1.43	1.46	0.036	--	0.02	0.59	4.0	5.9	--	--	--	--
JUN													
20-21	<0.04	0.78	0.86	0.079	--	0.02	0.82	3.0	4.7	--	--	--	--
JUL													
09-11	<0.04	0.98	1.02	0.038	--	E.02	0.63	2.7	4.8	--	--	--	--
10...	<0.04	1.05	1.11	0.064	--	E.01	0.97	4.0	10.1	--	--	--	--
10...	<0.04	0.77	0.81	0.040	--	0.02	0.55	2.7	6.6	--	--	--	--
10...	<0.04	0.93	0.96	0.033	--	E.02	0.36	2.3	1.6	--	--	--	--
17...	*<0.04*	--	*<0.06*	*<0.008*	--	*<0.02*	*E.003*	--	*<0.1*	*0.8*	--	--	--
17...	0.10	1.54	1.59	0.048	0.73	E.02	0.21	2.4	0.8	6.0	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	9.3	9.280	0.4
31...	0.06	2.79	2.83	0.037	0.50	<0.02	0.102	3.4	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	<0.04	1.03	1.06	0.024	--	E.01	0.41	2.2	3.5	--	--	--	--
AUG													
08-08	*<0.04*	*1.04*	*1.06*	*0.018*	--	*E.01*	*0.39*	--	*2.6*	--	--	--	--
08...	<0.04	0.90	0.92	0.017	--	E.01	0.37	2.1	2.9	--	--	--	--
08...	<0.04	0.80	0.81	0.016	--	E.01	0.29	1.9	2.6	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	0.05	1.82	1.85	0.028	0.61	<0.02	0.125	2.5	0.4	--	--	--	--
14...	--	--	--	--	--	--	--	--	*0.4*	--	--	--	--
SEP													
05...	0.52	0.87	0.90	0.034	1.0	<0.18	0.30	2.4	1.6	7.7	--	--	--
30...	0.06	1.85	1.87	0.016	--	0.010	0.098	--	--	--	--	--	--

Date	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto-chlor ESA, water, fltrd 0.7u GF ug/L (61029)	Aceto-chlor OA, water, fltrd 0.7u GF ug/L (61030)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor ESA, water, fltrd 0.7u GF ug/L (50009)	Ala-chlor OA, water, fltrd 0.7u GF ug/L (61031)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)
JUN													
04...	--	433	394	<0.006	E.266	<0.05	<0.05	<0.006	0.30	0.09	0.043	<0.005	83.6
17...	--	783	386	<0.006	E.189	0.06	<0.05	<0.006	0.38	0.11	0.049	<0.005	105
17...	--	*910*	*383*	--	--	--	--	--	--	--	--	--	--
JUN													
18-18	--	548	148	<0.006	E.382	<0.05	<0.05	0.011	0.22	0.13	0.037	--	--
JUN													
20-21	--	373	12.1	<0.006	E.360	<0.05	<0.05	0.015	0.12	<0.05	0.014	--	--
JUL													
09-11	--	360	40.3	<0.006	E.126	0.12	<0.05	<0.006	0.39	0.12	0.023	--	--
10...	--	330	54.6	<0.006	E.208	0.06	<0.05	<0.007	0.32	0.16	0.033	--	--
10...	--	412	89.3	<0.006	E.154	0.10	<0.05	<0.006	0.40	0.07	0.015	--	--
10...	--	561	63.9	<0.006	E.107	<0.05	<0.05	<0.006	0.23	0.06	0.020	--	--
17...	--	*<8*	*<0.4*	*<0.006*	*<0.006*	*<0.05*	*<0.05*	*<0.006*	*<0.05*	*<0.05*	*<0.004*	*<0.005*	*101*
17...	--	600	185	<0.006	E.080	0.07	<0.05	<0.006	0.30	0.11	0.033	<0.005	100
24...	0.6	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	105	159	<0.006	E.048	0.11	<0.05	<0.006	0.52	0.24	0.058	<0.005	101
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	--	341	107	<0.006	E.037	0.07	<0.05	<0.006	0.40	0.13	0.032	--	--
AUG													
08-08	--	*232*	*101*	*<0.006*	*E.049*	*<0.05*	*<0.05*	*<0.006*	*0.40*	*0.13*	*0.031*	--	--
08...	--	229	130	<0.006	E.036	0.10	<0.05	<0.006	0.41	0.13	0.033	--	--
08...	--	328	118	<0.006	E.042	0.07	<0.05	<0.006	0.41	0.14	0.035	--	--
08...	--	--	--	*<0.006*	*E.054*	*<0.05*	*<0.05*	*<0.006*	*0.44*	*0.14*	*0.035*	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	83	158	<0.006	E.043	0.07	<0.05	<0.006	0.52	0.17	0.029	<0.005	86.4
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	--	268	151	<0.006	E.048	0.13	<0.05	<0.006	0.50	0.23	0.045	<0.005	98.4
30...	--	423	205	<0.006	E.038	<0.05	<0.05	<0.006	0.49	0.17	0.033	<0.005	95.1

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)
JUN													
04...	2.24	<0.050	<0.010	0.006	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	100	<0.005
17...	1.19	<0.050	<0.010	0.004	<0.041	<0.040	<0.005	<0.006	<0.018	<0.003	<0.005	130	<0.005
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
18-18	6.33	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
JUN													
20-21	5.45	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
JUL													
09-11	1.03	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
10...	1.63	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
10...	0.578	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
10...	0.595	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
17...	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*106*	*<0.005*
17...	0.169	<0.050	<0.010	0.003	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	110	<0.005
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
31...	0.045	<0.050	<0.010	0.004	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	124	<0.005
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	0.139	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
AUG													
08-08	*0.127*	*<0.050*	*<0.010*	--	*<0.041*	--	*<0.005*	*<0.006*	--	*<0.003*	*<0.005*	--	*<0.005*
08...	0.134	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
08...	0.297	<0.050	<0.010	--	<0.041	--	<0.005	<0.006	--	<0.003	<0.005	--	<0.005
08...	*0.303*	*<0.050*	*<0.010*	--	*<0.041*	--	*<0.005*	*<0.006*	--	*<0.003*	*<0.005*	--	*<0.005*
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	0.061	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	94.9	<0.005
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	0.113	<0.050	<0.010	0.003	<0.041	E.005	<0.005	<0.006	<0.018	<0.003	<0.005	104	<0.005
30...	0.034	<0.050	<0.010	0.003	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	112	<0.005

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Dimeth-enamid ESA, water, fltrd, ug/L (61951)	Dimeth-enamid OA, water, fltrd, ug/L (62482)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Flufen-acet ESA, water, fltrd, ug/L (61952)	Flufe-nacet OA, water, fltrd, ug/L (62483)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)
JUN													
04...	0.07	0.09	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006
17...	0.20	0.22	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
18-18	0.30	0.32	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
JUN													
20-21	0.25	0.19	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
JUL													
09-11	0.12	0.10	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
10...	0.14	0.11	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
10...	0.10	0.08	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
10...	0.12	0.08	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
17...	*<0.05*	*<0.05*	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.05*	*<0.05*	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*
17...	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
31...	0.05	<0.05	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	<0.05	<0.05	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
AUG													
08-08	*<0.05*	*<0.05*	--	--	--	--	*<0.05*	*<0.05*	*<0.003*	--	--	*<0.027*	*<0.006*
08...	<0.05	<0.05	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
08...	<0.05	<0.05	--	--	--	--	<0.05	<0.05	<0.003	--	--	<0.027	<0.006
08...	*<0.05*	*<0.05*	--	--	--	--	*<0.05*	*<0.05*	*<0.003*	--	--	*<0.027*	*<0.006*
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	0.07	0.07	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006
30...	<0.05	<0.05	<0.02	<0.002	<0.009	<0.005	<0.05	<0.05	<0.003	<0.004	<0.035	<0.027	<0.006

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Metolachlor ESA, water, fltrd 0.7u GF ug/L (61043)	Metolachlor OA, water, fltrd 0.7u GF ug/L (61044)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p-' DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Pronamide, water, fltrd 0.7u GF ug/L (82676)
JUN													
04...	2.21	0.54	1.19	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	0.10	<0.004
17...	3.67	0.95	0.904	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	0.02	<0.004
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
18-18	2.96	1.86	1.60	0.029	--	--	--	--	--	0.085	<0.011	0.10	<0.004
JUN													
20-21	1.97	1.46	2.02	0.016	--	--	--	--	--	0.278	<0.011	0.45	<0.004
JUL													
09-11	3.02	1.30	0.818	0.012	--	--	--	--	--	0.036	<0.011	0.09	<0.004
10...	2.23	1.15	1.30	0.018	--	--	--	--	--	0.059	<0.011	0.15	<0.004
10...	3.32	1.29	0.509	0.013	--	--	--	--	--	0.026	<0.011	0.09	<0.004
10...	2.23	0.94	0.527	0.011	--	--	--	--	--	E.020	<0.011	0.07	<0.004
17...	*<0.05*	*<0.05*	*E.008*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*	*<0.01*	*<0.004*
17...	2.53	1.01	0.568	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	E.01	<0.004
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
31...	3.77	0.41	0.392	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	2.52	0.48	0.198	<0.006	--	--	--	--	--	<0.022	<0.011	0.03	<0.004
AUG													
08-08	*2.37*	*0.45*	*0.169*	*<0.006*	--	--	--	--	--	*<0.022*	*<0.011*	*0.02*	*<0.004*
08...	2.42	0.47	0.247	<0.006	--	--	--	--	--	<0.022	<0.011	0.02	<0.004
08...	2.61	0.53	0.221	<0.006	--	--	--	--	--	<0.022	<0.011	E.04	<0.004
08...	*2.55*	*0.53*	*0.227*	*<0.006*	--	--	--	--	--	*<0.022*	*<0.011*	*0.04*	*<0.004*
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	3.14	0.65	0.220	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	E.01	<0.004
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	2.76	0.87	0.446	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	0.02	<0.004
30...	2.81	0.54	0.300	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004

01493500 MORGAN CREEK NEAR KENNEDYVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Terbuthylazine, water, fltrd, ug/L (04022)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
JUN													
04...	<0.010	<0.011	<0.02	1.33	<0.02	E.024	<0.02	<0.01	<0.005	<0.002	<0.009	42	1.7
17...	<0.010	<0.011	<0.02	0.355	<0.02	E.021	<0.02	<0.01	<0.005	<0.002	<0.009	34	0.84
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
18-18	--	--	--	0.751	<0.02	--	<0.02	<0.01	--	--	<0.009	230	--
JUN													
20-21	--	--	--	2.10	<0.02	--	<0.02	<0.01	--	--	<0.009	305	--
JUL													
09-11	--	--	--	0.319	<0.02	--	<0.02	<0.01	--	--	<0.009	295	--
10...	--	--	--	0.384	<0.02	--	<0.02	<0.01	--	--	<0.009	346	54
10...	--	--	--	0.213	<0.02	--	<0.02	<0.01	--	--	<0.009	160	30
10...	--	--	--	0.345	<0.02	--	<0.02	<0.01	--	--	<0.009	62	5.0
17...	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*	--	--
17...	<0.010	<0.011	<0.02	1.25	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009	21	0.96
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
31...	<0.010	<0.011	<0.02	0.031	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009	15	0.32
31...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
08-08	--	--	--	0.023	E.01	--	<0.02	<0.01	--	--	<0.009	183	--
AUG													
08-08	--	--	--	*0.025*	*<0.02*	--	*<0.02*	*<0.01*	--	--	*<0.009*	*234*	--
08...	--	--	--	0.027	<0.02	--	<0.02	<0.01	--	--	<0.009	97	7.6
08...	--	--	--	0.027	E.03	--	<0.02	<0.01	--	--	<0.009	138	8.9
08...	--	--	--	*0.026*	*E.03*	--	*<0.02*	*<0.01*	--	--	*<0.009*	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	<0.010	<0.011	<0.02	0.070	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009	12	0.36
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
05...	<0.010	<0.011	<0.02	0.038	E.01	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009	27	1.5
30...	<0.010	<0.011	<0.02	0.031	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009	9	0.17

Remark codes used in this table:
<-- Less than
E-- Estimated value
M-- Presence verified, not quantified

01495000 BIG ELK CREEK AT ELK MILLS, MD

LOCATION.--Lat 39°39'25.4", long 75°49'20.5", Cecil County, Hydrologic Unit 02060002, on right bank 100 ft downstream from highway bridge at Elk Mills (State Highway 277), 3.5 mi north of Elkton, and 7 mi upstream from confluence with Little Elk Creek.

DRAINAGE AREA.--52.6 mi^2.

PERIOD OF RECORD.--April 1932 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1432: 1932-33, 1934(M), 1935, 1936(M), 1938, 1919-40(M), 1942(M), 1943-51, 1952-53(P).

GAGE.--Water-stage recorder. Datum of gage is 68.69 ft above National Geodetic Vertical Datum of 1929. Prior to May 17, 1946, nonrecording gage at bridge 100 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are fair. Slight diurnal fluctuation caused by mills upstream from station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1884 reached a stage of about 19 ft, from information by local residents; discharge, about 18,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1745	2,780	6.73	Sep 15	1415	2,470	6.46
Jun 20	2045	*3,570	*7.49	Sep 19	0245	1,790	5.81
Aug 10	0200	1,720	5.75	Sep 23	1100	2,350	6.35
Sep 15	0830	2,430	6.42				

Minimum discharge, 6.7 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	39	33	218	e45	64	81	56	99	56	37	38
2	8.9	31	e29	185	e40	338	75	55	63	55	39	56
3	8.7	27	e26	121	e38	391	71	53	53	80	37	44
4	8.2	26	e24	160	e70	118	68	51	315	64	43	97
5	8.5	25	e26	89	e60	329	68	50	176	57	48	68
6	7.7	56	38	81	e50	792	64	52	85	58	49	43
7	7.2	40	32	74	e42	225	71	52	299	56	41	38
8	6.8	30	e30	73	e38	248	86	54	178	52	42	36
9	7.1	28	e32	e72	e36	392	111	55	100	49	150	34
10	11	27	e26	70	e34	177	93	56	79	52	700	32
11	190	29	210	62	e32	105	271	56	69	57	97	31
12	96	58	298	59	e32	96	143	51	71	50	93	31
13	33	104	170	e54	e30	109	94	47	92	47	55	85
14	22	44	383	e50	e30	114	79	45	92	45	48	89
15	18	35	108	e47	e29	90	74	44	74	45	43	1,010
16	85	61	72	e44	e28	90	71	56	61	44	48	147
17	91	229	59	e41	e28	120	66	66	58	41	77	72
18	34	176	53	e38	e90	96	65	51	138	41	47	177
19	26	73	50	e36	e70	80	66	47	82	43	42	589
20	23	52	148	e33	e56	349	63	44	1,050	40	40	102
21	20	e43	108	e31	e50	485	62	51	443	39	39	74
22	18	e41	64	e29	1,000	148	68	62	145	39	40	66
23	17	e39	55	e28	1,170	110	62	51	108	43	42	778
24	16	38	51	e27	451	94	57	60	87	45	36	135
25	18	36	285	e25	172	86	57	57	76	39	34	90
26	49	34	163	e25	106	83	113	345	71	36	35	78
27	36	41	88	e24	78	91	86	108	67	36	36	73
28	25	41	70	e24	70	78	64	74	63	36	35	102
29	25	35	65	e23	---	83	60	65	60	36	34	76
30	77	34	61	e22	---	117	57	56	59	34	58	65
31	67	---	62	e22	---	111	---	52	---	34	56	---
TOTAL	1,069.7	1,572	2,919	1,887	3,975	5,809	2,466	2,022	4,413	1,449	2,221	4,356
MEAN	34.5	52.4	94.2	60.9	142	187	82.2	65.2	147	46.7	71.6	145
MAX	190	229	383	218	1,170	792	271	345	1,050	80	700	1,010
MIN	6.8	25	24	22	28	64	57	44	53	34	34	31
CFSM	0.66	1.00	1.79	1.16	2.70	3.56	1.56	1.24	2.80	0.89	1.36	2.76
IN.	0.76	1.11	2.06	1.33	2.81	4.11	1.74	1.43	3.12	1.02	1.57	3.08

e Estimated

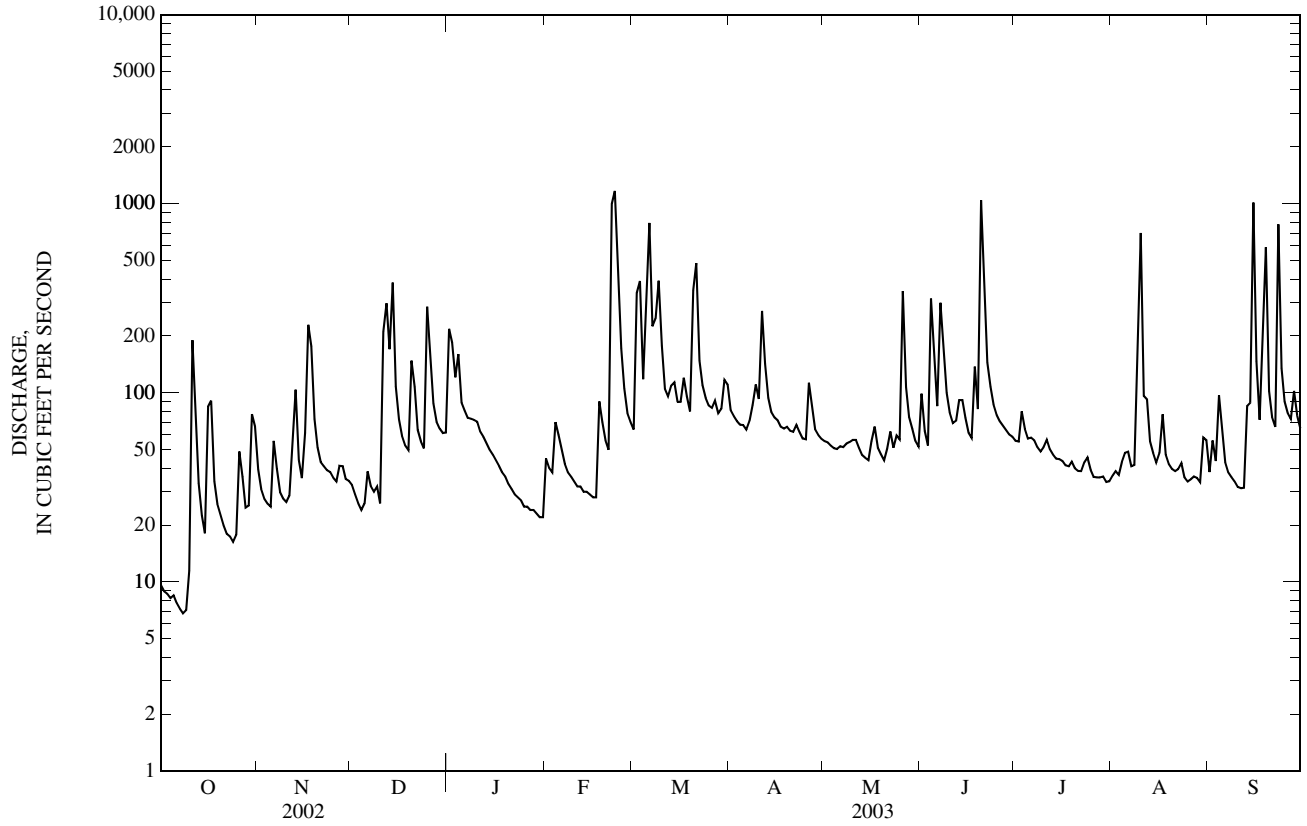
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

MEAN	41.4	53.9	68.9	86.1	97.4	103	89.4	75.8	59.2	55.0	50.7	46.5
MAX	152	125	276	283	236	247	191	160	216	248	241	205
(WY)	(1997)	(1997)	(1997)	(1979)	(1936)	(1994)	(1993)	(1958)	(1972)	(1975)	(1933)	(1999)
MIN	11.1	16.6	18.7	19.2	25.8	35.6	34.5	26.8	21.4	9.90	6.15	9.95
(WY)	(1964)	(2002)	(1966)	(1966)	(2002)	(1981)	(1963)	(1955)	(1963)	(2002)	(2002)	(1932)

01495000 BIG ELK CREEK AT ELK MILLS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 2003	
ANNUAL TOTAL	12,937.4		34,158.7			
ANNUAL MEAN	35.4		93.6		68.9	
HIGHEST ANNUAL MEAN					109	1972
LOWEST ANNUAL MEAN					24.6	2002
HIGHEST DAILY MEAN	383	Dec 14	1,170	Feb 23	4,570	Sep 16, 1999
LOWEST DAILY MEAN	(e, a)1.8	Aug 16	6.8	Oct 8	(e, a)1.8	(b)
ANNUAL SEVEN-DAY MINIMUM	2.1	Aug 11	7.7	Oct 3	2.1	Aug 11, 2002
MAXIMUM PEAK FLOW			3,570	Jun 20	(c)10,600	Jul 5, 1937
MAXIMUM PEAK STAGE			7.49	Jun 20	(d)14.54	Sep 16, 1999
INSTANTANEOUS LOW FLOW			6.7	(f)	(g)2.2	Aug 21, 2002
ANNUAL RUNOFF (CFSM)	0.67		1.78		1.31	
ANNUAL RUNOFF (INCHES)	9.15		24.16		17.81	
10 PERCENT EXCEEDS	70		171		114	
50 PERCENT EXCEEDS	27		56		46	
90 PERCENT EXCEEDS	6.1		27		20	

e Estimated.
a May have been lower during period of doubtful gage-height record.
b Aug. 16, 17, 2002.
c From rating curve extended above 1,700 ft^3/s on basis of velocity-area and conveyance studies.
d From floodmarks.
f Oct. 8, 9.
g Measured discharge, may have been lower during period of doubtful gage-height record.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD

LOCATION.--Lat 39°39'28.1", long 76°10'28.2", Harford County, Hydrologic Unit 02050306, at downstream side of Conowingo Dam, 1.0 mi southwest of Conowingo, and 9.9 mi upstream from mouth.

DRAINAGE AREA.--27,100 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated by Conowingo Reservoir beginning October 1928, usable capacity, 55,070,000,000 gal; dead storage, 45,290,000,000 gal. Records do not include a small infrequent diversion upstream from station to augment municipal supply of city of Baltimore. Records of diversion available from Baltimore City Department of Public Works. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 308,000 ft^3/s, March 22, gage height, 24.15 ft; minimum discharge, 536 ft^3/s, Dec. 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

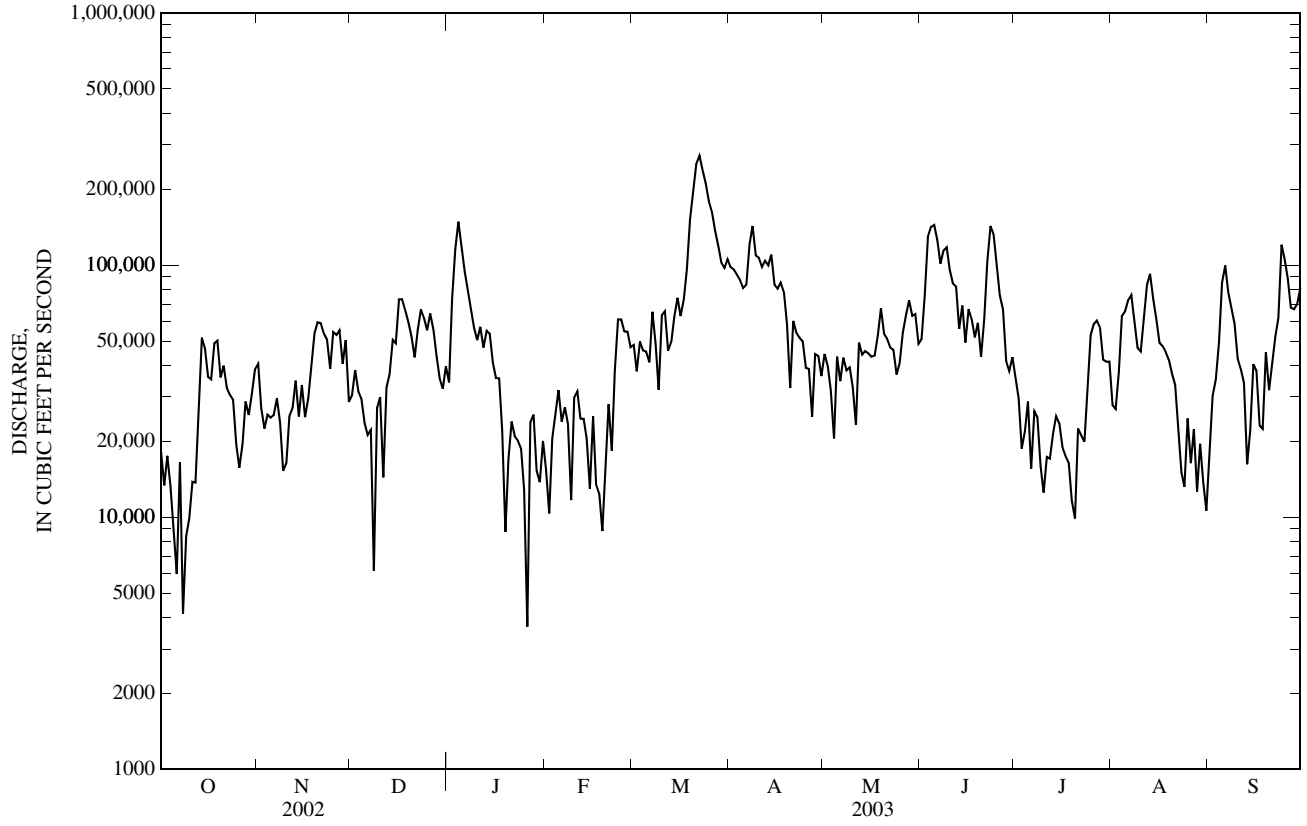
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18,100	40,600	30,400	34,300	15,400	48,300	98,200	44,400	50,900	35,500	27,800	17,300
2	13,400	27,100	38,300	73,600	10,400	37,900	96,000	39,700	76,000	29,500	26,900	30,200
3	17,500	22,500	31,600	116,000	20,500	49,800	91,700	31,800	130,000	18,700	37,700	35,200
4	13,200	25,500	29,500	149,000	25,400	45,800	87,300	20,500	142,000	21,900	62,900	49,400
5	8,990	24,800	23,700	119,000	31,900	45,400	81,200	43,300	144,000	28,800	65,600	85,100
6	5,950	25,400	21,200	94,000	24,000	41,100	83,700	34,600	126,000	15,600	72,600	99,600
7	16,500	29,600	22,200	78,900	27,300	65,300	121,000	42,900	101,000	26,300	76,000	78,000
8	4,150	23,600	6,130	66,700	23,400	48,600	143,000	38,300	114,000	24,900	60,100	67,000
9	8,420	15,300	27,100	56,400	11,700	32,000	109,000	39,300	118,000	15,900	47,000	58,700
10	9,870	16,400	30,000	50,400	29,800	63,200	107,000	32,800	96,000	12,500	45,500	42,600
11	13,800	25,200	14,400	56,900	31,500	65,600	98,400	23,200	84,600	17,300	61,400	38,600
12	13,700	27,100	32,800	47,100	24,600	45,700	104,000	49,300	82,200	17,100	83,600	34,100
13	25,100	34,800	36,900	54,900	24,600	49,600	99,800	44,100	55,900	21,500	92,400	16,200
14	51,600	25,100	50,600	53,500	20,500	62,600	110,000	45,600	69,200	25,200	73,400	22,000
15	46,900	33,500	49,000	40,900	13,000	74,100	83,700	44,700	49,300	23,600	61,200	40,400
16	36,000	24,900	73,100	35,700	25,200	62,800	80,600	43,300	66,800	18,900	49,300	38,100
17	35,200	29,700	73,300	35,500	13,500	73,100	85,200	43,700	61,100	17,500	47,700	23,100
18	49,000	39,800	66,200	22,100	12,400	95,900	77,900	52,800	51,700	16,400	45,300	22,400
19	50,100	53,700	59,300	8,740	8,820	152,000	58,400	67,500	59,000	11,600	42,100	45,100
20	35,900	59,300	52,100	17,000	15,900	200,000	32,600	53,400	43,300	9,890	37,200	31,900
21	39,900	58,900	43,100	24,000	28,000	251,000	60,100	51,000	61,400	22,500	33,500	41,000
22	32,600	53,700	55,200	20,900	18,300	271,000	53,900	47,100	103,000	21,100	22,400	52,000
23	30,500	50,800	66,700	20,100	38,300	239,000	51,500	46,100	143,000	19,900	15,100	61,600
24	29,200	38,800	61,800	18,700	60,900	211,000	49,900	36,800	133,000	33,200	13,200	120,000
25	19,400	54,300	55,100	12,800	60,900	180,000	39,200	40,900	100,000	52,800	24,600	106,000
26	15,700	52,900	64,200	3,680	54,600	163,000	38,700	54,000	75,900	58,300	16,400	88,300
27	19,500	55,100	55,500	23,800	54,500	138,000	25,100	63,600	66,600	60,300	22,400	67,800
28	28,700	40,600	43,500	25,500	47,300	120,000	44,400	72,500	41,700	56,700	12,700	66,800
29	25,400	50,400	35,600	15,300	---	102,000	43,600	63,000	38,000	42,200	19,600	70,100
30	31,000	28,700	32,300	13,800	---	97,400	36,300	63,900	43,100	41,400	13,700	80,900
31	38,600	---	39,700	20,100	---	106,000	---	48,800	---	41,400	10,600	---
TOTAL	783,880	1,088,100	1,320,530	1,409,320	772,620	3,237,200	2,291,400	1,422,900	2,526,700	858,390	1,319,900	1,629,500
MEAN	25,290	36,270	42,600	45,460	27,590	104,400	76,380	45,900	84,220	27,690	42,580	54,320
MAX	51,600	59,300	73,300	149,000	60,900	271,000	143,000	72,500	144,000	60,300	92,400	120,000
MIN	4,150	15,300	6,130	3,680	8,820	32,000	25,100	20,500	38,000	9,890	10,600	16,200
CFSM	0.93	1.34	1.57	1.68	1.02	3.85	2.82	1.69	3.11	1.02	1.57	2.00
IN.	1.08	1.49	1.81	1.93	1.06	4.44	3.15	1.95	3.47	1.18	1.81	2.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2003, BY WATER YEAR (WY)

MEAN	22,540	34,030	47,360	41,650	51,350	73,430	78,460	48,310	36,120	19,340	14,020	16,700
MAX	81,800	73,170	113,700	122,500	115,800	147,800	250,100	108,200	208,000	59,050	48,580	88,450
(WY)	(1977)	(1978)	(1997)	(1996)	(1984)	(1994)	(1993)	(1989)	(1972)	(1972)	(1994)	(1975)
MIN	5,557	5,465	6,733	7,164	13,050	28,320	33,850	18,810	7,691	5,338	4,803	3,476
(WY)	(1970)	(1999)	(1999)	(1981)	(1980)	(1969)	(1995)	(2001)	(1999)	(1999)	(2002)	(1995)

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1968 - 2003	
ANNUAL TOTAL	12,185,850		18,660,440			
ANNUAL MEAN	33,390		51,120		40,180	
HIGHEST ANNUAL MEAN					61,090	1978
LOWEST ANNUAL MEAN					22,850	1999
HIGHEST DAILY MEAN	185,000	May 16	271,000	Mar 22	1,120,000	Jun 24, 1972
LOWEST DAILY MEAN	1,990	Sep 19	3,680	Jan 26	269	Jul 13, 1969
ANNUAL SEVEN-DAY MINIMUM	2,450	Sep 14	9,580	Oct 4	1,810	Sep 24, 1980
MAXIMUM PEAK FLOW			308,000	Mar 22	1,130,000	Jun 24, 1972
MAXIMUM PEAK STAGE			24.15	Mar 22	36.83	Jun 24, 1972
INSTANTANEOUS LOW FLOW			536	Dec 8	144	Mar 2, 1969
ANNUAL RUNOFF (CFSM)	1.23		1.89		1.48	
ANNUAL RUNOFF (INCHES)	16.73		25.62		20.15	
10 PERCENT EXCEEDS	66,600		98,900		84,100	
50 PERCENT EXCEEDS	28,400		42,900		27,100	
90 PERCENT EXCEEDS	4,110		16,100		5,510	



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1979 to April 1981, July 1984 to September 1992.
WATER TEMPERATURE: June 1979 to April 1981, July 1984 to September 1992.
SUSPENDED-SEDIMENT DISCHARGE: October 1979 to April 1981, July 1984 to September 1992.

REMARKS.--During the period Oct. 1994 to Jan. 1995, monthly samples were collected and analyzed using ultraclean methodologies. Data on trace metals for this period are available from the University of Delaware. Data on organics for this period are available from George Mason University.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1980, 1985-89, 1991-92): Maximum daily, 475 microsiemens/cm, Nov. 13-15, 1980 and Aug. 31, 1991; minimum daily, 100 microsiemens/cm, May 1, 1991.
WATER TEMPERATURE (water years 1980, 1985-89, 1991-92): Maximum daily, 30.5°C, Aug. 18, 1988; minimum daily, 1.0°C, Feb. 5, 6, 9, 1980, Feb. 12, 1988.
SEDIMENT CONCENTRATION: Maximun daily mean, 207 mg/L, Mar. 17, 1986; minimum daily mean, 1 mg/L, June 27, 1987, May 27, 28, 30, Nov. 1-3, 10, 11, Dec. 22-24, 27, 30, 31, 1991.
SEDIMENT LOAD: Maximum daily, 197,000 tons, Mar. 16, 17, 1986; minimum daily, 4.4 tons, Feb. 10, 1985.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Turbidity, NTU (00076)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)
OCT												
03...	0900	Environmental	17,600	--	760	6.6	77	7.5	446	27.0	23.0	150
NOV												
08...	1100	Environmental	45,100	--	763	11.9	103	7.8	251	12.5	9.0	--
DEC												
10...	1000	Environmental	45,600	--	768	14.7	108	7.7	212	-0.5	3.0	82
10...	*1001*	*Replicate*	--	--	--	--	--	--	--	--	--	*81*
10...	*1002*	*Replicate*	--	--	--	--	--	--	--	--	--	*81*
10...	*1003*	*Replicate*	--	--	--	--	--	--	--	--	--	*81*
10...	*1004*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1005*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1006*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1007*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1008*	*Replicate*	--	*3.3*	--	--	--	--	--	--	--	--
10...	*1009*	*Replicate*	--	*3.2*	--	--	--	--	--	--	--	--
10...	*1010*	*Replicate*	--	*3.1*	--	--	--	--	--	--	--	--
10...	*1011*	*Replicate*	--	*2.7*	--	--	--	--	--	--	--	--
10...	*1012*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1013*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1014*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1015*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	*1016*	*Replicate*	--	*3.2*	--	--	--	--	--	--	--	--
10...	*1017*	*Replicate*	--	*3.0*	--	--	--	--	--	--	--	--
10...	*1018*	*Replicate*	--	*2.7*	--	--	--	--	--	--	--	--
10...	*1019*	*Replicate*	--	*2.9*	--	--	--	--	--	--	--	--
16...	1130	Environmental	98,000	--	753	15.1	109	7.7	274	5.0	1.5	--
16...	*1131*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JAN												
03...	1115	Environmental	104,000	--	756	14.4	110	7.6	227	3.5	3.5	--
09...	1045	Environmental	56,000	--	745	14.6	111	7.8	215	12.0	3.0	71
FEB												
04...	1200	Environmental	24,100	--	745	14.6	111	7.8	322	8.0	3.0	--
04...	*1205*	*Replicate*	--	--	--	--	--	--	--	--	--	--
25...	0945	Environmental	75,100	--	770	--	--	7.8	307	-0.5	--	--
MAR												
05...	1000	Environmental	73,500	--	752	--	--	7.7	279	3.5	3.0	--
17...	1200	Environmental	71,900	--	755	--	--	7.7	238	14.5	6.0	--
20...	1200	Environmental	254,000	--	763	--	--	7.5	183	6.0	6.5	--
20...	*1201*	*Replicate*	--	--	--	--	--	--	--	--	--	--
APR												
02...	*1014*	*Blank*	--	--	--	--	--	--	--	--	--	--
02...	1015	Environmental	81,300	--	760	12.2	103	7.7	173	15.0	8.0	61
MAY												
07...	*1155*	*Blank*	--	--	--	--	--	--	--	--	--	--
07...	*1156*	*Blank*	--	--	--	--	--	--	--	--	--	--
07...	1200	Environmental	63,300	--	758	9.9	106	8.6	249	22.0	18.2	--
07...	*1201*	*Replicate*	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)
OCT													
03...	37.0	14.7	3.14	25.9	42	51	--	39.9	<0.17	1.87	86.2	255	<10
NOV													
08...	--	--	--	--	--	--	--	--	--	5.2	--	--	<10
DEC													
10...	22.8	5.93	1.41	8.84	--	--	--	13.3	<0.17	4.48	26.4	134	<10
10...	*22.8*	*5.91*	*1.43*	*8.80*	--	--	--	*14.0*	*<0.17*	*4.44*	*26.3*	*131*	*<10*
10...	*22.7*	*5.94*	*1.40*	*8.95*	--	--	--	*13.5*	*<0.17*	*4.44*	*26.6*	*129*	*<10*
10...	*22.7*	*5.97*	*1.38*	*9.05*	--	--	--	*13.8*	*<0.17*	*4.46*	*26.4*	*128*	*<10*
10...	--	--	--	--	--	--	--	--	--	--	--	--	*4*
10...	--	--	--	--	--	--	--	--	--	--	--	--	*4*
10...	--	--	--	--	--	--	--	--	--	--	--	--	*4*
10...	--	--	--	--	--	--	--	--	--	--	--	--	*2*
10...	--	--	--	--	--	--	--	--	--	*4.73*	--	--	*3*
10...	--	--	--	--	--	--	--	--	--	*4.73*	--	--	*3*
10...	--	--	--	--	--	--	--	--	--	*4.81*	--	--	*3*
10...	--	--	--	--	--	--	--	--	--	*4.75*	--	--	*3*
10...	--	--	--	--	--	--	--	--	--	*4.54*	--	--	*1*
10...	--	--	--	--	--	--	--	--	--	*4.56*	--	--	*2*
10...	--	--	--	--	--	--	--	--	--	*4.52*	--	--	*3*
10...	--	--	--	--	--	--	--	--	--	*4.62*	--	--	*1*
10...	--	--	--	--	--	--	--	--	--	*4.50*	--	--	*<3*
10...	--	--	--	--	--	--	--	--	--	*4.50*	--	--	*<3*
10...	--	--	--	--	--	--	--	--	--	*4.50*	--	--	*<3*
10...	--	--	--	--	--	--	--	--	--	*4.50*	--	--	*<3*
16...	--	--	--	--	--	--	--	--	--	4.6	--	--	<10
16...	--	--	--	--	--	--	--	--	--	*4.6*	--	--	*<10*
JAN													
03...	--	--	--	--	--	--	--	--	--	4.8	--	--	11
09...	19.6	5.26	1.53	11.3	--	45	--	19.6	<0.17	5.37	24.3	127	<10
FEB													
04...	--	--	--	--	58	71	--	22.6	--	5.3	40.6	--	<10
04...	--	--	--	--	--	--	--	--	--	*5.2*	--	--	*<10*
25...	--	--	--	--	--	--	--	--	--	3.4	--	--	<10
MAR													
05...	--	--	--	--	39	48	--	28.7	--	4.3	27.9	--	11
17...	--	--	--	--	--	--	--	--	--	3.9	--	--	14
20...	--	--	--	--	--	--	--	--	--	4.6	--	--	51
20...	--	--	--	--	--	--	--	--	--	*4.5*	--	--	*51*
APR													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
02...	17.3	4.29	1.43	7.29	29	35	--	12.6	0.05	4.96	21.0	100	12
MAY													
07...	--	--	--	--	--	--	--	*<0.20*	--	*<0.2*	*<0.2*	--	*<10*
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	50	60	0.0	--	--	<0.2	--	--	<10
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitro-gen, water, fltrd, mg/L (00607)	Organic nitro-gen, water, unfltrd mg/L (00605)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, fltrd, mg/L (00602)
OCT													
03...	0.34	0.55	0.09	0.53	0.58	--	0.051	0.25	0.47	E.006	0.014	0.042	0.92
NOV													
08...	0.24	0.35	E.03	2.14	2.15	--	0.008	--	--	0.024	0.034	0.052	2.4
DEC													
10...	0.15	0.23	<0.04	1.59	1.60	--	0.006	--	--	0.008	0.013	0.027	1.7
10...	*0.14*	*0.18*	*<0.04*	*1.59*	*1.60*	--	*0.006*	--	--	*0.009*	*0.014*	*0.027*	*1.7*
10...	*0.12*	*0.17*	*<0.04*	*1.59*	*1.60*	--	*0.006*	--	--	*0.009*	*0.014*	*0.027*	*1.7*
10...	*0.14*	*0.18*	*<0.04*	*1.59*	*1.59*	--	*0.006*	--	--	*0.008*	*0.013*	*0.027*	*1.7*
10...	--	--	*<0.020*	--	*S1.56*	*S1.51*	--	--	--	*<0.010*	*0.012*	*0.021*	*1.8*
10...	--	--	*<0.020*	--	*S1.56*	*S1.56*	--	--	--	*<0.010*	*0.010*	*0.022*	*1.9*
10...	--	--	*<0.020*	--	*S1.56*	*S1.56*	--	--	--	*<0.010*	*0.011*	*0.018*	*1.9*
10...	--	--	*<0.020*	--	*S1.56*	*S1.56*	--	--	--	*0.010*	*0.011*	*0.019*	*1.9*
10...	*0.09*	*0.13*	*0.031*	*1.53*	*1.54*	--	*0.006*	*0.06*	*0.10*	*0.009*	*0.012*	*0.027*	*1.6*
10...	*0.12*	*0.14*	*0.032*	*1.52*	*1.52*	--	*0.007*	*0.09*	*0.11*	*0.010*	*0.014*	*0.028*	*1.6*
10...	*0.16*	*0.19*	*0.033*	*1.57*	*1.58*	--	*0.005*	*0.13*	*0.16*	*0.010*	*0.010*	*0.028*	*1.7*
10...	*0.10*	*0.10*	*0.031*	*1.48*	*1.48*	--	*0.005*	*0.07*	*0.07*	*0.010*	*0.015*	*0.024*	*1.6*
10...	*0.21*	*0.28*	*0.135*	--	*1.52*	--	*<0.010*	*0.07*	*0.14*	*0.010*	*0.023*	*0.032*	*1.7*
10...	*0.15*	*0.18*	*0.139*	--	*1.55*	--	*<0.010*	*0.01*	*0.04*	*0.010*	*0.012*	*0.028*	*1.7*
10...	*0.15*	*0.18*	*0.135*	--	*1.59*	--	*<0.010*	*0.01*	*0.04*	*<0.010*	*0.012*	*0.020*	*1.7*
10...	*0.15*	*0.17*	*0.145*	--	*1.55*	--	*<0.010*	*0.01*	*0.03*	*<0.010*	*<0.010*	*0.012*	*1.7*
10...	--	--	*0.023*	*1.53*	*1.54*	--	*0.004*	--	--	*0.012*	*0.010*	*0.020*	*1.7*
10...	--	--	*0.022*	*1.53*	*1.53*	--	*0.004*	--	--	*0.012*	*0.016*	*0.028*	*1.7*
10...	--	--	*0.022*	*1.54*	*1.55*	--	*0.004*	--	--	*0.012*	*0.010*	*0.020*	*1.9*
10...	--	--	*0.022*	*1.50*	*1.51*	--	*0.004*	--	--	*0.012*	*0.023*	*0.023*	*1.9*
16...	0.29	0.38	0.10	2.19	2.20	--	0.010	0.19	0.28	0.027	0.035	0.075	2.5
16...	*0.30*	*0.36*	*0.10*	*2.19*	*2.20*	--	*0.010*	*0.20*	*0.26*	*0.028*	*0.035*	*0.074*	*2.5*
JAN													
03...	0.18	0.22	0.04	1.78	1.79	--	0.008	0.14	0.18	0.016	0.022	0.049	2.0
09...	0.16	0.25	0.05	1.77	1.77	--	0.006	0.11	0.21	0.007	0.02	0.034	1.9
FEB													
04...	0.19	--	0.08	2.61	2.62	--	0.012	0.11	--	0.009	0.012	--	2.8
04...	*0.21*	*0.23*	*0.08*	*2.62*	*2.63*	--	*0.012*	*0.13*	*0.15*	*0.008*	*0.013*	*0.025*	*2.8*
25...	0.47	0.51	0.21	1.99	2.00	--	0.017	0.26	0.30	0.059	0.073	0.113	2.5
MAR													
05...	0.41	0.44	0.20	1.71	1.73	--	0.013	0.21	0.24	0.033	0.046	--	2.1
17...	0.46	0.54	0.19	1.58	1.59	--	0.012	0.27	0.34	0.029	0.040	0.090	2.1
20...	0.23	0.56	0.09	1.18	1.19	--	0.008	0.14	0.47	0.009	0.015	0.126	1.4
20...	*0.21*	*0.56*	*0.09*	*1.18*	*1.19*	--	*0.008*	*0.12*	*0.47*	*0.009*	*0.014*	*0.126*	*1.4*
APR													
02...	--	--	--	--	--	--	--	--	--	--	--	--	--
02...	0.14	0.28	0.05	1.21	1.22	--	0.007	0.09	0.23	0.009	0.015	0.042	1.4
MAY													
07...	*<0.10*	*<0.10*	*<0.04*	--	*<0.06*	--	*<0.002*	--	--	*<0.007*	*<0.004*	*<0.004*	--
07...	--	--	--	--	--	--	--	--	--	--	*<0.01*	--	--
07...	0.18	0.40	<0.04	0.92	0.93	--	0.012	--	--	<0.007	0.005	0.032	1.1
07...	--	--	--	--	--	--	--	--	--	--	*<0.01*	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, water, unfltrd mg/L (00680)	COD, low level, water, unfltrd mg/L (00335)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)
OCT													
03...	1.1	--	--	3.9	--	E8	72.1	--	--	--	--	--	--
NOV													
08...	2.5	--	--	3.4	--	--	--	--	--	--	--	--	--
DEC													
10...	1.8	--	--	2.4	--	86	27.5	111	--	--	--	--	--
10...	*1.8*	--	--	*2.9*	--	*87*	*27.2*	*110*	--	--	--	--	--
10...	*1.8*	--	--	*3.1*	--	*88*	*27.2*	*112*	--	--	--	--	--
10...	*1.8*	--	--	*2.4*	--	*86*	*27.2*	*113*	--	--	--	--	--
10...	*1.9*	--	--	*2.3*	--	--	--	--	--	--	--	--	--
10...	*1.9*	--	--	*2.3*	--	--	--	--	--	--	--	--	--
10...	*1.9*	--	--	*2.4*	--	--	--	--	--	--	--	--	--
10...	*2.0*	--	--	*2.3*	--	--	--	--	--	--	--	--	--
10...	*1.7*	--	*2.5*	*2.6*	*<10*	--	--	--	--	--	--	--	--
10...	*1.7*	--	*2.4*	*2.8*	*<10*	--	--	--	--	--	--	--	--
10...	*1.8*	--	*2.5*	*2.6*	*<10*	--	--	--	--	--	--	--	--
10...	*1.6*	--	*2.4*	*2.7*	*<10*	--	--	--	--	--	--	--	--
10...	*1.8*	--	*1.9*	*1.9*	--	--	--	--	--	--	--	--	--
10...	*1.7*	--	*2.1*	*2.1*	--	--	--	--	--	--	--	--	--
10...	*1.8*	--	*2.1*	*2.1*	--	--	--	--	--	--	--	--	--
10...	*1.7*	--	*<2.1*	*2.1*	--	--	--	--	--	--	--	--	--
10...	*1.8*	--	--	--	--	--	--	--	--	--	--	--	--
10...	*1.8*	--	--	--	--	--	--	--	--	--	--	--	--
10...	*1.9*	--	--	--	--	--	--	--	--	--	--	--	--
10...	*1.9*	--	--	--	--	--	--	--	--	--	--	--	--
16...	2.6	--	--	3.3	--	--	--	--	--	--	--	--	--
16...	*2.6*	--	--	*3.7*	--	--	--	--	--	--	--	--	--
JAN													
03...	2.0	--	--	2.7	--	--	--	--	--	--	--	--	--
09...	2.0	0.5	1.9	2.8	--	26	59.4	90.7	<0.006	E.012	<0.006	<0.004	<0.005
FEB													
04...	--	0.2	1.6	2.4	--	--	--	--	--	--	--	--	--
04...	*2.9*	--	*1.5*	*1.7*	--	--	--	--	--	--	--	--	--
25...	2.5	--	--	3.5	--	--	--	--	--	--	--	--	--
MAR													
05...	2.2	0.4	2.5	3.2	--	--	--	--	<0.006	E.025	<0.006	<0.004	<0.005
17...	2.1	--	--	3.5	--	--	--	--	--	--	--	--	--
20...	1.8	--	--	4.2	--	--	--	--	--	--	--	--	--
20...	*1.8*	--	--	*4.3*	--	--	--	--	--	--	--	--	--
APR													
02...	--	--	--	--	--	--	--	--	*<0.006*	*<0.006*	*<0.006*	*<0.004*	*<0.005*
02...	1.5	0.3	2.1	2.9	--	32	55.6	--	<0.006	E.014	<0.006	<0.004	<0.005
MAY													
07...	--	*<0.1*	*E.3*	*<0.4*	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	1.3	1.1	1.9	3.4	--	--	--	--	<0.006	E.015	<0.006	<0.004	<0.005
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)
OCT													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	108	0.019	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	132
FEB													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
05...	84.1	0.020	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	108
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	*87.2*	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*107*
02...	101	0.014	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	127
MAY													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	94.4	0.018	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	120
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Diel- drin, water, fltrd, ug/L (39381)	Disul- foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal- flur- alin, water, fltrd 0.7u GF ug/L (82663)	Etho- prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala- thion, water, fltrd, ug/L (39532)	Methyl para- thion, water, fltrd 0.7u GF ug/L (82667)	Metola- chlor, water, fltrd, ug/L (39415)	Metri- buzin, water, fltrd, ug/L (82630)	Moli- nate, water, fltrd 0.7u GF ug/L (82671)
OCT													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.012	<0.006	<0.002
FEB													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
05...	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.013	<0.006	<0.002
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.013*	*<0.006*	*<0.004*
02...	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.011	<0.006	<0.005
MAY													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.014	<0.006	<0.002
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)
OCT													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02
FEB													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
05...	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.013	<0.02
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*
02...	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	E.005	<0.02
MAY													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011	0.00	<0.004	<0.010	<0.011	<0.02	0.008	<0.02
07...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT							
03...	--	--	--	--	--	6	290
NOV							
08...	--	--	--	--	--	5	597
DEC							
10...	--	--	--	--	--	1	135
10...	--	--	--	--	--	*0.8*	--
10...	--	--	--	--	--	*0.7*	--
10...	--	--	--	--	--	*1*	--
10...	--	--	--	--	--	*2*	--
10...	--	--	--	--	--	*3*	--
10...	--	--	--	--	--	*3*	--
10...	--	--	--	--	--	*1*	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--
16...	--	--	--	--	--	8	2,060
16...	--	--	--	--	--	*9*	--
JAN							
03...	--	--	--	--	--	11	3,200
09...	<0.034	<0.02	<0.005	<0.002	<0.009	9	1,410
FEB							
04...	--	--	--	--	--	1	91
04...	--	--	--	--	--	*2*	--
25...	--	--	--	--	--	13	2,550
MAR							
05...	<0.034	<0.02	<0.005	<0.002	<0.009	6	1,150
17...	--	--	--	--	--	24	4,760
20...	--	--	--	--	--	54	36,800
20...	--	--	--	--	--	*57*	--
APR							
02...	*<0.034*	*<0.02*	*<0.005*	*<0.002*	*<0.009*	--	--
02...	<0.034	<0.02	<0.005	<0.002	<0.009	14	3,120
MAY							
07...	--	--	--	--	--	*0.2*	--
07...	--	--	--	--	--	--	--
07...	<0.034	<0.02	<0.005	<0.002	<0.009	7	1,260
07...	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Turbidity, NTU (00076)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)
JUN												
04...	0900	Environmental	147,000	--	756	11.0	114	--	181	13.5	17.0	65
04...	*0901*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0905*	*Replicate*	--	--	--	--	--	--	--	--	--	*65*
04...	*0906*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0907*	*Replicate*	--	--	--	--	--	--	--	--	--	*64*
04...	*0908*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0909*	*Replicate*	--	--	--	--	--	--	--	--	--	*64*
04...	*0910*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0911*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0912*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0913*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0914*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*0915*	*Replicate*	--	*18*	--	--	--	--	--	--	--	--
04...	*0916*	*Replicate*	--	*16*	--	--	--	--	--	--	--	--
04...	*0917*	*Replicate*	--	*17*	--	--	--	--	--	--	--	--
04...	*0918*	*Replicate*	--	*17*	--	--	--	--	--	--	--	--
04...	*0919*	*Replicate*	--	*18*	--	--	--	--	--	--	--	--
04...	*0920*	*Replicate*	--	*18*	--	--	--	--	--	--	--	--
04...	*0921*	*Replicate*	--	*18*	--	--	--	--	--	--	--	--
04...	*0922*	*Replicate*	--	*18*	--	--	--	--	--	--	--	--
04...	*0923*	*Replicate*	--	*13*	--	--	--	--	--	--	--	--
04...	*0924*	*Replicate*	--	*12*	--	--	--	--	--	--	--	--
04...	*0925*	*Replicate*	--	*14*	--	--	--	--	--	--	--	--
04...	*0926*	*Replicate*	--	*14*	--	--	--	--	--	--	--	--
20...	0930	Environmental	24,600	--	756	8.7	100	7.5	210	19.5	22.0	--
20...	*0935*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUL												
01...	*1055*	*Blank*	--	--	--	--	--	--	--	--	--	--
01...	*1056*	*Blank*	--	--	--	--	--	--	--	--	--	--
01...	1100	Environmental	46,200	--	763	9.2	112	8.0	189	27.0	25.5	71
01...	*1101*	*Replicate*	--	--	--	--	--	--	--	--	--	--
AUG												
06...	0845	Environmental	59,100	--	758	7.9	99	--	214	26.0	26.5	--
06...	*0846*	*Replicate*	--	--	--	--	--	--	--	--	--	--
SEP												
04...	0830	Environmental	33,900	--	755	7.1	89	7.8	284	21.0	26.5	--
04...	*0831*	*Replicate*	--	--	--	--	--	--	--	--	--	--
10...	0800	Environmental	48,200	--	766	11.1	125	7.8	195	18.0	21.6	--
10...	*0805*	*Replicate*	--	--	--	--	--	--	--	--	--	--
24...	1030	Environmental	136,000	--	764	9.1	101	7.7	224	22.0	20.5	--
24...	*1035*	*Replicate*	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Bicar-bonate, wat flt incrm. titr., field, mg/L (00453)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, sus-pended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
JUN													
04...	18.0	4.78	1.50	7.74	48	12.0	<0.2	3.71	22.6	109	17	0.24	0.44
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	*18.2*	*4.80*	*1.51*	*7.79*	--	*12.2*	*<0.2*	*3.70*	*22.6*	*105*	*20*	*0.22*	*0.38*
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	*18.0*	*4.68*	*1.48*	*7.47*	--	*12.2*	*<0.2*	*3.67*	*22.8*	*104*	*14*	*0.23*	*0.38*
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	*17.8*	*4.63*	*1.47*	*7.39*	--	*12.1*	*<0.2*	*3.65*	*22.8*	*110*	*16*	*0.21*	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	*14*	--	--
04...	--	--	--	--	--	--	--	--	--	--	*22*	--	--
04...	--	--	--	--	--	--	--	--	--	--	*16*	--	--
04...	--	--	--	--	--	--	--	--	--	--	*18*	--	--
04...	--	--	--	--	--	--	--	*3.85*	--	--	*20*	*0.35*	*0.44*
04...	--	--	--	--	--	--	--	*3.85*	--	--	*21*	*0.26*	*0.55*
04...	--	--	--	--	--	--	--	*3.85*	--	--	*20*	*0.32*	*0.33*
04...	--	--	--	--	--	--	--	*3.85*	--	--	*22*	*0.28*	*0.78*
04...	--	--	--	--	--	--	--	*4.04*	--	--	*20*	--	--
04...	--	--	--	--	--	--	--	*4.01*	--	--	*17*	--	*0.47*
04...	--	--	--	--	--	--	--	*4.09*	--	--	*22*	*0.24*	*0.45*
04...	--	--	--	--	--	--	--	*4.03*	--	--	*20*	*0.24*	*0.47*
04...	--	--	--	--	--	--	--	*3.70*	--	--	*20*	--	--
04...	--	--	--	--	--	--	--	*3.80*	--	--	*19*	--	--
04...	--	--	--	--	--	--	--	*3.70*	--	--	*21*	--	--
04...	--	--	--	--	--	--	--	*3.80*	--	--	*19*	--	--
20...	--	--	--	--	--	--	--	3.4	--	--	11	0.23	0.44
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
01...	*0.05*	*<0.008*	*<0.16*	*0.16*	--	*<0.20*	*<0.2*	*0.69*	*<0.2*	*<10*	*<10*	*<0.10*	*<0.10*
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	19.6	5.31	1.58	7.83	--	11.6	<0.2	4.64	22.3	107	<10	0.30	0.39
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06...	--	--	--	--	--	13.1	--	5.1	28.8	--	13	0.26	0.35
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	3.3	--	--	11	0.27	0.37
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	37	11.8	--	--	27.6	--	--	0.27	0.46
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	4.6	--	--	30	0.31	0.50
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite + nitrate water unfltrd mg/L as N (00630)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)
JUN													
04...	E.04	0.96	0.97	--	0.011	--	--	E.006	0.016	0.064	1.2	1.4	--
04...	--	--	--	--	--	--	--	--	*0.01*	--	--	--	*1.6*
04...	*E.04*	*0.89*	*0.90*	--	*0.011*	--	--	*0.007*	*0.013*	*0.060*	*1.1*	*1.3*	--
04...	--	--	--	--	--	--	--	--	*0.01*	--	--	--	*1.5*
04...	*E.04*	*0.88*	*0.89*	--	*0.011*	--	--	*E.006*	*0.013*	*0.061*	*1.1*	*1.3*	--
04...	--	--	--	--	--	--	--	--	*0.01*	--	--	--	*1.3*
04...	*E.04*	*0.89*	*0.90*	--	*0.011*	--	--	*E.005*	*0.013*	--	*1.1*	--	--
04...	--	--	--	--	--	--	--	--	*0.02*	--	--	--	*1.3*
04...	*0.060*	--	*0.950*	*0.930*	--	--	--	*0.011*	*0.013*	*0.049*	*1.1*	*1.3*	--
04...	*0.050*	--	*0.940*	*0.940*	--	--	--	*<0.010*	*0.013*	*0.056*	*1.3*	*1.3*	--
04...	*0.050*	--	*0.940*	*0.930*	--	--	--	*<0.010*	*0.013*	*0.053*	*1.1*	*1.3*	--
04...	*0.050*	--	--	*0.920*	--	--	--	*S.024*	*0.013*	*S.053*	--	*1.3*	--
04...	*0.047*	*0.87*	*0.880*	--	*0.010*	*0.30*	*0.39*	*0.007*	*0.012*	*0.054*	*1.2*	*1.3*	--
04...	*0.045*	*1.01*	*1.02*	--	*0.011*	*0.22*	*0.51*	*0.007*	*0.012*	*0.055*	*1.3*	*1.6*	--
04...	*0.047*	*0.89*	*0.901*	--	*0.011*	*0.27*	*0.28*	*0.007*	*0.010*	*0.058*	*1.2*	*1.2*	--
04...	*0.048*	*0.97*	*0.977*	--	*0.010*	*0.23*	*0.73*	*0.007*	*0.013*	*0.056*	*1.3*	*1.8*	--
04...	*0.043*	*0.90*	*0.908*	--	*0.008*	--	--	*0.008*	*0.039*	*0.092*	--	--	--
04...	*0.040*	*0.91*	*0.916*	--	*0.008*	--	*0.43*	*0.008*	*0.040*	*0.085*	--	*1.4*	--
04...	*0.043*	*0.91*	*0.914*	--	*0.009*	*0.20*	*0.41*	*0.012*	*0.037*	*0.092*	*1.2*	*1.4*	--
04...	*0.046*	*0.90*	*0.905*	--	*0.009*	*0.20*	*0.42*	*0.011*	*0.042*	*0.090*	*1.1*	*1.4*	--
04...	*0.044*	*0.99*	*0.998*	--	*0.008*	--	--	*0.009*	*0.013*	--	*1.4*	--	--
04...	*0.045*	*0.95*	*0.956*	--	*0.008*	--	--	*0.009*	*0.014*	--	*1.5*	--	--
04...	*0.044*	*0.95*	*0.962*	--	*0.008*	--	--	*0.009*	*0.014*	--	*1.3*	--	--
04...	*0.044*	*1.00*	*1.01*	--	*0.008*	--	--	*0.009*	*0.014*	--	*1.3*	--	--
20...	E.03	1.14	1.15	--	0.010	--	--	<0.007	0.010	0.047	1.4	1.6	--
20...	--	--	--	--	--	--	--	--	*<0.01*	--	--	--	--
JUL													
01...	*<0.04*	--	*<0.06*	--	*<0.002*	--	--	*<0.007*	*<0.004*	*<0.004*	--	--	--
01...	--	--	--	--	--	--	--	--	*<0.01*	--	--	--	*<0.1*
01...	0.04	1.19	1.21	--	0.012	0.26	0.35	<0.007	0.008	0.042	1.5	1.6	--
01...	--	--	--	--	--	--	--	--	*<0.01*	--	--	--	*1.1*
AUG													
06...	E.03	1.08	1.10	--	0.020	--	--	0.010	0.019	0.055	1.4	1.5	--
06...	--	--	--	--	--	--	--	--	*0.01*	--	--	--	--
SEP													
04...	0.08	1.05	1.09	--	0.045	0.19	0.29	0.009	0.016	0.049	1.4	1.5	--
04...	--	--	--	--	--	--	--	--	*0.01*	--	--	--	--
10...	E.03	0.92	0.94	--	0.021	--	--	0.012	0.022	0.058	1.2	1.4	--
10...	--	--	--	--	--	--	--	--	*0.02*	--	--	--	--
24...	0.05	1.31	1.32	--	0.011	0.26	0.45	0.025	0.036	0.114	1.6	1.8	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, water, unfltrd mg/L (00680)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	COD, low level, water, unfltrd mg/L (00335)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)
JUN													
04...	--	4.5	--	--	38	39.8	91.3	<0.006	E.040	0.023	0.012	<0.005	83.4
04...	*2.5*	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	*4.0*	--	--	*38*	*39.2*	*91.7*	--	--	--	--	--	--
04...	*2.5*	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	*4.2*	--	--	*35*	*38.2*	*90.1*	--	--	--	--	--	--
04...	*2.3*	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	*4.3*	--	--	*34*	*37.7*	*88.9*	--	--	--	--	--	--
04...	*2.4*	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	*2.9*	--	--	--	--	--	--	--	--	--	--	--
04...	--	*2.9*	--	--	--	--	--	--	--	--	--	--	--
04...	--	*2.9*	--	--	--	--	--	--	--	--	--	--	--
04...	--	*S3.2*	--	--	--	--	--	--	--	--	--	--	--
04...	*3.0*	*3.8*	*2.4*	*12*	--	--	--	--	--	--	--	--	--
04...	*3.0*	*3.5*	*2.5*	*11*	--	--	--	--	--	--	--	--	--
04...	*2.9*	*3.4*	*2.2*	*11*	--	--	--	--	--	--	--	--	--
04...	*3.0*	*3.5*	*2.2*	*14*	--	--	--	--	--	--	--	--	--
04...	*2.7*	*2.7*	--	--	--	--	--	--	--	--	--	--	--
04...	*2.6*	*3.2*	--	--	--	--	--	--	--	--	--	--	--
04...	*2.4*	*2.6*	--	--	--	--	--	--	--	--	--	--	--
04...	*2.5*	*2.7*	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	2.7	--	--	--	--	--	--	--	--	--	--	--
20...	*2.0*	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
01...	--	*<0.4*	--	--	*<8*	*<0.4*	*<0.4*	--	--	--	--	--	--
01...	*0.4*	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	3.6	--	--	23	1.9	91.6	<0.006	E.028	<0.006	<0.004	<0.005	94.9
01...	*2.7*	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06...	--	3.5	--	--	--	--	--	<0.006	E.017	<0.006	<0.004	<0.005	95.5
06...	*2.7*	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	*2.2*	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	4.0	--	--	--	--	--	<0.006	E.012	<0.006	<0.004	<0.005	85.8
10...	*3.5*	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	5.5	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Atrazine, water, fltrd, ug/L (39632)	Azinphos-methyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)
JUN													
04...	0.506	<0.050	<0.010	<0.002	E.006	E.005	<0.005	<0.006	<0.018	<0.003	<0.005	93.8	<0.005
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	0.113	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	113	<0.005
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06...	0.051	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	105	<0.005
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	0.029	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	E.003	101	<0.005
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)
JUN													
04...	<0.02	0.004	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.226	<0.006	<0.002	<0.007
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.038	<0.006	<0.002	<0.007
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.019	<0.006	<0.002	<0.007
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.017	<0.006	<0.002	<0.007
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)
JUN													
04...	<0.003	<0.010	<0.004	<0.022	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.031	<0.02	<0.034
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
01...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.018	<0.02	<0.034
01...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06...	<0.003	<0.010	<0.004	<0.022	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02	<0.034
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.010	<0.02	<0.034
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--	--

01578310 SUSQUEHANNA RIVER AT CONOWINGO, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
JUN						
04...	<0.02	<0.005	<0.002	<0.009	22	8,850
04...	--	--	--	--	--	--
04...	--	--	--	--	*19*	--
04...	--	--	--	--	--	--
04...	--	--	--	--	*19*	--
04...	--	--	--	--	--	--
04...	--	--	--	--	*18*	--
04...	--	--	--	--	--	--
04...	--	--	--	--	*17*	--
04...	--	--	--	--	*18*	--
04...	--	--	--	--	*16*	--
04...	--	--	--	--	*20*	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
04...	--	--	--	--	--	--
20...	--	--	--	--	8	565
20...	--	--	--	--	--	--
JUL						
01...	--	--	--	--	*0.2*	--
01...	--	--	--	--	--	--
01...	<0.02	<0.005	<0.002	<0.009	7	848
01...	--	--	--	--	--	--
AUG						
06...	<0.02	<0.005	<0.002	<0.009	14	2,170
06...	--	--	--	--	--	--
SEP						
04...	--	--	--	--	11	1,010
04...	--	--	--	--	--	--
10...	<0.02	<0.005	<0.002	<0.009	14	1,820
10...	--	--	--	--	--	--
24...	--	--	--	--	29	10,600
24...	--	--	--	--	*30*	--

Remark codes used in this table:
< -- Less than
E -- Estimated value

01580000 DEER CREEK AT ROCKS, MD

LOCATION.--Lat 39°37'47.9", long 76°24'11.9", Harford County, Hydrologic Unit 02050306, on right bank 0.3 mi upstream from bridge on Cherry Hill Road, 0.8 mi southeast of Rocks, 1.2 mi upstream from Stirrup Run, and 23.5 mi upstream from mouth.

DRAINAGE AREA.--94.4 mi^2.

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for November and December 1926, published in WSP 1302.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1502: 1927-36 (maximum and minimum only 1927-29, maximum only 1930-32, 1936).

GAGE.--Water-stage recorder. Concrete control since Sept. 7, 1938. Datum of gage is 250.40 ft above National Geodetic Vertical Datum of 1929.(Baltimore City bench mark).

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are fair. Prior to 1965, some regulation at low flow by mills upstream from station. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1888, that of Aug. 23, 1933.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 13	2045	2,600	6.97	Sep 23	0900	*2,900	*7.40

Minimum discharge, 16 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	90	61	247	e100	125	197	135	246	167	130	96
2	21	73	58	647	e94	244	184	130	185	166	134	149
3	19	64	56	344	e90	459	172	123	167	235	127	117
4	20	60	57	328	113	190	164	122	405	204	159	299
5	21	57	55	229	106	268	161	122	392	172	147	168
6	18	94	77	203	e86	1,030	153	126	244	181	278	121
7	17	72	e64	184	95	e382	167	124	479	265	148	109
8	16	61	68	177	e90	e353	191	131	370	177	142	102
9	16	57	62	182	e86	815	221	163	291	163	134	97
10	21	54	63	167	87	371	196	154	246	517	129	92
11	194	81	236	148	e87	218	220	137	227	230	301	90
12	145	121	331	135	e82	207	205	128	216	196	186	93
13	61	153	190	e130	e78	306	176	122	545	180	137	186
14	44	92	390	e126	e74	285	162	116	356	163	125	202
15	37	82	217	e120	83	214	157	111	284	157	117	130
16	259	133	162	e116	145	208	153	230	213	152	398	120
17	193	358	133	e113	257	227	145	213	196	144	346	105
18	81	233	117	e104	439	210	154	156	248	141	166	111
19	60	138	109	e95	379	181	157	139	239	145	135	447
20	51	110	146	e120	326	392	145	129	717	136	124	167
21	45	97	137	e105	e350	582	143	130	450	133	119	132
22	42	111	112	e100	e900	291	151	130	314	137	116	123
23	40	93	103	e96	e1,000	237	141	128	263	220	111	1,390
24	41	81	96	e100	e500	209	134	167	231	196	103	330
25	43	76	193	e95	258	190	132	250	213	146	100	221
26	80	71	170	e102	181	187	205	472	201	133	99	229
27	64	71	130	e94	148	201	181	263	193	130	103	182
28	50	68	117	e94	136	170	147	236	184	128	103	208
29	52	64	113	e120	---	186	139	217	178	127	98	164
30	131	63	109	e105	---	269	133	184	173	121	101	147
31	133	---	109	e110	---	241	---	204	---	121	97	---
TOTAL	2,037	2,978	4,041	5,036	6,370	9,448	4,986	5,192	8,666	5,483	4,713	6,127
MEAN	65.7	99.3	130	162	228	305	166	167	289	177	152	204
MAX	259	358	390	647	1,000	1,030	221	472	717	517	398	1,390
MIN	16	54	55	94	74	125	132	111	167	121	97	90
CFSM	0.70	1.05	1.38	1.72	2.41	3.23	1.76	1.77	3.06	1.87	1.61	2.16
IN.	0.80	1.17	1.59	1.98	2.51	3.72	1.96	2.05	3.41	2.16	1.86	2.41

e Estimated

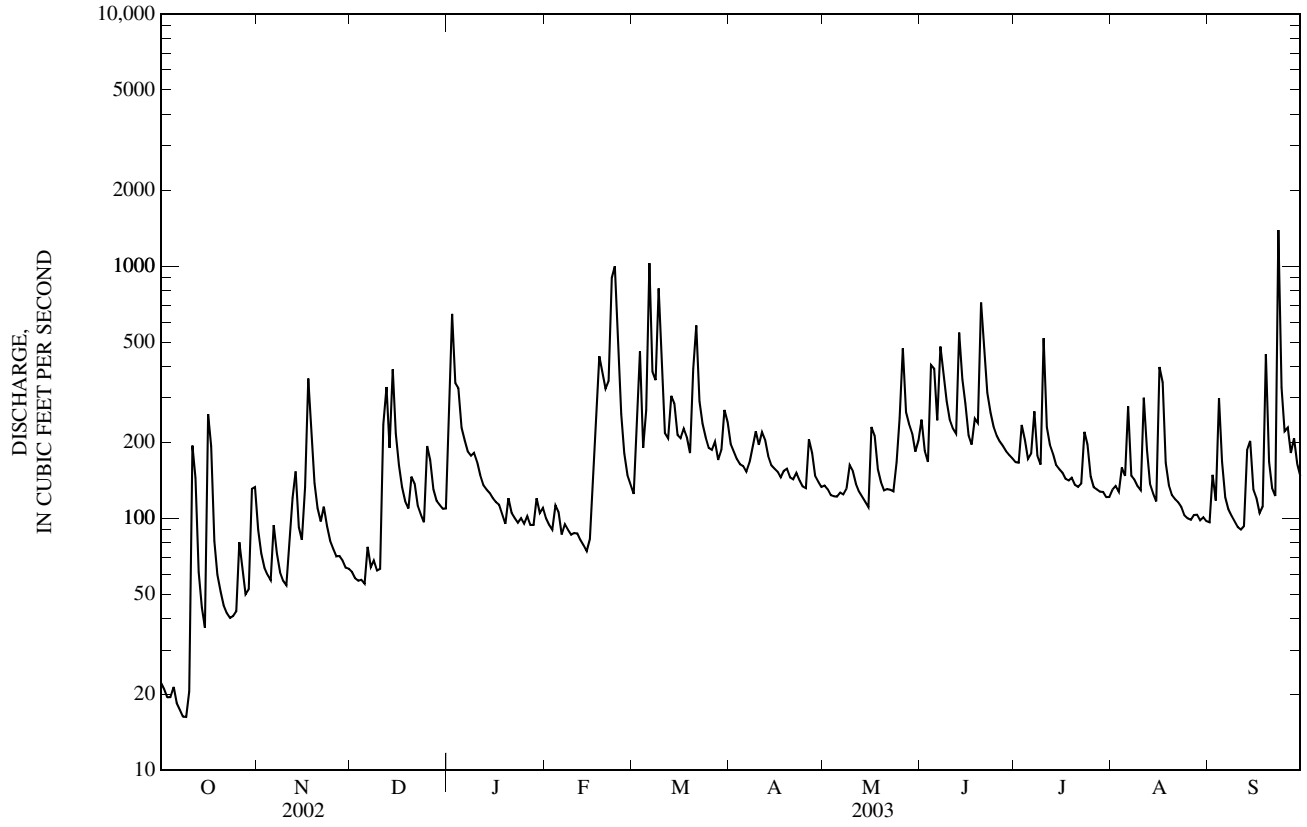
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 2003, BY WATER YEAR (WY)

MEAN	82.6	101	116	142	161	171	168	148	124	103	93.2	87.3
MAX	317	266	392	422	415	486	379	421	576	279	362	345
(WY)	(1980)	(1927)	(1997)	(1996)	(1979)	(1994)	(1984)	(1989)	(1972)	(1972)	(1933)	(1975)
MIN	26.0	32.5	37.8	41.7	37.6	59.8	47.8	47.7	35.2	15.7	14.7	26.1
(WY)	(1964)	(1932)	(1966)	(1966)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01580000 DEER CREEK AT ROCKS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1927 - 2003	
ANNUAL TOTAL	19,076.6		65,077			
ANNUAL MEAN	52.3		178		125	
HIGHEST ANNUAL MEAN					224	1972
LOWEST ANNUAL MEAN					36.3	2002
HIGHEST DAILY MEAN	390	Dec 14	1,390	Sep 23	6,610	Jun 22, 1972
LOWEST DAILY MEAN	4.0	Aug 22	16	(a)	4.0	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	5.0	Aug 17	18	Oct 3	5.0	Aug 17, 2002
MAXIMUM PEAK FLOW			2,900	Sep 23	(b)13,600	Aug 23, 1933
MAXIMUM PEAK STAGE			7.40	Sep 23	(c)17.70	Aug 23, 1933
INSTANTANEOUS LOW FLOW			16	(a)	3.5	Aug 22, 2002
ANNUAL RUNOFF (CFSM)	0.55		1.89		1.32	
ANNUAL RUNOFF (INCHES)	7.52		25.64		17.94	
10 PERCENT EXCEEDS	109		319		211	
50 PERCENT EXCEEDS	40		142		93	
90 PERCENT EXCEEDS	13		64		44	

a Oct. 8, 9.
b From rating curve extended above 3,000 ft^3/s, on basis of slope-area measurements at gage heights 13.3 and 17.7 ft.
c From floodmarks.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581500 BYNUM RUN AT BEL AIR, MD

LOCATION.--Lat 39°32'29.3", long 76°19'48.4", Harford County, Hydrologic Unit 02060003, on right bank 30 ft downstream from bridge on State Highway 22, 1.0 mi east of Bel Air, and 8.5 mi upstream from mouth.

DRAINAGE AREA.--8.52 mi^2.

PERIOD OF RECORD.--June 1944 to April 1951, July 1955 to September 1970, June 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 251.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 440 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1545	488	3.61	Jun 13	2130	2,740	6.83
Dec 25	1045	586	3.87	Jun 20	1445	1,610	5.61
Feb 22	1530	662	4.05	Aug 11	0000	2,480	6.58
Mar 20	1830	742	4.22	Aug 16	1515	2,130	6.21
May 26	0545	1,170	4.98	Sep 4	0945	777	4.29
Jun 7	1430	528	3.72	Sep 23	0630	*3,500	*7.49
Jun 12	2030	1,680	5.69				

Minimum discharge, 0.93 ft^3/s, on Oct. 1-4, 6-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	8.0	4.7	75	11	11	15	7.9	19	8.0	4.6	7.9
2	0.95	6.5	4.5	34	8.2	71	14	7.4	10	9.2	4.8	8.9
3	0.93	5.9	4.0	61	7.0	35	13	6.8	11	42	4.5	7.6
4	1.0	6.1	3.5	28	20	16	12	6.6	67	12	31	123
5	1.1	7.6	5.6	13	8.8	39	12	6.6	32	7.0	22	15
6	0.99	30	4.8	14	6.4	109	11	7.0	15	8.6	12	8.1
7	1.0	7.6	4.4	12	8.0	25	25	13	143	13	5.8	6.7
8	0.97	5.8	4.7	14	6.6	32	21	21	32	6.6	5.3	6.5
9	0.98	5.1	4.9	14	6.7	62	39	21	19	7.3	6.3	6.1
10	10	5.4	4.3	10	6.2	23	18	12	14	8.9	67	5.7
11	131	15	120	8.5	5.7	15	37	9.2	13	11	190	5.7
12	21	62	54	8.0	5.3	16	20	7.5	218	8.5	19	9.9
13	5.7	19	65	7.8	5.4	26	14	6.2	325	8.2	8.1	47
14	3.2	8.5	72	7.5	4.9	22	13	6.1	41	5.9	6.4	11
15	2.4	6.7	16	7.1	5.3	15	12	5.6	14	5.6	5.9	62
16	129	86	9.8	6.6	9.2	15	11	64	10	5.5	255	15
17	15	103	8.0	7.2	31	18	11	20	10	5.1	44	8.3
18	6.1	37	7.0	6.6	e24	14	11	11	25	5.0	11	28
19	4.0	11	7.1	6.5	11	11	11	8.9	15	5.0	7.8	69
20	3.3	8.3	41	6.6	9.8	182	9.9	7.5	267	4.6	6.7	11
21	2.6	7.5	13	6.1	14	58	9.9	11	35	4.5	6.4	8.0
22	2.3	7.1	9.0	5.6	227	21	10	9.2	19	19	8.7	9.3
23	2.2	6.4	8.0	5.5	128	17	8.6	13	11	23	7.7	567
24	2.3	5.8	7.4	5.5	40	15	8.0	39	8.8	8.2	6.2	20
25	3.5	5.6	120	5.8	20	13	8.1	24	7.5	5.2	5.9	12
26	27	5.3	31	5.9	15	18	26	241	6.9	4.8	5.9	11
27	5.6	8.1	14	5.4	12	17	12	21	6.6	4.7	7.2	8.7
28	3.6	5.6	10	5.2	12	15	8.7	22	6.3	4.8	6.4	27
29	19	5.2	10	5.8	---	23	8.2	15	6.6	5.0	5.7	9.1
30	30	5.2	10	5.7	---	41	7.7	11	8.0	4.3	13	8.2
31	21	---	13	5.9	---	22	---	24	---	4.2	6.3	---
TOTAL	458.82	506.3	690.7	409.8	668.5	1,017	437.1	685.5	1,415.7	274.7	796.6	1,142.7
MEAN	14.8	16.9	22.3	13.2	23.9	32.8	14.6	22.1	47.2	8.86	25.7	38.1
MAX	131	103	120	75	227	182	39	241	325	42	255	567
MIN	0.93	5.1	3.5	5.2	4.9	11	7.7	5.6	6.3	4.2	4.5	5.7
CFSM	1.74	1.98	2.62	1.55	2.80	3.85	1.71	2.60	5.54	1.04	3.02	4.47
IN.	2.00	2.21	3.02	1.79	2.92	4.44	1.91	2.99	6.18	1.20	3.48	4.99

e Estimated

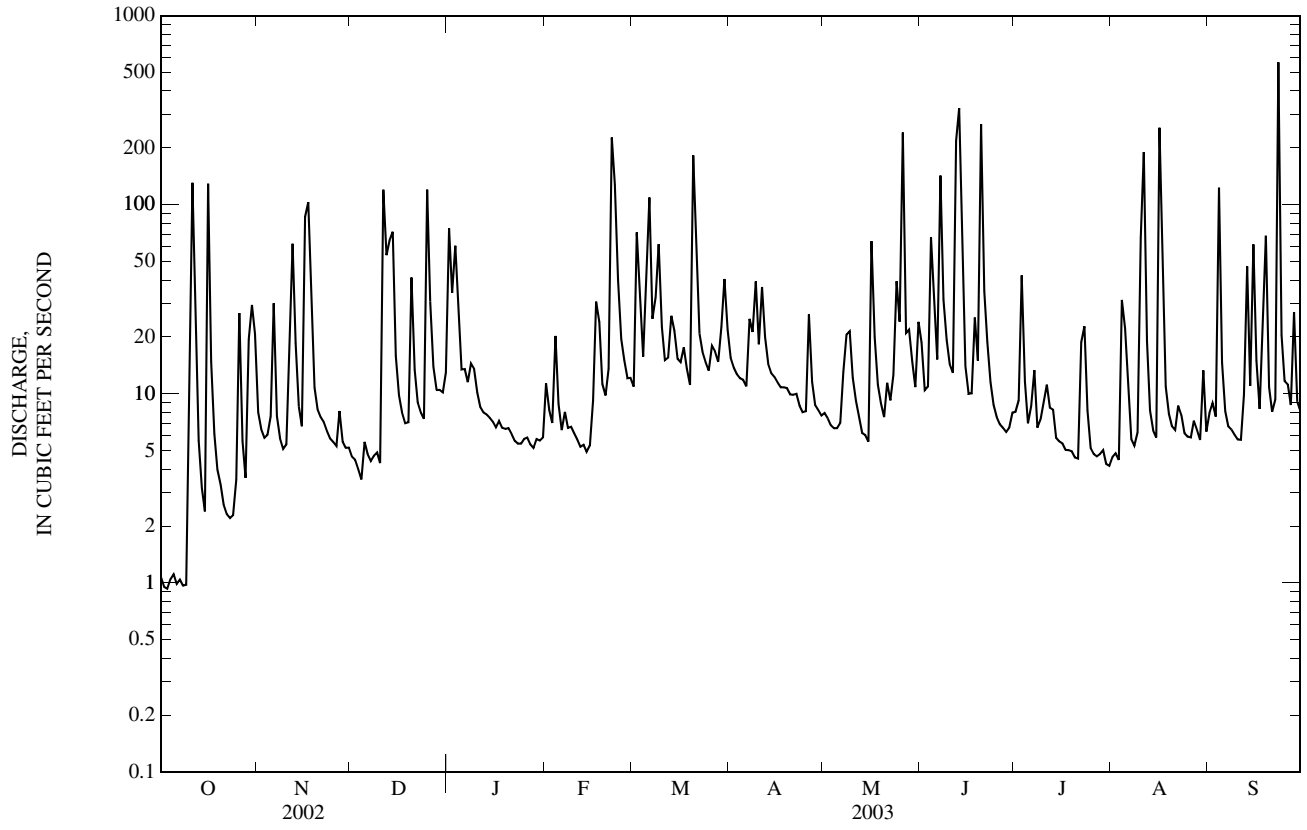
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1951, 1955 - 1970, 1999 - 2003, BY WATER YEAR (WY)

MEAN	4.90	8.44	12.5	12.6	16.6	18.3	13.6	10.5	8.96	6.18	8.65	10.8
MAX	14.8	20.8	36.5	33.4	35.2	38.2	29.7	25.2	47.2	21.7	63.0	90.1
(WY)	(2003)	(1957)	(1958)	(1958)	(1961)	(1958)	(1961)	(1948)	(2003)	(1945)	(1967)	(1999)
MIN	0.95	1.74	1.74	2.46	3.19	5.68	4.17	2.89	2.07	0.92	0.96	0.97
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(1966)	(1963)	(1963)	(1969)	(1963)	(1966)	(1962)

01581500 BYNUM RUN AT BEL AIR, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 1951 1955 - 1970, 1999 - 2003	
ANNUAL TOTAL	3,181.46		8,503.42			
ANNUAL MEAN	8.72		23.3		10.7	
HIGHEST ANNUAL MEAN					23.3	2003
LOWEST ANNUAL MEAN					4.96	2002
HIGHEST DAILY MEAN	131	Oct 11	567	Sep 23	2,320	Sep 16, 1999
LOWEST DAILY MEAN	0.01	Aug 22	0.93	Oct 3	0.01	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.05	Aug 16	0.99	Oct 2	0.05	Aug 16, 2002
MAXIMUM PEAK FLOW			3,500	Sep 23	(a)7,330	Sep 16, 1999
MAXIMUM PEAK STAGE			7.49	Sep 23	9.91	Sep 16, 1999
INSTANTANEOUS LOW FLOW			0.93	(b)	0.00	(c)
ANNUAL RUNOFF (CFSM)	1.02		2.73		1.25	
ANNUAL RUNOFF (INCHES)	13.89		37.13		17.03	
10 PERCENT EXCEEDS	18		41		19	
50 PERCENT EXCEEDS	3.6		9.3		4.9	
90 PERCENT EXCEEDS	0.57		4.8		1.6	

a From rating curve extended above 560 ft^3/s on basis of contracted-opening measurement at gage height 6.18 ft.
b Oct. 1-4, 6-9.
c Sept. 8-10, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581700 WINTERS RUN NEAR BENSON, MD

LOCATION.--Lat 39°31'11.8", long 76°22'22.7", Harford County, Hydrologic Unit 02060003, on left bank 30 ft downstream from bridge on U.S. Highway 1, 0.1 mi upstream from Heavenly Waters, 1.2 mi northeast of Benson, 1.8 mi southwest of Bel Air, and 10.5 mi upstream from mouth.

DRAINAGE AREA.--34.8 mi^2.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 195 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good below 200 ft^3/s and fair above except those for estimated daily discharges (ice effect, questionable record), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1630	1,710	5.59	Jun 20	1430	1,010	4.41
Jun 12	2030	1,020	4.42	Aug 16	1515	1,100	4.58
Jun 13	2045	1,990	5.99	Sep 23	0630	*2,680	*6.90

Minimum discharge, 5.0 ft^3/s, Oct. 6-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	30	24	149	e36	51	71	47	92	59	40	32
2	6.8	25	24	163	e33	173	66	46	63	60	40	41
3	6.2	24	23	137	e32	172	62	44	60	135	38	39
4	6.0	23	24	108	54	77	59	44	194	84	68	214
5	6.2	22	28	66	38	119	59	44	162	63	59	60
6	5.3	53	30	60	e32	371	55	45	82	64	56	42
7	5.1	29	e26	53	e30	130	74	46	279	137	43	36
8	5.1	24	26	56	e29	134	76	74	141	65	41	34
9	5.3	23	24	57	e29	268	99	73	94	60	43	32
10	11	21	25	50	e29	120	76	65	76	67	41	31
11	166	43	188	45	e28	79	105	53	70	70	86	30
12	52	98	133	42	e28	81	79	48	193	61	50	37
13	21	69	111	e40	e27	119	65	44	371	61	40	214
14	15	34	194	e36	e27	110	59	42	e210	53	36	94
15	12	28	77	e34	e29	84	57	40	e100	50	34	67
16	206	113	52	e32	24	83	56	175	e85	48	205	52
17	67	252	42	e33	81	91	54	98	78	45	99	41
18	28	105	37	e34	129	80	60	66	107	45	49	60
19	21	52	35	e32	95	69	60	55	92	46	40	130
20	18	42	69	e31	73	274	54	49	351	43	37	54
21	16	36	47	e30	63	199	53	54	167	42	35	45
22	15	35	38	e28	597	97	55	51	109	61	38	44
23	14	32	34	e27	e460	82	51	55	89	79	40	713
24	13	30	32	e26	e190	74	48	88	77	50	32	99
25	15	28	183	e28	96	69	49	79	71	43	31	67
26	45	27	87	e26	71	73	88	389	66	41	31	63
27	24	30	54	e25	60	73	65	e104	63	40	32	53
28	18	27	45	e26	56	66	53	99	59	40	33	61
29	30	26	42	e26	---	81	50	80	59	40	31	47
30	53	26	40	e28	---	115	48	66	64	37	35	42
31	49	---	43	e32	---	91	---	72	---	37	32	---
TOTAL	962.2	1,407	1,837	1,560	2,476	3,705	1,906	2,335	3,724	1,826	1,515	2,574
MEAN	31.0	46.9	59.3	50.3	88.4	120	63.5	75.3	124	58.9	48.9	85.8
MAX	206	252	194	163	597	371	105	389	371	137	205	713
MIN	5.1	21	23	25	24	51	48	40	59	37	31	30
CFSM	0.89	1.35	1.70	1.45	2.54	3.43	1.83	2.16	3.57	1.69	1.40	2.47
IN.	1.03	1.50	1.96	1.67	2.65	3.96	2.04	2.50	3.98	1.95	1.62	2.75

e Estimated

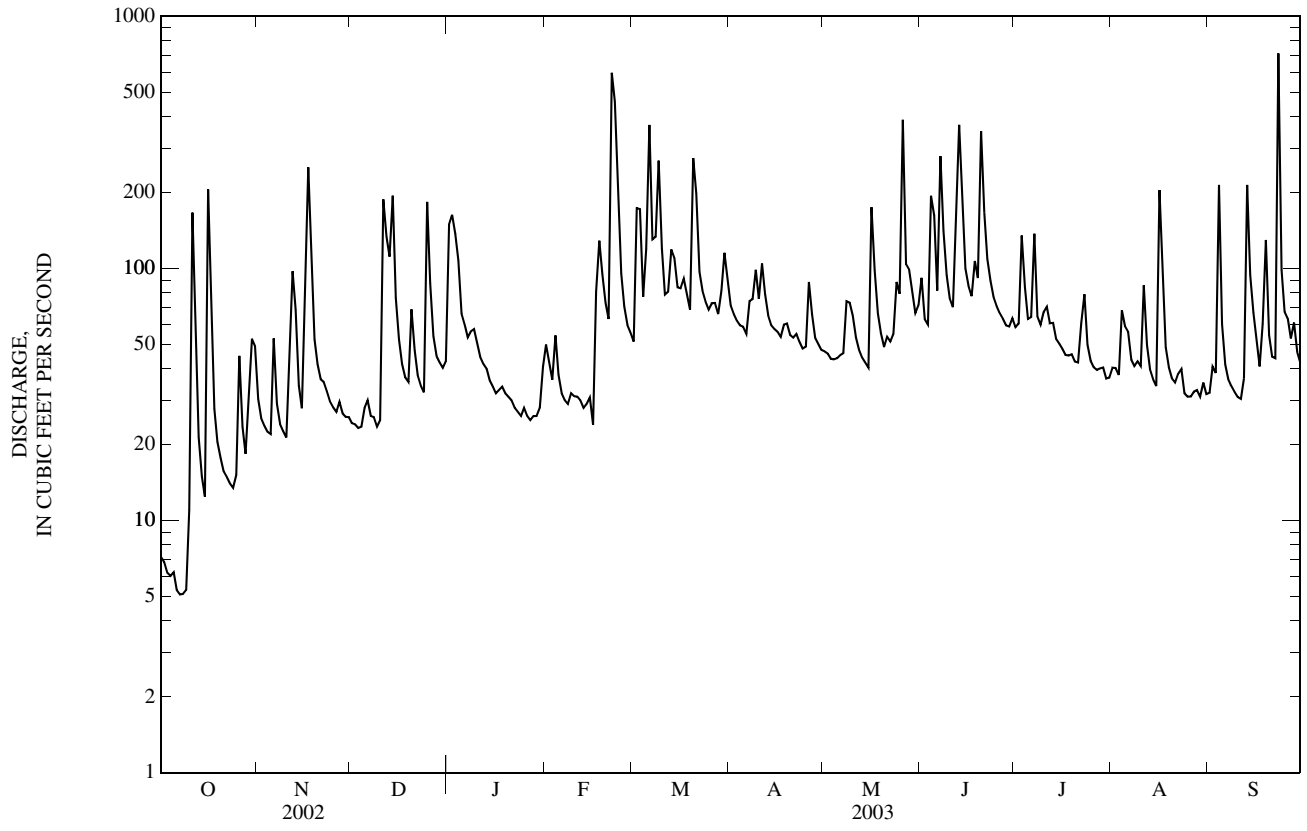
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2003, BY WATER YEAR (WY)

MEAN	35.3	44.4	53.3	62.5	67.1	70.5	62.8	58.8	51.6	42.1	36.1	40.9
MAX	94.0	93.5	149	167	151	163	134	162	204	133	137	140
(WY)	(1980)	(1997)	(1997)	(1996)	(1979)	(1994)	(1983)	(1989)	(1972)	(1975)	(1971)	(1975)
MIN	10.3	12.5	16.1	16.9	14.6	22.5	20.5	17.9	11.9	5.56	3.40	10.4
(WY)	(2002)	(1982)	(2002)	(1981)	(2002)	(1981)	(2002)	(1969)	(2002)	(2002)	(2002)	(1986)

01581700 WINTERS RUN NEAR BENSON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 2003	
ANNUAL TOTAL	8,299.45		25,827.2			
ANNUAL MEAN	22.7		70.8		51.8	
HIGHEST ANNUAL MEAN					86.0	1972
LOWEST ANNUAL MEAN					14.5	2002
HIGHEST DAILY MEAN	252	Nov 17	713	Sep 23	3,000	Jun 22, 1972
LOWEST DAILY MEAN	0.38	Aug 22	5.1	(a)	0.38	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.55	Aug 17	5.6	Oct 3	0.55	Aug 17, 2002
MAXIMUM PEAK FLOW			2,680	Sep 23	(b)7,600	Jun 22, 1972
MAXIMUM PEAK STAGE			6.90	Sep 23	11.60	Jun 22, 1972
INSTANTANEOUS LOW FLOW			5.0	(c)	0.34	(d)
ANNUAL RUNOFF (CFSM)	0.65		2.03		1.49	
ANNUAL RUNOFF (INCHES)	8.87		27.61		20.23	
10 PERCENT EXCEEDS	43		133		87	
50 PERCENT EXCEEDS	16		52		37	
90 PERCENT EXCEEDS	3.6		25		15	

a Oct. 7, 8.
b From rating curve extended above 4,600 ft^3/s.
c Oct. 6-9.
d Aug. 22, 23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581752 PLUMTREE RUN NEAR BEL AIR, MD

LOCATION.--Lat 39°29'47.0", long 76°20'52.0", Harford County, Hydrologic Unit 02060003, on downstream side of bridge on Plumtree Road, 0.7 mi upstream from Atkisson Reservoir, and 2.5 mi south of Bel Air.

DRAINAGE AREA.--2.50 mi^2.

PERIOD OF RECORD.--October 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 170 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 215 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1245	286	3.89	Jun 20	1345	378	4.30
May 26	0545	218	3.53	Jun 21	1600	530	4.87
Jun 7	1415	216	3.52	Aug 11	0000	*1,020	*6.21
Jun 12	2000	468	4.65	Aug 16	1545	446	4.57
Jun 13	2030	288	3.90	Sep 23	0530	679	5.34

Minimum discharge, 0.23 ft^3/s, Oct. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.40	1.6	1.3	18	4.1	3.3	4.0	2.4	5.6	3.1	1.4	3.3
2	0.34	1.4	1.3	7.0	2.1	23	3.8	3.7	3.4	4.2	1.5	3.0
3	0.32	1.3	1.2	15	1.7	8.6	3.6	2.5	4.2	16	1.3	2.9
4	0.31	1.2	1.2	6.1	6.1	5.3	3.4	2.2	16	4.4	13	24
5	0.30	2.1	e2.0	3.9	2.1	9.9	3.3	2.2	5.8	4.7	5.3	3.0
6	0.28	9.3	e1.7	4.5	1.7	29	3.0	2.2	3.8	4.4	4.0	2.4
7	0.26	1.7	1.4	3.4	2.6	7.1	9.3	4.4	47	4.5	1.9	2.2
8	0.25	1.3	1.5	4.1	e1.8	8.2	5.2	4.8	8.4	2.7	1.6	2.1
9	0.25	1.2	e1.6	3.4	e1.7	12	11	7.6	5.1	3.6	3.2	2.1
10	7.5	1.2	1.5	2.8	e1.6	5.8	4.5	3.8	4.1	3.8	33	2.0
11	47	4.4	34	2.5	e1.5	4.3	11	2.8	3.7	3.8	82	2.0
12	4.5	13	11	2.2	e1.5	4.2	5.3	2.4	57	7.7	6.3	4.9
13	1.4	3.5	18	2.2	1.6	5.9	4.0	2.2	30	4.0	3.3	22
14	0.85	2.0	14	2.0	1.5	5.2	3.6	2.1	10	2.5	2.6	3.3
15	0.75	1.6	4.2	e1.9	1.6	4.2	3.5	2.0	5.7	2.2	2.2	24
16	34	26	2.9	e1.8	e3.0	4.2	3.3	24	4.7	2.1	38	3.7
17	3.5	24	2.3	1.8	e8.0	5.0	3.1	5.3	5.2	1.9	11	2.7
18	1.7	8.1	2.0	e1.8	e5.0	4.0	3.1	3.1	9.9	1.8	3.5	16
19	1.2	3.1	1.9	e1.8	e3.4	3.5	3.0	2.5	6.5	1.8	2.9	12
20	0.97	2.3	16	e1.8	e2.4	45	2.8	2.2	54	1.7	2.7	3.2
21	0.87	2.0	3.6	e1.7	e3.0	13	2.8	6.3	48	1.6	2.5	2.7
22	0.75	1.9	2.5	e1.7	69	6.0	3.0	3.1	11	3.5	2.7	3.3
23	0.70	1.7	2.1	e1.6	28	4.8	2.6	3.9	6.4	4.6	2.5	88
24	0.67	1.6	1.9	e1.6	9.6	4.3	2.4	12	4.7	4.0	2.2	6.0
25	1.2	1.6	31	e1.7	5.3	4.0	2.5	7.5	4.1	1.8	2.2	4.3
26	10	1.4	8.3	e1.6	4.3	7.4	15	52	3.6	1.5	2.2	4.6
27	1.2	3.0	4.0	e1.6	3.6	4.7	3.8	6.3	3.3	1.4	2.4	3.5
28	0.95	1.5	3.1	e1.5	3.9	4.8	3.0	7.0	3.1	2.1	2.3	19
29	8.0	1.5	3.0	e1.4	---	8.0	2.7	4.2	2.9	2.0	2.1	3.8
30	7.0	1.3	2.8	e1.4	---	11	2.4	3.5	4.0	1.3	2.4	3.3
31	4.4	---	3.2	e1.5	---	5.3	---	10	---	1.3	2.1	---
TOTAL	141.82	127.8	186.5	105.3	181.7	271.0	134.0	200.2	381.2	106.0	246.3	279.3
MEAN	4.57	4.26	6.02	3.40	6.49	8.74	4.47	6.46	12.7	3.42	7.95	9.31
MAX	47	26	34	18	69	45	15	52	57	16	82	88
MIN	0.25	1.2	1.2	1.4	1.5	3.3	2.4	2.0	2.9	1.3	1.3	2.0
CFSM	1.83	1.70	2.41	1.36	2.60	3.50	1.79	2.58	5.08	1.37	3.18	3.72
IN.	2.11	1.90	2.78	1.57	2.70	4.03	1.99	2.98	5.67	1.58	3.66	4.16

e Estimated

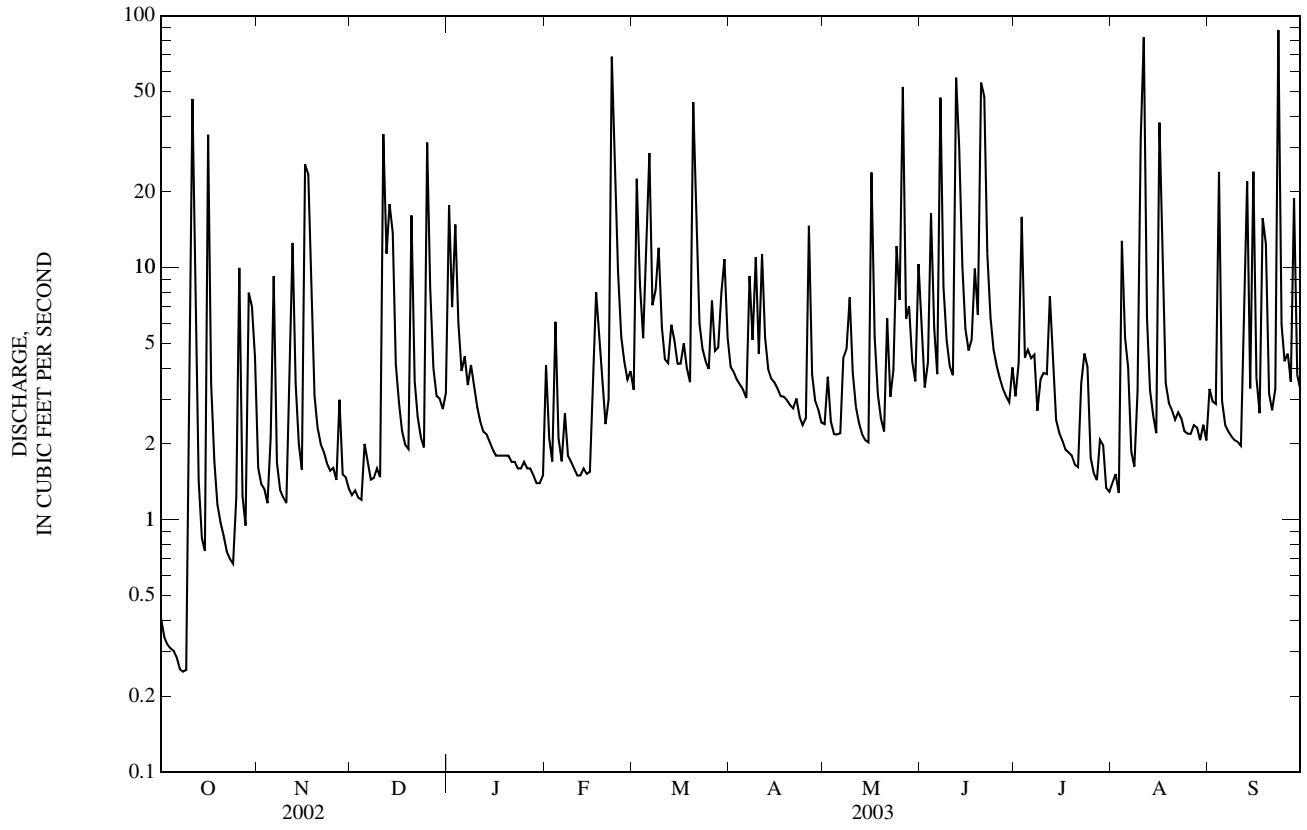
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	2.69	2.69	3.65	2.68	3.74	6.20	3.26	4.34	7.28	2.12	4.43	5.51
MAX	4.57	4.26	6.02	3.40	6.49	8.74	4.47	6.46	12.7	3.42	7.95	9.31
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	0.80	1.13	1.28	1.95	0.98	3.65	2.06	2.22	1.85	0.81	0.91	1.70
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01581752 PLUMTREE RUN NEAR BEL AIR, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	947.78		2,361.12			
ANNUAL MEAN	2.60		6.47		4.04	
HIGHEST ANNUAL MEAN					6.47	2003
LOWEST ANNUAL MEAN					1.62	2002
HIGHEST DAILY MEAN	47	Oct 11	88	Sep 23	88	Sep 23, 2003
LOWEST DAILY MEAN	0.07	(a)	0.25	(b)	0.07	(a)
ANNUAL SEVEN-DAY MINIMUM	0.08	Aug 17	0.28	Oct 3	0.08	Aug 17, 2002
MAXIMUM PEAK FLOW			(c)1,020	Aug 11	(c)1,020	Aug 11, 2003
MAXIMUM PEAK STAGE			6.21	Aug 11	6.21	Aug 11, 2003
INSTANTANEOUS LOW FLOW			0.23	(d)	0.07	(f)
ANNUAL RUNOFF (CFSM)	1.04		2.59		1.62	
ANNUAL RUNOFF (INCHES)	14.10		35.13		21.97	
10 PERCENT EXCEEDS	5.6		13		8.2	
50 PERCENT EXCEEDS	1.1		3.2		1.6	
90 PERCENT EXCEEDS	0.23		1.4		0.37	

a Aug. 20-22, 2002.
b Oct. 8, 9.
c From rating curve extended above 154 ft^3/s.
d Oct. 7, 8.
f Aug. 19-23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581810 GUNPOWDER FALLS AT HOFFMANVILLE, MD

LOCATION.--Lat 39°41'23.3", long 76°46'53.3", Baltimore County, Hydrologic Unit 02060003, on left bank 500 ft upstream from bridge on Gunpowder Road, 0.4 mi upstream from Walker Run, 0.5 mi north of Hoffmanville, and 0.7 mi upstream from Prettyboy Reservoir.

DRAINAGE AREA.--27.0 mi^2.

PERIOD OF RECORD.--March 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 555 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (backwater, ice effect), which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 475 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1600	733	4.20	Jun 7	1400	542	3.76
Feb 22	1730	634	3.98	Aug 17	0600	476	3.59
Mar 9	1645	498	3.65	Sep 23	0730	*1,200	*5.06

Minimum discharge, 6.9 ft^3/s, Oct. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	26	23	136	35	42	55	32	72	41	32	28
2	7.3	e20	23	163	33	86	51	32	55	44	39	38
3	6.9	e18	21	148	33	106	48	30	62	49	30	34
4	18	e17	e21	98	52	55	46	31	193	45	29	173
5	11	e16	24	73	37	95	46	32	106	40	29	43
6	8.4	32	26	68	33	212	43	35	75	55	39	35
7	7.9	22	23	62	33	88	51	33	241	63	29	30
8	7.7	19	e21	66	31	114	58	43	123	41	27	28
9	7.2	19	e21	65	e31	228	69	53	114	57	27	27
10	9.1	18	23	57	30	91	54	50	86	66	27	26
11	151	23	136	50	29	65	63	42	78	44	213	25
12	39	42	94	45	e28	76	56	36	81	39	45	26
13	22	38	74	44	e28	112	49	34	99	36	37	41
14	17	25	134	42	28	87	46	32	93	34	31	33
15	14	23	71	40	28	72	44	30	69	33	29	29
16	100	33	56	e40	30	70	43	138	63	33	40	28
17	39	103	46	e40	70	72	41	72	60	31	161	25
18	25	125	40	e39	82	66	42	54	65	31	41	30
19	20	46	39	e38	64	58	43	47	61	31	35	107
20	18	38	64	e37	55	163	40	42	104	29	32	39
21	15	39	46	e35	52	141	40	43	83	29	30	33
22	14	45	40	34	321	84	41	41	81	40	29	33
23	14	33	38	e34	330	70	38	40	61	81	27	441
24	13	30	35	e34	130	63	35	49	55	65	26	70
25	16	28	54	e34	70	58	35	121	51	36	25	56
26	31	26	48	e34	54	62	56	109	49	32	26	58
27	19	27	40	e33	47	61	42	66	47	30	29	48
28	16	26	37	e32	44	52	36	110	45	29	27	45
29	21	25	38	e32	---	53	35	74	43	29	25	41
30	47	24	36	e31	---	70	34	62	43	27	25	38
31	40	---	39	e31	---	63	---	63	---	27	26	---
TOTAL	782.2	1,006	1,431	1,715	1,838	2,735	1,380	1,676	2,458	1,267	1,267	1,708
MEAN	25.2	33.5	46.2	55.3	65.6	88.2	46.0	54.1	81.9	40.9	40.9	56.9
MAX	151	125	136	163	330	228	69	138	241	81	213	441
MIN	6.9	16	21	31	28	42	34	30	43	27	25	25
CFSM	0.93	1.24	1.71	2.05	2.43	3.27	1.70	2.00	3.03	1.51	1.51	2.11
IN.	1.08	1.39	1.97	2.36	2.53	3.77	1.90	2.31	3.39	1.75	1.75	2.35

e Estimated

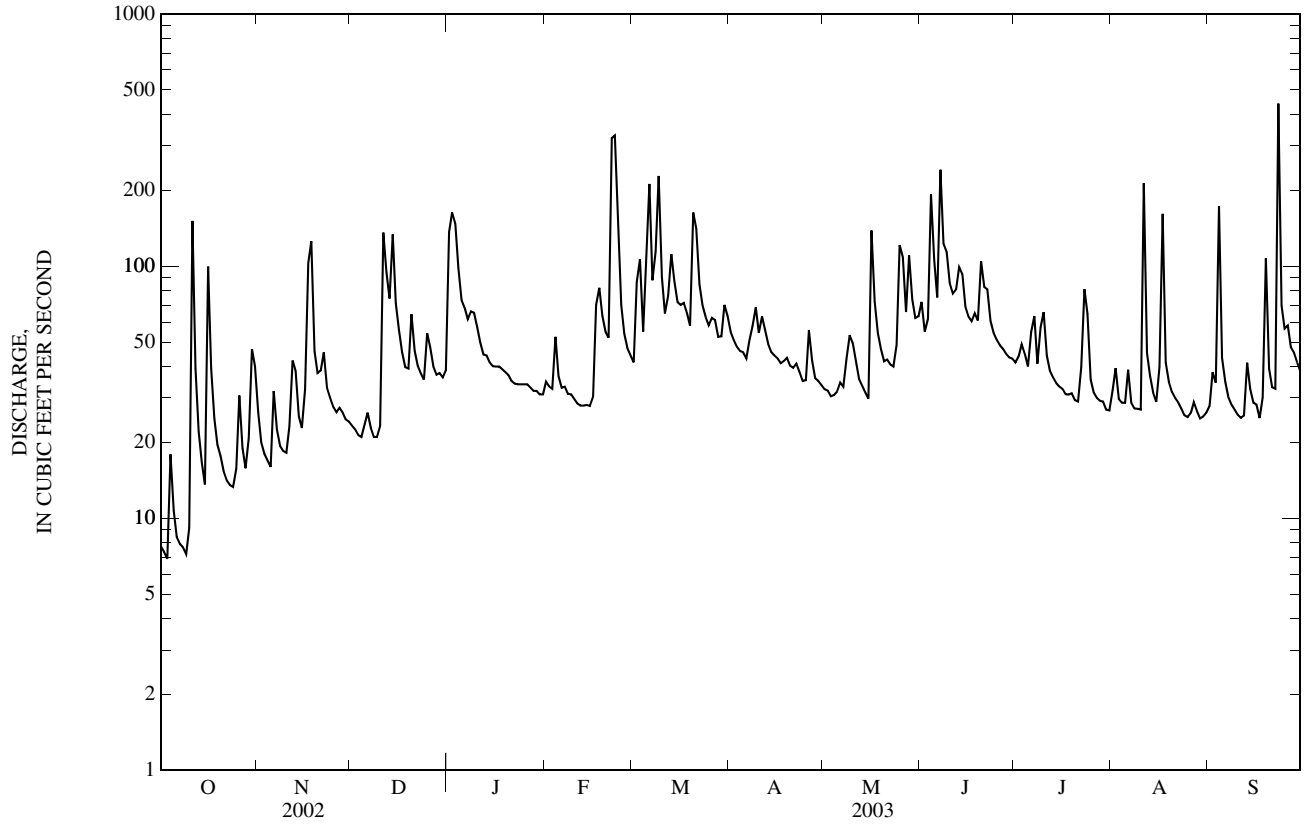
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	18.3	20.6	27.7	31.5	36.5	49.5	33.9	32.7	36.6	21.2	18.4	27.2
MAX	25.2	33.5	46.2	55.3	65.6	88.2	46.0	54.1	81.9	40.9	40.9	56.9
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	11.5	11.1	12.4	14.9	10.7	17.9	13.4	13.9	8.17	4.34	4.98	9.34
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01581810 GUNPOWDER FALLS AT HOFFMANVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	6,180.7		19,263.2			
ANNUAL MEAN	16.9		52.8		29.6	
HIGHEST ANNUAL MEAN					52.8	2003
LOWEST ANNUAL MEAN					11.1	2002
HIGHEST DAILY MEAN	151	Oct 11	441	Sep 23	441	Sep 23, 2003
LOWEST DAILY MEAN	2.0	(a)	6.9	Oct 3	2.0	(a)
ANNUAL SEVEN-DAY MINIMUM	2.0	Aug 10	9.6	Oct 3	2.0	Aug 10, 2002
MAXIMUM PEAK FLOW			1,200	Sep 23	(b)1,200	Sep 23, 2003
MAXIMUM PEAK STAGE			5.06	Sep 23	5.06	Sep 23, 2003
INSTANTANEOUS LOW FLOW			6.9	(c)	1.8	Aug 17, 2002
ANNUAL RUNOFF (CFSM)	0.63		1.95		1.09	
ANNUAL RUNOFF (INCHES)	8.52		26.54		14.87	
10 PERCENT EXCEEDS	38		96		59	
50 PERCENT EXCEEDS	12		40		19	
90 PERCENT EXCEEDS	3.8		23		7.6	

a Aug. 11, 12, 14, 15, 20-22, 2002.
b From rating curve extended above 110 ft^3/s.
c Oct. 3, 4..



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581830 GRAVE RUN NEAR BECKLEYSVILLE, MD

LOCATION.--Lat 39°39'17.3", long 76°46'51.3", Baltimore County, Hydrologic Unit 02060003, on left bank off of Gunpowder Road (formerly Upper Beckleysville Road), 1000 ft upstream from Pretty Boy Reservoir, 0.9 mi north of Beckleysville, and 1.7 mi downstream from Indian Run.

DRAINAGE AREA.--7.68 mi^2.

PERIOD OF RECORD.--March 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 540.00 ft above National Geodetic Vertical Datum of 1929, from topographic map. Previously operated as a low-flow site during water years 1977-82 at same site.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2215	239	2.90	Aug 11	0200	184	2.49
Feb 22	1700	199	2.61	Sep 23	0345	*415	*4.00
Jul 6	2115	361	3.69				

Minimum discharge, 2.2 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	7.1	6.7	45	9.7	12	16	10	20	16	12	9.2
2	2.4	6.1	6.6	37	9.8	23	e15	10	16	17	13	10
3	2.4	5.4	6.1	38	9.5	26	15	9.7	19	18	10	10
4	5.8	5.1	e6.1	25	14	16	14	10	40	16	10	25
5	3.5	5.0	e6.4	20	11	25	14	10	27	15	10	11
6	3.0	8.3	6.6	19	9.6	60	13	11	e21	39	11	9.1
7	2.9	6.1	e6.2	18	9.7	24	16	11	e39	24	9.7	8.3
8	2.6	5.5	e6.0	18	9.7	31	16	12	e30	15	9.4	8.0
9	2.4	5.2	6.0	18	e9.4	58	20	15	e26	15	9.4	7.8
10	3.2	4.9	9.5	16	9.0	23	16	14	25	15	9.4	7.4
11	32	5.7	28	15	8.9	18	18	12	23	14	35	7.4
12	9.4	9.5	22	13	e8.8	20	16	11	34	13	12	7.7
13	6.3	8.7	20	13	e8.7	34	14	10	36	13	10	10
14	5.0	6.7	31	13	e8.5	25	13	9.5	29	12	9.6	8.9
15	4.4	6.1	19	12	8.3	21	13	9.2	24	12	9.0	8.2
16	24	10	15	e12	8.8	21	13	39	22	11	13	7.8
17	9.6	24	13	12	47	21	12	21	22	11	30	7.3
18	6.9	25	12	e12	49	19	13	16	24	11	12	9.2
19	5.8	12	11	e11	37	16	13	14	23	11	10	32
20	5.2	10	17	e11	29	49	12	13	38	10	9.6	11
21	4.7	11	13	11	21	36	12	13	29	10	9.3	9.4
22	4.4	11	11	e10	91	23	12	12	25	19	9.1	9.9
23	4.0	9.2	11	e10	81	20	11	12	21	28	8.6	95
24	3.9	8.6	10	e10	35	18	11	14	19	22	8.2	19
25	4.2	8.0	16	e10	20	17	11	32	18	12	7.8	16
26	7.8	7.6	13	e9.8	16	18	17	27	18	11	8.2	16
27	5.1	7.9	11	e9.6	14	17	13	18	17	11	8.4	14
28	4.2	7.3	11	e9.4	13	15	11	30	16	10	7.9	13
29	6.3	7.2	11	e9.3	---	16	11	21	16	10	7.6	12
30	11	7.2	10	9.2	---	22	10	18	17	9.8	7.8	12
31	9.8	---	11	9.2	---	18	---	20	---	9.8	7.5	---
TOTAL	204.6	261.4	382.2	485.5	606.4	762	411	484.4	734	460.6	344.5	431.6
MEAN	6.60	8.71	12.3	15.7	21.7	24.6	13.7	15.6	24.5	14.9	11.1	14.4
MAX	32	25	31	45	91	60	20	39	40	39	35	95
MIN	2.4	4.9	6.0	9.2	8.3	12	10	9.2	16	9.8	7.5	7.3
CFSM	0.86	1.13	1.61	2.04	2.82	3.20	1.78	2.03	3.19	1.93	1.45	1.87
IN.	0.99	1.27	1.85	2.35	2.94	3.69	1.99	2.35	3.56	2.23	1.67	2.09

e Estimated

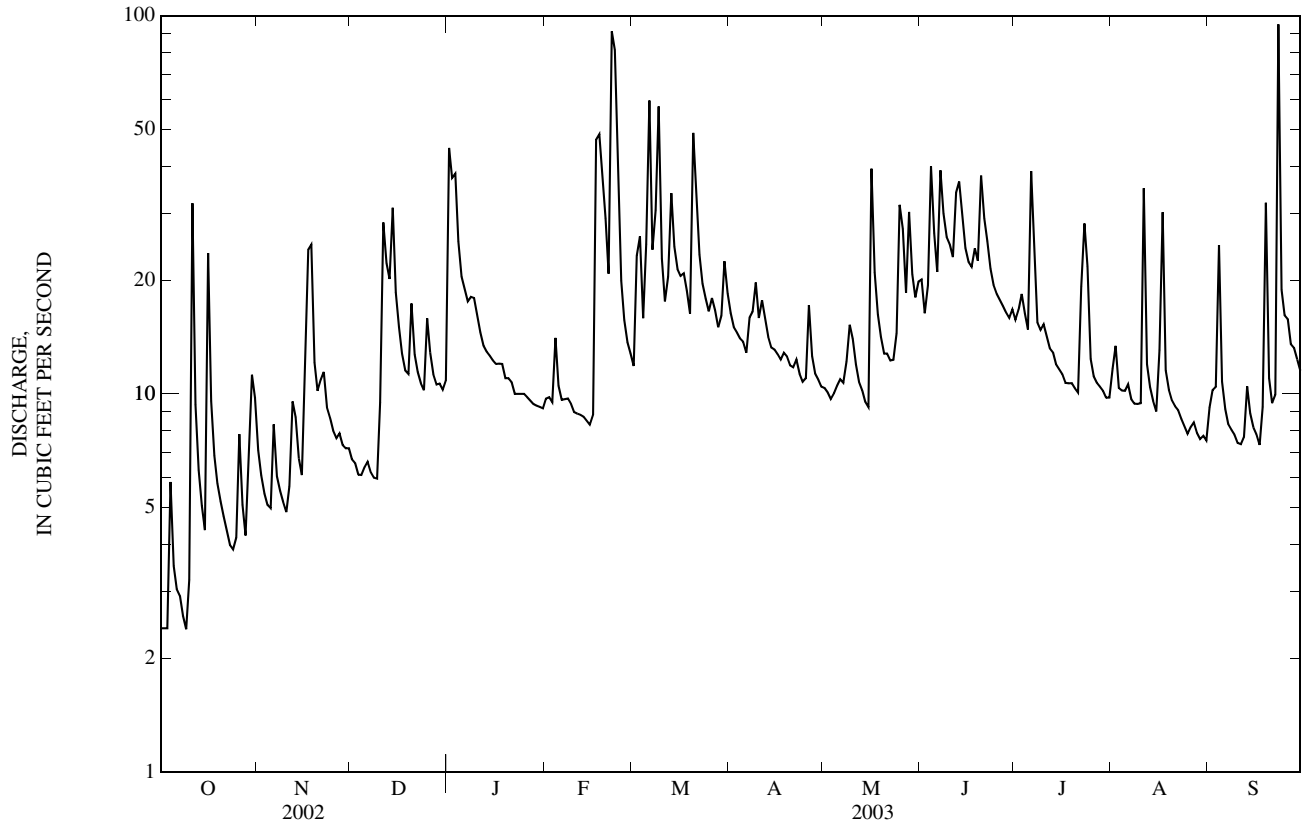
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	5.60	6.05	8.03	9.31	11.6	13.9	10.9	10.1	10.9	7.08	5.66	7.62
MAX	6.60	8.71	12.3	15.7	21.7	24.6	13.7	15.6	24.5	14.9	11.1	14.4
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	3.81	3.50	3.94	4.62	3.50	5.35	4.40	4.61	3.71	1.81	1.56	2.88
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01581830 GRAVE RUN NEAR BECKLEYSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	1,832.34		5,568.2			
ANNUAL MEAN	5.02		15.3		8.85	
HIGHEST ANNUAL MEAN					15.3	2003
LOWEST ANNUAL MEAN					3.64	2002
HIGHEST DAILY MEAN	32	Oct 11	95	Sep 23	95	Sep 23, 2003
LOWEST DAILY MEAN	0.54	Aug 22	2.4	(a)	0.54	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.57	Aug 17	3.2	Oct 1	0.57	Aug 17, 2002
MAXIMUM PEAK FLOW			415	Sep 23	(b)415	Sep 23, 2003
MAXIMUM PEAK STAGE			4.00	Sep 23	4.00	Sep 23, 2003
INSTANTANEOUS LOW FLOW			2.2	(c)	0.54	(d)
ANNUAL RUNOFF (CFSM)	0.65		1.99		1.15	
ANNUAL RUNOFF (INCHES)	8.88		26.97		15.66	
10 PERCENT EXCEEDS	9.9		27		17	
50 PERCENT EXCEEDS	3.9		12		6.3	
90 PERCENT EXCEEDS	1.5		6.3		2.8	

a Oct. 1-3, 9.
b From rating curve extended above 92 ft^3/s.
c Oct. 9, 10.
d Aug. 21-23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581870 GEORGES RUN NEAR BECKLEYSVILLE, MD

LOCATION.--Lat 39°37'32.5", long 76°46'21.8", Baltimore County, Hydrologic Unit 02060003, on left bank, 20 ft downstream from bridge on Georges Creek Road, 1000 ft upstream from Pretty Boy Reservoir, and 1.0 mi southeast of Beckleysville.

DRAINAGE AREA.--15.8 mi^2.

PERIOD OF RECORD.--March 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 540.00 ft above National Geodetic Vertical Datum of 1929, from topographic map. Previously operated as a low-flow site during water years 1977-82 at same site.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2200	578	3.17	Jul 6	2245	975	4.16
Feb 22	1530	558	3.12	Sep 19	0200	760	3.60
Mar 9	1600	407	2.64	Sep 23	0530	*1,450	*5.19

Minimum discharge, 4.5 ft^3/s, Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	14	12	108	e16	23	e28	20	37	23	20	19
2	5.1	13	12	75	e16	62	e26	19	28	26	22	23
3	4.8	12	12	75	17	75	e24	18	32	30	18	23
4	12	11	e12	44	27	35	e24	18	84	27	18	46
5	6.9	11	e12	34	19	60	e23	19	44	24	18	21
6	5.6	18	14	31	18	165	e22	20	33	122	19	18
7	5.2	13	e12	30	18	56	e26	19	128	52	17	16
8	5.1	12	e12	31	17	72	e27	21	54	27	17	15
9	4.9	11	e12	31	e17	156	e38	27	50	25	17	15
10	6.0	11	14	28	17	51	e32	24	37	25	17	14
11	89	14	75	25	16	34	e34	21	34	24	34	14
12	22	22	49	23	e16	50	e30	18	49	22	20	14
13	13	19	44	23	e16	86	e28	17	57	22	18	18
14	10	14	76	22	e15	54	e26	17	44	21	16	16
15	9.2	13	35	21	15	42	e26	16	34	20	16	16
16	69	28	28	e21	15	39	e26	112	31	20	18	16
17	22	65	24	e21	51	38	e24	44	30	19	54	14
18	15	57	21	e21	59	33	e26	30	40	19	19	16
19	12	24	20	e20	44	29	e24	25	38	19	17	134
20	11	19	34	e19	35	101	e24	23	86	18	16	23
21	9.8	20	25	e19	33	68	e24	22	47	18	16	19
22	9.4	23	22	e18	238	40	e23	22	41	22	16	19
23	8.9	17	19	e17	200	33	22	21	33	52	16	304
24	8.6	16	19	e17	86	30	21	26	29	43	15	35
25	9.0	14	31	e17	44	28	21	76	28	21	14	30
26	16	14	26	e17	33	30	36	68	27	19	14	31
27	11	15	21	e16	27	30	26	35	26	19	15	25
28	9.6	14	20	e16	25	26	23	66	25	19	14	24
29	13	14	20	e16	---	e27	22	39	24	18	14	22
30	24	13	19	e16	---	e42	21	32	24	17	16	21
31	20	---	20	e16	---	e33	---	34	---	18	15	---
TOTAL	472.7	561	772	888	1,150	1,648	777	969	1,274	851	576	1,021
MEAN	15.2	18.7	24.9	28.6	41.1	53.2	25.9	31.3	42.5	27.5	18.6	34.0
MAX	89	65	76	108	238	165	38	112	128	122	54	304
MIN	4.8	11	12	16	15	23	21	16	24	17	14	14
CFSM	0.97	1.18	1.58	1.81	2.60	3.36	1.64	1.98	2.69	1.74	1.18	2.15
IN.	1.11	1.32	1.82	2.09	2.71	3.88	1.83	2.28	3.00	2.00	1.36	2.40

e Estimated

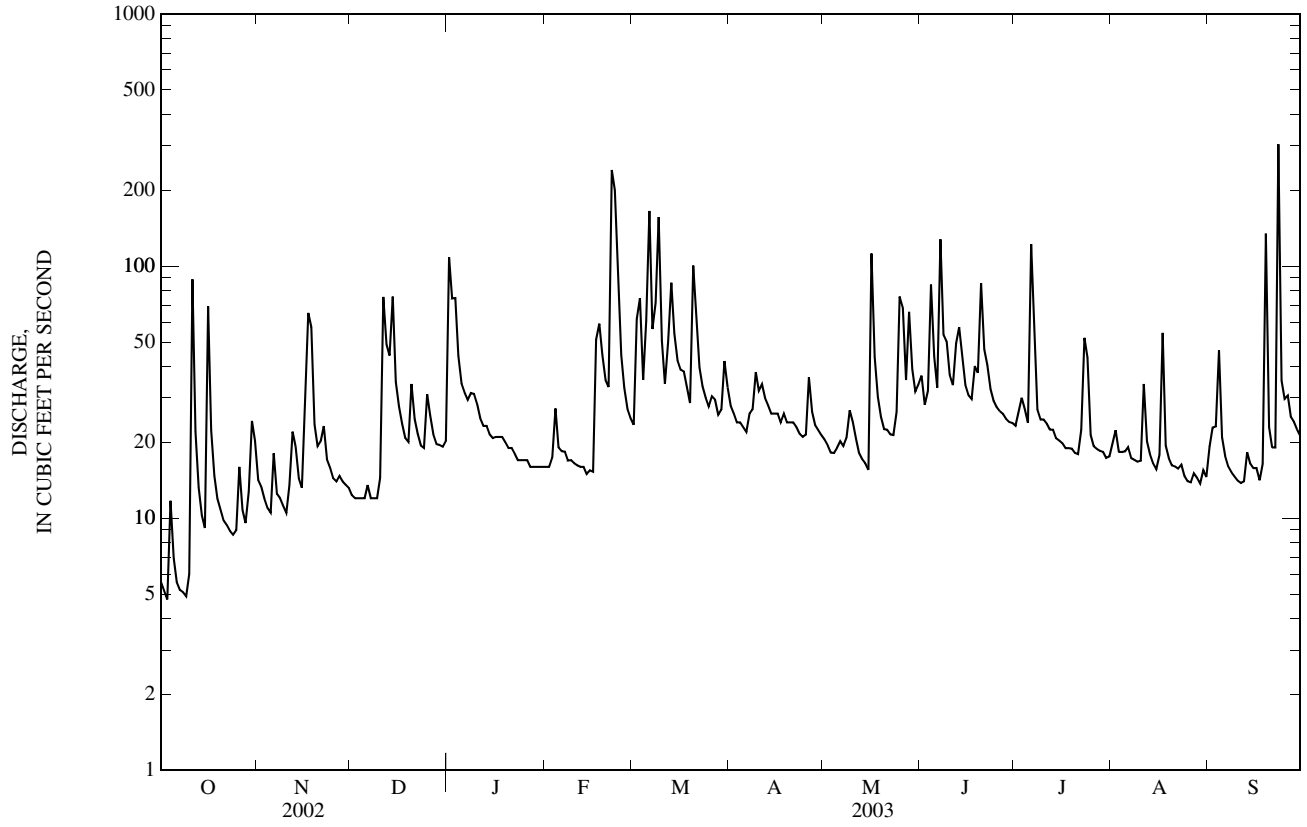
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	12.0	12.7	18.0	20.0	23.3	30.4	21.3	18.9	20.4	14.0	10.6	18.8
MAX	15.2	18.7	24.9	28.6	41.2	53.2	27.8	31.3	42.5	27.5	18.6	34.0
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	7.08	7.33	8.73	11.0	7.77	12.1	9.15	9.15	8.11	3.55	3.44	6.27
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01581870 GEORGES RUN NEAR BECKLEYSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	3,943.19		10,959.7			
ANNUAL MEAN	10.8		30.0		18.1	
HIGHEST ANNUAL MEAN					30.0	2003
LOWEST ANNUAL MEAN					7.80	2002
HIGHEST DAILY MEAN	89	Oct 11	304	Sep 23	304	Sep 23, 2003
LOWEST DAILY MEAN	0.95	(a)	4.8	Oct 3	0.95	(a)
ANNUAL SEVEN-DAY MINIMUM	0.96	Aug 16	6.4	Oct 3	0.96	Aug 16, 2002
MAXIMUM PEAK FLOW			1,450	Sep 23	(b)1,450	Sep 23, 2003
MAXIMUM PEAK STAGE			5.19	Sep 23	5.19	Sep 23, 2003
INSTANTANEOUS LOW FLOW			4.5	Oct 3	0.95	(c)
ANNUAL RUNOFF (CFSM)	0.68		1.90		1.15	
ANNUAL RUNOFF (INCHES)	9.28		25.80		15.57	
10 PERCENT EXCEEDS	21		54		32	
50 PERCENT EXCEEDS	8.1		22		13	
90 PERCENT EXCEEDS	3.2		13		5.1	

a Aug. 18-22, 2002.
b From rating curve extended above 186 ft^3/s.
c Aug. 15-23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581920 GUNPOWDER FALLS NEAR PARKTON, MD

LOCATION.--Lat 39°37'08.0", long 76°41'25.1", Baltimore County, Hydrologic Unit 02060003, on left bank at downstream side of bridge on Falls Road, and 1.0 mi downstream from Prettyboy Reservoir.

DRAINAGE AREA.--81.5 mi^2.

PERIOD OF RECORD.--July 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 360.0 ft above National Geodetic Vertical Datum of 1929. November 1982 to November 1990, nonrecording gage 100 ft downstream.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Flow regulated by Prettyboy Reservoir 1.0 mi upstream, beginning April 10, 1933, for water supply of Baltimore City (usable capacity, 20,000,000,000 gal; dead storage, 1,080,000,000 gal). U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft^3/s, Sept. 23, gage height, 5.86 ft; minimum discharge, 5.0 ft^3/s, Oct. 24.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	13	15	21	17	19	38	106	226	85	105	105
2	53	13	15	22	17	20	88	106	183	100	105	106
3	53	13	15	22	17	20	115	99	165	154	105	106
4	53	13	15	21	17	19	126	95	325	171	106	119
5	53	14	e15	20	17	20	134	97	346	158	106	136
6	53	15	16	19	17	23	133	104	253	177	106	121
7	53	14	e15	18	17	22	143	105	413	502	106	111
8	53	13	e15	18	17	21	163	118	525	286	106	107
9	53	13	e15	18	19	23	184	138	389	188	106	105
10	47	13	16	18	17	22	183	157	284	188	106	105
11	41	14	21	17	17	21	186	147	235	173	107	105
12	38	14	19	17	17	20	190	138	220	162	108	106
13	38	14	20	17	17	21	165	119	276	160	108	108
14	38	13	22	17	17	21	145	102	302	160	108	106
15	38	13	20	17	17	21	137	92	237	160	108	106
16	43	15	19	17	23	21	133	213	221	160	112	106
17	34	18	18	17	47	22	124	306	196	160	201	107
18	27	16	18	e17	21	21	123	225	207	160	181	108
19	27	15	17	17	17	21	129	181	239	160	148	143
20	27	15	17	16	17	26	122	153	305	159	127	154
21	26	15	16	16	18	27	118	141	329	127	114	136
22	26	15	16	e16	28	24	128	131	281	107	107	124
23	22	15	16	18	25	22	125	125	235	108	105	753
24	13	15	15	e17	21	18	104	140	202	107	104	504
25	14	14	17	16	20	17	99	237	184	130	104	269
26	14	15	16	16	19	17	149	318	173	161	104	218
27	12	15	16	16	19	16	158	280	166	161	104	177
28	12	14	16	e17	19	16	135	267	159	161	104	161
29	12	14	16	17	---	16	123	275	158	122	104	144
30	13	15	16	17	---	18	112	222	114	105	104	125
31	13	---	16	17	---	19	---	195	---	105	104	---
TOTAL	1,052	428	519	549	551	634	4,012	5,132	7,548	5,017	3,523	4,881
MEAN	33.9	14.3	16.7	17.7	19.7	20.5	134	166	252	162	114	163
MAX	53	18	22	22	47	27	190	318	525	502	201	753
MIN	12	13	15	16	17	16	38	92	114	85	104	105
(†)	5814	7015	9613	11732	15080	19785	19979	20071	19809	19674	19757	19882

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

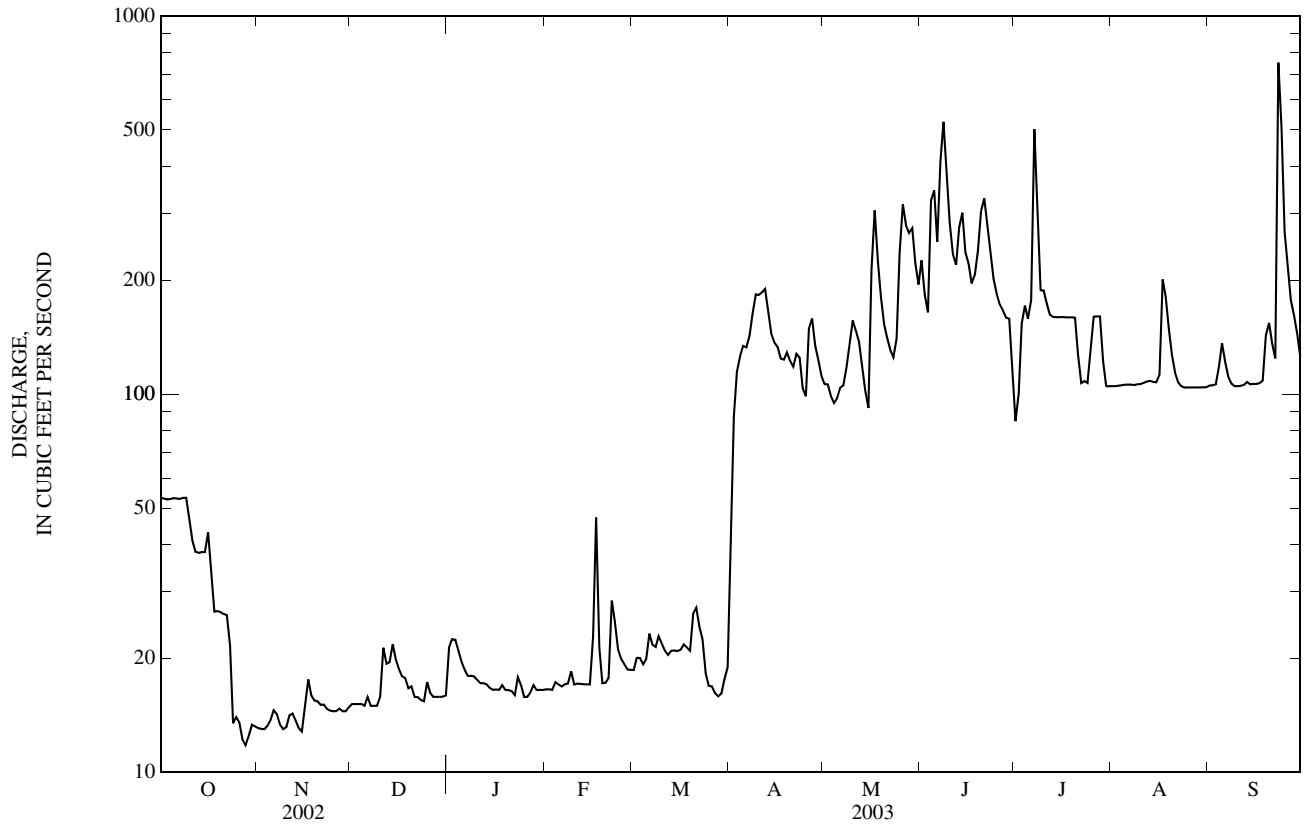
MEAN	98.2	85.2	61.0	65.6	43.0	31.5	70.6	82.7	124	120	119	129
MAX	166	156	118	98.7	82.4	56.5	134	166	252	162	209	188
(WY)	(2002)	(2001)	(2001)	(2001)	(2001)	(2001)	(2003)	(2003)	(2003)	(2003)	(2001)	(2001)
MIN	33.9	14.3	16.7	17.7	19.7	17.5	37.2	35.1	30.8	47.4	63.5	78.6
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2002)	(2002)	(2002)	(2002)	(2002)	(2000)	(2000)

(†) Monthend contents, in millions of gallons, in Prettyboy Reservoir (contents on Sept. 30, 2002, 5,052,000,000 gal).
Records furnished by Baltimore City Department of Public Works.

01581920 GUNPOWDER FALLS NEAR PARKTON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	15,820		33,846			
ANNUAL MEAN	43.3		92.7		88.9	
HIGHEST ANNUAL MEAN					111	2001
LOWEST ANNUAL MEAN					63.0	2002
HIGHEST DAILY MEAN	175	Jan 1	753	Sep 23	753	Sep 23, 2003
LOWEST DAILY MEAN	12	(a)	12	(a)	12	(a)
ANNUAL SEVEN-DAY MINIMUM	13	Oct 27	13	Oct 27	13	Oct 27, 2002
MAXIMUM PEAK FLOW			1,030	Sep 23	(b)1,030	Sep 23, 2003
MAXIMUM PEAK STAGE			5.86	Sep 23	5.86	Sep 23, 2003
INSTANTANEOUS LOW FLOW			5.0	Oct 24	5.0	Oct 24, 2002
ANNUAL RUNOFF (CFSM)	0.53		1.14		1.09	
ANNUAL RUNOFF (INCHES)	7.22		15.45		14.83	
10 PERCENT EXCEEDS	91		201		181	
50 PERCENT EXCEEDS	31		53		63	
90 PERCENT EXCEEDS	15		15		16	

a Oct. 27-29, 2002.
b From rating curve extended above 500 ft^3/s.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581940 MINGO BRANCH NEAR HEREFORD, MD

LOCATION.--Lat 39°36'40.5", long 76°40'30.8", Baltimore County, Hydrologic Unit 02060003, on right bank 0.2 mi upstream from mouth, and 1.5 mi northwest of Hereford, MD.

DRAINAGE AREA.--0.78 mi^2.

PERIOD OF RECORD.--October 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 399 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 25 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1345	47	1.15	Jul 6	2130	45	1.14
Jun 19	1930	*91	*1.45	Sep 23	0400	28	0.98
Jun 20	1215	29	0.99				

Minimum discharge, 0.00 ft^3/s, Oct. 6-10, Jan. 25.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.06	0.25	0.49	3.0	0.63	1.1	1.3	1.3	2.2	2.0	1.3	1.1
2	0.06	0.29	0.49	2.4	0.52	2.6	1.0	1.3	2.2	2.2	1.3	1.2
3	0.05	0.28	0.49	2.3	0.49	1.6	0.99	1.3	2.7	2.2	1.5	1.2
4	0.06	0.21	0.49	1.7	0.84	1.3	0.99	1.3	3.8	2.1	1.3	1.7
5	0.05	0.22	e0.56	1.5	0.57	1.6	0.91	1.3	3.2	1.9	1.3	1.2
6	0.00	0.52	e0.50	1.4	0.97	3.1	0.86	1.3	1.9	2.8	1.3	1.0
7	0.00	0.25	e0.49	1.2	2.0	1.0	1.1	1.9	3.3	1.7	1.3	0.82
8	0.00	0.25	e0.47	1.1	1.2	1.7	0.91	2.0	2.7	1.8	1.4	0.74
9	0.00	0.26	0.46	1.1	0.65	2.8	1.0	2.2	2.6	2.0	1.4	0.74
10	0.37	0.29	0.38	1.1	0.49	1.2	1.1	1.8	2.2	1.7	1.3	0.70
11	2.5	0.62	2.4	1.1	e0.51	1.4	0.99	1.8	2.0	1.9	1.7	0.61
12	0.49	0.78	1.3	1.1	e0.52	1.4	1.2	1.6	1.9	2.2	1.4	0.81
13	0.22	0.43	1.3	0.99	e0.52	1.9	1.2	1.6	1.9	1.7	1.3	1.7
14	0.15	0.37	1.7	0.93	e0.54	1.6	1.4	1.5	2.2	1.4	1.3	1.1
15	0.13	0.31	1.3	e0.90	0.62	1.5	1.4	1.3	2.2	1.3	1.2	0.96
16	2.5	1.3	1.0	e0.88	1.0	1.6	1.4	3.1	2.2	1.4	1.5	0.92
17	0.72	1.8	0.94	e0.86	2.0	1.9	1.4	2.1	2.2	1.4	1.5	0.82
18	0.50	1.2	0.79	e0.84	2.2	1.7	1.5	1.8	2.3	1.3	1.1	1.3
19	0.38	0.85	0.74	e0.82	1.1	1.5	1.6	1.8	5.0	1.3	0.99	1.8
20	0.30	0.69	1.1	e0.79	0.81	3.7	1.5	1.6	6.5	1.3	0.91	1.2
21	0.29	0.68	0.86	e0.71	0.76	3.1	1.4	1.6	3.9	1.4	0.86	1.1
22	0.25	0.63	0.81	e0.64	11	2.3	1.5	1.5	3.3	2.1	0.92	1.6
23	0.21	0.61	0.80	e0.56	4.1	2.0	1.4	1.5	2.8	2.6	1.1	5.4
24	0.21	0.61	0.86	0.47	1.8	1.8	1.4	1.7	2.6	1.9	1.0	1.8
25	0.28	0.61	1.7	0.51	1.2	1.8	1.5	2.9	2.5	1.6	0.86	1.5
26	0.82	0.61	1.2	e0.51	1.3	1.9	2.4	3.6	2.4	1.5	0.86	1.2
27	0.38	0.61	1.1	e0.51	1.1	1.5	1.7	2.5	2.2	1.4	0.86	0.96
28	0.38	0.61	0.99	e0.51	1.1	1.4	1.5	2.4	2.1	1.4	0.86	1.2
29	0.86	0.61	0.99	e0.51	---	1.4	1.3	2.1	2.0	1.4	0.86	0.98
30	0.69	0.55	0.90	e0.51	---	1.5	1.3	1.9	2.0	1.3	1.0	0.84
31	0.35	---	0.86	e0.54	---	1.3	---	2.5	---	1.3	0.98	---
TOTAL	13.26	17.30	28.46	31.99	40.54	56.2	39.15	58.1	81.0	53.5	36.46	38.20
MEAN	0.43	0.58	0.92	1.03	1.45	1.81	1.30	1.87	2.70	1.73	1.18	1.27
MAX	2.5	1.8	2.4	3.0	11	3.7	2.4	3.6	6.5	2.8	1.7	5.4
MIN	0.00	0.21	0.38	0.47	0.49	1.0	0.86	1.3	1.9	1.3	0.86	0.61
CFSM	0.55	0.74	1.18	1.32	1.86	2.32	1.67	2.40	3.46	2.21	1.51	1.63
IN.	0.63	0.83	1.36	1.53	1.93	2.68	1.87	2.77	3.86	2.55	1.74	1.82

e Estimated

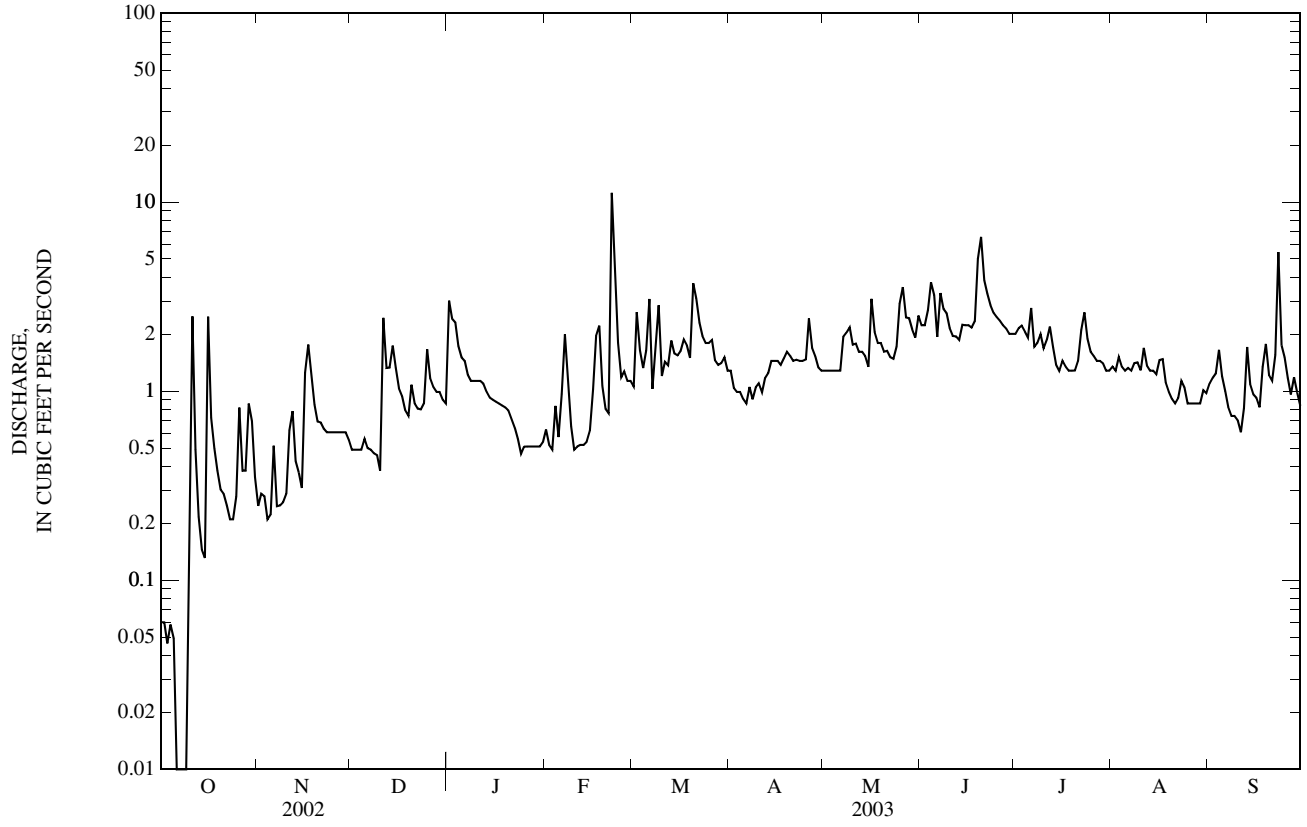
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	0.42	0.47	0.74	0.64	0.79	1.21	1.23	1.14	1.16	0.78	0.51	0.57
MAX	0.64	0.65	0.94	1.03	1.45	1.81	2.02	1.87	2.70	1.73	1.18	1.27
(WY)	(2000)	(2000)	(2000)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	0.28	0.28	0.25	0.35	0.25	0.41	0.33	0.25	0.25	0.076	0.057	0.14
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01581940 MINGO BRANCH NEAR HEREFORD, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	122.76		494.16			
ANNUAL MEAN	0.34		1.35		0.80	
HIGHEST ANNUAL MEAN					1.35	2003
LOWEST ANNUAL MEAN					0.24	2002
HIGHEST DAILY MEAN	2.5	Oct 11	11	Feb 22	11	Feb 22, 2003
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 4	0.02	Oct 3	0.00	Aug 4, 2002
MAXIMUM PEAK FLOW			91	Jun 19	(c)164	Dec 17, 2000
MAXIMUM PEAK STAGE			1.45	Jun 19	1.80	Dec 17, 2000
INSTANTANEOUS LOW FLOW			0.00	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.43		1.74		1.03	
ANNUAL RUNOFF (INCHES)	5.85		23.57		14.02	
10 PERCENT EXCEEDS	0.80		2.3		1.8	
50 PERCENT EXCEEDS	0.25		1.3		0.56	
90 PERCENT EXCEEDS	0.02		0.45		0.18	

a .July 30, 31, Aug. 1, 2, 4-23, 25-27, Oct. 6-9, 2002
b Oct. 6-9.
c From rating curve extended above 11 ft^3/s.
d Oct. 6-10, Jan. 25
f Many days in 2002 and 2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01581960 BEETREE RUN AT BENTLEY SPRINGS, MD

LOCATION.--Lat 39°40'23.1", long 76°40'30.7", Baltimore County, Hydrologic Unit 02060003, on left bank at downstream side of bridge on Bentley Road, and 0.43 mi upstream from mouth.

DRAINAGE AREA.--9.72 mi^2.

PERIOD OF RECORD.--October 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 775 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2230	496	2.80	Aug 17	0045	464	2.73
Feb 22	1700	438	2.67	Sep 4	0800	438	2.67
Aug 16	1545	1,040	3.73	Sep 23	0530	*1,220	*3.96

Minimum discharge, 3.3 ft^3/s, Oct. 2-4, 6-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	13	7.5	78	11	13	20	13	21	16	14	17
2	3.5	9.6	7.3	55	11	31	18	13	17	17	15	19
3	3.4	7.2	7.1	44	11	33	17	12	18	19	13	15
4	4.8	6.2	6.8	29	15	18	17	12	36	17	13	65
5	3.8	6.4	6.8	23	12	37	16	13	24	16	14	18
6	3.4	12	7.0	21	11	90	15	13	20	19	53	15
7	3.3	6.8	e6.8	19	11	29	18	12	71	22	16	14
8	3.3	6.5	e6.8	20	11	45	19	14	31	16	14	13
9	3.3	6.5	6.8	20	9.4	97	22	19	27	40	15	13
10	5.0	6.7	8.7	18	8.8	29	18	15	23	33	14	12
11	48	8.8	40	16	e8.8	22	21	14	21	20	23	12
12	12	13	23	15	e8.8	25	18	13	22	17	15	13
13	7.6	11	22	14	e8.8	37	16	12	26	16	14	36
14	6.2	7.8	38	14	e8.8	27	15	12	24	15	13	20
15	5.8	6.8	20	13	e8.8	23	15	11	21	15	12	16
16	57	13	16	e13	9.5	23	15	26	19	14	140	15
17	18	30	13	13	15	24	14	19	18	14	70	14
18	12	24	12	e13	31	22	15	15	23	14	23	17
19	10	13	11	13	22	19	14	13	24	14	18	32
20	9.0	11	19	12	16	62	14	12	80	13	17	17
21	8.2	11	13	12	17	44	14	13	33	13	16	15
22	7.7	12	12	e12	170	29	15	12	27	15	15	16
23	7.4	9.7	11	e11	104	25	14	13	23	27	15	197
24	7.3	8.8	11	e11	39	22	13	15	21	27	14	31
25	8.8	8.4	18	e10	22	20	13	35	20	15	13	25
26	14	8.0	14	e10	17	22	26	39	19	14	14	24
27	10	8.5	12	e10	15	21	16	23	18	14	15	20
28	9.4	7.9	11	e10	14	18	14	26	18	13	13	20
29	14	7.6	11	e10	---	21	14	20	17	13	12	18
30	20	7.6	11	10	---	31	13	18	17	13	12	17
31	18	---	12	10	---	24	---	18	---	13	12	---
TOTAL	348.0	308.8	421.6	579	646.7	983	489	515	779	544	677	776
MEAN	11.2	10.3	13.6	18.7	23.1	31.7	16.3	16.6	26.0	17.5	21.8	25.9
MAX	57	30	40	78	170	97	26	39	80	40	140	197
MIN	3.3	6.2	6.8	10	8.8	13	13	11	17	13	12	12
CFSM	1.15	1.06	1.40	1.92	2.38	3.26	1.68	1.71	2.67	1.81	2.25	2.66
IN.	1.33	1.18	1.61	2.22	2.48	3.76	1.87	1.97	2.98	2.08	2.59	2.97

e Estimated

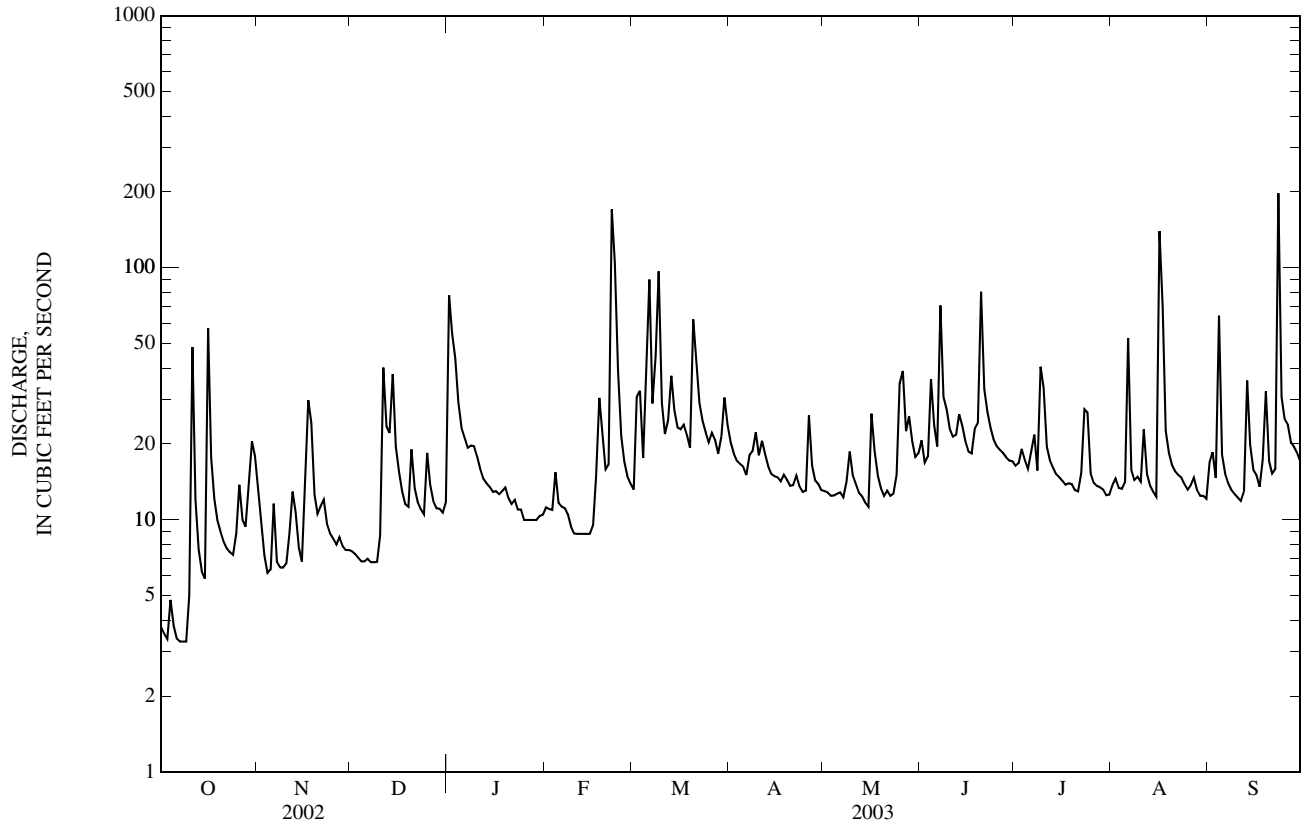
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	7.91	7.35	10.7	10.6	13.5	17.6	14.6	12.0	12.6	9.12	10.8	12.2
MAX	11.2	10.3	13.6	18.7	23.1	31.7	22.1	16.6	26.0	17.5	21.8	25.9
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	5.17	5.20	5.55	6.14	4.76	7.00	5.24	5.46	4.31	2.45	3.97	5.70
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01581960 BEETREE RUN AT BENTLEY SPRINGS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	2,445.0		7,067.1			
ANNUAL MEAN	6.70		19.4		11.6	
HIGHEST ANNUAL MEAN					19.4	2003
LOWEST ANNUAL MEAN					5.08	2002
HIGHEST DAILY MEAN	57	Oct 16	197	Sep 23	197	Sep 23, 2003
LOWEST DAILY MEAN	1.1	Aug 22	3.3	(a)	1.1	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	1.4	Aug 17	3.6	Oct 3	1.4	Aug 17, 2002
MAXIMUM PEAK FLOW			1,220	Sep 23	(b)1,220	Sep 23, 2003
MAXIMUM PEAK STAGE			3.96	Sep 23	3.96	Sep 23, 2003
INSTANTANEOUS LOW FLOW			3.3	(c)	1.1	(d)
ANNUAL RUNOFF (CFSM)	0.69		1.99		1.19	
ANNUAL RUNOFF (INCHES)	9.36		27.05		16.16	
10 PERCENT EXCEEDS	12		31		20	
50 PERCENT EXCEEDS	4.9		15		8.4	
90 PERCENT EXCEEDS	2.3		7.9		4.5	

a Oct. 7-9.
b From rating curve extended above 185 ft^3/s.
c Oct. 2-4, 6-10.
d Aug. 19, 21-23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01582000 LITTLE FALLS AT BLUE MOUNT, MD

LOCATION.--Lat 39°36'14.7", long 76°37'13.7", Baltimore County, Hydrologic Unit 02060003, on left bank at downstream side of Pennsylvania Railroad bridge, 0.2 mi north of Blue Mount, 0.6 mi upstream from mouth, 0.9 mi downstream from First Mine Branch, and 1.2 mi south of White Hall.

DRAINAGE AREA.--52.9 mi^2.

PERIOD OF RECORD.--June 1944 to current year.

REVISED RECORDS.--WSP 111: 1944(M), 1945-47(P). WDR MD-DE-85-1: 1984(P).

GAGE.--Water-stage recorders. Elevation of gage is 305 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Slight diurnal fluctuation at low flow caused by mill upstream from station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0015	1,040	4.13	Aug 16	1745	*3,260	*8.45
Feb 22	1645	1,710	5.54	Aug 17	0415	1,030	4.11
Jun 20	1515	1,060	4.17	Sep 23	0715	2,180	6.46

Minimum discharge, 12 ft^3/s, Oct. 6-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	46	42	210	68	76	108	76	117	92	69	68
2	14	41	40	341	61	174	103	74	95	93	73	96
3	13	37	39	203	60	212	97	71	96	106	87	76
4	16	34	41	179	79	104	93	71	217	98	75	186
5	15	33	41	134	64	183	91	72	165	89	77	88
6	13	54	45	117	58	473	86	74	121	97	206	73
7	12	38	e43	106	63	176	100	75	290	134	83	68
8	12	34	e40	107	57	224	105	79	181	90	78	65
9	12	33	40	108	63	393	121	103	157	113	78	62
10	16	32	43	99	59	167	104	91	132	190	79	60
11	188	49	182	89	58	120	117	82	122	104	174	59
12	75	62	143	81	56	129	106	76	119	93	92	63
13	39	66	109	80	e54	179	95	72	140	87	77	181
14	29	46	197	77	e54	153	90	69	138	82	71	113
15	25	41	115	74	54	126	87	66	115	80	67	79
16	209	67	92	e73	64	125	86	152	106	77	531	74
17	95	184	78	e72	102	132	82	117	103	74	404	69
18	53	145	69	e72	148	121	85	93	125	74	142	80
19	41	83	66	e72	110	106	84	84	134	73	105	169
20	35	68	99	e70	94	254	79	77	356	69	89	88
21	30	65	79	e66	88	261	79	78	197	68	82	77
22	28	75	69	e64	657	156	85	76	157	77	80	76
23	26	60	64	e64	583	132	78	76	134	132	76	740
24	25	53	61	e63	243	118	75	93	119	142	71	173
25	28	50	103	e62	131	109	75	161	111	80	68	135
26	49	47	84	e58	100	113	132	228	106	73	69	147
27	33	50	71	e58	87	112	96	133	103	70	71	114
28	28	46	66	e58	81	98	83	134	98	70	67	135
29	34	44	65	e58	---	105	80	116	96	68	65	106
30	74	44	63	e58	---	152	76	102	95	64	66	94
31	66	---	66	e62	---	126	---	110	---	64	64	---
TOTAL	1,348	1,727	2,355	3,035	3,396	5,109	2,778	2,981	4,245	2,823	3,436	3,614
MEAN	43.5	57.6	76.0	97.9	121	165	92.6	96.2	142	91.1	111	120
MAX	209	184	197	341	657	473	132	228	356	190	531	740
MIN	12	32	39	58	54	76	75	66	95	64	64	59
CFSM	0.82	1.09	1.44	1.85	2.29	3.12	1.75	1.82	2.67	1.72	2.10	2.28
IN.	0.95	1.21	1.66	2.13	2.39	3.59	1.95	2.10	2.99	1.99	2.42	2.54

e Estimated

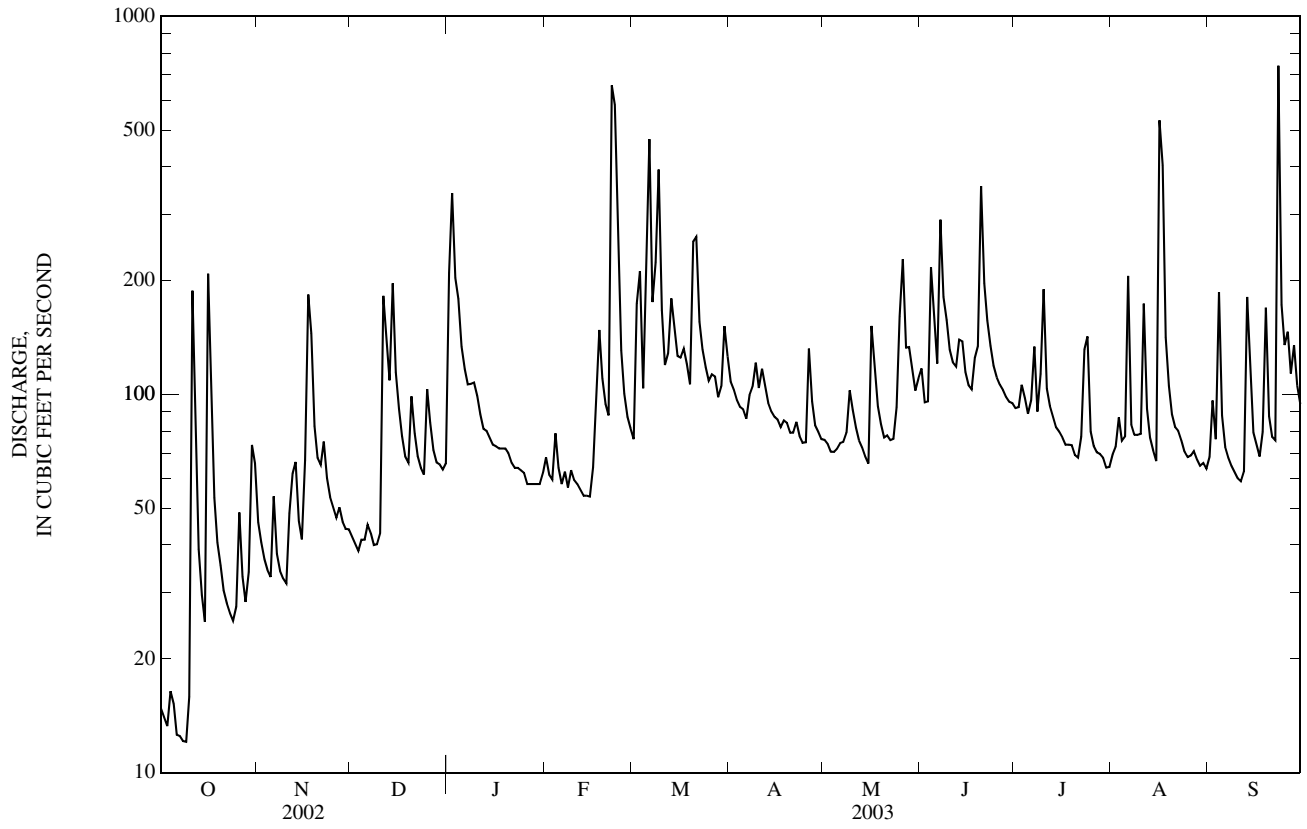
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2003, BY WATER YEAR (WY)

MEAN	45.0	55.0	64.8	76.8	87.1	94.0	91.2	82.6	69.6	56.4	47.2	47.9
MAX	203	129	198	190	187	261	194	202	353	158	159	227
(WY)	(1980)	(1972)	(1997)	(1996)	(1979)	(1994)	(1952)	(1952)	(1972)	(1972)	(1971)	(1975)
MIN	16.7	22.7	20.9	22.1	22.9	35.6	27.8	27.0	20.3	10.2	9.44	17.2
(WY)	(1964)	(2002)	(1966)	(1981)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1966)	(1986)

01582000 LITTLE FALLS AT BLUE MOUNT, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 2003	
ANNUAL TOTAL	11,848.8		36,847			
ANNUAL MEAN	32.5		101		68.1	
HIGHEST ANNUAL MEAN					132	1972
LOWEST ANNUAL MEAN					23.3	2002
HIGHEST DAILY MEAN	210	Aug 3	740	Sep 23	4,730	Jun 22, 1972
LOWEST DAILY MEAN	4.8	Aug 22	12	(a)	4.5	Sep 11, 1966
ANNUAL SEVEN-DAY MINIMUM	5.5	Aug 17	13	Oct 3	4.8	Sep 6, 1966
MAXIMUM PEAK FLOW			3,260	Aug 16	(b)8,280	Jun 22, 1972
MAXIMUM PEAK STAGE			8.45	Aug 16	18.54	Jun 22, 1972
INSTANTANEOUS LOW FLOW			12	(c)	1.9	Aug 29, 1966
ANNUAL RUNOFF (CFSM)	0.61		1.91		1.29	
ANNUAL RUNOFF (INCHES)	8.33		25.91		17.49	
10 PERCENT EXCEEDS	66		173		118	
50 PERCENT EXCEEDS	24		80		52	
90 PERCENT EXCEEDS	9.2		41		24	

a Oct. 7-9.
b From rating curve extended above 1,600 ft^3/s on basis of contracted-opening measurement of peak flow.
c Oct. 6-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01582500 GUNPOWDER FALLS AT GLENCOE, MD

LOCATION.--Lat 39°32'58.9", long 76°38'10.0", Baltimore County, Hydrologic Unit 02060003, on right downstream wingwall of bridge on Glencoe Road at intersection of Upper Glencoe Road and Lower Glencoe Road in Glencoe, and 0.7 mi upstream from Piney Creek.

DRAINAGE AREA.--160 mi^2.

PERIOD OF RECORD.--October 1977 to June 1980, December 1982 to current year.

REVISED RECORDS.--WDR MD-DE-89-1: 1985(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 250 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Flow regulated by Prettyboy Reservoir, 12 mi upstream, beginning April 10, 1933, for water supply of Baltimore City (usable capacity, 20,000,000,000 gal; dead storage, 1,080,000,000 gal). U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,080 ft^3/s, Feb. 22, gage height, 11.75 ft; minimum discharge, 40 ft^3/s, Oct. 25.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	71	67	192	e96	124	183	213	433	214	195	184
2	69	64	64	494	e96	216	223	210	344	224	199	231
3	69	60	63	279	e96	357	252	201	309	303	216	204
4	70	57	e63	253	e140	167	260	193	640	324	210	348
5	70	55	e63	193	e100	217	265	194	673	288	206	256
6	67	79	e74	174	e94	687	263	207	485	293	355	217
7	66	63	e66	159	e100	299	281	207	732	670	215	198
8	66	57	e64	154	e94	284	323	237	831	460	209	186
9	65	55	e64	157	e93	569	361	283	647	336	209	181
10	71	53	e68	148	e93	292	347	292	515	481	210	177
11	228	70	258	134	e93	193	360	269	437	329	327	176
12	130	81	232	126	e93	190	356	247	406	305	234	180
13	84	106	153	129	e92	269	314	225	481	297	208	322
14	73	73	269	120	e92	257	278	202	533	280	198	271
15	68	66	175	113	e91	200	263	184	429	276	190	210
16	260	86	141	e112	109	199	257	390	388	272	689	203
17	157	243	119	111	203	213	243	509	357	264	623	188
18	89	190	105	e110	376	197	240	390	392	263	344	194
19	74	120	100	e109	e220	173	249	322	431	264	274	357
20	68	100	135	e108	e160	335	237	274	841	257	239	276
21	62	92	121	e102	292	473	230	254	678	236	220	242
22	59	104	103	e100	1,550	266	244	242	547	205	216	222
23	56	88	97	e100	2,590	220	236	233	460	307	205	1,620
24	49	80	93	e98	406	192	212	272	396	305	191	817
25	45	76	149	e96	214	175	201	441	359	226	187	468
26	72	73	134	e96	164	174	333	653	335	260	188	422
27	55	75	110	e96	142	184	305	508	319	257	193	327
28	48	73	101	e96	133	159	257	459	304	255	188	336
29	50	70	99	e96	---	164	238	468	295	227	182	274
30	96	69	97	e100	---	235	223	389	271	188	185	241
31	93	---	96	e110	---	208	---	410	---	187	183	---
TOTAL	2,599	2,549	3,543	4,465	8,022	7,888	8,034	9,578	14,268	9,053	7,688	9,528
MEAN	83.8	85.0	114	144	286	254	268	309	476	292	248	318
MAX	260	243	269	494	2,590	687	361	653	841	670	689	1,620
MIN	45	53	63	96	91	124	183	184	271	187	182	176
(†)	5814	7015	9613	11732	15080	19785	19979	20071	19809	19674	19757	19882

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1980, 1983 - 2003, BY WATER YEAR (WY)

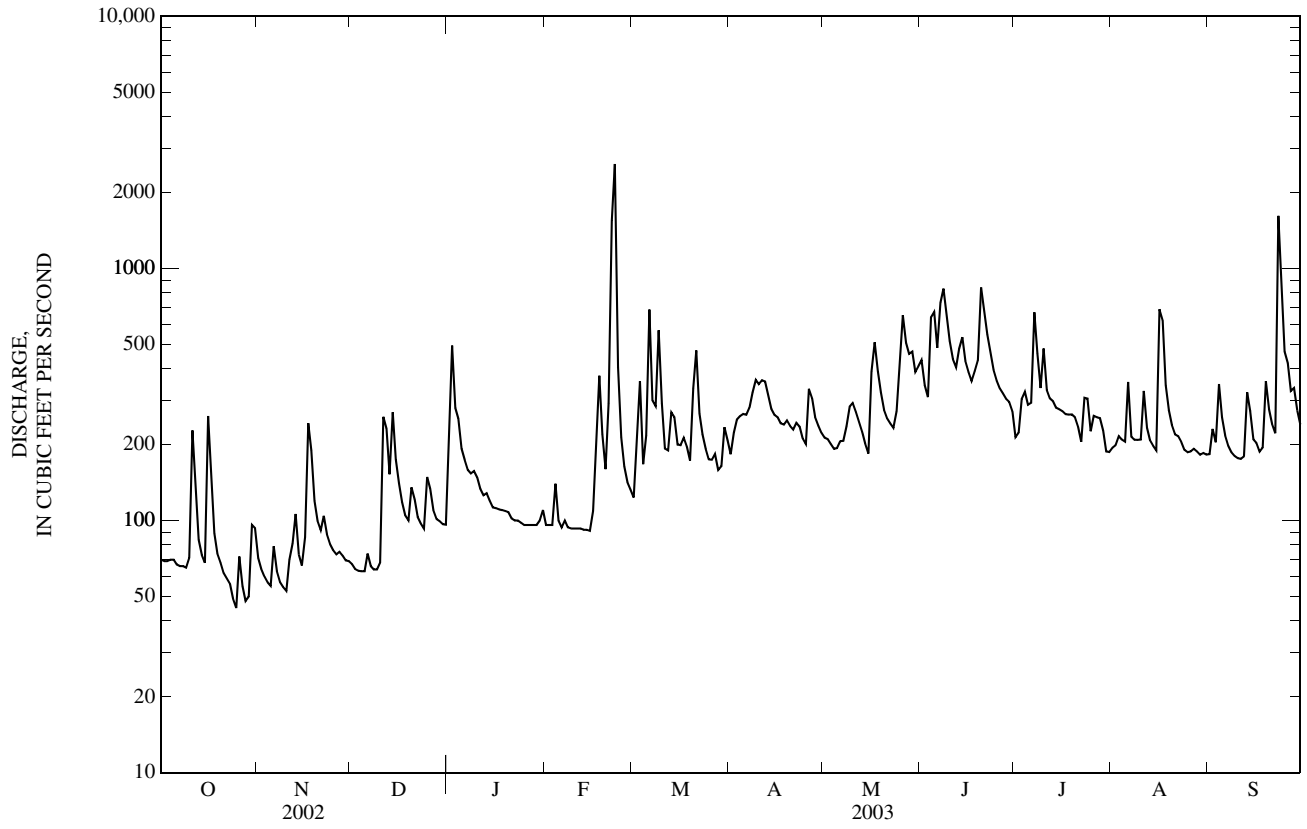
MEAN	159	165	186	221	229	257	257	247	192	177	158	166
MAX	603	342	604	625	598	755	586	476	476	292	267	512
(WY)	(1980)	(1997)	(1997)	(1979)	(1979)	(1994)	(1993)	(1989)	(2003)	(2003)	(1996)	(1979)
MIN	52.4	76.4	76.4	63.3	58.2	65.2	74.8	70.3	55.4	58.7	70.8	69.6
(WY)	(1987)	(2000)	(2002)	(1983)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1985)	(1983)

(†) Monthend contents, in millions of gallons, in Prettyboy Reservoir (contents on Sept. 30, 2002, 5,052,000,000 gal).
Records furnished by Baltimore City Department of Public Works.

01582500 GUNPOWDER FALLS AT GLENCOE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 1980, 1983 - 2003	
ANNUAL TOTAL	30,647		87,215			
ANNUAL MEAN	84.0		239		200	
HIGHEST ANNUAL MEAN					311	1979
LOWEST ANNUAL MEAN					91.5	2002
HIGHEST DAILY MEAN	269	Dec 14	2,590	Feb 23	4,500	Sep 6, 1979
LOWEST DAILY MEAN	37	(a)	45	Oct 25	31	Sep 3, 1999
ANNUAL SEVEN-DAY MINIMUM	38	Jul 3	54	Oct 23	35	Aug 29, 1999
MAXIMUM PEAK FLOW			4,080	Feb 22	(b)6,110	Sep 6, 1979
MAXIMUM PEAK STAGE			11.75	Feb 22	15.30	Sep 6, 1979
INSTANTANEOUS LOW FLOW			40	Oct 25	30	Sep 3, 1999
ANNUAL RUNOFF (CFSM)	0.52		1.49		1.25	
ANNUAL RUNOFF (INCHES)	7.13		20.28		16.96	
10 PERCENT EXCEEDS	124		430		344	
50 PERCENT EXCEEDS	73		205		157	
90 PERCENT EXCEEDS	46		70		79	

a July 6-8.
b From rating curve extended above 2,400 ft^3/s on basis of slope-area measurement at gage height of 12.65 ft.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01583100 PINEY RUN AT DOVER, MD

LOCATION.--Lat 39°31'14.2", long 76°46'00.8", Baltimore County, Hydrologic Unit 02060003, on right bank 400 ft downstream from bridge on Maryland Route 128, 0.7 mi upstream from mouth, and 2.4 mi southwest of Butler.

DRAINAGE AREA.--12.3 mi^2.

PERIOD OF RECORD.--May 1982 to February 1988. October 1996 to current year.

REVISED RECORDS.--WDR MD-DE-87-1: 1984-86(P).

GAGE.--Water-stage recorder. Elevation of gage is 380 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2300	522	5.00	Sep 19	0345	449	4.75
Feb 22	1815	455	4.77	Sep 23	0545	*1,310	*6.98
Mar 9	1600	322	4.22				

Minimum discharge, 3.2 ft^3/s, Oct. 3, 4, 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	10	8.1	68	11	16	23	16	26	19	14	13
2	3.6	e8.5	7.8	49	10	34	20	16	21	20	15	17
3	3.5	e7.5	7.7	46	9.7	45	20	16	23	24	14	16
4	5.4	e7.0	7.5	28	15	24	19	15	46	25	14	28
5	4.0	e8.0	e7.5	21	11	32	20	16	37	22	14	16
6	4.0	e11	e7.5	18	10	94	19	16	27	21	15	14
7	3.9	e9.0	e7.5	16	11	37	22	19	66	31	14	13
8	3.3	e7.6	e7.5	16	10	36	22	20	35	20	13	13
9	3.3	e7.2	e7.5	16	e10	100	26	23	32	19	14	12
10	4.4	e7.2	7.6	16	10	34	22	21	27	20	14	12
11	33	e8.5	42	14	9.5	25	22	18	24	19	17	11
12	11	e12	29	13	9.8	29	21	16	24	25	15	12
13	7.4	e9.5	25	13	e9.7	52	19	16	27	26	14	14
14	6.3	e8.0	49	12	e9.6	36	19	15	27	18	13	13
15	5.7	e7.4	22	12	9.7	30	18	15	23	17	13	13
16	37	18	17	12	9.1	29	18	75	21	17	13	14
17	14	43	15	e11	29	27	18	33	21	16	29	12
18	9.3	30	12	e11	34	24	18	26	24	15	15	14
19	7.5	16	11	11	17	21	18	22	29	15	13	76
20	6.8	13	18	11	13	54	17	20	49	15	13	18
21	6.2	12	14	11	13	44	17	19	31	15	12	15
22	5.9	13	12	e11	166	30	17	18	26	16	12	15
23	5.8	10	12	12	134	24	17	18	24	44	13	180
24	5.7	9.6	11	e11	56	22	17	21	22	39	12	24
25	5.8	9.2	18	10	30	21	17	34	21	18	12	19
26	9.3	8.9	15	10	22	22	25	42	20	16	12	21
27	7.0	9.1	13	e10	19	22	20	27	20	15	12	17
28	6.5	8.5	12	e10	17	20	18	29	20	15	12	17
29	7.8	8.3	12	10	---	21	17	25	19	15	12	15
30	13	8.3	11	9.6	---	30	16	22	19	14	12	14
31	13	---	12	9.8	---	26	---	30	---	14	12	---
TOTAL	263.2	345.3	458.2	528.4	715.1	1,061	582	719	831	625	429	688
MEAN	8.49	11.5	14.8	17.0	25.5	34.2	19.4	23.2	27.7	20.2	13.8	22.9
MAX	37	43	49	68	166	100	26	75	66	44	29	180
MIN	3.3	7.0	7.5	9.6	9.1	16	16	15	19	14	12	11
CFSM	0.69	0.94	1.20	1.39	2.08	2.78	1.58	1.89	2.25	1.64	1.13	1.86
IN.	0.80	1.04	1.39	1.60	2.16	3.21	1.76	2.17	2.51	1.89	1.30	2.08

e Estimated

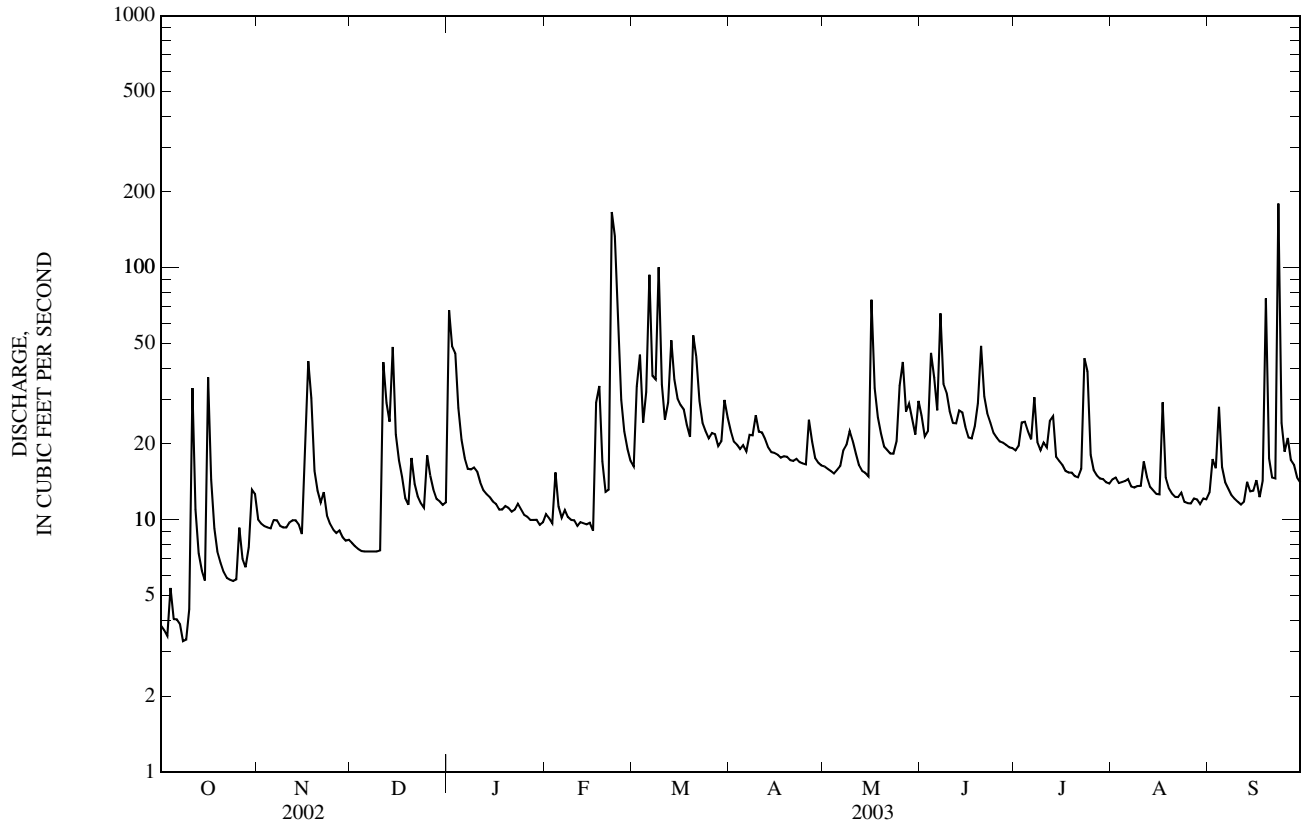
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1988, 1997 - 2003, BY WATER YEAR (WY)

MEAN	9.61	12.4	15.9	15.5	19.3	19.9	19.3	16.3	12.9	10.4	8.18	9.87
MAX	26.0	28.7	49.8	31.1	37.9	35.5	36.1	28.5	27.7	25.7	18.2	22.9
(WY)	(1997)	(1997)	(1997)	(1997)	(1985)	(1998)	(1983)	(1998)	(2003)	(1984)	(1984)	(2003)
MIN	4.68	5.30	5.85	6.78	5.26	6.92	6.73	6.90	5.57	3.38	2.65	3.95
(WY)	(1987)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1986)	(2002)	(2002)	(1986)

01583100 PINEY RUN AT DOVER, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1982 - 1988, 1997 - 2003	
ANNUAL TOTAL	2,541.16		7,245.2			
ANNUAL MEAN	6.96		19.8		14.1	
HIGHEST ANNUAL MEAN					21.6	1997
LOWEST ANNUAL MEAN					5.38	2002
HIGHEST DAILY MEAN	49	Dec 14	180	Sep 23	599	Feb 12, 1985
LOWEST DAILY MEAN	0.96	Aug 22	3.3	(a)	0.96	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	1.1	Aug 16	3.9	Oct 3	1.1	Aug 16, 2002
MAXIMUM PEAK FLOW			1,310	Sep 23	(b)3,220	Sep 8, 1987
MAXIMUM PEAK STAGE			6.98	Sep 23	8.28	Sep 8, 1987
INSTANTANEOUS LOW FLOW			3.2	(c)	0.72	(d)
ANNUAL RUNOFF (CFSM)	0.57		1.61		1.15	
ANNUAL RUNOFF (INCHES)	7.69		21.91		15.58	
10 PERCENT EXCEEDS	12		32		25	
50 PERCENT EXCEEDS	5.8		16		10	
90 PERCENT EXCEEDS	2.8		7.8		5.1	

a Oct. 8, 9.
b From rating curve extended above 2,000 ft^3/s.
c Oct. 3, 4, 8-10.
d Aug. 22, 23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01583500 WESTERN RUN AT WESTERN RUN, MD

LOCATION.--Lat 39°30'38.8", long 76°40'35.4", Baltimore County, Hydrologic Unit 02060003, on right bank 100 ft downstream from bridge on Western Run Road, 0.3 mi southeast of Western Run, 2.5 mi northwest of Cockeysville, 3.2 mi upstream from Beaverdam Run, and 5.0 mi upstream from mouth.

DRAINAGE AREA.--59.8 mi^2.

PERIOD OF RECORD.--September 1944 to current year.

REVISED RECORDS.--WSP 1502: 1945-46, 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 262.78 ft above National Geodetic Vertical Datum of 1929 (Baltimore County bench mark).

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0100	1,010	4.29
Feb 22	1930	1,430	5.09
Sep 23	0845	*2,110	*6.15

Minimum discharge, 9.2 ft^3/s, Oct. 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	37	34	162	52	71	118	71	170	83	64	49
2	11	32	33	335	50	129	109	69	117	87	63	67
3	10	28	32	233	49	214	102	66	116	142	62	62
4	11	26	32	170	68	109	97	65	274	117	63	e100
5	12	25	33	117	56	117	96	67	259	103	63	e82
6	9.8	44	39	102	49	344	88	71	152	89	63	e70
7	9.8	33	46	91	53	175	108	68	305	127	59	e58
8	9.4	29	34	90	48	145	114	82	197	90	58	e56
9	9.6	27	32	92	48	385	133	91	166	84	61	e56
10	12	26	33	84	48	191	116	90	140	92	61	49
11	98	36	169	74	47	132	117	78	129	89	104	48
12	46	47	95	68	45	146	108	67	125	84	77	49
13	25	60	35	65	47	299	95	64	140	101	63	63
14	18	40	199	62	49	234	89	61	144	78	58	56
15	16	35	e150	60	46	150	87	58	121	75	55	53
16	124	52	e89	58	30	145	84	291	111	73	56	55
17	66	193	e69	58	86	149	82	167	108	67	122	48
18	36	128	e62	59	153	132	84	121	121	67	65	51
19	28	70	e57	e56	134	114	84	103	164	67	57	280
20	24	57	82	e55	112	276	80	88	341	63	55	82
21	21	52	70	53	86	287	79	88	186	62	54	64
22	19	58	58	e56	563	160	80	86	143	63	53	61
23	18	48	55	e60	e380	135	75	85	123	128	56	724
24	18	43	52	e58	e240	122	70	102	109	181	49	135
25	19	41	93	56	e160	113	71	153	101	78	48	98
26	35	39	82	54	e120	115	130	235	96	68	49	112
27	26	40	65	e53	e96	119	98	142	91	65	53	88
28	22	37	59	e52	80	104	81	141	87	65	53	92
29	24	36	57	e51	---	108	77	124	85	65	49	83
30	53	36	55	e50	---	161	73	107	84	60	50	73
31	51	---	56	49	---	140	---	190	---	59	51	---
TOTAL	892.6	1,455	2,057	2,683	2,995	5,221	2,825	3,291	4,505	2,672	1,894	2,964
MEAN	28.8	48.5	66.4	86.5	107	168	94.2	106	150	86.2	61.1	98.8
MAX	124	193	199	335	563	385	133	291	341	181	122	724
MIN	9.4	25	32	49	30	71	70	58	84	59	48	48
CFSM	0.48	0.81	1.11	1.45	1.79	2.82	1.57	1.78	2.51	1.44	1.02	1.65
IN.	0.56	0.91	1.28	1.67	1.86	3.25	1.76	2.05	2.80	1.66	1.18	1.84

e Estimated

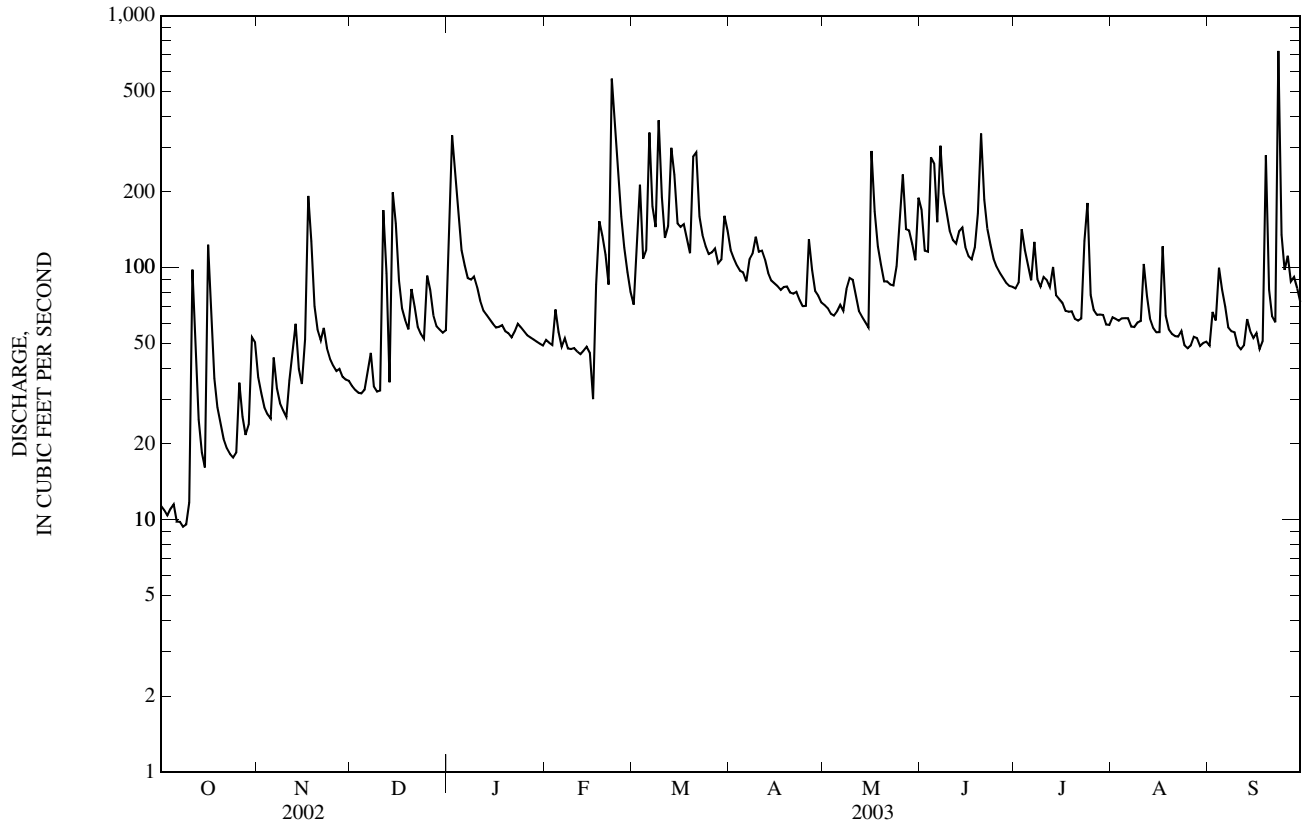
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2003, BY WATER YEAR (WY)

MEAN	45.1	55.8	67.4	80.6	90.7	96.5	89.4	81.3	70.2	54.8	48.1	47.5
MAX	209	143	217	222	240	237	209	227	395	164	183	261
(WY)	(1980)	(1997)	(1997)	(1979)	(1979)	(1994)	(1952)	(1952)	(1972)	(1972)	(1971)	(1975)
MIN	16.4	19.2	19.0	20.5	21.2	32.8	27.5	28.1	18.4	10.1	7.78	12.0
(WY)	(1964)	(2002)	(1966)	(1966)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1966)	(2002)

01583500 WESTERN RUN AT WESTERN RUN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 2003	
ANNUAL TOTAL	10,061.5		33,454.6			
ANNUAL MEAN	27.6		91.7		68.9	
HIGHEST ANNUAL MEAN					138	1972
LOWEST ANNUAL MEAN					20.3	2002
HIGHEST DAILY MEAN	199	Dec 14	724	Sep 23	7,000	Jun 22, 1972
LOWEST DAILY MEAN	(e)3.6	(a)	9.4	Oct 8	2.5	Sep 12, 1966
ANNUAL SEVEN-DAY MINIMUM	3.7	Aug 16	10	Oct 3	3.7	Aug 16, 2002
MAXIMUM PEAK FLOW			2,110	Sep 23	(b)38,000	Jun 22, 1972
MAXIMUM PEAK STAGE			6.15	Sep 26	(c)26.00	Jun 22, 1972
INSTANTANEOUS LOW FLOW			9.2	Oct 8	2.4	Sep 12, 1966
ANNUAL RUNOFF (CFSM)	0.46		1.53		1.15	
ANNUAL RUNOFF (INCHES)	6.26		20.81		15.65	
10 PERCENT EXCEEDS	52		160		118	
50 PERCENT EXCEEDS	22		70		51	
90 PERCENT EXCEEDS	8.5		33		23	

e Estimated
a Aug. 20-22.
b From rating curve extended above 3,200 ft^3/s, on basis of slope-area measurement and contracted-opening measurement of peak flow.
c From floodmarks.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01583570 POND BRANCH AT OREGON RIDGE, MD

LOCATION.--Lat 39°28'49.1", long 76°41'15.0", Baltimore County, Hydrologic Unit 02060003, on left bank 500 ft upstream from pond, 600 ft above mouth, 1.0 mi southwest of Beaver Dam Road and Ivy Hill Road interchange, and 2.3 mi west of Cockeysville.

