

CALENDAR FOR WATER YEAR 2002

2001

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

2002

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

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

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

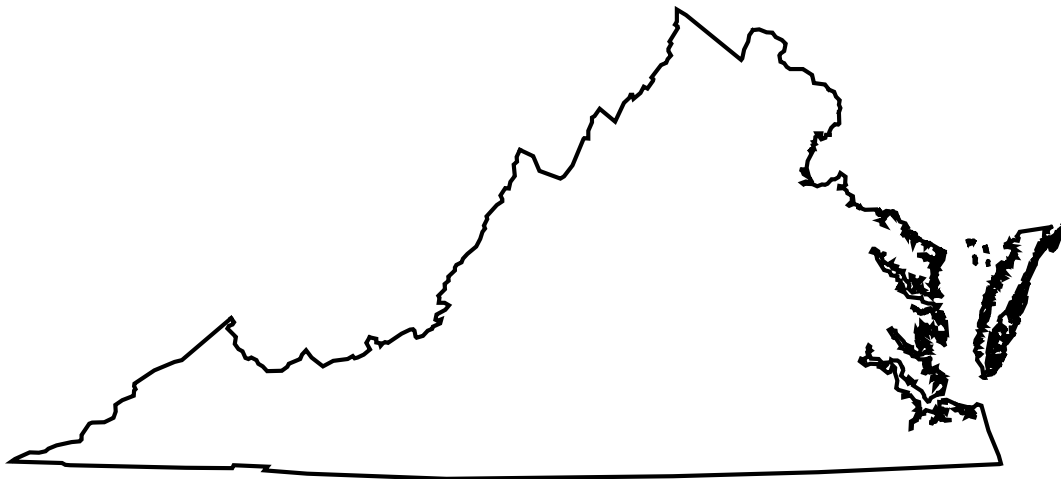
U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data Virginia Water Year 2002

Volume 1. Surface-Water Discharge and Surface-Water Quality Records

By Roger K. White, Donald C. Hayes, Joel R. Guyer,
and Eugene D. Powell

Water-Data Report VA-02-1



Prepared in cooperation with the
Virginia Department of Environmental Quality and with other agencies



U.S. DEPARTMENT OF THE INTERIOR

GALE A. NORTON, Secretary

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2002

PREFACE

This volume of the annual hydrologic data report of Virginia is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's and cooperating agencies' surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality 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 Virginia are contained in two volumes:

Volume 1. Surface-Water-Discharge and Surface-Water-Quality Records

Volume 2. Ground-Water-Level and Ground-Water-Quality Records

This report (Volume 1) is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey and the Virginia Department of Environmental Quality 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 personnel contributed significantly to the collection, computation, processing, and completion of this information:

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13. ABSTRACT <i>(Maximum 200 words)</i> Water-resources data for the 2002 water year for Virginia 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 170 gaging stations; stage only at 3 gaging stations; stage and contents at 10 lakes and reservoirs; and water quality at 18 gaging stations. Also included are data for 51 crest-stage partial-record stations. Locations of these sites are shown on figures 4 and 5. Miscellaneous hydrologic data were collected at 192 measuring sites and 8 water-quality sampling sites not involved in the systematic data-collection program. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.			
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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

NOTE.--Data for partial-record stations and miscellaneous sites for both surface-water discharge and quality are published in separate sections of the data report. See references at the end of this list for page numbers for these sections.

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

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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

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	Station number	Page
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SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

	Station number	Page
<u>OHIO RIVER BASIN</u>		
Ohio River:		
 <u>KANAWHA RIVER BASIN</u>		
South Fork New River (head of Kanawha River) near Jefferson, NC (d)	03161000	430
New River near Galax (d)	03164000	432
Chestnut Creek at Galax (d)	03165000	434
New River at Ivanhoe(d)	03165500	436
Reed Creek at Grahams Forge (d)	03167000	438
New River at Allisonia (d)	03168000	440
Claytor Reservoir near Radford (e)	03169000	442
Little River at Graysontown (d)	03170000	444
Little River Reservoir near Radford (e)	03170500	446
New River at Radford (d)	03171000	448
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New River at Glen Lyn (d)	03176500	454
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Russell Fork at Haysi (d)	03208500	458
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Cranes Nest River near Clintwood (d)	03208950	462
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Pound River below Flannagan Dam, near Haysi (d)	03209000	466
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French Broad River (head of Tennessee River):		
South Fork Holston River at Riverside, near Chilhowie (d)	03471500	470
South Fork Holston River near Damascus (d)	03473000	472
Middle Fork Holston River at Seven Mile Ford (d)	03474000	474
Middle Fork Holston River near Meadowview (d)	03475000	476
Beaver Creek at Bristol (d)	03478400	478
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Tennessee River:		
Clinch River at Cleveland (d)	03524000	482
Clinch River at Speers Ferry (d)	03527000	484
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WATER RESOURCES DATA - VIRGINIA, 2002

DISCONTINUED SURFACE-WATER-DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water-discharge or stage-only stations (gaging stations) in Virginia have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Those stations with an asterisk (*) after the station number are currently operated as crest-stage partial-record stations. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

[Letters after station name designate type of data collected: (d) discharge, (e) elevation]

 Discontinued surface-water-discharge or stage-only stations

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
NASSAWADOX CREEK BASIN			
Guy Creek (head of Holly Grove Cove) near Nassawadox, Va. (d)	01484800	1.72	1963-96
POTOMAC RIVER BASIN			
Opequon Creek near Berryville, Va. (d)	01615000	57.4	1943-97
Abrams Creek at Winchester, Va. (d)	01615500	5.6	1946-49
Abrams Creek near Winchester, Va. (d)	01616000	16.5	1949-60, 1979-94
Dry River at Rawley Springs, Va. (d)	01621000	72.6	1946-48
Blacks Run at Rt 704 near Mt. Crawford (d)	01621470	19.4	1999-01
Cooks Creek at Mt. Crawford, Va. (d)	01621500	42	1905-06
Castle Spring near Churchville, Va. (d)	01622500	-	1949-56
Bell Creek at St. Pauls Chapel, near Staunton, Va. (d)	01623000	.61	1948-55
Bell Creek near Staunton, Va. (d)	01623500	3.8	1948-55
Bell Creek at Franks Mill, near Staunton, Va. (d)	01624000	9.6	1948-56
Middle River near Verona, Va. (d)	01624300	178	1967-86
Lewis Creek near Staunton, Va. (d)	01624500	18	1905-06
Christians Creek near Fishersville, Va. (d)	01624800	70.1	1967-97
North River at Port Republic, Va. (d)	01625500	804	1895-99
Back Creek near Lyndhurst, Va. (d)	01625900	41.2	1974-77
South River at Waynesboro, Va. (d)	01626500	133	1905-06, 1928-52
South River near Dooms, Va. (d)	01626850	149	1974-95
South River at Port Republic, Va. (d)	01628000	248	1895-99
White Oak Run near Grottoes, Va. (d)	01628060	1.94	1979-96
Elk Run at Elkton, Va. (d)	01629000	17	1901-06
Yagers Spring near Luray, Va. (d)	01629990	-	1949-56
Hawksbill Creek near Luray, Va. (d)	01630000	52	1905-06
Plains Mill Spring near New Market, Va. (d)	01632500	-	1949-56
Stony Creek at Columbia Furnace, Va. (d)	01633500	79.4	1947-56
Marlboro Spring at Marlboro, Va. (d)	01635000	-	1949-56
North Fork Shenandoah River near Riverton, Va. (d)	01636000	1,040	1899-1906
Happy Creek at Front Royal, Va. (d)	01636210	14.0	1948-77
Big Spring near Leesburg, Va. (d)	01643610	.03	1968-69, 1980-81

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
POTOMAC RIVER BASIN--Continued			
Stave Run at Reston, Va. (d)	01644290	.05	1966-71, 1973
Stave Run near Reston, Va. (d)	01644291	.08	1971-82
Smilax Branch at Reston, Va. (d)	01644295	.32	1967-78
Snakeden Branch at Reston, Va. (d)	01645784	.79	1973-78
Long Branch near Annandale, Va. (d)	01654500	3.71	1947-57
Accotink Creek near Accotink Station, Va. (d)	01655000	37.0	1949-57
Cedar Run near Warrenton, Va. (d)	01655500	12.3	1950-87
Cedar Run near Aden (d)	01656100	155	1973-87, 1996-99
Cedar Run at Route 646 near Aden	01656120	-	1996-00
Broad Run at Buckland, Va. (d)	01656500	50.5	1950-79, 1981-87
Broad Run near Bristow, Va. (d)	01656650	89.6	1975-87
Occoquan River near Manassas, Va. (d)	01656700	343	1968-81
Bull Run near Catharpin, Va. (d)	01656725	25.8	1969-87
Cub Run near Bull Run, Va. (d)	01656960	49.9	1973-87
Bull Run near Manassas, Va. (d)	01657000	147	1950-81
Bull Run near Manassas Park, Va. (d)	01657020	148	1984-87
Bull Run near Clifton, Va. (d)	01657415	185	1972-84
Occoquan River (Creek) near Occoquan, Va. (d)	01657500	570	1913-16, 1921-23, 1937-56
Hoes Run near Occoquan, Va. (d)	01657655	3.97	1975-82
Neabsco Creek at Dale City, Va. (d)	01657850	6.11	1994-96
Neabsco Creek Tributary at Telegraph Road near Dale City, Va. (d)	01657885	.91	1995-96
Powells Creek near Dale City, Va. (d)	01657895	7.93	1994-96
Quantico Creek near Dumfries, Va. (d)	01658480	6.90	1983-85
South Fork Quantico Creek near Joplin, Va. (d)	01658550	9.62	1983-85
South Fork Quantico Creek near Dumfries, Va. (d)	01658650	16.6	1983-85
Little Creek at Mockingbird Road at Triangle (d)	01658698	-	1999-01
Little Creek at Geiger Road at Quantico (d)	01658705	-	1999-01
Cannon Creek near Garrisonville, Va. (d)	01660380	10.2	1994-96
Upper Machodoc Creek at Dahlgren, Va. (e)	01660810	-	1992-98

GREAT WICOMICO RIVER BASIN

Bush Mill Stream near Heathsville, Va. (d)	01661800*	6.82	1964-87
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* Currently operated as a crest-stage partial-record station.

WATER RESOURCES DATA - VIRGINIA, 2002

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
RAPPAHANNOCK RIVER BASIN			
Carter Run near Marshall, Va. (d)	01661900	19.5	1977-82
Rappahannock River near Warrenton, Va. (d)	01662000	195	1943-86
Rush River at Washington, Va. (d)	01662500	14.7	1953-77
Thornton River near Laurel Mills, Va. (d)	01663000	142	1943-56
Rappahannock River at Kellys Ford, Va. (d)	01664500	641	1925-52
Mountain Run near Culpeper, Va. (d)	01665000	15.9	1949-97
Robinson River at Locust Dale, Va. (d)	01666000	148	1942
Rapidan River at Rapidan, Va. (d)	01667000	446	1924-31
Mountain Run near Burr Hill, Va. (d)	01667870	28.8	1990-92
Cat Point Creek near Montross (d)	01668500	45.6	1944-99
Hoskins Creek near Tappahannock, Va. (d)	01668800	15.5	1965-86
PIANKATANK RIVER BASIN			
Dragon Swamp near Church View, Va. (d)	01669500	84.9	1943-81
YORK RIVER BASIN			
Beaverdam Swamp near Ark, Va. (d)	01670000	6.63	1950-89
Pamunkey Creek at Lahore, Va. (d)	01670180*	40.5	1989-92
Contrary Creek near Mineral, Va. (d)	01670300*	5.53	1976-86
North Anna River near Partlow, Va. (d)	01670400	344	1978-95
North Anna River near Hewlett, Va. (d)	01670500	424	1926-28
North Anna River near Doswell, Va. (d)	01671000	441	1926-86
Bunch Creek near Boswells Tavern, Va. (d)	01671500	4.37	1949-79
South Anna River at Vontay, Va. (d)	01672000	332	1927-30
South Anna River near Ashland, Va. (d)	01672500*	394	1930-97
Totopotomoy Creek near Atlee, Va. (d)	01673500	5.89	1949-77
Ware Creek near Toano, Va. (d)	01677000	6.29	1979-95
JAMES RIVER BASIN			
Bolar Spring at Bolar, Va. (d)	02010000	-	1950-56
Muddy Run Spring near Warm Springs, Va. (d)	02010500	-	1946-56
Warm Spring at Warm Springs, Va. (d)	02011000	-	1928-44
Back Creek on Rt. 600, near Mountain Grove, Va. (d)	02011480	85.8	1974-84
Falling Spring Creek near Falling Spring, Va. (d)	02012000	11.5	1948-52
Jackson River at Falling Spring, Va. (d)	02012500*	411	1925-84
Jackson River at Covington, Va. (d)	02012900	440	1907-08

* Currently operated as a crest-stage partial-record station.

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
JAMES RIVER BASIN--Continued			
Smith Creek above old dam, near Clifton Forge, Va. (d)	02014500	12.4	1947-56
Smith Creek near Clifton Forge, Va. (d)	02015000	12.5	1944-47
Stuart Spring near McDowell, Va. (d)	02015500	-	1950-56
Meadow Creek at New Castle, Va. (d)	02017000	13.8	1929-52
Catawba Creek near Fincastle, Va. (d)	02019000	104	1928-37
Karnes Spring near Buchanan, Va. (d)	02020000	-	1950-56
Calfpasture River at Goshen, Va. (d)	02021000	190	1925-39
Big Spring at Kerrs Creek, Va. (d)	02022000	-	1950-56
Maury River near Lexington, Va. (d)	02023000	487	1925-60
South River near Riverside, Va. (d)	02023500	111	1950-62
Buffalo Creek near Glasgow, Va. (d)	02024300	123	1963-64
Maury River at Glasgow, Va. (d)	02024500	831	1895-1906
Pedlar River near Pedlar Mills, Va. (d)	02025000	91	1942-56
Tye River at Roseland, Va. (d)	02026500	68	1927-38
Buffalo river near Tye River, Va. (d)	02027800	147	1960-95
Tye (Buffalo) River near Norwood, Va. (d)	02028000	360	1940-60
Hardware River near Scottsville, Va. (d)	02029500	104	1925-39
Slate River near Arvonnia (d)	02030500	226	1926-95
Mechums River near White Hall (Ivy), Va. (d)	02031000	95.4	1942-51
North Fork Moormans River near White Hall, Va. (d)	02031500	11.4	1952-63, 1982-84
Moormans River near White Hall, Va. (d)	02032000	18	1943-46
Moormans River near Free Union, Va. (d)	02032250	74.6	1979-97
Buck Mountain Creek near Free Union, Va. (d)	02032400	37	1979-97
South Fork RiVa.nna River near Earlysville, Va. (d)	02032500	216	1951-66
South Fork RiVa.nna River near Charlottesville, Va. (d)	02032515	260	1979-97
North Fork RiVa.nna River near Proffit, Va. (d)	02032680	176	1970-92
Rivanna River near Charlottesville, Va. (d)	02033000	473	1925
Rivanna River below Moores Creek, near Charlottesville, Va. (d)	02033500	507	1925-34
Willis River at Lakeside Village (Flanagan Mills), Va. (d)	02034500	262	1927-86
(Big) Lickinghole Creek near Goochland, Va. (d)	02035500	70	1944-46
Beaverdam Creek at State Farm, Va. (d)	02036000	42	1944-47, 1957-64, 1955-94
Falling Creek near Chesterfield, Va.. (d)	02038000*	32.8	1955-94
Falling Creek near Drewrys Bluff, Va. (d)	02038500	54	1942-56, 1957-64
Vaughans Creek near Hixburg, Va. (d)	02038880	23.2	1980-81

* Currently operated as a crest-stage partial-record station.

WATER RESOURCES DATA - VIRGINIA, 2002

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
JAMES RIVER BASIN--Continued			
Fishpond Creek near Hixburg, Va. (d)	02038830	14	1980-81
Flat Creek near Amelia, Va. (d)	02040500*	73	1946-48
Appomattox River near Petersburg, Va. (d)	02041500	1,335	1927-66
Swift Creek near Chester, Va. (d)	02042000	143	1943-49
Chickahominy River near Atlee, Va. (d)	02042287	62.2	1990-97
Upham Brook near Richmond, Va. (d)	02042426	37.6	1989-94
GREAT DISMAL SWAMP BASIN			
Cypress Swamp at Cypress Chapel, Va. (d)	02043500	23.8	1953-71 1978-96
Washington Ditch near Cypress Chapel, Va. (d)	02043550	41	1979-81
CHOWAN RIVER BASIN			
Nottoway River near Burkeville, Va. (d)	02044000	38.7	1946-86
Nottoway River near McKenney, Va. (d)	02045000	362	1946-50
Waqua Creek near Alberta, Va. (d)	02045200	15.0	1966-67
Anderson Branch at Sussex, Va. (d)	02046500	5.35	1949-56
Assamoosick Swamp near Sebrell, Va. (d)	02047100	86.4	1982-88
Blackwater River at Zuni, Va. (d)	02048000	456	1943-88
Seacock Creek at Unity, Va. (d)	02048500	102	1943-49
Blackwater River near Burdette, Va. (d)	02049000	576	1942-44
North Meherrin River near Keysville, Va. (d)	02050500	9.2	1949-61
Great Creek near Cochran, Va. (d)	02051600	30.7	1958-86
Fountains Creek near Brink, Va. (d)	02052500	65.2	1953-95
Fontaine (Fountains) Creek near Emporia, Va. (d)	02053000	96	1944-53
ROANOKE RIVER BASIN			
Big Springs at Elliston, Va. (d)	02054000	-	1948-56
Roanoke River near Wabun	02054510	273	1994-99
Tinker Creek at Roanoke, Va. (d)	02055500	70	1907-08
Back Creek near Roanoke, Va. (d)	02056500	43	1907-08
Blackwater River near Union Hall, Va. (d)	02057000	208	1925-64
Roanoke River near Toshes, Va. (d)	02057500	1,020	1925-63
Snow Creek at Sago, Va. (d)	02058000	60	1935-44
Pigg River near Toshes, Va. (d)	02058500	394	1930-63
Roanoke River near Gretna, Va. (d)	02059000	1,430	1925-30
Goose Creek at Huddleston, Va. (d)	02060000	218	1929-32
Big Otter River near Bedford, Va. (d)	02061000	116	1944-60
Big Otter River near Altavista, Va. (d)	02062000	372	1929-37
Caldwells Creek near Appomattox, Va. (d)	02063000	5.13	1954-60

* Currently operated as a crest-stage partial-record station.

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
ROANOKE RIVER BASIN--Continued			
Falling River at Spring Mills, Va. (d)	02063500	52.2	1954-60
Little Falling River at Hat Creek, Va. (d)	02064500	43	1929-36
Falling River near Brookneal, Va. (d)	02065000	228	1936-41
Roanoke River at Clarkton, Va. (d)	02065200	2,691	1963-76
Roanoke Creek at Saxe, Va. (d)	02066500	135	1946-72
Roanoke River near Clover, Va. (d)	02067000	3,230	1929-52
Roanoke River above Dan River, at Clarksville, Va. (d)	02067500	-	1895-98
Leatherwood Creek near Martinsville (Old Liberty), Va. (d)	02073500	68	1926-34
Dan River at Danville, Va. (d)	02075000	2,050	1934-95
Georges Creek near Gretna, Va. (d)	02076500	9.24	1949-97
Hyc0 River near Omega, Va. (d)	02078000	413	1934-50
Dan River at Clarksville, Va. (d)	02078500	-	1896-98
Roanoke River at Clarksville, Va. (d)	02079000	7,320	1935-52

KANAWHA RIVER BASIN

New River near Baywood, Va. (d)	03163000	1,000	1928-30
New River near Grayson, Va. (d)	03164500	1,160	1908-12
New River at Ivanhoe, Va. (d)	03165500	1,340	1927, 1930-78
Cripple Creek near Ivanhoe, Va. (d)	03166000	148	1930-34
Neff-Litz Spring near Rural Retreat, Va. (d)	03166500	-	1947-56
Glade Creek at Grahams Forge, Va. (d)	03166800	7.15	1976-93
Big Reed Island Creek near Allisonia, Va. (d)	03167500	278	1908-16, 1939-95
Peak Creek at Pulaski, Va. (d)	03168500	58.3 60.9	1927-33, 1951-57
Little River near Copper Valley, Va. (d)	03169500	239	1908-16
New River at Eggleston, Va. (d)	03171500	2,941	1915-76
Wabash Spring near Poplar Hill, Va. (d)	03172000	-	1950-51
Walker Creek at Staffordsville, Va. (d)	03172500	277	1908-16
Francis Spring near Bane, Va. (d)	03173500	-	1952-56
Wolf Creek near Shawver Mill (Burkes Garden), Va. (d)	03174500	36	1927-28
West Fork Cove Creek near Bluefield, Va. (d)	03175000	5.5	1929-32

WATER RESOURCES DATA - VIRGINIA, 2002

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
KANAWHA RIVER BASIN--Continued			
Cox Branch above Tazewell Reservoir, near Gratton, Va. (d)	03175100	2.06	1988-92
Bluestone River at Bluefield, Va. (d)	03177700	39.8	1965-80
Bluestone River at Falls Mills, Va. (d)	03177710	44.2	1980-97
BIG SANDY RIVER BASIN			
Levisa Fork near Grundy, Va. (d)	03207500	235	1942-74, 1986-87
Grissom Creek near Council, Va. (d)	03208034	2.82	1981-83
Barton Fork near Council, Va. (d)	03208036	1.23	1981-83
Russell Fork at Council, Va. (d)	03208040*	10.2	1981-83
Russell Fork near Birchleaf, Va. (d)	03208100	87.4	1981-83
North Fork Pound River at Pound, Va. (d)	03208700*	18.5	1962-87
Pound River above Indian Creek, at Pound, Va. (d)	03208800*	36.7	1966-78
Pound River below Bold Camp Creek, at Pound, Va. (d)	03208850*	61.2	1966-78
Pound River near Georges Fork, Va. (d)	03208900*	82.5	1964-82
Russell Fork at Bartlick, Va. (d)	03209200*	526	1963-82
Kersaw Branch near Hurley, Va. (d)	03213577	.60	1981-82
Knox Creek at Kelsa, Va. (d)	03213590*	84.3	1980-81
Steve Keesling Spring at Sugar Grove, Va. (d)	03471000	-	1928, 1948-56
TENNESSEE RIVER BASIN			
South Fork Holston River near Chilhowie, Va. (d)	03472000	89.5	1907-10
Beaverdam Creek at Damascus, Va. (d)	03472500	56.0	1947-59
Middle Fork Holston River at Groseclose, Va. (d)	03473500*	7.39	1948-57, 1988-89
Middle Fork Holston River at Chilhowie, Va. (d)	03474500	155	1907-10, 1921-32
Cedarville Spring at Cedarville, Va. (d)	03475500	-	1950-53
Beaver Creek near Wallace, Va. (d)	03477500	13.7	1946-57
Percy Preston Spring near Wallace, Va. (d)	03478000	-	1950-56
Lick Creek near Chatham Hill, Va. (d)	03487800*	25.5	1966-68
North Fork Holston River near Plasterco, Va. (d)	03488100	259	1963-66
Brumley Creek near Hansonville, Va. (d)	03488445	4.29	1979-82
Brumley Creek at Brumley Gap, Va. (d)	03488450*	21.1	1979-82
North Fork Holston River at Holston, Va. (d)	03488500	402	1951-59
North Fork Holston River near Mendota, Va. (d)	03489500	493	1921-32
Cove Creek near Hilton, Va. (d)	03489850	17.6	1966-68

* Currently operated as a crest-stage partial-record station.

Discontinued surface-water-discharge or stage-only stations--Continued

Station name	Station number	Drainage area (mi ²)	Period of record (water years)
TENNESSEE RIVER BASIN --Continued			
Big Moccasin Creek at Collinwood, near Hansonville, Va. (d)	03489870	41.9	1966-68
Big Moccasin Creek near Gate City, Va. (d)	03489900	79.6	1953-59, 1966-68
North Fork Holston River near Gate City, Va. (d)	03490000*	672	1932-82
Taylor Springs at Cedar Bluff, Va. (d)	03520500	-	1953
Clinch River at Cedar Bluff, Va. (d)	03521000	125	1944-46
Clinch River at Richlands, Va. (d)	03521500*	137	1946-89
Little River at Wardell, Va. (d)	03522000	103	1949-52
Will Brooks Spring at Wardell, Va. (d)	03522500	-	1950-52
(Big) Cedar Creek near Lebanon, Va. (d)	03523000*	51.5	1953-59
Thompson Creek near Coulwood, Va. (d)	03523500	14.0	1942-49
Guest River at Coeburn, Va. (d)	03524500*	87.3	1949-59, 1979-81
Guest River at Miller Yard, Va. (d)	03524550	100	1997-98
Stony Creek at Ka, Va. (d)	03524900*	30.9	1980-81
Stony Creek at Fort Blackmore, Va. (d)	03525000	41.4	1949-52
Clinch River at Clinchport, Va. (d)	03525500	986	1907-10
Copper Creek near Gate City, Va. (d)	03526000	106	1948-72, 1996-98
Quillen Springs near Gate City, Va. (d)	03526500	-	1954-56
North Fork Clinch River at Duffield, Va. (d)	03527500	23.1	1953-59
South Fork Powell River at Big Stone Gap, Va. (d)	03530000	40	1945-47, 1951-77
North Fork Powell River at Pennington Gap, Va. (d)	03530500*	71.4	1944-51, 1978-81, 1993-95
Powell River near Pennington Gap, Va. (d)	03531000	290	1921-32

* Currently operated as a crest-stage partial-record station.

WATER RESOURCES DATA - VIRGINIA, 2002

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

The following surface-water-quality stations in Virginia have been discontinued. Water-quality data (daily or periodic samples with collection frequency not less than quarterly) were collected and published for the period of record, expressed in water years, shown for each station. For each station entry, a period of record is provided for each type of record listed.

[Type of record: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)]

Discontinued surface-water-quality stations

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
POTOMAC RIVER BASIN				
Blacks Run at Rt 704 near Mt. Crawford	01621470	19.4	C,T,SC	1999-01
North River near Burketown, Va.	01622000	379	C,T,SC	1994
Middle River near Grottoes, Va.	01625000	375	C,T,SC	1994
South River at Harriston, Va.	01627500	212	SC C,T,SC	1949 1994
South Fork Shenandoah River near Luray, Va.	01629500	1,377	SC C,T,SC	1949 1994
Catoctin Creek at Taylorstown, Va.	01638480	89.6	C	1993-95
Stave Run near Reston, Va.	01644291	.08	SED	1971-74
Smilax Branch at Reston, Va.	01644295	.32	SED	1971-75
Snakeden Branch at Reston, Va.	01645784	.79	SED	1973-78
Cedar Run near Aden, Va.	01656100	155	SED	1996-99
Bull Run near Catharpin, Va.	01656725	25.8	SED	1974
Cub Run near Bull Run, Va.	01656960	49.9	SED	1972-74
Bull Run near Clifton, Va.	01657415	185	SED	1973-74
Neabsco Creek Tributary at Telegraph Road near Dale City, Va.	01657885	.91	C,T,SC,SED	1995-96
Quantico Creek near Dumfries, Va.	01658480	6.90	C	1983-85
South Fork Quantico Creek at Camp 5, near Joplin, Va.	01658550	9.62	C	1983-85
South Fork Quantico Creek near Dumfries, Va.	01658650	16.6	C	1983-85
South Fork Quantico Creek near Triangle, Va.	01658620	15.7	T,SC	1973
Little Creek at Mockingbird Road at Triangle	01658698	-	C	1999-01
Little Creek at Geiger Road at Quantico	01568705	-	C	1999-01
Beaverdam Run near Garrisonville, Va.	01660500	12.7	C,M,SED	1997-01

Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
RAPPAHANNOCK RIVER BASIN				
Carter Run near Marshall, Va.	01661900	19.5	SED	1977-78
Hazel River at Rixeyville, Va.	01663500	287	T SC SED	1951-55 1953-55 1952-55
Rappahannock River at Remington, Va.	01664000	620	SC,T SED	1951-56, 1965-86 1951-93
Rapidan River near Culpeper, Va.	01667500	472	T SC SED	1946,1951-56 1953-56 1951-56
Mountain Run near Burr Hill, Va.	01667870	28.8	C,T,SC	1990-92
Rappahannock River at VEPCO Dam, at Fredericksburg, Va.	01668020	-	T,SC	1971-72
YORK RIVER BASIN				
North Anna River below Lake Anna, near Hewlett, Va.	01670600	-	T,SC	1972-73
Pamunkey Creek at Lahore, Va.	01670180	40.5	C,T,SC	1989-92
Bunch Creek near Boswells Tavern, Va.	01671500	4.37	T	1954-56
Mattaponi River near Bowling Green, Va.	01674000	257	T	1946
Ware Creek near Toano, Va.	01677000	6.29	C	1979-81, 1985-95
JAMES RIVER BASIN				
Back Creek near Sunrise, Va.	02011460	60.1	T	1984-95
Back Creek at Sunrise, Va.	02011470	76.1	T	1984-92, 1993-95
Little Back Creek near Sunrise, Va.	02011490	4.91	T	1984-92, 1993-95
Jackson River at Falling Spring, Va.	02012500	411	T,SC C	1969-86 1930,1948, 1968-86
James River at Buchanan, Va.	02019500	2,075	T SC SED C	1948,1951-56, 1968-86 1953-56, 1968-86 1951-56 1930,1948, 1951-56, 1968-86
James River at Bent Creek, Va.	02026000	3,683	T	1948
James River at Scottsville, Va.	02029000	4,584	T,SC SED	1951-56,1987 1951-56

TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

WATER RESOURCES DATA - VIRGINIA, 2002

Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
JAMES RIVER BASIN--Continued				
James River and Kanawha Canal, near Richmond, Va.	02037000	-	C,T,SC	1972-73
James River near Richmond, Va.	02037500	6,758	T,SC	1948-51, 1953-56
Fishpond Creek near Hixsburg, Va.	02038830	14.0	SC	1981
Holiday Creek near Andersonville, Va.	02038850	8.53	C,T,SC,SED	1968-96
Vaughans Creek near Hixsburg, Va.	02038880	23.2	SC	1981
Chickahominy River tributary at Atlee Exit, near Greenwood, Va.	0204228301	-	C,T,SC,	1994
Chickahominy River near Atlee, Va.	02042287	62.2	C,SED	1989-91
Upham Brook near Richmond, Va.	02042428	38.6	C,SED	1989-91
Chickahominy River at Rt. 156, near Seven Pines, Va.	02042440	149.3	C SED	1984,1987-91 1988-91
Chickahominy River near Providence Forge, Va.	02042500	248	C,T,SC SED	1969-70, 1972-91 1995-98 1990-91
Chickahominy River above Walkers Dam, at Walkers, Va.	02042720	301	C,T,SC SED	1983-91 1990-91
Diascund Creek at Rt. 628, near New Kent, Va.	02042726	9.25	C,T,SC SED	1986-91 1991
Diascund Creek Reservoir off Timber Swamp, near Walkers, Va.	02042734	-	C,T,SC	1983-91
Beaverdam Creek at Rt. 632, near Barhamsville, Va.	02042736	4.82	C,T,SC SED	1986-91 1991
Wahrani Swamp at Rt. 632, near Barhamsville, Va.	02042742	4.02	C,T,SC	1986-91
Diascund Creek Reservoir off pump station, near Walkers, Va.	02042746	-	C,T,SC	1983-91
Little Creek Reservoir Infall near Norge, Va.	0204275415	-	C,T,SC	1983-85
Little Creek Reservoir (North) near Norge, Va.	0204275420	-	C,T,SC	1983-85
Little Creek Reservoir (North Central) near Norge, Va.	0204275430	-	C,T,SC	1983-91
Little Creek Reservoir (Northeast) near Norge, Va.	0204275440	-	C,T,SC	1983-85
Little Creek Reservoir (South Central) near Norge, Va.	0204275470	-	C,T,SC	1983-91
Little Creek Reservoir (West) near Norge, Va.	0204275490	-	C,T,SC	1983-91

CHOWAN RIVER BASIN

Nottoway River near Burkeville, Va.	02044000	38.7	T	1947
Nottoway River near Sebrell, Va.	02047000	1,421	T C,T,SC,SED	1947 1978-96

TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
CHOWAN RIVER BASIN--Continued				
Blackwater River at Zuni, Va.	02048000	456	T	1947
Blackwater River near Franklin, Va.	02049500	617	C,T,SC,SED	1947, 1952, 1975-96
North Meherrin River near Lunenburg, Va.	02051000	55.6	T	1947
Meherrin River at Emporia, Va.	02052000	747	T,SC C	1968-80 1968-93
ROANOKE RIVER BASIN				
Roanoke River at Lafayette, Va.	02054500	257	T,SC	1951
Roanoke River at Altavista, Va.	02060500	1,789	T SC SED C	1951,1953-56, 1968-86 1953-56, 1968-86 1953-56 1951,1953-56, 1968-86
Roanoke River at Randolph, Va.	02066000	2,977	T,SC SED C	1951-56, 1968-62 1954-81 1930,1951-86
Smith River above Route 615, near Woolwine, Va.	02071510	-	C,T,SC	1994-95
Smith River at Rt 8 near Woolwine, Va.	02071520	-	C,T,SC	1994
Smith River near Philpott, Va.	02072000	216	C,T,SC	1994-95
Smith River near Irisburg, Va.	02073600	-	C,T,SC	1994-95
Dan River at Sewage Treatment Plant, near Danville, Va.	02075045	2,105	C,T,SC	1993-94
Dan River at Sewage Treatment Plant effluent, near Danville, Va.	02075046	-	C,T,SC	1993-94
Dan River at Paces, Va.	02075500	2,550	T,SC SED C	1954-56 1954-81 1954-93
Dan River at South Boston, Va.	02076000	2,730	T SC	1952 1951-52
Roanoke River at Clarksville, Va.	02079000	7,320	C	1987-91
Lake Gaston near Elams, N.C.	02079785	-	T,SC SED	1988 1988
Lake Gaston (Little River Channel) near Henrico, Va.	0207987950	-	C,T,SC	1987-92
Pea Hill Creek at Route 665, near Gasburg, Va.	02079880	-	C,T,SC	1987-92
Pea Hill Creek above Rt. 667, near Gasburg, Va.	0207988050	-	C,T,SC	1989-90
Pea Hill Creek tributary No. 1, near Gasburg, Va.	02079881	-	C,T,SC	1989-90
Pea Hill Creek tributary No. 2, near Valentines, Va.	0207988130	-	C,T,SC	1989-90
Pea Hill Creek tributary No. 3, near Valentines, Va.	0207988160	-	C,T,SC	1989-90
Pea Hill Creek tributary No. 4, near Valentines, Va.	02079883	-	C,T,SC	1989-90

TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

WATER RESOURCES DATA - VIRGINIA, 2002

Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
ROANOKE RIVER BASIN--Continued				
Pea Hill Creek tributary No. 4 tributary, near Valentines, Va.	0207988430	-	C,T,SC	1989-90
Cold Spring Branch near Gasburg, Va.	0207988440	-	C,T,SC	1989-90
Pea Hill Creek above North Carolina State line, near Gasburg, Va.	0207988450	-	C,T,SC	1987-92
Lake Gaston (Pea Hill Creek) near Henrico, N.C.	0207988490	-	C,T,SC	1989-90
Lake Gaston tributary near Tillans Chapel, near Elams, N.C.	0207988510	-	C,T,SC	1989-90
Pea Hill Creek tributary No. 5, near Henrico, N.C.	02079888550	-	C,T,SC	1989-90
Pea Hill Creek near Bowens Corner, near Valentines, Va.	02079882	-	C,T,SC	1988
KANAWHA RIVER BASIN				
New River near Galax, Va.	03164000	1,131	T,SC C	1950,1968-83 1931,1950, 1952,1968-86
New River at Radford, Va.	03171000	2,748	T,SC	1950,1956
New River at Eggleston, Va.	03171500	2,941	T,SC	1953-55
New River at Glen Lyn, Va.	03176500	3,768	SC T C,T,SC,SED	1968-88 1964-88 1931,1950, 1952,1955-56, 1965-95
BIG SANDY RIVER BASIN				
Levisa Fork near Grundy, Va.	03207500	235	T,SC SED	1950 1986
Levisa Fork at Big Rock, Va.	03207800	297	T,SC SED	1970-81 1970-81
Grissom Creek near Council, Va.	03208034	2.82	C,T,SC,SED	1982-83
Barton Fork near Council, Va.	03208036	10.2	C,T,SC,SED	1981-83
Russell Fork at Council, Va.	03208040	1.23	T,SC C	1981-83 1982-83
Russell Fork near Birchleaf, Va.	03208100	87.4	T,SC,C	1982-83
TENNESSEE RIVER BASIN				
South Fork Holston River near Damascus, Va.	03473000	301	T SC C	1950,1968-73 1950 1950,1952, 1968-86
Middle Fork Holston River at Seven Mile Ford, Va.	03474000	132	C,T,SC,SED	1997-98
Middle Fork Holston River at Chilhowie, Va.	03474500	155	T	1962
Brumley Creek near Hansonville, Va.	03488445	4.29	T	1980-81
Brumley Creek at Brumley Gap, Va.	03488450	21.1	T	1979-81

TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

Discontinued surface-water-quality stations--Continued

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record (water years)
TENNESSEE RIVER BASIN --Continued				
North Fork Holston River at Holston, Va.	03488500	402	T,SC	1952-56
North Fork Holston River near Gate City, Va.	03490000	672	T SC SED	1950-51, 1968-78 1950-51 1935-38, 1963-65
Guest River near Miller Yard, Va.	03524550	100	C,T,SC,SED	1997-98
Copper Creek near Gate City, Va.	03526000	106	C,T,SC,SED	1997-98
Clinch River at Speers Ferry, Va.	03527000	1,126	T SC SED	1950,1965-67 1950 1935-38, 1963-65
Powell River at Big Stone Gap, Va.	03529500	112	T,SC	1950
Powell River near Jonesville, Va.	03531500	319	T	1964-67

TYPE OF RECORD: C (chemical), T (water temperature), SC (specific conductance), SED (sediment)

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WATER RESOURCES DATA - VIRGINIA, 2002

VOLUME 1. SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS

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 Virginia 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 - Virginia."

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 170 gaging stations; stage only at 3 gaging station; stage and contents at 10 lakes and reservoirs; and water quality at 18 gaging stations. Also included are data for 51 crest-stage partial-record stations. Locations of these sites are shown on figures 4 and 5. Miscellaneous hydrologic data were collected at 192 measuring sites and 8 water-quality sampling sites not involved in the systematic data-collection program. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

This series of annual reports for Virginia began with the 1961 water year with a report 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. Beginning with the 1990 water year, the report format was changed to two volumes. Volume 1 contains surface-water-discharge and surface-water-quality data and Volume 2 contains ground-water-level and ground-water-quality data.

Prior to the introduction of this series and for several water years concurrent with it, water-resources data for Virginia 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." 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, Bldg. 41, Box 25286, Denver, Colorado 80225.

Publications similar to this report are published annually by the 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 VA-01-1." 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 in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Office at the address given on the back of the title page or by telephone (804) 261-2600.

Water resources data, including those provided in water data reports, are available through the World Wide Web on the Internet. The Universal Resource Location (URL) to the Virginia District's home page is:

<http://va.water.usgs.gov>

COOPERATION

The U.S. Geological Survey and agencies of the State of Virginia have had joint-funding agreements for the collection of water-resource records since 1930. Organizations that assisted in collecting the data in this report through joint-funding agreements with the Survey are:

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, Robert G. Burnley, Executive Director.

VIRGINIA DEPARTMENT OF TRANSPORTATION, Charles D. Nottingham, Commissioner.

CITY OF ALEXANDRIA, Vola Lawson, City Manager.

CITY OF DANVILLE, Barry Dunkley, Director, Water and Wastewater.

CITY OF NEWPORT NEWS, Brian Ramaley, Director, Department of Public Utilities.

CITY OF ROANOKE, Kit B. Kiser, Director, Utilities and Operations.

NORTHERN VIRGINIA REGIONAL COMMISSION, G. Mark Gibb, Executive Director.

WEST PIEDMONT PLANNING DISTRICT COMMISSION, Robert W. Dowd, Executive Director.

CITY OF NORFOLK, Regina V. K. Williams, City Manager.

HAMPTON ROADS PLANNING DISTRICT COMMISSION, Arthur L. Collins, Executive Director.

WASHINGTON COUNTY SERVICE AUTHORITY, David S. Dawson, General Manager.

WATER RESOURCES DATA - VIRGINIA, 2002

Assistance with funds or services was given by the U.S. Army Corps of Engineers in collecting records for gaging stations and water-quality stations throughout the State.

Under a cooperative agreement covering the Tennessee River Basin, the Tennessee Valley Authority provided financial assistance for the operation of gaging stations, the records for which are published herein. Similar financial assistance for water-quality studies was provided by the U.S. Marine Corps Base, Quantico, VA, for the Quantico, Cannon, and Aquia Creek Basins. Other cooperators that provided funds for the collection of records are the American Electric Power, Virginia Power, City of Danville, City of Radford, City of Bedford, Multitrade of Pittsylvania County, LG & E, Synergics Incorporated, and Georgia Pacific Corporation.

Organizations that provided data are acknowledged in station descriptions.

RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 67 gaging stations operated by the Virginia Department of Environmental Quality. These records are published as provided and are acknowledged in the "COOPERATION" paragraph of each individual station. The Virginia Department of Environmental Quality is under the direction of Robert G. Burnley, director. Published material for the gaging-station records is supplied through the Division of Water Resource Management, Larry G. Lawson, P.E., director.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface-Water Discharge

Annual mean discharges for the 2002 water year were below the normal range of flow (below the 25th percentile of annual mean flows) throughout most of the State based on streamflow data at the farthest downstream gaged locations in the Shenandoah, Potomac, Rappahannock, York, James, Roanoke, Kanawha, and portions of the Tennessee River Basins. Annual mean discharges were in the normal range of flow (between the 25th and 75th percentile of annual mean flows) in the Big Sandy River Basin (southwestern portion of the State) based on streamflow data at the Pound River below Flannagan Dam, near Haysi, Va., stream-gaging station, and in one sub-basin of the Tennessee River Basin based on the Powell River near Jonesville, Va., stream-gaging station. Annual mean discharges were not above the normal range of flow (above the 75th percentile of annual mean flows) in any of the major river basins in the State based on stream-gaging stations. Figure 1 shows annual mean discharges with the long-term mean discharges at four selected stations throughout the State.

Statewide, streamflows (based on monthly mean streamflow statistics) were below the normal range of flow during the entire year. Only in the far southwestern portion of the State (Big Sandy and Tennessee River Basins) were streamflows in the normal range of flow. Figure 2 shows the distribution of monthly and annual mean discharges for four selected stations throughout the State.

During the summer of 2002, the entire State, except for the far southwestern area, experienced a severe hydrologic and water-supply drought. There have been five major statewide droughts since the early 1900's. During the drought of 1930-32, one of the most severe droughts recorded in the State, recurrence intervals ranged from 30 years to greater than 80 years. The droughts of 1938-42 and 1962-71 were less severe; however, the cumulative streamflow deficit was the largest ever recorded during the 1962-71 drought because of its duration. The drought of 1980-82 was the least severe and had the shortest duration, and recurrence intervals ranged from 15 years across most of the State to greater than 80 years in the James River Basin. No recurrence intervals have been assigned to the most recent drought of 1998-2002; however, drought conditions during the summer of 2002 were at least as severe as the 1962-71 drought and approached the severity of the 1930-32 drought.

Hydrologic drought conditions during 2002 resulted from precipitation patterns over the previous several years. The 2002 statewide drought began in the summer of 1997. Precipitation was well below normal during the summer and fall of 1997, allowing streamflow to decline to below the normal range. Precipitation was well above normal during the winter of 1998, increasing ground-water storage and streamflows to above the normal range. During the summer and fall of 1998, precipitation again was well below normal, causing a significant agricultural drought; however, streamflows never declined to below normal until late fall because of the unusually high ground-water storage. Ground-water storage was not replenished significantly during the winter of 1999, and new record minimums were recorded during the summer of that year. Hurricanes Dennis and Floyd brought significant precipitation during the fall of 1999, which boosted ground-water storage in the eastern half of the State. During the winters of 2000, 2001, and 2002, precipitation did not replenish the ground-water storage to the extent normally expected, and well levels continued to decline.

Since the winter of 1998, water-table ground-water levels have declined steadily throughout the State. Below-normal precipitation during the winter months has allowed only minimal recharge to the ground-water system. Precipitation during the summer months is seldom recharged to the ground-water system because most of the moisture remains in the soil and is taken up by evaporation and transpiration. Streamflows in the summer normally are maintained by ground-water storage (highest in early spring) and then decline as ground-water levels decline to their lowest levels in the fall. Streamflows were near normal during the summers of 2000 and 2001 because of runoff from storm events crossing the State every seven to ten days. This pattern of storms, however, was unusual for Virginia where summer precipitation is usually from thunderstorms and precipitation amounts are highly variable across the State. Precipitation patterns returned to normal during the summer of 2002. Because of the shift in precipitation pattern and below-normal precipitation amounts, streamflows declined rapidly to rates that could be supported by depressed ground-water levels.

Record minimum flows for the period of record were observed at stream gages in the Shenandoah, Rappahannock, York, James, Chowan, and Roanoke River Basins. While most basins in the State had low streamflows because of the lack of precipitation and low ground-water storage, smaller tributary basins in central and eastern Virginia were indicating the worst conditions statistically.

WATER RESOURCES DATA - VIRGINIA, 2002

Some of the record minimum flows may be due to natural conditions; however, withdrawals for water supply and irrigation probably significantly impacted the streamflows. The town of Orange, Va., initiated strict rationing and conservation measures to maintain water supply. The town's only water supply is from the Rapidan River. The Rapidan River near Ruckersville, Va., stream gage had a minimum daily-mean flow rate of 0.45 cubic feet per second (previous minimum daily-mean flow rate was 0.90 cubic feet per second, set in 1966). The town of Farmville, Va., also had water supply problems. The town's intake is upstream of the Appomattox River at Farmville, Va., stream gage, which had a minimum daily-mean flow rate of 0.07 cubic feet per second (previous minimum daily-mean flow rate was 6.3 cubic feet per second, set in 1941). Agricultural irrigation may be the reason for the record low flows in the Meherrin River. The Meherrin River near Lawrenceville, Va., stream gage had a minimum daily-mean flow rate of 2.2 cubic feet per second (previous minimum daily-mean flow rate was 4.2 cubic feet per second, set in 1954). Table 1 lists the new annual minimum instantaneous discharges recorded at 42 stream-gaging stations in the State.

Flow at stream-gaging stations on rivers that have augmented flow (releases from dams) was low, but would have been much lower without the augmentation. Two rivers in this category are the Pamunkey and James Rivers. The Pamunkey River near Hanover, Va., stream gage had a minimum daily-mean flow rate of 24 cubic feet per second (previous minimum daily-mean flow rate was 47 cubic feet per second, set in 1991). Flows in the Pamunkey River are augmented by releases of 20 to 40 cubic feet per second from Lake Anna. The James River at Cartersville, Va., stream gage had a minimum daily-mean flow rate of 447 cubic feet per second (previous minimum daily-mean flow rate was 330 cubic feet per second, set in 1966). Flows in the James River were augmented by releases of 265 cubic feet per second during the summer from Lake Moomaw.

Table 1: Minimum, period of record, instantaneous discharges recorded during 2002 water year

Gaging Station	Minimum instantaneous discharge, in cubic feet per second	Length of record, in years
Muddy Run near Mt Clinton, Va.	0.27	9
Cameron Run at Alexandria, Va.	1.0	47
Hazel River at Rixeyville, Va.	0.70	51
Rapidan River near Ruckersville, Va.	0.21	58
Rapidan River near Culpeper, Va.	1.2	73
North Anna River at Hart Corner near Doswell, Va.	25	24
Little River near Doswell, Va.	0.04	42
Totopotomoy Creek near Studley, Va.	0.00	25
Po River near Spotsylvania, Va.	0.00	41
Mattaponi River near Beulahville, Va.	0.22	60
Jackson River near Bacova, Va.	12	28
Johns Creek at New Castle, Va.	5.1	77
Catawba Creek near Catawba, Va.	0.24	60
Piney River at Piney River, Va.	0.29	54
Rockfish River near Greenfield, Va.	0.07	60
Hardware River below Briery Run, near Scottsville, Va.	0.00	65
Mechums River near White Hall, Va.	0.00	34
North Fork Rivanna River near Earlysville, Va.	0.25	10
Fine Creek at Fine Creek Mills, Va.	0.00	59
Holiday Creek near Andersonville, Va.	0.02	37
Buffalo Creek near Hampden Sydney, Va.	0.09	57
Appomattox River at Farmville, Va.	0.07	77
Appomattox River at Mattoax, Va.	2.4	83
Deep Creek near Mannboro, Va.	0.00	54
Appomattox River at Matoaca, Va.	a17	34
Chickahominy River near Providence Forge, Va.	0.04	61
Nottoway River near Stony Creek, Va.	1.3	74
Meherrin River near Lawrenceville, Va.	2.0	74
Meherrin River at Emporia, Va.	a3.2	52
South Fork Roanoke River at Shawsville, Va.	6.3	43
Roanoke River at Glenvar, Va.	15	12
Back Creek near Dundee, Va.	0.24	29
Blackwater River near Rocky Mount, Va.	3.2	26
Pigg River near Sandy Level, Va.	17	40
Big Otter River near Evington, Va.	0.63	67
Falling River near Naruna, Va.	b1.0	69
Cub Creek at Phenix, Va.	0.00	52
South Mayo River near Nettleridge, Va.	8.3	40
North Mayo River near Spencer, Va.	5.6	74
Smith River at Smith River Church near Woolwine, Va.	2.7	8
Dan River at STP near Danville, Va.	a83	7
Dan River at Paces, Va.	a129	52

a Result of regulation.

b Estimated daily discharge, minimum instantaneous discharge not determined.

WATER RESOURCES DATA - VIRGINIA, 2002

Despite the drought conditions observed throughout the State, flood events took place in the southwestern portion of the State in October, March, and May. During all three events, local flooding affected portions of the Tennessee, Kanawha, and Big Sandy River Basins in Tazwell and Buchanan Counties. Major floods were not recorded at USGS stream gages except for at the North Fork Holston River near Saltville, Va., where the March flood had a recurrence interval of 100 years. Table 2 lists the only new annual maximum instantaneous discharge recorded at stream-gaging stations in the State.

Table 2: Maximum, period of record, instantaneous peak discharges recorded during 2002 water year

Gaging Station	Maximum instantaneous discharge, in cubic feet per second	Recurrence interval, in years	Length of record, in years
North Fork Holston River near Saltville, Va.	18,900	100	85

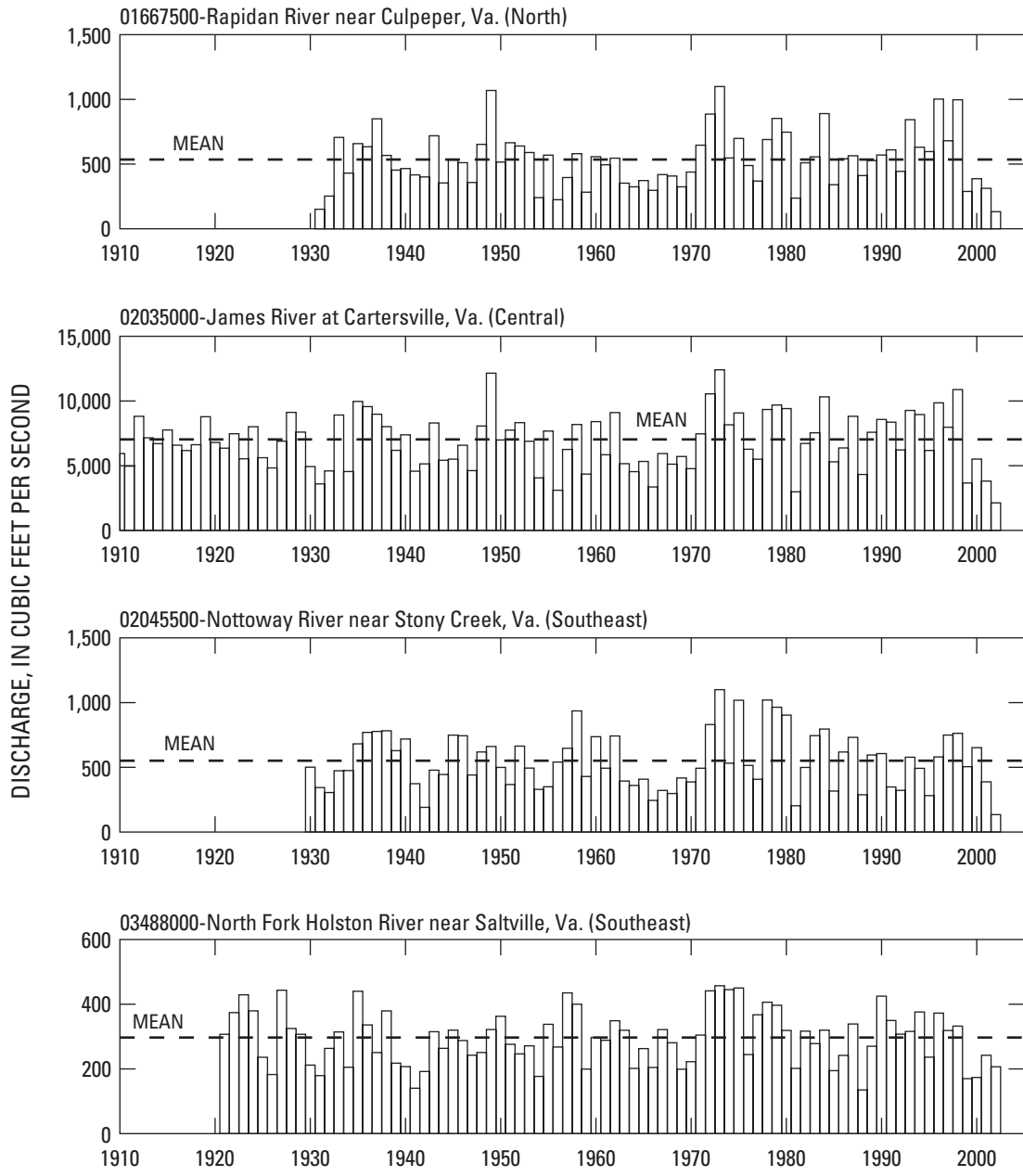


Figure 1. Annual mean discharge at four selected stream-gaging stations

WATER RESOURCES DATA - VIRGINIA, 2002

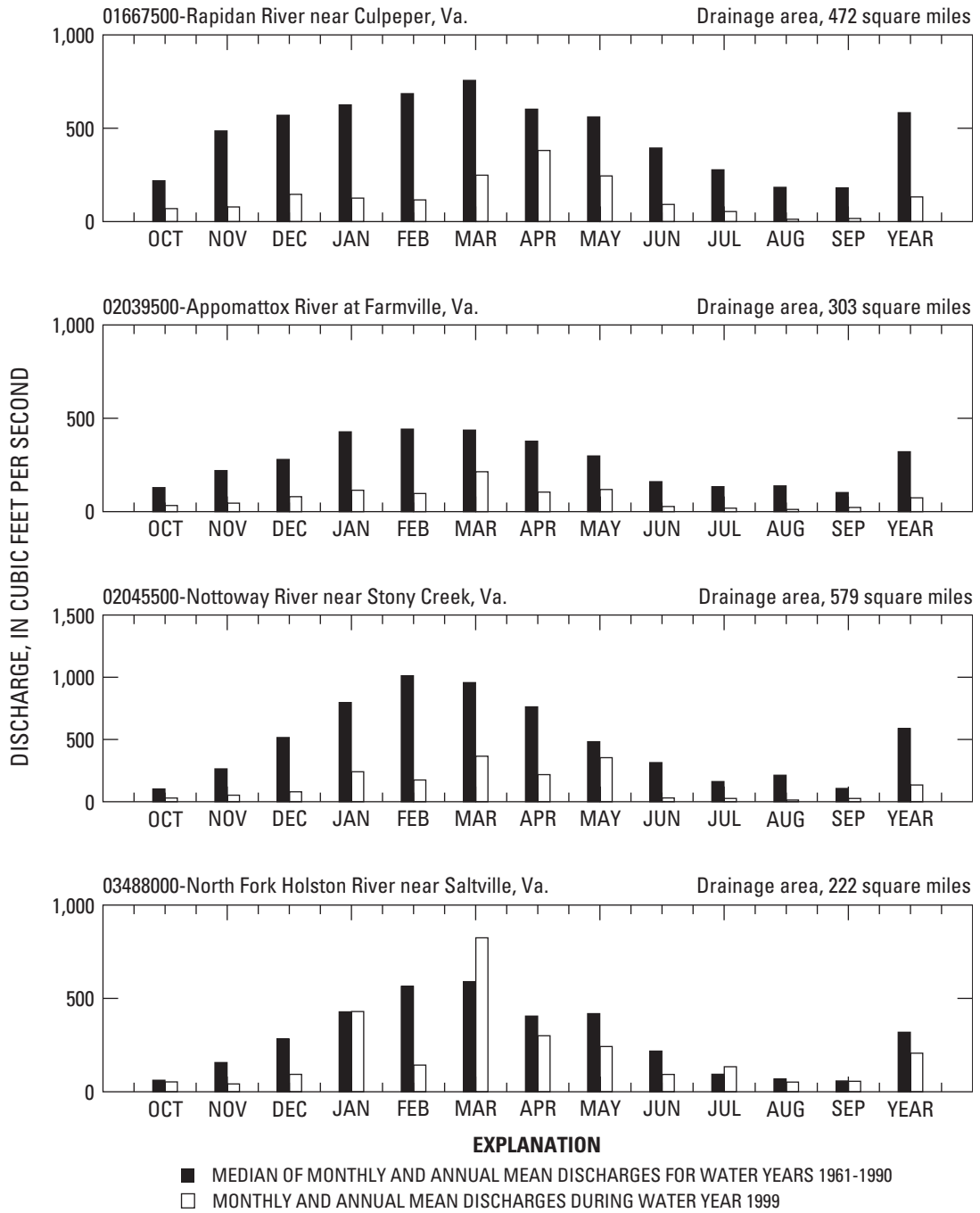


Figure 2. Monthly and annual mean discharges during 2002 water year and median of monthly and annual mean discharges for 1971-2000 water years at four representative stream-gaging stations

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. 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.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) Provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites. (2) Provide the mechanism to evaluate the effectiveness of the significant reduction in SO₂ emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred. (3) Provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO₂ and NO_x scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

<http://nadp.nrel.colostate.edu/NADP>

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 53 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 collaborate efforts among the agencies.

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

http://wwwrvares.er.usgs.gov/nawqa/nawqa_home.html

EXPLANATION OF THE RECORDS

The surface-water-discharge and surface-water-quality records published in this report are for the 2002 water year that began October 1, 2001, and ended September 30, 2002. 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 figures 4 and 5. The following sections of the 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 system used by the U.S. Geological Survey to assign identification numbers for surface-water stations is based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is occasionally 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.

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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 02027500, which appears just to the left of the station name, includes the two-digit Part number "02" plus the six-digit downstream-order number "027500." The Part number designates the major river basin; for example, Part "02" is the James River Basin.

Latitude-Longitude System

The identification numbers for some miscellaneous surface-water and water-quality 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.

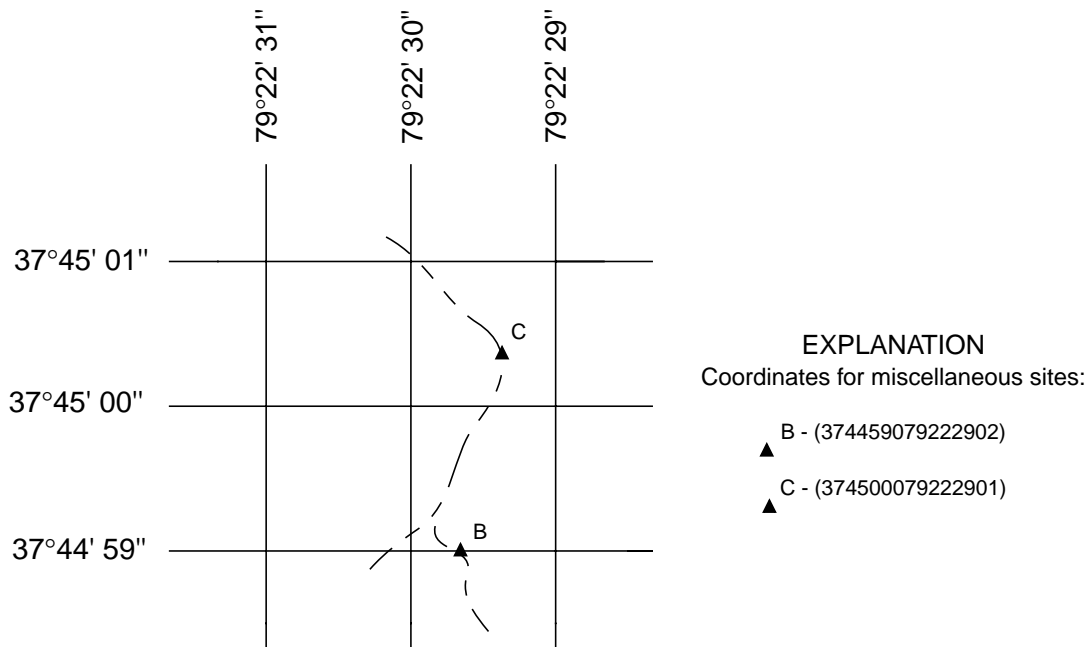


Figure 3. System for numbering selected miscellaneous sites.

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 daily mean 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 as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 4 and 5.

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 relationships 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 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, Chapter A1 through A19 and Book 8, Chapters A2 to 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 from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as 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 year; 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, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; extremes for the current year; 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 to follow clarify information presented under the various headings of the station description.

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LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gaging station with respect to the cultural and physical features in the vicinity and with respect 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. The latitudes and longitudes in this book are currently North American datum of 1983, identified by (NAD83).

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise 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 at it can 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 sea level (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 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 extremes 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 here 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.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and equal to or greater than a selected base discharge are presented under this heading. The peaks equal to or 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. The minimum for the current water year appears below the table of peak data.

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, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published 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. Of course, if the data for a discontinued station were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by 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 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 mean 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 noncontributing 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 will be expressed as "FOR WATER YEARS _____, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It 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 will be 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 will be 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 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 basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow 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 discharge 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-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.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, 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) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

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

Inches (INCHES) 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.

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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 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.

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 for values less than 1 ft³/s to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/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 incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with 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 Virginia District Office. Also, 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 Virginia District Office. (See address on back of 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 6.

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 at 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 needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite 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 onsite measurements and for collecting, treating, and shipping samples are detailed in the "Techniques of Water-Resources Investigations," Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, and A4. These references are listed in the "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" section of this report which appears at the end of the introductory text. These methods are consistent with American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO). Detailed information on collecting, treating, and shipping samples may be obtained from the Virginia District Office. (Address on back of title page.)

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and 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 Virginia District 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 the 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 follow closely 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 Virginia District Office. (Address on back of title page.)

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 the periods, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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

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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 Geological Survey laboratory in Arvada, Colorado. Methods used to analyze sediment samples and to compute sediment records are given in TWRI Book 5, Chapter C1. Methods used by the Geological Survey laboratories are given in TWRI Book 1, Chapter D2; Book 3, Chapter C2; Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

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 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 that follow clarify 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 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 volumes 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).
V	Analyte was detected in both the environmental sample and the associated blanks.
&	Biological organism estimated as dominant.

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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 USGS. 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 put in 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.

Pump blank - a blank solution that is processed through the same pump-and-tubing system used for an environmental sample.

Standpipe blank - a blank solution that is poured from the containment vessel (standpipe) before the pump is inserted to obtain the pump blank.

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.

Canister blank - a blank solution that is taken directly from a stainless steel canister just before the VOC sampler is submerged to obtain a field blank sample.

REFERENCE SAMPLES—Reference material 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 ensure 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 such that the samples are thought 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.

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.

ACCESS TO USGS WATER 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 most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at:

<http://va.water.usgs.gov>

Some water-quality and ground-water data also are available through 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 on the 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. (See also "Biomass" and "Dry weight")

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 through 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 poly-chlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors 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 percentage weight 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 collected. 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" and "Dry mass")

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, whereas 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 peak flows per year will be published. (See also "Peak flow")

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 foot) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

Bedload discharge (tons per day) is the 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," "Dry weight," "Sediment," and "Suspended-sediment discharge")

Bed material is the sediment mixture of which a stream-bed, 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 that 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")

Bottom material (See "Bed material")

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 or 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:

$$\text{sphere } \frac{4}{3} \pi r^3 \quad \text{cone } \frac{1}{3} \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

pi (π) is the ratio of the circumference to the diameter of a circle; $\pi = 3.14159\dots$

From cell volume, total algal biomass expressed as biovolume ($\mu\text{m}^3/\text{mL}$) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

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

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

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)"]

Clostridium perfringens (*C. perfringens*) is a spore-forming bacterium that is common in the feces of human and other warmblooded 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 water 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.

Confined aquifer is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

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 that physically affects 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-foot" sometimes is used synonymously with "cubic foot per second" but is now obsolete.

Cubic foot per second-day (CFS-DAY, Cfs-day, $[(\text{ft}^3/\text{s})/\text{d}]$) 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, $(\text{ft}^3/\text{s})/\text{mi}^2$] 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 "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 sediment 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 chemicals, 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 CaCO₃) 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:

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

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 warmblooded 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 (nutrient medium for bacterial growth) 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 warmblooded 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 (nutrient medium for bacterial growth). 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 semivolatile and extractable by ethyl acetate from air-dried streambed sediment. 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 sediment.

Fecal coliform bacteria are present in the intestines or feces of warmblooded animals. They often are 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 intestines of warmblooded 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 (*Pyrrophyta*) 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 greater 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 often is 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.

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 commonly is 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 that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

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

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 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 nondetection 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 (NWQL) 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 on the basis of the most current quality-control data and, therefore, may change. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection 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:

$$I = I_0 e^{-\lambda L},$$

where I_0 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

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_0}.$$

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 usually are 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")

Measuring point (MP) is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

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, $\mu\text{g/g}$) 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, $\mu\text{g}/\text{kg}$) 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, $\mu\text{g}/\text{L}$) 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, $\mu\text{S}/\text{cm}$) 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 milligrams per liter 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.

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 United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

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

Organic mass or **volatile mass** of a 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 (m²), 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
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, 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 of 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 a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

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. Although 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 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, 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 commonly are known as algae. (See also "Plankton")

Picocurie (PC, pCi) is one trillionth (1×10^{-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 photo-synthetic 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 [$\text{mg C}/(\text{m}^2/\text{time})$] for periphyton and macrophytes or per volume [$\text{mg C}/(\text{m}^3/\text{time})$] for phytoplankton. The 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 with unenriched water samples. 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 [$\text{mg O}/(\text{m}^2/\text{time})$] for periphyton and macrophytes or per volume [$\text{mg O}/(\text{m}^3/\text{time})$] for phytoplankton. The 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 elements 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 nonexceedance 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 nonexceedances of the $7Q_{10}$ occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. 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 is 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 during a given time period. Run-off 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 factors and vertical datum 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 affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-cipitation.

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 ($7Q_{10}$) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the $7Q_{10}$ is 10 years; the chance that the annual 7-day minimum flow will be less than the $7Q_{10}$ is 10 percent in any given year. (See also “Annual 7-day minimum” and “Recurrence interval”)

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 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 water, to evaluate mixing of different water, 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 the percentage covered by fine sediment:

0	no gravel or larger substrate	3	26-50 percent
1	> 75 percent	4	5-25 percent
2	51-75 percent	5	< 5 percent

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 foot) of the bed material that 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 defined operationally 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, on the basis of 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 foot 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/d) 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 (ft³/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, on the basis of 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:	<i>Hexagenia</i>
Species:	<i>Hexagenia limbata</i>

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 warmblooded 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 milliliters 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 “Bedload,” “Bedload discharge,” “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

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 U.S. 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.

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.

Unconfined aquifer is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See “Water-table aquifer”)

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.

Water table is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

Water-table aquifer is an unconfined aquifer within which the water table is found.

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, 2002, is called the "2002 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 often are 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")

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S.G.S. publishes a series of manuals describing 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. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S.G.S., Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be made in the form of a check or money order payable to the "U.S. Geological Survey." Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations."

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

- 1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS-TWRI book 1, chap. D1. 1975. 65 p.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS-TWRI book 1, chap. D2. 1976. 24 p.

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, chap. D1. 1974. 116 p.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS-TWRI book 2, chap. D2. 1988. 86 p.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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, chap. E1. 1971. 126 p.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS-TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling 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, chap. F1. 1989. 97 p.

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- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS-TWRI book 3, chap. A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS-TWRI book 3, chap. A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS-TWRI book 3, chap. A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS-TWRI book 3, chap. A5. 1967. 29 p.
- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS-TWRI book 3, chap. A6. 1968. 13 p.
- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI book 3, chap. A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI book 3, chap. A8. 1969. 65 p.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS-TWRI book 3, chap. A9. 1989. 27 p.
- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS-TWRI book 3, chap. A10. 1984. 59 p.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS-TWRI book 3, chap. A11. 1969. 22 p.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS-TWRI book 3, chap. A12. 1986. 34 p.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS-TWRI book 3, chap. A13. 1983. 53 p.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS-TWRI book 3, chap. A14. 1983. 46 p.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS-TWRI book 3, chap. A15. 1984. 48 p.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS-TWRI book 3, chap. A16. 1985. 52 p.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS-TWRI book 3, chap. A17. 1985. 38 p.
- 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, chap. A18. 1989. 52 p.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS-TWRI book 3, chap. A19. 1990. 31 p.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS-TWRI book 3, chap. A20. 1993. 38 p.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS-TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS-TWRI book 3, chap. B1. 1971. 26 p.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS-TWRI book 3, chap. B2. 1976. 172 p.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS-TWRI book 3, chap. B3. 1980. 106 p.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS-TWRI book 3, chap. B4. 1990. 232 p.
- 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, chap. B4. 1993. 8 p.
- 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, chap. B5. 1987. 15 p.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 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, chap. B6. 1987. 28 p.
- 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, chap. B7. 1992. 190 p.
- 3-B8. *System and boundary conceptualization in ground-water flow simulation*, by T.E. Reilly: USGS-TWRI book 3, chap. B8. 2001. 29 p.
- Section C. Sedimentation and Erosion Techniques**
- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS-TWRI book 3, chap. C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS-TWRI book 3, chap. C2. 1999. 89 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS-TWRI book 3, chap. C3. 1972. 66 p.
- Book 4. Hydrologic Analysis and Interpretation**
- Section A. Statistical Analysis**
- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS-TWRI book 4, chap. A1. 1968. 39 p.
- 4-A2. *Frequency curves*, by H.C. Riggs: USGS-TWRI book 4, chap. A2. 1968. 15 p.
- Section B. Surface Water**
- 4-B1. *Low-flow investigations*, by H.C. Riggs: USGS-TWRI book 4, chap. B1. 1972. 18 p.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS-TWRI book 4, chap. B2. 1973. 20 p.
- 4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS-TWRI book 4, chap. B3. 1973. 15 p.
- 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, chap. D1. 1970. 17 p.
- 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, editors: USGS-TWRI book 5, chap. A1. 1989. 545 p.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI book 5, chap. A2. 1971. 31 p.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS-TWRI book 5, chap. A3. 1987. 80 p.
- 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, chap. A4. 1989. 363 p.
- 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, chap. A5. 1977. 95 p.
- 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, chap. A6. 1982. 181 p.
- Section C. Sediment Analysis**
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS-TWRI book 5, chap. C1. 1969. 58 p.
- 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, chap. A1. 1988. 586 p.
- 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, chap. A2. 1991. 68 p.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS-TWRI book 6, chap. A3. 1993. 136 p.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS-TWRI book 6, chap. A4. 1992. 108 p.
- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS-TWRI book 6, chap. A5, 1993. 243 p.
- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS-TWRI book 6, chap. A5, 1996. 125 p.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

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, chap. C1. 1976. 116 p.
- 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, chap. C2. 1978. 90 p.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS-TWRI book 7, chap. C3. 1981. 110 p.

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, chap. A1. 1968. 23 p.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS-TWRI book 8, chap. A2. 1983. 57 p.

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, chap. B2. 1968. 15 p.

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, chap. 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, chap. A2. 1998. 94 p.
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- 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, chap. 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, chap. 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, chap. 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, chap. A7. 1997 and 1999. Variously paginated.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS-TWRI book 9, chap. A8. 1998. 48 p.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS-TWRI book 9, chap. A9. 1998. 60 p.

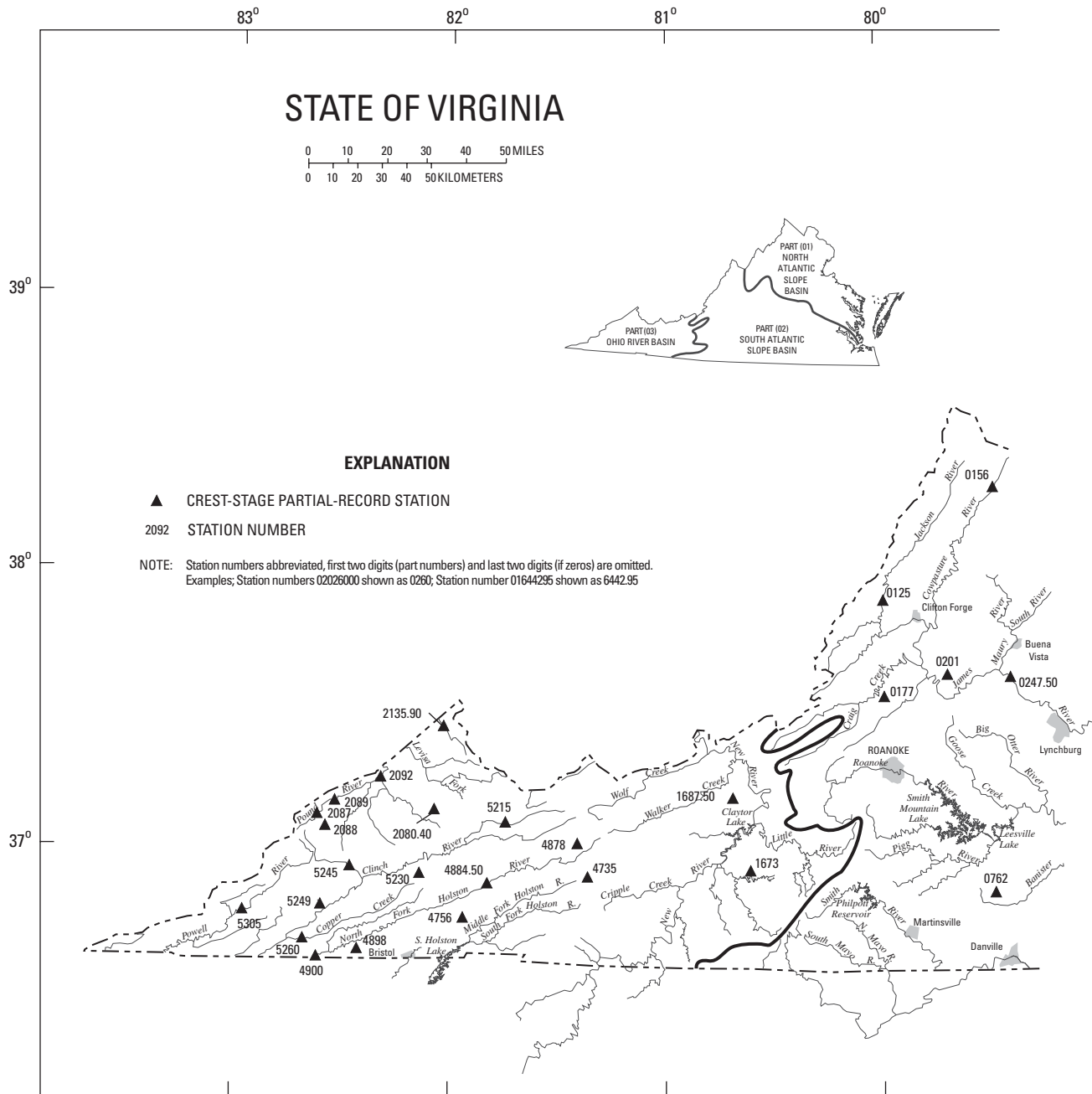
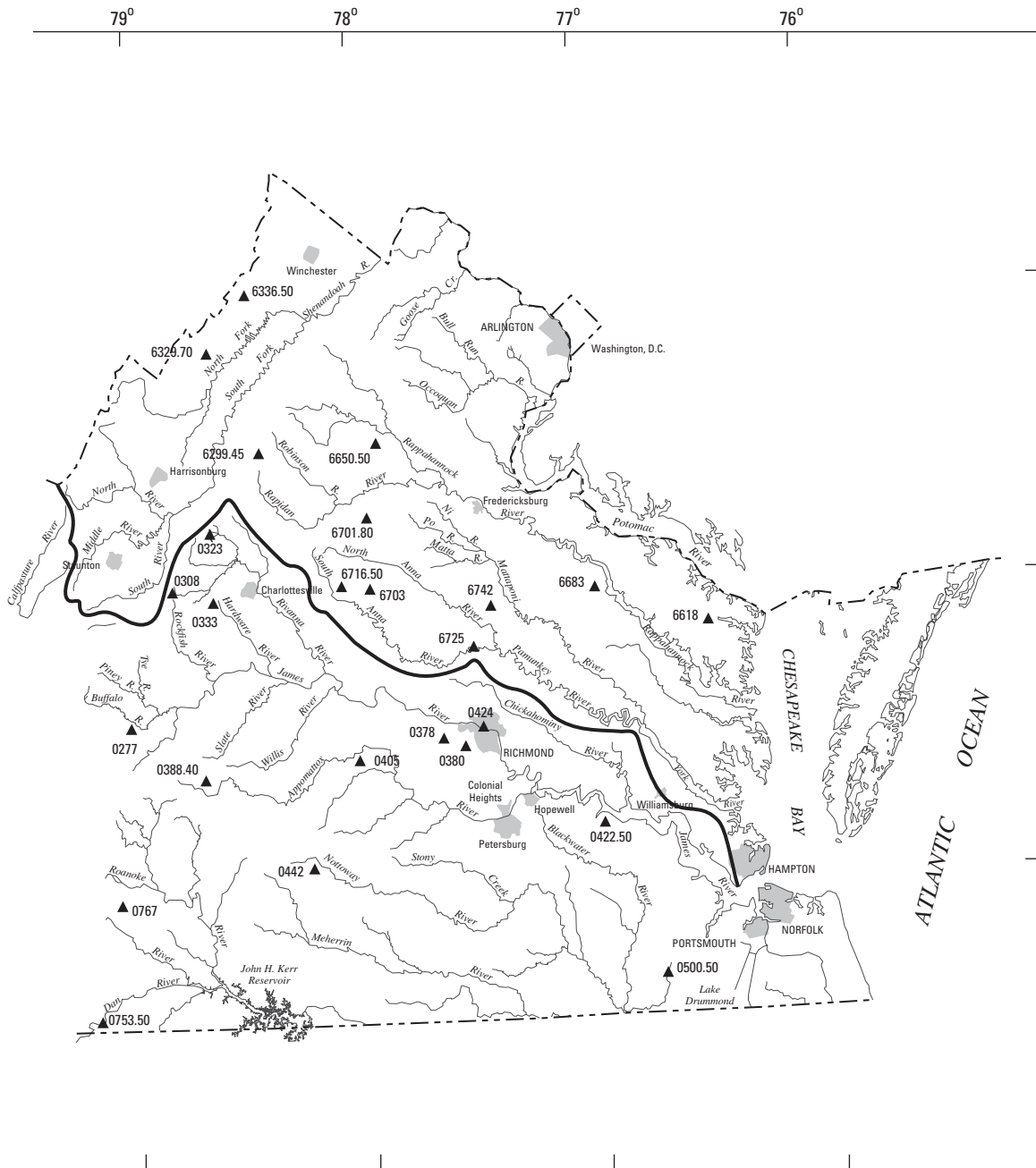


Figure 5. Location of surface-water partial-record stations.



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

Remarks Codes

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

PRINT 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).
V	Analyte was detected in both the environmental sample and the associated blanks.
&	Biological organism estimated as dominant.

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 at some stations 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).

POTOMAC RIVER BASIN

01613900 HOGUE CREEK NEAR HAYFIELD, VA

LOCATION.--Lat 39°12'52", long 78°17'17", NAD83, Frederick County, Hydrologic Unit 02070004, on right bank 15 ft upstream from bridge on State Highway 614, 0.8 mi upstream from Gap Run, and 1.3 mi southeast of Hayfield.

DRAINAGE AREA.--15.0 mi².

PERIOD OF RECORD.--August 1960 to December 1986, October 1992 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.60 ft NGVD of 1929.

REMARKS.--Records good except those for period of doubtful gage-height record, Oct. 5 to Nov. 23, and period with ice effect, Dec. 28 to Jan. 3, which are fair. Maximum discharge, 4,090 ft³/s, from rating curve extended above 870 ft³/s. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	0.97	e2.0	1.9	e1.3	5.0	1.7	28	23	5.3	1.2	0.73	0.92
2	0.90	e2.1	1.8	e1.2	4.2	1.8	16	88	3.8	1.1	0.57	0.96
3	0.87	e2.1	1.6	e1.3	3.4	3.2	13	50	2.9	0.92	0.49	0.86
4	0.87	e2.0	1.5	1.4	3.0	3.0	10	25	2.8	0.77	0.49	0.69
5	e0.90	e2.1	1.4	1.3	2.5	2.4	6.8	19	3.0	1.3	0.58	0.52
6	e0.87	e2.0	1.4	1.5	2.3	2.3	5.8	14	5.0	0.86	0.88	0.52
7	e0.84	e1.9	1.4	1.7	2.4	2.2	5.6	15	3.8	0.77	0.56	0.52
8	e1.0	e1.9	1.7	1.6	2.4	2.1	4.7	20	2.2	0.76	0.47	0.48
9	e1.2	e1.9	1.9	1.6	2.1	2.1	4.6	20	1.9	0.77	0.45	0.46
10	e1.3	e1.9	1.7	1.9	2.1	2.0	4.9	34	1.6	1.4	0.44	0.49
11	e1.6	e1.9	1.9	2.8	2.2	2.0	4.1	15	1.6	1.4	0.41	0.49
12	e1.5	e2.0	1.8	2.6	2.1	2.0	3.7	10	1.3	0.94	0.42	0.48
13	e1.6	e2.1	1.8	2.2	1.8	2.5	3.8	15	1.7	0.90	0.44	0.63
14	e1.8	e2.0	2.1	2.0	1.7	2.8	3.9	17	26	25	0.44	0.85
15	e2.3	e1.9	2.1	1.8	1.7	2.8	4.8	9.9	13	6.2	0.46	1.2
16	e2.0	e1.8	2.0	1.6	1.7	2.8	5.5	7.1	5.7	2.6	0.62	1.6
17	e1.7	e1.8	2.0	1.6	1.7	2.8	5.9	5.9	3.4	1.5	0.53	1.4
18	e1.9	e2.2	1.9	1.4	1.7	3.6	4.4	42	2.5	1.2	0.49	1.3
19	e1.7	e2.1	1.7	1.5	1.7	4.2	4.2	24	2.6	1.1	0.46	1.5
20	e1.8	e2.0	1.7	1.6	1.9	73	7.2	14	2.1	1.0	0.46	1.5
21	e1.8	e1.9	1.7	1.6	2.0	38	10	9.8	1.7	0.85	0.43	1.6
22	e1.7	e1.9	1.7	1.7	1.9	17	54	7.5	1.5	0.80	0.48	2.2
23	e1.7	e1.9	1.7	1.7	2.1	11	28	6.1	1.3	0.94	0.50	2.4
24	e1.8	2.3	2.1	6.2	1.8	8.4	16	5.3	1.2	2.0	0.57	1.9
25	e1.7	4.8	1.8	7.7	1.7	6.0	12	4.7	1.1	1.5	0.52	1.8
26	e1.7	4.0	1.8	4.8	1.7	6.3	9.2	22	2.3	4.6	0.51	4.8
27	e1.7	2.5	1.8	3.6	1.7	14	7.2	59	4.7	3.7	0.56	8.6
28	e1.9	2.1	e1.5	2.8	1.7	10	81	38	2.5	2.3	0.72	3.2
29	e1.8	2.0	e1.6	2.6	---	7.9	68	27	1.9	1.5	1.1	1.9
30	e1.8	2.0	e1.6	2.4	---	6.7	33	12	1.4	1.1	0.82	1.4
31	e1.9	---	e1.5	4.0	---	10	---	7.4	---	0.85	0.77	---
TOTAL	47.12	65.1	54.1	73.0	62.2	256.6	465.3	666.7	111.8	71.83	17.37	47.17
MEAN	1.52	2.17	1.75	2.35	2.22	8.28	15.5	21.5	3.73	2.32	0.56	1.57
MAX	2.3	4.8	2.1	7.7	5.0	73	81	88	26	25	1.1	8.6
MIN	0.84	1.8	1.4	1.2	1.7	1.7	3.7	4.7	1.1	0.76	0.41	0.46
CFSM	0.10	0.14	0.12	0.16	0.15	0.55	1.03	1.43	0.25	0.15	0.04	0.10
IN.	0.12	0.16	0.13	0.18	0.15	0.64	1.15	1.65	0.28	0.18	0.04	0.12

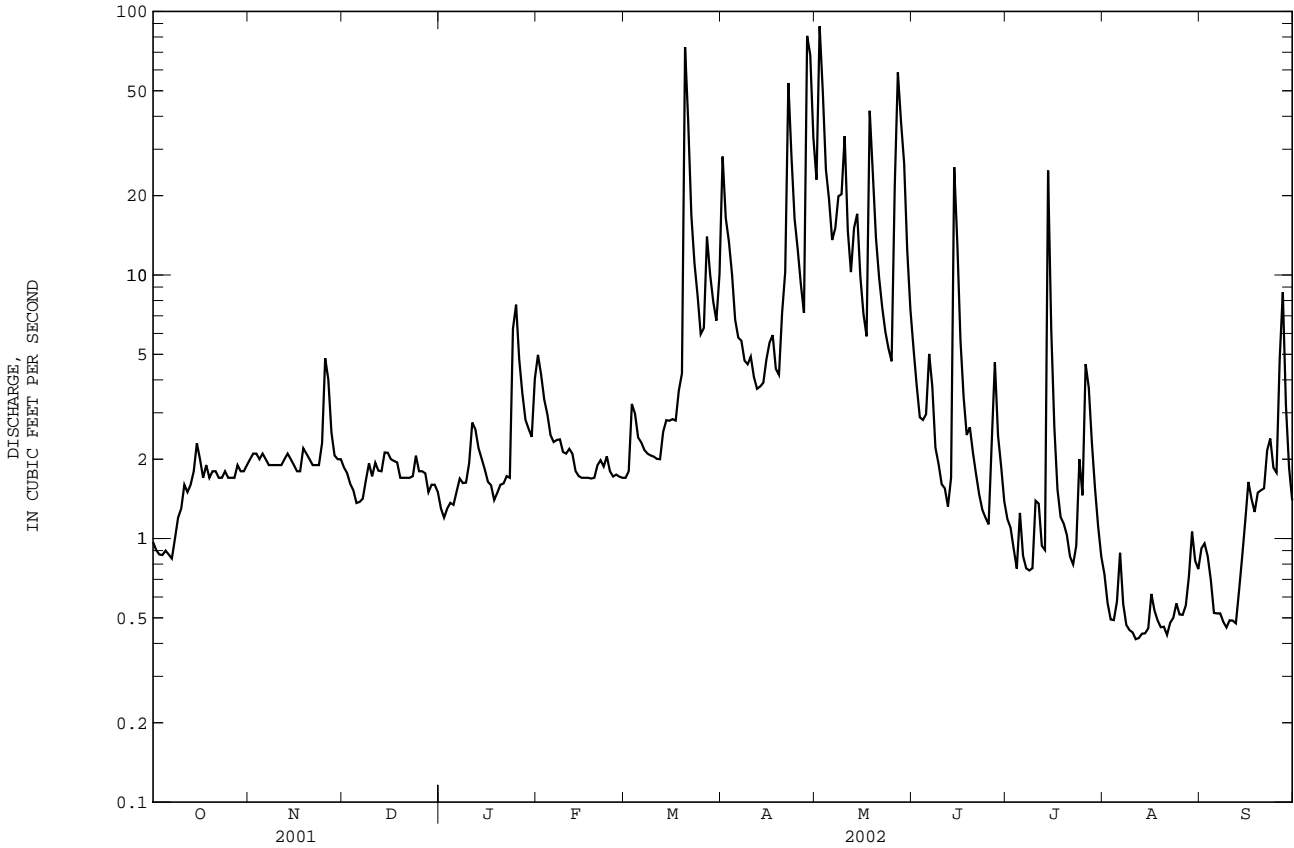
01613900 HOGUE CREEK NEAR HAYFIELD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1986, 1993 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.79	12.0	15.3	18.7	25.1	37.3	25.4	16.4	12.0	4.74	5.13	5.80
MAX	53.6	52.5	51.2	81.0	75.9	114	89.7	47.4	94.2	30.6	54.2	65.8
(WY)	1980	1986	1973	1996	1998	1993	1983	1978	1972	1978	1978	1996
MIN	0.52	1.08	1.06	1.72	2.22	5.81	6.31	2.17	0.98	0.81	0.31	0.78
(WY)	1964	1966	1966	1966	2002	1981	1963	1969	1969	1964	1999	1963

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1960 - 1986 1993 - 2002	
ANNUAL TOTAL	4588.28		1938.29			
ANNUAL MEAN	12.6		5.31		15.4	
HIGHEST ANNUAL MEAN					32.2	
LOWEST ANNUAL MEAN					3.84	
HIGHEST DAILY MEAN	543	Jun 22	88	May 2	1060	Sep 6 1996
LOWEST DAILY MEAN	0.48	Sep 19	0.41	Aug 11	0.06	Sep 14 1968
ANNUAL SEVEN-DAY MINIMUM	0.57	Sep 13	0.44	Aug 9	0.19	Aug 7 1999
MAXIMUM PEAK FLOW			182	May 2	4090	Sep 6 1996
MAXIMUM PEAK STAGE			2.37	May 2	9.71	Sep 6 1996
INSTANTANEOUS LOW FLOW			0.38	aAug 10	0.00	bSep 14 1968
ANNUAL RUNOFF (CFSM)	0.84		0.35		1.02	
ANNUAL RUNOFF (INCHES)	11.38		4.81		13.92	
10 PERCENT EXCEEDS	22		12		34	
50 PERCENT EXCEEDS	2.8		1.9		5.1	
90 PERCENT EXCEEDS	1.4		0.73		1.1	

a Also Aug. 11-15, 20, 21, 2002.
 b No flow part of Sept. 14, 1968, cause unknown.
 e Estimated.



POTOMAC RIVER BASIN

01614830 OPEQUON CREEK NEAR STEPHENS CITY, VA

LOCATION.--Lat 39°06'32", long 78°12'18", NAD83, Frederick County, Hydrologic Unit Code 02070004, on right bank, 5 ft upstream from U.S. Highway 11, 1.5 mi north of Stephens City.

DRAINAGE AREA.--14.8 mi².

PERIOD OF RECORD.--December 2000 to current year.

GAGE.--Water stage recorder. Datum of gage is 705 ft NGVD of 1929, from topographic map..

REMARKS.--Records fair except for period with ice effect, Dec. 31 to Jan. 7, which is poor.

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	1.8	1.9	2.1	e1.9	2.4	1.3	1.9	3.1	4.9	2.8	1.5	1.5
2	1.7	1.9	2.0	e1.9	2.1	1.4	1.8	4.7	4.6	2.7	1.4	1.6
3	1.6	2.0	2.0	e1.9	2.0	1.8	1.7	4.1	4.3	2.4	2.1	1.4
4	1.6	2.0	2.0	e1.9	2.0	1.5	1.6	3.5	4.8	2.2	2.0	1.2
5	1.7	2.0	2.0	e2.0	1.7	1.4	1.5	3.4	5.8	2.0	1.5	1.1
6	1.9	2.1	2.1	e2.1	2.0	1.4	1.5	3.2	9.1	1.7	1.5	1.1
7	2.0	2.1	2.2	e2.2	2.1	1.2	1.5	3.2	7.8	1.8	1.3	1.0
8	1.9	2.1	2.6	1.9	1.9	1.2	1.6	3.5	6.4	1.8	1.2	1.0
9	2.0	2.0	2.6	2.0	1.8	1.2	1.7	4.2	5.6	1.9	1.1	0.96
10	2.0	2.1	2.3	2.3	1.9	1.2	1.7	6.4	5.2	2.1	1.1	0.97
11	2.0	2.1	e2.8	2.4	1.8	1.1	1.6	4.1	5.0	2.0	0.97	1.0
12	2.0	2.0	e2.5	2.2	1.8	1.2	1.5	3.9	4.7	1.7	0.93	1.1
13	2.0	2.0	2.5	2.1	1.8	1.5	1.6	4.3	5.2	1.7	0.92	1.1
14	2.2	2.0	2.5	2.0	1.6	1.4	1.7	4.9	9.1	9.1	0.84	1.1
15	2.7	2.0	2.3	2.0	1.6	1.3	2.0	4.0	8.0	4.8	1.0	1.3
16	2.3	2.0	2.2	1.9	1.6	1.3	1.6	3.6	6.1	3.1	1.2	1.4
17	2.3	2.0	2.2	1.9	1.6	1.1	1.5	3.4	5.4	2.6	1.0	1.1
18	2.4	2.0	2.2	1.8	1.6	1.4	1.3	7.9	5.1	2.5	0.90	1.0
19	2.4	2.0	2.2	1.9	1.6	1.3	1.3	6.4	5.0	2.3	0.82	0.99
20	2.4	1.9	2.0	1.9	1.7	3.6	1.9	5.1	4.5	2.2	0.81	0.93
21	1.9	1.9	2.0	1.9	1.6	2.8	2.0	4.6	4.3	2.0	0.79	1.4
22	1.9	1.7	2.2	1.9	1.5	2.1	3.4	4.3	3.9	1.7	0.90	2.3
23	2.0	1.8	2.3	1.9	1.6	1.9	2.7	4.2	3.6	1.7	0.99	2.6
24	2.0	1.9	2.7	2.2	1.4	1.7	2.4	4.1	3.5	2.4	1.0	1.6
25	1.9	2.8	2.4	2.3	1.4	1.7	2.2	4.0	3.4	2.1	0.95	1.2
26	2.0	2.8	2.3	2.1	1.4	1.8	2.1	4.6	4.0	3.9	0.90	3.9
27	2.1	2.2	2.2	2.0	1.4	2.2	2.1	17	4.0	3.5	0.96	6.7
28	2.2	2.2	2.3	2.0	1.4	1.8	4.8	7.3	3.8	2.6	1.3	4.4
29	2.1	2.2	2.4	2.0	---	1.7	4.6	6.3	3.3	2.0	1.9	2.7
30	2.0	2.3	2.1	2.0	---	1.6	3.6	5.6	2.9	1.8	1.6	2.3
31	2.0	---	e2.0	2.7	---	1.8	---	5.2	---	1.7	1.5	---
TOTAL	63.0	62.0	70.2	63.2	48.3	49.9	62.4	154.1	153.3	78.8	36.88	51.95
MEAN	2.03	2.07	2.26	2.04	1.73	1.61	2.08	4.97	5.11	2.54	1.19	1.73
MAX	2.7	2.8	2.8	2.7	2.4	3.6	4.8	17	9.1	9.1	2.1	6.7
MIN	1.6	1.7	2.0	1.8	1.4	1.1	1.3	3.1	2.9	1.7	0.79	0.93
CFSM	0.14	0.14	0.15	0.14	0.12	0.11	0.14	0.34	0.34	0.17	0.08	0.12
IN.	0.16	0.16	0.18	0.16	0.12	0.13	0.16	0.39	0.38	0.20	0.09	0.13

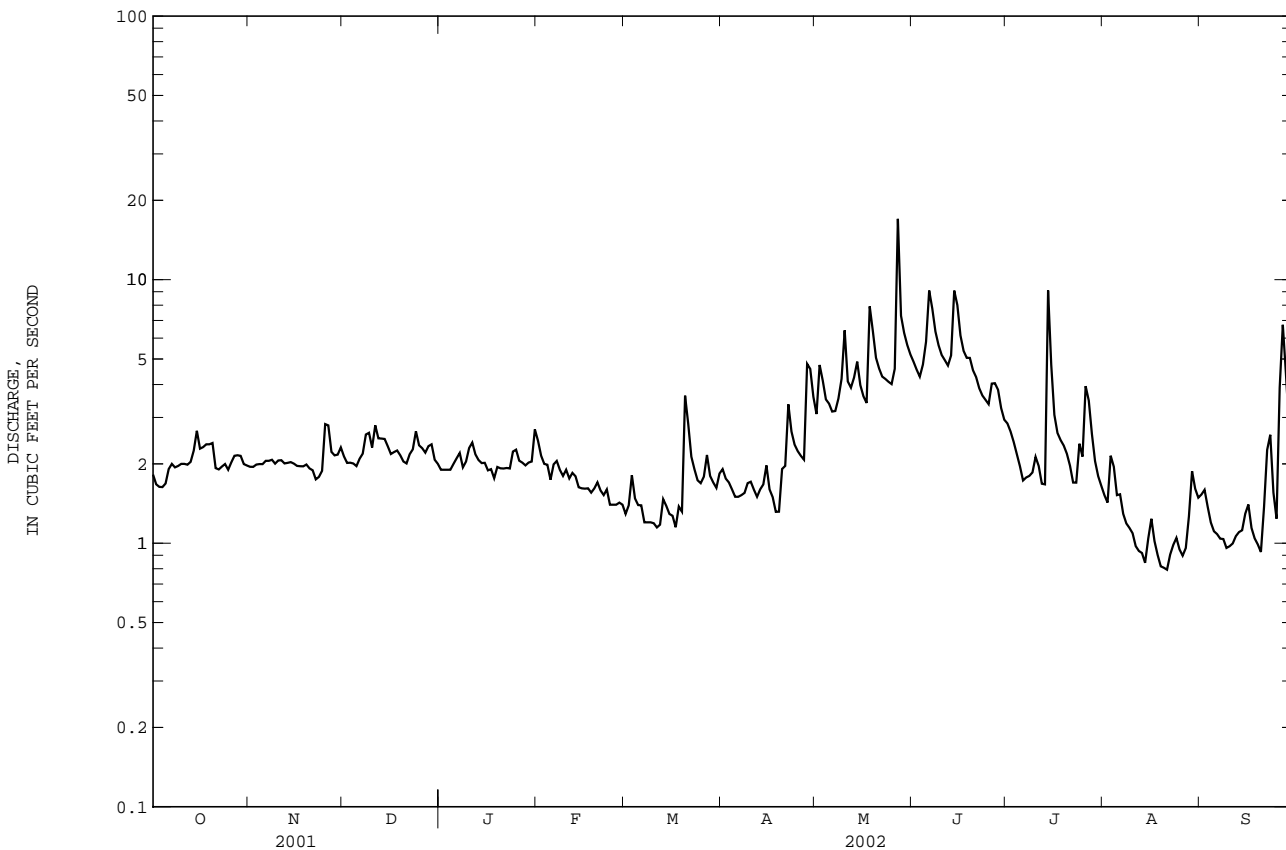
01614830 OPEQUON CREEK NEAR STEPHENS CITY, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.03	2.07	2.26	2.68	3.12	4.39	5.49	5.26	4.93	2.94	2.29	2.08
MAX	2.03	2.07	2.26	3.32	4.52	7.17	8.89	5.55	5.11	3.34	3.38	2.43
(WY)	2002	2002	2002	2001	2001	2001	2001	2001	2002	2001	2001	2001
MIN	2.03	2.07	2.26	2.04	1.72	1.61	2.08	4.97	4.75	2.54	1.19	1.73
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2001	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 2001 - 2002
ANNUAL TOTAL	1509.4	894.03	
ANNUAL MEAN	4.14	2.45	2.45
HIGHEST ANNUAL MEAN			2.45 2002
LOWEST ANNUAL MEAN			2.45 2002
HIGHEST DAILY MEAN	27 Mar 30	17 May 27	27 Mar 30 2001
LOWEST DAILY MEAN	1.6 Oct 3	0.79 Aug 21	0.79 Aug 21 2002
ANNUAL SEVEN-DAY MINIMUM	1.7 Sep 30	0.89 Aug 17	0.89 Aug 17 2002
MAXIMUM PEAK FLOW		35 May 27	46 Mar 30 2001
MAXIMUM PEAK STAGE		3.91 May 27	4.04 Mar 30 2001
INSTANTANEOUS LOW FLOW		0.64 aAug 20	0.64 aAug 20 2002
ANNUAL RUNOFF (CFSM)	0.28	0.17	0.17
ANNUAL RUNOFF (INCHES)	3.79	2.24	2.24
10 PERCENT EXCEEDS	7.5	4.5	4.5
50 PERCENT EXCEEDS	3.4	2.0	2.0
90 PERCENT EXCEEDS	2.0	1.2	1.2

a Also Sept. 20, 2002.
e Estimated.



POTOMAC RIVER BASIN

01620500 NORTH RIVER NEAR STOKESVILLE, VA

LOCATION.--Lat 38°20'15", long 79°14'24", NAD83, Augusta County, Hydrologic Unit 02070005, George Washington National Forest, on left bank 575 ft upstream from highway bridge, 2.8 mi upstream from city of Staunton dam, 3.8 mi upstream from Broad Run, 5.0 mi west of Stokesville, and 7.8 mi upstream from Skidmore Fork.

DRAINAGE AREA.--17.2 mi².

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area. WDR VA-89-1: 1949 (M).

GAGE.--Water-stage recorder. Datum of gage is 2,051.37 ft NGVD of 1929. Prior to June 10, 1958, at site 575 ft downstream at datum 6.0 ft lower. Prior to Oct. 25, 1996, at site 400 ft upstream at datum 3.2 ft higher.

REMARKS.--Records good except those for periods of partial or no gage-height record, July 25-30 and Sept. 29, 30, which are fair. Maximum discharge, 9,530 ft³/s, from rating curve extended above 900 ft³/s on basis of computation of peak flow over dam at site 2.8 mi downstream. 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 October 1942 reached a stage of 8.4 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0530	*442	*4.07	No other peak greater than base discharge.			

**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	0.57	2.5	1.5	2.8	3.8	3.1	35	72	7.1	1.9	6.9	0.69
2	0.58	2.2	1.7	2.6	3.7	3.2	41	58	6.3	1.8	6.0	0.54
3	0.62	2.1	1.9	2.6	3.7	4.0	39	46	5.7	1.6	5.4	0.43
4	0.64	2.0	1.9	2.4	3.7	8.4	32	37	5.9	1.5	5.2	0.38
5	0.64	2.0	1.9	2.4	3.6	9.0	25	32	6.1	1.3	4.6	0.36
6	0.65	1.9	1.8	2.4	3.6	8.6	19	28	5.7	1.3	4.3	0.34
7	0.66	1.8	1.7	2.3	3.7	7.4	16	34	5.4	1.1	3.9	0.32
8	0.66	1.8	1.8	2.2	3.6	6.4	13	68	4.8	1.0	3.6	0.30
9	0.66	1.7	1.7	2.2	3.5	5.6	14	77	4.3	0.98	3.4	0.28
10	0.66	1.6	1.8	2.2	3.6	5.2	28	67	3.9	1.2	3.1	0.26
11	0.66	1.5	1.9	2.4	3.7	4.9	30	54	3.5	1.4	2.9	0.24
12	0.68	1.5	2.0	2.4	3.7	4.8	29	46	3.2	1.4	2.8	0.25
13	0.73	1.5	2.1	2.5	3.9	5.0	26	42	3.0	1.4	2.6	0.24
14	1.2	1.3	2.9	2.7	4.0	5.1	23	37	3.0	2.2	2.4	0.24
15	1.2	1.3	3.1	2.9	4.0	5.1	24	30	2.8	3.1	2.2	0.28
16	1.5	1.2	3.1	2.9	4.0	5.1	21	25	2.7	3.3	2.0	0.29
17	1.6	1.2	3.2	2.9	4.0	5.6	21	22	2.5	2.9	1.9	0.26
18	1.5	1.2	3.3	2.9	4.0	7.6	20	23	2.3	2.6	1.9	0.26
19	1.5	1.2	3.3	2.9	3.9	13	22	20	2.1	2.6	1.8	0.26
20	1.7	1.2	3.5	2.7	3.7	56	24	17	2.0	2.3	1.6	0.28
21	1.7	1.2	3.5	2.7	3.7	68	39	16	1.9	2.0	1.5	0.27
22	1.9	1.1	3.5	2.7	3.7	52	314	15	1.8	1.8	1.4	0.42
23	2.1	1.1	3.4	2.7	3.5	38	158	13	1.7	1.8	1.3	0.42
24	2.3	1.1	3.3	2.8	3.5	29	101	12	1.5	2.0	1.2	0.40
25	2.6	1.4	3.3	2.9	3.3	21	74	11	2.0	e3.0	1.2	0.41
26	2.9	1.3	3.3	3.4	3.3	18	53	11	2.1	e7.0	1.1	2.9
27	3.1	1.3	3.2	3.6	3.2	25	41	11	2.6	e18	1.1	49
28	2.9	1.3	3.1	3.8	3.1	26	113	10	2.7	e16	1.2	42
29	2.8	1.3	3.1	3.9	---	26	150	9.1	2.2	e12	1.1	e33
30	2.7	1.4	2.9	4.0	---	23	101	8.1	2.0	e9.5	0.91	e23
31	2.6	---	2.9	4.0	---	25	---	7.2	---	8.2	0.80	---
TOTAL	46.21	45.2	81.6	87.8	102.7	524.1	1646	958.4	102.8	118.18	81.31	158.32
MEAN	1.49	1.51	2.63	2.83	3.67	16.9	54.9	30.9	3.43	3.81	2.62	5.28
MAX	3.1	2.5	3.5	4.0	4.0	68	314	77	7.1	18	6.9	49
MIN	0.57	1.1	1.5	2.2	3.1	3.1	13	7.2	1.5	0.98	0.80	0.24
CFSM	0.09	0.09	0.15	0.16	0.21	0.98	3.19	1.80	0.20	0.22	0.15	0.31
IN.	0.10	0.10	0.18	0.19	0.22	1.13	3.56	2.07	0.22	0.26	0.18	0.34

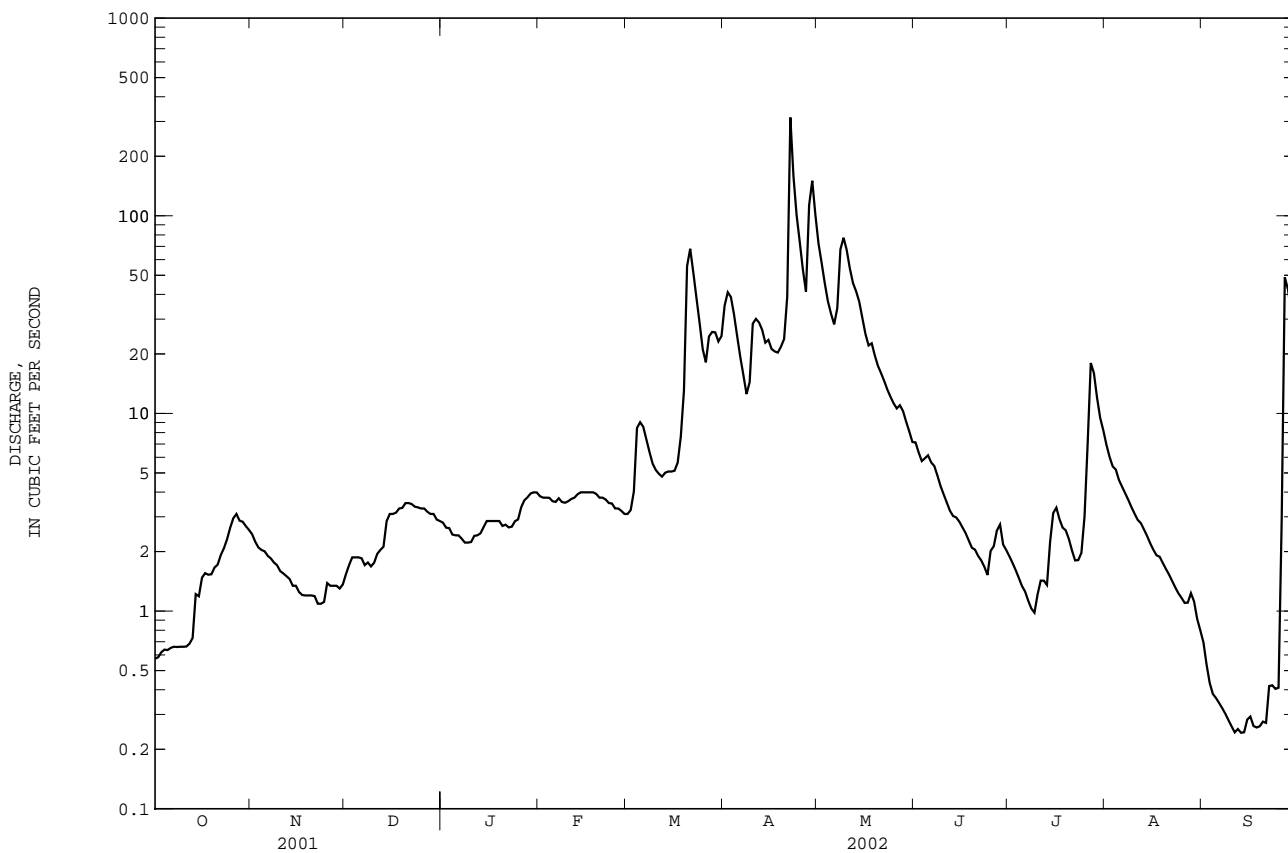
01620500 NORTH RIVER NEAR STOKESVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	13.5	25.7	26.7	33.6	35.8	56.4	46.6	34.4	23.5	7.10	8.52	10.4
MAX	90.7	257	99.5	152	99.9	230	196	86.4	177	53.1	66.8	157
(WY)	1980	1986	1974	1995	1998	1993	1992	1960	1949	1995	1989	1996
MIN	0.21	0.41	0.71	0.74	3.67	8.21	11.1	5.32	1.65	0.76	0.26	0.25
(WY)	1964	1954	1999	1981	2002	1981	1999	1977	1999	1999	1987	1963

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1947 - 2002
ANNUAL TOTAL	5059.41	3952.62	
ANNUAL MEAN	13.9	10.8	26.8
HIGHEST ANNUAL MEAN			49.0 1949
LOWEST ANNUAL MEAN			9.52 1999
HIGHEST DAILY MEAN	170 May 23	314 Apr 22	3300 Nov 5 1985
LOWEST DAILY MEAN	0.54 Sep 30	0.24 Sep 11	0.10 aSep 15 1962
ANNUAL SEVEN-DAY MINIMUM	0.57 Sep 26	0.26 Sep 9	0.12 Sep 29 1968
MAXIMUM PEAK FLOW		442 Apr 22	9530 Jun 17 1949
MAXIMUM PEAK STAGE		4.07 Apr 22	b19.80 Nov 5 1985
INSTANTANEOUS LOW FLOW		0.22 cSep 11	0.10 dSep 15 1962
ANNUAL RUNOFF (CFSM)	0.81	0.63	1.56
ANNUAL RUNOFF (INCHES)	10.94	8.55	21.17
10 PERCENT EXCEEDS	33	29	60
50 PERCENT EXCEEDS	4.7	2.9	11
90 PERCENT EXCEEDS	0.84	0.69	1.0

- a Also Sept. 16, 19-22, 1962, and Sept. 9, 11, 12, 1966.
- b From floodmarks, backwater from Elkhorn Lake.
- c Also Sept. 12-14, 2002.
- d Also Sept. 16, 19-22, 1962, and Sept. 7-13, 1966.
- e Estimated.



POTOMAC RIVER BASIN

01621050 MUDDY CREEK AT MOUNT CLINTON, VA

LOCATION.--Lat 38°29'12", long 78°57'37", NAD83, Rockingham County, Hydrologic Unit 02070005, on right downstream side of bridge on State Highway 726, at Mount Clinton.

DRAINAGE AREA.--14.2 mi².

PERIOD OF RECORD.--April 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,320 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except those for Oct. 5 to Nov. 17 and period with ice effect, Dec. 20 to Jan. 13, 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.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 27	1930	*543	*5.31	Jun 13	2300	378	4.86

**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	0.41	1.3	0.89	e0.54	0.81	0.42	1.6	2.3	3.7	4.8	1.7	0.68
2	0.39	1.2	0.70	e0.55	0.70	0.55	1.0	2.3	2.6	3.6	1.6	0.64
3	0.38	1.0	0.64	e0.55	0.65	1.3	0.87	1.6	2.1	3.0	2.2	0.59
4	0.37	0.95	0.63	e0.57	0.79	0.49	0.89	1.5	2.4	2.7	1.6	0.54
5	0.32	0.82	0.76	e0.60	0.63	0.42	0.87	1.4	1.9	1.9	1.5	0.50
6	0.36	0.74	1.1	e0.76	0.70	0.43	0.87	0.98	1.5	1.8	2.5	0.48
7	0.42	0.77	1.1	e0.94	1.1	0.42	0.83	2.2	1.4	2.7	1.5	0.44
8	0.48	0.90	1.4	e0.79	0.97	0.40	0.82	2.4	1.0	2.1	1.3	0.41
9	0.56	0.87	1.5	e0.72	0.65	0.41	1.1	2.3	0.85	1.6	1.0	0.39
10	0.61	0.90	1.1	e0.76	0.59	0.42	1.5	1.5	0.79	2.5	0.99	0.36
11	0.66	0.90	5.2	e0.81	0.73	0.42	0.95	0.94	0.72	2.1	0.83	0.33
12	0.61	1.1	1.6	e0.74	0.57	0.46	0.92	0.84	0.65	1.3	0.74	0.32
13	0.70	0.83	0.95	e0.70	0.59	0.64	1.2	0.99	23	0.88	1.2	0.32
14	1.4	0.67	0.87	e0.62	0.42	0.54	1.2	1.0	24	4.7	0.69	0.29
15	1.8	0.78	0.77	0.66	0.47	0.47	1.2	0.75	8.8	2.7	0.57	0.33
16	0.85	0.61	0.57	0.57	0.53	0.49	0.98	0.67	7.3	1.9	0.58	0.38
17	1.0	0.61	0.61	0.64	0.51	0.54	0.81	0.66	6.0	1.3	0.57	0.34
18	1.1	0.64	0.84	0.58	0.57	0.84	0.80	1.4	5.1	1.3	0.56	0.33
19	1.1	0.76	0.76	0.64	0.58	0.77	0.80	0.74	5.6	1.4	0.54	0.33
20	1.1	0.81	e0.70	0.72	0.62	3.2	0.88	0.65	4.7	1.3	0.50	0.33
21	1.1	0.74	e0.68	0.80	0.51	1.5	4.2	0.61	3.7	1.7	0.45	0.32
22	0.94	0.79	e0.61	0.85	0.41	0.95	34	0.58	3.0	1.4	0.44	0.40
23	1.0	0.80	e0.66	0.92	0.42	0.83	9.4	0.54	2.5	1.7	0.42	0.92
24	1.2	0.84	e0.70	1.0	0.42	0.76	5.8	0.50	2.1	6.3	0.41	0.42
25	1.2	2.4	e0.65	0.99	0.43	0.72	3.9	0.49	1.6	3.5	0.42	0.40
26	1.2	1.8	e0.63	0.78	0.42	0.94	2.5	0.57	1.4	4.6	0.44	3.6
27	1.7	0.89	e0.62	0.73	0.42	1.9	1.8	82	13	4.3	0.54	6.5
28	1.6	0.77	e0.65	0.78	0.39	0.99	7.3	32	9.4	3.2	1.1	2.0
29	1.8	0.65	e0.64	0.84	---	0.86	5.4	10	6.9	2.1	1.8	1.00
30	1.8	0.71	e0.62	0.82	---	0.79	3.0	6.9	5.7	2.0	0.79	0.81
31	1.6	---	e0.56	0.74	---	1.3	---	5.0	---	2.0	0.73	---
TOTAL	29.76	27.55	29.71	22.71	16.60	25.17	97.39	166.31	153.41	78.38	30.21	24.70
MEAN	0.96	0.92	0.96	0.73	0.59	0.81	3.25	5.36	5.11	2.53	0.97	0.82
MAX	1.8	2.4	5.2	1.0	1.1	3.2	34	82	24	6.3	2.5	6.5
MIN	0.32	0.61	0.56	0.54	0.39	0.40	0.80	0.49	0.65	0.88	0.41	0.29
CFSM	0.07	0.06	0.07	0.05	0.04	0.06	0.23	0.38	0.36	0.18	0.07	0.06
IN.	0.08	0.07	0.08	0.06	0.04	0.07	0.26	0.44	0.40	0.21	0.08	0.06

01621050 MUDDY CREEK AT MOUNT CLINTON, VA--Continued

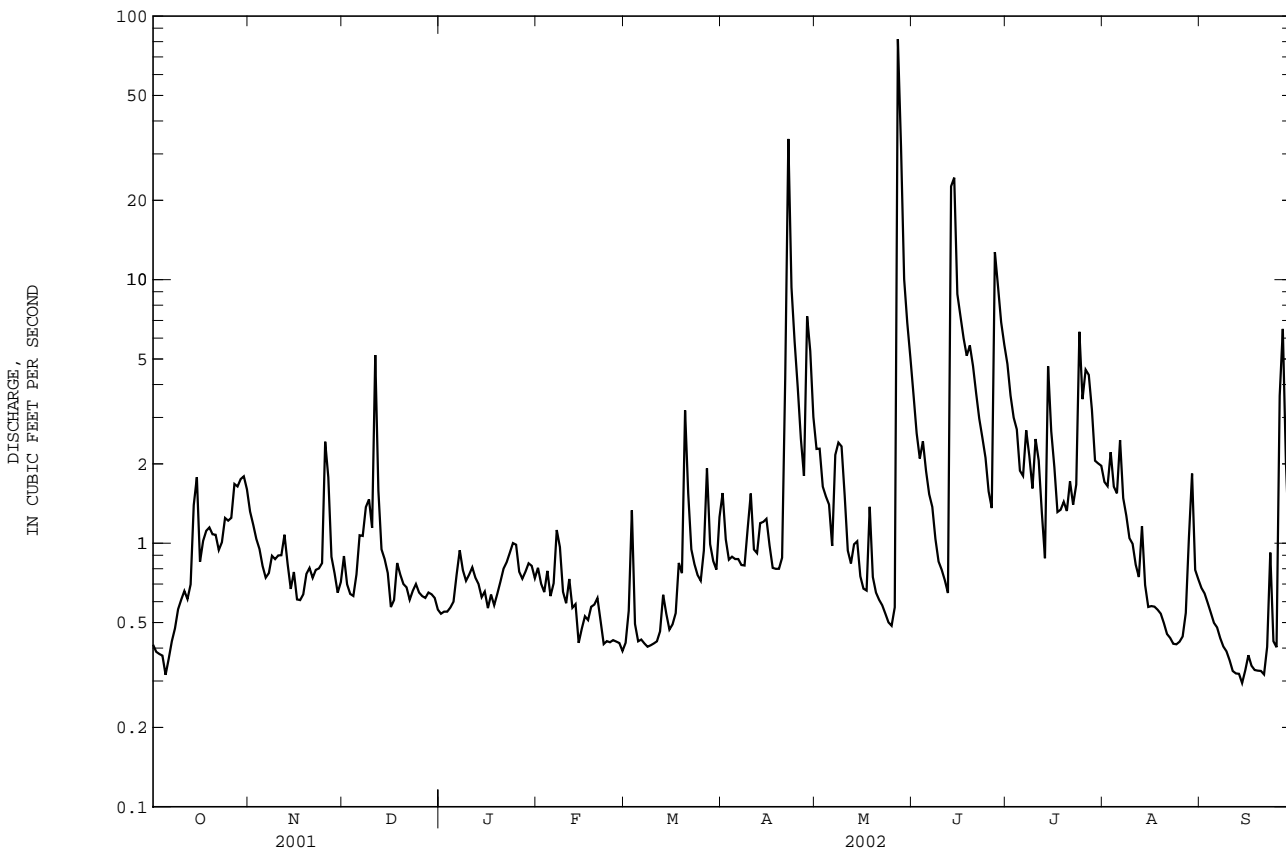
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.34	5.42	7.82	16.4	16.4	17.7	10.4	9.27	9.00	6.23	7.32	13.2
MAX	22.1	19.3	37.5	66.9	63.5	44.0	19.9	22.7	29.9	16.1	33.8	105
(WY)	1996	1997	1997	1996	1998	1998	1998	1998	1996	1995	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

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1993 - 2002

ANNUAL TOTAL		1486.60		701.90								
ANNUAL MEAN		4.07		1.92						10.6		
HIGHEST ANNUAL MEAN										30.0		1996
LOWEST ANNUAL MEAN										1.92		2002
HIGHEST DAILY MEAN				66	Apr 11		82	May 27	1760	Sep 6	1996	
LOWEST DAILY MEAN				0.32	Oct 5		0.29	Sep 14	0.29	Sep 14	2002	
ANNUAL SEVEN-DAY MINIMUM				0.38	Sep 30		0.33	Sep 11	0.33	Sep 11	2002	
MAXIMUM PEAK FLOW							543	May 27	3850	Sep 6	1996	
MAXIMUM PEAK STAGE							5.31	May 27	10.37	Sep 6	1996	
INSTANTANEOUS LOW FLOW							0.27	aOct 5	0.27	aOct 5	2001	
ANNUAL RUNOFF (CFSM)				0.29			0.14		0.75			
ANNUAL RUNOFF (INCHES)				3.89			1.84		10.17			
10 PERCENT EXCEEDS				9.4			3.3		22			
50 PERCENT EXCEEDS				2.4			0.83		4.3			
90 PERCENT EXCEEDS				0.63			0.42		1.0			

a Also Sept. 14, 2002.
e Estimated.



POTOMAC RIVER BASIN

01621410 BLACKS RUN AT ROUTE 726 AT HARRISONBURG, VA

LOCATION.--Lat 38°25'19", long 78°52'15", NAD83, City of Harrisonburg, Hydrologic unit 02070005, on left bank at upstream side of bridge on State Highway 726 at Harrisonburg, 4.0 mi upstream from North River and 3.5 mi north of Mt. Crawford.

DRAINAGE AREA.--11.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 2000 to September 2002 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 1,255 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except for period with ice effect, Dec. 30 to Jan. 12, which is poor. Several measurements of water temperature were made during the year.

REVISIONS.--The maximum discharge for water year 2001 has been revised to 602 ft³/s, Aug. 30, 2001, gage height, 6.79 ft. Revised figures of discharge for September 2001 superseding those published in the report of 2001 are given below.

DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE	DATE	DISCHARGE
Sept. 1	3.9	Sept. 7	2.3	Sept. 13	1.8	Sept. 19	1.6	Sept. 25	16
Sept. 2	3.1	Sept. 8	2.1	Sept. 14	2.0	Sept. 20	2.2	Sept. 26	2.2
Sept. 3	2.8	Sept. 9	2.1	Sept. 15	1.6	Sept. 21	1.7	Sept. 27	2.1
Sept. 4	3.0	Sept. 10	2.9	Sept. 16	1.5	Sept. 22	1.5	Sept. 28	1.9
Sept. 5	3.1	Sept. 11	2.1	Sept. 17	1.6	Sept. 23	1.4	Sept. 29	1.9
Sept. 6	2.6	Sept. 12	1.8	Sept. 18	1.7	Sept. 24	9.5	Sept. 30	1.8

SEPTEMBER 2001 TOTAL 85.8 MEAN 2.86 MAX 16 MIN 1.4 CFSM 0.26 IN. 0.28

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	1.8	1.4	0.98	e1.2	1.4	0.77	3.5	4.6	3.0	2.2	1.4	1.0
2	1.7	1.4	0.90	e1.2	1.4	9.2	2.4	5.7	2.7	2.2	1.3	0.94
3	1.7	1.4	0.88	e1.2	1.3	6.6	2.4	4.2	2.7	2.1	66	1.2
4	1.7	1.2	0.92	e1.3	1.3	1.4	2.4	5.9	9.5	2.0	4.0	1.1
5	1.7	1.3	0.93	e1.4	1.3	1.1	2.1	3.8	4.6	2.0	2.5	0.94
6	1.8	1.2	0.98	e1.6	1.3	1.2	2.0	3.8	5.4	2.0	2.0	0.90
7	1.7	1.2	0.96	e2.0	2.6	1.0	2.0	22	3.2	1.9	1.7	0.86
8	1.5	1.1	1.8	e1.7	1.1	0.91	2.0	6.2	2.5	2.0	1.3	0.84
9	1.6	1.1	1.1	e1.6	0.94	0.89	8.7	18	2.4	1.9	1.0	0.81
10	1.6	1.1	1.2	e1.5	0.88	0.87	3.4	5.3	2.5	2.8	0.94	0.81
11	1.6	1.1	30	e1.5	0.92	0.91	2.2	3.9	2.3	2.1	0.95	0.92
12	1.7	1.0	2.4	e1.5	0.87	0.96	2.1	3.7	2.3	2.0	1.0	0.84
13	1.7	1.1	2.1	1.5	0.83	4.0	2.5	28	2.3	2.0	1.1	0.82
14	7.7	1.0	2.3	1.5	0.86	1.2	2.1	4.9	2.5	17	0.96	0.81
15	1.7	1.1	1.9	1.6	0.79	1.2	5.2	4.1	2.2	2.0	0.97	1.1
16	1.4	1.0	1.7	1.5	0.76	0.95	2.3	3.7	2.2	1.7	0.92	1.7
17	1.5	1.0	1.7	1.5	0.82	1.2	2.2	3.5	2.2	1.5	0.87	0.92
18	1.5	0.98	2.5	1.5	0.78	8.7	2.2	16	2.2	1.4	0.83	0.85
19	1.6	0.96	1.9	1.5	0.79	8.3	2.3	3.7	2.2	1.5	0.87	0.84
20	1.4	1.1	1.7	1.9	0.81	15	6.1	3.7	2.3	4.7	0.84	0.82
21	1.3	1.0	1.5	1.9	0.83	2.2	47	3.6	2.3	1.8	0.84	0.86
22	1.4	0.96	1.5	1.8	0.82	1.9	123	3.1	2.2	1.6	0.80	9.6
23	1.6	0.94	1.5	1.7	0.80	1.5	18	3.1	2.1	3.8	0.77	3.9
24	1.7	0.91	1.6	1.7	0.75	1.4	6.7	2.9	2.3	2.6	0.78	1.0
25	1.6	3.7	1.5	1.6	0.76	1.6	5.8	2.8	2.3	3.0	0.77	1.1
26	1.7	1.2	1.4	1.4	0.77	15	4.5	20	2.1	15	0.74	70
27	2.2	0.98	1.4	1.4	0.74	5.9	3.9	27	3.4	3.0	0.91	13
28	1.8	0.95	1.4	1.4	0.92	2.7	56	10	2.4	2.2	5.7	e3.2
29	1.7	0.95	1.4	1.5	---	2.4	13	3.8	2.2	2.0	5.4	e2.3
30	1.6	1.0	e1.4	1.5	---	2.2	5.3	3.2	2.1	1.7	1.2	e1.8
31	1.5	---	e1.3	1.5	---	8.2	---	3.0	---	1.5	1.1	---
TOTAL	56.7	35.33	74.75	47.6	28.14	111.36	343.3	237.2	84.6	95.2	110.46	125.78
MEAN	1.83	1.18	2.41	1.54	1.00	3.59	11.4	7.65	2.82	3.07	3.56	4.19
MAX	7.7	3.7	30	2.0	2.6	15	123	28	9.5	17	66	70
MIN	1.3	0.91	0.88	1.2	0.74	0.77	2.0	2.8	2.1	1.4	0.74	0.81
CFSM	0.16	0.11	0.22	0.14	0.09	0.32	1.02	0.68	0.25	0.27	0.32	0.37
IN.	0.19	0.12	0.25	0.16	0.09	0.37	1.14	0.79	0.28	0.32	0.37	0.42

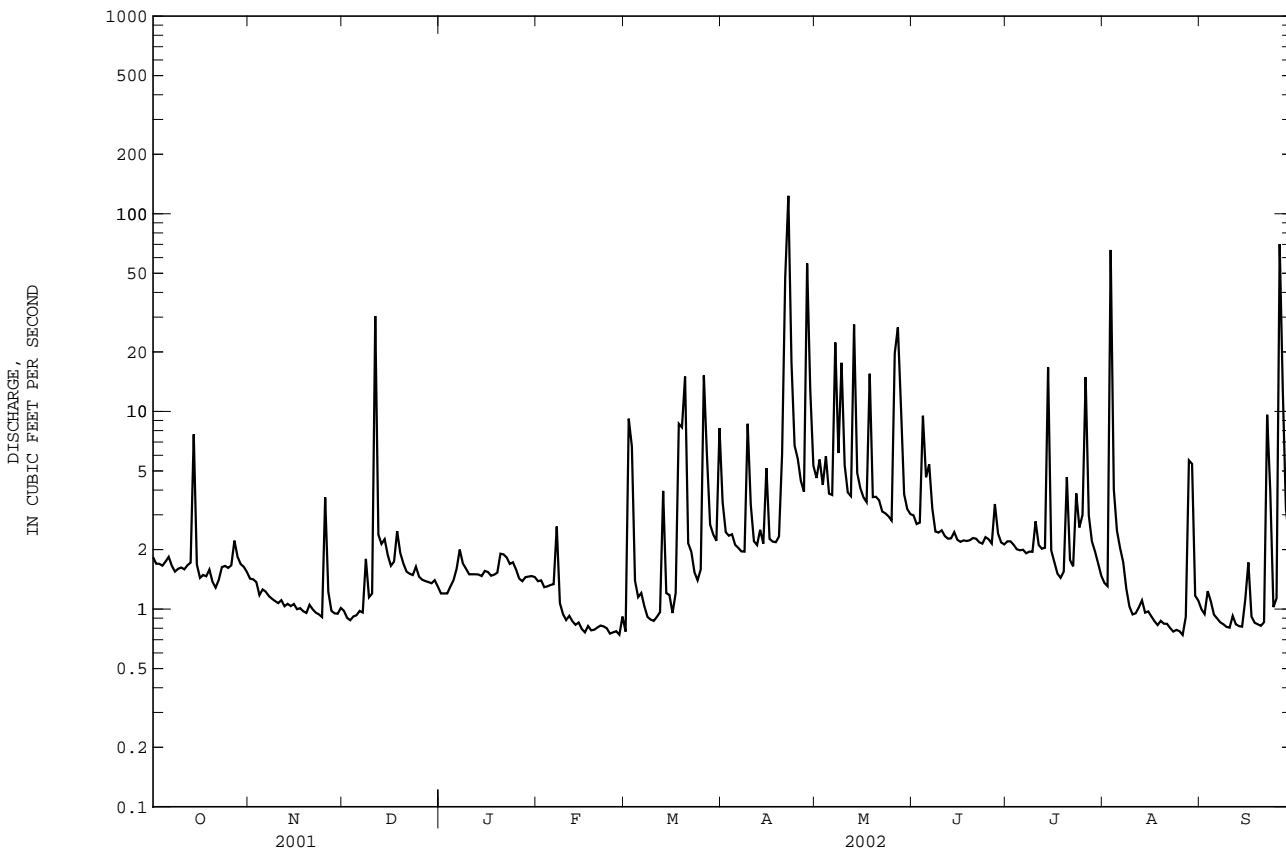
01621410 BLACKS RUN AT ROUTE 726 AT HARRISONBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.83	1.18	3.36	2.75	1.21	5.41	8.64	6.07	3.92	4.32	6.25	3.53
MAX	1.83	1.18	4.30	3.96	1.41	7.23	11.4	7.65	5.01	5.57	8.94	4.19
(WY)	2002	2002	2001	2001	2001	2001	2002	2002	2001	2001	2001	2002
MIN	1.83	1.18	2.41	1.54	1.00	3.59	5.84	4.50	2.82	3.07	3.56	2.86
(WY)	2002	2002	2002	2002	2002	2002	2001	2001	2002	2002	2002	2001

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	1553.91		1350.42			
ANNUAL MEAN	4.26		3.70		3.70	
HIGHEST ANNUAL MEAN					3.70 2002	
LOWEST ANNUAL MEAN					3.70 2002	
HIGHEST DAILY MEAN	89	Mar 21	123	Apr 22	123	Apr 22 2002
LOWEST DAILY MEAN	0.50	Jan 16	0.74	aFeb 27	0.50	Jan 16 2001
ANNUAL SEVEN-DAY MINIMUM	0.52	Jan 12	0.78	Feb 21	0.52	Jan 12 2001
MAXIMUM PEAK FLOW			829		829	
MAXIMUM PEAK STAGE			7.49		7.49	
INSTANTANEOUS LOW FLOW			0.57		0.47	
ANNUAL RUNOFF (CFSM)	0.38		0.33		0.33	
ANNUAL RUNOFF (INCHES)	5.16		4.49		4.49	
10 PERCENT EXCEEDS	8.5		5.7		5.7	
50 PERCENT EXCEEDS	1.7		1.6		1.6	
90 PERCENT EXCEEDS	0.77		0.87		0.87	

a Also Aug. 26, 2002.
e Estimated.



POTOMAC RIVER BASIN

01621410 BLACKS RUN AT RTE 726 AT HARRISONBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD--Water years 2001 to 2002 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample Type	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00618)
OCT												
23...	1300	REPLICATE	--	--	--	--	--	--	--	--	.91	.67
23...	1305	ENVIRONMENTAL	1.6	645	8.1	23.0	15.5	721	9.3	99	1.0	.68
NOV												
25...	1515	ENVIRONMENTAL	7.7	632	8.0	--	--	--	--	--	1.7	.56
25...	1730	ENVIRONMENTAL	15	508	8.0	--	--	--	--	--	1.8	.73
25...	1800	ENVIRONMENTAL	27	523	8.0	--	--	--	--	--	1.7	.76
DEC												
11...	0045	ENVIRONMENTAL	7.2	519	8.5	--	--	--	--	--	2.2	1.33
11...	0145	ENVIRONMENTAL	45	388	8.1	--	--	732	--	--	5.0	1.87
11...	0245	ENVIRONMENTAL	85	250	8.3	--	--	--	--	--	3.9	.78
11...	0345	ENVIRONMENTAL	149	228	8.3	--	--	--	--	--	4.8	1.10
11...	0445	ENVIRONMENTAL	110	274	8.4	--	--	--	--	--	2.0	.52
11...	1200	ENVIRONMENTAL	2.0	278	8.4	--	--	--	--	--	1.1	.60
19...	1225	BLANK	--	--	--	--	--	--	--	--	--	--
19...	1230	ENVIRONMENTAL	1.9	770	7.6	13.0	7.1	720	10.4	91	2.3	2.08
JAN												
28...	1130	ENVIRONMENTAL	1.4	938	8.1	9.5	6.0	730	13.5	113	1.8	1.52
FEB												
19...	1145	BLANK	--	--	--	--	--	--	--	--	--	--
19...	1200	ENVIRONMENTAL	.72	775	8.4	5.5	3.3	731	14.3	112	1.4	1.11
MAR												
02...	2000	ENVIRONMENTAL	9.0	635	7.2	--	2.0	--	--	--	3.2	1.03
02...	2200	ENVIRONMENTAL	67	348	7.7	--	--	--	--	--	5.7	1.14
03...	0001	ENVIRONMENTAL	45	340	7.7	--	--	--	--	--	2.3	.61
03...	0400	ENVIRONMENTAL	14	391	7.7	--	--	--	--	--	1.8	.75
07...	1145	ENVIRONMENTAL	.96	875	8.0	6.5	5.0	735	12.3	100	1.7	1.47
26...	1915	ENVIRONMENTAL	52	728	8.1	--	--	--	--	--	4.7	2.02
26...	2115	ENVIRONMENTAL	77	367	8.1	--	--	--	--	--	3.0	.69
26...	2315	ENVIRONMENTAL	34	364	8.0	--	--	--	--	--	2.1	.74
26...	2320	REPLICATE	--	--	--	--	--	--	--	--	2.0	.76
27...	0315	ENVIRONMENTAL	13	384	8.0	--	--	--	--	--	2.1	1.06
APR												
10...	1145	ENVIRONMENTAL	2.6	--	8.1	19.0	14.9	737	11.6	--	2.0	1.44
MAY												
04...	1815	ENVIRONMENTAL	8.2	670	8.0	--	--	--	--	--	3.4	2.98
04...	2015	ENVIRONMENTAL	19	600	7.9	--	--	--	--	--	3.7	2.96
06...	1145	ENVIRONMENTAL	4.1	671	8.0	15.5	16.0	733	9.4	99	2.8	2.56
07...	1245	ENVIRONMENTAL	11	699	7.5	--	--	--	--	--	3.2	2.60
07...	1445	ENVIRONMENTAL	37	430	7.7	--	--	--	--	--	4.6	2.03
07...	1645	ENVIRONMENTAL	78	287	7.8	--	--	--	--	--	4.1	1.30
07...	2245	ENVIRONMENTAL	33	321	7.7	--	--	--	--	--	2.3	1.29
13...	1330	ENVIRONMENTAL	47	557	7.3	--	--	--	--	--	5.0	2.18
13...	1430	ENVIRONMENTAL	206	221	7.8	--	--	--	--	--	3.0	.69
13...	1530	ENVIRONMENTAL	88	278	7.2	--	--	--	--	--	2.0	.69
13...	1830	ENVIRONMENTAL	31	300	7.3	--	--	--	--	--	1.9	1.02
JUN												
26...	1200	ENVIRONMENTAL	2.1	650	7.8	32.0	24.5	732	9.8	123	.91	.59
JUL												
09...	1200	ENVIRONMENTAL	1.9	612	7.7	29.5	24.0	729	9.7	121	.46	.25
AUG												
20...	1200	ENVIRONMENTAL	.80	625	7.8	30.0	24.5	727	8.1	102	.61	.06
SEP												
10...	1215	ENVIRONMENTAL	.80	633	7.8	29.5	20.5	724	8.5	100	1.2	.98

01621410 BLACKS RUN AT RTE 726 AT HARRISONBURG,--Continued VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN- DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN- ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
OCT													
23...	.008	.679	.023	.23	.16	.84	.21	.14	.026	.021	.014	22	--
23...	.009	.691	.037	.31	.21	.90	.28	.17	.032	.022	.014	34	.15
NOV													
25...	.017	.573	.025	1.1	.39	.96	1.1	.36	.111	.013	<.007	57	1.2
25...	.026	.752	E.013	1.1	.48	1.2	--	--	.184	.065	.020	44	1.8
25...	.009	.764	E.013	.97	.46	1.2	--	--	.160	.059	<.007	29	2.1
DEC													
11...	.024	1.36	.148	.83	.45	1.8	.69	.30	.134	.054	.044	136	2.6
11...	.040	1.91	.292	3.1	.70	2.6	2.8	.41	.64	.063	.051	358	43.5
11...	.022	.797	.230	3.1	.55	1.3	2.9	.32	.78	.079	.058	560	129
11...	.021	1.12	.080	3.6	.29	1.4	3.6	.21	.98	.059	.043	654	263
11...	.011	.526	.096	1.5	.31	.83	1.4	.21	.35	.060	.046	243	72.2
11...	.015	.616	.166	.53	.42	1.0	.37	.26	.104	.065	.050	85	.46
19...	<.002	<.013	<.015	<.10	<.10	--	--	--	E.003	E.003	<.007	.8	--
19...	.013	2.09	.042	.19	.17	2.3	.14	.12	.032	.023	.015	4.5	.02
JAN													
28...	.012	1.53	.030	.24	.18	1.7	.21	.15	.016	.010	E.006	14	.05
FEB													
19...	<.002	<.013	<.015	<.10	<.10	--	--	--	<.004	<.004	<.007	--	--
19...	.007	1.12	.028	.25	.19	1.3	.22	.16	.020	.013	E.005	6.2	.01
MAR													
02...	.019	1.05	.100	2.1	.53	1.6	2.0	.43	.38	.031	.009	251	6.1
02...	.043	1.19	.486	4.5	1.1	2.3	4.1	.66	1.22	.084	.055	836	151
03...	.021	.627	.225	1.7	.64	1.3	1.5	.42	.36	.054	.035	189	23.0
03...	.026	.780	.165	1.0	.52	1.3	.85	.36	.158	.041	.023	66	2.5
07...	.010	1.48	.031	.19	.17	1.7	.16	.14	.027	.015	E.005	7.3	.02
26...	.021	2.04	.127	2.6	.37	2.4	2.5	.24	1.34	.014	.008	998	140
26...	.022	.711	.237	2.3	.68	1.4	2.0	.44	.51	.039	.027	362	75.3
26...	.022	.763	.189	1.3	.57	1.3	1.1	.38	.25	.028	.018	166	15.2
26...	.022	.781	.191	1.3	.56	1.3	1.1	.37	.26	.027	.017	174	--
27...	.035	1.09	.232	1.1	.62	1.7	.82	.39	.163	.038	.028	85	3.0
APR													
10...	.052	1.49	.100	.52	.49	2.0	.42	.39	.048	.024	.014	3.6	.03
MAY													
04...	.017	3.00	.032	.43	.31	3.3	.40	.28	.046	.019	.010	27	.60
04...	.029	2.98	.175	.76	.63	3.6	.58	.45	.098	.056	.042	18	.90
06...	.014	2.57	.020	.23	.21	2.8	.21	.19	.028	.018	.009	8.2	.09
07...	.024	2.63	.053	.54	.41	3.0	.48	.36	.082	.026	.018	39	1.2
07...	.050	2.08	.680	2.6	2.3	4.4	1.9	1.6	.35	.23	.245	61	6.1
07...	.044	1.35	.527	2.7	1.8	3.1	2.2	1.2	.51	.21	.195	193	40.6
07...	.032	1.32	.198	1.0	.82	2.1	.83	.62	.148	.070	.055	56	5.0
13...	.022	2.20	.061	2.8	.49	2.7	2.7	.43	.89	.144	.123	617	78.3
13...	.028	.715	.258	2.3	.68	1.4	2.0	.42	.55	.084	.070	376	209
13...	.032	.719	.131	1.3	.47	1.2	1.1	.34	.28	.049	.037	149	35.5
13...	.030	1.05	.102	.84	.42	1.5	.73	.32	.173	.059	.047	83	6.9
JUN													
26...	.008	.598	.029	.31	.18	.78	.28	.16	.018	.012	E.006	4.8	.03
JUL													
09...	.005	.251	.038	.21	.18	.43	.17	.15	.019	.011	E.005	4.0	.02
AUG													
20...	.003	.064	.065	.54	.37	.43	.48	.30	.042	.022	.011	3.7	.01
SEP													
10...	.007	.984	.047	.24	.19	1.2	.19	.14	.025	.020	.013	3.6	.01

E Estimated value.

< Actual value is known to be less than the value shown.

POTOMAC RIVER BASIN

01621410 BLACKS RUN AT RTE 726 AT HARRISONBURG,--Continued VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT	
23...	--
23...	--
NOV	
25...	41
25...	89
25...	92
DEC	
11...	99
11...	97
11...	95
11...	93
11...	94
11...	99
19...	--
19...	--
JAN	
28...	--
FEB	
19...	--
19...	--
MAR	
02...	--
02...	--
03...	--
03...	--
07...	--
26...	--
26...	95
26...	--
26...	--
27...	--
APR	
10...	--
MAY	
04...	--
04...	--
06...	--
07...	--
07...	--
07...	--
13...	--
13...	--
13...	--
13...	--
JUN	
26...	--
JUL	
09...	--
AUG	
20...	--
SEP	
10...	--

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POTOMAC RIVER BASIN

01622000 NORTH RIVER NEAR BURKETOWN, VA

LOCATION.--Lat 38°20'25", long 78°54'49", NAD83, Rockingham County, Hydrologic Unit 02070005, on right bank 0.8 mi downstream from Pleasant Run, 2.8 mi northeast of Burkettown, and 8.5 mi upstream from Middle River.

DRAINAGE AREA.--379 mi².

PERIOD OF RECORD.--October 1925 to October 1972, May 1975 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1171: 1936(M). WSP 1302: 1928-29(M), 1932-34(M), 1937-38(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,103.49 ft NGVD of 1929. Prior to Dec. 12, 1938, nonrecording gage at site 3.0 mi downstream at different datum.

REMARKS.--Records good except those for period with ice effect, Dec. 31 to Jan. 3, and periods of no gage-height record, June 26, 27, July 27-29, and Aug. 11, 12, which are fair. At a point 26.8 mi upstream from station, there is an aqueduct tunnel diversion of about 2.0 ft³/s from Staunton Dam Reservoir by city of Staunton for industrial and municipal use. Diurnal fluctuation at low and medium flow caused by wastewater treatment plant and diversions for industrial, municipal, and irrigation at points upstream. Maximum discharge, 70,400 ft³/s, from rating curve extended above 16,000 ft³/s on basis of slope-area measurements at gage heights 32.4 ft and 36.3 ft and contracted-opening measurements at gage heights 35.85 ft and 36.3 ft. Minimum discharge, 16 ft³/s, result of temporary dam upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, that of June 18, 1949.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0800	*5,680	*9.87	No other peak greater than base discharge.			

**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	61	46	52	e49	58	52	245	840	284	71	77	36
2	60	48	49	e48	56	52	280	713	231	59	74	39
3	59	50	51	e50	55	77	301	590	193	53	161	44
4	59	47	50	51	57	63	281	483	179	48	155	45
5	58	45	50	50	55	64	245	430	174	44	80	40
6	55	43	51	50	57	66	212	371	149	43	88	37
7	52	43	52	54	65	66	185	372	141	43	67	33
8	54	42	54	52	64	67	170	541	126	47	62	35
9	51	44	54	54	57	68	160	700	115	41	58	37
10	49	45	53	56	56	66	178	769	116	41	54	35
11	51	46	116	54	57	68	190	682	105	43	e53	34
12	52	44	70	54	56	69	185	591	99	36	e51	33
13	50	42	65	52	57	80	178	549	100	32	49	35
14	52	42	64	51	57	78	172	464	139	67	48	33
15	71	43	62	52	57	75	172	378	111	64	46	32
16	50	45	56	51	56	74	167	315	110	53	41	43
17	50	43	58	54	53	72	174	266	108	50	41	42
18	49	42	64	53	52	88	188	275	98	45	43	38
19	51	44	61	54	52	86	436	243	100	45	49	36
20	51	42	62	56	53	143	618	226	104	49	41	40
21	49	41	58	58	55	313	693	211	91	52	37	36
22	50	42	57	58	54	416	4070	199	85	51	36	37
23	48	39	54	58	52	342	2810	187	84	51	35	57
24	50	44	55	61	50	272	1900	171	83	84	32	42
25	49	47	57	58	52	223	1360	157	79	79	35	38
26	47	58	56	56	52	194	984	146	e80	113	33	140
27	47	51	54	54	52	220	698	227	e88	e86	37	185
28	49	54	54	56	52	209	864	647	94	e84	39	92
29	47	53	53	55	---	215	1230	490	73	e81	56	79
30	45	52	50	56	---	210	1020	387	68	78	44	81
31	46	---	e49	56	---	213	---	336	---	77	40	---
TOTAL	1612	1367	1791	1671	1549	4301	20366	12956	3607	1810	1762	1534
MEAN	52.0	45.6	57.8	53.9	55.3	139	679	418	120	58.4	56.8	51.1
MAX	71	58	116	61	65	416	4070	840	284	113	161	185
MIN	45	39	49	48	50	52	160	146	68	32	32	32
CFSM	0.14	0.12	0.15	0.14	0.15	0.37	1.79	1.10	0.32	0.15	0.15	0.13
IN.	0.16	0.13	0.18	0.16	0.15	0.42	2.00	1.27	0.35	0.18	0.17	0.15

01622000 NORTH RIVER NEAR BURKETOWN, VA--Continued

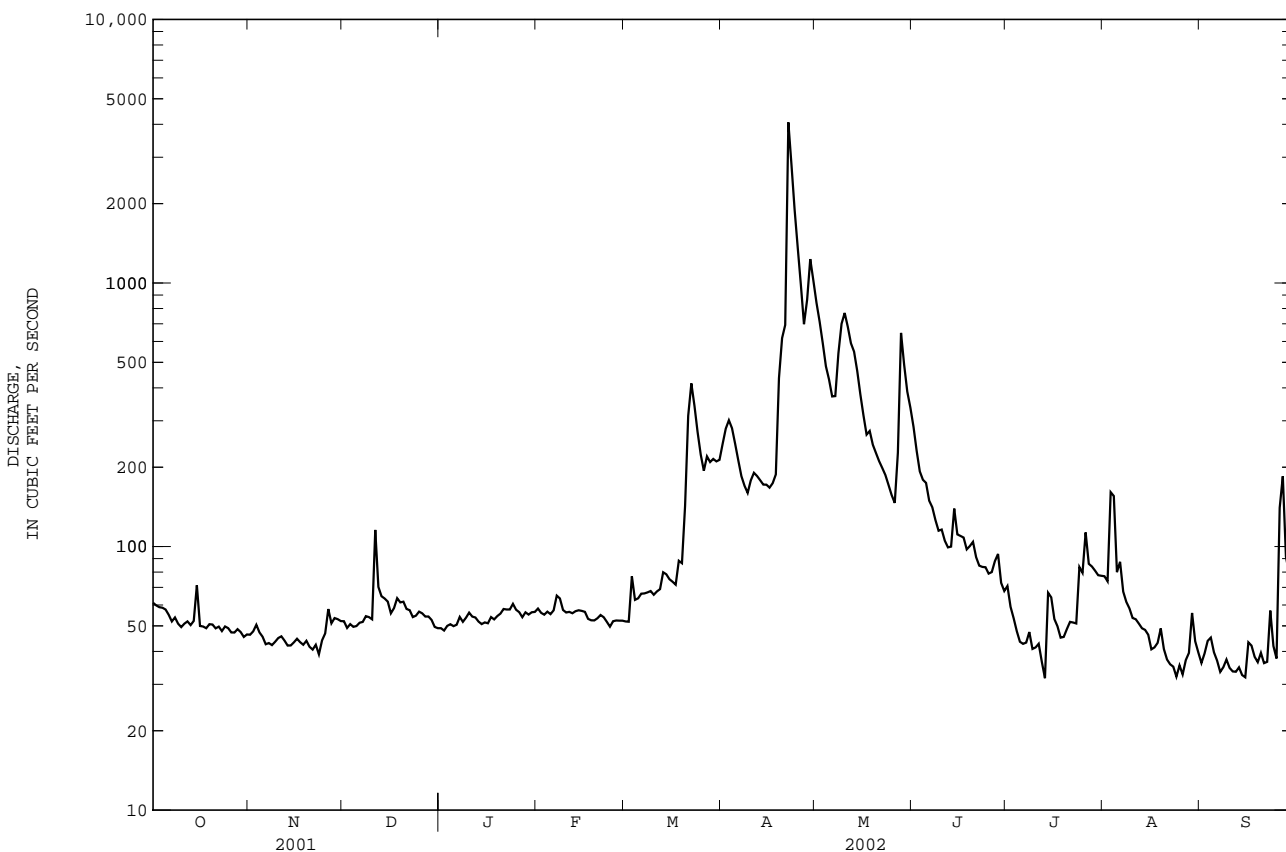
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1972, 1976 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	243	277	327	431	513	703	608	487	331	195	234	225
MAX	1500	2080	1087	1777	1841	1932	1831	1486	1704	809	1102	3130
(WY)	1943	1986	1935	1996	1998	1936	1987	1942	1949	1949	1949	1996
MIN	38.1	36.5	39.2	53.5	47.9	136	107	106	72.7	41.5	41.0	34.2
(WY)	1931	1931	1966	1966	1931	1981	1981	1930	1977	1999	1964	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 1972 1976 - 2002

ANNUAL TOTAL		87223		54326								
ANNUAL MEAN		239		149						380		
HIGHEST ANNUAL MEAN										871		1996
LOWEST ANNUAL MEAN										145		1999
HIGHEST DAILY MEAN				2060	Mar 22		4070	Apr 22	e32000		Sep 7	1996
LOWEST DAILY MEAN				39	Nov 23		32	aJul 13		22	Sep 24	1930
ANNUAL SEVEN-DAY MINIMUM				42	bNov 17		34	Sep 9		30	Dec 20	1930
MAXIMUM PEAK FLOW							5680	Apr 22		70400	Sep 6	1996
MAXIMUM PEAK STAGE							9.87	Apr 22		c36.70	Sep 6	1996
INSTANTANEOUS LOW FLOW							25	Aug 26		d16	Nov 23	1965
ANNUAL RUNOFF (CFM)				0.63			0.39					1.00
ANNUAL RUNOFF (INCHES)				8.56			5.33					13.62
10 PERCENT EXCEEDS				558			291					820
50 PERCENT EXCEEDS				137			56					202
90 PERCENT EXCEEDS				49			41					63

- a Also Aug. 24 and Sept. 15, 2002.
- b Also Nov. 18, 2001.
- c From high-water mark in gage house.
- d Result of temporary dam upstream.
- e Estimated.



POTOMAC RIVER BASIN

01625000 MIDDLE RIVER NEAR GROTTOS, VA

LOCATION.--Lat 38°15'42", long 78°51'43", NAD83, Augusta County, Hydrologic Unit 02070005, on left bank at upstream side of bridge on State Highway 769 at Mount Meridian, 1.8 mi upstream from mouth, and 2.0 mi west of Grottoes.

DRAINAGE AREA.--375 mi².

PERIOD OF RECORD.--April 1927 to current year. Records for February 1925 to September 1926, published in WSP 601 and 621, are unreliable and should not be used.

REVISED RECORDS.--WSP 1051: 1928-29, 1930(M), 1932, 1935-37, 1938(M), 1940. WSP 1171: 1933. WSP 1302: 1928-29(M), 1931-34(M). WSP 2103: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,061.51 ft NGVD of 1929. Prior to Sep. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Dec. 29 and Dec. 31 to Jan. 3, which are fair. There are discharges of about 4.7 ft³/s from wastewater treatment plants upstream from station. Most of water discharged from treatment plants was diverted from another drainage basin for industrial and municipal supply. Small diurnal fluctuation at low flow caused by mills and irrigation upstream from station. Maximum discharge, 44,300 ft³/s, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement at gage height 33.09 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, that of Sep. 7, 1996.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
------	------	-----------------------------------	---------------------	------	------	-----------------------------------	---------------------

No peak greater than base discharge.

**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	53	64	58	e43	51	45	115	334	76	38	42	40
2	54	64	58	e42	48	47	115	266	70	34	37	37
3	54	65	58	e45	47	69	127	230	63	32	36	36
4	53	65	56	47	48	82	117	190	60	27	41	35
5	48	65	55	56	47	64	103	175	57	26	37	31
6	45	66	56	57	47	53	96	157	53	26	41	30
7	44	64	55	63	55	53	88	143	59	21	39	26
8	44	63	60	57	66	52	86	185	56	22	36	23
9	45	63	67	65	61	53	83	201	51	23	37	21
10	47	64	66	59	57	50	106	242	50	37	30	21
11	50	63	123	62	55	49	107	219	47	84	28	21
12	48	62	124	60	52	50	114	186	44	63	28	21
13	52	65	85	59	51	61	107	167	41	46	25	20
14	56	63	71	55	51	84	104	151	39	59	28	18
15	62	63	63	53	50	67	102	140	39	106	24	19
16	72	65	60	53	48	63	97	123	40	77	25	24
17	69	63	57	53	50	60	92	112	39	59	22	28
18	69	63	59	52	48	76	91	113	36	45	23	30
19	62	60	65	54	48	96	91	119	40	40	27	25
20	67	60	60	58	48	104	102	105	78	34	36	27
21	65	59	58	62	48	126	123	91	53	35	32	26
22	66	60	55	62	49	148	833	87	41	40	31	25
23	66	60	54	62	49	122	1050	85	36	37	26	30
24	67	59	56	63	47	101	549	78	35	42	23	45
25	66	63	60	65	46	90	351	73	34	54	24	33
26	62	68	57	62	46	83	260	70	31	54	23	40
27	58	68	55	60	47	113	201	67	29	67	26	175
28	59	64	52	57	45	98	264	91	34	75	28	105
29	60	63	e50	57	---	89	635	155	42	77	36	70
30	62	59	45	53	---	87	497	107	40	60	48	53
31	62	---	e44	51	---	89	---	86	---	51	46	---
TOTAL	1787	1893	1942	1747	1405	2424	6806	4548	1413	1491	985	1135
MEAN	57.6	63.1	62.6	56.4	50.2	78.2	227	147	47.1	48.1	31.8	37.8
MAX	72	68	124	65	66	148	1050	334	78	106	48	175
MIN	44	59	44	42	45	45	83	67	29	21	22	18
CFSM	0.15	0.17	0.17	0.15	0.13	0.21	0.60	0.39	0.13	0.13	0.08	0.10
IN.	0.18	0.19	0.19	0.17	0.14	0.24	0.68	0.45	0.14	0.15	0.10	0.11

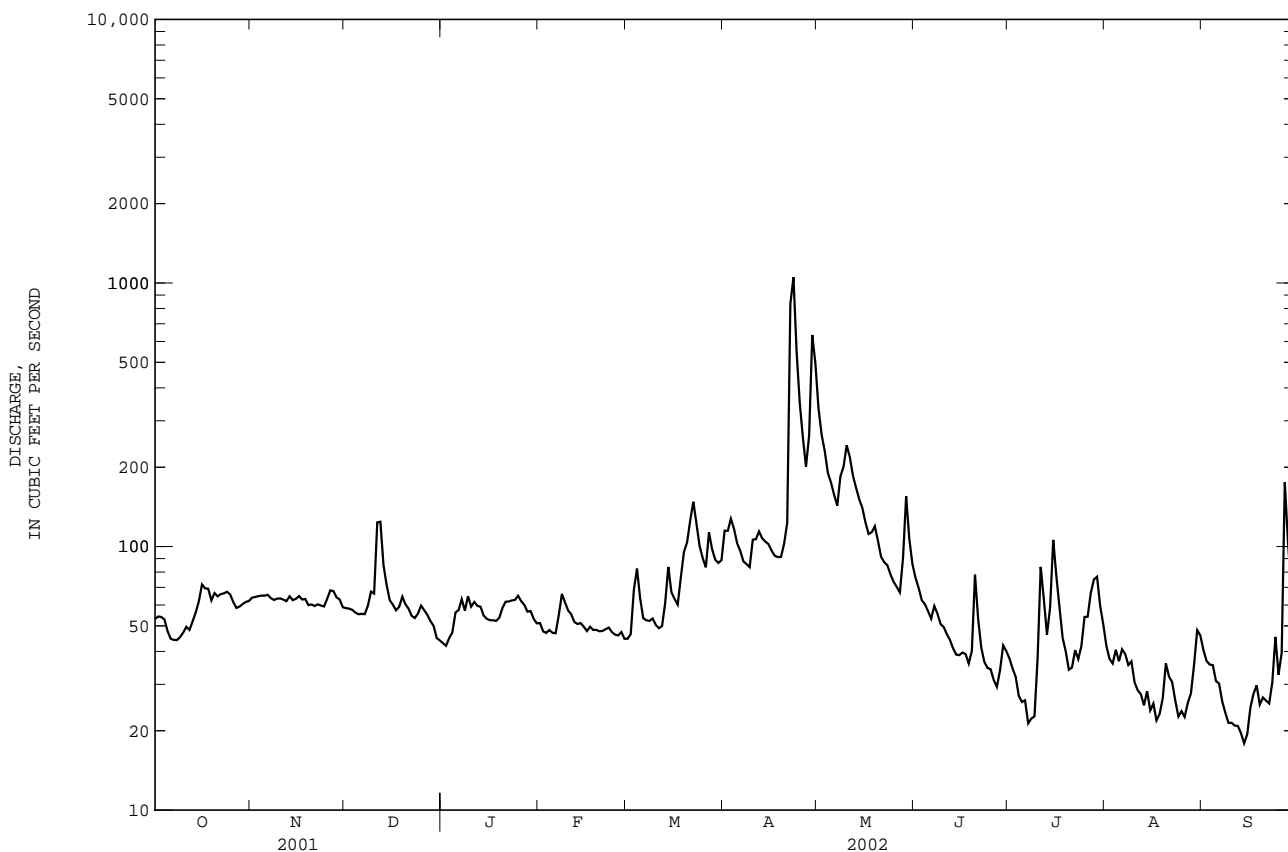
01625000 MIDDLE RIVER NEAR GROTTOS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	230	230	297	398	460	576	457	338	250	175	191	199
MAX	1138	2019	1111	1436	2288	1704	1674	963	993	705	1017	1887
(WY)	1980	1986	1949	1996	1998	1936	1987	1989	1972	1972	1940	1996
MIN	57.6	58.9	55.8	56.4	50.2	78.2	95.8	89.7	47.1	47.2	31.8	37.8
(WY)	2002	1931	1966	2002	2002	2002	1981	1969	2002	1966	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1928 - 2002	
ANNUAL TOTAL	60161		27576			
ANNUAL MEAN	165		75.6		316	
HIGHEST ANNUAL MEAN					623	
LOWEST ANNUAL MEAN					75.6	
HIGHEST DAILY MEAN	2470		Mar 22		26000	
LOWEST DAILY MEAN	44		aOct 7		18	
ANNUAL SEVEN-DAY MINIMUM	46		bOct 5		20	
MAXIMUM PEAK FLOW					1480	
MAXIMUM PEAK STAGE					6.91	
INSTANTANEOUS LOW FLOW					d8.9	
ANNUAL RUNOFF (CFSM)	0.44		0.20		0.84	
ANNUAL RUNOFF (INCHES)	5.97		2.74		11.45	
10 PERCENT EXCEEDS	330		116		628	
50 PERCENT EXCEEDS	105		57		185	
90 PERCENT EXCEEDS	56		29		81	

- a Also Oct. 8 and Dec. 31, 2001.
- b Also Oct. 5, 2001
- c From high-water mark in gage house.
- d Result of freezeup.
- e Estimated.



POTOMAC RIVER BASIN

01626000 SOUTH RIVER NEAR WAYNESBORO, VA

LOCATION.--Lat 38°03'27", long 78°54'29", NAD83, Waynesboro City, Hydrologic Unit 02070005, on right bank 80 ft downstream from bridge on State Highway 664, 1.3 mi southwest of Waynesboro Post Office, and 2.4 mi downstream from Back Creek.

DRAINAGE AREA.--127 mi², of which 41 mi² are above flood-detention structures.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,296.20 ft NGVD of 1929.

REMARKS.--Records good except for those for periods with ice effect, Dec. 29, 30 and Jan. 1-3, which are fair. There is discharge of about 4.4 ft³/s from a wastewater treatment plant upstream from station, originating from well fields. Flow from 41 mi² upstream from station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). National Weather Service gage-height telemeter and Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 17,500 ft³/s, from rating curve extended above 4,200 ft³/s on basis of contracted-opening measurement at gage height 13.95 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 14.3 ft, from floodmarks, discharge, 14,500 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	27	24	25	e21	24	21	85	117	33	19	21	18
2	27	24	24	e21	24	26	74	113	30	18	20	18
3	25	24	24	e22	23	126	70	110	28	18	19	17
4	28	25	24	23	23	106	63	96	28	18	19	18
5	39	28	23	23	23	75	58	101	26	18	19	18
6	41	25	23	25	23	61	54	90	26	18	20	17
7	38	23	21	28	27	54	51	88	26	18	20	17
8	26	24	22	25	28	47	51	93	25	17	19	17
9	22	23	24	24	26	44	50	92	24	18	18	17
10	23	23	26	26	25	45	54	102	24	20	18	18
11	23	24	43	27	26	37	50	86	22	23	18	17
12	23	23	42	26	25	37	46	78	22	22	18	16
13	27	23	31	24	25	46	45	74	21	21	18	16
14	32	23	28	24	24	50	45	67	21	26	17	16
15	50	23	25	24	24	48	46	62	20	28	17	16
16	29	23	24	24	24	47	55	57	20	24	17	17
17	27	23	23	24	24	50	54	52	19	21	18	17
18	27	24	26	24	23	65	64	55	19	20	19	17
19	27	25	27	25	23	83	63	53	20	20	18	16
20	27	25	25	27	23	98	70	49	20	20	18	17
21	26	25	24	27	23	94	92	46	20	20	18	17
22	26	25	23	28	23	81	464	44	19	21	18	21
23	26	23	23	27	23	70	361	41	19	22	17	23
24	25	26	25	31	22	64	250	38	19	26	18	16
25	26	28	26	33	22	58	203	37	18	22	17	16
26	25	30	24	31	22	55	165	35	19	23	17	23
27	25	31	24	29	22	66	137	36	19	25	17	31
28	28	25	23	29	22	61	148	64	19	33	18	25
29	26	25	e23	29	---	58	154	45	19	24	22	21
30	24	25	e23	27	---	56	128	37	19	21	21	20
31	24	---	22	24	---	64	---	34	---	21	18	---
TOTAL	869	742	790	802	666	1893	3250	2092	664	665	572	553
MEAN	28.0	24.7	25.5	25.9	23.8	61.1	108	67.5	22.1	21.5	18.5	18.4
MAX	50	31	43	33	28	126	464	117	33	33	22	31
MIN	22	23	21	21	22	21	45	34	18	17	17	16
CFSM	0.22	0.19	0.20	0.20	0.19	0.48	0.85	0.53	0.17	0.17	0.15	0.15
IN.	0.25	0.22	0.23	0.23	0.20	0.55	0.95	0.61	0.19	0.19	0.17	0.16

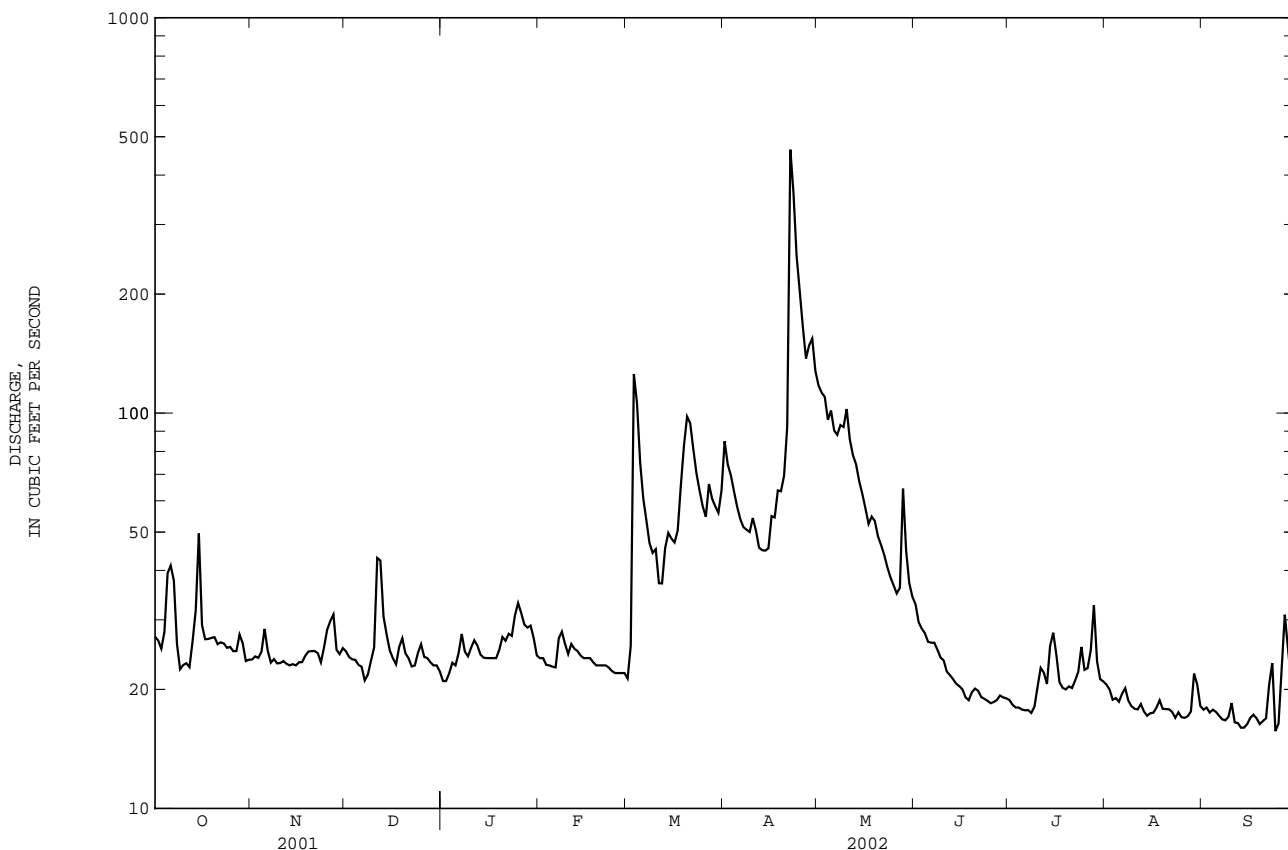
01626000 SOUTH RIVER NEAR WAYNESBORO, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	110	129	132	175	203	275	237	163	115	64.9	78.1	82.3
MAX	549	1214	355	767	1312	748	1062	485	875	305	700	546
(WY)	1973	1986	1997	1996	1998	1993	1987	1989	1972	1972	1955	1996
MIN	25.5	24.7	24.2	23.6	23.8	49.0	44.0	50.4	22.1	21.5	18.5	18.4
(WY)	1966	2002	1966	1966	2002	1981	1981	1981	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1953 - 2002	
ANNUAL TOTAL	28610		13558			
ANNUAL MEAN	78.4		37.1		147	
HIGHEST ANNUAL MEAN					312	
LOWEST ANNUAL MEAN					37.1	
HIGHEST DAILY MEAN	967 Mar 22		464 Apr 22		9670 Aug 18 1955	
LOWEST DAILY MEAN	21 Dec 7		16 aSep 12		16 aSep 12 2002	
ANNUAL SEVEN-DAY MINIMUM	23 bDec 2		16 cSep 11		16 cSep 11 2002	
MAXIMUM PEAK FLOW			592 Apr 22		17500 Nov 4 1985	
MAXIMUM PEAK STAGE			4.22 Apr 22		15.30 Nov 4 1985	
INSTANTANEOUS LOW FLOW			15 dSep 18		f7.0 Jul 18 1966	
ANNUAL RUNOFF (CFSM)	0.62		0.29		1.15	
ANNUAL RUNOFF (INCHES)	8.38		3.97		15.69	
10 PERCENT EXCEEDS	156		66		293	
50 PERCENT EXCEEDS	47		24		80	
90 PERCENT EXCEEDS	24		18		32	

- a Also Sept. 13-15, 19, 24, 25, 2002.
- b Also Dec. 3, 2001.
- c Also Sept. 12, 2002.
- d Also Sept. 18, 19, 24, 25, 2002
- e Estimated.
- f Result of regulation from unknown source upstream from gage.



POTOMAC RIVER BASIN

01627500 SOUTH RIVER AT HARRISTON, VA

LOCATION.--Lat 38°13'07", long 78°50'12", NAD83, Augusta County, Hydrologic Unit 02070005, on left bank 200 ft downstream from bridge on State Highway 778, 0.3 mi northwest of Harriston, 0.6 mi downstream from Paine Run, and 7.2 mi upstream from confluence with North River.

DRAINAGE AREA.--212 mi².

PERIOD OF RECORD.--February 1925 to September 1951, October 1968 to current year.

REVISED RECORDS.--WSP 1171: 1926(M), 1927-28, 1929-32(M), 1933, 1934(M), 1935, 1937. WSP 1302: 1937(M), 1938(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,129.87 ft NGVD of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Dec. 30 and Jan. 2, and period of no gage-height record, May 29, which are fair. There are discharges of about 7.8 ft³/s from industrial and municipal wastewater treatment plants upstream from station, originating from well fields. Maximum discharge, 28,900 ft³/s, from rating curve extended above 10,000 ft³/s on basis of slope-area measurement at gage height 15.47 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1870 and 1877 reached a stage of about 18.8 ft, from information by observer in 1925.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	46	56	52	52	56	49	126	195	62	43	40	41
2	47	56	52	e49	55	51	122	183	59	41	39	40
3	46	57	51	50	55	146	114	172	56	39	39	40
4	44	57	50	51	54	154	107	152	56	39	38	40
5	50	59	49	51	53	120	98	155	54	38	39	38
6	61	59	49	54	54	101	92	140	53	38	40	38
7	61	58	49	56	66	88	87	133	55	38	37	37
8	58	55	52	57	62	81	85	145	51	38	38	37
9	48	55	53	56	61	76	86	137	50	40	37	37
10	45	57	57	56	59	75	101	161	49	45	36	36
11	47	56	109	58	59	71	87	137	47	49	37	38
12	47	56	97	57	58	68	82	123	47	46	36	35
13	46	55	76	56	57	79	82	118	47	45	37	35
14	54	55	67	54	57	81	81	112	47	69	37	36
15	83	54	63	53	56	80	82	104	46	58	37	39
16	68	55	60	53	55	78	82	96	45	51	36	40
17	58	56	59	53	55	83	86	89	44	47	38	39
18	57	56	62	52	55	100	94	93	42	46	39	37
19	57	55	61	54	54	119	107	89	42	43	43	37
20	59	55	60	58	54	143	108	83	43	42	37	37
21	60	55	57	57	53	146	145	80	43	50	36	37
22	58	55	56	57	53	131	663	76	43	44	36	39
23	59	54	55	58	53	116	633	73	43	47	36	49
24	58	55	60	58	53	106	378	71	41	71	37	44
25	58	66	58	63	53	97	279	68	40	50	36	39
26	60	61	57	63	51	91	223	66	49	49	36	50
27	60	57	56	60	51	113	187	64	42	49	36	96
28	61	56	55	59	50	102	242	84	45	60	38	54
29	65	52	55	58	---	94	284	e78	44	52	54	46
30	58	52	e54	58	---	91	229	68	44	44	46	42
31	57	---	54	57	---	103	---	63	---	40	43	---
TOTAL	1736	1685	1845	1728	1552	3033	5172	3408	1429	1451	1194	1253
MEAN	56.0	56.2	59.5	55.7	55.4	97.8	172	110	47.6	46.8	38.5	41.8
MAX	83	66	109	63	66	154	663	195	62	71	54	96
MIN	44	52	49	49	50	49	81	63	40	38	36	35
CFSM	0.26	0.26	0.28	0.26	0.26	0.46	0.81	0.52	0.22	0.22	0.18	0.20
IN.	0.30	0.30	0.32	0.30	0.27	0.53	0.91	0.60	0.25	0.25	0.21	0.22

01627500 SOUTH RIVER AT HARRISTON, VA--Continued

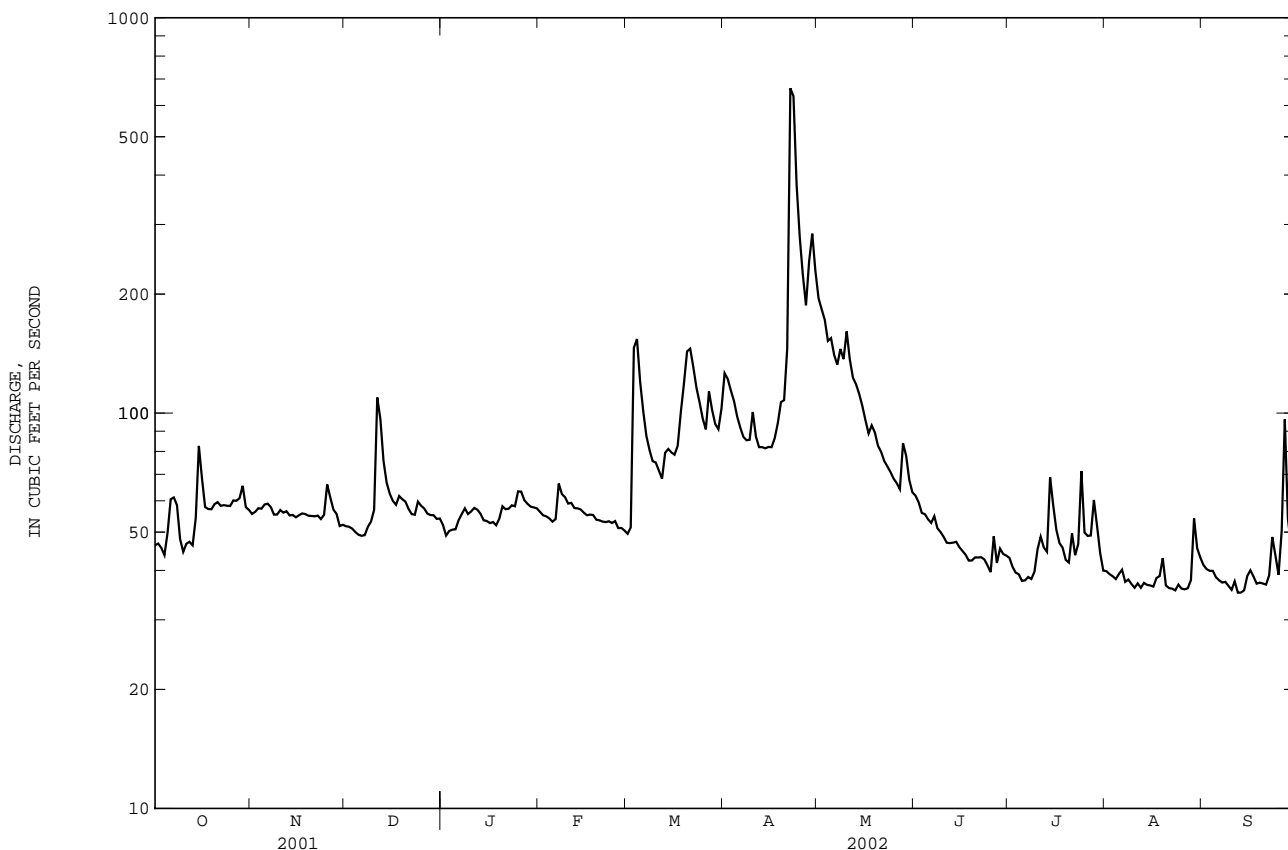
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1951, 1969 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	219	229	248	309	348	401	389	279	203	130	146	179
MAX	1048	1988	802	1252	2160	1407	1414	819	1454	520	925	1047
(WY)	1943	1986	1949	1996	1998	1936	1987	1989	1972	1972	1940	1996
MIN	46.5	54.0	53.8	55.7	55.4	97.8	93.1	83.2	47.6	46.8	38.5	41.0
(WY)	1931	1931	1932	2002	2002	2002	1981	1930	2002	2002	2002	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 1951 1969 - 2002

ANNUAL TOTAL	48856		25486					
ANNUAL MEAN	134		69.8				257	
HIGHEST ANNUAL MEAN							516	
LOWEST ANNUAL MEAN							69.8	
HIGHEST DAILY MEAN	1880		Mar 22		663		Apr 22	
LOWEST DAILY MEAN	44		Oct 4		35		aSep 12	
ANNUAL SEVEN-DAY MINIMUM	46		Sep 28		36		Aug 21	
MAXIMUM PEAK FLOW					960		Apr 22	
MAXIMUM PEAK STAGE					4.26		Apr 22	
INSTANTANEOUS LOW FLOW					32		dAug 20	
ANNUAL RUNOFF (CFSM)	0.63				0.33		1.21	
ANNUAL RUNOFF (INCHES)	8.57				4.47		16.48	
10 PERCENT EXCEEDS	222				110		484	
50 PERCENT EXCEEDS	83				55		153	
90 PERCENT EXCEEDS	52				38		68	

- a Also Sept. 13, 2002.
- b Probably result of regulation by mill then in existence upstream from station.
- c Peak discharge 23,100 ft³/s.
- d Also Aug. 27 and Sept. 12, 2002.
- e Estimated.



POTOMAC RIVER BASIN

01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA

LOCATION.--Lat 38°19'21", long 78°45'17", NAD83, Rockingham County, Hydrologic Unit 02070005, on left bank 1.2 mi northeast of Lynnwood and 3.3 mi downstream from confluence of North and South Rivers.

DRAINAGE AREA.--1,084 mi².

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 1171: 1933(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,013.17 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 1-5, which is fair. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood and since by irrigation. National Weather Service rain gage and gage-height telemeters and Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 107,000 ft³/s, from rating curve extended above 22,000 ft³/s on basis of computations of flow over dam at gage heights 23.60 ft and 27.2 ft. Minimum gage height, 1.63 ft, Sept. 20, 1932. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Sept. 7, 1996.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1400	*7,550	*9.29	No other peak greater than base discharge.			

**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	165	157	167	e160	184	148	514	1440	448	127	198	121
2	169	160	165	e150	177	151	550	1210	383	121	188	115
3	170	162	159	e165	172	242	599	1050	335	108	175	118
4	167	164	161	e175	166	315	573	886	319	100	382	123
5	164	156	160	e190	165	249	504	803	330	91	199	121
6	172	157	165	195	164	220	452	724	273	87	201	111
7	168	152	167	190	189	206	407	671	267	84	179	107
8	160	151	172	185	205	201	377	825	248	87	162	101
9	159	151	186	184	195	200	358	983	224	91	148	103
10	153	150	181	187	183	192	395	1160	214	97	139	102
11	156	154	344	189	176	188	411	1050	206	128	134	102
12	159	151	437	182	172	188	414	921	192	131	124	100
13	158	150	290	181	171	213	397	824	189	110	123	95
14	163	148	254	170	172	250	388	779	203	138	115	95
15	196	149	232	167	168	235	377	661	205	223	113	95
16	198	152	218	165	168	227	368	576	188	181	108	105
17	161	155	207	164	166	219	367	507	185	156	101	118
18	157	151	215	167	157	252	380	500	175	138	99	119
19	156	151	222	172	158	311	518	496	170	130	105	112
20	161	153	214	182	157	367	827	445	199	131	112	111
21	164	149	208	182	158	543	891	414	181	157	99	111
22	161	147	197	186	159	789	5230	395	160	147	93	112
23	164	149	194	190	156	692	5170	378	153	143	91	133
24	162	145	193	190	152	569	3060	358	150	201	87	175
25	161	161	195	196	151	479	2170	334	146	206	84	140
26	151	185	198	192	155	427	1590	315	146	245	85	153
27	143	186	189	189	152	485	1180	355	140	270	88	531
28	146	175	184	182	148	459	1220	655	149	265	99	314
29	150	169	183	185	---	446	2190	745	147	260	122	225
30	159	167	169	185	---	435	1850	590	134	230	150	200
31	155	---	163	188	---	439	---	495	---	211	133	---
TOTAL	5028	4707	6389	5585	4696	10337	33727	21545	6459	4794	4236	4268
MEAN	162	157	206	180	168	333	1124	695	215	155	137	142
MAX	198	186	437	196	205	789	5230	1440	448	270	382	531
MIN	143	145	159	150	148	148	358	315	134	84	84	95
CFSM	0.15	0.14	0.19	0.17	0.15	0.31	1.04	0.64	0.20	0.14	0.13	0.13
IN.	0.17	0.16	0.22	0.19	0.16	0.35	1.16	0.74	0.22	0.16	0.15	0.15

01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA--Continued

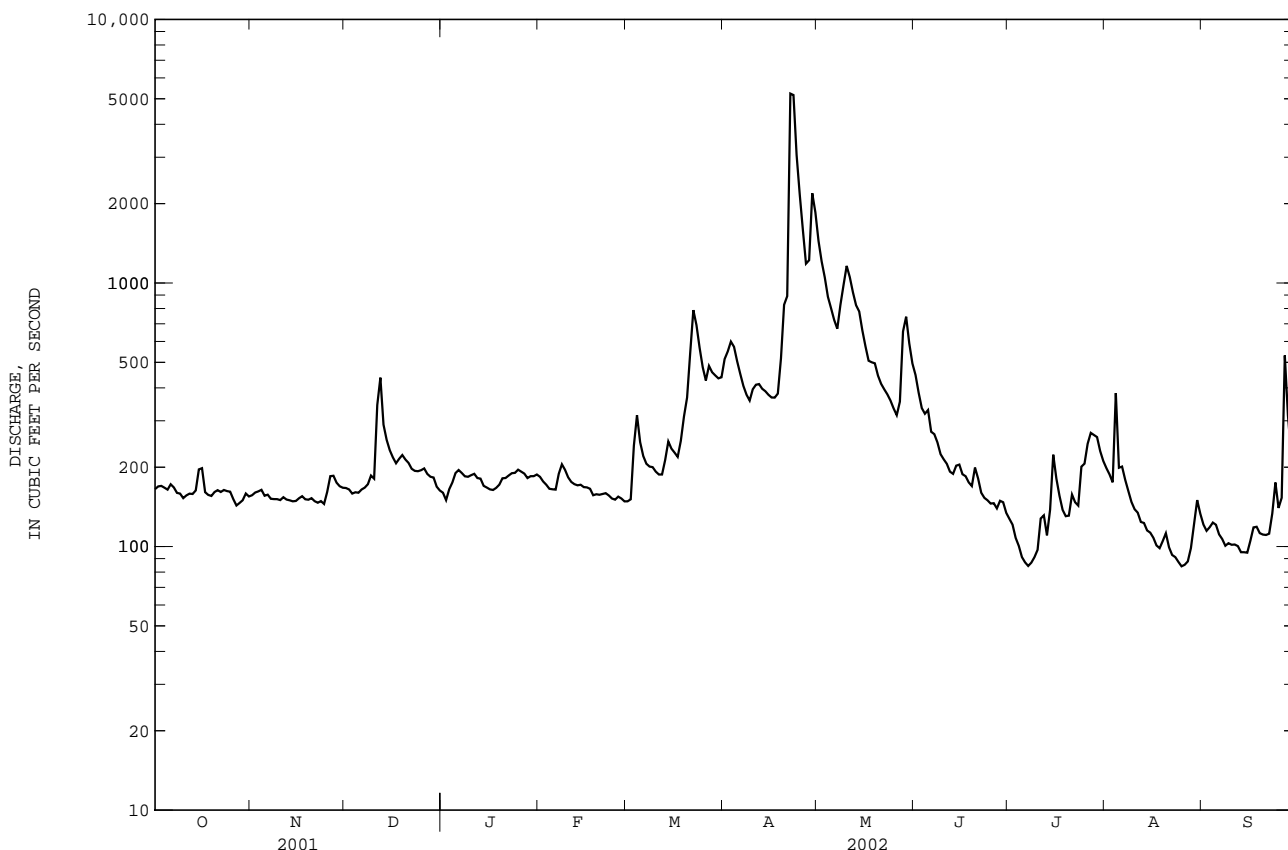
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	715	762	935	1228	1424	1853	1558	1186	852	537	603	619
MAX	4172	6886	3302	4904	6939	5785	5454	3086	3656	2013	2895	5822
(WY)	1943	1986	1949	1996	1998	1936	1987	1989	1972	1949	1940	1996
MIN	122	150	156	154	168	333	317	362	215	155	137	142
(WY)	1931	1931	1966	1966	2002	2002	1981	1977	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1931 - 2002

ANNUAL TOTAL		206829		111771						1020		
ANNUAL MEAN		567		306						306		1996
HIGHEST ANNUAL MEAN										2020		2002
LOWEST ANNUAL MEAN										306		2002
HIGHEST DAILY MEAN			7500	Mar 22		5230	Apr 22		e63500	Sep 7	1996	
LOWEST DAILY MEAN			143	Oct 27		84	aJul 7		84	aJul 7	2002	
ANNUAL SEVEN-DAY MINIMUM			149	Nov 18		90	bAug 21		90	bAug 21	2002	
MAXIMUM PEAK FLOW						7550	Apr 22		107000	Sep 7	1996	
MAXIMUM PEAK STAGE						9.29	Apr 22		c30.84	Sep 7	1996	
INSTANTANEOUS LOW FLOW						81	dJul 6		f32	Sep 20	1932	
ANNUAL RUNOFF (CFSM)			0.52			0.28			0.94			
ANNUAL RUNOFF (INCHES)			7.10			3.84			12.79			
10 PERCENT EXCEEDS			1120			546			2090			
50 PERCENT EXCEEDS			355			175			589			
90 PERCENT EXCEEDS			160			112			233			

- a Also Aug. 25, 2002.
- b Also Aug. 22, 2002.
- c From high-water mark in gage house.
- d Also July 7 and Aug. 25, 26, 2002.
- e Estimated.
- f Result of regulation.



POTOMAC RIVER BASIN

01629500 SOUTH FORK SHENANDOAH RIVER NEAR LURAY, VA

LOCATION.--Lat 38°38'46", long 78°32'05", NAD83, Page County, Hydrologic Unit 02070005, on right bank between bridges on U.S. Highway 211, 1.2 mi downstream from Big Run, 2.2 mi upstream from Mill Creek, and 4.1 mi west of Luray.

DRAINAGE AREA.--1,377 mi².

PERIOD OF RECORD.--April 1925 to September 1930, October 1938 to September 1951, June 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 721.76 ft NGVD of 1929. April 1925 to September 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Jan. 1-4, and periods of doubtful or no gage-height record, Apr. 16, 22, 23, which are fair. Diurnal fluctuation at low and medium flow caused by powerplant 10 mi upstream from station. Virginia Department of Emergency Services and National Weather Service gage-height transmitters at station. Maximum discharge, 112,000 ft³/s, from rating curve extended above 86,300 ft³/s. Minimum gage height, 1.88 ft, Sept. 2, 1999. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 23.6 ft, from floodmarks, discharge, 81,600 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 23	Unknown	*9,810	*8.28	No other peak greater than base discharge.			

**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	307	226	292	e245	288	259	624	2080	624	240	273	240
2	282	226	285	e235	279	259	662	1710	566	229	263	227
3	273	223	289	e245	276	301	695	1480	497	224	258	216
4	270	233	275	e247	273	402	720	1260	453	207	263	207
5	256	240	278	249	267	469	683	1110	455	196	450	204
6	237	232	279	262	263	402	627	1000	460	185	345	204
7	238	232	275	292	278	370	575	908	392	174	260	199
8	244	235	280	282	297	350	531	913	385	171	262	189
9	233	230	290	271	312	342	510	1110	367	168	232	183
10	230	227	292	275	313	338	508	1350	341	169	223	176
11	220	231	348	292	300	330	520	1390	327	169	215	174
12	218	234	442	290	288	321	524	1240	316	169	208	166
13	217	238	547	288	278	345	538	1130	334	203	204	168
14	223	239	404	284	275	376	518	1030	382	220	191	168
15	238	237	352	276	274	406	526	921	326	220	189	168
16	244	240	319	266	275	397	e505	804	333	271	189	180
17	273	238	306	268	275	378	484	717	307	256	190	175
18	241	245	304	271	270	387	486	720	295	227	180	174
19	226	253	298	274	269	411	505	725	305	206	170	182
20	220	248	299	281	266	519	687	660	312	203	164	182
21	224	247	294	286	269	592	1040	600	309	200	164	174
22	235	242	283	292	270	744	e4850	567	310	217	175	173
23	230	249	281	292	268	914	e8290	538	276	223	174	191
24	228	247	285	301	267	805	4860	514	257	218	168	173
25	228	263	279	309	265	707	3320	492	260	225	168	179
26	221	292	279	307	264	636	2290	467	260	317	164	236
27	213	325	279	304	261	661	1730	499	318	334	163	303
28	213	312	278	300	259	668	1560	495	294	366	172	732
29	223	297	275	292	---	629	2510	858	271	329	190	536
30	219	303	272	287	---	610	2780	854	265	332	208	363
31	222	---	268	288	---	599	---	685	---	303	228	---
TOTAL	7346	7484	9527	8651	7739	14927	44658	28827	10597	7171	6703	6842
MEAN	237	249	307	279	276	482	1489	930	353	231	216	228
MAX	307	325	547	309	313	914	8290	2080	624	366	450	732
MIN	213	223	268	235	259	259	484	467	257	168	163	166
CFSM	0.17	0.18	0.22	0.20	0.20	0.35	1.08	0.68	0.26	0.17	0.16	0.17
IN.	0.20	0.20	0.26	0.23	0.21	0.40	1.21	0.78	0.29	0.19	0.18	0.18

01629500 SOUTH FORK SHENANDOAH RIVER NEAR LURAY, VA--Continued

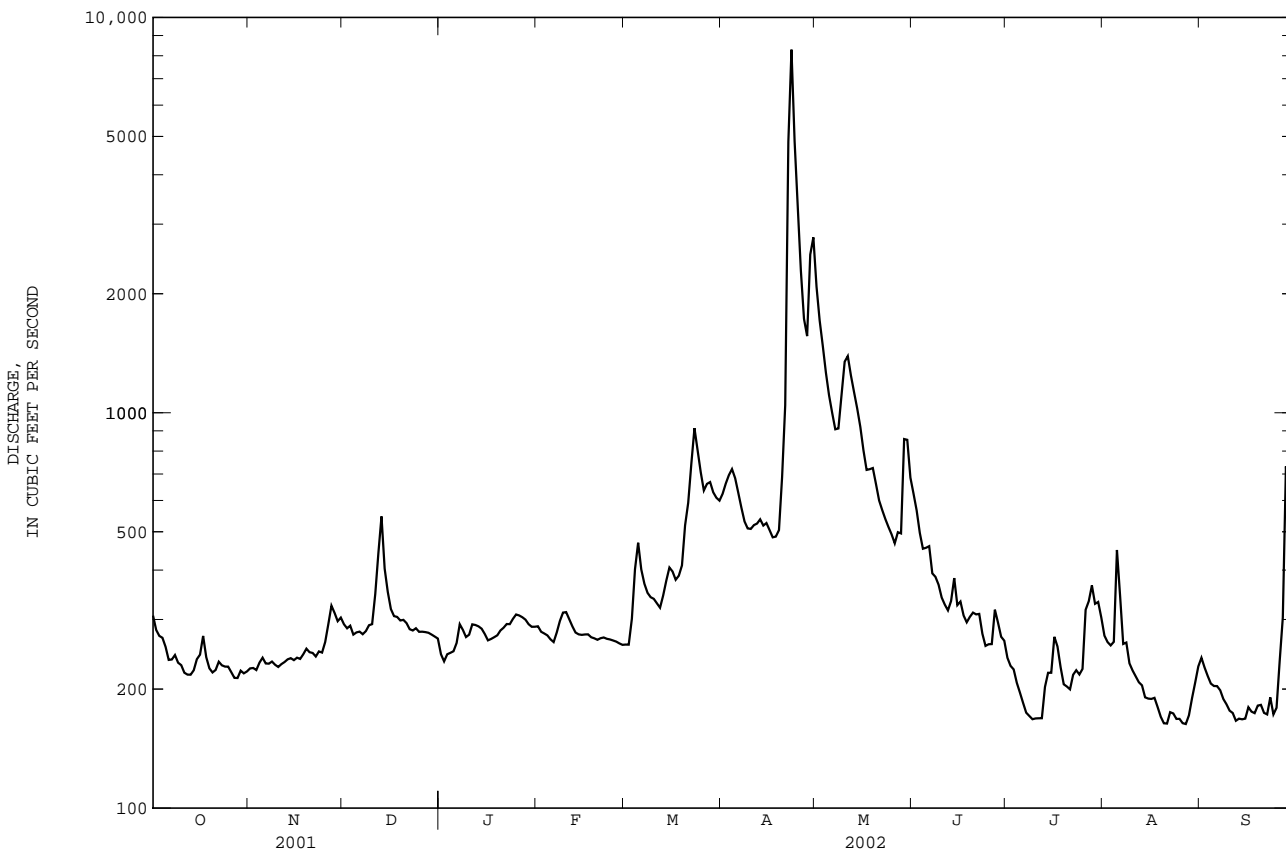
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1930, 1939 - 1951, 1980 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1000	1096	1283	1561	1951	2218	2125	1624	1187	733	832	995
MAX	6332	8783	3821	6490	9892	7143	7412	4449	3418	2460	3637	8043
(WY)	1943	1986	1949	1996	1998	1993	1987	1989	1949	1949	1940	1996
MIN	237	249	307	260	276	482	452	499	332	231	216	228
(WY)	2002	2002	2002	1981	2002	2002	1981	1930	1999	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 1930 1939 - 1951 1980 - 2002

ANNUAL TOTAL		278014		160472						1372		
ANNUAL MEAN		762		440						2707		1996
HIGHEST ANNUAL MEAN										440		2002
LOWEST ANNUAL MEAN										84400		Sep 7 1996
HIGHEST DAILY MEAN			11000	Mar 22		e8290	Apr 23			b135	cSep 28	1930
LOWEST DAILY MEAN			213	aOct 27		163	Aug 27			168	Aug 21	2002
ANNUAL SEVEN-DAY MINIMUM			d220	Oct 26		168	Aug 21			112000	Sep 7	1996
MAXIMUM PEAK FLOW						9810	Apr 23			26.95	Sep 7	1996
MAXIMUM PEAK STAGE						f8.28	Apr 23			b70	Sep 27	1941
INSTANTANEOUS LOW FLOW						155	Jul 12			1.00		
ANNUAL RUNOFF (CFSM)			0.55			0.32				13.54		
ANNUAL RUNOFF (INCHES)			7.51			4.34						
10 PERCENT EXCEEDS			1540			711				2710		
50 PERCENT EXCEEDS			461			278				812		
90 PERCENT EXCEEDS			239			189				351		

- a Also Oct. 28, 2001.
- b Result of regulation.
- c Also Sept. 16, 1925; data collected for only part of 1925 water year.
- d Also Oct. 27, 2001.
- e Estimated.
- f From floodmarks.



POTOMAC RIVER BASIN

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION.--Lat 38°54'50", long 78°12'39", NAD83, Warren County, Hydrologic Unit 02070005, on left bank 0.7 mi downstream from bridge on State Highway 619, 1.0 mi west of Front Royal, and 3.5 mi upstream from confluence with North Fork.

DRAINAGE AREA.--1,642 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1899 to September 1906, September 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1171: 1935(M), 1937(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 469.38 ft NGVD of 1929. June 1899 to July 1906, nonrecording gage at site 1.0 mi upstream at different datum.

REMARKS.--Records good except those for period with ice effect, Dec. 30 to Jan. 10, and periods of no gage-height record, May 9,10 and Aug. 15-22, which are fair. Large diurnal fluctuation at low and medium flow caused by powerplants upstream from station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station. Maximum discharge, 130,000 ft³/s, from rating curve extended above 92,000 ft³/s on basis of slope-area measurement of peak flow. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	406	260	357	e290	321	279	663	2570	741	320	361	271
2	398	265	343	e280	317	288	677	2110	688	309	330	298
3	381	271	341	e274	312	338	701	1770	619	293	319	307
4	351	267	341	e280	310	340	717	1500	562	288	329	290
5	336	268	330	e284	300	410	733	1360	546	272	328	262
6	329	276	332	e288	296	499	698	1220	608	253	301	241
7	303	269	331	e298	307	449	657	1120	525	233	417	236
8	291	271	348	e328	316	407	620	1070	458	224	298	238
9	304	269	346	e312	319	387	590	e1090	442	220	274	236
10	310	268	347	e308	338	377	575	e1280	428	215	272	231
11	316	268	386	330	350	367	565	1420	401	214	252	228
12	318	270	425	332	338	367	560	1390	377	225	242	219
13	311	276	443	331	324	379	593	1270	430	222	254	215
14	300	285	613	326	315	391	597	1160	439	290	234	214
15	304	281	488	319	310	397	603	1070	519	345	e215	224
16	310	284	425	314	311	427	602	947	422	322	e214	243
17	308	288	389	304	314	430	589	868	397	331	e215	244
18	318	276	373	292	309	431	586	870	369	365	e216	234
19	322	287	350	305	307	429	573	843	353	317	e208	229
20	300	299	343	310	307	517	633	804	353	334	e200	217
21	288	299	336	309	307	620	857	749	346	315	e196	224
22	295	295	330	307	303	634	2030	688	337	345	e210	345
23	306	289	328	310	300	736	6510	648	360	306	223	331
24	308	304	338	317	298	866	5500	618	340	340	245	260
25	304	306	330	326	296	781	3650	582	326	309	242	234
26	292	330	324	320	296	729	2730	575	289	293	230	249
27	276	336	311	326	292	744	2100	1250	290	359	228	440
28	262	360	310	328	282	733	2010	863	340	376	239	445
29	257	364	311	327	---	706	2390	719	353	395	265	475
30	257	356	e301	328	---	682	2930	989	312	378	252	523
31	258	---	e298	324	---	681	---	905	---	351	252	---
TOTAL	9619	8737	11168	9627	8695	15821	43239	34318	12970	9359	8061	8403
MEAN	310	291	360	311	311	510	1441	1107	432	302	260	280
MAX	406	364	613	332	350	866	6510	2570	741	395	417	523
MIN	257	260	298	274	282	279	560	575	289	214	196	214
CFSM	0.19	0.18	0.22	0.19	0.19	0.31	0.88	0.67	0.26	0.18	0.16	0.17
IN.	0.22	0.20	0.25	0.22	0.20	0.36	0.98	0.78	0.29	0.21	0.18	0.19

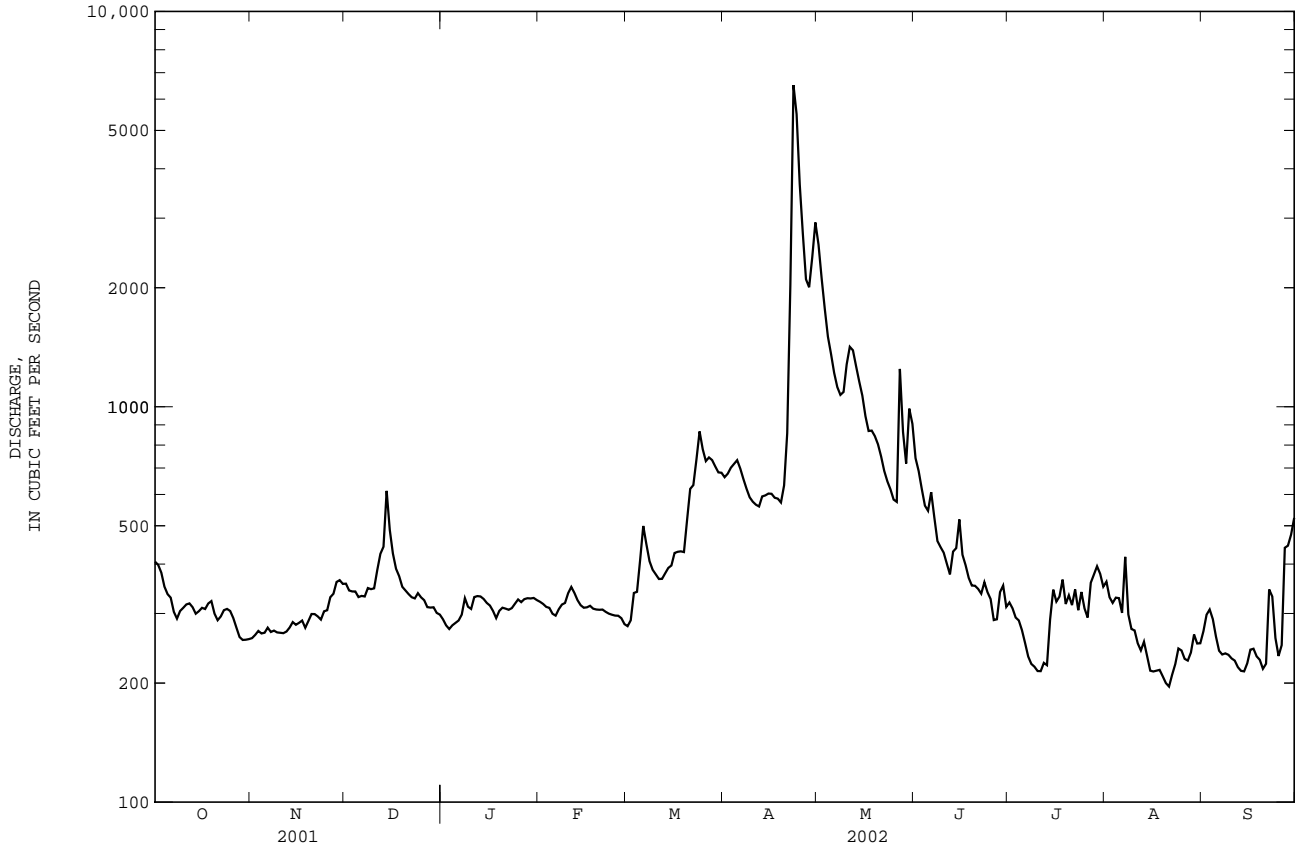
01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1141	1198	1451	1885	2179	2821	2427	1821	1312	791	928	961
MAX	8678	10130	4795	7876	10600	10300	7963	4807	6586	2876	6807	9631
(WY)	1943	1986	1973	1996	1998	1936	1987	1989	1972	1949	1955	1996
MIN	225	242	268	285	311	510	516	578	377	252	260	280
(WY)	1931	1931	1966	1966	2002	2002	1981	1977	1999	1966	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1931 - 2002	
ANNUAL TOTAL	339481		180017			
ANNUAL MEAN	930		493		1573	
HIGHEST ANNUAL MEAN					3189	
LOWEST ANNUAL MEAN					493	
HIGHEST DAILY MEAN	10700		Mar 22		114000	
LOWEST DAILY MEAN	257		Oct 29		107	
ANNUAL SEVEN-DAY MINIMUM	261		Oct 28		152	
MAXIMUM PEAK FLOW					130000	
MAXIMUM PEAK STAGE			6.24		a34.80	
INSTANTANEOUS LOW FLOW			(b)		59	
ANNUAL RUNOFF (CFSM)	0.57		0.30		0.96	
ANNUAL RUNOFF (INCHES)	7.69		4.08		13.01	
10 PERCENT EXCEEDS	1860		762		3150	
50 PERCENT EXCEEDS	660		328		930	
90 PERCENT EXCEEDS	302		242		382	

- a From floodmarks.
- b Not determined.
- c Probably occurred Aug. 21 or 22, 2002.
- e Estimated.



POTOMAC RIVER BASIN

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1996 to June 2002.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)
OCT												
10...	1100	ENVIRONMENTAL	USGS	1.53	403	--	756	10.8	100	8.3	346	16.0
NOV												
20...	1125	BLANK	USGS	--	--	--	--	--	--	--	--	--
20...	1130	ENVIRONMENTAL	USGS	1.16	3030	--	746	12.9	115	8.5	362	7.0
DEC												
10...	1130	ENVIRONMENTAL	USGS	1.17	342	--	753	13.1	109	8.3	365	7.0
JAN												
09...	1130	ENVIRONMENTAL	USGS	1.05	290	--	739	15.0	107	8.3	367	5.0
FEB												
13...	1100	ENVIRONMENTAL	USGS	1.07	322	--	749	14.7	117	8.4	374	3.5
MAR												
11...	1300	ENVIRONMENTAL	USGS	1.13	362	--	755	15.7	141	8.7	324	7.0
APR												
09...	1315	ENVIRONMENTAL	USGS	1.41	582	--	748	11.6	119	8.5	257	20.0
22...	1315	ENVIRONMENTAL	USGS	2.52	1830	--	738	8.7	93	7.3	234	15.0
MAY												
15...	1115	ENVIRONMENTAL	USGS	1.81	1050	--	749	12.0	128	8.2	201	20.0
15...	1130	REPLICATE	USGS	1.81	1050	--	749	12.0	128	8.2	201	20.0
28...	1100	ENVIRONMENTAL	USGS	1.67	856	--	745	6.7	79	7.7	202	19.5
JUN												
10...	1145	ENVIRONMENTAL	USGS	1.21	417	--	748	10.6	136	8.4	248	29.0
12...	1045	ENVIRONMENTAL	USGS	1.19	375	--	741	9.5	127	8.1	255	32.0
12...	1050	REPLICATE	VDCLS	1.19	375	2.8	741	9.5	127	8.1	255	32.0

Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)
OCT													
10...	11.4	33.0	14.8	3.35	15.8	141	21.6	.2	.15	12.5	--	--	--
NOV													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	9.4	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
10...	6.9	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
09...	.2	38.1	13.6	3.09	13.5	--	19.9	E.1	E.12	13.6	--	--	--
FEB													
13...	5.0	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
11...	10.1	--	--	--	--	--	--	--	--	--	--	--	--
APR													
09...	15.5	28.6	8.99	2.46	8.30	101	10.6	.1	E.09	10.2	--	--	--
22...	17.0	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
15...	17.4	--	--	--	--	--	--	--	--	--	--	--	--
15...	17.4	--	--	--	--	--	--	--	--	--	--	--	--
28...	21.7	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
10...	27.4	--	--	--	--	--	--	--	--	--	--	--	--
12...	28.6	--	--	--	--	--	--	--	--	--	--	--	--
12...	28.6	--	--	--	--	--	--	11.4	--	3	3	<3	--

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) (00625)	NITRO- GEN DIS- SOLVED (MG/L) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) (00613)	PHOS- PHORUS DIS- SOLVED (MG/L) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L) (00671)	PHOS- PHORUS TOTAL (MG/L) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667)
OCT													
10...	190	<.04	.25	.29	--	--	<.05	<.008	.064	.04	.063	--	--
NOV													
20...	--	E.03	<.10	<.10	--	--	<.05	<.008	<.004	<.02	<.004	--	--
20...	--	<.04	.18	.22	--	--	<.05	<.008	.048	.04	.052	--	--
DEC													
10...	--	<.04	.19	.21	--	--	<.05	<.008	.075	.07	.081	--	--
JAN													
09...	200	E.02	.15	.20	1.3	--	1.10	<.008	.124	.10	.119	--	--
FEB													
13...	--	<.04	.21	.29	--	--	E.44	<.008	.161	E.13	.163	--	--
MAR													
11...	--	<.04	.29	.41	.46	.16	.17	.009	.162	.13	.170	--	--
APR													
09...	135	<.04	.26	.29	.51	--	.25	E.006	.191	.16	.18	--	--
22...	--	.08	.49	.76	1.1	.56	.58	.017	.22	.20	.31	--	--
MAY													
15...	--	<.04	.20	.29	.41	--	.21	<.008	.076	.06	.095	--	--
15...	--	<.04	.21	.31	.43	--	.21	<.008	.077	.06	.096	--	--
28...	--	.06	.36	.45	.68	--	.32	E.005	.090	.07	.122	--	--
JUN													
10...	--	<.04	.34	.36	.83	.47	.49	.014	.199	.17	.19	--	--
12...	--	E.03	.35	.39	.67	.30	.32	.014	.20	.19	.22	--	--
12...	--	.015	--	--	.67	.31	.319	.012	.202	.177	--	.05	.013

Date	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L) AS C) (00694)	IRON, DIS- SOLVED (UG/L) AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN) (01056)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
OCT					
10...	--	20	E2.6	--	.6
NOV					
20...	--	--	--	--	--
20...	--	--	--	--	.3
DEC					
10...	--	--	--	--	.7
JAN					
09...	--	E6	<2.0	--	.9
FEB					
13...	--	--	--	83	4.0
MAR					
11...	--	--	--	--	1.7
APR					
09...	--	25	4.5	71	2.0
22...	--	--	--	66	35
MAY					
15...	--	--	--	75	4.0
15...	--	--	--	67	4.0
28...	--	--	--	71	6.0
JUN					
10...	--	--	--	--	3.0
12...	--	--	--	--	3.8
12...	.4	--	--	--	--

POTOMAC RIVER BASIN

01632000 NORTH FORK SHENANDOAH RIVER AT COOTES STORE, VA

LOCATION.--Lat 38°38'13", long 78°51'10", NAD83, Rockingham County, Hydrologic Unit 02070006, on right bank at Cootes Store, 300 ft upstream from bridge on State Highway 259, and 3.7 mi upstream from Linville Creek.

DRAINAGE AREA.--210 mi².

PERIOD OF RECORD.--February 1925 to current year.

REVISED RECORDS.--WSP 726: 1928-31. WSP 951: 1936, 1939(M). WSP 1171: 1935, 1937, 1938(M). WSP 1502: 1926, 1927-28(M), 1929, 1930-34(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,051.8 ft NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 15, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Jan. 2-8 and during period of low flow, July 29 to Sept. 21, which are fair, and period of doubtful gage-height record, Oct. 12 to Nov. 28, which is poor. National Weather Service gage-height teletype and Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 63,400 ft³/s, from rating curve extended above 9,000 ft³/s on basis of indirect measurement of peak flow. 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 1836, that of Oct. 15, 1942.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0500	*5,910	*10.70	No other peak greater than base discharge.			

**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	4.6	e8.2	11	9.7	e16	12	261	414	122	23	11	1.8
2	4.4	e8.5	10	e8.4	e15	13	264	359	85	20	10	1.5
3	4.2	e8.7	11	e8.5	e14	39	231	302	63	18	9.4	1.5
4	4.3	e8.8	11	e8.3	e15	72	193	247	71	17	8.5	1.4
5	4.6	e8.3	11	e8.2	e14	59	156	219	84	16	7.6	1.3
6	4.6	e8.0	11	e8.4	e13	58	133	198	105	14	7.2	1.3
7	4.5	e8.5	11	e8.8	e16	57	113	196	75	13	6.6	1.3
8	4.2	e8.5	12	e8.7	e17	55	96	220	53	13	6.1	1.3
9	4.1	e8.3	12	8.6	e16	51	89	261	43	12	5.7	1.2
10	3.9	e8.8	12	9.1	15	46	83	306	36	13	5.6	1.3
11	3.8	e8.7	22	11	15	42	73	271	31	14	5.0	1.3
12	e3.7	e8.7	28	15	14	38	66	234	27	13	4.7	1.3
13	e3.5	e8.7	25	19	15	42	64	217	46	12	4.4	1.3
14	e3.3	e8.7	22	21	14	45	64	206	89	16	4.1	1.4
15	e3.2	e8.8	21	20	14	44	80	175	59	18	3.9	1.4
16	e3.8	e9.0	20	18	14	43	100	127	45	15	3.8	1.4
17	e4.3	e9.0	20	17	13	43	127	99	36	14	3.7	1.3
18	e5.2	e9.0	20	15	e17	59	144	211	31	14	3.4	1.3
19	e6.1	e9.0	19	15	e16	94	161	262	29	13	3.1	1.3
20	e6.9	e8.8	18	15	e16	740	246	220	35	12	3.1	1.3
21	e7.5	e8.7	18	15	e15	552	886	195	32	11	2.9	5.5
22	e7.6	e8.6	17	14	e15	341	3570	155	27	11	2.9	17
23	e8.5	e8.5	17	14	e14	235	1110	117	24	10	2.7	17
24	e8.7	e8.5	16	16	e14	182	576	93	22	21	2.5	4.2
25	e8.8	e8.5	15	17	e14	142	393	78	20	21	2.3	2.8
26	e8.7	e9.5	14	18	13	123	320	249	21	21	2.3	162
27	e8.5	e10	13	20	12	207	260	558	63	32	2.1	364
28	e8.5	e11	13	20	12	210	752	350	67	23	2.2	191
29	e8.7	11	12	20	---	192	1130	244	35	19	2.1	102
30	e8.8	11	12	e18	---	163	596	186	27	15	2.1	70
31	e8.8	---	11	e17	---	154	---	155	---	13	1.9	---
TOTAL	180.3	268.3	485	441.7	408	4153	12337	7124	1503	497	142.9	962.7
MEAN	5.82	8.94	15.6	14.2	14.6	134	411	230	50.1	16.0	4.61	32.1
MAX	8.8	11	28	21	17	740	3570	558	122	32	11	364
MIN	3.2	8.0	10	8.2	12	12	64	78	20	10	1.9	1.2
CFSM	0.03	0.04	0.07	0.07	0.07	0.64	1.96	1.09	0.24	0.08	0.02	0.15
IN.	0.03	0.05	0.09	0.08	0.07	0.74	2.19	1.26	0.27	0.09	0.03	0.17

01632000 NORTH FORK SHENANDOAH RIVER AT COOTES STORE, VA--Continued

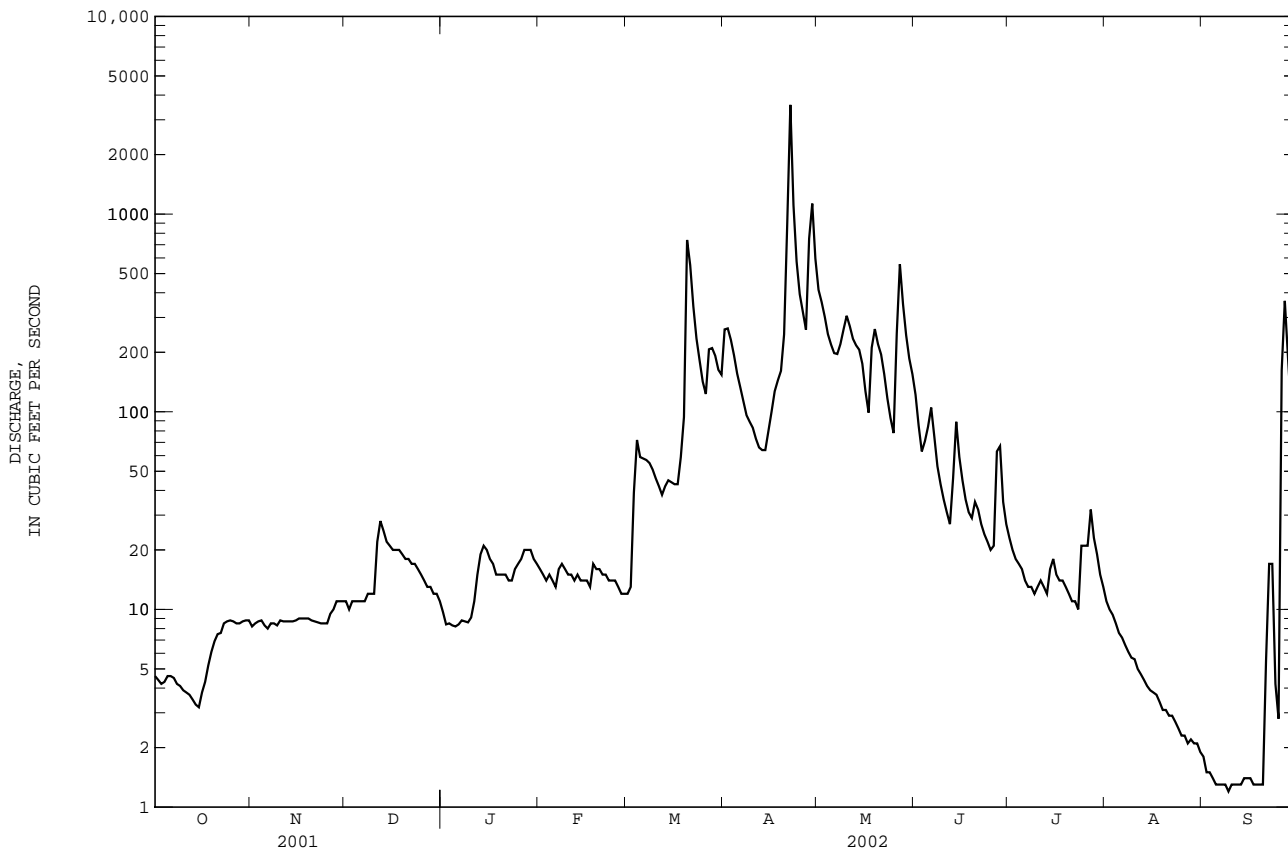
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	123	141	180	215	283	408	343	268	131	64.3	86.5	86.7
MAX	1401	1883	850	1114	1155	1536	1156	964	906	552	697	1582
(WY)	1943	1986	1974	1996	1998	1936	1987	1942	1972	1949	1955	1996
MIN	0.76	3.26	3.04	5.13	11.3	38.4	27.7	24.3	6.10	1.13	0.52	0.66
(WY)	1931	1931	1966	1966	1934	1981	1981	1977	1977	1999	1930	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002

ANNUAL TOTAL	52023.9		28502.9			
ANNUAL MEAN	143		78.1		194	
HIGHEST ANNUAL MEAN					463 1996	
LOWEST ANNUAL MEAN					58.1 1934	
HIGHEST DAILY MEAN	2210 Jun 22		3570 Apr 22		26400 Sep 6 1996	
LOWEST DAILY MEAN	3.2 Oct 15		1.2 Sep 9		0.20 aAug 28 1957	
ANNUAL SEVEN-DAY MINIMUM	3.6 Oct 10		1.3 Sep 5		0.27 Sep 3 1966	
MAXIMUM PEAK FLOW			5910 Apr 22		63400 Sep 6 1996	
MAXIMUM PEAK STAGE			10.70 Apr 22		b27.86 Sep 6 1996	
INSTANTANEOUS LOW FLOW			1.2 cSep 8		0.20 Aug 28 1957	
ANNUAL RUNOFF (CFSM)	0.68		0.37		0.92	
ANNUAL RUNOFF (INCHES)	9.22		5.05		12.57	
10 PERCENT EXCEEDS	345		213		426	
50 PERCENT EXCEEDS	45		15		61	
90 PERCENT EXCEEDS	8.1		3.4		4.6	

- a Also Aug. 29, Sept. 4, 1957, and Sept. 7-10, 1966.
- b From floodmarks.
- c Also Sept. 9-11, 2002.
- e Estimated.



POTOMAC RIVER BASIN

01632082 LINVILLE CREEK AT BROADWAY, VA

LOCATION.--Lat 38°36'24", long 78°48'12", NAD83, Rockingham County, Hydrologic Unit 02070006, on left bank at Linville, 170 ft downstream from bridge on State Highway 1421, and 1.1 mi upstream from mouth.

DRAINAGE AREA.--45.5 mi².

PERIOD OF RECORD.--August 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,029.90 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Dec. 30 to Jan. 6, which is fair. Maximum discharge, 17,800 ft³/s, from rating curve extended above 1,860 ft³/s on basis of slope-area measurement at gage height 12.58 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	5.5	6.9	5.5	e3.7	4.4	3.9	9.4	18	12	8.2	6.6	3.4
2	5.4	7.3	5.0	e3.6	4.0	4.6	8.3	17	9.7	7.5	6.6	3.4
3	5.5	7.2	4.7	e3.7	4.0	9.5	7.6	14	8.5	7.0	6.8	3.2
4	5.5	6.9	5.1	e3.6	4.2	6.3	6.5	13	8.3	6.7	9.8	3.0
5	5.4	6.7	4.8	e3.8	3.8	5.3	6.4	12	8.7	6.1	8.1	2.7
6	5.3	6.6	4.5	e4.2	4.0	5.0	5.8	11	8.6	5.7	9.8	2.7
7	5.4	6.3	4.7	5.7	5.3	4.9	5.4	12	8.8	5.6	6.8	2.7
8	5.6	6.2	5.3	4.6	5.4	4.6	5.3	13	7.7	5.6	6.0	2.6
9	5.3	6.2	5.5	5.4	4.6	4.7	5.6	13	7.1	5.4	5.9	2.7
10	5.7	5.8	4.8	5.8	4.4	4.3	6.8	17	6.6	6.2	5.5	2.6
11	5.8	6.0	13	6.6	4.6	4.2	5.1	13	6.0	5.9	5.3	2.5
12	5.7	6.0	9.0	5.8	4.1	4.3	5.0	12	5.8	5.2	5.6	2.3
13	5.9	6.0	7.5	5.2	4.1	6.3	5.6	13	24	5.4	5.7	2.2
14	6.9	6.3	7.1	4.9	4.0	6.0	5.1	11	91	10	5.7	2.2
15	8.8	6.4	6.8	5.0	4.0	5.1	5.8	10	19	7.9	5.2	2.8
16	7.7	6.2	5.5	4.6	4.1	5.1	5.4	8.9	14	6.2	5.7	3.4
17	6.9	5.9	5.4	4.6	4.1	5.1	4.7	8.3	12	5.8	5.3	2.7
18	6.9	5.7	5.7	4.5	4.0	7.7	4.1	14	10	5.5	5.0	2.6
19	7.1	5.9	5.2	4.9	4.0	8.2	4.0	9.8	17	5.9	5.0	2.9
20	6.8	5.8	4.8	5.0	4.0	16	4.9	8.4	13	7.4	4.0	2.9
21	6.7	5.4	4.5	5.0	4.0	14	16	8.4	9.4	6.0	4.0	3.6
22	6.8	5.7	4.9	5.0	3.9	10	176	7.3	8.2	5.7	3.2	4.1
23	7.2	5.7	5.1	4.8	3.9	7.5	57	6.5	7.6	6.1	3.1	5.9
24	6.8	5.7	5.4	5.3	4.0	6.9	36	6.1	7.1	13	3.0	3.9
25	6.7	6.9	5.0	5.5	4.0	6.2	28	5.8	6.6	9.9	3.2	3.7
26	6.8	6.7	4.8	4.5	4.0	7.2	23	20	7.1	13	3.0	23
27	7.3	5.4	4.7	4.4	3.9	11	18	43	30	13	3.1	34
28	7.7	5.1	4.6	4.4	3.8	8.6	29	34	20	11	3.8	17
29	7.6	5.2	4.6	4.3	---	7.9	31	24	11	9.3	5.1	9.3
30	7.2	5.3	e4.0	4.5	---	7.2	23	17	9.0	7.7	4.1	7.0
31	7.1	---	e3.8	4.4	---	8.2	---	14	---	7.7	3.7	---
TOTAL	201.0	183.4	171.3	147.3	116.6	215.8	553.8	434.5	413.8	231.6	163.7	167.0
MEAN	6.48	6.11	5.53	4.75	4.16	6.96	18.5	14.0	13.8	7.47	5.28	5.57
MAX	8.8	7.3	13	6.6	5.4	16	176	43	91	13	9.8	34
MIN	5.3	5.1	3.8	3.6	3.8	3.9	4.0	5.8	5.8	5.2	3.0	2.2
CFSM	0.14	0.13	0.12	0.10	0.09	0.15	0.41	0.31	0.30	0.16	0.12	0.12
IN.	0.16	0.15	0.14	0.12	0.10	0.18	0.45	0.36	0.34	0.19	0.13	0.14

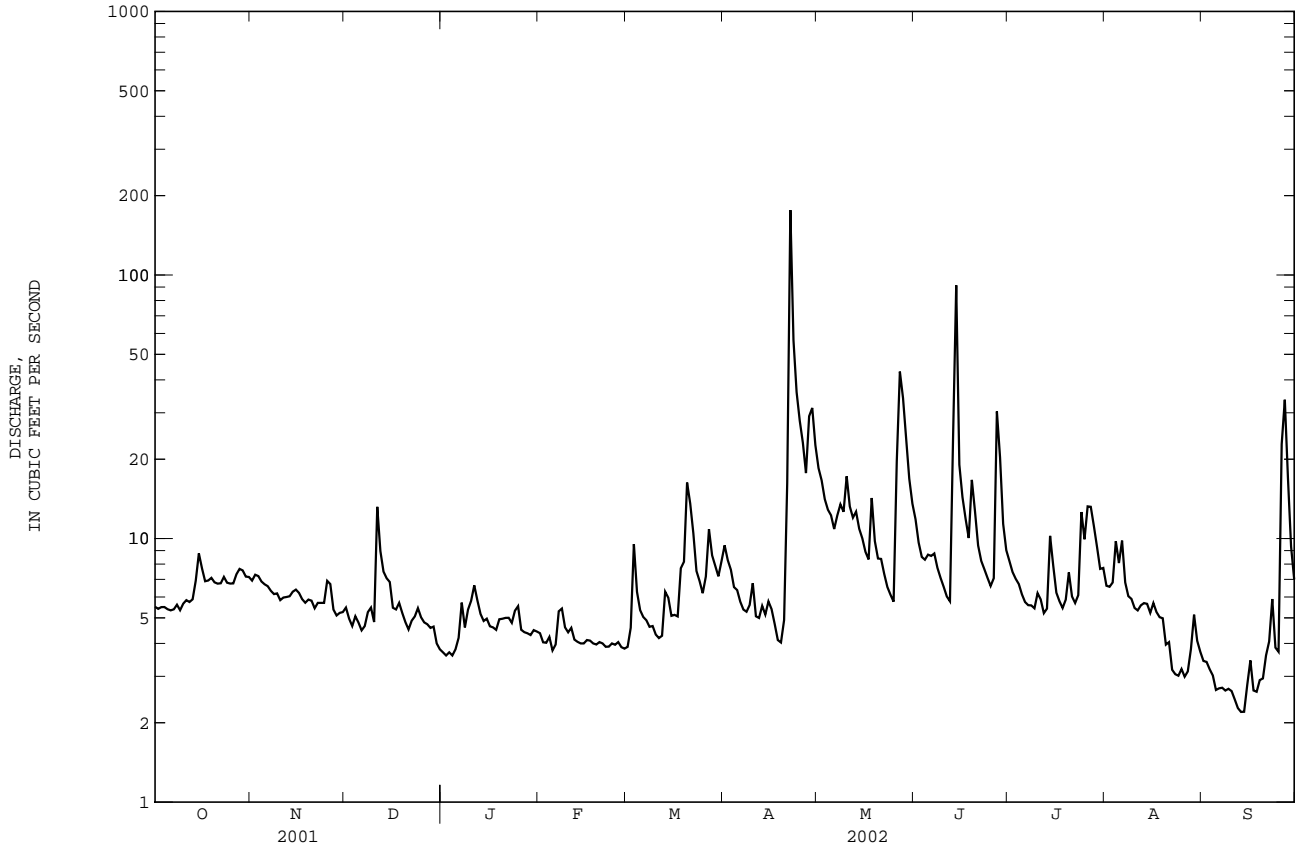
01632082 LINVILLE CREEK AT BROADWAY, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.8	26.9	29.3	54.0	46.6	65.8	46.7	34.6	23.6	17.3	23.6	32.0
MAX	108	144	115	213	195	206	135	91.0	49.6	68.5	138	275
(WY)	1991	1986	1997	1996	1998	1994	1993	1989	1996	1995	1996	1996
MIN	6.48	6.11	5.53	4.75	4.16	6.96	11.5	12.9	6.58	3.62	4.31	5.21
(WY)	2002	2002	2002	2002	2002	2002	1995	1986	1999	1999	1999	1986

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1985 - 2002	
ANNUAL TOTAL	6252.1	2999.8		
ANNUAL MEAN	17.1	8.22	35.3	
HIGHEST ANNUAL MEAN			85.5	1996
LOWEST ANNUAL MEAN			8.22	2002
HIGHEST DAILY MEAN	294	Apr 11	e4700	Sep 6 1996
LOWEST DAILY MEAN	a3.8	Dec 31	1.7	Aug 11 1999
ANNUAL SEVEN-DAY MINIMUM	4.5	Dec 25	2.3	Aug 7 1999
MAXIMUM PEAK FLOW			458	Jun 14
MAXIMUM PEAK STAGE			3.50	Jun 14
INSTANTANEOUS LOW FLOW			a1.3	Dec 30
ANNUAL RUNOFF (CFSM)	0.38		0.18	0.78
ANNUAL RUNOFF (INCHES)	5.11		2.45	10.55
10 PERCENT EXCEEDS	31		13	71
50 PERCENT EXCEEDS	11		5.8	17
90 PERCENT EXCEEDS	5.4		3.8	6.8

- a Result of freezeup.
- b Also Sept. 14, 2002.
- c Also Aug. 13, 1999.
- e Estimated.



POTOMAC RIVER BASIN

01632900 SMITH CREEK NEAR NEW MARKET, VA

LOCATION.--Lat 38°41'36", long 78°38'34", NAD83, Shenandoah County, Hydrologic Unit 02070006, on left bank 25 ft upstream from bridge on State Highway 620, 3.6 mi north of New Market, and 4.4 mi upstream from mouth.

DRAINAGE AREA.--93.2 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 881.50 ft NGVD of 1929. Prior to Aug. 2, 1963, on right bank a short distance downstream, at datum 0.71 ft higher.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 1-4, Aug. 8-20, and Aug. 22 to Sept. 26, and period with ice effect, Dec. 30 to Jan. 9, which are fair. Maximum discharge, 12,400 ft³/s, from rating curve extended above 2,300 ft³/s on basis of contracted-opening measurement at gage height 16.38 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 1, 1959, reached a stage of 10.7 ft, discharge not determined, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	e13	13	13	e9.0	11	8.8	25	53	20	11	6.8	e4.7
2	e13	14	13	e8.8	9.9	9.0	23	48	19	10	6.1	e4.6
3	e12	14	13	e9.5	9.6	19	22	43	18	9.4	6.2	e4.4
4	e12	14	13	e9.2	9.4	15	21	39	18	9.4	9.1	e4.1
5	11	13	13	e9.1	9.2	13	20	38	18	8.8	13	e3.7
6	11	12	12	e10	9.1	13	20	36	17	7.7	10	e3.6
7	11	13	13	e11	10	13	19	34	18	7.5	9.1	e3.5
8	11	13	13	e10	11	12	19	38	17	7.1	e8.3	e3.4
9	12	13	13	e11	11	13	19	40	16	7.3	e8.0	e3.6
10	12	13	13	12	10	13	20	46	15	7.9	e7.8	e3.5
11	13	12	17	13	10	13	20	37	14	8.3	e7.2	e3.4
12	12	12	19	15	9.9	13	19	33	14	7.5	e7.9	e3.1
13	13	12	16	12	9.6	15	20	33	17	7.4	e8.1	e3.0
14	12	12	14	11	9.6	17	20	35	37	11	e8.0	e2.8
15	13	12	14	11	9.6	16	20	33	22	12	e7.3	e3.8
16	13	12	13	11	9.4	16	20	30	19	10	e8.2	e4.8
17	14	13	13	11	9.5	16	20	29	17	8.8	e7.4	e4.0
18	13	13	13	11	9.2	18	19	43	16	8.1	e7.0	e3.5
19	14	12	13	11	9.1	19	19	39	20	8.1	e6.4	e4.0
20	14	12	13	11	9.1	37	20	32	18	8.1	e5.6	e4.5
21	14	12	12	11	9.1	28	44	30	16	8.2	5.2	e5.2
22	14	12	12	11	9.3	24	354	29	13	7.1	e4.5	e6.0
23	14	12	11	11	9.1	22	140	28	12	6.8	e4.2	e7.2
24	14	12	12	11	9.1	20	83	27	11	7.4	e4.0	e5.5
25	14	12	12	11	9.1	19	63	27	10	8.1	e4.4	e12
26	14	14	11	11	9.1	20	50	34	9.9	9.8	e4.1	e28
27	13	14	11	11	9.1	32	43	104	11	11	e4.5	57
28	14	14	12	11	9.1	27	77	35	20	10	e5.4	45
29	14	13	11	11	---	24	109	27	15	8.6	e7.0	24
30	14	13	e10	11	---	22	66	24	12	8.1	e6.0	16
31	14	---	e9.5	11	---	23	---	21	---	7.3	e5.0	---
TOTAL	402	382	397.5	337.6	268.2	569.8	1434	1145	499.9	267.8	211.8	281.9
MEAN	13.0	12.7	12.8	10.9	9.58	18.4	47.8	36.9	16.7	8.64	6.83	9.40
MAX	14	14	19	15	11	37	354	104	37	12	13	57
MIN	11	12	9.5	8.8	9.1	8.8	19	21	9.9	6.8	4.0	2.8
CFSM	0.14	0.14	0.14	0.12	0.10	0.20	0.51	0.40	0.18	0.09	0.07	0.10
IN.	0.16	0.15	0.16	0.13	0.11	0.23	0.57	0.46	0.20	0.11	0.08	0.11

01632900 SMITH CREEK NEAR NEW MARKET, VA--Continued

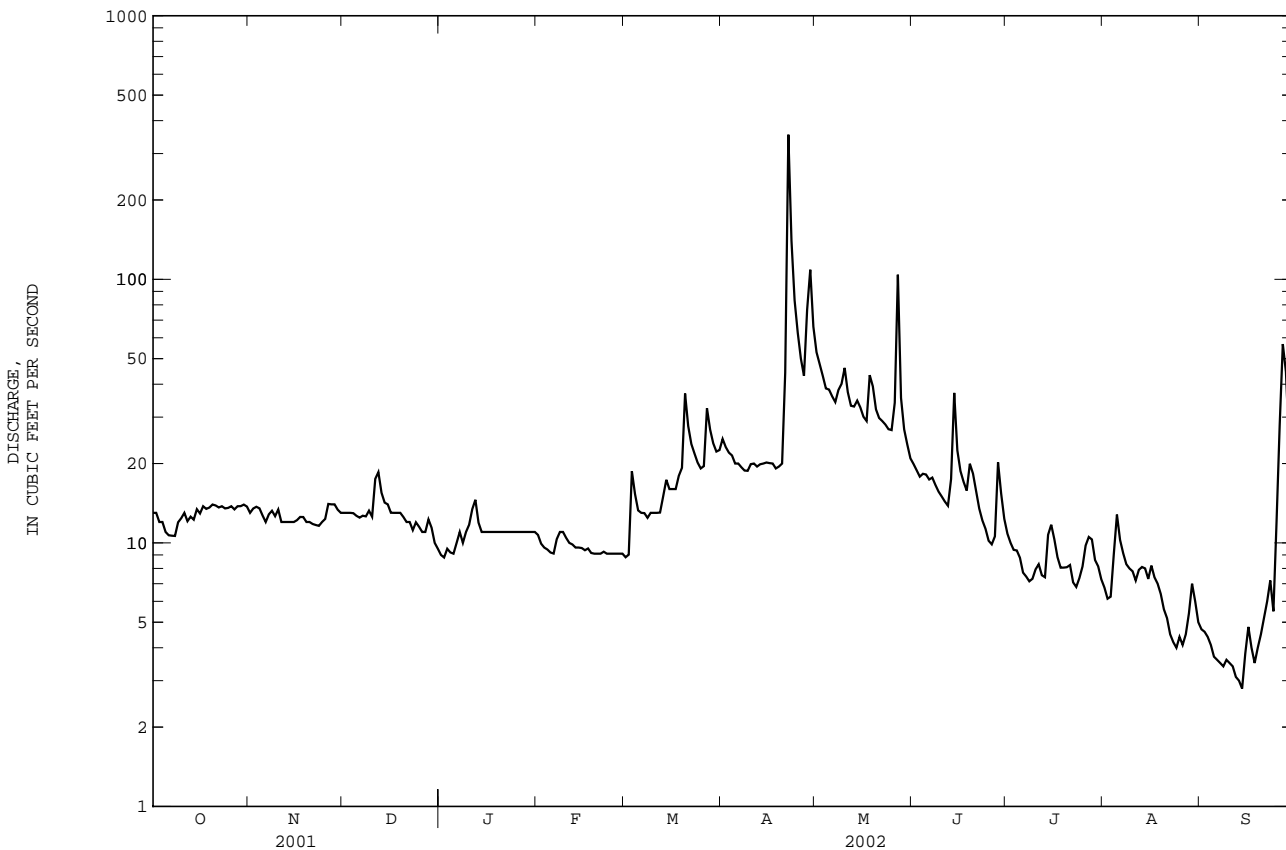
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	51.7	55.0	65.8	98.0	111	149	113	81.1	56.8	34.6	35.3	39.2
MAX	297	324	240	423	447	530	372	238	294	121	139	408
(WY)	1973	1986	1997	1996	1998	1994	1987	1988	1972	1972	1996	1996
MIN	8.56	11.0	8.86	10.1	9.58	18.4	19.4	20.0	12.3	8.64	6.83	9.36
(WY)	1987	1966	1966	1966	2002	2002	1981	1969	1999	2002	2002	1986

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1960 - 2002

ANNUAL TOTAL	13648.5	6197.5	
ANNUAL MEAN	37.4	17.0	73.9
HIGHEST ANNUAL MEAN			152 1996
LOWEST ANNUAL MEAN			17.0 2002
HIGHEST DAILY MEAN	798 Aug 12	354 Apr 22	5190 Jan 19 1996
LOWEST DAILY MEAN	e9.5 Dec 31	e2.8 Sep 14	e2.8 Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	11 Dec 25	e3.3 Sep 8	e3.3 Sep 8 2002
MAXIMUM PEAK FLOW		600 Apr 22	12400 Sep 6 1996
MAXIMUM PEAK STAGE		5.36 Apr 22	17.62 Sep 6 1996
INSTANTANEOUS LOW FLOW		(a)	(a)
ANNUAL RUNOFF (CFSM)	0.40	0.18	0.79
ANNUAL RUNOFF (INCHES)	5.45	2.47	10.78
10 PERCENT EXCEEDS	67	31	149
50 PERCENT EXCEEDS	25	12	41
90 PERCENT EXCEEDS	13	6.3	14

a Unknown.
 b Probably occurred Sept. 14, 2002.
 e Estimated.



POTOMAC RIVER BASIN

01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA

LOCATION.--Lat 38°44'44", long 78°38'20", NAD83, Shenandoah County, Hydrologic Unit 02070006, on right bank at upstream side of bridge on State Highway 698 at Mount Jackson and 0.4 mi downstream from Mill Creek.

DRAINAGE AREA.--506 mi².

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

REVISED RECORDS.--WSP 1382: 1945, 1948-50(M), 1951-53(P), 1954(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 838.55 ft NGVD of 1929. Prior to July 1, 1976, nonrecording gage, and July 1, 1976, to Oct. 23, 1981, water-stage recorder, at site 400 ft upstream at same datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-3, which is fair. Some diversion during low flow for irrigation at points upstream from station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 103,000 ft³/s, Sept. 6, 1996, from rating curve extended above 19,000 ft³/s on basis of peak runoff for stations at Cootes Store and near Strasburg. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 20.2 ft, from floodmarks, discharge, about 80,000 ft³/s, from rating curve extended above 18,000 ft³/s on basis of peak runoff for flood in October, 1942 for stations at Cootes Store and near Strasburg.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1015	*10,800	*12.21	No other peak greater than base discharge.			

**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	40	52	36	e29	33	21	314	807	252	76	29	15
2	39	51	37	e27	31	23	398	618	209	64	22	14
3	37	52	34	e28	29	50	354	507	173	57	25	13
4	35	50	32	28	30	86	292	396	165	50	33	13
5	33	51	31	27	29	106	235	345	163	44	40	11
6	31	46	30	31	28	87	200	299	199	36	37	7.4
7	31	43	30	36	33	85	174	274	180	33	22	6.3
8	30	45	33	33	37	83	152	318	151	34	18	6.2
9	29	46	38	29	36	77	136	360	130	31	14	6.0
10	30	46	39	31	35	72	132	475	114	30	13	4.9
11	31	46	57	36	36	64	120	416	102	29	13	4.4
12	32	47	82	38	34	58	108	350	92	27	12	3.6
13	30	45	75	39	31	65	104	313	99	25	16	2.8
14	34	41	66	41	31	74	103	305	242	42	9.8	2.2
15	46	42	59	39	30	72	110	264	182	60	7.7	4.1
16	49	41	54	37	29	69	140	219	141	49	8.3	10
17	46	42	51	35	30	70	161	188	119	39	10	18
18	46	41	49	34	30	80	191	233	103	33	9.2	15
19	45	42	48	35	28	116	223	395	140	31	13	9.3
20	47	39	45	38	27	797	296	315	127	30	16	7.4
21	47	36	42	36	27	1080	599	267	108	31	9.7	17
22	48	33	39	34	25	606	7180	226	94	27	7.9	52
23	46	31	41	33	25	391	2460	195	80	30	6.2	81
24	42	31	43	34	25	284	1220	168	73	28	5.4	67
25	46	35	41	35	25	222	752	150	64	42	6.5	35
26	53	38	40	35	24	187	544	184	58	57	6.6	57
27	53	39	37	35	23	266	419	1650	68	69	8.9	716
28	54	37	34	35	22	330	963	755	167	82	8.9	359
29	55	35	36	34	---	286	2350	491	123	62	10	205
30	56	36	33	33	---	246	1250	347	91	46	13	139
31	55	---	32	34	---	225	---	282	---	36	13	---
TOTAL	1296	1259	1344	1049	823	6278	21680	12112	4009	1330	464.1	1901.6
MEAN	41.8	42.0	43.4	33.8	29.4	203	723	391	134	42.9	15.0	63.4
MAX	56	52	82	41	37	1080	7180	1650	252	82	40	716
MIN	29	31	30	27	22	21	103	150	58	25	5.4	2.2
CFSM	0.08	0.08	0.09	0.07	0.06	0.40	1.43	0.77	0.26	0.08	0.03	0.13
IN.	0.10	0.09	0.10	0.08	0.06	0.46	1.59	0.89	0.29	0.10	0.03	0.14

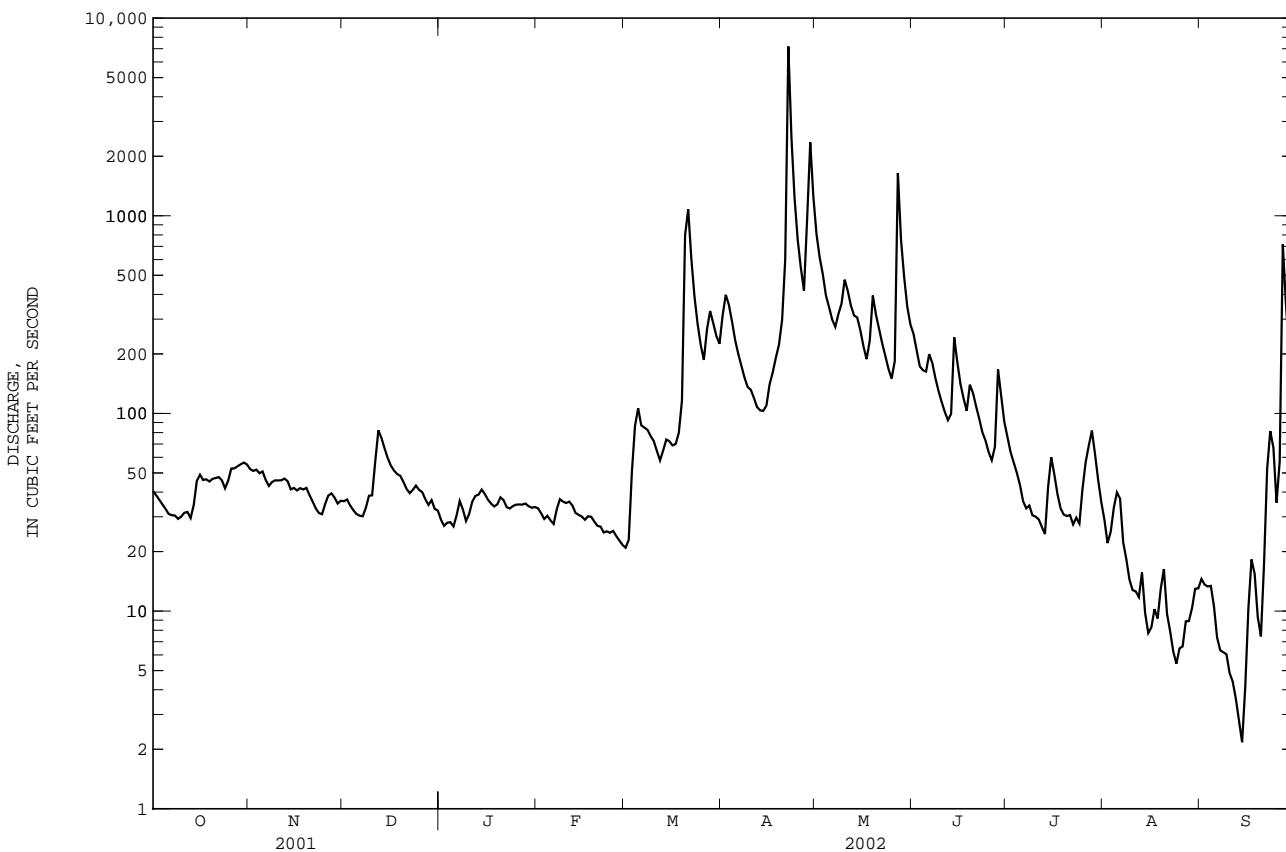
01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	231	281	367	473	567	823	633	508	307	165	213	215
MAX	1580	2371	1272	2283	2445	2387	2193	1418	1483	834	1403	2804
(WY)	1980	1986	1973	1996	1998	1994	1987	1988	1972	1949	1955	1996
MIN	22.2	26.3	22.7	30.1	29.4	119	79.2	84.3	31.1	8.80	15.0	26.2
(WY)	1987	1966	1966	1966	2002	1981	1981	1969	1999	1999	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1944 - 2002
ANNUAL TOTAL	101315	53545.7	
ANNUAL MEAN	278	147	398
HIGHEST ANNUAL MEAN			935
LOWEST ANNUAL MEAN			136
HIGHEST DAILY MEAN	6730	7180	32200
LOWEST DAILY MEAN	29	2.2	1.8
ANNUAL SEVEN-DAY MINIMUM	30	4.0	2.8
MAXIMUM PEAK FLOW		10800	103000
MAXIMUM PEAK STAGE		12.21	22.17
INSTANTANEOUS LOW FLOW		1.9	1.5
ANNUAL RUNOFF (CFSM)	0.55	0.29	0.79
ANNUAL RUNOFF (INCHES)	7.45	3.94	10.68
10 PERCENT EXCEEDS	601	313	860
50 PERCENT EXCEEDS	125	42	182
90 PERCENT EXCEEDS	38	14	43

a Also Aug. 13, 1999.
e Estimated.



POTOMAC RIVER BASIN

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

LOCATION.--Lat 38°58'36", long 78°20'10", NAD83, Warren County, Hydrologic Unit 02070006, on right bank at upstream side of bridge on State Highway 55, 1.5 mi southeast of Strasburg, 2.2 mi upstream from Cedar Creek, and 10 mi upstream from confluence with South Fork.

DRAINAGE AREA.--768 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1001: 1931. WSP 1171: 1929(M), 1933(M), 1936-37. WSP 1302: 1928(M), 1930(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 494.03 ft NGVD of 1929. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Dec. 30 to Jan. 6, and period of doubtful or no gage-height record, June 23 to Aug. 12, which are poor. Large diurnal fluctuation at low and medium flow from unknown cause. Water-level elevations at the site were affected during the 1992-93 water years by construction of a new bridge about 50 ft downstream from the gage. National Weather Service gage-height telemeter at station. Maximum discharge, 114,000 ft³/s, from rating curve extended above 46,000 ft³/s. 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 1870, that of Sept. 7, 1996.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	2330	*10,200	*12.21	No other peak greater than base discharge.			

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	132	100	102	e102	101	92	385	1570	430	e186	e150	93
2	129	100	100	e99	99	94	466	1210	390	e174	e102	84
3	118	104	98	e97	99	107	550	992	341	e152	e88	80
4	119	97	97	e94	97	107	495	792	300	e132	e80	79
5	119	95	95	e93	94	123	424	646	305	e124	e86	77
6	116	95	99	e92	93	169	366	567	326	e110	e128	72
7	112	92	100	107	97	176	324	515	322	e98	e150	78
8	112	95	107	119	96	154	292	477	329	e96	e180	85
9	110	99	110	110	103	153	266	590	264	e94	e160	83
10	107	98	106	112	103	149	251	848	247	e88	e140	81
11	105	99	118	108	106	142	235	814	229	e86	e136	77
12	105	101	129	103	102	138	226	672	214	e82	e128	75
13	104	98	140	110	101	146	215	575	223	e80	117	72
14	109	98	174	107	102	143	211	560	299	e75	97	73
15	118	101	160	103	100	143	223	499	343	e180	89	78
16	106	104	149	102	96	153	232	453	369	e280	115	83
17	96	104	147	103	98	153	248	390	265	e220	92	82
18	115	104	141	100	96	160	264	425	244	e140	88	76
19	116	104	137	101	95	160	310	571	224	e112	83	78
20	110	104	133	104	95	255	411	650	210	e90	81	78
21	115	101	128	101	95	1230	508	535	248	e86	82	112
22	104	100	127	98	94	1180	4150	455	223	e88	81	121
23	97	99	125	99	96	747	5930	410	e190	e84	81	117
24	104	99	131	102	95	537	2350	349	e170	e88	83	113
25	108	108	127	99	92	420	1510	332	e160	e86	87	153
26	99	104	125	97	92	360	1080	291	e150	e106	85	201
27	90	98	119	98	90	338	821	956	e140	e126	84	285
28	98	120	117	97	90	429	870	1740	e250	e160	91	804
29	93	105	116	97	---	485	2790	1020	e400	e203	118	544
30	94	108	e107	99	---	426	2460	719	e300	e300	107	348
31	97	---	e104	107	---	394	---	532	---	e220	96	---
TOTAL	3357	3034	3768	3160	2717	9463	28863	21155	8105	4146	3285	4382
MEAN	108	101	122	102	97.0	305	962	682	270	134	106	146
MAX	132	120	174	119	106	1230	5930	1740	430	300	180	804
MIN	90	92	95	92	90	92	211	291	140	75	80	72
CFSM	0.14	0.13	0.16	0.13	0.13	0.40	1.25	0.89	0.35	0.17	0.14	0.19
IN.	0.16	0.15	0.18	0.15	0.13	0.46	1.40	1.02	0.39	0.20	0.16	0.21

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

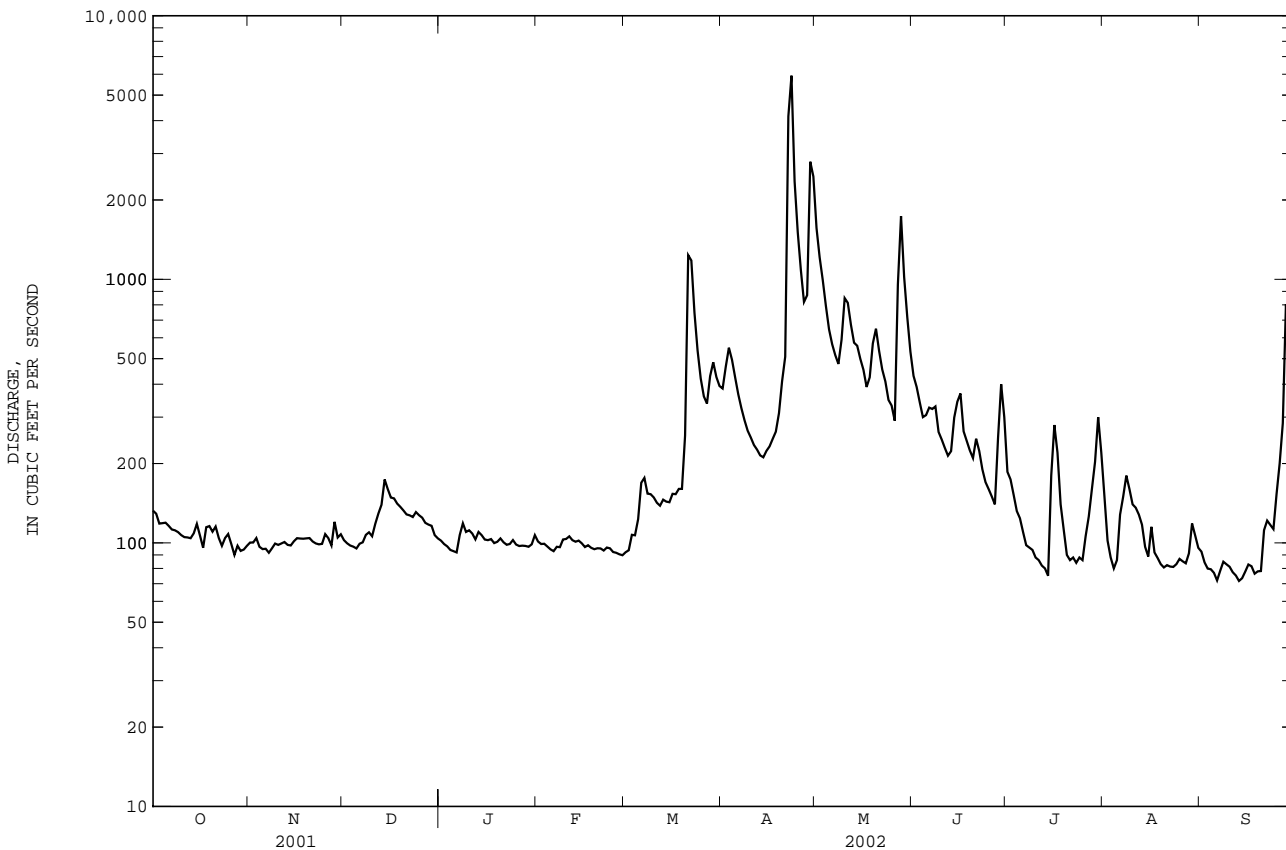
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	397	411	526	682	858	1136	972	752	473	293	353	320
MAX	3488	2813	1955	3394	3466	5017	2876	1821	2234	1169	2510	3838
(WY)	1943	1986	1973	1996	1998	1936	1993	1988	1972	1949	1955	1996
MIN	58.9	75.8	82.0	86.4	94.0	183	182	154	84.6	56.6	66.7	67.1
(WY)	1931	1931	1932	1966	1931	1931	1981	1969	1999	1999	1930	1986

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002

ANNUAL TOTAL	172919	95435	
ANNUAL MEAN	474	261	597
HIGHEST ANNUAL MEAN			1360
LOWEST ANNUAL MEAN			226
HIGHEST DAILY MEAN	8070	Jun 23	5930
LOWEST DAILY MEAN	90	Oct 27	72
ANNUAL SEVEN-DAY MINIMUM	96	Oct 26	77
MAXIMUM PEAK FLOW			10200
MAXIMUM PEAK STAGE			12.21
INSTANTANEOUS LOW FLOW			b41
ANNUAL RUNOFF (CFSM)	0.62	0.34	0.78
ANNUAL RUNOFF (INCHES)	8.38	4.62	10.57
10 PERCENT EXCEEDS	1150	522	1250
50 PERCENT EXCEEDS	257	113	312
90 PERCENT EXCEEDS	104	87	110

a Also Sept. 14, 18, 1986.
 b Result of freezeup.
 e Estimated.



POTOMAC RIVER BASIN

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1996 to June 2002.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	
OCT													
10...	1300	ENVIRONMENTAL	USGS	1.85	106	--	754	13.7	131	8.5	449	20.0	
NOV													
20...	1225	BLANK	USGS	--	--	--	--	--	--	--	--	--	
20...	1230	ENVIRONMENTAL	USGS	1.90	102	--	746	15.4	139	8.8	456	8.5	
DEC													
10...	1245	ENVIRONMENTAL	USGS	1.83	102	--	751	15.2	125	8.0	467	4.0	
JAN													
09...	1245	ENVIRONMENTAL	USGS	1.79	109	--	737	15.5	111	7.8	464	9.0	
FEB													
13...	1145	ENVIRONMENTAL	USGS	1.77	102	--	749	14.7	117	8.4	435	5.5	
MAR													
11...	1145	ENVIRONMENTAL	USGS	1.85	142	--	755	14.3	123	8.6	404	5.0	
22...	1100	ENVIRONMENTAL	USGS	3.70	1200	--	749	10.5	91	8.1	249	-1.0	
APR													
09...	1030	ENVIRONMENTAL	USGS	2.15	263	--	747	10.2	103	7.8	238	20.0	
22...	1130	ENVIRONMENTAL	USGS	5.07	2220	--	738	8.4	87	7.5	233	12.0	
MAY													
15...	1145	ENVIRONMENTAL	USGS	2.62	516	--	748	11.2	118	8.3	244	19.0	
15...	1200	REPLICATE	USGS	2.62	516	--	748	11.2	118	8.3	244	19.0	
28...	1230	ENVIRONMENTAL	USGS	4.05	1440	--	746	5.1	56	7.6	219	21.0	
28...	1245	REPLICATE	USGS	4.03	1430	--	746	5.1	56	7.6	219	21.0	
JUN													
10...	1030	ENVIRONMENTAL	USGS	2.14	254	--	747	10.0	122	8.7	343	25.0	
12...	1215	ENVIRONMENTAL	USGS	2.06	219	--	740	12.3	161	9.0	342	29.0	
12...	1220	REPLICATE	VDCLS	2.06	219	4.5	740	12.3	161	9.0	342	29.0	
Date	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ALKA-LINITY WAT FIELD (MG/L AS CACO3) (39086)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)
OCT													
10...	12.8	57.4	20.4	2.94	12.3	202	20.5	E.1	.23	20.9	--	--	--
NOV													
20...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	9.8	--	--	--	--	--	--	--	--	--	--	--	--
DEC													
10...	6.5	--	--	--	--	--	--	--	--	--	--	--	--
JAN													
09...	.6	54.5	18.4	3.53	11.5	178	18.6	E.1	1.14	22.4	--	--	--
FEB													
13...	5.0	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
11...	8.6	--	--	--	--	--	--	--	--	--	--	--	--
22...	8.6	--	--	--	--	--	--	--	--	--	--	--	--
APR													
09...	14.6	27.9	8.09	1.95	5.28	78	8.41	.1	1.15	14.2	--	--	--
22...	15.8	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
15...	16.7	--	--	--	--	--	--	--	--	--	--	--	--
15...	16.7	--	--	--	--	--	--	--	--	--	--	--	--
28...	19.4	--	--	--	--	--	--	--	--	--	--	--	--
28...	19.4	--	--	--	--	--	--	--	--	--	--	--	--
JUN													
10...	24.6	--	--	--	--	--	--	--	--	--	--	--	--
12...	27.5	--	--	--	--	--	--	--	--	--	--	--	--
12...	27.5	--	--	--	--	--	--	3.30	--	5	7	3	--

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L) AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L) AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L) AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L) AS P) (00671)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL (MG/L) AS N) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL (MG/L) AS P) (00667)
OCT													
10...	272	<.04	.26	.30	1.7	--	1.41	<.008	.36	.32	.35	--	--
NOV													
20...	--	E.02	.28	.26	1.3	--	1.01	E.005	.33	.33	.35	--	--
20...	--	E.02	.28	.26	1.3	--	1.01	E.005	.33	.33	.35	--	--
DEC													
10...	--	<.04	.27	.29	2.0	--	1.77	E.007	.54	.52	.54	--	--
JAN													
09...	270	E.02	.17	.19	3.1	--	2.96	E.005	.60	.59	.60	--	--
FEB													
13...	--	<.04	.29	.41	--	--	E1.67	E.018	.56	E.52	.56	--	--
MAR													
11...	--	<.04	.32	.55	2.2	1.80	1.84	.045	.63	.60	.63	--	--
22...	--	.05	.29	.75	1.5	1.20	1.21	.016	.171	.15	.23	--	--
APR													
09...	122	<.04	.26	.36	1.2	.93	.93	.008	.20	.17	.19	--	--
22...	--	.08	.46	1.5	1.3	.81	.83	.016	.21	.19	.55	--	--
MAY													
15...	--	<.04	.20	.26	.83	--	.62	E.004	.102	.09	.114	--	--
15...	--	<.04	.25	.28	.86	--	.62	E.004	.103	.09	.114	--	--
28...	--	.13	.72	1.3	1.9	1.11	1.13	.022	.189	.16	.41	--	--
28...	--	.12	.72	1.3	2.0	1.23	1.26	.025	.189	.15	.41	--	--
JUN													
10...	--	<.04	.29	.39	1.4	1.12	1.14	.018	.23	.21	.22	--	--
12...	--	<.04	.32	.35	1.2	.86	.88	.018	.23	.22	.24	--	--
12...	--	.004	--	--	1.1	.87	.890	.016	.223	.187	--	.05	.014

Date	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L) AS C) (00694)	IRON, DIS- SOLVED (UG/L) AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN) (01056)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT					
10...	--	E8	E1.0	--	.7
NOV					
20...	--	--	--	--	--
20...	--	--	--	--	.9
DEC					
10...	--	--	--	--	1.6
JAN					
09...	--	E6	<2.0	--	2.5
FEB					
13...	--	--	--	87	5.0
MAR					
11...	--	--	--	--	2.4
22...	--	--	--	--	33
APR					
09...	--	39	7.4	73	3.0
22...	--	--	--	64	213
MAY					
15...	--	--	--	64	5.0
15...	--	--	--	--	3.3
28...	--	--	--	97	151
28...	--	--	--	95	145
JUN					
10...	--	--	--	--	8.5
12...	--	--	--	--	10
12...	.6	--	--	--	--

POTOMAC RIVER BASIN

01634500 CEDAR CREEK NEAR WINCHESTER, VA

LOCATION.--Lat 39°04'52", long 78°19'46", NAD83, Frederick County, Hydrologic Unit 02070006, on left bank 0.2 mi upstream from Fawcett Run, 0.3 mi upstream from bridge on State Highway 628, 1.3 mi downstream from Froman Run, and 11.4 mi southwest of Winchester.

DRAINAGE AREA.--103 mi².

PERIOD OF RECORD.--June 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 647.09 ft NGVD of 1929.

