



Water-Data Report 2007

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA

Lower Chesapeake Basin
Lower Rappahannock Subbasin

LOCATION.--Lat 38°18'30", long 77°31'46" referenced to North American Datum of 1927, Spotsylvania County, VA, Hydrologic Unit 02080104, on right bank, along State Highway 618 (River Road), 0.7 mi downstream from Motts Run, and 5.3 mi upstream from Fredericksburg.

DRAINAGE AREA.--1,595 mi².

SURFACE-WATER 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). WDR VA-03-1: 2001(M). OFR 2006-1308: 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, at site 1.5 mi downstream at datum of 56.18 ft. Jan. 15 to Aug. 2, 1966, water-stage recorder at same site and datum. Aug. 2, 1966 to Oct. 17, 2000, at same site, at datum of 55.18 NGVD of 1929. Oct. 17, 2000 to current year, at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, 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 (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 13	0145	16,200	7.41
Mar 17	0415	19,900	8.40
Apr 16	0400	*22,300	*8.98

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	538	1,150	1,830	3,310	947	4,410	1,250	1,200	e441	390	100	150
2	e473	1,070	1,790	5,620	985	8,310	1,240	1,150	e420	310	86	129
3	397	1,120	1,580	2,840	967	9,470	1,250	1,840	e408	219	66	114
4	353	1,030	1,400	2,310	939	4,960	1,210	1,360	e800	172	64	103
5	314	884	1,320	2,140	e750	3,490	1,250	1,160	e1,000	151	78	91
6	3,290	838	1,240	2,350	e840	2,780	1,110	1,110	677	147	69	85
7	11,700	813	1,190	2,210	e1,100	2,340	1,070	1,080	470	139	60	79
8	7,470	7,900	1,150	3,840	e850	2,150	1,140	980	385	139	59	74
9	3,310	9,430	1,050	4,750	e800	1,970	1,100	955	373	130	59	72
10	2,220	3,830	989	3,090	e830	1,780	1,020	944	398	111	82	70
11	1,620	2,660	1,030	2,550	e750	1,680	990	919	349	130	121	79
12	1,320	6,700	1,000	2,280	e770	1,590	1,660	870	313	134	249	96
13	1,380	11,200	964	2,150	884	1,470	2,780	1,270	376	e106	208	90
14	1,010	4,990	964	1,940	e1,300	1,390	1,760	1,370	559	e94	136	127
15	836	3,320	954	1,800	2,160	1,360	6,440	961	500	e87	99	141
16	748	4,970	924	1,690	1,980	5,850	15,700	862	482	e85	82	116
17	716	12,300	877	1,520	1,290	15,600	5,480	877	445	80	71	102
18	1,030	5,880	842	1,360	1,280	6,250	3,470	827	370	67	64	98
19	1,500	3,830	837	1,310	1,060	3,840	2,780	849	414	83	59	97
20	1,110	2,940	817	1,300	1,170	3,060	2,420	1,070	342	126	88	91
21	1,270	2,460	776	1,220	2,440	2,650	2,140	839	317	121	322	84
22	1,020	2,290	795	1,240	5,360	2,350	1,890	715	297	108	326	83
23	855	8,790	1,760	1,330	3,460	2,200	1,690	651	260	99	332	83
24	788	7,140	2,640	1,420	2,380	2,080	1,550	609	e235	83	256	74
25	709	4,180	1,750	1,440	2,070	1,970	1,480	569	e204	71	192	68
26	664	3,190	3,450	1,320	2,550	1,820	1,400	535	191	61	200	67
27	637	2,700	3,090	1,140	3,280	1,660	1,390	516	182	55	1,610	64
28	2,670	2,390	2,210	1,140	5,200	1,590	1,630	536	179	62	1,170	60
29	3,590	2,180	1,860	1,160	---	1,460	1,450	578	185	100	403	50
30	1,910	1,950	1,620	1,020	---	1,340	1,290	640	295	124	252	48
31	1,370	---	1,470	937	---	1,270	---	499	---	114	188	---
Total	56,818	124,125	44,169	63,727	48,392	104,140	71,030	28,341	11,867	3,898	7,151	2,685
Mean	1,833	4,138	1,425	2,056	1,728	3,359	2,368	914	396	126	231	89.5
Max	11,700	12,300	3,450	5,620	5,360	15,600	15,700	1,840	1,000	390	1,610	150
Min	314	813	776	937	750	1,270	990	499	179	55	59	48
Cfsm	1.15	2.59	0.89	1.29	1.08	2.11	1.48	0.57	0.25	0.08	0.14	0.06
In.	1.33	2.89	1.03	1.49	1.13	2.43	1.66	0.66	0.28	0.09	0.17	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,164	1,375	1,717	2,191	2,473	2,694	2,485	1,883	1,423	908	974	998
Max	11,090	6,522	5,714	6,472	8,880	8,505	9,484	10,310	7,112	3,368	7,190	6,924
(WY)	(1943)	(1986)	(2004)	(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)