DRAINAGE AREA.--0.12 mi^2.

PERIOD OF RECORD.--January 1983 to September 1986, April 1998 to current year.

REVISED RECORDS.--WDR MD-DE-01-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and triple V-notch sharp-crested weir plate. Datum of gage is 450 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges (missing record), which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2.8 ft^3/s, Aug. 16, gage height, 1.70 ft; minimum discharge, unknown.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.028	e0.060	0.054	0.37	e0.083	0.13	0.19	0.16	0.19	0.22	0.20	0.17
2	e0.027	e0.048	0.054	0.27	e0.078	0.20	0.19	0.16	0.17	0.27	0.19	0.18
3	e0.027	e0.038	0.054	0.27	e0.074	0.17	0.18	0.16	0.19	0.54	0.22	0.20
4	e0.034	e0.033	0.054	0.20	0.098	0.13	0.18	0.16	e0.40	0.30	0.21	0.40
5	e0.027	e0.040	0.054	0.16	0.090	0.16	0.18	0.16	e0.29	0.25	0.24	0.18
6	e0.023	e0.072	0.054	0.15	0.077	0.28	0.16	0.16	e0.22	0.28	0.22	0.16
7	e0.016	e0.043	0.054	0.13	e0.080	0.20	0.20	0.15	e0.54	0.26	0.19	0.15
8	e0.010	e0.039	0.054	0.13	e0.075	0.18	0.19	0.15	0.28	0.24	0.19	0.15
9	e0.020	e0.037	0.054	0.13	e0.075	0.23	0.23	0.21	0.29	0.25	0.19	0.15
10	e0.036	e0.035	0.054	0.11	e0.075	0.21	0.19	0.18	0.25	0.27	0.19	0.14
11	e0.20	e0.072	0.33	0.10	e0.073	0.18	0.20	0.18	0.23	0.27	0.28	0.14
12	e0.080	e0.060	0.18	0.10	e0.073	0.18	0.19	0.18	0.26	0.25	0.20	0.18
13	e0.040	e0.050	0.16	0.10	e0.073	0.21	0.18	0.16	0.19	0.24	0.21	0.22
14	e0.028	e0.046	0.21	0.10	e0.073	0.20	0.17	0.14	0.18	0.22	0.18	0.16
15	e0.022	e0.042	0.17	e0.086	e0.073	0.19	0.16	0.14	0.19	0.22	0.17	0.17
16	e0.24	e0.15	0.14	e0.086	e0.071	0.19	0.15	0.55	0.19	0.22	0.28	0.15
17	e0.090	e0.33	0.100	e0.080	e0.20	0.19	0.14	0.29	0.23	0.21	0.42	0.14
18	e0.060	e0.14	0.086	e0.080	e0.26	0.15	0.16	0.23	0.26	0.21	0.20	0.23
19	e0.047	e0.086	0.081	e0.080	e0.14	0.15	0.17	0.20	0.37	0.22	0.16	0.36
20	e0.030	e0.071	0.13	e0.080	e0.11	0.50	0.15	0.18	0.60	0.20	0.17	0.19
21	e0.022	0.076	0.11	e0.080	0.11	0.38	0.14	0.19	0.39	0.20	0.16	0.18
22	e0.017	0.074	0.10	e0.080	0.48	0.23	0.14	0.18	0.32	0.28	0.16	0.24
23	e0.017	0.071	0.092	e0.090	0.28	0.21	0.14	0.19	0.27	0.34	0.15	0.59
24	e0.017	0.071	0.092	e0.080	0.19	0.21	0.14	0.22	0.24	0.25	0.15	0.19
25	e0.030	0.063	0.24	e0.074	0.17	0.20	0.15	0.22	0.23	0.22	0.15	0.20
26	e0.076	0.056	0.15	e0.074	0.16	0.23	0.41	0.43	0.22	0.21	0.17	0.19
27	e0.056	0.068	0.12	e0.074	0.16	0.20	0.23	0.25	0.22	0.23	0.18	0.17
28	e0.031	0.062	0.12	e0.074	0.14	0.18	0.20	0.24	0.21	0.26	0.16	0.17
29	e0.056	0.062	0.12	e0.074	---	0.21	0.18	0.21	0.21	0.23	0.15	0.15
30	e0.090	0.055	0.12	e0.072	---	0.25	0.17	0.19	0.23	0.18	0.15	0.14
31	e0.092	---	0.12	e0.074	---	0.21	---	0.21	---	0.18	0.14	---
TOTAL	1.589	2.150	3.511	3.658	3.641	6.54	5.46	6.43	8.06	7.72	6.03	6.04
MEAN	0.051	0.072	0.11	0.12	0.13	0.21	0.18	0.21	0.27	0.25	0.19	0.20
MAX	0.24	0.33	0.33	0.37	0.48	0.50	0.41	0.55	0.60	0.54	0.42	0.59
MIN	0.010	0.033	0.054	0.072	0.071	0.13	0.14	0.14	0.17	0.18	0.14	0.14
CFSM	0.43	0.60	0.94	0.98	1.08	1.76	1.52	1.73	2.24	2.08	1.62	1.68
IN.	0.49	0.67	1.09	1.13	1.13	2.03	1.69	1.99	2.50	2.39	1.87	1.87

e Estimated

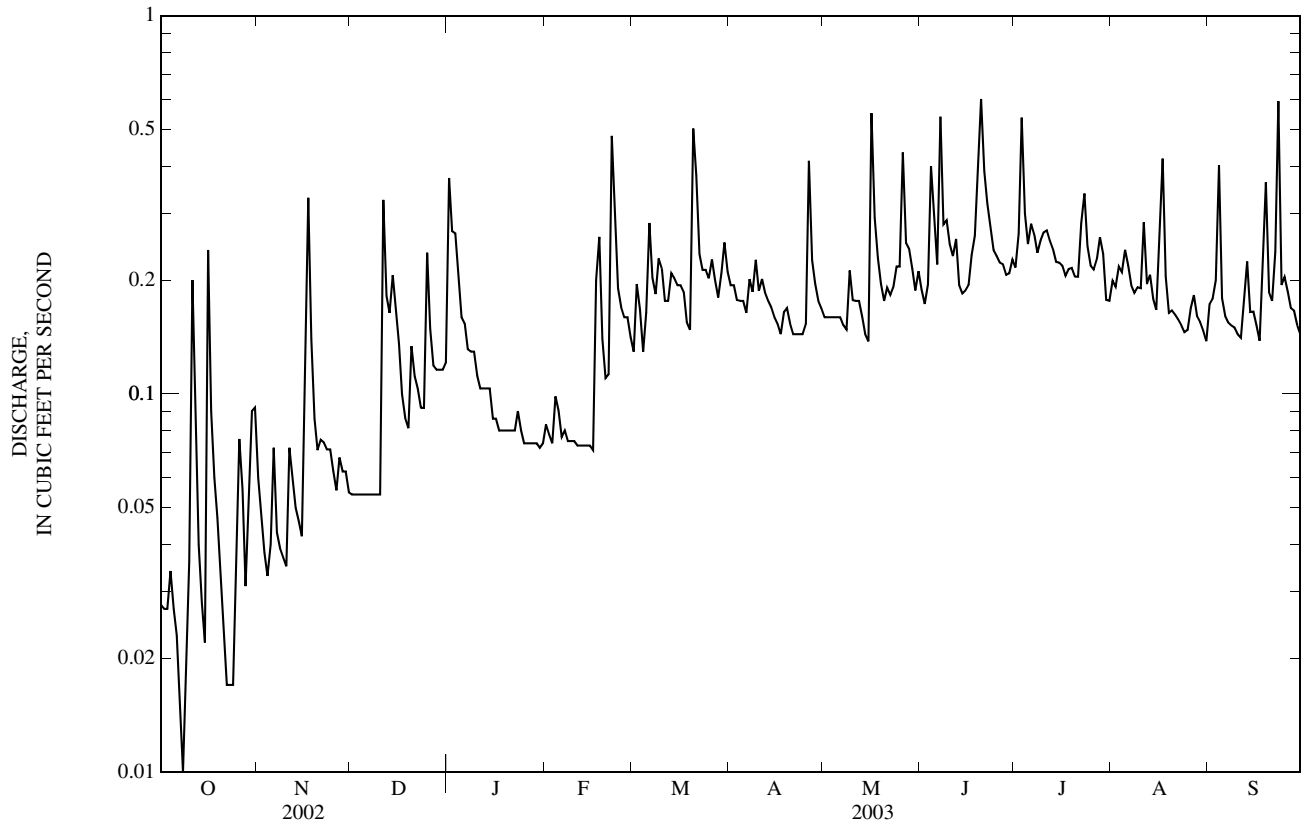
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1986, 1998 - 2003, BY WATER YEAR (WY)

MEAN	0.087	0.10	0.12	0.10	0.13	0.16	0.19	0.20	0.15	0.11	0.092	0.082
MAX	0.13	0.20	0.30	0.17	0.20	0.24	0.40	0.41	0.28	0.27	0.19	0.20
(WY)	(1985)	(1984)	(1984)	(1999)	(1984)	(1983)	(1983)	(1984)	(1983)	(1984)	(2003)	(2003)
MIN	0.038	0.054	0.054	0.059	0.050	0.066	0.056	0.062	0.024	0.008	0.008	0.009
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1986)	(1986)

01583570 POND BRANCH AT OREGON RIDGE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 1986, 1998 - 2003	
ANNUAL TOTAL	18.160		60.770			
ANNUAL MEAN	0.050		0.17		0.12	
HIGHEST ANNUAL MEAN					0.23	1984
LOWEST ANNUAL MEAN					0.042	2002
HIGHEST DAILY MEAN	0.33	Nov 17	0.60	Jun 20	1.8	Jul 1, 1984
LOWEST DAILY MEAN	0.000	(a)	(e) 0.01	Oct 8	0.000	(b)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 6	0.02	Oct 3	0.00	Jul 11, 1986
MAXIMUM PEAK FLOW			2.8	Aug 16	18	Jul 1, 1984
MAXIMUM PEAK STAGE			1.70	Aug 16	2.19	Jul 1, 1984
INSTANTANEOUS LOW FLOW			UNKNOWN		0.00	(b)
ANNUAL RUNOFF (CFSM)	0.41		1.39		1.00	
ANNUAL RUNOFF (INCHES)	5.63		18.84		13.53	
10 PERCENT EXCEEDS	0.09		0.27		0.23	
50 PERCENT EXCEEDS	0.05		0.17		0.09	
90 PERCENT EXCEEDS	0.00		0.05		0.03	

a Aug. 11-23, 26, 27, Sept. 12-14.
e Estimated.
b No flow at times in 1986 and 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01583580 BAISMAN RUN AT BROADMOOR, MD

LOCATION.--Lat 39°28'46.1", long 76°40'40.9", Baltimore County, Hydrologic Unit 02060003, on right bank at upstream side of bridge on Ivy Hill Road, 0.3 mi upstream from mouth, 0.6 mi southwest of Broadmoor, and 1.8 mi west of Cockeysville.

DRAINAGE AREA.--1.47 mi^2.

PERIOD OF RECORD.--August 1964 to September 1969, November 1999 to current year.

GAGE.--Water-stage recorder, crest-stage gage, weir plate. Datum of gage is 330 ft above National Geodetic Vertical Datum of 1929. from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are poor. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 25 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2045	28	2.14	Sep 19	0100	28	2.14
Jun 20	1215	26	2.11	Sep 23	0515	30	2.16
Sep 4	0900	*35	*2.24				

Minimum discharge, 0.08 ft^3/s, Oct. 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.18	0.57	0.53	4.8	1.2	1.6	3.0	2.3	3.0	2.7	2.0	1.5
2	0.16	0.47	0.51	3.8	1.1	2.8	2.9	2.2	2.6	3.4	1.9	1.5
3	0.15	0.41	0.48	4.1	1.0	2.2	2.7	2.1	3.0	7.2	2.2	1.7
4	0.17	0.40	e0.47	2.9	1.4	2.3	2.6	2.1	6.6	3.9	2.1	5.0
5	0.15	0.43	e0.45	2.3	1.1	2.4	2.6	2.2	6.1	3.1	2.2	1.8
6	0.12	0.83	e0.44	2.0	1.2	4.6	2.4	2.2	3.7	3.4	2.1	1.4
7	0.13	0.50	e0.44	1.8	1.1	2.9	3.2	2.1	7.3	3.2	1.9	1.3
8	0.11	0.45	e0.43	1.8	e1.0	2.8	2.9	2.1	4.9	2.8	1.8	1.3
9	0.14	0.42	e0.43	1.7	e1.0	3.9	3.5	2.8	4.3	2.8	1.9	1.2
10	0.44	0.40	e0.43	1.6	1.0	3.1	2.8	2.4	3.7	2.9	1.9	1.2
11	1.9	1.1	e4.0	1.4	1.0	2.7	3.1	2.2	3.5	2.9	3.0	1.1
12	0.57	1.3	2.0	1.4	e1.0	2.7	2.8	2.0	4.7	2.7	2.0	1.4
13	0.37	0.92	2.1	e1.3	e1.0	3.6	2.5	1.9	4.6	2.6	1.9	2.0
14	0.27	0.69	3.0	1.3	e1.0	3.5	2.4	1.8	3.9	2.4	1.7	1.5
15	0.25	0.60	1.8	1.2	1.0	3.3	2.4	1.8	3.4	2.4	1.6	1.4
16	3.5	2.3	1.4	e1.1	0.54	3.5	2.4	8.0	3.2	2.3	2.4	1.3
17	0.81	3.4	1.2	e1.1	e1.7	3.7	2.3	3.7	3.3	2.2	3.9	1.2
18	0.50	1.6	1.1	e1.1	e2.2	3.3	2.5	3.1	3.6	2.2	1.9	1.8
19	0.41	1.0	1.0	e1.1	e1.2	2.9	2.4	2.7	5.0	2.2	1.7	4.3
20	0.35	0.90	1.5	e1.0	e1.0	6.9	2.3	2.5	9.0	2.0	1.6	1.6
21	0.31	0.87	1.1	e1.0	e1.4	5.6	2.3	2.7	5.6	2.0	1.5	1.3
22	0.30	0.83	0.98	e1.0	e20	4.2	2.3	2.5	4.5	2.6	1.5	1.6
23	0.28	0.70	0.92	e1.0	e6.0	3.7	2.1	2.7	3.9	3.2	1.5	8.2
24	0.28	0.66	0.90	e1.0	2.9	3.3	2.1	3.1	3.5	2.2	1.3	2.1
25	0.33	0.63	2.6	e1.0	2.1	3.1	2.2	3.2	3.3	2.0	1.3	1.9
26	0.78	0.61	1.5	e0.98	2.1	3.4	5.1	7.0	3.1	1.9	1.5	1.8
27	0.40	0.66	1.1	e0.98	1.7	3.1	2.9	3.8	3.0	1.9	1.6	1.5
28	0.35	0.58	1.1	e0.96	1.6	2.8	2.6	3.6	2.8	2.0	1.4	1.4
29	0.71	0.56	1.0	e0.96	---	3.3	2.4	3.1	2.8	1.9	1.4	1.3
30	0.95	0.56	1.00	e0.94	---	4.2	2.3	2.8	2.9	1.8	1.3	1.2
31	0.87	---	1.1	e0.99	---	3.3	---	3.2	---	1.9	1.2	---
TOTAL	16.24	25.35	37.01	49.61	60.54	104.7	80.0	89.9	124.8	82.7	57.2	57.8
MEAN	0.52	0.84	1.19	1.60	2.16	3.38	2.67	2.90	4.16	2.67	1.85	1.93
MAX	3.5	3.4	4.0	4.8	20	6.9	5.1	8.0	9.0	7.2	3.9	8.2
MIN	0.11	0.40	0.43	0.94	0.54	1.6	2.1	1.8	2.6	1.8	1.2	1.1
CFSM	0.36	0.57	0.81	1.09	1.47	2.30	1.81	1.97	2.83	1.81	1.26	1.31
IN.	0.41	0.64	0.94	1.26	1.53	2.65	2.02	2.28	3.16	2.09	1.45	1.46

e Estimated

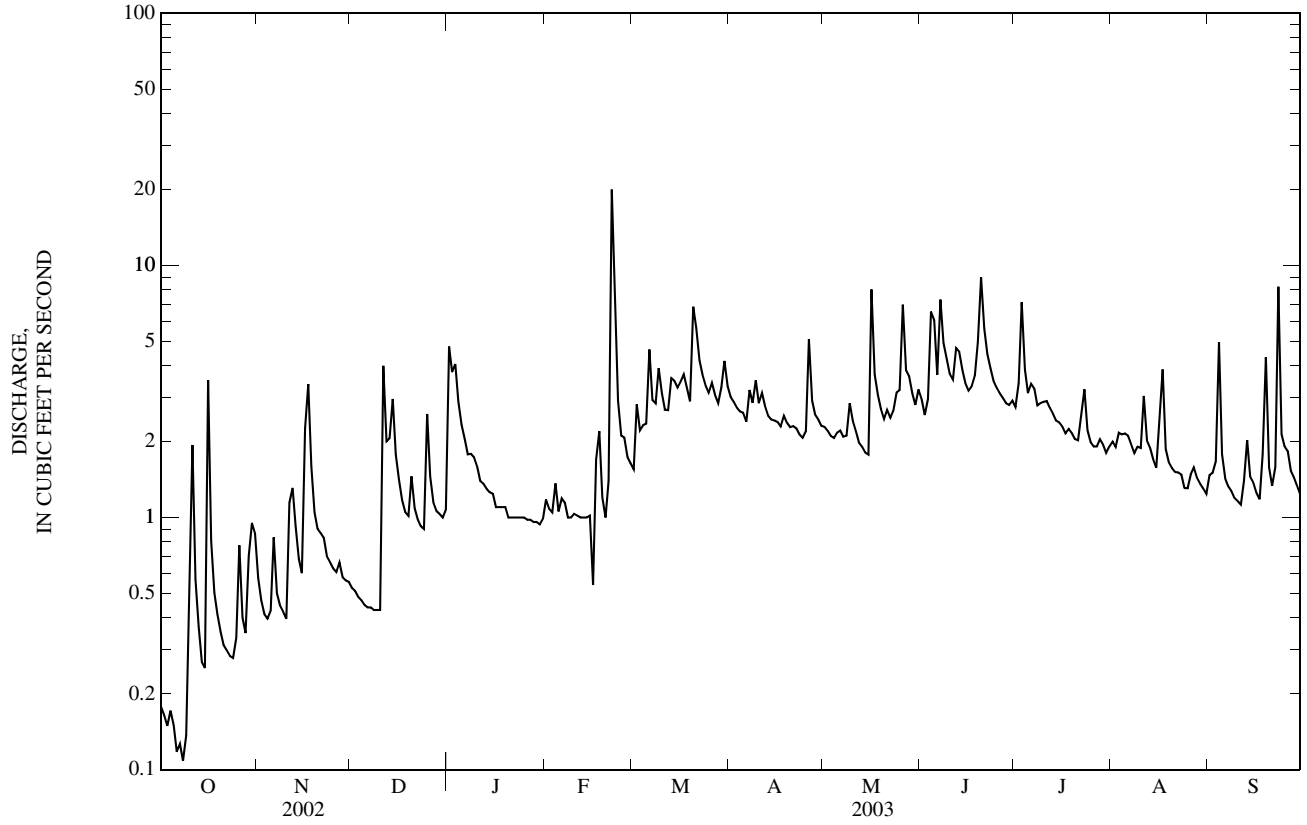
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1969, 2000 - 2003, BY WATER YEAR (WY)

MEAN	0.73	0.85	1.07	1.07	1.27	1.78	1.67	1.56	1.33	0.90	0.95	0.91
MAX	1.52	1.37	1.95	1.69	2.16	3.38	3.45	2.90	4.16	2.67	3.08	2.19
(WY)	(2000)	(2000)	(2000)	(1968)	(2003)	(2003)	(2000)	(2003)	(2003)	(2003)	(1967)	(1968)
MIN	0.39	0.44	0.41	0.46	0.50	0.78	0.64	0.71	0.32	0.10	0.11	0.21
(WY)	(2002)	(1966)	(1966)	(1966)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01583580 BAISMAN RUN AT BROADMOOR, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 1969, 2000 - 2003	
ANNUAL TOTAL	199.76		785.85			
ANNUAL MEAN	0.55		2.15		1.18	
HIGHEST ANNUAL MEAN					2.15	2003
LOWEST ANNUAL MEAN					0.45	2002
HIGHEST DAILY MEAN	4.0	Dec 11	20	Feb 22	41	Sep 10, 1968
LOWEST DAILY MEAN	0.00	(a)	0.11	Oct 8	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 8	0.14	Oct 3	0.00	Aug 28, 1966
MAXIMUM PEAK FLOW			35	Sep 4	(c)490	Sep 10, 1968
MAXIMUM PEAK STAGE			2.24	Sep 4	5.43	Sep 10, 1968
INSTANTANEOUS LOW FLOW			0.08	Oct 8	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.37		1.46		0.80	
ANNUAL RUNOFF (INCHES)	5.06		19.89		10.91	
10 PERCENT EXCEEDS	1.0		3.7		2.2	
50 PERCENT EXCEEDS	0.49		1.9		0.90	
90 PERCENT EXCEEDS	0.06		0.48		0.40	

a No flow July 31, Aug. 1, 2, 8-23.
b No flow Aug. 28-31, Sept. 1-4, 7-12, 1966, July 31, Aug. 1, 2, 8-23, 2002.
c From rating curve extended above 30 ft^3/s on basis of culvert and flow-over-road measurement at gage height of 5.43 ft and on basis of slope-area measurement at gage height of 2.87 ft.
d No flow Aug. 27 to Sept. 13, 1966, July 23, 30, 31, Aug. 1-3, 7-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01583600 BEAVERDAM RUN AT COCKEYSVILLE, MD

LOCATION.--Lat 39°29'08.1", long 76°38'44.6", Baltimore County, Hydrologic Unit 02060003, on left bank of bridge on Maryland Route 45 at Cockeysville, and 0.45 mi upstream from mouth.

DRAINAGE AREA.--20.9 mi^2.

PERIOD OF RECORD.--October 1982 to current year.

REVISED RECORDS.--WDR MD-DE-88: 1983-87.

GAGE.--Water-stage recorder. Datum of gage is 240.42 ft above National Geodetic Vertical Datum of 1929. Previously operated as a low-flow site during water years 1955-59 and 1962-64 at same site. Dec. 15, 1982 to June 15, 1993, water-stage recorder 600 ft downstream and 50 ft upstream from bridge on Beaverdam Run Lane at datum 1.38 ft lower.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 20	1445	883	6.20	Sep 19	0100	894	6.25
Aug 16	2345	661	5.13	Sep 23	0730	*989	*6.69
Sep 4	0900	719	5.42				

Minimum discharge, 4.4 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	18	14	186	e14	29	42	22	43	32	21	23
2	6.9	18	11	105	e14	85	37	21	29	48	23	23
3	6.7	16	15	123	e14	64	34	21	40	144	26	31
4	8.0	13	12	60	29	40	33	22	161	59	26	191
5	7.7	23	13	43	18	55	33	23	124	42	32	39
6	7.3	40	15	42	17	148	30	24	53	57	37	27
7	6.8	16	14	33	e16	65	60	22	234	51	22	24
8	6.8	15	12	38	15	56	40	25	101	33	22	22
9	6.6	15	13	34	17	121	68	51	66	39	23	21
10	26	15	13	30	16	62	40	34	49	35	24	20
11	133	76	166	25	16	42	53	26	44	41	66	19
12	22	68	71	23	15	42	40	21	76	36	30	32
13	14	31	87	21	15	62	34	20	74	34	27	53
14	10	26	89	21	15	59	31	20	55	27	21	28
15	9.3	17	40	20	17	44	29	20	44	26	19	28
16	173	114	28	20	e33	42	28	207	38	24	52	22
17	28	132	23	21	e49	49	28	64	42	20	97	17
18	15	50	21	19	e60	41	35	43	54	22	23	47
19	13	28	21	19	e40	36	30	35	118	25	19	184
20	12	22	46	19	19	192	28	30	310	22	21	37
21	11	22	24	18	31	111	26	37	97	19	20	29
22	9.9	21	21	17	293	57	27	32	65	29	23	43
23	9.7	18	19	e16	220	47	25	38	51	57	22	459
24	11	17	19	e15	83	41	24	58	44	28	18	92
25	14	16	102	14	49	38	29	55	40	24	17	46
26	44	15	46	14	36	50	126	186	37	22	21	40
27	13	19	26	13	31	41	42	49	35	21	22	32
28	11	16	22	14	32	35	29	45	33	23	21	28
29	42	13	21	14	---	64	24	37	32	23	17	24
30	41	13	20	14	---	88	22	32	35	20	19	22
31	31	---	24	15	---	53	---	55	---	20	17	---
TOTAL	756.8	923	1,068	1,066	1,224	1,959	1,127	1,375	2,224	1,103	848	1,703
MEAN	24.4	30.8	34.5	34.4	43.7	63.2	37.6	44.4	74.1	35.6	27.4	56.8
MAX	173	132	166	186	293	192	126	207	310	144	97	459
MIN	6.6	13	11	13	14	29	22	20	29	19	17	17
CFSM	1.17	1.47	1.65	1.65	2.09	3.02	1.80	2.12	3.55	1.70	1.31	2.72
IN.	1.35	1.64	1.90	1.90	2.18	3.49	2.01	2.45	3.96	1.96	1.51	3.03

e Estimated

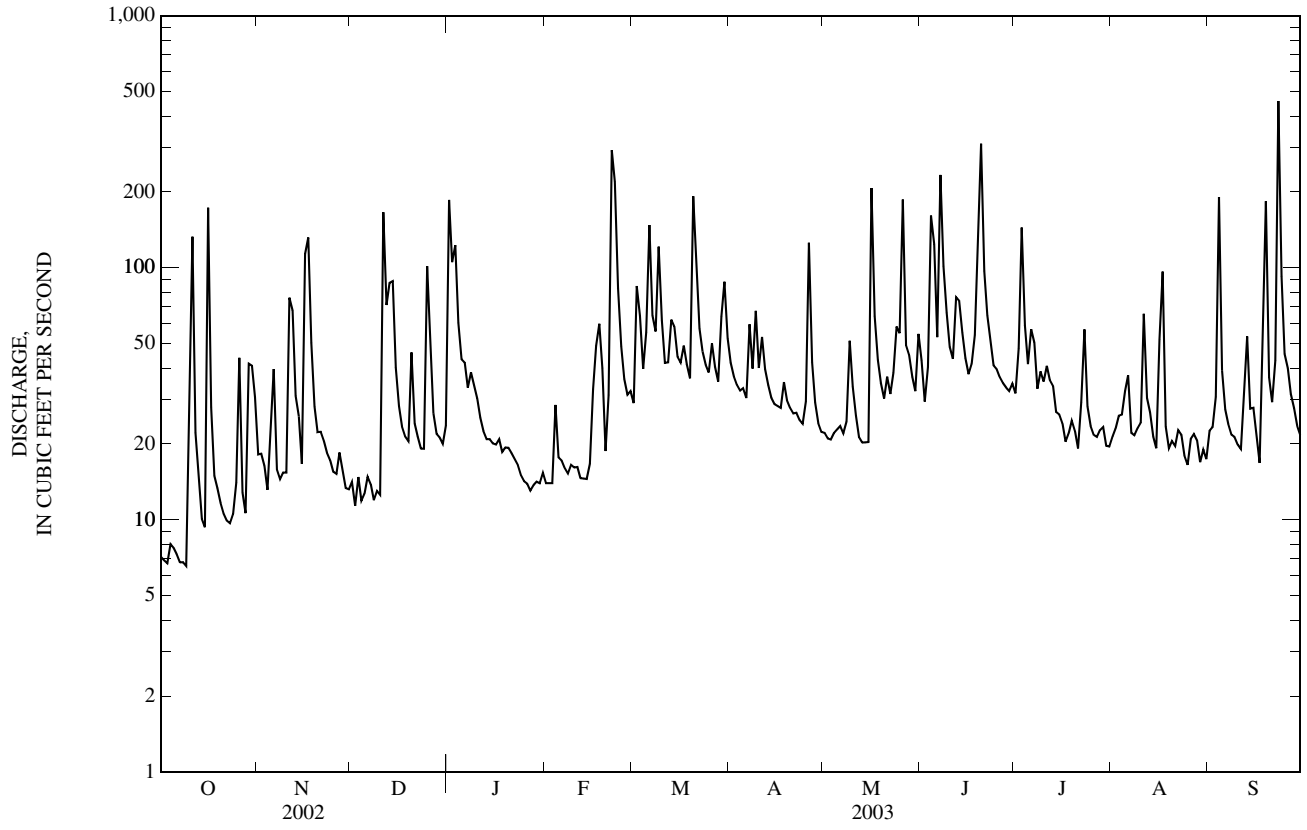
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	20.5	28.2	30.4	32.0	33.0	43.0	37.1	35.7	27.1	25.1	21.4	23.8
MAX	45.3	55.4	91.0	69.5	57.5	90.2	81.6	80.5	74.0	72.7	46.0	60.9
(WY)	(1997)	(1997)	(1997)	(1996)	(1994)	(1994)	(1983)	(1989)	(2003)	(1996)	(1996)	(1999)
MIN	8.38	11.8	11.6	13.6	9.48	20.1	18.5	14.5	9.04	6.47	9.75	7.29
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1985)	(1986)	(2002)	(2002)	(2002)	(1986)

01583600 BEAVERDAM RUN AT COCKEYSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	6,342.6		15,376.8			
ANNUAL MEAN	17.4		42.1		29.8	
HIGHEST ANNUAL MEAN					45.8	1996
LOWEST ANNUAL MEAN					12.5	2002
HIGHEST DAILY MEAN	173	Oct 16	459	Sep 23	903	Jan 19, 1996
LOWEST DAILY MEAN	3.0	(a)	6.6	Oct 9	3.0	(a)
ANNUAL SEVEN-DAY MINIMUM	3.8	Aug 16	7.1	Oct 3	3.8	Aug 16, 2002
MAXIMUM PEAK FLOW			989	Sep 23	(b)3,360	Jul 1, 1984
MAXIMUM PEAK STAGE			6.69	Sep 23	(c)12.10	Jul 1, 1984
INSTANTANEOUS LOW FLOW			4.4	Oct 10	2.5	(d)
ANNUAL RUNOFF (CFSM)	0.83		2.02		1.42	
ANNUAL RUNOFF (INCHES)	11.29		27.37		19.34	
10 PERCENT EXCEEDS	32		79		52	
50 PERCENT EXCEEDS	10		28		21	
90 PERCENT EXCEEDS	5.2		14		10	

a Aug.19, 21, 2002.
b From rating curve extended above 1,000 ft^3/s.
c From floodmarks.
d Aug. 19, 20, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

0158397967 MINEBANK RUN NEAR GLEN ARM, MD

LOCATION.--Lat 39°24'36", long 76°33'23", Baltimore County, Hydrologic Unit 02060003, on left bank 0.25 mi upstream from Sherwood Bridge in Cromwell Valley Park, 0.9 mi upstream from mouth, 1.6 mi northwest of Carney, and 4.5 mi southwest of Glen Arm.

DRAINAGE AREA.--2.06 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 216.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those above 100 ft^3/s and those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 12	1705	*1,390	(a)*8.61	Sep 23	0400	834	(b)7.78
Jun 13	1915	(c)730	(e)7.58				

(a) From floodmarks.

(b) High-water mark from crest-stage gage.

(c) Based on drainage area ratio method using downstream gaging station (01583980).

(e) Estimated.

Minimum discharge, 0.05 ft^3/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.15	0.65	0.64	24	2.5	2.1	3.0	2.0	2.8	2.2	1.2	1.7
2	0.12	0.55	0.64	5.5	1.3	14	2.9	1.8	2.3	10	1.3	1.2
3	0.09	0.49	0.63	12	1.2	4.3	2.7	1.8	5.0	13	1.3	5.4
4	0.11	0.45	0.89	3.8	5.4	3.0	2.4	1.8	10	2.6	8.4	21
5	0.11	4.7	1.1	2.9	1.2	7.5	2.4	2.0	4.2	2.3	2.9	1.9
6	0.10	4.2	0.97	3.6	1.1	22	2.1	2.1	2.8	10	1.9	1.5
7	0.08	0.70	0.74	2.3	1.7	5.1	7.8	1.8	40	3.1	1.3	1.3
8	0.08	0.57	0.98	2.8	1.2	5.1	2.9	3.0	5.1	2.1	1.2	1.2
9	0.09	0.57	0.80	2.0	1.2	7.2	7.7	7.9	4.0	2.7	1.9	1.2
10	6.8	0.56	0.57	1.7	1.3	3.9	3.0	2.8	3.2	2.0	1.3	1.1
11	26	4.5	28	1.5	1.1	3.2	6.2	1.8	4.6	2.5	1.4	1.1
12	0.86	11	6.0	1.5	1.1	3.2	3.0	1.6	42	5.2	1.2	6.4
13	0.37	1.6	13	1.5	1.0	4.9	2.5	1.5	29	2.1	1.4	17
14	0.30	1.1	7.2	1.5	0.97	3.5	2.4	1.5	8.7	1.8	1.1	2.2
15	0.28	0.86	2.6	1.5	1.5	3.1	2.3	1.6	5.4	1.7	0.98	3.4
16	32	23	1.9	1.5	2.6	3.2	2.3	36	4.5	1.5	8.3	1.5
17	1.2	14	1.7	1.5	3.9	4.3	3.2	4.3	7.6	1.4	9.8	1.1
18	0.52	3.1	1.5	1.3	2.2	3.1	3.2	3.2	5.4	1.5	1.3	12
19	0.41	1.8	1.5	1.3	1.8	2.6	2.2	2.5	10	1.5	1.1	11
20	0.38	1.4	5.1	1.3	2.2	32	2.0	2.0	19	1.4	1.0	1.6
21	0.33	1.2	1.4	1.3	4.6	7.1	2.0	4.9	16	1.3	1.1	1.5
22	0.31	1.1	1.3	1.3	50	4.2	2.0	2.0	5.3	6.7	5.8	7.7
23	0.33	1.0	1.1	1.4	15	3.4	2.0	3.2	3.8	2.7	1.5	44
24	0.41	0.96	1.1	e1.4	5.2	3.0	2.0	5.0	3.3	1.5	1.1	3.4
25	2.2	0.90	20	e1.3	3.2	2.9	3.6	4.3	3.1	1.2	1.0	3.8
26	6.4	0.82	4.4	e1.3	2.5	6.6	13	36	2.9	1.2	3.7	2.5
27	0.49	1.6	2.3	e1.3	2.2	3.1	2.5	4.3	2.7	1.2	5.7	1.8
28	0.53	0.76	1.8	1.2	2.7	3.2	2.1	5.0	2.6	2.7	1.3	7.5
29	7.4	0.76	1.7	1.4	---	6.5	2.0	3.1	2.5	1.5	1.0	3.3
30	4.2	0.74	1.6	1.2	---	8.9	1.9	2.9	2.3	1.2	1.0	2.6
31	1.9	---	1.8	1.2	---	3.6	---	6.7	---	1.1	0.98	---
TOTAL	94.55	85.64	114.96	89.3	121.87	189.8	99.3	160.4	260.1	92.9	74.46	172.9
MEAN	3.05	2.85	3.71	2.88	4.35	6.12	3.31	5.17	8.67	3.00	2.40	5.76
MAX	32	23	28	24	50	32	13	36	42	13	9.8	44
MIN	0.08	0.45	0.57	1.2	0.97	2.1	1.9	1.5	2.3	1.1	0.98	1.1
CFSM	1.48	1.39	1.80	1.40	2.11	2.97	1.61	2.51	4.21	1.45	1.17	2.80
IN.	1.71	1.55	2.08	1.61	2.20	3.43	1.79	2.90	4.70	1.68	1.34	3.12

e Estimated

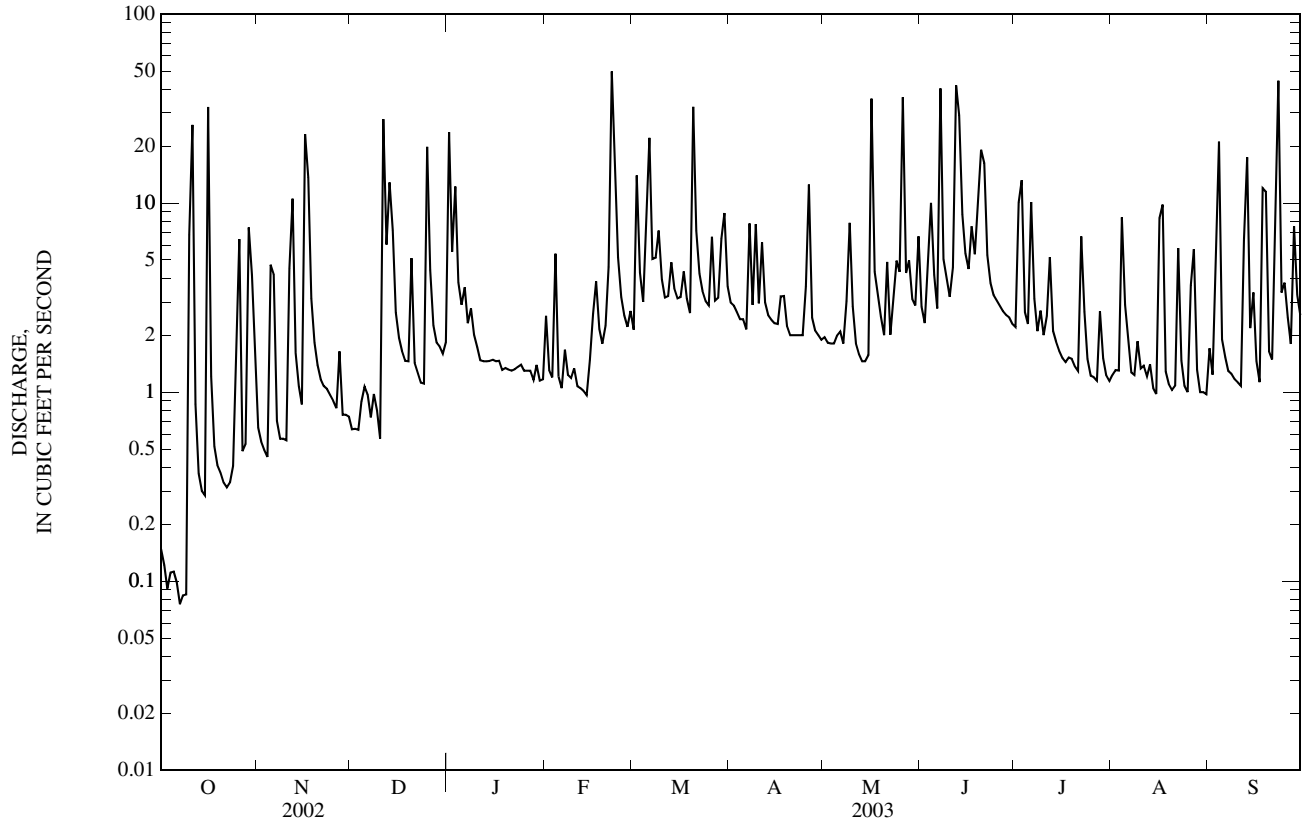
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	1.74	1.90	2.32	1.98	2.39	4.06	2.68	3.37	5.05	1.78	1.73	3.53
MAX	3.05	2.85	3.71	2.88	4.35	6.12	3.31	5.17	8.67	3.00	2.40	5.76
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	0.43	0.95	0.93	1.07	0.43	1.99	2.05	1.56	1.43	0.57	1.06	1.31
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

0158397967 MINEBANK RUN NEAR GLEN ARM, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	644.48		1,556.18			
ANNUAL MEAN	1.77		4.26		2.71	
HIGHEST ANNUAL MEAN					4.26	2003
LOWEST ANNUAL MEAN					1.15	2002
HIGHEST DAILY MEAN	32	Oct 16	50	Feb 22	50	Feb 22, 2003
LOWEST DAILY MEAN	(e)0.04	(a)	0.08	(b)	(e)0.04	(a)
ANNUAL SEVEN-DAY MINIMUM	0.04	Aug 17	0.09	Oct 3	0.04	Aug 17, 2002
MAXIMUM PEAK FLOW			1,390	Jun 12	(c)1,390	Jun 12, 2003
MAXIMUM PEAK STAGE			8.61	Jun 12	(d)8.61	Jun 12, 2003
INSTANTANEOUS LOW FLOW			0.05	Oct 7	UNKNOWN	
ANNUAL RUNOFF (CFSM)	0.86		2.07		1.31	
ANNUAL RUNOFF (INCHES)	11.64		28.10		17.85	
10 PERCENT EXCEEDS	4.3		8.5		6.4	
50 PERCENT EXCEEDS	0.64		2.1		1.1	
90 PERCENT EXCEEDS	0.10		0.76		0.19	

e Estimated
a Aug. 17-23, Sept. 22, 24, 2002.
b Oct. 7, 8.
c From rating curve extended above 20 ft^3/s on basis of slope-area measurement of peak flow.
d From floodmarks.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

0158397967 MINEBANK RUN NEAR GLEN ARM, MD

PERIOD OF RECORD.--Water years 2002 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Carbon dioxide water, unfltrd mg/L (00405)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
OCT												
02...	0940	Environmental	0.13	--	10.2	7.6	761	25.6	18.9	--	--	--
15...	1330	Environmental	0.27	--	10.4	7.6	793	--	13.9	--	--	--
31...	1050	Environmental	1.2	--	11.8	7.6	504	6.2	8.8	--	--	--
NOV												
07...	1005	Environmental	0.69	2.5	11.8	8.2	723	8.7	9.2	270	72.9	22.1
26...	1110	Environmental	0.66	--	12.8	8.5	1,030	7.7	8.0	--	--	--
DEC												
04...	1105	Environmental	0.81	--	15.4	8.2	797	-1.0	2.0	--	--	--
13...	1025	Environmental	2.5	--	--	--	--	1.9	4.5	--	--	--
23...	1505	Environmental	1.1	--	12.8	7.8	1,030	8.7	6.8	--	--	--
JAN												
07...	1315	Environmental	2.1	--	12.7	7.6	370	--	4.2	--	--	--
13...	1100	Environmental	1.5	--	13.7	7.5	1,190	--	2.6	--	--	--
22...	1045	Environmental	1.3	--	15.2	7.3	1,360	-6.7	0.7	--	--	--
30...	1330	Environmental	1.1	--	15.5	7.6	448	-0.4	2.7	--	--	--
30...	*1331*	*Replicate*	--	--	--	--	--	--	--	--	--	--
FEB												
05...	1000	Environmental	1.2	--	14.3	7.6	1,360	-0.2	2.7	--	--	--
11...	1225	Environmental	1.1	--	14.8	7.7	330	--	3.4	--	--	--
27...	1120	Environmental	2.2	--	12.8	7.4	440	--	3.0	--	--	--
MAR												
10...	1050	Environmental	3.4	9.6	13.3	7.5	1,170	--	4.6	290	77.6	23.6
25...	1100	Environmental	2.9	--	14.2	8.0	1,090	--	11.6	--	--	--
APR												
02...	1110	Environmental	2.7	--	14.4	7.8	1,080	22.0	11.9	--	--	--
10...	1025	Environmental	2.8	--	13.9	7.6	983	6.6	7.7	--	--	--
16...	0955	Environmental	2.2	--	13.1	8.1	1,040	29.8	14.5	--	--	--
23...	0945	Environmental	1.9	--	15.3	7.9	986	--	11.3	--	--	--
MAY												
05...	0945	Environmental	1.8	--	11.7	7.5	1,030	--	11.6	--	--	--
12...	0930	Environmental	1.6	--	10.8	7.9	966	19.0	15.6	--	--	--
12...	*0931*	*Replicate*	--	--	--	--	--	--	--	--	--	--
29...	1010	Environmental	3.1	--	9.8	7.6	897	16.1	13.4	--	--	--
JUN												
05...	0945	Environmental	3.8	--	9.6	7.5	665	--	15.5	--	--	--
11...	1015	Environmental	3.1	--	9.2	7.6	959	--	17.4	--	--	--
25...	1020	Environmental	3.2	--	9.1	7.6	950	--	19.3	--	--	--
JUL												
01...	0915	Environmental	2.3	--	9.6	7.6	959	--	19.0	--	--	--
07...	0930	Environmental	2.7	7.1	8.2	7.7	680	--	20.9	240	65.3	19.4
31...	0950	Environmental	1.2	--	8.9	7.5	932	--	19.8	--	--	--
AUG												
08...	0940	Environmental	1.2	--	8.6	7.6	896	--	20.8	--	--	--
20...	0925	Environmental	1.1	--	7.1	7.7	911	--	20.0	--	--	--
20...	*0926*	*Replicate*	--	--	--	--	--	--	--	--	--	--
SEP												
02...	1020	Environmental	1.2	--	8.4	7.8	770	--	21.1	--	--	--
11...	0935	Environmental	1.1	--	10.9	7.8	909	--	17.3	--	--	--
17...	0950	Environmental	1.2	--	9.7	7.4	834	--	17.6	--	--	--
25...	1000	Environmental	2.1	--	8.9	7.7	861	--	17.3	--	--	--

0158397967 MINEBANK RUN NEAR GLEN ARM, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Orthophosphate, water, fltrd, mg/L as P (00671)
OCT													
02...	--	--	--	--	--	--	0.20	<0.04	--	0.61	<0.008	--	<0.02
15...	--	--	--	--	--	--	E.07	<0.04	--	0.94	<0.008	--	E.01
31...	--	--	--	--	--	--	0.12	<0.04	--	0.89	<0.008	--	E.01
NOV													
07...	--	37.4	99.3	--	10.1	22.4	0.11	<0.04	--	0.90	<0.008	--	<0.02
26...	--	--	--	--	--	--	0.19	<0.04	--	1.40	E.004	--	E.01
DEC													
04...	--	--	--	--	--	--	E.06	<0.04	--	1.30	<0.008	--	<0.02
13...	--	--	--	--	--	--	0.15	<0.04	--	1.57	E.005	--	<0.02
23...	--	--	--	--	--	--	0.12	<0.04	--	1.46	<0.008	--	<0.02
JAN													
07...	--	--	--	--	--	--	0.16	<0.04	--	1.87	E.004	--	<0.02
13...	--	--	--	--	--	--	E.09	<0.04	--	1.84	<0.008	--	<0.02
22...	--	--	--	--	--	--	E.10	<0.04	--	1.89	<0.008	--	<0.02
30...	--	--	--	--	--	--	0.12	<0.04	1.83	1.84	0.013	--	<0.02
30...	--	--	--	--	--	--	*0.14*	*<0.04*	*1.83*	*1.84*	*0.013*	--	*<0.02*
FEB													
05...	--	--	--	--	--	--	0.15	<0.04	--	1.74	E.007	--	<0.02
11...	--	--	--	--	--	--	0.11	<0.04	--	1.71	E.006	--	<0.02
27...	--	--	--	--	--	--	0.34	0.05	--	2.09	<0.008	0.29	0.03
MAR													
10...	3.72	109	245	<0.17	9.3	26.6	0.16	<0.04	--	2.05	<0.008	--	<0.02
25...	--	--	--	--	--	--	0.17	<0.04	--	1.96	E.004	--	<0.02
APR													
02...	--	--	--	--	--	--	0.13	<0.04	--	1.93	E.006	--	<0.02
10...	--	--	--	--	--	--	E.10	<0.04	--	1.79	E.006	--	<0.02
16...	--	--	--	--	--	--	0.15	<0.04	--	1.56	E.006	--	<0.02
23...	--	--	--	--	--	--	0.10	<0.04	--	1.49	E.007	--	<0.02
MAY													
05...	--	--	--	--	--	--	0.21	<0.04	--	1.78	<0.008	--	<0.02
12...	--	--	--	--	--	--	0.15	<0.04	--	1.61	<0.008	--	<0.02
12...	--	--	--	--	--	--	*0.13*	*<0.04*	--	*1.62*	*<0.008*	--	*<0.02*
29...	--	--	--	--	--	--	0.14	<0.04	--	1.85	<0.008	--	<0.02
JUN													
05...	--	--	--	--	--	--	0.24	<0.04	1.42	1.43	0.009	--	--
11...	--	--	--	--	--	--	0.16	<0.04	--	1.82	<0.008	--	E.01
25...	--	--	--	--	--	--	0.13	<0.04	--	1.90	<0.008	--	<0.02
JUL													
01...	--	--	--	--	--	--	0.18	<0.04	--	1.77	<0.008	--	<0.02
07...	3.72	40.3	104	<0.2	10.9	19.5	0.18	<0.04	--	1.53	E.007	--	<0.02
31...	--	--	--	--	--	--	0.20	<0.04	--	1.60	<0.008	--	<0.02
AUG													
08...	--	--	--	--	--	--	0.21	<0.04	--	1.59	<0.008	--	<0.02
20...	--	--	--	--	--	--	E.10	<0.04	--	1.57	<0.008	--	E.01
20...	--	--	--	--	--	--	*E.10*	*<0.04*	--	*1.50*	*<0.008*	--	*E.01*
SEP													
02...	--	--	--	--	--	--	0.23	<0.04	--	1.30	E.005	--	<0.02
11...	--	--	--	--	--	--	0.24	<0.04	--	1.42	<0.008	--	<0.02
17...	--	--	--	--	--	--	0.28	<0.04	--	1.49	<0.008	--	<0.02
25...	--	--	--	--	--	--	0.24	<0.04	--	1.90	<0.008	--	E.01

0158397967 MINEBANK RUN NEAR GLEN ARM, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Phos-phorus, water, unfltrd mg/L (00665)	Total nitro-gen, water, fltrd, mg/L (00602)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)
OCT				
02...	E.03	0.80	--	--
15...	<0.04	--	--	--
31...	0.04	1.0	--	--
NOV				
07...	<0.04	1.0	<10	3.9
26...	<0.04	1.6	--	--
DEC				
04...	<0.04	--	--	--
13...	<0.04	1.7	--	--
23...	E.02	1.6	--	--
JAN				
07...	<0.04	2.0	--	--
13...	<0.04	--	--	--
22...	<0.04	--	--	--
30...	<0.04	2.0	--	--
30...	*<0.04*	*2.0*	--	--
FEB				
05...	<0.04	1.9	--	--
11...	<0.04	1.8	--	--
27...	E.03	2.4	--	--
MAR				
10...	<0.04	2.2	<10	50.0
25...	<0.04	2.1	--	--
APR				
02...	<0.04	2.1	--	--
10...	<0.04	--	--	--
16...	<0.04	1.7	--	--
23...	<0.04	1.6	--	--
MAY				
05...	<0.04	2.0	--	--
12...	<0.04	1.8	--	--
12...	*<0.04*	*1.7*	--	--
29...	<0.04	2.0	--	--
JUN				
05...	E.03	1.7	--	--
11...	<0.04	2.0	--	--
25...	<0.04	2.0	--	--
JUL				
01...	<0.04	2.0	--	--
07...	E.02	1.7	E6	6.1
31...	E.02	1.8	--	--
AUG				
08...	E.02	1.8	--	--
20...	<0.04	--	--	--
20...	*<0.04*	--	--	--
SEP				
02...	<0.04	1.5	--	--
11...	<0.04	1.7	--	--
17...	<0.04	1.8	--	--
25...	<0.04	2.1	--	--

Remark codes used in this table:
< -- Less than
E -- Estimated value

Photo by Edward J. Doheny

Minebank Run Near Glen Arm, Md (0158397967)

01583980 MINEBANK RUN AT LOCH RAVEN, MD

LOCATION.--Lat 39°25'00.0", long 76°32'46.7", Baltimore County, Hydrologic Unit 02060003, on left bank 15 ft downstream from bridge on lane leading to Cromwell Valley Park-Willow Grove Farm, 0.3 mi off Cromwell Bridge Road, 0.4 mi west of Loch Raven, and 0.6 mi upstream from mouth.

DRAINAGE AREA.--2.90 mi^2.

PERIOD OF RECORD.--October 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 181.39 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those above 150 ft^3/s and those for estimated daily discharges (questionable record), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 12	1720	(a)*1,770	(e)*7.59	Sep 23	0455	1,230	(b)6.53
Jun 13	1930	927	(b)5.83				

(a) Based on drainage area ratio method using upstream gaging station (0158397967).

(e) Estimated.

(b) High-water mark from crest-stage gage.

Minimum discharge, 0.19 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.34	1.00	1.1	25	3.2	3.7	5.6	2.0	5.6	3.6	1.9	1.7
2	0.36	0.85	1.0	8.6	1.8	18	4.8	1.9	4.1	8.7	1.9	1.6
3	0.31	0.80	0.85	14	1.7	8.3	4.3	1.8	7.3	15	1.8	3.5
4	0.34	0.75	e1.1	6.3	6.5	5.1	4.1	1.7	15	5.2	7.4	15
5	0.32	3.2	e1.2	4.6	1.9	9.8	4.1	1.8	7.8	4.3	3.3	2.5
6	0.27	5.2	e1.1	4.9	1.7	27	3.9	2.1	4.5	11	2.7	2.0
7	0.27	1.4	e0.95	3.7	2.0	9.0	11	2.0	35	5.8	1.7	1.7
8	0.27	1.2	e1.1	4.2	1.7	8.1	4.6	3.6	12	3.8	1.7	1.7
9	0.22	0.85	e0.95	3.5	1.6	12	11	8.9	8.7	4.3	2.4	1.7
10	3.2	0.82	0.86	3.2	1.6	7.3	4.8	4.4	6.6	3.7	1.8	1.4
11	22	4.0	27	2.6	1.6	5.9	8.8	2.8	7.2	4.0	1.7	1.4
12	1.3	10	8.3	2.4	1.4	5.7	4.7	2.4	56	5.9	1.5	4.3
13	0.85	2.5	15	2.4	1.3	8.0	3.8	2.1	36	3.7	1.7	14
14	0.75	1.4	11	2.3	1.3	6.6	3.5	2.0	16	2.9	1.8	2.9
15	0.74	1.1	4.9	2.2	1.7	5.5	3.3	2.0	11	2.9	1.5	3.1
16	29	20	3.6	2.3	1.6	5.3	3.0	36	8.2	2.5	5.3	2.0
17	2.0	16	2.8	2.2	1.4	6.7	4.4	8.2	8.6	2.2	9.0	1.7
18	1.00	5.3	2.5	1.8	1.5	5.3	4.4	5.5	8.6	2.3	2.0	7.9
19	0.82	2.9	2.3	1.8	1.7	4.2	3.3	3.9	11	2.3	1.7	15
20	0.72	2.3	6.2	1.7	2.9	34	2.9	2.9	23	2.2	1.5	2.6
21	0.65	1.9	2.5	1.7	5.8	15	2.7	6.8	24	2.1	1.4	2.1
22	0.65	1.7	2.1	1.8	59	8.6	2.7	3.0	12	5.5	4.1	5.5
23	0.65	1.5	1.7	1.9	25	6.4	2.7	3.8	8.7	4.7	1.9	79
24	0.65	1.4	1.5	1.9	11	5.9	2.7	6.6	6.7	2.8	1.5	6.8
25	1.2	1.2	19	1.8	6.0	4.8	4.0	5.7	5.6	2.3	1.4	5.0
26	6.9	1.1	6.3	1.8	4.5	8.7	15	41	5.0	2.1	2.9	4.3
27	0.97	2.1	3.4	1.8	3.7	5.2	3.2	8.6	4.3	1.9	4.2	2.9
28	0.75	1.4	2.6	1.6	3.9	4.8	2.3	9.6	4.0	3.1	1.7	6.2
29	6.8	1.2	2.4	1.8	---	9.7	2.1	5.8	3.9	2.4	1.4	2.6
30	4.7	1.2	2.0	1.7	---	13	2.0	5.2	3.8	1.9	1.4	2.3
31	2.6	---	2.1	1.7	---	6.9	---	8.8	---	1.9	1.4	---
TOTAL	91.60	96.27	139.41	119.2	159.0	284.5	139.7	202.9	370.2	127.0	77.6	204.4
MEAN	2.95	3.21	4.50	3.85	5.68	9.18	4.66	6.55	12.3	4.10	2.50	6.81
MAX	29	20	27	25	59	34	15	41	56	15	9.0	79
MIN	0.22	0.75	0.85	1.6	1.3	3.7	2.0	1.7	3.8	1.9	1.4	1.4
CFSM	1.02	1.11	1.55	1.33	1.96	3.16	1.61	2.26	4.26	1.41	0.86	2.35
IN.	1.18	1.23	1.97	1.53	2.04	3.65	1.79	2.60	4.75	1.63	1.00	2.62

e Estimated

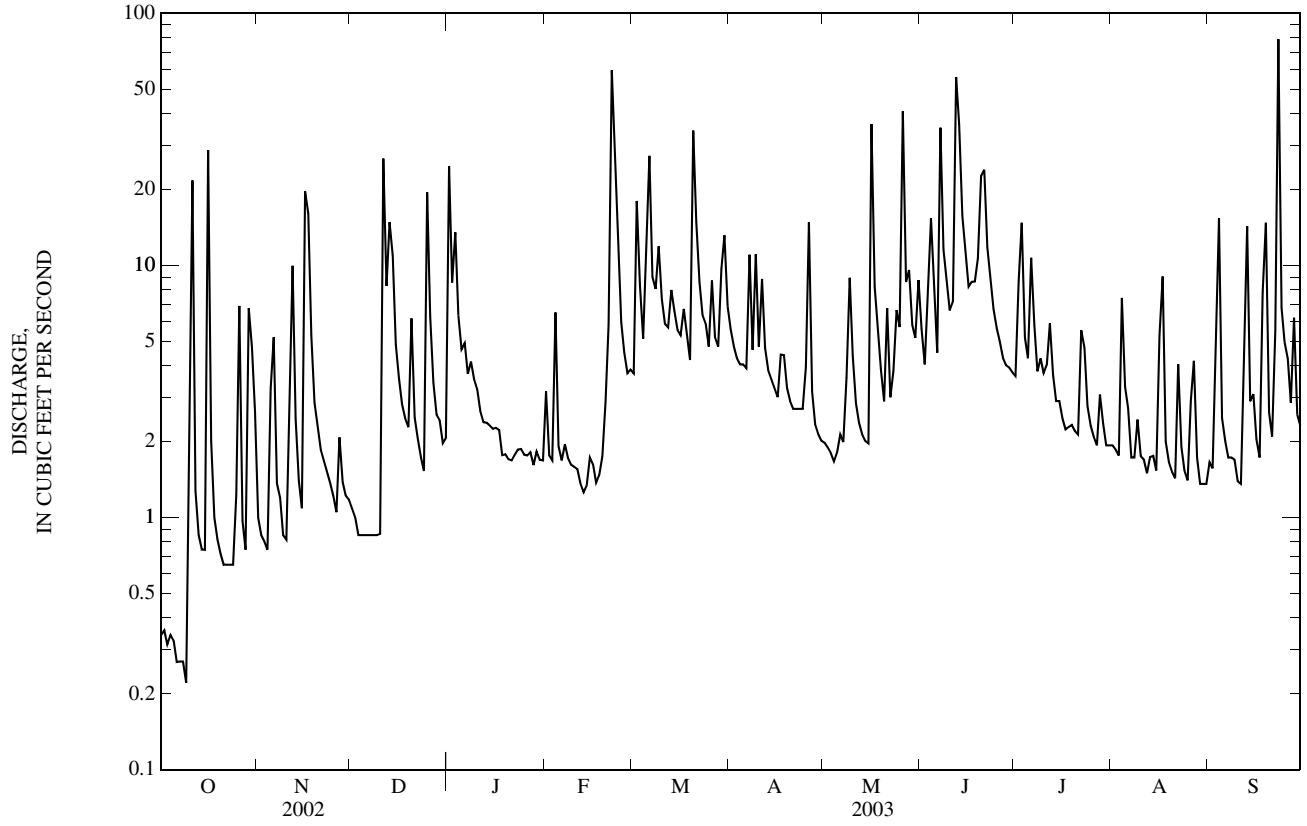
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)

MEAN	1.94	2.50	3.36	3.39	3.96	5.66	3.50	3.35	4.05	2.17	2.18	4.21
MAX	3.69	5.01	9.99	5.83	8.31	9.18	4.66	6.55	12.3	4.37	4.55	11.6
(WY)	(1997)	(1998)	(1997)	(1998)	(1998)	(2003)	(2003)	(2003)	(2003)	(2000)	(1999)	(1999)
MIN	0.65	0.78	0.70	1.24	0.51	1.91	2.19	1.48	1.29	0.60	1.01	1.04
(WY)	(2001)	(1999)	(1999)	(2002)	(2002)	(2002)	(2002)	(1999)	(1999)	(2002)	(2001)	(2001)

01583980 MINEBANK RUN AT LOCH RAVEN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003	
ANNUAL TOTAL	703.90		2,011.78			
ANNUAL MEAN	1.93		5.51		3.35	
HIGHEST ANNUAL MEAN					5.51	2003
LOWEST ANNUAL MEAN					1.30	2002
HIGHEST DAILY MEAN	29	Oct 16	79	Sep 23	150	Sep 16, 1999
LOWEST DAILY MEAN	0.13	Aug 23	0.22	Oct 9	0.13	Aug 23, 2002
ANNUAL SEVEN-DAY MINIMUM	0.16	Aug 17	0.29	Oct 3	0.16	Aug 17, 2002
MAXIMUM PEAK FLOW			(a)1,770	Jun 12	(b)1,960	Sep 2, 1997
MAXIMUM PEAK STAGE			(e)7.59	Jun 12	7.94	Sep 2, 1997
INSTANTANEOUS LOW FLOW			0.19	(c)	0.08	Jul 20, 1999
ANNUAL RUNOFF (CFSM)	0.66		1.90		1.15	
ANNUAL RUNOFF (INCHES)	9.03		25.81		15.69	
10 PERCENT EXCEEDS	4.1		11		6.7	
50 PERCENT EXCEEDS	0.85		2.9		1.6	
90 PERCENT EXCEEDS	0.30		1.1		0.57	

a Based on drainage area ratio method using upstream gaging station (0158397967).
b From rating curve extended above 150 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
e Estimated.
c Oct. 9, 10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01584050 LONG GREEN CREEK AT GLEN ARM, MD

LOCATION.--Lat 39°27'16.9", long 76°28'44.0", Baltimore County, Hydrologic Unit 02060003, on right bank 0.5 mi downstream from bridge on Glen Arm Road, 0.6 mi upstream from State Highway 147 (Harford Road), 0.8 mi east of Glen Arm, and 1.6 mi upstream from mouth.

DRAINAGE AREA.--9.40 mi^2.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing or erroneous data, ice effect) which are fair. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 26	0615	362	3.69	Jun 20	1415	319	3.56
Jun 12	2200	420	3.85	Jul 6	2315	408	3.82
Jun 13	2115	484	4.01	Sep 23	0715	*606	*4.27

Minimum discharge, 1.2 ft^3/s, Oct 4-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.5	e5.2	5.1	56	8.4	11	15	9.9	17	13	9.2	7.0
2	e1.4	4.7	5.0	31	7.8	41	14	9.8	13	15	9.1	8.1
3	1.4	4.3	4.8	36	7.5	38	14	9.3	13	37	9.2	8.5
4	e1.3	4.1	4.6	21	11	17	13	9.3	34	19	14	43
5	e1.3	4.2	5.2	14	8.0	35	13	9.4	24	15	15	11
6	e1.3	8.4	5.3	14	7.4	76	12	9.7	16	44	20	9.1
7	1.3	4.9	4.9	13	7.9	27	17	9.3	92	42	11	8.4
8	1.2	4.4	4.9	17	7.2	40	15	9.2	30	17	10	8.0
9	1.3	4.2	4.9	14	7.2	83	23	13	22	15	10	7.5
10	2.4	4.0	4.7	12	7.3	25	16	11	17	16	9.5	7.3
11	20	5.7	30	11	7.0	18	22	10	16	16	10	6.9
12	6.5	14	25	9.9	7.0	21	17	9.5	89	14	9.2	7.6
13	3.8	9.0	30	9.7	6.7	30	14	9.3	108	14	8.8	19
14	e3.0	6.3	43	9.4	6.6	22	13	9.0	45	13	8.5	11
15	e2.5	5.6	14	9.2	6.9	17	13	8.8	23	12	8.1	10
16	21	21	11	8.7	12	16	12	43	20	12	22	9.6
17	e8.6	40	9.4	8.9	33	18	12	18	19	11	15	8.0
18	e6.0	17	8.6	8.3	29	16	13	14	26	11	10	10
19	e5.0	9.4	8.5	8.2	18	14	12	13	25	11	9.2	17
20	e3.4	8.1	14	8.2	7.9	76	12	12	85	10	8.7	9.9
21	e2.8	7.5	9.7	7.9	8.6	41	12	13	31	10	8.3	8.9
22	e2.4	7.2	8.7	7.5	30	22	12	12	24	11	8.4	9.8
23	e2.2	6.5	8.0	7.5	41	18	11	13	20	16	8.5	147
24	e2.5	6.2	7.8	7.5	34	16	10	17	17	11	7.5	18
25	e3.5	6.0	41	7.1	26	15	11	16	16	9.7	7.6	14
26	e7.0	5.7	19	7.3	16	16	18	96	15	9.4	e7.8	14
27	e4.5	6.1	12	7.0	13	15	12	21	15	9.4	8.0	12
28	e3.5	5.5	11	e6.8	12	14	11	22	14	9.7	7.6	16
29	e10	5.5	11	7.2	---	18	11	16	14	9.5	7.4	12
30	e9.0	5.4	10	7.0	---	28	10	14	14	8.8	7.2	11
31	e6.0	---	11	7.1	---	19	---	17	---	8.9	6.8	---
TOTAL	147.6	246.1	392.1	399.4	394.4	863	410	503.5	914	470.4	311.6	489.6
MEAN	4.76	8.20	12.6	12.9	14.1	27.8	13.7	16.2	30.5	15.2	10.1	16.3
MAX	21	40	43	56	41	83	23	96	108	44	22	147
MIN	1.2	4.0	4.6	6.8	6.6	11	10	8.8	13	8.8	6.8	6.9
CFSM	0.51	0.87	1.35	1.37	1.50	2.96	1.45	1.73	3.24	1.61	1.07	1.74
IN.	0.58	0.97	1.55	1.58	1.56	3.42	1.62	1.99	3.62	1.86	1.23	1.94

e Estimated

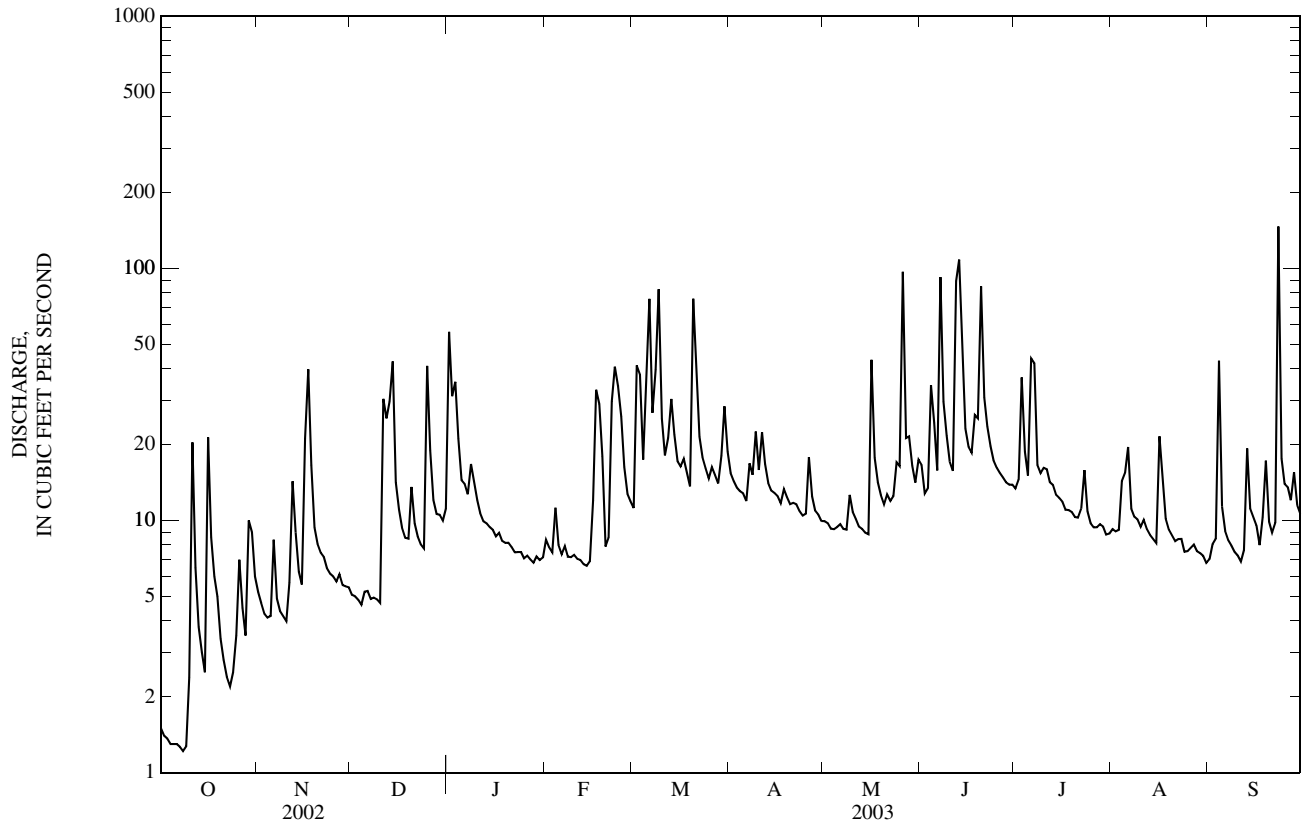
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2003, BY WATER YEAR (WY)

MEAN	7.49	8.61	11.3	14.1	14.1	17.0	13.8	12.5	10.4	8.67	7.34	8.10
MAX	25.1	18.0	33.0	38.4	39.3	39.2	35.3	28.1	30.5	28.0	26.9	32.2
(WY)	(1980)	(1980)	(1997)	(1979)	(1979)	(1994)	(1983)	(1989)	(2003)	(1989)	(1978)	(1979)
MIN	2.28	2.70	2.82	3.63	2.83	5.05	4.76	4.69	2.74	1.64	1.24	1.80
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01584050 LONG GREEN CREEK AT GLEN ARM, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1976 - 2003	
ANNUAL TOTAL	1,647.58		5,541.7			
ANNUAL MEAN	4.51		15.2		11.1	
HIGHEST ANNUAL MEAN					18.1	1979
LOWEST ANNUAL MEAN					3.02	2002
HIGHEST DAILY MEAN	43	Dec 14	147	Sep 23	408	Jan 26, 1978
LOWEST DAILY MEAN	(e)0.76	Aug 22	1.2	Oct 8	(e)0.76	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.83	Aug 16	1.3	Oct 3	0.83	Aug 16, 2002
MAXIMUM PEAK FLOW			606	Sep 23	(a)3,250	Jul 1, 1984
MAXIMUM PEAK STAGE			4.27	Sep 23	6.70	Jul 1, 1984
INSTANTANEOUS LOW FLOW			1.2	(b)	(c)0.26	Feb 5, 2002
ANNUAL RUNOFF (CFSM)	0.48		1.62		1.18	
ANNUAL RUNOFF (INCHES)	6.52		21.93		16.04	
10 PERCENT EXCEEDS	8.6		29		18	
50 PERCENT EXCEEDS	3.1		11		8.0	
90 PERCENT EXCEEDS	1.2		5.0		3.2	

e Estimated
a From rating curve extended above 1,300 ft^3/s.
b Oct. 4-9.
c Result of freezeup.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01584500 LITTLE GUNPOWDER FALLS AT LAUREL BROOK, MD

LOCATION.--Lat 39°30'19.3", long 76°25'54.4", Baltimore County, Hydrologic Unit 02060003, on right bank 700 ft upstream from Laurel Brook, 750 ft upstream from bridge on Bottom Road, 5 mi southwest of Bel Air, and 10.5 mi upstream from mouth.

DRAINAGE AREA.--36.1 mi^2.

PERIOD OF RECORD.--October 1926 to September 1970, October 1998 to current year. Monthly discharge only for some periods, published in WSP 1302. Annual maximums, water years 1971-86.

REVISED RECORDS.--WSP 726: 1927-31, drainage area. WSP 1502: 1936 (M), 1944-46, 1947-48 (P), 1949 (M), 1950-51.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 261.43 ft above National Geodetic Vertical Datum of 1929 (city of Baltimore benchmark).

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	2000	1,020	4.55	Sep 23	0645	*1,950	*5.59

Minimum discharge, 7.0 ft^3/s, Oct. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	27	25	122	41	51	73	47	122	64	42	36
2	7.7	24	25	194	39	141	67	46	61	59	42	45
3	7.3	22	24	120	37	213	62	44	56	136	41	42
4	7.1	21	24	109	46	78	61	44	187	88	52	200
5	7.3	21	22	63	38	110	60	44	191	64	50	66
6	7.2	37	30	57	34	396	57	46	83	75	87	47
7	7.3	27	25	52	37	157	69	45	225	178	48	42
8	7.5	24	26	54	34	144	75	55	136	72	45	38
9	7.6	23	25	59	39	342	91	66	95	63	44	36
10	11	22	24	52	33	143	73	61	78	80	43	34
11	78	42	129	46	33	83	87	52	72	75	84	34
12	32	57	144	43	32	87	74	47	109	62	53	36
13	16	54	75	42	e31	139	62	44	206	63	44	135
14	13	33	179	40	e30	124	59	42	210	55	40	87
15	12	29	71	38	32	87	58	40	96	53	38	53
16	117	65	50	39	22	85	56	172	81	51	134	54
17	44	187	42	39	54	92	53	93	76	48	93	42
18	21	80	38	41	73	81	57	62	98	48	51	44
19	18	44	37	38	55	69	57	54	93	48	43	115
20	16	36	54	37	48	204	53	48	226	45	40	53
21	15	33	46	34	46	210	52	49	145	45	38	46
22	14	34	38	33	400	101	53	49	102	48	71	45
23	14	31	36	33	533	82	50	51	85	76	75	673
24	14	29	34	33	236	74	47	67	73	52	41	101
25	15	28	122	34	104	69	48	68	66	46	37	70
26	32	27	75	35	71	70	84	261	63	44	37	66
27	21	28	51	35	59	74	64	93	60	42	39	58
28	18	27	43	35	55	65	53	85	57	41	37	58
29	21	26	42	37	---	77	50	73	56	42	35	51
30	41	26	41	36	---	113	48	61	68	39	37	47
31	39	---	42	36	---	93	---	67	---	39	36	---
TOTAL	688.3	1,164	1,639	1,666	2,292	3,854	1,853	2,076	3,276	1,941	1,597	2,454
MEAN	22.2	38.8	52.9	53.7	81.9	124	61.8	67.0	109	62.6	51.5	81.8
MAX	117	187	179	194	533	396	91	261	226	178	134	673
MIN	7.1	21	22	33	22	51	47	40	56	39	35	34
CFSM	0.62	1.07	1.46	1.49	2.27	3.44	1.71	1.86	3.02	1.73	1.43	2.27
IN.	0.71	1.20	1.69	1.72	2.36	3.97	1.91	2.14	3.38	2.00	1.65	2.53

e Estimated

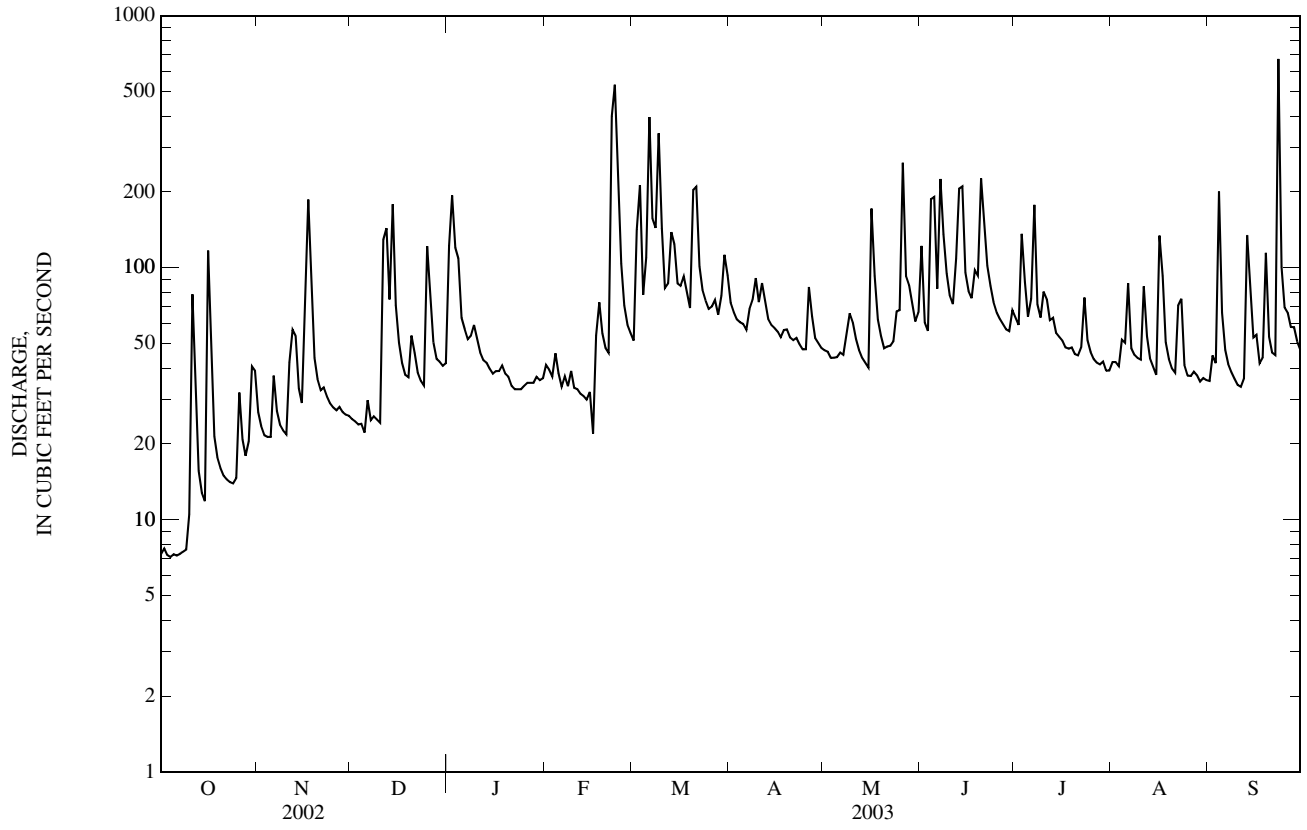
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 1970, 1999 - 2003, BY WATER YEAR (WY)

MEAN	29.7	38.2	40.0	48.9	56.6	59.9	58.3	48.9	42.4	35.0	37.4	32.5
MAX	81.8	118	80.9	110	115	129	120	133	161	88.5	215	117
(WY)	(1930)	(1927)	(1951)	(1936)	(1936)	(1936)	(1952)	(1952)	(1928)	(1952)	(1928)	(1934)
MIN	7.83	9.29	12.1	16.2	15.6	23.7	18.7	17.2	10.9	5.85	3.67	6.90
(WY)	(1932)	(1932)	(1932)	(1966)	(2002)	(2002)	(2002)	(1963)	(2002)	(2002)	(2002)	(2002)

01584500 LITTLE GUNPOWDER FALLS AT LAUREL BROOK, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1927 - 1970, 1999 - 2003	
ANNUAL TOTAL	7,183.30		24,500.3			
ANNUAL MEAN	19.7		67.1		43.7	
HIGHEST ANNUAL MEAN					81.5	1952
LOWEST ANNUAL MEAN					13.8	2002
HIGHEST DAILY MEAN	187	Nov 17	673	Sep 23	2,800	Aug 23, 1933
LOWEST DAILY MEAN	(e)0.90	Aug 22	7.1	Oct 4	(e)0.90	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	1.2	Aug 17	7.3	Oct 1	1.2	Aug 17, 2002
MAXIMUM PEAK FLOW			1,950	Sep 23	(a)9,200	Aug 23, 1933
MAXIMUM PEAK STAGE			5.59	Sep 23	10.30	Aug 23, 1933
INSTANTANEOUS LOW FLOW			7.0	(b)	(c)1.1	Aug 21, 2002
ANNUAL RUNOFF (CFSM)	0.55		1.86		1.21	
ANNUAL RUNOFF (INCHES)	7.40		25.25		16.44	
10 PERCENT EXCEEDS	37		122		72	
50 PERCENT EXCEEDS	16		50		32	
90 PERCENT EXCEEDS	3.3		25		15	

e Estimated.
a From rating curve extended above 2,300 ft^3/s on basis of slope-area measurement of peak flow.
b Oct. 3, 4.
c Measured discharge of 1.1 ft^3/s, Aug. 21, 2002; may have been lower during period of questionable record.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585090 WHITEMARSH RUN NEAR FULLERTON, MD

LOCATION.--Lat 39°22'46.5", long 76°29'44.9", Baltimore County, Hydrologic Unit 02060003, on right bank 200 ft downstream of Route 43 bridge, 1.0 mi west of White Marsh. and 5.0 mi upstream from mouth.

DRAINAGE AREA.--2.73 mi^2.

PERIOD OF RECORD.--January 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 125 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record, backwater), which are poor. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 12	1730	2,130	5.22	Jul 6	2135	1,170	4.45
Jun 13	1945	*4,660	*6.60	Sep 23	--	UNKNOWN	UNKNOWN

Minimum discharge, 0.05 ft^3/s, Oct. 6, 7, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.12	1.0	0.65	67	5.6	3.8	2.7	e1.4	4.7	1.3	e3.0	1.2
2	0.11	0.98	0.64	15	1.9	38	2.2	e1.3	5.4	11	e2.6	e0.80
3	0.11	0.78	0.64	25	1.4	10	2.0	e1.6	20	19	e2.6	e30
4	0.11	0.68	0.61	6.6	12	5.1	1.9	e2.2	31	2.3	e2.6	e70
5	0.12	e0.56	0.88	3.8	1.9	18	1.9	e2.8	9.6	1.6	e30	e10
6	0.07	e20	1.8	6.0	1.4	40	1.7	e1.4	5.4	42	e10	e3.0
7	0.07	e2.0	1.2	3.3	2.6	6.8	15	e0.90	97	7.8	e4.0	e0.90
8	0.07	e0.60	1.9	5.9	1.9	7.2	3.6	e3.0	9.4	1.6	e3.0	e0.50
9	0.06	e0.40	1.3	3.5	1.7	9.5	16	15	5.2	2.4	e2.0	e0.45
10	13	e0.50	0.77	2.5	2.0	4.3	3.2	4.4	3.4	1.6	e1.6	e0.45
11	65	e2.0	70	2.0	1.6	3.1	12	e2.2	6.2	3.7	16	e0.45
12	3.8	e11	16	1.8	1.5	2.9	3.3	e1.2	129	7.5	1.7	e2.0
13	1.1	e40	27	1.6	1.3	4.7	2.2	e1.6	183	2.2	3.1	e20
14	0.62	e1.1	14	1.6	1.3	3.4	1.9	4.4	12	1.4	0.90	e1.6
15	0.48	e0.60	3.2	1.4	2.1	2.5	1.8	12	3.5	1.2	0.58	e6.0
16	59	e50	2.3	1.3	0.61	2.4	1.7	103	e3.0	1.1	3.5	e0.90
17	2.5	32	1.9	e1.2	e1.6	4.0	2.9	9.0	e3.6	1.0	24	e0.70
18	0.85	7.0	1.7	e1.2	e2.2	2.7	4.0	4.3	e6.0	1.0	1.1	e4.0
19	0.52	1.8	1.7	e1.1	3.9	2.1	1.9	2.8	e20	0.99	0.78	e30
20	0.40	1.4	14	e1.1	7.6	70	1.7	2.2	e100	0.92	0.67	e4.0
21	0.34	1.2	2.6	e1.0	15	14	1.5	13	e40	e1.1	0.68	e0.80
22	0.31	1.1	1.9	e1.0	152	3.9	e1.2	3.6	e15	e20	4.8	e0.60
23	0.34	0.90	1.7	e0.90	43	2.6	e1.0	4.8	e8.0	e10	0.99	e150
24	0.36	0.86	1.7	e0.80	12	2.1	e4.0	11	e5.0	e4.0	0.45	e9.0
25	2.3	0.79	59	e0.80	5.9	1.9	37	8.9	e3.0	e2.0	0.40	e3.0
26	11	0.74	11	e0.80	4.3	11	40	84	e2.2	e6.0	2.1	e2.0
27	0.64	1.7	3.6	e0.80	3.5	3.3	2.2	6.8	e2.0	e3.5	4.3	e1.2
28	0.46	0.75	2.8	e0.90	4.7	3.7	1.9	12	e1.5	e8.0	1.1	e5.0
29	12	0.67	2.9	e0.90	---	13	e1.6	4.4	1.3	e4.6	0.64	1.4
30	9.1	0.65	2.4	e0.90	---	20	e1.4	4.1	1.3	e2.8	0.57	1.1
31	3.3	---	2.6	e1.0	---	4.5	---	12	---	e1.4	0.45	---
TOTAL	188.26	183.76	254.39	162.70	296.51	320.5	175.4	341.30	736.7	175.01	130.21	361.05
MEAN	6.07	6.13	8.21	5.25	10.6	10.3	5.85	11.0	24.6	5.65	4.20	12.0
MAX	65	50	70	67	152	70	40	103	183	42	30	150
MIN	0.06	0.40	0.61	0.80	0.61	1.9	1.0	0.90	1.3	0.92	0.40	0.45
CFSM	2.22	2.24	3.01	1.92	3.88	3.79	2.14	4.03	9.00	2.07	1.54	4.41
IN.	2.57	2.50	3.47	2.22	4.04	4.37	2.39	4.65	10.04	2.38	1.77	4.92

e Estimated

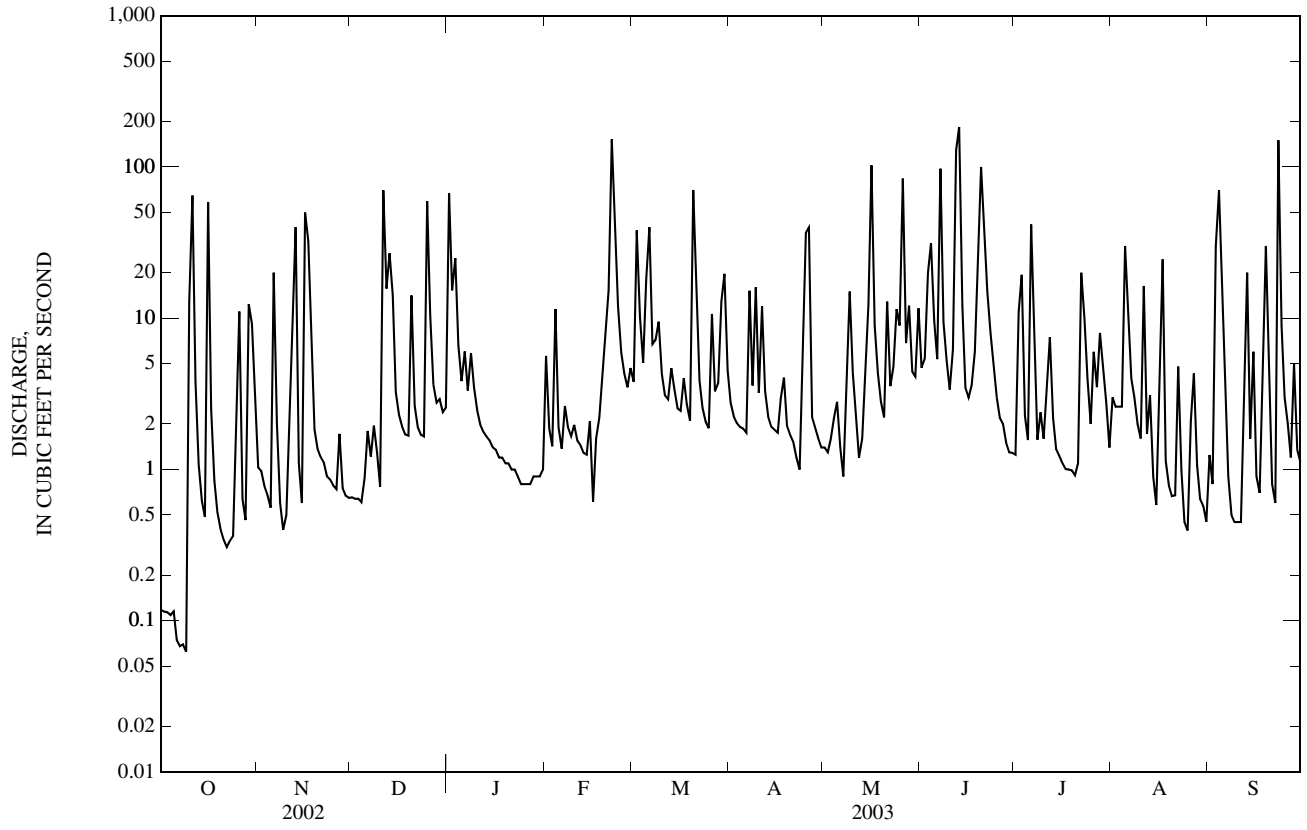
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2003, BY WATER YEAR (WY)

MEAN	4.01	4.17	4.85	6.31	5.51	7.51	4.43	4.85	6.63	3.78	3.32	5.96
MAX	10.8	7.49	12.6	13.2	12.0	13.1	6.58	11.0	24.6	10.3	9.81	20.2
(WY)	(1996)	(1998)	(1997)	(1996)	(1998)	(1998)	(1996)	(2003)	(2003)	(2000)	(1999)	(1999)
MIN	0.61	1.02	0.95	2.44	0.84	4.61	1.99	1.64	1.44	0.41	0.96	2.05
(WY)	(2001)	(1999)	(1999)	(2000)	(2002)	(1995)	(1995)	(1997)	(1995)	(1997)	(1995)	(2002)

01585090 WHITEMARSH RUN NEAR FULLERTON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1995 - 2003	
ANNUAL TOTAL	1,456.37		3,325.79			
ANNUAL MEAN	3.99		9.11		5.33	
HIGHEST ANNUAL MEAN					9.11	2003
LOWEST ANNUAL MEAN					2.75	2002
HIGHEST DAILY MEAN	100	Apr 28	183	Jun 13	418	Sep 16, 1999
LOWEST DAILY MEAN	0.00	(a)	0.06	Oct 9	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 11	0.09	Oct 3	0.00	Aug 11, 2002
MAXIMUM PEAK FLOW			4,660	Jun 13	(b)4,660	Jun 13, 2003
MAXIMUM PEAK STAGE			6.60	Jun 13	6.60	Jun 13, 2003
INSTANTANEOUS LOW FLOW			0.05	(c)	0.00	(d)
ANNUAL RUNOFF (CFSM)	1.46		3.34		1.95	
ANNUAL RUNOFF (INCHES)	19.85		45.32		26.50	
10 PERCENT EXCEEDS	10		20		11	
50 PERCENT EXCEEDS	0.80		2.3		1.5	
90 PERCENT EXCEEDS	0.11		0.64		0.39	

a Aug. 11-23, 2002.
b From rating curve extended above 120 ft^3/s.
c Oct. 6, 7, 9.
d Aug. 26, 1995, Aug. 14, 1999, June 17, July 23, Aug. 10-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585095 NORTH FORK WHITEMARSH RUN NEAR WHITE MARSH, MD

LOCATION.--Lat 39°23'09.2", long 76°28'07.9", Baltimore County, Hydrologic Unit 02060003, on left bank 100 ft upstream of culverts under Baconsfield Drive, 0.6 mi upstream from confluence with Whitemarsh Run, 0.9 mi southeast of Perry Hall, and 2.1 mi east of White Marsh.

DRAINAGE AREA.--1.34 mi^2.

PERIOD OF RECORD.--April 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 75 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records poor. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	--	266	3.34	Jun 20	1245	286	3.48
May 16	--	283	3.46	Jul 6	2130	421	4.47
Jun 12	1830	261	3.31	Aug 16	1445	263	3.32
Jun 13	1945	*540	*5.36	Sep 23	0515	377	4.14

Minimum discharge, 0.02 ft^3/s, Oct. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.04	0.44	e0.26	e28	e2.0	e1.5	e1.0	e0.54	e1.9	e0.50	e1.0	0.98
2	0.04	0.31	e0.25	e6.0	e1.0	e16	e0.90	e0.50	e2.3	e6.0	e0.70	e0.40
3	0.05	0.26	e0.25	e11	e0.54	e5.0	e0.85	0.67	e10	e7.0	e0.85	1.5
4	0.05	0.25	e0.24	e3.0	e5.0	e2.0	e0.80	e0.90	e14	e0.90	e0.70	17
5	0.04	e22	e0.40	e1.4	e0.80	e5.0	e0.75	e1.2	e5.0	e0.60	12	0.50
6	0.02	e10	1.7	e2.0	e0.54	e17	e0.70	e0.70	e2.1	19	3.6	0.33
7	0.06	e0.80	e0.46	e1.2	e1.0	e2.5	e7.0	e0.36	e36	5.4	1.4	0.26
8	0.03	e0.26	0.97	e1.9	e0.80	e2.7	1.7	2.0	e6.0	e0.55	0.99	0.26
9	0.03	e0.16	e0.50	e1.2	e0.70	e3.6	e8.0	5.7	e1.3	e1.2	4.8	0.26
10	7.3	e0.22	e0.30	e0.90	e0.80	e1.4	e1.4	1.5	e1.1	e0.80	1.9	0.26
11	35	e1.0	33	e0.80	e0.60	e1.1	e5.0	0.95	2.4	e2.0	2.2	0.25
12	1.5	e5.0	5.8	e0.67	e0.50	e1.1	e1.4	0.44	e50	e3.0	1.1	1.7
13	0.47	e16	4.0	e0.58	e0.50	e2.0	e1.0	e0.55	e75	1.5	0.76	7.0
14	0.38	e0.34	4.2	e0.53	e0.50	e1.4	e0.80	e2.5	e6.0	0.64	e0.50	0.63
15	0.21	e0.22	1.6	e0.50	e0.90	e1.2	e0.70	e8.0	e1.5	0.51	e0.40	2.7
16	27	e20	0.98	e0.30	0.26	e1.0	e0.65	e40	e1.2	0.39	9.8	0.59
17	1.2	e9.0	0.71	e0.46	e0.80	1.6	e1.4	e6.0	e1.5	0.29	7.2	0.42
18	0.37	e2.0	0.67	e0.43	e1.2	e1.1	e1.7	e2.0	e2.0	0.30	0.70	5.6
19	0.15	e0.80	0.68	e0.40	e2.0	e0.90	0.67	e1.3	10	0.63	0.44	4.6
20	0.15	0.70	8.6	e0.40	e6.0	e30	e0.57	e0.90	30	0.33	e0.36	0.47
21	0.17	0.56	1.0	e0.38	e12	e5.0	e0.53	e6.0	e12	1.6	e0.40	0.44
22	0.11	0.53	0.63	e0.38	e70	e1.6	e0.46	e1.4	e6.0	5.7	0.51	2.7
23	0.12	e0.45	0.59	e0.36	e20	e1.2	e0.40	e2.0	e3.0	3.3	0.60	38
24	0.16	e0.40	0.55	e0.33	e8.0	e0.90	e2.0	e4.0	e1.7	1.1	e0.30	e5.0
25	1.6	e0.36	e26	e0.31	e2.4	e0.80	e16	e3.0	e0.85	0.68	e0.23	e1.2
26	5.4	e0.35	e4.0	0.31	e1.7	e5.0	e17	e25	e0.83	2.0	1.0	e0.80
27	0.23	1.3	e1.4	0.26	e1.4	e1.4	e0.90	e2.6	e0.80	1.1	4.3	e0.60
28	0.18	e0.34	e1.1	0.29	e1.8	e1.6	e0.75	e5.0	e0.70	2.0	0.68	3.0
29	6.9	e0.28	e1.2	0.28	---	e7.0	e0.65	e1.9	e0.50	e1.1	0.44	0.72
30	5.6	e0.26	e0.90	0.26	---	e9.0	e0.54	e1.6	e0.50	e0.90	e0.33	e0.50
31	2.1	---	e1.0	0.32	---	e1.4	---	e5.0	---	e0.55	e0.24	---
TOTAL	96.66	94.59	103.94	65.15	143.74	133.00	76.22	134.21	286.18	71.57	60.43	98.67
MEAN	3.12	3.15	3.35	2.10	5.13	4.29	2.54	4.33	9.54	2.31	1.95	3.29
MAX	35	22	33	28	70	30	17	40	75	19	12	38
MIN	0.02	0.16	0.24	0.26	0.26	0.80	0.40	0.36	0.50	0.29	0.23	0.25
CFSM	2.33	2.35	2.50	1.57	3.83	3.20	1.90	3.23	7.12	1.72	1.45	2.45
IN.	2.68	2.63	2.89	1.81	3.99	3.69	2.12	3.73	7.94	1.99	1.68	2.74

e Estimated

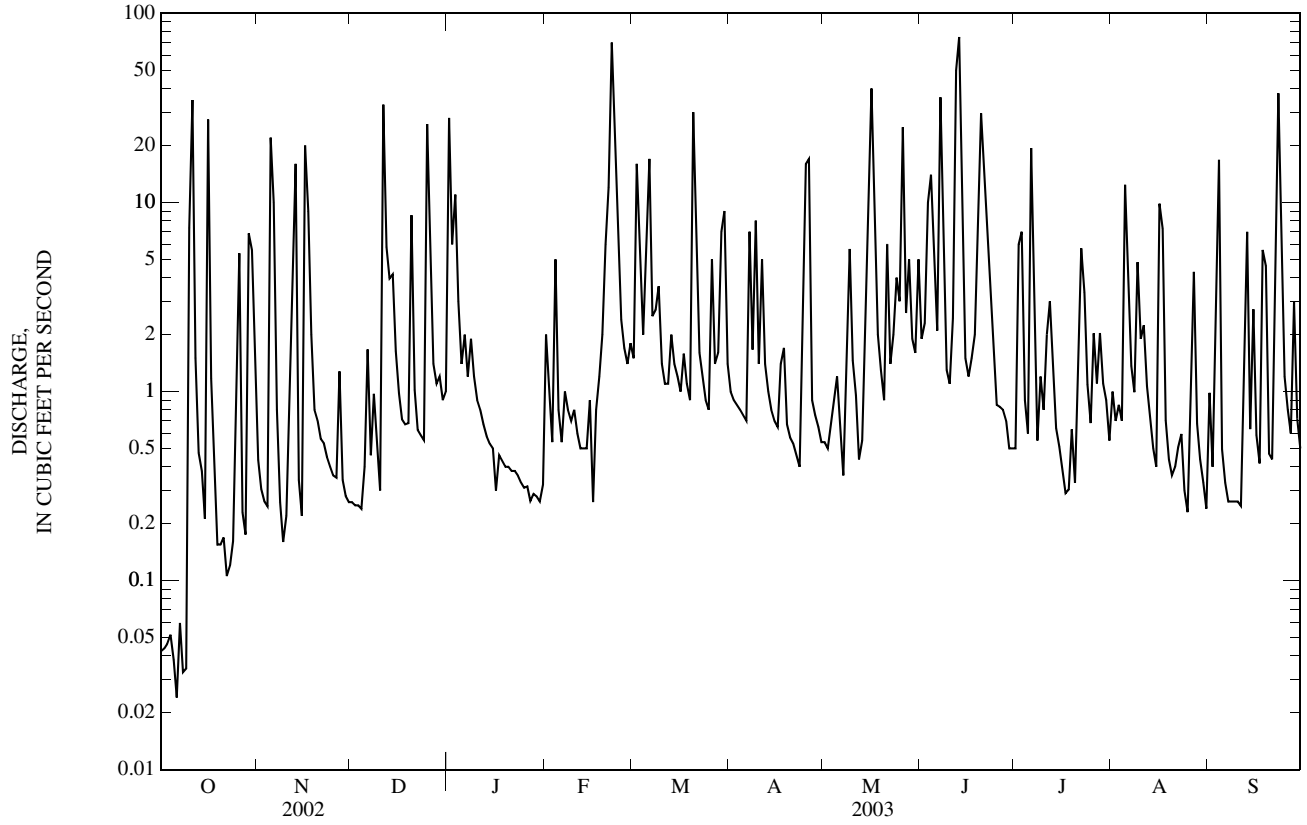
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)

MEAN	1.57	2.12	2.45	2.89	2.69	4.00	1.98	1.94	2.22	1.62	1.39	2.14
MAX	4.75	3.46	6.03	5.39	5.13	6.79	3.61	4.33	9.54	3.82	3.67	7.80
(WY)	(1996)	(1998)	(1997)	(1996)	(2003)	(1993)	(1996)	(2003)	(2003)	(1996)	(1994)	(1999)
MIN	0.21	0.50	0.39	1.04	0.27	1.94	0.92	0.74	0.59	0.14	0.34	0.82
(WY)	(2001)	(2002)	(2002)	(2000)	(2002)	(2002)	(1995)	(1997)	(1994)	(1997)	(2001)	(1997)

01585095 NORTH FORK WHITEMARSH RUN NEAR WHITE MARSH, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1992 - 2003	
ANNUAL TOTAL	557.28		1,364.36			
ANNUAL MEAN	1.53		3.74		2.27	
HIGHEST ANNUAL MEAN					3.74	2003
LOWEST ANNUAL MEAN					0.81	2002
HIGHEST DAILY MEAN	35	Oct 11	(e)75	Jun 13	140	Sep 16, 1999
LOWEST DAILY MEAN	0.00	(a)	0.02	Oct 6	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 6	0.04	Oct 3	0.00	Aug 6, 2002
MAXIMUM PEAK FLOW			540	Jun 13	(c)540	Jun 13, 2003
MAXIMUM PEAK STAGE			5.36	Jun 13	5.36	Jun 13, 2003
INSTANTANEOUS LOW FLOW			0.02	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	1.14		2.79		1.70	
ANNUAL RUNOFF (INCHES)	15.47		37.88		23.04	
10 PERCENT EXCEEDS	4.0		8.2		5.3	
50 PERCENT EXCEEDS	0.31		1.0		0.63	
90 PERCENT EXCEEDS	0.04		0.26		0.13	

e Estimated
a Aug. 2, 6-23.
b Aug. 7, 10-13, 1999, Aug. 2, 6-23, 2002.
c From rating curve extended above 200 ft^3/s.
d Oct. 6, 7.
f Aug. 6-8, 10-14, 1999, July 17, 18, 23, Aug. 1-3, 6-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585100 WHITEMARSH RUN AT WHITE MARSH, MD

LOCATION.--Lat 39°22'15.1", long 76°26'46.5", Baltimore County, Hydrologic Unit 02060003, on right bank at downstream side of bridge on Interstate Highway I-95, 1.0 mi southwest of White Marsh, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--7.61 mi^2.

PERIOD OF RECORD.--February 1959 to September 1989, March 1992 to current year.

REVISED RECORDS.--WDR MD-DE-73-1: 1960(M), 1967-68, 1969(M). WDR MD-DE-79-1: 1965-66(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 38.96 ft above National Geodetic Vertical Datum of 1929. Prior to June 12, 2002, water-stage recorder at site 2,500 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect, shifting conditions), which are fair. Low flow affected by operations of sand and gravel plant in vicinity of gage. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1445	791	9.82
Dec 25	1030	808	9.88
Feb 22	1315	1,070	10.81
May 16	0515	802	9.86
May 26	0530	872	10.10
Jun 7	1430	1,040	10.70
Jun 12	1830	1,140	11.09
Jun 13	2045	1,280	11.61
Jun 20	1315	1,120	11.00
Jul 6	2215	1,230	11.42
Aug 17	0100	805	9.87
Sep 4	0230	948	10.36
Sep 13	1700	981	10.47
Sep 19	0100	1,090	10.87
Sep 23	0600	*1,360	*11.96

Minimum discharge, 0.54 ft^3/s, Oct. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.96	3.9	e3.6	169	22	33	15	7.6	40	e2.6	3.7	5.3
2	0.81	3.1	e3.6	65	9.9	177	12	6.5	29	e30	3.4	6.2
3	0.81	2.7	e3.4	80	7.3	54	11	6.0	46	e60	3.4	24
4	0.81	2.5	e3.4	32	42	27	10	5.6	115	e7.0	11	223
5	0.81	12	e4.2	17	10	74	9.7	5.7	38	e4.0	108	7.9
6	0.81	40	e8.0	25	6.8	158	9.0	6.4	25	e80	43	3.1
7	0.81	3.9	e6.0	17	12	29	62	5.9	329	e50	4.1	2.4
8	0.81	2.9	e7.0	25	8.9	28	21	27	45	e4.5	2.3	2.1
9	0.81	2.6	e5.5	18	7.8	40	66	52	19	e6.0	39	2.6
10	41	2.4	e4.0	12	8.3	16	18	13	7.6	e4.5	3.6	2.3
11	216	13	189	9.7	7.5	9.4	52	6.5	21	e30	36	1.7
12	9.2	47	53	8.9	6.9	8.4	20	4.9	212	47	4.7	27
13	1.5	9.2	81	8.2	6.6	15	12	4.4	289	15	5.5	172
14	0.83	3.7	48	7.9	6.4	13	11	4.1	e160	5.0	2.2	15
15	0.58	3.0	11	e7.4	8.7	7.3	10	3.8	e12	4.1	1.5	39
16	171	109	6.7	e7.2	6.2	6.7	9.5	279	e7.0	3.6	53	5.6
17	11	93	4.7	7.2	6.0	12	15	29	e10	3.2	106	2.6
18	4.1	e30	4.2	e7.0	6.1	7.8	24	12	e14	3.1	2.9	69
19	3.0	e11	4.2	e6.8	6.3	5.5	12	8.5	e50	3.5	1.7	148
20	2.6	e9.0	48	e6.6	19	210	9.6	6.9	e160	2.6	1.5	3.7
21	2.4	e8.0	8.3	6.5	50	64	9.1	44	e70	3.2	1.7	1.8
22	2.2	e7.0	5.2	e6.4	390	23	9.0	12	e30	47	9.5	23
23	2.2	e6.0	4.3	e6.2	220	15	8.1	15	e12	35	3.5	365
24	2.0	e5.5	3.9	e6.0	72	12	7.4	43	e8.5	4.8	1.3	34
25	4.3	e5.2	190	e5.8	45	11	11	29	e7.0	2.6	1.5	16
26	38	e5.0	50	e5.8	38	39	74	300	e6.0	3.1	10	16
27	3.3	e10	19	e5.6	33	20	12	53	e4.0	3.0	39	11
28	2.6	e5.0	12	e5.6	36	19	8.2	69	e3.5	12	6.7	41
29	32	e4.4	11	e5.4	---	48	7.4	40	e3.0	7.7	5.0	10
30	29	e4.2	9.5	e5.4	---	78	6.7	33	e2.8	2.2	2.2	7.7
31	15	---	8.5	e5.2	---	26	---	54	---	2.0	1.9	---
TOTAL	601.25	464.2	820.2	600.8	1,098.7	1,286.1	561.7	1,186.8	1,775.4	488.3	518.8	1,288.0
MEAN	19.4	15.5	26.5	19.4	39.2	41.5	18.7	38.3	59.2	15.8	16.7	42.9
MAX	216	109	190	169	390	210	74	300	329	80	108	365
MIN	0.58	2.4	3.4	5.2	6.0	5.5	6.7	3.8	2.8	2.0	1.3	1.7
CFSM	2.55	2.03	3.48	2.55	5.16	5.45	2.46	5.03	7.78	2.07	2.20	5.64
IN.	2.94	2.27	4.01	2.94	5.37	6.29	2.75	5.80	8.68	2.39	2.54	6.30

e Estimated

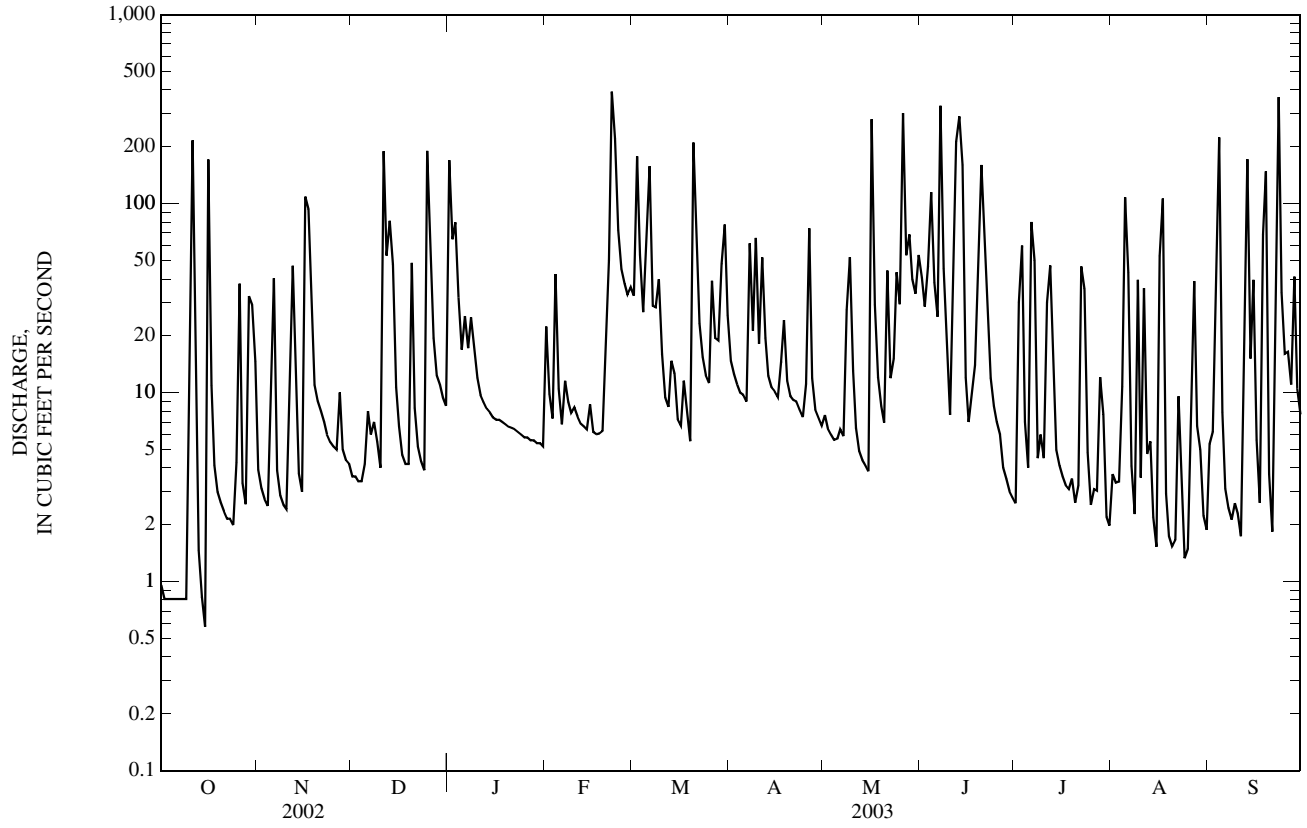
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1989, 1992 - 2003, BY WATER YEAR (WY)

MEAN	7.62	10.4	13.3	14.6	15.9	17.8	12.9	11.8	10.3	9.45	10.1	11.3
MAX	27.2	31.8	41.5	45.2	42.7	43.2	43.5	43.7	59.2	45.4	90.1	48.6
(WY)	(1972)	(1973)	(1984)	(1978)	(1979)	(1993)	(1983)	(1989)	(2003)	(1989)	(1971)	(1999)
MIN	1.91	1.82	1.69	1.82	2.40	4.66	4.35	2.24	2.01	1.34	1.18	1.41
(WY)	(2001)	(1966)	(1966)	(1981)	(2002)	(1969)	(1985)	(1969)	(1986)	(1966)	(1962)	(1980)

01585100 WHITEMARSH RUN AT WHITE MARSH, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1959 - 1989, 1992 - 2003	
ANNUAL TOTAL	3,768.89		10,690.25			
ANNUAL MEAN	10.3		29.3		12.4	
HIGHEST ANNUAL MEAN					29.3	2003
LOWEST ANNUAL MEAN					4.27	1969
HIGHEST DAILY MEAN	216	Oct 11	390	Feb 22	980	Sep 16, 1999
LOWEST DAILY MEAN	0.23	Aug 10	0.58	Oct 15	0.10	Sep 11, 1966
ANNUAL SEVEN-DAY MINIMUM	0.31	Aug 6	0.81	Oct 2	0.31	Aug 6, 2002
MAXIMUM PEAK FLOW			1,360	Sep 23	(a)8,000	Aug 1, 1971
MAXIMUM PEAK STAGE			11.96	Sep 23	(b)14.05	Aug 1, 1971
INSTANTANEOUS LOW FLOW			0.54	(c)	(d)0.00	Mar 20, 1965
ANNUAL RUNOFF (CFSM)	1.36		3.85		1.63	
ANNUAL RUNOFF (INCHES)	18.42		52.26		22.08	
10 PERCENT EXCEEDS	25		67		23	
50 PERCENT EXCEEDS	2.4		8.9		4.1	
90 PERCENT EXCEEDS	0.77		2.6		1.4	

a From rating curve extended above 1,300 ft^3/s on the basis of a culvert measurement at gage height of 10.04 ft and on the basis of culvert and flow-over-road measurement of peak flow.
b At site 2,500 ft dowsnstream at same datum.
c Oct. 15, 16.
d Result of constuction work upstream from station.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585104 HONEYGO RUN NEAR WHITE MARSH, MD

LOCATION.--Lat 39×22'58.8", long 76×25'58.7", Baltimore County, Hydrologic Unit 02060003, on left bank at upstream side of bridge on State Highway 7, and 0.55 mi upstream from mouth.

DRAINAGE AREA.--2.50 mi^2.

PERIOD OF RECORD.--October 1999 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 25 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are poor. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1500	127	2.19	May 26	0715	160	2.37
Dec 25	1015	139	2.35	Jun 20	1345	183	2.71
Jan 1	2115	116	2.04	Jul 6	2215	182	2.70
Feb 22	1330	177	2.62	Aug 16	1530	144	2.16
Mar 20	1900	137	2.06	Sep 23	0545	*226	*3.38
May 16	1030	131	1.98				

Minimum discharge, 0.12 ft^3/s, Oct. 1-7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.12	1.3	1.1	30	3.0	3.5	3.6	1.6	4.7	1.6	e0.54	1.2
2	0.12	1.3	1.3	17	2.3	40	2.9	1.6	2.7	2.4	e0.52	2.1
3	0.12	1.1	1.7	21	1.9	19	2.8	1.6	e3.4	7.5	e0.52	2.5
4	0.12	1.2	1.7	9.3	9.8	8.6	2.3	1.6	e20	3.0	e0.80	28
5	0.12	1.9	1.2	4.2	2.7	23	2.2	1.6	e8.0	2.1	e4.0	4.8
6	0.12	11	1.1	4.4	1.7	47	2.2	1.6	e3.4	15	e1.8	2.4
7	0.17	1.6	1.1	3.7	2.0	12	13	1.6	e11	9.4	e0.80	1.4
8	0.33	1.1	1.1	7.9	e1.7	15	5.6	2.0	e36	1.0	e0.70	0.76
9	0.61	0.81	0.96	5.0	e1.8	19	17	7.3	e5.0	1.3	e2.0	0.65
10	2.8	0.96	0.69	3.2	e1.7	7.3	4.9	3.2	e3.2	1.7	e1.0	0.65
11	33	3.0	35	2.3	e1.6	4.4	14	2.3	e2.8	2.2	e1.8	e0.62
12	2.3	11	21	1.9	1.5	4.2	5.3	1.6	e10	3.0	0.97	e1.2
13	0.80	2.7	23	1.7	1.6	5.4	3.4	1.6	e9.0	2.2	0.65	e5.0
14	0.47	1.3	21	1.5	1.5	5.5	2.8	1.5	e5.4	0.53	0.65	e1.4
15	0.28	1.1	6.0	e1.4	1.7	3.9	2.8	1.2	e4.2	0.40	0.65	e2.4
16	26	22	2.7	e1.4	1.9	3.4	2.4	45	e3.0	0.36	14	e1.1
17	2.9	28	1.7	e1.4	1.9	3.9	2.8	8.4	e3.4	0.28	11	e0.90
18	1.3	11	1.5	e1.4	2.3	3.3	4.8	4.2	e5.0	0.33	1.9	e3.0
19	0.73	2.1	1.5	e1.3	3.9	2.7	3.4	3.0	e9.0	0.51	1.3	e10
20	0.47	1.2	15	e1.3	3.2	44	2.4	2.1	38	0.40	1.2	1.4
21	0.47	1.1	4.6	e1.3	4.5	21	2.2	7.9	24	e0.34	1.2	1.0
22	0.47	1.1	2.6	e1.3	74	6.7	2.2	3.7	12	e0.80	1.2	0.83
23	1.1	0.91	2.2	e1.2	59	4.3	1.9	3.1	4.4	e1.8	1.2	49
24	1.5	0.58	1.9	e1.2	22	3.9	1.6	13	3.6	e0.90	1.2	4.7
25	2.7	0.47	37	e1.2	9.7	3.4	1.9	7.3	2.9	e0.50	1.1	2.3
26	6.8	0.53	12	e1.2	7.0	8.1	14	59	2.5	e0.46	1.4	1.4
27	1.0	1.4	4.7	e1.2	5.3	4.7	3.8	8.5	2.2	e0.44	4.2	1.1
28	0.78	0.79	3.2	e1.3	4.1	3.4	2.2	7.5	2.2	e0.60	2.6	2.5
29	6.7	0.78	2.9	e1.3	---	10	2.1	4.1	2.0	e0.60	2.0	1.2
30	8.4	0.93	2.4	e1.3	---	18	1.7	3.1	1.6	e0.50	1.4	1.1
31	4.8	---	2.3	e1.4	---	6.2	---	5.4	---	e0.50	1.1	---
TOTAL	107.60	114.26	216.15	135.2	235.3	364.8	134.2	217.2	244.6	62.65	65.40	136.61
MEAN	3.47	3.81	6.97	4.36	8.40	11.8	4.47	7.01	8.15	2.02	2.11	4.55
MAX	33	28	37	30	74	47	17	59	38	15	14	49
MIN	0.12	0.47	0.69	1.2	1.5	2.7	1.6	1.2	1.6	0.28	0.52	0.62
CFSM	1.39	1.52	2.79	1.74	3.36	4.71	1.79	2.80	3.26	0.81	0.84	1.82
IN.	1.60	1.70	3.22	2.01	3.50	5.43	2.00	3.23	3.64	0.93	0.97	2.03

e Estimated

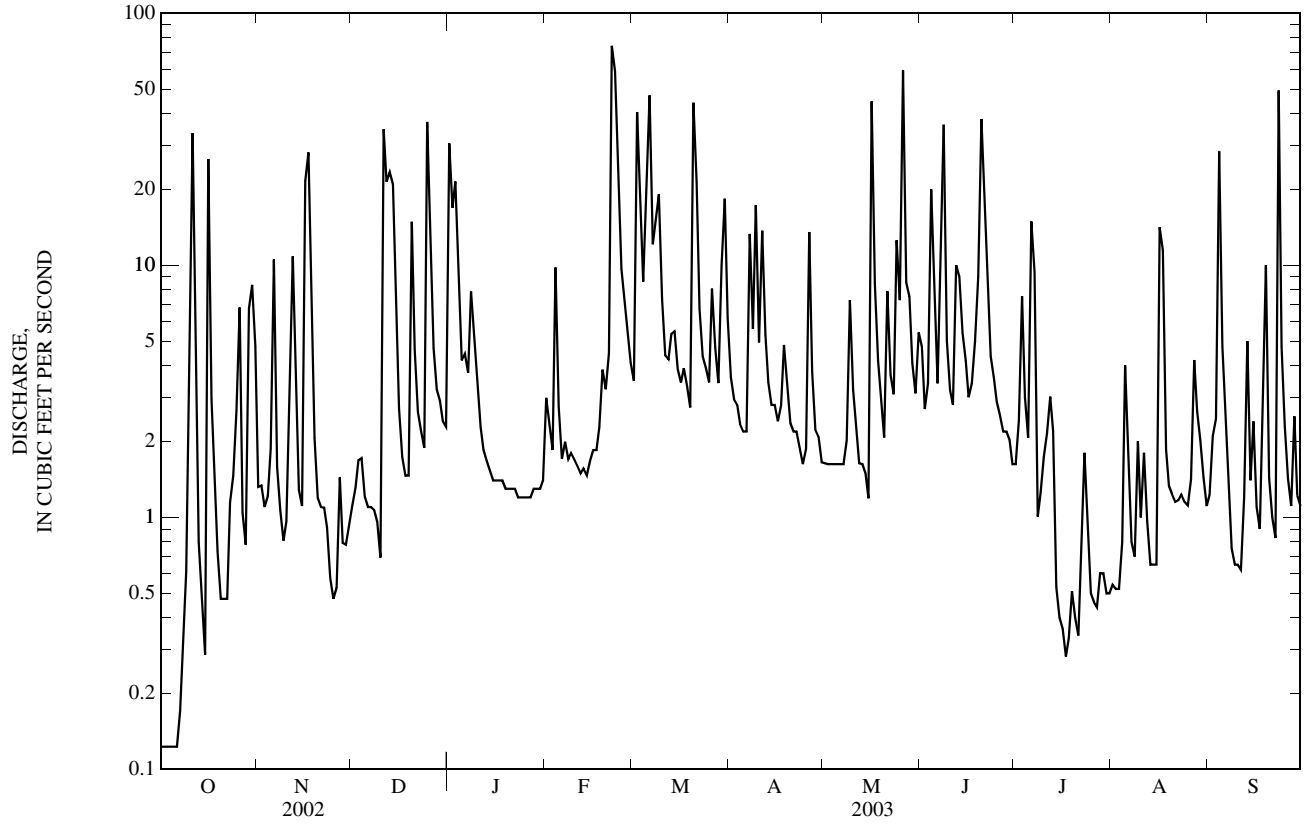
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	2.21	1.97	3.99	2.99	5.31	7.01	3.96	3.39	3.53	1.81	1.00	1.89
MAX	4.57	3.81	6.97	4.36	8.40	11.8	6.47	7.01	8.15	4.36	2.11	4.55
(WY)	(2000)	(2003)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2000)	(2003)	(2003)
MIN	0.32	0.74	1.14	1.14	0.85	2.71	2.32	1.75	1.21	0.30	0.23	0.65
(WY)	(2002)	(2001)	(2002)	(2002)	(2002)	(2002)	(2001)	(2002)	(2002)	(2002)	(2002)	(2002)

01585104 HONEYGO RUN NEAR WHITE MARSH, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	784.88		2,033.97			
ANNUAL MEAN	2.15		5.57		3.24	
HIGHEST ANNUAL MEAN					5.57	2003
LOWEST ANNUAL MEAN					1.14	2002
HIGHEST DAILY MEAN	37	Dec 25	74	Feb 22	74	Feb 22, 2003
LOWEST DAILY MEAN	0.02	(a)	0.12	(b)	0.02	(a)
ANNUAL SEVEN-DAY MINIMUM	0.02	Aug 11	0.13	Oct 1	0.02	Aug 11, 2002
MAXIMUM PEAK FLOW			(c)226	Sep 23	(c)226	Sep 23, 2003
MAXIMUM PEAK STAGE			3.38	Sep 23	3.38	Dec 17, 2000
INSTANTANEOUS LOW FLOW			0.12	(d)	0.02	(f)
ANNUAL RUNOFF (CFSM)	0.86		2.23		1.30	
ANNUAL RUNOFF (INCHES)	11.68		30.27		17.63	
10 PERCENT EXCEEDS	3.5		14		7.5	
50 PERCENT EXCEEDS	0.81		2.2		1.2	
90 PERCENT EXCEEDS	0.07		0.64		0.22	

a Aug. 14-17, 2002.
b Oct. 1-6.
c From rating curve extended above 90 ft^3/s.
d Oct. 1-7.
f Aug. 13-18, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585200 WEST BRANCH HERRING RUN AT IDLEWYLDE, MD

LOCATION.--Lat 39°22'25.1", long 76°35'03.6", Baltimore County, Hydrologic Unit 02060003, on left bank 40 ft downstream from bridge on Regester Avenue, at Idlewylde, 0.1 mi north of Baltimore city limits, 1.0 mi upstream from mouth, and 1.3 mi east of State Highway 45.

DRAINAGE AREA.--2.13 mi^2.

PERIOD OF RECORD.--July 1957 to May 1965, January 1966 to September 1987, October 1996 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 285 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 31, 1965, at site 40 ft upstream at datum 3.24 ft higher.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are fair. Diurnal fluctuation (occasionally extensive) caused by ready-mixed concrete plant upstream from station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 290 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1150	294	3.46	Aug 22	1900	626	4.58
Jun 12	1705	547	4.35	Sep 23	0405	598	4.50
Jun 13	1910	637	4.61	Sep 23	0445	*724	*4.84
Aug 4	0230	412	3.91				

Minimum discharge, 0.11 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.79	0.65	0.55	26	4.6	1.8	2.4	1.6	2.5	1.5	1.1	1.4
2	0.78	0.61	0.65	5.4	1.9	18	2.2	1.4	1.9	9.8	0.89	1.0
3	0.79	0.57	0.71	12	1.6	4.9	2.0	1.3	6.3	12	1.1	6.4
4	0.61	0.58	0.79	3.1	7.7	2.9	1.9	1.3	12	2.0	10	21
5	0.25	5.9	e1.1	2.3	1.8	8.0	1.9	1.5	4.6	1.6	1.1	1.9
6	0.24	4.5	e1.7	3.6	1.7	26	1.7	1.6	2.3	7.0	1.4	1.6
7	0.29	0.63	0.74	1.9	2.3	4.1	9.4	1.2	39	2.1	0.81	1.4
8	0.23	0.58	1.3	2.9	1.7	4.9	2.5	1.7	3.7	1.3	0.79	1.3
9	0.16	0.61	0.80	2.0	1.7	8.1	9.0	7.3	3.3	2.3	1.4	1.2
10	9.7	1.2	0.61	1.5	1.9	3.2	2.5	3.6	2.7	1.4	1.2	1.3
11	31	6.5	33	1.2	1.6	2.6	6.9	1.4	6.2	2.1	1.2	1.2
12	1.5	15	6.7	1.2	1.5	2.8	2.5	1.2	33	5.1	0.84	6.1
13	1.7	1.2	15	1.1	1.4	4.4	2.1	1.1	22	1.6	6.1	12
14	1.5	0.79	7.0	1.1	1.4	2.9	1.9	2.6	5.5	1.4	1.0	1.7
15	1.5	0.69	2.0	1.0	2.0	2.7	1.8	3.4	3.4	1.2	0.99	3.9
16	34	29	1.5	0.99	1.0	2.9	1.8	36	2.9	1.1	3.0	1.6
17	1.6	16	1.2	1.1	e2.1	3.2	3.7	3.2	5.9	0.98	6.4	1.3
18	0.91	4.1	1.1	0.93	e1.0	2.2	2.9	2.2	4.3	0.98	0.95	13
19	0.70	2.5	1.1	0.95	e1.5	1.9	1.8	1.8	8.9	0.93	0.88	11
20	0.70	2.2	5.9	0.94	3.0	36	1.7	1.6	20	0.89	0.83	1.8
21	0.56	1.8	1.1	0.86	6.1	6.2	1.7	7.5	8.2	0.86	0.81	1.5
22	0.41	0.92	1.0	0.83	58	3.2	1.7	1.9	3.4	8.1	14	9.2
23	0.35	0.66	0.93	0.81	21	2.6	1.6	4.1	2.7	2.6	1.2	55
24	0.42	0.66	1.0	0.79	5.8	2.3	1.5	7.5	2.3	1.1	0.67	2.9
25	2.8	0.63	21	e0.83	3.0	2.1	3.9	6.1	2.1	0.89	0.60	2.6
26	6.8	0.62	4.7	e0.86	2.1	7.1	14	39	2.0	0.90	3.0	2.5
27	0.35	1.7	1.9	e0.92	1.8	2.4	2.0	3.4	1.8	0.90	5.4	1.2
28	0.32	0.64	1.6	0.93	2.2	2.7	1.7	4.8	1.7	3.2	1.1	4.9
29	8.1	0.64	1.7	e2.1	---	5.4	1.6	2.5	1.7	1.1	0.69	1.2
30	4.7	0.63	1.6	e1.0	---	9.2	1.4	2.1	1.6	0.95	0.65	0.97
31	1.9	---	1.9	e1.1	---	2.8	---	6.6	---	1.3	0.59	---
TOTAL	115.66	102.71	121.88	82.24	143.4	189.5	93.7	162.5	217.9	79.18	70.69	174.07
MEAN	3.73	3.42	3.93	2.65	5.12	6.11	3.12	5.24	7.26	2.55	2.28	5.80
MAX	34	29	33	26	58	36	14	39	39	12	14	55
MIN	0.16	0.57	0.55	0.79	1.0	1.8	1.4	1.1	1.6	0.86	0.59	0.97
CFSM	1.75	1.61	1.85	1.25	2.40	2.87	1.47	2.46	3.41	1.20	1.07	2.72
IN.	2.02	1.79	2.13	1.44	2.50	3.31	1.64	2.84	3.81	1.38	1.23	3.04

e Estimated

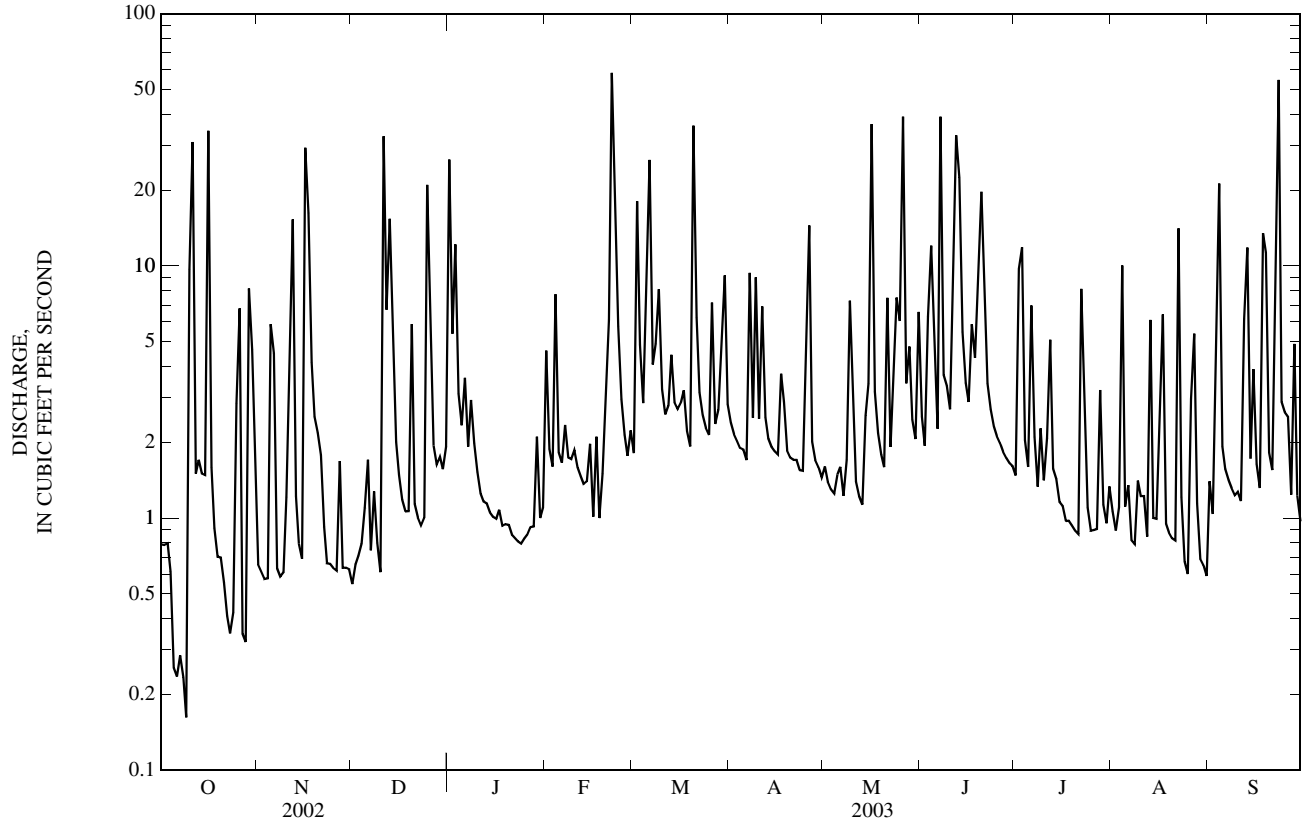
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1987, 1997 - 2003, BY WATER YEAR (WY)

MEAN	1.82	2.25	2.72	2.63	3.12	3.46	3.00	2.70	2.54	2.10	2.27	2.66
MAX	5.74	6.59	6.71	9.14	7.41	6.82	7.80	5.24	9.61	5.64	12.2	10.6
(WY)	(1972)	(1973)	(1997)	(1979)	(1979)	(1998)	(1983)	(2003)	(1972)	(1975)	(1971)	(1999)
MIN	0.49	0.43	0.51	0.26	0.43	1.06	1.12	0.88	0.79	0.38	0.40	0.41
(WY)	(2001)	(1982)	(1981)	(1981)	(2002)	(1981)	(1985)	(1963)	(1966)	(1966)	(1966)	(1970)

01585200 WEST BRANCH HERRING RUN AT IDLEWYLDE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 1987, 1997 - 2003	
ANNUAL TOTAL	742.30		1,553.43			
ANNUAL MEAN	2.03		4.26		2.65	
HIGHEST ANNUAL MEAN					4.26	1972
LOWEST ANNUAL MEAN					1.33	2002
HIGHEST DAILY MEAN	34	Oct 16	58	Feb 22	137	Jun 22, 1972
LOWEST DAILY MEAN	0.00	(a)	0.16	Oct 9	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 15	0.37	Oct 3	0.00	Aug 14, 1957
MAXIMUM PEAK FLOW			724	Sep 23	(c)1,740	Sep 11, 1971
MAXIMUM PEAK STAGE			4.84	Sep 23	6.80	Sep 11, 1971
INSTANTANEOUS LOW FLOW			0.11	Oct 9	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.95		2.00		1.24	
ANNUAL RUNOFF (INCHES)	12.96		27.13		16.89	
10 PERCENT EXCEEDS	4.9		9.1		5.5	
50 PERCENT EXCEEDS	0.53		1.8		1.1	
90 PERCENT EXCEEDS	0.14		0.70		0.39	

a Aug. 15-19.
b Aug. 14-24, 1957, Aug. 15-19, 21-23, 2002.
c From rating curve extended above 90 ft^3/s on basis of slope-area measurement at gage height of 6.37 ft.
d Aug. 14-24, 1957, Aug. 14-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585225 MOORES RUN TRIBUTARY NEAR TODD AVE AT BALTIMORE, MD

LOCATION.--Lat 39°20'12.1", long 76°32'26.2", Baltimore City, Hydrologic Unit 02060003, on left bank at upstream side of culvert inlet off of Todd Ave, at Baltimore, and 20 ft upstream from mouth.

DRAINAGE AREA.--0.21 mi^2.

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair and those below .20 ft^3/s and above 20 ft^3/s, which are poor. Baltimore City gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 11	2112	74	2.04	Jul 11	1346	86	2.27
Jun 13	1909	*261	*5.68	Aug 11	1631	52	1.64
Jun 20	1136	53	1.66	Sep 4	0105	108	2.69
Jun 21	1844	74	2.05	Sep 13	1342	111	2.73
Jul 6	2056	124	2.99	Sep 23	0427	136	3.22

Minimum discharge, 0.00 ft^3/s, Oct. 5-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.01	0.05	0.04	3.0	0.14	0.10	0.10	0.08	0.05	0.05	0.08	0.13
2	0.01	0.05	0.02	0.38	0.05	1.8	0.08	0.05	0.05	e0.95	0.05	0.05
3	0.01	0.05	0.02	1.0	0.05	0.33	0.05	0.05	0.35	0.38	0.18	0.66
4	0.01	0.05	0.19	0.20	0.50	0.18	0.05	0.05	0.47	0.05	0.10	1.6
5	0.01	0.53	0.06	0.11	0.06	0.58	0.05	0.06	0.06	0.05	0.82	0.05
6	0.01	0.27	0.12	0.29	0.05	1.6	0.05	0.03	0.05	1.8	0.07	0.05
7	0.01	0.05	0.08	0.11	0.11	0.21	0.79	0.02	3.8	0.14	0.05	0.05
8	0.00	0.05	0.20	0.17	0.08	0.16	0.06	0.07	0.21	0.06	0.05	0.05
9	0.00	0.05	0.05	0.10	0.06	0.23	0.67	0.59	0.17	0.14	0.22	0.05
10	1.0	0.05	0.05	0.09	0.07	0.12	0.07	0.19	0.10	0.12	0.06	0.05
11	2.6	0.27	3.1	0.05	0.05	0.10	0.50	0.04	0.78	1.2	0.54	0.05
12	0.10	0.69	0.40	0.05	0.05	0.10	0.08	0.02	1.8	0.45	0.03	0.46
13	0.05	0.08	1.1	0.05	0.05	0.17	0.05	0.02	4.3	0.07	0.02	1.1
14	0.05	0.05	0.40	0.05	0.05	0.05	0.05	0.02	0.36	0.12	0.02	0.05
15	0.04	0.05	0.10	0.05	0.08	0.05	0.03	0.02	0.09	0.05	0.02	0.63
16	2.7	1.9	0.05	0.05	0.58	0.05	0.02	3.7	0.05	0.05	0.42	0.06
17	0.10	1.0	0.05	0.05	2.2	0.08	0.09	0.15	0.48	0.05	0.42	0.05
18	0.05	0.20	0.05	0.05	0.05	0.03	0.12	0.07	0.17	0.05	0.02	1.5
19	0.05	0.10	0.06	0.05	0.07	0.02	0.02	0.05	1.0	0.05	0.02	0.34
20	0.04	0.05	0.59	0.05	0.34	3.1	0.02	0.05	2.3	0.05	0.02	0.08
21	0.02	0.05	0.06	0.05	0.63	0.29	0.02	0.61	1.6	0.05	0.02	0.05
22	0.02	0.05	0.05	0.05	6.6	0.10	0.02	0.05	0.24	1.3	0.17	0.61
23	0.02	0.05	0.05	0.05	1.9	0.10	0.02	0.16	0.13	0.14	0.05	5.0
24	0.03	0.05	e0.06	0.13	0.41	0.07	0.02	0.31	0.08	0.06	0.05	0.13
25	0.40	0.05	3.1	0.05	0.17	0.05	0.33	0.29	0.05	0.05	0.05	0.10
26	0.45	0.05	0.31	0.05	0.10	0.62	0.79	3.6	0.05	0.05	0.13	0.07
27	0.03	0.10	0.11	0.05	0.10	0.07	0.10	0.14	0.05	0.05	0.31	0.22
28	0.04	0.05	0.10	0.09	0.19	0.17	0.05	0.63	0.05	0.19	0.05	0.17
29	0.65	0.05	0.06	0.10	---	0.42	0.05	0.10	0.07	0.05	0.05	0.02
30	0.40	0.05	0.05	0.05	---	0.76	0.07	0.05	0.05	0.05	0.05	0.02
31	0.11	---	0.05	0.05	---	0.12	---	0.32	---	0.05	0.05	---
TOTAL	9.02	6.14	10.73	6.67	14.79	11.83	4.42	11.59	19.01	7.92	4.19	13.45
MEAN	0.29	0.20	0.35	0.22	0.53	0.38	0.15	0.37	0.63	0.26	0.14	0.45
MAX	2.7	1.9	3.1	3.0	6.6	3.1	0.79	3.7	4.3	1.8	0.82	5.0
MIN	0.00	0.05	0.02	0.05	0.05	0.02	0.02	0.02	0.05	0.05	0.02	0.02
CFSM	1.39	0.97	1.65	1.02	2.52	1.82	0.70	1.78	3.02	1.22	0.64	2.13
IN.	1.60	1.09	1.90	1.18	2.62	2.10	0.78	2.05	3.37	1.40	0.74	2.38

e Estimated

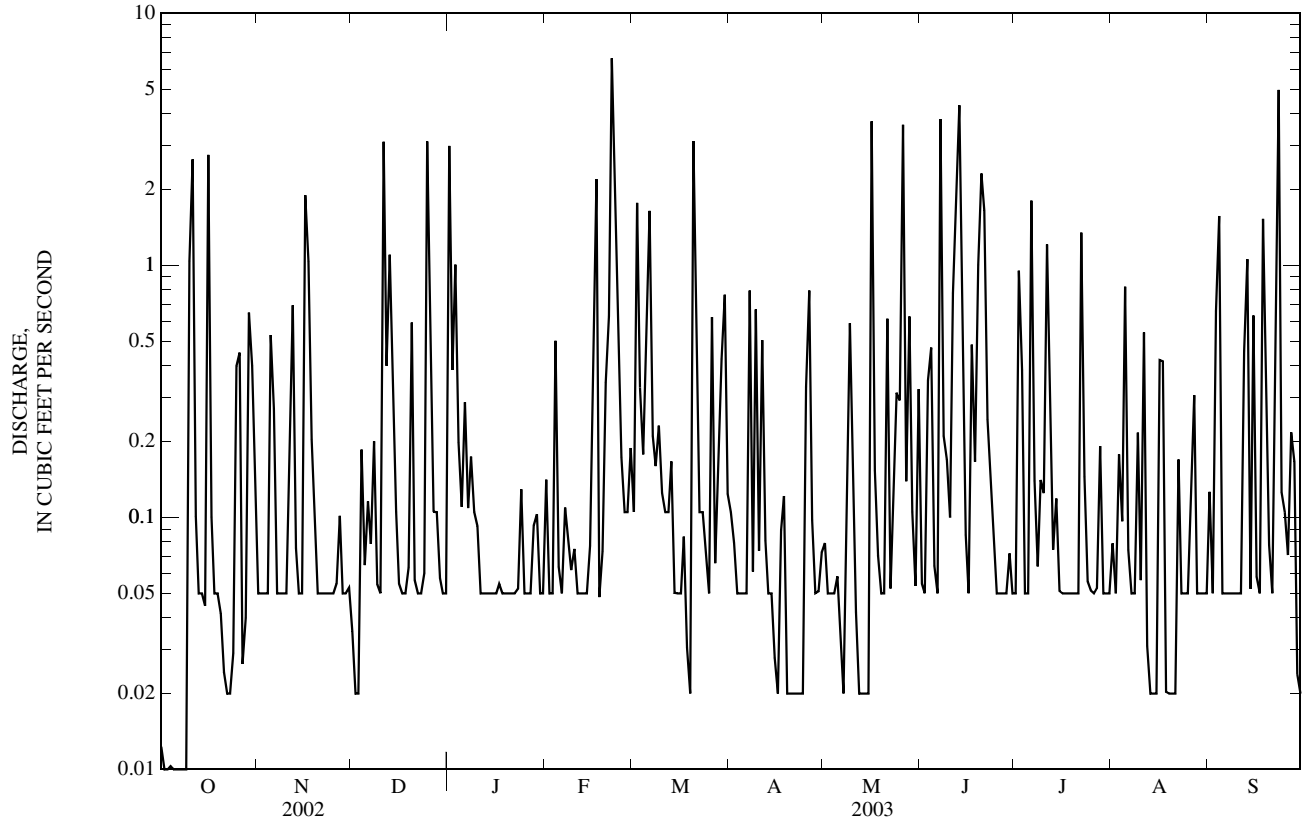
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	0.14	0.17	0.19	0.25	0.31	0.31	0.18	0.20	0.21	0.18	0.17	0.26
MAX	0.29	0.41	0.44	0.53	0.57	0.40	0.32	0.37	0.63	0.47	0.29	0.73
(WY)	(2003)	(1998)	(1997)	(1999)	(1998)	(1997)	(2000)	(2003)	(2003)	(2000)	(1999)	(1999)
MIN	0.037	0.076	0.045	0.093	0.027	0.18	0.10	0.074	0.086	0.025	0.065	0.086
(WY)	(2001)	(2000)	(1999)	(2001)	(2002)	(2002)	(2001)	(1999)	(1999)	(1997)	(1998)	(2001)

01585225 MOORES RUN TRIBUTARY NEAR TODD AVE AT BALTIMORE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	65.31		119.76			
ANNUAL MEAN	0.18		0.33		0.21	
HIGHEST ANNUAL MEAN					0.33	2003
LOWEST ANNUAL MEAN					0.12	2001
HIGHEST DAILY MEAN	4.2	Aug 3	6.6	Feb 22	13	Sep 16, 1999
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(c)
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 18	0.01	Oct 3	0.00	Dec 15, 1998
MAXIMUM PEAK FLOW			261	Jun 13	(d)261	Jun 13, 2003
MAXIMUM PEAK STAGE			5.68	Jun 13	5.68	Jun 13, 2003
INSTANTANEOUS LOW FLOW			0.00	(f)	0.00	(g)
ANNUAL RUNOFF (CFSM)	0.85		1.56		1.02	
ANNUAL RUNOFF (INCHES)	11.57		21.21		13.82	
10 PERCENT EXCEEDS	0.43		0.77		0.47	
50 PERCENT EXCEEDS	0.04		0.06		0.05	
90 PERCENT EXCEEDS	0.01		0.03		0.02	

a Many days.
b Oct. 8, 9.
c Many days in 1997-1999, 2001-2003.
d From rating curve extended above 20 ft^3/s on basis of runoff comparison with nearby station.
f Oct. 5-9.
g No flow at times during 1997-2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585230 MOORES RUN AT RADECKE AVE AT BALTIMORE, MD

LOCATION.--Lat 39°19'48.3", long 76°32'05.6", Baltimore City, Hydrologic Unit 02060003, on right downstream side of bridge on Radecke Avenue, at Baltimore, and 2.0 mi upstream from mouth.

DRAINAGE AREA.--3.52 mi^2.

PERIOD OF RECORD.--July 1996 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.-Records good below 300 ft^3/s and fair above, except those for estimated daily discharges (missing record), which are fair. Baltimore City gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1144	759	5.25	Jun 20	1144	772	5.45
May 26	0422	731	5.19	Jul 6	2106	3,160	7.93
Jun 7	1335	855	5.44	Aug 16	2340	956	5.76
Jun 11	2120	922	5.56	Sep 4	0115	1,650	6.65
Jun 12	1646	2,220	7.15	Sep 13	1356	840	5.57
Jun 13	--	*8,090	*10.48	Sep 23	0442	3,920	8.45

Minimum discharge, 0.30 ft^3/s, Oct. 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.43	0.71	0.61	70	2.5	3.1	1.2	1.2	1.0	2.0	1.4	1.4
2	0.43	0.72	0.61	6.2	0.96	41	1.0	0.76	0.79	13	1.2	0.75
3	0.41	0.67	0.61	19	0.92	6.4	0.95	0.76	5.2	8.5	1.9	9.9
4	0.43	0.65	0.74	2.9	10	3.7	0.92	0.72	10	2.3	1.8	32
5	0.44	9.4	0.90	1.7	0.98	14	0.91	0.87	1.6	2.2	12	0.90
6	0.42	5.5	1.4	4.7	0.87	37	0.83	0.81	0.88	60	2.6	0.75
7	0.39	0.69	0.95	1.6	2.0	4.3	14	0.64	99	2.7	0.83	0.71
8	0.34	0.61	1.8	3.3	1.4	4.6	1.7	0.94	2.6	1.5	0.86	0.68
9	0.32	0.61	0.78	1.6	1.3	5.2	12	10	1.9	2.1	2.0	0.70
10	16	0.66	0.64	1.1	1.3	2.6	1.6	3.1	1.0	1.9	0.88	0.70
11	53	4.2	73	0.93	1.0	2.2	9.4	0.73	16	11	8.9	0.70
12	0.92	15	7.8	0.87	1.0	2.1	1.8	0.66	103	6.4	0.97	3.7
13	0.47	1.1	26	0.87	0.87	3.3	1.1	0.66	e120	1.7	1.6	20
14	0.42	0.71	7.3	0.82	0.89	2.2	1.0	0.63	e20	1.8	0.78	1.0
15	0.52	1.1	1.4	0.82	1.5	1.9	0.95	0.61	2.3	1.3	0.74	6.9
16	55	47	1.0	0.86	0.98	1.8	0.93	91	1.8	1.3	13	0.94
17	1.00	23	0.89	0.87	1.1	2.8	2.1	2.2	7.3	1.2	8.1	0.69
18	0.52	3.1	0.77	0.77	0.93	1.9	1.8	1.2	3.6	1.2	0.78	13
19	0.45	1.0	0.88	1.2	1.5	1.6	0.87	0.97	13	1.2	0.71	9.4
20	0.42	0.87	13	1.3	5.2	78	0.81	0.85	52	1.2	0.71	0.98
21	0.41	0.77	1.1	1.4	11	5.4	0.81	11	13	1.2	0.71	0.81
22	0.40	0.82	0.85	1.4	157	1.7	0.81	1.1	3.9	17	3.4	6.8
23	0.41	0.81	0.71	1.4	40	1.2	0.81	2.4	3.8	2.1	0.84	127
24	0.47	0.76	0.81	1.2	7.1	1.1	0.80	6.4	2.5	1.8	0.78	1.1
25	5.6	0.76	66	1.1	3.8	0.99	3.9	5.1	2.4	1.2	0.81	0.87
26	9.3	0.95	4.2	0.81	2.5	8.9	15	90	2.3	1.2	1.5	0.81
27	0.52	1.3	1.3	0.87	2.4	1.3	1.0	1.9	2.4	1.2	5.4	0.77
28	0.55	0.56	1.1	0.89	3.7	2.5	0.84	11	2.2	2.7	0.75	5.7
29	10	0.56	1.1	1.6	---	11	0.81	1.4	2.1	1.3	0.78	0.70
30	6.1	0.60	0.94	0.86	---	17	0.77	1.0	2.1	1.2	0.71	0.65
31	1.6	---	0.93	0.90	---	2.0	---	5.1	---	1.1	0.71	---
TOTAL	167.69	125.19	220.12	133.84	264.70	272.79	81.42	255.71	499.67	156.5	78.15	251.01
MEAN	5.41	4.17	7.10	4.32	9.45	8.80	2.71	8.25	16.7	5.05	2.52	8.37
MAX	55	47	73	70	157	78	15	91	120	60	13	127
MIN	0.32	0.56	0.61	0.77	0.87	0.99	0.77	0.61	0.79	1.1	0.71	0.65
CFSM	1.54	1.19	2.02	1.23	2.69	2.50	0.77	2.34	4.73	1.43	0.72	2.38
IN.	1.77	1.32	2.33	1.41	2.80	2.88	0.86	2.70	5.28	1.65	0.83	2.65

e Estimated

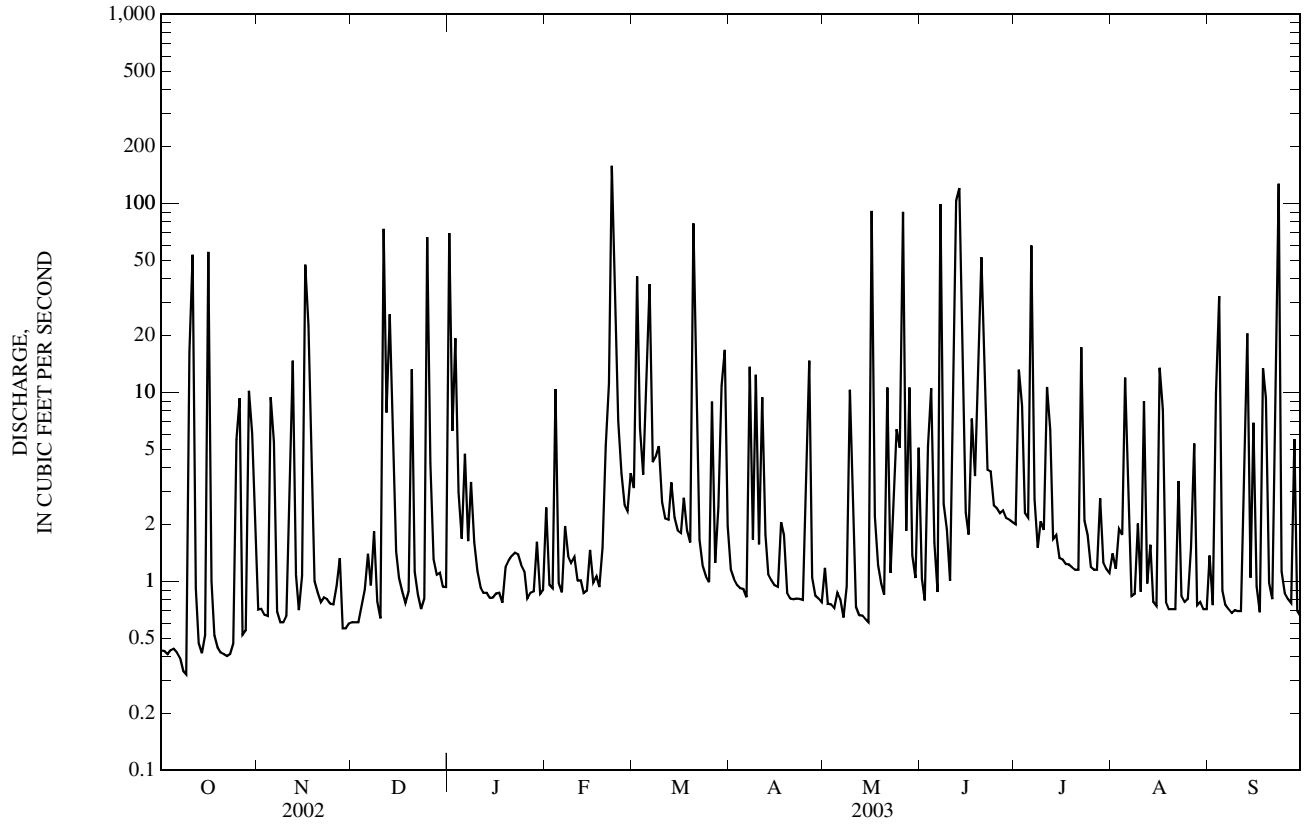
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2003, BY WATER YEAR (WY)

MEAN	2.55	3.32	4.19	4.58	5.43	7.12	3.07	3.71	4.67	3.25	3.59	4.96
MAX	5.41	7.36	10.5	9.43	11.5	11.3	5.46	8.25	16.7	8.47	8.16	15.5
(WY)	(2003)	(1998)	(1997)	(1998)	(1998)	(1998)	(2000)	(2003)	(2003)	(2000)	(1999)	(1999)
MIN	0.55	1.25	0.96	1.90	0.67	3.94	2.16	1.06	1.57	0.36	1.43	1.42
(WY)	(2001)	(1999)	(1999)	(2002)	(2002)	(2002)	(2001)	(1997)	(1999)	(1997)	(2001)	(2001)

01585230 MOORES RUN AT RADECKE AVE AT BALTIMORE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1996 - 2003	
ANNUAL TOTAL	1,248.64		2,506.79			
ANNUAL MEAN	3.42		6.87		4.19	
HIGHEST ANNUAL MEAN					6.87	2003
LOWEST ANNUAL MEAN					2.35	2002
HIGHEST DAILY MEAN	(e)80	Aug 3	157	Feb 22	310	Sep 16, 1999
LOWEST DAILY MEAN	0.24	Aug 23	0.32	Oct 9	0.17	(a)
ANNUAL SEVEN-DAY MINIMUM	0.30	Aug 17	0.39	Oct 3	0.18	Oct 1, 1997
MAXIMUM PEAK FLOW			(b)8,090	Jun 13	(b)8,090	Jun 13, 2003
MAXIMUM PEAK STAGE			(c)10.48	Jun 13	(c)10.48	Jun 13, 2003
INSTANTANEOUS LOW FLOW			0.30	Oct 8	0.15	(d)
ANNUAL RUNOFF (CFSM)	0.97		1.95		1.19	
ANNUAL RUNOFF (INCHES)	13.20		26.49		16.18	
10 PERCENT EXCEEDS	8.7		13		8.8	
50 PERCENT EXCEEDS	0.61		1.2		0.92	
90 PERCENT EXCEEDS	0.38		0.66		0.41	

e Estimated
a Oct. 1, 2, 1997, Oct. 25, 26, 2001.
b From rating curve extended above 560 ft^3/s.
c From crest-stage gage.
d Oct. 20, 1997, Aug. 12, 1999.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01585500 CRANBERRY BRANCH NEAR WESTMINSTER, MD

LOCATION.--Lat 39°35'36.0", long 76°58'03.1", Carroll County, Hydrologic Unit 02060003, on left bank 80 ft upstream from culvert, 0.7 mi upstream from mouth, and 1.8 mi northeast of Westminster.

DRAINAGE AREA.--3.29 mi^2.

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1432: Drainage area, 1954-55. WDR MD-DE-75-1: 1972(M). WDR MD-DE-79-1: 1973-78(P).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 670 ft above National Geodetic Vertical Datum of 1929. from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are poor. Occasional small diversions to and releases from Cranberry Reservoir located 1 mi upstream from station since August 1957, capacity, 113,700,000 gal. Beginning October l972 occasional large diversions past the gaging station from the reservoir through a 30-inch pipe. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 80 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1545	97	2.87	Sep 23	0430	*516	*4.32

Minimum discharge, 0.19 ft^3/s, Oct. 1- 3.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.19	0.30	0.29	15	1.3	3.8	5.3	3.6	7.3	4.6	3.1	5.1
2	0.19	0.29	0.29	10	2.2	9.0	4.9	3.6	4.9	5.1	4.8	5.1
3	0.20	0.28	0.28	11	1.6	11	4.2	3.4	6.7	7.8	3.7	8.3
4	0.22	0.27	0.27	7.4	2.3	2.9	4.6	3.4	17	7.8	2.6	15
5	0.22	0.26	0.30	5.6	1.6	10	4.5	3.3	10	5.9	4.0	2.3
6	0.24	0.44	0.30	5.5	1.1	25	4.2	3.1	4.9	4.4	9.1	3.1
7	0.26	0.27	e0.28	3.7	1.1	9.1	6.2	3.5	23	5.2	6.2	4.0
8	0.24	0.27	e0.26	3.5	1.0	15	5.7	3.2	9.3	4.7	6.3	2.8
9	0.23	0.26	e0.26	5.4	e0.92	27	7.4	5.7	10	3.2	4.8	2.2
10	0.32	0.24	e0.25	4.7	1.3	8.4	5.5	4.8	6.5	4.6	4.5	1.6
11	4.4	0.25	10	4.1	2.9	6.3	6.0	3.2	5.0	3.6	5.5	1.6
12	0.48	1.5	4.1	3.9	2.8	6.1	5.2	2.4	9.4	4.7	8.8	1.3
13	0.28	0.39	5.1	2.4	2.2	8.6	4.7	1.3	12	3.4	9.1	4.2
14	0.25	0.35	9.9	3.5	1.4	5.5	4.5	2.5	7.1	3.3	4.8	4.4
15	0.25	0.29	2.8	2.8	e0.80	5.3	4.2	2.3	6.1	3.6	6.4	2.5
16	5.4	2.0	1.4	e1.2	e0.54	6.6	4.1	13	6.0	3.3	11	2.7
17	0.39	6.1	0.74	e1.1	e0.52	2.3	4.1	5.1	5.6	2.0	14	2.0
18	0.32	6.0	0.67	e1.0	e0.65	3.9	4.2	4.2	7.5	1.1	4.7	4.7
19	0.29	0.51	0.67	e0.95	e1.4	5.1	4.3	3.8	6.9	1.0	2.3	15
20	0.27	0.42	1.2	e1.3	1.9	17	4.1	3.4	13	1.6	2.6	3.6
21	0.27	0.61	0.67	e2.0	1.5	10	4.1	4.2	9.3	1.5	3.5	3.2
22	0.34	0.50	0.62	2.8	40	5.6	4.4	4.1	8.1	8.6	2.5	4.3
23	0.24	0.38	0.60	2.6	36	4.4	3.9	4.1	6.1	15	2.6	83
24	0.27	0.35	0.58	e2.4	12	5.7	3.7	4.6	5.3	7.0	1.9	6.9
25	0.25	0.34	1.4	2.2	6.5	5.4	3.8	17	4.7	1.6	2.9	4.8
26	0.32	0.32	0.69	2.2	4.2	6.1	5.1	9.9	4.4	2.4	3.4	3.4
27	0.27	0.32	0.62	2.0	2.9	3.2	4.1	6.1	3.8	1.4	3.2	2.7
28	0.27	0.32	0.62	1.9	4.4	1.2	3.8	17	4.4	1.4	3.1	2.6
29	0.61	0.30	0.92	2.3	---	1.2	3.7	6.7	3.3	1.3	3.2	3.1
30	0.78	0.29	2.7	1.2	---	2.9	3.6	4.7	5.0	3.7	3.2	3.9
31	0.39	---	3.3	1.8	---	4.2	---	5.8	---	4.0	3.7	---
TOTAL	18.65	24.42	52.08	117.45	137.03	237.8	138.1	163.0	232.6	128.8	151.5	209.4
MEAN	0.60	0.81	1.68	3.79	4.89	7.67	4.60	5.26	7.75	4.15	4.89	6.98
MAX	5.4	6.1	10	15	40	27	7.4	17	23	15	14	83
MIN	0.19	0.24	0.25	0.95	0.52	1.2	3.6	1.3	3.3	1.0	1.9	1.3
CFSM	0.18	0.25	0.51	1.15	1.49	2.33	1.40	1.60	2.36	1.26	1.49	2.12
IN.	0.21	0.28	0.59	1.33	1.55	2.69	1.56	1.84	2.63	1.46	1.71	2.37

e Estimated

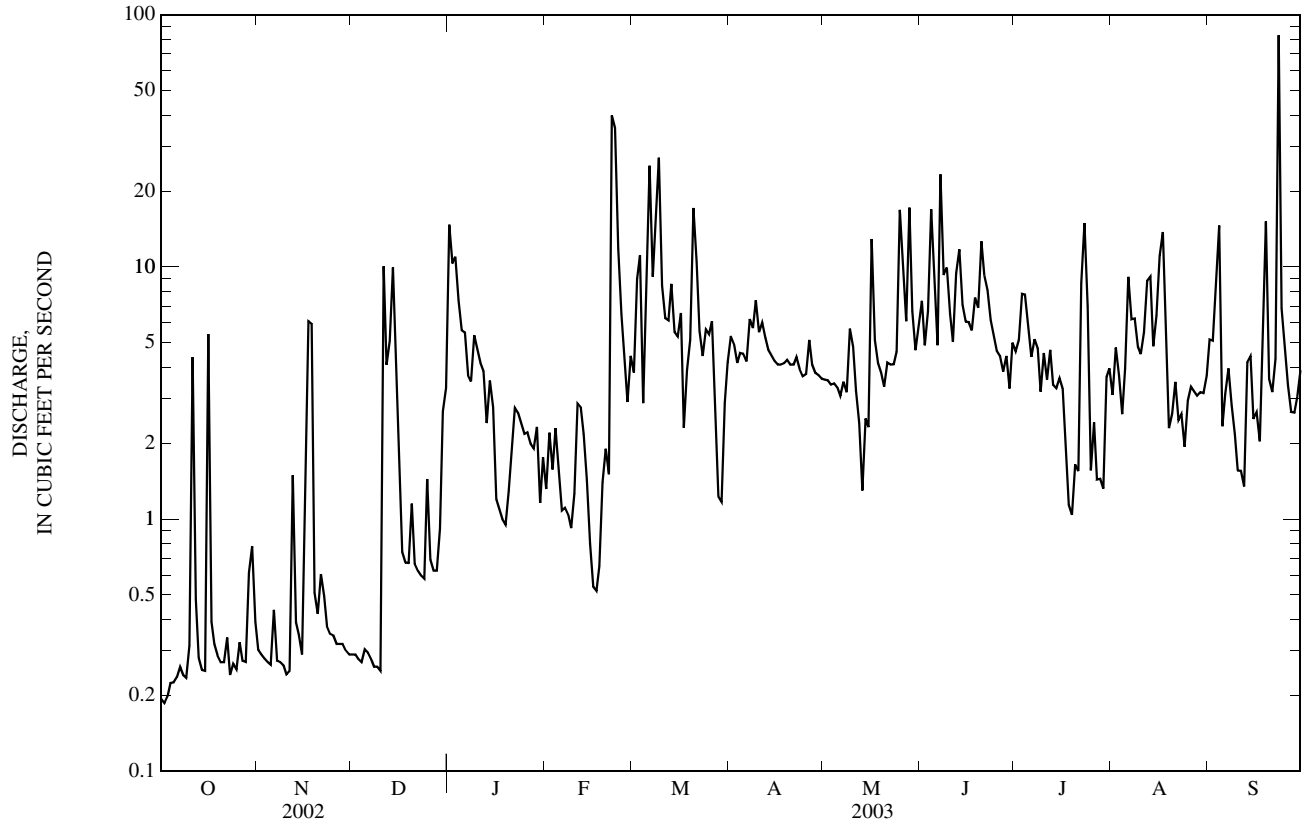
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2003, BY WATER YEAR (WY)

MEAN	2.04	2.35	3.01	3.50	4.30	4.68	4.55	3.95	3.54	2.63	2.06	2.38
MAX	9.96	6.66	11.4	13.2	10.7	12.9	12.3	11.3	29.5	11.1	6.91	21.7
(WY)	(1980)	(1953)	(1997)	(1996)	(1974)	(1994)	(1993)	(1952)	(1972)	(1972)	(1955)	(1975)
MIN	0.31	0.31	0.34	0.34	0.23	0.49	0.30	0.52	0.62	0.19	0.12	0.25
(WY)	(1998)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01585500 CRANBERRY BRANCH NEAR WESTMINSTER, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1950 - 2003	
ANNUAL TOTAL	188.29		1,610.83			
ANNUAL MEAN	(a)0.52		(a)4.41		(a)3.24	
HIGHEST ANNUAL MEAN					7.82	1972
LOWEST ANNUAL MEAN					0.34	2002
HIGHEST DAILY MEAN	10	Dec 11	83	Sep 23	440	Jun 22, 1972
LOWEST DAILY MEAN	0.01	(b)	0.19	(c)	0.01	(d)
ANNUAL SEVEN-DAY MINIMUM	0.02	Aug 1	0.22	Oct 1	0.01	Sep 6, 1995
MAXIMUM PEAK FLOW			516	Sep 23	(f)2,220	Sep 26, 1975
MAXIMUM PEAK STAGE			4.32	Sep 23	7.47	Sep 26, 1975
INSTANTANEOUS LOW FLOW			0.19	(g)	(h)0.00	(i)
ANNUAL RUNOFF (CFSM)	0.16		1.34		0.99	
ANNUAL RUNOFF (INCHES)	2.13		18.21		13.39	
10 PERCENT EXCEEDS	0.64		9.1		5.9	
50 PERCENT EXCEEDS	0.27		3.4		2.2	
90 PERCENT EXCEEDS	0.16		0.29		0.53	

a Unadjusted for storage and diversions.
b Aug. 2-5.
c Oct. 1, 2.
d Sept. 6-16, 1995.
f From rating curve extended above 200 ft^3/s on basis of culvert measurement at gage heights 5.54 and 7.47 ft.
g Oct. 1-3.
h Result of regulation.
i Sept. 5, 1995, July, 4, 30, 31, Aug. 1-7, 10-15, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01586000 NORTH BRANCH PATAPSCO RIVER AT CEDARHURST, MD

LOCATION.--Lat 39°30'13.2", long 76°53'05.5", Carroll County, Hydrologic Unit 02060003, on left bank at downstream side of private footbridge at Cedarhurst, 0.8 mi downstream from Roaring Run, 8 mi southeast of Westminster, and 16.5 mi upstream from confluence with South Branch.

DRAINAGE AREA.--56.6 mi^2.

PERIOD OF RECORD.--September 1945 to current year.

REVISED RECORDS.--WSP 1903: 1959-60.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 420.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (questionable record), which are fair. Slight diurnal fluctuation at low and medium flow caused by mill upstream from station. Low flow affected slightly by Cranberry Reservoir since August 1957, capacity, 113,700,000 gal. Records do not include a mean discharge of 2.66 ft^3/s diverted upstream from station for municipal supply of Westminster; sewage effluent discharged into Little Pipe Creek in Monocacy River basin. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0015	1,210	4.54	Mar 20	2030	1,010	4.11
Feb 22	1800	1,690	5.51	Jun 7	1445	1,270	4.67
Mar 9	1730	1,170	4.47	Sep 23	0830	*3,540	*8.11

Minimum discharge, 7.9 ft^3/s, Oct. 7- 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	35	32	241	51	110	110	61	172	77	56	46
2	11	29	30	355	50	175	99	60	114	79	67	117
3	10	26	29	311	45	332	91	54	114	116	52	97
4	13	24	27	195	69	161	84	52	326	108	56	255
5	12	23	28	137	60	189	82	54	224	100	55	89
6	9.5	54	35	123	42	558	78	63	171	79	59	64
7	8.7	31	26	118	46	300	104	55	481	115	48	54
8	8.5	26	30	115	39	273	114	69	221	75	44	48
9	8.6	25	26	122	41	535	139	88	206	76	43	43
10	11	23	25	107	40	259	115	89	150	80	44	39
11	212	33	e200	93	38	156	121	72	130	71	71	37
12	84	58	e160	82	36	130	109	62	175	70	94	38
13	33	66	143	75	37	200	95	54	218	76	92	78
14	22	35	298	70	37	172	85	50	191	61	53	68
15	17	30	135	67	36	141	82	47	131	59	42	49
16	194	49	98	59	16	142	82	365	116	56	41	55
17	80	215	76	59	23	142	80	189	108	51	306	46
18	40	234	64	31	52	134	81	146	138	51	74	50
19	29	82	60	22	50	120	87	118	157	51	55	324
20	25	61	100	33	51	343	82	98	316	47	47	88
21	20	57	76	51	54	362	78	95	200	45	43	65
22	19	77	61	39	693	195	82	89	188	48	41	59
23	18	52	55	38	725	151	76	83	142	207	42	1,120
24	16	45	52	46	325	122	69	96	119	257	35	197
25	18	45	93	53	172	101	69	275	107	75	33	144
26	44	39	81	51	131	106	104	228	98	59	38	125
27	27	40	62	48	107	111	85	154	91	54	46	99
28	20	37	56	43	108	89	73	242	86	52	41	91
29	27	35	55	49	---	92	68	163	82	50	37	79
30	76	34	55	46	---	154	64	125	80	45	47	74
31	60	---	60	45	---	135	---	125	---	45	51	---
TOTAL	1,183.3	1,620	2,328	2,924	3,174	6,190	2,688	3,521	5,052	2,435	1,853	3,738
MEAN	38.2	54.0	75.1	94.3	113	200	89.6	114	168	78.5	59.8	125
MAX	212	234	298	355	725	558	139	365	481	257	306	1,120
MIN	8.5	23	25	22	16	89	64	47	80	45	33	37
CFSM	0.67	0.95	1.33	1.67	2.00	3.53	1.58	2.01	2.98	1.39	1.06	2.20
IN.	0.78	1.06	1.48	1.92	2.09	4.07	1.77	2.31	3.32	1.60	1.22	2.46

e Estimated

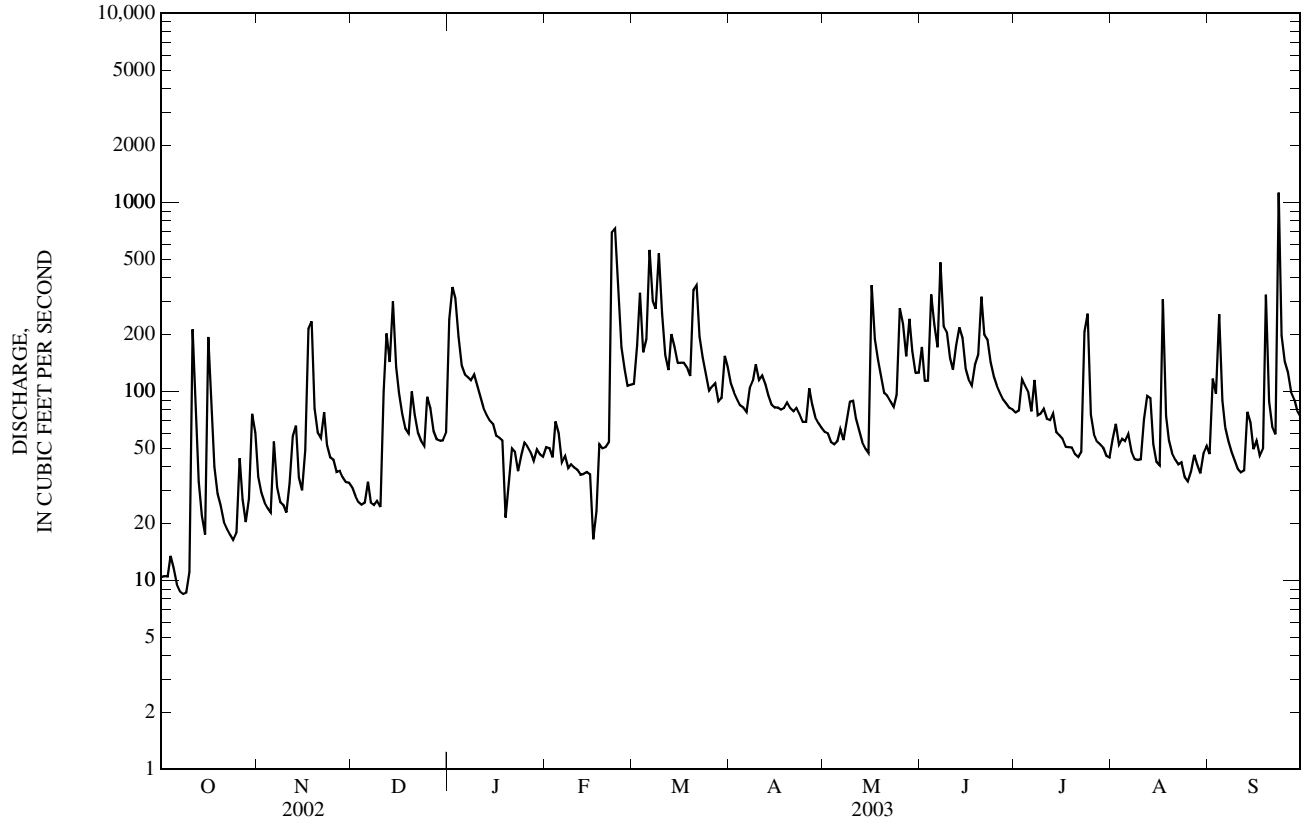
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

MEAN	41.5	50.2	62.1	74.7	85.7	96.8	86.3	75.7	65.1	48.9	41.2	44.0
MAX	214	114	240	225	212	243	213	201	390	149	165	356
(WY)	(1980)	(1953)	(1997)	(1996)	(1979)	(1994)	(1993)	(1952)	(1972)	(1972)	(1955)	(1975)
MIN	11.8	15.8	15.5	17.6	17.0	30.5	23.2	26.3	19.5	9.72	6.91	12.4
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(2002)	(2002)	(1969)	(1969)	(1966)	(1966)	(1964)

01586000 NORTH BRANCH PATAPSCO RIVER AT CEDARHURST, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1945 - 2003	
ANNUAL TOTAL	10,753.73		36,706.3			
ANNUAL MEAN	29.5		101		63.9	
HIGHEST ANNUAL MEAN					121	1972
LOWEST ANNUAL MEAN					20.2	2002
HIGHEST DAILY MEAN	298	Dec 14	1,120	Sep 23	6,000	Jun 22, 1972
LOWEST DAILY MEAN	(e)0.83	Aug 22	8.5	Oct 8	(e)0.83	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	1.9	Aug 17	10	Oct 3	1.9	Aug 17, 2002
MAXIMUM PEAK FLOW			3,540	Sep 23	(a)27,800	Jun 22, 1972
MAXIMUM PEAK STAGE			8.11	Sep 23	(b)20.75	Jun 22, 1972
INSTANTANEOUS LOW FLOW			7.9	(c)	0.83	(d)
ANNUAL RUNOFF (CFSM)	0.52		1.78		1.13	
ANNUAL RUNOFF (INCHES)	7.07		24.12		15.33	
10 PERCENT EXCEEDS	61		200		113	
50 PERCENT EXCEEDS	19		70		43	
90 PERCENT EXCEEDS	7.0		29		19	

e Estimated.
a From rating curve extended above 4,100 ft^3/s on basis of contracted-opening measurement of peak flow.
b From high-water mark in well.
c Oct. 7-9.
d Aug. 22, 23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01586210 BEAVER RUN NEAR FINKSBURG, MD

LOCATION.--Lat 39°29'22.0", long 76°54'10.6", Carroll County, Hydrologic Unit 02060003, on downstream center line of bridge pier on Hughes Road, 0.25 mi northwest of intersection of Hughes Road and Maryland Route 91, and 0.75 mi southwest of Finksburg.

DRAINAGE AREA.--14.0 mi^2.

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 428.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep 23	0630	*945	*4.36

No other peak greater than base discharge.

Minimum discharge, 2.1 ft^3/s, Oct. 6, 7, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	9.9	11	53	19	21	33	17	33	21	12	16
2	3.0	8.7	10	59	14	41	30	16	25	22	12	23
3	2.7	7.1	10	68	14	48	28	15	31	34	11	24
4	2.6	6.3	12	46	23	30	27	15	60	26	11	61
5	2.6	6.4	e11	36	16	35	27	16	42	22	10	21
6	2.3	14	e11	32	16	84	24	17	33	20	10	16
7	2.2	8.4	e11	29	15	46	34	15	81	23	9.1	13
8	2.2	7.6	e11	30	14	47	31	15	50	18	8.8	12
9	2.2	7.6	11	29	e13	88	38	22	49	18	9.1	11
10	3.3	7.4	11	26	e13	49	31	20	38	19	9.3	9.9
11	35	12	60	23	e13	38	34	17	34	17	21	9.4
12	15	18	39	21	e13	42	30	15	36	20	27	10
13	7.5	17	36	20	e13	57	27	14	42	19	21	18
14	5.7	12	55	19	e13	47	25	13	42	14	12	13
15	4.7	11	33	18	e12	40	24	12	34	13	10	12
16	39	19	27	e18	12	38	24	58	29	12	9.8	e13
17	15	50	22	e17	12	37	23	32	28	11	32	e14
18	9.3	50	19	e17	34	34	23	28	34	11	13	16
19	7.2	23	18	e16	55	29	23	23	48	11	11	47
20	6.5	19	26	e16	26	79	22	20	67	9.8	9.6	18
21	5.8	19	20	e16	21	65	21	20	47	9.4	9.1	14
22	5.2	21	18	e16	166	46	22	19	41	10	8.7	14
23	4.9	16	16	e15	116	39	20	19	35	38	8.3	209
24	4.6	14	15	e15	59	35	20	22	31	36	7.4	39
25	4.9	13	26	e15	35	32	20	46	29	15	7.2	32
26	11	13	21	e15	29	35	28	44	27	13	9.6	33
27	6.8	12	18	e15	25	33	21	31	26	12	11	26
28	5.8	12	16	e14	23	28	19	34	24	12	11	25
29	9.3	11	16	e14	---	30	18	29	23	11	8.7	22
30	18	11	16	e14	---	46	17	26	22	10	12	20
31	14	---	17	e14	---	37	---	32	---	10	10	---
TOTAL	261.7	456.4	643	756	834	1,356	764	722	1,141	537.2	371.7	811.3
MEAN	8.44	15.2	20.7	24.4	29.8	43.7	25.5	23.3	38.0	17.3	12.0	27.0
MAX	39	50	60	68	166	88	38	58	81	38	32	209
MIN	2.2	6.3	10	14	12	21	17	12	22	9.4	7.2	9.4
CFSM	0.60	1.09	1.48	1.74	2.13	3.12	1.82	1.66	2.72	1.24	0.86	1.93
IN.	0.70	1.21	1.71	2.01	2.22	3.60	2.03	1.92	3.03	1.43	0.99	2.16

e Estimated

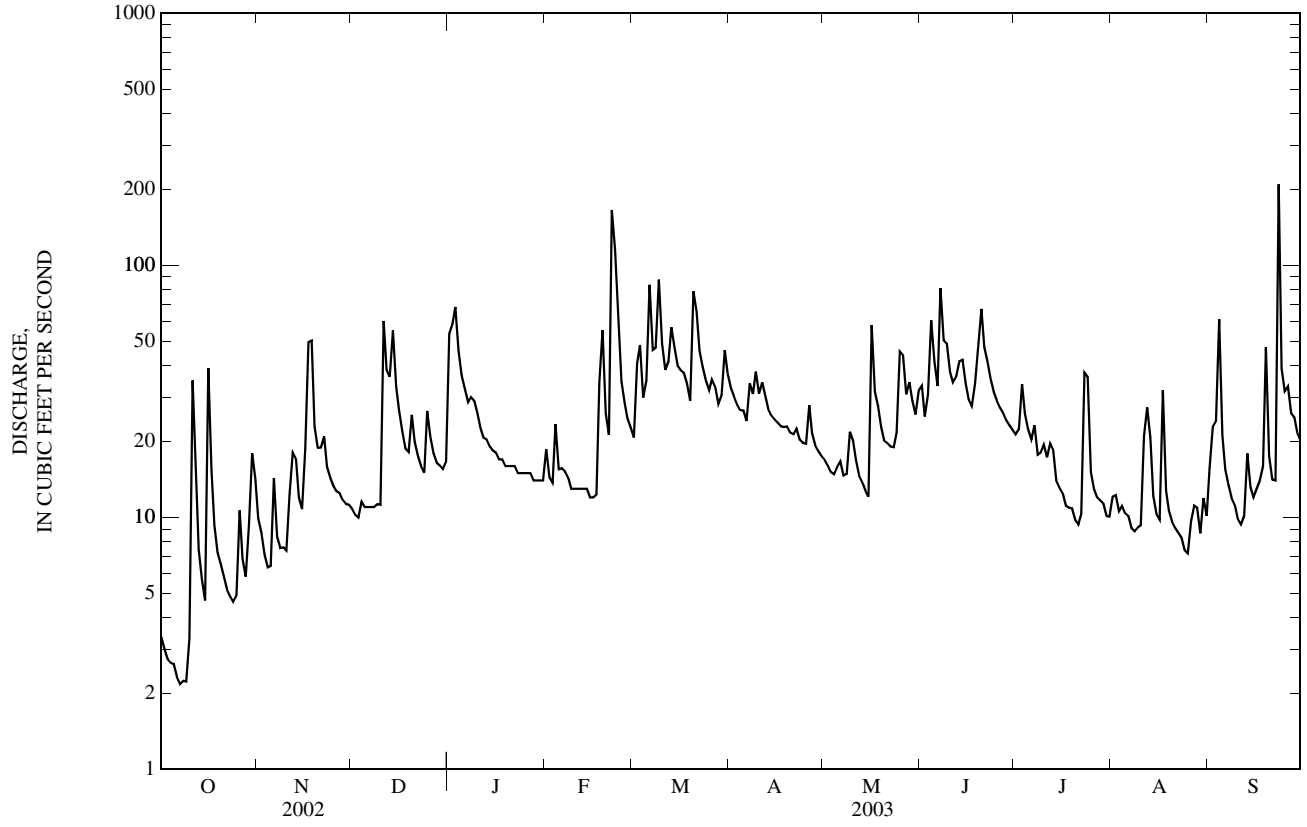
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	9.60	13.3	17.3	19.1	21.3	26.3	24.1	20.9	13.8	10.4	9.18	9.38
MAX	30.0	27.5	56.0	49.6	41.4	62.0	54.7	51.9	38.0	32.4	29.9	27.0
(WY)	(1997)	(1997)	(1997)	(1996)	(1994)	(1993)	(1993)	(1989)	(2003)	(1996)	(1984)	(2003)
MIN	3.73	5.39	4.94	6.80	5.25	9.19	6.73	7.43	4.76	3.01	2.40	2.78
(WY)	(1987)	(2002)	(1999)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1986)

01586210 BEAVER RUN NEAR FINKSBURG, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	2,854.29		8,654.3			
ANNUAL MEAN	7.82		23.7		16.2	
HIGHEST ANNUAL MEAN					25.2	1996
LOWEST ANNUAL MEAN					5.40	2002
HIGHEST DAILY MEAN	60	Dec 11	209	Sep 23	528	Jan 19, 1996
LOWEST DAILY MEAN	0.27	Aug 22	2.2	(a)	0.27	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.37	Aug 17	2.4	Oct 3	0.37	Aug 17, 2002
MAXIMUM PEAK FLOW			945	Sep 23	(b)2,150	May 6, 1989
MAXIMUM PEAK STAGE			4.36	Sep 23	(c)5.70	May 6, 1989
INSTANTANEOUS LOW FLOW			2.1	(d)	0.23	(f)
ANNUAL RUNOFF (CFSM)	0.56		1.69		1.16	
ANNUAL RUNOFF (INCHES)	7.58		23.00		15.71	
10 PERCENT EXCEEDS	16		45		30	
50 PERCENT EXCEEDS	5.4		19		12	
90 PERCENT EXCEEDS	2.0		9.0		4.7	

a Oct. 7-9.
b From rating curve extended above 600 ft^3/s.
c From floodmarks.
d Oct. 6, 7, 9.
f Aug. 21-23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01586610 MORGAN RUN NEAR LOUISVILLE, MD

LOCATION.--Lat 39°27'06.8", long 76°57'19.1", Carroll County, Hydrologic Unit 02060003, on right downstream wingwall of bridge on London Bridge Road, 1.4 mi southwest of Gamber, and 1.65 mi south of the intersection of Maryland Route 32, and 1.7 mi west of Louisville.

DRAINAGE AREA.--28.0 mi^2.

PERIOD OF RECORD.--October 1982 to current year.

REVISED RECORDS.--WRD MD-DE-84: 1983(P).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 430 ft above National Geodetic Vertical Datum of 1929. from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1730	944	4.65	Sep 19	0045	1,030	4.83
Sep 4	0945	810	4.35	Sep 23	0630	*3,010	*7.83

Minimum discharge, 2.9 ft^3/s, Oct. 8, 9..

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	14	17	106	28	38	62	30	71	39	25	34
2	3.7	12	16	147	26	79	57	30	50	42	25	45
3	3.6	11	15	166	24	104	54	28	64	64	22	56
4	3.5	10	16	104	41	56	51	28	145	48	26	212
5	3.7	10	15	76	28	68	49	30	91	41	23	64
6	3.1	21	e15	66	24	207	44	31	70	39	21	50
7	3.1	14	e15	57	25	96	63	28	217	39	20	45
8	3.1	12	e15	59	23	99	57	29	117	35	20	42
9	3.1	11	15	57	e23	267	70	41	111	34	20	40
10	4.9	10	15	50	22	101	60	42	81	36	20	38
11	41	14	107	43	21	76	70	34	73	33	67	37
12	22	22	81	38	21	81	60	29	72	35	50	38
13	10	24	73	37	e21	109	54	27	78	36	41	50
14	8.0	16	126	35	e20	93	50	26	76	29	25	43
15	7.0	14	71	33	20	79	47	26	62	29	22	45
16	53	24	53	37	18	76	46	132	55	27	24	44
17	23	84	41	34	95	75	43	67	54	25	58	37
18	13	105	34	e33	133	69	41	58	61	26	26	65
19	11	37	32	e31	62	59	42	47	120	26	22	333
20	9.5	29	43	e29	37	192	39	40	166	24	21	77
21	8.6	28	33	28	32	149	39	39	97	23	20	63
22	8.1	32	30	e28	393	93	41	37	84	26	21	59
23	7.7	24	27	e27	321	76	36	36	67	60	21	806
24	7.5	22	25	e27	130	68	34	40	59	67	18	103
25	8.0	20	48	e27	73	62	34	101	54	28	18	83
26	14	19	37	e26	55	66	47	86	51	25	22	82
27	10	20	30	26	46	62	37	62	48	24	26	65
28	9.0	18	28	29	42	53	33	76	45	24	25	60
29	13	17	28	26	---	54	32	59	43	24	20	54
30	25	17	27	23	---	77	31	51	41	22	22	50
31	21	---	30	24	---	70	---	76	---	22	21	---
TOTAL	365.1	711	1,158	1,529	1,804	2,854	1,423	1,466	2,423	1,052	812	2,820
MEAN	11.8	23.7	37.4	49.3	64.4	92.1	47.4	47.3	80.8	33.9	26.2	94.0
MAX	53	105	126	166	393	267	70	132	217	67	67	806
MIN	3.1	10	15	23	18	38	31	26	41	22	18	34
CFSM	0.42	0.85	1.33	1.76	2.30	3.29	1.69	1.69	2.88	1.21	0.94	3.36
IN.	0.49	0.94	1.54	2.03	2.40	3.79	1.89	1.95	3.22	1.40	1.08	3.75

e Estimated

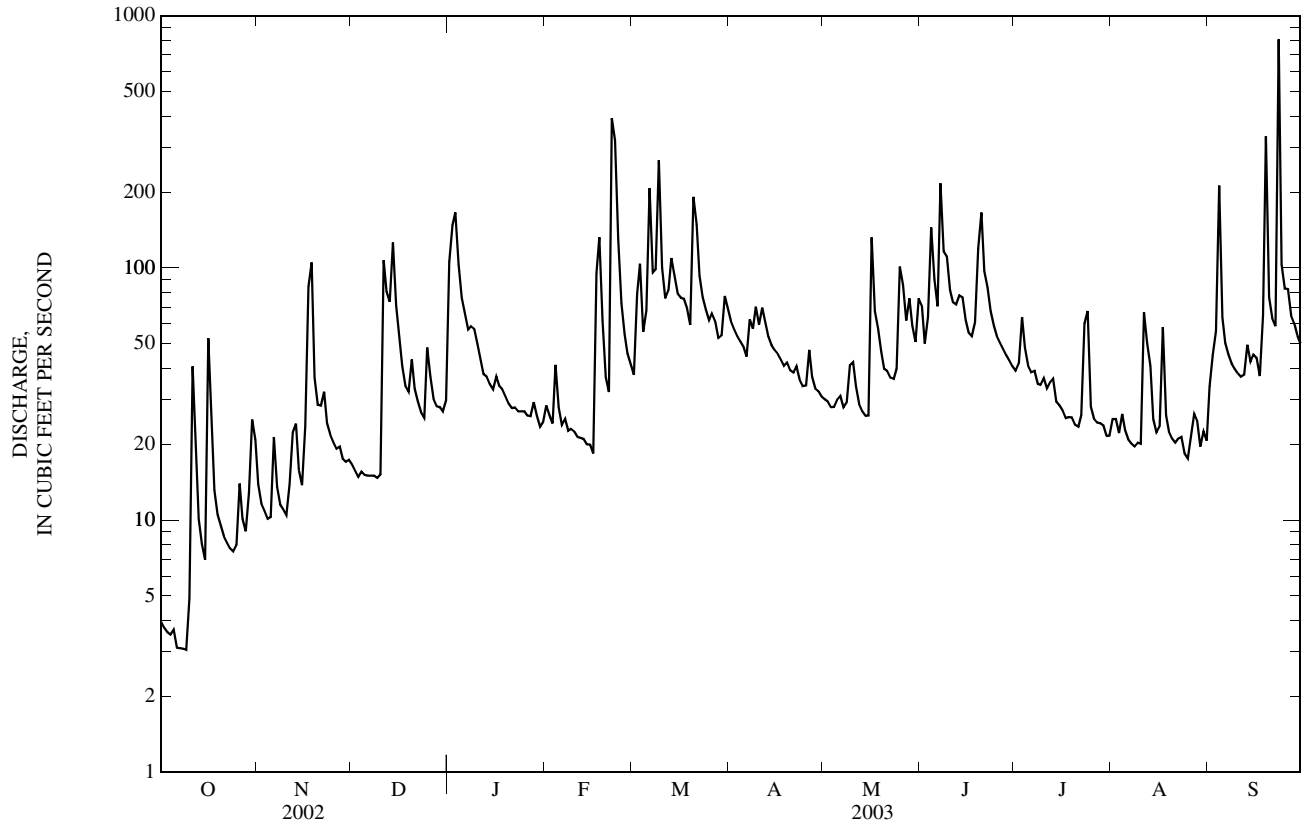
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	18.7	25.3	35.8	40.2	43.5	58.5	53.0	43.0	29.8	20.3	17.3	20.6
MAX	65.7	63.0	132	117	91.2	154	141	111	80.8	71.8	59.0	94.0
(WY)	(1997)	(1997)	(1997)	(1996)	(1984)	(1993)	(1993)	(1989)	(2003)	(1996)	(1996)	(2003)
MIN	5.69	9.98	9.70	12.7	10.5	17.5	12.9	13.9	7.84	3.85	2.62	3.89
(WY)	(1987)	(2002)	(1999)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01586610 MORGAN RUN NEAR LOUISVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	4,836.65		18,417.1			
ANNUAL MEAN	13.3		50.5		33.8	
HIGHEST ANNUAL MEAN					58.3	1996
LOWEST ANNUAL MEAN					9.60	2002
HIGHEST DAILY MEAN	126	Dec 14	806	Sep 23	1,370	Jan 19, 1996
LOWEST DAILY MEAN	0.73	Aug 22	3.1	Oct 6	0.73	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.86	Aug 17	3.3	Oct 3	0.86	Aug 17, 2002
MAXIMUM PEAK FLOW			3,010	Sep 23	(b)3,550	Jan 19, 1996
MAXIMUM PEAK STAGE			7.83	Sep 23	8.45	Jan 19, 1996
INSTANTANEOUS LOW FLOW			2.9	(c)	0.73	(d)
ANNUAL RUNOFF (CFSM)	0.47		1.80		1.21	
ANNUAL RUNOFF (INCHES)	6.43		24.47		16.39	
10 PERCENT EXCEEDS	25		92		65	
50 PERCENT EXCEEDS	10		37		23	
90 PERCENT EXCEEDS	2.4		15		8.9	

a Oct. 6-9.
b From rating curve extended above 1,900 ft^3/s.
c Oct. 8, 9.
d Aug. 12, 13, 19, 20, 1999.
e Estimated



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589000 PATAPSCO RIVER AT HOLLOFIELD, MD

LOCATION.--Lat 39°18'37.1", long 76°47'32.7", Baltimore County, Hydrologic Unit 02070003, on left bank at downstream side of highway bridge at Hollofield,0.3 mi downstream from Dogwood Run, 3.0 mi north of Ellicott City, and 28 mi upstream from mouth.