REMARKS.--Records good except those for periods with ice effect, Dec. 28 to Jan. 8 and Feb. 4-6, which are fair. Maximum discharge, 22,000 ft³/s, from rating curve extended above 15,000 ft³/s. Minimum discharge, 1.5 ft³/s, result of freezeup. Minimum gage height, 1.04 ft, Feb. 19, 1941, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1936, reached a stage of about 25 ft, discharge, about 18,000 ft³/s, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0730	1,280	5.24	May 27	2300	1,320	5.33
Apr 28	1630	*1,370	*5.43				

**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	9.4	17	13	e10	32	12	169	201	72	18	19	11
2	9.5	17	13	e9.5	25	12	126	348	58	16	17	12
3	9.3	17	12	e9.9	21	23	107	266	47	15	16	12
4	9.0	17	12	e10	e19	26	88	184	49	14	95	11
5	9.1	17	12	e9.8	e16	18	75	160	106	13	36	9.1
6	9.4	16	12	e11	e15	16	66	129	191	11	26	8.5
7	9.3	15	12	e13	18	17	59	119	186	11	20	8.3
8	10	16	13	e12	19	15	52	122	98	11	16	8.1
9	11	16	17	14	19	15	50	168	70	11	14	7.9
10	12	16	16	16	19	15	50	319	56	11	12	7.7
11	13	16	17	24	18	14	43	168	47	13	11	8.0
12	13	16	21	22	17	14	40	135	40	11	10	7.8
13	13	18	18	18	16	17	41	160	42	10	10	7.8
14	15	17	17	15	15	23	46	178	272	86	10	8.3
15	26	16	19	14	15	20	56	126	151	45	11	9.3
16	17	16	17	14	15	18	58	98	91	22	16	12
17	13	16	15	13	15	18	49	82	67	16	13	13
18	13	19	15	13	15	21	46	383	52	15	11	11
19	13	17	15	13	13	27	61	260	48	41	9.9	9.9
20	13	16	14	15	13	390	114	176	41	23	9.1	9.5
21	14	15	13	14	13	265	157	138	35	17	8.1	11
22	13	15	13	15	13	152	795	113	30	14	7.9	45
23	13	15	13	16	13	108	370	95	27	19	7.7	24
24	15	16	15	18	13	83	241	80	24	31	8.4	16
25	15	20	15	26	13	68	187	69	22	24	9.9	12
26	15	51	14	20	13	63	145	152	24	114	8.6	17
27	15	22	13	17	13	144	118	288	32	95	7.9	188
28	16	16	e12	16	13	102	571	355	28	68	8.4	70
29	16	16	e13	16	---	85	484	231	24	42	17	36
30	17	14	e12	15	---	75	273	128	20	30	17	25
31	17	---	e11	24	---	77	---	92	---	23	12	---
TOTAL	413.0	531	444	473.2	459	1953	4737	5523	2050	890	494.9	636.2
MEAN	13.3	17.7	14.3	15.3	16.4	63.0	158	178	68.3	28.7	16.0	21.2
MAX	26	51	21	26	32	390	795	383	272	114	95	188
MIN	9.0	14	11	9.5	13	12	40	69	20	10	7.7	7.7
CFSM	0.13	0.17	0.14	0.15	0.16	0.61	1.53	1.73	0.66	0.28	0.15	0.21
IN.	0.15	0.19	0.16	0.17	0.17	0.71	1.71	1.99	0.74	0.32	0.18	0.23

01634500 CEDAR CREEK NEAR WINCHESTER, VA--Continued

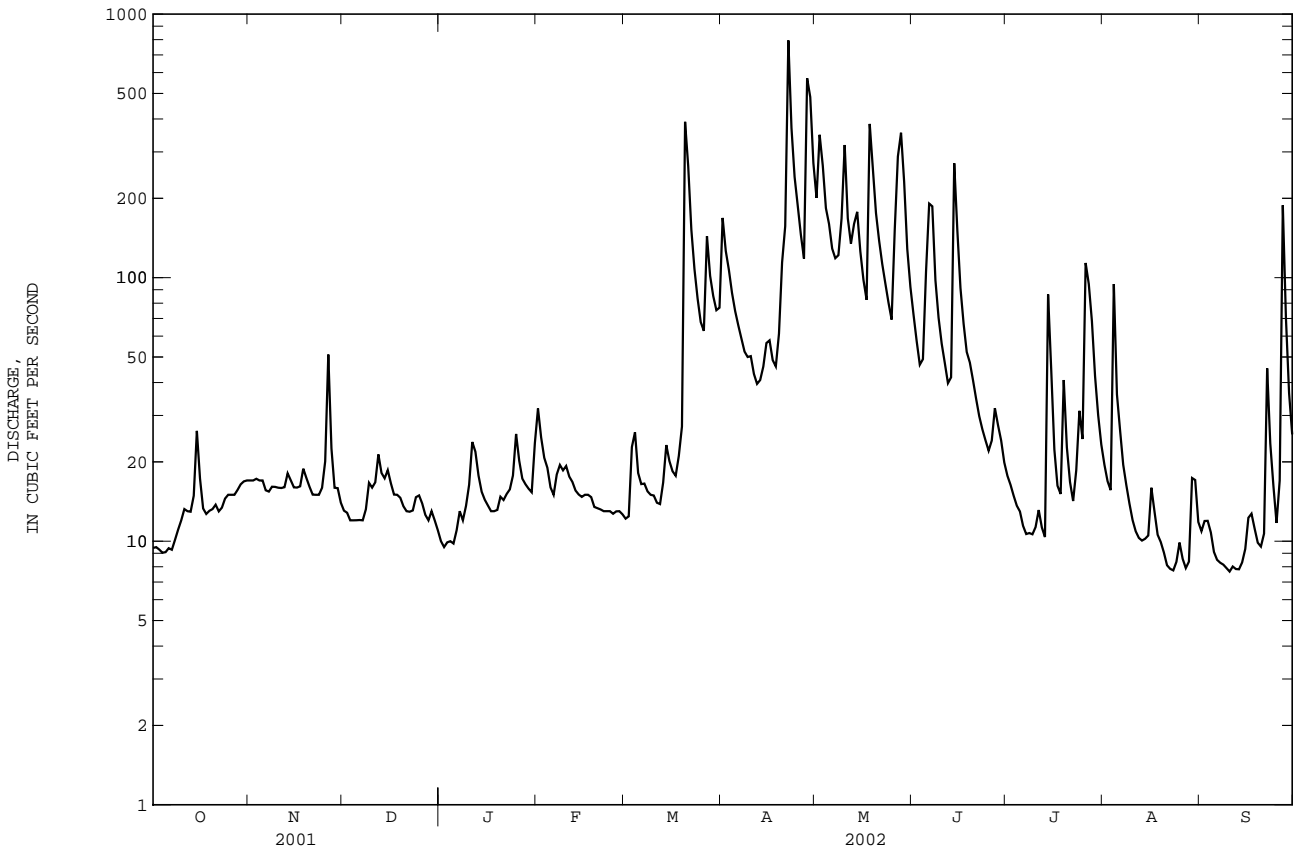
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	59.3	67.2	88.6	111	142	204	172	127	82.4	32.3	38.5	39.3
MAX	777	500	320	545	520	708	600	382	664	181	420	523
(WY)	1943	1986	1973	1996	1998	1993	1983	1988	1972	1978	1955	1996
MIN	6.01	8.64	7.95	10.2	16.4	38.2	37.0	24.5	10.5	6.06	4.52	6.95
(WY)	1964	1966	1966	1966	2002	1981	1947	1969	1969	1966	1957	1986

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1938 - 2002

ANNUAL TOTAL	25501.6		18604.3		96.8	
ANNUAL MEAN	69.9		51.0		214	
HIGHEST ANNUAL MEAN					28.3	
LOWEST ANNUAL MEAN					e13900	
HIGHEST DAILY MEAN	1860	Mar 21	795	Apr 22	2.8	aSep 7 1964
LOWEST DAILY MEAN	7.6	Sep 18	7.7	Aug 23	3.0	bSep 2 1966
ANNUAL SEVEN-DAY MINIMUM	8.1	Sep 13	7.9	Sep 7	c27.00	Oct 15 1942
MAXIMUM PEAK FLOW			1370		22000	
MAXIMUM PEAK STAGE			5.43		Apr 28	
INSTANTANEOUS LOW FLOW			d5.1		Feb 5	
ANNUAL RUNOFF (CFSM)	0.68		0.49		0.94	
ANNUAL RUNOFF (INCHES)	9.21		6.72		12.77	
10 PERCENT EXCEEDS	145		140		207	
50 PERCENT EXCEEDS	27		17		41	
90 PERCENT EXCEEDS	12		10		10	

- a Also Sept. 3, 4, 7, 8, 1966.
- b Also Sept. 3, 1966.
- c From floodmarks.
- d Result of freezeup.
- e Estimated.



POTOMAC RIVER BASIN

01635090 CEDAR CREEK ABOVE HIGHWAY 11 NEAR MIDDLETOWN, VA

LOCATION.--Lat 39°00'24", long 78°18'59", NAD83, Warren County, Hydrologic Unit Code 01070006, on left bank, 5 ft upstream from U.S. Highway 11, 1.5 mi north of Strasburg.

DRAINAGE AREA.--155 mi²..

PERIOD OF RECORD.--November 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 600 ft NGVD of 1929, from topographic map..

REMARKS.--Records fair except for period with ice effect, Dec. 29 to Jan. 6, which is poor.

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	16	29	25	e17	40	20	149	239	94	30	32	20
2	15	29	24	e18	36	20	132	392	77	29	29	20
3	14	29	22	e18	31	25	115	328	65	27	28	21
4	13	28	22	e18	29	39	100	227	62	25	83	20
5	15	27	22	e19	28	30	88	198	91	24	58	18
6	15	27	22	e20	27	25	79	167	233	21	43	15
7	15	27	22	22	29	25	73	151	228	20	35	14
8	14	26	22	22	29	25	68	156	139	20	29	14
9	13	26	24	22	30	23	65	188	99	20	26	14
10	17	26	26	24	28	24	66	389	80	22	24	14
11	18	26	26	29	29	21	59	216	68	22	22	13
12	19	26	28	33	29	21	54	171	60	23	21	11
13	20	26	29	31	27	23	53	177	57	20	21	10
14	25	29	27	27	26	30	59	228	260	75	20	11
15	29	27	27	26	25	28	66	165	199	81	23	12
16	34	26	26	24	25	22	75	133	125	41	23	15
17	23	26	25	24	25	21	65	112	95	31	26	18
18	20	27	24	23	25	23	60	400	76	27	22	18
19	20	26	23	23	25	29	69	323	68	47	21	15
20	24	24	23	24	24	268	115	221	61	43	20	14
21	24	23	22	25	24	255	148	178	54	31	19	20
22	26	23	22	26	23	160	772	149	47	28	17	45
23	26	23	22	26	22	120	415	127	42	25	17	44
24	26	23	24	28	21	96	266	110	39	39	17	29
25	26	27	23	33	21	82	209	95	37	41	19	23
26	27	76	24	34	20	75	170	88	38	85	18	31
27	26	43	21	30	21	129	137	286	43	135	17	184
28	26	30	21	28	20	114	508	430	43	88	17	106
29	27	27	e21	26	---	97	601	255	40	62	22	62
30	28	27	e20	26	---	88	316	160	34	47	31	44
31	28	---	e18	29	---	85	---	117	---	37	23	---
TOTAL	669	859	727	775	739	2043	5152	6576	2654	1266	823	895
MEAN	21.6	28.6	23.5	25.0	26.4	65.9	172	212	88.5	40.8	26.5	29.8
MAX	34	76	29	34	40	268	772	430	260	135	83	184
MIN	13	23	18	17	20	20	53	88	34	20	17	10
CFSM	0.14	0.18	0.15	0.16	0.17	0.43	1.11	1.37	0.57	0.26	0.17	0.19
IN.	0.16	0.21	0.17	0.19	0.18	0.49	1.24	1.58	0.64	0.30	0.20	0.21

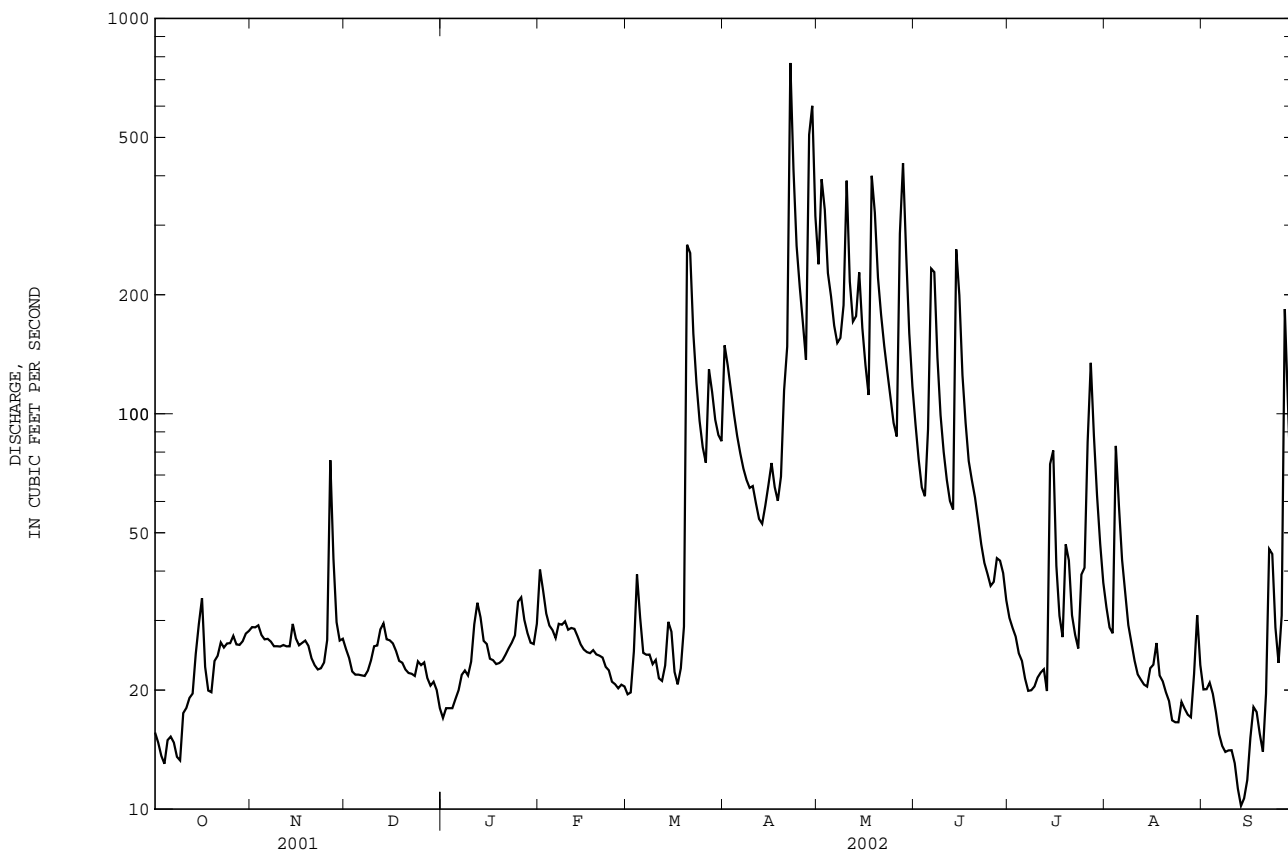
01635090 CEDAR CREEK ABOVE HIGHWAY 11 NEAR MIDDLETOWN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	21.6	28.6	38.1	54.1	60.2	210	206	181	88.5	43.3	39.9	28.1
MAX	21.6	28.6	52.7	83.1	94.1	354	240	212	88.5	45.7	53.2	29.8
(WY)	2002	2002	2001	2001	2001	2001	2001	2002	2001	2001	2001	2002
MIN	21.6	28.6	23.5	25.0	26.4	65.9	172	149	88.5	40.8	26.5	26.3
(WY)	2002	2002	2002	2002	2002	2002	2002	2001	2002	2002	2002	2001

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	36789		23178			
ANNUAL MEAN	101		63.5		63.5	
HIGHEST ANNUAL MEAN					63.5	
LOWEST ANNUAL MEAN					63.5	
HIGHEST DAILY MEAN	2580		772		2580	
LOWEST DAILY MEAN	13		10		10	
ANNUAL SEVEN-DAY MINIMUM	14		12		12	
MAXIMUM PEAK FLOW			1500		7460	
MAXIMUM PEAK STAGE			4.79		9.56	
INSTANTANEOUS LOW FLOW			9.0		9.0	
ANNUAL RUNOFF (CFSM)	0.65		0.41		0.41	
ANNUAL RUNOFF (INCHES)	8.83		5.56		5.57	
10 PERCENT EXCEEDS	184		160		160	
50 PERCENT EXCEEDS	42		27		27	
90 PERCENT EXCEEDS	22		18		18	

e Estimated.



POTOMAC RIVER BASIN

01635500 PASSAGE CREEK NEAR BUCKTON, VA

LOCATION.--Lat 38°57'29", long 78°16'00", NAD83, Warren County, Hydrologic Unit 02070006, on right bank 350 ft upstream from bridge on State Highway 55, 1.2 mi south of Buckton railroad station, 1.4 mi upstream from mouth, and 4.2 mi west of Riverton.

DRAINAGE AREA.--87.8 mi².

PERIOD OF RECORD.--October 1905 to July 1906 (gage heights only), April 1932 to current year. Prior to October 1966 published as "at Buckton."

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 525.14 ft NGVD of 1929. October 1905 to July 1906, nonrecording gage at site 1 mi downstream at different datum. Apr. 4, 1932, to Oct. 7, 1937, nonrecording gage at site 350 ft downstream at different datum.

REMARKS.--Records good except those for periods with ice effect, Dec. 27 to Jan. 9 and Feb. 5, 6, which are fair. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi upstream from station. At a point 14.2 mi upstream from station on Little Passage Creek, there has been a diversion in some years from Strasburg Reservoir, capacity, 54.6 acre-ft, by town of Strasburg for municipal water supply. Maximum discharge, 23,000 ft³/s, from rating curve extended above 5,200 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1230	1,150	6.29	May 27	1500	*1,930	*7.47
Apr 28	2230	1,120	6.23				

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	5.5	6.1	7.0	e5.8	8.5	6.3	40	157	68	11	3.8	4.0
2	5.2	6.3	7.0	e5.5	7.7	6.5	42	135	53	8.7	3.3	3.9
3	5.0	6.5	6.8	e5.6	7.5	8.2	35	111	41	7.5	3.4	3.7
4	4.8	6.4	6.6	e5.8	7.2	15	30	87	35	6.4	3.1	3.5
5	4.6	6.5	6.5	e5.6	e6.8	13	25	78	38	5.7	3.4	2.9
6	4.2	6.2	6.6	e6.7	e6.6	9.6	23	68	92	4.9	5.6	2.6
7	3.8	6.0	6.8	e7.8	7.4	8.7	21	64	51	4.1	4.4	2.5
8	3.5	6.2	7.5	e7.1	8.0	8.0	19	68	35	4.0	3.4	2.4
9	3.3	6.2	8.5	e8.0	8.9	7.7	19	97	27	4.0	2.9	2.3
10	3.9	6.2	9.0	9.6	8.8	7.3	20	225	23	4.2	2.8	1.9
11	4.0	6.1	11	12	8.3	6.9	21	112	22	4.4	2.5	1.7
12	4.7	6.3	18	15	8.1	7.0	18	84	20	4.0	2.4	1.4
13	5.4	6.4	15	13	7.7	8.2	18	77	146	4.2	2.2	1.2
14	4.9	6.5	11	10	7.4	10	19	78	141	9.9	2.2	1.2
15	5.2	6.5	9.6	9.0	7.0	12	23	62	95	15	3.1	1.4
16	5.3	6.6	8.8	8.3	7.0	11	26	49	60	10	8.6	1.7
17	5.3	6.6	8.2	8.0	7.2	9.9	25	42	41	6.7	4.5	1.8
18	6.0	6.5	8.2	7.8	6.7	10	27	90	31	5.3	3.4	1.7
19	5.5	6.5	8.2	8.0	7.8	15	27	99	25	5.4	3.0	2.7
20	5.6	6.5	7.9	9.0	7.7	73	56	67	23	5.2	2.8	2.3
21	5.8	6.6	7.4	8.3	6.7	83	87	57	22	4.4	2.9	3.9
22	5.8	6.5	7.1	8.5	6.6	44	838	48	17	4.1	2.6	21
23	5.7	6.5	7.2	8.8	6.3	30	294	41	14	3.8	2.4	22
24	8.2	6.7	7.7	9.5	6.2	23	163	36	12	3.9	2.5	15
25	5.1	8.3	7.9	9.7	6.0	20	121	31	11	5.8	2.2	7.8
26	5.2	11	8.0	9.9	6.0	20	95	33	10	9.8	2.2	17
27	5.1	10	e6.6	9.4	6.4	44	77	913	9.2	8.0	2.2	124
28	5.3	8.9	e5.6	8.7	6.5	47	404	326	45	9.5	2.5	46
29	5.9	7.6	e7.0	8.3	---	35	610	204	20	9.8	4.1	25
30	5.7	7.2	e6.7	8.3	---	29	231	121	13	6.6	3.8	15
31	5.8	---	e6.2	8.9	---	28	---	88	---	4.6	4.3	---
TOTAL	159.3	206.4	255.6	265.9	203.0	656.3	3454	3748	1240.2	200.9	102.5	343.5
MEAN	5.14	6.88	8.25	8.58	7.25	21.2	115	121	41.3	6.48	3.31	11.4
MAX	8.2	11	18	15	8.9	83	838	913	146	15	8.6	124
MIN	3.3	6.0	5.6	5.5	6.0	6.3	18	31	9.2	3.8	2.2	1.2
CFSM	0.06	0.08	0.09	0.10	0.08	0.24	1.31	1.38	0.47	0.07	0.04	0.13
IN.	0.07	0.09	0.11	0.11	0.09	0.28	1.46	1.59	0.53	0.09	0.04	0.15

01635500 PASSAGE CREEK NEAR BUCKTON, VA--Continued

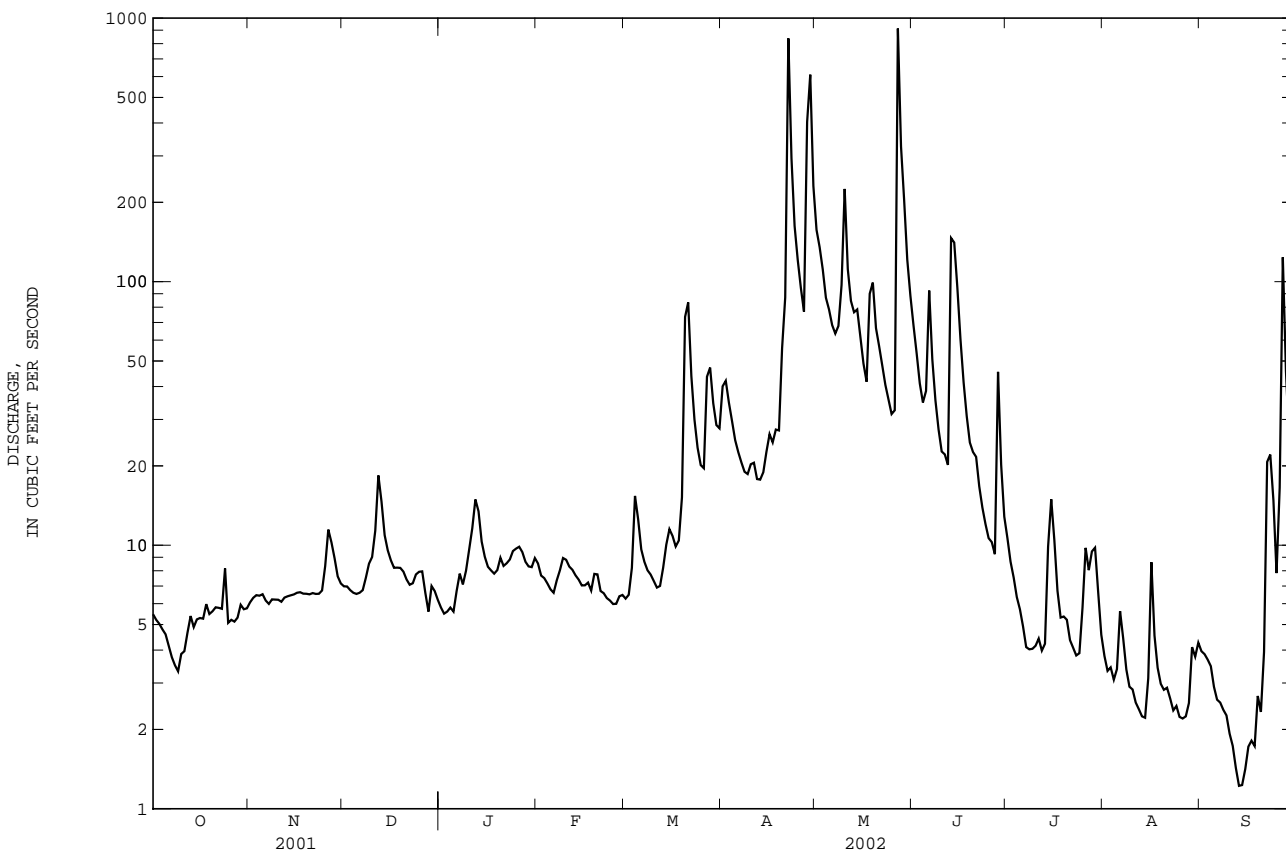
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	38.9	42.0	65.6	96.2	117	155	134	93.6	50.8	17.9	25.0	27.8
MAX	581	276	235	431	506	573	377	339	609	87.3	437	432
(WY)	1943	1986	1973	1996	1998	1994	1952	1989	1972	1941	1955	1996
MIN	2.85	4.48	4.60	6.25	5.79	20.5	20.9	14.6	5.59	1.87	1.94	2.37
(WY)	1964	1966	1966	1966	1934	1959	1981	1963	1999	1934	1963	1936

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1933 - 2002

ANNUAL TOTAL	20021.4		10835.6		71.7		
ANNUAL MEAN	54.9		29.7		20.0		1934
HIGHEST ANNUAL MEAN					161		1996
LOWEST ANNUAL MEAN					20.0		1934
HIGHEST DAILY MEAN	1280	Mar 22	913	May 27	9290	Oct 15	1942
LOWEST DAILY MEAN	3.3	Oct 9	1.2	aSep 13	0.40	Jul 20	1934
ANNUAL SEVEN-DAY MINIMUM	3.9	bOct 5	1.5	cSep 11	0.50	Jul 15	1934
MAXIMUM PEAK FLOW			1930	May 27	23000	Sep 6	1996
MAXIMUM PEAK STAGE			7.47	May 27	15.89	Sep 6	1996
INSTANTANEOUS LOW FLOW			1.2	aSep 13	40.10	Aug 5	1932
ANNUAL RUNOFF (CFSM)	0.62		0.34		0.82		
ANNUAL RUNOFF (INCHES)	8.48		4.59		11.10		
10 PERCENT EXCEEDS	128		68		155		
50 PERCENT EXCEEDS	19		7.8		26		
90 PERCENT EXCEEDS	5.8		3.4		4.4		

- a Also Sept. 14, 2002.
- b Also Oct. 6, 2001.
- c Also Sept. 12, 2002
- d Observed.
- e Estimated.



POTOMAC RIVER BASIN

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 mi².

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 with satellite telemeter. Datum of gage is 293.00 ft above NGVD 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft, discharge, 151,000 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 23	1900	*16,200	*8.54	No other peak greater than base discharge.			

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	569	443	515	e400	519	409	1400	6130	1780	611	562	441
2	537	446	499	385	510	430	1400	4790	1410	585	487	447
3	536	439	495	e370	505	478	1460	4360	1300	498	485	476
4	534	432	486	e360	496	530	1540	3480	1180	489	424	498
5	521	432	483	e350	485	520	1500	2830	1010	460	498	527
6	489	423	475	e340	471	570	1440	2480	1260	414	518	462
7	484	417	463	e400	468	715	1230	2180	1450	394	635	425
8	479	435	477	493	468	757	1200	2010	1230	366	491	396
9	462	448	499	520	477	643	1090	1910	1010	343	522	396
10	422	431	505	509	483	597	1060	2380	951	340	441	370
11	422	418	501	551	496	571	1020	3100	800	328	391	395
12	433	421	516	534	507	539	968	2830	746	315	393	375
13	424	416	571	525	514	554	941	2540	729	321	384	362
14	437	413	608	519	475	597	969	2320	929	423	371	357
15	452	425	760	519	486	593	994	2150	1340	530	372	354
16	456	445	734	510	472	599	991	1920	1270	612	367	308
17	465	453	647	494	466	619	982	1690	1110	543	354	357
18	476	448	625	475	459	673	907	1660	902	467	379	383
19	469	447	590	479	454	720	991	2000	783	482	377	372
20	476	430	542	476	448	833	1100	2010	716	506	374	404
21	474	421	531	484	450	1360	1310	1850	659	455	351	401
22	455	437	518	483	447	2490	2680	1610	642	441	339	403
23	445	448	512	480	447	2190	13500	1440	643	401	319	446
24	449	451	e490	499	445	1820	12100	1260	591	408	338	925
25	447	486	e470	500	445	1750	7590	1200	568	408	310	724
26	440	531	e460	508	439	1530	5410	1100	521	501	302	635
27	429	517	e450	509	430	1510	4130	1280	508	522	324	760
28	425	522	e440	509	418	1480	3520	4210	505	588	360	1820
29	423	522	e430	513	---	1510	5600	3220	545	667	418	1820
30	419	530	e420	511	---	1510	7530	2360	678	618	417	1690
31	426	---	e410	527	---	1460	---	2200	---	589	436	---
TOTAL	14375	13527	16122	14732	13180	30557	86553	76500	27766	14625	12739	17729
MEAN	463.7	450.9	520.1	475.2	470.7	985.7	2885	2468	925.5	471.8	410.9	591.0
MAX	569	531	760	551	519	2490	13500	6130	1780	667	635	1820
MIN	419	413	410	340	418	409	907	1100	505	315	302	308
CFSM	0.15	0.15	0.17	0.16	0.16	0.33	0.95	0.82	0.31	0.16	0.14	0.20
IN.	0.18	0.17	0.20	0.18	0.16	0.38	1.07	0.94	0.34	0.18	0.16	0.22

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

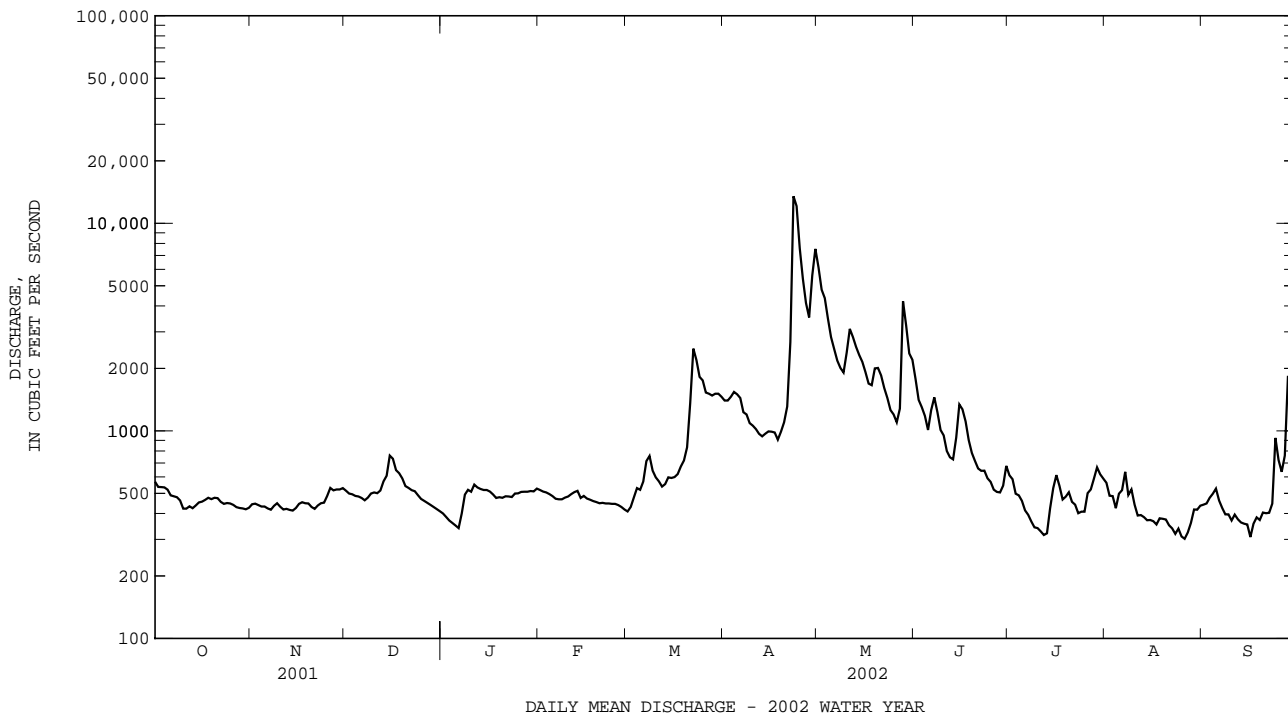
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1932	1837	2454	3202	3878	5001	4347	3320	2378	1429	1614	1460
MAX	16250	13350	8164	13470	18100	17540	12840	8701	10380	4809	10390	14780
(WY)	1943	1986	1973	1996	1998	1936	1901	1901	1972	1972	1955	1996
MIN	343	388	410	475	471	929	992	1001	643	402	388	411
(WY)	1931	1932	1966	2002	2002	1931	1981	1969	1999	1966	1930	1963

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1895 - 2002

ANNUAL TOTAL	639093		338405			
ANNUAL MEAN	1751		927.1		2731	
HIGHEST ANNUAL MEAN					5618	
LOWEST ANNUAL MEAN					927	
HIGHEST DAILY MEAN	19400		Mar 23		13500	
LOWEST DAILY MEAN	(e)410		Dec 31		302	
ANNUAL SEVEN-DAY MINIMUM	424		Nov 10		326	
MAXIMUM PEAK FLOW					16200	
MAXIMUM PEAK STAGE					8.54	
INSTANTANEOUS LOW FLOW					275	
ANNUAL RUNOFF (CFSM)	0.58				0.31	
ANNUAL RUNOFF (INCHES)	7.87				4.17	
10 PERCENT EXCEEDS	3920				1820	
50 PERCENT EXCEEDS	1140				505	
90 PERCENT EXCEEDS	448				389	
					230000	
					(a)32.40	
					59	
					192000	
					240	
					194	
					240	
					194	
					1942	
					1930	
					1966	
					1942	
					1942	
					1930	

a From floodmarks.
e Estimated.



POTOMAC RIVER BASIN

01636690 PINEY RUN NEAR LOVETTSVILLE, VA

LOCATION.--Lat 39°18'39", long 77°43'07", NAD83, Loudoun County, Hydrologic Unit 02070008, on right bank 100 ft downstream from State Highway 671, 0.2 mi south of Loudoun Heights, and 1.3 mi upstream from mouth.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water stage recorder. Elevation of gage is 400 ft NVGD of 1929, from topographic map.

REMARKS.--Records good except those for period with ice effect, Jan. 3-5, and period of no gage-height record, Feb. 27 to Mar. 4, which are fair.

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	0.91	1.1	1.3	0.95	4.1	e1.2	8.7	5.8	2.5	0.73	0.24	0.53
2	0.74	1.0	1.1	0.98	2.9	e1.4	6.0	21	2.2	0.64	0.20	0.59
3	0.65	1.0	1.0	e1.0	2.2	e8.0	5.2	11	1.8	0.54	0.14	0.43
4	0.60	1.4	0.98	e1.1	2.2	e4.6	4.4	6.9	1.8	0.47	0.12	0.33
5	0.54	0.94	0.98	e1.1	1.9	3.3	4.3	6.4	1.9	0.41	0.13	0.25
6	0.54	0.90	0.93	1.4	1.7	2.9	3.9	5.5	2.0	0.33	0.24	0.22
7	0.54	0.90	0.92	2.1	2.0	2.7	3.6	5.1	2.3	0.28	0.15	0.21
8	0.54	0.90	1.3	2.2	2.1	2.4	3.4	4.8	1.8	0.31	0.11	0.17
9	0.56	0.91	2.6	2.0	1.9	2.3	3.5	5.1	1.6	0.37	0.09	0.16
10	0.64	0.90	1.8	2.2	1.7	2.3	3.9	6.4	1.3	0.89	0.09	0.15
11	0.71	0.86	2.2	3.6	2.5	1.9	3.6	4.1	1.2	0.64	0.09	0.16
12	0.73	0.82	2.1	3.1	2.1	1.8	3.2	3.7	1.1	0.44	0.09	0.12
13	0.69	0.81	1.8	1.9	1.9	3.3	3.4	8.3	2.8	0.40	0.09	0.09
14	0.93	0.82	1.9	1.5	1.6	4.2	3.7	7.2	15	2.8	0.09	0.09
15	2.5	0.85	1.8	1.4	1.5	3.1	9.0	4.4	9.4	1.9	0.06	0.13
16	0.95	0.86	1.5	1.2	1.7	2.7	5.9	3.6	3.9	1.0	0.07	0.28
17	0.95	1.5	1.4	1.1	1.7	2.5	4.1	3.4	2.7	0.69	0.07	0.28
18	1.1	0.96	1.8	1.1	1.5	3.9	3.6	14	2.1	0.53	0.05	0.31
19	0.88	0.75	1.6	1.2	1.4	3.9	3.2	8.0	1.8	0.63	0.04	0.29
20	0.81	0.87	1.4	1.5	1.5	28	3.2	5.1	1.6	0.90	0.04	0.32
21	0.82	0.82	1.2	1.4	1.5	14	3.1	4.3	1.4	0.59	0.04	0.35
22	0.91	0.81	1.1	1.6	1.4	7.5	5.5	3.8	1.2	0.44	0.03	0.85
23	0.90	0.77	1.1	1.9	1.5	5.8	4.4	3.5	1.1	0.78	0.03	2.3
24	0.88	0.87	1.7	5.6	1.5	4.9	3.3	3.2	1.1	1.4	0.74	0.59
25	0.84	4.9	1.5	5.2	1.3	4.5	3.2	3.2	0.96	0.94	0.25	0.43
26	0.89	6.6	1.4	3.2	1.3	6.8	3.1	3.1	0.98	5.4	0.14	2.4
27	1.0	2.3	1.5	2.5	e1.4	20	2.8	6.5	1.2	3.7	0.11	6.4
28	0.96	1.5	1.5	2.2	e1.3	8.3	20	7.3	1.2	1.4	0.56	3.6
29	1.1	1.3	1.4	2.1	---	6.3	17	4.5	1.0	0.80	1.2	1.8
30	1.1	1.3	1.1	2.0	---	5.3	7.8	3.5	0.84	0.48	0.48	1.2
31	1.1	---	1.0	4.2	---	6.3	---	3.0	---	0.32	0.37	---
TOTAL	27.01	40.22	44.91	64.53	51.3	176.1	160.0	185.7	71.78	31.15	6.15	25.03
MEAN	0.87	1.34	1.45	2.08	1.83	5.68	5.33	5.99	2.39	1.00	0.20	0.83
MAX	2.5	6.6	2.6	5.6	4.1	28	20	21	15	5.4	1.2	6.4
MIN	0.54	0.75	0.92	0.95	1.3	1.2	2.8	3.0	0.84	0.28	0.03	0.09
CFSM	0.06	0.10	0.11	0.15	0.13	0.41	0.39	0.44	0.17	0.07	0.01	0.06
IN.	0.07	0.11	0.12	0.18	0.14	0.48	0.43	0.50	0.19	0.08	0.02	0.07

01636690 PINEY RUN NEAR LOVETTSVILLE, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	0.87	1.34	1.45	2.08	1.83	5.68	5.33	5.99	2.39	1.00	0.20	0.83
MAX	0.87	1.34	1.45	2.08	1.83	5.68	5.33	5.99	2.39	1.00	0.20	0.83
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002
MIN	0.87	1.34	1.45	2.08	1.83	5.68	5.33	5.99	2.39	1.00	0.20	0.83
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

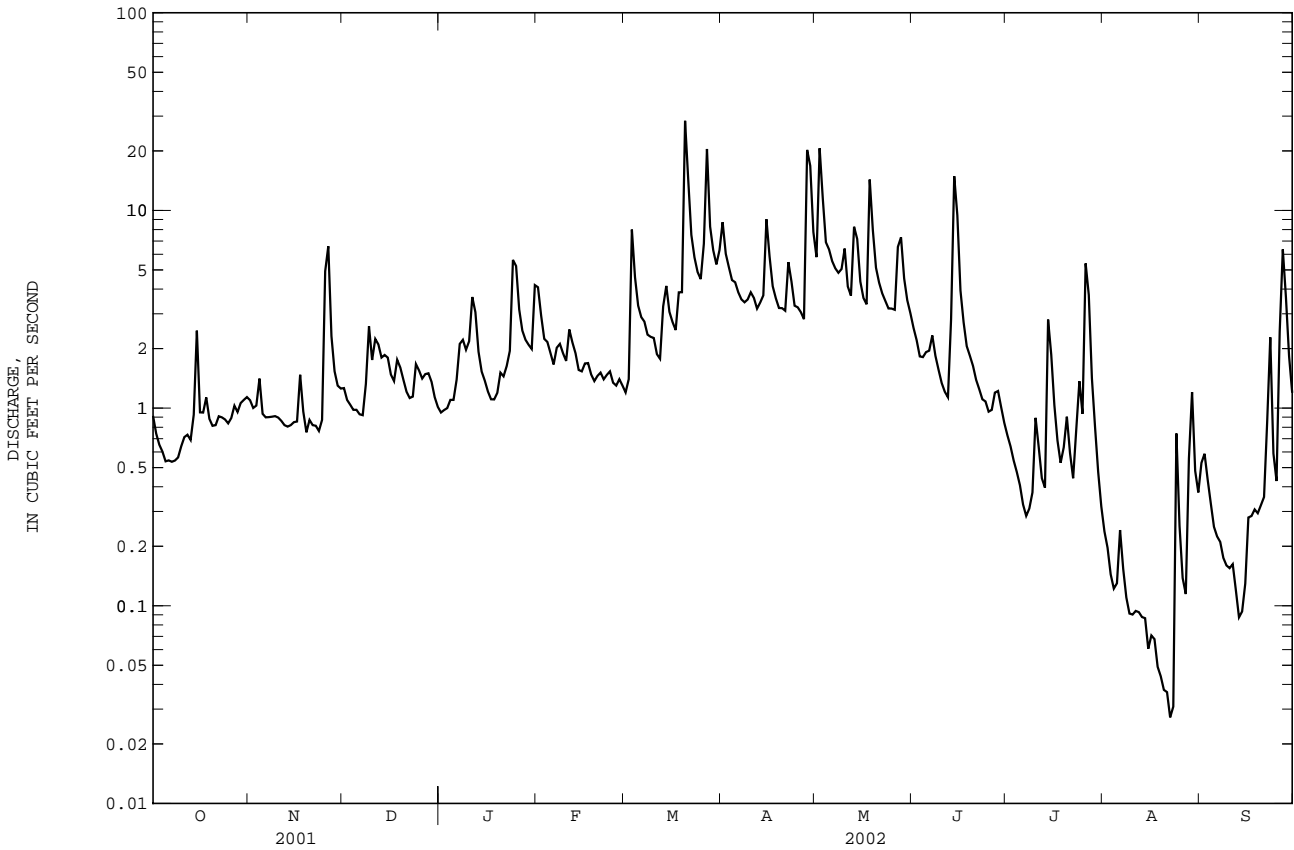
SUMMARY STATISTICS

FOR 2002 WATER YEAR

ANNUAL TOTAL	883.88
ANNUAL MEAN	2.42
HIGHEST DAILY MEAN	28 Mar 20
LOWEST DAILY MEAN	0.03 aAug 22
ANNUAL SEVEN-DAY MINIMUM	0.04 Aug 17
MAXIMUM PEAK FLOW	65 Mar 20
MAXIMUM PEAK STAGE	2.26 Mar 20
INSTANTANEOUS LOW FLOW	0.02 aAug 22
ANNUAL RUNOFF (CFSM)	0.18
ANNUAL RUNOFF (INCHES)	2.40
10 PERCENT EXCEEDS	5.4
50 PERCENT EXCEEDS	1.4
90 PERCENT EXCEEDS	0.25

a Also Aug. 23, 2002.

e Estimated.



POTOMAC RIVER BASIN

01638350 SOUTH FORK CATOCTIN CREEK AT ROUTE 698 NEAR WATERFORD, VA

LOCATION.--Lat 39°11'28", long 77°36'56", NAD83, Loudoun County, Hydrologic Unit 02070008, on right bank 50 ft downstream from State Highway 698 and 0.25 mi northwest of Waterford.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--July 2001 to current year.

GAGE.--Water stage recorder. Elevation of gage is 335 ft NVGD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good.

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	---	---	---	---	---	---	---	---	---	60	7.6	4.1
2	---	---	---	---	---	---	---	---	---	30	6.0	3.5
3	---	---	---	---	---	---	---	---	---	18	5.3	3.2
4	---	---	---	---	---	---	---	---	---	194	5.5	3.4
5	---	---	---	---	---	---	---	---	---	164	5.2	3.3
6	---	---	---	---	---	---	---	---	---	58	4.7	2.7
7	---	---	---	---	---	---	---	---	---	37	4.2	2.6
8	---	---	---	---	---	---	---	---	---	47	3.7	2.5
9	---	---	---	---	---	---	---	---	---	44	3.5	2.9
10	---	---	---	---	---	---	---	---	---	28	3.1	3.3
11	---	---	---	---	---	---	---	---	---	22	85	6.1
12	---	---	---	---	---	---	---	---	---	19	93	3.0
13	---	---	---	---	---	---	---	---	---	16	49	2.5
14	---	---	---	---	---	---	---	---	---	14	22	2.3
15	---	---	---	---	---	---	---	---	---	12	14	2.3
16	---	---	---	---	---	---	---	---	---	12	11	2.2
17	---	---	---	---	---	---	---	---	---	10	9.3	2.1
18	---	---	---	---	---	---	---	---	---	26	8.3	2.2
19	---	---	---	---	---	---	---	---	---	22	7.9	2.0
20	---	---	---	---	---	---	---	---	---	13	15	2.3
21	---	---	---	---	---	---	---	---	---	10	8.9	20
22	---	---	---	---	---	---	---	---	---	9.2	6.6	4.3
23	---	---	---	---	---	---	---	---	---	8.2	6.3	3.0
24	---	---	---	---	---	---	---	---	---	7.5	7.6	195
25	---	---	---	---	---	---	---	---	---	6.6	6.3	161
26	---	---	---	---	---	---	---	---	---	6.3	5.4	26
27	---	---	---	---	---	---	---	---	---	6.4	4.9	16
28	---	---	---	---	---	---	---	---	---	5.5	4.6	12
29	---	---	---	---	---	---	---	---	---	10	4.2	10
30	---	---	---	---	---	---	---	---	---	18	4.1	8.8
31	---	---	---	---	---	---	---	---	---	10	4.1	---
TOTAL	---	---	---	---	---	---	---	---	---	943.7	426.3	514.6
MEAN	---	---	---	---	---	---	---	---	---	30.4	13.8	17.2
MAX	---	---	---	---	---	---	---	---	---	194	93	195
MIN	---	---	---	---	---	---	---	---	---	5.5	3.1	2.0

01638350 SOUTH FORK CATOCTIN CREEK AT ROUTE 698 NEAR WATERFORD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2001, BY WATER YEAR (WY)

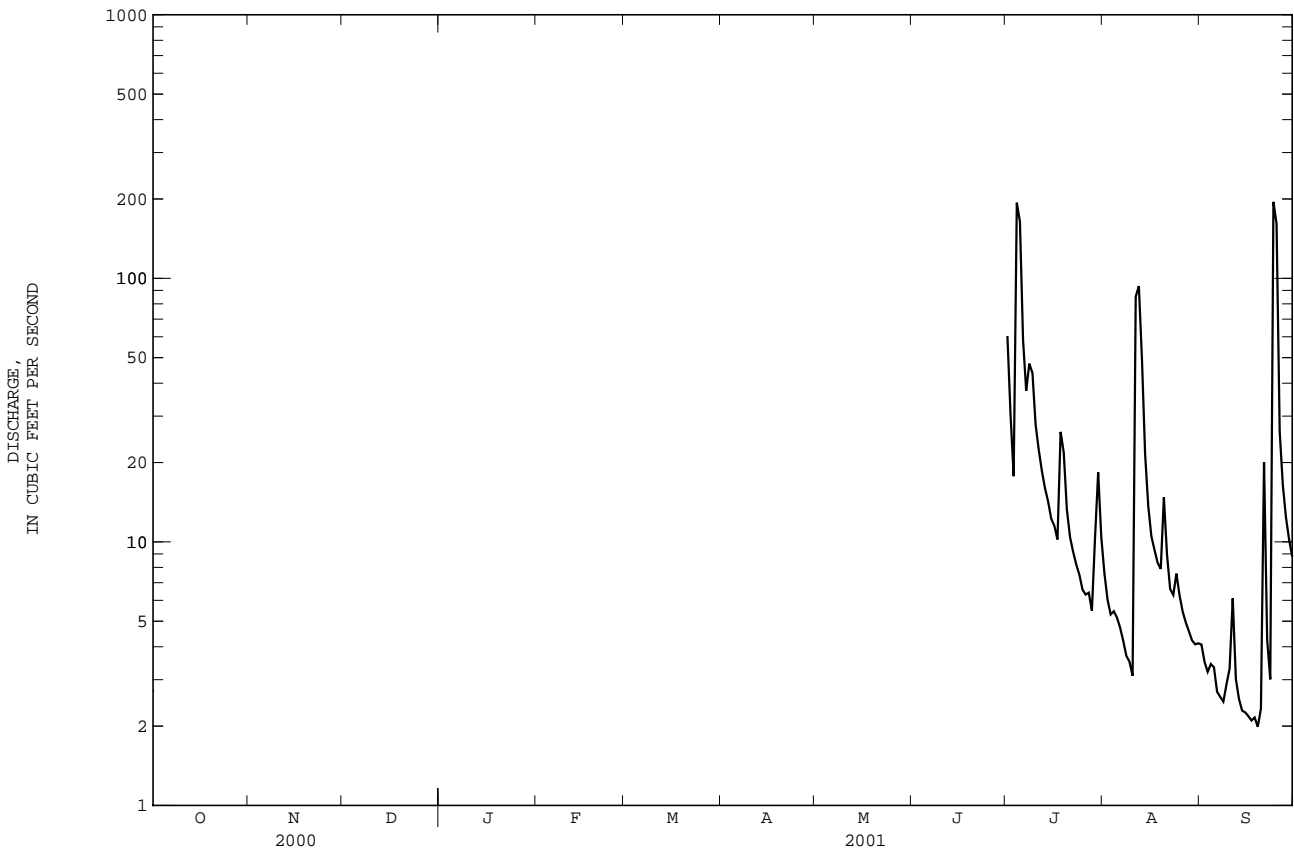
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	---	---	30.4	13.8	17.2
MAX	---	---	---	---	---	---	---	---	---	30.4	13.8	17.2
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001
MIN	---	---	---	---	---	---	---	---	---	30.4	13.8	17.2
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 WATER YEAR

ANNUAL TOTAL	1884.6
ANNUAL MEAN	20.5
HIGHEST DAILY MEAN	195 Sep 24
LOWEST DAILY MEAN	2.0 Sep 19
ANNUAL SEVEN-DAY MINIMUM	2.2 Sep 14
MAXIMUM PEAK FLOW	857 Sep 25
MAXIMUM PEAK STAGE	8.46 Sep 25
INSTANTANEOUS LOW FLOW	1.9 aSep 19
10 PERCENT EXCEEDS	48
50 PERCENT EXCEEDS	7.6
90 PERCENT EXCEEDS	2.5

a Also Sept. 20, 2001.



POTOMAC RIVER BASIN

01638350 SOUTH FORK CATOCTIN CREEK AT ROUTE 698 NEAR WATERFORD, VA--Continued

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	8.1	3.6	5.3	3.8	11	4.0	28	20	16	3.4	1.9	7.0
2	7.0	3.9	4.7	3.7	9.0	4.4	20	36	13	3.2	1.6	4.0
3	6.1	3.8	4.4	4.0	7.6	32	17	26	11	2.9	1.5	2.3
4	5.4	6.1	4.3	4.0	7.5	15	15	17	9.5	2.6	1.4	1.6
5	5.1	3.7	4.2	3.9	6.2	9.6	13	17	9.8	2.4	1.5	1.1
6	4.8	3.1	4.0	4.5	6.1	8.4	13	15	15	2.3	8.3	0.86
7	4.0	3.0	4.0	6.5	6.9	7.8	12	14	20	2.0	2.7	0.65
8	3.9	3.1	5.2	6.8	7.3	7.1	11	14	10	1.9	1.7	0.58
9	3.7	3.0	10	5.8	6.4	6.9	12	13	8.5	2.3	1.4	0.52
10	3.9	3.1	7.0	5.9	6.1	7.7	12	14	7.3	3.2	1.2	0.44
11	4.0	2.9	9.0	8.9	7.5	6.3	11	11	6.1	2.5	1.0	0.31
12	4.0	2.9	8.6	8.5	7.0	6.0	9.9	9.1	5.5	1.9	0.96	0.18
13	4.0	2.9	7.9	6.9	6.7	10	10	9.8	9.1	1.7	0.83	0.11
14	4.9	2.9	8.0	5.9	5.7	14	11	8.6	63	70	0.80	0.07
15	22	3.0	8.0	5.6	5.6	11	13	7.3	171	22	0.60	0.14
16	7.3	3.1	6.4	5.2	5.7	9.4	11	6.5	40	6.7	0.70	0.25
17	6.7	3.3	6.2	5.1	5.6	8.8	9.4	6.3	22	3.8	0.75	0.33
18	5.1	2.9	9.0	4.6	5.1	13	8.4	23	15	2.8	0.71	0.22
19	4.7	3.1	7.1	4.8	4.9	13	8.1	15	14	2.9	0.60	0.17
20	4.6	3.7	5.7	5.6	5.1	127	16	8.5	13	2.6	0.44	0.08
21	4.4	3.1	5.1	5.4	5.3	66	9.9	7.3	9.8	2.3	0.36	0.31
22	4.2	2.7	4.9	6.0	5.1	37	28	6.5	8.1	2.0	0.26	25
23	4.3	3.2	4.8	6.7	4.7	29	15	5.9	7.0	1.8	0.22	60
24	4.1	3.1	6.0	9.3	4.5	24	11	5.6	6.3	2.9	0.41	2.9
25	4.2	19	5.3	12	4.9	21	10	5.2	5.5	2.6	0.33	0.80
26	3.7	29	5.0	9.1	4.7	24	11	48	5.0	20	0.35	11
27	3.9	8.9	4.8	7.7	4.6	67	8.4	176	4.9	17	0.33	73
28	3.4	6.6	4.6	7.2	4.1	32	79	60	5.4	11	1.5	32
29	3.3	5.7	4.6	6.8	---	25	53	34	5.5	5.2	22	6.3
30	3.5	5.5	4.1	6.7	---	22	26	31	4.3	3.2	4.9	2.8
31	3.6	---	4.0	9.8	---	22	---	21	---	2.3	2.2	---
TOTAL	161.9	153.9	182.2	196.7	170.9	690.4	512.1	691.6	540.6	213.4	63.45	235.02
MEAN	5.22	5.13	5.88	6.35	6.10	22.3	17.1	22.3	18.0	6.88	2.05	7.83
MAX	22	29	10	12	11	127	79	176	171	70	22	73
MIN	3.3	2.7	4.0	3.7	4.1	4.0	8.1	5.2	4.3	1.7	0.22	0.07

01638350 SOUTH FORK CATOCTIN CREEK AT ROUTE 698 NEAR WATERFORD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

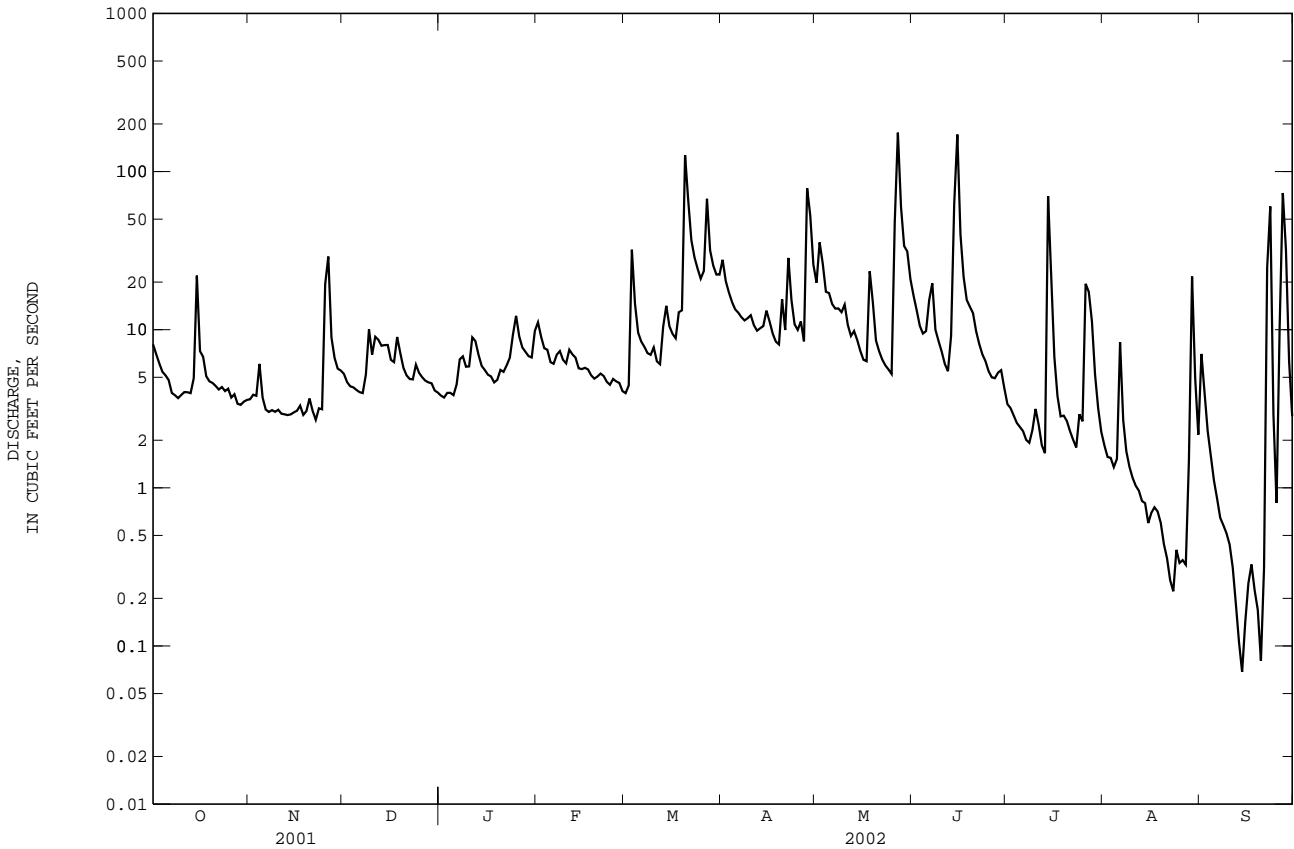
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5.22	5.13	5.88	6.35	6.10	22.3	17.1	22.3	18.0	18.7	7.90	12.5
MAX	5.22	5.13	5.88	6.35	6.10	22.3	17.1	22.3	18.0	30.4	13.8	17.2
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001	2001
MIN	5.22	5.13	5.88	6.35	6.10	22.3	17.1	22.3	18.0	6.88	2.05	7.83
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

SUMMARY STATISTICS

FOR 2002 WATER YEAR

WATER YEARS 2001 - 2002

ANNUAL TOTAL	3812.17		
ANNUAL MEAN	10.4	10.4	
HIGHEST ANNUAL MEAN		10.4	2002
LOWEST ANNUAL MEAN		10.4	2002
HIGHEST DAILY MEAN	176	May 27	195
LOWEST DAILY MEAN	0.07	Sep 14	0.07
ANNUAL SEVEN-DAY MINIMUM	0.18	Sep 14	0.18
MAXIMUM PEAK FLOW	418	Jun 15	857
MAXIMUM PEAK STAGE	5.35	Jun 15	8.46
INSTANTANEOUS LOW FLOW	0.01	Sep 20	0.01
10 PERCENT EXCEEDS	22		22
50 PERCENT EXCEEDS	5.7		5.7
90 PERCENT EXCEEDS	1.3		1.3



POTOMAC RIVER BASIN

01638420 NORTH FORK CATOCTIN CREEK AT ROUTE 681 NEAR WATERFORD, VA

LOCATION.--Lat 39°12'18", long 77°37'26", NAD83, Loudoun County, Hydrologic Unit 02070008, on left bank 2 ft downstream from State Highway 681 and 2.2 mi northeast of Waterford.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--July 2001 to current year.

GAGE.--Water stage recorder. Elevation of gage is 330 ft NVGD of 1929, from topographic map.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Sept. 14-20, 2001 and Feb. 26 to Mar. 2, 2002, which are fair.

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	---	---	---	---	---	---	---	---	---	---	4.5	1.8
2	---	---	---	---	---	---	---	---	---	---	3.5	1.8
3	---	---	---	---	---	---	---	---	---	---	3.1	1.3
4	---	---	---	---	---	---	---	---	---	---	3.0	1.1
5	---	---	---	---	---	---	---	---	---	---	3.1	1.2
6	---	---	---	---	---	---	---	---	---	---	2.9	1.1
7	---	---	---	---	---	---	---	---	---	---	2.9	0.90
8	---	---	---	---	---	---	---	---	---	---	2.3	0.76
9	---	---	---	---	---	---	---	---	---	---	2.1	0.67
10	---	---	---	---	---	---	---	---	---	---	1.8	0.72
11	---	---	---	---	---	---	---	---	---	---	4.1	0.91
12	---	---	---	---	---	---	---	---	---	---	19	0.75
13	---	---	---	---	---	---	---	---	---	---	17	0.70
14	---	---	---	---	---	---	---	---	---	---	12	e0.69
15	---	---	---	---	---	---	---	---	---	---	6.3	e0.66
16	---	---	---	---	---	---	---	---	---	---	3.8	e0.60
17	---	---	---	---	---	---	---	---	---	---	3.4	e0.58
18	---	---	---	---	---	---	---	---	---	---	2.9	e0.56
19	---	---	---	---	---	---	---	---	---	---	2.8	e0.54
20	---	---	---	---	---	---	---	---	---	6.3	3.8	e0.68
21	---	---	---	---	---	---	---	---	---	5.4	3.4	1.0
22	---	---	---	---	---	---	---	---	---	5.6	2.4	1.6
23	---	---	---	---	---	---	---	---	---	4.6	2.0	1.3
24	---	---	---	---	---	---	---	---	---	4.2	3.2	35
25	---	---	---	---	---	---	---	---	---	3.5	3.2	19
26	---	---	---	---	---	---	---	---	---	3.3	2.2	5.1
27	---	---	---	---	---	---	---	---	---	3.6	1.9	2.3
28	---	---	---	---	---	---	---	---	---	3.2	1.7	1.7
29	---	---	---	---	---	---	---	---	---	4.4	1.6	1.7
30	---	---	---	---	---	---	---	---	---	8.6	1.4	1.4
31	---	---	---	---	---	---	---	---	---	5.8	1.5	---
TOTAL	---	---	---	---	---	---	---	---	---	58.5	128.8	88.12
MEAN	---	---	---	---	---	---	---	---	---	4.88	4.15	2.94
MAX	---	---	---	---	---	---	---	---	---	8.6	19	35
MIN	---	---	---	---	---	---	---	---	---	3.2	1.4	0.54

01638420 NORTH FORK CATOCTIN CREEK AT ROUTE 681 NEAR WATERFORD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2001, BY WATER YEAR (WY)

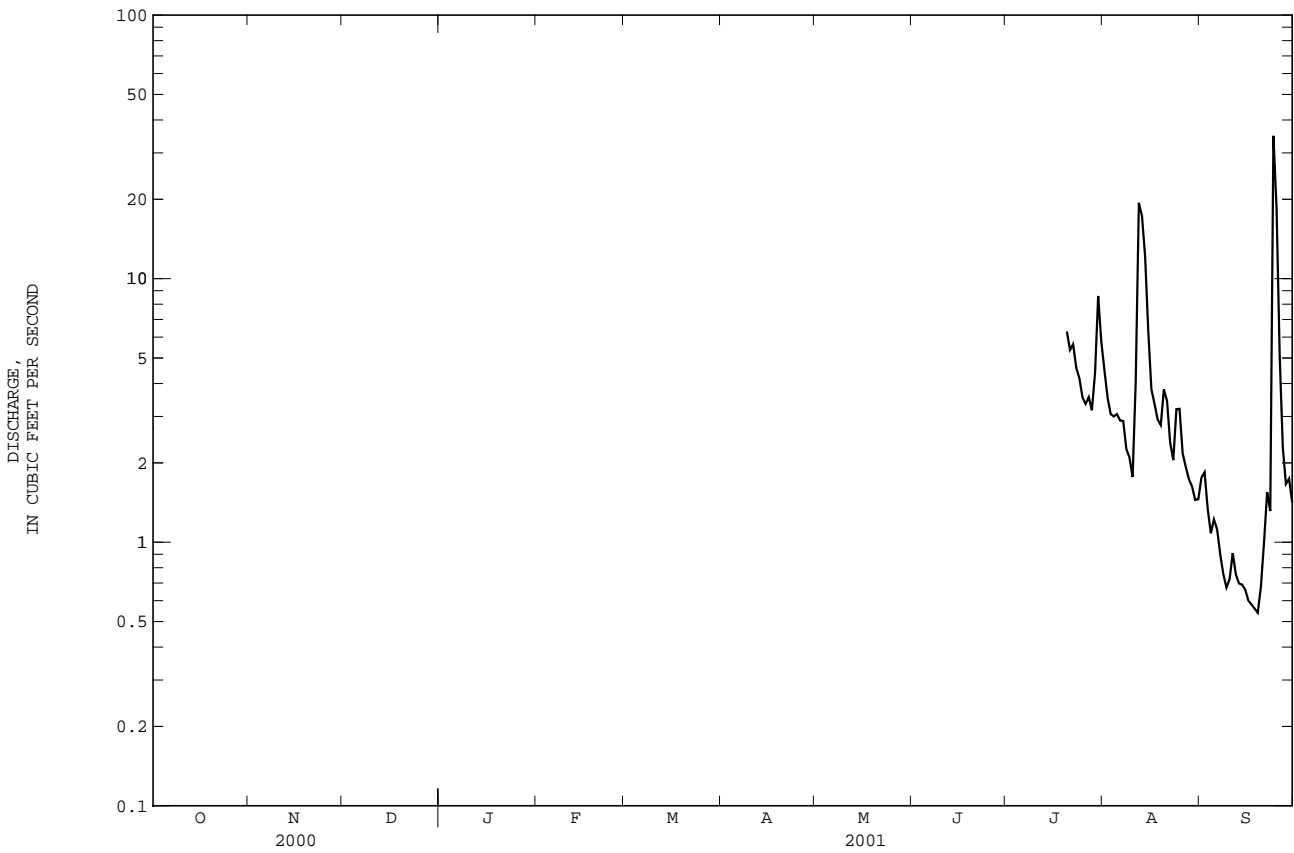
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	---	---	4.88	4.15	2.94
MAX	---	---	---	---	---	---	---	---	---	4.88	4.15	2.94
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001
MIN	---	---	---	---	---	---	---	---	---	4.88	4.15	2.94
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 WATER YEAR

ANNUAL TOTAL	275.42
ANNUAL MEAN	3.77
HIGHEST DAILY MEAN	35 Sep 24
LOWEST DAILY MEAN	0.54 Sep 19
ANNUAL SEVEN-DAY MINIMUM	0.62 Sep 14
MAXIMUM PEAK FLOW	190 Sep 24
MAXIMUM PEAK STAGE	5.40 Sep 24
10 PERCENT EXCEEDS	6.3
50 PERCENT EXCEEDS	2.3
90 PERCENT EXCEEDS	0.68

e Estimated.



POTOMAC RIVER BASIN

01638420 NORTH FORK CATOCTIN CREEK AT ROUTE 681 NEAR WATERFORD, VA--Continued

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	1.4	0.99	1.8	1.5	4.9	e2.0	13	8.9	5.6	1.3	0.36	0.33
2	1.4	1.0	1.9	1.5	3.9	e2.2	9.4	15	4.9	1.3	0.22	0.41
3	1.3	2.2	1.4	1.6	2.8	14	7.9	18	4.1	1.3	0.17	0.28
4	1.2	1.4	1.4	1.6	2.6	9.3	6.8	10	3.6	0.94	0.10	0.16
5	1.1	0.86	1.3	1.6	2.2	5.7	6.2	9.1	3.7	1.2	0.07	0.10
6	1.1	0.86	1.4	1.7	2.4	5.0	5.9	8.2	3.7	1.3	0.12	0.02
7	0.95	0.93	1.3	2.5	2.5	4.6	5.5	7.6	4.4	0.90	0.11	0.00
8	0.77	1.0	1.7	2.6	2.8	4.3	5.1	7.6	4.2	0.52	0.02	0.00
9	0.57	1.2	3.3	2.8	2.8	4.0	5.3	7.3	3.5	0.52	0.00	0.00
10	0.61	0.99	2.8	2.7	2.4	4.2	5.9	9.1	2.9	0.70	0.00	0.00
11	0.99	1.2	2.7	3.6	2.8	3.8	5.1	7.0	2.7	0.54	0.00	0.00
12	0.99	1.0	3.6	4.1	3.0	3.5	4.5	6.0	2.4	0.66	0.00	0.00
13	1.3	1.2	2.9	3.1	2.6	5.2	4.6	5.9	3.0	0.77	0.00	0.00
14	2.1	0.98	2.8	2.6	2.4	9.0	5.1	6.1	8.3	6.3	0.00	0.00
15	4.6	0.93	3.0	2.3	2.3	6.9	9.8	4.9	28	8.5	0.00	0.00
16	1.8	1.1	2.7	2.1	2.3	5.9	7.7	4.2	18	2.5	0.00	0.00
17	0.85	1.1	2.3	2.1	2.4	7.4	5.6	4.3	8.4	1.4	0.00	0.00
18	1.3	1.2	2.7	1.9	2.3	7.0	4.8	8.5	4.5	1.0	0.00	0.00
19	1.4	1.2	2.9	1.9	2.2	8.3	4.3	9.8	3.8	0.89	0.00	0.00
20	1.1	1.2	2.4	2.1	2.3	39	4.4	5.8	3.8	0.80	0.00	0.00
21	0.91	1.2	2.1	2.2	2.5	35	4.5	4.8	3.2	0.75	0.00	0.07
22	0.95	1.3	2.0	2.5	2.5	15	8.5	4.3	2.6	0.67	0.00	1.4
23	1.1	1.4	2.0	2.6	2.4	11	7.3	4.1	2.2	0.63	0.00	6.1
24	1.3	1.2	2.4	3.6	2.2	9.5	4.9	3.9	1.9	0.78	0.00	1.2
25	0.88	4.3	2.3	6.1	2.3	8.1	4.6	3.5	1.8	1.2	0.00	0.50
26	1.1	16	2.3	3.6	e2.3	8.6	4.7	4.1	1.7	2.1	0.00	0.97
27	1.3	4.2	2.0	2.8	e2.2	29	3.9	29	1.7	5.6	0.00	13
28	1.5	2.7	1.9	2.5	e2.1	14	18	23	1.8	2.5	0.00	5.8
29	1.5	2.0	1.9	2.3	---	11	27	13	1.8	1.5	0.00	3.6
30	1.1	1.9	1.8	2.3	---	9.7	12	8.5	1.5	0.94	0.00	1.7
31	0.96	---	1.7	3.1	---	9.8	---	6.6	---	0.52	0.00	---
TOTAL	39.43	58.74	68.7	79.5	72.4	312.0	222.3	268.1	143.7	50.53	1.17	35.64
MEAN	1.27	1.96	2.22	2.56	2.59	10.1	7.41	8.65	4.79	1.63	0.038	1.19
MAX	4.6	16	3.6	6.1	4.9	39	27	29	28	8.5	0.36	13
MIN	0.57	0.86	1.3	1.5	2.1	2.0	3.9	3.5	1.5	0.52	0.00	0.00

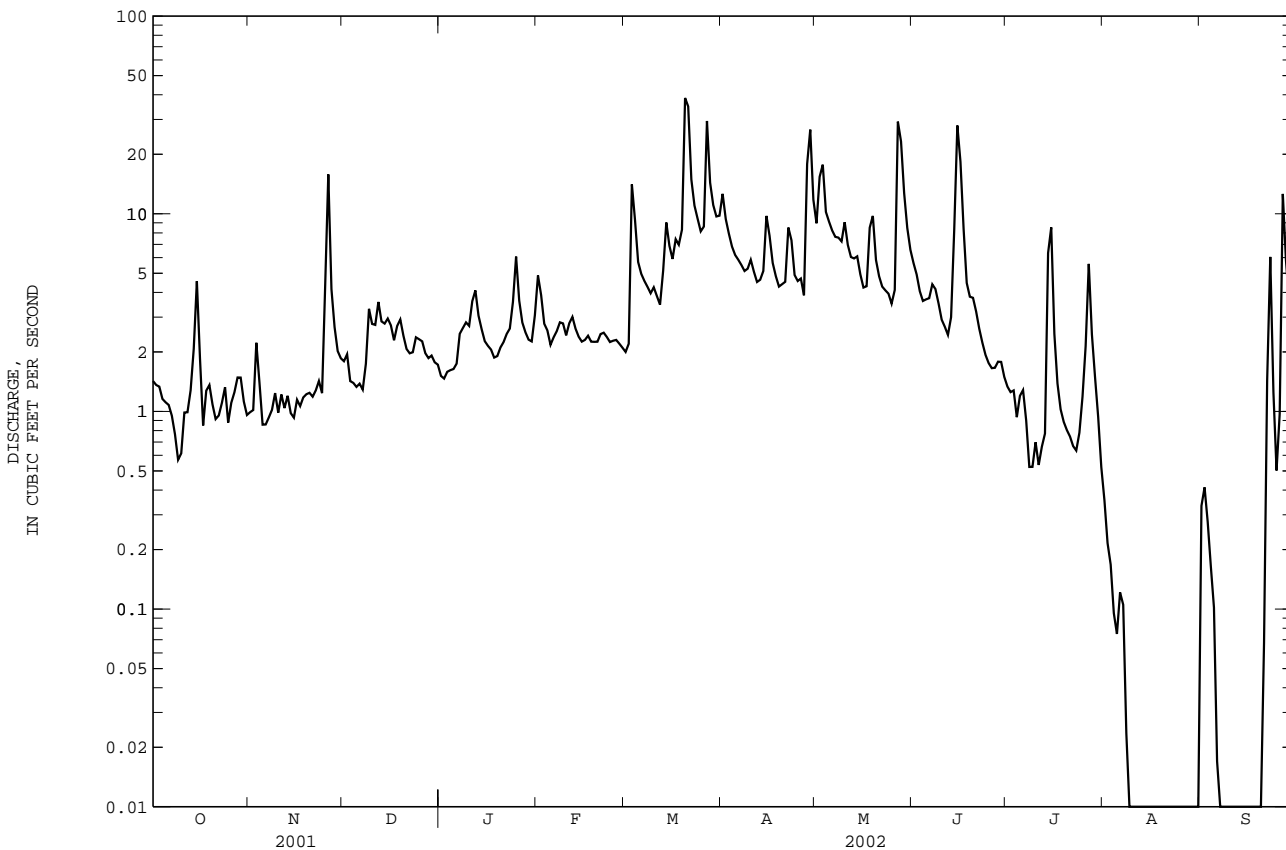
01638420 NORTH FORK CATOCTIN CREEK AT ROUTE 681 NEAR WATERFORD, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.27	1.96	2.22	2.56	2.59	10.1	7.41	8.65	4.79	2.54	2.10	2.06
MAX	1.27	1.96	2.22	2.56	2.59	10.1	7.41	8.65	4.79	4.88	4.15	2.94
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001	2001
MIN	1.27	1.96	2.22	2.56	2.59	10.1	7.41	8.65	4.79	1.63	0.038	1.19
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	442.29		1352.21			
ANNUAL MEAN	2.68		3.70		3.72	
HIGHEST ANNUAL MEAN					3.77	
LOWEST ANNUAL MEAN					3.70	
HIGHEST DAILY MEAN	35 Sep 24		39 Mar 20		39 Mar 20 2002	
LOWEST DAILY MEAN	0.54 Sep 19		0.00 aAug 9		0.00 aAug 9 2002	
ANNUAL SEVEN-DAY MINIMUM	0.62 Sep 14		0.00 Aug 9		0.00 Aug 9 2002	
MAXIMUM PEAK FLOW			67 bMar 20		190 Sep 24 2001	
MAXIMUM PEAK STAGE			3.01 bMar 20		3.85 Sep 24 2001	
INSTANTANEOUS LOW FLOW			0.00 cAug 8		0.00 cAug 8 2002	
10 PERCENT EXCEEDS	4.4		8.5		8.5	
50 PERCENT EXCEEDS	1.7		2.3		2.3	
90 PERCENT EXCEEDS	0.86		0.00		0.11	

- a Also Aug. 10-31 and Sept. 7-20, 2002.
- b Also May 27, 2002.
- c No flow part or all of many days in August and September 2002.
- e Estimated.



POTOMAC RIVER BASIN

01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

LOCATION.--Lat 39°15'16", long 77°34'35", NAD83, Loudoun County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on State Highway 663 at Taylorstown and 3.2 mi downstream from Milltown Creek.

DRAINAGE AREA.--89.6 mi².

PERIOD OF RECORD.--August 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 247.37 ft NGVD of 1929. Prior to Nov. 3, 1983, at site 60 ft upstream at datum 1.78 ft higher.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 2, Nov. 7, 27, 28, and June 1-5, which are fair. Maximum discharge, 23,800 ft³/s, from rating curve extended above 7,400 ft³/s on basis of contracted-opening measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	18	8.1	9.8	7.7	25	8.4	65	47	e40	9.1	2.2	2.6
2	e12	7.9	9.3	7.2	23	8.8	54	114	e32	7.6	1.7	5.3
3	9.7	8.1	9.3	7.3	18	48	45	101	e26	7.1	1.2	3.7
4	9.1	16	8.5	7.7	16	47	39	57	e23	5.9	0.90	2.4
5	8.0	9.3	8.4	7.5	14	24	34	48	e21	5.2	0.73	1.7
6	7.0	6.3	8.1	8.2	13	18	32	42	24	4.4	0.68	1.0
7	6.7	e5.6	7.9	11	13	17	30	38	30	4.2	3.0	0.74
8	6.6	5.6	9.0	13	15	15	29	36	24	3.8	2.2	0.66
9	6.7	6.0	15	13	14	14	28	34	19	3.3	1.1	0.56
10	6.7	5.5	17	12	13	14	31	36	18	4.0	0.79	0.57
11	8.9	5.9	15	15	13	13	28	31	16	4.4	0.65	0.52
12	10	6.0	18	20	15	12	25	25	15	4.0	0.59	0.48
13	9.7	6.0	17	17	14	15	24	25	15	3.2	0.46	0.36
14	11	6.3	16	14	13	28	25	24	58	41	0.43	0.33
15	41	6.3	16	12	12	25	33	21	198	53	0.39	0.36
16	22	6.4	14	11	12	21	35	18	110	15	0.31	0.37
17	12	6.6	13	10	11	20	26	17	63	7.3	0.36	0.33
18	11	6.7	13	9.9	10	23	23	35	42	4.3	0.33	0.28
19	10	6.5	16	9.8	9.8	27	21	44	33	3.4	0.30	0.24
20	9.2	6.6	13	11	9.8	196	24	24	29	2.9	0.30	0.24
21	8.3	7.6	11	12	9.8	204	23	19	25	2.6	0.27	0.45
22	8.5	6.8	9.9	12	9.8	101	36	16	21	2.3	0.25	18
23	8.5	6.5	9.8	13	9.8	66	43	16	17	2.1	0.24	75
24	9.9	7.7	10	17	9.5	55	25	15	15	2.2	0.52	20
25	10	24	12	28	9.1	46	22	14	13	3.0	0.60	6.4
26	8.1	93	11	25	9.2	46	22	13	12	6.3	0.56	5.2
27	7.1	e28	10	18	9.2	146	20	243	11	28	0.46	105
28	12	e14	9.6	16	8.9	86	76	139	11	16	0.73	60
29	7.0	12	9.7	15	---	63	147	89	9.9	9.1	3.9	28
30	6.9	10	8.7	14	---	55	65	64	12	5.0	12	15
31	7.8	---	8.6	18	---	51	---	55	---	3.2	4.1	---
TOTAL	329.4	351.3	363.6	412.3	358.9	1513.2	1130	1500	982.9	272.9	42.25	355.79
MEAN	10.6	11.7	11.7	13.3	12.8	48.8	37.7	48.4	32.8	8.80	1.36	11.9
MAX	41	93	18	28	25	204	147	243	198	53	12	105
MIN	6.6	5.5	7.9	7.2	8.9	8.4	20	13	9.9	2.1	0.24	0.24
CFSM	0.12	0.13	0.13	0.15	0.14	0.54	0.42	0.54	0.37	0.10	0.02	0.13
IN.	0.14	0.15	0.15	0.17	0.15	0.63	0.47	0.62	0.41	0.11	0.02	0.15

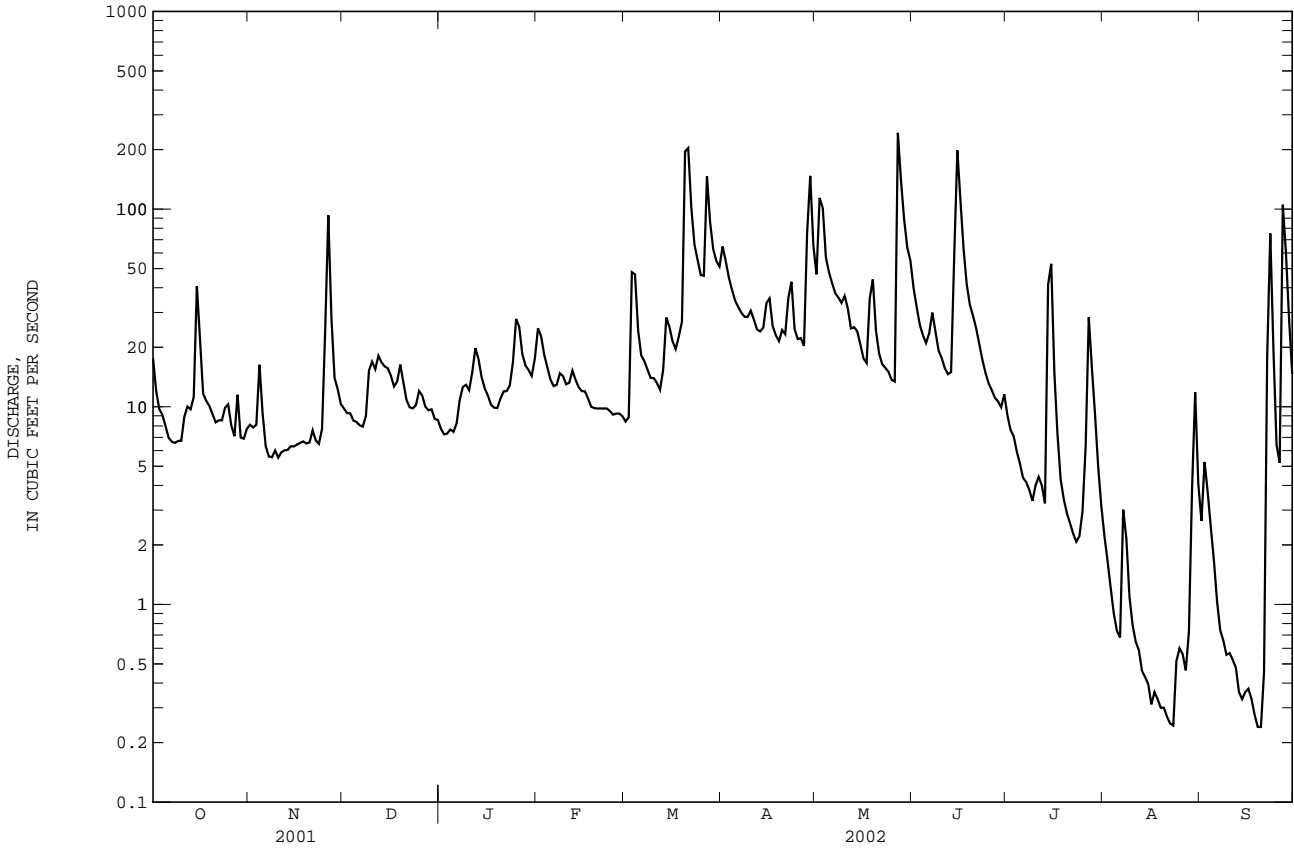
01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	62.4	57.4	109	130	141	185	157	116	88.3	45.6	30.3	45.4
MAX	414	148	358	488	382	580	476	445	706	284	186	281
(WY)	1977	1997	1997	1998	1998	1993	1983	1989	1972	1987	1984	1979
MIN	2.07	5.16	3.88	10.2	12.8	43.7	37.7	26.6	6.82	1.35	1.25	1.05
(WY)	1987	1992	1999	1981	2002	1981	2002	1999	1999	1999	1999	1986

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1971 - 2002	
ANNUAL TOTAL	20879.2	7612.54		
ANNUAL MEAN	57.2	20.9	96.5	
HIGHEST ANNUAL MEAN			196	1972
LOWEST ANNUAL MEAN			20.9	2002
HIGHEST DAILY MEAN	999	Mar 30	243	May 27
LOWEST DAILY MEAN	3.3	Sep 19	0.24	aAug 23
ANNUAL SEVEN-DAY MINIMUM	4.0	Sep 14	0.29	Aug 17
MAXIMUM PEAK FLOW			441	Jun 15
MAXIMUM PEAK STAGE			4.50	Jun 15
INSTANTANEOUS LOW FLOW			0.19	Aug 24
ANNUAL RUNOFF (CFSM)	0.64		0.23	
ANNUAL RUNOFF (INCHES)	8.67		3.16	
10 PERCENT EXCEEDS	127		46	200
50 PERCENT EXCEEDS	29		12	46
90 PERCENT EXCEEDS	6.7		0.86	6.9

- a Also Sept. 19, 20, 2002.
- b Also Aug. 19, 20, 1999.
- c From floodmarks, site and datum then in use.
- e Estimated.



POTOMAC RIVER BASIN

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 mi².

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 (ice effect) which are poor. 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. 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 ft³/s from rating curve extended as explained in footnotes.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 35,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 24	0345	*52,300	*11.21	Apr 30	1330	38,800	9.13

Minimum discharge, 662 ft³/s, Aug. 15, 16.

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	1630	1220	1770	e1300	2490	1540	7350	29600	7250	2080	3860	1870
2	1510	1250	1660	e1280	2460	1550	7590	23200	6260	2010	2670	1840
3	1490	1270	1570	e1220	2410	1830	10200	20500	5510	1820	2230	1770
4	1400	1270	1550	e1200	2460	1900	10300	22800	5060	1640	1890	1630
5	1390	1250	1490	e1200	2430	2090	9280	17300	4460	1610	1770	1660
6	1360	1230	1440	e1250	2230	2420	7520	14100	4080	1410	1930	1450
7	1260	1200	1410	e1350	2210	2610	6330	12300	4440	1320	2050	1200
8	1170	1220	1440	e1400	2150	2920	5690	10900	4490	1210	2040	1130
9	1180	1260	1470	e1480	2060	2860	5350	10600	4550	1190	2230	992
10	1200	1260	1560	1510	2050	2570	4900	14300	4170	1230	1750	928
11	1420	1230	1660	1710	2050	2400	4570	17400	3660	1150	1240	844
12	1680	1210	1730	1760	1990	2230	4510	15700	3170	1020	1110	865
13	1310	1200	1830	1800	1910	2280	4140	13500	2990	958	1060	938
14	1200	1190	1970	1910	1970	2210	4020	12100	3360	1190	1250	909
15	1350	1210	2020	2090	1840	2200	4270	11500	4550	1500	829	1250
16	1460	1240	2220	2170	1900	2180	8450	10800	4510	1790	758	1260
17	1430	1280	2120	2010	1970	2150	10200	9600	4960	2300	1100	1060
18	1500	1270	2290	1830	1870	2240	10300	9110	4310	2600	1140	1050
19	1480	1270	2240	1760	1840	2470	8930	14100	3490	1930	1130	1040
20	1320	1290	2160	1770	1800	3550	7540	23400	3020	1720	1080	940
21	1420	1250	2050	1680	1740	8390	6950	17100	2800	1510	1160	874
22	1390	1250	1950	1710	1800	26200	7620	13000	2450	1750	1420	832
23	1420	1280	1920	1680	1750	18000	25000	11300	2320	2200	1410	1120
24	1320	1320	1930	1740	1690	12300	45000	9610	2190	1520	1200	1020
25	1370	1460	1930	1870	1620	9520	28000	8080	2150	1470	1830	1370
26	1310	1860	1880	2040	1610	7840	20400	7080	2090	1960	2500	1070
27	1220	1770	1760	2470	1610	7150	15900	6760	1920	2010	2410	1330
28	1230	1760	1730	2820	1620	7830	13200	8870	1960	2280	2060	2000
29	1220	2000	1670	3260	---	9100	15800	10200	1890	3260	2240	3220
30	1170	1920	e1500	2830	---	8770	35300	9360	2120	7810	2220	5120
31	1180	---	e1400	2720	---	7960	---	8490	---	4950	1930	---
TOTAL	41990	40690	55320	56820	55530	169260	354610	422660	110180	62398	53497	42582
MEAN	1355	1356	1785	1833	1983	5460	11820	13630	3673	2013	1726	1419
MAX	1680	2000	2290	3260	2490	26200	45000	29600	7250	7810	3860	5120
MIN	1170	1190	1400	1200	1610	1540	4020	6760	1890	958	758	832
CFSM	0.14	0.14	0.18	0.19	0.21	0.57	1.22	1.41	0.38	0.21	0.18	0.15
IN.	0.16	0.16	0.21	0.22	0.21	0.65	1.37	1.63	0.42	0.24	0.21	0.16

e Estimated

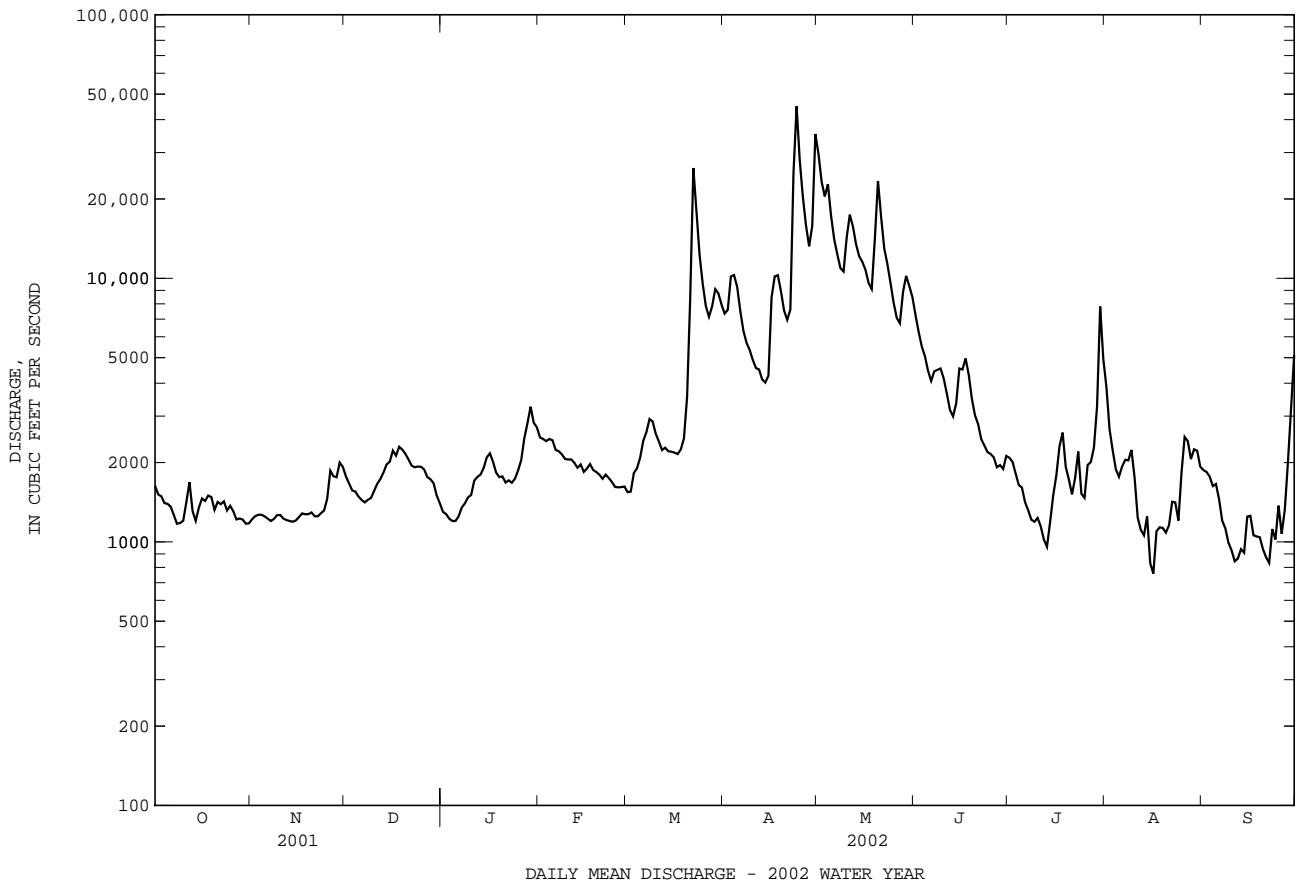
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1895 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)
MEAN	4992	5592	8477	11360	14320	19610	16420	12240	7925	4470	4262	3764
MAX	37030	39000	32610	42160	47870	68360	43840	41970	40400	16000	23580	38300
(WY)	1943	1986	1973	1996	1998	1936	1993	1924	1972	1949	1955	1996
MIN	706	840	1253	1703	1983	5400	4368	3276	1932	1056	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 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1895 - 2002	
ANNUAL TOTAL	2267860		1465537		9437	
ANNUAL MEAN	6213		4015		18750	
HIGHEST ANNUAL MEAN					4015	
LOWEST ANNUAL MEAN					18750	
HIGHEST DAILY MEAN	59000	Mar 23	45000	Apr 24	434000	Mar 19 1936
LOWEST DAILY MEAN	1170	Oct 8	758	Aug 16	540	Sep 10 1914
ANNUAL SEVEN-DAY MINIMUM	1210	Oct 27	944	Sep 8	593	Sep 6 1966
MAXIMUM PEAK FLOW			52300	Apr 24	(a)480000	Mar 19 1936
MAXIMUM PEAK STAGE			11.21	Apr 24	41.03	Mar 19 1936
INSTANTANEOUS LOW FLOW			662	(b)	530	(c)
ANNUAL RUNOFF (CFSM)	0.64		0.42		0.98	
ANNUAL RUNOFF (INCHES)	8.74		5.65		13.29	
10 PERCENT EXCEEDS	14400		10200		20600	
50 PERCENT EXCEEDS	3720		1910		5380	
90 PERCENT EXCEEDS	1320		1200		1670	

a From rating curve extended above 300,000 ft³/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 Aug. 15, 16.
 c Sept. 11, 12, 1966.



01643590 LIMESTONE BRANCH NEAR LEESBURG, VA--Continued

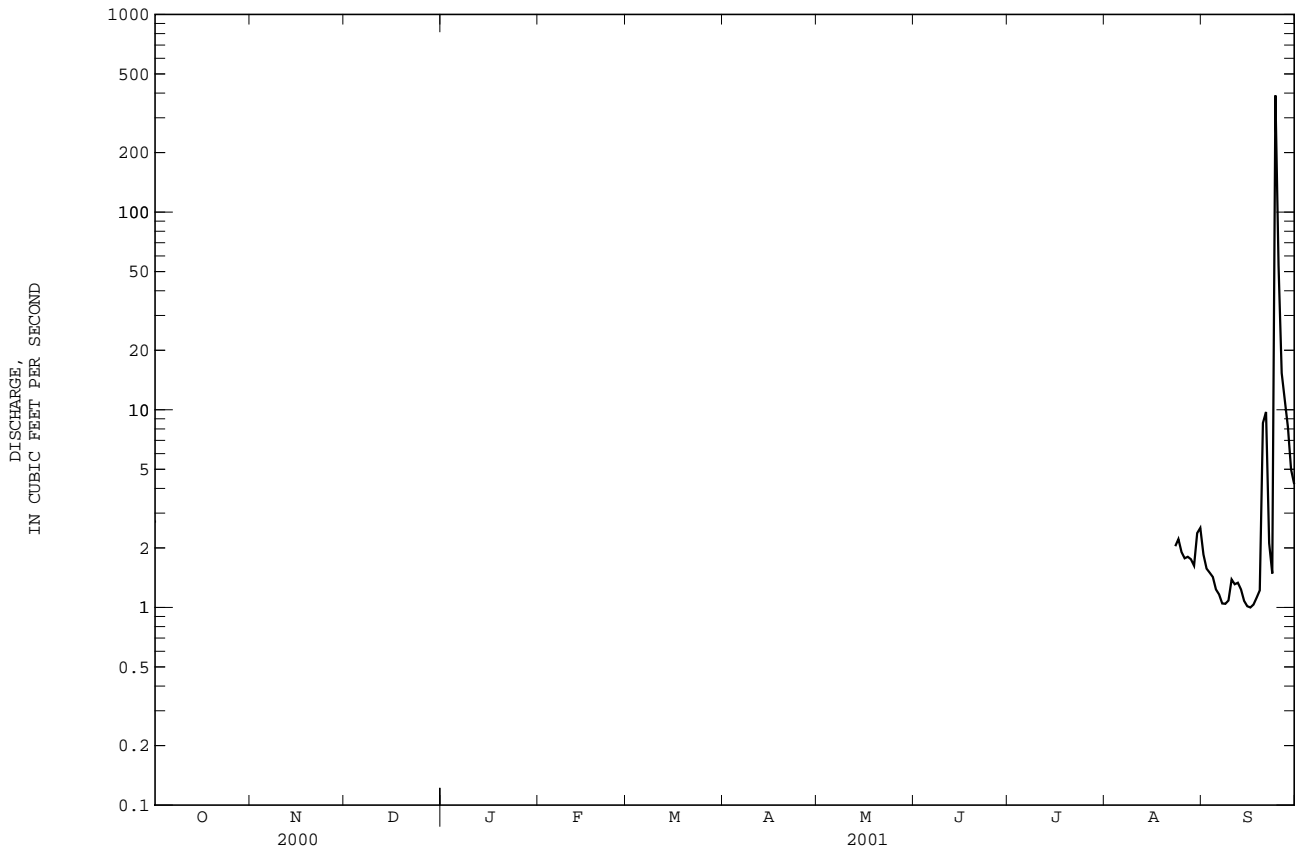
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	---	---	---	2.00	17.7
MAX	---	---	---	---	---	---	---	---	---	---	2.00	17.7
(WY)	---	---	---	---	---	---	---	---	---	---	2001	2001
MIN	---	---	---	---	---	---	---	---	---	---	2.00	17.7
(WY)	---	---	---	---	---	---	---	---	---	---	2001	2001

SUMMARY STATISTICS

FOR 2001 WATER YEAR

ANNUAL TOTAL	549.90
ANNUAL MEAN	14.1
HIGHEST DAILY MEAN	389 Sep 24
LOWEST DAILY MEAN	1.0 Sep 7
ANNUAL SEVEN-DAY MINIMUM	1.1 Sep 13
MAXIMUM PEAK FLOW	3130 Sep 24
MAXIMUM PEAK STAGE	7.72 Sep 24
INSTANTANEOUS LOW FLOW	0.87 Sep 6
10 PERCENT EXCEEDS	11
50 PERCENT EXCEEDS	1.6
90 PERCENT EXCEEDS	1.0



POTOMAC RIVER BASIN

01643590 LIMESTONE BRANCH NEAR LEESBURG, VA--Continued

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	3.8	1.8	1.8	1.1	3.3	0.81	5.0	5.1	2.5	1.0	0.85	4.1
2	2.8	1.8	1.4	1.1	2.0	1.0	3.9	9.1	1.6	0.99	0.77	1.7
3	2.7	1.7	1.5	1.3	1.7	9.3	3.6	5.1	1.3	0.93	0.82	1.1
4	2.3	1.6	1.5	1.1	2.0	3.3	3.9	4.0	1.5	0.90	0.86	0.88
5	2.3	1.5	1.3	1.2	1.6	2.3	2.8	3.9	1.6	0.86	0.95	0.85
6	1.9	1.5	1.2	1.6	1.4	2.0	2.4	3.6	1.8	0.82	1.1	0.86
7	1.9	1.7	1.2	2.3	1.9	1.7	2.3	3.6	2.4	0.84	0.83	0.87
8	1.7	2.2	2.2	2.1	2.2	1.6	2.1	4.4	1.8	0.89	0.82	0.88
9	1.6	1.8	3.1	2.0	1.7	1.9	2.9	3.9	1.6	0.91	0.76	0.87
10	1.8	2.0	2.0	1.9	1.7	2.5	2.7	2.9	1.4	1.1	0.77	0.87
11	1.8	1.9	3.2	2.7	2.7	1.2	2.1	1.7	1.2	0.86	0.78	0.86
12	1.6	1.9	2.8	2.5	1.9	1.1	2.0	2.6	1.1	0.84	0.79	0.85
13	1.7	2.3	2.6	1.9	1.6	2.6	2.5	3.0	1.5	0.93	0.75	0.95
14	2.5	2.2	2.9	1.6	1.7	3.1	2.8	1.9	3.2	5.9	0.71	1.0
15	7.0	2.2	2.7	1.7	1.8	2.4	3.0	1.7	13	2.6	0.80	1.2
16	2.4	2.0	2.2	1.6	1.9	2.4	2.4	1.4	3.5	1.3	0.79	1.3
17	2.9	1.9	2.3	1.4	1.9	2.4	1.7	1.4	2.3	1.0	0.76	1.2
18	2.1	1.9	3.1	1.4	1.4	3.5	1.4	3.0	2.1	0.90	0.75	1.2
19	2.2	1.8	2.4	1.7	1.3	3.4	1.4	1.8	1.5	0.87	0.72	1.1
20	3.6	1.6	2.1	1.9	1.5	35	1.7	1.2	1.3	0.86	0.70	1.2
21	2.9	1.6	1.5	1.8	1.6	16	2.5	1.2	1.4	0.87	0.68	1.2
22	1.6	1.3	1.4	1.8	1.4	8.4	5.6	1.2	1.2	0.86	0.69	1.5
23	1.9	1.3	1.5	2.1	1.3	6.7	2.9	1.1	1.1	0.91	0.75	9.9
24	1.9	1.6	2.1	2.7	1.1	5.3	2.3	1.0	0.99	1.0	0.79	1.5
25	1.6	9.6	2.0	3.1	0.97	4.6	2.4	1.1	1.0	0.93	0.74	0.95
26	1.4	9.2	1.7	2.3	1.2	5.6	1.9	9.1	0.98	2.2	0.76	8.1
27	1.6	2.5	1.5	2.0	1.3	10	1.7	20	1.0	3.1	0.77	15
28	1.6	2.1	1.5	1.9	1.1	5.8	20	11	1.1	2.4	1.3	9.4
29	1.6	2.0	1.5	1.9	---	5.3	11	5.4	1.1	1.2	1.8	2.8
30	1.6	2.0	1.4	2.0	---	4.8	7.0	4.3	1.0	1.0	1.0	2.0
31	1.7	---	1.2	2.7	---	4.9	---	3.6	---	0.92	0.93	---
TOTAL	70.0	70.5	60.8	58.4	47.17	160.91	109.9	124.3	59.07	40.69	26.29	76.19
MEAN	2.26	2.35	1.96	1.88	1.68	5.19	3.66	4.01	1.97	1.31	0.85	2.54
MAX	7.0	9.6	3.2	3.1	3.3	35	20	20	13	5.9	1.8	15
MIN	1.4	1.3	1.2	1.1	0.97	0.81	1.4	1.0	0.98	0.82	0.68	0.85

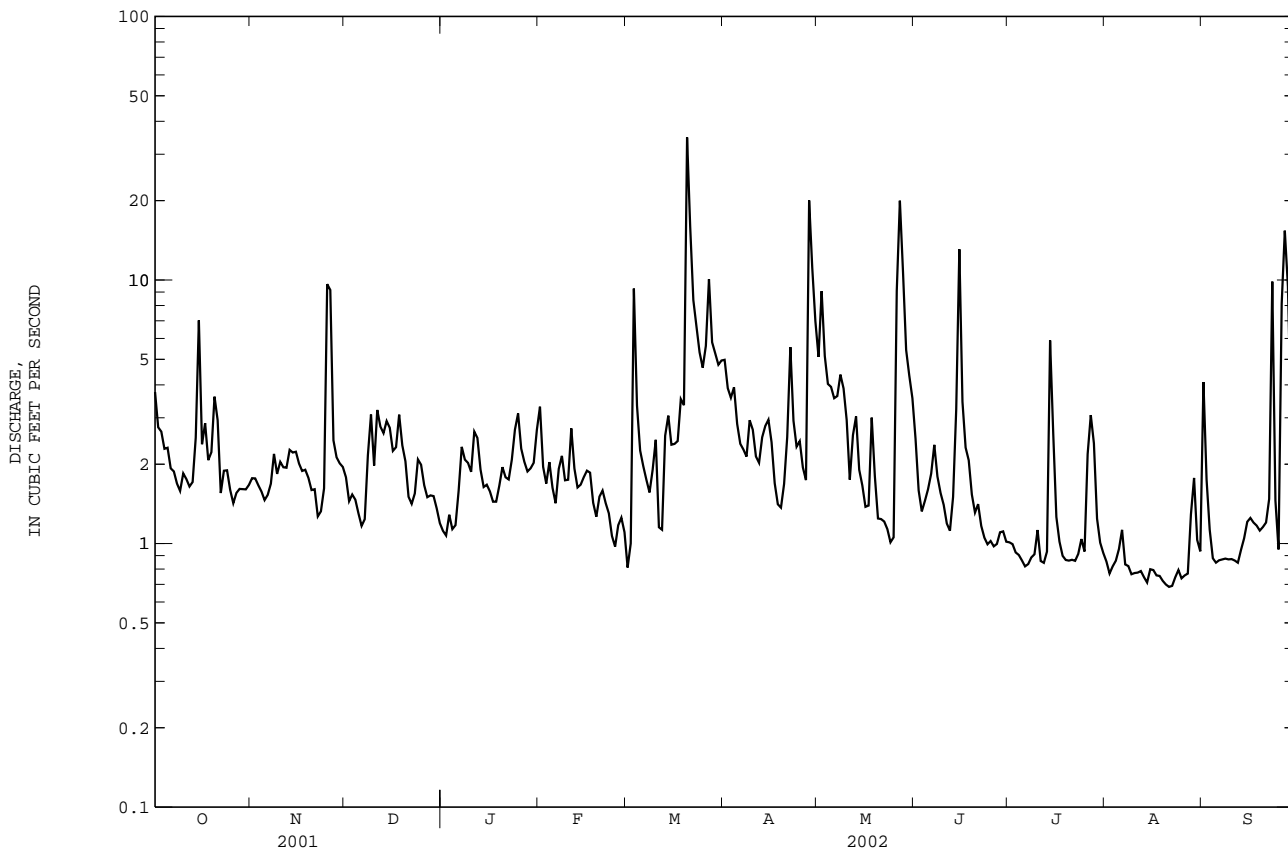
01643590 LIMESTONE BRANCH NEAR LEESBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2.26	2.35	1.96	1.88	1.68	5.19	3.66	4.01	1.97	1.31	1.11	10.1
MAX	2.26	2.35	1.96	1.88	1.68	5.19	3.66	4.01	1.97	1.31	2.00	17.7
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001
MIN	2.26	2.35	1.96	1.88	1.68	5.19	3.66	4.01	1.97	1.31	0.85	2.54
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	751.20		904.22			
ANNUAL MEAN	5.73		2.48		3.60	
HIGHEST ANNUAL MEAN					14.1	2001
LOWEST ANNUAL MEAN					2.48	2002
HIGHEST DAILY MEAN	389	Sep 24	35	Mar 20	389	Sep 24 2001
LOWEST DAILY MEAN	1.0	Sep 7	0.68	Aug 21	0.68	Aug 21 2002
ANNUAL SEVEN-DAY MINIMUM	1.1	Sep 13	0.72	Aug 17	0.72	Aug 17 2002
MAXIMUM PEAK FLOW			111	May 26	3130	Sep 24 2001
MAXIMUM PEAK STAGE			1.84	May 26	7.72	Sep 24 2001
INSTANTANEOUS LOW FLOW			0.60	aAug 13	0.60	aAug 13 2002
10 PERCENT EXCEEDS	3.8		4.2		4.9	
50 PERCENT EXCEEDS	1.8		1.7		1.7	
90 PERCENT EXCEEDS	1.2		0.86		0.87	

a Also Aug. 14, 19-22, 2002.



POTOMAC RIVER BASIN

01643700 GOOSE CREEK NEAR MIDDLEBURG, VA

LOCATION.--Lat 38°59'11", long 77°47'48", NAD83, Loudoun County, Hydrologic Unit 02070008, on right bank 250 ft upstream from bridge on State Highway 611, 2.0 mi downstream from Panther Skin Creek, and 3.4 mi northwest of Middleburg.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--October 1965 to September 1967, July 1969 to September 1996, June 2001 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 329.80 ft NGVD of 1929. October 1965 to September 1967, at site 300 ft downstream at datum 0.73 ft lower.

REMARKS.--Records good except for period with ice effect, Dec. 28, 2001 to Jan. 2, 2002, which is fair. Maximum discharge, 19,2200 ft³/s, from rating curve extended above 2,900 ft³/s on basis of slope-area measurements at gage heights 14.11 and 27.46 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,350 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge in water years 2001 (partial) and 2002.							

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	---	---	---	---	---	---	---	---	---	24	22	3.2
2	---	---	---	---	---	---	---	---	---	23	15	3.9
3	---	---	---	---	---	---	---	---	---	20	11	3.6
4	---	---	---	---	---	---	---	---	---	26	20	3.1
5	---	---	---	---	---	---	---	---	---	122	24	2.5
6	---	---	---	---	---	---	---	---	---	39	14	2.2
7	---	---	---	---	---	---	---	---	---	25	11	1.5
8	---	---	---	---	---	---	---	---	---	46	8.0	1.2
9	---	---	---	---	---	---	---	---	---	68	6.1	1.2
10	---	---	---	---	---	---	---	---	---	31	4.7	1.3
11	---	---	---	---	---	---	---	---	---	28	87	1.2
12	---	---	---	---	---	---	---	---	---	22	92	1.1
13	---	---	---	---	---	---	---	---	---	18	57	1.2
14	---	---	---	---	---	---	---	---	---	15	38	1.2
15	---	---	---	---	---	---	---	---	---	13	21	1.1
16	---	---	---	---	---	---	---	---	---	11	14	0.82
17	---	---	---	---	---	---	---	---	---	11	10	0.79
18	---	---	---	---	---	---	---	---	---	24	9.1	0.67
19	---	---	---	---	---	---	---	---	---	38	8.7	0.51
20	---	---	---	---	---	---	---	---	---	20	11	0.96
21	---	---	---	---	---	---	---	---	---	15	9.7	3.8
22	---	---	---	---	---	---	---	---	---	12	6.5	3.7
23	---	---	---	---	---	---	---	---	---	9.5	5.4	3.3
24	---	---	---	---	---	---	---	---	---	7.9	20	56
25	---	---	---	---	---	---	---	---	---	6.9	16	160
26	---	---	---	---	---	---	---	---	---	5.9	8.7	27
27	---	---	---	---	---	---	---	---	---	11	6.3	9.6
28	---	---	---	---	---	---	---	---	---	30	5.5	5.6
29	---	---	---	---	---	---	---	---	---	27	5.5	3.9
30	---	---	---	---	---	---	---	---	---	26	65	4.4
31	---	---	---	---	---	---	---	---	---	35	3.6	---
TOTAL	---	---	---	---	---	---	---	---	83	820.2	575.2	308.95
MEAN	---	---	---	---	---	---	---	---	27.7	26.5	18.6	10.3
MAX	---	---	---	---	---	---	---	---	30	122	92	160
MIN	---	---	---	---	---	---	---	---	26	5.9	3.6	0.51
CFSM	---	---	---	---	---	---	---	---	0.22	0.22	0.15	0.08
IN.	---	---	---	---	---	---	---	---	0.03	0.25	0.17	0.09

01643700 GOOSE CREEK NEAR MIDDLEBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1967, 1969 - 1996, 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	86.3	91.6	147	169	205	242	224	164	119	55.0	50.5	55.5
MAX	602	233	455	520	609	722	688	463	645	217	206	410
(WY)	1980	1978	1997	1996	1984	1993	1983	1989	1972	1972	1967	1996
MIN	0.004	3.41	4.17	7.65	38.0	51.3	43.5	26.1	15.2	2.81	0.41	0.000
(WY)	1992	1992	1966	1966	1989	1981	1981	1985	1986	1966	1991	1991

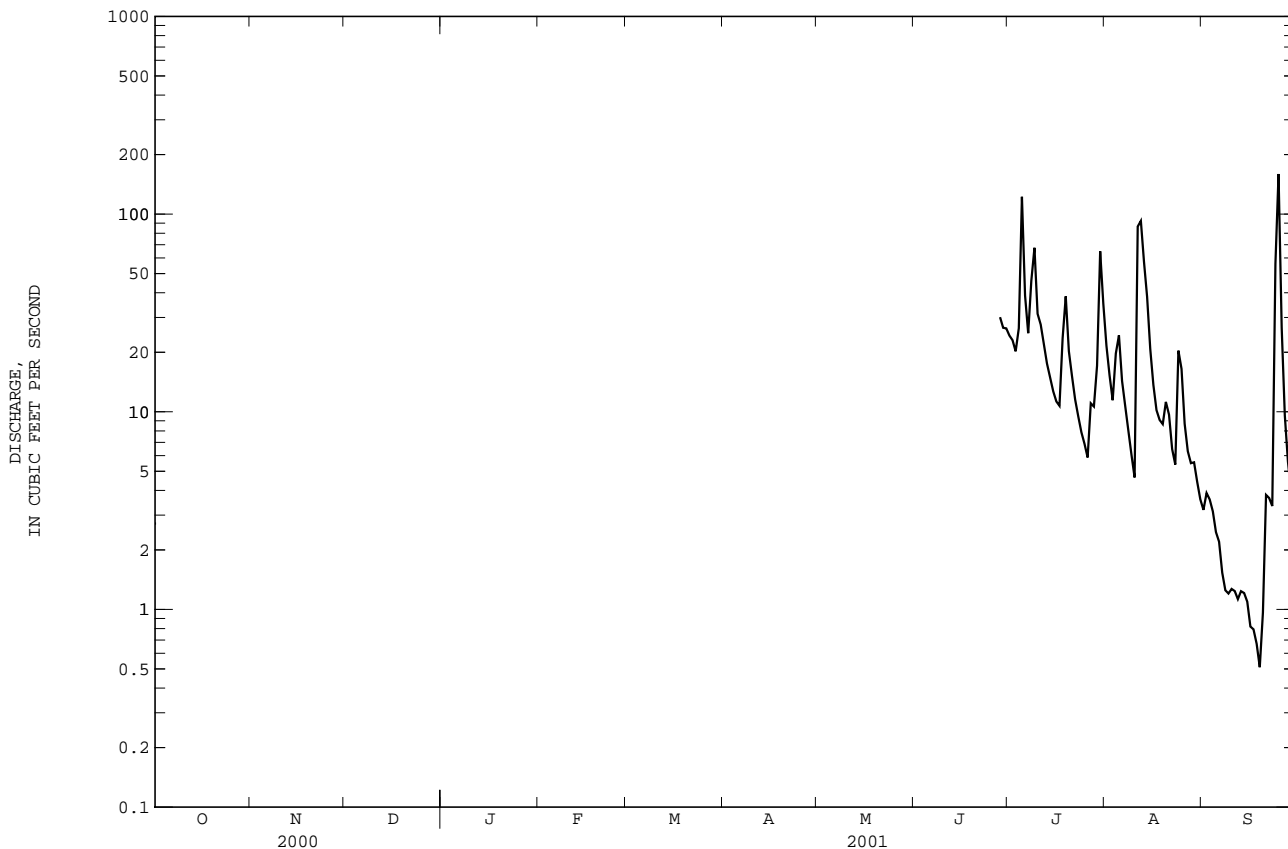
SUMMARY STATISTICS

FOR 2001 WATER YEAR

WATER YEARS 1966 - 1967
1969 - 1996
2001

ANNUAL TOTAL	1787.35		
ANNUAL MEAN	18.8	132	
HIGHEST ANNUAL MEAN		272	1997
LOWEST ANNUAL MEAN		14.1	1969
HIGHEST DAILY MEAN	160	Sep 25	e7500 Oct 9 1976
LOWEST DAILY MEAN	0.51	Sep 19	0.00 aSep 21 1985
ANNUAL SEVEN-DAY MINIMUM	0.86	Sep 14	0.00 Sep 2 1991
MAXIMUM PEAK FLOW	799	Aug 11	19200 Jun 22 1972
MAXIMUM PEAK STAGE	5.20	Aug 11	27.46 Jun 22 1972
INSTANTANEOUS LOW FLOW	0.43	Sep 19	0.00 bSep 20 1985
ANNUAL RUNOFF (CFSM)	0.15		1.07
ANNUAL RUNOFF (INCHES)	0.54		14.60
10 PERCENT EXCEEDS	42		301
50 PERCENT EXCEEDS	11		70
90 PERCENT EXCEEDS	1.2		5.9

a Also Sept. 22-26, 1985, Sept. 29 to Oct. 3, 1986, and many days in September to November 1991.
 b Also Sept. 21-27, 1985, Sept. 29 to Oct. 3, 1986, and many days in September to November 1991.
 e Estimated.



POTOMAC RIVER BASIN

01643700 GOOSE CREEK NEAR MIDDLEBURG, VA--Continued

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	2.1	6.0	8.6	e5.8	15	6.1	44	107	24	11	3.6	2.5
2	1.9	6.1	8.7	e5.5	16	6.3	36	142	18	9.1	2.4	2.5
3	1.4	6.5	7.2	5.5	15	59	31	109	14	8.1	1.7	2.0
4	1.3	8.4	6.3	5.8	14	42	28	82	14	6.8	1.1	1.6
5	1.1	6.2	5.9	6.0	13	20	25	77	15	5.1	3.8	1.5
6	3.2	6.6	5.9	6.3	11	14	23	65	24	3.9	3.5	1.2
7	4.5	5.6	5.9	10	11	11	22	59	20	2.8	1.5	1.0
8	5.2	7.5	6.8	13	14	8.9	20	59	14	2.3	1.2	0.80
9	5.1	7.4	14	13	14	7.6	20	55	11	2.1	1.0	0.63
10	4.8	6.9	17	13	11	7.6	24	62	9.3	5.4	0.73	0.52
11	6.3	7.3	18	16	13	6.5	22	47	7.9	5.0	0.55	0.44
12	7.4	7.4	26	20	14	5.6	19	40	6.3	3.8	0.39	0.36
13	9.2	7.3	21	19	14	8.8	19	41	57	3.1	0.30	0.33
14	14	6.8	19	15	8.8	21	21	37	135	47	0.25	0.33
15	24	6.9	18	13	8.0	16	22	29	139	54	0.20	0.33
16	19	7.2	16	13	8.5	12	22	25	73	19	0.23	0.33
17	8.2	7.4	13	12	8.9	12	19	23	48	10	0.21	0.30
18	4.6	7.7	14	11	9.2	19	18	39	36	6.8	0.19	0.28
19	3.6	7.7	14	11	8.3	28	24	42	104	5.7	0.18	0.27
20	4.0	7.3	13	12	8.1	96	68	27	90	5.5	0.15	0.24
21	2.8	7.0	11	13	8.2	104	53	22	49	5.3	0.13	0.23
22	2.9	6.7	9.8	13	7.7	63	214	19	36	4.2	0.12	0.27
23	2.8	7.0	9.3	14	7.5	48	125	18	29	3.0	0.11	0.93
24	2.9	7.4	10	15	6.9	40	88	17	24	2.4	0.11	2.0
25	2.9	18	11	17	6.3	34	72	16	21	3.2	0.11	2.0
26	4.3	65	11	18	6.3	33	60	15	19	6.8	0.11	4.2
27	3.9	25	9.2	15	6.4	99	49	119	23	46	0.11	40
28	4.3	15	e8.4	14	7.1	64	240	91	19	39	0.26	41
29	5.3	11	e7.8	13	---	52	233	50	16	16	0.98	24
30	5.0	9.1	e7.2	13	---	45	142	38	13	8.9	1.5	11
31	5.5	---	e6.4	14	---	42	---	29	---	5.5	1.3	---
TOTAL	173.5	311.4	359.4	384.9	291.2	1031.4	1803	1601	1108.5	356.8	28.02	143.09
MEAN	5.60	10.4	11.6	12.4	10.4	33.3	60.1	51.6	37.0	11.5	0.90	4.77
MAX	24	65	26	20	16	104	240	142	139	54	3.8	41
MIN	1.1	5.6	5.9	5.5	6.3	5.6	18	15	6.3	2.1	0.11	0.23
CFSM	0.05	0.08	0.09	0.10	0.08	0.27	0.49	0.42	0.30	0.09	0.01	0.04
IN.	0.05	0.09	0.11	0.12	0.09	0.31	0.55	0.48	0.34	0.11	0.01	0.04

01643700 GOOSE CREEK NEAR MIDDLEBURG, VA--Continued

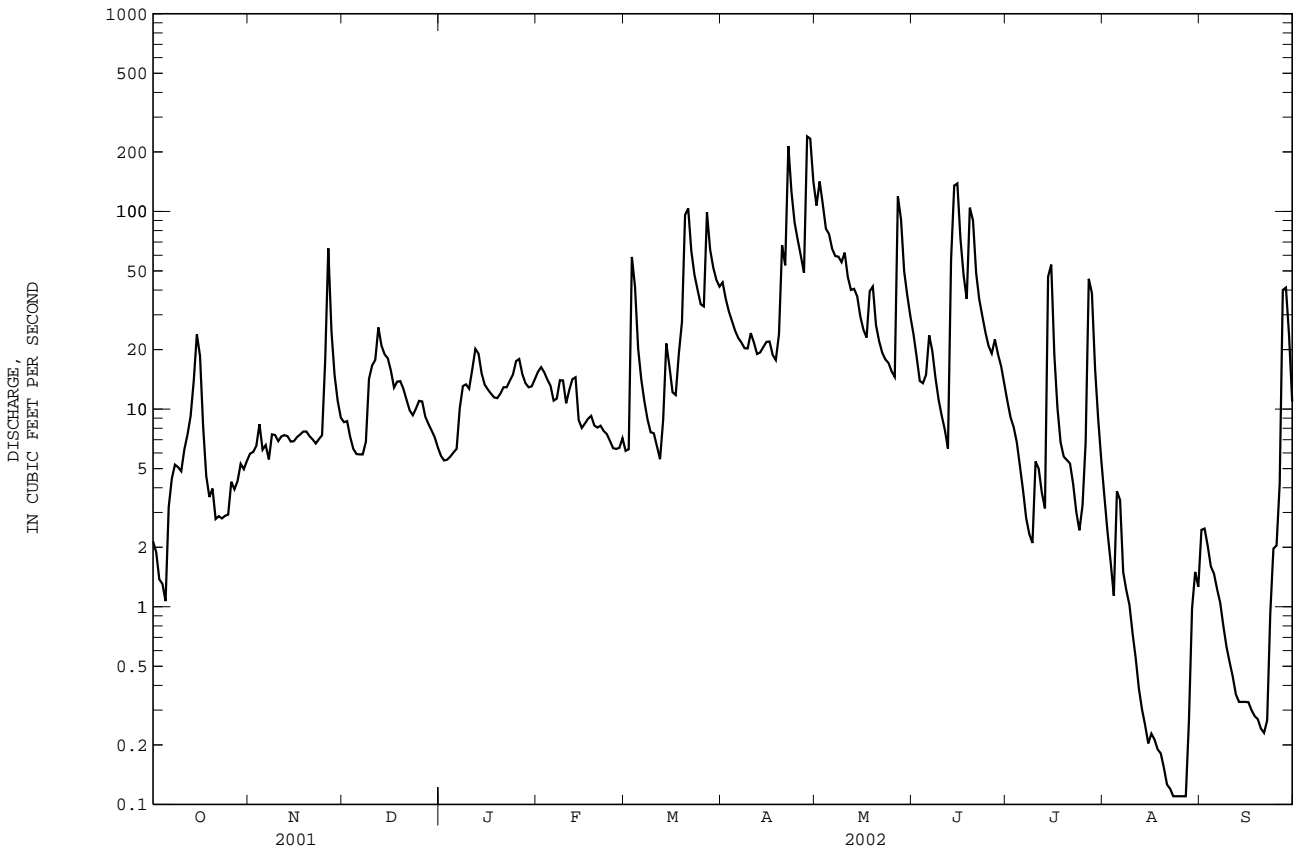
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1967, 1969 - 1996, 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	83.7	88.9	143	164	199	235	219	160	117	53.7	49.0	54.0
MAX	602	233	455	520	609	722	688	463	645	217	206	410
(WY)	1980	1978	1997	1996	1984	1993	1983	1989	1972	1972	1967	1996
MIN	0.004	3.41	4.17	7.65	10.4	33.3	43.5	26.1	15.2	2.81	0.41	0.000
(WY)	1992	1992	1966	1966	2002	2002	1981	1985	1986	1966	1991	1991

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1966 - 1967 1969 - 1996 2001 - 2002

ANNUAL TOTAL		2631.65		7592.21								
ANNUAL MEAN		14.1		20.8						129		
HIGHEST ANNUAL MEAN										272		1997
LOWEST ANNUAL MEAN										14.1		1969
HIGHEST DAILY MEAN				160	Sep 25		240	Apr 28		e7500	Oct 9	1976
LOWEST DAILY MEAN				0.51	Sep 19		0.11	aAug 23		0.00	bSep 21	1985
ANNUAL SEVEN-DAY MINIMUM				0.86	Sep 14		0.11	Aug 21		0.00	Sep 2	1991
MAXIMUM PEAK FLOW							533	Apr 28		19200	Jun 22	1972
MAXIMUM PEAK STAGE							4.39	Apr 28		27.46	Jun 22	1972
INSTANTANEOUS LOW FLOW							0.11	cAug 23		0.00	dSep 20	1985
ANNUAL RUNOFF (CFSM)				0.11			0.17			1.05		
ANNUAL RUNOFF (INCHES)				0.80			2.30			14.20		
10 PERCENT EXCEEDS				27			52			294		
50 PERCENT EXCEEDS				7.7			10			66		
90 PERCENT EXCEEDS				2.1			0.99			5.4		

- a Also Aug. 24-27, 2002.
- b Also Sept. 22-26, 1985, Sept. 29 to Oct. 3, 1986, and many days in September to November 1991.
- c Also Aug. 24-28, 2002.
- d Also Sept. 21-27, 1985, Sept. 29 to Oct. 3, 1986, and many days in September to November 1991.
- e Estimated.



POTOMAC RIVER BASIN

01643805 NORTH FORK GOOSE CREEK AT ROUTE 729 NEAR LINCOLN, VA

LOCATION.--Lat 39°04'20", long 77°41'02", NAD83, Loudoun County, Hydrologic Unit Code 02070008, on left bank, 5 ft downstream from bridge on State Highway 729, 5 mi south of Lincoln.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--July 2001 to September 2002.

GAGE.--Water stage recorder. Datum of gage is 300 ft NGVD of 1929, from topographic map..

REMARKS.--Records good except those for period of no gage-height record, Aug. 20 to Sept. 6, 2001, and discharges above 200 ft³/s, which are poor.

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	---	---	---	---	---	---	---	---	---	---	10	e4.9
2	---	---	---	---	---	---	---	---	---	---	8.1	e4.0
3	---	---	---	---	---	---	---	---	---	---	6.5	e4.0
4	---	---	---	---	---	---	---	---	---	---	8.3	e3.4
5	---	---	---	---	---	---	---	---	---	---	6.6	e3.4
6	---	---	---	---	---	---	---	---	---	---	5.6	e3.3
7	---	---	---	---	---	---	---	---	---	---	5.0	2.9
8	---	---	---	---	---	---	---	---	---	---	4.6	2.7
9	---	---	---	---	---	---	---	---	---	---	4.4	2.8
10	---	---	---	---	---	---	---	---	---	---	4.0	4.6
11	---	---	---	---	---	---	---	---	---	---	174	6.6
12	---	---	---	---	---	---	---	---	---	---	103	3.2
13	---	---	---	---	---	---	---	---	---	---	41	2.6
14	---	---	---	---	---	---	---	---	---	---	23	2.8
15	---	---	---	---	---	---	---	---	---	---	15	2.8
16	---	---	---	---	---	---	---	---	---	---	11	2.6
17	---	---	---	---	---	---	---	---	---	---	9.6	2.6
18	---	---	---	---	---	---	---	---	---	---	8.5	2.7
19	---	---	---	---	---	---	---	---	---	13	8.0	2.5
20	---	---	---	---	---	---	---	---	---	10	e13	5.5
21	---	---	---	---	---	---	---	---	---	8.2	e11	16
22	---	---	---	---	---	---	---	---	---	6.8	e8.5	4.1
23	---	---	---	---	---	---	---	---	---	6.2	e11	3.1
24	---	---	---	---	---	---	---	---	---	5.8	e18	322
25	---	---	---	---	---	---	---	---	---	6.1	e12	130
26	---	---	---	---	---	---	---	---	---	5.7	e8.5	30
27	---	---	---	---	---	---	---	---	---	6.2	e6.7	18
28	---	---	---	---	---	---	---	---	---	5.3	e6.2	13
29	---	---	---	---	---	---	---	---	---	12	e5.3	9.7
30	---	---	---	---	---	---	---	---	---	17	e5.3	7.5
31	---	---	---	---	---	---	---	---	---	12	e6.2	---
TOTAL	---	---	---	---	---	---	---	---	---	114.3	567.9	623.3
MEAN	---	---	---	---	---	---	---	---	---	8.79	18.3	20.8
MAX	---	---	---	---	---	---	---	---	---	17	174	322
MIN	---	---	---	---	---	---	---	---	---	5.3	4.0	2.5

01643805 NORTH FORK GOOSE CREEK AT ROUTE 729 NEAR LINCOLN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2001, BY WATER YEAR (WY)

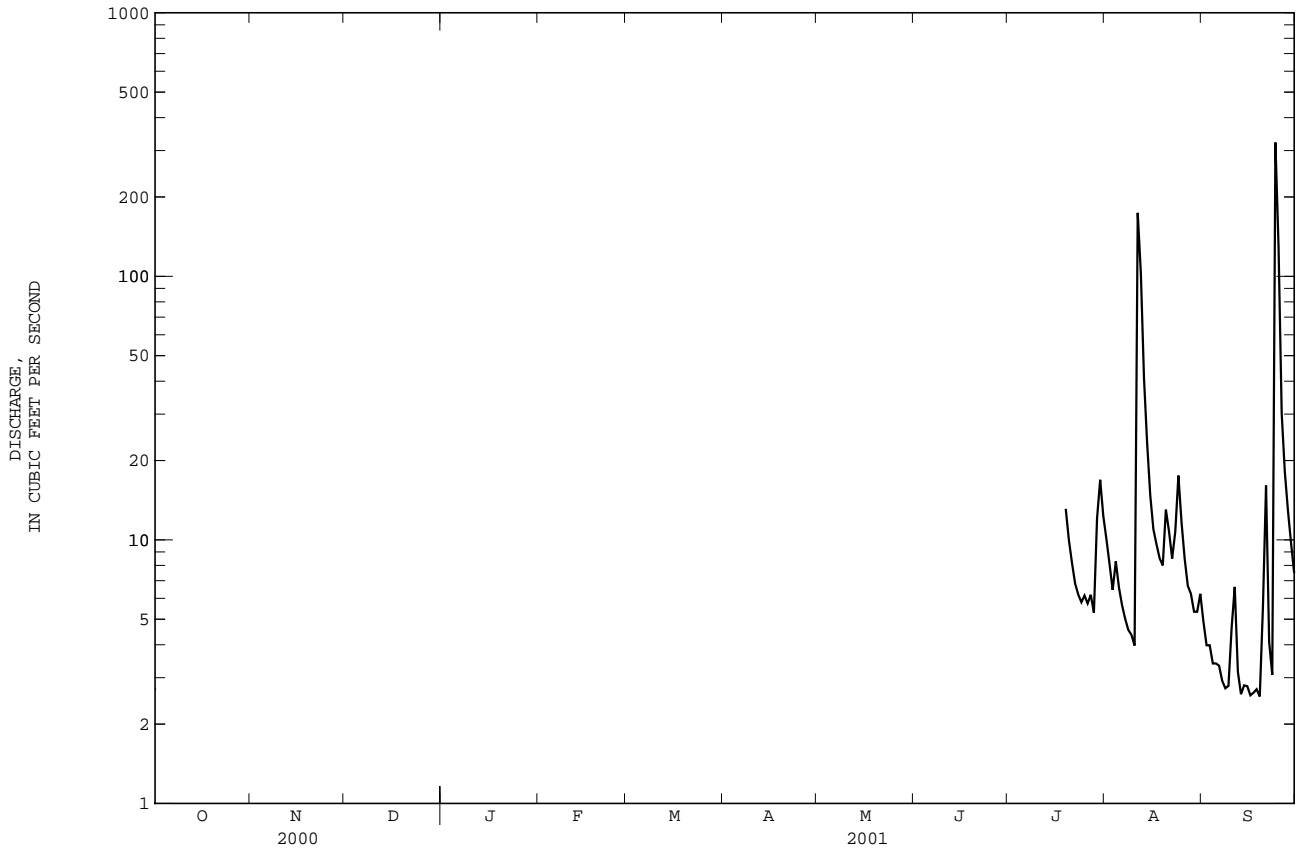
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	---	---	8.79	18.3	20.8
MAX	---	---	---	---	---	---	---	---	---	8.79	18.3	20.8
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001
MIN	---	---	---	---	---	---	---	---	---	8.79	18.3	20.8
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 WATER YEAR

ANNUAL TOTAL	1305.5
ANNUAL MEAN	17.6
HIGHEST DAILY MEAN	322 Sep 24
LOWEST DAILY MEAN	2.5 Sep 19
ANNUAL SEVEN-DAY MINIMUM	2.7 Sep 13
MAXIMUM PEAK FLOW	1610 Sep 24
MAXIMUM PEAK STAGE	9.97 Sep 24
INSTANTANEOUS LOW FLOW	2.4 aSep 13
10 PERCENT EXCEEDS	20
50 PERCENT EXCEEDS	6.6
90 PERCENT EXCEEDS	2.8

a Also Sept. 14, 16-20, 24, 2001.
e Estimated.



POTOMAC RIVER BASIN

01643805 NORTH FORK GOOSE CREEK AT ROUTE 729 NEAR LINCOLN, VA--Continued

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	6.1	5.4	7.7	4.4	14	5.4	31	35	30	7.9	4.6	4.7
2	5.6	5.5	6.5	4.8	15	5.8	26	49	24	7.7	3.8	5.3
3	5.0	5.6	5.9	5.3	11	32	23	36	20	7.1	3.4	3.8
4	4.5	4.9	5.6	5.3	10	18	21	28	19	6.5	2.9	2.8
5	4.1	4.5	5.6	5.1	12	12	18	27	21	5.8	3.0	2.2
6	4.3	4.1	5.8	6.2	7.3	10	17	23	27	5.0	13	2.0
7	5.1	4.3	6.5	11	9.4	9.0	16	22	26	4.6	4.9	1.8
8	5.0	4.4	9.4	11	11	8.4	15	23	19	4.9	2.8	1.7
9	5.2	4.3	15	9.1	9.3	8.3	15	21	16	5.6	2.3	1.6
10	5.2	4.1	10	8.1	9.3	9.5	17	22	15	8.1	1.8	1.6
11	5.6	4.3	15	12	12	8.4	14	17	13	5.9	1.6	2.2
12	5.8	4.2	13	12	10	6.6	13	16	13	4.8	1.6	3.3
13	5.8	4.1	13	9.7	8.2	15	14	16	23	5.1	1.5	3.7
14	7.9	4.0	13	8.5	7.6	18	14	15	55	74	1.5	4.4
15	20	4.3	13	7.7	6.7	14	17	14	152	28	1.5	5.7
16	8.6	4.3	11	7.7	7.4	13	15	12	47	15	1.6	6.7
17	9.4	4.7	10	7.3	7.8	13	13	12	30	10	1.7	6.6
18	6.3	4.2	13	6.1	7.6	20	12	29	24	8.0	1.6	5.8
19	5.2	4.2	12	6.6	5.8	19	20	20	35	7.1	1.3	5.7
20	5.1	4.3	9.6	8.3	5.7	109	21	15	28	6.4	1.5	5.8
21	4.9	4.1	9.4	8.0	6.4	74	16	12	21	5.5	1.8	7.0
22	5.2	3.9	7.7	8.8	6.3	49	34	11	17	4.8	1.4	20
23	5.5	3.8	6.8	8.9	5.8	39	24	10	15	4.7	1.2	48
24	5.8	4.6	9.3	11	4.9	33	19	9.7	13	9.6	1.6	9.1
25	5.4	37	8.5	14	4.9	30	18	9.3	12	6.5	1.9	5.0
26	5.1	30	7.7	12	5.6	33	16	180	11	20	1.6	18
27	5.4	15	7.0	11	6.3	57	14	389	12	19	1.9	56
28	5.6	11	6.3	10	6.0	39	93	110	11	16	4.8	34
29	5.5	9.2	6.1	9.3	---	33	72	62	10	11	14	15
30	5.5	8.4	5.8	9.4	---	29	46	45	8.3	7.2	5.6	11
31	5.3	---	5.1	14	---	30	---	36	---	5.5	3.4	---
TOTAL	189.0	216.7	280.3	272.6	233.3	800.4	704	1326.0	767.3	337.3	97.1	300.5
MEAN	6.10	7.22	9.04	8.79	8.33	25.8	23.5	42.8	25.6	10.9	3.13	10.0
MAX	20	37	15	14	15	109	93	389	152	74	14	56
MIN	4.1	3.8	5.1	4.4	4.9	5.4	12	9.3	8.3	4.6	1.2	1.6

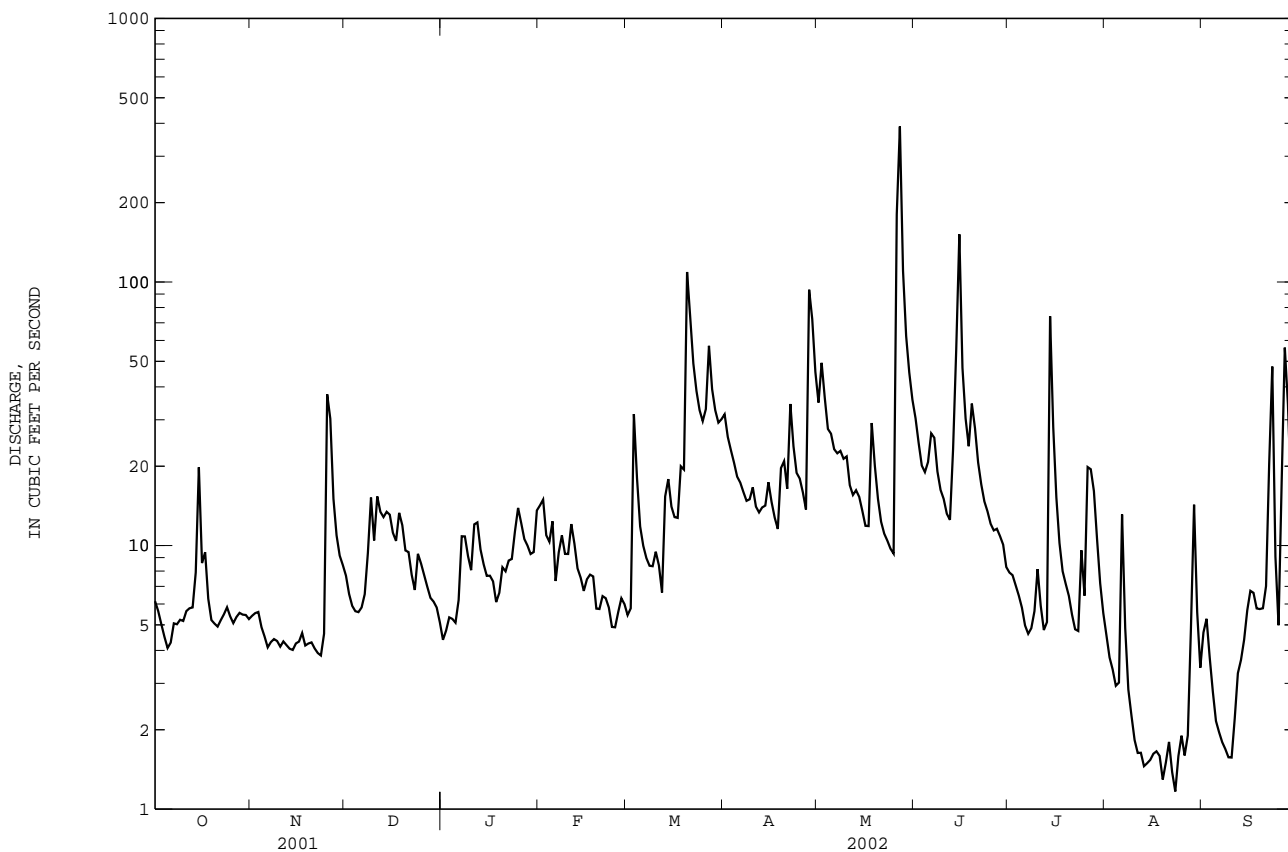
01643805 NORTH FORK GOOSE CREEK AT ROUTE 729 NEAR LINCOLN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.10	7.22	9.04	8.79	8.33	25.8	23.5	42.8	25.6	10.3	10.7	15.4
MAX	6.10	7.22	9.04	8.79	8.33	25.8	23.5	42.8	25.6	10.9	18.3	20.8
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001
MIN	6.10	7.22	9.04	8.79	8.33	25.8	23.5	42.8	25.6	8.79	3.13	10.0
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	1991.5		5524.5			
ANNUAL MEAN	12.0		15.1		15.6	
HIGHEST ANNUAL MEAN					17.6	
LOWEST ANNUAL MEAN					15.1	
HIGHEST DAILY MEAN	322 Sep 24		389 May 27		389 May 27 2002	
LOWEST DAILY MEAN	2.5 Sep 19		1.2 Aug 23		1.2 Aug 23 2002	
ANNUAL SEVEN-DAY MINIMUM	2.7 Sep 13		1.5 Aug 18		1.5 Aug 18 2002	
MAXIMUM PEAK FLOW			1120 May 26		1610 Sep 24 2001	
MAXIMUM PEAK STAGE			8.16 May 26		9.97 Sep 24 2001	
INSTANTANEOUS LOW FLOW			0.85 aAug 20		0.85 aAug 20 2002	
10 PERCENT EXCEEDS	15		30		30	
50 PERCENT EXCEEDS	5.8		8.8		8.3	
90 PERCENT EXCEEDS	3.9		3.8		3.3	

a Also Aug. 23, 2002.



POTOMAC RIVER BASIN

01643880 BEAVERDAM CREEK AT ROUTE 734 NEAR MOUNTVILLE, VA

LOCATION.--Lat 39°02'16", long 77°43'20", NAD83, Loudoun County, Hydrologic Unit 02070008, on left bank 250 ft downstream from State Highway 743 and 2.0 mi northwest of Mountville.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--July 2001 to current year.

GAGE.--Water stage recorder. Elevation of gage is 315 ft NVGD of 1929, from topographic map.

REMARKS.--Records good except for period with ice effect, Jan. 3, 4, 2002, which is fair.

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	---	---	---	---	---	---	---	---	---	---	3.3	1.4
2	---	---	---	---	---	---	---	---	---	---	2.1	1.1
3	---	---	---	---	---	---	---	---	---	---	1.6	0.93
4	---	---	---	---	---	---	---	---	---	---	2.0	0.85
5	---	---	---	---	---	---	---	---	---	---	1.7	0.84
6	---	---	---	---	---	---	---	---	---	---	1.4	0.76
7	---	---	---	---	---	---	---	---	---	---	1.2	0.86
8	---	---	---	---	---	---	---	---	---	---	1.1	0.82
9	---	---	---	---	---	---	---	---	---	---	1.0	0.80
10	---	---	---	---	---	---	---	---	---	---	0.88	0.80
11	---	---	---	---	---	---	---	---	---	---	38	0.90
12	---	---	---	---	---	---	---	---	---	---	106	1.5
13	---	---	---	---	---	---	---	---	---	---	31	1.9
14	---	---	---	---	---	---	---	---	---	---	18	1.7
15	---	---	---	---	---	---	---	---	---	---	8.7	1.4
16	---	---	---	---	---	---	---	---	---	---	5.0	1.3
17	---	---	---	---	---	---	---	---	---	---	3.6	1.0
18	---	---	---	---	---	---	---	---	---	---	3.5	0.80
19	---	---	---	---	---	---	---	---	---	---	5.9	0.66
20	---	---	---	---	---	---	---	---	---	---	3.8	1.6
21	---	---	---	---	---	---	---	---	---	---	2.6	0.79
22	---	---	---	---	---	---	---	---	---	---	2.1	1.8
23	---	---	---	---	---	---	---	---	---	---	1.8	4.9
24	---	---	---	---	---	---	---	---	---	---	1.5	74
25	---	---	---	---	---	---	---	---	---	---	1.3	4.4
26	---	---	---	---	---	---	---	---	---	---	1.2	2.6
27	---	---	---	---	---	---	---	---	---	---	1.2	1.8
28	---	---	---	---	---	---	---	---	---	---	1.0	1.5
29	---	---	---	---	---	---	---	---	---	---	3.2	1.3
30	---	---	---	---	---	---	---	---	---	---	8.8	1.7
31	---	---	---	---	---	---	---	---	---	---	5.2	1.9
TOTAL	---	---	---	---	---	---	---	---	---	---	43.1	275.28
MEAN	---	---	---	---	---	---	---	---	---	---	3.08	8.88
MAX	---	---	---	---	---	---	---	---	---	---	8.8	106
MIN	---	---	---	---	---	---	---	---	---	---	1.0	0.88

01643880 BEAVERDAM CREEK AT ROUTE 734 NEAR MOUNTVILLE, VA--Continued

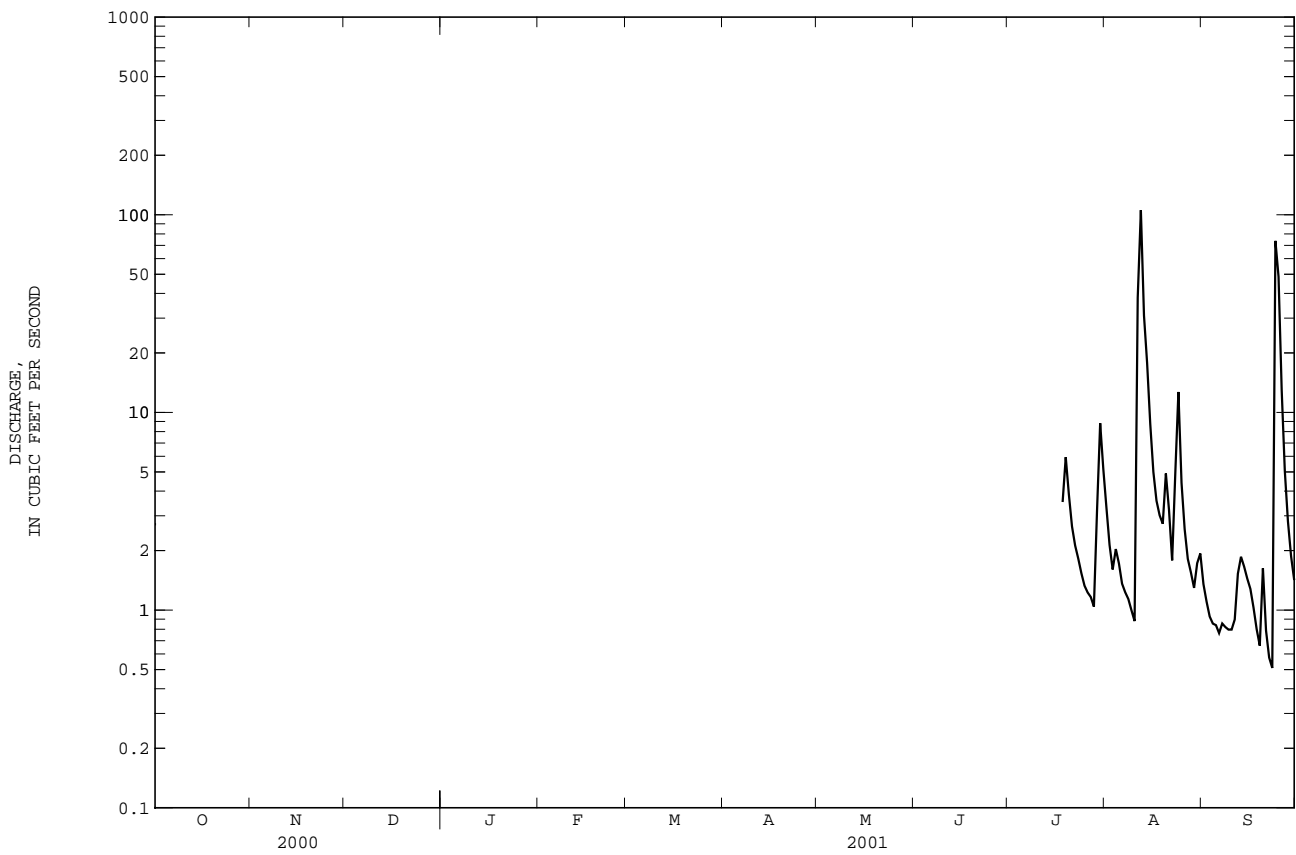
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	---	---	3.08	8.88	5.70
MAX	---	---	---	---	---	---	---	---	---	3.08	8.88	5.70
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001
MIN	---	---	---	---	---	---	---	---	---	3.08	8.88	5.70
(WY)	---	---	---	---	---	---	---	---	---	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 WATER YEAR

ANNUAL TOTAL	489.38
ANNUAL MEAN	6.53
HIGHEST DAILY MEAN	106 Aug 12
LOWEST DAILY MEAN	0.51 Sep 23
ANNUAL SEVEN-DAY MINIMUM	0.82 Sep 4
MAXIMUM PEAK FLOW	498 Aug 12
MAXIMUM PEAK STAGE	6.12 Aug 12
INSTANTANEOUS LOW FLOW	0.42 Sep 24
10 PERCENT EXCEEDS	13
50 PERCENT EXCEEDS	1.7
90 PERCENT EXCEEDS	0.80



POTOMAC RIVER BASIN

01643880 BEAVERDAM CREEK AT ROUTE 734 NEAR MOUNTVILLE, VA--Continued

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	1.1	0.46	3.0	3.0	6.0	1.8	29	45	20	4.4	1.2	1.1
2	0.87	0.63	2.8	2.8	5.2	2.2	24	99	15	3.8	0.90	1.1
3	0.66	0.57	2.8	e2.8	4.2	23	21	62	11	3.4	0.65	0.84
4	0.44	0.51	2.7	e2.8	3.7	18	18	42	9.7	2.7	0.72	0.54
5	0.35	0.47	2.7	2.9	3.0	13	16	39	13	2.1	0.83	0.32
6	0.73	0.51	2.5	3.3	2.9	9.3	15	33	22	1.6	7.2	0.29
7	0.89	0.39	2.5	5.0	4.2	6.1	13	31	16	1.2	2.2	0.22
8	0.92	0.32	3.5	5.7	5.7	5.0	12	31	11	1.2	0.93	0.17
9	1.1	0.26	6.8	5.3	4.9	4.6	12	29	8.4	1.2	0.56	0.13
10	1.4	0.27	5.9	5.3	3.8	4.5	15	29	7.0	1.5	0.39	0.10
11	1.7	0.25	7.5	7.2	4.1	3.6	12	22	5.8	1.6	0.33	0.07
12	2.1	0.38	8.2	8.6	4.3	3.4	10	19	4.9	1.4	0.22	0.04
13	2.7	1.5	7.7	7.6	4.0	7.4	11	19	32	1.1	0.19	0.03
14	3.2	1.9	7.7	6.4	3.2	15	12	17	69	36	0.14	0.03
15	4.3	2.2	7.4	5.8	3.0	10	15	14	105	18	0.09	0.03
16	2.4	2.7	6.5	5.1	3.0	8.4	13	12	42	7.2	0.08	0.03
17	1.3	2.5	5.9	5.0	2.8	7.6	9.2	11	30	4.2	0.07	0.05
18	0.79	2.2	6.5	4.5	2.7	15	9.0	26	25	2.9	0.05	0.04
19	0.47	2.3	6.0	4.6	2.7	17	12	20	27	2.6	0.04	0.03
20	0.62	2.3	5.6	5.2	2.6	96	9.7	14	25	2.3	0.04	0.03
21	0.43	2.1	4.9	5.3	2.7	66	9.5	11	19	2.0	0.03	0.03
22	0.38	1.8	4.7	5.4	2.4	41	36	9.3	15	1.6	0.03	0.20
23	0.38	1.9	4.6	6.2	2.3	33	24	8.3	13	1.5	0.03	6.7
24	0.44	3.5	5.4	7.6	2.1	29	16	7.5	11	3.4	0.03	1.8
25	0.27	17	4.9	9.2	2.0	26	16	6.8	8.9	3.0	0.03	0.51
26	0.17	27	4.8	7.9	2.1	27	13	18	8.0	10	0.02	2.4
27	0.26	10	4.4	6.9	2.0	62	9.1	121	8.2	16	0.02	29
28	0.17	5.3	4.2	6.2	1.9	37	107	61	7.7	17	0.33	24
29	0.20	4.1	4.1	6.4	---	32	119	38	6.2	6.5	0.76	11
30	0.28	3.8	3.7	2.9	---	28	61	29	5.2	3.2	1.1	4.5
31	0.60	---	3.4	4.0	---	26	---	24	---	1.8	0.56	---
TOTAL	31.62	99.12	153.3	166.9	93.5	677.9	698.5	947.9	601.0	166.4	19.77	85.33
MEAN	1.02	3.30	4.95	5.38	3.34	21.9	23.3	30.6	20.0	5.37	0.64	2.84
MAX	4.3	27	8.2	9.2	6.0	96	119	121	105	36	7.2	29
MIN	0.17	0.25	2.5	2.8	1.9	1.8	9.0	6.8	4.9	1.1	0.02	0.03

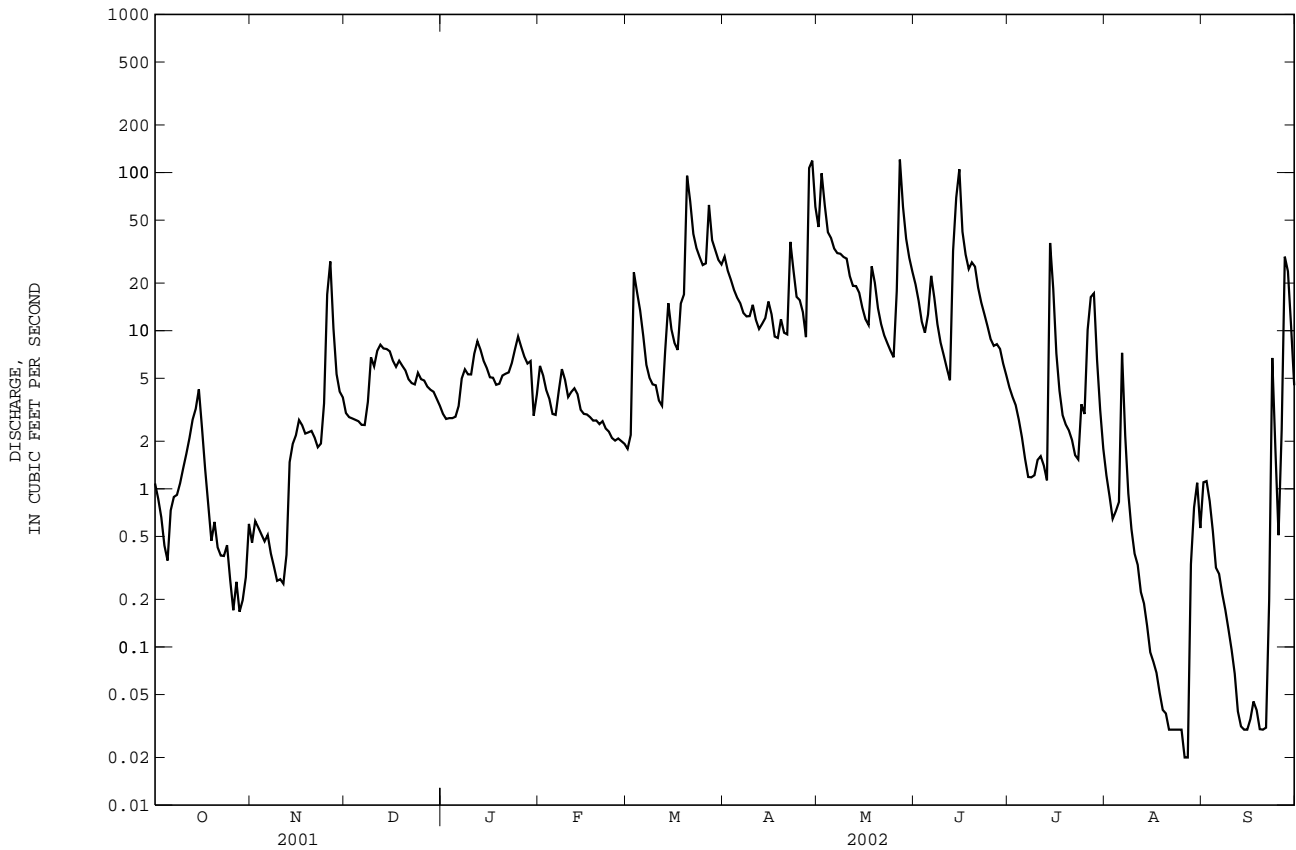
01643880 BEAVERDAM CREEK AT ROUTE 734 NEAR MOUNTVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.02	3.30	4.95	5.38	3.34	21.9	23.3	30.6	20.0	4.66	4.76	4.27
MAX	1.02	3.30	4.95	5.38	3.34	21.9	23.3	30.6	20.0	5.37	8.88	5.70
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2001
MIN	1.02	3.30	4.95	5.38	3.34	21.9	23.3	30.6	20.0	3.08	0.64	2.84
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2001	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2001 - 2002	
ANNUAL TOTAL	773.42		3741.24			
ANNUAL MEAN	4.63		10.2		9.62	
HIGHEST ANNUAL MEAN					10.2	2002
LOWEST ANNUAL MEAN					6.53	2001
HIGHEST DAILY MEAN	106	Aug 12	121	May 27	121	May 27 2002
LOWEST DAILY MEAN	0.17	Oct 26	0.02	aAug 26	0.02	aAug 26 2002
ANNUAL SEVEN-DAY MINIMUM	0.26	Oct 24	0.03	Aug 21	0.03	Aug 21 2002
MAXIMUM PEAK FLOW			293	Jun 15	498	Aug 12 2001
MAXIMUM PEAK STAGE			4.87	Jun 15	6.12	Aug 12 2001
INSTANTANEOUS LOW FLOW			0.02	bAug 26	0.02	bAug 26 2002
10 PERCENT EXCEEDS	7.5		27		26	
50 PERCENT EXCEEDS	1.9		4.3		3.5	
90 PERCENT EXCEEDS	0.44		0.26		0.32	

a Also Aug. 27, 2002.
 b Also Aug. 27, 28, 2002.
 e Estimated.



POTOMAC RIVER BASIN

01644000 GOOSE CREEK NEAR LEESBURG, VA

LOCATION.--Lat 39°01'10", long 77°34'39", NAD83, Loudoun County, Hydrologic Unit 02070008, on left bank 400 ft upstream from bridge on State Highway 621 at Evergreen Mills, 1.4 mi downstream from Little River, 6.7 mi south of Leesburg, and 10.9 mi upstream from mouth.

DRAINAGE AREA.--332 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1909 to April 1911, September 1911 to December 1912, January 1930 to current year.

REVISED RECORDS.--WSP 851: 1935-37. WSP 951: 1933(M), 1937. WSP 1302: 1934-35(M). WSP 2103: Drainage area. WDR VA-72-1: 1937(M), 1943(M), 1951(M), 1956(M). WDR VA-79-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 248.93 ft NGVD of 1929. July 12, 1909, to Dec. 31, 1912, nonrecording gage at site 1,000 ft downstream at different datum. Jan. 21, 1930, to Nov. 28, 1938, non-recording gage at site 400 ft downstream at datum 4.20 ft lower than present datum.

REMARKS.--Records good except those for period with ice effect, Dec. 31 to Jan. 3 and periods of doubtful or no gage-height record, May 2, 3, 9-13, June 19, 20, and Sept. 18-21, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 78,100 ft³/s, from rating curve extended above 11,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1889 reached a stage of about 29 ft, discharge, about 45,000 ft³/s, site and datum in use 1930-38, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	43	24	45	e29	45	34	158	352	137	38	18	8.6
2	39	26	41	e26	46	35	142	e800	113	33	14	11
3	35	32	40	e27	44	150	119	e720	90	30	11	11
4	33	25	39	28	41	178	105	289	79	27	10	9.1
5	32	21	36	27	37	99	94	252	79	24	10	8.2
6	30	21	35	29	35	77	89	217	114	20	23	7.2
7	37	21	33	39	37	67	83	187	113	17	32	6.2
8	40	21	38	45	42	60	78	183	89	16	16	5.7
9	39	21	56	43	44	56	77	e171	73	15	10	5.1
10	38	22	58	43	45	54	89	e150	65	17	7.6	4.8
11	38	23	70	46	45	51	87	e140	59	17	6.5	5.2
12	44	23	80	53	45	47	76	e130	53	20	5.6	5.7
13	43	23	78	57	44	57	76	e129	64	17	4.6	6.1
14	40	23	71	50	42	80	79	115	383	151	3.9	6.5
15	93	23	67	46	41	82	85	101	604	209	2.7	7.5
16	69	24	61	43	39	71	87	88	323	83	2.6	9.3
17	54	23	55	40	39	67	77	82	171	44	2.9	12
18	36	24	57	39	38	83	70	114	123	30	3.2	e10
19	28	24	56	39	37	97	69	149	e315	24	3.2	e9.0
20	22	24	53	40	35	447	120	106	e210	21	2.9	e7.8
21	21	24	48	42	36	522	149	87	156	22	2.6	e7.0
22	23	24	44	42	36	286	363	78	112	18	2.5	22
23	21	24	43	41	36	200	350	73	90	15	3.1	48
24	23	26	46	44	34	164	212	70	77	16	3.3	22
25	25	58	46	49	33	143	169	66	67	18	3.1	11
26	22	213	46	49	33	135	151	e63	60	25	3.1	10
27	20	124	43	47	35	331	124	e690	58	63	3.2	102
28	20	72	39	43	35	257	654	e450	58	175	5.5	141
29	20	57	39	42	---	189	1070	340	51	70	18	79
30	20	50	33	44	---	165	499	226	43	36	16	46
31	21	---	e32	43	---	151	---	171	---	24	9.3	---
TOTAL	1069	1140	1528	1275	1099	4435	5601	6789	4029	1335	259.4	644.0
MEAN	34.5	38.0	49.3	41.1	39.2	143	187	219	134	43.1	8.37	21.5
MAX	93	213	80	57	46	522	1070	800	604	209	32	141
MIN	20	21	32	26	33	34	69	63	43	15	2.5	4.8
CFSM	0.10	0.11	0.15	0.12	0.12	0.43	0.56	0.66	0.40	0.13	0.03	0.06
IN.	0.12	0.13	0.17	0.14	0.12	0.50	0.63	0.76	0.45	0.15	0.03	0.07

01644000 GOOSE CREEK NEAR LEESBURG, VA--Continued

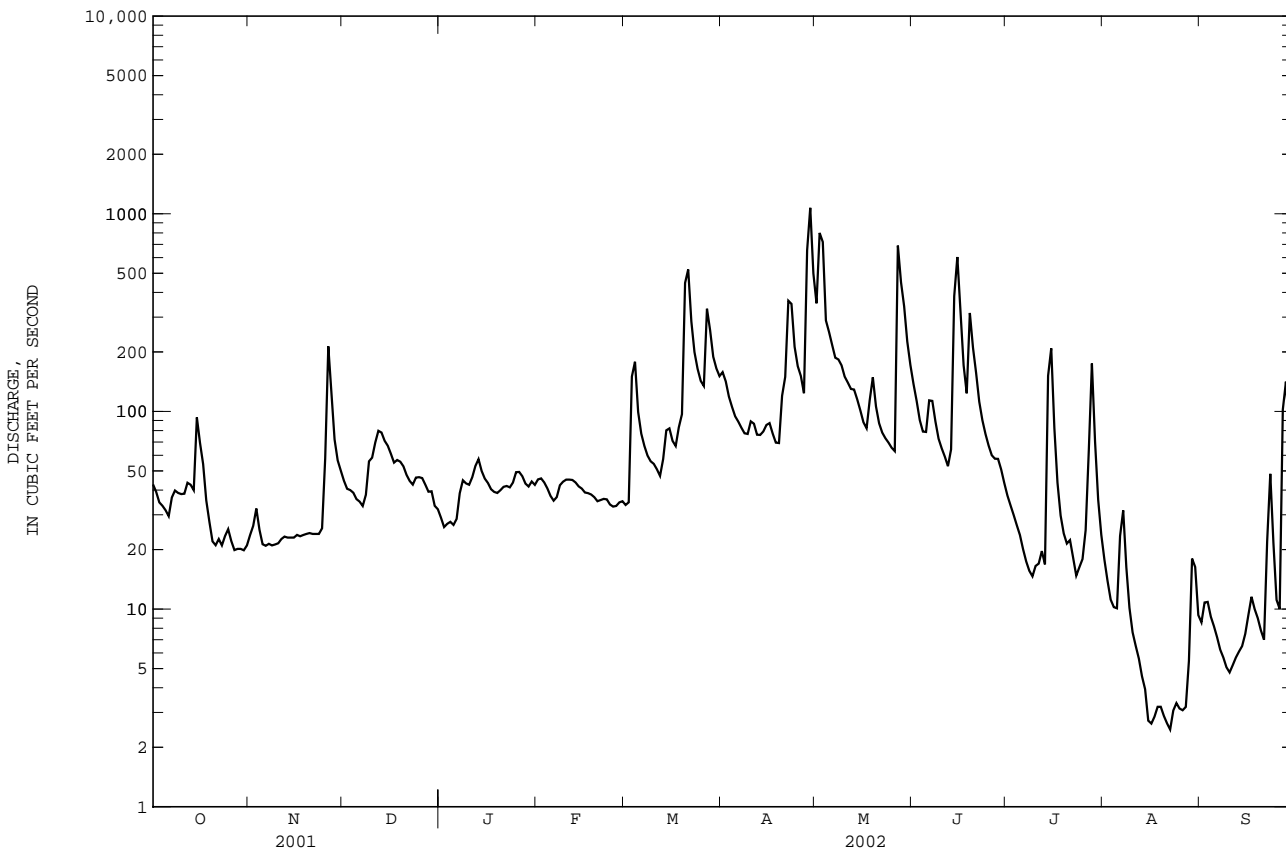
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 1912, 1930 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	192	215	324	407	504	590	512	362	255	136	152	134
MAX	2265	1155	1316	1499	1621	1892	1766	1322	2887	1207	1188	1054
(WY)	1943	1933	1993	1996	1998	1993	1983	1989	1972	1956	1937	1945
MIN	2.12	3.83	14.8	25.8	26.3	83.6	141	85.5	24.8	6.46	1.86	1.38
(WY)	1931	1931	1966	1966	1931	1931	1981	1969	1999	1999	1930	1985

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1909 - 1912 1930 - 2002

ANNUAL TOTAL	77863.2		29203.4					
ANNUAL MEAN	213		80.0				317	
HIGHEST ANNUAL MEAN							664	
LOWEST ANNUAL MEAN							55.2	
HIGHEST DAILY MEAN	3700		Mar 30		1070		Apr 29	
LOWEST DAILY MEAN	5.7		Sep 19		2.5		Aug 22	
ANNUAL SEVEN-DAY MINIMUM	6.5		Sep 13		2.8		Aug 16	
MAXIMUM PEAK FLOW					1850		Apr 28	
MAXIMUM PEAK STAGE					3.89		Apr 28	
INSTANTANEOUS LOW FLOW					2.4		Aug 22	
ANNUAL RUNOFF (CFSM)	0.64				0.24			
ANNUAL RUNOFF (INCHES)	8.72				3.27			
10 PERCENT EXCEEDS	503				171		700	
50 PERCENT EXCEEDS	89				43		157	
90 PERCENT EXCEEDS	23				9.3		17	

- a Also Sept. 28-30, 1941.
- b From high-water mark in gage house.
- c Not determined.
- d Probably occurred Sept. 27-30, 1941.
- e Estimated.



POTOMAC RIVER BASIN

01644000 GOOSE CREEK NEAR LEESBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD--Water years 2001 to 2002 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample Type	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00618)
OCT												
23...	0930	REPLICATE	--	--	--	--	--	--	--	--	.31	--
23...	0935	ENVIRONMENTAL	21	198	7.1	14.5	13.5	747	6.8	67	--	--
NOV												
25...	1800	ENVIRONMENTAL	59	193	7.7	--	--	--	--	--	.89	--
25...	1930	ENVIRONMENTAL	87	198	7.5	--	--	--	8.8	--	.38	--
25...	2330	ENVIRONMENTAL	163	196	7.6	--	--	--	--	--	.40	--
26...	1000	ENVIRONMENTAL	186	172	7.8	--	--	--	--	--	1.2	.33
26...	1100	ENVIRONMENTAL	186	179	7.6	--	--	--	--	--	1.0	.32
26...	1300	ENVIRONMENTAL	197	178	7.3	--	--	--	--	--	.91	.30
26...	1500	ENVIRONMENTAL	215	180	7.2	--	--	--	--	--	.90	.29
27...	1200	ENVIRONMENTAL	121	191	7.2	--	--	--	--	--	.74	.19
DEC												
19...	0925	BLANK	--	--	--	--	--	--	--	--	--	--
19...	0930	ENVIRONMENTAL	62	187	7.5	5.5	6.2	750	10.1	83	.42	--
JAN												
28...	0900	ENVIRONMENTAL	43	198	6.8	2.0	2.8	754	13.4	100	.81	.27
FEB												
19...	0845	BLANK	--	--	--	--	--	--	--	--	--	--
19...	0900	ENVIRONMENTAL	38	185	7.7	1.5	2.5	759	13.2	98	.43	.18
MAR												
02...	2330	ENVIRONMENTAL	51	190	7.5	--	--	--	--	--	.40	.12
03...	0230	ENVIRONMENTAL	85	185	7.4	--	--	--	--	--	.60	.17
03...	0530	ENVIRONMENTAL	166	175	7.5	--	--	--	--	--	.68	.23
03...	1430	ENVIRONMENTAL	160	182	7.3	--	--	--	--	--	1.0	.39
04...	1100	ENVIRONMENTAL	176	202	7.2	.0	6.4	758	13.5	110	.89	.42
07...	0915	ENVIRONMENTAL	68	192	7.3	5.5	4.4	759	11.1	86	.79	.47
26...	2115	ENVIRONMENTAL	151	182	7.6	--	--	--	--	--	1.0	.58
27...	0615	ENVIRONMENTAL	305	172	7.6	--	--	--	--	--	1.1	.53
27...	0620	REPLICATE	--	--	--	--	--	--	--	--	1.2	.54
27...	1900	ENVIRONMENTAL	382	172	7.6	--	--	--	--	--	1.3	.59
28...	1215	ENVIRONMENTAL	251	171	7.7	15.0	9.8	757	12.1	107	1.0	.56
APR												
10...	0945	ENVIRONMENTAL	91	181	7.5	13.8	12.0	762	9.4	87	.45	.19
MAY												
06...	0930	ENVIRONMENTAL	223	162	7.2	14.5	14.8	760	9.5	94	.83	.47
JUN												
26...	0930	ENVIRONMENTAL	60	183	7.0	26.0	24.1	752	6.1	73	.84	.42
JUL												
09...	0930	ENVIRONMENTAL	15	200	7.3	23.0	24.3	753	9.2	112	.49	.18
AUG												
20...	0900	ENVIRONMENTAL	2.8	227	7.0	28.0	26.1	756	7.4	92	1.1	.84
SEP												
10...	1000	ENVIRONMENTAL	4.9	219	7.2	23.0	21.4	751	8.5	97	.48	.09

01644000 GOOSE CREEK NEAR LEESBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
OCT													
23...	<.002	.033	<.015	.28	.19	.22	--	--	.036	.016	.008	1.5	--
23...	<.002	.034	--	--	--	--	--	--	.036	.017	.009	--	--
NOV													
25...	E.002	.062	<.015	.83	.68	.74	--	--	.053	.019	.009	10	1.6
25...	E.002	.041	<.015	.34	.21	.25	--	--	.042	.011	E.004	12	2.8
25...	<.002	.040	<.015	.36	.21	.25	--	--	.053	.011	E.004	18	7.9
26...	.007	.341	<.015	.85	.42	.77	--	--	.194	.067	.050	37	18.6
26...	.007	.330	<.015	.68	.32	.65	--	--	.169	.058	.045	26	13.1
26...	.007	.309	<.015	.60	.32	.63	--	--	.141	.047	.033	22	11.7
26...	.007	.297	<.015	.60	.29	.59	--	--	.126	.040	.027	16	9.3
27...	.005	.194	<.015	.54	.30	.49	--	--	.082	.030	.020	7.0	2.3
DEC													
19...	<.002	<.013	<.015	.17	.20	--	--	--	<.004	<.004	<.007	1.3	--
19...	E.002	.198	<.015	.22	.16	.36	--	--	.045	.017	.009	4.3	.72
JAN													
28...	.003	.274	<.015	.54	.17	.44	--	--	.028	.017	.013	3.8	.44
FEB													
19...	<.002	<.013	<.015	<.10	<.10	--	--	--	<.004	<.004	<.007	--	--
19...	.003	.183	<.015	.24	.18	.37	--	--	.033	.015	.008	3.8	.39
MAR													
02...	.003	.124	<.015	.27	.29	.42	--	--	.034	.012	<.007	6.1	.84
03...	.003	.173	<.015	.43	.20	.38	--	--	.069	.011	<.007	36	8.2
03...	.003	.229	<.015	.45	.24	.47	--	--	.070	.013	<.007	35	15.9
03...	.007	.397	.051	.62	.42	.81	.57	.36	.080	.019	<.007	24	10.2
04...	.007	.431	<.015	.46	.29	.73	--	--	.060	.020	.011	15	7.2
07...	.005	.473	<.015	.32	.23	.70	--	--	.043	.017	.009	9.6	1.8
26...	.005	.587	.019	.44	.32	.91	.42	.30	.045	.013	.009	8.2	3.3
27...	.006	.533	.040	.54	.29	.82	.50	.25	.108	.024	.015	42	34.6
27...	.006	.542	.037	.61	.31	.85	.58	.27	.111	.023	.014	34	--
27...	.007	.596	.052	.66	.34	.94	.61	.29	.124	.024	.014	44	45.7
28...	.006	.570	.029	.46	.35	.92	.43	.32	.065	.015	.009	9.4	6.4
APR													
10...	.008	.200	E.009	.25	.24	.44	--	--	.035	.014	E.005	3.2	.79
MAY													
06...	.007	.477	.026	.35	.28	.76	.32	.26	.057	.024	.013	11	6.5
JUN													
26...	.009	.431	.053	.41	.32	.75	.35	.27	.069	.033	.022	15	2.4
JUL													
09...	.006	.184	.048	.31	.29	.48	.26	.24	.051	.028	.018	5.2	.21
AUG													
20...	.008	.844	.020	.22	.18	1.0	.20	.16	.016	.011	E.006	4.5	.03
SEP													
10...	.004	.098	.058	.38	.29	.39	.32	.24	.039	.023	.014	2.5	.03

E Estimated value.

< Actual value is known to be less than the value shown.

POTOMAC RIVER BASIN

01644000 GOOSE CREEK NEAR LEESBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT	
23...	--
23...	--
NOV	
25...	84
25...	84
25...	90
26...	98
26...	94
26...	97
26...	88
27...	86
DEC	
19...	--
19...	--
JAN	
28...	--
FEB	
19...	--
19...	--
MAR	
02...	--
03...	--
03...	--
03...	--
04...	--
07...	--
26...	--
27...	97
27...	--
27...	--
28...	--
APR	
10...	--
MAY	
06...	--
JUN	
26...	--
JUL	
09...	--
AUG	
20...	--
SEP	
10...	--

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POTOMAC RIVER BASIN

01644280 BROAD RUN NEAR LEESBURG, VA

LOCATION.--Lat 39°02'47", long 77°25'57", NAD83, Loudoun County, Hydrologic Unit 02070008, on right bank 15 ft upstream from State Highway 7 and 8 mi southeast of Leesburg.

DRAINAGE AREA.--76.1 mi².

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water stage recorder. Elevation of gage is 195 ft NVGD of 1929, from topographic map.

REMARKS.--Records good except for period of no gage-height record, July 19-23, which is fair.

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	20	5.5	9.7	7.2	16	8.8	55	78	29	5.7	4.2	57
2	16	4.8	7.4	6.6	15	12	44	513	22	4.2	3.7	60
3	14	5.8	6.0	7.4	13	233	34	236	17	3.4	3.5	29
4	12	4.9	5.5	9.2	12	80	27	87	13	3.3	11	20
5	9.7	3.8	6.0	6.3	11	46	23	69	11	2.9	6.4	14
6	6.9	4.1	4.9	13	11	36	19	49	83	2.4	13	11
7	6.8	5.0	4.4	58	14	29	16	41	33	2.3	9.3	8.1
8	5.8	3.9	12	45	18	27	14	39	21	2.4	4.0	6.9
9	5.3	4.0	47	30	16	22	17	33	13	2.3	2.9	5.9
10	5.4	4.0	26	23	14	20	49	30	9.4	2.6	2.4	4.8
11	5.0	3.8	72	33	15	17	30	24	6.9	3.9	2.8	3.8
12	5.2	3.7	52	41	14	16	22	20	5.4	2.8	2.5	2.7
13	4.9	3.6	37	30	14	54	20	104	36	2.3	1.9	3.0
14	14	3.6	39	23	13	73	18	49	98	265	1.6	2.7
15	147	3.7	36	20	12	45	18	28	189	121	1.7	2.9
16	45	3.8	24	18	11	35	24	20	69	39	1.7	3.5
17	54	3.9	19	16	11	31	17	16	35	21	1.7	4.9
18	33	4.1	26	16	11	78	14	70	31	13	2.3	4.7
19	21	4.0	24	14	9.1	70	13	52	171	e7.0	2.0	3.9
20	15	4.0	18	17	9.3	477	13	26	151	e3.0	1.5	3.1
21	11	3.7	14	20	11	223	21	21	43	e2.1	1.3	2.6
22	8.4	3.6	12	22	9.0	95	185	15	27	e2.1	1.3	2.4
23	10	3.6	11	23	7.9	59	73	13	18	e2.0	1.4	8.7
24	8.6	3.6	28	24	8.5	48	38	11	13	14	1.7	10
25	4.7	55	25	32	8.0	40	30	8.7	9.8	10	2.6	5.6
26	4.3	116	16	30	8.0	55	27	8.9	7.8	31	3.5	49
27	5.6	35	14	24	9.7	247	21	866	8.8	41	24	273
28	4.6	20	11	20	9.9	88	947	413	13	21	75	174
29	4.1	13	9.5	18	---	53	561	111	12	12	244	52
30	4.2	11	8.5	19	---	43	141	58	8.1	7.8	65	31
31	6.2	---	7.3	16	---	38	---	40	---	5.1	32	---
TOTAL	517.7	348.5	632.2	681.7	331.4	2398.8	2531	3149.6	1204.2	657.6	531.9	860.2
MEAN	16.7	11.6	20.4	22.0	11.8	77.4	84.4	102	40.1	21.2	17.2	28.7
MAX	147	116	72	58	18	477	947	866	189	265	244	273
MIN	4.1	3.6	4.4	6.3	7.9	8.8	13	8.7	5.4	2.0	1.3	2.4
CFSM	0.22	0.15	0.27	0.29	0.16	1.02	1.11	1.34	0.53	0.28	0.23	0.38
IN.	0.25	0.17	0.31	0.33	0.16	1.17	1.24	1.54	0.59	0.32	0.26	0.42

01644280 BROAD RUN NEAR LEESBURG, VA--Continued

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

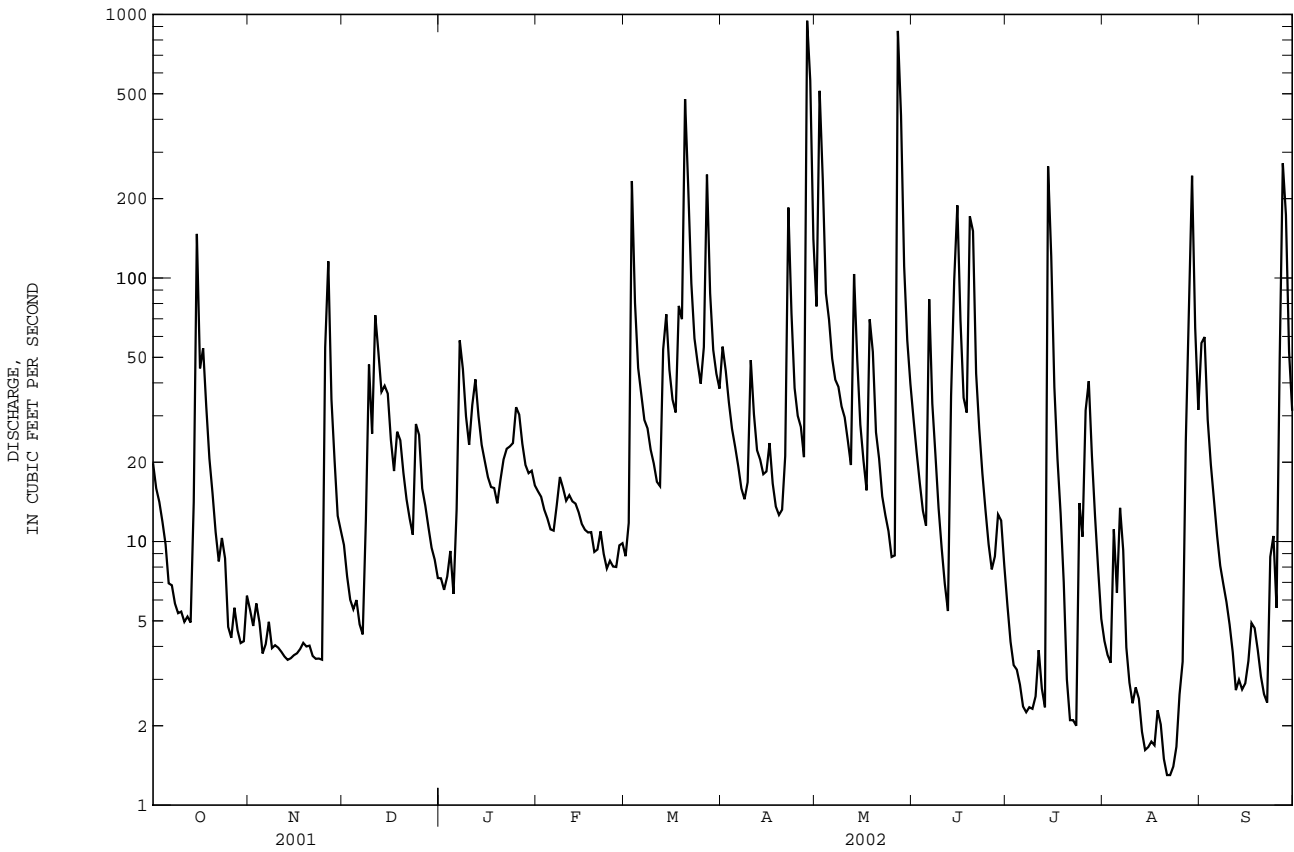
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	16.7	11.6	20.4	22.0	11.8	77.4	84.4	102	40.1	21.2	17.2	28.7
MAX	16.7	11.6	20.4	22.0	11.8	77.4	84.4	102	40.1	21.2	17.2	28.7
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002
MIN	16.7	11.6	20.4	22.0	11.8	77.4	84.4	102	40.1	21.2	17.2	28.7
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

SUMMARY STATISTICS

FOR 2002 WATER YEAR

ANNUAL TOTAL	13844.8
ANNUAL MEAN	37.9
HIGHEST DAILY MEAN	947 Apr 28
LOWEST DAILY MEAN	1.3 aAug 21
ANNUAL SEVEN-DAY MINIMUM	1.6 Aug 17
MAXIMUM PEAK FLOW	2050 Apr 28
MAXIMUM PEAK STAGE	7.77 Apr 28
INSTANTANEOUS LOW FLOW	1.3 bAug 20
ANNUAL RUNOFF (CFSM)	0.50
ANNUAL RUNOFF (INCHES)	6.77
10 PERCENT EXCEEDS	71
50 PERCENT EXCEEDS	14
90 PERCENT EXCEEDS	3.2

- a Also Aug. 22, 2002.
- b Also Aug. 21, 22, 2002.
- e Estimated.



POTOMAC RIVER BASIN

01646000 DIFFICULT RUN NEAR GREAT FALLS, VA

LOCATION.--Lat 38°58'33", long 77°14'45", NAD83, Fairfax County, Hydrologic Unit 02070008, on right bank 250 ft downstream from bridge on State Highway 193, 300 ft downstream from Rocky Run, 0.7 mi upstream from mouth, and 1.5 mi southeast of Great Falls.

DRAINAGE AREA.--57.9 mi².

PERIOD OF RECORD.--October 1934 to current year. Monthly discharge only October to December 1934, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M), 1937-38, 1939-40(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 151.30 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 1, 2, which is fair. Maximum discharge, 32,200 ft³/s, from rating curve extended above 1,600 ft³/s on basis of contracted- opening measurement at gage height 13.18 ft and slope-area measurement at gage height 21.40 ft. Minimum gage height, 1.65 ft, Sept. 9, 10, 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 28	1500	*1,240	*7.54	No other peak greater than base discharge.			

**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	16	16	17	e15	19	16	49	47	26	17	5.5	73
2	16	15	16	e14	18	16	30	300	23	15	4.2	38
3	16	15	15	16	17	174	27	106	20	14	8.0	18
4	16	16	14	16	17	38	25	51	19	13	43	9.8
5	13	15	14	19	17	24	23	48	19	11	18	6.4
6	13	14	14	43	16	21	22	39	53	8.9	28	5.6
7	15	15	15	75	22	21	21	37	34	6.1	9.7	5.0
8	12	15	28	30	23	20	21	34	21	6.0	5.2	4.7
9	11	14	49	23	18	20	24	32	18	6.2	4.2	4.6
10	12	18	22	22	17	25	66	33	17	8.7	3.8	4.6
11	13	15	75	36	20	20	28	28	16	7.8	3.3	3.8
12	12	14	33	30	18	18	24	30	15	5.5	2.7	3.0
13	12	14	23	23	18	80	24	83	46	5.0	8.6	2.5
14	12	16	24	20	17	45	24	30	62	182	3.2	2.5
15	112	16	24	19	17	27	23	25	86	43	2.1	2.8
16	21	17	21	19	17	24	21	24	30	19	2.3	3.3
17	34	18	18	18	17	25	21	24	20	14	2.1	3.6
18	18	16	25	18	16	56	20	67	17	11	1.7	3.2
19	15	16	20	18	16	34	20	40	331	10	1.4	2.9
20	14	19	18	27	17	159	26	27	73	9.3	1.1	2.5
21	14	19	17	24	17	67	43	24	32	11	0.92	2.1
22	14	17	16	24	16	37	139	22	25	8.2	0.69	3.1
23	14	17	16	23	16	31	40	22	21	13	0.66	8.5
24	14	18	50	28	16	29	27	21	19	52	0.67	7.6
25	14	33	25	31	15	27	25	20	18	18	5.5	4.5
26	14	103	20	23	16	28	24	24	17	23	3.2	39
27	13	24	18	21	21	128	20	435	17	23	1.7	160
28	14	19	18	20	17	39	578	111	52	17	130	50
29	14	17	17	20	---	32	163	45	45	13	147	17
30	17	17	17	20	---	30	64	34	20	9.9	29	8.8
31	16	---	16	19	---	31	---	29	---	7.6	13	---
TOTAL	561	598	715	754	491	1342	1662	1892	1212	608.2	490.44	500.4
MEAN	18.1	19.9	23.1	24.3	17.5	43.3	55.4	61.0	40.4	19.6	15.8	16.7
MAX	112	103	75	75	23	174	578	435	331	182	147	160
MIN	11	14	14	14	15	16	20	20	15	5.0	0.66	2.1
CFSM	0.31	0.34	0.40	0.42	0.30	0.75	0.96	1.05	0.70	0.34	0.27	0.29
IN.	0.36	0.38	0.46	0.48	0.32	0.86	1.07	1.22	0.78	0.39	0.32	0.32

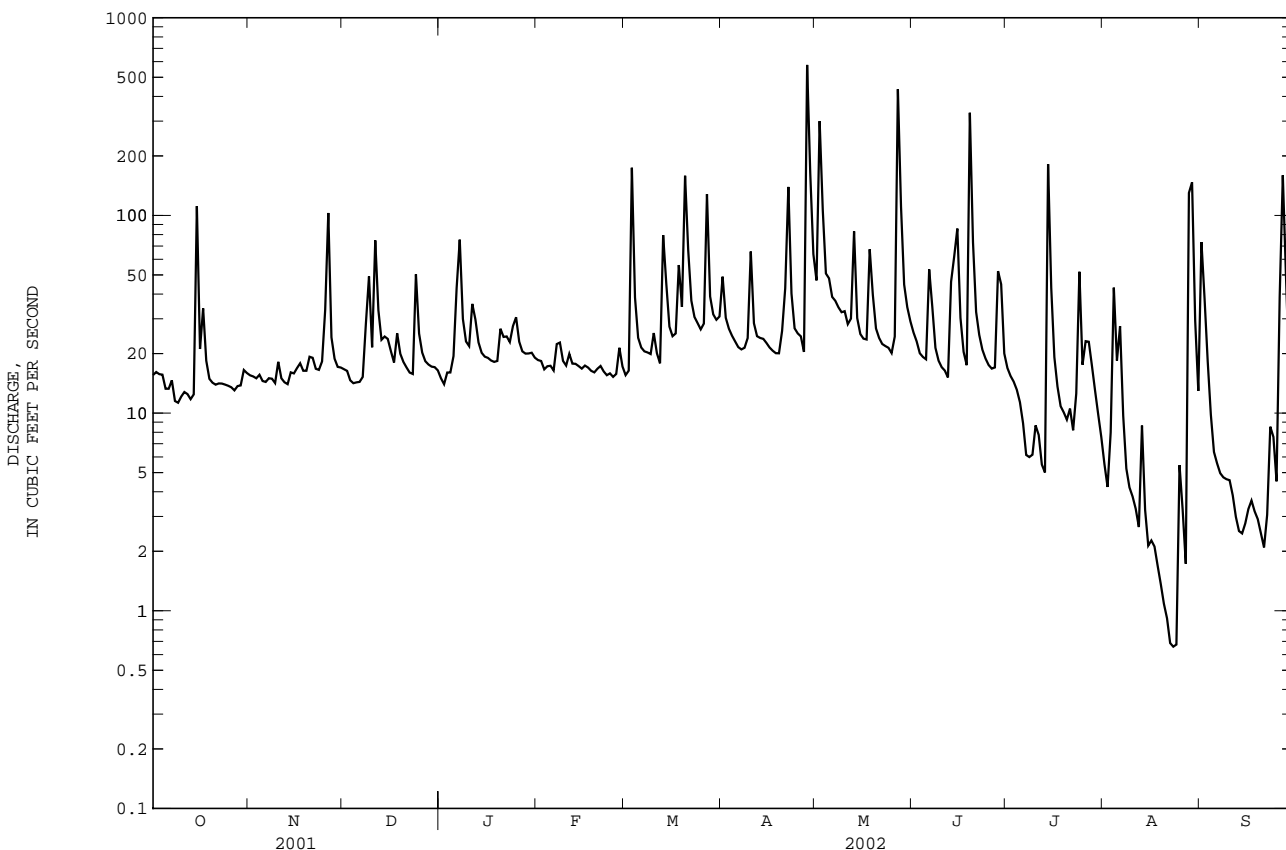
01646000 DIFFICULT RUN NEAR GREAT FALLS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	39.3	49.6	59.4	73.6	80.9	89.7	81.8	71.1	66.9	40.7	38.9	38.1
MAX	317	116	165	194	228	227	224	203	1210	115	143	245
(WY)	1980	1973	1997	1996	1998	1993	1973	1989	1972	1975	1955	1975
MIN	4.69	7.75	11.4	16.5	17.5	33.2	31.5	21.8	10.0	4.52	1.88	5.57
(WY)	1942	1942	1966	1966	2002	1981	1985	1955	1986	1955	1966	1986

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1935 - 2002	
ANNUAL TOTAL	21001		10826.04			
ANNUAL MEAN	57.5		29.7		60.7	
HIGHEST ANNUAL MEAN					184 1972	
LOWEST ANNUAL MEAN					28.4 1966	
HIGHEST DAILY MEAN	1080	Jun 23	578	Apr 28	e25000	Jun 22 1972
LOWEST DAILY MEAN	11	aAug 10	0.66	Aug 23	0.10	bSep 7 1966
ANNUAL SEVEN-DAY MINIMUM	12	Oct 8	1.0	Aug 18	0.16	Sep 3 1966
MAXIMUM PEAK FLOW			1240	Apr 28	32200	Jun 22 1972
MAXIMUM PEAK STAGE			7.54	Apr 28	c21.40	Jun 22 1972
INSTANTANEOUS LOW FLOW			0.55	dAug 22	0.05	fSep 9 1966
ANNUAL RUNOFF (CFSM)	0.99		0.51		1.05	
ANNUAL RUNOFF (INCHES)	13.49		6.96		14.24	
10 PERCENT EXCEEDS	99		49		104	
50 PERCENT EXCEEDS	28		18		37	
90 PERCENT EXCEEDS	15		5.1		13	

- a Also Sept. 19, and Oct. 9, 2001.
- b Also Sept. 8, 9, 1966.
- c From floodmarks.
- d Also Aug. 23, 24, 2002.
- e Estimated.
- f Also Sept. 10, 1966.



POTOMAC RIVER BASIN

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 mi².

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.--No estimated daily discharges. Records good. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D.C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; 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 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 24	1230	*55,400	*6.97	No other peak greater than base discharge.			

Minimum discharge, 228 ft³/s, Aug. 20.

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	1630	872	1780	945	2670	1360	8790	38300	8630	1360	4160	1940
2	1500	910	1630	943	2470	1400	7950	29300	6930	1390	3140	1740
3	1350	952	1440	919	2430	2210	9070	22900	5740	1250	2340	1250
4	1290	927	1380	1060	2370	2310	11000	23700	5100	1110	1840	1070
5	1180	881	1330	1010	2320	2370	10600	20600	4680	911	1600	944
6	1090	877	1320	1240	2280	2420	9240	15200	4250	809	1490	843
7	1150	909	1230	1520	2230	2460	7470	13000	3950	758	1320	788
8	1020	921	1280	1480	2140	2590	6280	11100	4140	549	1240	711
9	921	820	1520	1370	2060	2770	5880	9930	4220	386	1220	421
10	937	849	1420	1430	1980	2810	5720	10800	4160	480	1200	574
11	920	934	1610	1470	1910	2400	5030	15700	3610	580	1190	569
12	1050	888	1740	1640	1890	2290	4740	16200	3170	455	924	453
13	1340	893	1680	1800	1880	2490	4640	14000	2940	399	675	319
14	1270	884	1750	1750	1810	2500	4170	12100	3350	1340	448	398
15	1560	887	1840	1870	1760	2380	4120	11200	4990	1730	438	435
16	1470	864	1800	1970	1760	2280	4810	10700	5590	1340	378	373
17	1540	872	1890	2020	1690	2280	10400	9460	4800	1310	488	303
18	1430	873	1950	1900	1740	2470	10600	8870	4840	1560	372	394
19	1330	900	1990	1770	1680	2560	10200	9000	4530	2030	265	366
20	1410	867	2040	1720	1680	3830	8620	22800	3700	1660	258	409
21	1230	915	1870	1700	1650	8000	7560	21600	3000	1360	394	344
22	1160	883	1800	1600	1580	23200	7880	15400	2530	1150	330	351
23	1240	894	1640	1570	1540	25600	11000	12500	2170	1220	312	404
24	1130	971	1840	1660	1570	16400	48500	10900	1840	2000	358	566
25	1140	1120	1730	1820	1410	12000	35400	9180	1660	1640	620	745
26	1030	2610	1650	1940	1430	9800	23500	7920	1590	1310	408	1220
27	1070	2410	1600	2290	1450	9610	17700	11500	1540	1790	633	2630
28	945	2090	1510	2510	1330	10300	17400	11500	1490	1960	1630	2880
29	891	1800	1420	2710	---	10200	16200	11700	1550	2010	2550	3230
30	930	1760	1380	3130	---	10200	30800	11200	1430	2880	1730	4340
31	911	---	1200	2780	---	9480	---	9770	---	5920	1470	---
TOTAL	37065	33233	50260	53537	52710	192970	365270	458030	112120	44647	35421	31010
MEAN	1196	1108	1621	1727	1882	6225	12180	14780	3737	1440	1143	1034
MAX	1630	2610	2040	3130	2670	25600	48500	38300	8630	5920	4160	4340
MIN	891	820	1200	919	1330	1360	4120	7920	1430	386	258	303
(†)	615	598	558	566	554	561	629	642	730	786	806	700
MEAN ‡	1810	1706	2179	2292	2436	6784	12800	15410	4466	2227	1949	1734
CFSM ‡	0.16	0.15	0.19	0.20	0.21	0.59	1.11	1.33	0.39	0.19	0.17	0.15
IN ‡	0.18	0.16	0.22	0.23	0.22	0.68	1.24	1.54	0.43	0.22	0.19	0.17

† 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.

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1958, BY WATER YEAR (WY) (UNREGULATED)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6120	6496	9843	13570	16660	21060	19120	13610	7960	5135	5804	4419
MAX	44100	21040	30900	37190	36790	76510	36430	27780	19090	21040	28210	19940
(WY)	1943	1933	1951	1937	1939	1936	1933	1932	1951	1949	1955	1945
MIN	583	700	1536	2527	2982	6505	7202	3953	2867	1284	569	679
(WY)	1931	1931	1944	1956	1934	1931	1947	1930	1930	1930	1930	1930

SUMMARY STATISTICS

WATER YEARS 1930 - 1958

ANNUAL MEAN	10790
HIGHEST ANNUAL MEAN	16100
LOWEST ANNUAL MEAN	4525
HIGHEST DAILY MEAN	426000
LOWEST DAILY MEAN	448
ANNUAL SEVEN-DAY MINIMUM	499
INSTANTANEOUS PEAK FLOW	484000
INSTANTANEOUS PEAK STAGE	(a)28.10
INSTANTANEOUS LOW FLOW	430
ANNUAL RUNOFF (CFSM)	.93
ANNUAL RUNOFF (INCHES)	12.68
10 PERCENT EXCEEDS	23600
50 PERCENT EXCEEDS	6440
90 PERCENT EXCEEDS	1810

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2002, BY WATER YEAR (WY) (REGULATED, UNADJUSTED)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5879	7470	11070	13700	17250	24720	20480	14980	9141	4603	4053	4641
MAX	36790	42030	37630	52890	61040	67370	57850	40410	46630	17160	21720	44620
(WY)	1977	1986	1997	1996	1998	1994	1993	1989	1972	1972	1996	1996
MIN	908	1097	1038	1682	1883	6225	5810	3921	1536	599	538	791
(WY)	1964	1966	1966	1981	2002	2002	1995	1969	1999	1999	1966	1964

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1959 - 2002

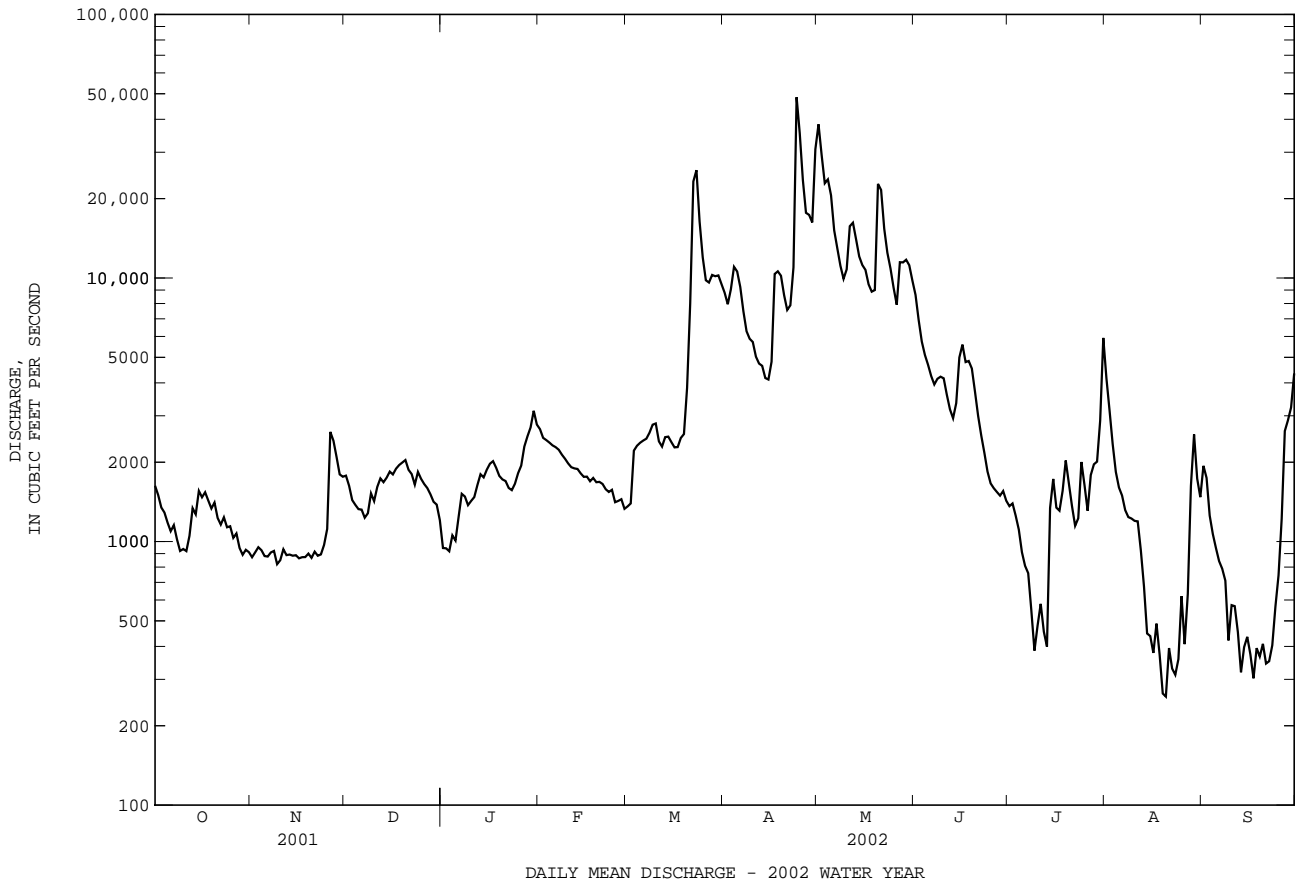
ANNUAL TOTAL	2573956	1466273	
ANNUAL MEAN	7052	4017	11470
ANNUAL MEAN†	7673	4662	11981
HIGHEST ANNUAL MEAN			23760
HIGHEST ANNUAL MEAN†			24370
LOWEST ANNUAL MEAN			4017
LOWEST ANNUAL MEAN†			4664
HIGHEST DAILY MEAN	64600	Mar 23	48500
LOWEST DAILY MEAN	820	Nov 9	258
LOWEST DAILY MEAN†	1450	Nov 10	994
ANNUAL SEVEN-DAY MINIMUM	878	Nov 14	327
MAXIMUM PEAK FLOW			55400
MAXIMUM PEAK STAGE			6.97
INSTANTANEOUS LOW FLOW			228
ANNUAL RUNOFF (CFSM)			0.35
ANNUAL RUNOFF (CFSM)†	0.61		0.40
ANNUAL RUNOFF (INCHES)	8.28		4.72
ANNUAL RUNOFF (INCHES)†	9.01		5.48
10 PERCENT EXCEEDS	16900		10700
50 PERCENT EXCEEDS	4170		1730
90 PERCENT EXCEEDS	1060		658

a At previous site, 1 mi upstream at same datum.

† Adjusted for diversion.

b Minimum daily discharge observed at gaging station, does not include diversion of 489 ft³/s.

c Includes diversion of 449 ft³/s for municipal use.



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, 747 microsiemens, Jan. 11, 1991; minimum, 68 microsiemens, Oct. 23, 1990.

WATER TEMPERATURE (water years 1989-93, 1995-99, 2001-02): Maximum, 33.5°C, July 11, 1993; minimum, 0.0°C, on many day during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 707 microsiemens/cm, Jan. 25; minimum, 144 microsiemens/cm, Apr. 28.

WATER TEMPERATURE: Maximum, 32.8°C, July 4; minimum, 0.5°C, Dec. 30.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	338	312	326	461	451	455	417	410	414	473	459	463
2	354	333	346	464	454	459	426	415	420	466	458	464
3	376	353	365	467	458	462	443	426	435	468	455	463
4	389	371	381	468	454	462	455	442	450	468	462	464
5	396	388	392	463	450	457	463	452	459	467	456	461
6	404	392	395	454	444	451	465	459	462	462	451	457
7	407	393	396	449	441	445	464	459	461	456	418	435
8	408	394	399	449	440	446	462	453	458	434	419	426
9	421	399	410	447	440	443	456	447	452	446	426	436
10	414	405	410	449	439	444	449	434	439	463	443	450
11	422	410	415	452	440	447	444	424	442	458	443	450
12	421	410	414	456	449	452	439	417	430	495	453	475
13	427	411	416	456	448	453	448	434	441	506	465	485
14	436	417	422	459	450	455	456	446	452	486	466	474
15	432	407	420	458	447	455	449	442	446	474	460	468
16	408	396	402	453	446	451	446	441	444	467	450	460
17	410	404	407	456	446	451	446	440	443	462	456	458
18	414	406	410	459	449	455	448	440	445	463	454	458
19	417	409	412	459	450	454	455	445	451	470	461	465
20	419	411	415	461	451	455	461	451	458	535	466	484
21	425	414	419	462	454	458	462	458	461	549	522	533
22	424	415	420	462	453	458	463	456	460	558	531	549
23	426	423	424	462	452	459	459	451	456	577	552	564
24	430	420	427	461	453	458	455	446	452	575	553	562
25	434	412	428	461	451	456	446	440	443	707	575	622
26	431	419	426	456	420	441	448	439	442	621	534	575
27	432	419	425	438	424	432	454	444	451	597	531	557
28	440	426	430	424	398	414	460	452	456	547	498	527
29	445	435	440	408	395	399	462	454	459	505	488	498
30	452	441	447	415	399	408	466	455	459	508	490	498
31	456	448	453	---	---	---	468	458	461	500	484	490
MONTH	456	312	409	468	395	448	468	410	448	707	418	489

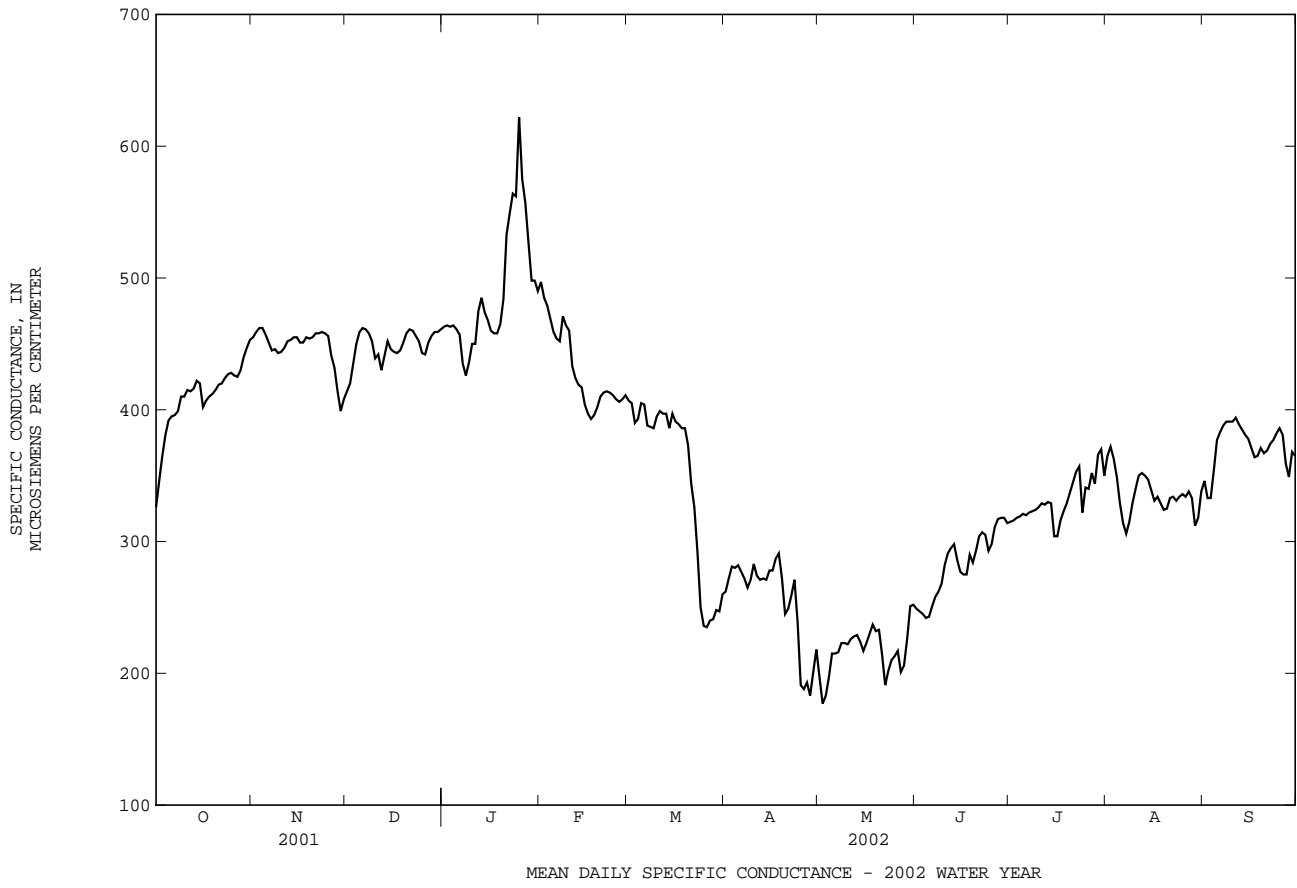
POTOMAC RIVER BASIN

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	509	478	497	409	403	407	270	256	262	232	181	197
2	493	473	485	409	401	405	280	260	272	189	145	177
3	485	473	479	406	366	390	285	279	281	189	177	183
4	477	448	469	403	383	393	283	278	280	208	189	197
5	466	448	459	410	401	405	287	279	282	219	208	215
6	460	446	454	409	393	404	281	272	277	217	213	215
7	458	448	452	393	383	388	280	265	272	220	213	216
8	484	458	471	395	381	387	271	260	265	226	220	223
9	471	459	464	391	380	386	290	263	271	224	222	223
10	467	453	460	400	389	395	300	268	283	224	221	222
11	453	420	433	403	395	399	281	267	274	230	222	226
12	429	416	424	402	394	397	276	268	271	230	226	228
13	423	416	419	407	391	397	276	270	272	232	224	229
14	425	406	417	397	381	386	274	267	271	225	222	224
15	409	400	404	401	382	397	289	269	278	222	215	217
16	401	393	397	396	388	391	281	274	278	230	218	223
17	395	392	393	393	385	389	293	281	287	233	228	230
18	399	392	396	389	383	386	296	286	291	244	232	237
19	406	395	402	388	384	386	287	252	272	234	230	232
20	417	406	410	393	311	373	252	242	245	236	230	233
21	417	412	413	355	315	344	259	243	249	236	193	214
22	417	411	414	347	304	326	264	254	259	194	189	191
23	416	410	413	347	262	292	276	262	271	208	194	202
24	413	407	411	262	243	250	269	199	239	211	207	210
25	411	404	408	243	233	236	199	187	191	216	209	213
26	412	403	406	243	230	235	191	186	188	222	214	217
27	416	402	408	252	234	240	198	190	193	228	165	201
28	416	404	411	244	239	241	215	144	183	214	200	206
29	---	---	---	257	240	248	207	186	201	240	209	226
30	---	---	---	254	242	247	232	207	218	265	240	251
31	---	---	---	267	253	260	---	---	---	258	247	252
MONTH	509	392	431	410	230	348	300	144	256	265	145	217
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	251	247	249	317	313	315	374	348	365	354	327	346
2	251	243	247	320	314	316	377	368	372	337	330	333
3	247	244	245	322	307	318	374	358	363	340	322	333
4	247	231	242	323	314	319	360	341	349	369	337	354
5	248	239	243	324	317	321	341	320	329	384	366	377
6	254	248	251	326	318	320	323	303	314	387	380	383
7	261	254	258	325	320	322	311	302	306	400	384	388
8	264	259	262	327	321	323	322	298	315	394	378	391
9	275	262	268	334	320	324	340	319	329	394	389	391
10	287	274	282	334	320	326	347	334	340	398	389	391
11	295	286	291	336	324	329	358	344	350	403	389	394
12	297	293	295	338	325	328	355	349	352	396	383	389
13	301	296	298	334	328	330	355	344	350	391	381	385
14	298	280	286	338	314	329	354	340	347	387	377	381
15	282	271	277	317	292	304	345	332	339	385	372	378
16	284	268	275	314	294	304	337	325	331	381	361	371
17	280	268	275	324	308	316	346	324	334	368	360	364
18	298	280	290	327	317	323	338	320	329	371	362	365
19	298	268	284	335	324	329	333	322	324	374	365	371
20	300	279	293	345	328	337	329	324	325	382	363	367
21	307	300	304	350	339	345	344	326	333	376	365	369
22	310	304	307	359	345	353	340	324	334	383	369	374
23	307	304	305	370	351	357	341	325	331	383	373	377
24	307	268	293	352	310	322	341	328	334	392	378	382
25	307	284	298	349	327	341	342	331	336	392	378	386
26	315	307	311	349	323	340	339	331	334	390	374	381
27	321	314	317	358	345	352	347	331	338	375	343	359
28	321	317	318	350	333	344	338	324	333	362	329	349
29	320	315	318	379	350	366	324	303	312	371	362	368
30	318	311	314	373	362	370	332	304	318	374	361	365
31	---	---	---	362	342	350	348	329	338	---	---	---
MONTH	321	231	283	379	292	331	377	298	336	403	322	372

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued



POTOMAC RIVER BASIN

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.3	16.7	17.0	13.1	11.5	12.2	14.8	14.1	14.4	3.0	.7	1.5
2	17.8	16.4	17.0	14.6	12.5	13.3	14.5	13.5	13.9	1.5	.8	1.1
3	21.1	17.0	18.0	14.5	13.9	14.2	13.5	12.4	13.0	1.3	.8	1.1
4	20.5	18.0	18.9	14.8	13.9	14.3	12.9	11.8	12.2	1.1	.7	.9
5	21.3	19.0	20.1	14.7	13.6	13.9	12.0	11.3	11.8	1.3	.9	1.1
6	20.8	19.4	20.1	13.6	12.7	13.0	12.0	11.3	11.6	1.3	.7	1.0
7	19.4	18.0	18.5	12.8	12.2	12.5	12.0	11.7	11.9	1.2	1.0	1.1
8	18.0	16.8	17.2	13.0	12.3	12.7	12.0	11.3	11.7	1.5	.8	1.1
9	17.0	15.8	16.2	12.5	11.7	12.1	11.3	10.8	11.0	1.6	1.0	1.3
10	16.0	15.2	15.6	12.2	11.3	11.7	10.9	9.8	10.2	1.5	1.2	1.3
11	16.8	15.1	15.9	11.6	11.1	11.4	9.9	9.4	9.6	2.5	.8	1.8
12	17.2	15.6	16.4	11.3	10.3	10.8	9.5	8.9	9.1	3.1	2.1	2.7
13	19.0	16.7	17.7	10.6	9.7	10.2	9.6	9.1	9.3	3.9	3.0	3.5
14	19.2	18.0	18.6	10.2	9.8	9.9	10.1	9.5	9.7	3.9	3.4	3.6
15	19.6	18.5	19.1	10.2	9.5	9.7	10.1	9.8	9.9	4.8	3.9	4.4
16	19.0	17.9	18.4	10.5	9.5	9.9	9.8	9.3	9.5	5.4	4.1	4.5
17	18.2	16.0	17.0	11.4	10.3	10.6	9.5	9.0	9.1	4.9	4.1	4.5
18	16.0	14.9	15.5	11.2	10.4	10.7	9.4	9.1	9.3	5.0	4.8	4.9
19	15.5	14.2	14.9	11.6	10.6	10.9	9.3	8.5	8.9	4.9	3.5	4.3
20	15.0	13.7	14.3	11.8	10.9	11.3	9.2	7.6	8.3	3.9	3.3	3.5
21	15.8	13.9	14.8	10.9	10.1	10.5	7.7	6.3	6.7	3.9	2.7	3.3
22	16.7	14.8	15.4	10.2	9.8	10.0	6.4	5.5	5.9	4.6	2.9	3.6
23	17.4	15.4	16.4	10.5	9.4	9.8	5.5	5.1	5.2	4.9	3.9	4.4
24	18.8	16.5	17.7	9.7	9.3	9.5	5.8	5.1	5.4	5.8	4.6	5.0
25	18.6	17.8	18.2	10.7	9.7	10.2	5.7	4.8	5.1	6.7	5.5	6.0
26	18.0	16.1	17.0	12.2	10.7	11.5	5.2	4.7	5.0	7.1	5.6	6.5
27	16.1	13.9	14.5	12.4	11.8	12.1	4.8	3.8	4.3	7.1	6.3	6.7
28	14.2	13.1	13.4	13.3	12.4	12.7	4.0	3.2	3.7	7.4	6.4	6.9
29	13.2	11.8	12.3	13.5	13.0	13.3	3.7	2.8	3.3	8.5	7.1	7.7
30	12.2	11.2	11.6	14.5	13.4	13.9	2.9	.5	1.9	10.2	8.4	9.0
31	11.8	10.9	11.4	---	---	---	2.3	1.5	1.8	10.0	9.5	9.7
MONTH	21.3	10.9	16.4	14.8	9.3	11.6	14.8	.5	8.5	10.2	.7	3.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.8	9.7	10.2	8.0	6.4	7.3	13.8	11.8	12.5	16.0	14.8	15.3
2	10.5	8.8	9.3	7.7	6.1	6.5	14.3	12.0	12.9	16.8	15.1	15.9
3	9.1	7.9	8.4	7.6	6.2	7.0	15.4	12.9	14.0	16.9	15.7	16.3
4	8.0	5.5	6.9	7.6	6.0	6.4	13.9	12.6	13.2	16.7	15.5	16.2
5	5.5	3.9	4.5	6.3	5.1	5.8	12.9	12.0	12.6	17.7	15.5	16.6
6	4.7	3.5	4.1	7.0	5.4	6.1	12.2	10.9	11.8	18.0	16.8	17.4
7	4.0	3.5	3.7	8.5	6.4	7.3	12.8	10.5	11.5	18.3	17.9	18.1
8	4.6	3.3	3.9	10.3	8.2	9.0	14.1	10.8	12.3	19.4	17.9	18.6
9	5.2	4.6	5.0	11.7	9.7	10.4	14.8	12.7	13.8	19.2	18.2	18.6
10	5.6	5.2	5.4	11.7	10.5	11.0	16.9	14.3	15.4	20.1	18.2	19.0
11	6.1	5.5	5.8	10.8	9.3	10.2	17.7	14.3	16.0	19.8	18.3	19.2
12	6.1	5.5	5.8	10.1	8.3	8.8	16.7	14.9	15.9	20.5	18.9	19.7
13	6.1	5.7	5.9	8.9	8.5	8.8	17.5	15.4	16.4	20.7	20.1	20.5
14	5.8	5.1	5.5	11.3	8.7	9.8	19.6	16.5	17.9	20.1	17.7	18.9
15	5.8	5.3	5.5	13.0	10.5	11.5	21.4	18.1	19.7	18.4	17.2	17.8
16	7.3	5.5	6.2	13.5	13.0	13.2	23.3	19.6	21.4	19.2	17.5	18.3
17	7.3	6.1	6.6	13.3	11.7	12.6	24.1	21.5	22.8	21.2	19.0	20.2
18	6.9	5.3	6.0	11.7	10.7	11.2	23.6	22.4	22.8	20.6	18.3	19.7
19	6.9	5.6	6.3	11.2	10.4	10.8	23.2	22.3	22.8	18.9	17.0	17.8
20	7.3	5.9	6.5	11.1	9.1	10.1	23.0	22.0	22.7	17.7	16.6	17.2
21	9.2	6.9	7.9	11.7	9.2	10.1	22.0	19.7	21.4	17.4	15.4	16.2
22	9.7	8.3	8.9	9.9	8.3	9.0	19.7	17.6	18.5	16.3	14.8	15.6
23	9.7	8.6	9.2	8.7	7.2	8.1	17.7	16.5	17.1	17.2	15.7	16.5
24	9.6	8.2	8.9	8.8	7.6	8.3	17.1	15.2	16.5	18.9	17.1	17.9
25	9.4	7.9	8.7	10.1	8.7	9.2	15.2	13.9	14.2	20.1	18.5	19.3
26	9.9	8.2	9.1	9.6	9.1	9.3	14.8	13.2	14.1	21.6	19.3	20.3
27	9.9	7.8	8.8	9.8	8.7	9.3	15.2	13.7	14.4	21.4	19.1	20.4
28	8.0	5.6	6.9	10.0	8.1	9.0	15.8	14.2	15.1	21.7	20.4	20.9
29	---	---	---	11.6	9.2	10.4	15.8	14.7	15.2	22.6	21.0	21.7
30	---	---	---	13.2	10.7	12.0	15.7	14.2	14.9	23.9	21.9	22.9
31	---	---	---	12.7	11.8	12.5	---	---	---	25.4	23.3	24.3
MONTH	10.8	3.3	6.8	13.5	5.1	9.4	24.1	10.5	16.3	25.4	14.8	18.6

01646500 POTOMAC RIVER NEAR WASHINGTON, DC--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	27.2	24.5	25.9	29.2	28.2	28.5	32.2	29.8	30.9	23.0	22.0	22.4
2	27.5	25.6	26.4	29.7	28.8	29.1	31.8	29.6	30.8	22.7	21.8	22.2
3	26.7	25.0	25.7	31.8	29.5	30.2	31.6	30.4	30.8	22.5	21.9	22.1
4	26.9	24.6	25.7	32.8	30.5	31.2	30.8	30.1	30.5	25.2	22.2	23.6
5	27.6	24.9	26.3	31.5	30.9	31.3	31.3	30.2	30.7	25.9	24.0	24.8
6	28.1	25.8	26.9	31.4	30.1	30.5	30.9	29.3	29.8	25.4	24.7	24.9
7	26.9	25.4	26.1	30.1	28.7	29.4	29.3	27.7	28.4	25.0	24.7	24.9
8	26.3	24.0	25.2	28.7	27.9	28.2	28.4	26.8	27.5	25.3	24.8	24.9
9	26.7	23.6	25.2	29.4	27.8	28.4	27.8	26.3	26.9	25.6	24.8	25.1
10	27.8	24.4	26.3	29.1	28.2	28.6	27.1	26.3	26.6	26.7	24.8	25.3
11	28.7	26.0	27.4	28.2	27.0	27.4	27.4	26.6	27.0	25.3	24.5	25.0
12	29.5	27.0	28.4	27.0	26.4	26.5	28.0	27.1	27.5	24.7	24.0	24.3
13	28.7	26.7	27.6	27.3	26.2	26.4	29.7	27.8	28.3	24.3	23.7	24.0
14	26.7	24.7	25.4	26.4	24.6	25.5	29.3	28.2	28.7	24.5	23.9	24.2
15	25.1	23.5	24.3	26.5	24.6	25.0	30.9	29.2	29.7	24.4	24.0	24.2
16	24.9	23.4	24.1	27.6	24.9	26.2	30.8	29.5	30.0	25.5	24.0	24.5
17	25.5	23.0	24.2	29.1	26.4	27.3	30.2	29.5	29.9	25.9	24.5	25.1
18	26.2	23.4	24.9	29.0	26.9	28.0	31.0	29.7	30.2	25.1	24.4	24.7
19	25.8	23.9	24.9	29.9	28.4	29.1	31.7	30.1	30.9	25.0	24.3	24.5
20	26.9	23.8	25.3	29.8	28.8	29.2	30.9	29.9	30.3	24.8	24.4	24.6
21	27.5	24.8	26.1	29.9	29.1	29.4	30.0	28.9	29.4	25.2	24.7	25.0
22	27.7	25.9	26.6	29.6	28.8	29.1	29.7	28.7	28.9	26.1	25.1	25.7
23	27.9	26.7	27.1	30.9	29.3	29.8	29.9	29.5	29.7	25.8	24.4	25.2
24	29.1	27.8	28.2	30.8	28.3	28.8	29.5	29.0	29.2	24.4	23.5	24.0
25	29.7	28.6	29.0	28.9	27.5	28.2	29.1	28.5	28.9	23.8	23.0	23.2
26	30.6	29.6	29.9	27.5	26.2	26.6	29.0	27.7	28.4	23.1	21.8	22.6
27	30.3	29.5	29.9	26.5	25.6	26.0	27.7	27.2	27.5	21.8	20.9	21.4
28	30.3	29.2	29.6	26.9	25.8	26.2	27.5	24.7	26.3	22.5	21.1	21.8
29	29.9	28.2	29.0	29.5	26.9	28.1	24.7	23.2	23.8	22.9	21.2	22.1
30	29.3	28.0	28.4	30.7	29.1	29.8	23.2	22.4	22.8	22.8	21.4	22.2
31	---	---	---	31.2	28.9	30.1	23.0	22.4	22.7	---	---	---
MONTH	30.6	23.0	26.7	32.8	24.6	28.3	32.2	22.4	28.5	26.7	20.9	24.0



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 mi².

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, Sept. 12, 1981; minimum, 116 microsiemens, 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.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample Type	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, SATUR-ATION (MG/L) (00301)	ALKA-LINITY WAT DIS FIELD (MG/L AS CACO3) (39086)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)
OCT												
30...	1130	ENVIRONMENTAL	987	431	8.6	19.0	12.5	774	11.9	110	112	137
NOV												
27...	1115	ENVIRONMENTAL	2400	418	8.3	12.5	12.5	763	--	--	114	139
DEC												
13...	1100	ENVIRONMENTAL	1640	454	8.4	13.0	9.5	764	11.9	104	122	148
JAN												
15...	1145	ENVIRONMENTAL	1810	439	8.6	12.0	4.5	760	14.0	109	--	--
FEB												
13...	1230	ENVIRONMENTAL	1940	398	8.7	7.0	5.5	765	--	--	106	130
13...	1231	REPLICATE	--	--	--	--	--	--	--	--	--	--
MAR												
14...	1115	ENVIRONMENTAL	2650	389	8.8	18.5	10.0	764	12.6	111	--	--
APR												
10...	1159	BLANK	--	--	--	--	--	--	--	--	--	--
10...	1200	ENVIRONMENTAL	5780	259	8.1	17.5	15.5	776	10.9	108	59	72
24...	1030	ENVIRONMENTAL	54400	235	7.8	15.5	16.5	770	10.4	106	--	--
24...	1031	REPLICATE	--	--	--	--	--	--	--	--	--	--
MAY												
06...	1059	BLANK	--	--	--	--	--	--	--	--	--	--
06...	1100	ENVIRONMENTAL	15200	204	7.8	22.0	17.5	772	10.1	104	40	49
JUN												
11...	1015	ENVIRONMENTAL	3740	278	8.4	.0	27.5	760	8.6	109	64	78
11...	1016	REPLICATE	--	--	--	--	--	--	--	--	--	--
25...	1000	ENVIRONMENTAL	1600	287	8.5	30.5	29.5	763	7.8	102	84	102
JUL												
09...	1215	ENVIRONMENTAL	431	318	8.7	37.5	29.5	760	8.1	106	--	--
31...	0945	ENVIRONMENTAL	6390	332	8.9	32.5	30.0	760	7.9	105	--	89
AUG												
16...	0900	ENVIRONMENTAL	340	319	9.1	30.0	30.0	764	7.2	95	56	69
27...	1015	ENVIRONMENTAL	570	323	8.4	30.5	27.0	762	7.4	93	52	64
SEP												
10...	1029	BLANK	--	--	--	--	--	--	--	--	--	--
10...	1030	ENVIRONMENTAL	468	381	8.7	32.5	25.5	757	8.6	106	--	--
24...	0945	ENVIRONMENTAL	526	371	8.5	25.0	23.0	767	8.2	95	--	--

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CAR-BONATE	SULFATE	CHLO-RIDE,	SILICA,	RESIDUE	NITRO-GEN,		NITRO-GEN,	NITRO-GEN,	NITRO-GEN,	NITRO-GEN,AM-	NITRO-GEN,	PHOS-PHORUS
	WATER DIS IT FIELD	DIS-SOLVED	DIS-SOLVED	DIS-SOLVED	TOTAL AT 105 DEG. C, SUS-PENDE	GEN, DIS-SOLVED	GEN, DIS-SOLVED	GEN, DIS-SOLVED	GEN, DIS-SOLVED	GEN, DIS-SOLVED	MONIA + ORGANIC TOTAL	GEN, ORGANIC TOTAL	TOTAL
	MG/L AS CO3 (00452)	(MG/L AS SO4) (00945)	(MG/L AS CL) (00940)	(MG/L AS SIO2) (00955)	(MG/L) (00530)	(MG/L AS N) (00600)	(MG/L AS N) (00618)	(MG/L AS N) (00613)	(MG/L AS N) (00631)	(MG/L AS N) (00608)	(MG/L AS N) (00625)	(MG/L AS N) (00605)	(MG/L AS P) (00665)
OCT 30...	3	53.0	29.2	.4	<10	.63	--	<.008	.29	<.04	.34	--	.028
NOV 27...	--	51.9	30.1	.7	10	.87	--	<.008	.50	<.04	.37	--	.031
DEC 13...	--	61.0	26.8	.8	<10	1.0	--	<.008	.75	<.04	.29	--	.028
JAN 15...	--	44.0	28.3	E.1	<10	1.6	--	E.005	1.28	<.04	.28	--	.044
FEB 13...	--	42.6	28.1	<.2	<10	1.1	.83	.008	.84	<.04	.24	--	.034
13...	--	--	--	--	<10	--	--	--	--	--	--	--	--
MAR 14...	--	41.4	27.1	.3	<10	1.0	--	E.007	.65	<.04	.37	--	.037
APR 10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	37.5	13.3	2.9	<10	1.2	.86	.009	.87	<.04	.33	--	.075
24...	--	--	--	4.6	416	2.8	.65	.018	.67	.09	2.2	2.1	.67
24...	--	--	--	4.6	448	2.5	.65	.017	.67	.09	1.8	1.7	.70
MAY 06...	--	<.1	<.08	<.5	<10	--	--	<.006	<.05	<.04	E.04	--	<.004
06...	--	31.2	8.39	6.1	54	1.4	.88	.012	.89	E.04	.53	--	.117
JUN 11...	--	31.4	13.4	4.1	<10	.92	--	E.005	.64	<.04	.28	--	.078
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	4.6	<10	.87	--	E.006	.40	<.04	.47	--	.072
JUL 09...	--	34.9	21.1	7.6	34	.52	--	E.004	.09	<.04	.43	--	.082
31...	4	45.8	21.2	7.2	<10	.57	--	E.006	.18	<.04	.40	--	.089
AUG 16...	7	58.4	17.3	6.9	<10	--	--	<.008	E.02	<.04	.51	--	.059
27...	3	--	--	5.9	<10	.48	--	E.004	.09	<.04	.39	--	.062
SEP 10...	--	--	--	--	--	--	--	<.008	<.05	<.04	<.10	--	<.004
10...	--	61.2	28.2	2.7	<10	--	--	<.008	E.04	<.04	.33	--	.043
24...	--	--	--	.7	<10	--	--	<.008	E.03	<.04	.34	--	.035
Date	ORTHO-PHOS-PHATE, DIS-SOLVED	CARBON, ORGANIC DIS-SOLVED	CARBON, ORGANIC PARTIC-ULATE TOTAL	2,6-DI-ETHYL ANILINE WAT FLT	ACETO-CHLOR, WATER FLTRD	ALA-CHLOR, WATER, REC	ALPHA BHC DIS-SOLVED	ATRA-ZINE, WATER, REC	BEN-FLUR-ALIN WAT FLD	BUTYL-WATER, REC	CAR-BARYL WATER FLTRD	CARBO-FURAN WAT FLTRD	CHLOR-PYRIFOS DIS-SOLVED
	(MG/L AS P) (00671)	(MG/L AS C) (00681)	(MG/L AS C) (00689)	(MG/L GF, REC) (82660)	(UG/L) (49260)	(UG/L) (46342)	(UG/L) (34253)	(UG/L) (39632)	(UG/L) (82673)	(UG/L) (04028)	(UG/L) (82680)	(UG/L) (82674)	(UG/L) (38933)
OCT 30...	<.02	3.4	--	<.002	<.004	<.002	<.005	.029	<.010	<.002	<.041	<.020	<.005
NOV 27...	<.02	3.4	--	<.002	<.004	<.002	<.005	.027	<.010	<.002	E.004	<.020	<.005
DEC 13...	<.02	3.2	--	<.002	<.004	<.002	<.005	.028	<.010	<.002	<.041	<.020	<.005
JAN 15...	.02	2.5	--	<.006	<.006	<.004	<.005	.022	<.010	<.002	<.041	<.020	<.005
FEB 13...	E.01	2.6	.2	<.006	<.006	<.004	<.005	.021	<.010	<.002	<.041	<.020	<.005
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	<.02	3.4	.4	<.006	<.006	<.004	<.005	.021	<.010	<.002	<.041	<.020	<.005
APR 10...	--	.3	<.1	<.002	<.004	<.002	<.005	<.007	<.010	<.002	<.041	<.020	<.005
10...	.04	2.7	.6	<.006	<.006	<.004	<.005	.009	<.010	<.002	<.041	<.020	<.005
24...	.04	--	--	<.006	<.006	<.004	<.005	.022	<.010	<.002	<.041	<.020	<.005
24...	.04	--	--	<.006	<.006	<.011	<.005	.024	<.010	<.002	E.008	<.020	<.005
MAY 06...	<.02	--	--	--	--	--	--	--	--	--	--	--	--
06...	.04	3.4	2.2	<.006	<.006	<.004	<.005	.140	<.010	<.002	E.017	<.020	<.005
JUN 11...	.05	3.3	.3	<.006	<.006	<.004	<.005	.182	<.010	<.002	<.041	<.020	<.005
11...	--	3.0	.2	--	--	--	--	--	--	--	--	--	--
25...	.04	--	--	<.006	<.006	<.004	<.005	.336	<.010	<.002	<.041	<.020	<.005
JUL 09...	.05	--	--	<.006	<.006	<.004	<.005	.172	<.010	<.002	<.041	<.020	<.005
31...	.05	3.7	.4	<.006	<.006	<.004	<.005	.082	<.010	<.002	<.041	<.020	<.005
AUG 16...	.03	4.1	--	<.006	<.006	<.004	<.005	.036	<.010	<.002	<.041	<.020	<.005
27...	.04	--	--	<.006	<.006	<.004	<.005	.049	<.010	<.002	<.041	<.020	<.005
SEP 10...	<.02	--	--	--	--	--	--	--	--	--	--	--	--
10...	.02	3.9	.2	<.006	<.006	<.004	<.005	.045	<.010	<.002	<.041	<.020	<.005
24...	E.01	--	--	<.006	<.006	<.004	<.005	.050	<.010	<.002	<.041	<.020	<.005

E Estimated value.
 < Actual value is known to be less than the value shown.

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CYANA-	DCPA	DEETHYL	DIAZ-			DISUL-	EPTC	ETHAL-	ETHO-		HCH	
	ZINE, WATER, DISS, REC (UG/L) (04041)	WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)		FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)
OCT													
30...	<.018	<.003	E.044	97.2	<.005	<.005	<.02	<.002	<.009	<.005	<.003	89.1	<.004
NOV													
27...	<.018	<.003	E.046	100	E.005	<.005	<.02	<.002	<.009	<.005	<.003	92.6	<.004
DEC													
13...	<.018	<.003	E.035	108	<.005	<.005	<.02	<.007	<.009	<.005	<.003	98.1	<.004
JAN													
15...	<.018	<.003	E.031	94.0	<.005	<.005	<.02	<.004	<.009	<.005	<.003	87.2	<.004
FEB													
13...	<.018	<.003	E.033	91.7	<.005	<.005	<.02	<.013	<.009	<.005	<.003	87.6	<.004
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
14...	<.018	<.003	E.018	120	<.005	<.005	<.02	<.002	<.009	<.005	<.003	92.6	<.004
APR													
10...	<.018	<.003	<.006	121	<.005	<.005	<.02	<.002	<.009	<.005	<.003	108	<.004
10...	<.018	<.003	E.007	107	<.005	<.005	<.02	<.002	<.009	<.005	<.003	98.1	<.004
24...	<.018	<.003	E.009	105	<.005	<.005	<.02	<.002	<.009	<.005	<.003	100	<.004
24...	<.018	<.003	E.011	130	<.005	<.005	<.02	<.002	<.009	<.005	<.003	96.3	<.004
MAY													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
06...	<.018	<.003	E.013	106	<.005	<.005	<.02	<.002	<.009	<.005	<.003	102	<.004
JUN													
11...	<.018	<.003	E.036	119	<.005	<.005	<.02	<.002	<.009	<.005	<.003	104	<.004
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.018	<.003	E.067	106	<.005	<.005	<.02	<.002	<.009	<.005	<.003	99.1	<.004
JUL													
09...	<.018	<.003	E.051	118	<.005	<.005	<.02	<.002	<.009	<.005	<.003	91.4	<.004
31...	<.018	<.003	E.038	101	<.005	<.005	<.02	<.002	<.009	<.005	<.003	103	<.004
AUG													
16...	<.018	<.003	E.026	121	<.005	<.005	<.02	<.002	<.009	<.005	<.003	99.0	<.004
27...	<.018	<.003	E.030	118	<.005	<.005	<.02	<.002	<.009	<.005	<.003	88.0	<.004
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.018	<.003	E.038	118	<.005	<.005	<.02	<.002	<.009	<.005	<.003	118	<.004
24...	<.018	<.003	E.038	109	<.005	<.005	<.02	<.002	<.009	<.005	<.003	102	<.004
Date	LIN-		METHYL	METHYL			MOL-	NAPROP-			PEB-	PENDI-	PER-
	URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER DISSOLV (UG/L) (82630)		INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	P,P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)	FILTRD 0.7 U GF, REC (UG/L) (82669)	METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)
OCT													
30...	<.035	<.027	<.050	<.006	E.007	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006
NOV													
27...	<.035	<.027	<.050	<.006	E.007	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006
DEC													
13...	<.035	<.027	<.050	<.006	E.009	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006
JAN													
15...	<.035	<.027	<.050	<.006	E.007	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
FEB													
13...	<.035	<.027	<.050	<.006	E.008	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
14...	<.035	<.027	<.050	<.006	E.009	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
APR													
10...	<.035	<.027	<.050	<.006	<.013	<.006	<.002	<.007	<.003	<.007	<.002	<.010	<.006
10...	<.035	<.027	<.050	<.006	E.007	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
24...	<.035	<.027	<.050	<.006	E.011	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
24...	<.035	<.027	<.050	<.006	.016	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
MAY													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
06...	<.035	<.027	<.050	<.006	.028	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
JUN													
11...	<.035	<.027	<.050	<.006	.034	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.035	<.027	<.050	<.006	.055	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
JUL													
09...	<.035	<.027	<.050	<.006	.018	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
31...	<.035	<.027	<.050	<.006	E.013	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
AUG													
16...	<.035	<.027	<.050	<.006	E.007	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
27...	<.035	<.027	<.050	<.006	E.009	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.035	<.027	<.050	<.006	E.009	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006
24...	<.035	<.027	<.050	<.006	E.008	<.006	<.002	<.007	<.003	<.010	<.004	<.022	<.006

E Estimated value.

< Actual value is known to be less than the value shown.

01646580 POTOMAC RIVER AT CHAIN BRIDGE AT WASHINGTON, DC--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT (UG/L) (82661)
OCT													
30...	<.011	E.01	<.004	<.010	<.011	<.02	E.010	E.01	<.034	<.02	<.005	<.002	<.009
NOV													
27...	<.011	E.01	<.004	<.010	<.011	<.02	E.009	<.02	<.034	<.02	<.005	<.002	<.009
DEC													
13...	<.011	E.01	<.004	<.010	<.011	<.02	E.010	<.02	<.034	<.02	<.005	<.002	<.009
JAN													
15...	<.011	E.01	<.004	<.010	<.011	<.02	.008	<.02	<.034	<.02	<.005	<.002	<.009
FEB													
13...	<.011	M	<.004	<.010	<.011	<.02	.011	<.02	<.034	<.02	<.005	<.002	<.009
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR													
14...	<.011	E.01	<.004	<.010	<.011	<.02	.009	<.02	<.034	<.02	<.005	<.002	<.009
APR													
10...	<.011	<.01	<.004	<.010	<.011	<.02	<.011	<.02	<.034	<.02	<.005	<.002	<.009
10...	<.011	M	<.004	<.010	<.011	<.02	.006	<.02	<.034	<.02	<.005	<.002	<.009
24...	<.011	E.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005	<.002	<.009
24...	<.011	E.01	<.004	<.010	<.011	<.02	.011	<.02	<.034	<.02	<.005	<.002	<.009
MAY													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
06...	<.011	M	<.004	<.010	<.011	<.02	.052	<.02	<.034	<.02	<.005	<.002	<.009
JUN													
11...	<.011	<.01	<.004	<.010	<.011	<.02	.077	<.02	<.034	<.02	<.005	<.002	<.009
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	<.011	.02	<.004	<.010	<.011	<.02	.103	<.02	<.034	<.02	<.005	<.002	<.009
JUL													
09...	<.011	E.01	<.004	<.010	<.011	<.02	.058	<.02	<.034	<.02	<.005	<.002	<.009
31...	<.011	.02	<.004	<.010	<.011	<.02	.036	<.02	<.034	<.02	<.005	<.002	<.009
AUG													
16...	<.011	E.01	<.004	<.010	<.011	<.02	.015	M	<.034	<.02	<.005	<.002	<.009
27...	<.011	E.01	<.004	<.010	<.011	<.02	.022	M	<.034	<.02	<.005	<.002	<.009
SEP													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
10...	<.011	.02	<.004	<.010	<.011	<.02	.016	<.02	<.034	<.02	<.005	<.002	<.009
24...	<.011	.02	<.004	<.010	<.011	<.02	.019	E.01	<.034	<.02	<.005	<.002	<.009

Date	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT			
30...	5.6	14.9	--
NOV			
27...	8.0	51.8	--
DEC			
13...	4.7	20.8	--
JAN			
15...	4.0	19.5	--
FEB			
13...	5.0	26.2	87
13...	--	--	--
MAR			
14...	2.9	20.7	--
APR			
10...	--	--	--
10...	5.5	85.8	--
24...	479	70400	90
24...	485	--	90
MAY			
06...	.0	--	--
06...	48	1970	--
JUN			
11...	5.2	52.5	--
11...	--	--	--
25...	2.8	12.1	--
JUL			
09...	3.6	4.2	--
31...	10	181	--
AUG			
16...	2.7	2.5	--
27...	2.1	3.2	--
SEP			
10...	--	--	--
10...	1.0	1.3	--
24...	.6	.85	--

E Estimated value.
 < Actual value is known to be less than the value shown.
 M Presence of material verified but not quantified.

POTOMAC RIVER BASIN

01652500 FOURMILE RUN AT ALEXANDRIA, VA

LOCATION.--Lat 38°50'36", long 77°04'45", NAD83, Arlington County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on Shirlington Road, at Arlington County-Alexandria City line, 0.1 mi upstream from I-395, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--13.8 mi².

PERIOD OF RECORD.--May 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 28.57 ft NGVD of 1929. May 4, 1951 to Sept. 30, 1969, water stage recorder, Oct. 1, 1969 to Sept. 27, 1973, nonrecording gage, at site 0.4 mi downstream at datum 6.02 lower (annual maximum only). Sept. 28, 1973 to Sept. 26, 1975, water-stage recorder. Sept. 27, 1975 to Sept. 30, 1977, nonrecording gage, at present site and datum (annual maximum only). July 1979 to September 1982, water stage recorder. October 1982 to September 1998, nonrecording gage (annual maximum only). October 1998 to present, water stage recorder.

REMARKS.--No estimated daily discharges. Records fair. Maximum discharge, 14,600 ft³/s, from rating curve extended above 670 ft³/s on basis of slope-area measurement of peak flow at gage height, 11.6 ft, site and datum then in use. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 19	1530	*2,080	*7.48	May 2	0840	1,900	7.29

**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	3.2	3.7	17	2.7	9.7	2.6	11	13	5.1	3.7	5.1	101
2	3.5	3.0	14	2.6	4.2	99	4.8	173	4.3	4.1	3.0	5.6
3	3.9	2.4	6.9	3.0	3.7	71	4.3	16	3.6	4.3	2.6	4.0
4	3.1	2.9	7.8	3.6	7.1	11	5.0	13	3.4	4.9	2.7	2.9
5	2.1	2.5	7.7	6.0	4.9	2.6	4.9	10	3.7	3.5	3.8	2.6
6	9.5	2.4	8.2	82	4.1	2.5	4.1	5.1	24	6.3	7.1	2.3
7	2.2	2.8	9.7	14	23	2.7	3.0	7.9	10	5.2	2.5	2.3
8	2.8	3.5	64	8.2	5.1	2.6	4.4	6.2	5.0	8.0	2.3	2.3
9	3.6	3.5	17	4.2	3.8	3.5	27	6.9	4.5	13	2.3	2.4
10	3.9	2.7	6.9	4.1	3.9	12	18	6.6	6.2	14	2.3	2.3
11	3.7	2.3	65	24	6.0	2.7	2.8	5.1	4.5	7.9	2.3	2.6
12	3.0	2.2	4.5	3.9	4.0	21	2.7	4.8	5.1	7.7	5.3	2.9
13	3.0	1.8	4.3	4.5	3.5	84	3.0	4.3	79	8.1	3.1	3.0
14	41	2.4	7.1	3.9	3.3	6.5	3.3	3.4	28	192	2.8	4.7
15	23	3.0	6.5	3.8	3.1	10	4.1	3.0	38	11	3.0	14
16	19	2.5	4.1	3.4	3.4	8.7	2.4	3.1	11	7.0	3.0	6.1
17	11	2.6	5.2	3.7	3.2	30	3.2	28	10	5.8	3.0	2.9
18	3.7	2.8	9.6	3.5	2.8	35	7.6	61	24	4.7	3.0	3.9
19	2.5	3.5	3.6	17	3.0	11	100	6.6	120	5.0	3.3	4.1
20	2.8	4.1	3.6	17	3.4	92	31	4.9	9.4	4.0	3.3	4.3
21	2.3	2.5	3.1	6.7	4.1	7.6	23	4.0	7.4	4.4	3.4	3.8
22	2.1	2.2	2.5	4.0	3.1	4.6	92	3.5	4.4	4.5	3.6	3.8
23	3.4	1.2	2.8	5.5	2.8	6.4	8.1	4.9	4.3	30	5.1	16
24	3.4	12	34	9.1	3.0	4.6	5.1	4.1	5.1	15	22	3.7
25	3.0	92	2.7	7.4	3.0	4.7	14	3.6	6.8	6.3	3.9	3.6
26	2.7	32	2.4	3.5	5.7	38	4.7	3.9	4.3	56	3.0	85
27	3.1	13	2.1	3.2	5.7	15	4.2	14	36	13	3.6	23
28	3.6	14	2.0	3.4	2.9	4.1	287	13	42	7.6	203	22
29	3.3	16	2.1	3.4	---	4.8	24	4.3	7.7	5.1	35	2.5
30	3.4	15	3.0	4.8	---	3.5	16	3.9	4.3	3.9	5.4	2.5
31	3.5	---	2.7	3.6	---	27	---	5.2	---	3.0	2.6	---
TOTAL	184.3	256.5	332.1	269.7	135.5	630.7	724.7	446.3	521.1	469.0	356.4	342.1
MEAN	5.95	8.55	10.7	8.70	4.84	20.3	24.2	14.4	17.4	15.1	11.5	11.4
MAX	41	92	65	82	23	99	287	173	120	192	203	101
MIN	2.1	1.2	2.0	2.6	2.8	2.5	2.4	3.0	3.4	3.0	2.3	2.3
CFSM	0.43	0.62	0.78	0.63	0.35	1.47	1.75	1.04	1.26	1.10	0.83	0.83
IN.	0.50	0.69	0.90	0.73	0.37	1.70	1.95	1.20	1.40	1.26	0.96	0.92

01652500 FOURMILE RUN AT ALEXANDRIA, VA--Continued

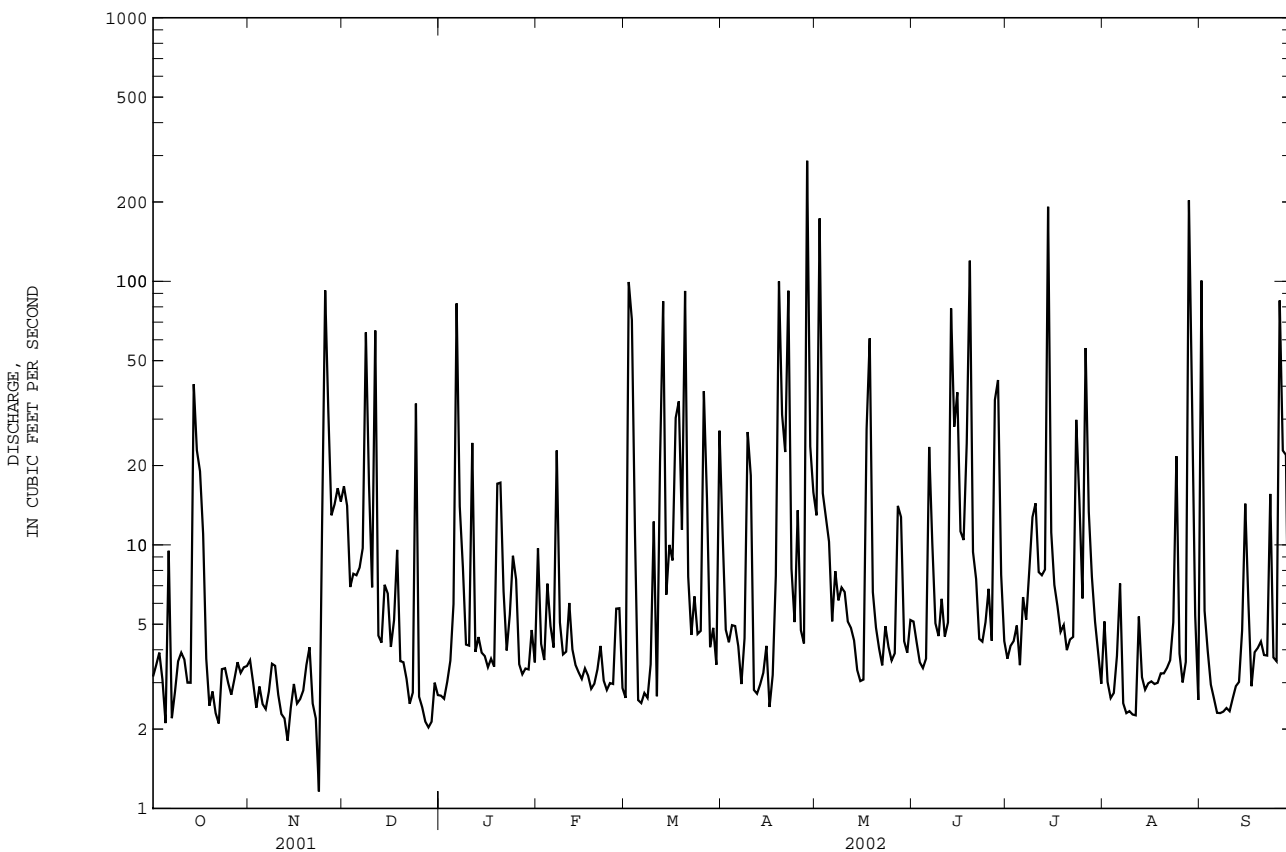
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1969, 1974 - 1975, 1979 - 1982, 1999 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	10.4	12.0	14.4	14.9	17.4	23.2	17.6	16.4	16.1	15.7	19.2	17.9
MAX	39.0	36.4	36.9	35.6	37.4	44.3	42.0	52.3	41.2	38.4	64.3	85.0
(WY)	1980	1953	1968	1964	1961	1953	1952	1953	1982	1969	1967	1999
MIN	2.54	2.57	3.07	3.84	4.84	6.05	6.79	6.90	5.22	1.78	2.01	1.94
(WY)	1964	1966	1966	1981	2002	1981	1967	1961	1954	1957	1962	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1952 - 1969
 1974 - 1975
 1979 - 1982
 1999 - 2002

ANNUAL TOTAL	6962.0	4668.4	
ANNUAL MEAN	19.1	12.8	16.1
HIGHEST ANNUAL MEAN			25.8 2000
LOWEST ANNUAL MEAN			7.72 1959
HIGHEST DAILY MEAN	283	Aug 11	287 Apr 28 1060 Sep 14 1966
LOWEST DAILY MEAN	1.2	Nov 23	1.2 Nov 23 0.70 aAug 14 1957
ANNUAL SEVEN-DAY MINIMUM	2.4	Nov 11	2.4 Sep 5 0.94 Aug 12 1957
MAXIMUM PEAK FLOW			2080 Apr 19 14600 Jul 22 1969
MAXIMUM PEAK STAGE			7.48 Apr 19 b17.80 Jun 21 1972
INSTANTANEOUS LOW FLOW			1.1 cNov 23 0.60 Sep 8 1954
ANNUAL RUNOFF (CFSM)	1.38		0.93 1.17
ANNUAL RUNOFF (INCHES)	18.77		12.58 15.88
10 PERCENT EXCEEDS	53		25 30
50 PERCENT EXCEEDS	5.5		4.3 6.0
90 PERCENT EXCEEDS	3.0		2.6 2.7

a Many days in August 1957.
 b From floodmarks.
 c Also Nov. 24, 25, 2001.



POTOMAC RIVER BASIN

01653000 CAMERON RUN AT ALEXANDRIA, VA

LOCATION.--Lat 38°48'23", long 77°06'35", NAD83, Fairfax County, Hydrologic Unit 02070010, on left downstream side of Norfolk Southern Railway bridge at Alexandria, 800 ft downstream from confluence of Holmes Run and Backlick Run, 0.5 mi east of the U.S. Army Quartermaster Depot, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--33.7 mi².

PERIOD OF RECORD.--June 1955 to March 1979, October 1979 to September 1980, October 1980 to September 1986 (annual maximum only), October 1986 to current year.

GAGE.--Water-stage recorder. Gage reinstalled Nov. 8, 1979. Datum of gage is 31.74 ft NGVD of 1929. Prior to Sept. 20, 1965, at present site at datum 7.78 ft higher. Sept. 20, 1965, to Jan. 19, 1976, at present site at datum 5.44 ft higher. Jan. 20, 1976, to Nov. 8, 1976, at site 1,200 ft downstream at datum 10.00 ft lower. Nov. 9, 1976, to Mar. 31, 1979, at site 0.5 mi downstream at datum 7.22 ft lower.

REMARKS.--No estimated daily discharges. Records good. Some regulation by Lake Barcroft, formerly Alexandria Reservoir, on Holmes Run 3.6 mi upstream, usable capacity 2,092 acre-ft. Maximum discharge, 19,900 ft³/s, from rating curve extended above 2,500 ft³/s on basis of culvert computations of peak flow for main channel and bypass channels. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

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	6.1	2.6	5.1	3.8	10	7.3	22	12	5.0	14	6.9	93
2	6.4	3.3	4.6	4.2	11	90	11	167	4.0	7.5	2.3	17
3	6.3	3.5	4.3	4.0	8.4	136	9.4	20	4.0	5.8	2.7	9.5
4	6.6	3.5	4.0	3.9	7.6	14	9.2	13	3.6	4.6	2.4	7.6
5	5.7	3.8	4.0	3.5	13	10	7.7	19	3.5	4.2	4.3	4.9
6	13	3.6	4.0	85	6.8	8.8	6.9	8.8	9.1	3.4	8.5	4.0
7	6.8	3.5	4.0	36	24	7.6	6.4	10	14	3.0	1.7	3.9
8	6.0	3.8	48	14	14	7.4	6.0	8.2	7.8	3.0	1.3	3.5
9	5.2	4.0	25	12	9.0	7.2	14	6.9	5.1	3.1	1.2	3.5
10	5.2	4.0	9.2	10	8.6	19	34	10	4.5	5.7	1.2	3.5
11	5.2	4.0	67	24	8.7	9.8	10	6.2	4.0	3.4	1.0	3.5
12	5.2	3.8	11	13	8.7	14	6.9	6.0	3.5	2.9	1.2	3.3
13	5.2	3.5	7.2	10	8.6	104	7.2	8.2	80	2.6	2.1	2.7
14	34	4.0	8.6	8.7	8.4	20	7.0	6.7	32	162	1.2	4.4
15	29	3.7	8.5	7.8	6.9	12	8.0	6.1	58	17	1.0	14
16	13	3.5	5.5	7.6	6.8	10	8.3	5.3	9.5	7.0	1.0	7.9
17	13	3.5	5.4	7.6	6.8	17	6.1	28	6.9	4.2	1.0	3.3
18	3.8	3.5	11	7.4	6.8	48	21	104	19	3.0	1.0	2.9
19	3.0	3.8	7.1	18	6.8	17	42	14	203	2.9	1.1	2.6
20	3.0	4.3	6.0	30	6.9	117	37	8.1	26	2.4	1.2	2.6
21	2.6	5.0	5.4	17	8.6	24	28	6.1	14	2.2	1.2	2.5
22	2.8	4.6	5.0	14	8.3	13	120	6.7	12	2.2	1.2	1.9
23	3.0	5.1	4.6	12	7.6	11	11	6.2	11	2.1	1.2	4.8
24	3.2	14	36	17	7.4	9.9	8.9	5.2	11	9.1	10	2.6
25	3.9	91	8.2	16	7.1	9.4	15	4.6	11	3.6	2.5	2.6
26	2.8	38	6.4	9.5	9.2	41	10	4.4	11	41	1.6	51
27	2.6	9.5	5.2	7.6	11	45	7.5	11	20	37	1.4	55
28	2.6	7.7	4.6	7.6	7.7	12	356	22	70	16	261	19
29	2.6	5.5	4.6	7.9	---	10	35	7.3	27	5.8	73	7.1
30	2.6	5.2	4.4	8.4	---	9.8	15	5.9	16	3.3	12	5.0
31	2.6	---	4.0	6.9	---	21	---	5.2	---	2.6	7.4	---
TOTAL	213.0	258.8	337.9	434.4	254.7	882.2	886.5	552.1	705.5	386.6	416.8	349.1
MEAN	6.87	8.63	10.9	14.0	9.10	28.5	29.6	17.8	23.5	12.5	13.4	11.6
MAX	34	91	67	85	24	136	356	167	203	162	261	93
MIN	2.6	2.6	4.0	3.5	6.8	7.2	6.0	4.4	3.5	2.1	1.0	1.9
CFSM	0.20	0.26	0.32	0.42	0.27	0.84	0.88	0.53	0.70	0.37	0.40	0.35
IN.	0.24	0.29	0.37	0.48	0.28	0.97	0.98	0.61	0.78	0.43	0.46	0.39

01653000 CAMERON RUN AT ALEXANDRIA, VA--Continued

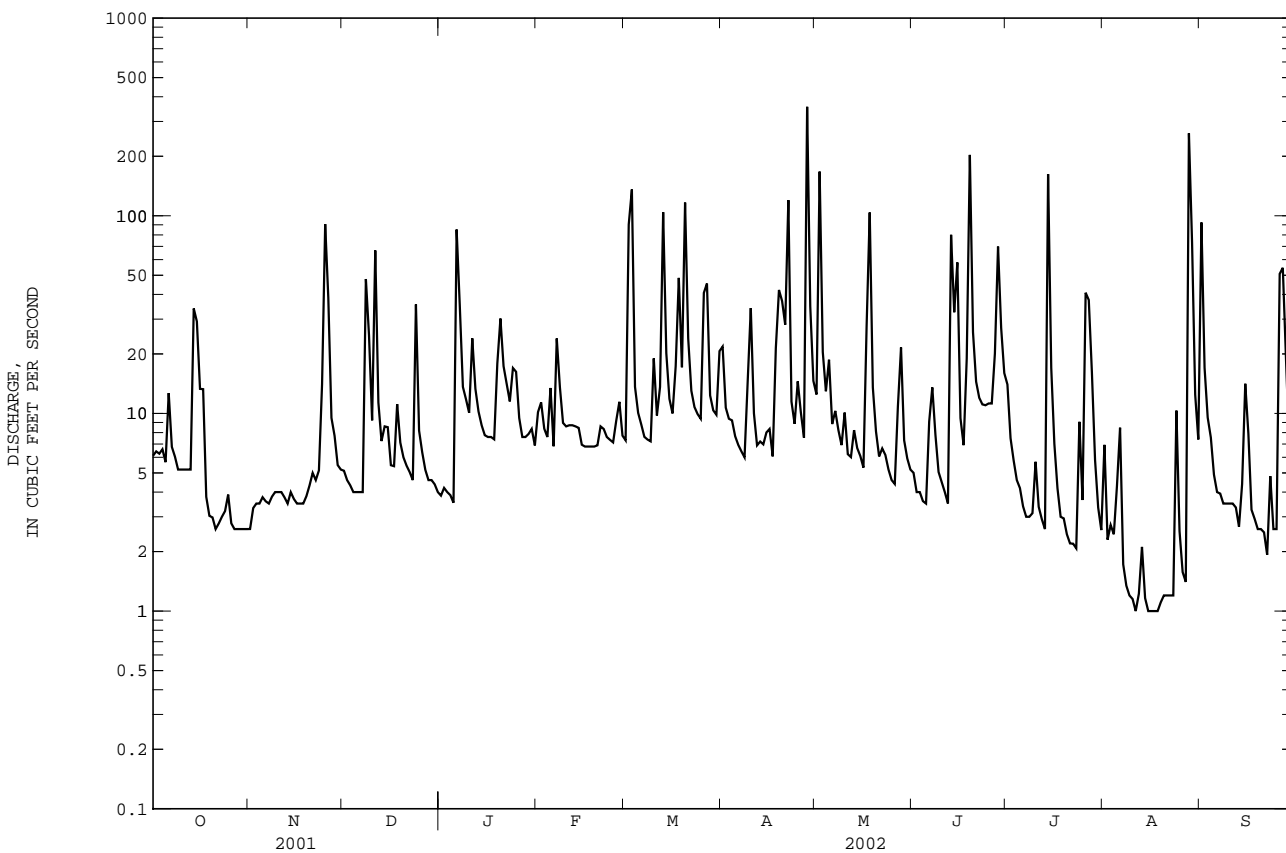
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 1980, 1987 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	30.5	30.1	38.2	42.8	45.5	55.2	41.3	38.7	36.3	45.5	36.0	32.1
MAX	147	80.5	99.2	157	128	132	81.8	117	265	662	364	172
(WY)	1984	1964	1970	1978	1979	1993	1970	1989	1972	1981	1981	1975
MIN	4.52	4.40	3.47	10.0	9.10	19.9	10.6	8.59	7.93	2.51	3.85	5.31
(WY)	1964	1966	1966	1966	2002	1966	1969	1956	1956	1957	1957	1977

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1956 - 1980 1987 - 2002

ANNUAL TOTAL		12161.6		5677.6								
ANNUAL MEAN		33.3		15.6						36.7		
HIGHEST ANNUAL MEAN										64.4		1972
LOWEST ANNUAL MEAN										15.6		2002
HIGHEST DAILY MEAN				517	Mar 30		356	Apr 28		3680	Jun 22	1972
LOWEST DAILY MEAN				2.6	aOct 21		1.0	bAug 11		1.0	bAug 11	2002
ANNUAL SEVEN-DAY MINIMUM				2.6	Oct 26		1.1	Aug 14		1.1	Aug 14	2002
MAXIMUM PEAK FLOW							1420	Jun 19		19900	Jun 22	1972
MAXIMUM PEAK STAGE							4.07	Jun 19		18.14	Jun 22	1972
INSTANTANEOUS LOW FLOW							1.0	cAug 10		1.0	cAug 10	2002
ANNUAL RUNOFF (CFSM)				0.99			0.46			1.09		
ANNUAL RUNOFF (INCHES)				13.42			6.27			14.78		
10 PERCENT EXCEEDS				67			31			72		
50 PERCENT EXCEEDS				12			7.1			15		
90 PERCENT EXCEEDS				4.0			2.6			4.7		

a Also Oct. 27 to Nov. 1, 2001.
 b Also Aug. 15-18, 2002.
 c Also Aug. 11, 12, 14-19, 2002.