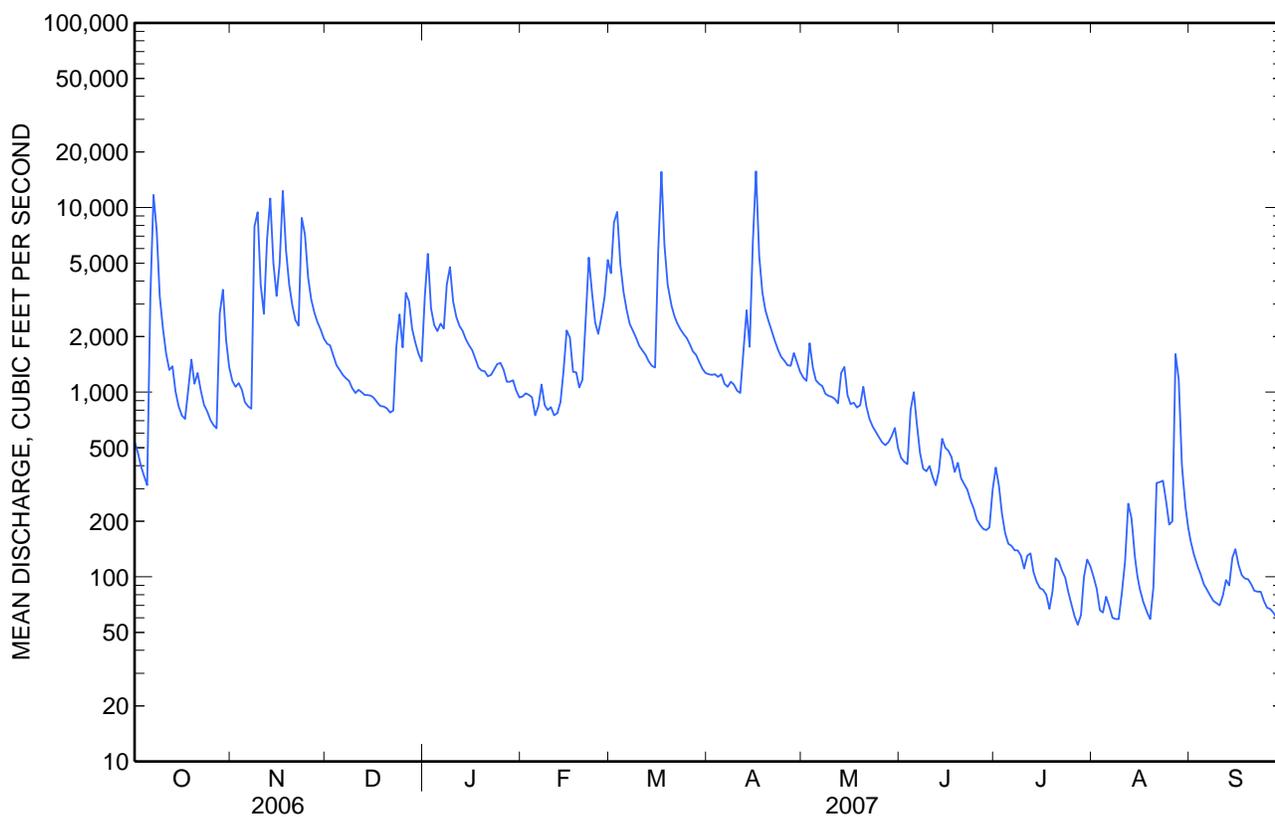
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SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1907 - 2007	
Annual total	553,456		566,343			
Annual mean	1,516		1,552		1,686	
Highest annual mean					3,292	2003
Lowest annual mean					440	1931
Highest daily mean	13,000	Jun 28	15,700	Apr 16	127,000	Oct 16, 1942
Lowest daily mean	71	Aug 28	48	Sep 30	5.0	Oct 11, 1930 ^a
Annual seven-day minimum	79	Aug 24	62	Sep 24	8.3	Oct 9, 1930
Maximum peak flow			22,300	Apr 16	140,000	Oct 16, 1942
Maximum peak stage			8.98	Apr 16	^b 26.90	Oct 16, 1942
Instantaneous low flow			43	Sep 30	5.0	Oct 11, 1930
Annual runoff (cfsm)	0.951		0.973		1.06	
Annual runoff (inches)	12.91		13.21		14.36	
10 percent exceeds	3,180		3,370		3,340	
50 percent exceeds	987		1,000		990	
90 percent exceeds	296		85		229	

^a Also Oct. 12, 1930.

^b From floodmarks, site and datum then in use.



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1929 to 1930, 1956, 1967 to 1974, 1978 to 1999, and 2001 to current year.

PERIOD OF DAILY RECORD.--

pH: March 2004 to current year.

SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974, October 1988 to September 1991 (unpublished), October 1991 to October 1993, and March 2004 to current year.

TURBIDITY: March 2004 to current year.

WATER TEMPERATURE: October 1955 to September 1956, April 1968 to August 1974, and March 2004 to current year.

INSTRUMENTATION.--Water-quality monitor since March 2004. Electronic data logger with 15-minute recording interval.

REMARKS.--

pH: Records excellent: Oct. 13 to Nov. 11, Nov. 30 to Mar. 14, Apr. 9 to July 19, Sept. 5-30; Good: July 19 to Aug. 7; Fair: Oct 1-13; Poor: Aug. 7 to Sept. 5.

SPECIFIC CONDUCTANCE: Records excellent: Oct. 1 to Nov. 11, Nov. 30 to Jan. 17, Apr. 9 to Aug. 7, Aug. 29 to Sept. 30; Good: Jan. 17 to Mar. 14; Poor: Aug. 7-29.

TURBIDITY: Records excellent: Oct. 1-13, Nov. 30 to Jan. 17, May 1-9, Sept. 26-30; Good: Oct. 13 to Nov. 11, Jan. 17 to Mar. 14, May 17 to June 13, Aug. 29 to Sept. 26; Fair: Apr. 9-25, June 13 to Aug. 7; Poor: Apr. 25 to May 1, Aug. 7-29.

WATER TEMPERATURE: Records excellent.

COOPERATION.--Water samples were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey (Agency code 1028) or by the Virginia Division of Consolidated Laboratory Services (VDCLS, Agency code 85116), using analytical methods approved by the U.S. Geological Survey. Analyses performed by the 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.

EXTREMES FOR PERIOD OF DAILY RECORD.--

pH: Maximum recorded, 9.6 standard units, May 8-12, 15, 2005, but may have been higher during periods of missing record; minimum recorded, 6.6 standard units, Sept. 9-12, 2004 and Apr. 23, June 28, 2006, but may have been lower during periods of missing record.

SPECIFIC CONDUCTANCE: Maximum recorded, 188 microseimens/cm, Jan. 1, 1970, but may have been higher during periods of missing record; minimum recorded, 31 microseimens/cm, Jan. 19, 1969, but may have been lower during periods of missing record.

TURBIDITY: Maximum recorded, 1,460 Formazin Nephelometric Units, June 26, 2006, but may have been higher during periods of missing record; minimum recorded, 0.0 Formazin Nephelometric Units, Oct. 3-5, 2005.

WATER TEMPERATURE: Maximum recorded, 34.4°C, Aug. 3, 2006, but may have been higher during periods of missing record; minimum recorded, -0.1°C, Dec. 23, 2005 and February 5, 2007 but may have been lower during periods of missing record.

EXTREMES FOR CURRENT YEAR.--

pH: Maximum, 9.4 standard units, Oct. 7, Sept. 18; minimum, 6.8 standard units, Apr. 15, 16.

SPECIFIC CONDUCTANCE: Maximum, 146 microsiemens/cm, Aug. 26; minimum, 62 microsiemens/cm, Apr. 15.

TURBIDITY: Maximum, 1,110 FNU, Oct. 6; minimum, 0.1 FNU, on many days.

WATER TEMPERATURE: Maximum, 34.0°C, Aug. 8; minimum, -0.1°C, on several days.