DRAINAGE AREA.--285 mi^2.

PERIOD OF RECORD.--May 1944 to January 1992, March 1994 to September 1995, January 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 187.7 ft above National Geodetic Vertical Datum of 1929. June 26 to December 8, 1972, nonrecording gage at same site and datum. Prior to June 22, 1972, water-stage recorder at site on opposite bank at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are fair. Flow regulated by Liberty Reservoir, 11 mi upstream, beginning July 22, 1954, usable capacity 42,070,000,000 gallons; dead storage 1,260,000,000 gallons. Diversions upstream from station for municipal supply of Westminster (sewage effluent discharged into Little Pipe Creek), and from Liberty Reservoir beginning February 26, 1953, for municipal supply of Baltimore, and beginning February 1970 for small municipal supply for part of Carroll County. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,010 ft^3/s, Sept. 23, gage height, 8.78 ft; minimum discharge, 15 ft^3/s, Oct. 7-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	94	66	394	124	176	250	145	992	242	121	86
2	20	78	62	763	116	286	229	141	505	239	126	118
3	20	69	61	511	108	473	212	134	417	400	120	119
4	21	64	56	405	151	250	201	130	1,010	403	123	1,620
5	20	62	62	253	135	275	194	133	1,140	316	150	781
6	17	149	80	224	104	868	183	151	756	258	150	385
7	16	100	e73	196	111	487	243	138	1,710	254	122	241
8	15	76	71	187	105	358	247	154	1,380	219	112	175
9	17	69	66	201	102	788	300	201	985	194	167	141
10	27	66	60	173	103	518	257	221	759	217	118	115
11	154	155	286	153	100	316	292	180	669	217	871	103
12	154	147	395	140	93	296	249	156	714	186	516	102
13	61	171	274	139	89	359	214	152	739	199	381	203
14	43	106	515	130	e91	402	198	142	909	178	252	161
15	36	88	280	125	e89	296	190	127	637	157	179	136
16	227	171	191	123	67	281	184	856	506	146	138	166
17	195	443	157	e121	135	274	179	810	446	134	368	167
18	81	390	136	e119	276	251	177	589	511	126	260	311
19	60	189	127	e117	225	223	181	448	1,110	136	172	2,440
20	51	145	156	e115	179	600	170	342	1,680	133	128	711
21	47	126	148	e113	e157	804	166	323	1,190	129	107	397
22	43	137	123	e111	e1,130	375	169	315	889	125	109	279
23	41	112	114	e109	e1,580	298	159	285	676	383	138	4,130
24	40	96	108	e108	e630	261	151	325	528	535	96	1,540
25	40	101	244	e107	e340	236	150	561	438	360	87	814
26	87	90	221	e106	252	236	260	1,020	383	251	89	721
27	68	87	156	e105	210	259	190	674	338	191	107	474
28	51	81	135	e104	194	216	162	569	285	173	116	418
29	70	73	131	111	---	222	154	566	266	173	95	326
30	152	70	128	103	---	360	148	448	257	134	101	262
31	133	---	131	103	---	326	---	458	---	119	88	---
TOTAL	2,029	3,805	4,813	5,769	6,996	11,370	6,059	10,894	22,825	6,927	5,707	17,642
MEAN	65.5	127	155	186	250	367	202	351	761	223	184	588
MAX	227	443	515	763	1,580	868	300	1,020	1,710	535	871	4,130
MIN	15	62	56	103	67	176	148	127	257	119	87	86
(†)	46588	50090	55995	62020	71085	83811	86290	88216	87457	87133	86839	87738
(‡)	103	109	138	105	113	106	147	133	140	160	173	172

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1992, 1994 - 1995, 2000 - 2003, BY WATER YEAR (WY)

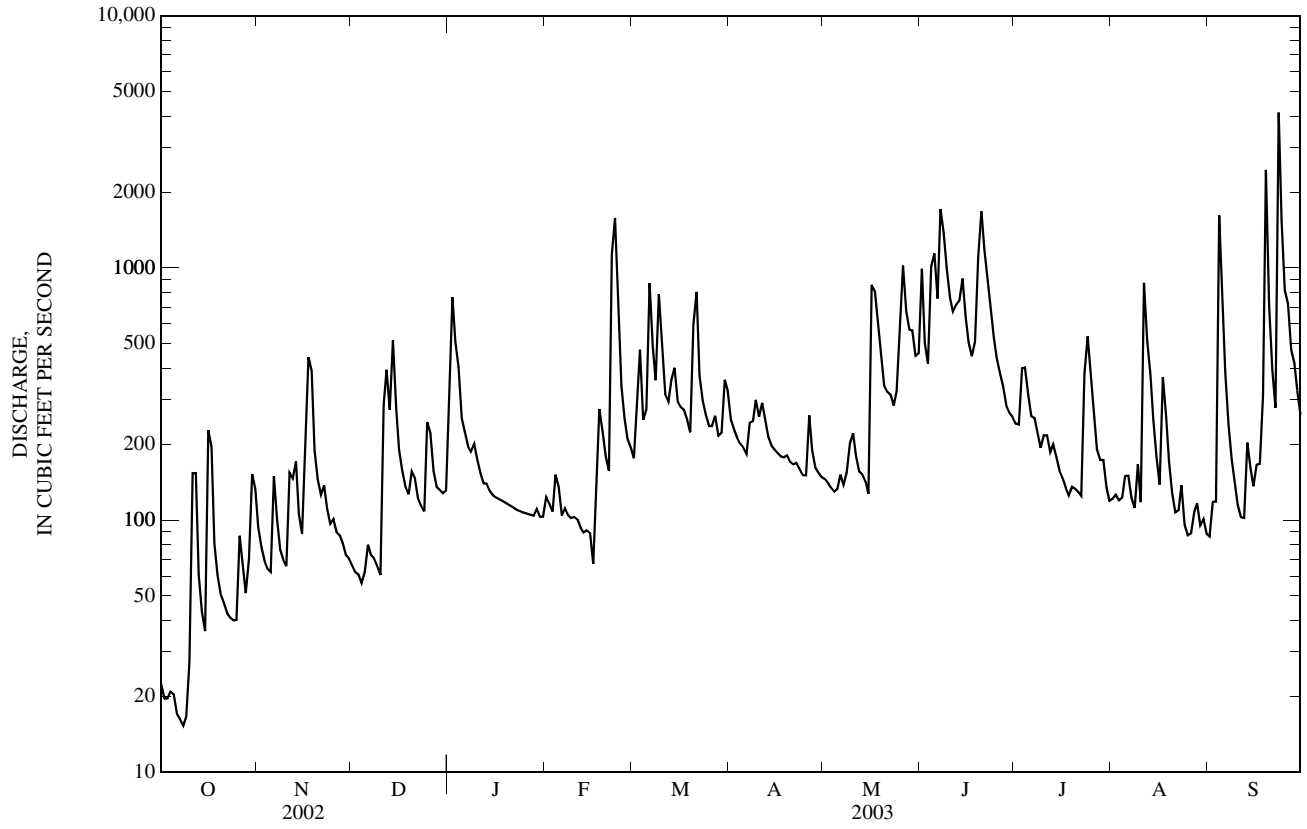
MEAN	116	139	182	209	255	276	274	247	224	147	114	141
MAX	857	590	675	770	724	804	1,071	1,102	2,024	601	516	1,493
(WY)	(1980)	(1953)	(1973)	(1949)	(1951)	(1953)	(1952)	(1952)	(1972)	(1956)	(1971)	(1975)
MIN	14.7	35.2	32.7	33.3	50.2	74.3	70.1	58.3	33.5	20.3	20.1	19.4
(WY)	(1987)	(1966)	(1966)	(1966)	(2002)	(1981)	(2002)	(1963)	(1986)	(2002)	(1966)	(1986)

† Month-end contents, in millions of gallons in Liberty Reservoir. Records furnished by Baltimore City Department of Public Works.
‡ Diversions, in cubic feet per second, upstream from station for municipal supply for city of Westminster; and from Liberty Reservoir for municipal supply of city of Baltimore, and for part of Carroll County. Records provided by cities of Westminster and Baltimore, respectively.

01589000 PATAPSCO RIVER AT HOLLOFIELD, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 1992, 1994 - 1995 2000 - 2003	
ANNUAL TOTAL	24,366.8		104,836			
ANNUAL MEAN	*66.8		*287		*195	
ANNUAL MEAN DIVERSIONS‡	128		133		165	
HIGHEST ANNUAL MEAN					*524	1972
LOWEST ANNUAL MEAN					*49.8	2002
HIGHEST DAILY MEAN	515	Dec 14	4,130	Sep 23	30,000	Jun 22, 1972
LOWEST DAILY MEAN	5.9	Aug 22	15	Oct 8	5.9	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	6.4	Aug 17	18	Oct 3	6.4	Aug 17, 2002
MAXIMUM PEAK FLOW			9,010	Sep 23	(a)80,600	Jun 22, 1972
MAXIMUM PEAK STAGE			8.78	Sep 23	(b)31.30	Jun 22, 1972
INSTANTANEOUS LOW FLOW			15	(c)	5.7	(d)
ANNUAL RUNOFF (CFSM)	0.23		1.01		0.68	
ANNUAL RUNOFF (INCHES)	3.18		13.68		9.28	
10 PERCENT EXCEEDS	136		650		407	
50 PERCENT EXCEEDS	54		171		111	
90 PERCENT EXCEEDS	14		70		38	

* Unadjusted for diversions.
‡ Diversions, in cubic feet per second, upstream from station for municipal supply for city of Westminster; and from Liberty Reservoir for municipal supply of city of Baltimore, and for part of Carroll County. Records provided by cities of Westminster and Baltimore, respectively.
a From rating curve extended above 27,000 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmarks.
c Oct. 7-9.
d Aug. 22, 23, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589100 EAST BRANCH HERBERT RUN AT ARBUTUS, MD

LOCATION.--Lat 39°14'24.0", long 76°41'31.9", Baltimore County, Hydrologic Unit 02060003, on left bank 50 ft upstream from bridge on Tom Day Boulevard at U.S. Route 1 in Arbutus, 0.5 mi upstream from mouth, and 2 mi south of Baltimore city limits.

DRAINAGE AREA.--2.47 mi^2.

PERIOD OF RECORD.--August 1957 to September 1989, October 1998 to current year.

REVISED RECORDS.--WDR MD-DE-81: 1979.

GAGE.--Water-stage recorder and V-notch sharp crested weir. Elevation of gage is 45 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to August 1981 at site 100 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Slight regulation at low flow from unknown source upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1145	455	4.14	Sep 18	2115	671	5.33
Jul 22	2145	627	5.09	Sep 23	0430	*734	*5.67

Minimum discharge, 0.63 ft^3/s, Oct. 2-3, 6-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.73	2.0	e1.0	49	3.7	4.8	e3.4	2.3	2.8	3.9	1.6	2.2
2	0.69	1.5	e1.0	12	2.3	32	e3.0	1.9	2.4	11	1.5	1.5
3	0.68	1.2	e0.96	20	2.2	8.3	e2.8	1.8	7.5	19	9.9	3.4
4	0.73	1.4	e1.1	5.6	5.6	5.8	e2.8	1.5	10	3.0	14	9.9
5	0.70	8.1	e1.8	4.1	2.4	13	e2.7	1.9	3.2	2.3	2.0	1.7
6	0.69	5.6	e2.4	6.1	2.3	27	2.6	1.8	2.5	9.0	1.8	1.4
7	0.73	1.2	e1.9	3.4	3.7	6.9	15	1.6	61	3.5	1.5	1.3
8	0.65	1.1	e2.6	4.2	2.6	6.2	4.1	3.2	7.3	2.1	1.5	1.4
9	0.64	1.1	e2.1	3.2	2.5	7.0	13	11	4.5	3.2	4.4	1.2
10	11	1.1	e1.3	2.7	2.8	4.7	4.0	4.3	3.0	2.7	2.3	1.3
11	31	6.0	e52	2.5	2.4	4.0	11	3.2	4.7	7.9	4.5	1.2
12	2.1	12	e10	2.5	2.3	3.9	4.1	1.8	6.8	2.8	1.9	7.3
13	1.1	2.1	e22	2.5	2.1	e4.8	3.3	1.6	13	2.0	1.5	12
14	0.87	1.4	e11	2.5	2.1	e3.4	3.0	1.5	4.4	1.8	1.3	1.7
15	0.91	1.2	e3.5	2.5	3.3	e2.8	3.0	1.5	2.7	1.7	1.3	1.6
16	39	38	e2.5	2.4	2.5	e2.6	2.8	69	2.5	1.6	2.2	1.4
17	2.5	18	e1.9	2.5	3.7	e3.6	2.6	7.1	9.7	1.5	8.2	1.2
18	1.3	4.3	1.7	2.3	3.0	e2.5	3.7	4.1	5.0	1.5	1.5	53
19	1.1	2.3	1.8	2.3	3.8	e2.3	2.7	2.7	30	1.5	1.4	14
20	0.98	1.9	7.1	2.3	6.7	e55	2.5	2.4	28	1.5	1.3	2.7
21	0.95	e1.6	2.1	2.2	11	11	2.5	18	8.8	1.5	1.4	1.9
22	0.89	e1.4	1.7	2.0	101	5.5	2.5	3.9	4.0	32	3.7	8.7
23	0.84	e1.3	1.5	2.1	30	4.2	2.5	4.4	2.9	6.2	1.8	69
24	0.84	e1.2	1.7	2.2	10	3.7	2.5	7.9	2.6	2.1	1.6	4.8
25	6.1	e1.2	44	2.3	6.3	3.4	5.8	7.2	2.4	1.7	1.5	2.8
26	11	e1.2	6.7	2.3	4.6	7.6	18	60	2.3	2.0	2.7	2.1
27	1.2	e2.0	3.3	2.0	4.2	e3.7	3.4	6.0	2.1	1.6	3.3	2.0
28	1.0	e1.1	2.7	2.1	5.4	e3.1	2.7	5.0	2.0	2.9	1.8	2.5
29	12	e1.1	2.5	3.1	---	e5.8	2.4	3.4	1.9	1.8	2.1	2.0
30	6.5	e1.0	2.5	2.2	---	e12	1.8	2.9	1.8	1.6	1.5	1.6
31	3.3	---	2.5	2.3	---	e4.2	---	5.4	---	1.5	1.2	---
TOTAL	142.72	124.6	200.86	159.4	234.5	264.8	136.2	250.3	241.8	138.4	88.2	218.8
MEAN	4.60	4.15	6.48	5.14	8.38	8.54	4.54	8.07	8.06	4.46	2.85	7.29
MAX	39	38	52	49	101	55	18	69	61	32	14	69
MIN	0.64	1.0	0.96	2.0	2.1	2.3	1.8	1.5	1.8	1.5	1.2	1.2
CFSM	1.86	1.68	2.62	2.08	3.39	3.46	1.84	3.27	3.26	1.81	1.15	2.95
IN.	2.15	1.88	3.03	2.40	3.53	3.99	2.05	3.77	3.64	2.08	1.33	3.30

e Estimated

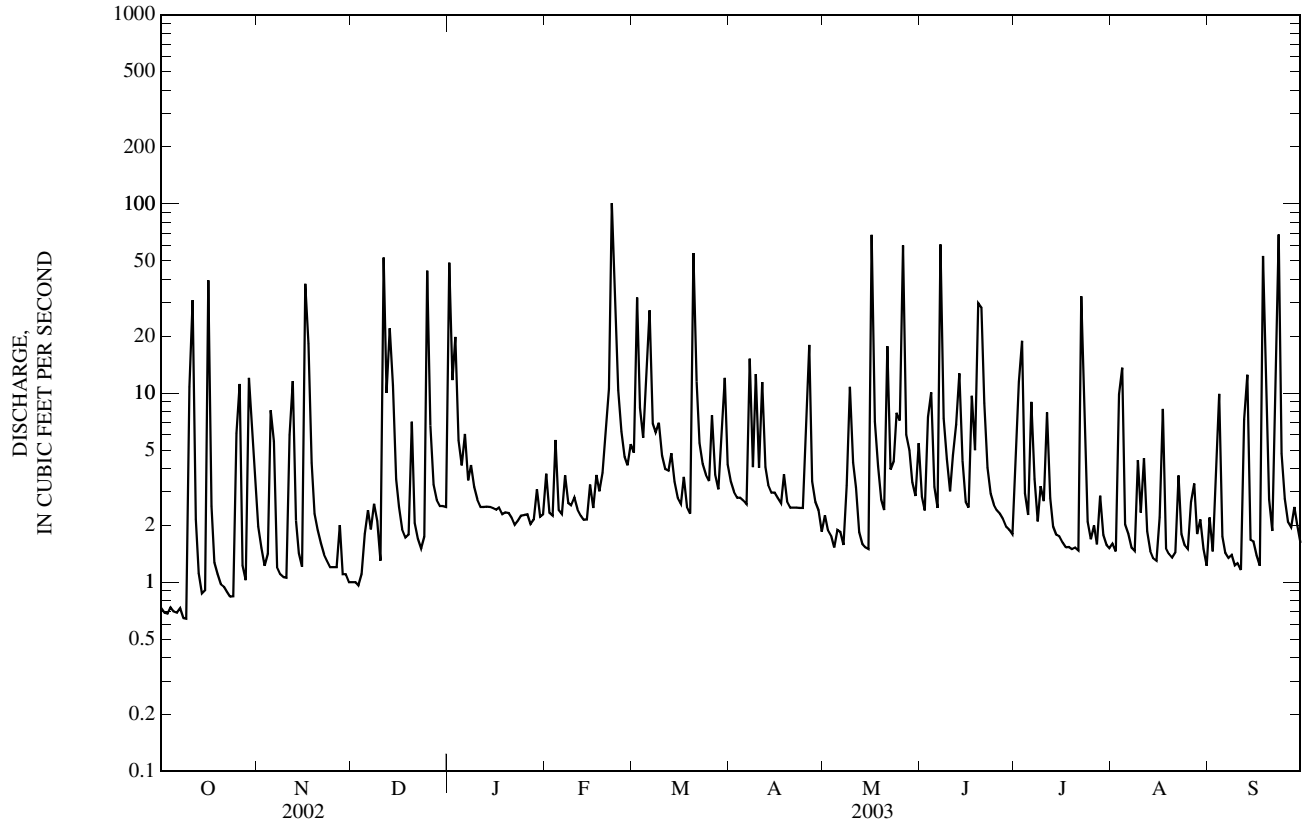
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1989, 1999 - 2003, BY WATER YEAR (WY)

MEAN	2.26	2.79	3.27	3.30	4.06	4.27	3.62	3.56	3.11	2.82	3.07	3.66
MAX	7.62	8.39	7.54	13.4	11.0	10.7	11.8	10.6	13.5	10.2	13.5	15.7
(WY)	(1972)	(1973)	(1984)	(1979)	(1979)	(1958)	(1983)	(1989)	(1972)	(1975)	(1979)	(1979)
MIN	0.58	0.63	0.70	0.56	0.73	1.41	1.20	0.89	0.95	0.78	0.80	0.63
(WY)	(2001)	(1982)	(1981)	(1981)	(2002)	(1981)	(1985)	(1986)	(1986)	(1966)	(1982)	(1986)

01589100 EAST BRANCH HERBERT RUN AT ARBUTUS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 1989 1999 - 2003	
ANNUAL TOTAL	1,032.20		2,200.58			
ANNUAL MEAN	2.83		6.03		3.31	
HIGHEST ANNUAL MEAN					6.85	1979
LOWEST ANNUAL MEAN					1.87	2002
HIGHEST DAILY MEAN	52	Dec 11	101	Feb 22	200	Jun 22, 1972
LOWEST DAILY MEAN	0.42	(a)	0.64	Oct 9	0.21	Aug 10, 1999
ANNUAL SEVEN-DAY MINIMUM	0.44	Jul 1	0.69	Oct 3	0.24	Aug 6, 1999
MAXIMUM PEAK FLOW			734	Sep 23	(b)2,460	Sep 6, 1979
MAXIMUM PEAK STAGE			5.67	Sep 23	(c)13.70	Sep 6, 1979
INSTANTANEOUS LOW FLOW			0.63	(d)	0.16	(f)
ANNUAL RUNOFF (CFSM)	1.14		2.44		1.34	
ANNUAL RUNOFF (INCHES)	15.55		33.14		18.21	
10 PERCENT EXCEEDS	6.7		11		6.0	
50 PERCENT EXCEEDS	0.87		2.5		1.4	
90 PERCENT EXCEEDS	0.53		1.2		0.62	

a July 4, 5.
b From rating curve extended above 280 ft^3/s on basis of culvert measurement at gage height 5.0 ft, present site, and culvert and flow-over-road measurement of peak flow at gage height 13.7 ft, present site.
c From floodmarks.
d Oct. 2, 3, 6-10.
f Aug. 7, 10, 1999.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589197 GWYNNS FALLS NEAR DELIGHT, MD

LOCATION.--Lat 39°26'34.6", long 76°47'00.3", Baltimore County, Hydrologic Unit 02060003, on downstream side of bridge on Gwynbrook Avenue, 1.2 mi east of Delight, and 1.6 mi north of Owings Mills.

DRAINAGE AREA.--4.23 mi^2.

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Datum of gage is 534.20 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Peak discharge base of 150 ft^3/s has been changed to 350 ft^3/s after further analysis.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jun 19	2115	474	4.82	Sep 4	0945	492	4.92
Aug 11	1345	*579	*5.38	Sep 23	0545	557	5.27
Aug 17	0000	355	4.12				

Minimum discharge, 0.78 ft^3/s, Oct. 2-4.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.91	2.6	2.1	58	4.2	4.1	5.2	3.8	7.6	3.6	2.9	3.7
2	0.84	2.1	2.0	15	3.1	16	4.8	3.6	4.9	6.9	2.8	4.6
3	0.81	1.8	1.9	31	2.9	9.2	4.5	3.6	8.3	24	3.4	6.9
4	1.5	1.7	2.1	8.4	7.6	5.5	4.3	3.5	37	5.9	3.1	61
5	0.94	3.3	2.4	5.2	3.5	12	4.2	4.3	35	4.3	3.4	6.4
6	0.92	8.2	2.2	5.1	2.8	25	4.1	4.1	6.7	4.3	3.1	4.7
7	0.92	2.6	2.1	4.2	3.0	7.8	10	3.7	42	4.4	2.7	4.5
8	0.92	2.1	2.2	4.8	2.8	9.4	5.7	4.8	9.0	3.5	2.6	4.1
9	0.92	2.0	2.4	4.6	2.7	20	12	9.5	7.7	4.1	5.8	4.0
10	5.6	1.9	2.0	3.9	2.7	7.5	5.4	6.0	5.7	3.9	3.5	3.9
11	26	5.1	36	3.5	2.6	5.3	8.1	4.2	5.1	4.0	62	3.8
12	3.6	11	12	3.2	2.6	6.0	5.2	3.7	6.9	5.8	7.1	5.3
13	1.7	4.3	17	3.1	2.6	12	4.4	3.6	12	4.1	4.5	13
14	1.4	2.8	18	3.0	2.5	8.1	4.1	3.6	7.7	3.1	3.7	4.9
15	1.2	2.4	5.7	2.9	2.7	6.0	4.0	3.5	5.4	3.0	3.6	4.4
16	40	29	4.0	2.8	e3.2	6.1	3.9	87	4.8	2.9	14	4.2
17	4.4	24	3.2	2.8	e6.0	6.5	4.1	9.8	5.4	2.7	26	4.0
18	2.4	9.7	2.9	2.9	12	5.1	5.4	6.4	6.7	2.7	4.3	19
19	1.8	3.9	2.8	2.8	e9.0	4.3	4.2	5.1	60	2.9	3.7	23
20	1.6	3.2	8.5	2.7	e7.0	51	3.8	4.4	44	2.7	3.6	5.2
21	1.5	4.1	3.5	2.6	8.5	14	3.6	6.5	9.5	2.5	3.6	4.5
22	1.4	3.7	2.9	2.6	84	6.6	3.7	4.7	6.7	8.2	5.9	9.3
23	1.4	2.8	2.7	2.6	38	5.4	3.6	5.3	5.5	11	3.5	111
24	1.3	2.6	2.6	2.7	13	4.9	3.5	7.4	4.7	4.0	3.3	6.9
25	1.4	2.5	16	3.0	6.9	4.5	3.9	12	4.4	3.8	3.3	6.6
26	7.4	2.4	6.6	3.2	5.1	7.5	18	35	4.2	3.3	5.1	6.1
27	1.8	2.8	3.9	e2.8	4.6	5.3	5.3	6.7	4.1	3.0	5.0	4.5
28	1.5	2.4	3.3	e2.6	4.7	4.6	4.3	8.4	3.9	3.2	3.7	5.7
29	8.5	2.3	3.2	e2.5	---	5.9	4.0	5.4	3.9	3.0	3.3	4.3
30	6.7	2.3	3.1	e2.4	---	16	3.8	4.7	3.7	2.7	3.2	3.9
31	4.9	---	3.7	2.7	---	6.9	---	20	---	2.8	3.2	---
TOTAL	136.18	151.6	183.0	199.6	250.3	308.5	161.1	294.3	372.5	146.3	208.9	353.4
MEAN	4.39	5.05	5.90	6.44	8.94	9.95	5.37	9.49	12.4	4.72	6.74	11.8
MAX	40	29	36	58	84	51	18	87	60	24	62	111
MIN	0.81	1.7	1.9	2.4	2.5	4.1	3.5	3.5	3.7	2.5	2.6	3.7
CFSM	1.04	1.19	1.40	1.52	2.11	2.35	1.27	2.24	2.94	1.12	1.59	2.78
IN.	1.20	1.33	1.61	1.76	2.20	2.71	1.42	2.59	3.28	1.29	1.84	3.11

e Estimated

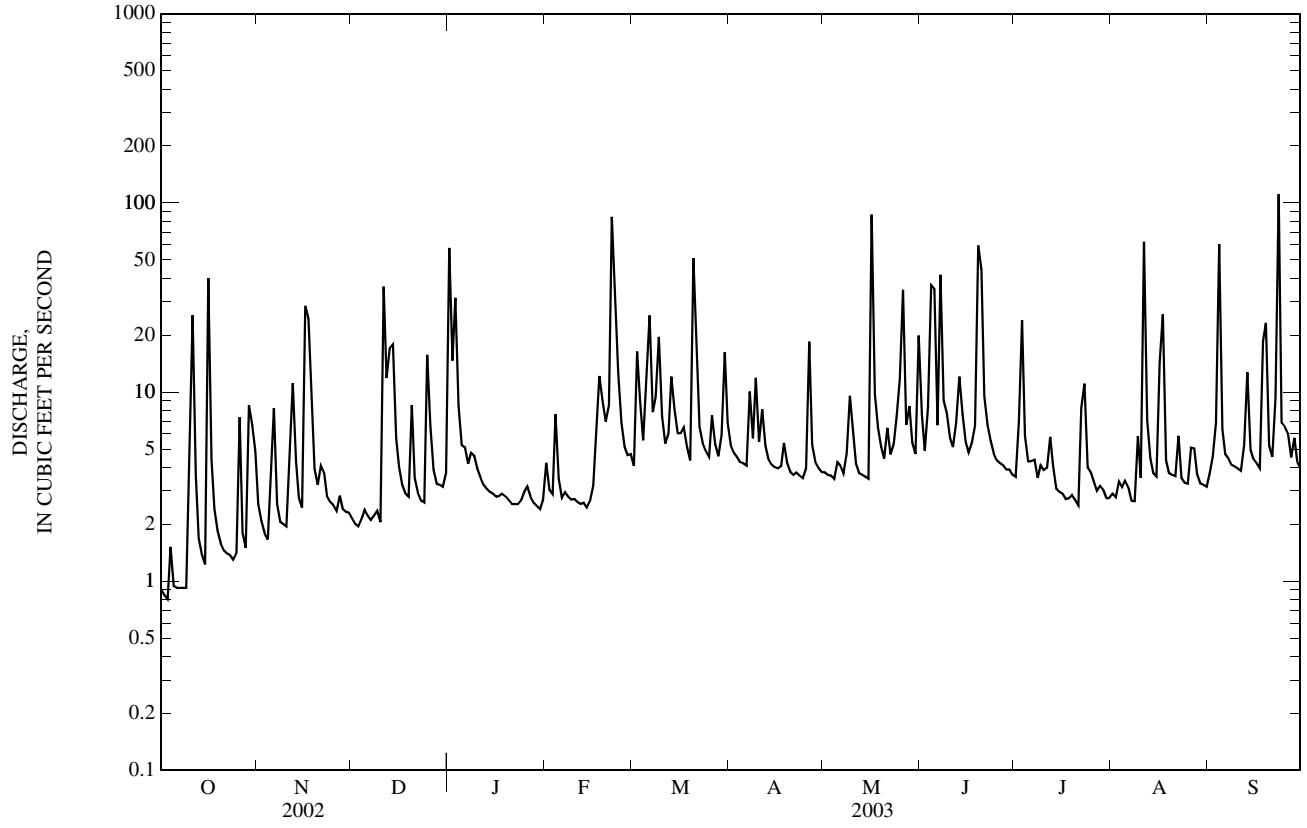
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	3.00	3.35	4.51	4.67	4.54	6.63	4.55	4.65	5.18	3.30	4.29	6.29
MAX	5.18	5.05	6.45	7.92	8.94	9.95	5.95	9.49	12.4	5.48	6.79	11.8
(WY)	(2000)	(2003)	(2001)	(1999)	(2003)	(2003)	(2000)	(2003)	(2003)	(1999)	(1999)	(2003)
MIN	1.35	2.08	2.01	2.43	1.51	3.90	3.04	2.57	1.82	1.02	1.43	2.01
(WY)	(2002)	(1999)	(2002)	(2000)	(2002)	(2002)	(2002)	(1999)	(2002)	(2002)	(2002)	(2002)

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	1,104.66		2,765.68			
ANNUAL MEAN	3.03		7.58		4.58	
HIGHEST ANNUAL MEAN					7.58	2003
LOWEST ANNUAL MEAN					2.20	2002
HIGHEST DAILY MEAN	40	Oct 16	111	Sep 23	151	Sep 16, 1999
LOWEST DAILY MEAN	(e)0.25	(a)	0.81	Oct 3	(e)0.25	(a)
ANNUAL SEVEN-DAY MINIMUM	0.27	Aug 16	0.98	Oct 1	(e)0.27	Aug 16, 2002
MAXIMUM PEAK FLOW			579	Aug 11	(b)856	Jul 22, 1999
MAXIMUM PEAK STAGE			5.38	Aug 11	6.65	Jul 22, 1999
INSTANTANEOUS LOW FLOW			0.78	(c)	UNKNOWN	
ANNUAL RUNOFF (CFSM)	0.72		1.79		1.08	
ANNUAL RUNOFF (INCHES)	9.71		24.32		14.70	
10 PERCENT EXCEEDS	5.9		13		7.1	
50 PERCENT EXCEEDS	1.6		4.1		2.6	
90 PERCENT EXCEEDS	0.71		2.3		1.3	

e Estimated
a Aug. 20-22, 2002.
b From rating curve extended above 380 ft^3/s.
c Oct. 2-4.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589238 GWYNNS FALLS TRIBUTARY AT MCDONOGH, MD

LOCATION.--Location -Lat 39°24'01.6", long 76°46'13.6", Baltimore County, Hydrologic Unit 02060003, on left bank 650 ft upstream of confluence with Gwynns Falls, on grounds of McDonogh School,650 ft upstream from mouth 0.7 mile northwest of McDonogh, 0.8 mile southwest of Garrison, and 1.4 miles southeast of Owings Mills.

DRAINAGE AREA.--0.03 mi^2.

PERIOD OF RECORD.--November 1999 to current year.

GAGE.--Water-stage recorder. Datum of gage is 472 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good below 0.65 ft^3/s and poor above except those for estimated daily discharges (ice effect), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1.2 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	1930	1.7	0.67	Jun 20	1130	1.7	0.67
Feb 22	1345	1.9	0.68	Jun 21	1545	1.5	0.64
Mar 9	1245	1.7	0.67	Aug 11	1245	2.3	0.72
May 16	0445	1.4	0.63	Sep 4	0815	*8.3	*0.96
Jun 7	1300	1.5	0.65	Sep 23	0315	5.7	0.88
Jun 19	1930	1.9	0.68				

Minimum discharge, 0.000 ft^3/s, Oct. 1-10, 13-15.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.000	0.008	0.013	0.21	0.023	0.036	0.051	0.036	0.054	0.036	0.023	0.024
2	0.000	0.006	0.013	0.093	e0.021	0.26	0.047	0.036	0.047	0.045	0.023	0.023
3	0.000	0.003	0.011	0.19	e0.020	0.084	0.044	0.036	0.052	0.067	0.023	0.032
4	0.000	0.003	0.013	0.15	0.032	0.046	0.044	0.036	0.18	0.047	0.028	0.29
5	0.000	0.005	0.013	0.13	0.024	0.19	0.044	0.036	0.089	0.040	0.028	0.041
6	0.000	0.008	0.010	e0.08	0.023	0.38	0.039	0.036	0.055	0.040	0.023	0.029
7	0.000	0.006	0.015	e0.052	0.023	0.060	0.047	0.036	0.25	0.041	0.023	0.024
8	0.000	0.006	0.008	0.039	0.023	0.17	0.045	0.034	0.086	0.036	0.023	0.028
9	0.000	0.004	0.009	0.038	0.023	0.46	0.056	0.044	0.063	0.036	0.031	0.023
10	0.000	0.005	0.011	0.036	0.023	0.061	0.048	0.045	0.051	0.037	0.024	0.018
11	0.013	0.034	0.055	e0.030	0.023	0.052	0.056	0.041	0.048	0.040	0.15	0.018
12	0.001	0.020	0.034	e0.028	0.023	0.11	0.049	0.036	0.088	0.033	0.044	0.023
13	0.001	0.017	0.043	e0.028	0.023	0.085	0.044	0.036	0.071	0.032	0.036	0.041
14	0.000	0.012	0.056	e0.027	0.023	0.053	0.044	0.036	0.055	0.036	0.033	0.031
15	0.000	0.009	0.032	e0.026	0.023	0.046	0.040	0.030	0.051	0.034	0.030	0.033
16	0.035	0.042	0.025	e0.026	0.076	0.044	0.036	0.26	0.048	0.030	0.035	0.027
17	0.005	0.051	0.024	e0.026	0.056	0.044	0.036	0.070	0.050	0.030	0.043	0.023
18	0.003	0.024	0.029	e0.027	0.020	0.044	0.038	0.056	0.058	0.030	0.034	0.075
19	0.004	0.015	0.023	e0.025	0.018	0.037	0.036	0.051	0.15	0.030	0.026	0.056
20	0.004	0.013	0.028	e0.024	0.020	0.14	0.036	0.046	0.22	0.027	0.023	0.035
21	0.004	0.013	0.030	e0.022	0.028	0.072	0.036	0.050	0.13	0.023	0.023	0.030
22	0.003	0.013	0.030	e0.021	0.80	0.051	0.036	0.047	0.074	0.028	0.038	0.038
23	0.003	0.013	0.030	e0.020	0.37	0.044	0.036	0.044	0.055	0.041	0.036	0.87
24	0.003	0.013	0.030	e0.020	0.089	0.044	0.036	0.051	0.047	0.030	0.027	0.058
25	0.004	0.013	0.054	e0.021	0.050	0.040	0.037	0.053	0.045	0.026	0.023	0.051
26	0.005	0.011	0.044	0.023	0.044	0.042	0.082	0.15	0.044	0.023	0.029	0.047
27	0.003	0.014	0.037	e0.022	0.044	0.043	0.049	0.061	0.044	0.023	0.033	0.044
28	0.003	0.010	0.036	e0.021	0.039	0.036	0.040	0.052	0.041	0.025	0.033	0.044
29	0.008	0.013	0.031	e0.020	---	0.047	0.036	0.051	0.036	0.026	0.027	0.042
30	0.008	0.010	0.030	e0.018	---	0.075	0.036	0.047	0.036	0.023	0.023	0.036
31	0.014	---	0.030	e0.020	---	0.054	---	0.069	---	0.023	0.023	---
TOTAL	0.124	0.414	0.847	1.513	2.004	2.950	1.304	1.712	2.318	1.038	1.018	2.154
MEAN	0.004	0.014	0.027	0.049	0.072	0.095	0.043	0.055	0.077	0.033	0.033	0.072
MAX	0.035	0.051	0.056	0.21	0.80	0.46	0.082	0.26	0.25	0.067	0.15	0.87
MIN	0.000	0.003	0.008	0.018	0.018	0.036	0.036	0.030	0.036	0.023	0.023	0.018
CFSM	0.13	0.46	0.91	1.63	2.39	3.17	1.45	1.84	2.58	1.12	1.09	2.39
IN.	0.15	0.51	1.05	1.88	2.48	3.66	1.62	2.12	2.87	1.29	1.26	2.67

e Estimated

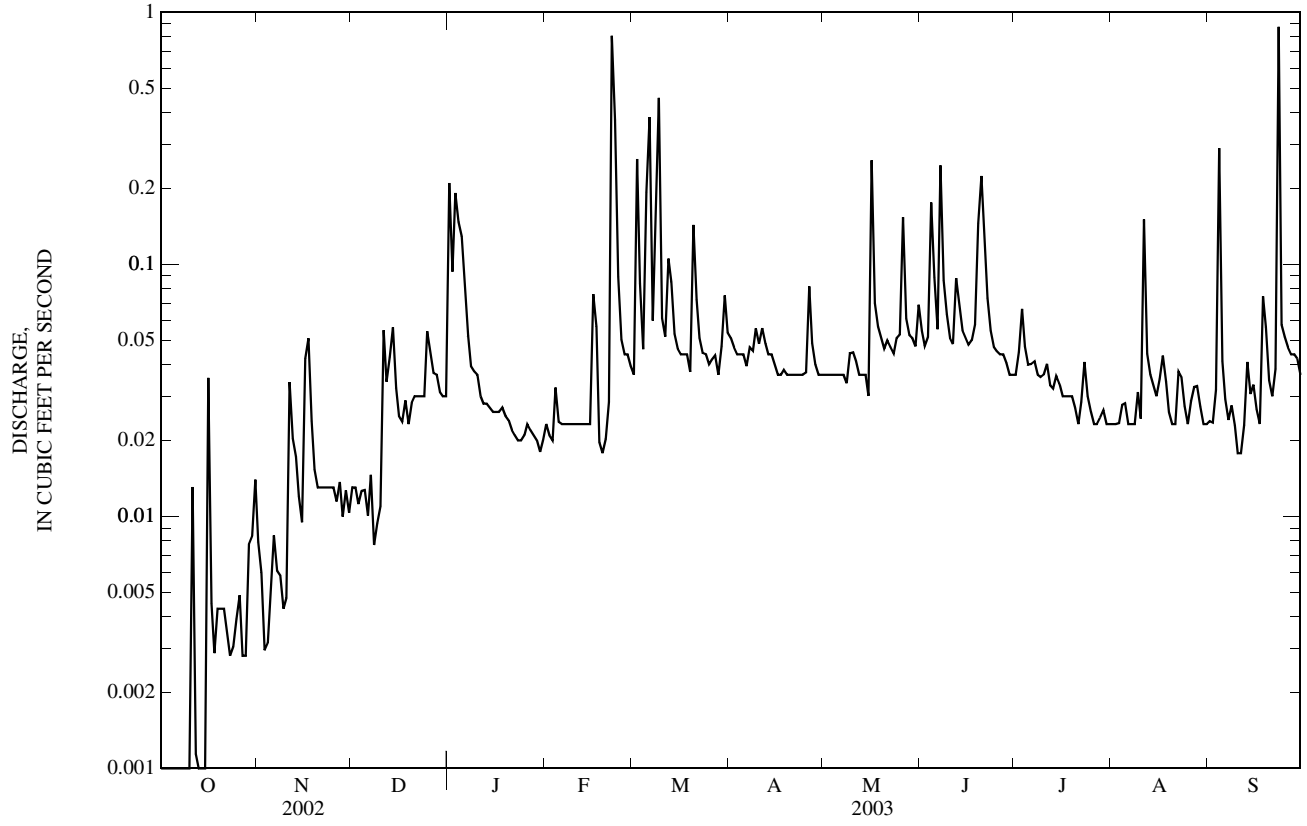
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2003, BY WATER YEAR (WY)

MEAN	0.011	0.014	0.023	0.031	0.035	0.047	0.035	0.031	0.035	0.019	0.014	0.024
MAX	0.026	0.028	0.037	0.049	0.070	0.095	0.049	0.056	0.077	0.034	0.032	0.071
(WY)	(2000)	(2000)	(2000)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	0.003	0.003	0.004	0.011	0.006	0.011	0.010	0.013	0.008	0.001	0.000	0.001
(WY)	(2003)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01589238 GWYNNS FALLS TRIBUTARY AT MCDONOGH, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2000 - 2003	
ANNUAL TOTAL	3.100		17.290			
ANNUAL MEAN	0.008		0.047		0.026	
HIGHEST ANNUAL MEAN					0.047	2003
LOWEST ANNUAL MEAN					0.006	2002
HIGHEST DAILY MEAN	0.060	Dec 14	0.87	Sep 23	0.87	Sep 23, 2003
LOWEST DAILY MEAN	0.000	(a)	0.000	(b)	0.000	(c)
ANNUAL SEVEN-DAY MINIMUM	0.000	Aug 5	0.000	Oct 1	0.000	Sep 12, 2001
MAXIMUM PEAK FLOW			8.3	Sep 4	8.3	Sep 4, 2003
MAXIMUM PEAK STAGE			0.96	Sep 4	0.96	Sep 4, 2003
INSTANTANEOUS LOW FLOW			0.00	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.28		1.58		0.88	
ANNUAL RUNOFF (INCHES)	3.84		21.44		11.98	
10 PERCENT EXCEEDS	0.02		0.07		0.05	
50 PERCENT EXCEEDS	0.01		0.04		0.02	
90 PERCENT EXCEEDS	0.00		0.01		0.00	

a Aug. 2, 5-23, 25-27, 30, 31, Sept. 2-25, 28-30.
b Oct. 1-10, 14, 15.
c Aug. 2, 5-23, 25-27, 30, 31, Sept. 2-25, 28-30, 2002, Oct. 1-10, 14, 15, 2002.
d Oct. 1-10, 13-15.
f July 31 to Sept. 30, 2002, Oct. 1-10, 13-15, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589300 GWYNNS FALLS AT VILLA NOVA, MD

LOCATION.--Lat 39°20'45.2", long 76°43'59.5", Baltimore County, Hydrologic Unit 02060003, on right bank 300 ft downstream from bridge on Essex Road, 300 ft north of State Highway 26 (Liberty Road), in Villa Nova, 1.1 mi west of Baltimore city limits, and 11.5 mi upstream from mouth.

DRAINAGE AREA.--32.5 mi^2.

PERIOD OF RECORD.--February 1957 to September 1988, October 1996 to current year.

REVISED RECORDS.--WDR MD-DE-83: 1981-82(P). WDR MD-DE-84: 1981(P).

GAGE.--Water-stage recorder. Datum of gage is 361.32 ft above National Geodetic Vertical Datum of 1929 (Baltimore County bench mark). Prior to Aug. 27, 1963 and Oct. 25, 1972, to Sept. 20, 1973, water-stage recorder, and June 26, 1972 to Oct. 24, 1972, nonrecording gage, at site 300 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Slight diurnal fluctuation at times from unknown source upstream from station. Small diversion for irrigation upstream from station. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 21, 1956, reached a stage of 12.6 ft, discharge, 5,270 ft^3/s on basis of contracted-opening measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0015	1,110	5.50
Feb 22	1530	1,320	6.04
Mar 20	1900	1,090	5.44
May 16	1245	1,310	6.02
May 26	0745	1,110	5.51
Jun 7	1415	1,380	6.19
Jun 20	1500	1,090	5.44
Aug 11	1615	1,440	6.35
Sep 4	1515	1,360	6.14
Sep 19	0015	1,080	5.42
Sep 23	0700	*1,980	*7.56

Minimum discharge, 5.6 ft^3/s, Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	27	19	315	e20	40	54	31	85	28	23	24
2	7.9	21	18	290	e20	153	45	29	43	49	22	30
3	7.2	19	18	262	e20	120	41	27	60	139	31	42
4	11	18	18	106	57	57	38	26	296	48	32	545
5	8.2	28	29	52	30	112	37	28	206	35	38	79
6	6.6	84	e22	52	22	316	35	33	62	32	34	40
7	6.6	25	e19	41	e21	100	88	27	468	43	23	31
8	6.4	19	e18	46	e20	87	58	34	123	29	22	28
9	6.7	17	e17	48	e20	181	113	90	75	30	61	25
10	43	16	e16	38	e19	87	58	68	52	34	36	23
11	238	141	300	34	e19	54	99	42	46	38	416	23
12	49	120	144	32	e19	54	54	34	e150	29	91	38
13	21	57	147	32	e19	86	41	30	97	37	48	120
14	14	31	202	29	e18	87	37	28	75	39	31	46
15	12	25	61	e28	e18	56	37	27	47	26	27	42
16	325	219	39	e27	e18	57	e35	697	40	25	33	36
17	58	278	30	e26	114	60	e34	125	49	23	167	26
18	28	107	25	e25	129	51	e50	69	78	22	36	141
19	19	41	24	e25	105	43	41	50	186	23	28	330
20	16	32	66	e24	94	378	34	40	489	21	25	53
21	14	28	35	e24	96	225	33	67	139	21	24	37
22	13	32	27	e24	624	70	34	52	69	32	78	49
23	13	24	24	e23	418	52	30	54	50	122	54	893
24	12	22	23	e23	153	46	29	79	42	31	26	81
25	17	21	173	e23	77	41	35	93	37	24	23	54
26	69	20	76	e22	53	58	226	413	35	22	38	72
27	20	25	40	e22	43	55	63	80	33	21	47	35
28	15	20	31	e22	44	41	40	69	31	25	48	33
29	65	18	29	e21	---	62	36	53	30	27	26	27
30	81	19	28	e21	---	171	32	43	29	21	24	22
31	56	---	33	e21	---	83	---	95	---	20	22	---
TOTAL	1,267.8	1,554	1,751	1,778	2,310	3,083	1,587	2,633	3,222	1,116	1,634	3,025
MEAN	40.9	51.8	56.5	57.4	82.5	99.5	52.9	84.9	107	36.0	52.7	101
MAX	325	278	300	315	624	378	226	697	489	139	416	893
MIN	6.4	16	16	21	18	40	29	26	29	20	22	22
CFSM	1.26	1.59	1.74	1.76	2.54	3.06	1.63	2.61	3.30	1.11	1.62	3.10
IN.	1.45	1.78	2.00	2.04	2.64	3.53	1.82	3.01	3.69	1.28	1.87	3.46

e Estimated

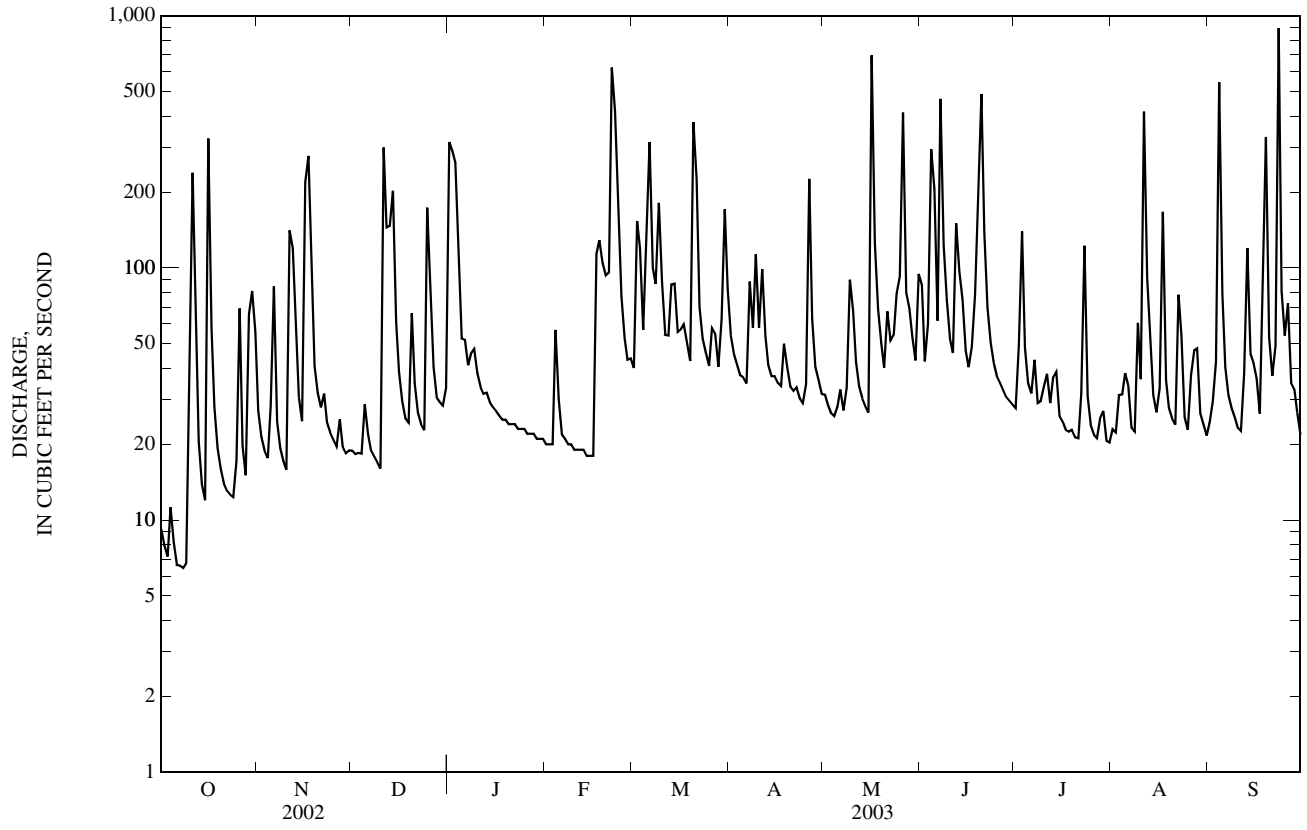
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1988, 1997 - 2003, BY WATER YEAR (WY)

MEAN	26.4	33.7	42.0	44.2	52.6	57.1	49.7	43.1	37.7	25.9	29.0	34.7
MAX	111	82.1	135	146	130	107	129	84.9	244	79.5	186	173
(WY)	(1980)	(1997)	(1997)	(1979)	(1979)	(1998)	(1973)	(2003)	(1972)	(1975)	(1984)	(1979)
MIN	7.10	10.4	9.18	10.5	13.8	21.4	20.7	14.4	8.95	6.37	5.02	7.35
(WY)	(1964)	(1966)	(1966)	(1981)	(2002)	(1981)	(1963)	(1969)	(1986)	(1966)	(1966)	(1986)

01589300 GWYNNS FALLS AT VILLA NOVA, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 1988, 1997 - 2003	
ANNUAL TOTAL	10,437.8		24,960.8			
ANNUAL MEAN	28.6		68.4		39.8	
HIGHEST ANNUAL MEAN					76.8	1972
LOWEST ANNUAL MEAN					20.0	2002
HIGHEST DAILY MEAN	325	Oct 16	893	Sep 23	5,000	Jun 22, 1972
LOWEST DAILY MEAN	1.9	(a)	6.4	Oct 8	1.7	Sep 7, 1966
ANNUAL SEVEN-DAY MINIMUM	2.0	Aug 17	7.5	Oct 3	2.0	Aug 17, 2002
MAXIMUM PEAK FLOW			1,980	Sep 23	(b)16,200	Jun 22, 1972
MAXIMUM PEAK STAGE			7.56	Sep 23	(c)21.50	Jun 22, 1972
INSTANTANEOUS LOW FLOW			5.6	Oct 5	1.7	(d)
ANNUAL RUNOFF (CFSM)	0.88		2.10		1.22	
ANNUAL RUNOFF (INCHES)	11.95		28.57		16.64	
10 PERCENT EXCEEDS	61		141		68	
50 PERCENT EXCEEDS	16		36		22	
90 PERCENT EXCEEDS	5.0		19		9.8	

a Aug. 19-23.
b From rating curve extended above 4,200 ft^3/s on basis of contracted-opening measurement of peak flow.
c From floodmarks.
d Sept. 7, 8, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589330 DEAD RUN AT FRANKLINTOWN, MD

LOCATION.--Lat 39°18'40.4", long 76°42'59.9", Baltimore County, Hydrologic Unit 02060003, on right bank at downstream side of bridge on Colonial Road at Security Boulevard at Franklintown, 0.3 mi west of Baltimore city limits, and 1.2 mi southwest of Woodlawn, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--5.52 mi^2.

PERIOD OF RECORD.--October 1959 to September 1987, July 1998 to current year.

REVISED RECORDS.--WDR MD-DE-80-1: 1979(m).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 310 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good above 0.4 ft^3/s and fair below, except those for estimated daily discharges (backwater, ice effect), which are poor. Occasional regulation at low flow from unknown source upstream from station. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1425	711	4.26	Jun 7	1330	864	4.79
Jan 1	2005	1,170	5.63	Jun 11	2145	663	4.07
Feb 22	1200	1,050	5.32	Jun 20	1250	981	5.12
May 16	0500	1,200	5.69	Sep 19	0010	1,400	6.22
May 26	0515	653	4.03	Sep 23	0505	*1,670	*6.89

Minimum discharge, 0.40 ft^3/s, Feb. 16, 17, result of freezeup.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.61	2.6	1.5	146	e2.4	6.6	5.5	4.8	4.9	6.3	1.5	6.3
2	0.55	2.1	1.4	27	2.1	72	4.7	2.4	2.7	31	1.3	2.7
3	0.52	1.7	1.3	68	1.8	19	4.0	2.2	15	46	11	8.8
4	e0.50	1.5	e1.3	12	19	9.8	3.4	1.9	38	9.7	3.8	58
5	e0.49	14	e1.2	6.3	2.5	36	3.4	3.3	18	3.5	2.5	2.2
6	e0.48	19	e2.0	10	1.7	96	3.0	3.4	4.1	8.2	2.3	1.2
7	e0.47	2.2	e1.4	5.1	4.3	13	34	2.2	161	4.9	1.2	0.97
8	e0.47	1.6	e1.2	8.2	2.7	17	6.8	7.4	13	1.8	1.2	0.93
9	e0.55	1.4	e1.6	5.7	2.1	28	32	34	7.4	5.7	22	1.0
10	33	1.6	e1.2	3.7	e2.0	8.5	6.3	12	4.3	2.5	5.5	0.96
11	87	29	145	2.9	e1.9	5.7	27	3.3	37	15	13	0.97
12	5.7	42	27	2.5	e1.8	6.6	6.7	2.3	37	8.3	2.1	21
13	2.1	5.5	63	2.4	e1.8	14	4.4	2.2	16	3.0	1.3	37
14	1.5	2.5	31	2.2	e1.8	8.0	3.7	1.9	6.4	1.6	1.1	2.1
15	0.91	2.0	6.8	2.1	e1.7	5.6	3.4	1.9	4.1	1.5	1.0	2.5
16	120	97	4.4	1.9	1.1	5.9	3.3	251	3.2	1.4	2.9	1.9
17	5.5	65	3.1	e1.8	4.9	9.3	4.1	17	21	1.3	26	1.1
18	2.3	11	2.5	e1.8	6.3	5.3	8.7	9.7	15	1.3	1.3	139
19	1.4	3.9	2.5	e1.8	5.5	3.9	3.9	4.4	54	1.2	0.99	72
20	1.2	2.9	20	e1.7	11	152	3.1	3.2	123	1.2	0.98	4.0
21	0.87	2.5	3.7	e1.7	36	23	2.9	37	17	1.2	0.93	2.2
22	0.87	2.4	2.6	e1.6	266	8.2	2.8	6.8	7.3	27	18	29
23	0.76	2.0	2.3	e1.6	88	5.8	2.5	16	4.9	21	2.7	236
24	0.79	1.9	2.4	e1.6	21	4.7	2.5	28	3.6	4.5	0.86	6.6
25	6.7	1.9	77	e1.5	10	4.2	11	28	2.9	1.3	0.81	3.6
26	29	1.8	17	e1.5	6.6	17	55	162	2.6	1.2	4.0	3.2
27	1.9	4.4	5.4	e1.5	5.6	5.8	5.4	10	2.2	1.2	3.4	2.2
28	1.8	1.5	4.0	e1.5	7.8	5.1	3.4	11	2.0	9.1	1.6	2.0
29	33	1.4	4.3	e1.4	---	18	3.2	5.2	1.9	2.7	0.87	2.6
30	22	1.5	4.1	e1.4	---	40	2.6	4.0	1.8	1.3	1.1	1.7
31	10	---	5.6	e1.4	---	8.8	---	15	---	1.2	0.99	---
TOTAL	372.94	329.8	447.8	329.8	519.4	662.8	262.7	693.5	631.3	227.1	138.23	653.73
MEAN	12.0	11.0	14.4	10.6	18.6	21.4	8.76	22.4	21.0	7.33	4.46	21.8
MAX	120	97	145	146	266	152	55	251	161	46	26	236
MIN	0.47	1.4	1.2	1.4	1.1	3.9	2.5	1.9	1.8	1.2	0.81	0.93
CFSM	2.18	1.99	2.62	1.93	3.36	3.87	1.59	4.05	3.81	1.33	0.81	3.95
IN.	2.51	2.22	3.02	2.22	3.50	4.47	1.77	4.67	4.25	1.53	0.93	4.41

e Estimated

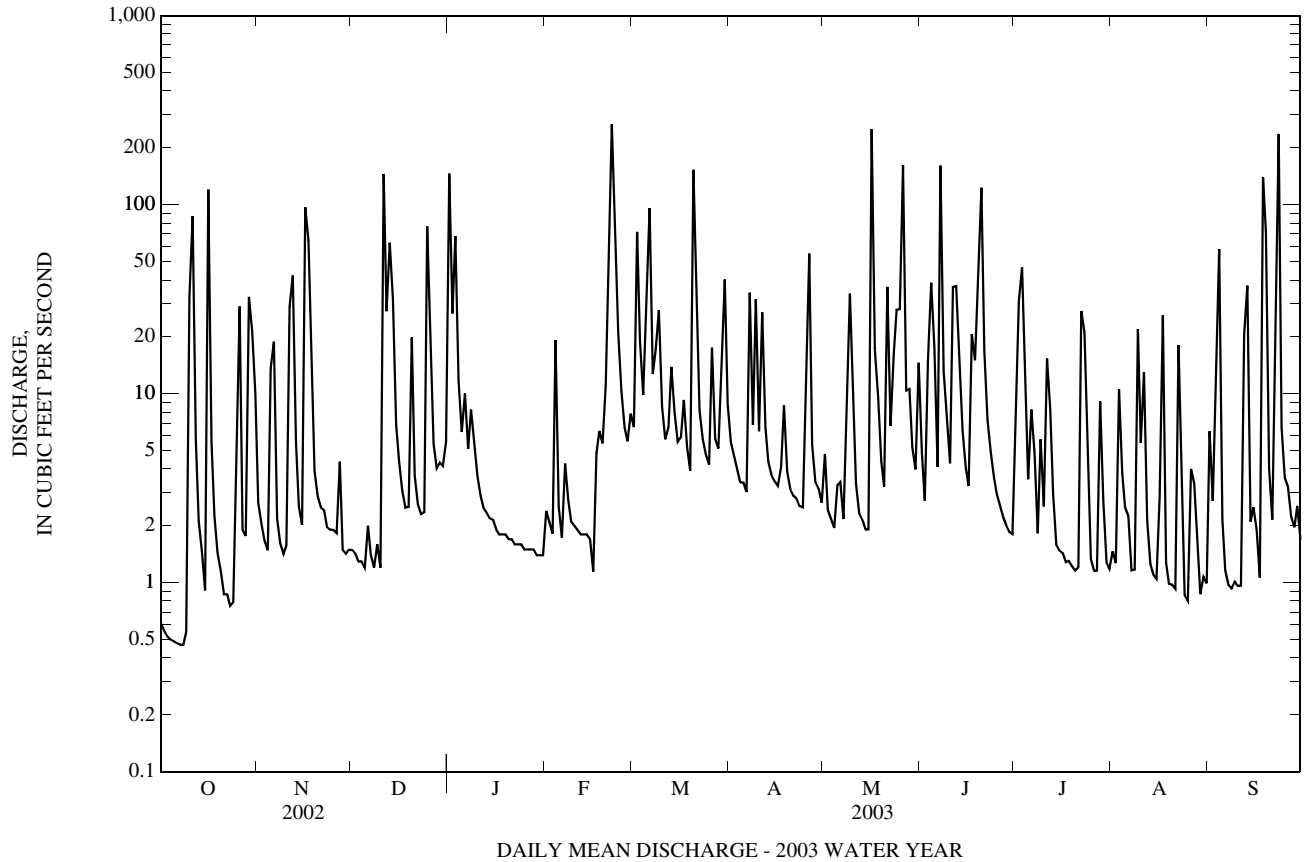
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1987, 1998 - 2003, BY WATER YEAR (WY)

MEAN	5.45	6.43	8.35	8.96	11.0	11.0	8.94	7.80	6.99	4.98	6.68	8.91
MAX	21.8	20.6	24.0	38.1	31.3	25.9	29.6	22.4	28.4	27.7	33.9	39.5
(WY)	(1977)	(1973)	(1978)	(1979)	(1979)	(1983)	(1983)	(2003)	(1972)	(1975)	(1984)	(1979)
MIN	0.33	0.69	0.57	0.67	1.16	3.39	1.27	1.15	1.62	0.66	0.85	0.81
(WY)	(1964)	(1966)	(1966)	(1981)	(2002)	(1966)	(1963)	(1963)	(1966)	(1963)	(1966)	(1970)

01589330 DEAD RUN AT FRANKLINTOWN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 1987, 1998 - 2003	
ANNUAL TOTAL	2,605.92		5,269.10			
ANNUAL MEAN	7.14		14.4		7.97	
HIGHEST ANNUAL MEAN					15.5	1979
LOWEST ANNUAL MEAN					3.78	1963
HIGHEST DAILY MEAN	145	Dec 11	266	Feb 22	800	Aug 13, 1984
LOWEST DAILY MEAN	0.17	Aug 22	(e)0.47	(a)	0.17	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.27	Aug 12	0.50	Oct 2	0.20	Aug 24, 1966
MAXIMUM PEAK FLOW			1,670	Sep 23	(b)7,400	Jun 22, 1972
MAXIMUM PEAK STAGE			6.89	Sep 23	(c)12.50	Jun 22, 1972
INSTANTANEOUS LOW FLOW			(d)0.40	(f)	0.10	(g)
ANNUAL RUNOFF (CFSM)	1.29		2.62		1.44	
ANNUAL RUNOFF (INCHES)	17.56		35.51		19.61	
10 PERCENT EXCEEDS	19		33		15	
50 PERCENT EXCEEDS	1.4		3.4		2.0	
90 PERCENT EXCEEDS	0.36		1.2		0.70	

e Estimated.
a Oct. 7, 8.
b From rating curve extended above 1,600 ft^3/s on basis of contracted-opening measurement of peak flow at bridge 0.6 mi downstream, adjusted for flow from intervening area.
c From floodmarks.
d Result of freezeup.
f Feb. 16, 17.
g Sept. 11, 12, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589340 ROGNEL HEIGHTS STORM SEWER OUTFALL AT BALTIMORE, MD

LOCATION.--Lat 39°17'59.5", long 76°41'24.5", Baltimore City, Hydrologic Unit 02060003, on left wingwall of culvert at downstream side of storm sewer outfall on Seminole Avenue, 0.3 mi upstream from confluence with Dead Run, 0.6 mi southeast of Leakin Park, and 1.5 mi southwest of Walbrook.

DRAINAGE AREA.--0.03 mi^2.

PERIOD OF RECORD.--November 1998 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 318 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges (ice effect), which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 11 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jul 6	2035	*a18	*0.98

No other peak greater than base discharge.

a From indirect discharge measurement.

Minimum discharge, 0.000 ft^3/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.000	0.000	0.000	0.33	0.055	0.003	0.004	0.008	0.004	0.024	0.000	0.011
2	0.000	0.000	0.000	0.027	0.000	0.17	0.004	0.001	0.002	0.17	0.000	0.000
3	0.000	0.000	0.000	0.16	0.000	0.003	0.002	0.000	0.076	0.12	0.032	0.035
4	0.000	0.000	0.000	0.001	0.088	0.007	0.001	0.000	0.087	0.008	0.030	0.11
5	0.000	0.11	0.000	0.001	0.000	0.058	0.001	0.031	0.012	0.000	0.003	0.000
6	0.000	0.020	0.000	0.016	0.014	0.11	0.001	0.012	0.003	0.13	0.000	0.000
7	0.000	0.000	0.000	0.001	0.002	0.003	0.19	0.002	0.28	0.000	0.000	0.000
8	0.000	0.000	0.008	0.022	0.001	0.012	0.003	0.044	0.005	0.000	0.000	0.000
9	0.000	0.000	0.005	0.001	0.011	0.012	0.14	0.11	0.014	0.029	0.013	0.000
10	0.23	0.000	0.004	0.000	0.002	0.001	0.003	0.040	0.004	0.015	0.011	0.000
11	0.29	0.040	0.48	0.000	0.001	0.000	0.096	0.000	0.043	0.089	0.036	0.000
12	0.000	0.14	0.069	0.000	0.001	0.001	0.003	0.000	0.032	0.000	0.000	0.12
13	0.000	0.000	0.24	0.000	0.039	0.012	0.002	0.000	0.057	0.000	0.000	0.089
14	0.000	0.000	0.026	0.000	0.30	0.000	0.001	0.000	0.005	0.000	0.000	0.000
15	0.008	0.000	0.000	0.001	0.000	0.000	0.002	0.000	0.003	0.000	0.000	0.004
16	0.48	0.38	0.000	0.001	0.18	0.003	0.002	0.50	0.002	0.000	0.026	0.000
17	0.000	0.11	0.000	0.001	e0.30	0.003	0.001	0.010	0.11	0.000	0.055	0.000
18	0.000	0.001	0.000	0.000	0.003	0.000	0.022	0.010	0.012	0.000	0.000	0.35
19	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.004	0.10	0.000	0.000	0.021
20	0.000	0.000	0.051	0.000	0.008	0.30	0.001	0.002	0.15	0.000	0.000	0.000
21	0.000	0.000	0.000	0.000	0.052	0.005	0.001	0.18	0.003	0.000	0.000	0.000
22	0.001	0.000	0.000	0.000	0.49	0.005	0.000	0.006	0.003	0.11	0.019	0.16
23	0.000	0.000	0.000	0.000	0.18	0.004	0.000	0.054	0.008	0.015	0.000	0.31
24	0.017	0.000	0.002	0.000	0.016	0.003	0.000	0.072	0.002	0.001	0.000	0.002
25	0.13	0.000	0.26	0.000	0.002	0.003	0.10	0.077	0.003	0.000	0.000	0.001
26	0.060	0.002	0.021	0.000	0.001	0.11	0.18	0.28	0.002	0.000	0.022	0.002
27	0.000	0.016	0.000	0.000	0.001	0.004	0.001	0.004	0.001	0.000	0.011	0.002
28	0.000	0.000	0.000	0.000	0.003	0.019	0.000	0.028	0.000	0.020	0.000	0.007
29	0.15	0.000	0.013	0.019	---	0.062	0.000	0.004	0.000	0.000	0.000	0.003
30	0.050	0.000	0.015	0.002	---	0.15	0.006	0.003	0.000	0.000	0.001	0.002
31	0.003	---	0.019	0.004	---	0.005	---	0.043	---	0.000	0.002	---
TOTAL	1.419	0.819	1.214	0.587	1.750	1.068	0.768	1.525	1.023	0.731	0.261	1.229
MEAN	0.046	0.027	0.039	0.019	0.062	0.034	0.026	0.049	0.034	0.024	0.008	0.041
MAX	0.48	0.38	0.48	0.33	0.49	0.30	0.19	0.50	0.28	0.17	0.055	0.35
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CFSM	1.53	0.91	1.31	0.63	2.08	1.15	0.85	1.64	1.14	0.79	0.28	1.37
IN.	1.76	1.02	1.51	0.73	2.17	1.32	0.95	1.89	1.27	0.91	0.32	1.52

e Estimated

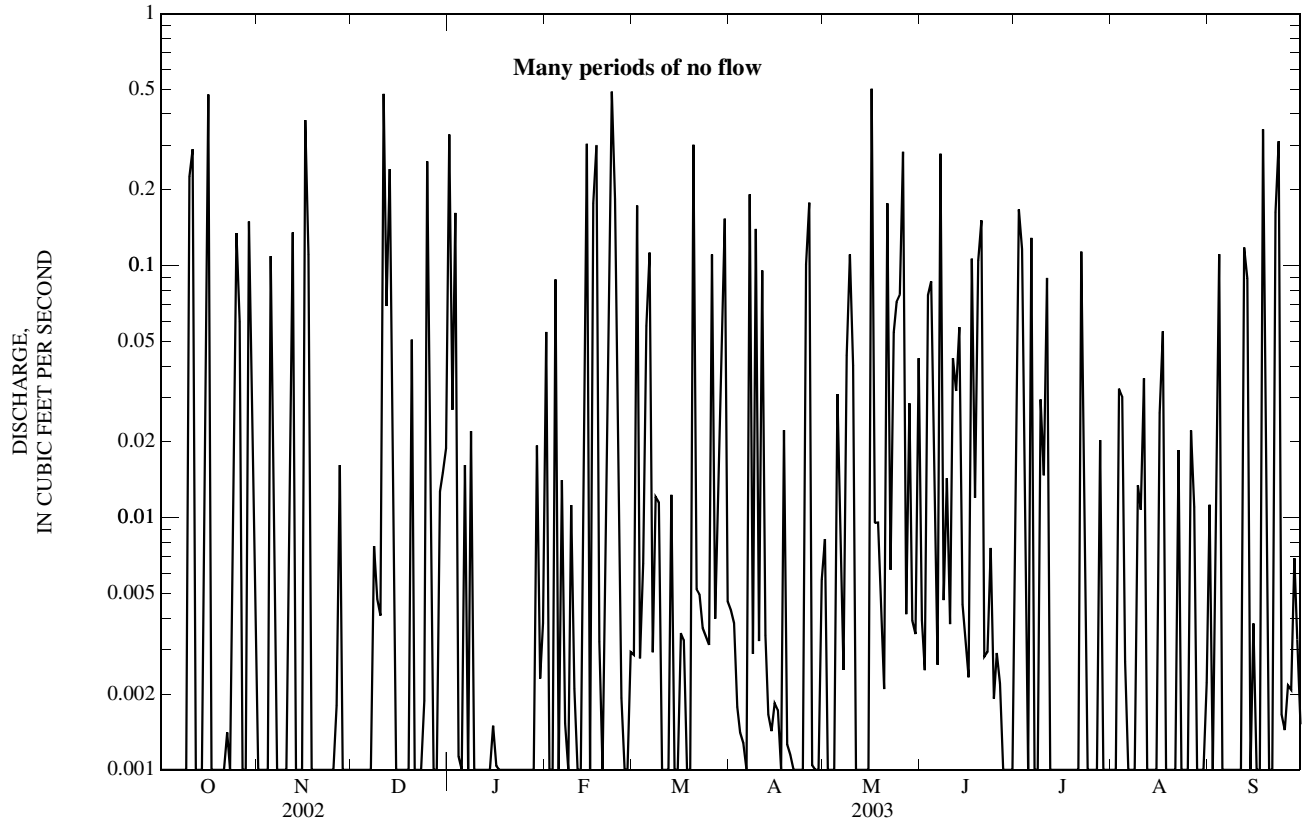
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	0.016	0.013	0.014	0.020	0.074	0.031	0.021	0.022	0.018	0.013	0.022	0.034
MAX	0.046	0.027	0.039	0.031	0.26	0.070	0.027	0.048	0.033	0.023	0.056	0.072
(WY)	(2003)	(2003)	(2003)	(1999)	(2001)	(2001)	(2000)	(2003)	(2003)	(2003)	(1999)	(1999)
MIN	0.000	0.009	0.002	0.009	0.001	0.009	0.011	0.005	0.009	0.006	0.008	0.013
(WY)	(2001)	(2001)	(1999)	(2002)	(2002)	(1999)	(2001)	(1999)	(2002)	(2001)	(2003)	(2001)

01589340 ROGNEL HEIGHTS STORM SEWER OUTFALL AT BALTIMORE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	7.620		12.200			
ANNUAL MEAN	0.021		0.033		0.025	
HIGHEST ANNUAL MEAN					0.038	2001
LOWEST ANNUAL MEAN					0.013	2002
HIGHEST DAILY MEAN	0.48	Oct 16	0.50	May 16	4.7	Feb 22, 2001
LOWEST DAILY MEAN	0.000	(a)	0.000	(a)	0.000	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 12	0.00	Oct 1	0.00	Oct 19, 1998
MAXIMUM PEAK FLOW			18	Jul 6	(b)22	Nov 25, 2001
MAXIMUM PEAK STAGE			0.00	Jul 6	1.18	Nov 25, 2001
INSTANTANEOUS LOW FLOW			0.00	(a)	0.00	(c)
ANNUAL RUNOFF (CFSM)	0.70		1.11		0.82	
ANNUAL RUNOFF (INCHES)	9.45		15.13		11.12	
10 PERCENT EXCEEDS	0.06		0.11		0.06	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

a Many days.
b From rating curve extended above 0.8 ft^3/s on basis of slope-area measurements at gage heights of 0.80, 0.82, and 1.04 ft.
c No flow at times each year.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

0158935180 GWYNNS RUN AT BALTIMORE, MD

LOCATION.--Lat 39°16'41.3", long 76°39'07.2", Baltimore City, Hydrologic Unit 02060003, on left bank below CSX railroad tunnel, at northwest corner of Carroll Park Municipal Golf Course, and 1,100 ft upstream from mouth.

DRAINAGE AREA.--2.5 mi^2.

PERIOD OF RECORD.--October 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 25.2 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges (missing record, backwater), which are poor. Several measurements of water temperature were made during the year. Water-quality data for some prior years have been collected at this location.

EXTREMES FOR 2002 WATER YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 25	1630	*2,170	8.39	Aug 3	0225	1,540	7.60
May 2	0635	1,690	7.80	Aug 24	0730	1,570	7.65
May 27	0815	2,080	8.28				

Minimum discharge, UNKNOWN.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.0	e5.5	3.7	e3.3	6.4	e2.7	e4.3	5.9	e3.4	e2.8	e2.2	30
2	e5.0	e5.0	2.9	e3.2	e5.0	38	e3.8	43	e2.9	e3.4	e2.4	3.6
3	e4.2	e4.3	3.4	e3.2	e4.2	16	e3.4	4.2	e2.8	e3.4	42	3.4
4	e3.8	e4.0	4.2	e3.1	e3.9	4.4	e3.6	3.7	e2.8	e3.0	3.7	4.1
5	e3.4	e3.8	4.0	e3.1	e3.6	3.9	e3.2	3.2	e2.7	e2.6	4.7	4.9
6	e3.0	e3.8	4.2	23	e3.6	3.5	e2.6	3.2	17	e2.3	3.9	3.8
7	e3.0	e4.6	4.0	6.4	e5.0	2.9	e2.6	3.7	3.5	e2.4	3.0	4.3
8	e3.0	e3.7	12	5.4	e3.7	2.8	e2.9	e3.0	3.3	e2.4	2.9	3.4
9	e3.0	e3.5	3.2	6.3	e3.5	3.0	e6.0	e3.1	e3.0	e12	3.5	3.4
10	e3.4	3.9	3.5	5.2	e3.5	9.4	e3.6	e3.4	e2.8	e3.0	3.6	4.2
11	e3.0	3.2	9.6	16	e4.6	2.6	e2.9	e2.7	e2.7	e2.7	2.5	3.5
12	e3.0	3.5	3.9	4.9	e3.8	2.8	e2.5	e16	e2.7	e2.5	5.0	3.8
13	e2.8	3.6	4.2	4.3	e3.0	13	e2.4	e27	e9.0	e2.4	2.9	3.9
14	e7.0	4.8	7.1	4.0	2.7	e2.4	e2.6	e6.0	e16	e6.6	3.5	e3.0
15	e12	4.7	4.6	4.2	2.4	2.3	e3.6	e4.0	e6.0	e3.0	3.7	e7.0
16	e5.0	3.1	3.7	4.2	e3.4	2.2	e3.2	2.2	e2.8	e2.7	4.5	e5.0
17	e5.4	4.5	7.3	3.8	e3.1	3.7	e2.6	8.3	e2.8	e2.5	3.7	e3.8
18	e4.6	3.7	10	4.0	e2.9	7.1	23	19	e3.5	e2.5	3.2	e3.2
19	e4.0	4.1	7.4	5.4	e2.8	2.6	e6.0	3.4	e4.4	e2.8	e2.8	e3.0
20	e3.6	4.0	6.9	5.7	e2.8	34	e4.5	3.2	e3.4	e2.6	e3.6	e3.0
21	e3.6	e4.0	3.9	5.7	e2.7	3.3	e6.0	2.9	e3.0	18	e3.6	4.1
22	e4.0	e4.0	3.9	4.8	e2.7	2.7	13	2.4	e2.8	2.6	e3.0	3.5
23	e3.6	e4.0	6.7	5.7	e2.7	1.7	e4.2	2.7	e2.6	e2.4	e3.2	3.5
24	e3.2	e4.5	7.9	13	e2.7	2.6	e3.4	4.3	e2.6	e2.4	28	3.0
25	e3.2	e65	3.4	5.7	e2.6	2.3	e6.0	3.8	e3.0	2.7	e4.4	3.0
26	e2.8	e3.5	3.5	4.3	e2.6	19	e3.4	4.5	e2.6	e12	e3.8	51
27	e2.4	e3.5	4.0	4.1	e3.8	e3.7	e4.0	31	e5.3	e3.0	e3.5	12
28	e2.5	e3.5	3.5	5.5	e3.0	e3.4	52	2.6	e3.0	e3.0	30	3.3
29	e2.7	e3.5	3.6	6.5	---	e3.1	6.9	3.2	e2.7	e3.0	7.8	3.6
30	e2.9	3.6	e3.3	7.0	---	e2.8	6.3	3.9	e2.5	e2.7	4.3	3.6
31	e3.8	---	e3.3	8.1	---	e10	---	4.1	---	e2.4	3.6	---
TOTAL	123.9	180.4	156.8	189.1	96.7	213.9	194.5	233.6	127.6	121.8	202.5	194.9
MEAN	4.00	6.01	5.06	6.10	3.45	6.90	6.48	7.54	4.25	3.93	6.53	6.50
MAX	12	65	12	23	6.4	38	52	43	17	18	42	51
MIN	2.4	3.1	2.9	3.1	2.4	1.7	2.4	2.2	2.5	2.3	2.2	3.0
CFSM	1.60	2.41	2.02	2.44	1.38	2.76	2.59	3.01	1.70	1.57	2.61	2.60
IN.	1.84	2.68	2.33	2.81	1.44	3.18	2.89	3.48	1.90	1.81	3.01	2.90

e Estimated

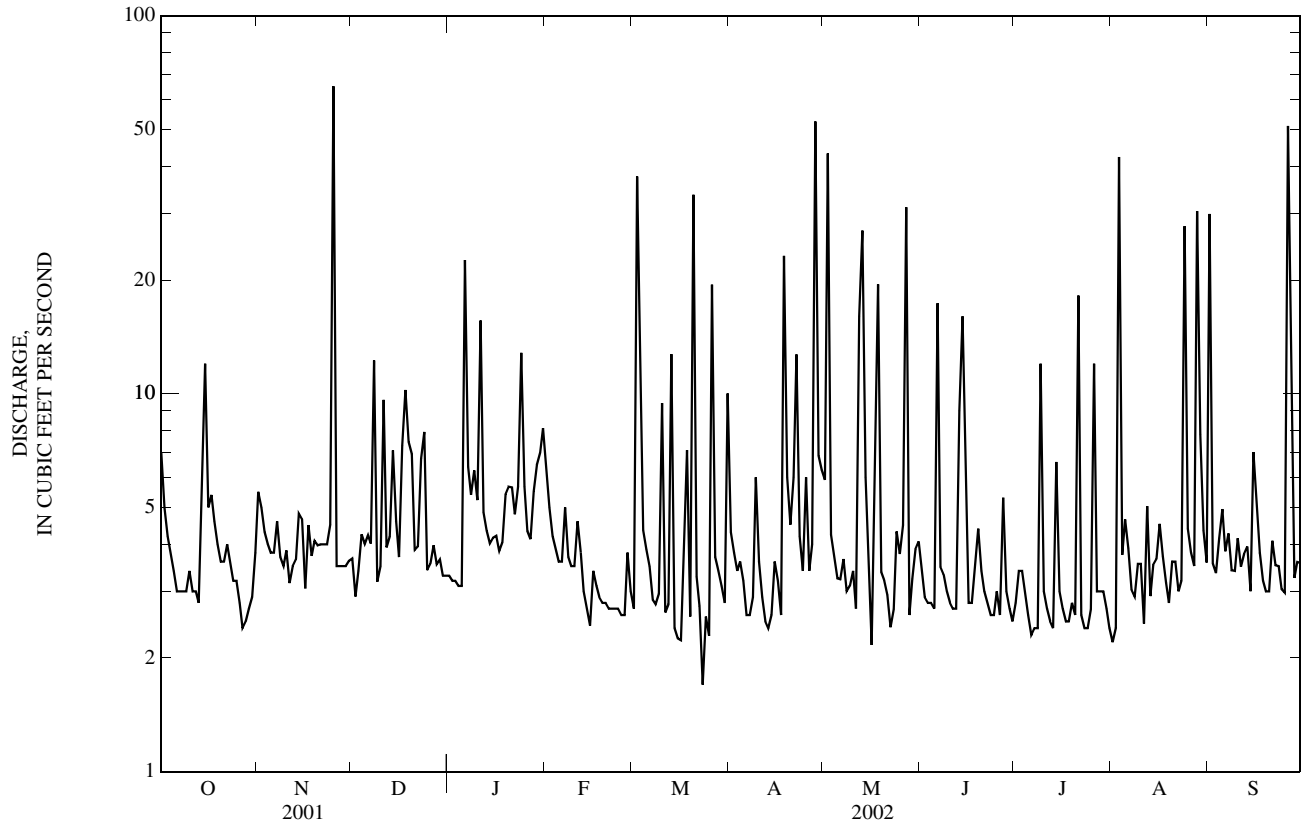
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 2002

MEAN	4.00	6.01	5.06	6.10	3.45	6.90	6.48	7.54	4.25	3.93	6.53	6.50
MAX	4.00	6.01	5.06	6.10	3.45	6.90	6.48	7.54	4.25	3.93	6.53	6.50
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)
MIN	4.00	6.01	5.06	6.10	3.45	6.90	6.48	7.54	4.25	3.93	6.53	6.50
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

0158935180 GWYNNS RUN AT BALTIMORE, MD—Continued

SUMMARY STATISTICS	FOR 2002 WATER YEAR	
ANNUAL TOTAL	35.7	
ANNUAL MEAN	5.58	
HIGHEST DAILY MEAN	(e)65	Nov 25
LOWEST DAILY MEAN	1.7	Mar 23
ANNUAL SEVEN-DAY MINIMUM	2.7	Jul 27
MAXIMUM PEAK FLOW	(a)2,170	Nov 25
MAXIMUM PEAK STAGE	8.39	Nov 25
INSTANTANEOUS LOW FLOW	UNKNOWN	
ANNUAL RUNOFF (CFSM)	2.23	
ANNUAL RUNOFF (INCHES)	30.29	
10 PERCENT EXCEEDS	8.2	
50 PERCENT EXCEEDS	3.6	
90 PERCENT EXCEEDS	2.6	

e Estimated
a From rating curve extended above 90 ft^3/s on basis of slope-area measurements at gage heights of 7.8 and 8.9 ft.



DAILY MEAN DISCHARGE - 2002 WATER YEAR

0158935180 GWYNNS RUN AT BALTIMORE, MD—Continued

EXTREMES FOR 2003 WATER YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jul 6	2000	1,180	7.06	Aug 22	1845	1,500	7.55
Jul 11	1340	1,340	7.31	Sep 4	0055	1,690	7.80
Aug 4	0155	1,050	6.84	Sep 23	0420	*2,660	*8.90

Minimum discharge, 0.81 ft^3/s, Aug. 21, 22.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	6.6	4.6	e83	e10	8.5	8.7	9.2	e18	e5.5	5.6	9.1
2	3.7	5.1	4.9	e40	5.6	35	8.6	10	e7.0	15	4.4	6.9
3	3.9	5.2	4.6	e20	6.4	11	7.8	9.2	e10	23	8.9	14
4	4.3	5.7	5.8	e12	12	8.7	8.8	7.8	e30	5.8	24	42
5	3.7	19	6.3	e9.0	e7.0	14	8.9	8.2	e18	6.0	5.6	6.5
6	4.5	7.2	7.3	8.8	e5.4	29	8.5	7.3	e11	33	4.0	5.6
7	3.7	5.3	5.5	6.0	6.9	9.7	24	7.9	e86	6.0	4.8	5.7
8	4.1	5.7	7.9	6.0	6.2	9.5	10	11	e20	5.4	4.7	4.7
9	4.1	4.6	6.2	e6.5	6.0	9.0	20	22	e11	15	5.2	4.6
10	28	4.5	5.9	e6.0	5.6	8.5	9.8	7.0	e10	6.7	4.4	4.4
11	55	18	79	e5.7	5.1	7.2	18	4.1	e13	30	4.3	5.7
12	4.7	22	13	e5.6	4.6	6.9	10	5.3	e20	7.0	3.6	16
13	4.7	6.3	37	e5.5	4.5	9.1	8.3	5.0	e19	5.1	8.3	23
14	4.1	5.8	20	e5.4	5.1	e7.0	8.5	4.6	e12	7.3	6.1	6.0
15	4.6	5.0	7.5	e5.3	6.4	e6.5	10	4.3	e8.5	5.6	5.1	6.5
16	59	64	e7.0	e5.3	4.5	e6.5	12	71	e7.0	6.6	13	6.2
17	5.6	23	e6.7	e5.8	4.4	e8.5	12	7.2	e10	7.3	11	6.4
18	e5.0	8.2	e6.3	e5.4	5.1	7.7	17	6.0	e18	4.2	3.7	60
19	e4.6	9.1	e6.0	e5.2	6.9	6.8	9.5	5.1	e30	3.4	4.1	10
20	e4.4	7.8	e12	e5.1	12	68	11	5.3	e72	4.4	3.7	5.3
21	e4.4	e7.0	e10	e5.1	16	e20	10	18	e27	4.3	3.8	6.8
22	e4.4	e7.6	e7.6	e5.0	108	e12	8.3	5.8	e12	34	28	20
23	5.8	e5.5	e6.4	e5.0	32	e11	11	9.0	e9.0	4.9	5.5	124
24	6.6	e4.8	e5.2	e5.5	13	e10	11	12	e7.0	3.2	4.8	8.5
25	26	e4.4	e45	e6.0	9.2	9.6	17	14	e6.5	3.4	6.2	6.9
26	8.5	6.2	e19	e6.3	7.8	18	20	64	e6.0	3.6	9.5	5.2
27	4.9	4.2	e11	e5.5	7.7	8.0	7.1	7.9	e5.7	3.1	8.1	7.4
28	6.2	5.5	e8.5	e4.7	9.4	8.2	8.6	e9.0	e5.5	5.7	6.9	6.7
29	21	5.2	e7.7	e5.3	---	14	9.6	e8.5	e5.2	4.0	6.3	5.2
30	13	5.6	e7.0	e6.0	---	19	7.9	7.8	e5.0	3.3	7.6	4.8
31	5.7	---	e8.0	5.1	---	9.6	---	e11	---	3.2	5.3	---
TOTAL	321.9	294.1	388.9	311.1	332.8	416.5	341.9	384.5	519.4	275.0	226.5	444.1
MEAN	10.4	9.80	12.5	10.0	11.9	13.4	11.4	12.4	17.3	8.87	7.31	14.8
MAX	59	64	79	83	108	68	24	71	86	34	28	124
MIN	3.7	4.2	4.6	4.7	4.4	6.5	7.1	4.1	5.0	3.1	3.6	4.4
CFSM	4.15	3.92	5.02	4.01	4.75	5.37	4.56	4.96	6.93	3.55	2.92	5.92
IN.	4.79	4.38	5.79	4.63	4.95	6.20	5.09	5.72	7.73	4.09	3.37	6.61

e Estimated\

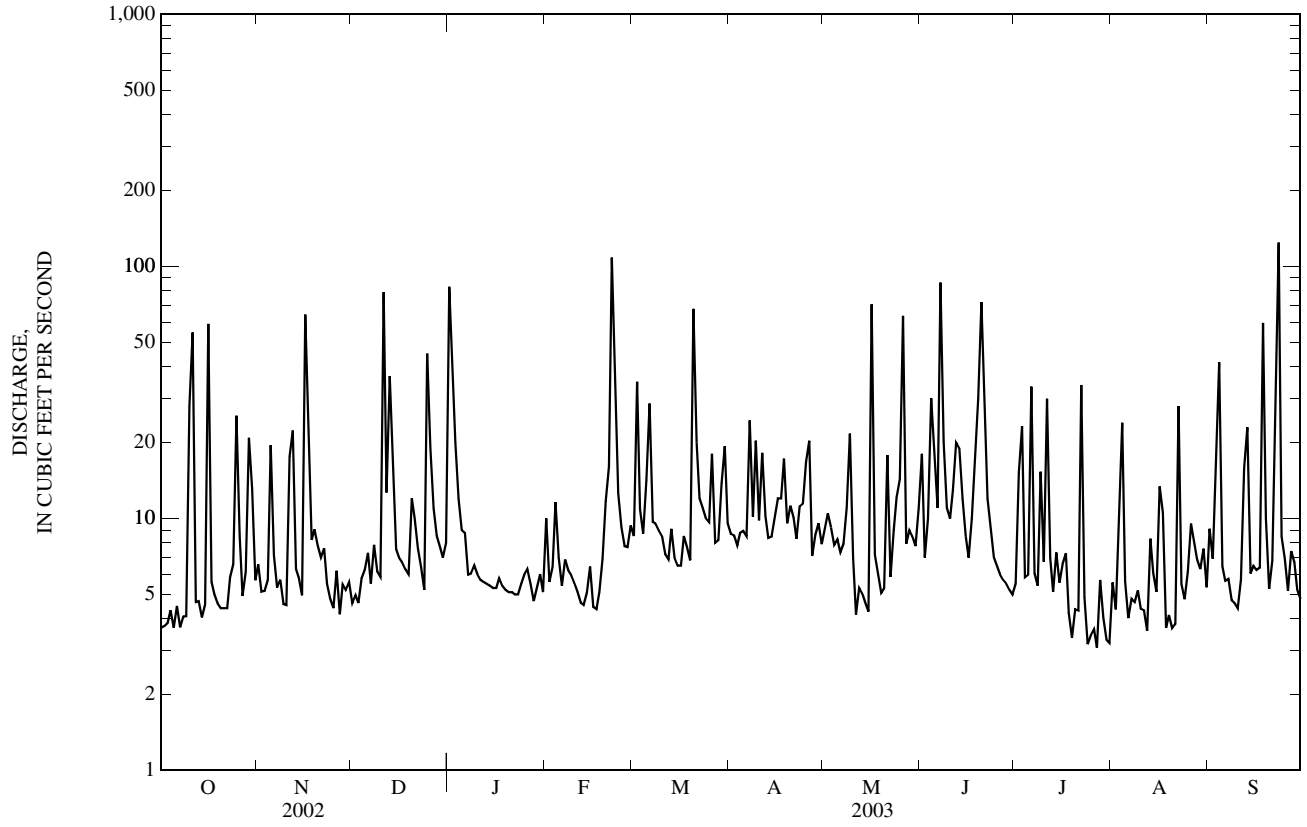
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	7.19	7.91	8.80	8.07	7.67	10.2	8.94	9.97	10.8	6.40	6.92	10.6
MAX	10.4	9.80	12.5	10.0	11.9	13.4	11.4	12.4	17.3	8.87	7.31	14.8
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	4.00	6.01	5.06	6.10	3.45	6.90	6.48	7.54	4.25	3.93	6.53	6.50
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

0158935180 GWYNNS RUN AT BALTIMORE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	2,579.5		4,256.7			
ANNUAL MEAN	7.07		11.7		8.62	
HIGHEST ANNUAL MEAN					11.7	2003
LOWEST ANNUAL MEAN					5.58	2002
HIGHEST DAILY MEAN	79	Dec 11	124	Sep 23	124	Sep 23, 2003
LOWEST DAILY MEAN	1.7	Mar 23	3.1	Jul 27	1.7	Mar 23, 2002
ANNUAL SEVEN-DAY MINIMUM	2.7	Jul 27	3.8	Jul 24	2.7	Jul 27, 2002
MAXIMUM PEAK FLOW			(a)2,660	Sep 23	(a)2,660	Sep 23, 2003
MAXIMUM PEAK STAGE			8.90	Sep 23	8.90	Sep 23, 2003
INSTANTANEOUS LOW FLOW			0.81	(b)	0.81	(b)
ANNUAL RUNOFF (CFSM)	2.83		4.66		3.45	
ANNUAL RUNOFF (INCHES)	38.38		63.34		46.85	
10 PERCENT EXCEEDS	14		21		18	
50 PERCENT EXCEEDS	3.9		7.0		5.1	
90 PERCENT EXCEEDS	2.6		4.4		2.8	

a From rating curve extended above 90 ft^3/s on basis of slope-area measurements at gage heights of 7.8 and 8.9 ft.
b Aug. 21, 22, 2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589352 GWYNNS FALLS AT WASHINGTON BOULEVARD AT BALTIMORE, MD

LOCATION.--Lat 39°16'17.4", long 76°38'54.8", Baltimore City, Hydrologic Unit 02060003, on left bank at Carroll Park Municipal Golf Course, 350 ft upstream from bridge on Washington Boulevard, 0.9 mi northwest of Morrell Park, and approximately 1.6 mi upstream from mouth.

DRAINAGE AREA.--65.9 mi^2.

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Datum of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 11	1450	2,530	6.81	Jun 7	1410	3,910	8.56
Feb 22	1320	4,520	9.22	Jun 13	1900	2,020	6.04
Mar 20	1810	3,170	7.68	Jun 20	1340	3,510	8.09
May 16	1225	3,440	8.01	Sep 18	2335	3,380	7.94
May 26	0610	2,920	7.36	Sep 23	0450	*10,700	*14.02

Minimum discharge, 13 ft^3/s, Feb. 16.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	48	28	e890	69	91	96	61	173	58	36	36
2	20	34	27	e650	47	434	82	52	73	123	37	55
3	19	30	26	e550	43	266	74	48	105	342	83	62
4	19	28	27	e234	129	128	69	45	443	94	126	790
5	21	72	31	106	60	238	65	48	288	64	55	119
6	18	e230	41	105	41	759	63	59	100	135	58	60
7	16	42	33	80	53	222	221	48	1,160	86	37	46
8	16	e33	e36	e85	47	166	115	69	248	52	35	40
9	16	e28	e34	e90	41	304	241	220	135	68	99	37
10	129	e27	28	69	45	182	112	125	94	62	63	35
11	622	e282	e772	57	41	106	210	70	191	157	407	34
12	109	e258	e294	52	38	98	107	53	284	72	143	85
13	46	117	e378	48	34	139	79	46	284	66	79	240
14	31	54	e500	46	34	159	68	43	131	71	50	81
15	26	42	e140	44	48	97	66	40	82	45	40	48
16	761	e580	e80	40	29	96	63	1,640	70	43	43	64
17	121	608	60	45	19	110	65	248	107	40	286	44
18	53	190	e52	36	48	88	83	127	171	35	54	423
19	34	79	e48	40	58	73	73	86	361	35	41	637
20	29	56	e152	41	85	937	58	71	987	34	36	83
21	26	49	e71	40	134	482	56	185	244	34	34	57
22	24	52	e50	35	1,730	144	57	104	132	156	136	96
23	24	40	44	35	945	106	53	103	91	230	109	2,140
24	24	36	e43	39	314	89	50	182	73	61	38	139
25	66	32	e509	47	162	81	70	177	65	39	33	77
26	182	32	e170	48	112	139	465	1,110	62	35	48	100
27	39	44	e83	39	94	111	113	169	59	33	69	61
28	28	31	62	34	100	81	71	136	53	49	73	60
29	153	29	57	47	---	132	63	104	49	56	38	52
30	177	29	e52	42	---	316	55	83	48	33	37	45
31	115	---	e58	38	---	159	---	116	---	31	31	---
TOTAL	2,988	3,212	3,986	3,752	4,600	6,533	3,063	5,668	6,363	2,439	2,454	5,846
MEAN	96.4	107	129	121	164	211	102	183	212	78.7	79.2	195
MAX	761	608	772	890	1,730	937	465	1,640	1,160	342	407	2,140
MIN	16	27	26	34	19	73	50	40	48	31	31	34
CFSM	1.46	1.62	1.95	1.84	2.49	3.20	1.55	2.77	3.22	1.19	1.20	2.96
IN.	1.69	1.81	2.25	2.12	2.60	3.69	1.73	3.20	3.59	1.38	1.39	3.30

e Estimated

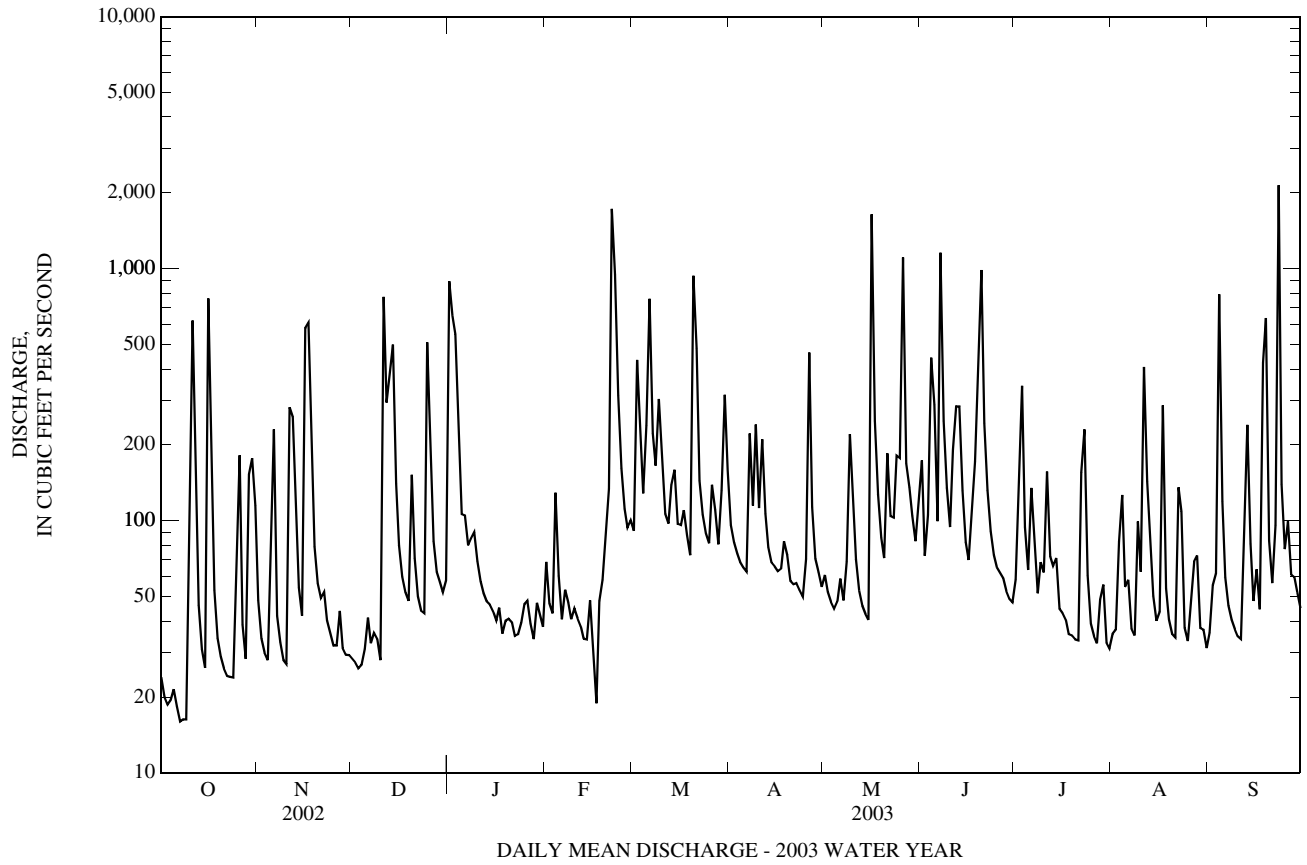
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2003, BY WATER YEAR (WY)

MEAN	54.5	58.0	75.0	82.4	88.7	134	91.5	92.9	93.9	59.3	72.5	127
MAX	96.4	107	129	127	164	211	121	183	212	79.7	144	278
(WY)	(2003)	(2003)	(2003)	(1999)	(2003)	(2003)	(2000)	(2003)	(2003)	(1999)	(1999)	(1999)
MIN	19.8	36.8	34.6	46.3	28.4	80.7	63.9	64.5	49.7	23.5	44.6	36.1
(WY)	(2002)	(1999)	(2002)	(2002)	(2002)	(2002)	(2001)	(1999)	(2002)	(2002)	(2000)	(2001)

01589352 GWYNNS FALLS AT WASHINGTON BOULEVARD AT BALTIMORE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1999 - 2003	
ANNUAL TOTAL	24,359.2		50,904			
ANNUAL MEAN	66.7		139		85.7	
HIGHEST ANNUAL MEAN					139	2003
LOWEST ANNUAL MEAN					47.5	2002
HIGHEST DAILY MEAN	772	Dec 11	2,140	Sep 23	3,520	Sep 16, 1999
LOWEST DAILY MEAN	8.7	Aug 18	16	(a)	8.7	Aug 18, 2002
ANNUAL SEVEN-DAY MINIMUM	9.7	Aug 16	18	Oct 3	9.7	Aug 16, 2002
MAXIMUM PEAK FLOW			10,700	Sep 23	(b)23,900	Aug 26, 1999
MAXIMUM PEAK STAGE			14.02	Sep 23	20.03	Aug 26, 1999
INSTANTANEOUS LOW FLOW			13	Feb 16	6.5	(c)
ANNUAL RUNOFF (CFSM)	1.01		2.12		1.30	
ANNUAL RUNOFF (INCHES)	13.75		28.73		17.67	
10 PERCENT EXCEEDS	148		285		168	
50 PERCENT EXCEEDS	32		65		43	
90 PERCENT EXCEEDS	16		33		21	

a Oct. 7-9.
b From rating curve extended above 6,200 ft^3/s on basis of slope-area measurement of peak flow.
c Aug. 18, 20-22, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589440 JONES FALLS AT SORRENTO, MD

LOCATION.--Lat 39°23'30.2", long 76°39'39.4", Baltimore County, Hydrologic Unit 02060003, on right bank 0.3 mi downstream from bridge on State Highway 25 (Falls Road), 0.4 mi downstream from Slaughterhouse Branch and Sorrento, and 12.5 mi upstream from mouth.

DRAINAGE AREA.--25.2 mi^2.

PERIOD OF RECORD.--Annual maximum, water years 1958-66. April 1966 to September 1988, October 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 240 ft above National Geodetic Vertical Datum of 1929, from topographic map. January 1958 to April 1966, non-recording gage at site 450 ft upstream at same gage datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2300	799	7.18	Jun 7	1430	927	7.49
Feb 22	1515	678	6.86	Jun 20	1400	1,140	7.95
Mar 20	1845	729	7.00	Jun 21	1700	*1,650	*8.89
May 16	1245	759	7.08	Sep 4	1015	868	7.35
May 26	0545	668	6.83	Sep 23	0515	1,340	8.36

Minimum discharge, 3.5 ft^3/s, Oct. 7, 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	14	14	177	e20	32	45	30	51	32	e24	20
2	4.4	12	14	175	e18	70	41	28	38	40	24	22
3	4.2	12	13	113	17	70	39	27	44	91	27	25
4	4.2	12	13	64	28	46	38	26	131	46	28	295
5	4.2	14	15	43	20	60	38	27	95	37	25	43
6	3.8	31	15	39	17	149	35	29	50	42	24	28
7	3.7	14	16	34	20	71	55	27	277	44	23	24
8	3.8	13	14	36	17	64	46	28	85	35	22	22
9	3.9	12	14	37	19	126	65	45	61	33	24	20
10	11	12	13	31	17	67	47	42	50	34	24	19
11	75	69	138	27	17	48	57	32	47	38	69	18
12	16	45	74	25	16	48	45	27	72	32	32	24
13	9.6	29	68	25	17	67	38	25	66	31	24	51
14	7.9	20	109	24	17	63	36	24	51	32	22	29
15	7.0	16	43	23	17	48	35	23	43	28	20	25
16	123	92	32	22	e18	47	34	382	39	26	25	25
17	22	131	26	e21	e18	49	34	76	40	24	64	21
18	13	49	23	e20	e18	43	37	53	54	24	24	43
19	10	28	22	e19	e19	38	35	43	82	25	21	108
20	9.1	23	36	e19	e20	219	32	37	342	23	19	33
21	8.6	20	25	e18	e34	118	32	45	234	22	18	27
22	8.3	20	22	e18	274	59	32	40	77	23	53	31
23	7.8	18	20	e18	193	48	30	44	58	49	32	481
24	8.0	17	19	e18	95	44	28	59	50	27	20	46
25	8.7	16	88	e18	59	41	30	53	45	e23	18	36
26	25	15	47	e18	46	45	111	253	41	21	21	40
27	11	17	31	e18	40	43	48	64	38	21	29	30
28	9.2	15	26	e18	35	38	36	55	36	23	25	28
29	22	15	24	18	---	51	33	47	35	24	20	25
30	27	15	23	18	---	83	30	41	34	21	19	23
31	23	---	25	17	---	56	---	53	---	e21	18	---
TOTAL	499.2	816	1,062	1,171	1,146	2,051	1,242	1,785	2,366	992	838	1,662
MEAN	16.1	27.2	34.3	37.8	40.9	66.2	41.4	57.6	78.9	32.0	27.0	55.4
MAX	123	131	138	177	274	219	111	382	342	91	69	481
MIN	3.7	12	13	17	16	32	28	23	34	21	18	18
CFSM	0.64	1.08	1.36	1.50	1.62	2.63	1.64	2.28	3.13	1.27	1.07	2.20
IN.	0.74	1.20	1.57	1.73	1.69	3.03	1.83	2.63	3.49	1.46	1.24	2.45

e Estimated

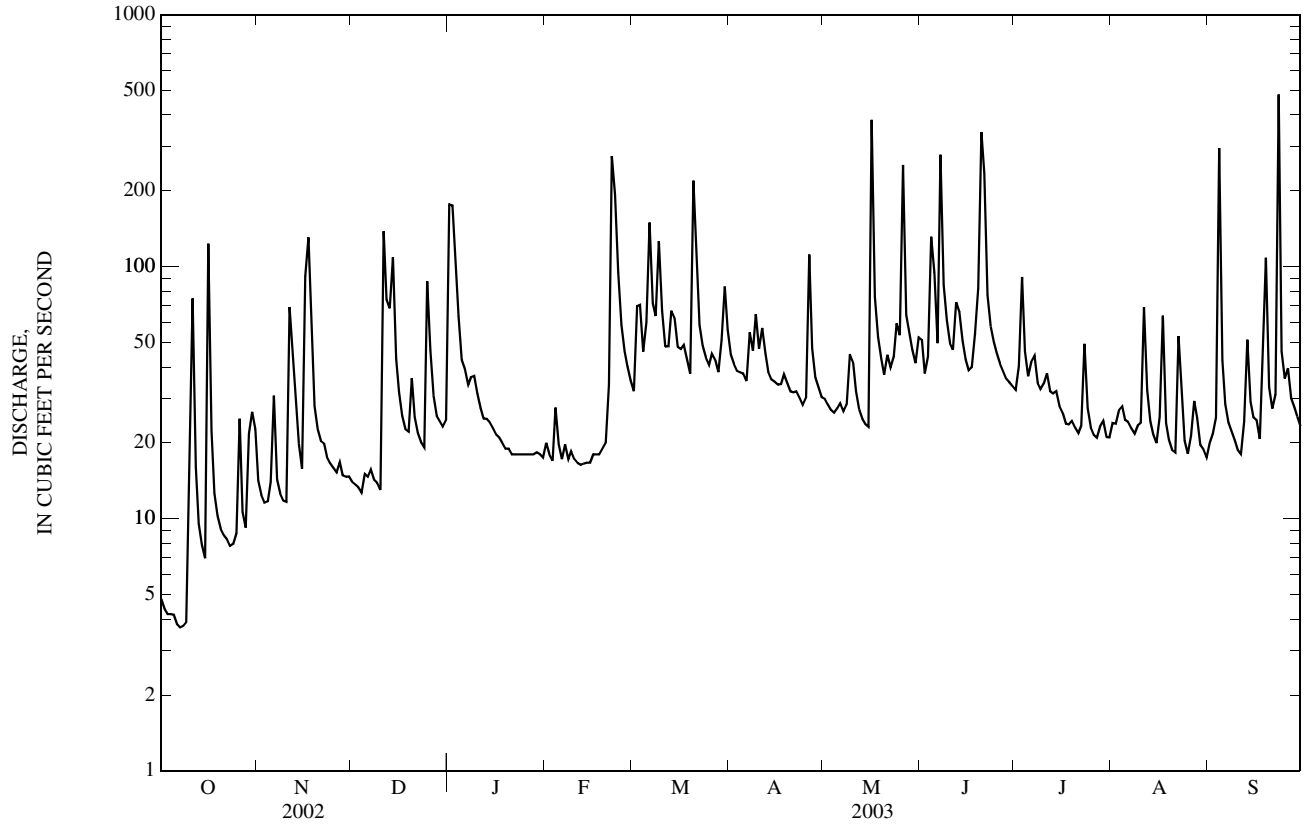
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1988, 1997 - 2003, BY WATER YEAR (WY)

MEAN	23.0	26.2	33.2	34.5	38.8	43.3	39.9	34.1	30.9	23.8	22.1	27.3
MAX	100	60.4	94.9	105	97.9	82.6	95.7	66.7	150	73.0	72.3	132
(WY)	(1980)	(1973)	(1997)	(1979)	(1979)	(1998)	(1973)	(1973)	(1972)	(1984)	(1971)	(1979)
MIN	6.47	10.2	10.1	9.92	9.60	17.1	17.5	13.0	7.95	3.77	3.66	6.26
(WY)	(1987)	(1982)	(2002)	(1981)	(2002)	(2002)	(2002)	(1969)	(2002)	(2002)	(2002)	(1986)

01589440 JONES FALLS AT SORRENTO, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 1988 1997 - 2003	
ANNUAL TOTAL	5,195.1		15,630.2			
ANNUAL MEAN	14.2		42.8		31.7	
HIGHEST ANNUAL MEAN					62.5	1972
LOWEST ANNUAL MEAN					10.1	2002
HIGHEST DAILY MEAN	138	Dec 11	481	Sep 23	2,600	Jun 22, 1972
LOWEST DAILY MEAN	1.4	(a)	3.7	Oct 7	1.4	(a)
ANNUAL SEVEN-DAY MINIMUM	1.4	Aug 14	4.0	Oct 3	1.4	Aug 14, 2002
MAXIMUM PEAK FLOW			1,650	Jun 21	(b)13,800	Jun 22, 1972
MAXIMUM PEAK STAGE			8.89	Jun 21	(c)18.11	Jun 22, 1972
INSTANTANEOUS LOW FLOW			3.5	(d)	1.3	(f)
ANNUAL RUNOFF (CFSM)	0.56		1.70		1.26	
ANNUAL RUNOFF (INCHES)	7.67		23.07		17.08	
10 PERCENT EXCEEDS	25		71		53	
50 PERCENT EXCEEDS	10		28		22	
90 PERCENT EXCEEDS	3.0		14		9.4	

a Aug. 14, 15, 18-22, 2002.
b From rating curve extended above 1,400 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmarks.
d Oct. 7, 8.
f Aug. 14, 15, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

PATAPSCO RIVER BASIN

01589478 JONES FALLS AT MARYLAND AVENUE AT BALTIMORE, MD

LOCATION.--Lat 39°18'33.5", long 76°37'09.9", Baltimore City, Hydrologic Unit 02060003, on left bank 300 ft downstream from Howard Street bridge.

DRAINAGE AREA.--54.9 mi^2.

PERIOD OF RECORD.--May 1981 to September 1982, December 1999 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 43.0 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good below 300 ft^3/s and fair above. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1605	4,940	5.94	Jun 13	1905	5,220	6.10
Mar 20	1755	2,680	4.57	Jun 19	2005	2,680	4.57
May 16	1245	2,390	4.38	Jun 20	1325	2,310	4.33
May 26	0705	2,490	4.45	Sep 23	0430	*8,700	*8.12
Jun 7	1350	3,900	5.33				

Minimum discharge, 10 ft^3/s, Oct. 6-8.

REVISIONS.--Revised figures for peak discharges and annual maximum (*) for water years 1981, 1982, 1999-2002, superseding those published in corresponding annual reports are given herein.

EXTREMES FOR WATER YEARS 1981, 1982, 1999-2002.--Peak discharges greater than base discharge of 2,300 ft^3/s and maximum (*):

Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)	Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)
1981	Jun 25, 1981	2020	*5,730	*6.41	2001	Dec 17, 2000	0930	*2,770	*4.62
	Jun 14, 1981	0105	5,380	6.19					
					2002	Nov 25, 2001	1845	*4,020	*5.40
1982	Jun 27, 1982	2150	*2,930	*4.72		May 13, 2002	1455	2,430	4.41
2000	Mar 21, 2000	1430	*2,900	*4.70					
	Mar 22, 2000	0300	2,370	4.37					
	May 13, 2000	1845	2,590	4.51					
	Jun 26, 2000	0015	2,360	4.36					
	Jul 26, 2000	1045	2,340	4.35					
	Sep 3, 2000	2215	2,390	4.38					

01589478 JONES FALLS AT MARYLAND AVENUE AT BALTIMORE, MD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	34	27	415	55	76	92	67	120	66	48	42
2	14	28	27	456	44	263	85	61	76	108	49	63
3	13	25	28	301	41	176	79	58	101	283	63	68
4	13	23	26	164	101	104	75	56	302	100	157	652
5	13	55	33	93	54	152	73	58	194	76	57	91
6	12	115	35	99	40	485	68	64	97	128	59	55
7	11	34	31	76	52	174	163	58	1,010	136	49	47
8	12	27	34	77	45	133	100	66	215	69	52	43
9	12	25	32	81	40	233	177	160	129	75	62	40
10	101	23	28	67	43	160	99	106	99	74	61	39
11	443	153	561	57	40	103	149	69	151	111	101	37
12	65	172	232	52	38	95	95	59	390	101	84	75
13	45	82	214	51	36	129	78	54	473	66	72	186
14	21	42	278	50	35	138	72	52	147	80	50	70
15	16	35	95	47	45	99	70	50	98	61	43	51
16	457	307	66	44	27	95	70	1,150	87	58	73	53
17	72	406	53	48	33	104	77	176	102	53	164	40
18	35	128	47	47	52	89	84	105	144	52	52	182
19	26	59	46	49	52	77	73	86	269	53	44	298
20	23	47	111	47	65	791	65	73	825	50	42	67
21	21	40	59	43	93	362	64	118	450	49	41	53
22	20	38	45	39	1,490	129	64	85	184	121	184	82
23	19	35	41	37	616	103	62	96	118	161	118	1,970
24	18	32	41	38	222	91	59	155	99	64	44	110
25	46	31	362	40	130	83	72	129	90	52	39	73
26	117	31	142	40	98	126	311	968	84	49	58	84
27	28	41	82	38	83	101	103	146	79	48	69	63
28	23	30	62	38	85	81	74	125	73	62	71	84
29	97	29	55	45	---	125	68	99	78	63	42	39
30	103	29	51	41	---	222	65	86	61	47	40	43
31	70	---	52	39	---	131	---	113	---	47	37	---
TOTAL	1,981	2,156	2,996	2,759	3,755	5,230	2,786	4,748	6,345	2,563	2,125	4,800
MEAN	63.9	71.9	96.6	89.0	134	169	92.9	153	212	82.7	68.5	160
MAX	457	406	561	456	1,490	791	311	1,150	1,010	283	184	1,970
MIN	11	23	26	37	27	76	59	50	61	47	37	37
CFSM	1.10	1.23	1.66	1.53	2.30	2.89	1.59	2.63	3.63	1.42	1.18	2.74
IN.	1.26	1.38	1.91	1.76	2.40	3.34	1.78	3.03	4.05	1.64	1.36	3.06

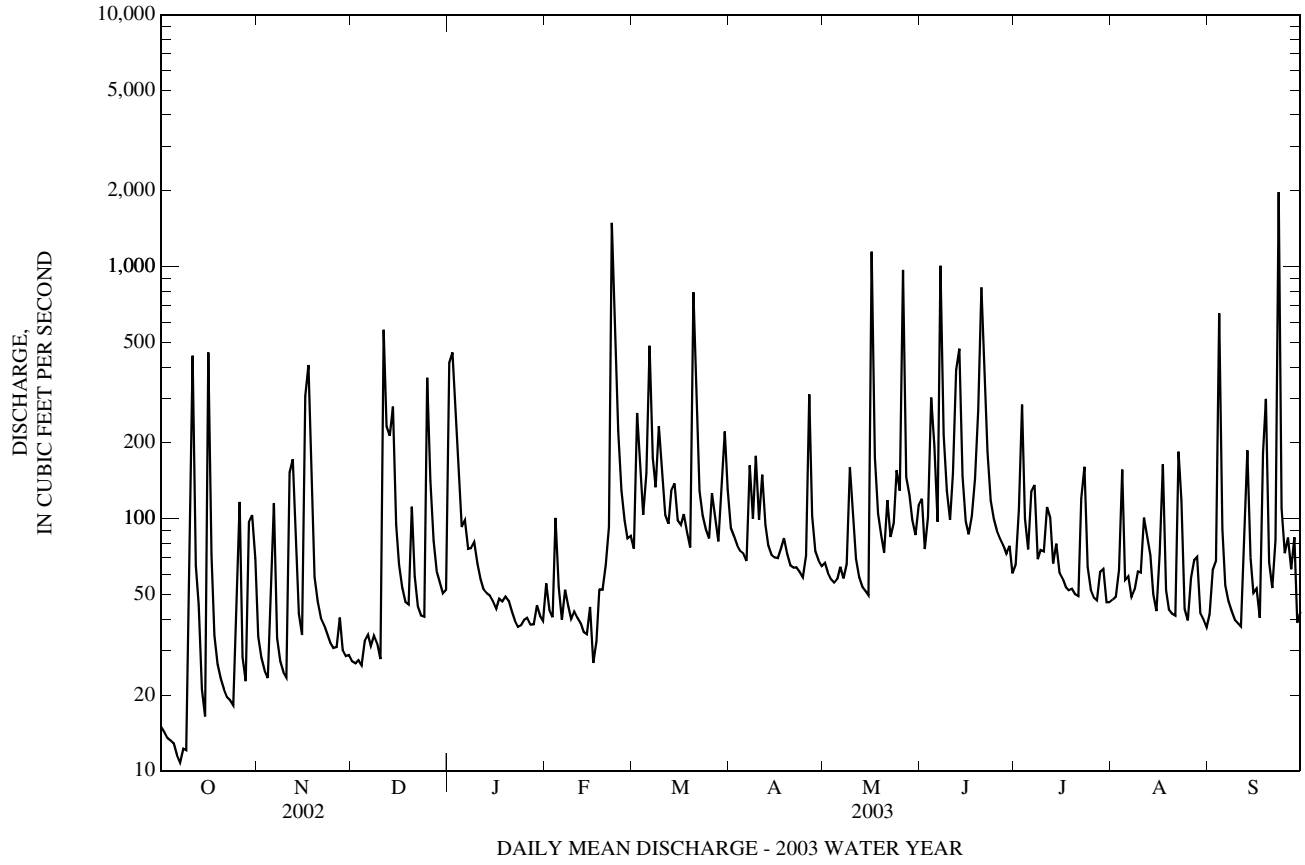
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1982, 2000 - 2003, BY WATER YEAR (WY)

MEAN	36.4	43.1	61.6	57.5	84.8	113	80.5	76.2	104	63.2	46.2	64.7
MAX	63.9	71.9	96.6	89.0	134	169	119	153	212	105	68.5	160
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2000)	(2003)	(2003)	(2000)	(2003)	(2003)
MIN	20.8	25.0	27.4	34.4	21.0	52.8	50.6	46.9	37.6	17.4	27.3	29.4
(WY)	(2002)	(1982)	(2002)	(2002)	(2002)	(1982)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1981 - 1982, 2000 - 2003	
ANNUAL TOTAL	16,980.6		42,244			
ANNUAL MEAN	46.5		116		66.8	
HIGHEST ANNUAL MEAN					116	2003
LOWEST ANNUAL MEAN					34.2	2002
HIGHEST DAILY MEAN	561	Dec 11	1,970	Sep 23	1,970	Sep 23, 2003
LOWEST DAILY MEAN	7.8	Aug 22	11	Oct 7	7.8	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	8.3	Aug 17	12	Oct 3	8.3	Aug 17, 2002
MAXIMUM PEAK FLOW			(a)8,700	Sep 23	(a)8,700	Sep 23, 2003
MAXIMUM PEAK STAGE			8.12	Sep 23	8.12	Sep 23, 2003
INSTANTANEOUS LOW FLOW			10	(b)	7.6	(c)
ANNUAL RUNOFF (CFSM)	0.80		1.99		1.15	
ANNUAL RUNOFF (INCHES)	10.83		26.96		15.56	
10 PERCENT EXCEEDS	97		202		125	
50 PERCENT EXCEEDS	25		68		38	
90 PERCENT EXCEEDS	11		31		18	

a From rating curve extended above 1,000 ft^3/s on basis of slope-area measurements at gage heights of 6.22 and 8.12 ft.
b Oct. 6-8.
c Aug. 21-23, 2002.

01589478 JONES FALLS AT MARYLAND AVENUE AT BALTIMORE, MD—Continued



DAILY MEAN DISCHARGE - 2003 WATER YEAR

Photo by Joe Fisher

Jones Falls at Maryland Avenue at Baltimore, MD (01589478)

01589500 SAWMILL CREEK AT GLEN BURNIE, MD

LOCATION.--Lat 39°10'12.0", long 76°37'50.2", Anne Arundel County, Hydrologic Unit 02060003, on left bank 300 ft upstream from bridge on State Highway 648, 0.25 mi southeast of State Highway 3, and 0.5 mi northwest of Glen Burnie.

DRAINAGE AREA.--4.97 mi^2.

PERIOD OF RECORD.--May 1944 to September 1952. Annual maximum, water years 1965-70. September 1983 to current year.

REVISED RECORDS.--WDR MD-DE-89-1: 1984-88.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 26.07 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (missing record),which are fair. Low flow affected by ground-water diversions from Anne Arundel County municipal well fields upstream from station. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 1933 reached a stage of about 14 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 16	1145	39	2.51	Jun 7	1400	53	2.76
Nov 17	0215	34	2.42	Jun 19	0530	32	2.40
Dec 11	1615	40	2.52	Jun 20	1445	61	2.89
Dec 25	1515	37	2.46	Jun 21	2215	71	3.05
Jan 1	2245	50	2.70	Jul 3	0145	40	2.53
Feb 22	1500	120	3.76	Jul 23	0015	33	2.41
Mar 20	1945	62	2.91	Aug 11	1930	32	2.40
May 16	1345	41	2.55	Sep 19	0145	77	3.14
May 26	0845	82	3.23	Sep 23	0945	*144	*4.08

Minimum discharge, 1.8 ft^3/s, Oct. 5-9

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.1	3.8	3.1	15	4.5	6.2	7.3	5.7	8.7	6.9	6.2	5.5
2	e2.1	3.3	3.1	26	4.3	18	6.7	5.6	6.6	9.4	6.3	6.1
3	2.0	3.0	3.1	13	4.1	16	6.6	5.4	6.7	28	7.9	6.6
4	2.0	2.9	3.0	11	4.9	8.4	6.4	5.3	9.2	10	8.5	8.1
5	1.9	3.4	3.4	6.7	4.3	9.9	6.2	5.4	7.7	8.2	6.5	6.4
6	1.8	6.7	3.4	6.2	4.1	20	6.1	5.6	6.6	7.9	6.1	5.5
7	1.8	3.7	3.3	5.7	4.3	13	11	5.5	31	10	5.9	5.3
8	1.8	3.1	3.3	5.1	4.1	8.6	9.4	5.8	19	8.4	6.0	5.1
9	1.9	3.0	3.3	4.9	4.1	9.1	11	7.5	9.7	7.8	7.2	5.1
10	3.2	2.9	3.2	4.6	4.2	8.7	9.1	7.2	7.7	9.3	6.6	5.1
11	11	3.8	19	4.3	4.1	7.3	11	6.3	7.6	9.9	11	5.1
12	4.3	5.5	15	4.3	4.1	6.9	8.8	5.7	11	8.1	9.0	6.3
13	3.1	4.7	9.8	4.3	3.8	7.0	7.2	5.3	9.7	9.2	6.5	17
14	2.8	3.5	15	4.3	3.8	7.0	6.7	5.2	8.6	8.0	6.0	7.8
15	2.6	3.2	6.8	4.1	4.0	6.5	6.5	5.1	8.9	7.0	5.7	6.3
16	22	10	4.9	4.1	3.4	6.5	6.5	26	7.2	6.8	6.8	6.3
17	6.5	23	4.3	4.3	3.4	7.6	6.3	13	7.3	6.4	12	5.4
18	3.8	8.6	4.1	4.1	5.1	6.9	6.3	7.5	13	6.6	6.4	14
19	3.8	4.7	4.0	4.1	5.0	6.3	6.3	6.5	20	6.6	5.7	33
20	3.0	4.1	11	4.1	5.3	24	6.2	5.9	33	6.2	5.6	7.8
21	2.6	3.8	6.1	4.1	6.0	27	6.2	15	29	6.3	5.4	6.2
22	2.4	3.6	4.5	4.1	51	9.5	6.1	12	32	8.4	7.1	6.2
23	2.4	3.3	4.2	4.1	41	7.7	5.7	7.6	10	16	8.1	78
24	2.4	3.2	4.0	3.8	17	7.0	5.6	8.9	8.8	7.2	6.0	14
25	3.1	3.2	20	3.8	10	6.7	5.9	10	8.0	6.2	5.2	7.9
26	9.5	3.0	12	3.9	7.7	7.2	10	45	7.6	5.8	6.9	7.0
27	3.7	3.1	5.8	3.9	6.7	7.4	7.6	13	7.4	5.8	7.7	6.8
28	3.0	3.0	4.8	3.7	6.5	6.9	6.2	9.0	7.1	6.5	7.3	8.2
29	5.4	3.0	4.4	4.1	---	7.2	5.9	7.9	7.0	7.7	7.1	6.6
30	7.1	3.1	4.3	4.0	---	11	5.7	7.2	7.0	6.1	9.4	6.1
31	5.4	---	4.3	4.1	---	9.8	---	7.9	---	6.0	5.7	---
TOTAL	130.5	139.2	200.5	183.8	230.8	311.3	216.5	289.0	363.1	262.7	217.8	314.8
MEAN	4.21	4.64	6.47	5.93	8.24	10.0	7.22	9.32	12.1	8.47	7.03	10.5
MAX	22	23	20	26	51	27	11	45	33	28	12	78
MIN	1.8	2.9	3.0	3.7	3.4	6.2	5.6	5.1	6.6	5.8	5.2	5.1
CFSM	0.85	0.93	1.30	1.19	1.66	2.02	1.45	1.88	2.44	1.71	1.41	2.11
IN.	0.98	1.04	1.50	1.38	1.73	2.33	1.62	2.16	2.72	1.97	1.63	2.36

e Estimated

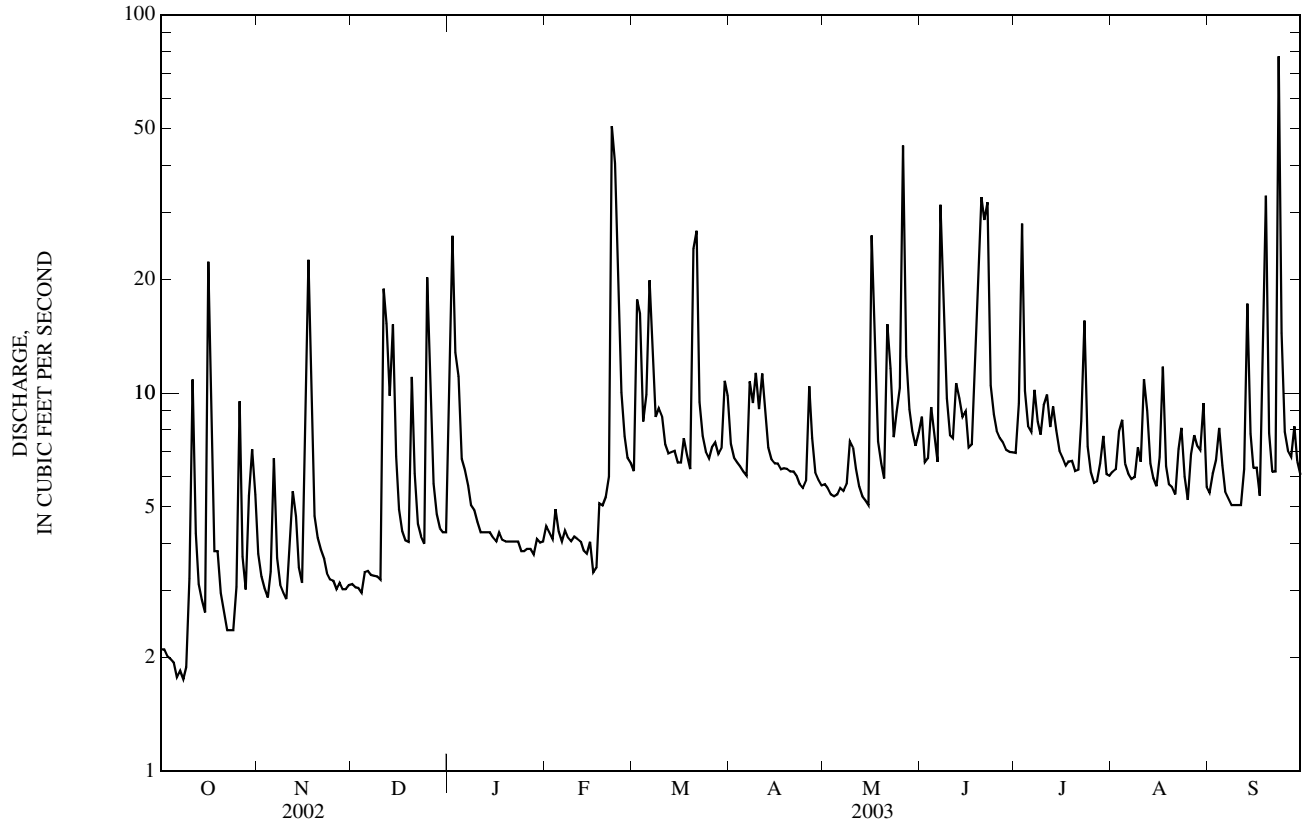
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1952, 1983 - 2003, BY WATER YEAR (WY)

MEAN	3.65	4.21	4.67	4.98	5.18	6.18	5.74	5.75	5.17	4.58	4.46	4.79
MAX	9.03	10.3	13.0	14.4	14.4	13.5	13.8	13.3	12.1	9.45	12.4	13.1
(WY)	(1949)	(1952)	(1949)	(1949)	(1949)	(1949)	(1952)	(1952)	(2003)	(1952)	(1948)	(1952)
MIN	0.030	0.19	0.13	0.30	0.76	0.76	0.75	0.11	0.081	0.10	0.15	0.024
(WY)	(1987)	(1987)	(1989)	(1989)	(1989)	(1986)	(1985)	(1986)	(1986)	(1985)	(1986)	(1986)

01589500 SAWMILL CREEK AT GLEN BURNIE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 1952, 1983 - 2003	
ANNUAL TOTAL	1,258.3		2,860.0			
ANNUAL MEAN	3.45		7.84		4.93	
HIGHEST ANNUAL MEAN					11.0	1949
LOWEST ANNUAL MEAN					0.43	1986
HIGHEST DAILY MEAN	23	Nov 17	78	Sep 23	155	Sep 16, 1999
LOWEST DAILY MEAN	1.3	(a)	1.8	(b)	0.01	(c)
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 16	1.9	Oct 3	0.01	Jul 25, 1986
MAXIMUM PEAK FLOW			144	Sep 23	(d)294	Sep 16, 1999
MAXIMUM PEAK STAGE			4.08	Sep 23	5.74	Sep 16, 1999
INSTANTANEOUS LOW FLOW			1.8	(f)	0.00	(g)
ANNUAL RUNOFF (CFSM)	0.69		1.58		0.99	
ANNUAL RUNOFF (INCHES)	9.42		21.41		13.48	
10 PERCENT EXCEEDS	5.5		13		9.3	
50 PERCENT EXCEEDS	2.7		6.3		3.9	
90 PERCENT EXCEEDS	1.6		3.2		0.60	

a Aug. 17-22.
b Oct. 6-8.
c Many days in 1985-1987.
d From rating curve extended above 40 ft^3/s on basis of Culvert Type IV measurement of peak flow.
f Oct. 5-9.
g Sept. 6, 7, 1985, July 29, Aug. 2, 1986.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589501 SAWMILL CREEK TRIBUTARY AT BWI AIRPORT NEAR FERNDALE, MD

LOCATION.--Lat 39°10'39.6", long 76°39'03.6", Anne Arundel County, Hydrologic Unit 02060003, on right bank 2,000 ft upstream from culvert on Hammond Ferry Road, and 1.2 mi southwest of Ferndale.

DRAINAGE AREA.--0.58 mi^2.

PERIOD OF RECORD.--November 1994 to September 1995. October 1996 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 100 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good below 30 ft^3/s and fair above. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep 23	0515	*156	*2.55

No other peak greater than base discharge.

Minimum discharge, 0.03 ft^3/s, Oct. 3-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.12	0.49	0.30	6.9	0.71	0.56	0.54	0.38	1.8	0.37	0.45	1.1
2	0.10	0.35	0.30	12	0.14	9.0	0.44	0.23	0.50	4.5	0.21	0.36
3	0.05	0.25	0.30	5.2	0.11	5.4	0.33	0.23	1.8	15	5.1	2.2
4	0.03	0.23	0.30	2.0	1.4	1.2	0.30	0.23	3.0	1.1	0.83	3.8
5	0.03	2.1	0.53	0.80	0.16	3.1	0.30	0.36	0.96	0.65	0.39	0.37
6	0.03	3.8	1.4	1.5	0.11	5.7	0.30	0.35	0.43	1.8	0.42	0.30
7	0.03	0.37	0.46	0.54	1.0	2.8	4.7	0.38	13	3.2	0.74	0.27
8	0.03	0.30	0.51	0.57	0.44	0.96	1.9	1.1	9.3	0.50	0.29	0.21
9	0.03	0.30	0.32	0.39	0.27	1.2	3.3	2.5	1.7	1.3	3.3	0.18
10	3.9	0.30	0.20	0.30	0.43	0.55	1.3	1.8	0.69	0.73	0.80	0.17
11	12	1.9	10	0.25	0.24	0.40	3.9	1.1	1.6	2.0	7.3	0.16
12	0.81	5.0	10	0.23	0.23	0.42	1.00	0.41	2.8	1.8	3.7	5.2
13	0.45	0.58	5.0	0.23	0.14	0.79	0.49	0.27	0.93	0.70	0.39	10
14	0.27	0.37	4.5	0.23	0.15	0.56	0.43	0.23	1.6	0.39	0.31	0.72
15	0.53	0.37	0.84	0.23	0.86	0.47	0.37	0.22	0.53	0.30	0.24	1.1
16	17	9.3	0.49	0.17	0.39	0.48	0.30	11	0.49	0.25	1.6	0.43
17	3.8	13	0.37	0.23	0.63	1.1	0.30	3.4	1.8	0.18	9.1	0.31
18	0.56	2.1	0.30	0.13	1.0	0.51	0.64	2.4	3.9	0.35	0.50	10
19	0.37	0.68	0.24	0.10	0.66	0.49	0.32	1.9	8.9	0.18	0.30	26
20	0.24	0.54	4.5	0.10	1.7	9.9	0.30	1.3	9.1	0.18	0.25	1.4
21	0.20	0.49	0.64	0.10	2.7	14	0.30	5.8	9.6	0.18	0.22	0.62
22	0.13	0.41	0.47	0.10	17	2.5	0.30	4.9	14	2.6	4.1	2.8
23	0.07	0.37	0.32	0.10	17	0.65	0.23	2.2	3.5	13	2.4	36
24	0.06	0.37	0.39	0.10	12	0.57	0.23	2.8	0.78	0.70	0.31	10
25	1.7	0.36	11	0.10	4.6	0.41	0.87	2.6	0.49	0.40	0.29	0.85
26	7.8	0.32	6.1	0.10	0.51	2.1	4.3	11	0.44	0.32	2.0	0.49
27	0.46	0.49	0.88	0.10	0.38	0.67	1.4	11	0.35	0.33	2.8	0.50
28	0.29	0.30	0.50	0.10	1.1	0.95	0.50	5.1	0.30	1.7	0.42	2.2
29	5.5	0.30	0.37	0.39	---	1.9	0.35	0.91	0.30	0.42	3.1	0.39
30	4.3	0.35	0.30	0.08	---	5.1	0.24	0.59	0.30	0.28	0.39	0.27
31	1.0	---	0.30	0.06	---	1.3	---	1.3	---	0.18	0.27	---
TOTAL	61.89	46.09	62.13	33.43	66.06	75.74	30.18	77.99	94.89	55.59	52.52	118.40
MEAN	2.00	1.54	2.00	1.08	2.36	2.44	1.01	2.52	3.16	1.79	1.69	3.95
MAX	17	13	11	12	17	14	4.7	11	14	15	9.1	36
MIN	0.03	0.23	0.20	0.06	0.11	0.40	0.23	0.22	0.30	0.18	0.21	0.16
CFSM	3.44	2.65	3.46	1.86	4.07	4.21	1.73	4.34	5.45	3.09	2.92	6.80
IN.	3.97	2.96	3.98	2.14	4.24	4.86	1.94	5.00	6.09	3.57	3.37	7.59

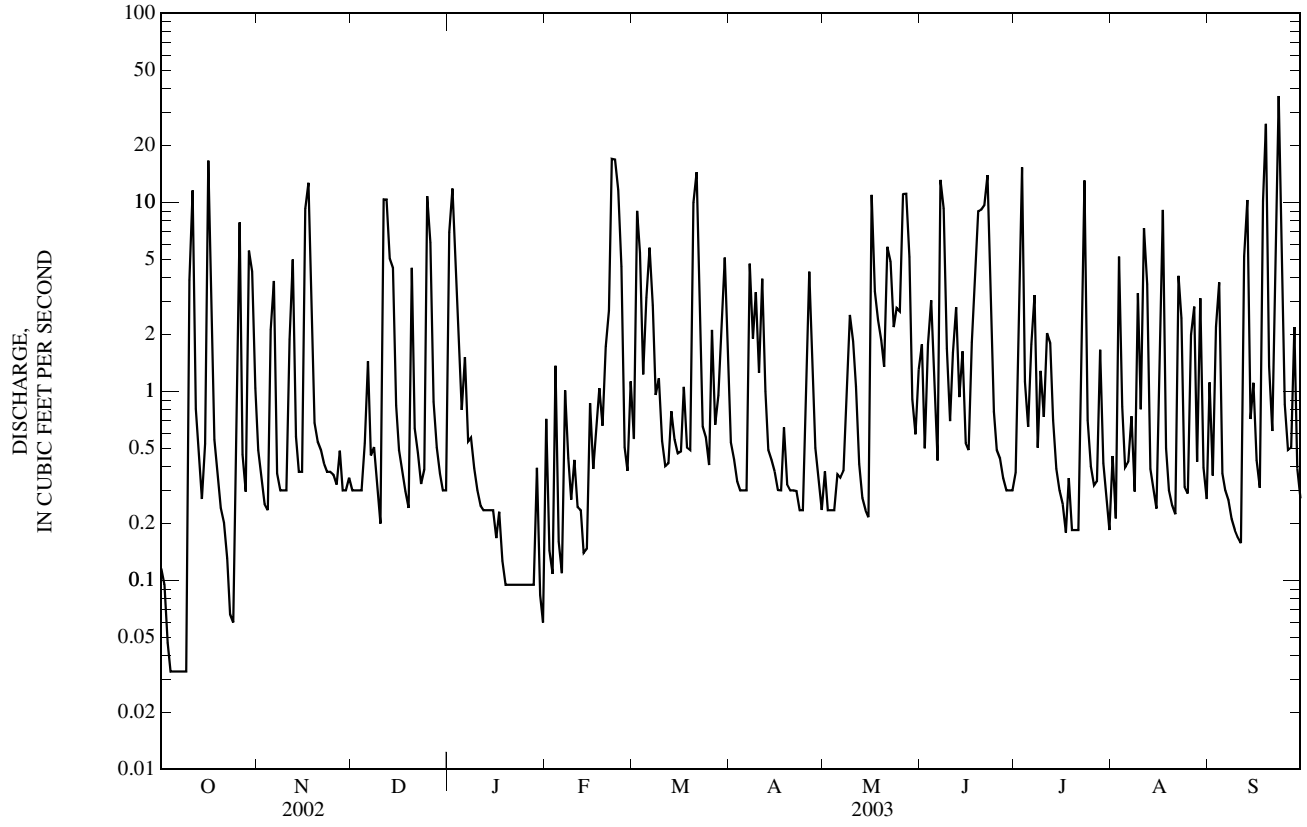
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995, 1997 - 2003, BY WATER YEAR (WY)

MEAN	0.90	1.07	1.24	1.30	1.36	1.87	1.18	1.24	1.17	0.92	1.25	2.00
MAX	2.00	2.45	3.23	2.51	3.41	2.54	2.45	2.52	3.16	1.79	2.24	6.09
(WY)	(2003)	(1998)	(1997)	(1998)	(1998)	(1998)	(2002)	(2003)	(2003)	(2003)	(1999)	(1999)
MIN	0.15	0.33	0.49	0.52	0.14	1.07	0.65	0.55	0.45	0.43	0.38	0.41
(WY)	(2001)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(1999)	(1999)	(1997)	(1998)	(1998)

01589501 SAWMILL CREEK TRIBUTARY AT BWI AIRPORT NEAR FERNDALE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1995, 1997 - 2003	
ANNUAL TOTAL	409.15		774.91			
ANNUAL MEAN	1.12		2.12		1.35	
HIGHEST ANNUAL MEAN					2.12	2003
LOWEST ANNUAL MEAN					0.74	2002
HIGHEST DAILY MEAN	31	Apr 28	36	Sep 23	82	Sep 16, 1999
LOWEST DAILY MEAN	0.02	(a)	0.03	(b)	0.02	(a)
ANNUAL SEVEN-DAY MINIMUM	0.02	Jul 2	0.03	Oct 3	0.02	Jul 2, 2002
MAXIMUM PEAK FLOW			156	Sep 23	(c)298	Sep 16, 1999
MAXIMUM PEAK STAGE			2.55	Sep 23	3.38	Sep 16, 1999
INSTANTANEOUS LOW FLOW			0.03	(d)	0.02	(f)
ANNUAL RUNOFF (CFSM)	1.93		3.66		2.32	
ANNUAL RUNOFF (INCHES)	26.24		49.70		31.51	
10 PERCENT EXCEEDS	3.4		5.7		3.5	
50 PERCENT EXCEEDS	0.22		0.50		0.30	
90 PERCENT EXCEEDS	0.03		0.18		0.13	

a July 5-8, Aug. 20-23, 2002.
b Oct. 4-9.
c From rating curve extended above 20 ft^3/s.
d Oct. 3-10.
d July 4-9, Aug. 10-14, 19-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01589795 SOUTH FORK JABEZ BRANCH AT MILLERSVILLE, MD

LOCATION.--Lat 39°04'05.7", long 76°39'05.5", Anne Arundel County, Hydrologic Unit 02060004, on left bank 300 ft upstream from the confluence with the West Branch Jabez Branch, 0.5 mi northwest of Millersville, 1.0 mi west of Gambrills, and 1.6 mi upstream from mouth.

DRAINAGE AREA.--1.0 mi^2.

PERIOD OF RECORD.--August 1989 to September 1990, July 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 60 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (backwater, ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 25	1125	34	5.34	Jun 11	2130	41	5.46
Jan 1	2050	33	5.31	Jun 12	1805	35	5.36
Feb 22	1320	31	5.28	Jun 20	1430	42	5.49
Mar 20	1850	44	5.52	Jun 21	2120	27	5.19
May 26	0525	23	5.10	Jul 12	2035	34	5.34
May 31	2035	22	5.07	Sep 18	2040	*496	*7.46
Jun 7	1715	33	5.31	Sep 23	0505	57	5.71

Minimum discharge, 0.12 ft^3/s, on many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.16	0.24	e0.17	6.1	0.12	0.36	0.26	0.24	1.7	0.36	0.31	0.39
2	0.14	0.25	e0.17	2.6	0.12	4.4	0.20	0.24	0.33	0.79	0.31	0.42
3	0.16	0.27	e0.17	2.2	0.12	3.2	0.24	0.24	0.32	2.1	0.43	0.81
4	0.15	0.26	e0.17	0.82	0.17	0.94	0.31	0.24	0.39	0.51	0.37	0.60
5	0.15	0.35	e0.17	0.30	0.15	3.3	0.26	0.24	0.47	0.38	0.34	0.35
6	0.14	0.54	e0.17	0.27	0.12	6.6	0.23	0.24	0.27	0.36	0.33	0.34
7	0.17	e0.27	e0.17	0.25	0.12	1.3	0.52	0.24	13	0.36	0.32	0.34
8	0.17	e0.24	e0.17	0.22	0.12	1.5	0.26	0.27	2.1	0.36	0.31	0.33
9	0.16	e0.24	e0.17	0.23	0.12	3.6	0.61	0.36	0.65	0.34	0.94	0.34
10	0.19	e0.24	e0.17	0.17	0.12	0.82	0.22	0.30	0.33	0.36	0.44	0.34
11	0.86	e0.40	e1.8	0.14	0.12	0.30	0.94	0.26	2.9	0.87	0.57	0.34
12	0.21	e0.84	e1.7	0.14	0.12	0.28	0.29	0.24	9.3	4.0	0.43	0.46
13	0.20	e0.27	e1.3	0.14	0.12	0.25	0.28	0.24	2.1	2.5	0.34	1.1
14	0.20	e0.17	3.2	0.14	0.12	0.22	0.32	0.24	2.5	0.46	0.31	0.36
15	0.20	e0.17	e0.56	0.14	0.12	0.19	0.33	0.24	0.88	0.34	0.31	0.37
16	1.9	e1.3	e0.27	0.14	e0.12	0.21	0.29	2.7	0.41	0.31	0.31	0.39
17	0.22	e2.2	e0.14	0.14	e0.12	0.26	0.24	0.43	0.61	0.29	0.71	0.33
18	0.20	e0.61	0.12	0.12	e0.12	0.24	e0.24	0.34	2.8	0.27	0.36	40
19	0.20	0.16	0.12	0.12	0.12	0.27	e0.24	0.28	1.9	0.27	0.35	10
20	0.20	0.13	1.3	0.12	0.14	8.7	e0.24	0.25	9.7	0.27	0.33	0.65
21	0.20	0.13	0.23	0.12	0.16	2.4	e0.24	0.93	6.8	0.27	0.31	0.53
22	0.20	0.12	0.14	0.12	8.6	0.40	e0.24	0.58	3.7	0.27	0.50	0.53
23	0.20	0.12	0.12	0.12	12	0.25	e0.24	0.39	0.70	0.29	0.42	12
24	0.20	0.14	0.12	0.12	4.8	0.20	e0.24	0.65	0.38	0.28	0.32	0.64
25	0.22	0.14	10	0.12	2.3	0.27	0.24	1.00	0.36	0.30	0.31	0.47
26	0.61	0.14	0.79	0.12	1.0	0.33	0.72	7.7	0.36	0.29	0.36	0.40
27	0.21	0.14	0.19	0.12	0.55	0.29	0.33	0.60	0.36	0.29	0.36	0.40
28	0.20	0.17	0.15	0.12	0.40	0.25	0.29	0.45	0.36	0.38	0.33	0.40
29	0.47	e0.17	0.17	0.12	---	0.26	0.27	0.38	0.36	0.44	0.32	0.40
30	0.39	e0.17	0.15	0.12	---	0.87	0.24	0.33	0.36	0.34	0.38	0.39
31	0.29	---	0.14	0.12	---	0.43	---	3.5	---	0.31	0.37	---
TOTAL	9.17	10.59	24.41	15.82	32.31	42.89	9.57	24.34	66.40	18.96	12.10	74.42
MEAN	0.30	0.35	0.79	0.51	1.15	1.38	0.32	0.79	2.21	0.61	0.39	2.48
MAX	1.9	2.2	10	6.1	12	8.7	0.94	7.7	13	4.0	0.94	40
MIN	0.14	0.12	0.12	0.12	0.12	0.19	0.20	0.24	0.27	0.27	0.31	0.33

e Estimated

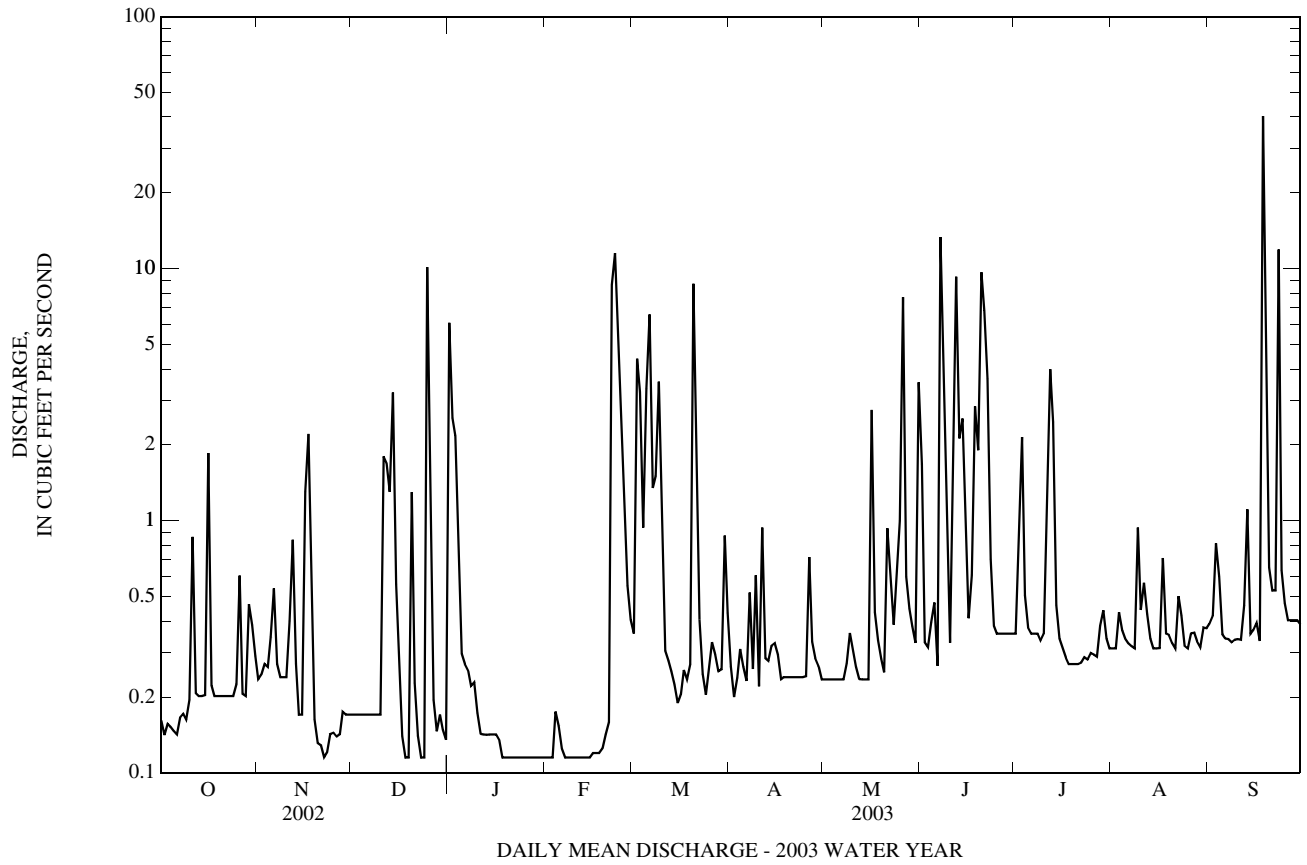
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1990, 1997 - 2003, BY WATER YEAR (WY)

MEAN	0.33	0.37	0.43	0.58	0.71	0.75	0.49	0.49	0.58	0.39	0.36	0.88
MAX	0.52	0.77	0.79	1.60	2.01	1.47	0.75	0.80	2.21	0.65	0.52	3.23
(WY)	(1990)	(1998)	(2003)	(1998)	(1998)	(1998)	(2000)	(1990)	(2003)	(2000)	(1997)	(1999)
MIN	0.13	0.16	0.22	0.18	0.14	0.18	0.32	0.27	0.16	0.16	0.14	0.16
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2003)	(1999)	(2002)	(2002)	(2002)	(2002)

01589795 SOUTH FORK JABEZ BRANCH AT MILLERSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1989 - 1990, 1997 - 2003	
ANNUAL TOTAL	106.81		340.98			
ANNUAL MEAN	0.29		0.93		0.54	
HIGHEST ANNUAL MEAN					0.93	2003
LOWEST ANNUAL MEAN					0.21	2002
HIGHEST DAILY MEAN	10	Dec 25	40	Sep 18	82	Sep 16, 1999
LOWEST DAILY MEAN	0.10	Aug 17	0.12	(a)	0.10	Aug 17, 2002
ANNUAL SEVEN-DAY MINIMUM	0.11	Aug 14	0.12	Jan 18	0.11	Aug 14, 2002
MAXIMUM PEAK FLOW			496	Sep 18	(b)496	Sep 18, 2003
MAXIMUM PEAK STAGE			7.46	Sep 18	7.46	Sep 18, 2003
INSTANTANEOUS LOW FLOW			0.12	(a)	0.05	Aug 17, 2002
ANNUAL RUNOFF (CFSM)	0.29		0.93		0.54	
ANNUAL RUNOFF (INCHES)	3.97		12.68		7.29	
10 PERCENT EXCEEDS	0.28		2.0		0.58	
50 PERCENT EXCEEDS	0.16		0.30		0.31	
90 PERCENT EXCEEDS	0.14		0.12		0.14	

a Many days.
b From rating curve extended above 15 ft^3/s.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01591000 PATUXENT RIVER NEAR UNITY, MD

LOCATION.--Lat 39°14'17.7", long 77°03'20.6", Montgomery County, Hydrologic Unit 02060006, on right bank at downstream side of bridge on State Highway 97, 0.6 mi upstream from Cattail Creek, 0.8 mi upstream from Triadelphia Reservoir, 1.1 mi northeast of Unity, and 97 mi upstream from mouth.

DRAINAGE AREA.--34.8 mi^2.

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1111: 1947. WSP 1432: 1948.

GAGE.--Water stage recorder and concrete control. Datum of gage is 364.76 ft above National Geodetic Vertical Datum of 1929 (Washington Suburban Sanitary Commission bench mark). Prior to Aug. 14, 1946, non-recording gage at same site and datum. U.S. Geological Survey gage- height telemeter at station.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 770 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0245	1,140	6.11	Jun 13	2215	*3,900	*9.81
Feb 22	2100	1,210	6.26	Aug 11	1745	952	5.71
Mar 20	2100	778	5.30	Sep 4	1430	2,910	8.75
Jun 1	0000	1,070	5.97	Sep 19	0215	1,270	6.37
Jun 7	1530	1,240	6.31	Sep 23	0930	3,440	9.34

Minimum discharge, 2.5 ft^3/s, Oct. 9

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	17	20	140	35	55	80	43	189	59	36	31
2	3.5	14	19	319	33	104	74	41	83	63	35	43
3	3.3	12	18	177	32	143	69	39	89	105	32	43
4	3.3	11	e18	115	52	78	66	38	192	79	33	612
5	3.2	11	18	83	44	97	64	40	193	70	31	99
6	2.9	35	22	73	38	328	59	48	104	63	30	63
7	2.8	19	19	64	39	144	82	42	491	107	29	52
8	2.8	15	18	63	33	143	77	43	189	62	66	46
9	2.8	14	18	66	e30	321	100	45	141	57	114	42
10	4.4	13	17	58	29	145	83	48	108	59	44	38
11	27	19	83	50	28	107	101	49	98	57	278	36
12	15	29	100	45	27	101	83	48	126	48	86	41
13	9.0	40	93	45	e26	112	73	45	646	45	65	105
14	7.2	22	176	41	e26	115	67	42	373	43	47	63
15	6.1	18	91	39	28	94	65	39	143	42	40	111
16	47	39	64	e38	13	89	62	91	114	41	37	84
17	26	142	50	e37	25	85	59	65	102	37	154	53
18	14	144	43	e36	51	78	58	75	111	37	56	146
19	11	52	39	35	38	70	64	60	250	38	45	448
20	9.7	39	50	34	35	259	56	51	237	35	41	103
21	8.8	34	43	32	37	222	55	61	149	34	37	80
22	8.3	41	36	31	467	117	58	58	125	45	38	71
23	8.0	31	34	e30	446	96	52	53	104	88	46	997
24	7.8	27	32	29	183	86	49	58	90	65	34	142
25	7.9	25	62	28	104	79	49	99	83	40	32	106
26	16	24	56	e28	78	80	65	123	77	36	39	122
27	11	25	43	e28	65	80	53	80	72	34	46	89
28	9.6	22	38	28	60	69	48	78	67	39	42	91
29	12	21	36	27	---	70	47	68	64	43	36	76
30	31	21	35	27	---	109	43	60	61	34	36	69
31	26	---	37	27	---	96	---	174	---	33	31	---
TOTAL	351.3	976	1,428	1,873	2,102	3,772	1,961	1,904	4,871	1,638	1,716	4,102
MEAN	11.3	32.5	46.1	60.4	75.1	122	65.4	61.4	162	52.8	55.4	137
MAX	47	144	176	319	467	328	101	174	646	107	278	997
MIN	2.8	11	17	27	13	55	43	38	61	33	29	31
CFSM	0.33	0.93	1.32	1.74	2.16	3.50	1.88	1.76	4.67	1.52	1.59	3.93
IN.	0.38	1.04	1.53	2.00	2.25	4.03	2.10	2.04	5.21	1.75	1.83	4.38

e Estimated

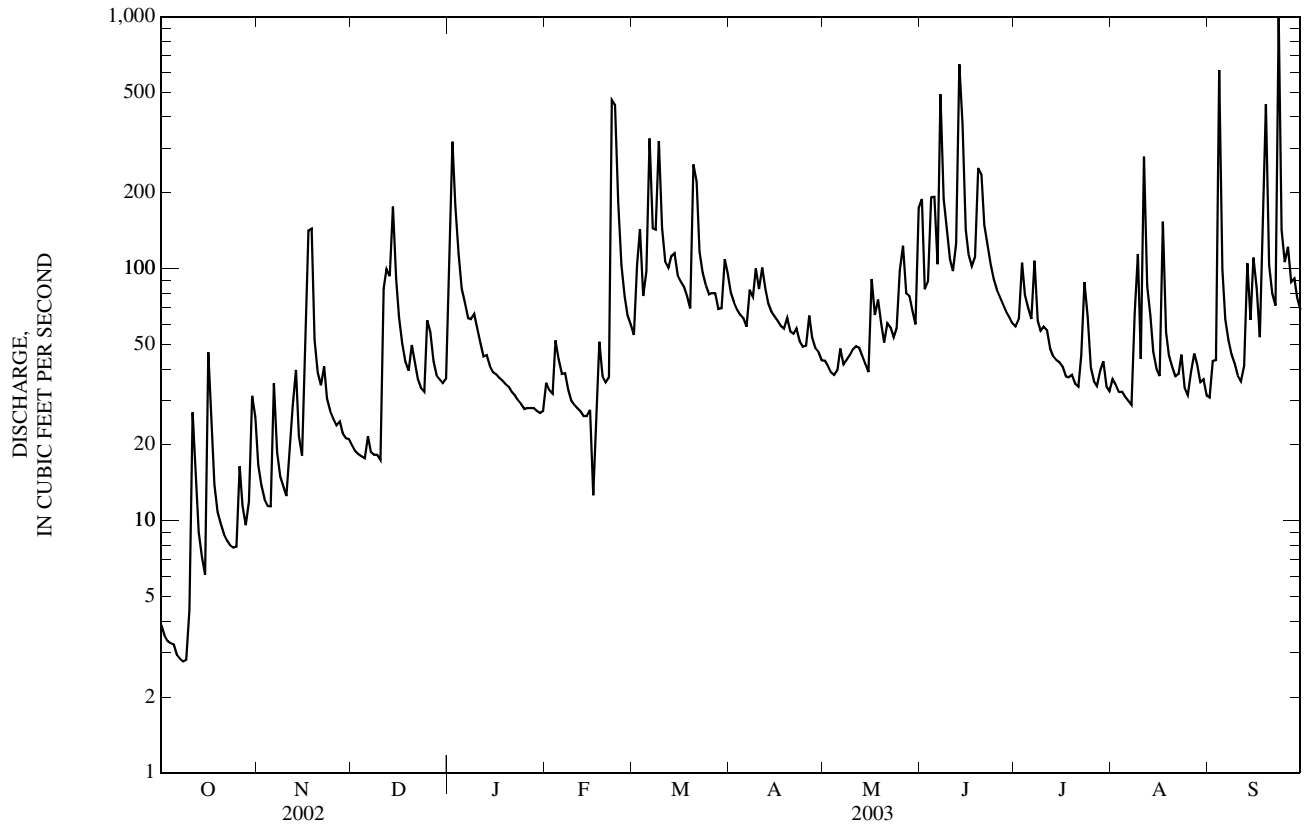
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2003, BY WATER YEAR (WY)

MEAN	21.5	28.5	39.7	46.8	54.2	62.7	57.3	48.6	37.8	25.8	22.1	28.2
MAX	150	82.8	155	139	152	173	158	141	206	102	120	214
(WY)	(1980)	(1953)	(1997)	(1996)	(1979)	(1993)	(1993)	(1952)	(1972)	(1956)	(1971)	(1971)
MIN	4.19	9.09	8.51	10.0	12.8	21.4	17.5	15.2	7.53	2.78	2.78	3.55
(WY)	(1987)	(1966)	(1966)	(1966)	(2002)	(2002)	(2002)	(1963)	(1999)	(1999)	(2002)	(2002)

01591000 PATUXENT RIVER NEAR UNITY, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1944 - 2003	
ANNUAL TOTAL	6,168.75		26,694.3			
ANNUAL MEAN	16.9		73.1		39.4	
HIGHEST ANNUAL MEAN					82.3	1972
LOWEST ANNUAL MEAN					12.5	2002
HIGHEST DAILY MEAN	176	Dec 14	997	Sep 23	2,590	Sep 26, 1975
LOWEST DAILY MEAN	0.41	Aug 23	2.8	(a)	0.20	(b)
ANNUAL SEVEN-DAY MINIMUM	0.76	Aug 17	3.0	Oct 3	0.23	Aug 9, 1999
MAXIMUM PEAK FLOW			3,900	Jun 13	(c)21,800	Sep 11, 1971
MAXIMUM PEAK STAGE			9.81	Jun 13	18.60	Sep 11, 1971
INSTANTANEOUS LOW FLOW			2.5	Oct 9	0.20	(d)
ANNUAL RUNOFF (CFSM)	0.49		2.10		1.13	
ANNUAL RUNOFF (INCHES)	6.59		28.54		15.38	
10 PERCENT EXCEEDS	35		140		72	
50 PERCENT EXCEEDS	13		48		25	
90 PERCENT EXCEEDS	2.6		18		8.9	

a Oct. 7-9.
b Sept. 10, 11, 1966.
c From rating curve extended above 1,800 ft^3/s on basis of slope-area measurement at gage height 13.00 ft.
d Sept. 10-12, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01591400 CATTAIL CREEK NEAR GLENWOOD, MD

LOCATION.--Lat 39°15'21.5", long 77°03'03.8", Howard County, Hydrologic Unit 02060006, on right bank at downstream side of bridge on State Highway 97, 1.2 mi upstream from mouth.

DRAINAGE AREA.--22.9 mi^2.

PERIOD OF RECORD.--June 1978 to September 1983 (published as "at Roxbury Mills Road at Roxbury Mills, MD"), October 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 28, 1983, at site 800 ft upstream at datum 1.76 ft lower.

REMARKS.--Records good except those for estimated daily discharges (ice effect, backwater), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0015	576	4.45	Jun 13	2315	*1,830	*7.43
Feb 22	1500	766	5.05	Aug 11	1700	1,140	6.03
Mar 9	1700	612	4.57	Sep 4	1400	1,620	7.04
May 31	2245	573	4.44	Sep 19	0300	1,080	5.88
Jun 7	1515	1,130	6.01	Sep 23	0930	1,800	7.38

Minimum discharge, 1.9 ft^3/s, Oct. 9.

REVISIONS.--Revised figures for peak discharges and annual maximum (*) for water years 1983-2002 and discharge for water years 1983-85, 1987-94, 1996-99, 2001, superseding those published in corresponding annual reports are given herein.