POTOMAC RIVER BASIN

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

LOCATION.--Lat 38°48'46", long 77°13'42", NAD83, 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 mi².

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 NGVD 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.--Records good except those for periods of doubtful or no gage-height record, Oct. 21 to Nov. 23 and Feb. 6, which are fair. Maximum discharge, 12,000 ft³/s, from rating curve extended above 6,600 ft³/s on basis of contracted-opening and flow-over-road measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jun 19	0415	*1,610	*8.33	No other peak greater than base discharge.			

**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	1.9	e1.9	2.2	2.3	3.5	2.4	15	7.7	2.0	1.3	0.31	46
2	2.0	e2.0	2.2	2.2	3.7	33	3.4	175	1.5	0.97	0.22	6.6
3	1.9	e2.1	2.1	2.3	2.8	132	3.0	21	1.2	0.87	13	2.4
4	1.9	e2.7	2.1	2.3	3.2	4.9	2.7	10	1.4	0.65	7.2	2.6
5	1.8	e3.5	2.1	2.2	3.6	2.6	2.5	18	1.3	0.53	1.3	1.5
6	4.5	e2.7	2.1	66	e3.5	2.2	2.4	7.4	34	0.38	4.0	0.89
7	6.0	e2.2	2.1	25	15	2.0	2.4	6.8	19	0.35	1.4	0.44
8	2.7	e2.8	31	6.6	6.0	1.9	2.6	6.4	2.6	0.32	0.41	0.33
9	2.0	e2.5	21	4.2	3.3	1.8	10	6.7	1.6	0.38	0.16	0.22
10	1.8	e2.3	4.2	3.9	3.0	8.9	36	6.0	1.4	0.41	0.06	0.18
11	2.1	e2.1	63	19	3.4	2.1	3.4	4.8	1.1	0.55	0.02	0.11
12	2.3	e2.5	7.1	6.6	3.3	2.7	2.7	4.5	0.82	0.45	0.00	0.06
13	2.3	e2.3	4.2	7.8	3.0	89	2.4	5.9	43	0.34	5.7	0.04
14	13	e3.2	6.7	3.1	2.8	8.9	2.7	4.2	18	119	0.84	0.03
15	72	e2.6	5.9	3.1	2.7	3.8	3.1	3.5	26	7.7	0.24	0.03
16	4.3	e4.3	3.3	3.0	3.0	3.1	2.8	3.7	4.5	2.1	0.08	0.05
17	19	e3.3	3.3	3.0	3.0	11	2.2	10	2.1	1.1	0.02	0.13
18	2.7	e2.8	9.6	2.9	2.6	32	1.9	84	45	0.78	0.00	0.09
19	1.8	e2.4	4.2	4.3	2.7	6.4	2.8	8.3	354	0.61	0.00	0.05
20	1.4	e3.7	3.3	16	2.7	97	3.2	4.2	14	0.49	0.00	0.04
21	e1.3	e2.2	3.1	8.1	3.0	11	9.0	3.6	4.7	0.35	0.00	0.02
22	e1.2	e2.4	2.7	7.0	2.8	4.9	89	3.2	3.2	0.50	0.00	0.01
23	e1.2	e2.7	3.2	4.9	2.7	3.7	3.7	3.2	2.2	2.0	0.00	3.4
24	e2.1	13	39	9.4	2.5	3.1	2.2	3.2	1.7	6.5	10	1.7
25	e3.0	57	9.3	10	2.6	2.9	4.6	3.0	1.8	0.82	5.4	0.42
26	e2.3	60	3.3	4.7	2.8	18	3.1	2.8	1.5	19	0.80	55
27	e1.7	6.2	3.5	3.6	8.7	46	1.9	20	9.5	24	0.22	72
28	e2.3	3.3	2.7	3.5	3.3	4.4	285	21	42	9.3	194	15
29	e2.7	2.7	2.8	3.3	---	3.4	27	3.9	13	1.8	72	2.3
30	e2.5	2.4	2.4	3.3	---	3.1	11	2.7	2.2	0.88	5.4	0.84
31	e2.0	---	2.4	3.3	---	13	---	2.3	---	0.52	1.9	---
TOTAL	169.7	205.8	256.1	246.9	105.2	561.2	543.7	467.0	656.32	204.95	324.68	212.48
MEAN	5.47	6.86	8.26	7.96	3.76	18.1	18.1	15.1	21.9	6.61	10.5	7.08
MAX	72	60	63	66	15	132	285	175	354	119	194	72
MIN	1.2	1.9	2.1	2.2	2.5	1.8	1.9	2.3	0.82	0.32	0.00	0.01
CFSM	0.23	0.29	0.35	0.34	0.16	0.77	0.77	0.64	0.93	0.28	0.45	0.30
IN.	0.27	0.33	0.41	0.39	0.17	0.89	0.86	0.74	1.04	0.32	0.51	0.34

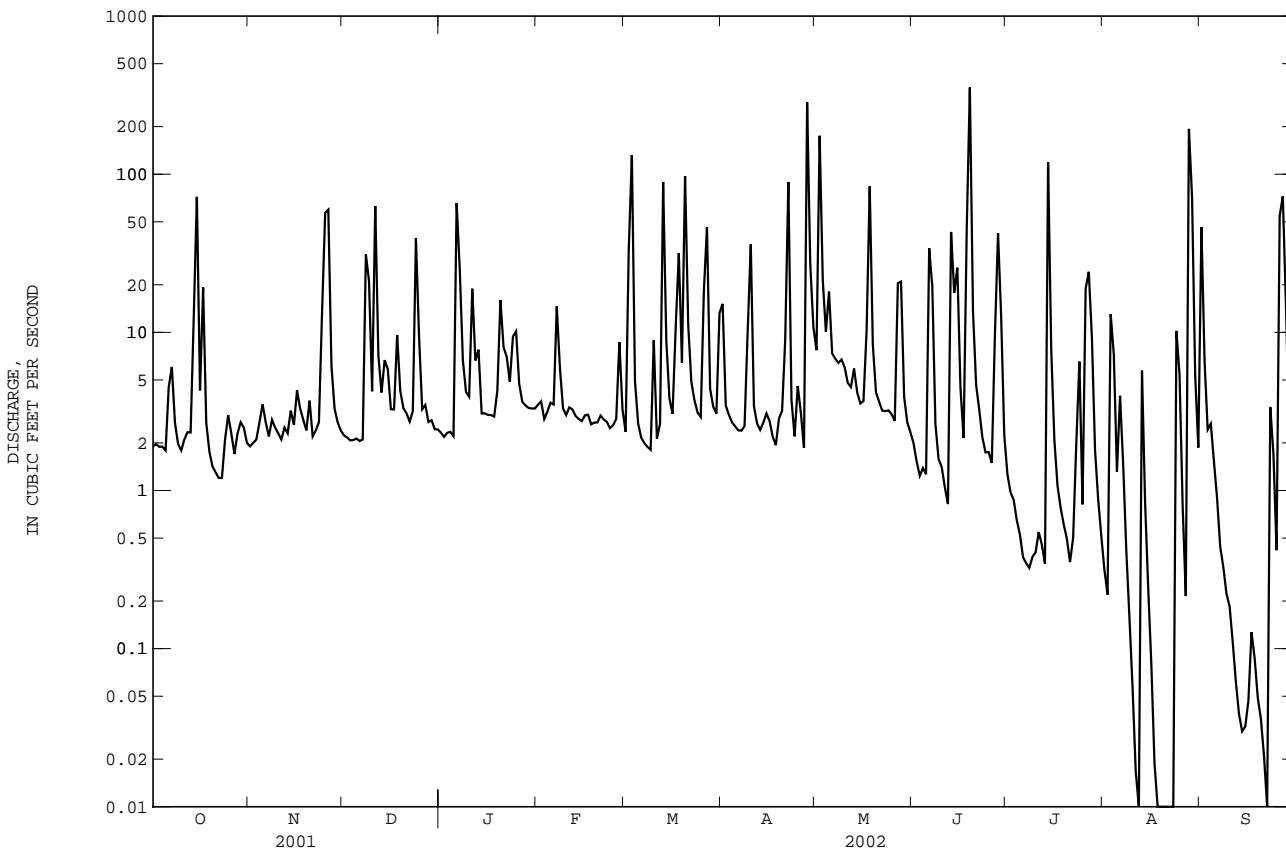
01654000 ACCOTINK CREEK NEAR ANNANDALE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	17.6	23.7	27.9	32.5	35.4	42.3	35.1	32.4	25.2	20.3	21.9	22.0
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

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1948 - 2002	
ANNUAL TOTAL	8873.3	3954.03		
ANNUAL MEAN	24.3	10.8	28.0	
HIGHEST ANNUAL MEAN			49.4	1972
LOWEST ANNUAL MEAN			10.8	2002
HIGHEST DAILY MEAN	816	Aug 11	354	Jun 19
LOWEST DAILY MEAN	e1.2	aOct 22	0.00	bAug 12
ANNUAL SEVEN-DAY MINIMUM	1.7	Oct 18	0.00	Aug 17
MAXIMUM PEAK FLOW			1610	Jun 19
MAXIMUM PEAK STAGE			8.33	Jun 19
INSTANTANEOUS LOW FLOW			0.00	gAug 12
ANNUAL RUNOFF (CFSM)	1.03		0.46	
ANNUAL RUNOFF (INCHES)	14.05		6.26	
10 PERCENT EXCEEDS	57		20	
50 PERCENT EXCEEDS	7.2		2.8	
90 PERCENT EXCEEDS	2.1		0.38	
			12000	Jun 22 1972
			f15.96	Jun 22 1972
			0.00	(h)
			0.00	cAug 5 1999
			0.00	dAug 5 1999
			e3300	Jun 22 1972

- a Also Oct. 23, 2001
- b Also Aug. 18-23, 2002.
- c Also Aug. 6-13, 1999 and Aug. 12, 28-23, 2002.
- d Also Aug. 17, 2002.
- e Estimated.
- f From high-water mark in gage house.
- g Also part or all of each day Aug. 13, 18-24, 2002.
- h No flow part or all of each day Aug. 5-14, 1999 and Aug. 12, 13, 18-24, 2002.



POTOMAC RIVER BASIN

01656000 CEDAR RUN NEAR CATLETT, VA

LOCATION.--Lat 38°38'12", long 77°37'30", NAD83, Fauquier County, Hydrologic Unit 02070010, on right bank 100 ft downstream from bridge on State Highway 806, 0.9 mi downstream from Licking Run, and 1.4 mi southeast of Catlett.

DRAINAGE AREA.--93.4 mi².

PERIOD OF RECORD.--July 1950 to December 1986, January 1986 to September 1989 (annual maximum only), October 1989 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1973-77(P). WDR VA-95-1: 1972-94 (M).

GAGE.--Water-stage recorder. Datum of gage is 199.15 ft NGVD of 1929. July 1950 to December 1986, water-stage recorder at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Dec 28 and Dec. 30 to Jan. 3, which are fair. Maximum discharge, 32,500 ft³/s, from rating curve extended above 7,000 ft³/s, on basis of contracted-opening measurement of peak flow. No flow at times in many years. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of about 22 ft, discharge not determined, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	7.6	5.4	4.5	e5.0	7.4	5.7	33	69	21	2.9	1.2	3.0
2	7.0	5.6	5.1	e4.5	6.6	5.7	27	62	15	4.3	0.55	4.8
3	6.0	5.7	4.6	e4.8	7.9	81	21	57	12	4.7	1.2	3.3
4	5.4	6.2	4.2	5.1	6.2	30	19	34	9.9	5.4	3.9	2.0
5	5.1	6.5	4.1	4.6	5.6	17	18	37	11	4.5	1.6	1.2
6	5.2	6.4	4.1	5.5	8.7	14	14	30	20	2.7	1.4	0.75
7	4.3	5.7	6.8	11	6.4	12	12	25	17	1.8	0.59	0.38
8	6.6	6.2	7.2	13	8.3	11	10	22	12	1.6	0.29	0.33
9	5.7	5.9	8.6	10	7.4	9.4	10	20	9.8	1.4	0.15	0.27
10	5.4	5.9	8.9	10	6.1	9.5	18	19	9.1	1.4	0.10	0.24
11	4.6	5.3	19	12	5.9	11	16	16	7.7	2.4	0.08	0.16
12	5.9	6.4	19	13	7.0	7.5	13	14	7.1	2.3	0.08	0.19
13	6.3	5.8	11	9.4	7.1	17	12	12	7.3	1.8	0.08	0.15
14	6.6	6.7	9.8	9.2	6.3	33	12	12	21	3.9	0.06	0.12
15	35	6.5	9.8	7.4	5.5	20	11	11	32	14	0.04	0.19
16	12	8.8	8.5	6.5	5.2	17	11	8.0	27	6.4	0.02	0.18
17	11	8.1	7.4	6.2	5.5	15	9.5	6.9	17	5.3	0.19	0.10
18	11	6.7	7.3	5.6	5.3	27	8.3	15	13	3.6	0.62	0.08
19	7.1	6.2	11	5.9	5.1	30	8.1	20	15	1.3	0.40	0.07
20	5.4	8.1	7.2	7.1	4.9	119	66	11	14	1.1	0.90	0.06
21	4.7	6.1	7.2	8.8	4.8	87	42	9.1	9.9	1.4	1.1	0.05
22	4.5	6.2	6.3	9.6	5.4	52	299	6.9	7.3	1.4	1.3	0.07
23	4.3	6.6	5.7	9.8	5.7	33	114	6.1	6.0	1.3	1.6	2.6
24	4.7	6.4	6.7	11	4.8	28	62	5.4	5.1	1.3	2.7	4.8
25	6.2	9.3	10	12	4.4	23	41	4.4	4.4	1.2	2.8	1.7
26	5.0	33	7.5	11	4.1	21	32	4.0	3.8	1.7	2.7	1.3
27	4.5	11	6.6	8.4	6.5	49	24	418	27	2.4	2.5	29
28	5.7	6.5	e6.5	7.7	6.3	33	341	438	11	6.2	6.0	10
29	5.9	5.5	5.9	9.7	---	25	396	79	8.7	4.7	45	4.5
30	5.6	4.8	e5.8	10	---	22	120	43	4.5	2.5	11	2.3
31	5.2	---	e5.5	9.3	---	21	---	29	---	2.6	4.7	---
TOTAL	219.5	223.5	241.8	263.1	170.4	885.8	1819.9	1543.8	385.6	99.5	94.85	73.89
MEAN	7.08	7.45	7.80	8.49	6.09	28.6	60.7	49.8	12.9	3.21	3.06	2.46
MAX	35	33	19	13	8.7	119	396	438	32	14	45	29
MIN	4.3	4.8	4.1	4.5	4.1	5.7	8.1	4.0	3.8	1.1	0.02	0.05
CFSM	0.08	0.08	0.08	0.09	0.07	0.31	0.65	0.53	0.14	0.03	0.03	0.03
IN.	0.09	0.09	0.10	0.10	0.07	0.35	0.72	0.61	0.15	0.04	0.04	0.03

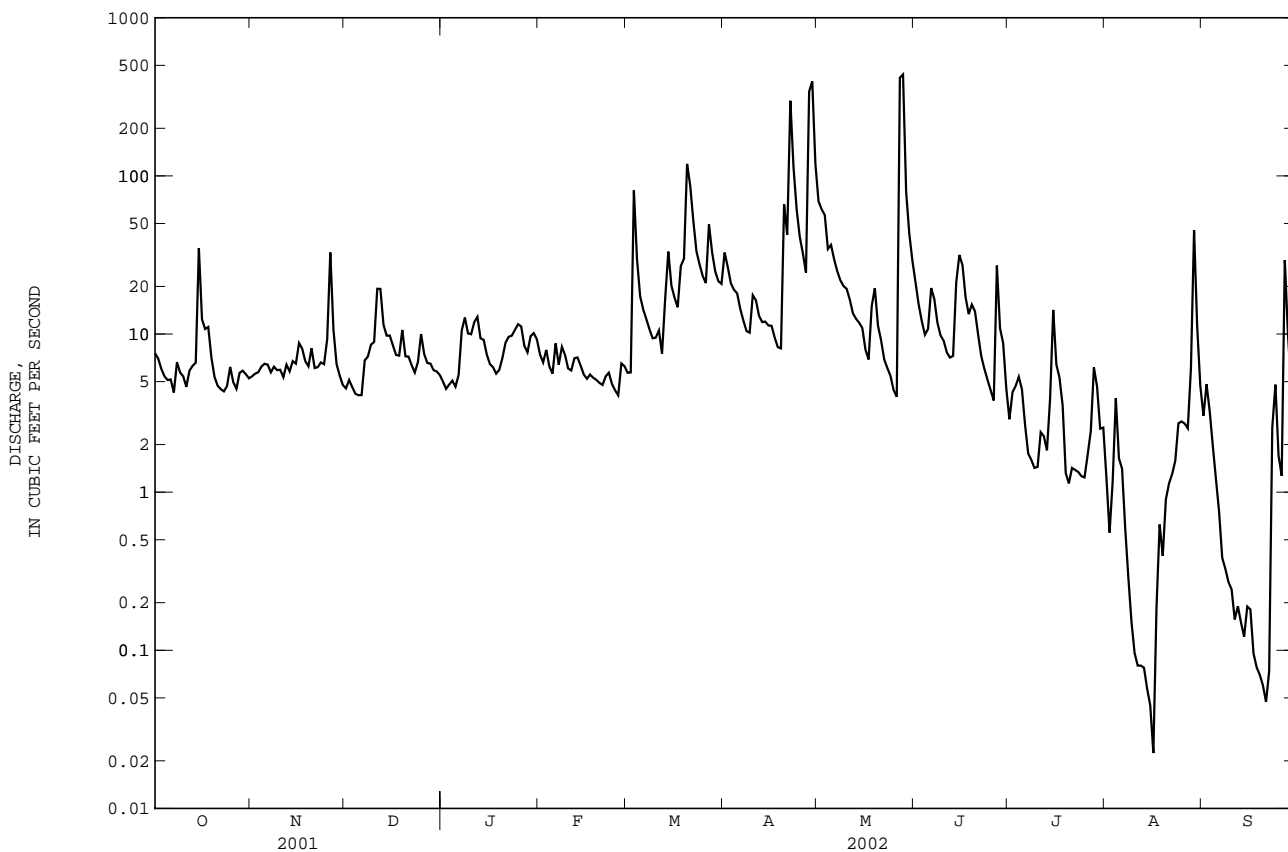
01656000 CEDAR RUN NEAR CATLETT, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	44.3	60.3	105	141	161	173	122	72.4	69.0	29.3	43.6	38.3
MAX	450	248	379	467	501	531	544	210	917	323	407	388
(WY)	1980	1973	1993	1978	1998	1993	1983	1971	1972	1956	1955	1975
MIN	0.40	3.15	3.53	4.64	6.09	22.3	19.6	9.41	1.38	0.74	0.58	0.37
(WY)	1987	1966	1966	1981	2002	1981	1985	1956	1999	1963	1966	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1951 - 2002	
ANNUAL TOTAL	18371.84	6021.64		
ANNUAL MEAN	50.3	16.5	88.0	
HIGHEST ANNUAL MEAN			171	1972
LOWEST ANNUAL MEAN			16.5	2002
HIGHEST DAILY MEAN	1530	Mar 30	e18500	Jun 22 1972
LOWEST DAILY MEAN	0.30	Jul 25	0.00	(a)
ANNUAL SEVEN-DAY MINIMUM	0.64	Jul 19	0.00	(b)
MAXIMUM PEAK FLOW			1010	cApr 29
MAXIMUM PEAK STAGE			6.57	Apr 29
INSTANTANEOUS LOW FLOW			0.00	Aug 17
ANNUAL RUNOFF (CFSM)	0.54		0.18	0.94
ANNUAL RUNOFF (INCHES)	7.32		2.40	12.80
10 PERCENT EXCEEDS	119		29	186
50 PERCENT EXCEEDS	11		6.5	27
90 PERCENT EXCEEDS	4.1		1.2	1.9

- a Many days in 1954, 1957, 1959, 1963-64, 1966, 1983, and 1993.
- b Many days in 1954, 1957, 1959, 1963-64, 1966, and 1983.
- c Also May 28, 2002.
- d From floodmarks.
- e Estimated.
- f Many days in 1954, 1957, 1959, 1963-64, 1991, and 1993.



POTOMAC RIVER BASIN

01656102 GOSLIN RUN NEAR ADEN, VA

LOCATION.--Lat 38°36'40", long 77°33'03", NAD83, Prince William County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on Quantico Marine Corps Base Road MCB-8, 3.5 mi south of Aden, and 0.5 mi above mouth.

DRAINAGE AREA.--4.64 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 2002 to September 2002.

GAGE.--Water stage recorder. Datum of gage is 180 ft NGVD of 1929, from topographic map.

REMARKS.-- Records poor. Water-quality records for some prior periods have been collected at this site.

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	---	---	---	---	---	---	---	---	0.25	0.00	0.00	0.00
2	---	---	---	---	---	---	---	e2.0	0.20	0.00	0.00	0.00
3	---	---	---	---	---	---	---	2.6	0.15	0.00	0.00	0.00
4	---	---	---	---	---	---	---	1.3	0.29	0.00	0.00	0.00
5	---	---	---	---	---	---	---	2.4	0.33	0.00	0.00	0.00
6	---	---	---	---	---	---	---	1.2	0.34	0.00	0.00	0.00
7	---	---	---	---	---	---	---	0.84	e0.46	0.00	0.00	0.00
8	---	---	---	---	---	---	---	0.91	e0.25	0.00	0.00	0.00
9	---	---	---	---	---	---	---	0.95	e0.18	0.00	0.00	0.00
10	---	---	---	---	---	---	---	0.86	e0.17	0.00	0.00	0.00
11	---	---	---	---	---	---	---	0.75	e0.14	0.00	0.00	0.00
12	---	---	---	---	---	---	---	0.62	e0.12	0.00	0.00	0.00
13	---	---	---	---	---	---	---	0.75	e0.15	0.00	0.00	0.00
14	---	---	---	---	---	---	---	0.70	e0.30	0.00	0.00	0.00
15	---	---	---	---	---	---	---	0.65	e2.7	0.00	0.00	0.00
16	---	---	---	---	---	---	---	0.54	e0.89	0.00	0.00	0.00
17	---	---	---	---	---	---	---	0.49	e0.70	0.00	0.00	0.00
18	---	---	---	---	---	---	---	3.8	e0.41	0.00	0.00	0.00
19	---	---	---	---	---	---	---	1.2	e0.27	0.00	0.00	0.00
20	---	---	---	---	---	---	---	1.0	e0.26	0.00	0.00	0.00
21	---	---	---	---	---	---	---	e0.64	e0.27	0.00	0.00	0.00
22	---	---	---	---	---	---	---	e0.59	0.17	0.00	0.00	0.00
23	---	---	---	---	---	---	---	e0.45	0.12	0.00	0.00	0.00
24	---	---	---	---	---	---	---	e0.41	0.08	0.00	0.00	0.00
25	---	---	---	---	---	---	---	e0.35	0.03	0.00	0.00	0.00
26	---	---	---	---	---	---	---	e0.32	0.00	0.00	0.00	0.00
27	---	---	---	---	---	---	---	0.30	0.00	0.00	0.00	0.00
28	---	---	---	---	---	---	---	3.7	0.00	0.00	0.00	0.00
29	---	---	---	---	---	---	---	1.2	0.00	0.00	0.03	0.00
30	---	---	---	---	---	---	---	0.47	0.00	0.00	0.00	0.00
31	---	---	---	---	---	---	---	0.37	---	0.00	0.00	---
TOTAL	---	---	---	---	---	---	---	32.36	9.23	0.00	0.03	0.00
MEAN	---	---	---	---	---	---	---	1.08	0.31	0.000	0.001	0.000
MAX	---	---	---	---	---	---	---	3.8	2.7	0.00	0.03	0.00
MIN	---	---	---	---	---	---	---	0.30	0.00	0.00	0.00	0.00
CFSM	---	---	---	---	---	---	---	0.23	0.07	0.00	0.00	0.00
IN.	---	---	---	---	---	---	---	0.26	0.07	0.00	0.00	0.00

01656102 GOSLIN RUN NEAR ADEN, VA--Continued

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

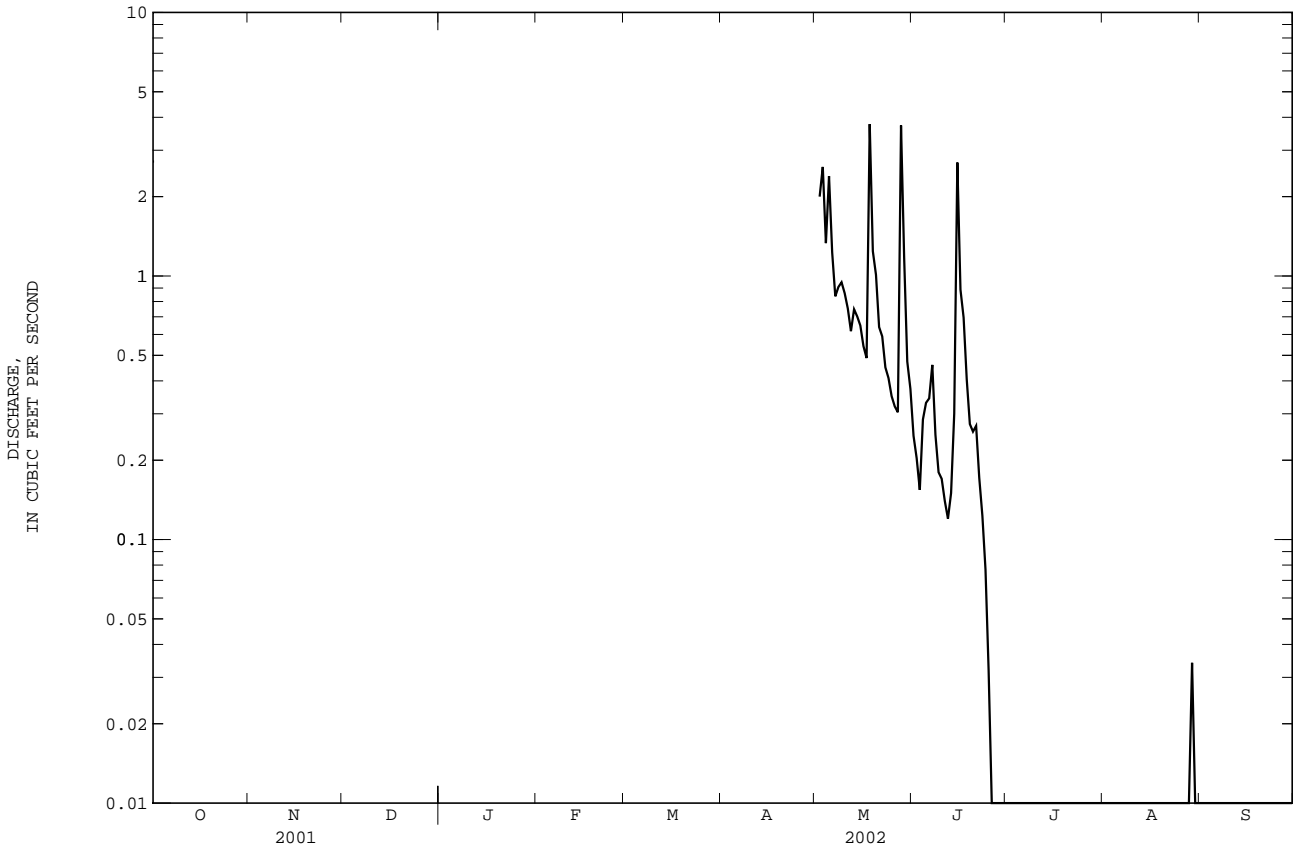
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	---	---	---	---	---	---	---	1.08	0.31	0.000	0.001	0.000
MAX	---	---	---	---	---	---	---	1.08	0.31	0.000	0.001	0.000
(WY)	---	---	---	---	---	---	---	2002	2002	2002	2002	2002
MIN	---	---	---	---	---	---	---	1.08	0.31	0.000	0.001	0.000
(WY)	---	---	---	---	---	---	---	2002	2002	2002	2002	2002

SUMMARY STATISTICS

FOR 2002 WATER YEAR

ANNUAL TOTAL	41.62
ANNUAL MEAN	0.27
HIGHEST DAILY MEAN	3.8 May 18
LOWEST DAILY MEAN	0.00 aJun 26
ANNUAL SEVEN-DAY MINIMUM	0.00 Jun 26
MAXIMUM PEAK FLOW	11 May 18
MAXIMUM PEAK STAGE	3.98 May 18
INSTANTANEOUS LOW FLOW	0.00 bJun 26
ANNUAL RUNOFF (CFSM)	0.059
ANNUAL RUNOFF (INCHES)	0.33
10 PERCENT EXCEEDS	0.85
50 PERCENT EXCEEDS	0.00
90 PERCENT EXCEEDS	0.00

- a Also June 27 to Aug. 28 and Aug. 30 to Sept. 30, 2002.
- b No flow part or all of each day June 26 to Sept. 30, 2002.
- e Estimated.



POTOMAC RIVER BASIN

01656102 GOSLIN RUN NEAR ADEN, VA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
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	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---

DAY	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)	MEAN CONCEN-TRATION (MG/L)	LOAD (TONS/DAY)
1	---	---	---	---	13	0.01	0.0	0.00	0.0	0.00	0.0	0.00
2	---	---	e19	e0.06	11	0.01	0.0	0.00	0.0	0.00	0.0	0.00
3	---	---	9.8	0.07	15	0.01	0.0	0.00	0.0	0.00	0.0	0.00
4	---	---	8.0	0.03	16	0.01	0.0	0.00	0.0	0.00	0.0	0.00
5	---	---	8.6	0.06	22	0.02	0.0	0.00	0.0	0.00	0.0	0.00
6	---	---	12	0.04	18	0.02	0.0	0.00	0.0	0.00	0.0	0.00
7	---	---	12	0.03	e19	e0.02	0.0	0.00	0.0	0.00	0.0	0.00
8	---	---	11	0.03	e20	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
9	---	---	17	0.04	e16	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
10	---	---	19	0.04	e18	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
11	---	---	18	0.04	e13	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
12	---	---	16	0.03	e30	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
13	---	---	12	0.03	e28	e0.03	0.0	0.00	0.0	0.00	0.0	0.00
14	---	---	12	0.02	e23	e0.02	0.0	0.00	0.0	0.00	0.0	0.00
15	---	---	14	0.03	e176	e1.1	0.0	0.00	0.0	0.00	0.0	0.00
16	---	---	7.6	0.01	e38	e0.13	0.0	0.00	0.0	0.00	0.0	0.00
17	---	---	7.9	0.01	e15	e0.03	0.0	0.00	0.0	0.00	0.0	0.00
18	---	---	136	3.0	e12	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
19	---	---	45	0.18	e21	e0.02	0.0	0.00	0.0	0.00	0.0	0.00
20	---	---	15	0.04	e19	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
21	---	---	e8.0	e0.01	e13	e0.01	0.0	0.00	0.0	0.00	0.0	0.00
22	---	---	e9.0	e0.01	16	0.01	0.0	0.00	0.0	0.00	0.0	0.00
23	---	---	e8.0	e0.01	18	0.01	0.0	0.00	0.0	0.00	0.0	0.00
24	---	---	e7.0	e0.01	19	0.00	0.0	0.00	0.0	0.00	0.0	0.00
25	---	---	e8.0	e0.01	18	0.00	0.0	0.00	0.0	0.00	0.0	0.00
26	---	---	e9.0	e0.01	18	0.00	0.0	0.00	0.0	0.00	0.0	0.00
27	---	---	18	0.01	5.7	0.00	0.0	0.00	0.0	0.00	0.0	0.00
28	---	---	131	2.3	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
29	---	---	9.9	0.03	0.0	0.00	0.0	0.00	49	0.01	0.0	0.00
30	---	---	11	0.01	0.0	0.00	0.0	0.00	2.7	0.00	0.0	0.00
31	---	---	9.2	0.01	---	---	0.0	0.00	0.0	0.00	---	---
TOTAL	---	---	---	---	---	1.53	---	0.00	---	0.01	---	0.00

e Estimated

01656102 GOSLIN RUN NEAR ADEN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 2002 to September 2002.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE-CIFIC CON-DUCTANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
FEB 26...	1115	ENVIRONMENTAL	--	--	748	12.8	100	7.0	83	6.5	6.8	<.04
MAR 14...	1000	ENVIRONMENTAL	--	--	753	9.7	86	6.5	76	6.5	8.9	<.04
APR 11...	1100	ENVIRONMENTAL	3.07	--	760	9.9	99	7.1	77	15.5	12.5	<.04
22...	0945	ENVIRONMENTAL	2.73	--	747	9.8	96	6.9	63	10.5	13.4	<.04
22...	0950	REPLICATE	2.73	--	747	9.8	96	6.9	63	10.5	13.4	<.04
22...	0955	BLANK	--	--	--	--	--	--	--	--	--	<.04
MAY 16...	1215	ENVIRONMENTAL	3.45	.53	755	8.2	90	6.8	86	16.5	15.0	<.04
JUN 17...	1215	ENVIRONMENTAL	2.91	.80	750	8.5	94	6.5	58	28.5	20.5	.05

Date	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	E COLI, MTEC MF WATER (COL/100 ML) (31633)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-SUS-PENDED (T/DAY) (80155)
FEB 26...	E.09	E.06	<.05	<.008	E.003	<.02	.012	22	22	3.0	--
MAR 14...	.12	.18	<.05	<.008	.006	<.02	.015	53	39	3.6	--
APR 11...	.14	.20	<.05	<.008	.006	<.02	.015	160	130	2.9	--
22...	.35	.49	.06	<.008	.015	<.02	.060	--	--	56	--
22...	.35	.57	.06	<.008	.014	<.02	.060	--	--	--	--
22...	<.10	<.10	<.05	<.008	<.004	<.02	E.002	--	--	--	--
MAY 16...	.21	.26	<.05	<.008	.011	<.02	.025	30	27	6.4	.01
JUN 17...	.33	.45	.06	<.008	.011	<.02	.041	120	510	15	.03

POTOMAC RIVER BASIN

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°35'14", long 77°25'43", NAD83, Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on State Highway 619, 3.4 mi south of Independent Hill, 5.6 mi west of Dumfries, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--7.64 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 238.88 ft NGVD of 1929.

REMARKS.--Records good except for period July to September, which is poor.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	0.28	0.37	0.74	0.86	1.2	1.3	2.9	1.9	0.96	0.33	0.20	0.20
2	0.24	0.37	0.70	0.81	1.2	1.6	2.1	2.0	0.89	e0.31	0.19	0.19
3	0.23	0.38	0.68	0.89	1.1	15	1.9	2.7	0.84	e0.29	0.16	0.17
4	0.20	0.39	0.67	0.93	1.1	4.0	1.6	1.5	0.87	e0.27	0.15	0.16
5	0.20	0.39	0.66	0.92	1.1	2.2	1.5	2.3	0.84	e0.25	0.14	0.15
6	0.23	0.38	0.67	1.9	1.1	1.7	1.4	1.6	1.1	e0.24	0.13	0.12
7	0.22	0.41	0.71	3.5	1.8	1.5	1.4	1.2	1.1	e0.23	0.10	0.11
8	0.18	0.42	0.90	1.8	1.9	1.3	1.3	1.1	0.81	e0.22	0.10	0.10
9	0.17	0.37	1.3	1.2	1.6	1.3	1.5	1.1	0.80	e0.21	0.07	0.08
10	0.18	0.38	1.0	1.2	1.4	1.3	3.1	1.1	0.78	e0.20	0.05	0.07
11	0.14	0.40	2.9	1.3	1.5	1.2	2.2	0.88	0.72	e0.19	0.04	0.06
12	0.16	0.40	1.6	1.2	1.3	1.2	1.8	0.75	0.66	e0.18	0.04	0.04
13	0.16	0.39	1.1	1.2	1.3	4.2	1.7	0.74	0.72	0.16	0.02	0.03
14	0.21	0.40	1.0	1.0	1.2	4.3	1.7	0.79	1.5	0.25	0.00	0.02
15	0.28	0.42	0.88	1.0	1.2	2.4	1.7	0.76	5.8	0.23	0.00	0.03
16	0.24	0.42	0.76	0.93	1.3	1.8	1.6	0.71	1.9	0.19	0.00	0.04
17	0.28	0.42	0.75	0.92	1.3	1.6	1.5	0.75	1.4	0.15	0.00	0.04
18	0.26	0.40	0.94	0.90	1.2	3.9	1.5	10	0.96	0.12	0.00	0.04
19	0.26	0.39	0.97	0.98	1.2	3.7	2.7	3.2	0.76	0.10	0.00	0.03
20	0.27	0.42	0.87	1.2	1.2	11	11	1.7	0.69	0.08	0.00	0.01
21	0.26	0.45	0.86	1.4	1.3	7.2	6.4	1.3	0.69	0.07	0.00	0.00
22	0.29	0.43	0.86	1.6	1.2	3.3	30	1.2	0.73	0.07	0.00	0.00
23	0.30	0.48	0.90	1.8	1.2	2.2	7.1	1.0	0.72	0.06	0.00	0.00
24	0.32	0.50	1.4	1.9	1.2	1.9	3.9	0.97	0.60	0.03	0.00	0.00
25	0.33	1.1	1.3	2.1	1.2	1.6	3.0	0.92	0.55	0.03	0.00	0.00
26	0.37	2.9	1.2	1.6	1.2	2.0	2.4	0.86	0.50	0.09	0.00	0.01
27	0.37	0.95	1.1	1.3	1.5	6.5	1.9	0.91	0.46	0.17	0.00	0.03
28	0.37	0.79	1.0	1.2	1.4	3.4	31	1.1	0.42	0.21	0.00	0.03
29	0.35	0.76	1.0	1.2	---	2.4	12	0.93	0.40	0.17	0.17	0.04
30	0.37	0.74	0.96	1.1	---	2.1	3.2	0.99	0.36	0.25	0.41	0.02
31	0.39	---	0.88	1.1	---	2.2	---	0.97	---	0.21	0.24	---
TOTAL	8.11	17.02	31.26	40.94	36.4	101.3	147.0	47.93	29.53	5.56	2.21	1.82
MEAN	0.26	0.57	1.01	1.32	1.30	3.27	4.90	1.55	0.98	0.18	0.071	0.061
MAX	0.39	2.9	2.9	3.5	1.9	15	31	10	5.8	0.33	0.41	0.20
MIN	0.14	0.37	0.66	0.81	1.1	1.2	1.3	0.71	0.36	0.03	0.00	0.00
CFSM	0.03	0.07	0.13	0.17	0.17	0.43	0.64	0.20	0.13	0.02	0.01	0.01
IN.	0.04	0.08	0.15	0.20	0.18	0.49	0.72	0.23	0.14	0.03	0.01	0.01

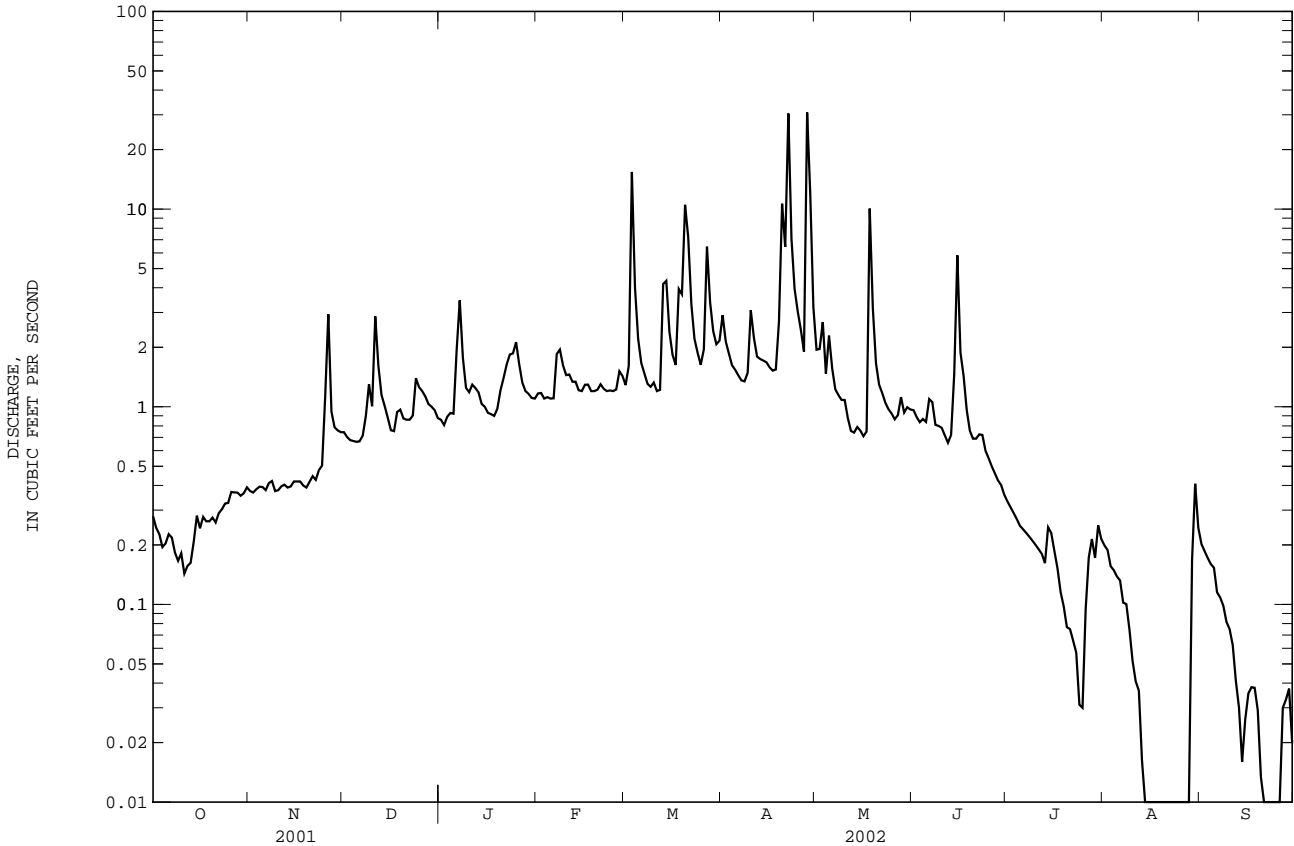
01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.11	5.52	7.68	9.92	11.6	13.7	11.3	7.89	4.66	2.61	2.52	3.07
MAX	23.9	19.2	24.4	31.2	54.0	35.0	33.0	42.8	48.8	15.1	24.5	37.2
(WY)	1980	1953	1997	1996	1998	1994	1983	1989	1972	1975	1955	1975
MIN	0.070	0.23	0.58	1.01	1.30	1.77	2.90	1.38	0.23	0.055	0.010	0.000
(WY)	1989	1999	1966	1981	2002	1981	1969	1999	1999	1963	1963	1964

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 2002	
ANNUAL TOTAL	1965.34		469.08			
ANNUAL MEAN	5.38		1.29		6.93	
HIGHEST ANNUAL MEAN					13.5 1998	
LOWEST ANNUAL MEAN					1.29 2002	
HIGHEST DAILY MEAN	193	Mar 21	31	Apr 28	770	Jun 22 1972
LOWEST DAILY MEAN	0.14	Oct 11	0.00	aAug 14	0.00	(b)
ANNUAL SEVEN-DAY MINIMUM	0.17	Oct 8	0.00	Aug 14	0.00	(b)
MAXIMUM PEAK FLOW			93	Apr 28	4160	May 6 1989
MAXIMUM PEAK STAGE			3.35	Apr 28	11.62	May 6 1989
INSTANTANEOUS LOW FLOW			0.00	cAug 13	0.00	(b)
ANNUAL RUNOFF (CFSM)	0.70		0.17		0.91	
ANNUAL RUNOFF (INCHES)	9.57		2.28		12.32	
10 PERCENT EXCEEDS	6.9		2.2		13	
50 PERCENT EXCEEDS	1.3		0.81		2.6	
90 PERCENT EXCEEDS	0.37		0.04		0.20	

- a Also many other days in August and September 2002.
- b No flow at times many years.
- c No flow part or all of many days in August and September 2002.
- e Estimated.



POTOMAC RIVER BASIN

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)	
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH									
1	5.0	0.00	4.0	0.01	1.0	0.00	5.0	0.01	4.0	0.01	10	0.04								
2	5.0	0.00	5.0	0.01	2.0	0.00	5.0	0.01	5.0	0.01	17	0.10								
3	5.0	0.00	5.0	0.01	3.0	0.00	5.0	0.01	4.0	0.01	62	3.1								
4	4.0	0.00	6.0	0.01	2.0	0.00	5.0	0.01	3.0	0.01	24	0.27								
5	4.0	0.00	4.0	0.01	2.0	0.00	5.0	0.01	3.0	0.01	16	0.10								
6	4.0	0.00	4.0	0.01	2.0	0.00	9.0	0.07	2.0	0.01	12	0.05								
7	4.0	0.00	4.0	0.01	2.0	0.00	23	0.22	12	0.06	9.0	0.03								
8	4.0	0.00	7.0	0.01	3.0	0.01	16	0.08	7.0	0.04	10	0.04								
9	3.0	0.00	7.0	0.01	3.0	0.01	11	0.04	3.0	0.01	12	0.04								
10	3.0	0.00	4.0	0.01	3.0	0.01	9.0	0.03	3.0	0.01	11	0.04								
11	3.0	0.00	2.0	0.00	6.0	0.05	7.0	0.02	2.0	0.01	8.0	0.03								
12	3.0	0.00	2.0	0.00	3.0	0.01	4.0	0.01	4.0	0.01	9.0	0.03								
13	3.0	0.00	2.0	0.00	3.0	0.01	2.0	0.01	4.0	0.01	11	0.14								
14	3.0	0.00	2.0	0.00	3.0	0.01	2.0	0.01	6.0	0.02	9.0	0.11								
15	6.0	0.01	2.0	0.00	3.0	0.01	2.0	0.01	10	0.03	8.0	0.05								
16	5.0	0.00	2.0	0.00	3.0	0.01	2.0	0.01	8.0	0.03	8.0	0.04								
17	6.0	0.01	2.0	0.00	2.0	0.00	4.0	0.01	4.0	0.01	12	0.05								
18	6.0	0.01	3.0	0.00	2.0	0.01	4.0	0.01	4.0	0.01	9.0	0.09								
19	7.0	0.01	3.0	0.00	2.0	0.01	4.0	0.01	6.0	0.02	9.0	0.09								
20	6.0	0.01	3.0	0.01	3.0	0.01	3.0	0.01	5.0	0.02	16	0.48								
21	6.0	0.01	3.0	0.01	4.0	0.01	4.0	0.01	4.0	0.02	10	0.22								
22	7.0	0.01	2.0	0.00	4.0	0.01	6.0	0.03	6.0	0.02	7.0	0.06								
23	8.0	0.01	3.0	0.01	4.0	0.01	6.0	0.03	8.0	0.02	6.0	0.03								
24	9.0	0.01	3.0	0.01	4.0	0.02	5.0	0.02	5.0	0.02	4.0	0.02								
25	8.0	0.01	3.0	0.02	4.0	0.01	7.0	0.04	5.0	0.01	3.0	0.01								
26	11	0.02	7.0	0.03	4.0	0.01	8.0	0.04	4.0	0.01	3.0	0.01								
27	11	0.02	5.0	0.01	4.0	0.01	6.0	0.02	4.0	0.01	6.0	0.10								
28	8.0	0.01	4.0	0.00	4.0	0.01	5.0	0.02	7.0	0.03	5.0	0.05								
29	6.0	0.01	3.0	0.00	4.0	0.01	3.0	0.01	---	---	3.0	0.02								
30	6.0	0.01	2.0	0.00	5.0	0.01	3.0	0.01	---	---	4.0	0.02								
31	4.0	0.01	---	---	5.0	0.01	4.0	0.01	---	---	2.0	0.01								
TOTAL	---	0.18	---	0.20	---	0.28	---	0.84	---	0.49	---	5.47								

DAY	MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)		MEAN CONCEN- TRATION (MG/L)		LOAD (TONS/ DAY)	
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER					
1	2.0	0.02	13	0.07	6.0	0.01	13	0.01	2.0	0.00	6.0	0.00				
2	3.0	0.02	12	0.06	6.0	0.01	e14	e0.01	3.0	0.00	5.0	0.00				
3	2.0	0.01	16	0.11	8.0	0.01	e14	e0.01	4.0	0.00	4.0	0.00				
4	2.0	0.01	13	0.05	8.0	0.01	e10	e0.00	3.0	0.00	4.0	0.00				
5	2.0	0.01	9.0	0.06	5.0	0.01	e5.0	e0.00	5.0	0.00	6.0	0.00				
6	2.0	0.01	3.0	0.01	9.0	0.02	e3.0	e0.00	5.0	0.00	4.0	0.00				
7	1.0	0.01	2.0	0.01	9.0	0.02	e2.0	e0.00	4.0	0.00	2.0	0.00				
8	2.0	0.01	1.0	0.00	7.0	0.01	e2.0	e0.00	3.0	0.00	2.0	0.00				
9	2.0	0.01	1.0	0.00	8.0	0.01	e2.0	e0.00	2.0	0.00	2.0	0.00				
10	5.0	0.05	1.0	0.00	9.0	0.01	e2.0	e0.00	2.0	0.00	4.0	0.00				
11	3.0	0.02	1.0	0.00	9.0	0.01	e3.0	e0.00	2.0	0.00	4.0	0.00				
12	4.0	0.02	2.0	0.00	7.0	0.01	5.0	0.00	2.0	0.00	3.0	0.00				
13	5.0	0.02	1.0	0.00	8.0	0.01	5.0	0.00	1.0	0.00	0.0	0.00				
14	6.0	0.03	1.0	0.00	10	0.04	5.0	0.00	0.0	0.00	0.0	0.00				
15	5.0	0.02	1.0	0.00	25	0.55	3.0	0.00	0.0	0.00	2.0	0.00				
16	5.0	0.02	1.0	0.00	11	0.06	3.0	0.00	0.0	0.00	4.0	0.00				
17	7.0	0.03	2.0	0.00	8.0	0.03	2.0	0.00	0.0	0.00	7.0	0.00				
18	8.0	0.03	36	1.4	6.0	0.01	2.0	0.00	0.0	0.00	7.0	0.00				
19	10	0.07	39	0.34	5.0	0.01	3.0	0.00	0.0	0.00	4.0	0.00				
20	18	0.54	19	0.09	8.0	0.01	3.0	0.00	0.0	0.00	0.0	0.00				
21	18	0.38	12	0.04	8.0	0.01	4.0	0.00	0.0	0.00	0.0	0.00				
22	63	7.0	9.0	0.03	12	0.02	2.0	0.00	0.0	0.00	0.0	0.00				
23	21	0.41	8.0	0.02	9.0	0.01	3.0	0.00	0.0	0.00	0.0	0.00				
24	16	0.17	7.0	0.01	9.0	0.01	4.0	0.00	0.0	0.00	0.0	0.00				
25	17	0.14	6.0	0.01	8.0	0.01	4.0	0.00	0.0	0.00	0.0	0.00				
26	17	0.11	6.0	0.01	9.0	0.01	4.0	0.00	0.0	0.00	0.0	0.00				
27	20	0.10	5.0	0.01	10	0.01	4.0	0.00	0.0	0.00	2.0	0.00				
28	65	9.3	4.0	0.01	10	0.01	3.0	0.00	0.0	0.00	6.0	0.00				
29	19	0.70	3.0	0.01	11	0.01	4.0	0.00	5.0	0.02	4.0	0.00				
30	14	0.12	4.0	0.01	12	0.01	4.0	0.00	15	0.04	3.0	0.00				
31	---	---	5.0	0.01	---	---	2.0	0.00	7.0	0.01	---	---				
TOTAL	---	19.39	---	2.37	---	0.97	---	0.03	---	0.07	---	0.00				
YEAR		30.29														

e Estimated

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1953, 1955-56, 1969, 1973-75, 1983-85, 1994 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-AIRE (DEG C) (00020)	TEMPER-AIRE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT												
11...	1215	ENVIRONMENTAL	1.42	.14	760	10.2	80	6.8	51	19.0	11.5	<.04
NOV												
14...	0945	ENVIRONMENTAL	1.60	.39	760	10.0	97	7.9	80	5.5	5.0	E.02
DEC												
12...	0830	ENVIRONMENTAL	1.55	1.6	762	13.8	101	8.7	89	6.0	6.8	<.04
JAN												
15...	0900	ENVIRONMENTAL	1.48	1.0	750	13.3	98	7.0	89	.5	3.0	<.04
FEB												
12...	1130	ENVIRONMENTAL	1.52	1.3	755	13.7	100	7.3	109	5.0	4.1	<.04
MAR												
14...	0830	ENVIRONMENTAL	1.62	4.7	753	11.6	99	6.8	91	6.5	8.1	<.04
APR												
11...	0915	ENVIRONMENTAL	1.49	2.1	760	10.2	99	7.2	80	14.0	11.8	<.04
22...	0850	ENVIRONMENTAL	2.77	50	747	9.8	97	6.7	74	10.5	13.0	.06
22...	0855	REPLICATE	2.75	49	747	9.8	97	6.7	74	10.5	13.0	.06
MAY												
16...	0915	ENVIRONMENTAL	1.39	.74	755	8.5	90	7.1	85	15.0	13.9	<.04
JUN												
17...	1045	ENVIRONMENTAL	1.42	1.5	750	8.0	86	6.6	88	23.0	19.2	.07
JUL												
30...	1045	ENVIRONMENTAL	1.27	.25	752	5.5	65	6.7	73	35.0	23.9	E.03
AUG												
13...	0830	ENVIRONMENTAL	1.09	.02	754	5.0	57	6.7	87	28.5	22.2	E.03
SEP												
17...	0900	ENVIRONMENTAL	1.21	.03	754	4.4	48	6.4	76	18.0	19.6	<.04

Date	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS P) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	E COLI, MTEC MF WATER (COL/100 ML) (31633)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT											
11...	.11	.19	<.05	<.008	.006	<.02	.019	37	15	2.8	.00
NOV											
14...	.14	.15	<.05	<.008	.016	<.02	.024	92	<7	1.6	.00
DEC											
12...	.20	.25	.07	<.008	.017	E.01	.031	72	320	2.5	.01
JAN											
15...	.14	.21	E.04	<.008	.013	<.02	.021	12	5	1.6	.00
FEB											
12...	E.09	.14	<.05	<.008	.006	<.02	.018	<2	<2	4.0	.01
MAR											
14...	.20	.33	.08	<.008	.014	<.02	.041	76	55	7.7	.10
APR											
11...	.21	.26	<.05	<.008	.013	<.02	.025	39	34	3.4	.02
22...	.50	.80	.13	E.004	.026	E.01	.119	--	--	110	14.9
22...	.53	.73	.13	E.004	.022	E.01	.119	--	--	--	--
MAY											
16...	.27	.34	E.04	<.008	.018	<.02	.032	21	20	1.3	.00
JUN											
17...	.40	.47	.15	<.008	.034	E.01	.055	44	170	7.5	.03
JUL											
30...	.22	.29	.07	E.004	.013	<.02	.036	80	74	3.5	.00
AUG											
13...	.38	.45	E.04	<.008	.013	<.02	.033	42	270	1.6	.00
SEP											
17...	.17	.29	<.05	<.008	.009	<.02	.035	260	220	6.7	.00

POTOMAC RIVER BASIN

01659000 NORTH BRANCH CHOPAWAMSIK CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°33'58", long 77°25'48", NAD83, Prince William County, Hydrologic unit 02070011, on left bank 1.0 mi upstream from Chopawamsic Creek, 4.8 mi south of Independent Hill, located downstream side of MCB-1, 10 ft.

DRAINAGE AREA.--5.79 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1951 to June 1957, March 2000 to current year.

GAGE.--Water stage recorder. Datum of gage is 230 ft NGVD of 1929, from topographic map. May 1951 to June 1957, at site 1,000 ft upstream at different datum.

REMARKS.--Records fair except those for periods of partial or no gage-height record, Feb. 22-26, Mar. 20, 21, and Apr. 18 to May 2, which are poor.

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	0.59	0.52	0.64	1.5	1.2	1.9	6.0	e0.60	0.07	0.38	0.09	0.11
2	0.53	0.54	0.75	1.4	1.2	2.5	3.7	e1.0	0.02	0.30	0.05	0.11
3	0.49	0.60	0.69	1.5	1.2	7.5	2.6	1.4	0.02	0.27	0.03	0.09
4	0.40	0.45	0.59	1.6	1.3	1.1	2.1	0.84	0.04	0.19	0.02	0.08
5	0.40	0.42	0.53	1.6	1.3	0.58	1.7	1.3	0.10	0.24	0.01	0.07
6	0.40	0.42	0.57	2.9	1.3	0.64	1.4	0.90	1.1	0.10	0.02	0.07
7	0.38	0.46	0.64	3.3	1.8	0.82	1.2	0.75	1.2	0.04	0.01	0.08
8	0.35	0.47	0.91	1.2	1.8	0.75	1.2	0.69	0.44	0.09	0.01	0.07
9	0.29	0.44	1.2	0.80	1.4	1.0	1.9	0.62	0.19	0.14	0.01	0.09
10	0.30	0.42	1.0	0.97	1.2	1.6	7.3	0.64	0.17	0.38	0.01	0.09
11	0.30	0.46	2.0	1.4	1.2	1.3	3.2	0.44	0.05	0.19	0.01	0.09
12	0.31	0.44	1.3	1.5	1.0	1.6	2.2	0.33	0.03	0.10	0.01	0.03
13	0.39	0.45	0.95	1.4	1.2	7.5	1.7	0.35	0.23	0.07	0.01	0.02
14	0.42	0.48	1.0	1.3	1.2	8.0	1.4	0.59	2.3	0.39	0.00	0.02
15	0.43	0.49	0.90	1.4	1.4	4.1	1.2	0.92	9.1	0.34	0.00	0.03
16	0.49	0.48	1.00	1.3	1.5	3.0	0.96	0.66	2.5	0.18	0.00	0.09
17	0.50	0.44	1.1	1.3	1.6	2.6	0.71	0.72	1.3	0.10	0.00	0.06
18	0.53	0.44	1.3	1.3	1.5	8.1	e2.5	10	0.79	0.08	0.00	0.04
19	0.50	0.43	1.3	1.5	1.6	7.3	e15	3.7	0.66	0.12	0.00	0.02
20	0.53	0.48	1.3	1.7	1.7	e20	e25	1.6	0.54	0.04	0.00	0.01
21	0.54	0.42	1.5	1.8	1.6	e14	e30	1.2	0.25	0.04	0.00	0.00
22	0.54	0.45	1.5	1.9	e1.7	6.7	e15	1.0	0.21	0.04	0.00	0.00
23	0.45	0.47	1.4	2.0	e1.8	4.4	e4.0	0.91	0.18	0.02	0.00	0.00
24	0.47	0.50	2.0	2.2	e1.8	3.6	e1.5	0.82	0.16	0.01	0.00	0.00
25	0.52	0.88	1.9	2.1	e1.9	3.0	e1.0	0.65	0.18	0.01	0.00	0.00
26	0.51	1.7	1.8	1.4	e2.0	3.6	e0.75	0.44	0.12	0.32	0.00	0.03
27	0.48	0.62	1.7	1.2	2.0	14	e1.2	0.46	0.32	0.54	0.00	0.20
28	0.51	0.43	1.6	1.1	1.9	6.5	e15	1.2	0.46	0.49	0.20	0.03
29	0.49	0.38	1.7	1.1	---	4.3	e10	0.84	0.39	0.32	0.49	0.01
30	0.55	0.40	1.6	1.1	---	3.7	e1.5	0.45	0.40	0.24	0.04	0.00
31	0.53	---	1.5	1.1	---	3.8	---	0.19	---	0.14	0.01	---
TOTAL	14.12	15.58	37.87	47.87	42.3	149.49	162.92	36.21	23.52	5.91	1.03	1.54
MEAN	0.46	0.52	1.22	1.54	1.51	4.82	5.43	1.17	0.78	0.19	0.033	0.051
MAX	0.59	1.7	2.0	3.3	2.0	20	30	10	9.1	0.54	0.49	0.20
MIN	0.29	0.38	0.53	0.80	1.0	0.58	0.71	0.19	0.02	0.01	0.00	0.00
CFSM	0.08	0.09	0.21	0.27	0.26	0.83	0.94	0.20	0.14	0.03	0.01	0.01
IN.	0.09	0.10	0.24	0.31	0.27	0.96	1.05	0.23	0.15	0.04	0.01	0.01

01659000 NORTH BRANCH CHOPAWAMSIK CREEK NEAR INDEPENDENT HILL, VA--Continued

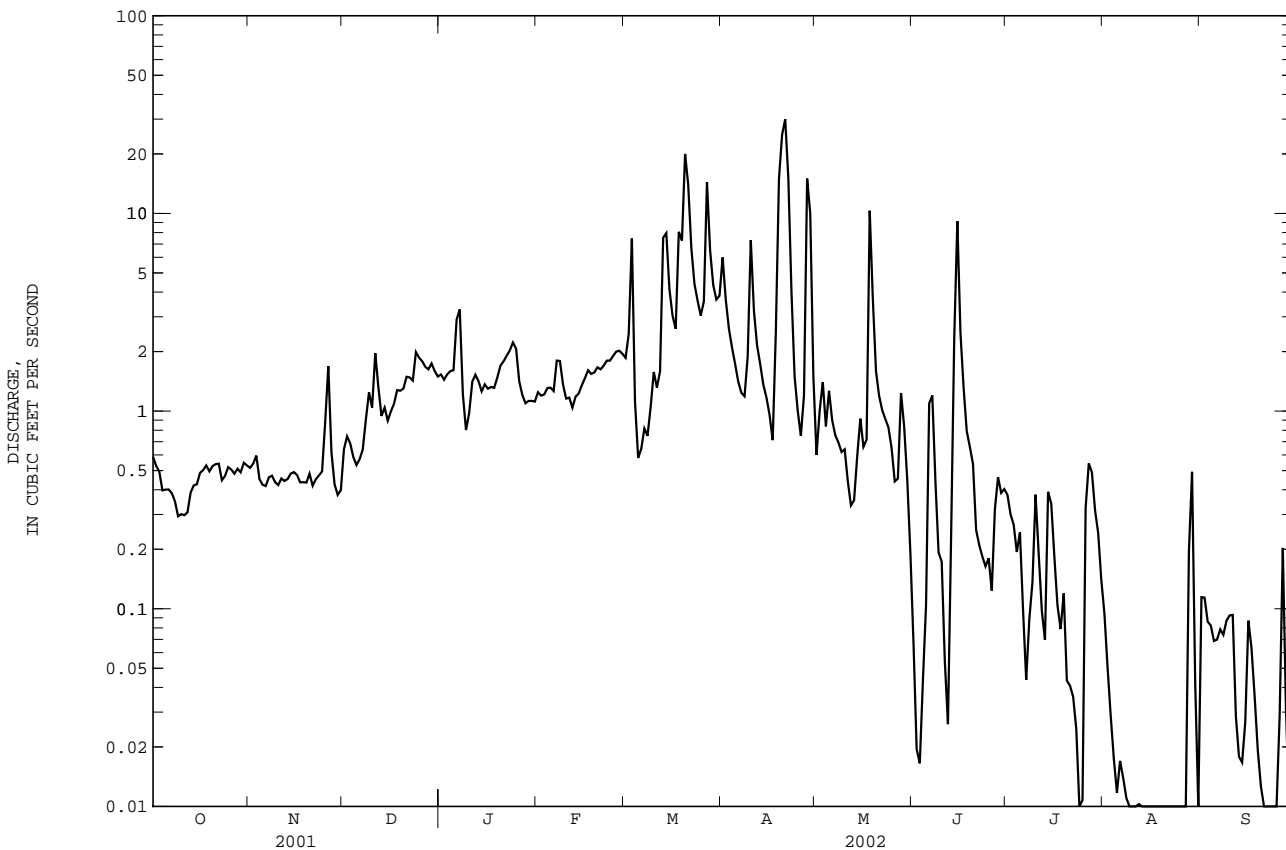
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1957, 2000 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.28	3.59	4.32	5.43	5.73	9.54	8.54	4.11	3.66	2.12	2.65	1.20
MAX	3.25	11.9	10.9	11.4	9.58	17.0	19.0	7.77	12.5	5.69	16.2	4.49
(WY)	1957	1953	1952	1953	1957	1953	1952	1953	1951	2001	1955	2000
MIN	0.30	0.51	1.22	1.05	1.51	4.82	3.69	1.17	0.58	0.19	0.033	0.036
(WY)	1955	1955	2002	1955	2002	2002	1955	2002	1954	1955	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1951 - 1957 2000 - 2002

ANNUAL TOTAL		1474.05		538.36								
ANNUAL MEAN		4.04		1.47					4.09			
HIGHEST ANNUAL MEAN									6.57		1952	
LOWEST ANNUAL MEAN									1.47		2002	
HIGHEST DAILY MEAN			115	Mar 21		e30	Apr 21		168	Nov 21	1952	
LOWEST DAILY MEAN			0.25	Jul 24		0.00	aAug 14		0.00		(b)	
ANNUAL SEVEN-DAY MINIMUM			0.33	Oct 7		0.00	Aug 14		0.00		(b)	
MAXIMUM PEAK FLOW						c38	Apr 28		298	Nov 21	1952	
MAXIMUM PEAK STAGE						c4.35	Apr 28		d8.04	Nov 21	1952	
INSTANTANEOUS LOW FLOW						0.00	fJun 2		0.00		(g)	
ANNUAL RUNOFF (CFSM)			0.70			0.25			0.71			
ANNUAL RUNOFF (INCHES)			9.47			3.46			9.59			
10 PERCENT EXCEEDS			6.3			2.6			7.7			
50 PERCENT EXCEEDS			1.6			0.59			1.6			
90 PERCENT EXCEEDS			0.43			0.02			0.20			

- a Also Aug. 15-27 and Sept. 21-25, 30, 2002.
- b Many days in October 1954 and August, September 2002.
- c May have been higher during period of no gage-height record, Apr. 20-22, 2002.
- d At datum then in use.
- e Estimated.
- f Part or all of many days June to September 2002.
- g Many days in October 1954, Sept. 19, 2000, and many days June to September 2002.



POTOMAC RIVER BASIN

01659000 NORTH BRANCH CHOPAWAMSIK CREEK NEAR INDEPENDENT HILL, VA--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		
	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	
OCTOBER																					
1	4.0	0.01	1.0	0.00	2.0	0.00	5.0	0.02	1.0	0.00	5.0	0.02									
2	3.0	0.00	2.0	0.00	1.0	0.00	6.0	0.02	4.0	0.01	8.0	0.08									
3	2.0	0.00	2.0	0.00	1.0	0.00	6.0	0.02	7.0	0.02	21	0.57									
4	4.0	0.00	3.0	0.00	1.0	0.00	6.0	0.03	10	0.03	8.0	0.03									
5	5.0	0.01	3.0	0.00	1.0	0.00	7.0	0.03	6.0	0.02	7.0	0.01									
6	4.0	0.00	3.0	0.00	1.0	0.00	8.0	0.07	7.0	0.02	5.0	0.01									
7	4.0	0.00	3.0	0.00	1.0	0.00	9.0	0.08	6.0	0.03	3.0	0.01									
8	5.0	0.00	2.0	0.00	1.0	0.00	7.0	0.02	5.0	0.03	3.0	0.01									
9	4.0	0.00	2.0	0.00	1.0	0.00	6.0	0.01	6.0	0.02	2.0	0.01									
10	4.0	0.00	5.0	0.01	1.0	0.00	6.0	0.02	7.0	0.02	3.0	0.01									
11	4.0	0.00	3.0	0.00	8.0	0.04	5.0	0.02	4.0	0.01	3.0	0.01									
12	4.0	0.00	2.0	0.00	3.0	0.01	4.0	0.02	4.0	0.01	3.0	0.01									
13	6.0	0.01	2.0	0.00	2.0	0.01	2.0	0.01	5.0	0.02	12	0.31									
14	5.0	0.01	2.0	0.00	2.0	0.00	2.0	0.01	5.0	0.02	10	0.24									
15	6.0	0.01	2.0	0.00	2.0	0.01	2.0	0.01	4.0	0.02	2.0	0.02									
16	6.0	0.01	3.0	0.00	6.0	0.02	1.0	0.01	4.0	0.02	1.0	0.01									
17	7.0	0.01	3.0	0.00	4.0	0.01	2.0	0.01	6.0	0.03	1.0	0.01									
18	7.0	0.01	1.0	0.00	3.0	0.01	2.0	0.01	6.0	0.02	7.0	0.18									
19	3.0	0.00	1.0	0.00	4.0	0.01	2.0	0.01	5.0	0.02	6.0	0.13									
20	2.0	0.00	1.0	0.00	2.0	0.01	3.0	0.01	5.0	0.02	e24	e1.3									
21	2.0	0.00	1.0	0.00	2.0	0.01	1.0	0.01	5.0	0.02	e43	e1.5									
22	2.0	0.00	1.0	0.00	5.0	0.02	1.0	0.01	e6.0	e0.02	26	0.49									
23	2.0	0.00	1.0	0.00	7.0	0.03	2.0	0.01	e5.0	e0.03	9.0	0.11									
24	2.0	0.00	1.0	0.00	10	0.05	2.0	0.01	e5.0	e0.02	4.0	0.04									
25	2.0	0.00	1.0	0.00	9.0	0.05	1.0	0.01	e4.0	e0.02	4.0	0.03									
26	2.0	0.00	7.0	0.04	9.0	0.04	1.0	0.00	e3.0	e0.02	5.0	0.07									
27	3.0	0.00	4.0	0.01	8.0	0.03	1.0	0.00	4.0	0.02	12	0.50									
28	2.0	0.00	1.0	0.00	7.0	0.03	1.0	0.00	5.0	0.02	5.0	0.09									
29	2.0	0.00	1.0	0.00	6.0	0.03	1.0	0.00	---	---	3.0	0.04									
30	2.0	0.00	1.0	0.00	5.0	0.02	1.0	0.00	---	---	2.0	0.02									
31	1.0	0.00	---	---	5.0	0.02	1.0	0.00	---	---	4.0	0.04									
TOTAL	---	0.08	---	0.06	---	0.46	---	0.49	---	0.56	---	5.91									

DAY	MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)		MEAN CONCENTRATION (MG/L)		LOAD (TONS/DAY)	
	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)	CONCENTRATION (MG/L)	LOAD (TONS/DAY)
APRIL																
1	2.0	0.04	e7.0	e0.00	8.0	0.00	5.0	0.01	5.0	0.00	6.0	0.00				
2	2.0	0.02	5.0	0.01	8.0	0.00	3.0	0.00	4.0	0.00	8.0	0.00				
3	2.0	0.01	6.0	0.01	7.0	0.00	3.0	0.00	3.0	0.00	7.0	0.00				
4	3.0	0.02	6.0	0.00	6.0	0.00	3.0	0.00	3.0	0.00	7.0	0.00				
5	2.0	0.01	7.0	0.01	6.0	0.00	4.0	0.00	3.0	0.00	9.0	0.00				
6	2.0	0.01	6.0	0.00	8.0	0.03	3.0	0.00	3.0	0.00	8.0	0.00				
7	4.0	0.01	7.0	0.00	12	0.04	3.0	0.00	2.0	0.00	8.0	0.00				
8	3.0	0.01	5.0	0.00	10	0.01	3.0	0.00	2.0	0.00	9.0	0.00				
9	4.0	0.02	5.0	0.00	9.0	0.00	4.0	0.00	2.0	0.00	8.0	0.00				
10	8.0	0.16	6.0	0.00	10	0.00	9.0	0.01	2.0	0.00	8.0	0.00				
11	5.0	0.04	4.0	0.00	10	0.00	8.0	0.00	2.0	0.00	9.0	0.00				
12	5.0	0.03	0.0	0.00	9.0	0.00	6.0	0.00	2.0	0.00	9.0	0.00				
13	4.0	0.02	0.0	0.00	8.0	0.01	3.0	0.00	1.0	0.00	9.0	0.00				
14	5.0	0.02	2.0	0.00	8.0	0.05	5.0	0.01	0.0	0.00	11	0.00				
15	4.0	0.01	5.0	0.01	33	1.2	7.0	0.01	0.0	0.00	12	0.00				
16	4.0	0.01	7.0	0.01	23	0.17	5.0	0.00	0.0	0.00	10	0.00				
17	4.0	0.01	10	0.02	12	0.04	5.0	0.00	0.0	0.00	10	0.00				
18	e7.0	e0.07	21	0.72	5.0	0.01	5.0	0.00	0.0	0.00	9.0	0.00				
19	e10	e0.21	14	0.15	5.0	0.01	5.0	0.00	0.0	0.00	9.0	0.00				
20	e6.0	e0.34	8.0	0.03	5.0	0.01	5.0	0.00	0.0	0.00	6.0	0.00				
21	e7.0	e0.54	5.0	0.02	5.0	0.00	3.0	0.00	0.0	0.00	0.0	0.00				
22	e5.0	e0.19	6.0	0.02	5.0	0.00	2.0	0.00	0.0	0.00	0.0	0.00				
23	e4.0	e0.05	4.0	0.01	5.0	0.00	2.0	0.00	0.0	0.00	0.0	0.00				
24	e4.0	e0.01	5.0	0.01	5.0	0.00	2.0	0.00	0.0	0.00	0.0	0.00				
25	e4.0	e0.01	9.0	0.01	4.0	0.00	2.0	0.00	0.0	0.00	0.0	0.00				
26	e4.0	e0.01	9.0	0.01	3.0	0.00	5.0	0.01	0.0	0.00	1.0	0.00				
27	e5.0	e0.04	9.0	0.01	4.0	0.00	6.0	0.01	0.0	0.00	8.0	0.00				
28	e24	e1.7	9.0	0.03	5.0	0.01	7.0	0.01	5.0	0.00	11	0.00				
29	e12	e0.38	9.0	0.02	5.0	0.00	6.0	0.01	10	0.01	7.0	0.00				
30	e7.0	e0.02	8.0	0.01	4.0	0.00	6.0	0.00	8.0	0.00	0.0	0.00				
31	---	---	8.0	0.00	---	---	5.0	0.00	7.0	0.00	---	---				
TOTAL	---	4.02	---	1.12	---	1.59	---	0.08	---	0.01	---	0.00				
YEAR		14.38														
e	Estimated															

01659000 NORTH BRANCH CHOPAWAMSIK CREEK NEAR INDEPENDENT HILL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 2000 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-AIRE (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT												
11...	0915	ENVIRONMENTAL	3.16	.27	760	8.7	78	6.7	51	10.5	10.5	<.04
NOV												
14...	1200	ENVIRONMENTAL	3.45	.50	760	10.4	85	7.0	59	16.5	6.7	E.02
DEC												
12...	1045	ENVIRONMENTAL	3.64	1.3	762	13.5	101	7.8	59	8.5	6.9	<.04
JAN												
15...	1100	ENVIRONMENTAL	3.73	1.3	750	13.3	100	6.6	64	2.5	4.0	<.04
FEB												
12...	0900	ENVIRONMENTAL	3.86	1.0	755	12.0	91	6.9	57	2.5	3.1	<.04
MAR												
12...	0900	ENVIRONMENTAL	3.60	1.3	758	9.7	100	7.0	60	5.5	6.2	<.04
APR												
11...	0815	ENVIRONMENTAL	3.67	3.3	760	10.4	99	7.2	57	4.5	11.3	<.04
22...	1050	ENVIRONMENTAL	4.05	15	747	9.9	98	7.0	52	10.5	13.2	<.04
22...	1055	REPLICATE	4.05	15	747	9.9	98	7.0	52	10.5	13.2	<.04
MAY												
16...	1030	ENVIRONMENTAL	3.27	.56	755	8.2	90	6.9	64	15.5	15.1	<.04
JUN												
17...	0900	ENVIRONMENTAL	3.36	1.3	750	8.3	82	6.8	51	21.0	19.1	E.04
JUL												
30...	0900	ENVIRONMENTAL	3.01	.27	752	3.2	38	6.3	71	28.0	23.5	E.04
AUG												
13...	1332	ENVIRONMENTAL	2.95	.01	754	5.0	62	6.2	81	35.5	24.1	E.02
SEP												
17...	1015	ENVIRONMENTAL	3.02	.07	754	4.2	46	6.8	102	16.0	19.1	.04

Date	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS P) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	E COLI, MTEC MF WATER (COL/100 ML) (31633)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT											
11...	E.09	.14	<.05	<.008	.007	<.02	.018	--	--	3.9	.00
NOV											
14...	.12	.12	<.05	<.008	.008	<.02	.019	--	--	2.1	.00
DEC											
12...	.14	.18	<.05	<.008	.009	<.02	.021	--	--	1.9	.01
JAN											
15...	E.08	.13	<.05	<.008	.006	<.02	.013	--	--	1.5	.01
FEB											
12...	E.08	.12	<.05	<.008	.007	<.02	.020	--	--	3.7	.01
MAR											
12...	.11	.18	<.05	<.008	.007	<.02	.016	--	--	2.2	.01
APR											
11...	.15	.21	<.05	<.008	.012	<.02	.024	--	--	4.6	.04
22...	.41	.68	.06	<.008	.017	<.02	.091	--	--	86	3.5
22...	.37	.57	.06	<.008	.016	<.02	.090	--	--	88	3.6
MAY											
16...	.17	.26	<.05	<.008	.014	<.02	.033	--	--	5.5	.01
JUN											
17...	.30	.40	.05	<.008	.019	<.02	.049	--	--	13	.04
JUL											
30...	.19	.24	E.03	<.008	.021	<.02	.051	--	--	5.7	.00
AUG											
13...	.16	.28	<.05	<.008	.007	<.02	.032	--	--	2.5	.00
SEP											
17...	.17	.27	<.05	<.008	.006	<.02	.029	240	220	10	.00

POTOMAC RIVER BASIN

01659500 MIDDLE BRANCH CHOPAWAMSIK CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat. 38°33'26", long 77°25'31", NAD83, Stafford County, Hydrologic Unit 02070011, on left bank 300 feet upstream of culvert on route MCB-1, 0.4 mi upstream from confluence with North Branch Chopawamsic Creek, and 5.8 mi north of Garrisonville.

DRAINAGE AREA.--4.51 mi².

PERIOD OF RECORD.--October 1951 to September 1956, September 1989 to September 1992 (annual maximum only), March 2000 to September 2000, October 2001 to September 2002.

GAGE.--Water stage recorder. Datum of gage is 192.97 ft NGVD of 1929.. Oct. 1951 to Sep. 1956, at same site and different datum.

REMARKS.--Records good except for period of no gage-height record, Jan. 21 to Feb. 14, 2002, which is poor. Previously unpublished records for 2000 Water Year (March to September) included in this report.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	2.9	3.6	1.5	1.9	2.0	2.2
2	---	---	---	---	---	---	2.7	3.3	1.4	1.4	1.6	1.7
3	---	---	---	---	---	---	2.8	3.0	1.9	1.2	1.5	6.4
4	---	---	---	---	---	---	3.8	2.7	1.6	1.4	13	4.6
5	---	---	---	---	---	---	3.5	3.0	1.4	1.6	5.0	2.3
6	---	---	---	---	---	---	3.0	2.7	1.6	1.2	4.3	1.6
7	---	---	---	---	---	---	2.6	2.4	2.0	0.98	4.8	1.3
8	---	---	---	---	---	---	4.9	2.1	1.4	0.86	2.9	1.1
9	---	---	---	---	---	---	16	2.0	1.2	0.81	2.2	1.0
10	---	---	---	---	---	---	5.6	2.0	1.0	0.76	1.9	0.95
11	---	---	---	---	---	---	3.9	2.2	0.98	0.78	1.6	0.86
12	---	---	---	---	---	---	3.5	2.0	1.0	0.76	1.5	0.73
13	---	---	---	---	---	---	2.9	1.8	1.3	0.75	1.4	0.71
14	---	---	---	---	---	---	2.7	2.7	1.4	0.75	1.4	0.67
15	---	---	---	---	---	1.9	2.8	2.1	1.5	22	1.4	0.65
16	---	---	---	---	---	2.0	2.9	1.8	2.1	3.7	1.2	0.58
17	---	---	---	---	---	2.9	17	1.6	4.3	2.4	1.1	0.53
18	---	---	---	---	---	2.7	33	1.4	7.4	1.8	1.2	0.45
19	---	---	---	---	---	2.2	14	1.3	6.9	1.6	1.2	0.71
20	---	---	---	---	---	2.2	7.3	1.8	3.7	4.9	1.1	1.2
21	---	---	---	---	---	12	13	2.0	2.5	2.4	0.98	0.87
22	---	---	---	---	---	11	10	4.4	2.8	1.6	0.87	0.68
23	---	---	---	---	---	5.7	6.1	3.0	2.2	1.3	0.84	0.57
24	---	---	---	---	---	4.1	5.1	2.5	1.7	1.2	0.83	0.54
25	---	---	---	---	---	3.7	16	2.5	1.4	1.3	0.99	3.3
26	---	---	---	---	---	4.3	8.9	2.1	1.3	1.5	1.1	15
27	---	---	---	---	---	3.7	6.5	1.8	1.1	1.5	1.0	4.0
28	---	---	---	---	---	6.0	5.4	1.6	2.3	1.9	1.1	2.2
29	---	---	---	---	---	4.6	4.7	2.2	2.8	5.4	1.2	1.4
30	---	---	---	---	---	3.7	4.1	1.9	3.1	3.0	1.3	1.1
31	---	---	---	---	---	3.2	---	1.7	---	2.4	1.6	---
TOTAL	---	---	---	---	---	75.9	217.6	71.2	66.78	75.05	64.11	59.90
MEAN	---	---	---	---	---	4.46	7.25	2.30	2.23	2.42	2.07	2.00
MAX	---	---	---	---	---	12	33	4.4	7.4	22	13	15
MIN	---	---	---	---	---	1.9	2.6	1.3	0.98	0.75	0.83	0.45
CFSM	---	---	---	---	---	0.99	1.61	0.51	0.49	0.54	0.46	0.44
IN.	---	---	---	---	---	0.63	1.79	0.59	0.55	0.62	0.53	0.49

01659500 MIDDLE BRANCH CHOPAWAMSIK CREEK NEAR GARRISONVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1956, 2000, BY WATER YEAR (WY)

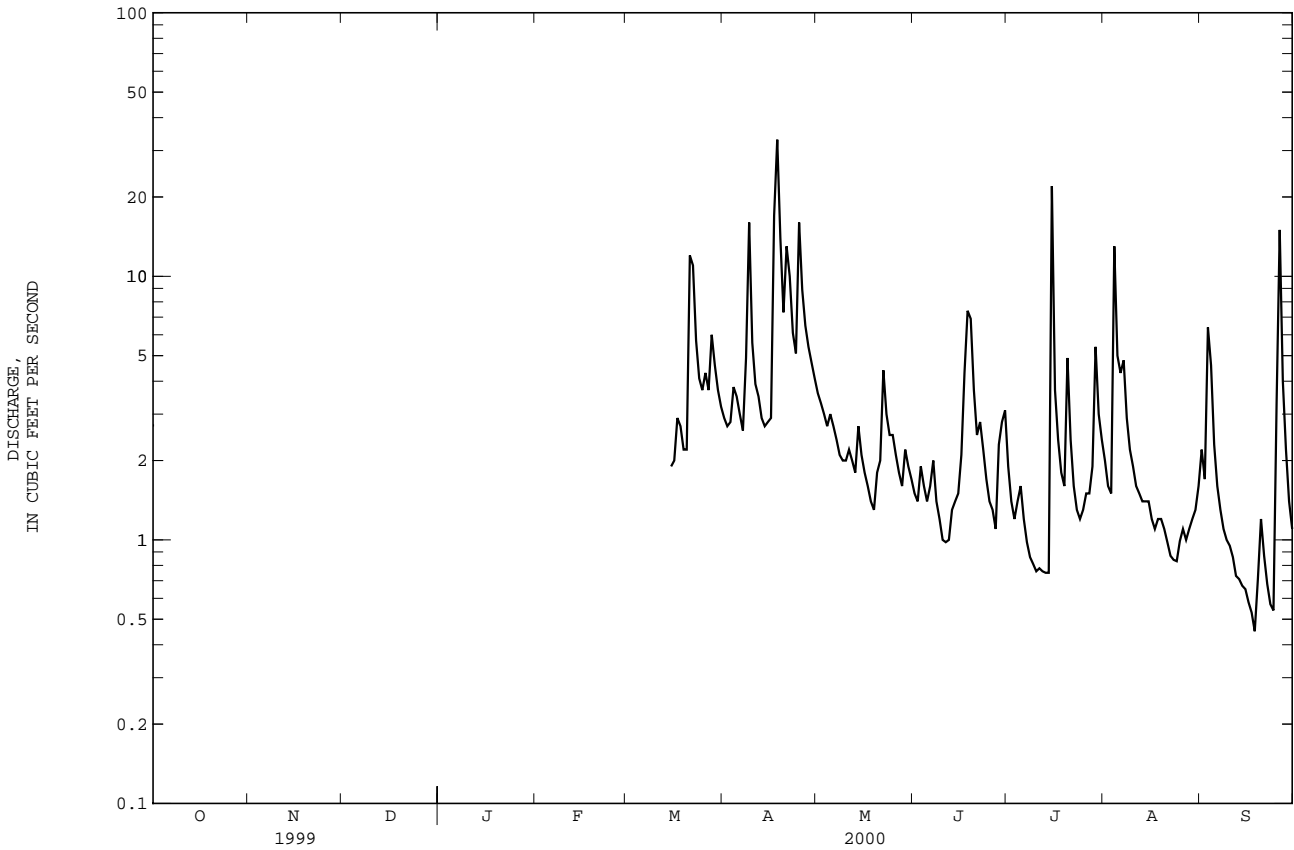
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	0.98	2.60	3.10	3.89	4.46	6.58	6.89	3.45	2.23	1.32	2.97	0.99
MAX	2.17	6.48	6.10	6.91	6.52	10.2	11.7	6.06	4.41	2.42	13.5	2.00
(WY)	1956	1953	1952	1952	1957	1953	1952	1953	1955	2000	1955	2000
MIN	0.093	0.27	1.28	0.92	2.19	4.46	3.22	2.03	0.80	0.58	0.14	0.048
(WY)	1955	1955	1955	1955	1954	2000	1954	1956	1956	1954	1954	1954

SUMMARY STATISTICS

FOR 2000 WATER YEAR

WATER YEARS 1952 - 1956
2000

ANNUAL TOTAL	630.54	
ANNUAL MEAN	3.15	3.34
HIGHEST ANNUAL MEAN		4.43
LOWEST ANNUAL MEAN		1.78
HIGHEST DAILY MEAN	33	Apr 18
LOWEST DAILY MEAN	0.45	Sep 18
ANNUAL SEVEN-DAY MINIMUM	0.61	Sep 13
MAXIMUM PEAK FLOW	134	Aug 4
MAXIMUM PEAK STAGE	3.27	Aug 4
INSTANTANEOUS LOW FLOW	0.44	Sep 18
ANNUAL RUNOFF (CFSM)	0.70	0.44
ANNUAL RUNOFF (INCHES)	5.20	10.07
10 PERCENT EXCEEDS	6.0	6.7
50 PERCENT EXCEEDS	2.0	1.9
90 PERCENT EXCEEDS	0.86	0.30



POTOMAC RIVER BASIN

01659500 MIDDLE BRANCH CHOPAWAMSIK CREEK NEAR GARRISONVILLE, VA--Continued

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	0.24	0.46	0.57	0.59	e0.80	0.75	1.5	1.5	0.58	0.37	0.15	0.08
2	0.23	0.40	0.54	0.59	e0.80	0.90	1.3	1.4	0.48	0.35	0.11	0.04
3	0.21	0.36	0.51	0.60	e0.75	3.8	1.2	1.5	0.38	0.33	0.06	0.04
4	0.19	0.38	0.54	0.69	e0.76	1.7	1.2	1.2	0.36	0.31	0.04	0.04
5	0.20	0.38	0.54	0.66	e0.73	1.3	1.1	1.3	0.34	0.27	0.02	0.01
6	0.27	0.39	0.54	1.0	e0.76	1.1	1.0	1.2	0.73	0.25	0.02	0.01
7	0.27	0.42	0.56	2.1	e1.1	1.0	1.0	1.1	1.5	0.23	0.01	0.01
8	0.25	0.41	0.63	1.3	e1.3	0.96	1.0	1.0	0.82	0.20	0.01	0.01
9	0.23	0.43	0.92	1.1	e1.0	0.89	1.1	1.0	0.61	0.24	0.01	0.01
10	0.27	0.46	0.92	1.0	e0.90	0.87	2.8	0.96	0.50	0.28	0.01	0.01
11	0.28	0.46	1.5	1.1	e0.90	0.87	1.6	0.91	0.40	0.25	0.00	0.01
12	0.26	0.43	1.4	1.1	e0.85	0.84	1.4	0.83	0.34	0.21	0.00	0.00
13	0.31	0.43	1.0	0.98	e0.84	1.2	1.3	0.77	0.39	0.14	0.00	0.00
14	0.43	0.48	0.88	0.90	e0.79	1.4	1.2	0.67	1.5	0.29	0.00	0.00
15	0.75	0.51	0.76	0.84	0.77	1.2	1.2	0.61	2.5	0.27	0.00	0.00
16	0.51	0.51	0.74	0.78	0.75	1.0	1.2	0.59	1.5	0.27	0.00	0.00
17	0.33	0.48	0.66	0.81	0.76	1.0	1.0	0.54	1.1	0.20	0.00	0.01
18	0.35	0.45	0.77	0.77	0.71	1.6	0.95	3.6	0.88	0.20	0.00	0.01
19	0.35	0.44	0.75	0.81	0.69	1.6	1.1	1.5	0.74	0.20	0.00	0.01
20	0.34	0.46	0.74	0.96	0.73	2.4	2.1	1.0	0.65	0.20	0.00	0.00
21	0.35	0.48	0.65	e1.1	0.75	2.3	2.0	0.79	0.60	0.20	0.00	0.00
22	0.29	0.48	0.59	e1.2	0.71	1.6	6.7	0.71	0.55	0.19	0.00	0.00
23	0.34	0.45	0.62	e1.3	0.74	1.4	2.9	0.68	0.51	0.18	0.00	0.00
24	0.37	0.48	0.85	e1.4	0.71	1.2	1.8	0.64	0.43	0.12	0.00	0.00
25	0.39	0.66	0.85	e1.2	0.74	1.1	1.5	0.59	0.41	0.11	0.00	0.00
26	0.43	0.94	0.81	e1.0	0.73	1.2	1.4	0.55	0.41	0.34	0.00	0.00
27	0.50	0.78	0.76	e0.88	0.75	2.9	1.2	0.61	0.52	0.45	0.00	0.02
28	0.47	0.72	0.73	e0.82	0.73	1.7	5.3	0.98	0.57	0.40	0.05	0.01
29	0.46	0.70	0.70	e0.79	---	1.5	3.9	0.83	0.52	0.30	0.18	0.01
30	0.47	0.60	0.70	e0.76	---	1.3	2.0	0.69	0.43	0.22	0.10	0.01
31	0.48	---	0.61	e0.75	---	1.3	---	0.62	---	0.16	0.03	---
TOTAL	10.82	15.03	23.34	29.88	22.55	43.88	54.95	30.87	21.25	7.73	0.80	0.35
MEAN	0.35	0.50	0.75	0.96	0.81	1.42	1.83	1.00	0.71	0.25	0.026	0.012
MAX	0.75	0.94	1.5	2.1	1.3	3.8	6.7	3.6	2.5	0.45	0.18	0.08
MIN	0.19	0.36	0.51	0.59	0.69	0.75	0.95	0.54	0.34	0.11	0.00	0.00
CFSM	0.08	0.11	0.17	0.21	0.18	0.31	0.41	0.22	0.16	0.06	0.01	0.00
IN.	0.09	0.12	0.19	0.25	0.19	0.36	0.45	0.25	0.18	0.06	0.01	0.00

01659500 MIDDLE BRANCH CHOPAWAMSIK CREEK NEAR GARRISONVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1956, 2000, 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	0.89	2.30	2.76	3.48	3.95	5.90	6.26	3.15	2.04	1.16	2.55	0.85
MAX	2.17	6.48	6.10	6.91	6.52	10.2	11.7	6.06	4.41	2.42	13.5	2.00
(WY)	1956	1953	1952	1952	1957	1953	1952	1953	1955	2000	1955	2000
MIN	0.093	0.27	0.75	0.92	0.81	1.42	1.83	1.00	0.71	0.25	0.026	0.012
(WY)	1955	1955	2002	1955	2002	2002	2002	2002	2002	2002	2002	2002

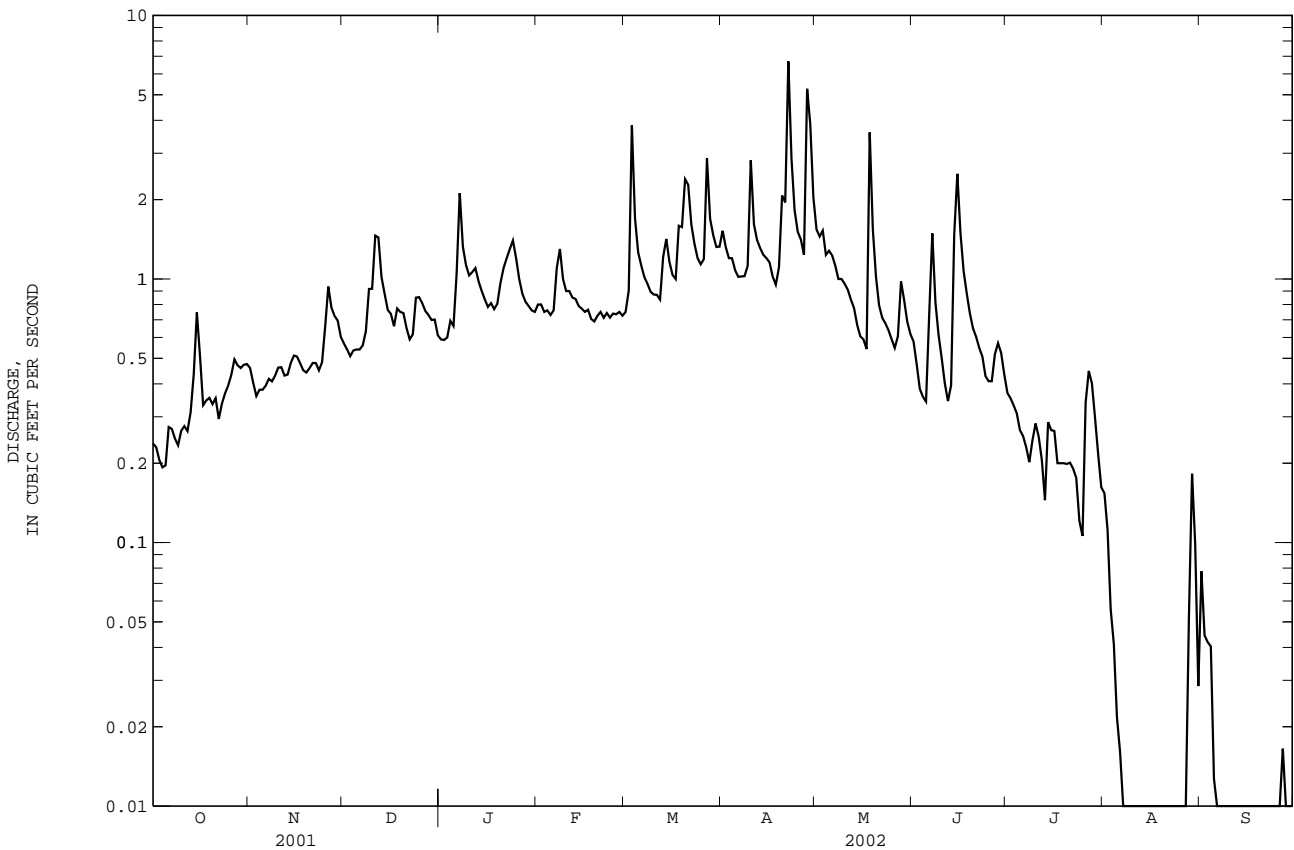
SUMMARY STATISTICS

FOR 2002 WATER YEAR

WATER YEARS 1952 - 1956
2000
2002

ANNUAL TOTAL	261.45		
ANNUAL MEAN	0.72	2.98	
HIGHEST ANNUAL MEAN		4.43	1952
LOWEST ANNUAL MEAN		0.72	2002
HIGHEST DAILY MEAN	6.7	Apr 22	120
LOWEST DAILY MEAN	0.00	aAug 11	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Aug 11	0.00
MAXIMUM PEAK FLOW	10	May 18	134
MAXIMUM PEAK STAGE	2.22	May 18	3.27
INSTANTANEOUS LOW FLOW	0.00	bAug 10	0.00
ANNUAL RUNOFF (CFSM)	0.16		0.66
ANNUAL RUNOFF (INCHES)	2.16		8.98
10 PERCENT EXCEEDS	1.4		6.0
50 PERCENT EXCEEDS	0.61		1.5
90 PERCENT EXCEEDS	0.01		0.23

- a Also many other days in August and September 2002.
- b No flow part or all of many days August and September 2002.
- e Estimated.



POTOMAC RIVER BASIN

01660000 SOUTH BRANCH CHOPAWAMSIK CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°32'22", long 77°25'30", NAD83, Stafford County, Hydrologic Unit 02070011, on left bank, 10 ft downstream of Highway MCB-1, 1.8 mi upstream from Chopawamsic Creek, and 4.3 mi north of Garrisonville.

DRAINAGE AREA.--2.56 mi².

PERIOD OF RECORD.--May 1951 to June 1957, September 1989 to September 1992 (annual maximum only), March 2000 to current year.

GAGE.--Water stage recorder. Datum of gage is 207.01 ft NGVD of 1929. May 1951 to September 1992, at site 200 ft downstream at different datum.

REMARKS.--Records fair.

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	0.45	0.74	0.54	0.37	4.6	0.26	1.1	1.1	0.36	0.09	0.19	6.6
2	0.45	1.6	0.52	0.37	4.1	0.57	0.69	1.1	0.32	0.09	0.15	6.4
3	0.44	4.5	0.47	0.37	3.5	2.6	0.63	0.89	0.27	0.08	0.22	6.4
4	0.44	4.5	0.45	0.36	3.7	0.84	0.54	0.71	0.32	0.09	0.12	6.4
5	0.46	4.7	0.46	0.36	3.3	0.62	0.53	0.78	0.30	0.08	0.11	6.3
6	0.58	4.8	0.44	1.2	0.53	0.58	0.50	0.57	1.6	0.07	2.9	6.3
7	0.63	5.1	0.44	1.1	0.74	0.58	0.43	0.53	0.99	0.07	3.3	6.3
8	0.68	5.2	0.51	0.68	0.54	0.52	0.44	0.50	0.44	0.09	3.4	6.1
9	0.68	5.1	0.61	0.63	0.44	0.54	0.58	0.50	0.34	0.08	3.5	6.1
10	0.86	5.1	0.49	0.64	0.40	0.55	2.3	0.49	0.28	0.11	3.6	6.3
11	6.3	4.7	1.3	0.70	0.34	0.46	0.91	0.38	0.27	0.08	3.6	5.9
12	6.3	4.7	0.64	0.61	0.34	0.49	0.77	0.33	0.22	0.08	3.6	5.0
13	6.3	4.8	0.57	0.59	0.33	0.90	0.71	0.30	0.42	0.08	3.9	6.1
14	6.8	4.8	0.56	0.73	0.32	0.68	0.59	0.26	1.6	0.12	6.4	6.1
15	6.5	5.0	0.52	4.6	0.33	0.56	0.57	0.24	1.6	0.09	4.7	6.2
16	6.7	4.9	0.46	4.9	0.35	0.55	0.46	0.19	0.61	0.08	6.6	6.3
17	6.7	4.9	0.47	4.7	0.34	0.64	0.36	0.21	0.39	0.07	6.4	6.1
18	6.5	4.3	0.57	4.5	0.33	1.3	0.36	3.8	0.31	0.07	6.2	5.9
19	6.6	4.4	0.51	4.4	0.31	0.92	0.71	1.0	0.30	0.07	6.2	6.0
20	6.7	4.1	0.49	4.6	0.31	2.0	0.68	0.61	0.22	0.07	5.9	5.8
21	6.6	4.0	0.47	4.7	0.32	1.4	0.84	0.58	0.20	0.07	5.7	5.8
22	6.7	4.3	0.47	4.9	0.30	0.97	4.8	0.46	0.18	0.06	5.7	5.7
23	6.6	4.4	0.49	5.4	0.28	0.83	1.3	0.49	0.13	0.06	5.8	4.3
24	6.6	4.7	0.71	5.6	0.28	0.72	0.92	0.49	0.10	0.06	2.6	5.3
25	6.4	5.3	0.55	5.2	0.28	0.62	0.79	0.42	0.08	0.07	1.1	5.3
26	5.6	4.4	0.48	4.8	0.29	0.91	0.62	0.39	0.09	0.17	0.89	5.7
27	4.6	0.84	0.42	4.6	0.28	1.9	0.48	2.1	0.25	0.17	1.2	5.6
28	4.6	0.67	0.40	4.5	0.26	0.95	4.1	2.0	0.38	0.11	7.9	5.4
29	4.2	0.60	0.41	4.0	---	0.82	2.0	0.77	0.12	0.07	7.5	5.1
30	0.81	0.59	0.39	4.7	---	0.73	1.3	0.53	0.10	0.06	6.5	4.6
31	0.66	---	0.38	4.8	---	0.82	---	0.52	---	0.13	6.4	---
TOTAL	124.44	117.74	16.19	89.61	27.44	26.83	31.01	23.24	12.79	2.69	122.28	175.4
MEAN	4.01	3.92	0.52	2.89	0.98	0.87	1.03	0.75	0.43	0.087	3.94	5.85
MAX	6.8	5.3	1.3	5.6	4.6	2.6	4.8	3.8	1.6	0.17	7.9	6.6
MIN	0.44	0.59	0.38	0.36	0.26	0.26	0.36	0.19	0.08	0.06	0.11	4.3
CFSM	1.57	1.53	0.20	1.13	0.38	0.34	0.40	0.29	0.17	0.03	1.54	2.28
IN.	1.81	1.71	0.24	1.30	0.40	0.39	0.45	0.34	0.19	0.04	1.78	2.55

01660000 SOUTH BRANCH CHOPAWAMSIK CREEK NEAR GARRISONVILLE, VA--Continued

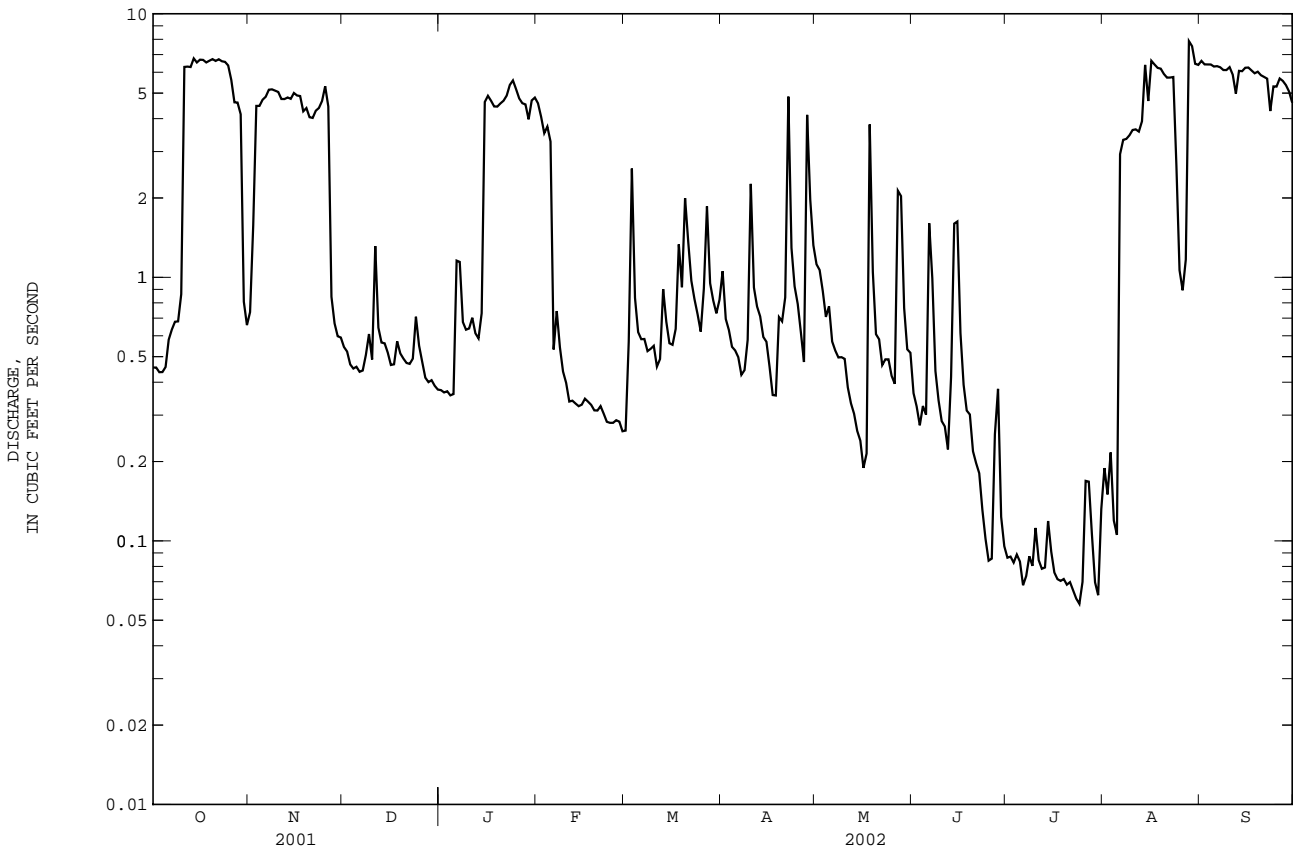
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1957, 2000 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1.41	2.03	1.73	2.40	2.48	4.51	3.58	1.80	1.52	1.32	1.68	1.57
MAX	4.01	5.42	3.71	4.34	4.22	9.37	7.48	3.70	4.12	3.51	6.58	5.85
(WY)	2002	1953	1952	1952	1957	1953	1952	1953	1951	2001	1955	2002
MIN	0.23	0.40	0.52	0.88	0.98	0.87	1.03	0.75	0.43	0.087	0.34	0.027
(WY)	1955	1955	2002	1955	2002	2002	2002	2002	2002	2002	1953	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1951 - 1957 2000 - 2002

ANNUAL TOTAL		847.95		769.66								
ANNUAL MEAN		2.32		2.11						2.12		
HIGHEST ANNUAL MEAN										2.99		1953
LOWEST ANNUAL MEAN										1.29		1954
HIGHEST DAILY MEAN				37	Mar 21		7.9	Aug 28		77	Nov 21	1952
LOWEST DAILY MEAN				0.16	Jul 25		0.06	aJul 22		0.02	bSep 1	1954
ANNUAL SEVEN-DAY MINIMUM				0.20	Jul 19		0.07	Jul 18		0.02	Sep 1	1954
MAXIMUM PEAK FLOW							16	cApr 22		438	Jul 26	2001
MAXIMUM PEAK STAGE							3.54	cApr 22		d7.07	Mar 15	1953
INSTANTANEOUS LOW FLOW							0.03	fJul 3		0.00	Jul 3	1956
ANNUAL RUNOFF (CFSM)				0.91			0.82			0.83		
ANNUAL RUNOFF (INCHES)				12.32			11.18			11.25		
10 PERCENT EXCEEDS				5.2			6.1			4.7		
50 PERCENT EXCEEDS				1.1			0.68			1.0		
90 PERCENT EXCEEDS				0.44			0.13			0.23		

- a Also July 23, 24, 30, 2002.
- b Many days in September and October 1954, and July 3, 1956.
- c Also May 18, 2002.
- d At site and datum then in use.
- f Also July 4-6, 2002.



POTOMAC RIVER BASIN

01660100 CHOPAWAMSIK CREEK AT RUSSELL ROAD NEAR JOPLIN, VA

LOCATION.--Lat 38°31'23", long 77°22'25", NAD83, Prince William County, Hydrologic unit 02070011, on left bank at upstream side of Russell Road, 4.5 miles southwest of Dumfries, and 2.6 miles upstream from mouth.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--February 1996 to February 2002 (discontinued).

GAGE.--Water stage recorder. Elevation of gage is 30 ft NGVD of 1929, from topographic map.

REMARKS.--Records poor due to backwater from beaver dams.

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	0.88	0.08	0.82	6.8	5.3	---	---	---	---	---	---	---
2	0.65	0.12	0.98	6.6	5.4	---	---	---	---	---	---	---
3	0.78	0.12	1.3	7.2	5.8	---	---	---	---	---	---	---
4	0.38	0.05	1.4	7.1	6.5	---	---	---	---	---	---	---
5	0.16	0.12	2.2	6.9	5.9	---	---	---	---	---	---	---
6	0.20	0.08	2.2	11	3.1	---	---	---	---	---	---	---
7	0.26	0.20	2.1	11	3.6	---	---	---	---	---	---	---
8	0.25	0.25	2.4	4.5	2.7	---	---	---	---	---	---	---
9	0.23	0.46	3.0	3.9	1.9	---	---	---	---	---	---	---
10	0.22	e0.45	1.7	3.7	2.3	---	---	---	---	---	---	---
11	0.27	e0.50	3.0	4.0	2.2	---	---	---	---	---	---	---
12	0.27	0.53	2.1	3.5	1.8	---	---	---	---	---	---	---
13	0.41	0.41	1.8	4.4	1.9	---	---	---	---	---	---	---
14	0.64	0.68	0.52	6.4	1.9	---	---	---	---	---	---	---
15	1.8	3.2	1.5	4.8	2.1	---	---	---	---	---	---	---
16	1.6	5.9	1.9	4.7	2.1	---	---	---	---	---	---	---
17	0.60	6.1	2.2	5.8	1.5	---	---	---	---	---	---	---
18	0.25	4.8	2.3	5.0	1.3	---	---	---	---	---	---	---
19	0.21	2.7	0.96	7.6	1.1	---	---	---	---	---	---	---
20	0.08	1.9	2.8	11	1.3	---	---	---	---	---	---	---
21	0.08	2.1	4.2	13	1.4	---	---	---	---	---	---	---
22	0.18	2.1	5.3	14	1.6	---	---	---	---	---	---	---
23	0.21	3.0	6.1	12	1.4	---	---	---	---	---	---	---
24	0.27	9.8	8.8	12	1.2	---	---	---	---	---	---	---
25	0.66	21	9.0	7.4	1.1	---	---	---	---	---	---	---
26	1.5	3.9	11	7.5	1.1	---	---	---	---	---	---	---
27	0.06	1.9	10	7.4	1.4	---	---	---	---	---	---	---
28	0.08	3.8	11	5.8	1.2	---	---	---	---	---	---	---
29	0.16	8.0	9.5	5.7	---	---	---	---	---	---	---	---
30	0.21	0.58	7.4	5.6	---	---	---	---	---	---	---	---
31	0.17	---	6.3	5.7	---	---	---	---	---	---	---	---
TOTAL	13.72	84.83	125.78	222.0	70.1	---	---	---	---	---	---	---
MEAN	0.44	2.83	4.06	7.16	2.50	---	---	---	---	---	---	---
MAX	1.8	21	11	14	6.5	---	---	---	---	---	---	---
MIN	0.06	0.05	0.52	3.5	1.1	---	---	---	---	---	---	---

01660100 CHOPAWAMSIK CREEK AT RUSSELL ROAD NEAR JOPLIN, VA--Continued

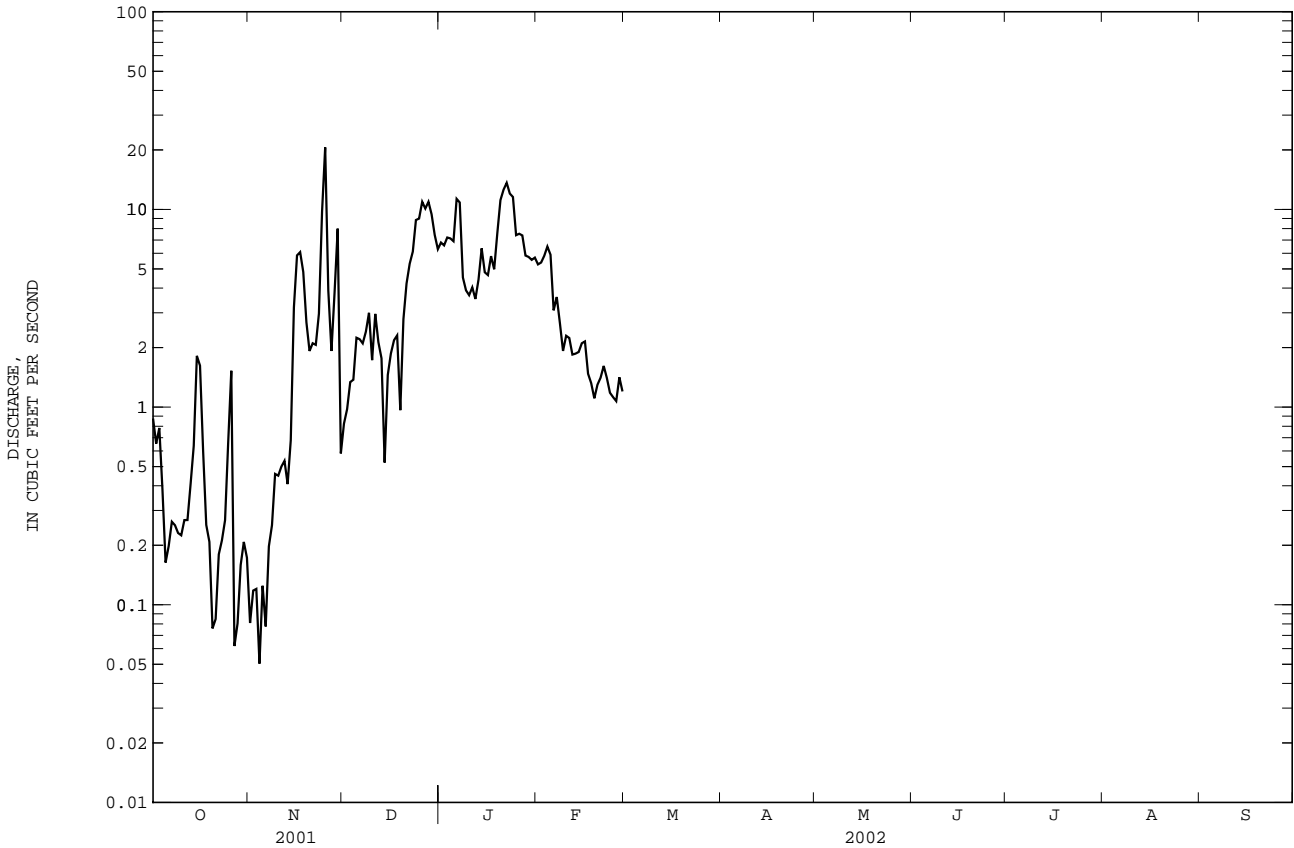
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.30	10.8	14.3	20.1	29.9	39.9	32.2	19.8	10.2	8.37	5.58	8.97
MAX	31.7	34.9	54.7	50.6	101	72.3	46.0	40.9	22.1	18.6	14.3	33.0
(WY)	1997	1997	1997	1998	1998	1998	2000	1998	1998	1996	2000	1996
MIN	0.076	0.16	0.78	7.16	2.50	19.2	13.3	1.88	0.40	0.060	0.29	0.044
(WY)	1999	1999	1999	2002	2002	2000	1999	1999	1999	1999	1999	1998

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1996 - 2002

ANNUAL TOTAL		4002.10		516.43								
ANNUAL MEAN		11.0		3.42						17.1		
HIGHEST ANNUAL MEAN										30.1		1998
LOWEST ANNUAL MEAN										3.42		2002
HIGHEST DAILY MEAN				229	Mar 30		21	Nov 25		555	Feb 5	1998
LOWEST DAILY MEAN				0.00	Jul 21		0.05	Nov 4		0.00	aJul 19	1999
ANNUAL SEVEN-DAY MINIMUM				0.01	Jul 19		0.11	Oct 31		0.00	Aug 2	1999
MAXIMUM PEAK FLOW							31	Nov 25		851	Feb 5	1998
MAXIMUM PEAK STAGE							3.66	bDec 11		6.55	Feb 5	1998
INSTANTANEOUS LOW FLOW							(c)			0.00	dJul 10	1999
10 PERCENT EXCEEDS				22			8.6			43		
50 PERCENT EXCEEDS				4.9			2.1			6.8		
90 PERCENT EXCEEDS				0.27			0.20			0.31		

- a Many days in July and August 1999, and July 21-25, 2001.
- b Result of backwater from beaver dam.
- c Not determined.
- d No flow part or all of many days in July, August 1999 and July 2001.
- e Estimated.



POTOMAC RIVER BASIN

01660110 CHOPAWAMSIK CREEK AT I-95 NEAR JOPLIN, VA

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1996 to December 2001 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATURATION) (00301)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)		
OCT 11...	1030	ENVIRONMENTAL	2.86	.27	760	10.0	92	5.7	213	12.0	11.3	12.9		
NOV 14...	1100	ENVIRONMENTAL	3.25	.46	760	11.0	90	7.0	161	15.5	6.4	9.50		
DEC 12...	1000	ENVIRONMENTAL	3.07	2.0	762	14.9	102	7.0	95	8.5	6.9	6.12		
Date		MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT 11...	6.84	2.12	4.36	7.03	E.1	13.1	95.2	170	.07	.10	.14	<.05	<.008	
NOV 14...	4.73	2.41	3.35	5.49	<.1	14.6	47.0	94	E.04	.13	.14	E.04	E.006	
DEC 12...	2.87	2.39	2.66	5.11	<.1	14.0	16.6	72	<.04	.13	.15	<.05	<.008	
Date		PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
OCT 11...	<.004	<.02	.007	740	<2	30.5	<2	20	E.1	<1.6	21.8	3.4	21600	
NOV 14...	<.004	<.02	.010	260	E1	25.7	<2	M	E.1	<.8	11.8	3.0	10600	
DEC 12...	E.003	<.02	.013	230	<2	25.8	<2	<20	<.1	<.8	5.4	2.9	2890	
Date		IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	SELE-NIUM, TOTAL RECOV-ERABLE (UG/L AS SE) (01147)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	STRON-TIUM, TOTAL RECOV-ERABLE (UG/L AS SR) (01082)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	
OCT 11...	20200	<1	E4	2330	2380	<.01	<2	19.8	<2	<.3	50	E30		
NOV 14...	9700	<1	8	1090	1140	<.01	<2	9.0	<2	<.3	37	<20		
DEC 12...	1880	<1	E4	447	448	<.01	<2	5.5	<2	<.3	26	<20		

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POTOMAC RIVER BASIN

01660400 AQUIA CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°29'25", long 77°26'01", NAD83, Stafford County. Hydrologic Unit 02070011, on right bank at bridge on State Highway 641, 1.1 mi northwest of Garrisonville, and 3.0 mi upstream from Beaverdam Run.

DRAINAGE AREA.--34.9 mi².

PERIOD OF RECORD.--September 1971 to September 1997, November 1999 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 120 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except those for period with ice effect, Dec. 26 to Jan. 3, which is fair, and periods of doubtful gage-height record, Oct. 4-14, Jan. 31 to Feb. 11, and July 5-25, which are poor. Maximum discharge, 11,600 ft³/s, from rating curve extended above 1,600 ft³/s on basis of contracted-opening measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	1.7	0.48	3.3	e2.2	e5.6	4.5	14	17	6.9	3.0	0.51	3.1
2	1.8	2.8	2.9	e2.0	e5.6	7.0	11	13	5.3	2.8	0.39	2.4
3	0.60	1.2	2.6	e2.1	e5.2	48	9.3	11	4.5	2.3	0.30	1.4
4	e0.40	1.5	2.3	2.2	e5.3	25	7.8	9.4	4.1	2.2	0.40	1.1
5	e0.41	1.2	2.6	2.1	e5.2	14	5.9	11	3.6	e2.0	0.77	0.84
6	e0.48	1.5	3.0	8.3	e5.2	11	5.3	9.0	3.9	e1.5	0.41	0.68
7	e0.47	0.60	4.7	20	e9.8	8.1	8.6	6.7	10	e1.2	0.19	0.67
8	e0.38	0.81	5.3	13	e10	6.3	7.3	5.8	7.1	e1.1	0.14	0.80
9	e0.34	0.67	7.1	7.9	e8.6	6.7	6.9	4.9	5.0	e1.0	0.09	0.79
10	e0.36	0.79	7.9	7.2	e7.4	6.9	22	5.0	3.8	e1.2	0.07	0.48
11	e0.28	0.41	21	7.7	e7.2	5.5	17	4.5	3.2	e1.1	0.06	0.37
12	e0.32	1.3	13	7.5	6.6	4.9	12	3.1	3.1	e0.80	0.06	0.22
13	e0.33	1.6	8.0	6.1	5.4	12	9.7	3.0	44	e0.60	0.05	0.22
14	e0.42	0.86	5.5	5.4	5.4	14	10	2.2	124	e0.90	0.04	0.20
15	8.0	0.76	3.2	4.0	6.2	11	8.4	1.8	49	e1.8	0.04	0.47
16	5.3	0.92	2.4	4.1	6.3	8.5	7.0	1.5	25	e0.90	0.03	0.94
17	4.4	1.3	2.5	3.6	6.0	8.5	6.5	0.93	12	e0.60	0.03	0.68
18	3.3	1.6	3.2	3.4	5.2	20	9.1	46	7.5	e0.45	0.03	0.42
19	3.9	1.8	3.2	4.3	4.2	20	30	26	5.5	e0.35	0.02	0.42
20	2.3	1.4	3.3	7.1	4.8	26	45	10	4.6	e0.26	0.01	0.37
21	4.6	1.2	3.1	9.4	4.5	27	29	4.9	4.1	e0.25	0.04	0.27
22	3.8	1.5	3.1	11	5.0	15	159	3.0	4.1	e0.20	0.05	0.36
23	3.3	3.1	3.6	9.6	5.2	11	45	1.8	3.8	e0.16	0.04	0.56
24	2.0	2.3	5.7	11	4.9	9.8	25	1.5	3.5	e0.16	2.2	0.34
25	1.0	3.8	6.2	11	4.0	8.0	19	1.6	3.2	e0.15	0.85	0.21
26	0.72	10	e3.6	8.2	4.2	9.2	14	0.87	3.0	4.2	1.2	1.1
27	0.38	9.5	e3.0	7.2	5.1	39	11	43	4.8	4.0	1.5	3.2
28	1.8	6.1	e2.8	6.2	4.3	19	61	204	10	3.7	58	1.8
29	2.3	3.8	e2.7	5.5	---	14	54	27	4.6	2.0	33	1.1
30	1.4	3.3	e2.5	4.7	---	11	25	13	3.6	1.2	6.5	0.85
31	0.75	---	e2.3	e5.3	---	11	---	8.5	---	0.80	4.0	---
TOTAL	57.54	68.10	145.6	209.3	162.4	441.9	694.8	501.00	376.8	42.88	111.02	26.36
MEAN	1.86	2.27	4.70	6.75	5.80	14.3	23.2	16.2	12.6	1.38	3.58	0.88
MAX	8.0	10	21	20	10	48	159	204	124	4.2	58	3.2
MIN	0.28	0.41	2.3	2.0	4.0	4.5	5.3	0.87	3.0	0.15	0.01	0.20
CFSM	0.05	0.07	0.13	0.19	0.17	0.41	0.66	0.46	0.36	0.04	0.10	0.03
IN.	0.06	0.07	0.16	0.22	0.17	0.47	0.74	0.53	0.40	0.05	0.12	0.03

01660400 AQUIA CREEK NEAR GARRISONVILLE, VA--Continued

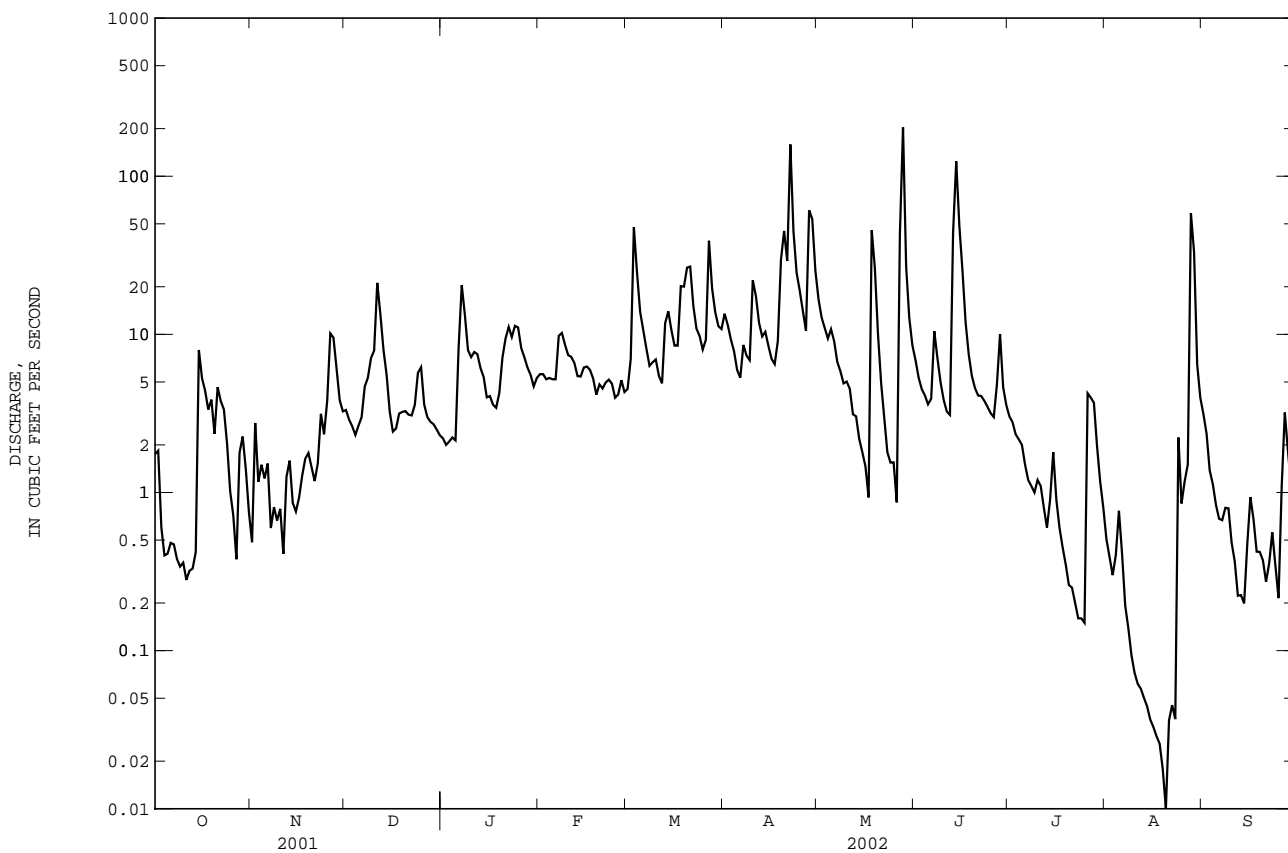
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1997, 2000 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.5	30.4	41.1	49.6	50.5	59.6	52.9	37.8	24.7	15.8	11.7	17.8
MAX	138	91.3	105	118	124	175	141	144	234	103	65.8	174
(WY)	1980	1973	1975	1978	1979	1994	1973	1989	1972	1975	1984	1975
MIN	0.42	1.95	4.70	3.93	5.80	8.71	11.6	10.8	2.84	1.38	0.15	0.058
(WY)	1981	1992	2002	1981	2002	1981	1981	1986	1986	2002	1983	1980

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1971 - 1997 2000 - 2002

ANNUAL TOTAL	6173.74		2837.70		34.7		1972	
ANNUAL MEAN	16.9		7.77		58.6		2002	
HIGHEST ANNUAL MEAN					7.77			
LOWEST ANNUAL MEAN					3900		Jun 22 1972	
HIGHEST DAILY MEAN	501	Mar 21	204	May 28	0.00		(a)	
LOWEST DAILY MEAN	0.28	Oct 11	0.01	Aug 20	0.01		Sep 11 1980	
ANNUAL SEVEN-DAY MINIMUM	0.35	Oct 8	0.03	Aug 14	11600		Jun 22 1972	
MAXIMUM PEAK FLOW			492 May 28		16.32		Jun 22 1972	
MAXIMUM PEAK STAGE			3.39 May 28		0.00		(c)	
INSTANTANEOUS LOW FLOW			0.01 Aug 19		0.99			
ANNUAL RUNOFF (CFSM)	0.48		0.22		13.51			
ANNUAL RUNOFF (INCHES)	6.58		3.02		68			
10 PERCENT EXCEEDS	33		14		17			
50 PERCENT EXCEEDS	7.6		3.8		1.4			
90 PERCENT EXCEEDS	1.1		0.36					

- a No flow many days in September 1980, August 1983, August, September 1988, and September 1991.
- b Also Aug. 20, 21, 2002.
- c No flow part or all of many days in September 1980, August 1983, August, September 1988, and September 1991.
- e Estimated.



POTOMAC RIVER BASIN

01660500 BEAVERDAM RUN NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°30'25", long 77°25'44", NAD83, Stafford County, Hydrologic unit 02070011, on left bank 3.4 miles upstream from mouth and 2.2 miles north of Garrisonville.

DRAINAGE AREA.--12.7 mi².

PERIOD OF RECORD.--May 1951 to June 1957, and March 1997 to current year.

GAGE.--Water stage recorder. Datum of gage is 150.43 ft NGVD of 1929. May 1951 to June 1957, at site 500 ft. upstream at same datum.

REMARKS.--Records good except for period of no gage-height record, July 12 to Aug. 5, which is poor. Flow regulated by Lunga Reservoir 2.5 mi upstream, capacity 420 acre-ft. Statistics of monthly mean data and summary statistics for water years 1951 - 1957 (unregulated flow) are available in 1998 data book.

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	1.0	0.39	0.74	0.44	0.74	0.61	1.6	1.4	0.98	0.75	e0.28	0.29
2	0.92	0.46	0.57	0.45	0.88	1.1	1.1	1.3	0.89	0.87	e0.24	0.17
3	0.87	0.62	0.70	0.53	0.84	4.9	1.0	1.1	0.94	0.80	e0.22	0.16
4	0.96	0.67	0.80	0.43	0.99	1.8	0.78	0.93	1.1	0.63	e0.20	0.16
5	0.60	0.77	0.74	0.42	0.93	1.7	0.74	1.4	1.1	0.42	e0.25	0.16
6	0.91	0.70	0.72	1.4	0.87	1.6	0.73	1.1	1.3	0.45	0.14	0.16
7	1.0	0.91	0.78	1.6	2.1	1.5	0.74	1.1	1.9	0.44	0.12	0.14
8	0.88	0.96	1.0	0.81	1.3	1.5	0.75	0.98	1.1	0.59	0.16	0.16
9	1.0	0.94	1.2	0.74	1.1	1.6	1.1	0.77	0.98	0.67	0.16	0.16
10	1.1	0.77	0.75	0.74	1.1	1.7	2.7	1.0	1.1	1.1	0.16	0.16
11	0.83	0.74	2.8	0.99	1.1	1.5	1.3	0.75	1.00	0.87	0.14	0.14
12	0.80	0.60	1.1	1.1	1.00	1.6	1.1	0.90	0.80	e0.42	0.21	0.15
13	0.91	0.65	0.74	1.0	0.74	2.8	1.1	0.74	1.9	e0.37	0.18	0.13
14	0.81	0.80	0.74	0.85	0.74	2.2	1.1	0.74	4.1	e1.1	0.14	0.17
15	1.3	0.74	0.53	0.93	0.74	1.9	1.1	0.73	2.1	e1.0	0.15	0.19
16	0.41	0.72	0.54	0.74	0.79	1.9	0.99	0.74	2.0	e0.67	0.20	0.39
17	0.59	0.74	0.78	0.77	0.65	1.9	0.78	0.74	1.7	e0.43	0.40	0.30
18	0.61	0.74	1.0	0.81	0.69	3.5	0.95	5.2	1.2	e0.40	0.41	0.23
19	0.70	0.69	0.95	1.0	0.60	2.6	1.6	1.5	1.1	e0.45	0.35	0.34
20	0.75	0.70	0.74	1.5	0.74	3.7	2.1	0.76	1.0	e0.28	0.35	0.18
21	0.74	0.81	0.76	1.4	0.74	2.3	1.9	0.74	1.1	e0.20	0.28	0.15
22	0.64	0.76	0.74	1.5	0.71	1.1	7.5	0.68	0.98	e0.18	0.31	0.16
23	0.74	0.95	0.77	1.2	0.73	1.2	2.2	0.75	0.97	e0.14	0.37	0.16
24	0.58	1.2	1.7	1.1	0.74	1.1	1.5	0.75	0.74	e0.14	1.5	0.20
25	0.45	2.1	1.1	1.1	0.73	1.1	1.5	0.74	0.77	e0.14	0.51	0.18
26	0.40	2.5	1.0	0.77	0.75	1.7	1.5	0.85	0.72	e1.0	0.16	0.81
27	0.62	0.64	0.74	0.80	0.75	2.9	1.4	5.2	1.4	e1.5	0.35	1.5
28	0.68	0.49	0.74	0.76	0.76	1.5	5.3	4.6	1.6	e1.3	4.7	0.43
29	1.00	0.55	0.76	0.74	---	1.2	3.1	1.5	0.97	e0.83	3.2	0.20
30	0.74	0.64	0.74	0.74	---	1.1	1.6	1.1	0.89	e0.52	0.44	0.74
31	0.56	---	0.55	0.73	---	1.3	---	1.0	---	e0.38	0.12	---
TOTAL	24.10	24.95	27.52	28.09	24.55	58.11	50.86	41.79	38.43	19.04	16.40	8.47
MEAN	0.78	0.83	0.89	0.91	0.88	1.87	1.70	1.35	1.28	0.61	0.53	0.28
MAX	1.3	2.5	2.8	1.6	2.1	4.9	7.5	5.2	4.1	1.5	4.7	1.5
MIN	0.40	0.39	0.53	0.42	0.60	0.61	0.73	0.68	0.72	0.14	0.12	0.13
CFSM	0.06	0.07	0.07	0.07	0.07	0.15	0.13	0.11	0.10	0.05	0.04	0.02
IN.	0.07	0.07	0.08	0.08	0.07	0.17	0.15	0.12	0.11	0.06	0.05	0.02

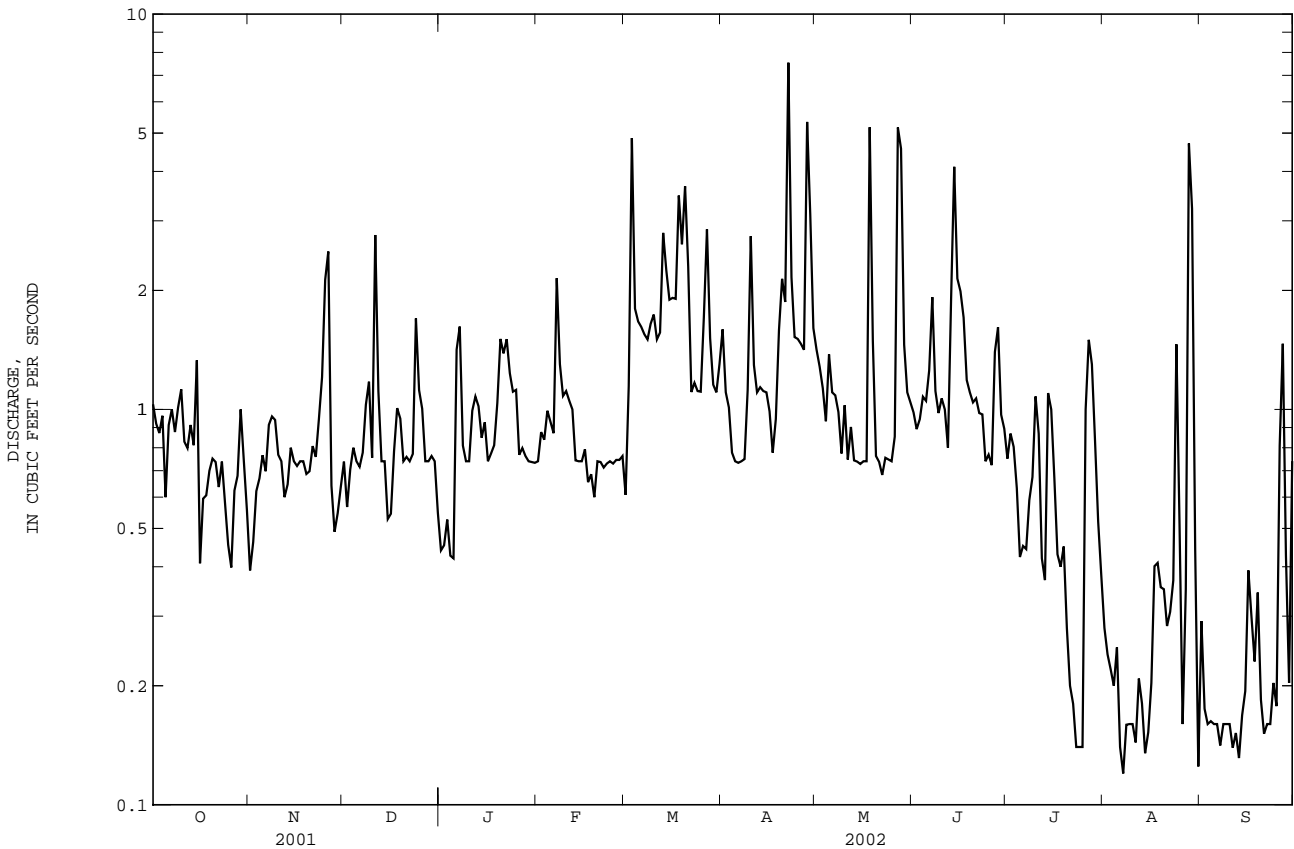
01660500 BEAVERDAM RUN NEAR GARRISONVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.14	4.16	3.89	7.83	17.6	15.4	10.7	8.26	6.07	3.67	2.97	3.32
MAX	6.29	10.4	7.54	23.4	70.8	46.4	25.0	25.0	14.7	8.51	7.32	6.40
(WY)	1999	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	0.78	0.83	0.89	0.91	0.88	1.87	1.70	1.30	1.28	0.61	0.53	0.28
(WY)	2002	2002	2002	2002	2002	2002	2002	2000	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1997 - 2002	
ANNUAL TOTAL	2386.19	362.31		
ANNUAL MEAN	6.54	0.99	7.04	
HIGHEST ANNUAL MEAN			20.5	1998
LOWEST ANNUAL MEAN			0.99	2002
HIGHEST DAILY MEAN	89	Mar 22	7.5	Apr 22
LOWEST DAILY MEAN	0.39	Nov 1	0.12	aAug 7
ANNUAL SEVEN-DAY MINIMUM	0.59	Oct 22	0.15	Sep 7
MAXIMUM PEAK FLOW			38	May 27
MAXIMUM PEAK STAGE			1.16	May 27
INSTANTANEOUS LOW FLOW			0.04	cAug 6
ANNUAL RUNOFF (CFSM)	0.51		0.078	
ANNUAL RUNOFF (INCHES)	6.99		1.06	
10 PERCENT EXCEEDS	15		1.7	
50 PERCENT EXCEEDS	2.3		0.77	
90 PERCENT EXCEEDS	0.74		0.20	

- a Also Aug. 31, 2002.
- b Prior to regulation, 1951-57, maximum peak flow, 1,370 ft³/s, Aug. 15, 1955, gage height, 7.03 ft.
- c Many days in August and September 2002.
- d Prior to regulation, 1951-57, instantaneous low flow, .01 ft³/s, many days in 1954 and 1955.
- e Estimated.



RAPPAHANNOCK RIVER BASIN

01662800 BATTLE RUN NEAR LAUREL MILLS, VA

LOCATION.--Lat 38°39'20", long 78°04'26", NAD83, Rappahannock County, Hydrologic Unit 02080103, on left bank just downstream from bridge on State Highway 729, 0.8 mi upstream from mouth, and 1.0 mi northwest of Laurel Mills.

DRAINAGE AREA.--27.6 mi².

PERIOD OF RECORD.--April 1958 to July 1995. October 1997 to current year..

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 374.62 ft NGVD of 1929.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 9, 10, 15, and periods with ice effect, Dec. 28 to Jan. 6, and Feb. 5-7, which are fair. Maximum discharge, 9,120 ft³/s, from rating curve extended above 2,500 ft³/s on basis of velocity-area study and slope-area measurement of peak flow. No flow many days in September 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 310 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct 5	0900	473	5.50	May 26	2130	*1,380	*9.78

**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	1.9	3.8	4.6	e3.8	4.6	3.9	14	21	18	2.8	0.60	0.78
2	1.6	3.6	4.5	e3.7	4.5	4.5	12	20	15	2.5	0.53	0.73
3	1.6	3.9	4.0	e3.9	4.2	28	11	16	13	2.4	0.51	0.53
4	1.3	3.8	4.1	e3.8	4.3	11	10	14	12	2.1	0.53	0.39
5	113	3.6	4.0	e4.5	e4.0	8.1	9.9	14	11	1.9	0.77	0.25
6	25	3.6	4.0	e5.0	e4.5	7.3	9.5	12	13	1.5	0.83	0.21
7	9.4	3.5	4.0	6.4	e5.1	6.6	9.1	12	11	1.3	0.87	0.19
8	6.4	3.6	4.6	7.2	5.6	6.2	9.0	12	9.7	1.3	0.52	0.16
9	e2.4	3.5	5.6	5.5	4.7	6.0	9.3	13	9.2	1.2	0.38	0.14
10	e2.6	3.6	4.7	5.0	4.6	6.3	10	16	8.6	1.4	0.31	0.13
11	2.7	3.5	9.7	6.2	4.9	5.4	8.7	11	7.5	1.4	0.26	0.10
12	2.8	3.4	8.3	5.7	4.6	5.4	8.5	9.7	6.8	1.1	0.31	0.07
13	2.9	3.4	6.9	5.0	4.6	8.3	9.3	10	14	1.2	0.34	0.06
14	13	3.4	6.4	4.7	4.6	8.4	8.9	9.8	19	11	0.27	0.07
15	e9.0	3.5	6.0	4.6	4.3	7.1	9.4	8.2	14	4.9	0.33	0.12
16	4.3	3.4	5.2	4.6	4.4	6.8	8.4	7.5	11	2.4	0.49	0.17
17	3.5	3.4	5.1	4.5	4.4	7.1	7.4	7.3	7.7	1.6	0.32	0.12
18	3.4	3.4	5.4	4.5	4.2	11	7.1	13	4.7	1.3	0.34	0.10
19	3.4	3.4	5.0	4.5	4.1	10	7.6	9.7	6.2	1.2	0.37	0.09
20	3.7	3.4	4.8	5.3	4.4	39	9.1	7.9	6.6	1.2	0.24	0.08
21	4.0	3.4	4.5	4.9	4.5	27	13	7.3	6.3	1.1	0.18	0.06
22	3.5	3.3	4.4	5.4	4.3	17	43	7.0	4.2	0.97	0.18	0.08
23	3.6	3.4	4.5	5.2	4.1	14	21	6.7	3.4	0.83	0.18	0.34
24	3.7	3.5	5.1	5.4	4.1	12	16	6.5	3.1	0.83	0.25	0.17
25	3.6	11	4.7	5.4	4.0	11	15	6.2	4.0	0.86	0.18	0.13
26	3.4	13	4.6	4.8	4.2	15	12	188	4.5	1.2	0.17	0.99
27	3.4	6.0	4.8	4.8	4.1	37	11	232	8.6	2.4	0.18	5.3
28	3.4	5.0	e4.6	4.7	3.9	21	45	65	6.1	2.4	0.52	1.7
29	3.4	4.6	e4.3	4.6	---	17	45	38	3.8	1.4	3.2	0.96
30	3.4	4.6	e4.2	4.6	---	15	27	28	3.0	0.96	1.1	0.72
31	3.6	---	e4.0	4.6	---	14	---	22	---	0.74	0.75	---
TOTAL	252.9	128.5	156.6	152.8	123.8	396.4	436.2	850.8	265.0	59.39	16.01	14.94
MEAN	8.16	4.28	5.05	4.93	4.42	12.8	14.5	27.4	8.83	1.92	0.52	0.50
MAX	113	13	9.7	7.2	5.6	39	45	232	19	11	3.2	5.3
MIN	1.3	3.3	4.0	3.7	3.9	3.9	7.1	6.2	3.0	0.74	0.17	0.06
CFSM	0.30	0.16	0.18	0.18	0.16	0.46	0.53	0.99	0.32	0.07	0.02	0.02
IN.	0.34	0.17	0.21	0.21	0.17	0.53	0.59	1.15	0.36	0.08	0.02	0.02

01662800 BATTLE RUN NEAR LAUREL MILLS, VA--Continued

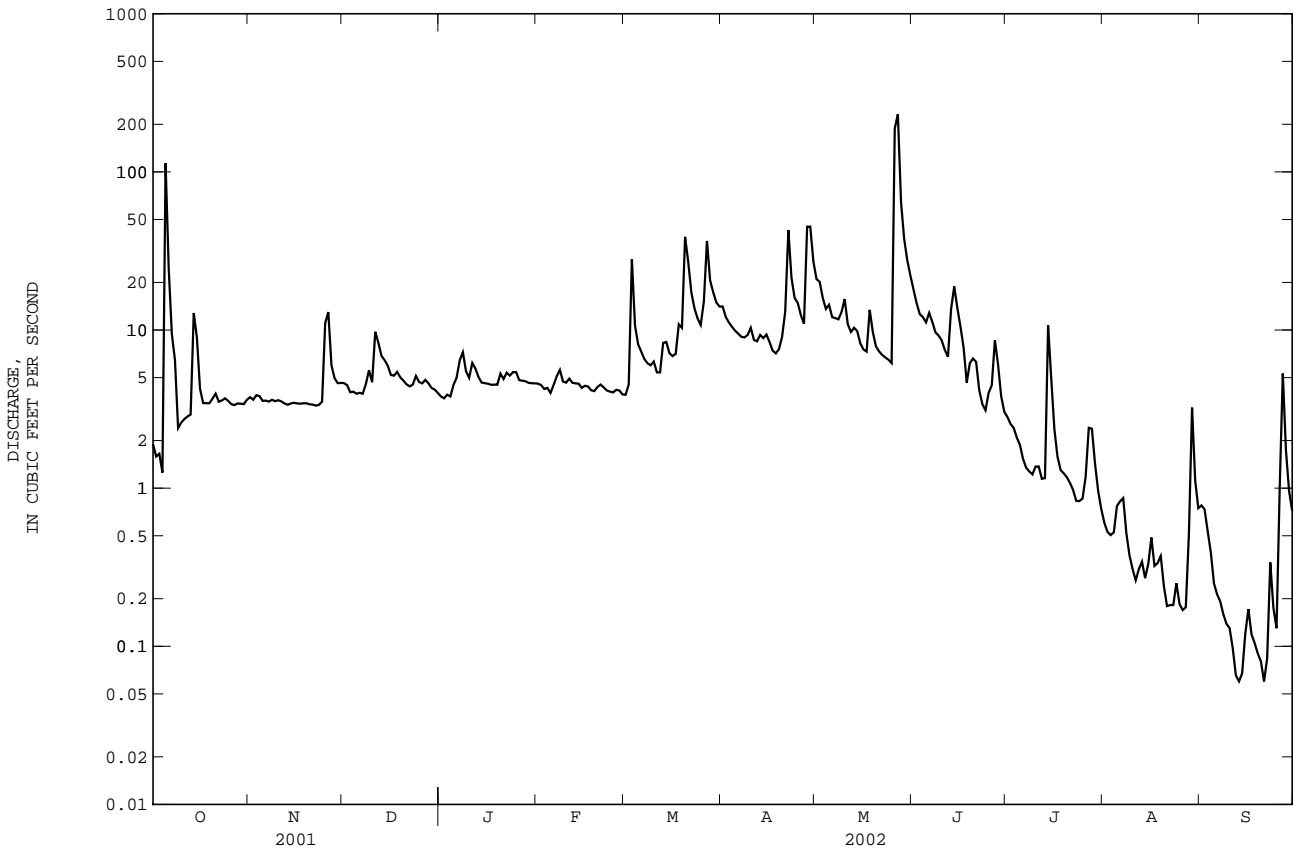
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1995, 1997 - 2002 BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	16.7	22.2	25.4	32.8	39.4	47.1	40.1	31.8	21.8	11.1	11.5	12.7
MAX	119	106	79.9	116	132	144	150	85.9	91.8	39.9	73.8	102
(WY)	1980	1986	1993	1978	1998	1993	1983	1988	1972	1972	1994	1979
MIN	0.92	1.94	1.82	1.45	4.42	12.5	9.31	7.19	1.68	0.96	0.42	0.50
(WY)	1992	1999	1966	1966	2002	1981	1981	1999	1999	1999	1966	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1958 - 1995 1997 - 2002

ANNUAL TOTAL		6055.0		2853.34								
ANNUAL MEAN		16.6		7.82					26.0			
HIGHEST ANNUAL MEAN									48.4			1993
LOWEST ANNUAL MEAN									7.82			2002
HIGHEST DAILY MEAN				278	Mar 21		232	May 27	2000	Oct 9		1976
LOWEST DAILY MEAN				e1.1	Sep 19		0.06	aSep 13	0.00	bSep 3		1966
ANNUAL SEVEN-DAY MINIMUM				e1.2	Sep 18		0.10	Sep 9	0.00	cSep 6		1966
MAXIMUM PEAK FLOW							1380	May 26	9120	dOct 9		1976
MAXIMUM PEAK STAGE							9.78	May 26	f14.40	Jun 27		1995
INSTANTANEOUS LOW FLOW							0.05	Sep 12	0.00	Sep 3		1966
ANNUAL RUNOFF (CFM)				0.60			0.28		0.94			
ANNUAL RUNOFF (INCHES)				8.16			3.85		12.81			
10 PERCENT EXCEEDS				33			14		54			
50 PERCENT EXCEEDS				9.8			4.5		15			
90 PERCENT EXCEEDS				3.1			0.34		2.5			

- a Also Sept. 21, 2002.
- b Also Sept. 6-13, 1966.
- c Also Sept. 7, 1966.
- d Also June 27, 1995.
- e Estimated.
- f From high-water mark in gage house. Result of backwater from bridge collapse.



RAPPAHANNOCK RIVER BASIN

01663500 HAZEL RIVER AT RIXEYVILLE, VA

LOCATION.--Lat 38°35'30", long 77°57'54", NAD83, Culpeper County, Hydrologic Unit 02080103, on right bank at downstream side of bridge on State Highway 229, 0.4 mi upstream from Waterford Run, 1.1 mi northeast of Rixeyville, 2.8 mi downstream from Thornton River, and 9.1 mi upstream from mouth.

DRAINAGE AREA.--287 mi².

PERIOD OF RECORD.--August 1942 to September 1992, October 2001 to September 2002.

REVISED RECORDS.--WSP 971: 1942. WSP 1922: 1957-58. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.30 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Dec. 28 to Jan. 5, which is fair. Maximum discharge, 60,000 ft³/s, from rating curve extended above 27,000 ft³/s. 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 Apr. 26, 1937 reached a stage of 28.4 ft, from floodmarks, discharge, 43,500 ft³/s, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	74	52	90	e72	84	60	232	396	162	58	28	22
2	68	52	89	e72	80	64	201	355	137	53	24	17
3	65	53	78	e74	75	390	183	319	116	49	21	14
4	62	53	76	e78	74	307	167	258	102	45	22	14
5	58	51	73	e80	70	189	154	279	99	39	22	11
6	53	49	72	89	70	155	148	237	100	34	18	9.2
7	49	50	71	103	83	136	143	212	107	30	17	7.9
8	47	50	75	114	104	123	137	211	91	28	17	6.8
9	48	50	96	106	93	114	136	207	84	26	14	5.2
10	49	49	96	92	84	121	154	241	75	25	12	5.0
11	51	50	146	98	86	110	151	205	69	27	10	4.2
12	53	49	244	113	85	101	136	173	61	28	8.6	3.5
13	53	56	171	101	81	124	141	165	69	27	7.6	2.9
14	57	57	144	90	78	175	141	162	359	77	6.9	2.3
15	171	51	133	85	75	145	138	145	279	182	5.7	2.4
16	112	49	116	81	75	131	141	133	165	81	4.8	2.5
17	77	49	108	80	75	123	130	124	126	50	4.9	2.3
18	66	49	107	77	71	161	122	157	98	39	10	2.0
19	63	50	106	78	70	193	163	194	264	34	8.3	1.6
20	62	49	100	85	70	367	186	140	292	36	7.2	1.2
21	61	47	91	84	71	493	220	122	143	38	5.5	1.1
22	58	47	85	86	70	352	884	117	110	32	4.6	1.1
23	57	47	84	91	67	284	642	111	89	28	4.2	2.0
24	57	49	92	94	66	247	460	106	77	30	4.0	2.4
25	58	93	93	97	65	219	380	100	69	34	3.6	1.8
26	53	345	87	96	65	201	317	96	73	40	2.7	3.9
27	49	170	83	90	66	364	265	1200	101	79	2.5	78
28	48	117	e80	87	63	292	384	469	108	90	4.4	117
29	50	99	e78	84	---	247	707	300	96	71	16	63
30	50	91	e76	84	---	225	485	232	68	48	57	40
31	51	---	e74	82	---	218	---	191	---	36	31	---
TOTAL	1930	2123	3114	2743	2116	6431	7848	7357	3789	1494	404.5	447.3
MEAN	62.3	70.8	100	88.5	75.6	207	262	237	126	48.2	13.0	14.9
MAX	171	345	244	114	104	493	884	1200	359	182	57	117
MIN	47	47	71	72	63	60	122	96	61	25	2.5	1.1
CFSM	0.22	0.25	0.35	0.31	0.26	0.72	0.91	0.83	0.44	0.17	0.05	0.05
IN.	0.25	0.28	0.40	0.36	0.27	0.83	1.02	0.95	0.49	0.19	0.05	0.06

01663500 HAZEL RIVER AT RIXEYVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1992, 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	278	298	333	374	462	540	520	412	281	162	181	175
MAX	2587	1874	1168	1137	1397	1191	1787	910	1483	706	1539	1504
(WY)	1943	1986	1951	1978	1984	1975	1983	1988	1972	1949	1955	1979
MIN	14.8	36.3	34.6	59.0	75.6	148	134	101	41.8	15.8	5.85	11.2
(WY)	1964	1966	1966	1981	2002	1981	1981	1977	1977	1966	1966	1985

SUMMARY STATISTICS

FOR 2002 WATER YEAR

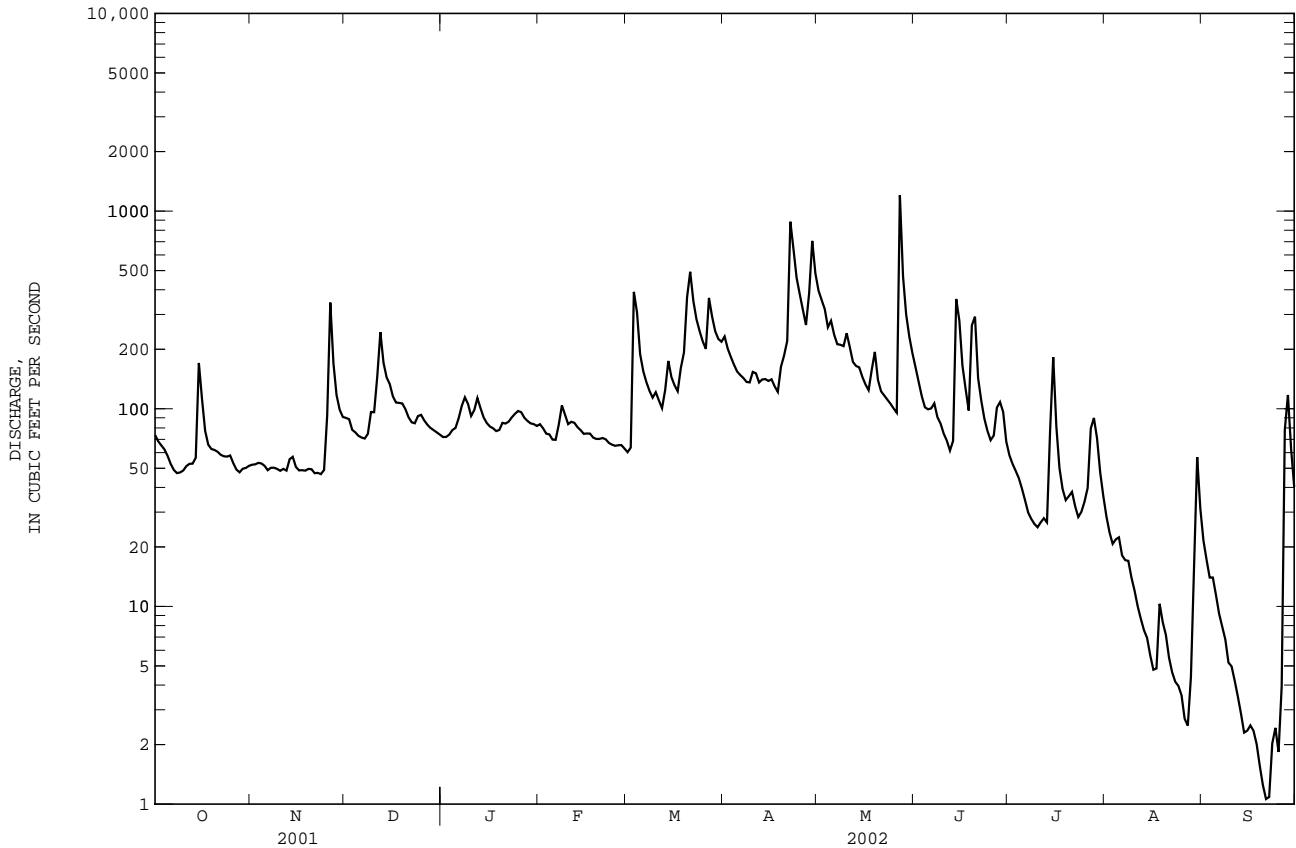
WATER YEARS 1943 - 1992
2002

ANNUAL TOTAL	39796.8		
ANNUAL MEAN	109		334
HIGHEST ANNUAL MEAN			633
LOWEST ANNUAL MEAN			109
HIGHEST DAILY MEAN	1200	May 27	34600
LOWEST DAILY MEAN	1.1	aSep 21	1.1
ANNUAL SEVEN-DAY MINIMUM	1.6	Sep 19	1.4
MAXIMUM PEAK FLOW	2670	May 27	60000
MAXIMUM PEAK STAGE	8.92	May 27	31.80
INSTANTANEOUS LOW FLOW	0.70	Sep 22	0.70
ANNUAL RUNOFF (CFSM)	0.38		1.16
ANNUAL RUNOFF (INCHES)	5.16		15.80
10 PERCENT EXCEEDS	232		680
50 PERCENT EXCEEDS	78		205
90 PERCENT EXCEEDS	9.0		42

a Also Sept. 22, 2002.

b Also Sept. 11, 12, 1966 and Sept. 21, 22, 2002.

e Estimated.



RAPPAHANNOCK RIVER BASIN

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

LOCATION.--Lat 38°31'50", long 77°48'49", NAD83, Fauquier County, Hydrologic Unit 02080103, on left bank 80 ft upstream from bridge on alternate U.S. Highway 29, at Remington, 0.3 mi upstream from Tinpot Run, 0.4 mi downstream from Ruffans Run, and 2.5 mi downstream from Hazel River.

DRAINAGE AREA.--620 mi².

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252.53 ft NGVD of 1929. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft downstream at same datum.

REMARKS.--Records good except for period with ice effect, Dec. 28 to Jan. 6 and periods of no gage-height record, July 11-16 and Sept. 21, which are fair, and for period of doubtful gage-height record, Aug. 6-20, which is poor. National Weather Service gage-height telemeter at station. Maximum discharge, 90,000 ft³/s, from rating curve extended above 43,000 ft³/s on basis of slope-area measurement of peak flow. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1828, that of Oct. 16, 1942.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	157	89	153	e105	156	121	427	793	305	80	48	38
2	134	92	151	e105	155	120	400	654	251	68	38	27
3	112	96	142	e110	146	464	362	606	205	59	32	22
4	101	97	132	e115	144	680	333	466	179	51	34	19
5	94	96	127	e115	134	390	309	469	173	43	32	18
6	86	95	126	e125	130	305	291	422	222	37	e29	17
7	80	91	124	163	143	275	284	365	285	32	e27	15
8	75	92	127	168	177	251	273	355	202	28	e25	15
9	70	93	151	173	180	236	264	348	169	25	e21	13
10	67	93	177	174	165	232	282	377	149	22	e19	12
11	66	91	219	172	160	234	307	383	136	e20	e17	12
12	65	96	397	195	159	211	280	299	124	e20	e14	11
13	65	103	320	202	155	235	274	277	131	e19	e12	11
14	65	111	257	177	149	341	284	265	466	e22	e9.4	10
15	84	107	234	162	143	325	275	255	632	e25	e7.6	9.0
16	211	102	207	154	140	287	282	232	459	e180	e6.4	8.8
17	171	102	188	149	141	267	271	219	282	103	e5.5	8.5
18	130	102	184	145	137	286	255	213	222	76	e6.0	8.0
19	109	101	183	145	132	371	258	332	311	62	e14	8.2
20	98	104	175	154	130	510	413	274	510	55	e11	8.2
21	89	102	161	162	130	955	482	225	293	62	8.3	e7.4
22	84	100	151	159	131	691	1200	207	207	56	7.5	6.7
23	82	101	146	160	131	529	1340	195	168	48	6.3	8.0
24	83	105	159	180	130	451	868	185	143	43	6.1	11
25	85	124	170	186	126	399	654	174	123	46	6.4	13
26	87	472	161	182	124	362	536	164	107	52	5.7	13
27	85	372	148	175	125	520	435	1680	102	70	5.9	24
28	81	222	e140	165	124	622	640	1180	105	113	7.2	125
29	80	177	e130	161	---	475	1820	679	100	113	19	141
30	82	159	e120	160	---	420	1060	480	89	84	33	99
31	85	---	e110	157	---	398	---	372	---	61	56	---
TOTAL	2963	3887	5370	4855	3997	11963	15159	13145	6850	1775	569.3	738.8
MEAN	95.6	130	173	157	143	386	505	424	228	57.3	18.4	24.6
MAX	211	472	397	202	180	955	1820	1680	632	180	56	141
MIN	65	89	110	105	124	120	255	164	89	19	5.5	6.7
CFSM	0.15	0.21	0.28	0.25	0.23	0.62	0.81	0.68	0.37	0.09	0.03	0.04
IN.	0.18	0.23	0.32	0.29	0.24	0.72	0.91	0.79	0.41	0.11	0.03	0.04

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

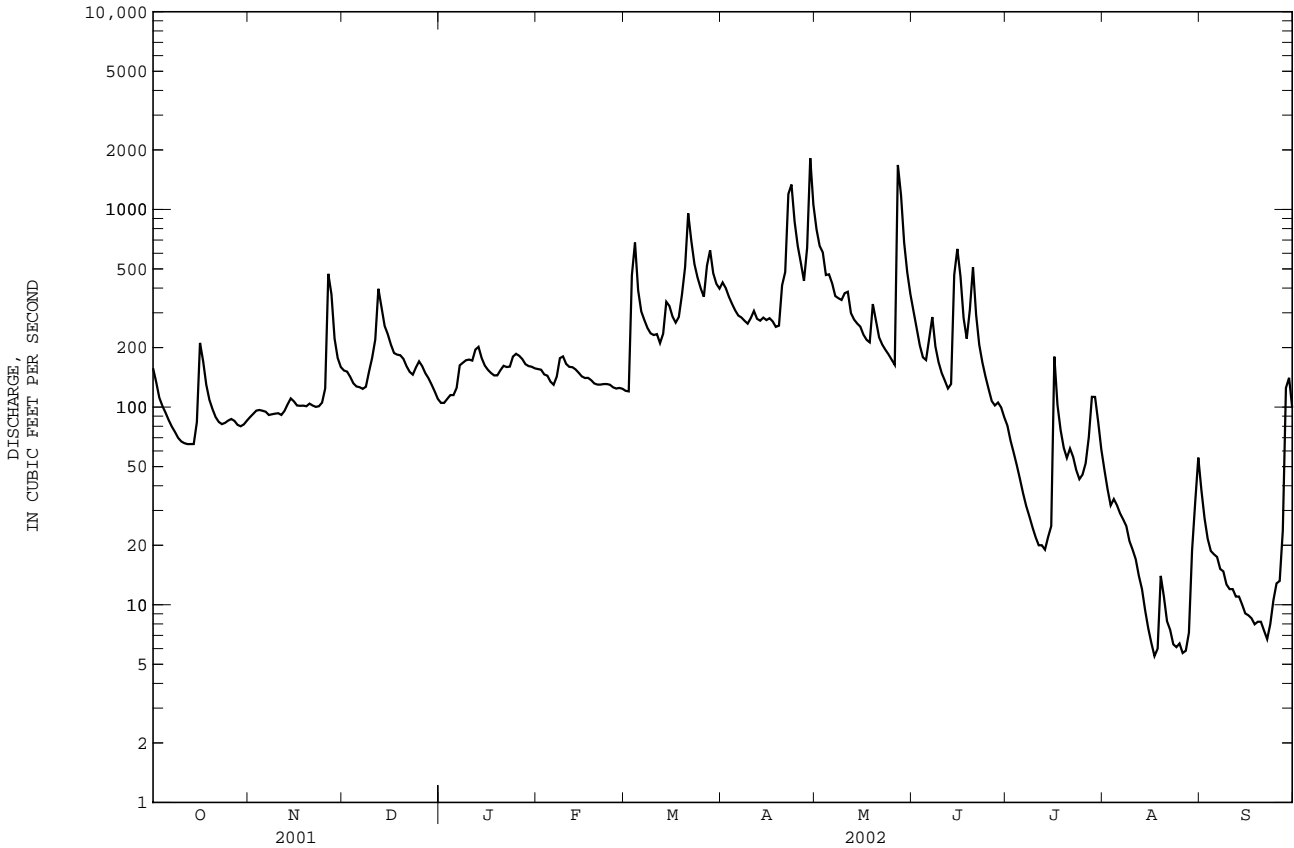
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	484	563	703	840	983	1177	1031	819	584	332	360	363
MAX	4895	2575	2172	2480	3496	3751	3784	2177	3520	974	2926	2815
(WY)	1943	1986	1951	1998	1998	1993	1983	1989	1972	1949	1955	1996
MIN	27.3	61.8	61.1	78.3	143	292	248	198	54.1	30.1	13.2	15.4
(WY)	1987	1966	1966	1966	2002	1981	1981	1977	1999	1966	1966	1985

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1943 - 2002

ANNUAL TOTAL		160262		71272.1								
ANNUAL MEAN		439		195						685		
HIGHEST ANNUAL MEAN										1231		1996
LOWEST ANNUAL MEAN										195		2002
HIGHEST DAILY MEAN				5870	Mar 22		1820	Apr 29	64000		Oct 16	1942
LOWEST DAILY MEAN				65	aOct 12		5.5	Aug 17	2.9		Sep 12	1966
ANNUAL SEVEN-DAY MINIMUM				68	Oct 8		6.4	Aug 22	3.2		Sep 7	1966
MAXIMUM PEAK FLOW							2670	May 27	90000		Oct 16	1942
MAXIMUM PEAK STAGE							7.07	May 27	b30.00		Oct 16	1942
INSTANTANEOUS LOW FLOW							5.2	Aug 26	1.1		Sep 10	1966
ANNUAL RUNOFF (CFSM)				0.71			0.31		1.10			
ANNUAL RUNOFF (INCHES)				9.62			4.28		15.01			
10 PERCENT EXCEEDS				959			421		1380			
50 PERCENT EXCEEDS				301			140		409			
90 PERCENT EXCEEDS				90			15		73			

a Also Oct. 13, 14, 2001.
 b From floodmarks.
 e Estimated.



RAPPAHANNOCK RIVER BASIN

01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA

LOCATION.--Lat 38°16'50", long 78°20'24", NAD83, Madison County, Hydrologic Unit 02080103, on left bank 10 ft downstream from bridge on U.S. Highway 29, 0.2 mi downstream from Elk Run, 1.7 mi upstream from White Run, 3.6 mi northeast of Ruckersville, and at mile 63.5.

DRAINAGE AREA.--114 mi².

PERIOD OF RECORD.--September 1942 to June 1995, October, 1998 to current year.

REVISED RECORDS.--WSP 1171: 1944-45(M). WSP 1382: 1943(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.44 ft NGVD of 1929.

REMARKS.--Records good except those for periods of no gage-height record, Nov. 12-27, Dec. 6 to Jan. 9, and Aug. 26-30, which are fair. Diversion 0.4 mi upstream from station since 1973 by Rapidan Service Authority for municipal water supply of Greene County and town of Stanardsville averaged about 0.76 ft³/s. Maximum discharge, 106,000 ft³/s, from rating curve extended above 8,700 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	36	21	52	e36	42	35	121	191	45	21	14	8.3
2	33	21	47	e35	41	38	108	184	42	18	11	7.1
3	31	21	44	e39	39	113	103	171	38	17	9.6	6.4
4	27	21	42	e37	39	86	95	154	36	14	13	5.1
5	25	20	41	e40	37	72	90	166	38	12	9.0	3.9
6	23	20	e40	e44	38	68	87	142	39	9.7	7.3	3.2
7	21	19	e38	e48	52	65	84	138	39	8.0	5.4	2.8
8	20	20	e39	e56	53	62	80	136	34	7.1	5.3	2.2
9	20	19	e46	e46	46	62	84	133	30	8.0	4.3	1.7
10	20	19	e49	39	46	75	104	131	28	12	3.5	1.5
11	20	19	e69	41	48	68	83	113	26	11	3.0	1.1
12	19	e19	e110	42	46	69	78	106	23	7.7	2.9	0.69
13	20	e19	e80	40	45	95	78	103	25	6.8	2.8	0.45
14	29	e18	e70	38	43	116	75	94	63	50	3.2	0.85
15	79	e18	e64	38	42	105	75	90	51	49	2.2	1.3
16	43	e20	e57	37	43	100	71	84	34	25	2.0	2.5
17	33	e20	e51	36	42	97	68	79	29	17	3.1	2.6
18	29	e20	e52	36	41	108	70	91	28	14	3.3	1.8
19	28	e19	e53	38	40	109	84	83	58	13	2.1	1.6
20	27	e19	e48	40	41	176	83	75	46	13	2.6	1.7
21	25	e19	e46	39	41	188	105	72	30	16	1.9	1.2
22	24	e18	e42	40	39	165	568	69	25	12	1.7	1.6
23	22	e18	e41	42	38	149	349	66	22	11	1.0	6.4
24	22	e19	e44	48	37	135	268	61	21	21	0.87	4.8
25	21	e22	e47	51	36	123	225	59	20	12	0.97	3.7
26	19	e62	e44	46	36	117	188	57	20	62	e1.2	9.6
27	19	e70	e41	45	36	153	164	58	36	50	e1.7	61
28	20	60	e38	44	35	127	274	57	61	35	e2.6	45
29	21	53	e38	43	---	119	257	52	34	26	e5.0	25
30	21	50	e37	43	---	113	214	50	25	20	e17	15
31	21	---	e36	42	---	118	---	46	---	16	11	---
TOTAL	818	783	1546	1289	1162	3226	4333	3111	1046	614.3	154.54	230.09
MEAN	26.4	26.1	49.9	41.6	41.5	104	144	100	34.9	19.8	4.99	7.67
MAX	79	70	110	56	53	188	568	191	63	62	17	61
MIN	19	18	36	35	35	35	68	46	20	6.8	0.87	0.45
CFSM	0.23	0.23	0.44	0.36	0.36	0.91	1.27	0.88	0.31	0.17	0.04	0.07
IN.	0.27	0.26	0.50	0.42	0.38	1.05	1.41	1.02	0.34	0.20	0.05	0.08

01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA--Continued

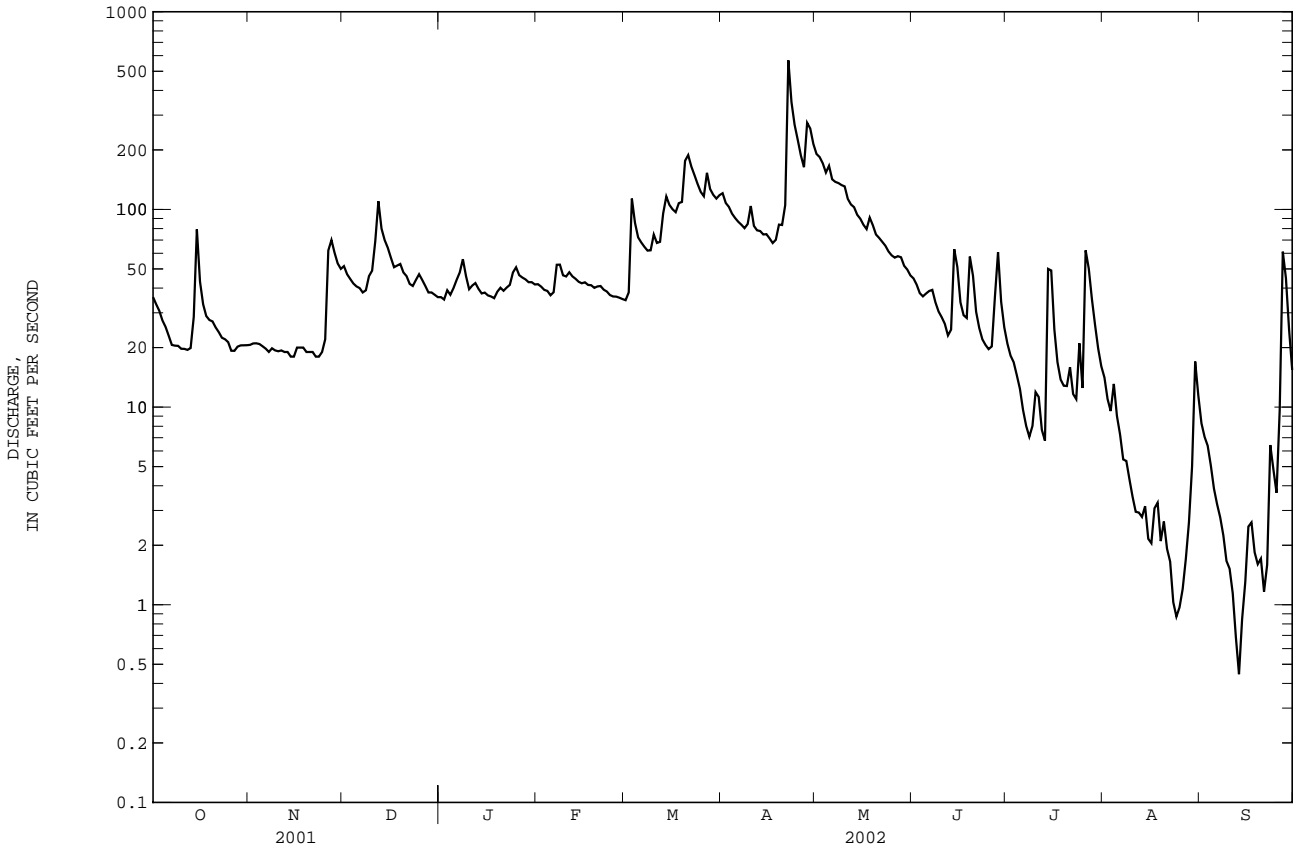
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995, 1999 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	128	134	156	169	190	240	223	173	160	76.8	89.5	86.6
MAX	976	798	465	483	485	570	692	376	1675	378	760	598
(WY)	1943	1986	1951	1978	1984	1993	1983	1978	1995	1949	1955	1979
MIN	9.44	23.7	20.4	21.0	41.5	79.7	72.8	48.0	23.3	6.99	4.99	5.83
(WY)	1964	1999	1966	1981	2002	1981	1981	1977	1977	1977	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1943 - 1995 1999 - 2002

ANNUAL TOTAL		32048.3		18312.93								
ANNUAL MEAN		87.8		50.2						150		
HIGHEST ANNUAL MEAN										337		1949
LOWEST ANNUAL MEAN										50.2		2002
HIGHEST DAILY MEAN		1580		Aug 12		568		Apr 22		e29400		Jun 27 1995
LOWEST DAILY MEAN		9.3		Jul 25		0.45		Sep 13		0.45		Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM		14		Jul 22		1.1		Sep 9		1.1		Sep 9 2002
MAXIMUM PEAK FLOW						880		Apr 22		106000		Jun 27 1995
MAXIMUM PEAK STAGE						4.07		Apr 22		a31.30		Jun 27 1995
INSTANTANEOUS LOW FLOW						0.21		Sep 13		0.21		Sep 13 2002
ANNUAL RUNOFF (CFSM)		0.77				0.44				1.32		
ANNUAL RUNOFF (INCHES)		10.46				5.98				17.94		
10 PERCENT EXCEEDS		164				109				303		
50 PERCENT EXCEEDS		55				38				95		
90 PERCENT EXCEEDS		20				3.6				20		

a From floodmarks.
e Estimated.



RAPPAHANNOCK RIVER BASIN

01666500 ROBINSON RIVER NEAR LOCUST DALE, VA

LOCATION.--Lat 38°19'30", long 78°05'44", NAD83, Madison County, Hydrologic Unit 02080103, on right bank 100 ft upstream from bridge on State Highway 614, 1.1 mi upstream from Great Run, 1.7 mi upstream from mouth, 2.0 mi southeast of Locust Dale, and 3.4 mi downstream from Crooked Run.

DRAINAGE AREA.--179 mi².

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Dec. 30 to Jan. 6, and period of no gage-height record, May 19, 20, 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.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.9 ft, from floodmarks, discharge, about 44,000 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	39	36	57	e50	55	43	136	169	54	27	17	12
2	38	37	54	e48	52	44	117	172	49	25	15	12
3	36	37	50	e53	50	220	109	157	43	22	13	10
4	34	38	49	e52	51	177	102	135	43	20	13	8.6
5	32	36	47	e56	42	126	97	165	46	17	12	8.1
6	29	35	47	e62	51	109	93	132	43	15	9.4	6.5
7	28	35	46	75	66	99	89	123	51	13	8.0	5.6
8	27	36	49	86	75	91	87	121	42	12	7.5	5.2
9	27	35	70	72	65	86	94	115	37	10	6.7	4.5
10	28	34	60	56	59	91	117	115	35	10	6.3	4.1
11	29	35	138	60	62	83	93	100	32	11	6.0	3.5
12	29	36	160	63	57	82	89	95	28	11	5.5	3.0
13	29	34	112	63	57	104	90	93	28	9.3	5.2	2.4
14	32	34	96	58	54	127	87	86	104	43	4.9	2.1
15	114	37	88	56	53	107	85	80	88	73	4.9	2.0
16	60	36	78	54	54	99	83	74	58	35	4.1	2.0
17	46	36	73	53	53	95	78	80	46	24	3.6	3.7
18	39	36	77	52	50	112	84	101	40	18	3.0	4.0
19	37	36	72	52	48	121	141	e84	112	20	3.3	3.4
20	37	37	68	62	49	187	122	e79	98	41	3.2	3.2
21	37	35	63	58	49	234	164	75	60	26	3.2	2.7
22	37	34	58	61	48	189	735	72	46	19	2.8	2.3
23	36	35	58	63	47	162	384	68	39	16	2.6	2.8
24	36	37	68	65	46	145	275	65	35	59	2.3	4.1
25	37	48	66	66	45	131	224	62	32	29	2.1	4.2
26	34	123	61	63	45	119	180	61	30	43	2.0	5.4
27	32	91	57	60	45	155	154	66	32	58	2.2	51
28	32	68	59	58	42	137	339	83	56	53	3.7	48
29	34	59	56	58	---	123	262	68	40	38	16	30
30	34	56	e53	59	---	117	196	63	31	28	24	18
31	36	---	e51	57	---	118	---	58	---	22	15	---
TOTAL	1155	1302	2141	1851	1470	3833	4906	3017	1478	847.3	227.5	274.4
MEAN	37.3	43.4	69.1	59.7	52.5	124	164	97.3	49.3	27.3	7.34	9.15
MAX	114	123	160	86	75	234	735	172	112	73	24	51
MIN	27	34	46	48	42	43	78	58	28	9.3	2.0	2.0
CFSM	0.21	0.24	0.39	0.33	0.29	0.69	0.91	0.54	0.28	0.15	0.04	0.05
IN.	0.24	0.27	0.44	0.38	0.31	0.80	1.02	0.63	0.31	0.18	0.05	0.06

01666500 ROBINSON RIVER NEAR LOCUST DALE, VA--Continued

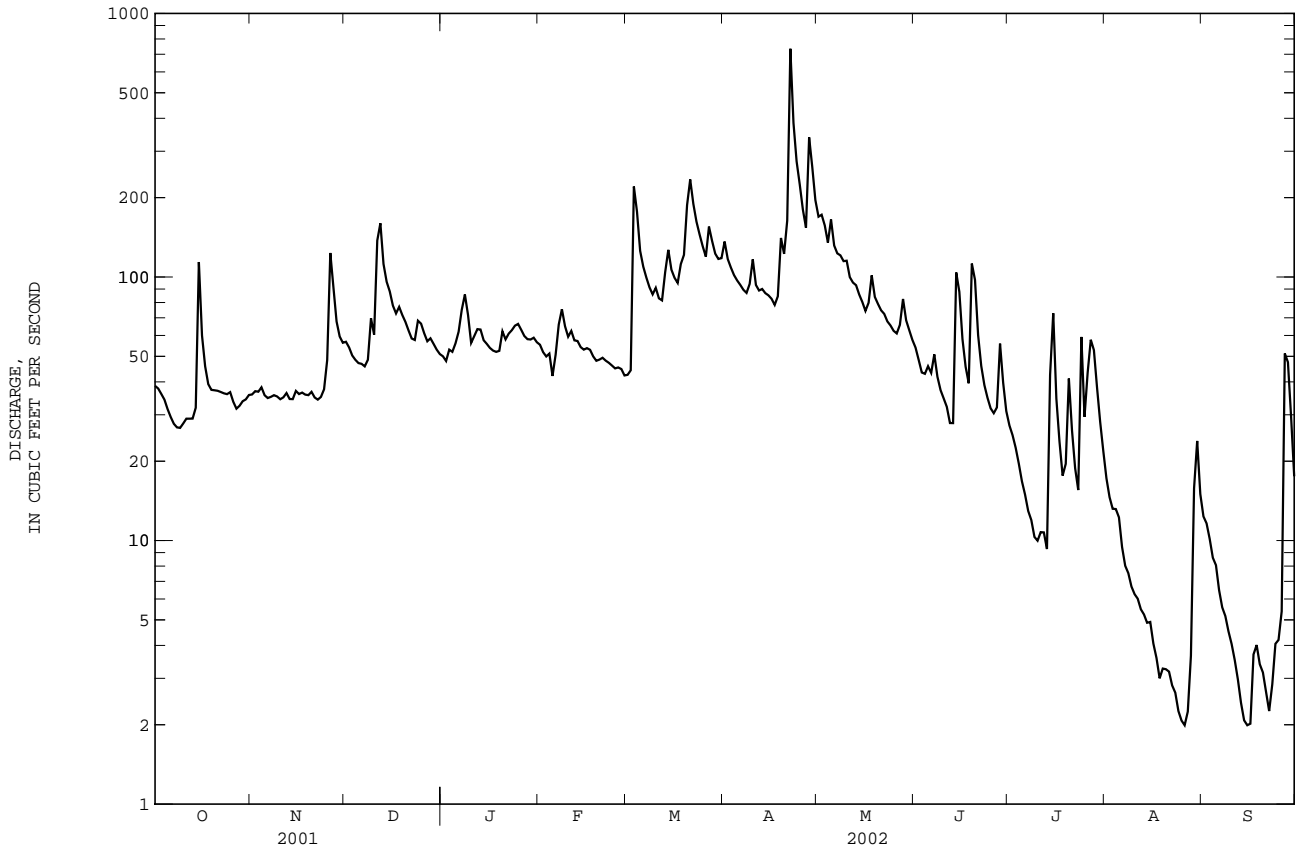
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	168	209	227	266	297	342	303	245	207	125	134	159
MAX	783	1350	624	752	1254	980	989	625	1154	522	1063	1119
(WY)	1991	1986	1973	1978	1998	1993	1983	1989	1995	1949	1955	1996
MIN	18.5	35.1	32.0	47.5	52.5	105	89.3	70.9	33.4	21.3	7.34	8.05
(WY)	1964	1966	1966	1966	2002	1981	1981	1977	1999	1944	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1944 - 2002

ANNUAL TOTAL	42998		22502.2				223			
ANNUAL MEAN	118		61.6				445		1973	
HIGHEST ANNUAL MEAN							61.6		2002	
LOWEST ANNUAL MEAN							14700		Jun 22 1972	
HIGHEST DAILY MEAN	1690		Mar 21		735		Apr 22		Jun 22 1972	
LOWEST DAILY MEAN	13		Jul 25		2.0		Aug 26		1.8 aSep 13 1954	
ANNUAL SEVEN-DAY MINIMUM	21		Jul 19		2.5		Aug 21		2.5 Aug 21 2002	
MAXIMUM PEAK FLOW					1060		Apr 22		25400 Jun 27 1995	
MAXIMUM PEAK STAGE					5.75		Apr 22		b23.92 Sep 6 1996	
INSTANTANEOUS LOW FLOW					1.6		Aug 26		1.2 cSep 7 1954	
ANNUAL RUNOFF (CFSM)	0.66				0.34				1.25	
ANNUAL RUNOFF (INCHES)	8.94				4.68				16.92	
10 PERCENT EXCEEDS	245				121				420	
50 PERCENT EXCEEDS	72				50				144	
90 PERCENT EXCEEDS	34				5.6				39	

- a Also Sept. 27, 1954.
- b Backwater from debris.
- c Also Sept. 12, 1954.
- e Estimated.



RAPPAHANNOCK RIVER BASIN

01667500 RAPIDAN RIVER NEAR CULPEPER, VA

LOCATION.--Lat 38°21'01", long 77°58'30", NAD83, Culpeper County, Hydrologic Unit 02080103, on left bank 0.7 mi upstream from Cedar Run and bridge on U.S. Highway 522, 8.5 mi south of Culpeper, and at mile 29.6.

DRAINAGE AREA.--472 mi².

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1081: 1943-46. WSP 1171: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 1-5, and period of no gage-height record, July 11, which are fair. Prior to 1977, diurnal fluctuation at low flow caused by mill at Rapidan, and since July 1986, by powerplant at same site. National Weather Service gage-height telemeter at station. Maximum discharge, 59,300 ft³/s, from rating curve extended above 43,000 ft³/s on basis of slope-area measurement at gage height 30.26 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	73	63	123	e110	120	96	289	483	111	50	32	34
2	68	63	126	e102	116	100	268	430	104	45	26	26
3	67	63	120	e115	112	306	241	437	93	40	23	22
4	64	65	111	e109	111	359	229	352	86	35	20	18
5	61	65	108	e120	108	236	214	394	85	30	19	15
6	57	62	107	133	99	199	205	354	86	25	18	12
7	54	62	104	144	126	183	198	311	101	23	15	10
8	52	62	106	182	163	171	191	314	100	21	14	8.8
9	50	62	125	155	146	160	191	298	82	19	12	7.6
10	51	61	135	123	133	163	253	325	75	18	10	7.0
11	54	62	183	124	130	169	244	281	69	e21	9.0	6.3
12	56	62	341	127	129	157	205	244	61	22	8.9	4.5
13	57	61	240	128	124	185	203	232	58	25	9.0	3.8
14	62	60	201	120	120	257	201	216	188	48	10	2.9
15	179	62	185	115	115	244	195	198	201	141	9.5	2.4
16	163	65	169	112	115	224	191	190	136	99	11	2.0
17	95	63	156	109	116	215	186	179	87	59	12	1.7
18	75	63	158	108	112	236	180	220	71	42	10	1.5
19	67	62	160	110	109	276	243	262	101	34	10	1.6
20	66	61	149	123	107	321	261	200	184	62	8.5	2.7
21	67	61	139	129	108	468	262	178	120	50	7.8	2.9
22	66	59	131	126	109	402	1260	166	80	36	7.9	2.9
23	64	59	127	131	107	345	1090	159	65	34	6.1	4.2
24	63	61	138	136	104	311	734	152	57	69	3.6	2.7
25	63	70	147	139	103	283	580	145	51	92	3.8	1.8
26	61	181	137	138	104	260	482	139	46	72	3.0	5.1
27	58	210	128	130	106	291	393	137	46	167	2.8	30
28	58	147	121	127	99	309	685	172	59	116	4.8	120
29	60	130	121	124	---	269	965	152	87	78	7.4	87
30	60	124	116	124	---	255	591	134	64	55	14	52
31	62	---	110	123	---	254	---	124	---	41	38	---
TOTAL	2153	2351	4522	3896	3251	7704	11430	7578	2754	1669	386.1	498.4
MEAN	69.5	78.4	146	126	116	249	381	244	91.8	53.8	12.5	16.6
MAX	179	210	341	182	163	468	1260	483	201	167	38	120
MIN	50	59	104	102	99	96	180	124	46	18	2.8	1.5
CFSM	0.15	0.17	0.31	0.27	0.25	0.53	0.81	0.52	0.19	0.11	0.03	0.04
IN.	0.17	0.19	0.36	0.31	0.26	0.61	0.90	0.60	0.22	0.13	0.03	0.04

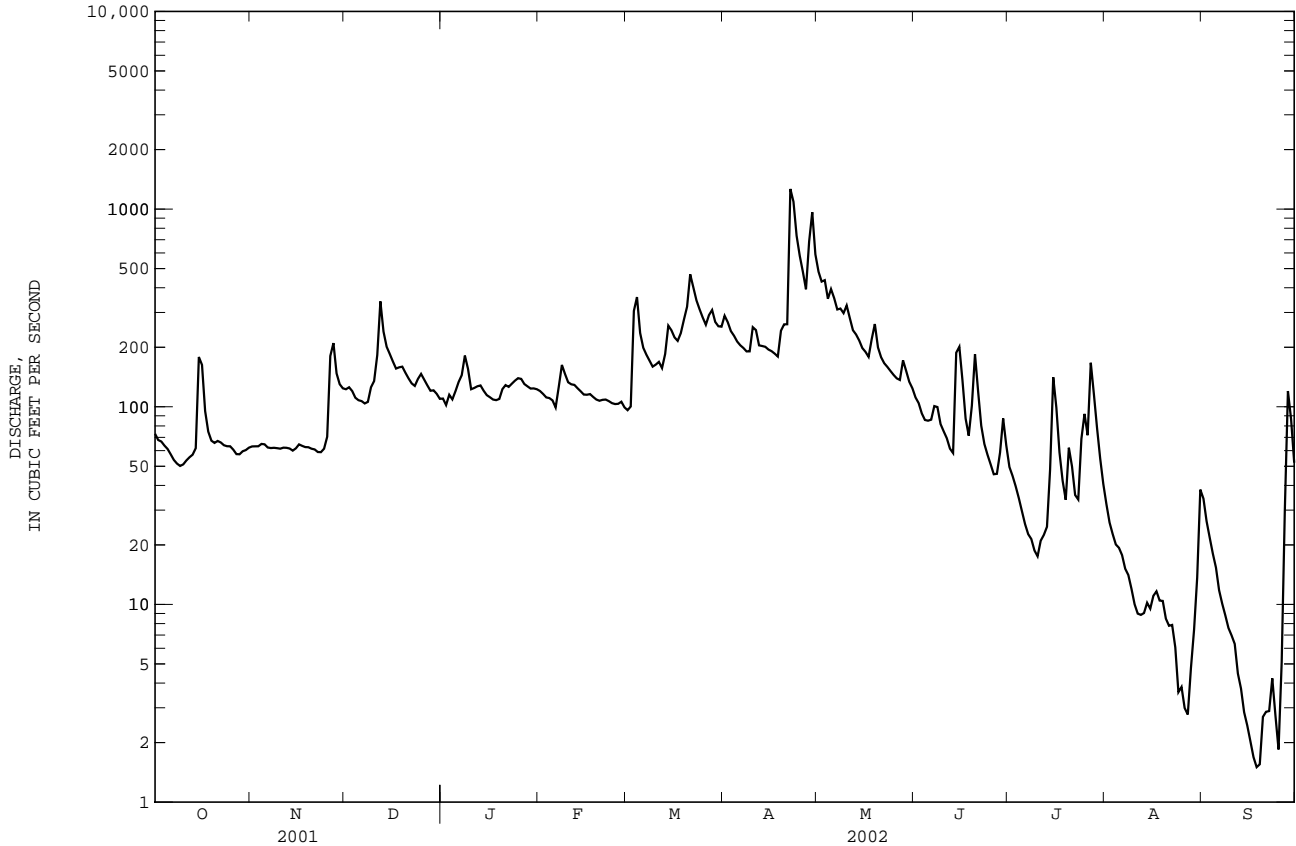
01667500 RAPIDAN RIVER NEAR CULPEPER, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	416	458	543	658	726	836	768	568	477	297	325	359
MAX	3163	2690	1653	1924	3048	2236	2615	1734	2901	1206	2323	2908
(WY)	1943	1986	1949	1998	1998	1993	1937	1998	1995	1949	1955	1996
MIN	8.10	29.4	62.4	93.6	91.5	179	210	166	83.1	45.0	12.5	14.0
(WY)	1931	1931	1931	1966	1931	1931	1981	1956	1999	1999	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1931 - 2002
ANNUAL TOTAL	104990	48192.5	
ANNUAL MEAN	288	132	535
HIGHEST ANNUAL MEAN			1099
LOWEST ANNUAL MEAN			132
HIGHEST DAILY MEAN	4040	Mar 30	e43500
LOWEST DAILY MEAN	44	Jul 25	1.5
ANNUAL SEVEN-DAY MINIMUM	53	aOct 6	2.1
MAXIMUM PEAK FLOW			1990
MAXIMUM PEAK STAGE			3.35
INSTANTANEOUS LOW FLOW			1.2
ANNUAL RUNOFF (CFSM)	0.61		0.28
ANNUAL RUNOFF (INCHES)	8.27		3.80
10 PERCENT EXCEEDS	573	262	1060
50 PERCENT EXCEEDS	177	108	332
90 PERCENT EXCEEDS	62	10	82

- a Also Oct. 7, 2001.
- b Also Sept. 15, 2002.
- c From high-water mark in gage house.
- e Estimated.



RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA

LOCATION.--Lat 38°18'30", long 77°31'46", NAD83, Spotsylvania County, Hydrologic Unit 02080104, on right bank, along State Highway 618 (River Road), 3.1 mi upstream from Dominion Virginia Power dam, 0.7 mi downstream from Motts Run, and 5.3 mi upstream from Fredericksburg.

DRAINAGE AREA.--1,596 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920- 21(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 70 ft NGVD of 1929, from topographic map. Prior to Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at site 1.5 mi downstream, at datum 1.00 ft higher. Aug. 2, 1966 to Oct. 17, 2000, at same site, at datum of 55.18 ft. Oct. 17, 2000 to current year, at present site and datum.

REMARKS.--Records good except those for period of doubtful gage-height record, Oct. 5-15 and period with ice effect, Dec. 30 to Jan. 9, which are fair. Maximum discharge, 140,000 ft³/s, from rating curve extended above 76,000 ft³/s on basis of flow-over-dam and slope-area measurements at gage heights 26.1 ft and 26.9 ft, site and datum then use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	299	209	331	e225	348	258	766	1960	614	270	137	98
2	277	219	304	e232	333	257	849	1570	529	212	108	92
3	256	233	296	e250	325	394	746	1510	445	174	92	91
4	243	234	281	e278	309	1610	656	1350	394	155	91	76
5	230	233	265	e245	297	1070	612	1150	374	137	90	65
6	222	238	257	e260	291	709	568	1290	388	117	62	60
7	205	236	257	e280	304	592	540	1050	482	104	50	54
8	190	232	264	e318	334	531	526	936	500	92	47	51
9	177	235	273	e380	418	487	514	930	412	81	42	51
10	174	227	298	445	409	454	551	908	336	74	39	57
11	178	231	428	403	369	436	665	984	288	67	37	50
12	183	228	577	390	345	446	647	857	255	65	39	44
13	188	233	856	401	338	439	562	748	264	61	36	40
14	191	234	629	408	321	533	552	699	768	71	32	34
15	217	247	530	375	315	727	549	663	1310	80	28	35
16	499	247	463	349	303	635	523	608	1260	400	23	36
17	559	244	419	334	299	585	514	567	716	372	21	37
18	356	247	401	322	293	590	709	902	478	235	19	35
19	284	246	376	327	290	762	680	1080	378	170	16	33
20	247	248	377	346	291	891	732	899	495	138	15	31
21	231	245	354	355	291	1710	959	656	788	114	13	27
22	227	247	329	381	292	1670	2420	555	522	117	12	25
23	225	246	309	392	295	1180	4510	516	371	123	12	26
24	228	247	325	410	288	954	2560	492	295	106	12	24
25	224	265	328	427	279	845	1900	465	255	92	12	20
26	212	301	355	420	271	770	1520	439	225	134	17	23
27	210	784	338	414	269	808	1250	1140	216	157	25	44
28	204	661	309	388	266	1160	1460	2830	307	196	118	50
29	184	456	289	374	---	959	4340	1480	297	278	148	169
30	182	371	e260	365	---	808	2870	949	300	250	126	307
31	201	---	e230	357	---	759	---	733	---	185	102	---
TOTAL	7503	8524	11308	10851	8783	24029	36250	30916	14262	4827	1621	1785
MEAN	242	284	365	350	314	775	1208	997	475	156	52.3	59.5
MAX	559	784	856	445	418	1710	4510	2830	1310	400	148	307
MIN	174	209	230	225	266	257	514	439	216	61	12	20
CFSM	0.15	0.18	0.23	0.22	0.20	0.49	0.76	0.62	0.30	0.10	0.03	0.04
IN.	0.17	0.20	0.26	0.25	0.20	0.56	0.84	0.72	0.33	0.11	0.04	0.04

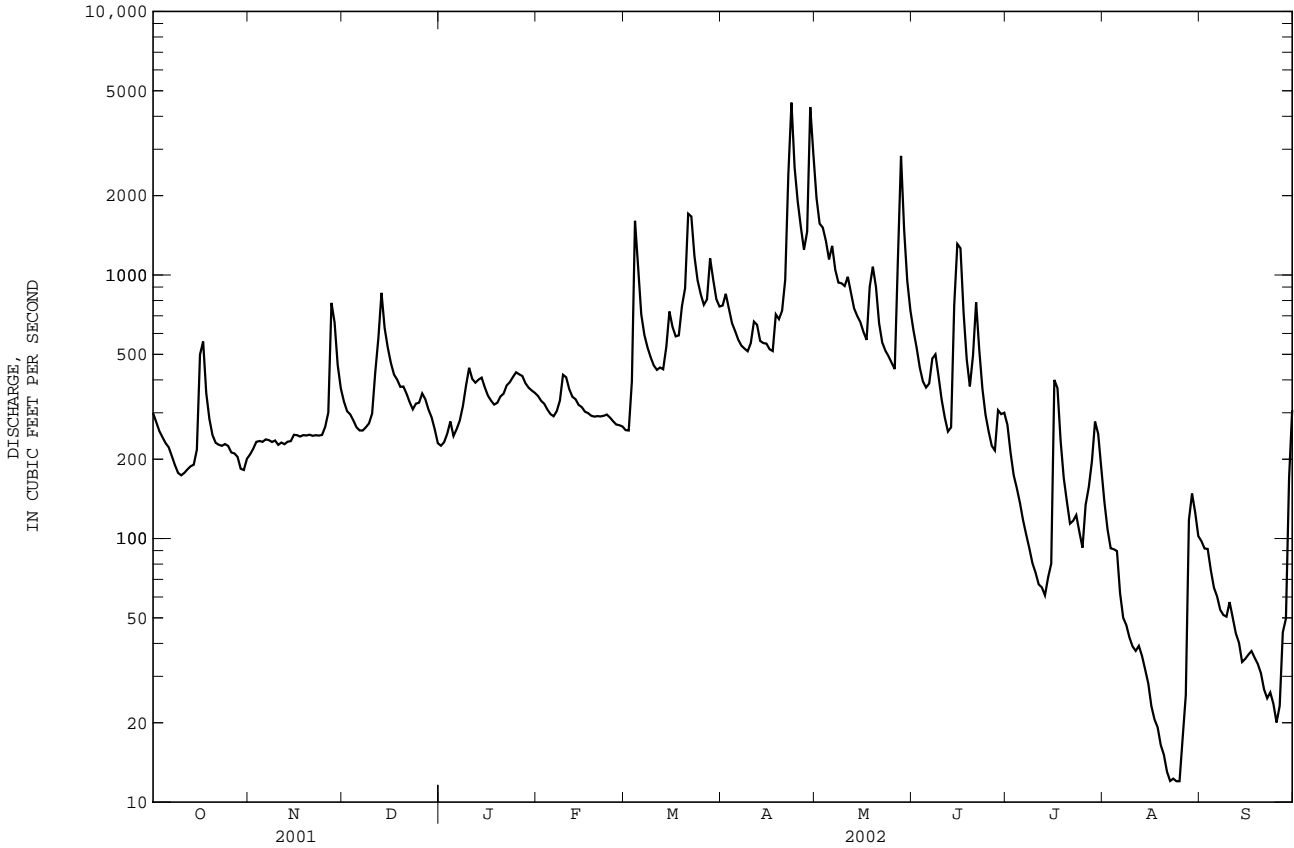
01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1138	1298	1648	2178	2467	2678	2467	1882	1405	899	996	939
MAX	11090	6522	5357	6472	8880	8505	9484	10310	7112	3368	7190	6924
(WY)	1943	1986	1949	1996	1998	1993	1983	1924	1972	1949	1955	1996
MIN	15.3	75.4	147	268	224	526	587	492	179	78.6	21.1	46.5
(WY)	1931	1931	1931	1966	1931	1931	1981	1956	1999	1930	1930	1930

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1907 - 2002
ANNUAL TOTAL	381586	160659	
ANNUAL MEAN	1045	440	1662
HIGHEST ANNUAL MEAN			3072
LOWEST ANNUAL MEAN			440
HIGHEST DAILY MEAN	14800	Mar 22	4510
LOWEST DAILY MEAN	145	aSep 19	12
ANNUAL SEVEN-DAY MINIMUM	152	Sep 16	13
MAXIMUM PEAK FLOW			5730
MAXIMUM PEAK STAGE			4.15
INSTANTANEOUS LOW FLOW			12
ANNUAL RUNOFF (CFSM)	0.66		0.28
ANNUAL RUNOFF (INCHES)	8.89		3.74
10 PERCENT EXCEEDS	2380		904
50 PERCENT EXCEEDS	600		299
90 PERCENT EXCEEDS	210		49

- a Also Sept. 20, 2001.
- b Also Oct. 12, 1930.
- c From floodmarks, site and datum then in use.
- e Estimated.



RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1929-30, 1956, 1967-74, 1978 to 1999, 2001 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974. October 1991 to September 1993.
WATER TEMPERATURE: October 1955 to September 1956, April 1968 to August 1974.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE NUMBER (00028)	AGENCY COL-LECTING SAMPLE NUMBER (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT OF SATUR-ATION) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	
OCT												
24...	1000	ENVIRONMENTAL	VDCLS	USGS	1.98	312	2.7	765	10.7	103	7.9	92
NOV												
08...	1215	ENVIRONMENTAL	VDCLS	USGS	1.99	281	1.7	758	11.2	104	7.1	99
27...	1115	ENVIRONMENTAL	VDCLS	USGS	2.50	787	3.5	751	12.6	102	7.0	92
29...	1110	ENVIRONMENTAL	VDCLS	USGS	2.55	673	5.0	759	12.8	100	7.2	97
DEC												
13...	1145	ENVIRONMENTAL	VDCLS	USGS	1.99	312	6.4	774	14.5	105	7.3	94
18...	1210	BLANK	VDCLS	USGS	--	--	.15	--	--	--	--	--
18...	1215	ENVIRONMENTAL	VDCLS	USGS	4.38	6960	200	761	13.4	102	7.3	88
21...	1225	BLANK	VDCLS	USGS	--	--	--	--	--	--	--	--
21...	1230	ENVIRONMENTAL	VDCLS	USGS	3.27	1490	--	762	14.2	100	7.1	88
JAN												
08...	1130	ENVIRONMENTAL	VDCLS	USGS	2.22	576	4.7	751	13.3	95	7.3	91
22...	1045	ENVIRONMENTAL	VDCLS	USGS	3.14	2590	36	768	13.6	95	6.6	109
29...	1030	ENVIRONMENTAL	VDCLS	USGS	2.38	787	3.8	765	16.6	119	7.5	104
FEB												
06...	0945	ENVIRONMENTAL	VDCLS	USGS	2.45	920	5.7	758	13.0	96	7.4	101
27...	1130	ENVIRONMENTAL	VDCLS	USGS	3.02	1110	14	763	12.9	105	7.6	109
MAR												
19...	1115	ENVIRONMENTAL	VDCLS	USGS	2.44	903	4.2	767	13.9	118	7.4	101
23...	1030	ENVIRONMENTAL	VDCLS	USGS	4.54	7110	140	751	11.6	99	7.1	76
27...	1100	ENVIRONMENTAL	VDCLS	USGS	3.03	2310	19	763	11.8	97	6.9	75
27...	1115	REPLICATE	VDCLS	USGS	3.03	2280	16	763	11.8	97	6.9	75
30...	0930	ENVIRONMENTAL	VDCLS	USGS	7.96	15600	320	749	11.8	97	6.6	77
APR												
03...	1130	ENVIRONMENTAL	VDCLS	USGS	3.48	3560	16	759	11.6	100	6.9	79
13...	0945	ENVIRONMENTAL	VDCLS	USGS	3.18	2700	29	753	10.2	105	7.3	87
13...	1000	REPLICATE	VDCLS	USGS	3.18	2700	21	753	10.2	105	7.3	87
23...	0945	ENVIRONMENTAL	VDCLS	USGS	2.63	1280	4.1	762	9.8	103	6.2	81
MAY												
09...	1215	ENVIRONMENTAL	VDCLS	USGS	2.27	641	2.6	761	9.1	101	7.7	85
21...	1115	ENVIRONMENTAL	VDCLS	USGS	2.70	1440	9.2	755	9.2	96	6.3	100
23...	1030	ENVIRONMENTAL	VDCLS	USGS	5.69	10300	280	752	8.2	87	7.0	96
31...	0900	ENVIRONMENTAL	VDCLS	USGS	2.61	1240	14	760	9.6	104	6.5	84
JUN												
06...	0900	ENVIRONMENTAL	VDCLS	USGS	3.15	2620	28	757	8.3	96	6.9	95
06...	0905	REPLICATE	USGS	USGS	3.15	2620	--	757	8.3	96	6.9	95
08...	0930	ENVIRONMENTAL	VDCLS	USGS	3.20	2750	250	755	8.7	100	7.0	69
11...	1000	ENVIRONMENTAL	VDCLS	USGS	2.55	1110	11	754	7.9	93	7.4	83
25...	1015	ENVIRONMENTAL	VDCLS	USGS	2.81	1730	35	759	7.8	91	6.3	85
28...	1015	ENVIRONMENTAL	VDCLS	USGS	2.38	803	5.9	762	7.2	91	7.2	84
JUL												
09...	1130	ENVIRONMENTAL	VDCLS	USGS	2.01	363	4.7	753	7.3	93	7.3	90
23...	1000	ENVIRONMENTAL	VDCLS	USGS	1.78	196	4.0	757	6.9	86	7.5	106
30...	0900	ENVIRONMENTAL	VDCLS	USGS	4.22	5760	230	757	8.0	88	7.0	99
AUG												
07...	1000	ENVIRONMENTAL	VDCLS	USGS	2.12	460	1.7	759	7.0	91	8.4	98
13...	1140	BLANK	VDCLS	USGS	--	--	.30	--	--	--	--	--
13...	1145	ENVIRONMENTAL	VDCLS	USGS	3.96	5090	220	754	7.1	86	7.8	70
20...	0915	ENVIRONMENTAL	VDCLS	USGS	2.18	527	13	754	7.5	93	8.7	90
SEP												
05...	0925	BLANK	VDCLS	USGS	--	--	1.7	--	--	--	--	--
05...	0930	ENVIRONMENTAL	VDCLS	USGS	1.93	289	3.0	760	7.0	84	6.8	92
18...	0815	ENVIRONMENTAL	VDCLS	USGS	1.70	150	5.5	756	9.4	104	7.2	103
25...	1530	ENVIRONMENTAL	VDCLS	USGS	--	7080	270	753	7.3	82	6.6	76

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
24...	13.5	13.9	5.06	<3	<3	<3	<.004	--	--	.16	.01	.006	<.002
NOV													
08...	16.5	11.6	3.38	<3	<3	<3	<.004	--	--	.16	.04	.039	<.002
27...	11.0	5.6	7.28	7	8	<3	.005	--	--	.31	.16	.158	<.002
29...	3.0	4.8	9.09	<3	<3	<3	.006	--	--	.65	.44	.443	<.002
DEC													
13...	.5	2.5	7.66	<3	<3	<3	.009	--	--	.58	.43	.428	<.002
18...	--	--	<.100	<3	<3	<3	.005	--	--	M	<.004	<.004	<.002
18...	.5	3.8	6.75	231	269	38	.147	--	--	1.5	.84	.846	.005
21...	--	--	<.100	<3	<3	<3	<.004	--	--	.01	<.004	<.004	<.002
21...	-2.0	1.2	9.41	<3	<3	<3	.039	--	--	1.4	.99	.989	.002
JAN													
08...	3.0	1.0	11.8	<3	4	<3	.032	--	--	1.0	.84	.846	<.002
22...	-1.0	1.1	8.40	18	22	4	.110	--	--	1.9	.85	.860	.007
29...	4.0	1.8	8.00	<3	3	<3	.025	--	--	1.1	.94	.939	.002
FEB													
06...	2.0	2.7	10.0	<3	3	<3	.010	--	--	.81	.70	.704	.002
27...	71.0	6.7	8.40	3	4	<3	.007	--	--	.71	.51	.509	.002
MAR													
19...	8.0	8.3	6.99	<3	3	<3	<.004	--	--	.48	.29	.297	.002
23...	10.0	7.8	8.20	174	199	25	.079	--	--	1.3	.96	.960	.004
27...	.5	7.0	10.1	10	15	5	.010	--	--	.92	.84	.845	<.002
27...	.5	7.0	11.0	12	15	3	.014	--	--	.89	.84	.836	.002
30...	10.0	6.3	7.00	374	420	46	.090	--	--	1.3	.60	.607	.004
APR													
03...	10.5	8.8	10.2	23	28	5	.020	--	--	1.0	.76	.759	<.002
13...	22.0	16.1	9.30	27	32	5	.013	--	--	.74	.50	.498	<.002
13...	22.0	16.1	9.40	27	32	5	.017	--	--	.76	.51	.509	<.002
23...	21.5	17.6	7.80	<3	5	3	.008	--	--	.41	.28	.279	<.002
MAY													
09...	22.5	20.6	2.23	<3	<3	<3	.068	--	--	.21	.01	.010	<.002
21...	16.0	16.8	8.20	7	11	4	.052	--	--	.86	.58	.587	.007
23...	20.0	17.8	7.80	291	343	52	.287	--	--	1.7	.95	.976	.027
31...	14.5	18.9	3.23	8	14	6	.009	--	--	.85	.58	.583	.004
JUN													
06...	22.0	22.7	9.79	29	36	7	.017	--	--	.82	.61	.613	.004
06...	22.0	22.7	10.4	--	16	--	.017	.22	.37	.78	--	.561	--
08...	20.0	21.7	8.20	175	218	43	.076	--	--	1.1	.70	.711	.010
11...	22.0	23.0	10.4	6	9	3	.015	--	--	.85	.60	.600	.002
25...	24.0	23.2	9.60	18	24	6	.050	--	--	.91	.78	.788	.008
28...	27.0	27.4	10.2	3	5	3	.008	--	--	.74	.47	.471	<.002
JUL													
09...	29.0	26.7	6.40	3	5	4	.035	--	--	.25	.01	.013	.002
23...	24.0	26.7	5.40	<3	4	<3	.009	--	--	.52	.01	.006	<.002
30...	21.0	19.9	6.90	195	233	38	.150	--	--	2.0	1.03	1.05	.015
AUG													
07...	24.0	28.5	7.90	<3	<3	<3	.006	--	--	.26	.01	.009	<.002
13...	--	--	.100	3	3	3	.011	--	--	.03	.01	.006	.002
13...	24.0	24.8	6.40	150	179	29	.140	--	--	1.2	.50	.508	.012
20...	25.0	25.6	9.90	3	6	3	.011	--	--	.78	.44	.440	<.002
SEP													
05...	--	--	.100	3	3	3	.004	--	--	.01	.01	.006	.002
05...	25.0	24.3	6.60	<3	3	<3	.007	--	--	.20	.01	.011	<.002
18...	15.0	19.7	4.50	5	8	3	.008	--	--	.17	.01	.006	<.002
25...	17.0	20.4	5.10	668	754	86	.057	--	--	.98	.42	.425	.006

2001

RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL AS C (MG/L) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT								
24...	.003	.004	--	.02	.006	.2	54	4.0
NOV								
08...	.004	.037	--	.02	.005	.2	64	2.0
27...	.011	<.002	--	.04	.011	.4	--	30
29...	.012	.002	--	.04	.011	.3	--	3.3
DEC								
13...	.007	.003	--	.02	.005	.2	--	.9
18...	.002	<.002	--	M	.003	.1	--	--
18...	.070	.032	--	1.2	.454	10.9	92	286
21...	.003	<.002	--	.01	.003	.1	--	--
21...	.029	.013	--	.08	.037	.7	--	12
JAN								
08...	.015	.008	--	.03	.010	.3	--	.9
22...	.066	.025	--	.20	.074	1.3	--	30
29...	.018	.009	--	.04	.020	.3	--	3.4
FEB								
06...	.022	.009	--	.04	.014	.3	--	3.6
27...	.016	.010	--	.06	.017	.3	--	22
MAR								
19...	.010	.007	--	.04	.012	.2	--	4.0
23...	.036	.012	--	.76	.208	6.7	--	211
27...	.026	.009	--	.08	.035	.6	--	15
27...	.017	.009	--	.08	.035	.5	--	17
30...	.083	.039	--	1.5	.325	13.2	--	614
APR								
03...	.031	.013	--	.12	.049	.9	--	29
13...	.030	.013	--	.16	.053	1.2	--	34
13...	.035	.013	--	.16	.052	1.2	--	--
23...	.012	.008	--	.05	.015	.3	--	5.6
MAY								
09...	.022	.028	--	.08	.010	.6	--	2.4
21...	.013	.010	--	.10	.026	.8	--	11
23...	.084	.057	--	1.5	.404	12.8	--	440
31...	.032	.014	--	--	.025	--	--	14
JUN								
06...	.040	.012	--	--	.046	--	--	36
06...	<.06	.010	.07	--	--	--	--	--
08...	.051	.022	--	.83	.267	6.8	--	218
11...	.038	.016	--	.07	.022	.5	--	8.7
25...	.055	.022	--	.16	.051	1.3	--	29
28...	.034	.019	--	.07	.016	.5	--	6.6
JUL								
09...	.018	.009	--	.06	.009	.4	--	5.1
23...	.025	.006	--	.03	.010	.2	--	6.0
30...	.080	.059	--	1.1	.242	8.8	--	269
AUG								
07...	.011	.013	--	.03	.007	.2	--	1.0
13...	.001	.003	--	.01	.001	M	--	--
13...	.063	.029	--	.72	.260	5.7	--	209
20...	.031	.026	--	.05	.014	.4	--	4.1
SEP								
05...	.004	.003	--	.01	M	.1	--	--
05...	.022	.011	--	.03	.008	.3	--	3.6
18...	.014	.007	--	.05	.014	.5	--	7.6
25...	.034	.009	--	3.0	.855	27.6	--	891

RAPPAHANNOCK RIVER BASIN

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01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT												
09...	1100	ENVIRONMENTAL	VDCLS	USGS	1.75	175	3.4	770	10.7	98	6.4	98
23...	1030	ENVIRONMENTAL	VDCLS	USGS	1.85	233	2.1	754	9.5	97	7.3	120
NOV												
06...	0945	ENVIRONMENTAL	VDCLS	USGS	1.86	239	1.4	762	10.2	89	7.3	115
27...	1015	ENVIRONMENTAL	VDCLS	USGS	2.41	852	2.9	760	11.3	106	7.6	115
29...	1015	ENVIRONMENTAL	VDCLS	USGS	2.12	450	4.1	762	10.1	96	7.0	110
DEC												
04...	0930	ENVIRONMENTAL	VDCLS	USGS	1.96	281	3.2	766	12.7	106	6.6	103
04...	0945	REPLICATE	VDCLS	USGS	1.95	274	2.3	766	12.7	106	6.6	103
19...	1000	ENVIRONMENTAL	VDCLS	USGS	2.07	372	4.6	756	10.9	91	7.4	91
JAN												
10...	0945	ENVIRONMENTAL	VDCLS	USGS	2.10	439	3.0	748	14.9	105	7.5	104
22...	1115	ENVIRONMENTAL	VDCLS	USGS	2.04	381	1.4	766	14.6	105	7.8	105
FEB												
05...	0930	ENVIRONMENTAL	VDCLS	USGS	1.94	296	1.7	767	14.5	102	7.9	99
20...	0945	ENVIRONMENTAL	VDCLS	USGS	1.93	289	1.7	758	14.2	114	7.7	100
MAR												
04...	1300	ENVIRONMENTAL	VDCLS	USGS	2.89	1970	45	758	11.6	95	7.6	97
04...	1315	REPLICATE	VDCLS	USGS	2.88	1940	40	758	11.6	95	7.6	97
08...	0900	ENVIRONMENTAL	VDCLS	USGS	2.19	539	7.2	767	10.7	90	7.2	98
18...	1515	ENVIRONMENTAL	VDCLS	USGS	2.23	588	4.1	762	10.8	96	7.2	92
21...	1115	ENVIRONMENTAL	VDCLS	USGS	2.84	1820	18	756	10.9	96	7.4	101
APR												
01...	1045	ENVIRONMENTAL	VDCLS	USGS	2.35	756	4.5	754	9.2	90	6.9	82
01...	1050	REPLICATE	USGS	USGS	2.35	756	--	754	9.2	90	6.9	82
23...	0815	ENVIRONMENTAL	VDCLS	USGS	3.97	5120	31	760	8.7	86	6.1	96
29...	1430	ENVIRONMENTAL	VDCLS	USGS	3.99	5190	100	751	9.2	97	6.0	103
29...	1435	REPLICATE	USGS	USGS	3.98	5160	--	751	9.2	97	6.0	103
MAY												
07...	0930	ENVIRONMENTAL	VDCLS	USGS	2.52	1050	7.1	757	7.1	77	6.4	85
21...	0930	ENVIRONMENTAL	VDCLS	USGS	2.29	668	5.8	765	9.3	95	7.4	88
28...	1000	ENVIRONMENTAL	VDCLS	USGS	3.29	3010	230	760	8.5	95	6.5	69
JUN												
04...	1400	ENVIRONMENTAL	VDCLS	USGS	2.05	390	7.3	763	10.0	125	7.8	84
18...	0930	ENVIRONMENTAL	VDCLS	USGS	2.14	482	8.0	759	7.2	87	6.5	96
JUL												
16...	1030	ENVIRONMENTAL	VDCLS	USGS	2.16	504	5.6	757	9.7	123	7.1	110
24...	1145	ENVIRONMENTAL	VDCLS	USGS	1.62	105	6.3	761	8.7	113	8.5	104
AUG												
07...	1400	ENVIRONMENTAL	VDCLS	USGS	1.48	49	15	759	6.3	80	8.2	102
20...	1000	ENVIRONMENTAL	VDCLS	USGS	1.23	16	2.6	754	6.3	83	7.2	109
SEP												
09...	1140	BLANK	VDCLS	USGS	--	--	.20	--	--	--	--	--
09...	1145	ENVIRONMENTAL	VDCLS	USGS	1.42	49	.90	760	11.0	136	8.9	185
25...	1015	ENVIRONMENTAL	VDCLS	USGS	1.18	21	.90	765	8.1	92	7.5	151

RAPPAHANNOCK RIVER BASIN

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER- ATURE (DEG C) (00020)	TEMPER- ATURE (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
09...	14.0	12.0	5.90	<3	3	<3	.009	--	--	.17	.01	.009	<.002
23...	12.0	15.8	5.40	<3	<3	<3	<.004	--	--	.18	.01	.010	<.002
NOV													
06...	5.5	9.6	3.20	<3	<3	<3	<.004	--	--	.18	.01	.006	<.002
27...	10.0	12.1	2.40	<3	4	<3	<.004	--	--	.15	.01	.006	<.002
29...	15.5	13.1	4.60	<3	<3	<3	.007	--	--	.29	.08	.084	<.002
DEC													
04...	6.0	7.9	5.20	<3	<3	<3	<.004	--	--	.18	.04	.037	<.002
04...	6.0	7.9	5.20	<3	<3	<3	.009	--	--	.25	.04	.038	<.002
19...	6.0	7.2	8.00	5	7	<3	.005	--	--	.52	.34	.342	<.002
JAN													
10...	4.0	.3	9.50	<3	<3	<3	<.004	--	--	.81	.64	.641	<.002
22...	6.0	1.9	6.40	<3	<3	<3	<.004	--	--	.51	.39	.396	.003
FEB													
05...	-4.0	1.1	.100	<3	<3	<3	.005	--	--	.33	.15	.150	.002
20...	11.0	5.9	3.30	<3	<3	<3	.018	--	--	.24	.10	.104	.003
MAR													
04...	.0	6.4	4.70	55	71	16	.016	--	--	.50	.32	.319	.002
04...	.0	6.4	4.70	56	74	18	.013	--	--	.50	.33	.328	.002
08...	5.5	8.2	8.70	3	5	<3	.011	--	--	1.0	.68	.690	.007
18...	7.0	10.2	7.60	3	3	<3	.045	--	--	.65	.40	.401	.003
21...	9.0	9.5	8.90	27	33	7	.029	--	--	.55	.40	.403	<.002
APR													
01...	13.0	14.0	8.20	3	4	<3	.019	--	--	.55	.36	.357	<.002
01...	13.0	14.0	7.7	--	<10	<10	E.014	.19	.25	.51	--	.317	--
23...	8.0	14.9	5.00	21	30	8	.089	--	--	.77	.30	.304	.004
29...	15.0	17.2	9.90	135	159	24	.087	--	--	1.4	.62	.629	.011
29...	15.0	17.2	9.4	101	119	18	.080	.57	1.4	1.2	--	.582	--
MAY													
07...	19.5	18.7	7.80	4	5	<3	.010	--	--	.53	.36	.362	<.002
21...	10.0	16.6	3.60	4	5	<3	.006	--	--	.74	.40	.403	.004
28...	23.0	20.2	6.10	239	275	36	.075	--	--	1.0	.61	.621	.015
JUN													
04...	27.0	26.9	8.00	8	10	<3	.018	--	--	.39	.16	.157	<.002
18...	21.0	24.6	8.80	7	8	<3	.020	--	--	.89	.42	.425	.008
JUL													
16...	25.0	27.3	7.40	7	11	4	.014	--	--	.45	.04	.038	<.002
24...	22.0	28.6	7.80	7	11	4	<.004	--	--	.42	.01	.005	<.002
AUG													
07...	--	27.8	9.60	18	22	4	.006	--	--	.38	<.004	<.004	<.002
20...	28.0	28.6	10.4	<3	5	<3	.011	--	--	.38	<.004	<.004	<.002
SEP													
09...	--	--	.100	<3	<3	<3	.004	--	--	.12	<.004	<.004	<.002
09...	26.0	25.8	3.20	<3	<3	<3	<.004	--	--	.37	<.004	<.004	<.002
25...	21.0	21.4	.900	<3	<3	<3	<.004	--	--	.39	<.004	<.004	<.002

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL (MG/L AS N) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL (MG/L AS P) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT								
09...	.008	.011	--	.03	.009	.3	--	1.5
23...	.020	.005	--	.03	.006	.3	--	1.2
NOV								
06...	.009	.010	--	.03	.029	.2	--	1.2
27...	.017	.003	--	.06	.011	.5	--	4.0
29...	.025	.004	--	.05	.010	.4	--	3.5
DEC								
04...	.009	.003	--	--	.009	--	--	6.2
04...	<.001	.004	--	--	.007	--	--	4.3
19...	.267	.005	--	.06	.011	.5	--	9.8
JAN								
10...	.018	.005	--	--	.010	--	--	4.7
22...	.007	.003	--	.02	.007	.2	--	1.3
FEB								
05...	.011	.005	--	.01	.004	.3	--	2.8
20...	.010	.007	--	.03	.005	.3	75	2.0
MAR								
04...	.027	.007	--	.66	.089	4.6	--	74
04...	.014	.011	--	.55	.100	3.9	--	76
08...	.024	.010	--	.06	.011	.6	--	7.5
18...	.021	.017	--	.04	.006	.4	--	6.1
21...	.056	.019	--	.24	.033	1.9	--	30
APR								
01...	.019	.011	--	.06	.006	.5	75	6.0
01...	<.06	.008	E.04	--	--	--	--	--
23...	.031	.016	--	.16	.034	1.6	77	317
29...	.053	.025	--	.25	.048	2.0	64	175
29...	<.06	.018	.33	--	--	--	--	--
MAY								
07...	.026	.016	--	.05	--	.5	54	9.0
21...	.020	.007	--	.03	.011	.4	88	8.0
28...	.037	.007	--	.58	.152	3.6	93	303
JUN								
04...	.022	.012	--	.09	.014	.8	--	15
18...	.036	.018	--	.07	.016	.5	--	12
JUL								
16...	.025	.008	--	.12	.020	1.0	--	11
24...	.020	.006	--	.12	.024	1.0	--	21
AUG								
07...	.020	.010	--	.15	.033	1.1	--	26
20...	.025	.008	--	.06	.010	.6	--	--
SEP								
09...	.002	<.002	--	<.01	<.001	.1	--	--
09...	.002	.002	--	.03	.004	.3	--	1.4
25...	.004	.005	--	.05	.007	.3	--	1.0

RAPPAHANNOCK RIVER BASIN

01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'02", NAD83, Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi south of Hensley Fork, 2.3 mi downstream from Sturgeon Swamp, and 4.2 mi southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi².

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1970-76(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 0.50 ft NGVD of 1929. Prior to May 2, 2001, at same site, at datum 2.00 ft higher.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 11 to Nov. 28, Dec. 26 to Jan. 4, Feb. 4, 5, Apr. 18, and Sept. 6-14, which are fair. Maximum discharge, 2,380 ft³/s, from rating curve extended above 1,400 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	8.2	e7.3	9.9	e7.4	17	11	29	18	3.1	0.79	1.8	0.00
2	8.5	e7.1	9.8	e6.7	16	12	26	14	3.1	0.82	1.5	0.13
3	8.1	e7.5	9.5	e7.0	13	25	21	13	2.4	1.1	1.0	0.58
4	7.0	e7.4	9.3	e7.2	e11	30	17	11	2.0	1.1	0.64	1.8
5	6.7	e7.4	9.1	7.5	e10	23	15	13	1.8	0.97	0.30	2.8
6	7.4	e7.5	8.8	12	14	18	15	15	2.0	0.75	0.14	e2.2
7	8.3	e8.0	9.0	33	24	15	14	13	2.4	0.44	0.04	e1.8
8	8.2	e8.3	9.2	27	33	13	13	12	1.9	0.32	0.01	e1.4
9	7.6	e8.9	9.3	17	28	13	13	10	1.5	0.23	0.00	e1.2
10	7.1	e8.4	9.2	15	23	12	14	15	1.6	0.18	0.00	e1.0
11	e7.0	e8.2	12	14	21	10	13	19	1.4	0.13	0.00	e0.90
12	e6.7	e7.9	20	13	18	10	12	12	1.4	0.09	0.00	e0.67
13	e7.2	e7.6	18	12	17	12	11	11	1.4	0.07	0.00	e0.55
14	e8.0	e8.3	15	11	16	14	11	21	2.4	0.10	0.00	e0.50
15	e8.8	e8.3	12	11	15	14	11	21	4.7	0.17	0.00	1.1
16	e9.5	e8.9	11	9.9	15	12	11	13	4.2	0.24	0.00	1.6
17	e10	e8.5	11	9.4	15	12	10	8.4	2.8	0.25	0.00	1.7
18	e9.0	e8.2	12	12	13	21	e8.7	12	2.0	0.26	0.00	1.0
19	e8.5	e8.3	16	20	13	29	8.6	19	1.5	0.19	0.00	0.82
20	e8.4	e9.2	17	25	14	27	9.0	15	1.5	0.07	0.00	0.81
21	e8.3	e8.6	15	27	14	26	9.7	9.5	1.3	0.03	0.00	1.1
22	e8.1	e8.4	13	22	13	23	36	7.3	1.0	0.01	0.00	0.81
23	e7.9	e8.4	12	20	11	19	44	6.8	0.99	0.01	0.00	0.58
24	e7.6	e9.0	13	19	11	16	24	5.8	0.87	0.05	0.00	0.41
25	e7.5	e9.1	16	19	11	14	19	5.7	1.3	0.09	0.00	0.36
26	e7.2	e10	e14	21	11	13	18	5.0	3.7	0.59	0.00	0.38
27	e7.2	e10	e12	22	11	30	17	4.6	3.3	2.8	0.00	0.70
28	e6.9	e11	e10	19	10	33	24	4.1	2.5	2.9	0.00	1.1
29	e6.8	11	e9.2	17	---	26	35	3.9	1.4	3.1	0.00	0.84
30	e7.0	10	e8.6	17	---	20	24	3.6	0.91	2.8	0.00	0.84
31	e7.1	---	e8.0	16	---	22	---	3.2	---	2.2	0.00	---
TOTAL	241.8	256.7	367.9	496.1	438	575	533.0	344.9	62.37	22.85	5.43	29.68
MEAN	7.80	8.56	11.9	16.0	15.6	18.5	17.8	11.1	2.08	0.74	0.18	0.99
MAX	10	11	20	33	33	33	44	21	4.7	3.1	1.8	2.8
MIN	6.7	7.1	8.0	6.7	10	10	8.6	3.2	0.87	0.01	0.00	0.00
CFSM	0.28	0.31	0.42	0.57	0.56	0.66	0.63	0.40	0.07	0.03	0.01	0.04
IN.	0.32	0.34	0.49	0.66	0.58	0.76	0.71	0.46	0.08	0.03	0.01	0.04

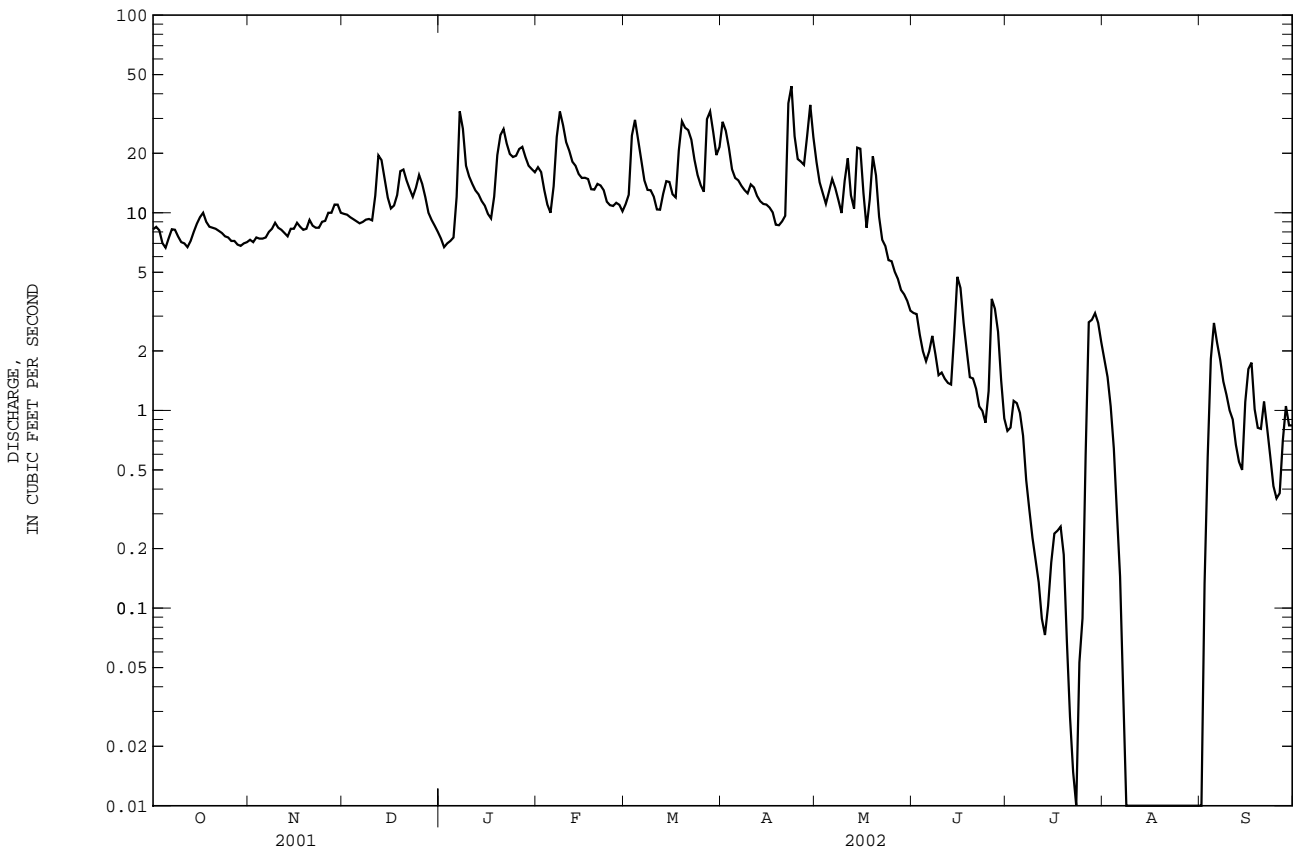
01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	18.6	26.2	30.1	37.0	43.7	52.1	47.9	35.7	24.5	17.3	16.9	15.7
MAX	63.4	74.1	74.7	88.4	124	118	109	87.0	111	105	88.0	70.4
(WY)	1980	1980	1997	1978	1998	1994	1958	1958	1972	1975	1955	1979
MIN	1.30	6.30	9.20	7.93	14.0	13.5	13.4	5.19	1.12	0.74	0.18	0.28
(WY)	1955	1955	1966	1955	1955	1981	1985	1999	1999	2002	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1952 - 2002
ANNUAL TOTAL	8013.1	3373.73	
ANNUAL MEAN	22.0	9.24	30.4
HIGHEST ANNUAL MEAN			56.8 1958
LOWEST ANNUAL MEAN			9.24 2002
HIGHEST DAILY MEAN	228 Jun 2	44 Apr 23	1080 Aug 13 1955
LOWEST DAILY MEAN	3.0 Jul 24	0.00 aAug 9	0.00 bAug 11 1999
ANNUAL SEVEN-DAY MINIMUM	3.7 Jul 12	0.00 cAug 9	0.00 cAug 9 2002
MAXIMUM PEAK FLOW		56 Apr 23	2380 Aug 20 1969
MAXIMUM PEAK STAGE		d4.88 Jan 7	f7.52 Aug 20 1969
INSTANTANEOUS LOW FLOW		0.00 gJul 24	(g)
ANNUAL RUNOFF (CFSM)	0.78	0.33	1.09
ANNUAL RUNOFF (INCHES)	10.65	4.48	14.75
10 PERCENT EXCEEDS	40	20	62
50 PERCENT EXCEEDS	15	8.5	22
90 PERCENT EXCEEDS	7.0	0.13	4.9

- a Also Aug. 10 to Sept. 1, 2002.
- b Also Aug. 12, 13, 1999 and Aug. 9 to Sept. 1, 2002.
- c Many days in August 2002.
- d Backwater from beaver dam.
- e Estimated.
- f From high-water mark in well.
- g Also part or all of each day Aug. 8 to Sept. 2, 2002.
- h No flow part or all of many days in August 1999 and July to September 2002.



PIANKATANK RIVER BASIN

01669520 DRAGON SWAMP AT MASCOT, VA

LOCATION.--Lat 37°38'02", long 76°41'47", NAD83, King and Queen County, Hydrologic Unit 02080102, on right bank at up stream side of bridge on State Highway 603, 0.8 mi east of Mascot, 2.1 mi downstream from Church Swamp, and 3.3 mi west of Warner.

DRAINAGE AREA.--108 mi².

PERIOD OF RECORD.--August 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 21.60 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 3, which is fair. Maximum discharge, 6,600 ft³/s, from rating curve extended above 2,150 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	49	21	29	e27	56	21	127	70	5.6	0.89	0.23	3.1
2	40	21	28	e23	50	22	143	60	4.8	0.76	0.15	3.5
3	34	22	27	e25	46	41	146	55	3.7	0.67	0.09	2.4
4	30	22	27	28	43	49	136	44	2.8	0.58	0.05	2.9
5	26	22	27	31	40	50	115	43	2.1	0.49	0.02	4.1
6	26	22	27	50	37	49	94	38	2.1	0.39	0.01	3.1
7	29	23	27	115	58	46	77	34	4.8	0.29	0.00	2.3
8	27	24	27	130	73	44	61	43	6.6	0.21	0.00	1.8
9	25	25	29	133	72	41	52	43	6.3	0.14	0.00	1.5
10	23	25	30	143	68	37	50	91	4.7	0.08	0.00	1.4
11	22	25	40	140	67	32	45	78	3.6	0.05	0.00	1.2
12	21	24	47	123	65	29	40	57	2.8	0.02	0.00	0.95
13	21	24	53	107	63	29	37	49	2.8	0.01	0.00	0.75
14	22	25	53	90	55	29	35	56	6.9	0.01	0.00	0.73
15	27	25	54	78	49	27	33	51	10	0.02	0.00	1.1
16	27	26	49	67	45	26	31	43	9.6	0.01	0.00	1.9
17	27	25	48	60	41	28	29	36	7.1	0.01	0.00	2.6
18	25	25	71	55	37	46	27	41	5.5	0.00	0.00	2.6
19	25	25	72	60	34	53	27	46	4.7	0.00	0.00	2.2
20	25	26	69	100	32	57	27	41	4.0	0.00	0.00	1.6
21	25	25	62	109	32	63	32	35	3.2	0.00	0.00	1.4
22	24	25	56	108	29	64	59	30	2.8	0.00	0.00	1.2
23	23	25	51	105	28	62	66	29	2.3	0.00	0.00	1.0
24	22	27	52	100	27	56	60	26	1.9	0.00	0.00	0.84
25	22	29	50	105	25	48	66	21	1.6	0.00	0.00	0.73
26	21	31	46	99	25	43	72	17	1.5	0.07	0.00	0.96
27	21	31	42	91	23	75	64	13	1.4	0.16	0.00	1.5
28	20	31	39	80	21	69	88	10	1.5	0.32	0.00	2.0
29	20	32	38	72	---	61	95	8.3	1.3	0.42	1.7	1.8
30	21	30	35	65	---	55	83	7.2	1.1	0.39	3.1	1.7
31	21	---	e33	60	---	65	---	6.4	---	0.31	1.8	---
TOTAL	791	763	1338	2579	1241	1417	2017	1221.9	119.1	6.30	7.15	54.86
MEAN	25.5	25.4	43.2	83.2	44.3	45.7	67.2	39.4	3.97	0.20	0.23	1.83
MAX	49	32	72	143	73	75	146	91	10	0.89	3.1	4.1
MIN	20	21	27	23	21	21	27	6.4	1.1	0.00	0.00	0.73
CFSM	0.24	0.24	0.40	0.77	0.41	0.42	0.62	0.36	0.04	0.00	0.00	0.02
IN.	0.27	0.26	0.46	0.89	0.43	0.49	0.69	0.42	0.04	0.00	0.00	0.02

01669520 DRAGON SWAMP AT MASCOT, VA--Continued

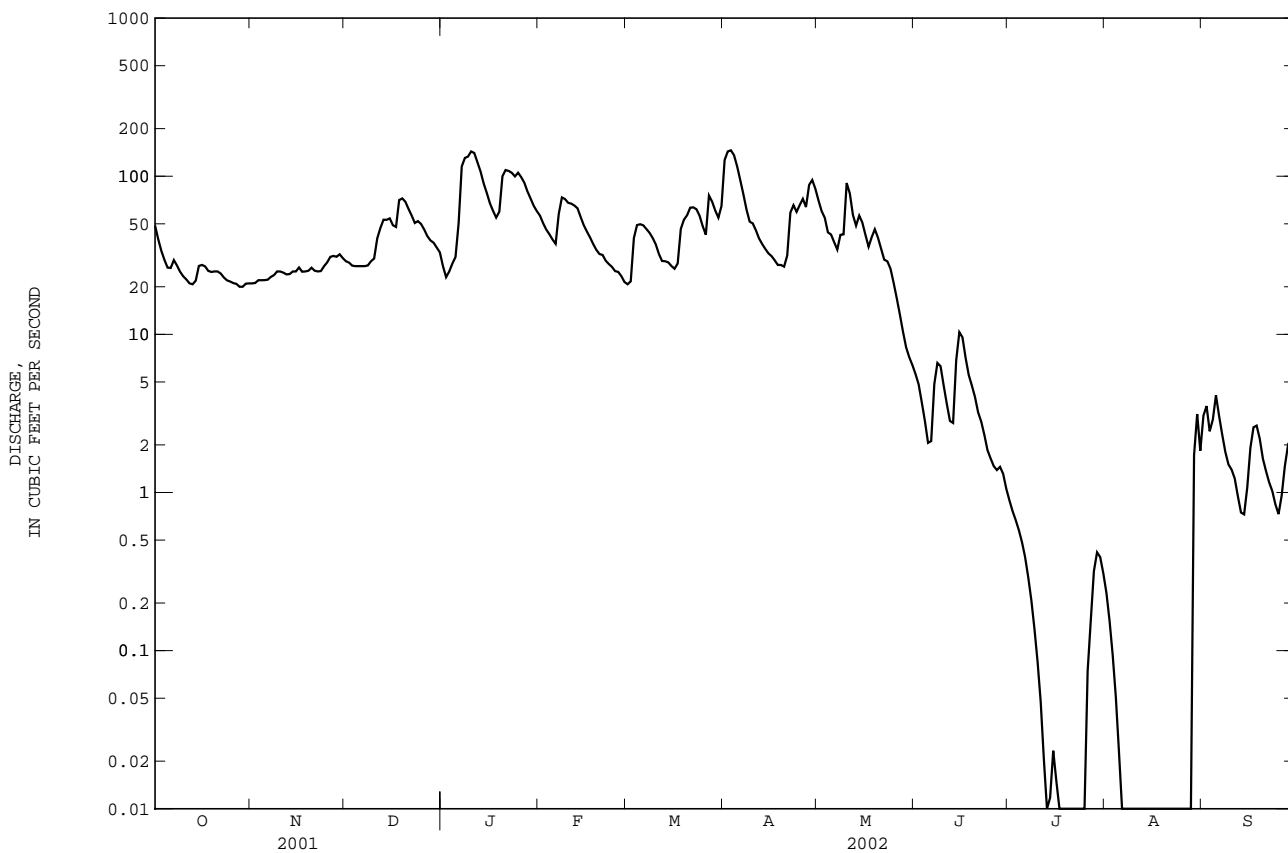
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	60.5	82.6	112	152	185	224	181	121	72.1	49.4	62.7	78.4
MAX	293	290	331	340	608	567	450	247	166	135	231	696
(WY)	1997	1986	1997	1993	1998	1994	1983	1998	1984	2000	2001	1999
MIN	0.80	9.22	39.5	45.9	44.3	45.7	31.2	22.5	2.38	0.20	0.23	0.79
(WY)	1999	1999	1989	1989	2002	2002	1985	1999	1999	2002	2002	1997

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1982 - 2002

ANNUAL TOTAL	33081.1	11555.31	
ANNUAL MEAN	90.6	31.7	115
HIGHEST ANNUAL MEAN			178 1998
LOWEST ANNUAL MEAN			31.7 2002
HIGHEST DAILY MEAN	1500 Aug 14	146 Apr 3	6050 Sep 17 1999
LOWEST DAILY MEAN	6.4 Jul 24	0.00 aJul 18	0.00 aJul 18 2002
ANNUAL SEVEN-DAY MINIMUM	7.2 Jul 20	0.00 bJul 18	0.00 bJul 18 2002
MAXIMUM PEAK FLOW		147 Apr 2	6600 Sep 17 1999
MAXIMUM PEAK STAGE		5.00 Apr 2	13.21 Sep 17 1999
INSTANTANEOUS LOW FLOW		0.00 cJul 14	0.00 (d)
ANNUAL RUNOFF (CFSM)	0.84	0.29	1.06
ANNUAL RUNOFF (INCHES)	11.39	3.98	14.42
10 PERCENT EXCEEDS	163	71	250
50 PERCENT EXCEEDS	62	26	77
90 PERCENT EXCEEDS	21	0.02	6.2

- a Also July 19-25, and Aug. 6-28, 2002.
- b Also July 19, and Aug 6-22, 2002.
- c Also part or all of each day July 17-26, and Aug. 6-28, 2002.
- d No flow part or all of many days in August 1998 and July, August 2002.
- e Estimated.



YORK RIVER BASIN

01671020 NORTH ANNA RIVER AT HART CORNER, NEAR DOSWELL, VA

LOCATION.--Lat 37°51'01", long 77°25'40", NAD83, Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 30, 0.3 mi west of Hart Corner, 2.1 mi east of Doswell, and 5.4 mi upstream from confluence with South Anna River.

DRAINAGE AREA.--463 mi².

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 43 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Nov. 13, 14, and period with ice effect, Dec. 31 to Jan. 2, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft, 27.7 mi upstream. At a point 0.8 mi upstream from station, there is diversion for municipal water supply by Hanover County Department of Public Utilities since June 1975. Maximum discharge, 12,000 ft³/s, from rating curve extended above 10,100 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1969 reached a stage of 28.02 ft, from floodmark, discharge not determined.

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	37	43	40	e47	53	45	77	144	37	35	32	61
2	37	47	40	e49	54	46	75	99	36	34	34	56
3	36	41	40	49	55	85	72	86	35	36	34	48
4	36	38	39	45	57	100	66	80	36	36	30	44
5	36	39	39	50	58	100	60	74	36	36	31	41
6	37	37	39	61	59	88	56	74	39	36	33	39
7	37	38	39	103	68	73	57	63	43	37	34	36
8	36	39	42	91	80	66	51	58	41	37	34	36
9	37	40	46	76	79	68	53	60	37	36	33	36
10	37	40	48	64	71	63	55	75	36	43	35	38
11	37	39	70	60	69	60	54	68	35	35	35	40
12	37	38	79	58	66	59	52	60	35	27	35	37
13	37	e38	58	56	62	61	50	61	36	28	35	37
14	38	e39	51	54	60	63	53	95	44	40	35	36
15	40	39	50	52	57	62	54	88	51	41	34	40
16	40	41	47	49	55	60	53	72	52	37	36	41
17	39	40	46	49	57	61	50	60	44	35	37	39
18	39	40	48	47	56	80	49	87	39	36	36	36
19	39	40	49	46	53	91	54	79	39	38	35	36
20	39	41	46	56	54	90	53	70	36	38	34	35
21	51	40	45	58	55	91	74	61	35	36	35	34
22	61	40	44	60	54	86	177	51	33	35	34	34
23	60	40	43	60	53	76	184	48	32	36	34	36
24	54	40	46	59	53	70	127	45	34	46	38	36
25	51	40	48	61	52	65	106	42	35	37	36	35
26	50	40	50	59	52	61	87	41	35	39	35	36
27	48	40	49	56	50	70	82	39	34	41	36	44
28	43	40	48	54	50	83	87	39	37	37	42	42
29	42	40	47	53	---	77	189	40	39	36	74	39
30	40	40	47	51	---	73	225	40	36	35	56	38
31	43	---	e46	50	---	76	---	38	---	34	53	---
TOTAL	1294	1197	1469	1783	1642	2249	2482	2037	1137	1133	1155	1186
MEAN	41.7	39.9	47.4	57.5	58.6	72.5	82.7	65.7	37.9	36.5	37.3	39.5
MAX	61	47	79	103	80	100	225	144	52	46	74	61
MIN	36	37	39	45	50	45	49	38	32	27	30	34
(†)	160	140	123	142	109	147	165	170	178	190	185	157
MEAN†	46.9	44.6	51.4	62.1	62.5	77.3	88.2	71.2	43.8	42.7	43.2	44.8
CFSM†	.10	.10	.11	.13	.14	.17	.19	.15	.09	.09	.09	.10
IN.†	.12	.11	.13	.15	.14	.19	.21	.18	.11	.11	.11	.11

CAL YR 2001 MEAN† 173 CFSM† .37 in.† 5.07

WTR YR 2002 MEAN† 56.5 CFSM† .12 in.† 1.66

† Total diversion, equivalent in cubic feet per second, per month, provided by Hanover County Department of Public Utilities.

‡ Adjusted for diversion.

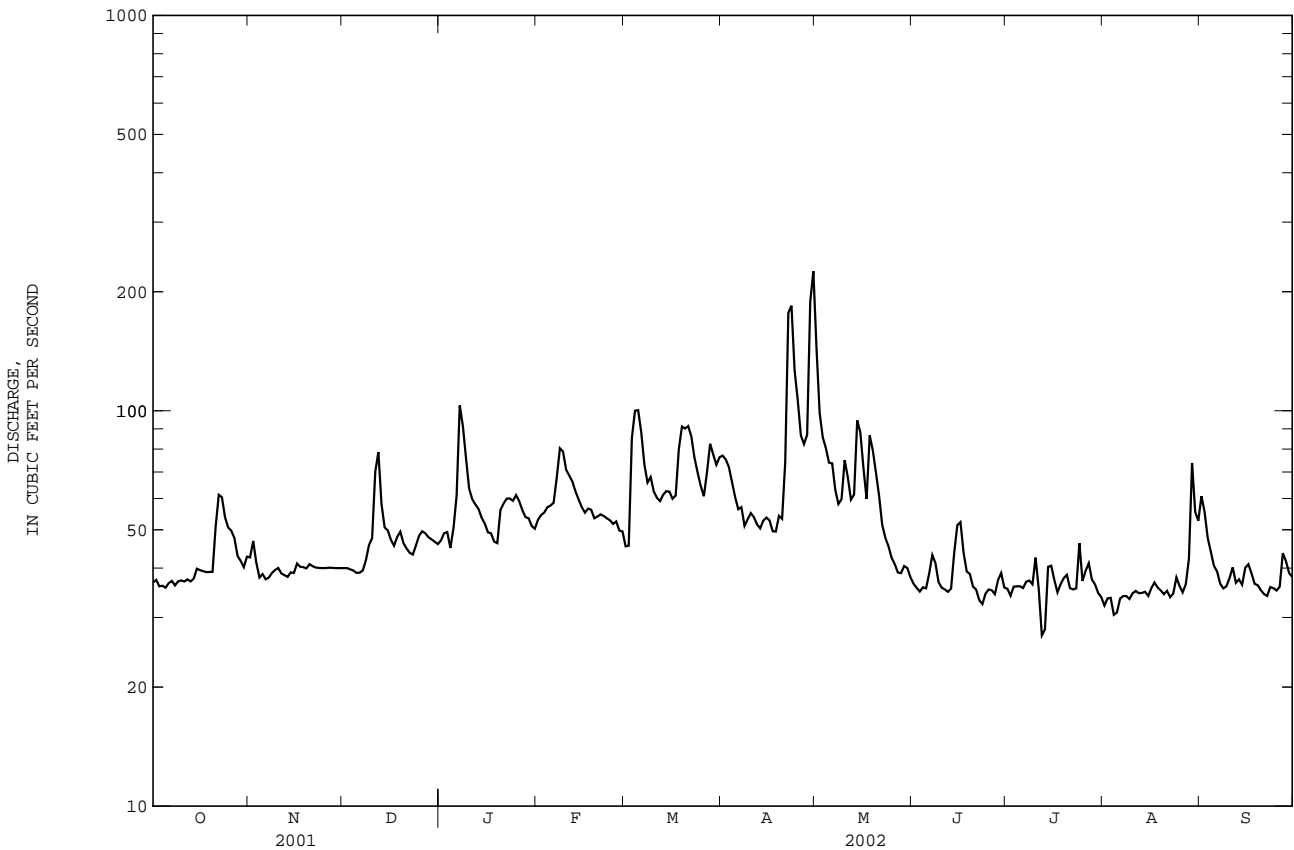
01671020 NORTH ANNA RIVER AT HART CORNER, NEAR DOSWELL, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	200	303	363	515	650	787	623	408	235	153	149	139
MAX	1428	1561	1320	1389	2660	2345	1887	1217	795	591	614	1185
(WY)	1980	1986	1997	1998	1998	1994	1983	1990	1995	1984	1984	1996
MIN	41.7	39.9	47.4	57.5	58.6	72.5	82.7	61.9	37.9	36.5	37.3	39.5
(WY)	2002	2002	2002	2002	2002	2002	2002	1999	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1980 - 2002	
ANNUAL TOTAL	61454		18764			
ANNUAL MEAN	168		51.4		376	
HIGHEST ANNUAL MEAN					731	
LOWEST ANNUAL MEAN					51.4	
HIGHEST DAILY MEAN	3670		Mar 31		10900	
LOWEST DAILY MEAN	36		aOct 3		27	
ANNUAL SEVEN-DAY MINIMUM	36		bOct 2		33	
MAXIMUM PEAK FLOW					245	
MAXIMUM PEAK STAGE					4.22	
INSTANTANEOUS LOW FLOW					25	
ANNUAL RUNOFF (CFSM)	0.36		0.11		0.81	
ANNUAL RUNOFF (INCHES)	4.94		1.51		11.03	
10 PERCENT EXCEEDS	303		76		788	
50 PERCENT EXCEEDS	57		44		128	
90 PERCENT EXCEEDS	39		35		53	

- a Also Oct. 4, 5, 8, 2001.
- b Also Oct. 3, 2001.
- c Also Aug. 1, 2002.
- d Also July 13, 2002.
- e Estimated.



YORK RIVER BASIN

01671100 LITTLE RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°52'22", long 77°30'47", NAD83, Hanover County, Hydrologic Unit 02080106, on left bank at downstream side of bridge on State Highway 685, 0.8 mi southwest of Verdon, 2.9 mi west of Doswell, and 9.6 mi upstream from mouth.

DRAINAGE AREA.--107 mi².

PERIOD OF RECORD.--October 1961 to September 1999, October 2000 to current year.

REVISED RECORDS.--WDR VA-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft NGVD of 1929 (levels by La Prade Bros., Engineers).

REMARKS.--Records good except for period with backwater from beaver dam, Oct. 10-30, which is fair. Maximum discharge, 12,000 ft³/s, from rating curve extended above 7,600 ft³/s on basis of contracted-opening measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	3.0	1.3	6.2	9.5	18	9.7	38	70	5.6	2.2	0.48	113
2	2.8	1.0	6.0	8.9	16	11	37	47	4.2	2.0	0.56	52
3	2.4	1.1	6.1	8.9	15	23	34	36	3.7	1.9	0.64	24
4	2.2	1.2	6.0	8.9	15	44	30	29	3.2	1.8	0.41	15
5	2.3	1.3	5.9	8.9	12	60	27	27	3.1	1.7	0.42	9.5
6	1.7	1.1	5.8	13	11	49	24	26	3.4	1.5	0.51	5.6
7	1.6	1.1	6.1	43	16	37	22	24	3.7	1.2	0.34	3.5
8	1.7	1.5	6.4	50	26	28	20	24	2.5	1.1	0.36	2.4
9	1.4	1.3	7.1	44	32	24	18	23	2.3	1.1	0.34	1.3
10	e1.4	1.2	7.6	38	34	22	18	33	2.1	1.3	0.45	0.93
11	e1.3	1.2	20	31	29	19	18	41	2.2	1.3	0.34	0.90
12	e1.1	1.4	37	27	25	16	16	43	1.9	1.1	0.39	0.68
13	e1.1	1.3	39	23	23	19	16	36	3.0	0.97	0.26	0.81
14	e1.0	1.4	35	20	20	21	18	44	4.4	1.2	0.20	0.56
15	e0.90	1.6	28	18	18	21	18	42	5.1	1.7	0.21	0.56
16	e1.0	1.7	21	16	17	21	17	42	11	1.1	0.21	0.63
17	e0.94	1.7	17	14	15	21	16	35	22	0.95	0.24	0.43
18	e0.85	1.6	19	14	14	31	15	41	14	0.88	0.25	0.33
19	e2.5	1.7	20	14	13	44	14	40	7.5	0.81	0.17	0.35
20	e3.0	1.9	17	19	13	54	16	29	5.1	0.83	0.12	0.36
21	e1.2	2.1	15	25	13	57	17	25	3.9	0.89	0.08	0.45
22	e1.4	2.3	14	30	13	48	58	23	3.4	0.68	0.06	0.57
23	e1.3	2.1	12	35	12	41	131	20	2.7	0.58	0.05	0.39
24	e1.2	4.3	13	34	11	33	149	18	2.4	1.8	0.56	0.32
25	e1.1	3.7	15	34	12	28	101	14	2.4	1.4	0.53	0.24
26	e1.3	3.9	14	30	11	25	64	11	2.2	1.5	0.34	0.41
27	e1.5	4.0	13	26	10	30	43	9.6	2.0	1.5	0.25	0.87
28	e1.4	4.1	13	24	9.9	37	41	8.8	3.1	0.89	1.3	0.75
29	e1.3	4.4	12	23	---	41	68	8.2	4.2	0.93	4.8	0.95
30	e1.6	5.0	11	21	---	37	93	7.3	2.4	0.75	2.7	0.83
31	1.5	---	10	20	---	38	---	6.0	---	0.60	61	---
TOTAL	48.99	63.5	458.2	731.1	473.9	989.7	1197	882.9	138.7	38.16	78.57	238.62
MEAN	1.58	2.12	14.8	23.6	16.9	31.9	39.9	28.5	4.62	1.23	2.53	7.95
MAX	3.0	5.0	39	50	34	60	149	70	22	2.2	61	113
MIN	0.85	1.0	5.8	8.9	9.9	9.7	14	6.0	1.9	0.58	0.05	0.24
CFSM	0.01	0.02	0.14	0.22	0.16	0.30	0.37	0.27	0.04	0.01	0.02	0.07
IN.	0.02	0.02	0.16	0.25	0.16	0.34	0.42	0.31	0.05	0.01	0.03	0.08

01671100 LITTLE RIVER NEAR DOSWELL, VA--Continued

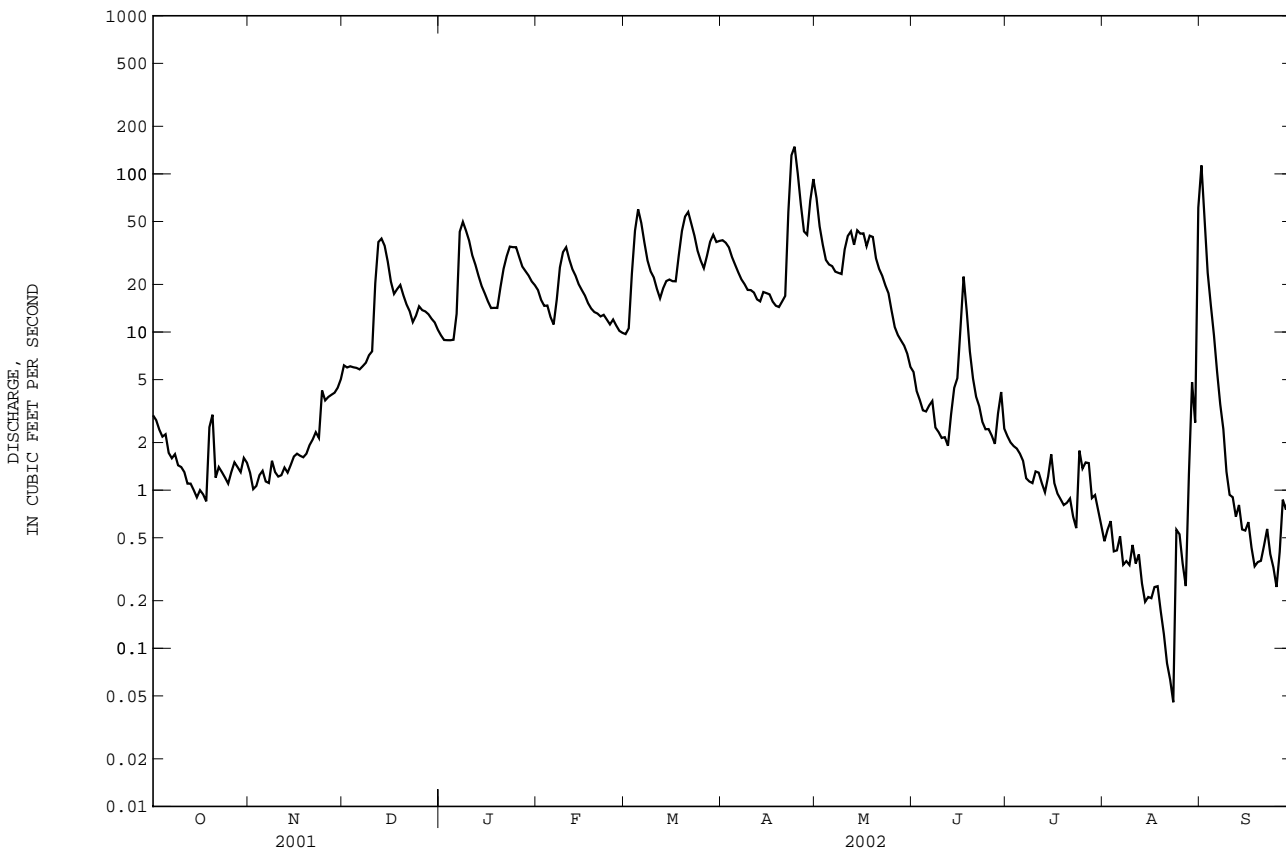
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1999, 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	52.5	71.6	98.9	145	160	191	142	97.4	64.0	37.8	47.0	35.4
MAX	264	340	278	491	590	583	391	311	532	288	653	404
(WY)	1980	1973	1997	1978	1998	1994	1993	1990	1972	1975	1969	1975
MIN	1.03	2.12	14.8	20.5	16.9	31.9	39.9	18.1	4.14	1.23	1.04	0.70
(WY)	1969	2002	2002	1981	2002	2002	2002	1999	1999	2002	1999	1968

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1962 - 1999 2001 - 2002

ANNUAL TOTAL	15301.99		5339.34		94.9		181	
ANNUAL MEAN	41.9		14.6		14.6		1998	
HIGHEST ANNUAL MEAN							2002	
LOWEST ANNUAL MEAN							1969	
HIGHEST DAILY MEAN	972	Mar 31	149	Apr 24	9800	Aug 21	1969	
LOWEST DAILY MEAN	e0.85	Oct 18	0.05	Aug 23	0.05	Aug 23	2002	
ANNUAL SEVEN-DAY MINIMUM	e0.98	Oct 12	0.14	Aug 17	0.14	Aug 17	2002	
MAXIMUM PEAK FLOW			161		12000		Aug 21 1969	
MAXIMUM PEAK STAGE			3.09		11.09		Aug 21 1969	
INSTANTANEOUS LOW FLOW			0.04		0.04		aAug 23 2002	
ANNUAL RUNOFF (CFSM)	0.39		0.14		0.89			
ANNUAL RUNOFF (INCHES)	5.32		1.86		12.05			
10 PERCENT EXCEEDS	87		38		189			
50 PERCENT EXCEEDS	14		7.1		48			
90 PERCENT EXCEEDS	1.6		0.56		5.4			

a Also Aug. 24, 2002.
e Estimated.