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PH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	October			November			December			January		
1	7.6	7.4	7.5	7.9	7.5	7.7	7.7	7.5	7.6	7.8	7.4	7.6
2	7.8	7.5	7.6	7.9	7.5	7.7	7.9	7.5	7.6	7.4	7.4	7.4
3	7.9	7.5	7.8	8.0	7.6	7.8	7.8	7.6	7.6	7.6	7.4	7.4
4	8.5	7.6	8.0	8.0	7.6	7.8	7.9	7.6	7.7	7.7	7.5	7.5
5	8.5	7.6	8.0	8.0	7.6	7.8	7.8	7.6	7.7	7.6	7.5	7.6
6	8.0	7.2	7.5	8.0	7.7	7.9	7.8	7.6	7.7	7.8	7.5	7.6
7	9.4	7.2	8.8	8.0	7.7	7.8	7.8	7.6	7.7	7.8	7.5	7.6
8	8.4	7.8	8.0	7.8	7.1	7.4	7.8	7.6	7.7	7.7	7.5	7.5
9	7.8	7.4	7.6	7.2	7.1	7.1	7.8	7.6	7.7	7.5	7.5	7.5
10	7.6	7.4	7.5	7.4	7.2	7.3	7.7	7.6	7.7	7.7	7.5	7.5
11	7.4	7.3	7.4	---	---	---	7.7	7.6	7.6	7.7	7.5	7.6
12	7.5	7.2	7.3	---	---	---	7.7	7.6	7.7	7.6	7.5	7.6
13	8.2	7.3	7.5	---	---	---	7.7	7.6	7.7	7.8	7.5	7.6
14	8.0	7.6	7.8	---	---	---	7.8	7.6	7.7	7.8	7.5	7.6
15	8.0	7.6	7.8	---	---	---	7.8	7.6	7.7	7.9	7.5	7.6
16	8.0	7.7	7.9	---	---	---	7.8	7.6	7.7	7.8	7.6	7.7
17	8.0	7.7	7.7	---	---	---	7.8	7.6	7.8	7.8	7.5	7.6
18	8.0	7.6	7.7	---	---	---	7.8	7.6	7.8	7.6	7.4	7.5
19	7.9	7.6	7.7	---	---	---	7.9	7.6	7.8	7.7	7.4	7.5
20	8.0	7.5	7.7	---	---	---	7.9	7.6	7.8	7.6	7.4	7.5
21	8.1	7.6	7.8	---	---	---	7.9	7.6	7.8	7.6	7.4	7.5
22	8.0	7.6	7.8	---	---	---	7.8	7.6	7.7	7.5	7.4	7.5
23	8.0	7.7	7.9	---	---	---	7.8	7.6	7.7	7.6	7.4	7.5
24	8.0	7.7	8.0	---	---	---	7.6	7.5	7.6	7.6	7.4	7.5
25	8.1	7.8	8.0	---	---	---	7.6	7.5	7.6	7.6	7.4	7.5
26	8.0	7.8	8.0	---	---	---	7.6	7.5	7.5	7.6	7.4	7.5
27	8.0	7.8	7.8	---	---	---	7.6	7.5	7.5	7.6	7.4	7.5
28	7.8	7.4	7.6	---	---	---	7.7	7.5	7.6	7.6	7.4	7.5
29	7.5	7.4	7.4	---	---	---	7.8	7.5	7.6	7.6	7.4	7.5
30	7.7	7.4	7.5	---	---	---	7.8	7.5	7.6	7.6	7.4	7.5
31	7.8	7.5	7.6	---	---	---	7.8	7.5	7.6	7.6	7.4	7.5
Max	9.4	7.8	8.8	---	---	---	7.9	7.6	7.8	7.9	7.6	7.7
Min	7.4	7.2	7.3	---	---	---	7.6	7.5	7.5	7.4	7.4	7.4

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PH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	February			March			April			May		
1	7.6	7.4	7.5	7.2	7.1	7.2	---	---	---	9.0	7.4	8.4
2	7.5	7.4	7.5	7.2	6.9	7.2	---	---	---	9.0	7.5	8.5
3	7.6	7.4	7.5	7.0	6.9	7.0	---	---	---	8.8	7.3	7.4
4	7.6	7.4	7.5	7.1	7.0	7.1	---	---	---	7.6	7.3	7.3
5	7.6	7.5	7.5	7.2	7.1	7.2	---	---	---	7.6	7.3	7.4
6	7.6	7.3	7.5	7.3	7.1	7.2	---	---	---	8.8	7.4	7.5
7	7.5	7.5	7.5	7.3	7.2	7.2	---	---	---	8.9	7.6	8.4
8	7.6	7.5	7.5	7.4	7.2	7.2	---	---	---	9.0	7.7	8.6
9	7.6	7.5	7.5	7.4	7.2	7.3	---	---	---	9.1	7.8	8.8
10	7.6	7.5	7.5	7.4	7.2	7.3	8.5	7.6	8.1	9.1	7.8	8.9
11	7.6	7.5	7.5	7.5	7.2	7.3	8.4	7.6	8.2	9.2	8.0	9.0
12	7.5	7.4	7.5	7.5	7.2	7.3	8.4	7.5	8.0	9.2	8.2	9.0
13	7.5	7.4	7.4	7.6	7.2	7.3	7.8	7.3	7.4	9.1	7.4	8.6
14	7.5	7.4	7.4	---	---	---	7.8	7.3	7.5	9.0	7.3	8.5
15	7.5	7.3	7.4	7.7	7.2	7.4	7.6	6.8	7.3	9.0	7.5	8.8
16	7.3	7.2	7.3	---	---	---	7.0	6.8	6.8	9.1	8.0	8.8
17	7.3	7.2	7.3	---	---	---	7.2	7.0	7.1	9.0	7.4	8.4
18	7.4	7.3	7.3	---	---	---	7.3	7.2	7.2	9.0	7.5	7.7
19	7.5	7.3	7.4	---	---	---	7.4	7.2	7.3	9.0	7.5	7.7
20	7.5	7.3	7.4	---	---	---	7.7	7.2	7.3	9.2	7.6	8.5
21	7.4	7.3	7.3	---	---	---	7.9	7.2	7.4	9.1	7.7	8.6
22	7.3	7.1	7.1	---	---	---	8.0	7.2	7.5	9.2	8.1	8.5
23	7.2	7.1	7.2	---	---	---	8.2	7.2	7.5	9.1	8.3	8.6
24	7.3	7.2	7.2	---	---	---	8.2	7.3	7.6	9.1	8.3	8.6
25	7.3	7.2	7.2	---	---	---	8.4	7.2	7.7	9.1	8.2	8.6
26	7.3	7.2	7.3	---	---	---	8.3	7.2	7.7	8.9	8.0	8.5
27	7.3	7.2	7.2	---	---	---	8.3	7.3	7.7	8.6	7.7	8.2
28	7.2	7.2	7.2	---	---	---	8.4	7.3	7.7	8.2	7.6	7.8
29	---	---	---	---	---	---	8.7	7.3	7.8	8.3	7.5	7.8
30	---	---	---	---	---	---	8.9	7.4	8.1	8.3	7.4	7.9
31	---	---	---	---	---	---	---	---	---	8.4	7.4	7.8
Max	7.6	7.5	7.5	---	---	---	---	---	---	9.2	8.3	9.0
Min	7.2	7.1	7.1	---	---	---	---	---	---	7.6	7.3	7.3