EXTREMES FOR WATER YEARS 1983-2002.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)	Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)
1983	Mar 8, 1983	1000	*1,380	*6.55	1994	Nov 28, 1993	0715	*2,020	*7.78
	Apr 10, 1983	0845	1,070	5.85		Dec 5, 1993	0800	1,310	6.42
	Apr 15, 1983	1900	1,360	6.52		Jan 28, 1994	1745	509	4.21
	May 22, 1983	2330	1,120	5.97		Feb 19, 1994	1900	1,200	6.16
	Jun 21, 1983	0030	749	5.00		Feb 20, 1994	1715	1,260	6.29
						Feb 21, 1994	1600	520	4.25
1984	Dec 13, 1983	2100	*1,580	*6.96		Feb 24, 1994	1530	905	5.44
	Dec 28, 1983	1815	994	5.67		Mar 5, 1994	1830	699	4.85
	Feb 14, 1984	1430	1,100	5.92		Aug 21, 1994	1745	706	4.87
	Mar 29, 1984	0700	1,030	5.77					
	Apr 15, 1984	0145	514	4.23	1995	Jan 20, 1995	0700	*982	*5.64
	Aug 4, 1984	0330	1,070	5.87					
					1996	Jan 19, 1996	1530	*2,780	*8.96
1985	Feb 12, 1985	1315	*2,230	*8.12		Jun 19, 1996	0815	1,080	5.88
	Jun 5, 1985	1215	533	4.31		Jun 20, 1996	0430	865	5.33
						Jul 13, 1996	0930	920	5.48
1986	Apr 16, 1986	0200	*394	*3.30		Jul 19, 1996	1400	539	4.32
						Jul 30, 1996	2245	861	5.32
1987	Dec 25, 1986	0115	1,300	6.39		Jul 31, 1996	1200	568	4.42
	Mar 1, 1987	1730	868	5.34		Aug 13, 1996	0315	1,030	5.76
	Apr 4, 1987	1415	542	4.33		Sep 6, 1996	2345	2,220	8.11
	Jul 1, 1987	0115	719	4.91					
	Sep 8, 1987	1915	*1,310	*6.40	1997	Oct 19, 1996	0430	1,040	5.79
						Nov 8, 1996	2030	1,100	5.94
1988	Nov 29, 1987	1645	652	4.70		Dec 1, 1996	1630	615	4.58
	Jan 20, 1988	0830	*1,360	*6.51		Dec 2, 1996	0345	667	4.75
	May 21, 1988	0445	1,090	5.91		Dec 6, 1996	0500	667	4.75
	Jul 23, 1988	1945	582	4.47		Dec 13, 1996	1645	*1,200	*6.17
						Jan 25, 1997	0030	503	4.19
1989	May 6, 1989	0430	*1,980	*7.72		Mar 3, 1997	1845	739	4.97
	May 6, 1989	2030	1,010	5.70					
	May 16, 1989	1515	545	4.35	1998	Jan 28, 1998	1530	597	4.52
	Jun 7, 1989	1115	550	4.37		Mar 21, 1998	0315	1,170	6.10
						May 8, 1998	1830	*1,660	*7.12
1990	Nov 16, 1989	1215	*1,200	*6.17					
					1999	Sep 16, 1999	1600	*1,070	*5.86
1991	Oct 23, 1990	1600	*2,410	*8.41					
	Nov 10, 1990	1400	865	5.33	2000	Mar 22, 2000	0430	*674	*4.77
	Mar 23, 1991	1430	746	4.99		Sep 26, 2000	0045	503	4.19
1992	Jul 25, 1992	1100	*822	*5.22	2001	Mar 30, 2001	0500	582	4.47
						Jun 23, 2001	0045	*1,420	*6.65
1993	Oct 10, 1992	0130	621	4.60		Aug 11, 2001	2115	1,310	6.42
	Dec 11, 1992	1715	769	5.06					
	Mar 4, 1993	1745	1,250	6.28	2002	May 2, 2002	1100	*308	*3.37
	Mar 24, 1993	0615	649	4.69					
	Apr 2, 1993	0130	*1,430	*6.67					
	Apr 10, 1993	1815	525	4.27					
	Apr 16, 1993	1500	1,420	6.65					
	Jun 9, 1993	0130	585	4.48					

01591400 CATTAIL CREEK NEAR GLENWOOD, MD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	6.9	16	11	12	21	29	35	33	23	11	8.5
2	6.0	6.5	16	11	29	26	28	34	31	22	11	7.7
3	5.6	6.5	14	11	28	20	59	34	30	21	11	7.6
4	5.4	24	13	10	18	18	33	35	37	20	11	7.4
5	5.4	24	12	11	15	17	31	32	41	21	18	7.5
6	5.4	11	12	12	15	17	29	30	32	20	18	6.8
7	5.2	9.5	11	11	16	19	31	30	40	19	13	6.3
8	5.0	8.8	10	11	16	392	42	33	30	18	12	6.0
9	5.0	8.3	10	10	15	68	63	33	28	18	11	5.8
10	5.0	8.1	9.6	17	14	63	385	30	27	18	10	5.7
11	5.0	7.8	10	23	9.6	38	70	29	26	17	11	6.1
12	5.0	8.1	11	15	14	32	47	28	25	17	14	7.9
13	5.9	17	10	13	17	29	41	27	24	16	12	11
14	7.3	10	9.5	12	17	27	38	27	23	15	11	9.1
15	5.8	9.5	10	13	17	25	520	48	24	15	10	7.6
16	5.6	8.7	53	12	18	24	117	197	25	15	9.7	7.2
17	5.3	8.2	22	12	18	23	58	62	22	14	9.4	7.3
18	5.3	8.1	15	12	21	55	51	39	31	14	9.4	6.9
19	5.3	8.1	14	11	23	109	46	43	34	14	9.3	7.0
20	5.4	8.1	14	10	22	36	43	51	160	15	8.6	6.4
21	6.3	8.1	13	10	24	75	40	86	160	18	7.9	8.2
22	6.0	8.1	12	11	31	40	38	221	37	14	7.8	12
23	5.8	8.1	13	23	44	32	37	216	30	13	8.6	7.6
24	5.6	8.1	13	19	36	30	168	47	28	14	9.5	7.6
25	18	8.1	12	15	27	28	75	40	26	13	8.7	7.6
26	17	8.1	13	14	23	27	48	41	24	13	8.1	7.6
27	8.9	7.8	12	13	20	115	43	41	24	12	7.7	7.6
28	7.4	9.5	13	13	19	63	40	35	23	12	8.5	7.3
29	7.3	54	13	12	---	36	38	40	26	11	9.3	7.0
30	7.0	17	12	13	---	32	37	38	24	11	8.1	12
31	7.0	---	12	13	---	30	---	34	---	11	7.7	---
TOTAL	206.2	344.1	430.1	404	578.6	1,567	2,325	1,716	1,125	494	322.3	230.3
MEAN	6.65	11.5	13.9	13.0	20.7	50.5	77.5	55.4	37.5	15.9	10.4	7.68
MAX	18	54	53	23	44	392	520	221	160	23	18	12
MIN	5.0	6.5	9.5	10	9.6	17	28	27	22	11	7.7	5.7
CFSM	0.29	0.50	0.61	0.57	0.90	2.21	3.38	2.42	1.64	0.70	0.45	0.34
IN.	0.33	0.56	0.70	0.66	0.94	2.55	3.78	2.79	1.83	0.80	0.52	0.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1983, BY WATER YEAR (WY)

MEAN	21.9	16.2	18.3	29.8	45.0	35.8	39.0	31.1	28.0	18.7	13.9	20.3
MAX	76.6	37.9	29.4	83.0	103	50.5	77.5	55.4	37.5	31.5	25.8	81.6
(WY)	(1980)	(1980)	(1979)	(1979)	(1979)	(1983)	(1983)	(1983)	(1983)	(1978)	(1978)	(1979)
MIN	6.29	5.96	9.24	8.38	20.7	14.5	15.9	14.2	16.2	11.8	6.05	5.28
(WY)	(1982)	(1982)	(1982)	(1981)	(1983)	(1981)	(1981)	(1981)	(1981)	(1982)	(1981)	(1981)

SUMMARY STATISTICS	FOR 1982 CALENDAR YEAR		FOR 1983 WATER YEAR		WATER YEARS 1978 - 1983	
ANNUAL TOTAL	6,106.0		9,742.6			
ANNUAL MEAN	16.7		26.7		26.0	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	412	Feb 3	520	Apr 15	970	Sep 6, 1979
LOWEST DAILY MEAN	4.1	Sep 18	5.0	Oct 8	3.8	Aug 29, 1981
ANNUAL SEVEN-DAY MINIMUM	4.3	Sep 13	5.1	Oct 6	4.1	Oct 4, 1981
MAXIMUM PEAK FLOW			1,380	Mar 8	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.55	Mar 8	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			4.4	Feb 11		
ANNUAL RUNOFF (CFSM)	0.73		1.17		1.14	
ANNUAL RUNOFF (INCHES)	9.92		15.83		15.44	
10 PERCENT EXCEEDS	26		43		41	
50 PERCENT EXCEEDS	12		15		16	
90 PERCENT EXCEEDS	5.4		7.0		6.1	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
DAILY MEAN VALUES

DISCHARGE, CUBIC FEET PER SECOND—CONTINUED
WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
2	9.5	14	24	26	30	37	51	41	30	24	37	11
3	8.9	15	24	26	50	35	48	54	29	21	119	15
4	8.2	15	106	27	100	34	100	128	27	20	315	67
5	8.1	15	37	27	55	45	154	46	26	20	35	20
6	8.1	15	51	27	35	48	70	46	26	37	24	16
7	7.8	14	42	27	27	39	58	48	26	31	20	14
8	7.9	14	31	26	25	36	52	82	25	21	19	13
9	8.0	13	29	25	24	36	50	60	24	19	17	13
10	7.8	45	29	50	29	34	49	45	23	20	21	13
11	8.0	76	26	44	54	37	47	41	22	19	26	13
12	19	30	38	29	38	35	46	41	22	18	21	13
13	13	22	690	25	35	41	45	38	21	17	20	12
14	20	19	110	26	425	64	72	36	21	16	18	12
15	10	19	49	25	122	49	165	35	20	15	17	12
16	9.4	32	40	24	67	43	86	34	20	15	16	12
17	9.1	21	35	22	50	39	61	32	23	15	15	11
18	9.4	18	33	22	49	37	56	33	24	18	15	11
19	10	18	31	20	42	36	51	36	29	17	16	11
20	10	19	29	20	39	35	49	32	22	16	18	11
21	12	67	28	19	36	53	47	31	20	19	15	11
22	10	25	135	19	34	42	47	30	20	19	14	11
23	78	21	46	22	55	37	64	39	20	18	15	10
24	148	23	34	30	84	35	54	36	24	16	15	10
25	30	138	30	60	45	36	48	30	68	15	13	9.9
26	22	37	24	120	39	70	45	29	24	14	13	9.9
27	18	28	24	80	37	43	44	28	21	16	13	9.7
28	16	60	323	50	73	105	42	30	20	15	12	15
29	15	44	53	30	50	447	48	75	20	14	12	14
30	14	29	32	27	---	91	45	55	21	14	12	13
31	14	---	28	25	---	63	---	36	---	14	12	---
TOTAL	580.2	920	2,237	1,026	1,771	1,821	1,848	1,372	750	594	952	424.5
MEAN	18.7	30.7	72.2	33.1	61.1	58.7	61.6	44.3	25.0	19.2	30.7	14.2
MAX	148	138	690	120	425	447	165	128	68	41	315	67
MIN	7.8	13	24	19	22	34	42	28	20	14	12	9.7
CFSM	0.82	1.34	3.15	1.45	2.67	2.57	2.69	1.93	1.09	0.84	1.34	0.62
IN.	0.94	1.49	3.63	1.67	2.88	2.96	3.00	2.23	1.22	0.96	1.55	0.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1984, BY WATER YEAR (WY)

MEAN	21.3	18.6	27.3	30.4	47.7	39.7	42.7	33.3	27.5	18.7	16.3	19.5
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	55.4	37.5	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1983)	(1983)	(1978)	(1984)	(1979)
MIN	6.29	5.96	9.24	8.38	20.7	14.5	15.9	14.2	16.2	11.8	6.05	5.28
(WY)	(1982)	(1982)	(1982)	(1981)	(1983)	(1981)	(1981)	(1981)	(1981)	(1982)	(1981)	(1981)

SUMMARY STATISTICS	FOR 1983 CALENDAR YEAR		FOR 1984 WATER YEAR		WATER YEARS 1978 - 1984	
ANNUAL TOTAL	12,499.4		14,295.7			
ANNUAL MEAN	34.2		39.1		28.2	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	690	Dec 13	690	Dec 13	970	Sep 6, 1979
LOWEST DAILY MEAN	5.7	Sep 10	7.8	Oct 7	3.8	Aug 29, 1981
ANNUAL SEVEN-DAY MINIMUM	6.3	Sep 5	8.0	Oct 5	4.1	Oct 4, 1981
MAXIMUM PEAK FLOW			1,580	Dec 13	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.96	Dec 13	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			7.8	Oct 5		
ANNUAL RUNOFF (CFSM)	1.50		1.71		1.23	
ANNUAL RUNOFF (INCHES)	20.30		23.22		16.73	
10 PERCENT EXCEEDS	52		64		47	
50 PERCENT EXCEEDS	21		27		18	
90 PERCENT EXCEEDS	8.1		12		6.5	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	13	21	15	43	18	39	9.8	14	8.2	7.3	4.8
2	21	13	18	17	58	18	22	11	12	8.4	6.5	4.8
3	14	13	23	18	26	17	19	31	11	8.2	5.6	4.6
4	13	13	20	21	24	17	18	15	13	7.7	5.2	4.4
5	12	25	19	26	22	18	18	13	105	7.4	4.9	3.9
6	12	16	48	21	18	16	16	12	26	7.5	5.1	3.6
7	12	14	26	20	17	16	15	11	17	7.4	5.3	3.4
8	12	13	21	19	17	17	15	10	17	6.6	6.3	3.4
9	13	13	19	17	16	16	15	9.9	19	6.7	5.4	3.7
10	13	13	18	16	15	15	15	9.6	14	7.4	4.9	3.9
11	12	14	18	16	16	15	15	9.4	13	7.2	4.6	3.6
12	12	14	17	16	850	18	15	10	13	7.0	4.6	3.3
13	12	13	17	16	58	16	15	15	12	7.2	4.3	3.0
14	13	13	16	15	34	16	15	10	12	5.8	4.2	3.0
15	13	12	16	15	29	15	15	9.6	12	6.3	6.6	3.0
16	13	13	16	15	25	15	15	12	15	9.2	4.4	2.8
17	13	12	16	15	23	15	13	42	12	6.6	4.4	2.7
18	13	12	15	16	21	15	13	39	12	5.4	5.4	2.6
19	13	18	16	16	21	14	13	17	11	5.1	6.6	2.6
20	13	15	16	15	20	14	12	14	10	4.8	5.0	2.6
21	13	13	18	13	20	14	12	12	11	5.0	6.3	2.6
22	13	13	21	15	20	14	12	13	9.9	5.1	5.4	2.5
23	22	13	17	16	21	23	11	24	9.7	6.0	4.8	2.8
24	21	13	16	16	21	30	11	18	14	4.3	4.5	3.2
25	16	13	16	15	20	23	14	14	12	8.7	7.1	2.9
26	15	13	15	15	19	18	12	12	9.3	10	7.7	2.8
27	14	12	15	15	19	17	11	11	8.5	23	6.6	84
28	14	45	15	15	18	16	10	17	8.5	7.9	5.4	12
29	22	115	15	15	---	18	9.9	15	8.2	6.9	5.0	7.7
30	15	26	15	14	---	18	9.8	13	7.7	6.7	5.8	6.5
31	14	---	15	16	---	23	---	18	---	6.7	5.5	---
TOTAL	451	558	574	510	1,511	535	445.7	477.3	468.8	230.4	170.7	196.7
MEAN	14.5	18.6	18.5	16.5	54.0	17.3	14.9	15.4	15.6	7.43	5.51	6.56
MAX	23	115	48	26	850	30	39	42	105	23	7.7	84
MIN	12	12	15	13	15	14	9.8	9.4	7.7	4.3	4.2	2.5
CFSM	0.64	0.81	0.81	0.72	2.36	0.75	0.65	0.67	0.68	0.32	0.24	0.29
IN.	0.73	0.91	0.93	0.83	2.45	0.87	0.72	0.78	0.76	0.37	0.28	0.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1985, BY WATER YEAR (WY)

MEAN	20.4	18.6	26.0	28.4	48.6	36.5	38.8	30.7	25.8	17.3	14.9	17.8
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	55.4	37.5	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1983)	(1983)	(1978)	(1984)	(1979)
MIN	6.29	5.96	9.24	8.38	20.7	14.5	14.9	14.2	15.6	7.43	5.51	5.28
(WY)	(1982)	(1982)	(1982)	(1981)	(1983)	(1981)	(1985)	(1981)	(1985)	(1985)	(1985)	(1981)

SUMMARY STATISTICS	FOR 1984 CALENDAR YEAR		FOR 1985 WATER YEAR		WATER YEARS 1978 - 1985	
ANNUAL TOTAL	12,141.5		6,128.6			
ANNUAL MEAN	33.2		16.8		26.6	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	447	Mar 29	850	Feb 12	970	Sep 6, 1979
LOWEST DAILY MEAN	9.7	Sep 27	2.5	Sep 22	2.5	Sep 22, 1985
ANNUAL SEVEN-DAY MINIMUM	10	Sep 21	2.6	Sep 16	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			2,230	Feb 12	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			8.12	Feb 12	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			2.5	Sep 21		
ANNUAL RUNOFF (CFSM)	1.45		0.73		1.16	
ANNUAL RUNOFF (INCHES)	19.72		9.96		15.76	
10 PERCENT EXCEEDS	55		21		45	
50 PERCENT EXCEEDS	22		14		16	
90 PERCENT EXCEEDS	13		4.9		6.3	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	5.1	12	17	21	363	26	18	8.5	215	7.4	4.1
2	4.3	10	21	27	21	70	22	18	8.0	68	7.4	3.7
3	3.3	6.6	75	24	26	40	21	17	13	35	6.7	3.6
4	3.4	5.6	23	20	31	33	153	17	34	19	6.5	3.4
5	3.4	9.5	18	18	27	29	47	16	26	16	6.0	3.4
6	2.9	18	16	17	23	27	41	17	16	15	6.7	5.7
7	2.6	8.1	15	17	25	26	35	16	14	14	6.2	7.7
8	2.7	14	15	18	26	26	30	16	13	42	6.4	336
9	2.8	9.5	19	17	25	25	27	17	13	17	5.9	40
10	2.7	8.1	25	21	21	24	26	15	14	15	6.0	13
11	2.6	41	22	21	21	22	24	15	12	14	5.2	10
12	2.8	25	28	19	22	22	23	12	12	14	5.0	12
13	3.6	14	21	17	22	21	23	12	13	13	5.0	38
14	5.1	12	17	17	21	21	22	11	13	15	4.7	16
15	3.8	11	17	18	20	21	22	14	12	13	4.6	17
16	3.4	10	16	17	20	21	24	19	11	12	4.9	20
17	3.4	9.9	16	16	18	20	38	13	11	11	5.3	15
18	3.4	9.7	38	23	18	20	29	12	10	11	4.5	71
19	3.6	13	25	106	18	19	26	21	9.9	10	4.3	20
20	3.7	13	19	44	17	19	24	17	9.9	9.8	4.7	23
21	3.7	31	18	28	18	19	22	17	11	9.3	4.0	26
22	3.7	16	16	25	18	18	21	15	13	8.9	5.4	17
23	3.6	13	16	23	26	18	20	14	13	8.6	5.9	15
24	3.5	13	275	22	21	18	32	13	11	8.6	4.5	14
25	3.5	12	350	21	20	18	28	13	9.8	11	4.3	12
26	5.0	30	31	21	20	18	23	22	11	9.0	4.5	12
27	5.2	29	24	21	20	18	21	14	12	8.6	4.6	11
28	5.5	17	21	21	21	20	20	11	10	8.4	4.5	11
29	5.0	15	19	21	---	19	20	10	9.0	7.6	4.9	10
30	5.0	13	18	21	---	19	19	9.0	22	7.3	4.1	11
31	5.1	---	17	21	---	41	---	9.0	---	7.2	3.9	---
TOTAL	115.5	442.1	1,263	739	607	1,095	909	460.0	395.1	673.3	164.0	801.6
MEAN	3.73	14.7	40.7	23.8	21.7	35.3	30.3	14.8	13.2	21.7	5.29	26.7
MAX	5.5	41	350	106	31	363	153	22	34	215	7.4	336
MIN	2.6	5.1	12	16	17	18	19	9.0	8.0	7.2	3.9	3.4
CFSM	0.16	0.64	1.78	1.04	0.95	1.54	1.32	0.65	0.58	0.95	0.23	1.17
IN.	0.19	0.72	2.05	1.20	0.99	1.78	1.48	0.75	0.64	1.09	0.27	1.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1987, BY WATER YEAR (WY)

MEAN	17.2	18.2	26.6	26.3	43.3	34.6	35.7	27.1	22.3	16.5	13.2	17.4
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	55.4	37.5	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1983)	(1983)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	20.7	14.5	14.9	14.1	6.96	4.23	5.29	4.67
(WY)	(1987)	(1982)	(1982)	(1981)	(1983)	(1981)	(1985)	(1986)	(1986)	(1986)	(1987)	(1986)

SUMMARY STATISTICS	FOR 1986 CALENDAR YEAR		FOR 1987 WATER YEAR		WATER YEARS 1978 - 1987	
ANNUAL TOTAL	5,404.9		7,664.6			
ANNUAL MEAN	14.8		21.0		24.5	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	350	Dec 25	363	Mar 1	970	Sep 6, 1979
LOWEST DAILY MEAN	2.5	Aug 1	2.6	Oct 7	2.5	Sep 22, 1985
ANNUAL SEVEN-DAY MINIMUM	2.7	Oct 6	2.7	Oct 6	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			1,310	Sep 8	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.40	Sep 8	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			2.5	Oct 7		
ANNUAL RUNOFF (CFSM)	0.65		0.92		1.07	
ANNUAL RUNOFF (INCHES)	8.78		12.45		14.53	
10 PERCENT EXCEEDS	24		28		41	
50 PERCENT EXCEEDS	11		16		16	
90 PERCENT EXCEEDS	3.5		4.5		5.8	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	28	20	39	22	22	19	25	e10	9.6	7.7
2	10	13	23	18	49	22	22	18	e25	10	9.2	7.1
3	13	13	21	17	52	22	21	18	e24	e9.5	9.0	7.0
4	14	13	22	17	44	40	22	19	e24	e9.5	8.9	19
5	11	13	21	e15	34	40	21	37	e25	e8.5	8.5	19
6	11	13	19	e15	28	29	20	99	e24	e8.0	8.4	10
7	21	13	17	e14	31	27	43	42	e21	e8.0	8.6	8.8
8	13	13	17	e14	24	25	43	30	e20	e7.5	8.9	8.3
9	12	14	17	e14	23	25	29	26	e26	e10	9.5	7.9
10	12	26	17	e14	23	24	25	26	e24	e11	8.1	7.9
11	12	36	16	e14	23	22	23	37	e19	e9.0	7.8	7.4
12	12	25	16	e13	64	22	21	27	e18	e10	7.6	7.0
13	11	26	15	e13	33	23	21	23	e17	e9.0	7.3	8.4
14	11	23	15	e13	37	22	20	21	e17	e8.5	7.2	7.9
15	11	20	35	e12	27	21	20	20	e16	e8.0	6.4	7.0
16	11	18	26	e12	41	20	19	20	e16	e7.5	6.4	6.5
17	11	18	20	e14	29	19	18	26	e16	e7.0	5.8	6.7
18	11	30	18	46	28	19	23	63	e17	e6.5	5.6	7.9
19	11	20	17	24	32	20	25	85	e16	e9.0	6.3	7.4
20	11	18	24	490	50	20	20	38	e15	e20	11	7.4
21	18	17	21	46	33	18	19	265	e14	e26	9.5	7.5
22	12	16	18	33	27	18	18	45	e14	e20	7.2	7.0
23	11	15	18	28	28	18	18	56	e13	128	6.9	6.9
24	12	15	17	25	27	18	20	86	e12	29	13	7.1
25	11	15	17	28	25	18	18	79	e12	14	8.7	16
26	11	15	27	29	24	62	17	44	e11	13	7.5	11
27	21	15	21	e25	24	47	23	37	e11	13	7.1	8.6
28	37	29	20	e22	24	29	38	33	e11	15	6.8	7.9
29	17	191	23	21	23	25	22	31	e10	12	13	7.3
30	15	59	18	21	---	23	21	28	e10	11	11	7.5
31	14	---	19	30	---	22	---	26	---	9.7	8.6	---
TOTAL	420	765	623	1,117	946	782	692	1,424	523	477.2	259.4	263.1
MEAN	13.5	25.5	20.1	36.0	32.6	25.2	23.1	45.9	17.4	15.4	8.37	8.77
MAX	37	191	35	490	64	62	43	265	26	128	13	19
MIN	10	13	15	12	23	18	17	18	10	6.5	5.6	6.5
CFSM	0.59	1.11	0.88	1.57	1.42	1.10	1.01	2.01	0.76	0.67	0.37	0.38
IN.	0.68	1.24	1.01	1.81	1.54	1.27	1.12	2.31	0.85	0.78	0.42	0.43

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1988, BY WATER YEAR (WY)

MEAN	16.8	18.9	25.9	27.3	42.2	33.7	34.5	29.0	21.8	16.4	12.7	16.6
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	55.4	37.5	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1983)	(1983)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	20.7	14.5	14.9	14.1	6.96	4.23	5.29	4.67
(WY)	(1987)	(1982)	(1982)	(1981)	(1983)	(1981)	(1985)	(1986)	(1986)	(1986)	(1987)	(1986)

SUMMARY STATISTICS	FOR 1987 CALENDAR YEAR		FOR 1988 WATER YEAR		WATER YEARS 1978 - 1988	
ANNUAL TOTAL	7,652.0		8,291.7			
ANNUAL MEAN	21.0		22.7		24.3	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	363	Mar 1	490	Jan 20	970	Sep 6, 1979
LOWEST DAILY MEAN	3.4	Sep 4	5.6	Aug 18	2.5	Sep 22, 1985
ANNUAL SEVEN-DAY MINIMUM	3.7	Aug 30	6.4	Aug 13	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			1,360	Jan 20	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.51	Jan 20	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			5.0	Aug 15		
ANNUAL RUNOFF (CFSM)	0.92		0.99		1.06	
ANNUAL RUNOFF (INCHES)	12.43		13.47		14.42	
10 PERCENT EXCEEDS	27		36		40	
50 PERCENT EXCEEDS	17		18		16	
90 PERCENT EXCEEDS	7.3		7.9		6.0	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	12	14	12	15	18	31	23	26	22	23	11
2	7.6	12	13	13	14	17	26	47	25	21	23	11
3	8.2	12	13	14	17	17	28	25	23	21	19	11
4	8.1	12	12	13	20	17	26	21	23	30	17	11
5	7.8	17	12	13	16	21	27	120	24	30	16	11
6	7.3	21	12	e16	15	50	32	842	35	44	16	11
7	7.3	14	12	e21	15	32	26	101	167	29	16	11
8	7.3	12	11	e28	14	24	25	48	41	24	16	11
9	8.8	11	11	e23	13	23	25	40	39	22	14	11
10	8.0	11	11	17	14	26	23	69	34	20	14	10
11	7.5	11	11	16	13	25	22	47	27	19	15	10
12	7.1	11	11	61	13	24	22	39	26	18	16	9.9
13	7.1	15	10	38	12	22	21	36	26	37	15	10
14	7.3	15	11	24	32	21	21	34	38	26	30	10
15	7.7	12	11	51	26	21	30	38	37	21	25	10
16	7.8	12	10	28	26	19	30	223	32	34	18	17
17	7.8	24	10	23	20	18	24	93	32	26	16	18
18	8.1	17	9.7	20	18	20	23	47	29	23	15	13
19	8.7	18	9.8	19	17	20	28	39	25	21	18	13
20	8.4	57	9.9	18	17	20	23	36	70	33	17	20
21	11	27	12	16	36	44	21	34	62	24	17	17
22	18	19	12	17	48	26	20	31	49	21	16	18
23	11	17	13	15	30	23	19	39	55	19	15	16
24	10	15	17	15	24	138	19	43	50	18	14	16
25	9.9	14	18	15	20	50	18	34	32	18	13	13
26	9.6	13	14	16	20	33	18	31	28	17	13	31
27	9.6	14	12	16	20	29	18	37	26	18	13	17
28	9.8	34	13	15	19	27	17	31	26	20	15	14
29	9.9	18	13	15	---	26	19	28	24	16	14	13
30	9.7	15	12	16	---	28	19	27	22	16	13	13
31	9.7	---	12	16	---	47	---	27	---	44	12	---
TOTAL	273.7	512	372.4	640	564	926	701	2,330	1,153	752	514	407.9
MEAN	8.83	17.1	12.0	20.6	20.1	29.9	23.4	75.2	38.4	24.3	16.6	13.6
MAX	18	57	18	61	48	138	32	842	167	44	30	31
MIN	7.1	11	9.7	12	12	17	17	21	22	16	12	9.9
CFSM	0.39	0.75	0.52	0.90	0.88	1.30	1.02	3.28	1.68	1.06	0.72	0.59
IN.	0.44	0.83	0.60	1.04	0.92	1.50	1.14	3.78	1.87	1.22	0.83	0.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1989, BY WATER YEAR (WY)

MEAN	16.1	18.8	24.7	26.7	40.2	33.3	33.4	33.2	23.3	17.0	13.0	16.4
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	75.2	38.4	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1989)	(1989)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	20.1	14.5	14.9	14.1	6.96	4.23	5.29	4.67
(WY)	(1987)	(1982)	(1982)	(1981)	(1989)	(1981)	(1985)	(1986)	(1986)	(1986)	(1987)	(1986)

e Estimated

SUMMARY STATISTICS	FOR 1988 CALENDAR YEAR		FOR 1989 WATER YEAR		WATER YEARS 1978 - 1989	
ANNUAL TOTAL	7,641.8		9,146.0			
ANNUAL MEAN	20.9		25.1		24.4	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	490	Jan 20	842	May 6	970	Sep 6, 1979
LOWEST DAILY MEAN	5.6	Aug 18	7.1	Oct 12	2.5	Sep 22, 1985
ANNUAL SEVEN-DAY MINIMUM	6.4	Aug 13	7.5	Oct 11	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			1,980	May 6	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			7.72	May 6	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			6.5	Dec 18		
ANNUAL RUNOFF (CFSM)	0.91		1.09		1.06	
ANNUAL RUNOFF (INCHES)	12.41		14.86		14.46	
10 PERCENT EXCEEDS	33		38		40	
50 PERCENT EXCEEDS	15		18		16	
90 PERCENT EXCEEDS	7.5		10		6.2	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	19	21	177	30	22	30	26	25	12	7.8	9.1
2	32	19	20	31	29	22	80	23	23	12	7.4	8.9
3	20	19	20	23	28	22	84	22	23	11	6.7	8.7
4	15	19	19	22	38	21	38	25	26	10	6.7	8.3
5	14	18	19	32	31	20	32	28	21	9.9	7.2	8.4
6	14	18	20	27	28	20	34	23	20	10	19	8.4
7	13	18	20	23	27	19	52	21	20	9.2	12	8.0
8	13	19	20	23	25	19	37	20	20	9.6	9.1	7.8
9	13	26	21	27	25	21	31	19	26	9.2	15	7.4
10	12	23	20	35	55	22	30	62	22	9.0	59	7.7
11	12	20	19	29	35	21	35	38	19	9.9	22	7.3
12	12	19	20	25	30	21	29	26	18	11	14	7.3
13	12	18	20	21	27	20	27	27	17	28	12	7.5
14	12	18	19	20	27	20	26	25	17	17	12	7.9
15	12	19	19	21	26	19	47	22	17	21	11	8.2
16	12	290	18	20	27	20	32	22	17	15	11	9.7
17	17	41	18	20	25	33	30	24	16	12	10	11
18	21	28	18	20	23	32	28	21	15	12	9.7	8.4
19	110	24	18	19	23	23	26	19	26	11	9.5	8.5
20	144	23	18	20	22	33	25	18	17	11	18	8.9
21	37	22	18	20	21	28	29	22	17	11	12	8.0
22	26	22	17	19	23	24	27	20	16	12	16	12
23	23	23	e17	18	28	22	25	19	19	12	19	9.8
24	22	22	e17	18	35	23	24	18	16	11	14	8.6
25	21	22	e16	37	24	27	23	17	14	10	14	9.1
26	20	24	e16	80	21	26	23	69	14	9.5	14	8.7
27	19	23	e16	35	21	23	22	33	13	9.1	12	8.6
28	19	23	e15	28	22	21	21	26	13	9.1	11	8.2
29	18	22	e15	54	---	21	28	115	13	9.0	10	7.9
30	18	21	e17	86	---	27	30	43	12	9.0	9.9	7.9
31	19	---	35	35	---	43	---	29	---	8.7	9.4	---
TOTAL	765	922	586	1,065	776	735	1,005	922	552	360.2	420.4	256.2
MEAN	24.7	30.7	18.9	34.4	27.7	23.7	33.5	29.7	18.4	11.6	13.6	8.54
MAX	144	290	35	177	55	43	84	115	26	28	59	12
MIN	12	18	15	18	21	19	21	17	12	8.7	6.7	7.3
CFSM	1.08	1.34	0.83	1.50	1.21	1.04	1.46	1.30	0.80	0.51	0.59	0.37
IN.	1.24	1.50	0.95	1.73	1.26	1.19	1.63	1.50	0.90	0.59	0.68	0.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1990, BY WATER YEAR (WY)

MEAN	16.8	19.8	24.2	27.3	39.2	32.5	33.5	32.9	22.9	16.6	13.1	15.8
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	75.2	38.4	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1989)	(1989)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	20.1	14.5	14.9	14.1	6.96	4.23	5.29	4.67
(WY)	(1987)	(1982)	(1982)	(1981)	(1989)	(1981)	(1985)	(1986)	(1986)	(1986)	(1987)	(1986)

SUMMARY STATISTICS	FOR 1989 CALENDAR YEAR		FOR 1990 WATER YEAR		WATER YEARS 1978 - 1990	
ANNUAL TOTAL	10,260.9		8,364.8			
ANNUAL MEAN	28.1		22.9		24.3	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	842	May 6	290	Nov 16	970	Sep 6, 1979
LOWEST DAILY MEAN	9.9	Sep 12	6.7	Aug 3	2.5	Sep 22, 1985
ANNUAL SEVEN-DAY MINIMUM	10	Sep 9	7.6	Sep 8	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			1,200	Nov 16	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.17	Nov 16	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			5.6	Aug 3	1.8	Jul 5, 1986
ANNUAL RUNOFF (CFSM)	1.23		1.00		1.06	
ANNUAL RUNOFF (INCHES)	16.67		13.59		14.39	
10 PERCENT EXCEEDS	39		32		39	
50 PERCENT EXCEEDS	20		20		17	
90 PERCENT EXCEEDS	13		9.1		6.4	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	16	14	36	e24	e18	31	23	13	7.4	4.5	3.2
2	7.8	15	15	31	e23	e19	29	23	16	7.4	3.7	2.7
3	7.3	15	21	29	e23	e21	28	21	14	8.2	4.0	2.7
4	8.4	15	56	28	e23	e29	28	20	12	8.1	4.5	3.3
5	9.6	15	25	26	e22	e25	28	20	12	9.1	4.3	8.6
6	8.1	17	21	32	e23	e21	28	25	11	12	3.8	3.7
7	7.9	16	19	38	e26	e28	27	24	11	11	3.1	3.7
8	7.8	15	18	33	e24	24	26	20	11	12	3.7	3.4
9	10	15	17	31	e23	22	26	21	9.9	9.6	5.7	3.2
10	8.8	266	17	31	e22	22	25	21	9.4	8.4	5.1	3.1
11	9.8	37	16	42	e21	21	23	19	9.9	8.2	4.1	3.1
12	11	24	16	113	e20	20	23	19	11	7.5	3.6	2.8
13	13	21	16	48	e20	21	27	18	9.6	10	3.5	2.9
14	12	19	15	36	e30	24	34	18	9.1	7.4	3.5	2.9
15	10	18	34	47	e25	25	48	17	8.9	6.8	3.6	3.0
16	9.5	18	28	107	e20	23	35	16	8.7	6.4	4.1	3.2
17	9.2	19	21	44	e20	22	29	23	8.7	5.9	3.3	2.9
18	49	17	28	38	e22	61	27	22	46	5.6	2.8	3.9
19	25	16	24	36	e25	34	26	19	15	5.4	2.4	3.9
20	14	16	20	35	e22	28	27	18	12	5.3	23	4.3
21	12	16	25	e32	e21	26	30	17	11	4.3	7.2	3.9
22	12	16	25	e30	e20	27	34	16	11	4.7	5.1	3.8
23	750	18	37	e28	e19	244	28	16	12	4.8	4.6	3.8
24	54	16	73	e27	e19	54	26	15	11	4.3	4.2	4.4
25	26	16	30	e27	e19	37	24	14	10	4.7	4.1	20
26	20	15	25	e26	e19	34	24	14	9.8	5.4	4.1	7.4
27	18	15	23	e25	e19	37	23	13	9.5	6.3	3.8	5.4
28	17	15	28	e26	e18	33	23	13	8.8	4.9	3.8	4.8
29	16	15	25	e25	---	32	23	13	8.4	5.4	3.9	4.6
30	16	15	130	e25	---	42	23	13	7.9	5.8	3.4	4.4
31	16	---	74	e28	---	34	---	12	---	5.2	3.1	---
TOTAL	1,203.7	767	936	1,160	612	1,108	833	563	357.6	217.5	143.6	133.0
MEAN	38.8	25.6	30.2	37.4	21.9	35.7	27.8	18.2	11.9	7.02	4.63	4.43
MAX	750	266	130	113	30	244	48	25	46	12	23	20
MIN	7.3	15	14	25	18	18	23	12	7.9	4.3	2.4	2.7
CFSM	1.70	1.12	1.32	1.63	0.95	1.56	1.21	0.79	0.52	0.31	0.20	0.19
IN.	1.96	1.25	1.52	1.88	0.99	1.80	1.35	0.91	0.58	0.35	0.23	0.22

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1991, BY WATER YEAR (WY)

MEAN	18.5	20.2	24.7	28.1	37.9	32.8	33.0	31.8	22.1	15.9	12.5	15.0
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	75.2	38.4	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1989)	(1989)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	20.1	14.5	14.9	14.1	6.96	4.23	4.63	4.43
(WY)	(1987)	(1982)	(1982)	(1981)	(1989)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1991)

SUMMARY STATISTICS	FOR 1990 CALENDAR YEAR		FOR 1991 WATER YEAR		WATER YEARS 1978 - 1991	
ANNUAL TOTAL	8,998.5		8,034.4			
ANNUAL MEAN	24.7		22.0		24.1	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.1	1981
HIGHEST DAILY MEAN	750	Oct 23	750	Oct 23	970	Sep 6, 1979
LOWEST DAILY MEAN	6.7	Aug 3	2.4	Aug 19	2.4	Aug 19, 1991
ANNUAL SEVEN-DAY MINIMUM	7.6	Sep 8	3.0	Sep 11	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			2,410	Oct 23	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			8.41	Oct 23	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			1.7	Aug 19	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	1.08		0.96		1.05	
ANNUAL RUNOFF (INCHES)	14.62		13.05		14.29	
10 PERCENT EXCEEDS	34		34		39	
50 PERCENT EXCEEDS	20		17		17	
90 PERCENT EXCEEDS	8.9		3.9		6.2	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	5.6	8.6	9.8	9.8	14	18	15	19	18	18	5.5
2	4.5	5.7	39	9.6	9.2	14	17	15	15	12	12	5.5
3	4.4	5.1	55	9.8	9.3	13	16	14	13	11	11	7.3
4	4.5	5.0	22	16	9.3	13	15	13	12	11	11	6.9
5	4.6	5.0	13	18	9.3	13	15	13	24	7.8	9.7	6.5
6	7.4	5.0	11	12	9.2	13	14	13	21	10	9.1	21
7	5.2	5.1	10	11	9.4	19	14	12	15	7.7	8.6	14
8	5.0	5.2	9.5	10	9.4	17	14	19	13	7.0	8.6	10
9	5.1	5.3	13	11	9.0	14	13	26	12	6.7	8.6	11
10	4.7	6.3	44	11	9.0	15	13	17	11	6.5	8.2	9.4
11	5.0	7.6	16	9.9	8.9	28	13	14	10	5.8	8.8	22
12	5.8	6.9	13	9.3	9.2	18	13	13	9.9	5.8	9.7	10
13	5.4	6.7	12	9.3	9.7	16	12	12	9.6	6.3	8.5	8.5
14	5.0	6.4	14	14	10	14	12	12	9.3	5.5	9.7	8.1
15	5.3	6.3	12	12	24	14	12	14	9.1	5.4	9.5	8.0
16	6.3	6.3	11	9.8	33	13	12	16	8.4	5.6	10	7.8
17	14	6.2	11	9.5	19	13	13	13	8.1	31	9.9	7.4
18	12	5.9	10	8.9	21	14	13	13	8.1	8.0	10	7.1
19	7.3	5.8	9.0	8.6	21	24	14	12	9.1	7.0	9.0	7.0
20	6.5	6.2	8.9	8.7	18	18	13	11	9.3	6.4	8.6	6.8
21	6.4	6.8	9.2	8.5	15	16	21	10	8.2	5.8	7.8	6.8
22	6.5	25	9.1	8.7	14	15	63	9.9	7.7	6.2	7.6	8.4
23	6.5	19	9.3	11	14	16	30	9.5	7.5	13	7.6	12
24	6.5	10	9.5	15	14	15	22	9.5	7.8	32	7.2	7.3
25	6.3	8.4	8.7	11	14	14	23	10	9.1	252	6.7	11
26	6.3	7.6	8.2	11	34	52	23	13	7.9	26	6.6	41
27	6.5	7.1	8.1	11	20	109	22	12	7.4	19	6.5	14
28	6.4	7.0	8.0	9.9	17	29	18	10	6.7	16	7.2	13
29	5.8	6.9	19	9.9	15	22	16	9.7	6.4	13	8.4	11
30	5.6	6.8	14	9.9	---	19	16	13	6.5	11	6.3	9.3
31	5.6	---	11	10	---	21	---	57	---	21	6.0	---
TOTAL	190.9	222.2	456.1	334.1	423.7	645	530	450.6	321.1	599.5	276.4	323.6
MEAN	6.16	7.41	14.7	10.8	14.6	20.8	17.7	14.5	10.7	19.3	8.92	10.8
MAX	14	25	55	18	34	109	63	57	24	252	18	41
MIN	4.4	5.0	8.0	8.5	8.9	13	12	9.5	6.4	5.4	6.0	5.5
CFSM	0.27	0.32	0.64	0.47	0.64	0.91	0.77	0.63	0.47	0.84	0.39	0.47
IN.	0.31	0.36	0.74	0.54	0.69	1.05	0.86	0.73	0.52	0.97	0.45	0.53

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1992, BY WATER YEAR (WY)

MEAN	17.6	19.3	23.9	26.9	36.2	31.9	31.9	30.5	21.3	16.1	12.2	14.7
MAX	76.6	37.9	72.2	83.0	103	58.7	77.5	75.2	38.4	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1984)	(1983)	(1989)	(1989)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	14.6	14.5	14.9	14.1	6.96	4.23	4.63	4.43
(WY)	(1987)	(1982)	(1982)	(1981)	(1992)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1991)

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1978 - 1992	
ANNUAL TOTAL	5,996.9		4,773.2			
ANNUAL MEAN	16.4		13.0		23.3	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	244	Mar 23	252	Jul 25	970	Sep 6, 1979
LOWEST DAILY MEAN	2.4	Aug 19	4.4	Oct 3	2.4	Aug 19, 1991
ANNUAL SEVEN-DAY MINIMUM	3.0	Sep 11	5.0	Oct 1	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			822	Jul 25	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			5.22	Jul 25	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			4.2	Oct 3	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	0.72		0.57		1.02	
ANNUAL RUNOFF (INCHES)	9.74		7.75		13.82	
10 PERCENT EXCEEDS	31		20		38	
50 PERCENT EXCEEDS	11		10		16	
90 PERCENT EXCEEDS	3.9		6.0		6.2	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	12	13	27	23	25	316	51	61	17	8.0	6.5
2	8.4	19	13	24	21	35	276	49	32	21	7.7	6.8
3	8.0	103	13	24	24	35	76	48	31	21	8.0	6.6
4	7.6	22	13	24	21	541	67	48	29	19	9.4	7.2
5	7.3	18	14	59	21	146	63	57	34	17	8.8	8.0
6	7.3	19	12	34	21	68	60	52	29	16	22	7.1
7	7.3	15	13	29	20	51	57	47	27	15	15	6.6
8	7.4	14	12	32	21	45	55	44	53	14	11	8.3
9	88	13	12	37	19	41	54	43	135	15	9.9	8.5
10	127	13	71	31	20	40	171	42	35	13	9.6	7.4
11	16	13	480	28	20	39	83	41	31	12	9.7	6.6
12	13	13	91	41	32	35	65	44	28	12	32	6.5
13	11	37	46	53	46	41	58	49	27	12	13	6.6
14	11	17	37	37	36	43	55	42	26	13	11	6.4
15	10	15	33	32	30	39	54	39	25	17	10	7.9
16	10	13	31	30	41	37	430	40	24	12	9.7	12
17	10	13	52	29	46	215	117	41	23	11	17	62
18	10	13	40	27	33	121	68	41	22	10	15	21
19	10	13	33	25	28	57	62	50	23	11	12	13
20	11	13	35	24	28	52	58	43	26	15	12	10
21	10	13	31	25	27	132	68	37	30	11	11	11
22	11	14	29	39	38	100	155	36	26	10	9.9	11
23	11	64	30	29	36	139	72	35	22	8.9	9.4	11
24	11	22	27	27	28	310	63	34	20	9.2	9.1	11
25	13	20	24	26	26	82	60	33	20	10	8.7	11
26	11	18	25	24	25	65	66	31	19	9.7	7.9	20
27	11	17	23	24	25	129	59	30	18	9.0	7.6	73
28	11	15	31	23	24	171	55	30	18	8.6	7.4	27
29	11	14	35	23	---	81	53	29	18	9.6	6.9	15
30	11	14	32	22	---	72	52	27	18	8.6	6.6	13
31	14	---	29	22	---	61	---	31	---	8.2	6.4	---
TOTAL	514.2	619	1,380	931	780	3,048	2,948	1,264	930	395.8	341.7	428.0
MEAN	16.6	20.6	44.5	30.0	27.9	98.3	98.3	40.8	31.0	12.8	11.0	14.3
MAX	127	103	480	59	46	541	430	57	135	21	32	73
MIN	7.3	12	12	22	19	25	52	27	18	8.2	6.4	6.4
CFSM	0.72	0.90	1.94	1.31	1.22	4.29	4.29	1.78	1.35	0.56	0.48	0.62
IN.	0.84	1.01	2.24	1.51	1.27	4.95	4.79	2.05	1.51	0.64	0.56	0.70

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1993, BY WATER YEAR (WY)

MEAN	17.6	19.4	25.3	27.1	35.6	36.3	36.3	31.2	21.9	15.9	12.2	14.7
MAX	76.6	37.9	72.2	83.0	103	98.3	98.3	75.2	38.4	31.5	30.7	81.6
(WY)	(1980)	(1980)	(1984)	(1979)	(1979)	(1993)	(1993)	(1989)	(1989)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	14.6	14.5	14.9	14.1	6.96	4.23	4.63	4.43
(WY)	(1987)	(1982)	(1982)	(1981)	(1992)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1991)

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1978 - 1993	
ANNUAL TOTAL	6,417.2		13,579.7			
ANNUAL MEAN	17.5		37.2		24.2	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	480	Dec 11	541	Mar 4	970	Sep 6, 1979
LOWEST DAILY MEAN	5.4	Jul 15	6.4	Aug 31	2.4	Aug 19, 1991
ANNUAL SEVEN-DAY MINIMUM	5.8	Jul 10	6.7	Aug 29	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			1,430	Apr 2	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.67	Apr 2	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			6.1	Aug 31	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	0.77		1.62		1.06	
ANNUAL RUNOFF (INCHES)	10.42		22.06		14.37	
10 PERCENT EXCEEDS	27		65		40	
50 PERCENT EXCEEDS	12		24		16	
90 PERCENT EXCEEDS	7.4		8.9		6.4	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	18	26	22	36	35	55	34	22	16	12	15
2	11	15	24	23	28	40	51	31	21	14	13	14
3	11	14	23	24	27	77	48	29	21	14	14	13
4	11	14	39	35	26	91	48	38	20	15	11	13
5	10	16	621	28	27	269	45	36	20	14	11	12
6	9.9	15	62	24	39	129	47	31	21	13	11	12
7	9.8	14	41	32	40	99	78	51	20	13	10	12
8	10	13	35	60	32	80	48	100	19	12	9.8	11
9	10	13	32	32	38	61	45	42	18	11	9.5	11
10	10	13	31	e29	28	263	48	36	18	11	9.2	11
11	9.8	13	31	25	27	74	49	33	19	10	9.5	11
12	18	13	26	48	28	56	44	33	19	10	18	11
13	12	13	25	41	27	53	65	30	18	9.7	17	10
14	11	15	25	38	25	53	57	29	17	14	34	10
15	11	15	28	31	24	51	46	76	16	14	27	12
16	11	14	34	e27	26	47	65	85	17	11	15	11
17	11	15	26	28	32	42	48	36	18	12	59	11
18	11	24	25	71	69	42	43	32	16	14	44	12
19	11	16	28	29	372	43	42	31	16	12	23	11
20	14	15	25	26	365	40	40	31	15	11	18	10
21	23	13	56	25	179	46	38	29	14	10	146	10
22	22	13	34	25	68	59	37	27	14	11	46	18
23	14	13	30	25	194	43	35	28	14	11	24	30
24	13	13	27	113	326	41	35	28	16	11	18	15
25	13	12	26	68	68	44	34	31	15	12	16	13
26	13	12	25	183	49	39	33	39	13	13	34	34
27	13	59	23	37	40	168	35	36	24	24	20	35
28	12	840	23	247	36	149	35	27	23	41	17	19
29	12	49	23	94	---	173	33	25	15	17	17	16
30	17	32	e22	48	---	72	33	24	17	14	16	14
31	23	---	e22	42	---	60	---	23	---	13	15	---
TOTAL	399.5	1,354	1,518	1,580	2,276	2,539	1,360	1,161	536	427.7	744.0	437
MEAN	12.9	45.1	49.0	51.0	81.3	81.9	45.3	37.5	17.9	13.8	24.0	14.6
MAX	23	840	621	247	372	269	78	100	24	41	146	35
MIN	9.8	12	22	22	24	35	33	23	13	9.7	9.2	10
CFSM	0.56	1.97	2.14	2.23	3.55	3.58	1.98	1.64	0.78	0.60	1.05	0.64
IN.	0.65	2.20	2.47	2.57	3.70	4.12	2.21	1.89	0.87	0.69	1.21	0.71

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1994, BY WATER YEAR (WY)

MEAN	17.3	21.0	26.8	28.6	38.4	39.2	36.9	31.6	21.7	15.8	12.9	14.7
MAX	76.6	45.1	72.2	83.0	103	98.3	98.3	75.2	38.4	31.5	30.7	81.6
(WY)	(1980)	(1994)	(1984)	(1979)	(1979)	(1993)	(1993)	(1989)	(1989)	(1978)	(1984)	(1979)
MIN	3.73	5.96	9.24	8.38	14.6	14.5	14.9	14.1	6.96	4.23	4.63	4.43
(WY)	(1987)	(1982)	(1982)	(1981)	(1992)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1991)

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1978 - 1994	
ANNUAL TOTAL	14,338.0		14,332.2			
ANNUAL MEAN	39.3		39.3		25.2	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	840	Nov 28	840	Nov 28	970	Sep 6, 1979
LOWEST DAILY MEAN	6.4	Aug 31	9.2	Aug 10	2.4	Aug 19, 1991
ANNUAL SEVEN-DAY MINIMUM	6.7	Aug 29	9.9	Oct 5	2.6	Sep 16, 1985
MAXIMUM PEAK FLOW			2,020	Nov 28	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			7.78	Nov 28	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			8.1	Aug 10	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	1.72		1.71		1.10	
ANNUAL RUNOFF (INCHES)	23.29		23.28		14.93	
10 PERCENT EXCEEDS	62		61		41	
50 PERCENT EXCEEDS	24		25		17	
90 PERCENT EXCEEDS	9.6		11		6.5	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	16	20	e18	30	26	63	32	25	59	48	21
2	4.2	21	20	91	29	28	104	28	24	62	35	20
3	4.1	18	18	90	e28	27	43	26	23	33	31	20
4	4.4	15	17	30	e27	25	38	27	24	28	29	26
5	15	15	16	24	e26	26	35	41	24	25	27	31
6	9.8	14	17	e19	27	32	33	57	22	24	26	580
7	6.8	18	16	e17	26	62	33	32	21	23	25	244
8	6.4	21	15	e46	29	44	31	42	20	26	25	39
9	6.3	17	17	e38	66	32	39	87	21	28	37	32
10	6.3	15	15	e29	43	30	43	43	23	22	32	30
11	6.4	25	e11	24	40	29	34	73	25	20	26	31
12	6.1	76	e12	e25	34	e28	31	62	26	21	36	29
13	6.0	29	e14	e24	28	e27	30	37	24	368	425	42
14	27	181	15	e23	e27	26	28	33	20	43	46	32
15	18	110	16	e22	e26	32	37	31	20	34	36	28
16	9.7	35	66	e21	e25	29	83	43	18	31	32	40
17	8.0	27	31	e22	e23	27	40	38	26	27	30	69
18	7.7	24	23	25	e22	26	34	35	85	29	29	37
19	7.5	23	44	1,230	e23	84	33	30	329	144	27	31
20	8.7	21	31	117	60	69	31	27	196	44	26	28
21	136	20	23	49	105	40	30	26	44	31	26	27
22	23	18	21	37	47	34	29	27	34	31	25	107
23	15	18	e19	34	56	31	30	24	29	31	24	38
24	13	23	e18	91	42	29	31	23	28	28	24	32
25	13	19	e17	54	34	28	28	23	29	27	23	30
26	12	18	e16	35	e31	27	27	23	25	27	23	28
27	16	18	e15	234	e30	26	27	33	23	24	23	28
28	39	17	e14	59	e28	44	25	36	23	23	24	30
29	19	22	e14	40	e26	75	25	56	22	24	23	39
30	16	20	e13	37	---	41	37	37	69	153	22	29
31	15	---	e13	35	---	35	---	28	---	219	21	---
TOTAL	489.7	914	617	2,640	1,038	1,119	1,132	1,160	1,322	1,709	1,286	1,798
MEAN	15.8	30.5	19.9	85.2	35.8	36.1	37.7	37.4	44.1	55.1	41.5	59.9
MAX	136	181	66	1,230	105	84	104	87	329	368	425	580
MIN	4.1	14	11	17	22	25	25	23	18	20	21	20
CFSM	0.69	1.33	0.87	3.72	1.56	1.58	1.65	1.63	1.92	2.41	1.81	2.62
IN.	0.80	1.48	1.00	4.29	1.69	1.82	1.84	1.88	2.15	2.78	2.09	2.92

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1996, BY WATER YEAR (WY)

MEAN	17.0	21.2	26.0	32.5	37.5	38.3	35.9	31.3	22.3	17.5	14.0	16.5
MAX	76.6	45.1	72.2	85.2	103	98.3	98.3	75.2	44.1	55.1	41.5	81.6
(WY)	(1980)	(1994)	(1984)	(1996)	(1979)	(1993)	(1993)	(1989)	(1996)	(1996)	(1996)	(1979)
MIN	3.73	5.96	9.24	8.38	14.6	14.5	14.9	14.1	6.96	4.23	4.63	3.81
(WY)	(1987)	(1982)	(1982)	(1981)	(1992)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1995)

SUMMARY STATISTICS	FOR 1995 CALENDAR YEAR		FOR 1996 WATER YEAR		WATER YEARS 1978 - 1996	
ANNUAL TOTAL	6,855.9		15,224.7			
ANNUAL MEAN	18.8		41.6		25.6	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	388	Jan 20	1,230	Jan 19	1,230	Jan 19, 1996
LOWEST DAILY MEAN	1.9	Sep 3	4.1	Oct 3	1.9	Sep 3, 1995
ANNUAL SEVEN-DAY MINIMUM	2.0	Sep 2	6.3	Oct 7	2.0	Sep 2, 1995
MAXIMUM PEAK FLOW			2,780	Jan 19	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			8.96	Jan 19	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			3.8	Oct 4	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	0.82		1.82		1.12	
ANNUAL RUNOFF (INCHES)	11.14		24.73		15.22	
10 PERCENT EXCEEDS	28		62		41	
50 PERCENT EXCEEDS	16		27		17	
90 PERCENT EXCEEDS	4.2		15		6.5	

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	32	250	43	41	57	41	28	18	10	5.6	5.3
2	37	32	269	43	39	44	37	26	34	12	5.6	5.2
3	32	31	56	43	38	282	36	30	28	12	5.7	5.2
4	28	30	48	42	41	84	35	27	23	10	7.4	4.6
5	26	31	44	42	61	53	34	24	20	9.4	6.9	4.4
6	26	31	265	40	43	50	35	24	18	9.0	6.4	4.3
7	26	31	129	39	39	42	35	23	18	8.9	5.8	4.4
8	98	339	76	37	41	41	32	22	18	8.8	5.3	4.4
9	53	127	55	40	41	39	31	26	17	8.5	4.9	4.4
10	37	53	50	42	38	43	30	25	16	11	4.8	8.0
11	32	42	62	40	37	39	30	23	15	9.1	4.6	12
12	30	38	56	37	37	37	39	22	15	8.3	4.6	7.4
13	29	37	558	37	36	36	40	22	16	7.8	4.8	6.2
14	28	37	120	37	46	55	32	22	17	7.1	5.1	5.6
15	27	34	69	36	75	46	30	21	18	6.7	4.9	5.7
16	27	33	62	61	50	38	30	20	15	6.8	4.5	5.4
17	27	33	61	42	42	37	31	20	15	6.7	4.9	5.4
18	56	34	57	e38	40	42	31	20	15	6.3	6.8	5.8
19	339	33	71	e36	40	71	29	21	16	6.2	5.3	5.4
20	60	32	54	34	38	51	28	20	14	6.0	27	5.2
21	45	31	49	34	37	43	30	19	13	6.1	13	5.2
22	41	31	48	37	37	41	32	18	13	6.3	7.6	5.0
23	39	30	51	46	34	37	30	18	12	6.7	6.5	4.9
24	38	30	58	72	33	36	30	17	12	7.5	6.2	4.9
25	36	30	55	145	33	36	30	18	11	7.8	6.0	5.1
26	35	136	47	45	34	53	28	23	11	7.6	6.0	5.1
27	34	42	48	40	39	40	30	19	12	7.0	5.8	5.0
28	35	36	46	88	35	37	50	18	11	7.2	5.7	5.3
29	34	35	48	47	---	37	32	17	10	9.4	5.5	8.9
30	33	35	46	41	---	36	29	18	10	6.5	5.4	e6.0
31	32	---	44	42	---	67	---	18	---	5.8	5.2	---
TOTAL	1,447	1,526	2,952	1,446	1,145	1,650	987	669	481	248.5	203.8	169.7
MEAN	46.7	50.9	95.2	46.6	40.9	53.2	32.9	21.6	16.0	8.02	6.57	5.66
MAX	339	339	558	145	75	282	50	30	34	12	27	12
MIN	26	30	44	34	33	36	28	17	10	5.8	4.5	4.3
CFSM	2.04	2.22	4.16	2.04	1.79	2.32	1.44	0.94	0.70	0.35	0.29	0.25
IN.	2.35	2.48	4.80	2.35	1.86	2.68	1.60	1.09	0.78	0.40	0.33	0.28

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1997, BY WATER YEAR (WY)

MEAN	18.6	22.8	29.7	33.2	37.7	39.1	35.8	30.8	22.0	17.0	13.6	15.9
MAX	76.6	50.9	95.2	85.2	103	98.3	98.3	75.2	44.1	55.1	41.5	81.6
(WY)	(1980)	(1997)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(1996)	(1996)	(1996)	(1979)
MIN	3.73	5.96	9.24	8.38	14.6	14.5	14.9	14.1	6.96	4.23	4.63	3.81
(WY)	(1987)	(1982)	(1982)	(1981)	(1992)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1995)

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1978 - 1997	
ANNUAL TOTAL	19,129		12,925.0			
ANNUAL MEAN	52.3		35.4		26.2	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	1,230	Jan 19	558	Dec 13	1,230	Jan 19, 1996
LOWEST DAILY MEAN	17	Jan 7	4.3	Sep 6	1.9	Sep 3, 1995
ANNUAL SEVEN-DAY MINIMUM	22	Aug 28	4.5	Sep 3	2.0	Sep 2, 1995
MAXIMUM PEAK FLOW			1,200	Dec 13	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.17	Dec 13	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			4.1	Sep 6	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	2.28		1.55		1.14	
ANNUAL RUNOFF (INCHES)	31.07		21.00		15.52	
10 PERCENT EXCEEDS	72		55		42	
50 PERCENT EXCEEDS	32		31		18	
90 PERCENT EXCEEDS	23		5.6		6.5	

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.5	11	e12	e12	25	31	e42	30	27	19	16	6.5
2	e5.2	16	e11	12	24	30	e63	39	26	18	12	10
3	e5.2	12	e11	13	23	67	e38	36	26	16	11	8.0
4	e5.4	8.9	e11	13	72	41	e38	39	25	16	11	7.3
5	e5.0	8.0	e11	13	146	33	e37	44	25	16	10	6.2
6	e4.9	7.7	e10	12	49	31	e36	63	24	15	9.5	6.2
7	e4.7	85	e10	13	36	30	e36	52	23	15	9.2	6.2
8	e4.7	88	e10	26	31	45	e35	485	23	28	9.2	9.0
9	e4.6	29	e11	22	28	114	e70	88	22	21	8.9	6.8
10	e4.5	20	e11	17	26	45	e55	56	22	18	22	e6.4
11	e4.4	15	e12	15	26	35	e42	55	24	16	19	e6.2
12	e4.5	14	e11	14	37	32	e38	114	34	15	13	e5.7
13	e4.5	e12	e10	14	27	31	e35	66	38	14	10	e5.5
14	e4.6	e19	e10	12	24	31	e34	49	34	14	9.9	e5.4
15	e5.5	e20	e10	25	23	29	e34	43	25	14	9.9	e5.3
16	e4.9	e16	e10	44	22	28	e31	39	37	13	9.3	5.2
17	5.1	e12	e10	22	39	28	33	37	38	13	17	5.3
18	10	e12	e10	22	93	46	33	34	26	13	17	5.5
19	6.7	e12	10	18	39	143	45	33	24	11	12	5.5
20	6.1	e11	10	16	32	52	56	32	27	12	9.9	5.5
21	5.8	e12	10	15	29	e394	35	31	23	12	9.8	5.5
22	6.1	e29	10	15	27	e95	32	30	21	11	8.8	5.5
23	6.4	e19	12	96	59	e65	30	30	27	11	8.3	5.5
24	6.8	e14	13	44	143	e55	29	30	43	15	7.4	5.5
25	13	e13	32	30	48	e47	27	30	25	12	7.3	6.0
26	9.8	e13	18	23	37	e44	27	30	21	11	7.1	7.3
27	14	e12	15	21	34	e42	30	29	20	11	6.7	6.0
28	8.4	e12	16	326	32	e39	26	29	19	11	e6.3	5.7
29	7.3	e12	14	58	---	e37	25	29	19	11	e6.0	4.6
30	7.1	e11	15	35	---	e34	25	28	19	9.7	e5.7	4.5
31	7.0	---	14	28	---	e33	---	27	---	49	e5.5	---
TOTAL	197.7	575.6	380	1,046	1,231	1,807	1,117	1,757	787	480.7	324.7	183.8
MEAN	6.38	19.2	12.3	33.7	44.0	58.3	37.2	56.7	26.2	15.5	10.5	6.13
MAX	14	88	32	326	146	394	70	485	43	49	22	10
MIN	4.4	7.7	10	12	22	28	25	27	19	9.7	5.5	4.5
CFSM	0.28	0.84	0.54	1.47	1.92	2.55	1.63	2.47	1.15	0.68	0.46	0.27
IN.	0.32	0.94	0.62	1.70	2.00	2.94	1.81	2.85	1.28	0.78	0.53	0.30

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1998, BY WATER YEAR (WY)

MEAN	18.0	22.6	28.8	33.2	38.0	40.0	35.8	32.0	22.2	17.0	13.5	15.5
MAX	76.6	50.9	95.2	85.2	103	98.3	98.3	75.2	44.1	55.1	41.5	81.6
(WY)	(1980)	(1997)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(1996)	(1996)	(1996)	(1979)
MIN	3.73	5.96	9.24	8.38	14.6	14.5	14.9	14.1	6.96	4.23	4.63	3.81
(WY)	(1987)	(1982)	(1982)	(1981)	(1992)	(1981)	(1985)	(1986)	(1986)	(1986)	(1991)	(1995)

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1978 - 1998	
ANNUAL TOTAL	8,153.3		9,887.5			
ANNUAL MEAN	22.3		27.1		26.2	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	282	Mar 3	485	May 8	1,230	Jan 19, 1996
LOWEST DAILY MEAN	4.3	Sep 6	4.4	Oct 11	1.9	Sep 3, 1995
ANNUAL SEVEN-DAY MINIMUM	4.5	Sep 3	4.5	Oct 8	2.0	Sep 2, 1995
MAXIMUM PEAK FLOW			1,660	May 8	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			7.12	May 8	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			4.5	Sep 29	1.7	Aug 19, 1991
ANNUAL RUNOFF (CFSM)	0.98		1.18		1.14	
ANNUAL RUNOFF (INCHES)	13.24		16.06		15.55	
10 PERCENT EXCEEDS	42		45		43	
50 PERCENT EXCEEDS	15		18		18	
90 PERCENT EXCEEDS	5.2		5.9		6.4	

01591400 CATTAIL CREEK NEAR GLENWOOD, MD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	8.2	e7.6	7.6	14	24	29	12	6.2	4.2	1.5	2.8
2	4.4	8.2	7.3	6.6	36	17	27	12	6.1	4.7	1.6	2.6
3	4.5	8.2	7.3	108	24	16	21	11	5.9	4.5	1.4	2.6
4	4.6	8.3	7.2	25	19	35	19	11	5.7	4.0	1.1	2.8
5	4.8	8.6	7.1	16	17	23	30	11	5.5	3.5	0.78	17
6	4.8	8.6	7.1	e9.0	16	22	21	11	5.5	3.3	0.56	14
7	4.8	8.7	7.1	e8.0	16	25	19	11	5.3	3.0	0.53	32
8	34	8.9	7.2	e8.0	16	19	17	22	5.2	2.8	0.47	20
9	16	9.0	12	e31	16	18	17	14	4.8	2.6	0.54	9.3
10	11	9.9	9.2	e29	15	19	21	12	4.7	2.4	0.45	9.5
11	10	16	8.2	e17	14	18	29	11	4.9	2.4	0.40	6.7
12	9.2	11	7.6	e20	14	19	31	11	4.8	2.3	0.34	5.7
13	9.2	10	7.8	e28	17	20	22	10	5.0	2.9	0.24	5.6
14	9.2	e9.0	7.9	e25	14	20	19	10	7.3	2.9	0.16	4.9
15	8.7	e8.3	7.4	e40	13	32	18	9.2	9.4	2.7	0.57	12
16	8.6	e7.8	7.2	e37	13	41	18	8.6	5.7	2.5	0.84	372
17	8.3	e7.6	7.1	e32	13	46	18	8.6	5.4	2.1	0.66	37
18	8.2	e7.3	7.1	129	48	34	17	8.7	6.2	2.6	0.34	15
19	8.2	e7.1	7.1	41	27	25	16	8.7	5.5	5.2	0.13	11
20	8.1	e7.6	7.0	26	20	22	16	8.5	6.5	2.8	0.18	9.3
21	7.9	e8.2	6.8	22	17	28	16	8.2	7.4	2.7	1.5	23
22	7.9	e7.9	6.5	21	15	43	17	7.7	6.6	2.7	1.4	23
23	7.9	e7.6	6.8	19	14	26	16	9.2	5.9	2.9	1.2	13
24	7.9	e7.6	6.8	73	14	24	16	12	5.2	2.6	23	10
25	7.9	7.6	6.8	35	14	22	15	10	4.8	2.3	13	8.5
26	7.9	11	6.8	24	14	20	14	8.6	4.6	2.0	15	7.7
27	8.2	10	6.8	20	14	19	13	7.9	4.5	1.8	5.3	7.4
28	8.2	e8.9	6.9	18	25	18	13	7.6	4.5	1.8	4.1	9.0
29	8.2	e8.9	7.4	17	---	18	12	7.3	4.5	2.8	3.5	10
30	8.2	e8.2	8.6	15	---	17	12	7.0	4.3	2.3	2.9	66
31	8.2	---	8.6	14	---	16	---	6.6	---	1.8	2.8	---
TOTAL	269.3	264.2	232.3	921.2	509	746	569	313.4	167.9	89.1	86.49	769.4
MEAN	8.69	8.81	7.49	29.7	18.2	24.1	19.0	10.1	5.60	2.87	2.79	25.6
MAX	34	16	12	129	48	46	31	22	9.4	5.2	23	372
MIN	4.3	7.1	6.5	6.6	13	16	12	6.6	4.3	1.8	0.13	2.6
CFSM	0.38	0.38	0.33	1.30	0.79	1.05	0.83	0.44	0.24	0.13	0.12	1.12
IN.	0.44	0.43	0.38	1.50	0.83	1.21	0.92	0.51	0.27	0.14	0.14	1.25

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

MEAN	17.5	21.9	27.8	33.1	37.1	39.3	35.0	31.0	21.4	16.3	13.0	15.9
MAX	76.6	50.9	95.2	85.2	103	98.3	98.3	75.2	44.1	55.1	41.5	81.6
(WY)	(1980)	(1997)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(1996)	(1996)	(1996)	(1979)
MIN	3.73	5.96	7.49	8.38	14.6	14.5	14.9	10.1	5.60	2.87	2.79	3.81
(WY)	(1987)	(1982)	(1999)	(1981)	(1992)	(1981)	(1985)	(1999)	(1999)	(1999)	(1999)	(1995)

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1978 - 1999	
ANNUAL TOTAL	9,500.0		4,937.29			
ANNUAL MEAN	26.0		13.5		25.6	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	485	May 8	372	Sep 16	1,230	Jan 19, 1996
LOWEST DAILY MEAN	4.3	Oct 1	0.13	Aug 19	0.13	Aug 19, 1999
ANNUAL SEVEN-DAY MINIMUM	4.5	Sep 29	0.37	Aug 8	0.37	Aug 8, 1999
MAXIMUM PEAK FLOW			1,070	Sep 16	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			5.86	Sep 16	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			0.07	Aug 14	0.07	Aug 14, 1999
ANNUAL RUNOFF (CFSM)	1.14		0.59		1.12	
ANNUAL RUNOFF (INCHES)	15.43		8.02		15.19	
10 PERCENT EXCEEDS	45		25		42	
50 PERCENT EXCEEDS	16		8.6		17	
90 PERCENT EXCEEDS	6.6		2.6		6.2	

01591400 CATTAIL CREEK NEAR GLENWOOD, MD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	e11	e13	13	35	19	36	17	18	18	11	13
2	16	e11	e12	13	28	18	31	17	27	17	9.6	9.9
3	15	e11	e12	13	24	18	29	16	21	15	9.0	9.2
4	15	e11	e11	13	21	19	27	16	18	15	8.8	9.2
5	14	e11	e11	13	27	31	26	15	16	18	8.6	8.9
6	14	e11	e11	13	29	23	26	15	16	18	8.0	8.6
7	14	e11	e11	13	27	20	28	15	158	15	7.7	8.0
8	13	e10	e11	13	24	19	26	14	34	17	7.3	8.0
9	13	e10	e11	13	22	18	25	14	25	27	6.7	8.0
10	13	28	e10	13	22	17	25	14	21	17	6.3	7.7
11	13	15	e10	14	20	17	43	14	18	15	239	7.7
12	12	14	e10	13	18	16	36	14	17	14	55	7.1
13	12	13	e10	13	19	27	30	13	17	13	32	6.6
14	12	14	43	12	20	21	26	12	17	12	23	6.6
15	12	14	25	12	20	19	25	13	16	12	16	6.5
16	12	12	19	13	23	20	30	12	43	12	14	6.3
17	12	11	133	13	32	22	27	11	29	11	13	6.1
18	14	11	34	12	22	19	27	12	20	12	12	6.1
19	15	11	24	97	20	18	24	14	17	15	12	6.1
20	14	11	22	60	20	17	23	13	16	13	50	6.6
21	14	11	22	32	19	64	23	33	15	12	17	13
22	14	11	19	28	18	47	22	42	215	11	13	7.8
23	13	11	e17	23	19	29	22	50	306	11	12	6.6
24	13	e10	16	20	19	24	21	21	38	10	12	38
25	12	e10	15	19	25	22	20	18	27	10	11	54
26	12	25	15	19	28	21	19	38	24	9.8	10	14
27	12	19	16	17	22	20	19	43	22	9.5	9.9	11
28	12	15	15	17	20	19	18	30	21	9.0	11	10
29	e11	14	14	16	---	26	17	22	19	10	9.8	9.5
30	e11	14	14	124	---	223	17	19	18	11	9.5	9.1
31	e11	---	13	58	---	45	---	17	---	11	9.6	---
TOTAL	406	391	619	762	643	938	768	614	1,269	420.3	673.8	329.2
MEAN	13.1	13.0	20.0	24.6	23.0	30.3	25.6	19.8	42.3	13.6	21.7	11.0
MAX	16	28	133	124	35	223	43	50	306	27	239	54
MIN	11	10	10	12	18	16	17	11	15	9.0	6.3	6.1
CFSM	0.57	0.57	0.87	1.07	1.00	1.32	1.12	0.86	1.85	0.59	0.95	0.48
IN.	0.66	0.64	1.01	1.24	1.04	1.52	1.25	1.00	2.06	0.68	1.09	0.53

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2001, BY WATER YEAR (WY)

MEAN	17.3	21.2	27.3	32.0	36.0	38.9	34.5	30.1	22.2	16.1	13.5	16.0
MAX	76.6	50.9	95.2	85.2	103	98.3	98.3	75.2	44.1	55.1	41.5	81.6
(WY)	(1980)	(1997)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(1996)	(1996)	(1996)	(1979)
MIN	3.73	5.96	7.49	8.38	14.6	14.5	14.9	10.1	5.60	2.87	2.79	3.81
(WY)	(1987)	(1982)	(1999)	(1981)	(1992)	(1981)	(1985)	(1999)	(1999)	(1999)	(1999)	(1995)

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1978 - 2001	
ANNUAL TOTAL	7,761.3		7,833.3			
ANNUAL MEAN	21.2		21.5		25.3	
HIGHEST ANNUAL MEAN					42.0	1979
LOWEST ANNUAL MEAN					13.0	1992
HIGHEST DAILY MEAN	262	Mar 22	306	Jun 23	1,230	Jan 19, 1996
LOWEST DAILY MEAN	8.2	Aug 26	6.1	Sep 17	0.13	Aug 19, 1999
ANNUAL SEVEN-DAY MINIMUM	9.0	Aug 20	6.3	Sep 13	0.37	Aug 8, 1999
MAXIMUM PEAK FLOW			1,420	Jun 23	3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			6.65	Jun 23	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			6.1	Sep 17	0.07	Aug 14, 1999
ANNUAL RUNOFF (CFSM)	0.93		0.94		1.10	
ANNUAL RUNOFF (INCHES)	12.61		12.72		14.99	
10 PERCENT EXCEEDS	32		30		41	
50 PERCENT EXCEEDS	16		15		17	
90 PERCENT EXCEEDS	11		9.8		6.4	

01591400 CATTAIL CREEK NEAR GLENWOOD, MD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	16	13	83	23	33	41	24	63	33	24	21
2	2.8	13	12	130	21	64	39	23	35	36	24	24
3	2.7	10	12	103	20	94	38	22	39	60	23	26
4	2.5	8.8	11	60	39	47	38	21	93	43	23	419
5	2.5	9.0	13	40	26	60	38	23	98	38	22	51
6	2.2	26	14	37	21	216	37	27	42	34	22	35
7	2.0	15	13	33	21	78	48	24	373	41	21	31
8	2.0	12	12	35	19	81	43	26	78	33	21	28
9	2.0	11	12	37	e18	221	55	34	58	31	26	27
10	3.5	11	12	31	18	71	44	39	47	33	24	25
11	20	14	86	28	18	50	55	35	43	33	322	24
12	11	29	61	26	17	49	43	26	69	29	55	27
13	6.9	25	56	e24	18	55	38	24	342	28	38	70
14	5.8	16	109	24	19	55	36	22	240	27	29	38
15	5.0	14	47	e23	17	44	35	21	62	26	25	38
16	48	46	31	e22	13	42	34	110	52	25	24	38
17	18	106	26	e22	e17	41	33	44	49	24	107	30
18	12	77	23	e21	e19	39	32	45	57	24	33	102
19	9.1	28	22	21	e21	38	31	36	98	24	28	311
20	8.4	22	27	21	e24	165	30	29	99	23	26	47
21	7.8	20	24	20	29	100	29	33	64	22	25	39
22	7.0	22	20	20	315	53	29	32	55	33	31	38
23	6.8	17	19	19	276	44	27	30	48	62	33	602
24	6.6	15	18	19	121	40	25	33	44	49	24	64
25	6.8	14	43	19	66	39	25	47	42	28	22	51
26	17	14	34	19	48	40	35	80	40	25	25	65
27	11	14	25	19	39	41	30	40	38	24	28	43
28	10	14	23	19	36	38	26	39	36	27	27	46
29	16	14	22	19	---	38	25	34	36	29	24	39
30	34	13	21	19	---	68	25	30	34	24	24	37
31	26	---	22	18	---	51	---	105	---	22	22	---
TOTAL	318.5	665.8	883	1,031	1,339	2,095	1,064	1,158	2,474	990	1,202	2,436
MEAN	10.3	22.2	28.5	33.3	47.8	67.6	35.5	37.4	82.5	31.9	38.8	81.2
MAX	48	106	109	130	315	221	55	110	373	62	322	602
MIN	2.0	8.8	11	18	13	33	25	21	34	22	21	21
CFSM	0.45	0.97	1.24	1.45	2.09	2.95	1.55	1.63	3.60	1.39	1.69	3.55
IN.	0.52	1.08	1.43	1.67	2.18	3.40	1.73	1.88	4.02	1.61	1.95	3.96

e Estimated

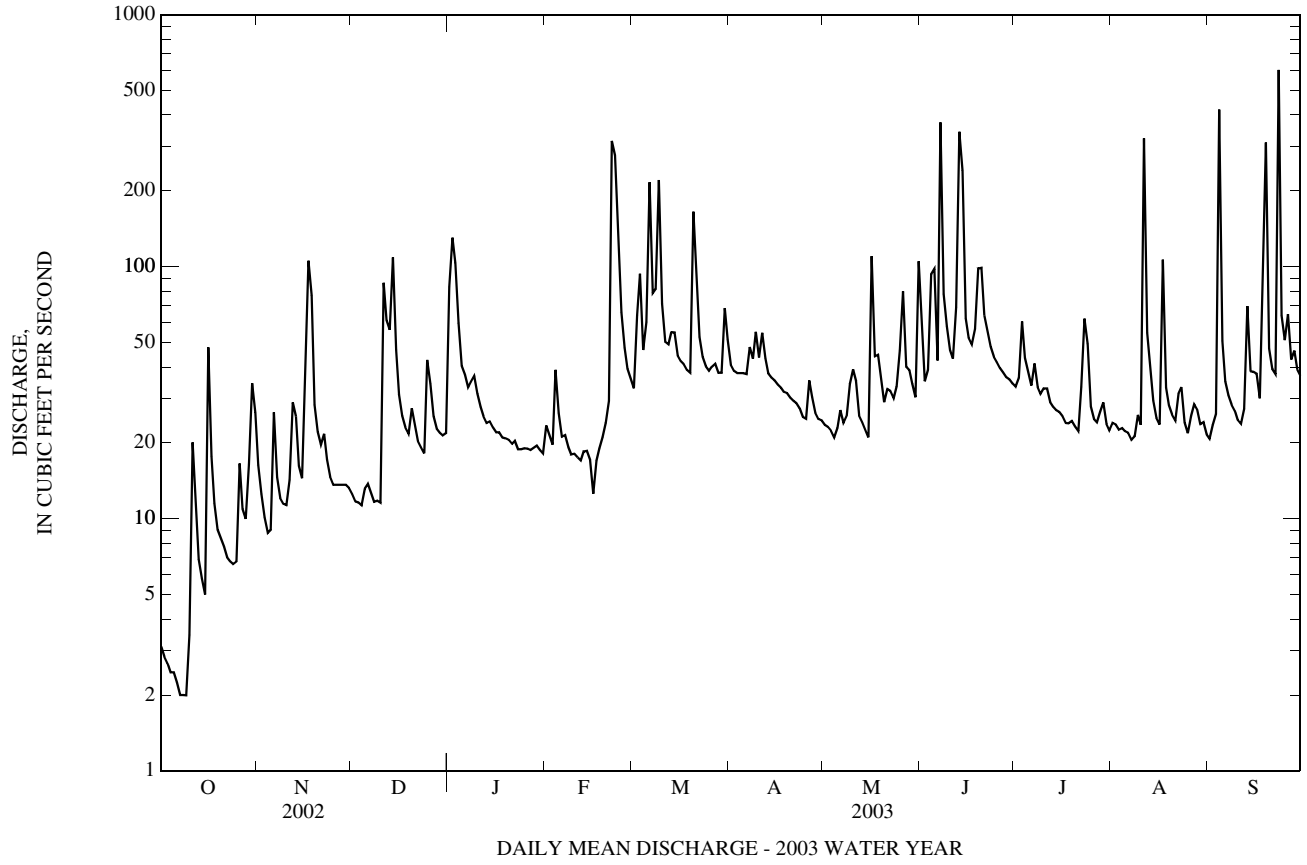
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003, BY WATER YEAR (WY)

MEAN	17.4	21.3	27.8	32.7	36.7	39.7	34.7	30.8	24.5	16.3	14.1	19.0
MAX	76.6	62.8	103	113	103	109	112	92.5	82.5	55.1	41.5	81.6
(WY)	(1980)	(1994)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(2003)	(1996)	(1996)	(1979)
MIN	3.73	5.96	7.49	8.38	9.61	14.2	11.3	10.1	5.60	2.77	1.49	2.80
(WY)	(1987)	(1982)	(1999)	(1981)	(2002)	(2002)	(2002)	(1999)	(1999)	(2002)	(2002)	(2002)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003	
ANNUAL TOTAL	4,141.99		15,656.3			
ANNUAL MEAN	11.3		42.9		26.3	
HIGHEST ANNUAL MEAN					45.7	1996
LOWEST ANNUAL MEAN					8.82	2002
HIGHEST DAILY MEAN	109	Dec 14	602	Sep 23	1,350	Jan 19, 1996
LOWEST DAILY MEAN	(e)0.09	Aug 23	2.0	(a)	(e)0.09	Aug 23, 2002
ANNUAL SEVEN-DAY MINIMUM	0.21	Aug 17	2.3	Oct 3	0.21	Aug 17, 2002
MAXIMUM PEAK FLOW			1,850	Jun 13	(b)3,450	Sep 6, 1979
MAXIMUM PEAK STAGE			7.48	Jun 13	9.86	Sep 6, 1979
INSTANTANEOUS LOW FLOW			1.9	Oct 9	0.07	(c)
ANNUAL RUNOFF (CFSM)	0.50		1.87		1.15	
ANNUAL RUNOFF (INCHES)	6.73		25.43		15.59	
10 PERCENT EXCEEDS	22		69		42	
50 PERCENT EXCEEDS	9.1		29		16	
90 PERCENT EXCEEDS	1.7		13		6.2	

e Estimated.
a Oct. 7-9.
b From rating curve extended above 175 ft^3/s on basis of contracted-opening measurement at gage height of 7.48 ft, and contracted-opening and flow-over-road measurement at gage height of 9.86 ft.
c Aug. 14, 19, 20, 1999.

01591400 CATTAIL CREEK NEAR GLENWOOD, MD—Continued



DAILY MEAN DISCHARGE - 2003 WATER YEAR

Photo by Joe Fisher

Cattail Creek near Glenwood, Md (01591400)

01591610 PATUXENT RIVER BELOW BRIGHTON DAM NEAR BRIGHTON, MD

LOCATION.--Lat 39°11'31.9", long 77°00'15.8", Montgomery County, Hydrologic Unit 02060006, on right bank at Brighton Dam, 500 ft downstream from Triadelphia Reservoir, 1.3 mi east of Brighton, and 92 mi upstream from mouth.

DRAINAGE AREA.--78.6 mi^2.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 310 ft above National Geodetic Vertical Datum of 1929, from topographic map. June 1978 to October 1980, nonrecording gage 300 ft upstream on left bank at different datum.

REMARKS.--Records good. Flow completely regulated by Triadelphia Reservoir, 500 ft upstream, usable capacity, 6,200,000,000 gal; no dead storage. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1972, reached a discharge of 17,800 ft^3/s. Data provided by Washington Suburban Sanitary Commission.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,920 ft^3/s, June 14, gage height, 7.23 ft; minimum discharge, 11 ft^3/s, Nov. 15.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	14	49	50	e54	55	154	164	158	117	61	54
2	16	14	48	50	e54	58	154	164	150	116	61	53
3	16	14	47	51	55	125	153	162	255	118	61	52
4	17	14	46	51	56	212	152	160	317	118	61	565
5	17	14	46	52	56	209	150	74	322	119	61	619
6	16	14	46	52	56	442	144	20	323	119	61	111
7	16	14	46	51	56	741	142	20	723	193	61	111
8	16	14	46	51	56	324	142	20	560	275	61	114
9	16	14	45	51	56	142	191	20	570	197	63	117
10	16	15	46	51	56	712	287	21	466	117	63	117
11	16	12	47	51	56	547	e170	21	223	117	201	116
12	16	13	47	50	55	207	e170	21	188	115	640	116
13	16	13	48	51	55	25	e170	21	252	114	342	116
14	16	12	50	52	54	33	e170	125	933	114	60	116
15	16	12	51	51	54	37	169	161	570	114	60	237
16	16	13	50	51	54	40	65	219	485	114	52	531
17	16	13	49	51	55	232	20	311	266	113	42	620
18	16	14	49	51	177	344	21	214	265	79	46	667
19	16	14	49	52	344	327	22	168	273	61	63	335
20	16	25	49	52	337	361	23	165	184	61	63	335
21	16	56	48	53	274	407	24	54	145	61	63	328
22	16	56	49	53	171	177	96	20	286	61	64	148
23	16	52	48	53	57	175	176	185	285	61	63	297
24	15	53	47	53	262	175	174	155	283	61	60	326
25	15	54	47	53	357	176	167	155	281	61	59	463
26	16	54	45	55	345	173	167	157	164	61	132	486
27	15	53	45	54	170	172	168	157	117	61	239	466
28	15	52	46	53	55	171	168	159	116	61	57	164
29	15	52	46	54	---	169	167	156	116	61	57	18
30	15	52	46	54	---	154	165	156	117	61	57	18
31	14	---	49	e54	---	156	---	155	---	61	56	---
TOTAL	491	816	1,470	1,611	3,487	7,278	4,141	3,760	9,393	3,162	3,090	7,816
MEAN	15.8	27.2	47.4	52.0	125	235	138	121	313	102	99.7	261
MAX	17	56	51	55	357	741	287	311	933	275	640	667
MIN	14	12	45	50	54	25	20	20	116	61	42	18
(†)	2380	3260	4240	5410	5900	6080	5880	6070	5900	5910	5960	5540

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2003, BY WATER YEAR (WY)

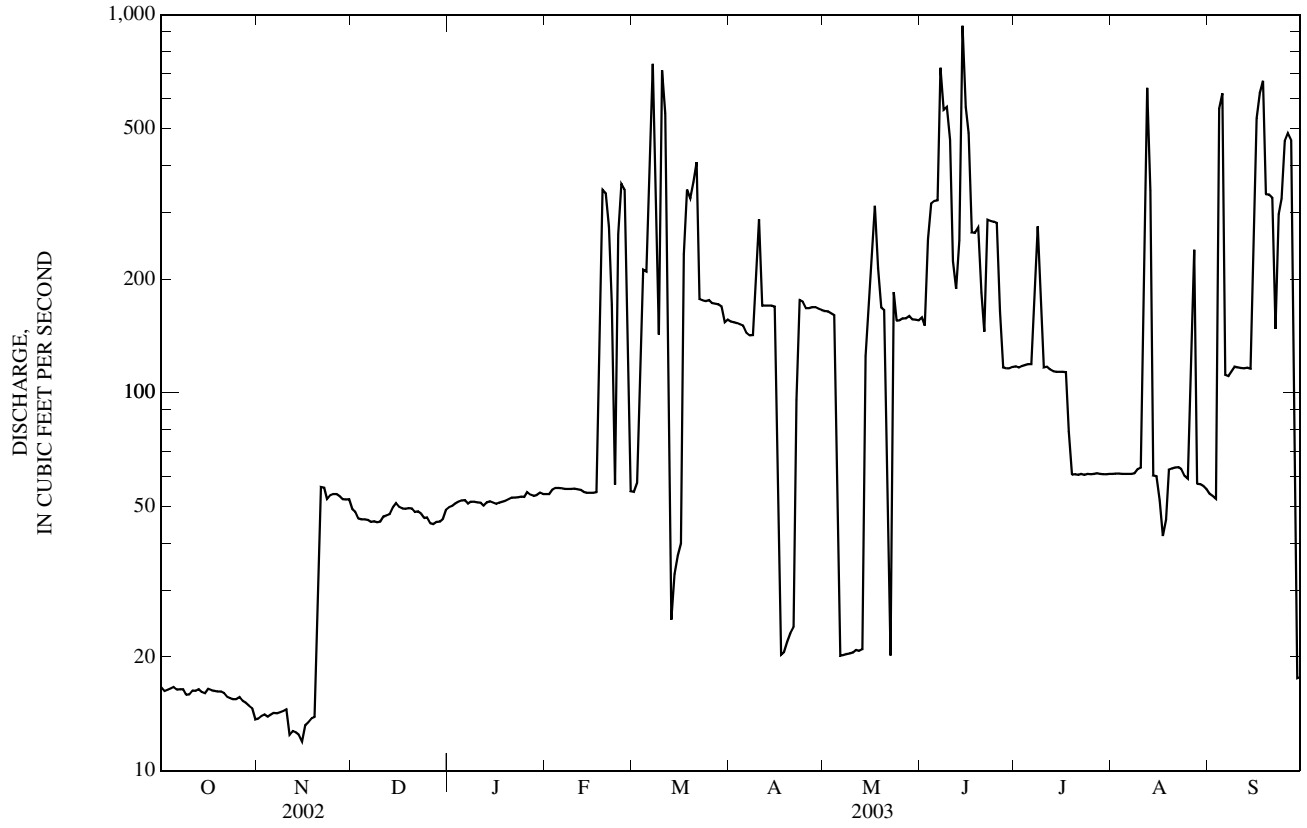
MEAN	61.8	56.7	83.0	72.7	81.5	119	123	93.4	85.5	63.4	66.4	81.4
MAX	138	166	373	183	256	320	304	229	313	135	143	261
(WY)	(1997)	(1997)	(1984)	(1991)	(1994)	(1993)	(1993)	(1989)	(2003)	(1996)	(1996)	(2003)
MIN	7.87	17.1	14.9	9.33	9.57	8.90	8.49	8.63	22.4	30.3	18.1	17.8
(WY)	(1987)	(1989)	(1992)	(1982)	(1999)	(1981)	(1981)	(1981)	(1981)	(1995)	(1987)	(2002)

† Monthend contents, in millions of gallons, in Triadelphia Reservoir (contents on Sept. 30, 2002, 2,120,000,000 gal). Records provided by Washington Suburban Sanitary Commission.

01591610 PATUXENT RIVER BELOW BRIGHTON DAM NEAR BRIGHTON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1981 - 2003	
ANNUAL TOTAL	11,426.6		46,515			
ANNUAL MEAN	31.3		127		82.3	
ANNUAL MEAN‡	38.8		142		80.9	
HIGHEST ANNUAL MEAN					134	1984
LOWEST ANNUAL MEAN					38.2	2002
HIGHEST DAILY MEAN	56	Nov 21	933	Jun 14	1,730	May 6, 1989
LOWEST DAILY MEAN	9.2	(a)	12	(b)	2.1	(c)
ANNUAL SEVEN-DAY MINIMUM	9.3	May 5	13	Nov 11	4.0	Oct 16, 1980
MAXIMUM PEAK FLOW			1,920	Jun 14	2,650	May 6, 1989
MAXIMUM PEAK STAGE			7.23	Jun 14	10.26	May 6, 1989
INSTANTANEOUS LOW FLOW			11	Nov 15	1.2	Dec 3, 1985
ANNUAL RUNOFF (CFSM)	0.40		1.62		1.05	
ANNUAL RUNOFF (INCHES)	5.41		22.01		14.22	
10 PERCENT EXCEEDS	50		319		168	
50 PERCENT EXCEEDS	39		61		54	
90 PERCENT EXCEEDS	11		16		10	

‡ Adjusted for change in reservoir contents.
a May 11, 14.
b Nov. 11, 14, 15.
c Jan. 27, 28, 1983.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01591700 HAWLINGS RIVER NEAR SANDY SPRING, MD

LOCATION.--Lat 39°10'28.8", long 77°01'17.7", Montgomery County, Hydrologic Unit 02060006, on right bank at downstream side of bridge on State Highway 650, 1.0 mi upstream from mouth, and 1.7 mi north of Sandy Spring.

DRAINAGE AREA.--27.0 mi^2.

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-level recorder. Elevation of gage is 320 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS--Records good except those for estimated daily discharges (missing record), which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1800	779	4.38	Sep 19	0330	2,140	6.97
Jun 7	1830	1,010	5.06	Sep 23	0845	*2,590	*7.40
Jun 13	2300	1,010	5.04				

Minimum discharge, 1.3 ft^3/s, Oct. 9.

REVISIONS.--Revised figures for peak discharges and annual maximum (*) for water years 1996-98, 2000-01, superseding those published in corresponding annual reports are given herein.

EXTREMES FOR WATER YEARS 1996-98, 2000-01.--Peak discharges greater than base discharge of 500 ft^3/s and maximum (*):

Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)	Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)
1996	Jun 18, 1996	0330	2000	6.82	1998	Jan 28, 1998	1645	853	4.60
	Jul 01, 1996	2000	1110	5.33		May 08, 1998	1645	816	4.81
	Aug 13, 1996	0300	770	4.35					
	Sep 11, 1996	1545	901	4.74	2000	Mar 21, 2000	2000	*658	*4.00
1997	Nov 08, 1996	2400	*1,370	*6.18	2001	Jun 07, 2001	0730	850	4.59
	Oct 19, 1996	0645	1100	5.28		Feb 24, 1994	1530	905	5.44
	Dec 02, 1996	0500	705	4.15		Mar 5, 1994	1830	699	4.85
	Dec 06, 1996	0445	731	4.23		Aug 21, 1994	1745	706	4.87
	Dec 13, 1996	1915	1200	5.56					
	Jan 25, 1997	0130	779	4.38					
	Mar 03, 1997	1800	915	4.78					

01591700 HAWLINGS RIVER NEAR SANDY SPRING, MD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	15	15	111	30	39	54	28	62	35	20	13
2	3.1	12	15	172	25	80	48	28	38	34	20	16
3	2.7	9.6	14	112	22	122	44	26	41	65	20	17
4	2.4	8.1	14	77	35	60	41	24	135	42	21	121
5	2.5	8.9	e15	47	29	77	40	26	89	34	21	26
6	2.3	41	e16	42	22	229	38	30	49	42	19	18
7	1.9	13	e15	37	24	119	66	27	454	61	18	16
8	1.5	8.6	14	37	23	90	63	28	131	36	18	14
9	1.3	7.8	14	43	22	194	84	35	75	32	54	14
10	4.1	8.1	14	37	20	89	63	40	54	33	24	13
11	32	51	103	30	20	58	90	39	49	68	72	12
12	16	57	111	27	19	52	61	29	76	38	41	16
13	7.9	55	101	e26	e19	58	49	25	256	30	27	62
14	5.9	28	158	26	e19	64	44	23	256	27	22	30
15	5.4	22	61	25	19	50	42	21	78	25	19	52
16	73	95	38	e24	13	48	39	113	55	25	17	58
17	28	172	30	23	e24	47	35	56	50	23	64	23
18	14	108	26	e23	e36	44	33	56	70	21	23	200
19	10	41	24	e23	31	40	35	43	258	22	19	670
20	8.4	29	28	e22	28	187	34	34	281	21	17	61
21	7.3	24	27	e22	32	169	33	66	97	20	16	39
22	6.9	24	23	e22	332	75	33	58	74	20	16	32
23	6.9	20	21	e22	337	58	32	42	55	60	15	799
24	6.9	19	21	e22	155	51	29	46	46	28	14	75
25	7.2	17	64	e22	83	46	29	110	41	23	13	45
26	25	17	53	e22	62	46	55	198	38	20	17	37
27	12	17	34	e22	48	50	41	71	35	19	22	33
28	9.3	17	28	e22	43	43	33	67	33	28	18	32
29	21	16	26	e22	---	43	30	51	32	31	16	29
30	40	16	25	e21	---	93	29	41	31	22	16	27
31	29	---	24	e21	---	75	---	49	---	20	14	---
TOTAL	397.5	977.1	1,172	1,204	1,572	2,496	1,347	1,530	3,039	1,005	733	2,600
MEAN	12.8	32.6	37.8	38.8	56.1	80.5	44.9	49.4	101	32.4	23.6	86.7
MAX	73	172	158	172	337	229	90	198	454	68	72	799
MIN	1.3	7.8	14	21	13	39	29	21	31	19	13	12
CFSM	0.47	1.21	1.40	1.44	2.08	2.98	1.66	1.83	3.75	1.20	0.88	3.21
IN.	0.55	1.35	1.61	1.66	2.17	3.44	1.86	2.11	4.19	1.38	1.01	3.58

e Estimated

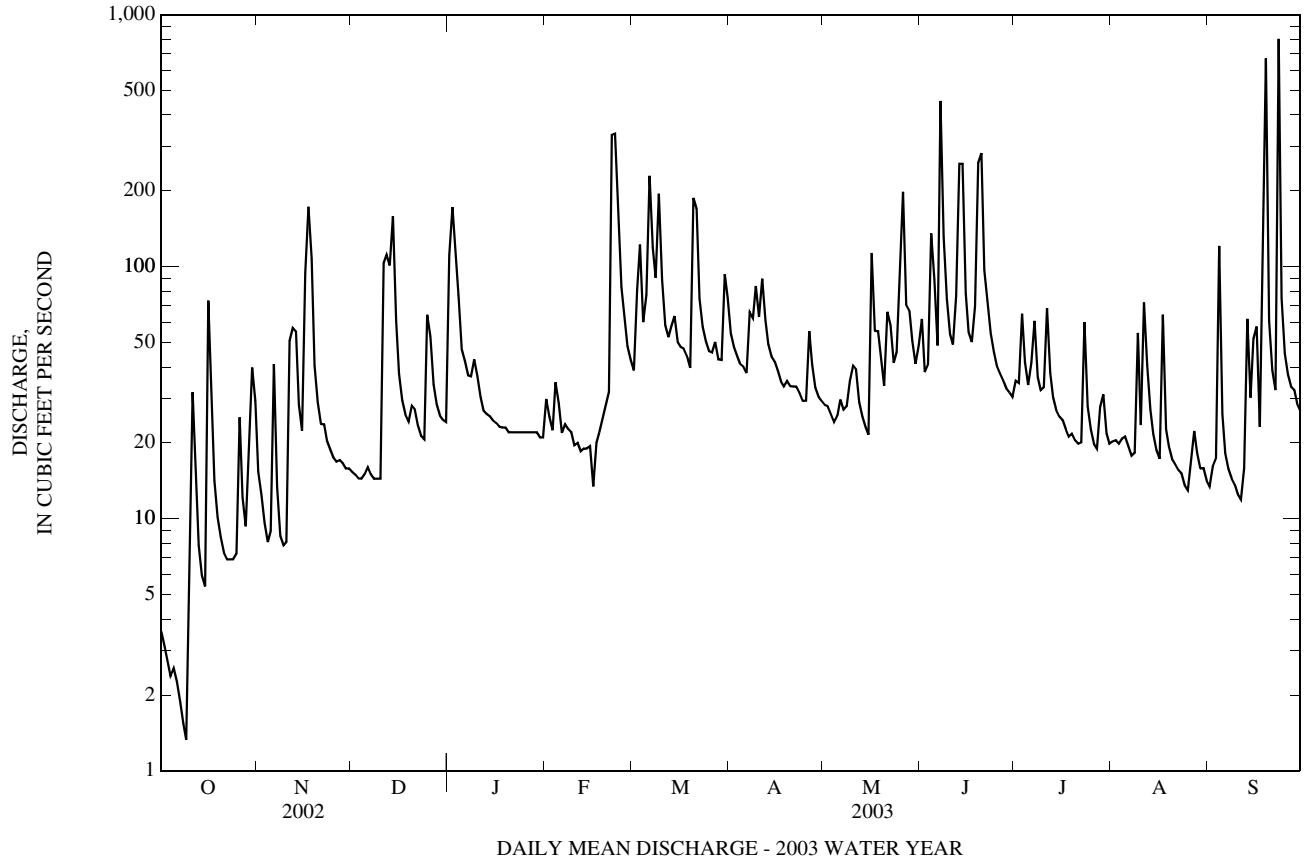
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2003, BY WATER YEAR (WY)

MEAN	20.3	27.3	32.1	37.4	42.6	49.2	40.2	35.6	31.8	16.7	13.3	20.8
MAX	129	68.8	104	115	112	116	90.7	94.3	101	52.4	36.6	90.2
(WY)	(1980)	(1994)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(2003)	(1996)	(1996)	(1996)
MIN	2.68	7.27	8.86	9.31	10.7	18.8	16.8	12.1	4.71	2.16	2.56	3.11
(WY)	(1987)	(1982)	(1999)	(1981)	(2002)	(1981)	(2002)	(1999)	(1999)	(1999)	(2002)	(1986)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1978 - 2003	
ANNUAL TOTAL	5,571.78		18,072.6			
ANNUAL MEAN	15.3		49.5		30.5	
HIGHEST ANNUAL MEAN					52.9	1996
LOWEST ANNUAL MEAN					11.0	2002
HIGHEST DAILY MEAN	172	Nov 17	799	Sep 23	1,840	Jan 19, 1996
LOWEST DAILY MEAN	0.14	Aug 23	1.3	Oct 9	0.14	Aug 23, 2002
ANNUAL SEVEN-DAY MINIMUM	0.30	Aug 20	2.1	Oct 3	0.30	Aug 20, 2002
MAXIMUM PEAK FLOW			2,590	Sep 23	(a)5,180	Jan 19, 1996
MAXIMUM PEAK STAGE			7.40	Sep 23	9.24	Jan 19, 1996
INSTANTANEOUS LOW FLOW			1.3	Oct 9	0.12	(b)
ANNUAL RUNOFF (CFSM)	0.57		1.83		1.13	
ANNUAL RUNOFF (INCHES)	7.68		24.90		15.33	
10 PERCENT EXCEEDS	28		90		52	
50 PERCENT EXCEEDS	11		30		19	
90 PERCENT EXCEEDS	1.7		14		5.5	

a From rating curve extended above 1,300 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
b Aug. 23, 24, 2002.

01591700 HAWLINGS RIVER NEAR SANDY SPRING, MD—Continued



DAILY MEAN DISCHARGE - 2003 WATER YEAR

Photo By Joe Fisher

Hawlings River Near Sandy Spring, MD (01591700)

01592500 PATUXENT RIVER NEAR LAUREL, MD

LOCATION.--Lat 39°06'56.6", long 76°52'25.5", Prince Georges County, Hydrologic Unit 02060006, on right bank at Rocky Gorge pumping station, 600 ft downstream from T. Howard Duckett Reservoir, 0.7 mi upstream from Walker Branch, 1.3 mi northwest of Laurel, and 81 mi upstream from mouth.

DRAINAGE AREA.--132 mi^2.

PERIOD OF RECORD.--October 1944 to current year.

REVISED RECORDS.--WDR MD-DE-78-1: 1976(M). WDR MD-DE-89-1: 1978(M), 1979(M).

GAGE.--Water-stage recorder. Datum of gage is 153.5 ft above National Geodetic Vertical Datum of 1929 (levels by Washington Suburban Sanitary Commission). Prior to Oct. 1, 1955, water-stage recorder and concrete control at site 0.3 mi downstream at different datum. Oct. 1, 1955 to Sept. 30, 1956, nonrecording gage at present site at datum 1.2 ft lower. Oct. 1, 1956 to Jan. 27, 1957, nonrecording gage at present site and datum. Jan. 28, 1957 to May 3, 1972, water-stage recorder and concrete control at present site and datum. May 4, 1972 to Sept. 4, 1973, nonrecording gage at present site and datum.

REMARKS.--Records good. Records do not include diversion at Patuxent (formerly Willis School) filtration plant for supply of Washington Suburban Sanitary District. Flow regulated by Triadelphia Reservoir, and since March 1954 by T. Howard Duckett Reservoir, combined usable capacity, 11,800,000,000 gal; dead storage, 80,000,000 gal. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,420 ft^3/s, June 7, gage height, 9.29 ft; minimum discharge, 4.6 ft^3/s, Dec. 19.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	19	14	20	e20	147	145	146	255	185	150	94
2	20	19	16	20	20	147	145	146	218	317	148	44
3	20	19	20	20	20	146	144	146	218	150	148	87
4	20	19	20	20	20	147	144	146	269	151	132	94
5	20	19	20	21	20	147	144	112	365	150	150	95
6	20	19	20	21	20	395	144	85	364	152	120	130
7	20	19	20	21	20	1,180	309	87	895	151	84	157
8	20	19	20	21	20	382	228	88	1,440	150	91	135
9	20	19	20	21	20	458	370	88	990	150	92	157
10	20	19	20	21	20	1,130	702	87	588	146	91	136
11	20	19	20	21	20	641	144	87	254	147	91	115
12	20	19	20	21	20	220	143	87	188	151	93	22
13	20	19	20	21	20	118	143	87	459	150	92	23
14	20	19	20	21	20	144	145	67	800	151	91	23
15	20	19	20	21	20	145	145	111	564	151	91	457
16	20	19	20	21	20	144	146	150	687	150	91	995
17	20	19	19	21	20	144	144	149	631	150	91	1,470
18	20	19	19	21	47	140	144	150	424	150	91	1,190
19	20	19	20	21	104	203	145	149	509	151	91	385
20	20	19	20	e21	148	589	144	149	872	151	91	437
21	20	19	20	e21	135	1,030	143	170	960	150	90	433
22	20	19	20	21	253	574	144	406	515	150	93	244
23	20	20	20	21	378	144	145	468	306	150	94	751
24	19	20	20	21	545	144	145	148	232	149	94	1,090
25	19	20	20	e20	640	143	146	148	148	149	89	959
26	19	20	20	e20	625	117	146	148	148	149	91	640
27	19	20	20	e20	255	265	145	253	149	149	94	447
28	19	19	20	e21	171	270	145	349	150	147	94	242
29	19	17	20	e21	---	143	145	347	150	149	94	23
30	19	19	20	e21	---	143	145	294	148	149	94	23
31	19	---	20	e20	---	144	---	270	---	149	94	---
TOTAL	612	573	608	643	3,641	9,884	5,367	5,318	13,896	4,844	3,140	11,098
MEAN	19.7	19.1	19.6	20.7	130	319	179	172	463	156	101	370
MAX	20	20	20	21	640	1,180	702	468	1,440	317	150	1,470
MIN	19	17	14	20	20	117	143	67	148	146	84	22
†	4690	6070	7860	9780	10100	11410	11040	11570	11120	10560	10460	10480
‡	35.1	34.6	56.3	67.2	63.6	67.3	70.0	63.9	70.4	73.7	68.8	44.0

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

MEAN	43.2	47.6	74.3	99.7	114	137	138	110	92.1	59.8	49.1	67.5
MAX	379	272	457	480	462	557	444	397	822	280	226	587
(WY)	(1980)	(1953)	(1997)	(1978)	(1979)	(1993)	(1952)	(1989)	(1972)	(1945)	(1971)	(1979)
MIN	7.76	7.21	8.45	7.84	7.92	7.88	7.47	9.04	7.88	7.81	5.72	4.91
(WY)	(1968)	(1985)	(1966)	(1966)	(1966)	(1966)	(1966)	(1985)	(1967)	(1967)	(1966)	(1966)

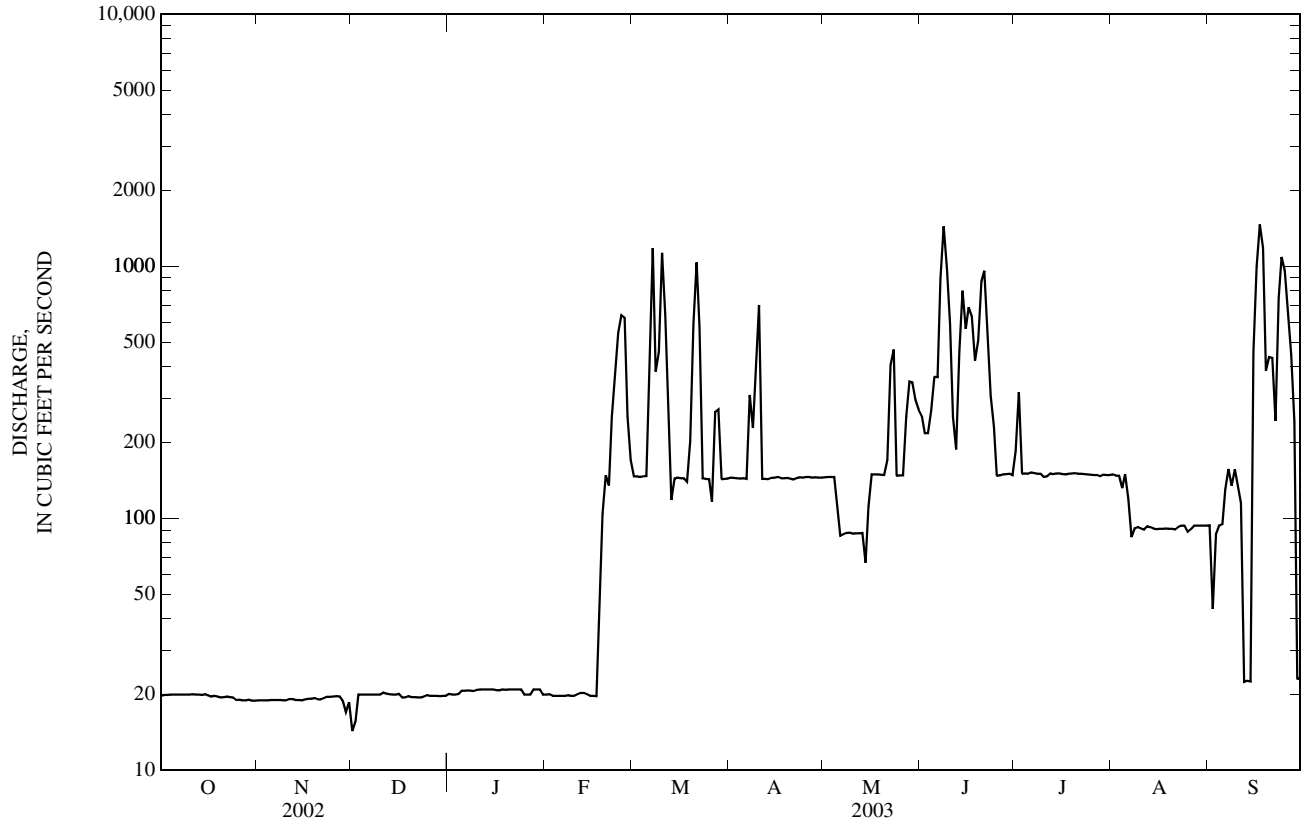
† Combined month-end total contents, in millions of gallons, in Tridelphia and T. Howard Duckett Reservoirs (contents on Sept. 30, 2002, 4,650,000,000 gal). Records provided by Washington Suburban Sanitary Commission.

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

01592500 PATUXENT RIVER NEAR LAUREL, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1945 - 2003	
ANNUAL TOTAL	7,319		59,624			
ANNUAL MEAN	20.1		163		85.7	
ANNUAL MEAN‡	63.7		222			
HIGHEST ANNUAL MEAN					241	1972
LOWEST ANNUAL MEAN					9.09	1966
HIGHEST DAILY MEAN	26	Jul 1	1,470	Sep 17	13,000	Jun 22, 1972
LOWEST DAILY MEAN	14	Dec 1	14	Dec 1	1.1	Jun 26, 1956
ANNUAL SEVEN-DAY MINIMUM	18	Nov 26	18	Nov 26	3.7	Aug 29, 1966
MAXIMUM PEAK FLOW			2,420	Jun 7	(a)26,000	Jun 22, 1972
MAXIMUM PEAK STAGE			9.29	Jun 7	(b)25.00	Jun 22, 1972
INSTANTANEOUS LOW FLOW			4.6	Dec 19	(c)0.05	Jul 18, 1985
ANNUAL RUNOFF (CFSM)	0.15		1.24		0.65	
ANNUAL RUNOFF (INCHES)	2.06		16.80		8.82	
10 PERCENT EXCEEDS	21		428		188	
50 PERCENT EXCEEDS	20		94		22	
90 PERCENT EXCEEDS	19		19		12	

‡ Adjusted for diversions.
a From rating curve extended above 6,600 ft^3/s on basis of contracted-opening measurement of peak flow.
b From floodmarks.
c Valve closed for repair.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01593500 LITTLE PATUXENT RIVER AT GUILFORD, MD

LOCATION.--Lat 39°10'03.9", long 76°51'04.5", Howard County, Hydrologic Unit 02060006, on left bank 25 ft downstream from bridge on Guilford Road (formerly State Highway 32), 1 mi west of Guilford, 3 mi upstream from Middle Patuxent River, 4 mi north of Laurel, and 20.1 mi upstream from mouth.

DRAINAGE AREA.--38.0 mi^2.

PERIOD OF RECORD.--April 1932 to current year. Monthly discharge only for April 1932, published in WSP 1302.

REVISED RECORDS.--WSP 1502: 1933, 1934(M), 1939(M), 1945(M), 1948(P).

GAGE.--Water-stage recorder. Concrete control since June 20, 1946. Datum of gage is 259.26 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges (missing record and ice effect), which are fair. Low flow affected by regulation from unknown source. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2315	1,150	7.59	Jun 7	1630	1,150	7.62
Feb 22	1730	1,600	8.99	Jun 20	1515	934	6.70
Mar 20	2100	882	6.46	Sep 19	1200	816	6.13
May 26	0900	836	6.23	Sep 23	0715	*2,630	*10.74

Minimum discharge, 3.7 ft^3/s, Oct. 6, 8.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	27	18	271	23	46	60	43	83	42	24	18
2	5.9	18	15	486	25	174	51	35	51	47	25	26
3	5.0	16	15	201	24	172	46	30	51	176	23	23
4	4.9	15	15	125	50	75	42	28	161	59	38	144
5	4.9	16	17	58	37	117	41	31	113	39	86	47
6	4.1	90	e20	55	24	393	38	38	61	45	53	24
7	4.4	30	e20	46	e26	166	123	33	549	58	28	20
8	3.9	19	18	44	e20	99	81	37	287	30	25	18
9	e3.9	16	20	51	e21	188	130	85	93	26	61	17
10	25	15	e19	39	24	130	75	77	60	29	47	15
11	173	74	330	32	23	71	120	53	62	127	135	15
12	96	103	204	29	22	65	68	42	88	55	99	27
13	21	80	148	e26	e20	82	50	36	106	40	37	168
14	14	32	251	27	e21	95	45	33	107	30	37	52
15	13	23	74	26	e20	61	44	34	83	27	24	37
16	270	e126	44	e26	e16	57	41	488	49	26	21	48
17	79	e401	34	e25	e32	63	38	159	47	23	53	26
18	23	125	29	e25	e32	53	41	100	119	23	27	134
19	15	45	27	23	35	45	43	71	264	23	21	550
20	14	31	55	22	38	327	39	56	709	21	19	71
21	13	25	39	e21	56	358	38	125	242	20	19	37
22	12	23	28	e26	750	90	39	111	102	43	19	33
23	12	20	24	19	724	62	35	67	65	148	35	e1,090
24	11	18	23	19	224	52	33	85	51	49	19	e202
25	12	17	191	16	102	47	35	132	44	28	17	e75
26	95	16	110	16	65	62	148	482	40	23	24	e40
27	25	19	50	16	52	68	63	121	36	22	33	35
28	16	17	35	15	50	46	42	89	32	33	35	32
29	53	16	32	16	---	62	37	71	31	42	26	30
30	92	17	30	16	---	151	36	59	31	25	27	27
31	59	---	31	16	---	107	---	59	---	23	20	---
TOTAL	1,186.9	1,490	1,966	1,833	2,556	3,584	1,722	2,910	3,817	1,402	1,157	3,081
MEAN	38.3	49.7	63.4	59.1	91.3	116	57.4	93.9	127	45.2	37.3	103
MAX	270	401	330	486	750	393	148	488	709	176	135	1,090
MIN	3.9	15	15	15	16	45	33	28	31	20	17	15
CFSM	1.01	1.31	1.67	1.56	2.40	3.04	1.51	2.47	3.35	1.19	0.98	2.70
IN.	1.16	1.46	1.92	1.79	2.50	3.51	1.69	2.85	3.74	1.37	1.13	3.02

e Estimated.

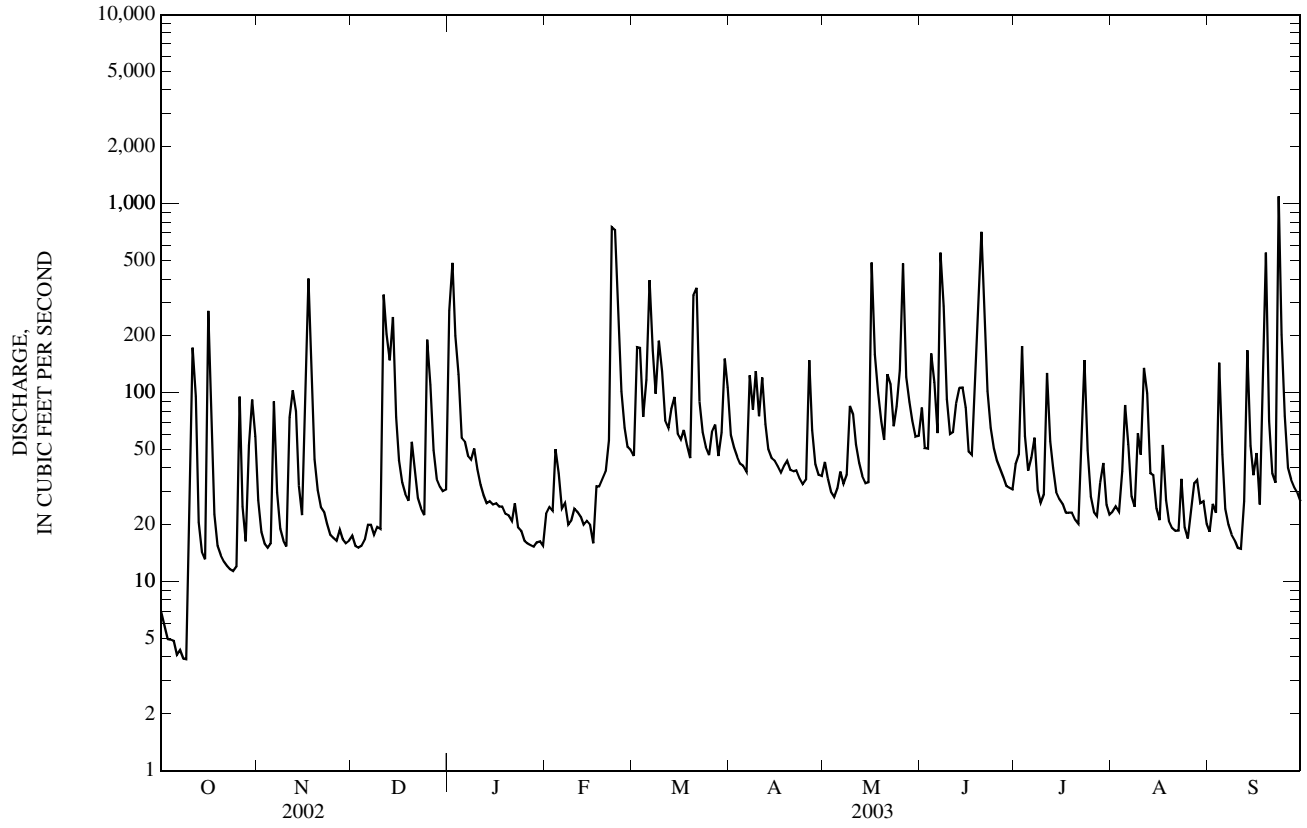
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2003, BY WATER YEAR (WY)

MEAN	26.3	37.5	45.0	52.8	60.4	66.7	58.0	49.6	39.7	29.4	27.5	32.8
MAX	107	108	130	145	147	181	160	197	265	119	130	214
(WY)	(1980)	(1973)	(1997)	(1978)	(1979)	(1993)	(1973)	(1989)	(1972)	(1945)	(1955)	(1975)
MIN	5.90	9.31	11.6	12.9	14.4	24.9	21.0	15.7	9.32	6.66	4.91	3.88
(WY)	(1942)	(1942)	(1966)	(1955)	(2002)	(1981)	(1947)	(1955)	(1986)	(1966)	(1957)	(1932)

01593500 LITTLE PATUXENT RIVER AT GUILFORD, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1932 - 2003	
ANNUAL TOTAL	9,950.25		26,704.9			
ANNUAL MEAN	27.3		73.2		43.9	
HIGHEST ANNUAL MEAN					93.7	1972
LOWEST ANNUAL MEAN					18.9	2002
HIGHEST DAILY MEAN	401	Nov 17	1,090	Sep 23	4,680	Jun 22, 1972
LOWEST DAILY MEAN	0.88	Aug 21	3.9	(a)	0.00	Sep 8, 1966
ANNUAL SEVEN-DAY MINIMUM	1.1	Aug 15	4.4	Oct 3	0.73	Sep 6, 1966
MAXIMUM PEAK FLOW			2,630	Sep 23	(b)12,400	Jun 22, 1972
MAXIMUM PEAK STAGE			10.74	Sep 23	(c)18.38	Jun 22, 1972
INSTANTANEOUS LOW FLOW			3.7	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.72		1.93		1.15	
ANNUAL RUNOFF (INCHES)	9.74		26.14		15.68	
10 PERCENT EXCEEDS	54		148		73	
50 PERCENT EXCEEDS	16		38		26	
90 PERCENT EXCEEDS	3.6		16		10	

a Oct. 8, 9.
b From rating curve extended above 1,800 ft^3/s on basis of contracted-opening measurement at gage height 13.26 ft and contracted-opening and flow-over-embankment measurement at gage height 18.38 ft.
c From high-water mark in well.
d Oct. 6, 8.
f Sept. 6-12, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594000 LITTLE PATUXENT RIVER AT SAVAGE, MD

LOCATION.--Lat 39°08'03.9", long 76°48'58.2", Howard County, Hydrologic Unit 02060006, on left bank 20 ft downstream from bridge on southbound lanes of U.S. Highway 1, 0.4 mi southeast of Savage, 0.9 mi downstream from Middle Patuxent River, and 16.2 mi upstream from mouth.

DRAINAGE AREA.--98.4 mi^2.

PERIOD OF RECORD.--October 1939 to September 1958. Annual maximums, water years 1959-66, 68, 72, 75. October 1975 to September 1980. May 1985 to current year. Prior to December 1939 monthly discharge only, published in WSP 1302.

REVISED RECORDS.--WRD MD-DE-89: 1985, 1987-88(P).

GAGE.--Water-stage recorder. Elevation of gage is 125 ft above National Geodetic Vertical Datum of 1929, from topographic maps. Prior to October 1958, water-stage recorder at site 400 ft downstream at same datum. October 1958 to September 1972, crest-stage gage at site 400 ft downstream on right bank at same datum. October 1975 to September 1980, water-stage recorder at site 500 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are poor. Some diurnal fluctuation at low flow caused by plant 0.5 mi upstream. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0015	2,490	9.41	Jun 7	1730	3,510	10.59
Feb 22	2000	3,760	10.85	Jun 20	0145	2,580	9.52
Mar 20	2215	2,160	8.96	Jun 20	1600	2,540	9.47
May 16	1300	1,870	8.54	Sep 19	0330	2,450	9.36
May 26	1030	1,610	8.14	Sep 23	0945	*6,110	*12.92

Minimum discharge, 8.6 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	64	50	468	109	141	179	115	255	123	73	59
2	13	48	45	1,040	95	357	158	105	137	130	76	73
3	12	41	44	e420	79	500	147	96	131	343	72	71
4	11	37	43	e215	120	223	138	91	403	169	88	295
5	10	38	40	e180	120	275	132	94	306	140	177	141
6	9.7	148	e50	e160	78	922	127	113	168	127	129	78
7	9.5	70	e48	137	e80	488	258	103	1,320	211	81	65
8	9.1	50	e46	127	e76	277	229	103	604	119	77	60
9	8.9	43	e46	148	76	613	294	155	264	112	120	56
10	32	40	e42	123	75	409	219	177	182	115	109	51
11	235	119	463	108	72	207	301	139	158	266	307	50
12	158	184	445	e90	67	183	207	108	236	163	251	68
13	46	175	285	94	e62	216	158	93	287	123	109	305
14	28	77	595	91	e58	266	141	86	372	98	100	140
15	22	62	214	86	e52	179	134	82	e290	93	78	96
16	409	217	133	e76	e45	167	128	921	e187	89	70	136
17	162	734	105	e70	e50	174	120	337	e170	82	143	78
18	57	290	90	e68	e55	157	119	217	282	78	87	288
19	39	e123	84	e65	e60	141	126	165	593	82	72	1,240
20	32	e90	115	e64	e70	657	117	131	1,660	77	66	186
21	28	77	106	86	145	832	113	278	613	74	62	118
22	25	72	82	94	1,630	269	114	251	389	126	62	106
23	23	64	74	e91	1,590	198	110	159	e232	314	97	2,790
24	22	57	70	e88	630	168	104	192	e187	130	63	305
25	23	54	349	e85	303	154	104	310	141	90	56	153
26	146	52	248	e81	195	164	249	925	134	77	65	126
27	55	55	134	80	157	196	163	295	126	73	89	111
28	37	53	105	77	150	149	120	222	118	90	97	104
29	69	49	97	81	---	167	111	188	114	116	70	94
30	159	49	91	82	---	338	107	151	111	78	80	84
31	115	---	89	77	---	300	---	146	---	73	63	---
TOTAL	2,020.2	3,232	4,428	4,752	6,299	9,487	4,727	6,548	10,170	3,981	3,089	7,527
MEAN	65.2	108	143	153	225	306	158	211	339	128	99.6	251
MAX	409	734	595	1,040	1,630	922	301	925	1,660	343	307	2,790
MIN	8.9	37	40	64	45	141	104	82	111	73	56	50
CFSM	0.66	1.09	1.45	1.56	2.29	3.11	1.60	2.15	3.45	1.31	1.01	2.55
IN.	0.76	1.22	1.67	1.80	2.38	3.59	1.79	2.48	3.84	1.51	1.17	2.85

e Estimated

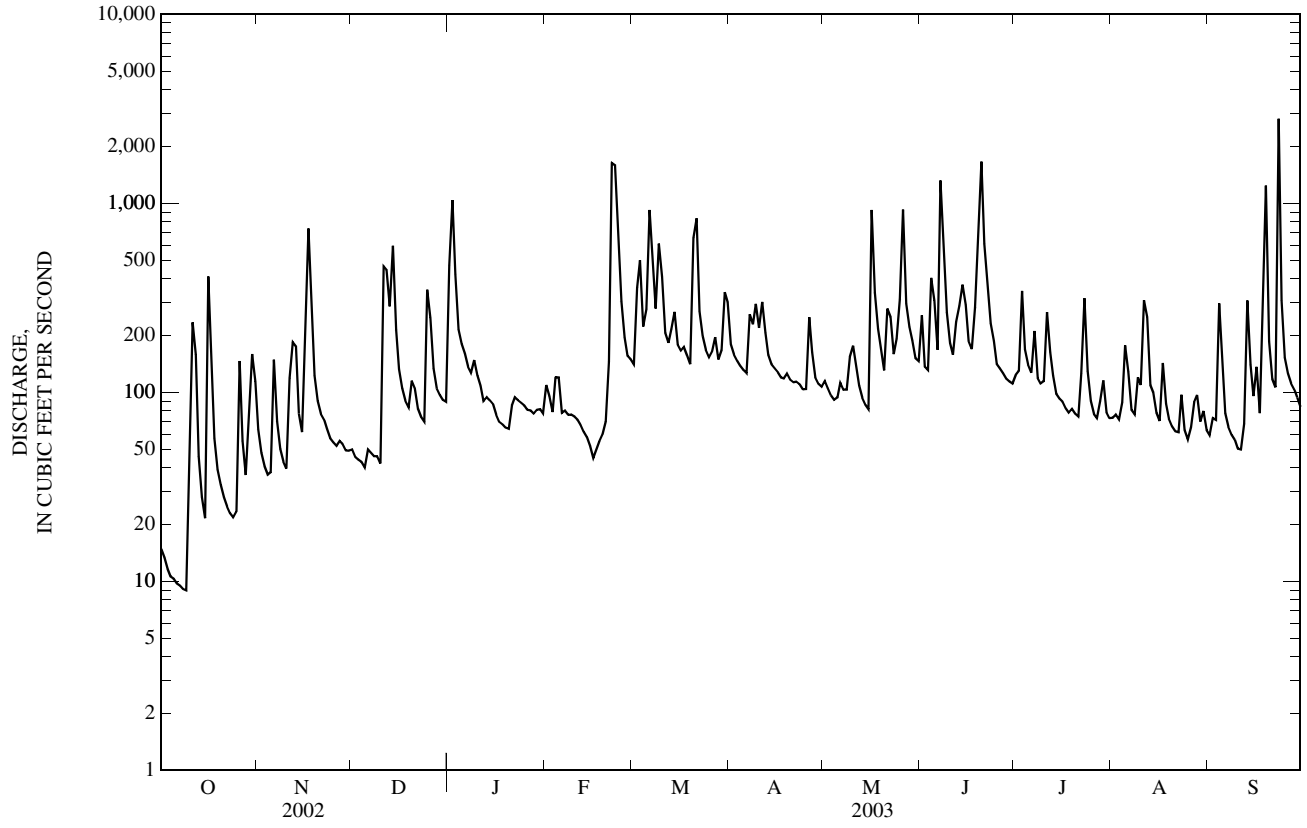
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1958, 1976 - 1980, 1985 - 2003, BY WATER YEAR (WY)

MEAN	70.5	97.4	118	146	143	171	139	127	100	74.8	63.4	75.3
MAX	336	260	386	386	375	368	351	367	339	312	315	432
(WY)	(1980)	(1997)	(1997)	(1979)	(1979)	(1994)	(1952)	(1989)	(2003)	(1945)	(1955)	(1979)
MIN	14.7	22.5	35.4	34.0	37.1	74.5	60.0	39.5	25.5	13.8	15.1	12.8
(WY)	(1942)	(1942)	(1999)	(1942)	(2002)	(2002)	(1947)	(1955)	(1986)	(1999)	(1957)	(1986)

01594000 LITTLE PATUXENT RIVER AT SAVAGE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1940 - 1958, 1976 - 1980, 1985 - 2003	
ANNUAL TOTAL	21,900.6		66,260.2			
ANNUAL MEAN	60.0		182		110	
HIGHEST ANNUAL MEAN					196	1979
LOWEST ANNUAL MEAN					43.8	2002
HIGHEST DAILY MEAN	734	Nov 17	2,790	Sep 23	5,250	Sep 6, 1979
LOWEST DAILY MEAN	1.1	Aug 22	8.9	Oct 9	1.1	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	2.1	Aug 17	10	Oct 3	2.1	Aug 17, 2002
MAXIMUM PEAK FLOW			6,110	Sep 23	(a)35,400	Jun 22, 1972
MAXIMUM PEAK STAGE			12.92	Sep 23	(b)25.40	Jun 22, 1972
INSTANTANEOUS LOW FLOW			8.6	Oct 9	1.1	(c)
ANNUAL RUNOFF (CFSM)	0.61		1.84		1.12	
ANNUAL RUNOFF (INCHES)	8.28		25.05		15.24	
10 PERCENT EXCEEDS	111		312		188	
50 PERCENT EXCEEDS	43		114		72	
90 PERCENT EXCEEDS	8.3		49		27	

a From rating curve extended above 11,000 ft^3/s on basis of contracted-opening measurement of peak flow.
b From floodmarks.
c Aug. 21, 22, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594440 PATUXENT RIVER NEAR BOWIE, MD

LOCATION.--Lat 38°57'21.3", long 76°41'37.3", Anne Arundel County, Hydrologic Unit 02060006, on left bank 45 ft upstream from bridge on U.S. Highway 50 (John Hanson Highway), 3.0 mi east of Bowie City Hall, 3.1 mi downstream from mouth of Little Patuxent River, 4.2 mi northwest of Davidsonville, and 60 mi upstream from mouth.

DRAINAGE AREA.--348 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1955 to June 1977 (gage heights and discharge measurements only), June 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 13.10 ft above National Geodetic Vertical Datum of 1929. Prior to June 27, 1977, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Water-discharge records good. Flow regulated by T. Howard Duckett Reservoir, usable capacity 5,600,000,000 gal, 21 mi upstream from station. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,990 ft^3/s, Feb. 23, gage height, 15.08 ft; minimum discharge, 83 ft^3/s, Oct. 6, 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	296	190	488	234	535	594	378	1,000	384	333	247
2	93	210	186	2,460	265	787	494	369	633	467	339	321
3	91	183	178	1,760	234	1,760	462	351	491	1,250	334	262
4	88	169	169	1,360	252	955	441	340	639	728	439	388
5	87	162	175	625	339	736	428	343	968	450	360	480
6	87	446	181	457	242	1,400	419	337	809	402	444	308
7	88	352	196	426	229	2,120	515	330	1,170	524	318	312
8	86	218	191	368	255	1,660	1,070	371	3,950	490	291	313
9	87	193	195	389	218	1,440	783	359	2,520	417	333	284
10	98	177	180	352	242	1,500	1,130	465	1,650	567	374	293
11	409	225	392	311	232	1,440	1,400	442	1,160	899	322	276
12	580	434	2,020	284	216	1,300	938	361	1,110	599	724	262
13	223	633	1,020	266	199	634	544	318	1,270	973	369	619
14	149	343	1,530	265	198	584	469	300	1,370	523	338	629
15	127	248	1,020	255	231	518	443	270	1,610	418	298	311
16	485	363	447	225	194	485	427	797	1,220	383	279	665
17	1,140	1,700	344	236	201	482	411	2,270	1,000	358	389	1,010
18	291	1,630	297	213	338	473	405	815	1,480	349	347	1,510
19	184	585	272	212	403	439	426	569	1,460	344	273	4,940
20	155	351	387	233	405	705	405	451	2,550	335	258	3,240
21	143	295	445	221	462	3,190	395	521	3,840	325	246	1,040
22	131	261	316	197	1,270	2,090	393	1,200	2,850	320	238	785
23	121	239	272	194	5,600	1,250	384	876	1,450	975	277	2,170
24	116	221	248	205	4,540	567	370	928	781	675	258	4,890
25	116	212	639	192	1,770	488	368	789	542	390	230	1,900
26	460	203	1,490	197	1,360	471	561	1,870	453	340	229	1,470
27	310	201	560	195	1,160	548	593	2,580	431	327	328	1,260
28	187	204	368	180	723	606	423	966	411	365	332	840
29	189	192	321	197	---	547	387	893	396	521	281	621
30	534	189	299	206	---	619	373	722	386	373	314	329
31	473	---	282	198	---	1,090	---	613	---	335	279	---
TOTAL	7,430	11,135	14,810	13,367	22,012	31,419	16,451	22,194	39,600	15,806	10,174	31,975
MEAN	240	371	478	431	786	1,014	548	716	1,320	510	328	1,066
MAX	1,140	1,700	2,020	2,460	5,600	3,190	1,400	2,580	3,950	1,250	724	4,940
MIN	86	162	169	180	194	439	368	270	386	320	229	247
CFSM	0.69	1.07	1.37	1.24	2.26	2.91	1.58	2.06	3.79	1.47	0.94	3.06
IN.	0.79	1.19	1.58	1.43	2.35	3.36	1.76	2.37	4.23	1.69	1.09	3.42

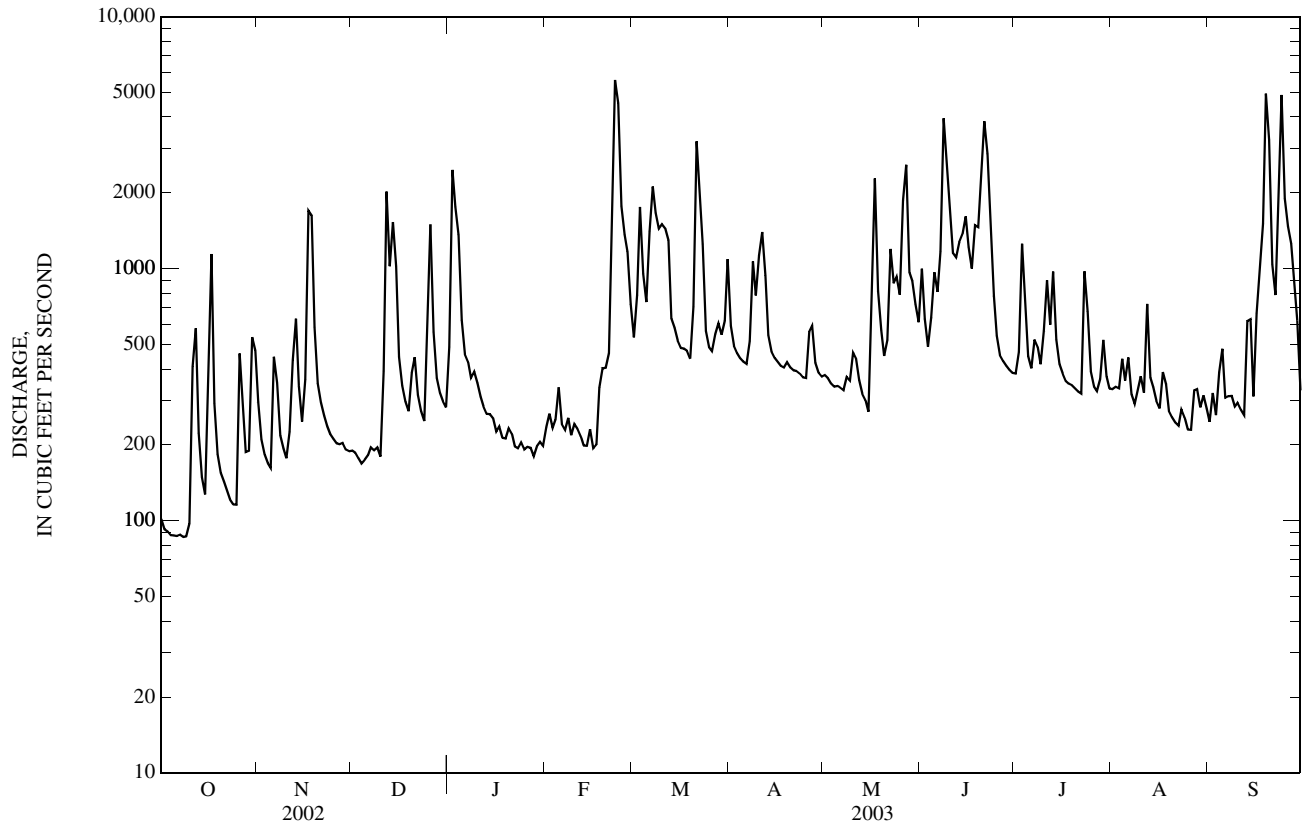
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2003, BY WATER YEAR (WY)

MEAN	240	296	391	476	472	611	501	463	366	223	205	280
MAX	1,093	747	1,357	1,316	1,232	1,358	1,247	1,291	1,320	579	532	1,358
(WY)	(1980)	(1997)	(1997)	(1978)	(1979)	(1993)	(1983)	(1989)	(2003)	(1996)	(1979)	(1979)
MIN	80.4	108	128	119	142	173	167	154	115	97.3	86.1	65.2
(WY)	(1987)	(1982)	(1999)	(1981)	(2002)	(1981)	(1985)	(1986)	(1991)	(1999)	(1987)	(1986)

01594440 PATUXENT RIVER NEAR BOWIE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1977 - 2003	
ANNUAL TOTAL	81,977		236,373			
ANNUAL MEAN	225		648		378	
HIGHEST ANNUAL MEAN					648	2003
LOWEST ANNUAL MEAN					170	2002
HIGHEST DAILY MEAN	2,020	Dec 12	5,600	Feb 23	8,860	Jan 27, 1978
LOWEST DAILY MEAN	72	Aug 23	86	Oct 8	56	(a)
ANNUAL SEVEN-DAY MINIMUM	74	Aug 18	88	Oct 3	57	Sep 15, 1986
MAXIMUM PEAK FLOW			6,990	Feb 23	(b)31,100	Jun 22, 1972
MAXIMUM PEAK STAGE			15.08	Feb 23	(c)27.90	Jun 22, 1972
INSTANTANEOUS LOW FLOW			83	(d)	32	Aug 9, 1966
ANNUAL RUNOFF (CFSM)	0.65		1.86		1.09	
ANNUAL RUNOFF (INCHES)	8.76		25.27		14.74	
10 PERCENT EXCEEDS	383		1,440		781	
50 PERCENT EXCEEDS	161		389		224	
90 PERCENT EXCEEDS	81		192		104	

a Sept. 17-19, 1986.
b From rating curve extended above 9,200 ft^3/s on basis of contracted-opening measurement of peak flow.
c From floodmarks.
d Oct. 6, 8, 9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594440 PATUXENT RIVER NEAR BOWIE, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978-80, 1985 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1977 to September 1980, October 1984 to September 1991.
WATER TEMPERATURE: December 1977 to September 1980, October 1984 to September 1991.
SUSPENDED-SEDIMENT DISCHARGE: October 1985 to September 1991.

REMARKS.--Water-quality samples are collected from bridge on Governor Bridge Road located 0.3 mi downstream from U.S. Highway 50 (John Hanson Highway). On May 6 and Nov. 16, 1994 samples were collected and analyzed using ultraclean methodologies. Data on trace metals for these dates are available from the University of Delaware. Data on organics for these dates are available from George Mason University.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1985-91): Maximum daily, 954 microsiemens/cm, Dec. 15, 1989; minimum daily, 100 microsiemens/cm, May 7, 1989.
WATER TEMPERATURE (water years 1985-91): Maximum daily, 29.0°C, July 25, 1987; minimum daily, 0.0°C, on many days during winter periods.
SEDIMENT CONCENTRATION: Maximun daily mean, 700 mg/L, June 3, 1985; minimum daily mean, 1 mg/L, Jan. 22,1990.
SEDIMENT LOAD: Maximum daily, 4,050 tons, May 7, 1989; minimum daily, 0.55 ton, Jan. 22, 1990.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
OCT												
07...	0930	Environmental	86	761	7.2	79	7.5	368	24.0	20.0	80	23.6
11...	0845	Environmental	265	765	8.0	84	7.5	353	19.5	18.0	--	--
16...	1045	Environmental	422	749	8.7	88	7.4	252	13.0	15.0	--	--
30...	0945	Environmental	596	--	9.8	--	7.0	240	6.5	10.0	--	--
NOV												
06...	1145	Environmental	485	747	10.0	90	7.3	257	11.0	10.0	--	--
13...	0915	Environmental	743	760	8.2	78	7.4	227	10.0	13.0	--	--
DEC												
04...	1415	Environmental	173	773	12.0	88	7.7	322	1.0	3.0	--	--
12...	1215	Environmental	2,560	764	--	--	7.2	732	9.0	E2.0	--	--
12...	*1216*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JAN												
08...	1015	Environmental	366	749	12.8	99	7.4	891	2.0	3.5	94	27.0
FEB												
06...	1115	Environmental	237	772	13.3	97	7.5	470	3.0	2.5	--	--
06...	*1120*	*Replicate*	--	--	--	--	--	--	--	--	--	--
22...	1115	Environmental	907	751	--	--	7.3	1,010	3.0	1.5	--	--
23...	1415	Environmental	6,320	747	--	--	7.0	373	7.0	2.0	--	--
MAR												
04...	1015	Environmental	965	767	--	--	7.3	424	2.5	3.5	--	--
04...	*1020*	*Replicate*	--	--	--	--	--	--	--	--	--	--
18...	1115	Environmental	477	754	--	--	7.3	325	20.0	11.0	--	--
18...	*1116*	*Replicate*	--	--	--	--	--	--	--	--	--	--
31...	1130	Environmental	1,250	761	11.1	87	7.4	290	7.5	5.0	--	--
APR												
04...	1115	Environmental	440	758	10.0	95	7.4	293	10.5	13.0	68	18.9
04...	*1120*	*Replicate*	--	--	--	--	--	--	--	--	*67*	*18.6*
04...	*1121*	*Replicate*	--	--	--	--	--	--	--	--	--	--
11...	1000	Environmental	1,380	754	11.1	96	7.3	213	8.5	8.5	--	--
MAY												
16...	0915	Environmental	468	762	9.0	90	7.5	275	14.5	15.5	--	--
16...	*0920*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUN												
23...	*1220*	*Blank*	--	--	--	--	--	--	--	--	--	--
23...	*1225*	*Blank*	--	--	--	--	--	--	--	--	--	--
23...	*1226*	*Blank*	--	--	--	--	--	--	--	--	--	--
23...	1230	Environmental	1,400	756	8.1	88	7.2	181	33.0	19.0	--	--
23...	*1235*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUL												
15...	0930	Environmental	422	765	8.9	101	7.4	230	27.5	21.5	--	--
15...	*0931*	*Replicate*	--	--	--	--	--	--	--	--	--	--
15...	*0935*	*Replicate*	--	--	--	--	--	--	--	--	--	--
15...	*0936*	*Replicate*	--	--	--	--	--	--	--	--	--	--
AUG												
07...	0900	Environmental	316	759	7.7	90	7.6	234	24.0	23.0	--	--
07...	*0901*	*Replicate*	--	--	--	--	--	--	--	--	--	--
SEP												
08...	0845	Environmental	314	762	8.4	93	7.5	245	22.0	20.5	--	--
08...	*0846*	*Replicate*	--	--	--	--	--	--	--	--	--	--
19...	1015	Environmental	4,780	755	7.9	89	7.2	109	25.0	20.5	--	--
19...	*1020*	*Replicate*	--	--	--	--	--	--	--	--	--	--

01594440 PATUXENT RIVER NEAR BOWIE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
OCT													
07...	5.13	7.62	37.0	38	47	50.2	0.65	8.24	25.8	206	<10	0.76	0.76
11...	--	--	--	--	--	--	--	6.9	--	--	27	0.45	0.60
16...	--	--	--	--	--	--	--	7.6	--	--	69	0.43	0.84
30...	--	--	--	--	--	--	--	6.6	--	--	75	0.35	0.79
NOV													
06...	--	--	--	--	--	--	--	7.5	--	--	39	0.39	0.65
13...	--	--	--	--	--	--	--	7.3	--	--	56	0.37	0.73
DEC													
04...	--	--	--	--	--	--	--	11.1	--	--	<10	0.75	0.84
12...	--	--	--	--	--	--	--	5.7	--	--	54	0.51	0.81
12...	--	--	--	--	--	--	--	*5.7*	--	--	*53*	*0.53*	*0.85*
JAN													
08...	6.33	4.23	131	--	--	224	<0.17	10.3	22.9	468	<10	0.48	0.61
FEB													
06...	--	--	--	--	--	--	--	9.2	--	--	14	0.45	0.50
06...	--	--	--	--	--	--	--	*9.1*	--	--	*15*	*0.43*	*0.48*
22...	--	--	--	--	--	--	--	6.6	--	--	110	0.51	1.1
23...	--	--	--	--	--	--	--	3.8	--	--	92	0.41	0.85
MAR													
04...	--	--	--	--	--	--	--	7.0	--	--	32	0.35	0.54
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	8.3	--	--	16	0.37	0.43
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	6.6	--	--	42	0.39	0.50
APR													
04...	5.12	3.37	25.4	34	41	45.0	0.16	6.57	17.1	159	13	0.34	0.43
04...	*5.06*	*3.24*	*25.2*	--	--	*45.8*	*0.16*	*6.46*	*17.0*	*162*	*14*	*0.34*	*0.41*
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	5.1	--	--	40	0.27	0.54
MAY													
16...	--	--	--	--	--	--	--	7.0	--	--	60	0.40	0.79
16...	--	--	--	--	--	--	--	*7.1*	--	--	*62*	*0.39*	*0.80*
JUN													
23...	--	--	--	--	--	--	--	*<0.2*	--	--	*<10*	*<0.10*	*<0.10*
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	7.4	--	--	22	0.41	0.58
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
15...	--	--	--	--	--	--	--	9.2	--	--	22	0.40	0.53
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	*9.1*	--	--	*25*	*0.37*	*0.51*
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	--	--	--	--	--	--	--	9.6	--	--	23	--	--
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
08...	--	--	--	--	--	--	--	9.0	--	--	16	0.31	0.39
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	4.6	--	--	103	0.28	0.77
19...	--	--	--	--	--	--	--	--	--	--	--	--	--

01594440 PATUXENT RIVER NEAR BOWIE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)
OCT													
07...	0.32	1.74	1.80	0.062	0.44	0.44	0.05	0.070	0.125	2.6	2.6	--	--
11...	E.04	2.07	2.09	0.017	--	--	0.07	0.085	0.20	2.5	2.7	--	--
16...	0.11	0.96	0.98	0.022	0.32	0.73	0.03	0.044	0.27	1.4	1.8	--	--
30...	0.05	0.85	0.86	0.011	0.30	0.74	0.03	0.039	0.21	1.2	1.6	--	--
NOV													
06...	0.07	1.15	1.17	0.023	0.32	0.58	E.02	0.030	0.151	1.6	1.8	--	--
13...	<0.04	0.43	0.45	0.013	--	--	0.02	0.040	0.195	0.82	1.2	--	--
DEC													
04...	0.47	1.95	2.02	0.073	0.29	0.37	E.01	0.018	0.067	2.8	2.9	--	--
12...	0.19	0.74	0.76	0.014	0.32	0.62	E.02	0.027	0.180	1.3	1.6	--	--
12...	*0.19*	*0.75*	*0.76*	*0.014*	*0.34*	*0.65*	*E.02*	*0.026*	*0.182*	*1.3*	*1.6*	--	--
JAN													
08...	0.26	1.30	1.32	0.016	0.22	0.35	<0.02	0.02	0.054	1.8	1.9	0.4	3.1
FEB													
06...	0.14	1.74	1.77	0.030	0.32	0.37	E.01	0.015	0.059	2.2	2.3	--	--
06...	*0.13*	*1.72*	*1.75*	*0.030*	*0.30*	*0.35*	*E.01*	*0.015*	*0.058*	*2.2*	*2.2*	--	--
22...	0.21	1.27	1.28	0.019	0.30	0.86	E.01	0.015	0.20	1.8	2.3	--	--
23...	0.19	0.75	0.76	0.009	0.22	0.66	E.01	0.016	0.20	1.2	1.6	--	--
MAR													
04...	0.13	--	1.14	E.004	0.23	0.41	E.01	0.020	0.089	1.5	1.7	--	3.7
04...	--	--	--	--	--	--	--	*0.01*	--	--	--	--	--
18...	0.09	1.37	1.38	0.008	0.28	0.34	0.03	0.035	0.099	1.7	1.8	--	3.2
18...	--	--	--	--	--	--	--	*0.04*	--	--	--	--	--
31...	0.04	1.01	1.02	0.009	0.35	0.46	E.01	0.019	0.093	1.4	1.5	--	--
APR													
04...	0.05	--	1.45	E.007	0.29	0.37	E.01	0.018	0.055	1.8	1.9	--	3.1
04...	*0.06*	--	*1.43*	*E.007*	*0.29*	*0.36*	*E.01*	*0.018*	*0.056*	*1.8*	*1.8*	--	*3.0*
04...	--	--	--	--	--	--	--	*0.03*	--	--	--	--	--
11...	E.04	1.17	1.18	0.008	--	--	E.01	0.016	0.107	1.4	1.7	--	--
MAY													
16...	0.07	1.33	1.34	0.018	0.34	0.72	<0.02	0.020	0.187	1.7	2.1	--	--
16...	*0.07*	*1.33*	*1.34*	*0.018*	*0.32*	*0.73*	*<0.02*	*0.020*	*0.189*	*1.7*	*2.1*	--	--
JUN													
23...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	--
23...	--	--	--	--	--	--	--	*<0.01*	--	--	--	--	*E.3*
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	0.06	1.01	1.03	0.020	0.36	0.52	E.01	0.024	0.089	1.4	1.6	--	--
23...	--	--	--	--	--	--	--	*0.01*	--	--	--	--	*4.9*
JUL													
15...	0.05	1.12	1.13	0.012	0.35	0.48	E.02	0.025	0.086	1.5	1.7	--	--
15...	--	--	--	--	--	--	--	*0.03*	--	--	--	--	*5.0*
15...	*0.05*	*1.12*	*1.13*	*0.012*	*0.32*	*0.46*	*E.01*	*0.022*	*0.085*	*1.5*	*1.6*	--	--
15...	--	--	--	--	--	--	--	*0.03*	--	--	--	--	*4.9*
AUG													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	*0.02*	--	--	--	--	*4.0*
SEP													
08...	E.04	--	1.22	E.007	--	--	<0.18	0.057	0.123	1.5	1.6	--	--
08...	--	--	--	--	--	--	--	*0.05*	--	--	--	--	*3.3*
19...	<0.04	0.54	0.55	0.008	--	--	E.02	0.028	0.20	0.83	1.3	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--

01594440 PATUXENT RIVER NEAR BOWIE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT						
07...	4.9	120	80.0	--	7	1.7
11...	6.6	--	--	--	34	25
16...	8.9	--	--	--	87	99
30...	7.5	--	--	--	88	142
NOV						
06...	5.9	--	--	--	46	60
13...	9.6	--	--	--	69	139
DEC						
04...	3.6	--	--	--	4	1.8
12...	--	--	--	69	93	643
12...	--	--	--	*65*	*95*	--
JAN						
08...	4.3	185	213	--	12	12
FEB						
06...	4.2	--	--	--	13	8.4
06...	*4.6*	--	--	--	*11*	--
22...	8.7	--	--	--	127	312
23...	9.3	--	--	61	178	3,040
MAR						
04...	4.9	--	--	--	37	96
04...	--	--	--	--	--	--
18...	3.8	--	--	--	23	29
18...	--	--	--	--	--	--
31...	6.2	--	--	--	47	159
APR						
04...	4.7	164	89.6	--	14	17
04...	*4.1*	*156*	*88.9*	--	*14*	--
04...	--	--	--	--	--	--
11...	5.8	--	--	79	53	197
MAY						
16...	6.8	--	--	--	62	79
16...	*7.2*	--	--	--	*64*	--
JUN						
23...	*<0.4*	--	--	--	*0.3*	--
23...	--	--	--	--	--	--
23...	--	--	--	--	--	--
23...	7.2	--	--	--	29	111
23...	--	--	--	--	--	--
JUL						
15...	6.6	--	--	--	28	32
15...	--	--	--	--	--	--
15...	*6.4*	--	--	--	*26*	--
15...	--	--	--	--	--	--
AUG						
07...	5.8	--	--	--	27	23
07...	--	--	--	--	--	--
SEP						
08...	4.3	--	--	--	20	17
08...	--	--	--	--	--	--
19...	12.0	--	--	77	138	1,780
19...	--	--	--	*80*	*134*	--

Remark codes used in this table:
< -- Less than
E -- Estimated value

01594526 WESTERN BRANCH AT UPPER MARLBORO, MD

LOCATION.--Lat 38°48'51.2", long 76°44'55.4", Prince Georges County, Hydrologic Unit 02060006, on left bank 1000 ft upstream from bridge on Water Street, 0.2 mi south of Upper Marlboro, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--89.7 mi^2.

PERIOD OF RECORD.--October 1985 to April 1989, April 1992 to current year.

GAGE.--Water-stage recorder elevation of gage is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	1100	1,100	9.38	Jun 8	0700	1,240	9.97
Feb 23	1015	*3,270	*13.00	Jun 21	0015	1,250	10.02
Mar 21	0545	1,220	9.90	Jul 3	1015	1,090	9.36
May 26	2045	1,200	9.82	Sep 19	1230	1,000	8.89
Jun 1	0945	1,090	9.36	Sep 23	2200	2,530	12.53

Minimum discharge, 1.7 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	80	31	356	60	165	163	71	810	172	64	65
2	5.0	45	27	987	58	532	119	60	210	144	77	97
3	4.2	32	26	562	51	759	104	51	117	936	54	120
4	3.5	30	24	379	73	301	94	48	145	326	72	248
5	3.1	24	27	193	73	333	89	46	147	155	63	120
6	2.5	235	38	163	52	598	81	58	103	113	127	71
7	2.3	95	39	139	57	447	182	56	447	178	62	52
8	2.0	47	36	113	68	244	229	121	1,050	284	52	44
9	1.8	35	37	100	55	224	349	93	351	148	48	38
10	5.3	28	32	87	56	193	302	131	179	326	143	34
11	151	80	248	75	58	148	387	114	113	680	80	30
12	103	176	701	67	50	130	269	80	247	378	54	63
13	35	249	360	63	44	116	162	57	428	159	44	273
14	16	89	538	62	42	116	119	47	585	126	39	160
15	8.7	55	230	57	101	99	104	42	300	95	43	80
16	299	182	119	54	113	95	96	363	141	81	99	95
17	290	697	85	55	171	97	87	409	108	68	127	74
18	66	491	73	e49	157	93	85	219	585	80	57	184
19	32	159	66	e49	123	84	92	156	396	130	42	882
20	21	90	201	47	147	339	84	91	956	71	36	311
21	17	67	258	46	201	1,090	79	118	973	56	32	112
22	14	57	105	e57	785	382	77	324	487	51	29	80
23	13	46	76	e49	2,600	191	71	175	241	69	28	1,180
24	12	40	65	e45	1,070	137	63	197	157	59	24	1,240
25	11	36	425	38	447	113	62	194	123	54	22	222
26	217	34	598	37	262	109	161	856	106	41	58	120
27	82	34	188	e38	199	189	114	814	266	39	129	89
28	36	32	111	e40	177	122	77	273	215	71	205	117
29	58	31	89	38	---	118	66	199	110	207	87	80
30	282	31	76	44	---	223	58	140	86	73	163	64
31	221	---	70	43	---	338	---	150	---	57	135	---
TOTAL	2,021.0	3,327	4,999	4,132	7,350	8,125	4,025	5,753	10,182	5,427	2,295	6,345
MEAN	65.2	111	161	133	262	262	134	186	339	175	74.0	212
MAX	299	697	701	987	2,600	1,090	387	856	1,050	936	205	1,240
MIN	1.8	24	24	37	42	84	58	42	86	39	22	30
CFSM	0.73	1.24	1.80	1.49	2.93	2.92	1.50	2.07	3.78	1.95	0.83	2.36
IN.	0.84	1.38	2.07	1.71	3.05	3.37	1.67	2.39	4.22	2.25	0.95	2.63

e Estimated

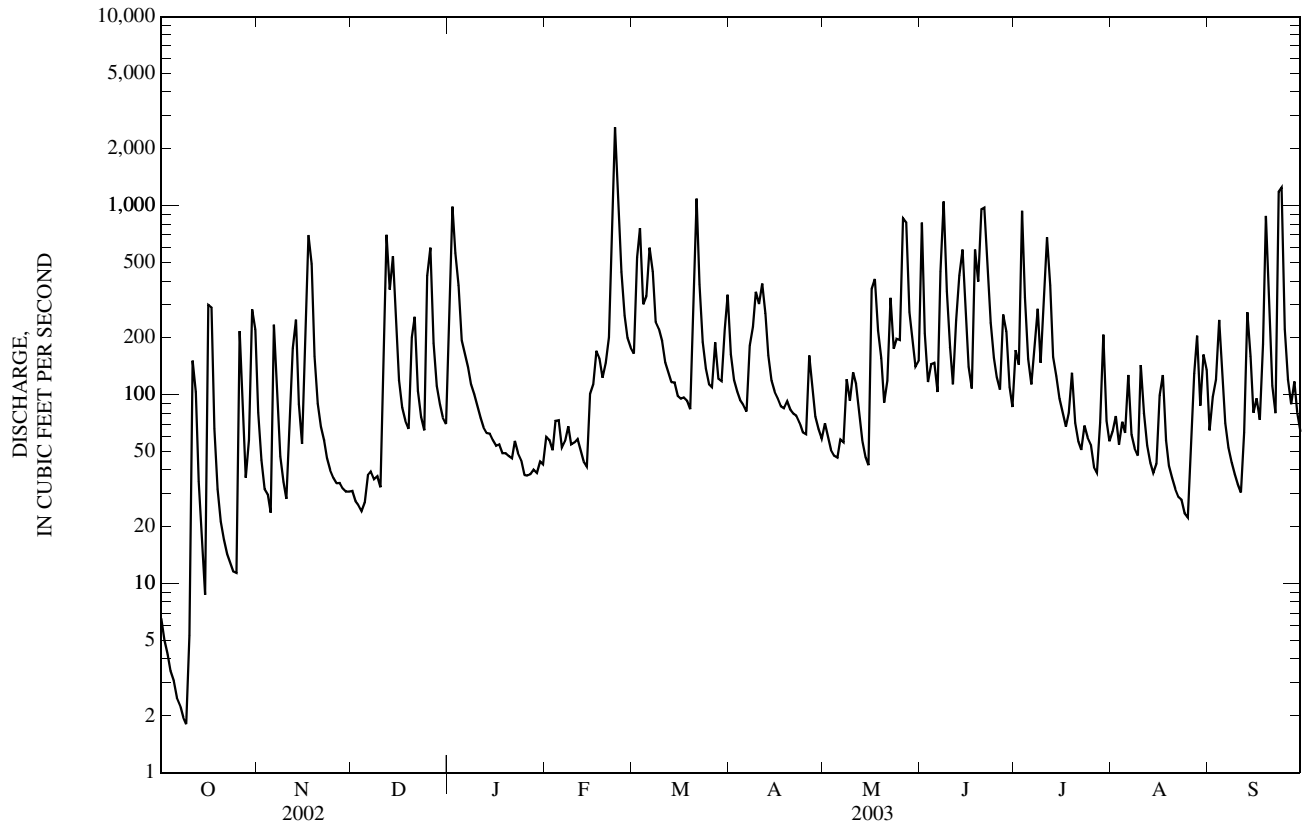
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1989, 1992 - 2003, BY WATER YEAR (WY)

MEAN	46.5	80.8	95.3	119	138	182	113	92.8	72.6	60.4	45.8	72.9
MAX	145	178	261	260	333	445	191	186	339	175	95.5	322
(WY)	(1996)	(1998)	(1997)	(1996)	(1998)	(1994)	(1993)	(2003)	(2003)	(2003)	(1994)	(1999)
MIN	6.54	11.0	24.5	32.3	19.7	61.2	49.1	21.4	9.42	5.61	9.74	9.35
(WY)	(1999)	(1999)	(1999)	(2002)	(2002)	(2002)	(1995)	(1999)	(1986)	(1999)	(1995)	(1986)

01594526 WESTERN BRANCH AT UPPER MARLBORO, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1986 - 1989, 1992 - 2003	
ANNUAL TOTAL	20,389.4		63,981.0			
ANNUAL MEAN	55.9		175		94.9	
HIGHEST ANNUAL MEAN					175	2003
LOWEST ANNUAL MEAN					31.9	2002
HIGHEST DAILY MEAN	701	Dec 12	2,600	Feb 23	4,090	Sep 16, 1999
LOWEST DAILY MEAN	1.1	Aug 21	1.8	Oct 9	1.1	Aug 21, 2002
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 15	2.8	Oct 3	1.3	Aug 15, 2002
MAXIMUM PEAK FLOW			3,270	Feb 23	(a)10,400	Sep 16, 1999
MAXIMUM PEAK STAGE			13.00	Feb 23	15.39	Sep 16, 1999
INSTANTANEOUS LOW FLOW			1.7	(b)	0.32	Sep 21, 2002
ANNUAL RUNOFF (CFSM)	0.62		1.95		1.06	
ANNUAL RUNOFF (INCHES)	8.46		26.53		14.38	
10 PERCENT EXCEEDS	148		384		200	
50 PERCENT EXCEEDS	26		95		50	
90 PERCENT EXCEEDS	3.2		32		9.2	

a From rating curve extended above 2,400 ft^3/s.
b Oct. 8, 9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594800 ST. LEONARD CREEK NEAR ST. LEONARD, MD

LOCATION.--Lat 38×26'56.1", long 76×29'42.5", Calvert County, Hydrologic Unit 02060006, on downstream side of bridge on Parran Road, 1.6 mi west of Long Beach, 2.0 mi southeast of St. Leonard, 3.8 mi northwest of Lusby, and 5.2 miles above mouth.

DRAINAGE AREA.--6.73 mi^2.

PERIOD OF RECORD.--November 1956 to September 1968, October 2000 to September 2003. (Discontinued.)

GAGE.--Water-stage recorder elevation of gage is 0.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep 19	0200	*68	*4.80

No peak greater than base discharge.

Minimum discharge, e0.0 ft^3/s, Oct. 4-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e0.20	e4.7	e3.9	e7.5	e5.2	e12	e9.3	e5.1	e11	e4.5	e4.6	e3.9
2	e0.15	e2.7	e3.5	e10	e4.7	e20	e8.9	e5.0	e8.6	e5.6	e4.3	e5.6
3	e0.10	e2.1	e3.3	e9.8	e3.9	e15	e7.9	e4.5	e6.8	e15	e3.6	e9.5
4	e0.00	e2.1	e3.2	e8.6	e5.8	e13	e7.4	e4.3	e7.9	e11	e3.9	e13
5	e0.00	e2.0	e3.7	e6.8	e6.1	e14	e6.7	e4.2	e11	e7.5	e4.8	e9.1
6	e0.00	e7.6	e4.4	e5.8	e4.0	e20	e5.8	e4.8	e8.1	e5.5	e6.6	e5.5
7	e0.00	e5.1	e4.1	e5.5	e3.7	e15	e15	e8.6	e18	e6.8	e5.1	e4.9
8	e0.00	e2.6	e3.6	e5.1	e4.4	e13	e11	e19	e17	e6.8	e5.0	e4.6
9	e0.00	e2.1	e3.9	e4.7	e3.7	e12	e19	e11	e16	e5.4	e4.3	e4.3
10	e0.10	e2.1	e3.5	e4.6	e4.0	e11	e14	e9.4	e11	e7.6	e5.8	e4.2
11	e0.20	e3.2	e10	e4.4	e3.3	e9.6	e13	e8.6	e7.8	e9.4	e5.4	e4.0
12	e1.0	e11	e13	e4.2	e3.6	e8.8	e10	e7.1	e8.8	e6.1	e7.1	e8.5
13	e1.1	e15	e8.6	e4.1	e3.2	e8.8	e8.9	e5.9	e8.4	e5.0	e5.5	e18
14	e0.50	e5.8	e15	e4.3	e2.9	e7.3	e7.9	e5.0	e10	e5.8	e4.4	e7.4
15	e0.39	e4.1	e8.9	e4.2	e10	e6.7	e7.4	e4.8	e12	e5.0	e3.4	e6.4
16	e3.1	e4.8	e6.5	e3.9	e7.0	e6.5	e6.8	e14	e9.8	e4.8	e8.3	e7.0
17	e8.4	e17	e4.7	e4.2	e5.6	e7.6	e6.5	e9.5	e8.1	e4.5	e12	e6.1
18	e2.7	e14	e4.3	e3.9	e5.2	e6.7	e6.0	e11	e11	e4.3	e5.4	e16
19	e1.5	e9.5	e4.1	e4.1	e5.4	e5.8	e6.5	e9.3	e17	e4.1	e4.4	e25
20	e0.62	e7.9	e6.1	e4.2	e7.3	e22	e6.6	e6.4	e13	e3.9	e3.8	e9.4
21	e0.48	e7.1	e5.4	e4.1	e11	e19	e6.3	e6.9	e12	e3.6	e3.1	e8.1
22	e0.35	e6.0	e4.4	e3.9	e26	e13	e6.2	e11	e11	e3.3	e2.6	e6.8
23	e0.35	e5.3	e4.5	e3.5	e29	e10	e5.7	e8.7	e9.3	e4.2	e3.4	e24
24	e0.35	e4.7	e5.0	e3.1	e16	e8.9	e5.4	e9.8	e8.1	e3.7	e2.4	e11
25	e0.62	e4.2	e16	e3.4	e13	e8.2	e5.1	e12	e7.4	e3.4	e1.9	e8.8
26	e7.1	e3.9	e13	e3.7	e12	e7.6	e8.3	e24	e6.6	e3.3	e2.8	e7.2
27	e3.2	e3.7	e7.4	e3.8	e11	e8.4	e7.6	e14	e6.1	e2.9	e6.4	e6.3
28	e2.0	e3.6	e5.8	e3.6	e11	e7.0	e6.3	e14	e5.5	e3.4	e5.2	e6.3
29	e3.8	e3.6	e5.3	e3.9	---	e7.5	e5.6	e12	e5.3	e3.8	e4.2	e5.7
30	e13	e3.5	e4.7	e4.2	---	e14	e5.1	e10	e4.9	e5.1	e3.5	e5.3
31	e8.6	---	e4.2	e4.6	---	e12	---	e10	---	e4.9	e5.5	---
TOTAL	59.91	171.0	194.0	151.7	228.0	350.4	246.2	289.9	297.5	170.2	148.7	261.9
MEAN	1.93	5.70	6.26	4.89	8.14	11.3	8.21	9.35	9.92	5.49	4.80	8.73
MAX	13	17	16	10	29	22	19	24	18	15	12	25
MIN	0.00	2.0	3.2	3.1	2.9	5.8	5.1	4.2	4.9	2.9	1.9	3.9
CFSM	0.29	0.85	0.93	0.73	1.21	1.68	1.22	1.39	1.47	0.82	0.71	1.30
IN.	0.33	0.95	1.07	0.84	1.26	1.94	1.36	1.60	1.64	0.94	0.82	1.45

e Estimated

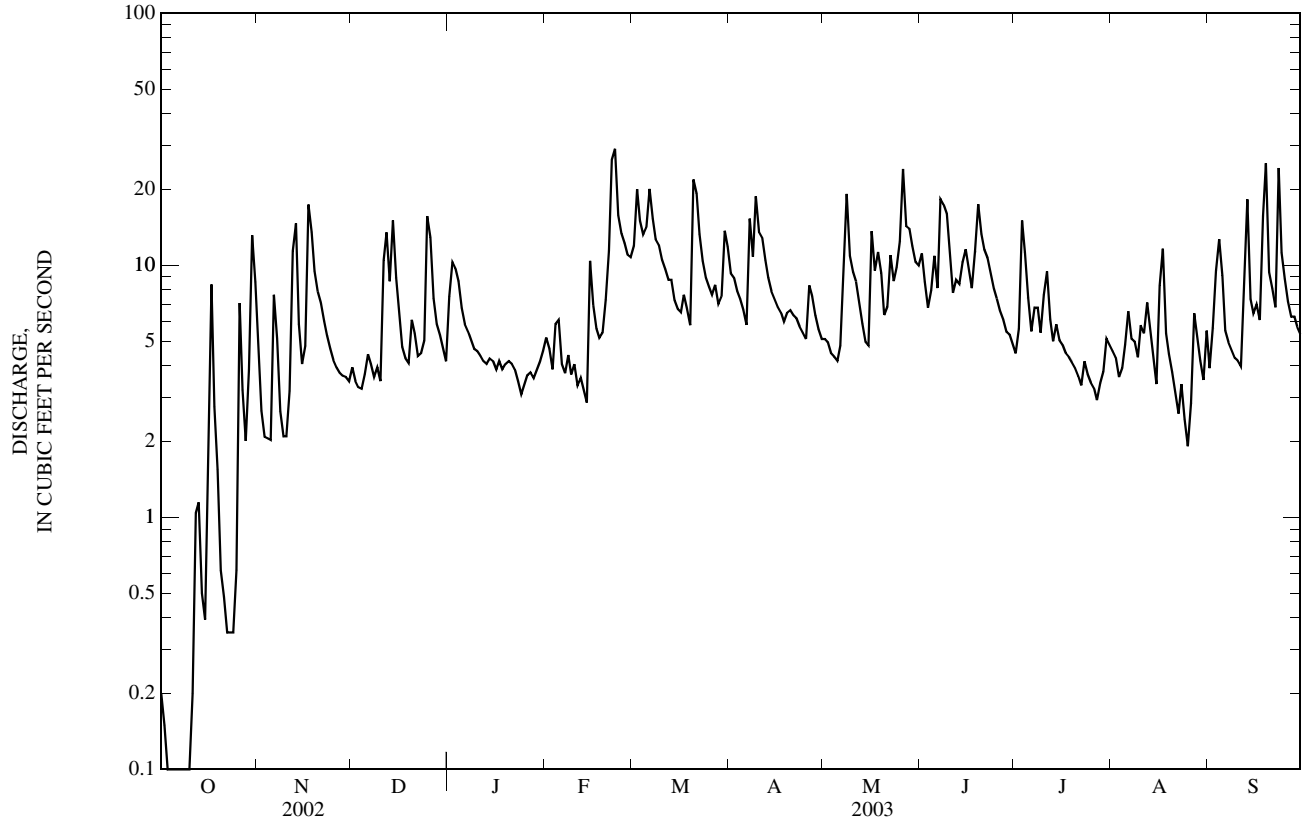
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1968, 2001 - 2003, BY WATER YEAR (WY)

MEAN	4.16	5.80	6.78	7.79	9.32	11.1	10.2	8.57	6.30	4.47	4.17	4.33
MAX	10.4	11.0	11.9	13.3	24.8	22.9	26.1	26.1	13.9	10.8	14.9	13.1
(WY)	(1961)	(1961)	(1958)	(1958)	(1961)	(1958)	(1958)	(1958)	(1958)	(1958)	(1958)	(1960)
MIN	1.73	2.41	3.11	4.25	3.45	4.73	4.29	3.76	1.14	0.074	0.33	1.31
(WY)	(1968)	(1968)	(2002)	(2002)	(2002)	(2002)	(1967)	(2002)	(2002)	(2002)	(1966)	(1967)

01594800 ST. LEONARD CREEK NEAR ST. LEONARD, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1957 - 1968, 2001 - 2003	
ANNUAL TOTAL	1,144.48		2,569.41			
ANNUAL MEAN	3.14		7.04		6.97	
HIGHEST ANNUAL MEAN					14.5	1958
LOWEST ANNUAL MEAN					2.64	2002
HIGHEST DAILY MEAN	17	Nov 17	29	Feb 23	140	Aug 25, 1958
LOWEST DAILY MEAN	0.00	(a)	(e)0.00	(b)	0.00	(c)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 7	0.01	Oct 3	0.00	Aug 24, 1966
MAXIMUM PEAK FLOW			68	Sep 19	288	Jul 30, 1960
MAXIMUM PEAK STAGE			4.80	Sep 19	6.35	Jul 30, 1960
INSTANTANEOUS LOW FLOW			(e)0.00	(b)	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.47		1.05		1.04	
ANNUAL RUNOFF (INCHES)	6.33		14.20		14.07	
10 PERCENT EXCEEDS	6.2		13		14	
50 PERCENT EXCEEDS	3.4		5.8		5.0	
90 PERCENT EXCEEDS	0.00		2.9		1.5	

a Many days.
e Estimated.
b Oct. 4-9.
c Many days in water years 1966, 2002, 2003.
d No flow at times during water years 1963-66, 2002, 2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594930 LAUREL RUN AT DOBBIN ROAD NEAR WILSON, MD

LOCATION.--Lat 39°14'37.0", long 79°25'41.9", Garrett County, Hydrologic Unit 02070002, on left bank at downstream side of bridge (abandoned) on Dobbin Road, 0.6 mi south of intersection of Kempton Road, 1.2 mi from mouth, and 3.0 mi southwest of Wilson.

DRAINAGE AREA.--8.23 mi^2.

PERIOD OF RECORD.--May 1980 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,600 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (beaver dam, ice effect, missing record), which are poor. Natural flow of stream affected by inflow from deep coal mine dewatering process. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 170 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 20	1045	181	3.85	Aug 27	2100	209	4.07
Feb 23	1045	173	3.79	Sep 1	2330	279	4.61
Mar 13	2200	222	4.18	Sep 4	0545	585	7.16
Jul 8	1030	530	6.61	Sep 19	----	*622	*a7.53
Aug 12	1500	445	5.89				

a From max clip.

Minimum discharge, UNKNOWN.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.1	32	23	58	e9.0	25	31	13	59	11	8.6	85
2	e4.3	27	21	99	e9.0	28	45	25	39	10	8.0	173
3	e4.9	23	19	58	11	26	36	18	38	9.7	8.2	90
4	e4.6	21	18	43	28	24	31	20	41	9.2	7.6	e345
5	e3.7	23	18	36	26	34	40	35	34	8.7	8.2	e96
6	e3.1	49	16	32	22	78	32	35	27	9.4	7.8	e58
7	e3.0	43	15	28	19	66	68	30	69	16	7.9	e40
8	e3.5	33	14	26	17	58	60	32	50	164	12	e31
9	e3.5	28	13	27	19	88	90	56	37	65	35	e25
10	e4.3	25	12	27	15	63	62	108	29	79	25	e21
11	e13	23	14	23	14	48	71	98	24	50	19	e18
12	e14	45	16	20	14	45	63	54	24	36	116	e17
13	e9.6	40	18	18	18	97	47	50	41	29	48	e16
14	e8.8	32	28	18	12	134	39	37	48	23	27	e15
15	e8.0	28	23	17	e10	97	33	32	59	20	19	e18
16	e40	28	22	e16	e10	100	29	27	48	17	16	e17
17	e30	45	20	15	e10	104	26	24	48	15	37	e12
18	e20	37	19	15	e11	95	23	23	43	14	21	e55
19	e14	43	20	13	e11	79	22	20	36	14	18	e377
20	e19	45	125	14	e12	76	20	17	50	12	15	e83
21	e16	38	65	14	12	60	22	20	42	11	14	e48
22	e14	34	50	13	45	49	21	18	36	11	13	e42
23	e12	30	45	e12	127	41	19	16	29	10	12	59
24	e10	28	35	e11	66	35	16	19	24	9.9	11	37
25	e9.8	28	34	e10	42	31	15	16	20	9.0	10	33
26	e23	27	28	e9.5	34	29	15	15	18	8.3	11	30
27	e16	27	24	e9.5	30	26	14	14	16	8.0	89	28
28	e15	24	21	e9.0	26	23	13	22	14	18	57	30
29	e45	23	20	e9.0	---	22	13	21	13	15	40	28
30	55	24	18	e9.0	---	24	12	31	12	9.3	66	24
31	40	---	22	e9.0	---	22	---	29	---	8.6	53	---
TOTAL	472.2	953	836	718.0	679.0	1,727	1,028	975	1,068	730.1	840.3	1,951
MEAN	15.2	31.8	27.0	23.2	24.2	55.7	34.3	31.5	35.6	23.6	27.1	65.0
MAX	55	49	125	99	127	134	90	108	69	164	116	377
MIN	3.0	21	12	9.0	9.0	22	12	13	12	8.0	7.6	12
CFSM	1.85	3.86	3.28	2.81	2.95	6.77	4.16	3.82	4.33	2.86	3.29	7.90
IN.	2.13	4.31	3.78	3.25	3.07	7.81	4.65	4.41	4.83	3.30	3.80	8.82

e Estimated

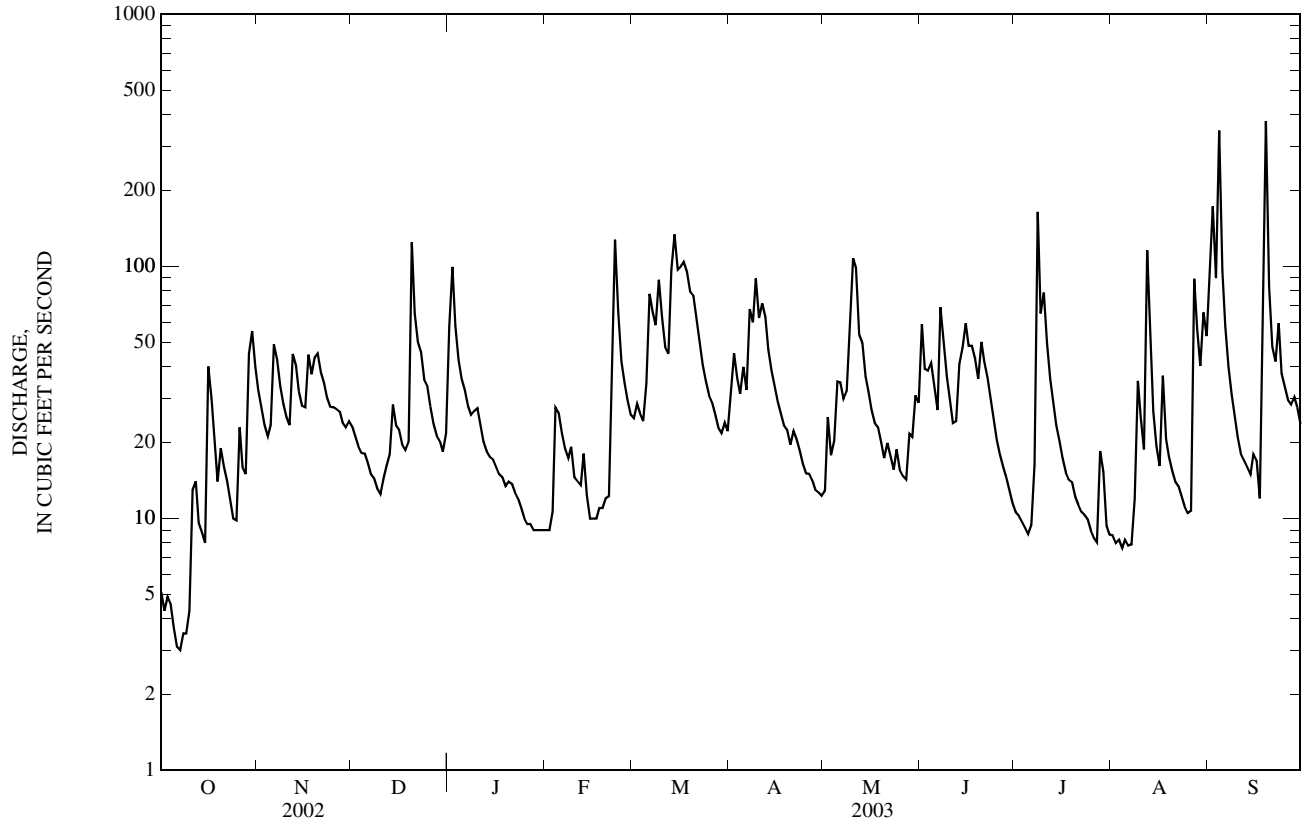
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

MEAN	9.41	18.9	27.9	26.5	35.8	40.4	33.3	28.5	19.0	19.5	12.3	10.6
MAX	26.2	42.8	51.9	51.2	68.5	71.6	61.0	69.8	62.8	46.1	40.2	65.0
(WY)	(1997)	(1987)	(1985)	(1996)	(1994)	(1994)	(1984)	(1996)	(1981)	(2001)	(1980)	(2003)
MIN	3.27	2.20	5.09	8.85	7.24	13.9	9.60	9.35	2.78	2.84	1.71	2.64
(WY)	(1993)	(1999)	(1999)	(1981)	(1993)	(1990)	(1995)	(1991)	(1999)	(1999)	(1999)	(1999)

01594930 LAUREL RUN AT DOBBIN ROAD NEAR WILSON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1980 - 2003	
ANNUAL TOTAL	9,314.2		11,977.6			
ANNUAL MEAN	25.5		32.8		23.3	
HIGHEST ANNUAL MEAN					35.6	1996
LOWEST ANNUAL MEAN					14.8	1999
HIGHEST DAILY MEAN	274	Mar 20	377	Sep 19	492	Feb 9, 1994
LOWEST DAILY MEAN	2.8	Sep 21	(e)3.0	Oct 7	(e)0.62	Aug 18, 1999
ANNUAL SEVEN-DAY MINIMUM	3.7	Oct 4	3.7	Oct 4	0.93	Aug 30, 1999
MAXIMUM PEAK FLOW			622	Sep 19	(a)863	Nov 5, 1985
MAXIMUM PEAK STAGE			(b)7.53	Sep 19	10.10	Nov 5, 1985
INSTANTANEOUS LOW FLOW			UNKNOWN		UNKNOWN	
ANNUAL RUNOFF (CFSM)	3.10		3.99		2.83	
ANNUAL RUNOFF (INCHES)	42.10		54.14		38.40	
10 PERCENT EXCEEDS	45		63		49	
50 PERCENT EXCEEDS	18		23		15	
90 PERCENT EXCEEDS	5.4		9.7		3.6	

e Estimated
a From rating curve extended above 450 ft^3/s on basis of runoff comparisons with nearby stations.
b From max clip.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594936 NORTH FORK SAND RUN NEAR WILSON, MD

LOCATION.--Lat 39°15'37.1", long 79°24'35.2", Garrett County, Hydrologic Unit 02070002, on right bank, 0.1 mi northwest of Wilson-Corona Road, 0.1 mi upstream from mouth and 0.8 mi northwest of Wilson.

DRAINAGE AREA.--1.91 mi^2.

PERIOD OF RECORD.--May 1980 to current year.

GAGE.--Water-stage recorder and steel weir plate. Elevation of gage is 2,515 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good above 0.5 ft^3/s and fair below except those for estimated daily discharges (ice effect), which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior years have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1130	40	3.24	Jul 9	1730	43	3.33
Mar 13	1915	64	3.57	Jul 10	0000	55	3.50
May 9	1330	45	3.32	Aug 12	1500	*497	*7.42
May 10	0845	58	3.50	Aug 27	1900	57	3.52
May 10	1345	66	3.60	Sep 1	2045	89	3.89
Jun 18	1200	397	6.65	Sep 4	0315	317	6.02
Jul 8	0845	154	4.59	Sep 19	0315	268	5.60

Minimum discharge, 0.28 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.82	6.0	3.5	14	e1.2	5.1	7.4	2.6	9.4	2.0	1.1	22
2	0.73	4.8	3.1	16	e1.2	5.6	7.9	5.7	5.7	2.3	0.93	30
3	0.66	3.9	2.8	11	1.7	4.8	5.7	3.4	7.6	1.7	0.86	18
4	0.59	3.6	2.5	7.9	5.5	4.9	4.9	3.7	7.2	1.7	0.81	100
5	0.56	4.6	2.5	6.2	4.1	9.8	6.6	8.2	5.8	1.9	0.87	20
6	0.41	11	2.4	5.4	3.5	21	4.8	6.1	4.4	1.3	0.73	13
7	0.37	8.5	2.3	4.6	3.1	17	17	5.2	15	2.6	0.66	8.3
8	0.36	6.3	2.3	4.2	2.8	18	13	8.0	8.8	35	0.68	6.1
9	0.36	5.2	2.0	5.4	2.6	24	19	17	6.4	19	6.1	4.9
10	0.53	4.6	2.0	5.4	2.5	16	14	41	5.0	23	4.1	4.0
11	2.9	4.1	2.3	4.1	2.4	12	18	24	4.1	14	2.6	3.4
12	2.8	11	2.4	3.6	2.2	13	14	14	5.4	9.0	61	3.1
13	1.8	8.4	3.1	3.9	1.9	29	9.6	14	10	7.7	14	3.1
14	1.5	6.1	4.6	3.0	1.9	28	7.4	8.3	9.8	5.2	6.5	2.5
15	1.3	5.0	3.7	2.7	2.1	23	6.1	6.8	14	4.2	4.3	3.6
16	10	4.9	3.6	2.5	1.4	23	5.2	5.7	8.5	3.4	3.4	2.8
17	6.0	10	3.2	2.6	e1.5	23	4.5	5.1	11	2.9	6.8	2.0
18	3.8	7.4	2.9	2.3	e1.6	20	3.8	4.7	13	2.6	3.5	15
19	2.9	8.7	3.5	1.9	e1.6	16	3.5	3.9	6.5	2.4	2.9	89
20	4.3	8.2	25	2.0	e1.8	16	3.1	3.4	15	1.9	2.5	16
21	3.1	6.6	12	1.9	e2.0	13	3.6	3.6	14	1.6	2.1	9.6
22	2.5	6.0	10	1.8	15	9.6	3.4	3.2	9.2	1.6	1.9	8.9
23	2.1	5.0	8.6	1.7	25	7.2	2.9	2.8	6.8	1.5	1.6	12
24	1.7	4.9	6.3	1.7	13	5.9	2.6	3.8	5.2	1.3	1.3	6.7
25	1.7	4.7	5.6	1.7	8.2	5.0	2.5	2.8	4.1	1.1	1.1	5.5
26	4.6	4.2	4.5	1.6	6.5	4.5	2.4	2.7	3.4	0.89	1.5	4.9
27	3.1	3.9	3.8	1.5	5.4	4.0	2.1	2.8	2.9	0.81	23	5.6
28	2.7	3.6	3.5	1.5	4.7	3.5	1.8	5.2	2.6	5.8	11	6.2
29	11	3.3	3.2	e1.4	---	3.7	1.9	5.0	2.2	2.8	6.6	5.1
30	12	4.0	2.9	e1.3	---	3.7	1.8	5.7	1.9	1.5	14	4.1
31	7.6	---	4.2	e1.2	---	3.4	---	6.3	---	1.2	9.8	---
TOTAL	94.79	178.5	144.3	126.0	126.4	392.7	200.5	234.7	224.9	163.90	198.24	435.4
MEAN	3.06	5.95	4.65	4.06	4.51	12.7	6.68	7.57	7.50	5.29	6.39	14.5
MAX	12	11	25	16	25	29	19	41	15	35	61	100
MIN	0.36	3.3	2.0	1.2	1.2	3.4	1.8	2.6	1.9	0.81	0.66	2.0
CFSM	1.60	3.12	2.44	2.13	2.36	6.63	3.50	3.96	3.92	2.77	3.35	7.60
IN.	1.85	3.48	2.81	2.45	2.46	7.65	3.91	4.57	4.38	3.19	3.86	8.48

e Estimated

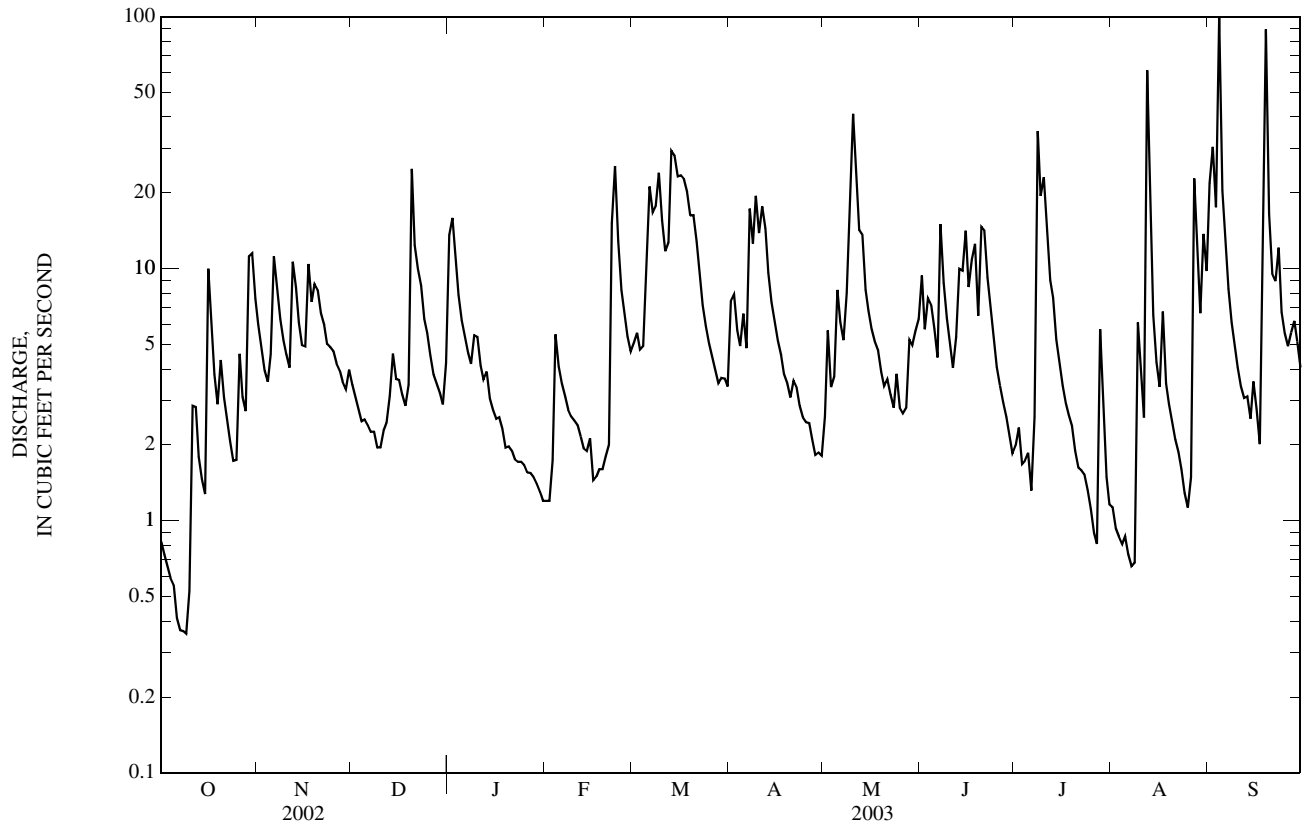
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2003, BY WATER YEAR (WY)

MEAN	1.47	4.00	5.16	5.33	7.29	8.54	6.67	5.59	3.40	3.56	2.16	2.02
MAX	4.43	17.5	8.67	12.9	15.9	16.1	13.4	13.5	12.7	8.97	8.09	14.5
(WY)	(1997)	(1986)	(1991)	(1996)	(1986)	(1994)	(1984)	(1996)	(1981)	(1996)	(1996)	(2003)
MIN	0.21	0.26	0.78	1.29	1.37	2.52	2.22	1.32	0.43	0.28	0.30	0.19
(WY)	(1992)	(1999)	(1999)	(1981)	(1993)	(1990)	(1995)	(1999)	(1999)	(1988)	(1983)	(1991)

01594936 NORTH FORK SAND RUN NEAR WILSON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1980 - 2003	
ANNUAL TOTAL	1,657.49		2,520.33			
ANNUAL MEAN	4.54		6.91		4.55	
HIGHEST ANNUAL MEAN					7.72	1996
LOWEST ANNUAL MEAN					2.74	1999
HIGHEST DAILY MEAN	59	Mar 20	100	Sep 4	141	Feb 9, 1994
LOWEST DAILY MEAN	0.19	Sep 9	0.36	(a)	0.09	(b)
ANNUAL SEVEN-DAY MINIMUM	0.22	Sep 5	0.45	Oct 4	0.12	Aug 12, 1988
MAXIMUM PEAK FLOW			497	Aug 12	(c)895	May 31, 1985
MAXIMUM PEAK STAGE			7.42	Aug 12	10.47	May 31, 1985
INSTANTANEOUS LOW FLOW			0.28	Oct 9	0.01	(d)
ANNUAL RUNOFF (CFSM)	2.38		3.62		2.38	
ANNUAL RUNOFF (INCHES)	32.28		49.09		32.38	
10 PERCENT EXCEEDS	10		15		10	
50 PERCENT EXCEEDS	2.7		4.2		2.8	
90 PERCENT EXCEEDS	0.51		1.5		0.42	

a Oct. 8, 9.
b Aug. 22, 1985, Aug. 24, 1993.
c From rating curve extended above 90 ft^3/s on basis of contracted-opening measurement of peak-flow.
d July 18 and Aug. 9, 1988, result of beaver activity upstream.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01594950 MCMILLAN FORK NEAR FORT PENDLETON, MD

LOCATION.--Lat 39°16'36.1", long 79°23'25.1", Garrett County, Hydrologic Unit 02070002, on left bank upstream side of culvert on private driveway off Wilson-Corona Road, 200 ft upstream from mouth, 1.0 mi south of Bayard, WV, and 1.7 mi southwest of Fort Pendleton.

DRAINAGE AREA.--2.30 mi^2.

PERIOD OF RECORD.--October 1986 to current year.

REVISED RECORDS.--WDR MD-DE-95-1: 1988, 1991-93 (M).

GAGE.--Water-stage recorder and sacrete bag control. Datum of gage is 2,441.94 ft above National Geodetic Vertical Datum of 1929 (Garrett County bench mark).

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are poor .U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 13	1930	63	2.77	Jul 9	2300	86	3.24
Mar 16	1900	42	2.25	Aug 12	1500	*534	*8.23
Mar 17	1830	44	2.30	Aug 27	1900	51	2.49
May 9	1230	68	2.87	Sep 1	2100	101	3.52
May 10	1400	56	2.61	Sep 2	1500	42	2.24
Jul 8	0830	117	3.80	Sep 4	0300	436	7.42
Jul 9	1630	70	2.92	Sep 19	0330	445	7.50

Minimum discharge, 0.18 ft^3/s, Oct. 7-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.39	6.8	3.7	14	1.6	5.6	7.5	2.5	8.5	2.4	2.1	24
2	0.32	5.6	3.4	17	1.6	6.0	11	5.2	6.1	2.4	1.8	37
3	0.28	4.7	3.0	13	1.6	6.0	8.4	3.9	7.7	2.0	1.7	22
4	0.26	4.1	2.9	9.9	4.7	6.2	7.2	5.7	7.8	1.9	1.6	130
5	0.21	5.2	3.3	8.2	8.3	8.4	8.3	9.2	6.5	1.8	1.5	28
6	0.20	11	2.5	7.2	5.4	22	6.7	7.9	5.4	1.6	1.4	17
7	0.19	8.9	2.4	6.1	3.3	18	18	6.7	15	2.3	1.3	12
8	0.18	6.7	2.1	5.7	3.6	17	16	11	11	26	1.3	9.1
9	0.18	5.6	2.0	6.2	3.0	26	22	23	8.5	26	8.2	7.3
10	0.23	4.8	1.8	6.5	2.5	18	18	38	6.7	32	6.9	6.0
11	1.6	4.3	1.9	5.5	2.8	14	21	30	5.6	20	4.3	5.1
12	1.8	9.8	1.9	5.3	3.2	13	17	18	6.0	13	74	4.5
13	1.1	9.1	2.6	4.5	2.5	29	14	15	11	11	20	4.0
14	0.79	6.9	3.9	4.1	2.0	34	11	11	11	8.1	13	3.6
15	0.73	5.8	e2.7	4.2	1.8	30	9.0	9.0	15	6.5	8.5	4.3
16	7.2	5.5	e3.0	3.8	e1.8	33	7.1	7.2	10	5.3	6.4	3.8
17	5.8	10	e2.3	3.4	e1.9	35	5.9	6.1	11	4.5	e4.4	3.1
18	3.7	8.2	e2.3	2.9	e2.0	32	5.0	5.5	10	4.0	e3.4	12
19	2.8	8.9	2.8	2.6	e2.2	27	4.4	4.8	8.4	3.6	e2.8	123
20	3.8	9.1	25	3.0	e2.4	26	3.9	4.3	12	3.1	e2.4	23
21	3.1	7.8	15	2.5	2.7	20	4.3	4.1	13	2.8	e2.1	13
22	2.4	6.9	12	2.3	16	17	3.8	3.6	10	2.6	e1.8	11
23	2.0	5.8	10	2.1	27	13	3.3	3.3	8.2	2.4	e1.6	14
24	1.7	5.2	8.2	2.0	15	10	3.0	4.1	6.6	2.2	e1.4	9.4
25	1.7	5.0	7.4	1.8	9.9	8.7	2.9	3.4	5.3	2.0	e1.3	7.6
26	4.1	4.6	5.9	1.7	7.9	7.6	2.7	3.1	4.5	1.8	1.7	5.8
27	3.1	4.3	5.0	1.7	6.7	6.4	2.4	3.3	3.9	1.6	19	6.3
28	2.6	3.9	4.6	1.6	6.0	5.6	2.3	5.4	3.3	7.5	13	6.5
29	9.6	3.7	4.1	e1.6	---	4.9	2.2	4.3	2.8	4.4	e7.4	5.7
30	12	4.0	3.7	e1.6	---	5.0	2.0	4.0	2.5	2.7	e18	4.7
31	8.5	---	4.6	e1.6	---	4.6	---	5.1	---	2.2	12	---
TOTAL	82.56	192.2	156.0	153.6	149.4	509.0	250.3	267.7	243.3	209.7	246.3	562.8
MEAN	2.66	6.41	5.03	4.95	5.34	16.4	8.34	8.64	8.11	6.76	7.95	18.8
MAX	12	11	25	17	27	35	22	38	15	32	74	130
MIN	0.18	3.7	1.8	1.6	1.6	4.6	2.0	2.5	2.5	1.6	1.3	3.1
CFSM	1.16	2.79	2.19	2.15	2.32	7.14	3.63	3.75	3.53	2.94	3.45	8.16
IN.	1.34	3.11	2.52	2.48	2.42	8.23	4.05	4.33	3.94	3.39	3.98	9.10

e Estimated

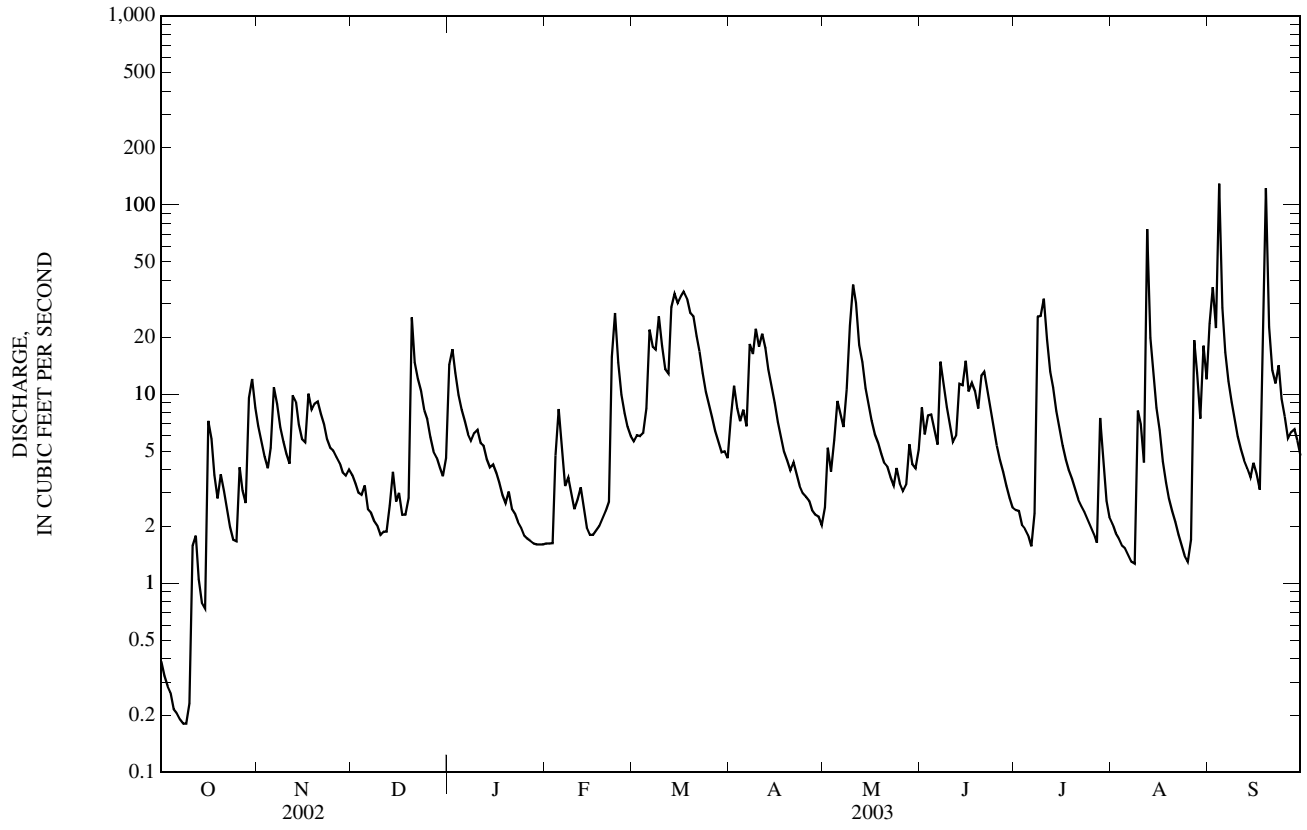
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2003, BY WATER YEAR (WY)

MEAN	1.21	3.17	4.91	6.31	7.32	9.33	6.86	6.02	2.50	3.33	2.06	2.33
MAX	4.57	10.2	10.0	11.5	14.7	17.6	11.7	13.9	8.11	9.93	9.26	18.8
(WY)	(1990)	(1987)	(1991)	(1990)	(1994)	(1994)	(2002)	(1996)	(2003)	(2001)	(1996)	(2003)
MIN	0.044	0.031	0.20	1.69	1.27	3.34	1.27	1.11	0.16	0.018	0.031	0.064
(WY)	(2002)	(2002)	(1999)	(2000)	(1993)	(1990)	(1995)	(1999)	(1999)	(1999)	(1999)	(1998)

01594950 MCMILLAN FORK NEAR FORT PENDLETON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1987 - 2003	
ANNUAL TOTAL	1,656.36		3,022.86			
ANNUAL MEAN	4.54		8.28		4.60	
HIGHEST ANNUAL MEAN					8.28	2003
LOWEST ANNUAL MEAN					2.73	1999
HIGHEST DAILY MEAN	56	Mar 20	130	Sep 4	130	Sep 4, 2003
LOWEST DAILY MEAN	0.07	(a)	0.18	(b)	0.00	(c)
ANNUAL SEVEN-DAY MINIMUM	0.08	Sep 8	0.21	Oct 4	0.00	Aug 10, 1999
MAXIMUM PEAK FLOW			(d)534	Aug 12	(d)534	Aug 12, 2003
MAXIMUM PEAK STAGE			8.23	Aug 12	8.23	Aug 12, 2003
INSTANTANEOUS LOW FLOW			0.18	(f)	0.00	(c)
ANNUAL RUNOFF (CFSM)	1.97		3.60		2.00	
ANNUAL RUNOFF (INCHES)	26.79		48.89		27.20	
10 PERCENT EXCEEDS	10		18		11	
50 PERCENT EXCEEDS	2.3		5.2		2.7	
90 PERCENT EXCEEDS	0.23		1.7		0.12	

a Sept. 12-14.
b Oct. 8, 9.
c Many days in 1999, 2002.
d From rating curve extended above 71 ft^3/s based on runoff comparison with Shields Run (adjacent stream, slope-area measurement, storm of Aug. 12, 2003).
f Oct. 7-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01595000 NORTH BRANCH POTOMAC RIVER AT STEYER, MD

LOCATION.--Lat 39°18'06.8", long 79°18'24.8", Garrett County, Hydrologic Unit 02070002, on left bank 0.3 mi southeast of Steyer, 0.4 mi downstream from Steyer Run, 2.0 mi northeast of Gorman, and at mile 81.8.

DRAINAGE AREA.--73.1 mi^2.

PERIOD OF RECORD.--July 1956 to current year.

REVISED RECORDS.--WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,276.01 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges (missing record, ice effect), which are poor. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1954, reached a stage of 13.0 ft, from floodmarks; discharge, 11,300 ft^3/s, from rating curve extended above 3,000 ft^3/s on basis of slope-area measurement at gage height of 10.30 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jul 8	1100	2,490	6.48	Sep 4	0700	4,620	8.46
Aug 12	1645	5,250	8.95	Sep 19	0445	*7,810	*10.78

Minimum discharge, 21 ft^3/s, Oct. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	214	151	503	88	189	257	106	423	98	77	611
2	29	165	138	704	85	227	384	184	269	96	65	1,010
3	41	133	119	461	87	205	276	130	314	91	55	578
4	40	128	112	344	212	188	230	166	334	95	61	2,360
5	28	138	134	276	205	307	304	302	260	94	63	783
6	25	374	127	242	167	814	250	280	210	132	61	451
7	27	293	99	e210	138	602	639	231	516	139	57	316
8	37	219	95	189	109	519	526	260	390	994	55	246
9	37	171	e94	201	124	845	781	525	291	634	134	201
10	39	147	e94	207	119	551	555	1,020	235	754	186	166
11	73	149	e96	165	112	396	741	866	199	457	165	143
12	90	350	101	e150	102	383	631	483	207	294	1,060	128
13	65	349	107	e140	111	896	427	457	451	249	443	122
14	65	236	181	130	99	1,110	330	320	372	187	217	117
15	62	190	144	e120	81	864	274	278	437	159	156	133
16	240	166	139	e110	71	921	235	244	356	127	126	139
17	219	342	e120	e100	e90	948	219	223	400	113	262	98
18	138	290	115	e98	e110	868	193	219	358	104	151	326
19	96	292	121	e94	e130	698	184	189	286	99	117	3,180
20	118	325	871	e93	e160	669	155	159	498	89	99	720
21	111	258	477	e93	202	548	171	165	503	81	93	408
22	96	229	356	e96	429	428	171	156	370	72	88	318
23	87	197	348	e100	973	332	156	140	280	71	83	501
24	78	183	270	e105	571	274	132	168	230	68	75	297
25	69	181	246	e105	351	234	121	129	194	62	69	243
26	156	174	198	e103	268	215	124	127	166	60	63	224
27	114	169	136	e100	221	194	120	121	145	55	640	227
28	109	149	144	e100	199	175	109	193	131	271	509	278
29	277	138	152	e95	---	153	105	169	118	182	262	233
30	430	151	140	e90	---	177	101	209	105	99	403	199
31	285	---	166	87	---	164	---	228	---	86	371	---
TOTAL	3,317	6,500	5,791	5,611	5,614	15,094	8,901	8,447	9,048	6,112	6,266	14,756
MEAN	107	217	187	181	200	487	297	272	302	197	202	492
MAX	430	374	871	704	973	1,110	781	1,020	516	994	1,060	3,180
MIN	25	128	94	87	71	153	101	106	105	55	55	98
CFSM	1.46	2.96	2.56	2.48	2.74	6.66	4.06	3.73	4.13	2.70	2.77	6.73
IN.	1.69	3.31	2.95	2.86	2.86	7.68	4.53	4.30	4.60	3.11	3.19	7.51

e Estimated

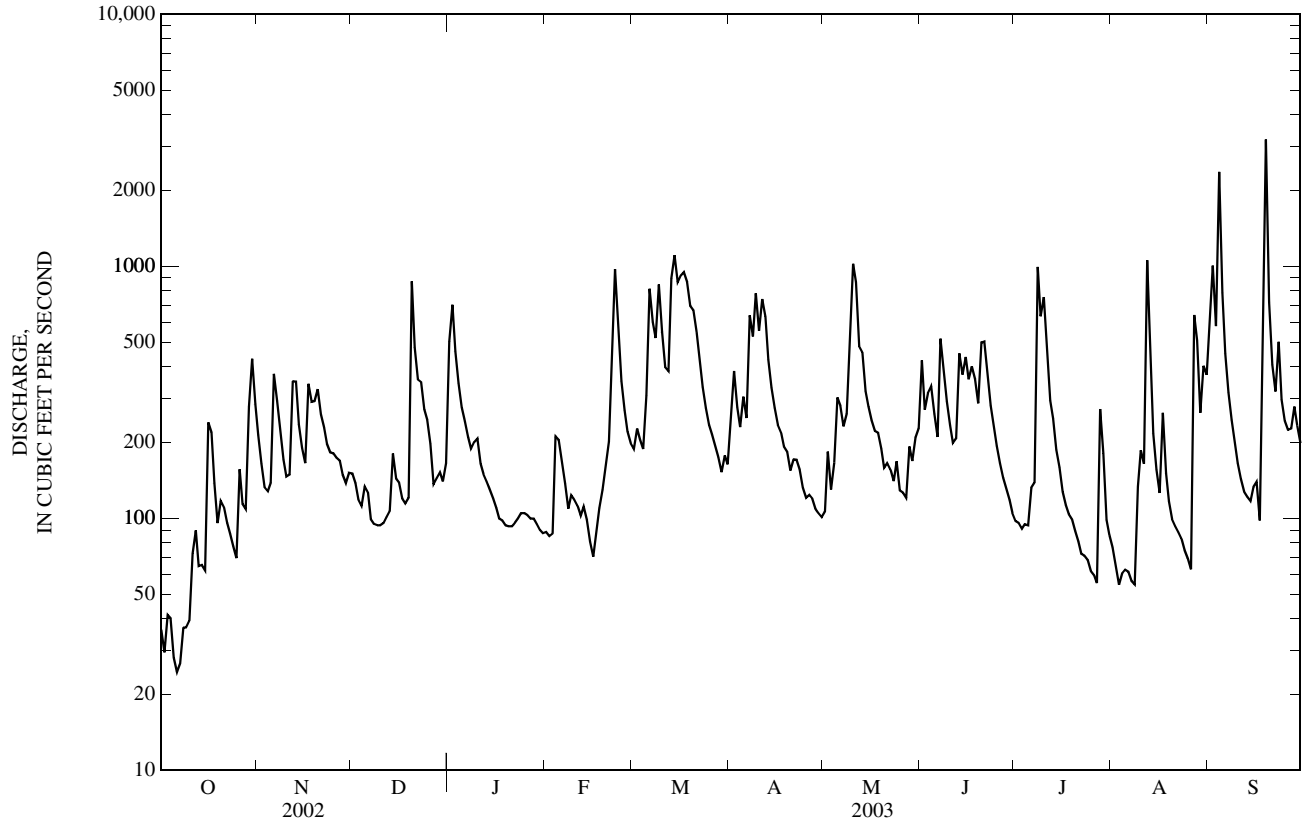
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2003, BY WATER YEAR (WY)

MEAN	70.7	135	219	231	263	342	277	201	122	103	80.7	64.2
MAX	316	588	527	569	604	885	573	540	442	340	355	492
(WY)	(1977)	(1986)	(1973)	(1974)	(1994)	(1963)	(1958)	(1996)	(1981)	(1978)	(1996)	(2003)
MIN	12.8	22.2	46.1	41.8	65.9	112	78.2	62.5	15.5	14.3	6.72	5.99
(WY)	(1964)	(2002)	(1999)	(1977)	(1993)	(1990)	(1995)	(1965)	(1965)	(1965)	(1965)	(1959)

01595000 NORTH BRANCH POTOMAC RIVER AT STEYER, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1956 - 2003	
ANNUAL TOTAL	65,173		95,457			
ANNUAL MEAN	179		262		175	
HIGHEST ANNUAL MEAN					297	1996
LOWEST ANNUAL MEAN					115	1959
HIGHEST DAILY MEAN	1,660	Mar 20	3,180	Sep 19	4,530	Feb 9, 1994
LOWEST DAILY MEAN	23	Sep 25	25	Oct 6	3.1	Sep 9, 1965
ANNUAL SEVEN-DAY MINIMUM	30	Sep 7	32	Oct 1	3.6	Sep 23, 1959
MAXIMUM PEAK FLOW			7,810	Sep 19	(a)11,500	Nov 5, 1985
MAXIMUM PEAK STAGE			10.78	Sep 19	13.14	Nov 5, 1985
INSTANTANEOUS LOW FLOW			21	(b)	2.7	Aug 18, 1999
ANNUAL RUNOFF (CFSM)	2.44		3.58		2.39	
ANNUAL RUNOFF (INCHES)	33.17		48.58		32.48	
10 PERCENT EXCEEDS	348		535		386	
50 PERCENT EXCEEDS	121		175		105	
90 PERCENT EXCEEDS	42		82		21	

a From rating curve extended above 3,000 ft^3/s on basis of slope-area measurement at gage height of 10.30 ft.
b Oct. 6, 7.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01595200 STONY RIVER NEAR MOUNT STORM, WV

LOCATION.--Lat 39°16'10", long 79°15'45", Grant County, Hydrologic Unit 02070002, on left bank 100 ft downstream from highway bridge on U.S. Highway 50, 1.0 mi west of Mount Storm, and at mile 6.4.

DRAINAGE AREA.--48.7 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,554.54 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for periods of estimated daily discharges (ice effect, no gage-height record,), which are poor. Flow regulated by Stony River Reservoir, 14.0 mi upstream from station until use of reservoir discontinued June 1987. Regulation since 1963 by Virginia Electric and Power Company dam (Mount Storm Lake), 4.0 mi upstream from station. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,980 ft^3/s, Sept. 19, gage height, 10.33 ft; minimum discharge, 4.6 ft^3/s, Oct. 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	132	35	327	e18	44	150	44	174	20	e25	70
2	10	105	31	539	21	62	218	44	148	16	24	92
3	9.9	59	74	435	25	88	217	54	157	16	23	90
4	9.0	43	85	228	202	62	174	103	209	14	35	526
5	6.3	39	68	170	196	145	193	182	241	13	53	383
6	5.0	181	40	150	218	556	161	164	209	13	57	313
7	4.7	290	26	94	208	483	427	142	285	14	52	250
8	9.0	275	20	61	110	405	440	204	285	e80	55	139
9	9.0	138	20	63	64	523	603	341	234	e200	39	38
10	8.7	83	17	71	50	309	453	813	174	453	54	35
11	12	68	17	90	e44	160	559	952	131	261	131	30
12	14	120	19	68	e40	188	390	110	122	145	162	29
13	10	149	58	50	e36	407	297	123	125	127	378	29
14	9.9	108	140	e40	e33	634	289	79	125	67	280	61
15	12	181	116	e34	e31	619	208	71	154	31	133	71
16	53	164	85	e28	e30	623	155	139	154	29	14	105
17	37	182	45	24	e29	637	134	233	221	23	33	196
18	29	128	45	e21	e27	638	137	250	250	20	51	369
19	43	109	51	e19	e26	608	179	239	199	20	57	2,190
20	38	177	320	e17	e80	631	161	200	248	19	42	403
21	35	186	372	e16	206	626	168	171	269	17	31	354
22	11	147	282	e14	254	557	177	155	205	14	21	255
23	8.8	112	154	e13	469	482	159	137	156	14	22	386
24	11	97	82	e12	552	421	138	151	88	13	20	336
25	12	102	90	e12	226	314	118	140	35	11	22	282
26	28	80	77	e11	61	178	97	124	31	11	19	253
27	88	63	66	e10	72	131	93	96	34	e20	173	189
28	120	44	55	e10	41	115	68	123	36	e40	129	175
29	138	29	43	e11	---	127	37	116	32	e35	72	162
30	172	28	128	e13	---	157	42	103	26	e32	73	142
31	148	---	191	e15	---	144	---	109	---	e28	81	---
TOTAL	1,112.3	3,619	2,852	2,666	3,369	11,074	6,642	5,912	4,757	1,816	2,361	7,953
MEAN	35.9	121	92.0	86.0	120	357	221	191	159	58.6	76.2	265
MAX	172	290	372	539	552	638	603	952	285	453	378	2,190
MIN	4.7	28	17	10	18	44	37	44	26	11	14	29

e Estimated

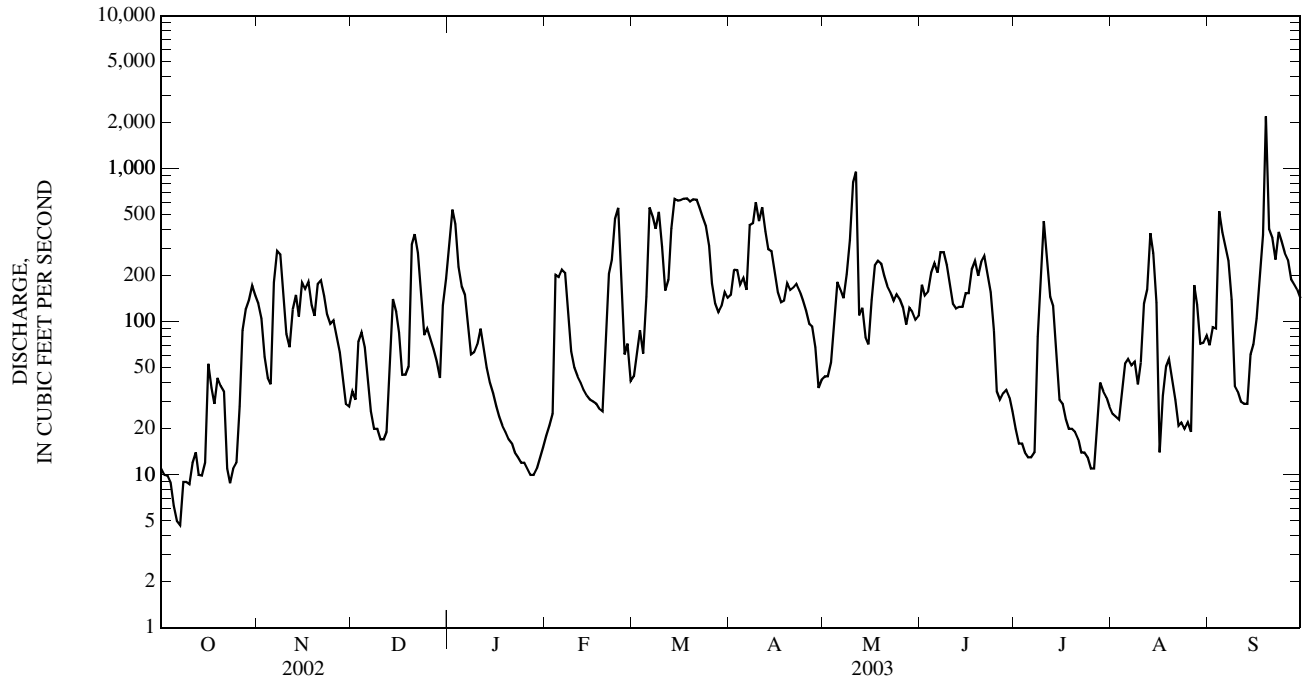
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY)

MEAN	44.8	83.9	105	113	142	219	159	122	70.3	48.1	36.0	40.4
MAX	234	669	301	267	361	537	371	271	237	205	200	314
(WY)	(1977)	(1986)	(1973)	(1996)	(1994)	(1963)	(1987)	(1988)	(1981)	(1978)	(1996)	(1996)
MIN	3.36	5.53	8.36	20.9	21.3	46.9	51.8	28.3	9.91	4.36	3.28	3.89
(WY)	(1992)	(1999)	(1999)	(1981)	(1978)	(1990)	(1995)	(1964)	(1964)	(1968)	(1999)	(1985)

01595200 STONY RIVER NEAR MOUNT STORM, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1962 - 2003	
ANNUAL TOTAL	30,419.1		54,133.3			
ANNUAL MEAN	83.3		148		98.3	
HIGHEST ANNUAL MEAN					166	1996
LOWEST ANNUAL MEAN					42.0	1964
HIGHEST DAILY MEAN	1,010	Mar 20	2,190	Sep 19	9,880	Nov 5, 1985
LOWEST DAILY MEAN	3.5	Sep 8	4.7	Oct 7	1.3	Aug 28, 1988
ANNUAL SEVEN-DAY MINIMUM	5.0	Sep 7	7.4	Oct 4	1.7	Aug 28, 1988
MAXIMUM PEAK FLOW			4,980	Sep 19	(a)14,000	Nov 5, 1985
MAXIMUM PEAK STAGE			10.33	Sep 19	(b)16.41	Nov 5, 1985
INSTANTANEOUS LOW FLOW			4.6	Oct 7	1.3	(c)
10 PERCENT EXCEEDS	188		370		231	
50 PERCENT EXCEEDS	42		94		48	
90 PERCENT EXCEEDS	7.6		14		8.3	

a From rating curve extended above 7,500 ft 3/s on basis of slope-area measurement of peak flow.
b From floodmarks.
c Aug. 22, 23, 28, 29, 1988.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01595200 STONY RIVER NEAR MOUNT STORM, WV—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: December 1961 to March 1974, September 1974 to September 1995, October 1996 to current year.