YORK RIVER BASIN

01673000 PAMUNKEY RIVER NEAR HANOVER, VA

LOCATION.--Lat 37°46'04", long 77°19'56", NAD83, Hanover County, Hydrologic Unit 02080106, on right bank 100 ft down- stream from bridge on State Highway 614, 0.3 mi upstream from Mechumps Creek, 2.0 mi east of Hanover, and 7.0 mi upstream from Millpond Creek.

DRAINAGE AREA.--1,081 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.72 ft NGVD of 1929. Prior to Oct. 15 1976, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good except those for May 13-18, July 1-12, and Sept. 25-28, which are fair. Some regulation since January 1972 by Lake Anna, capacity, 373,000 acre-ft, and occasional diurnal fluctuation at low flow caused by mill upstream from station. Statistics of monthly mean data and summary statistics for water years 1942 - 1971 (unregulated flow) are available in previous data books, water years 1991 - 1998. Unknown amount of diversion for irrigation upstream from gage. Maximum discharge, 40,300 ft³/s, from rating curve extended above 22,000 ft³/s.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 32.6 ft, from information by local residents.

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	75	65	85	107	153	111	354	528	85	58	48	366
2	73	67	87	92	152	105	311	418	80	55	45	360
3	68	72	83	116	136	180	289	318	75	52	40	250
4	65	67	76	114	130	265	275	264	67	53	36	171
5	62	57	73	106	131	325	251	241	69	51	30	139
6	60	58	69	127	125	390	218	227	68	48	31	109
7	64	59	73	326	162	330	196	212	83	40	35	96
8	59	65	78	329	235	264	179	196	78	41	36	84
9	58	68	84	296	256	222	168	202	73	41	35	79
10	56	68	87	283	248	207	165	574	66	52	31	77
11	57	71	130	246	250	179	157	615	61	51	36	72
12	56	65	242	220	224	165	148	417	59	43	37	65
13	59	60	246	195	208	161	140	323	63	35	33	53
14	57	61	249	174	182	178	133	386	76	36	31	54
15	55	62	229	155	168	187	138	410	82	59	31	53
16	60	63	187	144	161	181	137	336	90	61	32	63
17	56	64	154	136	149	179	135	276	90	53	38	62
18	53	64	158	130	144	241	124	240	96	52	38	59
19	56	65	169	128	135	359	131	331	88	52	34	56
20	56	65	156	177	135	371	180	253	80	50	30	54
21	55	66	139	213	130	396	206	192	69	42	34	54
22	73	65	123	216	134	382	362	184	64	29	35	51
23	81	65	114	225	127	343	667	169	62	24	34	49
24	79	67	120	231	127	300	993	146	65	35	37	47
25	73	69	131	232	124	264	710	130	66	49	44	43
26	68	79	133	233	119	242	493	122	62	51	37	49
27	70	75	127	218	123	271	372	110	58	64	38	58
28	68	79	126	198	111	270	330	103	61	64	53	59
29	65	81	121	182	---	271	374	97	67	61	157	55
30	69	80	116	171	---	271	444	95	64	61	1820	57
31	70	---	106	157	---	329	---	91	---	53	767	---
TOTAL	1976	2012	4071	5877	4479	7939	8780	8206	2167	1516	3763	2844
MEAN	63.7	67.1	131	190	160	256	293	265	72.2	48.9	121	94.8
MAX	81	81	249	329	256	396	993	615	96	64	1820	366
MIN	53	57	69	92	111	105	124	91	58	24	30	43
CFSM	0.06	0.06	0.12	0.18	0.15	0.24	0.27	0.24	0.07	0.05	0.11	0.09
IN.	0.07	0.07	0.14	0.20	0.15	0.27	0.30	0.28	0.07	0.05	0.13	0.10

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

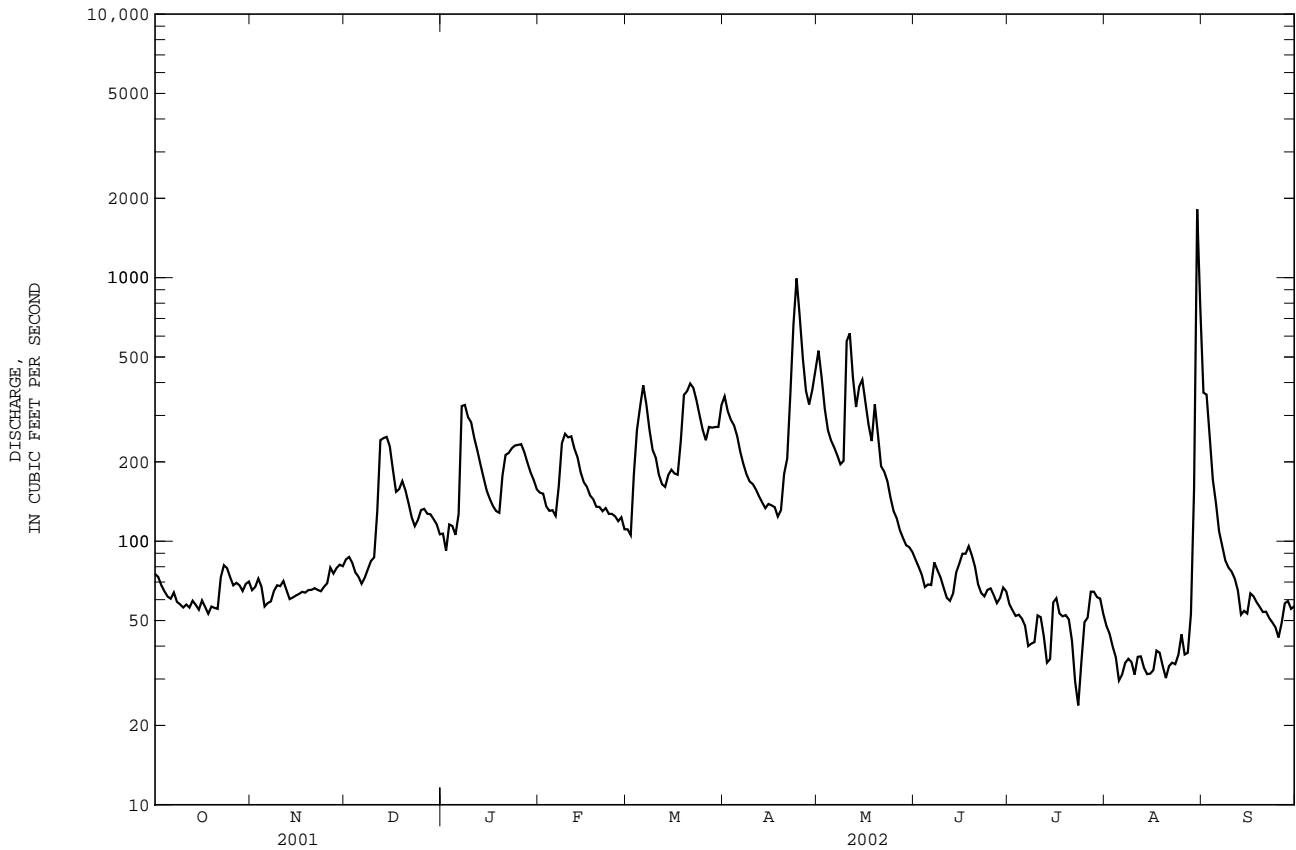
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	667	796	1197	1580	1745	1996	1697	1100	759	498	410	486
MAX	3461	3505	3450	4334	7118	5430	5009	2821	4293	2747	2025	2939
(WY)	1980	1986	1997	1978	1998	1994	1984	1978	1972	1975	1985	1975
MIN	63.7	67.1	131	190	160	248	293	197	72.2	48.9	89.5	60.2
(WY)	2002	2002	2002	2002	2002	1981	2002	1999	2002	2002	1999	1998

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1972 - 2002

ANNUAL TOTAL	182453	53630	
ANNUAL MEAN	500	147	1074
HIGHEST ANNUAL MEAN			1859 1998
LOWEST ANNUAL MEAN			147 2002
HIGHEST DAILY MEAN	8260	Apr 1	1820 Aug 30 25000 Jun 23 1972
LOWEST DAILY MEAN	53	Oct 18	24 Jul 23 24 Jul 23 2002
ANNUAL SEVEN-DAY MINIMUM	56	Oct 15	33 Aug 10 33 Aug 10 2002
MAXIMUM PEAK FLOW			2050 Aug 30 a29900 Jun 23 1972
MAXIMUM PEAK STAGE			10.44 Aug 30 a29.22 Jun 23 1972
INSTANTANEOUS LOW FLOW			20 Jul 23 b20 Jul 23 2002
ANNUAL RUNOFF (CFSM)	0.46	0.14	0.99
ANNUAL RUNOFF (INCHES)	6.28	1.85	13.50
10 PERCENT EXCEEDS	1010	314	2480
50 PERCENT EXCEEDS	191	91	559
90 PERCENT EXCEEDS	64	45	110

a Prior to regulation, 1942-71, maximum peak flow, 40,300 ft³/s, Aug. 23, 1969, gage height, 31.12 ft, from flood marks.
 b Prior to regulation, 1942-71, instantaneous low flow, 12 ft³/s, Sept. 12, 1966.



YORK RIVER BASIN

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1991 to September 1994.

WATER TEMPERATURE: October 1945 to September 1946, April 1968 to January 1976.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE NUMBER (00028)	AGENCY COLLECTING SAMPLE NUMBER (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION) (00300)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	
OCT												
23...	1215	ENVIRONMENTAL	VDCLS	USGS	2.65	100	2.2	773	8.6	82	6.8	246
NOV												
28...	0800	ENVIRONMENTAL	VDCLS	USGS	4.27	365	9.1	759	13.5	110	7.2	129
30...	1200	ENVIRONMENTAL	VDCLS	USGS	3.87	308	5.3	759	12.4	99	6.9	133
DEC												
18...	1045	ENVIRONMENTAL	VDCLS	USGS	9.28	1830	95	760	11.7	94	7.2	79
27...	1145	ENVIRONMENTAL	VDCLS	USGS	--	260	39	761	14.6	100	7.2	151
27...	1200	REPLICATE	VDCLS	USGS	--	260	39	761	14.6	100	7.2	151
JAN												
22...	1030	ENVIRONMENTAL	VDCLS	USGS	11.79	2900	95	760	7.7	56	7.2	69
22...	1045	REPLICATE	VDCLS	USGS	11.79	2900	70	760	7.7	56	7.2	69
29...	0830	ENVIRONMENTAL	VDCLS	USGS	5.15	642	8.4	763	12.6	95	7.2	104
FEB												
20...	0730	ENVIRONMENTAL	VDCLS	USGS	6.24	895	15	764	12.5	98	7.2	97
MAR												
07...	1300	ENVIRONMENTAL	VDCLS	USGS	5.38	688	7.4	750	14.0	115	7.2	106
07...	1305	REPLICATE	USGS	USGS	5.38	692	--	750	14.0	115	7.2	106
23...	1115	ENVIRONMENTAL	VDCLS	USGS	16.47	5520	75	755	10.0	89	6.5	66
APR												
02...	1145	ENVIRONMENTAL	VDCLS	USGS	18.77	7490	34	757	10.8	95	6.7	61
13...	1100	ENVIRONMENTAL	VDCLS	USGS	8.07	1510	21	756	8.6	91	6.2	89
13...	1105	REPLICATE	USGS	USGS	8.07	1520	--	756	8.6	91	6.2	89
24...	0730	ENVIRONMENTAL	VDCLS	USGS	5.07	605	8.1	757	8.0	89	7.2	122
MAY												
22...	0745	ENVIRONMENTAL	VDCLS	USGS	3.89	319	11	753	8.2	87	7.0	161
25...	1015	ENVIRONMENTAL	VDCLS	USGS	5.83	829	19	757	7.7	84	6.6	109
29...	0830	ENVIRONMENTAL	VDCLS	USGS	7.89	1470	27	755	7.5	82	7.2	84
JUN												
08...	0800	ENVIRONMENTAL	VDCLS	USGS	12.95	3460	65	755	8.8	102	7.0	72
18...	0755	BLANK	VDCLS	USGS	--	--	1.3	--	--	--	--	--
18...	0800	ENVIRONMENTAL	VDCLS	USGS	6.43	959	19	765	9.1	107	7.0	101
21...	0845	ENVIRONMENTAL	VDCLS	USGS	3.86	328	7.9	760	7.2	88	7.4	143
JUL												
24...	0900	ENVIRONMENTAL	VDCLS	USGS	2.24	66	4.3	758	6.3	78	7.2	323
31...	1045	ENVIRONMENTAL	VDCLS	USGS	4.09	386	17	762	6.7	76	7.0	143
AUG												
23...	0900	ENVIRONMENTAL	VDCLS	USGS	2.32	75	4.0	758	6.5	78	7.9	177
SEP												
19...	0755	BLANK	VDCLS	USGS	--	--	3.1	--	--	--	--	--
19...	0800	ENVIRONMENTAL	VDCLS	USGS	2.15	58	3.4	760	6.5	69	7.0	384

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, AMMONIA, DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
23...	16.0	14.2	8.63	<3	<3	<3	.001	--	--	.55	.20	.201	.001
NOV													
28...	2.0	6.4	12.2	5	7	<3	.009	--	--	.40	.17	.168	<.002
30...	8.0	5.4	13.9	<3	3	<3	.012	--	--	.39	.15	.152	<.002
DEC													
18...	3.0	5.8	9.29	94	113	19	.030	--	--	.89	.32	.320	<.002
27...	2.0	.1	12.6	94	155	61	.028	--	--	.72	.39	.390	<.002
27...	2.0	.1	12.3	184	203	19	.026	--	--	.76	.39	.387	<.002
JAN													
22...	.0	2.1	9.60	79	93	14	.073	--	--	.74	.31	.317	.003
22...	.0	2.1	17.8	98	115	17	.072	--	--	.76	.31	.312	.002
29...	.0	3.5	10.4	6	8	<3	.026	--	--	.59	.32	.321	<.002
FEB													
20...	1.5	5.2	11.3	7	9	<3	.023	--	--	.41	.30	.300	<.002
MAR													
07...	5.0	6.4	10.4	3	5	<3	.022	--	--	.44	.20	.201	<.002
07...	5.0	6.4	11.1	--	<10	--	.007	.28	.38	.48	--	.197	--
23...	14.0	9.9	8.40	95	111	16	.036	--	--	.98	.20	.196	<.002
APR													
02...	17.0	9.6	8.20	29	35	6	.017	--	--	.69	.26	.257	<.002
13...	20.0	17.6	9.90	22	27	5	.021	--	--	.51	.20	.197	<.002
13...	20.0	17.6	10.6	--	25	--	.016	.30	.48	.49	--	.187	--
24...	18.5	20.2	9.20	8	11	3	.021	--	--	.47	.17	.168	<.002
MAY													
22...	16.0	18.1	9.80	14	19	5	.093	--	--	.77	.39	.398	.005
25...	22.5	19.4	6.28	24	30	6	.046	--	--	.54	.26	.260	.003
29...	17.0	18.9	10.4	20	26	6	.045	--	--	.71	.27	.275	.004
JUN													
08...	20.0	21.9	9.20	61	77	16	.042	--	--	.57	.20	.206	.002
18...	--	--	.500	3	3	3	.008	--	--	.11	M	.004	.002
18...	21.0	23.8	10.9	14	18	4	.040	--	--	.69	.25	.257	.003
21...	22.0	25.1	11.4	3	7	4	.076	--	--	.81	.41	.413	.005
JUL													
24...	29.5	25.6	8.80	<3	3	<3	.103	--	--	1.0	.59	.606	.013
31...	20.5	21.7	9.40	15	19	4	.056	--	--	.68	.33	.336	.002
AUG													
23...	23.0	24.1	9.80	<3	3	<3	.047	--	--	1.0	.58	.603	.018
SEP													
19...	--	--	.100	3	3	3	.004	--	--	.01	.01	.006	.002
19...	17.0	18.7	7.20	<3	<3	<3	.009	--	--	.78	.42	.426	.002

YORK RIVER BASIN

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT								
23...	.090	.067	--	.01	.010	.1	56	4.0
NOV								
28...	.058	.038	--	.07	.031	.6	--	8.3
30...	.054	.035	--	.04	.020	.4	--	6.6
DEC								
18...	.116	.022	--	.69	.113	6.7	86	121
27...	.109	.074	--	.33	.113	3.0	--	125
27...	.136	.074	--	.33	.127	3.3	--	141
JAN								
22...	.037	.012	--	.49	.128	4.3	--	117
22...	.052	.012	--	.51	.129	4.4	--	116
29...	.039	.021	--	.08	.026	.6	--	10
FEB								
20...	.041	.019	--	.08	.030	.5	--	11
MAR								
07...	.032	.031	--	.06	.022	.3	--	10
07...	.07	.025	.06	--	--	--	--	--
23...	.043	.009	--	.23	.079	1.9	--	137
APR								
02...	.030	.011	--	.17	.053	1.2	--	158
13...	.036	.018	--	.16	.041	1.3	--	28
13...	<.06	.013	.06	--	--	--	--	--
24...	.045	.024	--	.07	.022	.6	--	19
MAY								
22...	.086	.069	--	.06	.030	.6	--	13
25...	.046	.030	--	.17	.046	1.7	--	32
29...	.043	.026	--	--	.043	--	--	35
JUN								
08...	.032	.017	--	.25	.077	2.0	--	91
18...	.005	.003	--	.01	.001	M	--	--
18...	.052	.028	--	.10	.029	1.2	--	21
21...	.063	.050	--	.05	.013	.6	--	8.1
JUL								
24...	.111	.091	--	.05	.016	.5	--	9.1
31...	.090	.073	--	.12	.040	.9	--	22
AUG								
23...	.139	.125	--	.05	.021	.4	--	5.2
SEP								
19...	.001	.003	--	.01	.001	.1	--	--
19...	.101	.080	--	.05	--	.7	--	2.3

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT												
15...	0830	ENVIRONMENTAL	VDCLS	USGS	2.20	54	3.8	760	6.1	64	6.9	401
NOV												
26...	0945	ENVIRONMENTAL	VDCLS	USGS	2.57	84	1.9	760	9.1	86	7.5	314
DEC												
13...	1055	BLANK	VDCLS	USGS	--	--	.20	--	--	--	--	--
13...	1100	ENVIRONMENTAL	VDCLS	USGS	3.55	246	2.9	759	9.6	85	6.8	181
20...	0940	ENVIRONMENTAL	VDCLS	USGS	3.07	157	5.1	752	10.2	85	7.0	203
20...	0955	REPLICATE	VDCLS	USGS	3.06	156	4.8	752	10.2	85	7.0	203
JAN												
08...	1045	ENVIRONMENTAL	VDCLS	USGS	4.04	339	11	756	13.8	97	7.0	198
23...	1030	ENVIRONMENTAL	VDCLS	USGS	3.45	227	4.7	765	11.9	91	7.0	195
FEB												
25...	0945	ENVIRONMENTAL	VDCLS	USGS	2.86	124	2.0	765	13.8	111	6.9	242
MAR												
05...	1400	ENVIRONMENTAL	VDCLS	USGS	3.96	324	5.7	766	13.2	108	7.1	170
25...	0730	ENVIRONMENTAL	VDCLS	USGS	3.68	270	4.1	760	10.1	90	7.0	174
25...	0735	REPLICATE	USGS	USGS	3.68	270	--	760	10.1	90	7.0	174
APR												
16...	1330	ENVIRONMENTAL	VDCLS	USGS	2.93	135	4.4	760	9.7	116	7.4	223
23...	0800	ENVIRONMENTAL	VDCLS	USGS	5.44	644	28	760	10.2	104	7.0	135
MAY												
13...	0830	ENVIRONMENTAL	VDCLS	USGS	3.97	322	13	754	7.2	83	6.5	139
31...	0745	ENVIRONMENTAL	VDCLS	USGS	2.47	91	4.0	755	7.3	86	7.2	272
JUN												
19...	0800	ENVIRONMENTAL	VDCLS	USGS	2.44	88	5.5	765	6.1	70	6.4	287
JUL												
19...	1000	ENVIRONMENTAL	VDCLS	USGS	2.10	53	2.4	730	4.8	64	6.6	403
AUG												
27...	0800	ENVIRONMENTAL	VDCLS	USGS	1.99	39	1.5	758	4.5	55	6.7	527
30...	0845	ENVIRONMENTAL	VDCLS	USGS	10.04	1930	230	765	6.3	69	5.7	55
SEP												
25...	1100	ENVIRONMENTAL	VDCLS	USGS	1.98	42	1.7	763	8.3	91	7.5	333

YORK RIVER BASIN

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
15...	11.0	17.4	4.40	<3	3	<3	.017	--	--	.65	.17	.166	<.002
NOV													
26...	19.0	12.5	4.60	<3	3	<3	.006	--	--	.52	.14	.141	<.002
DEC													
13...	--	--	.100	<3	<3	<3	.006	--	--	.30	.01	.010	<.002
13...	13.0	9.7	12.0	9	13	4	.031	--	--	.52	.22	.216	<.002
20...	5.0	7.0	15.2	<3	3	<3	.020	--	--	.52	.20	.203	<.002
20...	5.0	7.0	11.6	<3	<3	<3	.020	--	--	.50	.20	.202	<.002
JAN													
08...	.0	.7	11.2	7	10	3	.061	--	--	.77	.41	.416	<.002
23...	7.5	4.2	9.40	<3	<3	<3	.014	--	--	.57	.26	.264	<.002
FEB													
25...	5.5	5.9	7.20	<3	<3	<3	.006	--	--	.52	.16	.166	.003
MAR													
05...	8.0	6.9	9.00	5	7	<3	.010	--	--	.47	.19	.195	.002
25...	10.5	10.3	11.4	<3	3	<3	.018	--	--	.54	.17	.171	<.002
25...	10.5	10.3	10.8	--	<10	<10	.016	.31	.39	.49	--	.175	--
APR													
16...	30.5	23.8	2.80	5	7	<3	.018	--	--	.47	.09	.090	<.002
23...	9.0	16.3	9.70	33	42	9	.094	--	--	.72	.26	.261	.006
MAY													
13...	23.5	21.7	11.4	10	13	<3	.146	--	--	.86	.34	.345	.010
31...	18.0	23.1	7.40	4	6	<3	.016	--	--	.59	.20	.197	<.002
JUN													
19...	20.5	23.0	9.20	4	5	<3	.054	--	--	.80	.43	.434	.003
JUL													
19...	26.5	27.5	10.2	<3	<3	<3	.033	--	--	.74	.32	.326	.004
AUG													
27...	--	24.7	9.20	<3	<3	<3	.024	--	--	.72	.30	.300	.004
30...	27.0	19.9	6.90	262	302	40	.087	--	--	.94	.48	.490	.008
SEP													
25...	24.0	19.9	7.20	<3	<3	<3	.013	--	--	.80	.55	.551	.005

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL (MG/L AS N) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL (MG/L AS P) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT								
15...	.115	.096	--	.09	.020	.6	--	4.0
NOV								
26...	.138	.102	--	.04	.020	.4	--	6.5
DEC								
13...	.012	.002	--	.06	.002	.3	--	--
13...	.096	.091	--	.20	.061	1.4	--	13
20...	.122	.086	--	.04	.019	.5	--	5.1
20...	.110	.084	--	.04	.020	.4	--	--
JAN								
08...	.075	.064	--	--	.067	--	--	12
23...	.105	.067	--	.03	.030	.3	--	3.3
FEB								
25...	.090	.078	--	.03	.008	.3	71	2.0
MAR								
05...	.081	.072	--	.09	.021	.7	--	8.5
25...	.084	.051	--	.05	.007	.5	--	5.2
25...	E.06	.053	.08	--	--	--	--	--
APR								
16...	.104	.078	--	.10	.019	.8	57	11
23...	.071	.059	--	.29	.088	2.5	87	46
MAY								
13...	.118	.081	--	.08	--	.8	91	15
31...	.131	.074	--	.07	.024	.5	--	5.2
JUN								
19...	.143	.151	--	.05	.020	.5	--	6.4
JUL								
19...	.196	.196	--	.03	.014	.2	--	3.8
AUG								
27...	.198	.194	--	.03	.011	.2	--	1.6
30...	.058	.020	--	1.3	.375	11.6	83	354
SEP								
25...	.173	.170	--	.04	.012	.2	--	1.4

YORK RIVER BASIN

01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA

LOCATION.--Lat 37°39'46", long 77°15'28", NAD83, Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 606, 2.0 mi southeast of Studley, 2.4 mi downstream from Hawes millrace, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--26.2 mi².

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 38.36 ft NGVD of 1929.

REMARKS.--Records good except those for period with backwater from beaver dam, Oct. 29 to Dec. 4, period with ice effect, Dec. 31 to Jan. 4, and period of doubtful gage-height record, June 27 to Aug. 30, which are fair. Maximum discharge, 1,620 ft³/s, from rating curve extended above 783 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 160 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	2.5	e2.9	e6.1	e6.3	9.2	6.7	21	9.9	2.4	e0.55	e0.50	18
2	2.4	e3.0	e5.9	e5.9	8.5	7.5	17	8.3	1.9	e0.36	e0.36	40
3	2.4	e3.2	e5.7	e7.1	8.2	21	14	8.3	1.2	e0.22	e0.25	25
4	2.0	e3.1	e5.6	e6.9	9.1	22	12	7.5	1.4	e0.25	e0.15	12
5	1.6	e2.8	5.5	13	9.1	13	12	9.5	0.72	e0.15	e0.07	6.4
6	2.4	e2.6	5.5	19	8.9	10	12	11	1.1	e0.11	e0.01	4.2
7	3.2	e2.4	5.8	55	18	9.1	11	11	4.2	e0.07	e0.00	2.3
8	3.0	e2.7	5.9	31	27	8.6	10	22	5.6	e0.06	e0.00	1.1
9	3.2	e3.4	6.2	18	17	8.3	9.9	33	4.6	e0.04	e0.00	0.77
10	2.8	e3.3	6.4	15	13	8.0	10	83	2.9	e0.03	e0.00	0.58
11	2.5	e3.1	16	13	12	7.1	9.6	58	1.4	e0.02	e0.00	0.50
12	2.7	e3.0	23	12	10	7.1	9.4	20	0.75	e0.01	e0.00	0.35
13	2.8	e2.9	15	11	9.5	7.8	9.4	15	0.68	e0.00	e0.00	0.20
14	3.2	e3.1	11	9.5	8.8	8.3	9.3	21	3.5	e0.00	e0.00	0.20
15	4.3	e3.4	8.6	8.8	8.7	8.1	9.1	24	8.6	e0.00	e0.00	0.21
16	3.4	e3.8	7.3	8.9	8.5	7.7	9.3	14	12	e0.00	e0.00	0.81
17	3.1	e3.5	6.9	8.5	8.5	10	9.1	10	11	e0.00	e0.00	1.3
18	2.5	e3.3	14	8.9	8.1	23	8.2	19	5.8	e0.00	e0.00	0.94
19	2.2	e3.6	14	11	8.0	27	9.8	39	3.2	e0.00	e0.00	0.95
20	3.4	e3.8	11	25	7.8	19	11	21	1.7	e0.00	e0.00	0.91
21	2.4	e3.6	8.7	25	8.3	17	11	13	0.85	e0.00	e0.00	0.69
22	2.1	e4.0	7.6	18	7.9	15	21	10	0.60	e0.00	e0.00	0.46
23	3.3	e4.6	7.3	15	7.6	11	29	8.8	0.47	e0.00	e0.00	0.32
24	3.0	e5.5	9.8	14	7.3	9.8	15	8.0	0.37	e0.00	e0.00	0.21
25	3.2	e6.6	12	15	7.2	9.2	13	7.1	0.32	e0.00	e0.00	0.17
26	3.0	e7.5	10	14	7.2	9.2	13	8.4	0.26	e0.02	e0.00	0.51
27	2.2	e7.0	8.6	13	7.1	30	12	5.9	e0.70	e0.14	e0.00	2.6
28	2.1	e6.8	7.9	12	6.9	33	16	4.5	e2.0	e1.1	e0.00	2.7
29	e2.3	e6.5	7.7	11	---	17	21	3.9	e1.5	e1.4	e0.04	2.2
30	e2.4	e6.2	7.3	10	---	14	15	3.5	e0.90	e1.0	e12	1.6
31	e2.7	---	e6.8	9.1	---	16	---	3.1	---	e0.70	16	---
TOTAL	84.3	121.2	279.1	449.9	277.4	420.5	389.1	520.7	82.62	6.23	29.38	128.18
MEAN	2.72	4.04	9.00	14.5	9.91	13.6	13.0	16.8	2.75	0.20	0.95	4.27
MAX	4.3	7.5	23	55	27	33	29	83	12	1.4	16	40
MIN	1.6	2.4	5.5	5.9	6.9	6.7	8.2	3.1	0.26	0.00	0.00	0.17
CFSM	0.10	0.15	0.34	0.55	0.38	0.52	0.50	0.64	0.11	0.01	0.04	0.16
IN.	0.12	0.17	0.40	0.64	0.39	0.60	0.55	0.74	0.12	0.01	0.04	0.18

01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA--Continued

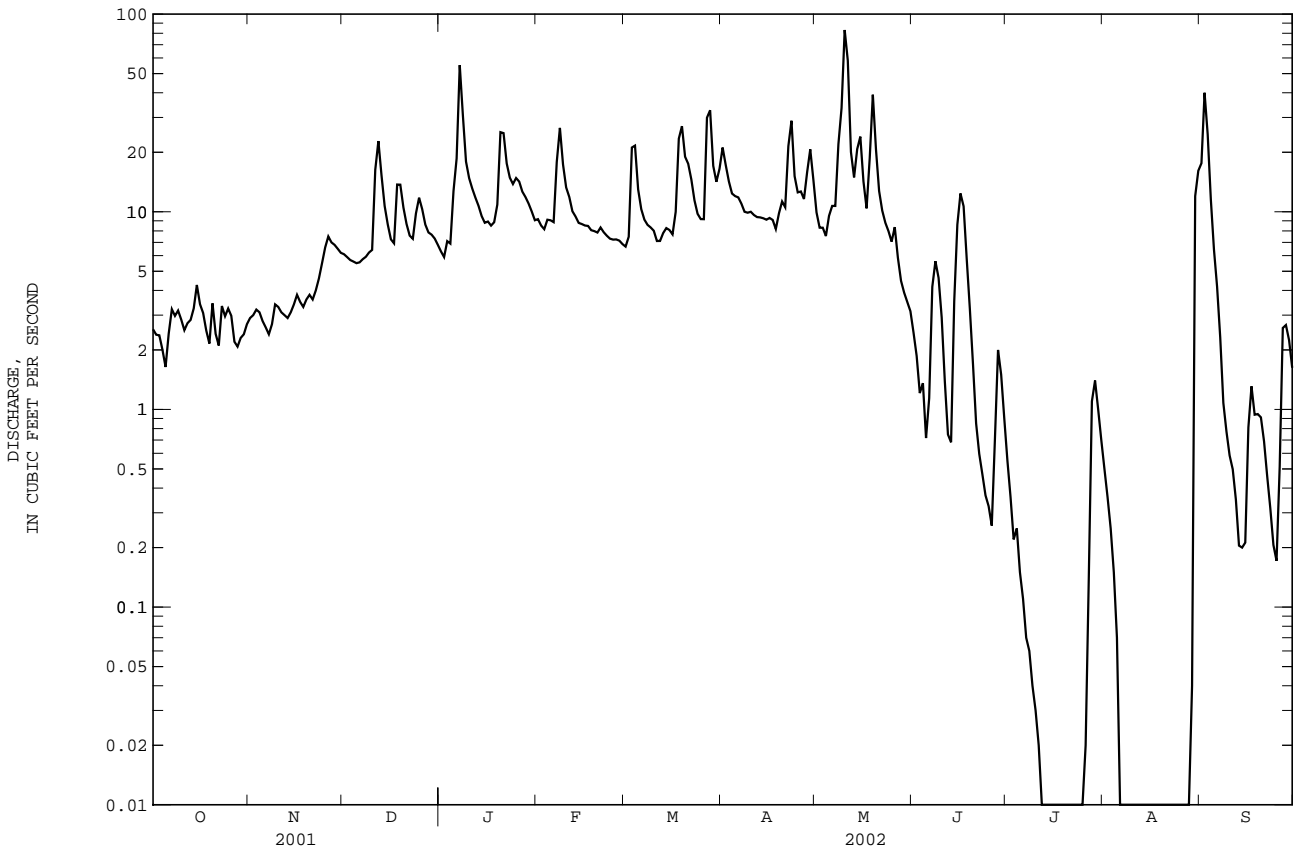
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	13.7	21.7	24.4	34.1	36.3	47.8	39.9	27.7	17.1	12.0	13.6	13.3
MAX	54.0	80.8	56.0	114	103	127	106	68.4	43.2	25.8	49.7	103
(WY)	1980	1986	1997	1978	1998	1984	1984	1978	1979	1998	1985	1999
MIN	2.72	4.04	9.00	10.3	9.91	12.7	12.3	8.46	2.75	0.20	0.92	1.18
(WY)	2002	2002	2002	1981	2002	1981	1985	1985	2002	2002	1995	1997

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1978 - 2002

ANNUAL TOTAL	5747.74		2788.61		25.1		1984	
ANNUAL MEAN	15.7		7.64		7.64		2002	
HIGHEST ANNUAL MEAN					45.1		1984	
LOWEST ANNUAL MEAN					7.64		2002	
HIGHEST DAILY MEAN	286	Aug 13	83	May 10	913	Sep 16	1999	
LOWEST DAILY MEAN	0.53	Jul 18	e0.00	aJul 13	e0.00	aJul 13	2002	
ANNUAL SEVEN-DAY MINIMUM	0.84	Jul 12	e0.00	bJul 13	e0.00	bJul 13	2002	
MAXIMUM PEAK FLOW			121		1620		Sep 16 1999	
MAXIMUM PEAK STAGE			4.35		9.46		Sep 16 1999	
INSTANTANEOUS LOW FLOW			c0.00		c0.00		dJul 13 2002	
ANNUAL RUNOFF (CFSM)	0.60		0.29		0.96			
ANNUAL RUNOFF (INCHES)	8.16		3.96		13.01			
10 PERCENT EXCEEDS	28		17		50			
50 PERCENT EXCEEDS	9.2		6.2		16			
90 PERCENT EXCEEDS	2.4		0.01		3.8			

- a Also July 14-25 and Aug. 7-28, 2002.
- b Also July 14-19 and Aug. 7-22, 2002.
- c Observed.
- d Probably no flow part or all of each day July 13-25 and Aug. 7-28, 2002.
- e Estimated.



YORK RIVER BASIN

01673638 COHOKE MILL CREEK NEAR LESTER MANOR, VA

LOCATION.--Lat 37°37'36," long 76°57'46", NAD83, King William County, Hydrologic unit 02080106, on right bank at downstream side of culvert on State Highway 626, 3.2 mi northeast of Lester Manor and 4.7 mi above mouth.

DRAINAGE AREA.--9.07 mi².

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

GAGE.--Water stage recorder. Elevation of gage is 40 ft NGVD of 1929, from topographic map.

REMARKS.--Records poor due to backwater from beaver dams.

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	2.9	2.2	3.5	2.8	4.7	2.8	13	5.4	0.00	0.00	0.00	0.00
2	2.9	2.4	3.5	2.6	4.3	3.1	7.7	4.8	0.00	0.00	0.00	0.00
3	3.0	2.4	3.2	3.1	3.5	5.9	6.1	6.0	0.00	0.00	0.00	0.00
4	2.9	2.5	3.7	3.3	3.3	5.6	7.2	5.3	0.00	0.00	0.00	0.00
5	2.9	2.5	3.4	3.3	3.3	4.7	4.8	6.5	0.00	0.00	0.00	0.00
6	3.2	2.6	3.4	6.8	3.0	3.4	3.3	6.4	0.03	0.00	0.00	0.00
7	3.6	2.7	3.7	12	7.1	2.7	2.4	6.1	0.38	0.00	0.00	0.00
8	3.7	2.8	4.0	9.0	8.2	2.3	2.3	12	0.02	0.00	0.00	0.00
9	3.4	2.7	4.1	6.7	7.1	2.1	2.0	9.9	0.00	0.00	0.00	0.00
10	3.5	2.9	3.6	6.2	6.2	2.5	2.3	16	0.00	0.00	0.00	0.00
11	3.5	3.0	7.1	5.9	6.3	2.3	2.0	9.9	0.00	0.00	0.00	0.00
12	3.3	2.8	7.3	5.4	5.6	2.2	1.5	7.0	0.00	0.00	0.00	0.00
13	3.1	2.7	5.8	5.9	4.9	2.5	1.8	6.0	0.00	0.00	0.00	0.00
14	3.1	2.7	4.9	5.1	4.7	2.4	1.7	9.0	0.00	0.00	0.00	0.00
15	3.5	2.9	4.1	4.8	4.6	1.8	1.8	6.6	0.06	0.00	0.00	0.00
16	3.9	3.2	3.3	4.5	4.7	1.7	1.9	4.7	0.02	0.00	0.00	0.00
17	3.7	3.2	3.3	4.3	4.0	2.6	1.9	2.5	0.00	0.00	0.00	0.00
18	3.6	3.1	6.9	4.3	3.8	6.0	2.0	5.8	0.00	0.00	0.00	0.00
19	3.6	3.0	6.1	5.7	3.9	5.1	3.3	5.7	0.00	0.00	e0.00	0.00
20	3.8	2.9	5.6	9.8	4.0	4.8	3.6	3.0	0.00	0.00	e0.00	0.00
21	3.6	2.5	3.9	8.7	4.2	4.6	3.6	2.1	0.00	0.00	e0.00	0.00
22	3.5	2.4	3.5	7.6	4.0	3.3	8.2	1.4	0.00	0.00	e0.00	0.00
23	3.3	2.4	3.5	6.7	3.9	2.4	6.6	1.4	0.00	0.00	e0.00	0.00
24	3.3	2.8	4.4	6.5	3.9	1.5	4.3	0.82	0.00	0.00	e0.00	0.00
25	3.1	3.8	4.3	7.4	3.7	1.3	5.3	0.28	0.00	0.00	e0.00	0.00
26	2.4	3.7	3.9	6.4	3.7	1.2	5.9	0.11	0.00	0.00	e0.00	0.00
27	2.3	3.7	3.4	5.4	3.2	5.5	5.0	0.06	0.00	0.00	e0.00	0.00
28	2.3	3.6	3.4	5.0	3.1	3.6	9.2	0.02	0.00	0.00	e0.00	0.00
29	2.4	3.4	3.4	5.1	---	1.9	8.3	0.01	0.00	0.00	e0.00	0.00
30	2.3	3.5	3.0	4.2	---	1.3	6.3	0.01	0.00	0.00	0.00	0.00
31	2.1	---	2.7	4.3	---	4.4	---	0.01	---	0.00	0.00	---
TOTAL	97.7	87.0	129.9	178.8	126.9	97.5	135.3	144.82	0.51	0.00	0.00	0.00
MEAN	3.15	2.90	4.19	5.77	4.53	3.15	4.51	4.67	0.017	0.000	0.000	0.000
MAX	3.9	3.8	7.3	12	8.2	6.0	13	16	0.38	0.00	0.00	0.00
MIN	2.1	2.2	2.7	2.6	3.0	1.2	1.5	0.01	0.00	0.00	0.00	0.00
CFSM	0.35	0.32	0.46	0.64	0.50	0.35	0.50	0.52	0.00	0.00	0.00	0.00
IN.	0.40	0.36	0.53	0.73	0.52	0.40	0.55	0.59	0.00	0.00	0.00	0.00

01673638 COHOKE MILL CREEK NEAR LESTER MANOR, VA--Continued

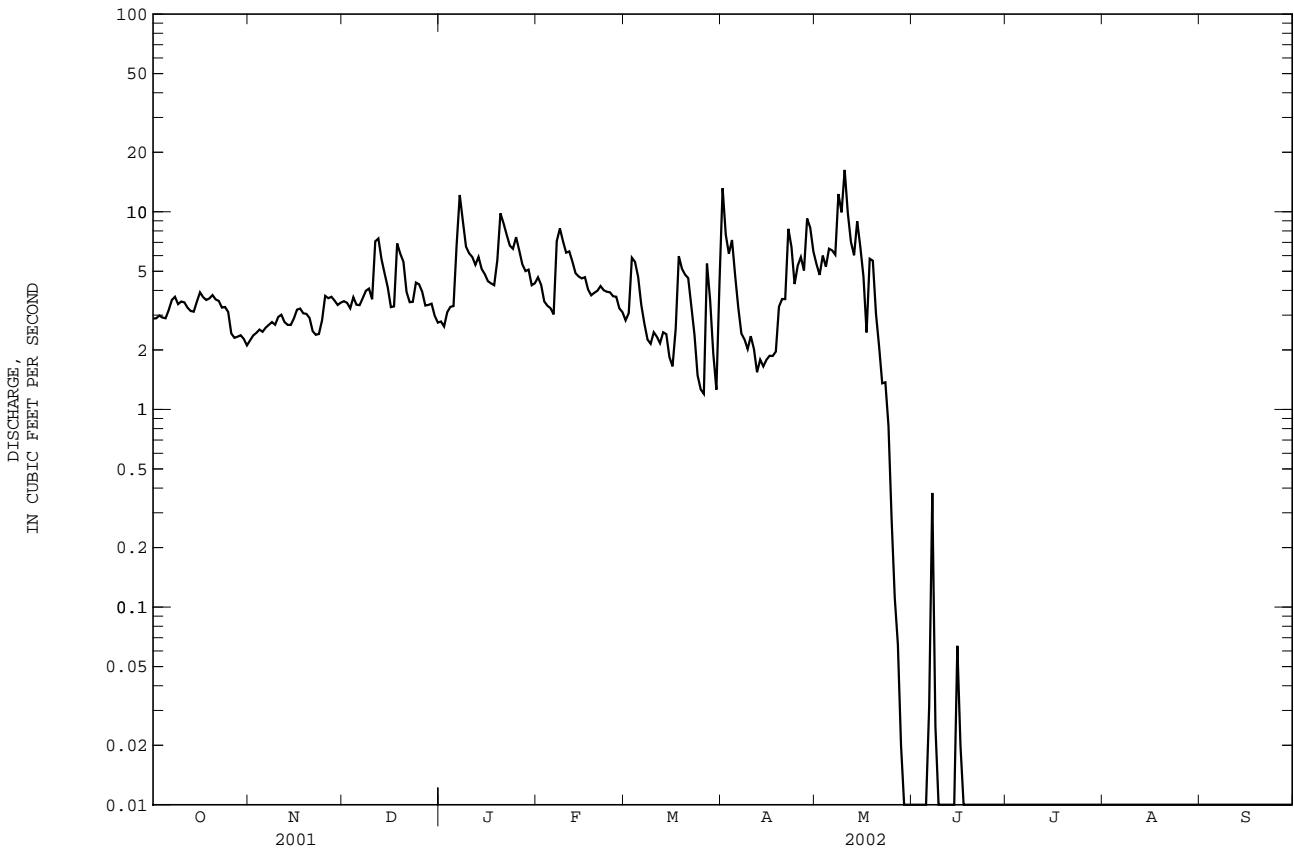
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.95	4.57	5.69	7.42	6.76	8.68	7.19	4.84	3.38	2.76	4.17	8.19
MAX	5.75	6.73	7.23	10.8	8.95	13.0	9.20	7.17	6.39	7.29	8.85	20.2
(WY)	2001	2001	2001	1999	2000	1999	2001	2000	2000	2000	2000	1999
MIN	1.68	2.90	4.19	5.77	4.53	3.15	4.51	3.46	0.017	0.000	0.000	0.000
(WY)	1999	2002	2002	2002	2002	2002	2002	1999	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1999 - 2002

ANNUAL TOTAL	2025.3		998.43			
ANNUAL MEAN	5.55		2.74		5.62	
HIGHEST ANNUAL MEAN					7.24	
LOWEST ANNUAL MEAN					2.74	
HIGHEST DAILY MEAN	41	Aug 13	16	May 10	415	Sep 16 1999
LOWEST DAILY MEAN	1.0	aJul 18	0.00	bJun 1	0.00	bJun 1 2002
ANNUAL SEVEN-DAY MINIMUM	1.1	Jul 18	0.00	Jun 17	0.00	Jun 17 2002
MAXIMUM PEAK FLOW			19	May 10	1430	Sep 16 1999
MAXIMUM PEAK STAGE			5.30	May 10	c10.30	Sep 16 1999
INSTANTANEOUS LOW FLOW			0.00	dMay 29	0.00	dMay 29 2002
ANNUAL RUNOFF (CFSM)	0.61		0.30		0.62	
ANNUAL RUNOFF (INCHES)	8.31		4.09		8.42	
10 PERCENT EXCEEDS	10		6.2		10	
50 PERCENT EXCEEDS	3.8		2.7		4.6	
90 PERCENT EXCEEDS	2.4		0.00		0.20	

- a Also July 20, 24, 2001.
- b Also June 2-5, 9-14 and June 17 to Sept. 30 2002.
- c From floodmarks.
- d No flow part or all of many days in May to September 2002.
- e Estimated.



YORK RIVER BASIN

01673800 PO RIVER NEAR SPOTSYLVANIA, VA

LOCATION.--Lat 38°10'17", long 77°35'41", NAD83, Spotsylvania County, Hydrologic Unit 02080105, on right bank at upstream side of bridge on State Highway 208, 1.6 mi north of Snell, 2.0 mi south of Spotsylvania, 4.8 mi downstream from Gladys Run, and 4.9 mi upstream from U.S. Highway 1.

DRAINAGE AREA.--77.4 mi².

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.76 ft above sea level. Prior to Sep. 30, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with backwater from leaves, Oct. 14 to Nov. 5, which is fair. Maximum discharge, 10,900 ft³/s, from rating curve extended above 3,400 ft³/s. Maximum discharge, 10,900 ft³/s, from rating curve extended above 3,400 ft³/s. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	0.61	e1.8	4.2	6.3	8.3	5.4	24	58	3.1	0.28	0.05	1.8
2	0.68	e2.0	3.2	5.6	8.6	5.7	27	41	2.3	0.19	0.05	1.3
3	0.90	e1.9	3.7	5.4	7.6	58	22	32	1.9	0.18	0.04	0.69
4	0.70	e1.7	2.9	5.6	6.7	85	18	26	2.1	0.18	0.04	0.32
5	0.39	e1.6	2.3	6.8	6.0	37	15	25	2.5	0.17	0.03	0.18
6	0.65	1.2	2.5	11	5.7	23	12	31	1.9	0.16	0.03	0.15
7	0.67	0.74	2.8	37	10	18	9.8	26	1.6	0.13	0.02	0.13
8	0.84	0.53	3.3	35	24	14	8.6	23	1.3	0.12	0.02	0.12
9	0.94	0.59	4.6	23	22	12	8.5	21	1.1	0.12	0.01	0.11
10	0.99	0.83	6.2	17	17	12	9.3	21	1.3	0.10	0.01	0.10
11	0.75	1.2	20	16	14	10	16	25	1.5	0.09	0.01	0.10
12	0.68	1.3	35	15	12	9.4	15	19	1.2	0.08	0.01	0.09
13	0.69	1.5	22	14	9.9	11	13	16	1.2	0.07	0.01	0.08
14	e0.74	1.5	14	12	8.5	16	12	15	9.4	0.09	0.01	0.08
15	e0.90	1.5	11	10	7.6	17	13	12	19	0.09	0.01	0.08
16	e0.80	1.6	8.4	9.6	7.5	15	12	9.4	16	0.10	0.01	0.11
17	e0.85	1.5	6.9	8.7	7.8	14	10	7.4	8.3	0.09	0.01	0.11
18	e0.90	1.8	8.1	8.2	7.3	24	10	11	4.6	0.09	0.01	0.09
19	e0.95	2.0	12	8.5	6.6	49	87	99	2.9	0.08	0.01	0.07
20	e1.0	2.2	13	12	6.7	40	63	35	2.2	0.08	0.00	0.07
21	e1.1	2.2	11	15	6.6	42	49	20	1.9	0.07	0.00	0.06
22	e1.2	2.2	8.4	19	6.7	36	114	13	1.9	0.06	0.00	0.05
23	e1.3	2.4	7.2	20	6.6	25	142	10	1.8	0.05	0.00	0.04
24	e1.0	2.3	9.6	19	6.3	19	55	8.8	1.4	0.07	0.00	0.04
25	e1.1	2.9	13	19	5.9	16	36	7.5	1.3	0.05	0.00	0.04
26	e1.2	2.5	12	17	5.9	15	29	6.7	1.0	0.07	0.00	0.06
27	e1.5	7.4	10	14	5.9	38	23	5.5	0.78	0.08	0.00	0.10
28	e1.6	9.6	9.2	12	5.7	67	147	4.9	0.60	0.08	7.4	0.10
29	e2.0	6.3	8.2	11	---	33	519	5.0	0.66	0.08	23	0.09
30	e2.0	4.7	7.7	10	---	23	117	5.0	0.37	0.07	8.0	0.09
31	e2.0	---	7.1	9.5	---	19	---	3.7	---	0.05	3.0	---
TOTAL	31.63	71.49	289.5	432.2	253.4	808.5	1636.2	642.9	97.11	3.22	41.79	6.45
MEAN	1.02	2.38	9.34	13.9	9.05	26.1	54.5	20.7	3.24	0.10	1.35	0.21
MAX	2.0	9.6	35	37	24	85	519	99	19	0.28	23	1.8
MIN	0.39	0.53	2.3	5.4	5.7	5.4	8.5	3.7	0.37	0.05	0.00	0.04
CFSM	0.01	0.03	0.12	0.18	0.12	0.34	0.70	0.27	0.04	0.00	0.02	0.00
IN.	0.02	0.03	0.14	0.21	0.12	0.39	0.79	0.31	0.05	0.00	0.02	0.00

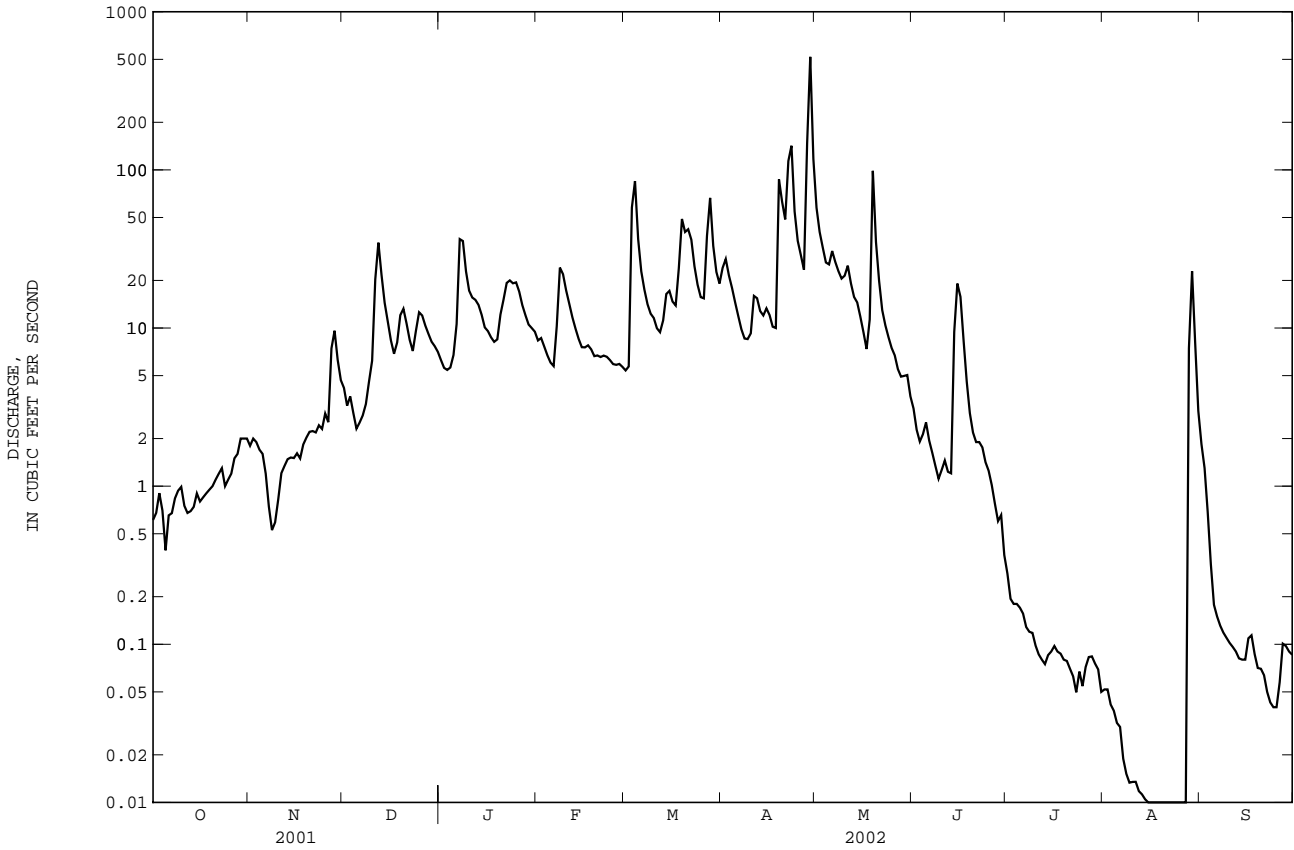
01673800 PO RIVER NEAR SPOTSYLVANIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	41.3	61.1	81.3	113	130	151	112	73.4	50.8	28.3	23.5	24.8
MAX	275	278	210	326	560	566	397	221	490	145	207	268
(WY)	1980	1994	1997	1978	1998	1994	1983	1972	1972	1984	1969	1975
MIN	0.24	0.85	5.90	10.4	9.05	25.2	27.1	8.63	1.67	0.10	0.25	0.21
(WY)	1992	1992	1999	1981	2002	1981	1981	1999	1999	2002	1963	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1963 - 2002
ANNUAL TOTAL	11960.86	4314.39	
ANNUAL MEAN	32.8	11.8	73.8
HIGHEST ANNUAL MEAN			164 1972
LOWEST ANNUAL MEAN			11.8 2002
HIGHEST DAILY MEAN	972 Mar 31	519 Apr 29	8160 Jun 22 1972
LOWEST DAILY MEAN	e0.29 Sep 20	0.00 aAug 20	0.00 aAug 20 2002
ANNUAL SEVEN-DAY MINIMUM	0.37 Sep 14	0.00 Aug 20	0.00 Aug 20 2002
MAXIMUM PEAK FLOW		676 Apr 29	10900 Jun 22 1972
MAXIMUM PEAK STAGE		6.43 Apr 29	19.03 Jun 22 1972
INSTANTANEOUS LOW FLOW		0.00 bAug 19	0.00 bAug 19 2002
ANNUAL RUNOFF (CFSM)	0.42	0.15	0.95
ANNUAL RUNOFF (INCHES)	5.75	2.07	12.96
10 PERCENT EXCEEDS	63	24	144
50 PERCENT EXCEEDS	11	4.7	33
90 PERCENT EXCEEDS	0.75	0.06	2.2

a Also Aug. 21-27, 2002.
 b Also part or all of each day Aug. 20-28, 2002.
 e Estimated.



YORK RIVER BASIN

01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA

LOCATION.--Lat 38°03'42", long 77°23'09", NAD83, Caroline County, Hydrologic Unit 02080105, on right bank 0.1 mi upstream from bridge on State Highway 605, 2.2 mi northwest of Bowling Green, 2.4 mi upstream from South River, and 7.1 mi downstream from confluence of Matta and Poni Rivers.

DRAINAGE AREA.--257 mi².

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 85.14 ft NGVD of 1929. Prior to Aug. 17, 1978, gage located on left bank at same datum.

REMARKS.--Records good except for period of doubtful gage-height record, Nov. 5 to Dec. 5, which is fair. Some diurnal fluctuation from gristmill upstream on Po River. Maximum discharge, 13,400 ft³/s, from rating curve extended above 8,100 ft³/s. No flow at times in September and October 1954 and September 1966. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 19.5 ft based on relative difference in stage between this flood and flood of Oct. 17, 1942, at Milford 4 mi downstream, discharge, 15,000 ft³/s, from rating curve extended above 8,100 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	0.04	0.02	e3.5	14	30	13	61	431	7.4	1.9	0.00	8.3
2	0.04	0.01	e3.2	13	27	14	59	187	6.2	1.6	0.00	12
3	2.1	0.01	e3.0	13	24	36	58	100	5.7	1.5	0.00	11
4	5.0	0.01	e2.5	13	24	76	53	67	5.8	1.2	0.00	10
5	0.86	e0.03	e2.1	12	22	99	44	55	5.2	1.0	0.00	5.6
6	1.0	e0.20	1.4	17	20	81	38	48	5.3	0.83	0.00	4.0
7	0.35	e0.50	3.7	52	31	64	32	46	8.6	0.64	0.00	2.8
8	0.07	e1.0	4.4	68	45	51	29	42	8.1	0.52	0.00	2.1
9	0.04	e0.60	7.0	85	45	43	27	40	4.8	0.43	0.00	1.5
10	0.04	e0.70	10	63	46	38	26	70	4.0	0.36	0.00	1.1
11	0.04	e0.62	17	57	42	31	26	65	3.7	0.27	0.00	0.72
12	0.04	e0.52	32	51	36	30	26	48	3.3	0.16	0.00	0.50
13	0.04	e0.44	40	52	32	30	29	41	2.9	0.09	0.00	0.29
14	0.05	e0.50	35	41	29	33	29	57	24	0.07	0.00	0.21
15	0.11	e0.46	27	35	26	35	27	47	49	0.06	0.00	0.26
16	0.10	e0.42	21	31	25	36	27	33	43	0.03	0.00	0.30
17	0.12	e0.40	19	29	23	35	26	29	29	0.01	0.00	0.23
18	0.12	e0.38	19	28	21	55	24	25	21	0.01	0.00	0.17
19	0.12	e0.60	20	27	20	74	23	65	15	1.7	0.00	0.09
20	0.13	e0.48	18	33	20	81	42	95	11	0.93	0.00	0.06
21	0.14	e0.37	16	38	21	84	66	70	7.1	0.27	0.00	0.04
22	0.23	e0.30	17	42	20	77	83	42	5.1	0.07	0.00	0.02
23	0.34	e0.36	16	44	19	72	114	31	4.6	0.02	0.00	0.01
24	0.34	e0.80	17	46	18	63	148	24	3.8	0.01	0.00	0.01
25	0.23	e2.5	19	61	17	50	114	19	3.5	0.01	0.00	0.01
26	0.09	e4.0	18	51	16	42	81	16	3.0	0.03	0.00	0.05
27	0.04	e4.8	18	46	18	76	60	13	2.7	0.05	0.00	0.08
28	0.03	e4.4	16	41	16	95	85	12	2.7	0.03	0.00	0.02
29	0.02	e4.6	16	37	---	93	241	11	2.5	0.02	0.00	0.01
30	0.02	e3.9	16	34	---	76	377	8.9	2.2	0.01	0.00	0.01
31	0.02	---	14	31	---	64	---	7.9	---	0.00	0.00	---
TOTAL	11.91	33.93	471.8	1205	733	1747	2075	1845.8	300.2	13.83	0.00	61.49
MEAN	0.38	1.13	15.2	38.9	26.2	56.4	69.2	59.5	10.0	0.45	0.000	2.05
MAX	5.0	4.8	40	85	46	99	377	431	49	1.9	0.00	12
MIN	0.02	0.01	1.4	12	16	13	23	7.9	2.2	0.00	0.00	0.01
CFSM	0.00	0.00	0.06	0.15	0.10	0.22	0.27	0.23	0.04	0.00	0.00	0.01
IN.	0.00	0.00	0.07	0.17	0.11	0.25	0.30	0.27	0.04	0.00	0.00	0.01

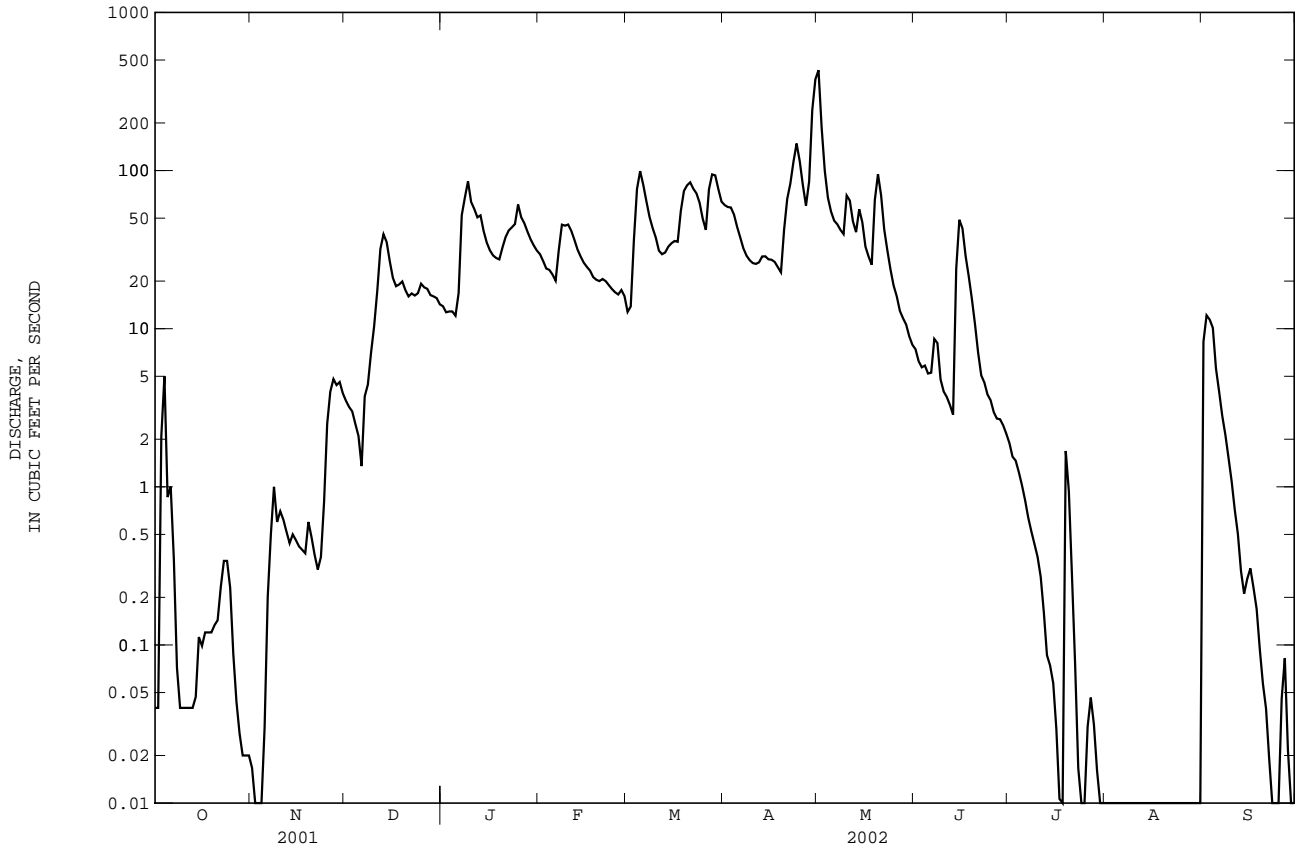
01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	119	162	258	350	395	468	374	246	136	101	111	78.2
MAX	860	721	1041	1174	1706	1540	1164	707	1111	853	939	714
(WY)	1943	1973	1949	1978	1998	1994	1983	1972	1972	1945	1955	1975
MIN	0.38	1.13	15.2	34.7	26.2	56.4	69.2	22.9	5.26	0.45	0.000	0.43
(WY)	2002	2002	2002	1981	2002	2002	2002	1999	1999	2002	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1943 - 2002
ANNUAL TOTAL	35233.95	8498.96	
ANNUAL MEAN	96.5	23.3	232
HIGHEST ANNUAL MEAN			516 1972
LOWEST ANNUAL MEAN			23.3 2002
HIGHEST DAILY MEAN	1990 Apr 1	431 May 1	12200 Jun 23 1972
LOWEST DAILY MEAN	0.01 aNov 2	0.00 bJul 31	0.00 (c)
ANNUAL SEVEN-DAY MINIMUM	0.02 dOct 29	0.00 fJul 31	0.00 (g)
MAXIMUM PEAK FLOW		475 May 1	13400 Jun 23 1972
MAXIMUM PEAK STAGE		5.67 May 1	h18.95 Jun 23 1972
INSTANTANEOUS LOW FLOW		0.00 jJul 18	0.00 (k)
ANNUAL RUNOFF (CFSM)	0.38	0.091	0.90
ANNUAL RUNOFF (INCHES)	5.10	1.23	12.29
10 PERCENT EXCEEDS	215	62	528
50 PERCENT EXCEEDS	30	8.6	118
90 PERCENT EXCEEDS	0.34	0.01	9.7

- a Also Nov, 3,4, 2001.
- b Also Aug. 1-31, 2002.
- c Also many days in September, October 1954, September 1966, and July, August 2002.
- d Also Oct. 30, 2001.
- e Estimated.
- f Also many days in August 2002.
- g Many days in September, October 1954, and August 2002.
- h From floodmark in well.
- j Also part or all of each day July 19, 25, 26, and July 31 to Sept. 1, 2002.
- k Many days in September, October 1954, September 1966, and July to September 2002.



YORK RIVER BASIN

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA

LOCATION.--Lat 37°53'16", long 77°09'47", NAD83, King William County, Hydrologic Unit 02080105, on right bank, 10 ft upstream from bridge on State Highway 628, 2.4 mi north of Beulahville, and 3.3 mi downstream from Maracossic Creek.

DRAINAGE AREA.--601 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to September 1987, October 1989 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 12.43 ft NGVD of 1929 (levels by Virginia Department of Transportation). Prior to Oct. 14, 1942, nonrecording gage. Oct. 14, 1942, to Aug. 8, 1974, water-stage recorder on right bank at site 0.6 mi upstream at same datum. Aug. 8 1974, water-stage recorder on left bank 80 ft downstream from previous site, at same datum. Sept. 8, 1987, to Aug. 31, 1989, nonrecording gage on downstream side of bridge at same datum. Sept. 1, 1989, to Mar. 31, 1994, water-stage recorder on upstream side of bridge at same datum. Apr. 1, 1994, to Sept. 28, 1995, nonrecording gage on downstream side of bridge at same datum. Sept. 29, 1995, water-stage recorder at present site and datum.

REMARKS.--Records good except for period of partial gage-height record, Aug. 31 to Sept. 3, which is fair. Diurnal fluctuation at times during low flow caused by gristmill on Po River. Maximum discharge, 16,900 ft³/s, from rating curve extended above 11,760 ft³/s.

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	25	25	51	95	110	66	228	504	39	14	12	e29
2	24	42	48	99	103	67	200	540	35	12	8.1	e31
3	22	28	44	87	96	124	184	470	32	9.0	5.9	e29
4	21	26	42	77	92	175	167	279	28	6.8	4.5	23
5	19	22	40	77	87	201	150	213	24	5.8	3.4	19
6	18	23	41	84	83	220	136	184	24	5.1	2.5	14
7	21	33	40	229	102	203	121	162	28	4.2	2.0	11
8	22	28	41	258	156	172	110	143	29	3.6	1.6	10
9	21	28	44	257	163	148	102	132	27	3.0	1.8	11
10	19	28	45	238	173	132	97	178	24	2.8	1.4	10
11	19	28	71	217	161	116	94	168	23	1.9	1.3	8.2
12	19	32	163	183	147	104	90	180	22	1.4	1.1	6.6
13	20	29	175	163	134	97	89	161	20	1.0	0.89	5.7
14	20	29	173	146	121	105	86	198	27	1.7	0.68	4.4
15	18	30	153	136	110	115	88	186	71	2.8	0.54	4.3
16	17	36	131	120	104	113	91	182	70	4.1	0.45	6.3
17	17	38	106	107	98	110	88	152	76	4.6	0.46	7.1
18	17	33	105	100	91	135	79	137	82	3.6	0.39	6.8
19	16	34	113	100	88	186	75	202	58	2.2	0.42	5.7
20	17	36	105	134	85	221	86	178	42	1.3	0.38	4.9
21	18	40	95	162	84	268	101	171	33	0.82	0.34	5.9
22	18	37	87	168	81	253	318	179	26	1.1	0.32	11
23	18	45	79	166	79	220	445	147	22	0.98	0.41	7.8
24	18	44	85	163	78	189	370	113	19	7.1	0.49	5.3
25	20	44	100	167	75	168	331	93	13	50	0.28	2.9
26	19	47	95	170	73	150	303	78	10	45	0.27	2.6
27	19	51	92	167	71	228	233	67	11	43	0.25	3.3
28	21	66	86	150	69	223	224	58	14	34	0.84	3.5
29	19	57	79	137	---	235	366	51	17	27	4.2	4.1
30	19	50	75	127	---	225	440	46	15	19	23	3.7
31	23	---	74	118	---	238	---	42	---	15	e31	---
TOTAL	604	1089	2678	4602	2914	5207	5492	5594	961	333.90	111.21	297.1
MEAN	19.5	36.3	86.4	148	104	168	183	180	32.0	10.8	3.59	9.90
MAX	25	66	175	258	173	268	445	540	82	50	31	31
MIN	16	22	40	77	69	66	75	42	10	0.82	0.25	2.6
CFSM	0.03	0.06	0.14	0.25	0.17	0.28	0.30	0.30	0.05	0.02	0.01	0.02
IN.	0.04	0.07	0.17	0.28	0.18	0.32	0.34	0.35	0.06	0.02	0.01	0.02

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

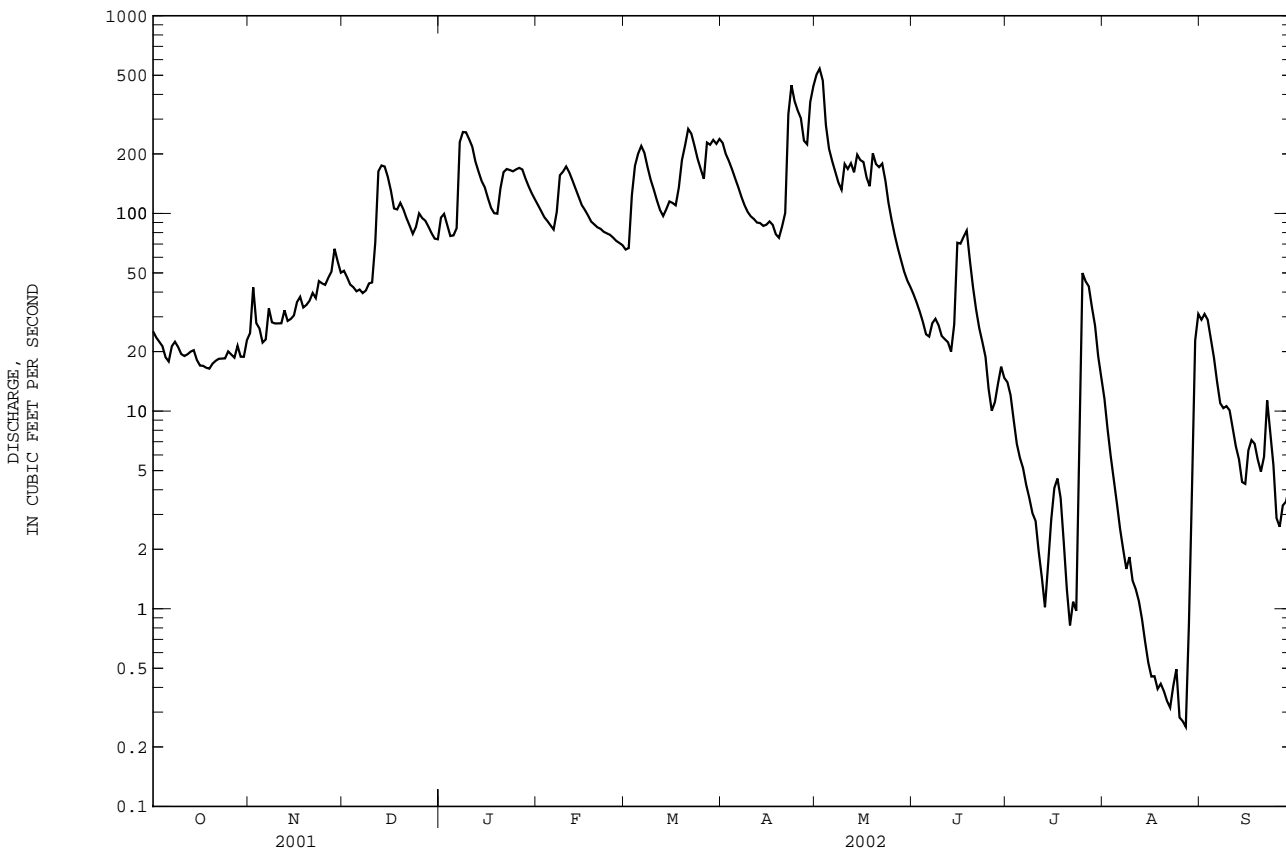
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1987, 1989 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	306	410	606	782	902	1057	941	632	395	280	315	226
MAX	1801	1461	2115	2418	3100	2483	3291	1912	3217	2119	2409	1287
(WY)	1980	1973	1949	1978	1998	1979	1984	1978	1972	1945	1969	1975
MIN	19.5	36.3	86.4	131	104	168	183	88.5	22.1	10.8	3.59	9.90
(WY)	2002	2002	2002	1981	2002	2002	2002	1999	1999	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1942 - 1987 1989 - 2002

ANNUAL TOTAL		93506		29883.21								
ANNUAL MEAN		256		81.9						569		
HIGHEST ANNUAL MEAN										1210		1972
LOWEST ANNUAL MEAN										81.9		2002
HIGHEST DAILY MEAN			2090	Apr 4		540	May 2		16200	Jun 25		1972
LOWEST DAILY MEAN			16	Sep 18		0.25	Aug 27		0.25	Aug 27		2002
ANNUAL SEVEN-DAY MINIMUM			17	Oct 15		0.34	Aug 21		0.34	Aug 21		2002
MAXIMUM PEAK FLOW						554	May 2		16900	Jun 25		1972
MAXIMUM PEAK STAGE						6.48	May 2		24.09	Aug 23		1969
INSTANTANEOUS LOW FLOW						0.22	aAug 24		0.22	aAug 24		2002
ANNUAL RUNOFF (CFSM)			0.43			0.14			0.95			
ANNUAL RUNOFF (INCHES)			5.79			1.85			12.86			
10 PERCENT EXCEEDS			649			187			1300			
50 PERCENT EXCEEDS			141			47			354			
90 PERCENT EXCEEDS			22			3.0			57			

a Also Aug. 25, 27, 2002.
e Estimated.



01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1969, 1979 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1991 to September 1994.

WATER TEMPERATURE: October 1991 to September 1994.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE NUMBER (00028)	AGENCY COL-LECTING SAMPLE NUMBER (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	
OCT												
23...	1015	ENVIRONMENTAL	VDCLS	USGS	2.09	36	4.2	773	8.9	83	6.3	56
NOV												
28...	0915	ENVIRONMENTAL	VDCLS	USGS	4.76	287	7.8	759	13.2	106	7.2	63
30...	1015	ENVIRONMENTAL	VDCLS	USGS	4.50	254	5.1	759	11.9	94	6.7	67
DEC												
18...	0900	ENVIRONMENTAL	VDCLS	USGS	7.92	813	65	760	11.7	94	6.9	50
27...	1015	ENVIRONMENTAL	VDCLS	USGS	4.87	302	9.3	763	16.3	112	6.9	65
27...	1030	REPLICATE	VDCLS	USGS	4.87	302	11	763	16.3	112	6.9	65
JAN												
22...	0845	ENVIRONMENTAL	VDCLS	USGS	8.52	952	24	760	7.1	51	6.6	56
22...	0900	REPLICATE	VDCLS	USGS	8.52	952	20	760	7.1	51	6.6	56
29...	0930	ENVIRONMENTAL	VDCLS	USGS	5.13	360	11	763	13.1	95	7.1	62
FEB												
20...	1000	ENVIRONMENTAL	VDCLS	USGS	5.83	468	8.5	764	12.6	100	7.0	61
MAR												
07...	1100	ENVIRONMENTAL	VDCLS	USGS	5.14	363	6.2	750	14.3	117	7.1	63
07...	1105	REPLICATE	USGS	USGS	5.14	364	--	750	14.3	117	7.1	63
23...	0945	ENVIRONMENTAL	VDCLS	USGS	8.20	897	15	755	9.6	85	6.5	61
26...	0945	ENVIRONMENTAL	VDCLS	USGS	9.72	1270	22	759	9.2	80	6.3	58
APR												
02...	1400	ENVIRONMENTAL	VDCLS	USGS	11.02	1650	12	756	10.4	93	6.1	52
13...	0930	ENVIRONMENTAL	VDCLS	USGS	7.90	851	9.1	756	8.3	87	5.7	60
13...	0935	REPLICATE	USGS	USGS	7.90	853	--	756	8.3	87	5.7	60
24...	0900	ENVIRONMENTAL	VDCLS	USGS	4.97	376	5.7	757	8.1	89	7.0	63
MAY												
22...	0900	ENVIRONMENTAL	VDCLS	USGS	3.83	227	8.3	753	8.4	90	7.0	62
25...	0900	ENVIRONMENTAL	VDCLS	USGS	6.03	536	12	758	7.7	84	6.0	64
29...	1015	ENVIRONMENTAL	VDCLS	USGS	8.96	1080	19	755	7.9	85	6.6	55
JUN												
11...	1245	ENVIRONMENTAL	VDCLS	USGS	6.86	638	13	756	7.0	80	5.4	56
19...	1025	BLANK	VDCLS	USGS	--	--	.35	--	--	--	--	--
19...	1030	ENVIRONMENTAL	VDCLS	USGS	4.75	317	9.6	765	6.8	80	6.4	57
21...	1000	ENVIRONMENTAL	VDCLS	USGS	3.73	197	7.0	761	6.9	82	6.5	61
JUL												
24...	1030	ENVIRONMENTAL	VDCLS	USGS	1.60	24	4.4	758	5.4	65	7.1	76
31...	1300	ENVIRONMENTAL	VDCLS	USGS	3.78	202	10	762	7.2	82	6.8	49
AUG												
23...	1030	ENVIRONMENTAL	VDCLS	USGS	1.98	42	3.8	758	7.1	84	7.7	69
SEP												
19...	0925	BLANK	VDCLS	USGS	--	--	1.7	--	--	--	--	--
19...	0930	ENVIRONMENTAL	VDCLS	USGS	1.43	16	6.5	760	7.5	79	6.9	68

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
23...	7.5	12.7	5.78	<3	<3	<3	.004	--	--	.27	.02	.020	M
NOV													
28...	3.5	5.8	7.48	5	8	3	<.004	--	--	.39	.07	.069	<.002
30...	5.5	4.9	8.78	<3	4	3	.005	--	--	.50	.05	.052	<.002
DEC													
18...	1.0	6.0	6.30	44	54	10	.010	--	--	.59	.16	.163	<.002
27...	-1.0	.1	9.10	<3	<3	<3	.022	--	--	.43	.18	.178	<.002
27...	-1.0	.1	9.18	<3	4	3	.022	--	--	.44	.17	.175	<.002
JAN													
22...	-2.5	1.7	7.10	18	22	4	.049	--	--	.51	.19	.189	.002
22...	-2.5	1.7	7.10	19	23	4	.042	--	--	.51	.18	.186	<.002
29...	.0	2.0	8.90	4	6	<3	.025	--	--	.52	.21	.212	<.002
FEB													
20...	11.0	5.7	7.40	4	6	<3	.016	--	--	.32	.10	.104	<.002
MAR													
07...	4.5	6.1	13.9	4	6	<3	.009	--	--	.40	.08	.081	<.002
07...	4.5	6.1	4.9	--	<10	--	.010	.30	.50	.38	--	.082	--
23...	12.5	9.2	4.20	21	26	5	.008	--	--	.42	.09	.087	<.002
26...	6.0	9.2	7.90	11	14	3	.015	--	--	.57	.08	.082	<.002
APR													
02...	17.5	10.1	6.00	8	11	3	.014	--	--	.53	.09	.086	<.002
13...	18.0	17.6	4.30	11	14	3	.034	--	--	.51	.09	.090	<.002
13...	18.0	17.6	4.7	--	17	--	.026	.44	.47	.52	--	.082	--
24...	18.5	19.3	5.70	<3	5	3	.032	--	--	.51	.12	.122	<.002
MAY													
22...	17.0	17.8	5.20	5	8	3	.065	--	--	.64	.23	.233	.002
25...	20.0	19.2	7.90	13	19	6	.050	--	--	.57	.17	.172	.004
29...	18.0	18.4	7.31	16	22	6	.054	--	--	.72	.16	.160	.002
JUN													
11...	29.0	21.4	8.40	6	10	4	.057	--	--	.70	.12	.120	.002
19...	--	--	.100	3	3	3	.006	--	--	.03	M	.004	.002
19...	28.5	23.5	7.20	3	5	<3	.046	--	--	.66	.19	.196	.002
21...	25.0	24.0	8.10	<3	4	4	.044	--	--	.67	.22	.222	.002
JUL													
24...	30.5	24.4	1.80	<3	<3	<3	.016	--	--	.51	.16	.157	<.002
31...	23.0	21.8	5.60	9	13	4	.041	--	--	.48	.13	.128	<.002
AUG													
23...	24.5	23.4	6.60	<3	<3	<3	.032	--	--	.52	.22	.222	<.002
SEP													
19...	--	--	.100	3	3	3	.004	--	--	.08	.01	.006	.002
19...	18.5	17.4	7.00	<3	<3	<3	.022	--	--	.56	.23	.233	<.002

2001 WATER YEAR DATA

YORK RIVER BASIN

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDEd (MG/L) (80154)
OCT								
23...	.034	.015	--	.01	.011	.1	82	3.0
NOV								
28...	.024	.006	--	.08	.024	.8	--	10
30...	.024	.007	--	.05	.021	.5	--	5.7
DEC								
18...	.039	.010	--	.29	.093	3.0	61	66
27...	.017	.005	--	M	.001	.1	--	5.9
27...	.019	.005	--	.04	.019	.4	--	5.8
JAN								
22...	.039	.008	--	.15	.042	1.5	--	33
22...	.030	.007	--	.14	.038	1.3	--	33
29...	.021	.006	--	.06	.018	.6	--	8.8
FEB								
20...	.022	.009	--	.06	.024	.5	--	9.5
MAR								
07...	.067	.009	--	.08	.019	.6	--	6.1
07...	E.04	<.007	.06	--	--	--	--	--
23...	.026	.009	--	.15	.040	1.3	--	32
26...	.029	.008	--	.16	.052	1.2	--	34
APR								
02...	.031	.008	--	.12	.033	.8	--	15
13...	.055	.020	--	.11	.039	1.0	--	16
13...	<.06	.009	E.05	--	--	--	--	--
24...	.034	.015	--	.05	.019	.4	--	6.3
MAY								
22...	.041	.012	--	.11	.023	1.1	--	12
25...	.049	.029	--	.14	.035	1.4	--	27
29...	.048	.014	--	--	.052	--	--	28
JUN								
11...	.048	.013	--	.15	.027	1.5	--	14
19...	.004	.002	--	.01	.001	M	--	1.3
19...	.056	.025	--	.04	.021	.6	--	7.5
21...	.056	.040	--	.05	.017	.5	--	5.6
JUL								
24...	.030	.010	--	.03	.010	.2	--	3.4
31...	.031	.006	--	.13	.030	1.1	--	15
AUG								
23...	.030	.019	--	.04	.014	.4	--	1.7
SEP								
19...	.005	.004	--	.01	.002	.1	--	--
19...	.038	.018	--	.05	.013	.5	--	3.4

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT												
15...	1000	ENVIRONMENTAL	VDCLS	USGS	1.67	18	3.4	760	6.7	68	6.7	53
NOV												
26...	1145	ENVIRONMENTAL	VDCLS	USGS	2.30	47	2.3	760	10.8	100	7.4	58
DEC												
13...	0940	BLANK	VDCLS	USGS	--	--	.30	--	--	--	--	--
13...	0945	ENVIRONMENTAL	VDCLS	USGS	3.80	173	4.6	760	10.2	88	7.4	64
20...	1100	ENVIRONMENTAL	VDCLS	USGS	3.09	105	3.8	752	10.8	90	6.6	69
20...	1115	REPLICATE	VDCLS	USGS	3.09	130	4.2	752	10.8	90	6.6	69
JAN												
08...	0930	ENVIRONMENTAL	VDCLS	USGS	4.51	257	8.1	756	14.3	99	6.8	62
23...	0930	ENVIRONMENTAL	VDCLS	USGS	3.64	166	5.9	765	12.5	93	7.3	69
FEB												
25...	1100	ENVIRONMENTAL	VDCLS	USGS	2.54	76	2.8	765	14.2	113	7.2	77
MAR												
05...	1300	ENVIRONMENTAL	VDCLS	USGS	4.01	205	5.5	766	11.8	94	6.3	67
25...	0830	ENVIRONMENTAL	VDCLS	USGS	3.68	170	5.1	760	10.6	92	6.7	80
25...	0835	REPLICATE	USGS	USGS	3.68	170	--	760	10.6	92	6.7	80
APR												
23...	1000	ENVIRONMENTAL	VDCLS	USGS	5.85	456	200	760	11.2	112	6.1	61
MAY												
07...	0845	ENVIRONMENTAL	VDCLS	USGS	3.60	162	6.2	760	8.6	89	6.8	73
31...	0930	ENVIRONMENTAL	VDCLS	USGS	1.98	43	5.2	755	7.5	87	7.1	78
JUN												
19...	0900	ENVIRONMENTAL	VDCLS	USGS	2.30	60	3.5	765	7.0	79	6.6	81
JUL												
19...	1145	ENVIRONMENTAL	VDCLS	USGS	.99	2.1	4.3	755	5.1	65	6.3	95
AUG												
27...	1000	ENVIRONMENTAL	VDCLS	USGS	.75	.27	1.0	758	2.0	24	6.3	116
SEP												
25...	1330	ENVIRONMENTAL	VDCLS	USGS	.89	2.5	3.8	762	7.1	79	6.9	61

YORK RIVER BASIN

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
15...	13.5	16.2	5.20	<3	<3	<3	.007	--	--	.29	.05	.054	<.002
NOV													
26...	20.0	11.9	3.90	<3	<3	<3	<.004	--	--	.33	.08	.078	<.002
DEC													
13...	--	--	<.100	<3	<3	<3	.005	--	--	.04	.01	.008	<.002
13...	10.0	8.7	6.50	4	7	3	.012	--	--	.56	.23	.235	<.002
20...	5.0	6.9	7.40	<3	<3	<3	.014	--	--	.40	.12	.116	.002
20...	5.0	6.9	7.40	<3	<3	<3	.016	--	--	.39	.12	.116	<.002
JAN													
08...	-3.0	.2	7.90	9	12	3	.048	--	--	.61	.29	.289	<.002
23...	7.0	3.4	7.90	<3	<3	<3	.016	--	--	.42	.16	.159	<.002
FEB													
25...	6.5	5.8	5.70	<3	<3	<3	.014	--	--	.35	.12	.123	<.002
MAR													
05...	8.0	6.0	5.20	6	8	<3	.013	--	--	.41	.14	.144	<.002
25...	11.5	9.4	7.30	<3	3	<3	.014	--	--	.50	.10	.100	.002
25...	11.5	9.4	6.7	--	<10	<10	E.011	.32	.41	.42	--	.104	<.002
APR													
23...	9.5	15.1	9.90	219	261	42	.164	--	--	1.1	.61	.625	.015
MAY													
07...	17.0	16.6	8.50	<3	4	<3	.085	--	--	.71	.21	.210	<.002
31...	19.5	22.1	4.50	<3	<3	<3	.042	--	--	.70	.27	.272	.004
JUN													
19...	24.0	21.9	3.40	<3	<3	<3	.022	--	--	.51	.13	.127	<.002
JUL													
19...	29.5	26.5	9.50	<3	3	<3	.039	--	--	.49	.09	.089	<.002
AUG													
27...	--	23.9	11.0	<3	4	<3	.240	--	--	.75	.16	.163	.005
SEP													
25...	25.0	20.6	5.60	<3	<3	<3	.048	--	--	.55	.15	.155	<.002

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGN TOTAL SEDIMNT SUSP TOTAL (MG/L AS N) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL (MG/L AS P) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT								
15...	.023	.013	--	.07	.013	.5	--	1.4
NOV								
26...	.011	.006	--	.06	.010	.5	--	2.5
DEC								
13...	.009	.002	--	.04	.003	.4	--	--
13...	.026	.006	--	.14	.028	1.2	--	8.9
20...	.024	.004	--	.03	.011	.4	--	3.5
20...	.024	.005	--	.03	.010	.5	--	--
JAN								
08...	.025	.006	--	--	.027	--	--	14
23...	.018	.004	--	.04	.015	.4	--	3.1
FEB								
25...	.018	.013	--	.04	.007	.5	70	3.0
MAR								
05...	.019	.007	--	.09	.013	.8	--	6.6
25...	.053	.011	--	.05	.005	.5	--	5.7
25...	<.06	.007	<.06	--	--	--	--	--
APR								
23...	.040	.019	--	.74	.352	6.3	83	35
MAY								
07...	.047	.022	--	.07	--	.7	75	6.0
31...	.166	.018	--	.03	.011	.3	--	4.0
JUN								
19...	.032	.017	--	.02	.007	.3	--	--
JUL								
19...	.058	.020	--	.05	.016	.4	--	--
AUG								
27...	.057	.035	--	.13	.029	.9	--	9.5
SEP								
25...	.035	.016	--	.05	.013	.3	--	2.4

SOUTH ATLANTIC SLOPE BASINS

JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA

LOCATION.--Lat 38°02'32", long 79°52'53", NAD83, Bath County, Hydrologic Unit 02080201, on left bank 0.1 mi downstream from ford, 1.8 mi upstream from Back Creek, and 2.2 mi southwest of Bacova.

DRAINAGE AREA.--158 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Dec. 28 to Jan. 10, which is poor. U.S. Army Corps of Engineers satellite water temperature, precipitation and gage-height telemeter at station. Maximum discharge, 30,000 ft³/s, from rating curve extended above 1,300 ft³/s on basis of slope-area measurements at gage heights 8.88 ft, 11.40 ft, 13.88 ft, and 22.25 ft. Minimum gage height, 2.42 ft, Aug. 18, 19, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 11.40 ft, discharge, 4,800 ft³/s, and flood of Dec. 26, 1973, reached a stage of 13.88 ft, discharge, 7,560 ft³/s, from rating curve extended as explained above.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1000	*2,620	*9.07	Apr 28	1900	2,610	9.06

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	20	18	18	e17	44	25	329	490	80	27	35	17
2	20	17	17	e16	41	28	273	420	89	26	31	16
3	19	16	17	e15	38	99	229	382	76	30	39	16
4	19	16	16	e15	37	108	188	292	65	30	60	15
5	19	16	16	e15	35	77	158	268	59	25	42	15
6	19	15	16	e16	36	68	138	226	58	23	36	14
7	18	15	16	e16	38	58	120	412	60	22	32	14
8	18	15	18	e17	37	54	106	965	52	21	27	14
9	18	15	21	e19	37	49	106	643	48	22	25	13
10	19	15	22	e30	36	47	249	487	45	28	23	13
11	19	15	40	42	40	43	189	358	42	69	22	13
12	19	15	45	43	43	41	163	289	40	36	21	13
13	19	16	34	28	41	59	166	257	40	29	21	13
14	22	16	32	28	39	79	273	237	41	138	20	13
15	30	16	31	23	37	67	304	218	40	86	19	15
16	27	16	29	23	36	62	295	179	37	48	19	19
17	24	16	27	21	36	76	253	156	35	35	20	17
18	22	16	34	21	35	149	265	153	33	30	20	16
19	21	16	46	24	32	178	260	144	31	30	19	15
20	20	16	42	25	31	347	211	126	31	28	19	15
21	20	15	34	21	31	373	331	116	32	29	18	15
22	18	15	30	22	30	281	1800	107	28	24	17	26
23	18	16	28	24	29	215	947	98	27	28	17	41
24	18	16	30	49	28	176	580	92	26	49	17	30
25	19	19	30	113	27	149	437	85	27	38	17	20
26	18	24	26	89	26	131	326	79	35	70	17	71
27	17	23	25	72	26	202	256	98	41	118	17	149
28	17	20	e23	61	26	175	1180	142	44	101	18	103
29	17	18	e22	55	---	157	1210	111	37	70	18	66
30	17	18	e20	52	---	146	689	95	29	51	18	45
31	17	---	e19	48	---	179	---	85	---	41	17	---
TOTAL	608	500	824	1060	972	3898	12031	7810	1328	1402	741	862
MEAN	19.6	16.7	26.6	34.2	34.7	126	401	252	44.3	45.2	23.9	28.7
MAX	30	24	46	113	44	373	1800	965	89	138	60	149
MIN	17	15	16	15	26	25	106	79	26	21	17	13
CFSM	0.12	0.11	0.17	0.22	0.22	0.80	2.54	1.59	0.28	0.29	0.15	0.18
IN.	0.14	0.12	0.19	0.25	0.23	0.92	2.83	1.84	0.31	0.33	0.17	0.20

JAMES RIVER BASIN--Continued

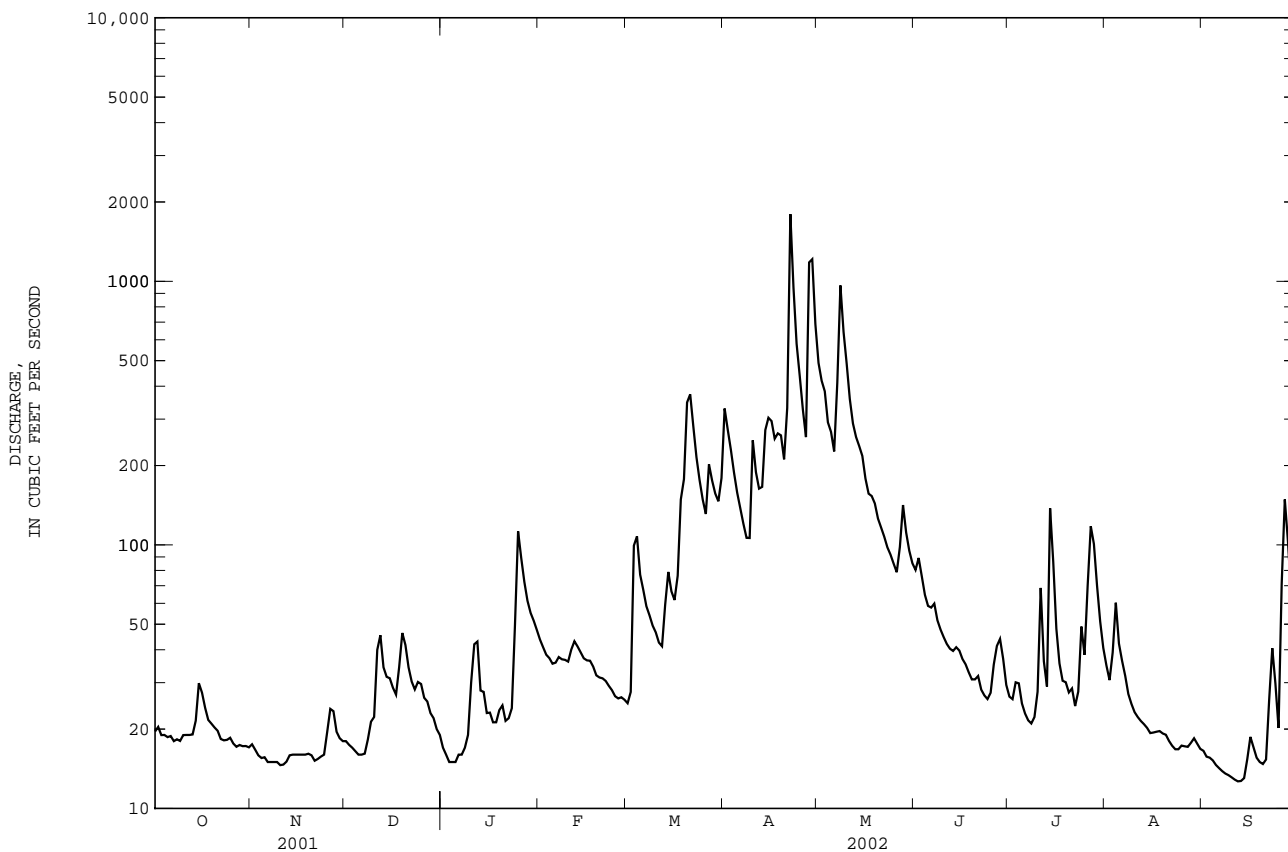
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	78.6	116	153	229	243	352	276	222	127	59.4	56.5	64.2
MAX	367	762	419	703	604	767	814	508	388	130	282	342
(WY)	1980	1986	1997	1996	1998	1993	1987	1989	1982	1989	1984	1979
MIN	19.6	16.7	25.4	31.6	34.7	68.0	70.3	52.9	27.6	19.1	20.6	20.1
(WY)	2002	2002	1999	1981	2002	1981	1999	1999	1999	1999	1988	1998

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1975 - 2002

ANNUAL TOTAL	34802		32036			
ANNUAL MEAN	95.3		87.8		164	
HIGHEST ANNUAL MEAN					244 1996	
LOWEST ANNUAL MEAN					66.9 1999	
HIGHEST DAILY MEAN	1230	May 23	1800	Apr 22	8820	Jan 19 1996
LOWEST DAILY MEAN	15	aNov 6	13	bSep 9	13	cAug 13 1999
ANNUAL SEVEN-DAY MINIMUM	15	Nov 6	13	Sep 8	13	Sep 8 2002
MAXIMUM PEAK FLOW			2620		30000 Nov 4 1985	
MAXIMUM PEAK STAGE			9.07		d22.25 Nov 4 1985	
INSTANTANEOUS LOW FLOW			12		fSep 11 2002	
ANNUAL RUNOFF (CFSM)	0.60		0.56		1.04	
ANNUAL RUNOFF (INCHES)	8.19		7.54		14.13	
10 PERCENT EXCEEDS	242		227		351	
50 PERCENT EXCEEDS	46		30		84	
90 PERCENT EXCEEDS	18		16		27	

- a Also Nov. 7-12, 21, 22, 2001.
- b Also Sept. 10-14, 2002.
- c Also Sept. 26, 1999 and Sept. 9-14, 2002.
- d From floodmark.
- e Estimated.
- f Also Sept. 12-14, 2002.



JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: March 1978 to September 1981, October 1982 to current year.

INSTRUMENTATION.--Water-temperature recorder March 1978 to September 1981, and since October 1982.

REMARKS.--Interruption in record due to instrument malfunction. Some record in prior years fragmentary due to instrument malfunction. Records represent water temperature at sensor within 0.5°C. Temperature at the sensor was compared with the average for the river by temperature cross section on Oct. 3, 2000. No variation of temperature was found within the cross section.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 31.1°C, July 6, 1999; minimum recorded, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 29.2°C, July 4, 5, Aug. 3; minimum recorded, 0.0°C, on many days during winter.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	15.8	11.3	13.4	11.0	7.1	9.2	11.7	9.5	10.6	0.0	0.0	0.0
2	16.9	12.1	14.3	12.8	9.5	11.0	9.5	6.7	8.4	0.0	0.0	0.0
3	18.1	13.5	15.6	13.9	11.3	12.2	7.1	4.6	6.0	0.0	0.0	0.0
4	18.5	14.3	16.1	11.7	8.5	10.2	7.1	3.9	5.6	0.0	0.0	0.0
5	18.1	13.9	15.7	10.2	7.8	9.0	7.8	4.9	6.3	0.0	0.0	0.0
6	16.5	13.1	15.5	8.8	5.7	7.3	8.5	5.3	7.0	0.0	0.0	0.0
7	13.9	10.2	11.9	8.8	4.9	6.8	8.8	7.8	8.3	0.0	0.0	0.0
8	12.8	8.1	10.4	8.8	4.9	6.8	8.1	8.1	8.1	0.0	0.0	0.0
9	12.8	7.8	10.1	9.2	6.7	7.9	8.5	6.0	7.5	0.0	0.0	0.0
10	12.8	8.1	10.4	7.8	4.6	6.3	6.0	4.2	5.1	0.0	0.0	0.0
11	14.3	9.9	12.0	8.1	5.7	6.8	7.1	5.3	6.1	0.0	0.0	0.0
12	13.5	11.7	12.6	7.1	3.5	5.3	7.8	7.1	7.4	0.0	0.0	0.0
13	16.5	13.1	14.6	6.7	3.2	4.8	9.2	7.8	8.3	1.1	0.0	0.1
14	16.1	14.6	15.5	6.4	2.8	4.6	10.6	8.8	9.5	1.1	0.0	0.1
15	15.4	12.1	13.8	7.1	3.2	5.1	9.5	7.8	8.8	2.1	0.0	0.8
16	13.5	10.6	11.8	8.1	4.2	6.1	7.8	6.0	6.8	1.4	0.0	0.3
17	10.6	8.5	9.7	8.8	6.0	7.4	7.4	5.3	6.5	2.5	0.0	1.2
18	11.0	6.7	8.8	8.8	6.4	7.5	7.8	6.0	7.2	2.8	0.7	1.7
19	11.3	7.1	9.2	8.8	6.0	7.4	6.0	3.9	5.1	1.1	0.0	0.0
20	12.4	7.8	10.1	8.5	5.7	7.6	5.3	2.8	4.4	1.1	0.0	0.1
21	13.5	8.8	11.1	6.4	3.9	5.0	2.8	1.4	2.3	1.8	0.0	0.6
22	14.6	9.9	12.2	5.7	2.5	4.1	2.1	0.0	1.3	2.5	0.0	1.2
23	15.0	11.0	13.0	5.7	2.5	4.2	2.5	0.4	1.3	3.2	1.8	2.5
24	16.5	11.7	14.1	7.8	4.9	6.6	3.2	1.4	2.2	4.6	3.2	3.9
25	15.4	12.1	14.2	10.6	7.8	9.5	1.4	0.0	0.7	6.0	3.5	4.7
26	12.1	8.1	9.9	10.6	9.2	9.7	1.4	0.0	0.5	4.9	1.8	3.4
27	8.1	6.4	7.5	10.2	7.8	9.1	1.1	0.0	0.1	4.6	1.4	3.1
28	8.8	5.7	7.1	11.7	9.2	10.2	1.1	0.0	0.3	5.3	1.8	3.5
29	8.8	4.9	6.9	12.1	9.5	10.7	0.0	0.0	0.0	7.4	3.9	5.5
30	9.5	5.7	7.7	13.1	11.0	11.8	0.0	0.0	0.0	11.0	6.4	8.6
31	11.0	7.4	9.2	---	---	---	0.0	0.0	0.0	11.7	8.8	10.4
MONTH	18.5	4.9	11.8	13.9	2.5	7.7	11.7	0.0	4.9	11.7	0.0	1.7

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	10.6	8.1	9.8	4.2	0.0	1.9	11.7	8.1	9.7	13.9	11.0	12.5
2	8.1	4.9	6.3	2.8	1.1	1.5	12.8	8.5	10.3	15.0	13.5	14.3
3	5.3	3.5	4.3	4.6	1.1	2.8	11.7	8.5	10.6	14.6	12.4	13.6
4	3.9	0.7	2.9	3.9	0.7	2.1	11.7	7.4	9.3	12.4	9.9	11.1
5	1.4	0.0	0.3	3.9	0.0	1.5	11.7	7.1	9.2	15.4	9.9	12.2
6	0.7	0.0	0.1	6.0	0.7	3.3	10.2	6.7	8.4	15.8	12.8	14.1
7	2.5	0.0	1.1	7.4	2.8	5.2	11.3	4.9	8.0	14.6	13.9	14.1
8	4.2	0.4	2.3	9.5	4.6	7.1	13.1	6.7	9.8	14.3	12.8	13.5
9	4.9	1.1	3.1	10.6	7.1	8.9	12.1	11.0	11.6	15.8	13.5	14.7
10	3.5	2.5	3.1	9.9	5.7	7.5	15.8	11.0	12.9	15.8	14.3	15.1
11	4.9	2.8	3.7	8.1	3.5	5.9	15.8	10.6	12.8	15.4	12.8	14.2
12	4.6	1.1	3.0	6.4	4.9	5.3	13.9	10.2	12.0	17.3	13.5	15.1
13	5.3	2.5	3.9	8.1	5.3	6.5	13.9	11.7	12.6	16.9	15.0	16.0
14	4.6	0.7	2.8	12.1	6.4	9.1	14.3	12.1	13.1	15.0	12.8	13.7
15	4.6	1.4	2.9	13.5	8.8	11.3	15.8	13.1	14.3	15.4	10.6	13.0
16	6.4	2.8	4.6	13.1	11.3	12.2	17.7	13.5	15.2	17.7	12.1	14.6
17	5.3	3.2	4.5	12.1	8.1	9.8	18.5	14.6	16.2	18.1	14.3	16.3
18	4.6	0.7	2.9	9.9	7.4	8.6	17.7	15.0	15.8	16.9	13.1	15.1
19	4.9	0.7	3.2	9.2	8.5	8.8	16.1	14.3	15.1	15.0	11.0	12.9
20	6.0	3.9	5.1	8.5	7.8	8.0	16.5	14.3	15.3	13.1	10.2	11.8
21	7.8	4.9	6.4	11.0	7.8	8.9	15.4	13.9	14.6	11.7	9.5	10.8
22	6.4	4.6	5.5	8.5	4.6	6.8	14.3	12.8	13.4	15.0	8.5	11.5
23	6.7	3.5	5.0	7.8	3.5	5.4	13.1	10.2	11.4	17.3	10.6	13.9
24	6.7	2.1	4.8	9.5	4.2	6.8	12.4	9.5	11.1	19.7	13.1	16.4
25	7.4	2.8	5.4	11.7	6.4	9.1	13.5	12.1	12.7	20.9	15.8	18.6
26	8.1	4.2	6.1	9.9	8.5	9.1	12.8	10.6	11.7	22.5	18.1	20.3
27	6.4	1.4	3.6	8.8	6.7	7.9	12.4	10.2	11.4	21.7	18.9	20.2
28	3.5	0.0	1.4	10.2	4.9	7.4	14.3	11.3	12.2	21.3	17.7	19.6
29	---	---	---	12.8	6.7	9.7	13.9	10.2	11.5	21.3	17.3	19.2
30	---	---	---	14.6	10.6	12.5	12.4	8.8	10.8	22.5	17.7	19.9
31	---	---	---	12.8	9.2	10.9	---	---	---	23.3	18.5	21.0
MONTH	10.6	0.0	3.9	14.6	0.0	7.2	18.5	4.9	12.1	23.3	8.5	15.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	23.8	20.1	22.1	27.8	23.3	25.4	28.2	23.3	25.7	23.8	19.7	21.3
2	23.3	20.5	22.0	28.2	23.8	25.5	28.7	23.3	26.1	26.0	20.5	22.7
3	24.2	18.9	21.7	26.4	22.9	24.6	29.2	23.8	25.8	25.5	20.9	23.0
4	26.0	20.9	23.4	29.2	23.3	26.0	26.4	22.1	24.1	26.4	20.9	23.2
5	26.4	22.5	24.4	29.2	24.6	26.6	27.3	22.9	25.0	25.1	18.9	21.7
6	24.6	20.9	22.4	28.2	22.5	25.1	27.3	23.8	25.4	25.1	18.5	21.5
7	23.8	19.3	21.3	27.8	21.3	24.4	25.5	20.5	23.1	25.5	19.3	22.2
8	24.2	19.3	21.5	28.2	21.7	24.7	25.5	20.1	22.4	25.5	19.3	22.1
9	24.6	18.9	21.9	27.3	23.3	25.0	25.1	19.7	22.2	24.6	18.1	21.1
10	25.5	20.9	23.2	25.1	22.9	24.1	26.0	19.7	22.6	24.2	17.3	20.5
11	26.4	21.7	24.0	24.2	22.1	23.0	26.4	21.3	23.4	23.3	18.1	20.4
12	25.1	21.7	23.5	22.9	19.3	21.4	26.9	---	---	22.1	15.8	18.8
13	25.1	22.1	23.4	21.7	20.5	21.3	27.8	22.5	24.8	22.1	15.0	18.4
14	24.6	22.1	23.2	20.5	18.1	19.6	28.2	22.9	25.2	20.5	18.1	19.3
15	22.5	19.7	21.1	24.6	18.9	21.4	26.4	22.5	24.2	20.9	19.3	19.9
16	20.5	17.7	19.3	25.5	20.9	23.3	25.5	23.3	24.2	22.5	19.7	20.8
17	22.9	17.7	20.0	26.4	22.1	24.4	25.5	22.5	23.9	23.3	19.3	21.0
18	23.8	17.7	20.7	25.1	23.3	24.2	26.4	22.5	24.4	22.1	19.3	20.6
19	23.3	19.7	21.6	25.5	22.5	23.7	26.9	22.5	24.5	23.8	20.1	21.6
20	24.2	19.7	22.0	26.9	22.5	24.2	26.9	22.5	24.5	23.3	20.9	21.9
21	25.1	20.1	22.4	27.8	22.5	25.0	26.0	21.3	23.4	23.3	21.3	22.1
22	25.1	19.7	22.3	28.7	23.3	25.8	26.9	21.7	24.0	22.5	20.1	21.6
23	25.5	20.1	22.8	27.8	23.8	25.4	27.3	22.5	24.6	22.1	18.9	20.3
24	27.3	21.3	24.2	25.1	23.3	23.9	26.0	23.3	24.6	21.3	17.7	19.6
25	27.8	22.5	24.8	23.3	21.7	22.4	25.1	22.1	23.5	19.7	17.7	18.7
26	25.5	22.9	24.1	25.1	21.3	22.9	23.3	20.9	22.1	17.7	15.4	16.4
27	25.5	22.5	23.9	22.9	21.3	22.1	21.7	20.5	21.2	17.7	15.8	16.5
28	24.2	21.7	22.8	25.1	20.9	22.9	20.5	19.3	20.2	19.7	16.1	17.9
29	26.4	21.3	23.6	26.4	22.5	24.3	22.9	18.9	20.4	19.7	16.5	18.0
30	27.3	22.1	24.6	26.9	22.9	25.0	23.3	19.7	21.5	20.1	17.3	18.4
31	---	---	---	27.3	22.9	25.2	21.7	20.1	21.0	---	---	---
MONTH	27.8	17.7	22.6	29.2	18.1	24.0	29.2	---	---	26.4	15.0	20.4

JAMES RIVER BASIN

02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'07", NAD83, Bath County, Hydrologic Unit 02080201, on right bank 900 ft upstream from bridge on State Highway 600, 0.8 mi upstream from Gap Run, and 4.8 mi northeast of Sunrise.

DRAINAGE AREA.--60.1 mi².

PERIOD OF RECORD.--June 1974 to current year.

REVISED RECORDS.--WDR VA-85-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,200.02 ft NGVD of 1929 (levels by Virginia Department of Transportation). Jul. 2 to Sep. 6, 1990, nonrecording gage at present site and datum.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 9, which is fair. Virginia Power gage-height transmitter at station, receiver at Back Creek Dam. Maximum discharge, 17,500 ft³/s, from rating curve extended above 3,800 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0615	2,060	4.66	May 7	1945	2,100	4.69
Apr 28	1300	*3,200	*5.45				

**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	4.7	3.8	5.4	e5.8	31	12	274	207	45	9.2	17	3.5
2	4.4	3.8	5.0	e5.6	29	15	213	171	43	9.5	14	3.3
3	4.1	4.3	5.0	e5.4	26	51	150	148	35	12	16	3.0
4	3.9	4.1	4.6	e5.2	24	98	104	137	30	10	33	2.7
5	3.7	4.0	4.3	e5.2	20	70	78	127	26	9.2	31	2.4
6	3.6	3.8	4.2	5.2	19	53	62	114	25	7.7	21	2.3
7	3.7	3.7	4.3	e5.4	20	43	51	699	27	6.7	15	2.2
8	3.5	3.9	5.8	e5.7	19	36	43	891	21	6.1	12	2.0
9	3.4	3.7	8.3	e7.0	19	32	50	392	19	5.7	9.5	1.9
10	3.4	3.5	8.6	8.4	21	31	106	251	18	12	8.2	1.7
11	3.4	3.4	20	20	34	27	108	181	16	21	7.3	1.5
12	3.5	3.4	21	21	42	27	94	143	15	12	6.7	1.4
13	3.6	3.6	16	19	42	34	95	126	16	10	6.2	1.2
14	4.6	3.5	14	16	34	41	145	108	18	61	5.6	1.3
15	7.1	3.5	15	15	31	47	235	119	17	48	5.2	2.1
16	6.3	3.4	13	11	29	48	256	113	15	27	5.0	3.3
17	5.7	3.5	12	13	27	47	182	100	13	17	5.0	3.1
18	5.4	3.8	27	11	22	68	134	116	12	13	5.0	2.7
19	5.2	3.6	31	8.5	21	132	105	125	11	12	4.9	2.5
20	4.9	3.6	24	10	20	492	85	107	12	11	4.8	2.3
21	4.6	3.5	18	11	19	387	119	87	11	9.2	4.1	2.7
22	4.5	3.5	15	9.5	18	226	1250	72	9.6	7.7	3.7	8.9
23	4.3	3.4	14	12	18	143	494	62	8.9	9.9	3.5	23
24	4.2	3.4	16	49	16	101	262	55	8.5	22	3.9	11
25	4.1	6.4	13	141	16	75	178	49	8.2	24	4.1	7.4
26	3.7	13	13	94	15	67	121	45	11	114	3.8	39
27	3.9	8.5	10	61	15	133	89	43	12	91	3.8	129
28	4.0	6.7	11	45	13	128	1480	69	15	122	4.3	92
29	4.0	5.9	10	37	---	104	753	60	13	61	4.5	49
30	3.8	5.7	7.8	33	---	88	327	53	11	36	4.2	29
31	3.8	---	e6.8	32	---	112	---	46	---	23	3.8	---
TOTAL	133.0	133.9	383.1	727.9	660	2968	7643	5016	542.2	839.9	276.1	437.4
MEAN	4.29	4.46	12.4	23.5	23.6	95.7	255	162	18.1	27.1	8.91	14.6
MAX	7.1	13	31	141	42	492	1480	891	45	122	33	129
MIN	3.4	3.4	4.2	5.2	13	12	43	43	8.2	5.7	3.5	1.2
CFSM	0.07	0.07	0.21	0.39	0.39	1.59	4.24	2.69	0.30	0.45	0.15	0.24
IN.	0.08	0.08	0.24	0.45	0.41	1.84	4.73	3.10	0.34	0.52	0.17	0.27

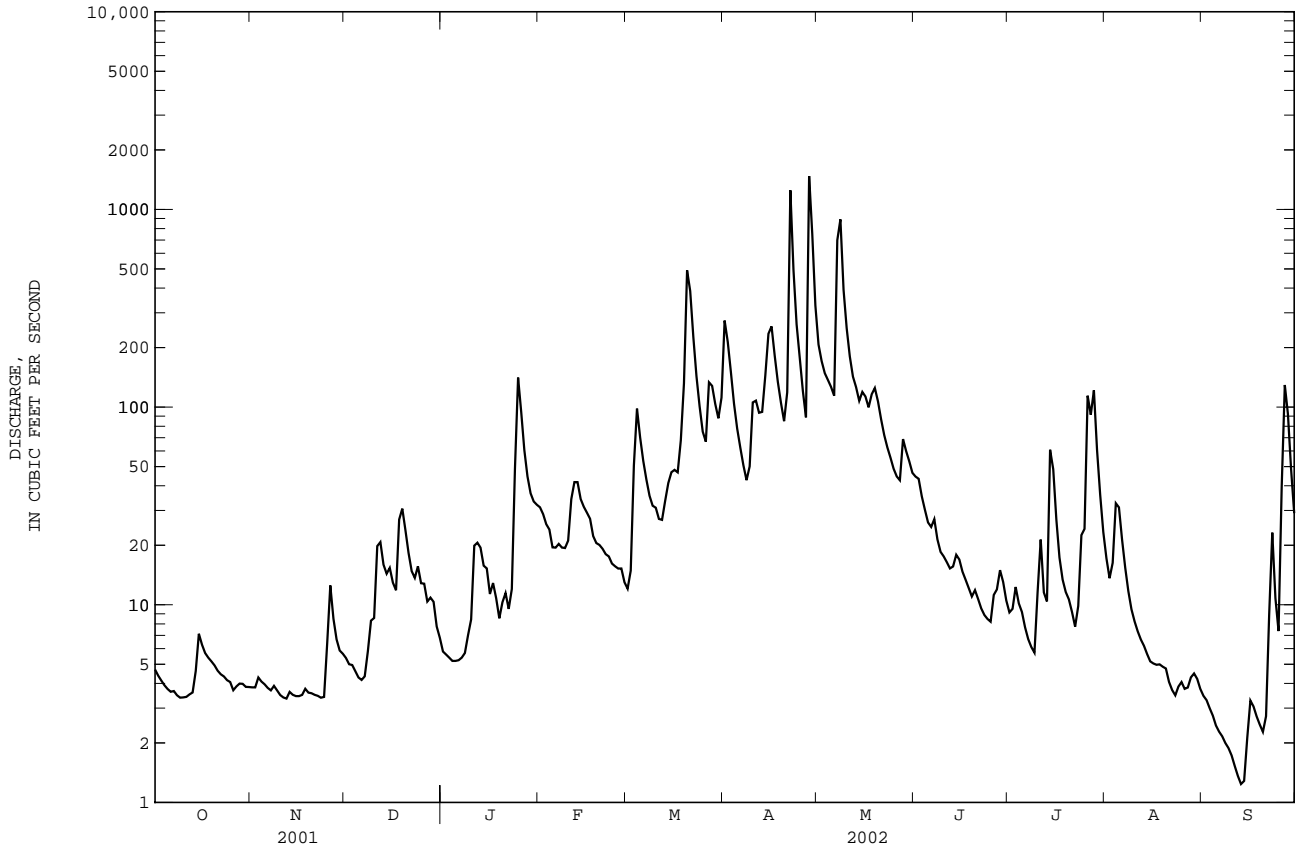
02011460 BACK CREEK NEAR SUNRISE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	39.5	75.6	101	137	141	196	139	126	60.5	27.1	25.6	25.6
MAX	256	512	249	426	326	394	330	391	174	69.5	88.9	180
(WY)	1977	1986	1997	1996	1994	1993	1987	1996	1995	1994	1996	1996
MIN	3.46	4.03	6.23	8.49	23.6	54.5	41.9	31.8	9.42	2.47	4.41	2.48
(WY)	1999	1999	1999	1981	2002	1988	1999	1991	1999	1999	1987	1983

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1974 - 2002	
ANNUAL TOTAL	21892.7		19760.5			
ANNUAL MEAN	60.0		54.1		91.0	
HIGHEST ANNUAL MEAN					155 1996	
LOWEST ANNUAL MEAN					39.1 1999	
HIGHEST DAILY MEAN	878	May 23	1480	Apr 28	6280	Nov 4 1985
LOWEST DAILY MEAN	3.4	aOct 9	1.2	Sep 13	0.87	Aug 12 1999
ANNUAL SEVEN-DAY MINIMUM	3.5	Nov 10	1.6	Sep 8	1.0	Aug 6 1999
MAXIMUM PEAK FLOW			3200		17500 Nov 4 1985	
MAXIMUM PEAK STAGE			5.45		10.01 Nov 4 1985	
INSTANTANEOUS LOW FLOW			1.1		0.73 bAug 12 1999	
ANNUAL RUNOFF (CFSM)	1.00		0.90		1.51	
ANNUAL RUNOFF (INCHES)	13.55		12.23		20.58	
10 PERCENT EXCEEDS	176		125		205	
50 PERCENT EXCEEDS	20		15		42	
90 PERCENT EXCEEDS	4.0		3.5		5.8	

a Also Oct. 10, 11 and Nov. 11, 12, 16, 23, 24, 2001.
 b Also Aug. 13, 1999.
 e Estimated.



JAMES RIVER BASIN

02011470 BACK CREEK AT SUNRISE, VA

LOCATION.--Lat 38°11'25", long 79°48'42", NAD83, Bath County, Hydrologic Unit 02080201, on left bank 75 ft upstream from bridge on State Highway 600 at Sunrise, 180 ft upstream from Beaver Run, 0.5 mi downstream from Back Creek Dam, and 7.6 mi northeast of Mountain Grove.

DRAINAGE AREA.--76.1 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Concrete control since Oct. 24, 1984. Datum of gage is 1,968.52 ft NGVD of 1929 (Virginia Power bench mark). Nov. 5, 1992, to Jan. 5, 1993, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since October 1984 by Back Creek Lake 0.5 mi upstream, amount unknown. Virginia Power gage-height transmitter at station, receiver at Back Creek Dam. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 5,690 ft³/s, from rating curve extended above 960 ft³/s on basis of release from Back Creek Lake at peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**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	13	13	8.1	8.7	16	16	275	317	70	13	15	14
2	13	14	8.1	8.9	16	18	360	373	71	13	15	13
3	13	13	8.1	9.0	15	18	227	170	69	14	15	14
4	13	13	8.1	8.9	15	111	136	190	63	14	19	14
5	13	13	8.1	8.6	17	132	137	161	43	14	21	15
6	13	13	8.2	8.9	17	129	99	98	27	14	22	14
7	12	13	8.6	9.0	17	113	66	880	35	13	16	14
8	12	13	8.7	8.9	18	44	40	1350	31	14	15	14
9	13	14	8.6	8.9	17	17	53	679	19	15	15	14
10	13	13	8.7	8.9	16	16	135	407	16	19	14	16
11	13	13	9.9	9.4	17	16	148	172	14	19	14	16
12	14	13	9.3	11	18	17	175	125	15	16	14	17
13	13	14	9.1	19	17	18	245	143	15	16	14	15
14	12	14	9.4	15	17	19	280	199	16	22	14	15
15	12	14	9.0	8.6	18	22	291	114	15	18	14	15
16	13	14	8.7	8.6	17	32	293	75	15	16	14	15
17	13	13	8.9	8.7	16	68	285	111	14	15	15	15
18	14	13	10	8.5	17	140	232	215	13	16	14	15
19	14	13	9.8	8.7	18	234	103	199	13	17	14	15
20	14	9.4	9.4	8.6	17	783	119	138	13	16	14	15
21	13	8.4	9.1	8.7	17	561	177	132	13	15	14	15
22	13	8.1	8.7	8.7	16	306	1990	87	13	14	14	17
23	14	8.1	8.8	11	17	198	463	39	13	16	14	16
24	13	8.1	8.8	14	16	108	435	25	13	18	15	14
25	13	8.6	8.7	17	15	51	268	55	14	32	14	14
26	14	8.5	9.0	13	15	79	133	52	14	217	14	22
27	13	8.1	9.1	16	15	192	135	52	15	174	15	24
28	12	8.1	8.9	17	16	229	1730	51	15	211	15	22
29	13	8.1	8.7	18	---	212	1180	27	14	80	14	16
30	13	8.2	8.7	17	---	119	413	37	13	37	14	15
31	13	---	8.8	17	---	93	---	69	---	23	14	---
TOTAL	404	344.7	274.1	352.2	463	4111	10623	6742	724	1151	465	470
MEAN	13.0	11.5	8.84	11.4	16.5	133	354	217	24.1	37.1	15.0	15.7
MAX	14	14	10	19	18	783	1990	1350	71	217	22	24
MIN	12	8.1	8.1	8.5	15	16	40	25	13	13	14	13

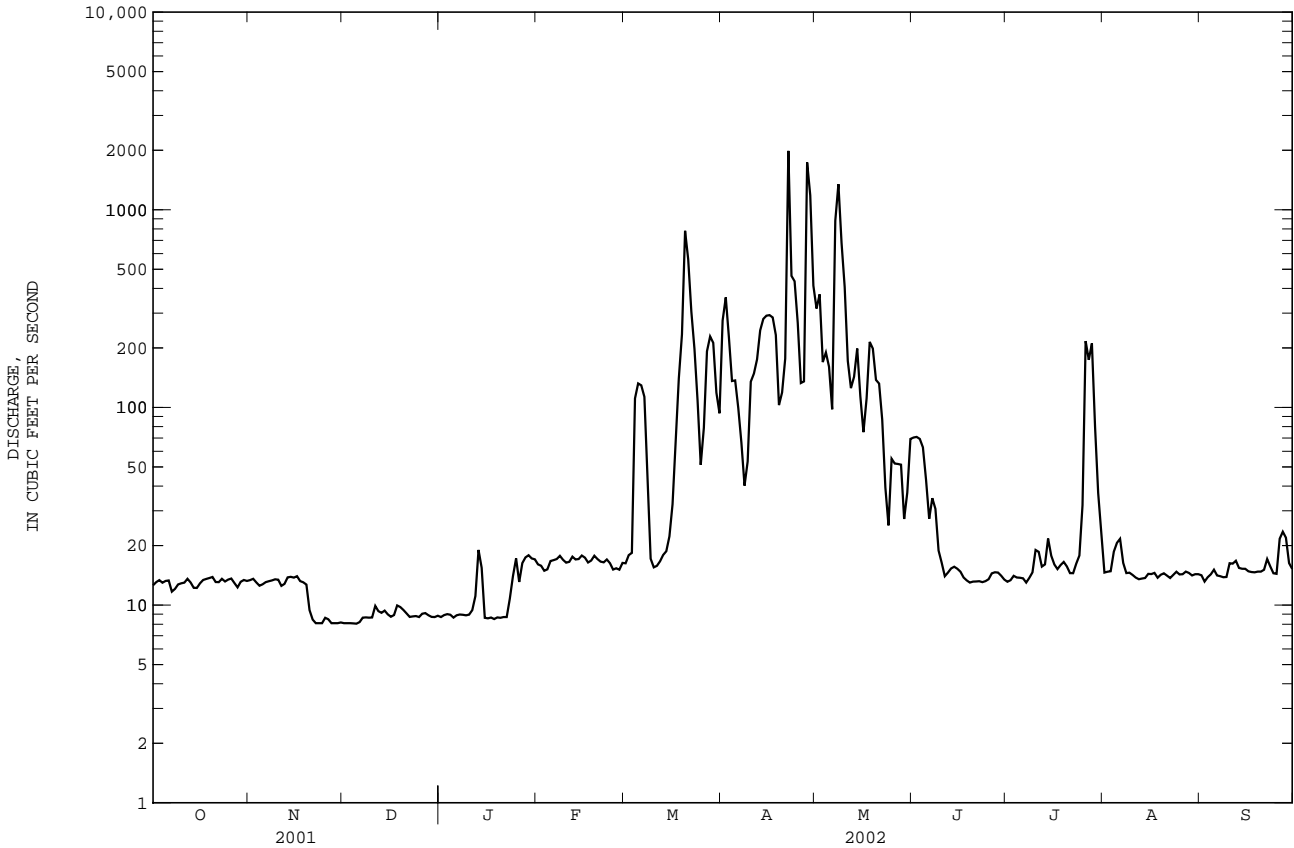
02011470 BACK CREEK AT SUNRISE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.6	70.8	110	173	162	246	178	172	76.8	34.9	33.7	35.3
MAX	150	371	285	504	416	616	496	399	259	83.0	96.1	230
(WY)	1990	1986	1997	1996	1994	1993	1987	1989	1995	1994	1996	1996
MIN	9.31	3.83	2.51	11.4	16.5	61.4	51.1	37.5	12.3	10.0	12.1	11.5
(WY)	1985	1999	1999	2002	2002	1988	1986	1991	1999	1999	1999	1985

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1985 - 2002	
ANNUAL TOTAL	28886.8		26124.0			
ANNUAL MEAN	79.1		71.6		110	
HIGHEST ANNUAL MEAN					175	
LOWEST ANNUAL MEAN					47.9	
HIGHEST DAILY MEAN	1710	May 23	1990	Apr 22	4890	Jan 19 1996
LOWEST DAILY MEAN	8.1	aNov 22	8.1	aNov 22	1.7	bDec 5 1998
ANNUAL SEVEN-DAY MINIMUM	8.1	Nov 27	8.1	Nov 27	1.9	Nov 30 1998
MAXIMUM PEAK FLOW			3050		5690	
MAXIMUM PEAK STAGE			8.69		11.99	
INSTANTANEOUS LOW FLOW			7.1		1.7	
10 PERCENT EXCEEDS	229		182		244	
50 PERCENT EXCEEDS	19		15		37	
90 PERCENT EXCEEDS	9.4		8.8		13	

- a Also Nov. 23, 24, 27-29 and Dec. 1-5, 2001.
- b Also Dec. 6, 1998.
- c Also Nov. 21, 2001.
- d Also Dec. 6, 7, 1998.



JAMES RIVER BASIN

02011490 LITTLE BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°12'52", long 79°50'15", NAD83, Bath County, Hydrologic Unit 02080201, in George Washington National Forest, on right bank 600 ft downstream from Long Spring Run, 1.2 mi downstream from Little Back Creek Dam, and 8.5 mi northeast of Mountain Grove.

DRAINAGE AREA.--4.91 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder. Concrete control with rectangular weir plate. Datum of gage is 2,638.48 ft NGVD of 1929 (Virginia Power bench mark). Nov. 5, 1992, to Jan. 5, 1993, nonrecording gage at present site and datum.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 14, which is fair. Flow regulated since January 1985 by Little Back Creek Lake 1.2 mi upstream, amount unknown. Maximum discharge, 580 ft³/s, from rating curve extended above 30 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	2.6	2.8	1.4	e1.9	3.5	2.6	14	8.4	3.0	2.4	2.9	2.1
2	2.8	2.8	1.5	e2.0	3.4	2.8	11	7.2	4.0	2.5	2.8	2.1
3	2.7	2.7	1.5	e2.1	3.3	4.4	7.8	6.5	3.6	2.5	2.5	2.3
4	2.7	2.7	1.5	e2.0	3.4	5.5	6.1	6.1	3.3	2.3	2.5	2.3
5	2.7	2.8	1.5	e1.9	3.0	5.0	5.3	5.8	3.2	2.3	2.6	2.2
6	2.5	2.8	1.5	e2.0	2.8	4.4	4.7	5.7	3.1	2.2	2.4	2.1
7	2.4	2.8	1.5	e2.1	2.8	3.8	4.2	13	2.9	2.2	2.3	2.1
8	2.8	4.0	1.7	e2.1	2.7	3.4	4.0	28	2.7	2.3	2.3	2.1
9	2.9	2.8	1.9	e2.0	2.7	3.3	5.1	15	2.6	2.3	2.3	2.2
10	3.0	2.8	2.2	e1.9	3.0	3.4	13	8.9	2.7	3.8	2.3	2.2
11	3.1	2.8	3.6	2.3	3.9	3.5	11	6.6	2.6	5.2	2.3	2.2
12	2.9	2.9	2.9	e2.6	4.4	3.4	7.8	5.8	2.6	3.1	2.4	2.1
13	2.9	2.8	2.4	e2.6	4.4	3.9	8.0	5.6	2.6	2.9	2.4	2.1
14	3.2	2.7	2.4	e2.6	4.1	4.3	16	5.1	2.4	6.7	2.4	2.1
15	4.0	2.7	2.6	2.4	3.8	4.4	16	4.6	2.2	5.9	2.3	2.2
16	3.8	2.7	2.6	2.4	3.5	4.4	14	4.3	2.3	3.9	2.3	2.3
17	3.7	2.8	2.8	2.3	3.4	4.7	9.9	4.3	2.3	3.2	2.3	2.2
18	3.3	2.8	3.9	2.3	3.3	7.2	7.3	4.1	2.3	3.2	2.3	2.3
19	3.1	2.8	3.7	2.4	3.0	11	6.1	3.8	2.3	3.6	2.4	2.3
20	3.0	2.7	3.3	2.3	2.8	19	5.3	3.8	2.4	3.2	2.3	2.2
21	3.0	2.1	3.0	2.3	2.9	16	5.9	3.5	2.3	2.8	2.3	2.3
22	3.5	1.9	2.8	2.3	2.8	11	28	3.4	2.3	2.8	2.3	2.9
23	3.9	1.7	3.1	2.4	2.8	7.3	18	3.4	2.3	2.8	2.3	3.3
24	3.4	1.6	4.8	5.5	2.6	5.9	10	3.3	2.3	4.0	2.3	2.6
25	3.2	2.0	4.9	10	2.7	5.2	7.4	3.3	2.4	3.6	2.2	2.4
26	3.0	1.7	5.0	7.4	2.9	5.1	6.1	3.0	2.6	4.1	2.2	4.3
27	3.1	1.7	5.6	5.3	2.8	6.8	5.3	3.3	2.7	6.5	2.2	6.8
28	3.0	1.6	5.4	4.5	2.8	7.0	28	3.5	2.9	7.4	2.2	6.4
29	3.3	1.5	2.6	4.0	---	6.2	26	3.3	2.6	5.5	2.2	4.1
30	2.9	1.5	2.0	3.7	---	5.5	13	3.3	2.3	4.1	2.2	3.3
31	2.8	---	e1.9	3.5	---	6.7	---	3.2	---	3.4	2.1	---
TOTAL	95.2	74.0	87.5	95.1	89.5	187.1	324.3	189.1	79.8	112.7	72.8	82.1
MEAN	3.07	2.47	2.82	3.07	3.20	6.04	10.8	6.10	2.66	3.64	2.35	2.74
MAX	4.0	4.0	5.6	10	4.4	19	28	28	4.0	7.4	2.9	6.8
MIN	2.4	1.5	1.4	1.9	2.6	2.6	4.0	3.0	2.2	2.2	2.1	2.1

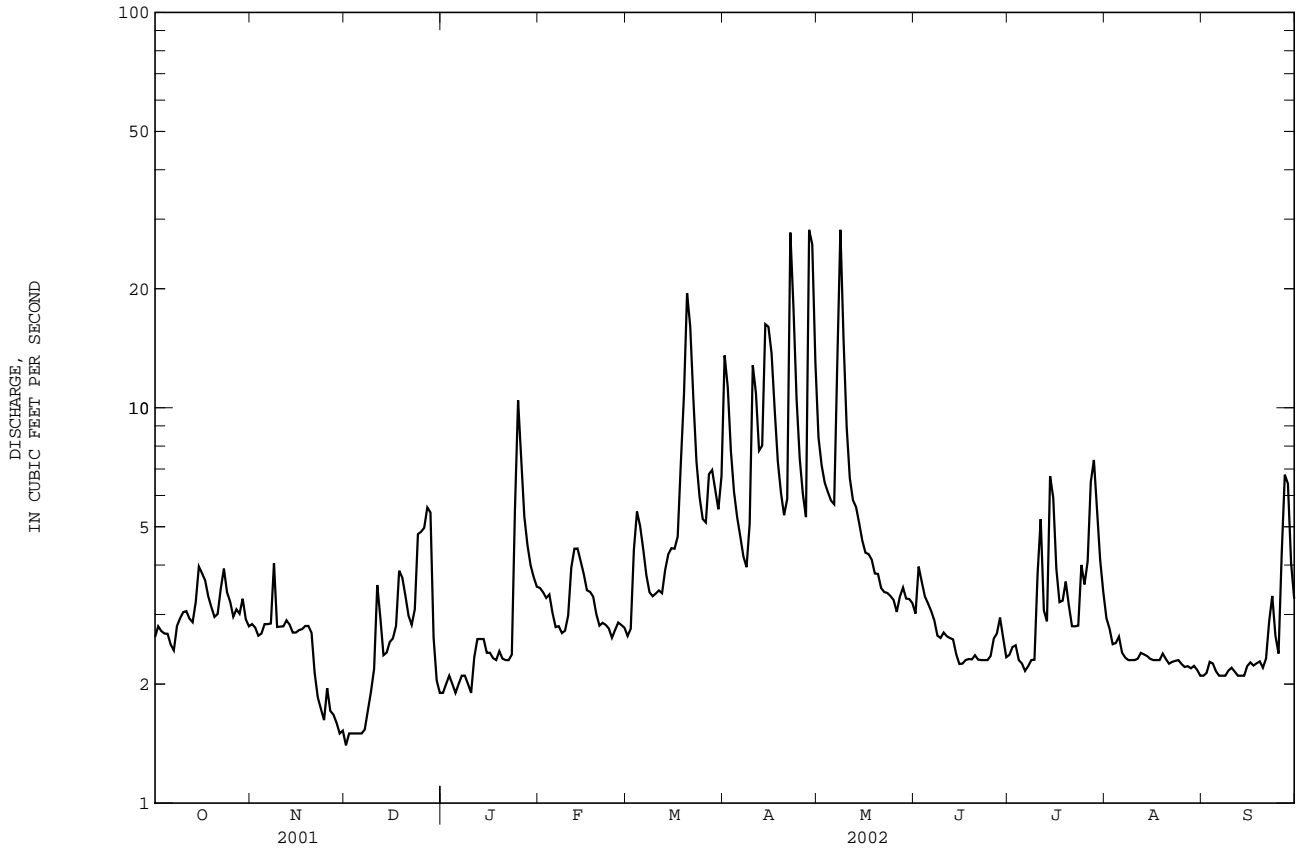
02011490 LITTLE BACK CREEK NEAR SUNRISE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3.36	4.68	5.50	7.08	6.82	8.39	6.81	6.72	4.25	3.46	3.38	3.28
MAX	7.46	12.6	9.65	15.7	12.9	16.4	13.1	14.8	8.41	4.95	5.13	7.29
(WY)	1990	1986	1997	1996	1994	1993	1987	1985	1995	1994	1989	1996
MIN	2.00	1.94	1.99	3.07	3.20	3.91	2.78	3.09	2.08	1.99	2.22	2.28
(WY)	2000	1999	1999	2002	2002	1985	1999	1999	1999	1999	1999	1985

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1985 - 2002	
ANNUAL TOTAL	1689.9		1489.2			
ANNUAL MEAN	4.63		4.08		5.30	
HIGHEST ANNUAL MEAN					7.00 1996	
LOWEST ANNUAL MEAN					3.34 1999	
HIGHEST DAILY MEAN	37	May 23	28	aApr 22	158	Nov 4 1985
LOWEST DAILY MEAN	1.4	Dec 1	1.4	Dec 1	0.90	Oct 13 1984
ANNUAL SEVEN-DAY MINIMUM	1.5	Nov 29	1.5	Nov 29	1.2	Jan 24 1985
MAXIMUM PEAK FLOW			52		Apr 28	580 Nov 4 1985
MAXIMUM PEAK STAGE			2.66		Apr 28	4.06 Nov 4 1985
INSTANTANEOUS LOW FLOW			1.4		Dec 1	b0.73 Oct 9 1999
10 PERCENT EXCEEDS	8.5		6.8		9.2	
50 PERCENT EXCEEDS	3.2		2.9		3.8	
90 PERCENT EXCEEDS	2.6		2.1		2.4	

a Also Apr. 28 and May 8, 2002.
 b Result of regulation.
 e Estimated.



JAMES RIVER BASIN

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'49", NAD83, Bath County, Hydrologic Unit 02080201, on left bank 0.3 mi downstream from Cummings Run, 0.8 mi downstream from bridge on State Highway 39, and 2.1 mi south of Mountain Grove.

DRAINAGE AREA.--134 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 7, which is fair. Flow regulated since October 1984 by Back Creek Lake 11.3 mi upstream, amount unknown, and since January 1985 by Little Back Creek Lake 14.4 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1952-1984 (unregulated flow) are available in previous data books, water years 1991-1998. Diversion 10.5 mi upstream from station by Virginia Power for recreation lakes, net averages 0.5 ft³/s. U.S. Army Corps of Engineers satellite water temperature and gage-height telemeter at station. Maximum discharge, 18,400 ft³/s, from rating curve extended above 14,000 ft³/s on basis of slope-area measurement of peak flow.

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	19	20	15	e16	50	31	529	504	76	23	30	17
2	19	20	16	e15	46	33	545	491	86	26	27	16
3	19	20	16	e15	43	51	409	348	83	26	27	15
4	19	19	16	e15	42	113	231	293	76	23	30	16
5	18	18	16	e15	40	162	202	290	65	20	32	16
6	19	19	16	16	38	151	161	179	42	19	30	17
7	18	19	16	e17	40	136	119	779	48	18	27	15
8	17	19	19	17	39	94	85	1650	44	17	22	15
9	18	19	18	17	38	49	99	867	36	19	20	14
10	18	20	18	17	39	44	360	609	31	23	20	16
11	18	19	36	20	46	42	320	331	27	33	19	16
12	19	18	32	21	53	42	296	216	26	26	18	17
13	19	19	32	28	55	65	401	213	26	28	18	17
14	20	20	34	32	52	86	658	263	27	82	17	16
15	20	20	33	24	50	85	602	187	26	55	17	19
16	19	20	31	21	48	84	540	103	25	40	18	18
17	20	20	31	21	45	128	467	131	23	33	18	17
18	20	19	38	20	42	298	394	221	22	31	18	16
19	20	19	40	22	40	458	217	224	21	30	17	17
20	20	18	40	23	39	880	176	164	20	29	18	16
21	20	13	36	20	37	790	344	141	19	26	17	19
22	18	13	33	21	36	499	2540	110	19	24	16	26
23	19	13	27	27	35	347	901	69	18	28	16	35
24	19	13	27	79	34	210	644	43	18	31	17	24
25	19	16	25	160	32	115	471	58	19	33	17	22
26	19	15	25	115	32	123	241	62	23	167	17	68
27	19	14	25	86	31	320	213	62	26	227	17	119
28	18	13	25	73	31	356	1800	71	28	182	18	101
29	17	13	24	64	---	327	1640	64	23	135	18	61
30	19	13	20	57	---	210	653	43	22	61	17	44
31	20	---	e18	53	---	215	---	75	---	43	17	---
TOTAL	586	521	798	1147	1153	6544	16258	8861	1045	1558	630	845
MEAN	18.9	17.4	25.7	37.0	41.2	211	542	286	34.8	50.3	20.3	28.2
MAX	20	20	40	160	55	880	2540	1650	86	227	32	119
MIN	17	13	15	15	31	31	85	43	18	17	16	14

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	49.2	123	180	279	267	377	276	250	114	53.4	48.8	51.4
MAX	246	696	392	818	608	833	824	528	351	134	127	300
(WY)	1990	1986	1997	1996	1998	1993	1987	1996	1995	2001	2000	1996
MIN	18.9	11.4	12.6	37.0	41.2	92.8	77.6	62.9	18.2	14.0	17.9	16.5
(WY)	1999	1999	1999	2002	2002	1988	1999	1991	1999	1999	1987	1985

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1985 - 2002

ANNUAL TOTAL	46236	39946	
ANNUAL MEAN	127	109	172
HIGHEST ANNUAL MEAN			262 1996
LOWEST ANNUAL MEAN			81.3 1999
HIGHEST DAILY MEAN	2180	May 23	2540 Apr 22 9940 Jan 19 1996
LOWEST DAILY MEAN	13	Nov 21	13 aNov 21 8.4 Nov 23 1998
ANNUAL SEVEN-DAY MINIMUM	14	Nov 21	14 Nov 21 9.1 Nov 23 1998
MAXIMUM PEAK FLOW			3650 Apr 22 b18400 Jan 19 1996
MAXIMUM PEAK STAGE			6.98 Apr 22 b12.41 Jan 19 1996
INSTANTANEOUS LOW FLOW			d10 Jan 1 c,d5.3 Dec 30 1998
10 PERCENT EXCEEDS	341	297	406
50 PERCENT EXCEEDS	42	27	70
90 PERCENT EXCEEDS	19	16	19

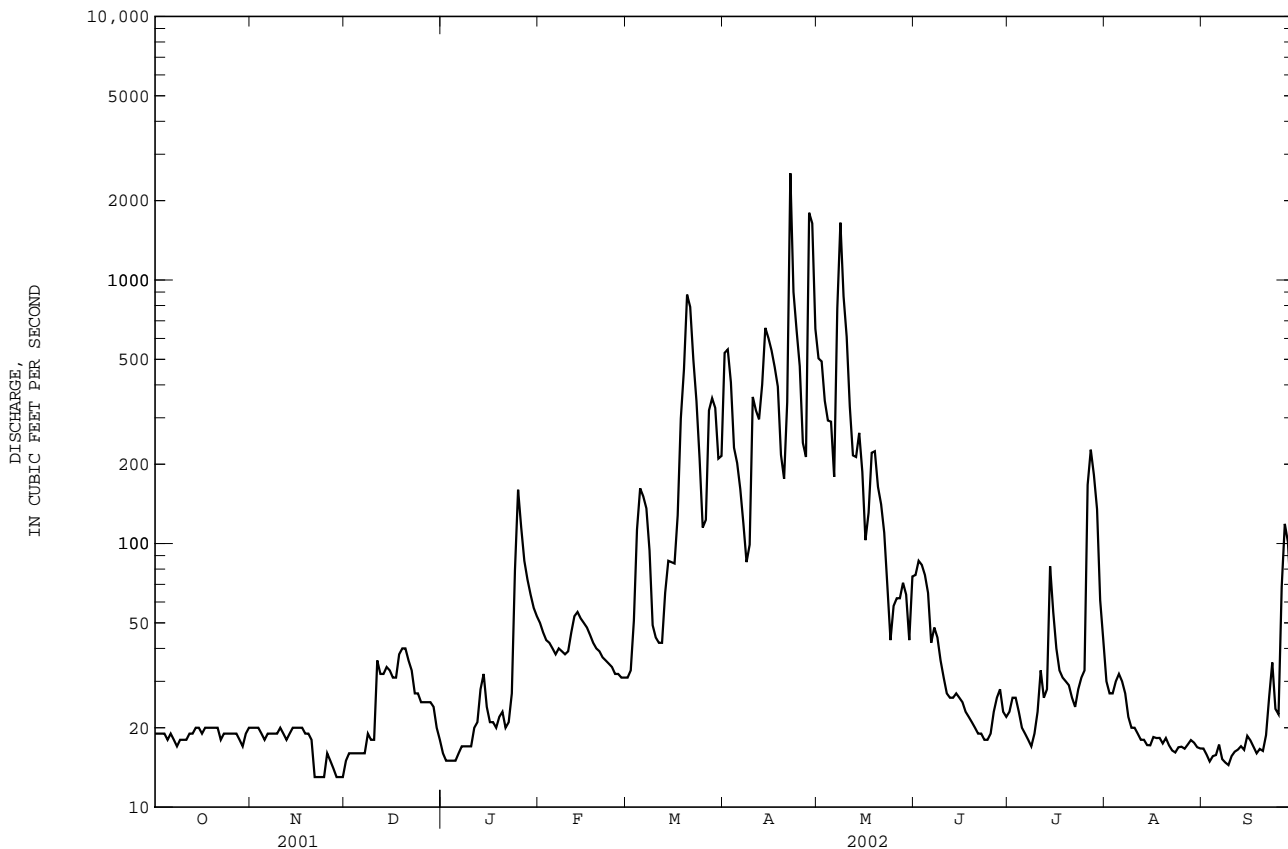
a Also Nov. 22-24, 28-30, 2001.

b Prior to regulation, 1951-84, maximum peak flow, 12,700 ft³/s, Mar. 7, 1967, gage height, 10.77 ft.

c Prior to regulation, 1951-84, instantaneous low flow, 1.5 ft³/s, Aug. 18, 1967.

d Result of freezeup.

e Estimated.



JAMES RIVER BASIN

02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°57'04", long 79°59'20", NAD83, Alleghany County, Hydrologic Unit 02080201, in control tower at Gath- right Dam on Jackson River, 0.9 mi upstream from Cedar Creek, 7.6 mi southwest of Hot Springs, and 19 mi upstream from Covington.

DRAINAGE AREA.--344 mi².

PERIOD OF RECORD.--December 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is at NGVD of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--Lake is formed by rolled rockfill dam with an impervious compacted earth (clay) core. Spillway with crest at elevation 1,667.5 ft is in a divide about 2.5 mi south of the dam, ungated, and 2,450 ft long with a base width of 100 ft. Except for flood flows, all discharge will be through a diversion tunnel with the invert of the entrance being in an intake tower 260 ft high. Elevation of invert is 1,430.5 ft. Portals in the tower at nine levels permit oxygenated water from the surface and cold water from the bottom of the lake to be mixed for water-quality control. Sluice gates in the tower control flood flow releases. Storage began Dec. 10, 1979. Total capacity at top of dam, elevation 1,684.5 ft, is 502,600 acre-ft of which 81,100 acre-ft is above spillway crest. Capacity at maximum conservation pool, elevation 1,582.0 ft, is 123,700 acre-ft; capacity at minimum conservation pool, elevation 1,554.0 ft, is 63,000 acre-ft. Lake is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite precipitation and elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

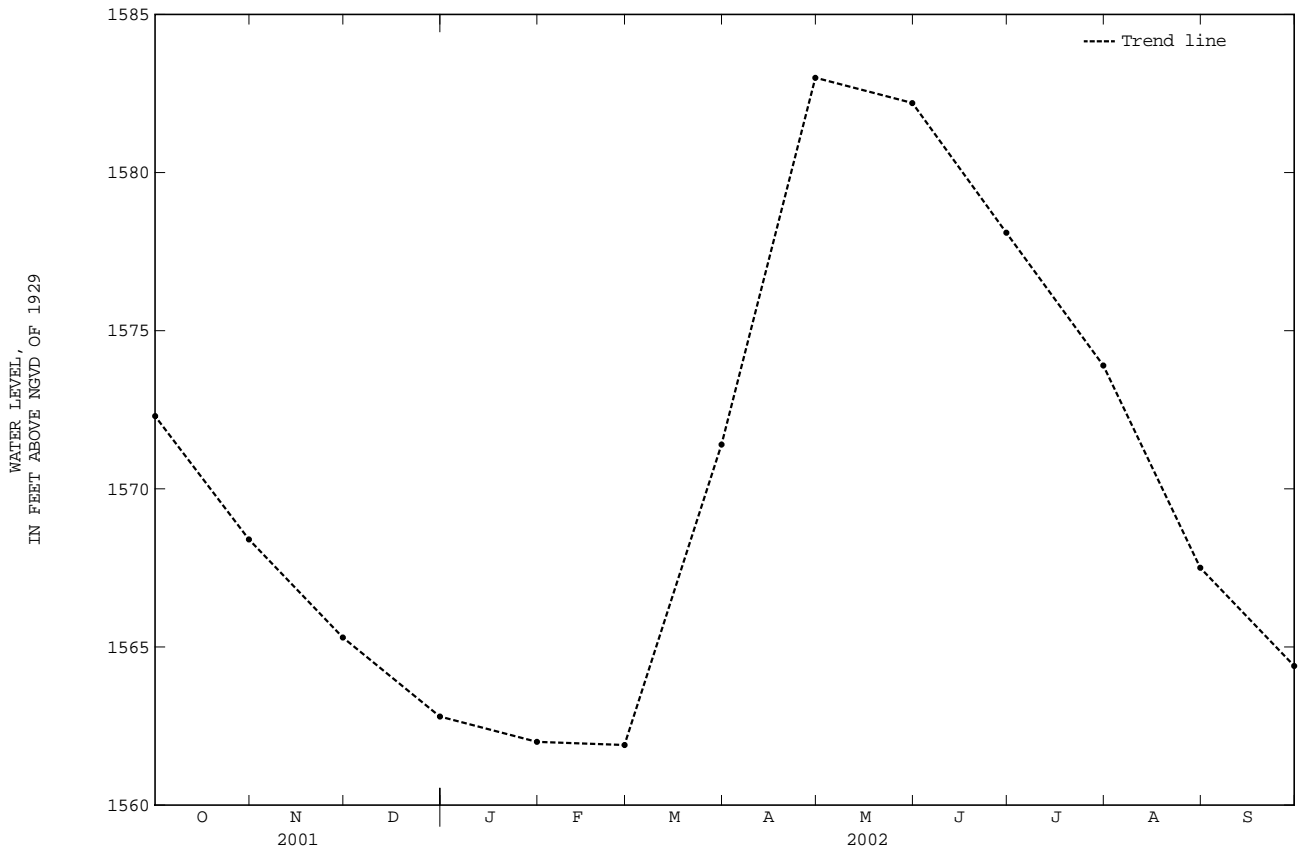
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 168,400 acre-ft, Jan. 20, 1996, elevation, 1,598.4 ft; minimum, (after first filling to minimum conservation pool), 71,900 acre-ft, Nov. 30, Dec. 1, 1991, elevation, 1,558.8 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,500, acre-ft, Apr. 29, elevation, 1,585.8 ft; minimum, 76,200 acre-ft, Jan. 22-24, elevation, 1,561.0 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,572.3	100,400	-
Oct. 31.....	1,568.4	91,700	-8,700
Nov. 30.....	1,565.3	85,000	-6,700
Dec. 31.....	1,562.8	79,900	-5,100
CAL YR 2001.....			-29,100
Jan. 31.....	1,562.0	78,200	-1,700
Feb. 28.....	1,561.9	78,000	-200
Mar. 31.....	1,571.4	98,300	+20,300
Apr. 30.....	1,583.0	126,300	+28,000
May 31.....	1,582.2	124,200	-2,100
June 30.....	1,578.1	114,100	-10,100
July 31.....	1,573.9	104,100	-10,000
Aug. 31.....	1,567.5	89,700	-14,400
Sept. 30.....	1,564.4	83,200	-6,500
WTR YR 2002.....			-17,200

02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA--Continued



JAMES RIVER BASIN

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°56'54", long 79°56'57", NAD83, Alleghany County, Hydrologic Unit 02080201, on right bank 0.4 mi upstream from Cedar Creek, 0.5 mi downstream from Gathright Dam and Lake Moomaw, and 7.3 mi southwest of Hot Springs.

DRAINAGE AREA.--345 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORDS.--WDR VA-81-1: 1980.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 0.5 mi upstream; since October 1984 by Back Creek Lake 28.5 mi upstream, amount unknown; and since January 1985 by Little Back Creek Lake 31.6 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1974-1979 (unregulated flow) are available in previous data books, water years 1991-1998. U.S. Army Corps of Engineers satellite water-temperature and gage-height telemeter at station. Maximum discharge, 29,000 ft³/s, from rating curve extended above 9,200 ft³/s on basis of slope-area measurement of peak flow.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 17.20 ft, from floodmark.

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	210	162	162	178	124	124	125	2240	274	297	296	220
2	194	156	162	178	124	124	124	1060	277	298	296	211
3	192	156	164	178	124	124	124	851	276	300	296	211
4	192	155	164	178	124	124	124	698	275	299	296	211
5	192	154	164	178	124	124	124	698	276	296	296	211
6	191	154	164	179	124	124	126	698	277	296	296	211
7	190	154	164	181	124	124	125	698	278	296	293	211
8	190	153	164	181	124	124	123	1910	278	298	292	211
9	190	151	164	180	124	125	124	2960	278	300	292	211
10	190	154	166	181	124	125	124	1940	278	300	295	211
11	190	154	167	181	124	124	124	925	280	300	296	211
12	190	154	166	181	124	124	124	590	281	299	296	211
13	187	154	164	181	124	124	124	414	281	297	296	211
14	187	154	167	181	124	124	125	416	281	300	296	211
15	187	154	170	181	124	124	125	416	281	298	296	211
16	187	156	170	181	124	124	124	416	282	296	296	211
17	187	156	170	181	124	126	124	416	281	296	296	211
18	187	156	170	149	124	125	124	357	281	296	296	211
19	185	156	170	124	124	123	124	315	281	296	296	211
20	184	156	172	124	124	124	124	315	281	296	294	211
21	184	157	173	124	124	124	124	315	283	296	292	211
22	184	159	173	124	124	124	1010	270	284	296	292	212
23	184	159	173	124	124	124	2680	230	283	296	266	211
24	184	159	173	124	124	124	3020	226	283	296	243	211
25	182	159	173	124	124	124	2090	226	283	296	243	211
26	181	159	175	124	124	125	866	226	284	296	243	212
27	181	160	175	124	124	125	629	226	285	296	243	211
28	181	162	175	124	124	124	776	226	285	296	243	211
29	181	162	175	124	---	124	3030	226	283	296	240	211
30	181	162	175	124	---	124	4230	262	292	296	239	211
31	180	---	175	124	---	125	---	247	---	296	239	---
TOTAL	5805	4697	5239	4820	3472	3851	20940	21013	8422	9210	8689	6341
MEAN	187	157	169	155	124	124	698	678	281	297	280	211
MAX	210	162	175	181	124	126	4230	2960	292	300	296	220
MIN	180	151	162	124	124	123	123	226	274	296	239	211
(†)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN†	46	44	86	128	120	454	1169	644	111	134	46	102
CFSM†	.13	.13	.25	.37	.35	1.32	3.39	1.87	.32	.39	.13	.30
IN. †	.15	.14	.29	.43	.36	1.52	3.78	2.15	.36	.45	.15	.33

CAL YR MEAN† 276 CFSM† .80 IN.† 10.86

WTR YR MEAN† 257 CFSM† .74 IN.† 10.12

† Total change in contents, equivalent in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

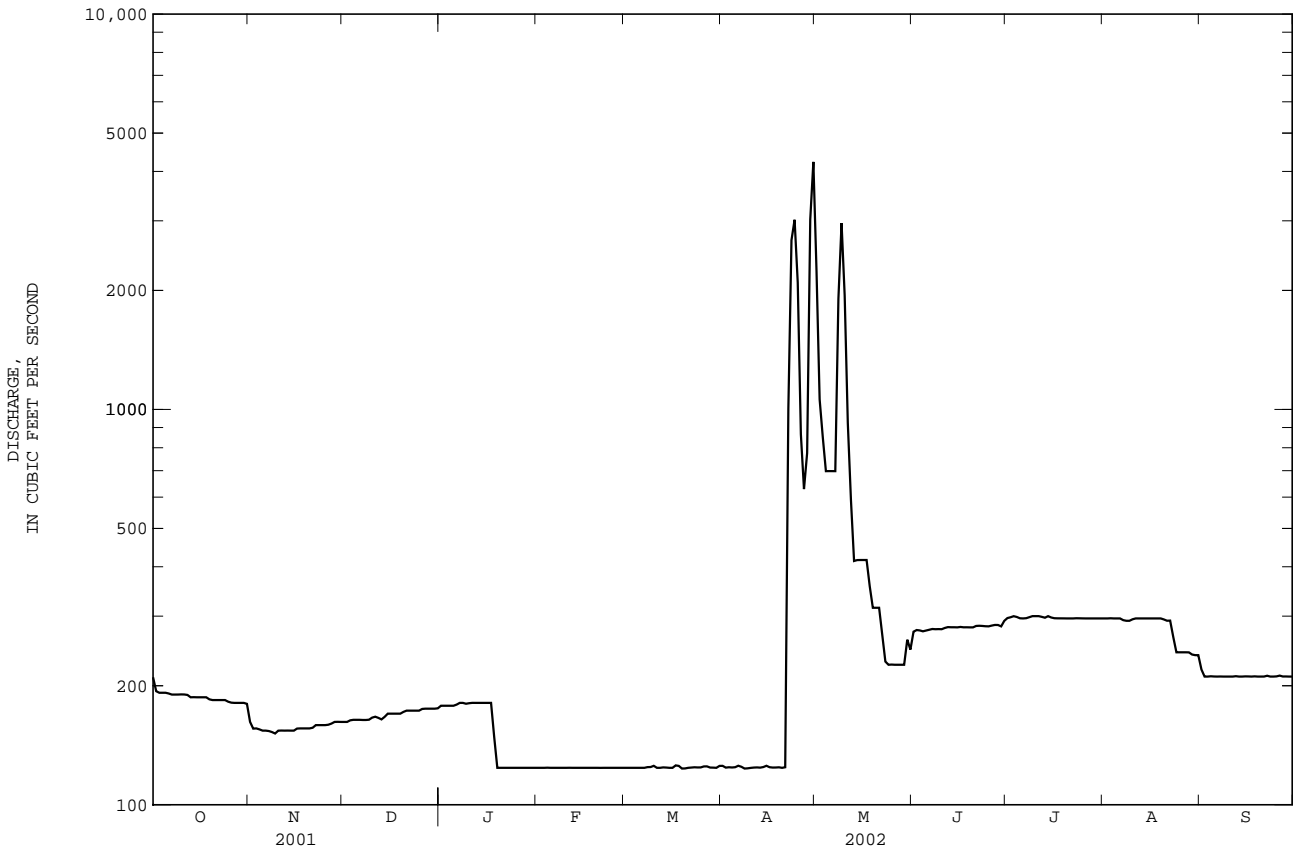
02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	228	281	257	432	583	846	710	588	409	275	278	256
MAX	829	1235	1061	1555	1466	1881	2052	1477	1017	398	644	661
(WY)	1980	1986	1997	1996	1998	1993	1987	1989	1982	1995	1984	1996
MIN	70.8	64.1	60.8	74.5	114	74.4	172	226	202	123	71.4	57.5
(WY)	1981	1982	1982	1981	1981	1981	1981	1999	1980	1980	1981	1981

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1980 - 2002
ANNUAL TOTAL	115537	102499	
ANNUAL MEAN	317	281	428
HIGHEST ANNUAL MEAN			592 1996
LOWEST ANNUAL MEAN			196 1981
HIGHEST DAILY MEAN	2780 May 24	4230 Apr 30	8670 Nov 7 1985
LOWEST DAILY MEAN	151 Nov 9	123 aMar 19	47 Sep 2 1981
ANNUAL SEVEN-DAY MINIMUM	153 Nov 5	124 Mar 19	53 Aug 29 1981
MAXIMUM PEAK FLOW		4760 Apr 29	b10400 Nov 7 1985
MAXIMUM PEAK STAGE		13.27 Apr 29	b15.29 Nov 7 1985
INSTANTANEOUS LOW FLOW		d13 May 30	c,d5.2 May 6 1980
ANNUAL RUNOFF (CFSM)	0.92	0.81	1.24
ANNUAL RUNOFF (INCHES)	12.46	11.05	16.84
10 PERCENT EXCEEDS	508	299	855
50 PERCENT EXCEEDS	236	184	261
90 PERCENT EXCEEDS	164	124	150

- a Also Apr. 8, 2002.
- b Prior to regulation, 1974-79, maximum peak flow, 29,000 ft³/s, Dec. 26, 1973, result of cofferdam failure during construction of Gathright Dam, gage height, 18.77 ft.
- c Prior to regulation, 1974-79, instantaneous low flow, 3.0 ft³/s, July 12, 1979, result of gage closure at Gathright Dam.
- d Result of regulation.



JAMES RIVER BASIN

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1978 to current year.

INSTRUMENTATION.--Water-quality monitor October 1978 to September 2001. Water-temperature recorder since October 2001.

REMARKS.--Interruption in record due to no streamflow past temperature sensor. Some record in prior years fragmentary due to instrument malfunction. The intake tower at Gathright Dam permits selective withdrawal of water from one or more reservoir depths. Records represent water temperature within 0.5°C. Temperature at the sensor was compared with the average for the river by temperature cross section on Oct. 25, 2000. No variation of water temperature was found within the cross section. Daily records of specific conductance, pH, and dissolved oxygen were also collected from October 1978 to September 2001.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE (water years 1979, 1981-02): Maximum recorded, 28.0°C, Aug. 1, 2, 1979; minimum recorded, 0.0°C, Feb. 16-19, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 16.1°C, May 30, June 2; minimum recorded, 4.6°C, Mar. 4, 5.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.3	13.9	14.1	---	---	---	11.7	11.3	11.3	7.4	7.1	7.4
2	14.4	14.0	14.2	---	---	---	11.7	11.0	11.3	7.4	7.1	7.2
3	14.3	13.9	14.2	---	---	---	11.3	11.0	11.0	7.1	6.7	7.0
4	14.6	13.9	14.3	---	---	---	11.3	11.0	11.0	6.7	6.7	6.7
5	14.6	14.3	14.4	---	---	---	11.3	11.0	11.0	6.7	6.4	6.7
6	14.3	13.9	14.2	---	---	---	11.3	11.0	11.1	6.7	6.4	6.6
7	14.3	13.9	14.0	---	---	---	11.3	11.0	11.1	6.7	6.4	6.4
8	14.3	13.5	13.9	---	---	---	11.0	11.0	11.0	6.4	6.0	6.1
9	13.9	13.5	13.8	---	---	---	11.0	10.6	10.9	6.4	6.0	6.2
10	14.3	13.5	13.8	---	---	---	11.0	10.6	10.6	6.4	6.0	6.2
11	14.3	13.9	14.0	---	---	---	11.0	10.6	10.6	6.4	6.0	6.0
12	14.3	13.9	13.9	---	---	---	10.6	10.6	10.6	6.0	5.7	6.0
13	14.3	13.9	14.1	---	---	---	11.0	10.6	10.6	6.0	5.7	5.8
14	14.3	13.9	13.9	---	---	---	11.0	10.6	10.7	6.0	5.7	5.8
15	13.9	13.9	13.9	---	---	---	10.6	10.2	10.6	6.0	5.7	5.7
16	13.9	13.5	13.8	---	---	---	10.6	10.2	10.3	5.7	5.3	5.7
17	13.9	13.5	13.5	---	---	---	10.6	10.2	10.4	5.7	5.3	5.7
18	13.9	13.1	13.6	---	---	---	10.6	9.9	10.2	5.7	5.3	5.7
19	13.9	13.5	13.8	---	---	---	10.2	9.9	10.1	5.7	4.9	5.5
20	13.9	13.5	13.7	---	---	---	10.2	9.5	9.7	5.7	5.3	5.4
21	13.9	13.5	13.8	11.7	11.3	11.5	9.5	9.5	9.5	5.7	5.3	5.4
22	13.9	13.5	13.9	11.7	11.3	11.3	9.5	9.2	9.4	5.7	5.3	5.3
23	13.9	13.5	13.8	11.3	11.0	11.2	9.5	9.2	9.4	5.7	5.3	5.5
24	14.3	13.9	13.9	11.3	11.3	11.3	9.5	8.8	9.2	5.7	5.3	5.7
25	13.9	13.5	13.9	11.7	11.3	11.5	9.2	8.8	8.8	5.7	5.3	5.5
26	13.9	13.1	13.5	11.7	11.3	11.3	8.8	8.5	8.8	5.7	5.3	5.4
27	13.5	13.1	13.2	11.7	11.3	11.3	8.8	8.5	8.6	5.7	5.3	5.3
28	13.1	13.1	13.1	11.7	11.3	11.4	8.5	8.1	8.5	5.7	5.3	5.5
29	13.1	12.8	13.0	11.7	11.3	11.5	8.5	7.8	8.1	6.4	5.3	5.9
30	13.1	12.8	13.0	11.7	11.3	11.6	8.1	7.8	7.8	6.4	5.7	6.2
31	13.1	12.8	13.1	---	---	---	7.8	7.4	7.7	6.4	5.7	6.1
MONTH	14.6	12.8	13.8	---	---	---	11.7	7.4	10.0	7.4	4.9	6.0

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.1	5.7	6.0	5.7	4.9	5.3	9.9	8.1	9.0	11.7	8.5	10.2
2	6.0	5.3	5.7	5.3	4.9	5.3	10.2	7.8	9.3	11.7	11.3	11.4
3	6.0	5.3	5.6	5.7	4.9	5.3	10.2	8.5	9.4	12.4	11.3	11.9
4	5.7	4.9	5.3	5.7	4.6	5.0	10.2	8.8	9.5	11.7	11.3	11.7
5	5.3	4.9	5.1	5.3	4.6	4.9	10.2	8.8	9.5	12.1	11.7	11.8
6	5.3	4.9	5.1	5.7	4.9	5.2	10.6	9.2	9.7	12.1	11.3	11.7
7	5.7	4.9	5.1	6.0	4.9	5.6	10.6	9.2	9.6	12.1	11.3	11.8
8	5.3	4.9	5.1	6.4	5.7	5.9	10.6	9.2	9.9	12.1	8.8	10.4
9	5.3	4.9	5.1	6.7	5.7	6.2	9.5	9.2	9.3	9.9	9.2	9.4
10	5.3	4.9	5.2	6.4	5.7	6.0	10.6	9.2	9.8	13.1	9.5	11.2
11	5.3	4.9	5.1	6.0	5.3	5.6	11.3	9.5	10.2	13.1	12.4	12.7
12	5.3	4.9	5.1	5.7	5.3	5.7	11.0	9.5	10.1	13.5	12.1	12.8
13	5.3	4.9	5.0	6.0	5.3	5.7	10.6	9.9	10.1	13.5	12.1	12.8
14	5.3	4.9	5.1	6.7	5.3	6.1	11.3	10.2	10.5	14.3	12.8	13.5
15	5.7	4.9	5.2	7.1	6.0	6.6	11.7	10.2	10.9	13.9	12.8	13.2
16	5.7	4.9	5.3	6.7	6.0	6.4	11.7	10.2	10.8	13.5	12.8	13.1
17	5.3	4.9	5.2	7.1	6.0	6.5	12.1	10.6	11.3	13.5	12.4	13.1
18	5.3	4.9	5.1	7.4	7.1	7.2	11.7	10.6	11.0	13.9	12.8	13.4
19	5.7	4.9	5.2	7.4	7.1	7.1	13.5	10.2	11.4	13.9	13.1	13.5
20	5.7	5.3	5.5	7.4	6.7	6.9	11.3	10.2	10.7	14.6	13.1	13.9
21	6.0	5.3	5.6	8.1	7.1	7.6	11.0	10.2	10.7	14.3	13.9	13.9
22	5.7	5.3	5.4	8.5	7.4	7.9	11.0	7.8	9.8	14.6	13.5	14.0
23	5.7	5.3	5.4	8.5	7.4	7.8	8.1	7.4	7.9	14.6	13.5	13.9
24	5.7	4.9	5.4	7.8	6.4	7.3	8.1	7.4	7.8	14.6	13.5	14.2
25	6.0	5.3	5.7	7.8	6.7	7.2	11.3	7.8	9.3	14.6	13.5	14.1
26	6.0	5.3	5.8	7.4	6.7	7.1	12.1	10.2	10.9	15.0	13.9	14.3
27	5.7	5.3	5.5	8.1	7.4	7.8	12.1	11.0	11.4	15.0	13.9	14.3
28	5.7	4.9	5.3	8.5	7.1	7.8	12.1	10.2	11.3	15.0	13.9	14.5
29	---	---	---	8.8	7.4	7.9	11.3	7.8	9.2	15.0	13.9	14.5
30	---	---	---	8.5	7.4	8.1	8.8	8.5	8.5	16.1	13.9	14.5
31	---	---	---	8.1	7.8	8.0	---	---	---	15.4	14.3	14.8
MONTH	7.1	4.9	5.3	8.8	4.6	6.5	13.5	7.4	10.0	16.1	8.5	12.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.4	13.9	14.7	15.0	14.3	14.4	14.6	13.5	14.2	14.7	14.3	14.4
2	16.1	13.9	15.0	15.0	14.3	14.6	14.6	13.9	14.3	15.0	14.3	14.5
3	15.0	14.3	14.6	15.0	13.5	14.2	14.6	13.9	14.1	15.0	14.3	14.5
4	15.4	13.5	14.5	14.3	13.5	13.7	14.6	13.9	14.2	14.9	14.4	14.6
5	15.0	13.9	14.3	14.3	13.5	13.8	14.6	13.9	14.3	14.8	14.2	14.4
6	15.0	13.9	14.5	14.3	13.5	13.9	14.6	13.9	14.2	14.8	14.1	14.3
7	15.4	13.9	14.4	14.3	13.5	13.8	14.6	13.9	14.1	14.7	14.1	14.3
8	14.6	13.5	14.0	14.3	13.5	13.9	14.6	13.9	14.1	14.8	14.1	14.3
9	15.0	13.5	14.2	14.3	13.9	14.0	14.6	13.9	14.1	14.7	14.0	14.3
10	14.6	13.9	14.2	14.3	13.9	14.0	14.3	13.9	14.0	14.7	14.0	14.3
11	14.6	13.9	14.2	14.3	13.9	14.1	14.3	13.9	14.1	14.7	14.1	14.3
12	15.0	13.9	14.4	14.6	13.9	14.1	14.6	13.9	14.2	14.7	14.0	14.2
13	15.0	13.9	14.3	14.6	13.9	14.1	14.6	13.9	14.2	14.7	14.0	14.3
14	15.4	13.9	14.6	14.3	13.9	14.1	14.8	13.9	14.3	14.5	14.2	14.3
15	14.6	13.9	14.4	14.6	13.9	14.3	14.6	14.2	14.4	14.5	14.2	14.3
16	14.6	13.5	14.0	14.6	13.9	14.2	14.5	14.2	14.3	14.8	14.3	14.4
17	14.6	13.5	14.2	14.3	13.5	13.9	14.6	14.2	14.4	14.7	14.3	14.4
18	15.0	13.9	14.2	13.9	13.5	13.9	14.6	14.3	14.4	14.6	14.3	14.4
19	15.0	13.9	14.4	14.3	13.9	13.9	14.8	14.3	14.5	14.8	14.3	14.4
20	15.0	14.3	14.5	14.3	13.9	14.0	14.8	14.3	14.5	14.8	14.4	14.5
21	15.0	14.3	14.4	14.6	13.9	14.1	14.8	14.3	14.5	14.8	14.4	14.5
22	15.0	14.3	14.5	14.6	13.9	14.2	15.6	14.4	14.6	15.6	13.6	14.3
23	15.4	14.3	14.6	14.6	13.9	14.3	15.0	14.4	14.6	14.5	14.1	14.2
24	15.0	14.3	14.7	14.6	14.3	14.3	14.9	14.4	14.6	14.5	14.0	14.2
25	15.4	13.9	14.6	14.3	14.3	14.3	14.8	14.4	14.5	14.5	14.1	14.2
26	14.6	13.9	14.4	14.6	14.3	14.4	14.7	14.3	14.5	14.2	14.1	14.2
27	14.6	14.3	14.4	14.3	14.3	14.3	14.5	14.4	14.4	14.5	14.1	14.2
28	14.6	14.3	14.4	14.6	14.3	14.4	14.6	14.3	14.4	14.5	14.1	14.3
29	15.0	14.3	14.5	15.0	14.3	14.5	14.7	14.3	14.4	14.6	14.1	14.3
30	14.6	14.3	14.5	15.0	14.3	14.7	14.7	14.3	14.4	14.5	14.2	14.3
31	---	---	---	15.0	13.5	14.3	14.5	14.3	14.4	---	---	---
MONTH	16.1	13.5	14.4	15.0	13.5	14.2	15.6	13.5	14.3	15.6	13.6	14.3

JAMES RIVER BASIN

02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA

LOCATION.--Lat 37°48'39", long 79°59'19", NAD83, Covington City, Hydrologic Unit 02080201, on left bank 50 ft upstream from Dry Run and 1.7 mi upstream from Dunlap Creek and bridge on U.S. Highway 60.

DRAINAGE AREA.--439 mi².

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

REMARKS.--Some record in prior years fragmentary due to instrument malfunction. Records represent water temperature at sensor within 0.5°C. U.S. Army Corps of Engineers satellite water-temperature telemeter at station. Temperature at the sensor was compared with the average for the river by temperature cross section on Oct. 1, 1991. A maximum variation of 0.5°C was found within the cross section.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 30.5°C, July 21, 1980; minimum recorded, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 21.7°C, Sept. 2; minimum, 3.6°C, Jan. 2.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	19.8	18.2	19.0	13.5	11.9	12.8	13.3	11.5	12.4	4.6	3.8	4.2
2	20.9	18.3	19.5	14.3	13.1	13.6	11.5	9.9	10.8	4.4	3.6	4.0
3	21.6	19.5	20.4	14.8	14.0	14.3	9.9	8.7	9.3	5.1	4.2	4.6
4	21.3	19.4	20.2	14.0	12.4	13.1	9.8	8.3	9.1	4.7	4.1	4.4
5	20.8	18.9	19.8	12.7	11.4	12.1	10.6	9.1	9.9	4.9	3.8	4.3
6	20.3	18.3	19.9	11.6	10.2	10.9	10.9	9.6	10.3	4.5	4.3	4.4
7	18.3	16.3	17.2	11.6	9.6	10.6	12.0	10.8	11.5	5.4	4.4	4.9
8	17.1	15.2	16.2	11.7	9.6	10.7	11.5	11.1	11.3	5.3	4.6	4.9
9	17.1	15.2	16.1	12.5	10.7	11.5	11.1	9.7	10.7	5.6	4.2	4.9
10	17.2	15.1	16.2	11.2	9.5	10.4	9.7	8.6	9.0	6.5	5.4	6.0
11	18.2	16.4	17.3	11.8	10.2	10.8	10.0	8.7	9.4	7.4	6.4	6.9
12	18.0	17.3	17.7	10.8	9.3	10.1	10.9	10.0	10.5	6.4	5.5	6.0
13	19.1	17.6	18.3	10.3	8.6	9.5	11.6	10.8	11.2	6.5	5.8	6.1
14	19.0	18.1	18.8	10.3	8.5	9.4	12.7	11.6	12.0	6.1	5.3	5.8
15	18.1	16.5	17.4	10.6	8.7	9.6	11.7	10.3	11.2	6.7	5.9	6.2
16	17.0	15.0	16.1	11.4	9.3	10.3	10.3	9.2	9.6	6.1	5.3	5.7
17	15.1	13.9	14.7	12.1	10.5	11.2	10.2	8.8	9.5	6.5	5.4	5.9
18	14.8	12.9	13.9	11.7	10.4	11.0	11.1	9.7	10.5	6.7	6.0	6.4
19	15.2	13.4	14.3	11.5	10.0	10.7	9.7	8.3	8.8	6.0	4.4	5.0
20	16.2	13.7	14.9	11.5	9.9	10.9	8.8	7.3	8.2	5.2	4.3	4.7
21	16.6	14.4	15.4	9.9	8.4	9.1	7.3	6.3	6.8	6.1	5.1	5.5
22	16.5	15.0	15.8	9.5	7.7	8.6	6.9	5.9	6.5	6.1	5.0	5.6
23	16.4	15.5	16.0	9.6	8.0	8.9	7.5	6.2	6.7	6.8	5.8	6.3
24	17.5	15.9	16.5	12.0	9.6	11.0	8.0	7.0	7.5	7.9	6.8	7.3
25	17.3	15.3	16.7	13.4	12.0	12.7	7.0	5.8	6.3	8.1	7.3	7.8
26	15.3	12.7	13.9	12.6	11.3	12.2	6.4	5.7	6.0	7.3	6.0	6.7
27	12.7	11.0	12.0	12.0	10.7	11.4	5.8	5.4	5.5	7.0	5.8	6.5
28	12.4	10.4	11.3	12.9	11.5	12.1	6.4	5.4	5.8	7.3	6.2	6.8
29	12.5	10.6	11.6	13.2	12.1	12.6	6.0	5.3	5.7	8.5	7.0	7.7
30	13.1	11.1	12.1	14.3	12.7	13.5	5.3	4.7	5.0	9.8	8.4	8.9
31	13.9	12.4	13.1	---	---	---	5.0	4.1	4.6	10.5	9.6	10.0
MONTH	21.6	10.4	16.2	14.8	7.7	11.2	13.3	4.1	8.8	10.5	3.6	5.9

JAMES RIVER BASIN

02013000 DUNLAP CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°48'10", long 80°02'49", NAD83, Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on U.S. Highway 60, 2.2 mi downstream from Ogle Creek, and 3.0 mi west of Covington.

DRAINAGE AREA.--164 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74-1: 1969(M), 1972, 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft NGVD of 1929. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Dec. 20 to Jan. 4 and Feb. 21-28, which are fair. Occasional diurnal fluctuation caused by dam 7.9 mi upstream from station. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 27,400 ft³/s, from rating curve extended above 4,500 ft³/s on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft. 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 1913 reached a stage of 18 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0900	*3,220	*6.61	No other peak greater than base discharge.			

**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	20	17	15	e15	35	22	459	342	36	22	25	12
2	19	17	15	e14	32	24	370	397	34	22	22	11
3	18	17	15	e14	30	52	261	919	32	20	20	11
4	16	16	15	e15	28	79	188	598	31	19	22	11
5	14	15	15	16	27	62	147	423	31	18	23	9.8
6	14	15	15	19	27	55	122	316	31	15	19	9.6
7	13	14	15	19	29	47	101	375	35	15	16	9.4
8	13	14	17	18	33	43	86	640	35	14	15	9.3
9	12	14	17	16	37	40	80	490	30	13	14	9.2
10	11	14	19	19	37	37	111	360	28	16	13	8.9
11	11	14	35	21	38	34	120	265	25	15	13	8.9
12	12	14	36	22	38	34	106	209	24	14	13	9.0
13	14	14	29	22	38	50	110	176	23	13	12	9.3
14	18	14	26	22	37	113	248	154	23	25	11	9.8
15	23	14	24	21	34	112	325	121	22	27	11	12
16	20	14	22	20	33	98	266	96	21	23	11	14
17	20	14	22	19	31	261	213	82	21	20	12	13
18	19	14	26	19	30	777	174	76	19	19	14	12
19	19	14	26	21	28	591	148	69	19	19	14	12
20	18	14	e25	25	28	392	128	59	18	18	12	12
21	18	14	e24	22	e27	304	509	53	17	17	11	12
22	17	14	e23	25	e27	220	2330	48	16	16	11	73
23	17	14	e22	37	e26	166	909	44	15	17	11	74
24	16	14	e23	119	e26	132	479	42	15	20	10	32
25	16	17	e23	213	e25	108	348	40	15	122	11	27
26	17	17	e23	145	e24	96	256	41	16	79	12	150
27	18	16	e22	88	e24	124	196	58	18	87	13	253
28	18	15	e20	63	e23	127	403	49	22	81	13	139
29	17	15	e21	49	---	117	767	41	30	49	13	76
30	17	16	e17	42	---	110	479	37	27	35	12	46
31	18	---	e16	38	---	147	---	35	---	29	12	---
TOTAL	513	445	663	1218	852	4574	10439	6655	729	919	441	1095.2
MEAN	16.5	14.8	21.4	39.3	30.4	148	348	215	24.3	29.6	14.2	36.5
MAX	23	17	36	213	38	777	2330	919	36	122	25	253
MIN	11	14	15	14	23	22	80	35	15	13	10	8.9
CFSM	0.10	0.09	0.13	0.24	0.19	0.90	2.12	1.31	0.15	0.18	0.09	0.22
IN.	0.12	0.10	0.15	0.28	0.19	1.04	2.37	1.51	0.17	0.21	0.10	0.25

02013000 DUNLAP CREEK NEAR COVINGTON, VA--Continued

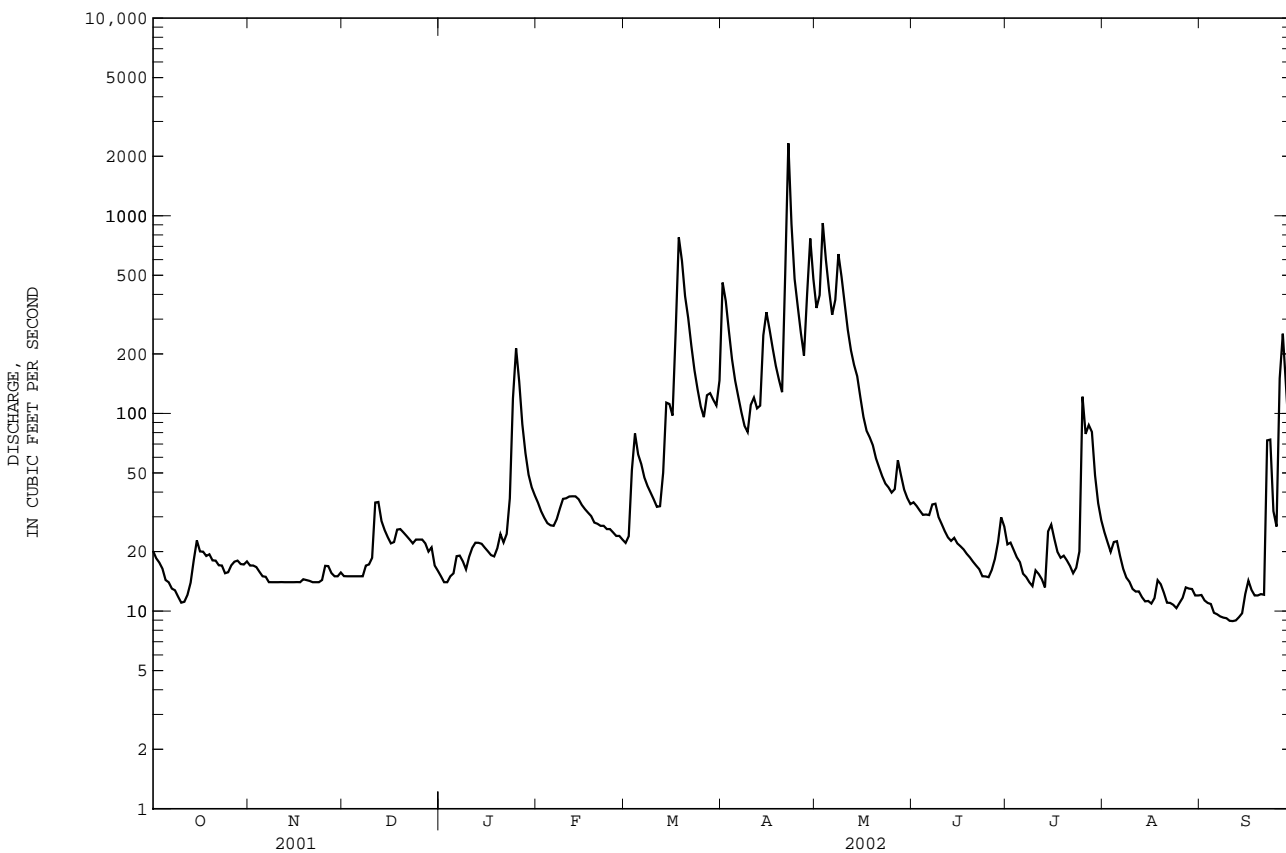
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	64.3	103	165	241	302	397	282	215	102	48.1	55.9	38.8
MAX	431	659	694	770	821	1053	1071	536	584	358	514	336
(WY)	1990	1986	1974	1996	1998	1993	1987	1989	1972	1972	1984	1989
MIN	13.4	14.8	21.4	24.2	21.5	59.1	54.7	43.7	24.2	13.6	12.5	11.0
(WY)	1942	2002	2002	1981	1934	1988	1986	1930	1999	1999	1932	1970

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002

ANNUAL TOTAL	38530		28543.2					
ANNUAL MEAN	106		78.2				167	
HIGHEST ANNUAL MEAN							320 1973	
LOWEST ANNUAL MEAN							67.3 1941	
HIGHEST DAILY MEAN	1950	May 26	2330	Apr 22	10400	Jan 19	1996	
LOWEST DAILY MEAN	11	aOct 10	8.9	bSep 10	7.0	Sep 9	1966	
ANNUAL SEVEN-DAY MINIMUM	12	Oct 6	9.1	Sep 7	7.6	Sep 6	1966	
MAXIMUM PEAK FLOW			3220		Apr 22		27400 Jun 21 1972	
MAXIMUM PEAK STAGE			6.61		Apr 22		15.65 Jun 21 1972	
INSTANTANEOUS LOW FLOW			c4.9		dJul 12		2.0 Jul 4 1970	
ANNUAL RUNOFF (CFSM)	0.64		0.48				1.02	
ANNUAL RUNOFF (INCHES)	8.74		6.47				13.87	
10 PERCENT EXCEEDS	213		201				361	
50 PERCENT EXCEEDS	33		22				66	
90 PERCENT EXCEEDS	15		12				18	

- a Also Oct. 11, 2001.
- b Also Sept. 11, 2002.
- c Result of regulation.
- d Also July 13, 2002.
- e Estimated.



02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'02", NAD83, Covington City, Hydrologic Unit 02080201, on left bank in city recreation park and 0.5 mi downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi².

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.53 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diurnal fluctuation at low flow caused by Westvaco plant 0.8 mi upstream and occasionally by dam on Dunlap Creek 12.7 mi upstream. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 19.9 mi upstream; since October 1984 by Back Creek Lake 47.9 mi upstream, amount unknown; and since January 1985 by Little Back Creek Lake 51.0 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1975-1979 (unregulated flow) are available in previous data books, water years 1991-1998. Diversion by Westvaco plant averages 47 ft³/s for industrial use of which approximately 42 ft³/s is returned upstream from station. Diversion 2.0 mi upstream from station for city of Covington water supply averages less than 4.0 ft³/s. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 31,300 ft³/s, from rating curve extended above 19,000 ft³/s. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jun. 21, 1972, reached a stage of 24.36 ft, discharge, 34,000 ft³/s, from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft, from floodmarks, discharge, 28,300 ft³/s, from rating curve extended above 19,000 ft³/s.

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	281	224	198	197	192	163	712	3190	336	323	319	240
2	242	207	197	194	185	175	591	1600	333	328	314	218
3	240	202	197	199	180	227	460	2090	330	333	313	217
4	237	205	197	193	176	256	376	1470	325	323	324	218
5	237	203	195	194	170	231	322	1240	325	317	320	217
6	238	204	195	199	170	221	282	1100	326	313	312	219
7	235	204	195	194	182	211	265	1170	332	313	307	218
8	235	205	200	194	184	204	245	2230	327	312	303	218
9	234	203	196	192	186	200	253	3530	320	314	300	214
10	230	203	201	194	186	195	323	2750	314	325	305	215
11	228	201	258	204	187	191	315	1330	314	329	305	213
12	230	199	245	203	190	194	287	989	314	318	303	215
13	230	198	226	202	184	221	303	686	311	319	303	217
14	249	197	222	202	184	296	454	668	319	376	301	218
15	250	196	217	203	180	293	556	614	315	351	303	226
16	241	195	212	195	179	275	475	581	314	330	302	226
17	236	198	212	193	175	407	410	561	312	322	309	222
18	234	197	227	192	173	1020	367	522	308	323	315	217
19	234	194	227	160	171	859	330	430	305	321	303	218
20	234	198	223	160	171	618	301	415	304	318	299	216
21	231	196	217	156	168	516	792	406	300	312	296	217
22	233	198	214	160	170	418	3710	383	306	311	295	306
23	230	197	212	188	168	347	3910	309	304	315	287	399
24	230	201	214	313	166	305	3680	299	298	323	251	260
25	231	207	212	460	164	272	2970	296	301	427	249	241
26	231	199	211	360	164	260	1340	295	323	396	251	413
27	233	198	210	280	165	295	973	317	312	396	253	681
28	233	197	200	242	165	291	1380	310	328	389	251	435
29	230	196	206	221	---	277	3360	300	322	355	249	332
30	231	199	203	207	---	270	4740	334	323	333	246	285
31	229	---	197	198	---	311	---	279	---	324	246	---
TOTAL	7317	6021	6536	6649	4935	10019	34482	30694	9501	10389	9034	7951
MEAN	236	201	211	214	176	323	1149	990	317	335	291	265
MAX	281	224	258	460	192	1020	4740	3530	336	427	324	681
MIN	228	194	195	156	164	163	245	279	298	311	246	213
(†)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN†	95	88	128	187	173	653	1620	956	147	172	57	156
CFSM†	.15	.14	.21	.30	.28	1.06	2.64	1.56	.24	.28	.09	.25
IN.†	.18	.16	.24	.35	.29	1.23	2.94	1.80	.27	.32	.11	.28

CAL YR 2001 MEAN† 439 CFSM† .71 IN.† 9.71

WTR YR 2002 MEAN† 369 CFSM† .60 IN.† 8.16

† Total change in contents, equivalent in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

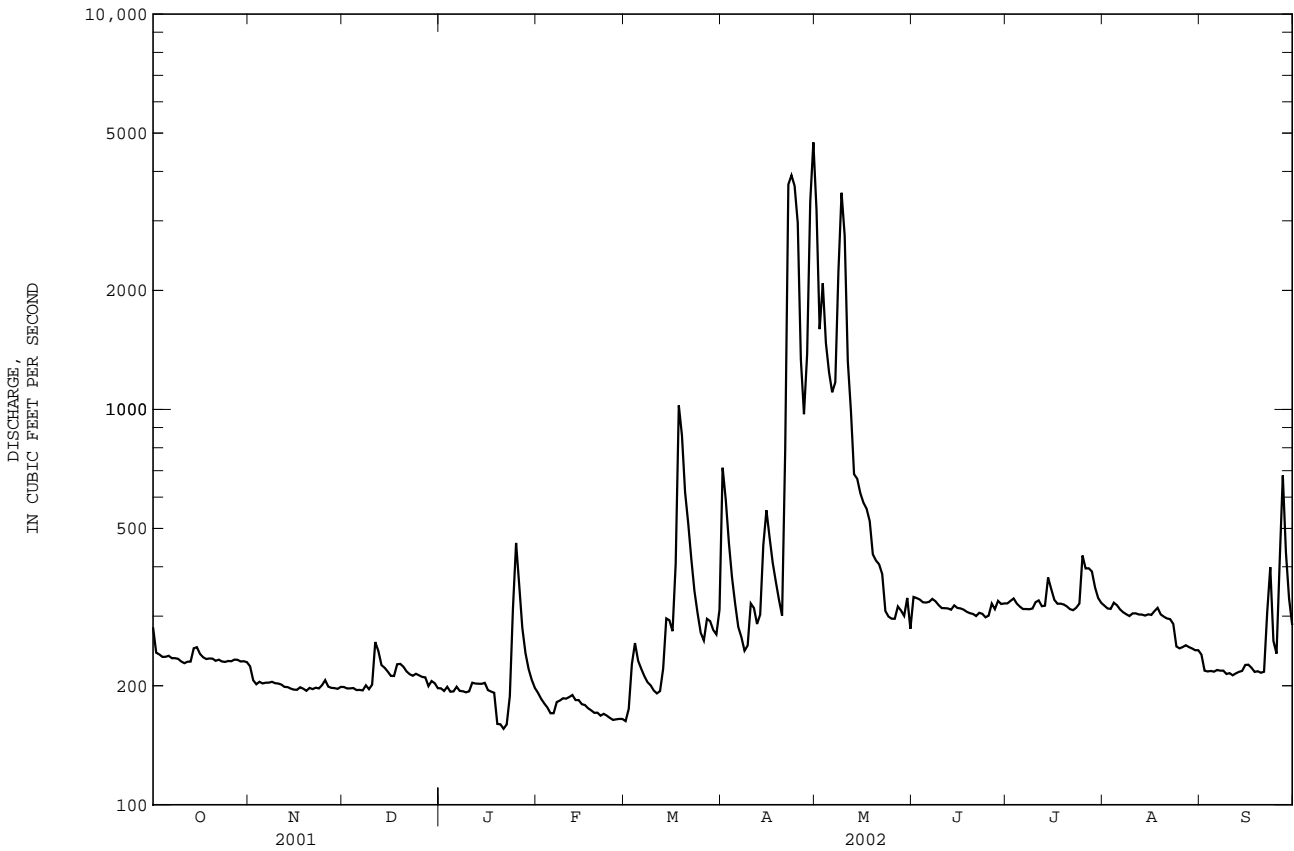
02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	333	466	497	787	1032	1427	1157	927	581	353	374	347
MAX	1302	2363	1685	2644	2702	3189	3540	2223	1403	526	1285	938
(WY)	1980	1986	1997	1996	1998	1993	1987	1989	1982	1995	1984	1989
MIN	111	114	130	119	176	211	356	397	303	190	117	87.3
(WY)	1981	1982	1981	1981	2002	1981	1986	1991	1980	1981	1981	1981

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1980 - 2002
ANNUAL TOTAL	174792	143528	
ANNUAL MEAN	479	393	688
HIGHEST ANNUAL MEAN			954 1984
LOWEST ANNUAL MEAN			348 1981
HIGHEST DAILY MEAN	4420 May 26	4740 Apr 30	15100 Jan 19 1996
LOWEST DAILY MEAN	194 Nov 19	156 Jan 21	67 aSep 3 1981
ANNUAL SEVEN-DAY MINIMUM	196 Nov 15	165 Feb 23	71 Sep 25 1981
MAXIMUM PEAK FLOW		5130 Apr 29	b31300 Nov 4 1985
MAXIMUM PEAK STAGE		9.35 Apr 29	b23.31 Nov 4 1985
INSTANTANEOUS LOW FLOW		148 cJan 19	d,f41 Jan 5 1981
ANNUAL RUNOFF (CFSM)	0.78	0.64	1.12
ANNUAL RUNOFF (INCHES)	10.59	8.70	15.23
10 PERCENT EXCEEDS	883	491	1500
50 PERCENT EXCEEDS	309	249	352
90 PERCENT EXCEEDS	204	192	209

- a Also Sept. 27-29, 1981.
- b Prior to regulation, 1975-79, maximum peak flow, 23,200 ft³/s, Apr. 5, 1977, gage height, 19.85 ft.
- c Also Jan. 20, 21 and Mar. 1, 2002.
- d Prior to regulation, 1975-79, instantaneous low flow, 80 ft³/s, Nov. 9, 1978.
- f Result of freezeup.



JAMES RIVER BASIN

02014000 POTTS CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°43'44", long 80°02'32", NAD83, Alleghany County, Hydrologic Unit 02080201, on left bank at downstream side of bridge on State Highway 18, 0.8 mi downstream from Blue Spring Creek, and 5.2 mi southwest of Covington.

DRAINAGE AREA.--153 mi².

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft NGVD of 1929. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi downstream at different datum.

REMARKS.--Records good except for period with ice effect, Jan. 2-4, which is fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 15,400 ft³/s, from rating curve extended above 12,000 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 3	0600	*2,600	*7.20	No other peak greater than base discharge.			

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	23	28	23	24	61	31	292	277	53	29	35	25
2	23	27	23	e22	55	35	261	381	52	27	33	25
3	23	28	23	e23	50	97	228	1620	50	29	29	24
4	23	27	22	e24	47	112	192	647	50	29	28	23
5	24	26	22	25	44	82	165	468	52	34	27	22
6	23	25	22	26	41	82	147	360	51	27	26	22
7	23	24	22	28	52	70	131	317	48	24	24	22
8	23	23	24	27	56	64	117	303	47	22	24	21
9	24	23	25	26	54	60	112	268	42	22	23	21
10	24	23	26	28	52	56	149	235	40	24	22	20
11	24	23	73	34	53	52	142	202	39	26	22	20
12	24	23	82	38	56	52	135	179	36	31	21	20
13	27	23	55	44	55	66	144	165	34	28	20	20
14	33	23	47	39	55	81	246	162	34	42	20	21
15	50	23	44	35	52	77	274	142	32	41	19	24
16	54	23	40	35	50	78	237	124	31	36	20	25
17	40	23	38	31	49	190	205	112	30	28	21	25
18	32	23	40	32	47	409	179	109	29	27	22	25
19	30	23	41	35	44	412	161	105	28	29	22	26
20	29	23	41	35	42	316	152	92	28	26	22	26
21	31	22	38	37	41	263	180	87	26	25	24	26
22	28	21	36	41	40	217	469	82	26	25	23	29
23	28	20	35	59	40	183	464	77	25	34	22	35
24	31	22	36	141	38	161	352	73	23	108	22	35
25	29	28	36	203	37	142	309	68	22	165	22	32
26	27	35	36	174	36	129	270	66	23	79	23	47
27	28	30	34	137	34	134	233	80	27	73	24	73
28	27	28	30	110	33	120	237	74	33	69	24	82
29	28	25	33	90	---	109	413	65	42	54	25	56
30	28	24	29	77	---	103	327	60	34	44	25	35
31	28	---	27	66	---	138	---	56	---	39	25	---
TOTAL	889	739	1103	1746	1314	4121	6923	7056	1087	1296	739	907
MEAN	28.7	24.6	35.6	56.3	46.9	133	231	228	36.2	41.8	23.8	30.2
MAX	54	35	82	203	61	412	469	1620	53	165	35	82
MIN	23	20	22	22	33	31	112	56	22	22	19	20
CFSM	0.19	0.16	0.23	0.37	0.31	0.87	1.51	1.49	0.24	0.27	0.16	0.20
IN.	0.22	0.18	0.27	0.42	0.32	1.00	1.68	1.72	0.26	0.32	0.18	0.22

02014000 POTTS CREEK NEAR COVINGTON, VA--Continued

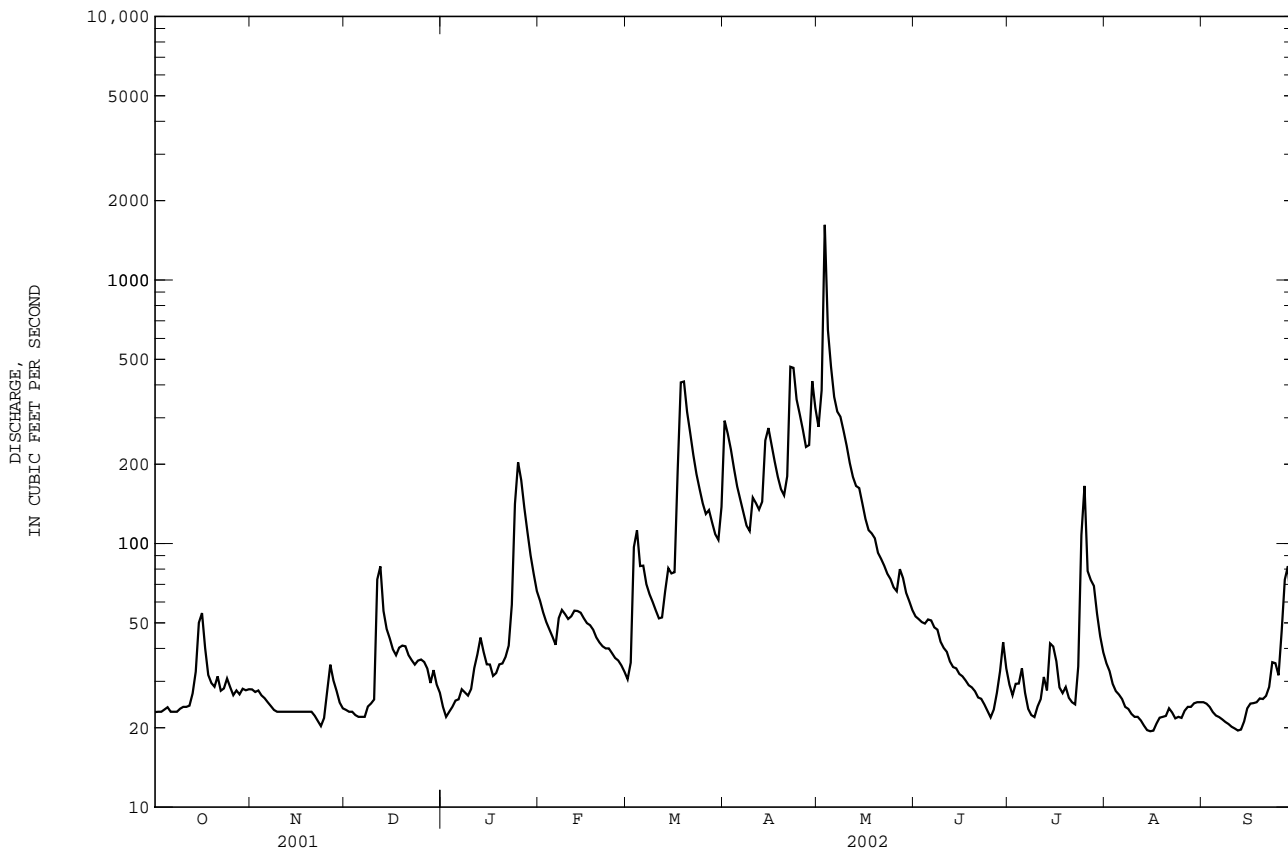
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1956, 1966 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	92.3	123	169	240	292	372	287	224	133	65.5	65.0	60.1
MAX	548	766	643	788	725	1078	1184	519	650	288	461	516
(WY)	1990	1986	1949	1937	1998	1955	1987	1971	1972	1938	1940	1989
MIN	20.7	23.8	24.7	29.8	26.9	75.7	80.5	51.4	29.4	22.1	21.9	18.4
(WY)	1940	1940	1940	1956	1934	1988	1986	1934	1934	1966	1930	1968

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 1956 1966 - 2002

ANNUAL TOTAL		37104		27920								
ANNUAL MEAN		102		76.5						176		
HIGHEST ANNUAL MEAN										320		1973
LOWEST ANNUAL MEAN										76.5		2002
HIGHEST DAILY MEAN				1980	May 23		1620	May 3		8870	Jun 21	1972
LOWEST DAILY MEAN				18	Sep 18		19	Aug 15		15	Dec 17	1930
ANNUAL SEVEN-DAY MINIMUM				19	Sep 13		20	Aug 11		15	Dec 17	1930
MAXIMUM PEAK FLOW							2600	May 3		15400	Nov 4	1985
MAXIMUM PEAK STAGE							7.20	May 3		13.46	Nov 4	1985
INSTANTANEOUS LOW FLOW							15	aJan 1		b13	Nov 29	1930
ANNUAL RUNOFF (CFSM)				0.66			0.50			1.15		
ANNUAL RUNOFF (INCHES)				9.02			6.79			15.65		
10 PERCENT EXCEEDS				223			181			390		
50 PERCENT EXCEEDS				45			35			84		
90 PERCENT EXCEEDS				23			23			27		

a Also Jan. 2, 2002.
 b Minimum observed.
 e Estimated.



JAMES RIVER BASIN

02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA

LOCATION.--Lat 38°11'43", long 79°34'13", NAD83, Bath County, Hydrologic Unit 02080201, on left bank 15 ft downstream from bridge on State Highway 614 at Williamsville and 0.62 mi upstream from mouth.

DRAINAGE AREA.--110 mi².

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WRD VA-62-1: 1961. WRD VA-96-1: 1985(M).

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft NGVD of 1929. Prior to July 12, 1974, at site 700 ft upstream at datum 11.84 ft higher.

REMARKS.--Records good except those for period with ice effect, Dec. 31 to Jan. 4, and period of no gage-height record, Feb. 3 to Mar. 26, which are fair. Maximum discharge, 22,900 ft³/s, from rating curve extended above 3,300 ft³/s on basis of slope-area measurement of peak flow. Minimum discharge, 19 ft³/s, result of freezeup. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0315	*4,310	*6.60	Apr 28	1115	3,970	6.39

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	32	31	37	e31	62	e47	333	350	115	36	50	26
2	32	32	35	e29	59	e66	245	320	100	35	44	25
3	32	32	33	e30	e55	e195	201	278	87	48	43	25
4	31	32	33	e32	e52	e130	162	221	80	39	50	24
5	30	31	33	34	e50	e100	136	207	73	35	48	23
6	30	30	32	37	e57	e84	119	176	70	33	43	23
7	30	30	33	39	e69	e77	105	434	72	32	38	23
8	30	30	36	36	e77	e72	96	655	63	30	36	23
9	29	30	47	37	e71	e67	182	428	59	31	34	22
10	29	30	42	45	e70	e64	301	333	56	60	33	22
11	30	30	108	66	e68	e60	192	256	54	73	32	22
12	31	30	89	59	e64	e67	159	215	51	43	32	22
13	32	30	68	52	e63	e105	171	214	50	38	32	22
14	37	30	65	47	e61	e96	218	189	53	87	31	23
15	65	30	64	46	e60	e87	294	201	51	71	29	26
16	41	30	56	43	e57	e80	248	153	47	49	31	32
17	37	30	54	42	e56	e135	207	136	45	41	31	28
18	35	30	101	42	e56	e320	188	142	43	38	30	25
19	34	30	91	41	e56	e270	187	123	44	38	30	25
20	33	30	75	43	e55	e230	165	108	54	50	29	25
21	33	30	65	43	e55	e190	394	102	44	40	28	26
22	33	30	57	44	e55	e165	2150	95	40	36	27	48
23	33	29	55	50	e54	e145	774	90	38	37	27	79
24	33	30	63	97	e52	e125	433	86	38	60	27	41
25	33	48	56	131	e51	e105	334	80	37	50	28	32
26	31	73	51	98	e51	e112	255	76	39	159	27	90
27	31	46	47	84	e50	231	206	143	40	161	28	285
28	32	40	47	76	e48	167	1670	352	53	169	28	203
29	32	37	45	71	---	147	927	227	41	93	29	100
30	32	37	37	68	---	135	492	160	37	69	28	71
31	32	---	e33	66	---	199	---	128	---	57	27	---
TOTAL	1035	1008	1688	1659	1634	4073	11544	6678	1674	1838	1030	1461
MEAN	33.4	33.6	54.5	53.5	58.4	131	385	215	55.8	59.3	33.2	48.7
MAX	65	73	108	131	77	320	2150	655	115	169	50	285
MIN	29	29	32	29	48	47	96	76	37	30	27	22
CFSM	0.30	0.31	0.50	0.49	0.53	1.19	3.50	1.96	0.51	0.54	0.30	0.44
IN.	0.35	0.34	0.57	0.56	0.55	1.38	3.90	2.26	0.57	0.62	0.35	0.49

02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA--Continued

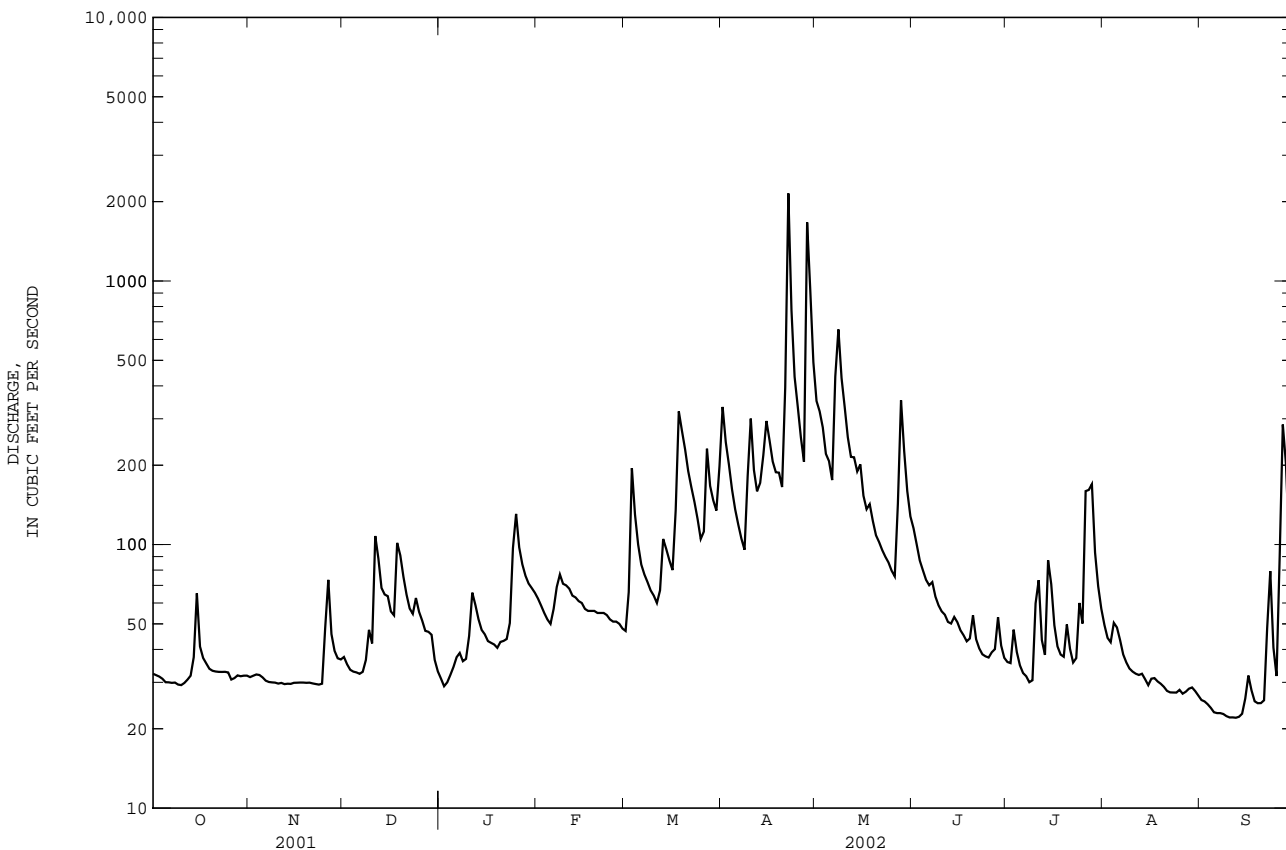
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	81.5	117	157	191	217	305	224	190	117	65.3	64.6	68.4
MAX	295	784	543	631	498	655	663	448	376	245	272	432
(WY)	1977	1986	1974	1996	1982	1993	1987	1996	1982	1972	1969	1996
MIN	30.1	33.6	31.9	34.7	58.4	62.2	68.0	65.4	34.8	26.8	27.7	28.5
(WY)	1989	2002	1966	1981	2002	1981	1999	1977	1999	1999	1964	1968

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1960 - 2002

ANNUAL TOTAL	38036		35322					
ANNUAL MEAN	104		96.8				149	
HIGHEST ANNUAL MEAN							248	
LOWEST ANNUAL MEAN							71.1	
HIGHEST DAILY MEAN	1100		May 23		2150		Apr 22	
LOWEST DAILY MEAN	29		aOct 9		22		bSep 9	
ANNUAL SEVEN-DAY MINIMUM	30		cOct 5		22		dSep 7	
MAXIMUM PEAK FLOW					4310		Apr 22	
MAXIMUM PEAK STAGE					6.60		Apr 22	
INSTANTANEOUS LOW FLOW					g20		Dec 31	
ANNUAL RUNOFF (CFSM)	0.95				0.88			
ANNUAL RUNOFF (INCHES)	12.86				11.95			
10 PERCENT EXCEEDS	219				204		299	
50 PERCENT EXCEEDS	57				50		80	
90 PERCENT EXCEEDS	32				29		34	

- a Also Oct. 10, 2001.
- b Also Sept. 10-13, 2002.
- c Also Oct. 6, 2001.
- d Also Sept. 8, 2002.
- e Estimated.
- f From floodmarks.
- g Result of freezeup.



JAMES RIVER BASIN

02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

LOCATION.--Lat 37°47'30", long 79°45'34", NAD83, Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft downstream from bridge on State Highway 633, 2.5 mi upstream from confluence with Jackson River, and 4.0 mi southeast of Clifton Forge.

DRAINAGE AREA.--461 mi².

PERIOD OF RECORD.--March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.

REVISED RECORDS.--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,006.93 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft upstream at present datum.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 9, which is fair. Low flow affected by springs and by occasional regulation from unknown source. Maximum discharge, 40,900 ft³/s, from rating curve extended above 13,000 ft³/s on basis of slope-area measurements at gage heights 15.70 ft and 19.15 ft. 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 1913 reached a stage of 20.8 ft, from floodmarks, discharge, about 45,000 ft³/s, from rating curve extended above 13,000 ft³/s on basis of records for other stations in James River Basin.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	2015	*10,200	*10.26	Apr 29	0530	7,300	8.73

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	74	70	89	e88	163	105	719	1200	216	81	127	59
2	72	70	84	e84	151	105	864	954	202	75	114	57
3	72	71	83	e88	143	167	691	960	193	76	104	57
4	72	71	80	e90	136	267	560	772	169	80	111	57
5	71	70	76	e94	128	325	457	657	155	80	116	55
6	70	70	74	e96	124	258	390	578	147	72	104	54
7	68	70	74	e96	133	241	344	582	142	69	95	53
8	66	70	80	e94	148	209	307	1330	140	68	89	51
9	65	70	85	e92	147	192	295	1420	130	65	85	50
10	65	70	87	94	147	175	569	1100	121	67	80	48
11	67	70	161	97	149	160	711	831	116	166	76	47
12	67	70	203	107	150	157	561	664	111	230	73	46
13	70	70	207	122	162	170	491	574	108	132	70	46
14	74	70	165	113	154	204	517	538	106	178	69	47
15	89	70	148	107	147	236	590	471	103	422	68	53
16	97	70	139	101	142	222	661	435	100	237	68	60
17	113	70	133	99	139	251	603	363	99	161	69	62
18	88	70	145	97	135	412	531	337	94	133	68	62
19	78	70	162	104	132	646	482	316	94	124	68	61
20	76	70	189	110	126	718	481	289	94	112	64	57
21	75	70	161	105	125	1240	705	259	91	117	63	56
22	74	70	145	106	124	890	6160	240	92	113	62	57
23	74	70	134	129	122	650	4000	224	85	99	59	79
24	72	70	131	190	119	512	1740	210	81	97	57	168
25	73	82	127	280	114	425	1160	200	77	122	57	120
26	71	97	129	326	112	374	879	190	76	126	57	122
27	70	123	119	257	109	439	681	179	81	189	57	759
28	69	118	113	221	108	584	1050	218	91	240	59	713
29	69	97	110	200	---	498	4590	398	94	273	59	454
30	70	89	109	186	---	438	1860	317	92	191	60	270
31	70	---	e98	173	---	457	---	249	---	149	60	---
TOTAL	2301	2288	3840	4146	3789	11727	33649	17055	3500	4344	2368	3880
MEAN	74.2	76.3	124	134	135	378	1122	550	117	140	76.4	129
MAX	113	123	207	326	163	1240	6160	1420	216	422	127	759
MIN	65	70	74	84	108	105	295	179	76	65	57	46
CFSM	0.16	0.17	0.27	0.29	0.29	0.82	2.43	1.19	0.25	0.30	0.17	0.28
IN.	0.19	0.18	0.31	0.33	0.31	0.95	2.72	1.38	0.28	0.35	0.19	0.31

02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA--Continued

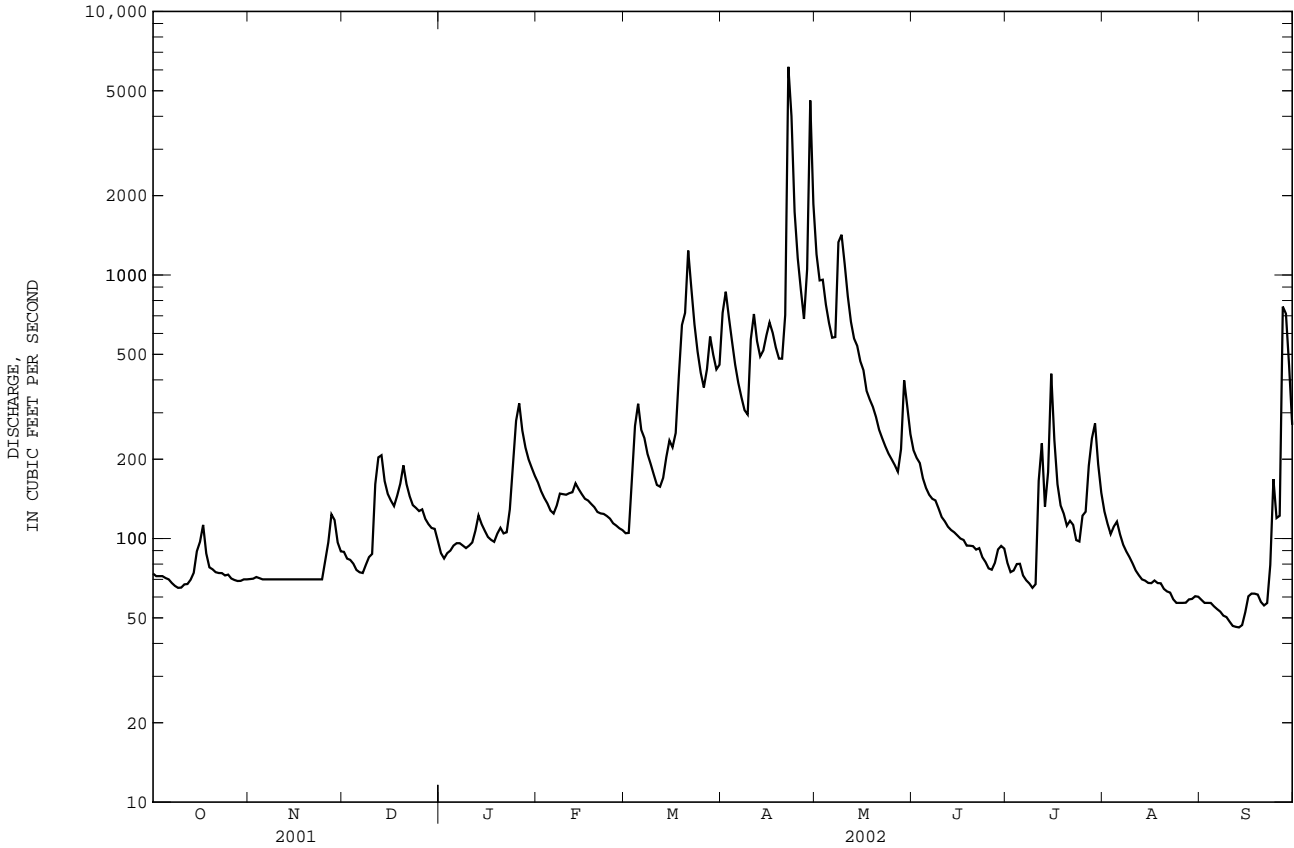
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	270	367	553	729	854	1094	840	645	379	216	229	214
MAX	1474	2745	1883	2253	1911	2531	2878	2342	1484	1213	1531	1510
(WY)	1938	1986	1974	1996	1998	1993	1987	1989	1982	1972	1969	1996
MIN	45.4	62.8	82.9	95.3	89.9	203	235	147	98.1	64.9	64.9	60.3
(WY)	1931	1932	1966	1981	1934	1981	1995	1930	1964	1930	1930	1932

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 2002

ANNUAL TOTAL	120699	92887	
ANNUAL MEAN	331	254	531
HIGHEST ANNUAL MEAN			935 1973
LOWEST ANNUAL MEAN			248 1981
HIGHEST DAILY MEAN	4810 May 23	6160 Apr 22	33900 Nov 5 1985
LOWEST DAILY MEAN	65 aOct 9	46 bSep 12	40 Sep 1 1932
ANNUAL SEVEN-DAY MINIMUM	67 Oct 6	48 Sep 8	43 Oct 8 1930
MAXIMUM PEAK FLOW		10200 Apr 22	40900 Nov 5 1985
MAXIMUM PEAK STAGE		10.26 Apr 22	19.15 Nov 5 1985
INSTANTANEOUS LOW FLOW		46 cSep 11	38 Sep 2 1932
ANNUAL RUNOFF (CFSM)	0.72	0.55	1.15
ANNUAL RUNOFF (INCHES)	9.74	7.50	15.65
10 PERCENT EXCEEDS	739	580	1150
50 PERCENT EXCEEDS	149	113	254
90 PERCENT EXCEEDS	71	65	86

- a Also Oct. 10, 2001.
- b Also Sept. 13, 2002.
- c Also Sept. 12-14, 2002.
- e Estimated.



JAMES RIVER BASIN

02016500 JAMES RIVER AT LICK RUN, VA

LOCATION.--Lat 37°46'25", long 79°47'04", NAD83, Botetourt County, Hydrologic Unit 02080201, on right bank at community of Lick Run, 1,000 ft downstream from bridge on U.S. Highway 220, 0.9 mi downstream from confluence of Cowpasture and Jackson Rivers, 1.8 mi south of Iron Gate, and at mile 342.3.

DRAINAGE AREA.--1,373 mi².

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 978.30 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 43.7 mi upstream from station; since October 1984 by Back Creek Lake 71.7 mi upstream; and since January 1985 by Little Back Creek Lake 74.8 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1925 - 1979 (unregulated flow) are available in previous data books, water years 1991 - 1998. National Weather Service gage-height telemeter at station. Maximum discharge, 87,500 ft³/s, from rating curve extended above 66,000 ft³/s. 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 33 ft, discharge, about 120,000 ft³/s. Flood in March 1913 reached a stage of 30.4 ft, from floodmarks, discharge, about 98,000 ft³/s.

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	430	347	347	e340	531	334	2020	5870	675	498	554	337
2	376	332	337	e330	491	347	2220	3270	691	487	518	309
3	356	319	332	e330	464	605	1830	5480	663	518	492	290
4	352	315	329	e340	441	841	1550	3680	621	501	507	284
5	345	317	322	355	410	872	1320	2920	597	496	532	278
6	342	312	319	369	394	716	1150	2490	588	475	496	276
7	332	314	322	390	444	670	1020	2430	588	450	461	275
8	326	313	337	367	483	602	923	3870	580	445	451	271
9	328	314	353	365	482	555	879	5900	559	448	436	271
10	329	309	350	369	476	522	1320	5040	534	466	426	262
11	332	308	641	386	480	481	1550	2850	517	620	424	253
12	335	309	708	399	475	478	1330	2290	505	705	419	250
13	344	306	666	419	496	540	1250	1750	500	546	412	254
14	384	306	581	406	475	672	1450	1650	509	781	410	262
15	441	303	536	399	461	765	1850	1510	501	1140	409	285
16	414	304	502	384	442	717	1820	1390	492	779	411	314
17	425	306	495	369	433	873	1630	1280	491	614	428	293
18	380	310	568	372	419	2200	1450	1240	477	573	461	291
19	367	306	571	367	406	2700	1330	1090	473	575	456	288
20	362	310	595	357	396	2220	1270	1020	466	525	415	283
21	359	304	541	343	392	2620	1990	962	458	519	406	280
22	355	305	500	350	380	2040	12000	914	459	512	399	291
23	356	305	492	440	374	1610	10400	771	451	493	399	638
24	348	307	470	753	367	1350	6750	700	446	597	357	508
25	356	381	458	1260	360	1170	5480	672	437	870	333	402
26	344	395	449	1270	352	1060	3120	647	447	889	332	486
27	340	399	435	1000	348	1180	2340	663	505	830	338	1960
28	342	392	424	834	338	1330	2700	717	522	957	343	1750
29	345	361	402	722	---	1190	8930	947	520	948	345	1180
30	344	352	399	654	---	1100	7970	819	516	716	335	773
31	348	---	357	591	---	1170	---	743	---	610	335	---
TOTAL	11137	9761	14138	15630	12010	33530	90842	65575	15788	19583	13040	13894
MEAN	359	325	456	504	429	1082	3028	2115	526	632	421	463
MAX	441	399	708	1270	531	2700	12000	5900	691	1140	554	1960
MIN	326	303	319	330	338	334	879	647	437	445	332	250
(+)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN†	218	213	373	477	425	1412	3499	2081	357	469	186	354
CFSM†	.16	.16	.27	.35	.31	1.03	2.55	1.52	.26	.34	.14	.26
IN.†	.18	.17	.31	.40	.32	1.19	2.84	1.75	.29	.39	.16	.29

CAL YR 2001 MEAN† 1028 CFM† .75 IN.† 10.17
WTR YR 2002 MEAN† 839 CFM† .61 IN.† 8.30

† Total change in contents, in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.
‡ Adjusted for monthly change in contents.

02016500 JAMES RIVER AT LICK RUN, VA--Continued

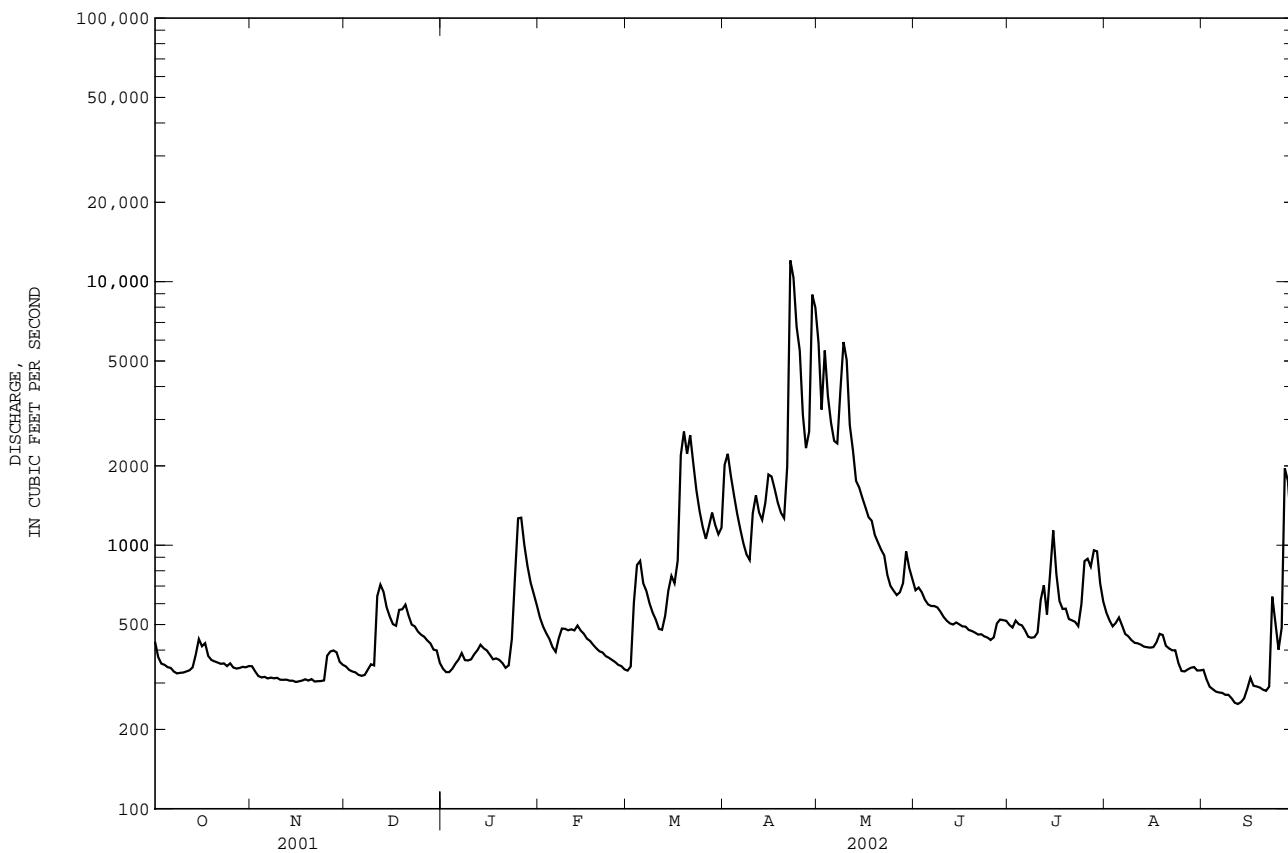
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	766	1219	1388	2013	2459	3370	2813	2149	1321	693	698	729
MAX	3495	7206	4206	5302	6425	8083	9349	5639	3660	1186	2704	2839
(WY)	1990	1986	1997	1996	1998	1993	1987	1989	1982	1995	1984	1996
MIN	270	325	328	268	429	623	755	940	526	479	264	269
(WY)	1981	2002	1981	1981	2002	1981	1986	1991	2002	1981	1981	1981

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1980 - 2002

ANNUAL TOTAL	389708	314928	
ANNUAL MEAN	1068	863	1630
HIGHEST ANNUAL MEAN			2256
LOWEST ANNUAL MEAN			789
HIGHEST DAILY MEAN	14800	May 23	12000
LOWEST DAILY MEAN	303	Nov 15	250
ANNUAL SEVEN-DAY MINIMUM	306	Nov 13	260
MAXIMUM PEAK FLOW			17000
MAXIMUM PEAK STAGE			11.86
INSTANTANEOUS LOW FLOW			242
ANNUAL RUNOFF (CFSM)	0.78	0.63	1.19
ANNUAL RUNOFF (INCHES)	10.56	8.53	16.13
10 PERCENT EXCEEDS	1990	1640	3460
50 PERCENT EXCEEDS	599	473	801
90 PERCENT EXCEEDS	339	313	390

- a Prior to regulation, 1925-79, maximum peak flow, 66,600 ft³/s, Mar. 18, 1936, gage height, 27.01 ft.
- b Also Sept. 12, 2002.
- c Prior to regulation, 1925-79, instantaneous low flow, 148 ft³/s, Sept. 7, 1966.
- d Result of freezeup.
- e Estimated.



JAMES RIVER BASIN

02017500 JOHNS CREEK AT NEW CASTLE, VA

LOCATION.--Lat 37°30'22", long 80°06'24", NAD83, Craig County, Hydrologic Unit 02080201, on right bank 20 ft downstream from bridge on State Highway 615 at New Castle and 1,700 ft upstream from mouth.

DRAINAGE AREA.--104 mi².

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft NGVD of 1929. Prior to Jun. 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Dec. 31 to Jan. 5, and period of no gage-height record, Apr. 10, which are fair. Maximum discharge, 8,000 ft³/s, from rating curve extended above 3,200 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	8.6	13	12	e13	37	20	316	218	20	12	18	8.1
2	8.4	13	11	e11	33	22	242	672	20	12	14	8.0
3	8.1	14	11	e11	30	54	206	1210	21	11	12	7.6
4	8.0	13	11	e12	28	60	172	622	21	13	11	7.1
5	7.5	13	10	e13	26	54	144	506	34	12	10	6.6
6	7.5	13	10	13	25	44	121	409	23	9.8	9.6	6.3
7	7.2	12	10	14	29	41	101	348	20	9.7	8.9	6.2
8	6.8	12	11	14	32	38	86	311	18	8.9	8.5	6.1
9	7.3	13	13	14	33	35	80	258	16	8.7	8.4	5.9
10	8.5	12	14	15	32	33	e104	219	15	9.8	8.4	5.8
11	9.3	12	48	16	33	30	107	181	13	10	8.2	5.5
12	9.9	12	37	16	34	30	102	156	12	9.5	8.2	5.2
13	10	12	28	16	36	38	109	133	12	9.5	8.1	5.2
14	13	12	25	15	35	46	238	109	11	14	7.9	5.7
15	20	12	22	15	34	51	203	89	11	17	8.1	7.0
16	19	12	20	14	33	51	172	73	10	12	8.2	8.4
17	13	12	19	14	31	124	149	62	10	10	8.3	8.0
18	13	11	20	14	30	368	129	56	9.8	10	8.3	7.0
19	14	11	20	15	28	330	114	51	9.6	9.9	9.1	6.9
20	14	11	19	18	27	256	103	45	9.3	9.7	9.0	7.2
21	14	11	18	18	26	217	105	42	9.5	9.6	8.0	7.2
22	14	11	17	20	25	180	205	39	9.1	9.0	7.7	7.2
23	14	11	17	34	25	149	206	36	8.9	9.3	7.6	7.9
24	14	11	17	83	24	125	183	34	8.9	28	7.5	8.1
25	14	14	17	94	22	105	188	31	8.8	23	7.3	7.5
26	13	16	16	93	22	90	180	28	9.6	20	8.0	13
27	13	14	16	83	21	93	165	29	13	54	9.0	24
28	13	12	15	69	20	83	203	27	19	51	8.3	23
29	14	11	15	57	---	75	327	24	14	33	8.2	21
30	13	12	15	48	---	71	252	22	12	23	8.2	17
31	13	---	e14	42	---	159	---	21	---	19	8.2	---
TOTAL	362.1	368	548	924	811	3072	5012	6061	428.5	497.4	280.2	269.7
MEAN	11.7	12.3	17.7	29.8	29.0	99.1	167	196	14.3	16.0	9.04	8.99
MAX	20	16	48	94	37	368	327	1210	34	54	18	24
MIN	6.8	11	10	11	20	20	80	21	8.8	8.7	7.3	5.2
CFSM	0.11	0.12	0.17	0.29	0.28	0.95	1.61	1.88	0.14	0.15	0.09	0.09
IN.	0.13	0.13	0.20	0.33	0.29	1.10	1.79	2.17	0.15	0.18	0.10	0.10

02017500 JOHNS CREEK AT NEW CASTLE, VA--Continued

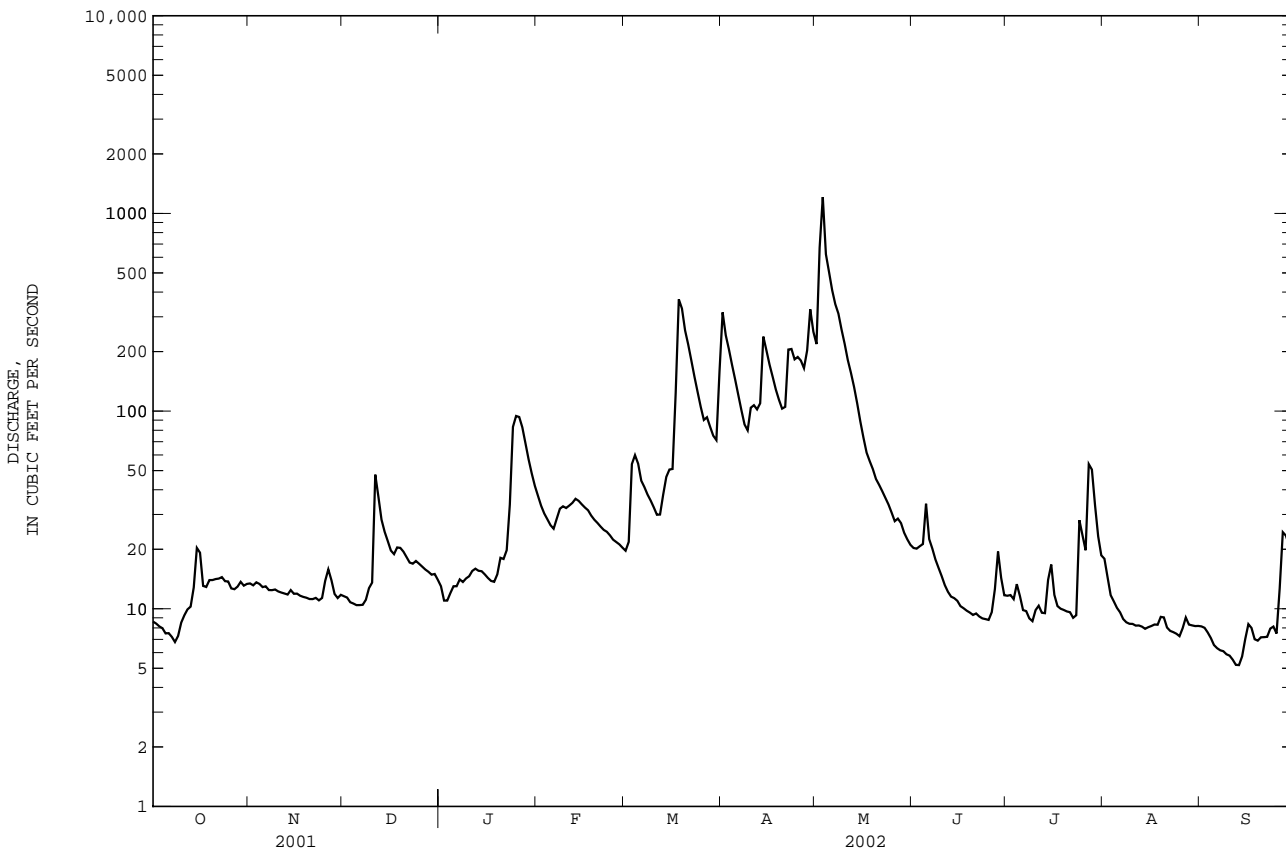
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	55.5	85.8	129	184	221	272	222	161	87.4	39.4	42.0	39.6
MAX	396	445	514	546	542	730	820	398	471	291	364	353
(WY)	1930	1986	1949	1996	1998	1955	1987	1989	1972	1941	1940	1989
MIN	9.81	12.3	15.7	16.2	18.0	51.9	47.8	33.5	14.3	8.90	9.04	8.99
(WY)	1992	2002	1940	1956	1934	1988	1995	1930	2002	1930	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1927 - 2002

ANNUAL TOTAL	28113.6	18633.9	
ANNUAL MEAN	77.0	51.1	128
HIGHEST ANNUAL MEAN			235 1973
LOWEST ANNUAL MEAN			51.1 2002
HIGHEST DAILY MEAN	1480 May 23	1210 May 3	6040 Jun 21 1972
LOWEST DAILY MEAN	6.8 Oct 8	5.2 aSep 12	5.2 aSep 12 2002
ANNUAL SEVEN-DAY MINIMUM	7.5 Oct 3	5.6 Sep 8	5.6 Sep 8 2002
MAXIMUM PEAK FLOW		1830 May 3	8000 Jan 23 1935
MAXIMUM PEAK STAGE		7.99 May 3	12.48 Jun 21 1972
INSTANTANEOUS LOW FLOW		5.1 bSep 11	5.1 bSep 11 2002
ANNUAL RUNOFF (CFSM)	0.74	0.49	1.23
ANNUAL RUNOFF (INCHES)	10.06	6.67	16.69
10 PERCENT EXCEEDS	185	146	296
50 PERCENT EXCEEDS	23	15	57
90 PERCENT EXCEEDS	10	8.1	13

a Also Sept. 13, 2002.
 b Also Sept. 12, 2002.
 e Estimated.



JAMES RIVER BASIN

02018000 CRAIG CREEK AT PARR, VA

LOCATION.--Lat 37°39'57", long 79°54'41", NAD83, Botetourt County, Hydrologic Unit 02080201, on right bank 12 ft upstream from abandoned railway bridge, 700 ft downstream from Stony Run, 0.2 mi northeast of Horton, 0.4 mi northwest of Parr, and at mile 12.0.

DRAINAGE AREA.--329 mi².

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-3, which is fair. Maximum discharge, 58,500 ft³/s, from rating curve extended above 11,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	34	40	43	e44	107	58	856	628	70	46	62	32
2	34	40	42	e42	94	61	779	618	68	46	56	32
3	33	41	41	e44	85	99	617	2580	67	47	51	31
4	33	39	41	46	79	165	499	1650	70	44	46	31
5	32	39	39	50	74	165	396	1200	72	60	41	29
6	32	39	38	52	71	144	336	944	83	54	39	26
7	30	39	38	53	76	130	290	763	72	47	35	26
8	29	38	41	50	77	120	253	681	64	41	32	25
9	31	38	42	49	83	107	232	574	61	38	32	24
10	31	38	45	53	85	95	254	492	57	36	30	24
11	31	38	77	53	84	90	309	415	54	36	30	23
12	32	38	148	55	85	86	300	353	51	35	29	23
13	35	38	118	55	85	90	297	312	48	37	29	23
14	40	37	91	55	86	107	411	294	46	44	28	23
15	46	37	79	54	86	131	476	265	45	46	29	26
16	52	38	71	53	84	143	409	228	42	52	37	31
17	64	39	66	52	82	174	365	200	41	48	35	35
18	52	39	66	50	79	935	327	185	41	44	31	38
19	43	39	66	53	76	1240	300	173	40	42	34	37
20	39	39	66	58	73	793	277	158	39	39	31	35
21	38	38	63	57	71	606	289	144	39	39	31	32
22	40	38	61	61	69	486	549	134	37	40	30	33
23	41	38	60	69	67	393	785	124	35	42	28	36
24	41	39	61	133	66	333	633	114	36	64	26	35
25	41	48	61	257	64	287	558	104	35	146	26	34
26	39	52	61	246	62	253	530	97	34	134	26	44
27	38	53	59	221	61	247	461	97	35	169	27	65
28	38	57	56	192	60	246	438	96	50	197	29	102
29	40	49	55	165	---	225	953	87	57	146	30	80
30	39	44	53	143	---	214	772	80	53	98	31	68
31	39	---	46	124	---	238	---	74	---	74	30	---
TOTAL	1187	1229	1894	2689	2171	8461	13951	13864	1542	2031	1051	1103
MEAN	38.3	41.0	61.1	86.7	77.5	273	465	447	51.4	65.5	33.9	36.8
MAX	64	57	148	257	107	1240	953	2580	83	197	62	102
MIN	29	37	38	42	60	58	232	74	34	35	26	23
CFSM	0.12	0.12	0.19	0.26	0.24	0.83	1.41	1.36	0.16	0.20	0.10	0.11
IN.	0.13	0.14	0.21	0.30	0.25	0.96	1.58	1.57	0.17	0.23	0.12	0.12

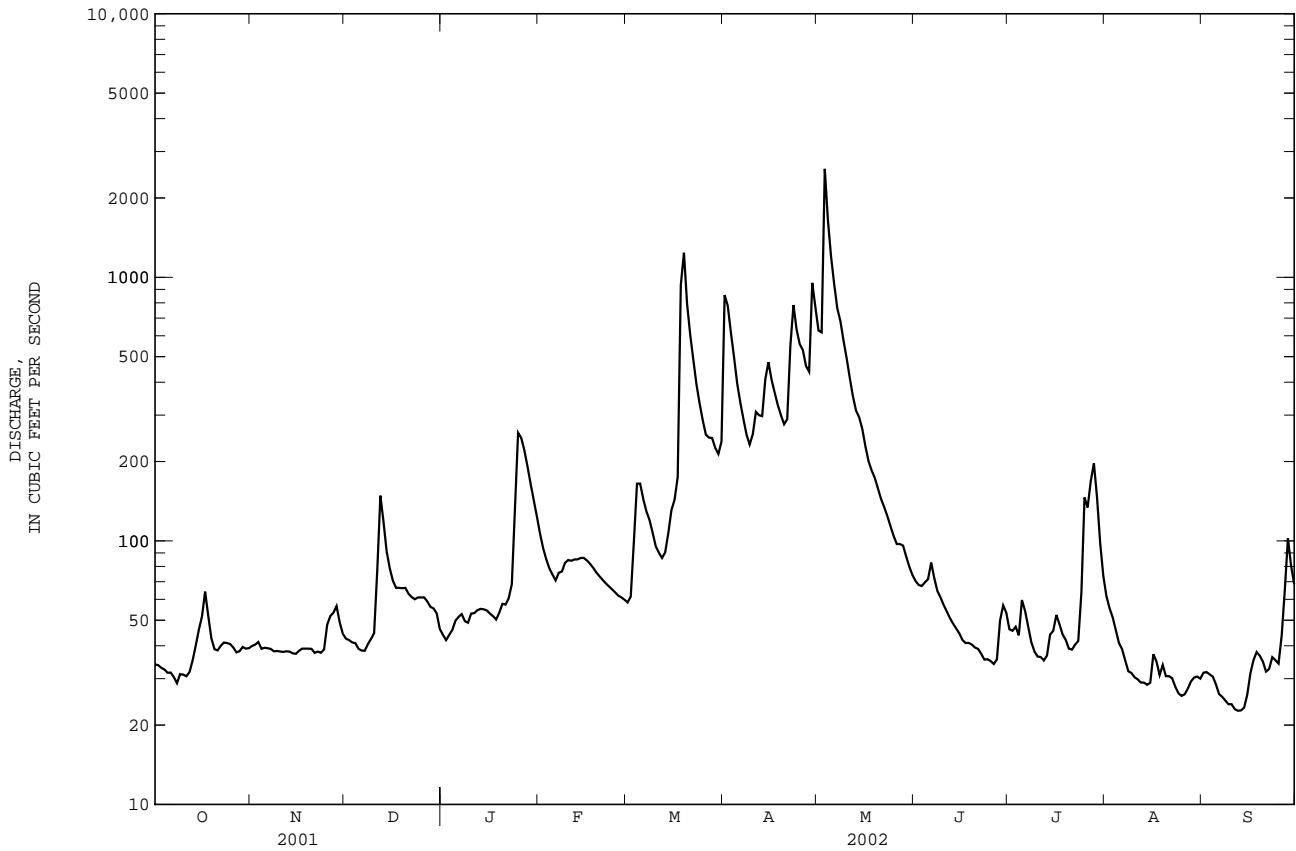
02018000 CRAIG CREEK AT PARR, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	185	273	380	547	649	783	648	459	263	133	157	142
MAX	1093	2112	1519	1642	1757	2116	2427	1202	1134	979	1290	974
(WY)	1938	1986	1949	1937	1998	1993	1987	1942	1972	1941	1940	1928
MIN	34.9	41.0	48.9	51.2	55.6	141	143	93.2	51.4	33.5	33.9	34.1
(WY)	1931	2002	1966	1956	1934	1988	1995	1930	2002	1966	2002	1968

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1925 - 2002	
ANNUAL TOTAL	80540		51173			
ANNUAL MEAN	221		140		385	
HIGHEST ANNUAL MEAN					655	
LOWEST ANNUAL MEAN					140	
HIGHEST DAILY MEAN	3430		May 23		21000	
LOWEST DAILY MEAN	29		Oct 8		23	
ANNUAL SEVEN-DAY MINIMUM	31		Oct 5		24	
MAXIMUM PEAK FLOW					3340	
MAXIMUM PEAK STAGE					8.52	
INSTANTANEOUS LOW FLOW					22	
ANNUAL RUNOFF (CFSM)	0.67		0.43		1.17	
ANNUAL RUNOFF (INCHES)	9.11		5.79		15.88	
10 PERCENT EXCEEDS	517		343		856	
50 PERCENT EXCEEDS	87		54		179	
90 PERCENT EXCEEDS	38		31		49	

- a Also Sept. 12-14, 2002.
- b From floodmarks.
- c Also Sept. 13, 2002.
- d Result of freezeup.
- e Estimated.
- f Also probably occurred Dec. 25, 1980, and Jan. 4, 1981.



JAMES RIVER BASIN

02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'19", NAD83, Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft upstream from bridge on State Highway 779, 1.0 mi downstream from Little Catawba Creek, 1.9 mi west of Haymarketown, and 8.2 mi northeast of Catawba.

DRAINAGE AREA.--34.3 mi².

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

REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72-1: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft NGVD of 1929. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft downstream at same datum.

REMARKS.--Records good except those for period of no gage-height record, Oct. 4-9, Oct. 26 to Nov. 24, and Apr. 10, and period with ice effect, Dec. 31 to Jan. 4, which are fair. At a point 5.3 mi upstream from station, there has been transmountain diversion through a tunnel into Roanoke River Basin for municipal water supply of city of Roanoke since December 1974. From October 1953 to October 1976, monthly means adjusted for pumpage by Citadel Cement Corporation. Statistics of monthly mean data and summary statistics for water years 1944-1952 (unregulated flow) are available in previous data books, water years 1991-1998. Maximum discharge, 21,200 ft³/s, from rating curve extended above 1,700 ft³/s on basis of slope-area measurements at gage heights 10.35 ft and 19.19 ft. Minimum discharge, 0.28 ft³/s, Aug. 21, 1987, gage height, 0.99 ft, cause unknown. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.26 ft, from information by observer.

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	2.8	e8.0	6.3	e3.3	2.2	2.7	8.6	4.2	2.3	1.6	1.7	1.8
2	2.5	e7.4	5.8	e3.0	1.5	3.9	7.2	10	2.5	1.5	1.4	1.6
3	2.4	e7.0	5.8	e3.2	1.5	6.6	6.0	23	2.2	1.4	1.4	1.4
4	e2.3	e6.6	6.0	e3.4	1.5	4.5	4.9	16	5.7	1.4	1.4	1.2
5	e2.2	e6.4	5.6	3.6	1.2	3.9	4.1	13	4.8	1.6	1.2	0.94
6	e2.6	e6.2	5.3	3.9	1.5	3.2	3.4	13	3.1	1.4	0.99	0.69
7	e2.9	e6.2	5.1	4.0	2.5	2.7	3.1	12	3.1	1.1	0.82	0.52
8	e3.2	e6.5	5.7	6.6	3.0	2.4	3.4	9.5	2.8	1.3	0.65	0.42
9	e3.7	e7.0	5.9	12	2.5	2.3	3.4	7.6	2.6	1.8	0.65	0.37
10	4.1	e7.3	6.1	10	2.6	1.9	e3.8	6.4	3.1	1.2	0.70	0.56
11	4.7	e6.9	13	8.3	2.8	2.1	3.3	5.8	2.9	1.4	0.68	0.28
12	4.6	e6.6	11	9.6	2.4	2.5	3.0	5.1	2.4	1.3	0.61	0.27
13	4.9	e6.3	8.5	7.0	2.4	3.1	3.3	6.2	2.4	1.3	0.58	0.25
14	6.7	e6.8	7.3	6.0	2.2	2.2	3.5	5.4	1.9	1.8	0.52	0.36
15	6.1	e6.5	6.4	6.7	2.1	2.6	3.0	4.5	1.5	2.0	0.40	1.2
16	6.3	e6.4	5.6	4.1	2.0	2.8	3.0	4.0	1.9	1.7	0.45	4.0
17	5.1	e6.3	6.0	3.9	1.9	7.3	2.9	3.4	2.1	1.2	0.67	1.6
18	4.6	e6.2	7.2	4.0	2.0	16	2.8	3.6	2.0	1.1	1.7	1.2
19	5.1	e6.1	7.2	4.9	2.3	13	2.7	3.3	1.8	1.2	1.7	1.2
20	4.7	e5.9	6.5	5.2	2.0	9.1	2.4	3.2	1.8	4.5	1.2	1.7
21	5.7	e5.7	5.4	5.6	1.9	6.9	3.1	3.5	1.6	3.3	1.9	1.4
22	5.9	e5.6	5.2	6.7	1.8	5.2	3.3	3.0	1.4	2.1	1.4	1.6
23	7.7	e5.4	5.4	12	1.5	4.2	2.9	2.8	1.2	2.1	0.55	2.4
24	9.1	e6.6	6.2	12	1.5	3.8	3.3	2.8	1.4	6.1	0.48	1.8
25	7.3	9.8	5.9	5.4	1.5	3.5	4.1	2.4	1.4	3.8	0.53	1.1
26	e6.7	9.3	5.6	4.0	2.2	3.7	3.4	2.2	1.6	5.5	0.77	4.0
27	e6.2	8.0	4.8	3.1	2.6	3.7	3.0	2.5	2.1	2.5	1.4	4.4
28	e6.8	6.9	4.8	3.1	2.9	3.0	3.6	3.5	3.5	1.9	1.4	3.2
29	e7.2	6.1	4.5	2.5	---	2.9	4.6	2.4	2.4	1.5	1.7	2.5
30	e7.6	6.3	4.0	2.1	---	2.8	4.6	1.9	1.9	2.1	1.6	1.8
31	e8.2	---	e3.6	2.1	---	5.3	---	2.5	---	2.5	1.6	---
TOTAL	159.9	202.3	191.7	171.3	58.0	139.8	113.7	188.7	71.4	65.2	32.75	45.76
MEAN	5.16	6.74	6.18	5.53	2.07	4.51	3.79	6.09	2.38	2.10	1.06	1.53
MAX	9.1	9.8	13	12	3.0	16	8.6	23	5.7	6.1	1.9	4.4
MIN	2.2	5.4	3.6	2.1	1.2	1.9	2.4	1.9	1.2	1.1	0.40	0.25
(†)	0	0	9.0	33.5	5.7	155	219	248	19.2	32.8	1.90	4.1
MEAN†	5.16	6.74	6.47	6.61	2.28	9.51	11.1	14.1	3.02	3.16	1.12	1.66
CFSM†	.15	.20	.19	.19	.07	.28	.32	.41	.09	.09	.03	.05
IN.†	.17	.22	.22	.22	.07	.32	.36	.47	.10	.11	.04	.05

CAL YR 2001 MEAN† 15.10 CFSM† .44 IN† 5.98
WTR YR 2002 MEAN† 5.94 CFSM† .17 IN† 2.35

† Total diversion, equivalent in cubic feet per second, per month, provided by city of Roanoke.
‡ Adjusted for diversion.

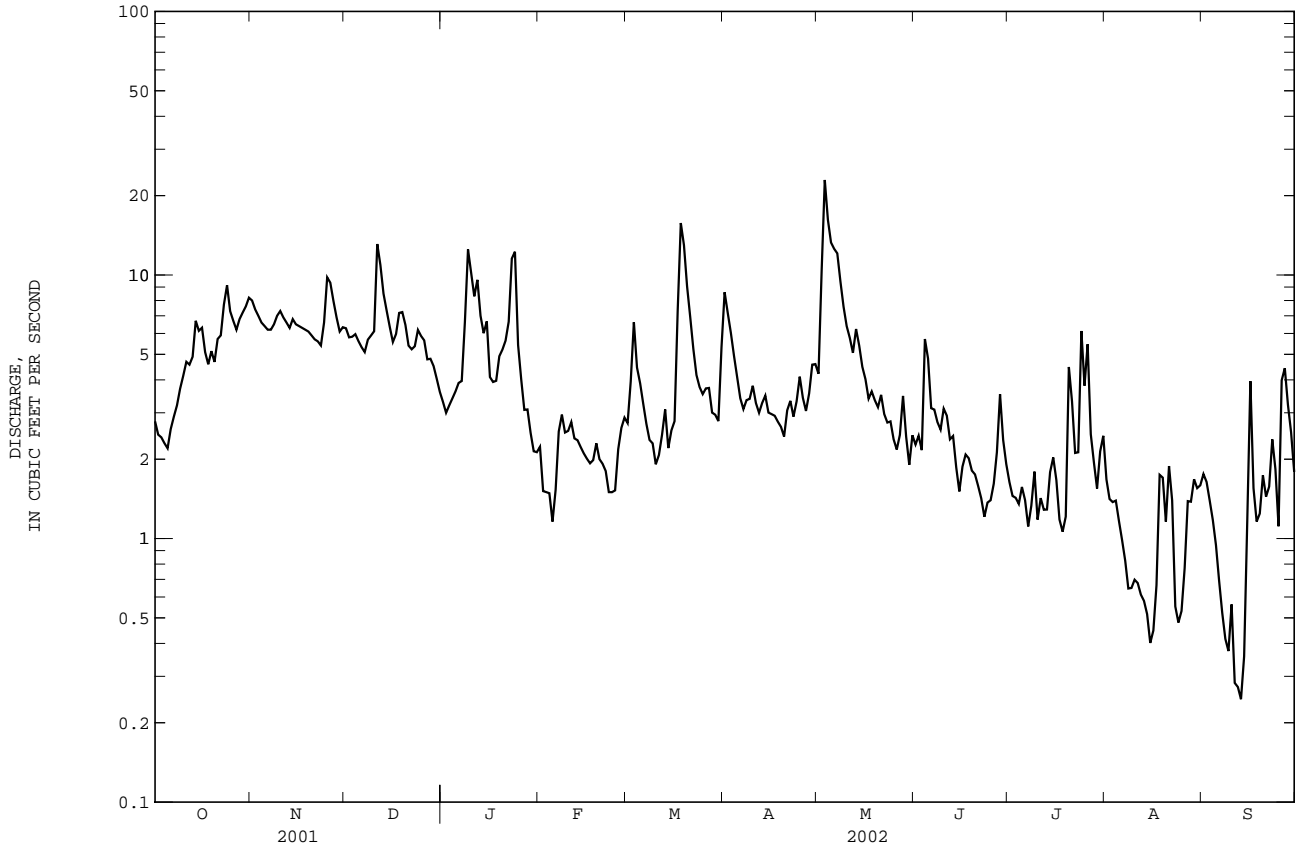
02018500 CATAWBA CREEK NEAR CATAWBA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	14.1	29.3	20.9	35.7	51.1	76.8	69.1	37.8	28.8	10.6	10.9	16.7
MAX	82.2	390	105	131	221	278	337	122	142	52.2	75.5	105
(WY)	1990	1986	1997	1996	1998	1993	1987	1989	1992	1989	1985	1979
MIN	3.41	2.01	3.16	3.45	2.07	4.51	3.79	4.88	2.29	2.10	1.06	1.53
(WY)	1999	1982	1982	1981	2002	2002	2002	1999	1999	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1975 - 2002
ANNUAL TOTAL	3007.7	1440.51	
ANNUAL MEAN	8.24	3.95	33.3
HIGHEST ANNUAL MEAN			64.9 1987
LOWEST ANNUAL MEAN			3.95 2002
HIGHEST DAILY MEAN	196 Mar 30	23 May 3	7400 Nov 4 1985
LOWEST DAILY MEAN	1.9 aSep 23	0.25 Sep 13	0.25 Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM	2.4 Sep 13	0.36 Sep 8	0.36 Sep 8 2002
MAXIMUM PEAK FLOW		28 May 3	21200 Nov 4 1985
MAXIMUM PEAK STAGE		2.32 May 3	b19.19 Nov 4 1985
INSTANTANEOUS LOW FLOW		0.24 cSep 12	0.24 cSep 12 2002
10 PERCENT EXCEEDS	13	7.2	67
50 PERCENT EXCEEDS	5.5	3.1	11
90 PERCENT EXCEEDS	2.6	1.2	3.8

- a Also Sept. 26, 2001.
- b From high-water mark.
- c Also Sept. 13, 14, 2002.
- e Estimated.



JAMES RIVER BASIN

02019500 JAMES RIVER AT BUCHANAN, VA

LOCATION.--Lat 37°31'50", long 79°40'44", NAD83, Botetourt County, Hydrologic Unit 02080201, on left bank 300 ft upstream from bridge on U.S. Highway 11 at Buchanan, 1,000 ft upstream from Purgatory Creek, 1.5 mi downstream from Looney Creek, and at mile 306.4.

DRAINAGE AREA.--2,075 mi².

PERIOD OF RECORD.--February 1898 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for August 1895 to Feb. 11, 1898, published in WSP 11, 15, and 27 are in error and should not be used. Gage-height records collected at this site since 1893 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 602: 1917-24. WSP 972: 1935-36. WSP 1303: 1898-1916, 1917-20(M), 1922(M), 1924(M). WSP 1383: 1927. WSP 2104: Drainage area. WDR VA-72-1: 1913(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 802.90 ft NGVD of 1929. Prior to July 1, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 3, 4, which is fair. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 79.6 mi upstream; since October 1984 by Back Creek Lake 107.6 mi upstream, amount unknown; and since January 1985 by Little Back Creek Lake 110.7 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1898 - 1979 (unregulated flow) are available in previous data books, water years 1991 - 1998. National Weather Service gage-height telemeter at station. Maximum discharge, 179,000 ft³/s, from rating curve extended above 110,000 ft³/s. 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 34.9 ft, from floodmark, discharge, about 142,000 ft³/s, from rating curve extended above 110,000 ft³/s.