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PH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	June			July			August			September		
1	8.4	7.4	7.7	8.4	7.4	7.7	---	---	---	---	---	---
2	8.5	7.4	7.6	8.7	7.4	7.9	8.8	7.3	7.8	---	---	---
3	7.8	7.3	7.4	8.8	7.4	7.9	8.8	7.2	7.8	---	---	---
4	8.1	7.2	7.4	8.9	7.4	7.9	8.9	7.2	7.9	---	---	---
5	7.8	7.3	7.5	8.4	7.4	7.9	8.7	7.2	7.5	---	---	---
6	---	---	---	8.6	7.3	7.7	8.8	7.2	7.4	8.9	7.3	8.0
7	---	---	---	8.6	7.3	7.8	8.8	7.2	7.9	8.9	7.4	8.2
8	8.2	7.3	7.5	8.6	7.3	7.8	8.8	7.4	8.2	9.0	7.5	8.3
9	8.1	7.3	7.5	8.4	7.3	7.7	8.5	7.4	7.9	9.0	7.5	8.3
10	7.8	7.3	7.5	8.1	7.2	7.6	---	---	---	9.0	7.6	8.6
11	8.1	7.3	7.5	8.0	7.2	7.5	8.8	7.3	7.8	8.8	7.4	8.1
12	---	---	---	8.2	7.3	7.6	8.9	7.5	8.1	9.0	7.3	8.0
13	---	---	---	---	---	---	---	---	---	8.9	7.4	8.2
14	7.5	7.3	7.4	---	---	---	---	---	---	8.9	7.5	8.4
15	7.8	7.4	7.5	---	---	---	---	---	---	9.2	7.4	8.4
16	8.0	7.4	7.6	---	---	---	---	---	---	---	---	---
17	8.2	7.5	7.6	8.0	7.2	7.4	9.0	7.6	8.7	9.3	7.9	8.6
18	8.4	7.5	7.7	7.9	7.3	7.5	---	---	---	9.4	8.2	8.8
19	8.3	7.4	7.7	8.5	7.3	7.7	---	---	---	9.3	8.4	8.9
20	7.9	7.4	7.5	8.5	7.4	7.7	---	---	---	9.1	8.4	8.7
21	8.3	7.3	7.6	8.5	7.4	7.8	---	---	---	9.2	8.3	8.8
22	8.5	7.3	7.7	8.6	7.5	7.8	8.3	7.1	7.5	9.2	8.4	8.9
23	8.7	7.4	7.8	8.5	7.5	8.0	---	---	---	9.2	7.7	8.9
24	---	---	---	8.6	7.5	7.9	---	---	---	9.2	8.1	8.8
25	---	---	---	8.4	7.3	7.5	9.3	7.5	8.3	9.2	7.8	8.8
26	8.5	7.3	7.7	8.6	7.4	7.6	---	---	---	9.2	7.8	8.8
27	8.1	7.3	7.6	8.7	7.4	8.0	---	---	---	9.2	8.0	8.9
28	8.2	7.3	7.6	8.7	7.2	7.7	---	---	---	9.1	8.1	8.9
29	8.1	7.2	7.5	8.2	7.3	7.6	---	---	---	9.1	8.0	8.8
30	8.5	7.3	7.6	8.2	7.2	7.3	---	---	---	9.1	8.0	8.7
31	---	---	---	8.6	7.3	7.6	---	---	---	---	---	---
Max	---	---	---	---	---	---	---	---	---	---	---	---
Min	---	---	---	---	---	---	---	---	---	---	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