INSTRUMENTATION.--Temperature recorder (continuous ethyl alcohol-actuated thermograph) December 1961 to October 2001. Satellite telemetry installed Oct 22, 2001.

REMARKS.--Upstream reservoir regulation defined on the discharge manuscript. No temperature record July 5-7, 9, 26-31, Aug. 1, due to equipment malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 31.3°C, Aug. 14, 1984, July 19, 1990 Aug.3, 2002; minimum, -0.5°C, Jan. 16-20, 1999.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES.--Maximum 31.3°C, Aug. 14; minimum, 0.1°C, Jan. 12-18, 20-28, March 3, 4.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.5	13.2	1.2	7.7	0.8	5.6	10.2	19.1	16.3	22.9	---	23.2
2	17.9	11.1	1.6	9.6	2.2	4.0	14.2	19.1	19.4	20.1	26.0	21.1
3	19.2	9.8	4.0	9.7	2.6	4.2	15.4	17.4	17.4	21.9	24.6	22.0
4	19.5	9.3	5.4	7.7	5.1	4.3	13.9	15.6	18.7	23.9	24.6	24.2
5	20.0	8.3	4.3	6.7	5.0	5.3	13.9	13.3	20.4	---	24.9	25.4
6	15.7	12.0	4.0	6.7	7.5	8.5	12.2	17.0	22.2	---	25.2	26.8
7	15.2	14.3	2.1	4.2	7.8	9.7	10.3	17.7	20.1	---	23.7	26.8
8	12.5	16.0	2.8	3.0	4.9	10.6	11.9	19.5	21.6	21.9	25.4	24.6
9	12.1	14.6	1.2	4.3	3.2	8.0	10.1	18.0	21.9	---	24.8	20.5
10	12.6	14.6	1.2	3.3	3.3	7.1	10.2	20.1	21.4	29.0	23.9	18.9
11	13.6	14.4	1.2	1.7	4.0	6.6	10.2	21.2	22.6	27.8	26.6	18.2
12	15.6	12.1	2.3	1.8	5.9	8.1	11.9	14.7	21.8	25.7	28.9	16.9
13	14.6	10.8	5.5	1.1	6.0	7.1	13.9	11.6	20.3	25.0	31.2	17.0
14	12.4	10.9	7.0	0.7	7.5	10.1	15.1	14.8	22.5	24.5	31.3	21.9
15	10.2	14.6	7.1	0.8	7.0	11.7	16.3	12.5	20.4	24.4	29.4	21.1
16	10.9	14.6	6.8	0.4	6.6	12.2	16.0	15.8	21.2	24.2	26.5	21.8
17	10.6	12.0	3.2	0.3	6.9	12.5	13.3	16.0	20.5	24.1	24.2	25.8
18	9.7	9.1	4.4	1.0	5.2	11.6	10.6	16.6	23.6	20.9	24.0	24.3
19	13.2	8.9	5.9	0.5	6.6	11.4	15.9	19.9	23.4	24.0	25.6	24.2
20	13.1	12.7	7.4	0.2	9.1	10.4	16.3	20.4	21.4	23.6	25.6	23.0
21	13.1	13.5	9.3	0.2	9.1	12.4	15.9	18.8	18.6	24.2	25.8	24.1
22	11.6	12.4	9.1	0.2	8.0	12.4	14.4	16.8	22.6	24.3	26.4	23.2
23	11.1	8.1	6.9	0.2	6.0	12.2	14.8	16.3	23.0	22.3	24.9	22.3
24	8.8	9.3	3.5	0.2	9.2	13.6	15.0	19.2	22.7	23.0	23.3	23.6
25	9.0	10.9	3.0	0.2	6.8	14.7	14.2	19.8	22.3	22.3	24.2	22.6
26	10.4	9.9	2.6	0.4	2.6	11.3	13.7	18.3	22.7	---	25.2	22.9
27	16.1	7.3	2.6	0.2	2.2	12.8	16.0	17.1	20.1	---	21.1	22.8
28	16.6	5.0	2.3	0.4	3.2	13.7	17.5	16.6	21.0	---	23.9	20.4
29	15.2	3.9	3.1	0.3	---	13.2	14.8	17.3	22.9	---	23.6	18.4
30	13.2	4.6	8.8	0.4	---	10.5	16.0	19.4	22.4	---	22.9	18.4
31	12.6	---	9.6	0.4	---	8.2	---	17.8	---	---	22.1	---

01595200 STONY RIVER NEAR MOUNT STORM, WV—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MINIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	10.9	0.2	5.1	0.3	2.4	6.3	13.2	13.5	18.1	---	21.1
2	14.5	9.7	0.2	6.3	0.6	1.5	7.8	14.6	13.8	18.1	20.1	19.8
3	15.9	8.3	0.3	7.7	0.8	0.1	10.7	14.1	15.9	17.5	21.3	19.7
4	15.8	8.3	3.7	5.6	0.7	0.1	11.4	12.8	16.2	18.0	20.8	18.8
5	15.7	6.3	1.4	5.6	3.5	3.2	10.0	11.3	17.7	---	21.5	24.2
6	12.0	6.5	1.1	4.2	4.3	3.3	8.5	12.8	18.0	---	21.5	23.9
7	12.2	12.0	0.4	2.0	4.9	6.8	7.7	14.6	17.0	---	22.1	23.7
8	9.4	14.2	1.1	2.0	2.2	7.2	10.1	16.0	19.2	19.0	22.1	20.5
9	9.3	12.9	0.2	2.8	1.5	5.7	8.1	15.6	19.3	---	21.8	17.0
10	11.5	12.8	0.2	0.8	1.2	1.9	9.2	15.9	19.0	25.4	20.2	15.7
11	12.4	12.1	0.5	0.2	0.9	1.5	7.4	14.7	19.1	23.9	23.0	13.8
12	13.1	9.2	1.2	0.1	4.0	4.6	8.4	10.3	19.2	22.9	25.3	15.3
13	12.4	9.4	1.7	0.1	4.4	4.4	8.3	9.5	19.1	21.7	26.6	15.4
14	9.3	9.3	5.5	0.1	5.0	4.6	9.5	8.7	18.7	21.5	28.7	16.9
15	8.1	9.9	6.2	0.1	5.8	8.5	11.4	11.1	18.9	19.2	26.0	18.3
16	9.4	12.0	3.2	0.1	3.6	8.9	11.5	11.2	19.1	21.1	23.7	16.9
17	8.7	9.1	1.2	0.1	4.3	9.4	10.6	15.5	18.1	18.5	21.7	19.5
18	7.6	7.8	2.8	0.1	4.1	10.3	9.3	15.6	19.7	18.4	20.3	17.7
19	8.5	7.7	3.7	0.2	3.5	10.4	9.8	16.0	21.4	18.5	21.5	17.3
20	11.9	7.7	4.3	0.1	6.6	9.4	12.8	16.6	13.6	16.7	21.6	19.7
21	10.8	12.1	7.4	0.1	6.9	9.5	13.4	16.3	16.6	18.4	21.7	22.1
22	8.5	8.1	6.9	0.1	4.8	10.4	11.8	15.9	18.6	20.4	22.6	20.4
23	7.4	7.3	3.5	0.1	4.8	10.5	10.5	15.7	18.4	19.3	21.2	20.1
24	7.9	7.6	2.8	0.1	6.0	10.1	9.5	15.3	18.5	18.2	18.2	20.7
25	7.6	8.4	1.4	0.1	2.6	10.4	11.3	15.3	16.2	16.5	18.8	21.8
26	8.6	7.3	1.4	0.1	0.7	8.8	12.5	16.9	17.1	---	20.8	21.8
27	9.4	5.0	0.9	0.1	0.7	7.9	10.6	15.0	17.4	---	19.4	20.4
28	15.2	3.0	1.2	0.1	1.0	9.3	10.6	14.5	15.3	---	19.5	18.4
29	10.4	2.2	1.8	0.2	---	10.5	12.0	15.2	17.5	---	21.0	17.2
30	11.4	1.0	1.1	0.2	---	6.4	10.5	15.3	17.8	---	21.2	16.4
31	12.0	---	7.7	0.2	---	6.2	---	14.9	---	---	20.6	---

01596500 SAVAGE RIVER NEAR BARTON, MD

LOCATION.--Lat 39°34'12.2", long 79°06'07.0", Garrett County, Hydrologic Unit 02070002, on right bank 0.9 mi upstream from Bear Pen Run, 1.5 mi downstream from Poplar Lick Run, 5.4 mi northwest of Barton, and 10 mi upstream from mouth.

DRAINAGE AREA.--49.1 mi^2.

PERIOD OF RECORD.--September 1948 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,603.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect, missing record), which are poor. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2100	1,400	4.10	May 10	1159	875	3.43
Mar 17	2229	847	3.39	Sep 19	0629	*2,900	*5.52

Minimum discharge, 2.0 ft^3/s, Oct. 9, 10,

.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	85	39	660	e20	e90	74	33	511	26	11	15
2	4.0	82	38	810	e19	e84	127	33	296	23	12	31
3	3.4	61	e36	415	e19	77	126	30	342	22	24	29
4	3.0	48	e33	240	e19	90	113	37	575	20	35	28
5	2.8	44	e35	166	e19	96	161	70	341	18	24	33
6	2.6	160	e38	130	e18	484	175	120	207	26	17	25
7	2.4	130	e39	107	e18	494	250	152	362	29	14	21
8	2.3	97	e39	96	e18	303	281	263	393	92	12	17
9	2.0	75	36	92	e18	474	351	518	253	80	11	15
10	2.3	61	45	99	e17	391	406	760	164	79	11	14
11	19	54	44	88	e17	244	394	587	126	94	13	12
12	34	97	45	87	e15	184	348	332	178	75	13	10
13	18	169	41	e80	e13	286	242	470	487	71	10	11
14	11	128	54	e70	e12	614	176	337	290	52	9.2	15
15	8.9	94	54	e64	e12	499	137	225	194	41	8.2	15
16	45	77	60	e58	e12	601	111	205	143	34	7.5	13
17	50	124	57	e54	e14	750	93	193	138	27	8.6	11
18	31	147	57	e50	e24	748	79	197	187	24	9.5	21
19	21	132	53	e47	e22	612	76	188	174	22	7.6	1,620
20	18	117	306	e44	e21	556	63	160	201	19	6.5	613
21	14	103	323	e41	e20	581	60	138	220	16	5.9	257
22	11	92	200	e38	e60	422	58	112	194	15	5.8	175
23	8.9	78	162	e35	e220	282	51	96	148	16	5.4	330
24	7.7	64	131	e31	e260	195	44	95	110	18	5.0	218
25	7.4	58	117	e29	186	151	42	81	82	13	4.2	150
26	31	52	94	e27	140	125	42	108	64	11	4.1	113
27	29	49	75	e24	e120	100	39	103	52	9.4	31	157
28	23	43	65	e22	e100	85	34	119	43	13	37	338
29	44	41	61	e21	---	76	32	114	35	13	18	234
30	132	41	51	e20	---	75	31	105	29	9.8	18	162
31	88	---	63	e20	---	67	---	231	---	8.7	20	---
TOTAL	681.9	2,603	2,491	3,765	1,453	9,836	4,216	6,212	6,539	1,016.9	418.5	4,703
MEAN	22.0	86.8	80.4	121	51.9	317	141	200	218	32.8	13.5	157
MAX	132	169	323	810	260	750	406	760	575	94	37	1,620
MIN	2.0	41	33	20	12	67	31	30	29	8.7	4.1	10
CFSM	0.45	1.77	1.64	2.47	1.06	6.46	2.86	4.08	4.44	0.67	0.27	3.19
IN.	0.52	1.97	1.89	2.85	1.10	7.45	3.19	4.71	4.95	0.77	0.32	3.56

e Estimated

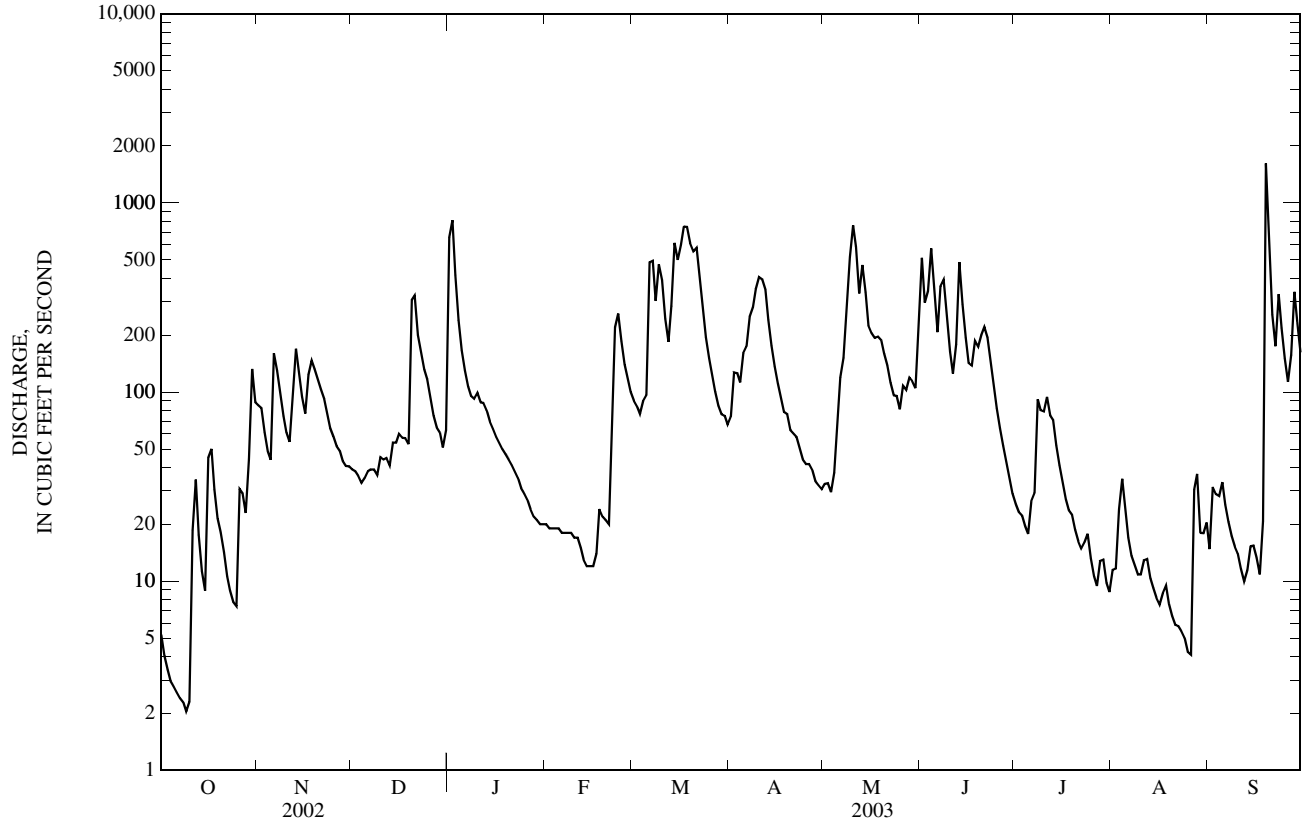
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

MEAN	25.8	50.8	86.9	94.4	126	182	141	95.8	50.8	20.6	18.2	20.9
MAX	157	336	256	251	307	362	343	235	218	111	116	233
(WY)	(1955)	(1986)	(1973)	(1952)	(1956)	(1994)	(1993)	(1996)	(2003)	(1989)	(1956)	(1996)
MIN	1.52	2.29	2.37	13.7	19.4	30.8	33.0	21.8	5.48	2.60	1.57	1.78
(WY)	(1964)	(1999)	(1999)	(1977)	(1954)	(1990)	(1968)	(1991)	(1965)	(1999)	(1999)	(1991)

01596500 SAVAGE RIVER NEAR BARTON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003	
ANNUAL TOTAL	21,797.91		43,935.3			
ANNUAL MEAN	59.7		120		75.8	
HIGHEST ANNUAL MEAN					138	1996
LOWEST ANNUAL MEAN					34.9	1954
HIGHEST DAILY MEAN	650	Mar 20	1,620	Sep 19	2,180	Nov 5, 1985
LOWEST DAILY MEAN	0.64	Sep 12	2.0	Oct 9	0.50	(a)
ANNUAL SEVEN-DAY MINIMUM	0.76	Sep 8	2.5	Oct 4	0.63	Aug 29, 1966
MAXIMUM PEAK FLOW			2,900	Sep 19	(b)7,510	Oct 15, 1954
MAXIMUM PEAK STAGE			5.52	Sep 19	8.45	Oct 15, 1954
INSTANTANEOUS LOW FLOW			2.0	(c)	0.40	(d)
ANNUAL RUNOFF (CFSM)	1.22		2.45		1.54	
ANNUAL RUNOFF (INCHES)	16.51		33.29		20.98	
10 PERCENT EXCEEDS	136		331		187	
50 PERCENT EXCEEDS	36		58		33	
90 PERCENT EXCEEDS	2.4		11		3.8	

a Sept. 2, 3, 12, 1966.
b From rating curve extended above 1,600 ft^3/s on basis of slope-area measurement of peak flow.
c Oct. 9, 10.
d Sept. 3, 4, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01597500 SAVAGE RIVER, BELOW SAVAGE RIVER DAM, NEAR BLOOMINGTON, MD

LOCATION.--Lat 39°30'09.9", long 79°07'26.3", Garrett County, Hydrologic Unit 02070002, on left bank 0.7 mi downstream from Savage River Dam, 1.1 mi downstream from Crabtree Creek, 3.2 mi northwest of Bloomington, and 3.7 mi upstream from mouth.

DRAINAGE AREA.--106 mi^2.

PERIOD OF RECORD.--October 1948 to current year.

REVISED RECORDS.--WSP 1432: 1955. WDR MD-DE-96-1: 1996(P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,276.40 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diversions upstream from station by Baltimore and Ohio Railroad and by cities of Frostburg and Westernport for municipal supply. Flow regulated by Savage River Reservoir beginning December 1950, capacity 20,000 acre-ft. U.S. Army Corps of Engineers satellite collection platform at station. Upper Potomac River Commission gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft^3/s, Sept. 19, gage height, 5.04 ft; minimum discharge, 11 ft^3/s, Nov. 7.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	42	136	498	81	212	147	97	1,370	86	81	112
2	25	42	153	1,150	81	211	112	97	808	81	81	114
3	25	42	149	1,150	81	211	112	97	646	81	114	113
4	25	86	146	899	72	211	112	97	1,170	81	178	112
5	25	109	146	624	67	211	115	98	798	81	167	113
6	25	110	146	367	67	344	179	99	508	142	164	113
7	25	99	146	274	67	730	414	100	630	137	135	112
8	25	107	146	271	67	846	599	251	950	135	77	94
9	25	107	146	209	67	851	602	1,250	628	292	77	87
10	25	107	146	177	67	858	609	1,990	471	605	77	87
11	25	107	146	177	67	851	615	1,460	322	450	45	78
12	25	110	114	177	67	838	618	804	288	339	31	74
13	25	174	97	177	67	836	614	787	657	306	43	74
14	25	208	97	177	67	860	399	663	634	301	49	74
15	25	208	97	175	67	868	253	450	557	204	49	74
16	25	208	97	175	67	880	120	374	504	166	49	73
17	25	208	99	129	67	1,050	101	310	475	133	49	73
18	25	248	101	106	67	1,130	100	323	475	101	49	73
19	25	300	101	106	112	1,140	100	328	474	94	49	1,300
20	25	300	183	106	140	1,130	100	306	419	94	49	1,360
21	25	300	476	105	140	1,130	98	276	348	93	37	945
22	25	300	558	104	140	946	98	229	374	85	31	938
23	25	300	553	104	221	785	98	251	349	81	31	930
24	25	300	473	104	427	537	98	216	240	81	31	921
25	25	240	432	104	475	343	98	188	198	81	42	908
26	25	208	336	104	416	220	98	173	133	81	47	440
27	25	142	286	89	281	219	98	231	96	81	50	316
28	25	106	284	81	214	217	98	257	100	82	94	912
29	28	106	162	81	---	217	98	259	100	81	113	902
30	28	106	102	81	---	217	97	259	99	81	113	446
31	37	---	102	81	---	215	---	461	---	81	112	---
TOTAL	793	5,030	6,356	8,162	3,819	19,314	7,000	12,781	14,821	4,817	2,314	11,968
MEAN	25.6	168	205	263	136	623	233	412	494	155	74.6	399
MAX	37	300	558	1,150	475	1,140	618	1,990	1,370	605	178	1,360
MIN	25	42	97	81	67	211	97	97	96	81	31	73
(†)	11500	11400	8700	8700	8400	13600	18000	20300	19500	18100	15500	14400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2003, BY WATER YEAR (WY)

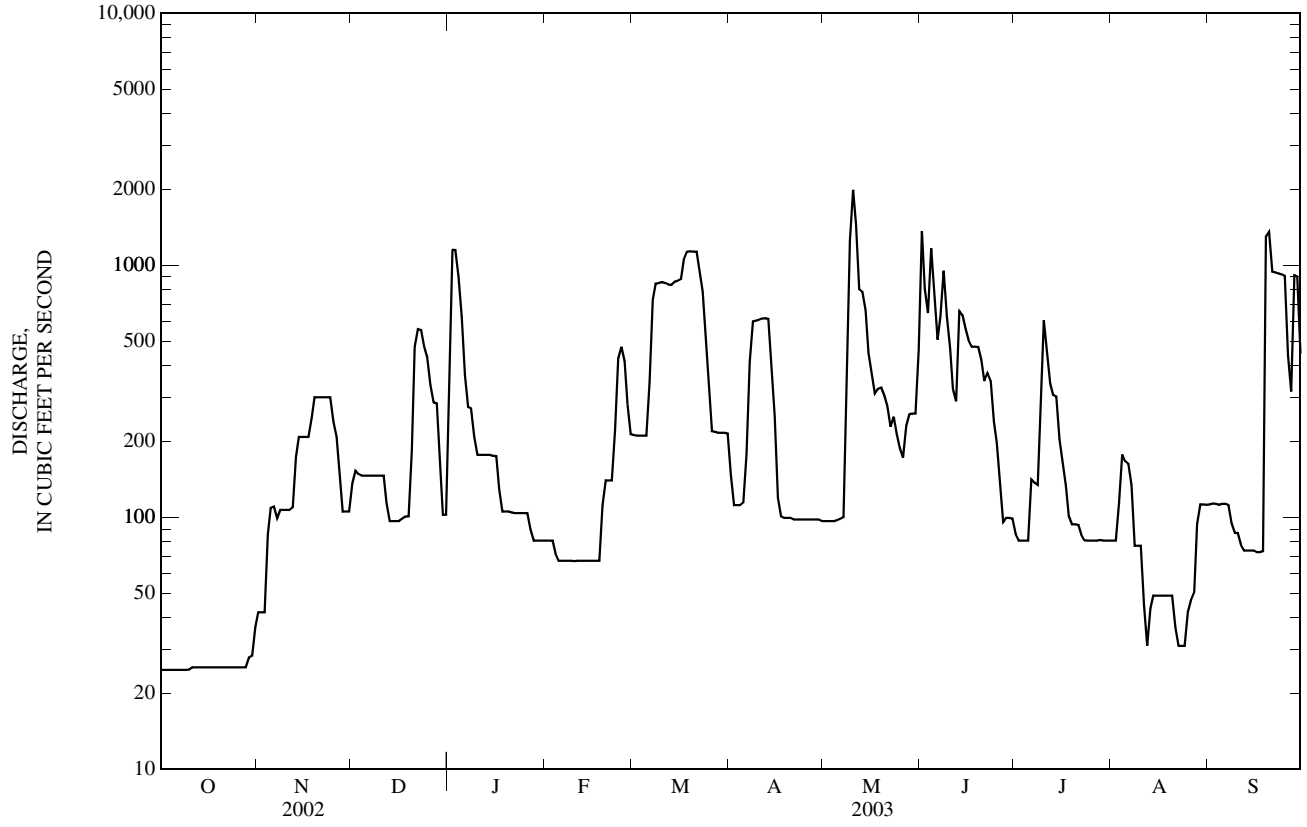
MEAN	103	119	204	211	271	336	224	207	124	70.6	72.9	96.2
MAX	446	641	655	713	633	842	813	563	494	329	262	472
(WY)	(1955)	(1986)	(1973)	(1952)	(1998)	(1994)	(1993)	(1996)	(2003)	(1990)	(1956)	(1996)
MIN	8.14	8.88	12.7	23.7	38.7	105	11.9	18.0	15.8	23.4	6.37	11.7
(WY)	(1952)	(1952)	(1954)	(1954)	(1954)	(1976)	(1954)	(1976)	(1977)	(1951)	(1951)	(1951)

† Monthend contents, in acre-feet, in Savage River Reservoir (contents on Sept. 30, 2002, 10,600 acre-feet). Records furnished by U.S. Army Corps of Engineers.

01597500 SAVAGE RIVER, BELOW SAVAGE RIVER DAM, NEAR BLOOMINGTON, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1951 - 2003	
ANNUAL TOTAL	46,499		97,175			
ANNUAL MEAN	127		266		169	
ANNUAL MEAN†	127		269		170	
HIGHEST ANNUAL MEAN					300	1996
LOWEST ANNUAL MEAN					69.7	1954
HIGHEST DAILY MEAN	1,050	Apr 29	1,990	May 10	4,320	Sep 7, 1996
LOWEST DAILY MEAN	20	Aug 6	25	(a)	0.60	(b)
ANNUAL SEVEN-DAY MINIMUM	25	Sep 24	25	Oct 1	0.64	Aug 4, 1951
MAXIMUM PEAK FLOW			3,000	Sep 19	9,190	Sep 7, 1996
MAXIMUM PEAK STAGE			5.04	Sep 19	10.09	Sep 7, 1996
INSTANTANEOUS LOW FLOW			11	Nov 7	0.35	Oct 27, 1966
ANNUAL RUNOFF (CFSM)	1.20		2.51		1.60	
ANNUAL RUNOFF (CFSM)†	1.20		2.54		1.60	
ANNUAL RUNOFF (INCHES)	16.32		34.10		21.72	
ANNUAL RUNOFF (INCHES)†	16.33		34.43		21.74	
10 PERCENT EXCEEDS	300		791		416	
50 PERCENT EXCEEDS	75		120		84	
90 PERCENT EXCEEDS	27		40		25	

‡ Adjusted for change in reservoir contents since December 1950.
a Oct. 1-28.
b July 27-31, Aug. 5, 6, 9, 10, 1951.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01598500 NORTH BRANCH POTOMAC RIVER AT LUKE, MD

LOCATION.--Lat 39°28'45.1", long 79°03'54.0", Mineral County, W. Va., Hydrologic Unit 02070002, on right bank 0.2 mi downstream from Savage River, 0.5 mi northwest of Luke, and at mile 53.3.

DRAINAGE AREA.--406 mi^2.

PERIOD OF RECORD.--June 1899 to July 1906 (published as "at Piedmont, W. Va."), October 1949 to current year.

REVISED RECORDS.--WSP 192: 1899-1904. WSP 1432: 1905-6, drainage area at former site. WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 944.22 ft above National Geodetic Vertical Datum of 1929. June 27, 1899, to July 15, 1906, nonrecording gage at bridge 1.1 mi downstream at datum about 35 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated prior to July 1981 by Stony River Reservoir 45 mi upstream from station, since December 1950 by Savage River Reservoir, 5 mi upstream from station (see station 01597500), and since July 1981 by Jennings Randolph Lake, 9 mi upstream from station. Some regulation at low flow by West Virginia Pulp and Paper Company at site used 1899-1906. U.S. Army Corps of Engineers satellite collection platform at station. Upper Potomac River Commission gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,610 ft^3/s, May 11, gage height, 9.49 ft; minimum discharge, 90 ft^3/s, Oct. 23.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	283	611	1,800	368	1,410	525	406	2,860	424	341	872
2	165	279	581	3,150	368	1,410	428	404	2,520	412	340	2,320
3	165	263	575	3,050	368	1,390	416	402	2,500	412	374	2,060
4	165	336	566	2,760	369	1,380	465	637	3,060	407	461	4,550
5	163	431	574	2,410	365	1,420	494	1,320	2,360	380	443	4,000
6	162	504	571	1,790	360	2,070	716	1,310	1,900	602	430	2,010
7	162	448	566	1,300	364	3,130	2,140	754	2,430	481	406	1,780
8	162	814	567	1,120	359	3,630	3,160	1,400	2,880	1,120	326	1,060
9	162	1,200	535	981	357	3,760	3,190	3,530	2,460	2,230	323	427
10	165	1,200	496	931	360	3,480	3,590	5,370	1,850	2,680	324	422
11	184	1,190	502	915	360	3,050	3,980	8,000	1,370	2,470	312	407
12	179	1,390	475	835	358	2,980	3,010	4,070	1,260	2,300	323	400
13	169	1,650	541	763	358	3,140	2,510	2,550	2,790	1,830	410	799
14	164	1,330	658	757	386	3,240	2,710	2,160	2,590	1,140	566	1,070
15	164	1,320	715	728	420	3,190	2,320	1,690	2,550	768	567	1,080
16	199	1,320	787	648	427	3,250	1,240	1,590	2,370	633	797	1,070
17	185	1,580	707	550	674	3,470	922	1,480	2,180	566	967	1,060
18	171	1,760	629	515	424	3,580	835	1,690	2,180	456	603	1,110
19	166	1,580	623	489	523	3,530	827	1,670	2,130	408	360	4,140
20	165	1,570	1,350	444	649	3,610	758	1,470	2,240	401	358	7,480
21	165	1,520	2,290	440	658	3,610	733	1,380	2,280	395	349	7,680
22	164	1,330	2,320	430	710	3,370	861	1,110	2,050	373	311	7,610
23	155	1,170	2,160	412	1,130	2,790	763	1,030	1,780	348	278	5,410
24	171	1,010	1,780	411	1,920	1,960	629	1,020	1,240	346	276	3,170
25	175	794	1,420	404	2,220	1,360	629	849	910	341	281	2,250
26	190	741	1,090	402	1,880	857	775	690	715	341	289	1,440
27	173	671	875	385	1,510	602	698	705	569	341	321	1,510
28	169	614	868	368	1,410	592	416	1,100	562	614	512	2,120
29	241	610	728	368	---	585	404	1,160	511	786	635	1,800
30	270	613	631	368	---	588	405	1,000	441	348	709	1,010
31	245	---	636	368	---	579	---	1,410	---	342	763	---
TOTAL	5,500	29,521	27,427	30,292	19,655	73,013	40,549	53,357	57,538	24,695	13,755	72,117
MEAN	177	984	885	977	702	2,355	1,352	1,721	1,918	797	444	2,404
MAX	270	1,760	2,320	3,150	2,220	3,760	3,980	8,000	3,060	2,680	967	7,680
MIN	155	263	475	368	357	579	404	402	441	341	276	400
CFSM	0.44	2.42	2.18	2.41	1.73	5.80	3.33	4.24	4.72	1.96	1.09	5.92
IN.	0.50	2.70	2.51	2.78	1.80	6.69	3.72	4.89	5.27	2.26	1.26	6.61

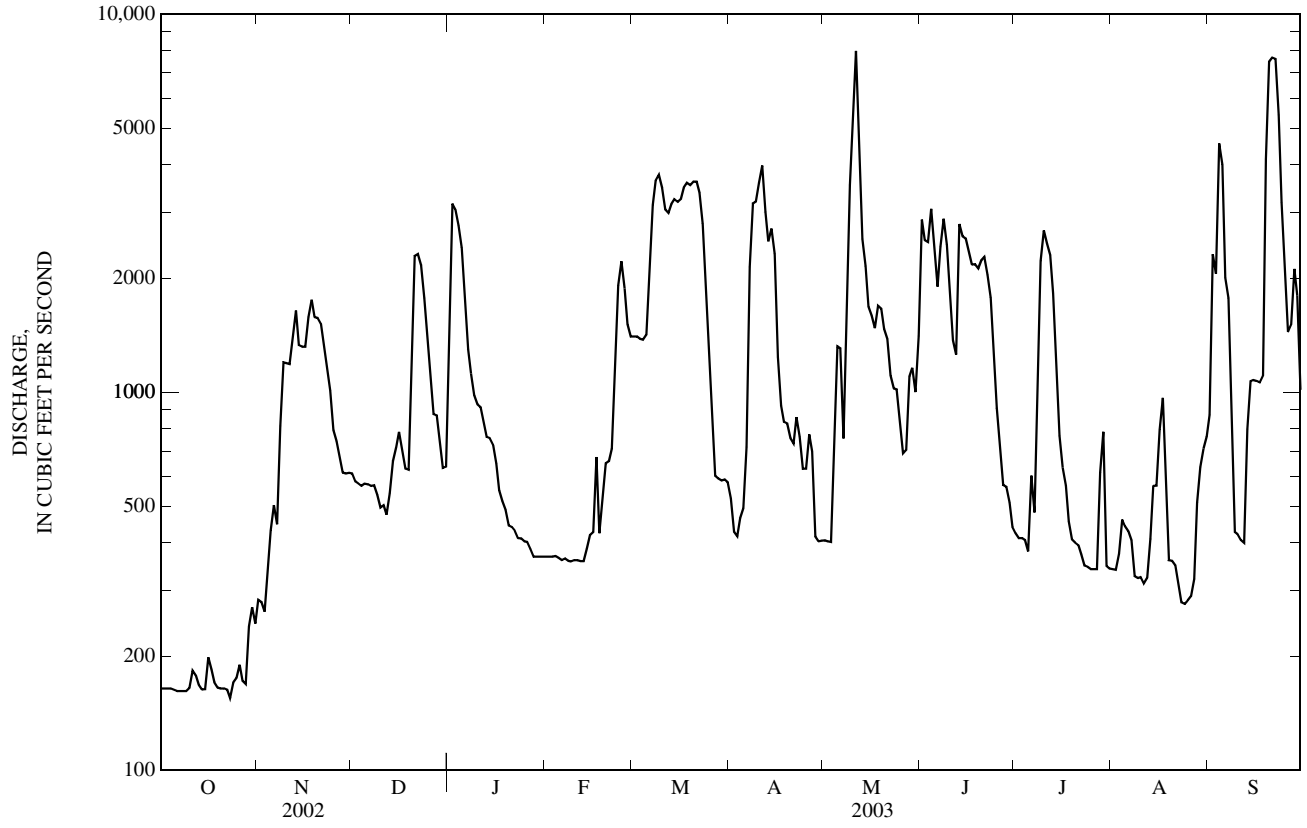
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1906, 1950 - 2003, BY WATER YEAR (WY)

MEAN	330	455	797	892	1,074	1,535	1,208	916	555	358	327	321
MAX	1,423	2,806	2,536	2,368	2,487	3,414	3,098	2,484	1,918	1,294	1,525	2,404
(WY)	(1955)	(1986)	(1973)	(1996)	(1994)	(1963)	(1993)	(1996)	(2003)	(1990)	(1996)	(2003)
MIN	27.6	33.5	123	166	99.8	467	278	165	108	91.4	37.0	17.1
(WY)	(1905)	(1905)	(1999)	(1977)	(1905)	(1988)	(1995)	(1982)	(1969)	(1953)	(1904)	(1904)

01598500 NORTH BRANCH POTOMAC RIVER AT LUKE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1899 - 2003	
ANNUAL TOTAL	230,932		447,419			
ANNUAL MEAN	633		1,226		731	
ANNUAL MEAN‡	642		1253		732	
HIGHEST ANNUAL MEAN					1,342	1996
LOWEST ANNUAL MEAN					412	1969
HIGHEST DAILY MEAN	3,790	Apr 29	8,000	May 11	18,400	Aug 18, 1955
LOWEST DAILY MEAN	155	Oct 23	155	Oct 23	6.0	Sep 4, 1904
ANNUAL SEVEN-DAY MINIMUM	163	Oct 3	163	Oct 3	11	Aug 29, 1904
MAXIMUM PEAK FLOW			9,610	May 11	(a)39,400	Oct 15, 1954
MAXIMUM PEAK STAGE			9.49	May 11	17.15	Oct 15, 1954
INSTANTANEOUS LOW FLOW			90	Oct 23	6.0	Sep 4, 1904
ANNUAL RUNOFF (CFSM)	1.56		3.02		1.80	
ANNUAL RUNOFF (CFSM)‡	1.58		3.08		1.80	
ANNUAL RUNOFF (INCHES)	21.16		41.00		24.46	
ANNUAL RUNOFF (INCHES)‡	21.46		41.89		24.50	
10 PERCENT EXCEEDS	1,570		2,920		1,650	
50 PERCENT EXCEEDS	336		728		412	
90 PERCENT EXCEEDS	175		282		115	

‡ Adjusted for change in reservoir contents since October 1949.
a From rating curve extended above 25,000 ft^3/s on basis of slope-area measurement of peak flow.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01599000 GEORGES CREEK AT FRANKLIN, MD

LOCATION.--Lat 39°29'38.1", long 79°02'40.9", Allegany County, Hydrologic Unit 02070002, on right bank at Franklin, and 1.2 mi upstream from Westernport and mouth.

DRAINAGE AREA.--72.4 mi^2.

PERIOD OF RECORD.--May 1905 to July 1906 (published as "at Westernport"), October 1929 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1502: 1940. WDR MD-DE-86-1: 1984(M).

GAGE.--Water-stage recorder. Datum of gage is 958.18 ft above National Geodetic Vertical Datum of 1929. May 4, 1905, to July 15, 1906, nonrecording gage at bridge 0.8 mi downstream at different datum. Oct. 16, 1929, to Oct. 1, 1937, water-stage recorder at site 95 ft downstream at present datum.

REMARKS.--Records good except those for estimated daily discharges (partially plugged intake), which are poor. Records include about 0.5 ft^3/s of sewage from city of Frostburg, which obtains its water supply from Big Piney Run (Monongahela River basin) and Savage River. A negligible discharge is diverted upstream from station by Frostburg Water Co. for municipal supplies of Eckhart and Welsh Hill. An undetermined amount of water is diverted from the upper third of basin into the Wills Creek basin by the Hoffman drainage tunnel (see station 01601500). National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 29, 1924, reached a stage of about 10 ft, from floodmarks, at site 95 ft downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	1700	1,440	6.82	Sep 27	1800	3,170	9.31
Sep 19	0315	*3,290	*9.47				

Minimum discharge, 6.7 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	66	39	674	40	81	128	76	436	66	32	36
2	9.4	56	34	668	39	82	142	75	287	62	28	75
3	9.0	44	32	447	39	78	124	74	536	60	55	63
4	8.7	36	27	301	39	76	118	73	586	54	62	55
5	8.7	44	28	225	39	135	155	75	406	49	44	49
6	7.6	169	32	180	37	697	164	82	295	99	46	38
7	7.4	86	32	146	36	480	320	88	573	72	35	31
8	7.1	66	30	131	35	383	301	98	432	203	31	28
9	7.1	55	26	137	33	620	386	417	346	221	29	26
10	9.2	49	26	130	32	434	386	706	259	232	30	25
11	34	45	34	107	33	316	538	524	214	229	61	23
12	39	123	44	91	32	283	437	e380	287	156	41	22
13	21	130	54	86	24	533	330	e420	459	140	34	36
14	15	84	77	80	25	704	259	e300	310	107	30	38
15	13	70	75	74	26	589	218	e290	278	90	27	31
16	67	68	75	64	24	640	189	e320	225	77	25	27
17	48	162	64	62	25	724	166	e280	272	65	24	23
18	26	125	56	62	44	677	148	e260	283	58	23	72
19	19	99	52	60	42	512	138	e240	223	55	21	1,710
20	17	89	197	59	37	667	127	e220	328	48	20	583
21	15	80	186	59	35	648	127	e200	322	44	19	321
22	13	75	147	56	92	452	120	194	251	41	18	325
23	12	66	139	49	196	344	106	174	206	43	17	681
24	11	58	111	45	156	266	96	191	170	42	16	347
25	13	53	106	45	120	221	90	152	144	35	15	249
26	51	48	88	45	100	193	93	242	125	32	15	203
27	29	46	76	44	92	167	85	193	112	30	42	784
28	22	42	71	41	86	146	81	213	100	48	44	780
29	107	40	68	40	---	135	79	187	87	42	25	427
30	155	41	64	40	---	135	77	162	77	32	23	289
31	78	---	72	40	---	126	---	399	---	30	22	---
TOTAL	889.2	2,215	2,162	4,288	1,558	11,544	5,728	7,305	8,629	2,562	954	7,397
MEAN	28.7	73.8	69.7	138	55.6	372	191	236	288	82.6	30.8	247
MAX	155	169	197	674	196	724	538	706	586	232	62	1,710
MIN	7.1	36	26	40	24	76	77	73	77	30	15	22
CFSM	0.40	1.02	0.96	1.91	0.77	5.14	2.64	3.25	3.97	1.14	0.43	3.41
IN.	0.46	1.14	1.11	2.20	0.80	5.93	2.94	3.75	4.43	1.32	0.49	3.80

e Estimated

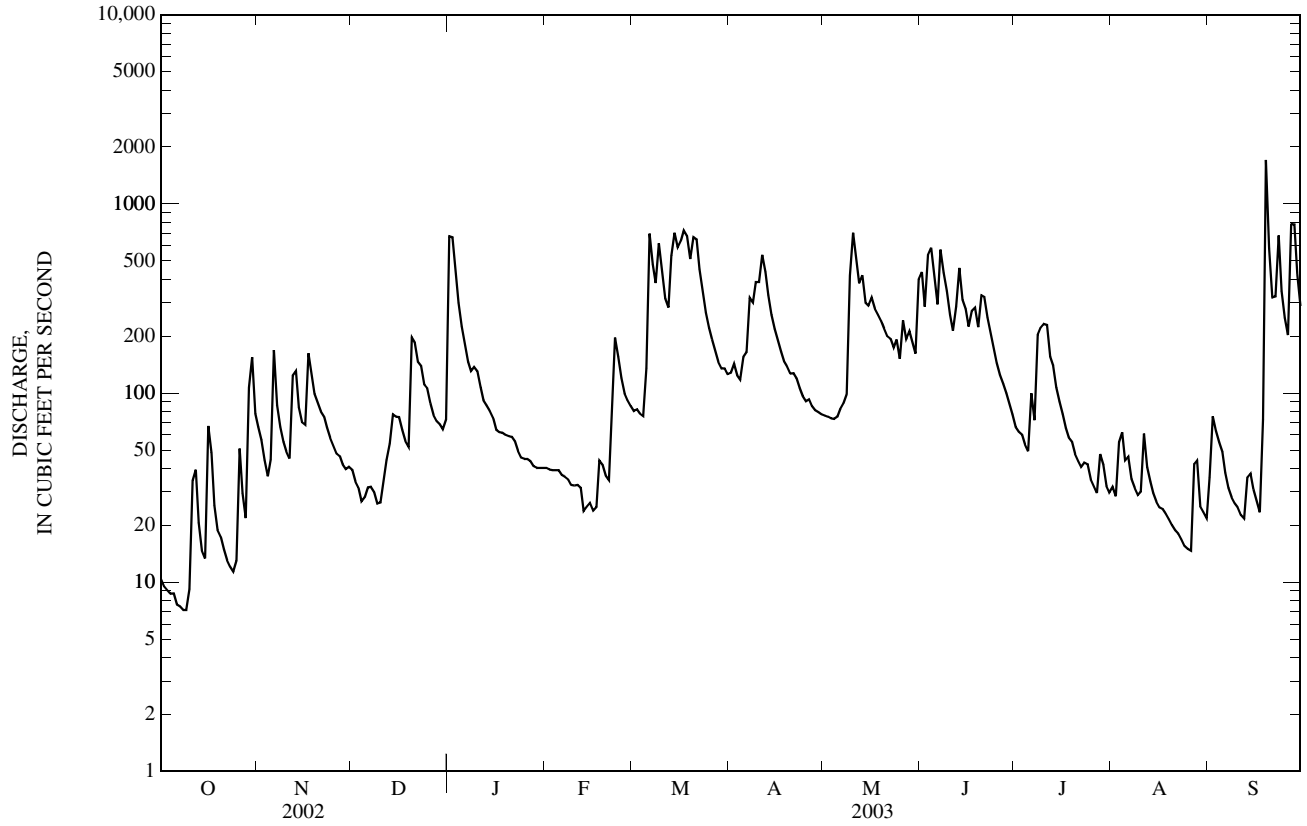
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1906, 1930 - 2003, BY WATER YEAR (WY)

MEAN	31.5	42.4	72.5	92.0	125	207	171	122	62.2	31.2	23.8	25.6
MAX	270	355	314	371	355	682	420	294	288	185	120	277
(WY)	(1943)	(1986)	(1973)	(1937)	(1998)	(1936)	(1993)	(1989)	(2003)	(1989)	(1955)	(1996)
MIN	1.78	3.40	3.42	10.9	8.77	43.2	40.0	27.7	12.5	5.19	3.97	2.65
(WY)	(1931)	(1931)	(1944)	(1940)	(1954)	(1990)	(1954)	(1934)	(1969)	(1930)	(1930)	(1932)

01599000 GEORGES CREEK AT FRANKLIN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1905 - 1906, 1930 - 2003	
ANNUAL TOTAL	19,884.4		55,231.2			
ANNUAL MEAN	54.5		151		82.9	
HIGHEST ANNUAL MEAN					151	2003
LOWEST ANNUAL MEAN					30.7	1969
HIGHEST DAILY MEAN	576	Mar 20	1,710	Sep 19	4,130	Mar 17, 1936
LOWEST DAILY MEAN	4.1	(a)	7.1	(b)	1.6	(c)
ANNUAL SEVEN-DAY MINIMUM	4.3	Sep 8	7.9	Oct 3	1.6	Sep 29, 1930
MAXIMUM PEAK FLOW			3,290	Sep 19	(d)8,500	Mar 17, 1936
MAXIMUM PEAK STAGE			9.47	Sep 19	(f)9.60	Mar 17, 1936
INSTANTANEOUS LOW FLOW			6.7	(b)	1.6	(g)
ANNUAL RUNOFF (CFSM)	0.75		2.09		1.14	
ANNUAL RUNOFF (INCHES)	10.22		28.38		15.55	
10 PERCENT EXCEEDS	141		402		199	
50 PERCENT EXCEEDS	26		76		37	
90 PERCENT EXCEEDS	7.0		24		7.2	

a Sept. 12, 13.
b Oct. 8, 9.
c Sept. 29, 30, 1930.
d From rating curve extended above 2,000 ft^3/s on basis of slope-area measurement of peak flow.
f At site then in use.
g Sept. 29 to Oct. 13, 1930.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01601500 WILLS CREEK NEAR CUMBERLAND, MD

LOCATION.--Lat 39°40'10.6", long 78°47'16.9", Allegany County, Hydrologic Unit 02070002, on right bank at downstream side of railway bridge, 0.15 mi downstream from Braddock Run, 2.0 mi upstream from Cumberland, and mouth.

DRAINAGE AREA.--247 mi^2.

PERIOD OF RECORD.--May 1905 to July 1906 (published as "at Cumberland"), October 1929 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1432: 1906, 1930(M), 1933-34(M), 1936-37, 1945(M).

GAGE.--Water-stage recorder. Datum of gage is 640.89 ft above National Geodetic Vertical Datum of 1929. May 6, 1905, to July 14, 1906, nonrecording gage at highway bridge 700 ft upstream at different datum. Oct. 18, 1929, to Mar. 17, 1936, water-stage recorder, and Apr. 1, 1936, to Mar. 19, 1937, nonrecording gage at site 200 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Records include drainage from numerous active and abandoned coal mines. An undetermined amount of water is diverted into the basin from Georges Creek basin by Hoffman drainage tunnel. Miscellaneous measurements of discharge from the Hoffman drainage tunnel have been made in the water years 1944, 1964-65, 1967-82, and 1984 by the U.S. Geological Survey, and in the water years 1958 and 1959 by the Maryland Geological Survey. Slight diurnal fluctuation at low flow caused by quarry upstream. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2200	*7,970	*8.71	Jun 4	0100	7,490	8.52
Mar 20	1930	4,530	7.14	Sep 19	1030	4,640	7.20
May 10	1530	5,180	7.48	Sep 27	1830	3,630	6.62

Minimum discharge, 21 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	335	175	3,110	120	332	347	190	1,110	165	66	60
2	30	274	155	4,390	123	321	420	182	925	159	68	146
3	27	219	149	1,920	120	299	419	173	2,360	160	120	130
4	25	184	104	1,210	e120	273	423	194	4,770	145	122	153
5	24	179	131	884	e120	384	633	274	1,990	131	103	118
6	23	572	142	709	114	1,580	704	363	1,200	122	93	95
7	23	483	118	575	e110	1,450	985	353	1,920	127	80	79
8	22	381	148	519	108	1,130	969	1,190	1,790	136	74	68
9	21	305	117	516	e107	1,700	1,120	2,090	1,340	140	79	64
10	23	256	112	488	e106	1,460	1,260	3,740	927	159	90	56
11	70	237	146	434	e106	1,020	1,620	2,690	718	158	84	50
12	143	374	197	373	e106	848	1,470	1,410	616	138	77	46
13	92	602	259	348	87	1,210	1,090	1,160	802	128	71	54
14	63	501	484	319	109	2,040	838	891	641	113	63	63
15	52	399	549	286	106	1,750	676	745	544	104	59	68
16	196	341	519	206	79	1,870	565	1,750	450	97	55	58
17	236	650	439	e205	e107	2,370	484	1,630	445	90	54	51
18	144	624	381	184	e109	2,370	414	1,430	531	85	51	61
19	104	549	340	e180	e113	1,880	373	1,150	447	84	49	2,610
20	85	475	622	e170	e120	2,480	335	926	563	80	48	1,130
21	71	399	1,020	e160	122	2,770	328	804	834	75	46	558
22	60	368	828	140	273	1,690	327	634	718	72	44	429
23	54	321	727	e138	664	1,160	287	567	595	76	43	939
24	48	271	591	e136	737	865	260	614	477	85	41	580
25	50	241	548	e134	586	691	247	508	385	77	40	426
26	181	214	452	e130	459	585	247	974	319	70	47	342
27	163	205	367	123	414	494	235	929	272	66	103	976
28	126	190	317	118	372	422	211	955	236	66	77	1,150
29	234	178	295	e119	---	386	201	802	204	64	63	712
30	614	180	274	e120	---	383	193	670	182	62	56	510
31	433	---	281	120	---	354	---	797	---	60	55	---
TOTAL	3,472	10,507	10,987	18,464	5,817	36,567	17,681	30,785	28,311	3,294	2,121	11,782
MEAN	112	350	354	596	208	1,180	589	993	944	106	68.4	393
MAX	614	650	1,020	4,390	737	2,770	1,620	3,740	4,770	165	122	2,610
MIN	21	178	104	118	79	273	193	173	182	60	40	46
CFSM	0.45	1.42	1.43	2.41	0.84	4.78	2.39	4.02	3.82	0.43	0.28	1.59
IN.	0.52	1.58	1.65	2.78	0.88	5.51	2.66	4.64	4.26	0.50	0.32	1.77

e Estimated

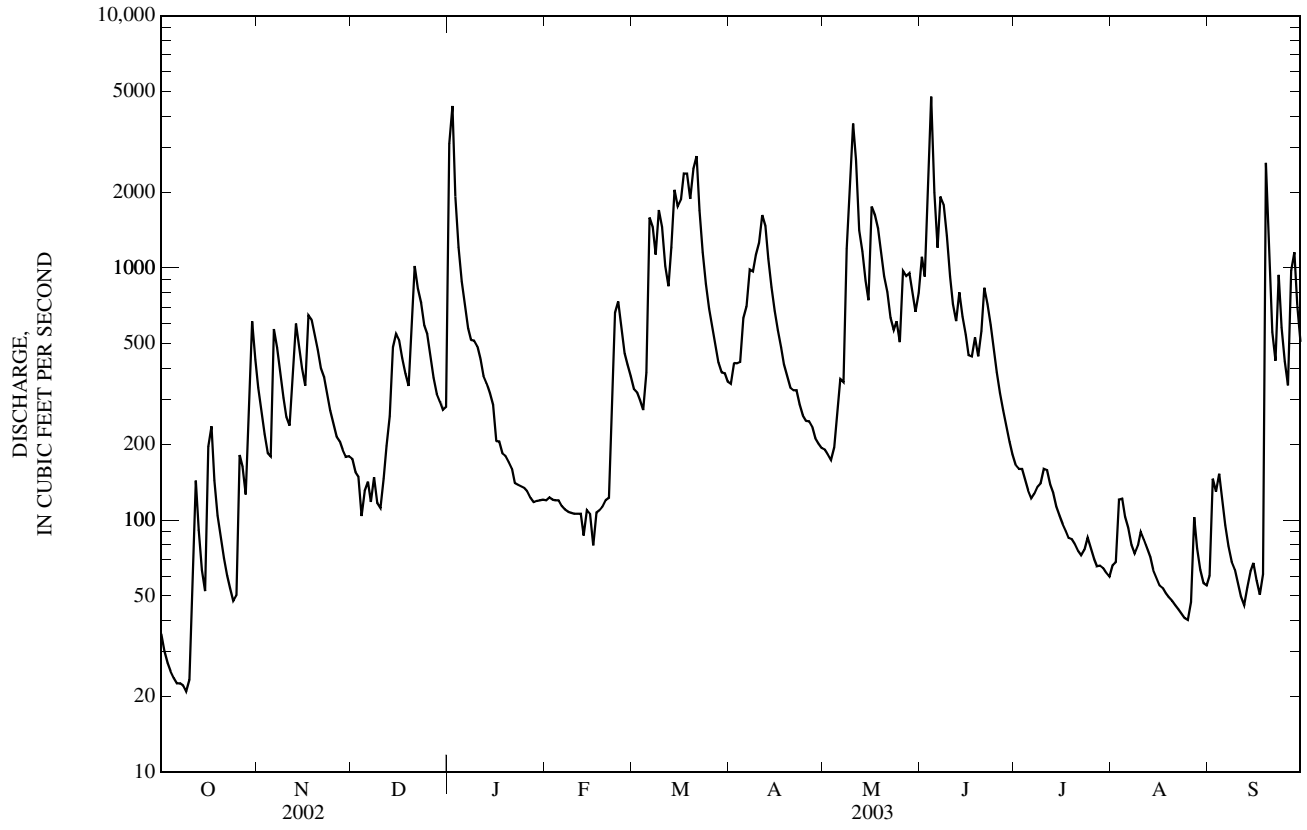
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2003, BY WATER YEAR (WY)

MEAN	132	201	321	387	506	807	672	461	239	111	87.8	87.8
MAX	1,130	1,520	1,113	1,481	1,255	2,410	1,910	1,109	967	641	674	1,083
(WY)	(1943)	(1986)	(1973)	(1996)	(1971)	(1936)	(1993)	(1989)	(1972)	(1989)	(1984)	(1996)
MIN	11.9	15.5	18.4	54.2	65.8	182	184	101	51.1	24.3	16.6	12.1
(WY)	(1931)	(1931)	(1944)	(1940)	(1954)	(1990)	(1968)	(1934)	(1965)	(1965)	(1930)	(1932)

01601500 WILLS CREEK NEAR CUMBERLAND, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1905 - 2003	
ANNUAL TOTAL	82,191		179,788			
ANNUAL MEAN	225		493		334	
HIGHEST ANNUAL MEAN					599	1996
LOWEST ANNUAL MEAN					122	1954
HIGHEST DAILY MEAN	2,230	Mar 20	4,770	Jun 4	19,200	Jan 19, 1996
LOWEST DAILY MEAN	14	(a)	21	Oct 9	10	(b)
ANNUAL SEVEN-DAY MINIMUM	15	Sep 8	23	Oct 4	10	Oct 8, 1930
MAXIMUM PEAK FLOW			7,970	Jan 1	(c)45,900	Jan 19, 1996
MAXIMUM PEAK STAGE			8.71	Jan 1	(d)23.11	Jan 19, 1996
INSTANTANEOUS LOW FLOW			21	(f)	9.0	Oct 14, 1930
ANNUAL RUNOFF (CFSM)	0.91		1.99		1.35	
ANNUAL RUNOFF (INCHES)	12.38		27.08		18.36	
10 PERCENT EXCEEDS	575		1,190		798	
50 PERCENT EXCEEDS	109		259		146	
90 PERCENT EXCEEDS	23		60		29	

a Sept. 11-14.
b Oct. 8-10, 1930.
c From rating curve extended above 11,000 ft^3/s on basis of slope-area measurement at gage heights of 13.45 and 20.2 ft.
d From floodmarks at present site.
f Oct. 9, 10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD

LOCATION.--Lat 39°37'18.5", long 78°46'24.3", Allegany County, Hydrologic Unit 02070002, on left bank at downstream side of Wiley Ford Bridge, 2.0 mi south of Cumberland, 2.1 mi downstream from Wills Creek, and at mile 19.6.

DRAINAGE AREA.--877 mi^2.

PERIOD OF RECORD.--May 1929 to current year. Gage-height records collected at various sites about 2.0 mi upstream from September 1901 to December 1932 and thereafter at present site, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 726: Drainage area. WSP 781: 1932(M). WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 585.22 ft above National Geodetic Vertical Datum of 1929. Prior to June 18, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Prior to July 1981 some regulation at low flow by Stony River Reservoir, 79 mi upstream from station. Low-flow regulation since December 1950 by Savage River Reservoir, 39 mi upstream from station (see station 01597500). Flow regulated by Jennings Randolph Lake, 43 mi upstream from station since July 1981. Prior to July 1957, small amount of inflow from industrial wastes and sewage from city of Cumberland from water diverted from Evitts Creek, mouth of which is downstream from station. Diversion to Chesapeake and Ohio Canal prior to 1935. National Weather Service gage height telemeter at station. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 29.2 ft, June 1, 1889, discharge, about 89,000 ft^3/s. Flood of Mar. 29, 1924, reached a stage of 28.4 ft, discharge, about 82,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,300 ft^3/s, Sept. 19, gage height, 13.81 ft; minimum discharge, 202 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	900	976	4,940	e590	2,090	1,380	846	4,950	777	528	886
2	236	776	901	10,300	e585	2,080	1,410	824	4,340	743	518	2,150
3	230	669	875	6,770	e585	2,080	1,280	790	5,550	729	612	2,760
4	225	599	784	5,330	e590	2,000	1,340	915	9,530	703	845	3,690
5	222	708	852	4,250	e595	2,260	1,780	1,610	5,660	672	767	5,490
6	218	1,680	848	3,480	e580	5,930	1,980	2,810	3,960	827	757	2,600
7	210	1,480	793	2,620	e580	6,380	3,570	1,670	5,430	823	661	2,100
8	206	1,190	850	2,250	e575	6,080	5,860	3,010	5,990	1,080	561	1,910
9	202	1,760	818	2,150	e560	7,470	5,430	5,780	5,010	2,390	589	699
10	218	1,710	737	2,020	e550	6,940	6,300	10,700	3,680	3,460	565	638
11	357	1,670	819	1,880	e540	5,290	7,160	12,200	2,850	3,280	590	607
12	472	1,900	983	1,740	e540	4,790	6,310	7,940	2,360	2,770	551	577
13	382	2,900	1,100	1,530	539	5,450	4,850	4,630	4,140	2,640	592	685
14	310	2,290	1,880	1,470	580	7,450	4,150	4,070	4,140	1,710	703	1,300
15	280	2,060	1,980	1,400	650	6,490	4,100	3,110	3,610	1,380	735	1,320
16	524	1,960	1,930	1,170	598	6,450	2,680	4,600	3,430	988	745	1,280
17	693	2,620	1,750	1,150	487	7,160	2,080	4,300	3,080	885	1,110	1,240
18	465	3,030	1,470	917	718	7,260	1,840	4,050	3,430	746	1,060	1,280
19	377	2,630	1,370	e860	722	6,470	1,770	3,890	3,110	658	534	9,780
20	337	2,460	1,880	e820	945	7,320	1,670	3,100	3,470	615	506	9,920
21	316	2,310	3,820	e770	936	8,650	1,510	2,950	4,100	592	493	8,490
22	293	2,130	3,700	732	1,400	6,610	1,680	2,390	3,580	581	472	7,900
23	275	1,830	3,410	703	2,590	5,190	1,580	2,140	3,020	589	418	8,650
24	258	1,700	2,980	e690	3,270	3,940	1,310	2,250	2,430	610	396	4,810
25	283	1,390	2,510	e670	3,460	2,880	1,230	1,880	1,810	545	387	3,530
26	503	1,210	2,080	e655	3,010	2,340	1,350	2,610	1,530	521	416	2,550
27	512	1,180	1,670	e640	2,460	1,770	1,280	2,260	1,240	508	507	2,940
28	420	1,020	1,530	e630	2,190	1,570	1,090	2,660	1,090	530	589	5,370
29	569	984	1,460	e615	---	1,470	874	2,630	1,010	1,300	771	3,520
30	1,810	980	1,250	e610	---	1,480	845	2,260	846	565	768	2,570
31	1,170	---	1,230	604	---	1,430	---	2,720	---	522	872	---
TOTAL	12,820	49,726	49,236	64,366	31,425	144,770	79,689	107,595	108,376	34,739	19,618	101,242
MEAN	414	1,658	1,588	2,076	1,122	4,670	2,656	3,471	3,613	1,121	633	3,375
MAX	1,810	3,030	3,820	10,300	3,460	8,650	7,160	12,200	9,530	3,460	1,110	9,920
MIN	202	599	737	604	487	1,430	845	790	846	508	387	577
CFSM	0.47	1.89	1.81	2.37	1.28	5.32	3.03	3.96	4.12	1.28	0.72	3.85
IN.	0.54	2.11	2.09	2.73	1.33	6.14	3.38	4.56	4.60	1.47	0.83	4.29

e Estimated

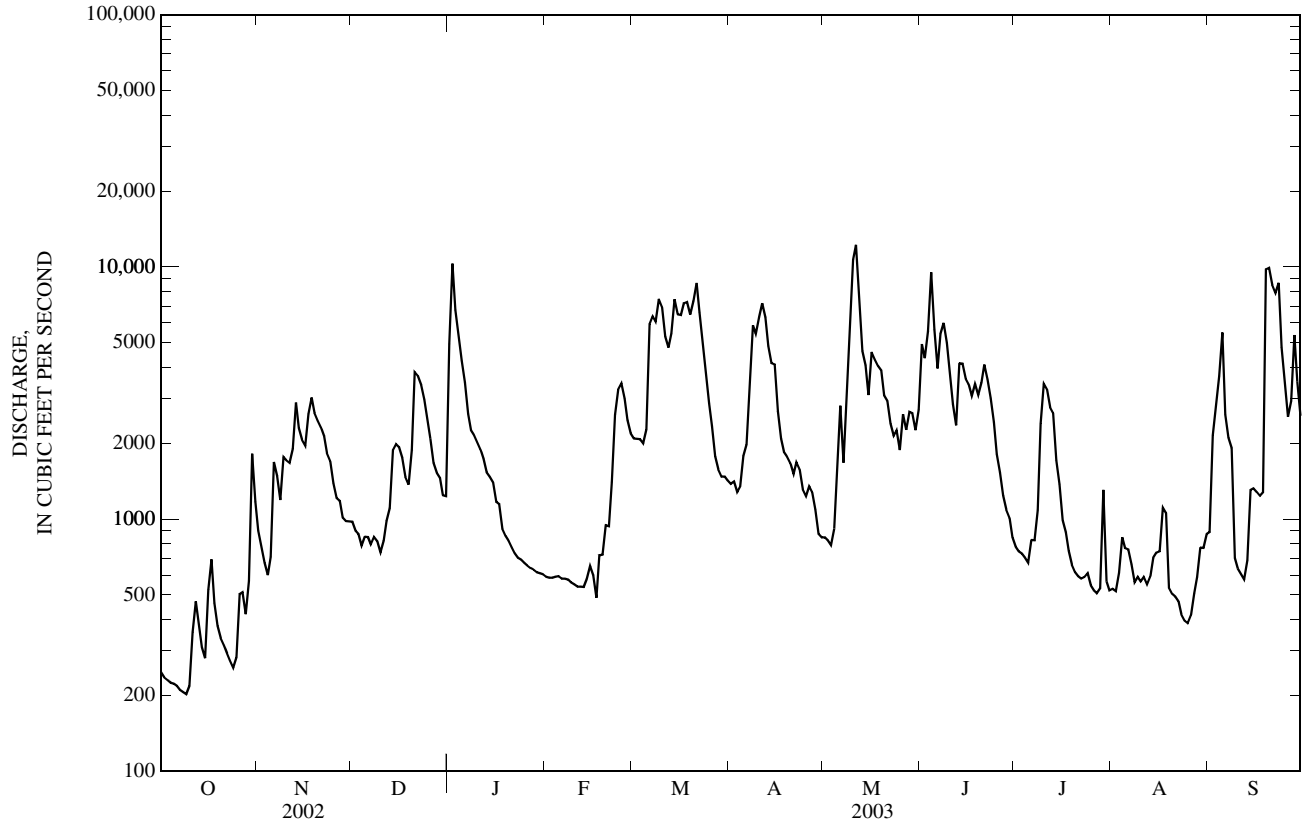
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

MEAN	588	782	1,278	1,552	1,978	2,890	2,358	1,754	943	541	470	480
MAX	3,791	5,350	4,652	5,115	4,410	8,763	5,866	4,070	3,613	2,270	2,152	4,117
(WY)	(1943)	(1986)	(1973)	(1937)	(1998)	(1936)	(1993)	(1996)	(2003)	(1989)	(1996)	(1996)
MIN	28.9	44.8	134	269	393	789	705	374	209	89.7	57.7	40.3
(WY)	(1931)	(1931)	(1931)	(1940)	(1934)	(1990)	(1995)	(1934)	(1965)	(1930)	(1930)	(1932)

01603000 NORTH BRANCH POTOMAC RIVER NEAR CUMBERLAND, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1929 - 2003	
ANNUAL TOTAL	395,611		803,602			
ANNUAL MEAN	1,084		2,202		1,299	
ANNUAL MEAN‡	1,093		2,228		1,299	
HIGHEST ANNUAL MEAN					2,390	1996
LOWEST ANNUAL MEAN					632	1969
HIGHEST DAILY MEAN	7,030	Apr 29	12,200	May 11	47,400	Mar 18, 1936
LOWEST DAILY MEAN	202	Oct 9	202	Oct 9	13	(a)
ANNUAL SEVEN-DAY MINIMUM	214	Oct 4	214	Oct 4	16	Sep 20, 1932
MAXIMUM PEAK FLOW			16,300	Sep 19	(b)88,200	Mar 17, 1936
MAXIMUM PEAK STAGE			13.81	Sep 19	29.10	Mar 17, 1936
INSTANTANEOUS LOW FLOW			202	(c)	12	Sep 22, 1932
ANNUAL RUNOFF (CFSM)	1.24		2.51		1.48	
ANNUAL RUNOFF (CFSM)‡	1.25		2.54		1.48	
ANNUAL RUNOFF (INCHES)	16.78		34.09		20.13	
ANNUAL RUNOFF (INCHES)‡	16.92		34.51		20.16	
10 PERCENT EXCEEDS	2,630		5,430		3,020	
50 PERCENT EXCEEDS	521		1,410		680	
90 PERCENT EXCEEDS	307		516		179	

‡ Adjusted for change in reservoir contents since October 1949.
a Sept. 21-24, 1932.
b From rating curve extended above 33,000 ft^3/s on basis of slope-area measurement of peak flow.
c Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01604500 PATTERSON CREEK NEAR HEADSVILLE, WV

LOCATION.--Lat 39°26'35", long 78°49'20", Mineral County, Hydrologic Unit 02070002, on right bank 100 ft downstream from Hazel Run, 1.0 mi downstream from Cabin Run, 4.0 mi northeast of Headsville, 8.0 mi east of Keyser, and at mile 13.0.

DRAINAGE AREA.--211 mi^2.

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 951: 1939-40. WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 624.90 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 11, 1946, nonrecording gage on bridge 1.0 mi upstream at datum 6.14 ft higher. Oct. 11-23, 1946, nonrecording gage at present site and datum.

REMARKS.--Records good except those for periods of estimated daily discharges (ice effect), which are poor. The flow from 115 mi^2 upstream from station is partially controlled, but not diverted, by several floodwater detention reservoirs with a total combined detention capacity of 19,887 acre-ft. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,510 ft^3/s, Sept. 19, gage height, 10.22 ft.; minimum discharge, 6.7 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	348	105	793	e52	344	257	140	425	117	81	56
2	26	264	98	1,360	e58	346	249	138	277	105	71	108
3	22	206	91	930	69	397	233	128	333	98	73	95
4	19	160	81	821	76	400	217	155	508	91	178	522
5	17	143	75	635	85	553	233	269	507	82	109	498
6	14	443	88	553	89	2,010	225	423	426	78	215	362
7	13	365	79	516	87	1,670	621	359	794	73	153	258
8	12	274	88	482	81	1,330	844	414	846	151	133	201
9	10	223	103	434	77	2,320	1,240	767	738	259	108	156
10	11	181	118	387	75	1,970	1,150	1,500	509	455	107	122
11	24	148	152	336	73	1,040	1,440	1,450	459	380	155	96
12	46	211	321	282	71	834	1,380	900	407	244	175	78
13	46	439	530	246	65	997	907	702	631	201	222	81
14	41	343	919	221	e56	1,150	667	540	526	180	226	83
15	34	267	717	192	e47	818	540	494	437	379	202	76
16	113	229	570	179	e40	647	504	674	353	221	174	71
17	209	461	526	155	32	565	484	568	344	158	151	64
18	142	511	469	e130	e38	526	441	510	472	126	132	69
19	99	424	399	115	e50	493	430	490	424	107	108	3,860
20	73	346	379	e100	e74	812	381	459	670	88	86	1,940
21	55	300	349	e90	100	1,200	350	414	873	75	68	1,020
22	44	303	308	e84	386	758	340	362	583	66	57	659
23	37	262	279	75	e1,000	568	302	319	490	60	49	928
24	32	228	253	e70	607	503	263	291	410	58	44	658
25	30	195	247	e67	525	479	239	245	336	54	40	578
26	86	165	227	e64	490	445	234	226	277	48	37	521
27	100	150	199	61	434	402	215	207	231	45	38	483
28	87	133	179	60	386	341	188	274	194	54	52	549
29	173	119	167	e58	---	295	166	259	160	159	60	420
30	597	110	177	e56	---	275	151	220	137	129	57	328
31	465	---	182	e54	---	260	---	333	---	93	55	---
TOTAL	2,709	7,951	8,475	9,606	5,223	24,748	14,891	14,230	13,777	4,434	3,416	14,940
MEAN	87.4	265	273	310	187	798	496	459	459	143	110	498
MAX	597	511	919	1,360	1,000	2,320	1,440	1,500	873	455	226	3,860
MIN	10	110	75	54	32	260	151	128	137	45	37	56
CFSM	0.41	1.26	1.30	1.47	0.88	3.78	2.35	2.18	2.18	0.68	0.52	2.36
IN.	0.48	1.40	1.49	1.69	0.92	4.36	2.63	2.51	2.43	0.78	0.60	2.63

e Estimated

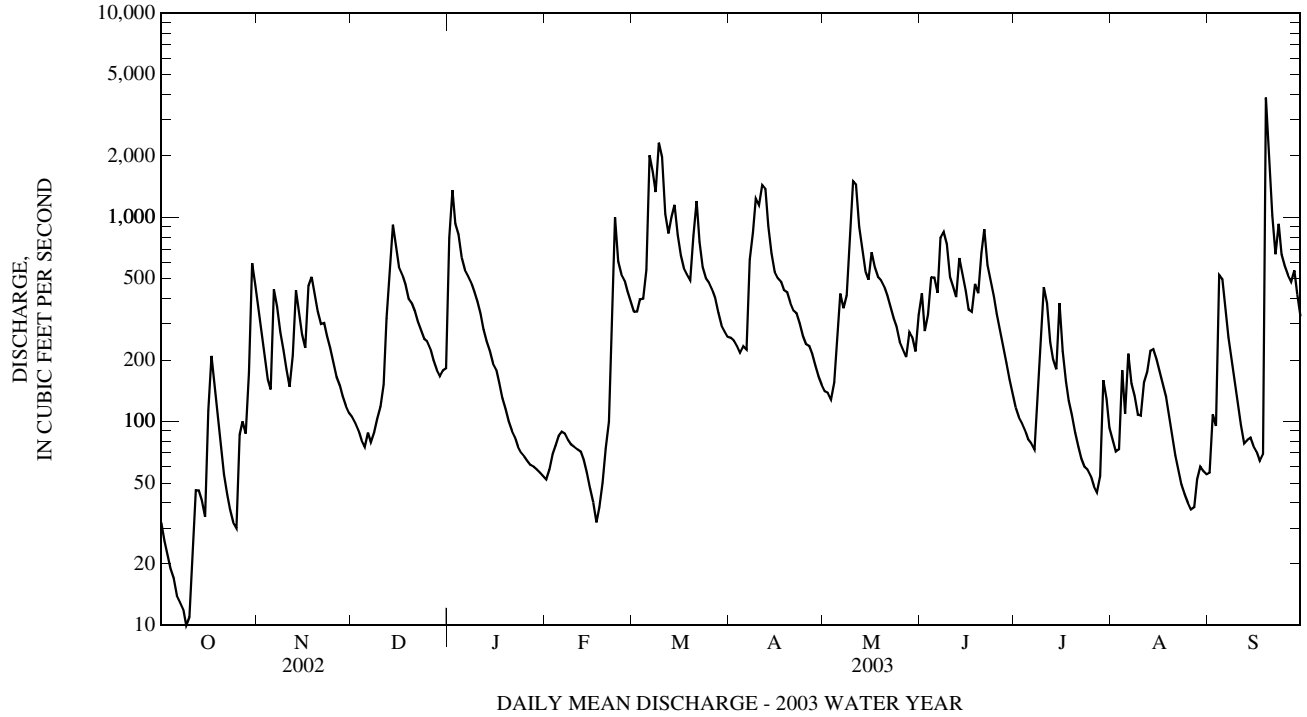
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

MEAN	71.6	84.4	160	207	302	430	315	226	110	60.2	58.4	54.9
MAX	745	901	825	908	893	1,346	1,085	763	459	415	586	767
(WY)	(1943)	(1986)	(1973)	(1996)	(1994)	(1963)	(1993)	(1988)	(2003)	(1989)	(1996)	(1996)
MIN	2.24	4.39	9.70	18.1	22.2	58.3	54.1	21.2	8.38	3.14	5.20	2.80
(WY)	(1992)	(1992)	(1944)	(2002)	(2002)	(1990)	(1969)	(1969)	(1999)	(1999)	(1966)	(1991)

01604500 PATTERSON CREEK NEAR HEADSVILLE, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	48,505.6		124,400			
ANNUAL MEAN	133		341		173	
HIGHEST ANNUAL MEAN					387	1996
LOWEST ANNUAL MEAN					35.1	1969
HIGHEST DAILY MEAN	1,050	May 2	3,860	Sep 19	11,100	Oct 15, 1942
LOWEST DAILY MEAN	1.9	(a)	10	Oct 9	0.48	Aug 23, 1999
ANNUAL SEVEN-DAY MINIMUM	2.8	Sep 10	14	Oct 4	0.87	Aug 17, 1999
MAXIMUM PEAK FLOW			5,510	Sep 19	(b)16,000	Aug 19, 1955
MAXIMUM PEAK STAGE			10.22	Sep 19	12.20	Aug 19, 1955
INSTANTANEOUS LOW FLOW			8.7	Oct 10	0.45	(c)
ANNUAL RUNOFF (CFSM)	0.63		1.62		0.82	
ANNUAL RUNOFF (INCHES)	8.55		21.93		11.12	
10 PERCENT EXCEEDS	409		746		447	
50 PERCENT EXCEEDS	40		226		60	
90 PERCENT EXCEEDS	7.6		55		10	

a Sept. 14, 15.
b From rating curve extended above 4,900 ft 3/s on basis of contracted-opening measurement of peak flow.
c Aug. 23, 24, 1999.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01606500 SOUTH BRANCH POTOMAC RIVER NEAR PETERSBURG, WV

LOCATION.--Lat 38°59'28", long 79°10'34", Grant County, Hydrologic Unit 02070001, on right bank 1.1 mi downstream from North Fork South Branch Potomac River, 2.6 mi west of Petersburg, and at mile 74.7.

DRAINAGE AREA.--676 mi^2.

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 951: 1939-41. WSP 1141: 1932, 1933(M), 1936-38. WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 968.34 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 4, 1928, nonrecording gage and June 1928 to Nov. 5, 1985, water-stage recorder at site 1,125 ft downstream at datum 6.34 ft lower. Nov. 5, 1985, to June 22, 1994, and October 23, 1996 to current year, water-stage recorder at present site and datum. June 22, 1994, to October 23, 1996, water-stage recorder at site 325 ft downstream at datum 2.34 ft lower.

REMARKS.--Records good except those for periods of estimated daily discharges (ice effect), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1877 reached a stage of 21.2 ft, from floodmarks at previous site and datum, about 59,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 20	1800	7,450	8.14	May 10	0100	8,630	7.69
Feb 23	1300	15,300	9.54	May 11	0230	16,500	9.87
Mar 6	0230	7,500	7.30	Jun 9	0300	7,700	7.37
Mar 21	0300	6,050	6.73	Sep 19	0830	*37,700	*13.96
Apr 11	1100	6,630	6.97				

Minimum discharge, 91 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	1,310	652	1,490	e310	1,480	898	1,180	1,550	484	206	171
2	172	950	574	4,200	e300	2,190	1,520	1,420	1,620	457	205	218
3	149	745	537	3,160	463	3,040	1,680	1,400	1,440	492	191	431
4	135	621	477	2,430	635	2,470	1,510	2,290	2,780	521	198	467
5	124	559	481	1,890	953	3,420	1,340	3,720	3,930	425	218	735
6	113	1,550	474	1,590	826	7,120	1,130	3,660	2,810	374	242	535
7	107	1,670	416	1,370	781	5,890	2,470	2,980	2,760	341	244	405
8	100	1,220	e390	1,240	707	4,110	4,470	2,380	3,850	1,850	345	341
9	95	966	e370	1,180	618	4,580	5,110	2,700	6,070	1,520	476	285
10	99	804	e350	1,130	644	4,280	5,640	9,050	3,850	1,060	1,670	254
11	129	706	447	1,040	e540	3,190	5,990	11,800	2,700	814	2,770	227
12	215	919	917	913	e470	2,490	5,730	5,550	2,110	640	2,220	203
13	245	2,480	1,140	854	e410	2,920	4,480	4,100	1,980	515	1,400	210
14	214	1,520	2,340	853	e364	5,020	3,430	3,150	2,090	457	976	220
15	204	1,180	1,770	800	e290	3,700	2,660	2,490	1,640	578	739	211
16	395	978	1,450	692	e230	3,250	2,130	2,090	1,530	562	580	232
17	1,420	1,250	1,280	e650	176	3,310	1,740	1,760	2,140	454	502	253
18	833	1,460	1,090	e620	e220	3,250	1,470	2,520	3,010	384	441	221
19	574	1,240	974	e590	e280	2,860	1,780	4,220	2,540	354	371	18,600
20	448	1,120	4,060	e560	e360	3,020	1,570	3,410	2,650	322	324	5,950
21	374	1,020	4,410	e520	476	5,370	1,440	2,770	2,770	286	286	3,120
22	316	1,160	2,780	e500	2,980	3,930	1,460	2,430	2,280	261	257	2,080
23	275	1,160	2,130	e480	12,500	2,960	1,320	2,050	1,790	247	233	2,150
24	241	1,020	1,670	e450	6,330	2,280	1,160	1,810	1,380	238	213	1,670
25	220	915	1,490	e430	3,880	1,820	1,060	1,520	1,090	224	203	1,240
26	286	832	1,300	e410	2,790	1,540	1,030	1,360	907	202	189	992
27	397	802	1,110	e390	2,150	1,330	1,260	1,210	780	188	173	844
28	343	756	1,020	e370	1,750	1,110	1,240	1,190	692	195	175	865
29	479	691	950	e360	---	999	1,130	1,180	613	213	187	736
30	3,900	663	912	e340	---	1,010	1,050	1,160	540	219	190	623
31	2,150	---	894	e330	---	956	---	1,080	---	208	170	---
TOTAL	14,963	32,267	38,855	31,832	42,433	94,895	68,898	89,630	65,892	15,085	16,594	44,489
MEAN	483	1,076	1,253	1,027	1,515	3,061	2,297	2,891	2,196	487	535	1,483
MAX	3,900	2,480	4,410	4,200	12,500	7,120	5,990	11,800	6,070	1,850	2,770	18,600
MIN	95	559	350	330	176	956	898	1,080	540	188	170	171
CFSM	0.71	1.59	1.85	1.52	2.24	4.53	3.40	4.28	3.25	0.72	0.79	2.19
IN.	0.82	1.78	2.14	1.75	2.34	5.22	3.79	4.93	3.63	0.83	0.91	2.45

e Estimated

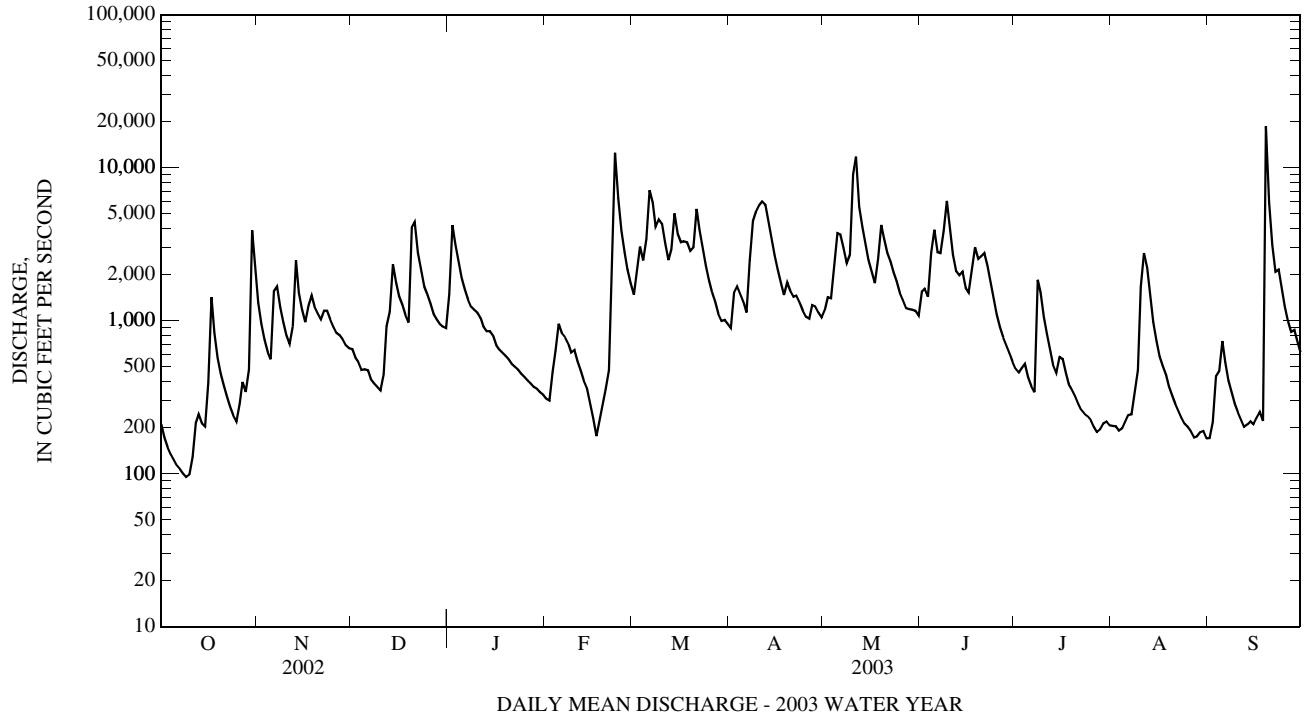
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

MEAN	320	486	703	925	1,159	1,650	1,286	1,033	550	293	289	271
MAX	1,863	5,569	2,511	3,386	3,519	4,090	2,888	3,546	2,196	1,479	1,601	2,968
(WY)	(1977)	(1986)	(1973)	(1996)	(1994)	(1936)	(1993)	(1996)	(2003)	(1949)	(1996)	(1996)
MIN	49.3	62.7	95.1	143	212	543	398	233	125	63.9	54.1	52.3
(WY)	(1931)	(1931)	(1966)	(1981)	(1934)	(1990)	(1986)	(1930)	(1999)	(1999)	(1930)	(1930)

01606500 SOUTH BRANCH POTOMAC RIVER NEAR PETERSBURG, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1928 - 2003	
ANNUAL TOTAL	267,789		555,833			
ANNUAL MEAN	734		1,523		745	
HIGHEST ANNUAL MEAN					1,619	1996
LOWEST ANNUAL MEAN					365	1969
HIGHEST DAILY MEAN	14,900	Apr 22	18,600	Sep 19	77,000	Nov 5, 1985
LOWEST DAILY MEAN	51	(a)	95	Oct 9	43	(b)
ANNUAL SEVEN-DAY MINIMUM	53	Sep 9	110	Oct 5	44	Sep 6, 1966
MAXIMUM PEAK FLOW			37,700	Sep 19	(c)130,000	Nov 5, 1985
MAXIMUM PEAK STAGE			13.96	Sep 19	(d)25.40	Nov 5, 1985
INSTANTANEOUS LOW FLOW			91	Oct 9	42	(f)
ANNUAL RUNOFF (CFSM)	1.09		2.25		1.10	
ANNUAL RUNOFF (INCHES)	14.74		30.59		14.97	
10 PERCENT EXCEEDS	1,570		3,420		1,680	
50 PERCENT EXCEEDS	315		976		377	
90 PERCENT EXCEEDS	84		217		95	

a Sept. 13, 14.
b Sept. 27-29, 1959, Sept. 11, 12, 1966.
c From rating curve extended above 16,700 ft^3/s on basis of slope-area measurement of peak flow.
d From floodmarks at former site at gage datum 962.00 ft.
f Sept. 28, 29, 1959, Sept. 11, 12, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01608000 SOUTH FORK SOUTH BRANCH POTOMAC RIVER NEAR MOOREFIELD, WV

LOCATION.--Lat 39°00'44", long 78°57'23", Hardy County, Hydrologic Unit 02070001, on right bank 0.2 mi downstream from Stony Creek, 3.5 mi south of Moorefield, and at mile 5.3.

DRAINAGE AREA.--277 mi^2.

PERIOD OF RECORD.--June 1928 to September 1935, August 1938 to current year.

REVISED RECORDS.--WSP 1141: 1933(M), 1940, 1942-43, 1945, 1948(M). WSP 1302:l93l(M), l935(M). WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 861.51 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers datum). Prior to March 11, 1940, nonrecording gage at Harness Ford Bridge 2.0 mi upstream at datum about 31 ft higher.

REMARKS.--Records good except those for periods of estimated discharges (ice effect, doubtful gage-height record), which are poor. The flow from 92.7 mi^2 upstream from station is partially controlled, but not diverted, by several floodwater detention reservoirs with a total combined detention capacity of 19,870 acre-ft. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,000 ft^3/s, Sept. 19, gage height, 10.94 ft.; minimum discharge, 30 ft^3/s, Oct. 10, Aug. 31, Sept. 1.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	579	162	364	e63	594	324	256	219	88	e32	31
2	100	374	144	1,640	e60	988	577	273	199	80	e36	35
3	80	267	129	1,170	68	1,730	694	246	181	81	e45	41
4	62	209	117	835	74	1,310	592	318	239	82	e56	70
5	50	176	114	628	73	1,540	489	761	793	78	e65	86
6	42	244	108	502	69	3,100	396	857	801	68	e67	91
7	38	436	105	403	67	2,490	758	741	617	63	e72	69
8	34	358	94	335	61	1,590	1,860	590	781	255	e80	56
9	31	282	e88	295	58	1,520	1,880	509	1,210	389	e110	48
10	32	229	e84	254	56	1,430	2,640	2,260	951	267	e350	44
11	37	222	109	222	e54	982	3,480	3,970	683	225	e460	39
12	43	675	234	193	e52	704	2,660	2,070	552	164	e370	36
13	56	1,690	590	169	e50	638	1,690	1,190	1,100	126	e260	38
14	61	1,060	1,480	161	e48	969	1,160	821	1,360	103	e170	38
15	52	662	1,210	151	e46	814	856	603	688	96	e140	36
16	151	446	889	130	e44	603	667	518	491	84	e120	36
17	906	587	692	127	e43	487	533	418	630	71	e95	34
18	562	1,030	530	e120	e58	433	437	478	1,200	63	e82	51
19	309	810	418	e115	e76	388	448	1,050	1,050	60	e70	9,680
20	207	578	740	e110	e100	506	462	992	1,160	55	e60	5,190
21	159	438	1,850	e105	139	2,110	471	781	1,310	51	e54	3,010
22	130	491	1,180	e100	1,350	1,480	515	692	960	48	e48	1,830
23	108	515	703	e96	5,690	968	470	591	641	e46	e43	1,570
24	92	445	488	e92	3,530	713	400	521	419	e43	e38	1,200
25	79	361	393	e87	2,170	550	353	438	286	e41	e36	666
26	79	296	322	e83	1,400	452	325	369	212	e39	e33	449
27	74	254	256	e80	917	393	306	314	164	e36	e32	336
28	75	219	216	e76	723	327	315	290	135	e35	e33	295
29	89	189	195	e73	---	290	290	262	116	e42	e34	273
30	1,250	173	182	e70	---	295	267	242	100	e36	e35	224
31	1,000	---	171	e66	---	299	---	224	---	e34	31	---
TOTAL	6,115	14,295	13,993	8,852	17,139	30,693	26,315	23,645	19,248	2,949	3,157	25,602
MEAN	197	476	451	286	612	990	877	763	642	95.1	102	853
MAX	1,250	1,690	1,850	1,640	5,690	3,100	3,480	3,970	1,360	389	460	9,680
MIN	31	173	84	66	43	290	267	224	100	34	31	31
CFSM	0.71	1.72	1.63	1.03	2.21	3.57	3.17	2.75	2.32	0.34	0.37	3.08
IN.	0.82	1.92	1.88	1.19	2.30	4.12	3.53	3.18	2.58	0.40	0.42	3.44

e Estimated

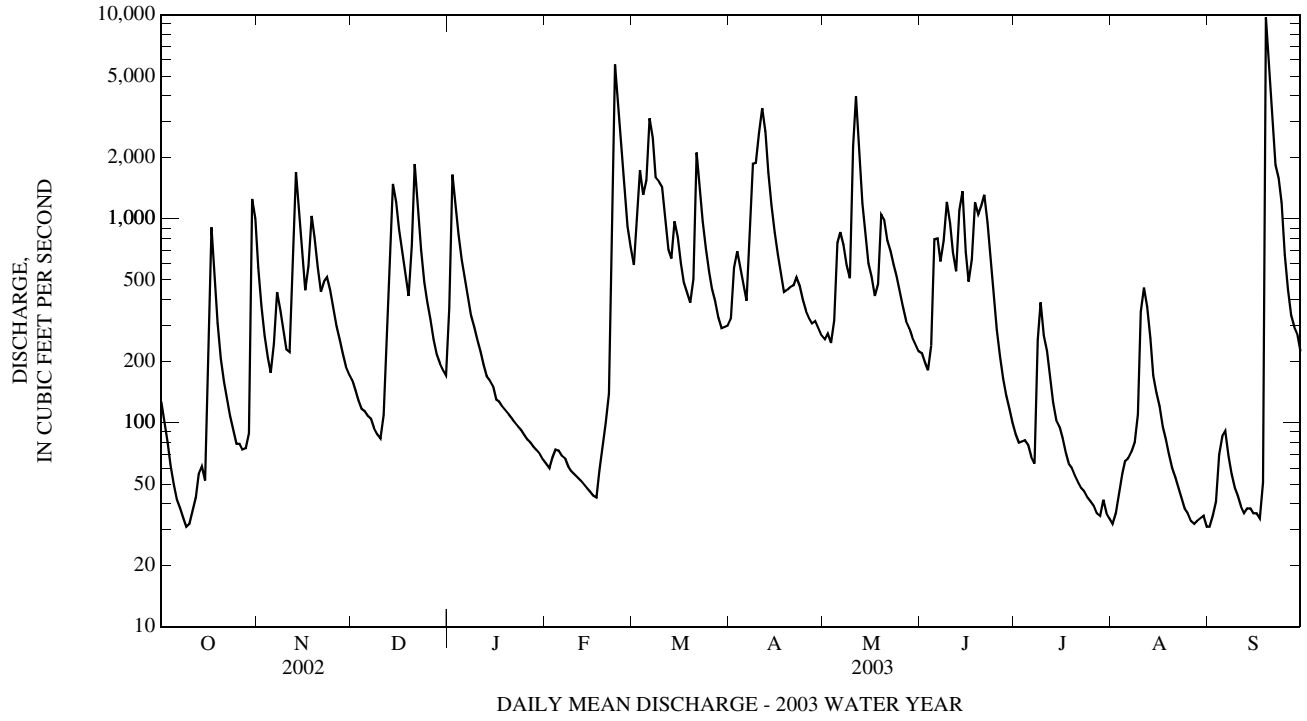
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1935, 1938 - 2003, BY WATER YEAR (WY)

MEAN	126	177	206	265	336	497	413	330	173	84.5	106	104
MAX	776	2,951	879	1,267	1,591	1,327	1,787	946	1,071	510	801	1,340
(WY)	(1977)	(1986)	(1974)	(1996)	(1998)	(1993)	(1987)	(1988)	(1949)	(1949)	(1955)	(1996)
MIN	12.8	14.0	17.4	21.3	25.2	72.2	91.7	51.2	28.1	9.48	10.4	10.2
(WY)	(1992)	(1999)	(1966)	(1981)	(1934)	(1981)	(1981)	(1930)	(1977)	(1999)	(1965)	(1968)

01608000 SOUTH FORK SOUTH BRANCH POTOMAC RIVER NEAR MOOREFIELD, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1928 - 1935, 1938 - 2003	
ANNUAL TOTAL	80,364		192,003			
ANNUAL MEAN	220		526		234	
HIGHEST ANNUAL MEAN					526	2003
LOWEST ANNUAL MEAN					85.9	1934
HIGHEST DAILY MEAN	5,690	Apr 22	9,680	Sep 19	28,000	Nov 5, 1985
LOWEST DAILY MEAN	(e)10	Sep 12	31	(a)	4.4	Sep 10, 1966
ANNUAL SEVEN-DAY MINIMUM	11	Sep 7	33	Aug 26	5.3	Sep 5, 1966
MAXIMUM PEAK FLOW			15,000	Sep 19	(b)110,000	Nov 5, 1985
MAXIMUM PEAK STAGE			10.94	Sep 19	(c)19.99	Nov 5, 1985
INSTANTANEOUS LOW FLOW			30	(d)	3.1	Aug 13, 1999
ANNUAL RUNOFF (CFSM)	0.79		1.90		0.85	
ANNUAL RUNOFF (INCHES)	10.79		25.79		11.48	
10 PERCENT EXCEEDS	582		1,230		520	
50 PERCENT EXCEEDS	71		256		96	
90 PERCENT EXCEEDS	19		43		21	

e Estimated.
a Oct. 9, Aug. 31, Sept. 1.
b From rating curve extended above 39,000 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmarks.
d Oct. 10, Aug. 31, Sept. 1.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01608500 SOUTH BRANCH POTOMAC RIVER NEAR SPRINGFIELD, WV

LOCATION.--Lat 39°26'49", long 78°39'16", Hampshire County, Hydrologic Unit 02070001, on left bank at highway bridge, 2.0 mi east of Springfield, and at mile 13.5.

DRAINAGE AREA.--1,486 mi^2.

PERIOD OF RECORD.--June 1894 to February 1896 (fragmentary), June 1899 to February 1902, August 1903 to July 1906, August 1928 to current year.

REVISED RECORDS.--WSP 1552: 1903-06, 1929-30(M), 1932-33(M), 1935(M), 1937-40(M), 1942-43(M), 1945(M). WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 562.02 ft above National Geodetic Vertical Datum of 1929. June 1894 to February 1896, nonrecording gage at Baltimore & Ohio Railroad bridge 11.2 mi upstream at different datum. June 26, 1899, to Feb. 2, 1902, nonrecording gage at bridge 10.0 mi upstream at different datum. Aug. 28, 1903, to July 14, 1906, nonrecording gage at present site at different datum. Aug. 8, to Sept. 24, 1928, nonrecording gage at present site and datum.

REMARKS.--Records good except those for periods of estimated daily discharges (ice effect), which are poor. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 34 ft, from floodmarks, discharge, 140,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	1600	10,400	9.44	Apr 11	2200	16,500	12.63
Feb 24	0230	21,600	15.07	May 11	1530	23,600	15.93
Mar 6	1800	17,400	13.12	Jun 9	1700	11,300	9.97
Mar 9	2300	12,200	10.44	Sep 20	0400	*67,500	*24.70
Mar 21	1800	11,100	9.83				

Minimum discharge, 143 ft^3/s, Feb. 17.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	574	2,970	1,060	1,910	e410	2,650	1,830	1,560	1,650	920	375	359
2	433	2,030	1,020	8,990	e400	2,830	2,100	1,670	1,890	835	363	400
3	352	1,530	915	7,520	e390	4,940	2,760	1,850	1,840	796	364	469
4	299	1,230	844	5,610	516	4,960	2,590	1,910	2,110	805	1,060	1,640
5	260	1,050	797	4,360	656	4,650	2,340	3,580	4,930	823	702	1,880
6	231	1,590	774	3,430	965	14,900	2,060	4,940	4,430	724	639	1,340
7	210	2,880	756	2,840	820	14,300	2,570	4,420	3,770	646	578	980
8	191	2,370	705	2,270	750	9,480	8,100	3,710	5,770	786	704	764
9	179	1,840	e680	1,950	668	10,300	8,210	3,480	8,230	4,050	682	640
10	175	1,500	e660	1,760	589	10,100	10,800	9,520	7,030	2,600	1,690	553
11	194	1,280	762	1,590	600	6,500	12,400	21,200	4,440	2,080	4,380	488
12	242	1,370	1,510	1,400	581	4,760	12,800	12,400	3,260	1,550	3,680	435
13	351	4,130	2,850	1,220	530	4,340	8,880	6,950	3,930	1,200	3,310	426
14	406	4,370	6,770	1,130	463	6,930	6,300	5,050	5,780	960	2,070	439
15	361	2,940	6,120	1,100	e400	6,540	4,690	3,690	3,960	926	1,510	434
16	466	2,210	4,370	1,010	e360	4,900	3,650	3,750	3,030	977	1,170	415
17	1,950	2,520	3,520	833	321	4,370	3,030	3,030	2,860	873	961	398
18	2,440	4,080	2,780	801	391	4,190	2,560	2,720	5,040	732	849	439
19	1,480	3,390	2,270	e740	527	3,800	2,750	4,770	4,830	646	735	22,700
20	1,060	2,670	2,190	e700	764	3,930	2,800	5,210	5,480	598	637	34,700
21	828	2,230	8,010	e660	892	9,710	2,520	3,980	8,030	547	563	9,360
22	684	2,220	5,780	e620	1,530	8,140	2,620	3,410	5,400	495	504	5,760
23	576	2,430	3,890	e600	15,100	5,450	2,520	2,910	3,780	461	455	5,640
24	493	2,190	2,920	e570	16,500	3,970	2,210	2,570	2,790	438	412	4,590
25	439	1,870	2,440	e540	8,660	3,110	1,970	2,270	2,160	417	379	3,110
26	453	1,620	2,110	e520	5,840	2,600	1,880	1,980	1,750	383	352	2,370
27	540	1,450	1,760	e490	4,060	2,370	1,810	1,810	1,480	355	341	1,970
28	637	1,360	1,480	e470	3,200	2,000	1,910	1,740	1,290	342	342	2,280
29	642	1,220	1,350	e450	---	1,750	1,790	1,720	1,150	615	329	1,890
30	3,530	1,110	1,300	e440	---	1,670	1,650	1,580	1,030	532	337	1,560
31	5,200	---	1,260	e420	---	1,780	---	1,620	---	404	358	---
TOTAL	25,876	65,650	73,653	56,944	66,883	171,920	124,100	131,000	113,120	28,516	30,831	108,429
MEAN	835	2,188	2,376	1,837	2,389	5,546	4,137	4,226	3,771	920	995	3,614
MAX	5,200	4,370	8,010	8,990	16,500	14,900	12,800	21,200	8,230	4,050	4,380	34,700
MIN	175	1,050	660	420	321	1,670	1,650	1,560	1,030	342	329	359
CFSM	0.56	1.47	1.60	1.24	1.61	3.73	2.78	2.84	2.54	0.62	0.67	2.43
IN.	0.65	1.64	1.84	1.43	1.67	4.30	3.11	3.28	2.83	0.71	0.77	2.71

e Estimated

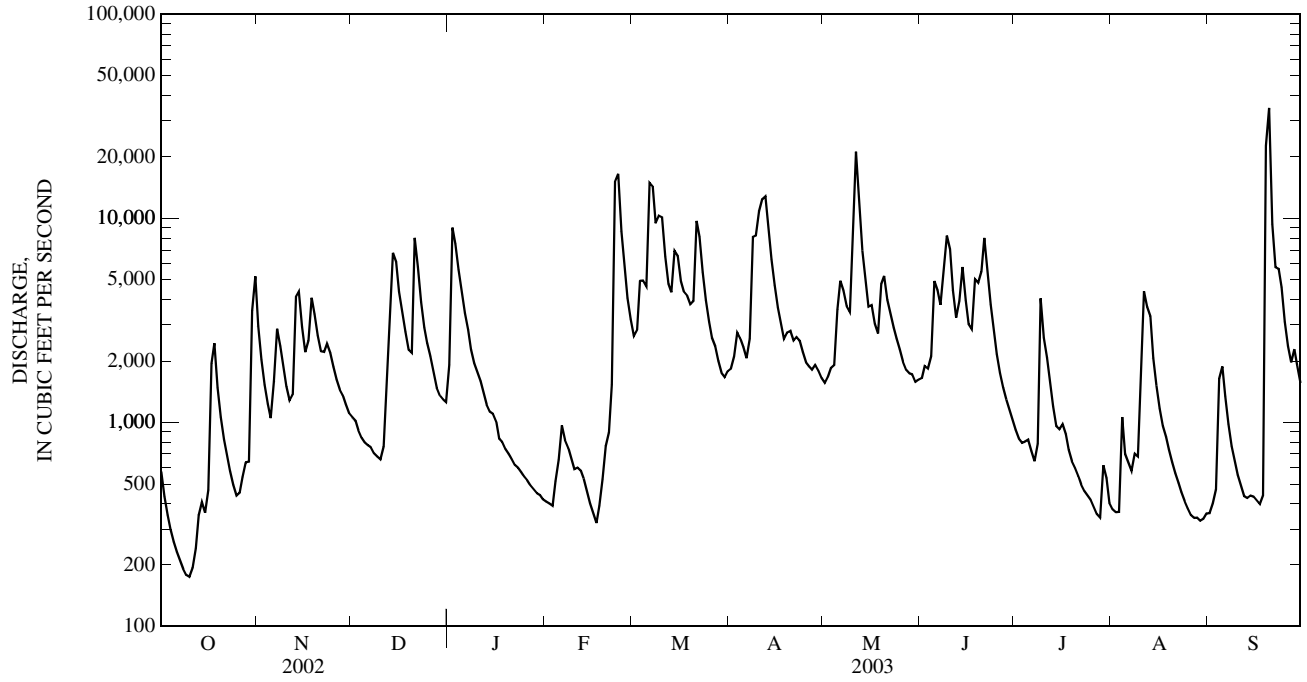
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 1906, 1928 - 2003, BY WATER YEAR (WY)

MEAN	611	857	1,228	1,626	2,039	3,026	2,387	1,844	1,045	529	546	503
MAX	4,629	12,850	5,000	6,928	6,474	10,490	6,421	5,785	5,231	2,638	3,923	6,538
(WY)	(1977)	(1986)	(1973)	(1996)	(1998)	(1936)	(1987)	(1996)	(1949)	(1949)	(1955)	(1996)
MIN	79.4	82.2	147	271	330	791	829	366	217	86.7	73.5	76.6
(WY)	(1931)	(1905)	(1966)	(1981)	(2002)	(1981)	(1976)	(1977)	(1999)	(1999)	(1930)	(1930)

01608500 SOUTH BRANCH POTOMAC RIVER NEAR SPRINGFIELD, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1899 -1906, 1928 - 2003	
ANNUAL TOTAL	450,257		996,922			
ANNUAL MEAN	1,234		2,731		1,350	
HIGHEST ANNUAL MEAN					2,975	1996
LOWEST ANNUAL MEAN					566	1969
HIGHEST DAILY MEAN	17,800	Apr 23	34,700	Sep 20	145,000	Nov 5, 1985
LOWEST DAILY MEAN	74	Sep 15	175	Oct 10	52	(a)
ANNUAL SEVEN-DAY MINIMUM	77	Sep 11	203	Oct 6	54	Sep 7, 1966
MAXIMUM PEAK FLOW			67,500	Sep 20	(b)240,000	Nov 5, 1985
MAXIMUM PEAK STAGE			24.70	Sep 20	(c)44.22	Nov 5, 1985
INSTANTANEOUS LOW FLOW			143	Feb 17	29	(d)
ANNUAL RUNOFF (CFSM)	0.83		1.84		0.91	
ANNUAL RUNOFF (INCHES)	11.27		24.96		12.34	
10 PERCENT EXCEEDS	2,940		5,800		3,060	
50 PERCENT EXCEEDS	514		1,720		652	
90 PERCENT EXCEEDS	131		408		152	

a Sept. 11, 12, 1966.
b From rating curve extended above 145,000 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmarks.
d Jan. 28, 1956 (result of freeze-up), July 30, 1966 (result of temporary dam).



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01609000 TOWN CREEK NEAR OLDTOWN, MD

LOCATION.--Lat 39°33'11.6", long 78°33'18.0", Allegany County, Md., Hydrologic Unit 02070003, on right bank at downstream side of bridge on Pack Horse Road (formerly Oldtown Road), 0.4 mi northeast of Maryland 51 State Highway 51, 2.0 mi upstream from mouth of Sawpit Run, 3.0 mi northeast of Oldtown, and 4.0 mi upstream from mouth.

DRAINAGE AREA.--148 mi^2.

PERIOD OF RECORD.--OJuly 1928 to September 1935, June 1967 to September 1981, May 2001 to current year.

REVISED RECORDS.--OFR 95-292: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 547.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of March 17 or 18, 1936 reached a stage of 19.08 ft, from floodmarks, discharge 27,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0700	3,050	10.01	Jun 7	2100	2,480	9.13
Mar 6	1830	2,020	8.28	Jun 13	0415	2,990	9.92
Mar 14	0300	1,510	7.18	Jun 21	1745	2,380	8.96
Mar 21	0330	2,720	9.53	Sep 19	1600	2,330	8.87
May 10	2245	2,270	8.77	Sep 23	1015	1,840	7.92
May 16	1700	2,420	9.03	Sep 28	0845	2,360	8.93
Jun 4	1130	*4,380	*11.11				

Minimum discharge, 7.3 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	328	89	891	90	334	237	102	634	95	26	31
2	25	232	77	2,190	e90	327	263	122	417	84	28	76
3	19	172	68	1,050	94	348	243	107	730	83	29	87
4	16	135	e68	760	98	318	230	104	2,900	74	33	274
5	13	116	e67	550	e100	340	361	145	1,080	67	38	148
6	11	387	e67	431	76	1,300	382	306	653	60	34	84
7	11	330	45	339	e72	1,090	591	237	1,340	56	27	59
8	10	241	91	301	66	719	728	475	1,330	57	26	48
9	8.9	191	63	344	66	1,010	939	873	1,040	57	27	41
10	9.1	156	64	326	e66	948	971	1,530	638	72	57	38
11	18	134	105	282	69	595	786	1,420	459	130	95	34
12	180	184	310	228	67	474	711	731	397	91	73	30
13	171	504	447	212	43	716	557	519	1,880	69	47	31
14	100	336	799	194	72	1,230	430	364	897	54	36	37
15	67	256	774	179	74	844	348	280	606	47	30	42
16	235	206	590	131	43	756	292	1,620	416	43	26	40
17	536	494	435	e128	22	785	246	1,220	333	39	24	34
18	236	623	323	e120	60	665	207	966	341	36	23	36
19	134	438	256	e116	132	513	191	823	264	34	21	1,580
20	94	339	344	e110	149	1,020	173	608	486	33	20	701
21	71	269	435	e100	146	1,920	166	468	1,680	30	19	340
22	55	252	369	91	406	889	208	361	1,080	28	19	219
23	45	214	296	e90	1,030	592	167	306	603	29	17	1,300
24	39	171	238	e91	919	444	139	369	388	32	16	581
25	36	147	223	e92	651	351	127	315	277	41	15	324
26	258	129	192	e93	460	299	139	554	215	30	16	227
27	261	119	152	94	433	290	144	588	174	26	37	186
28	162	109	134	92	373	228	120	535	146	27	38	1,470
29	164	98	123	e92	---	207	113	486	123	25	28	655
30	788	94	134	e92	---	226	109	432	107	23	25	390
31	522	---	133	92	---	224	---	403	---	21	23	---
TOTAL	4,330.0	7,404	7,511	9,901	5,967	20,002	10,318	17,369	21,634	1,593	973	9,143
MEAN	140	247	242	319	213	645	344	560	721	51.4	31.4	305
MAX	788	623	799	2,190	1,030	1,920	971	1,620	2,900	130	95	1,580
MIN	8.9	94	45	90	22	207	109	102	107	21	15	30
CFSM	0.94	1.67	1.64	2.16	1.44	4.36	2.32	3.79	4.87	0.35	0.21	2.06
IN.	1.09	1.86	1.89	2.49	1.50	5.03	2.59	4.37	5.44	0.40	0.24	2.30

e Estimated

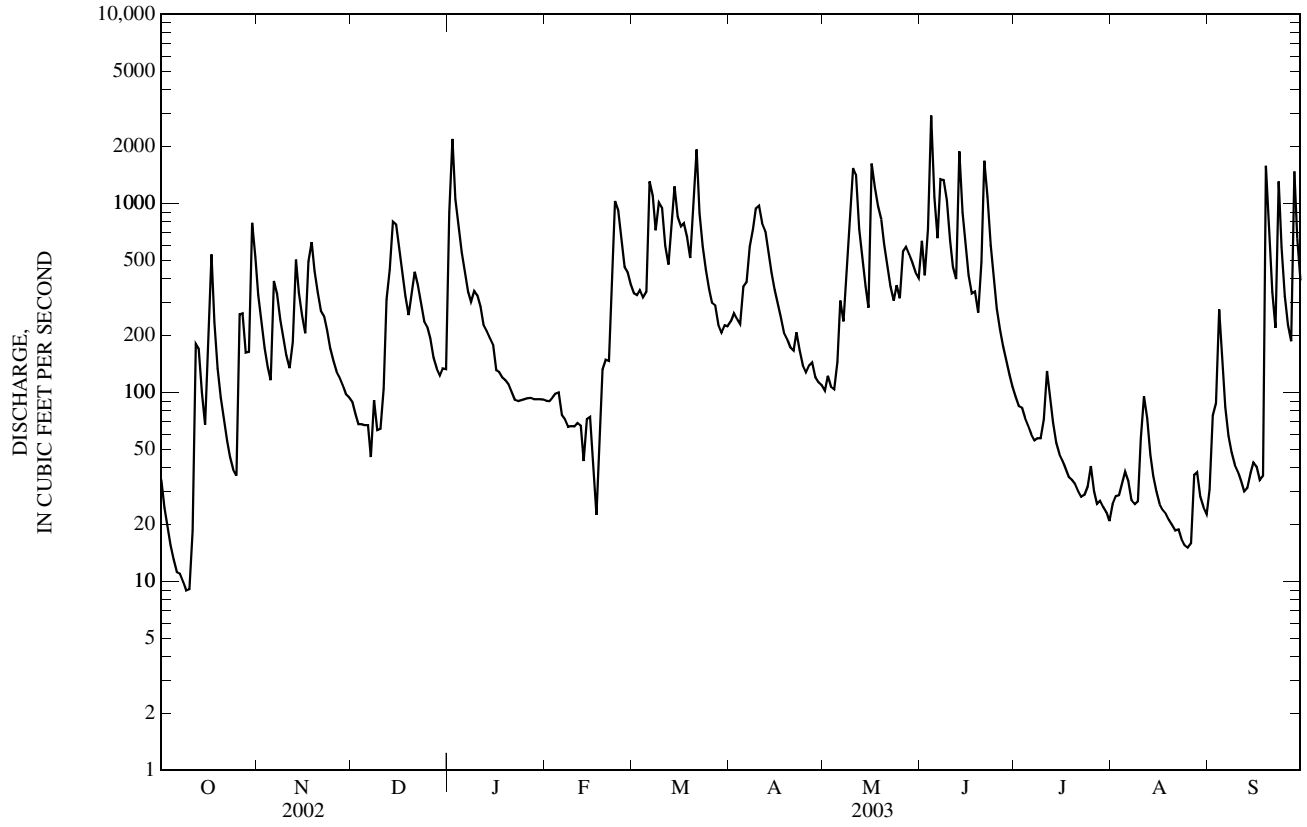
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

MEAN	94.2	109	169	169	210	322	321	243	139	56.1	37.4	53.9
MAX	623	343	576	383	616	645	712	560	830	306	162	305
(WY)	(1977)	(1971)	(1973)	(1974)	(1971)	(2003)	(1970)	(2003)	(1972)	(1931)	(1969)	(2003)
MIN	2.97	4.40	12.3	17.4	19.0	112	76.8	36.4	16.2	2.59	2.06	1.77
(WY)	(1931)	(1931)	(1931)	(1929)	(2002)	(2002)	(1968)	(1934)	(1930)	(1930)	(1930)	(1932)

01609000 TOWN CREEK NEAR OLDTOWN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1928 - 2003	
ANNUAL TOTAL	40,786.81		116,145.0			
ANNUAL MEAN	112		318		162	
HIGHEST ANNUAL MEAN					318	2003
LOWEST ANNUAL MEAN					61.4	2002
HIGHEST DAILY MEAN	826	Apr 29	2,900	Jun 4	8,140	Jun 22, 1972
LOWEST DAILY MEAN	0.66	Sep 14	8.9	Oct 9	0.66	Sep 14, 2002
ANNUAL SEVEN-DAY MINIMUM	1.3	Sep 12	11	Oct 4	0.90	Aug 7, 1930
MAXIMUM PEAK FLOW			4,380	Jun 4	(a)11,700	Jun 22, 1972
MAXIMUM PEAK STAGE			11.11	Jun 4	14.13	Jun 22, 1972
INSTANTANEOUS LOW FLOW			7.3	Oct 10	(b)0.00	(c)
ANNUAL RUNOFF (CFSM)	0.76		2.15		1.09	
ANNUAL RUNOFF (INCHES)	10.25		29.19		14.83	
10 PERCENT EXCEEDS	325		792		393	
50 PERCENT EXCEEDS	39		171		66	
90 PERCENT EXCEEDS	7.0		29		9.9	

a From rating curve extended above 9,500 ft^3/s.
b Result of freezeup.
c Dec. 27, 28, 2001.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01610000 POTOMAC RIVER AT PAW PAW, WV

LOCATION.--Lat 39°32'20.1", long 78°27'23.0", Allegany County, Md., Hydrologic Unit 02070003, on left bank 250 ft upstream from bridge on Maryland State Highway 51 at Paw Paw, 3.3 mi downstream from Little Cacapon River, and at mile 277.

DRAINAGE AREA.--3,129 mi^2.

PERIOD OF RECORD.--October 1938 to current year.

REVISED RECORDS.--WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 487.88 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1939, nonrecording gage at bridge 250 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Low flow affected by Stony River Reservoir prior to July 1981, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 54.0 ft on Mar. 18, 1936, discharge, 240,000 ft^3/s, from rating curve extended above 85,000 ft^3/s on basis of slope-area measurement of peak flow at site 5.0 mi upstream at Okonoko, WV.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	1030	30,500	19.19	Apr 12	0000	28,700	18.58
Feb 24	0730	27,200	18.05	May 11	1630	40,100	22.24
Mar 6	2230	33,200	20.07	Jun 4	1100	21,300	15.91
Mar 10	0100	28,000	18.33	Sep 20	0900	*60,500	*27.91
Mar 21	0800	27,400	18.14	Sep 23	1330	21,900	16.14

Minimum discharge, 509 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,270	5,880	2,770	6,870	1,730	6,360	4,750	3,270	10,100	2,530	1,370	1,660
2	1,010	4,310	2,680	27,000	1,720	6,120	5,020	3,400	8,860	2,330	1,310	2,290
3	846	3,430	2,480	19,900	1,680	7,990	5,580	3,520	8,700	2,220	1,280	4,040
4	746	2,850	2,280	15,500	1,780	8,820	5,490	3,490	19,300	2,180	2,240	5,760
5	672	2,510	2,220	11,800	1,860	8,240	5,620	5,560	15,600	2,150	2,310	9,670
6	607	3,990	2,230	9,590	2,160	23,600	5,970	9,330	12,100	2,000	2,220	5,600
7	560	5,890	2,120	7,670	2,190	28,000	7,850	7,960	12,800	2,170	2,050	4,060
8	528	5,100	2,170	6,490	2,020	20,600	17,500	7,710	17,400	1,990	2,040	3,540
9	514	4,500	2,130	6,040	1,870	22,600	17,800	11,400	17,100	6,130	1,840	2,570
10	510	4,170	2,130	5,580	1,850	24,500	22,500	22,600	14,700	7,430	2,430	1,880
11	638	3,770	2,260	5,090	1,780	16,500	22,800	38,100	10,300	6,890	5,340	1,710
12	1,090	3,740	3,660	4,540	1,770	12,900	24,700	27,400	8,060	5,580	5,360	1,560
13	1,260	7,570	6,020	4,020	1,560	12,800	17,600	15,100	14,400	4,890	4,840	1,520
14	1,140	8,780	11,700	3,750	1,530	18,600	13,300	12,000	14,400	3,710	3,710	1,970
15	1,000	6,590	12,200	3,550	1,690	17,300	11,300	9,220	11,000	3,260	3,080	2,350
16	1,410	5,440	9,380	3,110	1,690	14,500	8,940	13,300	9,040	2,910	2,650	2,360
17	3,490	6,440	7,780	2,940	e1,800	14,200	7,190	12,500	7,860	2,540	2,520	2,200
18	4,320	9,310	6,350	2,650	e2,000	14,100	6,130	10,500	10,000	2,210	2,530	2,250
19	2,920	8,210	5,360	2,520	e2,150	12,800	5,850	11,300	10,000	1,950	2,100	31,700
20	2,190	6,850	5,130	2,540	e2,200	13,700	5,960	11,200	10,500	1,790	1,680	48,500
21	1,790	6,050	11,300	2,430	2,550	25,900	5,410	9,410	17,700	1,680	1,520	21,500
22	1,500	5,780	11,400	2,080	3,880	19,800	5,640	8,030	13,500	1,560	1,400	15,700
23	1,290	5,630	9,000	1,960	17,800	14,300	5,500	6,980	9,890	1,500	1,270	19,700
24	1,120	5,140	7,490	1,730	23,800	11,000	4,840	6,570	7,670	1,600	1,110	13,200
25	1,020	4,480	6,400	1,880	15,000	8,610	4,330	5,990	5,900	1,440	1,040	9,290
26	1,500	3,900	5,640	1,950	11,300	7,200	4,230	6,930	4,840	1,310	1,030	6,980
27	1,980	3,580	4,700	1,830	8,750	6,210	4,250	6,710	4,040	1,220	1,090	5,560
28	1,800	3,320	4,040	1,760	7,240	5,330	4,060	6,510	3,510	1,200	1,330	12,200
29	1,750	3,060	3,750	1,800	---	4,760	3,670	6,700	3,170	1,770	1,380	8,410
30	6,020	2,880	3,590	1,810	---	4,610	3,440	6,000	2,850	2,160	1,520	6,310
31	9,180	---	3,480	1,760	---	4,730	---	6,100	---	1,440	1,590	---
TOTAL	55,671	153,150	163,840	172,140	127,350	416,680	267,220	314,790	315,290	83,740	67,180	256,040
MEAN	1,796	5,105	5,285	5,553	4,548	13,440	8,907	10,150	10,510	2,701	2,167	8,535
MAX	9,180	9,310	12,200	27,000	23,800	28,000	24,700	38,100	19,300	7,430	5,360	48,500
MIN	510	2,510	2,120	1,730	1,530	4,610	3,440	3,270	2,850	1,200	1,030	1,520
CFSM	0.57	1.63	1.69	1.77	1.45	4.30	2.85	3.25	3.36	0.86	0.69	2.73
IN.	0.66	1.82	1.95	2.05	1.51	4.95	3.18	3.74	3.75	1.00	0.80	3.04

e Estimated

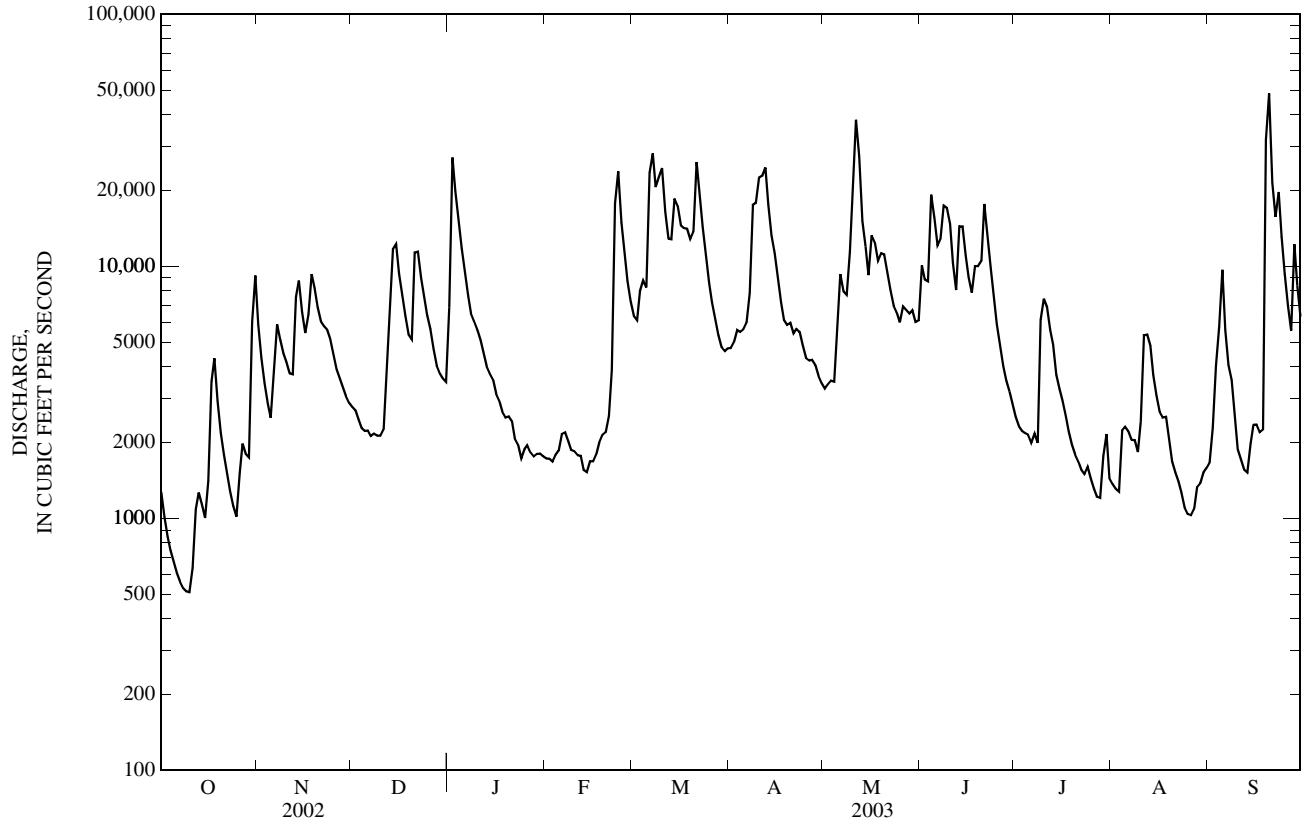
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2003, BY WATER YEAR (WY)

MEAN	1,492	2,038	3,267	3,955	5,275	7,508	6,039	4,569	2,658	1,372	1,281	1,256
MAX	9,709	17,180	12,300	13,040	14,040	17,440	15,620	11,210	10,510	5,071	6,775	12,080
(WY)	(1977)	(1986)	(1973)	(1996)	(1998)	(1994)	(1993)	(1996)	(2003)	(1949)	(1996)	(1996)
MIN	261	327	388	679	853	2,043	1,882	1,074	544	303	278	252
(WY)	(1952)	(1966)	(1966)	(1981)	(2002)	(1990)	(1995)	(1941)	(1965)	(1966)	(1944)	(1959)

01610000 POTOMAC RIVER AT PAW PAW, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1939 - 2003	
ANNUAL TOTAL	1,082,194		2,393,091			
ANNUAL MEAN	2,965		6,556		3,383	
HIGHEST ANNUAL MEAN					6,556	2003
LOWEST ANNUAL MEAN					1,499	1969
HIGHEST DAILY MEAN	26,000	Apr 23	48,500	Sep 20	125,000	Nov 6, 1985
LOWEST DAILY MEAN	(e)440	(a)	510	Oct 10	172	(b)
ANNUAL SEVEN-DAY MINIMUM	444	Jan 1	576	Oct 5	179	Sep 7, 1966
MAXIMUM PEAK FLOW			60,500	Sep 20	(c)235,000	Nov 5, 1985
MAXIMUM PEAK STAGE			27.91	Sep 20	53.58	Nov 5, 1985
INSTANTANEOUS LOW FLOW			509	Oct 10	164	(d)
ANNUAL RUNOFF (CFSM)	0.95		2.10		1.08	
ANNUAL RUNOFF (INCHES)	12.87		28.45		14.69	
10 PERCENT EXCEEDS	7,010		14,800		7,720	
50 PERCENT EXCEEDS	1,360		4,480		1,800	
90 PERCENT EXCEEDS	580		1,500		450	

e Estimated
a Jan. 2-6.
b Sept. 10, 12, 13, 1966.
c From rating curve extended above 85,000 ft^3/s on basis of slope-area measurement of peak flow at site 5.0 mi upstream at Okonoko, WV.
d Sept 10, 11, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01610155 SIDELING HILL CREEK NEAR BELLEGROVE, MD

LOCATION.--Lat 39°38'58.3", long 78°20'38.9", Washington County, Hydrologic Unit 02070003, on left bank at downstream side of bridge on Zeigler Road, 1.2 mi upstream from mouth, and 4.0 mi south of Bellegrove.

DRAINAGE AREA.--102 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1967 to September 1977, April 1999 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 440.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good above 1.0 ft^3/s and poor below except those for estimated daily discharges (missing record), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0100	2,190	5.23
Mar 6	1845	1,460	4.32
Mar 21	0000	2,250	5.30
May 8	1615	1,210	3.98
May 10	1945	1,990	5.00
May 16	1315	2,290	5.35
Jun 4	1215	*4,820	*a7.7
Jun 7	1745	2,610	a5.7
Jun 21	1200	3,140	6.23

a From high water mark.

Minimum discharge, 0.52 ft^3/s, July 31.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	195	55	479	e16	118	122	61	274	34	1.5	20
2	10	126	47	1,550	e15	113	135	137	209	28	4.2	122
3	7.3	90	39	765	e14	138	135	133	418	24	5.1	124
4	5.5	69	50	491	e18	147	131	111	1,590	22	7.5	534
5	4.1	57	38	342	e22	141	172	114	e2,300	13	13	245
6	3.0	154	37	263	e18	847	200	195	414	9.5	13	121
7	2.6	176	34	208	e15	802	297	188	e1,100	7.3	9.7	74
8	2.3	128	37	182	e14	456	448	750	e1,300	6.6	29	49
9	2.0	98	35	213	e13	715	672	913	779	7.0	38	36
10	2.1	79	31	241	e12	713	768	1,490	465	11	50	29
11	4.5	66	49	218	e11	397	516	1,220	299	15	94	23
12	58	77	187	176	e11	293	424	519	210	19	47	19
13	67	261	310	152	e10	443	304	317	404	11	29	19
14	42	208	644	134	e10	912	226	216	341	7.2	21	22
15	27	147	626	122	e9	593	181	168	260	5.8	15	28
16	89	112	446	e90	e9	509	145	1,200	194	4.4	11	42
17	296	275	309	e80	e8	532	126	1,020	150	3.5	9.2	34
18	132	422	227	e60	e14	400	106	714	154	2.8	44	27
19	76	291	176	e50	e30	287	98	617	121	2.3	27	616
20	52	206	218	e44	59	706	85	415	319	2.1	18	501
21	38	154	258	e38	80	1,540	81	289	1,780	1.8	13	282
22	28	148	228	e34	316	609	122	211	1,260	1.5	9.8	175
23	22	130	183	e30	669	343	91	168	525	1.3	7.9	776
24	19	108	142	e28	482	236	70	192	275	1.2	6.7	507
25	17	94	133	e26	306	180	70	189	172	3.0	5.5	264
26	93	83	114	e24	242	157	82	192	119	3.7	8.5	179
27	136	77	89	e22	183	144	73	265	87	2.3	16	123
28	89	70	76	e21	136	114	58	613	67	1.9	26	705
29	76	62	77	e20	---	96	59	386	51	1.3	21	400
30	408	58	76	e18	---	112	63	272	41	0.89	16	220
31	322	---	78	e17	---	115	---	214	---	0.63	13	---
TOTAL	2,145.4	4,221	5,049	6,138	2,742	12,908	6,060	13,489	15,678	255.02	629.6	6,316
MEAN	69.2	141	163	198	97.9	416	202	435	523	8.23	20.3	211
MAX	408	422	644	1,550	669	1,540	768	1,490	2,300	34	94	776
MIN	2.0	57	31	17	8.0	96	58	61	41	0.63	1.5	19
CFSM	0.68	1.38	1.60	1.94	0.96	4.08	1.98	4.27	5.12	0.08	0.20	2.06
IN.	0.78	1.54	1.84	2.24	1.00	4.71	2.21	4.92	5.72	0.09	0.23	2.30

e Estimated

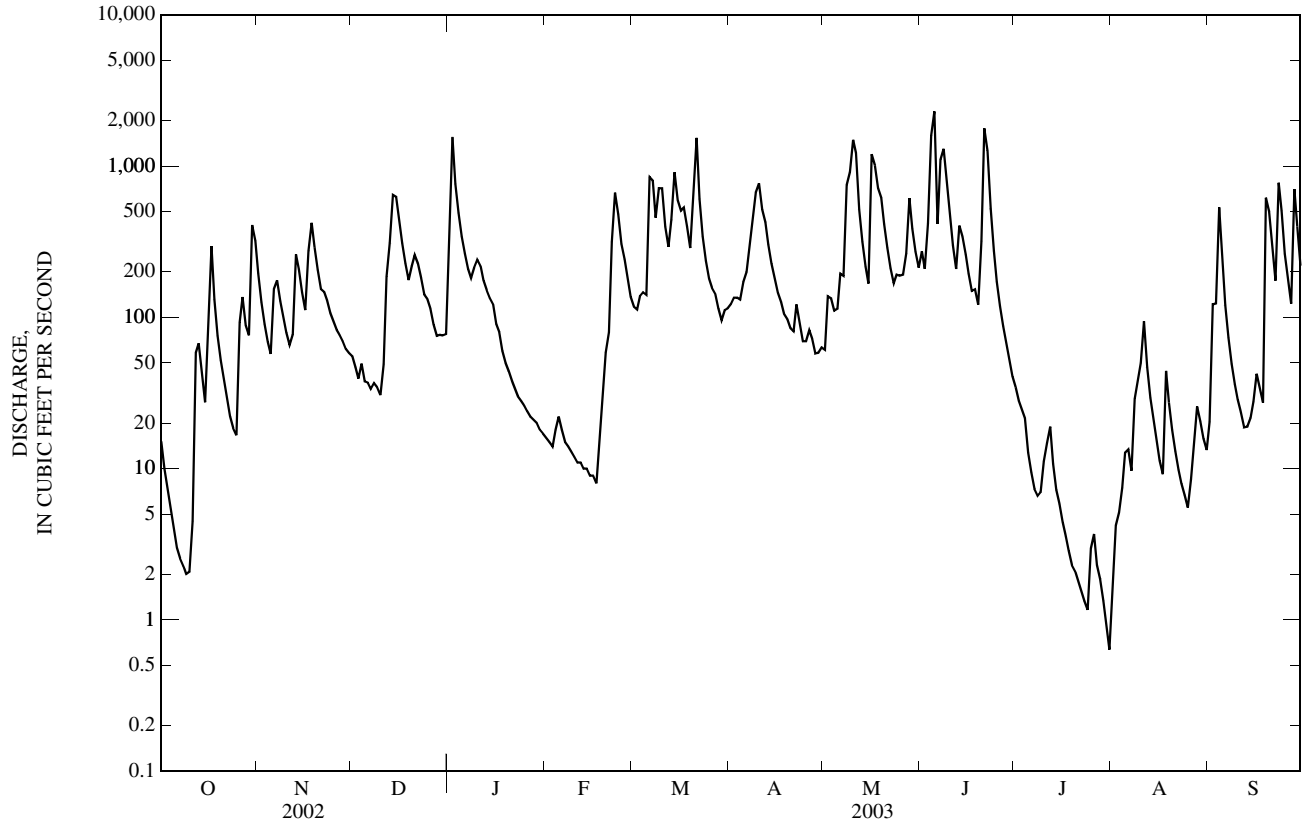
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1977, 1999 - 2003, BY WATER YEAR (WY)

MEAN	83.7	79.0	150	110	167	211	210	135	134	29.3	20.8	35.3
MAX	569	293	401	230	523	416	518	435	726	87.6	85.1	211
(WY)	(1977)	(1971)	(1973)	(1974)	(1971)	(2003)	(1970)	(2003)	(1972)	(1977)	(1969)	(2003)
MIN	0.38	0.76	3.93	11.1	7.84	65.5	37.8	22.9	5.10	1.22	0.039	0.69
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1971)	(1969)	(1999)	(1999)	(1968)	(2001)

01610155 SIDELING HILL CREEK NEAR BELLEGROVE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1967 - 1977, 1999 - 2003	
ANNUAL TOTAL	22,621.51		75,631.02			
ANNUAL MEAN	62.0		207		115	
HIGHEST ANNUAL MEAN					207	2003
LOWEST ANNUAL MEAN					31.1	2002
HIGHEST DAILY MEAN	644	Dec 14	(e)2,300	Jun 5	9,200	Jun 22, 1972
LOWEST DAILY MEAN	0.02	(a)	0.63	Jul 31	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.02	Sep 13	1.7	Jul 26	0.00	Aug 18, 1968
MAXIMUM PEAK FLOW			4,820	Jun 4	(d)14,200	Jun 22, 1972
MAXIMUM PEAK STAGE			(c)7.70	Jun 4	12.44	Jun 22, 1972
INSTANTANEOUS LOW FLOW			0.52	Jul 31	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.61		2.03		1.13	
ANNUAL RUNOFF (INCHES)	8.25		27.58		15.30	
10 PERCENT EXCEEDS	176		533		274	
50 PERCENT EXCEEDS	18		98		36	
90 PERCENT EXCEEDS	0.43		7.7		1.7	

e Estimated.
a Sept. 13-15, 18-21.
b Aug. 18-31, Sept. 1-9, 1968, Aug. 6-24, 1999.
c From high water mark.
d From rating curve extended above 10,400 ft^3/s.
f Aug. 17-31, Sept. 1-10, 1968, Aug. 6-25, 1999.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01610400 WAITES RUN NEAR WARDENSVILLE, WV

LOCATION.--Lat 39°02'33.8", long 78°35'54.0", Hardy County, Hydrologic Unit 02070003, on left bank at downstream side of bridge on Waites Run Road, 2.6 mi south of Wardensville, 4.3 mi upstream from mouth, and 8.2 mi east of Baker.

DRAINAGE AREA.--12.6 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1240.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for estimated daily discharges (missing record, ice effect), which are poor. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR JANUARY 2002 TO SEPTEMBER 2002.--Peak discharges greater than base discharge of 140 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 20	0930	*147	*4.35	No other peak greater than base discharge.			

Minimum discharge, UNKNOWN

DISCHARGE, CUBIC FEET PER SECOND
JANUARY 2002 TO SEPTEMBER 2002
DAILY MEAN VALUES

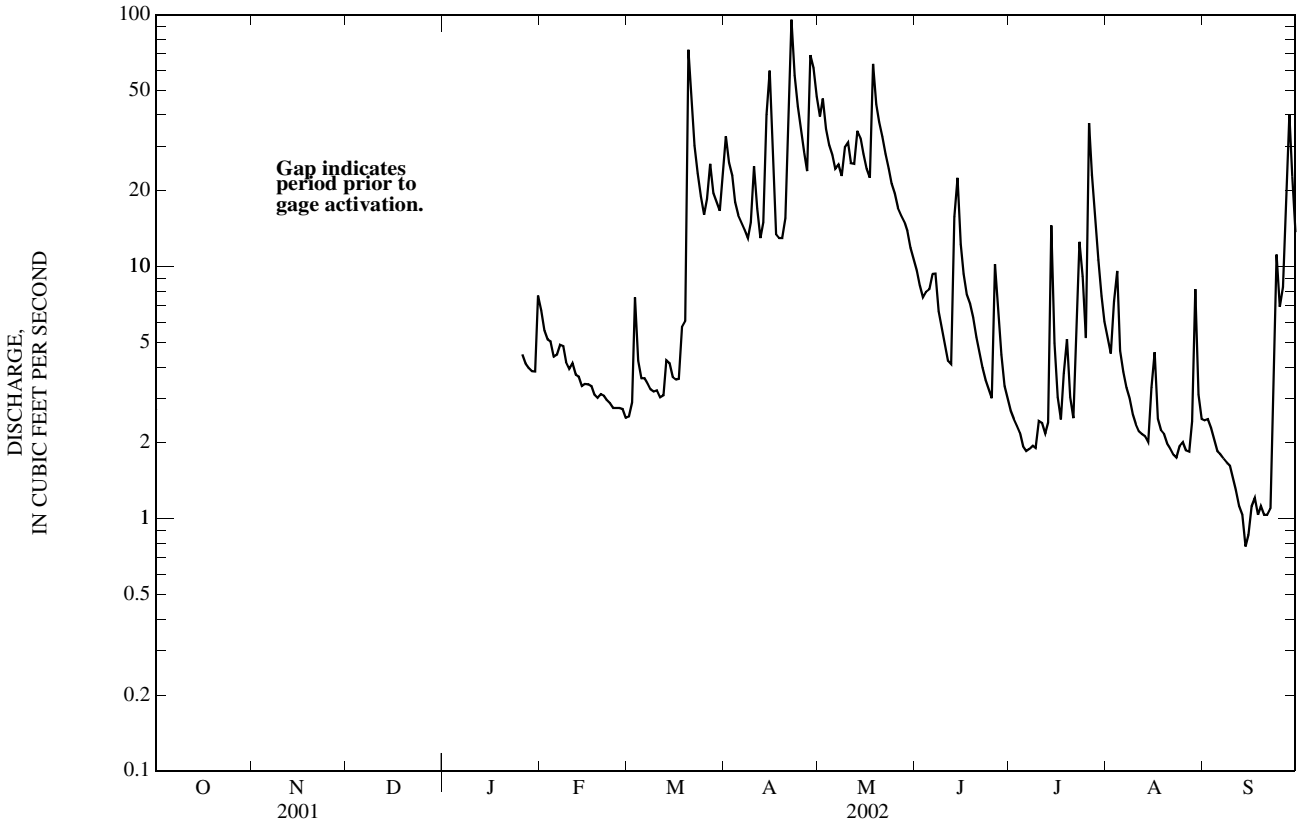
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	6.7	2.5	33	39	9.6	2.7	5.2	2.5
2	---	---	---	---	5.6	2.9	26	46	8.4	2.5	4.5	2.5
3	---	---	---	---	5.1	7.5	23	35	7.5	2.3	7.3	2.3
4	---	---	---	---	5.1	4.2	e18	30	7.9	2.2	9.6	2.1
5	---	---	---	---	4.4	3.6	e16	28	8.1	1.9	4.6	1.9
6	---	---	---	---	4.5	3.6	e15	24	9.4	1.9	3.8	1.8
7	---	---	---	---	4.9	3.4	e14	25	9.4	1.9	3.3	1.7
8	---	---	---	---	4.8	3.3	e13	23	6.6	1.9	3.0	1.7
9	---	---	---	---	4.2	3.2	e15	30	5.7	1.9	2.6	1.6
10	---	---	---	---	3.9	3.2	e25	31	4.9	2.4	2.4	1.5
11	---	---	---	---	4.1	3.0	e17	26	4.2	2.4	2.2	e1.3
12	---	---	---	---	3.7	3.1	e13	26	4.1	2.2	2.2	e1.1
13	---	---	---	---	3.7	4.2	e15	35	16	2.4	2.1	e1.0
14	---	---	---	---	3.4	4.1	e40	32	22	15	2.0	e0.78
15	---	---	---	---	3.4	3.7	e60	28	12	5.0	3.3	e0.86
16	---	---	---	---	3.4	3.6	e33	24	9.4	3.0	4.6	e1.1
17	---	---	---	---	3.4	3.6	13	23	7.7	2.5	2.5	e1.2
18	---	---	---	---	3.1	5.8	13	64	7.1	3.8	2.2	e1.0
19	---	---	---	---	3.0	6.1	13	44	6.3	5.2	2.2	e1.1
20	---	---	---	---	3.1	72	16	37	5.3	3.0	2.0	e1.0
21	---	---	---	---	3.1	45	35	33	4.6	2.5	1.9	e1.0
22	---	---	---	---	3.0	30	95	28	4.0	5.5	1.8	e1.1
23	---	---	---	---	2.9	23	57	24	3.5	13	1.8	e5.4
24	---	---	---	---	2.7	19	43	21	3.2	9.2	1.9	e11
25	---	---	---	---	2.8	16	35	19	3.0	5.2	2.0	e6.9
26	---	---	---	4.5	2.8	19	28	17	10	37	1.9	e8.3
27	---	---	---	4.1	2.7	26	24	16	6.9	23	1.8	e19
28	---	---	---	4.0	2.5	20	69	15	4.5	16	2.4	e40
29	---	---	---	3.9	---	18	61	14	3.4	11	8.1	e23
30	---	---	---	3.8	---	17	47	12	3.0	7.6	3.1	e14
31	---	---	---	7.7	---	24	---	11	---	6.1	2.5	---
TOTAL	---	---	---	---	106.0	403.6	925	860	217.7	202.2	100.8	159.74
MEAN	---	---	---	---	3.79	13.0	30.8	27.7	7.26	6.52	3.25	5.32
MAX	---	---	---	---	6.7	72	95	64	22	37	9.6	40
MIN	---	---	---	---	2.5	2.5	13	11	3.0	1.9	1.8	0.78
CFSM	---	---	---	---	0.30	1.03	2.45	2.20	0.58	0.52	0.26	0.42
IN.	---	---	---	---	0.31	1.19	2.73	2.54	0.64	0.60	0.30	0.47

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR JANUARY 2002 TO SEPTEMBER 2002

MEAN	---	---	---	---	3.79	13.0	30.8	27.7	7.26	6.52	3.25	5.32
MAX	---	---	---	---	3.79	13.0	30.8	27.7	7.26	6.52	3.25	5.32
(WY)	(---)	(---)	(---)	(---)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)
MIN	---	---	---	---	3.79	13.0	30.8	27.7	7.26	6.52	3.25	5.32
(WY)	(---)	(---)	(---)	(---)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued



DAILY MEAN DISCHARGE - JANUARY 2002 TO SEPTEMBER 2002

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

EXTREMES FOR 2003 WATER YEAR.--Peak discharges greater than base discharge of 140 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	----	470	a5.20	Jun 12	1815	230	4.72
Feb 23	0630	290	4.87	Jun 13	1630	809	5.64
Mar 20	1645	413	5.11	Aug 10	2200	222	4.70
Apr 11	0415	252	4.78	Sep 19	0645	*1,380	*6.09
May 10	1515	149	4.36				

a High-water mark.

Minimum discharge, UNKNOWN.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e10	e20	14	e140	7.1	32	37	16	14	14	7.0	4.1
2	e6.0	e18	13	e90	7.5	e32	44	15	12	12	4.6	5.4
3	e3.8	e16	12	69	7.9	e31	39	13	12	17	5.7	e8.0
4	e2.6	e14	11	53	e7.6	e31	36	20	29	12	7.0	e15
5	e2.4	e54	11	43	e7.0	68	32	19	21	9.8	6.3	9.2
6	e2.2	e36	9.9	37	e6.5	94	27	19	18	9.0	4.8	6.4
7	e2.0	e22	12	32	e6.0	74	59	18	29	10	4.3	5.4
8	e2.0	e19	8.9	31	e5.7	67	47	21	26	12	4.2	4.9
9	e3.0	17	8.4	31	e5.5	83	69	26	29	12	6.4	4.7
10	e6.0	17	7.7	27	e5.3	69	67	87	22	12	24	4.5
11	e11	20	17	24	e5.1	55	156	88	20	9.6	46	4.1
12	e6.0	47	25	21	e5.0	47	99	59	55	8.1	22	4.1
13	e4.0	48	40	20	e5.0	52	72	45	179	7.4	17	8.0
14	e3.6	38	48	19	e5.1	62	57	36	119	6.7	13	8.1
15	e8.0	32	38	17	e5.2	53	48	31	93	6.3	11	6.1
16	e14	30	34	e16	e5.6	47	42	58	68	5.7	9.1	5.1
17	e10	69	27	e15	e6.5	43	36	48	72	5.2	9.2	4.5
18	e6.0	53	23	e14	e13	40	34	56	64	5.0	15	93
19	e5.0	42	23	e14	e11	35	37	53	55	5.0	8.8	679
20	e4.2	35	60	e13	e9.0	162	30	46	78	4.4	7.4	151
21	e3.6	35	57	12	e11	131	30	41	66	4.9	6.4	81
22	e3.2	37	46	e12	e40	83	40	35	54	4.7	5.9	57
23	e3.0	31	37	11	177	61	32	31	43	4.5	5.4	72
24	e2.8	28	31	e10	89	48	29	29	34	4.2	4.8	46
25	e11	24	28	e9.5	60	41	27	26	27	3.7	4.4	38
26	e10	21	24	e8.8	46	40	26	24	22	3.5	4.2	32
27	e8.0	20	20	8.3	39	34	22	21	19	3.4	5.0	28
28	e14	18	18	e8.0	34	29	20	20	16	8.4	4.6	26
29	e40	16	17	e7.7	---	28	18	18	14	6.6	4.1	21
30	e30	16	16	7.4	---	29	16	16	12	4.2	3.9	18
31	e24	---	18	6.9	---	28	---	16	---	3.8	4.0	---
TOTAL	261.4	893	754.9	827.6	632.6	1,729	1,328	1,051	1,322	235.1	285.5	1,449.6
MEAN	8.43	29.8	24.4	26.7	22.6	55.8	44.3	33.9	44.1	7.58	9.21	48.3
MAX	40	69	60	140	177	162	156	88	179	17	46	679
MIN	2.0	14	7.7	6.9	5.0	28	16	13	12	3.4	3.9	4.1
CFSM	0.67	2.36	1.93	2.12	1.79	4.43	3.51	2.69	3.50	0.60	0.73	3.83
IN.	0.77	2.64	2.23	2.44	1.87	5.10	3.92	3.10	3.90	0.69	0.84	4.28

e Estimated

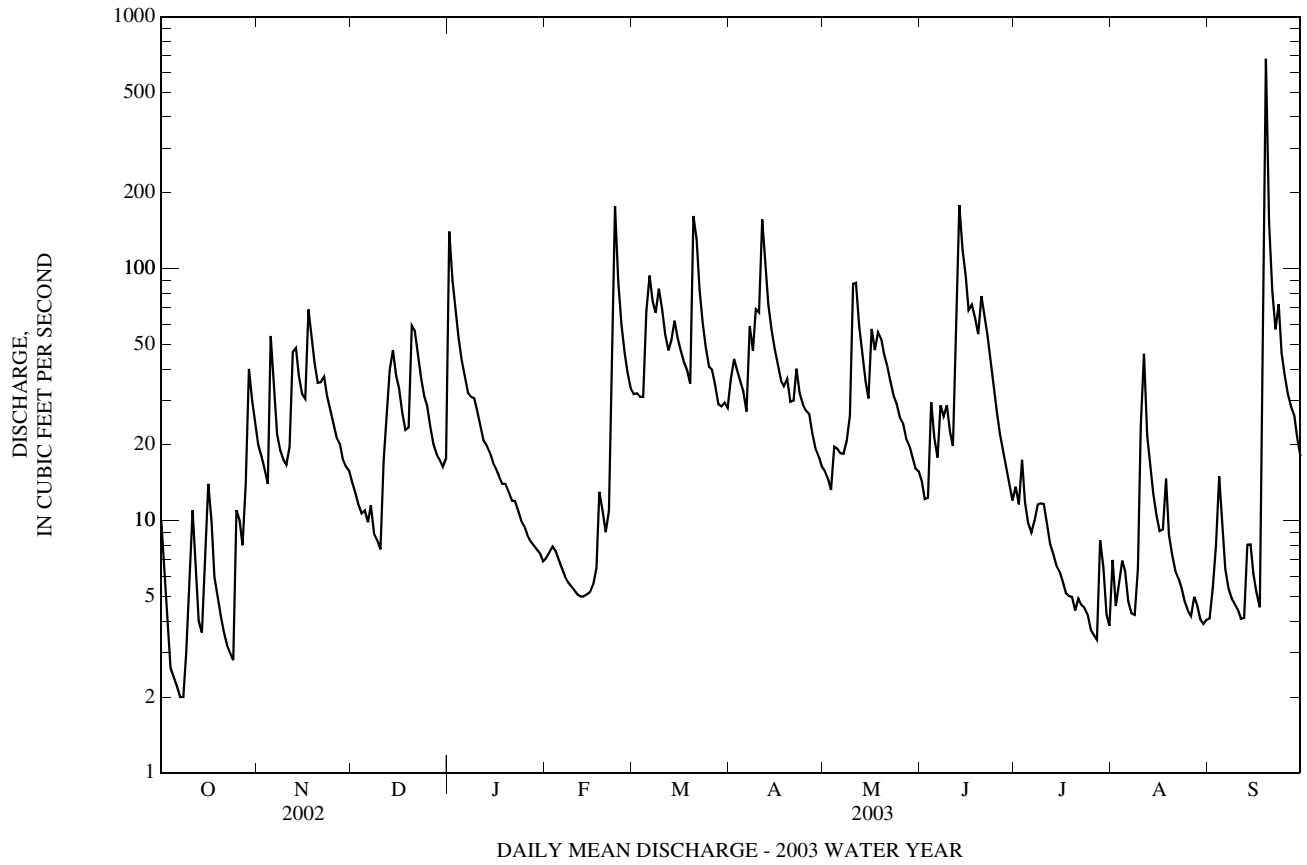
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2003, BY WATER YEAR (WY)

MEAN	8.43	29.8	24.4	26.7	13.2	34.4	37.5	30.8	25.7	7.05	6.23	26.8
MAX	8.43	29.8	24.4	26.7	22.6	55.8	44.3	33.9	44.1	7.58	9.21	48.3
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)
MIN	8.43	29.8	24.4	26.7	3.79	13.0	30.8	27.7	7.26	6.52	3.25	5.32
(WY)	(2003)	(2003)	(2003)	(2003)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

SUMMARY STATISTICS	FOR 2003 WATER YEAR		WATER YEARS 2002 - 2003	
ANNUAL TOTAL	10769.7			
ANNUAL MEAN	29.5		29.5	
HIGHEST ANNUAL MEAN			29.5	2003
LOWEST ANNUAL MEAN			29.5	2003
HIGHEST DAILY MEAN	679	Sep 19	679	Sep 19, 2003
LOWEST DAILY MEAN	(e)2.0	(a)	(e)0.78	Sep 14, 2002
ANNUAL SEVEN-DAY MINIMUM	2.6	Oct 3	1.0	Sep 12, 2002
MAXIMUM PEAK FLOW	1,380	Sep 19	(b)1,380	Sep 19, 2003
MAXIMUM PEAK STAGE	6.09	Sep 19	6.09	Sep 19, 2003
INSTANTANEOUS LOW FLOW	UNKNOWN		UNKNOWN	
ANNUAL RUNOFF (CFSM)	2.34		2.34	
ANNUAL RUNOFF (INCHES)	31.80		31.82	
10 PERCENT EXCEEDS	61		61	
50 PERCENT EXCEEDS	19		19	
90 PERCENT EXCEEDS	4.7		4.7	

e Estimated
a Oct. 7, 8.
b From rating curve extended above 420 ft^3/s.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 2001 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 2002 to current year.
WATER TEMPERATURE: January 2002 to current year.

INSTRUMENTATION.--Water-quality monitor January 2002 to current year.

REMARKS.--Missing record due to instrument malfunctions. Records good.

EXTREMES FOR PERIOD OF DAILY RECORD--
SPECIFIC CONDUCTANCE: Maximum, 109 microsiemens/cm, Sept. 10, 2002; minimum, 23 microsiemens/cm, Feb. 22, 2003.
WATER TEMPERATURE: Maximum, 24.5°C, July 3, 2002; minimum, 0.0°C, on many day during winter periods.

EXTREMES FOR JANUARY 2002 TO SEPTEMBER 2002.--
SPECIFIC CONDUCTANCE: Maximum, 109 microsiemens/cm, Sept. 10; minimum, 27 microsiemens/cm, May 1, 13, 20-22.
WATER TEMPERATURE: Maximum, 24.5°C, July 3; minimum, 0.0°C, Feb. 5, 28, March 1, 4, 5.

EXTREMES FOR WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003.--
SPECIFIC CONDUCTANCE: Maximum, 82 microsiemens/cm, July 28; minimum, 23 microsiemens/cm, Feb. 22.
WATER TEMPERATURE: Maximum, 22.4°C, July 27, Aug. 22; minimum, on many day during winter periods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)
OCT												
15...	1300	Environmental	3.8	729	10.5	100	7.4	64	13.5	11.3	23	28
NOV												
05...	1300	Environmental	15	728	13.2	116	6.8	38	7.0	7.7	13	15
DEC												
10...	1235	Environmental	8.6	733	17.8	132	6.7	40	4.0	1.4	15	19
JAN												
09...	1320	Environmental	31	713	13.0	110	6.6	29	18.0	5.6	8	10
FEB												
11...	1145	Environmental	8.6	723	16.4	121	6.0	50	2.0	0.9	25	31
MAR												
06...	1200	Environmental	94	720	13.6	110	6.1	26	5.0	4.2	4	5
APR												
01...	1145	Environmental	27	724	15.7	134	6.5	32	14.0	6.5	7	9
MAY												
08...	*1000*	*Blank*	--	--	--	--	--	--	--	--	--	--
08...	1030	Environmental	20	727	9.6	98	5.8	35	21.0	14.0	10	13
JUN												
05...	1115	Environmental	22	729	10.0	100	6.2	36	19.0	13.3	11	13
05...	*1116*	*Replicate*	--	--	--	--	--	--	--	--	*10*	*12*
JUL												
10...	1030	Environmental	11	729	8.1	92	6.5	43	22.0	19.1	16	19
AUG												
04...	1115	Environmental	6.0	730	7.8	89	6.8	68	26.0	19.8	27	32
05...	1600	Environmental	--	--	--	--	--	--	--	--	--	--
SEP												
02...	1015	Environmental	4.2	734	8.6	97	7.3	69	23.0	19.7	26	32

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Periphyton biomass ash weight, g/m2 (00572)
OCT													
15...	1.34	5.3	E.06	<0.04	--	0.07	<0.008	<0.02	0.007	--	<0.1	1.6	--
NOV													
05...	0.59	5.4	E.06	<0.04	--	0.20	<0.008	<0.02	E.004	--	<0.1	1.5	--
DEC													
10...	0.70	4.8	<0.10	<0.04	--	0.14	<0.008	<0.02	E.004	--	<0.1	1.1	--
JAN													
09...	0.43	5.0	<0.10	<0.04	--	0.21	<0.008	<0.02	0.005	--	<0.1	1.5	--
FEB													
11...	0.44	5.2	E.09	<0.04	--	0.15	<0.008	<0.02	0.004	--	0.2	0.8	--
MAR													
06...	0.68	5.9	0.12	<0.04	--	0.32	<0.008	<0.02	0.007	0.44	0.2	2.0	--
APR													
01...	0.57	5.2	E.08	<0.04	--	0.15	<0.008	<0.02	0.017	--	0.6	1.6	--
MAY													
08...	*<0.20*	*<0.2*	*<0.10*	*<0.04*	--	*<0.06*	*<0.008*	*<0.02*	*<0.004*	--	*<0.1*	*<0.3*	--
08...	0.61	4.9	E.06	<0.04	--	0.09	<0.008	<0.02	0.008	--	0.3	1.5	--
JUN													
05...	0.57	4.9	0.31	<0.04	--	0.17	<0.008	--	0.014	0.48	0.4	1.6	--
05...	*0.57*	*4.9*	*0.14*	*<0.04*	--	*0.16*	*<0.008*	--	*0.009*	*0.30*	*0.4*	*1.5*	--
JUL													
10...	0.60	4.2	0.11	<0.04	0.10	0.11	0.008	<0.02	0.009	0.22	0.4	2.3	--
AUG													
04...	0.63	4.3	0.13	<0.04	--	0.09	<0.008	<0.02	0.015	0.22	0.2	2.1	--
05...	--	--	--	--	--	--	--	--	--	--	--	--	6.0
SEP													
02...	0.61	4.5	E.07	<0.04	--	0.07	<0.008	<0.02	0.008	--	0.2	1.4	--

Date	Periphyton biomass dry weight, g/m2 (00573)	Pheophytin a, periphyton, mg/m2 (62359)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT					
15...	--	--	--	2	0.03
NOV					
05...	--	--	--	1	0.05
DEC					
10...	--	--	--	M	0.01
JAN					
09...	--	--	--	M	0.07
FEB					
11...	--	--	--	2	0.04
MAR					
06...	--	--	--	6	1.6
APR					
01...	--	--	--	2	0.12
MAY					
08...	--	--	--	*M*	--
08...	--	--	--	4	0.22
JUN					
05...	--	--	--	1	0.07
05...	--	--	--	*3*	--
JUL					
10...	--	--	--	5	0.14
AUG					
04...	--	--	--	8	0.12
05...	6.200	<0.1	0.2	--	--
SEP					
02...	--	--	--	2	0.02

Remark codes used in this table:
< -- Less than
E -- Estimated value
M-- Presence verified, not quantified

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

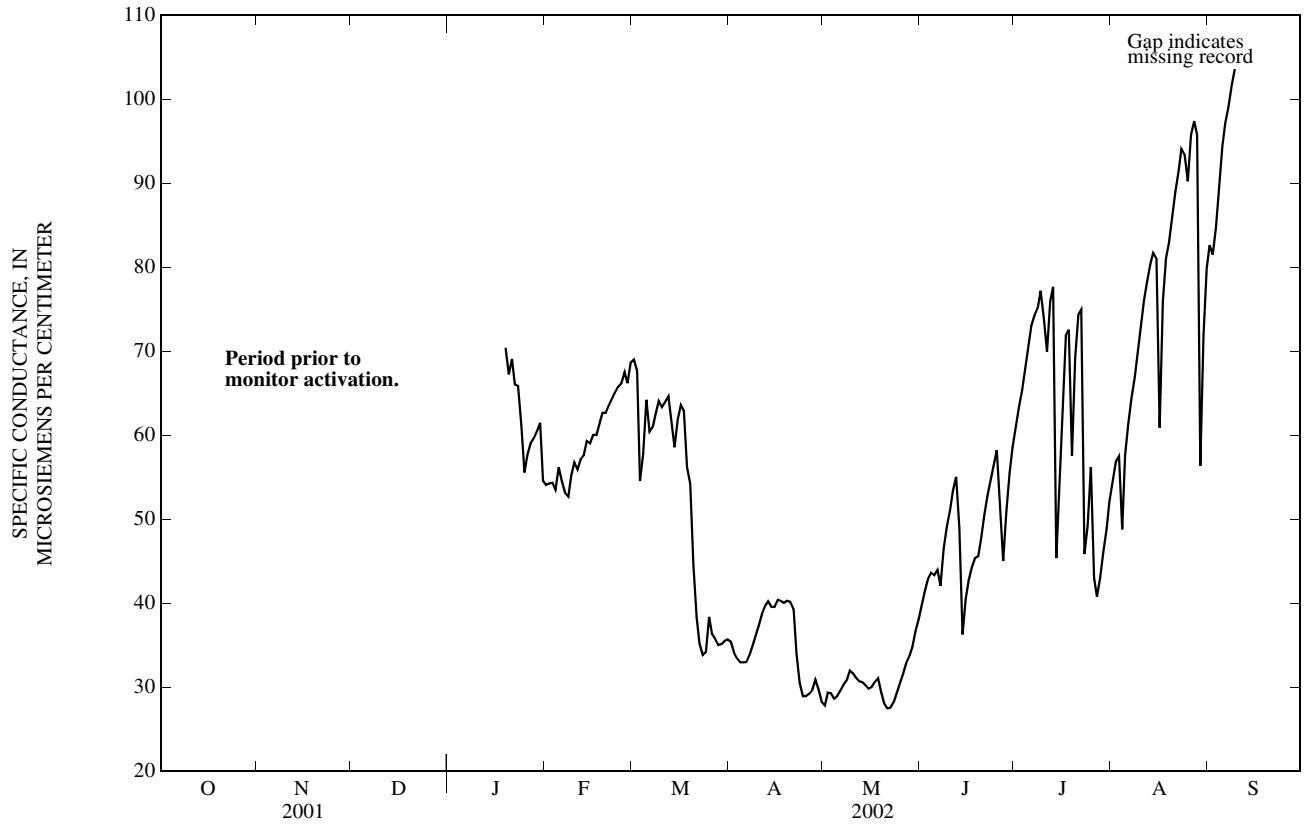
SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	72	69	70
20	---	---	---	---	---	---	---	---	---	70	65	67
21	---	---	---	---	---	---	---	---	---	71	68	69
22	---	---	---	---	---	---	---	---	---	70	63	66
23	---	---	---	---	---	---	---	---	---	69	64	66
24	---	---	---	---	---	---	---	---	---	64	57	61
25	---	---	---	---	---	---	---	---	---	57	54	56
26	---	---	---	---	---	---	---	---	---	60	57	58
27	---	---	---	---	---	---	---	---	---	61	58	59
28	---	---	---	---	---	---	---	---	---	62	58	60
29	---	---	---	---	---	---	---	---	---	63	58	60
30	---	---	---	---	---	---	---	---	---	63	60	62
31	---	---	---	---	---	---	---	---	---	62	50	55
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	55	53	54	76	65	69	38	35	35	29	27	28
2	55	53	54	70	66	68	35	34	34	31	28	29
3	56	53	54	69	48	55	34	33	33	31	29	29
4	55	52	54	62	56	58	33	33	33	29	28	29
5	63	52	56	76	56	64	33	33	33	30	28	29
6	56	54	55	64	58	60	34	32	33	30	29	30
7	55	52	53	65	59	61	35	33	34	31	29	30
8	55	51	53	65	60	63	36	34	35	32	30	31
9	57	54	55	67	61	64	37	36	36	34	29	32
10	59	55	57	66	61	63	39	37	37	32	31	32
11	58	53	56	66	62	64	40	38	39	32	30	31
12	59	56	57	67	62	65	41	39	40	32	30	31
13	59	56	58	66	57	62	41	39	40	33	27	31
14	66	56	59	63	57	59	41	38	40	31	30	30
15	62	57	59	65	59	62	41	38	40	30	29	30
16	62	58	60	65	61	64	41	39	40	31	29	30
17	62	58	60	65	61	63	41	39	40	31	30	31
18	65	60	61	62	52	56	41	39	40	34	30	31
19	69	58	63	56	53	54	43	39	40	31	28	29
20	65	60	63	55	40	44	43	39	40	29	27	28
21	67	61	64	40	37	38	44	36	39	28	27	28
22	67	62	64	37	34	35	38	32	34	28	27	28
23	67	63	65	34	33	34	32	29	31	29	28	28
24	68	64	66	35	34	34	30	28	29	31	28	29
25	70	64	66	40	35	38	29	28	29	32	30	30
26	69	65	67	40	33	36	30	29	29	33	31	32
27	69	63	66	36	35	36	30	29	30	34	32	33
28	70	67	69	36	35	35	32	30	31	34	33	34
29	---	---	---	36	35	35	31	29	30	37	34	35
30	---	---	---	36	35	36	29	28	28	41	36	37
31	---	---	---	37	34	36	---	---	---	40	37	38
MONTH	70	51	60	76	33	52	44	28	35	41	27	31

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	42	39	40	63	59	61	57	53	55	84	81	83
2	43	40	41	65	61	63	59	55	57	84	80	82
3	45	41	43	67	63	65	61	40	57	87	84	85
4	45	41	44	69	66	68	56	42	49	91	87	90
5	47	40	43	72	69	71	62	56	58	96	91	94
6	48	36	44	74	72	73	64	59	61	98	96	97
7	45	38	42	76	73	74	66	63	64	101	97	99
8	49	44	47	76	73	75	69	65	67	104	100	102
9	51	48	49	79	75	77	72	68	70	106	102	104
10	54	49	51	79	66	74	74	71	73	109	104	106
11	56	51	53	74	67	70	78	74	76	---	---	---
12	57	53	55	78	74	76	80	76	78	---	---	---
13	59	29	49	80	70	78	82	78	80	---	---	---
14	40	33	36	70	34	45	83	80	82	---	---	---
15	42	40	41	61	48	54	88	51	81	---	---	---
16	44	42	43	69	61	65	73	51	61	---	---	---
17	46	43	44	74	69	72	80	73	76	---	---	---
18	46	44	45	77	48	73	83	79	81	---	---	---
19	48	44	46	66	48	58	85	81	83	---	---	---
20	50	47	48	73	66	69	87	84	86	---	---	---
21	53	49	51	77	73	74	91	87	89	---	---	---
22	54	51	53	79	36	75	92	90	91	---	---	---
23	56	53	55	53	36	46	96	92	94	---	---	---
24	58	54	56	54	44	49	96	86	93	---	---	---
25	60	56	58	58	53	56	93	87	90	---	---	---
26	62	32	52	57	33	43	97	93	96	---	---	---
27	51	38	45	43	39	41	98	97	97	---	---	---
28	54	49	51	46	41	43	99	76	96	---	---	---
29	58	54	56	49	45	46	76	50	56	---	---	---
30	60	57	59	51	47	49	78	66	72	---	---	---
31	---	---	---	55	51	52	83	78	80	---	---	---
MONTH	62	29	48	80	33	62	99	40	76	---	---	---



DAILY MEAN SPECIFIC CONDUCTANCE - JANUARY 2002 TO SEPTEMBER 2002

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

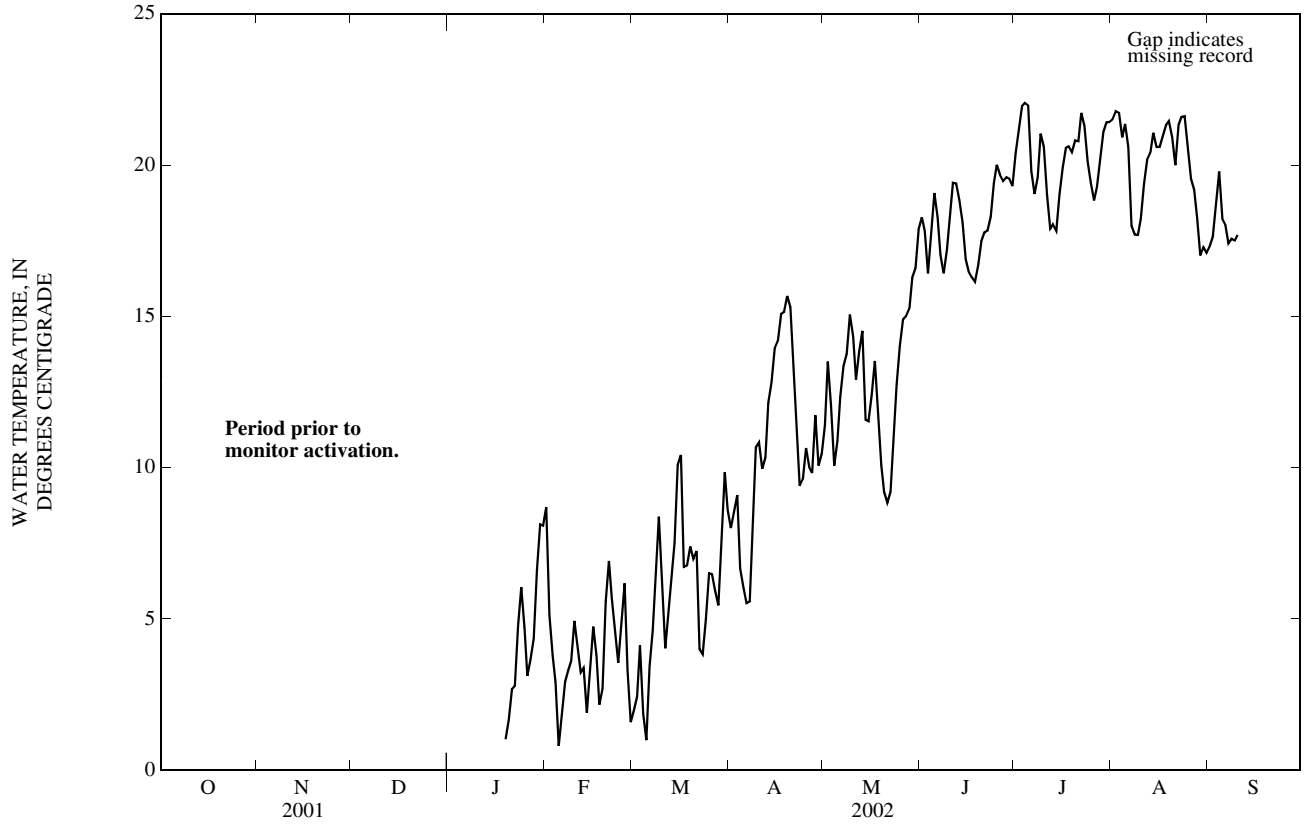
TEMPERATURE, WATER, DEGREES CELSIUS
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	1.3	0.4	1.0
20	---	---	---	---	---	---	---	---	---	2.9	0.5	1.7
21	---	---	---	---	---	---	---	---	---	4.0	1.5	2.7
22	---	---	---	---	---	---	---	---	---	4.4	1.5	2.8
23	---	---	---	---	---	---	---	---	---	6.5	3.1	4.8
24	---	---	---	---	---	---	---	---	---	7.1	4.9	6.0
25	---	---	---	---	---	---	---	---	---	6.5	2.9	4.7
26	---	---	---	---	---	---	---	---	---	4.9	1.7	3.1
27	---	---	---	---	---	---	---	---	---	5.7	2.1	3.7
28	---	---	---	---	---	---	---	---	---	6.4	2.5	4.4
29	---	---	---	---	---	---	---	---	---	8.4	4.8	6.6
30	---	---	---	---	---	---	---	---	---	8.7	7.8	8.1
31	---	---	---	---	---	---	---	---	---	8.6	7.6	8.1
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	10.7	6.6	8.7	5.0	0.0	2.0	9.7	6.9	8.0	13.5	9.4	11.4
2	6.6	3.6	5.1	3.1	1.7	2.4	10.7	6.4	8.5	15.2	11.8	13.5
3	5.0	2.9	3.8	6.4	2.6	4.1	9.9	6.9	9.1	13.4	10.4	12.1
4	3.6	1.0	2.9	3.6	0.0	1.9	8.5	5.2	6.7	11.6	8.7	10.1
5	2.0	0.0	0.8	3.1	0.0	1.0	7.9	4.8	6.1	13.2	8.4	10.9
6	3.2	0.4	1.9	6.6	1.0	3.4	7.0	4.4	5.5	13.8	10.6	12.4
7	4.2	2.0	2.9	6.7	2.5	4.6	8.1	3.3	5.6	14.1	12.6	13.4
8	5.4	1.9	3.3	9.4	3.8	6.3	11.3	6.1	8.6	14.8	12.6	13.8
9	5.7	2.0	3.6	10.7	5.9	8.4	11.6	9.8	10.7	16.5	14.0	15.1
10	6.8	2.9	4.9	9.0	3.5	5.9	13.3	9.3	10.8	15.7	13.1	14.3
11	5.8	2.2	4.1	6.5	2.0	4.0	13.0	7.5	10	14.5	11.2	12.9
12	5.5	1.6	3.2	6.5	3.7	5.1	12.7	8.1	10.3	14.7	12.8	13.8
13	5.2	1.7	3.4	7.1	5.9	6.3	13.9	11.2	12.1	15.6	13.3	14.5
14	4.0	0.1	1.9	10.6	4.9	7.5	14.7	10.9	12.8	13.3	10.4	11.6
15	5.3	1.8	3.3	13.0	7.7	10.1	16.1	12.4	13.9	13.4	9.9	11.5
16	6.5	3.6	4.7	11.3	8.6	10.4	15.9	12.3	14.2	14.4	10.2	12.4
17	4.7	2.1	3.8	8.6	5.8	6.7	17.5	12.9	15.1	14.2	12.9	13.5
18	4.3	0.4	2.2	8.1	5.6	6.8	16.6	13.7	15.1	13.6	10.2	11.6
19	5.0	0.3	2.7	8.3	6.7	7.4	17.6	13.9	15.7	10.9	9.3	10.1
20	7.1	4.0	5.6	7.7	6.2	7.0	16.1	14.6	15.3	10.1	8.1	9.2
21	8.8	5.8	6.9	8.9	5.8	7.2	14.6	10.7	12.9	9.8	8.0	8.8
22	6.6	4.6	5.7	5.8	2.9	4.0	13.1	10.1	11.3	11.2	7.1	9.2
23	6.5	3.0	4.6	5.9	2.1	3.8	10.1	8.4	9.4	13.1	8.6	10.9
24	6.2	1.3	3.6	6.8	3.1	5.0	11.9	7.3	9.6	14.9	10.5	12.7
25	7.4	2.4	4.8	8.5	4.8	6.5	11.7	9.6	10.6	15.2	13.0	14.0
26	8.6	4.2	6.2	7.0	6.1	6.5	12.1	8.5	10.0	16.1	14.0	14.9
27	5.4	0.8	3.3	7.0	4.8	5.9	11.0	8.0	9.8	16.0	14.0	15.0
28	4.0	0.0	1.6	7.5	3.5	5.4	13.7	10.4	11.7	16.4	14.3	15.3
29	---	---	---	10.4	5.9	8.0	11.5	9.0	10.1	18.4	14.7	16.3
30	---	---	---	11.5	9.0	9.8	12.7	8.4	10.5	18.3	15.0	16.6
31	---	---	---	9.5	7.7	8.6	---	---	---	19.9	16.4	17.9
MONTH	10.7	0.0	3.9	13.0	0.0	5.9	17.6	3.3	10.7	19.9	7.1	12.9

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	20.3	16.9	18.3	22.7	18.5	20.4	23.6	20.0	21.5	17.7	17.0	17.3
2	19.9	16.5	17.8	23.6	19.3	21.2	24.1	20.0	21.8	19.1	16.8	17.6
3	18.5	14.6	16.4	24.5	20.1	22.0	24.2	20.3	21.7	20.9	16.9	18.8
4	19.7	15.7	17.6	24.4	20.2	22.1	22.8	19.3	20.9	21.9	18.2	19.8
5	21.2	17.6	19.1	24.3	20.0	22.0	23.3	19.9	21.4	20.4	16.4	18.2
6	19.2	17.3	18.3	22.2	17.9	19.8	22.2	18.4	20.6	20.2	16.4	18.0
7	18.6	15.7	17.0	21.0	17.0	19.1	19.8	16.4	18.0	19.7	15.3	17.4
8	19.1	14.3	16.4	22.4	17.1	19.6	20.2	15.9	17.7	19.9	15.5	17.6
9	19.5	15.0	17.2	23.2	19.4	21.0	20.4	15.6	17.7	19.9	15.5	17.5
10	20.5	16.3	18.4	21.8	20.0	20.6	21.0	15.9	18.2	20.3	15.6	17.7
11	21.5	17.7	19.4	21.0	17.2	19.0	21.9	17.2	19.4	---	---	---
12	21.4	17.8	19.4	20.9	15.4	17.9	22.1	18.5	20.2	---	---	---
13	19.9	18.2	18.9	18.8	17.2	18.0	22.2	18.9	20.4	---	---	---
14	19.1	17.5	18.1	18.1	17.5	17.8	23.5	19.3	21.1	---	---	---
15	17.7	15.7	16.9	21.1	17.5	19.0	22.4	19.2	20.6	---	---	---
16	17.9	15.5	16.5	22.4	18.0	19.9	21.7	19.9	20.6	---	---	---
17	18.2	14.8	16.3	23.1	18.4	20.6	22.3	19.9	21.0	---	---	---
18	18.0	14.5	16.2	22.3	19.9	20.6	23.1	19.8	21.3	---	---	---
19	18.6	15.2	16.7	21.8	19.5	20.4	23.3	19.9	21.5	---	---	---
20	19.9	15.6	17.5	23.0	19.4	20.8	22.6	19.5	20.9	---	---	---
21	20.3	15.8	17.8	22.9	18.9	20.8	22.2	18.1	20.0	---	---	---
22	20.6	15.7	17.8	24.2	20.0	21.7	23.5	19.7	21.3	---	---	---
23	21.2	15.9	18.3	23.1	20.2	21.3	23.2	20.3	21.6	---	---	---
24	22.1	17.4	19.4	20.8	19.5	20.1	23.0	20.6	21.6	---	---	---
25	22.6	18.0	20.0	19.6	19.2	19.4	22.0	19.2	20.5	---	---	---
26	21.5	18.7	19.7	19.2	18.6	18.8	20.9	18.4	19.5	---	---	---
27	21.1	18.4	19.5	20.3	18.4	19.3	20.5	17.9	19.2	---	---	---
28	21.4	18.5	19.6	21.6	19.0	20.2	19.2	17.1	18.3	---	---	---
29	21.9	17.9	19.5	22.7	19.8	21.1	17.4	16.6	17.0	---	---	---
30	21.3	17.5	19.3	22.9	20.5	21.4	18.1	16.5	17.3	---	---	---
31	---	---	---	23.2	20.2	21.4	18.2	15.8	17.1	---	---	---
MONTH	22.6	14.3	18.1	24.5	15.4	20.2	24.2	15.6	20.0	---	---	---



DAILY MEAN WATER TEMPERATURE - JANUARY 2002 TO SEPTEMBER 2002

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

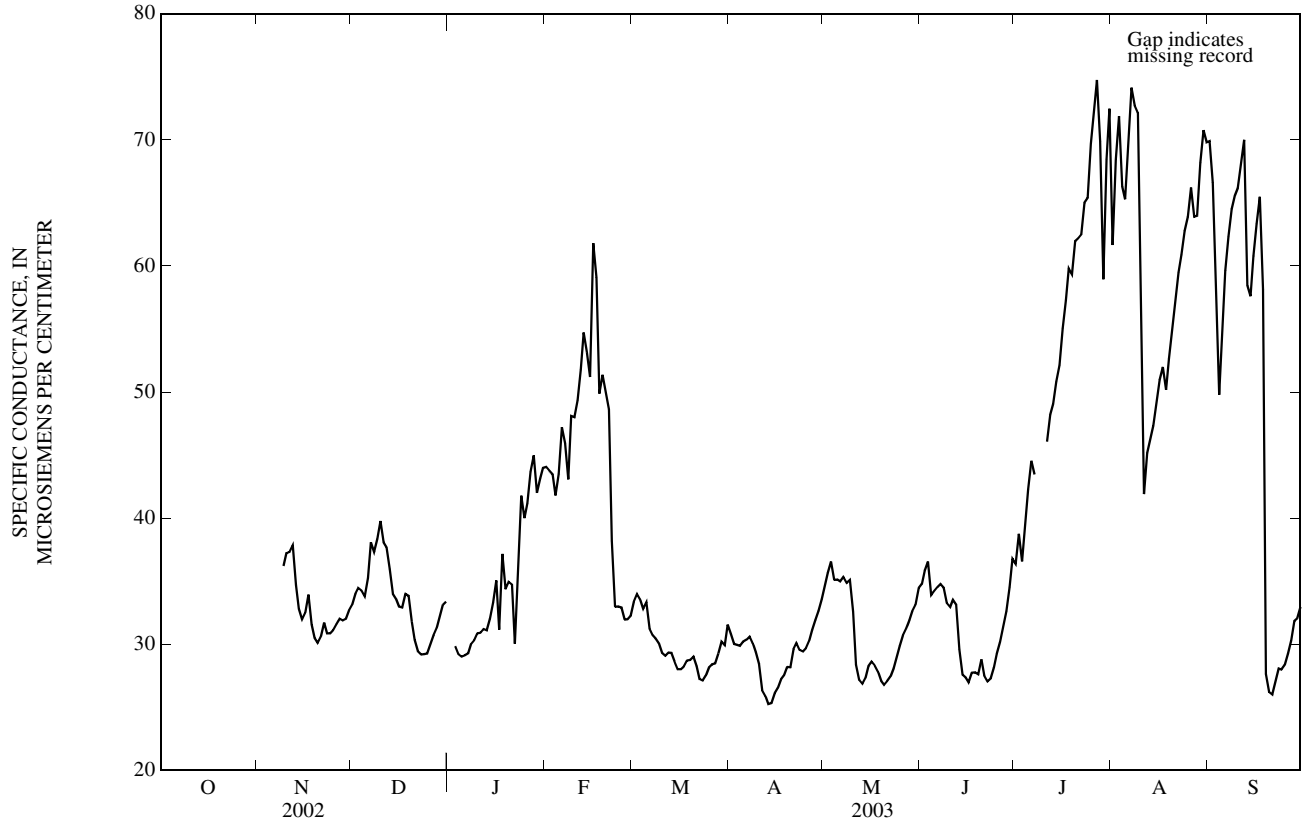
SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	34	33	33	---	---	---
2	---	---	---	---	---	---	34	34	34	---	---	---
3	---	---	---	---	---	---	35	34	34	30	29	30
4	---	---	---	---	---	---	37	30	34	30	29	29
5	---	---	---	---	---	---	36	32	34	29	29	29
6	---	---	---	---	---	---	36	34	35	30	29	29
7	---	---	---	---	---	---	43	31	38	30	29	29
8	---	---	---	---	---	---	38	36	37	30	30	30
9	---	---	---	37	36	36	40	37	38	31	30	30
10	---	---	---	38	37	37	40	38	40	31	30	31
11	---	---	---	38	35	37	42	34	38	31	30	31
12	---	---	---	40	36	38	39	37	38	35	29	31
13	---	---	---	36	34	35	39	34	36	32	29	31
14	---	---	---	36	32	33	34	33	34	32	32	32
15	---	---	---	32	31	32	34	33	34	35	32	33
16	---	---	---	35	32	32	34	32	33	38	32	35
17	---	---	---	36	32	34	33	32	33	36	28	31
18	---	---	---	33	31	32	34	33	34	41	33	37
19	---	---	---	31	30	31	34	32	34	35	33	34
20	---	---	---	31	30	30	33	31	32	36	32	35
21	---	---	---	32	30	31	31	30	30	37	24	35
22	---	---	---	32	31	32	30	29	29	32	26	30
23	---	---	---	32	30	31	30	29	29	42	32	37
24	---	---	---	31	30	31	30	29	29	45	38	42
25	---	---	---	32	31	31	30	29	29	41	38	40
26	---	---	---	32	31	32	30	30	30	42	40	41
27	---	---	---	32	32	32	31	30	31	46	41	44
28	---	---	---	32	31	32	32	31	31	48	39	45
29	---	---	---	32	32	32	33	32	32	43	41	42
30	---	---	---	33	32	33	34	33	33	44	42	43
31	---	---	---	---	---	---	34	33	33	45	43	44
MONTH	---	---	---	---	---	---	43	29	34	48	24	35
	FEBRUARY			MARCH			APRIL			MAY		
1	45	44	44	34	33	33	33	29	31	36	34	35
2	45	42	44	34	33	34	31	30	30	37	34	36
3	44	42	43	34	32	34	31	29	30	38	35	37
4	45	38	42	33	32	33	31	29	30	39	33	35
5	45	42	44	35	31	33	31	30	30	37	33	35
6	56	42	47	32	31	31	31	30	30	36	34	35
7	47	45	46	31	30	31	32	30	31	36	34	35
8	58	39	43	32	30	30	31	30	30	36	32	35
9	59	41	48	31	30	30	30	28	29	38	33	35
10	49	47	48	30	29	29	30	27	28	40	29	33
11	56	46	49	30	29	29	29	26	26	30	28	28
12	53	49	52	30	29	29	26	25	26	28	27	27
13	71	45	55	31	28	29	26	25	25	27	26	27
14	55	50	53	29	28	29	26	25	25	28	27	27
15	53	47	51	29	28	28	27	25	26	30	28	28
16	71	53	62	29	28	28	28	26	27	30	28	29
17	72	50	59	29	28	28	28	26	27	29	28	28
18	51	49	50	29	28	29	29	27	28	28	27	28
19	52	51	51	29	28	29	29	27	28	28	26	27
20	52	49	50	32	28	29	29	27	28	28	26	27
21	51	46	49	29	28	28	33	28	30	28	27	27
22	46	23	38	28	27	27	33	29	30	28	27	27
23	34	31	33	28	27	27	30	29	30	29	28	28
24	33	33	33	28	27	28	30	28	29	30	28	29
25	33	32	33	29	28	28	30	29	30	31	29	30
26	32	31	32	43	28	28	31	30	30	31	30	31
27	32	31	32	33	28	28	32	30	31	32	31	31
28	33	32	32	32	29	29	34	31	32	33	31	32
29	---	---	---	31	29	30	35	32	33	33	32	33
30	---	---	---	31	29	30	35	32	34	35	32	33
31	---	---	---	41	30	32	---	---	---	35	33	34
MONTH	72	23	45	43	27	30	35	25	29	40	26	31

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	38	32	35	39	32	36	74	52	62	71	68	70
2	37	35	36	39	38	39	72	65	68	71	54	67
3	38	35	37	40	34	37	75	62	72	68	43	60
4	39	31	34	42	38	39	70	62	66	57	46	50
5	35	33	34	45	41	42	69	62	65	59	53	55
6	35	34	35	48	43	45	74	69	70	62	59	60
7	37	34	35	47	40	43	76	72	74	65	61	62
8	36	33	34	---	---	---	76	72	73	66	63	64
9	35	32	33	---	---	---	78	49	72	67	64	66
10	34	32	33	---	---	---	68	34	58	68	65	66
11	35	32	34	49	45	46	45	36	42	70	66	68
12	40	27	33	51	46	48	47	44	45	71	68	70
13	32	24	30	52	48	49	48	45	46	69	54	58
14	28	27	28	52	49	51	49	46	47	60	55	58
15	28	27	27	56	50	52	51	48	49	63	59	61
16	28	26	27	58	52	55	53	49	51	66	62	63
17	28	27	28	60	55	57	57	49	52	67	64	65
18	28	27	28	62	58	60	59	44	50	68	27	58
19	28	27	28	62	58	59	55	51	53	29	27	28
20	34	28	29	65	60	62	58	53	55	27	26	26
21	28	27	28	67	55	62	60	55	57	26	26	26
22	28	27	27	66	57	62	62	56	60	29	26	27
23	28	27	27	67	63	65	64	59	61	29	28	28
24	29	27	28	69	64	65	64	61	63	28	28	28
25	30	28	29	72	68	70	67	61	64	29	28	28
26	32	29	30	75	70	72	69	63	66	30	29	29
27	32	31	31	78	72	75	70	59	64	32	30	30
28	34	32	33	82	44	70	68	62	64	32	31	32
29	37	34	35	66	48	59	71	65	68	33	32	32
30	39	36	37	72	66	68	73	68	71	34	32	33
31	---	---	---	74	71	72	71	69	70	---	---	---
MONTH	40	24	31	82	32	56	78	34	61	71	26	49



DAILY MEAN SPECIFIC CONDUCTIVITY - 2003 WATER YEAR

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

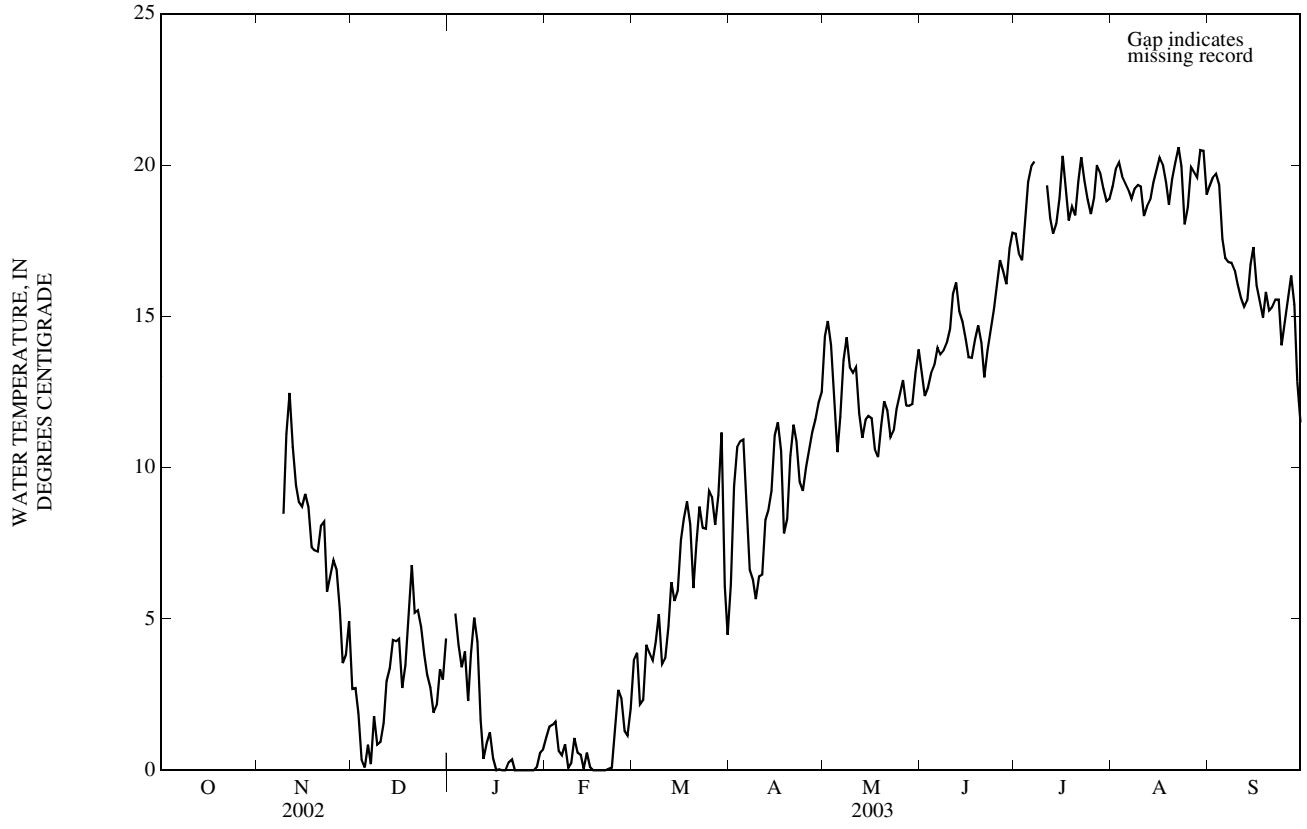
TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	4.0	1.9	2.7	---	---	---
2	---	---	---	---	---	---	3.6	1.8	2.7	---	---	---
3	---	---	---	---	---	---	3.2	0.2	1.9	5.9	4.8	5.2
4	---	---	---	---	---	---	0.9	0.0	0.4	4.8	3.4	4.1
5	---	---	---	---	---	---	0.7	0.0	0.1	3.7	3.2	3.4
6	---	---	---	---	---	---	1.6	0.0	0.8	4.5	3.0	3.9
7	---	---	---	---	---	---	0.6	0.0	0.2	3.0	1.5	2.3
8	---	---	---	---	---	---	2.8	0.5	1.8	4.8	3.0	3.9
9	---	---	---	9.6	7.2	8.5	1.8	0.1	0.8	5.8	4.5	5.0
10	---	---	---	12.4	9.6	11.1	1.9	0.2	0.9	4.8	3.1	4.3
11	---	---	---	13.1	11.3	12.5	2.3	1.2	1.6	3.1	0.9	1.7
12	---	---	---	11.3	10.2	10.7	3.4	2.3	2.9	0.9	0.0	0.4
13	---	---	---	10.2	8.2	9.4	3.8	2.9	3.4	2.0	0.0	0.9
14	---	---	---	9.8	8.1	8.9	4.6	3.8	4.3	1.7	0.7	1.2
15	---	---	---	9.4	7.8	8.7	4.7	3.7	4.3	0.9	0.0	0.4
16	---	---	---	9.2	9.0	9.1	4.8	3.2	4.3	0.0	0.0	0.0
17	---	---	---	9.0	7.9	8.7	3.2	2.0	2.7	0.3	0.0	0.0
18	---	---	---	7.9	7.0	7.4	4.0	3.0	3.5	0.0	0.0	0.0
19	---	---	---	8.0	6.5	7.3	6.9	3.7	5.0	0.0	0.0	0.0
20	---	---	---	8.0	6.4	7.2	7.4	5.4	6.8	0.8	0.0	0.3
21	---	---	---	8.8	7.1	8.1	5.6	4.9	5.2	0.9	0.0	0.4
22	---	---	---	8.8	6.8	8.2	6.1	4.5	5.3	0.0	0.0	0.0
23	---	---	---	6.8	5.3	5.9	5.5	4.3	4.7	0.0	0.0	0.0
24	---	---	---	7.4	5.6	6.4	4.3	3.2	3.8	0.0	0.0	0.0
25	---	---	---	8.0	5.7	6.9	3.6	2.4	3.2	0.0	0.0	0.0
26	---	---	---	7.8	5.8	6.6	3.2	2.1	2.7	0.0	0.0	0.0
27	---	---	---	5.8	4.1	5.3	2.6	1.1	1.9	0.0	0.0	0.0
28	---	---	---	4.1	3.1	3.5	2.9	1.3	2.2	0.0	0.0	0.0
29	---	---	---	4.5	2.9	3.8	4.1	2.9	3.3	0.3	0.0	0.1
30	---	---	---	5.7	4.0	4.9	3.6	2.2	3.0	0.8	0.3	0.6
31	---	---	---	---	---	---	5.2	3.5	4.4	0.9	0.5	0.7
MONTH	---	---	---	---	---	---	7.4	0.0	2.9	5.9	0.0	1.3
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	0.8	1.1	5.3	2.5	3.6	8.6	3.7	6.1	17.2	12.6	14.4
2	2.3	1.0	1.4	4.9	3.3	3.9	12.1	6.9	9.4	16.7	13.5	14.8
3	2.5	0.7	1.5	3.4	1.2	2.2	13.2	8.2	10.7	15.7	12.8	14.1
4	2.2	0.7	1.6	4.0	0.5	2.3	12.4	9.2	10.9	13.3	11.5	12.5
5	1.7	0.0	0.6	5.3	3.4	4.1	13.0	9.5	10.9	11.5	10.2	10.5
6	1.3	0.0	0.5	4.3	3.1	3.9	10.1	7.6	8.8	13.5	10.0	11.7
7	1.7	0.2	0.9	4.8	2.7	3.6	8.5	6.0	6.6	15.2	11.8	13.6
8	0.6	0.0	0.1	6.1	2.5	4.2	6.9	5.8	6.3	16.0	13.0	14.3
9	0.8	0.0	0.2	6.5	4.0	5.2	6.3	4.7	5.7	14.0	12.8	13.3
10	2.1	0.5	1.1	4.5	2.6	3.5	7.0	5.9	6.4	13.4	12.5	13.1
11	1.2	0.0	0.6	5.4	2.4	3.7	6.8	6.0	6.5	15.0	12.1	13.3
12	1.6	0.0	0.5	6.3	3.2	4.8	10.6	6.6	8.3	12.8	11.0	11.8
13	0.4	0.0	0.1	7.7	4.7	6.2	11.0	6.5	8.6	11.7	10.5	11.0
14	1.5	0.0	0.6	6.8	4.4	5.6	11.8	6.6	9.2	13.6	9.6	11.6
15	0.6	0.0	0.1	8.0	4.0	5.9	13.5	8.7	11.1	12.1	11.1	11.7
16	0.0	0.0	0.0	9.3	5.9	7.6	13.5	9.3	11.5	11.9	11.1	11.6
17	0.0	0.0	0.0	10.0	6.5	8.3	11.8	9.1	10.6	11.1	10.2	10.6
18	0.0	0.0	0.0	9.9	8.2	8.9	9.1	7.4	7.8	10.7	10.1	10.4
19	0.0	0.0	0.0	8.8	7.0	8.1	9.5	7.3	8.3	13.2	9.9	11.4
20	0.0	0.0	0.0	7.0	5.6	6.0	12.1	9.0	10.4	14.0	10.4	12.2
21	0.3	0.0	0.1	9.9	5.8	7.6	13.0	10.1	11.4	12.8	11.1	11.9
22	0.2	0.0	0.1	10.3	7.8	8.7	11.9	9.5	10.9	11.2	10.8	11.0
23	2.3	0.1	1.3	9.0	7.3	8.0	11.6	8.0	9.5	11.6	11.0	11.2
24	3.8	1.7	2.7	10.1	6.0	8.0	11.5	6.9	9.2	12.8	11.1	11.9
25	2.8	1.6	2.4	11.5	7.1	9.2	11.0	8.6	10.0	13.7	11.0	12.4
26	1.6	1.0	1.3	10.0	7.5	9.0	10.9	10.3	10.6	13.4	12.4	12.9
27	1.5	0.8	1.1	10.3	6.0	8.1	13.7	9.2	11.2	12.4	11.5	12.1
28	3.2	0.9	2.0	10.8	7.0	9.1	14.6	8.7	11.6	12.9	11.4	12.1
29	---	---	---	12.7	10.1	11.2	13.6	10.8	12.1	13.0	11.3	12.1
30	---	---	---	10.1	4.2	6.1	14.5	10.7	12.5	15.1	11.3	13.1
31	---	---	---	5.7	3.2	4.5	---	---	---	15.1	12.9	13.9
MONTH	3.8	0.0	0.8	12.7	0.5	6.2	14.6	3.7	9.4	17.2	9.6	12.3

01610400 WAITES RUN NEAR WARDENSVILLE, WV—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.5	12.1	13.1	18.7	16.7	17.7	20.1	18.8	19.3	20.4	18.4	19.3
2	14.2	10.5	12.4	17.6	16.7	17.1	21.8	18.2	19.9	19.9	19.3	19.6
3	13.2	12.1	12.7	17.7	16.3	16.9	21.6	19.3	20.1	20.9	18.9	19.7
4	13.3	12.8	13.1	20.0	16.4	18.1	20.9	18.8	19.6	19.8	18.5	19.3
5	14.8	12.2	13.4	21.0	18.0	19.4	20.7	18.6	19.4	18.5	16.9	17.6
6	15.8	12.2	14.0	21.6	18.6	20.0	21.2	17.7	19.2	18.5	15.8	16.9
7	14.3	13.4	13.7	21.6	18.9	20.1	19.4	18.2	18.9	18.6	15.2	16.8
8	14.6	13.1	13.9	---	---	---	20.6	18.2	19.2	17.5	15.9	16.8
9	15.1	13.1	14.1	---	---	---	20.4	18.6	19.3	17.1	16.1	16.5
10	16.3	12.9	14.6	---	---	---	20.7	18.1	19.3	17.7	15.0	16.0
11	16.8	14.6	15.7	21.0	18.3	19.3	19.2	17.6	18.3	17.6	13.9	15.6
12	18.0	15.1	16.1	19.7	17.2	18.2	19.9	17.6	18.6	15.9	14.9	15.3
13	16.6	14.4	15.2	19.7	16.2	17.7	19.9	17.9	18.9	15.9	15.1	15.5
14	15.9	13.9	14.8	20.1	16.6	18.1	20.8	18.2	19.4	17.7	15.9	16.7
15	14.5	13.7	14.2	21.1	17.1	18.9	21.1	18.7	19.8	18.4	16.5	17.3
16	14.1	13.1	13.7	22.3	19.1	20.3	21.6	19.2	20.3	17.7	14.8	16.0
17	13.8	13.3	13.6	21.4	17.6	19.2	20.9	19.3	20.0	17.3	14.0	15.5
18	15.4	13.2	14.2	18.8	17.3	18.2	20.5	18.7	19.4	16.4	14.5	15.0
19	15.8	13.9	14.7	20.6	17.5	18.6	19.8	17.6	18.7	16.4	15.1	15.8
20	14.5	13.3	14.1	20.8	16.2	18.3	21.3	18.2	19.6	15.8	14.6	15.2
21	13.3	12.8	13.0	21.8	17.6	19.5	21.8	18.7	20.1	16.0	14.8	15.3
22	15.3	12.9	13.9	22.0	19.3	20.3	22.4	19.4	20.6	16.1	15.0	15.6
23	16.4	12.9	14.6	21.2	18.4	19.5	21.5	18.5	20.0	16.1	14.1	15.6
24	17.1	13.5	15.2	20.7	17.6	18.9	19.9	16.6	18.0	15.1	12.8	14.0
25	17.8	14.2	16.0	20.8	16.5	18.4	20.8	16.8	18.6	15.8	13.7	14.8
26	18.6	15.2	16.9	20.9	17.1	18.9	21.8	18.5	19.9	16.3	14.9	15.6
27	17.2	15.7	16.5	22.4	18.2	20.0	21.3	19.0	19.8	17.5	15.4	16.4
28	17.5	14.5	16.1	20.3	19.2	19.8	21.5	18.0	19.6	16.5	14.2	15.4
29	19.0	15.7	17.3	20.3	18.5	19.2	22.2	19.1	20.5	14.2	11.8	12.9
30	19.0	16.5	17.8	20.4	17.5	18.8	21.3	19.8	20.5	12.3	10.6	11.5
31	---	---	---	20.0	17.6	18.9	20.1	18.5	19.0	---	---	---
MONTH	19.0	10.5	14.6	22.4	16.2	18.9	22.4	16.6	19.5	20.9	10.6	16.1



DAILY MEAN WATER TEMPERATURE - 2003 WATER YEAR

01611500 CACAPON RIVER NEAR GREAT CACAPON, WV

LOCATION.--Lat 39°34'56", long 78°18'36", Morgan County, Hydrologic Unit 02070003, on left bank at Rock Ford, 3.0 mi southwest of Great Cacapon, and at mile 6.1.