**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	544	460	489	463	773	470	2600	7660	805	603	692	408
2	537	463	478	443	712	490	3580	4790	828	583	635	404
3	483	451	469	e430	667	728	2970	7390	795	593	596	396
4	468	439	466	e440	638	1010	2450	7030	771	638	567	373
5	458	434	462	465	596	1140	2050	4910	746	598	583	356
6	448	433	452	478	577	1040	1750	4150	723	599	574	347
7	440	430	450	502	592	925	1540	3650	728	564	536	343
8	430	431	463	498	636	856	1380	4340	703	541	509	341
9	428	430	482	472	679	787	1270	6460	683	532	497	340
10	430	430	493	485	687	736	1600	6170	657	536	481	339
11	435	428	716	500	694	680	2090	4140	632	619	471	332
12	440	428	949	508	645	658	1910	3030	611	734	470	325
13	445	427	969	519	647	699	1740	2470	605	696	463	321
14	470	427	837	534	650	801	1800	2130	593	672	451	333
15	558	428	743	521	634	950	2380	2000	593	1040	446	356
16	563	428	679	510	623	982	2450	1790	578	977	455	388
17	527	429	642	495	607	1020	2270	1620	573	775	466	396
18	543	431	671	480	589	2670	2010	1530	565	696	505	378
19	499	433	718	502	580	4510	1820	1410	558	676	504	382
20	483	431	726	509	565	3630	1720	1260	564	643	481	377
21	474	430	712	487	554	3540	1710	1180	545	603	453	369
22	471	428	657	484	541	3090	8870	1110	534	596	448	367
23	469	429	625	538	529	2440	14400	1040	535	593	442	415
24	471	438	627	826	517	2010	8610	924	527	600	440	710
25	461	465	597	1320	509	1730	6810	876	520	771	405	551
26	455	562	584	1680	500	1530	4870	843	515	1240	391	516
27	449	539	575	1430	489	1570	3470	853	563	1060	393	1180
28	446	543	557	1190	477	1710	3020	845	615	1140	401	2240
29	450	531	543	1030	---	1670	8610	952	631	1090	406	1540
30	454	504	518	929	---	1530	9380	1000	618	945	407	1080
31	456	---	494	855	---	1510	---	926	---	782	401	---
TOTAL	14685	13560	18843	20523	16907	47112	111130	88479	18914	22735	14969	16203
MEAN	474	452	608	662	604	1520	3704	2854	630	733	483	540
MAX	563	562	969	1680	773	4510	14400	7660	828	1240	692	2240
MIN	428	427	450	430	477	470	1270	843	515	532	391	321
(†)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN‡	.332	.339	.525	.634	.600	.1850	.4175	.2820	.461	.571	.249	.431
CFSM‡	.16	.16	.25	.31	.29	.89	2.01	1.36	.22	.28	.12	.21
IN.‡	.18	.18	.29	.35	.30	1.03	2.25	1.57	.25	.32	.14	.23

CAL YR 2001 MEAN‡ 1482 CFSM‡ .71 IN.‡ 9.70
WTR YR 2002 MEAN‡ 1083 CFSM‡ .52 IN.‡ 7.09

† Total change in contents, equivalent in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

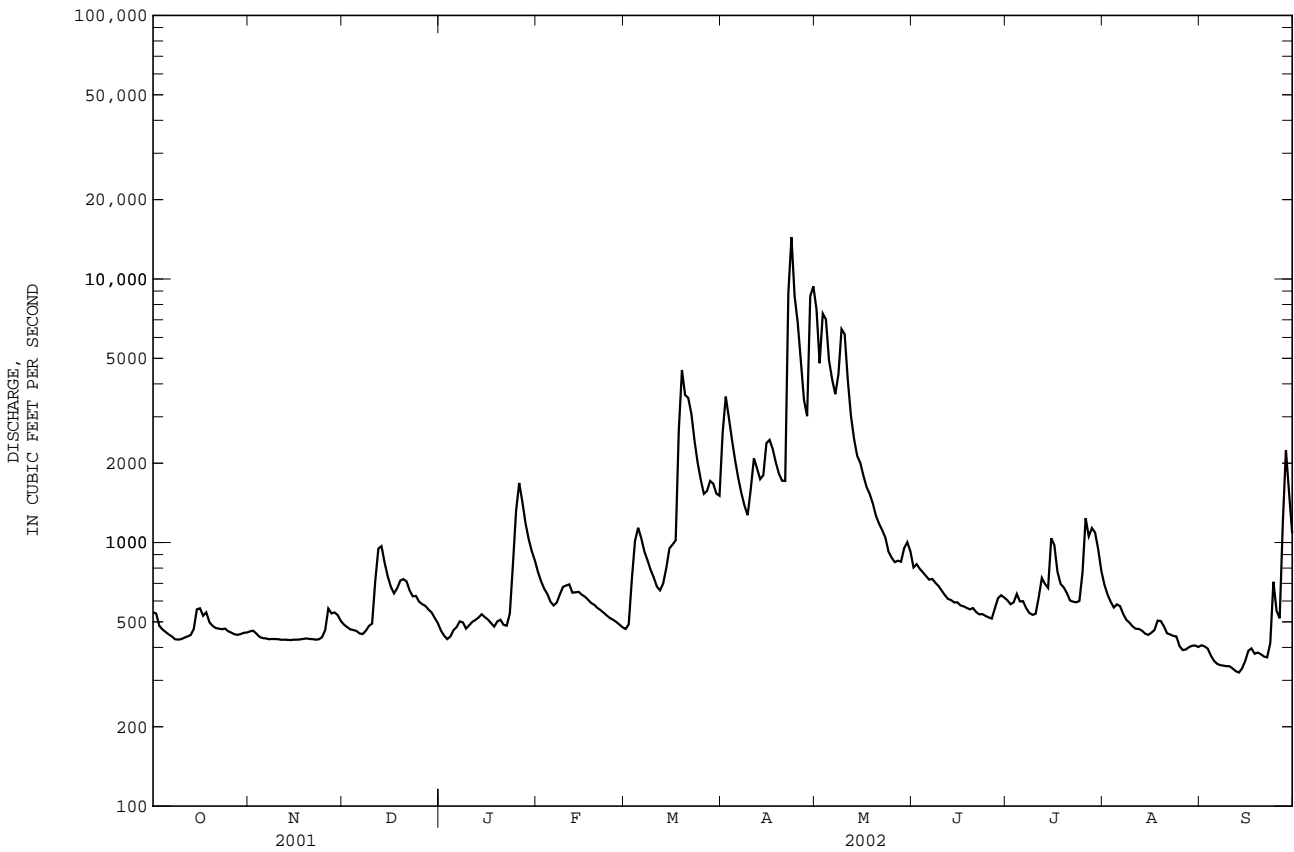
02019500 JAMES RIVER AT BUCHANAN, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1161	1789	2105	3272	3817	5004	4426	3156	1995	1023	1025	1111
MAX	5679	10190	6450	10310	11270	12790	16170	8908	5251	2236	3834	4288
(WY)	1990	1986	1997	1996	1998	1993	1987	1982	1982	1989	1984	1996
MIN	419	452	453	396	604	922	1081	1457	626	553	338	361
(WY)	1981	2002	1981	1981	2002	1981	1995	2000	1999	1999	1981	1981

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1980 - 2002	
ANNUAL TOTAL	555767		404060			
ANNUAL MEAN	1523		1107		2482	
HIGHEST ANNUAL MEAN					3664	
LOWEST ANNUAL MEAN					1092	
HIGHEST DAILY MEAN	21600		May 23		102000	
LOWEST DAILY MEAN	427		aNov 13		257	
ANNUAL SEVEN-DAY MINIMUM	428		Nov 11		268	
MAXIMUM PEAK FLOW					b179000	
MAXIMUM PEAK STAGE					b,c38.84	
INSTANTANEOUS LOW FLOW					f,g230	
ANNUAL RUNOFF (CFSM)	0.73		0.53		1.20	
ANNUAL RUNOFF (INCHES)	9.96		7.24		16.25	
10 PERCENT EXCEEDS	3010		2170		5340	
50 PERCENT EXCEEDS	805		584		1210	
90 PERCENT EXCEEDS	455		428		532	

- a Also Nov. 14, 2001.
- b Prior to regulation, 1898-1979, maximum peak flow, 115,000 ft³/s, Mar. 27, 1913, gage height, 31.00 ft, from floodmarks.
- c From floodmarks.
- d Also Sept. 13, 2002.
- e Estimated.
- f Prior to regulation, 1898-1979, instantaneous low flow, 202 ft³/s, Sept. 8, 1966.
- g Result of freezeup.
- h Also Jan. 12, 1981.



JAMES RIVER BASIN

02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA

LOCATION.--Lat 37°59'16", long 79°29'37", NAD83, Rockbridge County, Hydrologic Unit 02080202, on left bank 20 ft upstream from bridge on State Highway 42, at Goshen and 400 ft upstream from Mill Creek.

DRAINAGE AREA.--144 mi².

PERIOD OF RECORD.--October 1938 to September 1996. October 1998 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,382.84 ft NGVD of 1929. Prior to Oct. 1, 1998, at datum 2.0 ft higher.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Dec. 12-16 and Mar. 2-26, and period with ice effect, Dec. 30 to Jan. 9, which are fair. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 56,300 ft³/s, from rating curve extended above 9,200 ft³/s on basis of slope-area measurement at gage heights 12.78 ft and 20.23 ft. No flow Sept. 5, 6, 1957, Sept. 28, 1959, result of diversion. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1045	*3,770	*7.62	No other peak greater than base discharge.			

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	3.9	5.1	6.3	e12	28	14	177	481	42	5.2	16	2.2
2	3.8	5.3	6.1	e10	26	e15	241	368	39	4.7	13	2.1
3	3.8	5.3	5.6	e9.4	24	e130	214	284	32	5.2	11	1.8
4	3.7	5.2	5.4	e9.8	23	e110	172	214	28	4.2	9.0	1.8
5	3.4	5.2	5.2	e10	21	e84	138	185	26	4.0	8.2	1.9
6	3.1	5.2	4.9	e11	20	e72	114	154	23	4.1	7.7	1.5
7	2.9	4.7	5.0	e12	23	e60	97	164	24	3.6	6.9	1.3
8	2.7	4.7	5.9	e11	23	e55	82	421	21	3.3	6.0	1.3
9	3.2	4.6	6.7	e10	22	e51	80	485	18	3.9	5.9	0.98
10	3.4	4.5	6.7	11	22	e48	128	426	17	5.7	5.4	0.97
11	3.8	4.4	18	12	23	e46	188	326	15	47	4.9	0.82
12	4.3	4.4	e16	10	23	e60	174	261	13	14	4.5	0.60
13	4.5	4.8	e14	10	24	e90	157	218	12	11	4.1	0.42
14	5.7	4.9	e13	10	26	e82	148	201	12	26	4.0	0.41
15	8.8	4.7	e13	10	27	e78	142	164	10	37	3.6	0.46
16	8.1	4.7	e12	9.8	27	e74	141	130	9.1	25	3.8	1.6
17	6.7	4.7	16	9.5	26	e125	139	107	9.0	17	3.4	2.3
18	5.8	4.7	20	9.5	26	e180	132	99	8.5	13	3.2	2.6
19	5.4	4.7	e19	12	24	e250	127	88	9.3	10	2.9	2.1
20	5.0	4.7	e17	16	23	e205	112	74	11	11	2.7	2.1
21	5.0	4.7	e16	12	22	e170	218	64	8.0	10	2.4	2.0
22	5.3	4.5	e15	12	20	e145	2470	57	6.9	7.8	2.2	2.2
23	5.6	4.5	e14	14	20	e130	1290	49	6.3	7.4	2.0	4.4
24	5.0	4.7	20	19	19	e110	698	44	5.9	8.9	2.2	4.3
25	4.8	8.4	20	26	17	e92	458	39	5.7	9.0	2.1	3.3
26	4.7	13	18	35	17	e100	320	35	5.4	12	1.8	8.7
27	4.6	9.2	18	37	16	128	239	33	6.6	22	1.8	41
28	4.7	7.2	16	36	15	146	819	72	8.0	28	1.7	64
29	4.6	6.5	15	34	---	146	1400	83	7.0	30	2.3	62
30	4.5	6.5	e14	32	---	133	757	62	5.8	23	2.4	38
31	5.1	---	e13	31	---	127	---	50	---	19	2.3	---
TOTAL	145.9	165.7	394.8	503.0	627	3256	11572	5438	444.5	432.0	149.4	259.16
MEAN	4.71	5.52	12.7	16.2	22.4	105	386	175	14.8	13.9	4.82	8.64
MAX	8.8	13	20	37	28	250	2470	485	42	47	16	64
MIN	2.7	4.4	4.9	9.4	15	14	80	33	5.4	3.3	1.7	0.41
CFSM	0.03	0.04	0.09	0.11	0.16	0.73	2.68	1.22	0.10	0.10	0.03	0.06
IN.	0.04	0.04	0.10	0.13	0.16	0.84	2.99	1.40	0.11	0.11	0.04	0.07

02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA--Continued

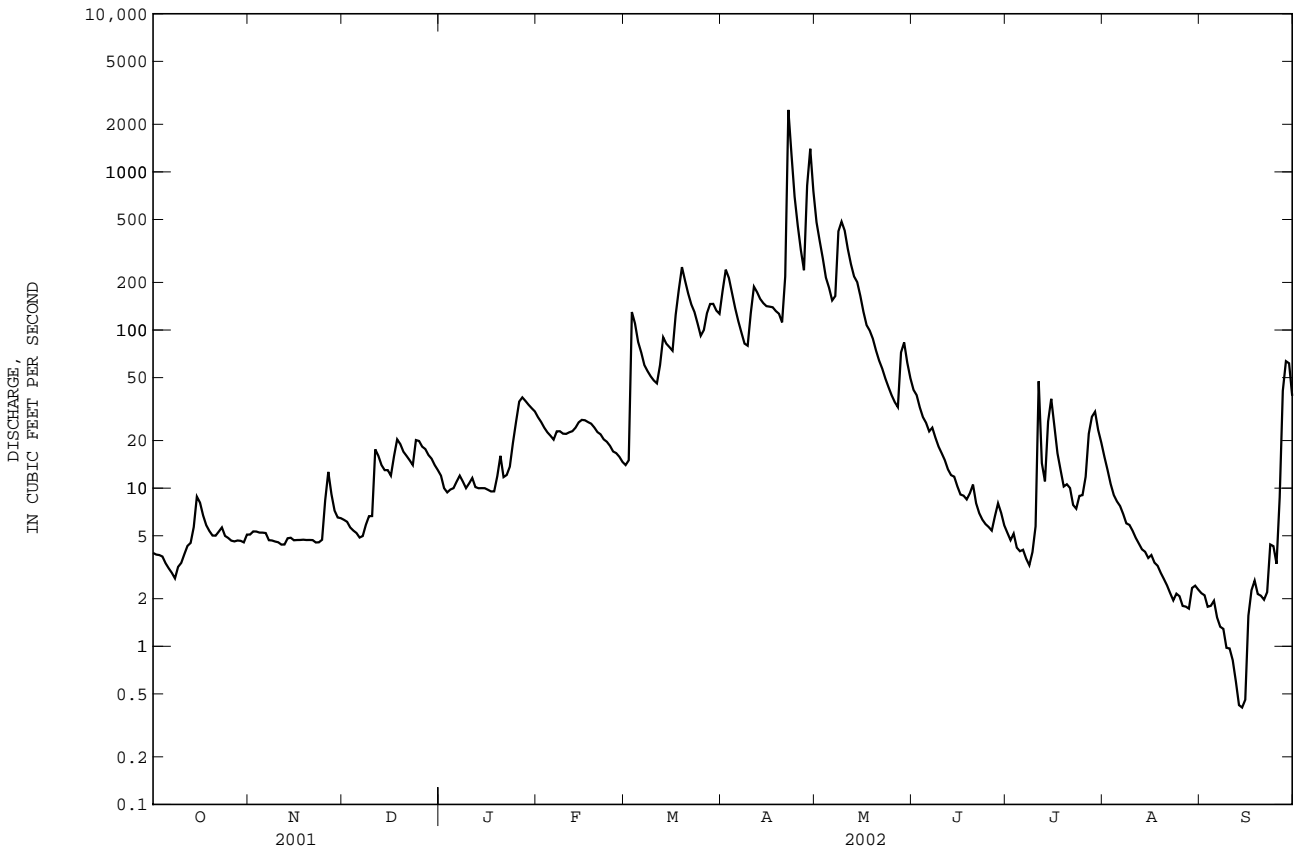
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1996, 1999 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	73.0	121	184	225	258	355	265	219	131	46.5	56.3	58.9
MAX	469	1540	768	931	651	849	992	638	600	352	458	799
(WY)	1977	1986	1974	1996	1994	1993	1987	1942	1982	1972	1940	1996
MIN	3.90	5.52	8.38	7.82	22.4	50.9	47.3	29.0	10.2	3.77	2.73	2.08
(WY)	1942	2002	1999	1981	2002	1981	1995	1977	1964	1966	1999	1970

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1939 - 1996 1999 - 2002

ANNUAL TOTAL	35150.7		23387.46		166		303		1973	
ANNUAL MEAN	96.3		64.1		64.1		21900		5 1985	
HIGHEST ANNUAL MEAN									5 1957	
LOWEST ANNUAL MEAN									5 1957	
HIGHEST DAILY MEAN	1570	Mar 22	2470	Apr 22	21900	Nov 5	1985			
LOWEST DAILY MEAN	2.7	Oct 8	0.41	Sep 14	a0.00	bSep 5	1957			
ANNUAL SEVEN-DAY MINIMUM	3.2	Oct 4	0.67	Sep 9	0.67	Sep 9	2002			
MAXIMUM PEAK FLOW			3770	Apr 22	56300	Nov 4	1985			
MAXIMUM PEAK STAGE			7.62	Apr 22	20.23	Nov 4	1985			
INSTANTANEOUS LOW FLOW			0.41	cSep 13	a0.00	bSep 5	1957			
ANNUAL RUNOFF (CFSM)	0.67		0.44		1.15					
ANNUAL RUNOFF (INCHES)	9.08		6.04		15.62					
10 PERCENT EXCEEDS	245		150		370					
50 PERCENT EXCEEDS	27		12		61					
90 PERCENT EXCEEDS	4.7		2.9		7.4					

- a Result of diversion.
- b Also Sept. 6, 1957, and Sept. 28, 1959.
- c Also Sept. 14, 15, 2002.
- e Estimated.



JAMES RIVER BASIN

02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA

LOCATION.--Lat 37°54'26", long 79°25'19", NAD83, Rockbridge County, Hydrologic Unit 02080202, on right bank at Rockbridge Baths, 1,200 ft upstream from bridge on State Highway 39, and 1.0 mi upstream from Hays Creek.

DRAINAGE AREA.--329 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

REVISED RECORDS.--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

GAGE.--Water-stage recorder. Datum of gage is 1,100.33 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except for period with ice effect, Dec. 30 to Jan. 8, which is fair. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. National Weather Service gage-height telemeter at station. Maximum discharge, 87,700 ft³/s, from rating curve extended above 16,000 ft³/s on basis of slope-area measurement at peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1415	*6,840	*7.55	No other peak greater than base discharge.			

**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	23	19	24	e32	67	35	429	845	84	20	34	15
2	21	19	23	e30	61	40	486	780	76	19	30	15
3	20	19	23	e25	57	154	435	574	70	20	28	14
4	20	19	22	e26	54	187	350	476	59	19	27	13
5	20	18	22	e28	50	171	281	439	55	20	29	12
6	19	18	22	e29	46	148	236	357	48	19	25	12
7	18	18	22	e30	57	129	204	302	48	18	23	11
8	18	18	25	e34	63	114	178	677	45	17	22	11
9	17	18	26	35	62	104	171	821	41	17	20	12
10	17	18	27	34	61	95	320	799	37	25	20	10
11	19	18	66	35	62	84	424	634	34	128	20	9.7
12	19	18	67	35	61	80	387	518	31	63	19	9.6
13	21	18	48	34	60	97	345	432	30	38	17	9.6
14	28	18	45	32	60	117	330	382	29	81	16	10
15	35	19	43	32	60	126	317	311	28	131	16	13
16	29	19	41	30	60	129	301	253	27	81	16	14
17	23	20	40	30	59	136	282	211	26	54	17	14
18	19	20	52	30	56	229	271	206	24	44	17	15
19	19	20	59	34	53	420	281	188	24	38	17	14
20	20	19	55	41	51	561	268	159	30	35	15	14
21	19	19	50	40	49	744	348	141	28	34	14	13
22	19	19	48	38	48	573	4530	127	23	31	14	14
23	19	19	48	45	46	415	2500	116	22	29	13	18
24	19	20	50	76	44	316	1240	106	21	34	13	18
25	19	30	47	104	42	253	802	96	19	31	13	17
26	17	40	46	105	41	217	645	89	19	39	14	29
27	17	32	41	96	39	288	508	81	21	79	13	90
28	18	27	40	89	36	308	1120	110	28	59	13	90
29	18	25	39	80	---	292	2290	141	26	64	15	89
30	18	24	e37	75	---	266	1210	113	23	50	15	65
31	18	---	e36	72	---	277	---	94	---	41	15	---
TOTAL	626	628	1234	1456	1505	7105	21489	10578	1076	1378	580	690.9
MEAN	20.2	20.9	39.8	47.0	53.8	229	716	341	35.9	44.5	18.7	23.0
MAX	35	40	67	105	67	744	4530	845	84	131	34	90
MIN	17	18	22	25	36	35	171	81	19	17	13	9.6
CFSM	0.06	0.06	0.12	0.14	0.16	0.70	2.18	1.04	0.11	0.14	0.06	0.07
IN.	0.07	0.07	0.14	0.16	0.17	0.80	2.43	1.20	0.12	0.16	0.07	0.08

02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA--Continued

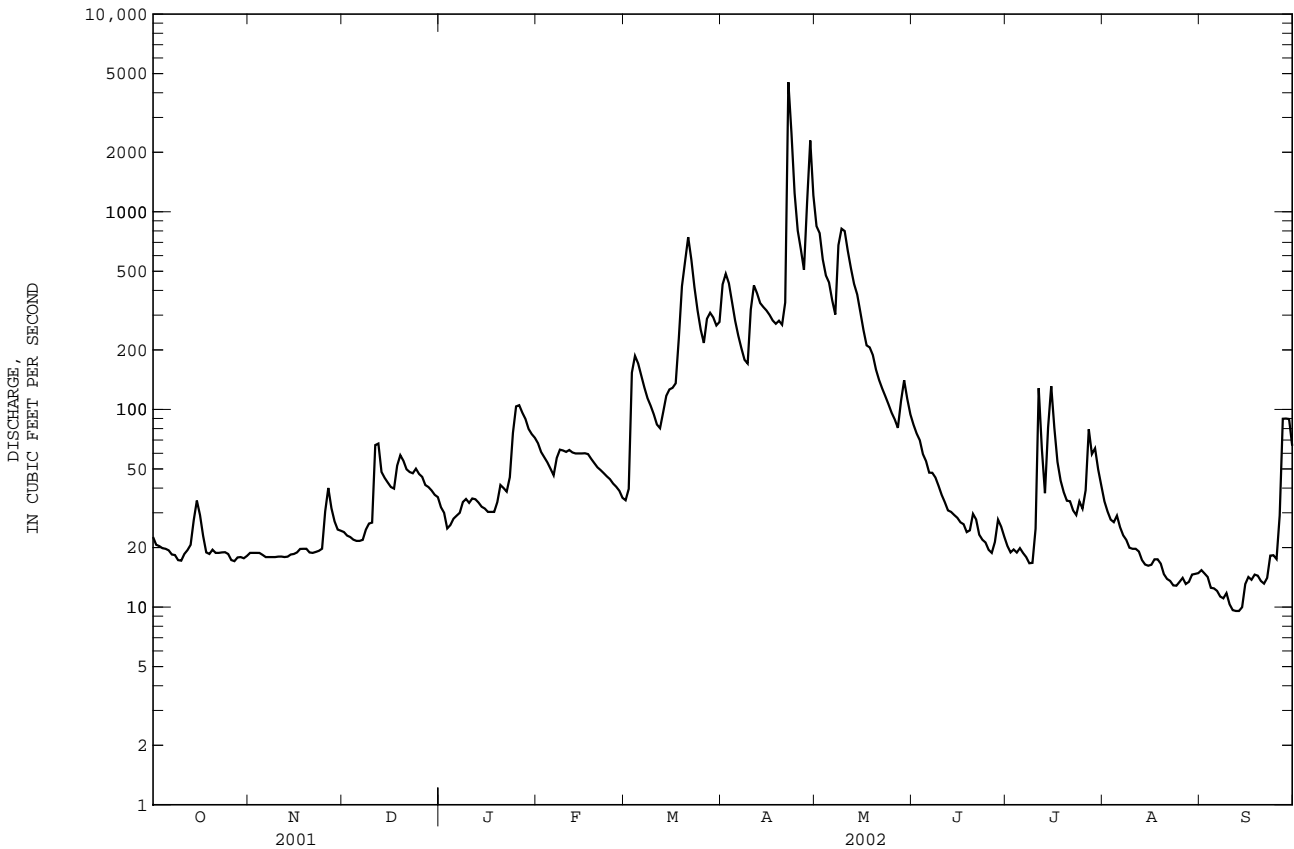
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	188	264	396	541	606	835	619	466	266	117	134	133
MAX	1254	2689	1450	1895	1530	2017	2245	1463	1374	807	1016	1388
(WY)	1980	1986	1974	1998	1998	1936	1987	1989	1995	1972	1969	1996
MIN	16.5	20.9	26.6	32.3	50.9	117	122	81.0	34.7	14.6	14.9	16.1
(WY)	1931	2002	1966	1981	1934	1981	1995	1930	1964	1966	1964	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002

ANNUAL TOTAL	75147		48345.9		379			
ANNUAL MEAN	206		132		132		1973	
HIGHEST ANNUAL MEAN					685		2002	
LOWEST ANNUAL MEAN					132		1973	
HIGHEST DAILY MEAN	2940	Mar 22	4530	Apr 22	41500	Nov 5	1985	
LOWEST DAILY MEAN	17	aOct 9	9.6	bSep 12	7.1	Sep 10	1966	
ANNUAL SEVEN-DAY MINIMUM	18	Oct 25	10	Sep 8	8.2	Sep 7	1966	
MAXIMUM PEAK FLOW			6840		Apr 22		87700	
MAXIMUM PEAK STAGE			7.55		Apr 22		c19.19	
INSTANTANEOUS LOW FLOW			9.6		dSep 10		5.8	
ANNUAL RUNOFF (CFSM)	0.63		0.40		1.15			
ANNUAL RUNOFF (INCHES)	8.50		5.47		15.66			
10 PERCENT EXCEEDS	514		324		883			
50 PERCENT EXCEEDS	74		35		152			
90 PERCENT EXCEEDS	19		16		30			

- a Also Oct. 10, 2001.
- b Also Sept. 13, 2002.
- c From floodmarks.
- d Also Sept. 11-14.
- e Estimated.



JAMES RIVER BASIN

02022500 KERRS CREEK NEAR LEXINGTON, VA

LOCATION.--Lat 37°49'32", long 79°26'35", NAD83, Rockbridge County, Hydrologic Unit 02080202, on right bank 100 ft upstream from bridge on Interstate Highway 64, 1.4 mi upstream from mouth, and 2.9 mi north of Lexington.

DRAINAGE AREA.--35.0 mi².

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 980.32 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft downstream at different datum.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 5, which is fair. Maximum discharge, 23,000 ft³/s, from rating curve extended above 800 ft³/s on basis of contracted-opening and slope-area measurements of peak flow. Minimum discharge, 0.90 ft³/s, July 22, 1966, result of temporary dam upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	0415	*983	*6.29	No other peak greater than base discharge.			

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	4.5	6.7	5.9	e3.9	5.9	4.3	27	35	8.2	4.9	4.9	3.5
2	4.4	6.5	5.5	e3.5	5.7	5.6	20	38	8.2	5.8	4.7	3.5
3	4.3	6.3	5.3	e3.7	5.4	17	18	38	7.9	5.7	4.7	3.5
4	4.2	6.2	5.0	e3.9	5.3	11	15	30	7.8	5.2	4.7	3.5
5	4.1	6.0	5.4	e4.0	4.9	8.5	13	29	7.5	4.6	4.7	3.5
6	4.3	6.0	5.0	4.8	5.2	7.7	12	25	7.5	4.2	4.5	3.4
7	4.4	6.1	5.0	5.0	6.9	7.0	11	34	8.0	4.0	4.2	3.5
8	4.4	6.0	5.9	4.7	7.6	6.6	9.9	71	7.4	3.9	4.1	3.5
9	4.6	6.2	6.1	4.7	6.6	6.4	11	51	6.9	4.4	4.1	3.5
10	4.7	6.3	6.0	5.0	6.5	6.0	30	42	6.7	22	4.1	3.5
11	4.9	6.1	22	5.2	6.4	5.3	20	32	6.3	20	4.1	3.5
12	5.0	5.9	9.8	4.9	6.0	6.2	17	27	6.0	8.1	4.1	3.5
13	5.0	6.1	7.4	4.6	5.9	8.3	16	25	5.9	6.9	4.0	3.5
14	8.6	6.1	6.6	4.4	5.7	8.2	15	23	6.0	32	3.8	3.5
15	11	6.1	6.0	4.4	5.7	7.7	13	19	5.8	15	4.1	3.9
16	6.6	6.1	5.5	4.4	5.6	7.5	12	17	5.8	9.2	4.1	3.7
17	5.9	6.0	5.7	4.4	5.3	12	11	16	5.7	7.5	4.1	3.7
18	5.9	6.0	8.6	4.3	5.0	28	10	17	5.5	7.0	4.2	3.8
19	5.9	5.7	7.8	5.0	5.0	24	9.7	14	5.5	8.0	4.0	3.8
20	5.9	5.9	6.6	5.4	5.0	21	11	13	7.3	11	4.0	3.8
21	6.1	5.7	5.9	5.2	5.0	18	30	12	5.9	12	4.0	3.9
22	6.4	5.7	5.7	5.9	4.8	15	336	12	5.4	7.6	3.8	4.0
23	6.3	5.7	5.5	8.1	4.7	13	105	11	5.1	6.8	3.8	4.3
24	6.4	5.9	6.3	14	4.7	12	60	10	4.8	7.3	3.8	4.3
25	6.4	9.8	5.6	12	4.7	10	44	9.9	4.6	6.7	3.8	4.0
26	5.9	9.6	5.4	9.2	4.6	11	32	9.5	4.5	7.9	3.8	8.9
27	5.9	6.8	5.2	8.0	4.5	16	26	9.6	5.9	7.3	3.8	12
28	6.1	6.4	5.0	7.2	4.3	13	57	10	8.7	7.1	3.9	7.6
29	6.4	5.9	5.0	6.6	---	12	72	9.0	6.6	6.3	4.1	5.5
30	6.4	6.3	4.7	6.3	---	11	44	8.2	5.3	5.5	3.8	4.8
31	6.4	---	e4.2	6.0	---	19	---	8.2	---	5.1	3.6	---
TOTAL	177.3	190.1	199.6	178.7	152.9	358.3	1107.6	705.4	192.7	269.0	127.4	130.9
MEAN	5.72	6.34	6.44	5.76	5.46	11.6	36.9	22.8	6.42	8.68	4.11	4.36
MAX	11	9.8	22	14	7.6	28	336	71	8.7	32	4.9	12
MIN	4.1	5.7	4.2	3.5	4.3	4.3	9.7	8.2	4.5	3.9	3.6	3.4
CFSM	0.16	0.18	0.18	0.16	0.16	0.33	1.05	0.65	0.18	0.25	0.12	0.12
IN.	0.19	0.20	0.21	0.19	0.16	0.38	1.18	0.75	0.20	0.29	0.14	0.14

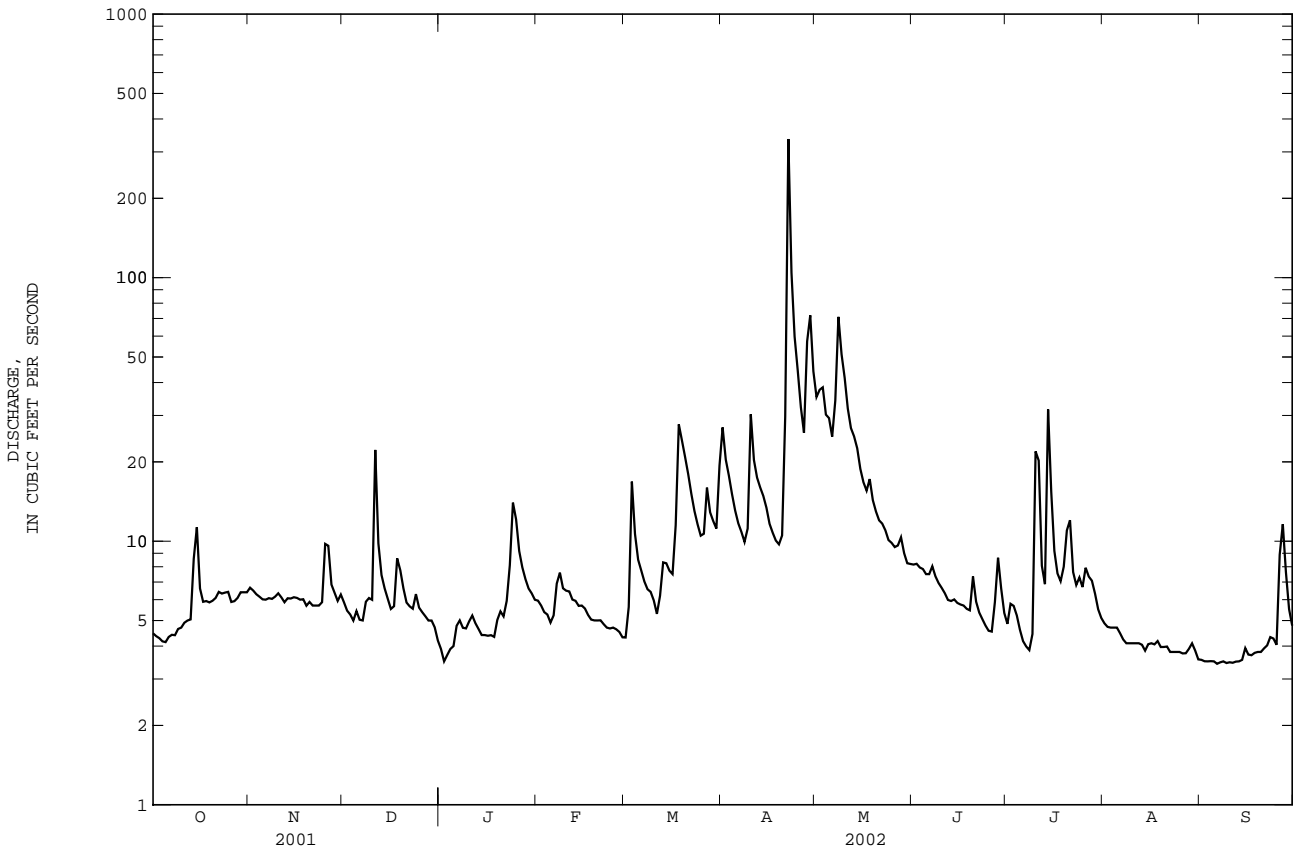
02022500 KERRS CREEK NEAR LEXINGTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.4	23.5	31.9	45.3	53.6	72.4	57.3	38.2	27.2	17.3	23.1	18.9
MAX	141	209	129	163	150	357	306	159	194	99.5	162	188
(WY)	1938	1986	1949	1937	1998	1936	1987	1989	1995	1972	1969	1950
MIN	5.24	6.34	5.88	5.15	5.46	11.6	10.3	12.0	6.42	5.56	4.11	4.36
(WY)	1964	2002	1966	1966	2002	2002	1942	1956	2002	1966	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1927 - 2002	
ANNUAL TOTAL	6415.2		3789.9			
ANNUAL MEAN	17.6		10.4		35.8	
HIGHEST ANNUAL MEAN					75.5	
LOWEST ANNUAL MEAN					10.4	
HIGHEST DAILY MEAN	311		May 22		e4840	
LOWEST DAILY MEAN	4.0		Sep 23		3.4	
ANNUAL SEVEN-DAY MINIMUM	4.3		Oct 2		3.5	
MAXIMUM PEAK FLOW			983		23000	
MAXIMUM PEAK STAGE			6.29		b15.44	
INSTANTANEOUS LOW FLOW			c2.4		d0.90	
ANNUAL RUNOFF (CFSM)	0.50		0.30		1.02	
ANNUAL RUNOFF (INCHES)	6.82		4.03		13.91	
10 PERCENT EXCEEDS	29		19		67	
50 PERCENT EXCEEDS	8.6		6.0		17	
90 PERCENT EXCEEDS	5.4		4.0		7.4	

- a Also Sept. 2-8, 2002.
- b From high-water mark in gage house.
- c Result of freezeup.
- d Result of temporary dam upstream.
- e Estimated.



JAMES RIVER BASIN

02024000 MAURY RIVER NEAR BUENA VISTA, VA

LOCATION.--Lat 37°45'45", long 79°23'29", NAD83, Rockbridge County, Hydrologic Unit 02080202, on right bank 0.5 mi downstream from South River and 2.8 mi northwest of Buena Vista.

DRAINAGE AREA.--646 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 1-6, and period of no gage-height record, July 10-12, which are fair. Since 1966, some regulation at times by Lake Merriweather on Little Calpasture River. Maximum discharge, 105,000 ft³/s, from rating curve extended above 17,000 ft³/s on basis of slope-area measurement of peak flow. 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. 18, 1936, reached a stage of about 22 ft, from information by local residents.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Apr 22	1715	*7,470	*8.36	No other peak greater than base discharge.			

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	62	71	90	e85	128	84	549	1160	147	58	68	48
2	62	72	87	e78	122	95	621	1020	136	80	63	49
3	62	74	84	e75	116	226	591	911	127	91	59	48
4	61	74	84	e80	111	301	488	692	116	59	58	48
5	59	73	82	e85	105	270	398	644	107	102	57	44
6	59	72	83	e90	102	237	340	556	102	62	61	43
7	58	72	82	103	122	209	300	513	100	55	53	43
8	57	73	91	100	132	188	266	891	98	51	50	42
9	58	73	96	93	131	172	253	1120	91	52	49	41
10	58	74	96	98	126	163	372	1130	85	e65	49	40
11	61	75	200	103	125	147	505	928	80	e400	48	40
12	62	75	195	104	122	146	489	759	75	e200	47	38
13	63	75	145	101	119	168	439	632	73	104	45	38
14	65	74	123	98	116	181	411	549	72	420	45	39
15	103	73	117	95	116	190	388	457	70	268	42	45
16	91	76	112	94	115	195	373	385	68	183	42	52
17	73	77	109	92	115	220	350	334	65	133	43	50
18	67	76	126	92	111	306	352	319	64	107	46	48
19	64	75	134	98	107	530	373	309	64	102	45	49
20	65	78	128	105	106	630	359	274	72	96	44	48
21	66	77	119	106	105	902	417	253	71	99	43	48
22	66	76	115	107	103	759	4600	236	66	86	41	48
23	66	76	114	116	100	549	3730	216	59	78	42	58
24	69	79	127	140	99	423	1930	195	56	80	40	55
25	68	97	125	177	95	349	1200	182	55	83	41	56
26	66	111	117	180	93	317	963	166	53	88	40	81
27	65	109	112	170	91	395	752	158	55	105	42	130
28	64	98	108	158	87	431	860	165	69	116	43	154
29	65	92	107	149	---	402	2870	208	73	97	45	133
30	70	90	103	142	---	371	1690	191	65	94	47	121
31	70	---	97	137	---	390	---	165	---	77	48	---
TOTAL	2045	2387	3508	3451	3120	9946	27229	15718	2434	3691	1486	1777
MEAN	66.0	79.6	113	111	111	321	908	507	81.1	119	47.9	59.2
MAX	103	111	200	180	132	902	4600	1160	147	420	68	154
MIN	57	71	82	75	87	84	253	158	53	51	40	38
CFSM	0.10	0.12	0.18	0.17	0.17	0.50	1.41	0.78	0.13	0.18	0.07	0.09
IN.	0.12	0.14	0.20	0.20	0.18	0.57	1.57	0.91	0.14	0.21	0.09	0.10

02024000 MAURY RIVER NEAR BUENA VISTA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	353	456	678	886	1041	1342	1049	807	532	272	314	289
MAX	1997	3400	2430	2891	3140	3187	3672	2373	2647	1351	3060	2087
(WY)	1980	1986	1949	1998	1998	1993	1987	1989	1995	1972	1969	1996
MIN	66.0	79.6	76.4	100	111	240	276	224	81.1	53.7	47.9	59.2
(WY)	2002	2002	1966	1981	2002	1981	1995	1941	2002	1966	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1939 - 2002

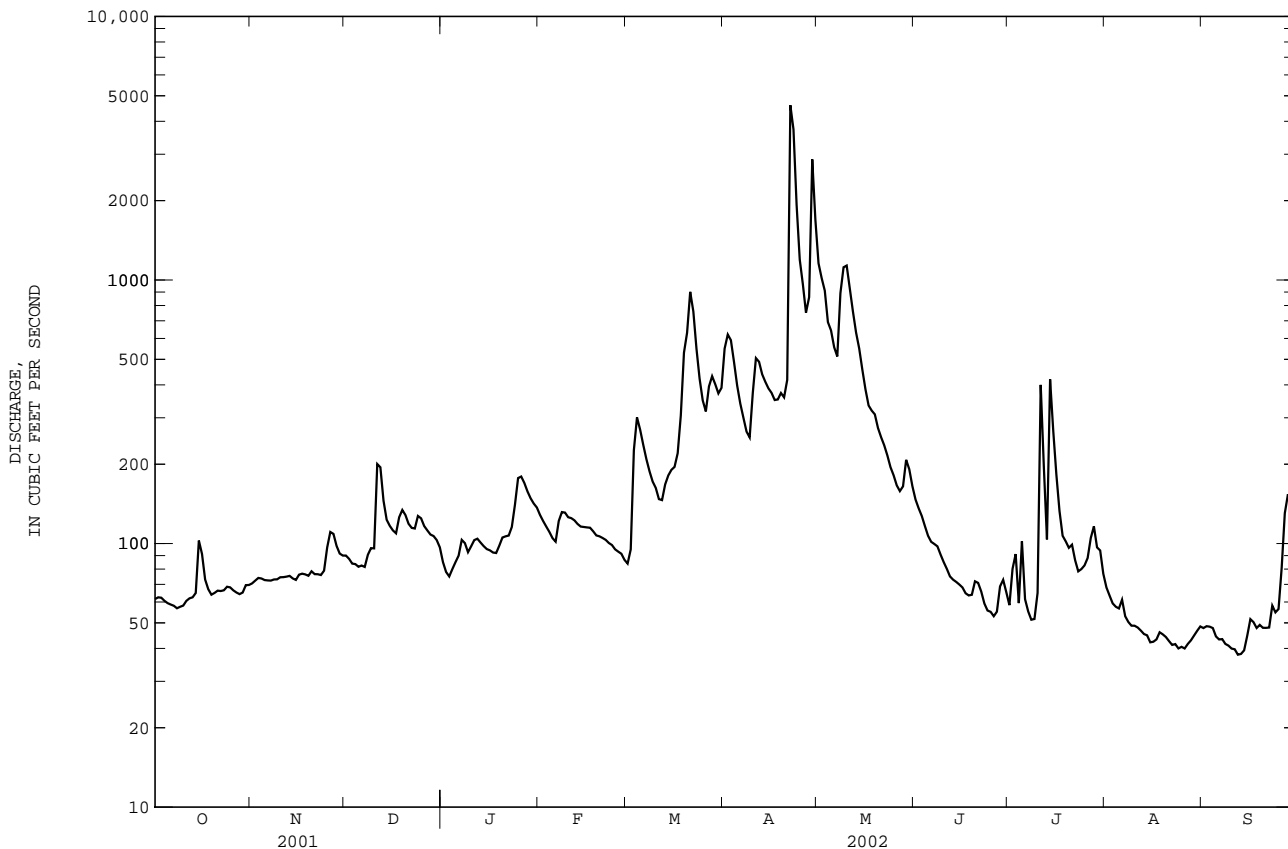
ANNUAL TOTAL	124614	76792	
ANNUAL MEAN	341	210	666
HIGHEST ANNUAL MEAN			1181 1973
LOWEST ANNUAL MEAN			210 2002
HIGHEST DAILY MEAN	4720 Mar 22	4600 Apr 22	56000 Aug 20 1969
LOWEST DAILY MEAN	57 Oct 8	38 aSep 12	22 Oct 10 1941
ANNUAL SEVEN-DAY MINIMUM	59 Oct 4	40 Sep 8	40 Sep 8 2002
MAXIMUM PEAK FLOW		7470 Apr 22	105000 Aug 20 1969
MAXIMUM PEAK STAGE		8.36 Apr 22	31.23 Aug 20 1969
INSTANTANEOUS LOW FLOW		36 bSep 12	c20 Oct 10 1941
ANNUAL RUNOFF (CFSM)	0.53	0.33	1.03
ANNUAL RUNOFF (INCHES)	7.18	4.42	14.02
10 PERCENT EXCEEDS	799	434	1490
50 PERCENT EXCEEDS	160	98	336
90 PERCENT EXCEEDS	66	48	104

a Also Sept. 13, 2002.

b Also Sept. 13, 14, 2002.

c Occurred during filling of small reservoir 2 mi upstream, otherwise, minimum discharge, 36 ft³/s, Sept. 12-14, 2002.

e Estimated.



JAMES RIVER BASIN

02025500 JAMES RIVER AT HOLCOMB ROCK, VA

LOCATION.--Lat 37°30'05", long 79°15'45", NAD83, Bedford County, Hydrologic Unit 02080203, on right bank at Holcomb Rock, 0.9 mi downstream from Pedlar River, and at mile 268.6.

DRAINAGE AREA.--3,259 mi².

PERIOD OF RECORD.--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931 and as "at Holcombs Rock" June 1931 to September 1990.

REVISED RECORDS.--WSP 972: 1913(M), 1932-33, 1935(M), 1936. WSP 1303: 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 548.53 ft NGVD of 1929. January 1900 to September 1915, nonrecording gage in powerhouse of Owens Illinois Glass Company 1,000 ft upstream at different datum. December 1926 to June 1931, water-stage recorder at site 2 mi downstream at different datum.

REMARKS.--Records fair except those for periods of doubtful gage-height record, Dec. 5-7, Aug. 4-7, 12-29, and Sept. 2-22, which are poor. Some diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 117.4 mi upstream; since October 1984 by Back Creek Lake 145.4 mi upstream; and since January 1985 by Little Back Creek Lake 148.5 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1927 - 1979 (unregulated flow) are available in previous data books, water years 1991 - 1998. National Weather Service gage-height telemeter at station. Maximum discharge, 207,000 ft³/s, from rating curve extended above 73,000 ft³/s on basis of records for other stations in James River Basin. 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 1913 reached a stage of 31.3 ft, from floodmarks, discharge, 118,000 ft³/s, from rating curve extended as explained above.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 25,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	810	628	712	745	1030	742	2160	9290	1120	807	992	590
2	618	635	689	722	970	625	3630	6930	1040	814	872	e600
3	599	618	665	717	904	1110	3500	6270	1010	586	516	e560
4	555	622	654	675	877	1330	2850	9220	981	710	e655	e530
5	571	617	e640	697	838	1510	2350	6110	1050	719	e700	e520
6	573	599	e630	711	806	1440	2040	5040	849	706	e680	e500
7	566	604	e620	720	840	1310	1820	4200	942	671	e780	e460
8	556	606	660	728	862	1240	1660	4590	905	630	769	e440
9	571	606	680	729	865	1050	1530	6870	882	616	528	e420
10	587	604	697	712	945	1010	1590	7660	863	614	543	e440
11	591	607	1050	714	921	996	2120	6150	829	756	607	e440
12	601	613	1180	711	900	955	2310	4100	807	879	e550	e420
13	608	608	1220	719	893	996	2080	3340	713	912	e530	e360
14	633	606	1130	725	882	1040	2040	2670	762	872	e520	e380
15	712	603	975	747	882	1120	2290	2450	749	1230	e540	e400
16	800	606	940	735	879	1220	2590	2200	744	1330	e560	e420
17	799	605	935	743	865	1340	2460	1990	730	1090	e570	e460
18	618	611	904	722	847	1950	2380	1860	725	998	e580	e480
19	669	613	911	725	839	4690	2140	1760	720	870	e570	e430
20	651	615	933	748	828	4650	2000	1620	720	581	e560	e480
21	615	603	920	764	828	3980	1960	1500	716	755	e550	e440
22	653	603	911	759	738	3880	7130	1430	704	731	e540	e500
23	640	603	881	789	773	3010	18700	1350	699	724	e520	567
24	638	623	873	898	773	2360	11500	1300	508	746	e500	652
25	586	667	872	1250	771	2060	8660	1130	626	747	e480	773
26	615	715	855	1580	764	1840	6850	1130	637	1490	e460	775
27	613	772	771	1630	753	1820	4630	1110	642	1410	e440	879
28	614	754	792	1490	746	1870	3670	1130	718	1100	e460	1930
29	612	742	790	1240	---	2010	8400	1110	735	1270	e440	1850
30	619	730	774	1180	---	1870	11100	1240	739	1120	455	1400
31	624	---	743	1100	---	1790	---	1190	---	1040	532	---
TOTAL	19517	19038	26007	27125	23819	56814	128140	107940	23865	27524	17999	19096
MEAN	630	635	839	875	851	1833	4271	3482	796	888	581	637
MAX	810	772	1220	1630	1030	4690	18700	9290	1120	1490	992	1930
MIN	555	599	620	675	738	625	1530	1110	508	581	440	360
(†)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN†	488	522	756	847	847	2162	4742	3448	626	725	346	527
CFSM†	.15	.16	.23	.26	.26	.66	1.45	1.06	.19	.22	.11	.16
IN.†	.17	.18	.27	.30	.27	.77	1.62	1.22	.21	.26	.12	.18

CAL YR 2001 MEAN† 1927 CFSM† .59 IN.† 7.06
WTR YR 2002 MEAN† 1338 CFSM† .41 IN.† 5.57

† Total change in contents, equivalent in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.
‡ Adjusted for monthly change in contents.

02025500 JAMES RIVER AT HOLCOMB ROCK, VA--Continued

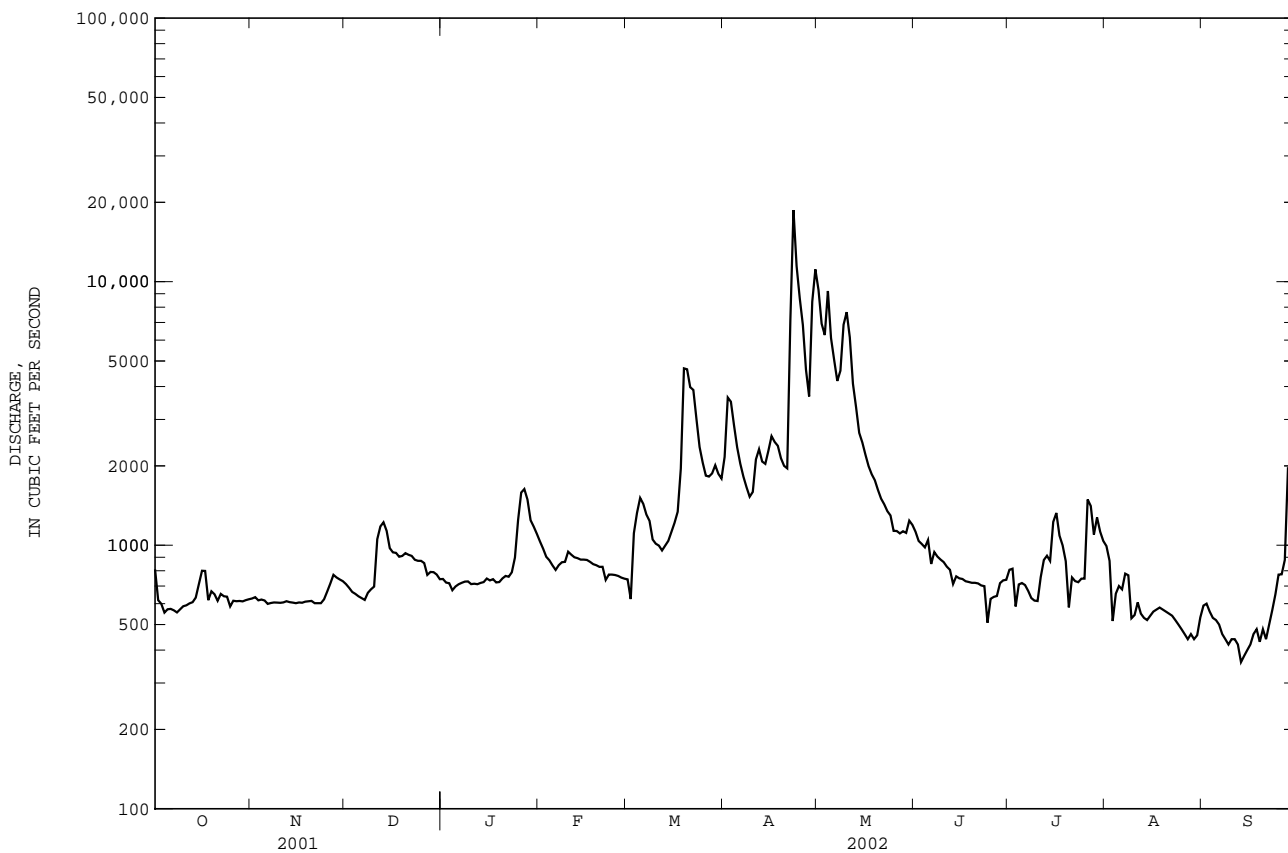
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1811	2723	3084	4541	5270	6893	6259	4315	2907	1487	1436	1646
MAX	7966	17270	9246	13540	16260	16910	21670	12380	9990	4562	5640	7233
(WY)	1980	1986	1997	1996	1998	1993	1987	1989	1995	1995	1984	1996
MIN	630	635	839	730	851	1472	1616	1959	796	750	581	637
(WY)	2002	2002	2002	1981	2002	1981	1995	2000	2002	1999	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1980 - 2002

ANNUAL TOTAL		718080		496884								
ANNUAL MEAN		1967		1361						3520		
HIGHEST ANNUAL MEAN										5064		1998
LOWEST ANNUAL MEAN										1361		2002
HIGHEST DAILY MEAN				22500	May 23		18700	Apr 23		180000	Nov 5	1985
LOWEST DAILY MEAN				555	Oct 4		360	Sep 13		244	Aug 28	1981
ANNUAL SEVEN-DAY MINIMUM				568	Oct 4		409	Sep 9		401	Aug 26	1981
MAXIMUM PEAK FLOW							20800	Apr 23		a207000	Nov 5	1985
MAXIMUM PEAK STAGE							13.18	Apr 23		a,b,42.15	Nov 5	1985
INSTANTANEOUS LOW FLOW							c127	Oct 18		d,c20	Oct 29	1987
ANNUAL RUNOFF (CFSM)				0.60			0.42			1.08		
ANNUAL RUNOFF (INCHES)				8.20			5.67			14.67		
10 PERCENT EXCEEDS				4050			2350			7640		
50 PERCENT EXCEEDS				1020			771			1790		
90 PERCENT EXCEEDS				617			547			786		

- a Prior to regulation, 1927-79, maximum peak flow, 150,000 ft³/s, Aug. 20, 1969, gage height, 35.50 ft.
- b From high-water mark in gage house.
- c Result of regulation.
- d Prior to regulation, 1927-79, instantaneous low flow, 71 ft³/s, Oct. 24, 1963.
- e Estimated.



JAMES RIVER BASIN

02026000 JAMES RIVER AT BENT CREEK, VA

LOCATION.--Lat 37°32'11", long 78°49'46", NAD83, Nelson County, Hydrologic Unit 02080203, on left bank at town of Bent Creek, 150 ft downstream from Bent Creek, 525 ft upstream from bridge on U.S. Highway 60, 1.3 mi southeast of Gladstone, and at mile 227.8.

DRAINAGE AREA.--3,683 mi².

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to 1926, published as "at Bent Creek, near Gladstone."

REVISED RECORDS.--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 381.39 ft NGVD of 1929. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--Records poor. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 158.3 mi upstream; since October 1984 by Back Creek Lake 186.3 mi upstream; and since January 1985 by Little Back Creek Lake 189.4 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1925 - 1979 (unregulated flow) are available in previous data books, water years 1991 - 1998. National Weather Service gage-height telemeter at station. Maximum discharge, 226,000 ft³/s, from rating curve extended above 177,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 26,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	784	735	901	887	1390	939	2870	9730	1470	1000	1030	437
2	1800	731	790	1040	1360	964	2830	7960	1360	860	982	549
3	1040	722	771	918	1220	1250	4350	5860	1570	943	814	606
4	665	732	706	904	1120	1600	3830	9060	1310	718	585	604
5	745	734	778	914	1110	1800	3490	6830	1370	525	487	590
6	616	731	771	961	1090	1910	2900	5450	1410	509	488	581
7	667	731	754	1150	1160	1800	2230	4590	1120	592	659	492
8	621	707	846	986	1290	1350	2290	4420	1040	922	644	461
9	674	701	694	984	1180	1390	2020	5760	1010	670	708	463
10	602	706	772	982	1150	1320	1910	7710	1270	667	574	502
11	614	712	1570	983	1320	1660	2190	6930	1170	657	443	463
12	e633	700	1830	966	1180	1290	2460	4850	1020	602	478	409
13	e641	727	1840	932	1170	1300	2710	3940	981	581	518	467
14	e649	726	1560	927	1160	1340	2440	3730	776	944	523	454
15	e685	718	1530	961	1150	1210	2610	2930	731	1000	545	499
16	e568	722	1130	1170	1160	1280	3070	2850	1110	1170	592	573
17	e425	745	1340	781	1120	1910	2990	2420	829	1390	606	550
18	941	748	1370	979	1100	3010	2930	2420	748	1060	569	606
19	616	746	1130	952	1030	3850	2510	2270	845	1000	564	627
20	765	754	1320	1090	1120	5840	2550	2070	874	838	622	619
21	702	756	1270	1050	1070	4700	2540	1840	815	677	623	526
22	623	755	1220	1100	1010	4770	2800	1750	669	733	668	525
23	743	770	1200	1180	953	4250	17000	1720	631	756	729	627
24	734	777	1230	1410	1010	3770	12600	1580	790	781	634	616
25	676	786	1240	1560	935	2630	9070	1480	852	785	688	737
26	662	796	1160	1840	1050	2720	7330	1360	602	1690	626	929
27	643	795	1130	2210	958	2320	5230	1380	627	2240	645	1130
28	683	882	1040	2030	933	2180	4040	1480	662	1430	694	1310
29	653	827	1060	1970	---	2270	5170	1370	599	1100	678	2870
30	660	838	1030	1620	---	2510	11400	1350	632	1320	625	1980
31	677	---	949	1530	---	2350	---	1500	---	1020	558	---
TOTAL	22207	22510	34932	36967	31499	71483	132360	118590	28893	29180	19599	21802
MEAN	716	750	1127	1192	1125	2306	4412	3825	963	941	632	727
MAX	1800	882	1840	2210	1390	5840	17000	9730	1570	2240	1030	2870
MIN	425	700	694	781	933	939	1910	1350	599	509	443	409
(†)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN‡	575	638	1044	1165	1121	2636	4883	3791	793	779	398	618
CFSM‡	.16	.17	.28	.32	.30	.72	1.33	1.03	.22	.21	.11	.17
IN.‡	.18	.19	.33	.36	.32	.83	1.48	1.19	.24	.24	.12	.19

CAL YR 2001 MEAN‡ 2203 CFSM‡ .60 IN.‡ 8.12
WTR YR 2002 MEAN‡ 1538 CFSM‡ .42 IN.‡ 5.67

† Total change in contents, equivalent in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

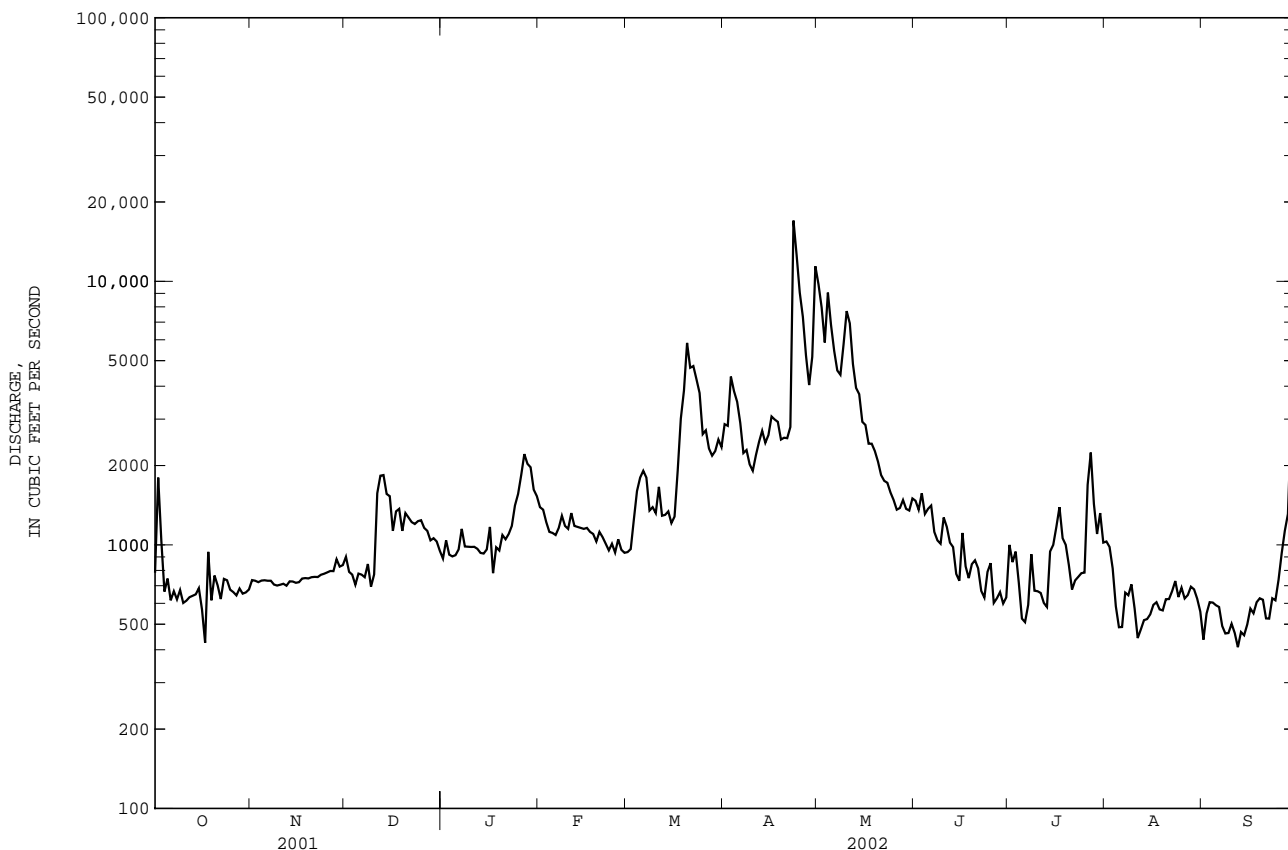
02026000 JAMES RIVER AT BENT CREEK, VA--Continued

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

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2200	3029	3705	5119	6026	7749	7048	5004	3453	1867	1786	2153
MAX	9173	16910	10380	11680	17200	18860	24090	13990	10710	4973	6027	9873
(WY)	1980	1986	1997	1991	1998	1993	1987	1989	1995	1995	1984	1996
MIN	716	750	987	858	1125	1626	1842	2286	963	904	632	727
(WY)	2002	2002	1981	1981	2002	1981	1995	2000	2002	1999	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1980 - 2002	
ANNUAL TOTAL	818845		570022			
ANNUAL MEAN	2243		1562		4082	
HIGHEST ANNUAL MEAN					5735	
LOWEST ANNUAL MEAN					1562	
HIGHEST DAILY MEAN	19200	May 24	17000	Apr 23	142000	Nov 5 1985
LOWEST DAILY MEAN	425	Oct 17	a409	Sep 12	a409	Sep 12 2002
ANNUAL SEVEN-DAY MINIMUM	602	Oct 11	460	Sep 8	460	Sep 8 2002
MAXIMUM PEAK FLOW			20600		b226000	
MAXIMUM PEAK STAGE			9.13		b,c30.76	
INSTANTANEOUS LOW FLOW			a338		d,a338	
ANNUAL RUNOFF (CFSM)	0.61		0.42		1.11	
ANNUAL RUNOFF (INCHES)	8.27		5.76		15.06	
10 PERCENT EXCEEDS	4490		2910		8760	
50 PERCENT EXCEEDS	1370		984		2300	
90 PERCENT EXCEEDS	727		596		927	

- a Result of regulation.
- b Prior to regulation, 1925-79, maximum peak flow, 176,000 ft³/s, June 21, 1972, gage height, 27.13 ft, from floodmark.
- c From floodmarks.
- d Prior to regulation, 1925-79, instantaneous low flow, 222 ft³/s, Oct. 13, 14, 1930.
- e Estimated.



JAMES RIVER BASIN

02027000 TYE RIVER NEAR LOVINGSTON, VA

LOCATION.--Lat 37°42'56", long 78°58'54", NAD83, Nelson County, Hydrologic Unit 02080203, on right bank at downstream side of bridge on State Highway 158, 3.5 mi downstream from Hat Creek, 4.8 mi upstream from Piney River, and 6.8 mi southwest of Lovingston.

DRAINAGE AREA.--92.8 mi².

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 578.39 ft NGVD of 1929. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Dec. 31 to Feb. 1, and periods with backwater from leaves, Aug. 8-28 and Sept. 18-22, which are fair. Maximum discharge, 80,000 ft³/s, from rating curve extended above 7,600 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	12	16	26	e28	e37	26	118	136	41	6.3	3.4	3.2
2	11	16	23	e27	35	31	105	157	38	5.6	3.1	2.7
3	11	17	22	e25	34	257	101	167	35	5.2	3.7	3.1
4	11	16	22	e27	34	141	95	133	33	4.7	3.6	3.3
5	10	16	22	e28	32	105	90	150	31	5.6	2.3	2.6
6	9.8	15	21	e31	32	94	85	131	30	5.0	2.0	2.2
7	8.9	16	21	e34	43	83	80	154	29	4.0	1.6	2.0
8	9.3	16	23	e30	45	76	76	173	26	3.4	e1.5	1.9
9	9.4	15	27	e25	38	75	78	155	24	3.4	e1.2	1.4
10	9.8	14	25	e26	37	77	101	167	22	8.6	e1.0	1.1
11	9.9	17	145	e27	41	67	80	135	20	19	e0.90	0.82
12	11	15	86	e26	38	68	76	124	18	10	e0.98	0.65
13	11	15	63	e25	36	96	79	123	17	5.8	e0.88	0.55
14	19	15	54	e24	35	93	75	113	19	14	e0.79	0.78
15	64	15	48	e23	35	88	72	98	18	32	e0.58	2.0
16	26	15	43	e23	35	86	69	88	15	12	e0.80	3.2
17	18	15	41	e24	34	106	69	80	14	7.0	e0.66	3.4
18	17	15	56	e24	33	158	124	95	12	5.6	e1.0	e3.0
19	16	16	50	e25	32	161	177	80	12	5.1	e0.87	e2.7
20	15	16	44	e26	33	172	124	71	22	5.6	e0.74	e2.4
21	14	15	40	e28	33	162	151	68	16	15	e0.65	e2.2
22	14	15	38	e30	31	146	516	65	11	6.4	e0.62	e3.0
23	15	14	38	e33	30	134	385	60	9.4	4.7	e0.60	5.1
24	14	16	53	e37	29	122	282	56	8.4	4.7	e0.54	3.4
25	14	48	47	e43	29	111	246	52	7.1	5.5	e0.53	3.4
26	14	51	42	e38	29	107	199	49	8.2	19	e0.57	7.8
27	15	30	40	e39	28	146	168	58	8.7	15	e0.90	48
28	14	25	38	e41	27	114	174	109	13	8.9	e1.4	46
29	15	24	37	e43	---	106	170	58	11	6.4	3.5	20
30	16	23	34	e42	---	100	145	51	7.9	4.9	3.4	12
31	16	---	e31	e40	---	108	---	46	---	4.0	4.0	---
TOTAL	470.1	572	1300	942	955	3416	4310	3202	576.7	262.4	48.31	193.90
MEAN	15.2	19.1	41.9	30.4	34.1	110	144	103	19.2	8.46	1.56	6.46
MAX	64	51	145	43	45	257	516	173	41	32	4.0	48
MIN	8.9	14	21	23	27	26	69	46	7.1	3.4	0.53	0.55
CFSM	0.16	0.21	0.45	0.33	0.37	1.19	1.55	1.11	0.21	0.09	0.02	0.07
IN.	0.19	0.23	0.52	0.38	0.38	1.37	1.73	1.28	0.23	0.11	0.02	0.08

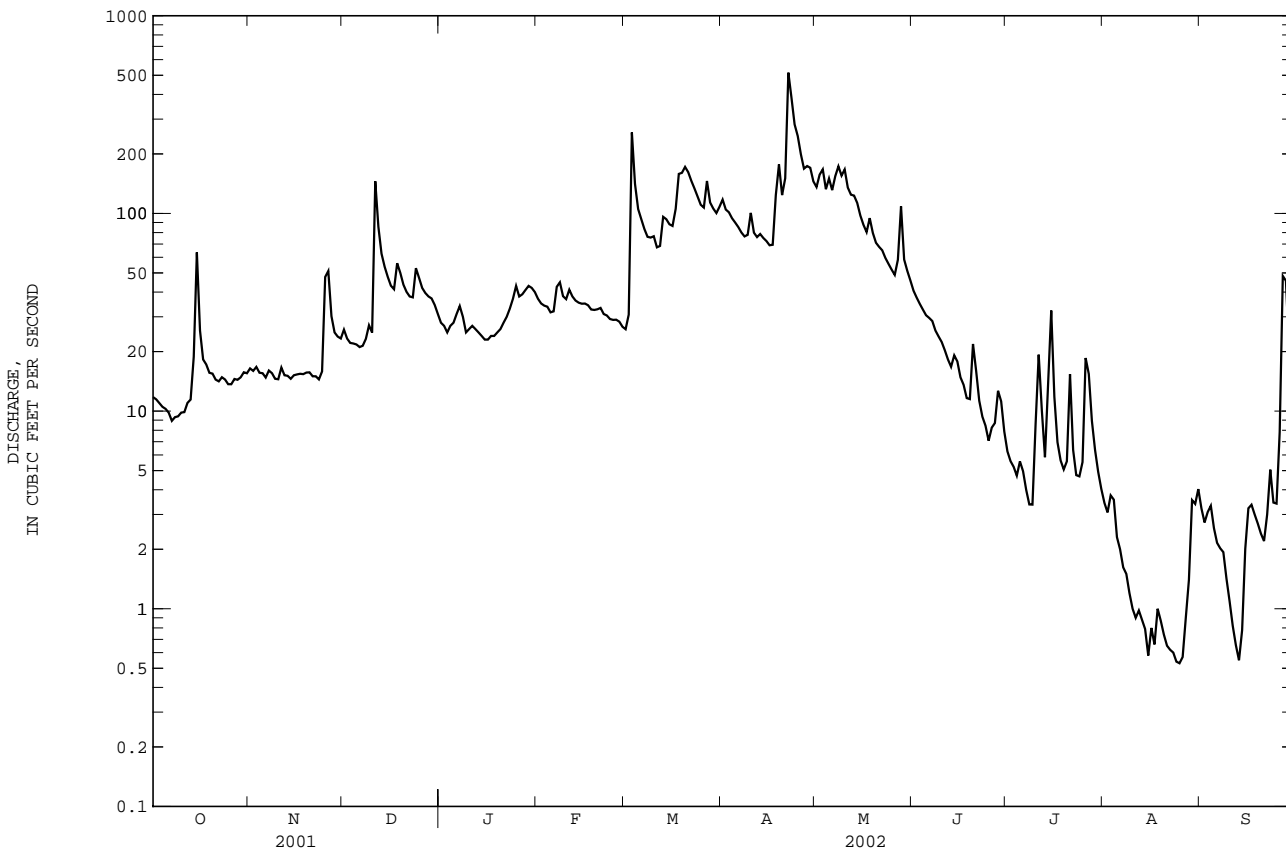
02027000 TYE RIVER NEAR LOVINGSTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	102	130	167	189	214	257	234	178	133	76.2	102	92.9
MAX	550	765	499	568	773	568	692	492	676	382	1541	556
(WY)	1943	1986	1997	1998	1998	1993	1987	1989	1972	1972	1969	1979
MIN	8.69	15.3	23.7	14.7	34.1	64.0	63.1	53.1	19.2	8.46	1.56	6.46
(WY)	1942	1942	1981	1981	2002	1981	1966	1941	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1939 - 2002
ANNUAL TOTAL	26249.1	16248.41	
ANNUAL MEAN	71.9	44.5	156
HIGHEST ANNUAL MEAN			280 1973
LOWEST ANNUAL MEAN			44.5 2002
HIGHEST DAILY MEAN	887 Jun 23	516 Apr 22	e32600 Aug 20 1969
LOWEST DAILY MEAN	8.3 Sep 19	e0.53 Aug 25	e0.53 Aug 25 2002
ANNUAL SEVEN-DAY MINIMUM	9.6 Oct 5	e0.61 Aug 20	e0.61 Aug 20 2002
MAXIMUM PEAK FLOW		740 Apr 22	80000 Aug 20 1969
MAXIMUM PEAK STAGE		2.07 Apr 22	a29.00 Aug 20 1969
INSTANTANEOUS LOW FLOW		0.52 Sep 12	0.50 bSep 10 1966
ANNUAL RUNOFF (CFSM)	0.77	0.48	1.68
ANNUAL RUNOFF (INCHES)	10.52	6.51	22.81
10 PERCENT EXCEEDS	143	122	318
50 PERCENT EXCEEDS	46	25	99
90 PERCENT EXCEEDS	14	2.5	22

a From floodmarks.
 b Also Sept. 11, 1966.
 e Estimated.



JAMES RIVER BASIN

02027500 PINEY RIVER AT PINEY RIVER, VA

LOCATION.--Lat 37°42'09", long 79°01'39", NAD83, Nelson County, Hydrologic Unit 02080203, on left bank at upstream side of bridge on State Highway 151, 0.2 mi southwest of Piney River Post Office, 1.7 mi downstream from Indian Creek, and 2.5 mi southeast of Lowesville.

DRAINAGE AREA.--47.6 mi².

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-72-1: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 631.58 ft NGVD of 1929. Prior to May 27, 1969, water-stage recorder, and Nov. 4, 1969, to Feb. 26, 1970, nonrecording gage at site 20 ft downstream from former highway bridge at same datum. Feb. 26, 1970, to Sept. 20, 1973, on right bank 20 ft upstream from bridge at same datum. Sept. 20, 1973 to Apr. 29, 1999, at same site, at datum 2.00 ft higher.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. Periodic dewatering of upstream quarries adds small amount of inflow at times. Maximum discharge, 38,000 ft³/s, from rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1949 reached a stage of 9.9 ft, from floodmarks.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	6.5	7.8	14	e24	32	20	64	82	34	8.4	6.3	2.6
2	6.3	7.7	12	e22	29	28	61	92	32	7.6	5.8	2.4
3	6.0	7.7	12	e20	28	75	60	91	29	7.2	5.9	4.4
4	5.9	7.4	12	e21	28	56	58	83	27	7.0	5.1	2.3
5	5.7	6.9	12	22	26	55	57	84	26	7.0	4.5	1.7
6	5.5	6.6	12	24	27	54	56	80	25	6.6	4.0	1.4
7	5.3	6.5	12	26	35	52	53	89	24	5.3	3.2	1.2
8	5.5	6.7	13	22	32	49	51	100	22	4.7	2.7	1.1
9	5.7	6.9	15	20	28	50	52	98	20	4.5	2.5	1.0
10	5.8	6.9	15	20	28	47	57	101	20	9.9	2.2	0.86
11	6.0	6.8	97	21	31	44	50	94	18	9.7	2.1	0.69
12	6.2	6.6	59	20	28	46	49	91	16	7.7	2.0	0.48
13	6.2	6.8	54	19	28	56	49	91	15	6.2	1.8	0.54
14	11	6.9	50	18	27	53	48	84	16	16	1.7	0.31
15	28	6.7	45	18	27	54	47	76	15	18	1.5	0.73
16	11	6.3	41	17	27	55	45	69	14	9.8	1.5	6.0
17	8.0	6.4	40	18	26	69	49	64	13	6.9	1.5	5.3
18	8.2	6.3	46	18	25	91	67	69	13	6.0	1.7	2.8
19	8.1	6.4	38	19	25	99	68	59	13	5.8	1.7	2.2
20	8.1	6.0	35	20	25	109	68	56	15	6.9	1.4	2.0
21	7.7	6.4	33	21	25	105	95	54	12	12	1.3	1.8
22	7.7	6.3	32	22	24	98	194	51	11	7.9	1.2	2.2
23	7.7	6.2	31	24	23	92	200	48	9.9	6.8	1.1	3.4
24	7.7	7.4	39	30	23	85	179	45	9.5	6.7	1.0	3.7
25	7.3	25	33	33	23	78	163	42	8.9	11	0.99	2.4
26	6.9	23	31	31	22	75	138	39	8.8	29	1.0	6.6
27	6.9	15	31	33	21	81	120	49	8.7	19	1.1	35
28	7.1	13	30	34	20	68	115	57	18	12	1.5	26
29	7.4	12	28	34	---	66	101	41	11	9.8	3.1	12
30	7.8	12	27	33	---	63	92	39	9.3	7.8	3.5	8.0
31	7.9	---	25	32	---	67	---	36	---	6.9	2.8	---
TOTAL	241.1	262.6	974	736	743	2040	2506	2154	514.1	290.1	77.69	141.11
MEAN	7.78	8.75	31.4	23.7	26.5	65.8	83.5	69.5	17.1	9.36	2.51	4.70
MAX	28	25	97	34	35	109	200	101	34	29	6.3	35
MIN	5.3	6.0	12	17	20	20	45	36	8.7	4.5	0.99	0.31
CFSM	0.16	0.18	0.66	0.50	0.56	1.38	1.75	1.46	0.36	0.20	0.05	0.10
IN.	0.19	0.21	0.76	0.58	0.58	1.59	1.96	1.68	0.40	0.23	0.06	0.11

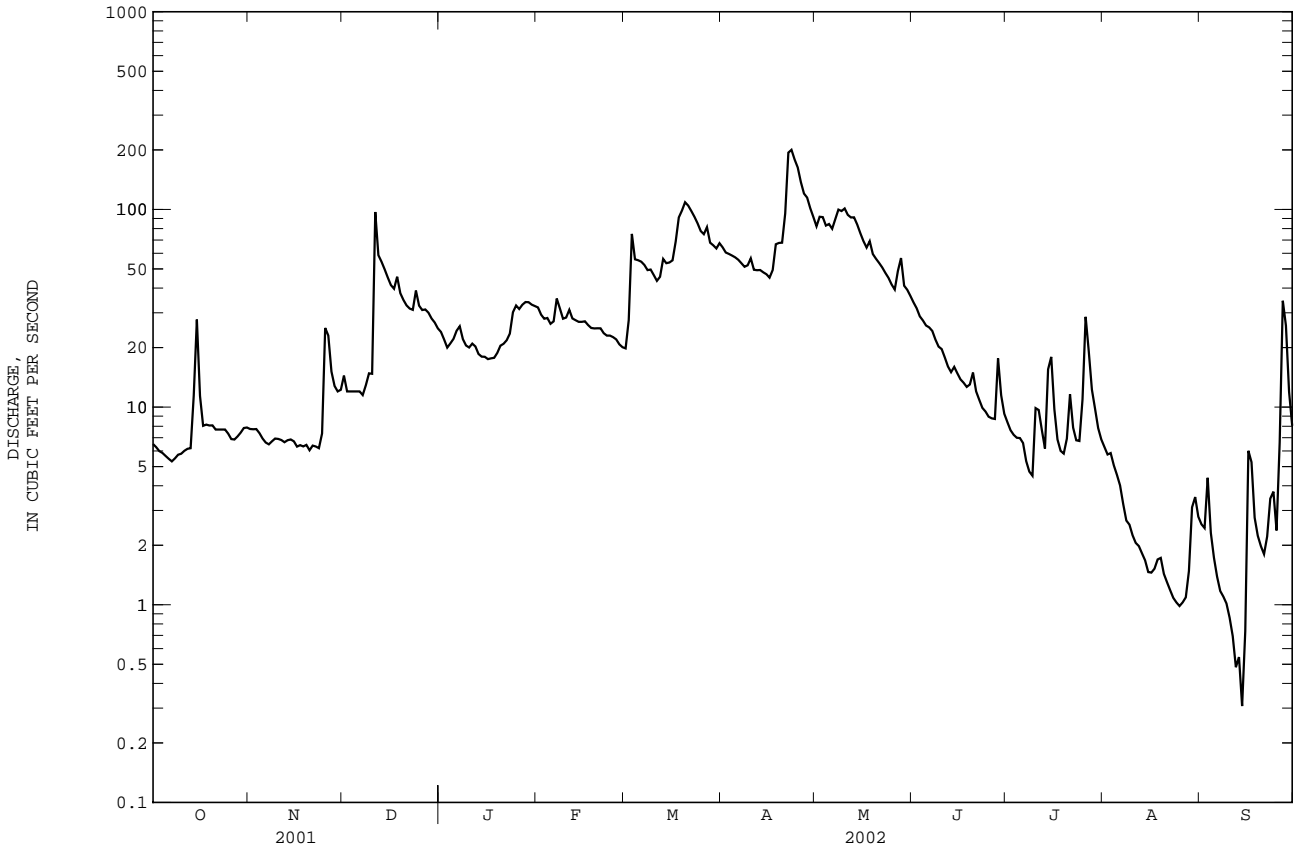
02027500 PINEY RIVER AT PINEY RIVER, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	63.7	87.0	105	114	126	156	144	107	86.6	38.7	56.8	51.7
MAX	313	644	297	339	347	311	417	352	541	213	1239	388
(WY)	1991	1986	1997	1998	1998	1993	1987	1989	1972	1972	1969	1996
MIN	4.75	7.75	10.3	7.94	26.5	37.8	38.4	35.8	14.6	8.93	2.51	3.75
(WY)	1964	1999	1999	1981	2002	1981	1966	1963	1999	1999	2002	1998

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1950 - 2002
ANNUAL TOTAL	16286.9	10679.70	
ANNUAL MEAN	44.6	29.3	94.5
HIGHEST ANNUAL MEAN			188 1969
LOWEST ANNUAL MEAN			29.3 2002
HIGHEST DAILY MEAN	439 Jun 23	200 Apr 23	25000 Aug 20 1969
LOWEST DAILY MEAN	5.3 Oct 7	0.31 Sep 14	0.31 Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	5.6 aOct 4	0.66 Sep 9	0.66 Sep 9 2002
MAXIMUM PEAK FLOW		209 Apr 22	38000 Aug 20 1969
MAXIMUM PEAK STAGE		3.28 Apr 22	b13.80 Aug 20 1969
INSTANTANEOUS LOW FLOW		0.29 Sep 14	0.29 Sep 14 2002
ANNUAL RUNOFF (CFSM)	0.94	0.61	1.99
ANNUAL RUNOFF (INCHES)	12.73	8.35	26.98
10 PERCENT EXCEEDS	96	75	198
50 PERCENT EXCEEDS	34	19	58
90 PERCENT EXCEEDS	6.9	2.4	10

a Also Oct. 5, 2001.
 b From floodmarks.
 e Estimated.



JAMES RIVER BASIN

02028500 ROCKFISH RIVER NEAR GREENFIELD, VA

LOCATION.--Lat 37°52'11", long 78°49'24", NAD83, Nelson County, Hydrologic Unit 02080203, on left bank 50 ft downstream from bridge on State Highway 634, 2.8 mi downstream from confluence of North and South Forks, and 4.1 mi south of Greenfield.

DRAINAGE AREA.--94.6 mi².

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

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 530.29 ft NGVD of 1929. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with backwater from beaver dam and leaves, Oct. 5-13 and Nov. 8-24, period with ice effect, Jan. 1-4, and period of no gage-height record, Jan. 5 to Feb. 8, which are fair. Maximum discharge, 70,000 ft³/s, from rating curve extended above 8,500 ft³/s on basis of contracted-opening measurement at gage height 18.11 ft, slope-area measurements at gage heights 17.2 ft, 23.4 ft, and 31.2 ft, and peak runoff comparison with nearby stations. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.4 ft, from floodmarks, discharge, about 30,000 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	6.5	8.4	13	e13	e28	16	74	62	18	1.3	1.5	1.4
2	6.6	8.8	12	e12	e26	19	65	61	15	1.6	1.2	1.3
3	6.0	8.8	10	e12	e24	151	61	60	14	1.1	0.95	1.5
4	5.7	9.2	9.9	e13	e24	73	58	53	13	1.0	0.86	2.5
5	e5.4	9.0	9.9	e14	e22	56	54	62	12	1.3	0.54	1.7
6	e4.5	8.8	9.9	e18	e22	52	51	51	11	1.1	0.29	1.00
7	e4.3	8.9	9.6	e40	e28	47	48	50	12	0.80	0.22	0.78
8	e5.0	e8.7	12	e33	e40	43	46	54	11	0.53	0.20	0.44
9	e5.8	e8.0	16	e23	27	42	46	52	9.8	0.37	0.18	0.33
10	e5.3	e8.2	13	e22	26	45	54	64	8.6	2.8	0.17	0.18
11	e6.0	e9.0	80	e20	29	38	45	48	7.3	2.9	0.15	0.16
12	e8.5	e8.9	45	e23	24	40	44	45	6.1	1.4	0.16	0.13
13	e10	e8.8	31	e20	26	52	46	43	5.4	1.2	0.15	0.09
14	17	e8.7	26	e18	22	54	44	40	6.0	2.5	0.11	0.07
15	27	e8.6	23	e17	21	51	42	36	6.2	5.3	0.10	0.10
16	9.6	e8.5	20	e15	24	49	38	34	5.1	2.9	0.15	0.13
17	5.6	e9.6	19	e14	22	55	37	31	4.3	1.9	0.12	0.15
18	5.2	e9.1	23	e14	20	80	41	38	3.7	1.4	0.62	0.17
19	5.9	e8.7	20	e19	19	85	44	33	3.6	1.2	2.2	0.16
20	6.0	e8.9	18	e22	22	96	39	30	3.2	1.6	2.0	0.15
21	6.1	e8.5	15	e23	24	93	57	29	2.9	1.8	1.2	0.12
22	5.9	e8.2	14	e26	22	83	297	28	2.3	2.0	0.59	0.15
23	5.9	e8.0	14	e31	19	75	186	26	2.1	1.5	0.26	0.20
24	6.0	e8.6	23	e35	19	69	139	25	1.9	1.2	0.19	0.17
25	6.5	21	19	e33	20	63	120	22	1.7	1.5	0.15	0.15
26	5.9	23	16	e28	21	61	97	21	1.6	6.2	0.11	1.2
27	6.1	14	15	e26	19	87	84	25	1.7	9.6	0.09	26
28	6.4	12	15	e26	16	69	89	34	2.1	12	0.50	20
29	7.1	11	15	e25	---	64	82	25	2.1	5.7	2.4	9.3
30	7.8	11	15	e24	---	60	69	21	2.1	3.0	3.7	6.0
31	8.2	---	14	e30	---	65	---	20	---	1.9	1.9	---
TOTAL	227.8	300.9	595.3	689	656	1933	2197	1223	195.8	80.60	22.96	75.73
MEAN	7.35	10.0	19.2	22.2	23.4	62.4	73.2	39.5	6.53	2.60	0.74	2.52
MAX	27	23	80	40	40	151	297	64	18	12	3.7	26
MIN	4.3	8.0	9.6	12	16	16	37	20	1.6	0.37	0.09	0.07
CFSM	0.08	0.11	0.20	0.23	0.25	0.66	0.77	0.42	0.07	0.03	0.01	0.03
IN.	0.09	0.12	0.23	0.27	0.26	0.76	0.86	0.48	0.08	0.03	0.01	0.03

02028500 ROCKFISH RIVER NEAR GREENFIELD, VA--Continued

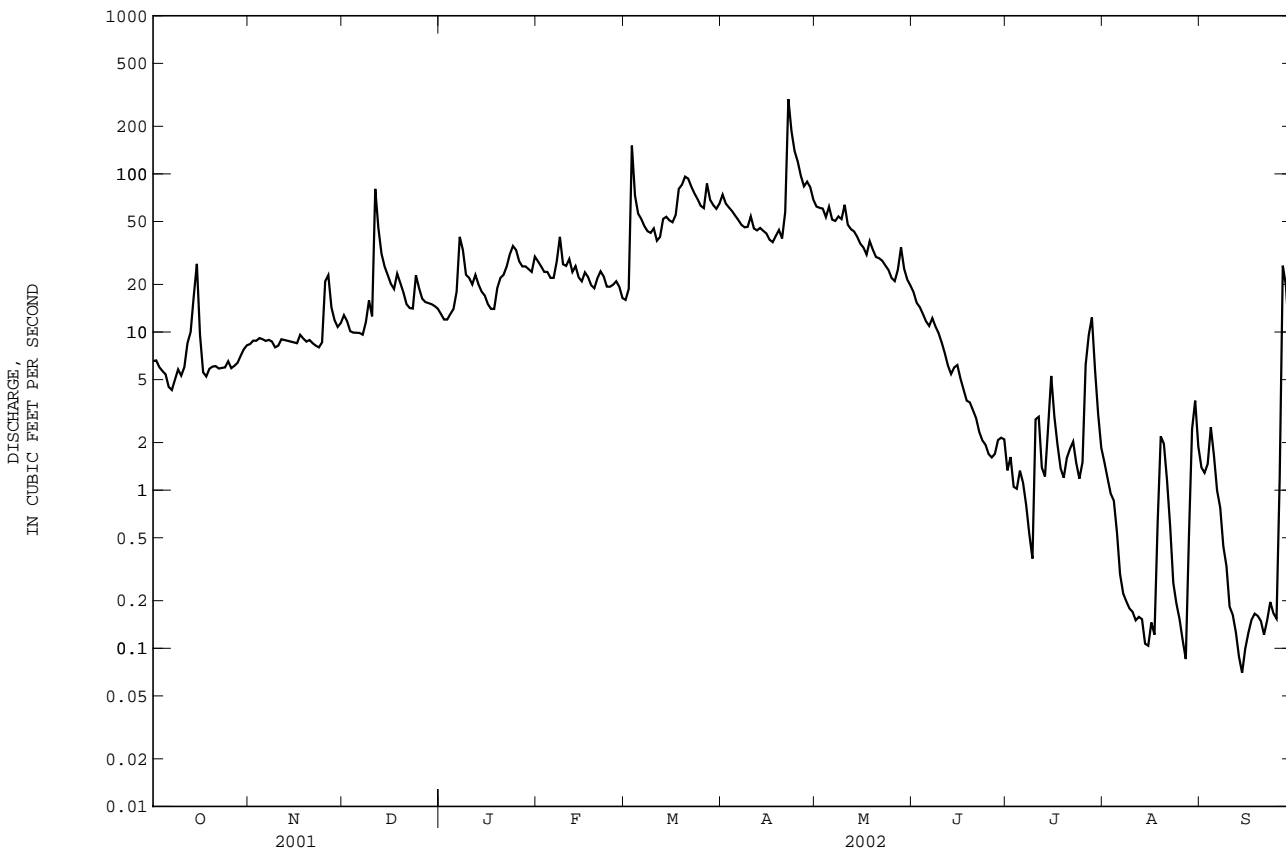
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	92.1	121	146	167	191	240	216	156	118	70.3	81.9	84.1
MAX	394	733	445	480	723	629	698	369	696	327	1246	506
(WY)	1991	1986	1951	1996	1998	1993	1983	1990	1995	1972	1969	1979
MIN	7.35	10.0	18.5	22.2	23.4	55.9	52.5	39.5	6.53	2.60	0.74	2.52
(WY)	2002	2002	1966	2002	2002	1981	1981	2002	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1943 - 2002

ANNUAL TOTAL	18637.7		8197.09		140	
ANNUAL MEAN	51.1		22.5		22.5	
HIGHEST ANNUAL MEAN					290 1973	
LOWEST ANNUAL MEAN					22.5 2002	
HIGHEST DAILY MEAN	851	Mar 21	297	Apr 22	e28800	Aug 20 1969
LOWEST DAILY MEAN	3.4	Sep 16	0.07	Sep 14	0.07	Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	4.6	Sep 12	0.12	Sep 11	0.12	Sep 11 2002
MAXIMUM PEAK FLOW			528	Apr 22	70000	Aug 20 1969
MAXIMUM PEAK STAGE			2.76	Apr 22	a31.20	Aug 20 1969
INSTANTANEOUS LOW FLOW			0.07	bAug 14	0.07	bAug 14 2002
ANNUAL RUNOFF (CFSM)	0.54		0.24		1.48	
ANNUAL RUNOFF (INCHES)	7.33		3.22		20.13	
10 PERCENT EXCEEDS	94		56		294	
50 PERCENT EXCEEDS	28		13		84	
90 PERCENT EXCEEDS	6.0		0.48		17	

a From floodmarks.
 b Also Aug. 15, 18, 26-28 and Sept. 13-15, 2002.
 e Estimated.



JAMES RIVER BASIN

02029000 JAMES RIVER AT SCOTTSVILLE, VA

LOCATION.--Lat 37°47'51", long 78°29'29", NAD83, Albemarle County, Hydrologic Unit 02080203, on left bank 900 ft downstream from bridge on State Highway 20 at Scottsville, 6.8 mi upstream from Hardware River, and at mile 188.6.

DRAINAGE AREA.--4,584 mi².

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 727: 1931(m). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 253.18 ft NGVD of 1929. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good except those for periods of low flows, Oct. 5-11, June 16 to July 10, Aug. 12-27, and Sept. 3-25, which are fair. Large diurnal fluctuation caused by powerplants upstream from station. Flow regulated since December 1979 by Lake Moomaw (station 02011795) 197.5 mi upstream; since October 1984 by Back Creek Lake 225.5 mi upstream; and since January 1985 by Little Back Creek Lake 228.6 mi upstream, amount unknown. Statistics of monthly mean data and summary statistics for water years 1925 - 1979 (unregulated flow) are available in previous data books, water years 1991 - 1998. National Weather Service gage-height telemeter at station. Maximum discharge, 301,000 ft³/s, from rating curve extended above 120,000 ft³/s on basis of slope-conveyance study. 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 October 1870 reached a stage of 30.7 ft, discharge, about 215,000 ft³/s, and flood in November 1877 reached a stage of 27.9 ft, discharge, about 160,000 ft³/s, from information by local resident. Flood in March 1913 reached a stage of 25.16 ft, from floodmarks, discharge, 121,000 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 35,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	920	829	1000	1010	1680	998	3390	11600	1800	703	1190	687
2	1150	860	1040	989	1530	1020	3310	10100	1540	1260	1190	596
3	1550	917	966	1140	1480	1380	4440	8260	1480	926	1160	534
4	1060	874	920	1070	1310	2280	5070	7870	1800	1020	1150	691
5	607	869	865	962	1190	2280	4420	9560	1300	804	890	714
6	886	863	932	1010	1180	2430	4170	7240	1520	564	693	676
7	654	860	930	1180	1270	2390	3360	6250	1440	515	662	651
8	775	859	928	1370	1450	2180	2790	5700	1060	570	776	603
9	697	823	1030	1120	1520	1630	2770	5920	1020	1140	847	515
10	799	821	925	1100	1360	1680	2610	8040	969	783	931	495
11	681	826	1340	1080	1320	1670	2580	8520	1500	760	830	495
12	720	820	2910	1070	1500	1970	2820	7020	1150	817	609	547
13	762	823	2530	1040	1340	1600	3270	5500	983	748	582	464
14	794	824	2010	996	1300	1710	3260	4720	936	696	652	452
15	924	849	1910	975	1280	1770	3220	4160	684	1070	669	522
16	1450	835	1680	1000	1270	1570	3440	3510	626	1230	679	519
17	925	845	1300	1230	1260	1720	3720	3280	1380	1410	720	628
18	592	857	1530	842	1230	3470	3680	2940	814	1580	758	553
19	996	865	1590	1030	1210	4690	3730	2900	722	1220	716	650
20	854	853	1300	1080	1130	6340	3330	2680	868	1140	673	663
21	881	865	1470	1230	1240	6570	2900	2420	915	975	681	680
22	909	873	1390	1210	1190	5800	4020	2170	874	788	761	640
23	853	873	1330	1280	1110	5610	11400	2090	632	878	724	605
24	880	881	1340	1490	1040	5000	17700	2010	563	877	802	618
25	920	933	1410	1720	1100	4210	12200	1820	954	878	753	707
26	832	967	1390	1860	1030	3330	9750	1730	838	975	729	766
27	831	1040	1280	2330	1130	3230	7830	1550	538	2390	712	1160
28	772	1000	1240	2560	1030	3110	6010	2100	626	2000	806	1330
29	847	1050	1130	2320	---	2830	5250	2040	701	1530	928	1980
30	802	1030	1130	2060	---	2910	8390	1670	602	1270	801	2490
31	813	---	1080	1820	---	3200	---	1630	---	1400	723	---
TOTAL	27136	26484	41826	41174	35680	90578	154830	147000	30835	32917	24797	22631
MEAN	875	883	1349	1328	1274	2922	5161	4742	1028	1062	800	754
MAX	1550	1050	2910	2560	1680	6570	17700	11600	1800	2390	1190	2490
MIN	592	820	865	842	1030	998	2580	1550	538	515	582	452
(†)	-4386	-3378	-2571	-857	-101	+10230	+14120	-1059	-5092	-5042	-7260	-3277
MEAN†	734	770	1266	1301	1271	3252	5632	4708	858	899	566	645
CFSM†	.16	.17	.28	.28	.28	.71	1.23	1.03	.19	.20	.12	.14
IN.†	.18	.19	.32	.33	.29	.82	1.37	1.18	.21	.23	.14	.16

CAL YR 2001 MEAN† 2797 CFSM† .61 IN.† 8.28
WTR YR 2002 MEAN† 1828 CFSM† .40 IN.† 5.41

† Total change in contents, equivalent in cubic feet per second, per month, in Lake Moomaw; provided by U.S. Army Corps of Engineers.
‡ Adjusted for monthly change in contents.

02029000 JAMES RIVER AT SCOTTSVILLE, VA--Continued

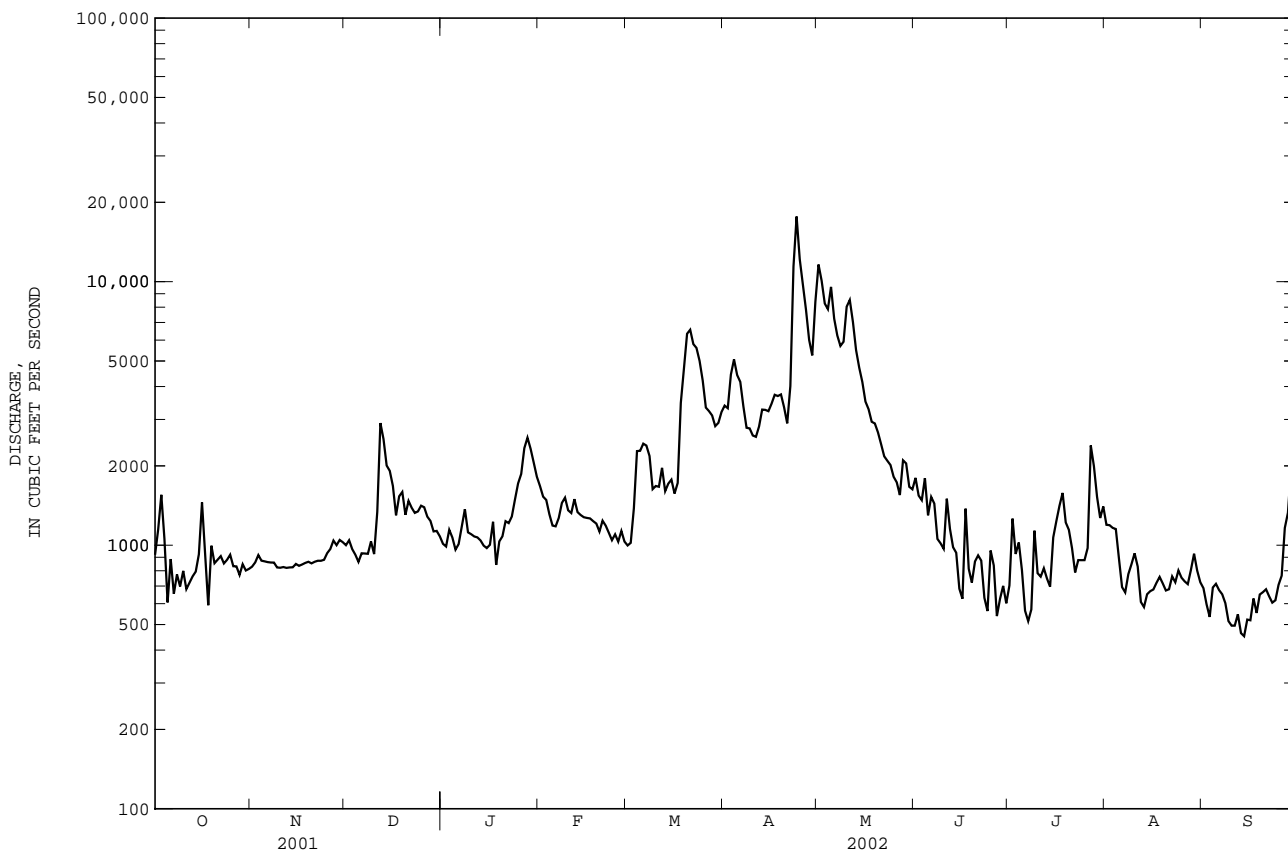
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2822	4016	4718	6614	7574	9651	9048	6368	4364	2403	2277	2813
MAX	11990	25090	13450	18230	22960	23820	28930	18230	14380	6941	7934	13180
(WY)	1980	1986	1997	1996	1998	1993	1987	1989	1995	1995	1984	1996
MIN	875	883	1318	1165	1274	1961	2493	3309	1028	981	800	754
(WY)	2002	2002	1981	1981	2002	1981	1995	2000	2002	1999	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1980 - 2002

ANNUAL TOTAL		1035730		675888								
ANNUAL MEAN		2838		1852						5206		
HIGHEST ANNUAL MEAN										7531		1998
LOWEST ANNUAL MEAN										1852		2002
HIGHEST DAILY MEAN			24300		May 24		17700	Apr 24		199000	Nov 6	1985
LOWEST DAILY MEAN			592		Oct 18		452	Sep 14		452	Sep 14	2002
ANNUAL SEVEN-DAY MINIMUM			727		Oct 7		499	Sep 9		499	Sep 9	2002
MAXIMUM PEAK FLOW							20200	Apr 24		a243000	Nov 6	1985
MAXIMUM PEAK STAGE							10.69	Apr 24		a31.77	Nov 6	1985
INSTANTANEOUS LOW FLOW							418	bSep 13		c418	bSep 13	2002
ANNUAL RUNOFF (CFSM)			0.62				0.40			1.14		
ANNUAL RUNOFF (INCHES)			8.41				5.48			15.43		
10 PERCENT EXCEEDS			5880				3720			11100		
50 PERCENT EXCEEDS			1710				1110			2980		
90 PERCENT EXCEEDS			858				671			1100		

- a Prior to regulation, 1925-79, maximum peak flow, 301,000 ft³/s, June 22, 1972, gage height, 34.02 ft, from floodmarks.
- b Also Sept. 14, 2002.
- c Prior to regulation, 1925-79, instantaneous low flow, 302 ft³/s, Oct. 1, 1930, probably lower during period of doubtful record in September 1966.



JAMES RIVER BASIN

02030000 HARDWARE RIVER BELOW BRIERY CREEK, NEAR SCOTTSVILLE, VA

LOCATION.--Lat 37°48'46", long 78°27'19", NAD83, Fluvanna County, Hydrologic Unit 02080203, on left bank 75 ft upstream from bridge on State Highway 637, 0.8 mi downstream from Briery Creek, 2.4 mi northeast of Scottsville, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--116 mi².

PERIOD OF RECORD.--October 1938 to September 1995, October 1996 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "below Briery Run" prior to October 1990.

REVISED RECORDS.--WSP 952: 1941(M). WSP 1002: 1940, 1943. WSP 1032: 1940, 1944.

GAGE.--Water-stage recorder. Datum of gage is 294.96 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Dec. 29 to Jan. 4, and period of no gage-height record, June 22-24, which are fair. Maximum discharge, 52,000 ft³/s, from rating curve extended above 18,000 ft³/s on basis of slope-area measurements at gage heights 23.8 ft and 31.0 ft. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	6.2	10	12	e15	22	18	38	26	9.9	1.0	0.90	3.0
2	6.7	11	12	e14	21	20	34	26	8.4	1.2	0.64	2.0
3	5.9	11	12	e15	18	140	31	29	7.2	1.3	0.48	1.9
4	5.6	11	12	e16	18	85	28	25	7.0	1.3	0.41	1.6
5	5.5	11	12	17	18	42	26	29	6.8	0.57	0.39	1.2
6	4.7	11	13	24	16	34	25	28	7.2	0.38	0.32	0.89
7	4.7	9.5	14	42	35	31	25	24	6.6	0.35	0.25	0.85
8	5.4	10	15	38	52	27	26	25	5.8	0.24	0.22	0.74
9	8.8	11	21	31	36	25	24	25	5.4	0.18	0.19	0.63
10	7.7	11	22	28	28	27	27	54	4.9	0.18	0.19	0.67
11	8.3	11	87	26	27	25	28	34	4.5	0.17	0.16	0.57
12	11	12	86	29	26	23	24	24	4.0	0.18	0.10	0.48
13	12	11	45	23	25	28	24	23	3.9	0.23	0.05	0.40
14	14	11	35	21	24	33	24	22	3.7	0.89	0.02	0.39
15	71	11	29	20	22	29	24	20	4.0	2.8	0.02	0.41
16	29	11	25	19	22	26	23	17	4.2	3.9	0.02	0.70
17	14	14	23	18	22	28	22	16	3.7	1.8	0.02	1.8
18	9.8	12	29	18	21	54	22	19	3.3	1.1	0.01	1.1
19	8.9	11	28	20	20	70	24	24	3.5	1.9	0.02	0.67
20	9.4	11	24	25	20	62	23	18	3.4	3.1	0.01	0.59
21	9.5	11	22	26	21	60	27	17	3.2	1.8	0.01	0.48
22	9.5	9.8	19	28	21	45	258	16	e3.0	2.5	0.01	0.47
23	9.5	9.8	18	31	20	38	144	16	e2.7	1.1	0.01	1.0
24	9.2	10	23	34	19	35	67	16	e2.5	0.72	0.01	0.85
25	9.0	18	27	31	19	33	49	14	2.0	0.54	0.01	1.3
26	9.0	24	23	25	20	32	41	11	1.7	0.74	0.01	2.6
27	8.1	18	20	23	20	42	35	11	1.6	6.6	0.00	8.4
28	8.2	14	19	23	19	40	36	25	1.6	6.0	1.2	26
29	9.8	12	e19	22	---	34	38	21	1.3	5.7	4.0	11
30	9.9	12	e18	21	---	32	30	14	1.1	2.5	1.8	7.0
31	10	---	e17	24	---	33	---	11	---	1.3	2.7	---
TOTAL	350.3	360.1	781	747	652	1251	1247	680	128.1	52.27	14.18	79.69
MEAN	11.3	12.0	25.2	24.1	23.3	40.4	41.6	21.9	4.27	1.69	0.46	2.66
MAX	71	24	87	42	52	140	258	54	9.9	6.6	4.0	26
MIN	4.7	9.5	12	14	16	18	22	11	1.1	0.17	0.00	0.39
CF5M	0.10	0.10	0.22	0.21	0.20	0.35	0.36	0.19	0.04	0.01	0.00	0.02
IN.	0.11	0.12	0.25	0.24	0.21	0.40	0.40	0.22	0.04	0.02	0.00	0.03

02030000 HARDWARE RIVER BELOW BRIERY CREEK, NEAR SCOTTSVILLE, VA--Continued

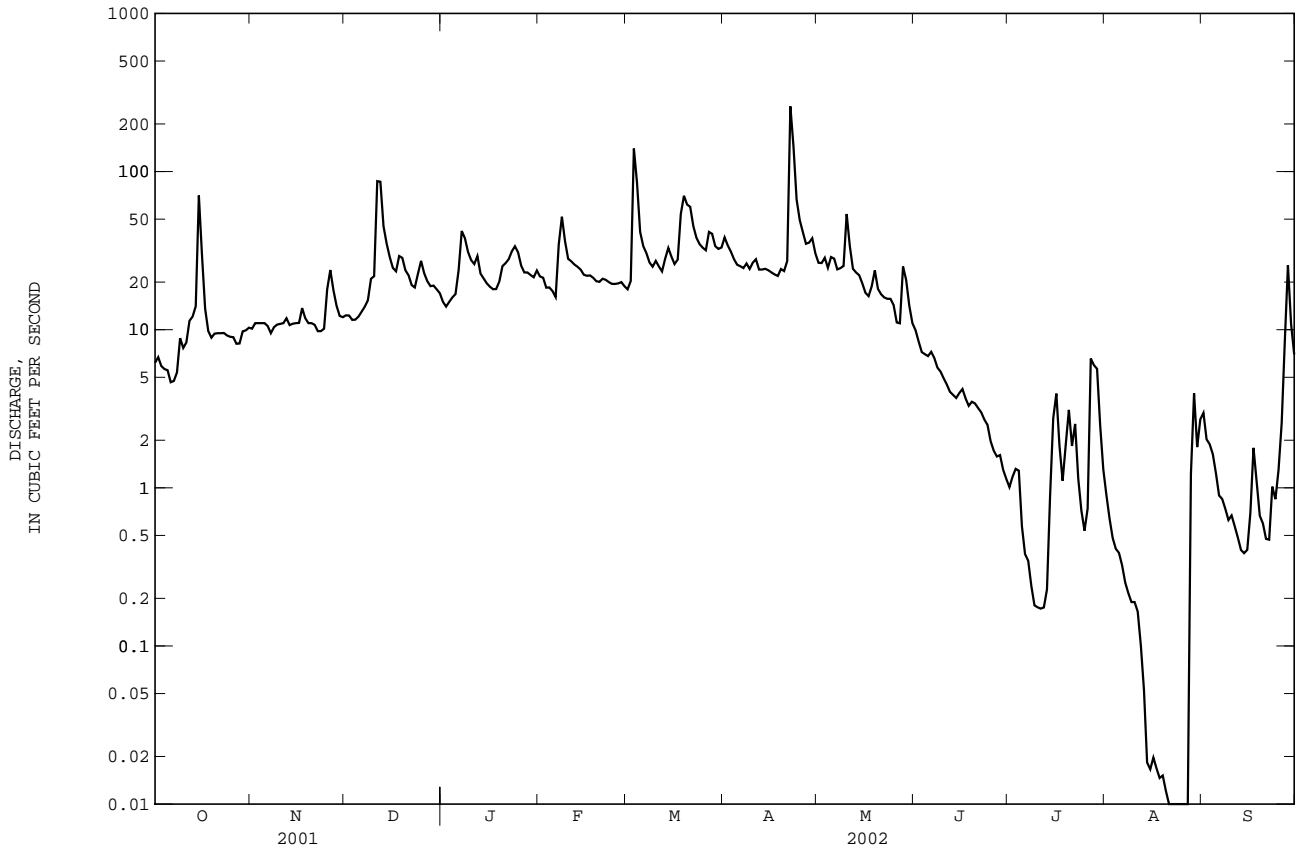
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, 1997 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	87.9	97.1	129	151	183	212	180	133	105	74.5	93.7	81.6
MAX	370	514	514	448	664	613	604	398	560	273	1155	750
(WY)	1977	1986	1949	1998	1998	1993	1983	1989	1972	1975	1969	1944
MIN	11.3	12.0	20.5	24.1	23.3	35.1	39.5	21.9	4.27	1.69	0.46	2.66
(WY)	2002	2002	1966	2002	2002	1981	1981	2002	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1939 - 1995 1997 - 2002

ANNUAL TOTAL	18840.7		6342.64		127		1973	
ANNUAL MEAN	51.6		17.4		17.4		2002	
HIGHEST ANNUAL MEAN					249		1973	
LOWEST ANNUAL MEAN					17.4		2002	
HIGHEST DAILY MEAN	1230	Mar 30	258	Apr 22	28400	Aug 20	1969	
LOWEST DAILY MEAN	4.1	Sep 19	0.00	Aug 27	0.00	Aug 27	2002	
ANNUAL SEVEN-DAY MINIMUM	5.0	Sep 16	0.01	Aug 21	0.01	Aug 21	2002	
MAXIMUM PEAK FLOW			408	Apr 22	52000	Aug 20	1969	
MAXIMUM PEAK STAGE			3.91	Apr 22	a31.00	Aug 20	1969	
INSTANTANEOUS LOW FLOW			0.00	bAug 26	0.00	bAug 26	2002	
ANNUAL RUNOFF (CFSM)	0.44		0.15		1.09			
ANNUAL RUNOFF (INCHES)	6.04		2.03		14.87			
10 PERCENT EXCEEDS	90		34		235			
50 PERCENT EXCEEDS	30		14		79			
90 PERCENT EXCEEDS	9.1		0.48		24			

a From floodmarks.
 b Also part or all of each day Aug. 27, 28, 2002.
 e Estimated.



JAMES RIVER BASIN

02031000 MECHUMS RIVER NEAR WHITE HALL, VA

LOCATION.--Lat 38°06'09", long 78°35'34", NAD83, Albemarle County, Hydrologic Unit 02080204, on right bank 20 ft downstream from bridge on State Highway 614, 1.5 mi downstream from Rocky Run, 4.0 mi southeast of White Hall, and 4.9 mi upstream from confluence with Moormans River.

DRAINAGE AREA.--95.4 mi².

PERIOD OF RECORD.--October 1942 to September 1951, October 1979 to current year. Prior to September 1951, published as Mechum River near Ivy.

GAGE.--Water-stage recorder. Datum of gage is 429.75 ft NGVD of 1929. Oct. 1, 1942, to Sept. 30, 1951, on right bank 20 ft downstream from former highway bridge at different datum.

REMARKS.--Records good except those for period with backwater from beaver dam, Oct. 1-14, periods of doubtful or no gage-height record, Nov. 13-27 and June 30 to July 10, and period with ice effect, Dec. 29 to Jan. 3, which are fair. Maximum discharge, 20,000 ft³/s, from rating curve extended above 8,000 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 6, 1979, reached a stage of 24.5 ft, from floodmarks, discharge, about 13,500 ft³/s, from rating curve extended above 8,300 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
------	------	--------------------------------	------------------	------	------	--------------------------------	------------------

No peak greater than base discharge.

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	e8.4	11	17	e12	14	12	49	41	11	e1.3	1.0	0.09
2	e8.6	11	14	e11	13	15	41	39	10	e1.5	0.63	0.06
3	e7.6	12	14	e12	12	119	38	36	9.2	e1.2	0.52	0.01
4	e7.2	13	14	13	13	50	31	30	8.7	e1.0	2.3	0.00
5	e6.9	15	13	14	13	33	30	34	15	e1.4	0.86	0.00
6	e7.4	11	13	16	12	27	27	28	9.6	e1.2	0.51	0.00
7	e6.2	11	13	23	20	24	26	27	11	e0.86	0.32	0.00
8	e6.5	11	13	20	23	21	25	31	9.0	e0.58	0.13	0.00
9	e7.8	10	16	18	17	20	25	32	7.3	e0.42	0.05	0.00
10	e7.0	11	15	17	16	24	30	61	5.9	e3.7	0.03	0.00
11	e10	12	56	19	17	17	26	36	5.7	4.7	0.02	0.00
12	e13	15	37	19	16	18	23	29	4.8	1.8	0.09	0.00
13	e15	e14	23	17	16	28	24	27	4.4	1.1	0.11	0.00
14	e17	e13	19	15	15	29	24	25	4.2	2.0	0.13	0.00
15	29	e13	17	15	14	26	24	21	7.0	6.0	0.10	0.00
16	14	e14	15	14	15	24	22	20	5.5	3.7	0.11	0.00
17	10	e16	15	14	15	26	20	18	3.7	2.5	0.07	0.00
18	9.4	e14	17	14	13	40	21	20	3.1	1.5	0.17	0.00
19	9.0	e13	16	15	14	47	27	20	2.9	1.1	0.41	0.00
20	9.5	e12	15	18	14	52	25	18	2.7	0.84	0.28	0.00
21	11	e12	14	18	14	50	35	17	2.6	0.82	0.16	0.00
22	12	e11	14	18	14	43	169	17	2.5	0.61	0.07	0.00
23	10	e11	14	20	13	36	96	16	2.1	0.67	0.02	0.00
24	9.4	e13	17	21	14	31	62	15	1.8	0.94	0.00	0.00
25	10	e15	18	18	13	29	52	15	1.7	0.81	0.00	0.00
26	11	e19	16	16	13	28	42	14	4.4	1.5	0.00	0.52
27	9.8	e16	15	16	14	58	35	13	14	3.3	0.00	1.9
28	9.6	15	14	15	13	42	63	16	4.0	5.4	0.05	3.0
29	9.7	15	e14	15	---	35	67	15	2.6	4.6	0.40	2.9
30	9.9	15	e13	14	---	32	47	13	e2.0	2.8	0.21	1.7
31	11	---	e13	14	---	35	---	12	---	1.5	0.12	---
TOTAL	322.9	394	534	501	410	1071	1226	756	178.4	61.35	8.87	10.18
MEAN	10.4	13.1	17.2	16.2	14.6	34.5	40.9	24.4	5.95	1.98	0.29	0.34
MAX	29	19	56	23	23	119	169	61	15	6.0	2.3	3.0
MIN	6.2	10	13	11	12	12	20	12	1.7	0.42	0.00	0.00
CFSM	0.11	0.14	0.18	0.17	0.15	0.36	0.43	0.26	0.06	0.02	0.00	0.00
IN.	0.13	0.15	0.21	0.20	0.16	0.42	0.48	0.29	0.07	0.02	0.00	0.00

02031000 MECHUMS RIVER NEAR WHITE HALL, VA--Continued

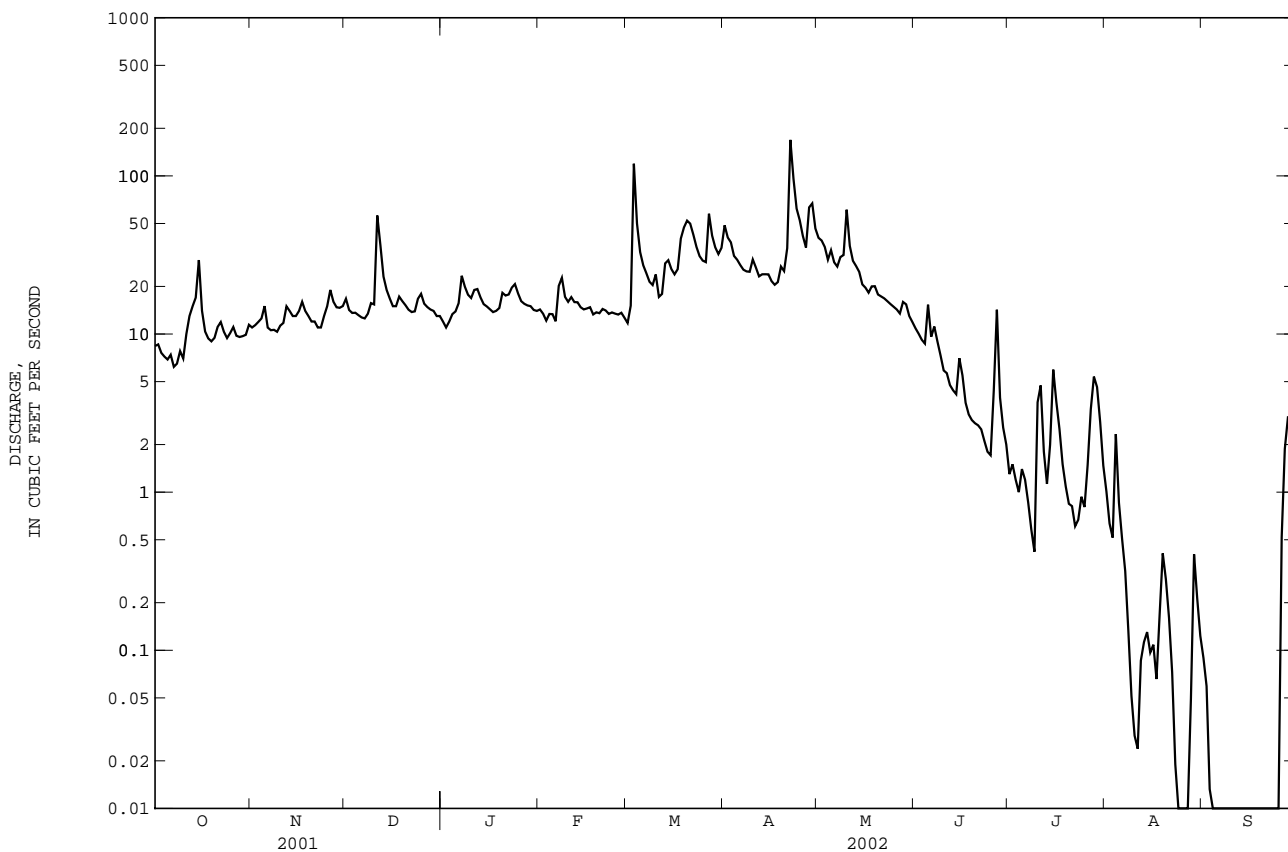
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1951, 1979 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	82.4	96.5	110	124	141	161	162	115	86.5	58.1	52.3	82.9
MAX	606	636	329	425	550	473	703	289	322	192	245	422
(WY)	1943	1986	1949	1996	1998	1993	1983	1989	1995	1991	1949	1987
MIN	8.65	13.1	17.2	16.2	14.6	34.5	37.1	24.4	5.95	1.98	0.29	0.34
(WY)	1944	2002	2002	2002	2002	2002	1981	2002	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1943 - 1951 1979 - 2002

ANNUAL TOTAL		14224.5		5473.70								
ANNUAL MEAN		39.0		15.0						106		
HIGHEST ANNUAL MEAN										178		1996
LOWEST ANNUAL MEAN										15.0		2002
HIGHEST DAILY MEAN				786	Mar 30		169	Apr 22		10600	Oct 15	1942
LOWEST DAILY MEAN				e3.6	Sep 19		0.00	aAug 24		0.00	aAug 24	2002
ANNUAL SEVEN-DAY MINIMUM				e4.3	Sep 15		0.00	bSep 4		0.00	bSep 4	2002
MAXIMUM PEAK FLOW							257	Apr 22		20000	Oct 15	1942
MAXIMUM PEAK STAGE							5.95	Apr 22		c30.30	Oct 15	1942
INSTANTANEOUS LOW FLOW							0.00	dAug 18		d0.00	Aug 18	2002
ANNUAL RUNOFF (CFSM)				0.41			0.16				1.11	
ANNUAL RUNOFF (INCHES)				5.55			2.13				15.06	
10 PERCENT EXCEEDS				77			31				191	
50 PERCENT EXCEEDS				24			13				65	
90 PERCENT EXCEEDS				7.0			0.09				18	

- a Also Aug. 25-27 and Sept. 4-25, 2002.
- b Many days in September 2002.
- c From floodmarks, datum then in use.
- d Also part or all of each day Aug. 23-28 and Sept. 3-26, 2002.
- e Estimated.



JAMES RIVER BASIN

02032640 NORTH FORK RIVANNA RIVER NEAR EARLYSVILLE, VA

LOCATION.--Lat 38°09'48", long 78°25'29", NAD83, Albemarle County, Hydrologic Unit 02080204, on right bank at downstream side of bridge on State Highway 606, 0.4 mi upstream from mouth of Jacobs Run, 1.9 mi downstream from mouth of Marsh Run, and 2.1 mi southeast of Advance Mills.

DRAINAGE AREA.--108 mi².

PERIOD OF RECORD.--October 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 365 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except those for period with ice effect, Dec. 30 to Jan. 5, and period of doubtful gage-height record, Aug. 1-12, which are fair. Maximum discharge, 30,100 ft³/s, from rating curve extended above 2,150 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1992 reached a stage of 19.92 ft, from floodmark, by the Virginia Department of Highways.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jun 19	0200	*3,460	*8.90	No other peak greater than base discharge.			

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	10	13	23	e20	28	20	89	129	14	13	e4.2	1.5
2	9.6	13	23	e19	26	22	74	116	13	11	e4.0	1.4
3	9.1	13	22	e21	25	114	67	101	11	9.6	e2.5	1.3
4	8.6	14	22	e20	25	79	61	85	10	8.1	e3.4	1.2
5	8.1	13	20	e23	23	59	56	90	10	6.6	e2.7	1.0
6	8.1	13	20	25	23	51	52	74	12	5.2	e2.3	0.88
7	8.6	13	19	36	34	45	49	69	16	4.3	e2.1	0.77
8	8.4	13	21	37	39	41	46	72	12	3.7	e2.0	0.66
9	8.3	13	27	30	34	38	46	71	9.9	3.8	e1.7	0.59
10	7.4	13	24	29	32	46	93	100	8.7	8.8	e1.6	0.51
11	6.7	13	85	30	34	41	66	71	8.0	6.2	e1.5	0.37
12	6.8	13	76	29	32	40	55	61	7.3	5.0	e1.4	0.35
13	7.8	13	53	27	31	60	53	57	6.5	4.2	1.2	0.32
14	14	13	46	26	29	88	50	50	13	16	1.1	0.28
15	56	14	41	25	27	78	48	46	15	23	1.0	0.37
16	29	13	36	24	27	72	44	41	9.9	12	0.92	0.67
17	18	13	34	24	26	69	40	38	7.7	8.0	0.92	0.55
18	15	14	35	23	26	84	54	45	7.1	6.0	0.94	0.43
19	14	13	34	24	25	90	64	44	683	5.1	1.9	0.38
20	13	13	32	29	24	136	120	36	69	4.5	1.0	0.34
21	13	13	30	28	24	153	133	34	33	15	0.80	0.32
22	12	14	27	30	24	126	696	32	22	7.1	0.80	0.37
23	13	14	26	31	23	106	333	29	16	7.3	0.80	0.74
24	13	15	31	34	22	92	205	27	13	36	0.77	0.66
25	11	22	30	37	22	79	157	25	11	7.1	0.73	0.54
26	11	61	28	35	22	71	124	24	10	16	0.69	1.4
27	9.9	40	26	34	22	103	103	22	50	25	0.69	7.3
28	11	32	25	33	20	83	279	21	47	17	1.1	8.8
29	11	27	24	32	---	74	231	21	30	11	2.7	4.6
30	12	24	e23	31	---	69	156	19	17	7.9	1.7	3.3
31	12	---	e21	29	---	74	---	16	---	5.9	1.5	---
TOTAL	395.4	525	984	875	749	2303	3644	1666	1192.1	319.4	50.66	41.90
MEAN	12.8	17.5	31.7	28.2	26.8	74.3	121	53.7	39.7	10.3	1.63	1.40
MAX	56	61	85	37	39	153	696	129	683	36	4.2	8.8
MIN	6.7	13	19	19	20	20	40	16	6.5	3.7	0.69	0.28
CFSM	0.12	0.16	0.29	0.26	0.25	0.69	1.12	0.50	0.37	0.10	0.02	0.01
IN.	0.14	0.18	0.34	0.30	0.26	0.79	1.25	0.57	0.41	0.11	0.02	0.01

02032640 NORTH FORK RIVANNA RIVER NEAR EARLYSVILLE, VA--Continued

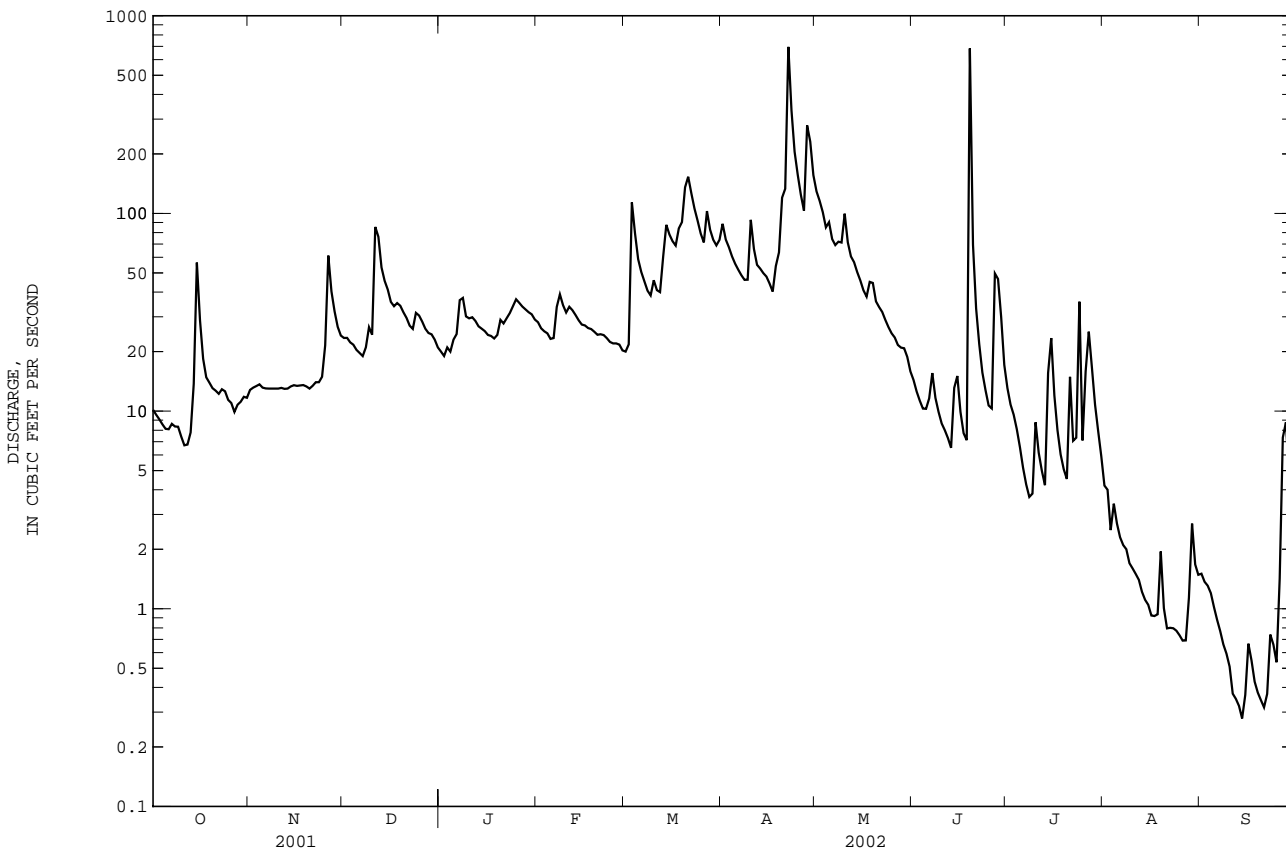
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	61.8	102	123	231	183	200	140	115	104	61.8	37.0	152
MAX	195	233	367	574	624	406	247	421	316	195	112	682
(WY)	1996	1998	1997	1996	1998	1994	1998	1998	1995	1995	1994	1996
MIN	12.8	16.7	27.7	28.2	26.8	74.3	60.1	47.4	11.4	9.62	1.63	1.40
(WY)	2002	1999	1999	2002	2002	2002	1995	1999	1999	1999	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1994 - 2002

ANNUAL TOTAL	19884.7		12745.46			
ANNUAL MEAN	54.5		34.9		125	
HIGHEST ANNUAL MEAN					246	
LOWEST ANNUAL MEAN					34.9	
HIGHEST DAILY MEAN	1050	Mar 30	696	Apr 22	e11000	Sep 6 1996
LOWEST DAILY MEAN	4.3	Sep 19	0.28	Sep 14	0.28	Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	5.3	Sep 17	0.40	Sep 9	0.40	Sep 9 2002
MAXIMUM PEAK FLOW			3460	Jun 19	30100	Sep 6 1996
MAXIMUM PEAK STAGE			8.90	Jun 19	a23.56	Sep 6 1996
INSTANTANEOUS LOW FLOW			0.25	bSep 14	0.25	bSep 14 2002
ANNUAL RUNOFF (CFSM)	0.50		0.32		1.16	
ANNUAL RUNOFF (INCHES)	6.84		4.38		15.76	
10 PERCENT EXCEEDS	117		75		245	
50 PERCENT EXCEEDS	32		22		59	
90 PERCENT EXCEEDS	8.8		1.2		12	

a From floodmarks.
 b Also Sept. 15, 2002.
 e Estimated.



JAMES RIVER BASIN

02034000 RIVANNA RIVER AT PALMYRA, VA

LOCATION.--Lat 37°51'29", long 78°15'57", NAD83, Fluvanna County, Hydrologic Unit 02080204, on left bank 10 ft upstream from bridge on U.S. Highway 15 at Palmyra, 0.5 mi upstream from Cunningham Creek, and 15 mi upstream from mouth.

DRAINAGE AREA.--664 mi².

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area. WDR VA-72-1: 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft NGVD of 1929. Prior to Oct. 24, 1942, water-stage recorder at site 200 ft downstream at same datum. Oct. 24, 1942, to Dec. 18, 1947, nonrecording gage 10 ft downstream at same datum.

REMARKS.--Records good except those for period with ice effect, Jan. 1-5, and period of no gage-height, Aug. 14, 15, which are fair. Some diurnal fluctuation at times mostly at low and medium flow caused by South Fork Rivanna River Reservoir, diversions for water supply and discharge from wastewater treatment plants upstream at Charlottesville. National Weather Service gage-height telemeter at station. Maximum discharge, 86,000 ft³/s, from rating curve extended above 76,000 ft³/s on basis of contracted-opening measurement of peak flow and velocity-area study. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
------	------	--------------------------------	------------------	------	------	--------------------------------	------------------

No peak greater than base discharge.

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	50	54	71	e80	104	80	264	456	76	58	42	37
2	46	55	78	e72	105	80	301	381	68	50	39	29
3	45	59	78	e76	98	388	230	352	62	45	36	29
4	42	58	77	e74	91	495	213	286	56	38	32	26
5	44	58	77	e95	88	286	200	295	82	33	30	23
6	45	59	75	102	85	213	197	285	90	30	27	23
7	45	56	72	150	103	182	164	235	63	26	26	22
8	43	57	77	170	166	163	165	209	67	27	26	22
9	42	56	88	132	150	148	162	241	65	27	24	21
10	43	57	103	148	131	147	187	376	56	29	23	19
11	40	52	258	136	122	146	279	341	50	52	21	19
12	39	54	366	93	123	138	190	215	47	37	21	18
13	41	57	273	86	150	146	201	208	43	31	21	18
14	42	60	193	94	115	196	205	225	42	34	e20	18
15	255	63	182	100	87	221	202	151	74	103	e22	18
16	151	61	173	93	87	204	198	151	67	63	24	19
17	92	62	152	90	96	195	183	145	51	51	22	20
18	71	62	157	89	97	270	184	173	43	41	22	25
19	64	65	157	92	92	355	206	240	626	35	37	25
20	62	64	134	111	93	351	370	170	313	32	33	21
21	60	65	122	126	92	425	504	140	125	33	27	20
22	59	63	108	125	92	410	1740	130	77	56	24	19
23	58	60	99	126	91	336	1440	124	58	41	24	23
24	57	61	106	157	88	259	779	118	49	364	22	34
25	60	72	123	121	84	255	557	110	44	172	24	31
26	54	92	116	149	82	260	425	103	40	86	22	26
27	50	103	105	105	85	251	358	100	84	111	20	138
28	47	101	98	141	86	346	359	100	192	87	31	135
29	48	81	95	104	---	250	901	97	114	77	110	74
30	50	73	92	89	---	255	619	89	84	63	93	47
31	51	---	86	97	---	211	---	84	---	51	51	---
TOTAL	1896	1940	3991	3423	2883	7662	11983	6330	2908	1983	996	999
MEAN	61.2	64.7	129	110	103	247	399	204	96.9	64.0	32.1	33.3
MAX	255	103	366	170	166	495	1740	456	626	364	110	138
MIN	39	52	71	72	82	80	162	84	40	26	20	18
CFSM	0.09	0.10	0.19	0.17	0.16	0.37	0.60	0.31	0.15	0.10	0.05	0.05
IN.	0.11	0.11	0.22	0.19	0.16	0.43	0.67	0.35	0.16	0.11	0.06	0.06

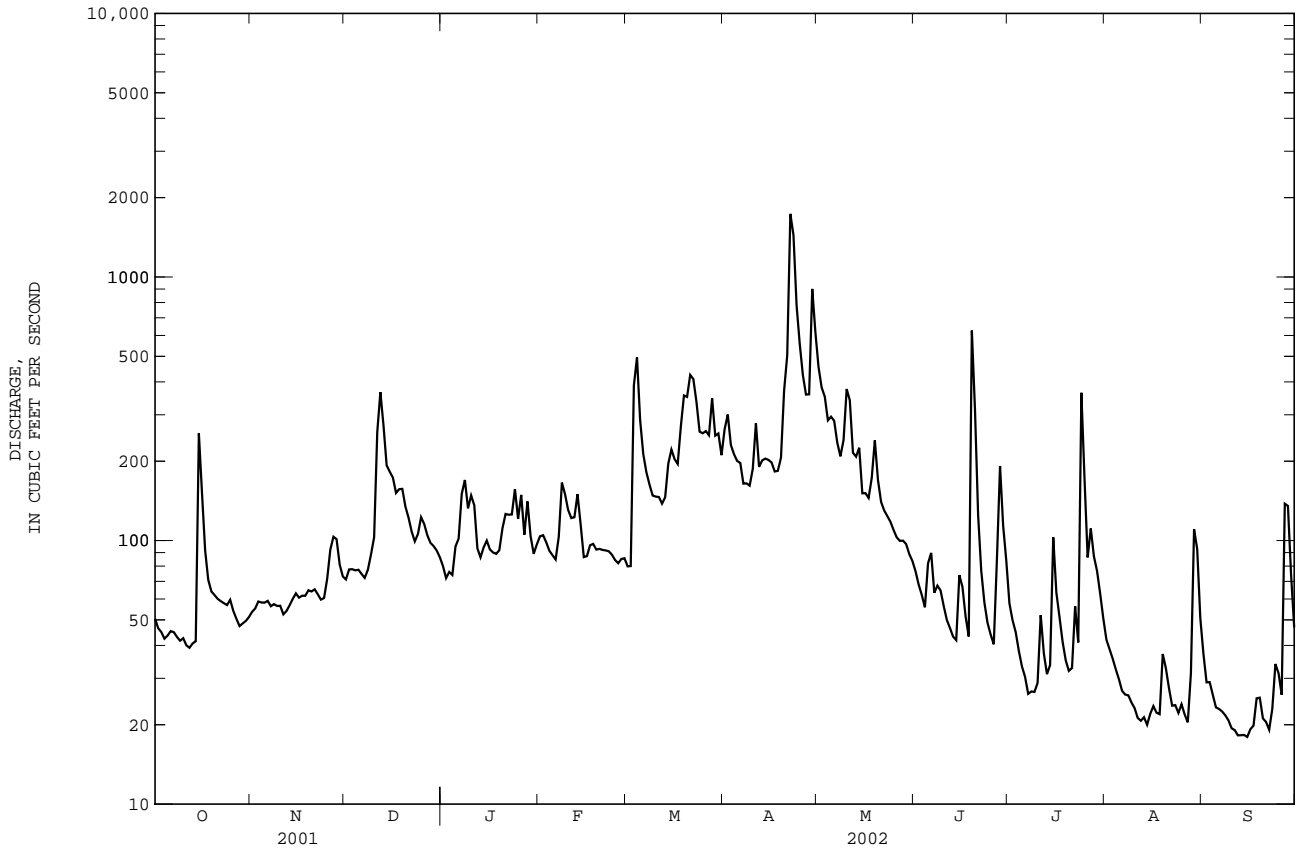
02034000 RIVANNA RIVER AT PALMYRA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	546	571	743	922	1021	1180	1030	747	578	384	449	461
MAX	3535	3521	2667	2620	3468	3415	3662	2472	4473	1524	3404	2915
(WY)	1943	1986	1949	1936	1998	1993	1937	1989	1972	1975	1969	1979
MIN	46.4	64.7	88.9	104	103	225	214	204	95.9	39.0	20.2	19.1
(WY)	1942	2002	1966	1966	2002	1981	1981	2002	1999	1966	1966	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1935 - 2002
ANNUAL TOTAL	97428	46994	
ANNUAL MEAN	267	129	718
HIGHEST ANNUAL MEAN			1401 1973
LOWEST ANNUAL MEAN			129 2002
HIGHEST DAILY MEAN	5810 Mar 30	1740 Apr 22	68000 Jun 22 1972
LOWEST DAILY MEAN	38 Sep 24	18 aSep 12	5.2 bSep 9 1966
ANNUAL SEVEN-DAY MINIMUM	40 Sep 18	18 Sep 10	5.6 Sep 7 1966
MAXIMUM PEAK FLOW		2740 Apr 22	86000 Aug 20 1969
MAXIMUM PEAK STAGE		6.38 Apr 22	39.85 Aug 20 1969
INSTANTANEOUS LOW FLOW		17 cSep 11	5.2 bSep 9 1966
ANNUAL RUNOFF (CFSM)	0.40	0.19	1.08
ANNUAL RUNOFF (INCHES)	5.46	2.63	14.69
10 PERCENT EXCEEDS	529	266	1400
50 PERCENT EXCEEDS	174	86	408
90 PERCENT EXCEEDS	52	26	103

- a Also Sept. 13-15, 2002
- b Also Sept. 10, 11, 1966.
- c Also Sept. 12-15, 2002.
- e Estimated.



JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA

LOCATION.--Lat 37°40'16", long 78°05'09", NAD83, Goochland County, Hydrologic Unit 02080205, on left bank 200 ft downstream from bridge on State Highway 45 at Cartersville, 1.8 mi downstream from Willis River, and at mile 156.4.

DRAINAGE AREA.--6,257 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 163.90 ft NGVD of 1929. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--Records fair. Moderate diurnal fluctuation caused by powerplants upstream from station. Since 1982, low flows during summer months are augmented by releases from Lake Moomaw, station 02011795. National Weather Service gage-height telemeter at station. Maximum discharge, 362,000 ft³/s, from rating curve extended above 160,000 ft³/s on basis of slope-conveyance study.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	990	857	1080	1240	2010	1210	3630	14100	1900	692	1390	874
2	985	874	1070	1150	1830	1200	4260	12100	1860	745	1210	810
3	1270	903	1100	1180	1720	1540	3920	10400	1550	1350	1190	705
4	1480	958	1060	1230	1630	2790	5680	8180	1620	955	1170	586
5	1100	914	1040	1190	1520	3180	5190	11700	1960	1070	1160	674
6	702	905	1010	1230	1380	2770	4600	8940	1430	835	897	703
7	835	904	1050	1400	1490	2810	4050	7380	1870	620	689	680
8	685	918	1070	1680	1680	2590	3250	6770	1560	556	626	642
9	758	912	1080	1770	1960	2290	2910	6380	1130	574	656	621
10	706	896	1140	1500	1850	1920	2720	8280	1120	1270	788	551
11	810	885	1270	1490	1670	1900	2700	10200	1060	873	839	496
12	728	888	2310	1410	1650	2120	2750	8790	1620	829	801	481
13	729	887	3810	1340	1710	2070	3030	6520	1140	865	642	496
14	837	892	2910	1290	1640	1940	3600	5780	948	811	569	519
15	880	898	2130	1250	1530	2110	3220	5390	900	760	600	447
16	1260	923	2180	1230	1450	2050	3350	4210	e740	1220	656	505
17	1590	916	1760	1250	1450	2000	3870	3900	e660	1370	656	536
18	1060	924	1650	1440	1430	2750	3790	3540	1300	1540	668	569
19	744	932	1810	1120	1410	6130	3790	3440	e800	1560	701	606
20	1020	935	1810	1370	1390	6920	3760	3310	1480	1190	695	590
21	949	933	1580	1490	1320	8730	3770	2940	1040	1120	660	644
22	935	940	1610	1650	1400	7280	4840	2700	953	927	647	659
23	981	951	1560	1680	1360	6870	9730	2380	e850	750	704	658
24	917	961	1550	1700	1300	6070	23400	2310	e710	792	682	595
25	911	990	1580	2010	1240	5420	15600	2130	e640	1130	735	596
26	937	1030	1650	2130	1270	4060	12100	1950	e970	922	750	705
27	863	1070	1580	2250	1210	4010	9890	1880	798	947	703	840
28	855	1130	1480	2660	1280	3730	7440	1920	665	2610	1030	1360
29	822	1090	1420	2740	---	3540	6580	2430	763	1740	2420	1610
30	870	1110	1310	2470	---	3240	8970	2120	814	1520	1560	2610
31	850	---	1290	2140	---	3490	---	1750	---	1320	1060	---
TOTAL	29059	28326	48950	49680	42780	108730	176390	173820	34851	33463	27554	22368
MEAN	937	944	1579	1603	1528	3507	5880	5607	1162	1079	889	746
MAX	1590	1130	3810	2740	2010	8730	23400	14100	1960	2610	2420	2610
MIN	685	857	1010	1120	1210	1200	2700	1750	640	556	569	447
CFSM	0.15	0.15	0.25	0.26	0.24	0.56	0.94	0.90	0.19	0.17	0.14	0.12
IN.	0.17	0.17	0.29	0.30	0.25	0.65	1.05	1.03	0.21	0.20	0.16	0.13

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

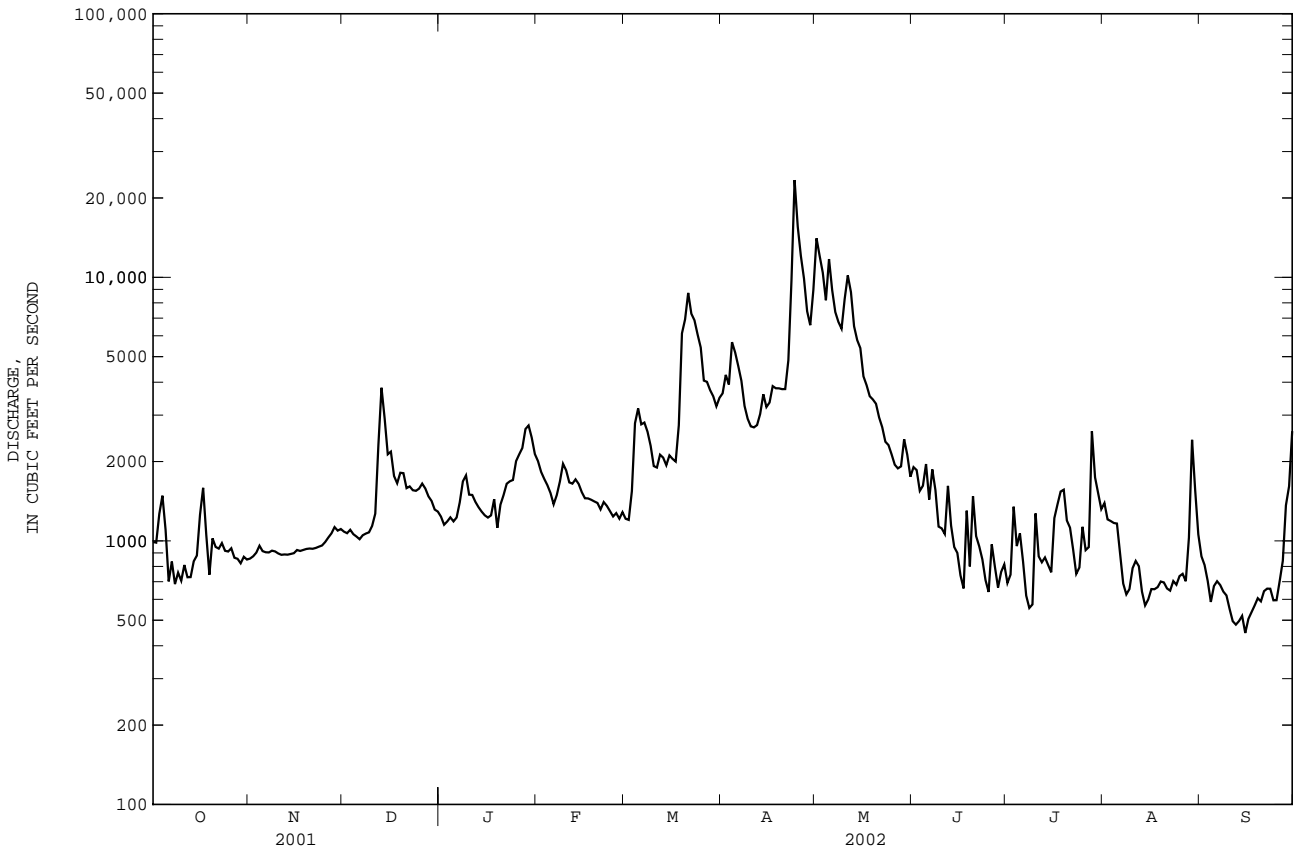
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4183	4683	6887	9439	10720	12970	10980	7900	5963	3740	3949	3533
MAX	20830	28210	25990	26480	33750	31810	33500	23530	30330	15070	20490	18140
(WY)	1907	1986	1949	1936	1998	1993	1987	1989	1972	1919	1969	1996
MIN	528	924	1054	1353	1528	2646	3286	2710	1162	605	652	561
(WY)	1931	1931	1966	1956	2002	1981	1995	1930	2002	1966	1930	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1899 - 2002

ANNUAL TOTAL		1283023		775971						7059		
ANNUAL MEAN		3515		2126						2126		1973
HIGHEST ANNUAL MEAN										12410		2002
LOWEST ANNUAL MEAN										2126		2002
HIGHEST DAILY MEAN			30300		Mar 31		23400	Apr 24		280000		Jun 22 1972
LOWEST DAILY MEAN			685		Oct 8		a447	Sep 15		330		Sep 14 1966
ANNUAL SEVEN-DAY MINIMUM			746		Oct 6		497	Sep 11		386		Sep 8 1966
MAXIMUM PEAK FLOW							26000	Apr 24		362000		Jun 22 1972
MAXIMUM PEAK STAGE							10.52	Apr 24		b37.87		Jun 22 1972
INSTANTANEOUS LOW FLOW							a424	Sep 15		316		Sep 13 1966
ANNUAL RUNOFF (CFSM)			0.56				0.34			1.13		
ANNUAL RUNOFF (INCHES)			7.63				4.61			15.33		
10 PERCENT EXCEEDS			7610				4120			14800		
50 PERCENT EXCEEDS			2070				1280			4390		
90 PERCENT EXCEEDS			915				678			1410		

a May have been affected by regulation.
 b From floodmarks.
 e Estimated.



02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1980 to May 1981, October 1991 to September 1994.

WATER TEMPERATURE: April 1968 to January 1976, October 1980 to May 1981, October 1991 to September 1994.

SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE OF HG (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00300)	PH WATER WHOLE FIELD (STAND-ARD) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	
OCT												
10...	1225	BLANK	VDCLS	USGS	--	--	1.1	--	--	--	--	
10...	1230	ENVIRONMENTAL	VDCLS	USGS	--	2160	8.7	753	10.2	103	7.0	198
NOV												
09...	0945	ENVIRONMENTAL	VDCLS	USGS	1.30	1570	1.7	749	9.8	96	7.8	300
DEC												
06...	1000	ENVIRONMENTAL	VDCLS	USGS	1.44	1800	4.0	760	13.3	101	7.1	324
18...	0900	ENVIRONMENTAL	VDCLS	USGS	5.01	8750	45	757	12.7	101	7.2	186
JAN												
03...	0815	ENVIRONMENTAL	VDCLS	USGS	1.62	2210	5.2	760	14.0	97	7.0	198
03...	0830	REPLICATE	VDCLS	USGS	1.62	2190	4.5	760	14.0	97	7.0	198
23...	0945	ENVIRONMENTAL	VDCLS	USGS	5.57	10400	33	760	13.0	95	7.3	335
23...	1000	REPLICATE	VDCLS	USGS	5.57	10300	28	760	13.0	95	7.3	335
FEB												
07...	0930	ENVIRONMENTAL	VDCLS	USGS	2.33	3110	4.4	760	12.5	100	7.8	239
MAR												
06...	0830	ENVIRONMENTAL	VDCLS	USGS	2.66	3650	3.5	742	13.9	118	7.2	217
06...	0835	REPLICATE	USGS	USGS	2.66	3650	--	742	13.9	118	7.2	217
22...	0915	ENVIRONMENTAL	VDCLS	USGS	11.75	30800	220	759	8.4	71	6.8	126
30...	1015	ENVIRONMENTAL	VDCLS	USGS	10.76	26900	150	741	12.0	102	7.4	90
APR												
11...	0815	ENVIRONMENTAL	VDCLS	USGS	4.53	7470	7.0	756	9.1	96	7.2	162
MAY												
02...	0830	ENVIRONMENTAL	VDCLS	USGS	1.92	2790	3.2	755	11.2	126	7.1	212
23...	1000	ENVIRONMENTAL	VDCLS	USGS	5.38	9280	38	749	7.2	81	7.2	280
23...	1005	REPLICATE	USGS	USGS	5.38	9280	--	749	7.2	81	7.2	280
24...	0900	ENVIRONMENTAL	VDCLS	USGS	11.19	28700	180	752	7.9	87	7.3	155
29...	0915	ENVIRONMENTAL	VDCLS	USGS	7.06	14600	55	750	9.5	101	7.1	116
JUN												
05...	0845	ENVIRONMENTAL	VDCLS	USGS	2.73	4340	7.7	755	9.8	112	7.7	168
25...	0830	ENVIRONMENTAL	VDCLS	USGS	3.11	5010	45	760	6.2	74	7.2	139
25...	0835	REPLICATE	USGS	USGS	3.11	5010	--	760	6.2	74	7.2	139
JUL												
09...	0830	ENVIRONMENTAL	VDCLS	USGS	1.20	1570	2.3	750	7.0	91	7.2	250
23...	0815	ENVIRONMENTAL	VDCLS	USGS	1.13	1360	1.5	755	7.0	89	7.8	307
31...	0930	ENVIRONMENTAL	VDCLS	USGS	3.13	4180	9.7	759	7.8	91	7.5	259
AUG												
09...	0800	ENVIRONMENTAL	VDCLS	USGS	1.94	1680	1.3	753	8.0	108	7.5	295
22...	0845	ENVIRONMENTAL	VDCLS	USGS	1.87	1320	2.7	755	6.2	78	7.2	274
SEP												
05...	0745	ENVIRONMENTAL	VDCLS	USGS	3.80	1420	1.6	755	5.7	71	7.0	263
17...	0825	BLANK	VDCLS	USGS	--	--	1.1	--	--	--	--	--
17...	0830	ENVIRONMENTAL	VDCLS	USGS	1.68	1200	2.3	757	6.8	76	7.7	325

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
10...	--	--	.130	<3	<3	<3	<.004	--	--	.02	M	<.004	<.002
10...	15.5	15.3	5.54	<3	<3	<3	.009	--	--	.22	.04	.043	<.002
NOV													
09...	18.0	13.4	5.09	<3	<3	<3	<.004	--	--	.28	.01	.006	<.002
DEC													
06...	1.5	3.6	2.72	<3	<3	<3	<.004	--	--	.23	.04	.042	<.002
18...	.5	5.5	4.69	44	55	11	.011	--	--	.43	.13	.131	<.002
JAN													
03...	-3.5	.5	7.10	<3	<3	<3	.086	--	--	.53	.36	.378	.019
03...	-3.5	.5	7.17	<3	<3	<3	.056	--	--	.54	.35	.367	.015
23...	.0	2.1	4.10	33	40	7	.017	--	--	.39	.18	.186	.004
23...	.0	2.1	4.00	31	38	7	.010	--	--	.36	.18	.190	.005
FEB													
07...	4.0	5.5	2.00	<3	<3	<3	<.004	--	--	.31	.07	.069	<.002
MAR													
06...	.0	7.0	2.80	<3	3	<3	<.004	--	--	.21	.01	.010	<.002
06...	.0	7.0	3.0	--	<10	--	.008	.22	.22	.23	--	.008	--
22...	9.0	8.0	4.90	343	401	58	.067	--	--	.67	.25	.259	.005
30...	16.0	7.1	7.10	204	222	18	.059	--	--	.71	.26	.263	<.002
APR													
11...	14.5	17.5	6.00	27	33	6	.042	--	--	.53	.29	.293	<.002
MAY													
02...	16.0	20.5	1.07	<3	5	3	.004	--	--	.21	.01	.006	<.002
23...	19.5	19.9	6.50	41	53	12	.085	--	--	.65	.37	.394	.021
23...	19.5	19.9	6.8	--	50	--	.091	.26	.66	.60	--	.340	--
24...	19.5	19.4	6.20	215	262	47	.064	--	--	.59	.33	.349	.020
29...	16.0	17.2	6.53	60	73	13	.027	--	--	.45	.27	.273	.002
JUN													
05...	20.5	21.5	6.59	9	13	4	.008	--	--	.51	.31	.311	.003
25...	21.0	24.4	5.60	43	49	6	.032	--	--	.64	.24	.240	.003
25...	21.0	24.4	5.9	36	46	10	.033	.21	.59	.44	--	.227	--
JUL													
09...	22.5	27.4	4.10	3	7	6	.020	--	--	.27	.03	.033	.002
23...	21.5	26.9	4.20	<3	<3	<3	.023	--	--	.30	.02	.022	<.002
31...	21.5	23.0	6.50	7	10	3	.028	--	--	.56	.28	.282	.003
AUG													
09...	28.0	29.9	5.70	<3	<3	<3	.007	--	--	.22	.04	.038	<.002
22...	18.5	26.9	5.30	<3	<3	<3	.031	--	--	.26	.04	.042	<.002
SEP													
05...	20.0	26.2	4.40	<3	<3	<3	.004	--	--	--	.04	.037	<.002
17...	--	--	.100	3	3	3	.010	--	--	.03	.01	.005	.002
17...	17.5	20.8	3.30	<3	<3	<3	.004	--	--	.27	.05	.047	<.002

2001 WATER YEAR DATA

JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGEN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)
OCT								
10...	.002	.002	--	<.01	.001	.1	--	--
10...	.035	.027	--	.02	.006	.2	70	3.0
NOV								
09...	.060	.004	--	.02	.007	.2	--	.6
DEC								
06...	.051	.034	--	.03	.008	.3	--	1.4
18...	.039	.016	--	.35	.107	3.1	88	66
JAN								
03...	.057	.046	--	.04	.013	.4	--	2.4
03...	.056	.042	--	.03	.013	.3	--	2.1
23...	.048	.023	--	.35	.094	2.7	--	46
23...	.041	.028	--	.02	.008	.1	--	46
FEB								
07...	.037	.026	--	.06	.014	.4	--	3.0
MAR								
06...	.013	.013	--	.05	.014	.3	--	3.7
06...	E.04	E.005	<.06	--	--	--	--	--
22...	.031	.012	--	1.5	.775	13.1	--	373
30...	.058	.037	--	.75	.200	6.8	--	285
APR								
11...	.039	.024	--	.16	.047	1.3	--	738
MAY								
02...	.031	.022	--	.08	.018	.5	--	5.0
23...	.182	.185	--	.37	.094	3.5	--	63
23...	.19	.176	.31	--	--	--	--	--
24...	.045	.039	--	.30	.285	2.7	--	324
29...	.032	.027	--	--	.081	--	--	72
JUN								
05...	.150	.040	--	.10	.022	.7	--	14
25...	.150	.027	--	.23	.087	2.1	--	50
25...	E.04	.026	.14	--	--	--	--	--
JUL								
09...	.063	.056	--	.04	.009	.4	--	4.1
23...	.067	.052	--	.05	.009	.4	--	1.7
31...	.070	.057	--	.09	.024	.6	--	9.3
AUG								
09...	.086	.077	--	.04	.009	.4	--	2.3
22...	.107	.094	--	.06	.011	.5	--	2.3
SEP								
05...	--	.076	--	.04	.007	.3	--	.3
17...	.004	.003	--	.01	.129	.1	--	--
17...	.062	.052	--	.03	.006	.4	--	.7

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT												
03...	0815	ENVIRONMENTAL	VDCLS	USGS	1.15	931	2.8	756	9.0	98	7.2	392
22...	0800	ENVIRONMENTAL	VDCLS	USGS	.77	815	1.1	754	7.8	80	7.2	352
NOV												
06...	0830	ENVIRONMENTAL	VDCLS	USGS	.80	905	.75	759	9.6	90	8.0	368
26...	1030	ENVIRONMENTAL	VDCLS	USGS	.82	1010	1.3	757	10.5	100	7.7	475
DEC												
03...	0900	ENVIRONMENTAL	VDCLS	USGS	.87	1080	.80	762	10.2	93	8.2	412
13...	1155	BLANK	VDCLS	USGS	--	--	.40	--	--	--	--	--
13...	1200	ENVIRONMENTAL	VDCLS	USGS	2.80	4000	2.8	751	11.1	99	7.1	340
20...	0830	ENVIRONMENTAL	VDCLS	USGS	1.50	1930	1.2	751	10.4	90	7.3	338
20...	0845	REPLICATE	VDCLS	USGS	1.49	1910	1.3	751	10.4	90	7.3	338
JAN												
07...	0945	ENVIRONMENTAL	VDCLS	USGS	1.10	1430	1.4	745	13.8	104	7.4	350
17...	0845	ENVIRONMENTAL	VDCLS	USGS	.93	1250	1.3	755	12.2	99	7.0	298
FEB												
06...	1330	ENVIRONMENTAL	VDCLS	USGS	1.05	1380	1.3	760	13.7	109	7.5	337
19...	0945	ENVIRONMENTAL	VDCLS	USGS	1.10	1430	3.5	761	12.9	106	8.0	237
MAR												
05...	1015	ENVIRONMENTAL	VDCLS	USGS	2.41	3300	2.6	762	12.2	96	6.2	238
13...	1030	ENVIRONMENTAL	VDCLS	USGS	1.54	1980	1.1	750	9.9	89	7.6	256
18...	0830	ENVIRONMENTAL	VDCLS	USGS	1.75	2260	1.4	760	9.2	84	7.6	249
19...	0945	ENVIRONMENTAL	VDCLS	USGS	3.97	6330	19	762	9.4	87	7.9	279
APR												
10...	0945	ENVIRONMENTAL	VDCLS	USGS	2.10	2720	2.4	764	9.1	92	7.3	179
24...	0930	ENVIRONMENTAL	VDCLS	USGS	10.36	25400	160	760	8.7	93	7.0	186
24...	0945	REPLICATE	VDCLS	USGS	10.33	25300	160	760	8.7	93	7.0	186
30...	0830	ENVIRONMENTAL	VDCLS	USGS	3.90	6590	14	754	8.9	93	7.2	146
MAY												
01...	0930	ENVIRONMENTAL	VDCLS	USGS	6.77	13800	45	750	8.6	90	7.3	147
06...	1015	ENVIRONMENTAL	VDCLS	USGS	5.00	9000	23	762	8.9	92	7.3	142
14...	0845	ENVIRONMENTAL	VDCLS	USGS	3.61	6010	12	749	7.8	90	7.3	155
29...	0815	ENVIRONMENTAL	VDCLS	USGS	1.63	2430	3.0	758	7.7	92	7.2	211
JUN												
05...	1045	ENVIRONMENTAL	VDCLS	USGS	1.45	2110	1.5	754	7.9	104	8.3	253
17...	1000	ENVIRONMENTAL	VDCLS	USGS	--	660	1.1	752	6.6	83	7.0	302
JUL												
18...	1045	ENVIRONMENTAL	VDCLS	USGS	1.26	1420	1.8	753	7.1	97	8.6	446
23...	1045	ENVIRONMENTAL	VDCLS	USGS	.82	740	1.1	756	6.8	91	8.1	465
AUG												
05...	0830	ENVIRONMENTAL	VDCLS	USGS	1.46	1180	1.2	755	7.4	100	8.8	329
19...	1300	BLANK	VDCLS	USGS	--	--	.50	--	--	--	--	--
19...	1305	BLANK	VDCLS	USGS	--	--	1.5	--	--	--	--	--
19...	1400	ENVIRONMENTAL	VDCLS	USGS	1.08	713	.90	754	9.3	127	9.1	425
SEP												
12...	0900	ENVIRONMENTAL	VDCLS	USGS	.86	478	.50	755	7.4	89	9.2	486
26...	1110	ENVIRONMENTAL	VDCLS	USGS	1.24	722	.60	756	7.3	86	7.8	518
27...	1230	BLANK	VDCLS	USGS	--	--	.20	--	--	--	--	--
27...	1300	BLANK	VDCLS	USGS	--	--	.10	--	--	--	--	--

JAMES RIVER BASIN

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)
OCT													
03...	16.0	18.6	2.10	<3	<3	<3	<.004	.22	.01	.013	<.002	.053	.037
22...	14.0	15.5	1.50	<3	<3	<3	<.004	.22	.01	.010	<.002	.135	.127
NOV													
06...	4.0	12.6	1.40	<3	<3	<3	<.004	.26	.01	.011	<.002	.090	.085
26...	17.0	12.9	1.80	<3	<3	<3	<.004	.32	.08	.076	<.002	.070	.056
DEC													
03...	7.5	11.3	1.00	<3	<3	<3	<.004	.25	.03	.026	<.002	.167	.150
13...	--	--	.100	<3	<3	<3	.004	.01	.01	.007	<.002	.007	<.002
13...	12.0	9.8	3.80	7	11	4	.008	.42	.17	.167	<.002	.111	.096
20...	.5	8.3	3.60	<3	<3	<3	.004	.27	.11	.109	<.002	.099	.089
20...	.5	8.3	3.60	<3	<3	<3	<.004	.27	.10	.103	<.002	.101	.084
JAN													
07...	.5	2.7	3.50	<3	3	3	.004	.35	.19	.189	.003	.222	.329
17...	3.0	6.2	.700	<3	<3	<3	.005	.30	.18	.182	.004	.098	.039
FEB													
06...	4.5	5.4	.700	<3	<3	<3	.013	.28	.07	.077	.007	.145	.132
19...	6.0	7.2	1.30	<3	<3	<3	<.004	.27	.06	.072	.008	.060	.042
MAR													
05...	-1.5	5.2	3.50	4	5	<3	.009	.31	.11	.124	.011	.066	.060
13...	9.0	9.9	1.30	<3	<3	<3	.004	.25	.06	.060	.002	.103	.094
18...	7.0	11.3	1.70	<3	<3	<3	.008	.29	.07	.065	<.002	.124	.138
19...	7.0	11.5	3.60	21	27	6	.007	.29	.05	.054	<.002	.093	.085
APR													
10...	12.0	16.3	.800	<3	3	<3	.011	.25	.04	.038	<.002	.068	.056
24...	16.0	18.4	3.60	245	299	54	.084	.54	.26	.285	.021	.040	.032
24...	16.0	18.4	3.60	245	299	54	.084	.54	.26	.285	.021	.040	.032
30...	15.0	16.5	6.80	17	21	4	.027	.49	.03	.296	.005	.078	.050
MAY													
01...	18.0	16.9	6.20	78	93	16	.043	.47	.29	.297	.005	.060	.056
06...	16.0	16.9	5.90	26	32	6	.041	.43	.26	.262	.006	.055	.053
14...	16.5	21.2	6.30	17	21	5	.026	.48	.28	.289	.004	.050	.047
29...	16.5	23.8	1.60	3	4	<3	.014	.29	.03	.031	<.002	.057	.049
JUN													
05...	27.0	29.0	1.50	<3	<3	<3	.006	.20	.01	.012	<.002	.050	.040
17...	22.0	26.2	4.00	<3	<3	<3	.013	.34	.02	.021	<.002	.067	.062
JUL													
18...	27.0	30.9	4.20	4	5	<3	.010	.37	.05	.047	<.002	.152	.030
23...	27.0	30.1	4.60	<3	<3	<3	.004	.29	.01	.005	<.002	.153	.141
AUG													
05...	26.0	30.4	5.10	<3	<3	<3	.007	.29	.02	.016	<.002	.134	.132
19...	--	--	<.100	<3	<3	<3	.006	<.004	<.004	<.004	<.002	.010	.003
19...	--	--	<.100	<3	<3	<3	.005	<.004	<.004	<.004	<.002	<.001	.003
19...	32.0	31.3	4.20	<3	<3	<3	<.004	.35	<.004	<.004	<.002	.090	.078
SEP													
12...	19.0	24.3	1.60	<3	<3	<3	<.004	.32	.01	.009	<.002	.072	.050
26...	17.0	23.4	.600	<3	<3	<3	<.004	.32	<.004	<.004	<.002	.043	.029
27...	--	--	.100	<3	<3	<3	<.004	<.004	<.004	<.004	<.002	<.001	<.004
27...	--	--	.100	<3	<3	<3	<.004	<.004	<.004	<.004	<.002	<.001	<.004

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	NITROGEN TOTAL SEDIMENT SUSP TOTAL AS N (MG/L) (00601)	PHOS TOTAL SEDIMENT SUSP TOTAL AS P (MG/L) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L) AS C (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT					
03...	.03	.006	.3	--	.7
22...	.02	.007	.2	--	2.1
NOV					
06...	.03	.004	.3	--	.9
26...	.03	.005	.3	--	.6
DEC					
03...	.05	.007	.5	--	1.0
13...	.01	.003	.2	--	--
13...	.14	.039	1.3	--	18
20...	.02	.009	.3	--	.6
20...	.02	.008	.3	--	2.8
JAN					
07...	--	.011	--	--	3.0
17...	.01	.009	.1	--	9.7
FEB					
06...	.09	.004	.4	--	.9
19...	.01	.004	.2	71	2.0
MAR					
05...	.08	.017	.6	--	6.5
13...	.03	.003	.2	--	.9
18...	.01	.004	.5	--	1.1
19...	.21	.039	1.8	--	27
APR					
10...	.04	.007	.4	79	4.0
24...	1.1	.516	9.9	78	336
24...	1.1	.516	9.9	76	338
30...	.13	.020	1.2	73	23
MAY					
01...	.33	.074	3.3	41	164
06...	.18	--	1.8	76	35
14...	.11	--	1.1	89	21
29...	.04	.011	.5	--	2.9
JUN					
05...	.04	.009	.3	--	2.9
17...	.03	.011	.3	--	2.6
JUL					
18...	.03	.008	.3	--	2.9
23...	.02	.007	.2	--	2.6
AUG					
05...	.03	.007	.3	--	3.4
19...	.01	.002	.1	--	--
19...	.01	.001	.1	--	--
19...	.06	.008	.4	--	--
SEP					
12...	.01	.004	.2	--	.5
26...	.02	.007	.2	--	.6
27...	--	.001	M	--	--
27...	--	.001	M	--	--

JAMES RIVER BASIN

02036500 FINE CREEK AT FINE CREEK MILLS, VA

LOCATION.--Lat 37°35'53", long 77°49'11", NAD83, Powhatan County, Hydrologic Unit 02080205, on right bank 75 ft downstream from bridge on State Highway 711 at Fine Creek Mills, 0.8 mi upstream from mouth, and 6.7 mi northeast of Powhatan.

DRAINAGE AREA.--22.1 mi².

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 156.59 ft NGVD of 1929. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft upstream at same datum.

REMARKS.--Records good except those for periods with backwater from leaves, Oct. 9-11, 17-29, and Dec. 9, 10, and period with ice effect, Jan. 1, 2, which are fair. Maximum discharge, 4,180 ft³/s, from rating curve extended above 2,600 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	0.81	2.8	2.2	e2.1	3.3	1.9	13	2.8	0.73	0.44	0.06	9.3
2	0.77	3.0	2.2	e2.0	2.9	2.3	8.1	3.2	0.71	0.39	0.07	7.6
3	0.70	2.8	2.0	2.3	2.6	17	6.2	5.9	0.66	0.33	0.07	4.1
4	0.64	2.8	1.9	2.9	2.4	13	5.5	3.7	0.65	0.29	0.04	2.3
5	0.50	2.6	1.7	3.4	2.2	7.0	4.0	6.6	0.76	0.26	0.04	1.6
6	0.59	2.6	1.7	13	2.2	4.8	3.2	4.5	1.1	0.20	0.03	1.0
7	0.61	2.7	2.0	26	13	3.8	2.8	5.9	2.6	0.21	0.01	0.63
8	0.52	2.7	4.1	18	14	3.3	2.6	12	1.8	0.27	0.01	0.49
9	e0.50	2.8	e2.2	12	9.5	2.9	2.4	19	1.2	0.28	0.01	0.45
10	e0.45	2.9	e1.3	10	6.8	2.9	3.1	21	0.94	0.67	0.01	0.38
11	e0.40	2.4	14	7.7	5.2	2.5	2.5	16	0.94	0.75	0.01	0.36
12	0.78	2.2	14	6.0	3.9	2.4	2.3	9.4	0.70	0.73	0.04	0.31
13	1.6	2.7	7.3	4.8	3.6	5.4	2.8	8.5	0.64	0.82	0.03	0.31
14	2.8	2.7	4.6	3.8	3.1	6.8	3.0	17	0.72	1.3	0.01	0.32
15	5.8	2.8	3.1	3.2	3.1	5.2	2.7	11	0.80	0.40	0.02	0.37
16	6.1	2.5	2.5	2.3	3.4	4.1	2.7	6.7	0.69	0.31	0.05	0.46
17	e3.7	2.4	2.3	2.3	3.6	14	2.9	3.5	0.61	0.23	0.06	0.36
18	e2.0	2.7	6.2	2.7	2.5	38	4.9	11	0.61	0.22	0.05	0.28
19	e1.2	2.7	5.5	4.6	2.2	36	12	14	0.72	0.31	0.04	0.24
20	e1.4	2.9	3.9	16	2.5	25	12	7.4	0.62	0.33	0.04	0.24
21	e1.7	1.8	2.9	15	2.6	19	11	9.3	0.48	0.38	0.05	0.24
22	e2.2	1.2	2.5	11	2.4	12	14	4.3	0.50	0.46	0.04	0.24
23	e1.8	0.88	2.2	9.3	2.2	8.0	9.3	2.4	0.45	0.49	0.05	0.24
24	e1.4	0.88	5.3	8.3	2.6	6.1	5.5	1.7	0.46	0.68	0.06	0.24
25	e2.1	1.5	4.9	9.1	2.0	5.1	4.6	1.4	0.57	0.63	0.05	0.24
26	e1.7	3.0	3.8	7.1	1.7	4.7	4.3	1.1	0.52	0.76	0.06	0.57
27	e1.5	3.2	3.1	5.7	2.4	5.5	3.4	1.0	0.48	0.57	0.09	0.53
28	e1.8	3.3	2.7	4.5	2.2	4.3	6.4	0.88	0.59	0.24	3.2	0.56
29	e2.3	2.2	2.7	3.9	---	3.7	6.2	0.84	0.46	0.10	7.1	0.44
30	2.9	2.2	2.6	3.5	---	3.7	4.0	0.82	0.43	0.09	3.7	0.40
31	2.7	---	2.2	3.4	---	15	---	0.75	---	0.09	1.8	---
TOTAL	53.97	73.86	119.6	225.9	110.1	285.4	167.4	213.59	23.14	13.23	16.90	34.80
MEAN	1.74	2.46	3.86	7.29	3.93	9.21	5.58	6.89	0.77	0.43	0.55	1.16
MAX	6.1	3.3	14	26	14	38	14	21	2.6	1.3	7.1	9.3
MIN	0.40	0.88	1.3	2.0	1.7	1.9	2.3	0.75	0.43	0.09	0.01	0.24
CFSM	0.08	0.11	0.17	0.33	0.18	0.42	0.25	0.31	0.03	0.02	0.02	0.05
IN.	0.09	0.12	0.20	0.38	0.19	0.48	0.28	0.36	0.04	0.02	0.03	0.06

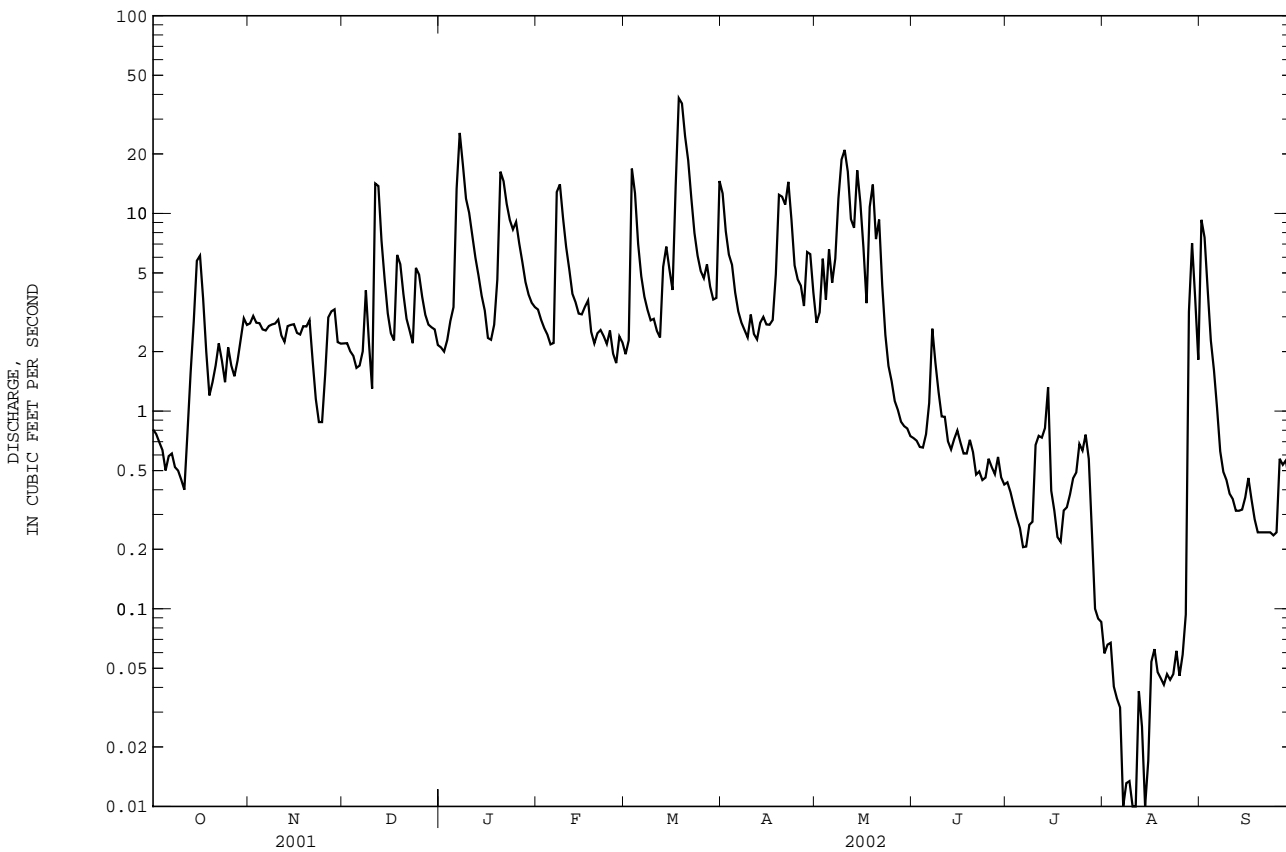
02036500 FINE CREEK AT FINE CREEK MILLS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	13.9	16.7	21.0	26.8	30.7	34.6	29.1	19.9	11.5	7.82	10.9	8.59
MAX	119	104	53.9	92.5	92.7	99.1	84.1	54.1	60.8	25.7	83.3	46.1
(WY)	1973	1986	1949	1978	1979	1994	1983	1978	1972	1949	1955	1996
MIN	0.47	2.46	3.86	6.38	3.93	9.21	5.58	3.21	0.77	0.43	0.55	0.31
(WY)	1969	2002	2002	1955	2002	2002	2002	1991	2002	2002	2002	1968

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1945 - 2002
ANNUAL TOTAL	3954.96	1337.89	
ANNUAL MEAN	10.8	3.67	19.2
HIGHEST ANNUAL MEAN			40.7 1973
LOWEST ANNUAL MEAN			3.67 2002
HIGHEST DAILY MEAN	296 Mar 30	38 Mar 18	1880 Oct 21 1961
LOWEST DAILY MEAN	0.40 Oct 11	0.01 aAug 7	0.01 aAug 7 2002
ANNUAL SEVEN-DAY MINIMUM	0.51 Oct 5	0.02 Aug 5	0.02 Aug 5 2002
MAXIMUM PEAK FLOW		46 Mar 18	4180 Oct 6 1972
MAXIMUM PEAK STAGE		2.25 Mar 18	9.02 Oct 6 1972
INSTANTANEOUS LOW FLOW		0.00 bAug 10	0.00 bAug 10 2002
ANNUAL RUNOFF (CFSM)	0.49	0.17	0.87
ANNUAL RUNOFF (INCHES)	6.66	2.25	11.83
10 PERCENT EXCEEDS	20	9.3	37
50 PERCENT EXCEEDS	4.5	2.3	11
90 PERCENT EXCEEDS	1.2	0.24	2.1

a Also Aug. 8-11, 14, 2002.
 b Also part or all of each day Aug. 11-15, 2002.
 e Estimated.



JAMES RIVER BASIN

02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'53", long 77°34'27", NAD83, Henrico County, Hydrologic Unit 02080205, on left bank 75 ft downstream from Canal bridge, 400 ft downstream from head gates, 1,200 ft north of north end of Boshier Dam on James River, 1.6 mi upstream from Huguenot Memorial Bridge, and 2.0 mi west of Richmond city limits.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft NGVD of 1929. Prior to Oct. 1, 1938, at datum 3.06 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Canal diverts from James River 1,200 ft upstream from Boshier Dam and discharges into river at several points downstream from gaging station near Richmond. Beginning with the 1969 water year, the descriptive statement that above 2,540 ft³/s, gage height, 14.5 ft, there is interchange of flow with the James River and that discharge above 2,540 ft³/s is included in discharge for the James River near Richmond (station 02037500) has been used. Daily discharges in excess of 2,540 ft³/s for water years 1937-68 should be used with caution until historical records of canal construction and modifications can be reviewed. Figures given show flow in canal only. Probably no flow at times when head gates were closed. Since 1982, low flows during summer months are augmented by releases from Lake Moomaw, station 02011795. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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	54	41	32	16	31	11	9.5	62	42	143	146	46
2	54	40	32	17	23	11	9.3	64	41	143	147	29
3	54	39	32	17	18	13	9.2	63	38	143	146	29
4	56	38	32	16	15	12	9.1	61	47	145	146	30
5	54	38	32	16	13	12	9.1	61	71	144	145	29
6	48	38	33	20	12	12	9.0	61	79	145	145	27
7	44	38	34	27	13	12	8.9	64	85	144	146	27
8	41	39	34	25	13	12	8.9	59	87	143	144	27
9	40	40	33	23	13	12	8.9	81	87	143	144	27
10	38	40	33	21	12	12	8.9	63	87	143	143	27
11	37	41	38	20	12	11	13	56	86	144	143	27
12	36	43	33	18	12	11	50	55	85	145	144	26
13	35	43	31	17	12	11	62	56	85	144	144	26
14	34	43	20	17	11	11	62	54	87	145	144	26
15	34	41	12	15	11	11	64	50	86	145	143	26
16	34	40	7.0	13	11	11	64	49	85	145	143	27
17	34	40	7.9	12	11	12	60	48	90	146	143	27
18	37	41	10	11	11	15	58	54	103	147	143	26
19	37	41	10	11	11	13	64	48	108	148	144	27
20	34	41	10	13	11	12	60	47	109	149	144	27
21	34	41	11	12	11	11	60	46	110	147	144	27
22	36	42	11	11	11	10	61	45	110	146	144	27
23	37	43	12	10	11	9.8	61	45	110	145	144	27
24	39	44	13	9.6	11	9.3	67	45	112	145	144	28
25	40	43	14	9.9	11	9.0	69	45	125	145	145	28
26	41	40	14	9.5	11	9.0	65	45	139	147	145	28
27	44	38	15	9.3	11	12	62	44	153	148	144	28
28	43	37	15	12	11	11	63	44	148	148	76	28
29	43	36	16	87	---	10	59	43	146	150	33	28
30	43	33	16	109	---	9.6	58	42	144	149	29	28
31	41	---	16	55	---	9.8	---	42	---	147	29	---
TOTAL	1276	1202	658.9	679.3	364	347.5	1272.8	1642	2885	4511	4064	840
MEAN	41.2	40.1	21.3	21.9	13.0	11.2	42.4	53.0	96.2	146	131	28.0
MAX	56	44	38	109	31	15	69	81	153	150	147	46
MIN	34	33	7.0	9.3	11	9.0	8.9	42	38	143	29	26

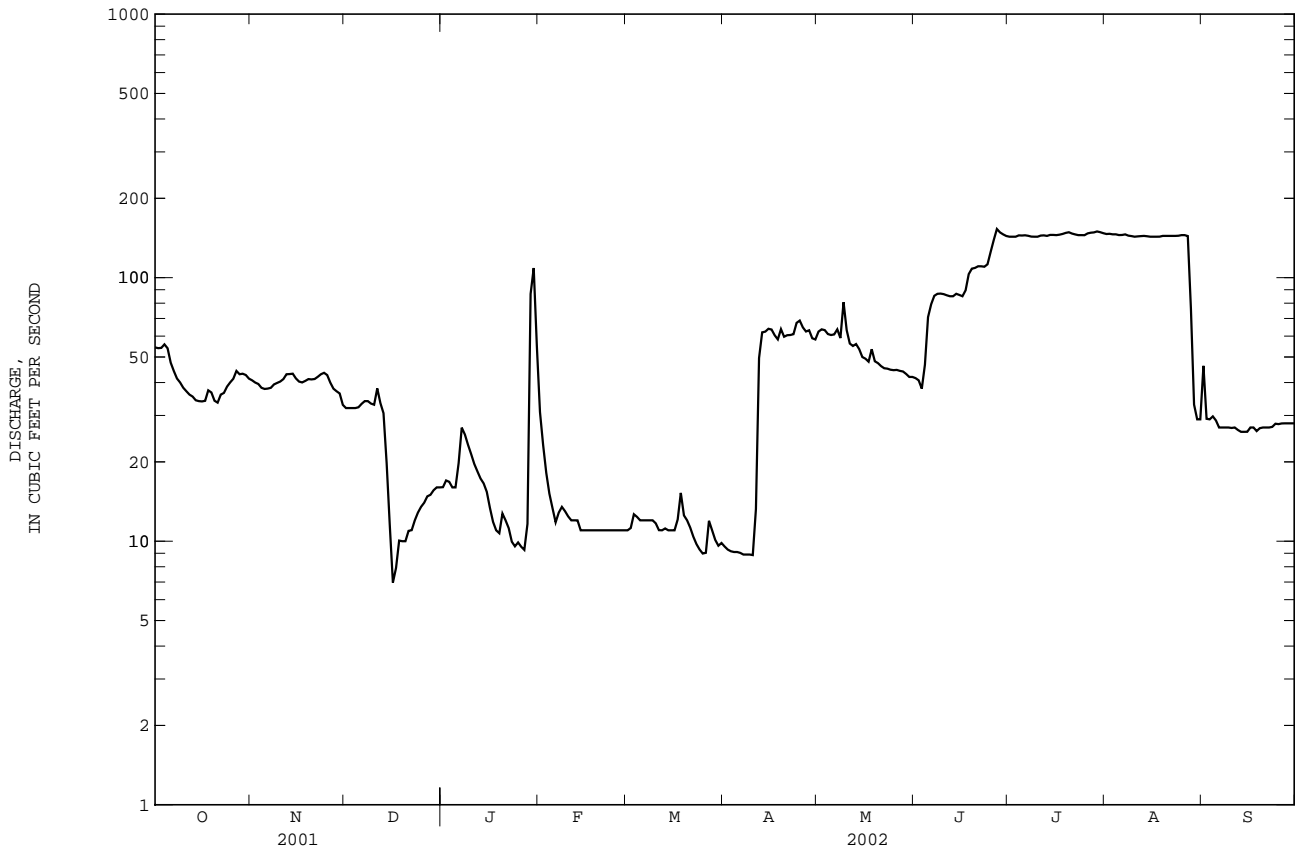
02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	563	591	612	630	643	632	648	630	639	579	565	542
MAX	1078	1014	1220	1145	1086	1094	1108	1086	1061	956	1108	937
(WY)	1949	1948	1949	1949	1979	1951	1951	1952	1951	1940	1940	1949
MIN	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60	a0.60
(WY)	b1981	b1980	b1980	b1980	b1980	b1980	b1980	b1980	b1980	b1980	b1980	b1980

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1937 - 2002	
ANNUAL TOTAL	29607.9	19742.5		
ANNUAL MEAN	81.1	54.1	606	
HIGHEST ANNUAL MEAN			1023	1949
LOWEST ANNUAL MEAN			1.48	1980
HIGHEST DAILY MEAN	370	Aug 13	c3860	Aug 18 1940
LOWEST DAILY MEAN	1.9	Aug 20	(f)	(g)
ANNUAL SEVEN-DAY MINIMUM	9.6	Dec 16	c0.44	Jan 1 1991
MAXIMUM PEAK FLOW			(h)	
MAXIMUM PEAK STAGE		7.70	May 9	j29.10 Jun 23 1972
INSTANTANEOUS LOW FLOW			d6.1	Dec 17 (f) (g)
10 PERCENT EXCEEDS	128		144	983
50 PERCENT EXCEEDS	80		38	790
90 PERCENT EXCEEDS	34		11	16

- a Estimated, leakage through head gates.
- b Also 1983.
- c See REMARKS.
- d Result of headgates being closed.
- f Probably no flow at times when headgates were closed prior to 1958.
- g Many days in 1937-38, 1949-50, 1952, 1954-55, and 1957.
- h Interchange of flow with James River makes maximum discharge indeterminate.
- j From floodmarks.



JAMES RIVER BASIN

02037500 JAMES RIVER NEAR RICHMOND, VA

LOCATION.--Lat 37°33'48", long 77°32'49", NAD83, Henrico County, Hydrologic Unit 02080205, on left bank 0.2 mi upstream from Huguenot Memorial Bridge, 0.5 mi southwest of Richmond city limits, 1.7 mi downstream from Boshier Dam, 3.3 mi upstream from Powhite Creek, and at mile 116.6.

DRAINAGE AREA.--6,758 mi².

PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayōs Bridge, at mile 109.5, 1876-1956, and at mile 108.7 since 1957, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply. Datum of gage is 98.82 ft NGVD of 1929.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 2-4, Feb. 10, 11, Mar. 3-6, 20-23, Apr. 1-5, 23, 24, and May 1, 2, which are fair. City of Richmond takes from 40 ft³/s to 90 ft³/s for water supply from river downstream from gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants upstream from station. Above 18.2 ft stage, there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service gage-height telemeter at station. Maximum discharge, 313,000 ft³/s, includes canal flow. Minimum daily discharge of James River and James River and Kanawha Canal combined, 214 ft³/s, Oct. 5, 1941, caused by recharging of the pool above Boshier Dam after the canal gates were closed. Since 1982, low flows during summer months are augmented by releases from Lake Moomaw, station 02011795. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	924	853	1180	1330	2160	1350	e3600	e10000	1600	706	1220	1860
2	e855	845	1180	1280	2010	1290	e3760	e13300	1690	654	1250	1600
3	e930	855	1160	1240	1880	e1450	e3900	11000	1610	548	1040	1170
4	e1150	876	1160	1230	1780	e1900	e5800	8910	1400	948	1020	938
5	1350	938	1130	1290	1640	e3210	e5300	9690	1450	778	980	915
6	1090	911	1090	1340	1560	e3310	4790	10200	1610	792	954	814
7	808	908	1070	1630	1590	2850	4510	7860	1360	687	784	760
8	719	908	1080	1680	1720	2820	3780	6960	1560	504	568	701
9	752	908	1120	1870	1840	2610	3170	6630	1340	399	429	618
10	680	941	1130	1850	e2110	2240	3110	7600	1050	359	404	567
11	718	923	1350	1630	e1960	1960	2870	10000	974	783	540	506
12	731	895	1560	1600	1770	1940	2820	9630	952	707	618	403
13	753	903	2830	1500	1760	2250	2950	7590	1290	592	665	345
14	679	908	3270	1450	1790	2100	3230	6270	1070	702	526	328
15	815	908	2760	1420	1740	2010	3540	5420	952	713	400	364
16	836	908	2110	1390	1640	2160	3290	4800	879	613	337	470
17	1110	936	2130	1390	1570	2140	3490	3860	742	837	367	434
18	1470	940	1770	1400	1540	2520	3890	3770	618	1020	419	403
19	1080	947	1740	1580	1530	4290	4030	3450	1110	1170	429	426
20	794	955	1850	1460	1500	e6870	4080	3350	836	1200	472	489
21	852	961	1780	1640	1480	e7960	3930	3140	1210	955	473	489
22	951	965	1640	1750	1420	e9200	4080	2680	988	879	449	507
23	855	970	1630	1870	1480	e7590	e6590	2450	902	779	412	559
24	957	990	1640	1880	1450	6230	e17700	2230	808	685	403	619
25	879	1030	1620	1910	1390	5530	18300	2160	660	676	448	568
26	823	1050	1640	2180	1320	4870	13200	2030	512	1040	455	550
27	888	1090	1690	2280	1340	3910	10600	1860	703	1000	578	638
28	858	1140	1610	2380	1300	3910	8590	1790	815	1170	829	794
29	832	1210	1520	2630	---	3710	6580	1870	597	2440	2680	1180
30	807	1190	1440	2580	---	3400	6280	2130	686	1660	3790	1500
31	835	---	1360	2460	---	3510	---	1880	---	1410	1880	---
TOTAL	27781	28762	50240	53120	46270	111090	171760	174510	31974	27406	25819	21515
MEAN	896	959	1621	1714	1652	3584	5725	5629	1066	884	833	717
MAX	1470	1210	3270	2630	2160	9200	18300	13300	1690	2440	3790	1860
MIN	679	845	1070	1230	1300	1290	2820	1790	512	359	337	328
(†)	1276	1202	659	679	364	348	1273	1642	2885	4511	4064	840
MEAN†	937	999	1642	1735	1666	3595	5768	5682	1162	1030	964	745
CFSM†	.14	.15	.24	.26	.25	.53	.85	.84	.17	.15	.14	.11
IN.†	.16	.16	.28	.30	.26	.61	.95	.97	.19	.18	.16	.14

CAL YR 2001 MEAN† 3714 CFSM† .55 IN.† 7.46
WTR YR 2002 MEAN† 2164 CFSM† .47 IN.† 4.35

† Total diversion in cubic feet per second, per month, by James River and Kanawha Canal.
‡ Adjusted for diversion.

02037500 JAMES RIVER NEAR RICHMOND, VA--Continued

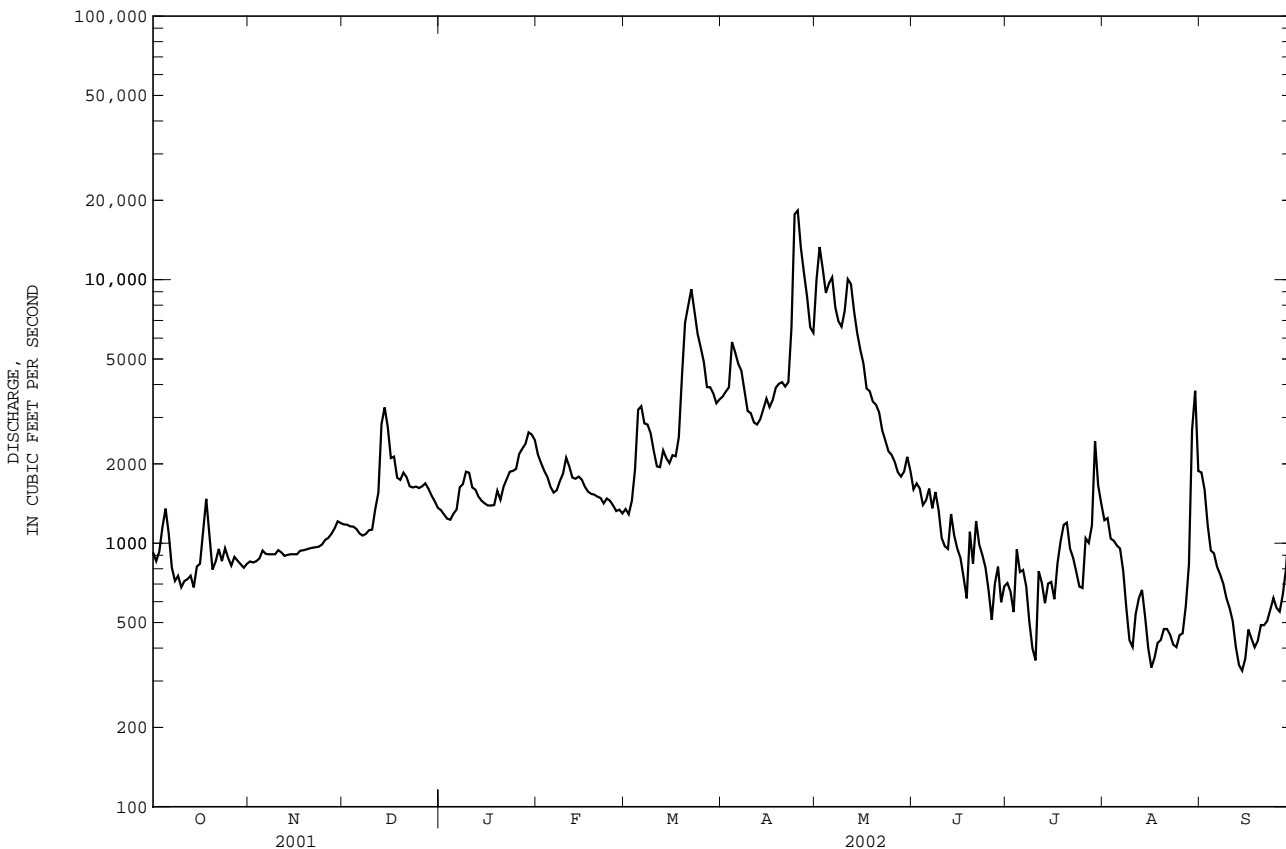
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3967	4565	6638	9002	10630	12680	10790	7701	5433	3112	3556	3190
MAX	19090	30480	26480	25300	34960	32740	35900	24280	30910	11300	21710	18390
(WY)	1938	1986	1949	1937	1998	1993	1987	1989	1972	1972	1969	1996
MIN	177	338	450	837	1652	2988	2766	2137	904	76.1	149	125
(WY)	1942	1942	1966	1966	2002	1981	1966	1941	1964	1966	1966	1963

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1937 - 2002

ANNUAL TOTAL		1326170		770247						6751		
ANNUAL MEAN		3633		2110						2110		2002
HIGHEST ANNUAL MEAN										13540		1973
LOWEST ANNUAL MEAN										2110		2002
HIGHEST DAILY MEAN			35500	Mar 31		18300	Apr 25		a296000		Jun 23	1972
LOWEST DAILY MEAN			679	Oct 14		328	Sep 14		b10		cSep 8	1966
ANNUAL SEVEN-DAY MINIMUM			719	Oct 8		392	Sep 12		b10		dSep 8	1966
MAXIMUM PEAK FLOW						24300	Apr 24		a313000		Jun 23	1972
MAXIMUM PEAK STAGE						9.31	Apr 24			28.62	Jun 23	1972
INSTANTANEOUS LOW FLOW						325	Sep 14			(f)	(g)	
ANNUAL RUNOFF (CFSM)			0.54			0.31				1.00		
ANNUAL RUNOFF (INCHES)			7.30			4.24				13.57		
10 PERCENT EXCEEDS			7900			4160				14700		
50 PERCENT EXCEEDS			2110			1340				4000		
90 PERCENT EXCEEDS			908			568				943		

- a Includes canal flow.
- b Result of diversion by Boshers Dam construction.
- c Also Sept. 9-15, 1966, Sept. 30, Oct. 5, 6, 1968, and Oct. 8-10, 1970.
- d Also Sept. 9, 1966.
- e Estimated.
- f Not determined.
- g Probably occurred Sept. 8-15, 1966.



JAMES RIVER BASIN

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA

LOCATION.--Lat 37°24'56", long 78°38'09", NAD83, Appomattox County, Hydrologic Unit 02080207, on right bank 350 ft downstream from culvert on State Highway 614, 1.0 mi upstream from Holiday Lake, and 5.2 mi southwest of Andersonville.

DRAINAGE AREA.--8.53 mi².

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72-1: 1967-71(M), 1966-69(P), 1971(P). WDR VA-98-1: 1997.

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Dec. 28 to Jan. 4, period of doubtful gage-height record, Oct. 1-5, and discharges below 0.05 ft³/s, which are fair. Maximum discharge, 9,640 ft³/s, from rating curve extended above 4,200 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	e0.23	0.93	0.70	e0.90	1.7	1.4	11	1.6	0.90	0.41	0.10	0.46
2	e0.24	0.91	0.66	e0.90	1.6	2.2	6.1	2.9	0.84	0.38	0.06	0.42
3	e0.25	0.94	0.66	e0.97	1.6	9.7	4.6	6.0	0.77	0.36	0.05	0.33
4	e0.26	0.93	0.66	e0.93	1.6	4.2	3.6	3.6	0.73	0.38	0.04	0.30
5	e0.27	0.88	0.66	1.2	1.6	2.9	3.0	4.5	0.73	0.43	0.04	0.28
6	0.28	0.83	0.66	4.7	1.7	2.4	2.7	3.2	0.77	0.59	0.03	0.26
7	0.28	0.86	0.72	5.7	7.7	2.2	2.5	2.8	0.94	0.32	0.03	0.25
8	0.29	0.86	0.85	2.8	4.6	1.9	2.4	2.8	0.75	0.27	0.03	0.24
9	0.30	0.92	0.89	1.8	3.1	2.0	2.5	2.2	0.70	0.25	0.03	0.24
10	0.33	0.90	0.79	1.4	2.6	2.2	2.8	1.9	0.66	0.26	0.03	0.24
11	0.35	0.85	11	1.3	2.5	1.8	2.3	1.5	0.61	0.55	0.03	0.21
12	0.37	0.84	2.9	1.2	2.1	1.7	2.2	1.4	0.57	0.36	0.03	0.18
13	0.37	0.80	1.7	1.1	1.9	2.4	2.2	4.7	0.52	0.29	0.03	0.18
14	0.40	0.82	1.4	1.1	1.7	2.2	2.1	11	0.55	0.42	0.03	0.19
15	0.49	0.87	1.2	1.1	1.7	1.9	2.2	4.1	0.53	0.57	0.03	0.26
16	0.44	0.85	1.1	1.1	1.7	1.8	2.0	2.6	0.48	0.39	0.03	0.33
17	0.43	0.80	1.1	1.1	1.6	11	2.4	2.0	0.45	0.29	0.03	0.29
18	0.44	0.76	1.9	1.2	1.5	23	2.8	2.8	0.41	0.26	0.03	0.27
19	0.44	0.79	1.4	1.7	1.5	10	2.8	2.3	0.40	0.31	0.03	0.25
20	0.46	0.76	1.1	3.7	1.6	6.6	2.5	1.7	0.38	0.30	0.03	0.26
21	0.48	0.71	1.1	2.9	1.6	5.1	4.3	1.6	0.37	0.30	0.03	0.25
22	0.50	0.71	1.0	3.0	1.5	3.8	5.6	1.5	0.35	0.29	0.03	0.25
23	0.53	0.72	1.0	4.1	1.4	3.2	3.6	1.4	0.34	0.28	0.03	0.22
24	0.58	0.85	1.9	3.4	1.4	2.8	2.8	1.3	0.34	0.28	0.03	0.19
25	0.67	0.98	1.4	3.2	1.4	2.6	2.7	1.1	0.32	0.27	0.03	0.18
26	0.74	0.79	1.2	2.4	1.5	3.0	2.3	1.1	0.31	0.59	0.04	0.50
27	0.76	0.73	1.2	1.9	1.6	6.2	2.0	2.5	0.39	0.60	0.09	1.3
28	0.77	0.73	e1.1	1.7	1.4	3.9	2.4	2.3	0.67	0.38	0.65	0.80
29	0.81	0.73	e1.0	1.6	---	3.3	2.3	1.3	0.51	0.28	1.5	0.54
30	0.86	0.73	e0.97	1.6	---	3.2	1.8	1.1	0.44	0.22	0.48	0.47
31	0.91	---	e0.93	1.5	---	12	---	1.0	---	0.15	0.33	---
TOTAL	14.53	24.78	44.85	63.20	57.4	142.6	94.5	81.8	16.73	11.03	3.98	10.14
MEAN	0.47	0.83	1.45	2.04	2.05	4.60	3.15	2.64	0.56	0.36	0.13	0.34
MAX	0.91	0.98	11	5.7	7.7	23	11	11	0.94	0.60	1.5	1.3
MIN	0.23	0.71	0.66	0.90	1.4	1.4	1.8	1.0	0.31	0.15	0.03	0.18
CFSM	0.05	0.10	0.17	0.24	0.24	0.54	0.37	0.31	0.07	0.04	0.02	0.04
IN.	0.06	0.11	0.20	0.28	0.25	0.62	0.41	0.36	0.07	0.05	0.02	0.04

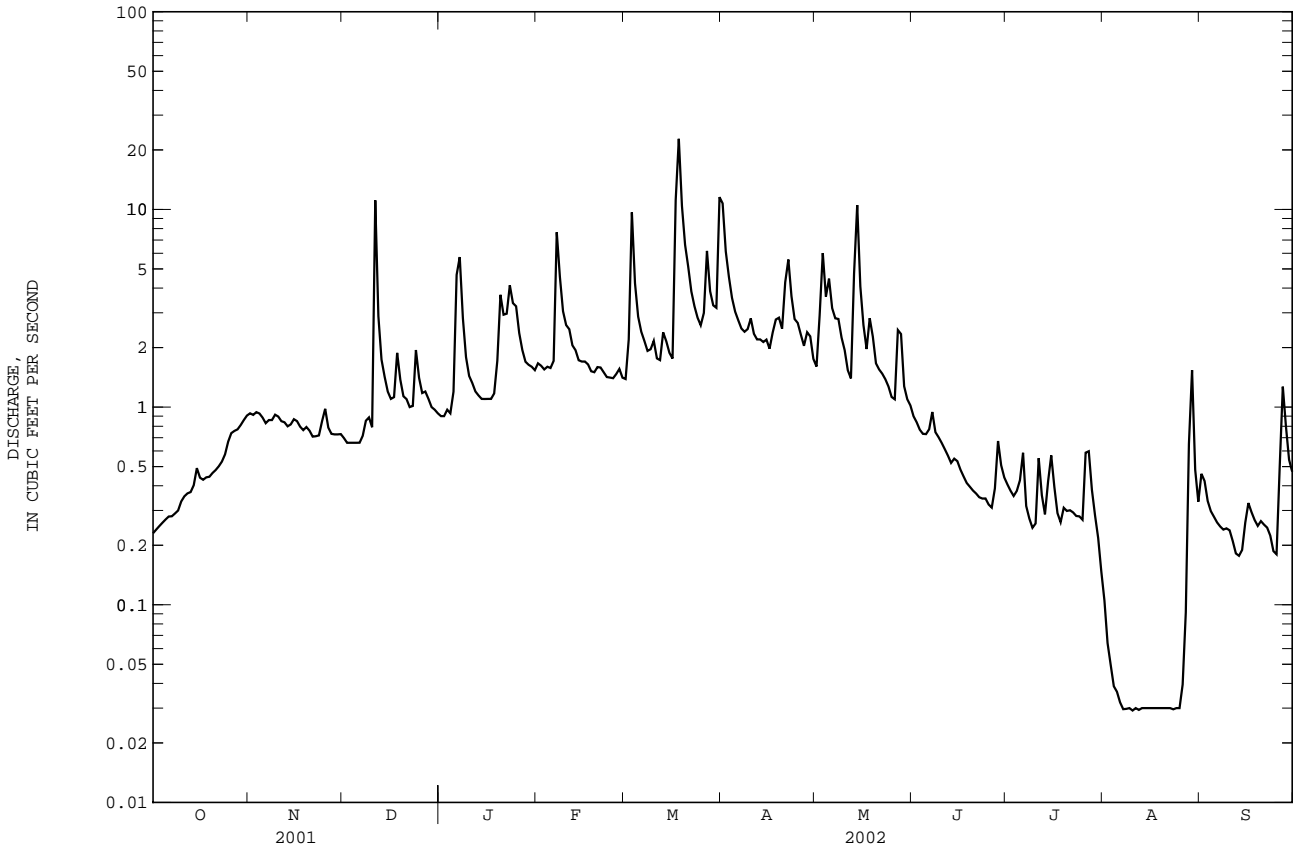
02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	5.75	7.16	8.35	10.7	12.1	13.6	11.3	9.36	7.83	4.34	4.28	5.94
MAX	25.6	32.3	25.6	30.5	36.9	37.9	32.6	36.0	70.2	15.3	24.9	36.8
(WY)	1972	1986	1974	1978	1998	1994	1973	1971	1972	1972	1973	1996
MIN	0.47	0.83	1.45	2.04	2.05	4.12	3.15	2.64	0.56	0.36	0.13	0.32
(WY)	2002	2002	2002	2002	2002	1981	2002	2002	2002	2002	2002	2001

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1966 - 2002
ANNUAL TOTAL	1056.20	565.54	
ANNUAL MEAN	2.89	1.55	8.42
HIGHEST ANNUAL MEAN			18.6 1973
LOWEST ANNUAL MEAN			1.55 2002
HIGHEST DAILY MEAN	106 Mar 21	23 Mar 18	1740 Jun 21 1972
LOWEST DAILY MEAN	e0.21 Sep 30	0.03 aAug 6	0.03 aAug 6 2002
ANNUAL SEVEN-DAY MINIMUM	0.24 Sep 28	0.03 Aug 6	0.03 Aug 6 2002
MAXIMUM PEAK FLOW		36 Mar 18	9640 Jun 21 1972
MAXIMUM PEAK STAGE		1.61 Mar 18	14.64 Jun 21 1972
INSTANTANEOUS LOW FLOW		0.02 bAug 7	0.02 bAug 7 2002
ANNUAL RUNOFF (CFSM)	0.34	0.18	0.99
ANNUAL RUNOFF (INCHES)	4.61	2.47	13.41
10 PERCENT EXCEEDS	5.4	3.2	14
50 PERCENT EXCEEDS	1.4	0.90	5.0
90 PERCENT EXCEEDS	0.33	0.23	1.7

a Also Aug. 7-25, 2002.
 b Also Aug. 8, 10, 12, 23, 2002.
 e Estimated.



JAMES RIVER BASIN

02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA

LOCATION.--Lat 37°15'26", long 78°29'11", NAD83, Prince Edward County, Hydrologic Unit 02080207, on left bank 100 ft upstream from bridge on State Highway 658, 0.8 mi upstream from Locket Creek, 2.0 mi northwest of Hampden Sydney, and 6.0 mi southwest of Farmville.

DRAINAGE AREA.--69.7 mi².

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1303: 1948-50(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 339.19 ft NGVD of 1929 (levels by Virginia Department of Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.

REMARKS.-Records good except for period with ice effect, Dec. 31 to Jan. 5, which is fair. Maximum discharge, 9,160 ft³/s, from rating curve extended above 1,600 ft³/s on basis of slope-area measurement at gage height 11.96 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 15 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	10	14	20	e19	30	18	34	30	13	6.2	2.3	20
2	9.8	14	19	e18	28	20	31	32	12	5.6	1.7	18
3	9.4	15	20	e20	26	43	30	70	11	6.2	1.5	13
4	9.5	14	20	e25	26	39	28	51	9.9	6.9	1.3	11
5	9.4	13	17	e23	24	33	26	46	9.6	5.9	1.0	7.2
6	9.8	13	17	35	24	30	26	38	9.8	5.5	0.89	5.6
7	11	12	17	56	57	28	24	33	20	4.4	0.62	4.7
8	10	12	19	45	64	26	24	29	15	3.6	0.47	4.2
9	10	12	19	40	50	25	24	30	12	3.0	0.37	3.9
10	10	12	18	40	42	28	25	27	11	2.6	0.32	3.4
11	11	12	44	38	38	25	24	24	9.7	2.9	0.30	3.2
12	11	12	48	34	34	24	23	22	8.7	2.9	0.31	2.8
13	11	12	41	32	32	37	23	22	7.8	2.7	0.22	2.4
14	12	12	36	29	29	47	22	37	9.2	14	0.20	2.4
15	21	12	32	28	28	39	25	30	9.5	22	0.18	3.5
16	18	12	28	26	27	35	24	25	8.3	13	0.16	5.6
17	15	12	26	25	26	96	22	22	7.2	8.5	0.17	5.5
18	14	12	37	24	24	352	21	31	6.7	6.2	0.31	5.0
19	13	12	35	27	24	263	20	34	6.1	5.3	0.34	4.6
20	13	12	32	51	23	127	20	29	5.9	4.0	0.28	4.5
21	13	12	28	50	23	87	23	25	5.7	4.0	0.20	4.1
22	12	12	26	45	22	63	26	23	5.3	3.8	0.18	3.8
23	12	12	25	54	21	51	22	21	4.9	2.9	0.13	3.8
24	13	12	30	65	21	44	21	20	4.8	2.5	0.18	3.4
25	13	15	29	64	20	39	20	19	4.5	2.3	0.53	3.0
26	12	25	27	54	20	37	19	18	4.3	3.9	0.72	4.9
27	13	26	25	46	20	39	18	16	4.7	5.3	0.70	12
28	12	24	24	40	19	35	21	16	6.6	6.0	13	10
29	12	22	23	36	---	33	50	15	7.8	5.2	16	8.2
30	12	21	22	33	---	32	37	14	6.9	3.6	14	6.6
31	13	---	e21	31	---	34	---	14	---	2.6	17	---
TOTAL	374.9	432	825	1153	822	1829	753	863	257.9	173.5	75.58	190.3
MEAN	12.1	14.4	26.6	37.2	29.4	59.0	25.1	27.8	8.60	5.60	2.44	6.34
MAX	21	26	48	65	64	352	50	70	20	22	17	20
MIN	9.4	12	17	18	19	18	18	14	4.3	2.3	0.13	2.4
CFSM	0.17	0.21	0.38	0.53	0.42	0.85	0.36	0.40	0.12	0.08	0.03	0.09
IN.	0.20	0.23	0.44	0.62	0.44	0.98	0.40	0.46	0.14	0.09	0.04	0.10

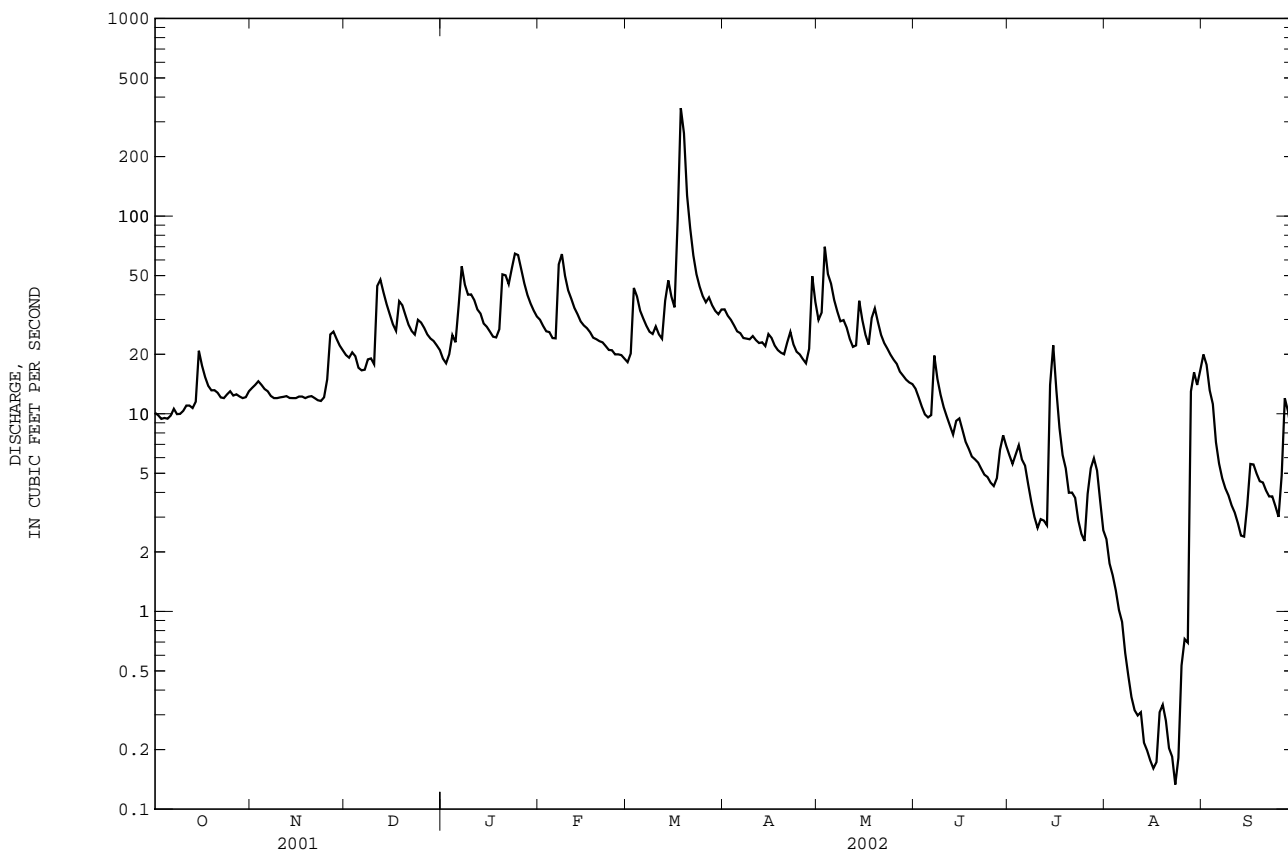
02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	48.4	61.9	70.0	89.4	97.5	111	90.5	64.7	49.2	38.1	39.4	40.0
MAX	365	315	157	313	295	324	256	173	294	129	260	168
(WY)	1972	1986	1997	1978	1979	1993	1983	1978	1972	1989	1955	1979
MIN	9.94	14.4	18.7	25.3	29.4	37.5	25.1	23.4	8.60	5.60	2.44	6.34
(WY)	1971	2002	1966	1966	2002	1981	2002	1969	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1947 - 2002	
ANNUAL TOTAL	12189.8	7749.18		
ANNUAL MEAN	33.4	21.2	66.5	
HIGHEST ANNUAL MEAN			134	1972
LOWEST ANNUAL MEAN			21.2	2002
HIGHEST DAILY MEAN	570	Mar 30	4940	Aug 18 1955
LOWEST DAILY MEAN	7.7	Sep 19	0.13	Aug 23 2002
ANNUAL SEVEN-DAY MINIMUM	8.7	Sep 14	0.22	Aug 11 2002
MAXIMUM PEAK FLOW			414	Mar 18
MAXIMUM PEAK STAGE			5.40	Mar 18
INSTANTANEOUS LOW FLOW			0.09	Aug 24
ANNUAL RUNOFF (CFSM)	0.48	0.30	0.95	
ANNUAL RUNOFF (INCHES)	6.51	4.14	12.97	
10 PERCENT EXCEEDS	49	39	117	
50 PERCENT EXCEEDS	21	18	42	
90 PERCENT EXCEEDS	11	2.9	17	

e Estimated.



JAMES RIVER BASIN

02039500 APPOMATTOX RIVER AT FARMVILLE, VA

LOCATION.--Lat 37°18'26", long 78°23'19", NAD83, Cumberland County, Hydrologic Unit 02080207, on left bank at downstream side of bridge on State Highway 45 at north town limits of Farmville and 1.1 mi downstream from Buffalo Creek.

DRAINAGE AREA.--303 mi².

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.93 ft NGVD of 1929. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Dec. 30 to Jan. 4, and period of doubtful gage-height record, Sept. 21-24, which are fair. Maximum discharge, 33,100 ft³/s, from rating curve extended above 12,000 ft³/s on basis of contracted-opening measurement of peak flow. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi upstream. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	32	37	53	e53	89	67	210	89	47	20	14	60
2	31	39	52	e49	86	75	196	101	42	18	12	48
3	30	40	50	e69	82	142	146	207	39	17	9.1	36
4	29	45	50	e67	78	220	122	254	34	16	8.7	29
5	28	42	48	82	74	159	106	212	31	16	8.0	25
6	27	41	48	103	75	121	98	184	34	15	7.0	21
7	27	40	51	151	142	105	92	147	43	16	4.5	21
8	27	42	56	195	242	96	87	132	52	16	2.9	18
9	26	42	59	140	201	91	85	145	43	16	1.7	16
10	26	41	59	118	146	92	89	126	35	12	1.2	15
11	27	41	117	107	125	92	90	106	32	12	0.82	15
12	29	41	236	95	114	85	84	88	29	12	0.57	15
13	32	42	148	86	102	102	81	90	26	11	0.38	13
14	34	42	110	79	94	134	81	139	29	28	0.24	13
15	40	42	91	75	90	130	83	196	29	34	0.18	15
16	47	43	80	72	86	113	84	122	26	30	0.17	18
17	41	44	75	70	82	296	79	97	23	24	0.12	20
18	37	44	96	69	80	1150	74	139	20	20	0.12	19
19	35	45	109	81	77	1040	82	222	19	18	0.12	17
20	35	46	97	133	74	534	87	137	19	17	0.12	17
21	33	46	82	176	75	332	98	101	18	16	0.08	e16
22	34	46	73	157	75	242	164	86	18	16	0.07	e16
23	35	45	68	166	73	183	162	78	17	14	0.07	e15
24	36	46	78	197	71	150	112	72	16	13	0.07	e15
25	37	50	84	210	70	130	94	66	16	14	0.07	14
26	35	60	83	183	76	120	87	62	15	18	2.3	19
27	33	65	75	147	71	124	78	59	15	25	11	30
28	34	60	68	123	69	138	77	56	18	27	69	37
29	34	56	67	108	---	120	98	57	20	29	84	31
30	34	53	e64	99	---	110	111	55	21	21	70	28
31	36	---	e59	93	---	135	---	51	---	17	57	---
TOTAL	1021	1366	2486	3553	2719	6628	3137	3676	826	578	365.60	672
MEAN	32.9	45.5	80.2	115	97.1	214	105	119	27.5	18.6	11.8	22.4
MAX	47	65	236	210	242	1150	210	254	52	34	84	60
MIN	26	37	48	49	69	67	74	51	15	11	0.07	13
CFSM	0.11	0.15	0.26	0.38	0.32	0.71	0.35	0.39	0.09	0.06	0.04	0.07
IN.	0.13	0.17	0.31	0.44	0.33	0.81	0.39	0.45	0.10	0.07	0.04	0.08

02039500 APPOMATTOX RIVER AT FARMVILLE, VA--Continued

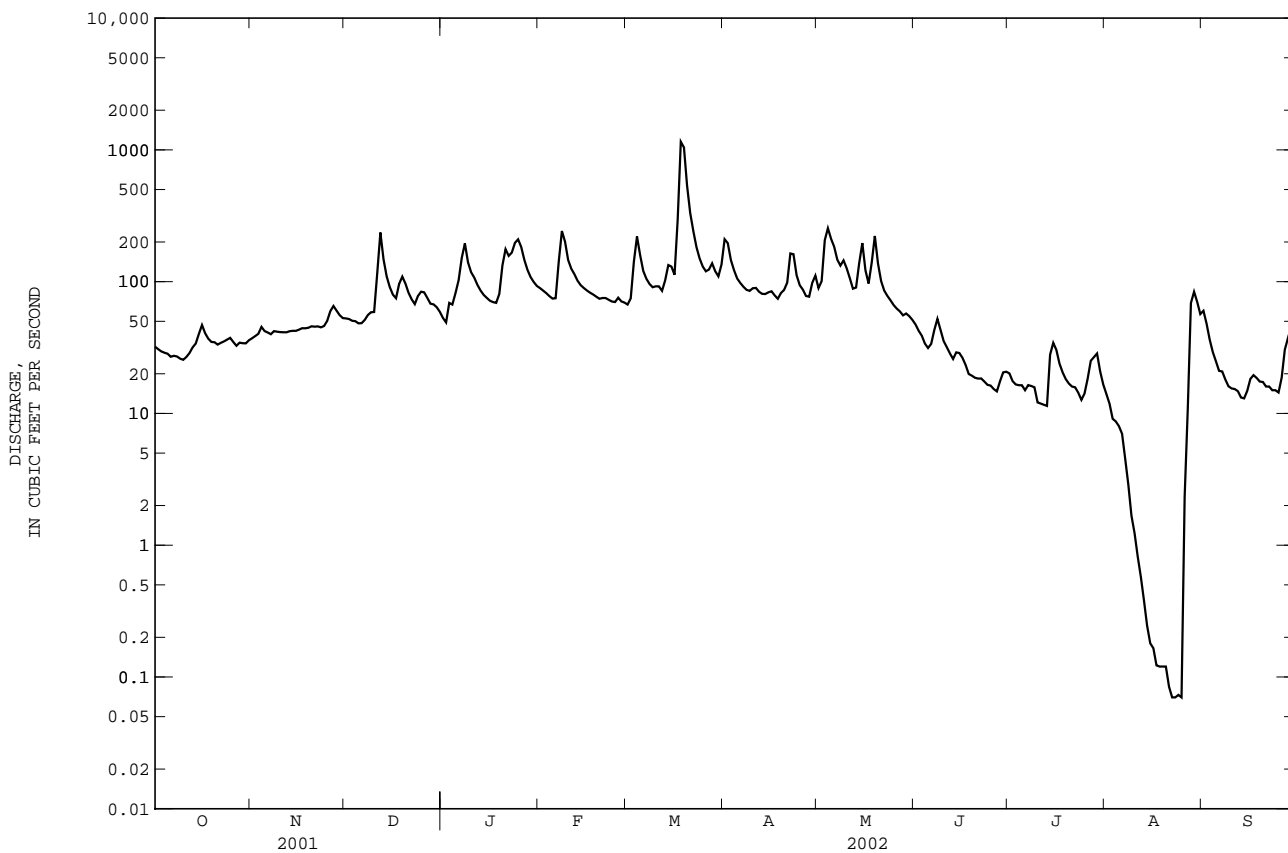
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	189	240	298	398	434	479	403	271	205	158	190	191
MAX	1190	1287	961	1430	1402	1518	1155	872	1866	518	1783	1140
(WY)	1972	1986	1997	1978	1979	1993	1983	1978	1972	1972	1940	1996
MIN	30.3	45.5	61.6	96.3	97.1	126	105	95.2	27.5	18.6	11.8	16.7
(WY)	1931	2002	1966	1966	2002	1981	2002	1969	2002	2002	2002	1968

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 2002

ANNUAL TOTAL	52672	27018.60	
ANNUAL MEAN	144	74.0	288
HIGHEST ANNUAL MEAN			584 1972
LOWEST ANNUAL MEAN			74.0 2002
HIGHEST DAILY MEAN	3550 Mar 30	1150 Mar 18	28000 Jun 22 1972
LOWEST DAILY MEAN	26 aOct 9	0.07 bAug 22	0.07 bAug 22 2002
ANNUAL SEVEN-DAY MINIMUM	27 Oct 5	0.09 Aug 19	0.09 Aug 19 2002
MAXIMUM PEAK FLOW		1330 Mar 18	33100 Jun 22 1972
MAXIMUM PEAK STAGE		10.07 Mar 18	c29.70 Jun 22 1972
INSTANTANEOUS LOW FLOW		0.07 dAug 21	0.07 dAug 21 2002
ANNUAL RUNOFF (CFSM)	0.48	0.24	0.95
ANNUAL RUNOFF (INCHES)	6.47	3.32	12.92
10 PERCENT EXCEEDS	235	145	522
50 PERCENT EXCEEDS	83	53	164
90 PERCENT EXCEEDS	37	14	61

- a Also Oct. 10, 2001.
- b Also Aug. 23-25, 2002.
- c From floodmarks.
- c Also Aug. 22-26, 2002.
- e Estimated.



JAMES RIVER BASIN

02040000 APPOMATTOX RIVER AT MATTOAX, VA

LOCATION.--Lat 37°25'18", long 77°51'32", NAD83, Amelia County, Hydrologic Unit 02080207, on right bank 75 ft upstream from Norfolk Southern Railway bridge at Mattoax, 0.3 mi upstream from Skinquarter Creek, and 3.7 mi upstream from Flat Creek.

DRAINAGE AREA.--726 mi².

PERIOD OF RECORD.--August 1900 to December 1905, March 1926 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 174.51 ft NGVD of 1929. August 1900 to December 1905, non-recording gage at same site, different datum. March 1926 to October 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Dec. 31 to Jan. 5, and periods of doubtful or no gage-height record, Mar. 24, 25, May 17, 18, and July 15 to Aug. 15, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 35,000 ft³/s, from rating curve extended above 20,000 ft³/s on basis of records for stations at Farmville and near Petersburg. Minimum gage height, 3.52 ft, Oct. 2, 1930. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	65	64	96	e110	202	128	305	250	84	28	e27	127
2	59	65	93	e90	187	128	346	219	79	29	e21	114
3	57	68	91	e145	177	177	358	219	73	28	e18	98
4	58	69	91	e140	166	280	314	387	68	26	e16	85
5	52	70	90	e200	156	358	278	493	67	23	e13	68
6	47	72	89	234	149	324	251	412	62	21	e12	50
7	47	75	90	297	187	264	228	363	67	20	e10	40
8	45	73	90	328	288	226	214	355	68	22	e8.6	34
9	44	74	94	353	419	205	203	423	73	19	e8.0	30
10	44	73	98	326	397	192	201	664	77	20	e7.4	28
11	44	75	130	278	320	189	198	358	69	21	e6.9	25
12	44	73	166	222	276	184	193	265	60	19	e6.3	23
13	45	74	242	199	244	189	191	247	53	18	e5.3	20
14	46	75	265	179	222	213	184	252	53	17	e4.6	19
15	50	75	199	163	202	264	181	265	54	e19	e4.1	19
16	54	77	164	153	190	298	178	279	51	e24	4.9	21
17	60	78	143	144	180	326	184	e246	46	e72	4.6	23
18	64	79	149	141	172	1120	176	e226	44	e54	6.4	31
19	64	79	161	142	164	2350	235	277	39	e39	7.6	27
20	61	81	178	190	159	2290	274	309	36	e30	8.7	27
21	58	81	176	258	154	1280	258	277	33	e27	7.1	24
22	57	81	157	324	150	866	306	208	31	e23	5.4	22
23	58	83	143	321	148	665	433	170	30	e20	3.7	21
24	57	84	142	314	144	e535	370	149	29	e20	3.0	21
25	59	87	142	355	138	e455	293	136	28	e21	2.6	20
26	61	90	152	375	134	410	238	124	26	e18	3.2	22
27	60	93	153	346	133	363	204	114	27	e20	3.2	26
28	61	99	145	305	133	322	193	105	28	e23	13	28
29	60	105	141	266	---	314	189	97	25	e23	42	34
30	59	102	130	237	---	304	190	91	25	e27	68	43
31	62	---	e120	216	---	307	---	88	---	e27	112	---
TOTAL	1702	2374	4320	7351	5591	15526	7366	8068	1505	798	463.6	1170
MEAN	54.9	79.1	139	237	200	501	246	260	50.2	25.7	15.0	39.0
MAX	65	105	265	375	419	2350	433	664	84	72	112	127
MIN	44	64	89	90	133	128	176	88	25	17	2.6	19
CFSM	0.08	0.11	0.19	0.33	0.28	0.69	0.34	0.36	0.07	0.04	0.02	0.05
IN.	0.09	0.12	0.22	0.38	0.29	0.80	0.38	0.41	0.08	0.04	0.02	0.06

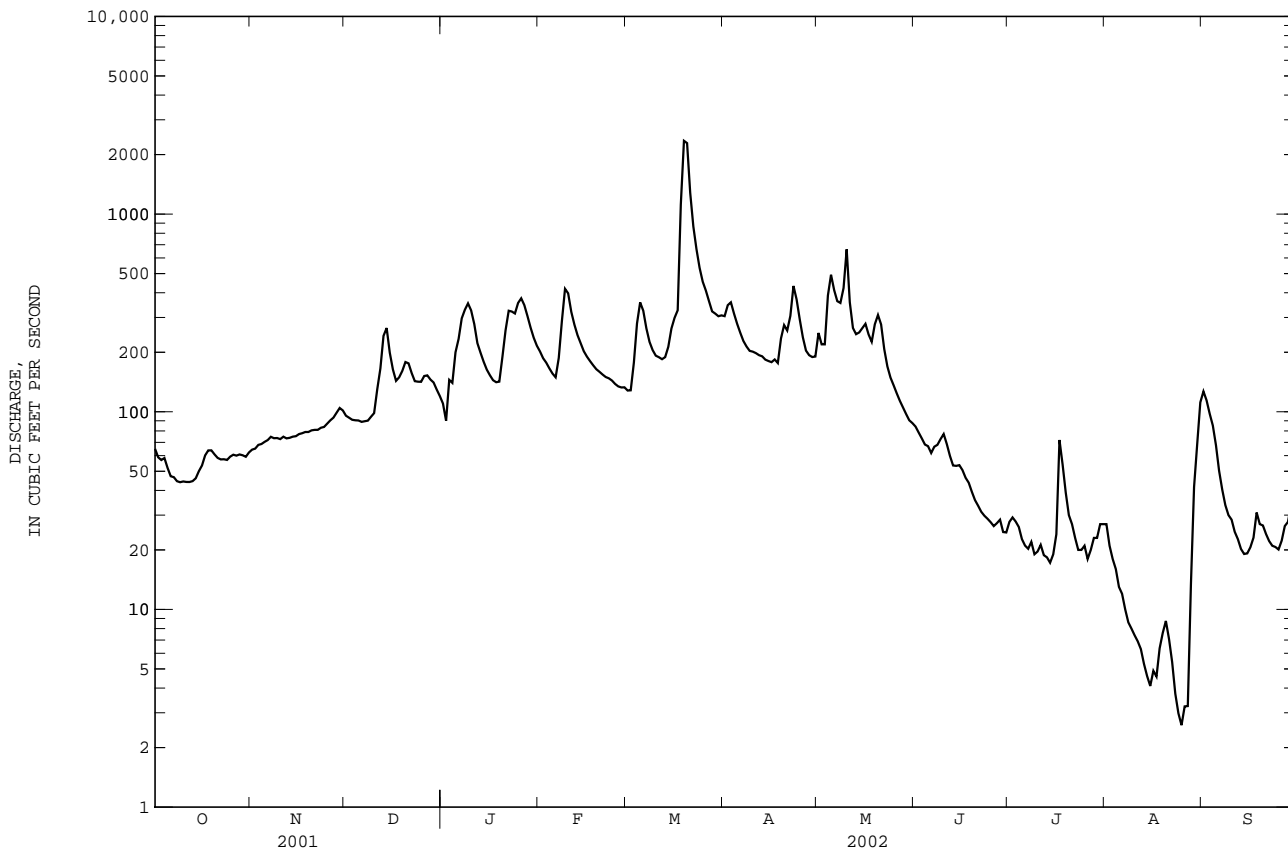
02040000 APPOMATTOX RIVER AT MATTOAX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	459	528	721	1002	1114	1226	1048	653	478	365	416	387
MAX	3932	2728	2620	3650	3605	3566	2975	1889	4369	1918	4566	2294
(WY)	1972	1986	1994	1978	1998	1993	1983	1978	1972	1938	1940	1975
MIN	32.7	79.1	123	207	200	309	246	208	50.2	27.5	17.4	30.0
(WY)	1931	2002	1966	1966	2002	1981	2002	1926	2002	2002	2002	1932

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1926 - 2002
ANNUAL TOTAL	133126	56343.9	
ANNUAL MEAN	365	154	700
HIGHEST ANNUAL MEAN			1553
LOWEST ANNUAL MEAN			154
HIGHEST DAILY MEAN	4670	Apr 2	34300
LOWEST DAILY MEAN	44	aOct 9	2.6
ANNUAL SEVEN-DAY MINIMUM	45	Oct 8	4.0
MAXIMUM PEAK FLOW			2480
MAXIMUM PEAK STAGE			14.53
INSTANTANEOUS LOW FLOW			2.4
ANNUAL RUNOFF (CFSM)	0.50		0.21
ANNUAL RUNOFF (INCHES)	6.82		2.89
10 PERCENT EXCEEDS	685		320
50 PERCENT EXCEEDS	176		91
90 PERCENT EXCEEDS	65		21

- a Also Oct. 10-12, 2001.
- b From floodmark in gage house.
- c Also Aug. 26, 2002.
- e Estimated.



JAMES RIVER BASIN

02041000 DEEP CREEK NEAR MANNBORO, VA

LOCATION.--Lat 37°17'00", long 77°52'11", NAD83, Amelia County, Hydrologic Unit 02080207, on left bank 300 ft upstream from bridge on State Highway 153, 0.9 mi upstream from Sweathouse Creek, 3.4 mi northwest of Mannboro, and 7.5 mi southeast of Amelia.

DRAINAGE AREA.--158 mi².

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area. WDR VA-79-1: 1973-76(P), 1978.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft NGVD of 1929. Prior to Sep. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-3, which is fair. Maximum discharge, 15,000 ft³/s, from rating curve extended above 3,900 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	3.8	7.3	23	e20	39	24	130	41	5.1	0.86	0.54	14
2	3.4	8.8	21	e19	36	24	118	37	4.4	0.96	0.63	45
3	3.0	6.3	19	e21	33	55	95	65	3.7	0.97	0.93	55
4	2.9	7.6	18	23	32	99	80	129	3.1	1.0	0.85	49
5	2.4	7.7	17	25	29	91	70	122	4.2	0.80	1.5	33
6	2.3	9.1	16	34	28	65	63	87	3.3	0.58	1.6	20
7	2.3	10	16	89	63	51	57	74	5.0	0.41	1.1	12
8	2.1	11	18	130	141	43	52	63	6.9	0.40	0.73	7.5
9	1.8	11	21	127	147	38	49	56	6.3	0.39	0.34	5.1
10	1.7	12	21	94	97	36	48	50	5.5	0.55	0.19	3.9
11	1.8	13	36	82	72	33	47	41	4.4	0.50	0.14	2.9
12	1.9	14	67	73	58	31	44	34	3.7	0.31	0.08	1.8
13	2.2	14	77	61	50	32	44	30	2.9	0.23	0.07	1.4
14	2.3	14	67	50	44	35	44	35	2.8	0.31	0.07	1.2
15	2.8	14	51	42	40	36	44	39	3.0	0.42	0.05	1.1
16	2.5	15	39	37	37	35	44	37	2.4	0.40	0.05	1.4
17	3.2	16	32	34	35	44	41	32	2.3	0.34	0.28	2.8
18	3.5	16	38	32	33	173	37	27	1.8	0.31	0.89	3.5
19	4.2	18	44	33	31	358	35	27	1.6	0.28	0.46	2.6
20	4.6	18	45	68	31	335	43	26	1.4	0.27	0.30	1.8
21	4.8	19	42	103	31	188	48	23	1.2	0.26	0.22	1.4
22	5.2	19	34	102	30	143	65	20	0.83	0.22	0.12	1.3
23	5.9	19	29	88	29	105	67	17	0.54	0.23	0.06	1.1
24	5.7	19	29	93	28	84	57	15	0.60	0.25	0.01	0.94
25	6.0	22	31	97	28	71	47	13	0.46	0.34	0.00	0.89
26	5.2	26	31	86	27	64	40	11	0.42	0.55	0.00	1.1
27	5.4	28	31	72	26	152	35	9.8	0.45	0.76	0.00	1.6
28	6.0	28	28	60	26	222	36	8.6	0.90	0.88	0.76	2.3
29	5.7	26	27	52	---	157	41	7.1	1.3	0.86	1.5	2.8
30	6.2	25	25	46	---	107	43	6.0	0.91	0.74	1.3	2.1
31	6.4	---	23	42	---	112	---	5.7	---	0.62	1.3	---
TOTAL	117.2	473.8	1016	1935	1301	3043	1664	1188.2	81.41	16.00	16.07	280.53
MEAN	3.78	15.8	32.8	62.4	46.5	98.2	55.5	38.3	2.71	0.52	0.52	9.35
MAX	6.4	28	77	130	147	358	130	129	6.9	1.0	1.6	55
MIN	1.7	6.3	16	19	26	24	35	5.7	0.42	0.22	0.00	0.89
CFSM	0.02	0.10	0.21	0.40	0.29	0.62	0.35	0.24	0.02	0.00	0.00	0.06
IN.	0.03	0.11	0.24	0.46	0.31	0.72	0.39	0.28	0.02	0.00	0.00	0.07

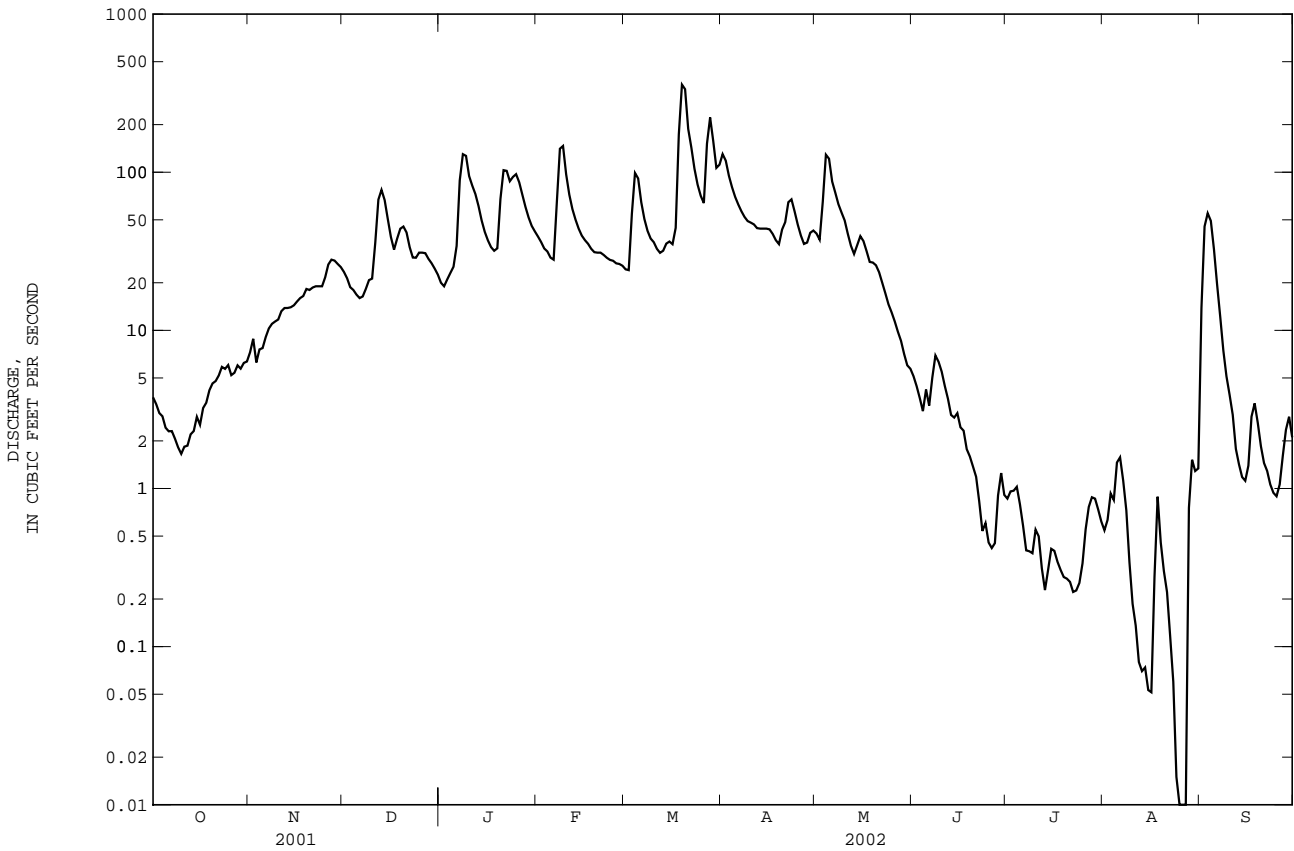
02041000 DEEP CREEK NEAR MANNBORO, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	98.4	133	149	214	246	277	212	128	81.4	64.5	56.1	76.3
MAX	859	821	453	800	793	718	632	406	449	301	309	1002
(WY)	1973	1986	1997	1978	1979	1993	1987	1971	1972	1975	1978	1979
MIN	3.55	14.6	26.4	48.5	46.5	74.8	51.2	36.4	2.71	0.52	0.52	2.19
(WY)	1971	1999	1966	1966	2002	1981	1985	1985	2002	2002	2002	1968

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1947 - 2002
ANNUAL TOTAL	32503.0	11132.21	
ANNUAL MEAN	89.0	30.5	144
HIGHEST ANNUAL MEAN			319 1979
LOWEST ANNUAL MEAN			30.5 2002
HIGHEST DAILY MEAN	3140 Mar 31	358 Mar 19	12000 Oct 6 1972
LOWEST DAILY MEAN	1.7 Oct 10	0.00 aAug 25	0.00 aAug 25 2002
ANNUAL SEVEN-DAY MINIMUM	2.0 bOct 7	0.06 Aug 21	0.06 Aug 21 2002
MAXIMUM PEAK FLOW		422 Mar 19	15000 Oct 6 1972
MAXIMUM PEAK STAGE		5.46 Mar 19	c24.04 Oct 6 1972
INSTANTANEOUS LOW FLOW		0.00 dAug 24	0.00 dAug 24 2002
ANNUAL RUNOFF (CFSM)	0.56	0.19	0.91
ANNUAL RUNOFF (INCHES)	7.65	2.62	12.39
10 PERCENT EXCEEDS	151	75	278
50 PERCENT EXCEEDS	36	19	72
90 PERCENT EXCEEDS	5.2	0.46	15

- a Also Aug. 26, 27, 2002.
- b Also Oct. 8, 2001.
- c From floodmarks.
- d Also part or all of each day Aug. 25-28, 2002.
- e Estimated.



JAMES RIVER BASIN

02041650 APPOMATTOX RIVER AT MATOACA, VA

LOCATION.--Lat 37°13'31", long 77°28'31", NAD83, Chesterfield County, Hydrologic Unit 02080207, on left bank at upstream side of bridge on State Highway 600, 0.2 mi south of Matoaca, 2.0 mi upstream from Rohoic Creek, 2.8 mi downstream from Lake Chesdin, 3.5 mi west of Petersburg, and at mile 15.9

DRAINAGE AREA.--1,344 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft NGVD of 1929.

REMARKS.--Records good except those for period of no gage-height record, Dec. 31 to Jan. 3, and period with ice effect, Jan. 4, which are fair. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,000 acre-ft, 2.8 mi upstream from which an average of 41.1 ft³/s is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of city of Petersburg which diverts around station. National Weather Service gage-height telemeter at station.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

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	49	45	58	e100	396	128	1020	285	155	56	29	60
2	51	45	60	e92	301	165	698	376	140	51	31	28
3	52	44	60	e150	240	728	885	631	132	47	28	27
4	54	42	67	e145	369	556	649	674	127	44	28	29
5	55	40	68	244	247	431	574	896	113	45	28	29
6	56	38	69	411	242	684	530	918	108	45	27	27
7	55	38	73	478	323	411	387	694	110	46	28	27
8	54	37	79	412	772	385	446	617	110	46	27	26
9	53	37	80	560	684	337	404	605	110	47	27	26
10	53	39	79	618	811	431	423	981	109	47	29	27
11	53	44	93	557	720	249	366	785	109	43	31	27
12	53	49	87	379	308	250	399	448	107	42	31	29
13	53	52	153	453	518	322	388	413	99	41	31	29
14	54	52	406	254	323	330	331	550	97	47	31	31
15	52	53	383	263	300	300	388	378	84	42	30	33
16	52	54	215	260	358	475	377	376	81	42	29	37
17	52	55	204	242	331	637	302	416	84	41	26	38
18	52	55	303	243	249	1270	321	485	84	41	23	37
19	52	55	147	268	242	2150	368	342	80	40	20	35
20	52	57	118	517	245	3300	509	418	72	40	19	35
21	52	58	154	453	276	3080	520	478	61	39	19	35
22	53	58	155	618	256	2090	696	354	55	39	19	35
23	52	56	160	663	245	1520	723	300	52	38	19	35
24	52	58	312	604	245	1250	736	265	61	39	19	35
25	52	59	301	658	246	673	595	187	65	34	19	35
26	52	58	267	640	223	745	472	171	65	35	18	38
27	52	58	222	586	127	1300	316	168	70	34	23	36
28	51	59	158	536	128	1270	490	172	65	31	33	36
29	51	58	95	410	---	995	450	169	64	30	22	36
30	48	58	118	411	---	623	277	178	60	29	28	36
31	46	---	e110	335	---	829	---	172	---	29	31	---
TOTAL	1618	1511	4854	12560	9725	27914	15040	13902	2729	1270	805	994
MEAN	52.2	50.4	157	405	347	900	501	448	91.0	41.0	26.0	33.1
MAX	56	59	406	663	811	3300	1020	981	155	56	33	60
MIN	46	37	58	92	127	128	277	168	52	29	18	26
(†)	1453	1185	1041	1082	964	1043	1106	1185	1581	1659	1614	1092

CAL YR 2001 TOTAL 249032 MEAN 682 MAX 8750 MIN 37 (†) 14485

WTR YR 2002 TOTAL 92922 MEAN 255 MAX 3300 MIN 18 (†) 15005

† Total diversion, in cubic feet per second, at Lake Chesdin, provided by Appomattox Water Authority.

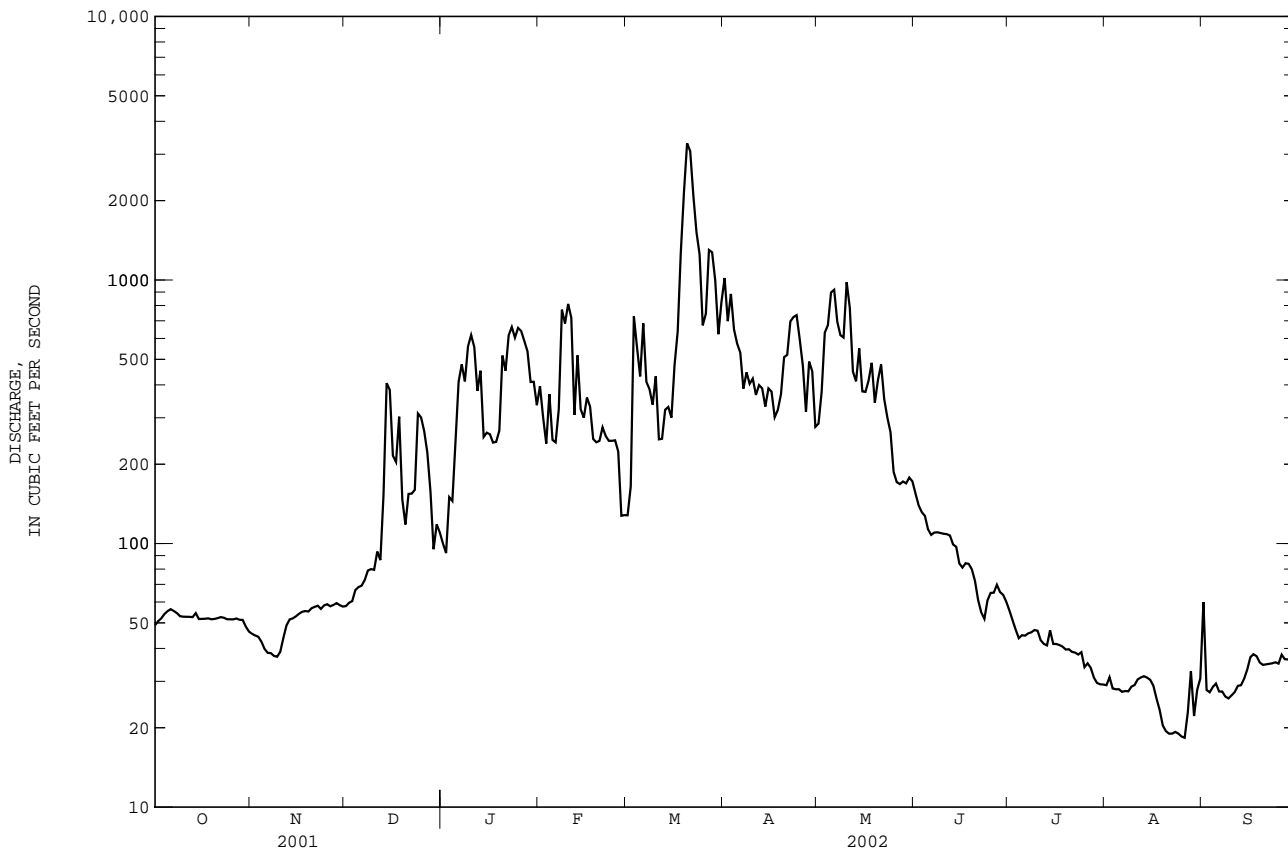
02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	997	1007	1330	1957	2152	2482	2057	1267	874	528	459	712
MAX	6869	5648	3857	5868	6532	6098	5003	4452	5293	2123	1818	5312
(WY)	1973	1986	1997	1978	1998	1993	1983	1978	1972	1995	1978	1979
MIN	52.2	50.4	157	384	347	478	498	411	91.0	41.0	26.0	33.1
(WY)	2002	2002	2002	1981	2002	1981	1985	1985	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1970 - 2002
ANNUAL TOTAL	249032	92922	
ANNUAL MEAN	682	255	1314
HIGHEST ANNUAL MEAN			2559 1973
LOWEST ANNUAL MEAN			255 2002
HIGHEST DAILY MEAN	8750 Apr 1	3300 Mar 20	39400 Oct 7 1972
LOWEST DAILY MEAN	a37 bNov 8	a18 Aug 26	a18 Aug 26 2002
ANNUAL SEVEN-DAY MINIMUM	a39 Nov 4	a19 Aug 20	a19 Aug 20 2002
MAXIMUM PEAK FLOW		3510 Mar 20	40800 Oct 7 1972
MAXIMUM PEAK STAGE		5.94 Mar 20	18.39 Oct 7 1972
INSTANTANEOUS LOW FLOW		a17 cAug 26	a17 cAug 26 2002
ANNUAL RUNOFF (CFSM)	0.51	0.19	0.98
ANNUAL RUNOFF (INCHES)	6.89	2.57	13.28
10 PERCENT EXCEEDS	1480	633	3200
50 PERCENT EXCEEDS	267	95	650
90 PERCENT EXCEEDS	52	29	134

- a Result of regulation.
- b Also Nov. 9, 2001.
- c Also Aug. 27, 2002.
- e Estimated.



02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1991 to September 1993.

WATER TEMPERATURE: October 1991 to September 1993.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey or the Virginia Division of Consolidated Laboratory Services (VDCLS), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE NUMBER (00028)	AGENCY COL-LECTING SAMPLE NUMBER (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	
OCT												
06...	1017	BLANK	USGS	USGS	--	--	--	--	--	--	--	
11...	0800	ENVIRONMENTAL	VDCLS	USGS	1.82	132	3.7	755	9.0	88	7.1	92
25...	1015	ENVIRONMENTAL	VDCLS	USGS	1.74	115	2.3	763	9.3	95	6.7	104
NOV												
09...	1330	ENVIRONMENTAL	VDCLS	USGS	1.92	156	4.9	750	9.8	101	7.3	95
28...	1230	ENVIRONMENTAL	VDCLS	USGS	2.94	566	4.0	755	11.7	106	7.4	98
DEC												
05...	0845	ENVIRONMENTAL	VDCLS	USGS	2.23	248	2.8	759	13.2	106	7.1	99
18...	1300	ENVIRONMENTAL	VDCLS	USGS	4.73	2030	12	757	11.0	90	7.1	101
26...	1115	ENVIRONMENTAL	VDCLS	USGS	2.43	323	6.9	770	14.0	102	7.1	96
JAN												
03...	1100	ENVIRONMENTAL	VDCLS	USGS	2.41	312	12	760	13.9	100	7.1	96
03...	1115	REPLICATE	VDCLS	USGS	2.41	312	14	760	13.9	100	7.1	96
16...	0815	ENVIRONMENTAL	VDCLS	USGS	2.57	380	14	760	12.3	95	6.9	89
23...	1230	ENVIRONMENTAL	VDCLS	USGS	5.56	3010	11	760	15.0	115	7.3	104
FEB												
07...	1200	ENVIRONMENTAL	VDCLS	USGS	2.97	583	30	764	12.9	103	7.1	85
22...	0815	ENVIRONMENTAL	VDCLS	USGS	3.78	1140	9.0	760	12.4	102	7.2	85
MAR												
06...	1100	ENVIRONMENTAL	VDCLS	USGS	3.45	939	9.6	742	13.7	118	7.2	86
16...	1015	ENVIRONMENTAL	VDCLS	USGS	3.81	1200	7.8	754	12.4	110	7.5	96
16...	1030	REPLICATE	VDCLS	USGS	3.81	1200	7.7	754	12.4	110	7.5	96
23...	0915	ENVIRONMENTAL	VDCLS	USGS	8.80	8280	21	753	11.2	101	6.3	62
27...	1015	ENVIRONMENTAL	VDCLS	USGS	5.42	2950	60	764	10.8	96	7.4	60
29...	0800	ENVIRONMENTAL	VDCLS	USGS	3.87	1350	40	760	10.3	92	7.1	64
29...	0805	REPLICATE	USGS	USGS	3.87	1350	--	760	10.3	92	7.1	64
APR												
02...	1115	ENVIRONMENTAL	VDCLS	USGS	8.83	8480	45	756	11.2	100	6.4	55
02...	1120	REPLICATE	USGS	USGS	8.83	8480	--	756	11.2	100	6.4	55
12...	0945	ENVIRONMENTAL	VDCLS	USGS	3.56	994	19	757	10.0	100	7.2	65
23...	0800	ENVIRONMENTAL	VDCLS	USGS	2.65	523	4.7	761	9.4	98	7.2	76
MAY												
02...	1030	ENVIRONMENTAL	VDCLS	USGS	2.49	384	3.4	755	11.3	122	7.2	82
22...	1300	ENVIRONMENTAL	VDCLS	USGS	3.23	795	11	749	8.6	99	7.4	95
24...	1130	ENVIRONMENTAL	VDCLS	USGS	2.46	363	3.4	755	9.9	115	7.1	97
29...	1200	ENVIRONMENTAL	VDCLS	USGS	3.94	1380	5.8	753	8.8	102	7.2	98
JUN												
04...	1115	ENVIRONMENTAL	VDCLS	USGS	4.63	2020	8.2	757	8.4	97	7.2	96
05...	1100	ENVIRONMENTAL	VDCLS	USGS	4.07	1500	10	755	9.7	112	7.8	97
08...	1010	BLANK	VDCLS	USGS	--	--	1.0	--	--	--	--	--
08...	1015	ENVIRONMENTAL	VDCLS	USGS	5.47	2970	8.5	755	10.4	121	7.2	75
13...	1300	ENVIRONMENTAL	VDCLS	USGS	2.85	544	9.2	753	8.9	111	6.8	79
18...	1015	ENVIRONMENTAL	VDCLS	USGS	5.10	2510	10	765	11.2	138	7.3	81
22...	0800	ENVIRONMENTAL	VDCLS	USGS	2.45	351	8.2	756	13.5	165	7.2	78
JUL												
09...	1345	ENVIRONMENTAL	VDCLS	USGS	1.79	127	3.0	750	8.2	106	7.3	92
23...	1100	ENVIRONMENTAL	VDCLS	USGS	1.63	95	3.8	755	6.6	81	7.4	97
AUG												
09...	1100	ENVIRONMENTAL	VDCLS	USGS	1.67	102	2.4	753	7.5	100	7.5	93
14...	0945	ENVIRONMENTAL	VDCLS	USGS	3.73	1130	--	753	6.8	88	7.6	92
21...	1215	ENVIRONMENTAL	VDCLS	USGS	1.69	102	3.6	758	4.7	59	7.4	105
SEP												
05...	1000	ENVIRONMENTAL	VDCLS	USGS	1.58	84	4.1	755	6.2	74	7.1	110
17...	1055	BLANK	VDCLS	USGS	--	--	1.1	--	--	--	--	--
17...	1100	ENVIRONMENTAL	VDCLS	USGS	1.56	80	4.0	758	7.3	82	7.2	105

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
06...	--	--	< 5	--	<10	--	.003	E.06	<.08	--	--	<.005	--
11...	8.0	14.0	14.7	<3	<3	<3	.005	--	--	.48	.19	.190	.002
25...	15.5	16.1	14.7	<3	<3	<3	<.004	--	--	.40	.12	.118	<.002
NOV													
09...	18.5	16.2	15.3	<3	<3	<3	.010	--	--	.41	.11	.111	.002
28...	13.5	10.5	16.4	<3	4	<3	.064	--	--	.46	.06	.080	.023
DEC													
05...	.5	5.8	17.6	<3	<3	<3	.051	--	--	.40	.08	.096	.013
18...	5.5	6.6	16.1	13	17	4	.032	16.1	--	.35	.04	.047	.002
26...	-1.0	2.7	16.3	<3	<3	<3	.008	--	--	.30	.14	.136	<.002
JAN													
03...	.0	1.9	14.7	3	5	<3	.030	--	--	.55	.26	.261	.002
03...	.0	1.9	14.8	<3	<3	<3	.030	--	--	.44	.26	.262	.002
16...	1.5	4.1	14.4	<3	4	<3	.068	--	--	.69	.30	.308	.004
23...	5.0	4.1	17.0	5	7	<3	.019	--	--	.44	.27	.270	<.002
FEB													
07...	12.5	5.8	10.8	3	5	<3	.066	--	--	.83	.40	.408	.004
22...	.0	6.7	15.0	4	6	<3	.014	--	--	.41	.19	.189	<.002
MAR													
06...	4.5	7.8	14.1	4	6	<3	.012	--	--	.49	.19	.190	.002
16...	11.0	9.8	9.80	<3	4	<3	.011	--	--	.79	.12	.116	<.002
16...	11.0	9.8	10.4	3	4	3	.011	--	--	.41	.11	.114	.002
23...	12.5	10.3	12.1	16	20	4	.021	--	--	.47	.14	.137	<.002
27...	3.0	10.7	9.60	26	35	9	.038	--	--	.68	.25	.249	.003
29...	7.5	10.2	10.3	9	13	4	.048	--	--	.69	.24	.240	.002
29...	7.5	10.2	10.4	--	11	--	.049	.46	.63	.68	--	.214	--
APR													
02...	14.0	10.1	8.10	19	24	5	.035	--	--	.73	.22	.221	<.002
02...	14.0	10.1	8.7	--	26	--	.034	.42	.51	.63	--	.211	--
12...	17.5	14.8	10.3	3	5	<3	.043	--	--	.58	.13	.134	<.002
23...	18.0	17.4	8.70	<3	4	<3	.019	--	--	.38	.04	.043	<.002
MAY													
02...	20.0	18.6	10.4	<3	4	<3	.012	--	--	.40	.03	.034	<.002
22...	24.5	21.9	10.9	11	17	6	.027	--	--	.39	.05	.049	<.002
24...	21.0	22.1	11.0	<3	3	3	.013	--	--	.32	.03	.034	<.002
29...	22.0	22.1	11.6	<3	6	4	.010	--	--	.31	.01	.013	<.002
JUN													
04...	21.0	22.4	--	4	9	5	.026	--	--	.39	.07	.076	.002
05...	22.0	22.3	13.7	6	10	4	.058	--	--	.51	.14	.141	.004
08...	--	--	.100	3	3	3	.009	--	--	.03	M	.004	.002
08...	21.5	22.4	14.2	4	10	6	.059	--	--	.53	.11	.112	.004
13...	33.0	26.0	13.0	<3	4	<3	.049	--	--	.63	.21	.213	.006
18...	31.0	26.1	13.6	4	8	4	.049	--	--	.45	.08	.086	.003
22...	31.5	25.0	11.4	<3	4	4	.026	--	--	.62	.22	.228	.007
JUL													
09...	29.5	27.7	13.4	3	3	3	.014	--	--	.69	.32	.322	.005
23...	30.0	25.3	11.0	<3	<3	<3	.011	--	--	.86	.42	.421	.005
AUG													
09...	32.0	29.9	13.0	<3	<3	<3	.014	--	--	.51	.14	.142	<.002
14...	24.0	27.5	14.1	20	28	8	.057	--	--	.49	.06	.062	<.002
21...	30.5	26.7	14.7	<3	<3	<3	.050	--	--	.89	.45	.474	.020
SEP													
05...	22.5	24.0	11.1	<3	<3	<3	.015	--	--	.81	.54	.552	.015
17...	--	--	.100	3	3	3	.004	--	--	.05	.01	.005	.002
17...	25.5	20.6	15.7	<3	<3	<3	.010	--	--	1.0	.50	.502	.006

WATER YEAR DATA

2001

JAMES RIVER BASIN

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGEN TOTAL SEDIMNT SUSP TOTAL (MG/L AS N) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL (MG/L AS P) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT								
06...	<.06	.001	<.06	--	--	--	--	--
11...	.014	.008	--	.02	.006	.2	--	1.4
25...	.009	.007	--	.02	.005	.1	73	3.0
NOV								
09...	.007	.005	--	.04	.009	.3	--	1.2
28...	.013	.004	--	.06	.012	.5	--	3.3
DEC								
05...	.013	.011	--	.04	.008	.3	--	2.9
18...	.016	.003	--	.20	.042	1.5	79	18
26...	.011	.004	--	.07	.018	.5	--	4.0
JAN								
03...	.027	.010	--	.07	.022	.5	--	6.1
03...	.019	.012	--	.08	.022	.5	--	6.1
16...	.038	.010	--	.06	.023	.5	--	6.1
23...	.028	.003	--	.08	.022	.6	--	7.9
FEB								
07...	.037	.012	--	.07	.029	.5	--	8.4
22...	.009	.009	--	.11	.021	.6	--	12
MAR								
06...	.010	.009	--	.10	.024	.6	--	40
16...	.014	.006	--	.10	.025	.5	--	7.2
16...	.012	.005	--	.10	.021	.6	--	7.1
23...	.040	.007	--	.14	.035	.9	--	21
27...	.030	.012	--	.18	.073	1.3	--	72
29...	.041	.014	--	.11	.049	.7	--	17
29...	E.03	.011	.09	--	--	--	--	--
APR								
02...	.048	.022	--	.17	.064	1.0	--	31
02...	E.04	.023	.08	--	--	--	--	--
12...	.043	.008	--	.08	.028	.5	--	8.6
23...	.014	.006	--	.07	.016	.4	--	4.6
MAY								
02...	.017	.006	--	.04	.008	.3	--	7.7
22...	.020	.010	--	.20	.034	1.4	--	17
24...	.007	.006	--	.11	.017	.8	--	3.5
29...	.016	.003	--	--	.024	--	--	7.2
JUN								
04...	.006	.003	--	--	.026	2.0	--	8.1
05...	.017	.004	--	--	.027	--	--	8.0
08...	.006	.002	--	.01	.001	.1	--	--
08...	.023	.004	--	.11	.030	.6	--	7.4
13...	.032	.012	--	.06	.013	.5	--	5.3
18...	.022	.006	--	.14	.025	1.2	--	8.3
22...	.031	.011	--	.05	.009	.8	--	4.9
JUL								
09...	.039	.022	--	.04	.005	.4	--	6.1
23...	.057	.021	--	.03	.007	.2	--	3.7
AUG								
09...	.018	.027	--	.04	.007	.3	--	4.3
14...	.010	.006	--	.27	.048	1.9	--	32
21...	.072	.024	--	.06	.013	.5	--	5.7
SEP								
05...	.122	.034	--	.04	.008	.4	--	2.9
17...	.012	.003	--	.01	.001	.5	--	--
17...	.068	.025	--	.03	.008	.4	--	1.0

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	AGENCY COL-LECTING SAMPLE (CODE NUMBER) (00027)	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
OCT												
03...	1115	ENVIRONMENTAL	VDCLS	USGS	1.37	52	1.7	756	10.1	114	7.3	100
22...	1030	ENVIRONMENTAL	VDCLS	USGS	1.39	52	2.0	754	7.5	80	7.2	100
NOV												
06...	1100	ENVIRONMENTAL	VDCLS	USGS	1.25	38	1.7	759	11.1	101	8.3	112
26...	1245	ENVIRONMENTAL	VDCLS	USGS	1.44	58	1.8	758	11.8	117	7.4	109
DEC												
03...	1045	ENVIRONMENTAL	VDCLS	USGS	1.46	60	2.4	760	11.7	105	8.1	121
14...	0855	BLANK	VDCLS	USGS	--	--	.10	--	--	--	--	--
14...	0900	ENVIRONMENTAL	VDCLS	USGS	2.55	372	11	755	11.1	107	7.8	108
20...	1100	ENVIRONMENTAL	VDCLS	USGS	1.64	93	2.3	751	10.5	94	7.3	105
20...	1115	REPLICATE	VDCLS	USGS	1.64	93	2.6	751	10.5	94	7.3	105
JAN												
02...	1115	ENVIRONMENTAL	VDCLS	USGS	1.73	123	2.1	763	11.3	88	6.8	112
17...	1100	ENVIRONMENTAL	VDCLS	USGS	2.12	242	4.3	755	13.3	108	7.2	113
FEB												
05...	1415	ENVIRONMENTAL	VDCLS	USGS	2.11	238	--	765	13.8	115	7.8	106
08...	0930	ENVIRONMENTAL	VDCLS	USGS	3.31	844	6.2	759	11.8	97	7.7	103
19...	1245	ENVIRONMENTAL	VDCLS	USGS	2.12	242	2.5	762	13.2	113	7.7	100
MAR												
04...	1000	ENVIRONMENTAL	VDCLS	USGS	2.76	507	4.5	756	11.6	99	6.4	102
13...	1330	ENVIRONMENTAL	VDCLS	USGS	2.38	335	2.3	750	11.4	104	7.5	98
18...	1115	ENVIRONMENTAL	VDCLS	USGS	3.85	1280	9.6	755	11.4	105	7.7	106
18...	1120	REPLICATE	USGS	USGS	3.85	1280	--	755	11.4	105	7.7	106
26...	1130	ENVIRONMENTAL	VDCLS	USGS	3.17	816	17	760	13.0	117	7.5	90
APR												
01...	1400	ENVIRONMENTAL	VDCLS	USGS	3.56	1100	13	754	9.7	97	6.8	84
10...	1200	ENVIRONMENTAL	VDCLS	USGS	2.58	467	4.1	766	11.4	115	7.6	81
10...	1215	REPLICATE	VDCLS	USGS	2.58	467	4.5	766	11.4	115	7.6	81
30...	1030	ENVIRONMENTAL	VDCLS	USGS	2.11	272	2.6	754	9.8	106	7.2	96
MAY												
06...	1245	ENVIRONMENTAL	VDCLS	USGS	3.04	735	4.0	765	10.0	109	7.3	100
06...	1250	REPLICATE	USGS	USGS	3.03	728	--	765	10.0	109	7.3	100
14...	1115	ENVIRONMENTAL	VDCLS	USGS	2.68	550	2.8	751	8.6	101	7.1	106
29...	1015	ENVIRONMENTAL	VDCLS	USGS	1.72	169	2.0	758	8.7	98	7.3	107
JUN												
05...	1430	ENVIRONMENTAL	VDCLS	USGS	1.50	109	2.0	756	8.5	110	6.9	108
17...	1230	ENVIRONMENTAL	VDCLS	USGS	1.43	84	1.5	754	8.7	108	7.2	110
JUL												
18...	1330	ENVIRONMENTAL	VDCLS	USGS	1.26	40	2.4	754	9.1	122	8.0	120
23...	1330	ENVIRONMENTAL	VDCLS	USGS	1.24	38	1.7	758	8.3	109	7.2	119
AUG												
05...	1100	ENVIRONMENTAL	VDCLS	USGS	1.12	28	1.7	755	6.6	85	7.5	126
22...	0745	ENVIRONMENTAL	VDCLS	USGS	.91	19	1.9	760	5.9	73	7.2	146
SEP												
12...	1130	ENVIRONMENTAL	VDCLS	USGS	1.12	29	1.7	755	9.9	117	8.1	137
25...	0815	ENVIRONMENTAL	VDCLS	USGS	1.24	35	1.0	762	9.5	105	7.4	142
25...	0830	BLANK	VDCLS	USGS	--	--	.10	--	--	--	--	--

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	RESIDUE FIXED NON FILTER- ABLE (MG/L) (00540)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDEED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT													
03...	25.5	20.6	10.7	<3	<3	<3	.006	--	--	.53	.19	.191	<.002
22...	19.0	17.9	11.1	<3	<3	<3	.006	--	--	.41	.10	.098	<.002
NOV													
06...	12.5	11.1	11.9	<3	<3	<3	.005	--	--	.30	.05	.052	<.002
26...	20.0	14.9	12.7	<3	<3	<3	.009	--	--	.47	.14	.142	.002
DEC													
03...	16.0	10.8	14.9	<3	<3	<3	<.004	--	--	.47	.15	.152	<.002
14...	--	--	.100	<3	<3	<3	.010	--	--	.05	.01	.006	<.002
14...	15.0	13.3	16.1	8	13	5	.082	--	--	.35	.06	.061	<.002
20...	9.0	9.6	--	<3	<3	<3	.049	--	--	.46	.15	.149	<.002
20...	9.0	9.6	11.8	<3	<3	<3	.090	--	--	.48	.15	.150	.004
JAN													
02...	2.0	4.9	2.20	<3	<3	<3	.073	--	--	.45	.12	.127	.008
17...	4.5	5.8	13.3	<3	3	<3	.007	--	--	.41	.07	.072	<.002
FEB													
05...	5.0	7.8	16.9	--	--	--	.009	--	--	.41	.20	.196	<.002
08...	1.0	7.0	15.9	4	7	3	.017	--	--	.44	.20	.200	<.002
19...	16.0	8.8	.100	<3	<3	<3	<.004	--	--	.41	.15	.155	.002
MAR													
04...	.5	8.3	15.9	10	19	9	.029	--	--	.35	.14	.141	<.002
13...	10.0	10.4	14.8	<3	<3	<3	.013	--	--	.35	.12	.121	<.002
18...	8.5	11.3	14.3	8	12	4	.020	--	--	.40	.09	.088	<.002
18...	8.5	11.3	14.0	--	13	<10	.022	.21	.39	.29	--	.084	--
26...	10.0	10.7	13.1	5	7	<3	.057	--	--	.87	.32	.317	.002
APR													
01...	17.0	14.7	13.5	4	6	<3	.032	--	--	.65	.26	.262	.002
10...	15.0	15.9	12.6	<3	<3	<3	.017	--	--	.49	.10	.097	<.002
10...	15.0	15.9	12.6	<3	3	<3	.017	--	--	.48	.09	.095	<.002
30...	17.0	18.6	11.4	<3	3	<3	.014	--	--	.32	.03	.033	<.002
MAY													
06...	24.0	20.0	12.7	<3	4	<3	.022	--	--	.36	.04	.036	<.002
06...	24.0	20.0	12.2	--	<10	<10	.026	.34	.50	.37	--	.035	--
14...	18.0	22.4	12.9	<3	4	<3	.014	--	--	.39	.03	.027	<.002
29...	20.0	21.2	13.6	<3	<3	<3	.032	--	--	.56	.17	.174	.006
JUN													
05...	35.5	27.9	14.0	<3	<3	<3	.021	--	--	.49	.18	.189	.004
17...	27.0	25.7	14.5	<3	<3	<3	.012	--	--	.50	.17	.169	<.002
JUL													
18...	34.0	30.4	15.2	<3	<3	<3	.012	--	--	.45	.12	.120	<.002
23...	32.0	29.5	16.0	<3	<3	<3	.008	--	--	.43	.11	.107	<.002
AUG													
05...	32.5	28.0	16.9	<3	<3	<3	.040	--	--	.48	.20	.198	<.002
22...	28.5	25.7	16.5	<3	3	<3	.014	--	--	.71	.02	.017	<.002
SEP													
12...	26.5	23.1	17.2	<3	3	<3	<.004	--	--	1.3	.72	.728	.006
25...	15.5	20.2	16.9	<3	<3	<3	<.004	--	--	1.0	.83	.837	.006
25...	--	--	<.100	<3	<3	<3	<.004	--	--	.01	<.004	<.004	<.002

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	NITROGEN TOTAL SEDIMNT SUSP TOTAL (MG/L AS N) (00601)	PHOS TOTAL SEDIMNT SUSP TOTAL (MG/L AS P) (00667)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT								
03...	.023	.009	--	.04	.006	.4	--	.5
22...	.014	.009	--	.03	.005	.3	--	1.4
NOV								
06...	.029	.021	--	.03	.004	.3	--	2.2
26...	.008	.007	--	.03	.005	.3	--	1.3
DEC								
03...	.026	.008	--	.03	.005	.2	--	1.3
14...	.007	<.002	--	.01	.003	.2	--	--
14...	.012	.007	--	.20	.035	1.5	--	--
20...	.021	.010	--	.03	.009	.4	--	3.2
20...	.016	.052	--	.03	.008	.4	--	3.8
JAN								
02...	.011	.013	--	--	.008	--	--	2.6
17...	.037	.004	--	.05	.027	.3	--	2.4
FEB								
05...	.012	.007	--	.04	.096	.4	--	3.9
08...	.017	.005	--	.18	.016	1.1	--	6.9
19...	.014	.008	--	.08	.006	.6	70	3.0
MAR								
04...	.015	.006	--	.12	.015	.7	--	3.4
13...	.019	.008	--	.06	.004	.5	--	3.3
18...	.031	.009	--	.20	.015	2.6	--	12
18...	<.06	<.007	E.05	--	--	--	--	--
26...	.045	.012	--	.09	.014	1.0	--	12
APR								
01...	.026	.009	--	.13	.015	1.0	91	7.0
10...	.032	.008	--	.06	.006	.4	68	8.0
10...	.035	.009	--	.07	.006	.6	81	6.0
30...	.023	.007	--	.11	.009	.8	68	6.0
MAY								
06...	.005	.006	--	.12	--	.9	75	5.0
06...	<.06	<.007	<.06	--	--	--	--	--
14...	.010	.006	--	.17	--	1.1	69	5.0
29...	.023	.011	--	.01	.006	.3	--	5.3
JUN								
05...	.022	.014	--	.03	.006	.3	--	2.3
17...	.019	.021	--	.03	.007	.3	--	1.7
JUL								
18...	.038	.032	--	.04	.008	.3	--	4.3
23...	.038	.024	--	.03	.006	.3	--	5.2
AUG								
05...	.057	.043	--	.03	.004	.3	--	4.3
22...	.039	--	--	.04	.010	.4	--	5.3
SEP								
12...	.024	.015	--	.03	.005	.6	--	4.1
25...	.019	.011	--	.03	.005	.2	--	1.6
25...	<.001	.004	--	<.01	.001	M	--	--

JAMES RIVER BASIN

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA

LOCATION.--Lat 37°26'11", long 77°03'39", NAD83, New Kent County, Hydrologic Unit 02080206, on left bank 100 ft downstream from bridge on State Highway 618, 1.1 mi southwest of Providence Forge, and 1.7 mi downstream from Schiminoe Creek.