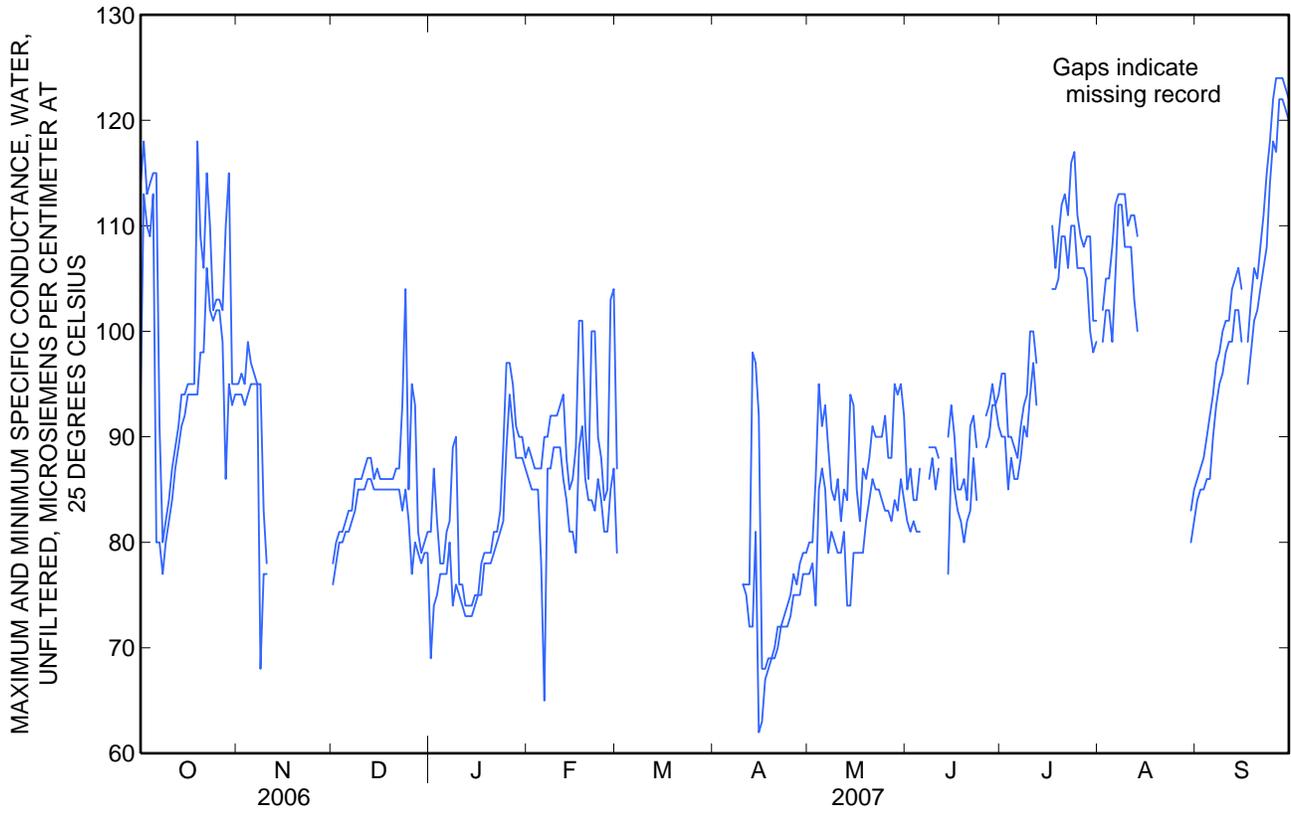
Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	October		November		December		January		February		March	
1	114	94	95	94	78	76	81	69	89	86	87	79
2	118	113	96	94	80	78	87	74	88	85	---	---
3	113	110	95	93	81	80	82	75	87	85	---	---
4	114	109	99	94	81	80	78	77	87	85	---	---
5	115	113	97	95	82	81	78	77	87	78	---	---
6	115	80	96	95	83	81	81	77	90	65	---	---
7	91	80	95	95	83	82	82	80	90	87	---	---
8	80	77	95	68	86	83	89	74	92	87	---	---
9	82	80	83	77	86	85	90	76	92	89	---	---
10	84	82	78	77	86	85	76	75	92	89	---	---
11	87	84	---	---	87	85	76	74	93	89	---	---
12	89	87	---	---	88	86	74	73	94	86	---	---
13	91	89	---	---	88	86	74	73	88	84	---	---
14	94	91	---	---	86	85	74	73	85	81	---	---
15	94	92	---	---	87	85	75	74	86	81	---	---
16	95	94	---	---	86	85	75	75	89	79	---	---
17	95	94	---	---	86	85	78	75	101	89	---	---
18	95	94	---	---	86	85	79	78	101	91	---	---
19	118	94	---	---	86	85	79	78	91	86	---	---
20	109	98	---	---	86	85	79	78	86	84	---	---
21	106	98	---	---	87	85	81	79	100	84	---	---
22	115	106	---	---	87	85	81	80	100	83	---	---
23	110	102	---	---	93	83	83	81	90	86	---	---
24	102	101	---	---	104	85	89	82	88	84	---	---
25	103	102	---	---	85	82	97	89	84	81	---	---
26	103	102	---	---	95	77	97	94	85	81	---	---
27	102	99	---	---	93	80	95	91	103	85	---	---
28	110	86	---	---	81	79	91	88	104	87	---	---
29	115	95	---	---	79	78	90	88	---	---	---	---
30	95	93	---	---	80	79	90	88	---	---	---	---
31	95	94	---	---	81	79	88	87	---	---	---	---
Month	118	77	---	---	104	76	97	69	104	65	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	April		May		June		July		August		September	
1	---	---	80	77	85	82	96	90	---	---	86	84
2	---	---	80	78	87	81	96	90	102	99	87	85
3	---	---	86	74	84	82	90	85	105	102	88	85
4	---	---	95	85	84	81	90	88	105	102	90	86
5	---	---	91	87	87	81	89	86	108	99	92	86
6	---	---	93	85	---	---	88	86	112	105	94	90
7	---	---	89	79	---	---	91	88	113	112	97	93
8	---	---	85	81	89	86	93	91	113	112	98	95
9	---	---	84	80	89	88	94	90	113	108	100	96
10	76	76	86	79	89	85	100	94	110	108	101	98
11	76	75	82	79	88	87	100	97	111	108	101	99
12	76	72	85	81	---	---	97	93	111	103	104	99
13	98	72	84	74	---	---	---	---	109	100	105	102
14	97	81	94	74	90	77	---	---	---	---	106	102
15	92	62	93	79	93	88	---	---	---	---	104	99
16	68	63	85	79	90	85	---	---	---	---	---	---
17	68	67	82	79	85	83	110	104	---	---	99	95
18	69	68	87	79	85	82	106	104	---	---	103	98
19	69	69	86	82	86	80	109	105	---	---	106	101
20	70	69	88	84	84	82	112	109	---	---	105	102
21	72	70	91	86	91	83	113	109	---	---	108	104
22	72	72	90	85	92	88	111	106	---	---	111	106
23	73	72	90	85	89	84	116	110	---	---	115	108
24	74	72	90	84	---	---	117	110	---	---	118	114
25	75	73	92	83	---	---	111	106	---	---	122	118
26	77	75	88	83	92	89	109	106	---	---	124	117
27	76	75	88	82	93	90	108	106	---	---	124	122
28	78	75	95	84	95	93	109	105	---	---	124	122
29	79	77	94	83	93	93	109	100	---	---	123	121
30	79	77	95	86	94	91	101	98	83	80	122	120
31	---	---	92	84	---	---	101	99	85	82	---	---
Month	---	---	95	74	---	---	---	---	---	---	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued



01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	October			November			December			January		
1	16	10	11	7.8	4.1	5.5	7.8	6.3	6.7	110	5.1	10
2	11	7.5	8.5	5.4	3.6	4.1	7.8	5.4	6.2	130	74	96
3	9.4	5.9	7.5	4.9	3.3	4.0	5.9	4.3	5.2	76	28	54
4	7.6	3.4	5.1	6.5	3.2	3.8	5.3	4.3	4.7	28	13	18
5	6.5	2.5	3.8	4.7	3.8	4.1	5.1	4.3	4.5	14	9.8	11
6	1,110	3.5	24	7.2	3.7	4.1	4.9	4.3	4.5	13	9.8	12
7	320	120	160	6.7	4.8	5.4	5.7	4.3	4.5	14	9.6	12
8	230	91	170	290	5.9	130	5.3	4.3	4.5	69	9.8	19
9	91	32	54	260	130	220	4.5	4.0	4.2	72	40	54
10	33	15	22	130	46	74	5.1	4.0	4.2	43	20	30
11	16	8.2	12	---	---	---	4.3	3.9	4.1	21	12	17
12	10	6.1	7.6	---	---	---	4.2	3.7	4.0	12	9.0	11
13	8.0	5.6	6.5	---	---	---	4.0	3.6	3.9	13	7.5	9.2
14	6.2	4.1	5.1	---	---	---	5.9	3.4	3.7	9.8	6.5	7.2
15	5.2	4.3	4.6	---	---	---	4.0	3.1	3.4	11	6.3	6.8
16	5.0	3.0	3.8	---	---	---	6.6	2.9	3.3	11	5.3	6.8
17	3.6	2.3	2.7	---	---	---	3.4	2.8	2.9	6.4	3.4	4.5
18	9.2	2.4	2.8	---	---	---	4.0	2.6	3.0	3.9	3.1	3.5
19	20	5.8	9.6	---	---	---	3.1	2.3	2.7	4.2	3.2	3.4
20	7.3	4.0	5.0	---	---	---	2.9	2.3	2.6	4.5	3.3	3.6
21	6.4	4.2	4.9	---	---	---	3.2	2.4	2.7	4.0	3.2	3.5
22	5.5	2.9	4.1	---	---	---	3.1	2.5	2.8	3.8	3.1	3.3
23	4.1	2.2	2.9	---	---	---	42	2.6	4.5	4.8	3.3	3.5
24	3.0	1.9	2.2	---	---	---	57	29	44	4.6	3.3	3.8
25	2.6	1.6	2.0	---	---	---	29	15	22	5.0	4.0	4.4
26	2.4	1.4	1.9	---	---	---	64	14	37	5.2	4.3	4.8
27	2.4	1.4	1.8	---	---	---	58	30	38	5.5	3.8	4.4
28	130	1.8	24	---	---	---	30	14	20	5.3	3.5	3.9
29	130	43	72	---	---	---	14	7.8	10	7.9	3.3	3.7
30	44	18	28	---	---	---	8.3	6.0	7.1	3.6	3.1	3.3
31	18	7.4	11	---	---	---	6.7	5.3	5.7	3.6	3.0	3.2
Max	1,110	120	170	---	---	---	64	30	44	130	74	96
Min	2.4	1.4	1.8	---	---	---	2.9	2.3	2.6	3.6	3.0	3.2