DRAINAGE AREA.--675 mi^2.

PERIOD OF RECORD.--December 1922 to September 1995, October 1996 to current year, October 2000 to September 2002 (discontinued).

REVISED RECORDS.--WSP 800: 1924(M). WSP 921: Drainage area. WSP 951: 1936-37. WSP 1552: 1925-26(M), 1928-1929(M), 1932. WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 456.78 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 10, 1933, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for periods of estimated daily discharges (ice effect), which are poor. High end of rating not confirmed above 3,000 ft^3/s since cableway removed in July 1992. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1889 reached a stage of about 24.7 ft, from floodmarks, discharge, 57,500 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 14	1830	4,060	6.94
Jan 2	1000	12,400	11.87
Feb 23	0800	12,700	12.00
Mar 6	1530	8,330	9.79
Mar 10	0330	7,250	9.16
Mar 21	0900	9,890	10.63
Apr 12	0030	8,610	9.95
May 11	1100	9,050	10.19
Jun 14	1500	5,120	7.75
Jun 21	0730	4,830	7.54
Sep 20	0200	*33,800	*19.17

Minimum discharge, 72 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	237	943	382	712	243	1,360	1,210	621	707	399	218	147
2	176	630	364	9,080	239	1,280	1,480	622	634	359	199	154
3	140	481	329	4,640	235	1,780	1,820	683	599	342	196	184
4	119	390	288	2,580	259	1,970	1,620	662	765	345	199	490
5	104	333	271	1,960	309	1,820	1,410	703	1,170	352	399	981
6	93	350	253	1,630	369	6,050	1,210	1,080	1,110	318	612	708
7	85	607	e240	1,360	293	6,900	1,110	1,180	1,090	279	479	456
8	79	692	e230	1,100	e280	4,070	2,690	1,120	1,800	258	364	334
9	75	545	e220	1,050	e250	4,810	2,780	1,360	1,950	260	354	269
10	73	448	e210	988	231	6,000	4,100	2,050	1,910	647	348	225
11	82	384	288	835	244	3,270	4,610	7,320	1,520	598	341	201
12	92	362	585	688	e230	2,340	6,350	3,970	1,130	1,000	1,350	187
13	111	866	1,670	558	e210	2,130	3,440	2,320	1,540	620	1,050	183
14	193	1,530	3,290	532	e190	2,990	2,290	1,740	3,360	444	1,010	212
15	198	1,050	3,300	513	e180	2,630	1,850	1,360	3,010	343	585	289
16	189	774	2,240	424	e175	2,030	1,590	1,950	2,240	285	423	324
17	740	831	1,850	399	e170	1,780	1,360	2,580	1,810	252	334	259
18	1,180	2,050	1,520	e380	238	1,580	1,140	2,040	1,950	227	336	230
19	639	1,750	1,180	e370	285	1,360	1,070	2,020	2,090	207	353	12,300
20	429	1,300	1,010	e350	376	1,460	1,250	1,910	2,140	196	286	14,900
21	322	992	1,400	e335	442	8,040	1,060	1,630	4,250	187	232	3,640
22	260	992	1,470	e320	656	4,330	1,310	1,390	3,130	184	204	2,360
23	214	1,230	1,180	e310	8,470	2,590	1,910	1,190	2,160	181	188	2,510
24	187	1,000	955	e300	8,490	1,960	1,560	1,060	1,630	190	170	2,170
25	167	810	821	e290	3,850	1,640	1,280	961	1,220	184	161	1,550
26	172	671	750	e280	2,340	1,410	1,140	846	907	181	163	1,180
27	174	577	655	e275	1,870	1,340	1,070	862	709	174	161	940
28	183	521	551	e270	1,610	1,210	899	757	589	163	154	1,460
29	213	463	491	e260	---	992	754	778	510	161	150	1,250
30	349	411	478	e255	---	957	671	704	451	247	151	834
31	1,340	---	486	252	---	1,110	---	648	---	277	158	---
TOTAL	8,615	23,983	28,957	33,296	32,734	83,189	56,034	48,117	48,081	9,860	11,328	50,927
MEAN	278	799	934	1,074	1,169	2,684	1,868	1,552	1,603	318	365	1,698
MAX	1,340	2,050	3,300	9,080	8,490	8,040	6,350	7,320	4,250	1,000	1,350	14,900
MIN	73	333	210	252	170	957	671	621	451	161	150	147
CFSM	0.41	1.18	1.38	1.59	1.73	3.98	2.77	2.30	2.37	0.47	0.54	2.51
IN.	0.47	1.32	1.60	1.83	1.80	4.58	3.09	2.65	2.65	0.54	0.62	2.81

e Estimated

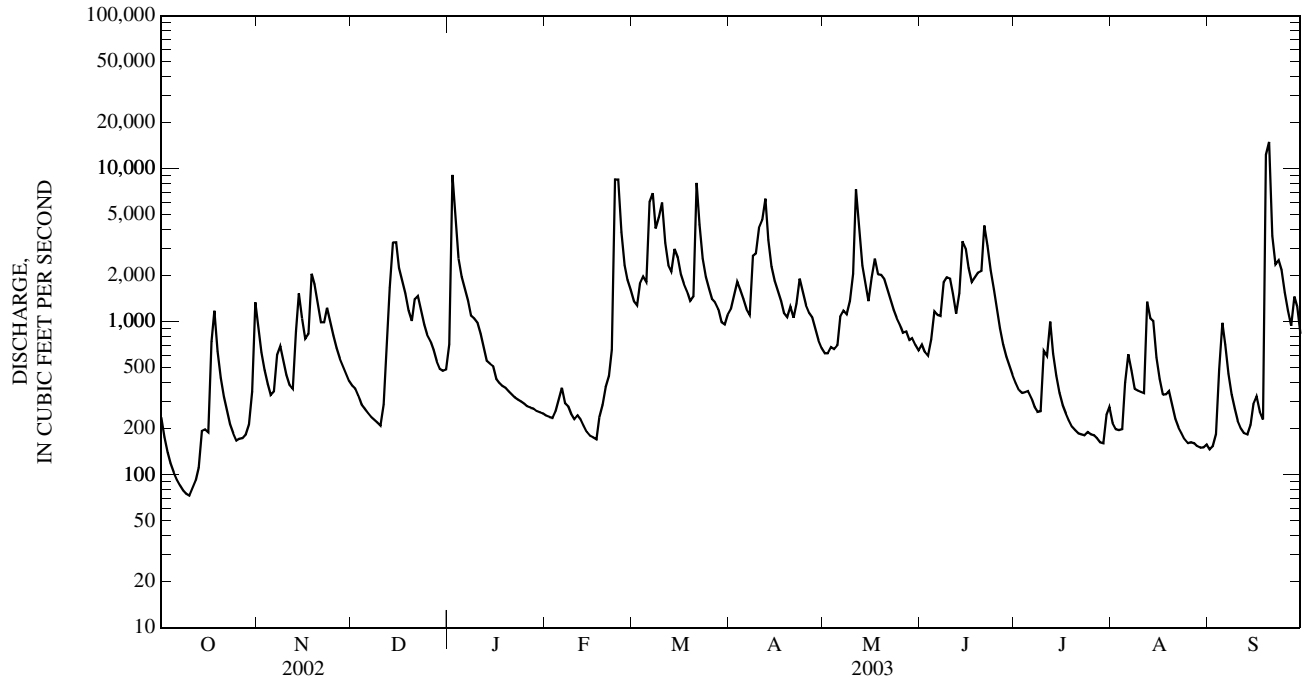
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 1995, 1997 - 2003, BY WATER YEAR (WY)

MEAN	323	367	513	638	883	1,289	1,118	861	439	194	234	193
MAX	2,976	2,577	2,121	1,751	3,234	5,708	2,976	3,565	3,525	936	2,791	1,698
(WY)	(1943)	(1986)	(1973)	(1998)	(1998)	(1936)	(1987)	(1924)	(1972)	(1972)	(1955)	(2003)
MIN	44.8	51.1	56.5	69.6	89.1	247	242	157	72.5	53.8	39.8	39.4
(WY)	(1931)	(1966)	(1966)	(1956)	(1934)	(1990)	(1947)	(1969)	(1999)	(1999)	(1966)	(1932)

01611500 CACAPON RIVER NEAR GREAT CACAPON, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1923 - 1995, 1997 - 2003	
ANNUAL TOTAL	165,732		435,121			
ANNUAL MEAN	454		1,192		589	
HIGHEST ANNUAL MEAN					1,192	2003
LOWEST ANNUAL MEAN					180	1969
HIGHEST DAILY MEAN	4,180	Apr 23	14,900	Sep 20	67,900	Mar 18, 1936
LOWEST DAILY MEAN	39	(a)	73	Oct 10	26	Sep 12, 1966
ANNUAL SEVEN-DAY MINIMUM	40	Sep 13	83	Oct 6	28	Sep 7, 1966
MAXIMUM PEAK FLOW			33,800	Sep 20	(b)87,600	Mar 18, 1936
MAXIMUM PEAK STAGE			19.17	Sep 20	30.10	Mar 18, 1936
INSTANTANEOUS LOW FLOW			72	Oct 10	26	(c)
ANNUAL RUNOFF (CFSM)	0.67		1.77		0.87	
ANNUAL RUNOFF (INCHES)	9.13		23.98		11.86	
10 PERCENT EXCEEDS	1,180		2,420		1,350	
50 PERCENT EXCEEDS	186		662		244	
90 PERCENT EXCEEDS	59		184		67	

a Sept. 14, 15.
b From rating curve extended above 52,000 ft^3/s.
c Sept. 11-13, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01613000 POTOMAC RIVER AT HANCOCK, MD

LOCATION.--Lat 39°41'51.2", long 78°10'40.4", Washington County, Hydrologic Unit 02070004, on left bank, 0.2 mi downstream from Little Tonoloway Creek, 0.5 mi downstream from bridge on U.S. Highway 522 at Hancock, 1.1 mi upstream from Tonoloway Creek (formerly called Great or Big Tonoloway Creek), and at mile 239.

DRAINAGE AREA.--4,090 mi^2.

PERIOD OF RECORD.--October 1932 to current year. Gage-height records collected at same site since June 1925 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 781: 1933(M). WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 383.68 ft above National Geodetic Vertical Datum of 1929. Oct. 1, 1932, to Jan. 5, 1935, Mar. 18, 1936, to Jan. 20, 1937, nonrecording gage, on former highway bridge just upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Slight regulation at low flow from power plants upstream. Low flow affected slightly by Stony River Reservoir prior to July 1981, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1932, about 40 ft in May 1889, discharge, about 220,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	1530	38,900	17.49	May 11	1900	44,700	18.88
Feb 24	1130	31,700	15.65	Jun 4	1500	24,100	13.47
Mar 7	0530	39,800	17.72	Jun 21	1230	26,800	14.29
Mar 10	0800	33,500	16.13	Sep 20	0600	*82,100	*26.09
Mar 21	1230	37,000	17.02	Sep 23	1730	25,600	13.93
Apr 12	0600	33,500	16.13				

Minimum discharge, 504 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,690	7,800	3,010	4,990	e1,950	7,510	5,730	3,920	9,510	3,000	1,490	1,550
2	1,280	5,490	2,910	31,100	e1,950	6,860	6,040	3,990	9,510	2,680	1,360	1,840
3	1,030	4,240	2,730	26,200	e1,930	8,000	6,860	4,060	9,300	2,470	1,320	3,320
4	867	3,420	2,490	19,100	e2,000	10,100	6,890	4,050	22,100	2,380	1,350	6,160
5	764	2,880	2,320	14,500	e2,180	9,290	6,630	4,490	18,700	2,360	2,620	9,370
6	677	3,060	2,260	11,400	e2,300	21,300	7,080	8,510	14,300	2,280	2,560	7,960
7	613	5,730	2,280	9,310	e2,400	36,500	7,130	9,420	13,500	2,140	2,570	5,110
8	572	6,110	2,190	7,690	e2,200	25,300	17,200	8,780	20,700	2,150	2,250	4,020
9	536	5,010	2,220	7,070	e2,150	24,200	19,900	11,800	18,500	3,440	2,130	3,490
10	513	4,690	2,120	6,760	1,970	31,100	25,500	20,300	18,100	7,360	2,100	2,220
11	577	4,180	2,270	6,170	1,870	21,100	24,500	41,700	12,500	7,160	3,720	1,810
12	719	3,880	3,230	5,510	1,790	15,400	30,600	35,400	9,430	6,820	6,730	1,640
13	1,210	5,840	6,490	4,830	1,720	14,200	21,700	19,100	13,700	5,510	5,630	1,540
14	1,310	10,100	12,900	4,380	1,580	20,000	16,000	13,700	17,300	4,690	5,180	1,550
15	1,240	7,940	16,600	4,100	1,670	20,800	12,800	10,700	15,300	3,500	3,840	2,290
16	1,270	6,370	12,600	3,750	1,680	16,900	10,600	14,400	11,500	3,270	3,150	2,740
17	2,950	6,260	9,960	3,380	4,150	15,600	8,480	17,600	9,530	2,750	2,690	2,430
18	5,400	10,400	8,140	3,180	4,190	15,100	7,140	13,600	10,200	2,420	2,680	2,260
19	4,210	10,400	6,690	2,830	5,760	13,900	6,420	13,000	11,900	2,070	2,620	28,300
20	2,920	8,260	6,050	e2,750	8,320	13,900	6,760	13,400	11,700	1,830	1,980	70,000
21	2,200	7,040	8,810	e2,700	7,690	32,900	6,260	11,100	23,600	1,680	1,640	29,000
22	1,770	6,520	13,200	2,660	7,640	26,000	6,280	9,330	20,100	1,570	1,490	18,600
23	1,490	6,560	10,200	e2,400	17,900	17,800	7,130	8,080	13,500	1,490	1,350	22,800
24	1,280	6,100	8,460	e2,200	30,400	13,300	6,330	7,370	9,880	1,470	1,210	18,200
25	1,140	5,420	7,250	e2,200	19,500	10,400	5,500	7,090	7,580	1,510	1,070	11,700
26	1,260	4,660	6,410	e2,300	13,900	8,530	5,180	6,650	6,040	1,370	1,100	8,660
27	1,940	4,140	5,540	e2,200	10,800	7,500	5,140	8,020	5,060	1,260	1,130	6,830
28	2,030	3,820	4,660	e2,050	8,710	6,550	4,760	7,370	4,290	1,190	1,170	12,200
29	1,880	3,470	4,210	e2,000	---	5,740	4,520	7,560	3,780	1,210	1,290	11,000
30	3,730	3,200	4,030	e2,000	---	5,430	4,100	6,920	3,390	2,090	1,330	7,740
31	9,990	---	3,880	e1,980	---	5,590	---	6,150	---	1,880	1,440	---
TOTAL	59,058	172,990	186,110	203,690	170,300	486,800	309,160	357,560	374,500	87,000	72,190	306,330
MEAN	1,905	5,766	6,004	6,571	6,082	15,700	10,310	11,530	12,480	2,806	2,329	10,210
MAX	9,990	10,400	16,600	31,100	30,400	36,500	30,600	41,700	23,600	7,360	6,730	70,000
MIN	513	2,880	2,120	1,980	1,580	5,430	4,100	3,920	3,390	1,190	1,070	1,540
CFSM	0.47	1.41	1.47	1.61	1.49	3.84	2.52	2.82	3.05	0.69	0.57	2.50
IN.	0.54	1.57	1.69	1.85	1.55	4.43	2.81	3.25	3.41	0.79	0.66	2.79

e Estimated

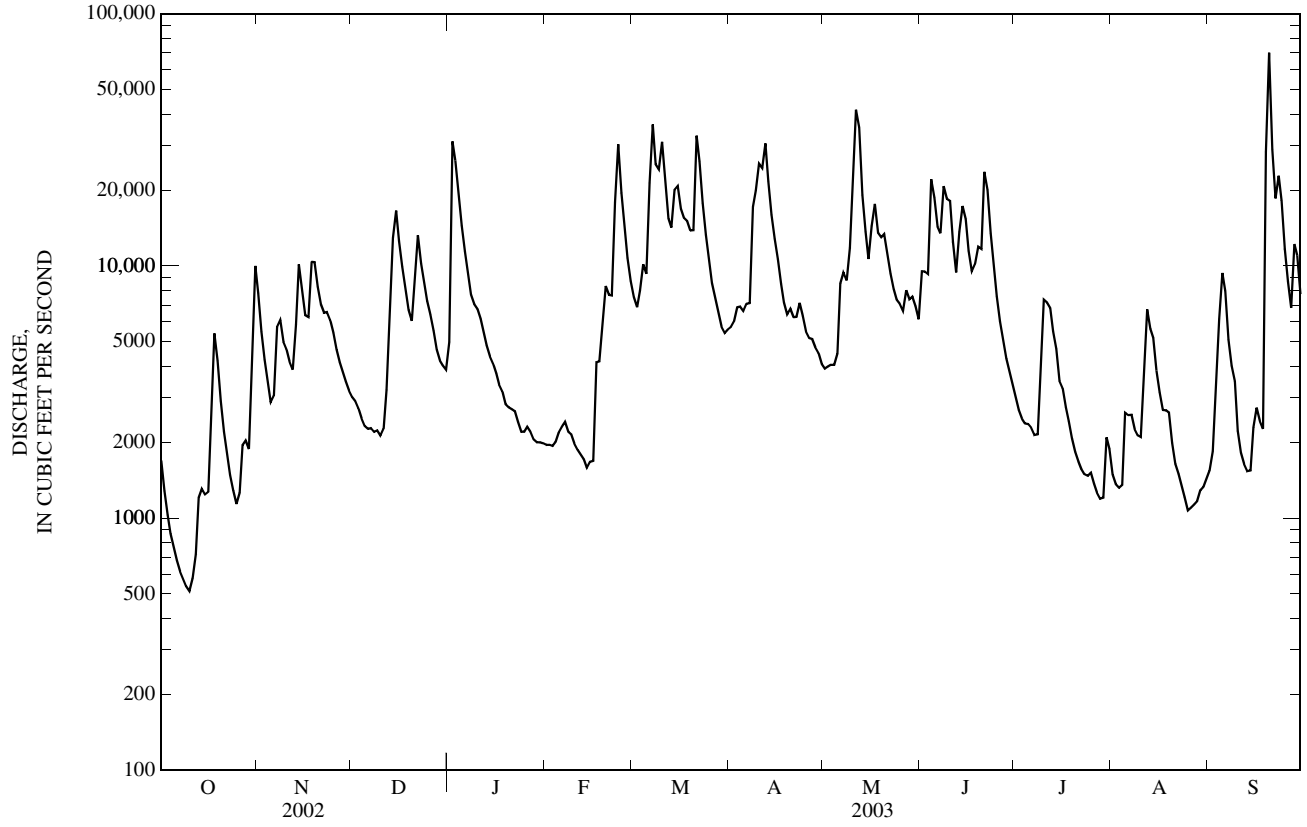
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2003, BY WATER YEAR (WY)

MEAN	1,971	2,502	3,949	5,071	6,504	9,373	7,642	5,590	3,199	1,589	1,603	1,544
MAX	13,270	20,090	15,160	17,180	17,560	32,280	19,170	13,260	13,390	6,677	9,479	15,100
(WY)	(1977)	(1986)	(1973)	(1996)	(1998)	(1936)	(1993)	(1988)	(1972)	(1949)	(1955)	(1996)
MIN	309	399	463	751	955	2,311	2,286	1,344	622	357	342	329
(WY)	(1942)	(1966)	(1966)	(1956)	(2002)	(1990)	(1995)	(1941)	(1969)	(1966)	(1944)	(1946)

01613000 POTOMAC RIVER AT HANCOCK, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1933 - 2003	
ANNUAL TOTAL	1,175,849		2,785,688			
ANNUAL MEAN	3,222		7,632		4,199	
HIGHEST ANNUAL MEAN					7,932	1996
LOWEST ANNUAL MEAN					1,770	1969
HIGHEST DAILY MEAN	29,100	Apr 23	70,000	Sep 20	261,000	Mar 18, 1936
LOWEST DAILY MEAN	408	Sep 8	513	Oct 10	184	Oct 3, 1932
ANNUAL SEVEN-DAY MINIMUM	456	Sep 5	601	Oct 6	215	Sep 7, 1966
MAXIMUM PEAK FLOW			82,100	Sep 20	(a)340,000	Mar 18, 1936
MAXIMUM PEAK STAGE			26.09	Sep 20	47.60	Mar 18, 1936
INSTANTANEOUS LOW FLOW			504	Oct 10	180	Oct 4, 1932
ANNUAL RUNOFF (CFSM)	0.79		1.87		1.03	
ANNUAL RUNOFF (INCHES)	10.69		25.34		13.95	
10 PERCENT EXCEEDS	7,890		18,100		9,620	
50 PERCENT EXCEEDS	1,380		5,420		2,180	
90 PERCENT EXCEEDS	598		1,490		542	

a From rating curve extended above 120,000 ft^3/s on basis of slope-area measurement of peak flow.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD

LOCATION.--Lat 39°42'59.0", long 77°49'29.2", Washington County, Hydrologic Unit 02070004, on right bank 0.7 mi upstream from highway bridge in Fairview, 2.0 mi upstream from Rockdale Run, 6.5 mi northwest of Hagerstown, and 19.1 mi upstream from mouth.

DRAINAGE AREA.--494 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1928 to current year.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1432: 1929(M), 1930, 1931-32(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 391.85 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1932, nonrecording gage at highway bridge 0.7 mi downstream at datum 2.93 ft lower. Dec. 6, 1932, to Oct. 7, 1933, nonrecording gage 150 ft downstream from former site at datum 4.92 ft lower than present datum.

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect), which are fair. Diversions for irrigation upstream from station. National Weather Service gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1928, about 16.5 ft, present datum, sometime in 1889, from information by local residents, discharge, about 22,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	1945	7,860	10.25	Jun 4	1030	*14,500	*14.08
Mar 21	0630	8,060	10.38	Jun 8	0000	9,050	11.02
May 16	1830	6,650	9.41				

Minimum discharge, 86 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	182	984	426	1,320	353	639	1,290	557	1,470	559	256	288
2	159	736	389	6,900	350	640	1,220	917	1,170	519	604	1,010
3	132	587	362	4,150	350	956	1,130	712	2,510	504	362	640
4	137	497	317	2,490	376	854	1,040	613	13,300	503	290	1,910
5	138	442	322	1,900	461	775	1,130	586	8,120	498	261	1,290
6	118	793	327	1,600	377	2,380	1,160	655	3,900	444	247	820
7	104	770	292	1,390	353	2,750	1,130	614	5,190	489	235	618
8	104	619	313	1,300	329	1,650	1,420	780	7,840	470	303	510
9	89	521	299	e1,300	297	2,280	1,740	1,100	4,390	427	313	507
10	92	457	290	e1,200	e290	2,900	1,960	1,860	2,740	642	322	445
11	251	430	453	e1,000	e290	1,730	1,980	1,950	2,090	524	1,080	378
12	930	476	1,620	e940	e270	1,420	1,940	1,420	1,750	460	1,040	338
13	638	1,030	1,740	e850	255	1,600	1,620	1,190	1,720	421	560	342
14	425	862	2,680	e800	e250	2,420	1,400	1,010	1,490	384	392	380
15	312	682	2,460	e740	e250	2,130	1,240	877	1,280	358	316	363
16	722	585	1,740	e690	e220	2,090	1,120	4,280	1,120	336	279	419
17	1,380	990	1,310	e640	e200	2,190	1,010	5,110	1,010	321	723	344
18	839	1,300	1,060	e600	e310	2,120	918	3,320	1,030	305	474	304
19	575	1,060	915	e570	e420	1,900	905	2,590	1,010	298	348	988
20	449	887	1,200	e540	e380	2,810	863	1,980	1,200	295	291	1,280
21	362	791	1,400	e510	337	7,640	797	1,670	1,530	285	261	850
22	305	1,070	1,140	486	558	4,250	1,060	1,460	1,890	280	249	666
23	265	987	989	471	2,070	2,720	973	1,280	1,450	284	246	2,230
24	237	815	871	443	2,200	2,070	814	1,640	1,150	287	224	1,820
25	227	700	841	e420	1,360	1,700	751	1,640	973	282	209	1,170
26	602	618	800	e400	1,010	1,490	742	1,380	857	256	214	1,000
27	630	585	709	e380	818	1,430	717	1,300	770	242	259	875
28	479	541	643	e370	719	1,220	644	1,530	701	236	359	2,380
29	437	487	607	e360	---	1,120	610	1,380	640	234	323	1,550
30	1,050	461	607	e360	---	1,250	588	1,190	596	222	246	1,120
31	1,250	---	599	350	---	1,390	---	1,120	---	214	258	---
TOTAL	13,620	21,763	27,721	35,470	15,453	62,514	33,912	47,711	74,887	11,579	11,544	26,835
MEAN	439	725	894	1,144	552	2,017	1,130	1,539	2,496	374	372	894
MAX	1,380	1,300	2,680	6,900	2,200	7,640	1,980	5,110	13,300	642	1,080	2,380
MIN	89	430	290	350	200	639	588	557	596	214	209	288
CFSM	0.89	1.47	1.81	2.32	1.12	4.08	2.29	3.12	5.05	0.76	0.75	1.81
IN.	1.03	1.64	2.09	2.67	1.16	4.71	2.55	3.59	5.64	0.87	0.87	2.02

e Estimated

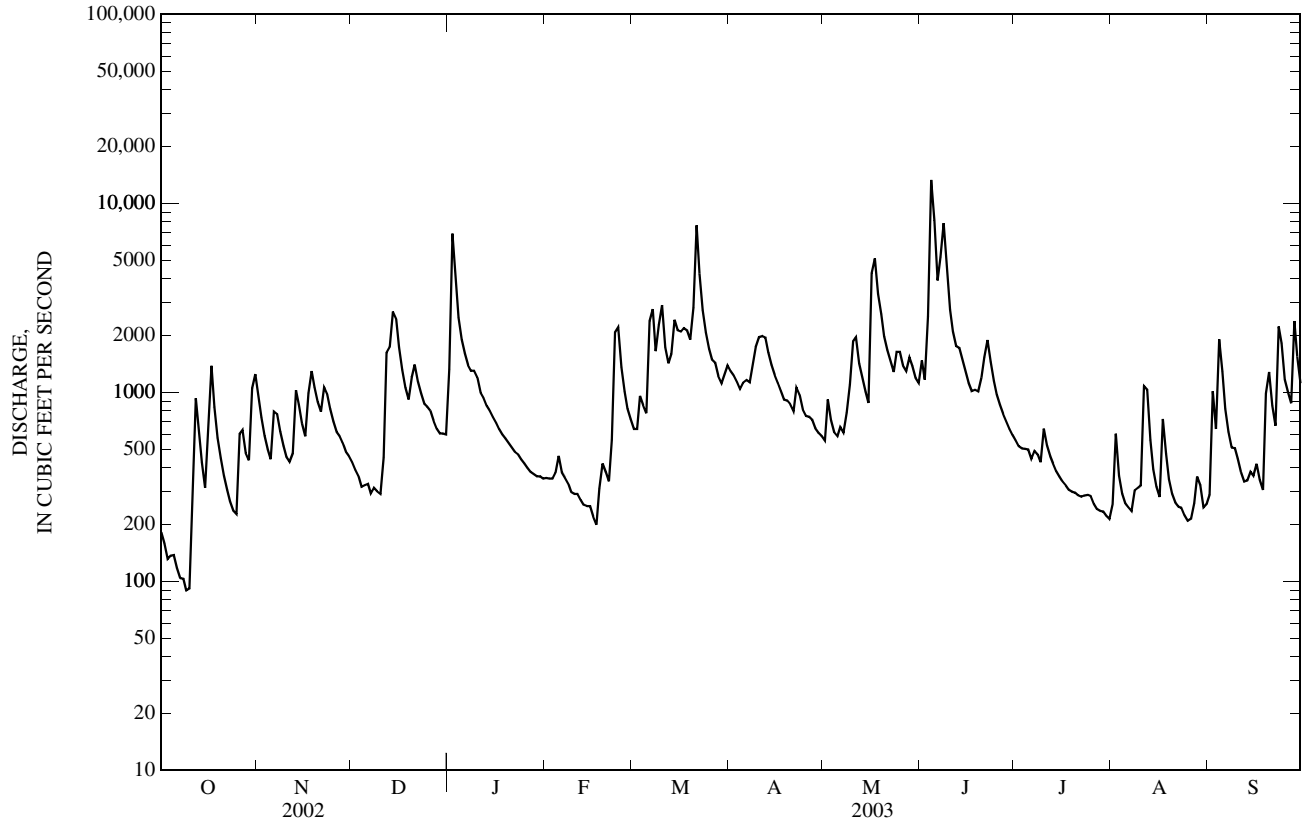
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

MEAN	329	449	617	682	834	1,197	1,051	744	530	322	230	266
MAX	2,177	1,571	1,926	2,404	2,473	3,725	2,991	1,736	3,278	1,358	921	1,886
(WY)	(1977)	(1998)	(1997)	(1996)	(1998)	(1994)	(1993)	(1989)	(1972)	(1928)	(1942)	(1996)
MIN	42.3	45.4	61.2	88.8	115	274	304	218	120	62.2	48.0	54.6
(WY)	(1931)	(1931)	(1931)	(1931)	(2002)	(1990)	(1995)	(1941)	(1965)	(1966)	(1966)	(1930)

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1928 - 2003	
ANNUAL TOTAL	122,978		383,009			
ANNUAL MEAN	337		1,049		600	
HIGHEST ANNUAL MEAN					1,183	1996
LOWEST ANNUAL MEAN					184	2002
HIGHEST DAILY MEAN	2,680	Dec 14	13,300	Jun 4	26,700	Jun 23, 1972
LOWEST DAILY MEAN	38	Aug 22	89	Oct 9	25	Nov 28, 1930
ANNUAL SEVEN-DAY MINIMUM	40	Aug 17	112	Oct 4	28	Sep 7, 1966
MAXIMUM PEAK FLOW			14,500	Jun 4	(a)32,400	Jun 23, 1972
MAXIMUM PEAK STAGE			14.08	Jun 4	(b)24.50	Jun 23, 1972
INSTANTANEOUS LOW FLOW			86	Oct 10	21	(c)
ANNUAL RUNOFF (CFSM)	0.68		2.12		1.21	
ANNUAL RUNOFF (INCHES)	9.26		28.84		16.50	
10 PERCENT EXCEEDS	813		2,020		1,320	
50 PERCENT EXCEEDS	194		712		333	
90 PERCENT EXCEEDS	60		261		102	

a From rating curve extended above 15,000 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
b From floodmarks.
c Aug. 8, Sept. 12, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967-83, 1992 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: November 1966 to September 1980.
SUSPENDED SEDIMENT DISCHARGE: October 1966 to September 1980.

REMARKS.--Water temperatures were measured in field at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum daily, 30.0°C, July 17, 1969; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 1,050 mg/L, Oct. 25, 1971; minimum daily mean, 1 mg/L, on many days.
SEDIMENT LOAD: Maximum daily, 73,000 tons, June 23, 1972; minimum daily, 0.17 ton, Nov. 24, 26, 27, 1966.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
OCT												
07...	*1030*	*Other QA*	--	--	--	--	--	--	--	--	*0.27*	*0.31*
07...	1100	Environmental	103	752	11.0	117	8.1	514	20.5	17.8	*0.25*	*0.30*
16...	1932	Environmental	1,340	--	--	--	6.1	417	--	--	0.49	1.7
17...	0135	Environmental	1,650	--	--	--	6.7	390	--	--	0.69	1.9
17...	0717	Environmental	1,480	--	--	--	7.0	376	--	--	0.66	1.6
17...	2047	Environmental	1,100	--	--	--	7.1	390	--	--	0.45	1.0
18...	1547	Environmental	765	--	--	--	7.2	415	--	--	0.37	0.76
NOV												
07...	1100	Environmental	793	755	11.6	101	6.5	381	9.5	8.7	0.35	0.56
DEC												
12...	1120	Environmental	1,600	757	14.4	107	7.4	343	5.0	2.5	0.56	1.3
13...	2139	Environmental	1,850	--	--	--	6.9	325	--	--	0.34	0.79
14...	0354	Environmental	2,430	--	--	--	7.0	310	--	--	0.46	1.4
14...	0910	Environmental	2,700	--	--	--	7.2	304	--	--	0.46	1.5
14...	1851	Environmental	2,850	--	--	--	7.2	308	--	--	0.46	1.3
15...	0924	Environmental	2,570	--	--	--	7.2	307	--	--	0.34	0.92
16...	1345	Environmental	1,700	749	13.5	111	7.5	339	5.0	6.2	0.34	0.51
JAN												
01...	1928	Environmental	1,850	--	--	--	6.5	259	--	--	0.41	3.9
02...	0023	Environmental	5,200	--	--	--	6.9	252	--	--	0.51	3.5
02...	0904	Environmental	6,730	--	--	--	6.7	221	--	--	0.52	2.4
02...	1626	Environmental	7,530	--	--	--	6.6	228	--	--	0.44	2.3
02...	1849	Environmental	7,830	--	--	--	6.5	235	--	--	0.42	1.7
02...	2105	Environmental	7,850	--	--	--	6.6	234	--	--	0.42	1.5
03...	0148	Environmental	6,810	--	--	--	6.6	243	--	--	0.37	1.1
03...	0441	Environmental	5,280	--	--	--	7.0	260	--	--	0.37	1.1
03...	0843	Environmental	3,980	--	--	--	7.1	273	--	--	0.31	1.1
04...	0112	Environmental	2,890	--	--	--	7.2	297	--	--	0.25	0.66
04...	1502	Environmental	2,360	--	--	--	7.3	317	--	--	0.30	0.59
07...	*1225*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
07...	1330	Environmental	1,370	748	15.1	116	7.7	375	1.0	4.0	0.22	0.32
FEB												
06...	*1110*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
06...	*1115*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*E.06*
06...	*1147*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*1.0*
06...	*1148*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*E.06*
06...	*1205*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
06...	*1214*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
06...	*1245*	*Other QA*	--	--	--	--	--	--	--	--	*0.23*	*0.30*
06...	1300	Environmental	373	759	15.9	115	8.3	402	2.0	1.8	0.21	0.32
23...	1048	Environmental	1,870	--	--	--	7.2	300	--	--	0.69	1.6
23...	1919	Environmental	2,580	--	--	--	7.1	270	--	--	0.68	1.7
24...	0159	Environmental	2,730	--	--	--	7.2	254	--	--	0.76	1.6
24...	1805	Environmental	1,880	--	--	--	7.2	290	--	--	0.61	0.96

Other QA -- Cross-sectional comparison to automatic sampler's point sample.

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Suspended sediment concentration mg/L (80154)
OCT													
07...	*<0.04*	*4.07*	*4.08*	*0.008*	--	--	*0.07*	*0.092*	*0.103*	*4.3*	*4.4*	--	*2*
07...	<0.04	4.24	4.25	0.010	--	--	0.07	0.084	0.096	4.5	4.5	--	4
16...	<0.04	6.00	6.01	0.012	--	--	0.07	0.086	0.41	6.5	7.7	--	246
17...	0.05	6.63	6.65	0.022	0.64	1.9	0.10	0.118	0.52	7.3	8.6	--	290
17...	E.02	7.16	7.18	0.023	--	--	0.08	0.109	0.39	7.8	8.8	--	193
17...	<0.04	7.94	7.96	0.021	--	--	0.06	0.077	0.22	8.4	9.0	--	98
18...	<0.04	7.88	7.90	0.019	--	--	0.05	0.064	0.142	8.3	8.7	--	53
NOV													
07...	<0.04	6.32	6.33	0.012	--	--	0.04	0.074	0.108	6.7	6.9	--	13
DEC													
12...	0.09	4.64	4.65	0.011	0.47	1.2	0.04	0.075	0.22	5.2	5.9	--	111
13...	0.07	4.98	4.99	0.014	0.28	0.72	0.04	0.044	0.143	5.3	5.8	--	77
14...	0.08	4.97	4.98	0.013	0.39	1.3	0.04	0.059	0.28	5.4	6.4	--	158
14...	0.08	5.23	5.24	0.011	0.37	1.4	0.05	0.060	0.30	5.7	6.8	--	192
14...	0.06	5.62	5.63	0.017	0.40	1.3	0.05	0.066	0.29	6.1	7.0	--	176
15...	E.03	5.94	5.95	0.012	--	--	0.04	0.049	0.182	6.3	6.9	--	92
16...	E.04	6.44	6.45	0.008	--	--	0.03	0.032	0.086	6.8	7.0	--	34
JAN													
01...	<0.04	3.38	3.39	0.008	--	--	0.05	0.091	1.20	3.8	7.3	--	1,390
02...	0.12	3.44	3.44	0.010	0.39	3.4	0.07	0.099	1.05	4.0	6.9	--	909
02...	0.12	3.63	3.64	0.012	0.41	2.3	0.07	0.089	0.65	4.2	6.0	--	549
02...	0.11	4.00	4.01	0.012	0.34	2.2	0.05	0.071	0.52	4.5	6.3	--	387
02...	0.09	4.16	4.17	0.013	0.33	1.6	0.04	0.060	0.42	4.6	5.9	--	286
02...	0.09	4.23	4.24	0.013	0.33	1.4	0.04	0.054	0.36	4.7	5.8	--	242
03...	0.07	4.50	4.52	0.013	0.30	1.1	0.03	0.045	0.24	4.9	5.6	--	188
03...	0.06	4.86	4.88	0.012	0.31	1.1	0.03	0.048	0.24	5.2	6.0	--	202
03...	E.04	4.94	4.95	0.012	--	--	0.03	0.044	0.189	5.3	6.0	--	155
04...	E.02	5.43	5.45	0.011	--	--	0.03	0.036	0.122	5.7	6.1	--	82
04...	E.03	5.50	5.51	0.011	--	--	0.03	0.035	0.110	5.8	6.1	--	67
07...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*0.0*
07...	<0.04	6.04	6.05	0.008	--	--	0.02	0.027	0.055	6.3	6.4	--	24
FEB													
06...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*1*
06...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*1*
06...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*0.080*	--	--	--	*1*
06...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*0.007*	--	--	--	*1*
06...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*0.5*
06...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*0.5*
06...	*<0.04*	*5.21*	*5.22*	*0.012*	--	--	*E.01*	*0.018*	*0.035*	*5.4*	*5.5*	*2.6*	*3*
06...	<0.04	5.13	5.14	0.009	--	--	E.01	0.018	0.033	5.4	5.5	--	5
23...	0.23	3.35	3.37	0.014	0.46	1.4	0.06	0.076	0.26	4.1	5.0	--	120
23...	0.24	3.28	3.31	0.022	0.44	1.5	0.07	0.08	0.30	4.0	5.0	--	61
24...	0.25	3.07	3.08	0.014	0.51	1.3	0.07	0.100	0.30	3.8	4.7	--	163
24...	0.18	3.43	3.44	0.015	0.43	0.78	0.06	0.079	0.193	4.1	4.4	--	170

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Suspended sediment load, tons/d (80155)
OCT	
07...	--
07...	1.1
16...	891
17...	1,290
17...	770
17...	291
18...	109
NOV	
07...	27
DEC	
12...	481
13...	384
14...	1,030
14...	1,400
14...	1,350
15...	636
16...	158
JAN	
01...	6,960
02...	12,800
02...	9,980
02...	7,860
02...	6,050
02...	5,140
03...	3,450
03...	2,870
03...	1,670
04...	637
04...	425
07...	--
07...	89
FEB	
06...	--
06...	--
06...	--
06...	--
06...	--
06...	--
06...	--
06...	4.8
23...	608
23...	427
24...	1,200
24...	863

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
MAR												
04...	1315	Environmental	816	754	17.4	135	8.0	368	4.0	4.0	0.34	0.44
06...	0951	Environmental	1,840	--	--	--	6.2	308	--	--	0.58	1.4
06...	1659	Environmental	3,430	--	--	--	6.6	274	--	--	0.92	2.2
06...	2148	Environmental	4,050	--	--	--	6.8	250	--	--	0.92	2.2
07...	0223	Environmental	3,750	--	--	--	6.9	248	--	--	0.81	1.9
07...	1428	Environmental	2,410	--	--	--	7.2	274	--	--	0.71	1.1
08...	0940	Environmental	1,640	--	--	--	7.2	310	--	--	0.44	0.63
08...	2132	Environmental	1,600	--	--	--	7.3	320	--	--	0.39	0.50
09...	1738	Environmental	2,660	--	--	--	7.3	282	--	--	0.60	0.98
09...	2306	Environmental	3,860	--	--	--	7.4	251	--	--	0.70	1.9
10...	1100	Environmental	2,920	--	--	--	7.4	271	--	--	0.53	0.96
20...	1707	Environmental	3,080	--	--	--	6.7	235	--	--	0.38	1.7
21...	0008	Environmental	6,810	--	--	--	6.7	211	--	--	0.63	2.4
21...	0457	Environmental	7,890	--	--	--	7.3	198	--	--	0.55	1.8
21...	0715	Environmental	8,000	--	--	--	7.4	198	--	--	0.52	1.8
21...	*0716*	*Replicate*	--	--	--	--	--	--	--	--	*0.52*	*1.5*
21...	1408	Environmental	7,790	--	--	--	7.6	201	--	--	0.43	1.1
21...	2111	Environmental	7,350	--	--	--	7.4	214	--	--	0.38	0.85
24...	*1200*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
24...	*1230*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
24...	1245	Environmental	2,040	--	--	--	7.6	268	--	--	0.26	0.46
APR												
03...	0915	Environmental	1,140	750	16.7	156	7.7	322	21.0	11.4	0.17	0.24
MAY												
05...	*1030*	*Other QA*	--	--	--	--	--	--	--	--	*0.20*	*0.36*
05...	1045	Environmental	572	753	10.8	106	7.8	355	8.5	14.1	0.23	0.39
10...	1505	Environmental	1,870	--	--	--	7.8	315	--	--	0.50	1.2
11...	0020	Environmental	2,460	--	--	--	7.8	259	--	--	0.53	1.8
11...	1057	Environmental	1,960	--	--	--	7.6	277	--	--	0.39	1.1
11...	2351	Environmental	1,620	--	--	--	7.6	283	--	--	0.33	0.75
16...	0649	Environmental	1,880	--	--	--	7.1	268	--	--	0.41	1.5
16...	1151	Environmental	5,230	--	--	--	7.2	231	--	--	0.55	2.7
16...	1458	Environmental	6,150	--	--	--	7.2	206	--	--	0.62	1.8
16...	1748	Environmental	6,570	--	--	--	7.2	199	--	--	0.59	1.6
16...	2032	Environmental	6,580	--	--	--	7.2	203	--	--	0.59	1.3
16...	2318	Environmental	6,320	--	--	--	7.3	215	--	--	0.49	1.4
17...	0802	Environmental	5,940	--	--	--	7.2	230	--	--	0.43	1.0
17...	1904	Environmental	4,070	--	--	--	7.2	237	--	--	0.40	0.83
19...	0900	Environmental	2,680	--	--	--	7.3	266	--	--	0.29	0.69
JUN												
03...	1215	Environmental	1,010	750	8.9	89	7.1	348	14.0	14.4	0.26	0.40
03...	1716	Environmental	2,210	--	--	--	7.2	225	--	--	0.52	2.2
03...	2226	Environmental	8,030	--	--	--	7.3	178	--	--	0.70	2.5
04...	0112	Environmental	10,900	--	--	--	7.1	172	--	--	0.76	2.0
04...	0534	Environmental	13,500	--	--	--	6.2	167	--	--	0.74	1.7
04...	0926	Environmental	14,400	--	--	--	6.7	170	--	--	0.68	1.4
04...	1118	Environmental	14,500	--	--	--	7.1	172	--	--	0.65	1.2
04...	1616	Environmental	13,900	--	--	--	7.1	192	--	--	0.55	1.0
05...	0308	Environmental	10,400	--	--	--	6.5	222	--	--	0.47	0.81
05...	1526	Environmental	7,080	--	--	--	6.5	222	--	--	0.42	0.64
06...	0930	Environmental	4,040	--	--	--	7.7	277	--	--	0.38	0.53
07...	1641	Environmental	7,110	--	--	--	7.0	215	--	--	0.50	1.6
07...	2313	Environmental	9,020	--	--	--	6.9	211	--	--	0.51	1.2
08...	1155	Environmental	8,380	--	--	--	6.7	250	--	--	0.43	0.80
JUL												
09...	*1300*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
09...	*1400*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
09...	1430	Environmental	419	750	11.3	135	8.2	414	26.5	23.3	0.24	0.33
AUG												
18...	*1000*	*Other QA*	--	--	--	--	--	--	--	--	*0.49*	*0.70*
18...	1015	Environmental	481	765	7.6	85	7.3	380	23.5	21.3	0.50	1.2
SEP												
03...	0915	Environmental	629	754	--	73	7.8	376	19.0	19.7	0.52	0.79

Other QA -- Cross-sectional comparison to automatic sampler's point sample.

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Suspended sediment concentration mg/L (80154)
MAR													
04...	E.03	4.28	4.30	0.017	--	--	0.03	0.042	0.068	4.6	4.7	--	8
06...	0.13	3.44	3.46	0.022	0.45	1.3	0.05	0.074	0.29	4.0	4.9	--	231
06...	0.33	3.08	3.11	0.029	0.59	1.9	0.08	0.114	0.44	4.0	5.3	--	329
06...	0.35	2.92	2.94	0.028	0.57	1.8	0.09	0.118	0.48	3.9	5.1	--	360
07...	0.29	2.93	2.96	0.032	0.52	1.6	0.08	0.109	0.38	3.8	4.8	--	273
07...	0.26	3.29	3.31	0.022	0.45	0.84	0.05	0.075	0.18	4.0	4.4	--	84
08...	0.10	3.95	3.97	0.021	0.34	0.52	0.04	0.051	0.118	4.4	4.6	--	42
08...	0.06	4.05	4.08	0.027	0.33	0.43	0.03	0.050	0.096	4.5	4.6	--	28
09...	0.11	3.58	3.60	0.024	0.49	0.87	0.07	0.088	0.22	4.2	4.6	--	140
09...	0.18	3.16	3.19	0.022	0.52	1.7	0.09	0.114	0.38	3.9	5.1	--	262
10...	0.14	3.45	3.47	0.020	0.40	0.83	0.06	0.081	0.21	4.0	4.4	--	142
20...	0.06	2.80	2.81	0.016	0.32	1.6	0.05	0.065	0.43	3.2	4.5	--	410
21...	0.13	2.72	2.74	0.022	0.50	2.3	0.07	0.086	0.65	3.4	5.1	--	537
21...	0.12	2.80	2.82	0.019	0.43	1.7	0.06	0.079	0.44	3.4	4.6	--	314
21...	0.10	2.90	2.91	0.018	0.42	1.7	0.06	0.072	0.38	3.4	4.7	--	238
21...	*0.10*	*2.90*	*2.92*	*0.019*	*0.42*	*1.4*	*0.06*	*0.072*	*0.34*	*3.4*	*4.4*	--	*238*
21...	0.08	3.28	3.30	0.017	0.35	1.0	0.04	0.059	0.25	3.7	4.4	--	179
21...	0.05	3.50	3.51	0.015	0.32	0.80	0.03	0.045	0.191	3.9	4.4	--	133
24...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*0.0*
24...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*0.004*	--	--	--	*0.0*
24...	<0.04	4.02	4.04	0.015	--	--	0.02	0.026	0.071	4.3	4.5	--	34
APR													
03...	<0.04	4.17	4.18	0.009	--	--	0.02	0.020	0.038	4.3	4.4	--	15
MAY													
05...	*<0.04*	*4.12*	*4.13*	*0.014*	--	--	*0.02*	*0.032*	*0.057*	*4.3*	*4.5*	*4.2*	*10*
05...	<0.04	4.09	4.10	0.014	--	--	E.01	0.032	0.063	4.3	4.5	--	14
10...	E.04	2.83	2.85	0.018	--	--	0.03	0.048	0.29	3.4	4.0	--	139
11...	0.06	2.54	2.57	0.022	0.47	1.7	0.05	0.078	0.38	3.1	4.4	--	187
11...	E.04	3.04	3.07	0.030	--	--	0.03	0.048	0.179	3.5	4.2	--	91
11...	<0.04	3.24	3.25	0.015	--	--	0.02	0.038	0.126	3.6	4.0	--	60
16...	<0.04	2.89	2.91	0.015	--	--	0.04	0.068	0.34	3.3	4.4	--	258
16...	0.07	2.29	2.31	0.021	0.47	2.7	0.07	0.110	0.63	2.9	5.0	--	454
16...	0.07	2.10	2.12	0.020	0.55	1.7	0.09	0.129	0.58	2.7	3.9	--	356
16...	0.08	2.17	2.19	0.022	0.50	1.5	0.08	0.109	0.47	2.8	3.7	--	252
16...	0.07	2.34	2.36	0.020	0.51	1.3	0.07	0.099	0.35	2.9	3.7	--	165
16...	0.07	2.56	2.58	0.019	0.43	1.3	0.06	0.086	0.28	3.1	3.9	--	136
17...	E.03	2.93	2.95	0.018	--	--	0.03	0.059	0.20	3.4	4.0	--	110
17...	E.03	3.10	3.12	0.013	--	--	0.02	0.044	0.150	3.5	3.9	--	76
19...	<0.04	3.29	3.30	0.011	--	--	0.02	0.037	0.110	3.6	4.0	--	82
JUN													
03...	<0.04	4.17	4.18	0.011	--	--	0.03	0.044	0.090	4.4	4.6	--	28
03...	<0.04	2.28	2.30	0.026	--	--	0.07	0.126	0.68	2.8	4.5	--	547
03...	0.07	2.02	2.04	0.020	0.64	2.4	0.11	0.161	0.74	2.7	4.5	--	512
04...	0.07	1.95	1.97	0.020	0.69	1.9	0.11	0.162	0.55	2.7	3.9	--	292
04...	0.06	1.97	1.99	0.022	0.68	1.6	0.10	0.153	0.46	2.7	3.7	--	203
04...	0.06	2.18	2.20	0.020	0.61	1.4	0.10	0.141	0.39	2.9	3.6	--	161
04...	0.05	2.45	2.47	0.022	0.60	1.2	0.09	0.134	0.33	3.1	3.7	--	127
04...	0.05	2.69	2.71	0.020	0.50	0.99	0.08	0.111	0.28	3.3	3.8	--	105
05...	E.03	3.22	3.24	0.019	--	--	0.06	0.081	0.181	3.7	4.0	--	57
05...	E.02	3.50	3.52	0.019	--	--	0.05	0.074	0.159	3.9	4.2	--	48
06...	E.03	3.82	3.84	0.018	--	--	0.04	0.052	0.123	4.2	4.4	--	63
07...	0.05	2.53	2.55	0.019	0.45	1.5	0.08	0.106	0.40	3.1	4.1	--	198
07...	E.03	2.43	2.46	0.021	--	--	0.09	0.126	0.30	3.0	3.6	--	113
08...	<0.04	3.04	3.07	0.021	--	--	0.05	0.076	0.185	3.5	3.9	--	64
JUL													
09...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*E.003*	*0.005*	--	--	--	*2*
09...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	*0.3*
09...	<0.04	5.29	5.30	0.011	--	--	0.03	0.047	0.068	5.5	5.6	--	8
AUG													
18...	*E.03*	*4.01*	*4.03*	*0.018*	--	--	*0.09*	*0.114*	*0.166*	*4.5*	*4.7*	--	*31*
18...	0.04	3.86	3.88	0.018	0.46	1.1	0.09	0.114	0.27	4.4	5.0	--	127
SEP													
03...	0.04	3.94	3.96	0.019	0.48	0.75	0.10	0.123	0.191	4.5	4.8	--	36

01614500 CONOCOCHEAGUE CREEK AT FAIRVIEW, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Suspended sediment load, tons/d (80155)
MAR	
04...	17
06...	1,150
06...	3,050
06...	3,940
07...	2,760
07...	550
08...	185
08...	122
09...	1,000
09...	2,730
10...	1,120
20...	3,410
21...	9,880
21...	6,700
21...	5,130
21...	--
21...	3,760
21...	2,640
24...	--
24...	--
24...	189
APR	
03...	46
MAY	
05...	--
05...	22
10...	701
11...	1,240
11...	484
11...	262
16...	1,310
16...	6,420
16...	5,920
16...	4,480
16...	2,940
16...	2,320
17...	1,760
17...	840
19...	598
JUN	
03...	77
03...	3,270
03...	11,100
04...	8,580
04...	7,410
04...	6,260
04...	4,980
04...	3,950
05...	1,600
05...	918
06...	691
07...	3,790
07...	2,750
08...	1,440
JUL	
09...	--
09...	--
09...	8.5
AUG	
18...	--
18...	165
SEP	
03...	60

Remark codes used in this table:
< -- Less than
E -- Estimated value
M-- Presence verified, not quantified

01617800 MARSH RUN AT GRIMES, MD

LOCATION.--Lat 39°30'52.4", long 77°46'38.0", Washington County, Hydrologic Unit 02070004, on right bank 220 ft up- stream from bridge on Sprecher Road, 0.1 mi downstream from unnamed tributary, 0.5 mi southwest of Grimes, 1.5 mi upstream from mouth, and 2.2 mi southwest of Fairplay.

DRAINAGE AREA.--18.9 mi^2.

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 354.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.-- Records good except those for estimted daily discharges, (ice effect), which are fair. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 60 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 20	1945	85	2.17	Aug 17	0530	61	1.92
May 16	1045	85	2.17	Sep 4	1000	*384	*4.10
Jun 4	0045	92	2.24	Sep 19	0515	68	2.00
Jun 7	1500	131	2.58	Sep 23	0745	69	2.01
Jun 13	2215	89	2.21				

Minimum discharge, 0.34 ft^3/s, Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.59	4.3	6.6	19	9.8	15	28	16	28	25	23	12
2	0.56	3.9	6.4	43	10	20	26	16	25	25	17	13
3	0.52	3.7	6.3	30	e10	26	24	15	42	26	15	23
4	0.54	3.6	e6.4	26	e11	21	23	15	80	25	15	233
5	0.44	3.6	e6.4	22	12	21	23	16	61	23	14	68
6	0.39	5.8	6.3	21	10	29	21	16	47	22	14	39
7	0.58	4.7	e6.1	19	e10	30	29	15	88	22	14	32
8	0.58	4.2	e6.0	e19	9.9	29	29	20	82	21	14	29
9	0.63	3.8	5.9	e19	9.6	41	35	23	61	21	13	27
10	0.92	3.8	5.8	19	e9.4	42	32	26	51	22	13	22
11	2.3	4.2	10	17	9.3	33	35	22	47	21	14	23
12	2.5	5.8	15	16	9.0	32	31	18	49	20	14	22
13	1.7	7.3	16	14	8.6	34	28	17	61	25	13	24
14	1.4	5.8	26	13	8.5	37	26	16	67	20	13	24
15	1.4	5.3	21	13	e8.6	33	25	16	50	19	13	24
16	4.4	5.3	16	13	e8.6	32	24	63	45	18	13	28
17	4.1	11	14	13	e8.6	31	24	43	44	17	41	21
18	2.0	11	13	13	e9.2	30	23	43	45	17	18	20
19	1.6	8.8	12	12	e9.3	27	29	37	40	17	15	58
20	1.5	8.3	14	12	9.3	48	24	31	47	16	14	34
21	1.6	9.4	13	12	9.7	59	21	30	45	15	13	27
22	1.6	12	12	11	19	42	23	28	48	15	13	25
23	1.5	9.0	11	11	29	36	21	27	39	21	11	54
24	1.6	8.2	11	e11	25	33	20	38	36	28	9.3	35
25	1.7	7.8	12	e10	22	31	19	33	33	18	12	31
26	3.9	7.4	11	9.8	20	32	20	35	31	16	14	30
27	2.7	7.8	10	9.8	18	32	19	31	30	16	14	28
28	2.2	7.3	10	9.5	17	28	18	33	28	16	13	39
29	2.9	7.2	10	9.1	---	29	17	31	27	16	12	29
30	6.3	7.1	10	9.1	---	35	17	27	26	15	12	27
31	5.5	---	11	9.3	---	33	---	24	---	14	12	---
TOTAL	60.15	197.4	340.2	484.6	350.4	1,001	734	821	1,403	612	455.3	1,101
MEAN	1.94	6.58	11.0	15.6	12.5	32.3	24.5	26.5	46.8	19.7	14.7	36.7
MAX	6.3	12	26	43	29	59	35	63	88	28	41	233
MIN	0.39	3.6	5.8	9.1	8.5	15	17	15	25	14	9.3	12
CFSM	0.10	0.35	0.58	0.83	0.66	1.71	1.29	1.40	2.47	1.04	0.78	1.94
IN.	0.12	0.39	0.67	0.95	0.69	1.97	1.44	1.62	2.76	1.20	0.90	2.17

e Estimated

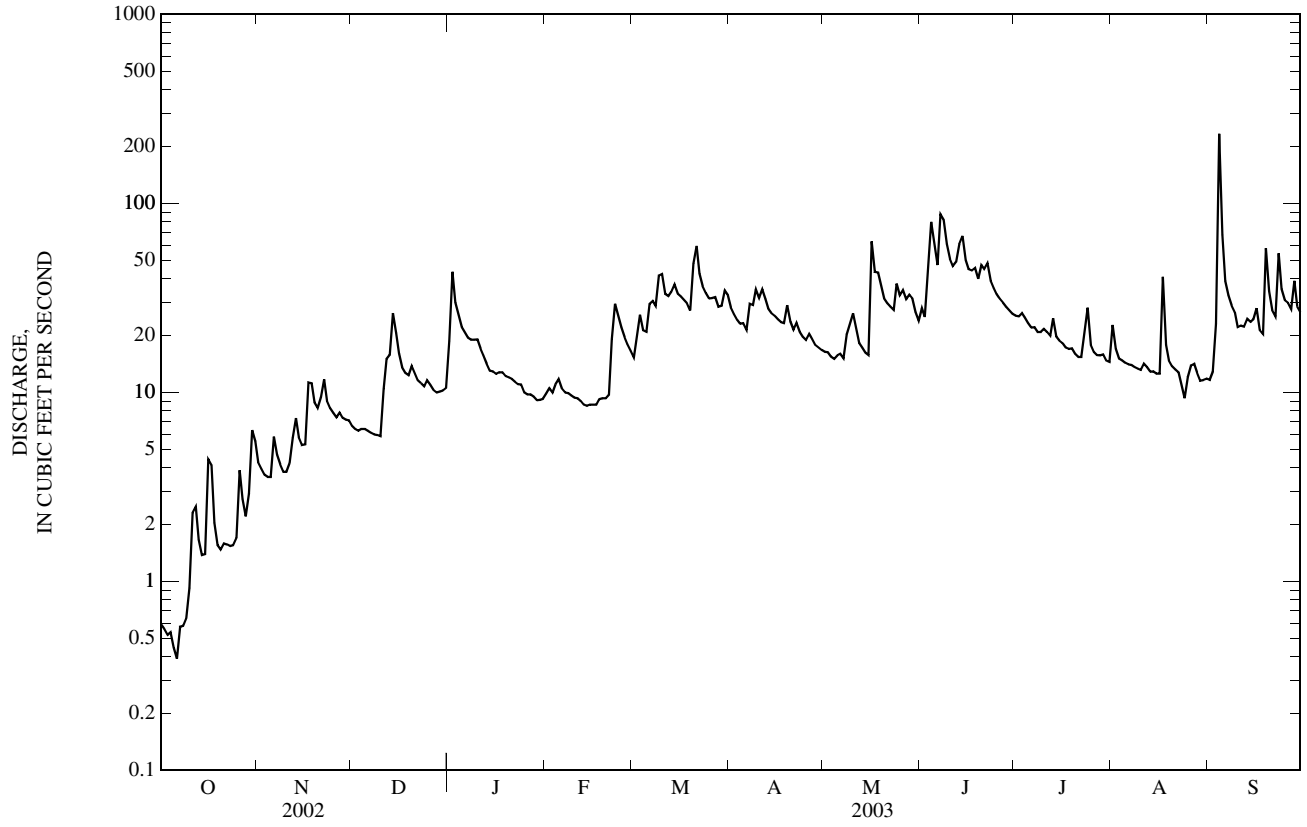
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2003, BY WATER YEAR (WY)

MEAN	7.50	7.61	10.5	12.3	14.5	19.0	18.8	15.6	13.6	9.62	7.46	7.04
MAX	39.5	29.3	39.9	30.1	33.3	48.6	49.8	36.2	48.2	32.4	24.2	36.7
(WY)	(1977)	(1997)	(1997)	(1979)	(1998)	(1994)	(1984)	(1972)	(1972)	(1972)	(1996)	(2003)
MIN	0.66	1.12	1.24	1.28	1.27	2.26	2.16	1.90	1.49	0.67	0.35	0.39
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)

01617800 MARSH RUN AT GRIMES, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1964 - 2003	
ANNUAL TOTAL	954.60		7,560.05			
ANNUAL MEAN	2.62		20.7		12.1	
HIGHEST ANNUAL MEAN					23.9	1972
LOWEST ANNUAL MEAN					1.23	2002
HIGHEST DAILY MEAN	26	Dec 14	233	Sep 4	233	Sep 4, 2003
LOWEST DAILY MEAN	0.01	(a)	0.39	Oct 6	(b)0.00	Oct 1, 1977
ANNUAL SEVEN-DAY MINIMUM	0.04	Aug 17	0.52	Oct 2	0.04	Aug 17, 2002
MAXIMUM PEAK FLOW			384	Sep 4	(c)459	Feb 12, 1985
MAXIMUM PEAK STAGE			4.10	Sep 4	4.45	Feb 12, 1985
INSTANTANEOUS LOW FLOW			0.34	Oct 6	(b)0.00	Oct 1, 1977
ANNUAL RUNOFF (CFSM)	0.14		1.10		0.64	
ANNUAL RUNOFF (INCHES)	1.88		14.88		8.68	
10 PERCENT EXCEEDS	7.0		39		25	
50 PERCENT EXCEEDS	1.4		17		8.8	
90 PERCENT EXCEEDS	0.27		4.3		2.5	

a Aug. 20, 21.
b Result of regulation caused by construction work upstream from station.
c From rating curve extended above 220 ft^3/s.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV

LOCATION.--Lat 39°26'05.0", long 77°48'05.0", Jefferson County, Hydrologic Unit 02070004, on right bank, 0.1 mi downstream from Rumsey Bridge at Shepherdstown, 3.3 mi upstream from Antietam Creek, and at mile 184.

DRAINAGE AREA.--5,929 mi^2.

PERIOD OF RECORD.--August 1928 to September 1953. Annual maximums, water years 1954-64. July 1964 to September 1993. October 2000 to September 2001. Gage-height record and estimated discharges October 1953 to June 1964 available in files of the Maryland/Delaware/DC district office.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1929(M). OFR 95-0292: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are fair. Some regulation at low flow by power plants upstream from station, prior to July 1981 by Stony River Reservoir, since December 1950 by Savage River Reservoir (see station 01597500), and since July 1981 by Jennings Randolph Lake. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of June 1889 and May 1924 reached stages of 39.2 ft and 29.8 ft respectively, from floodmarks, discharges, about 290,000 ft^3/s and 168,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 23,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 15	1115	29,700	10.32	May 17	0745	42,200	12.92
Jan 3	0130	62,700	16.64	Jun 4	2300	51,500	14.69
Feb 24	0745	50,700	14.54	Jun 8	1300	42,500	12.98
Mar 7	1315	56,500	15.58	Jun 11	0730	25,000	9.22
Mar 10	1615	50,100	14.42	Jun 15	0730	27,800	9.89
Mar 15	0745	33,600	11.18	Jun 22	0600	26,400	9.56
Mar 21	2145	63,800	16.81	Sep 20	1530	*83,900	*19.98
Apr 12	1700	43,900	13.26	Sep 24	0200	38,000	12.08
May 12	0115	56,000	15.49	Sep 29	0615	23,900	8.96

Minimum discharge, 757 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,820	14,100	4,500	6,110	e3,100	12,200	10,800	6,390	13,000	6,360	2,930	2,240
2	2,120	9,460	4,540	33,700	3,130	10,800	11,100	8,520	16,400	5,170	2,570	3,400
3	1,670	6,810	4,130	51,400	e3,200	12,000	11,400	7,740	14,300	4,420	2,690	4,270
4	1,390	5,470	3,870	33,500	3,360	15,300	11,700	6,900	37,600	4,220	2,400	10,200
5	1,150	4,560	3,720	25,700	3,500	15,200	11,200	6,590	44,200	4,040	2,400	13,400
6	1,080	e5,000	3,520	20,200	3,630	19,100	11,400	8,640	29,700	3,930	3,550	13,800
7	1,040	e8,800	3,320	16,700	3,530	52,100	11,500	13,400	24,300	3,990	3,440	8,850
8	906	e9,000	2,900	13,700	3,630	41,600	17,900	13,000	40,000	3,940	3,410	6,380
9	841	7,690	3,440	12,500	3,490	34,400	29,000	15,600	34,800	3,670	3,260	5,310
10	866	6,470	3,380	12,500	3,460	46,600	35,300	23,800	30,600	6,620	3,130	4,750
11	905	6,070	3,310	11,400	3,200	37,700	36,200	45,900	23,700	10,100	3,240	3,460
12	1,330	5,560	6,450	9,980	3,090	26,300	41,200	52,800	17,900	9,260	6,650	3,030
13	2,370	6,970	11,100	8,730	2,710	22,100	35,600	33,500	17,000	8,240	8,100	2,790
14	2,540	12,500	19,600	7,700	2,650	27,600	26,100	21,900	26,300	6,820	6,650	2,820
15	2,280	13,200	28,800	7,040	2,770	33,000	20,600	17,600	26,100	5,620	5,570	2,980
16	2,200	10,100	24,200	6,160	2,980	28,100	17,600	20,900	19,600	4,570	4,450	3,710
17	4,670	9,010	18,000	5,620	2,350	25,200	14,400	39,100	e17,000	4,330	4,480	4,170
18	7,080	13,900	14,400	5,120	1,980	24,200	12,000	28,500	e18,000	3,760	4,680	3,660
19	7,160	17,100	11,700	4,350	2,440	22,500	10,600	25,000	e19,000	3,440	3,990	11,600
20	4,980	14,000	10,000	4,340	3,120	20,700	10,200	23,100	18,000	3,100	3,600	73,500
21	3,830	11,400	10,800	4,430	3,760	48,900	10,000	20,100	22,200	2,820	2,900	52,400
22	3,070	10,600	17,300	4,310	4,510	50,200	9,730	16,900	25,600	2,750	2,440	27,300
23	2,540	10,800	16,500	4,080	16,700	32,700	10,800	14,400	20,700	2,700	2,430	27,300
24	2,180	9,910	13,300	3,720	45,100	24,200	10,400	13,200	16,600	2,880	2,170	32,800
25	1,950	8,840	11,400	3,930	35,200	19,000	9,190	13,900	14,000	2,500	e2,000	20,400
26	1,820	7,580	10,100	3,300	23,500	15,500	8,650	12,400	12,000	2,660	1,890	14,900
27	2,930	6,580	8,900	e3,200	18,200	13,600	8,420	12,800	10,400	2,270	1,950	11,500
28	3,620	5,800	7,530	e3,200	14,500	12,100	8,140	13,000	9,190	2,210	2,200	13,700
29	3,260	5,580	6,560	3,170	---	10,400	7,450	13,300	8,120	2,170	2,130	21,000
30	3,980	5,010	6,180	3,180	---	9,720	6,910	12,600	7,230	2,160	2,200	14,000
31	10,500	---	6,000	e3,100	---	10,400	---	11,100	---	2,930	2,120	---
TOTAL	89,078	267,870	299,450	336,070	222,790	773,420	475,490	572,580	633,540	133,650	105,620	419,620
MEAN	2,873	8,929	9,660	10,840	7,957	24,950	15,850	18,470	21,120	4,311	3,407	13,990
MAX	10,500	17,100	28,800	51,400	45,100	52,100	41,200	52,800	44,200	10,100	8,100	73,500
MIN	841	4,560	2,900	3,100	1,980	9,720	6,910	6,390	7,230	2,160	1,890	2,240
CFSM	0.48	1.50	1.63	1.83	1.34	4.20	2.67	3.11	3.56	0.73	0.57	2.36
IN.	0.56	1.68	1.88	2.11	1.40	4.85	2.98	3.59	3.97	0.84	0.66	2.63

e Estimated

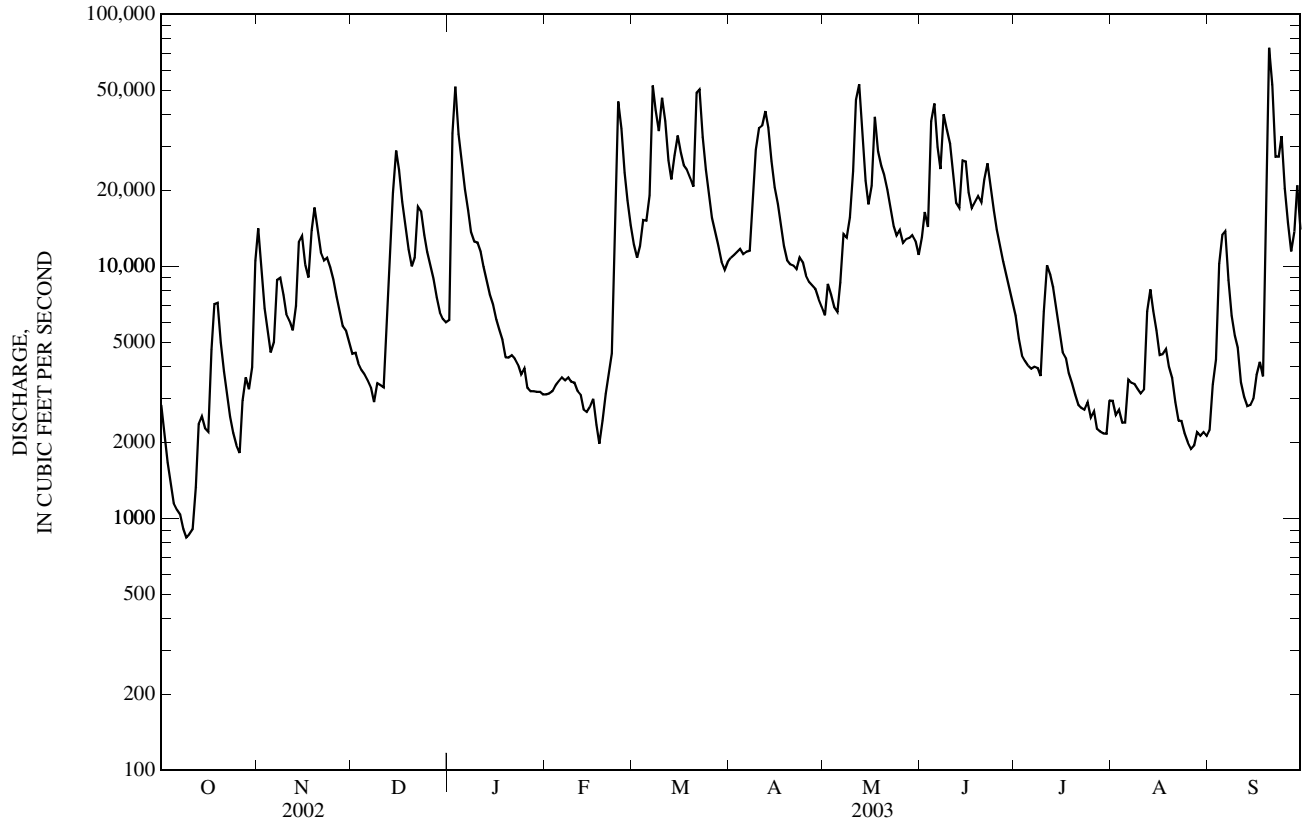
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

MEAN	3,094	3,704	5,697	6,865	9,018	13,280	11,480	8,232	4,747	2,490	2,296	2,135
MAX	20,080	24,780	22,070	20,480	23,770	45,990	30,490	20,450	22,600	9,529	12,140	13,990
(WY)	(1977)	(1986)	(1973)	(1937)	(1971)	(1936)	(1993)	(1988)	(1972)	(1949)	(1955)	(2003)
MIN	351	395	621	1,009	1,451	3,081	4,010	2,049	970	556	429	378
(WY)	(1931)	(1931)	(1931)	(1981)	(2002)	(1990)	(1969)	(1930)	(1969)	(1966)	(1930)	(1930)

01618000 POTOMAC RIVER AT SHEPHERDSTOWN, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1928 - 2003	
ANNUAL TOTAL	1,685,905		4,329,178			
ANNUAL MEAN	4,619		11,860		6,069	
HIGHEST ANNUAL MEAN					11,860	2003
LOWEST ANNUAL MEAN					2,607	1969
HIGHEST DAILY MEAN	30,700	Apr 30	73,500	Sep 20	287,000	Mar 19, 1936
LOWEST DAILY MEAN	589	Sep 10	841	Oct 9	185	Jul 31, 1966
ANNUAL SEVEN-DAY MINIMUM	628	Sep 6	970	Oct 5	294	Sep 4, 1966
MAXIMUM PEAK FLOW			83,200	Sep 20	(a)335,000	Mar 19, 1936
MAXIMUM PEAK STAGE			19.88	Sep 20	(b)42.10	Mar 19, 1936
INSTANTANEOUS LOW FLOW			757	Oct 9	170	Aug 1, 1966
ANNUAL RUNOFF (CFSM)	0.78		2.00		1.02	
ANNUAL RUNOFF (INCHES)	10.57		27.13		13.89	
10 PERCENT EXCEEDS	11,400		27,400		13,700	
50 PERCENT EXCEEDS	2,100		8,140		3,220	
90 PERCENT EXCEEDS	850		2,440		876	

a From rating curve extended above 200,000 ft^3/s, on the basis of slope-area measurement of peak flow.
b From floodmarks.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01619500 ANTIETAM CREEK NEAR SHARPSBURG, MD

LOCATION.--Lat 39°26'59.2", long 77°43'48.7", Washington County, Hydrologic Unit 02070004, on left bank 400 ft downstream from Burnside Bridge, 1.0 mi southeast of Sharpsburg, and 4.0 mi upstream from mouth.

DRAINAGE AREA.--281 mi^2.

PERIOD OF RECORD.--June 1897 to September 1905, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 192: 1897-1905. WSP 726: Drainage area. WSP 1432: 1929-31(M), 1933, 1935(M), 1937(M), 1949(M), 1952(M).

GAGE.--Water-stage recorder. Concrete control since Mar. 29, 1934. Datum of gage is 311.05 ft above National Geodetic Vertical Datum of 1929. June 24, 1897, to Aug. 25, 1905, nonrecording gage a few hundred feet downstream from Middle Bridge, 1.2 mi upstream at datum 12 ft higher. Aug. 21, 1928, to July 13, 1933, nonrecording gage at Burnside Bridge, 0.1 mi upstream at present datum.

REMARKS.--Records good. No estimated daily discharges. Some diurnal fluctuation caused by powerplant upstream from station. Since 1928 records include pumpage from the Potomac River for municipal supply of Hagerstown. This water later enters Antietam Creek upstream from station as sewage. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0900	1,910	5.67	Sep 4	0745	*2,430	*6.41
Mar 21	0815	2,010	5.82	Sep 19	1730	1,990	5.79
May 17	1945	1,550	5.13	Sep 23	0500	1,630	5.25
Jun 13	1945	2,030	5.85				

Minimum discharge, 70 ft^3/s, Oct. 6-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	196	198	411	249	406	624	399	810	542	378	232
2	91	174	193	1,500	249	457	599	417	736	519	336	568
3	86	161	188	1,000	245	756	574	394	681	516	292	435
4	82	154	178	828	274	566	551	374	937	511	279	1,860
5	79	153	182	679	287	538	552	380	1,040	499	268	763
6	77	185	179	618	252	804	537	403	1,070	460	274	519
7	73	182	171	566	244	1,130	563	385	1,100	470	268	444
8	74	166	165	530	238	836	588	426	1,180	448	261	403
9	72	158	166	531	224	1,180	652	498	1,190	428	252	393
10	76	153	164	516	223	1,290	750	619	1,200	472	247	375
11	108	161	227	473	225	951	771	690	1,220	440	329	348
12	169	183	396	441	217	842	785	601	1,170	410	390	332
13	137	238	423	420	212	807	694	555	1,360	416	285	350
14	110	228	660	407	205	911	645	510	1,570	382	260	364
15	102	201	623	393	208	835	606	476	1,210	370	251	360
16	154	191	512	371	182	811	580	1,230	1,020	361	255	393
17	236	252	453	365	165	857	561	1,530	924	348	494	343
18	187	364	407	347	233	892	528	1,480	922	338	354	354
19	146	335	375	332	250	823	622	1,220	844	333	291	1,390
20	132	281	391	330	220	1,010	576	1,010	942	318	269	946
21	122	272	465	317	222	1,840	525	885	1,040	309	257	629
22	117	320	398	300	478	1,340	583	816	1,080	346	246	551
23	112	296	377	286	1,000	1,090	550	744	915	358	238	1,240
24	109	262	356	274	869	938	500	781	812	461	231	957
25	109	246	353	275	629	832	479	802	737	343	225	729
26	147	233	346	268	530	775	485	766	691	310	243	686
27	156	230	320	264	467	772	480	828	656	296	321	614
28	135	225	302	252	437	672	443	797	616	293	272	846
29	132	212	292	253	---	635	426	860	583	292	247	687
30	187	205	285	251	---	653	417	813	559	279	241	595
31	210	---	284	247	---	677	---	780	---	271	248	---
TOTAL	3,825	6,617	10,029	14,045	9,234	26,926	17,246	22,469	28,815	12,139	8,802	18,706
MEAN	123	221	324	453	330	869	575	725	960	392	284	624
MAX	236	364	660	1,500	1,000	1,840	785	1,530	1,570	542	494	1,860
MIN	72	153	164	247	165	406	417	374	559	271	225	232
(†)	-16.1	-16.1	-17.6	-17.9	-18.3	-18.4	-17.3	-17.0	-17.5	-18.0	-17.7	-16.9
MEAN ‡	107	205	306	435	312	851	558	708	942	374	266	607
CFSM ‡	0.38	0.73	1.09	1.55	1.11	3.03	1.99	2.52	3.35	1.33	0.95	2.16
IN. ‡	0.44	0.84	1.26	1.79	1.28	3.49	2.29	2.90	3.86	1.53	1.10	2.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2003, BY WATER YEAR (WY)

MEAN	175	193	255	301	356	470	464	376	295	214	174	177
MAX	916	628	964	943	1,206	1,299	1,201	859	1,278	604	531	1,090
(WY)	(1977)	(1997)	(1997)	(1996)	(1998)	(1994)	(1993)	(1998)	(1972)	(1996)	(1996)	(1975)
MIN	65.5	65.6	61.5	57.3	66.0	91.5	105	119	95.9	66.4	58.6	69.4
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1963)

† Pumpage in cubic feet per second, from Potomac River for municipal supply of Hagerstown
‡ Adjusted for pumpage.

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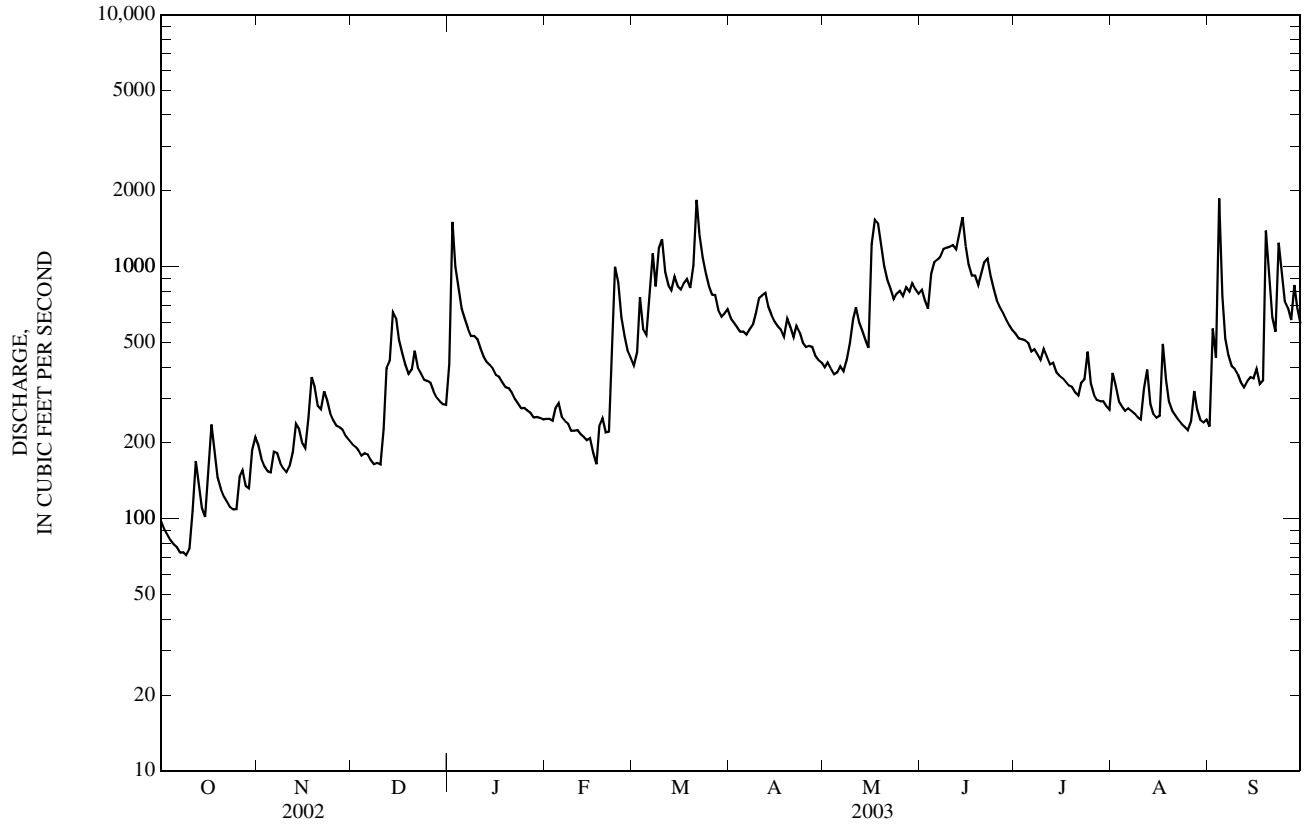
01619500 ANTIETAM CREEK NEAR SHARPSBURG, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1931 - 2003	
ANNUAL TOTAL	43,366		178,853			
ANNUAL MEAN	119		490		287	
ANNUAL MEAN‡	102		473		277	
HIGHEST ANNUAL MEAN					554	1996
LOWEST ANNUAL MEAN					82.7	2002
HIGHEST DAILY MEAN	660	Dec 14	1,860	Sep 4	8,970	Sep 26, 1975
LOWEST DAILY MEAN	41	Aug 22	72	Oct 9	37	Jan 30, 1966
ANNUAL SEVEN-DAY MINIMUM	43	Aug 17	76	Oct 4	43	Aug 17, 2002
MAXIMUM PEAK FLOW			2,430	Sep 4	(a)12,600	Jul 20, 1956
MAXIMUM PEAK STAGE			6.41	Sep 4	16.73	Jul 20, 1956
INSTANTANEOUS LOW FLOW			70	(b)	(c)9.4	Nov 22, 1957
ANNUAL RUNOFF (CFSM)	0.42		1.74		1.02	
ANNUAL RUNOFF (CFSM)‡	0.36		4.93		0.99	
ANNUAL RUNOFF (INCHES)	5.74		23.68		13.88	
ANNUAL RUNOFF (INCHES)‡	4.93		22.84		13.41	
10 PERCENT EXCEEDS	225		940		555	
50 PERCENT EXCEEDS	89		394		206	
90 PERCENT EXCEEDS	56		166		97	

‡ Adjusted for inflow since January 1930.
a From rating curve extended above 7,300 ft^3/s on basis of contracted-opening measurement of peak flow.
b Oct. 6-10.
c Result of regulation caused by construction work upstream from station.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01621050 MUDDY CREEK AT MOUNT CLINTON, VA

LOCATION.--Lat 38°29'12", long 78°57'37", Rockingham County, Hydrologic Unit 02070005, on right downstream side of bridge on State Highway 726, at Mount Clinton.

DRAINAGE AREA.--14.2 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,320 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect), which are fair. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1700	188	4.21	Jun 20	1145	490	5.17
Mar 2	1845	168	4.12	Jul 6	2245	2,450	8.55
Mar 5	1700	313	4.67	Jul 8	1130	172	4.14
Mar 20	1600	433	5.01	Jul 9	1700	170	4.13
Apr 11	0215	277	4.55	Aug 5	2030	192	4.23
Jun 4	2300	157	4.07	Aug 9	2030	209	4.30
Jun 13	1915	216	4.33	Sep 2	1630	195	4.24
Jun 18	2330	190	4.22	Sep 19	0315	*2,550	*8.68
Jun 19	2230	603	5.46	Sep 23	0145	190	4.22

Minimum discharge, 1,480 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.72	11	11	46	7.4	24	22	14	14	18	12	17
2	0.65	10	11	35	7.1	69	20	13	13	19	13	37
3	0.62	9.6	10	37	6.9	59	18	13	15	54	13	20
4	0.59	9.1	9.9	29	7.6	49	17	19	37	26	13	19
5	0.55	9.5	10	25	6.8	125	17	17	48	22	31	15
6	0.51	14	9.7	23	6.5	81	15	15	25	286	20	13
7	0.49	11	9.3	20	6.8	51	34	14	39	158	14	12
8	0.49	9.7	9.0	19	6.0	39	27	13	34	64	13	12
9	0.49	9.2	8.6	17	5.7	34	54	18	39	54	38	11
10	0.55	8.9	8.1	16	6.0	28	40	27	27	40	28	11
11	3.8	14	15	14	5.6	26	101	30	24	38	49	10
12	3.2	30	18	13	5.3	24	45	21	22	29	28	10
13	1.3	22	27	13	e5.2	23	34	18	48	25	21	10
14	0.88	16	36	12	e5.0	21	29	16	35	24	18	10
15	0.74	14	28	12	e4.9	19	26	16	28	22	16	9.7
16	8.8	15	24	11	e4.8	19	24	21	31	20	15	9.2
17	8.2	27	21	11	e4.8	18	22	17	52	18	14	8.8
18	5.9	20	19	11	e4.9	17	24	56	64	17	13	27
19	4.6	16	17	10	e5.0	16	27	47	128	17	13	697
20	3.5	15	46	10	5.5	138	22	32	186	15	12	69
21	3.0	16	27	10	6.5	67	21	30	74	15	12	44
22	2.4	19	22	9.3	84	41	20	26	47	14	12	39
23	2.0	15	19	8.8	118	33	18	24	36	14	11	83
24	1.8	14	18	8.9	61	28	17	22	30	15	11	38
25	1.8	14	20	8.5	45	25	17	20	26	13	10	32
26	6.0	13	17	8.2	32	24	18	19	24	12	10	29
27	3.5	13	15	8.0	27	21	16	18	22	12	9.8	32
28	5.1	12	15	7.7	24	20	15	18	20	12	10	34
29	16	12	14	7.8	---	20	14	17	19	12	10	25
30	19	12	14	7.5	---	23	14	15	18	11	9.2	22
31	12	---	14	7.4	---	23	---	15	---	11	9.1	---
TOTAL	119.18	431.0	542.6	476.1	515.3	1,205	788	661	1,225	1,107	508.1	1,405.7
MEAN	3.84	14.4	17.5	15.4	18.4	38.9	26.3	21.3	40.8	35.7	16.4	46.9
MAX	19	30	46	46	118	138	101	56	186	286	49	697
MIN	0.49	8.9	8.1	7.4	4.8	16	14	13	13	11	9.1	8.8
CFSM	0.27	1.01	1.23	1.08	1.30	2.74	1.85	1.50	2.88	2.51	1.15	3.30
IN.	0.31	1.13	1.42	1.25	1.35	3.16	2.06	1.73	3.21	2.90	1.33	3.68

e Estimated

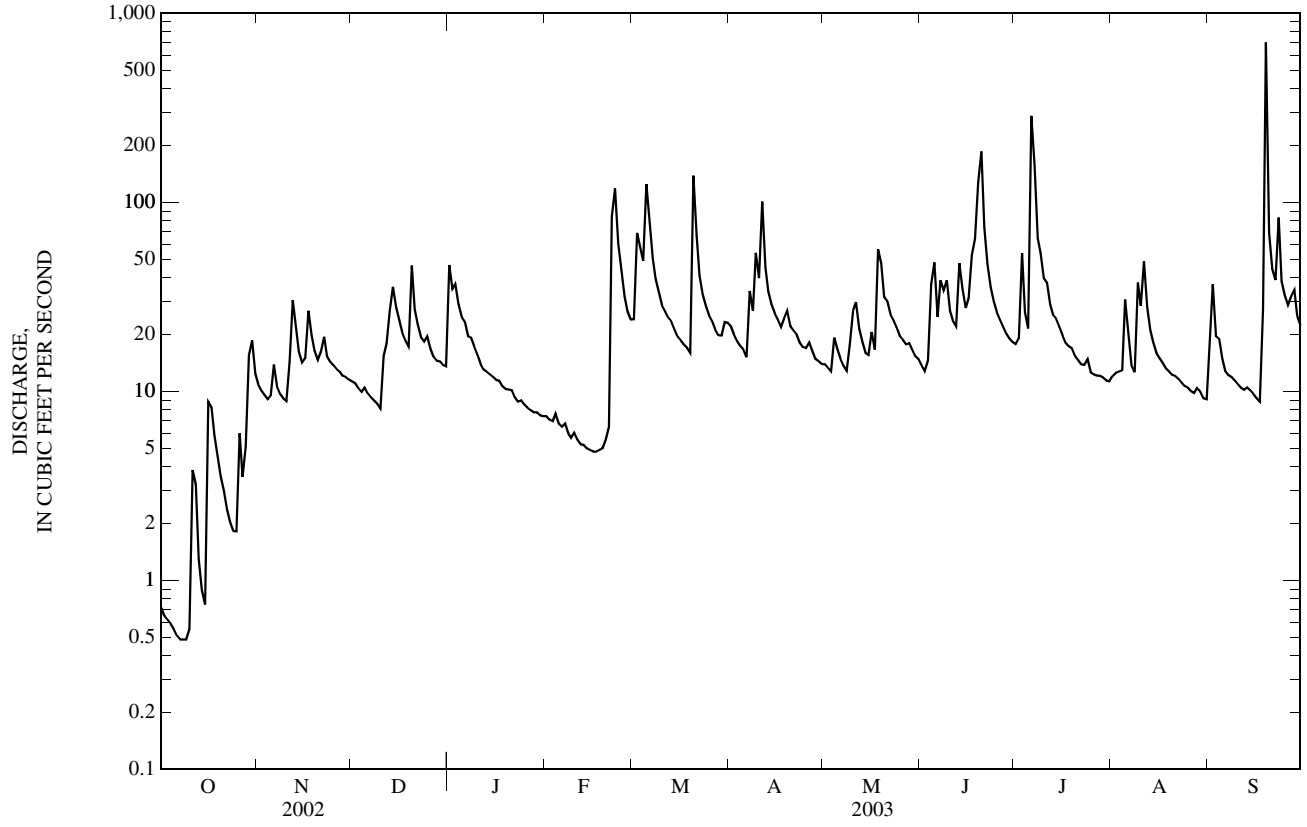
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2003, BY WATER YEAR (WY)

MEAN	6.09	6.31	8.78	16.3	16.6	19.8	12.0	10.4	11.9	8.91	8.15	16.2
MAX	22.1	19.3	37.5	66.9	63.5	44.0	26.3	22.7	40.8	35.7	33.8	105
(WY)	(1996)	(1997)	(1997)	(1996)	(1998)	(1998)	(2003)	(1998)	(2003)	(2003)	(1996)	(1996)
MIN	0.96	0.92	0.96	0.73	0.59	0.81	2.64	2.30	1.01	1.20	0.97	0.71
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1999)	(1999)	(1999)	(1999)	(2002)	(2001)

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1993 - 2003	
ANNUAL TOTAL	1,707.66		8,983.98			
ANNUAL MEAN	4.68		24.6		12.0	
HIGHEST ANNUAL MEAN					30.0	1996
LOWEST ANNUAL MEAN					1.92	2002
HIGHEST DAILY MEAN	82	May 27	697	Sep 19	1,760	Sep 6, 1996
LOWEST DAILY MEAN	0.29	Sep 14	0.49	(a)	0.29	Sep 14, 2002
ANNUAL SEVEN-DAY MINIMUM	0.33	Sep 11	0.52	Oct 4	0.33	Sep 11, 2002
MAXIMUM PEAK FLOW			2,550	Sep 19	3,850	Sep 6, 1996
MAXIMUM PEAK STAGE			8.68	Sep 19	10.37	Sep 6, 1996
INSTANTANEOUS LOW FLOW			0.49	(b)	0.27	(c)
ANNUAL RUNOFF (CFSM)	0.33		1.73		0.85	
ANNUAL RUNOFF (INCHES)	4.47		23.54		11.51	
10 PERCENT EXCEEDS	14		44		25	
50 PERCENT EXCEEDS	1.2		17		5.0	
90 PERCENT EXCEEDS	0.44		6.0		1.1	

a Oct. 7-9.
b Oct. 6-10.
c Sept. 13, 14, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1993 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 2002 to current year.
WATER TEMPERATURE: January 2002 to current year.

INSTRUMENTATION.--Water-quality monitor January 2002 to current year.

REMARKS.--Missing record due to instrument malfunctions. Records good.

EXTREMES FOR PERIOD OF DAILY RECORD--
SPECIFIC CONDUCTANCE: Maximum, 596 microsiemens/cm, Nov. 1-3, 2002; minimum, 136 microsiemens/cm, July 6, Sept. 19, 2003.
WATER TEMPERATURE: Maximum, 31.0°C, Aug. 2, 2002; minimum, 0.0°C, on many day during winter periods.

EXTREMES FOR JANUARY 2002 TO SEPTEMBER 2002.--
SPECIFIC CONDUCTANCE: Maximum, 534 microsiemens/cm, Sept. 30; minimum, 186 microsiemens/cm, May 28
WATER TEMPERATURE: Maximum, 31.0°C, Aug. 2; minimum, 0.0°C, Feb. 8, Mar. 5.

EXTREMES FOR WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003.--
SPECIFIC CONDUCTANCE: Maximum, 596 microsiemens/cm, Nov. 1-3; minimum, 136 microsiemens/cm, July 6, Sept. 19.
WATER TEMPERATURE: Maximum, 25.0°C, Aug. 27; minimum, 0.0°C, on many day during winter periods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)
OCT												
16...	1330	Environmental	12	718	8.3	83	7.9	550	13.5	12.6	183	222
NOV												
06...	1230	Environmental	13	714	13.6	129	7.3	520	10.0	10.0	184	224
DEC												
09...	1305	Environmental	8.5	735	19.0	149	8.4	542	-0.5	3.6	212	236
JAN												
08...	1210	Environmental	19	712	15.3	135	7.9	507	9.5	7.0	173	211
FEB												
12...	1200	Environmental	5.6	722	16.5	129	8.6	497	-1.0	2.9	209	246
MAR												
03...	1200	Environmental	51	725	14.7	119	7.6	386	0.0	6.3	122	150
19...	0945	Environmental	16	758	16.1	146	8.2	494	11.5	10.6	--	--
APR												
02...	1115	Environmental	20	728	22.4	226	8.8	434	23.0	13.6	166	195
24...	1045	Environmental	17	730	14.8	147	8.5	446	16.5	13.0	--	--
MAY												
07...	*1114*	*Blank*	--	--	--	--	--	--	--	--	--	--
07...	1230	Environmental	14	724	12.1	136	8.0	443	25.0	18.3	183	223
22...	1000	Environmental	26	730	10.1	100	6.6	444	13.0	12.7	--	--
JUN												
11...	1100	Environmental	24	730	10.4	112	6.8	461	28.0	16.9	191	231
11...	*1101*	*Replicate*	--	--	--	--	--	--	--	--	*E191*	*E230*
16...	1030	Environmental	26	731	9.6	100	6.2	442	19.0	15.4	--	--
JUL												
08...	1145	Environmental	170	728	8.2	95	7.3	326	27.5	20.0	176	211
22...	1100	Environmental	14	725	17.1	198	8.3	500	28.0	20.1	--	--
AUG												
		Environmental										
04...	1300		--	--	--	--	--	--	--	--	--	--
05...	1045	Environmental	14	724	11.1	129	7.3	488	24.0	19.9	209	254
21...	1015	Environmental	12	762	12.5	136	8.1	506	26.5	19.5	--	--
SEP												
04...	1030	Environmental	19	723	--	78	7.8	512	22.0	18.2	221	269

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)
OCT													
16...	--	18.8	--	26.1	2.4	0.28	6.86	6.96	0.100	2.1	0.87	1.20	9.4
NOV													
06...	--	14.0	--	23.0	1.3	0.08	9.31	9.39	0.077	1.2	0.31	0.41	11
DEC													
09...	11	10.2	--	15.6	0.27	<0.04	9.25	9.27	0.020	--	0.04	0.027	9.5
JAN													
08...	--	11.3	--	16.3	0.34	<0.04	11.0	11.0	0.016	--	0.04	0.072	11
FEB													
12...	6	8.64	--	13.5	0.30	<0.04	7.79	7.82	0.027	--	E.01	0.040	8.1
MAR													
03...	--	9.30	--	15.2	0.92	0.18	7.99	8.02	0.026	0.74	0.22	0.31	8.9
19...	--	--	--	--	0.39	<0.04	9.40	9.43	0.031	--	E.02	0.047	9.8
APR													
02...	4	9.92	--	13.2	0.52	<0.04	8.07	8.09	0.018	--	E.02	0.053	8.6
24...	--	--	--	--	0.36	<0.04	7.94	7.96	0.029	--	E.01	0.030	8.3
MAY													
07...	--	*<0.20*	--	*<0.2*	*E.06*	*<0.04*	--	*<0.06*	*<0.008*	--	*<0.02*	*<0.004*	--
07...	--	8.95	3.58	12.1	0.45	<0.04	6.58	6.62	0.038	--	0.03	0.069	7.1
22...	--	--	--	--	0.64	<0.04	6.73	6.79	0.060	--	<0.02	0.130	7.4
JUN													
11...	--	9.35	--	12.4	0.60	<0.04	7.14	7.20	0.066	--	E.01	0.128	7.8
11...	--	*9.54*	--	*12.1*	*0.68*	*<0.04*	*7.38*	*7.44*	*0.062*	--	*E.01*	*0.126*	*8.1*
16...	--	--	--	--	0.75	E.03	6.71	6.76	0.056	--	0.06	0.134	7.5
JUL													
08...	--	6.98	--	9.7	2.6	<0.04	3.41	3.47	0.060	--	0.32	0.82	6.0
22...	--	--	--	--	0.45	<0.04	8.63	8.67	0.040	--	E.01	0.055	9.1
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	10.4	--	11.2	0.92	<0.04	5.76	5.85	0.086	--	0.06	0.195	6.8
21...	--	--	--	--	0.35	<0.04	7.51	7.54	0.032	--	0.02	0.056	7.9
SEP													
04...	--	11.0	--	13.5	0.73	<0.04	6.02	6.09	0.066	--	0.06	0.177	6.8

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Pheo-phytin a, peri-phyton, mg/m2 (62359)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Iron, water, fltrd, ug/L (01046)	2,6-Di-ethyl-aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto-chlor, water, fltrd, ug/L (49260)	Ala-chlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)
OCT													
16...	12.0	14.6	--	--	--	--	--	<0.006	E.083	<0.006	<0.004	<0.005	94.5
NOV													
06...	1.9	8.0	--	--	--	--	--	<0.006	E.111	<0.006	<0.004	<0.005	92.7
DEC													
09...	0.2	1.7	--	--	--	--	--	<0.006	E.164	<0.006	<0.004	<0.005	85.4
JAN													
08...	0.5	1.8	--	--	--	--	--	<0.006	E.125	<0.006	<0.004	<0.005	101
FEB													
12...	0.4	1.4	--	--	--	--	--	<0.006	E.130	<0.006	<0.004	<0.005	97.3
MAR													
03...	2.0	4.1	--	--	--	--	--	<0.006	E.110	<0.006	<0.004	<0.005	80.6
19...	--	--	--	--	--	--	--	<0.006	E.193	<0.006	<0.004	<0.005	91.1
APR													
02...	0.7	2.2	--	--	--	--	--	<0.006	E.166	<0.006	<0.004	<0.005	86.9
24...	--	--	--	--	--	--	--	<0.006	E.154	<0.006	<0.004	<0.005	107
MAY													
07...	*<0.1*	*<0.3*	--	--	--	--	--	*<0.006*	*<0.006*	*<0.006*	*<0.004*	*<0.005*	*89.0*
07...	0.6	2.1	--	--	--	--	15	<0.006	E.095	<0.006	<0.004	<0.005	88.1
22...	--	--	--	--	--	--	--	<0.006	E.153	<0.006	<0.004	<0.005	95.7
JUN													
11...	0.9	2.8	--	--	--	--	--	<0.006	E.184	<0.006	<0.004	<0.005	85.2
11...	*0.8*	*2.7*	--	--	--	--	--	*<0.006*	*E.196*	*<0.006*	*<0.004*	*<0.005*	*102*
16...	--	--	--	--	--	--	--	<0.006	E.220	<0.006	<0.004	<0.005	108
JUL													
08...	6.6	10.4	--	--	--	--	--	<0.006	E.258	<0.006	<0.004	<0.005	101
22...	--	--	--	--	--	--	--	<0.006	E.192	<0.006	<0.004	<0.005	111
AUG													
04...	--	--	13	13.80	1.2	2.5	--	--	--	--	--	--	--
05...	1.1	4.2	--	--	--	--	--	<0.006	E.161	<0.006	<0.004	<0.005	111
21...	--	--	--	--	--	--	--	<0.006	E.142	<0.006	<0.004	<0.005	84.3
SEP													
04...	1.6	4.6	--	--	--	--	--	<0.006	E.125	<0.006	<0.004	<0.005	101

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)
OCT													
16...	0.105	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	110	<0.005
NOV													
06...	0.095	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	117	<0.005
DEC													
09...	0.115	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	114	<0.005
JAN													
08...	0.087	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	123	<0.005
FEB													
12...	0.097	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	109	<0.005
MAR													
03...	0.044	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	96.5	<0.005
19...	0.097	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	116	<0.005
APR													
02...	0.078	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	115	<0.005
24...	0.117	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	124	<0.005
MAY													
07...	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*98.3*	*<0.005*
07...	0.083	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	96.6	<0.005
22...	0.906	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	108	<0.005
JUN													
11...	1.96	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	106	<0.005
11...	*2.23*	*<0.050*	*<0.010*	*<0.002*	*<0.041*	*<0.020*	*E.004*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*119*	*<0.005*
16...	2.02	<0.050	<0.010	<0.002	<0.041	<0.020	0.005	<0.006	<0.018	<0.003	<0.005	130	<0.005
JUL													
08...	2.73	<0.050	<0.010	<0.002	<0.041	<0.020	0.037	<0.006	<0.018	<0.003	<0.005	129	<0.005
22...	0.492	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	127	<0.005
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	0.313	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	129	<0.005
21...	0.245	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	109	<0.005
SEP													
04...	0.171	<0.050	<0.010	<0.002	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	105	<0.005

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)
OCT													
16...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.009	<0.006	<0.002	<0.007
NOV													
06...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007
DEC													
09...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007
JAN													
08...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007
FEB													
12...	<0.02	<0.010	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007
MAR													
03...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.006	<0.006	<0.002	<0.007
19...	<0.02	0.033	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.003	<0.006	<0.002	<0.007
APR													
02...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.004	<0.006	<0.004	<0.007
24...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.043	<0.006	<0.002	<0.007
MAY													
07...	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.013*	*<0.006*	*<0.002*	*<0.007*
07...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	E.004	<0.006	<0.002	<0.007
22...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.118	<0.006	<0.002	<0.007
JUN													
11...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.358	<0.006	<0.002	<0.007
11...	*<0.02*	*<0.015*	*<0.009*	*<0.005*	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*0.359*	*<0.006*	*<0.002*	*<0.007*
16...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.360	<0.006	<0.002	<0.007
JUL													
08...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	1.13	<0.006	<0.002	<0.007
22...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.051	<0.006	<0.002	<0.007
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.023	<0.006	<0.002	<0.007
21...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.019	<0.006	<0.002	<0.007
SEP													
04...	<0.02	<0.002	<0.009	<0.005	<0.003	<0.004	<0.035	<0.027	<0.006	0.018	<0.006	<0.002	<0.007

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	p,p-' DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Propa-chlor, water, fltrd, ug/L (04024)	Pro-panil, water, fltrd 0.7u GF ug/L (82679)	Propar-gite, water, fltrd 0.7u GF ug/L (82685)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terba-cil, water, fltrd 0.7u GF ug/L (82665)
OCT													
16...	<0.003	<0.010	<0.007	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.055	E.01	<0.050
NOV													
06...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.047	<0.02	<0.034
DEC													
09...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.052	<0.02	<0.034
JAN													
08...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.034	<0.02	<0.034
FEB													
12...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.042	E.01	<0.034
MAR													
03...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.022	E.01	<0.034
19...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.040	E.01	<0.034
APR													
02...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.031	<0.02	<0.034
24...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.068	E.01	<0.034
MAY													
07...	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*
07...	<0.003	<0.010	<0.004	<0.022	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.032	<0.02	<0.034
22...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.462	<0.02	<0.034
JUN													
11...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	1.13	E.01	<0.034
11...	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*	*M*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*1.38*	*E.01*	*<0.034*
16...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	1.08	E.01	<0.034
JUL													
08...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	1.92	0.02	<0.034
22...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.196	E.02	<0.034
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.140	E.05	<0.034
21...	<0.003	<0.010	<0.004	<0.022	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.092	<0.02	<0.034
SEP													
04...	<0.003	<0.010	<0.004	<0.022	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.072	0.04	<0.034

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT						
16...	<0.02	<0.005	<0.002	<0.009	97	3.1
NOV						
06...	<0.02	<0.005	<0.002	<0.009	18	0.65
DEC						
09...	<0.02	<0.005	<0.002	<0.009	6	0.15
JAN						
08...	<0.02	<0.005	<0.002	<0.009	9	0.48
FEB						
12...	<0.02	<0.005	<0.002	<0.009	40	0.61
MAR						
03...	<0.02	<0.005	<0.002	<0.009	35	4.9
19...	<0.02	<0.005	<0.002	<0.009	7	0.31
APR						
02...	<0.02	<0.005	<0.002	<0.009	11	0.60
24...	<0.02	<0.005	<0.002	<0.009	13	0.61
MAY						
07...	*<0.02*	*<0.005*	*<0.002*	*<0.009*	*0.0*	--
07...	<0.02	<0.005	<0.002	<0.009	10	0.37
22...	<0.02	<0.005	<0.002	<0.009	26	1.8
JUN						
11...	<0.02	<0.005	<0.002	<0.009	27	1.7
11...	*<0.02*	*<0.005*	*<0.002*	*<0.009*	*27*	--
16...	<0.02	<0.005	<0.002	<0.009	19	1.3
JUL						
08...	<0.02	<0.005	<0.002	<0.009	183	84
22...	<0.02	<0.005	<0.002	<0.009	23	0.88
AUG						
04...	--	--	--	--	--	--
05...	<0.02	<0.005	<0.002	<0.009	25	0.95
21...	<0.02	<0.005	<0.002	<0.009	9	0.30
SEP						
04...	<0.02	<0.005	<0.002	<0.009	21	1.1

Remark codes used in this table:
< -- Less than
E -- Estimated value
M-- Presence verified, not quantified

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
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24	---	---	---	---	---	---	---	---	---	---	---	---
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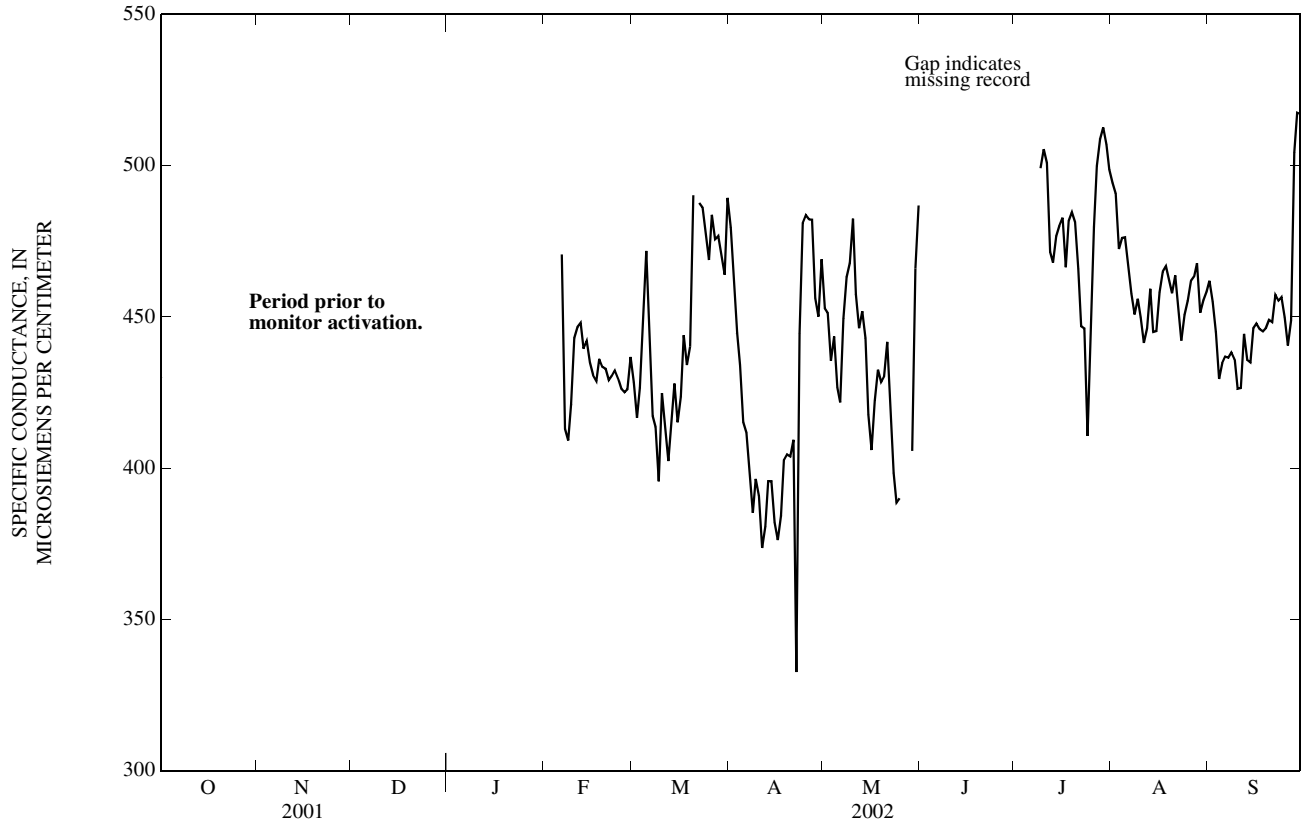
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	467	392	428	509	417	480	490	391	453
2	---	---	---	436	393	417	510	391	461	481	400	451
3	---	---	---	445	384	427	471	417	445	478	369	435
4	---	---	---	459	434	447	464	385	434	471	406	444
5	---	---	---	507	444	472	448	365	415	471	352	427
6	507	356	471	458	416	445	437	376	412	459	371	422
7	435	386	413	456	315	417	431	349	399	465	419	449
8	420	399	409	453	304	414	426	323	385	484	443	463
9	433	405	421	451	288	396	414	372	397	517	385	468
10	452	428	443	447	391	425	439	326	391	519	438	483
11	460	425	447	439	374	414	409	320	374	490	401	458
12	469	423	448	432	323	402	399	348	381	485	387	446
13	451	417	440	441	349	415	409	362	396	479	410	452
14	469	413	442	457	387	428	440	347	396	480	380	443
15	451	410	435	445	372	415	411	345	382	469	352	418
16	446	407	431	447	390	424	409	327	376	459	342	406
17	442	409	429	454	428	444	416	359	384	463	358	422
18	463	411	436	449	411	434	438	369	403	459	403	433
19	457	406	434	457	422	440	427	367	404	455	379	428
20	443	416	433	524	425	490	422	388	404	463	394	430
21	447	398	429	---	---	---	423	349	409	474	400	442
22	443	416	430	501	469	488	406	271	333	468	354	421
23	446	412	432	502	465	486	475	397	444	451	341	398
24	447	406	430	496	451	477	486	475	481	447	334	389
25	440	405	426	492	435	469	491	472	484	445	338	390
26	439	406	425	505	439	484	490	469	482	---	---	---
27	437	409	426	503	437	476	493	466	482	---	---	---
28	475	399	437	503	424	477	483	412	456	---	---	---
29	---	---	---	521	374	470	478	420	450	442	356	406
30	---	---	---	505	371	464	491	432	469	484	442	466
31	---	---	---	502	470	489	---	---	---	494	477	487
MONTH	507	356	433	524	288	446	510	271	420	519	334	437

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	528	449	494	481	430	462
2	---	---	---	---	---	---	531	439	491	480	418	455
3	---	---	---	---	---	---	504	439	472	480	397	445
4	---	---	---	---	---	---	506	441	476	461	384	429
5	---	---	---	---	---	---	507	433	476	468	399	435
6	---	---	---	---	---	---	502	428	467	471	409	437
7	---	---	---	---	---	---	486	417	458	462	406	436
8	---	---	---	---	---	---	475	416	451	462	414	438
9	---	---	---	515	474	499	480	428	456	453	414	436
10	---	---	---	520	491	505	469	421	450	443	402	426
11	---	---	---	530	460	501	460	412	441	456	384	427
12	---	---	---	488	440	471	463	423	446	492	395	444
13	---	---	---	476	459	468	492	420	459	484	384	436
14	---	---	---	490	453	477	468	407	445	444	424	435
15	---	---	---	499	447	480	458	421	445	451	441	446
16	---	---	---	511	445	483	470	442	458	464	426	448
17	---	---	---	490	421	466	481	442	465	467	417	446
18	---	---	---	510	450	482	485	439	467	462	419	445
19	---	---	---	503	449	485	484	431	462	456	434	446
20	---	---	---	499	461	481	484	426	458	463	431	449
21	---	---	---	498	418	466	489	430	464	458	440	448
22	---	---	---	486	388	447	497	402	453	463	440	457
23	---	---	---	472	400	446	481	401	442	465	445	455
24	---	---	---	471	385	411	481	417	451	475	432	457
25	---	---	---	476	403	442	486	425	455	464	432	450
26	---	---	---	502	473	480	487	432	462	477	390	441
27	---	---	---	512	489	500	486	445	463	492	417	449
28	---	---	---	520	494	509	480	452	468	519	481	504
29	---	---	---	532	478	513	463	437	451	530	493	517
30	---	---	---	533	469	507	465	446	456	534	492	517
31	---	---	---	531	457	499	472	445	458	---	---	---
MONTH	---	---	---	533	385	479	531	401	460	534	384	451



DAILY MEAN SPECIFIC CONDUCTANCE - JANUARY 2002 TO SEPTEMBER 2002

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
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12	---	---	---	---	---	---	---	---	---	---	---	---
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14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
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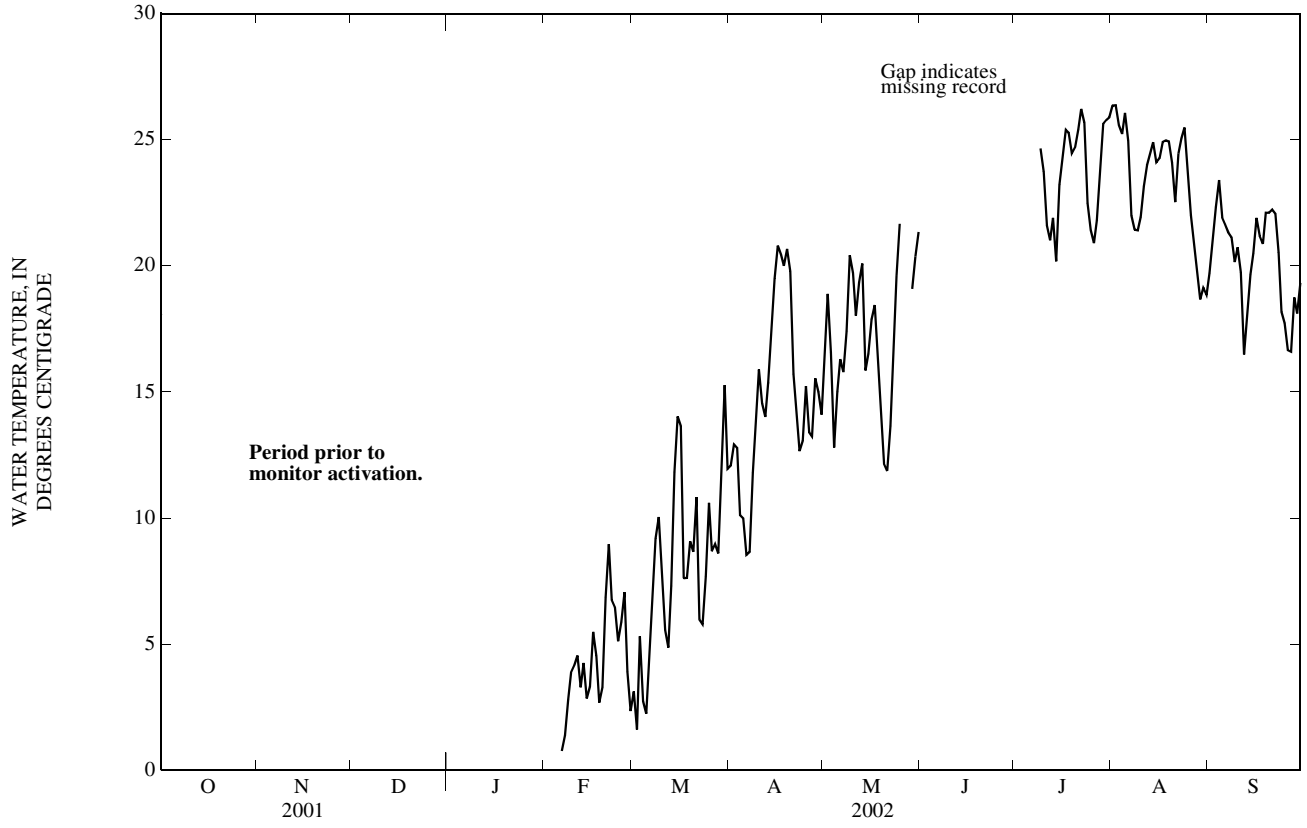
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	7.4	0.2	3.1	18.1	8.0	12.1	22.8	11.4	16.7
2	---	---	---	3.1	0.9	1.6	19.1	7.6	12.9	22.4	16.0	18.9
3	---	---	---	10.6	2.0	5.3	15.5	8.2	12.8	20.6	13.0	16.6
4	---	---	---	6.6	0.2	2.7	17.2	4.4	10.1	15.0	10.4	12.8
5	---	---	---	6.5	0.0	2.2	16.1	5.3	10	21.5	10.2	15.0
6	1.6	0.1	0.8	10.9	0.1	4.7	12.8	5.0	8.5	20.2	11.9	16.3
7	3.3	0.1	1.4	12.9	1.8	7.0	15.3	2.5	8.6	16.8	14.6	15.8
8	7.3	0.0	2.8	15.1	3.9	9.2	18.7	6.9	11.8	21.3	13.3	17.4
9	8.4	0.4	3.9	13.2	6.4	10.0	15.4	12.0	13.6	25.4	17.2	20.4
10	5.2	3.0	4.1	11.4	3.6	7.7	22.1	11.2	15.9	23.7	16.2	19.7
11	7.4	2.3	4.5	10.9	1.1	5.6	21.6	8.4	14.5	23.4	13.1	18.0
12	6.9	0.4	3.3	6.3	3.4	4.9	18.0	10.2	14.0	23.9	14.9	19.3
13	7.7	1.3	4.3	9.1	6.0	7.3	17.5	13.4	15.4	22.8	17.2	20.1
14	6.2	0.3	2.8	17.9	7.4	11.8	22.5	13.0	17.4	19.9	12.5	15.9
15	6.9	0.5	3.3	19.8	9.1	14.0	24.9	15.3	19.5	23.0	10.6	16.5
16	9.7	2.2	5.5	16.7	11.4	13.6	28.0	14.5	20.8	24.4	11.6	17.9
17	6.9	1.9	4.5	11.4	5.9	7.6	25.1	15.8	20.4	20.8	15.2	18.4
18	6.3	0.2	2.7	10.4	5.3	7.6	23.9	16.4	20.0	18.8	12.7	16.1
19	6.8	0.3	3.3	11.1	7.5	9.1	25.6	16.5	20.7	18.3	10.0	13.9
20	9.2	4.6	6.9	10.8	6.7	8.7	22.0	17.3	19.8	14.5	8.9	12.2
21	12.3	6.1	9.0	17.2	6.4	10.8	18.7	11.7	15.7	15.8	9.0	11.9
22	8.8	5.2	6.8	10.9	1.9	6.0	19.2	10.8	14.2	20.9	7.1	13.6
23	9.9	4.2	6.5	12.5	0.5	5.8	16.3	10.3	12.7	23.9	10.1	16.7
24	9.8	1.1	5.1	14.3	2.1	7.7	19.1	7.6	13.1	26.9	13.0	19.6
25	10.3	1.7	5.9	16.4	5.8	10.6	19.9	12.6	15.2	25.9	17.7	21.7
26	10.9	3.3	7.1	10.1	7.7	8.7	18.5	9.6	13.4	---	---	---
27	7.0	0.8	3.9	13.4	6.4	9.0	16.7	9.0	13.2	---	---	---
28	5.2	0.2	2.3	15.3	2.7	8.6	20.7	12.4	15.5	---	---	---
29	---	---	---	18.7	7.6	12.5	19.8	11.5	15.0	22.9	15.4	19.1
30	---	---	---	20.6	11.4	15.3	19.9	9.0	14.1	24.6	16.5	20.4
31	---	---	---	14.7	9.6	12.0	---	---	---	25.7	17.4	21.3
MONTH	12.3	0.0	4.4	20.6	0.0	8.1	28.0	2.5	14.7	26.9	7.1	17.2

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	30.6	22.5	26.4	21.9	18.1	19.7
2	---	---	---	---	---	---	31.0	22.7	26.4	24.4	18.6	20.9
3	---	---	---	---	---	---	30.4	22.5	25.6	25.6	19.3	22.3
4	---	---	---	---	---	---	29.8	21.2	25.2	27.0	20.5	23.4
5	---	---	---	---	---	---	30.3	22.6	26.1	25.0	18.7	21.9
6	---	---	---	---	---	---	27.6	22.4	25.0	24.8	18.5	21.6
7	---	---	---	---	---	---	25.7	18.8	22.0	24.5	17.9	21.3
8	---	---	---	---	---	---	25.7	18.1	21.4	24.4	17.9	21.1
9	---	---	---	27.9	21.9	24.7	26.0	17.4	21.4	23.0	17.0	20.2
10	---	---	---	24.8	22.4	23.7	26.7	17.8	21.9	24.7	17.2	20.7
11	---	---	---	24.1	18.9	21.6	27.2	19.5	23.2	22.9	16.4	19.7
12	---	---	---	25.6	16.5	21.0	27.2	20.8	24.0	20.8	10.8	16.5
13	---	---	---	23.3	20.6	21.9	28.3	21.0	24.5	24.9	11.2	18.0
14	---	---	---	21.1	19.2	20.2	28.1	22.1	24.9	21.2	17.3	19.7
15	---	---	---	28.0	19.5	23.2	27.5	21.0	24.1	21.4	19.8	20.5
16	---	---	---	27.9	20.5	24.3	26.4	22.3	24.3	24.7	19.8	21.9
17	---	---	---	29.7	21.6	25.4	27.0	23.0	24.9	24.2	18.6	21.2
18	---	---	---	27.2	23.4	25.3	27.4	22.6	25.0	23.0	18.4	20.9
19	---	---	---	27.1	22.2	24.5	27.9	22.1	24.9	23.3	20.9	22.1
20	---	---	---	28.1	22.1	24.7	26.0	22.0	24.1	23.4	20.3	22.1
21	---	---	---	29.5	21.8	25.4	25.4	20.0	22.5	23.4	21.0	22.2
22	---	---	---	30.4	22.7	26.2	27.5	21.8	24.5	22.7	21.2	22.1
23	---	---	---	29.6	23.0	25.7	27.9	22.1	25.0	22.7	18.3	20.5
24	---	---	---	24.3	21.5	22.5	26.9	23.7	25.5	21.8	14.8	18.2
25	---	---	---	22.2	20.8	21.4	25.4	21.5	23.7	19.2	15.8	17.7
26	---	---	---	22.0	20.1	20.9	23.6	20.7	22.0	17.9	15.7	16.7
27	---	---	---	23.7	20.1	21.8	22.0	19.7	20.8	18.5	15.3	16.6
28	---	---	---	27.3	20.6	23.8	20.6	18.0	19.7	21.5	16.9	18.7
29	---	---	---	29.5	22.2	25.6	20.6	17.1	18.7	21.5	15.0	18.1
30	---	---	---	29.8	22.3	25.8	20.4	17.9	19.1	22.0	17.1	19.3
31	---	---	---	30.1	22.2	25.9	20.2	17.4	18.9	---	---	---
MONTH	---	---	---	30.4	16.5	23.7	31.0	17.1	23.4	27.0	10.8	20.2



DAILY MEAN WATER TEMPERATURE - JANUARY 2002 TO SEPTEMBER 2002

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

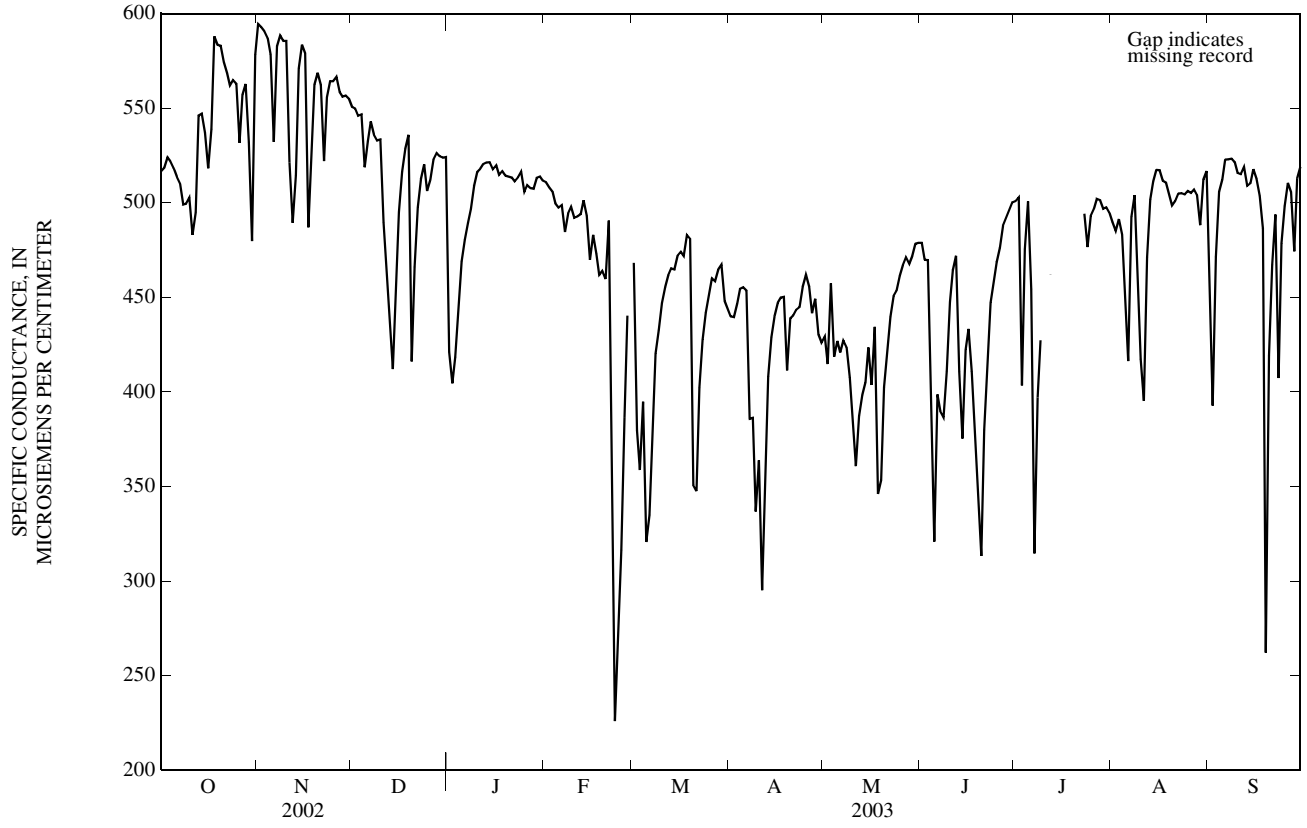
SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	535	492	517	596	593	595	561	532	551	532	277	421
2	541	483	519	596	589	593	557	534	550	434	349	405
3	544	496	524	596	585	591	555	526	546	438	402	418
4	543	490	522	592	581	587	553	534	547	463	427	447
5	540	481	519	590	559	579	546	495	519	474	463	469
6	533	483	514	564	512	532	541	516	533	484	474	480
7	531	481	510	592	564	583	563	522	543	495	478	490
8	519	465	499	593	580	589	549	512	536	501	492	497
9	509	482	500	592	573	586	544	511	533	517	500	509
10	509	493	503	591	575	586	546	509	534	520	509	516
11	510	442	483	592	467	521	541	425	490	521	511	518
12	539	467	495	574	378	489	501	433	466	525	513	521
13	553	538	546	559	426	514	483	377	439	527	510	521
14	560	527	547	583	559	571	435	378	412	525	513	522
15	546	525	537	590	580	584	484	421	463	524	504	518
16	553	485	518	590	540	579	509	484	495	525	513	520
17	591	481	539	540	451	487	524	509	516	522	499	515
18	594	580	588	556	503	529	536	523	529	527	502	517
19	589	574	584	567	556	562	541	525	536	521	500	514
20	588	576	583	574	564	569	538	322	416	522	495	514
21	584	558	574	576	529	562	489	435	466	522	495	513
22	579	551	569	545	508	522	506	489	498	520	492	511
23	574	542	562	566	545	556	520	506	513	527	496	513
24	570	557	565	569	556	564	524	515	520	536	490	516
25	571	536	563	570	551	564	516	493	506	517	483	506
26	550	520	532	571	560	567	523	494	512	518	493	509
27	572	540	557	566	546	559	527	517	523	522	488	508
28	579	545	563	564	541	556	530	521	526	517	487	507
29	586	384	532	564	541	557	530	511	525	520	504	513
30	552	373	480	565	536	555	531	510	524	519	508	514
31	594	552	578	---	---	---	532	507	524	518	503	512
MONTH	594	373	536	596	378	560	563	322	509	536	277	499
		FEBRUARY			MARCH			APRIL			MAY	
1	517	501	511	482	448	468	456	424	440	454	376	429
2	517	495	508	448	254	380	465	408	440	447	333	415
3	516	490	506	397	285	359	468	404	446	475	441	457
4	514	483	500	423	350	395	472	418	455	472	372	419
5	505	486	498	398	206	321	474	413	455	443	413	427
6	508	488	499	372	289	335	475	413	454	440	378	421
7	493	473	485	414	354	389	471	301	386	443	381	427
8	505	482	494	442	409	420	404	360	386	439	383	424
9	516	483	498	443	427	433	404	283	337	437	346	408
10	506	475	492	459	443	447	378	341	364	413	348	381
11	502	479	493	466	450	455	371	220	295	377	345	361
12	504	485	494	470	456	462	397	344	370	397	377	387
13	540	474	501	470	454	465	425	397	408	407	381	398
14	511	482	493	477	452	465	441	424	429	419	386	405
15	487	455	470	484	453	472	452	430	440	428	418	424
16	491	462	483	488	446	474	458	433	447	423	385	404
17	485	462	473	490	438	472	461	432	450	452	423	434
18	471	453	462	494	465	483	465	394	450	437	292	346
19	476	455	464	496	453	481	439	386	411	386	328	353
20	487	435	460	489	204	351	448	428	439	418	385	402
21	512	468	491	383	287	348	452	420	441	430	415	421
22	496	196	335	421	383	402	456	424	443	449	430	440
23	250	213	226	440	406	428	463	417	445	453	449	451
24	297	250	279	454	435	442	492	423	456	459	451	453
25	347	277	316	464	438	451	470	449	462	466	458	461
26	429	339	387	465	448	460	465	443	456	473	460	467
27	456	422	440	473	439	458	465	396	442	476	464	471
28	---	---	---	479	439	465	469	401	449	474	464	468
29	---	---	---	483	429	467	461	359	430	478	466	472
30	---	---	---	476	424	448	454	362	426	488	472	478
31	---	---	---	454	420	444	---	---	---	493	464	479
MONTH	540	196	454	496	204	430	492	220	425	493	292	425

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	494	449	479	511	483	501	498	479	490	521	335	474
2	487	459	470	513	491	503	497	454	485	475	222	393
3	482	445	470	492	333	403	504	444	491	511	383	471
4	458	274	408	496	444	476	501	444	483	520	487	506
5	371	249	321	508	487	501	502	217	445	524	496	512
6	421	365	399	511	136	454	479	276	416	528	518	523
7	434	334	390	409	156	314	502	479	493	528	513	523
8	421	344	387	430	326	397	508	494	504	528	517	523
9	455	378	411	455	302	427	509	262	460	526	514	522
10	458	440	448	---	---	---	472	306	417	525	497	516
11	471	456	464	---	---	---	471	314	395	526	494	515
12	478	461	472	469	452	462	494	447	471	527	509	519
13	462	240	411	---	---	---	508	494	502	522	489	509
14	413	305	375	---	---	---	519	499	511	525	498	510
15	427	413	422	---	---	---	533	507	517	526	506	518
16	446	407	433	---	---	---	525	507	517	524	492	513
17	439	366	411	---	---	---	524	494	512	521	482	504
18	407	306	381	---	---	---	525	491	511	524	243	486
19	395	225	348	---	---	---	525	467	505	379	136	262
20	364	247	313	---	---	---	513	475	499	452	376	419
21	415	336	380	---	---	---	515	471	501	486	449	467
22	430	396	417	---	---	---	518	477	505	501	472	494
23	462	427	447	505	480	494	518	481	505	472	338	407
24	467	449	459	491	461	477	517	478	504	492	463	479
25	479	452	469	505	480	493	521	478	506	506	491	498
26	488	467	476	509	477	497	520	480	505	516	506	510
27	494	480	488	509	492	502	523	474	507	519	438	506
28	499	478	492	510	495	501	521	461	504	507	429	474
29	506	480	497	504	487	497	515	469	488	519	505	513
30	510	478	500	505	490	498	521	496	512	524	511	519
31	---	---	---	504	481	495	522	507	517	---	---	---
MONTH	510	225	428	513	136	468	533	217	490	528	136	486



DAILY MEAN SPECIFIC CONDUCTANCE - 2003 WATER YEAR

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

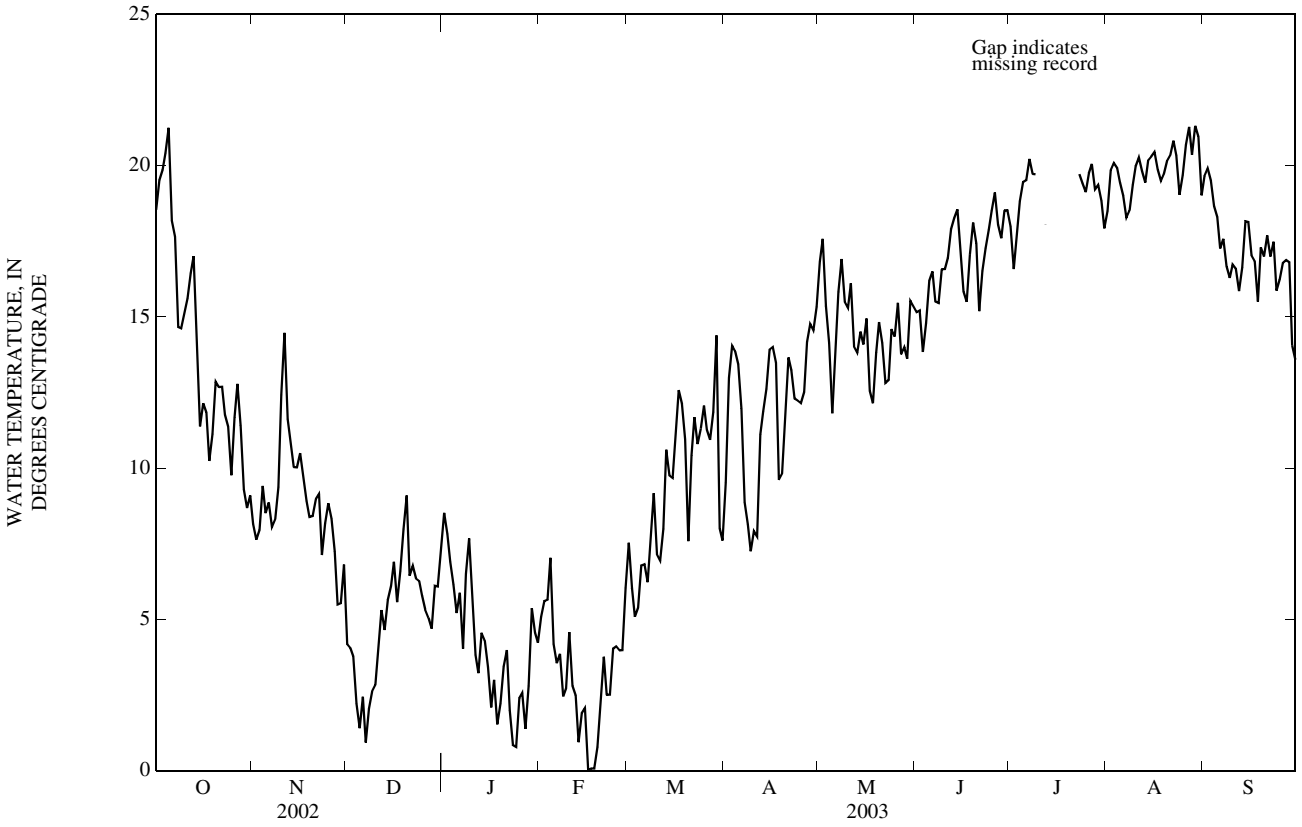
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	21.5	15.7	18.5	9.3	7.0	8.2	5.8	2.7	4.2	8.9	8.0	8.5
2	23.3	16.5	19.5	9.9	5.8	7.6	5.8	2.5	4.1	8.0	7.6	7.8
3	22.3	17.6	19.9	10.3	5.8	8.0	5.1	2.3	3.8	7.6	6.0	6.9
4	23.1	18.1	20.4	10.7	8.2	9.4	3.2	0.9	2.2	7.5	5.2	6.2
5	24.1	19.2	21.3	9.5	8.0	8.5	2.5	0.1	1.4	5.5	4.7	5.2
6	21.2	15.4	18.2	10.0	8.1	8.9	5.0	1.0	2.4	7.0	3.8	5.9
7	19.7	15.8	17.7	9.1	7.2	8.1	2.4	0.0	0.9	5.8	2.4	4.0
8	16.7	12.5	14.7	11.2	5.6	8.3	3.9	0.3	2.0	8.9	4.5	6.5
9	16.0	13.4	14.6	11.7	7.0	9.4	4.3	1.0	2.6	9.9	6.0	7.7
10	15.9	14.5	15.1	14.6	10.0	12.4	4.9	1.4	2.8	7.4	4.4	6.0
11	16.1	15.3	15.6	15.7	12.8	14.5	4.9	3.3	4.0	5.9	2.3	3.8
12	17.7	15.4	16.5	12.8	10.8	11.6	7.9	3.8	5.3	5.5	1.2	3.2
13	18.3	16.0	17.0	12.2	9.4	10.7	5.3	4.0	4.7	7.0	2.7	4.6
14	16.6	12.2	14.2	12.3	7.9	10.0	6.7	4.5	5.6	5.4	3.4	4.3
15	13.0	9.5	11.4	11.7	8.1	10.0	7.8	4.5	6.1	5.3	1.9	3.4
16	13.4	11.3	12.1	10.8	10.2	10.5	8.4	5.6	6.9	3.4	0.9	2.1
17	12.7	10.3	11.8	10.2	8.9	9.7	7.1	3.7	5.6	5.1	1.8	3.0
18	12.8	7.9	10.2	10.6	7.4	8.9	7.5	6.0	6.6	3.4	0.1	1.5
19	12.9	9.6	11.1	9.8	7.0	8.4	10.1	5.8	8.0	4.3	1.1	2.2
20	13.4	12.5	12.9	10.7	6.3	8.4	10.0	6.7	9.1	6.0	1.5	3.4
21	14.6	11.3	12.7	10.2	7.9	9.0	8.1	5.1	6.4	5.3	2.5	4.0
22	15.4	10.9	12.7	10.2	6.8	9.1	8.8	5.1	6.8	4.1	0.4	2.0
23	14.4	9.2	11.8	8.9	5.3	7.1	7.8	5.0	6.4	2.1	0.0	0.8
24	12.4	10.8	11.4	10.7	5.9	8.2	6.9	5.8	6.3	2.1	0.0	0.8
25	10.8	9.3	9.8	11.1	6.5	8.8	7.3	4.8	5.8	4.8	0.9	2.4
26	14.7	9.3	11.7	9.6	7.6	8.3	7.1	4.1	5.3	4.2	1.0	2.6
27	15.3	10.4	12.8	8.5	5.4	7.3	7.1	3.4	5.1	3.4	0.0	1.4
28	12.7	10.3	11.4	7.9	3.8	5.5	5.8	3.3	4.7	5.3	0.6	2.8
29	10.3	8.4	9.3	7.4	4.0	5.5	8.4	4.3	6.1	6.4	4.5	5.4
30	9.2	8.3	8.7	8.8	5.0	6.8	7.6	4.2	6.1	5.2	4.0	4.6
31	10.4	8.3	9.1	---	---	---	9.0	5.2	7.2	4.9	3.5	4.2
MONTH	24.1	7.9	14.0	15.7	3.8	8.9	10.1	0.0	5.0	9.9	0.0	4.1
		FEBRUARY			MARCH			APRIL			MAY	
1	6.4	4.1	5.1	10.6	5.7	7.5	14.4	5.4	9.5	21.3	13.3	16.8
2	9.0	3.3	5.6	8.7	3.3	6.0	18.2	8.6	13.0	22.4	13.6	17.6
3	7.6	3.6	5.6	8.7	3.0	5.1	19.1	9.5	14.1	17.1	13.6	15.4
4	9.3	4.4	7.0	9.3	2.7	5.4	17.3	10.5	13.9	16.4	12.2	14.1
5	7.3	1.8	4.2	9.8	5.0	6.8	17.5	11.0	13.4	13.8	11.0	11.8
6	5.4	2.3	3.5	8.7	5.2	6.8	16.1	8.3	12.0	17.8	10.8	13.9
7	6.5	2.0	3.9	9.3	4.1	6.2	12.1	7.5	8.9	19.8	12.5	15.8
8	5.6	0.1	2.4	11.9	4.0	7.6	9.6	7.0	8.1	20.6	13.5	16.9
9	6.1	0.0	2.7	12.7	6.7	9.2	8.5	6.0	7.3	17.1	13.9	15.5
10	6.7	3.4	4.6	10.5	4.2	7.2	9.7	6.9	7.9	16.0	14.7	15.3
11	4.8	0.7	2.8	10.1	4.2	6.9	9.9	5.6	7.7	19.2	14.1	16.1
12	5.6	0.0	2.5	10.6	5.1	8.0	15.9	7.6	11.1	16.1	12.4	14.0
13	2.8	0.0	0.9	14.0	7.6	10.6	16.8	7.7	11.9	17.5	11.0	13.8
14	3.9	0.1	1.9	13.1	6.8	9.8	17.4	8.3	12.6	19.4	10.0	14.5
15	3.1	0.0	2.1	14.0	5.8	9.7	19.0	9.4	13.9	15.6	12.5	14.1
16	0.1	0.0	0.0	14.3	8.4	11.4	17.7	10.3	14.0	18.2	13.1	14.9
17	0.1	0.0	0.1	16.5	8.9	12.6	16.0	11.2	13.5	14.1	12.0	12.6
18	0.1	0.0	0.1	13.3	11.1	12.1	12.1	8.5	9.6	13.0	11.4	12.1
19	1.4	0.1	0.8	12.5	9.4	11.0	11.8	8.3	9.8	17.4	11.6	13.8
20	4.3	1.1	2.3	9.4	6.6	7.6	13.8	10.5	12.0	18.9	11.2	14.8
21	5.1	2.1	3.8	14.8	7.0	10.4	16.7	11.5	13.7	15.4	13.0	14.1
22	4.3	1.1	2.5	15.3	9.3	11.7	15.5	11.6	13.2	13.7	11.9	12.8
23	3.4	1.8	2.5	13.7	8.6	10.8	16.6	8.7	12.3	13.8	12.2	12.9
24	7.7	1.8	4.0	15.8	7.4	11.3	16.8	7.8	12.2	17.9	12.4	14.6
25	5.6	2.9	4.1	16.6	8.0	12.1	13.2	10.5	12.2	17.5	11.5	14.3
26	5.2	3.0	4.0	13.4	9.3	11.3	13.7	11.6	12.5	17.2	13.5	15.5
27	5.1	3.3	4.0	15.6	6.9	10.9	19.3	9.9	14.2	15.1	12.9	13.8
28	9.5	3.3	6.0	15.5	9.0	11.9	20.2	9.8	14.8	16.1	12.2	14.0
29	---	---	---	18.1	12.2	14.4	17.9	11.8	14.6	14.6	12.7	13.6
30	---	---	---	12.3	5.8	8.0	20.1	11.4	15.3	20.0	11.7	15.5
31	---	---	---	10.9	4.6	7.6	---	---	---	17.1	13.5	15.3
MONTH	9.5	0.0	3.2	18.1	2.7	9.3	20.2	5.4	12.0	22.4	10.0	14.5

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	18.9	12.2	15.2	19.6	16.4	18.0	20.6	17.1	18.5	22.9	17.6	19.7
2	19.5	11.2	15.2	17.6	15.8	16.6	23.0	17.1	19.8	21.2	18.5	19.9
3	15.7	13.4	13.8	19.7	16.4	17.7	23.4	18.0	20.1	21.3	18.1	19.5
4	16.3	13.7	14.8	21.9	16.1	18.8	22.4	17.9	19.9	19.6	18.1	18.7
5	19.6	13.6	16.2	22.6	16.4	19.4	22.2	17.8	19.4	21.0	16.1	18.3
6	20.5	13.0	16.5	22.7	16.6	19.5	21.1	16.8	19.0	20.1	14.7	17.3
7	16.9	14.5	15.5	23.0	17.8	20.2	19.2	17.2	18.3	20.3	14.8	17.6
8	16.6	14.5	15.5	22.7	17.2	19.7	20.6	16.9	18.5	18.0	15.3	16.7
9	19.2	14.2	16.6	22.4	17.5	19.7	21.4	17.4	19.4	17.6	14.7	16.3
10	20.1	13.3	16.6	---	---	---	22.9	17.7	20.0	19.9	14.2	16.7
11	19.7	14.5	16.9	---	---	---	22.6	18.8	20.3	20.1	13.3	16.6
12	21.4	15.0	17.9	20.2	15.7	18.0	22.0	17.7	19.8	17.0	14.5	15.9
13	20.5	16.1	18.3	---	---	---	21.8	17.4	19.4	18.4	15.2	16.6
14	21.8	15.6	18.6	---	---	---	23.5	17.3	20.2	20.9	16.5	18.2
15	18.3	15.9	17.1	---	---	---	23.2	17.8	20.3	19.6	16.8	18.1
16	16.9	15.0	15.8	---	---	---	23.0	18.4	20.4	20.4	14.0	17.0
17	15.9	15.0	15.5	---	---	---	22.2	18.1	19.9	20.1	13.8	16.9
18	20.2	14.7	17.1	---	---	---	22.3	17.2	19.5	16.8	15.0	15.5
19	19.8	16.5	18.1	---	---	---	22.7	17.5	19.7	17.8	16.4	17.3
20	20.0	15.8	17.4	---	---	---	23.6	17.3	20.1	19.2	15.0	17.0
21	17.4	13.6	15.2	---	---	---	23.5	17.4	20.3	19.6	16.3	17.7
22	19.8	13.9	16.5	---	---	---	24.1	18.1	20.8	17.7	16.3	17.0
23	21.1	14.0	17.3	22.4	17.4	19.7	23.5	18.0	20.3	18.4	16.0	17.5
24	21.7	14.4	17.9	22.2	16.7	19.4	22.3	16.1	19.0	18.4	13.5	15.9
25	22.4	15.0	18.5	22.8	15.6	19.1	23.3	16.6	19.7	18.4	13.7	16.2
26	22.8	15.8	19.1	23.1	16.4	19.8	24.4	17.5	20.7	18.4	15.6	16.8
27	20.0	16.0	18.0	22.6	17.7	20.1	25.0	18.9	21.3	19.3	14.7	16.9
28	20.5	14.9	17.6	20.4	18.2	19.2	23.1	17.9	20.4	18.3	15.4	16.8
29	21.7	15.4	18.5	21.6	17.4	19.4	24.9	18.5	21.3	15.4	12.9	14.1
30	21.0	15.7	18.5	20.0	17.5	18.8	22.9	18.9	21.0	16.5	11.3	13.6
31	---	---	---	18.8	16.9	17.9	20.5	18.1	19.0	---	---	---
MONTH	22.8	11.2	16.9	23.1	15.6	19.0	25.0	16.1	19.9	22.9	11.3	17.1

01621050 MUDDY CREEK AT MOUNT CLINTON, VA—Continued



DAILY MEAN WATER TEMPERATURE - 2003 WATER YEAR

01636500 SHENANDOAH RIVER AT MILLVILLE, WV

LOCATION.--Lat 39°16'55", long 77°47'22", Jefferson County, Hydrologic Unit 02070007, on left bank 0.4 mi downstream from Cattail Run, 1.0 mi upstream from Millville, 5.0 mi upstream from Harpers Ferry, and at mile 4.7.

DRAINAGE AREA.--3,022 mi^2.

PERIOD OF RECORD.--April 1895 to March 1909, August 1928 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-02, 1905, 1907-08, 1932(M), 1935(M). WDR WV-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 293.00 ft above National Geodetic Vertical Datum of 1929. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi downstream at datum 0.32 ft higher.

REMARKS.--Records good except those for periods of estimated daily discharges (ice effect), which are poor. Some regulation by upstream hydroelectric plants, including that of Potomac Light and Power Company, 0.5 mi upstream from station. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 3	0100	18,200	9.05	May 20	1130	15,200	8.26
Feb 24	1300	38,900	13.23	Jun 22	0830	19,300	9.31
Mar 7	0530	20,300	9.55	Sep 20	2000	*66,100	*17.31
Mar 22	0130	27,000	11.02	Sep 24	0900	35,600	12.65
Apr 12	1130	25,700	10.76				

Minimum discharge, 479 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,450	4,180	1,950	2,960	1,770	7,700	5,700	3,500	5,050	3,670	1,970	1,570
2	1,160	3,940	1,780	11,500	1,730	7,020	5,810	3,400	4,410	3,480	1,910	1,590
3	885	3,140	1,690	15,700	1,710	9,600	5,800	3,970	4,170	3,540	1,860	1,600
4	766	2,470	1,580	12,000	1,680	13,400	5,670	4,020	4,420	6,040	2,090	4,940
5	711	2,030	1,520	9,890	1,690	11,100	5,390	3,670	6,530	7,750	2,170	3,790
6	665	1,890	1,490	7,980	1,620	14,800	5,070	4,350	7,960	6,050	2,200	2,460
7	592	2,210	1,430	6,690	1,650	19,200	4,870	4,930	8,010	5,560	2,320	2,170
8	537	2,070	1,290	5,670	1,640	15,700	6,050	4,880	7,320	4,720	2,560	2,030
9	498	2,130	e1,200	5,100	1,560	14,000	9,380	4,710	7,890	5,050	2,510	1,820
10	482	2,050	1,260	4,710	1,510	13,700	13,800	4,730	9,070	5,560	2,300	1,710
11	521	1,940	1,430	4,260	1,500	11,000	18,000	8,870	8,160	4,980	2,400	1,540
12	544	2,060	2,300	3,820	1,470	8,830	24,200	12,600	6,850	4,900	4,090	1,570
13	710	3,710	3,650	3,480	1,400	7,660	17,900	9,420	7,730	4,110	4,700	1,680
14	817	6,210	7,080	3,220	1,370	7,770	12,700	7,050	11,400	3,580	4,490	1,940
15	796	6,470	9,210	2,970	1,410	7,780	9,920	5,680	9,240	3,230	3,870	2,010
16	1,010	4,990	9,240	2,780	1,420	6,900	8,110	7,470	8,800	3,470	3,450	2,110
17	2,430	4,690	7,410	2,680	e1,400	6,190	6,950	7,760	9,930	3,590	3,010	1,960
18	2,980	6,250	5,910	2,470	1,350	5,640	6,070	7,110	9,720	3,050	2,750	1,860
19	2,740	7,450	4,950	2,350	1,810	5,170	5,740	8,010	14,400	2,680	2,560	21,100
20	2,060	6,470	4,390	e2,300	2,320	5,330	5,770	14,400	14,400	2,500	2,490	60,600
21	1,620	5,190	4,570	e2,250	2,730	19,300	5,630	11,500	15,800	2,380	2,330	35,400
22	1,460	4,630	7,700	e2,200	2,940	23,200	5,320	9,180	17,600	2,250	2,060	14,800
23	1,240	4,340	7,670	e2,150	16,000	15,000	5,340	8,520	12,200	2,220	2,000	18,100
24	1,120	3,910	6,040	e2,100	37,000	10,900	5,130	7,460	9,160	2,130	1,780	31,800
25	941	3,510	5,050	2,060	26,200	8,660	4,730	7,270	7,220	2,180	1,720	17,800
26	958	3,190	4,450	2,040	17,200	7,260	4,470	6,530	6,000	2,180	1,720	11,200
27	908	2,790	4,100	e2,000	12,000	6,580	4,270	5,930	5,140	2,020	1,580	8,510
28	917	2,530	3,740	e1,950	9,410	5,900	4,040	5,530	4,590	1,920	1,620	7,270
29	961	2,290	3,290	1,940	---	5,260	3,830	5,290	4,160	2,120	1,620	6,960
30	1,310	2,100	2,990	e1,850	---	4,980	3,670	5,010	3,810	2,120	1,530	6,920
31	3,200	---	2,800	1,820	---	5,250	---	4,840	---	1,880	1,520	---
TOTAL	36,989	110,830	123,160	134,890	155,490	310,780	229,330	207,590	251,140	110,910	75,180	278,810
MEAN	1,193	3,694	3,973	4,351	5,553	10,030	7,644	6,696	8,371	3,578	2,425	9,294
MAX	3,200	7,450	9,240	15,700	37,000	23,200	24,200	14,400	17,600	7,750	4,700	60,600
MIN	482	1,890	1,200	1,820	1,350	4,980	3,670	3,400	3,810	1,880	1,520	1,540
CFSM	0.39	1.22	1.31	1.44	1.84	3.32	2.53	2.22	2.77	1.18	0.80	3.08
IN.	0.46	1.36	1.52	1.66	1.91	3.83	2.82	2.56	3.09	1.37	0.93	3.43

e Estimated

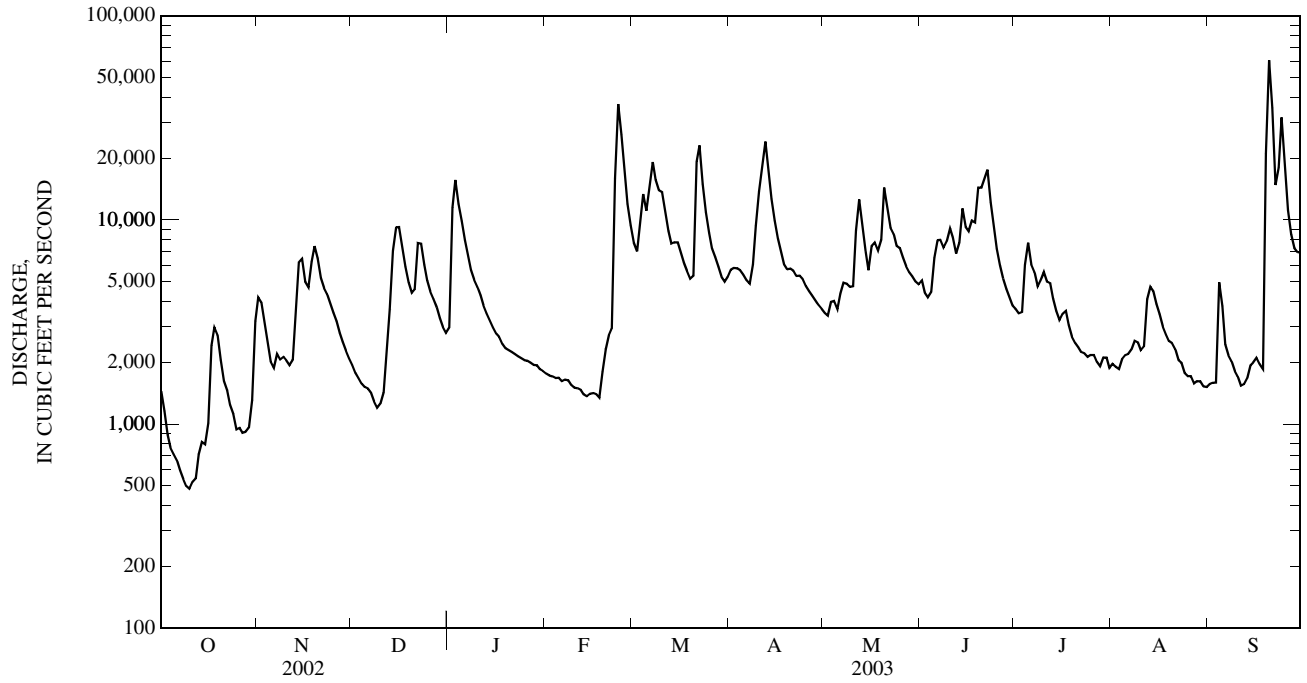
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 1909, 1928 - 2003, BY WATER YEAR (WY)

MEAN	1,923	1,858	2,471	3,215	3,897	5,058	4,384	3,358	2,445	1,454	1,623	1,547
MAX	16,250	13,350	8,164	13,470	18,100	17,540	12,840	8,701	10,380	4,809	10,390	14,780
(WY)	(1943)	(1986)	(1973)	(1996)	(1998)	(1936)	(1901)	(1901)	(1972)	(1972)	(1955)	(1996)
MIN	343	388	410	475	471	929	992	1,001	643	402	388	411
(WY)	(1931)	(1932)	(1966)	(2002)	(2002)	(1931)	(1981)	(1969)	(1999)	(1966)	(1930)	(1963)

01636500 SHENANDOAH RIVER AT MILLVILLE, WV—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1895 - 1909, 1928 - 2003	
ANNUAL TOTAL	565,360		2,025,099			
ANNUAL MEAN	1,549		5,548		2,763	
HIGHEST ANNUAL MEAN					5,618	1996
LOWEST ANNUAL MEAN					927	2002
HIGHEST DAILY MEAN	13,500	Apr 23	60,600	Sep 20	192,000	Oct 16, 1942
LOWEST DAILY MEAN	302	Aug 26	482	Oct 10	194	Jul 24, 1930
ANNUAL SEVEN-DAY MINIMUM	326	Aug 21	548	Oct 6	240	Sep 7, 1966
MAXIMUM PEAK FLOW			66,100	Sep 20	230,000	Oct 16, 1942
MAXIMUM PEAK STAGE			17.31	Sep 20	(a)32.40	Oct 16, 1942
INSTANTANEOUS LOW FLOW			479	(b)	59	Oct 4, 1930
ANNUAL RUNOFF (CFSM)	0.51		1.84		0.91	
ANNUAL RUNOFF (INCHES)	6.96		24.93		12.42	
10 PERCENT EXCEEDS	4,000		11,500		5,630	
50 PERCENT EXCEEDS	720		3,970		1,610	
90 PERCENT EXCEEDS	389		1,470		608	

a From floodmarks.
b Oct. 9, 10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01637500 CATOCTIN CREEK NEAR MIDDLETOWN, MD

LOCATION.--Lat 39°25'38.1", long 77°33'22.2", Frederick County, Hydrologic Unit 02070008, on right bank 300 ft downstream from bridge on State Highway 17, 1.3 mi south of Middletown, 2.2 mi downstream from Little Catoctin Creek, and 14.8 mi upstream from mouth.

DRAINAGE AREA.--66.9 mi^2.

PERIOD OF RECORD.--August 1947 to current year.

REVISED RECORDS.--WSP 1432: 1947-48. WDR MD-DE-77-1: 1960(M), 1965(M), 1970(M), 1972(P), 1975(P).

GAGE.--Water-stage recorder and concrete control . Elevation of gage is 385 ft above National Geodetic Vertical Datum of 1929' from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2300	2,130	5.62	Jun 13	1645	1,220	4.34
Feb 22	1715	1,290	4.45	Sep 19	0501	1,800	5.19
May 16	0930	*5,660	*9.32	Sep 23	0246	3,820	7.55
Jun 7	1545	1,330	4.51				

Minimum discharge, 2.1 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	55	48	461	70	109	166	72	206	62	38	20
2	6.2	45	42	688	53	205	167	69	154	59	28	41
3	6.0	37	38	367	47	233	137	64	326	65	22	67
4	5.0	e30	31	286	102	159	135	65	741	69	20	528
5	3.6	e26	33	234	82	217	135	67	482	58	19	149
6	2.8	e140	39	205	58	375	114	77	335	51	17	94
7	2.5	54	28	177	55	266	143	64	690	61	16	73
8	2.3	43	37	176	46	278	141	77	489	48	17	60
9	2.1	36	35	178	50	396	215	116	384	42	14	55
10	3.5	33	39	165	46	296	208	155	289	44	16	48
11	27	45	185	137	43	215	253	132	238	43	235	41
12	47	90	249	120	42	202	219	108	272	36	70	36
13	24	133	293	113	39	213	188	97	401	48	38	52
14	16	85	476	102	43	268	167	86	362	35	28	58
15	12	69	308	93	48	219	148	109	256	31	23	58
16	92	62	231	80	20	228	135	2,520	e200	29	22	64
17	107	126	179	e75	14	248	130	796	179	26	118	40
18	48	239	144	73	47	217	107	611	181	24	45	57
19	34	138	127	89	48	183	154	e426	152	24	30	918
20	28	109	179	86	48	432	117	330	230	21	25	287
21	22	122	148	80	58	518	107	279	200	20	22	202
22	19	179	122	63	592	342	138	235	197	27	20	171
23	16	122	108	63	582	266	107	211	157	66	18	1,510
24	15	100	98	e66	318	221	85	279	133	52	15	382
25	14	87	102	e70	214	188	83	216	117	30	14	279
26	38	75	92	e60	165	167	100	250	104	23	19	285
27	35	71	80	e58	141	163	78	209	93	21	34	198
28	25	63	74	e55	125	135	75	222	83	20	28	280
29	e72	56	72	e57	---	148	64	195	75	22	23	175
30	e85	52	71	e57	---	167	75	169	68	19	23	146
31	72	---	72	e60	---	167	---	199	---	17	26	---
TOTAL	889.6	2,522	3,780	4,594	3,196	7,441	4,091	8,505	7,794	1,193	1,083	6,374
MEAN	28.7	84.1	122	148	114	240	136	274	260	38.5	34.9	212
MAX	107	239	476	688	592	518	253	2,520	741	69	235	1,510
MIN	2.1	26	28	55	14	109	64	64	68	17	14	20
CFSM	0.43	1.26	1.82	2.22	1.71	3.59	2.04	4.10	3.88	0.58	0.52	3.18
IN.	0.49	1.40	2.10	2.55	1.78	4.14	2.27	4.73	4.33	0.66	0.60	3.54

e Estimated

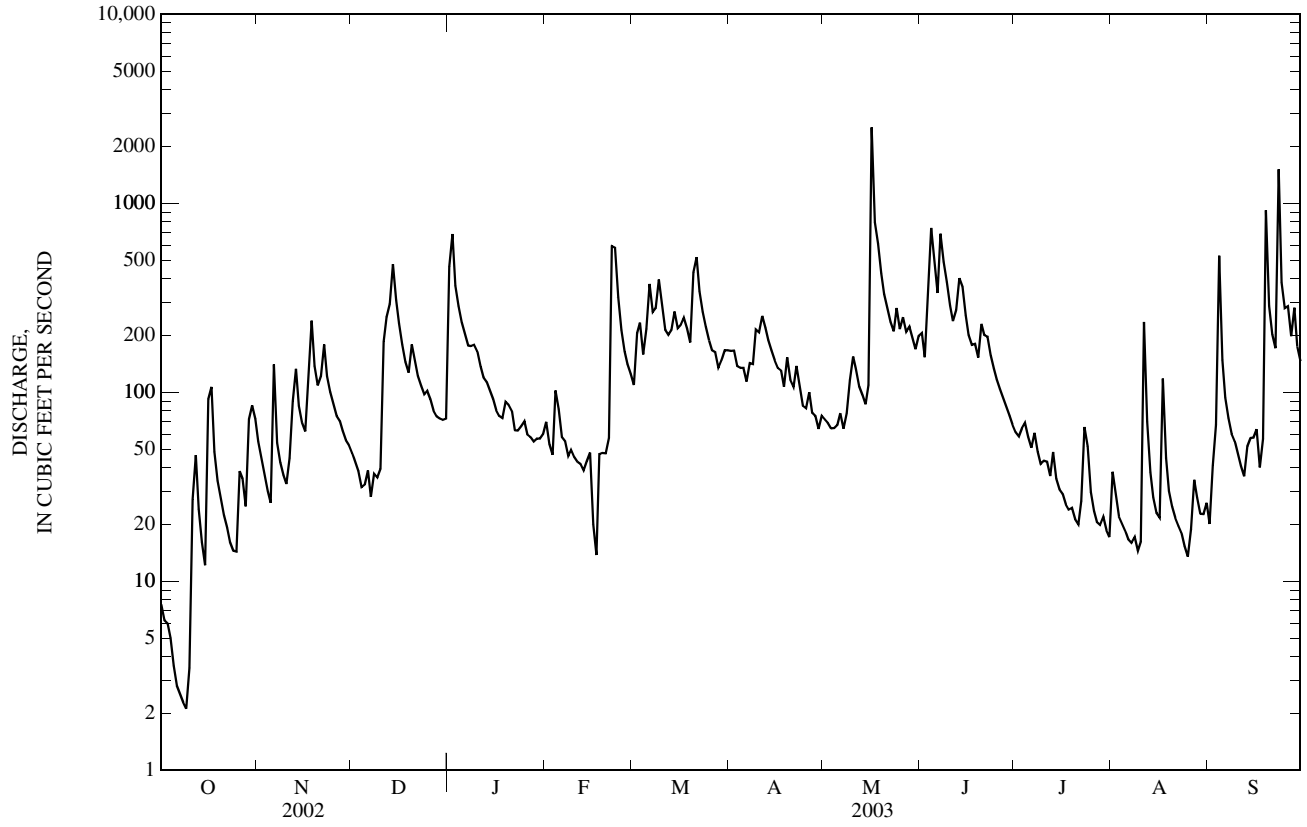
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)

MEAN	35.4	48.5	84.3	102	121	155	137	101	61.5	33.1	22.1	30.3
MAX	399	162	318	333	373	407	360	391	439	214	208	284
(WY)	(1977)	(1986)	(1993)	(1998)	(1998)	(1994)	(1993)	(1988)	(1972)	(1949)	(1955)	(1975)
MIN	2.62	3.61	3.80	4.25	8.08	30.6	30.2	29.2	11.5	4.86	2.04	1.68
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(2002)	(2002)	(1963)	(1999)	(1966)	(1966)	(1965)

01637500 CATOCTIN CREEK NEAR MIDDLETOWN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003	
ANNUAL TOTAL	11,596.96		51,462.6			
ANNUAL MEAN	31.8		141		77.4	
HIGHEST ANNUAL MEAN					164	1996
LOWEST ANNUAL MEAN					13.5	2002
HIGHEST DAILY MEAN	476	Dec 14	2,520	May 16	4,880	Oct 9, 1976
LOWEST DAILY MEAN	0.20	Aug 28	2.1	Oct 9	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.40	Sep 13	3.1	Oct 4	0.00	Aug 27, 1966
MAXIMUM PEAK FLOW			5,660	May 16	(b)12,000	Oct 9, 1976
MAXIMUM PEAK STAGE			9.32	May 16	14.13	Oct 9, 1976
INSTANTANEOUS LOW FLOW			2.1	(c)	0.00	(a)
ANNUAL RUNOFF (CFSM)	0.47		2.11		1.16	
ANNUAL RUNOFF (INCHES)	6.45		28.62		15.72	
10 PERCENT EXCEEDS	83		285		178	
50 PERCENT EXCEEDS	14		82		38	
90 PERCENT EXCEEDS	1.1		21		5.3	

a Aug. 27 to Sept. 12, 1966.
b From rating curve extended above 2,600 ft^3/s on basis of slope-area measurement of peak flow.
c Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'24.9", long 77°32'35.2", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi downstream from Catoctin Creek (Virginia), 6 mi upstream from Monocacy River, and at mile 159.5.

DRAINAGE AREA.--9,651 mi^2.

PERIOD OF RECORD.--February 1895 to current year.

REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 200.63 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft higher.

REMARKS.--Records good except those for estimated daily discharges (missing record, partial plugged intake), which are fair. Low flow affected slightly from 1913 to July 1981 by Stony River Reservoir; since December 1950 by Savage River Reservoir (see station 01597500); and since July 1981 by Jennings Randolph Lake. Low flow affected extensively at times by run-of-the-river hydroelectric plants. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft, from floodmarks, discharge, about 460,000 ft^3/s from rating curve extended as explained in footnotes.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 35,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 15	1815	44,300	10.01	May 17	1230	56,300	11.79
Jan 3	0615	88,800	16.11	May 20	0900	37,800	8.98
Feb 24	1430	90,100	16.26	Jun 5	0615	62,900	12.72
Mar 7	1800	78,000	14.74	Jun 8	1745	54,200	11.49
Mar 10	1830	66,300	13.18	Jun 14	1345	40,400	9.39
Mar 15	1345	42,400	9.71	Jun 22	1200	58,300	12.08
Mar 22	0300	94,800	16.85	Sep 21	0030	*150,000	*23.12
Apr 12	1930	68,600	13.49	Sep 24	1215	79,100	14.88
May 12	0745	68,600	13.50				

Minimum discharge, 1,480 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND , WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,980	20,700	4,840	11,200	4,810	21,200	17,100	10,000	18,000	9,670	5,540	3,930
2	4,580	15,300	4,430	36,400	4,740	19,000	17,400	10,500	21,100	9,020	4,930	4,130
3	4,070	10,400	4,100	80,500	4,630	21,100	17,500	12,100	19,300	8,590	4,810	6,830
4	3,240	7,670	3,760	53,600	5,000	27,300	17,800	11,200	37,500	10,100	4,630	12,300
5	2,650	5,970	3,440	40,800	4,960	26,700	17,100	10,300	58,000	12,700	4,840	19,300
6	2,200	5,420	3,310	31,800	5,030	30,300	16,500	11,300	42,100	10,900	5,260	16,800
7	2,040	6,110	3,100	26,100	4,990	67,800	16,900	16,800	34,600	10,600	6,090	13,500
8	1,850	9,160	2,670	22,100	4,880	63,700	20,100	17,500	48,500	9,670	6,060	9,780
9	1,620	9,320	2,680	19,500	4,830	51,300	36,400	18,600	46,800	9,320	6,080	8,020
10	1,540	7,670	2,940	18,500	4,590	60,800	46,200	25,000	41,400	10,500	5,660	7,180
11	1,690	7,010	3,330	17,000	4,560	54,600	54,500	46,500	34,800	15,300	5,820	6,100
12	1,860	6,570	5,600	14,900	4,320	38,500	62,700	66,300	27,000	14,500	8,640	5,010
13	2,790	7,980	12,300	14,100	3,980	31,400	57,000	46,900	24,100	13,300	13,000	4,990
14	3,900	e9,610	25,400	13,900	3,660	33,800	41,200	30,200	37,100	11,100	11,800	5,080
15	3,430	e17,300	41,800	12,400	3,720	41,700	32,100	23,800	36,300	9,680	10,100	5,190
16	3,660	e18,000	40,000	11,100	3,880	37,400	27,000	35,700	30,400	8,350	8,530	5,710
17	5,220	e18,700	30,400	10,000	2,500	32,800	23,000	52,400	26,500	8,410	8,580	6,310
18	10,900	e21,400	24,000	9,830	2,040	31,000	19,400	40,700	24,300	7,320	8,040	6,170
19	12,000	e23,900	19,700	8,600	2,570	29,000	17,700	34,300	29,500	6,570	7,050	e13,600
20	10,000	21,600	16,700	8,040	4,230	27,900	16,600	37,200	32,100	6,020	6,460	e79,300
21	7,540	16,500	16,500	7,750	6,120	59,900	16,400	32,900	39,400	5,580	5,760	112,000
22	6,120	14,200	23,300	8,060	9,310	83,200	15,500	26,900	56,000	5,250	4,930	e47,500
23	4,820	13,900	27,500	7,490	24,400	53,200	16,100	23,600	42,700	5,460	4,570	55,000
24	4,160	12,500	21,900	5,850	79,300	38,500	16,100	21,600	29,400	5,460	4,180	72,600
25	3,600	11,000	18,600	5,600	68,900	30,200	15,000	23,100	22,700	5,120	3,780	44,900
26	3,520	9,310	16,300	5,890	43,800	24,900	15,000	20,700	18,400	5,120	3,960	29,600
27	3,500	7,950	14,500	5,930	32,300	21,900	12,800	19,000	15,400	4,800	4,180	22,600
28	4,660	6,760	12,800	5,470	25,600	19,600	12,200	19,300	13,400	4,290	3,990	19,800
29	4,450	6,190	11,100	5,030	---	17,200	11,300	19,100	11,700	4,460	4,140	27,900
30	4,390	5,440	10,100	5,000	---	15,800	10,800	18,400	10,500	4,580	4,020	22,600
31	10,200	---	9,630	4,870	---	16,200	---	17,400	---	4,430	3,910	---
TOTAL	141,180	353,540	436,730	527,310	373,650	1,127,900	715,400	799,300	929,000	256,170	189,340	693,730
MEAN	4,554	11,780	14,090	17,010	13,340	36,380	23,850	25,780	30,970	8,264	6,108	23,120
MAX	12,000	23,900	41,800	80,500	79,300	83,200	62,700	66,300	58,000	15,300	13,000	112,000
MIN	1,540	5,420	2,670	4,870	2,040	15,800	10,800	10,000	10,500	4,290	3,780	3,930
CFSM	0.47	1.22	1.46	1.76	1.38	3.77	2.47	2.67	3.21	0.86	0.63	2.40
IN.	0.54	1.36	1.68	2.03	1.44	4.35	2.76	3.08	3.58	0.99	0.73	2.67

e Estimated

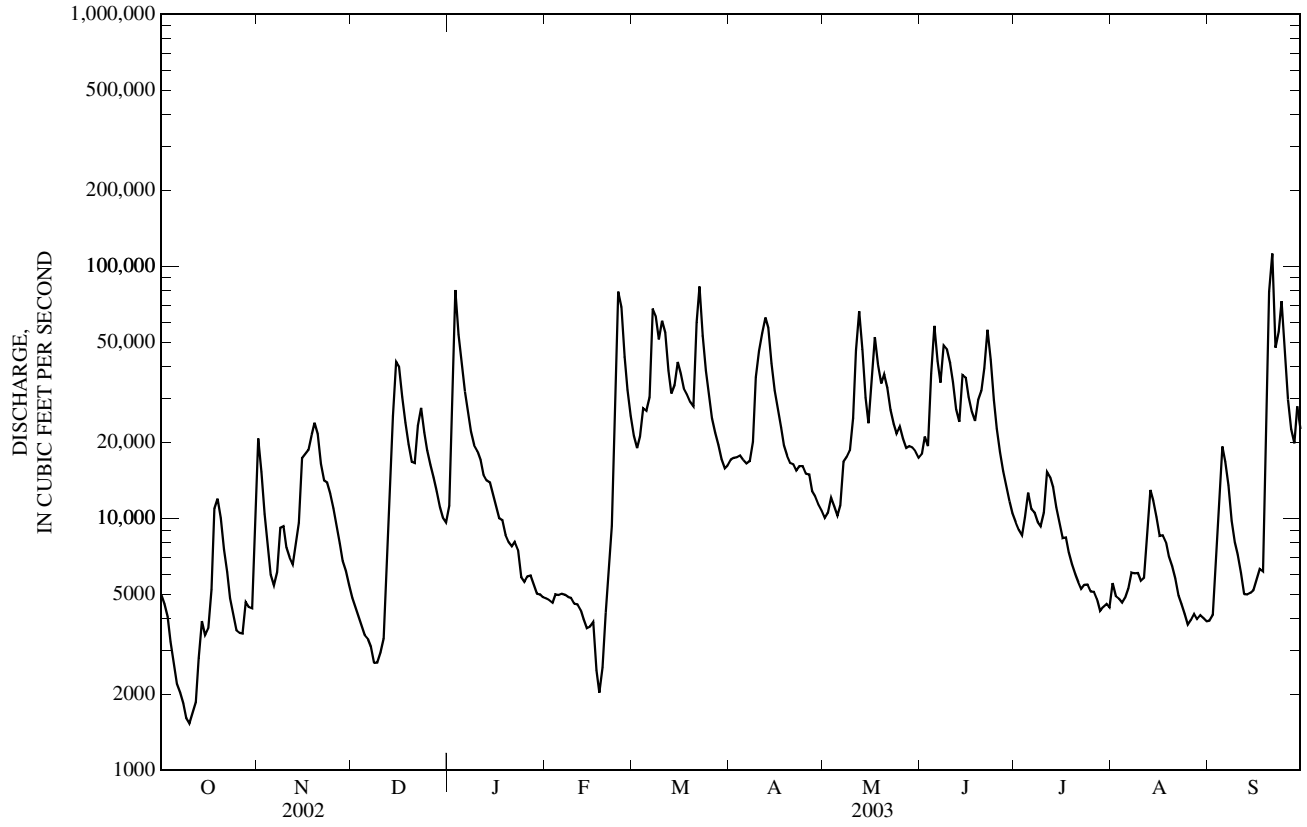
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 2003, BY WATER YEAR (WY)

MEAN	4,988	5,649	8,529	11,420	14,310	19,770	16,480	12,360	8,136	4,505	4,279	3,942
MAX	37,030	39,000	32,610	42,160	47,870	68,360	43,840	41,970	40,400	16,000	23,580	38,300
(WY)	(1943)	(1986)	(1973)	(1996)	(1998)	(1936)	(1993)	(1924)	(1972)	(1949)	(1955)	(1996)
MIN	706	840	1,253	1,703	1,982	5,400	4,368	3,276	1,932	1,056	771	834
(WY)	(1931)	(1931)	(1966)	(1981)	(2002)	(1931)	(1915)	(1930)	(1969)	(1966)	(1930)	(1930)

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1895 - 2003	
ANNUAL TOTAL	2,258,972		6,543,250			
ANNUAL MEAN	6,189		17,930		9,516	
HIGHEST ANNUAL MEAN					18,750	1996
LOWEST ANNUAL MEAN					4,015	2002
HIGHEST DAILY MEAN	44,300	Apr 24	112,000	Sep 21	434,000	Mar 19, 1936
LOWEST DAILY MEAN	771	Aug 16	1,540	Oct 10	540	Sep 10, 1914
ANNUAL SEVEN-DAY MINIMUM	942	Sep 8	1,830	Oct 6	593	Sep 6, 1966
MAXIMUM PEAK FLOW			150,000	Sep 21	(a)480,000	Mar 19, 1936
MAXIMUM PEAK STAGE			23.12	Sep 21	41.03	Mar 19, 1936
INSTANTANEOUS LOW FLOW			1,480	Oct 10	530	(b)
ANNUAL RUNOFF (CFSM)	0.64		1.86		0.99	
ANNUAL RUNOFF (INCHES)	8.71		25.22		13.40	
10 PERCENT EXCEEDS	16,300		41,300		20,900	
50 PERCENT EXCEEDS	2,860		12,000		5,380	
90 PERCENT EXCEEDS	1,230		4,010		1,680	

a From rating curve extended above 300,000 ft^3/s, on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow.
b Sept. 11, 12, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01639000 MONOCACY RIVER AT BRIDGEPORT, MD

LOCATION.--Lat 39°40'43.8", long 77°14'04.2", Frederick County, Hydrologic Unit 02070009, on right bank 60 ft downstream from bridge on State Highway 140 at Bridgeport, 0.9 mi upstream from Cattail Branch, 3.4 mi northwest of Taneytown, 4.8 mi downstream from confluence of Rock and Marsh Creeks at Pennsylvania-Maryland State line, and 52 mi upstream from mouth.

DRAINAGE AREA.--173 mi^2.

PERIOD OF RECORD.--May 1942 to current year.

REVISED RECORDS.--WSP 1382: 1944(M).

GAGE.--Water-stage recorder. Concrete control since Sept. 15, 1947. Datum of gage is 340.83 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 3, 1946, nonrecording gage and crest-stage gages at site 0.3 mi downstream at datum 0.98 ft lower.