DRAINAGE AREA.--252 mi².

PERIOD OF RECORD.--January 1942 to current year.

REVISED RECORDS.--WSP 1553: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6.07 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except for period with backwater from leaves, Oct. 25 to Dec. 10, which is fair. Maximum discharge, 7,710 ft³/s, from rating curve extended above 5,520 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

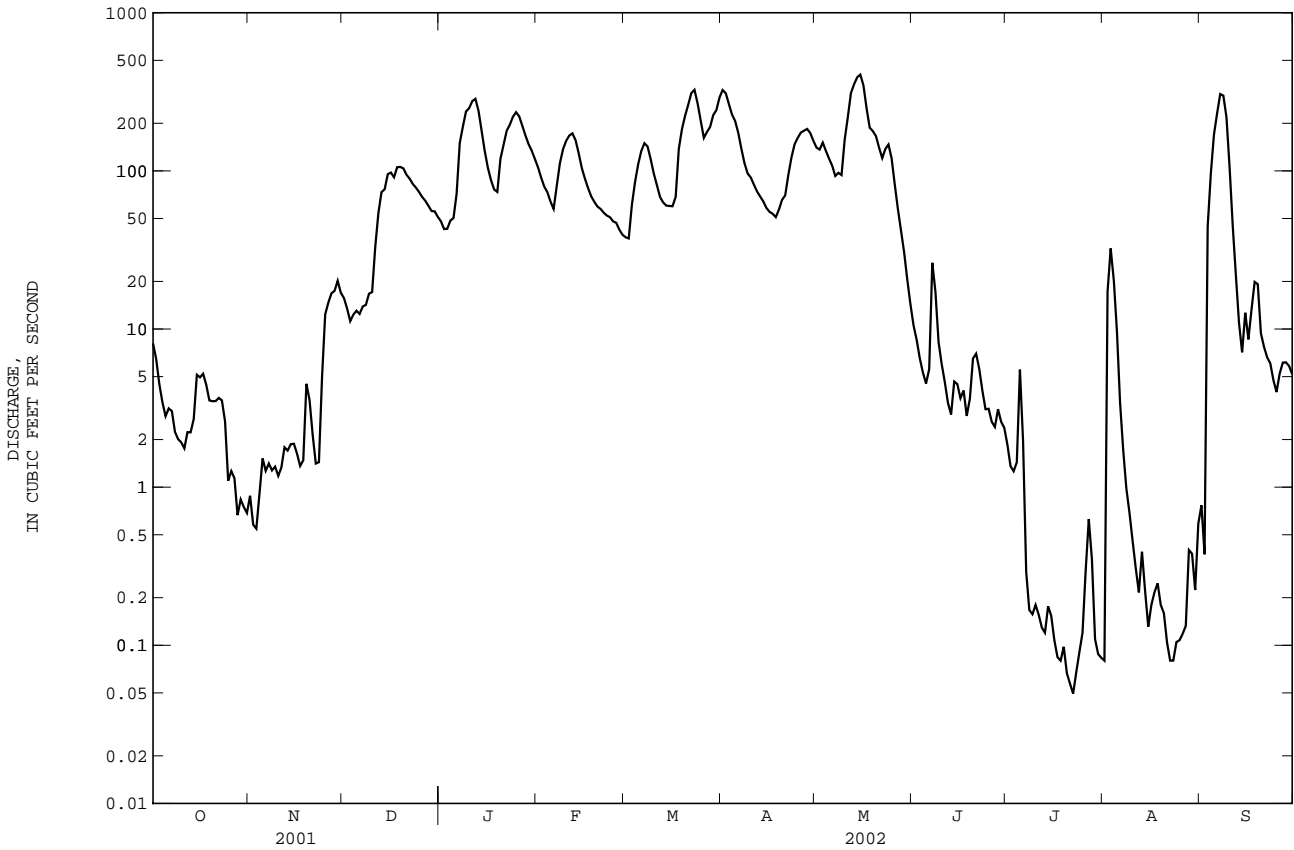
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	0.88	16	48	105	38	325	140	11	1.9	0.08	0.77
2	6.5	0.58	13	43	91	37	310	137	8.6	1.4	17	0.38
3	4.5	0.55	11	43	80	61	265	151	6.5	1.3	32	45
4	3.4	0.91	12	48	73	85	227	134	5.3	1.4	20	96
5	2.8	1.5	13	50	64	110	207	120	4.5	5.5	9.6	170
6	3.1	1.3	12	72	57	133	174	108	5.6	2.0	3.4	231
7	3.0	1.4	14	150	80	150	138	93	26	0.29	1.7	306
8	2.2	1.3	14	191	112	143	111	97	17	0.17	0.99	299
9	2.0	1.3	17	238	137	119	96	94	8.3	0.16	0.69	219
10	1.9	1.2	17	249	155	96	91	157	6.0	0.18	0.46	105
11	1.8	1.3	33	276	167	81	82	218	4.6	0.16	0.31	45
12	2.2	1.8	54	286	173	68	74	311	3.4	0.13	0.22	22
13	2.2	1.7	73	240	157	63	69	353	2.9	0.12	0.39	11
14	2.7	1.9	77	179	129	60	64	391	4.7	0.18	0.22	7.1
15	5.1	1.9	95	133	104	60	58	407	4.5	0.15	0.13	13
16	4.9	1.6	98	104	89	60	55	347	3.7	0.11	0.18	8.6
17	5.2	1.4	91	87	78	69	54	248	4.1	0.08	0.22	13
18	4.4	1.5	106	76	69	138	51	188	2.8	0.08	0.25	20
19	3.5	4.5	106	74	64	184	57	179	3.6	0.10	0.18	19
20	3.5	3.6	104	119	60	223	66	166	6.5	0.07	0.16	9.4
21	3.5	2.1	94	146	57	262	70	140	7.0	0.06	0.10	7.7
22	3.7	1.4	89	179	54	311	94	121	5.6	0.05	0.08	6.6
23	3.5	1.4	83	196	52	326	122	138	4.1	0.07	0.08	6.1
24	2.6	5.0	78	220	51	267	147	147	3.1	0.09	0.10	4.7
25	1.1	12	74	235	48	208	162	120	3.1	0.12	0.11	4.0
26	1.3	15	68	221	47	162	175	82	2.6	0.29	0.12	5.2
27	1.1	17	65	193	42	176	180	57	2.4	0.63	0.13	6.1
28	0.67	17	60	167	39	190	184	42	3.1	0.35	0.40	6.2
29	0.84	20	56	147	---	225	174	30	2.6	0.11	0.38	5.8
30	0.75	17	55	134	---	242	155	21	2.4	0.09	0.22	5.2
31	0.69	---	51	119	---	291	---	14	---	0.08	0.59	---
TOTAL	92.75	140.02	1749	4663	2434	4638	4037	4951	175.6	17.42	90.49	1697.85
MEAN	2.99	4.67	56.4	150	86.9	150	135	160	5.85	0.56	2.92	56.6
MAX	8.1	20	106	286	173	326	325	407	26	5.5	32	306
MIN	0.67	0.55	11	43	39	37	51	14	2.4	0.05	0.08	0.38
CFSM	0.01	0.02	0.22	0.60	0.34	0.59	0.53	0.63	0.02	0.00	0.01	0.22
IN.	0.01	0.02	0.26	0.69	0.36	0.68	0.60	0.73	0.03	0.00	0.01	0.25

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	142	199	278	371	418	469	380	233	163	143	158	124
MAX	794	768	1043	1214	1198	1055	1152	676	757	1081	1445	1142
(WY)	1980	1986	1958	1978	1998	1998	1984	1978	1972	1945	1955	1999
MIN	2.99	4.67	28.0	58.7	86.9	108	102	34.9	5.85	0.56	2.92	0.17
(WY)	2002	2002	1966	1955	2002	1981	1995	1985	2002	2002	2002	1997

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1942 - 2002	
ANNUAL TOTAL	58386.64		24686.13			
ANNUAL MEAN	160		67.6		258	
HIGHEST ANNUAL MEAN					482	
LOWEST ANNUAL MEAN					67.6	
HIGHEST DAILY MEAN	1530	Apr 3	407	May 15	6680	Aug 15 1955
LOWEST DAILY MEAN	0.55	Nov 3	0.05	Jul 22	0.05	Jul 22 2002
ANNUAL SEVEN-DAY MINIMUM	0.71	Oct 28	0.07	Jul 17	0.07	Jul 17 2002
MAXIMUM PEAK FLOW			418		7710	
MAXIMUM PEAK STAGE			6.78		11.67	
INSTANTANEOUS LOW FLOW			0.04		0.04	
ANNUAL RUNOFF (CFSM)	0.63		0.27		1.02	
ANNUAL RUNOFF (INCHES)	8.62		3.64		13.90	
10 PERCENT EXCEEDS	443		190		592	
50 PERCENT EXCEEDS	89		21		165	
90 PERCENT EXCEEDS	1.6		0.22		20	



GREAT DISMAL SWAMP BASIN

02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA

LOCATION.--Lat 36°35'43", long 76°26'22", NAD83, Chesapeake City, Hydrologic Unit 03010205, on right bank in outlet canal, 200 ft upstream from dam and gates, 0.5 mi downstream from Lake Drummond, 3.1 mi north of North Carolina State line, and 20 mi southwest of Norfolk.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1973, published as Lake Drummond in Dismal Swamp.

REVISED RECORDS.--WSP 1032: 1934-43.

GAGE.--Nonrecording gage. Datum of gage is 12.16 ft NGVD of 1929. Aug. 22, 1978, to Oct. 1, 1981, water-stage recorder at same site and datum.

REMARKS.--Mean daily gage heights are shown in table below.

COOPERATION.--Gage readings were provided by U.S. Army Corps of Engineers.

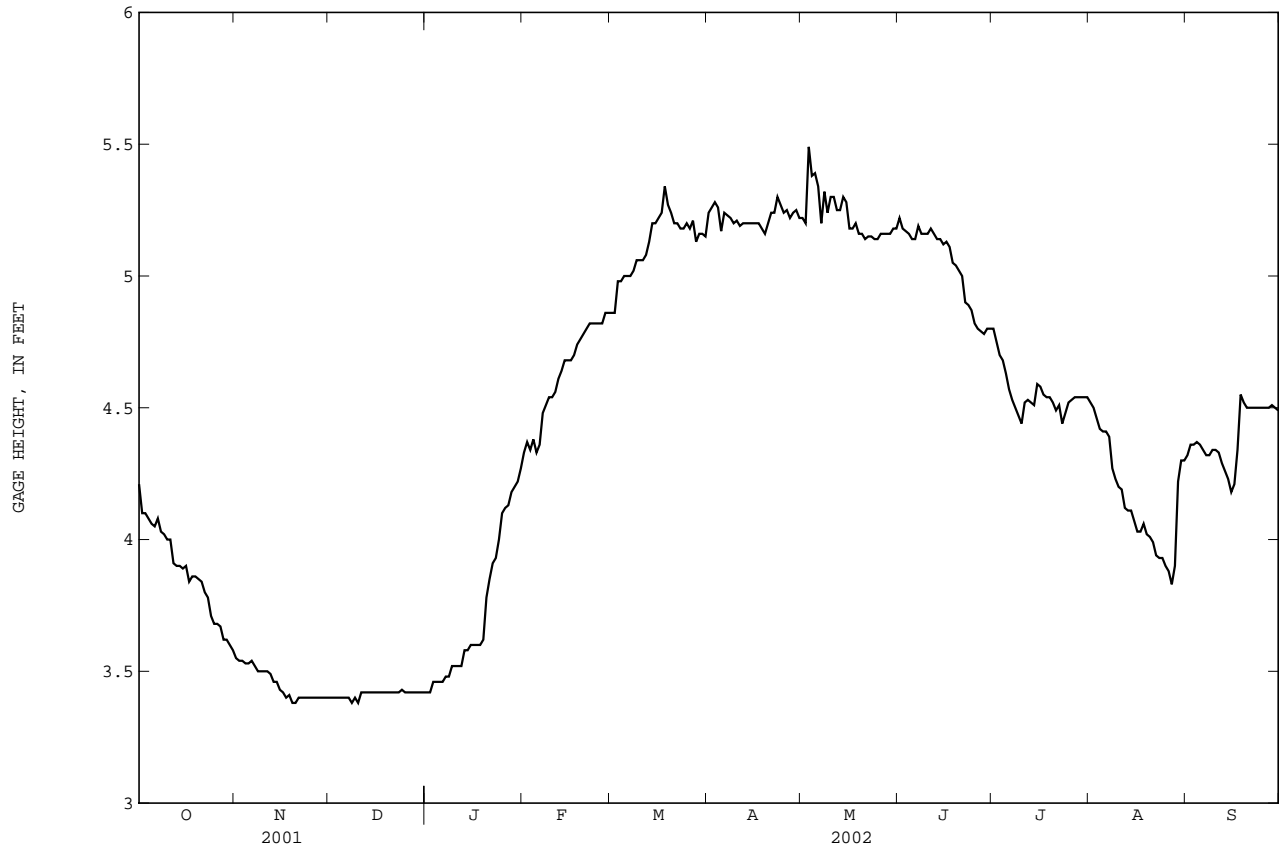
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 7.0 ft, from floodmark, probably occurred during period Sep. 16-18, 1999; minimum gage height, -0.67 ft, Nov. 3, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum instantaneous gage height, 5.40 ft, May 3; minimum instantaneous gage height, 3.38 ft, Nov. 19, 20 and Dec. 8, 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.21	3.55	3.40	3.42	4.33	4.86	5.24	5.22	5.22	4.80	4.52	4.32
2	4.10	3.54	3.40	3.42	4.37	4.86	5.26	5.20	5.18	4.75	4.50	4.36
3	4.10	3.54	3.40	3.46	4.34	4.98	5.28	5.49	5.17	4.70	4.46	4.36
4	4.08	3.53	3.40	3.46	4.38	4.98	5.26	5.38	5.16	4.68	4.42	4.37
5	4.06	3.53	3.40	3.46	4.33	5.00	5.17	5.39	5.14	4.63	4.41	4.36
6	4.05	3.54	3.40	3.46	4.36	5.00	5.24	5.34	5.14	4.57	4.41	4.34
7	4.08	3.52	3.40	3.48	4.48	5.00	5.23	5.20	5.19	4.53	4.39	4.32
8	4.03	3.50	3.38	3.48	4.51	5.02	5.22	5.32	5.16	4.50	4.27	4.32
9	4.02	3.50	3.40	3.52	4.54	5.06	5.20	5.24	5.16	4.47	4.23	4.34
10	4.00	3.50	3.38	3.52	4.54	5.06	5.21	5.30	5.16	4.44	4.20	4.34
11	4.00	3.50	3.42	3.52	4.56	5.06	5.19	5.30	5.18	4.52	4.19	4.33
12	3.91	3.49	3.42	3.52	4.61	5.08	5.20	5.25	5.16	4.53	4.12	4.29
13	3.90	3.46	3.42	3.58	4.64	5.13	5.20	5.25	5.14	4.52	4.11	4.26
14	3.90	3.46	3.42	3.58	4.68	5.20	5.20	5.30	5.14	4.51	4.11	4.23
15	3.89	3.43	3.42	3.60	4.68	5.20	5.20	5.28	5.12	4.59	4.07	4.18
16	3.90	3.42	3.42	3.60	4.68	5.22	5.20	5.18	5.13	4.58	4.03	4.21
17	3.84	3.40	3.42	3.60	4.70	5.24	5.20	5.18	5.11	4.55	4.03	4.34
18	3.86	3.41	3.42	3.60	4.74	5.34	5.18	5.20	5.05	4.54	4.06	4.55
19	3.86	3.38	3.42	3.62	4.76	5.27	5.16	5.16	5.04	4.54	4.02	4.52
20	3.85	3.38	3.42	3.78	4.78	5.24	5.20	5.16	5.02	4.52	4.01	4.50
21	3.84	3.40	3.42	3.85	4.80	5.20	5.24	5.14	5.00	4.49	3.99	4.50
22	3.80	3.40	3.42	3.91	4.82	5.20	5.24	5.15	4.90	4.51	3.94	4.50
23	3.78	3.40	3.42	3.93	4.82	5.18	5.30	5.15	4.89	4.44	3.93	4.50
24	3.71	3.40	3.43	4.00	4.82	5.18	5.27	5.14	4.87	4.48	3.93	4.50
25	3.68	3.40	3.42	4.10	4.82	5.20	5.24	5.14	4.82	4.52	3.90	4.50
26	3.68	3.40	3.42	4.12	4.82	5.18	5.25	5.16	4.80	4.53	3.88	4.50
27	3.67	3.40	3.42	4.13	4.86	5.21	5.22	5.16	4.79	4.54	3.83	4.50
28	3.62	3.40	3.42	4.18	4.86	5.13	5.24	5.16	4.78	4.54	3.90	4.51
29	3.62	3.40	3.42	4.20	---	5.16	5.25	5.16	4.80	4.54	4.22	4.50
30	3.60	3.40	3.42	4.22	---	5.16	5.22	5.18	4.80	4.54	4.30	4.49
31	3.58	---	3.42	4.27	---	5.15	---	5.18	---	4.54	4.30	---
MEAN	3.88	3.45	3.41	3.73	4.63	5.12	5.22	5.23	5.04	4.55	4.15	4.39
MAX	4.21	3.55	3.43	4.27	4.86	5.34	5.30	5.49	5.22	4.80	4.52	4.55
MIN	3.58	3.38	3.38	3.42	4.33	4.86	5.16	5.14	4.78	4.44	3.83	4.18

02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA--Continued



CHOWAN RIVER BASIN

02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

LOCATION.--Lat 36°59'01", long 77°47'59", NAD83, Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi upstream from Beaver Pond Creek, and 2.6 mi northwest of Rawlings.

DRAINAGE AREA.--309 mi².

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 184.88 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 4, and periods of no gage-height record, Mar. 26-28, June 22-25, and July 26-30, which are fair. Maximum discharge, 29,900 ft³/s, from rating curve extended above 16,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 20.8 ft, discharge, about 19,000 ft³/s, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
------	------	--------------------------------	------------------	------	------	--------------------------------	------------------

No peak greater than base discharge.

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	19	21	50	47	80	55	231	169	40	19	9.6	34
2	16	27	47	45	77	55	222	189	36	13	6.0	78
3	15	38	44	48	71	100	185	632	31	10	4.3	117
4	14	38	42	e51	69	204	156	860	25	8.3	3.2	69
5	14	37	41	55	66	188	135	497	22	7.0	2.8	41
6	12	37	41	74	60	135	122	360	20	5.7	2.4	26
7	13	34	44	181	99	109	113	248	24	5.4	2.0	17
8	12	33	44	215	212	95	107	186	24	5.3	1.3	12
9	11	34	47	158	233	87	105	203	22	4.7	0.89	9.0
10	10	34	46	125	167	83	107	385	19	4.0	0.73	7.3
11	11	36	59	115	134	75	102	239	17	4.9	0.60	6.0
12	11	35	82	109	110	71	98	156	15	3.9	0.61	5.2
13	12	34	90	100	98	71	125	123	13	3.1	0.59	4.2
14	12	34	81	87	88	75	114	130	12	3.0	0.58	3.5
15	15	36	71	77	83	78	100	127	18	3.0	0.73	3.3
16	16	38	61	70	80	76	93	114	20	2.9	0.93	5.5
17	13	38	55	64	77	82	100	95	16	2.9	1.5	23
18	14	39	72	65	73	283	90	90	11	3.7	2.2	30
19	12	38	81	69	69	856	91	100	8.9	7.0	1.5	24
20	13	43	79	152	68	523	98	102	7.4	6.9	1.2	17
21	15	42	65	219	69	303	92	91	6.6	9.2	1.2	13
22	16	41	57	185	70	236	95	76	e5.8	16	1.1	10
23	18	41	52	161	67	187	101	68	e5.0	15	0.95	8.1
24	19	45	56	173	64	156	94	65	e4.6	15	0.89	8.6
25	21	49	64	188	62	138	85	63	e6.0	23	1.2	7.1
26	20	54	62	161	59	e200	82	58	6.2	e26	2.0	6.3
27	17	54	57	136	60	e330	75	56	7.6	e15	2.6	7.5
28	15	52	54	116	60	e270	74	50	10	e50	4.1	12
29	12	50	54	102	---	252	123	46	21	e105	3.6	12
30	14	49	53	92	---	192	267	42	25	e56	3.4	9.3
31	17	---	49	84	---	182	---	39	---	16	8.3	---
TOTAL	449	1181	1800	3524	2525	5747	3582	5659	499.1	469.9	73.00	625.9
MEAN	14.5	39.4	58.1	114	90.2	185	119	183	16.6	15.2	2.35	20.9
MAX	21	54	90	219	233	856	267	860	40	105	9.6	117
MIN	10	21	41	45	59	55	74	39	4.6	2.9	0.58	3.3
CFSM	0.05	0.13	0.19	0.37	0.29	0.60	0.39	0.59	0.05	0.05	0.01	0.07
IN.	0.05	0.14	0.22	0.42	0.30	0.69	0.43	0.68	0.06	0.06	0.01	0.08

02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA--Continued

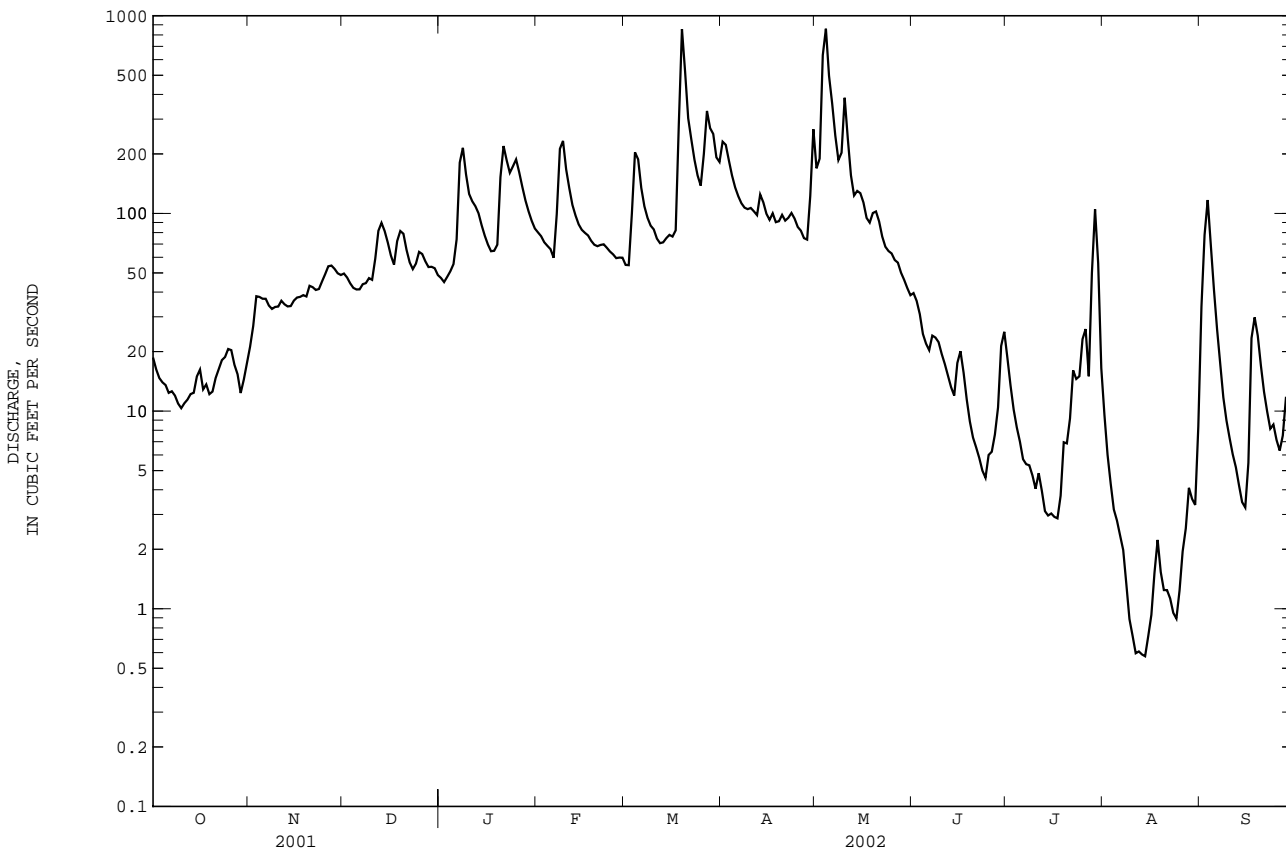
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	221	238	285	409	483	551	461	296	213	148	126	161
MAX	2024	1560	893	1289	1248	1350	1201	893	1359	965	650	1436
(WY)	1973	1986	1958	1978	1979	1998	1987	1958	1972	1975	1955	1979
MIN	13.0	39.4	58.1	95.0	90.2	126	119	98.3	16.7	15.2	2.35	3.62
(WY)	1964	2002	2002	1966	2002	1981	2002	1991	2002	2002	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1951 - 2002

ANNUAL TOTAL	72211	26135.90	
ANNUAL MEAN	198	71.6	298
HIGHEST ANNUAL MEAN			619
LOWEST ANNUAL MEAN			71.6
HIGHEST DAILY MEAN	5380	Mar 31	860
LOWEST DAILY MEAN	10	Oct 10	0.58
ANNUAL SEVEN-DAY MINIMUM	11	Oct 8	0.68
MAXIMUM PEAK FLOW			978
MAXIMUM PEAK STAGE			4.63
INSTANTANEOUS LOW FLOW			0.57
ANNUAL RUNOFF (CFSM)	0.64		0.23
ANNUAL RUNOFF (INCHES)	8.69		3.15
10 PERCENT EXCEEDS	314		171
50 PERCENT EXCEEDS	88		47
90 PERCENT EXCEEDS	21		4.1

a Also Aug. 12-15, 2002.
 b Also Oct. 15, 1954.
 e Estimated.



CHOWAN RIVER BASIN

02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA

LOCATION.--Lat 36°54'01", long 77°23'59", NAD83, Sussex County, Hydrologic Unit 03010201, on left bank 15 ft downstream from bridge on U.S. Highway 301, 1.8 mi upstream from Island Swamp, 3.3 mi south of town of Stony Creek, and 4.4 mi upstream from Stony Creek.

DRAINAGE AREA.--579 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 58.42 ft NGVD of 1929. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi upstream. Maximum discharge, 25,200 ft³/s, from rating curve extended above 13,000 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	31	35	64	64	155	99	619	356	68	26	42	35
2	28	33	61	61	143	96	703	359	63	24	32	27
3	25	39	60	62	136	119	507	1090	62	24	26	35
4	23	43	57	67	125	261	388	1430	56	23	22	118
5	22	51	53	78	117	384	298	1290	49	17	19	91
6	23	51	52	94	112	323	244	926	45	13	17	55
7	21	46	53	167	134	232	214	631	42	9.6	14	35
8	20	45	55	406	374	186	195	436	38	7.3	13	25
9	18	43	54	398	490	162	183	335	45	5.1	12	18
10	18	45	55	290	430	149	196	519	46	4.7	11	15
11	19	47	64	237	315	140	199	606	40	4.5	9.6	14
12	20	51	77	211	249	132	183	373	34	9.2	8.4	12
13	20	48	119	194	203	124	170	254	28	7.0	7.2	9.6
14	22	51	128	179	178	127	183	209	25	7.7	6.0	9.8
15	30	51	115	158	160	134	190	219	23	7.6	5.1	11
16	34	47	100	135	148	134	168	201	21	7.6	5.5	16
17	35	52	86	122	141	138	151	175	19	6.3	9.8	20
18	40	54	85	110	134	325	145	151	24	5.4	30	19
19	38	53	104	118	128	1200	138	139	23	5.6	13	21
20	35	54	129	336	122	1350	129	148	19	8.7	7.3	30
21	34	54	114	547	120	830	135	144	18	12	5.9	25
22	33	55	99	498	118	549	134	133	15	11	4.7	20
23	32	60	83	404	118	408	134	123	14	9.3	3.5	17
24	30	56	76	416	115	308	132	107	11	7.5	1.7	15
25	31	59	72	438	110	246	130	99	9.6	8.5	1.5	14
26	35	66	79	448	106	211	120	95	8.7	43	2.0	15
27	39	71	83	350	102	624	114	93	8.9	29	2.8	16
28	38	74	79	275	100	829	108	86	11	121	26	15
29	39	70	74	227	---	675	116	84	12	189	22	14
30	40	66	68	196	---	467	197	79	25	96	17	14
31	39	---	67	174	---	370	---	75	---	61	21	---
TOTAL	912	1570	2465	7460	4883	11332	6523	10965	903.2	810.6	418.0	781.4
MEAN	29.4	52.3	79.5	241	174	366	217	354	30.1	26.1	13.5	26.0
MAX	40	74	129	547	490	1350	703	1430	68	189	42	118
MIN	18	33	52	61	100	96	108	75	8.7	4.5	1.5	9.6
CFSM	0.05	0.09	0.14	0.42	0.30	0.63	0.38	0.61	0.05	0.05	0.02	0.04
IN.	0.06	0.10	0.16	0.48	0.31	0.73	0.42	0.70	0.06	0.05	0.03	0.05

02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA--Continued

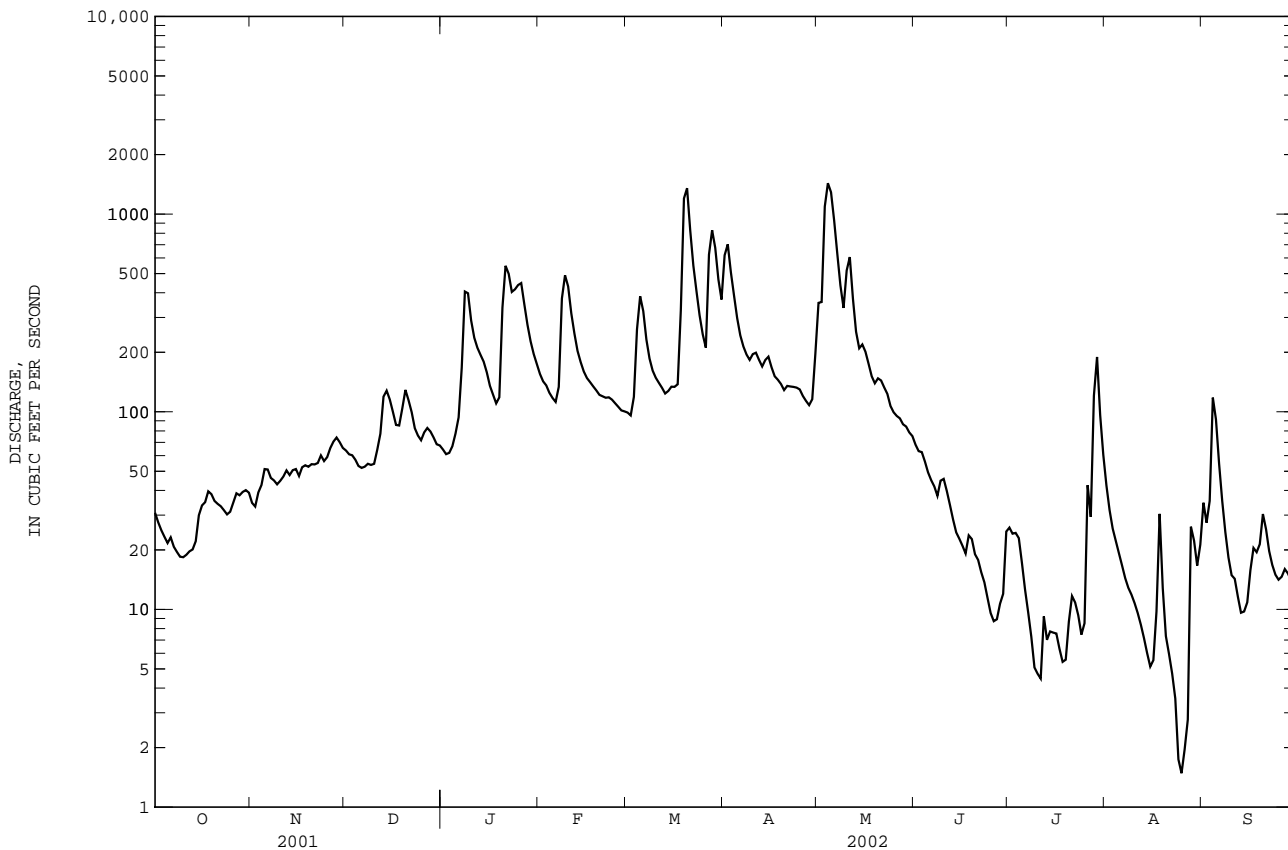
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	306	396	508	811	923	1028	860	529	338	341	293	303
MAX	2666	2800	1783	2578	2355	2827	2261	1878	1612	2423	3057	2802
(WY)	1973	1986	1958	1936	1979	1998	1987	1958	1938	1938	1940	1999
MIN	14.0	43.1	65.7	109	174	196	192	129	30.1	26.1	13.5	9.40
(WY)	1931	1942	1966	1966	2002	1981	1966	1942	2002	2002	2002	1932

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1931 - 2002

ANNUAL TOTAL		128778		49023.2								
ANNUAL MEAN		353		134						551		
HIGHEST ANNUAL MEAN										1100		1973
LOWEST ANNUAL MEAN										134		2002
HIGHEST DAILY MEAN			5860	Apr 2		1430	May 4		24000		Aug 17	1940
LOWEST DAILY MEAN			18	aOct 9		1.5	Aug 25		1.5		Aug 25	2002
ANNUAL SEVEN-DAY MINIMUM			19	Oct 7		3.2	Aug 21		3.2		Aug 21	2002
MAXIMUM PEAK FLOW						1480	May 3		25200		Aug 17	1940
MAXIMUM PEAK STAGE						8.21	May 3		23.66		Aug 17	1940
INSTANTANEOUS LOW FLOW						1.3	Aug 25		1.3		Aug 25	2002
ANNUAL RUNOFF (CFSM)			0.61			0.23			0.95			
ANNUAL RUNOFF (INCHES)			8.27			3.15			12.93			
10 PERCENT EXCEEDS			676			357			1150			
50 PERCENT EXCEEDS			145			63			296			
90 PERCENT EXCEEDS			37			9.8			59			

a Also Oct. 10, 2001.



CHOWAN RIVER BASIN

02046000 STONY CREEK NEAR DINWIDDIE, VA

LOCATION.--Lat 37°04'02", long 77°36'09", NAD83, Dinwiddie County, Hydrologic Unit 03010201, on right bank at upstream side of upstream bridge on U.S. Highway 1, 1.2 mi southwest of Dinwiddie, 1.7 mi downstream from Chamberlains Bed Creek, and 5.7 mi downstream from confluence of White Oak and Butterwood Creeks.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

REVISED RECORDS.--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 129.94 ft NGVD of 1929. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Oct. 15, and period with ice effect, Jan. 3, 4, which are fair. Maximum discharge, 11,400 ft³/s, from rating curve extended above 5,800 ft³/s on basis of contracted-opening measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	1.5	3.0	4.9	4.9	17	10	161	18	5.3	4.1	2.1	8.7
2	1.5	3.2	4.8	4.7	15	11	103	17	5.3	3.1	1.6	14
3	1.4	3.4	4.9	e5.0	14	22	72	100	5.1	2.3	1.3	7.2
4	1.3	3.3	5.0	e5.5	13	33	59	76	5.1	2.1	1.2	5.5
5	1.3	3.2	4.9	5.7	12	31	49	113	5.3	2.4	1.0	4.6
6	1.6	3.0	5.0	9.8	12	26	42	81	5.5	1.4	0.76	3.7
7	1.4	3.1	5.0	35	40	22	37	57	8.0	1.0	0.48	2.8
8	1.1	3.5	5.3	32	85	19	32	85	8.4	0.84	0.34	2.4
9	0.97	3.7	5.3	25	57	18	29	127	7.4	0.65	0.18	2.1
10	0.97	3.6	5.6	21	40	17	29	101	7.5	0.51	0.15	1.8
11	0.83	3.7	6.0	20	31	15	28	60	6.0	0.37	0.12	1.5
12	0.73	3.5	8.9	17	26	14	25	39	6.1	0.25	0.02	1.3
13	0.74	4.2	8.9	16	22	14	24	29	5.2	0.18	0.00	1.3
14	0.90	3.9	8.2	14	20	15	23	29	4.9	0.34	0.00	1.1
15	e1.0	4.0	7.2	13	19	15	22	26	5.9	0.47	0.00	1.3
16	1.2	4.1	6.3	11	17	13	21	21	5.5	0.47	0.02	2.8
17	1.8	4.1	5.5	10	16	17	19	17	5.3	0.40	0.05	3.2
18	2.1	4.1	7.8	9.3	15	182	18	16	4.8	0.34	1.3	2.9
19	2.3	4.0	9.8	11	14	234	16	19	4.4	0.15	3.8	2.3
20	2.3	4.3	8.9	61	14	126	14	16	4.0	0.13	2.1	1.9
21	2.2	4.3	7.8	55	13	91	14	13	3.7	0.14	1.4	1.6
22	2.2	4.1	6.9	45	13	67	17	12	3.4	0.07	0.80	1.1
23	2.4	4.2	6.1	40	13	52	19	10	3.2	0.04	0.37	0.60
24	2.6	4.7	6.3	54	12	43	17	9.5	3.1	0.41	0.20	0.39
25	2.7	4.9	6.5	47	12	37	16	8.2	3.2	9.6	0.13	0.17
26	2.5	5.2	6.0	40	12	33	15	7.5	3.1	7.5	0.25	0.15
27	2.7	5.7	5.7	32	11	63	13	7.0	3.4	7.4	0.22	0.26
28	2.9	5.8	5.6	26	11	70	13	6.2	7.2	5.4	3.2	0.25
29	3.1	5.5	5.4	22	---	63	19	5.5	9.5	4.4	9.7	0.20
30	3.1	5.3	5.1	20	---	55	21	5.3	6.1	3.6	5.1	0.14
31	3.1	---	4.9	18	---	55	---	5.0	---	2.7	4.0	---
TOTAL	56.44	122.6	194.5	729.9	596	1483	987	1136.2	160.9	62.76	41.89	77.26
MEAN	1.82	4.09	6.27	23.5	21.3	47.8	32.9	36.7	5.36	2.02	1.35	2.58
MAX	3.1	5.8	9.8	61	85	234	161	127	9.5	9.6	9.7	14
MIN	0.73	3.0	4.8	4.7	11	10	13	5.0	3.1	0.04	0.00	0.14
CFSM	0.02	0.04	0.06	0.21	0.19	0.43	0.29	0.33	0.05	0.02	0.01	0.02
IN.	0.02	0.04	0.06	0.24	0.20	0.49	0.33	0.38	0.05	0.02	0.01	0.03

02046000 STONY CREEK NEAR DINWIDDIE, VA--Continued

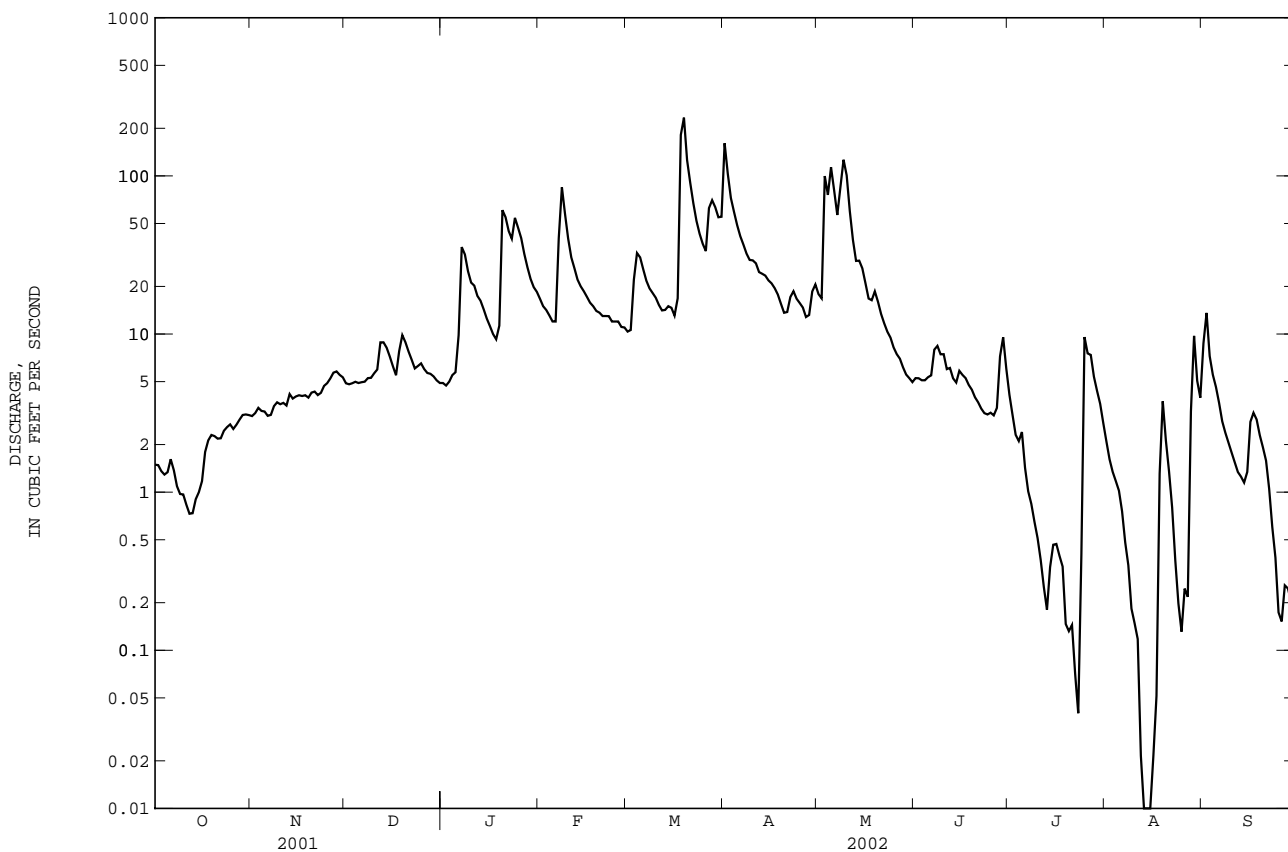
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	66.6	83.7	103	163	192	214	165	92.5	59.5	45.9	43.7	56.6
MAX	554	510	426	549	541	551	379	351	156	560	288	774
(WY)	1973	1986	1958	1978	1979	1998	2000	1958	1981	1975	1955	1979
MIN	0.12	2.99	5.68	15.5	21.3	27.7	27.0	20.9	5.36	2.02	0.97	0.18
(WY)	1955	1966	1966	1966	2002	1981	1966	1991	2002	2002	1963	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1947 - 2002

ANNUAL TOTAL	19037.04		5648.45			
ANNUAL MEAN	52.2		15.5		107	
HIGHEST ANNUAL MEAN					231 1979	
LOWEST ANNUAL MEAN					15.5 2002	
HIGHEST DAILY MEAN	1380	Mar 22	234	Mar 19	e7050	Oct 6 1972
LOWEST DAILY MEAN	0.73	Oct 12	0.00	aAug 13	0.00	aAug 13 2002
ANNUAL SEVEN-DAY MINIMUM	0.88	Oct 9	0.03	Aug 11	0.03	Aug 11 2002
MAXIMUM PEAK FLOW			330	Mar 18	11400	Oct 6 1972
MAXIMUM PEAK STAGE			4.20	Mar 18	b20.84	Oct 6 1972
INSTANTANEOUS LOW FLOW			0.00	cAug 12	0.00	(d)
ANNUAL RUNOFF (CFSM)	0.47		0.14		0.95	
ANNUAL RUNOFF (INCHES)	6.32		1.88		12.92	
10 PERCENT EXCEEDS	97		40		238	
50 PERCENT EXCEEDS	15		5.5		47	
90 PERCENT EXCEEDS	2.3		0.48		4.9	

- a Also Aug. 14, 15, 2002.
- b From high-water mark in gage house.
- c Also part or all of each day Aug. 13-17, 2002.
- d No flow part or all of each day Oct. 13, 1954 and Aug. 12-17, 2002.
- e Estimated.



CHOWAN RIVER BASIN

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA

LOCATION.--Lat 36°46'14", long 77°09'58", NAD83, Southampton County, Hydrologic Unit 03010201, on right bank at bridge on State Highway 653, 1 mi downstream from Three Creek, 2.5 mi southwest of Sebrell, and 5.5 mi upstream from Assamoosick Swamp.

DRAINAGE AREA.--1,421 mi².

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area. WDR-91-1: 1982(m).

GAGE.--Water-stage recorder. Datum of gage is 5.94 ft NGVD of 1929. Prior to Aug. 23, 1950, nonrecording gage on right bank at site 1,000 ft upstream at same datum. Aug. 23, 1950 to Oct. 1, 1996, water-stage recorder at above site and datum. Nonrecording gage Oct. 1, 1996 to Apr. 9, 1997 at present site and datum. Apr. 9, 1997 to current year, water-stage recorder at present site and datum.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Jan. 6 and Aug. 13-15, 25-27, which are fair. Maximum discharge, 36,000 ft³/s, from rating curve extended above 25,000 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

**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	76	45	98	120	589	221	1700	383	97	30	123	121
2	68	46	95	116	514	217	2030	575	89	29	83	127
3	63	47	91	120	442	256	2260	963	80	36	59	144
4	58	45	88	122	391	312	2140	1530	73	38	47	126
5	53	42	85	122	352	420	1810	2120	69	43	38	118
6	51	43	83	e150	321	610	1430	2290	69	43	33	261
7	48	48	81	219	357	649	1110	2200	73	39	29	263
8	45	57	79	314	475	572	898	1870	95	34	25	165
9	44	59	79	470	677	485	743	1470	93	30	23	107
10	42	56	81	638	971	417	674	1180	79	26	20	76
11	40	54	98	633	994	369	666	1140	68	26	18	57
12	38	53	117	556	870	334	667	1190	66	26	17	43
13	38	54	126	519	741	311	647	927	59	23	e15	35
14	38	56	145	498	632	296	617	686	53	36	e14	33
15	42	60	182	464	542	292	580	550	51	54	e15	34
16	40	60	188	423	476	310	569	459	46	34	26	47
17	38	63	173	380	425	326	521	415	41	25	22	144
18	40	63	164	340	386	432	457	366	40	22	22	292
19	44	65	156	331	358	735	404	336	38	22	25	257
20	46	67	150	519	339	1400	426	299	37	32	20	167
21	50	68	165	733	321	1830	384	278	36	25	35	114
22	49	71	183	1110	306	1800	357	270	35	21	32	96
23	48	68	173	1250	293	1430	353	249	35	19	25	82
24	46	75	162	1210	278	1130	334	226	33	19	21	64
25	45	84	151	1190	266	885	330	206	30	24	e15	52
26	42	87	143	1230	257	721	325	180	30	28	e13	50
27	40	85	136	1200	246	699	301	162	30	29	e15	53
28	39	87	137	1100	233	933	282	148	35	29	31	55
29	39	94	140	936	---	1460	292	134	33	48	53	53
30	43	99	135	792	---	1410	310	118	31	108	75	50
31	45	---	128	677	---	1210	---	107	---	175	118	---
TOTAL	1438	1901	4012	18482	13052	22472	23617	23027	1644	1173	1107	3286
MEAN	46.4	63.4	129	596	466	725	787	743	54.8	37.8	35.7	110
MAX	76	99	188	1250	994	1830	2260	2290	97	175	123	292
MIN	38	42	79	116	233	217	282	107	30	19	13	33
CFSM	0.03	0.04	0.09	0.42	0.33	0.51	0.55	0.52	0.04	0.03	0.03	0.08
IN.	0.04	0.05	0.11	0.48	0.34	0.59	0.62	0.60	0.04	0.03	0.03	0.09

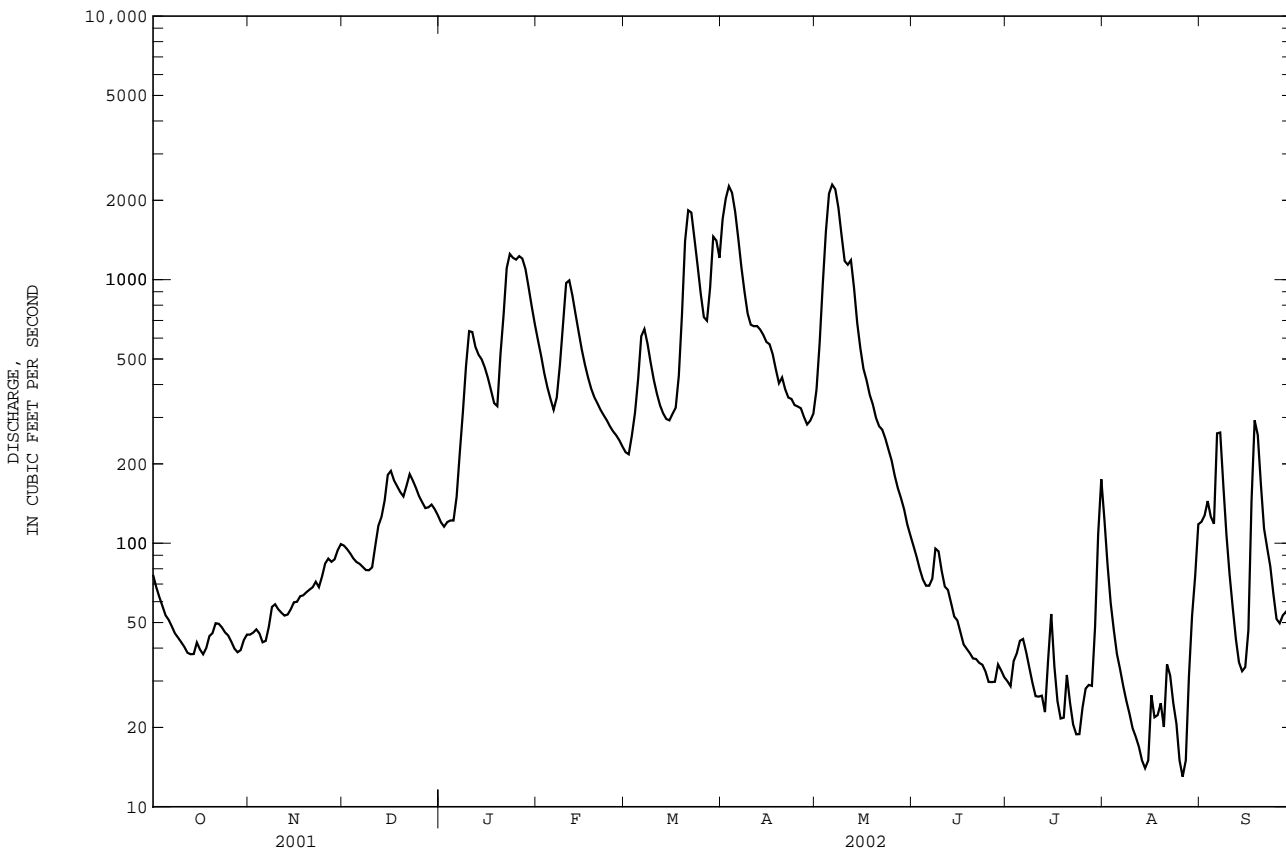
02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	662	842	1296	2019	2460	2745	2102	1293	763	706	611	699
MAX	4491	4854	4310	6115	6255	6531	5127	5180	2246	5782	2831	9191
(WY)	1973	1986	1958	1978	1998	1998	1987	1978	1972	1975	1955	1999
MIN	27.4	59.5	98.8	196	466	389	427	300	54.8	37.8	35.7	27.8
(WY)	1955	1942	1966	1966	2002	1981	1966	1942	2002	2002	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1941 - 2002
ANNUAL TOTAL	247888	115211	
ANNUAL MEAN	679	316	1344
HIGHEST ANNUAL MEAN			2671
LOWEST ANNUAL MEAN			316
HIGHEST DAILY MEAN	6500	Apr 5	34500
LOWEST DAILY MEAN	38	Oct 12	e13
ANNUAL SEVEN-DAY MINIMUM	39	Oct 11	17
MAXIMUM PEAK FLOW			2300
MAXIMUM PEAK STAGE			11.72
INSTANTANEOUS LOW FLOW			(c)
ANNUAL RUNOFF (CFSM)	0.48	0.22	0.95
ANNUAL RUNOFF (INCHES)	6.49	3.02	12.85
10 PERCENT EXCEEDS	1630	929	3340
50 PERCENT EXCEEDS	328	118	722
90 PERCENT EXCEEDS	54	30	98

- a Occurred Sept. 19 or 20, 1999.
- b From high-water mark in gage house.
- c Not determined.
- d Probably occurred Aug. 26, 2002.
- e Estimated.
- f Observed, may have gone lower Aug. 26, 2002.



CHOWAN RIVER BASIN

02047500 BLACKWATER RIVER NEAR DENDRON, VA

LOCATION.--Lat 37°01'31", long 76°52'29", NAD83, Surry County, Hydrologic Unit 03010202, on left bank 10 ft upstream from Walls Bridge on State Highway 617, 1.2 mi downstream from Cypress Swamp, and 3.5 mi southeast of Dendron.

DRAINAGE AREA.--294 mi².

PERIOD OF RECORD.--October 1941 to December 1986, July 1988 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.99 ft NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 13, 1980, at site 25 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Maximum discharge, 12,300 ft³/s, from rating curve extended above 5,000 ft³/s. No flow at times most years. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft, from U.S. Army Corps of Engineers floodmarks, discharge, 10,000 ft³/s, from rating curve extended above 4,900 ft³/s.

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	2.7	138	51	422	65	4.2	0.00	9.8	0.00
2	0.00	0.00	0.00	2.3	120	52	514	60	2.9	0.00	6.8	0.00
3	0.00	0.00	0.00	2.6	108	72	559	80	1.6	0.00	4.4	0.16
4	0.00	0.00	0.00	5.4	99	86	559	98	0.70	0.00	2.2	0.10
5	0.00	0.00	0.00	7.6	89	86	511	133	0.16	0.00	0.68	1.2
6	0.00	0.00	0.00	15	84	86	421	148	0.00	0.00	0.03	0.51
7	0.00	0.00	0.04	41	112	82	341	156	0.11	0.00	0.00	0.01
8	0.00	0.00	0.17	64	149	77	282	218	0.11	0.00	0.00	0.00
9	0.00	0.00	0.25	77	170	73	225	260	0.00	0.00	0.00	0.00
10	0.00	0.00	0.26	78	178	71	202	311	0.00	0.00	0.00	0.00
11	0.00	0.00	2.8	72	170	66	176	269	0.00	0.00	0.00	0.00
12	0.00	0.00	5.1	67	158	62	144	219	0.00	0.00	0.00	0.00
13	0.00	0.00	6.0	68	144	64	120	170	0.00	0.00	0.00	0.00
14	0.00	0.00	6.5	63	135	65	107	136	0.00	0.00	0.00	0.00
15	0.00	0.00	6.5	63	126	63	98	110	0.00	0.00	0.00	0.00
16	0.00	0.00	5.4	66	115	59	89	89	0.00	0.00	0.00	0.00
17	0.00	0.00	5.0	66	104	64	80	75	0.00	0.00	0.00	0.00
18	0.00	0.00	8.5	65	94	120	73	68	0.00	0.00	0.00	0.00
19	0.00	0.00	9.6	76	88	218	73	63	0.00	0.00	0.00	0.00
20	0.00	0.00	10	139	83	281	91	54	0.00	0.00	0.00	0.00
21	0.00	0.00	9.7	207	79	283	99	49	0.00	0.00	0.00	0.00
22	0.00	0.00	8.7	239	75	264	102	43	0.00	0.00	0.00	0.00
23	0.00	0.00	7.2	254	72	254	86	36	0.00	0.00	0.00	0.81
24	0.00	0.00	7.4	281	68	255	74	28	0.00	0.00	0.00	3.6
25	0.00	0.00	6.9	281	64	240	74	22	0.00	0.00	0.00	2.2
26	0.00	0.00	5.9	272	62	211	77	17	0.00	0.00	0.00	2.6
27	0.00	0.00	5.4	250	59	234	76	13	0.00	5.3	0.00	4.7
28	0.00	0.00	5.0	225	54	216	80	10	0.00	19	0.00	5.8
29	0.00	0.00	4.4	202	---	193	79	8.7	0.00	20	0.00	4.5
30	0.00	0.00	3.8	175	---	179	73	7.3	0.00	16	0.00	3.1
31	0.00	---	3.1	154	---	205	---	6.0	---	13	0.00	---
TOTAL	0.00	0.00	133.62	3580.6	2997	4332	5907	3022.0	9.78	73.30	23.91	29.29
MEAN	0.000	0.000	4.31	116	107	140	197	97.5	0.33	2.36	0.77	0.98
MAX	0.00	0.00	10	281	178	283	559	311	4.2	20	9.8	5.8
MIN	0.00	0.00	0.00	2.3	54	51	73	6.0	0.00	0.00	0.00	0.00
CFSM	0.00	0.00	0.01	0.39	0.36	0.48	0.67	0.33	0.00	0.01	0.00	0.00
IN.	0.00	0.00	0.02	0.45	0.38	0.55	0.75	0.38	0.00	0.01	0.00	0.00

02047500 BLACKWATER RIVER NEAR DENDRON, VA--Continued

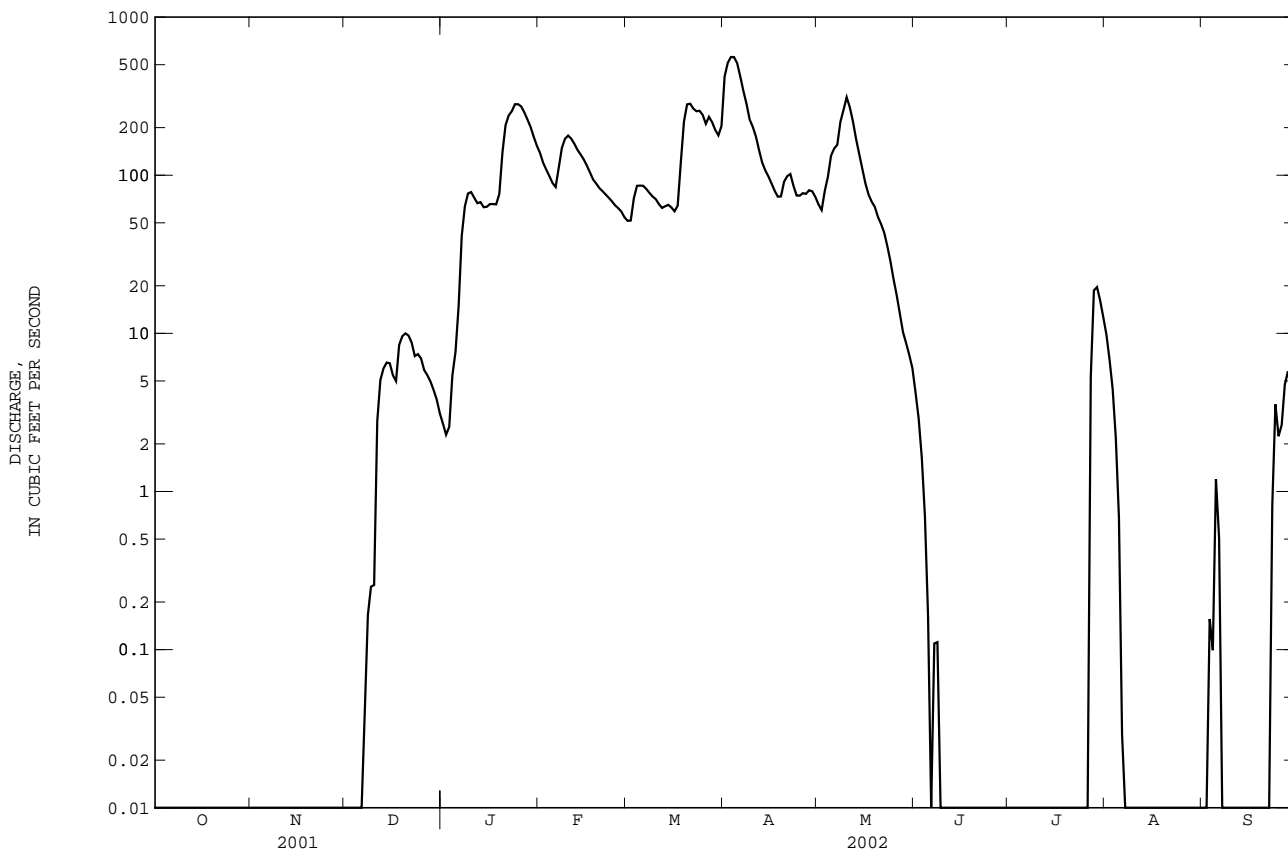
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1986, 1989 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	154	198	307	484	567	641	452	255	140	138	164	186
MAX	1128	1108	1240	1473	1732	1501	1271	879	988	1364	912	2355
(WY)	1973	1980	1958	1978	1998	1975	1989	1958	1963	1945	1969	1999
MIN	0.000	0.000	2.65	21.1	70.8	79.5	87.2	25.8	0.018	0.32	0.000	0.000
(WY)	(a)	(b)	1981	1981	1942	1981	1981	1991	1999	1957	(c)	(d)

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1942 - 1986 1989 - 2002

ANNUAL TOTAL	45309.09	20108.50	
ANNUAL MEAN	124	55.1	307
HIGHEST ANNUAL MEAN			622
LOWEST ANNUAL MEAN			55.1
HIGHEST DAILY MEAN	770	May 28	e11400
LOWEST DAILY MEAN	0.00	gJul 17	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	kJul 22	0.00
MAXIMUM PEAK FLOW			12300
MAXIMUM PEAK STAGE			m17.11
INSTANTANEOUS LOW FLOW			0.00
ANNUAL RUNOFF (CFSM)	0.42		1.04
ANNUAL RUNOFF (INCHES)	5.73		14.18
10 PERCENT EXCEEDS	338		776
50 PERCENT EXCEEDS	62		157
90 PERCENT EXCEEDS	0.00		1.2

- a Monthly mean flow is 0.0 ft³/s in 1955, 1969, 1981, 1984, 1994, 1998, 1999, 2001.
- b Monthly mean flow is 0.0 ft³/s in 1955, 1981, 1999, 2001.
- c Monthly mean flow is 0.0 ft³/s in 1976, 1980, 1993.
- d Monthly mean flow is 0.0 ft³/s in 1944, 1954, 1980, 1983, 1993, 1995, 1997.
- e Estimated.
- f Also Apr. 4, 2002.
- g Also July 18, 22-28, Sept. 18-24, and Sept. 30 to Dec. 6, 2001.
- h Also Oct. 2 to Dec. 6, 2001 and June 6, June 9 to July 26, Aug. 7 to Sept. 2, Sept. 7-22, 2002.
- j No flow at times most years.
- k Also many days in October to November 2001 and Sept. 18, 2002.
- l Many days in October to November 2001 and June to September 2002.
- m From floodmarks.
- n No flow part or all of many days in October to December 2001 and June to September 2002.



CHOWAN RIVER BASIN

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA

LOCATION.--Lat 36°45'46", long 76°53'54", NAD83, Southampton County, Hydrologic Unit 03010202, on right bank 0.4 mi south of Burdette, 0.5 mi upstream from Black Creek, 3.3 mi downstream from Corrowaugh Swamp, and 6.0 mi north of Franklin.

DRAINAGE AREA.--617 mi².

PERIOD OF RECORD.--August 1944 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.56 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except those for periods of tidal effect below 20 ft³/s, which are poor. Low flow reversed by tide some years. Diversion upstream from station by city of Norfolk for municipal water supply most years. Maximum discharge, 23,000 ft³/s, from rating curve extended above 12,800 ft³/s. 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 August 1940 reached a stage of about 22 ft, discharge, 21,000 ft³/s, from rating curve extended above 9,400 ft³/s.

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	17	9.5	15	14	487	77	910	199	17	1.7	1.5	4.3
2	16	9.8	15	13	444	78	1480	318	14	1.6	1.4	3.6
3	16	10	15	15	394	95	1760	954	11	1.4	1.7	4.0
4	15	11	15	17	344	146	1710	964	8.8	1.1	3.0	5.9
5	15	11	15	19	302	180	1530	798	7.3	0.83	4.0	8.0
6	15	11	16	23	267	185	1330	673	6.6	0.56	3.8	8.0
7	13	11	17	44	289	179	1150	566	7.7	0.38	3.0	7.3
8	12	11	17	111	423	174	994	609	7.8	0.62	2.2	6.6
9	11	12	18	158	492	168	859	704	7.3	0.50	1.8	5.2
10	10	12	18	189	505	157	766	722	6.6	0.36	1.5	4.4
11	9.7	12	22	213	499	156	694	707	5.9	0.44	1.5	4.1
12	9.4	12	28	234	485	118	622	648	5.1	0.16	1.5	3.5
13	9.1	13	36	256	470	102	560	614	4.3	0.00	1.8	3.9
14	9.0	13	39	266	448	102	510	574	4.0	0.93	2.3	5.4
15	11	13	40	245	417	104	459	508	4.3	1.6	2.8	6.4
16	9.7	13	38	216	385	118	415	433	8.8	2.9	3.9	8.0
17	9.3	13	36	179	350	147	377	356	11	46	3.4	14
18	9.0	13	36	146	320	247	335	287	10	60	3.0	15
19	8.9	13	35	141	292	433	296	248	8.2	31	2.5	14
20	8.8	14	34	340	257	553	328	209	6.9	25	2.1	12
21	8.1	14	30	537	208	607	314	175	5.4	31	1.9	10
22	7.1	14	27	611	178	628	360	146	4.0	36	1.7	9.2
23	6.7	14	25	636	154	597	496	117	3.5	23	1.5	8.2
24	6.6	15	25	651	131	556	476	92	3.0	15	1.5	7.0
25	6.9	16	26	682	114	516	390	72	2.2	7.4	1.5	5.9
26	6.8	16	26	716	102	472	335	58	1.9	3.0	1.8	6.2
27	7.2	16	20	711	94	504	290	48	1.8	3.5	2.7	9.6
28	8.0	16	18	685	82	624	252	41	2.2	6.9	4.6	15
29	8.4	16	17	641	---	683	227	33	1.9	4.8	5.2	11
30	8.7	15	16	589	---	682	210	26	1.7	4.0	4.9	7.7
31	9.1	---	15	536	---	648	---	21	---	2.8	4.8	---
TOTAL	317.5	389.3	750	9834	8933	10036	20435	11920	190.2	314.48	80.8	233.4
MEAN	10.2	13.0	24.2	317	319	324	681	385	6.34	10.1	2.61	7.78
MAX	17	16	40	716	505	683	1760	964	17	60	5.2	15
MIN	6.6	9.5	15	13	82	77	210	21	1.7	0.00	1.4	3.5
(†)	0	.15	14.4	29.1	11.2	32.5	7.24	.41	0	8.69	.89	0
MEAN†	10.2	13.2	38.6	346	330	357	688	385	6.34	18.8	3.50	7.78
CFSM†	.02	.02	.06	.56	.53	.58	1.12	.62	.01	.03	.01	.01
IN.†	.02	.02	.07	.65	.56	.67	1.24	.72	.01	.04	.01	.01

CAL YR 2001 MEAN† 257 CFSM† .42 IN.† 5.66
WTR YR 2002 MEAN† 183 CFSM† .30 IN.† 4.03

† Average daily diversion, in cubic feet per second, by city of Norfolk.
‡ Adjusted for diversion.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

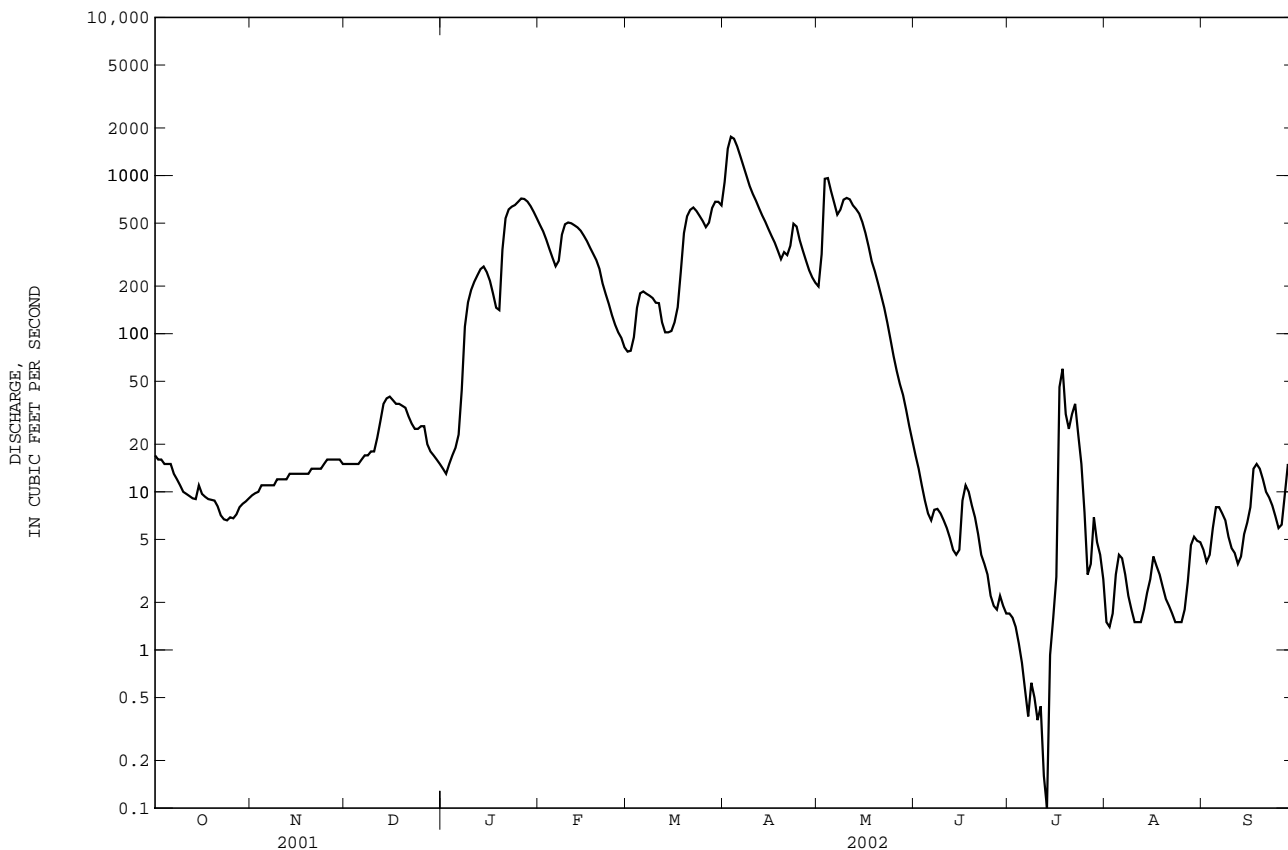
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	302	359	610	983	1170	1254	917	539	341	285	348	389
MAX	1795	1713	2082	2271	3520	2915	2783	1890	1925	2003	1481	5923
(WY)	1973	1980	1958	1978	1998	1989	1989	1958	1963	1945	1969	1999
MIN	0.94	1.69	2.12	12.5	152	158	107	51.4	5.61	3.02	2.08	2.16
(WY)	1988	1981	1981	1981	1981	1981	1995	1985	1999	1986	1995	1995

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1944 - 2002

ANNUAL TOTAL	93196.6		63433.68			
ANNUAL MEAN	255		174		623	
HIGHEST ANNUAL MEAN					1155 1958	
LOWEST ANNUAL MEAN					133 1981	
HIGHEST DAILY MEAN	2030	Jun 18	1760	Apr 3	e22000	Sep 18 1999
LOWEST DAILY MEAN	6.6	Oct 24	0.00	Jul 13	0.00	Jul 13 2002
ANNUAL SEVEN-DAY MINIMUM	7.0	Oct 22	0.35	Jul 7	0.26	Oct 10 1987
MAXIMUM PEAK FLOW			1780		23000 (a)	
MAXIMUM PEAK STAGE			9.82		b26.27 (a)	
INSTANTANEOUS LOW FLOW			(c)		(d)	
ANNUAL RUNOFF (CFSM)	0.41		0.28		1.01	
ANNUAL RUNOFF (INCHES)	5.62		3.82		13.71	
10 PERCENT EXCEEDS	705		601		1610	
50 PERCENT EXCEEDS	72		16		369	
90 PERCENT EXCEEDS	10		2.2		8.0	

- a Probably occurred Sept. 18, 1999.
- b From floodmarks.
- c Not determined.
- d Not determined, tidally affected most years during periods of extreme low flows; minimum measured flow, 2.4 ft³/s (reverse flow), Sept. 17, 1952.



CHOWAN RIVER BASIN

02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA

LOCATION.--Lat 36°59'51", long 78°20'59", NAD83, Lunenburg County, Hydrologic Unit 03010204, on right bank at upstream side of bridge on State Highway 40, 0.5 mi downstream from Tusekiah Creek, 4.6 mi upstream from Juniper Creek, and 5.2 mi northwest of Lunenburg.

DRAINAGE AREA.--55.6 mi².

PERIOD OF RECORD.--August 1946 to September 1980, October 1981 to current year.

REVISED RECORDS.--WSP 1303: 1947(M), 1949(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 333.7 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 5, 1951, nonrecording gage at same site and datum. July 5, 1951, to July 11, 1980, water-stage recorder at site 20 ft downstream at same datum.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 26 to Nov. 9 and July 8-13, and period with ice effect, Jan. 4, which are fair. Maximum discharge, 14,400 ft³/s, from rating curve extended above 2,320 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 48 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
------	------	--------------------------------	------------------	------	------	--------------------------------	------------------

No peak greater than base discharge.

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	0.46	e0.51	2.3	2.2	6.7	5.1	31	20	5.0	1.2	0.18	20
2	0.65	e0.55	2.4	2.1	6.2	6.1	22	89	4.4	0.93	0.28	11
3	0.66	e0.65	2.3	2.3	5.9	57	19	317	4.0	0.84	0.27	2.6
4	0.60	e0.75	2.4	e3.1	5.7	33	16	54	3.8	1.0	0.15	1.2
5	0.48	e0.64	2.6	3.2	5.2	18	14	55	3.5	0.65	0.12	0.61
6	0.38	e0.74	2.7	6.8	5.4	13	13	36	3.0	0.47	0.08	0.33
7	0.45	e0.85	3.0	23	41	11	12	25	2.9	0.35	0.07	0.19
8	0.36	e1.0	3.3	11	43	10	11	25	2.9	e0.27	0.05	0.14
9	0.29	e1.1	3.6	7.1	20	9.5	11	170	2.6	e0.16	0.05	0.12
10	0.31	1.4	3.7	7.9	14	9.7	12	53	2.4	e0.12	0.04	0.10
11	0.32	1.3	8.6	9.8	12	8.6	11	28	2.2	e0.08	0.04	0.11
12	0.41	1.5	8.4	7.1	10	7.8	10	20	2.0	e0.16	0.03	0.11
13	0.46	1.7	3.9	5.6	9.0	11	10	17	1.7	e0.25	0.01	0.12
14	0.38	1.7	2.9	4.7	8.2	15	10	28	1.7	9.1	0.00	0.18
15	0.83	1.6	2.4	4.3	7.4	12	10	17	1.9	15	0.00	0.86
16	0.78	1.7	2.1	3.9	7.4	10	11	13	1.6	3.9	0.01	2.7
17	0.70	1.9	1.9	3.7	7.2	47	10	11	1.5	2.0	0.01	1.9
18	0.48	2.0	4.1	3.7	6.7	304	16	19	1.3	1.3	0.01	0.80
19	0.54	2.0	4.5	5.5	6.4	86	11	20	1.2	0.92	0.04	0.41
20	0.62	2.1	3.0	34	6.4	50	11	13	1.1	1.4	0.03	0.28
21	0.67	2.1	2.3	18	6.8	44	10	10	0.98	2.3	0.02	0.20
22	0.73	2.2	2.1	15	6.6	31	13	9.3	0.93	0.96	0.01	0.17
23	0.92	2.2	2.1	20	6.2	23	12	8.5	0.85	0.67	0.00	0.14
24	1.0	2.6	3.1	32	5.9	19	9.2	7.8	0.86	0.49	0.00	0.13
25	1.4	3.2	4.0	21	5.7	17	9.2	6.9	0.80	0.41	0.00	0.12
26	e1.0	3.0	3.2	18	5.8	22	8.8	6.5	0.72	37	0.03	0.15
27	e0.76	2.7	2.6	12	5.9	58	7.5	6.3	0.98	3.8	0.05	0.46
28	e0.60	2.4	2.5	9.4	5.4	28	69	5.8	3.8	1.9	0.07	0.57
29	e0.48	2.2	2.4	8.3	---	20	104	5.4	2.6	1.1	0.06	0.59
30	e0.42	2.2	2.3	7.5	---	18	33	5.0	1.6	0.52	0.06	0.35
31	e0.47	---	2.2	7.2	---	28	---	5.0	---	0.30	0.61	---
TOTAL	18.61	50.49	98.9	319.4	282.1	1031.8	546.7	1106.5	64.82	89.55	2.38	46.64
MEAN	0.60	1.68	3.19	10.3	10.1	33.3	18.2	35.7	2.16	2.89	0.077	1.55
MAX	1.4	3.2	8.6	34	43	304	104	317	5.0	37	0.61	20
MIN	0.29	0.51	1.9	2.1	5.2	5.1	7.5	5.0	0.72	0.08	0.00	0.10
CFSM	0.01	0.03	0.06	0.19	0.18	0.60	0.33	0.64	0.04	0.05	0.00	0.03
IN.	0.01	0.03	0.07	0.21	0.19	0.69	0.37	0.74	0.04	0.06	0.00	0.03

02051000 NORTH MEHERRIN RIVER NEAR LUNENBURG, VA--Continued

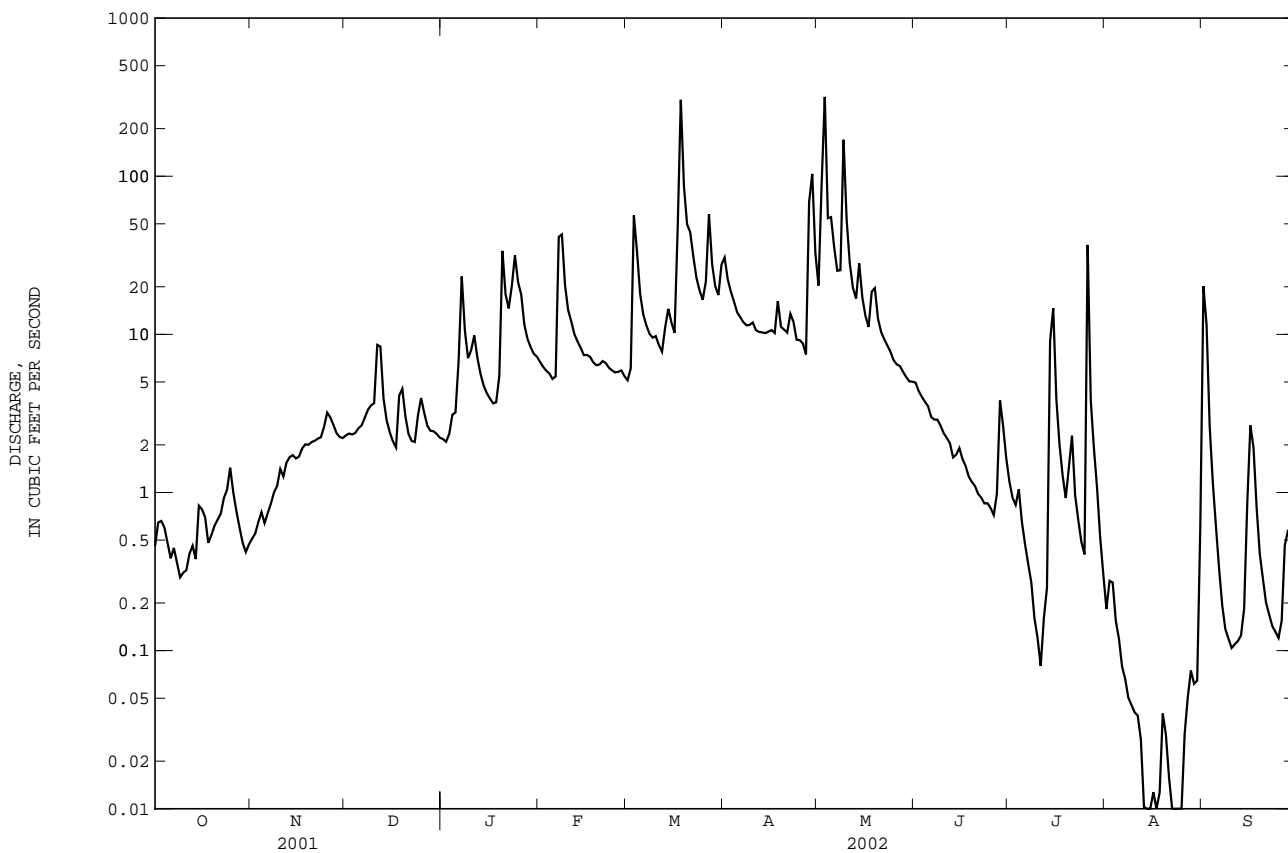
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1980, 1982 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	31.8	43.6	51.4	70.1	87.4	95.8	76.5	45.1	27.4	19.7	18.2	26.9
MAX	442	299	186	194	249	293	223	161	154	98.6	138	292
(WY)	1972	1986	1949	1978	1979	1975	1978	1971	1968	1975	1955	1979
MIN	0.60	1.68	3.19	10.3	10.1	32.8	15.3	11.2	2.16	2.72	0.077	0.16
(WY)	2002	2002	2002	2002	2002	1985	1995	1964	2002	1957	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1947 - 1980 1982 - 2002

ANNUAL TOTAL	10118.64		3657.89		49.3		1972	
ANNUAL MEAN	27.7		10.0		98.8		2002	
HIGHEST ANNUAL MEAN					10.0		1971	
LOWEST ANNUAL MEAN					6710		1971	
HIGHEST DAILY MEAN	1350	Mar 30	317	May 3	0.00		(b)	
LOWEST DAILY MEAN	0.29	Oct 9	0.00	aAug 14	0.00		(b)	
ANNUAL SEVEN-DAY MINIMUM	0.36	Oct 6	0.01	Aug 12	0.00		(b)	
MAXIMUM PEAK FLOW			873		May 3	14400	Oct 23	1971
MAXIMUM PEAK STAGE			6.95		May 3	28.30	Oct 23	1971
INSTANTANEOUS LOW FLOW			0.00		cAug 14	0.00	(b)	
ANNUAL RUNOFF (CFPM)	0.50		0.18		0.89			
ANNUAL RUNOFF (INCHES)	6.77		2.45		12.04			
10 PERCENT EXCEEDS	36		20		90			
50 PERCENT EXCEEDS	7.3		2.7		19			
90 PERCENT EXCEEDS	0.66		0.14		3.5			

- a Also Aug. 15, 23-25, 2002.
- b Many days in September and October 1954, and August 2002.
- c Also part or all of each day Aug. 15, 17, 18, 22-26, 2002.
- e Estimated.



CHOWAN RIVER BASIN

02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA

LOCATION.--Lat 36°43'01", long 77°49'54", NAD83, Brunswick County, Hydrologic Unit 03010204, on right bank 5 ft upstream from Gholson Bridge on State Highway 715, 0.6 mi upstream from Allen Creek, and 3.0 mi southeast of Lawrenceville.

DRAINAGE AREA.--552 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft NGVD of 1929. Prior to Nov. 17, 1931, nonrecording gage at site 50 ft upstream at same datum. Nov. 17, 1931 to May 1, 2001, water-stage recorder at above site, at same datum. May 1, 2001 to current year, water-stage recorder at present site, at same datum.

REMARKS.--Records good except those for period with ice effect, Jan. 3, and periods of doubtful gage-height record, June 11 to July 3 and July 11-16, which are fair. Maximum discharge, 38,000 ft³/s, from rating curve extended above 13,000 ft³/s on basis of velocity-area studies and records for Nottoway River near Stony Creek. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	30	36	58	61	124	86	352	204	64	e28	25	80
2	28	37	57	56	115	88	439	145	62	e24	21	111
3	27	39	54	e58	107	131	328	744	59	e22	17	82
4	25	41	52	69	102	259	247	1440	55	19	15	73
5	24	40	52	87	98	323	203	595	51	16	14	48
6	24	41	53	103	96	232	179	609	48	17	10	34
7	23	42	53	247	133	169	166	409	49	16	9.7	26
8	22	42	54	276	395	144	155	269	59	13	8.2	21
9	22	42	55	220	376	129	148	216	52	11	6.8	18
10	23	43	53	179	286	122	161	458	48	9.9	5.7	17
11	22	45	67	147	208	115	162	438	e45	e8.6	5.3	15
12	23	45	86	136	168	109	148	232	e42	e7.6	4.8	13
13	24	48	88	136	144	109	143	168	e40	e7.2	4.0	12
14	24	46	97	121	129	112	146	153	e42	e8.0	3.5	10
15	36	47	84	102	121	112	141	187	e38	e6.9	3.0	11
16	42	48	73	91	115	115	138	198	e37	e6.6	3.1	30
17	31	48	67	83	112	119	129	142	e36	6.3	4.1	266
18	25	48	79	79	109	287	132	125	e35	5.9	3.3	208
19	23	48	103	98	103	2080	169	122	e34	22	3.0	73
20	25	49	90	431	100	883	217	123	e35	21	3.2	47
21	28	50	81	421	100	511	160	129	e37	26	2.6	36
22	29	49	74	300	99	400	145	111	e38	26	2.5	29
23	29	50	68	279	98	305	133	102	e36	19	2.2	24
24	31	52	68	385	97	234	124	96	e34	15	2.2	22
25	30	59	71	449	95	202	121	92	e34	21	2.2	20
26	29	60	72	317	94	185	117	89	e34	48	9.7	20
27	31	61	71	264	92	456	111	83	e36	54	32	21
28	30	62	68	212	88	542	110	78	e42	74	38	23
29	29	60	67	169	---	403	112	73	e37	72	25	22
30	28	61	64	145	---	277	263	69	e33	44	21	20
31	32	---	63	133	---	234	---	66	---	32	24	---
TOTAL	849	1439	2142	5854	3904	9473	5299	7965	1292	707.0	331.1	1432
MEAN	27.4	48.0	69.1	189	139	306	177	257	43.1	22.8	10.7	47.7
MAX	42	62	103	449	395	2080	439	1440	64	74	38	266
MIN	22	36	52	56	88	86	110	66	33	5.9	2.2	10
CFSM	0.05	0.09	0.13	0.34	0.25	0.55	0.32	0.47	0.08	0.04	0.02	0.09
IN.	0.06	0.10	0.14	0.39	0.26	0.64	0.36	0.54	0.09	0.05	0.02	0.10

02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA--Continued

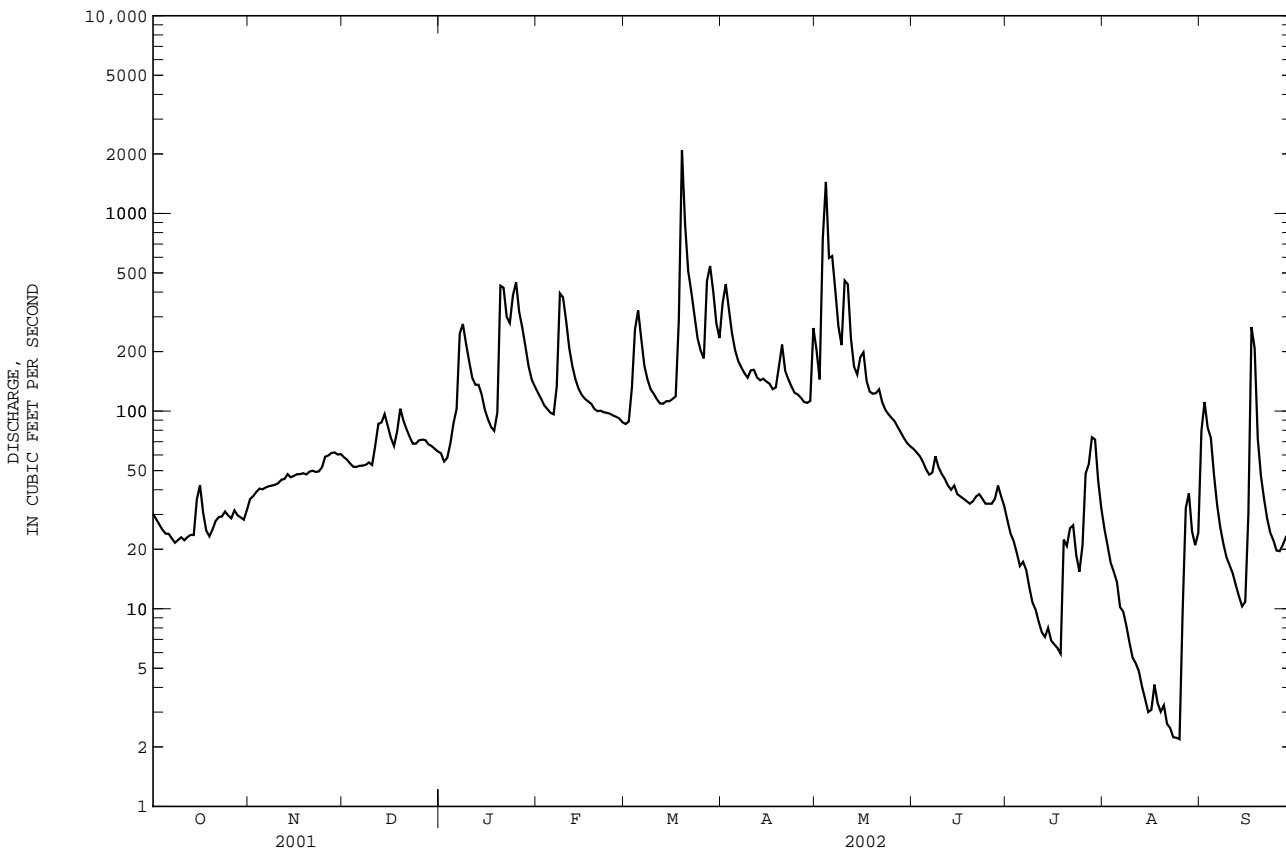
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	298	365	457	722	821	915	747	452	320	306	285	269
MAX	2266	2853	1340	2391	1904	2707	2067	1571	1555	2358	4199	2627
(WY)	1972	1986	1997	1936	1998	1998	1987	1958	1938	1945	1940	1999
MIN	17.1	44.1	64.6	88.8	139	190	162	128	43.1	22.8	10.7	9.70
(WY)	1931	1934	1966	1934	2002	1981	1966	1942	2002	2002	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002

ANNUAL TOTAL		116458		40687.1								
ANNUAL MEAN		319		111						495		
HIGHEST ANNUAL MEAN										916		1973
LOWEST ANNUAL MEAN										111		2002
HIGHEST DAILY MEAN			7580	Mar 31		2080	Mar 19		35300	Aug 17	1940	
LOWEST DAILY MEAN			22	aOct 8		2.2	bAug 23		2.2	bAug 23	2002	
ANNUAL SEVEN-DAY MINIMUM			23	Oct 6		2.6	Aug 19		2.6	Aug 19	2002	
MAXIMUM PEAK FLOW						2570	Mar 19		38000	Aug 17	1940	
MAXIMUM PEAK STAGE						10.93	Mar 19		42.00	Aug 17	1940	
INSTANTANEOUS LOW FLOW						2.0	Aug 25		2.0	Aug 25	2002	
ANNUAL RUNOFF (CFSM)			0.58			0.20			0.90			
ANNUAL RUNOFF (INCHES)			7.85			2.74			12.18			
10 PERCENT EXCEEDS			463			261			954			
50 PERCENT EXCEEDS			113			61			244			
90 PERCENT EXCEEDS			31			14			64			

a Also Oct. 9, 11, 2001.
 b Also Aug. 24, 25, 2002.
 e Estimated.



CHOWAN RIVER BASIN

02052000 MEHERRIN RIVER AT EMPORIA, VA

LOCATION.--Lat 36°41'25", long 77°32'26", NAD83, Emporia City, Hydrologic Unit 03010204, on left bank at downstream side of bridge on U.S. Highway 301 and 1.2 mi upstream from Falling Run.

DRAINAGE AREA.--747 mi².

PERIOD OF RECORD.--January 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 67.17 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Prior to November 1965 and since April 1986, low and medium flow regulated by powerplant 0.8 mi 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.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 31.5 ft, from floodmarks, discharge, about 40,000 ft³/s, from rating curve extended above 18,000 ft³/s on basis of record for station near Lawrenceville.

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	41	45	74	73	203	123	879	365	68	32	32	86
2	57	47	71	71	183	133	800	178	30	35	26	201
3	29	50	69	73	168	219	610	815	19	4.8	27	142
4	31	50	66	70	163	348	449	1920	41	5.8	24	116
5	33	51	65	73	144	554	345	1460	52	11	21	91
6	35	51	65	128	143	419	292	826	54	13	18	50
7	36	51	64	220	242	285	253	679	49	13	18	41
8	34	51	90	370	460	230	232	422	14	25	12	42
9	33	54	83	307	732	207	198	316	18	6.0	10	19
10	33	50	75	170	540	200	276	324	49	8.0	9.2	4.4
11	34	47	93	277	373	182	305	690	51	10	7.9	4.9
12	35	49	97	178	307	165	232	363	49	8.8	6.9	7.5
13	35	50	108	174	254	171	217	240	16	7.9	6.1	10
14	37	66	123	162	174	169	210	218	14	7.5	5.5	20
15	40	63	117	139	233	171	201	211	15	7.7	5.2	44
16	46	60	96	117	191	169	194	229	17	7.5	5.4	21
17	46	42	83	105	180	190	164	220	33	7.3	7.5	190
18	41	42	99	102	164	334	188	183	38	7.7	9.9	470
19	39	65	114	198	155	1970	200	161	32	7.3	9.1	169
20	38	63	115	847	151	2330	237	151	3.7	67	7.4	78
21	38	61	96	1120	155	997	250	155	3.6	75	6.7	66
22	39	60	88	750	150	601	224	136	5.6	27	6.3	36
23	39	60	80	640	146	471	179	113	9.4	20	6.4	21
24	41	57	88	582	139	358	154	98	33	28	7.1	21
25	43	40	81	746	137	299	157	89	22	31	7.2	21
26	45	81	84	654	135	270	147	84	3.9	42	7.9	23
27	46	77	81	516	138	579	139	78	7.0	90	11	22
28	46	75	80	353	128	935	142	71	24	82	81	23
29	47	78	77	276	---	740	143	70	50	115	91	23
30	47	74	76	246	---	477	163	70	18	83	57	22
31	45	---	73	162	---	426	---	69	---	65	51	---
TOTAL	1229	1710	2671	9899	6288	14722	8180	11004	839.2	950.3	600.7	2084.8
MEAN	39.6	57.0	86.2	319	225	475	273	355	28.0	30.7	19.4	69.5
MAX	57	81	123	1120	732	2330	879	1920	68	115	91	470
MIN	29	40	64	70	128	123	139	69	3.6	4.8	5.2	4.4
CFSM	0.05	0.08	0.12	0.43	0.30	0.64	0.37	0.48	0.04	0.04	0.03	0.09
IN.	0.06	0.09	0.13	0.49	0.31	0.73	0.41	0.55	0.04	0.05	0.03	0.10

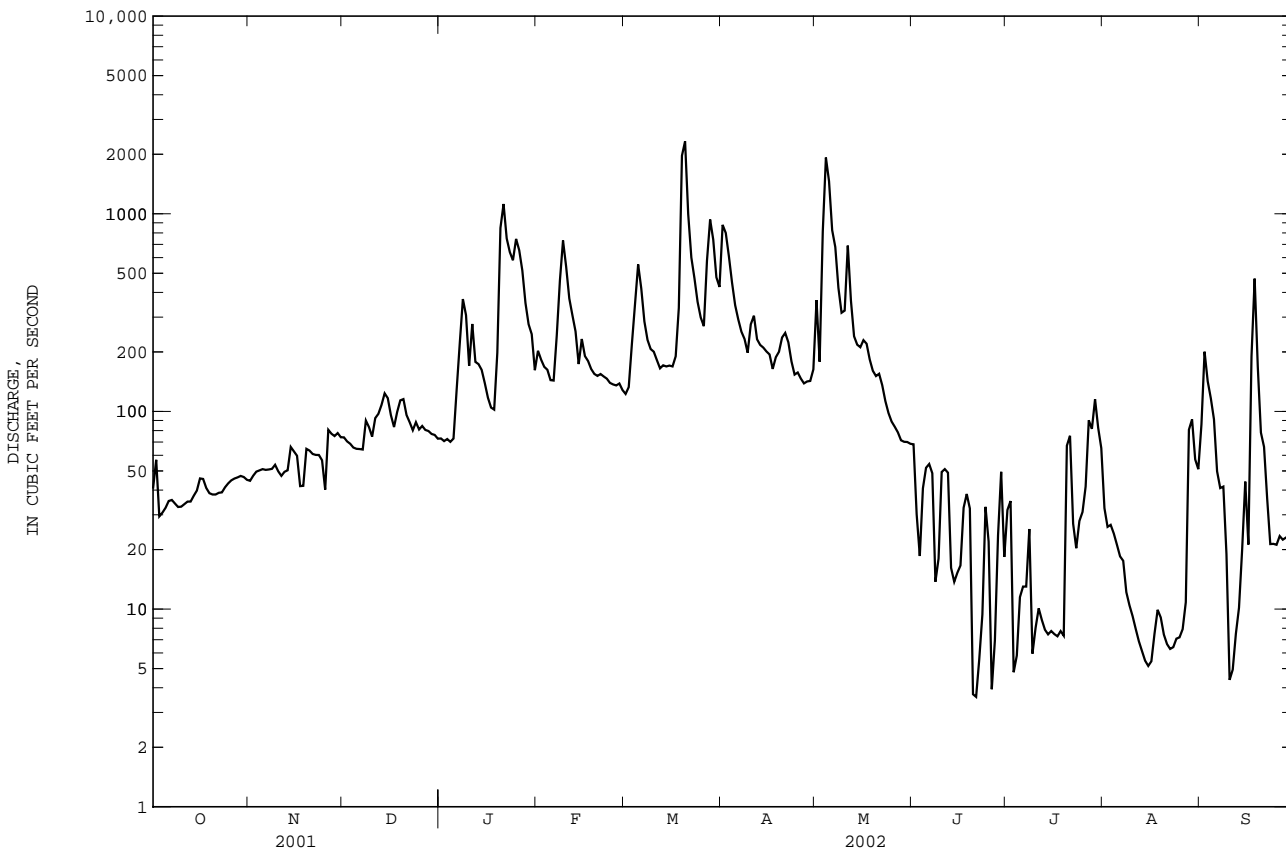
02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	412	511	650	1041	1208	1347	1056	644	427	334	289	356
MAX	3057	3711	1772	3063	2749	3631	3077	2244	1399	2647	1536	4372
(WY)	1973	1986	1973	1978	1998	1998	1987	1958	1972	1975	1955	1999
MIN	37.7	57.0	86.2	159	225	261	221	256	28.0	30.7	19.4	18.7
(WY)	1969	2002	2002	1966	2002	1981	1995	1995	2002	2002	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1952 - 2002
ANNUAL TOTAL	148395	60178.0	
ANNUAL MEAN	407	165	687
HIGHEST ANNUAL MEAN			1297
LOWEST ANNUAL MEAN			165
HIGHEST DAILY MEAN	7810	Apr 1	20700
LOWEST DAILY MEAN	22	Sep 23	a3.6
ANNUAL SEVEN-DAY MINIMUM	33	Oct 3	a6.4
MAXIMUM PEAK FLOW			3260
MAXIMUM PEAK STAGE			12.92
INSTANTANEOUS LOW FLOW			a3.2
ANNUAL RUNOFF (CFSM)	0.54	0.22	0.92
ANNUAL RUNOFF (INCHES)	7.39	3.00	12.49
10 PERCENT EXCEEDS	689	371	1420
50 PERCENT EXCEEDS	171	75	346
90 PERCENT EXCEEDS	45	9.3	67

a Result of regulation.
 b Also June 21, 2002.



ROANOKE RIVER BASIN

02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA

LOCATION.--Lat 37°08'24", long 80°15'59", NAD83, Montgomery County, Hydrologic Unit 03010101, on right bank 95 ft downstream from bridge on State Highway 637, 0.3 mi downstream from Georges Run, 1.3 mi downstream from Elliott Creek, and 2.0 mi southwest of Shawsville.

DRAINAGE AREA.--110 mi².

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,361.87 ft NGVD of 1929. Prior to Aug. 26, 1974, water-stage recorder, and Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft upstream at same datum.

REMARKS.--Records good except those for period with ice effect, Dec. 31 to Jan. 5, and period of doubtful gage-height record, May 11-14, which are fair. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 14,200 ft³/s, from rating curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1959, reached a stage of 9.89 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 2	2300	*3,160	*5.56	No other peak greater than base discharge.			

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	15	21	20	e13	33	19	82	39	36	19	13	18
2	15	22	19	e12	30	26	76	594	41	17	12	18
3	14	22	18	e13	28	57	72	1260	32	23	11	15
4	14	22	18	e14	28	39	62	374	29	29	11	13
5	14	21	16	e15	23	28	56	234	28	29	9.9	12
6	14	21	16	16	26	31	52	161	28	20	9.1	11
7	14	21	16	19	41	29	48	128	35	16	8.8	11
8	14	20	16	17	51	27	45	108	28	15	8.6	10
9	15	21	17	15	41	27	43	122	25	14	7.7	9.5
10	16	20	20	18	38	26	51	99	24	14	7.5	9.4
11	16	20	98	24	38	24	42	e86	22	16	7.4	9.0
12	17	20	41	20	34	26	38	e77	21	16	7.4	9.0
13	18	20	30	19	33	42	41	e80	21	15	7.2	9.0
14	25	20	26	16	30	40	42	e88	27	17	7.0	14
15	31	20	22	16	29	34	50	75	23	18	16	21
16	22	20	20	16	29	42	44	65	20	15	34	38
17	20	20	19	16	28	140	40	59	19	14	16	22
18	19	20	36	16	26	461	38	81	18	13	14	16
19	19	20	30	17	26	272	44	68	17	14	13	16
20	19	20	23	20	26	162	52	58	16	15	11	15
21	19	20	20	21	26	117	51	55	16	15	9.9	14
22	19	20	18	25	24	90	55	52	15	12	9.5	14
23	19	20	18	97	24	74	49	49	14	12	8.9	15
24	20	22	22	107	23	64	45	46	14	43	12	15
25	20	31	20	109	23	56	68	43	14	23	14	14
26	20	34	18	74	23	56	57	39	14	23	17	24
27	20	25	16	57	22	79	52	40	26	30	20	45
28	20	21	17	49	19	60	52	55	44	23	15	37
29	21	20	16	44	---	55	50	39	32	18	15	24
30	21	20	14	39	---	53	44	35	22	15	17	19
31	21	---	e13	35	---	73	---	33	---	14	15	---
TOTAL	571	644	713	989	822	2329	1541	4342	721	577	384.9	516.9
MEAN	18.4	21.5	23.0	31.9	29.4	75.1	51.4	140	24.0	18.6	12.4	17.2
MAX	31	34	98	109	51	461	82	1260	44	43	34	45
MIN	14	20	13	12	19	19	38	33	14	12	7.0	9.0
CFSM	0.17	0.20	0.21	0.29	0.27	0.68	0.47	1.27	0.22	0.17	0.11	0.16
IN.	0.19	0.22	0.24	0.33	0.28	0.79	0.52	1.47	0.24	0.20	0.13	0.17

02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA--Continued

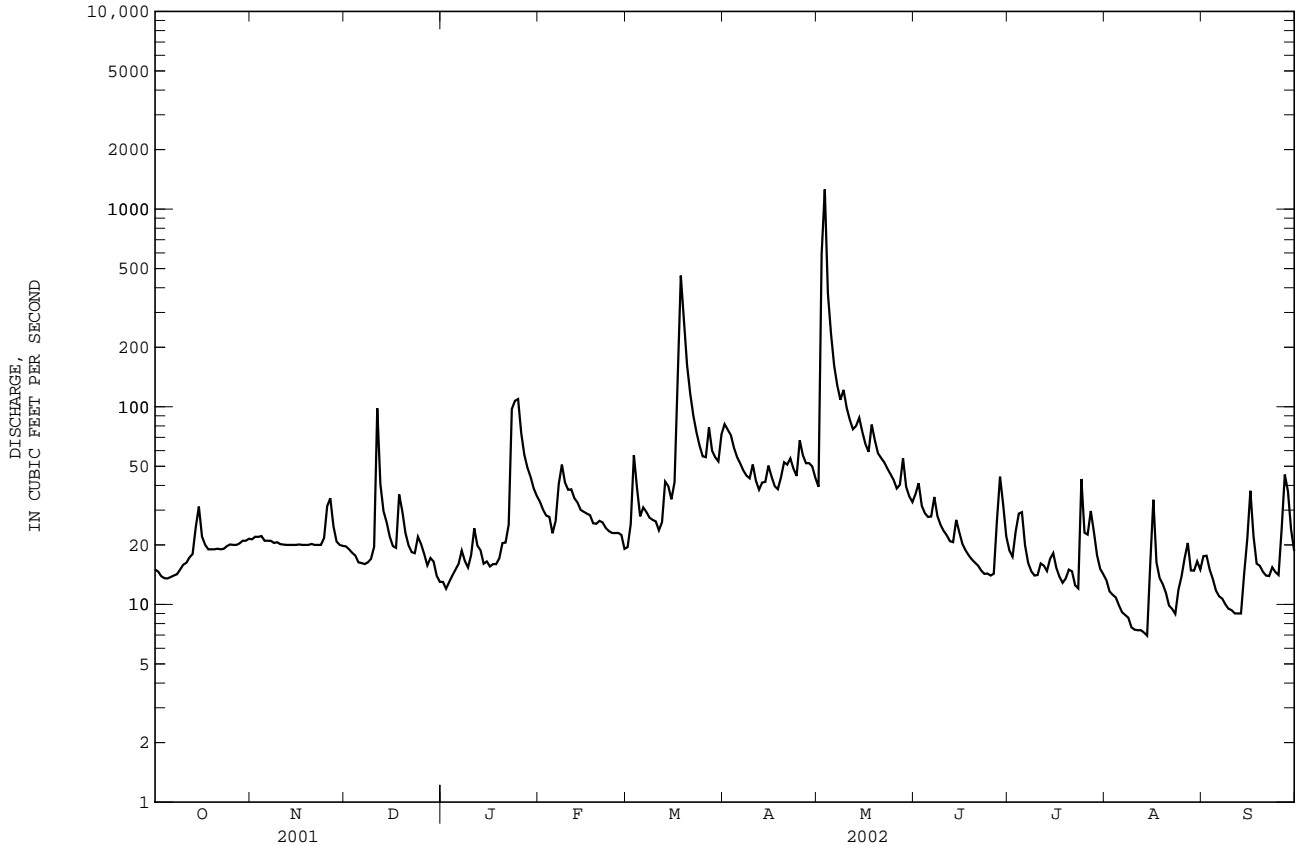
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	70.0	87.0	95.4	132	160	204	179	134	97.4	56.4	51.5	61.7
MAX	294	407	232	299	523	571	750	334	483	205	174	347
(WY)	1972	1986	1973	1996	1998	1993	1987	1978	1972	1972	1994	1989
MIN	18.4	21.5	22.1	18.9	29.4	55.6	51.0	50.7	24.0	18.6	12.4	17.2
(WY)	2002	2002	1966	1966	2002	1981	1966	1963	1999	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1961 - 2002

ANNUAL TOTAL	21355		14150.8			
ANNUAL MEAN	58.5		38.8		111	
HIGHEST ANNUAL MEAN					205 1972	
LOWEST ANNUAL MEAN					38.8 2002	
HIGHEST DAILY MEAN	794	Mar 30	1260	May 3	6840	Jun 21 1972
LOWEST DAILY MEAN	13	aSep 17	7.0	Aug 14	7.0	Aug 14 2002
ANNUAL SEVEN-DAY MINIMUM	14	Sep 13	7.5	Aug 8	7.5	Aug 8 2002
MAXIMUM PEAK FLOW			3160		14200 Jun 21 1972	
MAXIMUM PEAK STAGE			5.56		b11.12 Jun 21 1972	
INSTANTANEOUS LOW FLOW			6.3		6.3 Aug 12 2002	
ANNUAL RUNOFF (CFSM)	0.53		0.35		1.01	
ANNUAL RUNOFF (INCHES)	7.22		4.79		13.66	
10 PERCENT EXCEEDS	113		63		214	
50 PERCENT EXCEEDS	34		21		67	
90 PERCENT EXCEEDS	17		13		27	

a Also Sept. 18, 19 and Dec. 31, 2001.
 b From high-water mark in well.
 e Estimated.



ROANOKE RIVER BASIN

02054500 ROANOKE RIVER AT LAFAYETTE, VA

LOCATION.--Lat 37°14'11", long 80°12'33", NAD83, Montgomery County, Hydrologic Unit 03010101, on right bank 120 ft upstream from bridge on State Highway 626 (corrected) at Lafayette, 0.4 mi downstream from confluence of North and South Forks, and 1.1 mi upstream from Cove Hollow.

DRAINAGE AREA.--257 mi².

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

REVISED RECORDS.--WSP 1333: 1944-47(M), 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,174.47 ft NGVD of 1929. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. Occasional diurnal fluctuation caused by meat- processing plant upstream from station. Virginia Department of Emergency Services gage-height radio transmitter at station. Maximum discharge, 24,500 ft³/s, from rating curve extended above 12,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 12.2 ft, from information by local residents, discharge, 19,000 ft³/s, from rating curve extended above 12,000 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 3	0230	*4,230	*6.98	No other peak greater than base discharge.			

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	36	30	33	e25	56	30	161	108	69	42	31	28
2	34	31	33	e22	51	38	158	466	79	40	29	29
3	33	31	32	e23	48	65	145	2320	67	52	26	26
4	32	30	31	e25	46	63	129	783	62	80	25	24
5	32	30	31	27	39	40	113	537	58	61	23	21
6	30	30	31	35	43	46	103	371	61	48	21	20
7	30	30	31	37	58	44	96	291	71	39	20	19
8	31	30	32	35	77	41	89	241	62	34	20	17
9	30	30	32	32	69	40	86	301	55	32	19	16
10	31	30	36	34	63	38	95	230	53	31	19	16
11	32	28	167	41	62	36	85	184	48	34	19	15
12	33	30	95	41	58	38	77	159	46	36	19	14
13	35	29	63	37	54	56	79	186	46	34	18	14
14	38	30	54	33	52	66	84	220	54	36	16	16
15	59	29	46	32	49	59	92	161	50	39	18	33
16	43	31	41	31	48	62	87	135	45	36	42	70
17	35	31	39	31	46	210	80	120	44	31	31	52
18	33	31	56	31	44	841	78	160	42	28	25	35
19	32	31	61	35	41	563	92	138	41	31	23	32
20	32	31	47	41	42	333	123	116	41	35	21	30
21	32	31	41	44	41	236	128	109	39	37	19	27
22	31	31	38	50	40	178	161	103	35	31	17	26
23	31	31	37	129	38	146	142	97	33	41	16	27
24	30	32	41	205	37	126	125	91	33	61	16	27
25	29	37	43	197	37	111	163	86	51	54	23	25
26	28	53	38	145	36	104	161	82	35	54	27	37
27	27	43	33	106	35	135	140	86	40	79	32	78
28	28	38	36	86	32	112	134	113	65	59	29	73
29	29	36	33	74	---	102	135	88	73	46	26	51
30	30	34	29	67	---	98	118	78	51	38	27	40
31	30	---	26	61	---	119	---	73	---	33	27	---
TOTAL	1016	969	1386	1812	1342	4176	3459	8233	1549	1332	724	938
MEAN	32.8	32.3	44.7	58.5	47.9	135	115	266	51.6	43.0	23.4	31.3
MAX	59	53	167	205	77	841	163	2320	79	80	42	78
MIN	27	28	26	22	32	30	77	73	33	28	16	14
CFSM	0.13	0.13	0.17	0.23	0.19	0.52	0.45	1.03	0.20	0.17	0.09	0.12
IN.	0.15	0.14	0.20	0.26	0.19	0.60	0.50	1.19	0.22	0.19	0.10	0.14

02054500 ROANOKE RIVER AT LAFAYETTE, VA--Continued

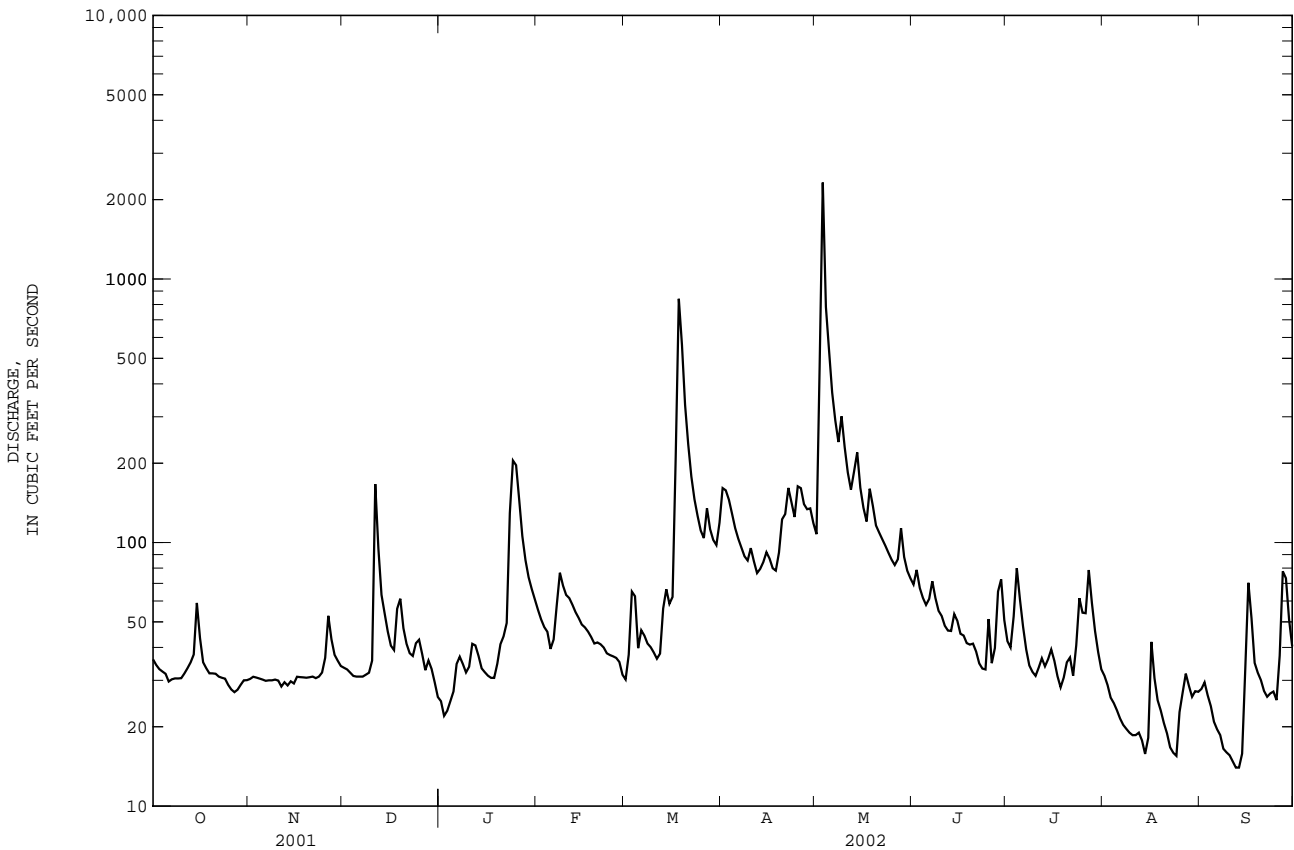
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	132	164	219	301	384	458	406	283	181	112	109	120
MAX	603	770	913	682	1214	1309	1497	716	791	590	551	570
(WY)	1977	1978	1949	1947	1998	1993	1987	1978	1972	1949	1948	1989
MIN	32.8	32.3	44.7	52.0	47.9	103	102	99.1	48.0	43.0	23.4	29.4
(WY)	2002	2002	2002	1981	2002	1981	1966	1963	1999	2002	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1944 - 2002

ANNUAL TOTAL	45728		26936			
ANNUAL MEAN	125		73.8		238	
HIGHEST ANNUAL MEAN					442 1949	
LOWEST ANNUAL MEAN					73.8 2002	
HIGHEST DAILY MEAN	1880	Mar 30	2320	May 3	11700	Jun 21 1972
LOWEST DAILY MEAN	26	Dec 31	14	aSep 12	b10	cJan 14 1959
ANNUAL SEVEN-DAY MINIMUM	29	dOct 24	15	Sep 8	b11	Jan 14 1959
MAXIMUM PEAK FLOW			4230		24500 Jun 21 1972	
MAXIMUM PEAK STAGE			6.98		f15.60 Jun 21 1972	
INSTANTANEOUS LOW FLOW			b13		Jan 2 b8.0 gJan 19 1959	
ANNUAL RUNOFF (CFSM)	0.49		0.29		0.93	
ANNUAL RUNOFF (INCHES)	6.62		3.90		12.59	
10 PERCENT EXCEEDS	277		135		485	
50 PERCENT EXCEEDS	63		40		129	
90 PERCENT EXCEEDS	31		26		49	

- a Also Sept. 13, 2002.
- b Result of freezeup.
- c Also Jan. 15, 18, 19, 1959.
- d Also Oct. 25, 2001.
- e Estimated.
- f From high-water mark in gage house.
- g Also Jan. 3, 2001.



ROANOKE RIVER BASIN

02054530 ROANOKE RIVER AT GLENVAR, VA

LOCATION.--Lat 37°16'04", long 80°08'22", NAD83, Roanoke County, Hydrologic Unit 03010101, on left bank 150 ft downstream from bridge on State Highway 1154, 0.2 mi downstream from mouth of Callahan Branch, 0.3 mi south of Glenvar, and 2.5 mi upstream from mouth of Mill Creek.

DRAINAGE AREA.--284 mi².

PERIOD OF RECORD.--December 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,100 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. About 17.2 ft³/s is withdrawn upstream for municipal use by Roanoke County. Roanoke County gage-height transmitter at station. Maximum discharge, 19,800 ft³/s, from rating curve extended above 10,900 ft³/s. Several observations of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of about 20.2 ft, from information by local resident, discharge, about 25,000 ft³/s, from rating curve extended above 10,900 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 3	0300	*6,450	*9.90	No other peak greater than base discharge.			

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	38	45	50	e42	70	46	105	100	78	47	35	33
2	37	45	50	e36	65	49	103	233	86	41	33	34
3	36	46	49	e38	62	67	103	3190	77	54	30	33
4	35	46	47	e41	61	73	102	819	68	68	28	29
5	34	46	44	43	58	60	103	498	64	56	26	26
6	33	45	44	51	56	57	97	336	65	53	24	23
7	33	45	44	53	67	57	105	256	70	42	22	21
8	33	45	46	52	83	56	99	204	69	36	20	21
9	33	44	46	48	81	54	95	256	60	35	20	20
10	34	45	48	49	76	53	98	198	56	34	20	18
11	34	45	146	53	74	51	97	151	54	36	19	17
12	36	45	80	57	71	52	88	125	50	37	19	16
13	37	46	78	53	68	62	89	137	49	36	19	15
14	40	45	70	50	65	73	94	191	55	37	17	18
15	65	46	63	47	62	71	94	133	56	40	17	30
16	58	46	57	47	61	71	98	107	50	37	36	63
17	46	46	56	45	60	121	90	96	47	34	38	64
18	43	46	64	45	58	863	87	131	45	31	31	42
19	41	47	77	49	56	566	93	114	44	32	28	36
20	41	46	65	55	56	287	107	98	43	35	25	35
21	41	47	58	58	56	184	108	98	43	37	23	33
22	40	47	55	60	55	125	110	104	39	40	20	31
23	40	47	54	87	54	95	96	96	37	53	18	31
24	40	48	56	146	53	84	99	101	36	68	18	32
25	40	53	59	137	52	85	118	98	47	64	22	30
26	41	66	55	104	51	84	111	91	38	59	33	36
27	41	63	51	85	50	90	96	94	37	81	34	59
28	41	56	51	80	48	72	101	114	58	69	35	62
29	43	53	51	81	---	77	102	96	74	54	33	57
30	44	51	48	81	---	88	97	90	53	44	32	47
31	44	---	45	75	---	86	---	83	---	38	33	---
TOTAL	1242	1441	1807	1948	1729	3859	2985	8438	1648	1428	808	1012
MEAN	40.1	48.0	58.3	62.8	61.8	124	99.5	272	54.9	46.1	26.1	33.7
MAX	65	66	146	146	83	863	118	3190	86	81	38	64
MIN	33	44	44	36	48	46	87	83	36	31	17	15
CFSM	0.14	0.17	0.21	0.22	0.22	0.44	0.35	0.96	0.19	0.16	0.09	0.12
IN.	0.16	0.19	0.24	0.26	0.23	0.51	0.39	1.11	0.22	0.19	0.11	0.13

02054530 ROANOKE RIVER AT GLENVAR, VA--Continued

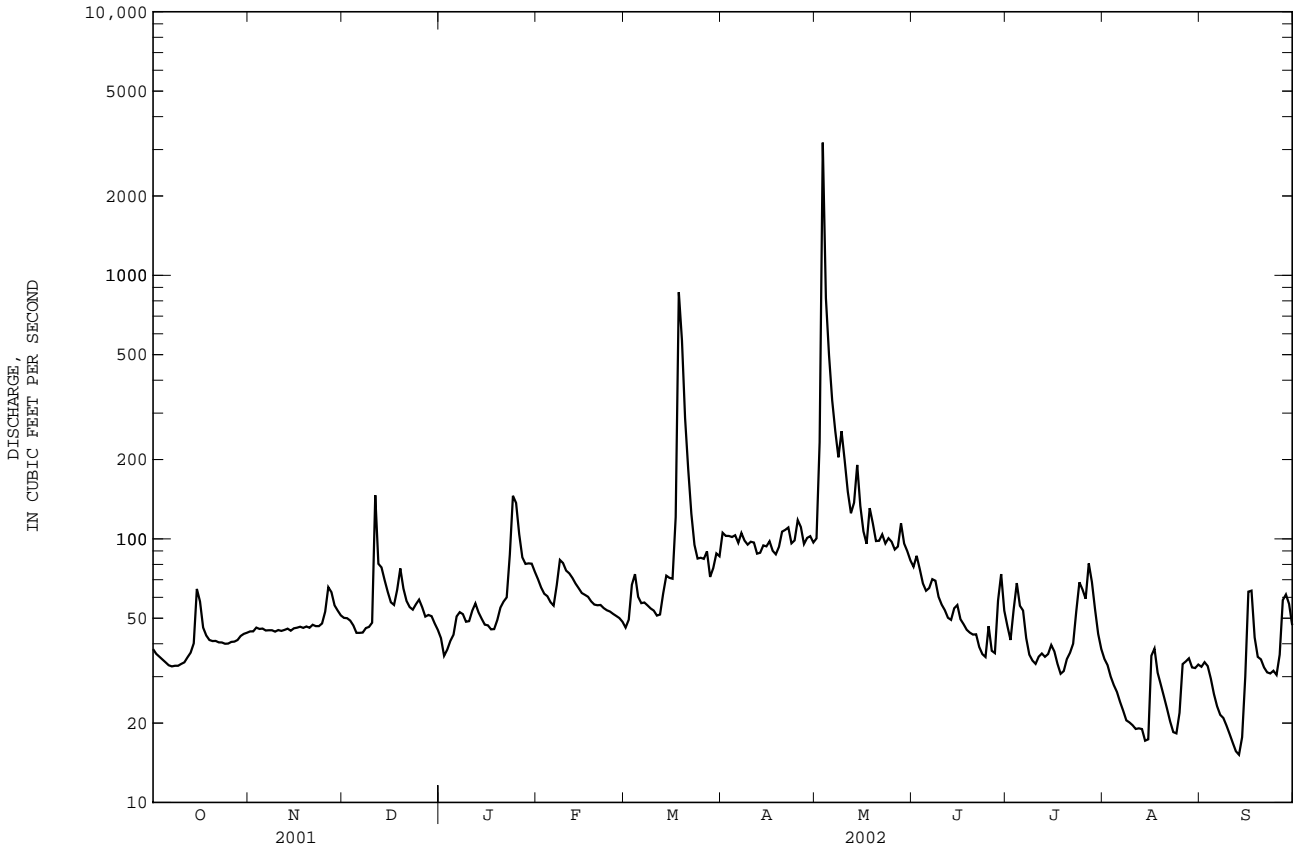
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	78.5	116	200	385	460	549	389	298	240	115	111	134
MAX	170	355	715	784	1400	1667	839	610	660	195	295	586
(WY)	1997	1997	1997	1996	1998	1993	1992	1992	1992	1995	1996	1996
MIN	40.1	48.0	58.3	62.8	61.8	124	99.5	125	54.9	46.1	26.1	33.7
(WY)	2002	2002	2002	2002	2002	2002	2002	1999	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1992 - 2002

ANNUAL TOTAL	49333	28345	
ANNUAL MEAN	135	77.7	247
HIGHEST ANNUAL MEAN			392 1998
LOWEST ANNUAL MEAN			77.7 2002
HIGHEST DAILY MEAN	2510 Mar 30	3190 May 3	8380 Apr 22 1992
LOWEST DAILY MEAN	33 aSep 18	15 Sep 13	15 Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM	33 Oct 5	18 Sep 8	18 Sep 8 2002
MAXIMUM PEAK FLOW		6450 May 3	19800 Apr 21 1992
MAXIMUM PEAK STAGE		9.90 May 3	17.73 Apr 21 1992
INSTANTANEOUS LOW FLOW		15 bSep 12	15 bSep 12 2002
ANNUAL RUNOFF (CFSM)	0.48	0.27	0.87
ANNUAL RUNOFF (INCHES)	6.46	3.71	11.80
10 PERCENT EXCEEDS	243	103	504
50 PERCENT EXCEEDS	75	53	108
90 PERCENT EXCEEDS	41	31	52

a Also Sept. 19, 2001.
 b Also Sept. 13, 14, 2002.
 e Estimated.



ROANOKE RIVER BASIN

02055000 ROANOKE RIVER AT ROANOKE, VA

LOCATION.--Lat 37°15'30", long 79°56'19", NAD83, Roanoke City, Hydrologic Unit 03010101, on left bank 50 ft downstream from Walnut Avenue bridge, 3.2 mi upstream from Tinker Creek, and at mile 360.6.

DRAINAGE AREA.--395 mi².

PERIOD OF RECORD.--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.

REVISED RECORDS.--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1940(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 906.84 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft upstream at same datum.

REMARKS.--Records good except for periods of doubtful gage-height record, Aug. 10-14 and 22, which are fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants upstream from station. Since March 1994, water withdrawn upstream for municipal use by the city of Roanoke, amount unknown. American Electric Power and Virginia Department of Emergency Services gage-height radio transmitters at station. Maximum discharge, 32,300 ft³/s, from rating curve extended above 26,000 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 3	0730	*3,250	*5.61	No other peak greater than base discharge.			

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	56	62	68	56	87	54	165	160	145	61	52	43
2	56	64	66	55	82	101	177	321	110	51	46	37
3	54	65	65	57	78	121	172	2160	105	50	42	64
4	53	66	63	57	75	99	164	1180	92	82	38	33
5	52	64	64	60	71	87	160	781	84	66	36	26
6	52	64	61	68	66	70	151	620	102	66	34	24
7	50	62	62	73	111	73	152	568	95	55	31	21
8	48	62	68	68	95	70	150	489	91	46	28	20
9	50	62	69	66	106	68	140	518	83	41	27	20
10	51	64	98	65	99	65	148	449	75	43	e27	18
11	49	65	282	63	93	62	139	378	72	47	e27	18
12	54	60	169	72	90	64	129	335	67	44	e28	17
13	56	61	103	71	82	88	128	367	65	45	e28	16
14	89	63	99	67	81	89	134	311	68	52	e27	27
15	79	61	89	63	78	88	140	203	71	48	115	36
16	91	63	80	60	76	105	137	163	69	47	39	139
17	75	64	82	60	74	248	156	138	63	42	45	88
18	68	65	106	59	71	950	133	208	58	39	43	60
19	65	62	97	69	70	843	166	185	58	53	51	43
20	67	64	90	87	68	457	149	138	73	55	29	39
21	65	64	79	82	67	315	201	138	56	50	25	34
22	63	64	75	83	66	231	199	138	51	45	e20	34
23	64	65	75	147	64	176	170	134	49	111	19	38
24	64	68	93	195	62	146	163	130	46	89	18	30
25	60	106	78	166	62	137	203	128	43	95	20	31
26	59	73	77	182	60	164	192	122	57	278	100	128
27	60	85	71	117	58	161	158	123	49	117	42	163
28	63	76	66	109	56	123	161	152	64	98	48	91
29	60	69	68	100	---	120	195	125	82	81	60	83
30	63	68	66	103	---	129	163	116	71	66	37	72
31	64	---	61	100	---	171	---	106	---	63	40	---
TOTAL	1900	2001	2690	2680	2148	5675	4795	11084	2214	2126	1222	1493
MEAN	61.3	66.7	86.8	86.5	76.7	183	160	358	73.8	68.6	39.4	49.8
MAX	91	106	282	195	111	950	203	2160	145	278	115	163
MIN	48	60	61	55	56	54	128	106	43	39	18	16
CFSM	0.16	0.17	0.22	0.22	0.19	0.46	0.40	0.91	0.19	0.17	0.10	0.13
IN.	0.18	0.19	0.25	0.25	0.20	0.53	0.45	1.04	0.21	0.20	0.12	0.14

02055000 ROANOKE RIVER AT ROANOKE, VA--Continued

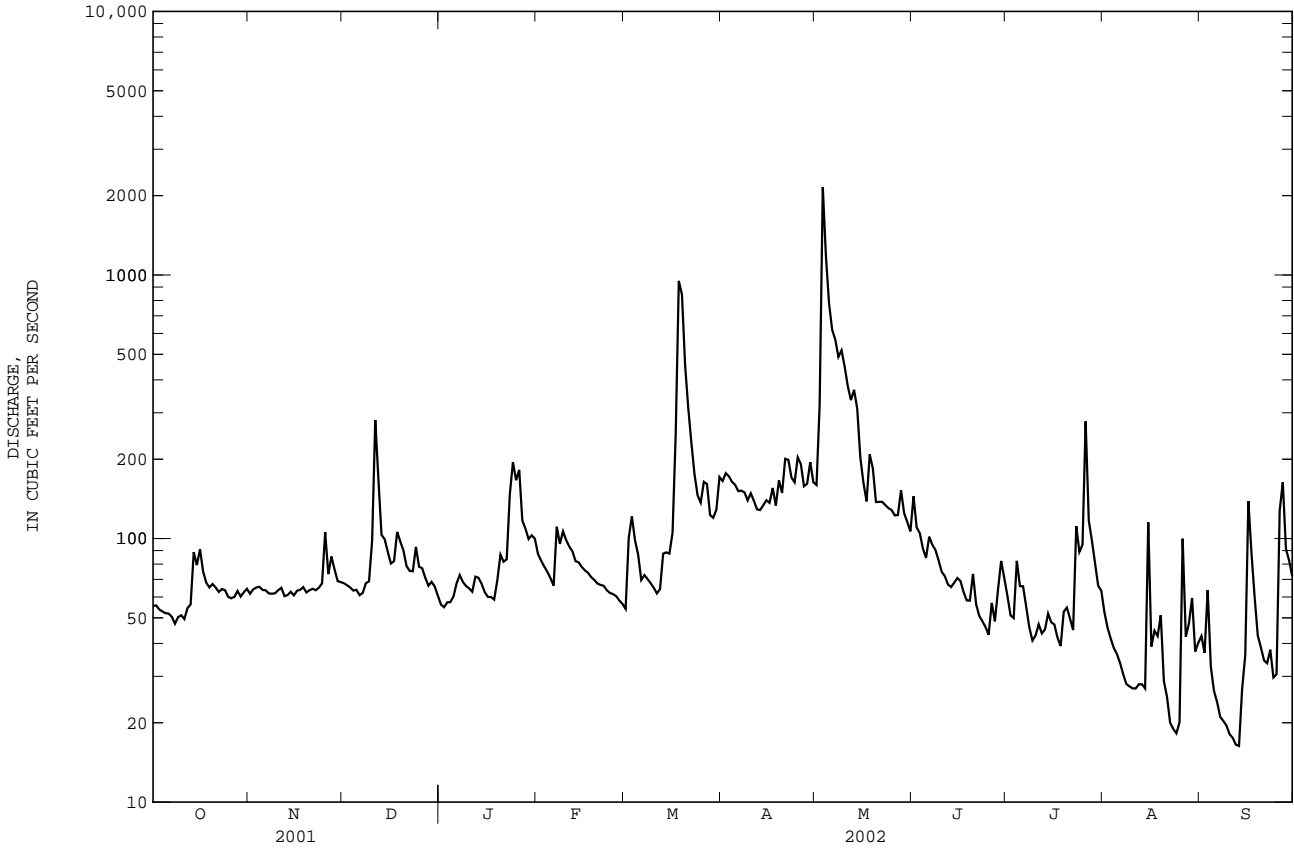
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1899 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	227	241	341	468	559	680	578	418	300	215	221	199
MAX	1080	1626	1425	1353	1912	2521	2558	1466	1206	1190	2140	1569
(WY)	1907	1986	1902	1937	1998	1899	1987	1901	1972	1905	1940	1928
MIN	47.9	43.8	55.2	65.5	52.5	119	108	112	73.8	45.6	39.4	42.6
(WY)	1992	1932	1918	1981	1934	1981	1942	1941	2002	1930	2002	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1899 - 2002

ANNUAL TOTAL	70168	40028	
ANNUAL MEAN	192	110	368
HIGHEST ANNUAL MEAN			836
LOWEST ANNUAL MEAN			110
HIGHEST DAILY MEAN	2460	Mar 30	2160
LOWEST DAILY MEAN	40	Sep 18	16
ANNUAL SEVEN-DAY MINIMUM	43	Sep 13	19
MAXIMUM PEAK FLOW			3250
MAXIMUM PEAK STAGE			5.61
INSTANTANEOUS LOW FLOW			15
ANNUAL RUNOFF (CFSM)	0.49	0.28	0.93
ANNUAL RUNOFF (INCHES)	6.61	3.77	12.66
10 PERCENT EXCEEDS	393	169	736
50 PERCENT EXCEEDS	109	68	206
90 PERCENT EXCEEDS	61	39	73

- a From floodmark.
- b Practically no flow; retarded by freezing.
- c Also Dec. 19, 1963.
- e Estimated.



ROANOKE RIVER BASIN

02055100 TINKER CREEK NEAR DALEVILLE, VA

LOCATION.--Lat 37°25'03", long 79°56'07", NAD83, Botetourt County, Hydrologic Unit 03010101, on left bank 1,100 ft downstream from Norfolk Southern Railway bridge, 0.2 mi downstream from unnamed tributary, 0.5 mi south of Glebe Mills, and 1.3 mi northwest of Daleville.

DRAINAGE AREA.--11.7 mi².

PERIOD OF RECORD.--April 1956 to current year.

REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft NGVD of 1929 (Norfolk Southern Railway bench mark).

REMARKS.--Records good except those for period of doubtful gage-height record, Oct. 3 to Nov. 6, and period with ice effect, Jan. 1-8, which are poor. Withdrawal of water 1,000 ft downstream of gage by city of Roanoke for Caryins Cove Reservoir. Virginia Department of Emergency Services radio transmitter at station. Maximum discharge, 10,400 ft³/s, from rating curve extended above 130 ft³/s on basis of contracted-opening measurement at gage height 9.82 ft and slope-area measurements at gage heights 8.52 ft, 9.82 ft, and 13.36 ft. 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 1940 reached a stage of 9.0 ft, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	1.5	e2.1	1.0	e1.5	1.4	1.9	5.3	1.9	1.3	0.76	0.65	0.72
2	1.4	e2.1	1.0	e1.5	1.2	3.8	4.2	6.2	1.3	0.70	0.60	0.67
3	e1.3	e2.1	0.94	e1.5	1.2	7.3	3.8	10	1.1	0.72	0.56	0.64
4	e1.2	e2.0	0.89	e1.5	1.1	3.6	3.2	6.8	3.0	0.70	0.49	0.61
5	e1.3	e1.8	0.87	1.6	1.1	2.5	2.9	6.7	3.0	0.65	0.44	0.60
6	e1.7	e1.8	0.87	e1.6	1.2	2.3	2.5	5.0	2.6	0.64	0.43	0.58
7	e1.7	1.7	0.87	e1.6	2.4	2.0	2.5	4.5	2.4	0.61	0.41	0.57
8	e1.9	1.4	0.95	e1.6	2.6	1.8	2.4	3.9	2.0	0.59	0.42	0.58
9	e2.2	1.3	0.99	1.7	2.2	1.8	2.6	3.7	1.7	0.58	0.42	0.62
10	e2.1	1.3	1.4	1.7	2.3	1.6	3.4	3.1	1.5	0.96	0.41	0.68
11	e1.9	1.4	7.2	1.8	2.4	1.4	2.6	2.7	1.4	0.88	0.42	0.75
12	e1.8	1.2	1.8	1.8	2.2	1.6	2.3	2.5	1.4	0.76	0.44	0.87
13	e2.2	1.2	1.5	1.9	2.1	3.2	2.4	2.6	1.3	0.71	0.41	0.89
14	6.8	1.1	1.5	1.7	2.0	2.5	2.5	2.5	1.2	0.81	0.41	1.1
15	e3.2	1.1	1.4	1.7	1.9	2.0	2.3	2.3	1.2	0.77	0.46	1.2
16	e2.4	1.1	1.3	1.7	1.9	2.0	2.2	2.2	1.1	0.67	0.50	1.2
17	e2.0	1.1	1.3	1.7	1.8	11	2.0	2.1	0.94	0.61	0.79	1.1
18	e2.1	1.1	1.6	1.6	1.6	19	1.9	2.4	0.83	0.61	0.82	1.1
19	e2.2	1.1	1.4	2.2	1.6	15	1.9	2.2	0.77	0.67	0.62	1.2
20	e2.2	1.1	1.4	2.6	1.9	11	1.9	2.1	0.77	0.69	0.60	1.2
21	e2.3	1.1	1.6	2.6	2.1	8.1	2.2	2.1	0.73	0.76	0.63	1.2
22	e2.2	1.1	1.6	2.9	2.5	5.7	2.6	2.1	0.71	0.63	0.71	1.2
23	e2.1	1.0	1.7	8.6	2.2	4.7	2.0	2.0	0.66	0.66	0.70	1.3
24	e2.1	1.1	2.6	5.4	2.0	3.9	1.8	1.9	0.64	1.0	0.70	1.2
25	e2.3	1.9	2.2	3.8	1.9	3.5	2.3	1.8	0.62	0.86	0.69	1.2
26	e2.4	1.4	2.1	2.7	2.0	3.7	2.0	1.7	0.65	4.1	0.99	2.5
27	e2.2	1.2	2.0	2.3	2.0	4.5	1.9	1.7	1.0	1.8	0.74	2.7
28	e2.1	1.1	1.9	2.0	1.9	3.4	2.4	1.9	1.2	1.4	0.75	1.7
29	e2.1	1.1	1.9	1.9	---	3.1	2.4	1.7	1.0	0.95	0.79	1.1
30	e2.4	1.1	1.7	1.8	---	2.9	2.0	1.5	0.83	0.76	0.71	1.0
31	e2.2	---	1.6	1.5	---	5.1	---	1.4	---	0.74	0.69	---
TOTAL	67.5	41.2	51.08	70.0	52.7	145.9	76.4	95.2	38.85	27.75	18.40	31.98
MEAN	2.18	1.37	1.65	2.26	1.88	4.71	2.55	3.07	1.29	0.90	0.59	1.07
MAX	6.8	2.1	7.2	8.6	2.6	19	5.3	10	3.0	4.1	0.99	2.7
MIN	1.2	1.0	0.87	1.5	1.1	1.4	1.8	1.4	0.62	0.58	0.41	0.57
CFSM	0.19	0.12	0.14	0.19	0.16	0.40	0.22	0.26	0.11	0.08	0.05	0.09
IN.	0.21	0.13	0.16	0.22	0.17	0.46	0.24	0.30	0.12	0.09	0.06	0.10

02055100 TINKER CREEK NEAR DALEVILLE, VA--Continued

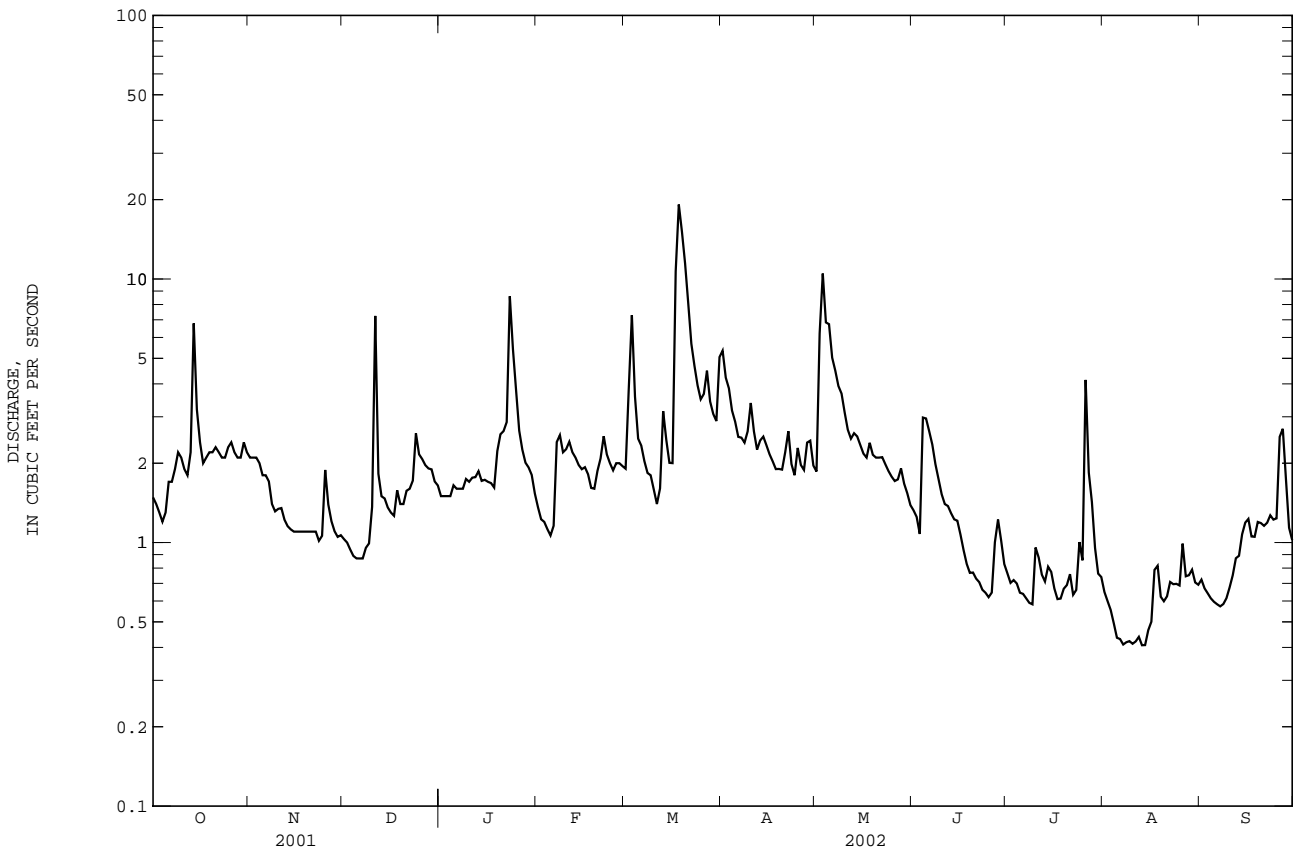
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1956 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	8.02	10.6	10.2	13.9	18.3	22.0	19.3	12.3	8.49	6.43	6.10	6.97
MAX	34.2	118	32.6	35.9	82.6	69.3	87.9	33.8	39.0	21.8	29.8	50.4
(WY)	1980	1986	1973	1996	1998	1993	1987	1958	1972	1973	1984	1979
MIN	2.09	1.37	1.65	1.78	1.88	3.16	2.55	3.07	1.29	0.90	0.59	1.07
(WY)	1987	2002	2002	1966	2002	1981	2002	2002	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1956 - 2002

ANNUAL TOTAL		2153.68		716.96						11.9		
ANNUAL MEAN		5.90		1.96						21.6		1973
HIGHEST ANNUAL MEAN										1.96		2002
LOWEST ANNUAL MEAN										2560		Nov 4 1985
HIGHEST DAILY MEAN				67	Mar 21		19	Mar 18		0.41	bAug 7	2002
LOWEST DAILY MEAN				0.87	aDec 5		0.41	bAug 7		0.41	bAug 7	2002
ANNUAL SEVEN-DAY MINIMUM				0.91	Dec 3		0.42	Aug 7		0.42	Aug 7	2002
MAXIMUM PEAK FLOW							23	Mar 18		10400		Nov 4 1985
MAXIMUM PEAK STAGE							1.69	Mar 18		c13.36		Nov 4 1985
INSTANTANEOUS LOW FLOW							0.37	dAug 10		f0.20		Jan 24 1961
ANNUAL RUNOFF (CFSM)				0.50			0.17			1.01		
ANNUAL RUNOFF (INCHES)				6.85			2.28			13.77		
10 PERCENT EXCEEDS				12			3.2			24		
50 PERCENT EXCEEDS				4.0			1.7			6.7		
90 PERCENT EXCEEDS				1.2			0.65			2.4		

- a Also Dec. 6, 7, 2001.
- b Also Aug. 10, 13, 14, 2002.
- c From floodmarks.
- d Also Aug. 13, 14, 2002.
- e Estimated.
- f Result of freezeup.



ROANOKE RIVER BASIN

02056000 ROANOKE RIVER AT NIAGARA, VA

LOCATION.--Lat 37°15'18", long 79°52'17", NAD83, Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft downstream from powerplant of American Electric Power at Niagara, 2 mi downstream from Tinker Creek, 2.1 mi southeast of Vinton, and at mile 355.3.

DRAINAGE AREA.--512 mi².

PERIOD OF RECORD.--July 1926 to current year.

REVISED RECORDS.--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 820.15 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Flow regulated by dam and powerplant 200 ft upstream from station. Maximum discharge, 52,300 ft³/s, from rating curve extended above 12,000 ft³/s on basis of slope-area measurements at gage heights 18.98 ft and 25.30 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 3	0715	*5,860	*9.61	No other peak greater than base discharge.			

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	132	107	112	100	152	110	237	217	244	126	116	115
2	122	110	110	113	134	199	243	464	169	120	108	106
3	119	109	104	113	147	261	239	3110	168	116	101	142
4	118	105	106	113	138	178	232	1280	159	137	98	106
5	117	101	102	116	129	162	224	810	146	131	91	96
6	117	107	108	136	134	137	224	580	194	125	80	93
7	116	101	108	140	217	136	204	455	165	117	89	91
8	111	104	119	126	170	146	226	409	151	113	86	88
9	96	104	107	124	185	130	204	458	146	109	84	87
10	109	99	170	118	161	127	218	363	140	145	82	86
11	111	103	526	117	162	128	213	296	140	128	82	82
12	118	107	252	124	153	130	198	262	128	113	83	83
13	114	105	173	123	144	188	190	331	126	111	81	81
14	199	99	164	122	153	163	200	337	130	123	79	108
15	129	100	143	114	139	144	217	264	129	115	164	117
16	139	100	137	113	133	195	207	224	127	114	113	294
17	109	101	152	113	134	436	222	208	127	110	100	152
18	108	102	179	111	133	1130	212	306	116	106	137	119
19	111	102	162	136	129	1020	248	242	120	156	133	109
20	108	105	145	166	137	591	214	199	144	131	97	106
21	108	103	138	162	121	409	293	201	117	124	91	95
22	111	103	121	151	125	315	270	199	109	114	89	97
23	116	103	136	284	119	257	238	199	111	215	87	95
24	98	113	159	263	119	211	219	194	110	168	86	89
25	100	185	123	262	125	208	288	184	110	164	90	89
26	97	117	129	251	120	263	252	174	173	609	261	274
27	97	133	130	189	120	254	211	179	155	208	128	309
28	103	122	118	185	115	200	235	207	149	162	129	157
29	102	118	129	160	---	187	263	183	145	146	147	135
30	101	111	114	173	---	210	224	172	137	134	111	131
31	102	---	109	180	---	277	---	162	---	114	110	---
TOTAL	3538	3279	4585	4698	3948	8502	6865	12869	4285	4604	3333	3732
MEAN	114	109	148	152	141	274	229	415	143	149	108	124
MAX	199	185	526	284	217	1130	293	3110	244	609	261	309
MIN	96	99	102	100	115	110	190	162	109	106	79	81
CFSM	0.22	0.21	0.29	0.30	0.28	0.54	0.45	0.81	0.28	0.29	0.21	0.24
IN.	0.26	0.24	0.33	0.34	0.29	0.62	0.50	0.94	0.31	0.33	0.24	0.27

02056000 ROANOKE RIVER AT NIAGARA, VA--Continued

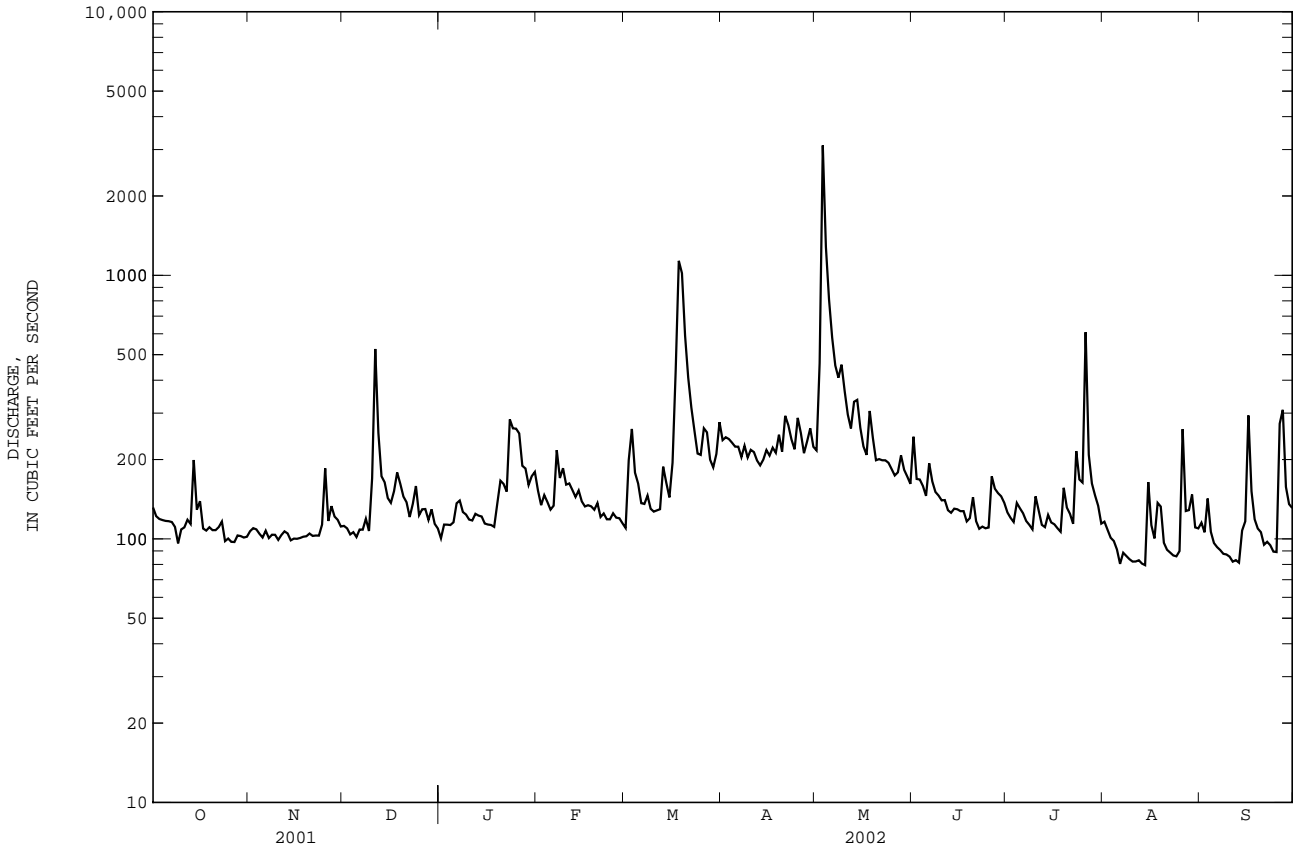
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	344	360	463	623	762	897	815	560	413	288	334	316
MAX	1722	2100	2065	1941	2805	2846	3661	1447	1550	1396	2456	2051
(WY)	1938	1986	1949	1937	1998	1993	1987	1958	1972	1949	1940	1928
MIN	86.0	101	115	110	117	210	157	193	135	109	92.2	84.0
(WY)	1931	1942	1966	1966	1934	1981	1942	1930	1999	1930	1956	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1927 - 2002

ANNUAL TOTAL	100842	64238	
ANNUAL MEAN	276	176	513
HIGHEST ANNUAL MEAN			984 1949
LOWEST ANNUAL MEAN			176 2002
HIGHEST DAILY MEAN	3790 Mar 30	3110 May 3	19700 Nov 4 1985
LOWEST DAILY MEAN	92 Sep 14	79 Aug 14	8.0 Oct 9 1954
ANNUAL SEVEN-DAY MINIMUM	100 Oct 24	82 Aug 8	67 Jan 28 1966
MAXIMUM PEAK FLOW		5860 May 3	52300 Nov 4 1985
MAXIMUM PEAK STAGE		9.61 May 3	a25.30 Nov 4 1985
INSTANTANEOUS LOW FLOW		32 May 19	1.0 bOct 16 1956
ANNUAL RUNOFF (CFSM)	0.54	0.34	1.00
ANNUAL RUNOFF (INCHES)	7.33	4.67	13.62
10 PERCENT EXCEEDS	510	261	974
50 PERCENT EXCEEDS	178	130	302
90 PERCENT EXCEEDS	106	99	134

a From floodmark.
 b Also Oct. 20, 1956, and Nov. 25, 26, 1990.



ROANOKE RIVER BASIN

02056650 BACK CREEK NEAR DUNDEE, VA

LOCATION.--Lat 37°13'40", long 79°52'05", NAD83, Roanoke County, Hydrologic Unit 03010101, on right bank 65 ft upstream from bridge on State Highway 660, 0.9 mi upstream from Horseshoe Branch, 1.1 mi southeast of Dundee, 2.8 mi west of Hardy Post Office, and at mile 2.4.

DRAINAGE AREA.--56.8 mi².

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 822.67 ft NGVD of 1929. Prior to Apr. 4, 1975, nonrecording gage, and Apr. 4, 1975, to Nov. 4, 1985, water-stage recorder, at site 80 ft downstream at same datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 8-12 and Oct. 27 to Nov. 3, and periods with ice effect, Dec. 30 and Jan. 3-9, which are poor. Maximum discharge, 20,000 ft³/s, from rating curve extended above 5,900 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 30, 1971, and Jun. 21, 1972, reached a stage of 17.5 ft and 20.0 ft, respectively, from information by local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	5.5	e6.4	6.3	6.6	14	8.1	35	17	12	4.1	3.5	10
2	5.5	e7.0	5.8	6.4	12	11	30	69	11	3.4	3.0	9.8
3	5.1	e7.4	5.3	e6.4	12	48	28	260	8.8	2.9	2.5	6.4
4	4.5	7.5	5.2	e6.4	11	27	25	99	7.1	2.5	2.1	5.5
5	4.4	7.2	5.2	e6.6	10	18	22	76	8.5	7.4	1.8	3.5
6	4.0	6.1	5.1	e7.0	11	17	21	56	7.1	10	1.5	2.8
7	3.7	6.1	5.2	e7.6	21	15	19	45	9.2	3.4	1.1	2.3
8	e3.7	5.3	5.6	e8.2	25	14	18	38	8.5	2.4	0.94	1.9
9	e3.9	4.4	5.9	e9.0	19	12	18	45	6.5	1.9	0.72	1.7
10	e3.9	4.4	6.5	11	17	12	20	33	5.7	1.8	0.65	1.6
11	e3.9	4.3	74	11	17	10	17	26	5.2	6.0	0.58	1.4
12	e4.0	4.7	30	10	14	11	15	23	4.6	6.9	0.48	1.2
13	7.1	4.2	20	9.3	14	19	16	26	4.3	4.4	0.41	0.94
14	14	4.4	15	8.7	13	20	16	30	6.8	4.8	0.32	0.93
15	20	4.6	12	8.6	12	16	17	22	6.6	7.5	3.5	2.0
16	6.3	4.7	9.9	8.5	12	17	16	19	4.4	5.0	31	11
17	3.4	4.7	9.4	8.2	11	48	14	18	3.8	3.5	7.0	11
18	4.0	4.6	17	8.3	11	171	46	22	3.4	2.8	4.2	5.1
19	4.1	4.5	17	9.6	10	104	32	22	3.2	2.6	3.9	3.8
20	4.4	4.4	12	15	11	70	31	17	3.2	2.8	2.8	3.8
21	4.4	4.2	10	15	10	53	33	16	3.9	3.3	2.3	3.7
22	4.2	6.4	9.2	19	10	40	40	15	2.9	2.9	1.7	3.4
23	4.0	5.3	8.9	47	9.7	32	29	14	2.6	2.2	1.4	3.6
24	4.6	5.6	10	52	9.7	28	24	13	2.4	2.3	1.2	3.7
25	5.2	20	11	39	9.4	23	29	12	2.2	16	1.2	3.5
26	7.7	24	9.2	30	9.3	24	27	11	2.5	61	1.6	14
27	e6.4	9.7	8.9	23	8.9	36	22	11	6.5	43	8.7	54
28	e6.8	7.2	8.8	20	8.4	26	22	17	16	16	5.7	31
29	e7.0	6.3	8.5	17	---	24	28	15	10	9.2	8.3	14
30	e7.0	6.2	e8.0	16	---	23	20	12	5.8	6.0	9.2	9.1
31	e6.4	---	7.0	14	---	30	---	11	---	4.5	6.1	---
TOTAL	179.1	201.8	371.9	464.4	352.4	1007.1	730	1110	184.7	252.5	119.40	226.67
MEAN	5.78	6.73	12.0	15.0	12.6	32.5	24.3	35.8	6.16	8.15	3.85	7.56
MAX	20	24	74	52	25	171	46	260	16	61	31	54
MIN	3.4	4.2	5.1	6.4	8.4	8.1	14	11	2.2	1.8	0.32	0.93
CFSM	0.10	0.12	0.21	0.26	0.22	0.57	0.43	0.63	0.11	0.14	0.07	0.13
IN.	0.12	0.13	0.24	0.30	0.23	0.66	0.48	0.73	0.12	0.17	0.08	0.15

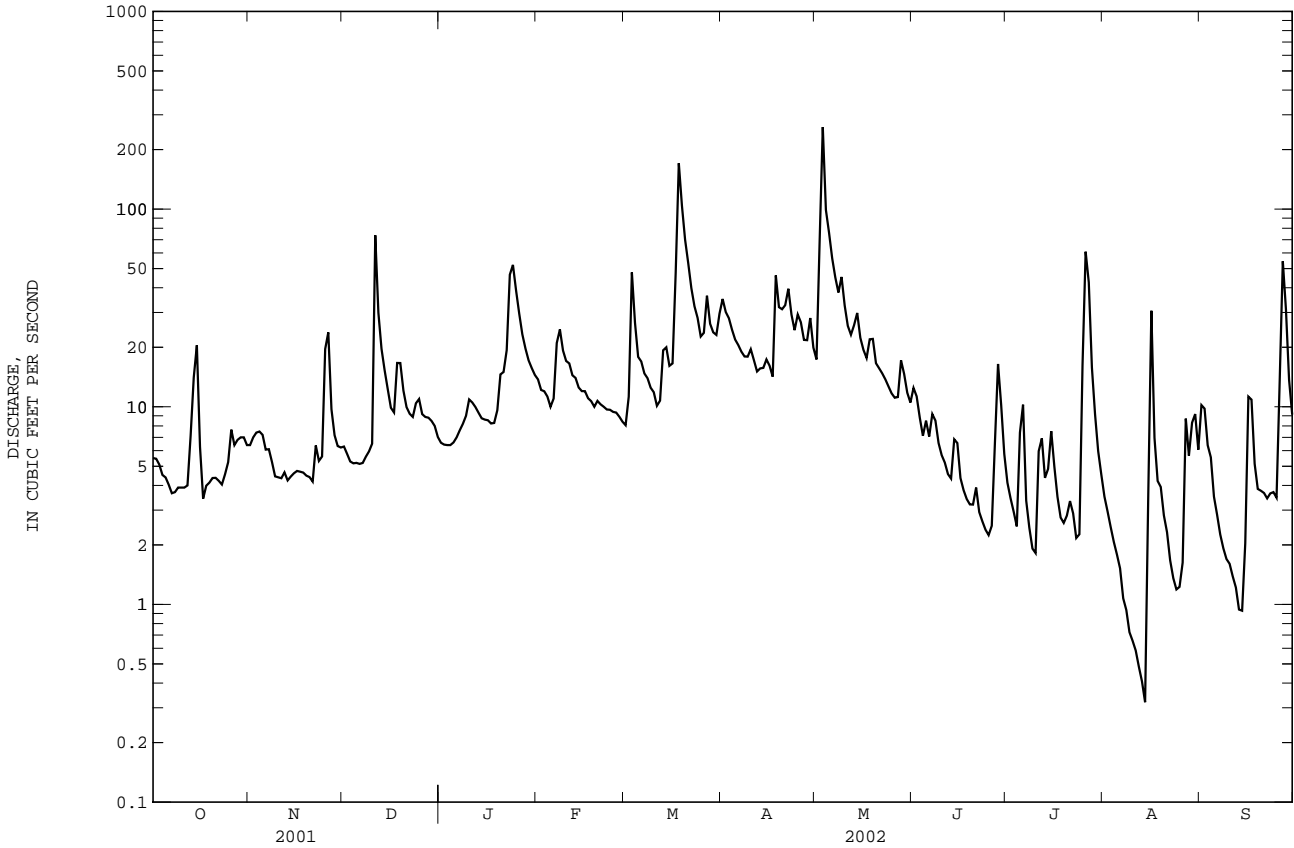
02056650 BACK CREEK NEAR DUNDEE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	32.3	45.2	45.3	65.7	78.0	105	106	63.7	48.9	26.9	25.0	39.7
MAX	154	292	117	146	317	265	396	190	173	110	121	314
(WY)	1977	1986	1987	1996	1998	1993	1987	1978	1992	1989	1985	1979
MIN	5.61	6.58	11.4	11.6	12.6	20.5	22.4	20.8	6.16	6.96	3.47	5.03
(WY)	1992	1982	1999	1981	2002	1981	1981	1981	2002	1981	1981	1998

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1974 - 2002
ANNUAL TOTAL	9758.5	5199.97	
ANNUAL MEAN	26.7	14.2	56.7
HIGHEST ANNUAL MEAN			108 1987
LOWEST ANNUAL MEAN			14.2 2002
HIGHEST DAILY MEAN	433 Mar 30	260 May 3	4000 Nov 4 1985
LOWEST DAILY MEAN	3.3 aJul 24	0.32 Aug 14	0.32 Aug 14 2002
ANNUAL SEVEN-DAY MINIMUM	3.9 Oct 6	0.59 Aug 8	0.59 Aug 8 2002
MAXIMUM PEAK FLOW		562 May 3	20000 Nov 4 1985
MAXIMUM PEAK STAGE		5.66 May 3	b25.10 Nov 4 1985
INSTANTANEOUS LOW FLOW		0.24 cAug 14	0.24 cAug 14 2002
ANNUAL RUNOFF (CFSM)	0.47	0.25	1.00
ANNUAL RUNOFF (INCHES)	6.39	3.41	13.56
10 PERCENT EXCEEDS	57	30	109
50 PERCENT EXCEEDS	16	8.7	30
90 PERCENT EXCEEDS	4.6	2.6	8.8

- a Also July 25, 2001.
- b From floodmark, present site.
- c Also Aug. 15, 2002.
- e Estimated.



ROANOKE RIVER BASIN

02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA

LOCATION.--Lat 37°02'43", long 79°50'39", NAD83, Franklin County, Hydrologic Unit 03010101, on right bank 45 ft downstream from bridge on State Highway 122, 3.0 mi northeast of Rocky Mount, and 4.1 mi upstream from Maggodee Creek.

DRAINAGE AREA.--115 mi².

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. American Electric Power gage-height transmitter at station with recorder at Roanoke. Maximum discharge, 20,800 ft³/s, from rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	15	19	24	e23	41	30	89	37	26	15	15	33
2	16	19	25	e21	38	36	73	44	28	11	12	34
3	15	19	23	e23	36	102	66	254	28	11	10	23
4	15	20	21	e24	35	75	60	148	21	9.4	9.3	20
5	13	20	21	25	34	53	56	115	20	19	8.4	20
6	13	19	21	30	33	47	54	90	19	32	7.4	15
7	13	19	21	38	50	44	52	77	22	15	6.4	12
8	13	19	22	32	69	42	50	68	23	10	5.5	11
9	14	19	23	33	56	41	50	67	20	8.3	5.2	11
10	15	19	23	31	49	41	54	63	17	11	4.9	10
11	16	19	127	28	49	37	51	54	16	18	4.9	10
12	17	19	84	28	46	36	45	50	15	23	4.6	9.4
13	17	19	53	27	43	47	46	50	14	15	4.2	8.8
14	20	19	44	27	40	55	46	61	13	18	3.8	9.3
15	51	19	38	26	39	47	46	48	15	40	4.8	28
16	32	21	33	26	39	45	47	43	15	22	26	74
17	18	20	31	25	38	112	42	40	12	16	34	45
18	14	20	35	25	36	558	107	39	11	13	30	27
19	15	20	40	29	35	286	79	41	11	11	38	21
20	16	20	33	36	35	162	76	36	9.7	10	21	23
21	16	20	30	39	36	126	63	35	9.2	9.6	12	22
22	15	19	29	40	35	99	59	35	9.0	12	8.8	19
23	15	20	28	94	34	84	53	34	8.8	10	7.7	27
24	14	21	33	152	34	76	47	32	8.1	10	9.9	22
25	15	26	34	95	33	69	50	31	7.6	47	11	18
26	16	52	30	78	32	65	54	29	9.1	146	9.9	28
27	16	35	28	62	32	77	45	32	21	104	11	131
28	16	27	27	53	31	67	43	36	37	48	20	137
29	17	25	27	48	---	61	43	36	28	28	21	58
30	18	24	26	44	---	64	39	27	20	20	20	41
31	19	---	25	41	---	80	---	26	---	17	20	---
TOTAL	535	657	1059	1303	1108	2764	1685	1778	513.5	779.3	406.7	947.5
MEAN	17.3	21.9	34.2	42.0	39.6	89.2	56.2	57.4	17.1	25.1	13.1	31.6
MAX	51	52	127	152	69	558	107	254	37	146	38	137
MIN	13	19	21	21	31	30	39	26	7.6	8.3	3.8	8.8
CFSM	0.15	0.19	0.30	0.37	0.34	0.78	0.49	0.50	0.15	0.22	0.11	0.27
IN.	0.17	0.21	0.34	0.42	0.36	0.89	0.55	0.58	0.17	0.25	0.13	0.31

02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA--Continued

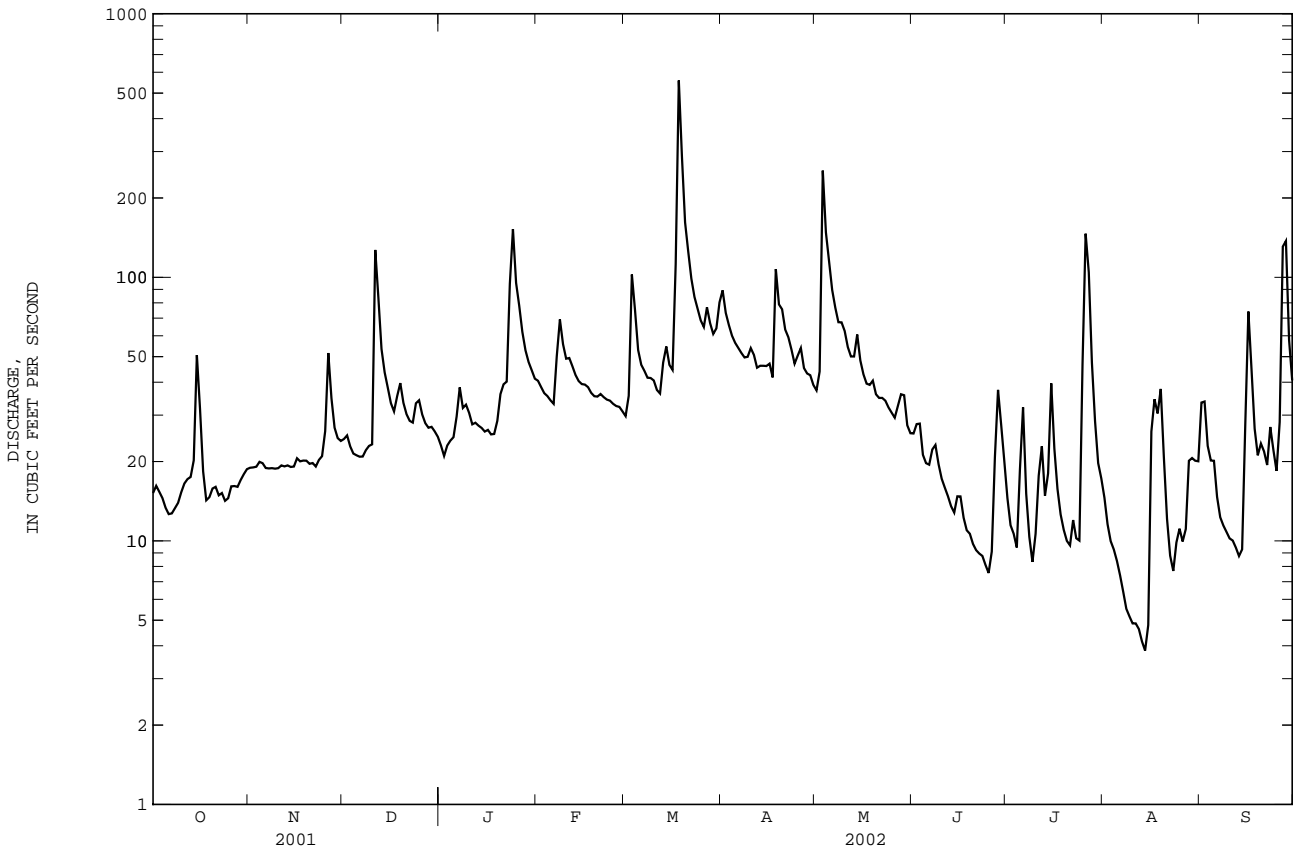
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	93.6	107	106	150	159	215	226	133	117	77.8	64.8	90.4
MAX	544	584	272	349	495	585	821	346	416	261	205	375
(WY)	1977	1986	1997	1996	1998	1993	1987	1978	1992	1989	1985	1979
MIN	17.3	21.9	34.2	42.0	39.6	60.1	56.2	53.6	17.1	24.6	12.4	23.0
(WY)	2002	2002	2002	2002	2002	1981	2002	1981	2002	1977	1981	1983

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1977 - 2002

ANNUAL TOTAL	19768	13536.0	
ANNUAL MEAN	54.2	37.1	128
HIGHEST ANNUAL MEAN			234 1987
LOWEST ANNUAL MEAN			37.1 2002
HIGHEST DAILY MEAN	726 Mar 30	558 Mar 18	5410 Nov 5 1985
LOWEST DAILY MEAN	e12 Sep 19	3.8 Aug 14	3.8 Aug 14 2002
ANNUAL SEVEN-DAY MINIMUM	14 aOct 3	4.6 Aug 9	4.6 Aug 9 2002
MAXIMUM PEAK FLOW		902 Mar 18	20800 Nov 5 1985
MAXIMUM PEAK STAGE		4.60 Mar 18	21.92 Nov 5 1985
INSTANTANEOUS LOW FLOW		3.2 bAug 13	3.2 bAug 13 2002
ANNUAL RUNOFF (CFSM)	0.47	0.32	1.11
ANNUAL RUNOFF (INCHES)	6.39	4.38	15.13
10 PERCENT EXCEEDS	99	67	224
50 PERCENT EXCEEDS	38	28	80
90 PERCENT EXCEEDS	17	11	31

a Also Oct. 4, 5, 2001.
 b Also Aug. 14, 2002.
 e Estimated.



ROANOKE RIVER BASIN

02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA

LOCATION.--Lat 37°02'29", long 79°31'19", NAD83, Pittsylvania County, Hydrologic Unit 03010101, at dam on Roanoke (Staunton) River 6.5 mi northeast of Penhook and at mile 314.0.

DRAINAGE AREA.--1,024 mi².

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to July 19, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Two ungated spillways, one near each end of dam, with crests at elevation 795 ft, are each 105 ft long. Initial filling began in September 1963 during construction; water in reservoir first reached minimum power pool, elevation, 787 ft, in May 1965. Total capacity at maximum pool elevation, 811 ft, is 1,517,000 acre-ft of which 375,000 acre-ft is above the spillway crest; 157,800 acre-ft is normally used for power between elevation 787 ft, minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 601 ft, is 100 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (pumped storage) which is used for hydroelectric power, flood control, low-water regulation for pollution abatement and water supply, water releases for downstream fish spawning, and recreation.

COOPERATION.--Records were provided by the American Electric Power.

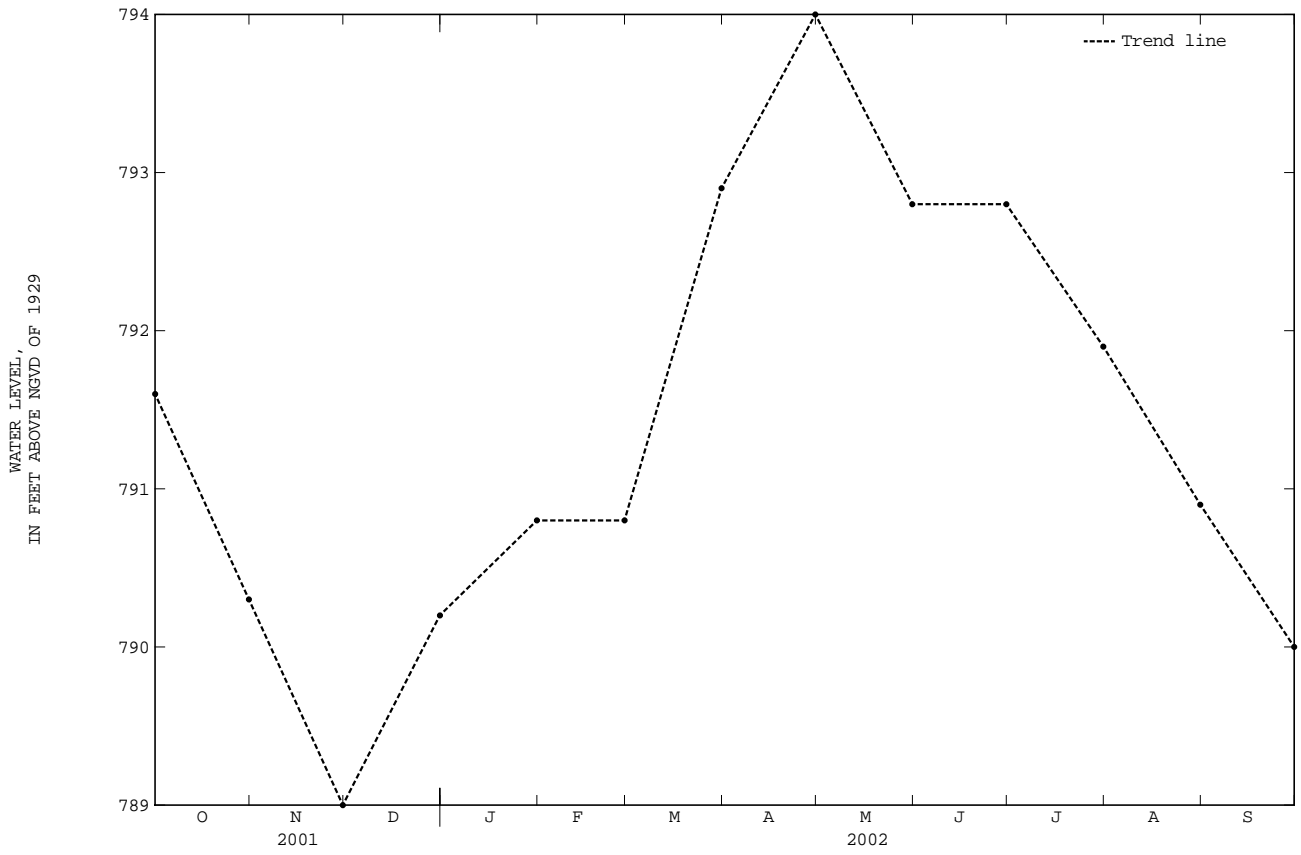
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,250,200 acre-ft, Apr. 27, 1978, elevation, 799.8 ft; minimum (after first filling to minimum power pool), 995,400 acre-ft, Jan. 23, 1970, elevation, 787.6 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,142,000 acre-ft, May 6, elevation, 795.0 ft; minimum, 1,012,100 acre-ft, Nov. 28, elevation, 788.5 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	791.6	1,072,600	-
Oct. 31.....	790.3	1,046,100	-26,500
Nov. 30.....	789.0	1,021,400	-24,700
Dec. 31.....	790.2	1,044,100	+22,700
CAL YR 2001.....			-57,100
Jan. 31.....	790.8	1,056,300	+12,200
Feb. 28.....	790.8	1,056,300	0
Mar. 31.....	792.9	1,099,200	+42,900
Apr. 30.....	794.0	1,121,600	+22,400
May 31.....	792.8	1,097,100	-24,500
June 30.....	792.8	1,097,100	0
July 31.....	791.9	1,078,800	-18,300
Aug. 31.....	790.9	1,058,400	-20,400
Sept. 30.....	790.0	1,040,000	-18,400
WTR YR 2002.....			-32,600

02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA--Continued



ROANOKE RIVER BASIN

02058400 PIGG RIVER NEAR SANDY LEVEL, VA

LOCATION.--Lat 36°56'46", long 79°31'29", NAD83, Pittsylvania County, Hydrologic Unit 03010101, on left bank 300 ft downstream from Harpen Creek, 0.5 mi upstream from bridge on State Highway 40, and 1.1 mi south of Sandy Level.

DRAINAGE AREA.--350 mi².

PERIOD OF RECORD.--May 1963 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 617.00 ft NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 9, which is poor. American Electric Power gage-height transmitter at station, recorder at Roanoke. Maximum discharge, 65,600 ft³/s, from rating curve extended above 25,500 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	63	89	104	e93	151	109	354	121	122	71	51	90
2	62	90	103	e90	144	121	281	348	121	59	44	117
3	62	91	100	e85	135	363	235	928	115	53	42	79
4	60	94	96	e90	133	345	205	399	104	53	37	60
5	58	97	93	e95	128	221	185	272	102	51	34	51
6	55	91	93	e85	125	181	176	225	101	46	32	57
7	52	89	95	e110	183	165	166	188	118	46	29	48
8	52	89	106	e115	261	155	161	174	113	43	26	41
9	53	92	112	e120	226	147	161	367	106	38	23	38
10	56	91	111	132	189	144	170	415	96	36	22	37
11	61	91	386	123	182	135	169	266	86	36	21	35
12	66	90	375	115	175	132	157	197	81	53	21	33
13	66	89	203	111	165	168	153	190	77	85	20	32
14	68	92	160	106	156	194	151	373	76	71	19	32
15	105	91	138	105	149	175	153	269	77	81	18	39
16	142	92	124	103	147	158	150	202	75	93	17	86
17	96	93	115	102	143	424	142	176	72	71	18	115
18	73	93	134	104	137	2090	232	194	67	54	34	79
19	69	94	153	116	132	1210	192	209	64	48	34	59
20	74	94	133	165	130	487	179	170	67	46	32	54
21	79	95	117	180	130	350	156	153	62	46	27	52
22	81	93	109	176	129	276	148	148	57	40	25	52
23	83	95	106	265	123	231	143	144	53	35	22	53
24	83	100	127	473	120	206	133	140	51	37	22	53
25	83	115	145	378	117	191	139	135	51	159	32	54
26	79	123	130	317	116	183	145	130	51	201	44	71
27	76	125	117	236	117	256	138	128	60	219	51	186
28	79	114	111	196	114	232	130	266	98	179	51	209
29	81	102	108	177	---	194	130	161	105	93	121	147
30	89	101	105	164	---	183	124	134	84	67	88	93
31	97	---	e95	155	---	291	---	126	---	60	65	---
TOTAL	2303	2895	4204	4882	4157	9717	5158	7348	2512	2270	1122	2152
MEAN	74.3	96.5	136	157	148	313	172	237	83.7	73.2	36.2	71.7
MAX	142	125	386	473	261	2090	354	928	122	219	121	209
MIN	52	89	93	85	114	109	124	121	51	35	17	32
CFSM	0.21	0.28	0.39	0.45	0.42	0.90	0.49	0.68	0.24	0.21	0.10	0.20
IN.	0.24	0.31	0.45	0.52	0.44	1.03	0.55	0.78	0.27	0.24	0.12	0.23

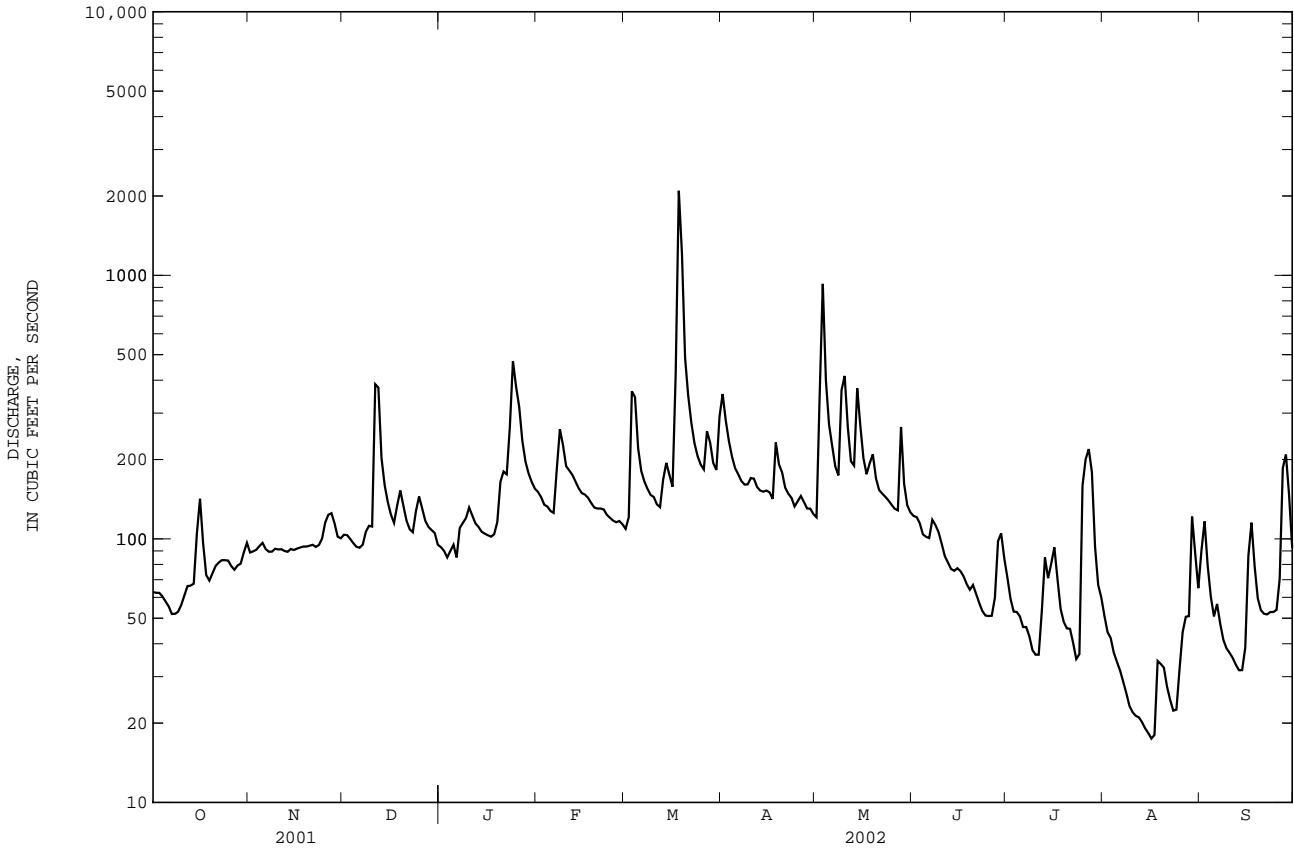
02058400 PIGG RIVER NEAR SANDY LEVEL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	286	300	343	465	486	578	525	398	323	249	230	297
MAX	1220	995	836	1054	1086	1578	2265	989	1200	814	867	1864
(WY)	1991	1986	1974	1978	1998	1993	1987	1978	1972	1972	1985	1987
MIN	74.3	96.5	136	157	148	203	172	165	83.7	73.2	36.2	70.0
(WY)	2002	2002	2002	2002	2002	1981	2002	1981	2002	2002	2002	1968

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1963 - 2002	
ANNUAL TOTAL	70016		48720			
ANNUAL MEAN	192		133		374	
HIGHEST ANNUAL MEAN					709	
LOWEST ANNUAL MEAN					133	
HIGHEST DAILY MEAN	4360		May 22		34900	
LOWEST DAILY MEAN	52		Oct 7		17	
ANNUAL SEVEN-DAY MINIMUM	55		Oct 4		19	
MAXIMUM PEAK FLOW					3020	
MAXIMUM PEAK STAGE					6.46	
INSTANTANEOUS LOW FLOW					17	
ANNUAL RUNOFF (CFSM)	0.55		0.38		1.07	
ANNUAL RUNOFF (INCHES)	7.44		5.18		14.52	
10 PERCENT EXCEEDS	287		223		585	
50 PERCENT EXCEEDS	144		106		249	
90 PERCENT EXCEEDS	73		42		118	

a From floodmarks.
 b Also Aug. 17, 2002.
 e Estimated.



ROANOKE RIVER BASIN

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

LOCATION.--Lat 37°05'36", long 79°24'08", NAD83, Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi south of Leesville, 3.5 mi upstream from Goose Creek, and at mile 296.

DRAINAGE AREA.--1,505 mi².

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to June 6, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 578.0 ft, is equipped with 4 radial gates 35 ft high by 50 ft wide. Storage began on Sept. 29, 1962, during construction, and water in reservoir first reached minimum power pool, elevation, 600.0 ft, on Mar. 5, 1963. Total capacity at maximum pool elevation, 614 ft, is 98,180 acre-ft of which 78,670 acre-ft is above the spillway crest elevation; 38,200 acre-ft is normally used for power between elevations 600.0 ft, minimum power pool, and 613.0 ft. Capacity at invert of lowest penstock, elevation, 579.75 ft, is 21,010 acre-ft. Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (see station 02057400).

COOPERATION.--Records were provided by the American Electric Power.

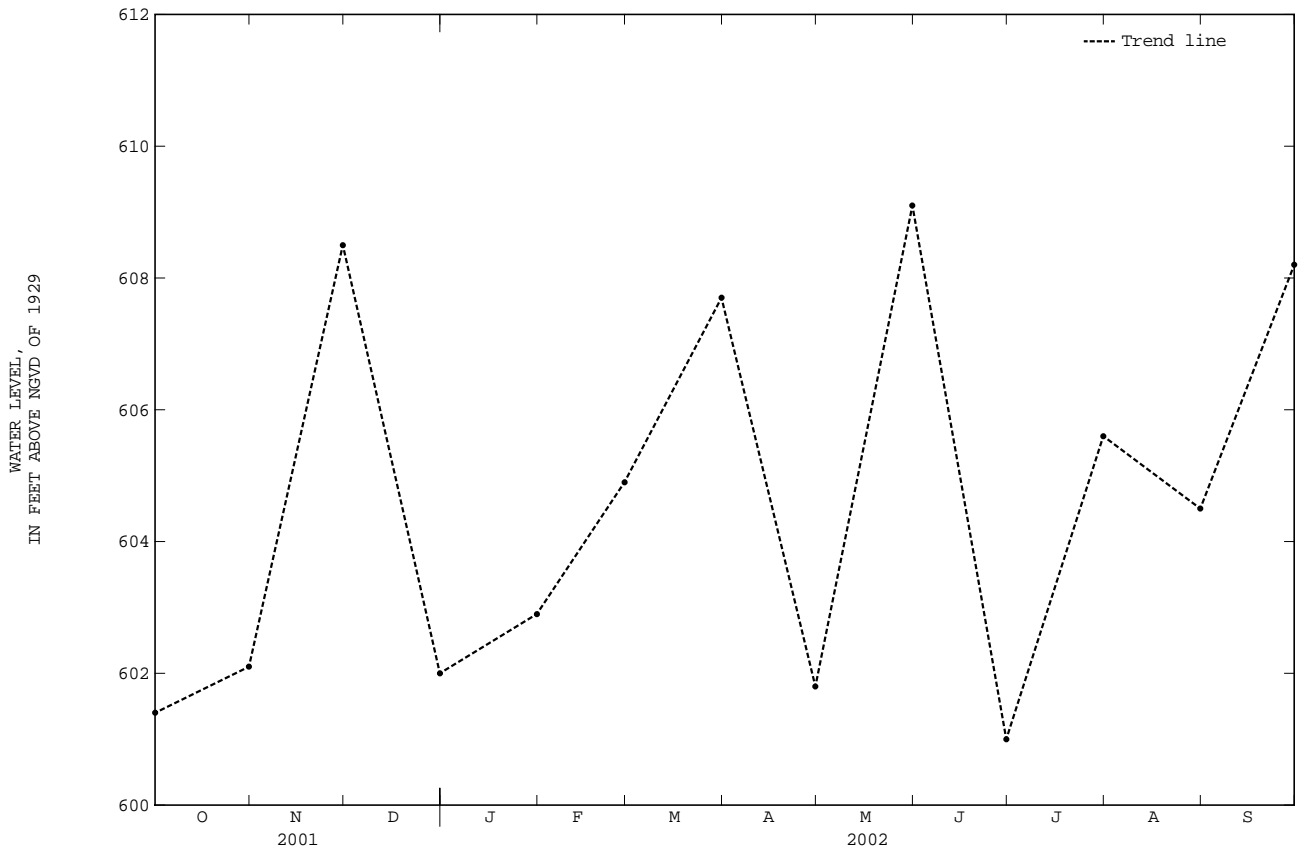
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 98,180 acre-ft, Feb. 1, 1965, elevation, 614.0 ft; minimum (after first filling to minimum power pool), 39,880 acre-ft, Mar. 19, 1963, elevation, 592.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 93,670 acre-ft, Sept. 13, elevation, 612.6 ft; minimum, 57,200 acre-ft, May 6, elevation, 600.0 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	601.4	60,950	-
Oct. 31.....	602.1	62,830	+1,880
Nov. 30.....	608.5	80,890	+18,060
Dec. 31.....	602.0	62,560	-18,330
CAL YR 2001.....			-4,560
Jan. 31.....	602.9	64,970	+2,410
Feb. 28.....	604.9	70,330	+5,360
Mar. 31.....	607.7	78,540	+8,210
Apr. 30.....	601.8	62,020	-16,520
May 31.....	609.1	82,650	+20,630
June 30.....	601.0	59,880	-22,770
July 31.....	605.6	72,360	+12,480
Aug. 31.....	604.5	69,260	-3,100
Sept. 30.....	608.2	80,010	+10,750
WTR YR 2002.....			+19,060

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA--Continued



ROANOKE RIVER BASIN

02059500 GOOSE CREEK NEAR HUDDLESTON, VA

LOCATION.--Lat 37°10'24", long 79°31'13", NAD83, Bedford County, Hydrologic Unit 03010101, on left bank 0.3 mi upstream from Haden Bridge on State Highway 732, 0.4 mi upstream from Rockcastle Creek, and 3.5 mi northwest of Huddleston.

DRAINAGE AREA.--188 mi².

PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.

REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 592.91 ft NGVD of 1929. Mar. 15, 1925, to Aug. 4, 1928, nonrecording gage at site 1,300 ft downstream at different datum.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Nov. 8 and May 13, and period with ice effect, Dec. 31 to Jan. 5, which are fair. Prior to October 1954, diurnal fluctuation at low flow caused by mill upstream from station. American Electric Power gage-height transmitter at station with recorder at Roanoke. Maximum discharge, 53,200 ft³/s, from rating curve extended above 11,000 ft³/s on basis of slope-area measurements at gage heights 19.25 ft, 24.1 ft, 24.89 ft, and 37.49 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	20	30	31	e36	49	37	88	52	27	20	19	17
2	20	30	30	e32	47	43	76	119	25	18	17	19
3	20	31	29	e35	45	97	68	241	24	17	15	15
4	19	30	27	e38	44	80	62	126	22	16	13	13
5	18	30	27	e43	43	59	57	102	31	17	12	12
6	17	28	27	49	40	52	55	85	37	22	12	9.8
7	17	28	27	55	70	49	52	74	28	15	10	8.8
8	16	e28	30	52	76	48	51	66	27	13	8.9	8.1
9	18	30	31	50	62	46	54	65	23	13	8.1	8.2
10	19	29	32	46	55	45	60	59	22	14	8.5	7.3
11	20	29	205	42	53	43	58	52	21	20	7.7	7.5
12	21	31	106	37	50	43	50	48	19	32	7.7	6.6
13	21	28	59	37	49	53	50	e49	18	20	7.4	6.0
14	28	28	48	35	46	56	50	71	22	24	6.9	6.6
15	41	29	42	35	44	50	54	52	21	28	7.5	8.9
16	38	31	37	35	44	50	52	45	19	23	7.8	15
17	25	29	37	34	43	128	49	41	17	17	8.5	25
18	21	30	52	34	41	353	46	46	16	14	12	19
19	22	30	53	39	41	232	47	56	15	17	11	14
20	23	30	42	53	41	136	55	44	15	16	13	14
21	25	29	38	54	41	105	53	41	14	15	9.5	13
22	23	29	36	54	42	81	58	40	14	16	7.9	12
23	25	28	35	101	41	70	54	40	13	14	6.4	19
24	24	31	50	118	41	64	47	38	13	13	6.7	15
25	23	42	46	106	40	59	53	36	12	13	7.0	13
26	26	42	41	79	41	59	52	34	12	161	8.3	22
27	24	38	40	62	40	67	46	33	16	114	10	43
28	25	33	42	58	37	62	48	33	92	57	18	38
29	27	31	43	57	---	57	65	32	40	38	22	27
30	28	31	41	53	---	58	62	29	26	27	18	20
31	29	---	e39	51	---	79	---	28	---	22	15	---
TOTAL	723	923	1423	1610	1306	2461	1672	1877	701	866	341.8	462.8
MEAN	23.3	30.8	45.9	51.9	46.6	79.4	55.7	60.5	23.4	27.9	11.0	15.4
MAX	41	42	205	118	76	353	88	241	92	161	22	43
MIN	16	28	27	32	37	37	46	28	12	13	6.4	6.0
CFSM	0.12	0.16	0.24	0.28	0.25	0.42	0.30	0.32	0.12	0.15	0.06	0.08
IN.	0.14	0.18	0.28	0.32	0.26	0.49	0.33	0.37	0.14	0.17	0.07	0.09

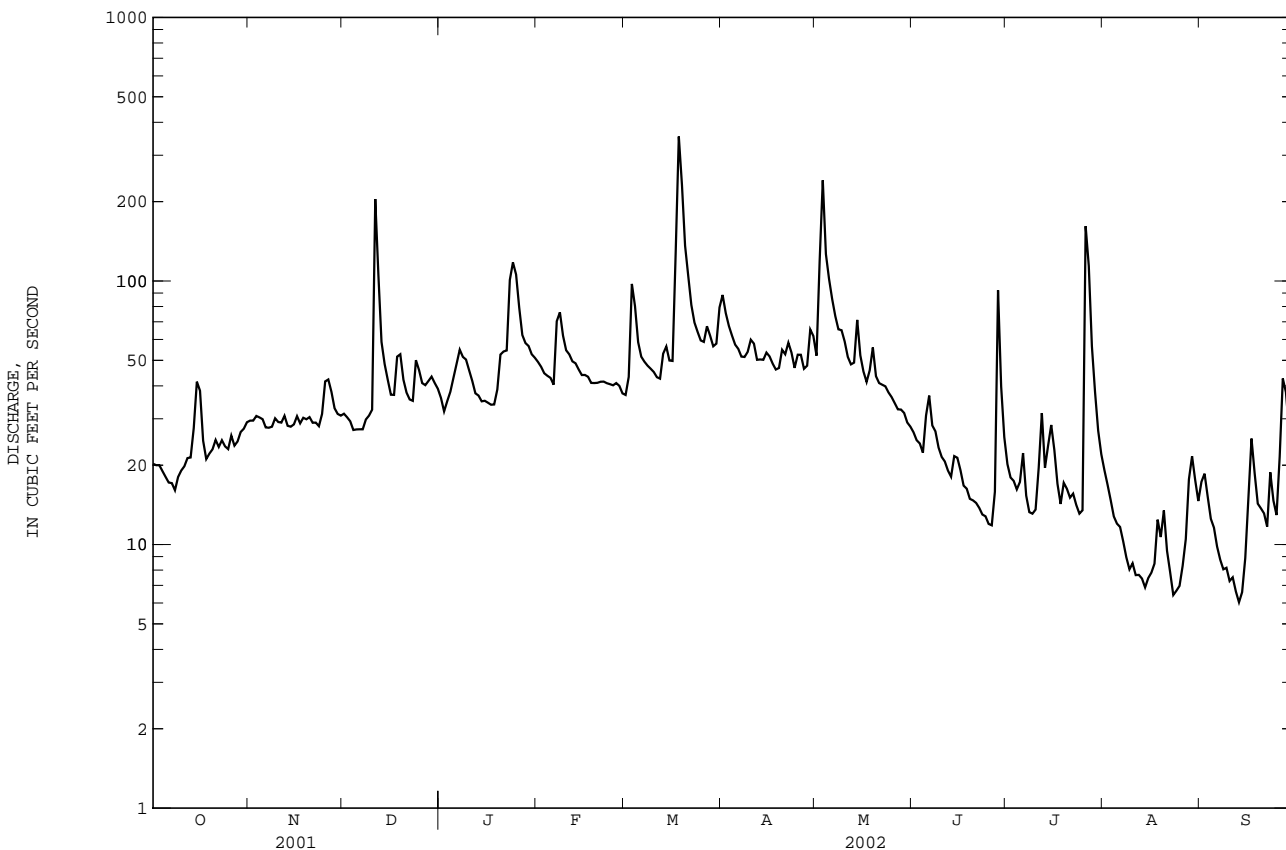
02059500 GOOSE CREEK NEAR HUDDLESTON, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	129	133	168	225	243	283	259	195	149	113	128	127
MAX	719	642	616	772	821	909	1320	780	802	466	822	1229
(WY)	1938	1986	1949	1936	1998	1975	1987	1989	1995	1949	1940	1987
MIN	23.3	30.8	45.2	46.6	46.6	79.4	55.7	56.8	23.4	26.3	11.0	15.4
(WY)	2002	2002	1966	1966	2002	2002	2002	1981	2002	1966	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1931 - 2002	
ANNUAL TOTAL	29563		14366.6			
ANNUAL MEAN	81.0		39.4		179	
HIGHEST ANNUAL MEAN					393	
LOWEST ANNUAL MEAN					39.4	
HIGHEST DAILY MEAN	2150		Mar 30		e26000	
LOWEST DAILY MEAN	15		aSep 14		6.0	
ANNUAL SEVEN-DAY MINIMUM	16		Sep 13		7.2	
MAXIMUM PEAK FLOW			692		53200	
MAXIMUM PEAK STAGE			2.66		c37.49	
INSTANTANEOUS LOW FLOW			5.8		3.0	
ANNUAL RUNOFF (CFSM)	0.43		0.21		0.95	
ANNUAL RUNOFF (INCHES)	5.85		2.84		12.94	
10 PERCENT EXCEEDS	133		63		316	
50 PERCENT EXCEEDS	50		33		109	
90 PERCENT EXCEEDS	21		13		46	

- a Also Sept. 15, 17, 2001.
- b Also Sept. 13, 2002.
- c From floodmarks.
- d Also Aug. 26 and Sept. 13, 14, 2002.
- e Estimated.
- f Also Jan. 30, 1934, result of freezeup.



ROANOKE RIVER BASIN

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA

LOCATION.--Lat 37°06'17", long 79°17'43", NAD83, Pittsylvania County, Hydrologic Unit 03010101, on right bank 12 ft upstream from bridge on alternate U.S. Highway 29, 0.3 mi south of Altavista, 0.3 mi downstream from Sycamore Creek, 3.5 mi upstream from Big Otter River, and at mile 286.5.

DRAINAGE AREA.--1,789 mi².

PERIOD OF RECORD.--August 1930 to current year.

REVISED RECORDS.--WSP 892: 1938(M). WSP 972: 1931-33. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.10 ft NGVD of 1929. Prior to Feb. 21, 1951, on left bank 50 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 9.5 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 27.5 mi upstream. Statistics of monthly mean data and summary statistics for water years 1931 - 1962 (unregulated flow) are available in previous data books, water years 1991 - 1998. U.S. Army Corps of Engineers satellite gage-height telemeter at station. American Electric Power gage-height transmitter at station with recorder at Roanoke. Hadson Power Company gage-height telemeter at station. Maximum discharge, 105,000 ft³/s, from rating curve extended above 52,000 ft³/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers and records for other stations in Roanoke River Basin. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	684	515	507	478	408	413	521	1030	780	481	501	463
2	694	514	505	475	423	430	498	1080	928	502	586	448
3	697	517	511	488	420	518	461	1580	1030	504	538	444
4	692	516	748	482	415	506	448	1330	951	504	495	441
5	725	505	541	479	410	531	425	1400	786	567	495	434
6	721	509	481	504	416	496	421	1190	805	566	483	535
7	687	504	482	532	449	414	413	1090	791	501	493	486
8	683	507	497	413	487	438	411	1310	779	484	498	427
9	684	507	496	423	443	436	442	1630	775	506	578	422
10	687	509	498	434	429	423	452	1630	772	506	526	426
11	686	505	699	443	426	425	449	1610	770	490	484	427
12	729	505	661	431	425	423	442	1610	775	570	480	419
13	643	510	552	411	420	444	439	1620	769	562	484	418
14	584	505	527	411	417	431	425	1680	775	513	481	427
15	620	507	512	405	417	424	420	1460	588	512	477	430
16	611	506	496	417	420	423	428	1140	459	506	575	431
17	597	511	479	412	416	694	427	1130	460	496	542	435
18	587	506	501	409	421	1170	521	1120	451	490	481	446
19	811	502	509	425	417	907	915	1060	447	563	480	438
20	604	499	504	450	415	653	1010	1040	446	563	481	434
21	529	507	484	446	414	576	1010	1010	552	493	486	433
22	527	508	478	424	410	533	989	956	632	485	482	433
23	526	505	479	496	410	507	1050	814	442	482	573	432
24	529	510	504	594	405	454	1050	769	440	487	526	439
25	529	522	503	560	407	426	1060	760	438	486	482	436
26	526	524	493	506	416	435	1030	752	441	597	490	447
27	523	521	477	449	415	470	1030	745	458	764	494	445
28	526	512	479	446	411	464	1070	713	589	585	507	437
29	525	510	477	433	---	441	1050	712	599	540	506	407
30	542	511	482	424	---	428	1070	695	471	521	560	393
31	520	---	458	413	---	490	---	759	---	512	542	---
TOTAL	19228	15289	16020	14113	11782	15823	20377	35425	19399	16338	15806	13133
MEAN	620	510	517	455	421	510	679	1143	647	527	510	438
MAX	811	524	748	594	487	1170	1070	1680	1030	764	586	535
MIN	520	499	458	405	405	413	411	695	438	481	477	393
(†)	-12412	-3345	+2199	+7366	+2702	+25769	+2961	-1949	-11480	-2934	-11843	-3857
MEAN†	219	398	588	693	517	1342	778	1080	264	432	128	309
CFSM†	0.12	0.22	0.33	0.39	0.29	0.75	0.43	0.60	0.15	0.24	0.07	0.17
IN.†	0.14	0.25	0.38	0.45	0.30	0.86	0.49	0.70	0.16	0.28	0.08	0.19

CAL YR 2001 MEAN† 874 CFSM† .49 IN.† 6.63
WTR YR 2002 MEAN† 564 CFSM† .32 IN.† 4.28

† Total change in contents, equivalent in cubic feet per second, per month, in Smith Mountain and Leesville Lakes; provided by American Electric Power.

‡ Adjusted for monthly change in contents.

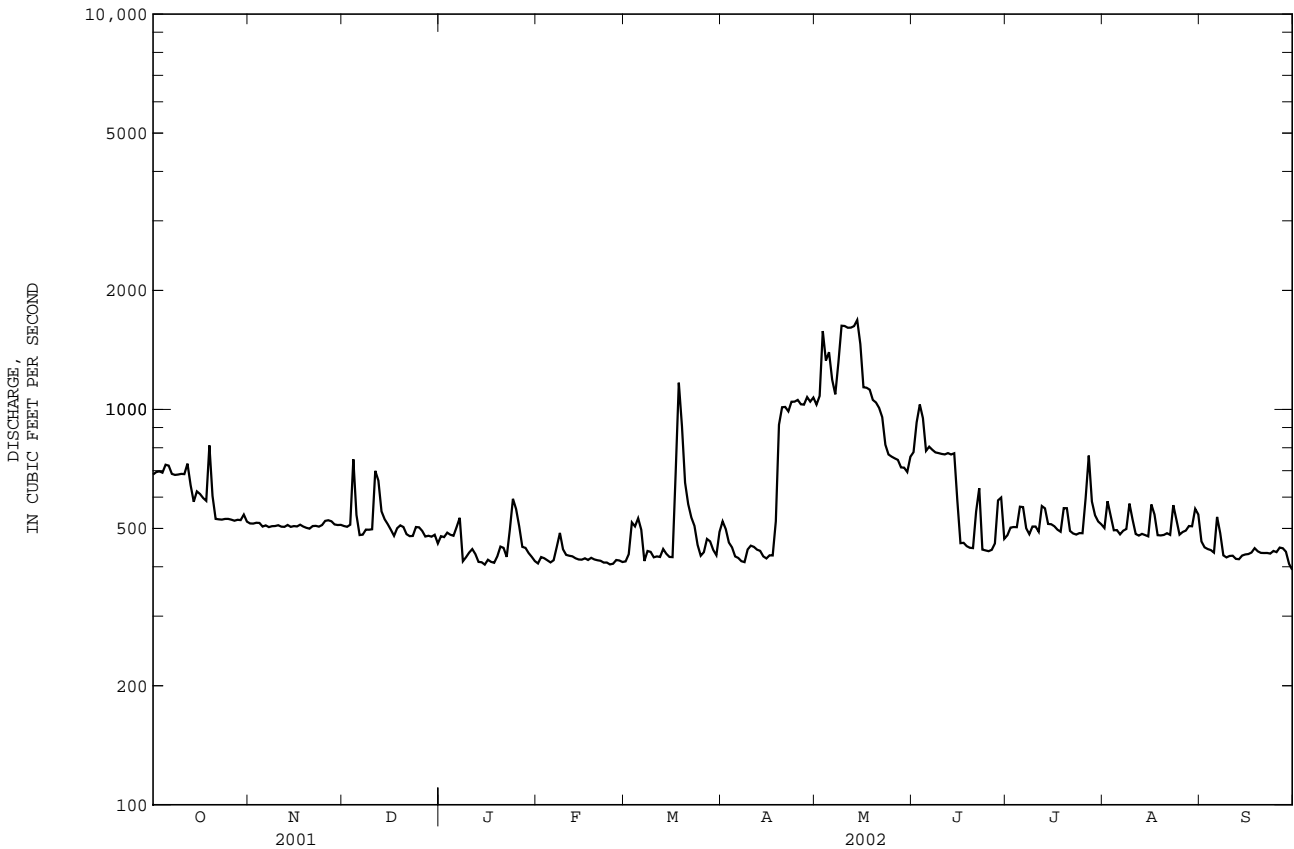
02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1127	1262	1341	2024	2190	2715	2443	1896	1469	1063	1004	1188
MAX	4811	6190	3622	4643	7119	7795	10930	4716	5684	3363	3108	5246
(WY)	1991	1986	1997	1978	1998	1993	1987	1978	1972	1972	1985	1987
MIN	189	396	351	455	421	338	604	484	220	504	311	438
(WY)	1964	1982	1964	2002	2002	1981	1964	1964	1964	1981	1963	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1963 - 2002	
ANNUAL TOTAL	350168		212733			
ANNUAL MEAN	959		583		1640	
HIGHEST ANNUAL MEAN					2903	
LOWEST ANNUAL MEAN					583	
HIGHEST DAILY MEAN	11200		Mar 30		1680	
LOWEST DAILY MEAN	458		Dec 31		393	
ANNUAL SEVEN-DAY MINIMUM	481		Dec 25		411	
MAXIMUM PEAK FLOW					2340	
MAXIMUM PEAK STAGE					5.20	
INSTANTANEOUS LOW FLOW					b372	
ANNUAL RUNOFF (CFSM)	0.54		0.33		0.92	
ANNUAL RUNOFF (INCHES)	7.28		4.42		12.46	
10 PERCENT EXCEEDS	1370		937		3240	
50 PERCENT EXCEEDS	729		504		989	
90 PERCENT EXCEEDS	508		420		284	

- a Prior to regulation, 1931-62, maximum peak flow, 105,000 ft³/s, Aug. 15, 1940, gage height, 40.08 ft, from floodmarks.
- b Result of regulation.
- c Also Sept. 30, 2002.
- d Prior to regulation, 1931-62, instantaneous low flow, 94 ft³/s, Jan. 31, 1934.



ROANOKE RIVER BASIN

02061500 BIG OTTER RIVER NEAR EVINGTON, VA

LOCATION.--Lat 37°12'31", long 79°18'13", NAD83, Campbell County, Hydrologic Unit 03010101, on right bank 60 ft upstream from bridge on State Highway 682, 2.0 mi southwest of Evington, and 2.1 mi upstream from Flat Creek.

DRAINAGE AREA.--320 mi².

PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 544.02 ft NGVD of 1929.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, June 25-27, July 15, Aug. 16-23, Aug. 29 to Sept. 3, and Sept. 16-24, and period with ice effect, Jan. 1-4, which are fair. Maximum discharge, 65,600 ft³/s, from rating curve extended above 24,000 ft³/s on basis of slope-area measurements of 24.96 ft and 29.93 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1937 and August 1939 reached a stage of 23.1 ft, discharge, 27,500 ft³/s, from rating curve extended above 7,000 ft³/s on basis of unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River Basin.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	21	28	49	e60	101	75	146	110	47	22	18	e11
2	21	31	49	e57	96	81	123	124	44	18	14	e12
3	20	32	46	e61	91	200	111	350	43	16	11	e9.0
4	20	33	42	e63	89	176	103	233	39	18	9.2	7.9
5	20	33	43	66	84	118	98	198	170	14	7.5	6.5
6	18	32	45	78	84	105	94	169	111	12	5.8	4.7
7	15	31	45	106	136	97	91	143	62	9.9	4.8	3.9
8	14	33	48	95	180	91	89	130	52	9.0	3.8	2.9
9	15	34	52	84	134	87	90	125	44	7.6	3.4	2.1
10	18	34	54	85	115	84	106	116	39	6.4	3.4	1.8
11	21	34	332	85	111	81	103	102	36	5.9	3.2	1.5
12	23	35	225	79	108	77	90	94	32	6.1	2.8	1.00
13	27	36	125	76	100	94	90	98	29	7.5	2.4	0.73
14	32	35	103	74	96	103	89	156	29	7.5	1.8	0.64
15	102	38	92	72	92	89	90	109	31	e14	1.3	1.1
16	74	38	82	72	92	84	92	90	28	17	e1.0	e2.5
17	33	38	78	72	91	182	85	83	23	14	e1.8	e6.0
18	20	39	100	74	87	609	81	87	21	10	e2.5	e19
19	20	39	116	78	86	446	81	117	20	7.9	e2.9	e18
20	21	39	90	105	86	261	87	88	24	6.2	e2.8	e9.8
21	46	39	79	123	86	202	89	79	28	5.8	e3.2	e7.2
22	57	40	75	119	86	158	128	78	20	4.9	e2.5	e8.6
23	57	40	73	168	83	134	111	74	16	4.8	e1.5	e12
24	57	41	91	249	81	123	91	72	14	4.3	0.84	e14
25	56	59	98	235	80	115	91	67	e11	4.2	0.75	11
26	43	86	87	192	83	111	95	62	e12	294	1.1	13
27	24	74	75	146	80	141	87	60	e12	219	1.2	35
28	22	60	72	126	78	124	93	63	25	76	3.2	46
29	23	54	75	117	---	109	213	68	48	49	e14	34
30	24	51	75	112	---	106	138	57	30	30	e12	22
31	25	---	66	105	---	121	---	52	---	22	e10	---
TOTAL	989	1236	2682	3234	2716	4584	3075	3454	1140	943.0	153.69	324.87
MEAN	31.9	41.2	86.5	104	97.0	148	102	111	38.0	30.4	4.96	10.8
MAX	102	86	332	249	180	609	213	350	170	294	18	46
MIN	14	28	42	57	78	75	81	52	11	4.2	0.75	0.64
CFSM	0.10	0.13	0.27	0.33	0.30	0.46	0.32	0.35	0.12	0.10	0.02	0.03
IN.	0.11	0.14	0.31	0.38	0.32	0.53	0.36	0.40	0.13	0.11	0.02	0.04

02061500 BIG OTTER RIVER NEAR EVINGTON, VA--Continued

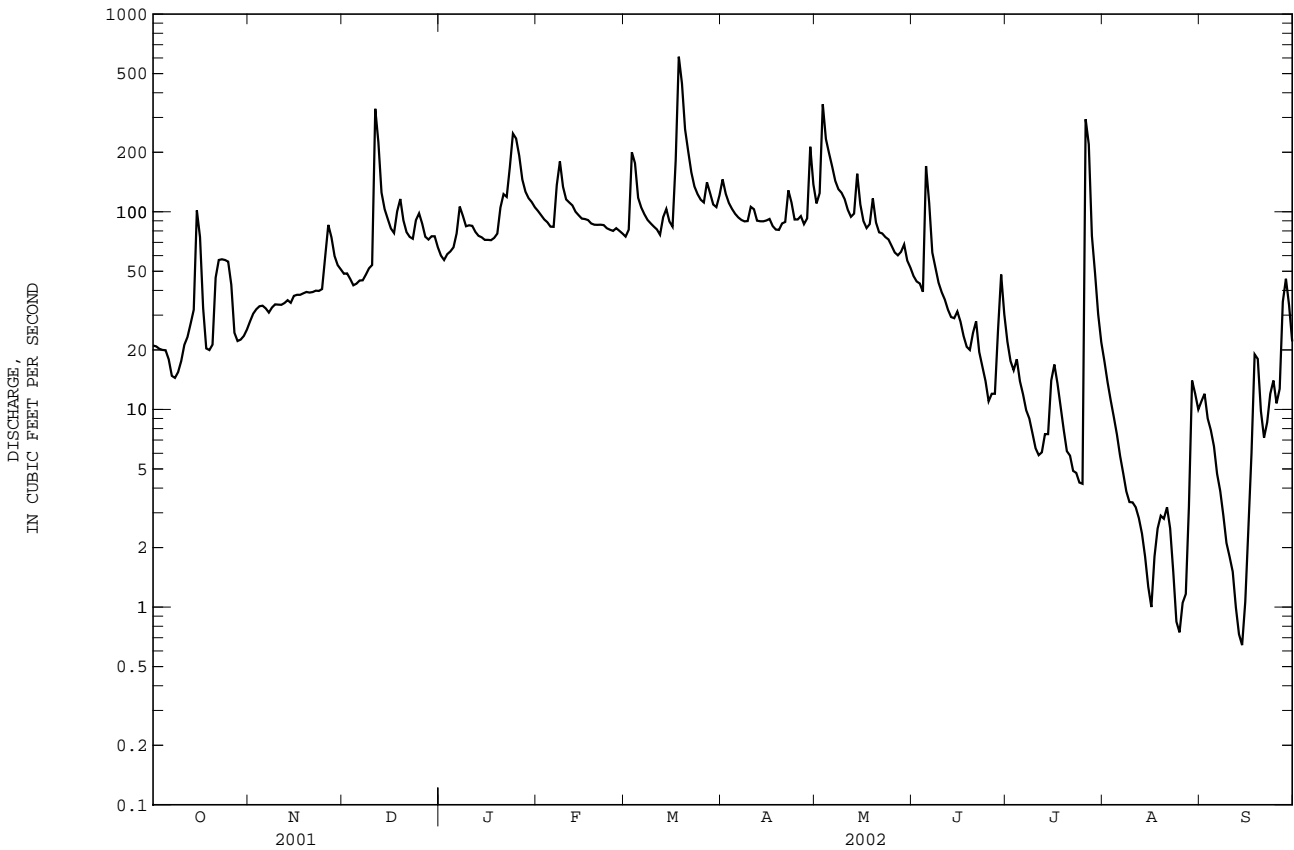
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	224	249	328	406	479	531	476	368	301	207	230	204
MAX	1163	1200	1192	1045	1165	1332	2062	1335	2124	925	1412	1150
(WY)	1991	1986	1949	1998	1998	1993	1987	1989	1995	1949	1940	1996
MIN	26.5	41.2	68.6	95.7	97.0	148	102	106	38.0	27.9	4.96	10.8
(WY)	2002	2002	1966	1966	2002	2002	2002	1981	2002	1966	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1937 - 2002

ANNUAL TOTAL	49599	24362.56	
ANNUAL MEAN	136	66.7	333
HIGHEST ANNUAL MEAN			635 1949
LOWEST ANNUAL MEAN			66.7 2002
HIGHEST DAILY MEAN	2280 Mar 30	609 Mar 18	35700 Jun 23 1995
LOWEST DAILY MEAN	14 Oct 8	0.64 Sep 14	0.64 Sep 14 2002
ANNUAL SEVEN-DAY MINIMUM	17 Oct 4	1.3 Sep 9	1.3 Sep 9 2002
MAXIMUM PEAK FLOW		933 Jul 26	65600 Jun 23 1995
MAXIMUM PEAK STAGE		2.80 Jul 26	29.93 Jun 23 1995
INSTANTANEOUS LOW FLOW		0.63 aSep 13	0.63 aSep 13 2002
ANNUAL RUNOFF (CFSM)	0.42	0.21	1.04
ANNUAL RUNOFF (INCHES)	5.77	2.83	14.12
10 PERCENT EXCEEDS	234	125	615
50 PERCENT EXCEEDS	98	57	212
90 PERCENT EXCEEDS	26	4.9	76

a Also Sept. 14, 2002.
e Estimated.



ROANOKE RIVER BASIN

02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA

LOCATION.--Lat 37°02'29", long 78°57'01", NAD83, Campbell County, Hydrologic Unit 03010102, on left bank 1,600 ft upstream from bridge on U.S. Highway 501 at Brookneal, 2.9 mi upstream from Falling River, and at mile 255.9.

DRAINAGE AREA.--2,415 mi².

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft NGVD of 1929. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft downstream at same datum.

REMARKS.--Records good except for period of no gage-height record, Oct. 7-9, which is fair. Flow regulated since 1962 by Leesville Lake (station 02059400) 40.1 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 58.1 mi upstream. Statistics of monthly mean data and summary statistics for water years 1924 - 1962 (unregulated flow) are available in previous data books, water years 1991 - 1998. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 130,000 ft³/s, at present site, from gage-height relation curve, from rating curve extended above 55,000 ft³/s on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by U.S. Army Corps of Engineers, and records for other stations in Roanoke River Basin. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	690	552	565	566	637	560	964	1410	967	472	510	532
2	693	544	555	573	616	580	956	1440	960	452	490	433
3	707	552	547	610	618	822	854	2510	1240	470	641	409
4	702	553	559	628	604	1070	757	2210	1310	494	474	402
5	691	545	925	608	576	943	710	1880	1100	475	439	391
6	767	527	548	648	567	845	664	1980	1170	619	430	371
7	e733	524	527	789	730	768	641	1500	1150	488	405	559
8	e702	521	570	791	943	655	613	1520	1030	441	421	407
9	e685	528	578	617	904	684	630	1990	991	422	427	351
10	678	530	574	613	762	650	667	2110	981	458	578	344
11	686	538	916	614	708	616	691	2050	960	442	430	342
12	687	532	1430	617	676	632	687	2020	944	412	401	341
13	763	530	1010	565	668	719	652	2040	944	601	391	332
14	621	535	774	540	647	764	634	2280	933	651	396	346
15	612	533	706	544	630	737	633	2210	938	598	394	392
16	769	537	636	531	624	697	620	1650	579	507	388	381
17	745	539	612	545	619	1000	615	1480	473	482	583	374
18	672	547	638	540	608	2940	594	1600	468	456	442	380
19	683	536	672	567	599	2710	857	1510	452	435	389	401
20	972	530	705	681	591	1660	1240	1430	434	597	386	386
21	593	528	654	734	591	1290	1310	1360	423	492	388	373
22	552	537	610	742	593	1070	1310	1320	751	425	408	371
23	586	533	592	774	586	946	1370	1180	532	420	399	369
24	590	551	636	1140	580	855	1350	1050	406	414	583	350
25	589	567	676	1170	570	764	1380	997	408	422	474	378
26	576	601	686	1100	579	720	1330	976	406	528	426	439
27	569	630	642	890	586	776	1340	955	442	1120	446	512
28	543	621	600	748	570	836	1340	943	669	959	597	477
29	544	589	601	725	---	778	1420	960	793	719	560	474
30	549	575	599	687	---	719	1530	909	607	601	506	407
31	578	---	594	662	---	808	---	867	---	539	624	---
TOTAL	20527	16465	20937	21559	17982	29614	28359	48337	23461	16611	14426	12024
MEAN	662	549	675	695	642	955	945	1559	782	536	465	401
MAX	972	630	1430	1170	943	2940	1530	2510	1310	1120	641	559
MIN	543	521	527	531	567	560	594	867	406	412	386	332
(†)	-12412	-3345	+2199	+7366	+2702	+25769	+2961	-1949	-11480	-2934	-11843	-3857
MEAN†	262	437	746	933	739	1787	1044	1496	399	441	83.3	272
CFSM†	.11	.18	.31	.39	.31	.74	.43	.62	.17	.18	.03	.11
IN.†	.13	.20	.36	.45	.32	.85	.48	.71	.18	.21	.04	.13

CAL YR 2001 MEAN† 1076 CFSM† .45 IN.† 6.05
WTR YR 2002 MEAN† 722 CFSM† .30 IN.† 4.06

† Total change in contents, equivalent in cubic feet per second, per month, in Smith Mountain and Leesville Lakes; provided by American Electric Power.

‡ Adjusted for monthly change in contents.

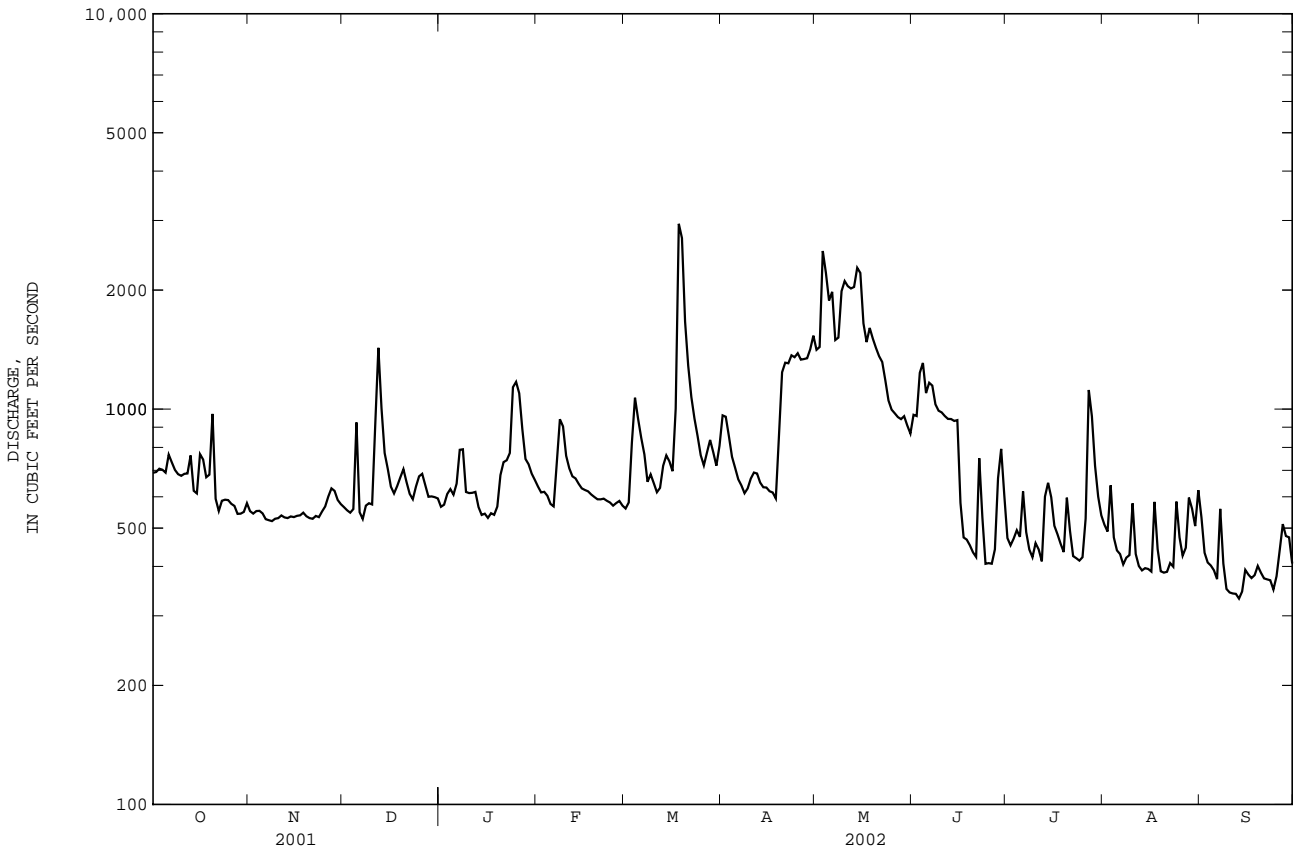
02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1563	1751	1980	2906	3161	3890	3472	2632	2057	1451	1357	1662
MAX	6446	8961	5625	7695	9536	11760	14410	7039	7522	4775	4675	8822
(WY)	1991	1986	1997	1978	1998	1993	1987	1978	1995	1972	1985	1996
MIN	325	549	637	695	642	561	921	836	405	536	411	401
(WY)	1964	2002	1964	2002	2002	1981	1981	1964	1964	2002	1964	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1963 - 2002	
ANNUAL TOTAL	423894		270302			
ANNUAL MEAN	1161		741		2318	
HIGHEST ANNUAL MEAN					4440	
LOWEST ANNUAL MEAN					741	
HIGHEST DAILY MEAN	12000		Mar 30		65600	
LOWEST DAILY MEAN	521		Nov 8		140	
ANNUAL SEVEN-DAY MINIMUM	529		Nov 6		203	
MAXIMUM PEAK FLOW					a85800	
MAXIMUM PEAK STAGE			8.74		a39.80	
INSTANTANEOUS LOW FLOW					b,c136	
ANNUAL RUNOFF (CFSM)	0.48		0.31		0.96	
ANNUAL RUNOFF (INCHES)	6.53		4.16		13.04	
10 PERCENT EXCEEDS	1760		1310		4500	
50 PERCENT EXCEEDS	865		613		1370	
90 PERCENT EXCEEDS	570		409		548	

- a Prior to regulation, 1924-62, maximum peak flow, 130,000 ft³/s, Aug. 15, 1940, gage height, 46.50 ft.
- b Prior to regulation, 1924-62, instantaneous low flow, probably less than 191 ft³/s, probably occurred Sept, 1, 2, 1932.
- c Lowest recorded discharge; may have been lower during period of no gage-height record, July 25, 26, 1966.
- d Also July 26, 1966.
- e Estimated.



ROANOKE RIVER BASIN

02064000 FALLING RIVER NEAR NARUNA, VA

LOCATION.-- Lat 37°07'37", long 78°57'35", NAD83, Campbell County, Hydrologic Unit 03010102, on left bank at upstream side of bridge on State Highway 643, 2.7 mi northeast of Naruna, and 3.2 mi upstream from Little Falling River.

DRAINAGE AREA.--173 mi².

PERIOD OF RECORD.--July 1929 to January 1935, September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.32 ft NGVD of 1929. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Dec. 29 to Jan. 4, and periods of doubtful or no gage-height record, May 19 to June 26, July 1-3, 6-13, 22-25, and Aug. 3-15, which are fair. Small diurnal fluctuation caused by gristmill at Spring Mills. Maximum discharge, 62,800 ft³/s, from rating curve extended above 7,100 ft³/s on basis of slope-area measurements at gage heights 23.9 ft, 26.5 ft, 29.2 ft, and 36.1 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 26.5 ft, from floodmarks, discharge, 22,000 ft³/s, by slope-area measurement.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	14	28	30	e33	51	40	142	67	e27	e14	8.1	13
2	14	29	29	e31	48	43	99	124	e24	e12	7.8	13
3	14	29	28	e34	46	124	80	293	e22	e11	e8.5	12
4	14	31	27	e40	45	104	66	150	e21	30	e7.0	10
5	13	28	27	45	43	72	58	128	e19	22	e6.2	9.4
6	13	27	28	52	43	62	55	98	e22	e18	e5.8	8.2
7	13	27	28	98	100	57	52	80	e30	e12	e5.2	7.8
8	13	27	33	68	125	54	50	70	e27	e10	e4.5	7.7
9	14	27	36	57	81	53	49	72	e22	e8.2	e4.3	7.4
10	15	27	34	52	68	54	56	65	e19	e7.7	e3.7	7.1
11	17	27	163	48	65	50	53	55	e17	e7.8	e3.0	6.9
12	17	27	108	44	59	48	50	53	e15	e8.1	e2.2	6.2
13	18	27	67	43	55	61	50	59	e14	e9.0	e1.7	5.7
14	20	27	54	40	52	62	50	143	e13	18	e1.4	6.0
15	21	27	47	39	50	56	52	75	e15	19	e1.0	8.5
16	23	28	40	38	49	54	50	54	e14	16	1.2	12
17	21	28	38	38	48	355	48	48	e12	13	1.2	12
18	18	28	51	38	46	684	70	123	e11	10	1.2	10
19	20	28	55	45	44	341	59	e80	e10	8.7	4.8	10
20	21	28	44	79	44	184	67	e67	e13	8.2	4.2	10
21	24	27	39	78	46	136	64	e56	e15	8.2	2.9	9.8
22	22	27	37	75	45	98	98	e47	e12	e7.5	2.2	9.5
23	22	27	36	106	43	75	74	e44	e9.8	e7.2	1.8	9.3
24	22	29	47	125	43	65	57	e40	e9.3	e6.7	3.5	8.6
25	22	35	52	108	43	59	56	e38	e9.0	e6.3	9.8	8.3
26	23	36	44	87	43	57	54	e37	e8.8	10	5.8	11
27	21	31	40	71	42	84	49	e33	18	33	5.3	24
28	22	30	39	63	41	66	71	e34	53	22	77	24
29	24	29	e40	58	---	57	204	e35	29	16	52	17
30	25	29	e38	55	---	55	93	e32	20	12	20	13
31	27	---	e35	53	---	97	---	e30	---	9.0	14	---
TOTAL	587	855	1414	1841	1508	3407	2076	2330	550.9	400.6	277.3	317.4
MEAN	18.9	28.5	45.6	59.4	53.9	110	69.2	75.2	18.4	12.9	8.95	10.6
MAX	27	36	163	125	125	684	204	293	53	33	77	24
MIN	13	27	27	31	41	40	48	30	8.8	6.3	1.0	5.7
CFSM	0.11	0.16	0.26	0.34	0.31	0.64	0.40	0.43	0.11	0.07	0.05	0.06
IN.	0.13	0.18	0.30	0.40	0.32	0.73	0.45	0.50	0.12	0.09	0.06	0.07

02064000 FALLING RIVER NEAR NARUNA, VA--Continued

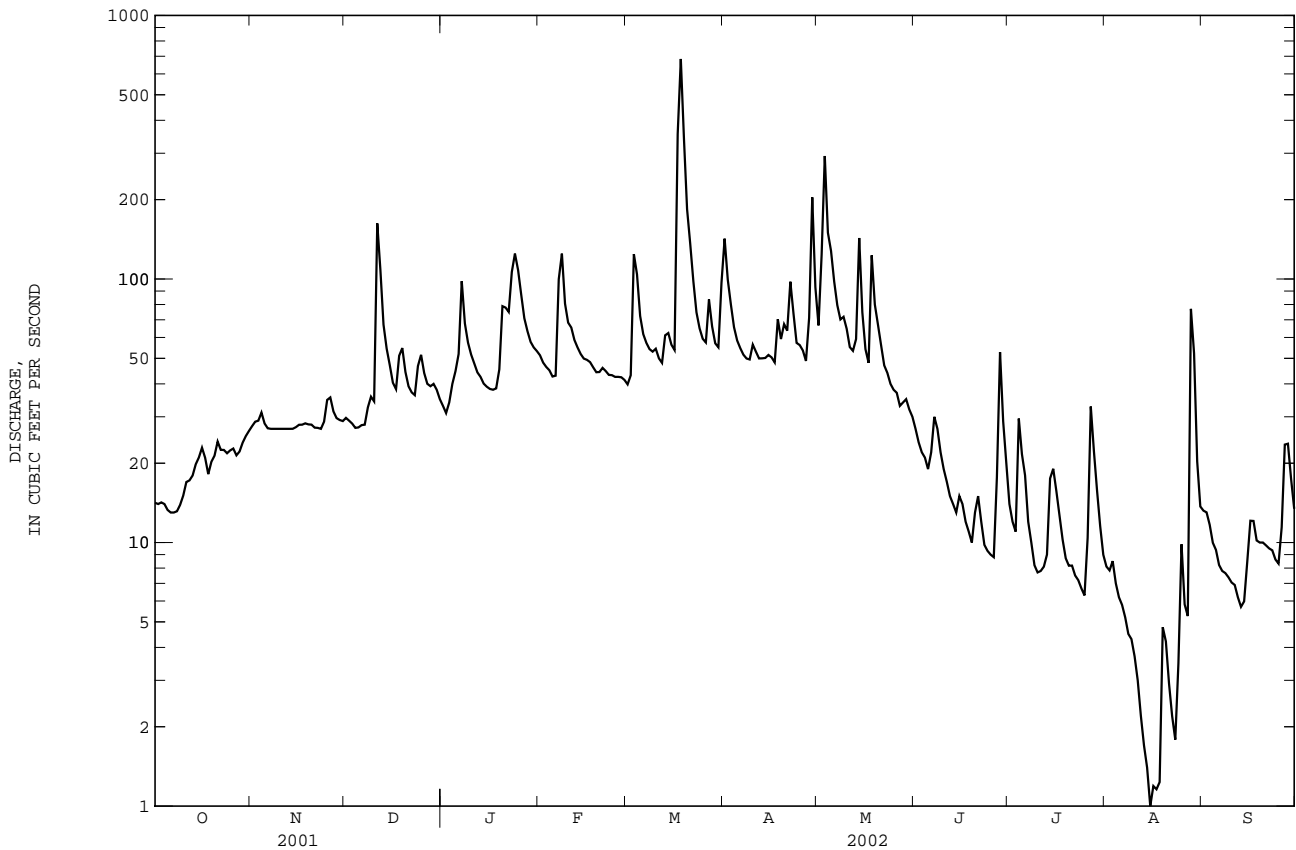
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1934, 1942 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	101	122	156	199	230	258	212	161	119	88.1	79.8	121
MAX	399	639	487	636	683	844	552	606	898	334	400	1475
(WY)	1973	1986	1997	1978	1979	1975	1987	1971	1972	1972	1985	1996
MIN	18.9	28.5	44.0	47.9	53.9	62.9	60.2	50.7	18.4	12.9	8.95	10.6
(WY)	2002	2002	1966	1966	2002	1981	1966	1981	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 1934 1942 - 2002

ANNUAL TOTAL	26052		15564.2					
ANNUAL MEAN	71.4		42.6		153		1996	
HIGHEST ANNUAL MEAN					322		2002	
LOWEST ANNUAL MEAN					42.6		1996	
HIGHEST DAILY MEAN	1640		Mar 30		684		Mar 18	
LOWEST DAILY MEAN	13		aSep 19		e1.0		Aug 15	
ANNUAL SEVEN-DAY MINIMUM	13		bOct 2		1.4		Aug 12	
MAXIMUM PEAK FLOW					888		Mar 17	
MAXIMUM PEAK STAGE					5.58		Mar 17	
INSTANTANEOUS LOW FLOW					(d)		(f)	
ANNUAL RUNOFF (CFSM)	0.41				0.25		0.89	
ANNUAL RUNOFF (INCHES)	5.60				3.35		12.05	
10 PERCENT EXCEEDS	117				78		263	
50 PERCENT EXCEEDS	47				30		92	
90 PERCENT EXCEEDS	20				7.8		36	

- a Also Oct. 5-8, 2001.
- b Also Oct. 3, 2001.
- c From high-water mark on gage house.
- d Not determined.
- e Estimated.
- f Probably occurred Aug. 15, 2002.



ROANOKE RIVER BASIN

02065500 CUB CREEK AT PHENIX, VA

LOCATION.--Lat 37°04'46", long 78°45'49", NAD83, Charlotte County, Hydrologic Unit 03010102, on right bank 50 ft upstream from bridge on State Highway 40, 0.9 mi west of Phenix, 1.9 mi downstream from Rough Creek, and 6.4 mi upstream from Louse Creek.

DRAINAGE AREA.--98.0 mi².

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 370.19 ft NGVD of 1929. Prior to Jul. 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods with ice effect, Dec. 31 to Jan. 3 and Jan. 5, which are fair. Maximum discharge, 15,200 ft³/s, from rating curve extended above 5,400 ft³/s on basis of contracted-opening measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of August 1940 reached a stage of 17.5 ft, from floodmarks, discharge not determined.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	18	22	23	e25	41	31	77	55	22	11	4.7	20
2	17	22	23	e23	39	33	67	83	21	9.0	4.0	19
3	17	22	22	e27	37	80	56	191	20	8.1	3.8	13
4	16	23	21	29	36	83	53	109	18	7.4	3.4	9.2
5	15	22	21	e27	34	54	47	88	17	7.5	2.9	7.7
6	14	22	21	40	34	46	45	72	18	7.1	2.4	6.5
7	14	21	22	89	79	42	43	59	25	6.0	1.8	5.8
8	14	21	24	64	112	40	42	53	24	5.3	1.2	5.5
9	14	21	27	50	68	39	42	54	19	4.6	0.81	5.4
10	15	21	25	49	55	47	45	51	17	4.5	0.60	5.1
11	16	21	73	45	51	41	43	41	16	4.8	0.45	4.8
12	17	21	89	39	46	36	40	36	15	5.5	0.24	4.4
13	17	21	50	36	44	53	40	36	13	5.6	0.07	3.9
14	18	21	40	34	42	59	39	90	12	15	0.04	4.0
15	30	21	35	33	40	48	43	54	16	23	0.03	5.6
16	30	22	32	33	40	44	41	40	14	17	0.04	7.6
17	22	22	31	32	39	99	38	35	11	11	0.03	7.3
18	19	22	47	32	37	374	48	66	11	7.8	0.05	6.5
19	20	22	52	37	35	428	43	118	9.7	6.5	0.06	6.1
20	20	22	39	72	35	155	48	55	9.4	5.8	0.02	6.1
21	22	22	33	69	35	112	45	43	9.1	5.7	0.02	6.0
22	21	21	31	61	35	87	59	39	8.5	5.5	0.01	5.7
23	21	21	31	74	34	71	50	36	7.8	4.9	0.00	5.5
24	21	22	35	107	33	63	40	33	7.6	4.1	0.01	5.1
25	21	26	40	87	33	58	40	31	7.3	4.6	0.02	4.8
26	20	31	35	74	33	55	38	30	7.0	7.0	0.89	6.1
27	18	30	32	57	33	65	34	28	9.6	12	3.3	16
28	19	26	31	50	31	61	43	26	19	14	13	21
29	19	24	31	46	---	53	173	25	20	11	55	13
30	20	24	30	44	---	51	81	24	14	7.3	35	8.9
31	20	---	e27	42	---	64	---	24	---	5.8	30	---
TOTAL	585	679	1073	1527	1211	2572	1543	1725	438.0	254.4	163.89	245.6
MEAN	18.9	22.6	34.6	49.3	43.2	83.0	51.4	55.6	14.6	8.21	5.29	8.19
MAX	30	31	89	107	112	428	173	191	25	23	55	21
MIN	14	21	21	23	31	31	34	24	7.0	4.1	0.00	3.9
CFSM	0.19	0.23	0.35	0.50	0.44	0.85	0.52	0.57	0.15	0.08	0.05	0.08
IN.	0.22	0.26	0.41	0.58	0.46	0.98	0.59	0.65	0.17	0.10	0.06	0.09

02065500 CUB CREEK AT PHENIX, VA--Continued

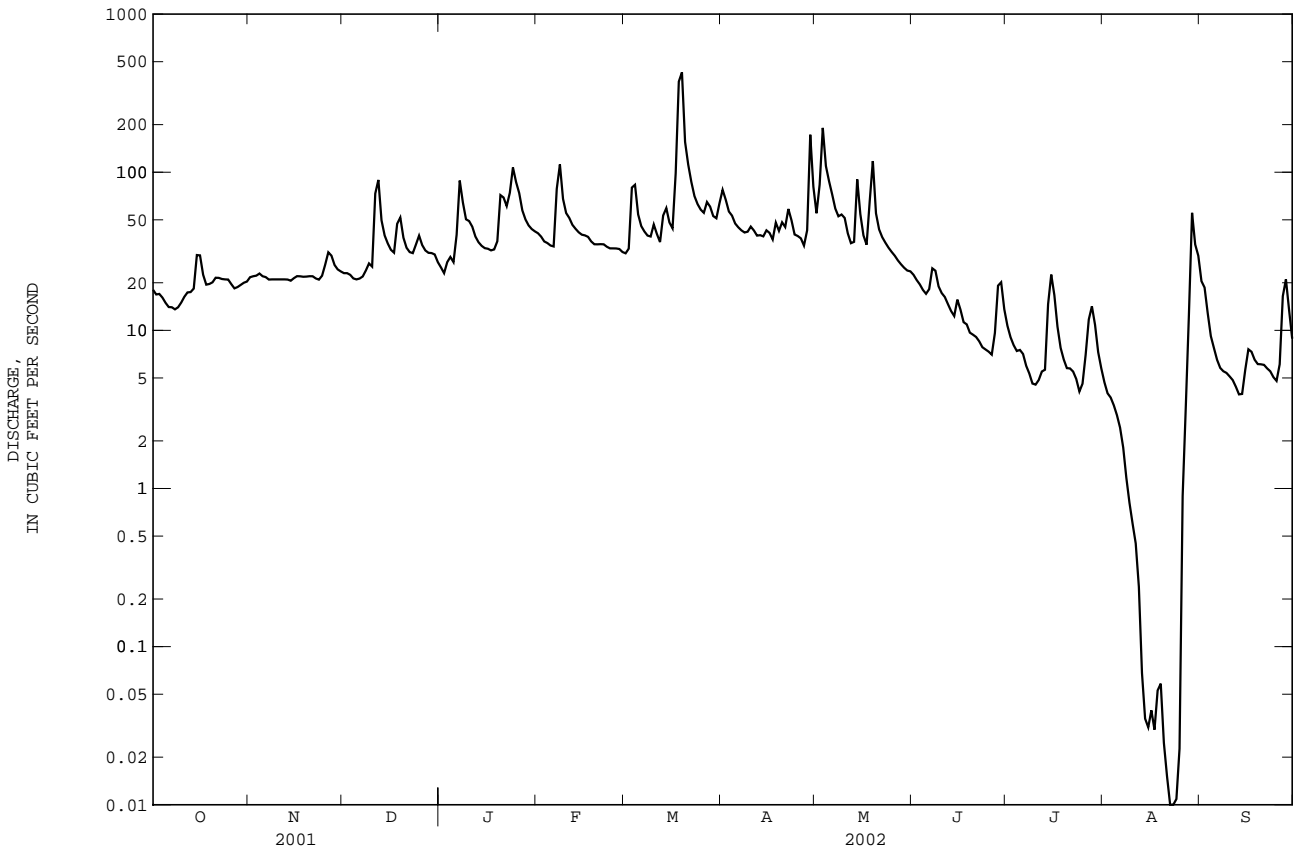
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	66.6	89.0	101	130	144	161	141	101	75.6	55.4	51.8	67.4
MAX	293	429	279	478	447	443	354	261	518	192	257	572
(WY)	1972	1986	1997	1978	1979	1975	1983	1971	1972	1972	1985	1996
MIN	14.0	22.6	27.9	35.1	43.2	51.7	50.4	37.8	14.6	8.21	5.29	8.03
(WY)	1971	2002	1966	1966	2002	1981	1966	1981	2002	2002	2002	1968

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1947 - 2002

ANNUAL TOTAL	18627		12016.89		98.3		
ANNUAL MEAN	51.0		32.9		32.9		1972
HIGHEST ANNUAL MEAN					188		1972
LOWEST ANNUAL MEAN					32.9		2002
HIGHEST DAILY MEAN	897	Mar 31	428	Mar 19	6920	Sep 6	1996
LOWEST DAILY MEAN	11	Sep 19	0.00	Aug 23	0.00	Aug 23	2002
ANNUAL SEVEN-DAY MINIMUM	13	Sep 14	0.02	Aug 19	0.02	Aug 19	2002
MAXIMUM PEAK FLOW			537		15200		Sep 6 1996
MAXIMUM PEAK STAGE			4.96		21.89		Sep 6 1996
INSTANTANEOUS LOW FLOW			0.00		0.00		aAug 22 2002
ANNUAL RUNOFF (CFSM)	0.52		0.34		1.00		
ANNUAL RUNOFF (INCHES)	7.07		4.56		13.63		
10 PERCENT EXCEEDS	82		63		170		
50 PERCENT EXCEEDS	35		24		63		
90 PERCENT EXCEEDS	17		4.8		25		

a Also Aug. 23, 24, 2002.
e Estimated.



ROANOKE RIVER BASIN

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'55", long 78°44'27", NAD83, Halifax County, Hydrologic Unit 03010102, on right bank 6 ft downstream from bridge on State Highway 746, 2.8 mi northwest of Randolph, 3.6 mi upstream from Roanoke Creek, and at mile 227.3.

DRAINAGE AREA.--2,977 mi².

PERIOD OF RECORD.--August 1900 to September 1906, October 1927 to September 1930, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1902, published as Staunton River at Randolph. Gage heights collected since 1905 at this site or at former site are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1203: 1928-30. WSP 1303: 1901-6. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 307.59 ft NGVD of 1929. Aug. 27, 1900, to Oct. 13, 1902, nonrecording gage at site 3.2 mi downstream at datum about 5.9 ft lower. Oct. 14, 1902, to Aug. 11, 1906, and Oct. 1, 1927, to Mar. 31, 1930, nonrecording gage at site of original gage at datum 3.93 ft lower than present datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 68.7 mi upstream and since 1963 by Smith Mountain Lake (station 02057400) 86.7 mi upstream. Statistics of monthly mean data and summary statistics for water years 1901 - 1906, 1928 - 1930, 1951 - 1962 (unregulated flow) are available in previous data books, water years 1991 - 1998. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 97,000 ft³/s, from graph based on gage readings, site and datum then in use. 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 Aug. 16, 1940, reached a stage of 41.6 ft, present site and datum, discharge, 150,000 ft³/s, from information by U.S. Army Corps of Engineers.

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	751	651	686	681	802	668	1120	1600	873	619	580	723
2	740	641	682	687	775	672	1230	1500	928	542	558	615
3	741	640	672	745	747	805	1140	2840	965	540	533	519
4	747	648	662	750	737	1150	1020	3100	1160	547	633	482
5	738	646	726	744	724	1150	926	2370	1160	567	511	463
6	729	641	905	751	709	995	874	2170	959	562	475	446
7	800	635	674	891	802	905	832	1970	1100	656	455	427
8	723	632	674	989	1130	831	806	1630	1020	549	434	548
9	710	631	706	870	1180	770	785	1950	943	512	440	443
10	706	636	715	776	1010	807	820	2370	909	505	435	408
11	717	639	824	762	895	774	839	2210	889	520	534	401
12	727	642	1450	749	845	737	846	2110	872	502	438	394
13	732	638	1460	732	808	796	822	2090	859	488	415	391
14	808	639	1050	685	790	917	804	2320	854	689	408	394
15	706	646	891	667	766	907	821	2530	844	822	418	413
16	696	647	826	663	747	856	808	2110	818	669	429	438
17	778	651	762	653	740	868	784	1570	579	593	412	428
18	737	656	793	661	731	3540	780	1550	521	561	550	419
19	686	658	832	675	711	4720	775	1890	511	533	459	424
20	752	646	834	812	709	2990	1110	1580	494	516	410	433
21	875	646	800	919	707	1960	1370	1440	480	628	407	420
22	650	645	756	919	705	1560	1410	1340	470	541	411	414
23	632	653	721	938	697	1300	1420	1280	723	501	418	414
24	647	662	728	1230	689	1160	1450	1120	534	495	416	407
25	646	685	770	1480	681	1050	1400	1040	468	515	545	397
26	643	714	795	1360	670	975	1430	997	460	588	486	423
27	635	731	768	1200	680	969	1360	972	475	640	461	490
28	631	739	737	995	685	1020	1370	945	575	1310	590	537
29	624	717	714	895	---	1030	1560	934	706	934	760	523
30	622	695	757	865	---	956	1760	930	796	726	728	493
31	644	---	713	826	---	938	---	885	---	628	641	---
TOTAL	21973	19750	25083	26570	21872	38776	32472	53343	22945	18998	15390	13727
MEAN	709	658	809	857	781	1251	1082	1721	765	613	496	458
MAX	875	739	1460	1480	1180	4720	1760	3100	1160	1310	760	723
MIN	622	631	662	653	670	668	775	885	460	488	407	391
(†)	-12412	-3345	+2199	+7366	+2702	+25769	+2961	-1949	-11480	-2934	-11843	-3857
MEAN†	308	547	880	1090	878	2080	1180	1660	382	518	114	329
CFSM†	.10	.18	.30	.37	.29	.70	.40	.56	.13	.17	.04	.11
IN.†	.12	.21	.34	.42	.31	.81	.44	.64	.14	.20	.04	.12

CAL YR 2001 MEAN† 1390 CFSM† .47 IN.† 6.34
WTR YR 2002 MEAN† 833 CFSM† .28 IN.† 3.80

† Total change in contents, equivalent in cubic feet per second, per month, in Smith Mountain and Leesville Lakes; provided by American Electric Power.

‡ Adjusted for monthly change in contents.