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	February			March			April			May		
1	5.4	2.8	3.0	77	49	67	---	---	---	3.7	2.3	2.8
2	3.3	2.7	2.9	540	43	73	---	---	---	5.0	2.0	2.4
3	4.5	2.8	3.0	500	160	350	---	---	---	79	2.1	8.1
4	4.1	2.6	2.9	180	56	84	---	---	---	48	21	29
5	4.1	2.6	2.9	59	36	44	---	---	---	31	11	15
6	6.0	2.8	3.1	36	23	29	---	---	---	12	6.0	7.5
7	5.6	2.9	3.2	26	18	20	---	---	---	13	4.8	5.4
8	6.0	2.9	3.7	19	14	16	---	---	---	---	---	---
9	---	---	---	15	12	13	---	---	---	---	---	---
10	---	---	---	14	10	11	2.0	1.4	1.7	---	---	---
11	---	---	---	12	9.2	10	3.1	1.3	1.6	---	---	---
12	---	---	---	10	7.9	9.2	25	1.3	3.7	---	---	---
13	---	---	---	9.6	6.9	7.9	41	22	32	---	---	---
14	---	---	---	---	---	---	23	11	15	---	---	---
15	---	---	---	6.8	5.3	6.0	430	8.6	17	---	---	---
16	32	18	24	---	---	---	550	200	300	---	---	---
17	28	19	22	---	---	---	200	56	94	---	---	---
18	20	9.3	13	---	---	---	56	29	40	4.1	2.4	3.1
19	9.6	6.7	7.2	---	---	---	29	17	22	5.0	1.6	2.4
20	8.3	6.3	6.7	---	---	---	18	12	15	10	2.4	3.0
21	70	7.3	25	---	---	---	14	8.7	11	4.7	1.9	2.5
22	280	70	210	---	---	---	9.4	6.7	8.6	2.6	1.4	1.9
23	250	65	110	---	---	---	8.1	5.7	6.8	2.4	1.4	1.8
24	66	31	48	---	---	---	6.6	4.5	5.7	2.0	1.3	1.6
25	32	17	22	---	---	---	6.4	3.8	4.6	2.3	1.2	1.5
26	25	17	20	---	---	---	10	3.4	4.0	2.0	1.0	1.4
27	44	21	32	---	---	---	5.1	3.3	3.8	2.2	1.0	1.4
28	98	43	78	---	---	---	9.2	3.8	4.7	2.2	1.1	1.4
29	---	---	---	---	---	---	5.2	3.3	4.2	2.1	1.2	1.5
30	---	---	---	---	---	---	4.3	2.9	3.3	2.2	1.3	1.6
31	---	---	---	---	---	---	---	---	---	2.0	1.3	1.5
Max	---	---	---	---	---	---	---	---	---	---	---	---
Min	---	---	---	---	---	---	---	---	---	---	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	June			July			August			September		
1	2.2	1.1	1.4	5.3	0.1	0.8	---	---	---	13	8.4	11
2	2.2	1.1	1.4	3.2	0.1	0.5	2.7	0.2	1.0	14	5.7	8.8
3	2.5	1.1	1.4	15	0.1	0.6	2.9	0.2	0.8	12	3.6	6.2
4	1.9	1.2	1.3	4.1	0.1	0.5	---	---	---	8.8	2.3	4.5
5	2.9	1.4	2.1	2.6	0.1	0.5	3.2	0.1	0.5	9.0	2.6	5.1
6	---	---	---	9.2	0.1	0.5	---	---	---	7.1	2.4	3.6
7	---	---	---	3.8	0.1	0.5	---	---	---	8.4	1.9	3.3
8	1.9	0.9	1.0	23	0.1	0.3	---	---	---	6.4	1.6	2.8
9	1.3	0.9	1.0	7.9	0.1	0.4	---	---	---	6.0	1.3	2.0
10	1.2	0.9	1.0	5.9	0.1	0.5	---	---	---	5.4	1.0	1.4
11	1.0	0.9	0.9	18	0.1	0.5	---	---	---	4.8	1.1	1.8
12	---	---	---	18	0.2	0.6	---	---	---	3.8	1.3	1.9
13	---	---	---	---	---	---	---	---	---	4.3	1.2	1.7
14	22	3.1	7.2	---	---	---	---	---	---	4.3	1.2	1.8
15	4.0	1.3	2.1	---	---	---	---	---	---	5.7	1.7	2.4
16	4.6	1.4	2.4	---	---	---	---	---	---	---	---	---
17	9.2	2.0	3.2	7.1	0.1	1.5	---	---	---	4.0	1.8	2.5
18	4.6	1.7	2.2	4.4	0.1	1.2	---	---	---	5.4	1.4	2.7
19	14	0.8	1.8	5.4	0.2	1.3	---	---	---	4.1	1.3	1.8
20	9.8	0.9	2.5	5.1	0.2	0.9	---	---	---	4.1	1.5	2.1
21	10	1.3	3.2	6.1	0.3	0.9	---	---	---	5.1	1.2	2.1
22	4.1	0.7	1.4	4.1	0.5	1.1	---	---	---	4.1	1.1	1.5
23	6.3	0.6	1.2	4.5	0.5	1.2	---	---	---	3.3	1.0	1.4
24	---	---	---	6.0	0.6	1.4	---	---	---	3.3	1.1	1.5
25	---	---	---	4.8	0.3	1.8	---	---	---	2.4	0.9	1.4
26	7.1	0.1	1.0	5.0	0.6	1.4	---	---	---	3.4	0.9	1.4
27	3.3	0.1	0.5	4.8	0.2	1.0	---	---	---	3.5	0.8	1.1
28	2.0	0.1	0.4	3.6	0.1	1.1	---	---	---	2.2	0.9	1.1
29	3.8	0.1	0.4	3.7	0.2	1.3	---	---	---	3.0	1.1	1.7
30	6.5	0.1	0.6	13	0.7	2.8	32	18	26	---	---	---
31	---	---	---	2.9	0.3	0.9	200	11	16	---	---	---
Max	---	---	---	---	---	---	---	---	---	---	---	---
Min	---	---	---	---	---	---	---	---	---	---	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