REMARKS.--Records good, except those for estimated daily discharges (ice effect), which are poor. Occasional regulation at low flow from Lake Herrtage and other unknown sources upstream from station. U.S. Geological Survey gage-height telemeter and satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 24, 1933, reached a stage of about 25 ft, present site and datum, from floodmarks, discharge, 23,000 ft^3/s. Stage exceeded that of June 1889, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0200	6,140	11.92
Mar 21	0045	7,510	13.26
May 16	1815	7,330	13.09
Jun 4	0530	5,710	11.48
Jun 7	1930	7,060	12.83
Sep 4	1130	4,880	10.58
Sep 23	1115	*10,600	*16.00

Minimum discharge, 9.6 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	367	123	1,760	57	155	395	72	512	59	30	20
2	28	231	104	3,050	70	389	301	74	260	53	67	578
3	21	164	111	1,430	73	1,410	228	74	504	58	44	178
4	16	132	89	1,060	196	543	187	64	3,520	62	46	2,770
5	14	114	85	580	256	371	226	62	1,450	51	38	484
6	18	451	e100	435	106	1,720	208	121	584	43	29	191
7	17	272	e94	329	108	1,030	239	118	3,050	240	27	111
8	13	159	e90	337	e80	560	650	254	1,650	85	23	79
9	10	124	e90	592	e70	1,820	1,260	521	725	57	29	60
10	10	108	90	349	71	1,140	728	808	441	141	36	48
11	302	110	555	233	62	506	621	523	320	82	398	40
12	975	409	2,190	e160	e48	461	578	288	264	58	194	33
13	314	903	1,160	e135	e46	867	331	204	308	43	69	34
14	173	311	2,280	e120	e42	1,320	248	154	383	36	44	64
15	99	213	1,300	e110	e36	896	207	128	217	30	32	59
16	920	179	683	127	e34	894	178	4,050	161	29	28	99
17	929	1,620	399	e95	e32	871	153	1,880	129	27	243	68
18	304	1,300	288	e85	33	687	136	865	139	24	86	45
19	182	468	248	e70	79	487	174	562	133	23	43	714
20	131	311	1,080	e64	91	1,970	159	369	843	23	31	321
21	101	321	613	e60	89	3,160	129	306	812	21	25	151
22	78	879	352	e55	618	780	166	267	749	22	21	113
23	64	418	270	e52	2,640	491	155	224	366	80	19	6,270
24	56	253	202	e48	1,330	366	109	539	212	401	16	652
25	56	198	225	e46	668	292	94	458	152	86	15	312
26	717	165	266	e45	401	258	107	1,420	121	49	14	331
27	318	171	222	e45	243	368	130	599	102	36	14	201
28	170	186	190	e44	179	247	97	1,170	87	29	18	652
29	143	142	189	e44	---	238	83	646	77	25	32	269
30	1,080	129	e220	e48	---	508	81	368	67	23	26	160
31	969	---	243	53	---	723	---	271	---	22	20	---
TOTAL	8,266	10,808	14,151	11,661	7,758	25,528	8,358	17,459	18,338	2,018	1,757	15,107
MEAN	267	360	456	376	277	823	279	563	611	65.1	56.7	504
MAX	1,080	1,620	2,280	3,050	2,640	3,160	1,260	4,050	3,520	401	398	6,270
MIN	10	108	85	44	32	155	81	62	67	21	14	20
CFSM	1.54	2.08	2.64	2.17	1.60	4.76	1.61	3.26	3.53	0.38	0.33	2.91
IN.	1.78	2.32	3.04	2.51	1.67	5.49	1.80	3.75	3.94	0.43	0.38	3.25

e Estimated

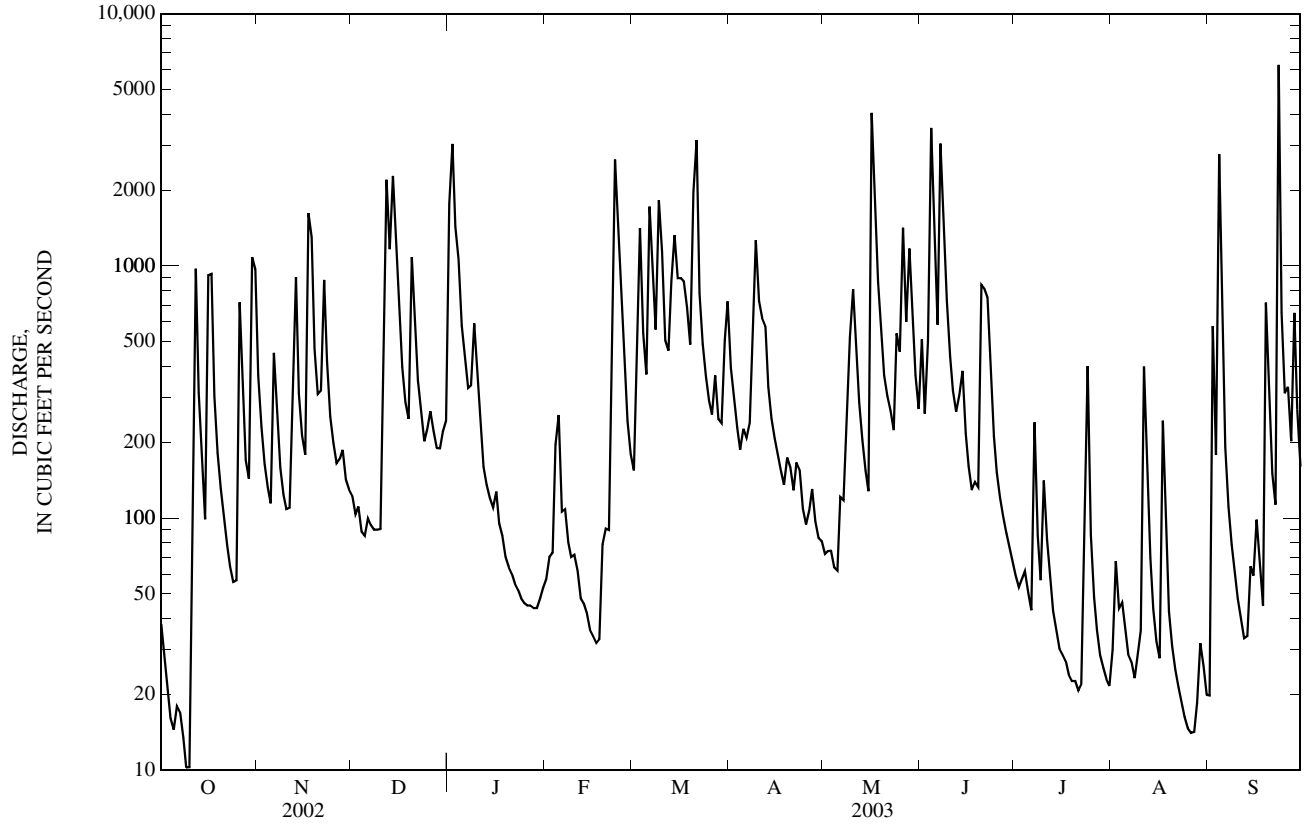
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2003, BY WATER YEAR (WY)

MEAN	95.7	177	267	299	372	459	295	212	137	78.7	57.2	91.4
MAX	906	513	780	1,214	1,029	1,606	1,029	964	1,065	598	613	1,027
(WY)	(1977)	(1986)	(1997)	(1996)	(1961)	(1994)	(1983)	(1989)	(1972)	(1949)	(1942)	(1975)
MIN	3.24	10.4	12.3	13.8	29.8	94.7	58.1	41.2	10.5	2.68	2.40	2.34
(WY)	(1964)	(1954)	(1999)	(1981)	(2002)	(1949)	(1995)	(1969)	(1966)	(1966)	(1944)	(1943)

01639000 MONOCACY RIVER AT BRIDGEPORT, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1942 - 2003	
ANNUAL TOTAL	51,573.49		141,209			
ANNUAL MEAN	141		387		210	
HIGHEST ANNUAL MEAN					447	1996
LOWEST ANNUAL MEAN					53.8	2002
HIGHEST DAILY MEAN	2,280	Dec 14	6,270	Sep 23	16,700	Jun 22, 1972
LOWEST DAILY MEAN	0.26	Aug 19	10	(a)	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.48	Aug 15	14	Oct 4	0.04	Jul 22, 1966
MAXIMUM PEAK FLOW			10,600	Sep 23	(c)24,400	Jun 19, 1996
MAXIMUM PEAK STAGE			16.00	Sep 23	25.42	Jun 19, 1996
INSTANTANEOUS LOW FLOW			9.6	(a)	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.82		2.24		1.21	
ANNUAL RUNOFF (INCHES)	11.09		30.36		16.46	
10 PERCENT EXCEEDS	319		924		448	
50 PERCENT EXCEEDS	44		166		64	
90 PERCENT EXCEEDS	4.3		30		7.9	

a Oct. 9,10.
b July 25-28, 1966.
c From rating curve extended above 14,000 ft^3/s on basis of slope-conveyance study.
d July 24-29, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01639500 BIG PIPE CREEK AT BRUCEVILLE, MD

LOCATION.--Lat 39°36'44.5", long 77°14'14.8", Carroll County, Hydrologic Unit 02070009, on left bank 300 ft downstream from bridge on State Highway 194, 800 ft downstream from Bruceville, 3.5 mi upstream from Detour and confluence with Little Pipe Creek.

DRAINAGE AREA.--102 mi^2.

PERIOD OF RECORD.--October 1947 to current year. Prior to December 1947, monthly discharge only, published in WSP 1302.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 336.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Occasional diversion for irrigation upstream from station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2300	2,020	5.94	Jun 7	1400	2,550	7.00
Feb 22	1745	3,540	8.74	Jun 13	1915	2,980	7.78
Mar 9	1715	1,950	5.81	Sep 4	0100	4,180	9.68
Mar 20	1945	2,080	6.07	Sep 4	0945	2,560	7.01
Jun 4	1000	1,630	5.18	Sep 23	0500	*6,080	*11.37

Minimum discharge, 9.1 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	104	64	624	e48	123	198	76	217	118	84	119
2	14	78	57	917	e58	334	171	75	149	113	132	316
3	13	65	55	811	e60	571	153	71	253	141	83	392
4	12	58	48	483	127	212	143	69	1,210	140	87	1,900
5	12	54	86	276	106	264	138	73	491	127	78	300
6	12	113	102	236	79	908	127	87	289	108	108	187
7	10	81	75	202	71	433	168	76	1,170	138	76	144
8	9.7	62	e68	214	69	400	210	117	641	107	72	122
9	9.1	55	e62	213	67	1,150	289	134	445	99	100	110
10	10	50	e60	168	67	529	221	173	286	100	74	98
11	179	50	e628	141	e46	277	237	136	236	100	374	91
12	205	120	e1,180	120	e36	287	204	106	368	88	172	85
13	73	176	439	e110	e34	404	160	93	1,070	93	181	109
14	47	96	1,220	e96	e30	399	144	85	706	82	99	116
15	35	77	478	e86	e27	269	135	80	335	78	83	161
16	221	95	235	e78	e26	254	128	364	264	76	77	131
17	220	534	149	e72	e24	244	120	269	235	71	635	90
18	90	606	125	65	e40	215	113	194	241	69	151	86
19	63	203	134	59	e68	177	128	149	223	73	111	656
20	51	148	281	e55	e66	738	113	124	478	66	95	206
21	43	167	184	e50	e62	754	108	116	375	64	86	144
22	37	228	139	e45	957	325	113	111	416	179	80	133
23	34	136	121	e40	1,630	244	103	106	246	479	80	3,620
24	31	109	109	e38	624	205	93	127	201	240	70	451
25	33	96	146	e38	296	178	90	288	176	114	64	281
26	116	87	161	e36	198	177	105	315	160	92	64	298
27	72	87	121	e36	153	203	104	195	148	84	74	209
28	51	79	108	e36	138	154	87	404	138	79	69	338
29	61	73	110	e35	---	148	83	294	129	79	61	186
30	210	70	111	e34	---	233	81	185	123	70	65	157
31	184	---	129	e42	---	257	---	165	---	67	75	---
TOTAL	2,173.8	3,957	6,985	5,456	5,207	11,066	4,267	4,857	11,419	3,534	3,660	11,236
MEAN	70.1	132	225	176	186	357	142	157	381	114	118	375
MAX	221	606	1,220	917	1,630	1,150	289	404	1,210	479	635	3,620
MIN	9.1	50	48	34	24	123	81	69	123	64	61	85
CFSM	0.69	1.29	2.21	1.73	1.82	3.50	1.39	1.54	3.73	1.12	1.16	3.67
IN.	0.79	1.44	2.55	1.99	1.90	4.04	1.56	1.77	4.16	1.29	1.33	4.10

e Estimated

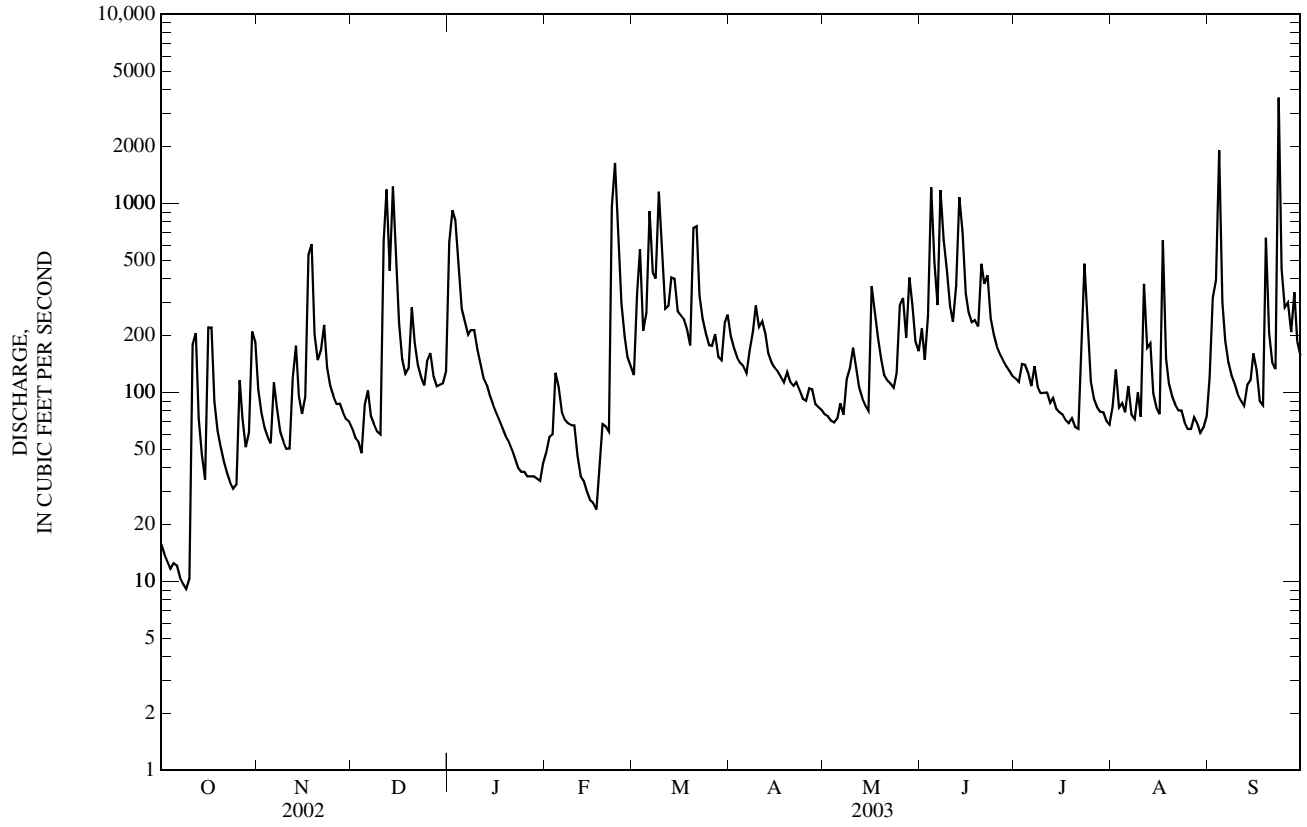
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

MEAN	61.1	85.6	125	150	173	199	163	120	102	70.9	54.2	70.3
MAX	390	289	453	492	387	613	514	383	891	295	212	730
(WY)	(1980)	(1948)	(1997)	(1996)	(1979)	(1994)	(1993)	(1989)	(1972)	(1949)	(1955)	(1975)
MIN	14.9	16.7	18.9	22.5	25.9	46.2	34.9	34.2	16.2	7.07	4.39	13.0
(WY)	(1964)	(1966)	(1966)	(1966)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1966)	(1963)

01639500 BIG PIPE CREEK AT BRUCEVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003	
ANNUAL TOTAL	19,758.23		73,817.8			
ANNUAL MEAN	54.1		202		114	
HIGHEST ANNUAL MEAN					227	1972
LOWEST ANNUAL MEAN					24.1	2002
HIGHEST DAILY MEAN	1,220	Dec 14	3,620	Sep 23	14,400	Jun 22, 1972
LOWEST DAILY MEAN	0.08	Aug 22	9.1	Oct 9	0.08	Aug 22, 2002
ANNUAL SEVEN-DAY MINIMUM	0.51	Aug 11	11	Oct 4	0.51	Aug 11, 2002
MAXIMUM PEAK FLOW			6,080	Sep 23	(a)28,000	Sep 26, 1975
MAXIMUM PEAK STAGE			11.37	Sep 23	18.98	Sep 26, 1975
INSTANTANEOUS LOW FLOW			9.1	(b)	0.06	Aug 22, 2002
ANNUAL RUNOFF (CFSM)	0.53		1.98		1.12	
ANNUAL RUNOFF (INCHES)	7.21		26.92		15.21	
10 PERCENT EXCEEDS	113		409		217	
50 PERCENT EXCEEDS	28		118		66	
90 PERCENT EXCEEDS	5.3		48		23	

a From rating curve extended above 3,900 ft^3/s on the basis of contracted-opening measurement at gage height of 17.86 ft.
b Oct. 9, 10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01643000 MONOCACY RIVER AT JUG BRIDGE NEAR FREDERICK, MD

LOCATION.--Lat 39°24'10.2", long 77°21'57.9", Frederick County, Hydrologic Unit 02070009, on right bank 500 ft downstream from Interstate 70 highway bridge, 0.4 mi downstream from Linganore Creek, 2.0 mi east of Frederick, and 16.9 mi upstream from mouth.

DRAINAGE AREA.--817 mi^2.

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for October, November 1929, published in WSP 1302.

REVISED RECORDS.--WSP 711: 1930.

GAGE.--Water-stage recorder. Nonrecording gage at site 0.2 mile downstream. Datum of gage is 231.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (missing record, ice effect), which are fair.. Occasional regulation at low and medium flows since September 1972 by Linganore Reservoir, total capacity, 883,200,000 gal, 2.8 mi upstream from station. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 reached a stage of 30 ft, from floodmarks, discharge, 56,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	1230	14,300	15.17	Jun 4	1815	14,000	14.97
Feb 23	1315	9,890	11.84	Jun 8	0845	14,200	15.10
Mar 10	0445	10,200	12.12	Sep 4	1945	12,800	14.09
Mar 21	1430	14,000	14.93	Sep 24	0115	*24,100	*19.71
May 17	0700	15,400	15.86				

Minimum discharge, 71 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	199	1,590	609	2,510	497	1,190	2,030	667	2,570	779	450	334
2	151	957	549	12,800	555	1,310	1,700	640	1,830	733	480	1,340
3	126	714	493	5,940	555	4,520	1,480	617	1,930	795	501	1,700
4	107	578	440	6,010	744	2,610	1,330	608	11,500	896	450	9,830
5	95	515	420	3,110	1,250	1,910	1,280	608	7,790	760	426	5,020
6	85	939	438	2,410	749	4,230	1,300	733	3,740	687	374	1,510
7	81	1,290	408	2,060	624	5,910	1,330	760	6,160	813	382	1,060
8	78	753	e390	1,820	573	2,870	2,210	861	11,200	869	342	822
9	76	583	e380	2,390	454	5,290	2,840	1,220	4,460	639	366	689
10	86	503	e380	1,960	e450	7,420	3,620	2,130	3,110	626	403	601
11	198	486	e1,650	1,530	e430	2,960	2,770	2,250	2,380	722	1,340	531
12	1,510	689	5,660	1,250	e410	2,500	2,830	1,400	2,070	594	1,780	484
13	1,110	2,400	4,270	e1,000	372	2,800	2,050	1,120	3,230	575	981	662
14	570	1,400	6,890	e940	e340	4,540	1,670	955	4,330	507	617	793
15	378	926	5,400	e840	e300	3,160	1,470	882	2,440	459	489	687
16	666	782	2,960	762	e290	3,030	1,350	6,760	1,830	433	421	887
17	3,250	3,200	2,050	817	422	3,000	1,230	12,100	1,680	407	1,450	699
18	1,230	4,860	1,570	e660	618	2,840	1,140	4,380	1,680	381	1,190	684
19	743	2,450	1,340	e600	796	2,340	1,210	3,150	1,820	383	619	4,810
20	538	1,530	1,980	e590	636	2,920	1,200	2,240	3,920	370	474	2,660
21	429	1,290	3,160	e550	646	12,000	1,060	1,810	5,000	348	411	1,440
22	352	2,480	1,710	e520	2,030	4,440	1,060	1,650	3,050	382	374	1,170
23	293	1,820	1,400	e490	9,130	2,880	1,100	1,460	2,390	1,450	367	18,400
24	257	1,220	1,200	e470	6,020	2,270	922	1,880	1,680	1,460	332	14,000
25	241	989	1,220	e450	3,210	1,910	827	3,270	1,390	896	292	2,600
26	707	859	1,490	e440	2,070	1,710	880	3,510	1,220	555	297	2,510
27	1,460	800	1,280	e440	1,600	1,880	946	3,560	1,110	454	347	1,830
28	681	796	1,090	e440	1,300	1,610	830	2,720	1,000	414	407	2,630
29	561	719	1,030	e440	---	1,430	739	3,390	914	400	332	1,980
30	1,830	647	1,130	e450	---	1,760	704	2,060	836	367	320	1,390
31	2,570	---	1,140	463	---	2,900	---	1,930	---	339	368	---
TOTAL	20,658	38,765	54,127	55,152	37,071	102,140	45,108	71,321	98,260	19,493	17,382	83,753
MEAN	666	1,292	1,746	1,779	1,324	3,295	1,504	2,301	3,275	629	561	2,792
MAX	3,250	4,860	6,890	12,800	9,130	12,000	3,620	12,100	11,500	1,460	1,780	18,400
MIN	76	486	380	440	290	1,190	704	608	836	339	292	334
CFSM	0.82	1.58	2.14	2.18	1.62	4.03	1.84	2.82	4.01	0.77	0.69	3.42
IN.	0.94	1.77	2.46	2.51	1.69	4.65	2.05	3.25	4.47	0.89	0.79	3.81

e Estimated

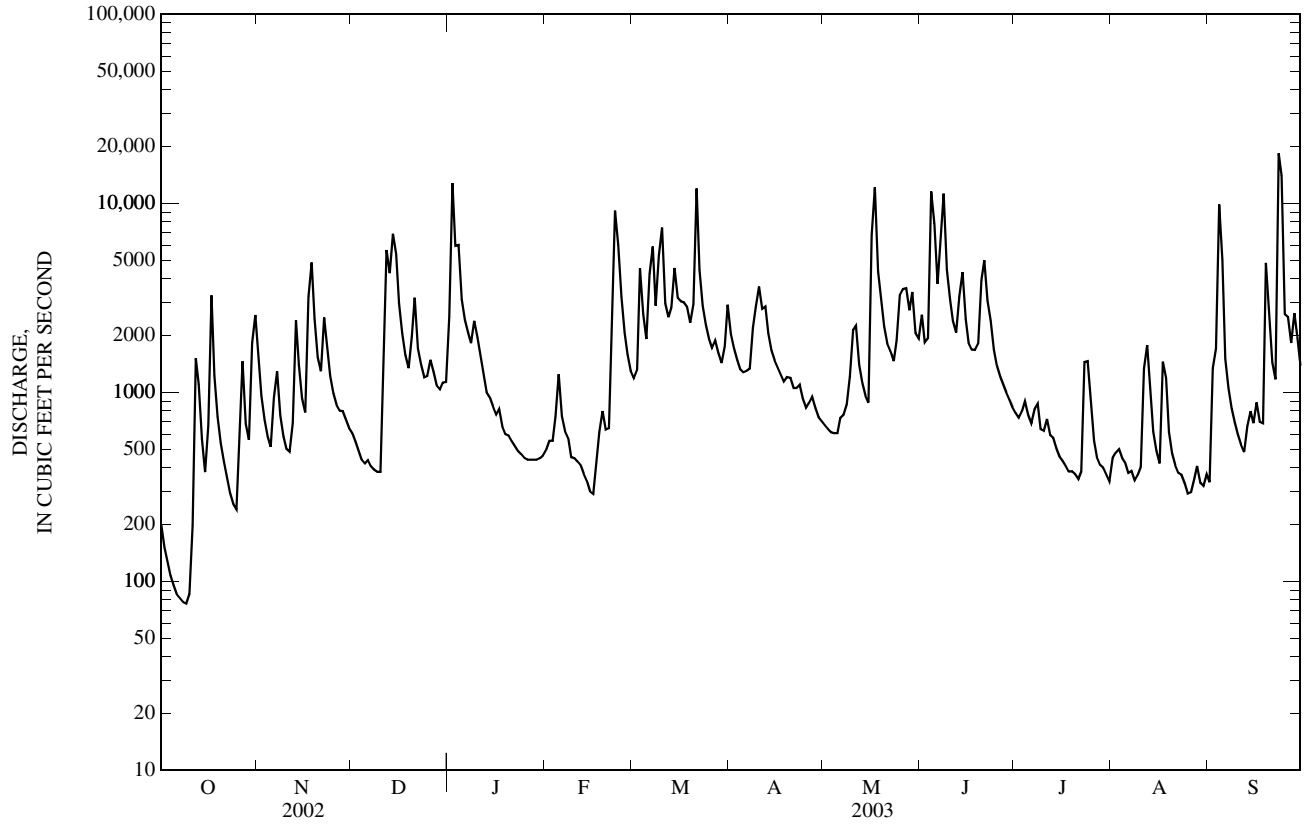
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	510	714	1,038	1,217	1,451	1,835	1,512	1,020	736	452	402	513
MAX	3,943	2,504	3,606	4,159	4,062	5,851	4,533	3,773	6,826	2,571	3,233	5,165
(WY)	(1977)	(1933)	(1997)	(1996)	(1984)	(1993)	(1983)	(1989)	(1972)	(1949)	(1933)	(1975)
MIN	46.8	65.1	108	123	155	589	375	296	152	64.5	36.4	59.9
(WY)	(1931)	(1931)	(1966)	(1981)	(2002)	(1981)	(2002)	(1963)	(1999)	(1966)	(1966)	(1963)

01643000 MONOCACY RIVER AT JUG BRIDGE NEAR FREDERICK, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	180,076		643,230			
ANNUAL MEAN	493		1,762		947	
HIGHEST ANNUAL MEAN					1,834	1972
LOWEST ANNUAL MEAN					212	2002
HIGHEST DAILY MEAN	6,890	Dec 14	18,400	Sep 23	74,000	Jun 23, 1972
LOWEST DAILY MEAN	20	Aug 23	76	Oct 9	19	(a)
ANNUAL SEVEN-DAY MINIMUM	24	Aug 17	87	Oct 4	19	Sep 7, 1966
MAXIMUM PEAK FLOW			24,100	Sep 24	81,600	Jun 23, 1972
MAXIMUM PEAK STAGE			19.71	Sep 24	(b)35.90	Jun 23, 1972
INSTANTANEOUS LOW FLOW			71	Oct 10	17	(c)
ANNUAL RUNOFF (CFSM)	0.60		2.16		1.16	
ANNUAL RUNOFF (INCHES)	8.20		29.29		15.75	
10 PERCENT EXCEEDS	1,220		3,580		2,000	
50 PERCENT EXCEEDS	213		1,060		472	
90 PERCENT EXCEEDS	49		376		120	

a Sept. 7-13, 1966.
b From floodmarks.
c Sept. 11, 13, 1966.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01643500 BENNETT CREEK AT PARK MILLS, MD

LOCATION.--Lat 39°17'38.9", long 77°24'25.5", Frederick County, Hydrologic Unit 02070009, on left bank 75 ft downstream from highway bridge, 0.2 mi south of Park Mills, 1.8 mi upstream from mouth, and 3.7 mi southwest of Urbana.

DRAINAGE AREA.--62.8 mi^2.

PERIOD OF RECORD.--July 1948 to September 1958. Annual maximum, water years 1960-66. August 1966 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 240 ft above National Geodetic Vertical Datum of 1929, from topographic maps.

REMARKS.--Records good except those for estimated daily discharges (recorder malfunction, ice effect), which are poor. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2130	3,290	7.15	Jun 13	2300	1,330	4.63
Feb 22	1430	3,370	7.24	Jun 19	2345	3,150	6.98
Feb 22	1830	2,410	6.04	Jun 20	1515	1,990	5.46
Mar 20	2015	1,860	5.29	Sep 4	1415	2,530	6.19
May 31	2000	3,600	7.51	Sep 19	0300	3,210	7.05
Jun 7	1400	1,880	5.32	Sep 23	0615	*13,500	*14.55

Minimum discharge, 3.7 ft^3/s, Oct. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	37	35	726	49	98	170	69	527	92	65	51
2	5.8	29	32	789	52	210	148	68	186	94	65	77
3	5.3	25	31	400	48	268	133	64	217	158	58	84
4	5.2	23	e30	249	70	157	121	63	455	117	71	884
5	4.8	22	e36	167	57	206	115	67	328	107	58	150
6	4.2	81	e40	140	45	598	103	75	209	158	69	92
7	4.1	42	e34	114	48	309	156	67	737	307	55	77
8	3.8	32	e30	117	44	293	140	69	358	130	53	68
9	3.8	28	29	122	e43	546	230	81	281	102	117	63
10	6.6	25	28	101	e42	313	178	94	200	100	59	56
11	66	33	e100	83	41	229	232	82	167	92	69	54
12	34	57	146	71	40	208	178	69	277	80	69	55
13	17	72	230	e66	e37	225	146	63	366	75	71	136
14	13	45	360	e64	e35	233	129	59	342	70	54	83
15	10	38	189	e62	40	183	120	62	216	68	50	79
16	88	57	130	e60	34	164	113	330	169	66	48	87
17	55	253	100	e58	e60	151	105	146	152	62	154	62
18	29	235	85	e56	e80	137	102	166	174	61	65	267
19	21	95	79	e60	e60	118	117	126	744	62	55	1,030
20	18	74	90	59	e55	609	98	99	933	58	51	185
21	16	73	80	57	62	468	94	98	401	56	49	128
22	14	84	71	e56	1,120	261	98	96	303	74	51	157
23	13	62	66	e54	672	199	89	87	223	151	56	3,860
24	12	53	61	e54	306	166	83	91	179	142	45	357
25	13	48	93	54	196	146	80	284	154	71	43	269
26	34	45	93	54	147	155	92	207	137	62	50	279
27	22	45	76	53	123	153	83	146	124	59	62	183
28	17	40	70	53	110	125	76	144	112	61	60	174
29	29	38	70	53	---	119	73	123	104	67	49	143
30	71	37	69	52	---	194	71	105	98	56	48	127
31	59	---	71	42	---	204	---	879	---	54	43	---
TOTAL	701.0	1,828	2,654	4,146	3,716	7,445	3,673	4,179	8,873	2,912	1,912	9,317
MEAN	22.6	60.9	85.6	134	133	240	122	135	296	93.9	61.7	311
MAX	88	253	360	789	1,120	609	232	879	933	307	154	3,860
MIN	3.8	22	28	42	34	98	71	59	98	54	43	51
CFSM	0.36	0.97	1.36	2.13	2.11	3.82	1.95	2.15	4.71	1.50	0.98	4.95
IN.	0.42	1.08	1.57	2.46	2.20	4.41	2.18	2.48	5.26	1.72	1.13	5.52

e Estimated

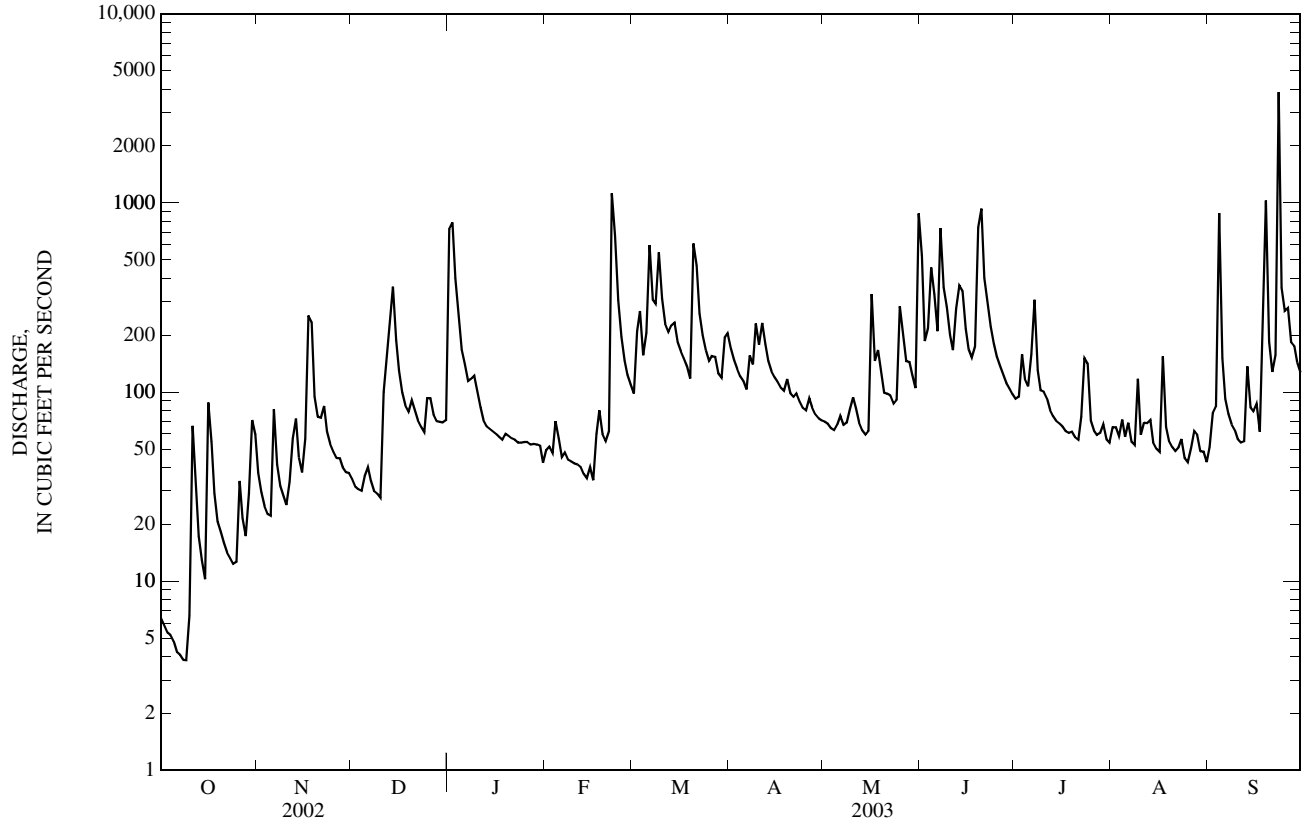
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1958, 1996 - 2003, BY WATER YEAR (WY)

MEAN	38.1	48.4	76.9	88.3	98.5	119	104	84.5	70.5	42.0	34.4	44.3
MAX	245	160	295	289	229	369	286	302	498	178	148	311
(WY)	(1980)	(1997)	(1997)	(1996)	(1979)	(1993)	(1993)	(1988)	(1972)	(1987)	(1955)	(2003)
MIN	8.21	12.5	14.6	15.5	17.4	36.9	26.5	25.8	13.9	4.65	4.32	6.67
(WY)	(1987)	(1982)	(1999)	(1981)	(2002)	(2002)	(2002)	(1969)	(1999)	(1999)	(2002)	(2002)

01643500 BENNETT CREEK AT PARK MILLS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 1958, 1966 - 2003	
ANNUAL TOTAL	10,597.44		51,356.0			
ANNUAL MEAN	29.0		141		70.5	
HIGHEST ANNUAL MEAN					141	2003
LOWEST ANNUAL MEAN					19.1	2002
HIGHEST DAILY MEAN	360	Dec 14	3,860	Sep 23	5,500	Jun 22, 1972
LOWEST DAILY MEAN	0.67	Aug 22	3.8	Oct 8	0.40	Sep 8, 1966
ANNUAL SEVEN-DAY MINIMUM	0.88	Aug 17	4.5	Oct 3	0.88	Aug 17, 2002
MAXIMUM PEAK FLOW			13,500	Sep 23	(a)32,200	Jun 21, 1972
MAXIMUM PEAK STAGE			14.55	Sep 23	(b)22.10	Jun 21, 1972
INSTANTANEOUS LOW FLOW			3.7	(c)	0.30	Sep 8, 1966
ANNUAL RUNOFF (CFSM)	0.46		2.24		1.12	
ANNUAL RUNOFF (INCHES)	6.28		30.42		15.26	
10 PERCENT EXCEEDS	67		272		133	
50 PERCENT EXCEEDS	19		77		42	
90 PERCENT EXCEEDS	3.1		32		14	

a From rating curve extended above 2,700 ft^3/s on basis of contracted-opening measurement at gage heights of 11.15, 14.33, and 22.1 ft.
b From floodmarks.
c Oct. 8, 9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01644600 GREAT SENECA CREEK NEAR QUINCE ORCHARD, MD

LOCATION.--Lat 39°07'58.3", long 77°16'05.2", Montgomery County, Hydrologic Unit 02060008, on left bank 10 ft downstream from bridge on Riffle Ford Road, 1.35 mi northwest of Quince Orchard, 1.75 mi southeast of the intersection of Maryland Route 118 and Riffle Ford Road, and 4.5 mi upstream from the confluence with Little Seneca Creek.

DRAINAGE AREA.--50.7 mi^2.

PERIOD OF RECORD.--July 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 265 ft above National Geodetic Vertical Datum of 1929, from topographic maps.

REMARKS.--No estimated daily discharges. Records good. Records include pumpage from a Washington Suburban Sanitary Commission wastewater facility located immediately upstream from station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 2	0330	1,670	8.97	Jun 20	0245	1,650	8.94
Feb 22	2000	2,230	9.96	Sep 4	1900	1,320	8.26
Mar 20	2245	1,610	8.87	Sep 16	0030	1,260	8.14
Jun 7	1915	2,110	9.77	Sep 19	0630	2,780	10.80
Jun 13	0115	1,670	8.97	Sep 23	1230	*2,860	*10.91
Jun 14	0315	2,620	10.56				

Minimum discharge, 9.3 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	47	45	392	77	91	125	71	199	259	73	61
2	20	38	43	703	61	232	128	68	91	110	64	84
3	18	36	43	320	55	279	109	64	117	191	59	80
4	17	34	40	168	86	123	91	62	366	114	61	559
5	17	40	47	108	71	160	88	73	228	99	57	126
6	15	148	48	101	54	546	84	84	114	158	59	85
7	15	51	44	90	63	252	168	84	1,170	385	53	74
8	15	40	44	88	56	186	120	91	352	125	57	67
9	15	37	44	95	53	330	206	105	182	113	112	62
10	34	35	42	82	53	193	124	113	128	112	70	58
11	229	129	366	72	51	130	192	100	151	140	178	56
12	75	141	222	66	48	120	121	76	462	96	111	72
13	37	106	233	65	46	124	101	68	598	85	92	224
14	29	58	329	63	45	137	95	62	1,020	78	70	97
15	24	46	125	59	53	111	91	62	258	75	58	290
16	330	215	90	56	37	107	84	312	160	72	58	260
17	100	447	75	56	47	104	85	133	145	68	255	91
18	57	323	68	53	69	99	86	132	184	65	81	313
19	37	94	66	53	63	93	108	96	503	67	65	1,370
20	32	75	98	53	72	541	88	70	669	62	60	174
21	31	72	80	51	90	473	84	128	230	61	56	106
22	33	75	65	49	1,060	168	98	104	184	84	51	97
23	27	57	61	47	896	126	83	82	133	247	71	1,500
24	26	53	58	48	318	112	77	93	116	84	57	209
25	29	51	208	47	169	104	78	218	106	68	51	123
26	94	49	122	48	116	112	114	360	100	62	142	110
27	39	52	82	46	99	112	89	146	97	59	117	98
28	32	48	68	44	96	93	78	123	92	99	83	141
29	83	46	64	47	---	100	73	96	89	112	65	93
30	119	49	62	47	---	272	71	84	87	68	66	84
31	80	---	62	48	---	171	---	148	---	60	56	---
TOTAL	1,732	2,692	3,044	3,265	4,004	5,801	3,139	3,508	8,331	3,478	2,508	6,764
MEAN	55.9	89.7	98.2	105	143	187	105	113	278	112	80.9	225
MAX	330	447	366	703	1,060	546	206	360	1,170	385	255	1,500
MIN	15	34	40	44	37	91	71	62	87	59	51	56
(†)	-10.0	-9.54	-10.0	-9.77	-10.5	-10.3	-9.73	-9.60	-6.70	-7.07	-8.35	-16.0
MEAN‡	45.8	80.2	88.1	95.5	132	177	94.9	104	271	105	72.5	209
CFSM‡	0.90	1.58	1.74	1.88	2.61	3.49	1.87	2.04	5.34	2.07	1.43	4.13
IN‡	1.04	1.77	2.00	2.17	2.72	4.02	2.09	2.35	5.96	2.39	1.65	4.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2003, BY WATER YEAR (WY)

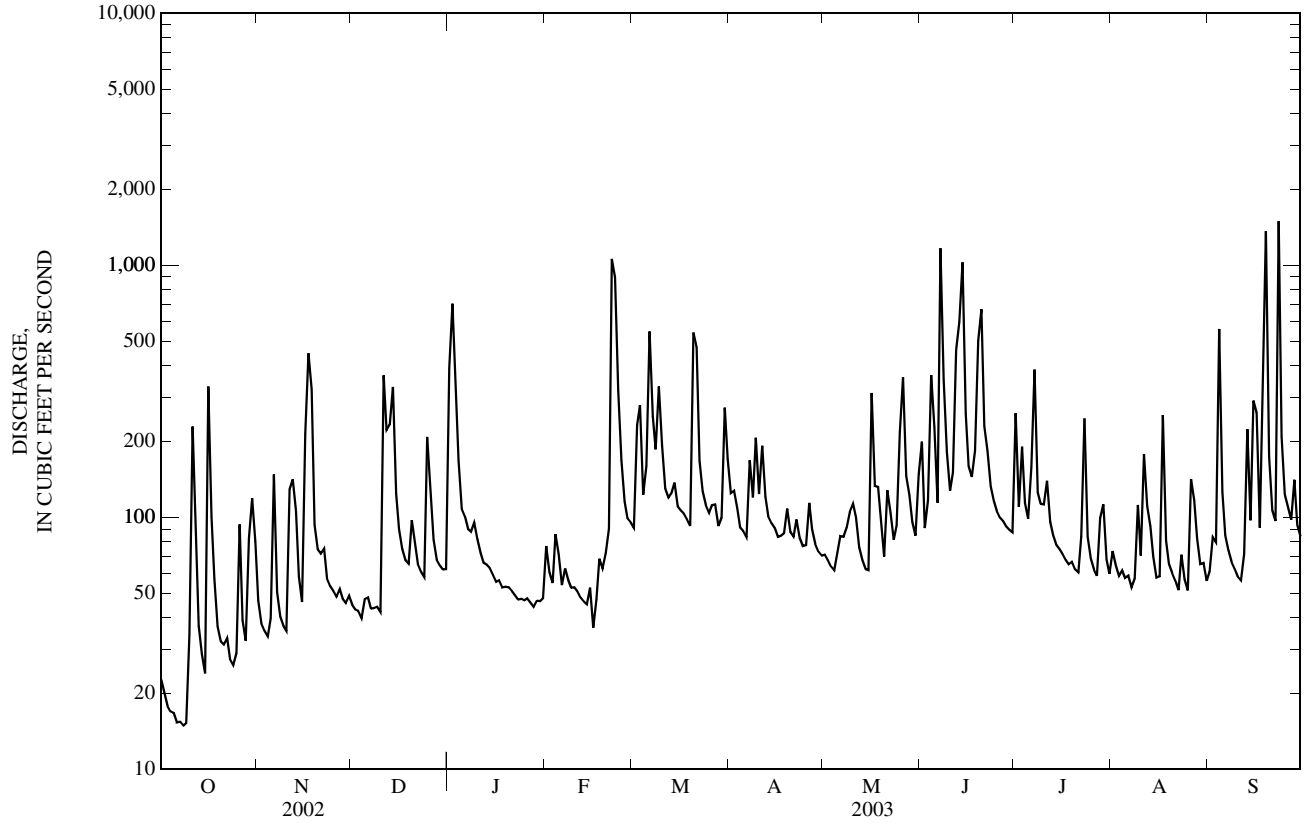
MEAN	42.0	58.7	57.9	78.3	88.7	117	85.2	81.0	101	47.8	54.4	86.0
MAX	60.5	91.2	98.2	116	155	187	123	121	278	112	88.5	225
(WY)	(2000)	(1998)	(2003)	(1998)	(1998)	(2003)	(2000)	(1998)	(2003)	(2003)	(2000)	(2003)
MIN	30.4	28.8	28.2	39.0	31.5	52.9	49.0	39.2	31.6	21.1	28.0	20.6
(WY)	(1998)	(1999)	(1999)	(2002)	(2002)	(2002)	(2002)	(1999)	(1999)	(1999)	(2002)	(1998)

†Pumpage in cubic feet per second, from Washington Suburban Sanitary Commission.
‡Adjusted for pumpage.

01644600 GREAT SENECA CREEK NEAR QUINCE ORCHARD, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1997 - 2003	
ANNUAL TOTAL	18,872		48,266			
ANNUAL MEAN	51.7		132		76.0	
ANNUAL MEAN‡	41.4		122		66.7	
HIGHEST ANNUAL MEAN					132	2003
LOWEST ANNUAL MEAN					41.3	2002
HIGHEST DAILY MEAN	447	Nov 17	1,500	Sep 23	1,500	Sep 23, 2003
LOWEST DAILY MEAN	10	Aug 21	15	(a)	10	Aug 21, 2002
ANNUAL SEVEN-DAY MINIMUM	11	Aug 17	16	Oct 3	11	Aug 17, 2002
MAXIMUM PEAK FLOW			2,860	Sep 23	2,860	Sep 23, 2003
MAXIMUM PEAK STAGE			10.91	Sep 23	10.91	Sep 23, 2003
INSTANTANEOUS LOW FLOW			9.3	Oct 10	4.7	Aug 21, 2002
ANNUAL RUNOFF (CFSM)	1.02		2.61		1.50	
ANNUAL RUNOFF (CFSM)‡	0.82		2.41		1.32	
ANNUAL RUNOFF (INCHES)	13.85		35.41		20.36	
ANNUAL RUNOFF (INCHES)‡	11.08		32.78		17.88	
10 PERCENT EXCEEDS	99		256		129	
50 PERCENT EXCEEDS	34		84		48	
90 PERCENT EXCEEDS	15		44		23	

‡ Adjusted for inflow.
a Oct. 6-9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01645000 SENECA CREEK AT DAWSONVILLE, MD

LOCATION.--Lat 39°07'41.1", long 77°20'08.8", Montgomery County, Hydrologic Unit 02070008, on right bank 60 ft downstream from bridge on State Highway 28, 150 ft downstream from mouth of Great Seneca Creek, 0.5 mi east of Dawsonville, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--101 mi^2.

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1232: 1930. WSP 1272: 1933. WSP 1432: 1934-35(M), 1941(M). WDR MD-DE-74-1: 1970(M).

GAGE.--Water-stage recorder. Concrete control since Mar. 3, 1934. Datum of gage is 214.02 ft above National Geodetic Vertical Datum of 1929. Sept. 26 to Nov. 9, 1930, chain gage, and Nov. 10, 1930 to Apr. 6, 1934, water-stage recorder, at highway bridge 60 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Small diversion at times for irrigation upstream from station. National Weather Service gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2130	3,570	8.65	Jun 12	2100	3,130	8.21
Feb 23	0000	3,100	8.18	Jun 14	0815	3,120	8.20
Mar 20	2145	2,170	7.13	Sep 19	1130	3,300	8.38
May 16	0930	1,510	6.09	Sep 23	0600	*7,130	*10.52
Jun 7	2315	2,480	7.49				

Minimum discharge, 18 ft^3/s, Oct. 7-9.

REVISIONS.--The maximum discharge for water year 2002 has been revised to 4, 310 ft^3/s, May 27, 2002, gage height, 9.26 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	75	64	941	110	172	244	110	330	462	108	84
2	28	60	61	1,330	101	365	242	101	186	230	113	103
3	26	54	59	620	93	493	220	107	193	307	116	98
4	25	51	56	397	129	276	191	106	525	233	105	626
5	24	50	64	259	121	305	186	117	427	167	85	311
6	22	200	66	228	94	829	121	135	268	159	98	211
7	22	79	57	189	102	531	230	128	1,380	540	84	139
8	22	63	60	183	96	388	218	166	729	278	90	90
9	22	57	59	195	87	586	330	182	371	172	151	85
10	35	54	56	164	89	414	270	215	292	182	119	101
11	214	148	345	142	86	289	346	190	316	226	136	92
12	112	170	343	124	82	261	278	150	882	166	179	99
13	55	167	356	115	76	261	248	134	955	124	126	255
14	42	89	598	112	73	274	148	112	1,460	138	121	209
15	36	75	298	107	83	224	149	108	585	121	109	193
16	303	223	204	100	51	206	144	626	367	106	80	379
17	152	592	155	e94	e85	191	158	304	326	109	320	188
18	83	464	127	e88	e140	178	158	296	343	111	157	369
19	58	156	118	97	112	166	200	248	550	112	130	1,700
20	50	112	171	94	109	765	166	199	804	108	93	355
21	45	106	148	91	129	853	132	225	407	97	87	267
22	48	116	116	84	1,400	355	154	205	347	87	82	169
23	40	87	107	e79	1,660	267	130	162	279	314	105	3,140
24	37	81	101	e85	630	254	120	171	207	178	103	601
25	38	76	259	81	358	236	124	380	187	129	83	322
26	115	72	223	81	257	229	173	491	199	92	114	260
27	59	74	153	78	208	233	145	299	143	100	206	220
28	48	68	123	e75	188	183	125	261	167	123	123	203
29	86	65	115	79	---	185	119	210	150	209	115	131
30	178	67	110	78	---	367	115	177	131	145	117	119
31	121	---	109	79	---	305	---	203	---	89	108	---
TOTAL	2,177	3,751	4,881	6,469	6,749	10,641	5,584	6,518	13,506	5,614	3,763	11,119
MEAN	70.2	125	157	209	241	343	186	210	450	181	121	371
MAX	303	592	598	1,330	1,660	853	346	626	1,460	540	320	3,140
MIN	22	50	56	75	51	166	115	101	131	87	80	84
CFSM	0.70	1.24	1.56	2.07	2.39	3.40	1.84	2.08	4.46	1.79	1.20	3.67
IN.	0.80	1.38	1.80	2.38	2.49	3.92	2.06	2.40	4.97	2.07	1.39	4.10

e Estimated

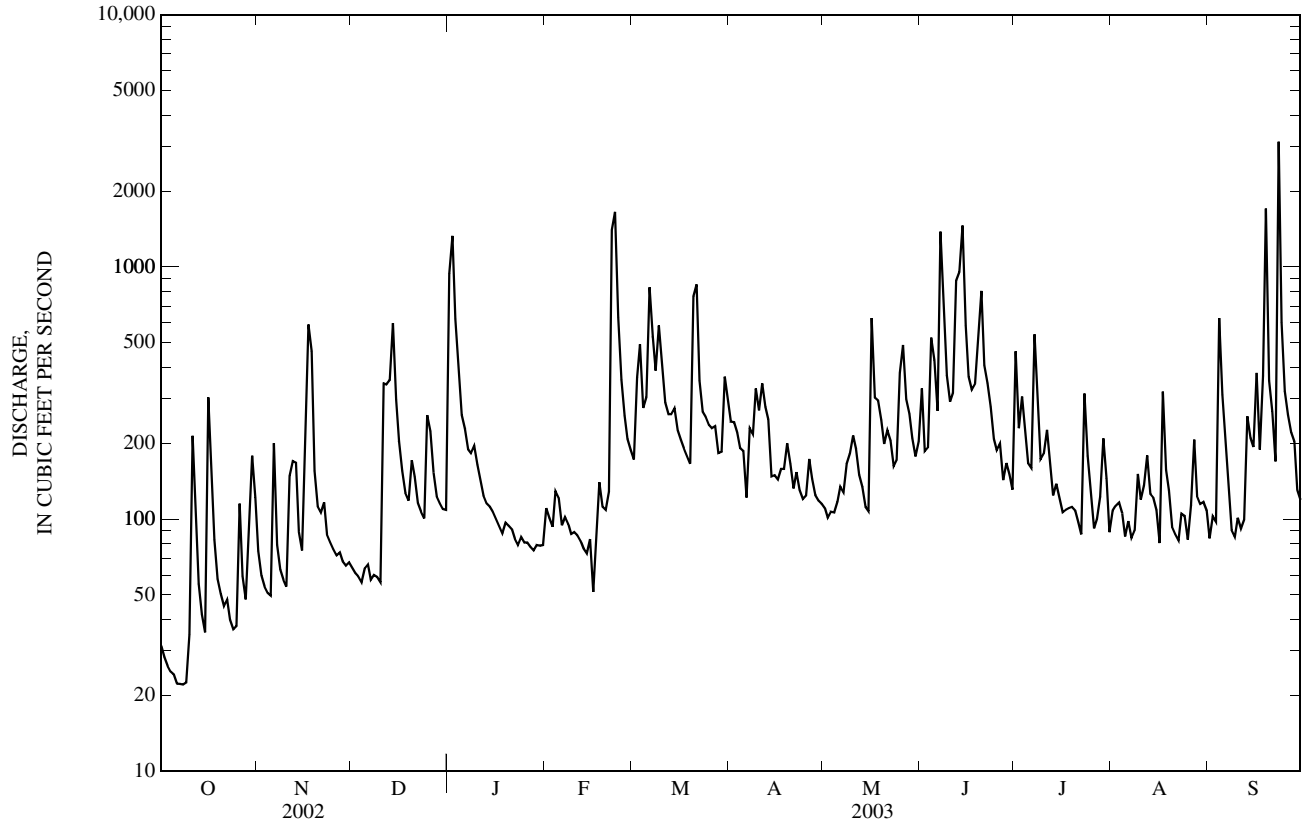
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	68.1	84.7	110	130	147	165	148	128	110	76.8	69.2	82.8
MAX	479	290	452	440	484	511	457	510	747	273	248	566
(WY)	(1980)	(1994)	(1997)	(1996)	(1979)	(1993)	(1993)	(1989)	(1972)	(1956)	(1971)	(1971)
MIN	7.10	12.6	20.6	30.2	26.7	44.3	55.9	30.3	35.3	13.4	8.35	10.1
(WY)	(1931)	(1932)	(1932)	(1966)	(1931)	(1931)	(1969)	(1931)	(1986)	(1955)	(1932)	(1931)

01645000 SENECA CREEK AT DAWSONVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	30,804		80,772			
ANNUAL MEAN	84.4		221		110	
HIGHEST ANNUAL MEAN					251	1972
LOWEST ANNUAL MEAN					32.8	1931
HIGHEST DAILY MEAN	1,360	May 27	3,140	Sep 23	9,900	Jun 22, 1972
LOWEST DAILY MEAN	16	Sep 19	22	(a)	1.8	(b)
ANNUAL SEVEN-DAY MINIMUM	18	Sep 16	23	Oct 3	2.2	Sep 27, 1930
MAXIMUM PEAK FLOW			7,130	Sep 23	(c)26,100	Jun 22, 1972
MAXIMUM PEAK STAGE			10.52	Sep 23	(d)16.40	Jun 22, 1972
INSTANTANEOUS LOW FLOW			18	(f)	1.7	(g)
ANNUAL RUNOFF (CFSM)	0.84		2.19		1.09	
ANNUAL RUNOFF (INCHES)	11.35		29.75		14.76	
10 PERCENT EXCEEDS	168		392		193	
50 PERCENT EXCEEDS	56		144		69	
90 PERCENT EXCEEDS	24		62		27	

a Oct. 6-9.
b Sept. 29, 1930, Sept. 12, 1966.
c From rating curve extended above 3,000 ft^3/s on basis of contracted-opening and flow over-road measurement at gage height 12.17 ft at gage; and contracted-opening and flow-over-road measurement at gage height 16.32 ft at site 5.0 mi downstream, adjusted for flow from intervening area.
d From high-water mark in gage house.
f Oct. 7-9.
g Sept. 28, 29, 1930.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01646500 POTOMAC RIVER NEAR WASHINGTON, DC

LOCATION.--Lat 38°56'59.2", long 77°07'39.5", Montgomery County, Hydrologic Unit 02070008, on left bank just upstream from Little Falls Dam, 1 mi upstream from District of Columbia boundary line, 1.2 mi upstream from Chain Bridge, 1.8 mi east of Langley, Fairfax County, and at mile 117.4.

DRAINAGE AREA.--11,560 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft above National Geodetic Vertical Datum of 1929. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder at site 1 mi upstream on right bank at same datum.

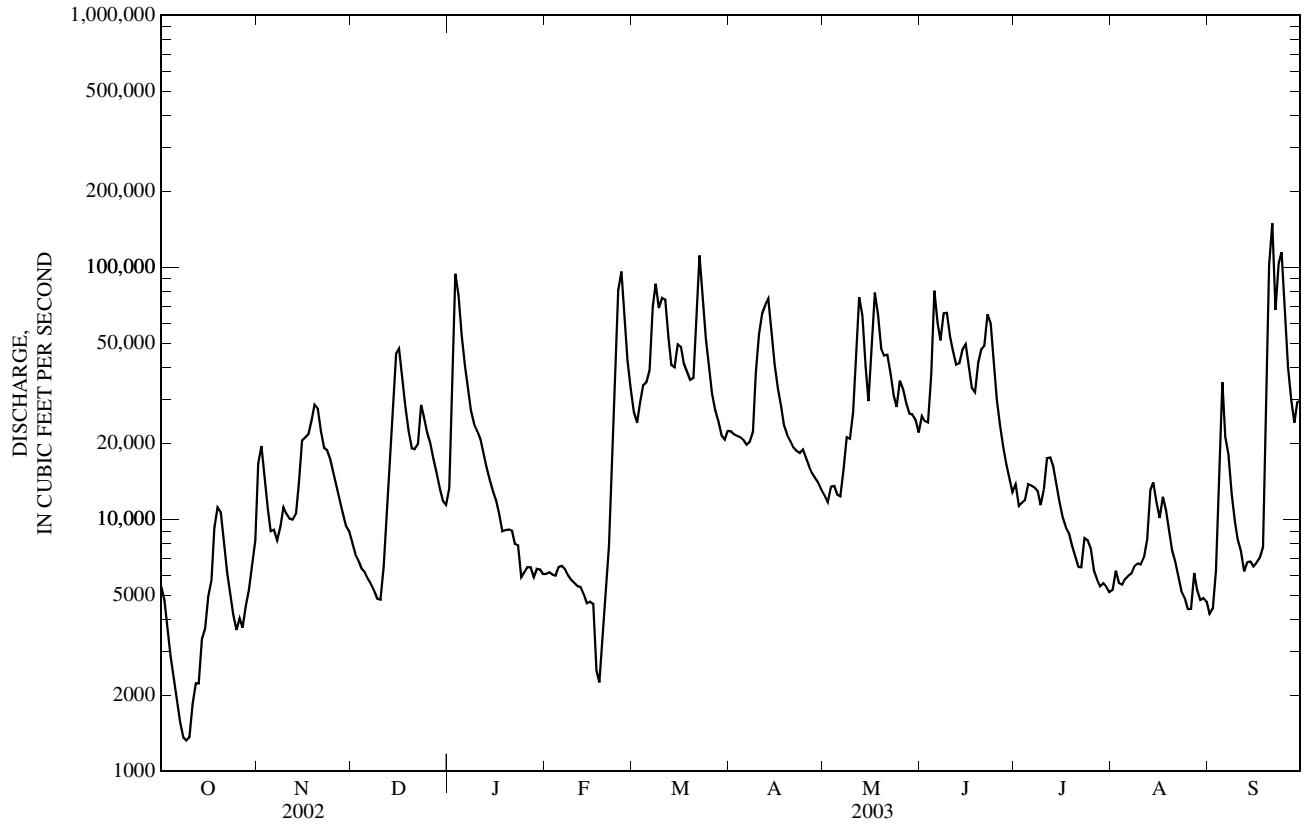
REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effrect), which are fair. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D.C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); since April 1964, at Violets Lock to Chesapeake and Ohio Canal; and since October 1985, at Fairfax County Water Authority Treatment Plant for water supply of the county. Low flow affected slightly prior to July 1981 by Stony River Reservoir, since December 1950, by Savage River Reservoir (see station 01597500), and since July 1981, by Jennings Randolph Lake. National Weather Service gage-height telemeter at station. U.S. Geological Survey satellite collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, was of approximately the same magnitude as that of March 19, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 45,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 16	0130	50,000	6.70	May 17	1915	83,700	8.23
Jan 3	1530	115,000	9.37	May 21	1430	46,000	6.49
Feb 24	2330	109,000	9.16	Jun 5	1000	87,000	8.36
Mar 8	0515	95,300	8.68	Jun 9	0000	75,900	7.91
Mar 11	1745	69,700	7.64	Jun 13	0100	48,700	6.63
Mar 15	1945	51,800	6.79	Jun 14	2200	55,800	6.99
Mar 22	1030	120,000	9.54	Jun 22	1745	70,200	7.66
Apr 13	0230	81,700	8.15	Sep 21	0630	*167,000	*11.44
May 12	1800	80,200	8.09	Sep 23	1200	133,000	9.97

Minimum discharge, 1,260 ft^3/s, Oct. 8, 9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5,410	16,700	8,060	13,300	6,090	26,600	22,400	12,400	25,700	13,800	5,250	4,220
2	4,770	19,600	7,270	42,300	6,160	24,200	21,800	11,700	24,600	11,300	6,260	4,410
3	3,670	14,500	6,900	94,200	6,040	28,900	21,400	13,500	24,200	11,600	5,580	6,280
4	2,870	11,000	6,380	77,600	5,980	34,000	21,200	13,600	37,100	11,900	5,500	14,500
5	2,360	8,950	6,190	53,400	6,480	35,000	20,800	12,500	80,700	13,800	5,790	35,000
6	1,910	9,090	5,820	40,800	6,540	39,000	19,800	12,300	60,200	13,600	5,970	21,300
7	1,570	8,260	5,570	32,800	6,350	69,900	20,300	15,700	51,400	13,400	6,090	18,100
8	1,370	9,320	5,230	26,900	5,990	86,100	22,200	21,200	65,800	13,000	6,540	12,700
9	1,330	11,200	4,850	23,800	5,770	68,900	38,200	20,900	65,900	11,400	6,690	9,850
10	1,370	10,500	4,810	22,400	5,600	75,600	54,400	26,600	53,100	13,200	6,630	8,300
11	1,850	10,100	6,480	20,700	5,440	74,400	65,900	43,200	46,500	17,500	7,080	7,470
12	2,240	9,990	10,300	18,300	5,390	52,700	71,000	76,200	41,100	17,600	8,320	6,220
13	2,230	10,500	19,400	16,000	5,070	40,900	75,000	64,400	41,500	16,300	13,100	6,780
14	3,350	13,900	31,000	14,300	4,640	40,200	54,400	40,600	47,200	13,800	14,000	6,810
15	3,690	20,500	45,500	12,900	4,710	49,600	41,000	29,500	49,400	11,700	11,700	6,520
16	4,970	21,200	47,600	11,800	4,620	48,400	33,100	51,000	41,500	10,200	10,100	6,730
17	5,740	21,800	36,800	10,500	2,510	41,500	28,100	79,400	33,300	9,300	12,300	7,030
18	9,300	24,800	27,900	8,970	2,260	38,500	23,600	64,600	32,000	8,860	10,800	7,760
19	11,200	28,500	22,500	9,060	3,370	35,700	21,700	47,500	41,900	7,880	9,180	19,700
20	10,700	27,600	19,200	9,120	5,060	36,300	20,500	44,700	47,500	7,140	7,530	102,000
21	8,160	22,400	19,000	9,020	7,810	67,100	19,300	45,000	48,800	6,470	6,770	150,000
22	6,150	19,200	19,800	7,990	14,500	111,000	18,700	38,000	64,900	6,450	5,870	67,700
23	5,100	18,800	28,400	e7,880	37,200	76,000	18,400	30,900	59,700	8,430	5,200	104,000
24	4,190	17,300	25,100	5,880	81,300	51,900	19,000	27,900	40,500	8,260	4,890	115,000
25	3,650	15,300	22,100	6,160	96,100	39,600	17,500	35,600	30,000	7,630	4,400	68,900
26	4,050	13,600	19,900	e6,470	60,900	31,700	16,200	32,900	23,700	6,240	4,410	40,400
27	3,720	12,000	17,200	e6,470	42,700	27,100	15,300	29,000	19,500	5,790	6,130	29,900
28	4,530	10,600	15,200	5,890	33,000	24,500	14,600	26,300	16,500	5,450	5,240	24,200
29	5,270	9,460	13,200	6,370	---	21,500	13,900	26,100	14,400	5,580	4,790	29,100
30	6,630	8,990	11,900	6,330	---	20,800	13,100	24,800	12,800	5,400	4,870	29,600
31	8,290	---	11,400	6,070	---	22,400	---	22,100	---	5,150	4,710	---
TOTAL	141,640	455,660	530,960	633,680	477,580	1,440,000	862,800	1,040,100	1,241,400	318,130	221,690	970,480
MEAN	4,569	15,190	17,130	20,440	17,060	46,450	28,760	33,550	41,380	10,260	7,151	32,350
MAX	11,200	28,500	47,600	94,200	96,100	111,000	75,000	79,400	80,700	17,600	14,000	150,000
MIN	1,330	8,260	4,810	5,880	2,260	20,800	13,100	11,700	12,800	5,150	4,400	4,220
(†)	646	604	580	584	573	566	573	585	605	646	652	643
MEAN‡	5214	15800	17710	21030	17630	47040	29330	34140	41990	10910	7805	33050
CFSM‡	0.45	1.37	1.53	1.82	1.53	4.07	2.54	2.95	3.63	0.94	0.68	2.86
IN‡	0.52	1.52	1.77	2.10	1.59	4.69	2.83	3.41	4.05	1.09	0.78	3.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	5,954	7,202	10,690	13,740	17,030	23,580	20,060	14,700	9,114	4,888	4,781	4,929
MAX	44,100	42,030	37,630	52,890	61,040	76,510	57,850	40,410	46,630	21,040	28,210	44,620
(WY)	(1943)	(1986)	(1997)	(1996)	(1998)	(1936)	(1993)	(1989)	(1972)	(1949)	(1955)	(1996)
MIN	583	700	1,038	1,682	1,882	6,225	5,810	3,921	1,536	599	538	679
(WY)	(1931)	(1931)	(1966)	(1981)	(2002)	(2002)	(1995)	(1969)	(1999)	(1999)	(1966)	(1930)

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	2,473,975		8,334,120			
ANNUAL MEAN	6,778		22,830		11,410	
ANNUAL MEAN‡	7,428		23,450		11,859	
HIGHEST ANNUAL MEAN					23,760	1996
HIGHEST ANNUAL MEAN‡					24,370	1996
LOWEST ANNUAL MEAN					4,017	2002
LOWEST ANNUAL MEAN‡					4,664	2002
HIGHEST DAILY MEAN	48,500	Apr 24	150,000	Sep 21	426,000	Mar 19, 1936
LOWEST DAILY MEAN	258	Aug 20	1,330	Oct 9	(a)121	Sep 9, 1966
LOWEST DAILY MEAN‡	995	Sep 13	1,970	Oct 10	(b)601	Sep 10, 1966
ANNUAL SEVEN-DAY MINIMUM	327	Aug 18	1,660	Oct 6	181	Sep 7, 1966
MAXIMUM PEAK FLOW			167,000	Sep 21	484,000	Mar 19, 1936
MAXIMUM PEAK STAGE			11.44	Sep 21	(c)28.10	Mar 19, 1936
INSTANTANEOUS LOW FLOW			1,260	Oct 8	66	Sep 9, 1966
ANNUAL RUNOFF (CFSM)	0.59		1.98		0.99	
ANNUAL RUNOFF (CFSM)‡	0.64		2.03		1.03	
ANNUAL RUNOFF (INCHES)	7.96		26.82		13.42	
ANNUAL RUNOFF (INCHES)‡	8.72		27.54		13.93	
10 PERCENT EXCEEDS	18,900		52,900		25,600	
50 PERCENT EXCEEDS	2,880		14,000		6,450	
90 PERCENT EXCEEDS	658		5,020		1,650	

e Estimated
† Diversions, in cubic feet per second, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), Fairfax County, and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year). Records provided by U.S. Army Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, city of Fairfax, and Fairfax County Water Authority.
‡ Adjusted for diversion.
a Minimum daily discharge observed at gaging station, does not include diversion of 489 ft^3/s.
b Includes diversion of 449 ft^3/s for municipal use.
c At previous site, 1 mi upstream at same datum.

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1989 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1988 to current year.
WATER TEMPERATURE: October 1988 to current year.

INSTRUMENTATION.--Water-quality monitor October 1988 to current year.

REMARKS.-- No missing record. Records good.

EXTREMES FOR PERIOD OF DAILY RECORD--
SPECIFIC CONDUCTANCE: Maximum, 1,260 (road salt) microsiemens/cm, Dec. 11, 2002; minimum, 68 microsiemens/cm, Oct. 23, 1990.
WATER TEMPERATURE (water years 1989-93, 1995-99, 2001-03): Maximum, 33.5°C, July 11, 1993; minimum, 0.0°C, on many day during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,260 (road salt) microsiemens/cm, Dec. 11; minimum, 108 microsiemens/cm, Sept. 23.
WATER TEMPERATURE: Maximum, 30.1°C, Aug. 23; minimum, 0.0°C, Jan. 18-25, 27.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

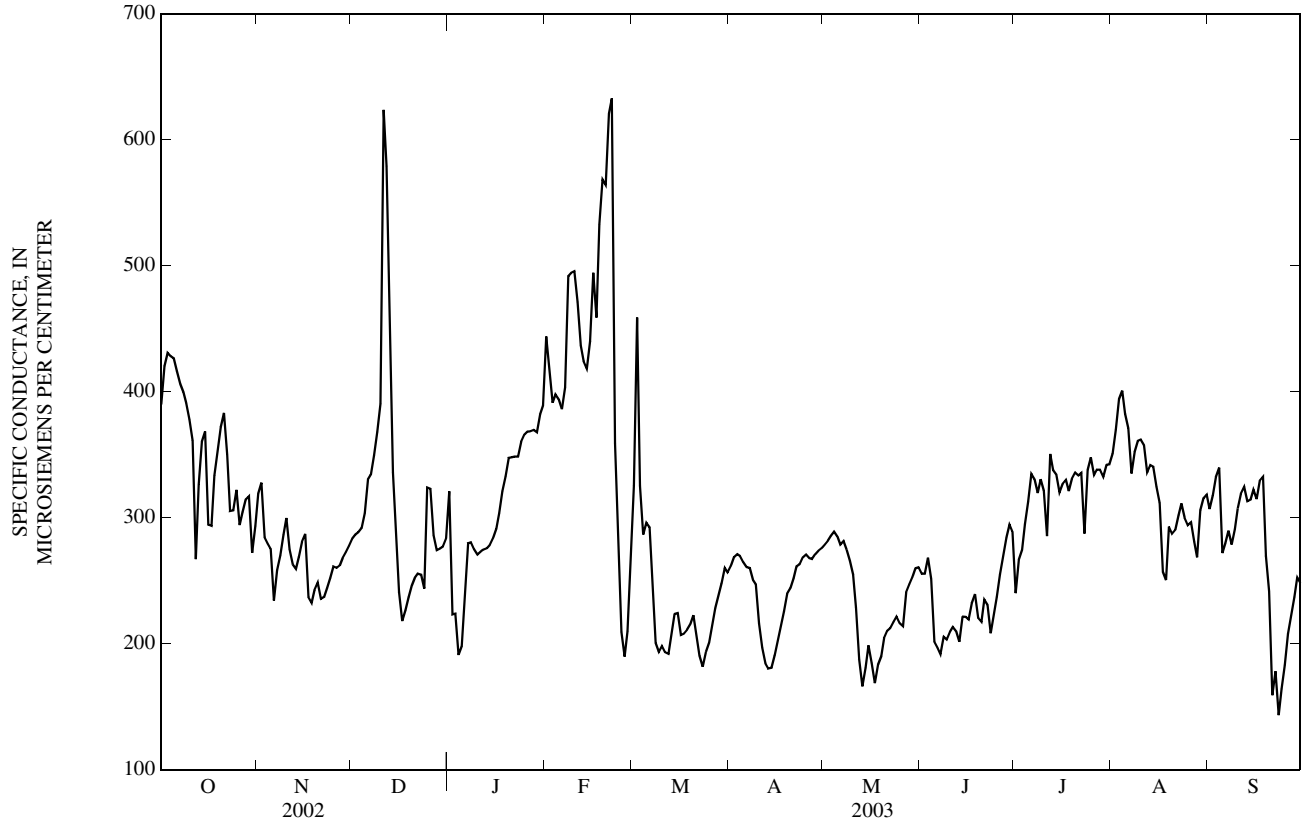
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	400	374	390	325	309	319	286	280	283	431	248	321
2	436	400	420	339	314	328	288	284	287	264	201	223
3	435	426	431	314	276	285	293	285	288	263	187	224
4	440	426	428	281	276	280	303	285	292	197	186	191
5	429	423	427	281	266	276	316	294	303	206	195	198
6	423	405	416	268	201	234	342	316	330	279	206	236
7	410	396	406	263	252	258	343	327	334	293	260	280
8	404	392	400	279	263	270	360	332	350	293	271	281
9	394	383	391	294	279	286	382	340	368	293	267	275
10	384	373	378	306	293	300	400	373	390	273	268	271
11	375	324	361	301	252	275	1,260	377	623	275	271	273
12	324	236	267	276	238	263	756	492	579	278	273	275
13	345	308	326	266	241	260	553	407	455	283	271	276
14	368	345	361	274	265	269	414	317	336	281	275	279
15	370	367	368	296	273	281	318	259	284	287	280	284
16	369	165	294	299	269	287	264	219	241	297	287	291
17	330	211	293	243	212	237	224	215	218	312	293	304
18	352	324	334	241	221	232	233	222	226	341	312	321
19	360	343	352	251	238	243	240	231	237	348	323	333
20	380	359	372	255	237	248	256	239	246	354	337	347
21	385	376	383	237	234	236	256	248	252	350	346	348
22	376	323	350	241	234	237	259	252	256	359	342	349
23	323	297	305	248	240	244	259	243	255	369	341	349
24	316	297	306	256	248	252	251	237	244	369	353	361
25	326	316	322	264	256	261	498	247	324	369	362	366
26	327	255	294	263	258	260	336	312	323	372	365	368
27	313	288	304	266	260	262	312	274	286	372	366	369
28	316	313	315	271	265	268	277	271	274	374	365	370
29	320	290	317	277	270	273	279	273	275	371	364	368
30	290	248	272	281	274	278	280	274	277	391	370	382
31	309	277	293	---	---	---	289	277	283	393	386	389
MONTH	440	165	351	339	201	267	1,260	215	314	431	186	307

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	480	388	444	372	307	325	267	257	262	284	275	279
2	448	396	417	557	372	459	272	267	269	286	278	281
3	398	383	391	395	290	325	273	269	271	290	283	286
4	431	385	398	292	282	287	272	266	269	292	286	289
5	417	385	394	321	284	296	268	250	265	289	280	285
6	390	380	386	310	267	292	263	259	261	293	266	279
7	482	375	403	267	230	248	272	251	260	290	273	282
8	523	465	492	230	186	200	253	246	251	280	269	274
9	508	474	494	199	187	194	252	240	247	270	260	266
10	508	480	495	200	197	198	240	210	216	260	244	255
11	488	450	471	200	187	193	212	177	197	244	214	229
12	453	425	436	198	186	192	191	176	185	214	168	188
13	433	414	424	220	198	208	190	175	181	172	164	166
14	428	408	418	225	220	224	186	176	181	192	172	181
15	516	411	440	228	219	224	196	186	191	205	192	199
16	539	437	494	219	203	207	210	195	203	211	165	185
17	483	440	459	210	205	208	220	209	215	196	152	169
18	569	474	533	214	209	211	232	220	226	194	178	184
19	633	541	568	220	212	215	243	232	240	197	184	190
20	604	538	564	247	208	222	246	242	244	211	197	205
21	703	599	621	218	196	205	258	245	252	219	203	210
22	811	404	633	216	173	190	263	258	261	216	207	213
23	444	278	359	190	176	182	265	261	263	220	215	217
24	309	246	288	198	188	193	271	265	269	224	219	222
25	246	184	209	207	195	201	275	267	271	231	207	216
26	205	181	190	230	207	214	276	259	268	233	193	214
27	231	201	210	234	225	228	272	259	267	245	233	241
28	317	231	273	243	231	238	275	267	271	256	243	247
29	---	---	---	253	243	248	276	272	274	258	250	253
30	---	---	---	274	252	260	279	274	276	264	258	260
31	---	---	---	259	252	257	---	---	---	264	258	261
MONTH	811	181	425	557	173	237	279	175	244	293	152	233
		JUNE			JULY			AUGUST			SEPTEMBER	
1	266	244	256	279	181	240	357	344	351	325	301	307
2	265	244	256	285	251	267	413	348	370	328	308	318
3	272	265	268	293	264	275	413	382	394	339	328	333
4	266	221	252	303	291	295	415	388	401	358	321	340
5	221	180	202	328	301	313	395	374	382	321	249	272
6	206	181	197	353	321	335	379	352	371	287	274	280
7	209	148	192	340	293	330	352	330	335	299	279	290
8	212	198	206	330	302	320	360	338	352	284	276	279
9	214	196	203	342	294	330	366	356	361	302	280	291
10	214	203	209	330	299	321	365	358	362	316	300	307
11	215	211	213	336	216	285	368	344	358	327	312	319
12	214	200	210	362	328	351	354	306	336	330	321	325
13	211	189	201	349	312	338	358	325	342	330	303	313
14	227	211	222	346	326	334	349	328	340	323	303	314
15	226	215	221	328	314	320	336	313	325	324	319	322
16	225	213	219	344	316	327	318	298	312	326	297	315
17	241	224	232	342	323	330	298	245	257	341	321	329
18	243	234	239	335	308	321	285	240	251	342	249	333
19	250	182	220	341	323	331	300	274	293	288	224	270
20	234	182	217	345	322	336	299	279	287	283	176	242
21	240	227	235	339	329	334	300	282	290	176	153	159
22	241	208	231	347	289	336	312	295	302	187	165	178
23	213	205	208	316	252	287	319	305	311	190	108	143
24	230	212	223	353	314	338	305	293	300	184	134	164
25	246	230	237	359	326	348	297	292	294	196	177	183
26	264	246	255	339	329	334	301	281	297	215	196	208
27	277	264	270	343	330	338	294	257	281	230	215	223
28	288	277	284	346	329	338	297	245	269	244	229	237
29	298	288	295	346	317	332	317	297	306	259	244	253
30	298	272	289	355	336	342	320	285	315	259	227	248
31	---	---	---	356	337	342	326	285	318	---	---	---
MONTH	298	148	232	362	181	322	415	240	325	358	108	270

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued



DAILY MEAN SPECIFIC CONDUCTANCE - 2003 WATER YEAR

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

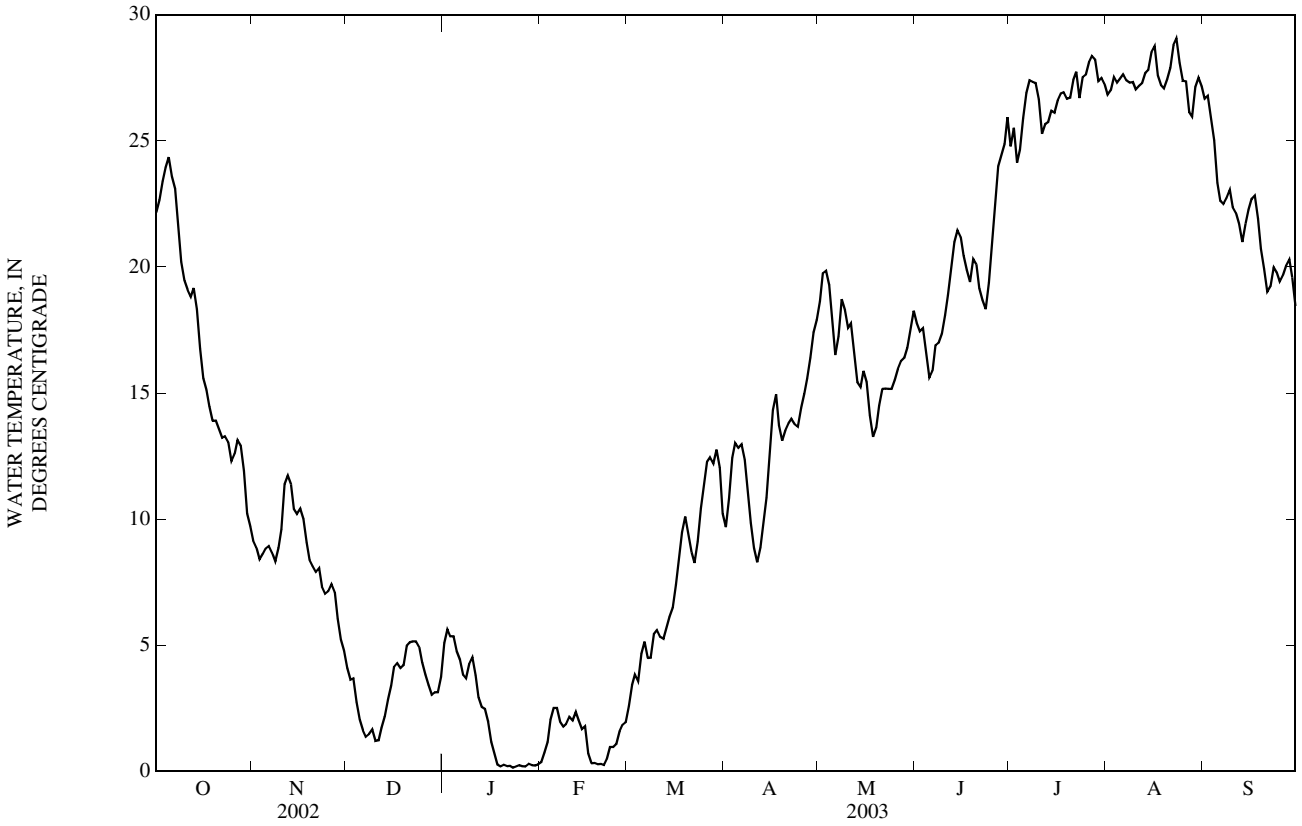
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	23.2	21.2	22.2	9.5	8.9	9.1	4.6	3.7	4.1	6.9	3.8	5.1
2	23.9	21.6	22.6	9.2	8.6	8.9	3.9	3.4	3.6	6.5	5.5	5.6
3	24.3	22.4	23.4	8.7	8.0	8.4	4.0	3.2	3.7	5.7	5.0	5.4
4	24.6	23.4	23.9	9.0	8.4	8.6	3.7	2.2	2.7	5.5	5.0	5.4
5	25.0	23.9	24.4	9.1	8.7	8.8	2.8	1.5	2.0	5.0	4.4	4.8
6	24.3	23.1	23.6	9.3	8.6	8.9	2.7	0.9	1.6	4.5	4.3	4.4
7	23.7	22.7	23.1	9.0	8.2	8.7	2.2	0.6	1.4	4.3	3.6	3.8
8	22.7	20.9	21.5	9.0	7.9	8.3	2.4	0.6	1.5	4.0	3.3	3.7
9	20.9	19.9	20.2	9.4	8.4	8.9	2.9	0.9	1.6	4.8	3.8	4.2
10	20.0	19.2	19.5	10.2	8.9	9.6	1.7	0.6	1.2	4.8	4.2	4.5
11	19.3	18.9	19.1	12.3	10.1	11.4	1.8	0.9	1.2	4.4	3.5	3.8
12	19.3	18.5	18.8	12.0	11.6	11.7	2.3	1.3	1.7	3.5	2.6	2.9
13	19.4	18.9	19.2	11.8	10.7	11.4	2.5	1.7	2.2	2.8	2.1	2.6
14	18.9	17.7	18.3	10.7	10.0	10.4	3.2	2.5	2.8	2.8	2.2	2.5
15	18.0	16.2	16.8	10.6	9.9	10.2	3.8	3.1	3.4	2.5	1.5	2.0
16	16.7	14.9	15.6	10.5	10.3	10.4	4.5	3.8	4.1	1.6	0.8	1.1
17	15.6	14.8	15.1	10.4	9.5	10.0	4.5	4.1	4.3	1.1	0.2	0.7
18	15.0	14.1	14.5	9.5	8.7	9.1	4.3	3.9	4.1	0.5	0.0	0.3
19	14.3	13.7	13.9	8.7	8.1	8.4	4.6	4.0	4.2	0.5	0.0	0.2
20	14.0	13.7	13.9	8.4	7.8	8.1	5.3	4.6	5.0	0.6	0.0	0.3
21	14.0	13.1	13.6	8.2	7.7	7.9	5.4	4.7	5.1	0.4	0.0	0.2
22	13.8	12.8	13.2	8.2	7.7	8.1	5.4	4.8	5.2	0.6	0.0	0.2
23	14.2	12.6	13.3	7.7	7.1	7.3	5.5	4.7	5.2	0.4	0.0	0.1
24	13.6	12.7	13.1	7.3	6.6	7.0	5.3	4.8	4.9	0.5	0.0	0.2
25	12.7	12.1	12.3	7.5	6.7	7.1	4.9	3.7	4.3	0.5	0.0	0.2
26	13.4	12.1	12.6	7.5	7.2	7.4	4.1	3.6	3.8	0.5	0.1	0.2
27	13.8	12.5	13.1	7.4	6.5	7.1	3.7	3.2	3.4	0.4	0.0	0.2
28	13.6	12.6	12.9	6.5	5.5	6.0	3.3	2.7	3.0	0.6	0.1	0.3
29	12.8	10.8	11.9	5.5	4.7	5.2	3.5	2.8	3.1	0.4	0.2	0.2
30	10.8	9.7	10.2	5.1	4.6	4.8	3.4	2.9	3.1	0.6	0.1	0.2
31	10.0	9.5	9.7	---	---	---	4.3	3.3	3.7	0.6	0.1	0.3
MONTH	25.0	9.5	17.0	12.3	4.6	8.6	5.5	0.6	3.3	6.9	0.0	2.1
		FEBRUARY			MARCH			APRIL			MAY	
1	0.7	0.2	0.3	2.9	2.4	2.6	10.4	9.0	9.7	19.2	18.2	18.6
2	1.3	0.3	0.7	4.3	2.8	3.4	12.1	9.9	10.8	20.3	19.2	19.8
3	1.8	0.6	1.1	4.3	3.3	3.8	13.7	11.3	12.4	20.2	19.5	19.8
4	3.0	1.4	2.0	4.1	3.0	3.6	13.6	12.7	13.0	19.8	18.8	19.3
5	3.3	1.8	2.5	5.6	3.9	4.7	13.2	12.5	12.8	18.8	16.8	17.8
6	2.9	2.2	2.5	5.4	4.7	5.1	13.5	12.4	13.0	16.8	16.4	16.5
7	2.4	1.5	2.0	4.8	4.1	4.5	13.7	11.4	12.4	18.4	16.4	17.2
8	2.7	1.1	1.8	4.9	4.1	4.5	11.5	10.2	10.9	19.3	18.2	18.7
9	2.7	1.1	1.9	6.1	4.7	5.4	10.2	9.3	9.8	19.2	17.9	18.3
10	2.4	1.9	2.2	5.9	5.3	5.6	9.3	8.5	8.8	18.0	17.3	17.6
11	2.6	1.5	2.0	5.6	5.1	5.3	8.7	8.1	8.3	18.3	17.3	17.8
12	3.2	1.6	2.3	5.6	4.9	5.3	9.7	8.1	8.9	17.7	15.7	16.5
13	2.8	1.2	2.0	6.3	5.1	5.7	10.4	9.2	9.8	15.7	15.0	15.4
14	2.5	0.9	1.7	6.7	5.5	6.1	11.8	9.9	10.8	16.1	14.5	15.2
15	2.2	1.6	1.8	7.2	5.8	6.5	13.8	11.3	12.5	16.5	15.3	15.9
16	1.7	0.1	0.7	8.1	6.7	7.4	15.4	13.3	14.3	16.2	14.7	15.4
17	0.6	0.2	0.3	8.9	7.8	8.4	15.3	14.6	14.9	14.7	13.6	14.1
18	0.7	0.1	0.3	10.2	8.8	9.5	14.6	13.3	13.7	13.6	13.1	13.3
19	0.9	0.1	0.3	10.5	9.7	10.1	13.6	12.7	13.1	14.5	12.8	13.6
20	0.5	0.1	0.3	10.1	8.7	9.4	14.2	12.8	13.5	15.4	13.7	14.5
21	0.4	0.1	0.2	9.0	8.6	8.7	14.3	13.3	13.8	15.4	14.9	15.2
22	1.2	0.2	0.5	8.7	7.8	8.3	14.2	13.7	14.0	15.2	15.1	15.2
23	1.3	0.6	1.0	9.8	8.3	9.1	14.4	13.1	13.8	15.2	15.1	15.2
24	1.2	0.7	1.0	11.2	9.7	10.4	14.4	12.8	13.7	15.6	14.9	15.2
25	1.5	0.3	1.1	12.3	10.6	11.4	15.0	13.8	14.4	15.9	15.2	15.5
26	1.7	1.4	1.6	12.9	11.6	12.3	15.2	14.8	15.0	16.6	15.5	16.0
27	2.0	1.7	1.8	13.2	11.6	12.4	16.5	14.7	15.6	16.6	16.0	16.3
28	2.4	1.6	1.9	13.0	11.7	12.2	17.5	15.4	16.4	17.0	16.0	16.4
29	---	---	---	13.5	12.3	12.8	17.7	17.0	17.4	17.2	16.4	16.8
30	---	---	---	13.5	10.8	12.0	18.4	17.4	17.9	18.8	16.5	17.6
31	---	---	---	10.8	9.8	10.2	---	---	---	18.8	17.9	18.3
MONTH	3.3	0.1	1.4	13.5	2.4	7.6	18.4	8.1	12.8	20.3	12.8	16.5

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	18.4	17.5	17.8	26.5	22.3	24.8	27.2	26.5	26.8	27.5	25.9	26.7
2	18.3	16.6	17.4	26.1	24.3	25.5	27.7	26.5	27.0	27.2	26.3	26.8
3	18.2	17.4	17.6	24.3	23.9	24.1	28.4	26.9	27.5	26.6	25.5	25.9
4	17.4	15.9	16.6	25.6	23.9	24.6	28.0	26.5	27.3	25.5	24.4	25.0
5	15.9	15.4	15.6	26.7	24.8	25.9	28.6	26.8	27.5	24.4	22.8	23.3
6	16.6	15.3	15.9	27.5	26.1	26.9	28.7	26.9	27.6	23.1	22.1	22.6
7	18.1	16.2	16.9	27.8	26.6	27.4	27.9	26.9	27.4	23.0	21.8	22.5
8	17.2	16.8	17.0	27.6	27.0	27.3	27.9	26.7	27.3	22.9	22.4	22.7
9	17.9	16.9	17.4	28.3	26.5	27.3	27.6	26.9	27.3	23.6	22.6	23.1
10	18.8	17.4	18.1	27.1	26.0	26.7	27.9	26.6	27.1	22.9	21.7	22.4
11	19.3	18.4	18.9	26.0	24.2	25.3	27.5	26.9	27.2	23.3	21.5	22.1
12	21.3	19.1	20.0	26.4	25.0	25.7	28.8	26.1	27.3	22.0	20.9	21.7
13	21.6	20.4	21.0	26.6	25.0	25.7	28.1	27.4	27.7	21.7	20.6	21.0
14	22.1	20.8	21.5	26.6	25.6	26.2	28.4	27.2	27.8	22.2	21.3	21.7
15	21.3	20.7	21.2	26.4	25.7	26.1	29.0	28.0	28.5	23.2	21.7	22.3
16	20.7	20.3	20.4	27.2	26.2	26.6	29.3	28.1	28.8	23.8	21.9	22.7
17	20.3	19.4	19.9	27.7	26.3	26.9	28.1	27.0	27.6	23.9	22.1	22.8
18	20.1	19.0	19.4	27.5	26.4	26.9	27.6	26.9	27.2	22.5	20.4	21.9
19	21.1	19.6	20.3	27.4	26.1	26.7	27.7	26.7	27.1	21.0	20.4	20.7
20	20.9	19.7	20.1	27.6	25.9	26.7	28.3	26.7	27.4	20.4	19.2	19.9
21	19.7	18.9	19.1	28.7	26.5	27.4	29.1	27.1	27.9	19.2	18.9	19.0
22	19.0	18.3	18.7	28.7	27.1	27.7	29.9	27.9	28.8	19.6	18.9	19.2
23	19.0	17.7	18.3	27.6	25.9	26.7	30.1	28.4	29.1	20.3	19.5	20.0
24	20.5	18.4	19.4	28.5	26.8	27.5	29.0	27.2	28.1	20.0	19.4	19.8
25	22.3	19.7	20.9	28.7	27.0	27.6	28.5	26.2	27.4	19.7	19.1	19.4
26	24.2	21.4	22.5	29.4	27.1	28.1	28.4	26.3	27.4	20.2	19.2	19.7
27	24.8	23.3	24.0	29.1	27.6	28.4	26.9	25.2	26.1	20.7	19.4	20.0
28	24.9	23.8	24.4	28.8	27.6	28.2	27.4	24.8	26.0	20.6	20.0	20.3
29	25.7	24.1	24.9	28.3	26.6	27.4	28.5	26.1	27.1	20.4	19.0	19.6
30	26.6	25.4	25.9	28.5	26.7	27.5	28.7	26.6	27.5	19.0	18.0	18.4
31	---	---	---	27.9	26.6	27.3	27.7	26.8	27.2	---	---	---
MONTH	26.6	15.3	19.7	29.4	22.3	26.7	30.1	24.8	27.5	27.5	18.0	21.8

01646500 POTOMAC RIVER NEAR WASHINGTON, DC—Continued



DAILY MEAN WATER TEMPERATURE - 2003 WATER YEAR

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC

LOCATION.--Lat 38°55'46", long 77°07'02", Arlington County, Va., Hydrologic Unit 02070010, under right downstream side of bridge on Virginia State Highway 123, and at river mile 115.9.

DRAINAGE AREA.--11,570 mi^2.

PERIOD OF RECORD.--Water years 1973 to current year. Prior to October 1977, published as "at Great Falls."

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: June 1978 to September 1981.
pH: June 1978 to September 1981.
WATER TEMPERATURE: June 1978 to September 1981.
DISSOLVED OXYGEN: June 1978 to September 1981.
SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1981.

INSTRUMENTATION.--Water-quality monitor June 1978 to September 1981.

REMARKS--Extreme high flows are sampled from the George Mason Memorial Bridge (14th Street) located 6 mi downstream from Chain Bridge. On May 3 and Nov. 17, 1994 samples were collected and analyzed using ultraclean methodologies. Data on trace metals for these dates are available from the University of Delaware. Data on organics for these dates are available from George Mason University.

EXTREMES FOR PERIOD OF DAILY RECORD--
SPECIFIC CONDUCTANCE (water years 1979, 1981): Maximum, 598 microsiemens/cm, Sept. 12, 1981; minimum, 116 microsiemens/cm, Jan. 25, 1979.
pH (water years 1979, 1981): Maximum, 9.3 units, Mar. 29, 1981; minimum, 6.7 units, June 2, 1981.
WATER TEMPERATURE (water years 1979, 1981): Maximum, 31.0°C, July 23, 24, 1978; minimum, 0.0°C on many days during winter periods.
DISSOLVED OXYGEN (water years 1979, 1981): Maximum, 16.4 mg/L, on many days in 1979; minimum, 5.6 mg/L, June 2, 1981.
SEDIMENT CONCENTRATION: Maximum daily mean, 812 mg/L, Sept. 6, 1979; minimum daily mean, 1 mg/L on many days during winter periods.
SEDIMENT LOAD: Maximum daily, 281,000 tons, Feb. 27, 1979; minimum daily, 3.2 tons, Jan. 5, 1981.

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)
OCT												
08...	1030	Environmental	1,370	769	9.4	105	8.7	392	18.0	21.0	--	--
NOV												
05...	1100	Environmental	8,870	764	12.8	110	7.5	273	11.5	9.0	--	--
DEC												
03...	1015	Environmental	6,870	772	14.0	105	8.1	279	0.0	3.6	--	--
JAN												
08...	1000	Environmental	27,400	751	6.9	52	7.8	222	--	3.3	--	--
22...	1045	Environmental	5,780	763	14.9	102	8.1	324	-4.0	0.0	140	41.0
FEB												
04...	*1145*	*Blank*	--	--	--	--	--	--	--	--	--	--
04...	1230	Environmental	6,230	751	13.2	97	7.9	359	12.0	2.1	--	--
23...	1115	Environmental	37,700	739	--	--	7.9	322	7.5	3.0	--	--
MAR												
04...	1200	Environmental	34,100	771	--	--	7.4	248	6.0	3.2	--	--
10...	1045	Environmental	74,300	765	--	--	7.7	198	1.0	6.0	--	--
18...	1230	Environmental	38,100	758	14.5	128	6.1	212	19.5	9.5	--	--
19...	1215	Environmental	36,100	766	--	--	8.0	215	10.0	10.5	--	--
22...	1015	Environmental	119,000	755	--	--	7.9	186	15.0	9.0	--	--
22...	*1016*	*Replicate*	--	--	--	--	--	--	--	--	--	--
APR												
02...	0945	Environmental	21,700	756	13.9	124	7.4	273	--	10.0	--	--
09...	0945	Environmental	34,600	763	12.3	109	8.1	248	5.5	10.0	100	30.4
09...	*0950*	*Replicate*	--	--	--	--	--	--	--	--	*100*	*30.6*
22...	1015	Environmental	19,000	752	11.2	110	8.1	264	23.0	14.0	120	34.2
22...	*1020*	*Replicate*	--	--	--	--	--	--	--	--	*110*	*33.6*
23...	1045	Environmental	18,100	764	11.5	110	7.7	266	--	13.3	--	--
MAY												
07...	1030	Environmental	14,800	756	12.2	127	7.7	286	26.0	17.0	--	--
14...	0915	Environmental	42,300	758	11.3	112	7.9	178	17.0	14.8	--	--
14...	*0920*	*Replicate*	--	--	--	--	--	--	--	--	--	--
20...	1115	Environmental	44,700	773	12.1	117	6.9	204	--	14.5	--	--
28...	0930	Environmental	26,300	756	--	--	8.0	243	15.0	--	--	--
JUN												
04...	0930	Environmental	28,100	757	9.6	100	7.2	246	16.5	16.8	--	--
04...	*0931*	*Replicate*	--	--	--	--	--	--	--	--	--	--
18...	0945	Environmental	32,600	764	9.0	97	7.9	242	18.5	19.1	--	--
18...	*0946*	*Replicate*	--	--	--	--	--	--	--	--	--	--
25...	*1055*	*Blank*	--	--	--	--	--	--	--	--	--	--
25...	*1056*	*Blank*	--	--	--	--	--	--	--	--	--	--
25...	1100	Environmental	30,100	762	9.6	106	8.0	229	30.0	20.5	--	--
25...	*1101*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUL												
08...	1000	Environmental	13,000	758	9.8	124	8.1	317	27.5	27.0	--	--
08...	*1002*	*Replicate*	--	--	--	--	--	--	--	--	--	--
16...	0945	Environmental	10,400	758	9.4	--	8.2	306	30.0	26.5	--	--
16...	*0946*	*Replicate*	--	--	--	--	--	--	--	--	--	--
16...	*0950*	*Replicate*	--	--	--	--	--	--	--	--	--	--
16...	*0951*	*Replicate*	--	--	--	--	--	--	--	--	--	--
23...	1100	Environmental	8,780	762	8.3	105	7.9	291	26.0	26.9	--	--
AUG												
04...	1030	Environmental	5,570	759	8.1	104	8.4	354	25.5	27.5	--	--
04...	*1031*	*Replicate*	--	--	--	--	--	--	--	--	--	--
04...	*1032*	*Replicate*	--	--	--	--	--	--	--	--	--	--
05...	1030	Environmental	5,290	762	10.6	134	8.2	376	29.5	27.1	--	--
20...	0915	Environmental	7,540	761	9.9	126	7.9	282	27.0	27.5	--	--
SEP												
03...	0945	Environmental	5,080	761	8.1	100	8.2	329	23.5	26.0	--	--
03...	*0946*	*Replicate*	--	--	--	--	--	--	--	--	--	--
05...	0915	Environmental	38,600	759	8.8	103	7.9	241	24.0	23.0	--	--
09...	1115	Environmental	9,910	771	9.1	105	7.8	286	26.5	23.0	--	--
20...	0900	Environmental	82,900	762	12.4	142	7.9	286	22.5	22.0	--	--
20...	*0905*	*Replicate*	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
OCT													
08...	--	--	--	66	81	21.9	--	2.5	56.4	--	<10	--	0.36
NOV													
05...	--	--	--	74	91	11.7	--	6.9	28.5	--	<10	0.26	0.36
DEC													
03...	--	--	--	82	101	12.4	--	6.2	29.5	--	<10	--	0.18
JAN													
08...	--	--	--	58	71	16.0	--	--	24.7	--	--	--	0.35
22...	9.07	2.02	10.1	--	--	15.6	<0.17	6.38	28.5	186	<10	0.16	0.18
FEB													
04...	--	--	--	--	--	--	--	--	--	--	--	--	*<0.10*
04...	--	--	--	105	128	20.8	--	--	32.6	--	--	--	0.20
23...	--	--	--	--	--	--	--	4.1	--	--	136	0.31	0.77
MAR													
04...	--	--	--	66	80	24.3	--	--	20.6	--	--	--	0.65
10...	--	--	--	--	--	--	--	6.8	--	--	94	0.34	0.71
18...	--	--	--	--	--	--	--	--	--	--	--	--	0.29
19...	--	--	--	--	--	--	--	6.4	--	--	23	0.23	0.33
22...	--	--	--	--	--	--	--	5.8	--	--	310	0.36	1.5
22...	--	--	--	--	--	--	--	*5.8*	--	--	*296*	*0.36*	*1.4*
APR													
02...	--	--	--	81	98	13.1	--	--	21.7	--	--	--	0.32
09...	6.60	1.85	8.11	67	82	11.9	0.09	4.35	21.1	267	35	0.18	0.46
09...	*6.56*	*1.78*	*7.98*	--	--	*12.0*	*0.09*	*4.31*	*21.2*	*139*	*37*	*0.14*	*0.36*
22...	7.44	1.88	6.90	76	92	10.7	0.09	5.66	22.2	149	<10	0.16	0.28
22...	*7.31*	*1.89*	*6.76*	--	--	*10.7*	*0.09*	*5.51*	*22.4*	*149*	*14*	*0.17*	*0.27*
23...	--	--	--	--	--	--	--	--	--	--	--	--	0.25
MAY													
07...	--	--	--	85	104	13.2	--	--	21.9	--	--	--	0.45
14...	--	--	--	--	--	--	--	7.2	--	--	85	0.27	0.82
14...	--	--	--	--	--	--	--	*7.4*	--	--	*113*	*0.26*	*0.78*
20...	--	--	--	--	--	--	--	--	--	--	--	--	0.42
28...	--	--	--	--	--	--	--	8.4	--	--	41	0.26	0.51
JUN													
04...	--	--	--	70	85	10.7	--	--	22.6	--	--	--	0.38
04...	--	--	--	--	--	*10.9*	--	--	*22.6*	--	--	--	*0.40*
18...	--	--	--	--	--	--	--	--	--	--	--	--	0.55
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	*<0.2*	--	--	*<10*	*<0.10*	*<0.10*
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	8.7	--	--	55	0.25	0.49
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08...	--	--	--	110	135	13.8	--	--	19.3	--	--	--	0.47
08...	--	--	--	*111*	*136*	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	7.0	--	--	15	0.18	0.47
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	*6.9*	--	--	*18*	*0.21*	*0.42*
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	0.54
AUG													
04...	--	--	--	--	--	--	--	5.7	--	--	<10	0.23	0.55
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	125	152	19.2	--	--	31.8	--	--	--	0.57
20...	--	--	--	--	--	--	--	--	--	--	--	--	0.47
SEP													
03...	--	--	--	--	--	--	--	4.3	--	--	20	0.27	0.36
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	6.5	--	--	392	0.48	2.0
09...	--	--	--	78	96	11.1	--	--	34.6	--	--	--	0.44
20...	--	--	--	--	--	--	--	7.1	--	--	506	0.39	2.2
20...	--	--	--	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)
OCT													
08...	<0.04	0.81	0.82	0.009	--	--	0.03	--	0.055	--	1.2	<0.1	4.1
NOV													
05...	<0.04	--	1.73	E.006	--	--	0.05	0.069	0.088	2.0	2.1	0.4	4.0
DEC													
03...	<0.04	--	2.00	E.005	--	--	0.03	--	0.039	--	2.2	<0.1	2.0
JAN													
08...	0.04	--	1.88	E.004	--	0.31	0.07	--	0.073	--	2.2	0.8	3.4
22...	<0.04	--	2.52	E.006	--	--	0.02	0.023	0.039	2.7	2.7	--	1.8
FEB													
04...	*0.08*	--	*<0.06*	*0.011*	--	--	*<0.02*	--	*<0.004*	--	--	*<0.1*	*0.8*
04...	E.04	2.58	2.59	0.010	--	--	E.01	--	0.029	--	2.8	<0.1	2.1
23...	0.10	1.42	1.43	0.010	0.21	0.67	E.01	0.019	0.19	1.7	2.2	--	--
MAR													
04...	0.12	1.90	1.91	0.011	--	0.52	0.04	--	0.125	--	2.6	1.5	3.6
10...	0.07	1.51	1.52	0.008	0.26	0.63	0.03	0.041	0.166	1.9	2.2	--	--
18...	E.03	1.55	1.55	0.009	--	--	0.02	--	0.065	--	1.8	--	--
19...	E.03	1.55	1.56	0.009	--	--	0.02	0.019	0.060	1.8	1.9	--	2.2
22...	0.06	1.16	1.17	0.008	0.30	1.5	0.02	0.037	0.39	1.5	2.7	--	--
22...	*0.06*	*1.16*	*1.17*	*0.009*	*0.30*	*1.4*	*0.02*	*0.035*	*0.37*	*1.5*	*2.6*	--	--
APR													
02...	<0.04	1.73	1.73	0.008	--	--	E.01	--	0.050	--	2.1	0.5	3.7
09...	<0.04	1.30	1.31	0.009	--	--	E.01	0.014	0.064	1.5	1.8	--	2.2
09...	*<0.04*	*1.31*	*1.32*	*0.009*	--	--	*E.01*	*0.014*	*0.068*	*1.5*	*1.7*	--	*2.3*
22...	<0.04	--	1.55	E.004	--	--	E.01	0.021	0.048	1.7	1.8	--	1.9
22...	*<0.04*	--	*1.56*	*E.004*	--	--	*E.01*	*0.021*	*0.047*	*1.7*	*1.8*	--	*2.0*
23...	<0.04	1.26	1.35	0.086	--	--	<0.02	--	0.044	--	1.6	--	--
MAY													
07...	<0.04	--	1.34	E.007	--	--	<0.02	--	0.049	--	1.8	0.9	3.5
14...	E.04	0.91	0.92	0.010	--	--	0.02	0.032	0.181	1.2	1.7	--	--
14...	*E.04*	*0.91*	*0.91*	*0.009*	--	--	*0.02*	*0.032*	*0.176*	*1.2*	*1.7*	--	--
20...	<0.04	1.13	1.17	0.040	--	--	<0.02	--	0.097	--	1.6	--	--
28...	<0.04	1.45	1.47	0.011	--	--	0.04	0.050	0.119	1.7	2.0	--	--
JUN													
04...	<0.04	0.87	1.03	0.159	--	--	<0.02	--	0.092	--	1.4	1.1	3.2
04...	*<0.04*	*0.87*	*1.03*	*0.162*	--	--	*<0.02*	--	*0.094*	--	*1.4*	*1.2*	*2.6*
18...	<0.04	1.11	1.18	0.064	--	--	<0.02	--	0.126	--	1.7	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	*<0.04*	--	*<0.06*	*<0.008*	--	--	*<0.02*	*<0.004*	*<0.004*	--	--	--	--
25...	--	--	--	--	--	--	--	*<0.01*	--	--	--	--	*E.2*
25...	<0.04	--	1.26	E.006	--	--	0.04	0.049	0.128	1.5	1.8	--	--
25...	--	--	--	--	--	--	--	*0.04*	--	--	--	--	*3.1*
JUL													
08...	<0.04	1.58	1.59	0.009	--	--	<0.02	--	0.061	--	2.1	1.4	3.8
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	<0.04	1.50	1.51	0.008	--	--	0.02	0.027	0.066	1.7	2.0	--	--
16...	--	--	--	--	--	--	--	*0.03*	--	--	--	--	*3.0*
16...	*<0.04*	*1.50*	*1.51*	*0.008*	--	--	*0.02*	*0.027*	*0.065*	*1.7*	*1.9*	--	--
16...	--	--	--	--	--	--	--	*0.03*	--	--	--	--	*3.0*
23...	<0.04	1.15	1.16	0.012	--	--	<0.02	--	0.075	--	1.7	--	--
AUG													
04...	<0.04	1.21	1.23	0.012	--	--	<0.02	0.011	0.056	1.5	1.8	--	--
04...	--	--	--	--	--	--	--	*<0.01*	--	--	--	--	*2.6*
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.04	1.41	1.42	0.014	--	--	<0.02	--	0.053	--	2.0	1.8	3.0
20...	<0.04	0.91	0.94	0.034	--	--	<0.02	--	0.121	--	1.4	--	--
SEP													
03...	E.03	1.16	1.17	0.010	--	--	0.02	0.030	0.052	1.4	1.5	--	--
03...	--	--	--	--	--	--	--	*0.04*	--	--	--	--	*2.5*
05...	<0.41	--	1.24	<0.080	--	--	E.11	0.124	0.63	1.7	3.2	--	--
09...	<0.04	1.40	1.41	0.010	--	--	0.04	--	0.100	--	1.8	1.2	4.2
20...	0.04	1.33	1.34	0.009	0.34	2.2	0.05	0.068	0.70	1.7	3.5	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)
OCT													
08...	--	--	--	<0.006	E.034	<0.006	<0.004	<0.005	99.1	0.037	<0.050	<0.010	<0.002
NOV													
05...	--	--	--	<0.006	E.021	0.042	<0.004	<0.005	111	0.038	<0.050	<0.010	<0.002
DEC													
03...	--	--	--	<0.006	E.030	<0.006	<0.004	<0.005	99.0	0.021	<0.050	<0.010	<0.002
JAN													
08...	--	--	--	<0.006	E.019	<0.006	<0.004	<0.005	95.5	0.014	<0.050	<0.010	<0.002
22...	2.0	19	14.8	--	--	--	--	--	--	--	--	--	--
FEB													
04...	--	--	--	*<0.006*	*<0.006*	*<0.006*	*<0.004*	*<0.005*	*103*	*<0.007*	*<0.050*	*<0.010*	*<0.002*
04...	--	--	--	<0.006	E.051	<0.006	<0.004	<0.005	97.3	0.028	<0.050	<0.010	<0.002
23...	9.2	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
04...	--	--	--	<0.006	E.035	<0.006	<0.004	<0.005	95.5	0.021	<0.050	<0.010	<0.002
10...	6.2	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	<0.006	E.031	<0.006	<0.004	<0.005	92.9	0.015	<0.050	E.008	<0.002
19...	3.0	--	--	--	--	--	--	--	--	--	--	--	--
22...	15.7	--	--	--	--	--	--	--	--	--	--	--	--
22...	*14.8*	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	--	--	--	<0.006	E.044	<0.006	<0.004	<0.005	84.7	0.021	<0.050	<0.010	<0.002
09...	4.4	29	2.3	--	--	--	--	--	--	--	--	--	--
09...	*4.3*	*31*	*2.0*	--	--	--	--	--	--	--	--	--	--
22...	3.1	41	3.2	--	--	--	--	--	--	--	--	--	--
22...	*3.8*	*17*	*1.7*	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	<0.006	E.032	<0.006	<0.004	<0.005	105	0.024	<0.050	<0.010	<0.002
MAY													
07...	--	--	--	<0.006	E.031	<0.006	<0.004	<0.005	99.1	0.096	<0.050	<0.010	<0.002
14...	E7.1	--	--	--	--	--	--	--	--	--	--	--	--
14...	*E7.4*	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	<0.006	E.043	0.021	<0.004	<0.005	102	0.449	<0.050	<0.010	<0.002
28...	5.3	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
04...	--	--	--	<0.006	E.053	0.009	<0.004	<0.005	86.2	0.263	<0.050	<0.010	<0.002
04...	--	--	--	*<0.006*	*E.053*	*0.008*	*<0.004*	*<0.005*	*87.6*	*0.249*	*<0.050*	*<0.010*	*<0.002*
18...	--	--	--	<0.006	E.045	<0.006	<0.004	<0.005	87.4	0.363	<0.050	<0.010	<0.002
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	*<0.4*	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	5.9	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08...	--	--	--	<0.006	E.047	0.006	<0.004	<0.005	92.9	0.558	<0.050	<0.010	<0.002
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	6.2	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	*4.8*	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	<0.006	E.042	<0.006	<0.004	<0.005	103	0.102	<0.050	<0.010	<0.002
AUG													
04...	5.2	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	<0.006	E.072	<0.006	<0.004	<0.005	108	0.121	<0.050	<0.010	<0.002
20...	--	--	--	<0.006	E.053	<0.006	<0.004	<0.005	94.6	0.093	<0.050	<0.010	<0.002
SEP													
03...	2.7	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	26.2	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	<0.006	E.029	<0.006	<0.004	<0.005	97.3	0.041	<0.050	<0.010	<0.002
20...	24.4	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)
OCT													
08...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	120	<0.005	<0.02	<0.002	<0.009	<0.005
NOV													
05...	E.010	<0.020	<0.005	<0.006	<0.018	<0.003	0.010	132	<0.005	<0.02	<0.002	<0.009	<0.005
DEC													
03...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	114	<0.005	<0.02	<0.002	<0.009	<0.005
JAN													
08...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	119	<0.005	<0.02	<0.002	<0.009	<0.005
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
04...	*<0.041*	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*107*	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*
04...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	104	<0.005	<0.02	<0.002	<0.009	<0.005
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
04...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	E.003	115	<0.005	<0.02	<0.002	<0.009	<0.005
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	<0.041	<0.020	<0.005	<0.006	<0.018	E.003	<0.005	115	<0.005	<0.02	<0.040	E.005	<0.005
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	116	<0.005	<0.02	<0.025	<0.009	<0.005
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	E.006	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	124	<0.005	<0.02	<0.002	<0.009	<0.005
MAY													
07...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	114	<0.005	<0.02	<0.002	<0.009	<0.005
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	E.032	E.012	<0.005	<0.006	<0.018	<0.003	<0.005	111	<0.005	<0.02	<0.002	<0.009	<0.005
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
04...	E.008	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	94.6	<0.005	<0.02	<0.002	<0.009	<0.005
04...	*E.009*	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*90.2*	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*
18...	E.007	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	114	<0.005	<0.02	<0.002	<0.009	<0.005
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08...	E.004	<0.020	<0.005	<0.006	<0.018	<0.003	E.005	106	<0.005	<0.02	<0.002	<0.009	<0.005
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	E.023	<0.020	<0.005	<0.006	<0.018	<0.003	0.025	118	<0.005	<0.02	<0.002	<0.009	<0.005
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	128	<0.005	<0.02	<0.002	<0.009	<0.005
20...	E.005	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	109	<0.005	<0.02	<0.004	<0.009	<0.005
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	<0.041	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	110	<0.005	<0.02	<0.002	<0.009	<0.005
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metolachlor, water, fltrd, ug/L (39415)	Metribuzin, water, fltrd, ug/L (82630)	Molinate, water, fltrd 0.7u GF ug/L (82671)	Napropamide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Parathion, water, fltrd, ug/L (39542)	Pebulate, water, fltrd 0.7u GF ug/L (82669)	Pendimethalin, water, fltrd 0.7u GF ug/L (82683)
OCT													
08...	<0.003	<0.004	<0.035	<0.027	<0.006	0.013	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
NOV													
05...	<0.003	<0.004	<0.035	<0.027	<0.006	0.015	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
DEC													
03...	<0.003	<0.004	<0.035	<0.027	<0.006	E.007	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
JAN													
08...	<0.003	<0.004	<0.035	<0.027	<0.006	E.012	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
04...	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.013*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*
04...	<0.003	<0.004	<0.035	<0.027	<0.006	0.014	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
04...	<0.003	<0.004	<0.035	<0.027	<0.006	0.017	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	<0.003	<0.004	<0.035	<0.027	<0.006	E.010	<0.006	<0.002	<0.007	0.008	<0.010	<0.004	<0.022
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	<0.003	<0.004	<0.035	<0.027	<0.006	E.012	<0.006	<0.004	<0.007	<0.003	<0.010	<0.004	<0.022
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.003	<0.004	<0.035	<0.027	<0.006	E.011	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
MAY													
07...	<0.003	<0.004	<0.035	<0.027	<0.006	0.039	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	<0.003	<0.004	<0.035	<0.027	<0.006	0.140	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	E.006
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
04...	<0.003	<0.004	<0.035	<0.027	<0.006	0.056	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
04...	*<0.003*	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*0.055*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*
18...	<0.003	<0.004	<0.035	<0.027	<0.006	0.131	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08...	<0.003	<0.004	<0.035	<0.027	<0.006	0.193	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.003	<0.004	<0.035	E.005	<0.006	0.027	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.003	<0.004	<0.035	<0.027	<0.006	0.025	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
20...	<0.003	<0.004	<0.035	<0.027	<0.006	0.045	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	<0.003	<0.004	<0.035	<0.027	<0.006	0.015	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Phorate water fltrd 0.7u GF ug/L (82664)	Prometon, water, fltrd, ug/L (04037)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)
OCT													
08...	<0.011	0.02	<0.004	<0.010	<0.011	<0.02	0.015	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
NOV													
05...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.009	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
DEC													
03...	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.007	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
JAN													
08...	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.009	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
04...	*<0.011*	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*	*<0.02*	*<0.005*	*<0.002*	*<0.009*
04...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.015	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
04...	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.015	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.009	<0.02	<0.034	<0.02	E.003	E.002	E.007
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
02...	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.011	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.011	M	<0.004	<0.010	<0.011	<0.02	0.022	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
MAY													
07...	<0.011	<0.01	<0.004	<0.010	<0.011	<0.02	0.034	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.168	E.01	<0.034	<0.02	<0.005	<0.002	<0.009
28...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
04...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.076	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
04...	*<0.011*	*E.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*0.073*	*<0.02*	*<0.034*	*<0.02*	*<0.005*	*<0.002*	*<0.009*
18...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.103	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
08...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.118	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
08...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	<0.011	0.02	<0.004	<0.010	<0.011	<0.02	0.032	<0.02	<0.034	<0.02	<0.005	<0.002	<0.009
AUG													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.011	0.02	<0.004	<0.010	<0.011	<0.02	0.031	M	<0.034	<0.02	<0.005	<0.002	<0.009
20...	<0.011	0.02	<0.004	<0.010	<0.011	<0.02	0.036	E.01	<0.034	<0.02	<0.005	<0.002	<0.009
SEP													
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
09...	<0.011	E.01	<0.004	<0.010	<0.011	<0.02	0.017	M	<0.034	<0.02	<0.005	<0.002	<0.009
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)	Sus-pended sedi-ment load, tons/d (80155)
OCT			
08...	--	1	4.8
NOV			
05...	--	5	125
DEC			
03...	--	1	26
JAN			
08...	--	25	1,850
22...	--	1	19
FEB			
04...	--	--	--
04...	--	2	27
23...	86	185	18,800
MAR			
04...	--	43	3,950
10...	86	103	20,700
18...	--	32	3,260
19...	--	32	3,090
22...	82	380	122,000
22...	*81*	*383*	--
APR			
02...	--	14	832
09...	--	43	4,040
09...	--	*41*	--
22...	--	15	770
22...	--	*15*	--
23...	--	15	714
MAY			
07...	--	16	631
14...	--	121	13,800
14...	--	*126*	--
20...	--	44	5,360
28...	--	47	3,340
JUN			
04...	--	43	3,290
04...	--	*45*	--
18...	--	70	6,170
18...	--	*68*	--
25...	--	*0.3*	--
25...	--	--	--
25...	--	60	4,860
25...	--	--	--
JUL			
08...	--	15	541
08...	--	--	--
16...	--	14	396
16...	--	--	--
16...	--	*16*	--
16...	--	--	--
23...	--	30	711
AUG			
04...	--	10	149
04...	--	--	--
04...	--	--	--
05...	--	10	140
20...	--	16	332
SEP			
03...	--	11	151
03...	--	--	--
05...	--	390	40,600
09...	--	27	733
20...	77	510	114,000
20...	*82*	*643*	--

Remark codes used in this table:
< -- Less than
E -- Estimated value
M-- Presence verified, not quantified

Photo by U.S. Geological Survey Personnel

Potomac River at Chain Bridge at Washington, D.C. (01646580)

01648000 ROCK CREEK AT SHERRILL DRIVE, WASHINGTON, DC

LOCATION.--Lat 38°58'21.0", long 77°02'24.0", District of Columbia, Hydrologic Unit 02070010, on left bank 125 ft downstream from Sherrill Drive Bridge in Rock Creek Park in Washington, and 7.5 mi upstream from mouth.

DRAINAGE AREA.--62.2 mi^2.

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 1432: 1933(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 148.87 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow affected by two upstream reservoirs which control flow from about 25 mi^2, Needwood Lake on Rock Creek since Sept. 1966 and Bernard Frank Lake on North Branch Rock Creek since February 1968. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1900	2,000	7.81
Mar 20	1845	1,210	5.73
May 16	0900	1,220	5.76
Jun 7	1900	1,530	6.75
Jun 20	0045	1,440	6.44
Jun 20	1345	1,390	6.28
Jul 23	0015	1,450	6.48
Sep 19	0030	1,320	6.07
Sep 23	0745	*2,130	*8.14

Minimum discharge, 3.2 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	39	24	319	58	122	105	79	119	233	42	31
2	9.9	27	22	370	50	200	88	46	97	127	51	41
3	7.7	21	21	251	38	241	77	42	140	209	45	47
4	6.4	18	19	222	46	160	68	40	217	80	51	122
5	5.6	30	30	147	54	143	61	52	164	63	56	56
6	4.6	180	34	128	39	256	55	63	118	83	42	40
7	4.2	42	26	112	38	243	174	78	827	209	35	33
8	3.7	29	25	84	46	188	105	81	264	92	34	29
9	3.2	23	25	77	36	168	202	99	207	205	37	26
10	48	19	23	65	34	160	117	117	162	113	42	24
11	218	120	384	55	34	135	170	112	186	368	101	24
12	54	156	215	47	31	117	114	65	285	157	72	92
13	26	100	254	42	28	101	92	52	199	162	51	168
14	17	52	272	39	26	104	78	44	220	61	42	65
15	13	37	138	36	35	86	68	44	134	52	36	120
16	366	202	109	36	36	73	63	488	108	47	42	79
17	93	426	84	35	24	65	58	121	122	42	215	50
18	55	297	61	37	41	59	56	134	196	39	56	307
19	30	160	47	35	48	55	71	83	535	39	42	428
20	22	109	71	34	62	471	57	66	756	38	36	173
21	17	77	47	34	91	306	55	262	238	36	33	139
22	14	55	38	29	997	175	62	141	188	156	30	133
23	12	40	35	27	526	139	53	104	164	355	27	1,190
24	10	32	33	31	280	121	48	100	146	64	25	256
25	14	27	253	35	231	104	50	325	125	52	28	192
26	171	25	140	34	184	110	169	573	109	42	172	161
27	29	24	84	30	156	99	77	215	99	38	178	131
28	20	24	60	29	136	71	60	245	83	145	76	112
29	113	23	49	33	---	85	52	167	69	141	71	96
30	148	22	43	31	---	233	51	136	58	60	108	66
31	79	---	40	28	---	146	---	121	---	47	39	---
TOTAL	1,627.3	2,436	2,706	2,512	3,405	4,736	2,556	4,295	6,335	3,555	1,915	4,431
MEAN	52.5	81.2	87.3	81.0	122	153	85.2	139	211	115	61.8	148
MAX	366	426	384	370	997	471	202	573	827	368	215	1,190
MIN	3.2	18	19	27	24	55	48	40	58	36	25	24
CFSM	0.84	1.31	1.40	1.30	1.96	2.46	1.37	2.23	3.39	1.84	0.99	2.37
IN.	0.97	1.46	1.62	1.50	2.04	2.83	1.53	2.57	3.79	2.13	1.15	2.65

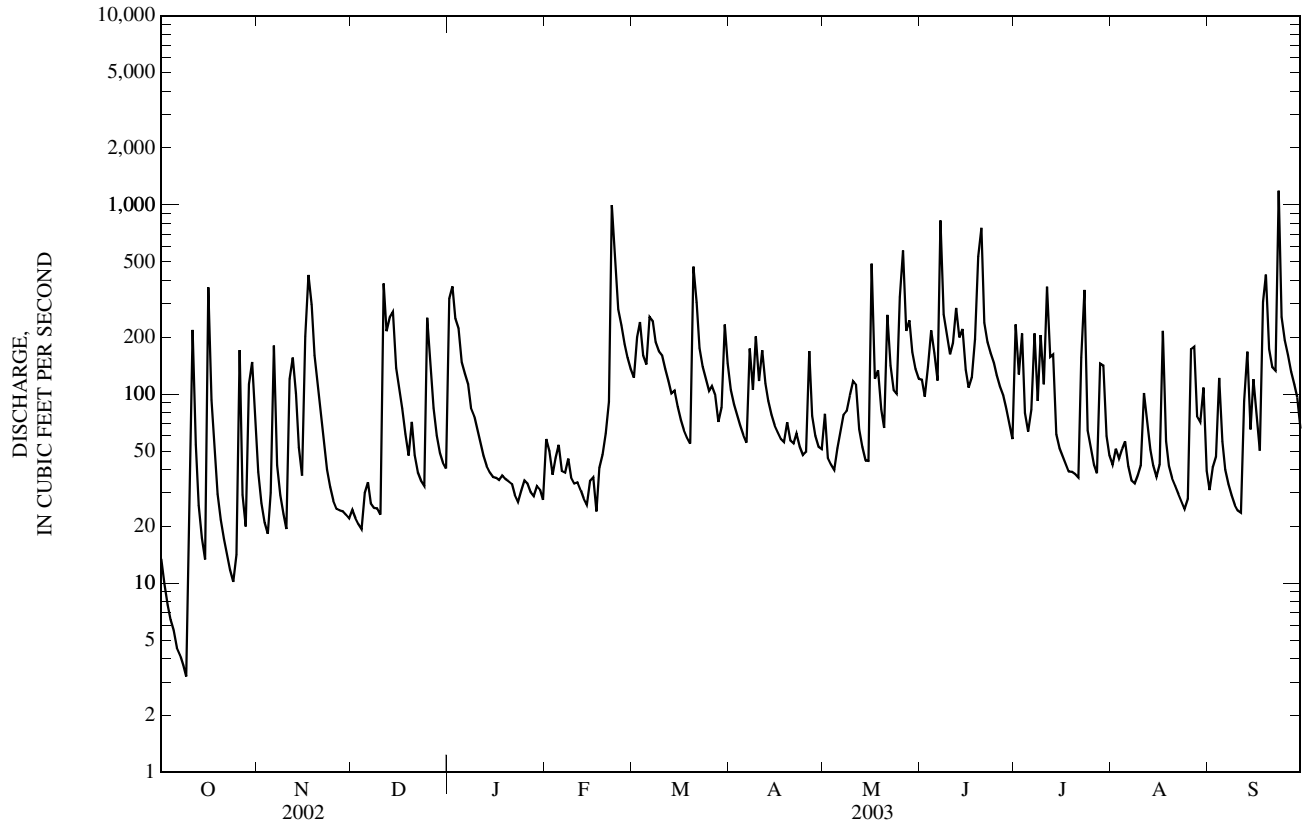
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	40.3	52.1	61.3	72.3	82.5	92.1	84.0	74.6	62.3	49.3	47.4	48.0
MAX	196	165	184	201	210	221	215	232	456	192	174	348
(WY)	(1980)	(1953)	(1973)	(1978)	(1979)	(1993)	(1973)	(1989)	(1972)	(1945)	(1955)	(1979)
MIN	2.63	4.57	8.75	11.8	11.9	23.4	29.2	24.3	18.3	7.09	1.72	2.04
(WY)	(1931)	(1932)	(1931)	(1931)	(1931)	(1931)	(1969)	(1955)	(1986)	(1930)	(1930)	(1930)

01648000 ROCK CREEK AT SHERRILL DRIVE, WASHINGTON, DC—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1930 - 2003	
ANNUAL TOTAL	16,402.94		40,509.3			
ANNUAL MEAN	44.9		111		63.7	
HIGHEST ANNUAL MEAN					142	1972
LOWEST ANNUAL MEAN					16.1	1931
HIGHEST DAILY MEAN	521	Apr 28	1,190	Sep 23	5,000	Jun 22, 1972
LOWEST DAILY MEAN	0.97	(a)	3.2	Oct 9	0.50	(b)
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 15	5.1	Oct 3	0.50	Oct 1, 1930
MAXIMUM PEAK FLOW			2,130	Sep 23	(c)12,500	Jun 22, 1972
MAXIMUM PEAK STAGE			8.14	Sep 23	(d)16.20	Jun 22, 1972
INSTANTANEOUS LOW FLOW			3.2	(f)	0.50	Oct 1, 1930
ANNUAL RUNOFF (CFSM)	0.72		1.78		1.02	
ANNUAL RUNOFF (INCHES)	9.81		24.23		13.92	
10 PERCENT EXCEEDS	113		233		124	
50 PERCENT EXCEEDS	22		65		37	
90 PERCENT EXCEEDS	4.6		25		12	

a Aug. 19, 20.
b Oct. 1-7, 1930.
c From rating curve extended above 5,640 ft^3/s on basis of contracted-opening measurement at gage heights of 13.19 and 16.2 ft.
d From floodmarks.
f Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01649500 NORTHEAST BRANCH ANACOSTIA RIVER AT RIVERDALE, MD

LOCATION.--Lat 38°57'36.9", long 76°55'33.5", Prince Georges County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on Riverdale Road, 1.8 mi downstream from Indian Creek, and 1.8 mi upstream from confluence with Northwest Branch.

DRAINAGE AREA.--72.8 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WDR MD-DE-75-1: 1972(M).

GAGE.--Water-stage recorders, crest-stage gage, and concrete control. Datum of gage is 12.68 ft above National Geodetic Vertical Datum of 1929 (Washington Suburban Sanitary Commission bench mark). Prior to June 12, 1942, nonrecording gage; June 12, 1942 to Mar. 22, 1966, and Apr. 12, 1967 to Sept. 3, 1969, water-stage recorder, all at bridge at datum 14.00 ft above mean sea level. Mar. 23, 1966 to Apr. 11, 1967, nonrecording gage 600 ft downstream from bridge at datum 9.25 ft above mean sea level.

REMARKS.--Water-discharge records good except those for estimated daily discharge (missing record), which are fair. Some regulation at low flow by sand and gravel plants upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 23 or 24, 1933, reached a stage of about 15.5 ft at datum 14.00 ft above sea level, from floodmarks, discharge, 10,500 ft^3/s, from rating curve extended above 3,000 ft^3/s on basis of velocity-area study.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	--	5,550	8.16	May 26	0630	3,530	6.54
Mar 20	2030	2,400	5.46	Aug 05	--	2,920	5.97
May 16	0945	2,190	5.25	Sep 23	--	*UNKNOWN	*UNKNOWN

Minimum discharge, 6.5 ft^3/s, Oct. 6-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	48	24	e857	73	110	114	74	e105	98	e66	e84
2	9.9	30	23	466	50	469	92	49	e89	e220	e54	e62
3	8.9	23	22	252	42	192	79	43	e147	e300	e85	e90
4	8.2	21	22	197	88	122	71	40	e265	105	e62	e162
5	8.1	77	32	134	61	326	67	47	e180	79	e354	e70
6	7.0	290	39	125	40	e530	61	57	e100	68	e78	e45
7	6.8	63	30	115	64	125	e449	102	e1,820	e195	e53	e40
8	6.6	39	28	97	56	133	172	97	e519	106	e48	e35
9	6.5	29	32	98	45	188	361	109	e402	e256	e43	e34
10	57	24	28	73	55	153	261	135	e320	e220	e62	e32
11	329	147	e838	62	52	109	e339	143	e358	e702	e148	e31
12	64	287	e340	53	43	91	166	68	e560	e460	e84	e108
13	22	156	311	48	37	91	104	51	e395	e280	e49	e310
14	16	63	e470	50	34	99	83	41	e438	126	e44	e102
15	13	40	156	47	87	78	74	35	e265	98	e38	e119
16	674	483	86	41	42	73	69	1,330	e217	88	e46	e134
17	127	876	59	40	63	73	64	295	e248	76	e172	44
18	41	288	50	38	83	73	58	228	e390	72	e55	e375
19	25	96	45	44	105	65	61	122	e1,040	71	e42	e1,480
20	19	62	e580	45	144	874	59	82	e1,460	67	e38	122
21	17	48	91	38	197	e1,240	56	454	e262	65	e35	72
22	17	42	55	36	e2,950	186	59	273	e160	79	e34	76
23	16	35	44	43	e1,010	121	51	136	e122	e540	e30	e3,370
24	13	31	42	43	e395	99	48	150	104	e460	e30	e320
25	42	28	e565	41	150	88	59	283	87	e64	e32	97
26	345	26	e290	37	102	124	236	1,780	81	e57	e198	72
27	46	26	111	46	94	125	101	252	71	e52	e261	58
28	25	25	78	55	94	87	65	167	66	e220	e83	90
29	195	24	64	36	---	117	56	e143	64	e182	e56	55
30	240	24	55	36	---	340	51	e118	61	e64	e96	45
31	116	---	52	34	---	216	---	e158	---	e54	e59	---
TOTAL	2,532.0	3,451	4,662	3,327	6,256	6,717	3,586	7,062	10,396	5,524	2,535	7,734
MEAN	81.7	115	150	107	223	217	120	228	347	178	81.8	258
MAX	674	876	838	857	2,950	1,240	449	1,780	1,820	702	354	3,370
MIN	6.5	21	22	34	34	65	48	35	61	52	30	31
CFSM	1.12	1.58	2.07	1.47	3.07	2.98	1.64	3.13	4.76	2.45	1.12	3.54
IN.	1.29	1.76	2.38	1.70	3.20	3.43	1.83	3.61	5.31	2.82	1.30	3.95

e Estimated

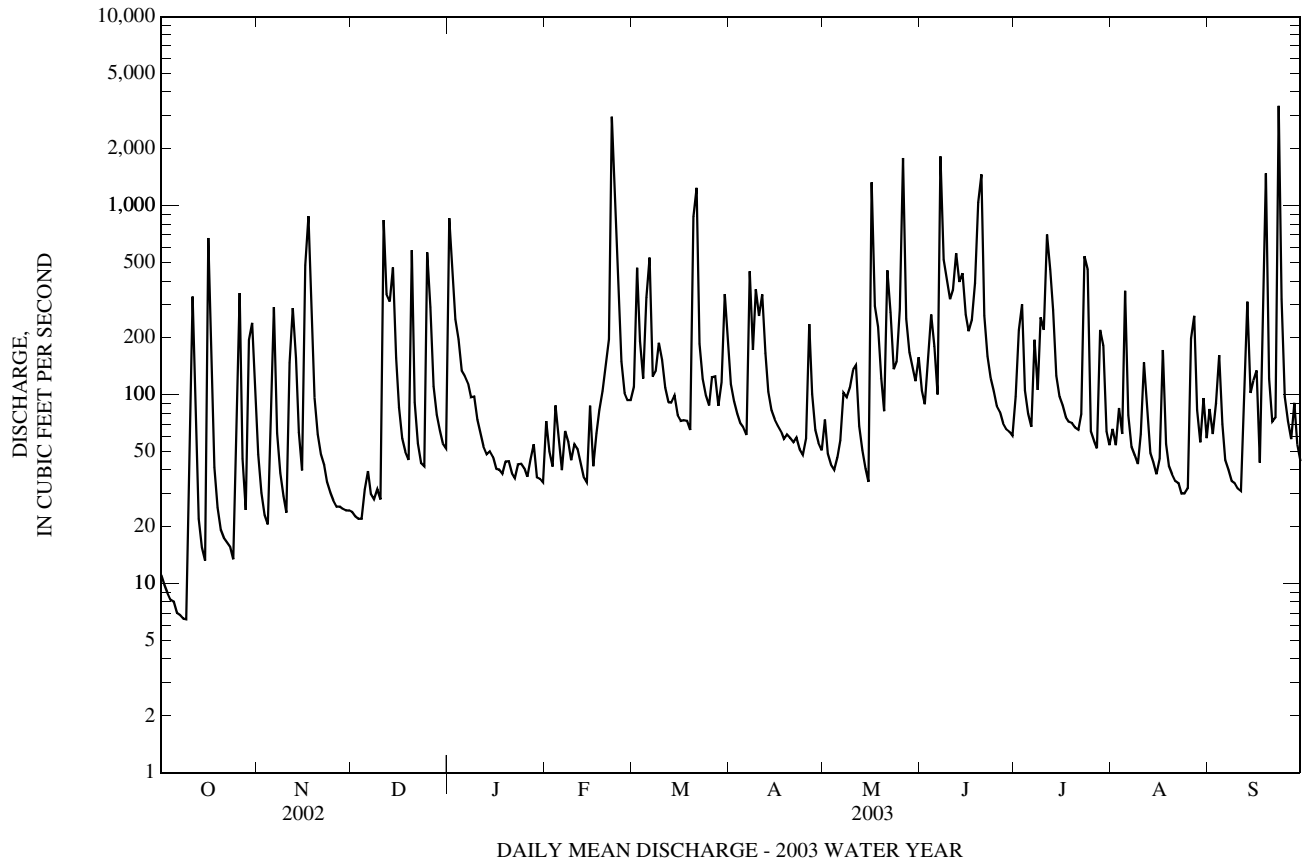
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

MEAN	54.0	74.3	93.2	104	114	134	109	95.7	73.1	61.9	63.2	65.3
MAX	234	205	275	325	265	339	322	329	353	335	243	449
(WY)	(1943)	(1973)	(1997)	(1979)	(1972)	(1994)	(1983)	(1989)	(1972)	(1945)	(1955)	(1975)
MIN	9.37	15.9	19.8	25.6	19.5	37.0	32.4	23.9	20.3	8.72	7.94	8.32
(WY)	(1942)	(1942)	(1966)	(1955)	(2002)	(1981)	(1985)	(1941)	(1965)	(1999)	(1962)	(1941)

01649500 NORTHEAST BRANCH ANACOSTIA RIVER AT RIVERDALE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	21,263.8		63,782.0			
ANNUAL MEAN	58.3		175		86.8	
HIGHEST ANNUAL MEAN					175	2003
LOWEST ANNUAL MEAN					35.2	2002
HIGHEST DAILY MEAN	876	Nov 17	(e)3,370	Sep 23	6,830	Sep 26, 1975
LOWEST DAILY MEAN	3.1	Aug 22	6.5	Oct 9	1.4	Sep 12, 1966
ANNUAL SEVEN-DAY MINIMUM	3.5	Aug 17	7.4	Oct 3	1.7	Sep 7, 1966
MAXIMUM PEAK FLOW			UNKNOWN	Sep 23	(a)12,000	Jun 22, 1972
MAXIMUM PEAK STAGE			UNKNOWN	Sep 23	12.93	Oct 16, 1942
INSTANTANEOUS LOW FLOW			6.5	(b)	2.7	Aug 19, 1999
ANNUAL RUNOFF (CFSM)	0.80		2.40		1.19	
ANNUAL RUNOFF (INCHES)	10.87		32.59		16.20	
10 PERCENT EXCEEDS	115		367		168	
50 PERCENT EXCEEDS	23		76		44	
90 PERCENT EXCEEDS	6.9		30		16	

e Estimated
a From rating curve extended above 3,800 ft^3/s on basis of average of contracted-opening and slope-area measurements at gage height 9.52 ft.
b Oct. 6-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01649500 NORTHEAST BRANCH ANACOSTIA RIVER AT RIVERDALE, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-74, 1992, 1994-95, October 2002 to September 2003.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instan- taneous dis- charge, cfs (00061)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, air, deg C (00020)	Temper- ature, water, deg C (00010)	Residue total at 105 deg. C, sus- pended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
JUL												
23...	0910	Blank	--	--	--	--	--	--	--	--	--	<0.10
23...	0915	Environmental	e540	759	8.2	95	7.1	160	24.5	22.6	--	0.62
23...	0916	Other QA	--	--	8.2	--	7.1	155	--	22.6	--	--
23...	0917	Other QA	--	--	8.2	--	7.1	160	--	22.6	--	--
23...	0918	Other QA	--	--	8.2	--	7.1	160	--	22.6	--	--
23...	0919	Other QA	--	--	8.2	--	7.1	160	--	22.6	--	--
23...	0920	Other QA	--	--	8.2	--	7.1	160	--	22.6	--	--
23...	0921	Other QA	--	--	8.2	--	7.1	160	--	22.6	--	--
23...	0922	Other QA	--	--	8.2	--	7.1	160	--	22.6	--	--
23...	0923	Other QA	--	--	8.2	--	7.1	161	--	22.9	--	--
AUG												
19...	1030	Environmental	--	768	10.0	116	8.0	258	28.0	23.5	<10	0.24
SEP												
24...	0800	Environmental	304	758	9.3	99	7.0	153	23.5	18.1	44	0.54
24...	0805	Replicate	--	--	--	--	--	--	--	--	45	0.51

Other QA -- Cross-section variability measurements

Date	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitro- gen, water, fltrd, mg/L (00607)	Organic nitro- gen, water, unfltrd mg/L (00605)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Total nitro- gen, water, fltrd, mg/L (00602)	Total nitro- gen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)
JUL													
23...	E.07	<0.015	--	<0.022	<0.002	--	--	<0.007	<0.004	E.002	--	--	--
23...	0.97	0.076	0.65	0.664	0.018	0.55	0.89	0.020	0.036	0.194	1.3	1.6	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
19...	0.33	<0.015	0.80	0.803	0.008	--	--	<0.007	0.011	0.028	1.0	1.1	5.0
SEP													
24...	0.65	0.020	0.59	0.597	0.005	0.52	0.63	0.017	0.030	0.116	1.1	1.2	10.5
24...	0.62	0.021	0.59	0.595	0.005	0.49	0.60	0.016	0.032	0.116	1.1	1.2	--

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)	Sus-pended sedi-ment load, tons/d (80155)
JUL				
23...	--	--	*0.3*	--
23...	--	93	115	168
23...	--	*93*	*110*	--
23...	--	*93*	*114*	--
23...	--	*94*	*113*	--
23...	--	*92*	*113*	--
23...	--	*95*	*96*	--
23...	--	*95*	*110*	--
23...	--	*93*	*109*	--
23...	--	*94*	*104*	--
AUG				
19...	<2.0	--	2	--
SEP				
24...	<2.0	--	49	40
24...	*<2.0*	--	*48*	--

Remark codes used in this table:
e -- Estimated daily values discharge
< -- Less than
E -- Estimated value

01650500 NORTHWEST BRANCH ANACOSTIA RIVER NEAR COLESVILLE, MD

LOCATION.--Lat 39°03'56.4", long 77°01'45.6", Montgomery County, Hydrologic Unit 02070010, on right bank 400 ft upstream from bridge on State Highway 183, 1.5 mi southwest of Colesville, 3 mi upstream from Burnt Mills, 10 mi upstream from Sligo Creek, and 12.5 mi upstream from confluence with Northeast Branch.

DRAINAGE AREA.--21.1 mi^2.

PERIOD OF RECORD.--October 1923 to September 1983, November 1997 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1432: 1942(M), 1925-26, 1929-30(M), 1933(M), 1939(P), 1940(M), 1943-46, 1948-49(P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 264.75 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 22, 1932, nonrecording gages in same general vicinity at different datums. Apr. 22, 1932 to Apr. 11, 1934, nonrecording gages at present site and datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Diversions at low flow since 1962 for irrigation of golf courses upstream from station. Records include pumpage from the Patuxent River to augment water supply for Washington Suburban Sanitary District, Aug. 12, 1939 to Aug. 1960. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	2230	735	5.74	Jun 7	1430	1,730	8.74
Feb 22	1745	1,160	7.33	Jun 19	2100	833	6.18
Mar 20	1815	757	5.84	Jun 20	1215	640	5.30
May 16	0830	779	5.94	Sep 19	0145	1,490	8.27
May 25	0500	772	5.91	Sep 23	0530	*2,720	*9.92
May 26	0730	728	5.71				

Minimum discharge, 0.87 ft^3/s, Oct. 6-9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	10	8.3	226	28	24	30	20	30	28	14	9.3
2	1.2	7.2	7.2	140	15	127	26	17	22	31	14	11
3	1.1	6.4	6.9	105	13	89	24	15	34	71	14	15
4	1.0	5.6	6.3	46	29	37	22	15	86	24	15	45
5	0.99	19	9.6	26	17	99	22	18	52	19	30	15
6	0.94	62	9.6	26	13	198	20	19	26	19	16	11
7	0.93	11	8.2	21	16	66	71	19	521	45	13	10
8	0.87	6.4	8.0	27	e14	66	38	22	76	21	13	8.3
9	0.92	5.9	8.2	27	e13	116	87	34	44	66	13	6.9
10	9.5	5.3	7.1	19	13	51	39	36	29	42	15	6.3
11	59	42	204	16	12	32	83	40	36	113	50	6.3
12	9.2	70	93	14	11	30	38	20	63	80	21	23
13	4.1	31	127	e14	e13	35	28	17	37	43	14	81
14	2.9	14	131	14	e11	36	25	16	41	21	13	18
15	2.6	10	33	13	14	25	23	16	30	18	12	18
16	154	132	20	e13	14	23	22	276	22	17	11	14
17	20	198	15	e13	41	23	21	48	33	15	61	10
18	8.5	80	13	e13	36	22	21	53	58	14	14	239
19	5.3	23	12	e13	22	19	22	29	265	14	12	303
20	4.5	16	22	13	24	259	20	22	262	13	11	31
21	3.9	13	14	12	39	110	21	113	61	12	9.1	19
22	3.5	13	12	12	550	42	20	48	38	52	8.8	24
23	3.2	10	11	12	310	30	19	33	28	76	8.1	769
24	3.1	9.6	11	14	112	26	18	35	23	17	7.2	39
25	8.4	9.2	119	15	55	23	19	200	20	13	7.1	22
26	51	8.9	44	14	35	30	63	271	19	12	30	18
27	7.7	9.7	23	13	28	28	26	50	18	12	18	17
28	5.2	9.1	17	12	26	22	19	55	16	71	12	15
29	50	8.4	16	12	---	29	18	37	15	38	12	15
30	51	9.9	15	12	---	105	17	29	15	16	13	13
31	25	---	15	12	---	50	---	26	---	14	9.0	---
TOTAL	501.05	855.6	1,046.4	939	1,524	1,872	922	1,649	2,020	1,047	510.3	1,832.1
MEAN	16.2	28.5	33.8	30.3	54.4	60.4	30.7	53.2	67.3	33.8	16.5	61.1
MAX	154	198	204	226	550	259	87	276	521	113	61	769
MIN	0.87	5.3	6.3	12	11	19	17	15	15	12	7.1	6.3
CFSM	0.77	1.35	1.60	1.44	2.58	2.86	1.46	2.52	3.19	1.60	0.78	2.89
IN.	0.88	1.51	1.84	1.66	2.69	3.30	1.63	2.91	3.56	1.85	0.90	3.23

e Estimated

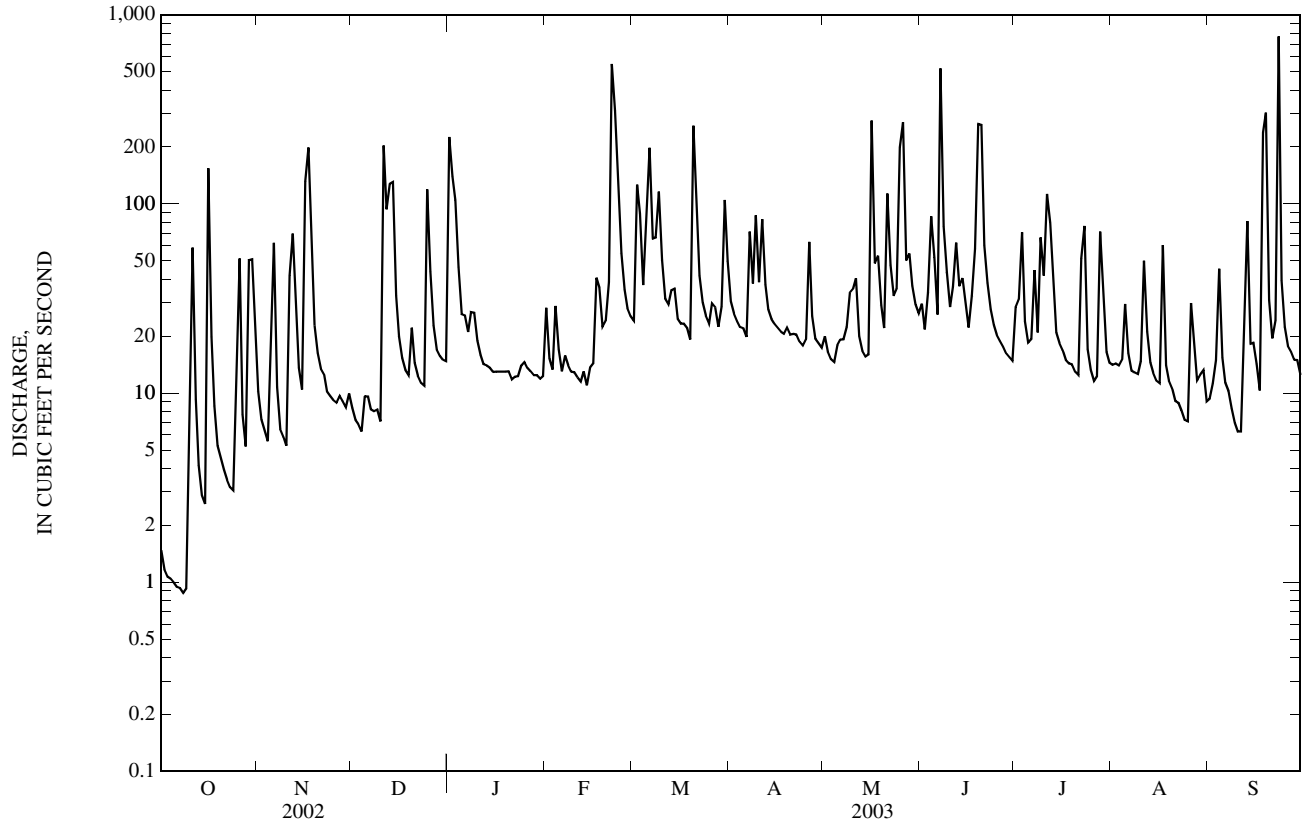
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1983, 1998 - 2003, BY WATER YEAR (WY)

MEAN	14.3	18.7	21.8	26.5	33.3	32.8	29.8	24.4	20.9	15.3	16.3	17.9
MAX	56.3	55.6	57.0	81.0	97.0	68.0	78.5	62.5	141	73.7	60.9	118
(WY)	(1980)	(1927)	(1973)	(1979)	(1936)	(1953)	(1952)	(1978)	(1972)	(1975)	(1955)	(1979)
MIN	1.79	2.37	3.50	5.93	4.52	7.46	11.3	7.37	4.03	0.92	0.72	1.40
(WY)	(1932)	(1932)	(1932)	(1931)	(1931)	(1931)	(1969)	(1999)	(1999)	(1999)	(1930)	(1930)

01650500 NORTHWEST BRANCH ANACOSTIA RIVER NEAR COLESVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1924 - 1983, 1998 - 2003	
ANNUAL TOTAL	5,020.66		14,718.45			
ANNUAL MEAN	13.8		40.3		22.5	
HIGHEST ANNUAL MEAN					45.7	1972
LOWEST ANNUAL MEAN					8.45	1931
HIGHEST DAILY MEAN	204	Dec 11	769	Sep 23	2,370	Jun 22, 1972
LOWEST DAILY MEAN	0.00	(a)	0.87	Oct 8	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.07	Aug 18	0.96	Oct 3	0.00	Sep 5, 1966
MAXIMUM PEAK FLOW			2,720	Sep 23	(c)11,000	Jun 22, 1972
MAXIMUM PEAK STAGE			9.92	Sep 23	15.89	Jun 22, 1972
INSTANTANEOUS LOW FLOW			0.87	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.65		1.91		1.07	
ANNUAL RUNOFF (INCHES)	8.85		25.95		14.49	
10 PERCENT EXCEEDS	27		82		37	
50 PERCENT EXCEEDS	6.0		19		14	
90 PERCENT EXCEEDS	0.89		8.1		4.7	

a Aug. 21-23.
b Aug. 30, 31, Sept. 1, 3, 5-11, 1966, July 27-31, Aug. 1-12, 19, 20, 1999, Aug. 21-23, 2002.
c From rating curve extended above 1,200 ft^3/s on basis of contracted-opening and flow-over-road measurement at gage height 10.99 ft and computation of flow ove Burnt Mills Dam, 3 mi downstream, adjusted for flow from intervening area, at gage height 15.89 ft.
d Oct. 6-9.
f Aug. 29-31, Sept. 1-12, 1966, July 18, 19, 24-31, Aug. 1-14, 18-20, 1999, Aug. 20-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01651000 NORTHWEST BRANCH ANACOSTIA RIVER NEAR HYATTSVILLE, MD

LOCATION.--Lat 38°57'08.4", long 76°57'57.8", Prince Georges County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on Queens Chapel Road (State Highway 500), 0.8 mi downstream from Sligo Branch, 1.0 mi west of Hyattsville, and 1.6 mi upstream from confluence with Northeast Branch.

DRAINAGE AREA.--49.4 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1938 to current year. Monthly discharge only for July 1938 published in WSP 1302.

REVISED RECORDS.--WSP 971: 1942(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 17.10 ft above National Geodetic Vertical Datum of 1929 (Washington Suburban Sanitary Commission bench mark). Prior to Oct. 22, 1938, nonrecording gage; Oct. 22, 1938 to Sept. 17, 1951, water-stage recorder; Sept. 17, 1951 to Aug. 29, 1952, nonrecording gage and crest-stage gage.

REMARKS.--Water-discharge records good except those for estimated daily discharges (questionable gage-height record), which are fair. Prior to June 1961, low flow regulated by storage at Burnt Mills Dam, 7.0 mi upstream from station. Inflow pumped from Patuxent River to augment water supply for Washington Suburban Sanitary District, August 1939 to August 1960. Small diversion since 1962 for irrigation of golf courses upstream from station. U.S. Geological Survey satellite collection platform at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1245	5,710	6.43	Jun 20	1230	2,760	4.59
Mar 20	1645	1,720	3.69	Jul 11	0030	2,570	4.45
May 16	0630	3,140	4.86	Jul 22	2230	4,090	5.48
Jun 7	0830	2,070	4.02	Aug 5	1100	2,680	4.53
Jun 7	1630	2,670	4.52	Sep 18	2315	2,140	4.09
Jun 19	2115	2,360	4.28	Sep 23	0845	*7,230	*7.24

Minimum discharge, 2.3 ft^3/s, Oct. 6-9

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	27	22	447	53	58	61	59	63	136	41	52
2	e5.2	17	19	326	28	278	52	35	52	129	34	39
3	e4.1	15	18	243	22	182	48	30	86	176	53	56
4	3.6	13	16	109	52	80	45	28	157	60	39	97
5	4.7	48	22	62	e40	143	44	38	103	45	213	44
6	2.7	172	34	72	e34	332	41	46	58	49	49	28
7	2.4	34	25	50	e42	130	169	89	1,050	113	33	25
8	2.6	19	e23	44	e36	89	80	58	193	62	30	22
9	2.4	15	e25	54	e30	152	191	76	122	150	27	21
10	36	15	20	38	e33	100	80	91	75	128	39	20
11	193	104	479	33	e29	61	153	84	137	406	91	19
12	37	167	193	30	e25	54	74	41	265	173	52	65
13	15	83	246	29	e21	59	53	34	154	161	31	188
14	8.8	32	272	28	e17	69	47	31	145	52	27	65
15	7.2	22	75	27	e16	48	46	31	88	43	24	73
16	401	267	46	24	e32	45	44	834	60	38	29	79
17	77	449	34	27	e50	46	40	114	105	33	102	33
18	25	169	29	22	e42	43	38	129	172	32	34	233
19	14	53	28	27	e35	39	41	71	478	30	26	865
20	10	36	58	29	e56	637	37	52	788	28	24	78
21	9.5	28	35	29	e183	280	36	279	156	27	22	49
22	8.9	25	25	26	1,720	92	36	125	95	322	21	37
23	8.4	22	23	23	636	66	33	81	71	272	19	1,940
24	8.5	21	25	22	226	54	31	81	58	66	19	125
25	9.3	20	330	20	115	48	43	286	52	40	20	63
26	186	20	103	20	76	78	173	683	50	36	121	48
27	29	21	52	18	60	66	55	119	47	32	158	41
28	14	21	37	19	66	47	39	125	41	134	52	39
29	113	20	32	24	---	70	36	85	38	114	e35	37
30	147	21	29	20	---	206	35	68	42	40	e60	31
31	66	---	29	22	---	107	---	91	---	34	37	---
TOTAL	1,456.8	1,976	2,404	1,964	3,775	3,759	1,901	3,994	5,001	3,161	1,562	4,512
MEAN	47.0	65.9	77.5	63.4	135	121	63.4	129	167	102	50.4	150
MAX	401	449	479	447	1,720	637	191	834	1,050	406	213	1,940
MIN	2.4	13	16	18	16	39	31	28	38	27	19	19
CFSM	0.95	1.33	1.57	1.28	2.73	2.45	1.28	2.61	3.37	2.06	1.02	3.04
IN.	1.10	1.49	1.81	1.48	2.84	2.83	1.43	3.01	3.77	2.38	1.18	3.40

e Estimated

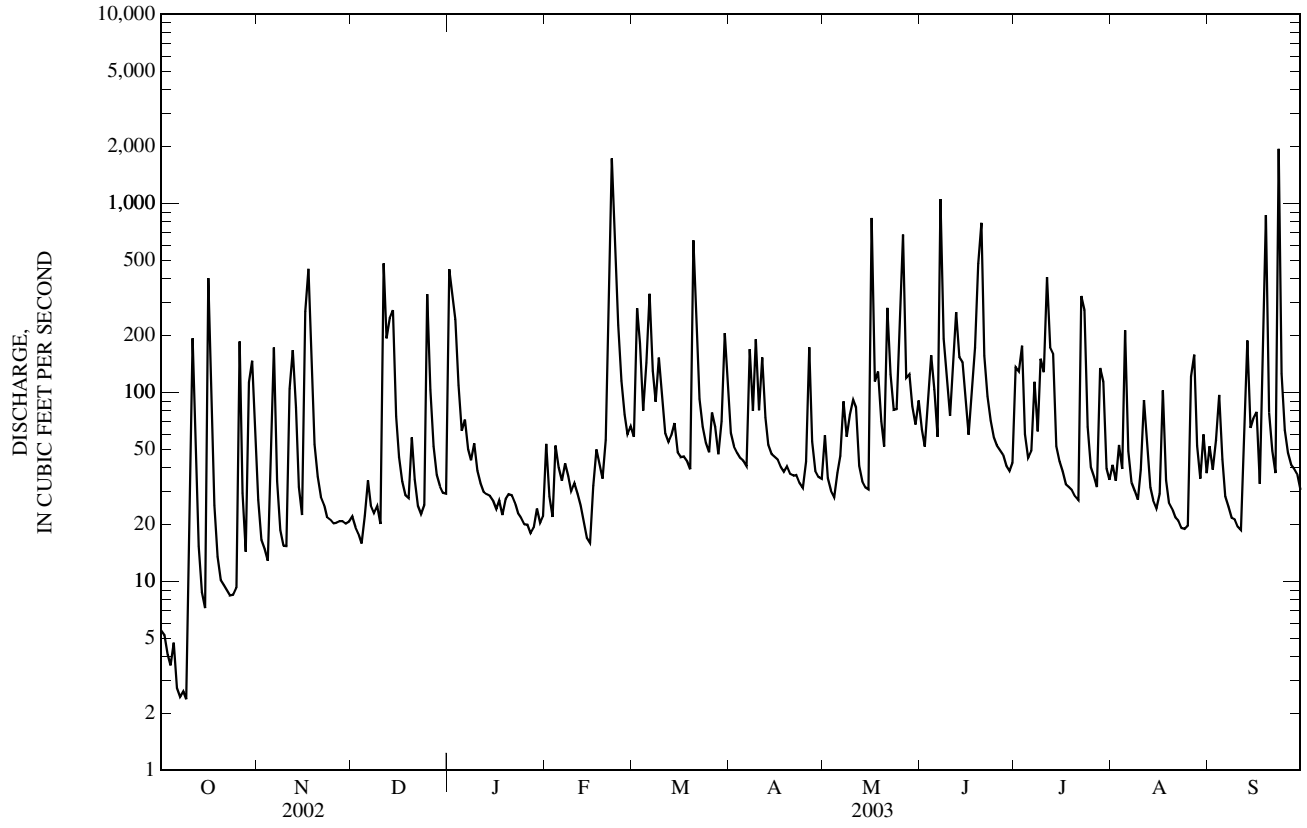
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2003, BY WATER YEAR (WY)

MEAN	29.0	41.4	49.5	55.1	64.4	72.8	61.4	56.4	44.7	35.2	37.4	41.1
MAX	129	128	144	173	183	176	167	198	237	159	193	327
(WY)	(1980)	(1994)	(1997)	(1979)	(1979)	(1994)	(1952)	(1989)	(1972)	(1945)	(1955)	(1975)
MIN	2.44	4.30	11.4	8.04	12.1	23.5	15.3	9.91	10.1	4.07	3.61	2.58
(WY)	(1942)	(1942)	(1966)	(1955)	(2002)	(1981)	(1950)	(1941)	(1940)	(1944)	(1943)	(1941)

01651000 NORTHWEST BRANCH ANACOSTIA RIVER NEAR HYATTSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1938 - 2003	
ANNUAL TOTAL	12,867.1		35,465.8			
ANNUAL MEAN	35.3		97.2		49.0	
HIGHEST ANNUAL MEAN					97.2	2003
LOWEST ANNUAL MEAN					20.8	1947
HIGHEST DAILY MEAN	481	Apr 28	1,940	Sep 23	5,050	Sep 26, 1975
LOWEST DAILY MEAN	1.2	(a)	2.4	(b)	0.40	(c)
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 17	3.2	Oct 3	0.60	Sep 7, 1966
MAXIMUM PEAK FLOW			7,230	Sep 23	(d)18,000	Jun 22, 1972
MAXIMUM PEAK STAGE			7.24	Sep 23	14.47	Jun 22, 1972
INSTANTANEOUS LOW FLOW			2.3	(f)	0.20	Sep 11, 1966
ANNUAL RUNOFF (CFSM)	0.71		1.97		0.99	
ANNUAL RUNOFF (INCHES)	9.69		26.71		13.48	
10 PERCENT EXCEEDS	78		192		94	
50 PERCENT EXCEEDS	15		45		24	
90 PERCENT EXCEEDS	3.1		20		6.7	

a Aug. 19, 22, 23.
b Oct. 7, 9.
c Sept. 8, 11, 1966.
d From rating curve extended above 4,000 ft^3/s on basis of the average of slope-area and step-backwater measurements of peak flow.
f Oct. 6-9.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01651000 NORTHWEST BRANCH ANACOSTIA RIVER NEAR HYATTSVILLE, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-74, 1992, 1994-95, October 2002 to September 2003.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
JUL												
23...	*1155*	*Blank*	--	--	--	--	--	--	--	--	--	*<0.10*
23...	1200	Environmental	147	761	8.5	100	7.3	177	30.0	23.1	--	0.48
23...	*1201*	*Other QA*	--	--	*8.5*	--	*7.3*	*176*	--	*23.2*	--	--
23...	*1202*	*Other QA*	--	--	*8.5*	--	*7.3*	*176*	--	*23.1*	--	--
23...	*1203*	*Other QA*	--	--	*8.5*	--	*7.3*	*177*	--	*23.1*	--	--
23...	*1204*	*Other QA*	--	--	*8.5*	--	*7.3*	*176*	--	*23.1*	--	--
23...	*1205*	*Other QA*	--	--	*8.5*	--	*7.3*	*177*	--	*23.1*	--	--
23...	*1206*	*Other QA*	--	--	*8.5*	--	*7.3*	*177*	--	*23.1*	--	--
23...	*1207*	*Other QA*	--	--	*8.5*	--	*7.3*	*177*	--	*23.1*	--	--
23...	*1208*	*Other QA*	--	--	*8.5*	--	*7.3*	*177*	--	*23.2*	--	--
23...	*1209*	*Other QA*	--	--	*8.5*	--	*7.3*	*176*	--	*23.2*	--	--
23...	*1210*	*Other QA*	--	--	*8.4*	--	*7.3*	*176*	--	*23.3*	--	--
AUG												
19...	0900	Environmental	27	768	9.2	105	7.4	287	29.0	22.5	<10	0.32
SEP												
24...	1030	Environmental	115	758	9.6	104	7.3	201	25.0	18.6	20	0.42
24...	*1035*	*Replicate*	--	--	--	--	--	--	--	--	*20*	*0.43*

Other QA -- Cross-section variability measurements

Date	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)
JUL													
23...	*E.06*	*<0.015*	--	*<0.022*	*<0.002*	--	--	*<0.007*	*<0.004*	*<0.004*	--	--	--
23...	0.93	0.040	0.89	0.908	0.016	0.45	0.89	0.027	0.044	0.191	1.4	1.8	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
19...	0.43	E.010	0.99	1.01	0.024	--	--	E.006	0.018	0.039	1.3	1.4	6.6
SEP													
24...	0.61	0.026	0.91	0.913	0.005	0.39	0.58	0.013	0.024	0.099	1.3	1.5	7.2
24...	*0.64*	*0.021*	*0.91*	*0.917*	*0.005*	*0.40*	*0.62*	*0.010*	*0.025*	*0.097*	*1.3*	*1.6*	--

01651000 NORTHWEST BRANCH ANACOSTIA RIVER NEAR HYATTSVILLE, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)	Sus-pended sedi-ment load, tons/d (80155)
JUL				
23...	--	--	*0.3*	--
23...	--	94	77	31
23...	--	*96*	*86*	--
23...	--	*95*	*85*	--
23...	--	*92*	*85*	--
23...	--	*94*	*83*	--
23...	--	*94*	*80*	--
23...	--	*96*	*81*	--
23...	--	*96*	*76*	--
23...	--	*96*	*77*	--
23...	--	*97*	*73*	--
23...	--	*96*	*63*	--
AUG				
19...	<2.0	--	4	0.33
SEP				
24...	<2.0	--	31	9.6
24...	--	--	*32*	--

Remark codes used in this table:
< -- Less than
E -- Estimated value

01651800 WATTS BRANCH AT WASHINGTON, D.C.

LOCATION.--Lat 38°54'04.0", long 76°56'31.9", District of Columbia, Hydrologic Unit 02070010, on right bank 5 ft downstream from footbridge, 200 ft upstream from Minnesota Ave., and 1.0 mi upstream from mouth.

DRAINAGE AREA.-- 3.28 mi^2.

PERIOD OF RECORD.--June 1992 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and cobblestone control. Datum of gage is 16.52 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (backwater, ice effect, missing record), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 20	0915	411	4.26	Jun 7	0830	372	4.09
Jan 1	1840	467	4.49	Jun 19	2020	e410	a7.31
Feb 22	1245	745	5.47	Jun 20	1130	e410	a5.35
May 16	0545	421	4.30	Jul 11	0005	e387	*a7.53
May 26	0205	532	4.74	Sep 23	0410	*e1,000	a7.24
May 31	1905	470	4.50				

e Estimated

a Affected by backwater.

Minimum discharge, UNKNOWN.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.28	1.2	1.6	60	3.6	6.2	3.5	3.3	6.4	8.5	1.9	6.0
2	0.28	0.84	e1.4	9.5	2.3	38	3.0	2.3	3.3	30	1.3	3.4
3	e0.24	0.76	e1.2	21	e1.4	10	2.7	2.2	4.6	13	3.2	e9.0
4	e0.20	0.67	e1.0	6.3	5.4	6.0	2.5	2.3	5.8	3.3	1.4	4.6
5	e0.24	8.1	2.3	5.6	1.9	12	2.4	3.4	5.3	3.1	5.4	1.9
6	e0.18	9.9	3.6	6.0	1.6	17	2.2	3.1	2.6	2.7	1.6	1.4
7	e0.14	1.2	2.5	3.7	4.8	6.3	15	6.8	66	e27	1.1	1.4
8	e0.16	0.92	3.0	3.2	2.4	5.0	4.2	4.9	8.1	4.1	1.0	1.2
9	e0.14	0.79	2.7	2.8	2.0	5.0	19	5.9	12	e17	1.2	1.1
10	3.6	0.80	2.5	2.4	2.7	3.9	5.1	7.4	4.3	14	e11	1.1
11	13	12	44	2.2	1.7	3.4	14	2.6	7.6	e50	1.6	1.0
12	0.53	16	9.5	2.0	1.5	3.1	4.8	2.1	e29	5.7	1.5	13
13	0.42	2.7	20	2.0	1.3	3.7	3.6	1.9	e18	3.0	1.5	8.2
14	1.2	1.3	11	1.9	1.2	3.1	3.3	1.7	8.5	2.4	1.5	1.8
15	0.32	1.0	5.3	1.6	e1.0	2.7	3.1	1.7	4.2	2.1	2.1	e11
16	34	39	4.4	e1.5	e2.2	2.7	3.2	44	3.1	1.9	e11	2.4
17	1.3	23	3.9	e2.2	e5.6	2.7	3.1	3.6	16	1.8	5.6	1.4
18	0.94	5.6	3.6	e1.4	e2.0	2.4	3.1	8.3	15	1.6	1.9	e47
19	0.60	2.4	2.0	e1.8	e4.7	2.0	3.0	2.6	e65	1.5	1.8	7.2
20	0.55	1.8	22	e2.2	12	64	2.6	2.0	e49	1.4	1.8	2.5
21	0.53	1.6	3.0	e2.4	19	11	2.4	13	11	1.8	1.8	1.9
22	0.57	1.5	2.2	e1.6	153	5.4	2.6	5.4	6.4	4.4	1.7	7.2
23	0.56	1.3	1.8	e1.5	36	4.0	2.2	5.3	4.9	2.4	0.97	e168
24	0.48	1.3	3.1	e1.4	14	3.3	2.0	5.4	4.4	1.6	0.89	e5.3
25	5.9	1.3	39	e1.3	8.0	2.9	4.7	3.6	3.6	1.2	1.3	2.9
26	14	1.2	4.8	e1.3	6.0	9.3	6.8	76	3.7	1.1	e13	2.4
27	0.78	1.4	3.0	e1.2	4.8	3.7	2.3	6.8	3.4	1.2	e15	2.4
28	0.80	1.3	2.5	e1.3	6.9	3.4	2.0	11	2.7	e11	3.4	2.5
29	14	1.3	2.2	e2.0	---	6.1	2.0	4.9	2.5	2.0	2.2	1.7
30	11	1.4	1.9	e1.3	---	18	2.3	3.6	4.6	1.1	e9.2	1.5
31	3.1	---	1.9	e1.5	---	5.2	---	25	---	1.1	1.9	---
TOTAL	110.04	143.58	212.9	156.1	309.0	271.5	132.7	272.1	381.0	223.0	110.76	322.4
MEAN	3.55	4.79	6.87	5.04	11.0	8.76	4.42	8.78	12.7	7.19	3.57	10.7
MAX	34	39	44	60	153	64	19	76	66	50	15	168
MIN	0.14	0.67	1.0	1.2	1.0	2.0	2.0	1.7	2.5	1.1	0.89	1.0
CFSM	1.08	1.46	2.09	1.54	3.36	2.67	1.35	2.68	3.87	2.19	1.09	3.28
IN.	1.25	1.63	2.41	1.77	3.50	3.08	1.51	3.09	4.32	2.53	1.26	3.66

e Estimated

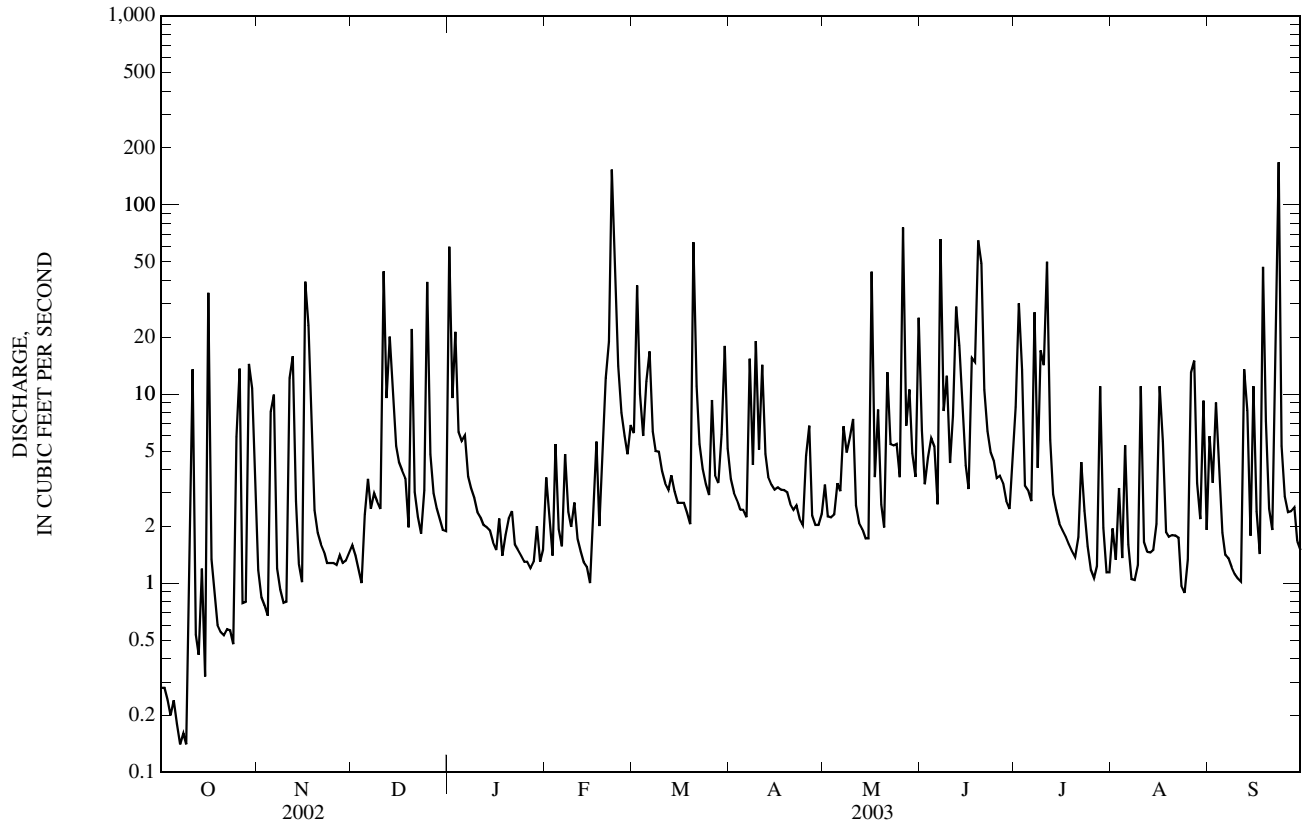
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)

MEAN	2.88	3.82	4.04	5.57	5.32	7.98	4.50	4.80	4.21	3.48	2.87	4.20
MAX	9.08	6.74	9.57	9.71	11.3	15.7	6.55	8.78	12.7	7.19	4.39	13.0
(WY)	(1996)	(1998)	(1997)	(1996)	(1998)	(1994)	(1996)	(2003)	(2003)	(2003)	(1999)	(1999)
MIN	0.73	1.32	1.37	1.25	0.74	2.74	2.36	1.59	1.81	1.35	1.23	1.37
(WY)	(1999)	(2002)	(2002)	(2002)	(2002)	(2002)	(1995)	(1999)	(2002)	(2002)	(1998)	(1998)

01651800 WATTS BRANCH AT WASHINGTON, D.C.—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1992 - 2003	
ANNUAL TOTAL	996.56		2,645.08			
ANNUAL MEAN	2.73		7.25		4.48	
HIGHEST ANNUAL MEAN					7.25	2003
LOWEST ANNUAL MEAN					1.76	2002
HIGHEST DAILY MEAN	44	Dec 11	(e)168	Sep 23	204	Sep 16, 1999
LOWEST DAILY MEAN	(e)0.14	(a)	(e)0.14	(a)	(e)0.14	(a)
ANNUAL SEVEN-DAY MINIMUM	0.19	Oct 3	0.19	Oct 3	0.19	Oct 3, 2002
MAXIMUM PEAK FLOW			(e)1,000	Sep 23	(b)1,510	Sep 26, 1994
MAXIMUM PEAK STAGE			(c)8.50	Sep 23	(c)8.50	Sep 23, 2003
INSTANTANEOUS LOW FLOW			UNKNOWN		UNKNOWN	
ANNUAL RUNOFF (CFSM)	0.83		2.21		1.37	
ANNUAL RUNOFF (INCHES)	11.30		30.00		18.58	
10 PERCENT EXCEEDS	5.6		14		9.5	
50 PERCENT EXCEEDS	0.80		2.7		1.9	
90 PERCENT EXCEEDS	0.36		1.1		0.69	

e Estimated
a Oct. 7, 9.
b From rating curve extended above 260 ft^3/s.
c From high water mark (affected by backwater).



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01653600 PISCATAWAY CREEK AT PISCATAWAY, MD

LOCATION.--Lat 38°42'20.8", long 76°57'58.3", Prince Georges County, Hydrologic Unit 02070010, on left bank 75 ft downstream from bridge on State Highway 223, at Piscataway, 0.4 mi upstream from Tinker Creek, and 4.8 mi upstream from mouth.

DRAINAGE AREA.--39.5 mi^2.

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (missing record), which are poor. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 450 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 25	1945	484	6.03	May 26	1000	610	6.45
Jan 2	0215	653	6.58	Jun 20	0330	811	6.94
Feb 23	0130	*1,470	*8.02	Jul 3	1230	604	6.43
Mar 2	2230	627	6.50	Sep 19	0530	880	7.08
Mar 21	0430	751	6.81	Sep 23	1300	702	6.70
May 16	1130	715	6.73				

Minimum discharge, 0.00 ft^3/s, on several days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	21	13	213	31	95	74	35	157	74	19	20
2	0.00	11	11	450	27	379	66	31	65	78	31	37
3	0.00	7.7	10	183	23	366	61	27	57	456	23	102
4	0.00	6.3	9.2	132	37	134	56	25	69	115	26	126
5	0.00	5.9	11	80	33	163	56	25	66	69	22	60
6	0.00	74	13	74	21	235	52	31	51	55	90	34
7	0.00	25	12	68	27	154	98	32	220	81	35	27
8	0.00	12	13	59	28	118	99	74	221	105	38	21
9	0.00	9.3	13	55	24	109	172	56	104	62	22	17
10	0.00	7.8	12	47	26	89	120	69	69	70	50	14
11	0.64	15	127	40	27	78	130	63	59	78	30	13
12	15	66	209	36	23	74	99	41	87	48	22	e22
13	3.5	83	114	36	21	71	75	32	e110	42	17	e79
14	2.0	26	193	35	20	64	65	26	e78	49	17	e48
15	1.2	16	75	34	60	60	61	22	e132	37	14	e48
16	74	42	48	29	38	58	58	348	e53	e34	29	54
17	47	242	37	31	53	58	56	144	50	e30	99	33
18	11	136	31	25	57	56	54	156	e183	25	30	172
19	5.2	51	27	26	48	51	57	100	e126	32	19	734
20	3.2	33	125	26	62	241	51	58	728	26	16	103
21	2.2	27	96	25	85	504	49	63	373	22	14	58
22	1.4	25	49	23	617	129	47	100	144	20	13	50
23	1.1	18	38	22	1,170	95	43	71	96	21	34	479
24	0.82	15	33	24	354	80	40	90	72	18	12	253
25	0.96	14	255	26	194	71	40	86	62	14	9.3	68
26	29	14	224	28	135	70	61	479	55	13	26	55
27	12	13	66	23	112	84	46	153	71	12	82	50
28	5.6	12	52	24	102	65	38	111	78	24	72	46
29	10	12	44	24	---	64	35	90	52	47	31	38
30	89	12	38	24	---	103	33	76	44	19	50	33
31	68	---	36	23	---	118	---	74	---	16	38	---
TOTAL	382.82	1,052.0	2,034.2	1,945	3,455	4,036	1,992	2,788	3,732	1,792	1,030.3	2,894
MEAN	12.3	35.1	65.6	62.7	123	130	66.4	89.9	124	57.8	33.2	96.5
MAX	89	242	255	450	1,170	504	172	479	728	456	99	734
MIN	0.00	5.9	9.2	22	20	51	33	22	44	12	9.3	13
CFSM	0.31	0.89	1.66	1.59	3.12	3.30	1.68	2.28	3.15	1.46	0.84	2.44
IN.	0.36	0.99	1.92	1.83	3.25	3.80	1.88	2.63	3.51	1.69	0.97	2.73

e Estimated

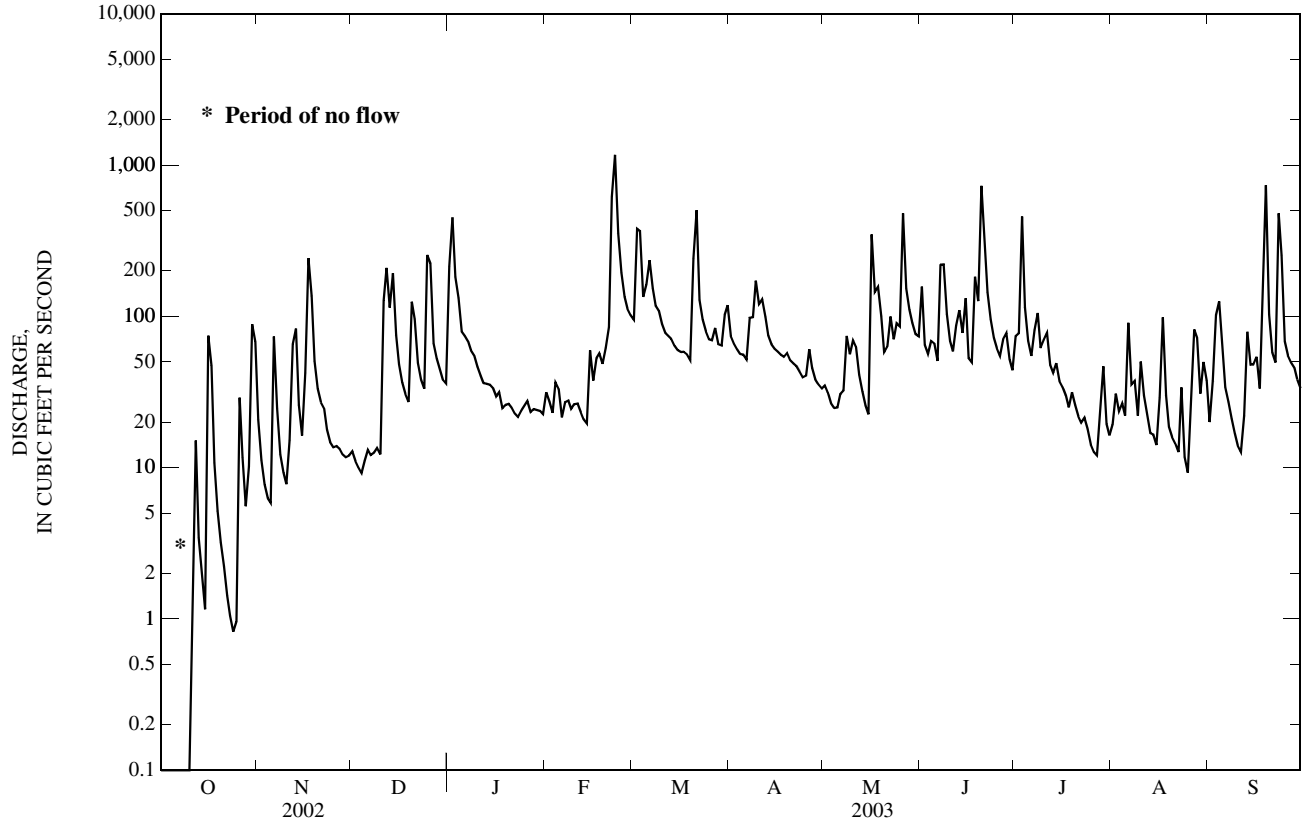
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2003, BY WATER YEAR (WY)

MEAN	26.6	32.0	50.2	62.0	70.1	84.8	65.2	47.9	32.2	19.3	20.2	31.3
MAX	177	95.8	153	217	188	268	218	189	173	92.7	88.8	256
(WY)	(1980)	(1973)	(1973)	(1978)	(1972)	(1994)	(1983)	(1989)	(1972)	(1975)	(1971)	(1975)
MIN	1.31	1.27	5.26	5.96	7.59	17.5	18.1	9.28	1.42	0.14	0.006	0.000
(WY)	(1987)	(1992)	(1966)	(1981)	(2002)	(1981)	(1985)	(1999)	(1986)	(1966)	(1966)	(1977)

01653600 PISCATAWAY CREEK AT PISCATAWAY, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1966 - 2003	
ANNUAL TOTAL	6,267.90		27,133.32			
ANNUAL MEAN	17.2		74.3		45.0	
HIGHEST ANNUAL MEAN					85.9	1972
LOWEST ANNUAL MEAN					8.86	2002
HIGHEST DAILY MEAN	255	Dec 25	1,170	Feb 23	4,500	Sep 6, 1979
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 8	0.00	Oct 1	0.00	Jul 9, 1966
MAXIMUM PEAK FLOW			1,470	Feb 23	(c)8,540	Sep 6, 1979
MAXIMUM PEAK STAGE			8.02	Feb 23	11.21	Sep 6, 1979
INSTANTANEOUS LOW FLOW			0.00	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.43		1.88		1.14	
ANNUAL RUNOFF (INCHES)	5.90		25.55		15.49	
10 PERCENT EXCEEDS	43		144		90	
50 PERCENT EXCEEDS	7.8		47		23	
90 PERCENT EXCEEDS	0.00		12		1.4	

a Many days
b Oct. 1-10.
c From rating curve extended above 1,700 ft^3/s on basis of contracted-opening measurement of peak flow at bridge 100 ft upstream.
d Oct. 1-11.
f No flow at times in 1966, 1970, 1977, 1980-83, 1985-89, 1991-95, 1997-99, 2002, 2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01653600 PISCATAWAY CREEK AT PISCATAWAY, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 2001 to September 2003 (Discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)
OCT												
16...	0345	Environmental	1.7	0.27	0.36	0.019	0.08	0.082	0.003	0.25	0.34	0.046
16...	0645	Environmental	1.4	0.29	0.36	0.024	0.10	0.108	0.003	0.27	0.34	0.057
16...	1845	Environmental	162	0.48	1.0	0.070	0.40	0.411	0.009	0.41	0.97	0.029
17...	0645	Environmental	56	0.47	0.70	0.026	0.52	0.525	0.006	0.44	0.67	0.027
17...	1900	Environmental	21	0.39	0.53	0.022	0.47	0.479	0.005	0.37	0.50	0.023
18...	0700	Environmental	13	0.36	0.49	0.028	0.41	0.415	0.004	0.33	0.46	0.021

Date	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT							
16...	0.058	0.121	0.35	0.44	--	3	0.01
16...	0.070	0.131	0.40	0.47	--	4	0.01
16...	0.043	0.41	0.89	1.4	76	239	105
17...	0.041	0.169	0.99	1.2	69	71	11
17...	0.034	0.104	0.87	1.0	--	19	1.1
18...	0.029	0.094	0.77	0.91	--	12	0.41

Photo by U.S. Geological Survey Personnel

Piscataway Creek at Piscataway, Md (01653600)

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

LOCATION.--Lat 38°48'46", long 77°13'42", Fairfax County, Hydrologic Unit 02070010, on left bank 800 ft upstream from bridge on State Highway 620, 0.2 mi upstream from Long Branch, and 2.3 mi southwest of Annandale.

DRAINAGE AREA.--23.5 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1947 to current year (fragmentary prior to October 1947).

REVISED RECORDS.--WSP 1502: 1952. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 191.24 ft above National Geodetic Vertical Datum of 1929 (levels by Stone and Webster Engineering Corporation). Prior to May 12, 1949, nonrecording gage at site 800 ft downstream at datum 0.33 ft lower. May 12, 1949, to June 4, 1970, water-stage recorder at site 800 ft downstream at datum 0.33 ft lower.