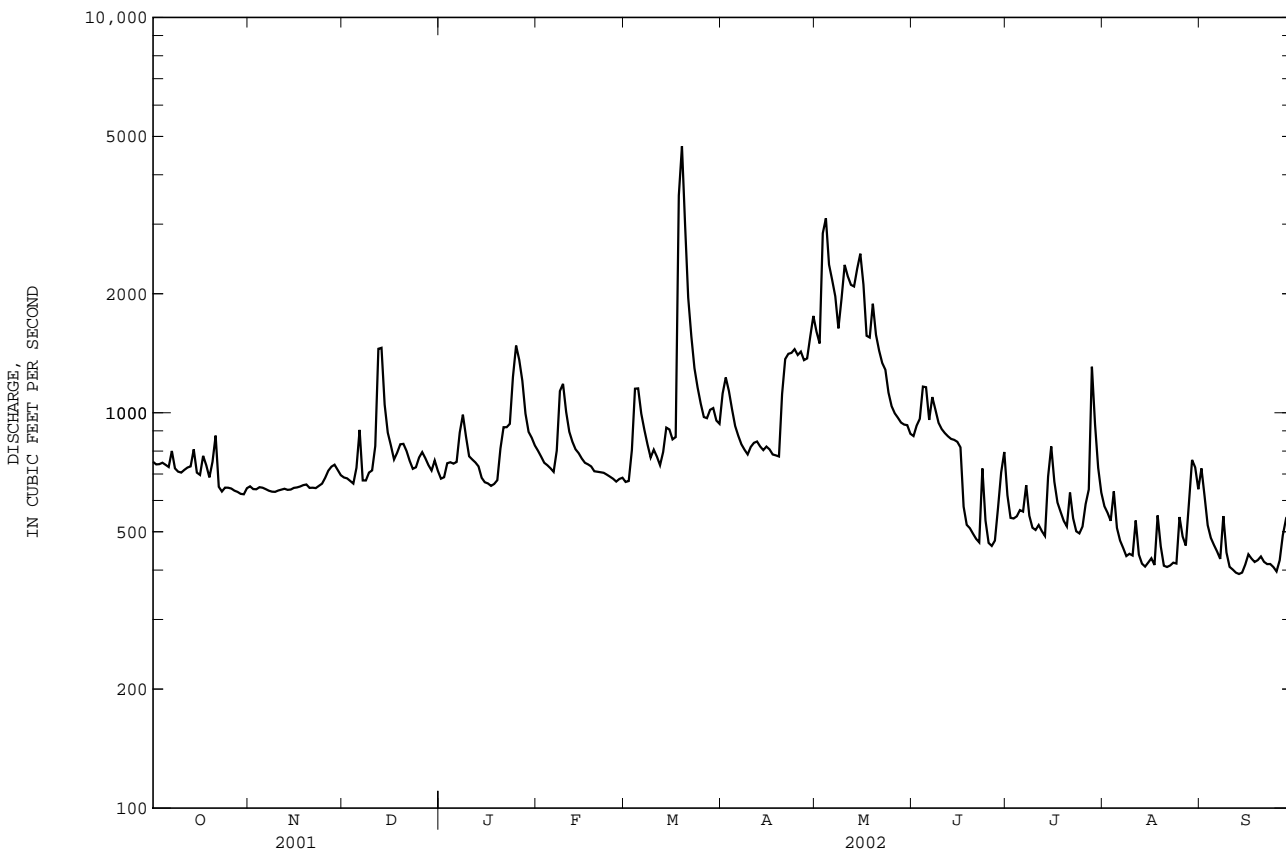
02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1982	2202	2465	3612	3927	4825	4227	3280	2506	1786	1610	2062
MAX	7906	11230	6887	9532	12230	13970	17570	10060	10260	5635	5988	11350
(WY)	1991	1986	1997	1978	1998	1975	1987	1978	1972	1972	1985	1996
MIN	428	658	809	857	781	769	1082	1038	491	613	493	458
(WY)	1964	2002	2002	2002	2002	1981	2002	1964	1964	2002	1964	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1963 - 2002	
ANNUAL TOTAL	537637		310899			
ANNUAL MEAN	1473		852		2867	
HIGHEST ANNUAL MEAN					5102	
LOWEST ANNUAL MEAN					852	
HIGHEST DAILY MEAN	18100	Mar 31	4720	Mar 19	78700	Sep 8 1996
LOWEST DAILY MEAN	622	Oct 30	391	Sep 13	179	aSep 8 1965
ANNUAL SEVEN-DAY MINIMUM	635	Oct 25	406	Sep 10	238	Sep 5 1965
MAXIMUM PEAK FLOW			5200		b89300	
MAXIMUM PEAK STAGE			11.21		b34.94	
INSTANTANEOUS LOW FLOW			384		d176	
ANNUAL RUNOFF (CFSM)	0.49		0.29		0.96	
ANNUAL RUNOFF (INCHES)	6.72		3.88		13.09	
10 PERCENT EXCEEDS	2290		1380		5480	
50 PERCENT EXCEEDS	1010		729		1720	
90 PERCENT EXCEEDS	673		460		806	

- a Also July 7, 1970.
- b Prior to regulation, 1901-06, 1928-30, 1951-62, maximum peak flow, 97,000 ft³/s, Dec. 31, 1901, gage height, 35.00 ft.
- c Also Sept. 14, 2002.
- d Prior to regulation, 1901-06, 1928-30, 1951-62, instantaneous low flow, 256 ft³/s, Sept. 16, 1954.
- f Also Sept. 9, 1965.



ROANOKE RIVER BASIN

02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

LOCATION.--Talbot Dam: Lat 36°40'39", long 80°23'51", NAD83, Patrick County, Hydrologic Unit 03010103, on Dan River 4.5 mi northeast of Kibler. Townes Dam: Lat 36°41'10", long 80°25'49", NAD83, Patrick County, Hydrologic Unit 03010103, on Dan River about 4 mi north of Kibler.

DRAINAGE AREA.--Talbot Dam, 20.2 mi²; Townes Dam, 32.9 mi².

PERIOD OF RECORD.--February 1939 to December 1945, January 1948 to September 1960 (published in WSP 1723), and October 1960 to current year.

REMARKS.--The two reservoirs are operated as a unit for storage of water for Pinnacles hydroelectric plant. Total capacity of Talbot Reservoir, 8,040 acre-ft, and Townes Reservoir, 1,380 acre-ft. Storage began in Talbot Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

COOPERATION.--Records were provided by the city of Danville.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

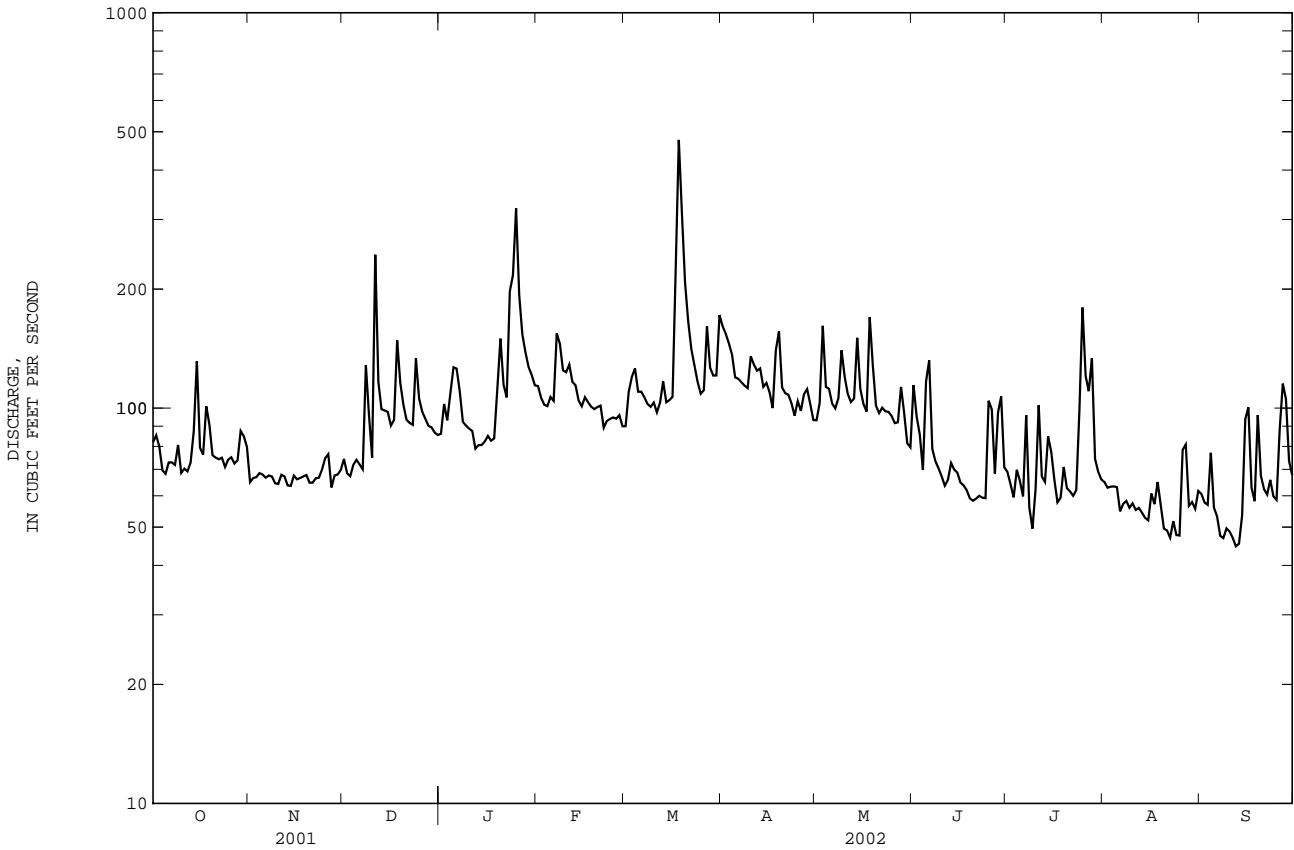
Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	5,802	-
Oct. 31.....	5,250	-552
Nov. 30.....	4,904	-346
Dec. 31.....	5,397	+493
CAL YR 2001.....		+1,065
Jan. 31.....	5,746	+349
Feb. 28.....	5,817	+71
Mar. 31.....	7,098	+1,281
Apr. 30.....	7,847	+749
May 31.....	7,835	-12
June 30.....	6,846	-989
July 31.....	6,354	-492
Aug. 31.....	5,530	-824
Sept. 30.....	5,603	+73
WTR YR 2002.....		-199

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02068500 DAN RIVER NEAR FRANCISCO, NC--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1938 - 2002*®	
ANNUAL TOTAL	40690		34155			
ANNUAL MEAN	111.5		93.58	†93.58	191.7	(UNADJUSTED)
HIGHEST ANNUAL MEAN					300	1960
LOWEST ANNUAL MEAN					93.6	2002
HIGHEST DAILY MEAN	560	May 22	477	Mar 18	6830	Sep 22 1979
LOWEST DAILY MEAN	55	May 15	45	Sep 12	21	Sep 4 1999
ANNUAL SEVEN-DAY MINIMUM	66	Nov 8	47	Sep 7	28	Aug 24 1981
MAXIMUM PEAK FLOW			584	Mar 18	21200	Aug 17 1985
MAXIMUM PEAK STAGE			2.61	Mar 18	19.50	Aug 17 1985
INSTANTANEOUS LOW FLOW			39	Dec 10	7.1	Sep 8 1932
10 PERCENT EXCEEDS	159		129		315	
50 PERCENT EXCEEDS	97		89		154	
90 PERCENT EXCEEDS	68		58		80	

e Estimated.
 † Change in contents, equivalent in cubic feet per second, in Talbott and Townes Reservoirs by City of Danville, Virginia.
 * Regulated period only (1938-2002). See REMARKS.
 ® See PERIOD OF RECORD.
 ‡ Adjusted for change in contents.



ROANOKE RIVER BASIN

02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA

LOCATION.--Lat 36°34'15", long 80°07'46", NAD83, Patrick County, Hydrologic Unit 03010103, on right bank 60 ft downstream from bridge on State Highway 700, 1.2 mi southeast of Nettleridge, 1.4 mi downstream from Russell Creek, and 3.6 mi upstream from Spoon Creek.

DRAINAGE AREA.--84.6 mi².

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft NGVD of 1929. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Jan. 1-3, and periods of no gage-height record, July 14-16 and 19-26, which are fair. Maximum discharge, 20,600 ft³/s, from rating curve extended above 2,900 ft³/s on basis of contracted-opening measurements at gage heights 18.32 ft and 22.00 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location by the Virginia Department of Environmental Quality - Water Division.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	29	30	35	e37	56	41	97	47	43	23	20	31
2	29	30	31	e35	53	48	87	57	38	22	19	26
3	28	32	31	e37	50	124	83	135	34	21	17	22
4	27	30	30	39	48	71	74	66	33	36	16	21
5	26	29	30	41	45	61	71	64	36	33	16	26
6	26	29	30	48	47	57	68	56	36	23	14	19
7	26	29	30	59	86	55	66	55	37	20	13	17
8	25	29	33	46	81	54	64	60	33	18	12	16
9	26	29	32	41	65	53	65	66	31	19	11	15
10	26	29	35	41	62	54	76	91	30	20	11	14
11	27	29	193	40	65	50	66	62	29	24	11	12
12	28	29	72	39	59	52	64	56	27	22	10	11
13	28	29	57	39	57	69	65	56	28	20	9.9	11
14	34	29	54	37	54	62	63	96	30	e25	9.0	15
15	68	29	48	37	54	57	67	57	28	e27	8.7	46
16	35	29	42	36	53	56	62	51	25	e23	23	63
17	31	30	43	36	52	163	62	48	23	20	20	29
18	31	30	79	37	50	395	69	81	23	18	30	33
19	31	29	58	49	49	237	62	60	23	e20	20	40
20	31	29	51	82	49	148	60	52	22	e18	16	29
21	31	29	45	61	51	114	59	49	21	e17	14	25
22	30	29	42	56	48	95	57	47	20	e15	12	24
23	30	29	41	116	48	86	54	45	19	e14	17	26
24	30	31	66	129	44	81	54	44	20	e35	17	23
25	29	39	53	187	43	75	59	43	20	e70	16	21
26	31	37	48	114	43	73	54	41	18	e54	23	64
27	29	32	44	87	43	103	53	40	23	45	29	97
28	29	31	42	75	41	80	53	41	35	31	21	63
29	30	31	41	67	---	75	50	39	35	26	29	40
30	30	31	39	61	---	72	48	39	25	23	24	33
31	31	---	39	57	---	107	---	40	---	21	26	---
TOTAL	942	907	1514	1866	1496	2868	1932	1784	845	803	534.6	912
MEAN	30.4	30.2	48.8	60.2	53.4	92.5	64.4	57.5	28.2	25.9	17.2	30.4
MAX	68	39	193	187	86	395	97	135	43	70	30	97
MIN	25	29	30	35	41	41	48	39	18	14	8.7	11
CFSM	0.36	0.36	0.58	0.71	0.63	1.09	0.76	0.68	0.33	0.31	0.20	0.36
IN.	0.41	0.40	0.67	0.82	0.66	1.26	0.85	0.78	0.37	0.35	0.24	0.40

02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA--Continued

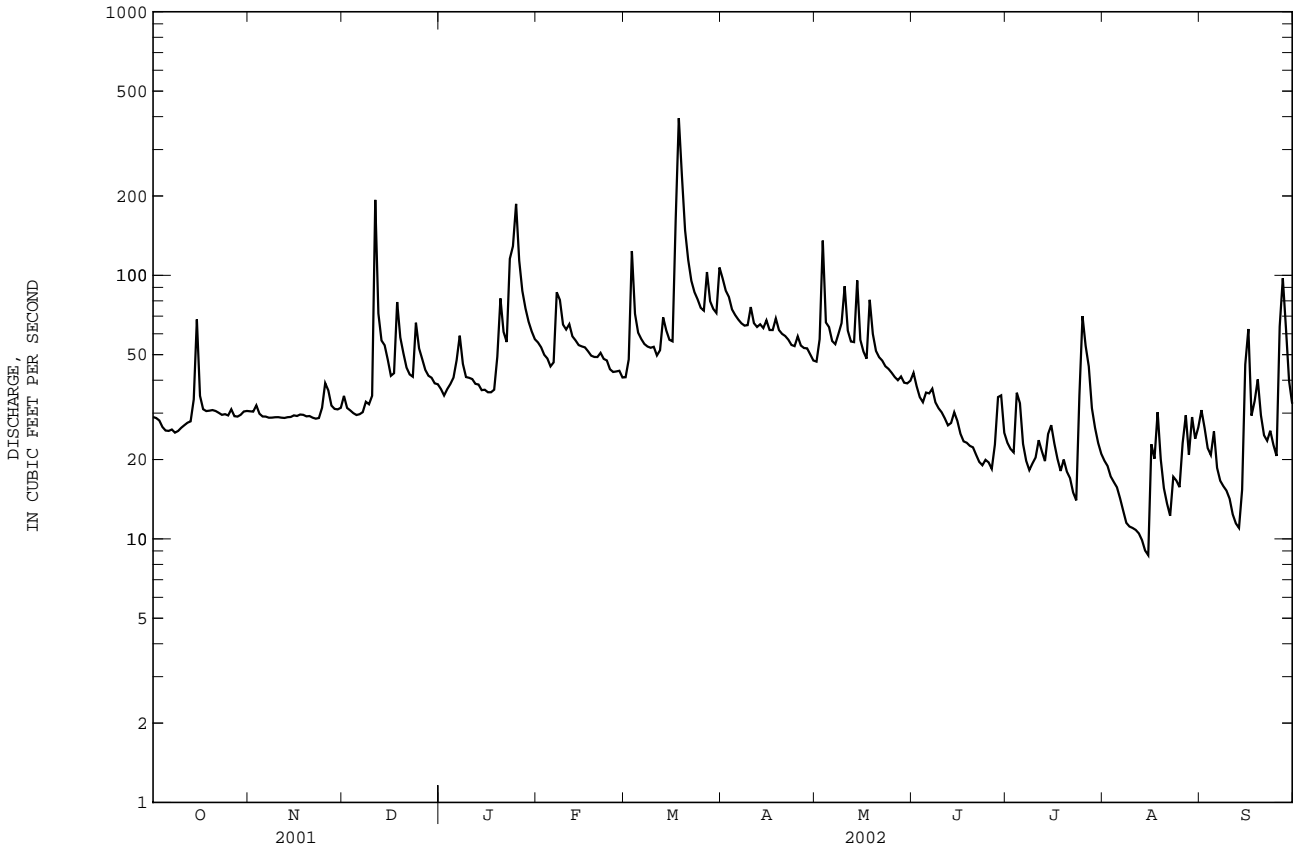
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	96.0	101	113	137	147	180	174	144	122	103	93.1	88.9
MAX	304	339	240	261	352	423	497	295	435	303	407	417
(WY)	1990	1986	1997	1993	1990	1993	1987	1990	1972	1989	1985	1979
MIN	30.4	30.2	43.0	48.6	50.7	65.0	64.4	56.5	28.2	25.9	17.2	30.4
(WY)	2002	2002	2001	1981	2001	1981	2002	1981	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1963 - 2002

ANNUAL TOTAL	20383	16403.6	
ANNUAL MEAN	55.8	44.9	125
HIGHEST ANNUAL MEAN			206 1990
LOWEST ANNUAL MEAN			44.9 2002
HIGHEST DAILY MEAN	446 May 22	395 Mar 18	6820 Jun 21 1972
LOWEST DAILY MEAN	25 aJul 23	8.7 Aug 15	8.7 Aug 15 2002
ANNUAL SEVEN-DAY MINIMUM	26 bOct 4	10 Aug 9	10 Aug 9 2002
MAXIMUM PEAK FLOW		503 Mar 18	20600 Sep 22 1979
MAXIMUM PEAK STAGE		5.33 Mar 18	22.00 Sep 22 1979
INSTANTANEOUS LOW FLOW		8.3 Aug 15	8.3 Aug 15 2002
ANNUAL RUNOFF (CFSM)	0.66	0.53	1.48
ANNUAL RUNOFF (INCHES)	8.96	7.21	20.04
10 PERCENT EXCEEDS	88	72	209
50 PERCENT EXCEEDS	43	37	94
90 PERCENT EXCEEDS	29	19	46

a Also July 24, 2001.
 b Also Oct. 5, 2001.
 e Estimated.



ROANOKE RIVER BASIN

02070000 NORTH MAYO RIVER NEAR SPENCER, VA

LOCATION.--Lat 36°34'05", long 79°59'14", NAD83, Henry County, Hydrologic Unit 03010103, on left bank 800 ft downstream from bridge on State Highway 629 at Moores Mill, 2.1 mi downstream from Horse Pasture Creek, and 3.8 mi southeast of Spencer.

DRAINAGE AREA.--108 mi².

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1929-32(M), 1934(M).

GAGE.--Water-stage recorder. Datum of gage is 730.94 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 23, 1936, nonrecording gage at site 800 ft upstream at datum 1.50 ft higher. July 25 to Sept. 27, 1936, nonrecording gage at present site and datum.

REMARKS.--Records good except those for period with ice effect, Jan. 1-3, and period of no gage-height record, Apr. 11, which are fair. Maximum discharge, 17,200 ft³/s, from rating curve extended above 7,200 ft³/s on basis of slope-area measurement at gage height 13.41 ft and velocity-area study. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

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	21	30	33	e39	55	44	115	38	35	19	14	40
2	21	30	33	e37	53	50	92	45	32	18	13	29
3	21	30	31	e39	51	110	80	117	29	18	12	22
4	21	30	30	41	49	80	71	65	28	22	11	19
5	20	30	30	44	48	64	66	58	26	17	11	18
6	19	29	30	55	48	60	62	50	27	16	10	16
7	19	29	30	65	80	57	60	46	32	13	8.6	14
8	19	29	32	57	90	55	59	46	27	12	7.8	13
9	19	30	34	49	70	53	59	131	24	11	7.2	12
10	21	29	35	47	64	53	60	129	23	13	7.1	12
11	22	29	157	47	65	50	e59	74	22	20	6.7	11
12	23	29	85	45	60	50	56	57	21	23	6.5	9.3
13	23	29	62	44	58	65	56	53	20	17	6.5	8.9
14	23	29	55	43	56	68	56	91	20	18	6.1	18
15	46	29	51	43	54	63	58	62	20	22	5.9	62
16	33	29	47	42	53	59	55	51	19	20	5.9	51
17	27	30	47	42	52	184	53	46	17	16	29	33
18	26	30	72	43	50	730	52	52	16	13	22	24
19	27	31	60	51	49	305	52	61	15	12	17	24
20	27	30	51	84	49	156	50	46	15	14	12	30
21	28	30	47	69	50	120	47	42	14	12	9.5	24
22	28	29	45	62	49	97	47	42	13	11	8.1	22
23	28	29	44	96	48	84	44	40	13	9.2	12	24
24	28	31	52	136	47	77	42	39	12	21	9.6	23
25	28	37	53	118	47	71	46	37	12	81	9.8	20
26	27	38	47	93	47	71	46	35	12	61	13	42
27	27	34	44	75	46	92	42	34	12	51	19	119
28	28	32	44	67	45	74	42	33	27	29	17	69
29	28	31	44	63	---	67	42	33	28	23	22	43
30	29	32	42	59	---	65	39	32	22	19	22	34
31	29	---	42	57	---	106	---	34	---	16	23	---
TOTAL	786	914	1509	1852	1533	3280	1708	1719	633	667.2	384.3	886.2
MEAN	25.4	30.5	48.7	59.7	54.8	106	56.9	55.5	21.1	21.5	12.4	29.5
MAX	46	38	157	136	90	730	115	131	35	81	29	119
MIN	19	29	30	37	45	44	39	32	12	9.2	5.9	8.9
CFSM	0.23	0.28	0.45	0.55	0.51	0.98	0.53	0.51	0.20	0.20	0.11	0.27
IN.	0.27	0.31	0.52	0.64	0.53	1.13	0.59	0.59	0.22	0.23	0.13	0.31

02070000 NORTH MAYO RIVER NEAR SPENCER, VA--Continued

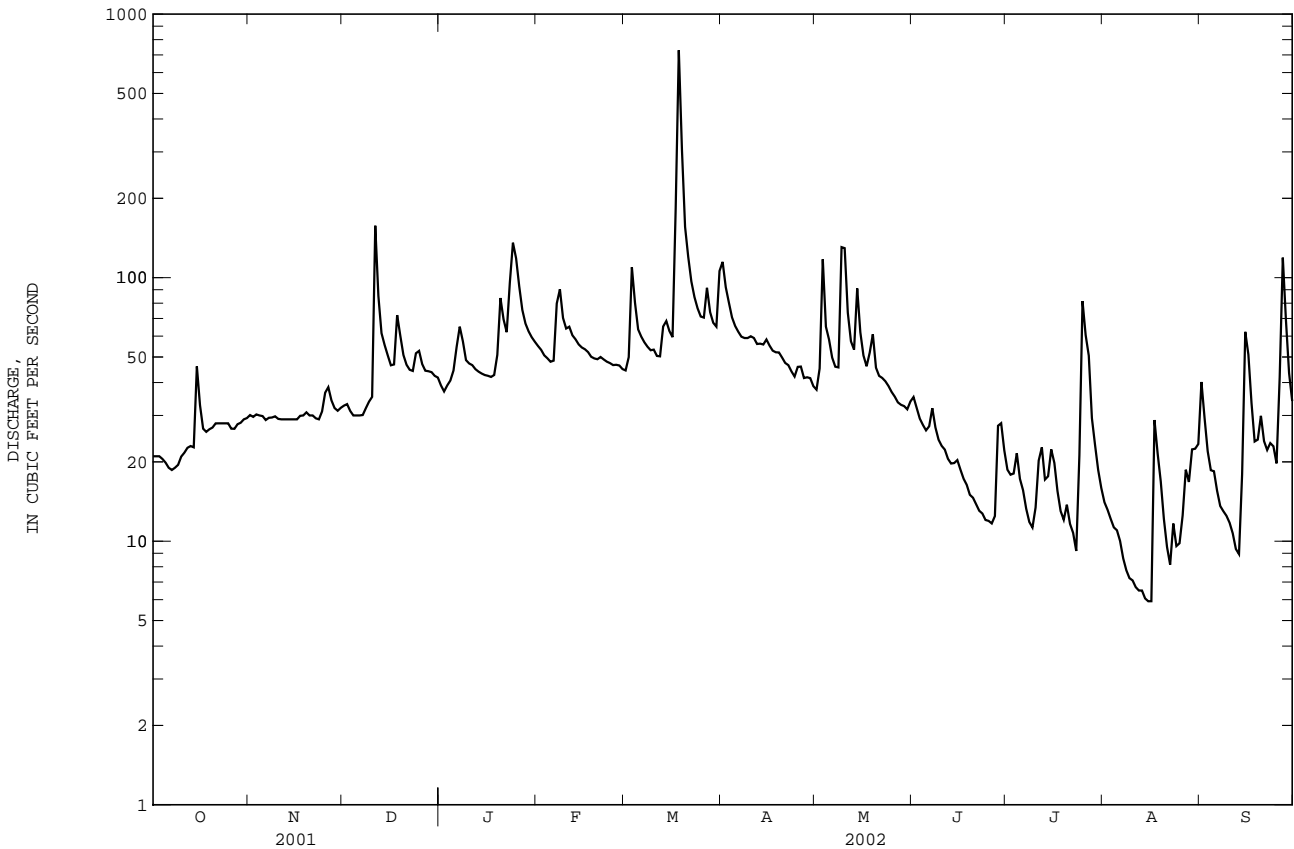
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1935, 1937 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	111	104	121	144	155	180	163	134	120	102	96.1	102
MAX	498	392	256	368	364	479	523	329	470	320	446	462
(WY)	1938	1986	1997	1937	1960	1993	1987	1972	1972	1989	1985	1987
MIN	25.4	30.5	43.5	40.6	49.6	85.5	56.9	55.5	21.1	21.5	12.4	25.7
(WY)	2002	2002	1956	1956	1931	1981	2002	2002	2002	2002	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 1935 1937 - 2002

ANNUAL TOTAL		22028		15871.7								
ANNUAL MEAN		60.4		43.5					127			
HIGHEST ANNUAL MEAN									218			1987
LOWEST ANNUAL MEAN									43.5			2002
HIGHEST DAILY MEAN				738	Mar 30		730	Mar 18	7460	Aug 18		1985
LOWEST DAILY MEAN				19	aOct 6		5.9	bAug 15	5.9	bAug 15		2002
ANNUAL SEVEN-DAY MINIMUM				20	cOct 3		6.4	Aug 10	6.4	Aug 10		2002
MAXIMUM PEAK FLOW							1050	Mar 18	17200	Oct 9		1947
MAXIMUM PEAK STAGE							4.13	Mar 18	15.80	Oct 9		1947
INSTANTANEOUS LOW FLOW							5.6	bAug 15	5.6	bAug 15		2002
ANNUAL RUNOFF (CFSM)				0.56			0.40		1.18			
ANNUAL RUNOFF (INCHES)				7.59			5.47		16.03			
10 PERCENT EXCEEDS				94			71		198			
50 PERCENT EXCEEDS				47			34		94			
90 PERCENT EXCEEDS				28			13		49			

- a Also Oct. 7-9, 2001.
- b Also Aug. 16, 2002.
- c Also Oct. 4, 5, 2001.
- e Estimated.



ROANOKE RIVER BASIN

02071530 SMITH RIVER AT SMITH RIVER CHURCH NEAR WOOLWINE, VA

LOCATION.--Lat 36°46'42", long 80°14'57", NAD83, Patrick County, Hydrologic Unit 03010103, on left bank 10 ft downstream from bridge on State Highway 708, 119 miles southeast of Woolwine, and 29 miles upstream from Philpott Dam.

DRAINAGE AREA.--26.7 mi².

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

GAGE.--Water-stage recorder. Elevation of gage is 1,210 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. Several observations of water temperature were made during the year.

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	12	14	16	e18	22	19	62	29	16	9.6	6.7	19
2	12	14	14	e18	21	50	55	30	15	8.7	6.4	12
3	11	13	13	e17	21	56	50	34	14	13	6.0	9.7
4	11	13	13	e17	20	33	47	31	14	15	5.5	8.4
5	11	13	13	18	20	28	44	30	14	9.7	5.2	7.5
6	11	13	12	23	20	26	42	28	21	8.4	5.7	6.7
7	11	13	12	21	33	25	41	28	22	7.9	6.2	6.7
8	11	13	14	19	27	24	40	28	16	7.7	5.0	6.4
9	12	12	13	19	24	24	44	36	15	10	4.4	6.2
10	12	12	24	19	27	23	55	24	14	11	3.8	5.8
11	12	12	72	18	26	22	45	23	13	12	5.2	5.0
12	11	12	33	17	24	24	43	22	13	9.8	5.3	4.8
13	12	12	27	17	23	29	42	28	13	9.1	6.2	4.9
14	37	13	24	17	23	25	40	26	16	19	5.4	7.8
15	21	13	22	17	22	24	41	22	13	13	4.0	16
16	15	12	20	16	21	24	38	21	11	10	7.4	21
17	14	12	21	16	21	87	45	21	11	9.0	7.8	14
18	15	12	29	16	20	139	43	27	11	14	7.1	14
19	15	12	24	20	20	79	40	22	11	11	5.4	20
20	14	12	22	23	20	66	38	22	11	8.2	5.4	16
21	14	12	20	23	21	57	37	22	10	7.7	4.5	17
22	14	12	20	22	19	52	35	21	9.6	6.9	4.1	14
23	14	12	20	45	19	48	34	20	9.6	10	4.4	16
24	14	16	28	36	19	45	33	19	9.7	12	4.5	15
25	13	21	22	52	19	42	37	18	9.1	15	4.6	14
26	13	15	21	35	19	46	32	18	9.9	21	11	59
27	13	13	20	29	18	48	32	19	12	15	8.4	76
28	14	13	19	27	18	42	31	18	12	12	12	30
29	14	12	19	25	---	40	30	17	11	8.6	15	20
30	14	18	19	24	---	45	29	17	9.9	7.6	9.7	17
31	14	---	18	23	---	74	---	16	---	7.1	20	---
TOTAL	431	396	664	707	607	1366	1225	737	386.8	339.0	212.3	489.9
MEAN	13.9	13.2	21.4	22.8	21.7	44.1	40.8	23.8	12.9	10.9	6.85	16.3
MAX	37	21	72	52	33	139	62	36	22	21	20	76
MIN	11	12	12	16	18	19	29	16	9.1	6.9	3.8	4.8
CFSM	0.52	0.49	0.80	0.85	0.81	1.65	1.53	0.89	0.48	0.41	0.26	0.61
IN.	0.60	0.55	0.93	0.99	0.85	1.90	1.71	1.03	0.54	0.47	0.30	0.68

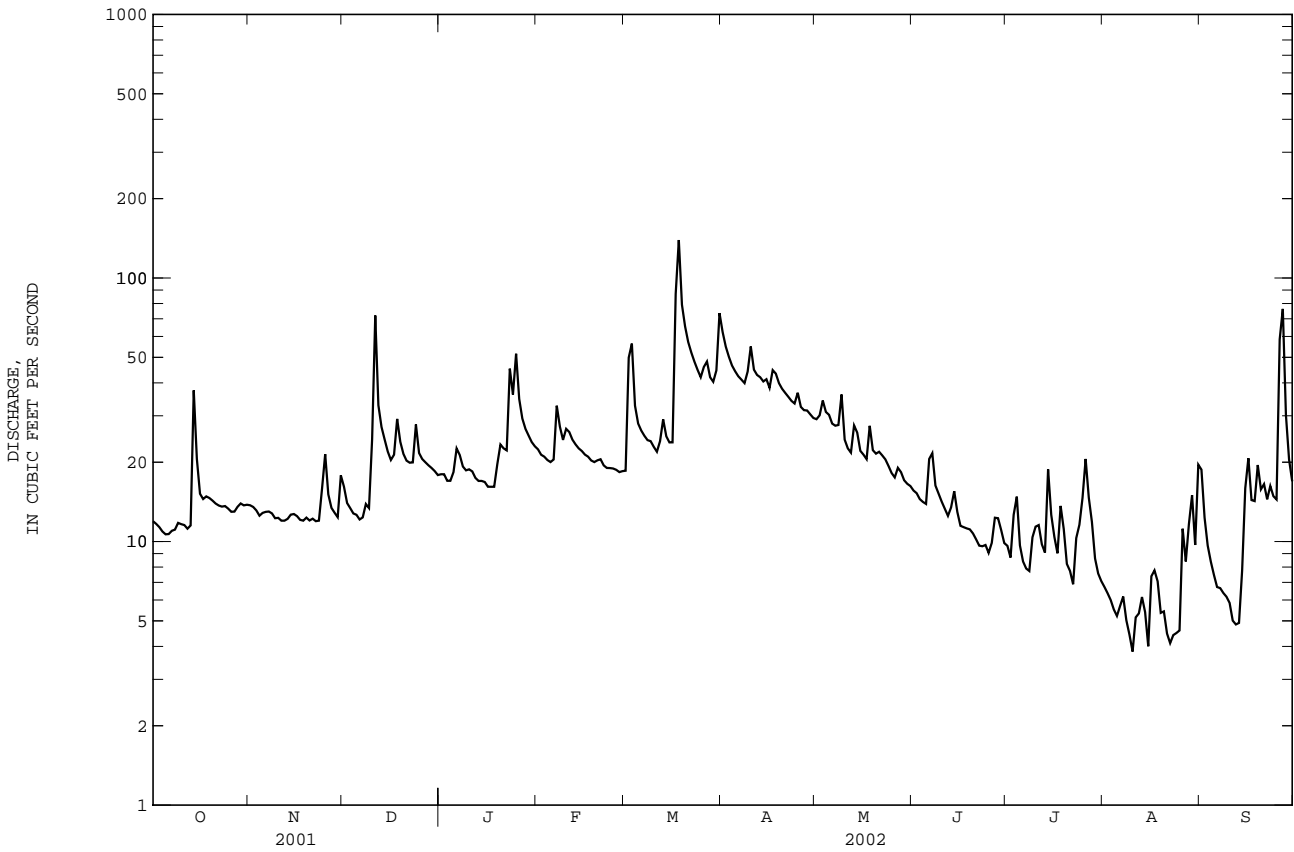
02071530 SMITH RIVER AT SMITH RIVER CHURCH NEAR WOOLWINE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	22.8	26.1	35.0	51.6	52.2	57.0	48.3	42.9	30.8	20.1	21.0	24.5
MAX	49.8	54.3	95.2	86.9	120	94.4	74.6	59.9	50.8	24.9	55.1	70.0
(WY)	1997	1997	1997	1995	1998	1998	1998	1998	1996	1999	1996	1996
MIN	12.3	13.2	17.6	22.2	21.7	35.0	30.7	23.8	12.9	10.9	6.85	13.2
(WY)	2001	2002	1998	2001	2002	1999	1999	2002	2002	2002	2002	1995

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1995 - 2002	
ANNUAL TOTAL	8864.6		7561.0			
ANNUAL MEAN	24.3		20.7		35.9	
HIGHEST ANNUAL MEAN					52.5	
LOWEST ANNUAL MEAN					20.7	
HIGHEST DAILY MEAN	194	May 22	139	Mar 18	669	Dec 1 1996
LOWEST DAILY MEAN	8.1	Jul 23	3.8	Aug 10	3.8	Aug 10 2002
ANNUAL SEVEN-DAY MINIMUM	9.1	Jul 19	4.7	Aug 19	4.7	Aug 19 2002
MAXIMUM PEAK FLOW			217	Mar 17	1420	Aug 12 1996
MAXIMUM PEAK STAGE			4.14	Mar 17	8.45	Aug 12 1996
INSTANTANEOUS LOW FLOW			2.7	Aug 11	2.7	Aug 11 2002
ANNUAL RUNOFF (CFSM)	0.91		0.78		1.35	
ANNUAL RUNOFF (INCHES)	12.35		10.53		18.29	
10 PERCENT EXCEEDS	41		40		67	
50 PERCENT EXCEEDS	21		17		26	
90 PERCENT EXCEEDS	12		7.7		13	

e Estimated.



ROANOKE RIVER BASIN

02071900 PHILPOTT LAKE NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'52", long 80°01'39", NAD83, Henry County, Hydrologic Unit 03010103, at Philpott Dam on Smith River, 1.5 mi west of Philpott, 12.0 mi upstream from Reed Creek, and at mile 44.3.

DRAINAGE AREA.--216 mi².

PERIOD OF RECORD.--August 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 985 ft, is ungated and 120 ft long. Storage began August 1950 during construction; initial filling started in December 1951; water in reservoir first reached rule-curve elevation in July 1953. Total capacity at maximum flood-control pool elevation, 998 ft, is 247,400 acre-ft of which 47,000 acre-ft is above the spillway crest; 34,200 acre-ft is controlled flood storage between elevations 974 ft, maximum power pool, and 985 ft; 57,800 acre-ft is available for power between elevations 951 ft, minimum power pool, and 974 ft; and 108,400 acre-ft is inactive and dead storage below elevation 951 ft. Usable capacity is 92,000 acre-ft between elevations 951 ft and 985 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, water supply, low-water regulation for pollution abatement and industrial water supply, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

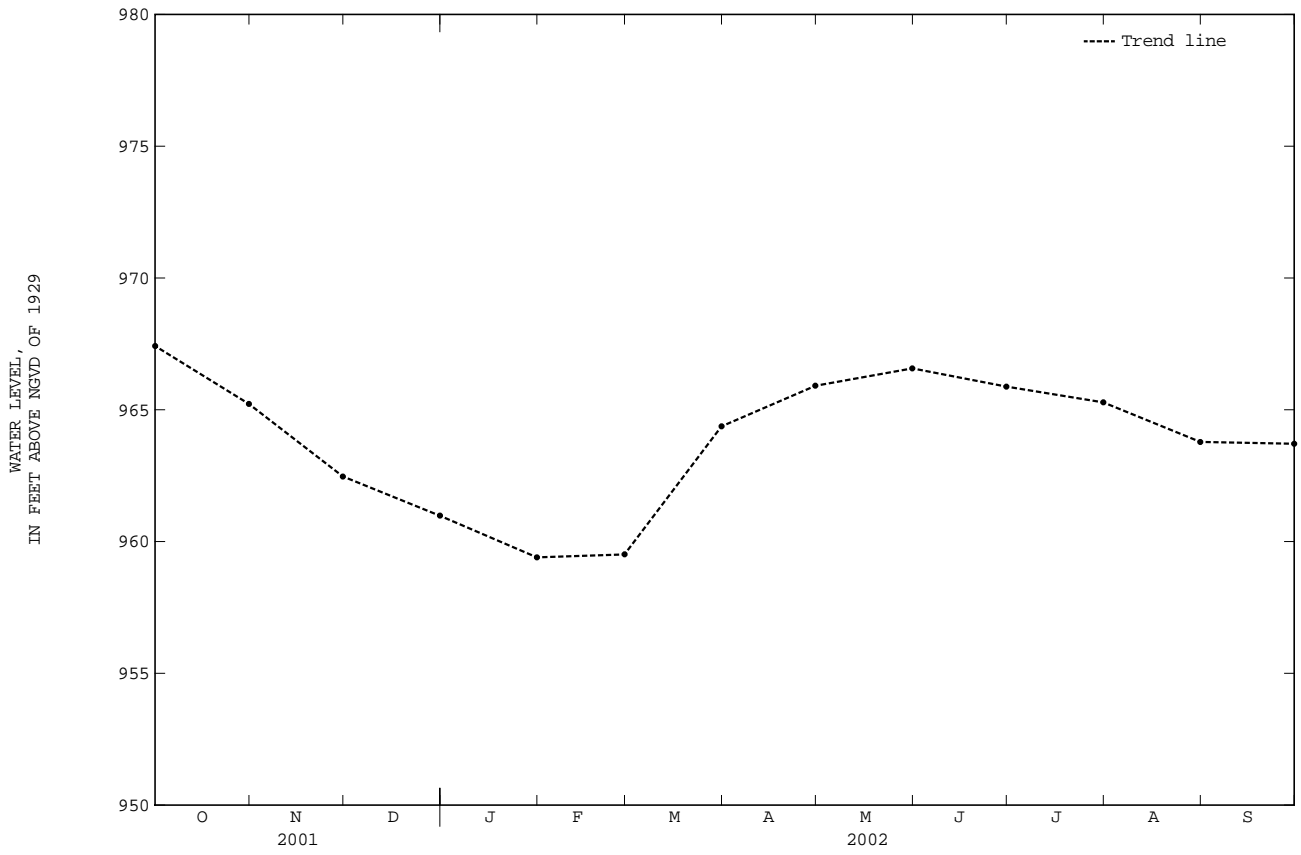
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 191,700 acre-ft, June 22, 1972, elevation, 983.06 ft; minimum (after first filling to rule curve), 64,540 acre-ft, Sept. 26, 1956, elevation, 927.59 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 147,580 acre-ft, Sept. 1, elevation 967.33 ft; minimum, 127,200 acre-ft, Feb. 1-3, elevation, 959.27 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	967.42	147,830	-
Oct. 31.....	965.22	142,020	-5,810
Nov. 30.....	962.47	135,020	-7,000
Dec. 31.....	960.98	131,330	-3,690
CAL YR 2001.....			-12,190
Jan. 31.....	959.40	127,510	-3,820
Feb. 28.....	959.51	127,770	+260
Mar. 31.....	964.37	139,830	+12,060
Apr. 30.....	965.91	143,820	+3,990
May 31.....	966.57	145,560	+1,740
June 30.....	965.88	143,750	-1,810
July 31.....	965.28	142,180	-1,570
Aug. 31.....	963.78	138,320	-3,860
Sept. 30.....	963.71	138,150	-170
WTR YR 2002.....			-9,680

02071900 PHILPOTT LAKE NEAR PHILPOTT, VA--Continued



ROANOKE RIVER BASIN

02072000 SMITH RIVER NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'50", long 80°01'29", NAD83, Franklin County, Hydrologic Unit 03010103, on left bank 900 ft down-stream from Philpott Dam, 1.3 mi southwest of Philpott (corrected), 11.6 mi upstream from Reed Creek, and at mile 44.1.

DRAINAGE AREA.--216 mi².

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1553: 1953(M), 1955-56(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 804.27 ft NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

REMARKS.--No estimated daily discharges, records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi upstream. Statistics of monthly mean data and summary statistics for water years 1947 - 1950 (unregulated flow) are available in previous data books, water years 1991 - 1998. Maximum discharge, 17,000 ft³/s, at site then in use, from rating curve extended above 9,700 ft³/s on basis of slope-area measurements at gage heights 18.2 ft and 20.3 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	177	217	65	233	238	117	77	85	69	89	79	55
2	176	218	65	236	64	67	57	86	69	89	81	83
3	176	52	235	230	65	67	113	86	94	90	55	84
4	176	52	234	236	117	90	74	60	93	89	55	79
5	176	218	234	64	119	92	71	60	93	85	81	114
6	53	217	237	64	117	90	51	85	96	62	84	78
7	53	218	229	246	117	90	52	83	98	62	83	49
8	178	218	65	231	117	90	85	82	60	90	82	49
9	177	217	65	234	65	66	86	96	60	91	81	77
10	177	66	242	234	65	67	86	78	91	80	55	77
11	177	159	235	233	117	81	86	67	84	84	55	78
12	177	227	234	63	116	72	84	67	81	83	82	77
13	52	225	237	63	117	81	60	92	85	57	81	77
14	53	227	233	224	114	80	60	90	86	57	82	48
15	177	236	64	234	116	79	84	90	60	83	82	49
16	177	131	65	234	65	47	84	94	60	84	82	84
17	176	58	243	235	65	49	86	92	85	83	55	82
18	175	58	234	232	115	81	86	69	86	83	55	78
19	176	237	233	65	116	80	86	69	87	82	83	77
20	52	234	236	65	115	85	60	94	87	56	99	78
21	52	237	233	235	121	81	60	93	88	55	82	49
22	176	238	63	244	116	77	86	94	60	81	87	49
23	177	235	63	259	66	57	86	93	61	83	82	77
24	177	65	233	238	66	57	86	93	85	86	55	78
25	177	65	233	235	117	82	86	69	87	83	55	77
26	177	237	233	64	117	78	86	69	90	83	84	76
27	51	235	237	65	117	75	60	91	89	54	82	76
28	51	235	236	237	117	76	60	94	89	55	83	49
29	217	238	63	238	---	76	86	94	62	82	76	49
30	217	234	63	238	---	51	86	94	62	81	85	82
31	217	---	235	239	---	52	---	93	---	85	55	---
TOTAL	4600	5504	5577	5948	2977	2333	2310	2602	2397	2407	2318	2135
MEAN	148	183	180	192	106	75.3	77.0	83.9	79.9	77.6	74.8	71.2
MAX	217	238	243	259	238	117	113	96	98	91	99	114
MIN	51	52	63	63	64	47	51	60	60	54	55	48
(†)	-2930	-3530	-1860	-1930	+131	+6080	+2010	+877	-913	-792	-1950	-86
MEAN‡	54	66	120	130	111	271	144	112	49	52	12	68
CFSM‡	.25	.31	.56	.60	.51	1.25	.67	.52	.23	.24	.06	.31
IN.‡	.29	.34	.64	.69	.54	1.45	.74	.60	.26	.28	.06	.35

CAL YR 2001 MEAN‡ 137 CFSM‡ .63 IN.‡ 8.61
WTR YR 2002 MEAN‡ 99 CFSM‡ .46 IN.‡ 6.22

† Total change in contents, equivalent in cubic feet per second, per month, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

02072000 SMITH RIVER NEAR PHILPOTT, VA--Continued

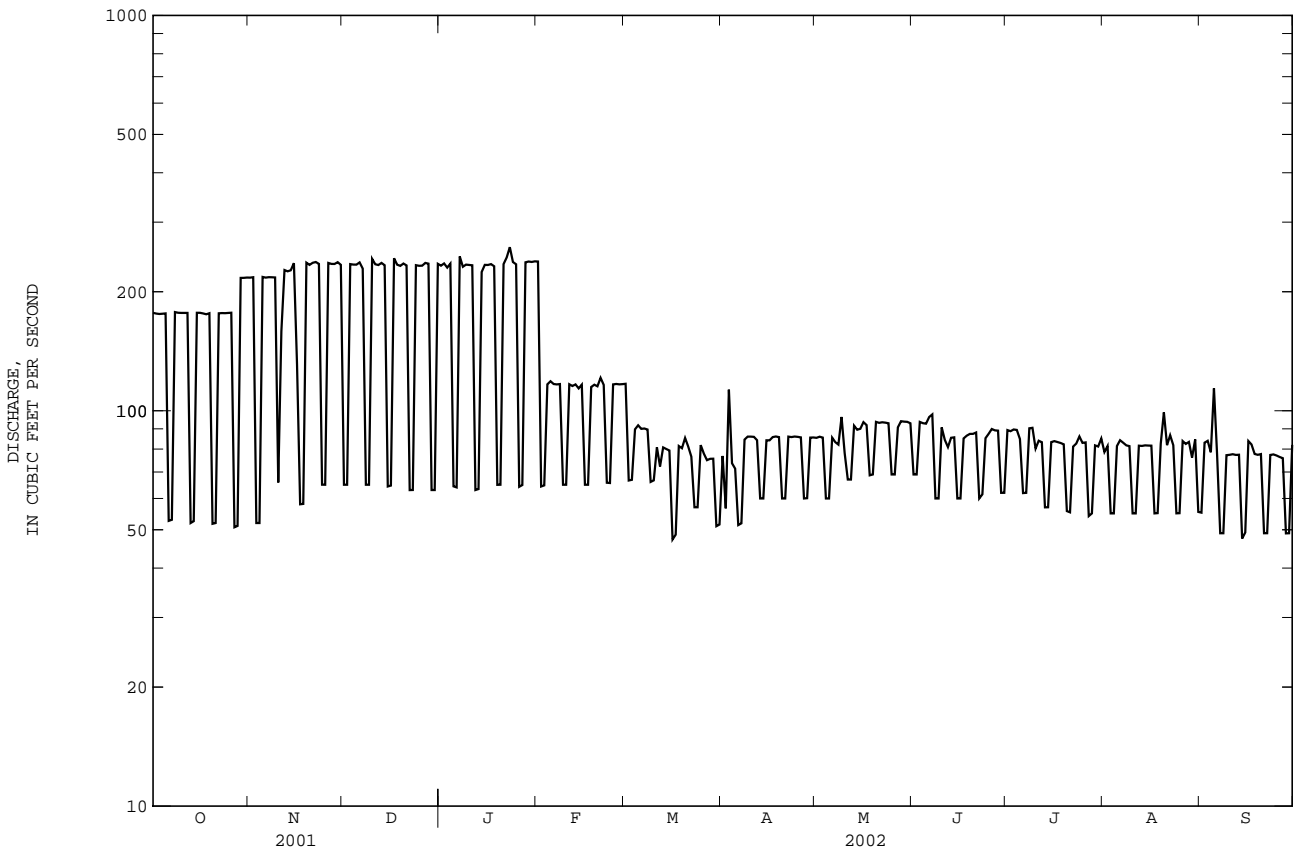
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	231	222	242	266	261	324	369	298	272	235	251	251
MAX	755	835	586	526	718	946	1194	796	827	646	479	724
(WY)	1990	1986	1997	1991	1973	1993	1983	1978	1972	1972	1970	1979
MIN	96.1	70.5	88.0	71.1	58.2	60.5	69.2	61.3	67.2	77.6	74.8	71.2
(WY)	1952	1953	1996	1953	1953	1953	1969	1964	1964	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1951 - 2002

ANNUAL TOTAL		56659		41108						269		
ANNUAL MEAN		155		113						113		1973
HIGHEST ANNUAL MEAN										441		2002
LOWEST ANNUAL MEAN										113		2002
HIGHEST DAILY MEAN		689	aMay 26	259	Jan 23	5710	Apr 24	1992				
LOWEST DAILY MEAN		46	bJul 28	47	Mar 16	c20	Mar 24	1984				
ANNUAL SEVEN-DAY MINIMUM		82	Aug 30	66	Mar 27	42	Mar 2	1953				
MAXIMUM PEAK FLOW				1510	Jan 23	d9500	Dec 7	1950				
MAXIMUM PEAK STAGE				5.21	Jan 23	d15.00	Dec 7	1950				
INSTANTANEOUS LOW FLOW				16	fOct 2	g,h2.3	Dec 16	1985				
ANNUAL RUNOFF (CFSM)		0.72		0.52		1.24						
ANNUAL RUNOFF (INCHES)		9.76		7.08		16.89						
10 PERCENT EXCEEDS		267		234		642						
50 PERCENT EXCEEDS		118		85		203						
90 PERCENT EXCEEDS		56		55		46						

- a Also May 27, 2001.
- b Also July 29, 2001.
- c Caused by turbines being shut down for repair at Philpott Dam.
- d Prior to regulation, 1947-50, maximum peak flow, 17,000 ft³/s, June 29, 1949, gage height, 20.30 ft.
- f Many days in October and November 2001.
- g Prior to regulation, 1947-50, instantaneous low flow, 21 ft³/s, Aug. 15, 1950.
- h Result of repair at dam but may have been less during periods of estimated record.



ROANOKE RIVER BASIN

02072500 SMITH RIVER AT BASSETT, VA

LOCATION.--Lat 36°46'12", long 80°00'03", NAD83, Henry County, Hydrologic Unit 03010103, on left bank 25 ft upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi northwest of Bassett, 3.0 mi downstream from Town Creek, 5.6 mi upstream from Reed Creek, 6.2 mi downstream from Philpott Dam, and at mile 38.1.

DRAINAGE AREA.--259 mi².

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi upstream. Diversion upstream from station by Henry County Public Service Authority, since 1985, has averaged less than 1.0 ft³/s. Statistics of monthly mean data and summary statistics for water years 1940 - 1950 (unregulated flow) are available in previous data books, water years 1991 - 1998. U.S. Army Corps of Engineers satellite 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 Oct. 19, 1937, reached a stage of about 22.9 ft, from information by local residents, discharge, 38,000 ft³/s, from rating curve extended above 23,000 ft³/s on basis of backwater studies and records for station at Martinsville.

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	183	226	75	242	255	128	133	99	95	93	89	73
2	184	226	74	245	79	88	105	113	79	93	91	95
3	182	67	240	242	79	146	137	181	78	93	65	94
4	182	67	239	246	130	118	111	116	95	92	66	89
5	183	226	240	74	138	116	99	89	99	88	90	124
6	61	226	242	83	131	108	86	107	100	65	94	91
7	61	226	236	267	150	106	79	105	150	65	92	66
8	159	225	77	247	146	104	96	101	122	91	89	66
9	184	226	75	250	87	82	113	179	71	95	88	90
10	185	77	253	249	87	81	115	135	102	86	62	90
11	186	170	337	249	138	98	110	95	114	119	63	90
12	185	234	258	75	135	94	107	84	87	97	87	88
13	89	232	254	76	135	115	98	137	85	69	87	89
14	71	234	248	236	131	108	85	130	92	72	87	72
15	174	238	78	247	133	106	95	107	83	96	88	78
16	193	143	76	247	79	73	105	106	68	93	89	110
17	188	74	257	247	80	193	106	103	73	93	65	100
18	188	74	254	246	128	433	114	99	84	93	66	94
19	188	240	248	83	132	188	110	85	100	94	90	94
20	92	239	249	89	129	146	98	80	91	67	108	94
21	67	240	243	258	131	128	83	99	91	67	89	67
22	162	243	75	266	131	113	92	102	65	89	91	69
23	188	240	75	333	78	91	103	103	66	90	88	94
24	188	75	243	294	77	90	104	105	87	95	62	93
25	188	80	247	292	129	110	108	99	89	105	62	92
26	187	244	247	98	130	111	104	79	106	121	90	116
27	92	241	246	89	130	115	95	79	103	95	89	120
28	67	240	246	260	128	104	81	98	98	77	93	78
29	226	243	85	258	---	102	87	99	73	96	86	73
30	226	242	74	257	---	83	99	98	70	94	97	102
31	226	---	244	256	---	116	---	100	---	97	73	---
TOTAL	4935	5758	6035	6601	3436	3794	3058	3312	2716	2780	2576	2691
MEAN	159	192	195	213	123	122	102	107	90.5	89.7	83.1	89.7
MAX	226	244	337	333	255	433	137	181	150	121	108	124
MIN	61	67	74	74	77	73	79	79	65	65	62	66
(†)	-2930	-3530	-1860	-1930	+131	+6080	+2010	+877	-913	-792	-1950	-86
MEAN‡	65	74	135	151	127	319	169	135	60	64	20	87
CFSM‡	.25	.29	.52	.58	.49	1.23	.65	.52	.23	.25	.08	.34
IN.‡	.29	.32	.60	.67	.51	1.42	.73	.60	.26	.29	.09	.37

CAL YR 2001 MEAN‡ 165 CFSM‡ .64 IN.‡ 8.65
WTR YR 2002 MEAN‡ 117 CFSM‡ .45 IN.‡ 6.13

† Total change in contents, equivalent in cubic feet per second, per month, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

02072500 SMITH RIVER AT BASSETT, VA--Continued

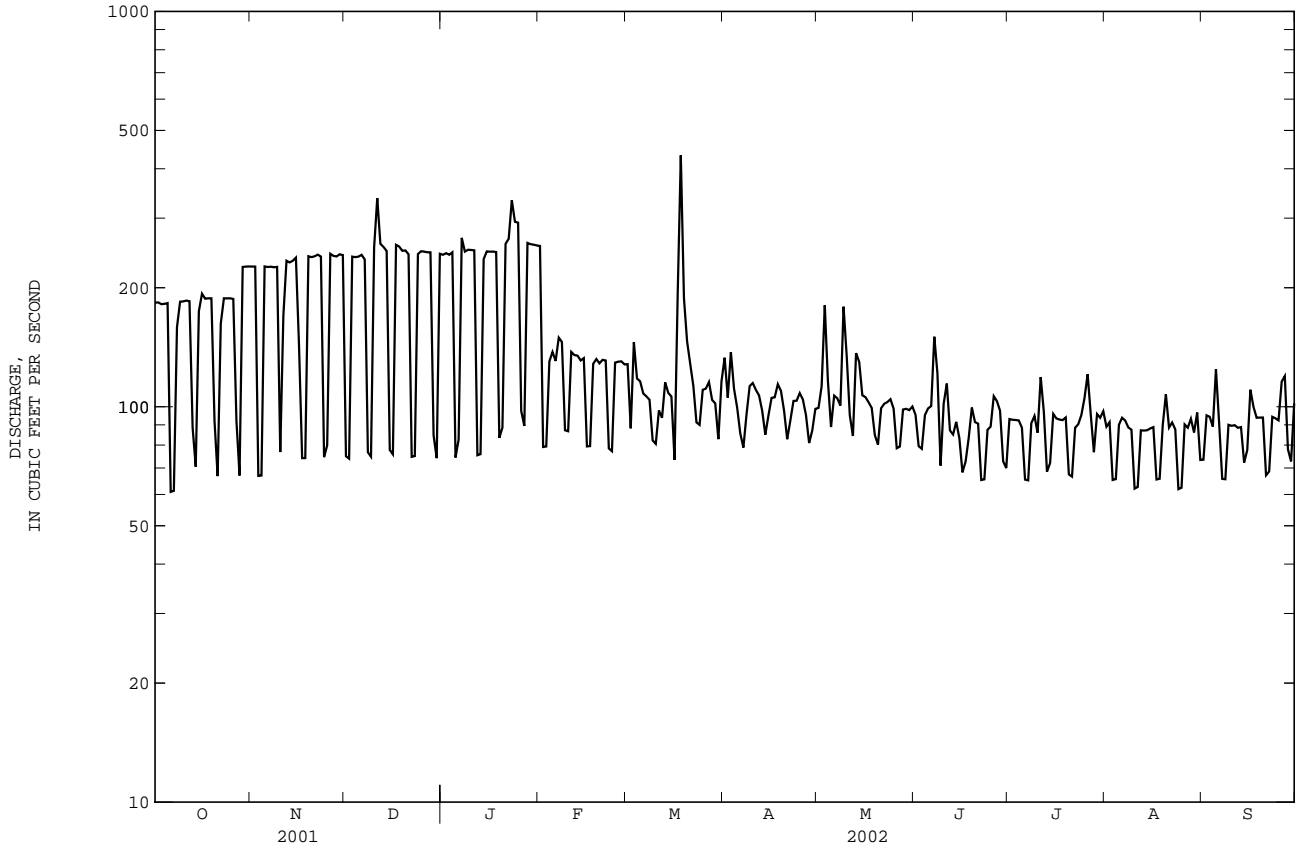
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	271	264	292	325	329	400	444	358	323	276	290	298
MAX	944	996	724	655	846	1197	1474	902	1004	759	568	912
(WY)	1990	1986	1997	1991	1998	1993	1987	1978	1992	1972	1994	1979
MIN	121	98.4	110	107	110	114	98.6	86.7	84.4	89.7	83.1	89.7
(WY)	1952	1953	1996	1989	1989	1982	1969	1964	1964	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1951 - 2002

ANNUAL TOTAL	66778		47692				
ANNUAL MEAN	183		131		322		
HIGHEST ANNUAL MEAN					523		
LOWEST ANNUAL MEAN					131		
HIGHEST DAILY MEAN	1040		May 22		433		Mar 18
LOWEST DAILY MEAN	61		aSep 16		61		bOct 6
ANNUAL SEVEN-DAY MINIMUM	99		Aug 30		80		Aug 9
MAXIMUM PEAK FLOW					1630		Jan 23
MAXIMUM PEAK STAGE					3.94		Jan 23
INSTANTANEOUS LOW FLOW					48		Aug 22
ANNUAL RUNOFF (CFSM)	0.71				0.50		1.25
ANNUAL RUNOFF (INCHES)	9.59				6.85		16.92
10 PERCENT EXCEEDS	304				244		714
50 PERCENT EXCEEDS	149				100		240
90 PERCENT EXCEEDS	79				73		76

- a Also Oct. 6, 7, 2001.
- b Also Oct. 7, 2001.
- c Prior to regulation, 1940-50, maximum peak flow, 26,600 ft³/s, Aug. 14, 1940, gage height, 18.28 ft.
- d Prior to regulation, 1940-50, instantaneous low flow, 58 ft³/s, Jan. 3, 1940.



ROANOKE RIVER BASIN

02073000 SMITH RIVER AT MARTINSVILLE, VA

LOCATION.--Lat 36°39'40", long 79°52'50", NAD83, Henry County, Hydrologic Unit 03010103, on right bank at south edge of Martinsville, 800 ft downstream from bridge on U.S. Highways 58 and 220, and 5.0 mi downstream from Beaver Creek.

DRAINAGE AREA.--380 mi².

PERIOD OF RECORD.--August 1929 to current year.

REVISED RECORDS.--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 657.22 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi upstream from station. Some additional regulation by powerplant 1,000 ft upstream from station. Statistics of monthly mean data and summary statistics for water years 1930-1950 (unregulated flow) are available in previous data books, water years 1991-1998. Maximum discharge, 39,000 ft³/s, from rating curve extended above 17,000 ft³/s on basis of computations of flow over dam at gage heights 16.76 ft and 21.50 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

**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	242	253	91	284	303	163	335	154	71	187	119	106
2	129	261	95	283	139	111	235	155	75	97	76	208
3	284	120	274	295	133	307	185	476	249	106	69	134
4	279	97	245	289	247	280	232	230	155	141	71	114
5	226	253	226	131	178	185	175	188	154	111	132	112
6	89	335	263	161	166	180	103	256	142	75	90	137
7	92	277	291	341	246	152	117	132	167	75	87	65
8	219	131	121	302	254	154	256	273	82	120	94	73
9	198	326	121	271	116	96	165	887	95	98	88	119
10	225	80	313	263	158	96	196	381	197	118	62	98
11	261	149	728	289	270	225	210	97	137	321	64	93
12	225	303	266	135	193	137	157	161	129	138	100	102
13	104	355	310	125	186	163	102	215	114	71	85	59
14	111	274	307	247	180	170	119	440	132	73	85	146
15	257	262	131	409	178	153	229	198	69	125	93	182
16	247	138	125	263	108	108	202	181	74	125	90	241
17	189	95	311	233	106	426	168	177	176	104	77	154
18	234	96	445	352	201	1400	162	114	108	115	100	109
19	202	199	221	178	184	479	167	171	126	97	176	149
20	145	267	311	200	184	393	99	237	104	64	99	121
21	102	272	284	306	179	259	116	214	126	73	108	74
22	205	283	121	310	174	229	275	70	70	128	122	79
23	226	283	124	563	107	131	131	240	76	93	64	162
24	210	93	271	318	114	141	166	174	136	113	73	100
25	219	122	274	467	186	251	148	70	102	204	71	129
26	232	274	292	163	176	172	155	88	96	254	136	259
27	124	272	317	174	171	275	100	241	117	111	89	246
28	97	277	286	315	167	212	146	295	141	125	134	69
29	216	271	179	307	---	169	245	175	94	195	131	74
30	261	266	136	312	---	112	150	148	92	135	101	231
31	277	---	254	305	---	251	---	164	---	92	78	---
TOTAL	6127	6684	7733	8591	5004	7580	5246	7002	3606	3884	2964	3945
MEAN	198	223	249	277	179	245	175	226	120	125	95.6	132
MAX	284	355	728	563	303	1400	335	887	249	321	176	259
MIN	89	80	91	125	106	96	99	70	69	64	62	59
(†)	-2930	-3530	-1860	-1930	+131	+6080	+2010	+877	-913	-792	-1950	-86
MEAN†	103	105	189	215	183	441	242	254	90	100	33	129
CFSM†	.27	.28	.50	.57	.48	1.16	.64	.67	.24	.26	.09	.34
IN.†	.31	.31	.57	.65	.50	1.34	.71	.77	.26	.30	.10	.38

CAL YR 2001 MEAN† 260 CFSM† .68 IN.† 9.30
WTR YR 2002 MEAN† 174 CFSM† .46 IN.† 6.22

† Total change in contents, equivalent in cubic feet per second, per month, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents.

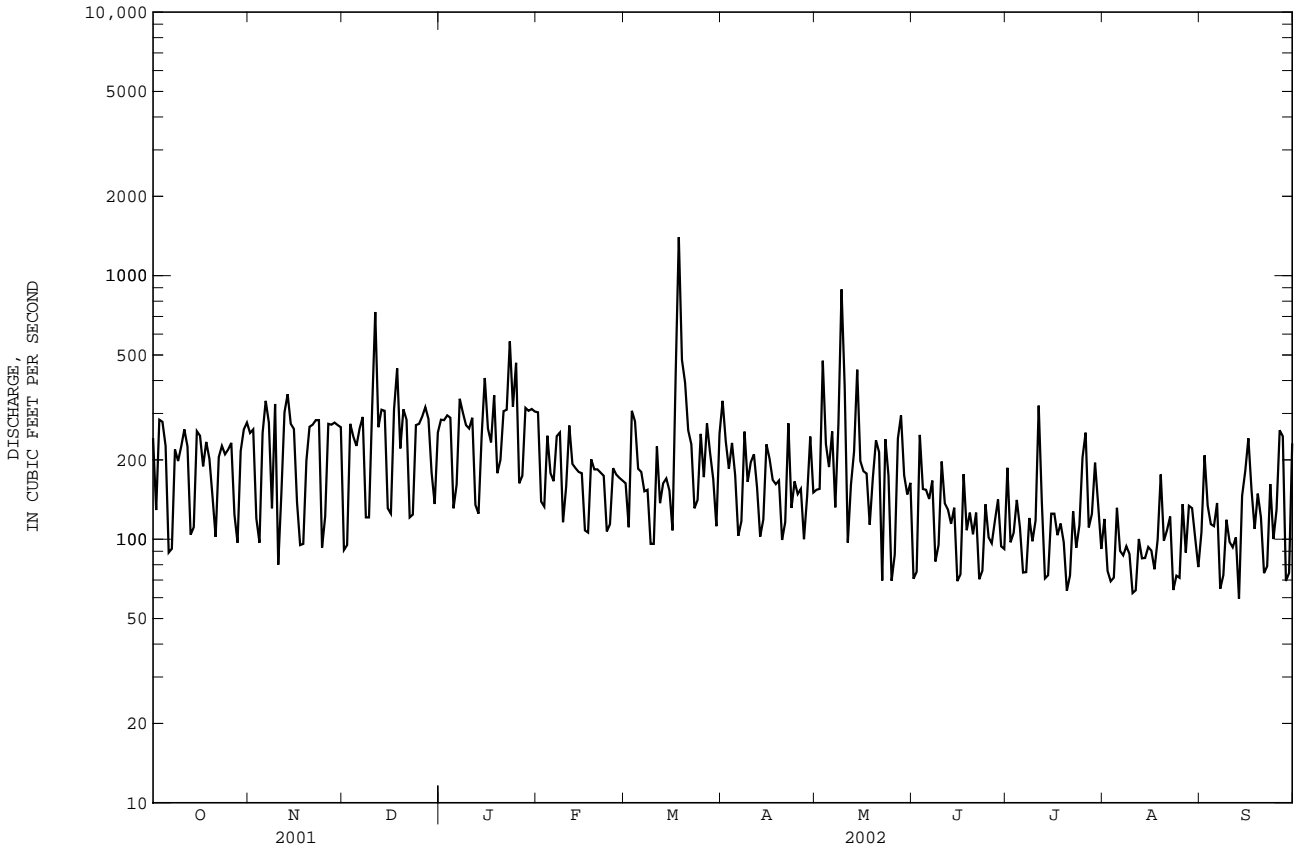
02073000 SMITH RIVER AT MARTINSVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

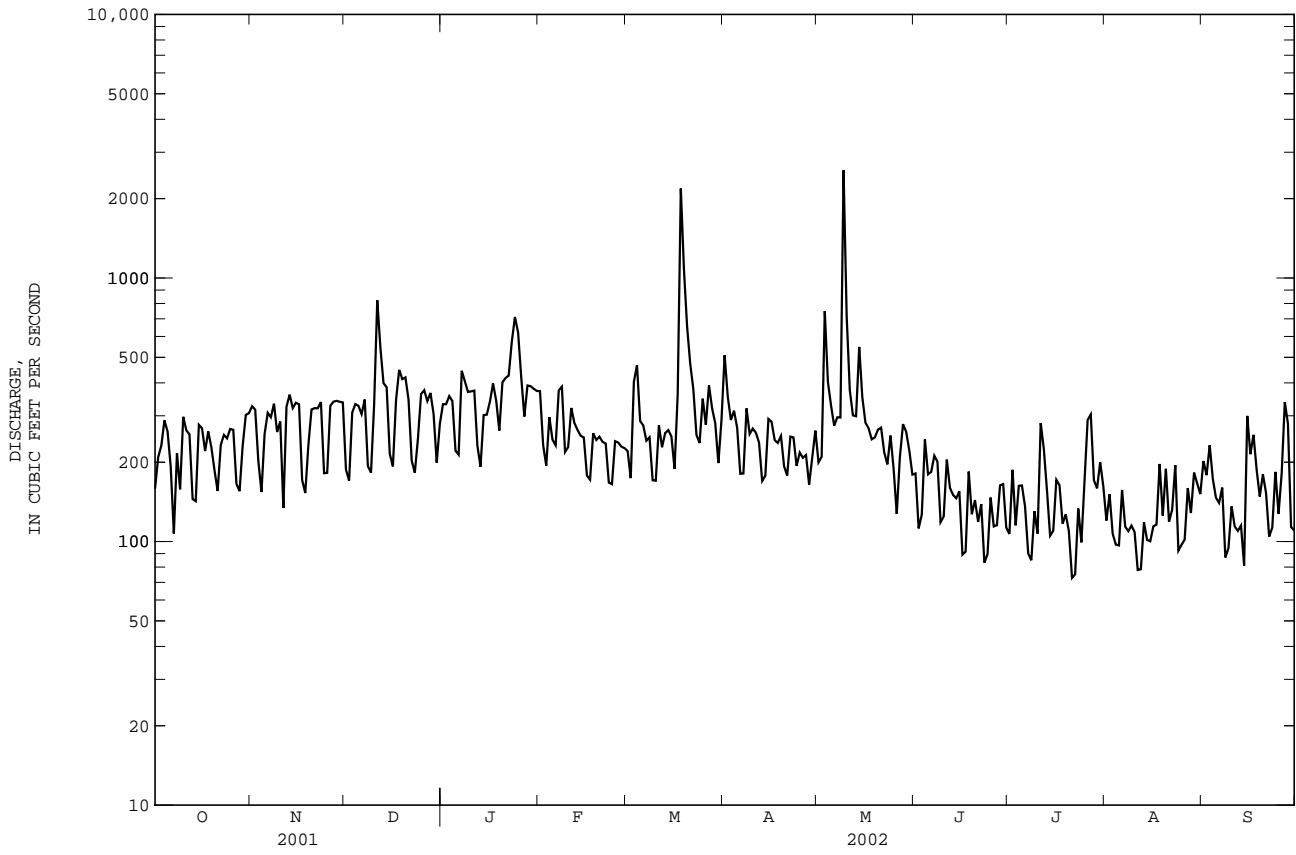
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	387	380	424	489	508	608	627	516	469	405	398	424
MAX	1389	1266	988	1000	1212	1735	2206	1138	1467	1174	1032	1624
(WY)	1990	1986	1997	1991	1998	1993	1987	1978	1992	1989	1985	1987
MIN	163	162	203	206	179	233	175	164	120	125	95.6	132
(WY)	1952	1953	2001	1957	2002	1981	2002	1964	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 2002	
ANNUAL TOTAL	101513		68366			
ANNUAL MEAN	278		187		469	
HIGHEST ANNUAL MEAN					817	
LOWEST ANNUAL MEAN					187	
HIGHEST DAILY MEAN	2960		May 22		11300	
LOWEST DAILY MEAN	78		May 13		24	
ANNUAL SEVEN-DAY MINIMUM	145		Aug 31		82	
MAXIMUM PEAK FLOW			2820		a34600	
MAXIMUM PEAK STAGE			4.41		a20.08	
INSTANTANEOUS LOW FLOW			34		b3.8	
ANNUAL RUNOFF (CFSM)	0.73		0.49		1.23	
ANNUAL RUNOFF (INCHES)	9.94		6.69		16.77	
10 PERCENT EXCEEDS	426		302		892	
50 PERCENT EXCEEDS	237		163		349	
90 PERCENT EXCEEDS	119		88		162	

a Prior to regulation, 1930-50, maximum peak flow, 39,000 ft³/s, Oct. 19, 1937, gage height, 21.50 ft.
 b Prior to regulation, 1930-50, instantaneous low flow, 5.0 ft³/s, May 20, 1934.



02074000 SMITH RIVER AT EDEN, NC--Continued



ROANOKE RIVER BASIN

02074500 SANDY RIVER NEAR DANVILLE, VA

LOCATION.--Lat 36°37'10", long 79°30'15", NAD83, Pittsylvania County, Hydrologic Unit 03010103, on right bank 200 ft downstream from Hickory Forest Creek, 400 ft upstream from bridge on State Highway 863 between Callahans Store and Mount Cross, 5.5 mi northwest of western city limits of Danville, and 5.8 mi upstream from mouth.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1930-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 460.38 ft NGVD of 1929. Prior to June 26, 1942, at site 1,200 ft downstream at datum 5.57 ft lower.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. Diurnal fluctuation at low flow caused by small mill upstream from station. Maximum discharge, 23,000 ft³/s, from rating curve extended above 11,000 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 9	0400	*5,770	*7.49	No other peak greater than base discharge.			

**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	19	21	31	e30	47	34	60	31	32	17	14	47
2	19	21	29	e28	44	39	54	39	33	16	14	36
3	18	22	27	e31	42	75	53	226	29	16	15	25
4	17	23	27	e32	42	61	50	87	27	15	14	21
5	16	23	27	33	39	48	47	67	27	15	12	23
6	16	24	27	49	39	45	47	53	27	14	11	22
7	16	24	28	74	70	43	46	48	39	13	10	18
8	17	25	29	54	77	42	45	61	29	12	9.0	16
9	17	25	30	50	57	42	45	2430	26	11	8.4	16
10	17	25	31	42	53	42	46	332	25	11	8.3	15
11	17	25	105	41	52	38	44	160	25	12	8.0	14
12	18	25	64	37	47	39	43	111	23	12	7.7	13
13	19	26	46	37	45	49	43	94	22	12	7.5	13
14	20	25	40	35	43	46	43	127	23	22	7.2	13
15	20	26	36	35	42	43	44	76	23	23	7.7	19
16	21	27	34	34	42	42	43	65	21	18	9.7	30
17	21	27	35	34	40	65	41	59	20	15	8.7	25
18	20	28	67	34	38	628	41	67	19	12	9.2	19
19	20	27	51	46	38	281	41	60	18	11	11	18
20	20	28	40	88	38	143	42	52	18	11	10	18
21	21	28	35	64	39	108	39	48	18	14	8.0	18
22	21	28	34	54	38	83	39	47	17	11	6.9	18
23	21	27	33	87	38	70	36	45	17	15	6.4	18
24	21	28	40	135	37	64	34	43	16	38	6.4	18
25	21	35	37	152	36	60	37	42	16	71	11	16
26	20	33	34	106	36	59	35	39	15	41	14	23
27	19	30	32	75	36	66	34	37	18	37	14	41
28	20	29	33	64	34	57	34	36	27	24	19	30
29	20	29	34	56	---	54	37	34	22	18	26	25
30	21	30	32	53	---	53	33	34	18	16	21	21
31	21	---	31	49	---	60	---	34	---	15	23	---
TOTAL	594	794	1179	1739	1229	2579	1276	4684	690	588	358.1	649
MEAN	19.2	26.5	38.0	56.1	43.9	83.2	42.5	151	23.0	19.0	11.6	21.6
MAX	21	35	105	152	77	628	60	2430	39	71	26	47
MIN	16	21	27	28	34	34	33	31	15	11	6.4	13
CFSM	0.17	0.24	0.34	0.50	0.39	0.74	0.38	1.35	0.21	0.17	0.10	0.19
IN.	0.20	0.26	0.39	0.58	0.41	0.86	0.42	1.56	0.23	0.20	0.12	0.22

02074500 SANDY RIVER NEAR DANVILLE, VA--Continued

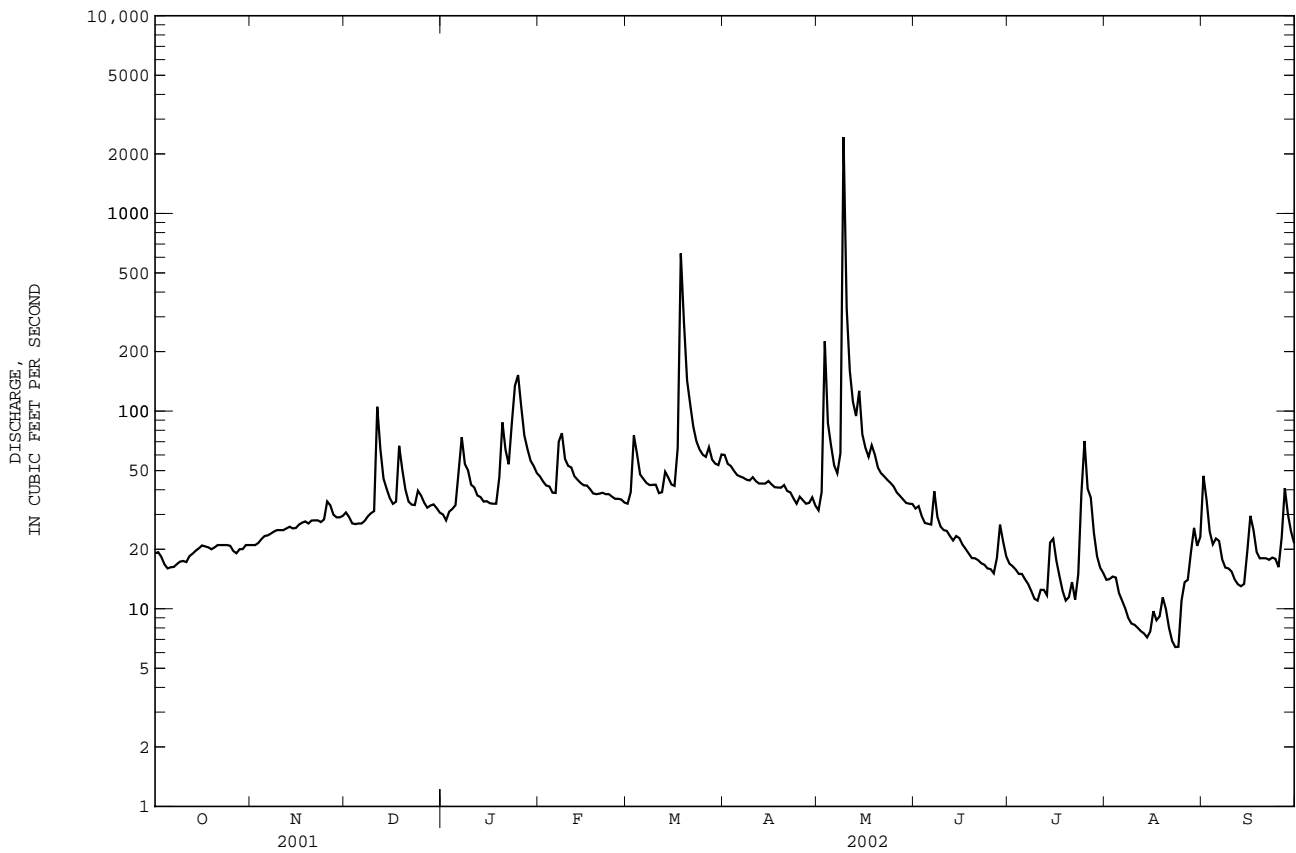
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	81.9	82.4	105	139	145	172	145	110	86.7	73.8	80.5	86.1
MAX	366	281	249	409	369	738	591	279	376	265	556	739
(WY)	1938	1958	1974	1936	1979	1975	1987	1971	1972	1989	1940	1996
MIN	19.2	26.5	35.2	31.5	40.2	63.9	42.5	52.8	23.0	19.0	11.6	14.2
(WY)	2002	2002	1934	1934	1934	1967	2002	1986	2002	2002	2002	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 2002

ANNUAL TOTAL	22224	16359.1	
ANNUAL MEAN	60.9	44.8	109
HIGHEST ANNUAL MEAN			191 1996
LOWEST ANNUAL MEAN			44.8 2002
HIGHEST DAILY MEAN	1640 May 22	2430 May 9	8340 Sep 6 1996
LOWEST DAILY MEAN	16 aOct 5	6.4 bAug 23	6.4 bAug 23 2002
ANNUAL SEVEN-DAY MINIMUM	17 cOct 4	7.8 Aug 9	7.8 Aug 9 2002
MAXIMUM PEAK FLOW		5770 May 9	23000 Aug 14 1940
MAXIMUM PEAK STAGE		7.49 May 9	d14.80 Aug 14 1940
INSTANTANEOUS LOW FLOW		6.4 fAug 22	3.0 Sep 29 1930
ANNUAL RUNOFF (CFSM)	0.54	0.40	0.97
ANNUAL RUNOFF (INCHES)	7.38	5.43	13.20
10 PERCENT EXCEEDS	90	64	164
50 PERCENT EXCEEDS	42	31	71
90 PERCENT EXCEEDS	21	14	34

- a Also Oct. 6, 7, 2001.
- b Also Aug. 24, 2002.
- c Also Oct. 5, 6, 2001.
- d From floodmarks, present datum.
- e Estimated.
- f Also Aug. 23-25, 2002.



ROANOKE RIVER BASIN

02075045 DAN RIVER AT SEWAGE TREATMENT PLANT, NEAR DANVILLE, VA

LOCATION.--Lat 36°33'46", long 79°22'11", NAD83, Pittsylvania County, Hydrologic Unit 03010104, on right bank at foot- bridge at Danville sewage treatment plant, 0.1 mi downstream from Pumpkin Creek, and 0.6 mi southeast of Danville.

DRAINAGE AREA.--2,105 mi², approximately .

PERIOD OF RECORD.--October 1995 to current year.

REVISED RECORDS.--WDR VA-01-1: 1996-2000(m).

GAGE.--Water-stage recorder. Datum of gage is 365.19 ft NGVD of 1929.

REMARKS.--Records good except those for periods of partial or no gage-height record, June 11, 12, 24-26 and July 2-10, which are fair. Diurnal fluctuation caused by mills and hydroelectric generating facility at Schoolfield Dam 5.2 mi upstream. Since August 1950, flow regulated by Philpott Lake (station 02071900) 76.6 mi upstream. U.S. Army Corps of Engineers satellite 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.

**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	465	486	638	567	956	652	1230	646	693	652	385	563
2	453	490	502	789	955	662	1500	681	632	e290	312	905
3	411	496	494	617	718	986	1280	1770	606	e250	197	513
4	332	491	498	683	547	1380	986	1650	589	e480	205	452
5	471	448	512	702	899	1210	1070	1200	597	e750	201	224
6	475	342	607	577	861	938	989	951	617	e170	195	262
7	431	493	650	1040	961	931	978	854	741	e190	182	264
8	210	487	512	1190	1440	839	878	853	781	e200	180	426
9	337	526	520	1080	1680	778	816	6670	595	e215	175	393
10	424	503	544	907	1130	723	1010	2540	578	e370	161	253
11	341	511	1190	896	962	522	912	1720	e540	235	136	195
12	477	448	1930	456	1110	835	845	1160	e330	384	131	196
13	475	456	1390	614	1060	987	947	1010	385	566	118	181
14	398	769	878	612	860	959	766	1400	391	473	106	171
15	493	485	829	726	784	955	772	1510	363	227	104	206
16	346	493	704	797	959	954	1010	1040	393	338	140	425
17	554	506	547	532	703	1060	857	628	363	416	147	553
18	707	493	1140	758	713	4210	819	1050	332	449	164	564
19	425	485	1330	1020	667	6560	908	921	370	196	403	507
20	253	480	1130	1440	741	3050	844	742	326	203	418	493
21	461	482	884	1790	838	2150	908	864	318	221	198	527
22	309	490	714	1240	683	1630	577	832	288	203	205	503
23	360	505	679	1480	672	1410	852	608	289	352	209	430
24	498	652	522	2230	516	1180	819	608	e265	319	228	213
25	485	666	771	2550	656	1050	577	740	e260	509	217	407
26	484	361	929	2600	756	1230	590	757	e270	688	305	554
27	478	701	904	1840	826	1270	781	579	317	1190	199	551
28	342	687	806	1280	525	1370	554	575	410	1070	252	1120
29	350	508	618	1120	---	1310	685	582	653	499	414	975
30	485	753	825	1230	---	977	745	607	675	414	528	580
31	483	---	481	1240	---	1010	---	622	---	446	505	---
TOTAL	13213	15693	24678	34603	24178	43778	26505	36370	13967	12965	7320	13606
MEAN	426	523	796	1116	864	1412	884	1173	466	418	236	454
MAX	707	769	1930	2600	1680	6560	1500	6670	781	1190	528	1120
MIN	210	342	481	456	516	522	554	575	260	170	104	171
(+)	-2930	-3530	-1860	-1930	+131	+6080	+2010	+877	-913	-792	-1950	-86
MEAN†	332	405	736	1050	868	1610	950	1200	435	393	173	451
CFSM†	.16	.19	.35	.50	.41	.76	.45	.57	.21	.19	.08	.21
IN. ‡	.18	.21	.40	.58	.43	.88	.50	.66	.23	.22	.09	.24

CAL YR 2001 MEAN† 1077 CFSM† .51 IN. ‡ 6.95
WTR YR 2002 MEAN† 718 CFSM† .34 IN. ‡ 4.63

† Total change in contents, equivalent in cubic feet per second, per month, in Philpott Lake: provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

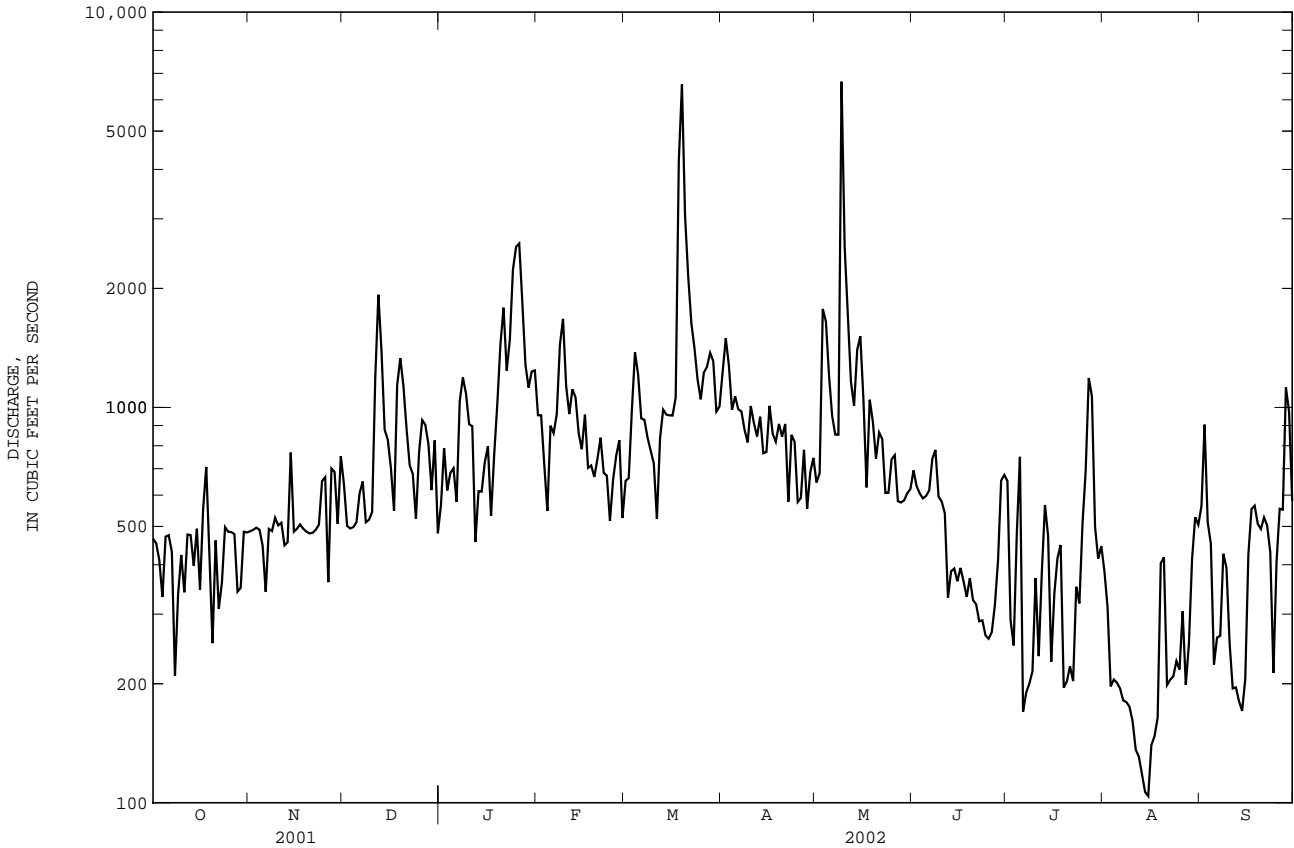
02075045 DAN RIVER AT SEWAGE TREATMENT PLANT, NEAR DANVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1245	1218	1653	2660	2574	2659	2652	2250	1603	1028	1180	2121
MAX	2418	2120	4516	4924	5565	4776	4969	3983	3289	1437	3027	8158
(WY)	1997	1996	1997	1998	1998	1997	1998	1998	1996	1996	1996	1996
MIN	426	523	796	1116	864	1412	884	1173	466	418	236	454
(WY)	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002	2002

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1996 - 2002
ANNUAL TOTAL	399752	266876	
ANNUAL MEAN	1095	731	1899
HIGHEST ANNUAL MEAN			3059
LOWEST ANNUAL MEAN			731
HIGHEST DAILY MEAN			
LOWEST DAILY MEAN	10500	Mar 30	41500
ANNUAL SEVEN-DAY MINIMUM	210	Oct 8	a104
MAXIMUM PEAK FLOW	380	Oct 8	126
MAXIMUM PEAK STAGE			8850
INSTANTANEOUS LOW FLOW			11.00
ANNUAL RUNOFF (CFSM)	0.52		0.35
ANNUAL RUNOFF (INCHES)	7.06		4.72
10 PERCENT EXCEEDS	1710		1230
50 PERCENT EXCEEDS	858		590
90 PERCENT EXCEEDS	464		223

a Result of regulation.
e Estimated.



ROANOKE RIVER BASIN

02075500 DAN RIVER AT PACES, VA

LOCATION.--Lat 36°38'32", long 79°05'22", NAD83, Halifax County, Hydrologic Unit 03010104, on right bank 100 ft upstream from bridge on State Highway 658, 0.5 mi southeast of Paces, 0.5 mi upstream from Big Toby Creek, 2.7 mi upstream from Birch Creek, and at mile 36.0.

DRAINAGE AREA.--2,550 mi², approximately.

PERIOD OF RECORD.--November 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation caused by mills 23 mi upstream at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi upstream. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 64,800 ft³/s, from rating curve extended above 32,000 ft³/s. 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 Aug. 16, 1940, reached a stage of 32.3 ft, from floodmark.

**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	576	575	921	585	1320	673	1340	818	625	604	439	740
2	555	578	617	794	1160	799	1760	727	741	587	379	1250
3	544	582	577	772	1140	1160	1780	1560	618	285	282	1040
4	445	583	573	724	759	1480	1370	2090	594	260	204	561
5	480	569	580	913	821	1930	1230	1530	590	622	207	427
6	564	473	594	701	1150	1370	1280	1280	586	403	203	273
7	561	511	685	951	1060	1180	1180	909	615	176	190	288
8	457	591	719	1340	1640	1150	1150	1140	840	189	186	282
9	309	586	599	1470	2220	924	921	6040	626	203	185	453
10	490	599	590	1090	1920	1170	1170	4860	568	214	185	339
11	457	587	863	1040	1250	814	1190	2230	558	362	168	259
12	497	582	1980	913	1250	778	969	1910	447	250	144	207
13	568	470	2090	610	1360	1230	1140	1020	354	434	142	207
14	568	670	1240	725	1260	1210	1110	1520	404	520	137	198
15	477	823	854	734	919	1180	803	1890	394	413	133	223
16	548	576	1050	986	1130	1160	1080	1440	364	241	136	249
17	529	580	651	770	1130	1230	1150	1050	386	329	151	495
18	809	584	893	708	737	3200	868	898	358	444	156	558
19	660	568	1460	1060	887	8460	1120	1150	349	393	157	540
20	466	567	1640	1560	834	5170	935	859	357	213	411	496
21	428	567	1090	2860	1070	3450	1130	930	330	223	354	501
22	488	570	822	1740	852	2440	878	945	321	223	201	513
23	411	567	918	1840	975	1970	722	731	295	209	204	484
24	523	597	668	2480	700	1760	1090	648	294	354	211	371
25	587	867	639	3730	710	1360	787	651	264	412	231	234
26	574	539	1010	3500	788	1410	685	877	267	493	243	469
27	571	547	1010	3040	1050	1600	723	641	328	867	306	582
28	566	779	980	1860	829	1810	824	591	369	1350	261	805
29	383	758	749	1440	---	1780	634	590	450	770	289	1050
30	513	608	859	1430	---	1440	791	598	648	506	493	876
31	573	---	753	1640	---	1290	---	621	---	420	539	---
TOTAL	16177	18053	28674	44006	30921	56578	31810	42744	13940	12969	7527	14970
MEAN	522	602	925	1420	1104	1825	1060	1379	465	418	243	499
MAX	809	867	2090	3730	2220	8460	1780	6040	840	1350	539	1250
MIN	309	470	573	585	700	673	634	590	264	176	133	198
(†)	-2930	-3530	-1860	-1930	+131	+6080	+2010	+877	-913	-792	-1950	-86
MEAN†	427	484	865	1360	1110	2020	1130	1410	434	393	180	496
CFSM†	.17	.19	.34	.53	.44	.79	.44	.55	.17	.15	.07	.19
IN.†	.19	.21	.39	.62	.45	.91	.49	.64	.19	.18	.08	.22

CAL YR 2001 MEAN† 1370 CFSM† .54 IN.† 7.29
WTR YR 2002 MEAN† 859 CFSM† .34 IN.† 4.57

† Total change in contents, equivalent in cubic feet per second, per month, in Philpott Lake; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

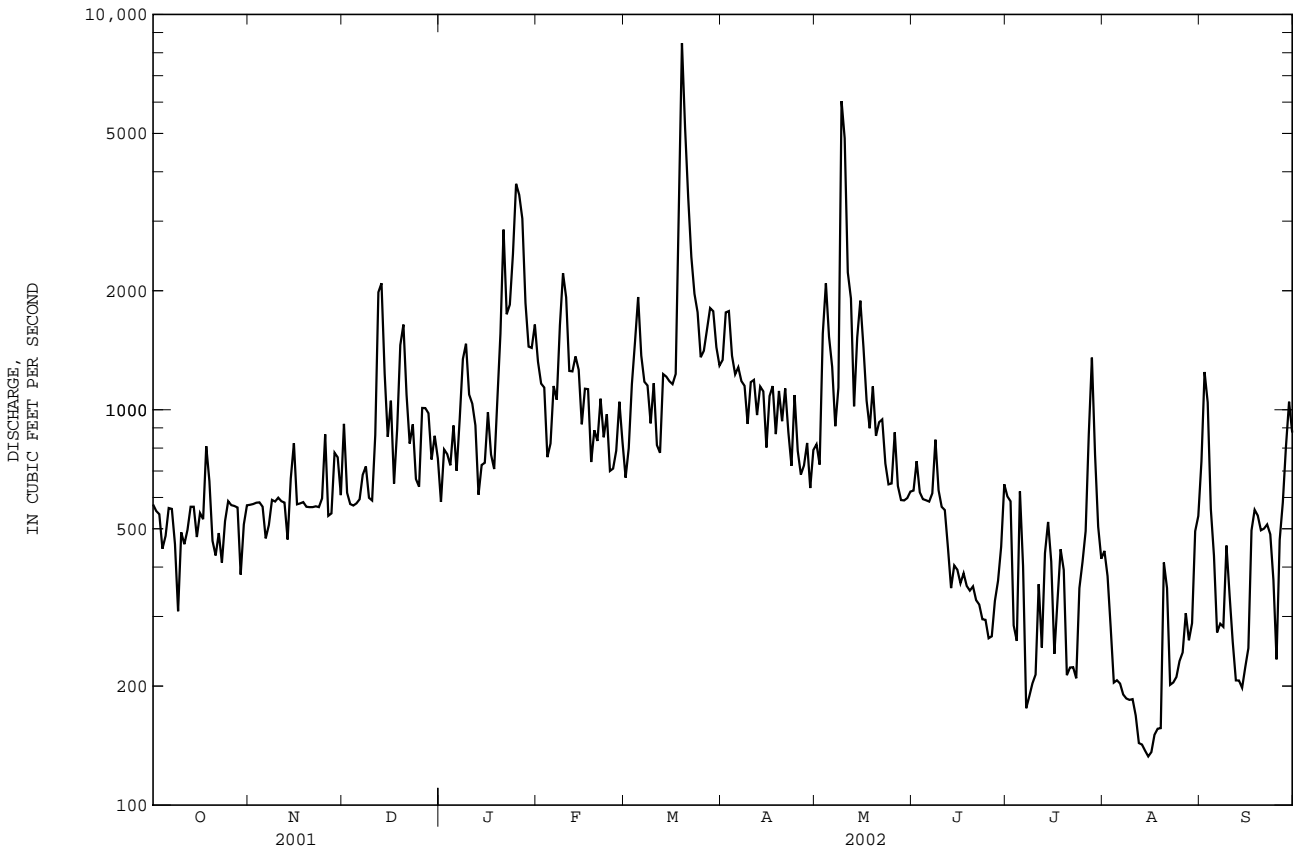
02075500 DAN RIVER AT PACES, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1973	1999	2585	3380	3813	4402	3945	2809	2320	1806	1706	1866
MAX	7253	6184	5734	8407	9141	11190	11500	6505	8987	5091	4833	10200
(WY)	1960	1958	1997	1978	1960	1975	1987	1978	1972	1975	1985	1996
MIN	522	602	925	1015	1104	1580	1060	1184	465	418	243	452
(WY)	2002	2002	2002	1981	2002	1981	2002	1986	2002	2002	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1951 - 2002	
ANNUAL TOTAL	508358		318369			
ANNUAL MEAN	1393		872		2711	
HIGHEST ANNUAL MEAN					4050	
LOWEST ANNUAL MEAN					872	
HIGHEST DAILY MEAN	13200		Mar 31		63400	
LOWEST DAILY MEAN	269		Jul 23		a133	
ANNUAL SEVEN-DAY MINIMUM	472		Oct 4		143	
MAXIMUM PEAK FLOW					9370	
MAXIMUM PEAK STAGE					13.47	
INSTANTANEOUS LOW FLOW					a129	
ANNUAL RUNOFF (CFSM)	0.55		0.34		1.06	
ANNUAL RUNOFF (INCHES)	7.42		4.64		14.44	
10 PERCENT EXCEEDS	2280		1540		4880	
50 PERCENT EXCEEDS	997		651		1830	
90 PERCENT EXCEEDS	551		250		871	

a Result of regulation.



ROANOKE RIVER BASIN

02076000 DAN RIVER AT SOUTH BOSTON, VA

LOCATION.--Lat 36°41'37", long 78°54'09", NAD83, Halifax County, Hydrologic Unit 03010104, on left bank 100 ft upstream from Norfolk and Western Railroad bridge at South Boston.

DRAINAGE AREA.--2,730 mi².

PERIOD OF RECORD.--August 1900 to May 1907, April 1923 to September 1952, October 1952 to July 1962 (gage heights only), August 1980 to September 2000 (annual maximum only), October 2000 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 299.23 ft NGVD of 1929.

REMARKS.-- Mean daily gage heights are shown in table below. Diurnal fluctuation caused by mills and hydroelectric generating facility 36.4 mi upstream at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 114.8 mi upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,000 ft³/s, Aug. 16, 1940, gage height, 31.8 ft.

REVISIONS.-- The maximum instantaneous gage height for water year 2001 has been revised to 21.30 ft, Mar. 31, 2001; minimum instantaneous gage height 5.04 ft, Sept. 19, 2001. They supersede figures published in the report for 2001. Revised daily mean gage heights for water year 2001 also superseding those published in the report for 2001 are given in the table below.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 16.90 ft, Mar. 19; minimum gage height, 4.43 ft, Aug. 15, 16.

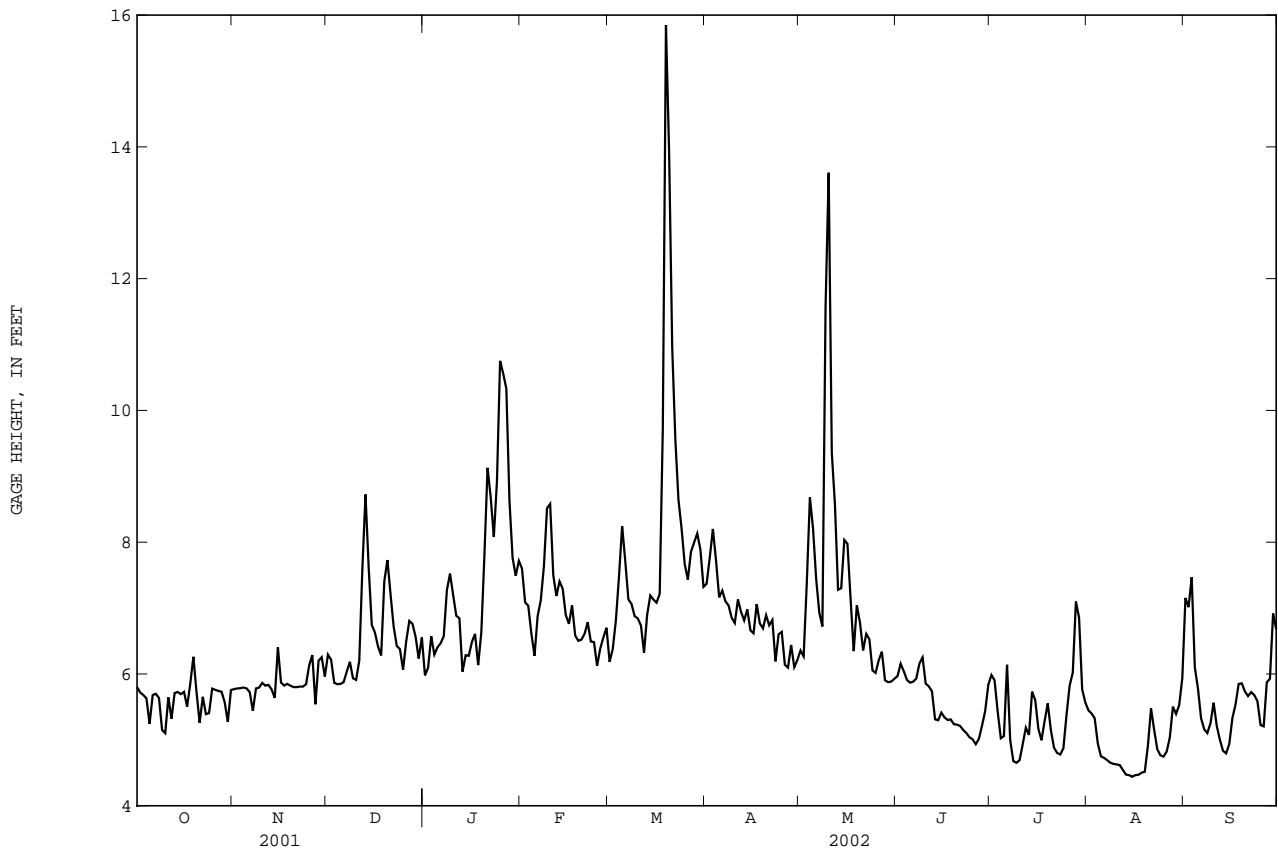
**GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.56	6.50	6.73	6.87	7.76	8.25	16.57	6.94	8.05	6.45	8.21	6.34
2	7.41	6.58	6.78	6.75	7.67	8.02	17.62	7.02	9.54	6.64	7.73	6.41
3	6.86	6.54	6.84	6.76	7.53	7.90	15.65	7.05	8.41	5.95	7.09	5.92
4	7.12	6.54	6.77	7.34	7.43	7.89	12.62	6.75	7.83	6.08	6.98	5.79
5	7.03	6.54	6.75	6.91	7.07	8.25	11.36	6.67	7.51	6.77	6.52	5.32
6	7.06	6.56	6.93	6.72	7.24	9.02	10.45	6.62	7.43	8.25	6.10	5.77
7	7.03	6.51	6.86	6.92	7.52	9.08	9.80	6.56	8.19	8.06	6.03	5.78
8	6.84	6.64	6.90	7.17	7.40	8.19	9.26	6.73	9.09	7.13	5.94	5.79
9	6.81	6.66	6.89	7.24	7.01	7.99	9.14	6.90	8.40	6.55	6.28	6.05
10	6.76	6.85	6.83	6.96	7.25	7.93	8.54	6.64	7.60	6.52	6.36	6.51
11	6.70	7.06	6.82	7.22	7.41	7.78	8.56	6.33	7.18	6.83	6.41	5.78
12	6.62	7.26	6.73	6.96	6.99	7.70	8.14	6.72	6.80	6.67	6.78	5.34
13	6.61	7.24	6.89	7.01	7.11	7.70	8.14	6.58	7.14	5.98	7.03	5.79
14	6.61	6.77	6.89	7.08	7.58	7.71	7.94	6.24	7.27	5.95	7.74	5.82
15	6.65	7.15	6.87	7.00	7.56	7.81	7.97	6.55	7.27	5.93	7.95	5.81
16	6.63	7.23	6.97	6.94	7.52	8.62	8.08	6.77	7.32	5.88	8.49	5.77
17	6.57	6.94	7.99	7.24	8.58	8.96	7.58	8.78	7.16	5.84	6.81	5.71
18	6.50	6.54	7.77	7.19	10.73	9.09	7.87	9.37	7.04	5.83	6.39	5.62
19	6.58	6.58	8.38	7.16	10.50	8.57	7.62	8.97	6.50	5.84	6.54	5.24
20	6.59	6.73	8.26	10.49	9.20	8.11	7.23	9.04	6.24	5.83	6.84	5.62
21	6.54	6.74	7.64	14.59	8.30	12.60	7.26	11.02	6.47	5.79	8.02	5.74
22	6.55	6.99	7.40	12.51	8.17	17.73	7.28	13.53	6.64	5.67	7.93	5.70
23	6.53	6.70	6.94	10.12	8.03	16.58	7.25	16.85	6.61	5.14	7.06	5.68
24	6.47	6.78	7.39	9.15	8.08	12.56	7.22	13.24	6.92	5.33	6.73	5.74
25	6.54	6.74	6.95	8.60	8.12	10.72	7.37	10.43	7.79	5.86	6.59	5.90
26	6.62	7.49	6.70	8.26	8.41	9.94	8.26	12.71	7.14	6.22	6.95	6.26
27	6.53	7.54	6.96	7.82	8.62	9.17	7.98	14.22	6.80	6.73	6.67	6.67
28	6.59	7.43	7.38	7.67	8.93	8.96	7.40	11.41	7.23	6.89	6.28	6.54
29	6.86	7.39	7.16	7.55	---	9.28	7.19	10.11	7.18	7.27	6.05	5.84
30	6.51	7.15	7.16	7.52	---	18.29	7.12	9.44	6.51	7.25	6.15	5.77
31	6.42	---	6.92	7.42	---	20.88	---	8.23	---	7.55	6.29	---
MEAN	6.73	6.88	7.11	7.91	7.99	10.04	9.15	8.85	7.38	6.41	6.87	5.87
MAX	7.56	7.54	8.38	14.59	10.73	20.88	17.62	16.85	9.54	8.25	8.49	6.67
MIN	6.42	6.50	6.70	6.72	6.99	7.70	7.12	6.24	6.24	5.14	5.94	5.24

02076000 DAN RIVER AT SOUTH BOSTON, VA--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.80	5.77	6.29	5.98	7.60	6.18	7.37	6.36	5.97	5.99	5.45	7.15
2	5.72	5.78	6.22	6.09	7.09	6.38	7.77	6.27	6.16	5.90	5.40	7.01
3	5.68	5.78	5.87	6.57	7.04	6.81	8.20	7.38	6.04	5.43	5.33	7.47
4	5.63	5.79	5.85	6.29	6.61	7.48	7.73	8.68	5.91	5.02	4.94	6.10
5	5.24	5.78	5.85	6.40	6.28	8.24	7.16	8.21	5.87	5.06	4.75	5.78
6	5.68	5.73	5.87	6.47	6.88	7.71	7.27	7.44	5.88	6.14	4.73	5.33
7	5.70	5.44	6.03	6.57	7.12	7.13	7.10	6.93	5.93	5.00	4.69	5.16
8	5.64	5.78	6.18	7.27	7.63	7.06	7.04	6.72	6.16	4.68	4.65	5.10
9	5.15	5.79	5.93	7.52	8.52	6.88	6.85	11.57	6.25	4.65	4.64	5.25
10	5.10	5.86	5.91	7.20	8.58	6.84	6.77	13.61	5.85	4.69	4.63	5.56
11	5.65	5.82	6.20	6.88	7.50	6.74	7.13	9.36	5.81	4.93	4.62	5.21
12	5.32	5.84	7.60	6.84	7.18	6.32	6.94	8.57	5.74	5.18	4.54	5.00
13	5.71	5.76	8.73	6.04	7.40	6.90	6.81	7.28	5.31	5.07	4.47	4.83
14	5.73	5.64	7.62	6.29	7.29	7.19	6.98	7.30	5.30	5.73	4.47	4.79
15	5.69	6.40	6.74	6.28	6.89	7.13	6.66	8.03	5.41	5.60	4.44	4.94
16	5.73	5.87	6.63	6.49	6.76	7.08	6.62	7.98	5.34	5.17	4.47	5.33
17	5.50	5.82	6.42	6.61	7.04	7.22	7.06	7.14	5.30	4.99	4.47	5.53
18	5.85	5.85	6.28	6.13	6.58	9.73	6.77	6.35	5.31	5.29	4.50	5.85
19	6.26	5.82	7.41	6.63	6.50	15.85	6.69	7.04	5.24	5.55	4.51	5.86
20	5.72	5.80	7.73	7.81	6.52	13.95	6.89	6.78	5.23	5.15	4.91	5.73
21	5.26	5.80	7.21	9.13	6.61	10.96	6.74	6.36	5.21	4.88	5.48	5.66
22	5.65	5.81	6.71	8.68	6.78	9.56	6.82	6.61	5.15	4.80	5.15	5.72
23	5.39	5.81	6.43	8.08	6.49	8.64	6.19	6.53	5.10	4.78	4.86	5.68
24	5.41	5.84	6.38	8.92	6.48	8.21	6.60	6.05	5.04	4.87	4.77	5.59
25	5.78	6.13	6.06	10.75	6.13	7.67	6.64	6.02	5.01	5.38	4.75	5.22
26	5.76	6.29	6.50	10.56	6.39	7.43	6.14	6.21	4.93	5.82	4.82	5.20
27	5.74	5.54	6.81	10.33	6.55	7.85	6.10	6.34	5.02	6.02	5.03	5.87
28	5.73	6.20	6.76	8.63	6.70	8.00	6.44	5.90	5.22	7.10	5.50	5.93
29	5.57	6.25	6.57	7.76	---	8.13	6.10	5.88	5.44	6.86	5.39	6.92
30	5.27	5.96	6.24	7.49	---	7.89	6.21	5.89	5.83	5.77	5.53	6.68
31	5.76	---	6.55	7.72	---	7.32	---	5.93	---	5.57	5.94	---
MEAN	5.61	5.86	6.57	7.43	6.97	8.08	6.86	7.31	5.53	5.39	4.90	5.71
MAX	6.26	6.40	8.73	10.75	8.58	15.85	8.20	13.61	6.25	7.10	5.94	7.47
MIN	5.10	5.44	5.85	5.98	6.13	6.18	6.10	5.88	4.93	4.65	4.44	4.79



ROANOKE RIVER BASIN

02077000 BANISTER RIVER AT HALIFAX, VA

LOCATION.--Lat 36°46'35", long 78°54'57", NAD83, Halifax County, Hydrologic Unit 03010105, on left bank 10 ft downstream from bridge on State Highway 360, 1,700 ft downstream from Terrible Creek, 1 mi northeast of Halifax, and 10 mi upstream from mouth

DRAINAGE AREA.--547 mi².

PERIOD OF RECORD.--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 318.54 ft NGVD of 1929 (levels by U.S. Army Corps of Engineers). Sept. 28, 1904, to Dec. 31, 1905, nonrecording gage at site 400 ft upstream at different datum. Dec. 9, 1928, to Sept. 20, 1950, water-stage recorder at site 400 ft upstream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by a reservoir and hydroelectric generating facility 0.5 mi upstream from station. Maximum discharge, 50,000 ft³/s, from rating curve extended above 13,000 ft³/s on basis of slope-area measurement of peak flow and velocity-area study. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	e45	e44	120	e82	171	e86	247	e104	e113	e29	e29	213
2	e45	e44	e44	e96	162	e83	254	e163	e107	e29	e29	164
3	e45	e44	e60	146	161	252	232	1410	e101	e29	e29	e110
4	e45	e109	135	130	159	243	206	1670	e96	e29	e25	e60
5	e45	e95	e103	e101	e96	256	195	664	e91	e29	e23	e50
6	e45	e44	e44	e121	e136	193	184	382	e89	e29	e23	e44
7	e45	e44	e76	224	206	171	177	277	e88	e29	e23	e42
8	e45	e44	128	227	278	161	172	246	e88	e29	e23	e40
9	e45	e129	e120	185	275	158	171	422	e88	e29	e23	e40
10	e45	e79	e44	184	226	175	174	782	e86	e29	e23	e39
11	e45	e44	e160	168	199	157	174	603	e86	e29	e22	e39
12	e45	e44	283	e153	182	155	170	314	e86	e29	e22	e39
13	e45	e96	226	e82	172	159	168	241	e85	e29	e22	e39
14	e45	e123	171	e145	161	178	163	336	e71	e29	e20	e38
15	e122	e48	142	e143	160	205	171	328	e59	e29	e20	e38
16	e78	e48	133	e79	159	182	175	231	e48	e29	e20	e38
17	e43	e75	133	e79	158	211	165	192	e38	e29	e20	e38
18	e43	e127	141	e258	e104	875	160	185	e38	e29	e19	e38
19	e43	e68	139	e68	e133	1650	158	234	e38	e29	e19	e38
20	e43	e44	155	e390	e169	1170	159	229	e38	e29	e19	e38
21	e43	e70	133	e244	e72	615	157	183	e38	e40	e19	e37
22	e43	e126	132	e248	e188	417	155	164	e38	e36	e19	e37
23	e129	e82	e86	e258	e102	333	151	159	e38	e29	e18	e37
24	e64	e49	e129	e428	e72	274	e101	157	e38	e29	e18	40
25	e44	e105	134	e400	195	259	e167	131	e35	e29	e18	40
26	e44	126	132	374	e124	249	e154	134	e33	e29	e18	40
27	e44	125	e110	282	e72	258	e114	e156	e31	e29	e18	45
28	e44	e46	e82	240	e179	259	e104	e119	e29	e29	e28	46
29	e44	e63	e157	207	---	243	e166	e90	e29	e29	265	45
30	e97	137	131	185	---	226	e154	e89	e29	e29	167	44
31	e83	---	e84	174	---	225	---	e176	---	e29	159	---
TOTAL	1681	2322	3867	6101	4471	10078	5098	10571	1872	917	1200	1596
MEAN	54.2	77.4	125	197	160	325	170	341	62.4	29.6	38.7	53.2
MAX	129	137	283	428	278	1650	254	1670	113	40	265	213
MIN	43	44	44	68	72	83	101	89	29	29	18	37
CFSM	0.10	0.14	0.23	0.36	0.29	0.59	0.31	0.62	0.11	0.05	0.07	0.10
IN.	0.11	0.16	0.26	0.41	0.30	0.69	0.35	0.72	0.13	0.06	0.08	0.11

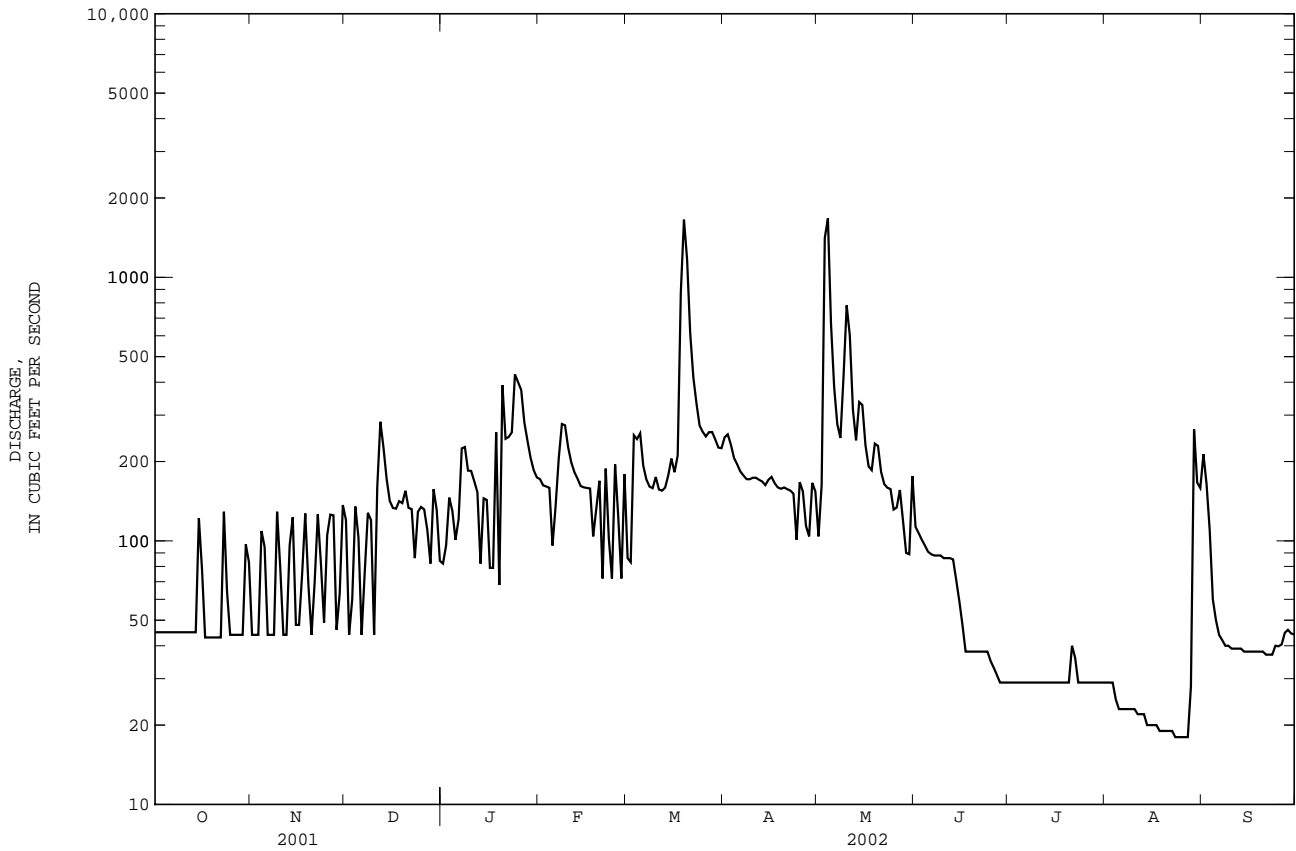
02077000 BANISTER RIVER AT HALIFAX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	347	385	489	673	748	829	712	482	380	294	316	369
MAX	1691	1431	1211	2125	1857	2738	2121	1374	1588	1065	2898	3717
(WY)	1938	1973	1949	1937	1979	1975	1983	1978	1972	1938	1940	1944
MIN	34.9	77.4	125	170	160	270	170	178	62.4	29.6	25.2	29.4
(WY)	1931	2002	2002	1981	2002	1981	2002	1981	2002	2002	1999	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1905 - 2002	
ANNUAL TOTAL	84920		49774			
ANNUAL MEAN	233		136		501	
HIGHEST ANNUAL MEAN					814	
LOWEST ANNUAL MEAN					136	
HIGHEST DAILY MEAN	3260		May 23		44700	
LOWEST DAILY MEAN	e43		aOct 17		6.0	
ANNUAL SEVEN-DAY MINIMUM	45		Oct 1		18	
MAXIMUM PEAK FLOW			2230		50000	
MAXIMUM PEAK STAGE			9.18		c40.80	
INSTANTANEOUS LOW FLOW			(d)		6.0	
ANNUAL RUNOFF (CFSM)	0.43		0.25		0.92	
ANNUAL RUNOFF (INCHES)	5.78		3.38		12.45	
10 PERCENT EXCEEDS	382		248		940	
50 PERCENT EXCEEDS	149		96		298	
90 PERCENT EXCEEDS	45		29		108	

- a Also Oct. 18-22, 2001.
- b Also Aug. 24-27, 2002.
- c From floodmarks.
- d Not determined.
- e Estimated.
- f Many days in August and September 1932.



ROANOKE RIVER BASIN

02077500 HYCO RIVER NEAR DENNISTON, VA

LOCATION.--Lat 36°35'17", long 78°53'55", NAD83, Halifax County, Hydrologic Unit 03010104, on left bank 60 ft upstream from bridge on U.S. Highway 501, 0.8 mi upstream from Mayo Creek, 2.5 mi northeast of Denniston, and 7.3 mi south of South Boston.

DRAINAGE AREA.--289 mi².

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WSP 1723: 1930(m). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft NGVD of 1929. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 2-5, which is fair. Small diurnal fluctuation at low flow in some years caused by mill upstream from station. Since September 1964, flow regulated by Hyco Lake 15.7 mi upstream, capacity 75,480 acre-ft, and since Apr. 26, 1974, by Roxboro Steam-Electric Generating Plant Afterbay Reservoir, capacity 12,000 acre-ft. Statistics of monthly mean data and summary statistics for water years 1929 - 1934, 1951 - 1964 (unregulated flow) are available in previous data books, water years 1991 - 1998. Maximum discharge, 10,800 ft³/s, from rating curve extended above 8,200 ft³/s. 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 in August 1928 and September 1945 reached stages of 26.4 ft and 25.6 ft, respectively, from floodmarks.

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	23	13	13	11	24	17	42	15	11	9.5	8.8	302
2	23	13	12	e9.8	21	18	41	14	11	9.0	8.5	94
3	19	13	11	e10	21	75	35	34	11	9.1	11	23
4	18	13	12	e11	20	98	31	27	12	9.3	8.3	15
5	17	14	13	e12	19	50	29	22	12	8.8	8.0	11
6	17	14	12	19	19	37	27	22	14	8.2	8.6	8.9
7	18	15	12	53	78	31	26	19	15	8.9	8.0	8.3
8	18	14	12	36	114	28	26	19	16	8.6	8.3	7.7
9	18	14	11	27	57	26	26	78	12	8.4	8.3	7.9
10	18	13	11	21	40	25	32	58	12	9.0	8.0	7.9
11	18	14	24	21	34	24	29	29	11	8.9	7.8	8.1
12	17	13	30	20	30	23	25	22	11	9.1	7.4	7.4
13	16	13	18	17	28	24	24	19	11	9.2	7.2	7.2
14	16	14	15	15	27	26	23	33	12	9.0	7.4	9.1
15	19	14	13	14	25	23	23	26	11	8.7	8.1	8.5
16	22	14	12	13	24	21	23	19	10	8.5	10	12
17	17	13	12	13	23	24	22	17	10	8.4	14	16
18	10	13	21	13	21	233	21	16	10	8.2	8.7	11
19	9.7	13	24	19	21	180	19	25	10	8.2	7.9	8.9
20	9.7	13	15	180	21	83	20	17	9.9	9.6	7.4	8.2
21	9.1	13	13	66	21	66	19	16	10	27	5.6	7.9
22	9.1	14	13	48	20	56	18	15	9.8	12	4.3	8.0
23	9.2	14	12	57	19	45	17	15	9.6	9.1	4.2	6.9
24	10	13	13	133	19	39	17	14	9.4	12	4.4	7.0
25	11	13	13	90	19	34	17	14	9.2	25	4.2	7.7
26	11	13	12	73	19	32	17	12	9.4	18	4.5	8.4
27	11	13	11	44	18	60	15	12	12	20	5.5	10
28	12	13	11	34	17	59	15	11	17	11	9.6	13
29	12	13	11	30	---	43	15	10	12	9.4	11	12
30	12	13	11	28	---	37	15	11	10	9.3	7.0	8.3
31	13	---	11	25	---	37	---	11	---	8.9	23	---
TOTAL	462.8	402	434	1162.8	819	1574	709	672	340.3	338.3	255.0	671.3
MEAN	14.9	13.4	14.0	37.5	29.2	50.8	23.6	21.7	11.3	10.9	8.23	22.4
MAX	23	15	30	180	114	233	42	78	17	27	23	302
MIN	9.1	13	11	9.8	17	17	15	10	9.2	8.2	4.2	6.9
CFSM	0.05	0.05	0.05	0.13	0.10	0.18	0.08	0.08	0.04	0.04	0.03	0.08
IN.	0.06	0.05	0.06	0.15	0.11	0.20	0.09	0.09	0.04	0.04	0.03	0.09

02077500 HYCO RIVER NEAR DENNISTON, VA--Continued

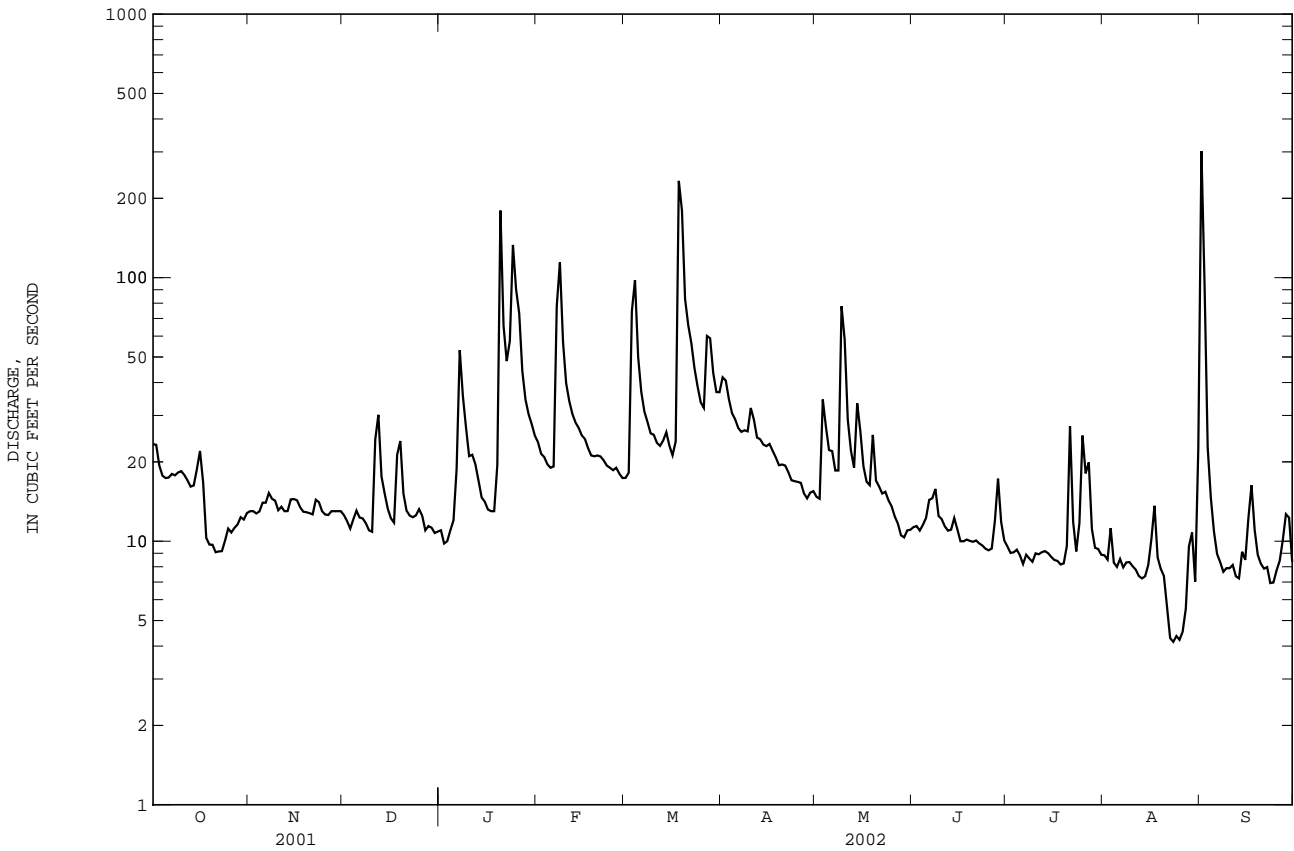
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	117	189	454	486	574	367	206	121	124	96.6	157
MAX	805	786	815	1692	1364	1683	1048	1332	647	1492	420	1341
(WY)	1972	1973	1973	1978	1998	1993	1983	1978	1982	1975	1995	1996
MIN	9.04	9.36	14.0	28.5	29.2	44.6	23.6	21.7	11.3	10.9	7.49	11.1
(WY)	1999	1999	2002	1966	2002	1981	2002	2002	2002	2002	1999	1998

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1965 - 2002

ANNUAL TOTAL	47977.8		7840.5			
ANNUAL MEAN	131		21.5		249	
HIGHEST ANNUAL MEAN					536	
LOWEST ANNUAL MEAN					21.5	
HIGHEST DAILY MEAN	3610		Mar 31		10300	
LOWEST DAILY MEAN	9.1		aOct 21		2.5	
ANNUAL SEVEN-DAY MINIMUM	9.5		Oct 18		3.4	
MAXIMUM PEAK FLOW					c10800	
MAXIMUM PEAK STAGE					c24.27	
INSTANTANEOUS LOW FLOW					d2.1	
ANNUAL RUNOFF (CFSM)	0.45		0.074		0.86	
ANNUAL RUNOFF (INCHES)	6.18		1.01		11.72	
10 PERCENT EXCEEDS	178		35		584	
50 PERCENT EXCEEDS	28		14		68	
90 PERCENT EXCEEDS	13		8.3		19	

- a Also Oct. 22, 2001.
- b Also Aug. 25, 2002.
- c Prior to regulation, 1929-34, 1951-64, maximum peak flow, 7,630 ft³/s, Oct. 3, 1929, gage height, 21.88 ft.
- d Prior to regulation, 1929-34, 1951-64, instantaneous low flow, 0.004 ft³/s, Sept. 14, 1932.
- e Estimated.



ROANOKE RIVER BASIN

02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA

LOCATION.--Lat 36°35'56", long 78°18'06", NAD83, Mecklenburg County, Hydrologic Unit 03010102, at John H. Kerr Dam on Roanoke River, 2.7 mi upstream from Allen Creek, 6.7 mi southeast of Boydton, 18 mi upstream from the Virginia-North Carolina State line, and at mile 178.7.

DRAINAGE AREA.--7,780 mi², approximately.

PERIOD OF RECORD.--July 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929.

REMARKS.--Reservoir is formed by concrete dam with earth embankments. Spillway, with crest at elevation 288.0 ft, is equipped with 22 radial gates 32 ft high by 42 ft wide. Storage began in September 1950 during construction; initial filling started June 30, 1952; water in reservoir first reached rule-curve elevation in March 1953. Total capacity at top of gates, elevation, 320 ft, is 2,770,000 acre-ft of which 1,281,400 acre-ft is controlled flood storage between elevations 300 ft, top of power pool, and 320 ft; 316,900 acre-ft is available for power between elevations 293.0 ft, bottom of power pool, and 300 ft; 1,171,700 acre-ft is inactive and dead storage below elevation 293.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for navigation and pollution abatement, release of water for downstream fish spawning, water supply, and recreation.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

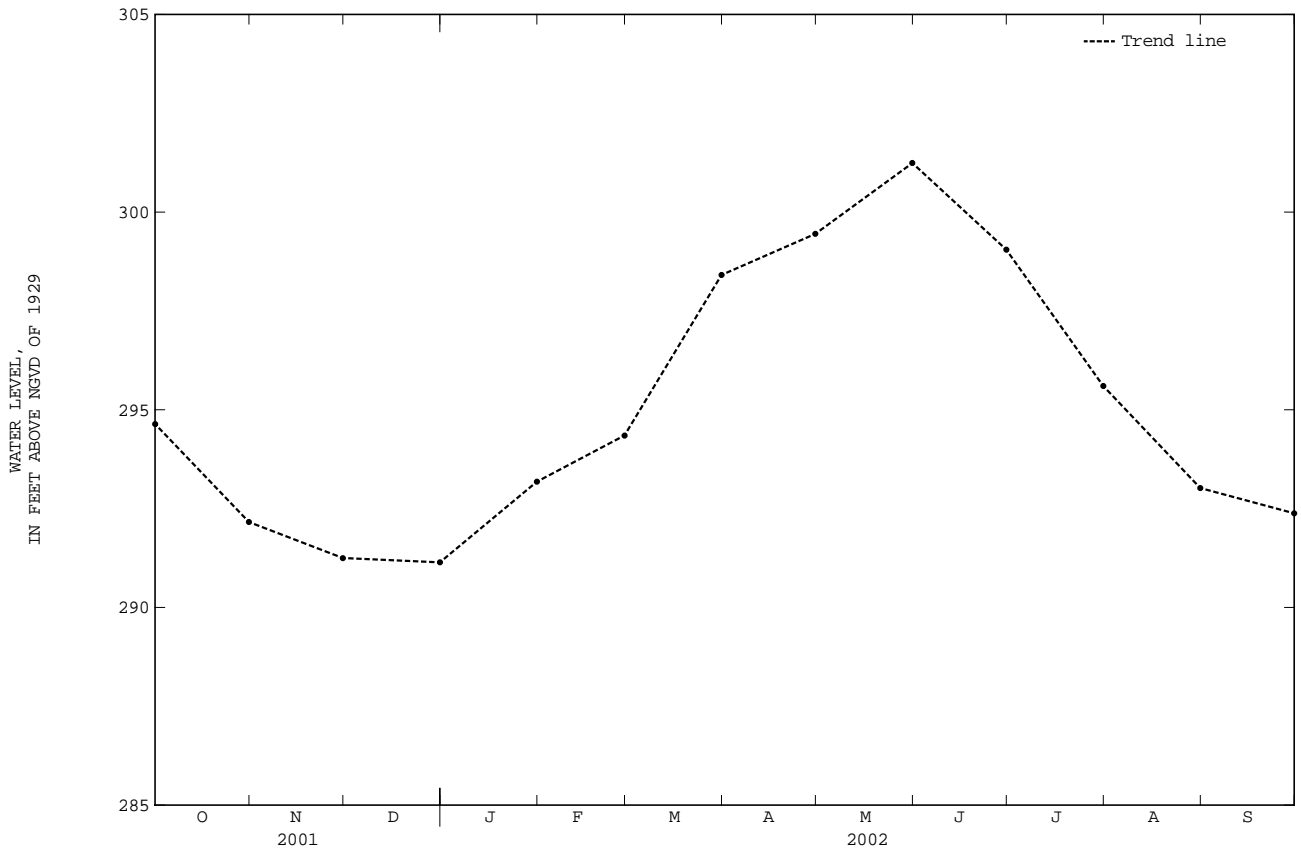
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,736,460 acre-ft, Apr. 29, 1987, elevation, 319.61 ft; minimum (after first filling to rule curve), 724,700 acre-ft, Feb. 3, 1956, elevation, 280.23 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,577,800 acre-ft, May 20, 21, elevation, 301.75 ft; minimum, 1,091,570 acre-ft, Dec, 9, 10, elevation, 290.97 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	294.64	1,240,530	-
Oct. 31.....	292.16	1,138,020	-102,510
Nov. 30.....	291.25	1,102,420	-35,600
Dec. 31.....	291.14	1,098,150	-4,270
CAL YR 2001.....			-208,080
Jan. 31.....	293.18	1,179,170	+81,020
Feb. 28.....	294.35	1,228,140	+48,970
Mar. 31.....	298.41	1,411,300	+183,160
Apr. 30.....	299.45	1,461,600	+50,300
May 31.....	301.24	1,551,480	+89,880
June 30.....	299.05	1,441,960	-109,520
July 31.....	295.60	1,282,300	-159,660
Aug. 31.....	293.02	1,172,530	-109,770
Sept. 30.....	292.38	1,146,840	-25,690
WTR YR 2002.....			-93,690

02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA--Continued



ROANOKE RIVER BASIN

02079500 ROANOKE RIVER AT BUGGS ISLAND, VA

LOCATION.--Lat 36°36'06", long 78°17'56" NAD83, Mecklenburg County, Hydrologic Unit 03010106, on left bank 1,200 ft downstream from John H. Kerr dam, 5.3 mi upstream from bridge on U.S. Highway 1, 6.7 mi southeast of Boydton, and at mile 178.4.

DRAINAGE AREA.--7,789 mi².

PERIOD OF RECORD.--November 1921 to August 1923 (gage heights only), April 1947 to September 1962, October 1963 to September 2000 (annual maximum only), October 2000 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 196.72 ft NGVD of 1929. November 1921 to August 1923, at site 0.3 mi upstream at different datum. April 1947 to Sept. 30, 1952, at site 2,800 ft downstream at different datum.

REMARKS.--Mean daily gage heights are shown in table below. Since July 1950, flow regulated by John H. Kerr reservoir (station 02079490) 1,200 ft upstream.

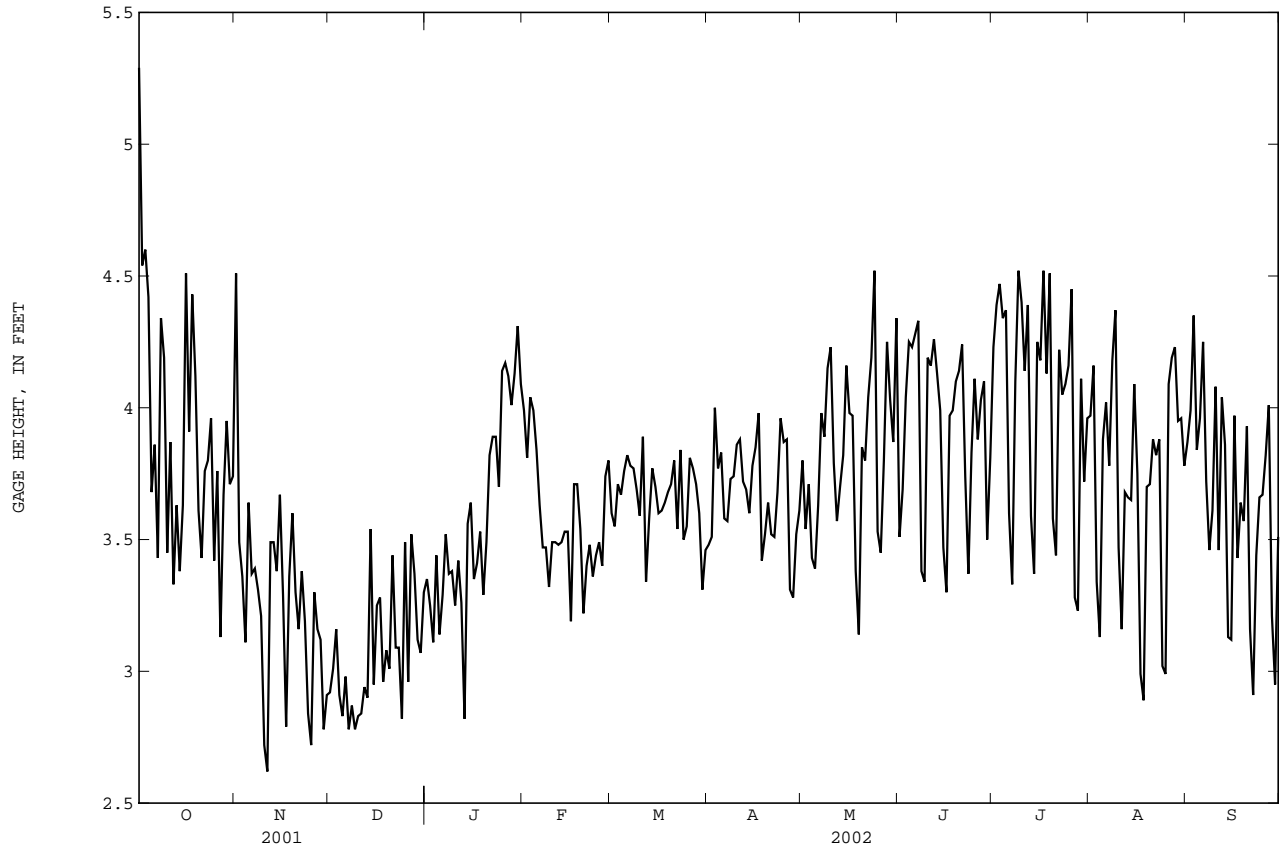
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s, Dec. 7, 1948, gage height, 14.97 ft.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 10.38 ft, Oct. 19; minimum gage height, 2.12 ft, Dec. 3, 5.

**GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.29	4.51	2.92	3.35	3.99	3.60	3.48	3.80	3.51	4.23	3.97	3.87
2	4.54	3.49	3.01	3.25	3.81	3.55	3.51	3.54	3.69	4.39	4.16	3.99
3	4.60	3.36	3.16	3.11	4.04	3.71	4.00	3.71	4.04	4.47	3.34	4.35
4	4.42	3.11	2.91	3.44	3.99	3.67	3.77	3.43	4.25	4.34	3.13	3.84
5	3.68	3.64	2.83	3.14	3.84	3.76	3.83	3.39	4.23	4.37	3.88	3.96
6	3.86	3.37	2.98	3.29	3.63	3.82	3.58	3.63	4.28	3.60	4.02	4.25
7	3.43	3.39	2.78	3.52	3.47	3.78	3.57	3.98	4.33	3.33	3.78	3.72
8	4.34	3.31	2.87	3.37	3.47	3.77	3.73	3.89	3.38	4.10	4.18	3.46
9	4.19	3.21	2.78	3.38	3.32	3.69	3.74	4.15	3.34	4.52	4.37	3.61
10	3.45	2.72	2.83	3.25	3.49	3.59	3.86	4.23	4.19	4.40	3.47	4.08
11	3.87	2.62	2.84	3.42	3.49	3.89	3.88	3.79	4.16	4.14	3.16	3.46
12	3.33	3.49	2.94	3.26	3.48	3.34	3.72	3.57	4.26	4.39	3.68	4.04
13	3.63	3.49	2.90	2.82	3.49	3.58	3.69	3.70	4.13	3.59	3.66	3.86
14	3.38	3.38	3.54	3.56	3.53	3.77	3.60	3.82	3.99	3.37	3.65	3.13
15	3.63	3.67	2.95	3.64	3.53	3.70	3.78	4.16	3.47	4.25	4.09	3.12
16	4.51	3.29	3.25	3.35	3.19	3.60	3.85	3.98	3.30	4.18	3.75	3.97
17	3.91	2.79	3.28	3.41	3.71	3.61	3.98	3.97	3.97	4.52	2.99	3.43
18	4.43	3.36	2.96	3.53	3.71	3.64	3.42	3.38	3.99	4.13	2.89	3.64
19	4.12	3.60	3.08	3.29	3.54	3.68	3.52	3.14	4.10	4.51	3.70	3.57
20	3.61	3.30	3.01	3.49	3.22	3.71	3.64	3.85	4.14	3.58	3.71	3.93
21	3.43	3.16	3.44	3.82	3.40	3.80	3.52	3.80	4.24	3.44	3.88	3.16
22	3.76	3.38	3.09	3.89	3.48	3.54	3.51	4.04	3.74	4.22	3.82	2.91
23	3.80	3.19	3.09	3.89	3.36	3.84	3.68	4.19	3.37	4.05	3.88	3.44
24	3.96	2.84	2.82	3.70	3.44	3.50	3.96	4.52	3.83	4.09	3.02	3.66
25	3.42	2.72	3.49	4.14	3.49	3.55	3.87	3.53	4.11	4.16	2.99	3.67
26	3.76	3.30	2.96	4.17	3.40	3.81	3.88	3.45	3.88	4.45	4.09	3.82
27	3.13	3.16	3.52	4.12	3.74	3.77	3.31	3.80	4.03	3.28	4.19	4.01
28	3.67	3.12	3.37	4.01	3.80	3.71	3.28	4.25	4.10	3.23	4.23	3.21
29	3.95	2.78	3.12	4.13	---	3.60	3.52	4.03	3.50	4.11	3.95	2.95
30	3.71	2.91	3.07	4.31	---	3.31	3.61	3.87	3.81	3.72	3.96	3.51
31	3.74	---	3.30	4.09	---	3.46	---	4.34	---	3.96	3.78	---
MEAN	3.89	3.26	3.07	3.59	3.57	3.66	3.68	3.84	3.91	4.04	3.72	3.65
MAX	5.29	4.51	3.54	4.31	4.04	3.89	4.00	4.52	4.33	4.52	4.37	4.35
MIN	3.13	2.62	2.78	2.82	3.19	3.31	3.28	3.14	3.30	3.23	2.89	2.91

02079500 ROANOKE RIVER AT BUGGS ISLAND, VA--Continued



ROANOKE RIVER BASIN

02079640 ALLEN CREEK NEAR BOYDTON, VA

LOCATION.--Lat 36°40'47", long 78°19'36", NAD83, Mecklenburg County, Hydrologic Unit 03010106, on right bank at upstream side of upstream bridge on U.S. Highway 58, 0.8 mi upstream from Coleman Creek, 2.3 mi downstream from Layton Creek, 3.7 mi east of Boydton, and 11.8 mi southwest of South Hill.

DRAINAGE AREA.--53.4 mi², approximately.

PERIOD OF RECORD.--October 1961 to September 1996, October 2000 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft NGVD of 1929 (levels by Virginia Department of Transportation). October 1961 to September 1996, recording gage at site 200 ft downstream, on left bank, and at same datum.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 22, 23 and Nov. 6 to Dec. 12, which are fair. Maximum discharge, 6,870 ft³/s, from rating curve extended above 3,100 ft³/s. Several measurements of water temperature were made during the year.

COOPERATION.--Records were provided by the Virginia Department of Environmental Quality - Water Division.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
May 3	0430	*953	*11.84	No other peak greater than base discharge.			

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	0.69	0.44	e2.6	1.3	6.8	3.1	35	7.0	2.4	0.31	0.07	3.1
2	0.60	0.43	e2.3	1.1	6.2	3.5	30	18	2.4	0.25	0.05	6.3
3	0.56	0.61	e2.0	1.6	6.1	15	24	424	2.2	0.21	0.04	3.8
4	0.58	0.69	e1.9	2.7	5.7	39	19	64	2.0	0.17	0.02	1.5
5	0.58	0.62	e1.8	2.9	5.3	18	16	44	1.5	0.14	0.01	0.84
6	0.55	e0.70	e1.9	6.0	5.5	12	14	33	1.2	0.13	0.01	0.51
7	0.50	e0.80	e2.1	27	71	9.1	13	23	1.7	0.10	0.00	0.26
8	0.41	e0.90	e2.2	12	68	7.7	12	17	2.1	0.07	0.00	0.13
9	0.35	e1.0	e2.5	7.1	28	6.6	12	45	1.6	0.05	0.00	0.18
10	0.27	e1.2	e3.8	5.9	18	6.0	13	30	1.2	0.04	0.00	0.11
11	0.32	e1.4	e8.0	7.2	14	5.4	13	20	1.1	0.02	0.00	0.04
12	0.39	e1.6	e4.7	6.7	11	5.0	11	14	0.88	0.03	0.00	0.03
13	0.40	e1.8	3.9	4.9	9.0	5.5	11	12	0.75	0.01	0.00	0.01
14	0.46	e1.8	2.7	4.8	7.9	6.1	10	15	0.70	0.01	0.00	0.01
15	0.54	e1.6	2.2	4.4	6.8	5.9	10	14	0.73	0.01	0.00	0.13
16	0.55	e1.7	2.0	4.4	6.4	5.1	9.8	10	0.62	0.00	0.00	7.6
17	0.47	e1.8	1.8	4.3	6.1	6.4	8.9	8.6	0.59	0.00	0.00	27
18	0.39	e1.9	4.9	4.3	5.4	268	8.3	8.8	0.62	0.00	0.00	4.8
19	0.40	e1.8	7.0	12	5.0	125	8.3	8.6	0.46	0.00	0.01	2.0
20	0.43	e2.2	4.8	135	4.8	53	8.1	7.5	0.36	0.00	0.00	1.8
21	0.42	e2.1	3.0	34	4.8	40	10	6.3	0.36	0.00	0.00	2.4
22	e0.47	e2.0	1.9	22	4.7	30	8.8	5.7	0.32	0.00	0.00	2.8
23	e0.48	e2.2	1.6	30	4.3	23	7.8	5.3	0.28	0.00	0.00	3.1
24	0.54	e2.7	1.6	69	4.1	20	6.9	5.1	0.26	0.17	0.00	2.9
25	0.65	e3.5	2.4	45	3.8	18	6.7	4.6	0.24	0.08	0.00	2.4
26	0.55	e2.8	2.4	36	3.8	16	7.0	4.3	0.29	0.11	1.9	2.4
27	0.53	e2.6	2.2	19	3.7	60	6.4	3.8	0.30	0.07	0.07	2.2
28	0.38	e2.3	2.3	13	3.4	42	6.1	3.3	0.36	0.07	0.05	1.7
29	0.32	e2.2	1.7	10	---	28	9.8	2.9	0.45	0.13	0.02	1.3
30	0.31	e2.0	1.5	8.6	---	23	9.8	2.7	0.43	0.19	0.02	0.95
31	0.39	---	1.5	7.5	---	22	---	2.9	---	0.10	0.53	---
TOTAL	14.48	49.39	87.2	549.7	329.6	927.4	365.7	870.4	28.40	2.47	2.80	82.30
MEAN	0.47	1.65	2.81	17.7	11.8	29.9	12.2	28.1	0.95	0.080	0.090	2.74
MAX	0.69	3.5	8.0	135	71	268	35	424	2.4	0.31	1.9	27
MIN	0.27	0.43	1.5	1.1	3.4	3.1	6.1	2.7	0.24	0.00	0.00	0.01
CFSM	0.01	0.03	0.05	0.33	0.22	0.56	0.23	0.53	0.02	0.00	0.00	0.05
IN.	0.01	0.03	0.06	0.38	0.23	0.65	0.25	0.61	0.02	0.00	0.00	0.06

02079640 ALLEN CREEK NEAR BOYDTON, VA--Continued

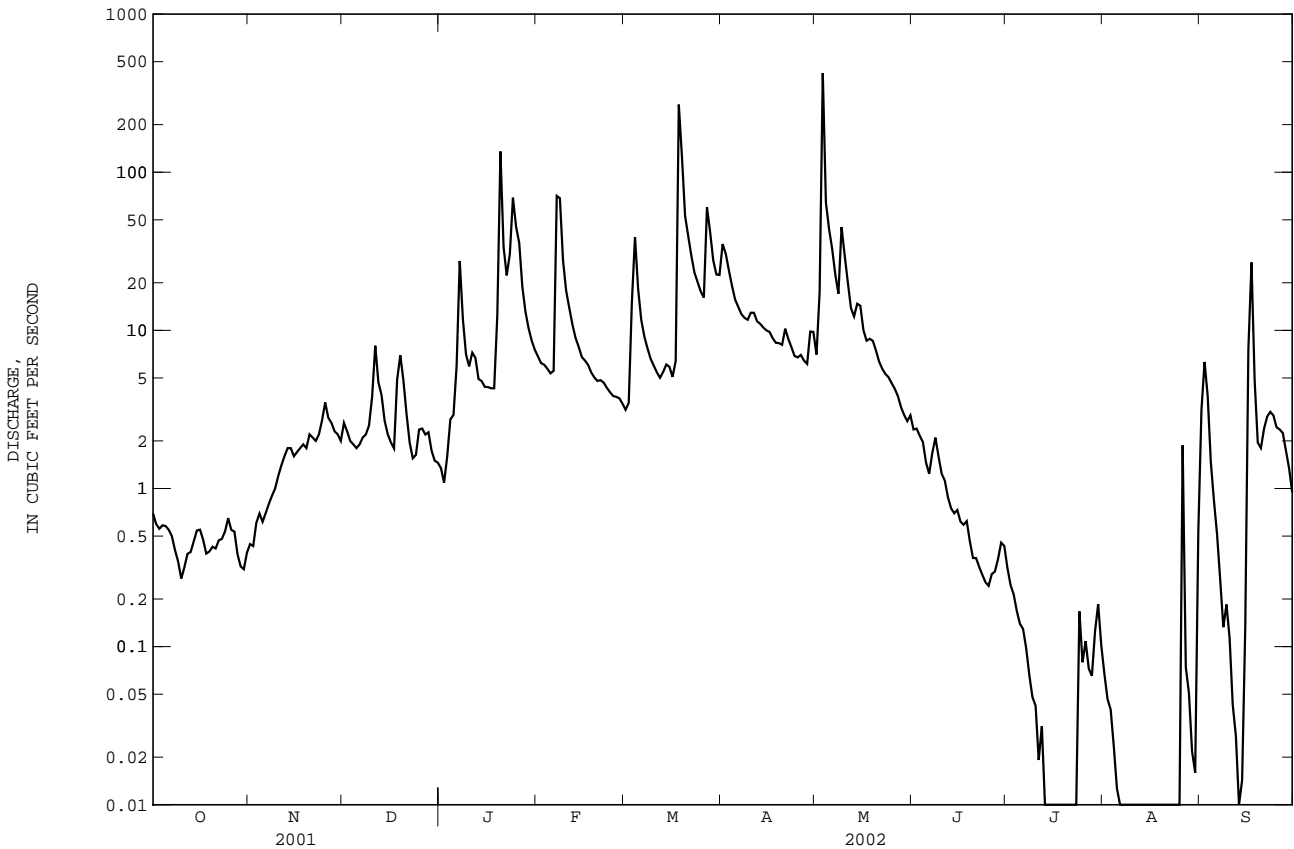
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1996, 2001 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	23.7	30.8	40.2	75.4	81.2	98.6	66.6	35.4	26.5	17.3	12.7	18.5
MAX	201	151	107	239	214	289	404	132	125	174	61.9	188
(WY)	1972	1986	1984	1978	1979	1975	1987	1971	1982	1975	1989	1979
MIN	0.20	1.61	2.36	7.42	11.8	15.3	10.9	10.3	0.95	0.080	0.090	0.022
(WY)	1971	1966	1966	1981	2002	1981	1966	1986	2002	2002	2002	1970

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1962 - 1996 2001 - 2002

ANNUAL TOTAL		11072.23		3309.84								
ANNUAL MEAN		30.3		9.07						43.7		
HIGHEST ANNUAL MEAN										80.8		1987
LOWEST ANNUAL MEAN										9.07		2002
HIGHEST DAILY MEAN				1870	Mar 30		424	May 3		3700	Apr 25	1987
LOWEST DAILY MEAN				0.19	Sep 19		0.00	aJul 16		0.00		(b)
ANNUAL SEVEN-DAY MINIMUM				0.25	Sep 16		0.00	cJul 16		0.00		(b)
MAXIMUM PEAK FLOW							953	May 3		6870	Sep 6	1996
MAXIMUM PEAK STAGE							11.84	May 3		22.93	Sep 6	1996
INSTANTANEOUS LOW FLOW							0.00	dJul 15		0.00		(f)
ANNUAL RUNOFF (CFSM)				0.57			0.17			0.82		
ANNUAL RUNOFF (INCHES)				7.71			2.31			11.12		
10 PERCENT EXCEEDS				41			19			80		
50 PERCENT EXCEEDS				6.6			2.2			14		
90 PERCENT EXCEEDS				0.56			0.02			1.9		

- a Also July 17-23 and Aug. 7-18, 20-25, 2002.
- b Many days August to October 1968, September, October 1970, and July, August 2002.
- c Also July 17 and August 7-19, 2002.
- d No flow part or all of many days July to September 2002.
- e Estimated.
- f No flow part or all of many days August to October 1968, September, October 1970, and July to September 2002.



KANAWHA RIVER BASIN

03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC

LOCATION.--Lat 36°23'35", long 81°24'26", Ashe County, Hydrologic Unit 05050001, on right bank 600 ft upstream from bridge on State Highways 16 and 88, 0.2 mi downstream of Bear Creek, and 4 mi southeast of Jefferson.

DRAINAGE AREA.--205 mi².

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m). WDR NC-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,657.04 ft above NGVD of 1929. Prior to Oct. 14, 1934, nonrecording gage on bridge 400 ft downstream at same datum. Oct. 14, 1934, to Mar. 25, 1935, nonrecording gage at present site and datum. Satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Maximum discharge for period of record, from rating curve extended above 14,000 ft³/s on basis of slope-area measurement of peak flow. Minimum discharge for period of record result of freezeup. Maximum peak stage for current water year from high-water mark in well.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 15, 1916, reached a stage of 18.0 ft, from floodmarks witnessed by local resident; discharge, 35,200 ft³/s.

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	137	129	243	e164	259	e161	415	209	160	185	108	131
2	132	125	205	e164	242	198	359	296	161	176	112	132
3	130	126	176	e164	227	458	314	292	160	283	115	138
4	125	124	165	e161	223	331	293	295	155	382	117	129
5	123	124	157	e167	e219	241	279	297	172	261	106	130
6	120	121	154	e194	222	227	266	261	260	190	97	109
7	114	121	151	e203	238	220	256	236	333	166	92	99
8	113	126	152	e164	301	211	257	229	236	150	86	93
9	113	122	153	e155	275	205	262	229	179	142	87	91
10	115	119	173	e155	253	204	334	235	164	137	85	90
11	116	118	507	e155	270	194	333	218	154	131	83	86
12	124	118	407	e155	246	195	272	222	147	130	84	79
13	140	117	283	e152	228	249	276	224	142	133	85	76
14	288	117	279	e152	217	316	300	302	146	146	80	83
15	620	117	252	e152	210	260	347	271	156	191	80	143
16	277	118	222	e150	207	240	341	220	147	156	93	292
17	201	117	213	149	203	515	303	206	137	141	144	252
18	175	117	267	148	197	1040	365	206	132	125	125	158
19	166	117	338	172	192	666	313	216	133	119	103	177
20	159	117	256	420	195	508	288	198	125	132	99	138
21	153	114	230	349	198	440	274	191	132	122	84	139
22	149	114	212	268	191	389	261	187	118	128	79	147
23	147	112	206	433	179	343	247	184	117	144	76	202
24	145	148	222	936	174	319	233	179	120	195	75	218
25	142	318	240	655	170	302	253	173	121	212	79	167
26	137	442	202	541	169	296	279	178	133	184	206	354
27	134	221	192	414	166	328	236	200	192	161	201	e2020
28	130	179	e176	354	e161	301	228	240	349	144	212	e1430
29	131	164	e170	318	---	272	236	187	265	127	168	536
30	131	178	e167	293	---	270	216	172	210	117	127	358
31	131	---	e167	272	---	348	---	168	---	112	127	---
TOTAL	5018	4400	6937	8329	6032	10247	8636	6921	5156	5122	3415	8197
MEAN	161.9	146.7	223.8	268.7	215.4	330.5	287.9	223.3	171.9	165.2	110.2	273.2
MAX	620	442	507	936	301	1040	415	302	349	382	212	2020
MIN	113	112	151	148	161	161	216	168	117	112	75	76
CFSM	0.79	0.72	1.09	1.31	1.05	1.61	1.40	1.09	0.84	0.81	0.54	1.33
IN.	0.91	0.80	1.26	1.51	1.09	1.86	1.57	1.26	0.94	0.93	0.62	1.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

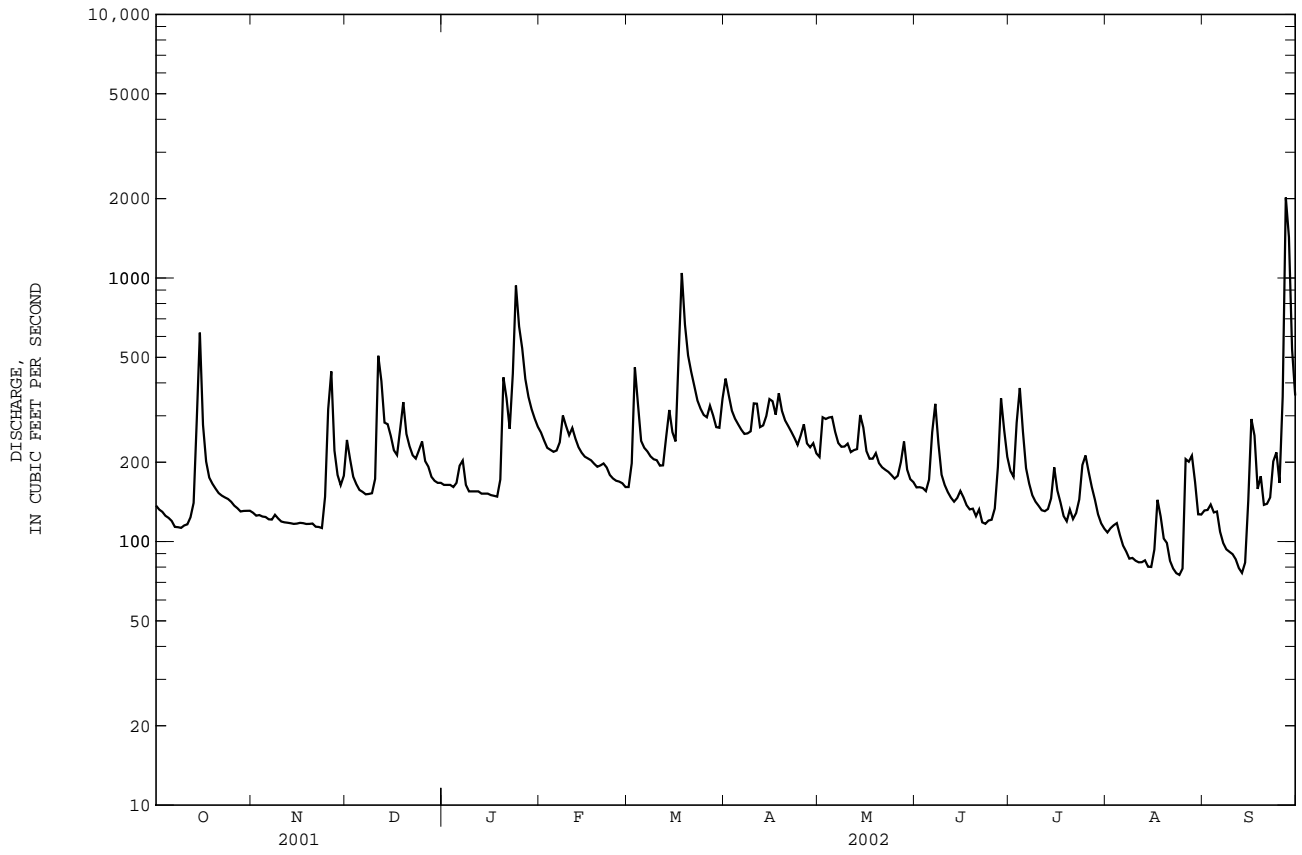
	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	353.0	397.9	401.5	469.0	512.2	583.8	558.4	454.0	384.8	328.7	349.1	320.4																																																																		
MAX	901	1889	797	1346	1173	1316	1350	1052	1036	904	2613	1212																																																																		
(WY)	1991	1978	1958	1995	1998	1979	1983	1973	1992	1941	1940	1979																																																																		
MIN	111	124	146	140	188	222	236	220	158	111	93.7	99.5																																																																		
(WY)	2001	1932	1934	1940	2001	1988	1986	2001	1988	1930	1925	1954																																																																		

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1925 - 2002

ANNUAL TOTAL	84206	78410	
ANNUAL MEAN	230.7	214.8	
HIGHEST ANNUAL MEAN		425.2	
LOWEST ANNUAL MEAN		669	
HIGHEST DAILY MEAN	1460	215	1949
LOWEST DAILY MEAN	110	27700	2002
ANNUAL SEVEN-DAY MINIMUM	115	27700	Aug 14 1940
MAXIMUM PEAK FLOW		65	Sep 9 1925
MAXIMUM PEAK STAGE		72	Aug 21 1925
INSTANTANEOUS LOW FLOW		83	Aug 9
ANNUAL RUNOFF (CFSM)	1.13	3220	Sep 27
ANNUAL RUNOFF (INCHES)	15.28	5.82*	Sep 27
10 PERCENT EXCEEDS	361	73	Sep 27
50 PERCENT EXCEEDS	197	52*	Aug 24
90 PERCENT EXCEEDS	124	1.05	22.50
		14.23	52*
		2.07	28.18
		333	705
		177	341
		114	166

e Estimated.
* See REMARKS.

03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC--Continued



KANAWHA RIVER BASIN

03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'44", NAD83, Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 94, 500 ft downstream from Meadow Creek, 1.2 mi southwest of Old Town, 3.1 mi southwest of Galax, and 3.6 mi downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi².

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 758: Drainage area, 1933(M). WSP 893: 1930(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 2,208.04 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Jan. 2-9, which is poor. American Electric Power gage-height transmitter at station, recorder at Roanoke. National Weather Service gage-height telemeter at station. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 141,000 ft³/s, from rating curve extended above 32,000 ft³/s on basis of computation of peak flow over dam at Fries 6 mi downstream and slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	2100	*11,100	*4.28	No other peak greater than base discharge.			

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	500	495	617	584	1170	692	2670	1070	782	755	457	492
2	494	499	634	e560	1080	793	2440	1070	744	771	462	496
3	483	502	627	e560	1000	1390	2110	1860	799	939	449	492
4	475	499	565	e580	959	1540	1820	2040	762	1010	450	473
5	470	497	538	e620	906	1170	1610	1820	735	1430	429	464
6	457	490	528	e680	887	977	1460	1590	751	1070	411	429
7	447	484	525	e760	1030	961	1330	1410	914	763	388	420
8	442	482	546	e740	1230	935	1250	1340	1150	659	355	406
9	443	481	564	e720	1270	894	1220	1410	843	605	334	384
10	445	482	584	824	1240	883	1510	1290	734	579	325	370
11	452	477	1180	818	1300	864	1560	1210	676	621	324	355
12	461	468	1580	824	1280	860	1380	1110	633	611	341	339
13	472	465	1190	851	1170	978	1290	1100	608	575	312	330
14	582	469	1040	713	1080	1170	1340	1220	603	587	305	361
15	1120	479	988	707	1020	1100	1470	1290	614	691	299	474
16	1150	480	863	672	971	1050	1580	1130	612	748	311	780
17	757	484	804	646	943	1900	1480	988	608	642	459	1040
18	609	482	873	632	912	8560	1990	963	578	573	524	736
19	571	481	1170	663	883	7770	1880	1060	552	540	495	640
20	555	480	1060	1080	878	4500	1580	981	527	538	436	1070
21	543	474	905	1580	882	3250	1440	928	522	556	369	562
22	536	472	820	1290	887	2550	1320	899	496	568	339	503
23	526	472	792	1460	858	2130	1210	876	489	528	325	548
24	519	489	799	5070	833	1840	1120	843	478	589	313	609
25	520	610	807	4310	804	1650	1190	830	477	748	312	599
26	514	840	783	3510	796	1510	1350	812	484	970	384	720
27	499	924	741	2450	785	1510	1190	830	562	869	778	3270
28	492	678	693	1880	745	1430	1100	1000	737	674	661	5740
29	495	584	713	1580	---	1300	1110	950	833	573	720	2570
30	495	565	715	1400	---	1280	1170	838	887	515	569	1340
31	495	---	670	1260	---	2190	---	800	---	479	521	---
TOTAL	17019	15784	24914	40024	27799	59627	45170	35558	20190	21776	13157	27012
MEAN	549	526	804	1291	993	1923	1506	1147	673	702	424	900
MAX	1150	924	1580	5070	1300	8560	2670	2040	1150	1430	778	5740
MIN	442	465	525	560	745	692	1100	800	477	479	299	330
CFSM	0.49	0.47	0.71	1.14	0.88	1.70	1.33	1.01	0.60	0.62	0.38	0.80
IN.	0.56	0.52	0.82	1.32	0.91	1.96	1.49	1.17	0.66	0.72	0.43	0.89

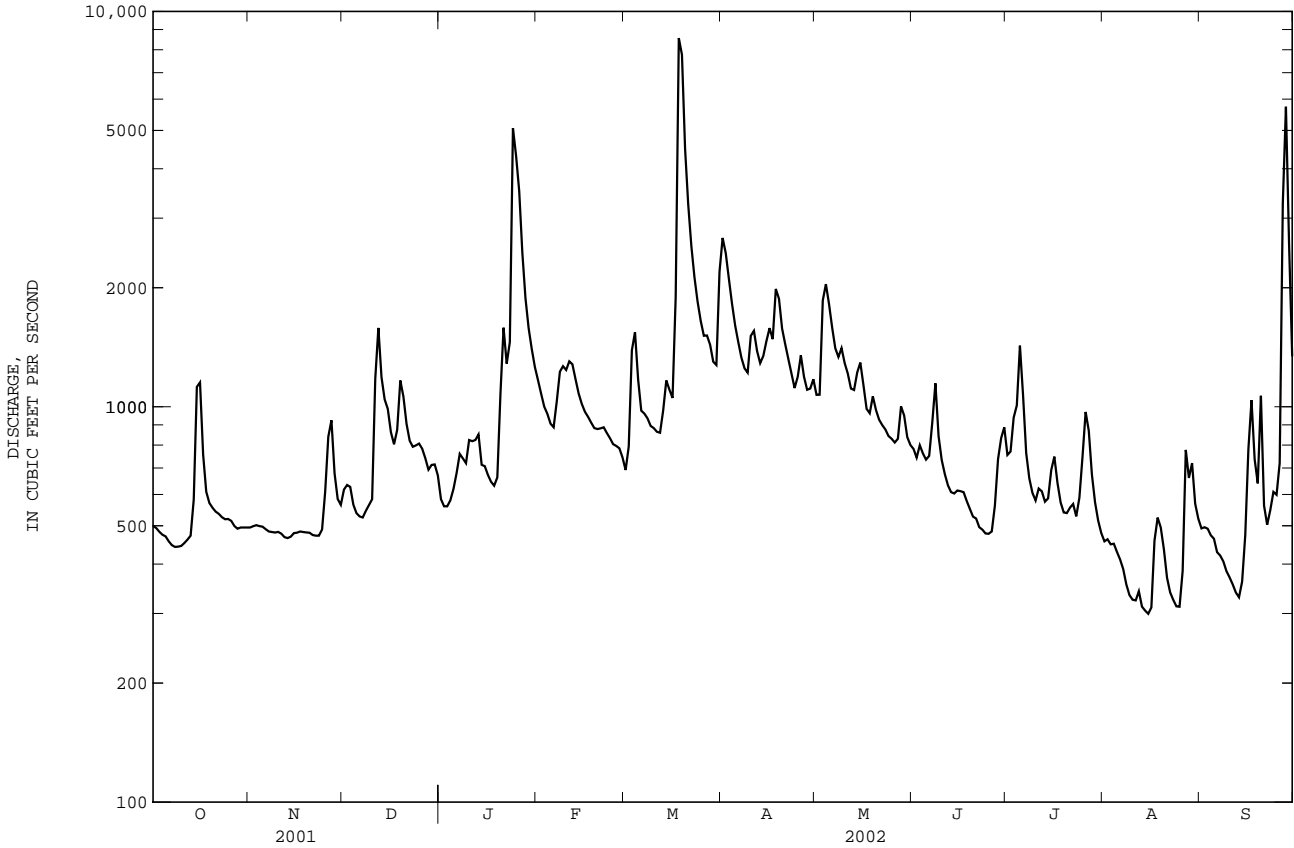
03164000 NEW RIVER NEAR GALAX, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1362	1592	1781	2195	2556	2874	2608	2120	1671	1361	1352	1215
MAX	3625	7189	4005	5744	5566	5827	6345	4469	5280	4017	8148	4827
(WY)	1977	1978	1962	1995	1998	1993	1987	1973	1992	1949	1940	1989
MIN	414	504	592	568	630	958	1017	811	614	426	424	381
(WY)	2001	1954	1956	1956	1934	1988	1942	1941	1988	1930	2002	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1930 - 2002	
ANNUAL TOTAL	401849		348030		1887	
ANNUAL MEAN	1101		954		2807	
HIGHEST ANNUAL MEAN					954	
LOWEST ANNUAL MEAN					2002	
HIGHEST DAILY MEAN	11000	Jul 30	8560	Mar 18	86200	Aug 14 1940
LOWEST DAILY MEAN	442	Oct 8	299	Aug 15	265	Sep 19 1954
ANNUAL SEVEN-DAY MINIMUM	450	Oct 6	317	Aug 10	304	Sep 13 1954
MAXIMUM PEAK FLOW			11100		141000	
MAXIMUM PEAK STAGE			4.28		a25.70	
INSTANTANEOUS LOW FLOW			288		c193	
ANNUAL RUNOFF (CFSM)	0.97		0.84		1.67	
ANNUAL RUNOFF (INCHES)	13.22		11.45		22.67	
10 PERCENT EXCEEDS	1810		1520		3410	
50 PERCENT EXCEEDS	813		748		1420	
90 PERCENT EXCEEDS	496		457		650	

- a From floodmark.
- b Also Aug. 14-16, 2002.
- c Result of freezeup.
- e Estimated.



KANAWHA RIVER BASIN

03165000 CHESTNUT CREEK AT GALAX, VA

LOCATION.--Lat 36°38'45", long 80°55'09", NAD83, Galax City, Hydrologic Unit 05050001, on right bank 200 ft upstream from bridge on State Highway 89 and 1.7 mi downstream from Wards Mill Branch.

DRAINAGE AREA.--39.4 mi².

PERIOD OF RECORD.--September 1944 to current year.

REVISED RECORDS.--WSP 1385: 1953.

GAGE.--Water-stage recorder. Concrete control since Aug. 30, 1979. Datum of gage is 2,344.17 ft NGVD of 1929. Prior to June 25, 1948, nonrecording gage, and June 25, 1948, to May 28, 1953, water-stage recorder, at site 200 ft upstream at datum 0.86 ft higher.

REMARKS.--Records good except for period with ice effect, Dec. 30 to Jan. 9, which is poor. Maximum discharge, 6,980 ft³/s, from rating curve extended above 2,200 ft³/s on basis of two slope-area and one contracted-opening measurements at gage heights 9.5 ft, 14.4 ft, and 17.4 ft, respectively, site and datum then in use. 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 Aug. 14, 1940, reached a stage of 17.4 ft, at site and datum used 1944-53, discharge, 11,000 ft³/s, by contracted-opening measurement.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

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	21	23	34	e26	35	28	76	30	23	15	19	20
2	21	24	27	e25	32	53	57	33	23	15	20	20
3	20	24	24	e25	31	93	51	52	22	26	19	20
4	20	23	22	e26	30	45	46	38	21	32	18	19
5	20	23	22	e28	35	39	44	39	21	22	17	17
6	20	22	21	e31	30	36	42	34	26	22	17	16
7	20	22	22	e33	44	34	41	33	28	17	15	15
8	20	21	26	e31	51	33	39	33	23	16	15	15
9	20	21	24	e30	42	33	41	43	21	15	15	14
10	21	21	33	29	44	31	58	33	20	24	14	13
11	21	21	129	30	45	30	43	30	20	46	14	12
12	21	21	52	28	38	32	41	30	19	25	16	12
13	23	21	55	27	36	46	45	32	19	22	15	12
14	151	21	52	26	33	38	44	36	20	25	14	28
15	58	21	41	26	33	34	59	29	19	30	14	42
16	33	21	36	25	32	35	46	28	18	23	16	60
17	28	21	36	25	30	132	44	27	17	20	18	28
18	26	21	63	25	30	188	44	29	17	20	23	24
19	25	21	42	32	29	90	45	28	19	19	22	22
20	25	21	36	40	30	73	41	27	17	18	23	21
21	25	20	33	40	30	61	39	27	16	17	17	21
22	24	20	31	37	29	51	38	27	15	16	16	22
23	23	20	31	93	28	47	35	26	15	20	15	29
24	23	31	37	74	28	44	34	25	16	40	15	23
25	24	62	31	90	28	42	44	25	14	40	17	21
26	23	33	29	56	28	43	37	25	16	73	26	86
27	22	26	30	46	27	49	35	27	25	36	23	350
28	23	24	30	42	26	41	34	25	23	27	21	96
29	24	22	28	39	---	39	34	24	18	24	20	51
30	24	34	e28	37	---	48	31	24	17	21	20	41
31	24	---	e27	35	---	106	---	24	---	20	20	---
TOTAL	873	726	1132	1157	934	1694	1308	943	588	786	554	1170
MEAN	28.2	24.2	36.5	37.3	33.4	54.6	43.6	30.4	19.6	25.4	17.9	39.0
MAX	151	62	129	93	51	188	76	52	28	73	26	350
MIN	20	20	21	25	26	28	31	24	14	15	14	12
CFSM	0.71	0.61	0.93	0.95	0.85	1.39	1.11	0.77	0.50	0.64	0.45	0.99
IN.	0.82	0.69	1.07	1.09	0.88	1.60	1.23	0.89	0.56	0.74	0.52	1.10

03165000 CHESTNUT CREEK AT GALAX, VA--Continued

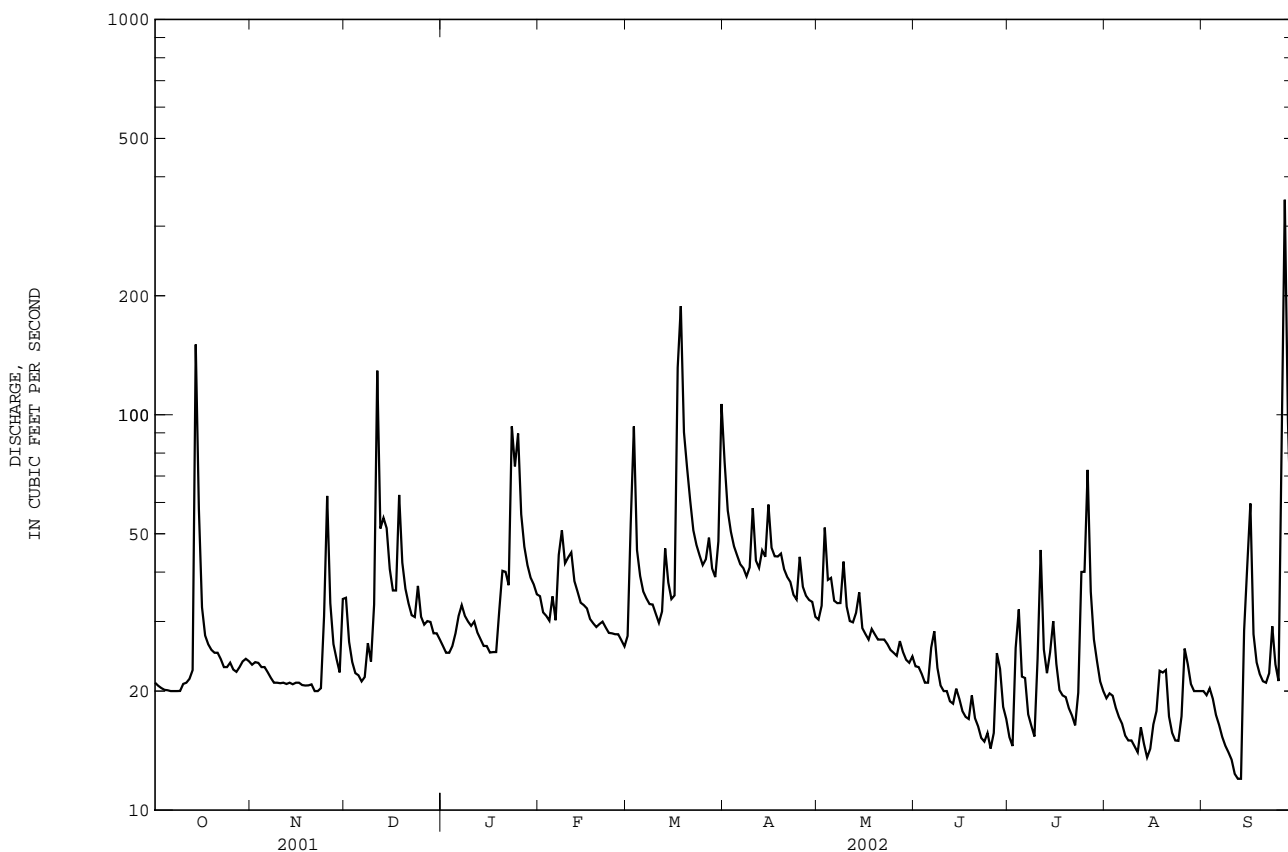
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	57.4	61.5	63.5	70.1	80.4	92.7	88.6	74.4	65.3	51.1	48.2	52.6
MAX	197	157	112	161	166	301	233	160	172	150	156	254
(WY)	1948	1980	1958	1995	1998	1993	1983	1973	1992	1989	1949	1989
MIN	19.8	24.2	25.8	23.9	33.2	38.1	35.5	30.4	19.6	20.7	15.6	18.6
(WY)	1964	2002	1964	1956	2001	1988	2001	2002	2002	1986	1981	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1945 - 2002

ANNUAL TOTAL	14107		11865		67.1		
ANNUAL MEAN	38.6		32.5		107		
HIGHEST ANNUAL MEAN					1993		
LOWEST ANNUAL MEAN					2002		
HIGHEST DAILY MEAN	356	May 22	350	Sep 27	2050	Apr 21	1992
LOWEST DAILY MEAN	20	aSep 17	12	bSep 11	12	cAug 26	1981
ANNUAL SEVEN-DAY MINIMUM	20	Oct 3	13	Sep 7	13	Aug 23	1981
MAXIMUM PEAK FLOW			775		6980		Oct 17 1947
MAXIMUM PEAK STAGE			3.09		d14.40		Oct 17 1947
INSTANTANEOUS LOW FLOW			12		fSep 11		12
ANNUAL RUNOFF (CFSM)	0.98		0.83		1.70		
ANNUAL RUNOFF (INCHES)	13.32		11.20		23.13		
10 PERCENT EXCEEDS	58		47		107		
50 PERCENT EXCEEDS	29		27		51		
90 PERCENT EXCEEDS	21		17		27		

- a Also Sept. 18, 19, Oct. 3-9, and Nov. 21-23, 2001.
- b Also Sept. 12, 13, 2002.
- c Also Sept. 11-13, 2002.
- d From floodmark, site and datum then in use.
- e Estimated.
- f Also Sept. 12-14, 2002.
- d Also Aug. 26-30, 1981, Nov. 22, 2000, and Sept. 11-14, 2002.



KANAWHA RIVER BASIN

03165500 NEW RIVER AT IVANHOE, VA

LOCATION.--Lat 36°50'05", long 80°57'09", NAD83, Wythe County, Hydrologic Unit 05050001, on left bank at Ivanhoe, 2.1 mi downstream from Big Branch, and 2.3 mi upstream from Cripple Creek.

DRAINAGE AREA.--1,340 mi².

PERIOD OF RECORD.--August to December 1927, October 1929 to September 1978, October 1978 to September 1982 (annual maximum only), February 1996 to present. Monthly discharge only for some periods, published in WSP 1305. Gage-height records collected in vicinity, October 1916 to July 1943, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 783: Drainage area, 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,943.09 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Large diurnal fluctuation and some regulation caused by powerplants at Buck 2.8 mi upstream and at Byllesby 5.5 mi upstream. Maximum discharge, 155,000 ft³/s, from rating curve extended above 32,000 ft³/s on basis of flood records for other stations on New River. 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 July 1916 reached a stage of 34.8 ft, from floodmark, discharge, 132,000 ft³/s, from rating curve extended as explained above. Flood in September 1878 was about 5 ft lower than flood in July 1916 and was the highest known from 1840 to 1916.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
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No peak greater than base discharge.

**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	600	598	808	589	1490	785	2980	1310	998	855	400	940
2	587	606	872	507	1360	985	2830	1310	931	955	392	618
3	572	586	879	451	1300	1740	2490	1800	871	1090	384	607
4	586	620	766	523	1230	1910	2160	2440	1070	1420	410	505
5	541	555	671	405	1120	1560	2020	2010	949	1610	500	347
6	565	558	666	626	1110	1240	1820	1870	848	1580	518	377
7	508	564	669	801	1360	1210	1720	1660	1180	980	309	398
8	534	547	682	661	1610	1170	1670	1560	1350	740	332	386
9	448	583	748	550	1510	1160	1580	1740	1110	593	305	357
10	513	516	774	696	1660	1110	1880	1580	890	579	279	311
11	518	539	1620	823	1700	1140	1990	1460	814	729	286	275
12	585	560	2090	836	1630	983	1820	1370	747	703	330	280
13	567	542	1870	850	1540	1230	1600	1350	700	634	343	276
14	847	477	1510	733	1360	1410	1730	1410	661	580	266	284
15	1660	541	1450	720	1280	1430	1810	1630	722	649	274	646
16	1650	549	1240	873	1210	1400	2010	1370	639	872	304	905
17	1180	548	1100	824	1150	1980	1820	1270	682	722	314	1400
18	825	545	1270	810	1200	8900	2120	1240	677	601	625	1120
19	636	543	1580	872	1090	9140	2200	1190	626	544	629	820
20	713	554	1480	1170	1030	5020	1830	1380	593	472	1150	1300
21	682	525	1280	2080	1080	3520	1640	1050	529	472	731	925
22	731	523	1070	1850	1150	2910	1570	1140	486	506	300	1420
23	608	518	1040	1930	980	2460	1410	1090	462	483	239	768
24	648	566	1090	4390	958	2180	1340	1060	493	558	279	806
25	687	897	1110	4400	1030	2020	1330	1040	487	943	305	847
26	634	1180	1020	3820	947	1880	1520	973	515	1010	282	1050
27	556	1360	896	2920	832	1820	1410	1050	547	1330	306	2610
28	557	1020	685	2380	812	1850	1370	1270	793	838	789	5120
29	547	785	964	1980	---	1680	1250	1240	919	632	950	3320
30	573	785	788	1740	---	1570	1360	1080	1140	465	809	2020
31	596	---	568	1610	---	2460	---	952	---	870	651	---
TOTAL	21454	19290	33256	43420	34729	69853	54280	42895	23429	25015	13991	31038
MEAN	692	643	1073	1401	1240	2253	1809	1384	781	807	451	1035
MAX	1660	1360	2090	4400	1700	9140	2980	2440	1350	1610	1150	5120
MIN	448	477	568	405	812	785	1250	952	462	465	239	275
CFSM	0.52	0.48	0.80	1.05	0.93	1.68	1.35	1.03	0.58	0.60	0.34	0.77
IN.	0.60	0.54	0.92	1.21	0.96	1.94	1.51	1.19	0.65	0.69	0.39	0.86

03165500 NEW RIVER AT IVANHOE, VA--Continued

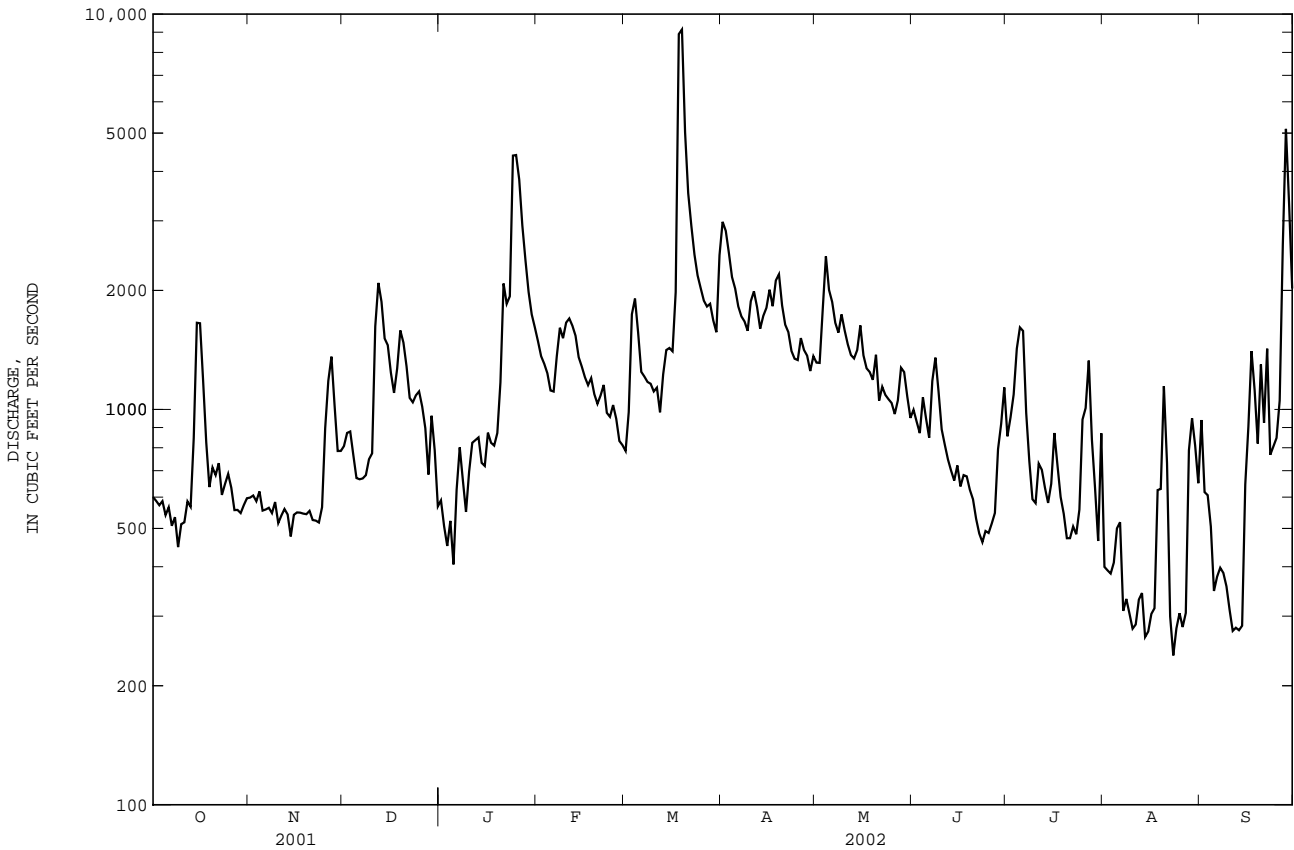
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1978, 1997 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1577	1748	1983	2430	2865	3158	2872	2345	1846	1529	1568	1334
MAX	4200	7149	4248	5052	6106	6266	5993	5000	4511	4440	8953	4499
(WY)	1930	1978	1962	1937	1998	1975	1960	1998	1976	1949	1940	1945
MIN	491	578	703	678	693	1450	1289	991	781	485	451	433
(WY)	1931	1932	1940	1940	1934	1931	1942	1941	2002	1930	2002	1954

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 1978 1997 - 2002

ANNUAL TOTAL		498345		412650								
ANNUAL MEAN		1365		1131						2095		
HIGHEST ANNUAL MEAN										3188		1978
LOWEST ANNUAL MEAN										1131		2002
HIGHEST DAILY MEAN			12000	Jul 30	9140	Mar 19	87600	Aug 14	1940			
LOWEST DAILY MEAN			448	Oct 9	239	Aug 23	184	Jul 28	1930			
ANNUAL SEVEN-DAY MINIMUM			518	Oct 5	297	Aug 10	297	Aug 10	2002			
MAXIMUM PEAK FLOW					11300	Mar 19	155000	Aug 14	1940			
MAXIMUM PEAK STAGE					7.58	Mar 19	a38.10	Aug 14	1940			
INSTANTANEOUS LOW FLOW					185	Jan 5	44	Oct 11	1965			
ANNUAL RUNOFF (CFSM)			1.02		0.84		1.56					
ANNUAL RUNOFF (INCHES)			13.83		11.46		21.24					
10 PERCENT EXCEEDS			2350		1880		3720					
50 PERCENT EXCEEDS			1070		919		1640					
90 PERCENT EXCEEDS			579		469		720					

a From floodmark.



KANAWHA RIVER BASIN

03167000 REED CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'22", long 80°53'12", NAD83, Wythe County, Hydrologic Unit 05050001, on left bank 20 ft downstream from bridge on State Highway 619 at Grahams Forge, 2.2 mi downstream from Glade Creek, and at mile 7.3.

DRAINAGE AREA.--247 mi².

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff. WDR VA-92-1: 1984-86(P), 1987, 1988-89(P), 1990-91.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft NGVD of 1929. Prior to Oct. 1, 1916, nonrecording gage at same site at datum 0.68 ft lower. Feb. 3, 1927, to Oct. 28, 1934, and June 11, 1974, to July 22, 1975, nonrecording gage, at present site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 2-5, which is fair. Occasional diurnal fluctuation at low flow caused by mills upstream from station. Maximum discharge, 17,500 ft³/s, from rating curve extended above 7,600 ft³/s on basis of velocity-area study and slope-area measurement at gage heights 11.4 ft and 10.01 ft, respectively. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	1800	*11,700	*8.94	No other peak greater than base discharge.			

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	84	74	71	57	128	76	677	178	97	69	81	60
2	81	75	70	e56	116	87	539	188	118	77	74	59
3	81	75	69	e54	109	128	418	1350	119	99	70	58
4	79	77	66	e54	105	130	347	734	104	168	66	56
5	78	74	67	e58	100	116	298	474	97	93	64	53
6	78	72	68	64	99	117	264	358	97	77	62	53
7	79	72	67	66	111	111	240	299	103	70	60	57
8	78	71	69	60	117	106	221	261	103	67	57	42
9	76	72	72	61	122	104	210	238	93	62	56	49
10	79	70	76	67	130	102	233	233	89	66	56	55
11	78	72	145	69	144	96	210	202	83	118	56	41
12	79	71	151	71	149	95	192	182	80	91	55	45
13	81	70	106	70	140	107	198	180	79	79	53	47
14	86	69	98	67	131	115	216	206	82	78	53	50
15	87	70	91	64	123	116	279	196	83	82	50	58
16	82	70	83	64	115	125	312	175	79	82	62	108
17	78	70	80	63	113	627	287	162	77	76	50	78
18	78	69	88	63	106	7620	342	166	74	71	54	65
19	79	69	88	69	104	2850	284	158	73	72	57	60
20	78	69	84	88	101	1030	255	145	74	75	55	60
21	80	69	78	98	100	725	234	135	72	70	53	56
22	79	67	74	100	96	555	214	130	68	65	52	58
23	79	69	74	459	93	458	195	124	69	73	52	65
24	77	75	72	1160	90	396	180	119	67	123	54	62
25	75	80	72	645	87	349	201	114	65	125	59	61
26	75	77	69	477	84	316	200	111	65	142	108	98
27	72	72	66	302	83	297	181	113	68	133	79	160
28	73	70	65	223	79	265	182	111	71	112	68	182
29	74	70	68	180	---	243	197	104	78	93	63	123
30	74	71	62	157	---	237	190	100	74	82	62	94
31	75	---	59	138	---	315	---	97	---	88	60	---
TOTAL	2432	2151	2468	5224	3075	18014	7996	7343	2501	2778	1901	2113
MEAN	78.5	71.7	79.6	169	110	581	267	237	83.4	89.6	61.3	70.4
MAX	87	80	151	1160	149	7620	677	1350	119	168	108	182
MIN	72	67	59	54	79	76	180	97	65	62	50	41
CFSM	0.32	0.29	0.32	0.68	0.44	2.35	1.08	0.96	0.34	0.36	0.25	0.29
IN.	0.37	0.32	0.37	0.79	0.46	2.71	1.20	1.11	0.38	0.42	0.29	0.32

03167000 REED CREEK AT GRAHAMS FORGE, VA--Continued

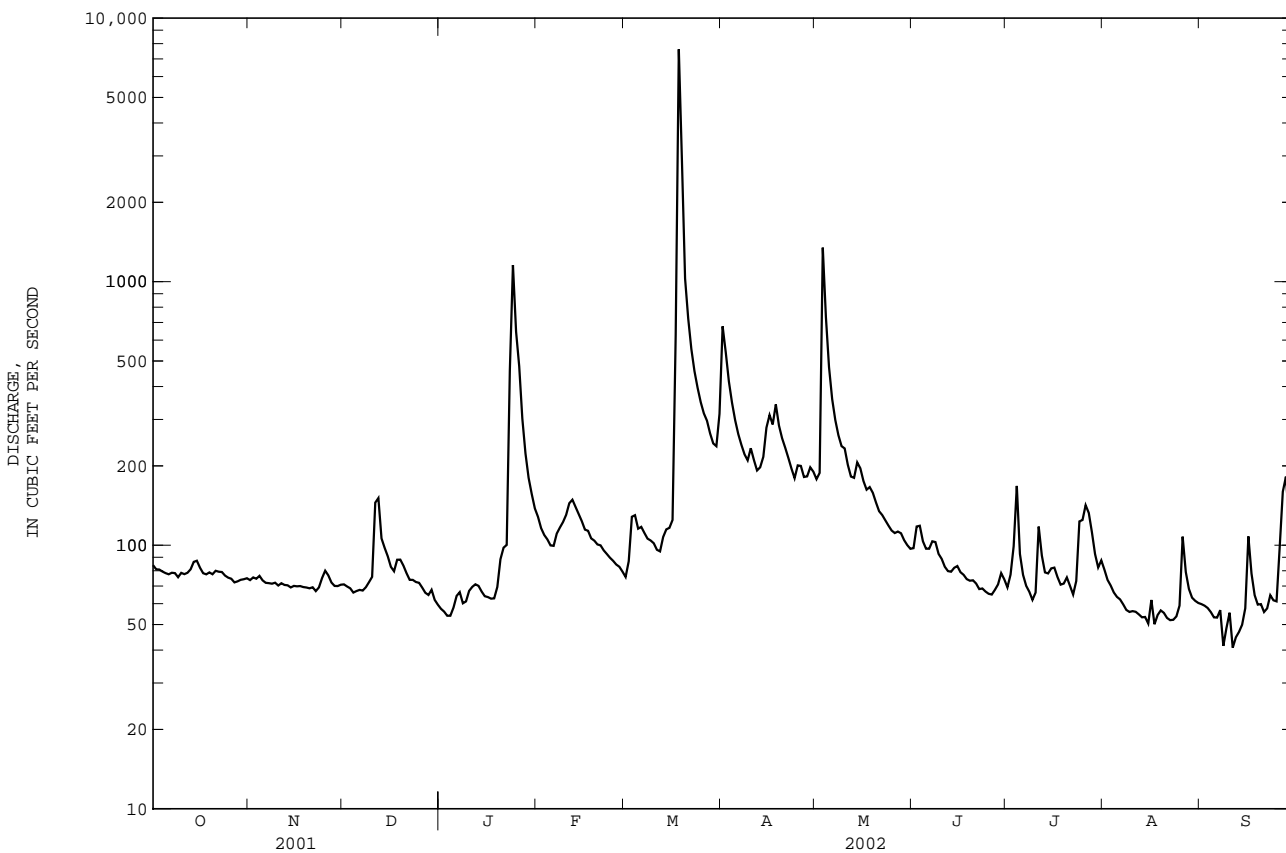
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1916, 1927 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	138	159	236	348	451	506	414	324	208	158	139	115
MAX	626	606	790	911	1411	1406	1374	731	732	867	517	488
(WY)	1938	1930	1973	1936	1957	1955	1987	1958	1992	1916	1916	1989
MIN	45.3	50.7	59.9	61.2	63.5	120	100	91.4	74.6	63.5	60.5	51.4
(WY)	1942	1942	1942	1942	1934	1988	1942	1941	1941	1930	1930	1941

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1909 - 1916 1927 - 2002

ANNUAL TOTAL	83344	57996	
ANNUAL MEAN	228	159	266
HIGHEST ANNUAL MEAN			424
LOWEST ANNUAL MEAN			118
HIGHEST DAILY MEAN	3630	Jul 30	7620
LOWEST DAILY MEAN	57	Jan 3	41
ANNUAL SEVEN-DAY MINIMUM	62	Jan 1	47
MAXIMUM PEAK FLOW			11700
MAXIMUM PEAK STAGE			8.94
INSTANTANEOUS LOW FLOW			b30
ANNUAL RUNOFF (CFSM)	0.92		0.64
ANNUAL RUNOFF (INCHES)	12.55		8.73
10 PERCENT EXCEEDS	426		248
50 PERCENT EXCEEDS	128		80
90 PERCENT EXCEEDS	70		59

- a Present datum, from floodmarks.
- b Result of freezeup.
- c Observed, result of freezeup.
- e Estimated.



KANAWHA RIVER BASIN

03168000 NEW RIVER AT ALLISONIA, VA

LOCATION.--Lat 36°56'15", long 80°44'44", NAD83, Pulaski County, Hydrologic Unit 05050001, on left bank on State Highway 653, 0.2 mi downstream from Big Reed Island Creek, and 0.5 mi upstream from Allisonia.

DRAINAGE AREA.--2,202 mi².

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Large diurnal fluctuation and some regulation by powerplant 25 mi upstream from station. U.S. Army Corps of Engineers satellite gage-height telemeter at station. American Electric Power gage-height transmitter at station. Maximum discharge, 185,000 ft³/s, from rating curve extended above 52,000 ft³/s on basis of flood records for other stations on New River. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 17,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	1915	*29,100	*7.36	No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

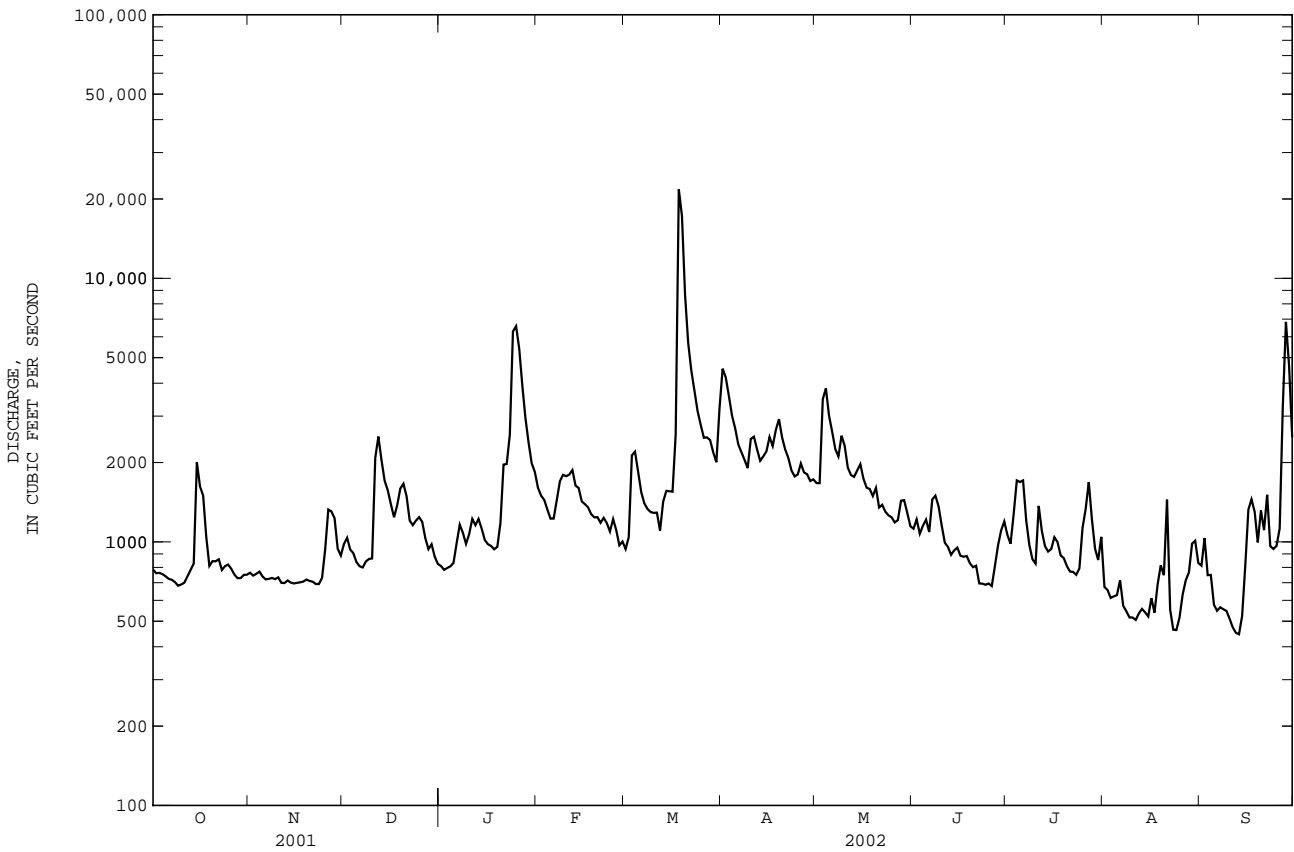
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	785	764	981	810	1600	939	4540	1670	1120	1060	675	812
2	760	745	1040	783	1500	1040	4210	1670	1220	984	657	1030
3	763	757	936	796	1440	2130	3580	3480	1070	1270	613	748
4	755	771	906	807	1330	2200	3020	3820	1150	1710	621	749
5	740	739	838	832	1220	1840	2700	3010	1210	1690	628	577
6	724	721	808	988	1230	1540	2340	2620	1090	1710	716	548
7	718	724	800	1160	1440	1400	2190	2250	1450	1210	572	565
8	703	730	843	1080	1700	1330	2050	2110	1500	974	546	555
9	682	722	861	982	1800	1300	1900	2530	1360	859	517	547
10	689	733	865	1070	1770	1290	2460	2310	1150	827	516	511
11	700	699	2080	1220	1800	1290	2510	1910	993	1370	506	474
12	740	698	2510	1160	1870	1100	2250	1790	957	1100	535	452
13	783	714	2040	1220	1640	1420	2030	1760	893	964	557	446
14	828	701	1710	1120	1600	1560	2110	1870	929	919	540	523
15	2010	696	1570	1020	1420	1560	2210	1970	951	939	521	811
16	1620	699	1390	980	1390	1550	2500	1740	886	1040	612	1330
17	1500	702	1240	965	1350	2560	2310	1610	878	999	539	1450
18	1050	707	1370	937	1270	21800	2660	1590	883	890	691	1300
19	810	720	1590	957	1240	17200	2920	1490	831	868	814	996
20	845	711	1660	1180	1240	8620	2490	1600	801	810	748	1320
21	844	706	1490	1960	1180	5680	2240	1350	812	771	1450	1110
22	859	692	1210	1970	1230	4460	2080	1380	696	769	553	1510
23	782	692	1160	2550	1180	3740	1870	1300	694	750	464	964
24	809	730	1200	6290	1090	3130	1770	1260	688	793	463	940
25	820	936	1240	6580	1220	2780	1800	1240	695	1130	517	965
26	790	1330	1190	5410	1110	2480	1980	1190	680	1330	631	1130
27	751	1300	1030	3920	970	2490	1830	1210	809	1690	716	3270
28	728	1230	939	2940	1000	2430	1810	1430	970	1220	766	6840
29	729	942	979	2380	---	2180	1700	1440	1110	942	985	4660
30	749	887	879	1980	---	2010	1730	1290	1200	854	1010	2490
31	751	---	825	1840	---	3210	---	1150	---	1050	832	---
TOTAL	26817	23898	38180	57887	38830	108259	71790	57040	29676	33492	20511	39623
MEAN	865	797	1232	1867	1387	3492	2393	1840	989	1080	662	1321
MAX	2010	1330	2510	6580	1870	21800	4540	3820	1500	1710	1450	6840
MIN	682	692	800	783	970	939	1700	1150	680	750	463	446
CFSM	0.39	0.36	0.56	0.85	0.63	1.59	1.09	0.84	0.45	0.49	0.30	0.60
IN.	0.45	0.40	0.65	0.98	0.66	1.83	1.21	0.96	0.50	0.57	0.35	0.67

03168000 NEW RIVER AT ALLISONIA, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2233	2538	2923	3716	4383	4973	4502	3684	2810	2243	2164	1965
MAX	6561	9597	6125	8600	9195	10870	11880	7736	8552	6230	11570	8448
(WY)	1990	1978	1962	1995	1998	1993	1987	1973	1992	1949	1940	1989
MIN	726	797	1007	1018	1041	1554	1685	1406	989	744	662	743
(WY)	1931	2002	1966	1956	1934	1988	1942	1941	2002	1930	2002	1930

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1930 - 2002
ANNUAL TOTAL	689055	546003	
ANNUAL MEAN	1888	1496	3171
HIGHEST ANNUAL MEAN			4761 1978
LOWEST ANNUAL MEAN			1496 2002
HIGHEST DAILY MEAN	19000 Jul 30	21800 Mar 18	95000 Aug 14 1940
LOWEST DAILY MEAN	682 Oct 9	446 Sep 13	446 Sep 13 2002
ANNUAL SEVEN-DAY MINIMUM	701 Nov 11	501 Sep 8	501 Sep 8 2002
MAXIMUM PEAK FLOW		29100 Mar 18	185000 Aug 14 1940
MAXIMUM PEAK STAGE		7.36 Mar 18	23.42 Aug 14 1940
INSTANTANEOUS LOW FLOW		424 Sep 13	412 Sep 7 1930
ANNUAL RUNOFF (CFSM)	0.86	0.68	1.44
ANNUAL RUNOFF (INCHES)	11.64	9.22	19.57
10 PERCENT EXCEEDS	3420	2490	5740
50 PERCENT EXCEEDS	1330	1110	2360
90 PERCENT EXCEEDS	759	692	1070



KANAWHA RIVER BASIN

03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA

LOCATION.--Lat 37°04'28", long 80°35'06", NAD83, Pulaski County, Hydrologic Unit 05050001, at Claytor Dam on New River, 0.5 mi upstream from Little River, and 5.5 mi upstream from Radford.

DRAINAGE AREA.--2,382 mi².

PERIOD OF RECORD.--May 1939 to current year (monthly figures only).

REVISED RECORDS.--WSP 2108: 1961-65 monthend contents and change in contents.

GAGE.--Water-stage recorder. Datum of gage is approximately at NGVD of 1929 (levels by Appalachian Power Company). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

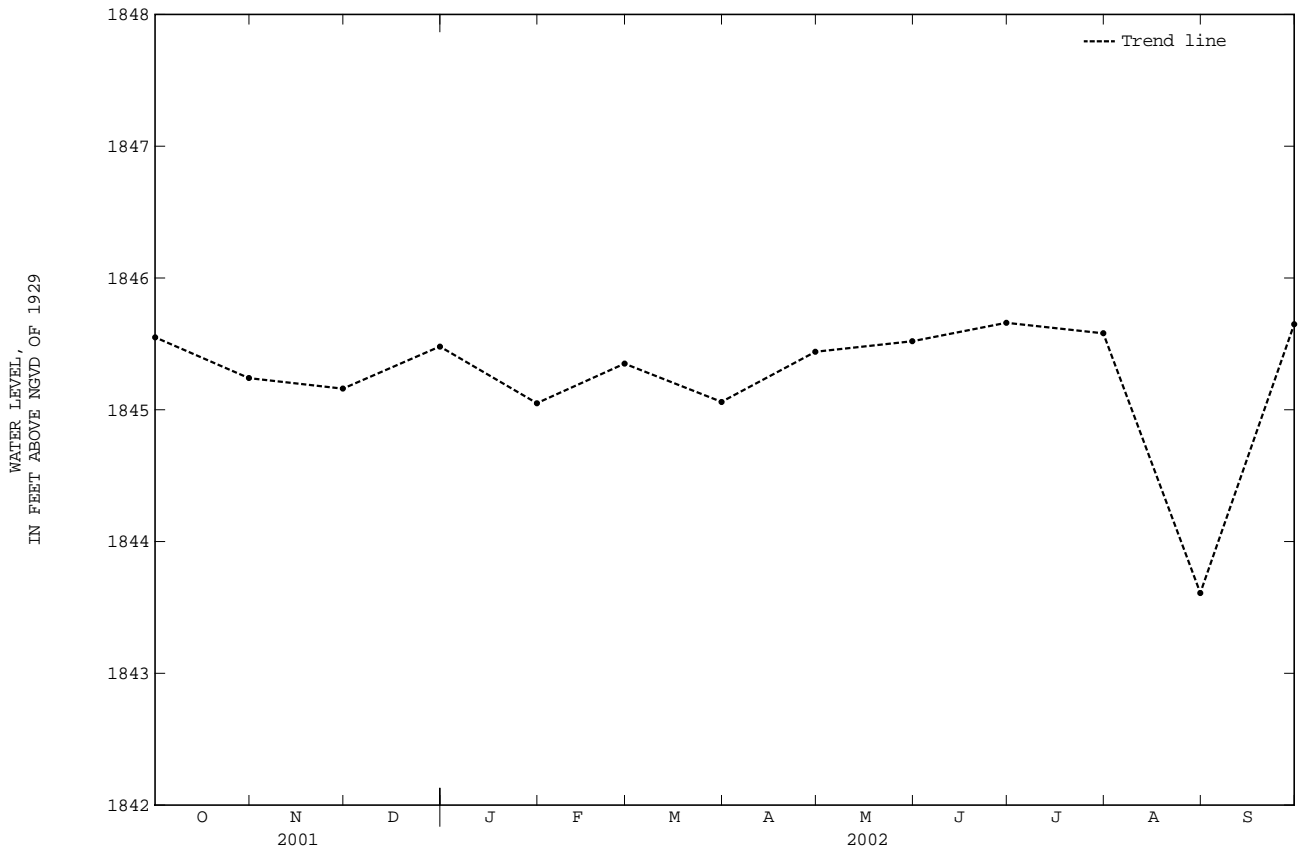
REMARKS.--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft is equipped with 9 lift gates 30 ft high by 50 ft wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity at elevation 1,847.0 ft, 1.5 ft below top of gates, is 230,100 acre-ft of which about 100,000 acre-ft is controlled storage above minimum pool elevation of 1,820.0 ft. Reservoir is used for hydroelectric power and recreation. U.S. Army Corps of Engineers satellite elevation telemeter at station.

COOPERATION.--Records were provided by the American Electric Power.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,845.55	223,600	-
Oct. 31.....	1,845.24	222,300	-1,300
Nov. 30.....	1,845.16	221,900	-400
Dec. 31.....	1,845.48	223,300	+1,400
CAL YR 2001.....			+16,100
Jan. 31.....	1,845.05	221,400	-1,900
Feb. 28.....	1,845.35	222,700	+1,300
Mar. 31.....	1,845.06	221,500	-1,200
Apr. 30.....	1,845.44	223,100	+1,600
May 31.....	1,845.52	223,500	+400
June 30.....	1,845.66	224,100	+600
July 31.....	1,845.58	223,700	-400
Aug. 31.....	1,843.61	215,300	-8,400
Sep. 30.....	1,845.65	224,000	+8,700
WTR YR 2002.....			+400

03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA--Continued



KANAWHA RIVER BASIN

03170000 LITTLE RIVER AT GRAYSONTOWN, VA

LOCATION.--Lat 37°02'15", long 80°33'24", NAD83, Pulaski County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 693 at Snowville, 0.5 mi southeast of Graysontown, 7 mi south of Radford, and at mile 8.6.

DRAINAGE AREA.--300 mi².

PERIOD OF RECORD.--October 1928 to current year. Published as "at Graysonton" prior to October 1990.

REVISED RECORDS.--WSP 823: 1929-36. WSP 1143: 1945. WSP 1305: 1929(M). WSP 1555: Drainage area (at site used 1928-41). WSP 1625: 1951(M). WSP 1725: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 1,816.04 ft NGVD of 1929. Prior to Nov. 20, 1931, nonrecording gage at bridge 1.0 mi downstream at datum 17.99 ft lower. Nov. 20, 1931, to Nov. 12, 1941, water-stage recorder 1.2 mi downstream at datum 20.58 ft lower.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 22,800 ft³/s, from rating curve extended above 16,000 ft³/s on basis of slope-area measurements at gage heights 12.76 ft and 13.40 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
No peak greater than base discharge.							

**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	90	85	96	e92	146	106	389	162	123	113	61	72
2	88	84	105	e90	144	125	325	224	121	91	58	87
3	88	86	95	e92	139	265	271	1210	118	102	55	87
4	87	86	90	e98	135	292	238	572	115	148	52	73
5	85	87	88	106	109	177	223	370	108	115	49	64
6	84	88	88	116	117	164	205	283	109	98	44	58
7	80	87	88	127	168	163	194	225	132	89	41	53
8	79	88	88	136	224	152	182	204	138	74	38	50
9	79	88	93	119	206	145	186	693	112	70	36	48
10	80	88	101	129	174	141	222	485	103	80	33	47
11	86	88	309	156	171	136	247	304	98	250	33	44
12	88	88	316	129	173	135	209	237	95	152	32	42
13	90	88	198	151	154	171	191	231	93	104	32	40
14	102	88	181	109	142	205	207	317	91	94	31	53
15	217	88	160	125	135	185	224	260	94	100	31	76
16	165	88	139	115	135	176	227	200	93	104	32	156
17	106	88	132	122	133	340	206	187	91	89	72	149
18	90	88	156	112	125	1830	190	192	88	80	87	95
19	88	88	177	116	124	1000	186	203	86	75	82	84
20	88	88	148	124	135	540	180	176	80	75	67	77
21	87	88	133	140	135	413	180	168	74	73	58	84
22	86	88	122	149	135	325	178	160	72	69	52	73
23	86	88	120	364	133	274	169	155	69	65	46	72
24	85	91	133	648	130	251	160	149	68	69	44	77
25	84	107	152	430	125	233	184	143	68	88	47	77
26	84	182	128	344	124	217	212	135	81	88	59	100
27	83	141	106	232	121	251	185	132	106	99	74	238
28	79	110	106	190	113	247	175	140	118	116	97	446
29	82	102	122	168	---	210	183	155	163	106	74	216
30	84	96	100	154	---	201	176	133	130	82	70	129
31	84	---	95	147	---	265	---	125	---	69	77	---
TOTAL	2884	2840	4165	5330	4005	9335	6304	8330	3037	3027	1664	2967
MEAN	93.0	94.7	134	172	143	301	210	269	101	97.6	53.7	98.9
MAX	217	182	316	648	224	1830	389	1210	163	250	97	446
MIN	79	84	88	90	109	106	160	125	68	65	31	40
CFSM	0.31	0.32	0.45	0.57	0.48	1.00	0.70	0.90	0.34	0.33	0.18	0.33
IN.	0.36	0.35	0.52	0.66	0.50	1.16	0.78	1.03	0.38	0.38	0.21	0.37

03170000 LITTLE RIVER AT GRAYSONTOWN, VA--Continued

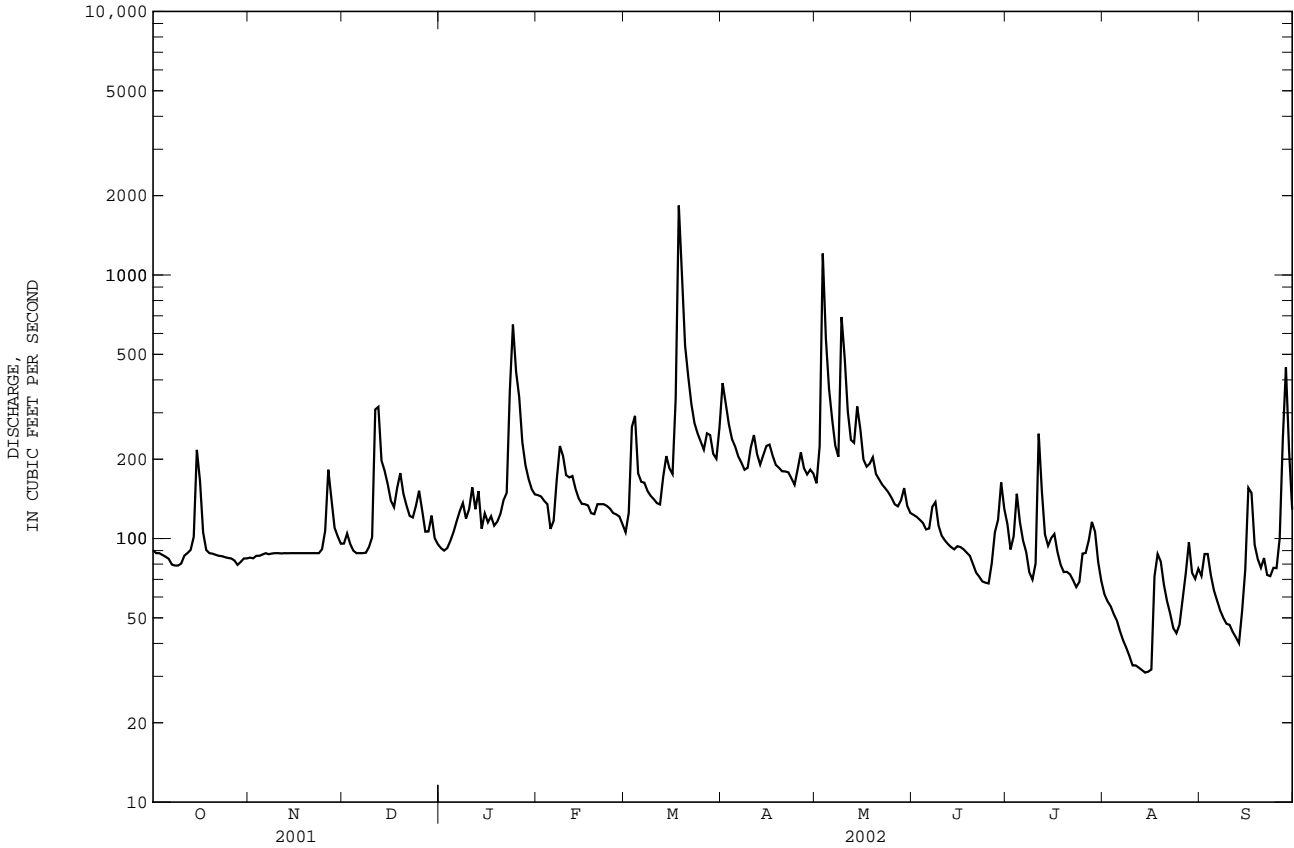
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	290	294	327	398	468	537	498	405	328	261	247	248
MAX	1458	916	860	1050	1055	1213	1444	810	942	945	1584	988
(WY)	1930	1986	1949	1937	1998	1993	1987	1958	1972	1949	1940	1989
MIN	86.7	94.7	115	108	113	220	146	168	101	97.6	53.7	76.9
(WY)	1954	2002	1966	1966	1934	1940	1942	1941	2002	2002	2002	1932

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1929 - 2002

ANNUAL TOTAL	72706		53888		358			
ANNUAL MEAN	199		148		631		1949	
HIGHEST ANNUAL MEAN					148		2002	
LOWEST ANNUAL MEAN					13200		Oct 2 1929	
HIGHEST DAILY MEAN	1450	Mar 30	1830	Mar 18	31	bAug 14	31	bAug 14 2002
LOWEST DAILY MEAN	79	aOct 8	32	Aug 10	32	Aug 10	32	Aug 10 2002
ANNUAL SEVEN-DAY MINIMUM	82	Oct 5	2420	Mar 18	22800	Jun 21	22800	Jun 21 1972
MAXIMUM PEAK FLOW			3.67		Mar 18		13.40	
MAXIMUM PEAK STAGE			29		Aug 15		c21	
INSTANTANEOUS LOW FLOW							Feb 22 1942	
ANNUAL RUNOFF (CFSM)	0.66		0.49		1.19			
ANNUAL RUNOFF (INCHES)	9.02		6.68		16.20			
10 PERCENT EXCEEDS	340		237		609			
50 PERCENT EXCEEDS	156		113		263			
90 PERCENT EXCEEDS	88		69		124			

- a Also Oct. 9, 28, 2001.
- b Also Aug. 15, 2002.
- c Result of freezeup.
- e Estimated.



KANAWHA RIVER BASIN

03170500 LITTLE RIVER RESERVOIR NEAR RADFORD, VA

LOCATION.--Lat 37°04'39", long 80°34'21", NAD83, Pulaski County, Hydrologic Unit 05050001, on left bank 30 ft upstream from dam, 0.25 mi upstream from mouth of Little River, 3 mi downstream from Meadow Creek, and 4 mi south of Radford.

DRAINAGE AREA.--337 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,770 ft NGVD of 1929, from topographic map.

REMARKS.--Records good except those for period of partial gage-height record, Apr. 19-21, and period of doubtful gage-height record, May 2-13, which are fair. Reservoir is operated for generating power for the city of Radford.

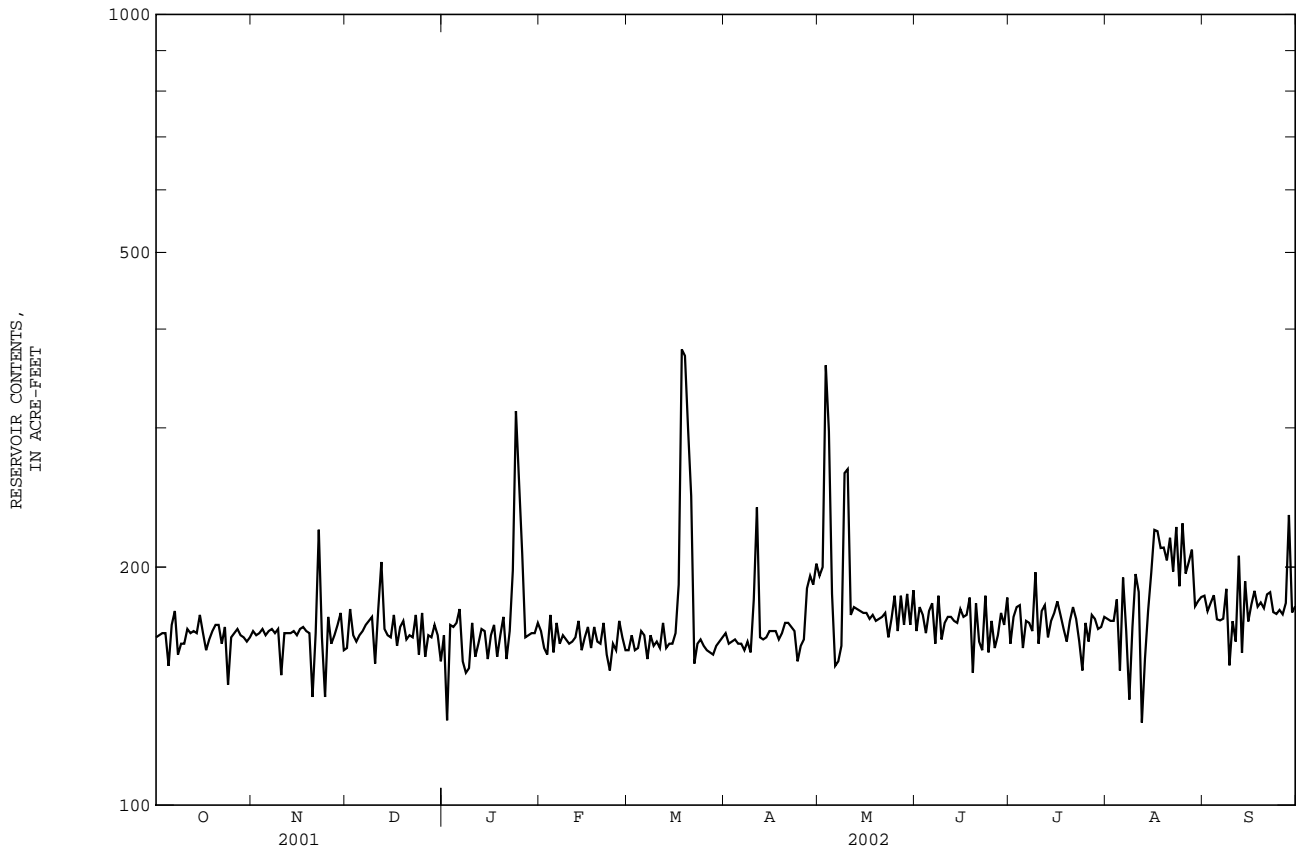
EXTREMES FOR CURRENT YEAR.--Maximum recorded contents, 510 acre-ft, Mar. 18; minimum recorded contents, 75 acre-ft, Jan. 4.

**RESERVOIR STORAGE (ACRE-FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	166	158	164	166	157	165	195	166	160	172	184
2	164	164	177	128	158	164	160	e200	178	173	171	176
3	165	165	164	169	155	157	161	e360	174	178	171	180
4	165	167	161	168	174	158	162	297	165	179	182	184
5	150	164	164	170	156	166	160	185	176	158	148	172
6	169	166	166	177	170	164	160	150	180	171	194	171
7	176	167	169	152	160	153	157	152	160	170	166	172
8	155	165	171	147	164	164	161	159	184	166	136	188
9	160	167	173	149	162	159	156	263	162	197	168	150
10	160	146	151	170	160	161	182	266	170	160	196	171
11	167	165	177	154	161	158	238	174	173	176	186	161
12	165	165	203	160	163	170	163	178	173	179	127	207
13	166	165	167	167	171	158	162	177	171	163	153	156
14	165	166	164	166	157	160	163	176	170	171	176	192
15	174	164	163	153	163	160	166	175	177	175	197	171
16	165	167	174	164	168	165	166	175	173	181	223	179
17	157	168	159	169	158	190	166	172	174	174	222	187
18	162	166	168	154	168	377	162	174	183	167	211	178
19	166	165	171	164	161	370	e165	171	147	161	212	180
20	169	137	162	173	160	299	e170	172	180	171	204	177
21	169	165	164	153	170	246	e170	173	161	178	218	185
22	160	223	163	166	155	151	168	175	157	172	197	186
23	168	163	174	198	148	160	166	163	184	161	225	175
24	142	137	155	315	160	162	152	172	156	148	189	174
25	163	173	175	256	157	159	159	184	171	170	227	177
26	165	160	154	208	171	157	162	166	158	161	196	174
27	167	164	164	163	163	156	188	184	164	174	203	180
28	164	169	163	164	157	155	195	169	175	172	210	233
29	163	175	169	165	---	159	190	185	169	167	178	175
30	161	157	164	165	---	161	202	169	183	168	181	178
31	163	---	152	170	---	163	---	187	---	173	183	---
TOTAL	5068	4951	5159	5341	4536	5639	5097	5898	5114	5274	5822	5373
MEAN	163	165	166	172	162	182	170	190	170	170	188	179
MAX	176	223	203	315	174	377	238	360	184	197	227	233
MIN	142	137	151	128	148	151	152	150	147	148	127	150

e Estimated

03170500 LITTLE RIVER RESERVOIR NEAR RADFORD, VA--Continued



KANAWHA RIVER BASIN

03171000 NEW RIVER AT RADFORD, VA

LOCATION.--Lat 37°08'30", long 80°34'09", NAD83, Pulaski County, Hydrologic Unit 05050001, on left bank 2,000 ft downstream from bridge on U.S. Highway 11 at Radford, 5 mi downstream from Little River, and 5.5 mi downstream from Claytor Dam.

DRAINAGE AREA.--2,748 mi².

PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft NGVD of 1929. Prior to Aug. 30, 1939, nonrecording gage at highway bridge 2,000 ft upstream at datum 0.85 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. Statistic of monthly mean data and summary statistics for water years 1908-1915 (unregulated flow) are available in previous data books, water years 1991-1998. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. National Weather Service gage-height telemeter at station. Maximum discharge, 218,000 ft³/s, from rating curve extended above 76,000 ft³/s on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company. 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 Jul. 16, 1916, reached a stage of 35.7 ft, discharge, 200,000 ft³/s, at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.

**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	918	884	847	812	1660	1430	4490	1830	1450	1200	928	813
2	919	884	857	834	1120	962	4680	2000	1370	1470	979	853
3	917	883	896	802	1200	1750	4330	7320	1410	1480	935	819
4	918	881	874	838	2390	2900	4340	5260	1330	1810	1080	816
5	921	895	845	835	1570	2430	4230	3540	1320	2310	956	825
6	928	887	957	866	1470	1890	1270	2940	1440	1730	899	812
7	866	882	843	1030	2000	2290	886	2560	1440	1400	965	814
8	947	879	845	855	2270	1720	2130	2260	1950	1010	908	765
9	926	878	844	1490	1480	961	1910	3090	1720	978	903	805
10	916	894	1460	1460	1780	961	2820	3100	1310	1040	895	806
11	935	876	2650	1190	2600	1230	3640	2310	1270	1010	953	779
12	930	867	4250	928	2520	1630	2670	2150	1050	1220	905	775
13	928	940	2530	1130	2270	1780	999	2140	1160	1120	905	818
14	948	923	2220	1250	2180	2500	2090	1700	1060	1050	882	800
15	1940	863	1010	1140	2180	1800	2220	1930	1030	1090	767	887
16	2360	1440	857	1040	1340	1650	2500	2140	1130	1170	775	920
17	1600	886	1340	1120	992	3620	2750	1750	1030	1010	827	912
18	1460	861	1300	1270	1450	20100	2910	2670	1020	1000	829	917
19	881	1070	1880	861	974	22300	3190	2260	1030	1010	830	889
20	881	1150	2300	1040	1040	10600	2640	1430	1010	999	822	865
21	881	962	2540	2570	1500	7870	2410	1680	1000	985	816	850
22	890	829	1200	2460	2060	4050	2190	1630	1040	933	771	849
23	892	862	839	3460	979	4030	1990	1630	1030	1010	812	863
24	968	860	898	7830	959	3580	1910	1680	1000	982	777	883
25	898	843	837	7760	1460	3230	1960	1520	1030	1200	803	855
26	890	929	1570	5730	941	2240	1940	1570	1030	1550	792	895
27	883	932	1380	3340	1200	2950	2030	1490	1050	1760	830	2800
28	881	900	966	3440	1720	3430	1930	1490	1040	1590	849	8140
29	882	998	822	2860	---	2470	1960	1740	1130	1040	858	3870
30	874	916	824	2160	---	992	1820	1630	1050	989	817	2190
31	879	---	912	2450	---	3390	---	1500	---	978	819	---
TOTAL	31857	27754	42393	64851	45305	122736	76835	71940	35930	38124	26887	38885
MEAN	1028	925	1368	2092	1618	3959	2561	2321	1198	1230	867	1296
MAX	2360	1440	4250	7830	2600	22300	4680	7320	1950	2310	1080	8140
MIN	866	829	822	802	941	961	886	1430	1000	933	767	765
(†)	-655	-202	+706	-958	+655	-605	+807	+202	+302	-202	-4230	+4390
MEAN†	1007	918	1390	2061	1641	3940	2588	2327	1208	1223	731	1442
CFSM†	.37	.33	.51	.75	.60	1.43	.94	.85	.44	.45	.27	.52
IN.†	.42	.37	.58	.86	.62	1.65	1.05	.98	.49	.51	.31	.59

CAL YR 2001 MEAN† 2266 CFSM† .82 IN.† 11.20
WTR YR 2002 MEAN† 1709 CFSM† .62 IN.† 8.44

† Total change in contents, equivalent in cubic feet per second, per month, in Claytor Reservoir; provided by American Electric Power.

‡ Adjusted for monthly change in contents.

03171000 NEW RIVER AT RADFORD, VA--Continued

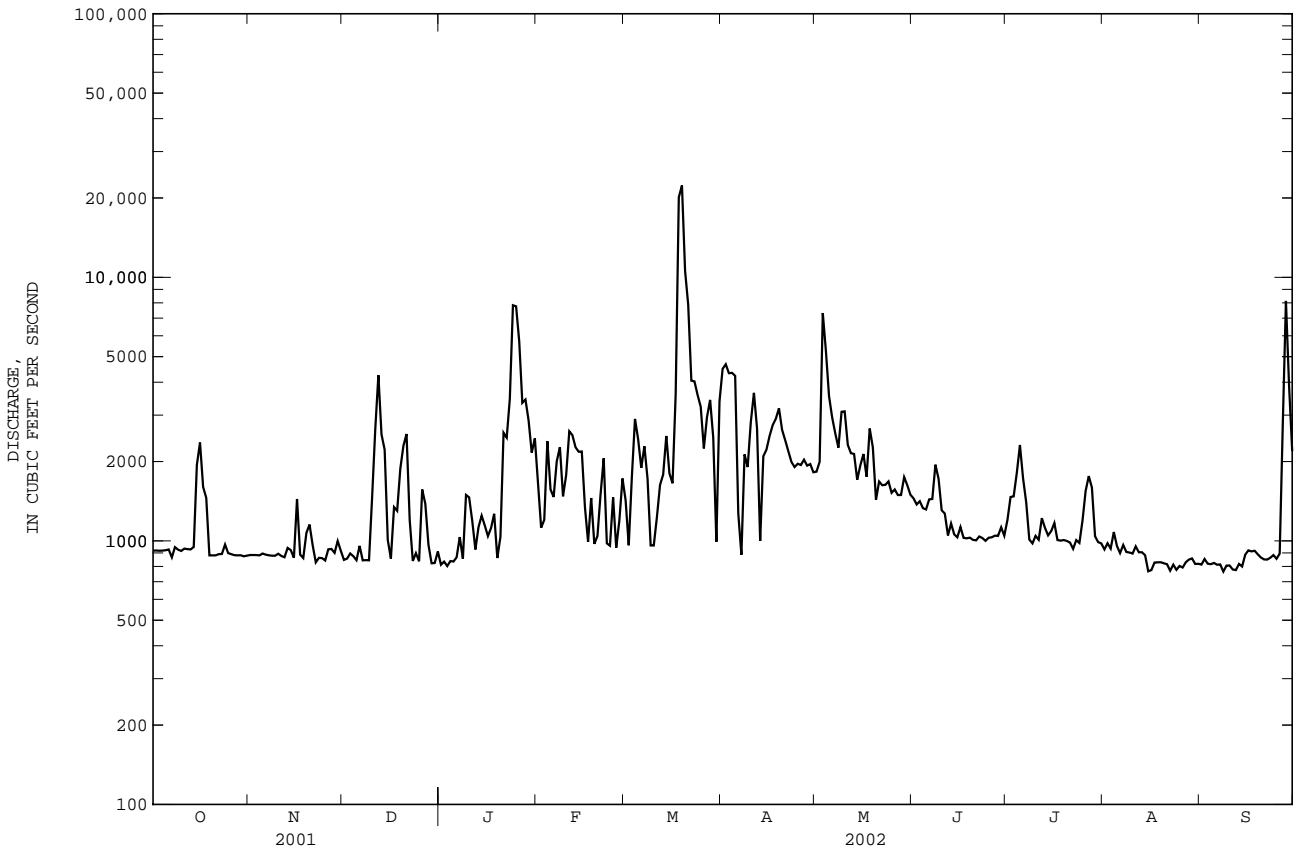
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2618	2979	3509	4291	5275	5966	5421	4464	3529	2739	2640	2420
MAX	7619	10300	7426	9459	10590	13130	14490	8875	9627	7545	14170	9855
(WY)	1990	1978	1962	1995	1998	1993	1987	1973	1992	1949	1940	1989
MIN	1028	925	1144	1064	1618	2016	2203	1721	1198	1208	867	1126
(WY)	2002	2002	1940	1940	2002	1988	1942	1941	2002	1988	2002	1968

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1940 - 2002

ANNUAL TOTAL	819103	623497	
ANNUAL MEAN	2244	1708	3813
HIGHEST ANNUAL MEAN			5471
LOWEST ANNUAL MEAN			1708
HIGHEST DAILY MEAN	18000	Jul 30	22300
LOWEST DAILY MEAN	798	Jan 4	765
ANNUAL SEVEN-DAY MINIMUM	872	Dec 3	793
MAXIMUM PEAK FLOW			32500
MAXIMUM PEAK STAGE			10.25
INSTANTANEOUS LOW FLOW			590
ANNUAL RUNOFF (CFSM)	0.82		0.62
ANNUAL RUNOFF (INCHES)	11.09		8.44
10 PERCENT EXCEEDS	3950		2880
50 PERCENT EXCEEDS	1520		1050
90 PERCENT EXCEEDS	881		838
			105000
			627
			793
			a218000
			a35.96
			b165
			1.39
			18.85
			7190
			2870
			1150

- a Prior to regulation, 1908-15, maximum peak flow, 46,000 ft³/s, May 21, 1909; maximum gage height, 15.00 ft, May 21, 1909 and Mar. 27, 1913, at site and datum then in use.
- b Prior to regulation, 1908-15, instantaneous low flow not determined.



KANAWHA RIVER BASIN

03173000 WALKER CREEK AT BANE, VA

LOCATION.--Lat 37°16'05", long 80°42'34", NAD83, Giles County, Hydrologic Unit 05050002, on left bank at Bane, 0.2 mi downstream from bridge on State Highway 100, 0.2 mi downstream from Sugar Run, and at mile 7.9.

DRAINAGE AREA.--305 mi².

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1946. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft NGVD of 1929. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-5, which is fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 25,000 ft³/s, from rating curve extended above 7,200 ft³/s on basis of slope-area measurements at gage heights 16.50 ft and 19.28 ft. 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 September 1878 reached a stage of about 23.5 ft, discharge, 40,400 ft³/s, from rating curve extended as explained above.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	1630	*5,570	*10.29	May 3	0830	5,500	10.24

**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	56	46	45	e40	143	69	1150	269	100	70	63	39
2	55	46	46	e38	130	75	908	346	137	66	58	39
3	54	46	46	e38	119	97	681	3270	143	97	53	38
4	52	46	44	e40	112	139	524	1470	117	159	48	37
5	51	45	41	e42	102	135	414	922	103	86	47	35
6	51	43	40	44	100	134	348	680	98	74	48	34
7	49	43	41	46	109	127	310	546	96	67	45	32
8	49	43	41	45	115	117	277	454	99	60	42	31
9	49	43	42	43	121	112	254	380	92	53	41	30
10	50	42	44	46	127	105	282	339	83	56	39	30
11	49	41	74	52	142	100	267	298	77	75	38	28
12	50	41	131	52	157	97	239	263	74	77	38	27
13	51	41	96	55	153	103	239	251	73	78	37	27
14	55	41	76	54	144	118	282	265	76	76	36	28
15	58	41	71	51	133	126	333	244	74	70	35	32
16	55	41	65	49	126	129	321	211	73	113	37	36
17	56	41	61	48	121	451	322	191	71	100	36	33
18	55	41	61	48	116	3600	437	184	67	78	37	43
19	52	41	60	51	109	2430	350	177	65	74	34	278
20	51	42	61	57	102	1360	315	163	64	68	33	82
21	51	41	59	63	100	961	286	152	72	64	33	52
22	50	41	56	73	96	719	267	144	64	62	35	45
23	50	41	54	208	92	557	244	136	60	59	34	43
24	52	42	54	1060	88	448	213	130	57	61	33	42
25	50	46	53	757	84	372	240	123	60	106	33	51
26	48	46	52	564	82	322	324	117	55	129	33	72
27	46	48	50	382	78	307	311	111	57	116	36	279
28	46	46	47	278	75	274	299	150	70	114	41	312
29	46	43	49	218	---	242	307	125	72	91	41	159
30	46	44	47	184	---	223	289	112	79	76	41	102
31	46	---	41	160	---	328	---	104	---	68	40	---
TOTAL	1579	1292	1748	4886	3176	14377	11033	12327	2428	2543	1245	2116
MEAN	50.9	43.1	56.4	158	113	464	368	398	80.9	82.0	40.2	70.5
MAX	58	48	131	1060	157	3600	1150	3270	143	159	63	312
MIN	46	41	40	38	75	69	213	104	55	53	33	27
CFSM	0.17	0.14	0.18	0.52	0.37	1.52	1.21	1.30	0.27	0.27	0.13	0.23
IN.	0.19	0.16	0.21	0.60	0.39	1.75	1.35	1.50	0.30	0.31	0.15	0.26

03173000 WALKER CREEK AT BANE, VA--Continued

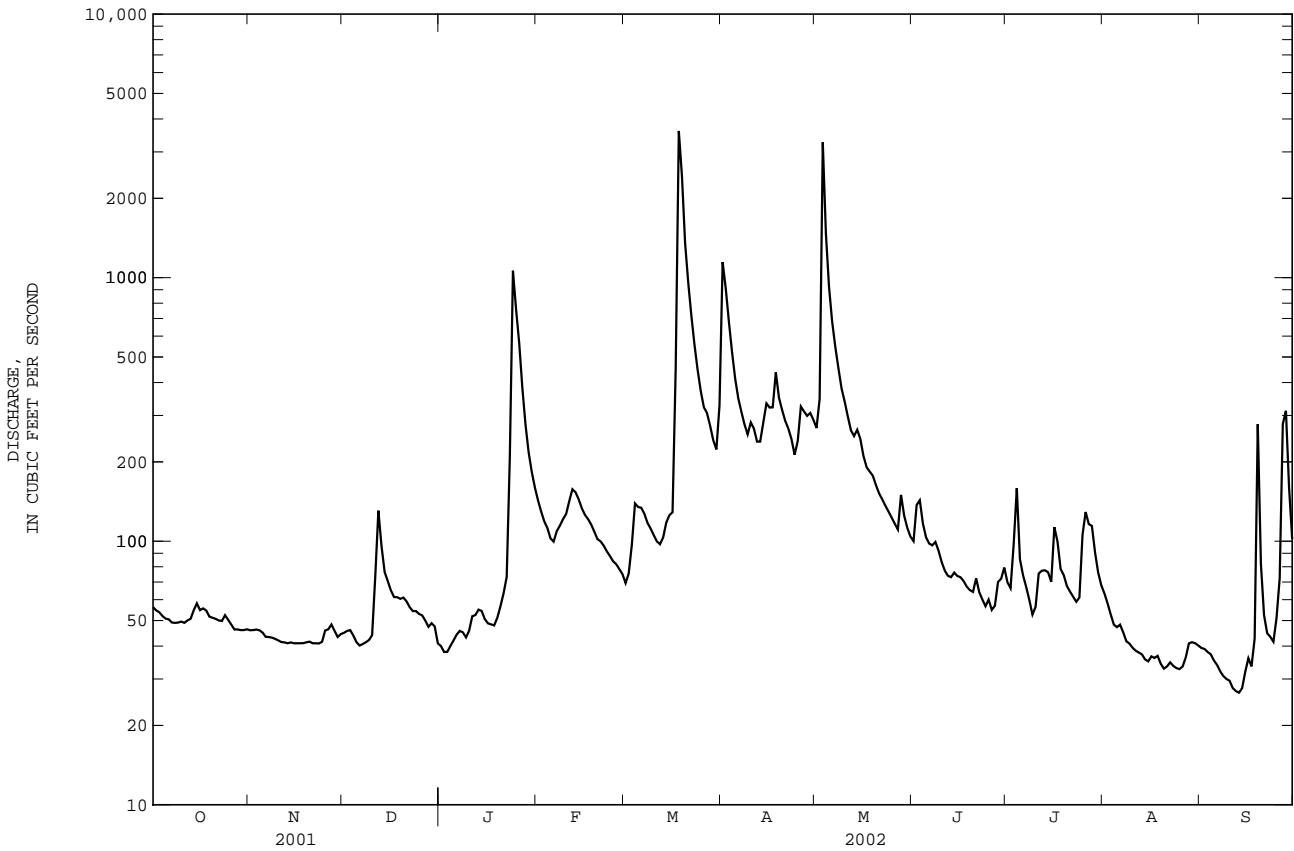
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	124	178	303	432	582	685	537	427	235	141	127	96.9
MAX	721	737	941	1191	1577	1800	1806	1096	1125	735	759	639
(WY)	1990	1980	1973	1996	1957	1955	1987	2001	1992	1938	1949	1989
MIN	34.7	42.4	44.9	44.8	95.6	108	126	115	60.6	41.6	33.7	35.6
(WY)	1964	1999	1956	1956	1942	1988	1986	1941	1988	1988	1988	1955

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1938 - 2002

ANNUAL TOTAL	91510	58750	
ANNUAL MEAN	251	161	320
HIGHEST ANNUAL MEAN			553 1949
LOWEST ANNUAL MEAN			135 1988
HIGHEST DAILY MEAN	5270 May 22	3600 Mar 18	14100 Jun 5 1992
LOWEST DAILY MEAN	40 Dec 6	27 aSep 12	24 bSep 27 1964
ANNUAL SEVEN-DAY MINIMUM	41 Nov 11	29 Sep 8	28 Sep 22 1964
MAXIMUM PEAK FLOW		5570 Mar 18	25000 Jun 5 1992
MAXIMUM PEAK STAGE		10.29 Mar 18	19.28 Jun 5 1992
INSTANTANEOUS LOW FLOW		26 cSep 13	d15 Dec 21 1958
ANNUAL RUNOFF (CFSM)	0.82	0.53	1.05
ANNUAL RUNOFF (INCHES)	11.16	7.17	14.25
10 PERCENT EXCEEDS	426	317	720
50 PERCENT EXCEEDS	98	69	154
90 PERCENT EXCEEDS	46	39	48

- a Also Sept. 13, 2002.
- b Also Sept. 28, 1964.
- c Also Sept. 14, 2002.
- d Result of freezeup.
- e Estimated.



KANAWHA RIVER BASIN

03175500 WOLF CREEK NEAR NARROWS, VA

LOCATION.--Lat 37°18'20", long 80°50'59", NAD83, Giles County, Hydrologic Unit 05050002, on right bank at downstream side of bridge on State Highway 724, 2.8 mi southwest of Narrows, and at mile 3.5.

DRAINAGE AREA.--223 mi².

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to September 1995, October 1996 to current year.

REVISED RECORDS.--WSP 973: 1940-41(M). WSP 1235: 1912-13, 1915-16. WSP 1505: 1940, monthly and yearly runoff. WSP 1725: 1913(M), 1915-16(M), 1941 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,583.83 ft NGVD of 1929. July 22, 1908, to Sept. 30, 1916, and Mar. 31 to Nov. 7, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except for period with ice effect Jan. 1-4, which is fair. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 12,900 ft³/s, from rating curve extended above 5,700 ft³/s on basis of contracted-opening measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 24	0030	2,230	6.70	May 3	0500	*5,980	*9.63
Mar 18	1430	5,220	9.20				

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	64	59	59	e42	245	85	863	293	100	77	68	34
2	61	58	60	e40	217	96	742	637	150	68	62	33
3	60	58	59	e40	193	139	609	4050	139	67	57	31
4	58	58	57	e41	177	173	494	1520	109	141	52	29
5	56	58	55	43	157	146	409	976	100	104	50	29
6	56	58	55	52	156	163	352	709	93	79	49	29
7	58	58	53	52	165	150	308	596	151	66	47	29
8	60	58	54	49	188	141	273	501	135	57	43	27
9	59	55	58	43	185	132	251	425	106	53	40	27
10	57	55	65	53	189	126	244	372	93	55	39	27
11	56	55	119	66	201	117	210	314	84	62	37	29
12	56	55	144	93	203	113	186	274	77	71	37	28
13	58	54	105	99	198	133	212	255	75	60	35	27
14	63	53	100	84	183	159	519	282	77	73	33	26
15	76	55	99	80	169	156	454	248	81	410	32	33
16	82	53	89	73	163	176	377	215	75	189	31	42
17	74	53	83	71	159	670	323	194	68	108	31	45
18	68	53	91	70	148	3730	287	190	63	83	35	43
19	65	53	113	72	136	2480	261	196	60	83	38	42
20	64	53	109	94	130	1330	250	170	58	81	35	39
21	63	53	99	152	128	1060	236	155	59	76	33	37
22	62	53	89	182	122	831	243	146	57	66	32	50
23	62	53	83	743	116	654	245	137	53	60	30	160
24	61	54	82	1850	111	540	219	128	52	70	30	65
25	61	59	83	1570	105	451	293	119	51	87	33	46
26	59	64	75	1070	102	387	362	124	57	190	38	53
27	59	62	66	691	98	371	340	130	55	232	45	239
28	59	59	66	515	90	315	331	129	114	164	40	240
29	59	58	67	406	---	284	366	121	136	114	39	123
30	59	58	63	333	---	270	319	106	99	90	38	82
31	59	---	43	281	---	370	---	97	---	77	35	---
TOTAL	1914	1685	2443	9050	4434	15948	10578	13809	2627	3213	1244	1744
MEAN	61.7	56.2	78.8	292	158	514	353	445	87.6	104	40.1	58.1
MAX	82	64	144	1850	245	3730	863	4050	151	410	68	240
MIN	56	53	43	40	90	85	186	97	51	53	30	26
CFSM	0.28	0.25	0.35	1.31	0.71	2.31	1.58	2.00	0.39	0.46	0.18	0.26
IN.	0.32	0.28	0.41	1.51	0.74	2.66	1.76	2.30	0.44	0.54	0.21	0.29

03175500 WOLF CREEK NEAR NARROWS, VA--Continued

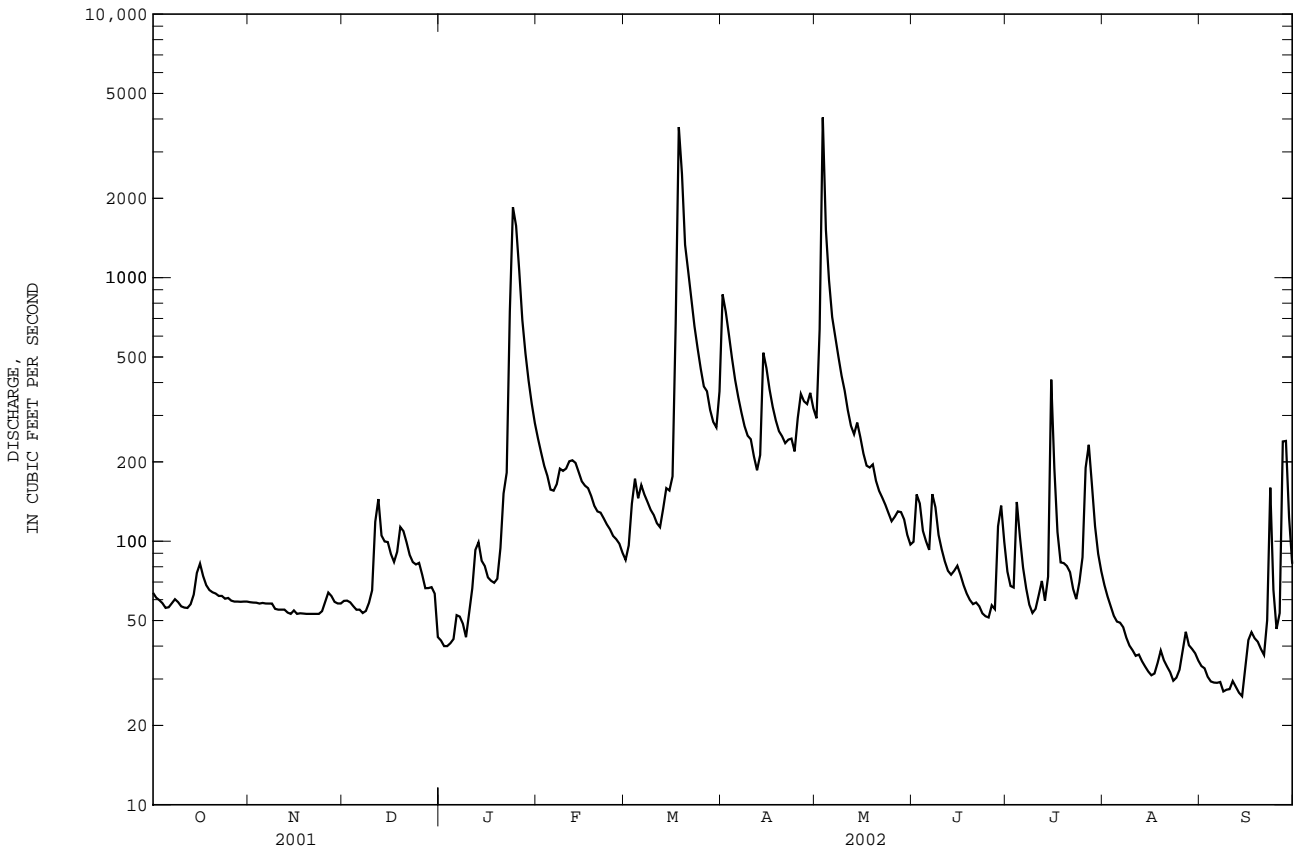
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 1916, 1938 - 1995, 1997 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	107	157	295	426	544	643	482	375	204	140	113	77.9
MAX	621	754	850	1128	1469	1789	1728	1059	748	964	512	576
(WY)	1990	1978	1973	1957	1957	1955	1987	1971	1992	1916	1916	1989
MIN	21.4	28.6	31.1	50.0	122	113	120	99.4	49.3	32.9	26.8	27.4
(WY)	1964	1940	1940	1940	1942	1988	1995	1941	1914	1988	1988	1964

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1908 - 1916 1938 - 1995 1997 - 2002

ANNUAL TOTAL		99716		68689						295		
ANNUAL MEAN		273		188						475		1972
HIGHEST ANNUAL MEAN										126		1988
LOWEST ANNUAL MEAN										126		1988
HIGHEST DAILY MEAN			4100	Jul 30		4050	May 3		8380	Apr 5		1977
LOWEST DAILY MEAN			28	Jan 10		26	Sep 14		10	Sep 4		1999
ANNUAL SEVEN-DAY MINIMUM			41	Jan 1		27	Sep 8		16	Aug 29		1999
MAXIMUM PEAK FLOW						5980	May 3		12900	Jan 29		1957
MAXIMUM PEAK STAGE						9.63	May 3		a12.55	Jan 29		1957
INSTANTANEOUS LOW FLOW						b19	Dec 31		b8.8	Dec 25		1953
ANNUAL RUNOFF (CFSM)			1.23			0.84			1.32			
ANNUAL RUNOFF (INCHES)			16.63			11.46			17.99			
10 PERCENT EXCEEDS			598			370			678			
50 PERCENT EXCEEDS			118			82			150			
90 PERCENT EXCEEDS			56			39			38			

- a From floodmark in well; floodmark on downstream side of bridge was 13.8 ft.
- b Result of freezeup.
- e Estimated.



KANAWHA RIVER BASIN

03176500 NEW RIVER AT GLEN LYN, VA

LOCATION.--Lat 37°22'22", long 80°51'38", NAD83, Giles County, Hydrologic Unit 05050002, on right bank 90 ft upstream from bridge on U.S. Highway 460 at Glen Lyn, 0.3 mi upstream from East River, and 6.3 mi downstream from Wolf Creek.

DRAINAGE AREA.--3,768 mi².

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.11 ft NGVD of 1929. Aug. 11, 1927, to Oct. 16, 1934, on left bank opposite present site at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank at site 200 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi upstream from station. Statistics of monthly mean data and summary statistics for water years 1928-1938 (unregulated flow) are available in previous data books, water years 1991-1998. Water withdrawn by American Electric Power at gage. U.S. Army Corps of Engineers satellite gage-height telemeter at station. Maximum discharge, 226,000 ft³/s, from rating curve extended above 89,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	1390	1210	1400	1330	3490	2120	7080	3560	1940	1340	1230	1000
2	1300	1220	1380	1180	2400	2000	7830	4370	1930	1400	1180	980
3	1290	1230	1230	1240	1800	1730	7160	17100	1910	1880	1180	964
4	1270	1210	1240	1170	1800	2580	6520	13900	1860	2480	1100	998
5	1260	1210	1240	1250	3050	3700	6080	8670	1720	2240	1270	966
6	1300	1240	1230	1250	2140	3170	5670	6630	1780	2730	1210	951
7	1250	1240	1300	1330	2170	2770	2690	5510	1930	1980	1050	926
8	1250	1230	1310	1510	2720	2970	2140	4640	1950	1610	1100	893
9	1290	1200	1250	1270	3000	2440	3420	4290	2440	1090	1050	868
10	1260	1200	1240	1860	2150	1530	3310	5170	2140	997	1040	894
11	1260	1220	2150	2050	2510	1410	4400	4270	1660	1240	1040	831
12	1270	1190	3590	1800	3520	1770	4970	3650	1570	2490	1080	885
13	1310	1190	5100	1510	3250	2210	3650	3410	1330	1850	1100	839
14	1320	1300	3180	1630	3050	2680	3010	3560	1400	1370	1060	925
15	1460	1190	2880	1770	2860	3100	4310	2820	1350	1580	1050	1000
16	2430	1250	1650	1650	2910	2460	4040	3080	1240	1430	956	1100
17	2770	1740	1410	1610	2050	3100	4210	3180	1330	1510	924	1210
18	2070	1370	1930	1520	1540	17900	4420	3580	1230	1220	960	1140
19	1970	1230	1860	1840	2040	37900	4600	3520	1170	1230	1070	2100
20	1250	1410	2550	1510	1490	15900	4770	2590	1220	1300	994	1570
21	1240	1530	2830	1600	1560	12600	4220	2120	1130	1200	945	1100
22	1230	1400	3090	3220	2040	8520	4090	2340	1170	1110	896	1140
23	1260	1230	1790	3610	2590	6180	3910	2280	1160	1100	944	1190
24	1250	1250	1460	8660	1540	5870	3560	2230	1100	1210	879	1080
25	1290	1280	1380	11700	1370	5190	3620	2270	1180	1290	972	1020
26	1240	1250	1360	10000	1970	4830	3850	2140	1210	3390	926	1180
27	1220	1300	2020	7050	1350	3770	3760	2150	1340	2770	1030	1660
28	1190	1340	1900	4810	1610	4390	3880	2090	1500	2670	994	6050
29	1200	1330	1550	5160	---	4740	3920	2050	1560	2190	997	8370
30	1200	1390	1260	3610	---	3680	3780	2320	1460	1500	1020	3650
31	1210	---	1230	3140	---	2550	---	2020	---	1340	996	---
TOTAL	43500	38580	58990	92840	63970	175760	132870	131510	45910	52737	32243	47480
MEAN	1403	1286	1903	2995	2285	5670	4429	4242	1530	1701	1040	1583
MAX	2770	1740	5100	11700	3520	37900	7830	17100	2440	3390	1270	8370
MIN	1190	1190	1230	1170	1350	1410	2140	2020	1100	997	879	831
(†)	-655	-202	+706	-958	+655	-605	+807	+202	+302	-202	-4230	+4390
MEAN†	1382	1279	1926	2964	2308	5650	4456	4249	1540	1695	904	1729
CFSM†	.37	.34	.51	.79	.61	1.50	1.18	1.13	.41	.45	.24	.46
IN.†	.42	.38	.59	.91	.64	1.73	1.32	1.30	.46	.52	.28	.51

CAL YR 2001 MEAN† 3319 CFSM† .88 IN.† 11.96

WTR YR 2002 MEAN† 2511 CFSM† .67 IN.† 9.05

† Total change in contents, equivalent in cubic feet per second, per month, in Claytor Reservoir; provided by American Electric Power.

‡ Adjusted for monthly change in contents.