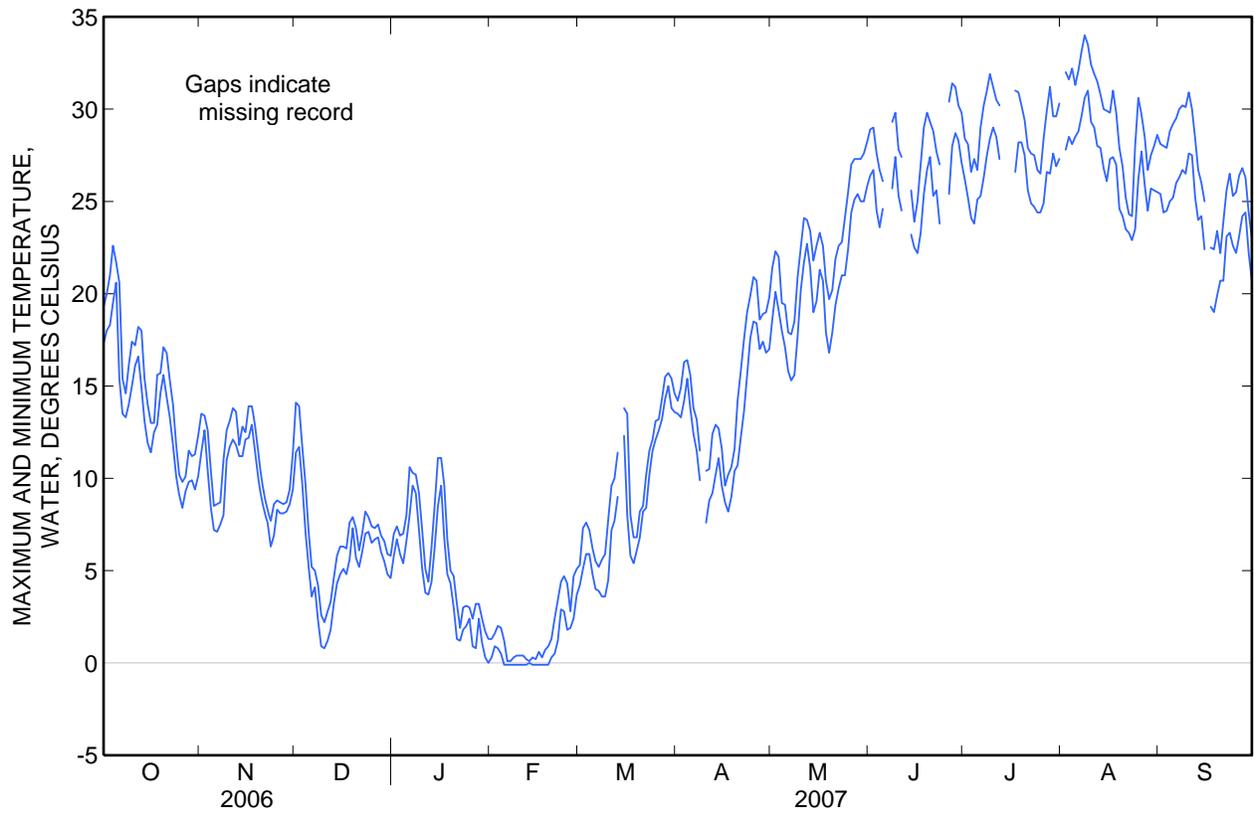
Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	October		November		December		January		February		March	
1	19.3	17.3	13.5	11.4	14.1	11.4	7.0	5.8	1.3	0.3	5.3	4.2
2	20.0	18.0	13.4	12.6	13.9	11.7	7.4	6.7	1.6	0.9	7.3	5.1
3	21.0	18.3	12.6	10.4	11.7	9.7	6.9	5.9	2.0	0.8	7.6	5.9
4	22.6	19.5	10.4	8.4	9.7	7.1	7.0	5.4	1.9	0.5	7.2	5.9
5	21.7	20.6	8.5	7.2	7.1	5.2	8.0	6.6	1.2	-0.1	6.2	4.8
6	20.6	15.4	8.6	7.1	5.2	3.6	10.6	8.0	0.1	-0.1	5.5	4.0
7	15.4	13.5	8.7	7.5	5.0	4.1	10.3	9.6	0.1	-0.1	5.2	3.9
8	14.6	13.3	11.0	8.0	4.2	2.3	10.2	9.2	0.3	-0.1	5.6	3.6
9	16.1	14.0	12.6	11.0	2.6	0.9	9.2	7.2	0.4	-0.1	5.9	3.6
10	17.4	15.0	13.1	11.7	2.2	0.8	7.2	5.1	0.4	-0.1	7.8	4.5
11	17.2	16.1	13.8	12.1	2.8	1.2	5.1	3.8	0.4	-0.1	9.6	7.2
12	18.2	16.6	13.6	11.8	3.3	1.8	4.4	3.7	0.2	-0.1	10.0	7.7
13	18.0	14.9	11.8	11.2	4.6	3.2	6.3	4.4	0.1	0.0	11.4	9.0
14	15.4	13.1	12.8	11.2	5.8	4.3	8.6	6.3	0.3	-0.1	---	---
15	14.0	11.9	12.5	12.1	6.3	4.8	11.1	8.5	0.2	-0.1	13.8	12.3
16	13.0	11.4	13.9	12.2	6.3	5.1	11.1	9.6	0.6	-0.1	13.5	8.0
17	13.0	12.5	13.9	12.9	6.2	4.8	9.6	6.7	0.3	-0.1	8.0	5.8
18	15.6	12.9	12.9	11.4	7.6	5.6	6.7	4.8	0.7	-0.1	6.8	5.4
19	15.7	14.6	11.4	10.1	7.9	7.3	5.0	4.3	0.9	-0.1	6.8	6.1
20	17.1	15.6	10.1	9.0	7.3	5.7	4.7	3.0	1.3	0.3	8.2	6.8
21	16.8	14.4	9.1	8.2	6.1	5.2	3.2	1.3	2.4	0.5	8.5	8.2
22	15.3	13.3	8.3	7.6	7.0	6.0	1.9	1.2	3.4	1.2	10.2	8.4
23	14.0	11.8	7.7	6.3	8.2	7.0	3.0	1.8	4.4	2.9	11.5	10.2
24	11.8	10.1	8.6	6.9	7.9	7.1	3.1	2.0	4.7	2.8	12.1	11.5
25	10.2	9.1	8.8	8.3	7.4	6.5	3.0	2.4	4.3	1.8	13.1	12.1
26	9.8	8.4	8.7	8.1	7.3	6.7	2.4	0.9	2.8	1.9	13.2	12.6
27	10.1	9.3	8.6	8.1	7.5	6.8	3.2	0.8	4.7	2.4	14.3	13.2
28	11.5	9.8	8.7	8.2	6.9	6.0	3.2	2.4	5.1	3.7	15.5	14.3
29	11.2	9.9	9.4	8.6	6.6	5.5	2.4	1.1	---	---	15.7	15.0
30	11.3	9.4	11.4	9.4	5.9	4.8	1.7	0.3	---	---	15.4	13.8
31	12.3	10.1	---	---	5.8	4.6	1.3	0.0	---	---	14.6	13.6
Month	22.6	8.4	13.9	6.3	14.1	0.8	11.1	0.0	5.1	-0.1	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	April		May		June		July		August		September	
1	14.2	13.5	21.4	18.6	28.9	26.4	28.4	26.2	---	---	28.1	25.4
2	14.9	13.3	22.3	20.1	29.0	26.7	28.1	25.2	32.0	27.8	28.0	24.4
3	16.3	14.2	22.0	19.1	27.6	24.5	26.6	24.1	31.6	28.5	27.9	24.5
4	16.4	15.4	19.5	18.0	26.7	23.6	27.3	23.8	32.2	28.1	28.8	25.0
5	15.6	13.8	19.4	17.1	26.1	24.6	26.7	25.1	31.3	28.5	29.2	25.2
6	13.8	12.4	17.9	15.8	---	---	29.0	25.3	32.1	28.8	29.5	26.0
7	13.2	11.5	17.8	15.3	---	---	30.2	26.3	33.1	29.6	30.0	26.3
8	11.5	9.9	18.5	15.6	29.3	25.7	31.0	27.5	34.0	30.6	30.2	26.7
9	---	---	20.9	17.7	29.8	27.4	31.9	28.4	33.5	31.0	30.1	26.5
10	10.4	7.6	22.5	20.2	27.8	25.3	31.2	29.0	32.4	29.3	30.9	27.6
11	10.5	8.8	24.1	21.7	27.4	24.5	30.5	28.5	31.9	29.0	30.0	27.5
12	12.4	9.2	24.0	22.7	---	---	30.2	27.3	31.5	28.0	28.4	25.2
13	12.9	10.2	23.4	21.4	---	---	---	---	30.8	27.9	26.7	24.0
14	12.7	11.1	21.8	19.0	25.6	23.2	---	---	30.0	26.8	26.0	24.2
15	11.6	9.6	22.6	19.6	23.9	22.5	---	---	29.9	26.1	25.0	22.4
16	9.6	8.7	23.3	21.3	25.0	22.2	---	---	29.8	27.3	---	---
17	10.2	8.2	22.6	20.7	27.0	23.3	31.0	26.6	31.0	27.4	22.5	19.3
18	10.6	9.0	20.7	17.9	29.0	25.4	30.9	28.2	29.8	27.0	22.4	19.0
19	11.6	10.4	19.7	16.8	29.8	26.7	30.2	28.2	27.9	24.6	23.4	19.9
20	14.2	10.7	20.2	17.9	29.3	27.4	29.4	27.5	26.9	24.2	22.2	20.7
21	15.8	12.2	21.9	19.4	28.8	25.3	27.9	25.6	25.2	23.5	23.9	20.7
22	17.5	13.6	22.6	20.3	27.7	25.6	27.6	24.9	24.3	23.3	25.6	23.1
23	19.0	15.6	22.8	21.0	27.0	23.8	27.5	24.7	24.2	22.9	26.5	23.3
24	19.9	17.6	24.1	21.0	---	---	26.7	24.4	28.0	23.5	25.3	22.6
25	20.9	18.5	25.5	22.4	---	---	26.5	24.4	30.6	26.2	25.5	22.2
26	20.7	18.4	27.0	24.4	30.4	25.4	28.4	24.9	29.7	27.7	26.4	23.1
27	18.6	17.0	27.3	25.1	31.4	28.0	29.9	26.6	28.5	25.9	26.8	24.2
28	18.9	17.4	27.3	25.4	31.2	28.7	31.2	26.5	26.7	24.5	26.3	24.4
29	19.0	16.8	27.3	25.0	30.2	28.3	29.6	27.6	27.5	25.7	24.4	22.2
30	19.8	17.0	27.6	25.0	29.8	27.1	29.6	26.9	28.0	25.6	23.0	20.7
31	---	---	28.2	25.8	---	---	30.3	27.3	28.6	25.5	---	---
Month	---	---	28.2	15.3	---	---	---	---	---	---	---	---