REMARKS.--Water-discharge records good except those for estimated daily discharges (ice effect, doubtful or no gage-height record), which are fair. U.S. Geological Survey gage-height telemeter at station.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	1745	3,440	10.54	Jul 23	0315	3,370	10.47
Mar 20	1945	1,760	8.55	Sep 19	0000	2,490	9.52
Jun 20	1615	1,680	8.43	Sep 23	0930	*4,380	*11.40
Jul 11	0500	3,480	10.58				

Minimum discharge, 0.01 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.43	5.9	5.0	343	e4.4	33	25	73	68	94	10	15
2	0.30	3.9	3.6	75	e4.3	170	21	15	22	64	10	48
3	0.27	3.2	3.3	113	e4.2	72	19	12	53	99	12	45
4	0.19	3.0	3.2	31	e5.0	33	18	12	61	21	36	53
5	0.13	17	e3.2	18	e7.2	89	17	15	52	16	12	17
6	0.09	118	e4.6	32	e6.4	126	15	20	20	14	10	11
7	0.05	7.2	e4.3	19	e5.3	41	107	110	431	39	8.1	9.1
8	0.03	4.5	e4.0	16	e4.6	32	34	78	72	21	8.1	8.3
9	0.02	4.0	e3.8	17	e4.2	45	142	57	56	175	7.8	7.7
10	0.39	3.3	e4.5	12	e5.3	26	37	120	24	93	15	6.9
11	118	93	267	11	e4.7	20	79	38	25	789	63	6.8
12	9.4	121	76	8.5	e4.4	19	28	20	110	27	16	98
13	2.7	22	150	8.2	e4.0	24	21	15	105	17	11	107
14	5.3	7.8	102	8.0	e3.8	32	19	13	61	16	13	17
15	1.7	5.7	21	7.6	e6.0	16	18	53	23	13	7.4	30
16	256	213	12	7.0	e5.2	16	17	219	18	12	12	22
17	15	200	9.3	e6.9	e4.5	15	16	35	39	11	183	16
18	8.7	79	8.1	e6.3	e17	15	30	111	120	10	14	321
19	2.9	12	7.6	e6.0	e15	13	83	29	153	10	9.4	441
20	1.8	7.5	32	e5.5	e32	576	20	20	439	9.6	7.9	26
21	1.6	6.2	9.7	e5.3	92	111	17	153	62	9.4	7.5	15
22	1.7	5.3	7.3	e5.0	1,340	44	17	48	34	36	26	20
23	1.5	4.7	6.7	e4.8	262	26	14	31	25	505	30	1,010
24	1.3	5.0	6.7	e4.6	96	22	13	32	20	22	6.9	34
25	1.9	4.1	177	e4.4	54	19	14	27	18	13	5.9	19
26	134	4.1	35	e6.6	31	44	76	297	16	12	169	15
27	5.6	4.1	15	e6.1	25	29	18	44	16	10	116	13
28	3.2	3.6	11	e5.2	e30	17	14	83	14	66	53	20
29	98	3.7	9.7	e5.0	---	30	13	32	14	52	82	18
30	96	4.5	8.6	e4.8	---	148	13	25	13	12	81	11
31	23	---	8.3	e4.6	---	48	---	118	---	10	24	---
TOTAL	791.20	976.3	1,019.5	807.4	2,077.5	1,951	975	1,955	2,184	2,298.0	1,067.0	2,480.8
MEAN	25.5	32.5	32.9	26.0	74.2	62.9	32.5	63.1	72.8	74.1	34.4	82.7
MAX	256	213	267	343	1,340	576	142	297	439	789	183	1,010
MIN	0.02	3.0	3.2	4.4	3.8	13	13	12	13	9.4	5.9	6.8
CFSM	1.09	1.38	1.40	1.11	3.16	2.68	1.38	2.68	3.10	3.15	1.46	3.52
IN.	1.25	1.55	1.61	1.28	3.29	3.09	1.54	3.09	3.46	3.64	1.69	3.93

e Estimated

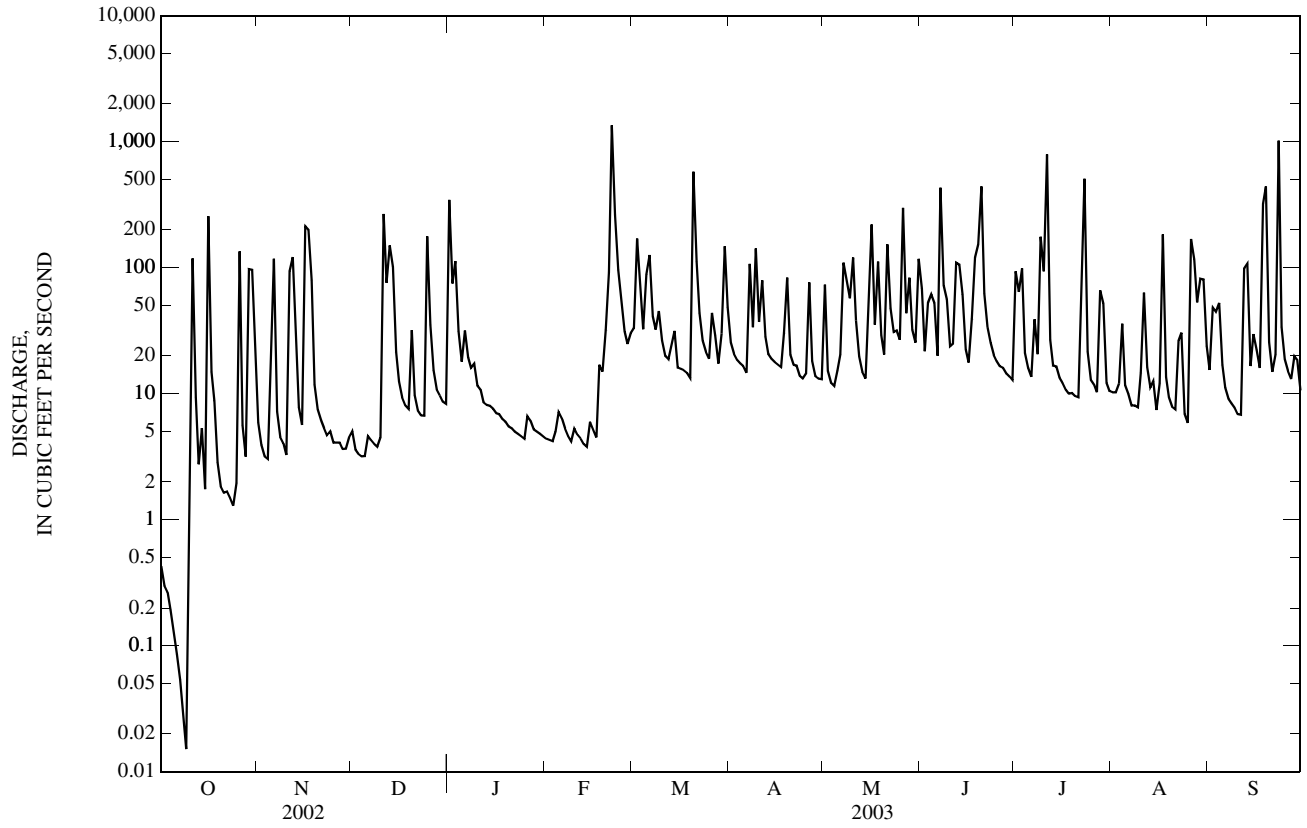
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2003, BY WATER YEAR (WY)

MEAN	17.8	23.9	28.0	32.4	36.1	42.7	35.1	33.0	26.1	21.3	22.1	23.1
MAX	76.6	70.4	73.8	87.0	113	114	94.5	125	212	74.5	123	120
(WY)	(1980)	(1994)	(1997)	(1996)	(1998)	(1993)	(1983)	(1989)	(1972)	(1969)	(1967)	(1996)
MIN	2.03	3.25	5.48	4.53	3.76	10.6	8.40	8.46	2.83	1.81	1.94	0.45
(WY)	(1955)	(1955)	(1966)	(1981)	(2002)	(1981)	(1985)	(1986)	(1986)	(1955)	(1957)	(1954)

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1948 - 2003	
ANNUAL TOTAL	6,109.43		18,582.70			
ANNUAL MEAN	16.7		50.9		28.4	
HIGHEST ANNUAL MEAN					50.9	2003
LOWEST ANNUAL MEAN					10.8	2002
HIGHEST DAILY MEAN	354	Jun 19	1,340	Feb 22	(e)3,300	Jun 22, 1972
LOWEST DAILY MEAN	0.00	(a)	0.02	Oct 9	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 17	0.11	Oct 3	0.00	Aug 5, 1999
MAXIMUM PEAK FLOW			4,380	Sep 23	(c)12,000	Jun 22, 1972
MAXIMUM PEAK STAGE			11.40	Sep 23	(d)15.96	Jun 22, 1972
INSTANTANEOUS LOW FLOW			0.01	(f)	0.00	(g)
ANNUAL RUNOFF (CFSM)	0.71		2.17		1.21	
ANNUAL RUNOFF (INCHES)	9.67		29.42		16.43	
10 PERCENT EXCEEDS	35		114		52	
50 PERCENT EXCEEDS	3.3		17		12	
90 PERCENT EXCEEDS	0.29		4.1		3.2	

e Estimated.
a Aug. 12, 18-23.
b Aug. 5-13, 1999, Aug. 12, 18-23, 2002.
c From rating curve extended above 6,600 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
d From high-water mark in gage house.
f Oct. 9, 10.
g No flow part or all of each day Aug. 5-14, 1999, Aug. 12, 13, 18-24, 2002.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1993 to August 1995, September 1997 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 2002 to current year.
WATER TEMPERATURE: January 2002 to current year.

INSTRUMENTATION.--Water-quality monitor January 2002 to current year.

REMARKS.--Missing record due to instrument malfunctions. Records good.

EXTREMES FOR PERIOD OF DAILY RECORD--
SPECIFIC CONDUCTANCE: Maximum, 6,450 microsiemens/cm, Dec. 11, 2002 Feb. 9, 10, Mar. 1, 2003; minimum, 54 microsiemens/cm, Oct. 26, 2002.
WATER TEMPERATURE: Maximum, 28.8°C, Aug. 24, 2002; minimum, 0.0°C, on many day during winter periods.

EXTREMES FOR JANUARY 2002 TO SEPTEMBER 2002.--
SPECIFIC CONDUCTANCE: Maximum, 1,530 microsiemens/cm, Feb. 7; minimum, 56 microsiemens/cm, Aug. 28.
WATER TEMPERATURE: Maximum, 28.8°C, Aug. 24; minimum, 1.4°C, Feb. 14.

EXTREMES FOR WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003.--
SPECIFIC CONDUCTANCE: Maximum, 6,450 microsiemens/cm, Dec. 11, Feb. 9, 10, Mar. 1; minimum, 54 microsiemens/cm, Oct. 26.
WATER TEMPERATURE: Maximum, 26.8°C, Aug. 16; minimum, 0.0°C, on many days during winter periods.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)
OCT												
30...	1215	Environmental	82	760	10.1	87	7.0	95	5.0	8.7	18	22
NOV												
05...	1315	Environmental	2.6	762	11.1	94	7.0	180	9.5	7.9	--	38
DEC												
03...	1245	Environmental	3.4	768	13.2	95	7.4	283	-2.0	2.3	45	54
JAN												
07...	*1110*	*Blank*	--	--	--	--	--	--	--	--	--	--
07...	*1259*	*Blank*	--	--	--	--	--	--	--	--	--	--
07...	1300	Environmental	15	761	11.3	84	7.0	5,130	0.8	2.3	31	38
FEB												
05...	0945	Environmental	--	762	11.9	85	7.2	825	1.0	1.2	29	36
MAR												
05...	1045	Environmental	40	755	13.0	101	7.0	815	9.5	4.4	34	41
APR												
01...	1130	Environmental	25	762	11.9	98	7.0	380	10.0	6.9	34	41
22...	1045	Environmental	17	754	14.8	147	7.7	371	17.0	14.6	--	--
MAY												
14...	0915	Environmental	13	760	8.8	86	6.8	330	16.5	13.9	42	51
21...	1015	Environmental	20	764	9.8	98	6.8	280	--	15.3	--	--
JUN												
03...	1115	Environmental	18	760	9.1	92	7.3	309	19.5	15.5	36	43
17...	1000	Environmental	16	767	8.1	86	7.2	319	17.0	18.6	--	--
17...	*1001*	*Replicate*	--	--	--	--	--	--	--	--	--	--
JUL												
09...	0915	Environmental	13	761	8.4	100	7.0	231	26.0	23.8	35	43
09...	*0916*	*Replicate*	--	--	--	--	--	--	--	--	--	--
09...	1000	Environmental	--	--	--	--	--	--	--	--	--	--
24...	0815	Environmental	22	761	7.8	89	6.7	188	24.0	21.9	--	--
AUG												
06...	*0800*	*Blank*	--	--	--	--	--	--	--	--	--	--
06...	0900	Environmental	10	759	8.2	94	6.9	272	23.5	22.0	39	47
19...	1200	Environmental	9.0	766	8.0	93	6.8	218	26.0	23.1	--	--
SEP												
10...	0915	Environmental	7.1	768	8.4	89	7.2	306	19.0	18.5	46	56
23...	1110	Environmental	3,010	758	8.8	98	6.2	60	--	20.4	--	--

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)
OCT													
30...	8.35	5.9	0.57	0.08	0.65	0.66	0.013	0.49	0.05	0.116	1.2	1.3	6.9
NOV													
05...	23.4	10.4	0.23	<0.04	--	0.56	E.004	--	<0.02	0.029	0.79	0.2	4.3
DEC													
03...	49.1	12.1	0.18	<0.04	--	0.77	E.006	--	<0.02	0.020	0.95	0.2	2.9
JAN													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
07...	*<0.20*	*<0.2*	*<0.10*	*<0.04*	--	*<0.06*	*<0.008*	--	*<0.02*	*<0.004*	--	*<0.1*	*0.8*
07...	1,600	24.4	0.86	0.35	1.22	1.24	0.019	0.51	<0.02	0.033	2.1	0.4	3.3
FEB													
05...	217	12.8	0.53	0.16	1.13	1.16	0.024	0.37	<0.02	0.059	1.7	1.5	4.6
MAR													
05...	208	15.5	0.35	<0.04	1.37	1.38	0.010	--	<0.02	0.043	1.7	0.2	3.6
APR													
01...	76.4	12.9	0.31	<0.04	--	0.98	E.005	--	E.01	0.032	1.3	0.3	4.4
22...	--	--	0.20	<0.04	--	0.55	E.005	--	<0.02	0.019	0.75	--	--
MAY													
14...	59.8	11.0	0.32	E.03	0.90	0.91	0.011	--	<0.02	0.034	1.2	0.3	3.9
21...	--	--	0.85	E.03	0.92	0.94	0.019	--	<0.02	0.156	1.8	--	--
JUN													
03...	51.8	11.8	0.32	<0.04	0.99	1.00	0.010	--	<0.02	0.032	1.3	0.5	3.8
17...	--	--	0.32	<0.04	1.10	1.12	0.017	--	<0.02	0.040	1.4	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
09...	37.3	7.8	0.32	<0.04	0.66	0.69	0.033	--	<0.02	0.035	1.0	0.1	4.8
09...	--	--	*0.33*	*<0.04*	*0.74*	*0.75*	*0.012*	--	*<0.02*	*0.034*	*1.1*	*0.2*	*5.0*
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	0.60	<0.04	0.84	0.86	0.015	--	<0.02	0.069	1.5	--	--
AUG													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
06...	45.8	8.9	0.26	<0.04	1.28	1.29	0.015	--	<0.02	0.032	1.6	0.2	4.5
19...	--	--	0.38	<0.04	0.84	0.85	0.017	--	<0.02	0.044	1.2	--	--
SEP													
10...	53.7	8.7	0.33	<0.04	1.02	1.03	0.009	--	<0.02	0.035	1.4	0.2	2.9
23...	--	--	1.1	<0.04	0.45	0.46	0.008	--	0.04	0.31	1.6	--	--

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Pheophytin a, periphyton, mg/m2 (62359)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	alpha-HCH, water, fltrd, ug/L (34253)	alpha-HCH-d6, surrog, wat flt 0.7u GF percent recovry (91065)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Butylate, water, fltrd, ug/L (04028)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)
OCT													
30...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	93.6	<0.007	<0.050	<0.010	<0.002	E.033
NOV													
05...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	105	<0.007	<0.050	<0.010	<0.002	E.034
DEC													
03...	--	--	<0.006	E.004	<0.006	<0.004	<0.005	94.7	E.007	<0.050	<0.010	<0.002	<0.041
JAN													
07...	--	--	*<0.006*	*<0.006*	*<0.006*	*<0.004*	*<0.005*	*104*	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*
07...	--	--	*<0.006*	*<0.006*	*<0.006*	*<0.004*	*<0.005*	*92.8*	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*
07...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	103	<0.007	<0.050	<0.010	<0.002	E.004
FEB													
05...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	97.3	<0.010	<0.050	<0.010	<0.002	<0.041
MAR													
05...	--	--	<0.006	E.002	<0.006	<0.004	<0.005	87.9	E.003	<0.050	<0.010	<0.002	<0.041
APR													
01...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	96.4	E.003	<0.050	E.004	<0.002	E.042
22...	--	--	<0.006	E.004	<0.006	<0.004	<0.005	107	0.010	<0.050	E.005	<0.002	E.018
MAY													
14...	--	--	<0.006	E.007	<0.006	<0.004	<0.005	101	0.015	<0.050	<0.010	<0.002	E.064
21...	--	--	<0.006	E.009	0.009	0.006	<0.005	109	0.030	<0.050	<0.010	<0.002	E.035
JUN													
03...	--	--	<0.006	E.008	<0.006	<0.004	<0.005	106	0.030	<0.050	<0.010	<0.002	E.248
17...	--	--	<0.006	E.005	<0.006	<0.004	<0.005	105	0.013	<0.050	<0.010	<0.002	E.061
17...	--	--	*<0.006*	*E.005*	*<0.006*	*<0.004*	*<0.005*	*105*	*0.013*	*<0.050*	*<0.010*	*<0.002*	*E.060*
JUL													
09...	--	--	<0.006	E.012	<0.006	<0.004	<0.005	107	0.036	<0.050	<0.010	<0.002	E.042
09...	--	--	*<0.006*	*E.014*	*<0.006*	*<0.004*	*<0.005*	*100*	*0.039*	*<0.050*	*<0.010*	*<0.002*	*E.047*
09...	1.0	1.8	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	103	0.007	<0.050	<0.010	<0.002	E.527
AUG													
06...	--	--	*<0.006*	*<0.006*	*<0.006*	*<0.004*	*<0.005*	*95.5*	*<0.007*	*<0.050*	*<0.010*	*<0.002*	*<0.041*
06...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	83.7	<0.007	<0.050	<0.010	<0.002	E.012
19...	--	--	<0.006	<0.006	<0.006	<0.007	<0.005	96.5	<0.007	<0.050	<0.010	<0.002	E.190
SEP													
10...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	100	0.027	<0.050	<0.010	<0.002	E.007
23...	--	--	<0.006	<0.006	<0.006	<0.004	<0.005	81.4	<0.007	<0.050	<0.010	<0.002	E.264

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Carbofuran, water, fltrd 0.7u GF ug/L (82674)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	Cyanazine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Diazinon-d10 surrog. wat flt 0.7u GF percent recovry (91063)	Dieldrin, water, fltrd, ug/L (39381)	Disulfoton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)	Ethalfluralin, water, fltrd 0.7u GF ug/L (82663)	Ethoprop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)
OCT													
30...	<0.020	<0.005	<0.006	<0.018	<0.003	0.035	128	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
NOV													
05...	<0.020	<0.005	<0.006	<0.018	<0.003	0.012	136	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
DEC													
03...	<0.020	<0.005	<0.006	<0.018	<0.003	<0.006	107	<0.005	<0.02	<0.011	<0.009	<0.005	<0.003
JAN													
07...	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*112*	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.003*
07...	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*114*	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.003*
07...	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	124	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
FEB													
05...	<0.020	<0.005	<0.006	<0.018	<0.003	0.032	113	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
MAR													
05...	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	113	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
APR													
01...	<0.020	<0.005	<0.006	<0.018	<0.003	0.054	125	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
22...	<0.020	<0.005	<0.006	<0.018	<0.003	0.012	127	<0.005	<0.02	<0.020	<0.009	<0.005	<0.003
MAY													
14...	<0.020	<0.005	<0.006	<0.018	<0.003	0.019	107	<0.005	<0.02	<0.050	<0.009	<0.005	<0.003
21...	<0.020	<0.005	<0.006	<0.018	<0.003	0.025	110	<0.005	<0.02	<0.035	<0.009	<0.005	<0.003
JUN													
03...	<0.020	E.004	<0.006	<0.018	<0.003	0.032	124	<0.005	<0.02	<0.025	<0.009	<0.005	<0.003
17...	<0.020	<0.005	<0.006	<0.018	<0.003	0.024	127	<0.005	<0.02	<0.013	<0.009	<0.005	<0.003
17...	*<0.020*	*E.004*	*<0.006*	*<0.018*	*<0.003*	*0.023*	*127*	*<0.005*	*<0.02*	*<0.007*	*<0.009*	*<0.005*	*<0.003*
JUL													
09...	<0.020	<0.005	<0.006	<0.018	<0.003	0.060	125	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
09...	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*0.059*	*136*	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.003*
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	<0.020	<0.005	<0.006	<0.018	<0.003	0.054	114	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
AUG													
06...	*<0.020*	*<0.005*	*<0.006*	*<0.018*	*<0.003*	*<0.005*	*104*	*<0.005*	*<0.02*	*<0.002*	*<0.009*	*<0.005*	*<0.003*
06...	<0.020	<0.005	<0.006	<0.018	<0.003	<0.005	106	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003
19...	<0.020	<0.005	<0.006	<0.018	<0.003	0.009	124	<0.005	<0.02	<0.020	<0.009	<0.005	<0.003
SEP													
10...	<0.020	<0.005	<0.006	<0.018	<0.003	0.006	107	<0.005	<0.02	<0.010	<0.009	<0.005	<0.003
23...	<0.020	<0.005	<0.006	<0.018	0.003	0.033	109	<0.005	<0.02	<0.002	<0.009	<0.005	<0.003

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Mala-thion, water, fltrd, ug/L (39532)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p-' DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)	Peb-ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)
OCT													
30...	<0.004	<0.035	<0.027	<0.006	E.005	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
NOV													
05...	<0.004	<0.035	<0.027	<0.006	E.005	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
DEC													
03...	<0.004	<0.035	<0.027	<0.006	E.001	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
JAN													
07...	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.013*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*
07...	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.013*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*
07...	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
FEB													
05...	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
MAR													
05...	<0.004	<0.035	<0.027	<0.006	E.003	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
APR													
01...	<0.004	<0.035	<0.027	<0.006	E.004	<0.006	<0.005	<0.007	<0.003	<0.010	<0.004	0.032	<0.011
22...	<0.004	<0.035	<0.027	<0.006	E.008	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	0.023	<0.011
MAY													
14...	<0.004	<0.035	<0.027	<0.006	E.011	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	E.013	<0.011
21...	<0.004	<0.035	E.013	<0.006	0.031	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	0.036	<0.011
JUN													
03...	<0.004	<0.035	<0.027	<0.006	E.010	<0.006	<0.004	<0.007	<0.003	<0.010	<0.004	E.014	<0.011
17...	<0.004	<0.035	<0.027	<0.006	E.011	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
17...	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*E.010*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*
JUL													
09...	<0.004	<0.035	<0.027	<0.006	0.015	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
09...	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*0.016*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	<0.004	<0.035	<0.027	<0.006	E.007	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	E.008	<0.011
AUG													
06...	*<0.004*	*<0.035*	*<0.027*	*<0.006*	*<0.013*	*<0.006*	*<0.002*	*<0.007*	*<0.003*	*<0.010*	*<0.004*	*<0.022*	*<0.011*
06...	<0.004	<0.035	<0.027	<0.006	<0.013	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
19...	<0.004	<0.035	<0.027	<0.006	E.006	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
SEP													
10...	<0.004	<0.035	<0.027	<0.006	E.004	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011
23...	<0.004	<0.035	E.018	<0.006	<0.013	<0.006	<0.002	<0.007	<0.003	<0.010	<0.004	<0.022	<0.011

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Prometon, water, fltrd, ug/L (04037)	Pronamide, water, fltrd 0.7u GF ug/L (82676)	Propachlor, water, fltrd, ug/L (04024)	Propanil, water, fltrd 0.7u GF ug/L (82679)	Propargite, water, fltrd 0.7u GF ug/L (82685)	Simazine, water, fltrd, ug/L (04035)	Tebuthiuron water fltrd 0.7u GF ug/L (82670)	Terbacil, water, fltrd 0.7u GF ug/L (82665)	Terbufos, water, fltrd 0.7u GF ug/L (82675)	Terbuthylazine, water, fltrd, ug/L (04022)	Thiobencarb water fltrd 0.7u GF ug/L (82681)	Triallate, water, fltrd 0.7u GF ug/L (82678)	Trifluralin, water, fltrd 0.7u GF ug/L (82661)
OCT													
30...	0.03	<0.004	<0.010	<0.011	<0.02	<0.007	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	E.004
NOV													
05...	0.02	<0.004	<0.010	<0.011	<0.02	0.006	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
DEC													
03...	E.01	<0.004	<0.010	<0.011	<0.02	0.010	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
JAN													
07...	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*
07...	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*
07...	E.01	<0.004	<0.010	<0.011	<0.02	0.036	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
FEB													
05...	E.01	<0.004	<0.010	<0.011	<0.02	<0.010	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
MAR													
05...	E.01	<0.004	<0.010	<0.011	<0.02	0.013	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
APR													
01...	E.01	<0.004	<0.010	<0.011	<0.02	0.029	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	E.005
22...	E.01	<0.004	<0.010	<0.011	<0.02	0.039	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	E.005
MAY													
14...	0.02	<0.004	<0.010	<0.011	<0.02	0.108	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
21...	0.06	<0.004	<0.010	<0.011	<0.02	0.044	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	E.001
JUN													
03...	0.03	<0.004	<0.010	<0.011	<0.02	0.032	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
17...	0.03	<0.004	<0.010	<0.011	<0.02	0.024	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
17...	*0.02*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*0.024*	*<0.02*	*<0.034*	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*
JUL													
09...	0.04	<0.004	<0.010	<0.011	<0.02	0.016	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
09...	*0.05*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*0.013*	*<0.02*	*<0.034*	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	0.06	<0.004	<0.010	<0.011	<0.02	0.007	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
AUG													
06...	*<0.01*	*<0.004*	*<0.010*	*<0.011*	*<0.02*	*<0.005*	*<0.02*	*<0.034*	*<0.02*	*<0.01*	*<0.005*	*<0.002*	*<0.009*
06...	0.05	<0.004	<0.010	<0.011	<0.02	<0.005	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
19...	0.04	<0.004	<0.010	<0.011	<0.02	<0.007	<0.02	<0.050	<0.02	<0.01	<0.005	<0.002	<0.009
SEP													
10...	0.03	<0.004	<0.010	<0.011	<0.02	2.46	E.01	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009
23...	E.01	<0.004	<0.010	<0.011	<0.02	0.012	<0.02	<0.034	<0.02	<0.01	<0.005	<0.002	<0.009

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Suspended sediment concentration mg/L (80154)	Suspended sediment load, tons/d (80155)
OCT		
30...	24	5.4
NOV		
05...	3	0.02
DEC		
03...	2	0.02
JAN		
07...	--	--
07...	*0.0*	--
07...	6	0.26
FEB		
05...	16	--
MAR		
05...	3	0.37
APR		
01...	5	0.32
22...	5	0.21
MAY		
14...	5	0.16
21...	143	7.7
JUN		
03...	4	0.18
17...	7	0.29
17...	--	--
JUL		
09...	4	0.14
09...	*4*	--
09...	--	--
24...	17	1.0
AUG		
06...	--	--
06...	3	0.09
19...	4	0.09
SEP		
10...	4	0.07
23...	228	1,850

Remark codes used in this table:
< -- Less than
E -- Estimated value

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

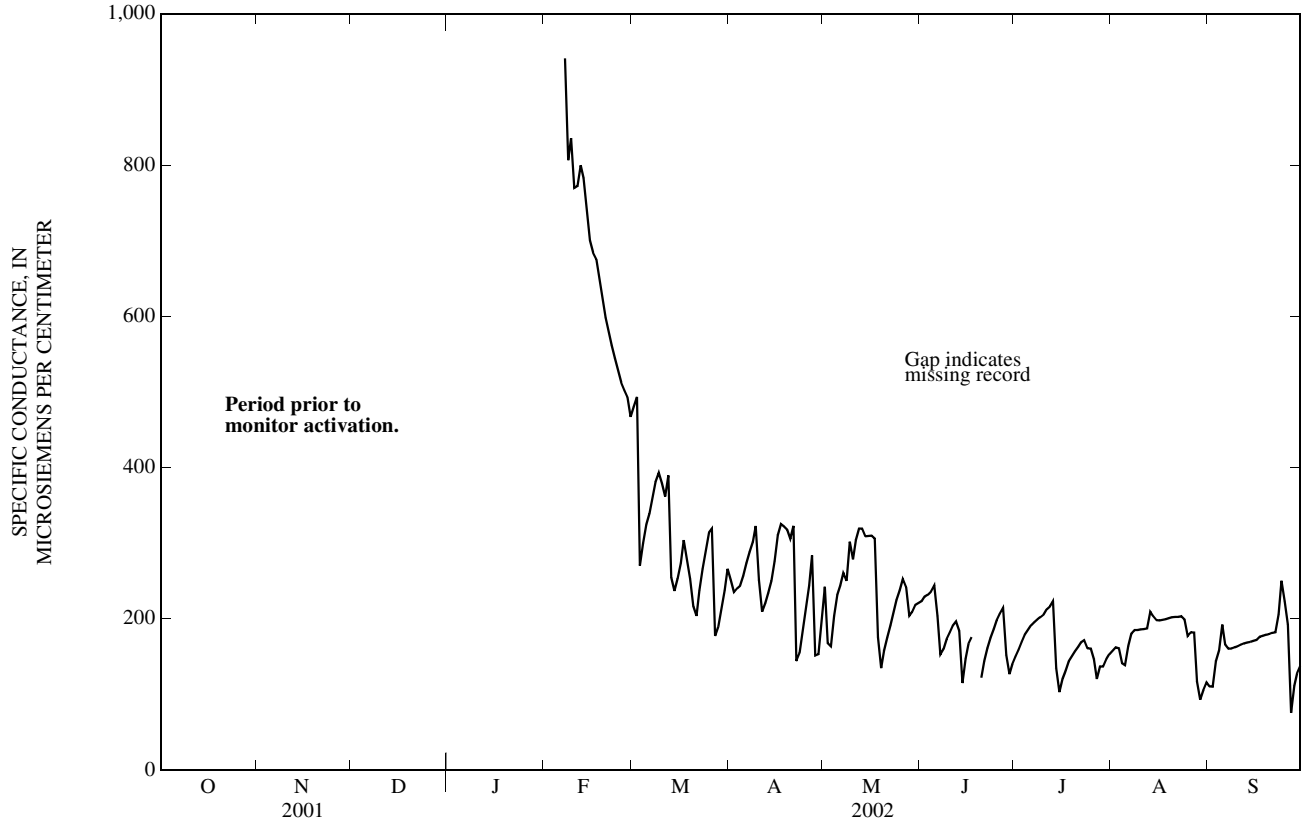
SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	501	462	481	279	235	251	261	221	242
2	---	---	---	818	280	493	245	229	235	341	86	168
3	---	---	---	316	258	270	244	238	240	184	124	163
4	---	---	---	315	280	300	252	240	244	239	184	204
5	---	---	---	333	314	324	266	252	257	243	207	232
6	---	---	---	349	332	339	282	266	274	248	241	244
7	1,530	746	941	371	349	361	297	282	288	289	247	261
8	846	745	806	390	371	381	308	297	302	261	246	250
9	849	803	836	399	390	393	454	285	323	398	250	302
10	803	756	769	410	337	379	404	207	251	292	268	279
11	795	759	772	383	337	362	214	207	209	316	292	304
12	803	795	800	547	357	390	229	214	221	322	316	319
13	799	763	783	357	200	255	242	229	234	322	314	319
14	763	715	739	245	225	237	262	242	250	314	308	309
15	715	689	700	264	245	254	302	262	276	312	309	310
16	690	679	684	286	264	274	325	298	310	312	308	310
17	683	662	675	429	286	304	328	322	325	419	234	306
18	662	642	652	333	235	279	328	315	322	278	116	176
19	642	610	625	331	243	253	383	309	318	147	121	135
20	610	587	598	314	169	217	315	296	306	167	147	158
21	587	570	579	223	186	204	350	288	323	183	167	175
22	571	553	561	253	223	238	291	115	144	200	183	191
23	553	539	545	279	253	266	171	137	155	217	200	209
24	540	518	529	302	278	290	196	171	183	231	217	225
25	518	505	512	325	302	314	263	196	215	245	231	238
26	506	497	502	422	206	319	269	223	244	257	245	253
27	503	479	493	250	172	177	300	269	284	282	209	243
28	479	459	467	202	176	190	335	77	151	215	189	204
29	---	---	---	230	202	214	182	111	153	216	201	209
30	---	---	---	250	230	238	221	182	201	221	216	218
31	---	---	---	338	250	266	---	---	---	222	220	221
MONTH	1,530	459	662	818	169	299	454	77	250	419	86	238

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	228	220	223	155	145	150	159	155	158	124	60	111
2	232	228	229	164	155	160	164	159	163	117	107	111
3	234	230	232	172	164	170	173	134	161	178	117	144
4	241	221	236	181	172	179	181	133	141	202	132	158
5	247	241	244	190	180	185	141	135	139	205	170	192
6	253	186	204	195	190	192	191	141	164	170	163	166
7	192	146	153	199	195	196	183	179	181	163	160	161
8	167	152	160	200	199	200	186	183	185	161	160	161
9	179	167	173	204	182	202	186	184	185	164	160	163
10	186	179	182	208	203	206	187	185	186	166	162	164
11	192	186	191	216	207	213	187	186	187	167	164	166
12	199	191	196	217	216	216	188	187	187	169	166	168
13	217	111	184	224	216	223	229	188	209	169	168	169
14	129	106	115	231	70	135	210	201	203	170	168	170
15	166	98	148	113	91	103	201	197	198	171	170	171
16	173	164	167	128	113	121	199	198	198	174	171	172
17	179	173	176	134	128	132	200	198	199	179	174	177
18	---	---	---	145	134	143	201	199	200	179	177	178
19	---	---	---	152	145	150	202	200	201	179	177	179
20	134	109	122	160	152	157	203	201	202	181	179	180
21	153	134	144	165	158	163	203	201	202	183	180	181
22	168	153	161	171	163	169	203	202	203	183	181	182
23	181	168	175	183	159	172	204	202	203	278	180	206
24	194	181	186	186	154	161	238	120	199	279	226	250
25	203	193	198	162	159	161	183	158	177	226	221	224
26	212	203	207	160	121	146	183	181	182	221	73	193
27	238	182	214	153	73	121	184	181	182	89	60	76
28	216	112	152	148	113	137	184	56	117	127	89	111
29	138	115	127	143	134	137	100	75	93	134	124	128
30	145	136	140	149	143	147	111	100	106	143	134	138
31	---	---	---	155	149	153	120	111	116	---	---	---
MONTH	253	98	180	231	70	165	238	56	175	279	60	165



DAILY MEAN SPECIFIC CONDUCTANCE - JANUARY 2002 TO SEPTEMBER 2002

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

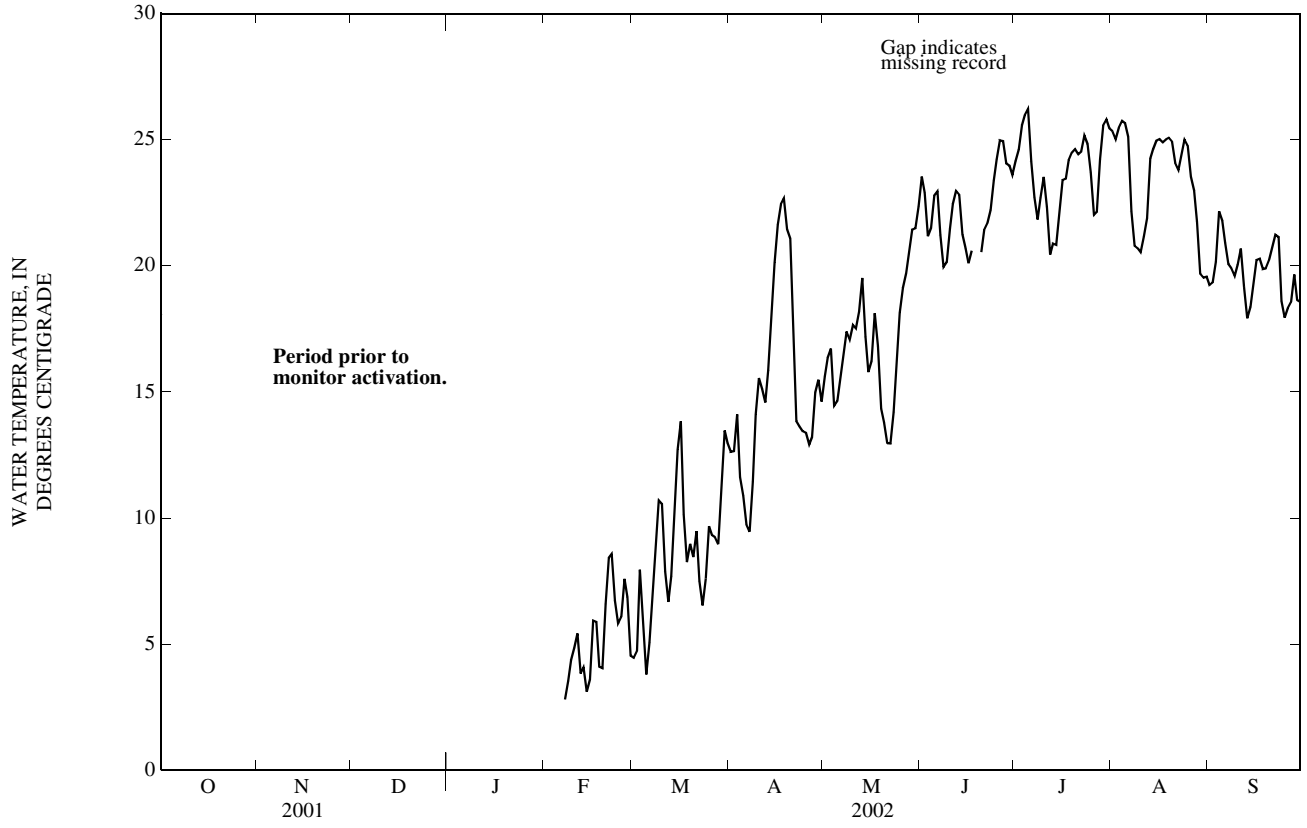
TEMPERATURE, WATER, DEGREES CELSIUS
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	4.8	2.7	3.7
18	---	---	---	---	---	---	---	---	---	4.8	3.4	4.0
19	---	---	---	---	---	---	---	---	---	3.4	1.3	2.0
20	---	---	---	---	---	---	---	---	---	2.8	1.0	1.8
21	---	---	---	---	---	---	---	---	---	3.5	1.5	2.3
22	---	---	---	---	---	---	---	---	---	4.1	1.5	2.7
23	---	---	---	---	---	---	---	---	---	4.9	2.7	3.8
24	---	---	---	---	---	---	---	---	---	6.4	4.2	5.2
25	---	---	---	---	---	---	---	---	---	7.1	4.9	6.1
26	---	---	---	---	---	---	---	---	---	5.9	3.1	4.5
27	---	---	---	---	---	---	---	---	---	6.0	2.6	4.2
28	---	---	---	---	---	---	---	---	---	6.8	3.2	5.0
29	---	---	---	---	---	---	---	---	---	8.4	4.8	6.5
30	---	---	---	---	---	---	---	---	---	10.7	7.2	8.9
31	---	---	---	---	---	---	---	---	---	10.2	9.2	9.5
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	12.2	9.0	10.2	6.5	2.1	4.5	15.2	10.9	12.6	17.8	13.9	15.6
2	9.3	6.2	7.6	6.8	3.5	4.7	15.7	9.9	12.7	17.3	15.3	16.4
3	6.2	4.2	5.1	9.0	6.5	7.9	16.4	12.2	14.1	17.9	15.8	16.7
4	5.0	2.3	3.8	7.3	3.5	5.6	13.7	9.8	11.6	15.8	13.0	14.4
5	2.7	0.5	1.7	6.1	2.0	3.8	13.2	9.0	10.9	16.8	12.9	14.6
6	2.8	0.5	1.7	7.9	2.6	5.1	11.7	8.0	9.7	17.0	14.0	15.5
7	3.4	2.3	2.8	10.0	4.8	7.2	12.7	6.6	9.5	17.0	15.8	16.4
8	5.7	1.9	3.5	11.6	6.4	8.9	15.1	8.6	11.4	19.4	16.0	17.4
9	6.1	2.6	4.4	12.4	9.0	10.7	15.9	12.6	14.1	17.8	16.7	17.1
10	5.8	4.1	4.8	12.1	8.3	10.6	17.9	13.8	15.5	19.8	16.2	17.7
11	6.3	4.3	5.4	9.9	6.0	7.9	18.2	12.4	15.1	19.3	16.0	17.5
12	5.2	2.3	3.8	7.3	6.2	6.7	15.8	13.6	14.6	20.6	16.3	18.2
13	5.1	3.1	4.1	8.3	6.9	7.7	17.8	14.3	15.9	20.6	18.5	19.5
14	4.5	1.4	3.1	13.2	8.3	10.3	20.7	16.0	18.1	19.1	16.1	17.2
15	5.1	2.0	3.6	15.6	10.4	12.7	23.3	17.8	20.1	17.8	14.1	15.8
16	7.8	4.3	5.9	14.8	12.7	13.8	24.9	19.2	21.6	18.7	14.0	16.2
17	6.9	4.7	5.9	12.7	8.5	10.1	25.2	20.0	22.4	19.9	16.7	18.1
18	5.7	2.3	4.1	8.6	7.9	8.3	24.4	21.1	22.7	19.6	14.8	16.8
19	5.8	1.9	4.0	10.3	7.9	9.0	23.0	20.1	21.4	15.9	13.0	14.3
20	8.3	5.2	6.6	9.1	8.2	8.4	22.3	20.0	21.1	15.6	12.3	13.8
21	10.1	6.7	8.4	12.2	7.6	9.5	20.7	15.5	18.2	14.6	11.4	13.0
22	10.0	7.4	8.6	9.6	5.9	7.5	15.5	12.5	13.9	15.5	10.7	13.0
23	8.1	5.1	6.7	9.6	4.2	6.5	15.6	12.0	13.6	17.0	11.9	14.2
24	7.7	3.6	5.8	10.7	5.2	7.6	16.2	11.3	13.4	19.0	13.7	16.1
25	7.8	3.9	6.1	12.9	7.4	9.7	14.5	12.8	13.4	19.6	16.8	18.1
26	9.5	5.5	7.6	9.9	9.1	9.3	15.2	11.2	12.9	21.0	17.5	19.1
27	8.6	4.6	6.9	9.9	8.5	9.2	15.2	11.3	13.2	21.2	18.4	19.7
28	6.4	2.6	4.5	11.9	6.5	9.0	16.4	13.6	15.0	22.3	19.2	20.6
29	---	---	---	14.0	8.8	10.9	16.3	14.5	15.5	23.4	19.9	21.4
30	---	---	---	16.0	11.6	13.5	16.8	12.8	14.6	23.7	19.6	21.5
31	---	---	---	14.0	11.8	13.0	---	---	---	24.6	20.4	22.4
MONTH	10.1	1.4	5.3	16.0	2.0	8.7	25.2	6.6	15.3	24.6	10.7	17.0

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
JANUARY 2002 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	25.4	22.0	23.5	26.1	22.6	24.2	25.8	24.9	25.3	20.0	18.8	19.2
2	24.3	21.6	22.9	26.4	23.3	24.6	25.6	24.6	25.0	20.1	18.8	19.3
3	22.7	19.8	21.2	26.7	24.7	25.6	27.1	25.1	25.5	22.4	18.5	20.2
4	23.7	20.0	21.5	26.8	25.5	26.0	27.7	24.1	25.7	23.9	20.9	22.2
5	24.6	21.7	22.8	26.6	25.9	26.2	26.7	24.8	25.7	23.2	20.6	21.8
6	24.4	22.0	23.0	26.1	23.3	24.2	26.1	23.5	25.1	22.0	20.2	20.9
7	22.0	20.1	21.2	24.1	22.0	22.7	23.5	21.0	22.2	21.4	19.4	20.1
8	21.7	18.3	19.9	22.8	21.2	21.8	22.3	20.0	20.8	20.5	19.4	19.9
9	22.6	18.2	20.1	23.2	22.2	22.7	21.4	20.1	20.7	20.3	19.1	19.6
10	23.9	19.8	21.5	23.8	23.2	23.5	21.2	20.0	20.5	20.7	19.6	20.0
11	23.8	21.4	22.5	23.8	21.7	22.3	21.7	20.8	21.2	21.0	20.3	20.7
12	23.7	22.2	23.0	21.7	19.7	20.4	22.4	21.6	21.9	20.3	18.7	19.2
13	23.7	21.8	22.8	21.1	20.6	20.9	26.4	22.4	24.3	18.8	17.4	17.9
14	22.2	20.8	21.2	21.1	20.0	20.8	25.5	24.1	24.6	18.7	18.1	18.4
15	21.7	19.4	20.7	24.2	20.4	22.0	25.2	24.7	25.0	19.8	18.7	19.3
16	21.6	18.7	20.1	25.7	21.6	23.4	25.2	24.8	25.0	20.6	19.8	20.2
17	22.6	18.8	20.6	25.0	22.2	23.5	25.1	24.6	24.9	20.8	20.0	20.3
18	---	---	---	24.9	23.7	24.2	25.3	24.7	25.0	20.4	19.5	19.9
19	---	---	---	25.0	24.1	24.5	25.4	24.8	25.1	20.1	19.7	19.9
20	22.4	19.1	20.6	25.0	24.3	24.6	25.3	24.6	24.9	20.5	20.0	20.2
21	23.5	19.7	21.4	24.9	24.0	24.4	24.9	23.7	24.1	21.0	20.5	20.7
22	24.1	19.6	21.7	24.8	24.2	24.5	24.2	23.5	23.8	21.5	21.0	21.2
23	24.5	20.1	22.2	26.5	24.8	25.2	24.8	24.1	24.4	21.6	19.9	21.1
24	25.5	21.5	23.4	25.6	24.1	24.8	28.8	24.4	25.0	19.9	17.6	18.6
25	26.3	22.4	24.2	24.6	23.2	23.7	26.0	23.7	24.8	19.0	17.4	17.9
26	26.4	23.7	25.0	23.6	21.2	22.0	24.9	22.9	23.5	19.3	17.9	18.3
27	27.0	23.9	25.0	24.9	21.1	22.2	23.5	22.6	23.0	19.5	17.9	18.6
28	25.2	23.5	24.1	26.0	22.8	24.2	23.1	20.5	21.7	20.7	19.0	19.7
29	25.5	22.7	24.0	27.6	24.1	25.6	20.5	19.3	19.7	19.8	17.6	18.6
30	25.5	21.8	23.6	27.0	25.1	25.8	20.5	18.6	19.5	19.4	18.0	18.6
31	---	---	---	26.3	25.0	25.5	20.1	18.9	19.6	---	---	---
MONTH	27.0	18.2	22.3	27.6	19.7	23.7	28.8	18.6	23.5	23.9	17.4	19.8



DAILY MEAN WATER TEMPERATURE - JANUARY 2002 TO SEPTEMBER 2002

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

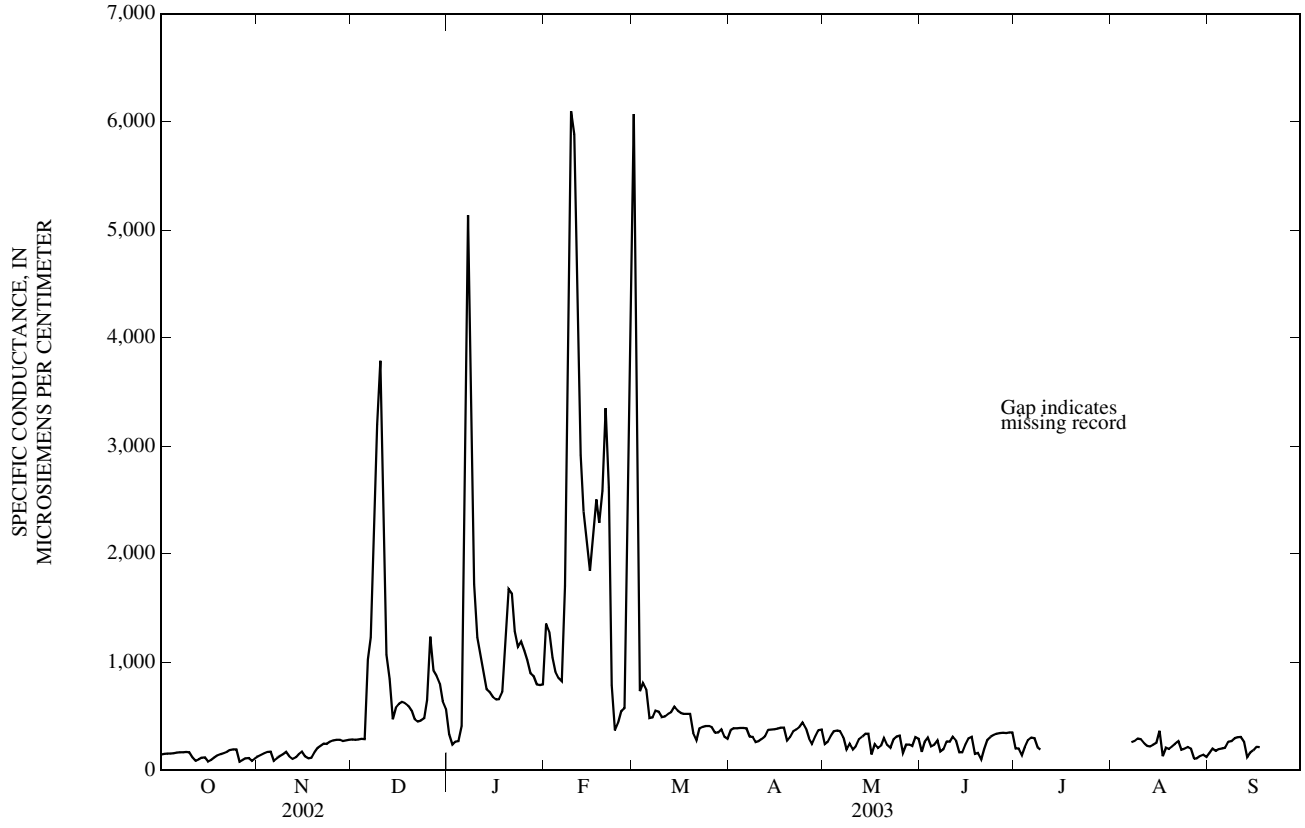
SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	146	143	145	135	120	127	285	281	283	644	152	332
2	151	146	149	151	135	142	283	281	282	298	162	236
3	154	150	153	161	151	157	289	283	284	338	208	262
4	156	154	154	173	161	168	293	286	290	304	228	268
5	160	156	157	180	116	170	357	274	287	1,130	304	409
6	164	159	163	156	65	84	1,700	357	1,020	4,790	1,130	2,190
7	166	164	165	119	96	109	1,650	923	1,230	6,050	4,220	5,140
8	167	166	166	139	119	129	2,960	1,100	1,960	4,220	2,350	3,270
9	167	166	167	157	139	147	3,490	2,890	3,200	2,350	1,360	1,720
10	167	122	165	176	157	169	3,890	3,490	3,790	1,360	1,150	1,230
11	213	70	116	175	89	125	6,450	932	2,860	1,150	994	1,060
12	91	76	84	144	86	103	1,190	961	1,070	994	793	905
13	103	91	98	135	99	118	1,200	402	842	793	713	748
14	125	103	114	160	135	148	563	396	470	734	697	721
15	121	114	117	183	160	171	596	563	581	697	658	677
16	120	58	80	187	71	127	626	589	611	666	628	654
17	103	81	93	132	71	108	636	625	629	711	616	657
18	123	103	115	142	86	114	628	606	617	745	697	721
19	144	123	137	184	142	163	606	583	596	1,730	737	1,220
20	152	144	148	215	184	203	821	464	549	1,800	1,600	1,670
21	161	152	156	235	215	225	489	439	474	1,850	1,320	1,640
22	176	161	169	251	235	244	459	433	450	1,320	1,210	1,280
23	191	176	186	254	208	243	465	448	458	1,210	1,100	1,140
24	193	191	192	269	241	261	562	462	478	1,240	1,120	1,190
25	194	84	191	280	269	275	1,400	422	649	1,120	1,090	1,100
26	167	54	77	284	280	281	1,450	1,030	1,240	1,100	920	1,020
27	101	81	92	285	269	280	1,030	874	923	920	874	896
28	120	101	108	271	266	268	891	852	872	887	826	869
29	133	64	110	277	271	274	881	701	801	826	768	792
30	104	64	86	282	277	280	701	599	640	845	732	788
31	120	94	110	---	---	---	599	546	568	1,210	690	793
MONTH	213	54	134	285	65	180	6,450	274	936	6,050	152	1,150
		FEBRUARY			MARCH			APRIL			MAY	
1	1,540	945	1,360	6,450	4,330	6,070	381	335	369	354	171	239
2	1,480	1,120	1,280	5,150	726	2,240	393	378	387	284	240	259
3	1,120	957	1,040	777	692	732	394	379	388	349	284	317
4	1,260	804	912	826	777	808	395	386	390	366	349	359
5	903	828	853	822	526	749	392	387	390	374	360	366
6	843	792	821	526	445	482	389	385	387	377	350	361
7	3,310	781	1,700	524	470	489	424	213	309	350	132	306
8	5,050	1,710	3,560	568	524	551	344	235	307	238	156	190
9	6,450	5,050	6,100	563	517	542	389	186	260	312	201	245
10	6,450	4,580	5,880	537	480	491	324	216	270	296	143	192
11	4,580	3,130	3,850	508	485	497	396	255	288	258	178	221
12	3,130	2,640	2,910	548	506	521	354	269	315	306	258	287
13	2,640	2,240	2,390	555	526	536	380	354	372	328	299	309
14	2,240	1,920	2,100	634	519	587	382	364	376	345	328	337
15	2,400	1,480	1,840	579	520	549	382	372	377	421	181	337
16	2,360	2,100	2,180	541	519	531	393	381	384	199	110	143
17	2,600	2,280	2,500	539	511	521	405	387	392	282	199	240
18	2,530	2,150	2,290	524	516	520	427	369	392	285	144	204
19	3,170	2,180	2,580	524	516	520	402	235	273	277	178	227
20	3,670	2,990	3,350	571	138	342	337	288	308	310	277	298
21	2,990	1,800	2,610	351	186	278	372	337	359	350	124	234
22	1,800	233	784	403	346	385	385	372	376	250	150	205
23	445	314	366	407	385	398	522	374	400	318	250	287
24	557	343	436	414	387	407	536	391	441	314	302	309
25	582	522	547	412	407	409	402	380	386	335	307	319
26	780	521	575	459	332	396	397	206	292	358	96	160
27	2,030	780	1,380	373	331	346	271	221	241	277	184	235
28	4,330	2,030	3,030	375	333	349	367	271	311	307	163	237
29	---	---	---	454	338	378	382	364	369	267	176	222
30	---	---	---	418	221	307	448	354	375	321	267	305
31	---	---	---	335	245	290	---	---	---	365	98	289
MONTH	6,450	233	2,120	6,450	138	717	536	186	349	421	96	266

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	221	103	169	369	158	199	---	---	---	199	136	156
2	292	221	260	245	148	202	---	---	---	237	167	198
3	375	254	298	172	105	137	---	---	---	192	165	177
4	254	187	217	251	172	212	---	---	---	229	180	194
5	294	223	232	295	251	278	---	---	---	207	191	201
6	298	233	271	304	250	300	---	---	---	220	198	206
7	346	76	172	323	166	296	262	254	258	302	220	264
8	250	116	192	234	164	210	281	261	270	280	263	269
9	292	243	266	234	67	187	300	281	292	303	280	294
10	291	248	262	---	---	---	304	223	287	306	302	304
11	373	225	308	---	---	---	313	105	251	308	305	306
12	326	114	273	---	---	---	238	163	224	347	93	262
13	227	91	165	---	---	---	228	215	218	143	90	116
14	247	104	165	---	---	---	247	213	233	178	143	162
15	267	204	240	---	---	---	260	238	251	231	119	184
16	313	267	293	---	---	---	600	257	362	233	160	217
17	353	162	307	---	---	---	320	74	131	233	188	211
18	224	113	152	---	---	---	328	147	207	---	---	---
19	270	78	159	---	---	---	217	181	195	---	---	---
20	138	65	101	---	---	---	234	205	219	---	---	---
21	250	130	195	---	---	---	261	234	247	---	---	---
22	330	250	280	---	---	---	447	150	265	---	---	---
23	406	295	308	---	---	---	223	146	188	---	---	---
24	334	306	324	---	---	---	206	191	198	---	---	---
25	341	333	338	---	---	---	222	206	213	---	---	---
26	346	341	344	---	---	---	305	74	197	---	---	---
27	358	341	345	---	---	---	132	70	107	---	---	---
28	347	340	343	---	---	---	129	81	109	---	---	---
29	351	347	349	---	---	---	156	98	130	---	---	---
30	350	345	348	---	---	---	182	86	143	---	---	---
31	---	---	---	---	---	---	136	111	120	---	---	---
MONTH	406	65	256	---	---	---	600	70	213	---	---	---



DAILY MEAN SPECIFIC CONDUCTANCE - 2003 WATER YEAR

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

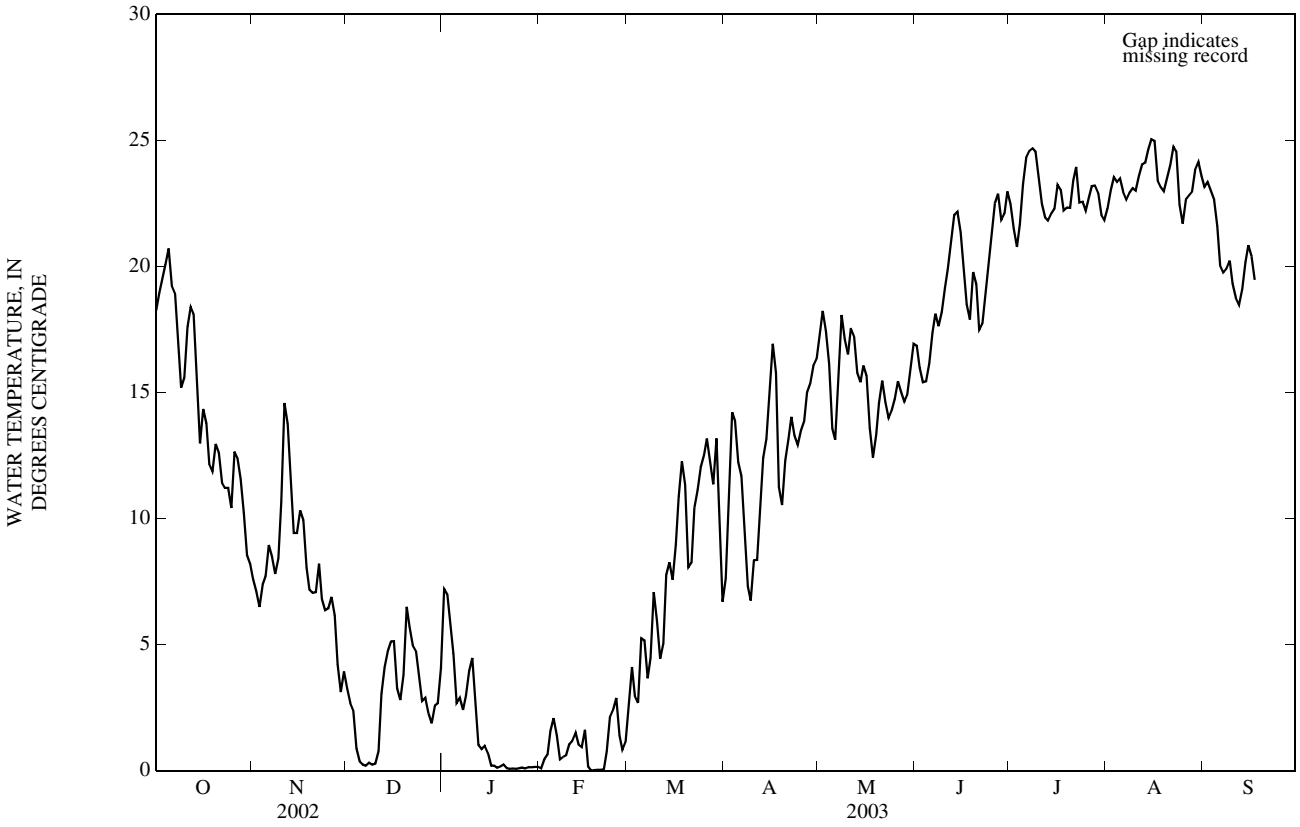
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.2	17.7	18.3	8.5	6.6	7.6	4.1	2.4	3.3	8.4	5.0	7.2
2	19.3	18.7	19.0	7.9	6.4	7.1	3.8	1.5	2.7	7.8	6.5	7.0
3	19.8	19.3	19.6	7.6	5.5	6.5	3.4	1.2	2.4	6.5	5.1	5.9
4	20.5	19.8	20.1	8.6	6.5	7.4	1.2	0.4	0.9	5.2	3.7	4.6
5	21.0	20.5	20.7	8.5	7.1	7.7	1.0	0.1	0.4	3.7	2.1	2.7
6	20.7	18.7	19.2	9.5	8.2	8.9	0.6	0.0	0.2	3.5	2.2	2.9
7	19.1	18.5	18.9	8.9	7.7	8.5	0.6	0.0	0.2	3.2	1.7	2.4
8	18.5	15.7	16.8	9.1	6.7	7.8	0.7	0.0	0.3	4.1	2.1	3.0
9	15.7	14.9	15.2	9.7	7.2	8.4	0.6	0.0	0.2	5.3	2.8	3.9
10	17.0	15.4	15.6	12.2	9.3	10.7	0.7	0.0	0.3	5.2	4.0	4.5
11	18.5	16.5	17.6	15.9	12.2	14.6	1.9	0.1	0.8	4.1	1.8	2.8
12	18.8	18.1	18.4	15.2	12.5	13.8	4.4	1.9	3.0	1.8	0.3	1.0
13	18.4	17.5	18.1	12.5	9.8	11.5	4.5	4.0	4.1	2.0	0.0	0.9
14	17.5	14.0	15.7	10.6	8.3	9.4	5.3	4.0	4.7	1.5	0.4	1.0
15	14.0	12.1	13.0	10.4	8.6	9.4	5.8	4.4	5.1	1.5	0.0	0.7
16	14.8	13.5	14.3	11.0	9.4	10.3	6.0	4.2	5.1	0.5	0.0	0.2
17	14.4	13.1	13.8	10.7	8.8	9.9	4.2	2.6	3.3	0.6	0.0	0.2
18	13.1	11.2	12.2	8.8	7.4	8.1	3.5	2.4	2.8	0.4	0.0	0.1
19	12.9	11.1	11.9	7.9	6.3	7.2	4.9	2.9	3.8	0.6	0.0	0.2
20	13.2	12.8	13.0	8.3	5.9	7.1	7.8	4.9	6.5	0.8	0.0	0.2
21	13.3	12.1	12.6	7.7	6.4	7.1	6.5	4.9	5.7	0.5	0.0	0.1
22	12.3	10.5	11.4	8.7	7.5	8.2	5.9	4.0	5.0	0.4	0.0	0.1
23	12.3	10.2	11.2	7.5	5.9	6.8	5.6	3.9	4.8	0.4	0.0	0.1
24	11.9	10.7	11.2	7.5	5.2	6.4	4.3	2.8	3.7	0.3	0.0	0.1
25	12.5	9.9	10.4	7.7	5.2	6.4	3.1	2.2	2.8	0.4	0.0	0.1
26	13.4	11.3	12.7	7.3	6.5	6.9	3.7	2.4	2.9	0.4	0.0	0.1
27	13.2	11.6	12.4	6.8	5.0	6.2	3.1	1.7	2.3	0.4	0.0	0.1
28	12.1	11.3	11.6	5.0	3.5	4.2	2.7	0.9	1.9	0.5	0.0	0.1
29	11.3	8.9	10.2	3.7	2.4	3.1	3.6	1.7	2.6	0.3	0.1	0.1
30	8.9	8.2	8.5	4.9	3.2	3.9	3.6	1.6	2.7	0.3	0.1	0.2
31	8.6	7.7	8.2	---	---	---	5.2	3.1	4.1	0.3	0.0	0.1
MONTH	21.0	7.7	14.6	15.9	2.4	8.0	7.8	0.0	2.9	8.4	0.0	1.7
		FEBRUARY			MARCH			APRIL			MAY	
1	0.2	0.0	0.1	3.4	2.1	2.8	13.5	5.6	7.6	18.9	16.0	17.3
2	1.3	0.1	0.4	5.3	3.2	4.1	14.0	7.9	10.9	19.5	16.9	18.2
3	1.4	0.0	0.6	4.1	1.9	3.0	17.1	11.4	14.2	18.7	16.4	17.4
4	2.5	0.8	1.6	4.4	1.2	2.7	15.3	13.0	13.9	17.3	15.3	16.1
5	3.5	1.3	2.1	7.1	3.5	5.3	13.1	11.6	12.2	15.3	12.8	13.6
6	2.4	0.6	1.4	6.2	4.0	5.2	13.9	9.7	11.7	13.8	12.6	13.1
7	1.0	0.0	0.4	4.7	2.7	3.7	11.9	7.6	9.2	19.9	13.1	15.5
8	1.9	0.0	0.5	6.5	2.4	4.5	7.6	7.1	7.3	18.8	17.5	18.1
9	1.8	0.0	0.6	9.3	5.6	7.1	7.1	6.4	6.7	17.8	16.6	17.1
10	1.5	0.8	1.1	7.5	4.6	6.0	10.4	6.9	8.4	16.9	15.9	16.5
11	2.4	0.0	1.2	5.8	3.4	4.4	9.1	8.1	8.4	18.8	16.6	17.6
12	3.2	0.6	1.5	6.5	3.3	5.0	13.6	8.2	10.5	18.3	16.3	17.2
13	2.6	0.0	1.0	9.9	5.7	7.8	15.0	10.1	12.4	16.5	15.2	15.8
14	2.0	0.0	0.9	9.8	7.0	8.3	15.8	10.6	13.2	17.3	13.6	15.4
15	2.0	1.3	1.6	9.8	5.5	7.6	17.8	12.2	14.9	17.4	14.8	16.1
16	1.3	0.0	0.2	10.4	7.2	9.0	19.0	14.8	16.9	17.5	14.6	15.7
17	0.0	0.0	0.0	11.6	10.1	10.9	18.1	13.3	15.8	14.6	12.8	13.6
18	0.1	0.0	0.0	14.0	10.9	12.3	13.3	10.0	11.3	12.8	12.1	12.4
19	0.2	0.0	0.0	12.5	10.0	11.4	11.9	9.6	10.5	15.1	11.6	13.3
20	0.2	0.0	0.0	10.0	7.1	8.1	14.6	10.0	12.3	16.3	12.8	14.6
21	0.2	0.0	0.1	9.3	7.4	8.2	14.3	11.8	13.2	16.1	14.9	15.5
22	1.8	0.0	0.8	12.4	8.5	10.4	18.0	13.2	14.0	15.3	14.2	14.6
23	2.9	1.2	2.1	12.5	9.6	11.1	15.6	11.5	13.3	14.2	13.8	14.0
24	3.8	1.2	2.4	14.3	10.1	12.0	15.2	10.5	12.9	15.0	13.7	14.3
25	3.5	2.1	2.9	14.9	10.2	12.5	14.9	11.9	13.5	15.1	14.4	14.7
26	2.1	0.9	1.4	15.5	11.9	13.2	14.3	13.3	13.9	16.0	14.9	15.4
27	1.3	0.2	0.8	14.6	10.2	12.3	17.4	13.1	15.0	15.6	14.5	15.0
28	2.2	0.2	1.1	12.1	10.5	11.4	17.9	12.8	15.4	15.3	14.1	14.6
29	---	---	---	15.4	11.5	13.2	17.5	14.6	16.1	15.5	14.2	14.9
30	---	---	---	13.8	6.1	9.6	17.8	14.6	16.3	17.9	14.2	16.0
31	---	---	---	8.6	5.1	6.7	---	---	---	18.1	16.2	16.9
MONTH	3.8	0.0	1.0	15.5	1.2	8.1	19.0	5.6	12.4	19.9	11.6	15.5

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	17.9	16.1	16.9	23.4	21.7	22.5	22.7	22.0	22.3	24.4	22.2	23.1
2	17.5	14.5	16.0	22.3	21.0	21.5	24.1	22.3	23.0	23.8	23.0	23.3
3	16.3	15.0	15.4	21.2	20.6	20.8	24.6	22.9	23.5	23.2	22.7	23.0
4	15.8	15.1	15.4	23.4	20.1	21.7	24.0	22.9	23.4	22.9	22.4	22.7
5	17.7	14.8	16.2	25.0	21.7	23.3	24.6	22.9	23.5	22.4	20.8	21.6
6	19.1	15.8	17.4	26.0	22.9	24.3	24.3	21.8	23.0	21.0	19.0	20.0
7	19.6	17.1	18.1	26.1	23.3	24.6	23.0	22.3	22.7	21.1	18.5	19.8
8	18.5	17.2	17.6	25.7	23.9	24.7	24.0	22.0	22.9	20.7	19.0	19.9
9	19.5	17.1	18.2	26.2	23.4	24.6	23.4	22.8	23.1	21.3	19.6	20.2
10	20.8	17.6	19.1	24.8	23.0	23.6	23.7	22.4	23.0	20.6	18.4	19.3
11	21.3	19.0	19.9	23.0	22.0	22.5	24.5	22.8	23.6	20.5	17.6	18.8
12	23.1	19.6	21.1	23.2	20.7	22.0	25.2	23.1	24.0	18.9	18.2	18.5
13	22.8	21.4	22.1	23.2	20.6	21.8	25.2	23.3	24.1	20.0	18.4	19.1
14	23.3	21.3	22.2	23.4	20.9	22.1	26.2	23.4	24.6	20.7	19.7	20.2
15	21.8	20.9	21.4	23.6	21.0	22.3	26.6	24.0	25.0	22.0	19.9	20.8
16	20.9	19.5	20.1	24.8	22.1	23.2	26.8	24.2	25.0	21.5	19.6	20.4
17	19.5	17.6	18.5	24.6	21.7	23.0	24.5	22.5	23.4	20.9	18.0	19.5
18	18.7	17.3	17.9	23.1	21.2	22.2	24.1	22.4	23.1	---	---	---
19	21.5	18.2	19.8	23.7	21.5	22.3	24.2	21.9	23.0	---	---	---
20	21.4	18.3	19.3	23.9	20.9	22.3	24.9	22.4	23.5	---	---	---
21	18.3	17.1	17.5	25.1	22.1	23.4	25.7	22.9	24.0	---	---	---
22	18.9	16.7	17.7	25.0	23.0	23.9	26.4	23.7	24.8	---	---	---
23	20.7	17.4	19.0	23.1	22.0	22.5	25.8	23.4	24.6	---	---	---
24	22.1	18.7	20.3	23.5	21.8	22.6	23.8	21.3	22.5	---	---	---
25	23.2	19.7	21.4	23.7	20.9	22.2	23.7	20.3	21.7	---	---	---
26	24.3	20.9	22.5	24.5	21.2	22.7	24.4	21.6	22.7	---	---	---
27	24.0	21.9	22.9	24.1	22.4	23.2	23.6	22.3	22.8	---	---	---
28	23.0	20.8	21.9	23.6	22.5	23.2	23.9	22.0	23.0	---	---	---
29	23.5	20.7	22.1	23.8	22.4	22.9	24.9	22.9	23.8	---	---	---
30	24.5	21.6	23.0	22.7	21.4	22.0	25.6	23.0	24.1	---	---	---
31	---	---	---	22.4	21.3	21.8	24.8	22.8	23.6	---	---	---
MONTH	24.5	14.5	19.4	26.2	20.1	22.8	26.8	20.3	23.5	---	---	---

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA—Continued



DAILY MEAN WATER TEMPERATURE - 2003 WATER YEAR

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD

LOCATION.--Lat 38°35'46.1", long 77°03'21.7", Charles County, Hydrologic Unit 02070010, on bank at left downstream side of bridge on State Highway 227, 30 ft downstream from Old Womans Run, 1.2 mi southeast of Pomonkey, and 12.6 mi upstream from mouth.

DRAINAGE AREA.--57.7 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1949 to September 1972, January 2001 to current year.

REVISED RECORDS.--WDR MD-DE-02-1.

GAGE.--Water-stage recorder and concrete control. Datum of gage 40 feet above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Water-discharge records good except those for estimated daily discharges (missing record), which are fair. Low flow affected by groundwater diversions from municipal well fields Waldorf and St. Charles. U.S. Geological Survey gage-height telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 12	1900	423	5.05
Dec 22	0045	560	5.29
Dec 26	1915	685	5.47
Jan 2	1915	723	5.52
Feb 23	1600	*2,190	*6.69
Mar 3	1245	739	5.54
Mar 21	1930	892	5.72
May 17	0130	1,090	5.92
May 27	0545	968	5.80
Jun 1	0115	493	5.18
Jun 8	1830	593	5.34
Jun 20	2230	856	5.68
Jul 4	0745	700	5.49
Sep 20	0030	1,040	5.87
Sep 24	1015	663	5.44

Minimum discharge, 0.00 ft^3/s, Oct. 1-17.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	53	25	194	38	141	129	24	370	37	6.1	16
2	0.00	25	23	655	39	382	94	29	167	47	6.6	20
3	0.00	16	e21	566	33	697	80	22	92	364	5.8	107
4	0.00	11	e20	355	42	421	69	15	98	550	11	190
5	0.00	7.4	e22	213	57	233	62	13	105	157	7.4	129
6	0.00	38	e23	120	39	308	55	21	77	76	30	57
7	0.00	59	e22	105	35	302	95	35	228	57	21	31
8	0.00	27	e24	92	37	184	174	211	507	57	11	18
9	0.00	19	e26	83	37	137	228	142	356	59	7.9	11
10	0.00	15	e27	72	38	110	320	110	149	106	14	6.9
11	0.00	20	97	59	37	92	212	127	92	91	18	5.1
12	0.00	85	341	50	36	84	173	105	75	55	10	27
13	0.00	175	292	46	31	85	124	63	105	36	6.2	141
14	0.00	88	358	45	29	78	97	47	122	30	4.8	88
15	0.00	49	336	41	79	69	81	39	238	27	3.8	83
16	0.00	52	139	33	79	64	71	369	110	20	4.7	131
17	61	265	84	35	55	65	61	758	77	13	96	60
18	43	370	65	33	87	63	56	240	221	9.1	54	109
19	23	219	58	33	89	54	66	212	234	8.1	21	742
20	8.7	87	118	30	101	255	60	121	491	7.5	11	710
21	2.5	60	367	29	140	776	54	104	684	6.2	6.7	150
22	2.6	50	319	24	799	536	51	165	307	5.0	3.9	75
23	4.8	40	104	24	1,830	181	43	141	124	5.7	2.4	337
24	2.8	33	77	17	1,180	119	34	148	78	5.4	1.4	577
25	1.7	29	276	17	596	94	32	143	57	3.7	0.70	239
26	9.7	30	592	18	317	84	53	543	46	2.6	1.00	89
27	42	30	348	17	196	107	53	825	56	1.9	40	66
28	36	28	112	15	154	86	39	322	133	2.5	35	64
29	32	27	84	20	---	79	32	191	69	16	21	47
30	87	27	70	25	---	122	25	138	47	16	16	34
31	103	---	62	26	---	213	---	134	---	7.9	21	---
TOTAL	459.80	2,034.4	4,532	3,092	6,230	6,221	2,723	5,557	5,515	1,879.6	499.40	4,360.0
MEAN	14.8	67.8	146	99.7	222	201	90.8	179	184	60.6	16.1	145
MAX	103	370	592	655	1,830	776	320	825	684	550	96	742
MIN	0.00	7.4	20	15	29	54	25	13	46	1.9	0.70	5.1
CFSM	0.27	1.24	2.67	1.82	4.06	3.66	1.66	3.27	3.35	1.11	0.29	2.65
IN.	0.31	1.38	3.08	2.10	4.23	4.22	1.85	3.77	3.74	1.28	0.34	2.96

e Estimated

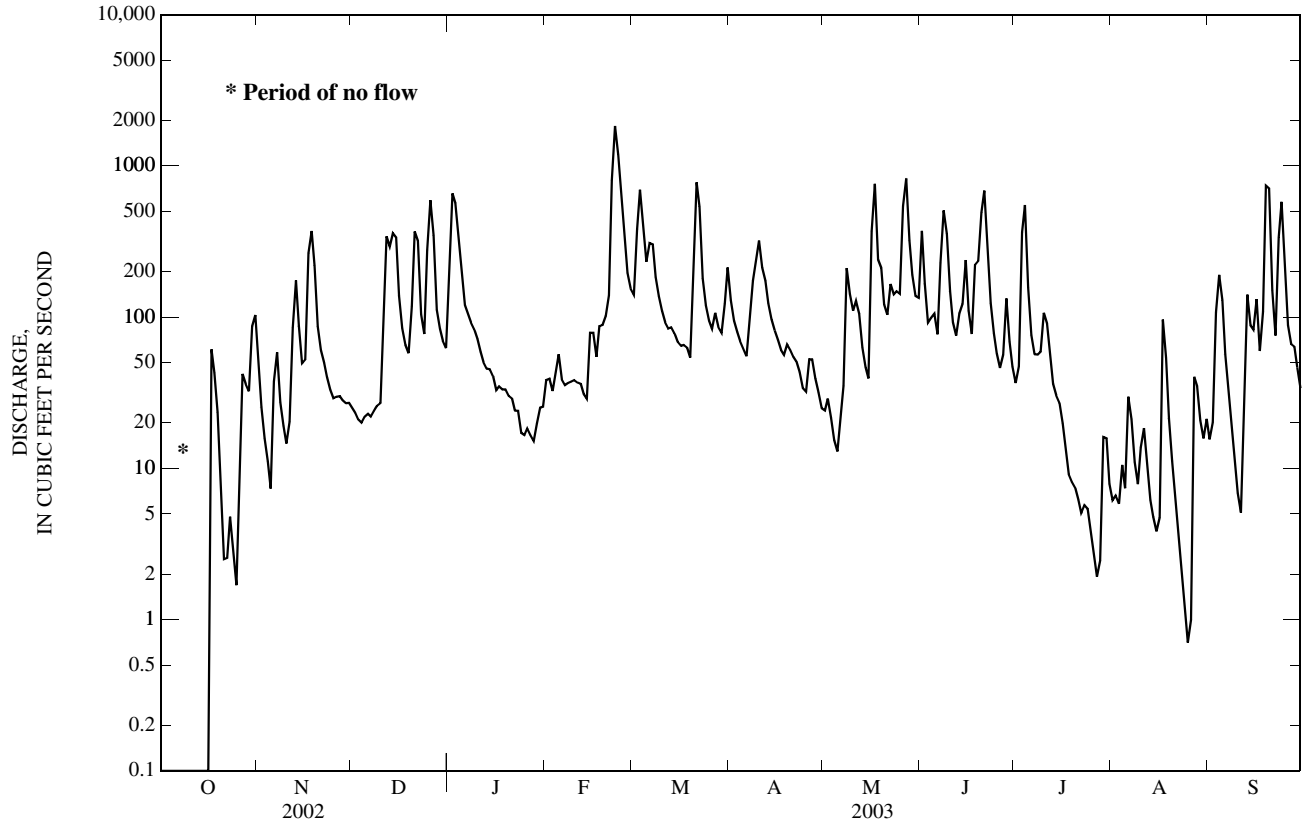
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1972, 2001 - 2003, BY WATER YEAR (WY)

MEAN	19.5	33.9	62.1	73.3	108	124	85.1	46.9	38.8	13.8	27.6	20.3
MAX	142	101	188	151	276	305	203	179	325	60.6	411	145
(WY)	(1956)	(1953)	(1958)	(1952)	(1961)	(1958)	(1970)	(2003)	(1972)	(2003)	(1955)	(2003)
MIN	0.000	0.023	3.28	11.4	7.38	32.2	29.6	7.16	0.35	0.000	0.000	0.000
(WY)	(1955)	(1955)	(1966)	(1955)	(2002)	(2002)	(1950)	(1957)	(2002)	(1957)	(1954)	(1954)

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1950 - 1972, 2001- 2003	
ANNUAL TOTAL	10,259.33		43,103.20			
ANNUAL MEAN	28.1		118		55.0	
HIGHEST ANNUAL MEAN					118	2003
LOWEST ANNUAL MEAN					9.34	2002
HIGHEST DAILY MEAN	592	Dec 26	1,830	Feb 23	5,610	Aug 13, 1955
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 23	0.00	Oct 1	0.00	Jun 29, 1950
MAXIMUM PEAK FLOW			2,190	Feb 23	(c)9,300	Aug 13, 1955
MAXIMUM PEAK STAGE			6.69	Feb 23	7.52	Aug 13, 1955
INSTANTANEOUS LOW FLOW			0.00	(d)	0.00	(f)
ANNUAL RUNOFF (CFSM)	0.51		2.15		1.00	
ANNUAL RUNOFF (INCHES)	6.96		29.26		13.64	
10 PERCENT EXCEEDS	62		319		125	
50 PERCENT EXCEEDS	8.1		57		22	
90 PERCENT EXCEEDS	0.00		5.6		0.00	

a Many days.
b Oct. 1-16.
c From rating curve extended above 6,000 ft^3/s for the period 1950-1972.
d Oct. 1-17.
f No flow at times in each year.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961, 1964, 2001 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
OCT												
17...	0330	Environmental	34	--	--	--	--	--	--	--	0.53	0.72
17...	0530	Environmental	59	--	--	--	--	--	--	--	0.40	0.56
17...	0900	Environmental	75	--	--	--	--	--	--	--	0.45	0.66
17...	*1010*	*Other QA*	--	--	*8.6*	--	*6.2*	*142*	--	*13.7*	--	--
17...	*1012*	*Other QA*	--	--	*8.7*	--	*6.1*	*142*	--	*13.7*	--	--
17...	*1014*	*Other QA*	--	--	*8.7*	--	*6.1*	*141*	--	*13.7*	--	--
17...	*1016*	*Other QA*	--	--	*8.9*	--	*6.1*	*141*	--	*8.9*	--	--
17...	*1018*	*Other QA*	--	--	*8.9*	--	*6.1*	*141*	--	*13.7*	--	--
17...	2100	Environmental	65	--	--	--	--	--	--	--	0.36	0.48
18...	0900	Environmental	28	--	--	--	--	--	--	--	0.37	0.47
31...	1100	Environmental	106	763	10.4	90	6.0	141	6.0	8.8	0.31	0.41
NOV												
11...	0715	Environmental	15	--	--	--	--	--	--	--	0.24	0.27
11...	1915	Environmental	28	--	--	--	--	--	--	--	--	0.29
12...	0715	Environmental	58	--	--	--	--	--	--	--	0.24	0.32
12...	1315	Environmental	82	763	8.5	83	5.9	152	15.0	13.9	0.25	0.36
12...	*1316*	*Replicate*	--	--	--	--	--	--	--	--	*0.28*	*0.45*
12...	1915	Environmental	127	--	--	--	--	--	--	--	0.33	0.46
13...	0715	Environmental	178	--	--	--	--	--	--	--	0.35	0.44
13...	1915	Environmental	175	--	--	--	--	--	--	--	0.36	0.48
14...	0715	Environmental	96	--	--	--	--	--	--	--	0.34	0.41
26...	*1025*	*Blank*	--	--	--	--	--	--	--	--	*<0.10*	*<0.10*
26...	1030	Environmental	27	768	10.7	88	6.1	140	14.0	6.9	0.22	0.31
DEC												
10...	1445	Environmental	28	768	12.7	89	6.3	137	0.0	1.1	0.18	0.26
11...	1230	Environmental	42	--	--	--	--	--	--	--	0.16	0.24
11...	1830	Environmental	208	--	--	--	--	--	--	--	0.35	0.97
12...	0030	Environmental	253	--	--	--	--	--	--	--	0.32	0.56
12...	*0035*	*Replicate*	--	--	--	--	--	--	--	--	*0.32*	--
12...	0630	Environmental	288	--	--	--	--	--	--	--	0.32	0.48
12...	1230	Environmental	338	--	--	--	--	--	--	--	0.34	0.42
12...	1830	Environmental	413	--	--	--	--	--	--	--	0.34	0.44
13...	0630	Environmental	328	--	--	--	--	--	--	--	0.28	0.37
13...	*1031*	*Other QA*	--	--	*10.8*	--	*6.0*	*215*	--	*3.4*	--	--
13...	*1032*	*Other QA*	--	--	*10.9*	--	*5.8*	*222*	--	*3.1*	--	--
13...	*1033*	*Other QA*	--	--	*10.7*	--	*5.8*	*231*	--	*3.0*	--	--
13...	*1034*	*Other QA*	--	--	*10.8*	--	*5.9*	*234*	--	*3.0*	--	--
13...	*1035*	*Other QA*	--	--	*11.0*	--	*5.8*	*234*	--	*3.0*	--	--
13...	*1036*	*Other QA*	--	--	*10.8*	--	*5.8*	*234*	--	*3.0*	--	--
13...	*1037*	*Other QA*	--	--	*11.0*	--	*5.8*	*233*	--	*3.0*	--	--
13...	*1038*	*Other QA*	--	--	*10.9*	--	*5.8*	*234*	--	*3.0*	--	--
13...	*1039*	*Other QA*	--	--	*10.8*	--	*5.8*	*234*	--	*3.0*	--	--
13...	*1040*	*Other QA*	--	--	*10.6*	--	*5.8*	*233*	--	*3.0*	--	--
13...	*1045*	*Other QA*	--	--	--	--	--	--	--	--	*0.27*	*0.38*
13...	*1050*	*Other QA*	--	--	--	--	--	--	--	--	*0.29*	*0.38*
13...	1135	Environmental	255	764	11.0	--	5.8	234	--	3.0	0.28	0.37
13...	2100	Environmental	262	--	--	--	--	--	--	--	0.29	0.42
14...	0500	Environmental	341	--	--	--	--	--	--	--	0.35	0.48
14...	2100	Environmental	391	--	--	--	--	--	--	--	0.32	0.36
15...	2100	Environmental	243	--	--	--	--	--	--	--	0.30	0.33
16...	1100	Environmental	136	--	--	--	--	--	--	--	0.26	0.31
20...	2230	Environmental	211	--	--	--	--	--	--	--	0.27	0.51
21...	1030	Environmental	325	--	--	--	--	--	--	--	0.34	0.47
22...	0430	Environmental	511	--	--	--	--	--	--	--	0.35	0.42
22...	1630	Environmental	190	--	--	--	--	--	--	--	0.28	0.33
JAN												
28...	1215	Environmental	17	767	13.1	89	6.2	174	2.0	0.1	0.13	0.18
FEB												
20...	1115	Environmental	96	770	16.4	111	6.0	396	9.0	0.0	0.18	0.27

Other QA -- Cross-section variability measurements

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)
OCT													
17...	0.036	0.30	0.310	0.007	0.50	0.68	0.016	0.033	0.101	0.84	1.0	--	21
17...	0.019	0.21	0.219	0.004	0.38	0.54	0.015	0.028	0.090	0.62	0.78	--	15
17...	0.015	0.28	0.288	0.004	0.44	0.64	0.016	0.032	0.104	0.74	0.95	--	16
17...	--	--	--	--	--	--	--	--	--	--	--	--	*16*
17...	--	--	--	--	--	--	--	--	--	--	--	--	*17*
17...	--	--	--	--	--	--	--	--	--	--	--	--	*18*
17...	--	--	--	--	--	--	--	--	--	--	--	--	*21*
17...	--	--	--	--	--	--	--	--	--	--	--	--	*20*
17...	<0.015	0.35	0.358	0.003	--	--	0.009	0.020	0.071	0.72	0.84	--	7
18...	<0.015	0.26	0.264	0.003	--	--	0.009	0.020	0.056	0.63	0.74	--	4
31...	E.010	--	0.238	E.002	--	--	0.008	0.020	0.057	0.55	0.65	--	12
NOV													
11...	<0.015	--	<0.022	<0.002	--	--	E.006	0.012	0.027	--	--	88	4
11...	--	--	--	--	--	--	--	--	0.041	--	--	--	4
12...	<0.015	--	<0.022	<0.002	--	--	0.010	0.018	0.040	--	--	--	6
12...	<0.015	--	<0.022	E.002	--	--	0.015	0.023	0.050	--	--	85	7
12...	*<0.015*	--	*<0.022*	*<0.002*	--	--	*0.014*	*0.024*	*0.056*	--	--	*88*	*7*
12...	<0.015	0.04	0.039	0.003	--	--	0.010	0.024	0.075	0.37	0.50	83	17
13...	<0.015	0.03	0.033	0.003	--	--	0.014	0.032	0.088	0.38	0.48	75	20
13...	<0.015	--	E.019	E.002	--	--	0.015	0.031	0.075	--	--	--	14
14...	<0.015	--	0.031	E.002	--	--	0.009	0.025	0.052	0.37	0.44	--	149
26...	*<0.015*	--	*<0.022*	*<0.002*	--	--	*<0.007*	*<0.004*	*<0.004*	--	--	--	*0.3*
26...	E.009	--	0.150	<0.002	--	--	E.004	0.011	0.019	0.37	0.46	--	2
DEC													
10...	<0.015	--	0.192	<0.002	--	--	E.004	0.008	0.015	0.37	0.45	--	2
11...	0.015	0.39	0.391	0.003	0.14	0.22	E.005	0.010	0.026	0.55	0.63	--	12
11...	0.055	0.61	0.611	0.005	0.29	0.91	0.014	0.026	0.170	0.96	1.6	56	175
12...	0.034	0.51	0.513	0.004	0.29	0.52	0.019	0.033	0.089	0.83	1.1	33	65
12...	*0.033*	*0.51*	*0.509*	*0.004*	*0.29*	--	*0.020*	*0.032*	*0.090*	*0.83*	--	*49*	*58*
12...	0.031	0.48	0.485	0.004	0.29	0.45	0.017	0.033	0.081	0.80	0.96	37	44
12...	0.019	0.45	0.451	0.004	0.32	0.40	0.017	0.029	0.070	0.79	0.88	--	--
12...	E.012	0.45	0.456	0.003	--	--	0.017	0.028	0.063	0.79	0.90	--	--
13...	E.008	0.47	0.470	0.003	--	--	0.011	0.023	0.049	0.75	0.84	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--	*10*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*10*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*10*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*9*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*9*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*16*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*10*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*8*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*9*
13...	--	--	--	--	--	--	--	--	--	--	--	--	*10*
13...	*E.009*	--	*0.383*	*E.002*	--	--	*0.009*	*0.019*	*0.041*	*0.66*	*0.77*	--	--
13...	*E.009*	--	*0.378*	*E.002*	--	--	*0.009*	*0.019*	*0.045*	*0.67*	*0.76*	--	--
13...	E.009	--	0.490	E.002	--	--	0.010	0.019	0.043	0.77	0.86	--	--
13...	<0.015	0.67	0.675	0.003	--	--	0.008	0.017	0.058	0.97	1.1	54	38
14...	<0.015	0.60	0.601	0.003	--	--	0.012	0.023	0.079	0.95	1.1	40	67
14...	<0.015	--	0.502	E.002	--	--	0.009	0.020	0.048	0.82	0.87	52	18
15...	<0.015	--	0.425	E.002	--	--	0.007	0.016	0.035	0.73	0.75	--	11
16...	E.009	--	0.419	E.002	--	--	E.005	0.013	0.026	0.68	0.73	--	6
20...	<0.015	0.44	0.441	0.003	--	--	0.008	0.018	0.099	0.71	0.95	41	93
21...	<0.015	--	0.345	E.002	--	--	0.011	0.020	0.081	0.68	0.81	44	43
22...	<0.015	--	0.264	E.002	--	--	0.012	0.022	0.066	0.61	0.68	33	21
22...	<0.015	--	0.334	E.002	--	--	0.007	0.014	0.037	0.61	0.66	44	15
JAN													
28...	<0.015	--	0.578	<0.002	--	--	<0.007	0.007	0.012	0.71	0.76	--	--
FEB													
20...	0.023	--	0.385	<0.002	0.16	0.25	<0.007	0.005	0.018	0.56	0.66	--	9

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Suspended sediment load, tons/d (80155)
OCT	
17...	1.9
17...	2.3
17...	3.2
17...	--
17...	--
17...	--
17...	--
17...	--
17...	1.2
18...	0.27
31...	3.3
NOV	
11...	0.16
11...	0.29
12...	0.97
12...	1.5
12...	--
12...	5.8
13...	9.6
13...	6.7
14...	39
26...	--
26...	0.15
DEC	
10...	0.14
11...	1.3
11...	98
12...	44
12...	--
12...	34
12...	--
12...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	--
13...	27
14...	62
14...	19
15...	7.3
16...	2.4
20...	53
21...	38
22...	29
22...	7.7
JAN	
28...	--
FEB	
20...	2.3

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)
MAR												
04...	1030	Environmental	438	--	--	--	--	--	3.5	2.0	0.18	0.25
19...	1145	Environmental	53	767	10.3	94	6.3	176	13.0	11.7	0.18	0.22
20...	0830	Environmental	56	--	10.9	--	6.2	148	--	8.2	0.18	0.25
20...	1430	Environmental	181	--	11.3	--	6.0	111	--	7.5	0.23	0.72
20...	2030	Environmental	670	--	10.8	--	5.8	60	--	8.3	0.43	0.99
21...	0230	Environmental	634	--	10.5	--	5.8	82	--	7.9	0.37	0.61
21...	1030	Environmental	771	--	10.3	--	5.8	99	--	8.2	0.34	0.55
21...	2230	Environmental	874	--	9.7	--	5.7	115	--	9.4	0.33	0.50
22...	1030	Environmental	580	--	9.9	--	5.8	113	--	9.6	0.25	0.33
22...	2230	Environmental	279	--	9.2	--	5.8	120	--	12.1	0.30	0.43
23...	1030	Environmental	177	--	10.1	--	6.0	120	--	10.2	0.23	0.40
APR												
03...	1045	Environmental	80	759	9.3	90	6.1	145	23.0	13.6	0.25	0.32
MAY												
13...	1130	Environmental	64	759	8.3	86	6.6	130	23.0	16.7	0.48	0.75
JUN												
03...	1300	Environmental	89	760	8.1	81	6.6	109	20.0	15.6	0.39	0.47
JUL												
01...	1000	Environmental	34	766	8.2	95	6.8	102	28.0	22.7	0.43	0.48
24...	0900	Environmental	6.5	767	7.2	84	6.9	117	28.0	23.0	0.38	0.42
AUG												
21...	0915	Environmental	7.5	770	7.6	88	6.9	129	28.0	23.5	0.37	0.49
21...	*0920*	*Replicate*	--	--	--	--	--	--	--	--	*0.34*	*0.46*

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrate water, fltrd, mg/L as N (00618)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Organic nitrogen, water, fltrd, mg/L (00607)	Organic nitrogen, water, unfltrd mg/L (00605)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)	Total nitrogen, water, unfltrd mg/L (00600)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)
MAR													
04...	E.008	--	0.476	<0.002	--	--	<0.007	0.008	0.023	0.66	0.72	--	11
19...	<0.015	--	0.232	<0.002	--	--	<0.007	0.005	0.017	0.42	0.45	--	6
20...	<0.015	--	0.398	E.002	--	--	<0.007	0.006	0.019	0.58	0.65	--	5
20...	0.019	--	0.596	E.002	0.21	0.70	E.004	0.011	0.157	0.83	1.3	53	342
20...	0.055	0.40	0.404	0.003	0.37	0.94	0.017	0.032	0.25	0.83	1.4	52	398
21...	0.026	0.37	0.372	0.003	0.35	0.59	0.011	0.023	0.098	0.74	0.98	61	97
21...	0.017	0.34	0.346	0.003	0.32	0.53	0.011	0.021	0.075	0.69	0.89	57	35
21...	E.011	--	0.300	E.002	--	--	0.009	0.019	0.061	0.63	0.80	--	21
22...	<0.015	--	0.269	E.002	--	--	E.005	0.012	0.036	0.52	0.59	--	16
22...	<0.015	--	0.279	E.002	--	--	0.007	0.015	0.045	0.58	0.71	--	13
23...	E.008	--	0.300	<0.002	--	--	E.006	0.011	0.032	0.53	0.70	--	13
APR													
03...	<0.015	--	0.148	<0.002	--	--	<0.007	0.010	0.027	0.40	0.47	--	6
MAY													
13...	0.082	0.10	0.107	0.005	0.40	0.66	0.015	0.027	0.081	0.59	0.85	--	--
JUN													
03...	0.040	0.20	0.202	0.006	0.35	0.43	0.013	0.022	0.062	0.59	0.67	85	9
JUL													
01...	0.027	0.20	0.200	0.005	0.41	0.45	0.016	0.028	0.076	0.63	0.68	--	6
24...	E.011	--	0.226	E.002	--	--	0.011	0.022	0.072	0.60	0.64	--	3
AUG													
21...	E.009	--	0.130	E.002	--	--	0.009	0.021	0.059	0.50	0.62	--	3
21...	*E.008*	--	*0.131*	*E.002*	--	--	*0.007*	*0.017*	*0.060*	*0.47*	*0.59*	--	*2*

01658000 MATTAWOMAN CREEK NEAR POMONKEY, MD—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Suspended sediment load, tons/d (80155)
MAR	
04...	13
19...	0.80
20...	0.74
20...	167
20...	720
21...	166
21...	73
21...	50
22...	25
22...	9.9
23...	6.4
APR	
03...	1.2
MAY	
13...	23
JUN	
03...	2.2
JUL	
01...	0.59
24...	0.05
AUG	
21...	0.05
21...	--

Remark codes used in this table:
< -- Less than
E -- Estimated value

Photo by U.S. Geological Survey Personnel

Mattawoman Creek near Pomonkey, MD (01658000)

01660920 ZEKIAH SWAMP RUN NEAR NEWTOWN, MD

LOCATION.--Lat 38°29'26.1", long 76°55'37.5", Charles County, Hydrologic Unit 02070011, on left-center downstream side of bridge on State Highway 6, 1.0 mi southeast of Newtown, and 1.7 mi downstream from Kerrick Swamp.

DRAINAGE AREA.--79.9 mi^2.

PERIOD OF RECORD.--June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 34.88 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect and missing record), which are fair. Low flow affected by ground-water diversions from municipal well fields at Waldorf and St. Charles, and occasional farm irrigation upstream from station during summer months. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 23	----	*2,050	*4.71	Jun 21	0445	718	3.74
Mar 21	1815	893	3.93	Jul 3	1530	770	3.80
May 27	0145	1,100	4.12	Sep 20	0615	825	3.86
Jun 2	0015	709	3.73	Sep 24	0300	718	3.74

Minimum discharge, 0.00 ft^3/s, Oct. 1-14.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	69	30	154	94	222	254	63	372	67	45	65
2	0.00	38	29	364	100	329	189	67	508	72	e84	46
3	0.00	22	26	396	82	640	163	59	217	585	e68	120
4	0.00	15	25	366	103	464	138	51	185	571	e62	155
5	0.00	12	25	284	144	311	122	45	199	299	42	212
6	0.00	47	26	208	105	351	117	56	162	153	54	133
7	0.00	82	27	183	94	351	157	102	181	112	66	65
8	0.00	63	28	166	88	332	289	364	480	118	49	41
9	0.00	37	33	152	90	262	318	341	415	98	44	30
10	0.00	25	35	125	80	204	408	231	247	e104	62	22
11	0.00	32	78	105	83	175	324	216	175	e211	67	16
12	0.00	110	302	92	82	164	275	191	246	e128	44	32
13	0.00	245	346	101	78	157	215	120	292	e86	31	193
14	0.52	225	329	85	73	147	173	82	406	e83	25	211
15	1.5	101	343	85	118	127	148	64	324	e77	21	112
16	19	75	217	e93	214	118	135	414	269	70	19	80
17	53	197	117	e78	252	118	124	417	185	56	70	96
18	50	372	85	e68	241	118	110	265	244	45	111	97
19	27	348	71	58	237	106	114	246	364	41	56	445
20	10	177	125	64	e195	222	113	179	446	39	31	693
21	2.8	95	406	67	e170	825	106	129	642	35	20	295
22	2.3	72	365	58	e790	573	102	182	435	29	14	133
23	2.3	62	163	52	e1,340	284	94	197	280	30	12	340
24	2.2	49	103	47	e1,130	203	80	197	193	38	8.7	665
25	2.3	40	230	46	e660	173	76	206	146	34	7.4	367
26	11	36	555	49	415	156	105	726	115	26	6.1	181
27	18	35	426	52	334	175	114	912	104	21	51	118
28	22	34	223	47	262	165	89	457	128	22	82	93
29	22	32	170	56	---	141	73	302	117	42	66	74
30	52	30	137	71	---	245	64	248	84	45	88	59
31	86	---	118	74	---	342	---	199	---	37	69	---
TOTAL	383.92	2,777	5,193	3,846	7,654	8,200	4,789	7,328	8,161	3,374	1,475.2	5,189
MEAN	12.4	92.6	168	124	273	265	160	236	272	109	47.6	173
MAX	86	372	555	396	1,340	825	408	912	642	585	111	693
MIN	0.00	12	25	46	73	106	64	45	84	21	6.1	16
CFSM	0.16	1.16	2.10	1.55	3.42	3.31	2.00	2.96	3.40	1.36	0.60	2.16
IN.	0.18	1.29	2.42	1.79	3.56	3.82	2.23	3.41	3.80	1.57	0.69	2.42

e Estimated

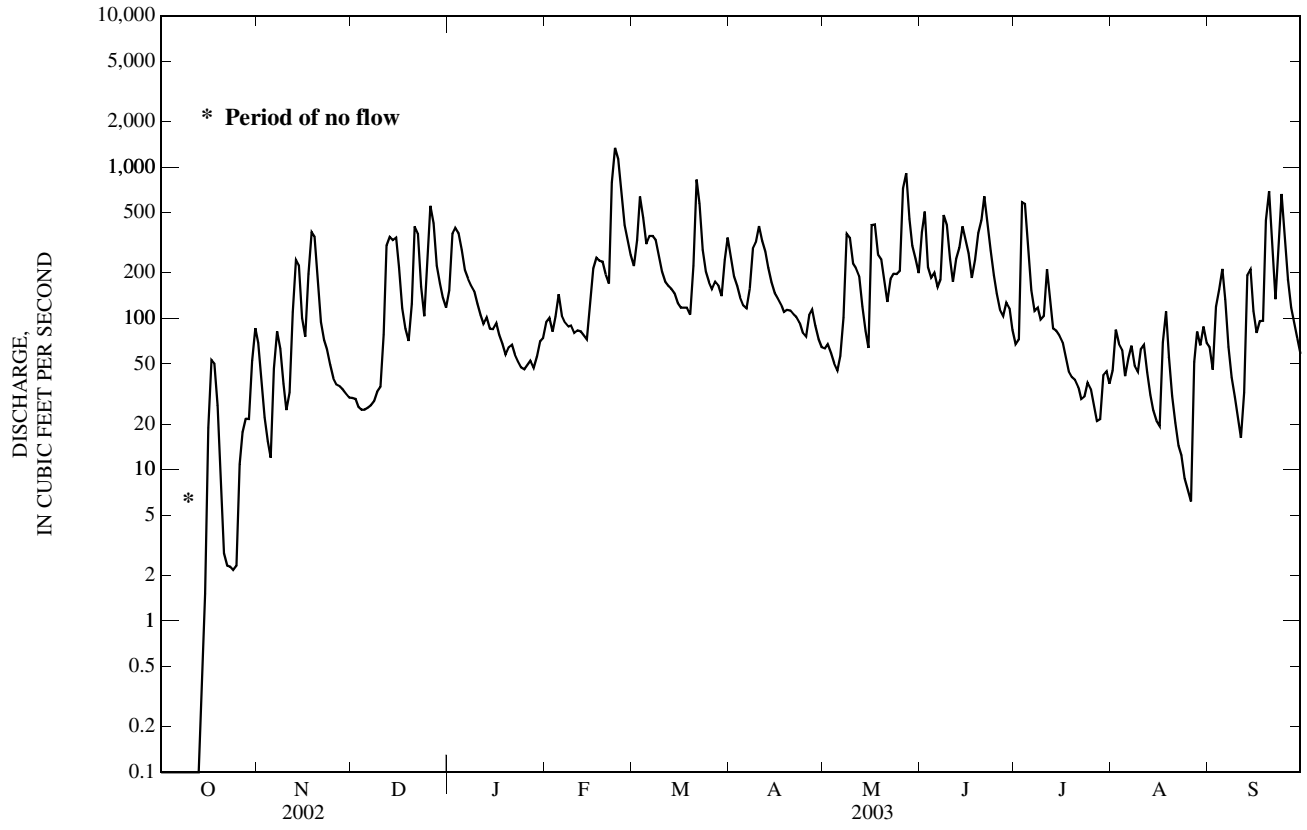
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	40.9	70.0	102	126	146	188	128	103	66.9	36.3	32.6	45.5
MAX	163	139	236	268	375	491	277	334	311	129	115	175
(WY)	(1990)	(1986)	(1997)	(1996)	(1998)	(1994)	(1993)	(1989)	(1989)	(2000)	(2000)	(1999)
MIN	0.000	0.000	14.0	32.2	16.8	54.4	30.5	14.1	1.40	0.000	0.000	0.000
(WY)	(1999)	(1999)	(1999)	(2002)	(2002)	(2002)	(1985)	(2002)	(2002)	(2002)	(2002)	(1995)

01660920 ZEKIAH SWAMP RUN NEAR NEWTOWN, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1983 - 2003	
ANNUAL TOTAL	13,087.00		58,370.12			
ANNUAL MEAN	35.9		160		90.5	
HIGHEST ANNUAL MEAN					160	2003
LOWEST ANNUAL MEAN					16.0	2002
HIGHEST DAILY MEAN	555	Dec 26	1,340	Feb 23	2,570	Mar 29, 1994
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(c)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jun 25	0.00	Oct 1	0.00	Jul 20, 1987
MAXIMUM PEAK FLOW			2,050	Feb 23	(d)4,080	Sep 17, 1999
MAXIMUM PEAK STAGE			4.71	Feb 23	5.51	Sep 17, 1999
INSTANTANEOUS LOW FLOW			0.00	(f)	0.00	(c)
ANNUAL RUNOFF (CFSM)	0.45		2.00		1.13	
ANNUAL RUNOFF (INCHES)	6.09		27.18		15.40	
10 PERCENT EXCEEDS	94		364		207	
50 PERCENT EXCEEDS	12		103		52	
90 PERCENT EXCEEDS	0.00		22		1.2	

a Many days.
b Oct. 1-13.
c No flow at times in 1983, 1985-89, 1991, 1993, 1995-1999, 2002, 2003.
d From rating curve extended above 1,500 ft^3/s.
f Oct. 1-14.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01661050 ST. CLEMENT CREEK NEAR CLEMENTS, MD

LOCATION.--Lat 38°19'59.9", long 76°43'30.0", St. Marys County, Hydrologic Unit 02070011, on left bank 60 ft downstream from bridge on State Highway 242, 0.5 mi north of Clements, 2.3 mi upsteam from mouth, and 5.7 mi northwest of Leonardtown.

DRAINAGE AREA.--18.5 mi^2.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 8 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges (questionable record), which are fair. Occasional regulation from unknown source upstream from station. U.S. Geological Survey gage-height telemeter at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 23	0045	383	4.32	Aug 16	2215	225	3.10
Mar 21	0015	299	3.75	Sep 12	2315	226	3.11
May 8	1115	249	3.33	Sep 19	0400	*389	*4.35
May 26	1030	291	3.68				

Minimum discharge, 0.00 ft^3/s, Oct. 1-12.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	e9.4	5.7	20	16	39	37	15	36	11	18	9.4
2	0.00	e4.5	6.0	30	15	145	31	14	25	15	14	18
3	0.00	e3.1	5.4	28	13	96	27	13	21	51	13	64
4	0.00	e2.8	4.8	26	20	44	26	12	29	33	15	108
5	0.00	3.0	7.1	17	20	54	25	12	73	17	17	59
6	0.00	15	10	15	13	82	23	15	36	12	26	22
7	0.00	12	9.0	15	12	58	77	32	83	13	14	16
8	0.00	5.6	7.9	14	14	38	76	180	90	14	12	13
9	0.00	4.1	8.6	13	13	33	107	55	76	11	12	12
10	0.00	3.4	7.8	12	14	28	75	40	41	15	14	10
11	0.00	7.1	43	11	13	25	76	34	30	76	15	9.3
12	1.7	27	58	10	14	24	54	23	34	20	29	66
13	1.6	32	37	9.8	12	24	38	18	28	12	13	141
14	0.62	15	57	10	12	21	24	15	41	16	9.7	46
15	0.41	11	25	10	39	20	22	14	99	14	7.9	27
16	e4.7	e11	16	9.1	23	21	21	53	39	11	52	22
17	14	e47	13	10	18	26	20	42	30	9.0	47	18
18	3.7	55	11	9.3	18	22	21	43	43	7.6	15	82
19	1.8	20	11	9.8	20	19	23	37	63	8.1	10	222
20	0.99	14	19	11	26	124	21	23	73	8.2	8.1	50
21	0.76	11	21	11	40	190	20	28	48	7.4	7.0	31
22	0.52	12	14	9.4	186	59	20	45	34	6.9	6.3	28
23	0.56	9.3	12	7.8	297	39	18	43	27	11	7.6	119
24	0.40	7.8	12	6.8	113	32	17	43	21	9.7	4.3	66
25	e0.52	7.1	68	7.2	59	28	18	81	19	7.3	3.7	21
26	e13	6.4	46	8.2	42	27	33	211	16	5.6	6.1	12
27	e7.4	6.4	19	9.1	35	29	26	83	15	5.2	28	12
28	e3.5	5.8	15	7.3	35	25	19	66	15	5.7	15	12
29	e6.3	5.9	14	9.8	---	27	16	50	15	16	9.0	11
30	e36	6.0	13	12	---	75	15	41	13	23	7.2	11
31	e17	---	13	13	---	64	---	35	---	22	14	---
TOTAL	115.48	379.7	609.3	391.6	1,152	1,538	1,026	1,416	1,213	493.7	469.9	1,337.7
MEAN	3.73	12.7	19.7	12.6	41.1	49.6	34.2	45.7	40.4	15.9	15.2	44.6
MAX	36	55	68	30	297	190	107	211	99	76	52	222
MIN	0.00	2.8	4.8	6.8	12	19	15	12	13	5.2	3.7	9.3
CFSM	0.20	0.68	1.06	0.68	2.22	2.68	1.85	2.47	2.19	0.86	0.82	2.41
IN.	0.23	0.76	1.23	0.79	2.32	3.09	2.06	2.85	2.44	0.99	0.94	2.69

e Estimated

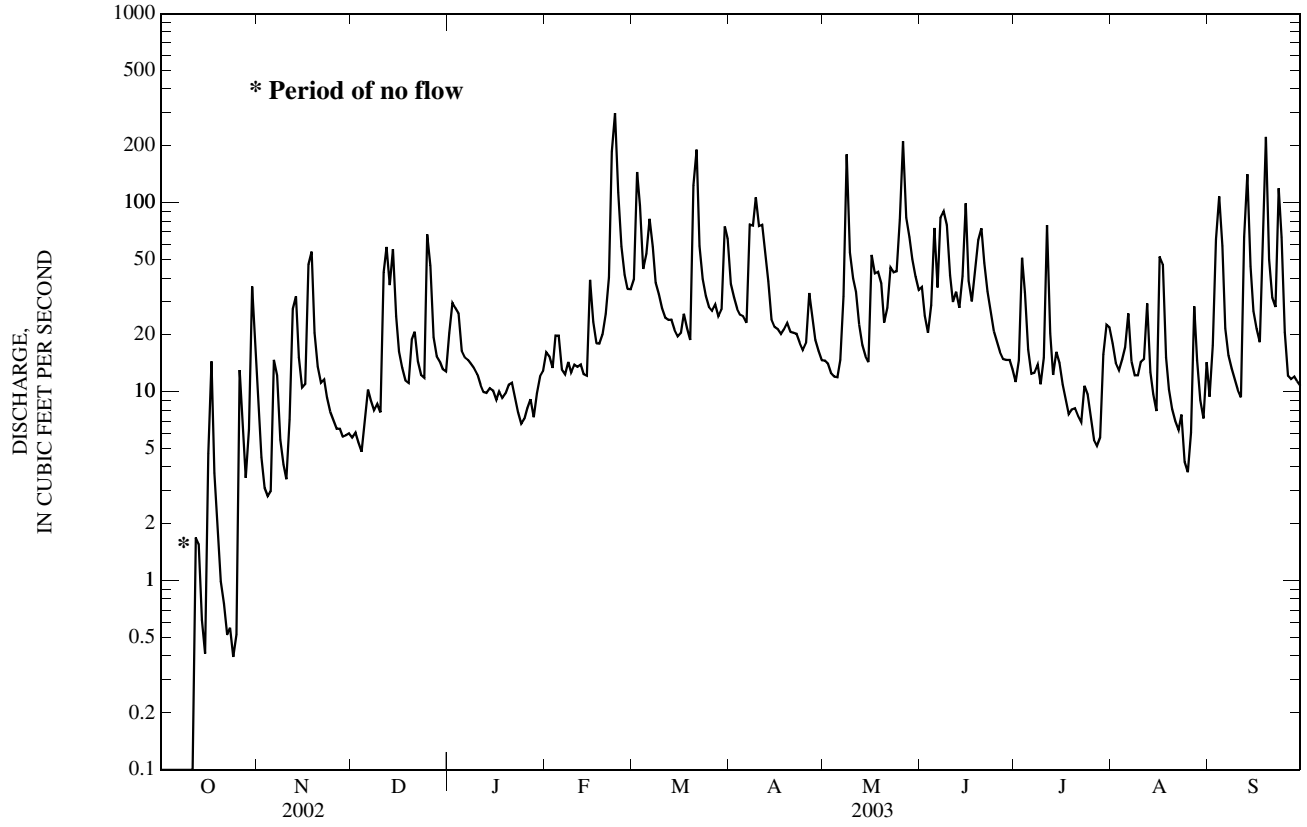
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

MEAN	9.78	14.4	20.3	25.9	29.5	34.4	26.3	21.3	16.2	12.1	10.7	13.3
MAX	46.8	45.3	48.9	77.4	89.7	115	54.7	57.9	116	56.4	45.0	75.2
(WY)	(1980)	(1980)	(1997)	(1978)	(1998)	(1994)	(1983)	(1978)	(1972)	(1975)	(1985)	(1979)
MIN	0.73	3.10	5.01	5.30	6.74	10.1	9.05	3.59	1.04	0.46	0.000	0.000
(WY)	(1989)	(1999)	(1989)	(1981)	(2002)	(1981)	(1985)	(1999)	(1999)	(1999)	(2002)	(1988)

01661050 ST. CLEMENT CREEK NEAR CLEMENTS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1969 - 2003	
ANNUAL TOTAL	2,680.95		10,142.38			
ANNUAL MEAN	7.35		27.8		19.5	
HIGHEST ANNUAL MEAN					34.5	1972
LOWEST ANNUAL MEAN					5.83	2002
HIGHEST DAILY MEAN	68	Dec 25	297	Feb 23	1,580	Jun 22, 1972
LOWEST DAILY MEAN	0.00	(a)	0.00	(b)	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 4	0.00	Oct 1	0.00	Aug 31, 1980
MAXIMUM PEAK FLOW			389	Sep 19	(c)4,500	Sep 6, 1979
MAXIMUM PEAK STAGE			4.35	Sep 19	(d)6.96	Sep 6, 1979
INSTANTANEOUS LOW FLOW			0.00	(f)	0.00	(g)
ANNUAL RUNOFF (CFSM)	0.40		1.50		1.05	
ANNUAL RUNOFF (INCHES)	5.39		20.39		14.29	
10 PERCENT EXCEEDS	15		63		38	
50 PERCENT EXCEEDS	5.4		16		11	
90 PERCENT EXCEEDS	0.00		5.5		1.2	

a Many days.
b Oct. 1-11.
c From rating curve extended above 480 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow.
d Backwater from tide; maximum gage height unaffected by backwater, 6.55 ft, June 22, 1972.
f Oct. 1-12.
g No flow at times in 1977, 1980, 1981, 1983, 1985-89, 1991, 1993, 1995, 1999, 2002, 2003.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

01661500 ST. MARYS RIVER AT GREAT MILLS, MD

LOCATION.--Lat 38°14'30.3", long 76°30'13.2", St. Marys County, Hydrologic Unit 02070011, on left bank at downstream side of bridge on State Highway 471 in Great Mills, 0.3 mi downstream from Western Branch, and 12.0 mi upstream from mouth.

DRAINAGE AREA.--24.0 mi^2.

PERIOD OF RECORD.--June 1946 to current year.

REVISED RECORDS.--WSP 1702: 1946, 1948-49, 1955, 1957-58. WDR MD-DE-83-1: 1981-82(M).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Occasional regulation by reservoir on Western Branch of St. Marys River, 2.0 mi upstream since 1975, total capacity, 3,200 acre feet. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb 22	2300	623	5.89
Mar 20	2130	415	4.37
May 26	1130	*803	*6.96
Sep 12	1900	475	4.77
Sep 23	1030	592	5.68

Minimum discharge, 1.1 ft^3/s, Oct. 9.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	24	8.5	36	18	57	38	14	31	9.8	13	16
2	1.8	15	7.6	35	16	204	31	13	25	14	16	21
3	1.6	11	7.3	35	14	138	26	13	21	102	14	34
4	1.6	9.5	6.4	36	19	77	24	12	24	104	15	31
5	1.5	10	13	27	19	67	22	11	27	55	21	24
6	1.3	28	18	24	15	96	20	13	21	32	15	16
7	1.3	17	14	20	18	72	104	35	114	23	17	13
8	1.3	12	12	18	18	52	89	155	76	20	17	10
9	1.2	9.8	12	16	15	41	181	65	45	21	15	9.1
10	4.0	8.3	11	15	16	34	126	42	31	56	22	7.9
11	61	12	85	13	17	28	116	36	25	35	21	7.8
12	26	84	70	12	16	26	80	29	21	19	75	150
13	10	77	54	11	16	24	54	20	21	13	33	220
14	5.8	40	92	11	14	21	40	16	39	13	20	81
15	4.0	26	49	11	51	20	33	14	97	11	13	66
16	79	20	34	11	43	21	30	32	49	9.4	91	146
17	27	98	25	12	39	27	27	31	29	8.2	70	108
18	15	104	20	13	33	23	25	36	31	7.4	27	116
19	9.4	43	17	11	31	20	25	31	91	7.7	18	122
20	7.1	29	29	11	45	159	22	22	155	6.9	14	38
21	5.5	22	29	11	74	195	20	22	93	6.3	12	21
22	4.6	19	21	11	365	106	20	41	53	9.6	10	15
23	3.9	16	17	9.7	473	59	18	37	36	17	8.7	315
24	3.3	13	16	9.4	226	41	17	35	26	15	7.4	132
25	3.9	11	97	9.4	114	32	16	46	20	13	6.7	61
26	16	11	58	10	68	28	23	496	17	8.4	9.8	38
27	9.5	10	37	9.9	55	28	24	206	14	6.7	19	29
28	7.6	9.1	28	9.4	57	24	18	127	12	6.2	19	24
29	13	8.7	23	10	---	28	16	75	12	10	12	19
30	54	8.6	19	12	---	70	15	54	11	13	16	16
31	49	---	17	14	---	60	---	39	---	19	23	---
TOTAL	432.2	806.0	946.8	493.8	1,905	1,878	1,300	1,818	1,267	691.6	690.6	1,906.8
MEAN	13.9	26.9	30.5	15.9	68.0	60.6	43.3	58.6	42.2	22.3	22.3	63.6
MAX	79	104	97	36	473	204	181	496	155	104	91	315
MIN	1.2	8.3	6.4	9.4	14	20	15	11	11	6.2	6.7	7.8
CFSM	0.58	1.12	1.27	0.66	2.83	2.52	1.81	2.44	1.76	0.93	0.93	2.65
IN.	0.67	1.25	1.47	0.77	2.95	2.91	2.02	2.82	1.96	1.07	1.07	2.96

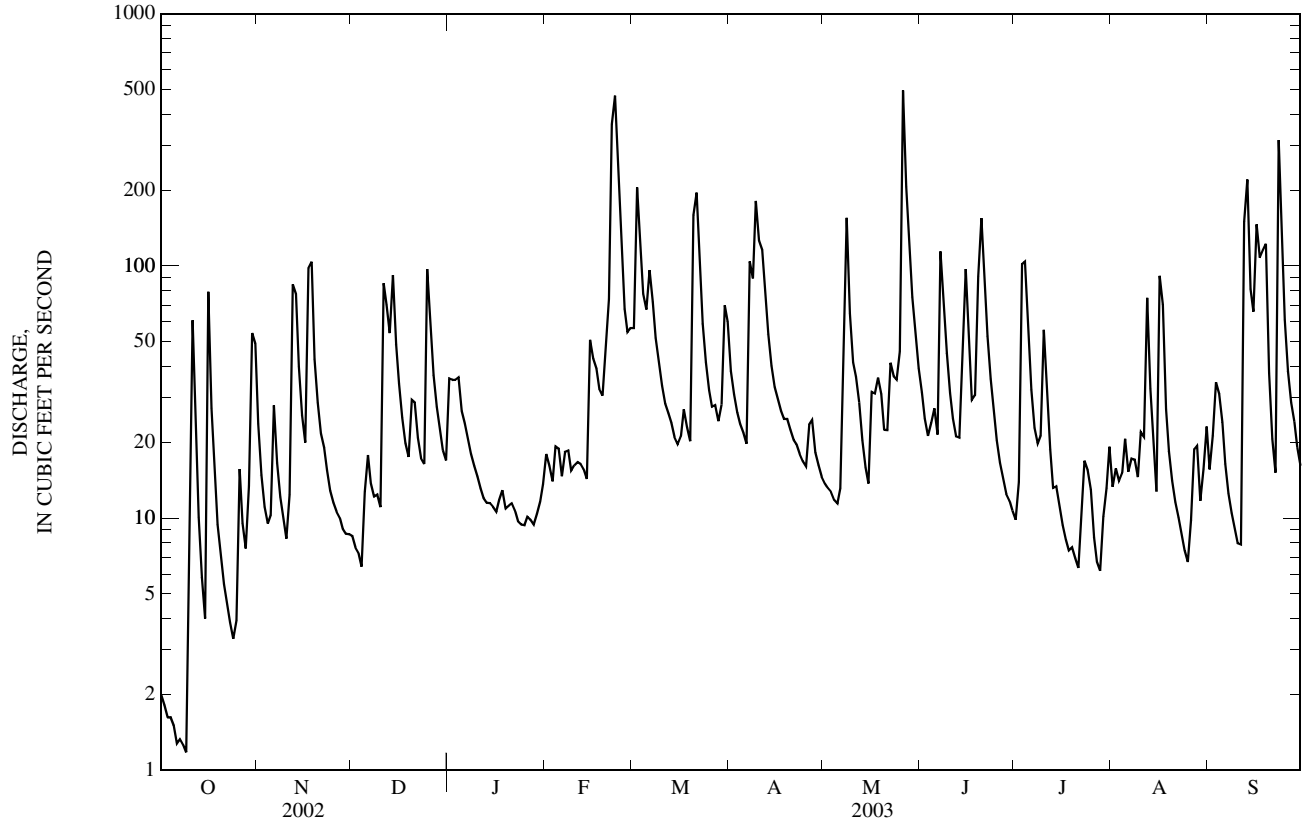
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2003, BY WATER YEAR (WY)

MEAN	12.4	18.8	28.0	33.9	37.5	45.4	32.5	25.2	16.0	15.5	17.6	16.2
MAX	70.3	84.4	98.6	125	213	166	95.9	97.4	68.4	82.4	118	150
(WY)	(1997)	(1957)	(1997)	(1978)	(1998)	(1994)	(1983)	(1990)	(1972)	(2000)	(1955)	(1999)
MIN	2.58	4.29	5.27	6.45	7.67	8.52	6.82	3.71	2.01	1.22	1.29	2.02
(WY)	(1969)	(1982)	(1966)	(1955)	(2002)	(1981)	(1985)	(1999)	(1999)	(1999)	(1995)	(1988)

01661500 ST. MARYS RIVER AT GREAT MILLS, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1946 - 2003	
ANNUAL TOTAL	4,484.29		14,135.8			
ANNUAL MEAN	12.3		38.7		24.9	
HIGHEST ANNUAL MEAN					50.9	1998
LOWEST ANNUAL MEAN					7.93	2002
HIGHEST DAILY MEAN	113	Apr 28	496	May 26	2,650	Sep 16, 1999
LOWEST DAILY MEAN	0.28	Aug 21	1.2	Oct 9	0.17	Aug 11, 1999
ANNUAL SEVEN-DAY MINIMUM	0.33	Aug 15	1.4	Oct 3	0.22	Aug 7, 1999
MAXIMUM PEAK FLOW			803	May 26	(a)7,950	Aug 20, 1969
MAXIMUM PEAK STAGE			6.96	May 26	13.34	Aug 20, 1969
INSTANTANEOUS LOW FLOW			1.1	Oct 9	0.13	(b)
ANNUAL RUNOFF (CFSM)	0.51		1.61		1.04	
ANNUAL RUNOFF (INCHES)	6.95		21.91		14.07	
10 PERCENT EXCEEDS	28		91		49	
50 PERCENT EXCEEDS	7.7		21		12	
90 PERCENT EXCEEDS	1.1		8.6		3.2	

a From rating curve extended above 1,500 ft^3/s on basis of contracted-opening measurement at gage height 12.08 ft.
b Aug. 10-14, 1999.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

03075500 YOUGHIOGHENY RIVER NEAR OAKLAND, MD

LOCATION.--Lat 39°25'17.9", long 79°25'29.6", Garrett County, Hydrologic Unit 05020006, on left bank 200 ft downstream from Baltimore and Ohio Railroad bridge, 250 ft downstream from Little Youghiogheny River, 1.2 mi northwest of Oakland, and 1.5 mi upstream from Dunkard Lick Run.

DRAINAGE AREA.--134 mi^2.

PERIOD OF RECORD.--August 1941 to current year.

REVISED RECORDS.--WSP 1113: 1947(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,353.61 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1946, nonrecording gage at bridge 200 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are poor. Town of Oakland diverted an average of 0.4 ft^3/s for water supply. The diversion is returned upstream from station as sewage. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a stage of 15.3 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 20	1545	2,670	5.73	Jun 1	0545	2,360	5.43
Feb 23	1745	2,090	5.16	Jul 8	1530	2,390	5.46
Mar 6	1945	2,780	5.84	Jul 10	0415	4,410	7.21
Mar 9	1345	2,180	5.25	Jul 28	2000	2,140	5.21
Mar 14	0245	3,130	6.15	Sep 2	0715	2,370	5.44
Mar 17	0045	2,160	5.23	Sep 4	1500	4,250	7.09
May 9	2000	2,040	5.11	Sep 19	1030	*6,500	*8.70
May 11	0100	3,220	6.23				

Minimum discharge, 18 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	448	250	1,230	131	350	343	110	2,090	100	149	791
2	32	341	289	1,690	129	429	749	169	1,190	149	127	2,180
3	28	258	197	1,160	124	406	534	129	1,100	97	192	1,580
4	26	212	179	835	440	350	400	162	1,260	80	128	3,220
5	24	203	153	628	685	505	490	382	860	103	169	1,810
6	23	916	176	499	429	2,020	415	468	606	240	118	896
7	21	909	151	399	319	1,910	971	337	1,180	440	95	600
8	20	633	140	344	250	1,310	1,130	408	1,110	1,360	209	401
9	19	431	119	385	230	1,930	1,060	1,010	782	2,070	767	291
10	20	328	118	458	203	1,420	921	2,470	519	3,530	974	230
11	105	307	123	345	179	947	1,060	2,590	377	1,790	523	181
12	191	491	146	306	165	819	971	1,300	307	1,010	444	152
13	108	789	173	294	146	1,510	736	1,080	786	927	452	147
14	81	523	556	244	152	2,560	551	736	1,000	618	401	139
15	66	380	428	190	143	1,860	414	569	1,370	543	232	171
16	312	312	382	187	100	1,890	327	454	1,150	353	179	249
17	412	707	318	173	105	1,980	271	353	874	249	481	191
18	245	729	271	157	e110	1,880	230	310	797	196	250	258
19	170	698	255	144	e118	1,520	208	252	616	172	175	4,930
20	216	873	1,840	137	e125	1,290	177	209	994	137	140	2,390
21	192	666	1,510	136	134	1,110	180	224	1,170	114	117	1,030
22	149	514	904	127	547	875	182	198	834	112	103	709
23	119	402	807	117	1,830	680	154	173	578	101	92	832
24	97	326	570	109	1,650	513	129	252	393	95	75	520
25	86	343	476	107	970	400	116	201	280	89	66	386
26	163	324	371	110	673	344	116	180	215	65	60	335
27	152	307	286	111	501	294	108	163	176	56	744	412
28	123	264	242	110	403	239	92	267	148	747	1,240	873
29	276	236	217	117	---	223	86	232	123	732	580	640
30	1,020	250	192	148	---	236	91	216	104	267	811	461
31	654	---	257	136	---	230	---	556	---	178	989	---
TOTAL	5,189	14,120	12,096	11,133	10,991	32,030	13,212	16,160	22,989	16,720	11,082	27,005
MEAN	167	471	390	359	393	1,033	440	521	766	539	357	900
MAX	1,020	916	1,840	1,690	1,830	2,560	1,130	2,590	2,090	3,530	1,240	4,930
MIN	19	203	118	107	100	223	86	110	104	56	60	139
CFSM	1.25	3.51	2.91	2.68	2.93	7.71	3.29	3.89	5.72	4.03	2.67	6.72
IN.	1.44	3.92	3.36	3.09	3.05	8.89	3.67	4.49	6.38	4.64	3.08	7.50

e Estimated

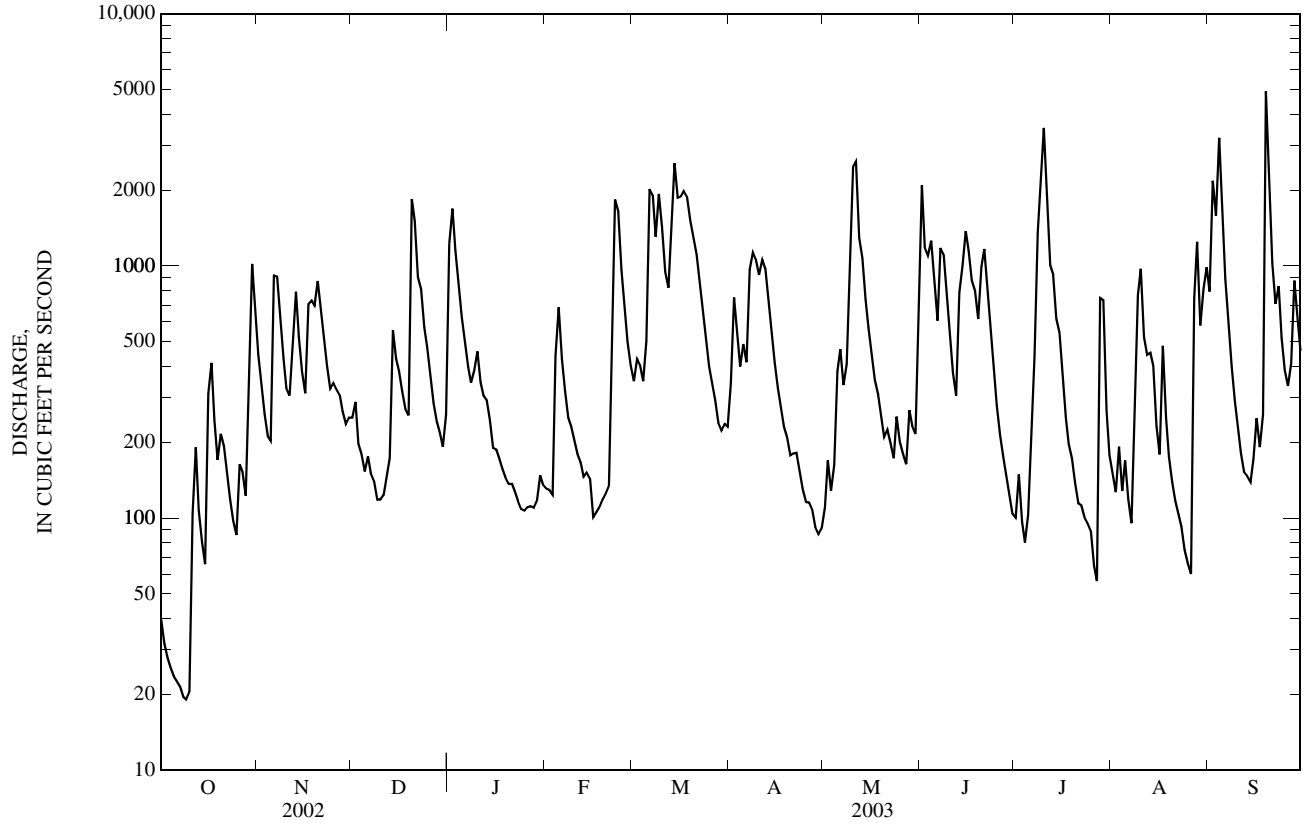
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY)

MEAN	112	239	396	427	500	613	454	336	212	172	132	98.1
MAX	608	1,152	1,027	973	1,100	1,477	879	995	766	629	586	900
(WY)	(1955)	(1986)	(1973)	(1996)	(1986)	(1963)	(1973)	(1996)	(2003)	(1978)	(1956)	(2003)
MIN	4.45	7.08	62.2	63.2	127	168	121	76.0	22.9	10.3	10.5	5.99
(WY)	(1954)	(1954)	(1944)	(1977)	(1978)	(1990)	(1946)	(1982)	(1999)	(1953)	(1944)	(1953)

03075500 YOUGHIOGHENY RIVER NEAR OAKLAND, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1941 - 2003	
ANNUAL TOTAL	111,610.8		192,727			
ANNUAL MEAN	306		528		307	
HIGHEST ANNUAL MEAN					528	2003
LOWEST ANNUAL MEAN					193	1947
HIGHEST DAILY MEAN	2,310	Mar 21	4,930	Sep 19	8,740	Jan 19, 1996
LOWEST DAILY MEAN	7.8	Sep 14	19	Oct 9	2.5	Oct 4, 1953
ANNUAL SEVEN-DAY MINIMUM	9.4	Sep 9	22	Oct 4	2.7	Oct 2, 1953
MAXIMUM PEAK FLOW			6,500	Sep 19	(a)14,100	Jan 19, 1996
MAXIMUM PEAK STAGE			8.70	Sep 19	13.06	Jan 19, 1996
INSTANTANEOUS LOW FLOW			18	(b)	2.5	Oct 4, 1953
ANNUAL RUNOFF (CFSM)	2.28		3.94		2.29	
ANNUAL RUNOFF (INCHES)	30.98		53.50		31.12	
10 PERCENT EXCEEDS	785		1,210		737	
50 PERCENT EXCEEDS	167		310		164	
90 PERCENT EXCEEDS	23		106		24	

a From rating curve extended above 7,000 ft^3/s.
b Oct. 8-10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

03076000 DEEP CREEK RESERVOIR NEAR OAKLAND, MD

LOCATION.--Lat 39°30'34", long 79°23'28", Garrett County, Hydrologic Unit 05020006, on Deep Creek at dam, 1.8 mi upstream from mouth and 7.0 mi north of Oakland.

DRAINAGE AREA.--64.7 mi2.

PERIOD OF RECORD.--July 1925 to current year. Prior to October 1950, monthend contents published in WSP 1305, and October 1950 to September 1955, monthend contents published in WSP 1385.

GAGE.--Water-stage recorder at right end of spillway. Datum of gage is at sea level, unadjusted.

REMARKS.--Reservoir is formed by an earthfill dam completed January 1925, with storage beginning at that time. Usable capacity, 92,975 acre-ft between elevations 2,425 ft, top of intake to outlet tunnel, and 2,462 ft, crest of spillway. Dead storage, 13,085 acre-ft. Figures given herein represent usable contents. Reservoir is used for hydroelectric power.

COOPERATION.--Elevations and capacity table furnished by Pennsylvania Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,800 acre-ft, July 14, 1990, elevation, 2,462.25 ft; minimum observed, 11,763 acre-ft, Sept. 30, 1925, elevation, 2,433.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 90,400 acre-ft, July 10, elevation, 2,461.3 ft; minimum, 71,500 acre-ft, Feb. 19, elevation, 2,456.1 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTBER 2002 TO SEPTEMBER 2003

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2457.4	76100	
Oct. 31	2457.5	76400	+300
Nov. 30	2456.7	73600	-2800
Dec. 31	2456.2	71800	-1800
CAL YR 2002			+1300
Jan. 31	2456.2	71800	0
Feb. 28	2456.4	72500	+700
Mar. 31	2459.2	82600	+10100
Apr. 30	2460.5	87400	+4800
May 31	2461.0	89300	+1900
June 30	2460.7	88100	-1200
July 31	2460.1	85900	-2200
Aug. 31	2459.1	82200	-3700
Sept. 30	2458.5	80000	-2200
WTR YR 2003			+3900

Photo by Jeff Griffith

03076000 Deep Creek Reservoir near Oakland, MD.

03076500 YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD

LOCATION.--Lat 39°39'13.0", long 79°24'29.9", Garrett County, Hydrologic Unit 05020006, on left bank 0.7 mi upstream from bridge on State Highway 42 at Friendsville, and 1.5 mi upstream from Bear Creek.

DRAINAGE AREA.--295 mi^2.

PERIOD OF RECORD.--August 1898 to December 1904 and October 1940 to current year. Annual maximum, water years 1905, 1923-3l, 1940, published in WSP 1675. October, November 1940 monthly discharge only, published in WSP 1305. September 1922 to September 1926 (gage heights only) in reports of Pennsylvania Department of Forests and Waters.

REVISED RECORDS.--WSP 1385: Drainage area at former site, 1898-1905, 1941(M), 1942, 1944-45, 1948-49, 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,487.33 ft above National Geodetic Vertical Datum of 1929. Aug. 17, 1898, to Dec. 31, 1904, and Sept. 1, 1922, to Sept. 30, 1926, nonrecording gages at bridge 0.7 mi downstream at datum 16.24 ft and 16.29 ft lower, respectively.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. Low and medium flow regulated since July 1925 by Deep Creek Reservoir, 12 mi upstream from station (see station 03076000). U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,490 ft^3/s, Sept. 19, gage height, 7.20 ft; minimum discharge, 48 ft^3/s, Oct. 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	671	481	2,020	176	628	475	229	3,600	192	345	936
2	78	560	464	3,060	196	659	1,050	331	2,570	234	438	2,930
3	67	457	503	2,400	242	883	979	321	2,330	205	428	2,920
4	130	392	332	1,400	501	717	655	269	2,960	230	385	3,880
5	131	360	360	1,040	1,150	825	1,020	527	2,170	245	225	3,320
6	59	1,200	365	954	749	2,850	969	772	1,690	1,390	219	1,490
7	124	1,440	368	859	631	3,140	1,600	573	1,990	1,590	176	825
8	53	912	306	793	478	2,070	2,170	1,360	2,400	2,120	320	890
9	50	745	465	808	388	2,860	1,910	2,490	1,430	3,700	475	674
10	52	650	357	916	e360	2,780	2,190	4,700	1,310	5,920	1,470	488
11	166	703	334	760	e340	1,980	2,150	4,660	1,390	3,590	689	327
12	280	685	437	621	322	1,380	1,630	2,940	1,290	2,430	753	348
13	209	1,270	359	568	350	2,050	1,280	2,660	1,340	2,370	578	265
14	221	915	966	594	e260	4,210	1,120	2,130	1,560	1,760	655	269
15	128	940	822	493	e200	3,250	715	1,620	2,210	1,640	535	328
16	237	827	904	441	e180	3,370	587	1,530	2,060	1,380	283	525
17	563	1,210	664	393	e190	3,460	507	1,350	1,610	635	422	626
18	396	1,410	690	281	e200	3,710	533	808	1,810	481	528	717
19	271	1,240	710	176	e220	3,240	397	558	1,110	373	381	7,380
20	268	1,610	2,470	e160	e230	2,870	353	418	1,300	303	361	4,810
21	307	1,360	2,700	143	259	2,650	404	505	1,680	385	332	2,480
22	256	1,120	1,650	143	599	2,220	357	566	1,320	408	379	1,710
23	214	1,000	1,500	120	2,330	1,350	321	431	956	357	176	1,790
24	247	876	1,090	135	2,670	898	272	489	749	403	146	1,540
25	163	883	1,040	e115	1,990	732	310	405	591	444	270	1,450
26	201	631	968	100	1,190	629	242	553	443	178	263	1,330
27	259	607	770	e125	940	566	235	508	406	150	892	1,000
28	239	517	559	e160	690	478	271	524	278	335	2,200	1,670
29	292	451	614	167	---	428	197	587	239	1,200	959	1,300
30	1,270	412	593	217	---	442	197	534	275	405	840	1,220
31	916	---	709	323	---	437	---	949	---	430	1,340	---
TOTAL	7,943	26,054	24,550	20,485	18,031	57,762	25,096	36,297	45,067	35,483	17,463	49,438
MEAN	256	868	792	661	644	1,863	837	1,171	1,502	1,145	563	1,648
MAX	1,270	1,610	2,700	3,060	2,670	4,210	2,190	4,700	3,600	5,920	2,200	7,380
MIN	50	360	306	100	176	428	197	229	239	150	146	265
(†)	4.88	-47.1	-29.3	0	12.6	164	80.7	30.9	-20.2	-35.8	-60.2	-37.0
MEAN‡	261	821	763	670	671	2,027	918	1,202	1,482	1,109	503	1,611
CFSM‡	0.88	2.78	2.59	2.27	2.27	6.87	3.11	4.07	5.02	3.76	1.71	5.46
IN.‡	1.02	3.10	2.99	2.62	2.36	7.92	3.47	4.69	5.60	4.34	1.97	6.09

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 1905, 1941 - 2003, BY WATER YEAR (WY)

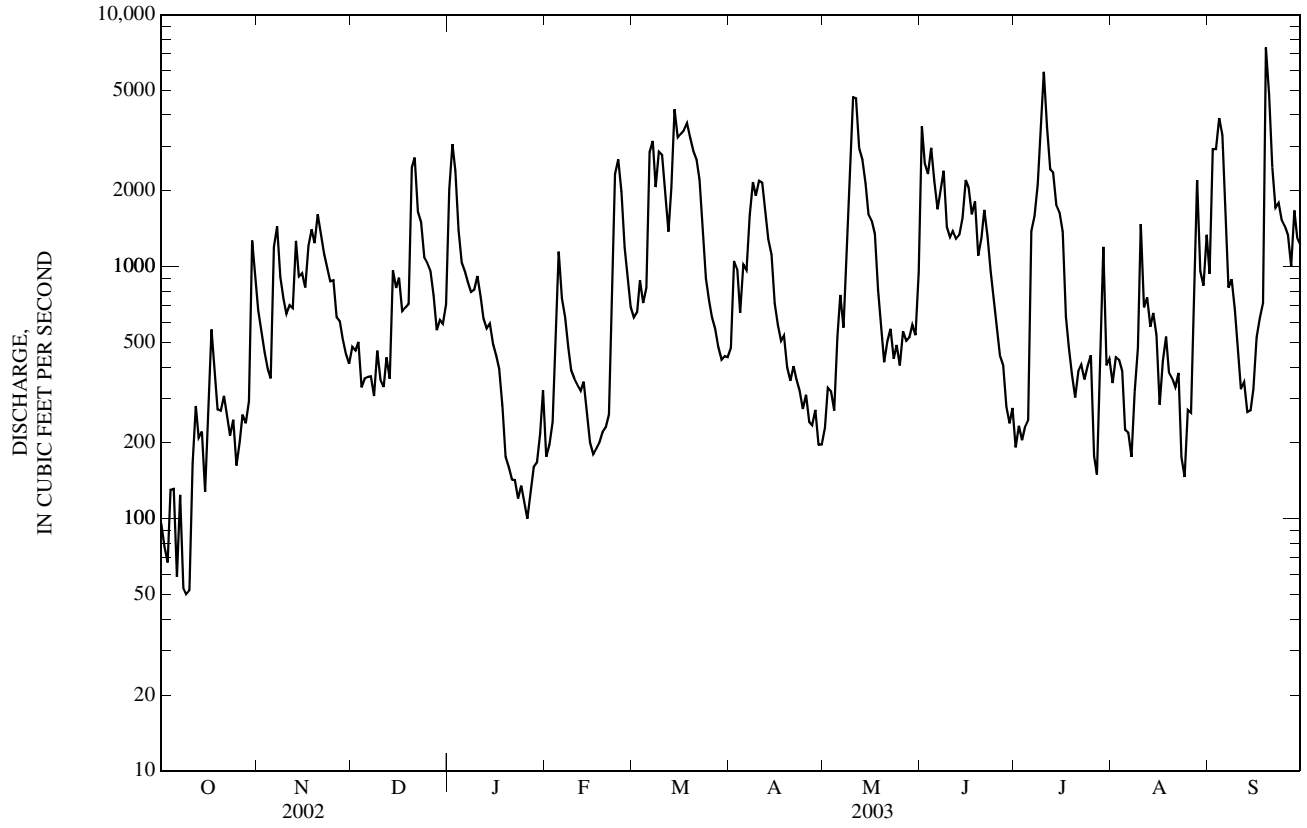
MEAN	274	495	831	864	987	1,219	940	700	494	381	298	255
MAX	1,103	2,190	2,147	1,886	2,277	2,644	2,231	1,888	1,823	1,335	1,319	1,648
(WY)	(1955)	(1986)	(1903)	(1996)	(1903)	(1963)	(1901)	(1996)	(1903)	(1990)	(1956)	(2003)
MIN	50.2	55.7	145	140	337	285	327	176	84.2	64.6	51.0	49.8
(WY)	(1992)	(1905)	(1944)	(1981)	(1954)	(1990)	(1995)	(1982)	(1969)	(1991)	(1991)	(1991)

† Change in contents in Deep Creek Reservoir, equivalent in cubic feet per second, provided by Pennsylvania Electric Company.
‡ Adjusted for change in reservoir contents.

03076500 YOUGHIOGHENY RIVER AT FRIENDSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1898 - 1905, 1941 - 2003	
ANNUAL TOTAL	213,586		363,669			
ANNUAL MEAN	585		996		642	
ANNUAL MEAN‡	587		1,002		645	
HIGHEST ANNUAL MEAN					1,052	1903
LOWEST ANNUAL MEAN					375	1954
HIGHEST DAILY MEAN	3,480	Mar 21	7,380	Sep 19	11,200	Jan 19, 1996
LOWEST DAILY MEAN	50	Oct 9	50	Oct 9	8.2	Sep 11, 1966
ANNUAL SEVEN-DAY MINIMUM	75	Sep 5	86	Oct 4	29	Sep 21, 1972
MAXIMUM PEAK FLOW			9,490	Sep 19	(a)16,100	Jan 19, 1996
MAXIMUM PEAK STAGE			7.20	Sep 19	(b)14.20	Mar 29, 1924
INSTANTANEOUS LOW FLOW			48	Oct 10	UNKNOWN	
ANNUAL RUNOFF (CFSM)	1.98		3.38		2.18	
ANNUAL RUNOFF (CFSM)‡	1.99		3.47		2.19	
ANNUAL RUNOFF (INCHES)	26.93		45.86		29.56	
ANNUAL RUNOFF (INCHES)‡	27.02		46.11		29.70	
10 PERCENT EXCEEDS	1,360		2,400		1,430	
50 PERCENT EXCEEDS	360		614		405	
90 PERCENT EXCEEDS	117		199		104	

‡ Adjusted for change in reservoir contents since October 1940.
a From rating curve extended above 5,800 ft^3/s on basis of slope-area measurement of peak flow.
b From floodmarks.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

03076600 BEAR CREEK AT FRIENDSVILLE, MD

LOCATION.--Lat 39°39'22.1", long 79°23'38.8", Garrett County, Hydrologic Unit 05020006, on right bank 0.2 mi downstream from bridge on Accident-Friendsville Road, 0.6 mi downstream from South Branch Bear Creek, 0.8 mi southeast of Friendsville, and 1.2 mi upstream from mouth.

DRAINAGE AREA.--48.9 mi^2.

PERIOD OF RECORD.--October 1964 to current year.

REVISED RECORDS.--WDR MD-DE-94-1: 1993

GAGE.--Water-stage recorder. Datum of gage is 1,551.34 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 20	1030	616	3.51	Mar 16	2100	676	3.61
Jan 29	1630	1,590	5.00	May 9	1245	1,320	4.57
Jan 29	1730	1,350	4.62	May 10	0930	*1,890	*5.46
Jan 31	0330	1,480	4.82	Jun 1	0345	753	3.73
Jan 31	0415	622	3.52	Jun 3	1915	651	3.57
Feb 22	1500	940	4.00	Jun 7	1000	682	3.62
Mar 6	1400	820	3.83	Aug 27	1730	1,760	5.26
Mar 9	1015	676	3.61	Sep 19	0617	1,860	5.41
Mar 14	0100	733	3.70				

Minimum discharge, 4.7 ft^3/s, Oct. 9, 10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	66	59	355	35	115	113	46	597	39	22	87
2	6.6	57	55	439	34	121	186	41	362	36	20	204
3	6.3	47	49	264	34	117	164	38	381	34	41	159
4	6.2	42	e48	176	195	120	145	41	487	32	34	141
5	5.9	46	e49	151	164	169	252	65	330	31	25	131
6	5.6	137	50	133	118	589	229	71	228	92	20	108
7	5.2	135	e48	112	97	492	314	70	426	72	19	89
8	5.0	110	46	101	87	364	310	243	395	110	33	72
9	4.9	88	e43	104	e76	544	266	618	256	128	44	60
10	5.5	73	e41	110	e67	409	236	1,070	195	139	45	51
11	22	70	40	100	e58	250	243	572	147	163	32	44
12	20	87	40	e94	e50	207	231	367	128	135	28	41
13	13	112	58	e86	e42	360	210	373	145	132	24	40
14	10	98	106	e80	e36	571	175	274	153	101	20	38
15	9.2	82	94	78	e32	483	140	216	206	85	17	40
16	43	71	93	e66	30	539	125	174	184	72	17	40
17	43	113	82	e58	e32	561	110	138	174	58	17	32
18	32	121	75	e52	e34	493	97	122	169	50	15	39
19	24	121	76	e48	e35	374	85	105	145	46	14	1,130
20	25	126	453	e44	e38	282	76	93	130	41	14	500
21	20	115	299	e42	52	230	74	93	124	37	13	254
22	18	102	167	e41	178	212	68	81	110	38	13	196
23	16	86	144	e38	445	176	61	73	94	38	12	231
24	14	74	124	e36	332	145	54	78	82	34	11	181
25	13	69	112	e34	218	125	51	67	71	29	11	161
26	25	66	92	e33	182	116	51	79	62	25	11	139
27	20	64	77	e33	149	104	47	67	56	22	408	164
28	18	58	67	e33	128	93	43	89	50	26	260	238
29	50	56	62	e33	---	88	43	87	45	30	119	193
30	102	60	56	e42	---	92	43	83	42	22	96	151
31	79	---	92	e38	---	84	---	211	---	20	75	---
TOTAL	674.8	2,552	2,897	3,054	2,978	8,625	4,242	5,745	5,974	1,917	1,530	4,954
MEAN	21.8	85.1	93.5	98.5	106	278	141	185	199	61.8	49.4	165
MAX	102	137	453	439	445	589	314	1,070	597	163	408	1,130
MIN	4.9	42	40	33	30	84	43	38	42	20	11	32
CFSM	0.45	1.74	1.91	2.01	2.17	5.69	2.89	3.79	4.07	1.26	1.01	3.38
IN.	0.51	1.94	2.20	2.32	2.27	6.56	3.23	4.37	4.54	1.46	1.16	3.77

e Estimated

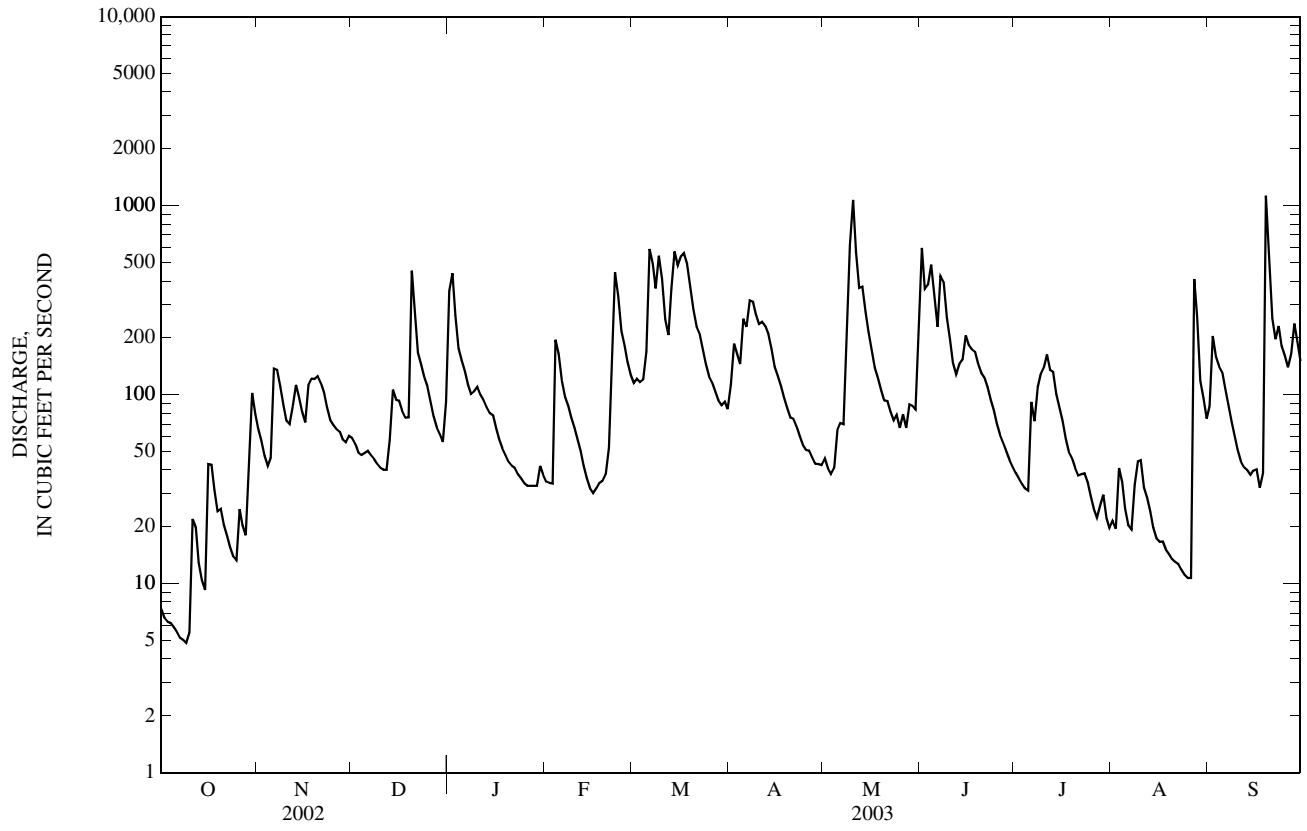
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2003, BY WATER YEAR (WY)

MEAN	32.4	66.5	114	113	149	189	152	106	57.6	47.9	31.4	33.6
MAX	187	341	293	296	387	413	293	223	199	274	117	256
(WY)	(1980)	(1986)	(1991)	(1996)	(1986)	(1994)	(1984)	(1996)	(2003)	(1990)	(1980)	(1971)
MIN	4.05	6.71	11.3	19.1	39.8	45.5	59.4	23.5	10.6	6.35	4.32	2.98
(WY)	(1992)	(1999)	(1999)	(1977)	(1993)	(1990)	(1995)	(1982)	(1991)	(1965)	(1966)	(1991)

03076600 BEAR CREEK AT FRIENDSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1965 - 2003	
ANNUAL TOTAL	27,517.8		45,142.8			
ANNUAL MEAN	75.4		124		90.8	
HIGHEST ANNUAL MEAN					133	1996
LOWEST ANNUAL MEAN					53.4	1966
HIGHEST DAILY MEAN	573	May 18	1,130	Sep 19	3,100	Sep 14, 1971
LOWEST DAILY MEAN	3.1	Sep 14	4.9	Oct 9	1.6	(a)
ANNUAL SEVEN-DAY MINIMUM	3.6	Sep 8	5.5	Oct 4	2.0	Sep 7, 1966
MAXIMUM PEAK FLOW			1,890	May 10	(b)4,650	Sep 14, 1971
MAXIMUM PEAK STAGE			5.46	May 10	(c)9.60	Sep 14, 1971
INSTANTANEOUS LOW FLOW			4.7	(d)	1.5	Sep 12, 1966
ANNUAL RUNOFF (CFSM)	1.54		2.53		1.86	
ANNUAL RUNOFF (INCHES)	20.93		34.34		25.22	
10 PERCENT EXCEEDS	178		277		224	
50 PERCENT EXCEEDS	55		78		49	
90 PERCENT EXCEEDS	6.7		20		8.3	

a Sept. 12, 13, 1966.
b From rating curve extended above 2,000 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmarks.
d Oct. 9, 10.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

03078000 CASSELMAN RIVER AT GRANTSVILLE, MD

LOCATION.--Lat 39°42'07.9", long 79°08'11.0", Garrett County, Hydrologic Unit 05020006, on left bank at downstream side of highway bridge, 0.3 mi upstream from Slaubaugh Run, 0.7 mi downstream from U.S. Highway 40, and 1.0 mi northeast of Grantsville.

DRAINAGE AREA.--62.5 mi^2.

PERIOD OF RECORD.--July 1947 to current year.

REVISED RECORDS.--WSP 1143: 1948.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,088.97 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges (ice effect), which are fair. U.S. Army Corps of Engineers satellite collection platform at station. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan 1	1945	1,510	4.09	May 10	1500	1,310	3.79
Mar 13	2300	1,150	3.54	May 31	2300	1,120	3.46
Mar 16	2300	1,150	3.54	Jun 3	2145	1,240	3.65
Mar 17	2245	1,150	3.54	Jun 7	1430	1,170	3.53
Mar 20	1930	1,060	3.40	Aug 28	0015	1,340	3.81
May 9	1645	1,060	3.40	Sep 19	0745	*3,670	*6.64

Minimum discharge, 6.4 ft^3/s, Oct. 8-10.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	145	e87	886	e51	e180	200	62	904	43	22	70
2	9.0	137	e80	867	e51	e180	301	51	400	39	21	200
3	8.2	92	73	450	e80	e180	189	45	637	37	28	136
4	7.9	76	e72	313	e300	e200	152	58	753	32	50	117
5	7.8	91	e74	239	e250	e300	388	130	412	33	27	111
6	7.4	394	e76	201	e210	e880	276	146	285	117	20	78
7	7.0	239	e71	173	e170	e780	452	99	747	119	20	60
8	6.6	150	e67	163	e140	e600	395	311	531	190	22	50
9	6.5	113	e64	175	e120	e840	475	694	338	185	24	45
10	7.9	98	e61	181	e100	e640	406	990	246	173	23	42
11	56	116	e60	140	e86	e420	456	619	191	277	38	36
12	78	214	e62	123	e74	e400	393	416	168	143	79	30
13	35	246	90	110	e64	e660	280	748	314	160	34	33
14	22	145	168	112	e55	860	221	389	239	95	23	40
15	18	112	103	106	e50	693	181	300	245	87	18	38
16	170	100	e86	e98	e48	864	154	281	184	70	16	52
17	120	261	e82	e90	e50	989	138	232	257	58	23	32
18	62	218	e79	e82	e53	981	120	224	338	49	17	88
19	42	187	78	e76	e56	854	111	191	212	48	15	2,110
20	41	222	561	e70	e59	803	102	152	298	40	13	623
21	37	159	367	e66	e120	722	107	154	294	33	12	317
22	28	137	237	e63	e280	570	105	134	224	30	11	256
23	24	119	225	e59	e660	408	90	120	162	30	10	468
24	20	108	163	e56	e450	314	76	163	127	31	9.8	243
25	21	117	147	e52	e300	258	70	125	103	26	9.1	198
26	78	108	127	e50	e200	225	71	138	89	21	8.8	183
27	61	99	e115	e49	e190	189	66	114	77	19	245	321
28	43	86	e100	e48	e180	153	56	149	68	19	505	524
29	152	81	95	e50	---	141	53	134	57	37	90	264
30	279	89	84	e54	---	142	52	107	49	23	94	189
31	147	---	163	e52	---	134	---	382	---	18	75	---
TOTAL	1,613.3	4,459	3,917	5,254	4,447	15,560	6,136	7,858	8,949	2,282	1,602.7	6,954
MEAN	52.0	149	126	169	159	502	205	253	298	73.6	51.7	232
MAX	279	394	561	886	660	989	475	990	904	277	505	2,110
MIN	6.5	76	60	48	48	134	52	45	49	18	8.8	30
CFSM	0.83	2.38	2.02	2.71	2.54	8.03	3.27	4.06	4.77	1.18	0.83	3.71
IN.	0.96	2.65	2.33	3.13	2.65	9.26	3.65	4.68	5.33	1.36	0.95	4.14

e Estimated

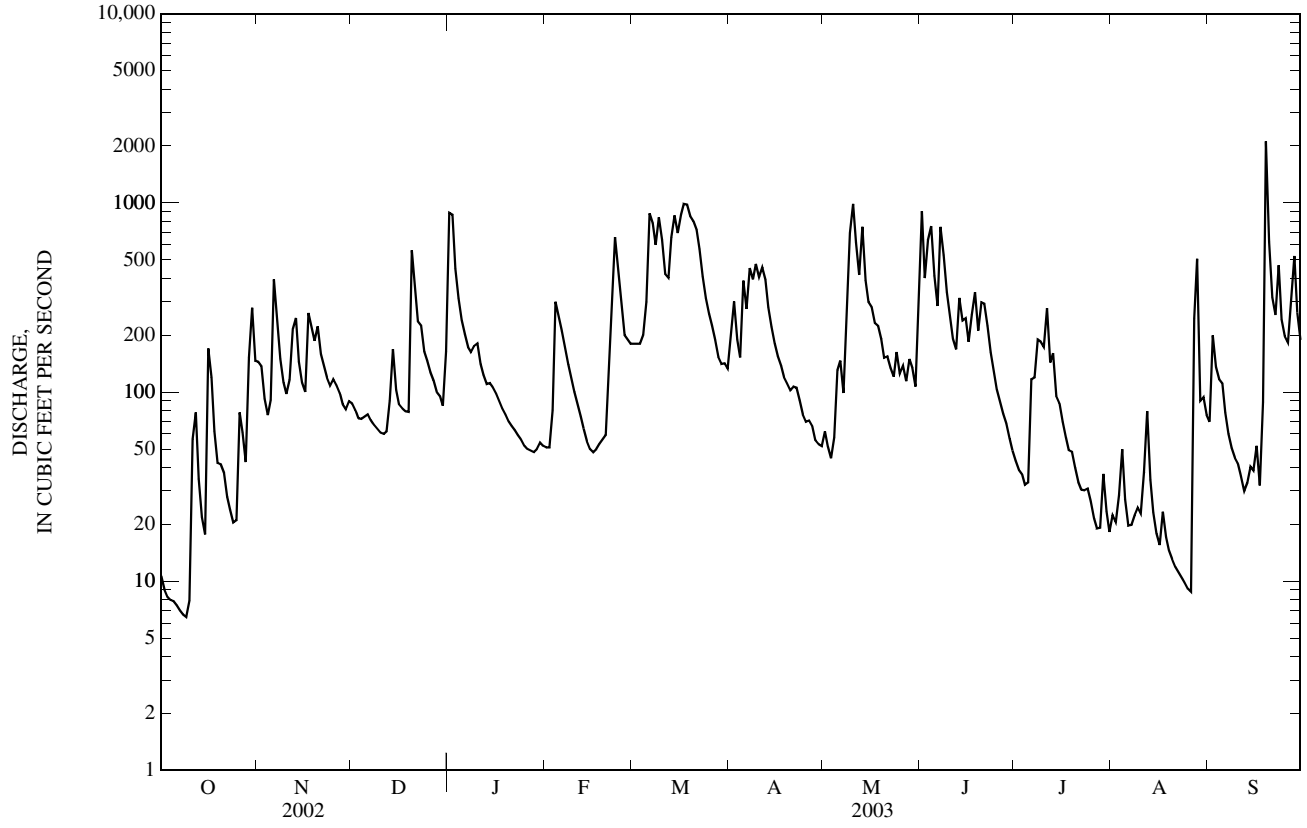
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2003, BY WATER YEAR (WY)

MEAN	44.8	87.1	144	161	196	265	211	139	78.9	49.1	38.4	36.9
MAX	288	449	341	376	414	582	468	312	298	175	202	290
(WY)	(1955)	(1986)	(1973)	(1996)	(1956)	(1963)	(1970)	(1996)	(2003)	(1996)	(1956)	(1996)
MIN	1.65	3.38	13.8	26.4	60.3	57.0	77.1	40.1	10.0	4.30	2.87	1.58
(WY)	(1954)	(1954)	(1999)	(1977)	(1964)	(1990)	(1968)	(1976)	(1965)	(1965)	(1991)	(1991)

03078000 CASSELMAN RIVER AT GRANTSVILLE, MD—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1947 - 2003	
ANNUAL TOTAL	40,897.9		69,032.0			
ANNUAL MEAN	112		189		121	
HIGHEST ANNUAL MEAN					203	1996
LOWEST ANNUAL MEAN					64.2	1954
HIGHEST DAILY MEAN	992	Mar 20	2,110	Sep 19	(e)3,600	Jan 19, 1996
LOWEST DAILY MEAN	3.5	Sep 13	6.5	Oct 9	(a)0.00	Aug 31, 1962
ANNUAL SEVEN-DAY MINIMUM	3.8	Sep 9	7.3	Oct 4	0.89	Aug 27, 1962
MAXIMUM PEAK FLOW			3,670	Sep 19	(b)8,400	Oct 15, 1954
MAXIMUM PEAK STAGE			6.64	Sep 19	10.70	Oct 15, 1954
INSTANTANEOUS LOW FLOW			6.4	(c)	(a)0.00	(d)
ANNUAL RUNOFF (CFSM)	1.79		3.03		1.93	
ANNUAL RUNOFF (INCHES)	24.34		41.09		26.21	
10 PERCENT EXCEEDS	250		451		281	
50 PERCENT EXCEEDS	80		112		67	
90 PERCENT EXCEEDS	7.1		23		8.2	

e Estimated
a Result of regulation from unknown source.
b From rating curve extended above 1,600 ft^3/s on basis of contracted-opening measurement at gage height of 8.13 ft.
c Oct. 8-10.
d Aug. 31, Sept. 1, 1962.



DAILY MEAN DISCHARGE - 2003 WATER YEAR

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of annual maximum stage for tidal crest-stage stations.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Maximum discharge at crest-stage partial-record stations

Station name and number	Location and drainage area	Period of record	Water year 2003 maximum			Period of record maximum		
			Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
POTOMAC RIVER BASIN								
North Branch Potomac River at Kitzmiller, Md. (01595500)	Lat 39°23'38", long 79°10'55", Garrett County, Hydrologic Unit 02070002, on left bank 0.6 mi downstream from bridge on State Highway 38 in Kitzmiller. Drainage area is 225 mi^2.	1950-85⅛≠, 1986-99, 2000-03	09-19-03	12.51	29,200	10-15-54	**a**13.73	33,400
North Branch Potomac River at Barnum, W. Va. (01595800)	Lat 39°26'44", long 79°06'39", Garrett County, Hydrologic Unit 02070002, on right bank at highway bridge at Barnum. Drainage area is 266 mi^2.	1967-85⅛≠, 1986-99, 2000-03	05-11-03	7.92	6,250	7-03-78	13.37	27,100
North Branch Potomac River at Pinto, Md. (01600000)	Lat 39°26'44", long 79°06'39", Mineral County, W. Va., Hydrologic Unit 02070002, on right bank at downstream side of Western Maryland railroad bridge at Pinto, 2.8 mi downstream from Mill Run. Drainage area is 596 mi^2.	1939-85⅛≠, 1986-99, 2000-03	09-19-03	12.70	12,900	10-16-54	23.23	37,000

⅛≠ Operated as a continuous-record station.
a From floodmark

Photo by U.S. Geological Survey Personnel

North Branch Potomac River at Barnum, W. Va.(01595800)

Tidal crest-stage partial-record stations

The following table contains annual maximum stages for tidal crest-stage stations. The information is obtained from a crest-stage gage or a water-stage recorder located at each site. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. All stages are elevations above National Geodetic Vertical Datum of 1929. Only the maximum stage is given. Information on some other high stages may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum stage at tidal crest-stage partial-record stations during water year 2003

Station No.	Station Name	Location	Period of Record	Annual Maximum Date	Annual Maximum Elevation, in feet NGVD
		DELAWARE RIVER BASIN			
01480065	Christina River at Newport, De.	Lat 39°42'38", long 75°36'33", New Castle County, Hydrologic Unit 02040205, on downstream side of bridge on James Street, at Newport and 7.5 mi upstream from the confluence with Delaware River.	1995-99, 2000-03	9-19-03	7.09
01481602	Delaware River below Christina River, at Wilmington, De.	Lat 39°43'00", long 75°31'03", New Castle County, Hydrologic Unit 02040205, on right bank, 1,000 ft from mouth of Christina River at the Wilmington Marine Terminal, 2.0 mi upstream of Delaware Memorial Bridge, and at river mi 69.70.	1983-91, 1995-99, 2000-03	9-19-03	6.88
		MURDERKILL RIVER BASIN			
01484085	Murderkill River at Bowers, De.	Lat 39°03'30", long 75°23'51", Kent County, Hydrologic Unit 02040207, at Faulkner's Landing in Bowers, on left bank 10 ft southeast of southwest corner of Faulkner's Pier nr near public boat ramp.	1966-86, 1997-99, 2000-03	2-17-03	6.60
		BROADKILL RIVER BASIN			
01484272	Broadkill River nr Milton, De.	Lat 38°47'27", long 75°15'03", Sussex County, Hydrologic Unit 02040207, on right bank at abandoned bridge abutment, just downstream of State Highway 1, 3.3 mi east of Milton, and 7.8 mi upstream of mouth.	2003	9-18-03	3.84
01484350	Broadkill River at Lewes, De.	Lat 38°47'24", long 75°09'48", Sussex County, Hydrologic Unit 02040207, at Lewes, on right bank on boat dock at the Roosevelt Inlet Coast Guard station.	2003	2-17-03	5.18
		INDIAN RIVER BASIN			
01484540	Indian River at Rosedale Beach, De.	Lat 38°35'29", long 75°12'44", Sussex County, Hydrologic Unit 02060010, on left bank attached to privately owned fishing pier, at Seals Point, 1.9 mi west of Oak Orchard.	1992-99 2000-03	9-19-03	*5.5
01484670	Rehoboth Bay at Dewey Beach, De.	Lat 38°41'40", long 75°05'05", Sussex County, Hydrologic Unit 02060010, on north shore of Rehoboth Bay at Head of Bay Cove, at Dewey Beach and at south end of Ventian Drive on bulkhead of a boat slip.	1985-97 2001-03	9-19-03	3.61
01484683	Indian River Bay at Indian River Inlet near Bethany Beach, De.	Lat 38°36'35", long 75°04'06", Sussex County, Hydrologic Unit 02060010, 0.3 mi northwest of the Indian River Inlet, 0.2 mi west of State Highway 1, 4.9 mi north of Bethany Beach and at the Indian River Coast Guard station.	1992-99 2000-03	2-17-03	5.01

*** From floodmark.**

Tidal crest-stage partial-record stations--Continued

Annual maximum stage at tidal crest-stage partial-record stations during water year 2003--Continued

Station No.	Station Name	Location	Period of Record	Annual Maximum Date	Annual Maximum Elevation, in feet NGVD
		ASSAWOMAM BAY BASIN			
01484696	Jefferson Creek at South Bethany, De.	Lat 38°31'18", long 75°03'46", Sussex County, Hydrologic Unit 02060010, near mouth of canal off Jefferson Creek, at bulkhead at the end of West 1st Street at South Bethany.	2000-03	9-19-03	3.52
01484701	Little Assawoman Bay at Fenwick Island, De.	Lat 38°27'18", long 75°03'31", Sussex County, Hydrologic Unit 02060010, at bulkhead at end of Madison Ave at Fenwick Island.	2000-03	9-19-03	3.01

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

Water-Quality partial-records stations are particular sites where chemical-quality, biological, and/or sediment data are collected systematically over a period of years for use in hydrologic analyses. The data are collected usually less than quarterly.Samples colleted at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin are referred to as miscellaneous sites.

GUNPOWDER RIVER BASIN

0158397968 MINEBANK RUN AT TRANSECT 3 NEAR GLEN ARN, MD

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Carbon dioxide water, unfltrd mg/L (00405)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
NOV												
07...	1120	Environmental	0.64	1.5	10.9	8.4	712	10.9	10.0	270	73.1	22.2
07...	1121	Replicate	--	--	--	--	--	--	--	260	69.4	20.7
JAN												
13...	1150	Environmental	1.4	--	13.9	7.5	1,160	--	3.3	--	--	--
MAR												
10...	1200	Environmental	3.1	6.8	13.2	7.7	1,180	--	5.9	260	69.7	21.4
MAY												
12...	1050	Environmental	1.4	--	10.4	8.0	963	19.0	16.2	--	--	--
JUL												
07...	1040	Environmental	2.5	7.1	7.9	7.7	693	--	22.0	260	69.0	20.4
SEP												
02...	1120	Environmental	1.0	--	9.1	7.6	745	--	21.4	--	--	--
02...	1121	Replicate	--	--	--	--	--	--	--	--	--	--

Date	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)
NOV													
07...	--	36.6	102	--	10.2	23.0	0.11	<0.04	0.89	<0.008	<0.02	<0.04	1.0
07...	--	33.8	102	--	10.0	22.7	0.10	<0.04	0.89	<0.008	<0.02	<0.04	0.99
JAN													
13...	--	--	--	--	--	--	0.12	<0.04	1.81	<0.008	<0.02	<0.04	1.9
MAR													
10...	3.69	110	243	<0.17	9.3	26.4	0.19	<0.04	2.04	E.004	<0.02	<0.04	2.2
MAY													
12...	--	--	--	--	--	--	0.12	<0.04	1.59	<0.008	<0.02	<0.04	1.7
JUL													
07...	3.90	42.3	105	<0.2	11.2	19.7	0.19	<0.04	1.52	E.005	<0.02	E.03	1.7
SEP													
02...	--	--	--	--	--	--	0.12	<0.04	1.27	E.005	<0.02	<0.04	1.4
02...	--	--	--	--	--	--	0.15	<0.04	1.26	E.005	<0.02	<0.04	1.4

Date	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)
NOV		
07...	<10	4.0
07...	<10	3.8
JAN		
13...	--	--
MAR		
10...	<10	43.3
MAY		
12...	--	--
JUL		
07...	E5	5.9
SEP		
02...	--	--
02...	--	--

Remark codes used in this table:
<-- Less than
E-- Estimated value

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

GUNPOWDER RIVER BASIN

0158397969 MINEBANK RUN AT TRANSECT 2 NEAR GLEN ARN, MD

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Carbon dioxide water, unfltrd mg/L (00405)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
NOV												
07...	1200	Environmental	0.64	2.0	12.1	8.3	712	10.9	9.9	260	69.6	21.4
JAN												
13...	1245	Environmental	1.4	--	13.5	7.7	1,180	--	4.1	--	--	--
MAR												
10...	1310	Environmental	3.1	5.4	12.9	7.8	1,190	--	6.9	280	73.0	22.8
10...	1311	Replicate	--	--	--	--	--	--	--	300	78.6	24.1
MAY												
12...	1130	Environmental	1.4	--	10.6	8.1	961	19.0	16.3	--	--	--
JUL												
07...	1230	Environmental	2.6	5.1	8.2	7.8	713	--	23.3	250	67.0	20.3
SEP												
02...	1220	Environmental	1.0	--	9.5	7.7	750	--	21.8	--	--	--

Date	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)
NOV													
07...	--	34.7	103	--	10.1	22.9	0.11	<0.04	0.88	<0.008	<0.02	<0.04	0.99
JAN													
13...	--	--	--	--	--	--	0.11	<0.04	1.81	<0.008	<0.02	<0.04	1.9
MAR													
10...	3.48	110	253	<0.17	9.2	26.5	0.14	<0.04	2.03	E.004	<0.02	<0.04	2.2
10...	3.58	114	251	<0.17	9.2	26.6	0.16	<0.04	2.04	E.004	<0.02	<0.04	2.2
MAY													
12...	--	--	--	--	--	--	0.19	<0.04	1.60	<0.008	<0.02	<0.04	1.8
JUL													
07...	3.74	41.6	110	<0.2	11.4	20.4	0.18	<0.04	1.53	E.005	<0.02	E.03	1.7
SEP													
02...	--	--	--	--	--	--	0.24	<0.04	1.23	E.004	<0.02	<0.04	1.5

Date	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)
NOV		
07...	<10	3.5
JAN		
13...	--	--
MAR		
10...	E6	44.7
10...	E5	47.6
MAY		
12...	--	--
JUL		
07...	<8	5.3
SEP		
02...	--	--

Remark codes used in this table:
<-- Less than
E-- Estimated value

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

GUNPOWDER RIVER BASIN

0158397971 MINEBANK RUN AT TRANSECT 1 NEAR GLEN ARN, MD

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Carbon dioxide water, unfltrd mg/L (00405)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
NOV												
07...	1245	Environmental	0.62	1.7	11.3	8.3	688	11.6	10.2	260	68.5	21.5
JAN												
13...	1325	Environmental	1.4	--	13.6	7.8	1,170	--	4.8	--	--	--
MAR												
10...	1440	Environmental	3.9	3.9	12.5	7.9	1,180	--	7.6	290	75.9	23.7
MAY												
12...	1220	Environmental	1.4	--	10.8	8.1	953	19.0	16.6	--	--	--
JUL												
07...	1420	Environmental	2.6	6.1	8.0	7.8	717	--	23.9	260	70.7	21.2
07...	1421	Replicate	--	--	--	--	--	--	--	260	70.7	21.3
SEP												
02...	1250	Environmental	0.95	--	9.5	7.7	747	--	21.9	--	--	--

Date	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)
NOV													
07...	--	32.9	101	--	10.0	22.4	0.12	<0.04	0.87	<0.008	<0.02	<0.04	0.99
JAN													
13...	--	--	--	--	--	--	E.08	<0.04	1.81	<0.008	<0.02	<0.04	--
MAR													
10...	3.55	114	250	<0.17	9.1	26.5	0.19	<0.04	1.99	E.004	<0.02	<0.04	2.2
MAY													
12...	--	--	--	--	--	--	0.12	<0.04	1.54	<0.008	<0.02	E.02	1.7
JUL													
07...	3.88	43.4	110	<0.2	11.5	20.5	0.26	<0.04	1.52	E.005	E.01	<0.04	1.8
07...	3.95	43.7	110	<0.2	11.5	20.4	0.20	<0.04	1.52	E.005	<0.02	<0.04	1.7
SEP													
02...	--	--	--	--	--	--	0.19	<0.04	1.20	E.006	<0.02	<0.04	1.4

Date	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)
NOV		
07...	<10	3.9
JAN		
13...	--	--
MAR		
10...	<10	43.1
MAY		
12...	--	--
JUL		
07...	E4	7.0
07...	<8	7.1
SEP		
02...	--	--

Remark codes used in this table:
<-- Less than
E-- Estimated value

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

GUNPOWDER RIVER BASIN

0158397973 MINEBANK RUN BELOW TRANSECT 1 NEAR PARKVILLE, MD

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Carbon dioxide water, unfltrd mg/L (00405)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
NOV												
07...	1350	Environmental	0.58	1.2	11.6	8.4	694	9.7	10.4	270	71.6	22.6
07...	1352	Blank	--	--	--	--	--	--	--	--	E.01	<0.008
JAN												
13...	1440	Environmental	1.4	--	13.4	7.9	1,170	--	4.8	--	--	--
13...	1441	Replicate	--	--	--	--	--	--	--	--	--	--
13...	1442	Blank	--	--	--	--	--	--	--	--	--	--
MAR												
10...	1540	Environmental	3.6	3.6	12.4	8.0	1,170	--	7.4	280	72.4	24.2
10...	1542	Blank	--	--	--	--	--	--	--	--	0.05	<0.008
MAY												
12...	1320	Environmental	1.3	--	9.8	8.1	944	19.0	17.9	--	--	--
12...	1322	Blank	--	--	--	--	--	--	--	--	--	--
JUL												
07...	1510	Environmental	2.3	5.2	8.2	7.8	722	--	24.4	260	69.3	21.2
07...	1512	Blank	--	--	--	--	--	--	--	--	E.01	E.003
SEP												
02...	1350	Environmental	0.83	--	9.1	7.8	744	--	22.1	--	--	--
02...	1352	Blank	--	--	--	--	--	--	--	--	--	--

Date	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, fltrd, mg/L (00602)
NOV													
07...	--	35.1	99.2	--	9.7	22.1	0.12	<0.04	0.84	<0.008	<0.02	<0.04	0.95
07...	--	<0.09	<0.20	--	<0.2	<0.2	<0.10	<0.04	<0.06	<0.008	<0.02	<0.04	--
JAN													
13...	--	--	--	--	--	--	0.15	<0.04	1.85	<0.008	<0.02	<0.04	2.0
13...	--	--	--	--	--	--	0.12	<0.04	1.83	<0.008	<0.02	<0.04	2.0
13...	--	--	--	--	--	--	E.06	<0.04	<0.05	<0.008	<0.02	<0.06	--
MAR													
10...	3.55	124	252	<0.17	9.1	26.2	0.18	<0.04	1.97	E.004	<0.02	<0.04	2.2
10...	<0.10	<0.09	<0.20	<0.17	<0.2	<0.2	E.05	<0.04	<0.06	<0.008	<0.02	<0.04	--
MAY													
12...	--	--	--	--	--	--	0.10	<0.04	1.55	<0.008	<0.02	<0.04	1.7
12...	--	--	--	--	--	--	<0.10	<0.04	<0.06	<0.008	<0.02	<0.04	--
JUL													
07...	3.84	43.2	111	<0.2	11.4	20.5	0.16	<0.04	1.51	E.005	<0.02	<0.04	1.7
07...	<0.16	0.11	<0.20	<0.2	<0.2	<0.2	E.09	<0.04	<0.06	<0.008	<0.02	<0.04	--
SEP													
02...	--	--	--	--	--	--	0.14	<0.04	1.17	E.005	<0.02	<0.04	1.3
02...	--	--	--	--	--	--	<0.10	<0.04	<0.06	<0.008	<0.02	<0.04	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

GUNPOWDER RIVER BASIN

0158397973 MINEBANK RUN BELOW TRANSECT 1 NEAR PARKVILLE, MD--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)
NOV		
07...	<10	E2.9
07...	<10	<2.0
JAN		
13...	--	--
13...	--	--
13...	--	--
MAR		
10...	<10	42.7
10...	<10	<2.0
MAY		
12...	--	--
12...	--	--
JUL		
07...	<8	5.6
07...	<8	<0.4
SEP		
02...	--	--
02...	--	--

Remark codes used in this table:
<-- Less than
E-- Estimated value

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

POTOMAC RIVER BASIN

01645495 POTOMAC RIVER NEAR GREAT FALLS, VA

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Sample type	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Organic carbon, water, fltrd, mg/L (00681)	BOD, water, unfltrd 5 day, 20 degC mg/L (00310)
APR												
03...	1145	Environmental	E21300	762	10.9	101	7.2	279	23.0	12.1	3.3	--
MAY												
08...	1015	Environmental	E21600	759	11.7	125	7.5	286	23.0	18.3	--	--
JUN												
05...	0830	Blank	--	--	--	--	--	--	--	--	--	--
05...	0831	Blank	--	--	--	--	--	--	--	--	0.3	--
05...	0832	Blank	--	--	--	--	--	--	--	--	--	--
05...	1000	Environmental	E87000	758	8.4	84	7.0	188	19.0	14.9	5.6	--
JUL												
07...	1230	Blank	--	--	--	--	--	--	--	--	--	--
10...	1000	Environmental	E13600	761	6.9	85	7.7	338	25.0	26.1	3.3	--
10...	1001	Replicate	--	--	--	--	--	--	--	--	3.4	--
10...	1005	Replicate	--	--	--	--	--	--	--	--	--	--
AUG												
07...	0920	Blank	--	--	--	--	--	--	--	--	1.1	4.0#
07...	1000	Environmental	E6000	759	7.6	97	7.3	362	28.0	27.4	3.2	--
07...	1001	Replicate	--	--	--	--	--	--	--	--	3.4	--
SEP												
11...	0815	Blank	--	--	--	--	--	--	--	--	--	--
11...	0855	Blank	--	--	--	--	--	--	--	--	--	--
11...	0900	Environmental	E7710	768	8.1	90	7.3	323	20.0	20.9	3.3	--
11...	0901	Replicate	--	--	--	--	--	--	--	--	--	--

Date	2,6-Diethylaniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Acetochlor, water, fltrd, ug/L (49260)	Alachlor, water, fltrd, ug/L (46342)	Atrazine, water, fltrd, ug/L (39632)	Azinphosmethyl, water, fltrd 0.7u GF ug/L (82686)	Benfluralin, water, fltrd 0.7u GF ug/L (82673)	Carbaryl, water, fltrd 0.7u GF ug/L (82680)	Chlorpyrifos water, fltrd, ug/L (38933)	cis-Permethrin water fltrd 0.7u GF ug/L (82687)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazinon, water, fltrd, ug/L (39572)	Dieldrin, water, fltrd, ug/L (39381)
APR													
03...	<0.006	E.066	<0.006	<0.004	0.033	<0.050	<0.010	<0.041	<0.005	<0.006	<0.003	<0.005	<0.005
MAY													
08...	<0.006	E.072	<0.006	<0.004	1.20	<0.050	<0.010	E.003	<0.005	<0.006	<0.003	E.003	<0.005
JUN													
05...	<0.006	<0.006	<0.006	<0.004	<0.007	<0.050	<0.010	<0.041	<0.005	<0.006	<0.003	<0.005	<0.005
05...	<0.006	<0.006	<0.006	<0.004	<0.007	<0.050	<0.010	<0.041	<0.005	<0.006	<0.003	<0.005	<0.005
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.006	E.241	0.021	<0.005	1.75	E.016	<0.010	E.040	<0.005	<0.006	<0.003	0.013	<0.005
JUL													
07...	--	--	--	--	--	--	--	<1	<0.5	--	--	<0.5	--
10...	<0.006	E.097	E.004	<0.004	0.367	<0.050	<0.010	E.028	<0.005	<0.006	<0.003	E.003	<0.005
10...	<0.006	E.077	0.008	<0.004	0.375	<0.050	<0.010	E.025	<0.005	<0.006	<0.003	E.003	<0.005
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	--	<0.03	--	--	<0.009	--	--	--	--	--	--	--	--
07...	<0.006	E.060	<0.006	<0.004	0.113	<0.050	<0.010	<0.041	<0.005	<0.006	<0.003	<0.005	<0.005
07...	--	E.06	--	--	0.061	--	--	--	--	--	--	--	--
SEP													
11...	--	--	--	--	--	--	--	<1	<0.5	--	--	<0.5	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	<0.006	E.061	<0.006	<0.004	0.071	<0.050	<0.010	<0.041	<0.005	<0.006	<0.003	<0.005	<0.005
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS AND MISCELLENEOUS SITES

POTOMAC RIVER BASIN

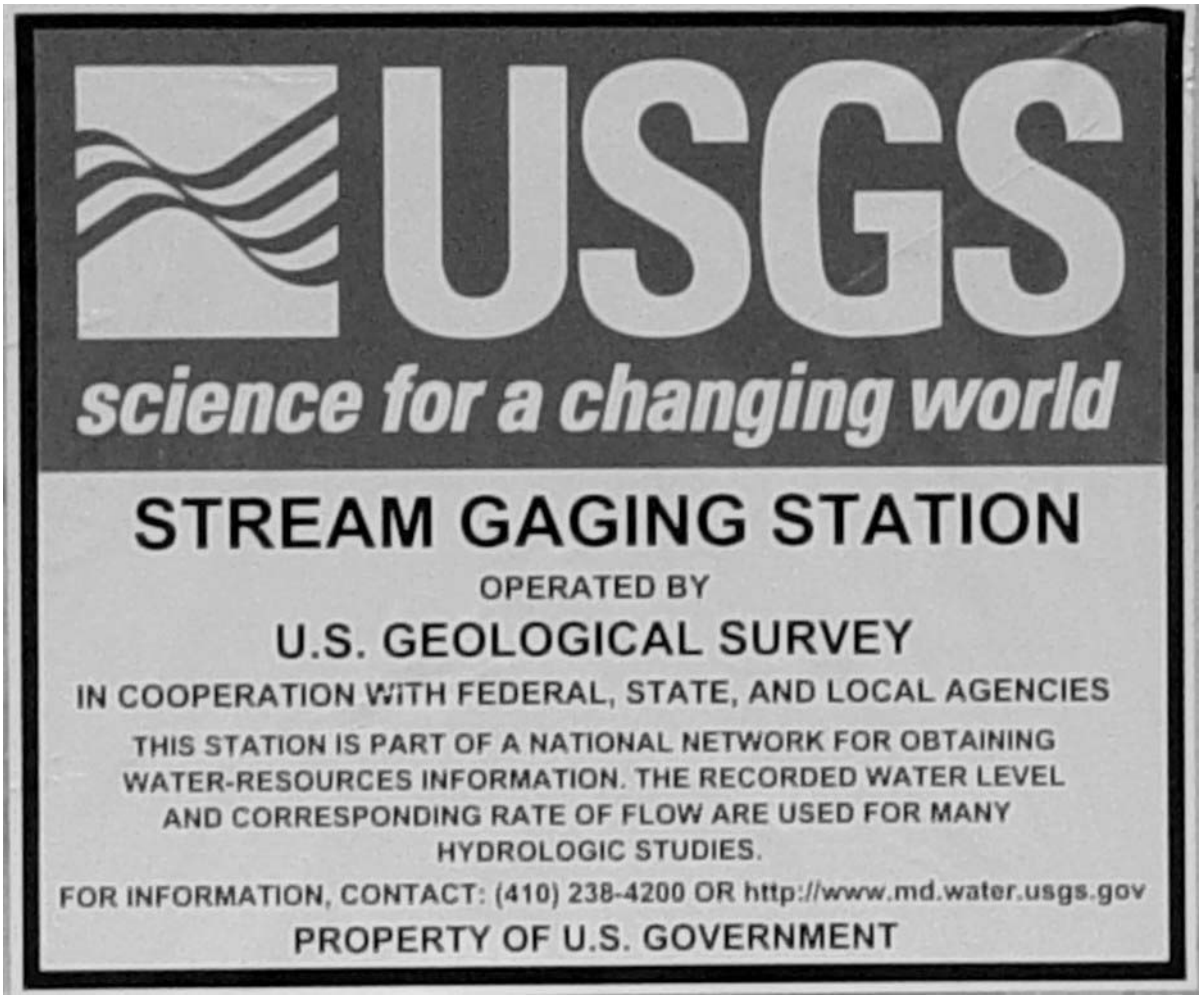
01645495 POTOMAC RIVER NEAR GREAT FALLS, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Fonofos water, fltrd, ug/L (04095)	Mala-thion, water, fltrd, ug/L (39532)	Methyl para-thion, water, fltrd 0.7u GF ug/L (82667)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Pendi-meth-alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome-ton, water, fltrd, ug/L (04037)	Pron-amide, water, fltrd 0.7u GF ug/L (82676)	Sima-zine, water, fltrd, ug/L (04035)	Tebu-thiuron water fltrd 0.7u GF ug/L (82670)	Terbu-fos, water, fltrd 0.7u GF ug/L (82675)	Ter-buthyl-azine, water, fltrd, ug/L (04022)
APR													
03...	<0.003	<0.027	<0.006	0.016	<0.006	<0.022	<0.011	M	<0.004	0.013	<0.02	<0.02	<0.01
MAY													
08...	<0.003	<0.027	<0.006	0.055	<0.006	<0.022	<0.011	E.01	<0.004	0.574	<0.02	<0.02	<0.01
JUN													
05...	<0.003	<0.027	<0.006	<0.013	<0.006	<0.022	<0.011	<0.01	<0.004	<0.005	<0.02	<0.02	<0.01
05...	<0.003	<0.027	<0.006	<0.013	<0.006	<0.022	<0.011	<0.01	<0.004	<0.005	<0.02	<0.02	<0.01
05...	--	--	--	--	--	--	--	--	--	--	--	--	--
05...	<0.003	<0.027	<0.006	0.705	<0.006	E.011	<0.011	E.01	<0.004	0.907	<0.02	<0.02	<0.01
JUL													
07...	--	--	--	<0.5	--	--	--	<0.5	--	--	--	--	--
10...	<0.003	<0.027	<0.006	0.117	<0.006	<0.022	<0.011	E.01	<0.004	0.183	<0.02	<0.02	<0.01
10...	<0.003	<0.027	<0.006	0.123	<0.006	<0.022	<0.011	E.01	<0.004	0.183	<0.02	<0.02	<0.01
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
07...	--	--	--	--	--	--	--	--	--	--	<0.006	--	--
07...	<0.003	<0.027	<0.006	0.026	<0.006	<0.022	<0.011	E.01	<0.004	0.025	<0.02	<0.02	<0.01
07...	--	--	--	--	--	--	--	--	--	--	<0.006	--	--
SEP													
11...	--	--	--	M	--	--	--	<0.5	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	<0.003	<0.027	<0.006	0.023	<0.006	<0.022	<0.011	E.01	<0.004	0.015	<0.02	<0.02	<0.01
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

Date	Tri-flur-alin, water, fltrd 0.7u GF ug/L (82661)
APR	
03...	<0.009
MAY	
08...	<0.009
JUN	
05...	<0.009
05...	<0.009
05...	--
05...	<0.009
JUL	
07...	--
10...	<0.009
10...	<0.009
10...	--
AUG	
07...	--
07...	<0.009
07...	--
SEP	
11...	--
11...	--
11...	<0.009
11...	--

Remark codes used in this table:
<-- Less than
E-- Estimated value
M-- Presence verified, not quantified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Conversion Factors

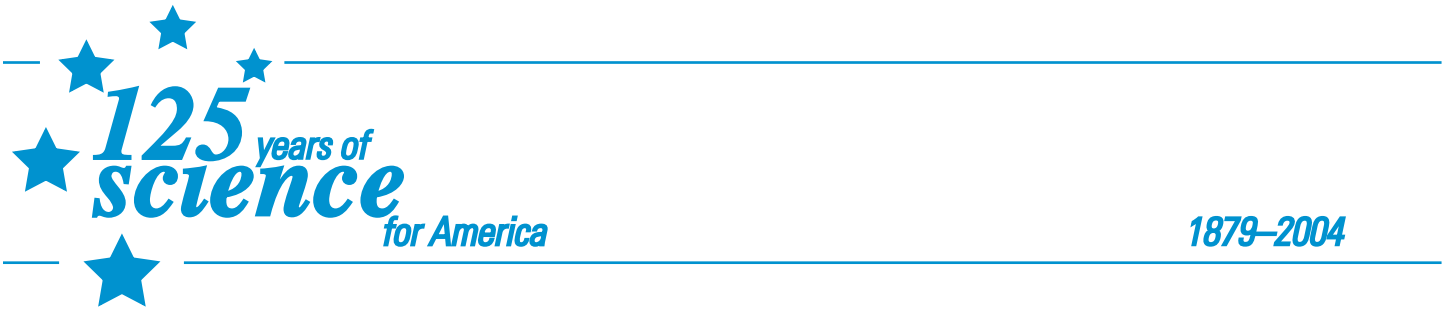
Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter (mm)
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609×10^{0}	kilometer (km)
	Area	
acre	4.047×10^{3}	square meter (m^2)
	4.047×10^{-1}	square hectometer (hm^2)
	4.047×10^{-3}	square kilometer (km^2)
square mile (mi^2)	2.590×10^{0}	square kilometer (km^2)
	Volume	
gallon (gal)	3.785×10^{0}	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
	3.785×10^{0}	cubic decimeter (dm^3)
million gallons (Mgal)	3.785×10^{3}	cubic meter (m^3)
	3.785×10^{-3}	cubic hectometer (hm^3)
cubic foot (ft^3)	2.832×10^{-2}	cubic meter (m^3)
	2.832×10^{1}	cubic decimeter (dm^3)
cubic-foot-per-second-per-day [(ft^3/s/d]	2.447×10^{3}	cubic meter (m^3)
	2.447×10^{-3}	cubic hectometer (hm^3)
acre-foot (acre-ft)	1.223×10^{3}	cubic meter (m^3)
	1.223×10^{-3}	cubic hectometer (hm^3)
	1.223×10^{-6}	cubic kilometer (km^3)
	Flow rate	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter (L/s)
	2.832×10^{-2}	cubic meter per second (m^3/s)
	2.832×10^{1}	cubic decimeter per second (dm^3/s)
gallon per minute (gal/min)	6.309×10^{-2}	liter per second (L/s)
	6.309×10^{-5}	cubic meter per second (m^3/s)
	6.309×10^{-2}	cubic decimeter per second (dm^3/s)
million gallons per day (Mgal/d)	4.381×10^{-2}	cubic meter per second
	4.381×10^{1}	cubic decimeter per second (dm^3/s)
	Mass	
ton, short (2,000 lb)	9.072×10^{-1}	megagram (Mg) or metric ton

Temperature in degrees Celsius (˚C) may be converted to degrees Fahrenheit (˚F) as follows:

$$˚F = (1.8 \times ˚C) + 32$$

USGS

Water Resources Data, Maryland,Delaware, and Washington, D.C. Volume 1. Surface -Water Data,, Water Year 2003—MD_DE_DC-03-1



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