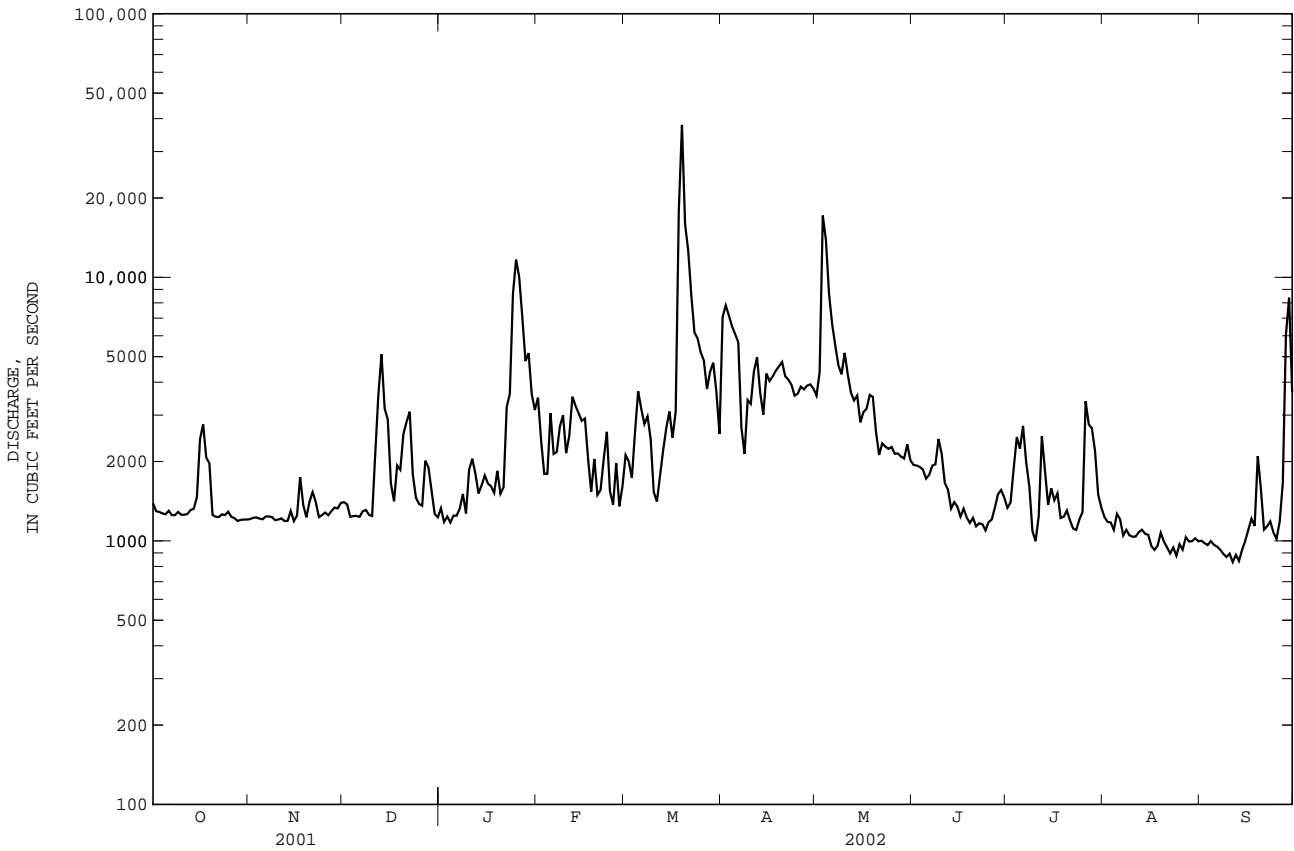
03176500 NEW RIVER AT GLEN LYN, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	3122	3637	4555	5831	7303	8283	7316	5957	4375	3241	3128	2795
MAX	9882	12450	10910	13290	15810	18650	20890	11270	12860	9784	16410	11500
(WY)	1990	1978	1949	1996	1957	1993	1987	1984	1992	1949	1940	1989
MIN	1204	1258	1305	1489	2285	2407	2673	2397	1373	1390	1040	1127
(WY)	1989	1982	1998	1966	2002	1988	1986	1941	1999	1988	2002	1998

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1939 - 2002	
ANNUAL TOTAL	1203330		916390			
ANNUAL MEAN	3297		2511		4949	
HIGHEST ANNUAL MEAN					7424	
LOWEST ANNUAL MEAN					2511	
HIGHEST DAILY MEAN	29800		May 23		126000	
LOWEST DAILY MEAN	1190		aOct 28		b557	
ANNUAL SEVEN-DAY MINIMUM	1210		Oct 27		646	
MAXIMUM PEAK FLOW			43500		c226000	
MAXIMUM PEAK STAGE			11.28		c27.50	
INSTANTANEOUS LOW FLOW			808		f,b449	
ANNUAL RUNOFF (CFSM)	0.87		0.67		1.31	
ANNUAL RUNOFF (INCHES)	11.88		9.05		17.85	
10 PERCENT EXCEEDS	5830		4410		9540	
50 PERCENT EXCEEDS	2120		1560		3600	
90 PERCENT EXCEEDS	1250		1050		1500	

- a Also Nov. 12, 13, 15, 2001.
- b Affected by withdrawals.
- c Prior to regulation, 1928-38, maximum peak flow, 99,000 ft³/s, Oct. 3, 1929, gage height, 16.75 ft.
- d Also Sept. 11, 13, 2002
- f Prior to regulation, 1928-38, instantaneous low flow, 770 ft³/s, Sept. 8, 1930.
- g Also Aug. 19, 1999.



BIG SANDY RIVER BASIN

03207800 LEVISA FORK AT BIG ROCK, VA

LOCATION.--Lat 37°21'13", long 82°11'44", NAD83, Buchanan County, Hydrologic Unit 05070202, on left bank at Big Rock, 2,000 ft downstream from Rocklick Creek, and 2,500 ft downstream from bridge on State Highway 645.

DRAINAGE AREA.--297 mi².

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft NGVD of 1929.

REMARKS.--Records good except those for periods with ice effect, Dec. 28 to Jan. 3 and Jan. 7, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 56,000 ft³/s, from rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow. 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 Jan. 29, 1957, reached a stage of about 23.0 ft, information from local resident.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	1030	9,100	11.30	May 3	0030	*14,700	*14.15

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	46	37	35	e40	210	98	2080	571	169	116	72	40
2	43	37	33	e39	185	108	1300	2700	280	108	66	39
3	44	41	32	e39	166	135	874	6210	196	106	59	39
4	43	43	30	41	159	122	650	1810	164	116	64	37
5	40	41	27	42	147	102	537	1170	148	108	71	34
6	63	39	26	41	141	105	466	857	193	117	57	32
7	69	37	27	e44	245	100	413	729	384	81	52	31
8	53	36	41	48	374	98	379	641	234	73	48	32
9	45	34	88	51	351	99	404	570	172	67	46	31
10	42	34	79	52	308	101	649	515	145	90	45	28
11	42	35	115	221	275	96	654	442	128	161	47	27
12	44	35	107	284	236	91	565	400	131	94	47	25
13	48	33	99	184	216	124	511	428	219	87	44	27
14	56	32	137	129	191	138	622	461	304	116	42	24
15	68	33	113	107	175	131	572	384	184	96	41	30
16	53	33	87	93	167	265	500	334	145	74	48	31
17	52	32	76	85	162	1820	468	303	128	63	49	32
18	49	32	102	80	153	5880	691	545	110	69	59	29
19	46	33	92	102	140	2130	658	436	101	120	80	31
20	44	36	80	329	137	1310	604	362	97	731	73	29
21	45	34	71	285	147	1220	529	316	89	310	52	33
22	42	32	64	248	134	919	765	279	82	152	44	42
23	41	33	61	1350	126	690	749	250	79	139	43	54
24	40	35	66	1950	119	565	603	228	77	131	43	47
25	51	41	65	3120	114	480	895	208	103	108	46	37
26	50	41	57	1140	111	486	968	194	143	108	68	156
27	44	37	53	612	110	692	792	196	205	107	129	200
28	40	34	e48	424	102	624	777	181	333	112	60	90
29	40	33	e46	330	---	538	813	197	234	95	51	67
30	39	35	e44	270	---	583	664	170	150	83	46	52
31	38	---	e42	231	---	993	---	153	---	79	41	---
TOTAL	1460	1068	2043	12011	5101	20843	21152	22240	5127	4017	1733	1406
MEAN	47.1	35.6	65.9	387	182	672	705	717	171	130	55.9	46.9
MAX	69	43	137	3120	374	5880	2080	6210	384	731	129	200
MIN	38	32	26	39	102	91	379	153	77	63	41	24
CFSM	0.16	0.12	0.22	1.30	0.61	2.26	2.37	2.42	0.58	0.44	0.19	0.16
IN.	0.18	0.13	0.26	1.50	0.64	2.61	2.65	2.79	0.64	0.50	0.22	0.18

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

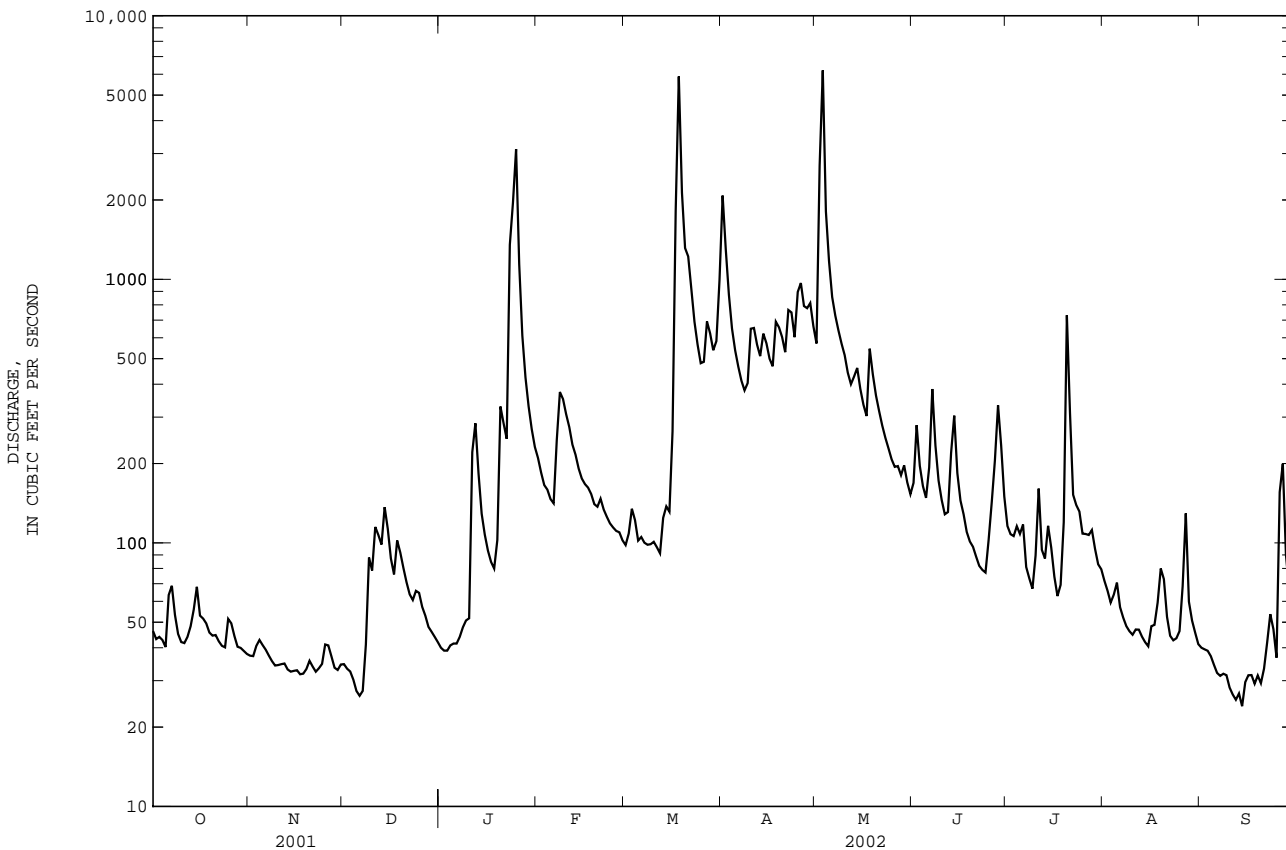
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	123	197	341	544	656	747	690	516	274	169	126	81.1
MAX	692	911	1201	1596	1451	2107	2355	1323	1135	630	422	273
(WY)	1990	1978	1973	1974	1994	1975	1987	1984	1979	1979	2000	1989
MIN	6.85	19.3	54.4	82.7	168	139	154	113	40.2	29.1	33.3	12.6
(WY)	1970	1970	2001	1981	1968	1988	1986	1976	1970	1970	1969	1969

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1968 - 2002

ANNUAL TOTAL	93851	98201	
ANNUAL MEAN	257	269	371
HIGHEST ANNUAL MEAN			606
LOWEST ANNUAL MEAN			121
HIGHEST DAILY MEAN	3280	Feb 17	6210
LOWEST DAILY MEAN	26	Dec 6	24
ANNUAL SEVEN-DAY MINIMUM	30	Dec 1	27
MAXIMUM PEAK FLOW			14700
MAXIMUM PEAK STAGE			14.15
INSTANTANEOUS LOW FLOW			22
ANNUAL RUNOFF (CFSM)	0.87	0.91	1.25
ANNUAL RUNOFF (INCHES)	11.76	12.30	16.95
10 PERCENT EXCEEDS	548	644	820
50 PERCENT EXCEEDS	118	101	175
90 PERCENT EXCEEDS	35	34	36

a Also Sept. 13-15, 2002.
 b Also Oct. 13, 14, 17-20, 1969.
 e Estimated.



BIG SANDY RIVER BASIN

03208500 RUSSELL FORK AT HAYSI, VA

LOCATION.--Lat 37°12'25", long 82°17'45", NAD83, Dickenson County, Hydrologic Unit 05070202, on right bank 180 ft downstream from bridge on State Highway 63, at Haysi, and 700 ft downstream from McClure River.

DRAINAGE AREA.--286 mi².

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft NGVD of 1929. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

REMARKS.--Records good except those for periods with ice effect Dec. 30 to Jan. 2 and Jan. 6-8, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 59,000 ft³/s, from rating curve extended above 32,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 23	1400	13,400	12.07	Mar 18	0600	*26,100	*17.99
Jan 25	0430	6,070	7.78	May 3	0000	7,750	8.80

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	51	34	30	e42	292	93	2300	371	132	111	56	33
2	49	34	32	e40	244	102	1360	1630	166	95	46	30
3	49	35	31	39	209	132	905	3760	145	112	40	29
4	49	35	29	39	195	117	646	1370	129	97	42	27
5	45	36	28	38	169	95	519	843	115	80	49	23
6	65	34	27	e40	158	102	437	601	140	71	39	20
7	78	32	27	e44	382	109	371	498	244	60	33	21
8	58	30	27	e48	779	102	328	429	159	54	31	22
9	47	32	74	53	622	98	353	355	128	52	31	19
10	45	32	95	59	508	100	545	300	114	57	28	18
11	43	29	147	289	427	90	525	237	104	105	28	19
12	42	29	138	467	348	93	474	211	97	78	30	19
13	44	30	148	249	302	123	435	269	182	68	30	17
14	44	28	243	172	253	125	864	415	262	100	26	17
15	60	27	179	152	226	118	675	298	165	78	24	19
16	58	28	132	134	215	414	525	233	128	58	32	19
17	49	28	110	118	197	3370	469	206	112	51	51	19
18	46	26	110	112	174	14800	956	569	97	46	57	19
19	43	27	108	153	151	3160	726	358	88	53	46	21
20	42	31	98	674	149	1740	544	244	80	54	63	20
21	42	29	80	495	156	1510	440	213	69	66	48	18
22	42	28	70	415	140	1110	458	189	65	57	35	27
23	41	28	64	6130	128	803	386	174	61	58	34	46
24	40	29	64	3500	120	643	339	164	62	78	36	40
25	46	30	64	4340	113	524	680	153	131	151	39	29
26	48	35	58	1590	112	527	711	153	127	128	55	150
27	44	36	52	880	109	701	579	170	370	84	135	298
28	40	33	50	621	100	610	583	148	363	60	69	113
29	39	30	48	491	---	540	560	153	226	54	45	69
30	36	28	e46	396	---	521	428	136	146	61	40	50
31	32	---	e44	332	---	1030	---	126	---	62	35	---
TOTAL	1457	923	2453	22152	6978	33602	19121	14976	4407	2339	1353	1271
MEAN	47.0	30.8	79.1	715	249	1084	637	483	147	75.5	43.6	42.4
MAX	78	36	243	6130	779	14800	2300	3760	370	151	135	298
MIN	32	26	27	38	100	90	328	126	61	46	24	17
CFSM	0.16	0.11	0.28	2.50	0.87	3.79	2.23	1.69	0.51	0.26	0.15	0.15
IN.	0.19	0.12	0.32	2.88	0.91	4.37	2.49	1.95	0.57	0.30	0.18	0.17

03208500 RUSSELL FORK AT HAYSI, VA--Continued

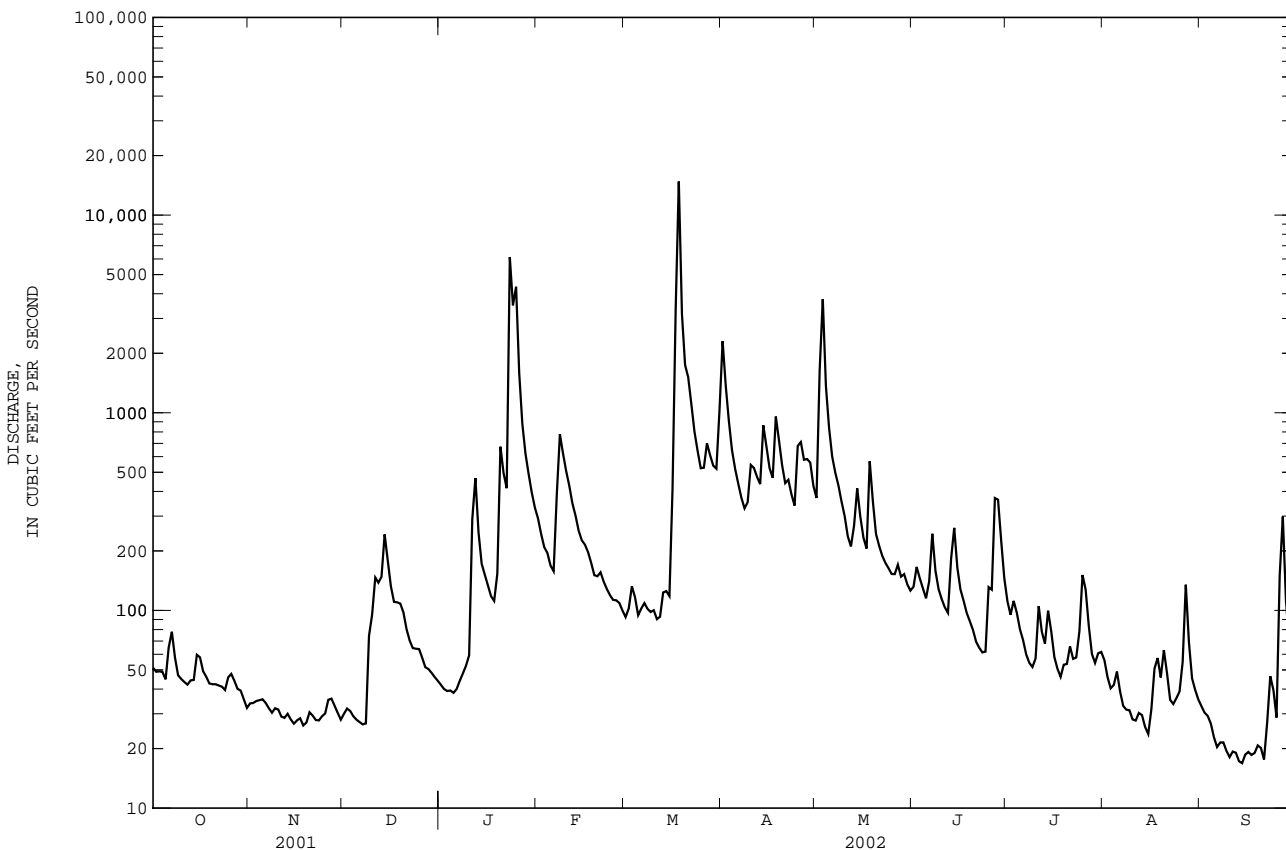
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	85.5	160	321	511	639	773	584	417	187	158	122	63.5
MAX	838	961	1326	2083	1797	2331	1994	1429	738	862	561	608
(WY)	1990	1978	1927	1937	1939	1955	1977	1958	1998	2001	1966	1989
MIN	0.98	2.46	11.1	19.6	57.7	168	64.0	63.4	21.6	3.03	8.81	2.07
(WY)	1954	1954	1954	1940	1941	1988	1942	1941	1966	1930	1953	1943

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 2002

ANNUAL TOTAL		109282		111032								
ANNUAL MEAN		299		304						334		
HIGHEST ANNUAL MEAN										568		1994
LOWEST ANNUAL MEAN										100		1941
HIGHEST DAILY MEAN				8240	Jul 29		14800	Mar 18		30600	Apr 4	1977
LOWEST DAILY MEAN				25	aJan 5		17	bSep 13		0.20	Jun 27	1936
ANNUAL SEVEN-DAY MINIMUM				26	Jan 4		18	Sep 9		0.56	Jun 24	1936
MAXIMUM PEAK FLOW							26100	Mar 18		59000	Apr 4	1977
MAXIMUM PEAK STAGE							17.99	Mar 18		28.24	Apr 4	1977
INSTANTANEOUS LOW FLOW							17	cSep 13		d0.20	fJun 27	1936
ANNUAL RUNOFF (CFSM)				1.05			1.06			1.17		
ANNUAL RUNOFF (INCHES)				14.21			14.44			15.86		
10 PERCENT EXCEEDS				598			581			734		
50 PERCENT EXCEEDS				121			95			130		
90 PERCENT EXCEEDS				30			29			16		

- a Also Jan. 10, 2001.
- b Also Sept. 14, 2002.
- c Also Sept. 14, 15, 21, 2002.
- d Observed.
- e Estimated.
- f Also June 28, 1936.



BIG SANDY RIVER BASIN

03208680 NORTH FORK OF POUND LAKE AT POUND, VA

LOCATION.--Lat 37°07'27", long 82°37'52", NAD83, Wise County, Hydrologic Unit 05070202, in control tower of North Fork Pound Dam at Pound, 1,200 ft upstream from Stacy Branch, and 1.2 mi upstream from South Fork Pound River.

DRAINAGE AREA.--17.2 mi².

PERIOD OF RECORD.--July 1966 to current year. Published as "North Fork Pound River Lake" prior to October 1993.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Aug. 29, 1966, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by rockfill dam. Spillway with crest at elevation 1,644.0 ft is in a saddle 350 ft southeast of dam. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,556.5 ft. Storage began in September 1964 during construction with peak discharge affected thereafter; initial filling for regular operation started July 13, 1966. Total capacity at elevation 1,644.0 ft, top of spillway, is 11,290 acre-ft of which 8,110 acre-ft is flood-control storage for summer operations between elevations 1,611.0 ft, top of summer conservation pool, and 1,644.0 ft; an additional 1,290 acre-ft is available for flood control during the period December to March between elevations 1,601.0 ft, top of winter conservation pool, and 1,611.0 ft; contents at established minimum pool, 1,601.0 ft, is 1,900 acre-ft; dead storage is 7 acre-ft below elevation 1,556.5 ft. Figures given herein represent total contents. Lake is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite precipitation and elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

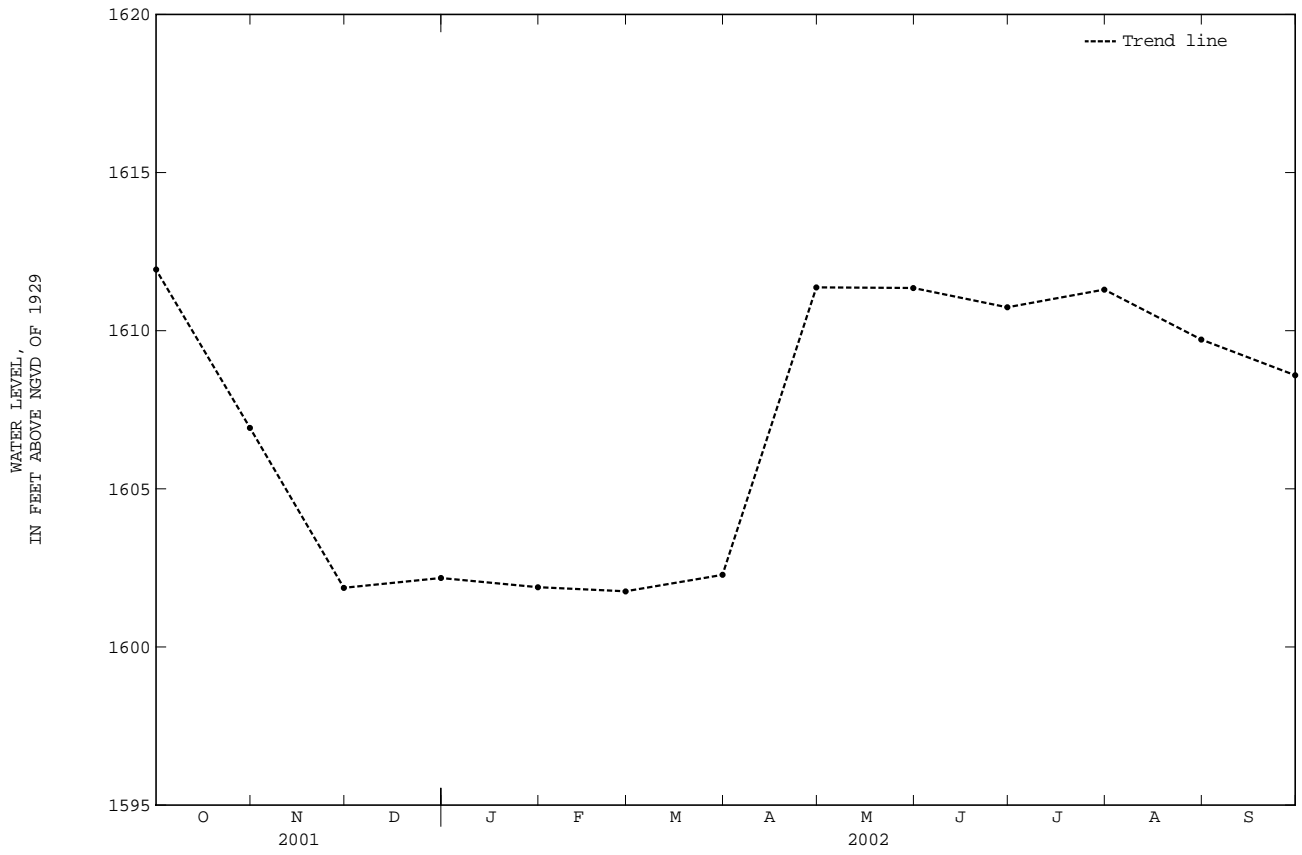
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,920 acre-ft, Apr. 8, 1977, elevation, 1,629.41 ft; minimum (after initial filling for regular operation), 1,660 acre-ft, Jan. 23, 1969, elevation, 1,598.62 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,930 acre-ft, Mar. 18, elevation, 1,615.49 ft; minimum, 1,940 acre-ft, Jan. 12, elevation, 1,601.44 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,611.19	3,210	-
Oct. 31.....	1,606.93	2,600	-610
Nov. 30.....	1,601.87	1,990	-610
Dec. 31.....	1,602.18	2,020	+30
CAL YR 2001.....			+10
Jan. 31.....	1,601.89	1,990	-30
Feb. 28.....	1,601.76	1,980	-10
Mar. 31.....	1,602.28	2,030	+50
Apr. 30.....	1,611.37	3,240	+1,210
May 31.....	1,611.35	3,240	0
June 30.....	1,610.74	3,140	-100
July 31.....	1,611.30	3,230	+90
Aug. 31.....	1,609.72	2,990	-240
Sept. 30.....	1,608.59	2,830	-160
WTR YR 2002.....			-380

03208680 NORTH FORK OF POUND LAKE AT POUND, VA--Continued



BIG SANDY RIVER BASIN

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

LOCATION.--Lat 37°07'26", long 82°26'20", NAD83, Dickenson County, Hydrologic Unit 05070202, on left bank on State Highway 649, 500 ft downstream from Clinchfield Railway bridge, 1,000 ft downstream from Rush Creek, and 2.1 mi southeast of Clintwood.

DRAINAGE AREA.--66.5 mi².

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR VA-77-1: 1967(M). WDR VA-92-1: 1991(P).

GAGE.--Water-stage recorder. Datum of gage is 1,440.30 ft NGVD of 1929.

REMARKS.--Records good except those for periods with ice effect, Dec. 27-30 and Jan. 3, 7, 8, and periods with backwater from beaver dam, Sept. 5-10 and 13-23, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 18,000 ft³/s, from rating curve extended above 3,100 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality record for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 20.0 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 23	1200	2,560	11.15	Mar 17	1300	1,420	8.06
Jan 25	0130	1,310	7.73	Mar 18	0600	*7,720	*18.71

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	17	14	16	e12	66	29	353	70	29	14	15	14
2	17	14	14	12	57	31	222	139	30	24	14	12
3	16	14	e13	e12	57	42	161	305	30	146	13	12
4	15	14	e12	12	56	36	128	164	28	37	15	11
5	15	13	12	13	49	32	111	126	25	25	13	e10
6	25	13	11	13	46	32	99	103	27	20	12	e9.4
7	21	13	12	e13	93	31	89	93	36	17	12	e9.6
8	17	13	13	e14	139	29	83	90	26	22	11	e9.4
9	16	12	40	15	115	29	90	79	23	64	11	e8.4
10	15	12	26	18	100	31	126	73	21	24	11	e8.0
11	14	12	52	117	88	27	109	60	20	60	14	7.8
12	15	12	38	102	76	29	100	55	19	29	15	8.2
13	15	13	64	62	68	38	95	74	21	24	12	e7.8
14	18	13	83	45	59	38	96	94	26	30	11	e7.6
15	25	12	61	39	56	35	88	71	22	22	10	e7.8
16	18	12	43	33	54	116	81	58	19	19	11	e8.2
17	17	12	36	30	51	793	77	52	19	17	15	e8.4
18	16	12	40	30	47	3750	94	192	16	16	14	e8.2
19	15	11	34	48	44	575	86	107	16	16	13	e9.2
20	15	12	31	154	44	344	80	82	21	16	14	e9.0
21	15	12	26	113	44	276	76	68	15	14	13	e8.6
22	14	12	23	112	40	208	78	58	14	14	11	e12
23	14	12	22	1320	38	162	64	52	14	14	9.9	e30
24	15	12	24	741	35	137	59	47	14	22	15	19
25	18	13	20	798	34	119	110	42	14	82	12	14
26	20	16	18	302	34	121	103	43	16	38	52	82
27	16	13	e17	183	33	139	93	50	29	23	73	66
28	15	13	e16	129	30	123	93	41	24	18	23	30
29	15	12	e15	102	---	112	87	38	25	17	17	20
30	14	13	e14	84	---	107	75	34	17	16	14	16
31	14	---	13	73	---	199	---	32	---	17	13	---
TOTAL	512	381	859	4751	1653	7770	3206	2592	656	917	508.9	483.6
MEAN	16.5	12.7	27.7	153	59.0	251	107	83.6	21.9	29.6	16.4	16.1
MAX	25	16	83	1320	139	3750	353	305	36	146	73	82
MIN	14	11	11	12	30	27	59	32	14	14	9.9	7.6
CF5M	0.25	0.19	0.42	2.30	0.89	3.77	1.61	1.26	0.33	0.44	0.25	0.24
IN.	0.29	0.21	0.48	2.66	0.92	4.35	1.79	1.45	0.37	0.51	0.28	0.27

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA--Continued

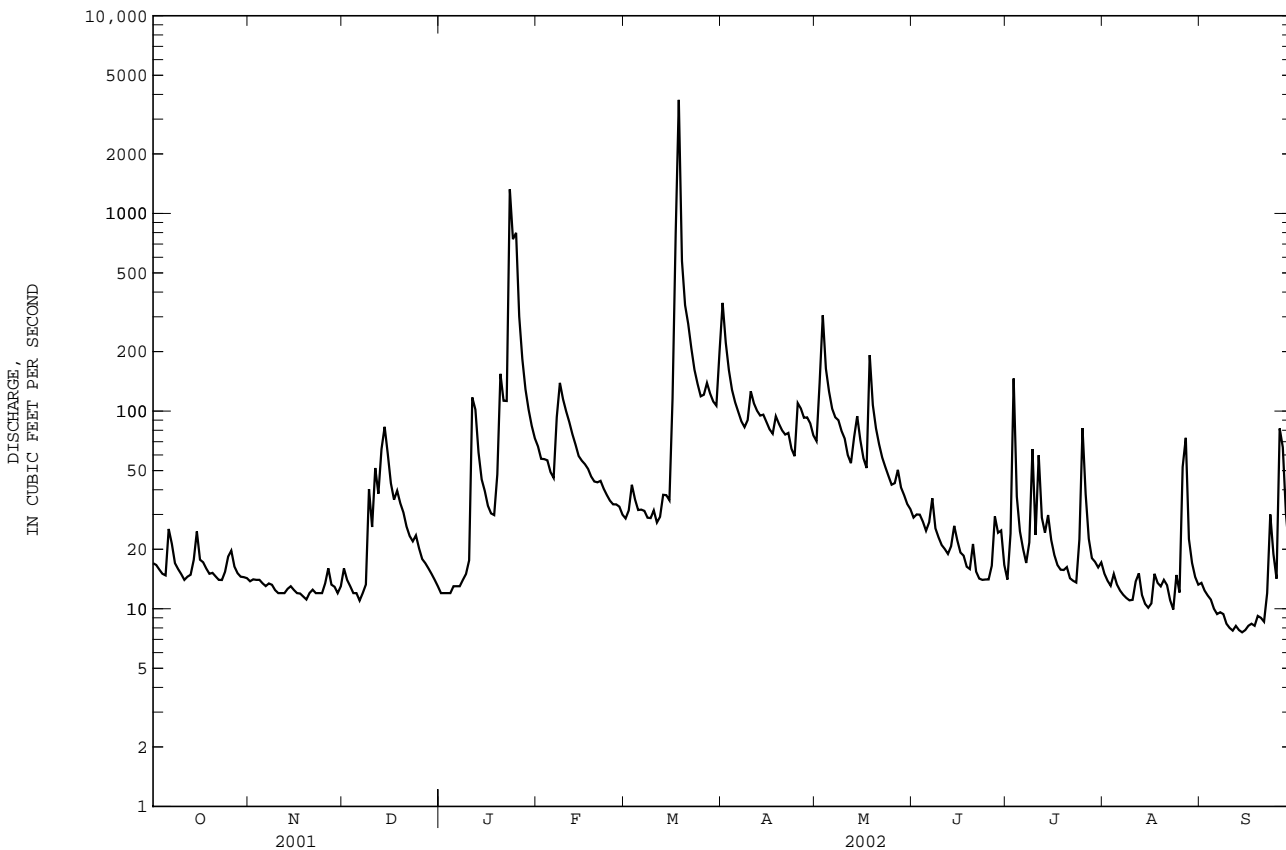
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	28.5	44.3	78.3	116	138	166	134	95.1	50.1	32.9	32.4	23.1
MAX	191	164	228	338	367	434	498	262	236	80.7	142	116
(WY)	1990	1978	1992	1972	1994	1975	1977	1984	1989	2001	1966	1982
MIN	1.67	6.33	4.41	5.98	36.6	37.8	28.1	21.2	7.40	5.50	6.74	3.95
(WY)	1964	1966	1966	1966	1968	1988	1986	1976	1966	1970	1999	1965

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1964 - 2002

ANNUAL TOTAL	21545.6		24289.5		78.0	
ANNUAL MEAN	59.0		66.5		34.7	
HIGHEST ANNUAL MEAN					126 1994	
LOWEST ANNUAL MEAN					8000 1988	
HIGHEST DAILY MEAN	981	Aug 13	3750	Mar 18	0.70	Apr 4 1977
LOWEST DAILY MEAN	7.0	aJan 4	7.6	Sep 14	0.93	Sep 17 1964
ANNUAL SEVEN-DAY MINIMUM	7.3	Jan 1	7.9	Sep 10	18000	Sep 12 1964
MAXIMUM PEAK FLOW			7720		18000	
MAXIMUM PEAK STAGE			18.71		b26.09	
INSTANTANEOUS LOW FLOW			6.7		0.48	
ANNUAL RUNOFF (CFSM)	0.89		1.00		1.17	
ANNUAL RUNOFF (INCHES)	12.05		13.59		15.93	
10 PERCENT EXCEEDS	115		112		168	
50 PERCENT EXCEEDS	31		24		37	
90 PERCENT EXCEEDS	13		12		8.1	

a Also Jan. 5, 2001.
 b From floodmark.
 e Estimated.



BIG SANDY RIVER BASIN

03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA

LOCATION.--Lat 37°14'00", long 82°20'56", NAD83, Dickenson County, Hydrologic Unit 05070202, in control tower of John W. Flannagan Dam on Pound River, 1.3 mi upstream from Blacklog Branch, and 3.7 mi northwest of Haysi.

DRAINAGE AREA.--221 mi².

PERIOD OF RECORD.--September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Mar. 31, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by rockfill dam. Spillway with crest at elevation 1,410.0 ft is in a saddle 0.3 mi upstream from dam and is equipped with 6 radial gates 36 ft high by 42 ft wide. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,230.0 ft. Storage began in September 1961 during construction with peak discharge affected thereafter; initial filling for regular operations started in March 1965. Total capacity at elevation 1,446.0 ft, top of gates, is 145,700 acre-ft of which 78,600 acre-ft is controlled flood storage for summer operations between elevations 1,396.0 ft, top of summer conservation pool, and 1,446.0 ft; an additional 16,500 acre-ft is available for flood control during the period December to March between elevations 1,380.0 ft, top of winter conservation pool, and 1,396.0 ft; contents at established minimum pool, 1,314.0 ft, is 12,000 acre-ft; dead storage is 300 acre-ft below elevation 1,230.0 ft. Figures given herein represent total contents. Reservoir is used for flood control, low-water augmentation for water-quality control, and recreation. U.S. Army Corps of Engineers satellite precipitation and elevation telemeter at station.

COOPERATION.--Records were provided by the U.S. Army Corps of Engineers.

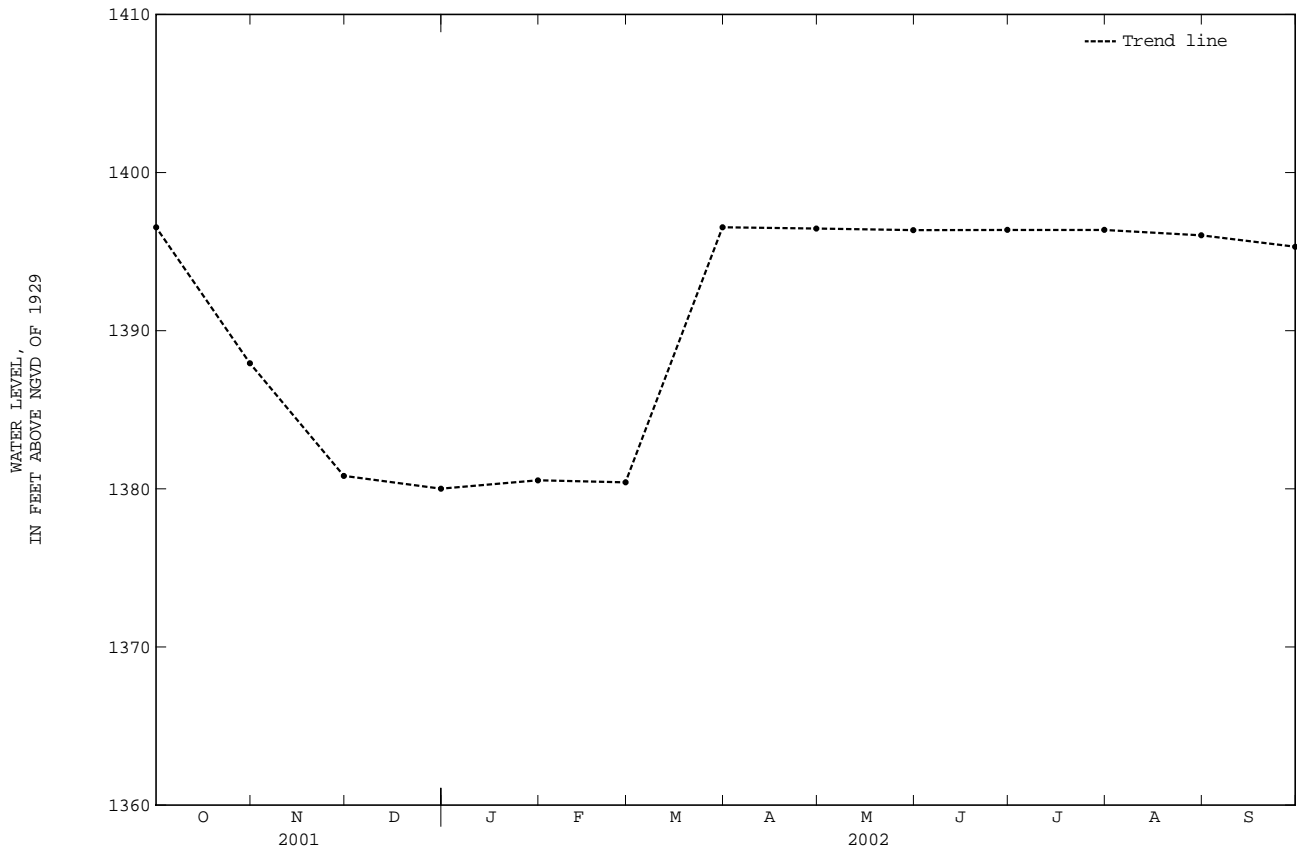
EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 116,500 acre-ft, Apr. 7, 1977, elevation, 1,430.80 ft; minimum (after initial filling for regular operation), 11,800 acre-ft, Apr. 1, 1965, elevation, 1,313.42 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 77,600 acre-ft, Mar. 19, elevation, 1,404.70 ft; minimum, 49,800 acre-ft, Jan. 10, elevation, 1,379.19 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,396.54	67,700	-
Oct. 31.....	1,387.94	58,300	-9,400
Nov. 30.....	1,380.82	51,300	-7,000
Dec. 31.....	1,380.01	50,600	-700
CAL YR 2001.....			+3,400
Jan. 31.....	1,380.54	51,100	+500
Feb. 28.....	1,380.41	51,000	-100
Mar. 31.....	1,396.54	67,700	+16,700
Apr. 30.....	1,396.46	67,600	-100
May 31.....	1,396.36	67,500	-100
June 30.....	1,396.37	67,500	0
July 31.....	1,396.37	67,500	0
Aug. 31.....	1,396.03	67,100	-400
Sept. 30.....	1,395.31	66,300	-800
WTR YR 2002.....			-1400

03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA--Continued



BIG SANDY RIVER BASIN

03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA

LOCATION.--Lat 37°14'13", long 82°20'36", NAD83, Dickenson County, Hydrologic Unit 05070202, on right bank 1,100 ft upstream from Blacklog Branch, 1,700 ft downstream from John W. Flannagan Dam, 1.4 mi upstream from mouth, and 3.4 mi northwest of Haysi.

DRAINAGE AREA.--221 mi².

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1963, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Dec. 20, 1939, nonrecording gage at site 3.8 mi upstream at different datum. Dec. 20, 1939, to Sept. 30, 1963, water-stage recorder at site 4.6 mi upstream at datum 79.91 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1,700 ft upstream and since August 1966 by North Fork of Pound Lake (station 03208680) 33 mi upstream. Statistics of monthly mean data and summary statistics for water years 1926-1964 (unregulated flow) are available in previous data books, water years 1991-1998. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, about 30,000 ft³/s, from rating curve extended above 1,750 ft³/s. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

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	54	126	65	75	260	107	1870	311	74	58	50	56
2	93	126	65	84	241	79	1120	369	147	51	50	60
3	126	127	99	90	241	79	630	1280	148	537	51	68
4	124	128	121	90	241	141	364	2010	125	394	51	72
5	124	128	119	90	102	142	298	1670	88	46	51	86
6	325	190	124	90	36	102	335	878	88	50	51	92
7	332	231	124	90	190	102	335	392	127	50	63	92
8	124	231	124	83	497	102	231	393	124	50	70	92
9	124	180	124	81	335	103	210	262	88	50	69	73
10	124	150	76	83	369	106	413	286	88	56	69	167
11	124	150	42	58	602	57	357	331	72	83	70	66
12	124	150	41	39	416	12	286	221	49	143	70	62
13	321	177	64	157	336	16	286	175	87	169	70	58
14	320	193	243	241	240	16	286	299	138	113	69	58
15	142	192	315	241	195	14	380	300	137	75	71	58
16	220	202	235	239	186	9.3	428	240	81	75	70	70
17	282	196	106	148	186	12	428	138	67	56	68	62
18	282	195	74	96	185	137	572	321	66	49	68	59
19	150	192	74	96	184	2040	424	535	65	50	59	57
20	279	192	75	265	184	2470	282	250	56	50	51	55
21	292	192	113	434	184	2450	286	203	50	50	49	54
22	76	192	133	645	143	2430	341	173	50	50	47	54
23	78	192	133	248	87	1320	370	131	50	50	50	52
24	142	192	133	1330	87	706	372	133	49	66	63	51
25	242	192	133	2450	140	967	567	133	48	123	68	53
26	242	192	81	2930	132	477	783	135	52	189	69	53
27	485	192	66	2900	120	581	275	137	85	168	52	53
28	485	124	75	2480	171	355	500	138	139	119	45	53
29	251	69	75	1460	---	340	502	138	142	119	48	53
30	251	65	75	688	---	412	402	172	114	81	53	53
31	203	---	75	300	---	503	---	158	---	50	56	---
TOTAL	6541	5058	3402	18301	6290	16387.3	13933	12312	2694	3270	1841	1992
MEAN	211	169	110	590	225	529	464	397	89.8	105	59.4	66.4
MAX	485	231	315	2930	602	2470	1870	2010	148	537	71	167
MIN	54	65	41	39	36	9.3	210	131	48	46	45	51
(†)	-5047	-3837	-338	+237	-55	+8444	+560	-50	-50	+45	-323	-484
MEAN†	48.2	40.7	98.8	598	223	801	483	396	88.1	107	49.0	50.3
CFSM†	.22	.18	.45	2.71	1.01	3.62	2.19	1.79	.40	.48	.22	.23
IN.†	.25	.21	.52	3.12	1.05	4.18	2.44	2.07	.44	.56	.26	.25

CAL YR 2001 MEAN† 225 CFSM† 1.02 IN.† 13.82

WTR YR 2002 MEAN† 250 CFSM† 1.13 IN.† 15.36

† Total change in contents, equivalent in cubic feet per second, per month, in North Fork of Pound Lake and John W. Flannagan Reservoir; provided by U.S. Army Corps of Engineers.

‡ Adjusted for monthly change in contents.

03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA--Continued

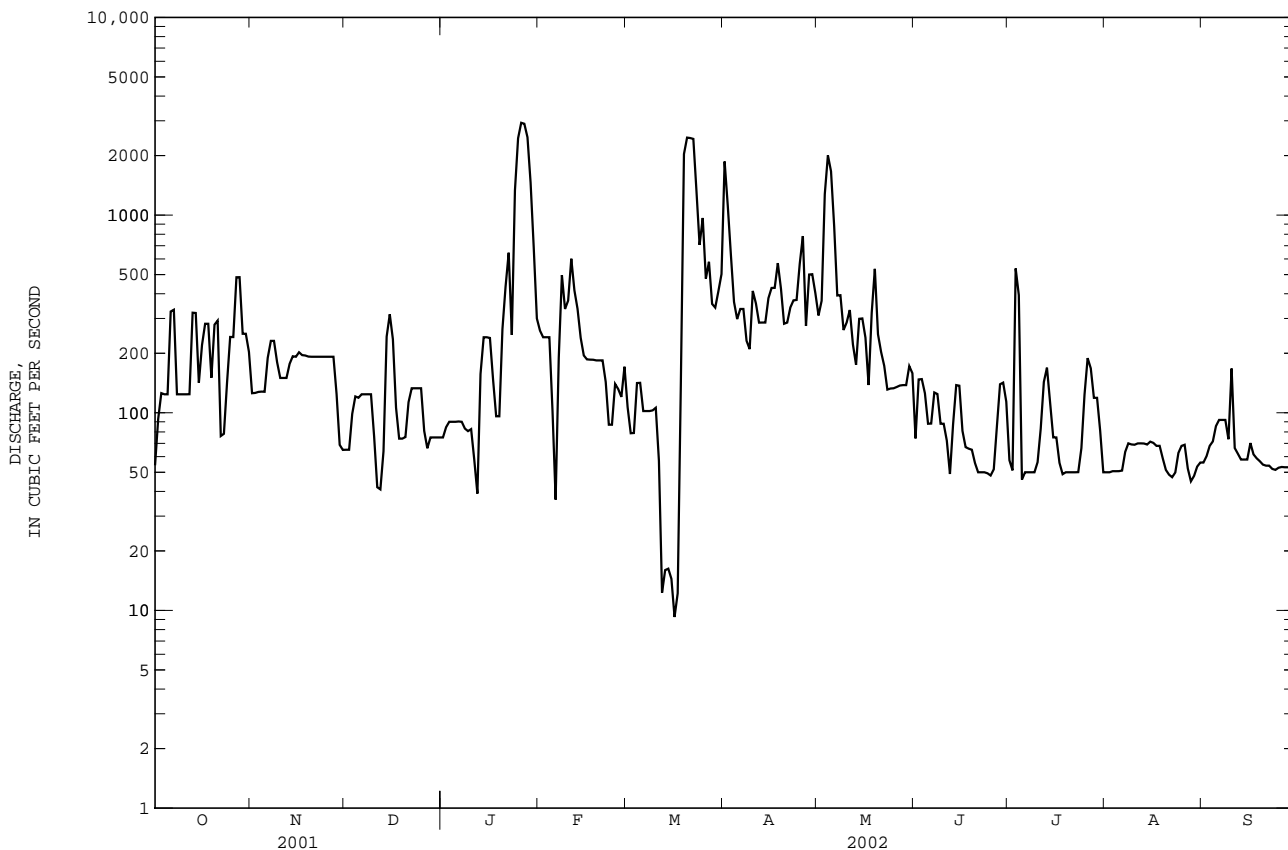
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	232	297	317	426	485	520	290	350	178	119	108	94.1
MAX	927	679	1003	1171	1343	1181	1004	1074	756	348	268	405
(WY)	1990	1978	1992	1972	1994	1975	1977	1975	1989	2001	2001	1982
MIN	48.9	24.8	16.1	31.8	92.3	110	46.1	47.4	9.66	5.49	7.13	32.5
(WY)	1989	1966	1966	1966	1992	1988	1995	1982	1966	1965	1965	1967

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1965 - 2002

ANNUAL TOTAL	80578	92021.3	
ANNUAL MEAN	221	252	284
HIGHEST ANNUAL MEAN			481 1975
LOWEST ANNUAL MEAN			120 1966
HIGHEST DAILY MEAN	2550 May 24	2930 Jan 26	4410 Apr 9 1977
LOWEST DAILY MEAN	12 aMar 22	9.3 Mar 16	2.3 bJun 26 1965
ANNUAL SEVEN-DAY MINIMUM	12 Mar 22	19 Mar 11	2.5 Jun 25 1965
MAXIMUM PEAK FLOW		2950 Jan 25	c4540 Apr 8 1977
MAXIMUM PEAK STAGE		6.80 Jan 25	c8.20 Apr 8 1977
INSTANTANEOUS LOW FLOW		8.1 Mar 12	d,f0.00 Sep 22 2000
ANNUAL RUNOFF (CFSM)	1.00	1.14	1.28
ANNUAL RUNOFF (INCHES)	13.56	15.49	17.45
10 PERCENT EXCEEDS	397	451	632
50 PERCENT EXCEEDS	125	126	138
90 PERCENT EXCEEDS	47	51	46

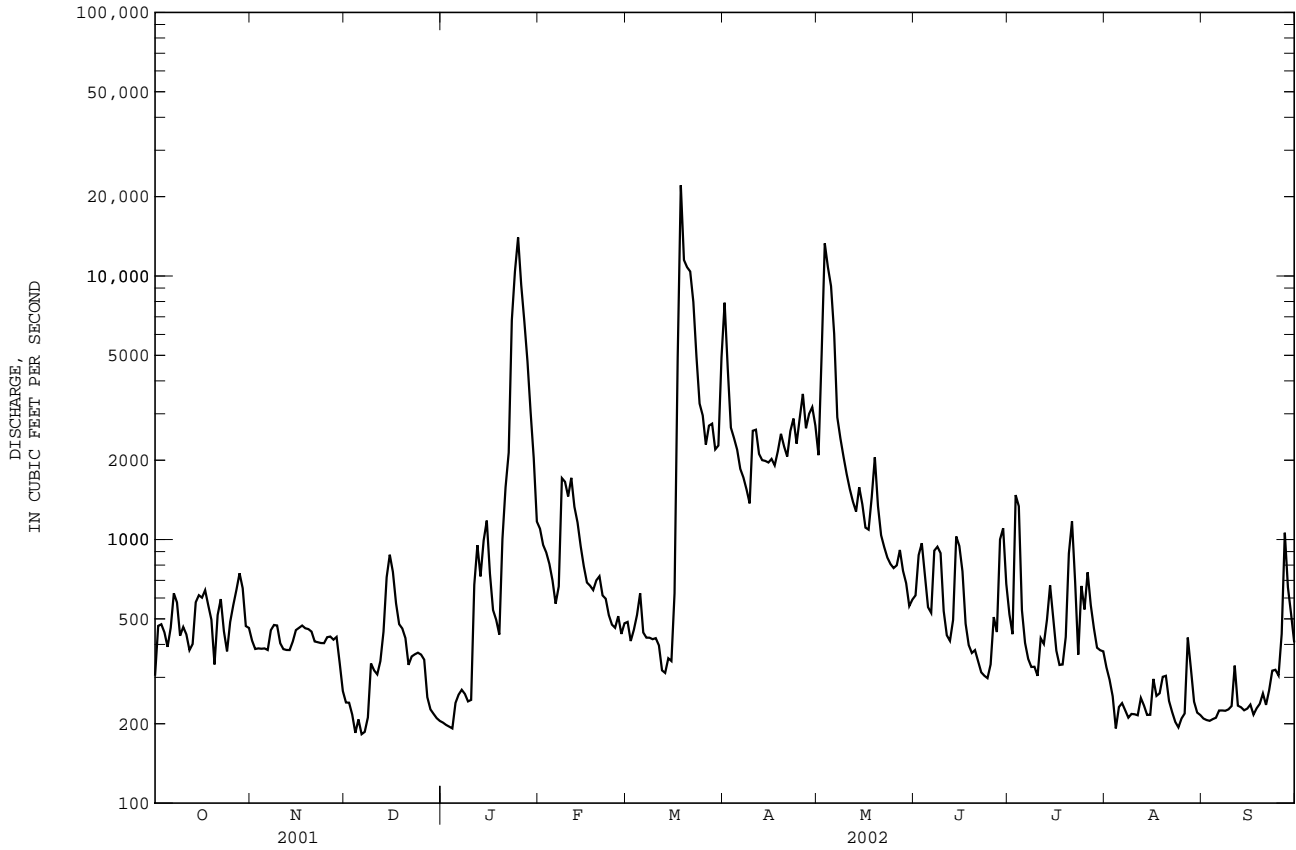
- a Also Mar. 23-31, 2001
- b Also June 27-29, 1965.
- c Prior to regulation, 1926-64, maximum peak flow, 30,000 ft³/s, Mar. 23, 1929, gage height, 16.50 ft, from floodmarks, site and datum then in use.
- d Prior to regulation, 1926-64, instantaneous low flow, less than .10 ft³/s, on several days in September 1932.
- f Practically no flow, due to regulation.



03209500 LEVISA FORK AT PIKEVILLE, KY--Continued

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1969 - 2002	
ANNUAL TOTAL	375987		447099		1503	
ANNUAL MEAN	1030		1225		2459	
HIGHEST ANNUAL MEAN					1979	
LOWEST ANNUAL MEAN					1988	
HIGHEST DAILY MEAN	11900	Feb 17	22100	Mar 18	69300	Apr 5 1977
LOWEST DAILY MEAN	183	Dec 6	183	Dec 6	66	Dec 3 1970
ANNUAL SEVEN-DAY MINIMUM	204	Dec 2	203	Dec 29	103	Oct 10 1968
MAXIMUM PEAK FLOW			25500	Mar 18	85500	Jan 30 1957
MAXIMUM PEAK STAGE			34.17	Mar 18	52.72	Jan 30 1957
INSTANTANEOUS LOW FLOW					66	Dec 3 1970
10 PERCENT EXCEEDS	1870		2600		3480	
50 PERCENT EXCEEDS	538		476		735	
90 PERCENT EXCEEDS	250		225		231	

e Estimated



TENNESSEE RIVER BASIN

03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA

LOCATION.--Lat 36°45'37", long 81°37'52", NAD83, Smyth County, Hydrologic Unit 06010102, on right bank 400 ft upstream from highway bridge at Riverside, 900 ft upstream from Spring Branch, 3.2 mi downstream from Redstone Branch, 4.0 mi southeast of Chilhowie, and at mile 97.2.

DRAINAGE AREA.--76.1 mi².

PERIOD OF RECORD.--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie." June 1907 to December 1909, at site 4.5 mi downstream also published as "near Chilhowie"; records not equivalent.

REVISED RECORDS.--WSP 1033: 1943-44(m). WSP 1306: Drainage area, 1921-31(M).

GAGE.--Water-stage recorder. Datum of gage is 2,106.77 ft NGVD of 1929. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft downstream at same datum.

REMARKS.--Records good except for period with ice effect, Jan. 1-4, which is fair. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft upstream from station. Maximum discharge, 9,600 ft³/s, from rating curve extended above 3,700 ft³/s on basis of slope-area measurement of peak flow. Minimum discharge recorded, 2 ft³/s, but may have been less in 1925 and 1926 before installation of water-stage recorder. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 650 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	1215	*2,760	*6.60	No other peak greater than base discharge.			

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	28	27	24	e24	76	36	277	79	46	27	28	23
2	28	27	24	e24	69	39	242	79	47	27	28	22
3	27	27	23	e25	63	58	193	230	48	31	26	22
4	26	26	23	e26	60	58	157	222	43	37	25	22
5	26	26	23	27	55	53	132	173	41	35	24	21
6	29	26	23	28	55	53	117	140	43	32	24	21
7	28	26	24	29	61	51	105	123	48	30	25	20
8	27	26	25	28	60	48	95	111	41	28	24	20
9	26	25	29	28	59	47	92	102	38	26	24	20
10	27	25	31	28	60	46	99	102	37	26	23	19
11	27	25	48	37	65	44	87	88	36	27	23	20
12	26	25	35	40	64	45	84	82	35	26	23	20
13	28	25	32	36	63	46	87	85	35	28	22	23
14	28	25	31	34	60	45	94	92	38	30	22	24
15	31	25	28	33	58	42	109	81	41	31	22	25
16	30	24	26	32	57	47	111	75	36	28	22	30
17	30	24	27	32	55	200	109	72	35	26	23	25
18	29	24	35	32	52	1800	128	84	33	26	24	24
19	29	24	36	38	49	779	123	78	32	27	23	24
20	29	25	33	64	48	407	115	72	31	27	22	22
21	28	24	31	60	47	289	106	70	30	26	21	22
22	28	24	29	58	45	229	106	67	29	28	21	29
23	28	24	29	154	44	189	95	64	29	34	21	30
24	28	25	31	366	42	160	88	60	28	32	23	25
25	28	26	29	490	40	136	108	58	28	43	26	23
26	28	26	28	330	39	121	108	56	29	84	32	35
27	28	25	27	202	38	110	106	55	30	54	30	40
28	28	24	27	145	37	97	101	53	31	41	31	39
29	28	24	26	115	---	88	94	49	31	35	26	32
30	28	24	25	96	---	89	84	47	29	32	24	28
31	28	---	24	84	---	180	---	46	---	31	23	---
TOTAL	867	753	886	2745	1521	5632	3552	2795	1078	1015	755	750
MEAN	28.0	25.1	28.6	88.5	54.3	182	118	90.2	35.9	32.7	24.4	25.0
MAX	31	27	48	490	76	1800	277	230	48	84	32	40
MIN	26	24	23	24	37	36	84	46	28	26	21	19
CFSM	0.37	0.33	0.38	1.16	0.71	2.39	1.56	1.18	0.47	0.43	0.32	0.33
IN.	0.42	0.37	0.43	1.34	0.74	2.75	1.74	1.37	0.53	0.50	0.37	0.37

03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA--Continued

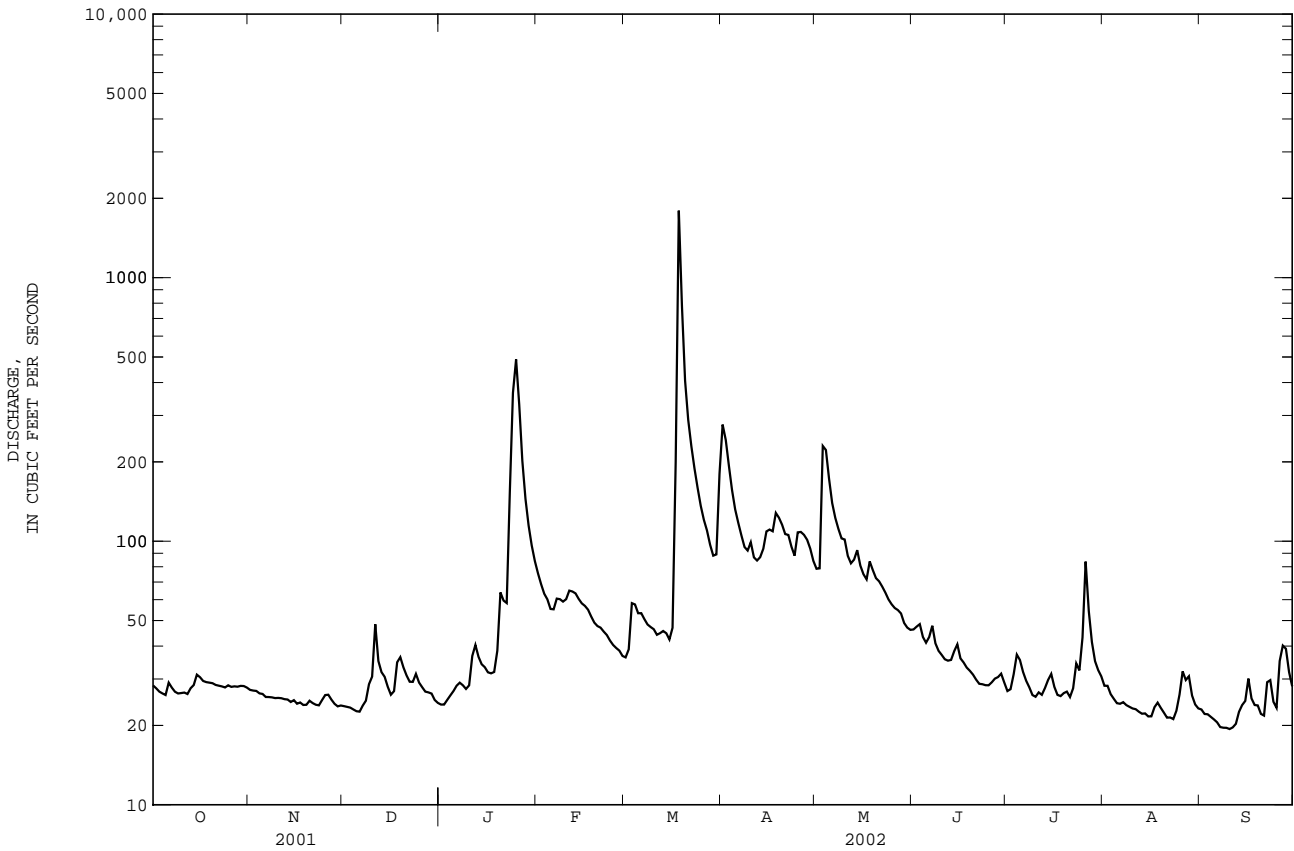
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1932, 1942 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	48.5	67.2	107	150	199	207	169	137	89.6	60.9	55.2	44.1
MAX	162	409	272	353	508	512	570	278	322	213	209	254
(WY)	1990	1978	1973	1996	1957	1955	1987	1945	1923	2001	1942	1989
MIN	18.7	17.6	25.3	28.8	54.3	51.3	52.6	49.1	31.1	22.5	17.5	20.6
(WY)	1932	1932	2001	1956	2002	1988	1986	1926	1988	1988	1988	1988

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1921 - 1932 1942 - 2002

ANNUAL TOTAL	30981		22349					
ANNUAL MEAN	84.9		61.2				111	
HIGHEST ANNUAL MEAN							162	
LOWEST ANNUAL MEAN							53.8	
HIGHEST DAILY MEAN	1820		Jul 30		1800		Mar 18	
LOWEST DAILY MEAN	22		aJan 1		19		Sep 10	
ANNUAL SEVEN-DAY MINIMUM	22		Jan 1		20		Sep 6	
MAXIMUM PEAK FLOW					2760		Mar 18	
MAXIMUM PEAK STAGE					6.60		Mar 18	
INSTANTANEOUS LOW FLOW					17		bSep 10	
ANNUAL RUNOFF (CFSM)	1.12				0.80		1.45	
ANNUAL RUNOFF (INCHES)	15.14				10.92		19.75	
10 PERCENT EXCEEDS	157				109		223	
50 PERCENT EXCEEDS	50				31		69	
90 PERCENT EXCEEDS	25				24		27	

a Also Jan. 2-7, 11, 12, 2001.
 b Also Sept. 11, 2002.
 c Also Oct. 15, 1943, Aug. 9, 11, 1944, and Oct. 19, 1945.
 e Estimated.



TENNESSEE RIVER BASIN

03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA

LOCATION.--Lat 36°39'06", long 81°50'38", NAD83, Washington County, Hydrologic Unit 06010102, on right bank 500 ft upstream from bridge on U.S. Highway 58, 0.7 mi downstream from Laurel Creek, 3.2 mi northwest of Damascus, 4.9 mi upstream from Middle Fork, and at mile 77.2.

DRAINAGE AREA.--301 mi².

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306. Published as "at Vestal" prior to October 1978.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1932-33(M).

GAGE.--Water-stage recorder. Datum of gage is 1,792.30 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 1-3, and period of partial gage-height record, June 27, 28, which are fair. Prior to 1980, some diurnal fluctuation at low flow caused by powerplant upstream from station. Maximum discharge, 22,000 ft³/s, from rating curve extended above 10,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 25	0900	3,410	7.10	Mar 18	1145	*9,410	*11.74

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	108	93	90	e115	336	146	1370	387	209	129	114	92
2	106	93	87	e115	302	163	1120	572	262	125	151	88
3	104	93	84	e120	275	216	880	996	229	304	135	85
4	102	91	83	126	262	198	726	931	189	353	112	81
5	100	89	82	130	234	173	624	705	176	267	108	79
6	110	89	82	128	235	184	552	568	185	202	99	77
7	118	88	86	135	310	178	488	506	229	155	93	73
8	104	88	106	121	312	171	438	508	177	133	88	71
9	99	87	145	117	292	168	416	463	157	124	85	68
10	99	86	140	126	291	174	510	493	149	117	83	66
11	98	85	328	211	306	158	424	427	141	141	80	65
12	98	85	209	226	289	163	402	392	133	120	79	65
13	101	85	214	199	279	179	414	400	139	114	77	65
14	103	85	247	178	260	178	428	456	179	122	75	69
15	115	85	193	170	249	168	496	385	189	147	74	89
16	109	86	166	158	242	199	476	360	151	117	99	157
17	104	86	157	152	233	1360	460	343	140	107	106	119
18	100	84	338	154	216	7010	597	407	130	125	160	96
19	100	84	312	226	207	3400	550	376	125	152	104	97
20	100	87	260	645	203	1740	509	349	120	189	93	88
21	99	89	216	493	203	1260	460	337	113	173	87	85
22	99	86	190	391	191	981	437	319	108	146	80	91
23	99	85	178	1210	182	819	393	299	106	179	78	212
24	98	89	200	2350	172	711	360	280	104	173	124	121
25	102	92	176	3000	167	624	482	262	122	151	221	102
26	99	94	160	1720	163	562	444	244	121	255	171	193
27	94	90	152	977	159	527	422	229	e180	231	136	214
28	94	88	154	682	147	451	422	224	e280	163	134	207
29	94	85	149	528	---	408	473	213	214	136	114	172
30	93	86	135	434	---	430	418	199	160	121	103	137
31	93	---	119	371	---	1000	---	207	---	119	95	---
TOTAL	3142	2633	5238	15708	6717	24099	16191	12837	4917	5090	3358	3224
MEAN	101	87.8	169	507	240	777	540	414	164	164	108	107
MAX	118	94	338	3000	336	7010	1370	996	280	353	221	214
MIN	93	84	82	115	147	146	360	199	104	107	74	65
CFSM	0.34	0.29	0.56	1.68	0.80	2.58	1.79	1.38	0.54	0.55	0.36	0.36
IN.	0.39	0.33	0.65	1.94	0.83	2.98	2.00	1.59	0.61	0.63	0.42	0.40

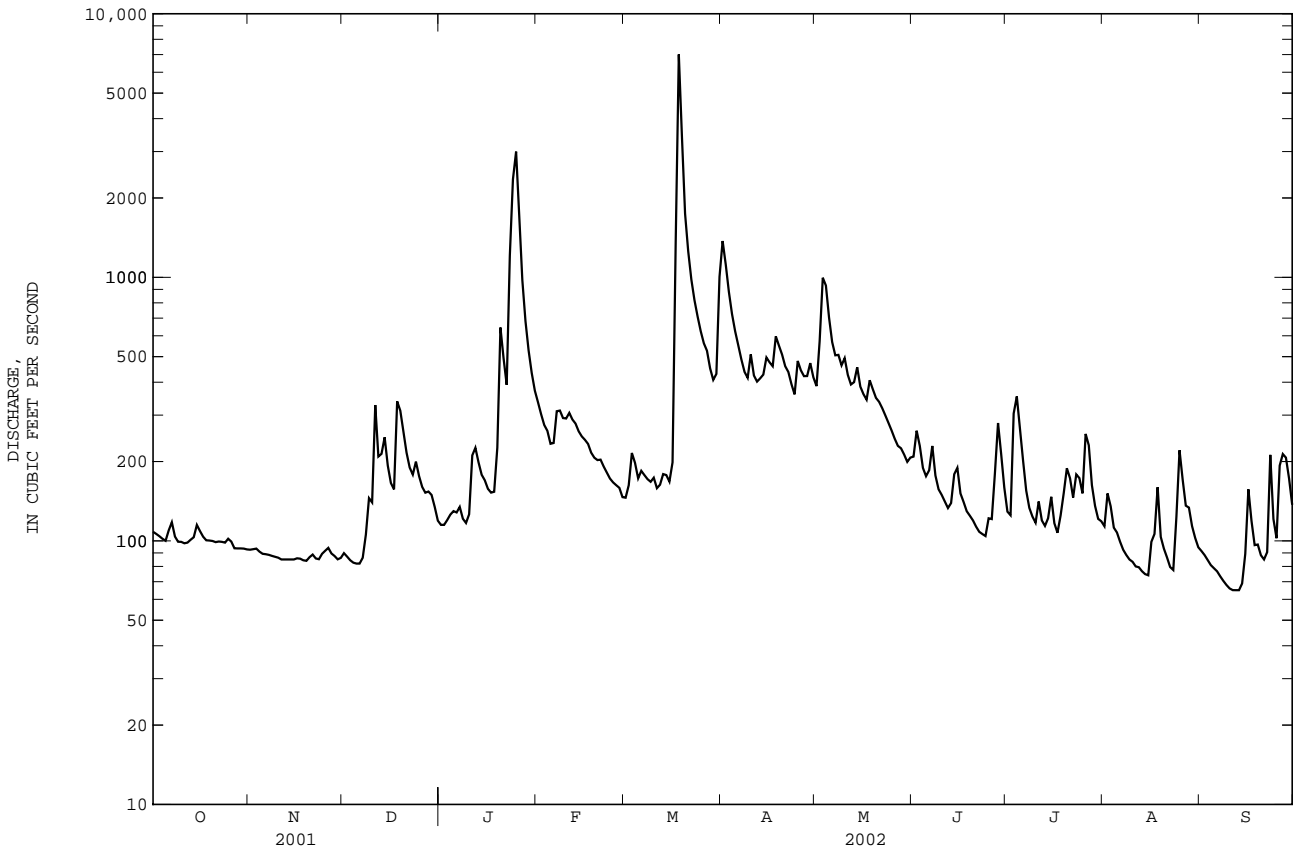
03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	209	277	468	656	829	875	718	572	360	289	251	176
MAX	938	1258	1203	1490	2022	2075	1995	1367	968	1079	1193	790
(WY)	1978	1978	1973	1957	1957	1955	1987	1998	1998	1938	1940	1989
MIN	76.5	85.3	93.6	101	200	228	224	155	129	100	89.6	79.0
(WY)	1953	1940	1940	1940	1941	1988	1942	1941	1988	1988	1988	1954

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1932 - 2002	
ANNUAL TOTAL	128941		103154			
ANNUAL MEAN	353		283		472	
HIGHEST ANNUAL MEAN					712	
LOWEST ANNUAL MEAN					245	
HIGHEST DAILY MEAN	5820		7010		12800	
LOWEST DAILY MEAN	82		65		40	
ANNUAL SEVEN-DAY MINIMUM	85		67		63	
MAXIMUM PEAK FLOW			9410		22000	
MAXIMUM PEAK STAGE			11.74		17.11	
INSTANTANEOUS LOW FLOW			65		30	
ANNUAL RUNOFF (CFSM)	1.17		0.94		1.57	
ANNUAL RUNOFF (INCHES)	15.94		12.75		21.29	
10 PERCENT EXCEEDS	645		507		982	
50 PERCENT EXCEEDS	217		159		299	
90 PERCENT EXCEEDS	90		86		109	

- a Also Dec. 6, 2001.
- b Also Sept. 12, 13, 2002.
- c Also Sept. 12-14, 2002.
- d Also Dec. 24, 1943.
- e Estimated.



TENNESSEE RIVER BASIN

03474000 MIDDLE FORK HOLSTON RIVER AT SEVEN MILE FORD, VA

LOCATION.--Lat 36°48'26", long 81°37'19", NAD83, Smyth County, Hydrologic Unit 06010102, on right bank at downstream side of bridge on U.S. Highway 11 at Seven Mile Ford, 0.3 mi upstream from Meade Creek, 3.3 mi downstream from Walker Creek, and at mile 32.1.

DRAINAGE AREA.--132 mi².

PERIOD OF RECORD.--July 1942 to December 1981, January 1982 to September 1987 (annual maximum only), October 1987 to September 1989, October 1989 to September 1996 (annual maximum only), October 1996 to current year.

REVISED RECORDS.--WSP 973: 1942(m). WSP 1306: 1947(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,960.00 ft NGVD of 1929.

REMARKS.--Records good except those for periods with ice effect, Dec. 29, 30 and Jan. 2, 3, period of no gage-height record, Apr. 27, 28, and period of partial gage-height record, Sept. 26, 27, which are fair. Prior to April 1977, some diurnal fluctuation at low flow caused by mill 9 mi above station. Since May 1936, flow occasionally regulated by the filling or draining of Hungry Mother Lake on Hungry Mother Creek, capacity, about 1,600 acre-ft. Tennessee Valley Authority gage-height data logger at station, called at 6-hour intervals by computer at Knoxville, TN. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been made at this location.

COOPERATION.--Gage-height record of extremes were provided by Tennessee Valley Authority for the period Jan. 1, 1982, to Sept. 30, 1987, and Oct. 1, 1989 to Sept. 30, 1996.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	0915	*9,980	*8.09	No other peak greater than base discharge.			

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	51	39	36	38	133	45	525	119	59	45	48	34
2	50	39	35	e37	123	50	378	124	68	48	45	32
3	50	40	34	e37	116	61	323	768	65	63	43	30
4	47	40	33	38	110	55	270	440	58	123	42	29
5	47	38	33	39	101	49	235	297	55	111	40	29
6	57	36	33	42	103	53	211	223	66	66	38	28
7	55	37	35	41	133	51	145	184	85	54	36	28
8	50	36	39	39	138	78	129	160	65	49	36	28
9	50	35	54	38	130	64	131	151	58	46	35	28
10	49	35	52	42	129	64	159	154	53	46	34	26
11	49	36	158	48	127	60	134	123	50	47	35	26
12	50	35	72	43	86	62	126	111	49	46	34	27
13	50	34	65	37	80	68	127	138	52	45	32	28
14	49	35	80	35	73	69	129	210	67	48	31	32
15	54	35	109	34	68	67	152	164	78	51	31	39
16	50	34	104	33	66	126	152	136	59	48	32	44
17	49	35	103	33	65	931	145	120	53	44	33	34
18	49	35	133	35	63	5720	161	131	49	62	36	36
19	46	35	118	54	59	1160	199	115	48	58	34	66
20	46	34	81	136	59	661	285	100	49	50	31	39
21	47	34	74	95	57	512	204	94	48	48	30	35
22	45	34	70	82	55	411	181	90	45	53	31	88
23	44	34	67	638	54	339	156	84	44	43	34	123
24	45	39	54	718	52	249	139	79	43	113	36	56
25	46	40	48	943	50	216	183	76	47	63	37	42
26	43	36	46	485	49	168	181	73	45	222	46	e100
27	43	34	44	296	48	159	e170	70	66	133	40	e125
28	43	35	43	223	45	140	e150	69	59	80	40	90
29	41	35	e42	186	---	128	143	65	58	63	36	64
30	39	36	e41	162	---	134	125	62	51	55	34	51
31	40	---	39	145	---	319	---	60	---	52	33	---
TOTAL	1474	1080	1975	4852	2372	12269	5748	4790	1692	2075	1123	1437
MEAN	47.5	36.0	63.7	157	84.7	396	192	155	56.4	66.9	36.2	47.9
MAX	57	40	158	943	138	5720	525	768	85	222	48	125
MIN	39	34	33	33	45	45	125	60	43	43	30	26
CFSM	0.36	0.27	0.48	1.19	0.64	3.00	1.45	1.17	0.43	0.51	0.27	0.36
IN.	0.42	0.30	0.56	1.37	0.67	3.46	1.62	1.35	0.48	0.58	0.32	0.40

03474000 MIDDLE FORK HOLSTON RIVER AT SEVEN MILE FORD, VA--Continued

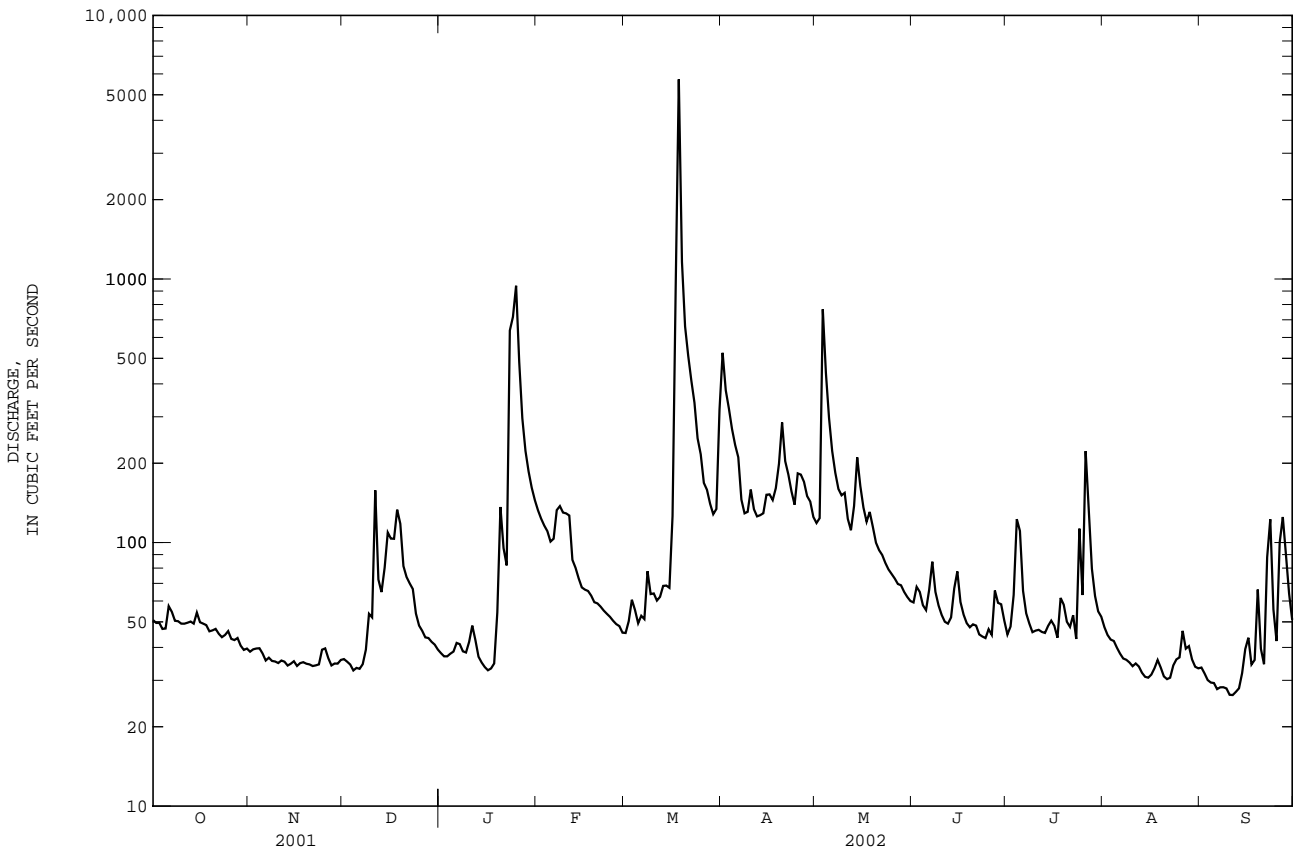
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1981, 1988 - 1989, 1997 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	68.7	90.7	157	224	288	307	242	202	122	90.5	76.7	64.7
MAX	298	580	534	708	870	844	630	433	294	366	210	256
(WY)	1977	1978	1973	1957	1957	1955	1977	1945	1979	2001	1947	1989
MIN	32.4	29.8	34.1	37.0	84.7	74.5	107	73.0	38.9	33.8	28.1	32.4
(WY)	1989	1954	1956	1966	2002	1988	1963	1964	1988	1988	1988	1988

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1942 - 1981 1988 - 1989 1997 - 2002

ANNUAL TOTAL		53952		40887						161		
ANNUAL MEAN		148		112						250		1973
HIGHEST ANNUAL MEAN										79.2		1988
LOWEST ANNUAL MEAN												
HIGHEST DAILY MEAN			3700	Jul 29		5720	Mar 18		5990	Apr 4		1977
LOWEST DAILY MEAN			33	aDec 4		26	bSep 10		20	cSep 26		1944
ANNUAL SEVEN-DAY MINIMUM			34	Dec 1		27	Sep 6		24	Sep 3		1960
MAXIMUM PEAK FLOW						9980	Mar 18		14500	Nov 6		1977
MAXIMUM PEAK STAGE						8.09	Mar 18		10.75	Jan 29		1957
INSTANTANEOUS LOW FLOW						24	dSep 10		9.0	Sep 26		1944
ANNUAL RUNOFF (CFSM)			1.12			0.85			1.22			
ANNUAL RUNOFF (INCHES)			15.20			11.52			16.54			
10 PERCENT EXCEEDS			308			174			333			
50 PERCENT EXCEEDS			81			52			90			
90 PERCENT EXCEEDS			39			34			37			

- a Also Dec. 5, 6, 2001.
- b Also Sept. 11, 2002.
- c Also Aug. 2, 1964.
- d Also Sept. 11, 12, 2002.
- e Estimated.



TENNESSEE RIVER BASIN

03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA

LOCATION.--Lat 36°42'47", long 81°49'07", NAD83, Washington County, Hydrologic Unit 06010102, on left bank 48 ft downstream from bridge on State Highway 803, 0.9 mi upstream from Cedar Creek, 4.1 mi southeast of Meadowview, and at mile 13.2.

DRAINAGE AREA.--211 mi².

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft NGVD of 1929.

REMARKS.--Records good except for period with ice effect, Dec. 31 to Jan. 3, which is fair. Prior to 1954, flow regulated by powerplant 0.9 mi upstream from station. Maximum discharge, 12,500 ft³/s, from rating curve extended above 12,000 ft³/s. 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 Jan. 29, 1957, reached a stage of 11.8 ft, from floodmark, discharge, 10,000 ft³/s, and flood of Dec. 10, 1972, reached a stage of 11.0 ft, from floodmark, discharge, 8,540 ft³/s, from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft, discharge, 7,410 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	1515	*10,300	*12.19	No other peak greater than base discharge.			

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	88	73	69	e68	194	76	802	175	102	73	93	62
2	86	75	68	e66	179	79	597	176	112	67	88	60
3	84	74	65	e66	166	94	507	862	115	115	84	59
4	83	74	65	68	160	93	422	625	98	237	81	57
5	81	72	67	73	149	82	364	421	93	234	78	55
6	90	71	63	73	149	80	330	314	99	143	74	54
7	97	70	65	73	187	80	276	266	139	116	69	53
8	88	70	69	71	196	92	242	240	110	103	69	53
9	84	70	81	73	187	102	234	220	94	95	66	51
10	83	69	90	67	182	95	260	239	87	99	66	51
11	83	69	181	75	179	90	231	199	81	120	66	49
12	83	70	142	78	154	92	215	180	78	93	66	49
13	84	68	112	67	134	104	209	189	82	90	63	50
14	89	68	120	63	125	106	208	283	101	93	62	52
15	95	69	137	57	119	102	217	240	123	97	61	72
16	89	68	137	56	114	131	219	207	101	91	62	77
17	86	68	136	55	112	1060	212	186	87	84	67	71
18	84	69	167	58	108	7040	300	190	79	87	74	62
19	83	68	160	80	101	2470	249	182	74	125	69	84
20	81	67	132	191	98	1060	363	159	72	107	67	78
21	81	67	114	163	98	820	284	147	72	101	63	64
22	81	66	107	137	93	648	250	141	68	89	61	66
23	79	67	106	580	90	555	225	134	64	90	64	192
24	78	71	102	1120	88	431	204	128	66	129	77	108
25	80	74	84	1360	86	372	245	122	97	107	82	80
26	79	71	80	768	82	317	246	118	73	271	71	139
27	77	68	78	447	81	295	235	113	98	266	79	219
28	76	67	76	324	79	260	223	111	97	154	74	142
29	77	66	75	268	---	239	214	107	94	123	68	110
30	76	69	74	234	---	245	189	102	84	109	65	90
31	75	---	e72	209	---	431	---	99	---	104	62	---
TOTAL	2580	2088	3094	7088	3690	17741	8772	6875	2740	3812	2191	2409
MEAN	83.2	69.6	99.8	229	132	572	292	222	91.3	123	70.7	80.3
MAX	97	75	181	1360	196	7040	802	862	139	271	93	219
MIN	75	66	63	55	79	76	189	99	64	67	61	49
CFSM	0.39	0.33	0.47	1.08	0.62	2.71	1.39	1.05	0.43	0.58	0.33	0.38
IN.	0.45	0.37	0.55	1.25	0.65	3.13	1.55	1.21	0.48	0.67	0.39	0.42

03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA--Continued

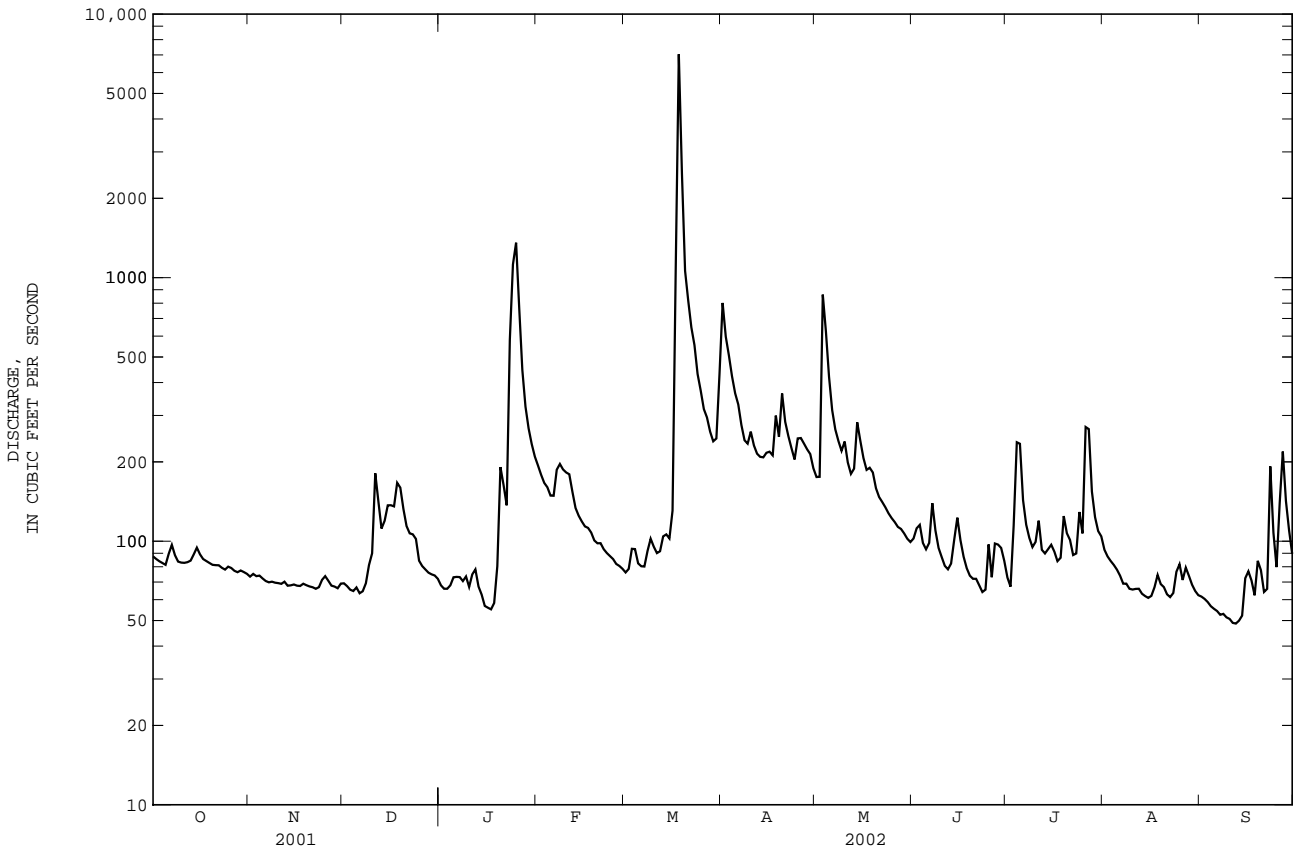
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1953, 1976 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	110	128	203	338	441	452	350	295	191	152	146	97.5
MAX	479	739	526	731	1050	899	1158	677	485	445	649	357
(WY)	1977	1978	1943	1996	1994	1993	1987	1990	1981	2001	1940	1989
MIN	45.3	44.3	49.9	52.6	64.0	114	98.3	74.2	61.5	55.5	50.5	50.0
(WY)	1934	1942	1940	1940	1934	1988	1942	1941	1988	1988	1988	1952

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1932 - 1953 1976 - 2002

ANNUAL TOTAL	75963	63080		
ANNUAL MEAN	208	173	241	
HIGHEST ANNUAL MEAN			356	1990
LOWEST ANNUAL MEAN			105	1941
HIGHEST DAILY MEAN	4880	Jul 30	7040	Mar 18
LOWEST DAILY MEAN	60	aJan 3	49	bSep 11
ANNUAL SEVEN-DAY MINIMUM	62	Jan 1	51	Sep 8
MAXIMUM PEAK FLOW			10300	Mar 18
MAXIMUM PEAK STAGE			12.19	Mar 18
INSTANTANEOUS LOW FLOW			46	Sep 11
ANNUAL RUNOFF (CFSM)	0.99		0.82	
ANNUAL RUNOFF (INCHES)	13.39		11.12	
10 PERCENT EXCEEDS	384		266	490
50 PERCENT EXCEEDS	129		91	144
90 PERCENT EXCEEDS	70		66	62

- a Also Jan. 4, 5, 2001.
- b Also Sept. 12, 2002.
- c Flow was regulated by powerplant.
- d Also Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 8, 1942, and Oct. 15, 16, 31, 1943.
- e Estimated.



TENNESSEE RIVER BASIN

03478400 BEAVER CREEK AT BRISTOL, VA

LOCATION.--Lat 36°37'54", long 82°08'01", NAD83, Bristol City, Hydrologic Unit 06010102, on right bank 50 ft upstream from bridge on State Highway 1405, 75 ft downstream from Goose Creek, 0.9 mi downstream from Clear Creek, 3.7 mi northeast of Bristol, VA post office, and at mile 20.6.

DRAINAGE AREA.--27.7 mi².

PERIOD OF RECORD.--July 1957 to current year. Published as "near Bristol" prior to October 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,780.98 ft NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft upstream from station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft. Maximum discharge, 1,600 ft³/s, from rating curve extended above 390 ft³/s on basis of slope-area measurement of peak flow. 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 1936 reached a stage of about 12 ft.

**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	14	11	10	9.6	30	13	104	35	18	15	19	11
2	14	11	9.8	9.4	27	15	85	57	21	20	17	11
3	13	11	9.6	9.4	25	15	74	58	18	39	16	11
4	13	10	9.4	9.3	24	14	65	41	18	53	15	11
5	13	10	9.3	9.3	22	13	59	36	17	28	15	10
6	15	10	9.3	9.8	27	13	55	33	29	22	14	9.9
7	14	10	9.6	9.8	31	13	51	32	20	20	13	9.9
8	13	10	13	9.5	27	13	49	31	17	19	13	9.8
9	13	10	13	9.3	24	14	51	36	16	18	13	9.7
10	13	10	25	9.3	23	13	45	32	15	19	12	9.6
11	12	10	26	10	22	13	42	28	15	30	12	9.6
12	12	10	15	9.7	22	14	41	27	15	20	12	9.6
13	12	10	23	9.5	21	15	40	35	17	21	12	9.3
14	14	9.8	18	9.3	19	14	38	32	25	20	11	9.7
15	13	9.7	14	9.2	19	13	37	28	16	18	12	13
16	13	9.7	13	8.9	18	23	35	27	15	18	20	11
17	12	9.7	18	9.1	18	146	34	25	15	17	34	10
18	12	9.7	18	9.7	17	449	32	30	14	19	24	10
19	12	9.7	14	34	17	263	33	25	14	19	17	9.9
20	12	9.7	12	29	17	149	31	24	13	19	15	9.7
21	12	9.7	11	21	17	112	30	23	13	17	13	10
22	12	9.3	11	17	16	94	29	22	12	16	13	31
23	12	11	15	67	15	83	27	22	12	29	12	17
24	12	12	15	85	15	75	27	21	12	32	16	12
25	15	10	12	101	14	68	36	21	15	22	13	11
26	12	10	11	61	14	66	27	21	16	53	12	36
27	11	9.7	11	48	14	60	26	20	18	29	18	20
28	11	9.7	10	42	14	54	30	20	36	23	9.9	15
29	11	9.7	10	38	---	50	32	20	20	21	9.9	13
30	11	11	9.7	34	---	60	27	19	16	22	10	12
31	11	---	9.7	31	---	100	---	18	---	19	11	---
TOTAL	389	303.1	414.4	778.1	569	2057	1292	899	518	737	453.8	381.7
MEAN	12.5	10.1	13.4	25.1	20.3	66.4	43.1	29.0	17.3	23.8	14.6	12.7
MAX	15	12	26	101	31	449	104	58	36	53	34	36
MIN	11	9.3	9.3	8.9	14	13	26	18	12	15	9.9	9.3
CFSM	0.45	0.36	0.48	0.91	0.73	2.40	1.55	1.05	0.62	0.86	0.53	0.46
IN.	0.52	0.41	0.56	1.04	0.76	2.76	1.74	1.21	0.70	0.99	0.61	0.51

03478400 BEAVER CREEK AT BRISTOL, VA--Continued

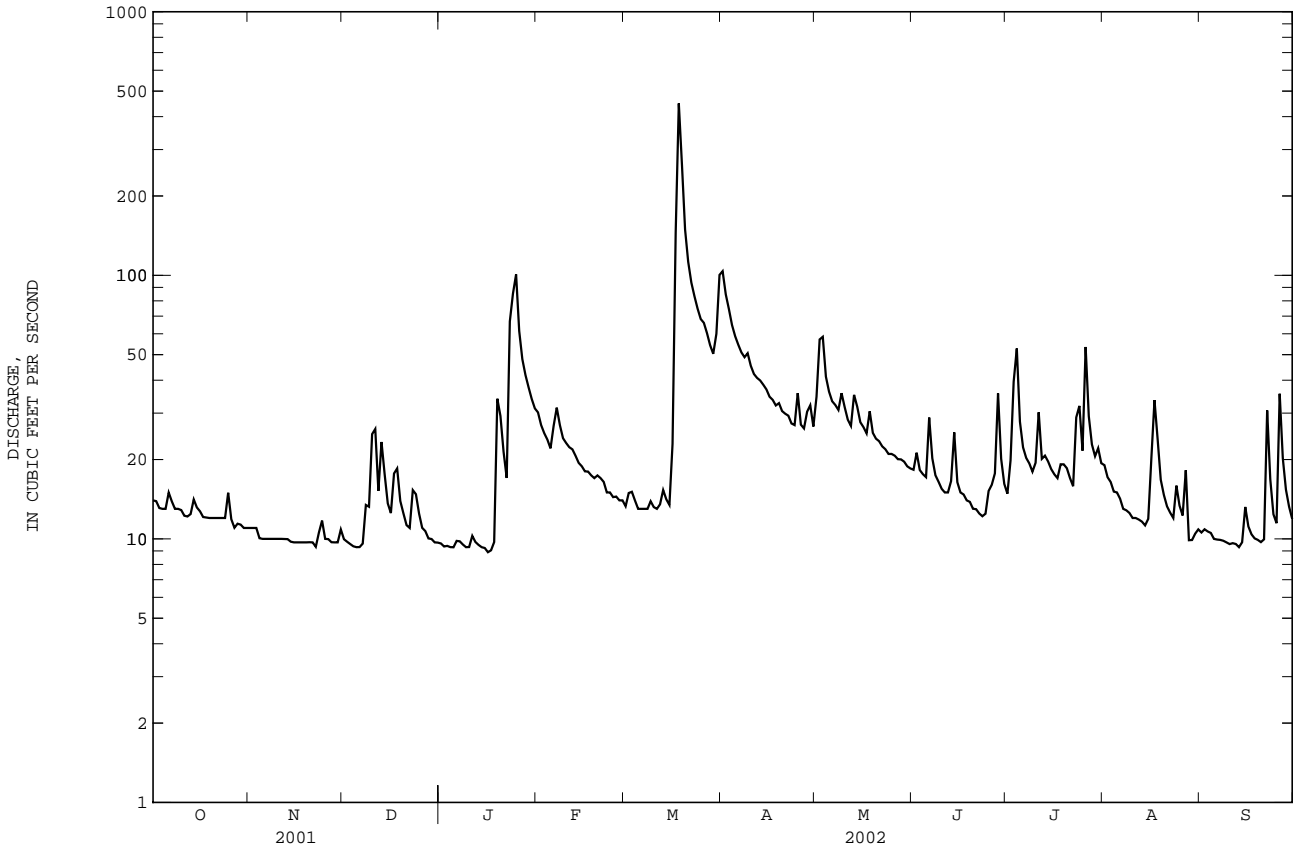
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	17.7	19.1	30.3	40.9	52.9	58.1	51.5	40.1	31.7	25.4	21.2	17.5
MAX	76.1	58.0	128	141	131	130	120	129	73.1	53.4	64.5	48.9
(WY)	1973	1978	1973	1974	1994	1963	1998	1958	1972	1972	1982	1982
MIN	8.08	9.62	9.13	8.92	19.5	19.7	19.3	16.9	13.0	10.2	9.96	9.23
(WY)	1970	2001	1966	1966	1981	1988	1985	2000	1988	1988	1988	1969

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1958 - 2002

ANNUAL TOTAL	8885.3	8792.1	
ANNUAL MEAN	24.3	24.1	33.8
HIGHEST ANNUAL MEAN			62.8 1973
LOWEST ANNUAL MEAN			16.2 1988
HIGHEST DAILY MEAN	304 Jul 29	449 Mar 18	580 Mar 12 1963
LOWEST DAILY MEAN	7.5 aJan 2	8.9 Jan 16	7.1 bDec 9 2000
ANNUAL SEVEN-DAY MINIMUM	7.5 Jan 1	9.3 Jan 12	7.2 Dec 7 2000
MAXIMUM PEAK FLOW		641 Mar 18	1600 Oct 2 1977
MAXIMUM PEAK STAGE		7.45 Mar 18	9.94 Oct 2 1977
INSTANTANEOUS LOW FLOW		8.9 cJan 1	3.4 Dec 30 1963
ANNUAL RUNOFF (CFSM)	0.88	0.87	1.22
ANNUAL RUNOFF (INCHES)	11.93	11.81	16.57
10 PERCENT EXCEEDS	45	41	62
50 PERCENT EXCEEDS	17	15	26
90 PERCENT EXCEEDS	9.8	9.7	12

a Also Jan. 3-5, 7, 10, 11, 2001.
 b Also Dec. 10, 11, 2000.
 c Also Jan. 2, 5, 15-18, 2002.



TENNESSEE RIVER BASIN

03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA

LOCATION.--Lat 36°53'48", long 81°44'46", NAD83, Smyth County, Hydrologic Unit 06010101, on right bank 0.5 mi upstream from Cedar Branch bridge, 1.5 mi northeast of Saltville, 7.8 mi downstream from Laurel Creek, and at mile 85.0.

DRAINAGE AREA.--222 mi².

PERIOD OF RECORD.--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1924-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,703.53 ft NGVD of 1929. June 11, 1907, to Nov. 12, 1908, nonrecording gage on highway bridge 2.1 mi downstream at different datum. Nov. 2, 1920, to May 23, 1934, nonrecording gage on highway bridge 0.5 mi downstream at datum 7.74 ft lower.

REMARKS.--Records good except those for periods with ice effect, Dec. 29 and Jan. 1-7, 9, and period of no gage-height record, Aug. 1-5, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 18,900 ft³/s, from rating curve extended above 15,200 ft³/s on basis of slope-area measurement at gage height of 13.20 ft. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 23	2130	6,180	8.02	Mar 18	1100	*18,900	*14.83
Jan 25	0900	3,040	5.41				

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	51	46	43	e64	209	81	1080	180	89	103	e110	35
2	50	45	44	e62	185	92	797	182	105	83	e94	35
3	49	44	43	e62	163	108	591	1120	127	81	e86	34
4	48	45	40	e60	151	124	456	752	109	97	e80	33
5	47	45	40	e60	139	102	373	507	121	186	e85	32
6	49	43	39	e58	134	113	322	377	97	118	68	30
7	55	42	39	e56	158	110	287	314	136	84	59	30
8	55	44	42	56	197	106	260	277	123	68	54	29
9	52	42	53	e60	189	103	243	245	97	60	49	27
10	47	41	72	61	182	103	238	243	86	56	47	27
11	47	41	166	68	186	97	213	208	79	57	46	26
12	46	41	187	86	181	96	195	182	74	70	42	26
13	47	41	142	90	169	117	192	181	75	67	41	25
14	50	41	171	82	156	135	258	248	84	68	40	26
15	75	40	155	76	146	134	283	228	91	88	39	37
16	82	40	128	74	141	183	247	203	81	99	37	44
17	77	40	112	70	136	1580	228	185	73	75	43	44
18	65	40	127	69	131	12700	232	190	67	64	43	43
19	55	40	146	81	119	3240	217	195	62	70	49	40
20	53	40	140	200	116	1330	223	167	60	93	54	39
21	52	40	121	240	117	917	208	155	57	95	42	36
22	52	40	107	229	113	688	196	147	53	76	39	42
23	49	39	98	2410	107	547	186	138	50	73	37	186
24	50	41	98	3090	101	454	173	130	47	347	39	96
25	53	43	96	2600	97	383	207	121	57	550	40	61
26	49	44	87	1230	96	335	237	113	60	397	40	92
27	47	45	77	693	95	330	225	106	121	325	45	199
28	47	41	75	468	88	289	220	110	144	206	43	135
29	46	40	e72	349	---	269	217	115	218	152	41	102
30	46	42	67	280	---	263	196	101	143	126	39	73
31	46	---	65	237	---	434	---	92	---	124	36	---
TOTAL	1637	1256	2892	13321	4002	25563	9000	7512	2786	4158	1607	1684
MEAN	52.8	41.9	93.3	430	143	825	300	242	92.9	134	51.8	56.1
MAX	82	46	187	3090	209	12700	1080	1120	218	550	110	199
MIN	46	39	39	56	88	81	173	92	47	56	36	25
CFSM	0.24	0.19	0.42	1.94	0.64	3.71	1.35	1.09	0.42	0.60	0.23	0.25
IN.	0.27	0.21	0.48	2.23	0.67	4.28	1.51	1.26	0.47	0.70	0.27	0.28

03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA--Continued

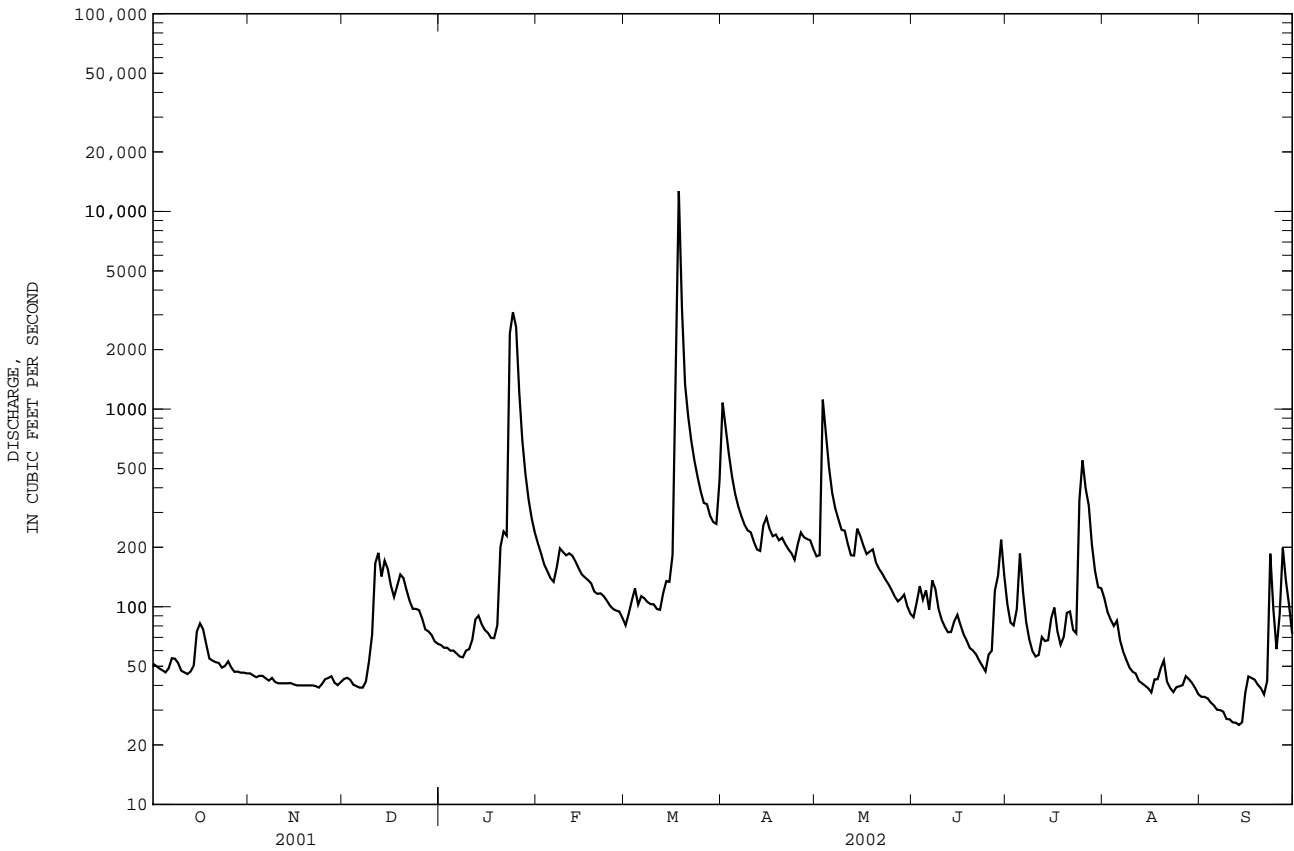
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1909, 1921 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	112	163	318	463	561	602	444	368	221	133	118	85.6
MAX	916	1077	1178	1317	1500	1735	1311	858	1036	704	584	474
(WY)	1977	1978	1927	1957	1957	1955	1987	1990	1907	2001	1940	1989
MIN	24.9	27.5	32.4	49.9	98.0	121	116	80.4	46.3	33.6	25.2	25.8
(WY)	1954	1940	1940	1966	1934	1988	1995	1941	1930	1988	1988	1930

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1907 - 1909 1921 - 2002

ANNUAL TOTAL		89679		75418								
ANNUAL MEAN		246		207						297		
HIGHEST ANNUAL MEAN										457		1973
LOWEST ANNUAL MEAN										135		1988
HIGHEST DAILY MEAN			6110	Jul 30		12700	Mar 18		12700	Mar 18	2002	
LOWEST DAILY MEAN			39	aNov 23		25	Sep 13		2.0	Oct 15	1947	
ANNUAL SEVEN-DAY MINIMUM			40	Nov 17		27	Sep 8		21	Sep 8	1952	
MAXIMUM PEAK FLOW						18900	Mar 18		18900	Mar 18	2002	
MAXIMUM PEAK STAGE						14.83	Mar 18		14.83	Mar 18	2002	
INSTANTANEOUS LOW FLOW						25	bSep 12		c1.0	dOct 15	1947	
ANNUAL RUNOFF (CFSM)			1.11			0.93				1.34		
ANNUAL RUNOFF (INCHES)			15.03			12.64				18.17		
10 PERCENT EXCEEDS			493			285				639		
50 PERCENT EXCEEDS			116			89				153		
90 PERCENT EXCEEDS			44			40				39		

- a Also Dec. 6, 7, 2001.
- b Also Sept. 13, 14, 2002.
- c Flow retarded by mine cave-in.
- d Also Oct. 16, 1947.
- e Estimated.



TENNESSEE RIVER BASIN

03524000 CLINCH RIVER AT CLEVELAND, VA

LOCATION.--Lat 36°56'41", long 82°09'17", NAD83, Russell County, Hydrologic Unit 06010205, on right bank 500 ft upstream from highway bridge at Cleveland, 0.5 mi downstream from Muddy Hollow, 2.3 mi downstream from Weaver Creek, 4.4 mi downstream from Thompson Creek, and at mile 271.6.

DRAINAGE AREA.--528 mi².

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 1,500.24 ft NGVD of 1929. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft downstream at datum 1.0 ft lower.

REMARKS.--Records good except those for periods of partial gage-height record, Oct. 16-18 and Feb. 27, 28, and period with ice effect, Jan. 1-9, which are fair. National Weather Service gage-height telemeter at station. Maximum discharge, 34,500 ft³/s, from rating curve extended above 26,000 ft³/s on basis of contracted-opening measurement at gage height 24.40 ft. Several measurements of water temperature made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 23	2215	7,960	11.20	Mar 18	1045	*24,300	*21.81
Jan 25	0845	7,390	10.66	May 3	1645	6,530	9.82

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	138	110	107	e92	606	185	3340	469	224	222	183	81
2	133	110	103	e90	532	188	2470	460	242	198	154	76
3	128	116	102	e92	465	222	1700	4460	273	304	142	74
4	121	118	104	e90	420	242	1290	3380	252	225	127	71
5	118	119	97	e92	383	224	1030	1790	223	370	140	68
6	136	116	93	e94	349	203	860	1210	232	260	138	68
7	148	113	94	e96	484	196	752	953	390	208	118	66
8	147	116	101	e98	619	193	664	834	375	171	106	63
9	136	113	149	e100	584	191	619	709	281	153	97	60
10	122	111	187	117	517	197	593	658	231	172	95	56
11	114	108	247	231	479	186	530	555	208	330	90	55
12	111	105	296	395	445	184	477	482	195	308	87	56
13	112	101	284	376	401	197	451	473	231	234	86	55
14	117	97	319	277	371	229	472	600	266	259	86	54
15	122	96	299	224	337	246	582	549	326	242	84	59
16	e140	95	245	192	319	522	513	465	250	228	87	73
17	e160	95	202	167	313	3130	462	421	210	210	96	79
18	e146	95	206	160	299	20100	668	479	188	185	88	77
19	135	94	224	206	280	9600	646	526	177	226	93	75
20	127	96	231	866	270	3980	652	437	167	296	109	71
21	129	96	204	839	271	2950	607	394	156	467	99	67
22	127	95	176	618	262	2200	531	366	145	332	96	72
23	126	94	159	3780	247	1670	497	344	135	243	91	94
24	125	95	160	6300	231	1330	441	322	128	209	100	106
25	128	101	161	6800	220	1090	531	303	127	395	114	109
26	128	101	152	3980	212	950	711	287	144	528	99	134
27	124	100	140	2150	e200	956	651	270	165	319	131	241
28	116	101	129	1430	e195	832	575	264	298	240	108	244
29	114	104	122	1070	---	739	577	268	374	242	101	192
30	113	106	115	851	---	692	537	249	297	201	106	148
31	111	---	97	705	---	1450	---	235	---	191	87	---
TOTAL	3952	3117	5305	32578	10311	55274	24429	23212	6910	8168	3338	2744
MEAN	127	104	171	1051	368	1783	814	749	230	263	108	91.5
MAX	160	119	319	6800	619	20100	3340	4460	390	528	183	244
MIN	111	94	93	90	195	184	441	235	127	153	84	54
CFSM	0.24	0.20	0.32	1.99	0.70	3.38	1.54	1.42	0.44	0.50	0.20	0.17
IN.	0.28	0.22	0.37	2.30	0.73	3.89	1.72	1.64	0.49	0.58	0.24	0.19

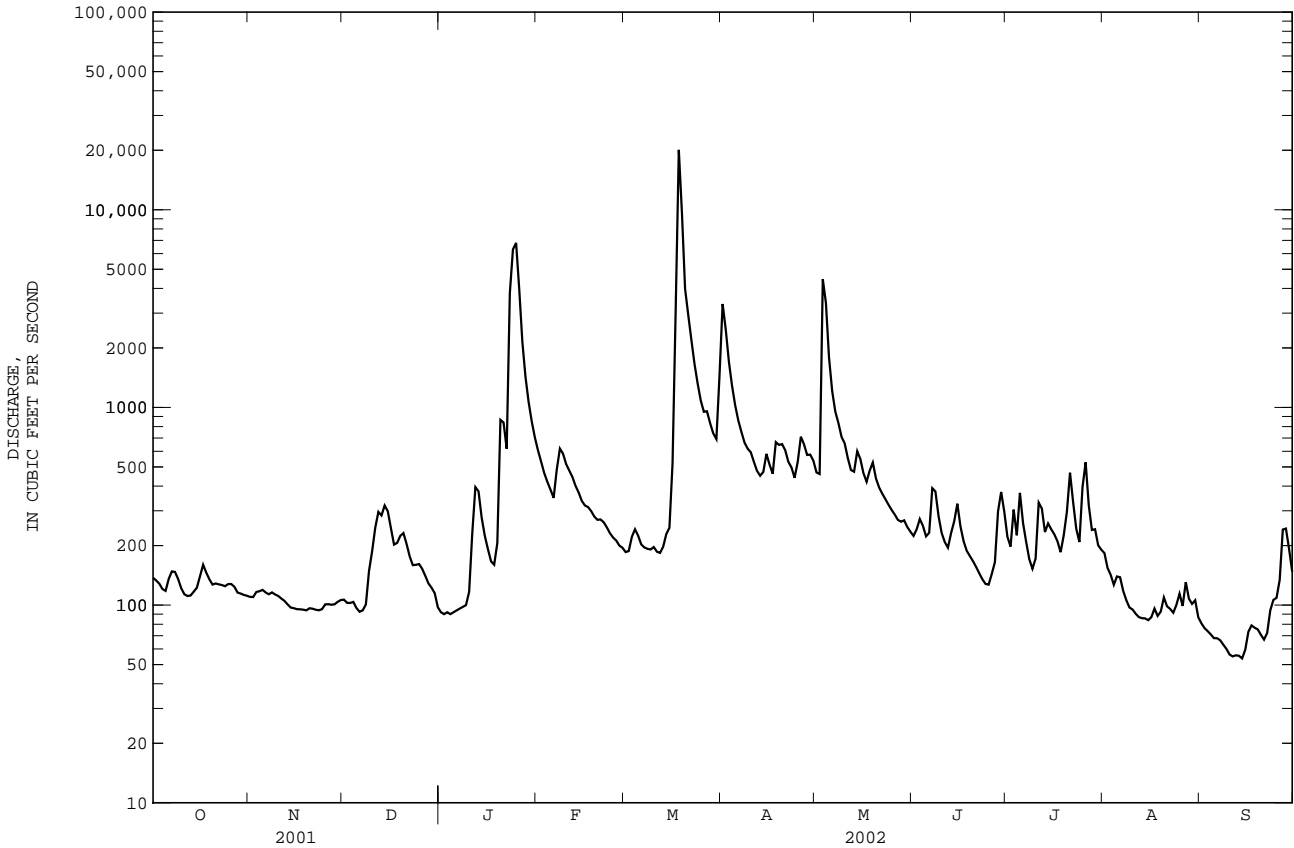
03524000 CLINCH RIVER AT CLEVELAND, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	257	387	750	1119	1350	1430	1014	791	480	341	314	207
MAX	1389	2011	3043	2817	3360	4572	3414	2254	2016	1292	1640	1003
(WY)	1977	1978	1927	1937	1957	1955	1987	1958	1923	2001	1940	1989
MIN	53.8	64.0	80.7	92.1	206	309	228	195	79.7	78.2	63.2	55.3
(WY)	1931	1940	1940	1940	1941	1988	1942	1941	1930	1930	1988	1930

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1921 - 2002	
ANNUAL TOTAL	201235		179338			
ANNUAL MEAN	551		491		700	
HIGHEST ANNUAL MEAN					1076	
LOWEST ANNUAL MEAN					287	
HIGHEST DAILY MEAN	11100		Jul 30		27800	
LOWEST DAILY MEAN	93		Dec 6		37	
ANNUAL SEVEN-DAY MINIMUM	95		Nov 17		40	
MAXIMUM PEAK FLOW			24300		34500	
MAXIMUM PEAK STAGE			21.81		26.40	
INSTANTANEOUS LOW FLOW			50		35	
ANNUAL RUNOFF (CFSM)	1.04		0.93		1.33	
ANNUAL RUNOFF (INCHES)	14.18		12.64		18.02	
10 PERCENT EXCEEDS	1250		744		1550	
50 PERCENT EXCEEDS	253		202		366	
90 PERCENT EXCEEDS	110		93		97	

a Also Sept. 28, 1964.
e Estimated.



TENNESSEE RIVER BASIN

03527000 CLINCH RIVER AT SPEERS FERRY, VA

LOCATION.--Lat 36°38'55", long 82°45'02", NAD83, Scott County, Hydrologic Unit 06010205, on right bank 200 ft downstream from bridge on U.S. Highway 58, 0.5 mi downstream from Copper Creek, 0.8 mi northwest of Speers Ferry, 1.8 mi south of Clinchport, and at mile 211.0.

DRAINAGE AREA.--1,126 mi².

PERIOD OF RECORD.--October 1920 to September 1976, October 1976 to September 1978 (annual maximum only), October 1978 to September 1981, October 1981 to September 1995 (annual maximum only), October 2001 to September 2002.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1925(M), 1927, 1928-31(M), 1932, 1935(M). WSP 1306: 1922(M).

GAGE.--Water-stage recorder. Datum of gage is 1,196.52 ft NGVD of 1929. Prior to Nov. 23, 1926, nonrecording gage at site 400 ft upstream at datum 1.50 ft higher. Nov. 23, 1926 to Nov. 6, 1931, nonrecording gage.

REMARKS.--Records good except those for period with ice effect, Jan. 2-9 and period of partial gage-height record, July 22, 24, which are fair, and for period of doubtful gage-height record, Sept. 10-30, which is poor. Maximum discharge, 89,000 ft³/s, from rating curve extended above 45,000 ft³/s on basis of slope-area measurement of peak flow. Prior to May 1951, diurnal fluctuation at low flow caused by mills upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of 33 ft, present site and datum, from reports of the Tennessee Valley Authority. Flood of Feb. 28, 1902 reached a stage of 26.6 ft, at site 400 ft upstream and at datum about 1 ft higher, from records of the National Weather Service.

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	241	177	192	223	1360	447	7140	1120	543	459	323	186
2	230	175	197	e210	1190	442	5930	2340	529	385	318	158
3	223	172	196	e210	1030	511	4140	4050	505	510	283	142
4	216	175	187	e210	932	580	3170	7130	524	694	255	132
5	207	180	176	e210	843	565	2480	3920	503	460	253	124
6	206	181	172	e215	774	551	2090	2740	478	514	238	114
7	218	182	175	e215	918	513	1850	2170	514	433	245	106
8	255	180	176	e215	1470	491	1640	2000	630	352	237	100
9	238	174	277	e220	1570	477	1560	1760	623	310	212	97
10	224	174	485	225	1430	479	2060	1570	510	289	196	e94
11	209	173	608	304	1300	469	1950	1400	433	309	180	e90
12	196	170	703	896	1160	451	1670	1240	391	517	177	e88
13	186	172	763	1120	1060	614	1490	1220	388	503	167	e90
14	195	168	1070	938	949	492	1380	1750	464	484	151	e88
15	205	162	1060	770	861	505	1340	1640	504	506	156	e88
16	225	154	841	639	807	570	1360	1340	555	469	158	e98
17	220	155	687	550	764	6290	1230	1130	472	386	184	e120
18	217	153	697	511	723	43600	1260	1160	409	375	226	e130
19	243	152	706	860	675	37400	1520	1350	369	410	224	e130
20	218	153	659	2650	643	11000	1400	1230	328	572	239	e125
21	202	150	578	2510	648	6420	1360	1040	311	557	231	e120
22	195	146	513	1950	633	4900	1270	926	289	e600	204	e120
23	196	150	450	4300	595	3870	1150	850	277	516	165	e150
24	193	161	433	13200	563	3080	1050	785	264	e420	175	e180
25	200	182	407	15400	532	2410	1090	726	251	414	197	e220
26	204	184	382	10400	513	2070	1220	681	248	680	212	e230
27	193	190	360	5070	496	2320	1340	749	254	778	302	e280
28	190	186	335	3230	470	2200	1280	758	307	541	329	e500
29	188	178	314	2390	---	1890	1290	676	378	412	262	e520
30	185	188	289	1890	---	1890	1210	658	502	388	215	e410
31	177	---	264	1570	---	3380	---	589	---	365	192	---
TOTAL	6495	5097	14352	73301	24909	140877	58920	50698	12753	14608	6906	5030
MEAN	210	170	463	2365	890	4544	1964	1635	425	471	223	168
MAX	255	190	1070	15400	1570	43600	7140	7130	630	778	329	520
MIN	177	146	172	210	470	442	1050	589	248	289	151	88
CFSM	0.19	0.15	0.41	2.10	0.79	4.04	1.74	1.45	0.38	0.42	0.20	0.15
IN.	0.21	0.17	0.47	2.42	0.82	4.65	1.95	1.67	0.42	0.48	0.23	0.17

03527000 CLINCH RIVER AT SPEERS FERRY, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1976, 1979 - 1981, 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	493	832	1775	2665	3079	3326	2300	1756	962	794	702	407
MAX	1988	2905	7243	7105	6942	9084	4640	5053	2782	2509	3624	1984
(WY)	1972	1930	1927	1937	1957	1963	1935	1958	1923	1938	1942	1928
MIN	93.6	116	157	203	486	1067	551	408	219	183	132	110
(WY)	1931	1940	1940	1940	1941	1931	1942	1941	1941	1930	1925	1955

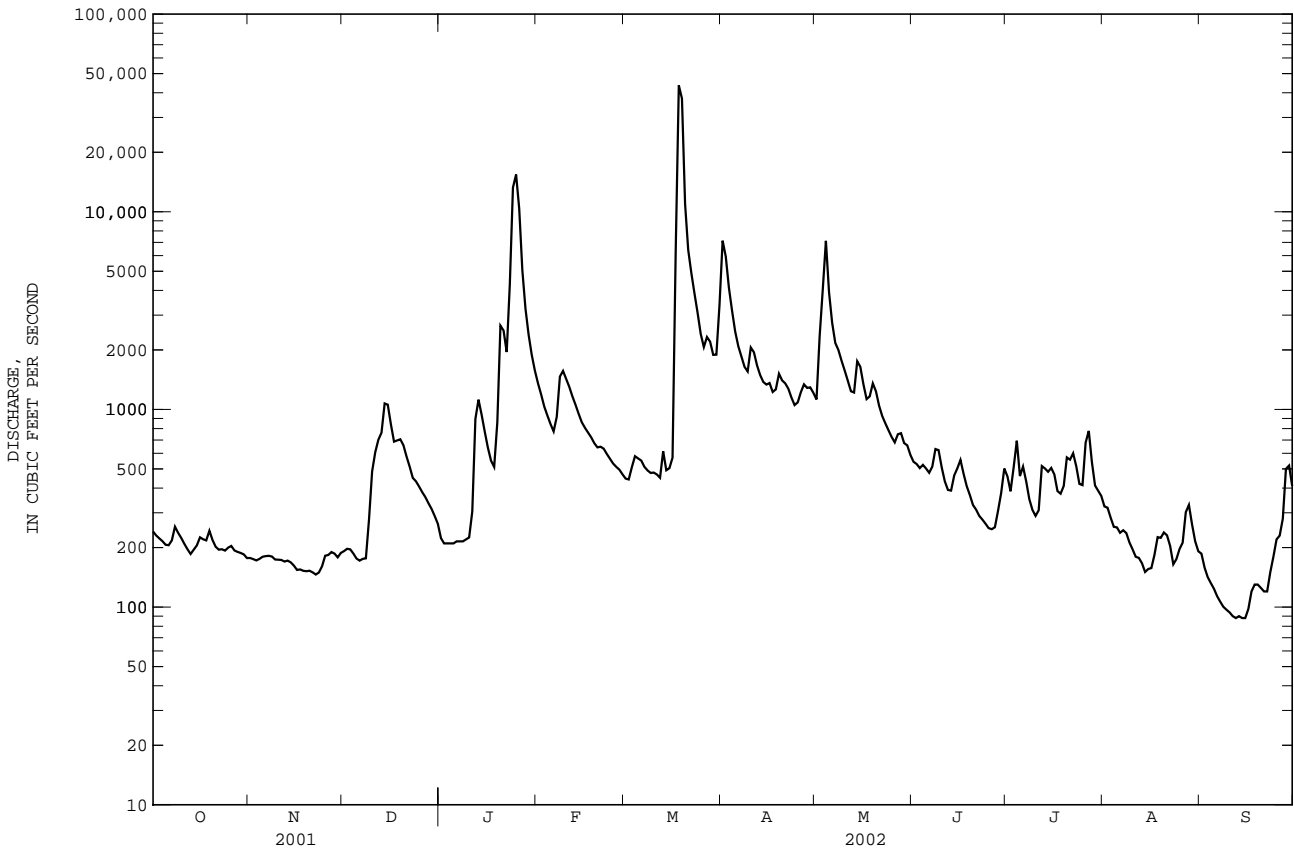
SUMMARY STATISTICS

FOR 2002 WATER YEAR

WATER YEARS 1921 - 1976
1979 - 1981
2002

ANNUAL TOTAL	413946		
ANNUAL MEAN	1134	1585	
HIGHEST ANNUAL MEAN		2534	1927
LOWEST ANNUAL MEAN		668	1941
HIGHEST DAILY MEAN	43600	Mar 18	43600 Mar 18 2002
LOWEST DAILY MEAN	88	aSep 12	77 bOct 7 1930
ANNUAL SEVEN-DAY MINIMUM	91	Sep 9	81 Oct 7 1930
MAXIMUM PEAK FLOW	61600	Mar 18	89000 Apr 5 1977
MAXIMUM PEAK STAGE	32.45	Mar 18	c36.69 Apr 5 1977
INSTANTANEOUS LOW FLOW	66	dSep 13	42 fSep 29 1939
ANNUAL RUNOFF (CFSM)	1.01		1.41
ANNUAL RUNOFF (INCHES)	13.68		19.13
10 PERCENT EXCEEDS	1970		3570
50 PERCENT EXCEEDS	460		845
90 PERCENT EXCEEDS	166		189

- a Also Sept. 14, 15, 2002.
- b Also Oct. 8, 14, 15, 22, 1930.
- c From floodmarks.
- d Also Sept. 14, 2002.
- e Estimated.
- f Also Oct. 23, 1939.



TENNESSEE RIVER BASIN

03528000 CLINCH RIVER ABOVE TAZEWELL, TN

LOCATION.--Lat 36°25'30", long 83°23'54", Claiborne County, Hydrologic Unit 06010205, on right bank 0.4 mi upstream from Grissom Island, 4.6 mi downstream from Big War Creek, 10 mi east of Tazewell, and at mile 159.8.

DRAINAGE AREA.--1,474 mi².

PERIOD OF RECORD.--October 1918 to current year. Published as "near Lone Mountain" October 1918 to September 1927; as "near Tazewell" August 1927 to December 1936; and as "above Tazewell" July 1935 to current year. Prior to April 1919, monthly discharge only, published in WSP 1306. Gage-height record "near Tazewell" January 1937 to July 1941.

REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell". WSP 1306: Drainage area at site "near Lone Mountain". WSP 1336: 1928.

GAGE.--Data collection platform. Datum of gage is 1,060.7 ft above NGVD of 1929. April 1, 1919, to Sept. 30, 1927, nonrecording gage on railroad bridge 23.3 mi downstream at datum 102.7 ft lower. Aug. 8, 1927, to July 16, 1941, water-stage recorder at site 8.0 mi downstream at datum 47.2 ft lower. Water-stage recorder at present site and datum since July 29, 1935.

REMARKS.--No estimated daily discharges. Records good. Periodic observations of water temperature and specific conductance are published in this report as miscellaneous water-quality data.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of about 24 ft, present site and datum, from information by local resident, discharge, about 66,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 14,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 25	0600	22,400	12.63	Mar 19	0800	*54,800	*21.37

Minimum discharge, 115 ft³/s, Sept. 13, 14, 16, 17.

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	328	230	254	333	1770	592	8380	1320	623	536	401	225
2	304	224	248	349	1550	580	8470	1660	584	506	349	214
3	291	225	243	298	1360	600	5890	3530	564	445	331	201
4	282	221	242	302	1210	652	4240	6610	544	582	304	182
5	270	222	235	300	1090	702	3300	5660	549	724	270	170
6	277	221	226	301	1010	687	2720	3460	541	532	256	160
7	266	222	228	319	1080	671	2320	2620	523	542	234	152
8	264	222	235	332	1410	636	2040	2370	551	475	218	145
9	293	223	253	318	1870	621	1970	2160	658	390	223	139
10	296	220	321	329	1810	612	2370	2010	646	349	211	133
11	284	217	645	355	1640	599	2660	1770	543	335	194	130
12	270	217	737	503	1480	595	2260	1530	468	313	184	124
13	263	214	885	1080	1340	586	1960	1510	429	542	175	118
14	270	211	1120	1140	1220	596	1760	1890	462	573	168	116
15	281	214	1280	946	1100	615	1620	2060	505	535	164	121
16	284	208	1110	776	1020	733	1570	1780	523	536	167	115
17	271	204	904	666	962	3980	1500	1470	571	491	193	116
18	275	203	878	611	906	31500	1360	1350	497	410	190	121
19	265	203	879	1280	856	51200	1480	1420	431	386	222	119
20	277	201	826	3040	822	27700	1630	1490	385	431	245	122
21	280	199	744	3430	814	9430	1470	1290	353	592	246	158
22	261	197	653	2700	799	6580	1440	1120	329	567	253	192
23	252	195	589	4410	770	5040	1320	1010	309	654	232	247
24	246	201	546	14400	726	4030	1200	921	301	589	208	241
25	252	230	514	22000	693	3200	1210	849	289	574	187	203
26	244	243	484	17100	665	2740	1220	788	291	477	219	419
27	248	243	454	8560	642	2650	1350	747	299	746	273	961
28	247	237	433	4670	619	2760	1410	861	376	791	356	970
29	241	236	409	3300	---	2470	1410	832	402	582	348	736
30	236	250	384	2560	---	2300	1350	725	421	460	301	593
31	233	---	355	2080	---	3510	---	682	---	433	253	---
TOTAL	8351	6553	17314	98788	31234	169167	72880	57495	13967	16098	7575	7643
MEAN	269.4	218.4	558.5	3187	1116	5457	2429	1855	465.6	519.3	244.4	254.8
MAX	328	250	1280	22000	1870	51200	8470	6610	658	791	401	970
MIN	233	195	226	298	619	580	1200	682	289	313	164	115
MED	270	220	484	946	1050	733	1620	1490	482	535	232	159
CFSM	0.18	0.15	0.38	2.16	0.76	3.70	1.65	1.26	0.32	0.35	0.17	0.17
IN.	0.21	0.17	0.44	2.49	0.79	4.27	1.84	1.45	0.35	0.41	0.19	0.19

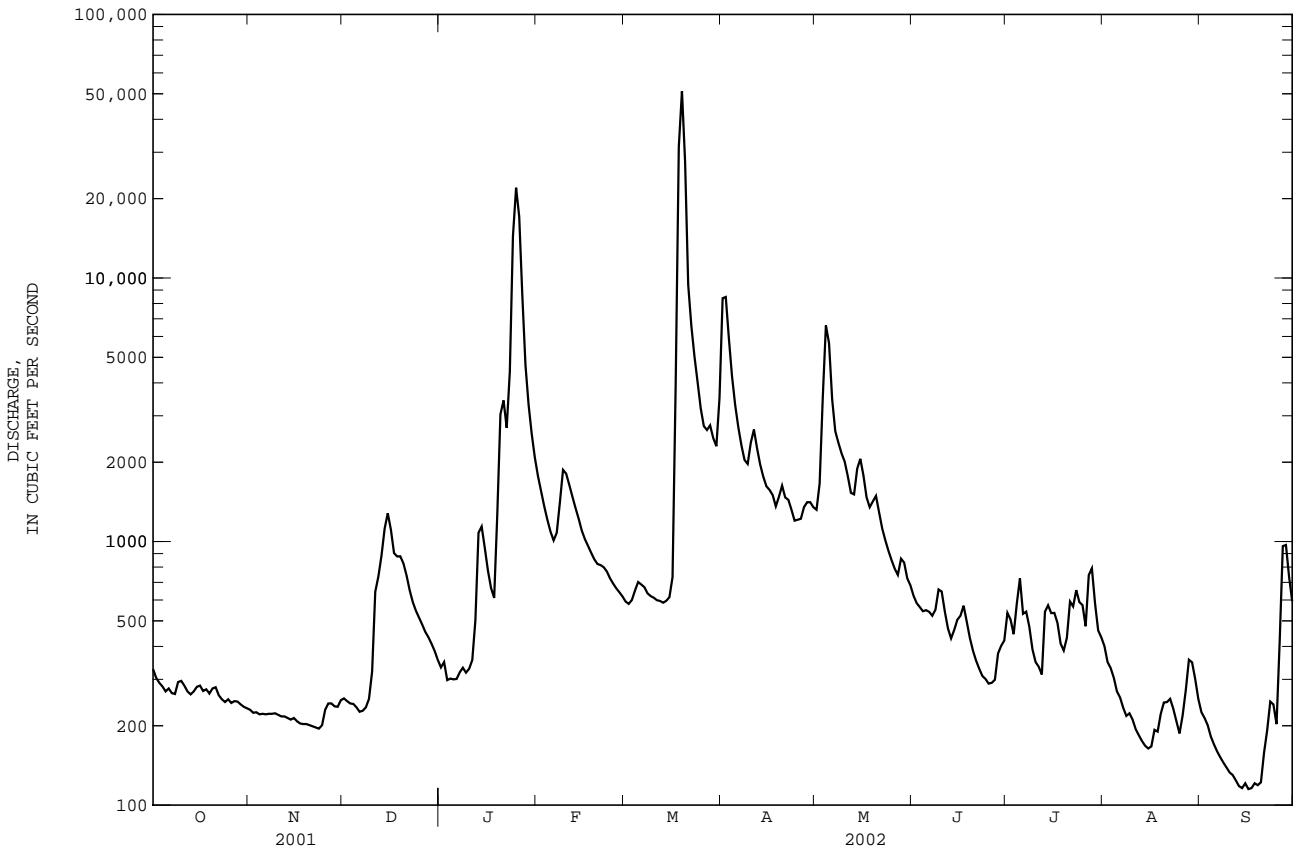
03528000 CLINCH RIVER ABOVE TAZEWELL, TN--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	642.5	1076	2280	3420	4065	4277	3075	2283	1271	966.9	858.9	523.4
MAX	2871	4794	9107	9500	9426	11950	8860	6382	3865	3251	4411	2939
(WY)	1990	1978	1927	1937	1957	1963	1977	1929	1989	1938	1942	1989
MIN	145	159	217	285	572	990	711	547	301	239	169	136
(WY)	1964	1940	1940	1940	1941	1988	1986	1941	1988	1988	1925	1955

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1919 - 2002
ANNUAL TOTAL	500492	507065	
ANNUAL MEAN	1371	1389	2049
HIGHEST ANNUAL MEAN			3269
LOWEST ANNUAL MEAN			850
HIGHEST DAILY MEAN	21100	Jul 30	83300
LOWEST DAILY MEAN	195	Nov 23	108
ANNUAL SEVEN-DAY MINIMUM	200	Nov 18	116
MAXIMUM PEAK FLOW			98100
MAXIMUM PEAK STAGE			a29.32
INSTANTANEOUS LOW FLOW			108
ANNUAL RUNOFF (CFSM)	0.93	0.94	1.39
ANNUAL RUNOFF (INCHES)	12.63	12.80	18.89
10 PERCENT EXCEEDS	3150	2510	4600
50 PERCENT EXCEEDS	675	536	1090
90 PERCENT EXCEEDS	243	203	264

a From floodmarks.
 b Also occurred on Sept. 14, 16, 17.



TENNESSEE RIVER BASIN

03529500 POWELL RIVER AT BIG STONE GAP, VA

LOCATION.--Lat 36°52'08", long 82°46'32", NAD83, Wise County, Hydrologic Unit 06010206, on right bank 10 ft upstream from bridge on U.S. Highway 23 at Big Stone Gap, 1 mi upstream from South Fork Powell River, 2.5 mi downstream from Pigeon Creek, and at mile 179.2.

DRAINAGE AREA.--112 mi².

PERIOD OF RECORD.--October 1944 to September 1959, October 1959 to September 1977 (annual maximum only), October 1978 to September 1981, October 1981 to July 1994 (annual maximum only), October 2001 to September 2002.

REVISED RECORDS.--WSP 1053: Drainage area. WSP 1276: 1948. WSP 1436: 1949(M), 1950(P), 1951-53(M), 1955(P).

GAGE.--Water-stage recorder. Datum of gage is 1,459.07 ft NGVD of 1929. Prior to Apr. 27, 1948, staff gage.

REMARKS.--Records good except those for periods with ice effect, Jan. 3, 5-8, which are fair. Maximum discharge, 24,000 ft³/s, from rating curve extended above 1,900 ft³/s on basis of slope-area measurements at gage heights 9.67 ft, 10.39 ft, and 16.50 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 23	1515	1,950	4.99	Mar 18	0245	*13,000	*12.07
Jan 25	0200	2,460	5.51				

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	41	28	42	55	222	81	998	152	113	46	37	30
2	38	29	33	52	191	92	614	393	106	57	35	29
3	36	30	30	e48	175	112	451	728	106	123	39	28
4	34	31	30	45	164	99	359	460	99	93	36	28
5	33	30	26	e44	149	90	305	344	94	58	33	26
6	90	28	28	e42	147	90	269	279	97	48	31	25
7	60	27	30	e42	238	87	242	268	103	42	28	25
8	45	27	78	e44	287	85	224	247	90	39	29	25
9	38	27	192	45	253	89	303	231	81	45	27	25
10	36	27	126	49	242	88	416	209	78	40	27	26
11	32	27	165	187	232	81	336	184	73	46	28	24
12	31	26	135	207	211	79	285	171	71	44	27	25
13	34	25	229	163	188	85	256	251	76	44	25	24
14	66	24	317	136	170	81	237	272	79	52	23	25
15	63	23	238	123	155	77	216	216	68	42	37	27
16	45	23	172	111	148	133	196	183	65	38	44	29
17	38	24	154	104	139	1230	188	164	63	35	38	32
18	36	26	216	103	126	7280	415	599	58	39	37	34
19	36	23	198	193	117	1690	285	360	63	38	44	34
20	34	24	162	366	122	1070	239	270	59	40	41	32
21	34	24	132	285	119	879	215	229	54	54	33	34
22	35	24	115	254	107	651	204	201	51	56	34	52
23	33	25	113	1250	103	504	176	180	50	83	34	59
24	33	26	115	1590	99	414	164	165	48	98	29	33
25	49	47	98	1750	95	347	219	152	47	153	29	29
26	37	41	90	807	94	370	189	169	49	119	53	241
27	32	30	85	529	90	376	178	223	48	69	55	196
28	35	28	80	395	87	334	178	164	54	54	38	98
29	35	26	75	322	---	303	167	143	50	45	35	64
30	30	44	68	270	---	304	152	129	48	40	34	50
31	27	---	61	235	---	661	---	124	---	41	33	---
TOTAL	1246	844	3633	9846	4470	17862	8676	7860	2141	1821	1073	1409
MEAN	40.2	28.1	117	318	160	576	289	254	71.4	58.7	34.6	47.0
MAX	90	47	317	1750	287	7280	998	728	113	153	55	241
MIN	27	23	26	42	87	77	152	124	47	35	23	24
CFSM	0.36	0.25	1.05	2.84	1.43	5.14	2.58	2.26	0.64	0.52	0.31	0.42
IN.	0.41	0.28	1.21	3.27	1.48	5.93	2.88	2.61	0.71	0.60	0.36	0.47

03529500 POWELL RIVER AT BIG STONE GAP, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1959, 1979 - 1981, 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	33.8	92.1	226	378	428	423	301	235	112	73.4	71.1	37.2
MAX	136	290	622	745	982	1054	621	486	277	152	283	94.0
(WY)	1950	1980	1952	1950	1948	1955	1956	1958	1979	1958	1947	1979
MIN	7.25	9.47	26.4	27.5	65.5	188	137	62.7	25.8	22.4	14.0	9.27
(WY)	1954	1954	1954	1981	1954	1957	1954	1957	1948	1948	1948	1955

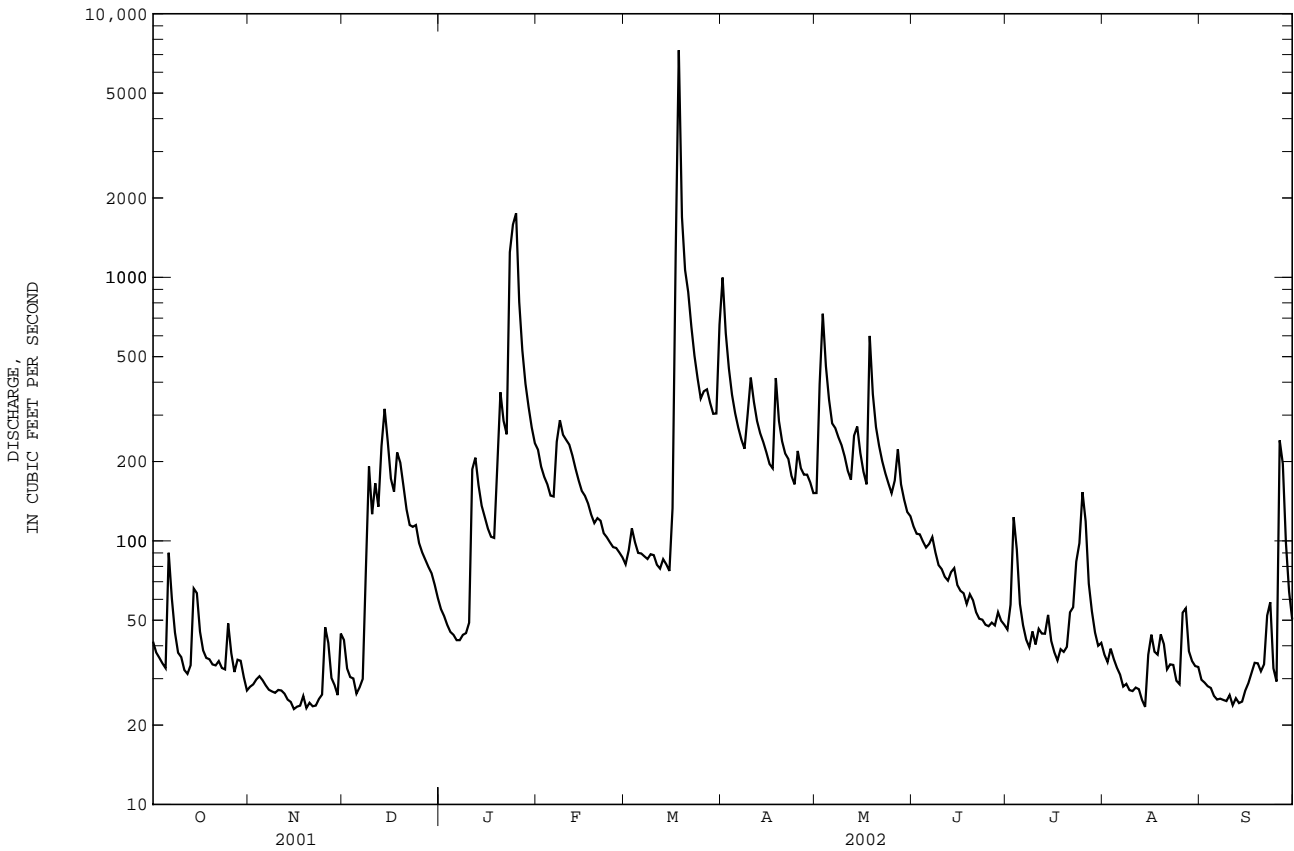
SUMMARY STATISTICS

FOR 2002 WATER YEAR

WATER YEARS 1945 - 1959
1979 - 1981
2002

ANNUAL TOTAL	60881		
ANNUAL MEAN	167	200	
HIGHEST ANNUAL MEAN		299	1979
LOWEST ANNUAL MEAN		101	1954
HIGHEST DAILY MEAN	7280	Mar 18	7860 Feb 13 1948
LOWEST DAILY MEAN	23	aNov 15	5.0 bSep 16 1955
ANNUAL SEVEN-DAY MINIMUM	24	Nov 14	5.7 Sep 13 1955
MAXIMUM PEAK FLOW	13000	Mar 18	24000 Apr 5 1977
MAXIMUM PEAK STAGE	12.07	Mar 18	16.50 Apr 5 1977
INSTANTANEOUS LOW FLOW	22	Aug 14	4.0 cSep 16 1955
ANNUAL RUNOFF (CFSM)	1.49		1.78
ANNUAL RUNOFF (INCHES)	20.22		24.23
10 PERCENT EXCEEDS	304		445
50 PERCENT EXCEEDS	77		94
90 PERCENT EXCEEDS	27		18

- a Also Nov. 16, 19, 2001 and Aug. 14, 2002.
- b Also Sept. 17, 18, 1955.
- c Also Sept. 17, 19, 1955.
- e Estimated.



TENNESSEE RIVER BASIN

03531500 POWELL RIVER NEAR JONESVILLE, VA

LOCATION.--Lat 36°39'43", long 83°05'42", NAD83, Lee County, Hydrologic Unit 06010206, on right bank 175 ft downstream from highway bridge, 2 mi southeast of Jonesville, 10 mi upstream from Wallen Creek, and at mile 143.1.

DRAINAGE AREA.--319 mi².

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft NGVD of 1929.

REMARKS.--Records good except those for period with ice effect, Jan. 2-8, and periods of doubtful gage-height record, Jan. 16, 17 and Aug. 2-5, which are fair. National Weather Service gage-height telemeter at station. Tennessee Valley Authority gage-height data recorder at station, called at 6-hour intervals by computer at Knoxville, Tennessee. Maximum discharge, 57,000 ft³/s, from rating curve extended above 20,000 ft³/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 24	0100	6,040	11.76	Mar 18	1615	*28,700	*32.40
Jan 25	0800	7,370	13.78				

**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	94	66	88	132	507	174	3950	383	218	104	85	62
2	90	64	93	e125	476	171	2250	1480	203	105	e82	59
3	86	66	81	e120	405	223	1590	2120	195	121	e84	55
4	83	65	74	e115	375	245	1130	1530	189	200	e76	54
5	76	63	69	e110	342	211	884	1040	178	160	e72	52
6	86	63	68	e105	314	203	738	779	171	119	67	50
7	137	62	68	e105	449	195	639	674	194	100	64	48
8	114	61	72	e105	1010	190	570	730	174	92	63	47
9	93	60	346	108	797	184	710	595	151	84	63	46
10	84	60	367	118	686	196	2110	531	139	88	61	45
11	80	58	392	167	617	180	1490	443	130	90	60	44
12	76	57	399	589	541	170	1050	391	130	93	57	44
13	77	57	447	398	479	175	832	488	124	100	54	43
14	85	57	987	305	421	189	705	1120	124	123	52	44
15	132	56	802	253	380	183	618	783	136	130	52	44
16	132	56	535	e240	358	185	536	572	130	103	68	45
17	98	57	401	e230	329	2490	476	469	124	89	132	46
18	87	57	543	238	302	21400	666	1000	122	82	103	46
19	81	57	586	505	273	8450	687	978	121	95	108	46
20	79	59	468	1930	262	2930	558	659	118	114	100	44
21	75	57	360	1160	286	2570	488	538	118	124	92	46
22	72	57	292	811	261	1940	449	454	112	106	73	54
23	72	56	253	2510	237	1430	408	399	105	113	65	124
24	72	58	298	5150	221	1100	361	355	101	213	69	120
25	76	65	272	6330	211	884	431	322	97	226	64	77
26	84	87	235	2980	205	865	435	292	114	303	68	147
27	86	89	215	1810	203	1570	389	352	107	205	111	758
28	74	76	199	1160	190	1160	387	333	125	131	109	339
29	70	68	184	853	---	938	478	281	127	107	83	192
30	70	70	168	679	---	997	417	252	108	96	71	131
31	68	---	147	563	---	1950	---	229	---	93	65	---
TOTAL	2689	1884	9509	30004	11137	53748	26432	20572	4185	3909	2373	2952
MEAN	86.7	62.8	307	968	398	1734	881	664	140	126	76.5	98.4
MAX	137	89	987	6330	1010	21400	3950	2120	218	303	132	758
MIN	68	56	68	105	190	170	361	229	97	82	52	43
CFSM	0.27	0.20	0.96	3.03	1.25	5.44	2.76	2.08	0.44	0.40	0.24	0.31
IN.	0.31	0.22	1.11	3.50	1.30	6.27	3.08	2.40	0.49	0.46	0.28	0.34

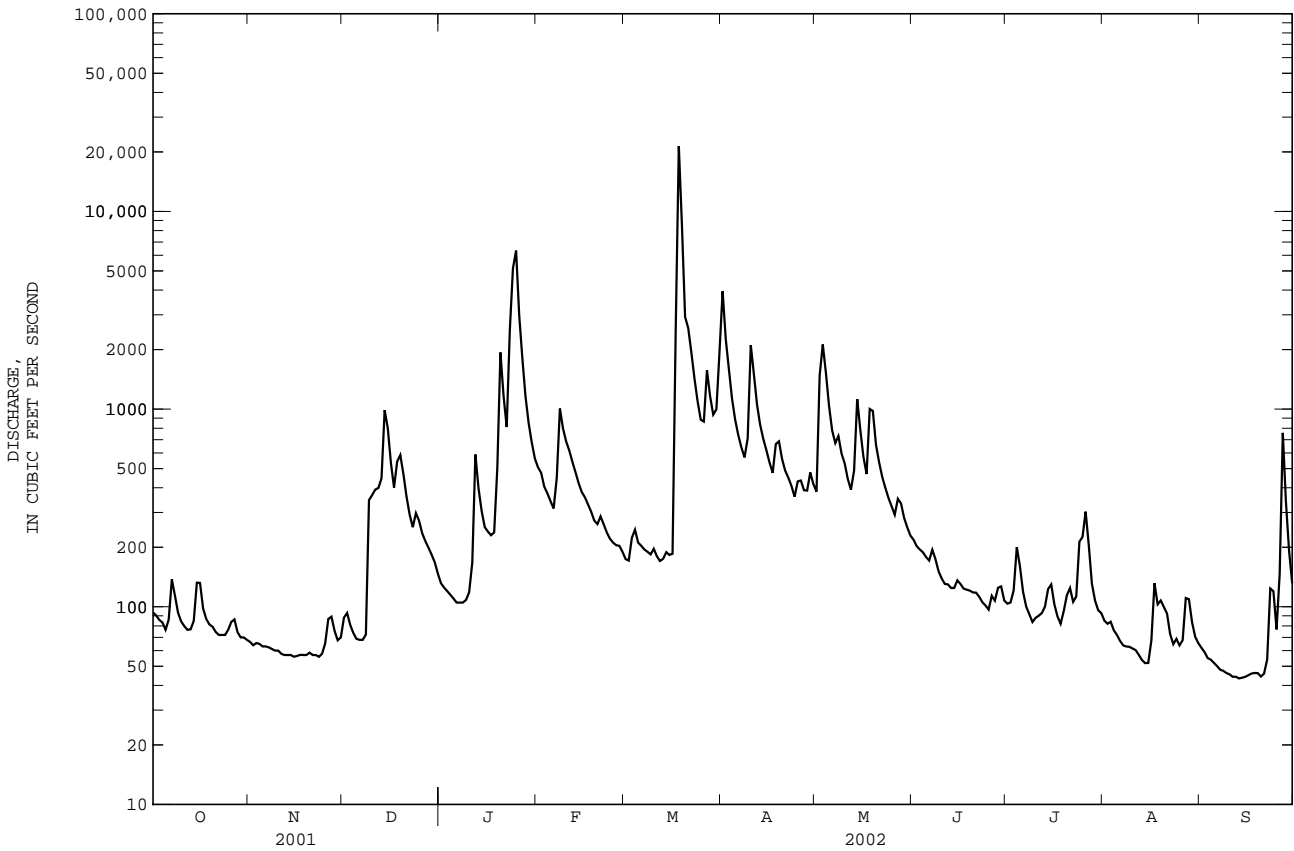
03531500 POWELL RIVER NEAR JONESVILLE, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	149	303	637	931	1055	1137	811	572	309	233	198	116
MAX	1086	1405	2026	2765	2666	3423	2542	1436	1601	825	1187	603
(WY)	1978	1974	1973	1937	1994	1963	1977	1984	1989	1941	1942	1982
MIN	22.9	29.7	46.5	57.8	124	281	169	108	46.7	47.7	49.0	24.5
(WY)	1955	1954	1966	1940	1941	1988	1986	1941	1936	1944	1953	1955

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1932 - 2002	
ANNUAL TOTAL	134029		169394			
ANNUAL MEAN	367		464		535	
HIGHEST ANNUAL MEAN					943	
LOWEST ANNUAL MEAN					218	
HIGHEST DAILY MEAN	5400		Feb 17		21400	
LOWEST DAILY MEAN	56		aNov 15		43	
ANNUAL SEVEN-DAY MINIMUM	57		Nov 12		44	
MAXIMUM PEAK FLOW					28700	
MAXIMUM PEAK STAGE					32.40	
INSTANTANEOUS LOW FLOW					43	
ANNUAL RUNOFF (CFSM)	1.15		1.45		1.68	
ANNUAL RUNOFF (INCHES)	15.63		19.75		22.80	
10 PERCENT EXCEEDS	803		954		1210	
50 PERCENT EXCEEDS	192		147		250	
90 PERCENT EXCEEDS	68		58		53	

- a Also Nov. 16, 23, 2001.
- b From floodmark.
- c Also Sept. 14, 15, 2002.
- d Also Sept. 20, 1954, and as a result of storage behind temporary dam Oct. 18, 1961.
- e Estimated.



DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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 these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at miscellaneous sites and for special studies are given in separate tables.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device that 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 during water year 2002

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
POTOMAC RIVER BASIN								
Chub Run near Stanley, VA (01629945)	Lat 38°34'31", long 78°27'31", NAD83, Page County, Hydrologic Unit 02070005, at culvert on State Highway 689, 2.2 mi east of Stanley, and 3.1 mi upstream from mouth. Datum of gage is 1,023.05 ft above sea level. Drainage area is 3.16 mi ² .	1959-69a, 1970-02	-	<2.14	<177	9-6-96	>10.08	*
Crooked Run near Mt. Jackson, VA (01632970)	Lat 38°45'44", long 78°41'05", NAD83, Shenandoah County, Hydrologic Unit 02070006, on right upstream wingwall of culvert on State Highway 263, 0.4 mi upstream from mouth, and 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft above sea level. Drainage area is 6.49 mi ² .	1972-02	-	<2.91	<192	1-19-96	11.34	5,700
Pughs Run near Woodstock, VA (01633650)	Lat 38°55'48", long 78°32'42", NAD83, Shenandoah County, Hydrologic Unit 02070006, on left upstream wingwall of culvert on State Highway 623, 4.0 mi northwest of Woodstock, and 5.4 mi upstream from mouth. Datum of gage is 1,027.27 ft above sea level. Drainage area is 3.66 mi ² .	1971-02	4-22-02	4.32	80	9-6-96	13.39	1,100
GREAT WICOMICO RIVER BASIN								
Bush Mill Stream near Heaths- ville, VA (01661800)	Lat 37°52'36", long 76°29'41", NAD83, Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft upstream from bridge on State High- way 601, 2.2 mi northwest of Howland, and 3.0 mi southwest of Heathsville. Datum of gage is 22.22 ft above sea level. Drainage area is 6.82 mi ² .	1964-69†, 1970-86†, 1987-02	4-22-02	3.46	8.0	9-16-99	11.50	1,390

* Discharge not determined.

† Operated as a continuous-record gaging station.

< Less than.

> Greater than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
RAPPAHANNOCK RIVER BASIN								
Pony Mountain Branch near Culpeper, VA (01665050)	Lat 38°27'04", long 77°57'23", NAD83, Culpeper County, Hydrologic Unit 02080103, at culvert on State Highway 3, 0.3 mi upstream from mouth, and 2.7 mi southeast of Cul- peper. Elevation of gage is 335 ft above sea level, from topographic map. Drainage area is 0.30 mi ² .	1958-69a, 1970-02	7-14-02	1.03	16	8-16-70	4.02	196
Farmers Hall Creek near Champlain, VA (01668300)	Lat 38°00'05", long 76°58'39", NAD83, Essex County, Hydro- logic Unit 02080104, on left upstream wingwall of culvert on U.S. Highway 17, 1.0 mi upstream from Rouzie Swamp, and 1.2 mi southeast of Champlain. Datum of gage is 42.10 ft above sea level. Drainage area is 2.18 mi ² .	1966-02	4-22-02	3.06	21	8-20-69	19.2	510
YORK RIVER BASIN								
Pamunkey Creek at Lahore, VA (01670180)	Lat 38°11'33", long 77°58'08", NAD83, Orange County, Hydro- logic Unit 02080106, on right bank on upstream side of bridge on State Highway 669, 0.45 mi south of Lahore, and 3.8 mi upstream from Lake Anna. Elevation of gage is 200 ft above sea level, from topographic map. Drainage area is 40.5 mi ² .	1989-91†, 1992-02	4-22-02	6.53	997	6-27-95	17.20	6,900
Contrary Creek near Mineral, VA (01670300)	Lat 38°03'53", long 77°52'44", NAD83, Louisa County, Hydro- logic Unit 02080106, on left bank 200 ft downstream from bridge on U.S. Highway 522, 4.0 mi northeast of Mineral. Elevation of gage is 275 ft above sea level, from topo- graphic map. Drainage area is 5.53 mi ² .	1976-86†, 1987-02	-	<1.83	<92	11-28-93	6.94	7,050
		Correction 1999 WY	9-29-99	2.53	304			
Waldrop Creek near Louisa, VA (01671650)	Lat 38°00'09", long 78°04'21", NAD83, Louisa County, Hydro- logic Unit 02080106 on left upstream wingwall of culvert on State Highway 632, 2.3 mi upstream from mouth, and 4.2 mi southwest of Louisa. Datum of gage is 361.41 ft above sea level. Drainage area is 2.85 mi ² .	1969-02	4-22-02	2.96	33	8-20-69	21.00	2,500
South Anna River near Ashland, VA (01672500)	Lat 37°47'49", long 77°32'56", NAD83, Hanover County, Hydro- logic Unit 02080106, on down- stream side of bridge on State Highway 54, 5 mi spstream from Newfound Fiver and 4.5 mi west of Ashland. Drainage area is 394 mi ² .	1931-97†, 2001-02	1-7-02	8.82	2,350	8-23-69	24.99	17,100

† Operated as a continuous-record gaging station.

< Less than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
YORK RIVER BASIN--Continued								
Reedy Creek near Dawn, VA (01674200)	Lat 37°52'56", long 77°21'34", NAD83, Caroline County, Hydro- logic Unit 02080105, at bridge on U.S. Highway 301, 3.3 mi north of Dawn, and 11 mi south of Bowling Green. Drainage area is 16.8 mi ² .	1951-69, 1972-02	1-7-02	4.19	125	8-20-69	7.28	2,500
JAMES RIVER BASIN								
Jackson River at Falling Spring, VA (02012500)	Lat 37°52'36", long 79°58'38", NAD83, Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft upstream from Smith Bridge, 0.8 mi south of Falling Spring, and 5.5 mi north of Covington. Datum of gage is 1,333.49 ft above sea level. Drainage area is 411 mi ² .	1925-84†, 1987-02	4-29-02	8.80	4,540	3-17-36 b1913	14.74 20	24,700 c50,000
Cowpasture River near Head Waters, VA (02015600)	Lat 38°19'30", long 79°26'13", NAD83, Highland County, Hydro- logic Unit 02080201, on left downstream wingwall of bridge on U. S. Highway 250, 1.2 mi west of Head Waters, and 3 mi upstream from Shaw Fork. Datum of gage is 1,985.65 ft above sea level. Drainage area is 11.3 mi ² .	1949-94, 1996-02	4-22-02	5.92	300	6-17-49	6.5	5,650
Craig Creek tributary near New Castle, VA (02017700)	Lat 37°33'21", long 79°59'51", NAD83, Craig County, Hydro- logic Unit 02080201, on right upstream wingwall of culvert on State Highway 606, 0.4 mi upstream from mouth, and 7.1 mi northeast of New Castle. Drainage area is 2.05 mi ² .	1968-02	-	<2.79	<10.5	11-4-85	13.45	1,100
Renick Run near Buchanan, VA (02020100)	Lat 37°35'27", long 79°38'03", NAD83, Botetourt County, Hydrologic Unit 02080201, on left upstream wingwall of culvert on Frontage Road F054 of Interstate Highway 81 between Exits 168 and 169, 2.2 mi upstream from mouth, and 4.8 mi northeast of Buchanan. Datum of gage is 1,261.85 ft above sea level. Drainage area is 2.06 mi ² .	1967-02	-	<2.34	-	8-20-69	9.90	1,210
James River at Bedford Dam near Major, VA (02024750)	Lat 37°34'40", long 79°22'35", NAD83, Amherst County, Hydro- logic Unit 02080203, on left bank 10 ft upstream from head- gates on headrace to city of Bedford hydroelectric plant, 1.2 mi north of Major, and 1.4 mi upstream from Blue Ridge Parkway. Drainage area is 3,070 mi ² .	1989-02	4-23-02	7.92	21,800	1-20-96	14.63	104,000

† Operated as a continuous-record gaging station.
 < Less than.
 b Maximum known historical peak outside period of record.
 c Approximate.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
JAMES RIVER BASIN--Continued								
Buffalo River tributary near Amherst, VA (02027700)	Lat 37°33'45", long 78°57'35", NAD83, Amherst County, Hydro- logic Unit 02080203, on left bank just upstream from cul- vert on U.S. Highway 60, 0.8 mi upstream from mouth, and 5.2 mi southeast of Amherst. Datum of gage is 583.66 ft above sea level. Drainage area is 0.46 mi ² .	1966-02	-	<2.76	<16	9-6-96	7.33	196
Stockton Creek near Afton, VA (02030800)	Lat 38°01'48", long 78°48'29", NAD83, Albemarle County, Hydro- logic Unit 02080204, on left upstream wingwall of cul- vert on State Highway 6, 1.7 mi east of Afton, and 4.3 mi upstream from Stony Run. Datum of gage is 835.27 ft above sea level. Drainage area is 2.80 mi ² .	1967-02	-	<3.97	<27	6-21-72 11-23-92	9.68 d9.73	678 425
Muddy Run near Stanardsville, VA (02032300)	Lat 38°14'05", long 78°37'01", NAD83, Albemarle County, Hydrologic Unit 02080204, on right downstream abutment of bridge on State Highway 810, 0.7 mi upstream from mouth, and 11 mi southwest of Stanardsville. Datum of gage is 756.79 ft above sea level. Drainage area is 3.36 mi ² .	1967-02	-	<6.15	<35	5-13-78	8.33	92
								Revision: Maximum discharges published in previous reports and dates of period of record maximum are in error.
Moores Creek near Char- lottesville, VA (02033300)	Lat 38°00'26", long 78°34'24", NAD83, Albemarle County, Hydro- logic unit 02080204, on right downstream wingwall of culvert on access road, 30 ft north of U.S. Highway 29, 2.8 mi upstream from Morey Creek, and 4 mi southwest of Char- lottesville. Datum of gage is 505.40 ft above sea level. Drainage area is 3.52 mi ² .	1967-02	-	<13.76	<75	6-2-79	18.74	*
Falling Creek near Midlothian, VA (02037800)	Lat 37°27'16" long 77°35'19", NAD83, Chesterfield County, Hydrologic Unit 02080206, on downstream of bridge on State Highway 653, 2.2 mi upstream from Horners Run and 4 mi southeast of Midlothian. Elevation of gage is 170 ft above sea level, from topo- graphic map. Drainage area is 18.1mi ² .	1951-93, 2002	3-18-02	25.37	*	9-30-79	e11.71	5,170
Falling Creek near Chesterfield, VA (02038000)	Lat 37°26'38" long 77°31'20", NAD83, Chesterfield County, Hydrologic Unit 02080206, on left bank 50 ft upstream from bridge on State Highway 651, 0.8 mi downstream from Licking Creek, 2.8 mi upstream from Pocoshock Creek, and 4.7 mi northwest of Chesterfield. Datum of gage is 126.39 ft above sea level. Drainage area is 32.8 mi ² .	1955-94†, 1996-02	5-10-02	5.26	124	10-1-79	15.32	5,930

* Discharge not determined.

† Operated as a continuous-record gaging station.

< Less than.

d Affected by debris jam at upstream end of culvert.

e At different datum.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
JAMES RIVER BASIN--Continued								
Holiday Creek near Toga, VA (02038840)	Lat 37°25'59", long 78°41'11", NAD83, Buckingham County Hydrologic Unit 02080207, on left bank 40 ft downstream from State Forest Road 2307 (old Richmond Road), 1.8 mi upstream from confluence of North Holiday Creek, and 5.2 mi south-southwest of Toga. Datum of gage is 614.40 ft above sea level. Drainage area is 1.68 mi ² .	1971-02	5-13-02	.75	7.9	6-21-72	6.72	2,820
Flat Creek near Amelia, VA (02040500)	Lat 37°23'28", long 78°03'44", NAD83, Amelia County, Hydro- logic Unit 02080207, at bridge on State Highway 681, 0.5 mi downstream from Horsepen Creek and 6.0 mi northwest of Amelia. Elevation of gage is 240 ft above sea level, from topographic map. Drainage area is 73.0 mi ² .	1947, 1954-70, 1972-02	3-18-02	5.74	442	4-16-87	12.38	5,260
Bailey Branch tributary at Spring Grove, VA (02042250)	Lat 37°10'30", long 76°59'12", NAD83, Surry County, Hydro- logic Unit 02080206, on right upstream wingwall of culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft above sea level. Drainage area is 0.71 mi ² .	1967-02	1-20-02	2.43	10	9-16-99	8.12	474
Jordans Branch at Richmond, VA (02042400)	Lat 37°35'11", long 77°29'54", NAD83, Henrico County, Hydro- logic Unit 02080206, on left downstream wall of bridge on U.S. Highway 250 (Broad Street), at Richmond, and 2.0 mi up- stream from mouth. Drainage area is 2.53 mi ² .	1965-02	5-10-02	9.79	1,070	6-22-91	13.10	2,760
CHOWAN RIVER BASIN								
Falls Creek tributary near Victoria, VA (02044200)	Lat 37°02'05", long 78°10'25", NAD83, Lunenburg County, Hydrologic Unit 03010201, at upstream end of culvert on State Highway 49, 3.6 mi northeast of Victoria. Datum of gage is 409.21 ft above sea level. Drainage area is 0.34 mi ² .	1962-02	5-10-02	5.50	125	6-21-72	9.15	343
Blackwater River tributary near Holland, VA (02050050)	Lat 36°38'45", long 76°51'28", NAD83, Suffolk City, Hydro- logic Unit 03010202, on left upstream wingwall of culvert on State Highway 272, 3.0 mi upstream from mouth, and 4.9 mi southwest of Holland. Datum of gage is 29.25 ft above sea level. Drainage area is 2.76 mi ² .	1967-02	5-2-02	4.02	61	9-16-99	10.78	784

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
ROANOKE RIVER BASIN								
Powells Creek near Turbeville, VA (02075350)	Lat 36°34'51", long 79°11'19", NAD83, Halifax County, Hydro- logic Unit 03010104, at cul- vert on U.S. Highway 58, 0.8 mi upstream from mouth, 1.1 mi east of Halifax-Pittsylvania County line, and 8.8 mi southwest of Turbeville. Datum of gage is 386.76 ft above sea level. Drainage area is 0.28 mi ² .	1958-69a, 1970-02	5-3-02	3.39	6.7	7-11-65	7.86	384
Bearskin Creek near Chatham, VA (02076200)	Lat 36°50'31", long 79°29'04", NAD83, Pittsylvania County, Hydrologic Unit 03010105, on left upstream wingwall of cul- vert on State Highway 57, 4.5 mi west of Chatham, and 6 mi upstream from mouth. Eleva- tion of gage is 630 ft above sea level, from topographic map. Drainage area is 4.06 mi ² .	1967-02	-	<4.41	<249	6-29-95	19.90	2,850
Blacks Creek near Mt. Airy, VA (02076700)	Lat 36°56'41", long 79°09'55", NAD83, Pittsylvania County, Hydrologic Unit 03010105, on left upstream wingwall of culvert on State Highway 40, 1.5 mi east of Mt. Airy, and 3.5 mi upstream from mouth. Elevation of gage is 420 ft above sea level, from topo- graphic map. Drainage area is 3.44 mi ² .	1966-02	5-3-02	4.91	202	9-8-87	19.5	2,200
KANAWHA RIVER BASIN								
Mira Fork tributary near Dugspur, VA (03167300)	Lat 36°50'16", long 80°34'43", NAD83, Carroll County, Hydro- logic Unit 05050001, on left upstream wingwall of culvert on U.S. Highway 221, 1.3 mi upstream from mouth, and 2.2 mi northeast of Dugspur. Datum of gage is 2,602.96 ft above sea level. Drainage area is 0.62 mi ² .	1967-02	-	<2.92	<43.6	4-21-92	7.20	257
Thorne Springs Branch near Dublin, VA (03168750)	Lat 37°05'30", long 80°44'33", NAD83, Pulaski County, Hydro- logic Unit 05050001, at pond dam just upstream from U.S. Highway 11, 3.3 mi southwest of Dublin, and 4.3 mi up- stream from mouth. Elevation of gage is 1,975 ft above sea level, from topographic map. Drainage area is 4.77 mi ² .	1957-69a, 1970-02	9-28-02	1.18	20.6	5-28-73	8.01	2,200

< Less than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

f From high-water marks.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
BIG SANDY RIVER BASIN								
Russell Fork at Council, VA (03208040)	Lat 37°04'41", long 82°03'55", NAD83, Buchanan County, Hydro- logic Unit 05070202, on left bank 50 ft upstream from bridge on State Highway 80, 750 ft downstream from Ball Creek, 0.6 mi southeast of Council, and 4.7 mi upstream from Hurricane Creek. Elevation of gage is 1,680 ft above sea level, from topographic map. Drainage area is 10.2 mi ² .	1981-83‡, 1984-02	3-18-02	5.00	797	7-29-01	8.17	1,870
North Fork Pound River at Pound, VA (03208700)	Lat 37°07'32", long 82°37'36", NAD83, Wise County, Hydrologic Unit 05070202, on right bank at Pound, 700 ft downstream from Stacy Branch, and 1,600 ft downstream from North Fork Pound River dam. Datum of gage is 1,500.00 ft above sea level. Drainage area is 18.5 mi ² . Prior to Oct. 1, 1965, at datum 44.88 ft higher.	1963-87‡, 1988-02	3-18-02	51.88	401	3-12-63	61.58	4,480
Pound River above Indian Creek, at Pound, VA (03208800)	Lat 37°07'26", long 82°36'29", NAD83, Wise County, Hydrologic Unit 05070202, on left bank at Pound, 1,600 ft down- stream from confluence of North and South Forks, 0.5 mi upstream from bridge on U.S. Highway 23, and 0.7 mi upstream from Indian Creek. Datum of gage is 1,535.64 ft above sea level. Drainage area is 36.7 mi ² .	1966-78‡, 1979-02	3-18-02	15.04	2,350	5-18-75	19.44	3,460
Pound River near Georges Fork, VA (03208900)	Lat 37°09'51", long 82°31'30", NAD83, Dickenson County, Hydrologic Unit 05070202, on right bank 50 ft upstream from bridge on State High- way 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork. Datum of gage is 1,470.39 ft above sea level. Drainage area is 82.5 mi ² .	1964-82‡, 1983-02	3-18-02	10.63	4,650	5-18-75	14.91	10,900
Russell Fork at Bartlick, VA (03209200)	Lat 37°14'45", long 82°19'25", NAD83, Dickenson County, Hydrologic Unit 05070202, on left bank at Bartlick just upstream from bridge on State Highway 611, 0.2 mi downstream from Pound River, and 1.1 mi upstream from Fall Branch. Datum of gage is 1,165.00 ft above sea level. Drainage area is 526 mi ² .	1963-82‡, 1983-02	3-18-02	19.15	18,900	5-2-02	27.55	50,000

‡ Operated as a continuous-record gaging station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
BIG SANDY RIVER BASIN--Continued								
Knox Creek at Kelsa, VA (03213590)	Lat 37°27'02", long 82°03'33", NAD83, Buchanan County, Hydrologic Unit 05070201, on downstream end of right bridge pier on State Highway 697, 0.3 mi downstream from Pawpaw Creek, 0.8 mi northeast of Kelsa, and 10.0 mi upstream from mouth. Elevation of gage is 945 ft above sea level, from topographic map. Drainage area is 84.3 mi ² .	1980-81†, 1982-02	5-2-02	23.14	16,100	5-2-02	23.14	16,100
TENNESSEE RIVER BASIN								
Middle Fork Holston River at Groseclose, VA (03473500)	Lat 36°53'19", long 81°20'50", NAD83, Smyth County, Hydrologic Unit 06010102, on left bank 10 ft downstream from culvert on State Highway 679 at Groseclose, 0.2 mi upstream from Rocky Spring Branch, 10 mi northeast of Marion, and at mile 54.7. Datum of gage is 2,442.86 ft above sea level. Drainage area is 7.39mi ² .	1948-57†, 1958-87, 1988-89†, 1990-95, 2001-02	3-18-02	4.59	262	7-6-53	7.42	813
Cedar Creek near Meadowview, VA (03475600)	Lat 36°44'50", long 81°51'19", NAD83, Washington County, Hydrologic Unit 06010102, on left downstream wingwall of culvert on U.S. Highway 11, 1.2 mi south of Meadowview, and 2.5 mi upstream from mouth. Datum of gage is 2,034.66 ft above sea level. Drainage area is 3.38 mi ² .	1967-02	3-18-02	6.49	49.7	7-10-71	7.54	92
Lick Creek near Chatham Hill, VA (03487800)	Lat 36°57'44", long 81°28'21", NAD83, Smyth County, Hydro- logic Unit 06010101, on left bank 270 ft upstream from bridge on State Highway 42, 2.9 mi northeast of Chatham Hill, and 1.6 mi upstream from mouth. Datum of gage is 2,076.97 ft above sea level. Drainage area is 25.5 mi ² .	1966-68†, 1969-02	3-18-02	7.19	2,120	11-7-77	8.09	2,660
Brumley Creek at Brumley Gap, VA (03488450)	Lat 36°47'30", long 82°01'09", NAD83, Washington County, Hydrologic Unit 06010101, on left downstream wingwall of bridge of State Highway 611, 0.2 mi upstream from mouth, 0.8 mi southeast of Brumley Gap, and 2.7 mi downstream from Lee Creek. Datum of gage is 1,489.16 ft above sea level. Drainage area is 21.1 mi ² .	1979-81†, 1982-02	3-18-02	6.72	1,570	3-18-02	6.72	1,570

† Operated as a continuous-record gaging station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum		Period of record maximum			
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
TENNESSEE RIVER BASIN--Continued								
Cove Creek near Shelleys, VA (03489800)	Lat 36°39'13", long 82°21'16", NAD83, Scott County, Hydro- logic Unit 06010101, on right downstream wingwall of bridge on U.S. Highway 58 and 421, 1.5 mi northwest of Shelleys, and at mile 3.3. Datum of gage is 1,381.53 ft above sea level. Drainage area is 17.3 mi ² .	1951-02	3-18-02	6.41	1,120	3-12-63	8.40	2,500
North Fork Holston River near Gate City, VA (03490000)	Lat 36°36'31", long 82°34'05", NAD83, Scott County, Hydro- logic Unit 06010101, on left bank 75 ft upstream from bridge on U.S. Highway 23, 1.6 mi downstream from Big Mountain Creek, 2.1 mi southeast of Gate City, and at mile 8.8. Datum of gage is 1,197.56 ft above sea level. Drainage area is 672 mi ² .	1932-81†, 1982-02g	3-18-02	19.36	39,400	4-5-77 b1862	19.79 g22.5	41,000 g54,000
Clinch River at Richlands, VA (03521500)	Lat 37°05'10", long 81°46'51", NAD83, Tazewell County, Hydro- logic Unit 06010205, on right bank 1.0 mi southeast of Rich- lands, 1.6 mi downstream from Middle Creek, 2.2 mi upstream from Big Creek, and at mile 321.0. Datum of gage is 1,924.08 ft above sea level. Drainage area is 137 mi ² .	1946-89†, 1990-02	3-18-02	11.69	4,600	b6-22-1901	g21.3	g11,500
Big Cedar Creek near Lebanon, VA (03523000)	Lat 36°54'29", long 82°02'19", NAD83, (formerly published as Cedar Creek near Lebanon) Russell County, Hydrologic Unit 06010205, on right bank 200 ft upstream from bridge on U.S Highway 19 (business), 0.2 mi upstream from Roaring Spring Creek, 1.3 mi downstream from Little Cedar Creek, and 2.3 mi east of Lebanon. Datum of gage is 1,895.76 ft above sea level. Drainage area is 51.5mi ² .	1953-59†, 1960-77, 1991-94, 2001-02	3-18-02	6.93	c6,570	3-18-02	5.83	c6,570
Guest River at Coeburn, VA (03524500)	Lat 36°55'45", long 82°27'23", NAD83, Wise County, Hydrologic Unit 06010205, on right bank 30 ft downstream from bridge on State Highway 72, 1.0 mi southwest of Coeburn, 1.4 mi upstream from Jaybird Branch, 1.8 mi downstream from Pine Camp Creek, and at mile 6.3. Datum of gage is 1,935.80 ft above sea level. Drainage area is 87.3 mi ² .	1950-59†, 1960-78, 1979-81†, 1982-02	3-18-02	16.40	9,250	4-5-77	20.95	18,000

† Operated as a continuous-record gaging station.
b Maximum known historical peak outside period of record.
c Approximate.
g Records provided by Tennessee Valley Authority.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record (water years)	Water year 2002 maximum			Period of record maximum		
			Date	Gage height (ft)	Dis- charge (ft ³ /s)	Date	Gage height (ft)	Dis- charge (ft ³ /s)
TENNESSEE RIVER BASIN--Continued								
Stony Creek at Ka, VA (03524900)	Lat 36°48'57", long 82°37'02", NAD83, Scott County, Hydro- logic Unit 06010205, at Ka, on left bank 300 ft upstream from bridge on State High- way 619, 600 ft downstream from Straight Fork, and 4.2 mi upstream from mouth. Elevation of gage is 1,510 ft above sea level, from topo- graphic map. Drainage area is 30.9 mi ² .	1981†, 1982-02	3-18-02	9.41	4,950	7-29-01	13.11	11,300
Copper Creek near Gate City, Va. (03526000)	Lat 36°40'26", long 82°33'57", NAD83, Scott County, Hydro- logic Unit 06010205, on right bank on upstream end of old bridge pier, 50 ft upstream from bridge on State Highway 619, 0.2 mi upstream from Plank Camp Creek, 1.1 mi downstream from Obeys Creek, and 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft above sea level. Drainage area is 106 mi ² .	1948-72†, 1973-95, 1996-98†, 1999-02	3-18-02	13.48	7,520	4-5-77	13.57	7,660
North Fork Powell River at Pennington Gap VA (03530500)	Lat 36°46'26", long 83°01'59", NAD83, Lee County, Hydro- logic Unit 06010206, near right bank on downstream side of abandoned highway bridge 75 feast of U.S. Highway 421, 0.8 mi north of Pennington Gap, 1.3 mi downstream from Straight Creek, and at mile 4.7. Datum of gage is 1,363.02 ft above sea level. Drainage area is 71.4 mi ² .	1945-51†, 1952-77, 1979-81†, 1982-93, 1994-95†, 2001-02	3-18-02	15.04	14,700	4-5-77	16.14	17,000

† Operated as a continuous-record gaging station.

FOOTNOTES FOR CREST-STAGE PARTIAL-RECORD STATIONS: 2002 water year

* Discharge not determined.

† Operated as a continuous-record gaging station.

< Less than.

> Greater than.

a Records provided by U.S. Department of Agriculture, Soil Conservation Service.

b Maximum known historical peak outside period of record.

c Approximate.

d Affected by debris jam at upstream end of culvert.

e At different datum.

f From high-water marks.

g Records provided by Tennessee Valley Authority.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Special study and miscellaneous sites

Discharge measurements in the following table were made at special study and miscellaneous sites throughout the State. Data for miscellaneous sites provided by the Virginia Department of Environmental Quality - Water Division are noted by an "[a]".

Discharge measurements made at special study and miscellaneous sites during water year 2002

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN						
01614805 Opequon Creek	Potomac River	Lat 39°09'26", long 78°14'48", NAD83, Frederick County, at Route 622 at Opequon.	2.44	1950	6-26-01	0.91
					8-15-01	0.58
					9- 5-01	0.56
					9-26-01	0.52
					11-16-01	0.34
					3-26-02	0.39
					5- 2-02	3.25
					5-30-02	1.51
					7- 9-02	0.47
					7-30-02	0.47
01614820 Opequon Creek	Potomac River	Lat 39°07'48", long 78°13'32", NAD83, Frederick County, at old Route 628 near Opequon.	10.48	1952-54, 1963	8-15-01	2.42
					9- 6-01	2.13
					9-26-01	1.95
					11-16-01	1.53
					3-26-02	1.56
					5- 1-02	2.51
					5-29-02	3.25
					7- 9-02	1.81
					7-30-02	1.95
					01615000 Opequon Creek [b]	Potomac River
6-21-02	19.4					
7-31-02	17.3					
9-12-02	9.97					
01615515 Old Town Spring	Town Run	Lat 39°11'16", long 78°10'35", NAD83, Frederick County, at Winchester at weir.	-	-	8- 2-01	0.76
					8-15-01	0.53
					11-28-01	0.34
					3-28-02	0.38
					5- 2-02	0.45
					5-31-02	0.51
					7-10-02	0.44
					7-31-02	0.45
01615518 Town Run tributary from Shawnee Spring	Town Run	Lat 39°10'20", long 78°09'45", NAD83, Frederick County, 30 ft above confluence with Town Run, at Winchester.	-	-	8- 2-01	0.95
					8-16-01	1.26
					9- 7-01	1.16
					9-26-01	1.05
					11-28-01	0.84
					3-28-02	0.88
					5- 2-02	0.90
					5-31-02	1.13
					7-10-02	1.08
8- 1-02	0.96					
01616000 Abrams Creek [b]	Opequon Creek	Lat 39°10'40", long 78°05'09", NAD83, Frederick County, up- stream from State Highway 659, 0.9 mi upstream from mouth, and 4.4 mi east of Winchester.	16.5	1979-94†	4- 2-02	10.9
					6-21-02	9.62
					7-31-02	7.86
					9-12-02	5.86
01616075 Fay Spring	Redbud Run	Lat 39°12'18", long 78°07'50", NAD83, Frederick County, near Winchester at weir below springbox.	-	-	8- 3-01	1.23
					8-15-01	2.30
					9- 7-01	1.34
					9-26-01	0.94
					11-28-01	0.42
					3-28-02	1.07
					5- 2-02	1.91
					5-31-02	1.76
					7-11-02	1.11
					8- 1-02	1.51

† Operated as a continuous-record gaging station.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN--Continued						
01616190 Hot Run[a]	Opequon Creek	Lat 39°14'31", long 78°06'14", NAD83, Frederick County, 200 ft upstream from railroad culvert, 0.9 mi upstream from confluence with Clearbrook Run, and at Stephenson.	0.14	1999-01	11- 6-01	.659
01616300 Opequon Creek[a]	Potomac River	Lat 39°15'53", long 78°01'58", NAD83, Clarke-Frederick Counties, at State Highway 667 ford, at Virginia-West Virginia line, 1.9 mi north- east of Brucetown, and 23.6 mi upstream from mouth.	141	-	4- 2-02 6-21-02 7-31-02 9-12-02	71.4 42.9 47.7 25.0
01620830 Briery Branch [a]	North River	Lat 38°23'57", long 79°01'23", NAD83, Rockingham County, at culverts on State Highway 748, at Spring Creek, and 0.3 mi upstream from mouth.	-	-	1-28-02	13.4
01620826 Mossy Creek [b]	North River	Lat 38°20'29", long 79°05'01", NAD83, Augusta County, at bridge on State Highway 731, 0.2 mi southeast of Mt. Solon.	-	1941, 1950-54	2-27-02 4-16-02 6-25-02 8-23-02	.000 .072 .083 .000
01620837 Big Spring [a]	Mossy Creek	Lat 38°20'29", long 79°05'07", NAD83, Augusta County, at bridge on State Highway 731, at Mt. Solon, and 0.2 mi upstream from mouth.	-	-	2-27-02 4-16-02 6-25-02 8-23-02	3.82 9.88 6.37 3.50
01620842 Mossy Creek [a]	North River	Lat 38°21'07", long 79°02'56", NAD83, Augusta County, at bridge on State Highway 613, 2.0 mi east of Mt. Solon.	-	-	6-25-02 8-23-02	15.7 11.1
01620850 Mossy Creek [a]	North River	Lat 38°23'13", long 79°00'51", NAD83, Rockingham County, at State Highway 727, 0.35 mi up- stream from mouth, and 1.5 mi southeast of Spring Creek.	-	-	1-28-02 2-27-02 4-16-02 6-25-02 8-23-02	11.8 12.2 25.1 16.2 11.2
01621320 Long Glade Creek [a]	North River	Lat 38°17'43", long 78°02'43", NAD83, Augusta County, at culvert on State Highway 613, 2.4 mi southeast of Moscow.	-	-	2-27-02 4-16-02 6-25-02 8-23-02	.000 .029 .000 .000
01621340 Long Glade Creek [a]	North River	Lat 38°22'38", long 78°58'58", NAD83, Rockingham County, at bridge on State Highway 42, 0.9 mi upstream from mouth, at Bridgewater.	-	-	2-27-02 4-16-02 6-25-02 8-23-02	.000 .026 .040 .000
016222990 Unnamed tribu- tary [a] (No. 2)	Middle River	Lat 38°07'58", long 79°13'29", NAD83, Augusta County, 150 ft downstream from Camp Shenandoah Lake, 0.4 mi upstream from mouth, and 2.0 mi southwest of Swoope.	1.33	1995-00	10-23-01	.799
01622468 Jennings Branch [a]	Middle River	Lat 38°16'57", long 79°13'46", NAD83, Augusta County, at Whites Store, 200 ft upstream from Stoutameyer Branch, and 3.5 mi northwest of Lone Fountain.	9.2	1996-00	10-23-01	.000
01624155 Moffett Creek [a]	Middle River	Lat 38°15'43", long 79°06'04", NAD83, Augusta County, at bridge on State Highway 835, 0.15 mi up- stream from Elk Run, and 2.4 mi south of Parnassus.	-	-	5-16-02 8- 9-02 9-10-02	2.37 .070 .000

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN--Continued						
01624175 Elk Run [a]	Moffett Creek	Lat 38°15'45", long 79°06'21", NAD83, Augusta County, at bridge on State Highway 835, 0.2 mi up- stream from mouth, and 2.3 mi south of Parnassus.	-	-	2-27-02	.247
					4-17-02	.244
					5-16-02	.339
					8- 9-02	.063
					9-10-02	.035
01624225 Moffett Creek [a]	Middle River	Lat 38°14'40", long 79°05'04", NAD83, Augusta County, at bridge on State Highway 732, at mouth, and 1.8 mi southwest of Spring Hill.	26.7	-	2-27-02	.266
					4-17-02	1.56
					9-10-02	.036
01624300 Middle River [a]	North River	Lat 38°14'36", long 79°02'07", NAD83, Augusta County, at bridge on State Highway 742, 2.7 mi downstream from Moffett Creek, and 3.2 mi northwest of Verona.	178	1967-86†	4-17-02	65.1
					5-16-02	72.1
					9-10-02	11.8
01624350 Middle River [a]	North River	Lat 38°11'25", long 78°58'26", NAD83, Augusta County, 500 ft upstream from Staunton-Verona sewage treatment plant discharge, 1,500 ft upstream from Lewis Creek, and 2.0 mi southwest of Verona.	-	1991-93, 1995, 1997-00	10-23-01	27.5
01624550 Lewis Creek [a]	Middle River	Lat 38°10'58", long 78°58'32", NAD83, Augusta County, at bridge on State Highway 612, 0.6 mi up- stream from mouth, and 2.2 mi southeast of Verona.	-	-	2-26-02	7.29
					4-15-02	9.01
					5-16-02	9.48
					8- 9-02	3.40
01624880 Meadow Run [a]	Christians Creek	Lat 38°09'17", long 78°55'23", NAD83, Augusta County, 0.2 mi downstream from bridge on State Highway 254, 0.4 mi up- stream from Coleytown Run, and 1.0 mi northwest of Hermitage.	11.8	1995-00	10-23-01	1.63
01624940 Unnamed tribu- tary [a] (No. 3)	Middle River	Lat 38°14'54", long 78°57'36", NAD83, Augusta County, at Mt. Sidney-Fort Defiance sewage treatment plant, 100 ft upstream from railroad bridge, 0.3 mi downstream from culvert on U.S. Highway 11, and 0.7 mi south of Mt. Sidney	.25	1996-00	10-23-01	.083
01624960 Polecat Draft [a]	Middle River	Lat 38°13'42", long 78°53'01", NAD83, Augusta County, at bridge on State Highway 608, 0.1 mi upstream from mouth, and 1.2 mi northeast of Piedmont.	-	-	2-26-02	.000
					4-15-05	.000
					5-16-02	.000
					8- 9-02	.000
01625847 South River [a]	South Fork Shenandoah River	Lat 38°01'07", long 79°01'07", NAD83, Augusta County, at Stuarts Draft sewage treatment plant, 0.8 mi downstream from bridge on State Highway 608, and 1.2 mi southeast of Stuarts Draft.	52.5	1997-01	10-11-01	3.54
					5-16-02	3.97
					9-10-02	.814
01626952 Porter- field Run [a]	South River	Lat 38°08'04", long 78°51'59", NAD83, Augusta County, 0.3 mi upstream from mouth, 0.5 mi downstream from culvert on State Highway 865, and 0.8 mi east of Madrid.	4.79	1998-01	10-23-01	.172

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN--Continued						
Cub Run [a]	South Fork Shenandoah River	Lat 38°24'36", long 78°48'17", NAD83, Rockingham County, at bridge on State Highway 684, at Keezletown.	-	-	2-20-02	.642
					7-19-02	.457
					9- 6-02	.250
01628585 Cub Run [a]	South Fork Shenandoah River	Lat 38°23'17", long 78°48'17", NAD83, Rockingham County, at bridge on U.S. Highway 33, at Penn Laird.	-	-	2-20-02	1.09
					4-11-02	2.43
					6-24-02	.787
					7-19-02	.602
					8-26-02	.290
					9- 6-02	.343
01628590 Unnamed tributary [a] (No. 2)	Cub Run	Lat 38°22'43", long 78°48'20", NAD83, Rockingham County, at Lawyer Road sewage treatment plant, 0.4 mi upstream from mouth, and 0.5 mi south of Penn Laird.	.687	1994-00	2-20-02	.000
Cub Run [a]	South Fork Shenandoah River	Lat 38°21'25", long 78°46'28", NAD83, Rockingham County, at bridge on State Highway 672, 0.6 mi southwest of Montevideo.	-	-	2-20-02	1.29
					7-19-02	.498
					9- 6-02	.311
Cub Run [a]	South Fork Shenandoah River	Lat 38°20'58", long 78°45'23", NAD83, Rockingham County, at bridge on State Highway 652, 1.1 mi southeast of Montevideo.	-	-	2-20-02	.659
Cub Run [a]	South Fork Shenandoah River	Lat 38°20'43", long 78°43'58", NAD83, Rockingham County, at bridge on State highway 651, 0.7 mi upstream from mouth, and 2.3 mi west of Island Ford.	-	-	2-20-02	.000
					7-19-02	.000
01628630 Cub Run [a]	South Fork Shenandoah River	Lat 38°20'21, long 78°43'25", NAD83, Rockingham County, at bridge on State Highway 650, at mouth, at Rocky Bar, and 2.0 mi southwest of Island Ford.	26.8	-	2-26-02	.268
					4-11-02	.976
					6-24-02	.290
					7-19-02	.154
					8-26-02	.105
					9- 6-02	.113
Quail Run [a]	Boone Run	Lat 38°24'16", long 78°42'59", NAD83, Rockingham County, at culvert on State Highway 644, 2.2 mi north of McGaheysville.	-	-	9- 6-02	.030
					9-17-02	.035
Quail Run [a]	Boone Run	Lat 38°24'18", long 78°41'59", NAD83, Rockingham County, at culvert on State Highway 646, 2.7 mi northeast of McGaheysville.	-	1983	9- 6-02	.121
					9-17-02	.695
01629070 Quail Run [a]	Boone Run	Lat 38°24'27", long 78°40'42", NAD83, Rockingham County, at bridge on State Highway 602, 2.9 mi west of Elkton, and 3.0 mi upstream from mouth.	-	1975	2-26-02	1.15
					4-11-02	1.32
					6-24-02	.046
					8-26-02	.077
					9- 6-02	.121
					9-17-02	.562
01629935 Little Hawksbill Creek [a]	Hawksbill Creek	Lat 38°34'09", long 78°28'12", NAD83, Page County, at bridge on State Highway 626, 800 ft upstream from Beaver Run, and 1.6 mi east of Stanley.	-	-	2-26-02	1.15
					4- 9-02	3.37
					5-29-02	4.68
					7-30-02	.272
					9-11-02	.002
0162994750 Hawksbill Creek [a]	South Fork Shenandoah River	Lat 38°37'40", long 78°28'06", NAD83, Page County, at bridge on State Highway 629, 2.6 mi south of Luray.	-	-	2-19-02	1.49
					5-29-02	9.30
					7-30-02	.870
					9-11-02	.485

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DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN--Continued						
01629975 East Hawksbill Creek [a]	Hawksbill Creek	Lat 38°38'40", long 78°27'07", NAD83, Page County, at bridge on State Highway 642, 1.5 mi southeast of Luray.	-	1951-54	2-19-02	8.07
					4- 9-02	13.4
01629980 East Hawksbill Creek [a]	Hawksbill Creek	Lat 38°38'55", long 78°27'13", NAD83, Page County, 0.3 mi downstream from State Highway 642, 0.8 mi upstream from mouth, and 1.2 mi southeast of Luray.	-	-	5-29-02	17.1
					7-30-02	6.67
					9-11-02	4.59
Hawksbill Creek [a]	South Fork Shenandoah River	Lat 38°40'27", long 78°27'27", NAD83, Page County, 200 ft downstream from bridge on U.S. Highway 211 bypass, 0.7 mi north of Luray.	-	1978	2-19-02	13.1
Dry Run [a]	Hawksbill Creek	Lat 38°41'13", long 78°27'18", NAD83, Page County, 20 ft down- stream from bridge on U.S. High- way 340, 1.5 mi north of Luray.	-	1963, 1978	2-19-02	.383
01630540 Hawksbill Creek [a]	South Fork Shenandoah River	Lat 38°42'29", long 78°27'23", NAD83, Page County, at bridge on State Highway 648, 0.96 mi upstream of mouth, and 3.0 mi north of Luray.	68.9	1963, 1969, 1979-79 1982	2-19-02	18.9
					4- 9-02	35.4
					5-29-02	47.3
					7-30-02	17.7
9-11-02	14.0					
01630544 Pass Run [a]	Hawksbill Creek	Lat 38°42'30", long 78°27'22", NAD83, Page County, near bridge on State Highway 648, at mouth, at Springfield, and 3.1 mi north of Luray.		1963	2-19-02	3.09
					4- 9-02	4.28
					5-29-02	18.0
					7-30-02	4.64
					9-11-02	1.29
01632530 North Fork Shenandoah River	Shenandoah River	Lat 38°38'56", long 78°42'25", NAD83, Rockingham County, 500 ft upstream from county line, 0.8 mi downstream from confluence with Plains Mill Creek, and 1.7 mi west of New Market.	-	2001	8- 7-02	22.5
01632815 Smith Creek [a]	North Fork Shenandoah River	Lat 38°28'48", long 78°46'32", NAD83, Rockingham County, at proposed Smith Creek WWTP discharge, 0.35 mi upstream from culvert on State Highway 724, and 5.5mi northeast of Harrisonburg.	6.06	2001	10-11-01	.614
					2-20-01	.382
Smith Creek [a]	North Fork Shenandoah River	Lat 38°33'26", long 78°43'55", NAD83, Rockingham County, at bridge on State Highway 608, 1.4 mi south of Tenth Legion, and 2.7 mi downstream from Lacey Spring.	-	-	2-22-02	7.77
01632870 War Branch [a]	Smith Creek	Lat 38°32'08", long 78°42'21", NAD83, Rockingham County, at H-NM KOA discharge, at Athlone, 3.2mi southeast of Tenth Legion, and 4.5 mi upsteam from mouth.	3.75	2000-01	10-11-01	.083
01633820 North Fork Shenandoah River	Shenandoah River	Lat 38°57'15", long 78°23'03", NAD83, Shenandoah County, along State Highway 648, 0.64 mi upstream from bridge on State Highway 744, 2.4 mi downstream from confluence with Posey Hollow, and 3.3 mi south of Fishers Hill.	-	2000-01	11- 5-01	87.0
					11- 6-01	83.3
					11- 7-01	74.5

a Provided by the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN--Continued						
01635005 Fawcett Run	Cedar Creek	Lat 39°04'58", long 78°19'21", NAD83, Frederick County, below Marlboro Spring at Marlboro.	7.26	-	8-14-01	2.81
					9- 6-01	2.70
					9-26-01	2.66
					11-16-01	2.09
					3-26-02	1.82
					4-30-02	2.54
					5-30-02	2.49
					7- 8-02	1.87
					7-30-02	1.75
01635008 Fawcett Run	Cedar Creek	Lat 39°04'44", long 78°19'36", NAD83, Frederick County, above mouth at Marlboro.	7.40	-	6-26-01	3.74
					8-14-01	2.60
					9- 6-01	2.31
					9-26-01	2.30
					11-16-01	1.90
					3-25-02	1.64
					4-30-02	2.52
					5-29-02	2.58
					7- 8-02	1.82
7-30-02	1.78					
01635070 Vaucluse Spring	Meadow Brook	Lat 39°03'45", long 78°15'37", NAD83, Frederick County, near Middletown.	-	-	8- 3-01	1.95
					8-16-01	1.98
					9-26-01	1.78
					11-27-01	1.56
					3-27-02	1.29
					5- 1-02	1.71
					5-30-02	1.65
					7- 9-02	1.44
					7-31-02	1.53
01635210 North Fork Shenandoah River	Shenandoah River	Lat 38°58'52", long 78°17'25", NAD83, Warren County, at Win- chester Dam, 1.5 mi downstre- am from confluence with Cedar Creek, and 1.1 mi northwest of Waterlick.	-	2001	5- 6-02	696
					5- 7-02	654
01636228 Crooked Run [a]	Shenandoah River	Lat 38°59'14", long 78°10'59", NAD83, Warren County, 0.7 mi upstream from bridge on State Highway 627, 0.7 mi north of Cedarville.	29.9	1997-01	11-13-01	1.52
01636240 Crooked Run [a]	Shenandoah River	Lat 38°57'22", long 78°11'52", NAD83, Warren County, 1,000 ft downstream from bridge on U.S. Highways 340 and 522, 0.6 mi north of Riverton, and 0.9 mi upstream from mouth.	-	1991-01	11-13-01	2.93
01636266 Manassas Run [a]	Shenandoah River	Lat 38°54'48", long 78°05'57", NAD83, Warren County, 100 ft upstream from bridge on State Highway 79, 1.3 mi west of Linden.	5.25	1991-99	11-13-01	.399
01643715 Cromwells Run [a]	Goose Creek	Lat 38°58'20", long 77°47'26", NAD83, Fauquier County, at culvert on U.S. Highway 50, 0.4 mi upstream from Rocky Creek, and 3.0 mi west of Middleburg.	-	-	6-26-02	3.08
					8-20-02	.000
01643720 Rocky Creek [a]	Cromwells Run	Lat 38°58'25", long 77°47'42", NAD83, Fauquier County, at culvert on U.S. Highway 50, 0.4 mi upstream from mouth, and 3.0 mi west of Middleburg.	-	-	6-26-02	.420
					8-20-02	.030

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DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
POTOMAC RIVER BASIN--Continued						
01643988 Little River [a]	Goose Creek	Lat 39°00'25", long 77°36'52", NAD83, Loudoun County, at bridge on U.S. Highway 15, 1.55 mi upstream from mouth, and 1.6 mi south of Oatlands.	47.7	1942, 1963, 1968-69, 1979-80	6-26-02	5.44
					8-20-02	.040
01644110 Sycolin Creek [a]	Goose Creek	Lat 39°04'20", long 77°31'08", NAD83, Loudoun County, at proposed Goose Creek Industrial Park WWTP discharge, 0.2 mi up- stream from mouth, and 3.8 mi southeast of Leesburg.	17.3	1993-97, 1999	11- 6-01	2.40
					6-26-02	2.23
					8-20-02	.389
01655925 Licking Run [a]	Cedar Run	Lat 38°37'15", long 77°39'29", NAD83, Fauquier County, at bridge on State Highway 616, 1.0 mi south of Calverton, and 1.4 mi upstream from mouth.	-	-	2-28-02	2.06
					4- 3-02	4.60
					5-24-02	.690
					7-10-02	1.11
					8-16-02	.749
RAPPAHANNOCK RIVER BASIN						
01661835 Unnamed tribu- tary [a]	Hickman Run	Lat 38°45'14", long 78°06'23", NAD83, Rappahannock County, 50 ft upstream from culvert on State Highway 641, 0.8 mi southwest of Flint Hill.	0.13	1994-99,	11-13-01	.003
01661995 Carter Run [a]	Rappahannock River	Lat 38°41'57", long 77°54'25", NAD83, Fauquier County, at bridge on State Highway 688, 0.25 mi upstream from mouth, and 4.2 mi north of Jeffersonton.	-	1951-54	3-29-02	36.4
					4- 3-02	27.1
					5-21-02	13.6
					7-10-02	3.75
					8- 8-02	1.11
9-13-02	.117					
01662065 Great Run [a]	Rappahannock River	Lat 38°38'34", long 77°51'34", NAD83, Fauquier County, at bridge on State Highway 687, 1.7 mi upstream from mouth, and 1.7 mi south of Turnbull.	-	1963	3-29-02	11.1
					4- 3-02	9.97
					5-21-02	5.08
					7-10-02	2.13
					8- 8-02	1.36
9-13-02	1.33					
01662320 Thornton River [a]	Hazel River	Lat 38°39'29", long 78°13'12", NAD83, Rappahannock County, at Sperryville, 0.25 mi upstream from confluence with N.F. Thornton River, and 0.3 mi downstream from bridge on U.S. Highway 522.	10.4	1995-01	11-13-01	2.49
01663750 Muddy Run [a]	Hazel River	Lat 38°32'34", long 78°02'34", NAD83, Culpeper County, at bridge on State Highway 729, 0.75 mi upstream from Apperson Creek, and 2.4 mi northeast of Norman.	-	-	3-29-02	2.94
					5-21-02	1.61
					8- 8-02	.000
					9-13-02	.000
01663830 Muddy Run [a]	Hazel River	Lat 38°33'43", long 77°55'29", NAD83, Culpeper County, at bridge on State Highway 625, 0.9 mi up- stream from mouth, and 3.1 mi southeast of Rixeyville.	-	-	3-29-02	10.5
					5-21-02	4.91
					8- 8-02	.146
					9-13-02	.000
0166504850 Mountain Run [a]	Rappahannock River	Lat 38°27'45", long 77°58'08", NAD83, Culpeper County, at Culpeper sewage treatment plant, 800 ft upstream from bridge on U.S. Highway 29, and 1.6 mi southeast of Culpeper.	-	1999-01	10-12-01	.976

a Provided by the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
RAPPAHANNOCK RIVER BASIN--Continued						
01665220 Deep Run [a]	Rappahannock River	Lat 38°27'06", long 77°37'42", NAD83, Fauquier-Stafford County, at bridge on State Highway 615, 0.5 mi upstream from Alcotti Run, and 1.5 mi east of Goldvein.	15.4	1963, 1981-84	2-28-02 4- 3-02 5-24-02 7-10-02 8-16-02	.653 2.60 .950 .083 .000
01665228 Deep Run [a]	Rappahannock River	Lat 38°25'49, long 77°37'46", NAD83, Fauquier-Stafford County, at bridge on U.S. Highway 17, 1.7 mi upstream from mouth, and 1.9 mi southeast of Goldvein.	-	-	2-28-02 4- 3-02 5-24-02 7-10 02 8-16-02	1.46 5.61 1.76 .070 .000
01668700 Mount Landing Creek [a]	Rappahannock River	Lat 37°57'44", long 76°56'10", NAD83, Essex County, at bridge on State Highway 716, 1.7 mi north of Mount Landing, and 4.5 mi upstream from mouth.	-	-	3-14-02 5-15-02 6- 3-02 8-20-02	6.57 21.5 .697 .000
YORK RIVER BASIN						
01670145 Unnamed tributary [a]	Gold Mine Creek	Lat 38°02'01", long 78°00'08", NAD83, Louisa County, 25 ft upstream from Louisa County sewage treatment plant discharge, 0.5 mi north of Louisa.	.42	1991-96	10-24-02	.057
01670300 Contrary Creek [b]	North Anna River	Lat 38°03'53", long 77°52'44", NAD83, Louisa County, at bridge on U.S. Highway 522, 1.2 mi upstream from Lake Anna, 4.0 mi northeast of Mineral, and 5.1 mi upstream from former mouth.	5.53	1976-87; 1989-01	10-24-01	.321
01671200 South Anna River [a]	Pamunkey River	Lat 38°07'25", long 78°12'19", NAD83, Louisa County, at private bridge 0.2 mi west of Gordonsville sewage treatment plant, 1.5 mi southwest of Gordonsville.	5.00	1991-96	11- 2-01	.001
01671270 Licking-hole Creek [a]	South Anna River	Lat 38°04'33", long 78°08'54", NAD83, Louisa County, 700 ft downstream from Izac Lake, 0.5 mi upstream from mouth, and 2.1 mi east of Boswells Tavern.	2.73	1998-01	10-24-01	.000
01671925 North-east Creek [a]	South Anna River	Lat 37°58'40", long 77°56'21", NAD83, Louisa County, at Louisa WTP discharge, 300 ft downstream from culvert on U.S. Highway 33, and 2.5 mi south of Mineral	10.1	1994-98	10-24-01	.025
01673010 Mechumps Creek [a]	Pamunkey River	Lat 37°45'31", long 77°21'52", NAD83, Hanover County, at culvert on U.S. Highway 301, 0.3 mi south of Hanover.	-	1976, 1983-84	3-26-02 4- 9-02 5-22-02 7- 9-02 7-23-02	4.24 4.67 3.80 .000 .000
01673600 Mata-dequin Creek [a]	Pamunkey River	Lat 37°37'03", long 77°08'16", NAD83, Hanover County, at bridge on State Highway 606, 1.3 mi upstream from mouth, and 3.2 mi northwest of Tunstall.	29.1	1980-83, 1991	3-15-02 4- 9-02 5-22-02 7- 9-02 7-23-02	11.4 12.2 8.76 1.01 .651

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
YORK RIVER BASIN--Continued						
01674160 Polecat Creek [a]	Mattaponi River	Lat 37°58'09", long 77°32'19", NAD83, Caroline County, 150 ft downstream from culvert on State Highway 601, 0.7 mi northeast of Cedar Fork, and 2.1 mi west of Golansville.	1.15	1994-01	10- 3-01	.002
					12- 6-01	.000
					2-11-02	.130
					4- 4-02	.170
					6-19-02	.008
8- 7-02	.000					
01674172 Polecat Creek [a]	Mattaponi River	Lat 37°58'13", long 77°29'12", NAD83, Caroline County, 150 ft upstream from bridge on State Highway 652, 0.5 mi upstream from Stevens Mill Run, and 1.1 mi southeast of Golansville.	10.8	1994-01	10- 3-01	.075
					12- 6-01	.235
					2-11-02	1.83
					4- 4-02	1.88
					6-19-02	.000
8- 7-02	.000					
01674174 Stevens Mill Run [a]	Polecat Creek	Lat 37°59'20", long 77°29'49", NAD83, Caroline County, 100 ft downstream from bridge on State Highway 601, 0.6 mi north of Golansville, 0.8 mi downstream from Lake Caroline, and 1.6 mi upstream from mouth.	9.50	1994-01	10- 3-01	.193
					12- 6-01	.149
					2-11-02	.370
					4- 4-02	.160
					6-19-02	.400
8- 7-02	.040					
01674180 Polecat Creek [a]	Mattaponi River	Lat 37°57'20", long 77°22'07", NAD83, Caroline County, 200 ft upstream from bridge on State Highway 601, 0.25 mi southeast of Penola, and 2.2 mi upstream from mouth.	48.3	1994-01	10- 3-01	1.39
					12- 6-01	2.38
					2-11-02	11.7
					4- 4-02	10.8
					6-19-02	.890
8- 7-02	.000					
JAMES RIVER BASIN						
02012500 Jackson River	James River	Lat 37°52'36", long 79°58'38", NAD83, Alleghany County, at Smith Bridge, 0.8 mi south of Falling Spring, and 1.6 mi down- stream from Falling Spring.	411	1925-84†, 1985-00	10- 3-01	212
02012993 Ogle Creek [a]	Dunlap Creek	Lat 37°48'48", long 80°05'27", NAD83, Alleghany County, 0.9 mi upstream from Thorny Branch, 1.0 mi west of Callaghan, and 1.7 mi upstream from mouth.	25.6	2001	10- 5-01	.426
					11-14-01	.498
02018810 Crooked Run [a]	North Fork	Lat 37°30'44", long 79°55'39", NAD83, Botetourt County, at Camp Fincastle Lake outfall, 0.3 mi downstream from Woodville Spring, and 2.8 mi northwest of Fincastle.	1.09	1998-01	10-22-01	.477
02019480 Looney Creek [a]	James River	Lat 37°30'58", long 79°42'33", NAD83, Botetourt County, at bridge on State Highway 625, 500 ft upstream from Long Run, 0.4 mi upstream from mouth, and 1.8 mi west of Buchanan.	-	-	4-12-02	10.7
					6- 3-02	5.15
					7-25-02	3.52
					9- 4-02	1.93
02019485 Long Run [a]	Looney Creek	Lat 37°31'02", long 79°42'34", NAD83, Botetourt County, at bridge on State Highway 625, 400 ft upstream from mouth, and 1.8 mi west of Buchanan.	-	-	4-12-02	.142
					6- 3-02	.035
					7-25-02	.000
					9- 4-02	.000
02021080 Alum Creek [a]	Brattons Run	Lat 37°54'36", long 79°36'26", NAD83, Rockbridge County, 300 ft south of State Highway 633, 1.2 mi upstream from mouth, and 4.6 mi south of Millboro.	3.21	1992-98	11-14-01	.157

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
JAMES RIVER BASIN--Continued						
02021110 Brattons Run [a]	Calfpasture River	Lat 37°58'07", long 79°30'16", NAD83, Rockbridge County, 200 ft upstream from bridge on State Highway 39, 0.7 mi southwest of Goshen.	28.9	1991-99	11-14-01	1.21
02021670 Cedar Creek [a]	Cedar Grove Branch	Lat 37°53'32", long 79°18'48", NAD83, Rockbridge County, 1.6 mi northwest of Fairfield, 1.9 mi upstream from culverts on State Highway 712, and 3.3 mi upstream from mouth.	1.75	1998-01	10- 9-01	.181
02023410 Marlbrook Creek [a]	South River	Lat 37°52'59", long 79°16'56", NAD83, Rockbridge County, 30 ft upstream from culvert on U.S. Highway 11, and 500 ft downstream from culvert on State Highway 613, at Fairfield.	1.38	1998-01	10- 9-01	.172
02024760 Reed Creek [a]	James River	Lat 37°30'10", long 79°24'06", NAD83, at bridge on State Highway 637, 0.3 mi upstream from Meadow Creek, 3.0 mi southwest of Big Island, and 4.9 mi upstream from mouth.	7.46	1981-84	3-11-02 4-12-02 6- 3-02 7-25-02 9- 4-02	4.52 5.02 2.43 .644 .471
02024765 Meadow Creek [a]	Reed Creek	Lat 37°30'13", long 79°24'09", NAD83, Bedford County, at bridge on State Highway 637, 0.3 mi upstream from mouth, and 3.0 mi southwest of Big Island.	-	-	3-11-02 4-12-02 6- 3-02 7-25-02 9- 4-02	1.93 3.01 1.34 .466 .243
02025850 Ivy Creek [a]	Blackwater Creek	Lat 37°23'37", long 79°18'34", NAD83, Bedford County, 100 ft downstream from Ivy Hill Lake, 2.1 mi upstream from State Highway 662, and 2.7 mi northeast of Norwood.	9.68	1994-01	11- 8-01	.908
02025890 Unnamed tributary [a]	Tussocky Creek	Lat 37°17'56", long 79°09'03", NAD83, Campbell County, at Evergreen Mobile Home Park, 1.0 mi upstream from confluence with tributary from Willow Lake, and 2.8 mi southeast of City Farm.	0.20	1996-01	11- 8-01	.000
02025970 Wreck Island Creek [a]	James River	Lat 37°28'53", long 78°53'42", NAD83, Appomattox County, 50 ft upstream from Appomattox Lime Company discharge, 2.0 mi downstream from bridge on State Highway 683, and 3.0 mi south of Riverville.	56.1	1993-94, 1996-99, 2001	11-15-01	11.6
02028480 Unnamed tributary [a]	South Fork Rockfish River	Lat 37°54'16", long 78°28'49", NAD83, Nelson County, 200 ft upstream from Wintergreen Mountain sewage treatment plant, 2.8 mi northeast of Love.	.34	1993-98	10-30-01	.025
02030400 Turpin Creek [a]	Slate River	Lat 37°34'20", long 78°28'49", NAD83, Buckingham County, at Buckingham Medium Security Institute #3 discharge, 1.5 mi upstream from Peyton Creek, and 2.0 mi northwest of Dillwyn.	1.32	1994-01	10-29-01	.105

a Provided by the Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
JAMES RIVER BASIN--Continued						
02030760 North Creek [a]	South Creek	Lat 37°45'28", long 78°15'01", NAD83, Fluvanna County, 100 ft upstream from Fork Union Military Academy sewage treatment plant, at bridge on State Highway 652, and 0.8 mi southeast of Fork Union.	2.00	1990-01	10-29-01	.107
02033390 Biscuit Run [a]	Moore's Creek	Lat 37°59'58", long 78°31'08", NAD83, Albemarle County, at Southwood Mobile Home Park discharge, 1.1 mi upstream from Interstate Highway 64, 0.8 mi south of Charlottesville City limits and 1.3 mi upstream from mouth.	12.6	1994-01	10-29-01	.928
02033495 Moore's Creek [a]	Rivanna River	Lat 38°01'08", long 78°27'38", NAD83, Albemarle County, at Regional sewage treatment plant, 0.4 mi upstream from mouth, and 0.6 mi downstream from Charlottesville city boundary.	34.6	1999-01	11- 2-01	4.25
02033570 Shadwell Creek[a]	Rivanna River	Lat 38°01'14", long 78°25'26", NAD83, Albemarle County, a Ramada Inn discharge, 0.3 mi upstream from bridge on U.S. Highway 250, and 1.6 mi west of Shadwell.	0.624	1997-01	10-29-01	.030
02033710 Carroll Creek [a]	Rivanna River	Lat 38°00'18", long 78°21'31", NAD83, Albemarle County, at Keswick sewage treatment plant, 100 ft upstream from culvert under I-64, 1.2 mi south of Keswick, and 2.5 mi upstream from mouth.	2.06	2000-01	10-29-01	.000
02033800 Mechunk Creek [a]	Rivanna River	Lat 37°59'04", long 78°18'43", NAD83, Fluvanna County, at bridge on State Highway 250, 5.0 mi west of Zion Crossroads.	49.2	1941, 1951-54, 1963, 1994-99	10-29-01	.260
0203668775 Tuckahoe Creek [a]	James River	Lat 37°34'09", long 77°38'10", NAD83, Goochland-Henrico County line, 0.2 mi upstream from mouth, and 2.2 mi south of Tuckahoe Village.	-	-	4- 4-02 5-22-02 7- 9-02 7-23-02	21.8 21.7 .121 .017
02038730 Fourmile Creek [b]	James River	Lat 37°27'17", long 77°19'52", NAD83, Henrico County, at bridge on Doran Road, 0.2 mi upstream from confluence with Ross Run, and 3.7 mi east of Richmond Heights.	4.01	1980-82, 1997-98	3-15-02 4- 9-02 5-22-02 7- 9-02	.597 .650 .390 .075
0203873175 Fourmile Creek [a]	James River	Lat 37°25'21", long 77°18'31", NAD83, Henrico County, at bridge on Kingsland Road, 200 ft down- stream from Griggs Pond, and 5.0 mi southeast of Richmond Heights.	-	-	3-15-02 4- 9-02 5-22-02 7- 9-02	3.48 4.43 1.93 .267

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
JAMES RIVER BASIN--Continued						
02041125 Long Branch [a]	Winticomack Creek	Lat 37°12'59", long 77°47'27", NAD83, Amelia County, at culvert on State Highway 600, 1.3 mi west of Ammon, and 1.9 mi up- stream from mouth.	-	-	4-17-02	.452
					5-23-02	.172
					7- 8-02	.000
02041130 Wintico- mack Creek [a]	Appomattox River	Lat 37°15'14", long 77°49'19", NAD83, Amelia County at bridge on State Highway 622, 1.2 mi upstream from mouth, and 4.6 mi east of Mannboro.	-	-	4- 4-02	10.9
					4-17-02	3.04
					5-23-02	.532
					7- 8-02	.000
02041150 Winter- pock Creek [b]	Lake Chesdin	Lat 37°21'39", long 77°42'55", NAD83, Chesterfield County, at State Highway 664, 1.2 mi north of Winterpock, and 4.1 mi up- stream from Surline Branch.	3.77	1981-84	4-17-02	.343
					5-23-02	.020
					7- 8-02	.000
02041160 Winter- pock Creek [a]	Lake Chesdin	Lat 37°19'51", long 77°43'39", NAD83, Chesterfield County, at State Highway 602, 1.1 mi south of Winterpock, and 3.2 mi up- stream from mouth.	-	-	7- 8-02	.000
02041700 Cattail Run [a]	Appomattox River	Lat 37°12'59", long 77°26'38", NAD83, Dinwiddie County, at Petersburg, 500 ft upstream from U.S.Highway 1 and 460, and 0.7 mi upstream from mouth.	8.61	1993-99, 2001	10-22-01	.711
02042455 White Oak Swamp [b]	Chickahominy River	Lat 37°28'06", long 77°12'31", NAD83, Henrico County, at bridge on State Highway 156, at Elko.	23.6	1984-85, 1987-89, 1991, 1995-98	3-15-02	4.90
					4- 9-02	6.38
					5-22-02	4.15
					7- 9-02	.086
					7-23-02	.000
CHOWAN RIVER BASIN						
02044405 Hurricane Branch [a]	Nottoway River	Lat 37°03'39", long 77°58'47", NAD83, Nottoway County, at bridge on State Highway 643 1.6 mi southeast of Blackstone.	5.61	2000-01	10-24-01	.170
02044410 Unnamed tribu- tary [a]	Hurricane Branch	Lat 37°02'28", long 77°57'18", NAD83, Nottoway County, at Fort Picket sewage treatment plant, 1.0 mi upstream from mouth, and 3.5 mi southeast of Blackstone.	-	2000-01	11-24-01	.275
					6-20-02	.294
					8-21-02	.000
02045275 Unnamed tribu- tary [a]	Sturgeon Creek	Lat 36°51'36", long 77°50'04", NAD83, Brunswick County, 0.7 mi upstream from culvert on State Highway 642, 2.4 mi upstream from mouth, and 2.8 mi east of Alberta.	1.68	1998-99, 2001	10-22-01	.018
02051625 Roses Creek [a]	Great Creek	Lat 36°48'44", long 77°52'56", NAD83, Brunswick County, at bridge on State Highway 646, 3.5 mi south of Alberta, and 6.7 mi upstream from mouth.	-	-	4-16-02	1.30
					6- 4-02	.489
					7-17-02	.098
					8- 6-02	.083

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
CHOWAN RIVER BASIN--Continued						
02051715	Great Creek	Lat 36°44'57", long 77°50'15",	-	-	4-16-02	8.16
Roses		NAD83, Brunswick County, at			6- 4-02	2.07
Creek [a]		bridge on U.S. Highway 58, 0.4			7-17-02	.377
		mi upstream from mouth, and			8- 6-02	.240
		0.7 mi southeast of Lawrenceville.				
ROANOKE RIVER BASIN						
02054190	North Fork	Lat 37°11'23", long 80°21'30",	-	-	6-20-02	2.97
Wilson	Roanoke	NAD83, Montgomery County, at			8- 7-02	1.33
Creek [a]	River	bridge on State Highway 603 at				
		Ellett, 400 ft downstream from				
		Cedar Run, and 0.4 mi upstream				
		from mouth.				
02054660	Roanoke River	Lat 37°21'55", long 80°03'04",	29.7	1993,	10-22-01	.000
Mason		NAD83, Roanoke County, at		1999-01		
Creek [a]		Roanoke Moose Lodge sewage				
		treatment plant, 50 ft west				
		of State Highway 311, and				
		0.9 mi west of Bennett Springs.				
02055515	Tinker Creek	Lat 37°16'20", long 79°56'07",	5.00	1994-00	10-22-01	4.97
Lick		NAD83 Roanoke City, along			6- 5-02	5.54
Run [a]		Norfolk Avenue, 300 ft down-			8-30-02	5.10
		stream from U.S. Highway 220,				
		and 1.0 upstream from mouth.				
0205551610	Roanoke River	Lat 37°16'43", long 79°57'15",	-	-	4-25-02	32.3
Tinker		NAD83, Roanoke City, at bridge			6- 5-02	19.4
Creek [a]		on Wise Avenue, 0.2 mi upstream			8-30-02	19.2
		from Glade Creek, and 1.0 mi				
		west of Vinton.				
02055520	Tinker Creek	Lat 37°16'45", long 79°54'26",	32.9	1968	4-25-02	12.2
Glade		NAD83, Roanoke County, at			6- 5-02	8.54
Creek [a]		bridge on Walnut Avenue, at			8-30-02	7.73
		Vinton, and 0.2 mi upstream				
		from mouth.				
02056800	Blackwater	Lat 37°00'39", long 80°02'52",	22.2	1995,	10-23-01	3.71
South Fork	River	NAD83, Franklin County, at		1997-99		
Blackwater		at Callaway Elementary School				
River [a]		sewage treatment plant discharge,				
		and 400 ft downstream from				
		bridge on State Highway 641.				
02057695	Powder Mill	Lat 37°00'33", long 79°53'28",	-	1998-99	10-23-01	.005
Unnamed	Creek	NAD83, Franklin County, at				
tribu-		Rocky Mount, 800 ft east of				
tary [a]		Main Street, and 0.25 mi				
		upstream from culvert on				
		State Street.				
02063780	Falling River	Lat 37°16'25", long 79°05'57",	.158	1999-01	11-15-01	.035
Mollys		NAD83, Campbell County, at				
Creek [a]		Rustburg sewage treatment				
		plant, and 0.28 mi south of				
		inter-section of U.S.				
		Highway 501 and State Highway				
		24, at Rustburg.				
02066455	Roanoke Creek	Lat 37°01'58", long 78°33'50",	-	1978	7- 3-02	.370
Ash		NAD83, Charlotte County, at			8-22-02	.172
Camp		culvert on State Highway 654,				
Creek [a]		1.1 mi southwest of Eureka, and				
		2.6 mi upstream from mouth.				

a Provided by the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
ROANOKE RIVER BASIN--Continued						
02066520 Twittys Creek [a]	Roanoke Creek	Lat 36°59'23", long 78°36'12", NAD83, Charlotte County, at Drakes Branch sewage treat- ment plant discharge, at Drakes Branch, 0.25 mi downstream from bridge on State Highway 47.	22.7	1995, 1997	7- 3-02	.275
					8-22-02	.397
02066525 Twittys Creek [a]	Roanoke Creek	Lat 36°55'43", long 78°39'41", NAD83, Charlotte County, at bridge on State Highway 637, at Saxe, and 0.3 mi upstream from mouth.	-	-	7- 3-02	.261
					8-22-02	.070
02067250 Difficult Creek [a]	John H. Kerr Reservoir	Lat 36°45'14", long 78°42'27", NAD83, Halifax County, at bridge on State Highway 716, 0.2 mi downstream from Wilmouth Branch, and 1.8 mi northeast of Dryburg.	-	-	4-16-02	19.5
					5-30-02	7.17
					7-16-02	5.56
					8-21-02	.021
02073420 Mill Creek [a]	Leatherwood Creek	Lat 36°41'22", long 79°44'34", NAD83, Henry County, at Piedmont Estates lagoon discharge, 1.2 mi upstream from mouth, and 2.7 mi northwest of Axton.	4.50	2001	10-23-01	.576
0207509125 Unnamed tribu- tary [a]	Hogans Creek	Lat 36°32'31", long 79°22'21", NAD83, Pittsylvania County, at Goodyear Tire and Rubber plant discharge, 0.4 mi up- stream from bridge on State Highway 736, 1.1 mi southeast of Danville City limits, and 1.5 mi upstream from mouth.	0.89	1994-95, 1997-01	10-24-01	.046
02075191 Cane Creek [a]	Dan River	Lat 36°36'00", long 79°19'33", NAD83, Pittsylvania County, 0.3 mi downstream from bridge on State Highway 730, and 1.7 mi west of Ringgold.	3.94	1997-99, 2001	10-28-01	.823
02075600 Birch Creek [b]	Dan River	Lat 36°42'12", long 79°13'02", NAD83, Pittsylvania County, at bridge on State Highway 729, 1.2 mi downstream from Gunther Branch, and 2.9 mi west of Birch.	19.8	1981-84	4-16-02	6.17
					5-30-02	2.92
					7-16-02	.621
					8-21-02	.083
02075700 Birch Creek [a]	Dan River	Lat 36°40'20", long 79°03'39", NAD83, Halifax County, at bridge on State Highway 659, 0.9 mi upstream from mouth, and 2.8 mi northwest of Paces.	-	-	4-16-02	19.7
					5-30-02	10.8
					7-16-02	2.16
					8-21-02	.021
02076100 Wet Sleeve Creek [a]	Banister River	Lat 36°46'18", long 79°32'51", NAD83, Pittsylvania County, 0.4 mi downstream from bridge on State Highway 815, 1.3 mi upstream from mouth, and 2.8 mi northeast of Swansonville.	3.75	1993-95, 1997-99, 2001	10-24-01	.568
02076280 Dry Fork [a]	White Oak Creek	Lat 36°44'40", long 79°23'47", NAD83, Pittsylvania County, at Vulcan Materials Company, discharge 0.6 mi south of Dry Fork, and 0.7 mi upstream from bridge on State Highway 718.	2.42	1994-95, 1997-99, 2001	10-24-01	.035

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
ROANOKE RIVER BASIN--Continued						
02079666 Flat Creek [a]	Roanoke River	Lat 36°42'04", long 78°07'55", NAD83, Mecklenburg County, above new STP discharge, 0.3 mi upstream from State Highway 642, and 1.7 mi south of South Hill.	-	-	4-11-02	.439
0207966605 Flat Creek [a]	Roanoke River	Lat 36°41'48", long 78°07'54", NAD83, Mecklenburg County, downstream side of STP dis- charge, at bridge on State Highway 642, and 2.0 mi south of South Hill.	-	1977	4-11-02 6- 4-02 7-17-02 8- 6-02	1.52 1.57 1.66 1.58
0207966620 Flat Creek [a]	Roanoke River	Lat 36°39'29", long 78°09'22", NAD83, Mecklenburg County, at culvert on State Highway 631, 1.6 mi east of Smiths Crossroads.	-	1977	4-11-02 6- 4-02 7-17-02 8- 6-02	5.44 1.80 .165 .095
0207966625 Flat Creek [a]	Roanoke River	Lat 36°37'56", long 78°10'16", NAD83, Mecklenburg County, at bridge on State highway 630, 2.0 mi southeast of Smiths Crossroads, and 2.3 mi upstream from mouth.	-	1977	4-11-02 6- 4-02 7-17-02 8- 6-02	8.78 1.96 .007 .025
0207966630 Parham Creek [a]	Flat Creek	Lat 36°38'50", long 78°08'52", NAD83, Mecklenburg County, at State Highway 629, 2.2 mi east of Smiths Crossroads.	-	-	4-11-02 6- 4-02 7-17-02 8- 6-02	1.28 .300 .057 .021
KANAWHA RIVER BASIN						
03171170 Crab Creek [a]	New River	Lat 37°09'26", long 80°28'14", NAD83, Montgomery County, at Town of Christiansburg old dis- charge, 200 ft upstream from culvert on State Highway 660, and 3.9 mi northwest of Christiansburg.	13.8	1997-00	4-24-02 6-20-02 8- 7-02	4.07 4.10 2.80
03171215 Stroubles Creek [a]	New River	Lat 37°11'58", long 80°27'00", NAD83, Montgomery County, at bridge on State Highway 657, 2.3 mi east of Prices Fork, and 6.69 mi upstream from mouth.	-	-	4-24-02 6-20-02 8- 7-02	2.85 3.23 .636
03171220 Stroubles Creek [a]	New River	Lat 37°11'02", long 80°30'03", NAD83, Montgomery County, at bridge on State Highway 705, 0.35 mi upstream from Slate Branch, 2.41 mi upstream from mouth, and 5.0 mi northeast of Radford.	-	-	6-20-02 8- 7-02	3.38 .545
03171225 Slate Branch [a]	Stroubles Creek	Lat 37°10'45", long 80°29'52", NAD83, Montgomery County, at bridge on State Highway 705, 0.5 mi upstream from mouth, and 6.0 mi northwest of Christians- burg.	-	-	6-20-02 8- 7-02	1.08 .327
03171350 Back Creek [a]	New River	Lat 37°10'01", long 80°42'07", NAD83, Pulaski County, at bridge on State Highway 100, 1.2 mi downstream from Carper Branch, and 1.5 mi west of Highland.	-	-	4-23-02 6-19-02 8-13-02	8.58 3.25 2.01

a Provided by the Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
KANAWHA RIVER BASIN--Continued						
03171405 Back Creek [a]	New River	Lat 37°12'10", long 80°36'41", NAD83, Pulaski County, at bridge on State Highway 600, at Parrott, and 0.3 mi downstream from Neck Creek.	-	-	4-23-02	14.6
					6-19-02	5.09
					8-13-02	3.07
03177710 Bluestone River [b]	New River	Lat 37°16'17", long 81°18'17", NAD83, Tazewell County, at bridge on State Highway 717, 0.3 mi upstream from Brush Fork, and 0.4 mi southeast of Falls Mills.	44.2	1981-95†	4-24-02	38.2
					6-19-02	21.0
					8-15-02	9.91
BIG SANDY RIVER BASIN						
03208368 Spring Fork [a]	Open Fork	Lat 37°02'59", long 82°21'36", NAD83, Dickenson County, 400 ft upstream from confluence with Open Fork, 1.6 mi south- east of Nora.	5.18	1998-00	10- 3-01	1.59
03208700 North Fork Pound River	Pound River	Lat 37°07'32", long 82°37'36", NAD83, Wise County 700 ft downstream from Stacy Branch, 1,600 ft downstream from North Fork Pound River dam, and at Pound.	18.5	1963-01	1-16-02	20.2
					1-16-02	21.1
					8-30-02	3.79
03208800 Pound River	Russell Fork	Lat 37°07'26", long 82°36'29", NAD83, Wise County, 1,600 ft downstream from confluence of North and South Forks, 0.5 mi upstream from U.S. Highway 23, 0.7 mi upstream from Indian Creek, and at Pound.	36.7	1966-81, 1984-01,	11- 6-01	19.0
					1-10-02	13.4
03208900 Pound River	Russell Fork	Lat 37°09'51", long 82°31'30", NAD83, Dickenson County, 50 ft upstream from State Highway 624, 150 ft upstream from Camp Creek, and 2.6 mi northwest of Georges Fork.	82.5	1964-01,	10- 2-01	26.2
					2-20-02	78.5
0320890475 Laurel Creek [a]	Georges Fork	Lat 37°08'02", long 82°29'25", NAD83, Dickenson County, 1.1 mi south of Georges Fork, 1.4 mi upstream from mouth.	.189	1997-00	10- 3-01	.021
0320890485 Georges Fork [a]	Pound River	Lat 37°09'01", long 82°29'25", NAD83, Dickenson County, 50 ft downstream from Laurel Creek, 300 ft downstream from bridge on State Highway 83, and 0.2 mi northwest of Georges Fork.	5.57	1994-00	10- 3-01	1.80
03209200 Russell Fork	Levisa Fork	Lat 37°14'45", long 82°19'25", NAD83, Dickenson County, at bridge on State Highway 611, 0.2 mi downstream from Pound, River, and at Bartlick.	526	1963-01,	10- 2-01	84.5
					10- 2-01	93.0
					11 -6-01	152

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
TENNESSEE RIVER BASIN						
03473840 Unnamed tributary [a]	Hungry Mother Creek	Lat 36°52'20", long 81°30'41", NAD83, Smyth County, at Hungry Mother State Park Campground D sewage treatment plant, 400 ft downstream from bridge on park road, and 2.7 mi north of Marion.	2.17	1993-96,	10- 1-01	.317
03474700 Hutton Creek [b]	Middle Fork Holston River	Lat 36°47'03", long 81°44'04", NAD83, Washington County, at bridge on U.S. Highway 11, 3.2 mi west of Chilhowie.	8.32	1969, 1972, 1990, 1992, 2000	6-17-02 8-13-02 9-24-02	1.71 .533 .462
03474705 Unnamed tributary [a] (No. 2)	Hutton Creek	Lat 36°47'02", long 81°44'03", NAD83, Washington County, 200 ft downstream from bridge on U.S. Highway 11, on left bank, and 3.3 mi west of Chilhowie.	-	-	6-17-02 8-13-02 9-24-02	2.45 1.66 1.48
03474720 Hutton Creek [b]	Middle Fork Holston River	Lat 36°46'22", long 81°43'48", NAD83, Washington County, at old Huff Airport road, 0.26 mi upstream from mouth, and 2.3 mi southwest of Chilhowie.	11.0	1987-89, 2000	4-23-02 6-17-02 8-13-02 9-24-02	12.0 5.64 3.44 3.04
03474800 Hall Creek [b]	Byers Creek	Lat 36°45'49", long 81°48'14", NAD83, Washington County, at bridge on U.S. Highway 11, 1.4 mi west of Old Glade Spring.	7.9	1969, 1972, 1990, 1992, 2000	4-23-02 6-17-02 8-13-02 9-24-02	9.92 5.08 3.72 3.31
03474860 Tattle Branch [a]	Hall Creek	Lat 36°44'40", long 81°47'47", NAD83, Washington County, at bridge on State Highway 736, 600 ft upstream from mouth, and 2.0 mi south of Old Glade Spring.	-	2000	4-23-02 6-17-02 8-13-02 9-24-02	2.28 1.16 .551 .871
03474905 Byers Creek [a]	Middle Fork Holston River	Lat 36°44'16", long 81°47'50", NAD83, Washington County, at private bridge along State High- way 736, 0.2 mi upstream from mouth, and 2.5 mi southwest of Old Glade Spring.	-	2000	4-23-02 6-17-02 8-13-02 9-24-02	17.1 8.43 5.72 6.18
03475595 East Fork Cedar Creek [a]	Cedar Creek	Lat 36°44'58", long 81°51'25", NAD83, Washington County, at Meadowview Elementary School sewage treatment plant, 0.1 mi north of Cedarville.	-	1995, 1997-00	10-01-01 4-23-02 6-17-02 8-14-02 9-24-02	.436 .964 .525 .472 .338
03475602 Cedar Creek [b]	Middle Fork Holston River	Lat 36°42'53", long 81°49'50", NAD83, Washington County, at bridge on State Highway 706, at mouth, and 2.6 mi south of Cedarville.	-	1987-89, 2000	4-23-02 6-17-02 8-14-02 9-24-02	7.95 2.99 2.07 2.00
03489860 Hilton Creek [a]	North Fork Holston River	Lat 36°39'12", long 82°27'50", NAD83, Scott County, at Hilton Elementary School sewage treat- ment plant discharge, 0.2 mi southeast of Hilton, and 0.4 mi upstream from mouth.	1.05	1993-95, 1997-99	10- 2-01	.090

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
TENNESSEE RIVER BASIN--Continued						
03489867 Unnamed tributary [a] (No. 8)	North Fork Holston River	Lat 36°38'24", long 82°29'33", NAD83, Scott County, at Brick- yard Gap, 300 ft upstream from bridge on State Highway 896, 0.3 mi upstream from mouth, and 1.7 mi southwest of Hilton.	3.02	1998-99	10- 2-01	.010
03489950 Unnamed tributary [a] (No. 1)	Little Moccasin Creek	Lat 36°38'13", long 82°40'00", NAD83, Scott County, 400 ft upstream from culvert on State Highway 870, 600 ft upstream from mouth, and 3.1 mi northeast of Kermit.	.20	1996-00	10- 2-01	.046
03490020 Cate Branch [a]	Possum Creek	Lat 36°36'58", long 82°37'47", NAD83, Scott County, at Yuma Elementary School sewage treat- ment plant, 300 ft upstream from culvert on State Highway 713, and 0.9 mi west of Yuma.	.42	1993-00	10- 2-01	.013
03520375 Clinch River [a]	Tennessee River	Lat 37°07'44", long 81°32'59", NAD83, Town of Tazewell, at bridge on State Highway Alt. 16, 0.8 mi west of Tazewell.	-	1980	4-24-02 6-19-02 8-15-02	27.7 15.6 7.82
03521500 Clinch River [b]	Tennessee River	Lat 37°05'10", long 81°46'51", NAD83, Tazewell County, 1.0 mi southeast of Richlands, 1.6 mi downstream from Middle Creek, 2.2 mi upstream from Big Creek, and at mile 321.0.	137	1946-89†	4-24-02 6-19-02 8-15-02	111 42.4 22.0
03522595 Lewis Creek [a]	Clinch River	Lat 37°00'28", long 81°58'12", NAD83, Russell County, at Honaker sewage treatment plant, 0.2 mi upstream from bridge on State Highway 653, and 0.7 mi south of Honaker.	20.8	1993-97	4-24-02 6-19-02 8-14-02	25.1 4.66 1.48
03523050 Big Cedar Creek [b]	Clinch River	Lat 36°55'19", long 82°03'09", NAD83, Russell County, at Lebanon sewage treatment plant discharge, 200 ft downstream from Little Cedar Creek, and 2.1 mi northeast of Lebanon.	-	1993-00	10- 3-01	16.4
03524018 Hurricane Fork [a]	Dumps Creek	Lat 36°59'06", long 82°10'57", NAD83, Russell County, 0.6 mi downstream from Laurel Branch, 1.1 mi upstream from mouth, and 1.6 mi north of South Clinchfield.	10.3	1995-00	10- 3-01	.459
03524025 Dumps Creek [a]	Clinch River	Lat 36°57'23", long 82°10'45", NAD83, Russell County, 300 ft downstream from Millstone Branch, 0.5 mi south of South Clinchfield, and 2.0 mi upstream from mouth.	20.9	1995-00	10- 3-01	3.76
0352403950 Unnamed tributary [a]	Seven Springs Creek	Lat 36°51'46", long 82°15'46", NAD83, Russell County, at Seven Springs water treatment plant, 700 ft upstream from mouth, 800 ft south of State Highway 669, and 2.1 mi northwest of Dickensonville	.27	2000	10- 2-01	.220

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
TENNESSEE RIVER BASIN--Continued						
0352404110 Unnamed tribu- tary [a]	Mill Creek	Lat 36°51'06", long 82°17'01", NAD83, Russell County, at Sargent Spring water treatment plant, 0.5 mi upstream from mouth, and 1.65 mi southeast of Banners Corner.	.19	2000	10- 2-01	.070
03524300 Guest River [a]	Clinch River	Lat 36°58'35", long 82°37'16", NAD83, Wise County, at bridge on State Highway 625, 1.5 mi southwest of Stephens.	-	1978	6-18-02 8-14-02 9-25-02	3.90 1.78 1.80
0352430750 Sepulcher Creek [a]	Rocky Fork	Lat 36°58'58", long 82°36'52", NAD83, Wise County, at conflu- ence with Rocky Fork, just west of State Highway 625, and 1.0 mi southwest of Stephens.	-	-	8-14-02 9-25-02	.268 .272
03524308 Rocky Fork [a]	Guest River	Lat 36°58'49", long 82°36'51", NAD83, Wise County, at bridge on State Highway 625, 1,000 ft downstream from Sepulcher Creek, and 1.1 mi southwest of Stephens.	-	-	6-18-02 8-14-02 9-25-02	1.17 .336 .393
03524415 Guest River [b]	Clinch River	Lat 36°56'03", long 82°31'57", NAD83, Wise County, at bridge on State Highway 706, at Tocoma, and 150 ft downstream from Whiteoak Branch.	58.5	1976-77, 1986, 1991-92	6-18-02	13.9
0352445 Toms Creek [b]	Guest River	Lat 36°56'33", long 82°28'09", NAD83, Wise County, at conflu- ence with Little Toms Creek, 500 ft downstream from bridge on U.S. Highway 58 at Coeburn.	4.97	1952, 1955	6-18-02 8-14-02 9-25-02	6.34 2.20 2.15
03524449 Little Toms Creek [a]	Toms Creek	Lat 36°56'32", long 82°28'08", NAD83, Wise County, at conflu- ence with Toms Creek, at Coeburn.	5.52	-	6-18-02 8-14-02 9-25-02	.946 .220 .327
03524500 Guest River [b]	Clinch River	Lat 36°55'45", long 82°28'23", NAD83, Wise County, at bridge on State Highway 72, 1.0 mi southeast of Coeburn, and 6.5 mi upstream from mouth.	87.3	1949-59†, 1979-81†, 1991-92	6-18-02 8-14-02 9-25-02	25.2 9.72 12.9
03524520 Crab Orchard Branch [a]	Guest River	Lat 36°54'52", long 82°26'06", NAD83, Wise County, 0.2 mi downstream from Boynton Road, 0.2 mi upstream from mouth, and 2.7 mi southeast of Coeburn.	-	-	6-18-02 8-14-02 9-25-02	.126 .000 .000
0352455450 Sinking Creek [a]	Clinch River	Lat 36°50'12", long 82°23'14", NAD83, Scott County, 1.1 mi up- stream from Roaring Branch, 1.4 mi southwest of Mew, and 3.6 mi upstream from Karst.	4.05	-	10- 2-01	.556
03525935 Culbertson Branch [a]	Valley Creek	Lat 36°46'41, long 82°27'47", NAD83, Scott County, at school discharge, at Twin Springs, 2.7 mi upstream from mouth, and 3.3 mi south of Dungannon.	1.59	-	10- 2-01	.660

† Operated as a continuous-record gaging station.

a Provided by the Virginia Department of Environmental Quality - Water Division.

b Provided by both the U.S. Geological Survey and Virginia Department of Environmental Quality - Water Division.

Discharge measurements made at special study and miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
TENNESSEE RIVER BASIN--Continued						
03529335 Mill Branch [a]	Powell River	Lat 36°55'29", long 82°44'44", NAD83, Wise County, at Appalachia Elementary School discharge, 100 ft upstream from U.S. Highway 23 and 58 alternate, and 2.3 mi east of Appalachia.	2.70	-	10- 4-01	.639
03529430 Lick Branch [a]	Pigeon Creek	Lat 36°52'55", long 82°50'00", NAD83, Wise County, at conflu- ence with Pigeon Creek, at Lower Exeter, 500 ft north of State Highway 68, and 1.5 mi west of Imboden.		1997-99	10-04-01	.767

a Provided by the Virginia Department of Environmental Quality - Water Division.

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,
AND MISCELLANEOUS SITES

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POQUOSON RIVER BASIN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULATE WAT FLT (MG/L AS N) (49570)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
01677832 HARWOODS MILL RESERVOIR ABOVE AIRPORT NR TABB, VA (LAT 37 08 44N LONG 076 28 26W)													
AUG 2002													
09...	9.0	169	<.015	.41	.49	<.013	<.002	--	.009	<.007	.038	--	--
09...	1.9	152	1.02	1.4	1.4	<.013	.003	--	.036	.024	.059	--	--
01677850 HARWOODS MILL RESERVOIR ABOVE HWY 17 AT TABB, VA (LAT 37 08 16N LONG 076 27 40W)													
JUN 2002													
19...	--	--	<.015	.41	.76	<.013	<.002	--	.006	<.007	.026	--	--
19...	--	--	.244	.64	.84	<.013	<.002	--	.037	.026	.061	--	--
JUL													
24...	--	--	<.015	.34	.42	<.013	<.002	--	.005	<.007	.023	--	--
24...	--	--	1.12	1.6	1.6	<.013	<.002	--	.054	.046	.075	--	--
AUG													
08...	8.8	142	<.015	.32	.45	<.013	<.002	--	.008	<.007	.028	--	--
08...	E.1	158	1.62	2.0	1.8	<.013	E.002	--	.131	.118	.093	--	--
SEP													
17...	--	--	.021	.36	.49	E.012	.003	.58	.006	<.007	.023	2.7	5.7
17...	--	--	4.83	5.5	5.9	E.010	.006	1.17	.014	<.007	.051	4.7	13.7
23...	--	--	<.015	.34	.52	<.013	<.002	.25	.006	<.007	.033	1.7	5.6
23...	--	--	2.24	2.8	2.9	<.013	<.002	.26	.020	.012	.054	1.2	8.4
23...	--	--	--	--	--	--	--	--	--	--	.89	--	--
27...	--	--	.180	.44	.65	E.010	E.002	.25	.007	<.007	.029	1.7	5.9
27...	--	--	.542	.97	1.1	<.013	E.002	.36	.007	<.007	.043	2.4	6.6
27...	--	--	.696	1.1	1.3	<.013	<.002	.34	.006	<.007	.043	1.9	6.6
27...	--	--	<.015	<.10	<.10	<.013	<.002	--	<.004	<.007	<.004	--	E.2

Date	PHEO- PHYTO- A, PHYTO- PHYTON (UG/L) (62360)	CHLOR-A PHYTO- PLANK- TON CHROMO- FLUOROM (UG/L) (70953)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	H-2 / H-1 STABLE RATIO PER MIL (82082)	O-18 / O-16 STABLE RATIO PER MIL (82085)
------	----------------------------------------------------------------	-------------------------------------------------------------------------------	---------------------------------------------------------	--------------------------------------------------------------------	-------------------------------------------------------	------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------------	------------------------------------------------------------

01677832 HARWOODS MILL RESERVOIR ABOVE AIRPORT NR TABB, VA (LAT 37 08 44N LONG 076 28 26W)

AUG 2002									
09...	--	8.2	--	--	E6	--	8.1	--	--
09...	--	25.3	--	--	5950	--	4550	--	--

01677850 HARWOODS MILL RESERVOIR ABOVE HWY 17 AT TABB, VA (LAT 37 08 16N LONG 076 27 40W)

JUN 2002									
19...	--	--	--	--	--	--	--	-11.5	-1.83
19...	--	--	--	--	--	--	--	-18.0	-3.05
JUL									
24...	--	5.0	--	--	--	--	--	-9.5	-.76
24...	--	56.9	--	--	--	--	--	-18.7	-3.00
AUG									
08...	--	10.0	--	--	<10	--	E1.2	-8.5	-.76
08...	--	37.3	--	--	10200	--	6900	-17.6	-3.00
SEP									
17...	10.2	7.7	13.5	22.5	<10	60	--	-7.4	-.67
17...	31.1	36.1	.6	19.0	19800	17700	--	-16.0	-2.34
23...	9.2	16.9	50.9	97.3	17	150	--	-8.1	-.66
23...	29.0	17.1	.9	32.8	2090	2750	--	-11.6	-1.50
23...	--	29.2	--	--	--	--	--	--	--
27...	10.5	13.1	30.2	49.9	25	220	--	-8.3	-.69
27...	14.6	11.1	6.0	56.2	180	630	--	-8.3	-.78
27...	14.8	11.7	9.6	55.9	99	650	--	-8.7	-.80
27...	--	--	<.2	<.6	<10	<10	--	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,
AND MISCELLANEOUS SITES

JAMES RIVER BASIN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULATE WAT FLT (MG/L AS N) (49570)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
0204278995 BAPTIST RUN AT RT 637 NEAR YORKTOWN, VA (LAT 37 12 48N LONG 076 31 45W)													
JUN 2002													
20...	--	--	.054	.13	.46	.217	.009	--	.058	.048	.125	--	--
JUL													
24...	--	--	.036	E.08	.18	.206	.006	--	.060	.051	.097	--	--
SEP													
17...	--	--	<.015	.16	.23	.036	E.002	.09	.037	.031	.060	.6	3.8
0204279210 LEE HALL RESERVOIR ABOVE I-64 NEAR LEE HALL, VA (LAT 37 10 58N LONG 076 32 52W)													
JUN 2002													
19...	--	--	<.015	.43	.65	<.013	<.002	--	.008	<.007	.041	--	--
19...	--	--	E.010	.47	.72	<.013	<.002	--	.008	<.007	.053	--	--
JUL													
24...	--	--	<.015	.41	.62	<.013	<.002	--	.011	<.007	.044	--	--
24...	--	--	<.015	.41	.67	<.013	<.002	--	.011	<.007	.046	--	--
AUG													
12...	3.0	137	<.015	.39	.80	<.013	<.002	--	.011	<.007	.058	--	--
12...	2.5	137	<.015	.38	.83	<.013	<.002	--	.011	<.007	.067	--	--
SEP													
11...	--	--	<.015	.40	1.1	<.013	<.002	--	.009	<.007	.057	--	7.0
11...	--	--	<.015	.41	1.1	<.013	<.002	--	.008	<.007	.060	--	7.1
18...	--	--	<.015	.45	.94	<.013	<.002	.58	.006	<.007	.050	3.1	7.0
18...	--	--	.132	.58	1.2	<.013	<.002	.79	.009	<.007	.070	4.4	7.1
23...	--	--	<.015	.42	.89	<.013	<.002	.70	.007	<.007	.054	4.1	7.0
23...	--	--	.137	.57	1.0	<.013	<.002	.34	.008	<.007	.075	2.0	7.0
27...	--	--	.075	.49	.89	<.013	<.002	.41	.009	<.007	.062	2.2	7.0
27...	--	--	.103	.54	.98	<.013	E.002	.49	.009	<.007	.065	3.1	7.2
27...	--	--	--	--	--	--	--	--	--	--	1.99	--	--
0204279220 CURTIS RUN AT RT 168 AT LEE HALL, VA (LAT 37 11 50N LONG 076 34 05W)													
JUN 2002													
19...	--	--	.035	.51	.66	.115	.003	--	.022	.010	.051	--	--
JUL													
24...	--	--	.022	.40	.49	.067	E.002	--	.009	E.004	.032	--	--
AUG													
13...	11.4	223	.027	.38	.55	.088	.003	--	.007	<.007	.033	--	--
13...	11.4	228	.028	.38	.59	.086	.003	--	.007	<.007	.031	--	--
SEP													
17...	--	--	.016	.38	.70	.162	.003	.45	.005	<.007	.048	2.9	6.1
0204279224 LEE HALL RESERVOIR AB POWER LINE AT LEE HALL, VA (LAT 37 11 15N LONG 076 33 49W)													
AUG 2002													
12...	10.9	223	<.015	.34	.54	<.013	<.002	--	.008	<.007	.033	--	--
0204279230 LEE HALL RESERVOIR AB RT 105 NR LEE HALL, VA (LAT 37 10 32N LONG 076 33 47W)													
JUN 2002													
19...	--	--	<.015	.42	.55	<.013	<.002	--	.009	<.007	.032	--	--
19...	--	--	.022	.50	.57	<.013	<.002	--	.014	<.007	.053	--	--
JUL													
24...	--	--	.018	.43	.49	<.013	<.002	--	.007	<.007	.033	--	--
24...	--	--	<.015	.31	.46	<.013	<.002	--	.006	<.007	.039	--	--
24...	--	--	<.015	<.10	<.10	<.013	<.002	--	<.004	<.007	E.002	--	--

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,
AND MISCELLANEOUS SITES

JAMES RIVER BASIN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Sample type	AGENCY ANA- LYZING SAMPLE (CODE NUMBER)	DEPTH BOTTOM AT SAMPLE LOC- ATION, (FEET)	SAM- PLING DEPTH (FEET)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	BARO- METRIC PRES- SURE (MM OF HG)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	
			(00028)	(81903)	(00003)	(00077)	(00025)	(00300)	(00301)	(00400)	(00095)
0204279230 LEE HALL RESERVOIR AB RT 105 NR LEE HALL, VA (LAT 37 10 32N LONG 076 33 47W)											
AUG 2002											
13...	1245	ENVIRONMENTAL	USGS	11	1	38	766	8.9	115	8.2	333
13...	1250	ENVIRONMENTAL	USGS	11	10	--	766	5.0	62	7.2	379
SEP											
11...	1235	ENVIRONMENTAL	USGS	14	1	36	755	10.6	133	7.4	520
11...	1240	ENVIRONMENTAL	USGS	14	13	--	755	9.6	119	7.2	515
18...	1145	ENVIRONMENTAL	USGS	11	1	35	764	7.2	89	7.5	457
18...	1150	ENVIRONMENTAL	USGS	11	10	--	764	7.2	87	7.4	485
23...	1200	ENVIRONMENTAL	USGS	12	1	40	763	7.2	90	7.5	476
23...	1205	ENVIRONMENTAL	USGS	12	11	--	763	1.7	21	6.9	482
23...	1210	ENVIRONMENTAL	USGS	12	12	--	763	1.2	15	6.9	483
23...	1215	ENVIRONMENTAL	USGS	12	12	--	763	1.2	15	6.9	483
27...	1145	ENVIRONMENTAL	USGS	12	1	48	758	6.6	80	7.3	502
27...	1150	ENVIRONMENTAL	USGS	12	11	--	758	6.5	78	7.3	505
27...	1155	ENVIRONMENTAL	USGS	12	12	--	758	6.4	78	7.3	504
27...	1200	ENVIRONMENTAL	USGS	12	12	--	758	6.4	78	7.3	504
0204279240 LEE HALL RESERVIOR AT WTP NEAR LEE HALL, VA (LAT 37 10 13N LONG 076 33 23W)											
JUN 2002											
19...	1015	ENVIRONMENTAL	USGS	12	1	55	--	7.7	--	7.5	139
19...	1020	REPLICATE	USGS	12	1	55	--	7.7	--	7.5	139
19...	1030	ENVIRONMENTAL	USGS	11	10	--	--	.2	--	6.7	301
JUL											
24...	1010	ENVIRONMENTAL	USGS	11	1	37	766	6.3	82	7.5	145
24...	1015	ENVIRONMENTAL	USGS	11	10	--	766	6.2	80	7.3	145
AUG											
13...	1040	ENVIRONMENTAL	USGS	11	1	36	765	7.7	97	7.5	312
13...	1045	ENVIRONMENTAL	USGS	11	10	--	765	3.4	43	7.0	298
SEP											
11...	1155	ENVIRONMENTAL	USGS	12	1	30	755	10.8	136	7.3	503
11...	1200	ENVIRONMENTAL	USGS	12	11	--	755	9.8	122	7.2	495
18...	1105	ENVIRONMENTAL	USGS	10	1	35	765	8.3	102	7.5	519
18...	1110	ENVIRONMENTAL	USGS	10	9	--	765	7.4	90	7.3	516
23...	1100	ENVIRONMENTAL	USGS	12	1	55	764	7.2	89	7.5	483
23...	1105	ENVIRONMENTAL	USGS	12	11	--	764	2.1	25	6.9	497
23...	1110	ENVIRONMENTAL	USGS	12	12	--	764	.2	3	6.7	521
27...	1045	ENVIRONMENTAL	USGS	10	1	49	760	6.7	81	7.3	488
27...	1050	ENVIRONMENTAL	USGS	10	9	--	760	6.0	72	7.2	487

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,
AND MISCELLANEOUS SITES

JAMES RIVER BASIN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L AS SO4) (70300)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, PAR TICULATE WAT FLT (MG/L AS N) (49570)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
0204279230 LEE HALL RESERVOIR AB RT 105 NR LEE HALL, VA (LAT 37 10 32N LONG 076 33 47W)													
AUG 2002													
13...	8.6	191	<.015	.35	.56	<.013	<.002	--	.008	<.007	.034	--	--
13...	9.6	211	.051	.46	.61	.013	<.002	--	.010	<.007	.048	--	--
SEP													
11...	--	--	.035	.34	.67	<.013	<.002	.31	.007	<.007	.036	1.8	5.9
11...	--	--	.066	.36	.64	<.013	<.002	.65	.007	<.007	.037	2.5	5.9
18...	--	--	.051	.40	.61	E.009	<.002	.33	.005	<.007	.036	1.7	5.8
18...	--	--	.053	.41	.69	<.013	<.002	.26	.006	<.007	.039	1.5	5.7
23...	--	--	.027	.38	.56	E.011	E.002	.21	.006	<.007	.036	1.4	6.0
23...	--	--	.311	.71	.77	.016	E.002	.20	.010	E.004	.051	1.5	6.1
23...	--	--	--	--	--	--	--	--	--	--	.37	--	--
23...	--	--	--	--	--	--	--	--	--	--	.84	--	--
27...	--	--	.093	.45	.71	.020	.003	.31	.007	<.007	.034	2.0	6.6
27...	--	--	.094	.44	.66	.021	.003	.45	.007	<.007	.038	2.7	6.5
27...	--	--	--	--	--	--	--	--	--	--	.77	--	--
27...	--	--	--	--	--	--	--	--	--	--	.88	--	--
0204279240 LEE HALL RESERVIOR AT WTP NEAR LEE HALL, VA (LAT 37 10 13N LONG 076 33 23W)													
JUN 2002													
19...	--	--	E.010	.42	.64	<.013	<.002	--	.007	<.007	.022	--	--
19...	--	--	E.009	.47	.70	<.013	<.002	--	.008	<.007	.026	--	--
19...	--	--	.057	.50	.65	<.013	<.002	--	.007	<.007	.029	--	--
JUL													
24...	--	--	<.015	.32	.48	<.013	<.002	--	.006	<.007	.031	--	--
24...	--	--	E.008	.34	.48	<.013	<.002	--	.006	<.007	.031	--	--
AUG													
13...	13.8	179	E.008	.32	.51	<.013	<.002	--	.005	<.007	.029	--	--
13...	8.1	169	.091	.42	.88	<.013	<.002	--	.011	<.007	.069	--	--
SEP													
11...	--	--	.100	.41	.69	E.009	<.002	1.11	.007	<.007	.029	4.3	5.7
11...	--	--	.115	.41	.71	<.013	<.002	.43	.007	<.007	.030	2.1	5.7
18...	--	--	.062	.39	.61	<.013	<.002	.41	.004	<.007	.023	1.9	5.6
18...	--	--	.332	.68	.97	E.009	<.002	.42	.006	<.007	.039	2.1	5.7
23...	--	--	.070	.37	.53	.013	E.002	.22	E.004	<.007	.024	1.5	5.6
23...	--	--	.368	.91	.86	E.009	E.002	.30	.005	<.007	.038	2.0	5.8
23...	--	--	--	--	--	--	--	--	--	--	3.33	--	--
27...	--	--	.135	.48	.72	.020	.003	.27	.006	<.007	.031	1.5	6.3
27...	--	--	.159	.50	.70	.020	E.002	.20	.007	<.007	.033	1.3	6.2

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY,
AND MISCELLANEOUS SITES

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JAMES RIVER BASIN--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	PHYTO- PHYTIN A, PHYTO- (UG/L) (62360)	CHLOR-A PHYTO- PLANK- TON CHROMO (UG/L) (70953)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	H-2 / H-1 STABLE ISOTOPE RATIO PER MIL (82082)	O-18 / O-16 STABLE ISOTOPE RATIO PER MIL (82085)
0204279230 LEE HALL RESERVOIR AB RT 105 NR LEE HALL, VA (LAT 37 10 32N LONG 076 33 47W)									
AUG 2002									
13...	--	9.1	--	--	31	--	E2.8	-7.3	-56
13...	--	10.5	--	--	177	--	328	-8.6	-72
SEP									
11...	9.4	13.0	--	--	--	--	--	-8.0	-47
11...	9.8	14.4	--	--	--	--	--	-7.8	-54
18...	11.3	14.0	5.9	9.5	15	330	--	-7.7	-36
18...	16.9	16.2	6.4	14.8	24	390	--	-7.7	-40
23...	--	5.6	56.5	94.7	27	210	--	-6.6	-36
23...	--	4.9	41.9	50.3	124	760	--	-6.9	-54
23...	--	5.8	--	--	--	--	--	--	--
23...	--	5.8	--	--	--	--	--	--	--
27...	--	6.5	21.3	36.4	19	270	--	-7.8	-56
27...	--	7.3	21.0	38.2	40	290	--	-8.3	-50
27...	--	7.2	--	--	--	--	--	--	--
27...	--	7.2	--	--	--	--	--	--	--
0204279240 LEE HALL RESERVIOR AT WTP NEAR LEE HALL, VA (LAT 37 10 13N LONG 076 33 23W)									
JUN 2002									
19...	--	--	--	--	--	--	--	-10.8	-1.39
19...	--	--	--	--	--	--	--	-10.7	-1.60
19...	--	--	--	--	--	--	--	-10.2	-1.61
JUL									
24...	--	9.1	--	--	--	--	--	-10.6	-.85
24...	--	10.2	--	--	--	--	--	-10.1	-.79
AUG									
13...	--	8.9	--	--	<10	--	116	-7.5	-.69
13...	--	12.7	--	--	27	--	446	-8.1	-.65
SEP									
11...	10.1	14.6	--	--	--	--	--	-8.6	-.52
11...	10.6	14.2	--	--	--	--	--	-8.2	-.56
18...	10.0	12.2	6.7	10.3	<10	140	--	-9.4	-.46
18...	14.2	15.8	5.3	17.5	19	500	--	-7.4	-.52
23...	--	4.3	48.9	85.7	<10	130	--	-7.4	-.46
23...	--	6.6	36.0	119	907	900	--	-8.0	-.47
23...	--	--	--	--	--	--	--	--	--
27...	--	4.3	20.6	34.1	E6	200	--	-7.3	-.49
27...	--	6.2	19.6	48.2	E8	340	--	-7.3	-.54

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CONVERSION FACTORS

Multiply	By	To obtain
Length		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
Area		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
Volume		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
Flow		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
Mass		
ton (short)	9.072×10^{-1}	megagram or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$$