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued



01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

[Remark codes: <, less than; M, presence verified but not quantified.]

Date	Time	Sample type	Gage height, feet (00065)	Instantaneous discharge, cfs (00061)	Turbidity, IR LED light, det ang 90 deg, FNU (63680)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
Oct												
18...	1430	Environmental	2.79	993	2.4	760	10.7	106	7.6	95	28.5	14.7
Nov												
09...	1345	Environmental	5.08	7,970	130	749	10.5	99	7.0	75	21.5	12.2
13...	1500	Environmental	5.43	9,100	150	758	9.7	89	7.2	73	15.0	11.3
13...	1515	<i>Replicate</i>	--	--	--	--	--	--	--	--	--	--
Dec												
11...	1300	Environmental	2.80	1,030	3.4	762	15.7	114	7.4	86	19.0	2.2
Jan												
10...	1045	Environmental	3.66	3,100	31	760	12.1	97	7.3	75	3.5	5.8
30...	1015	Environmental	2.80	1,050	3.0	758	13.9	97	7.4	87	2.5	.5
Feb												
08...	1015	Environmental	2.83	1,110	2.9	761	14.8	101	7.3	85	-3.0	.0
Mar												
02...	1530	Environmental	5.94	10,900	150	742	13.5	115	7.1	86	18.5	7.3
07...	1055	<i>Blank</i>	--	--	--	--	--	--	--	--	--	--
07...	1100	Environmental	3.34	2,330	19	768	13.1	99	7.1	73	3.5	4.0
17...	1145	Environmental	7.60	16,900	--	754	11.6	95	6.8	69	5.0	6.0
Apr												
04...	1430	Environmental	2.86	1,190	3.0	748	11.0	114	7.7	78	19.5	16.2
09...	1100	Environmental	2.81	1,090	2.9	766	11.7	99	7.7	78	8.0	8.4
May												
03...	1315	Environmental	3.37	2,460	9.6	757	9.6	106	7.4	76	17.0	19.9
09...	1300	Environmental	2.74	938	2.4	759	10.3	110	7.2	79	29.5	18.4
09...	1315	<i>Replicate</i>	--	--	--	--	--	--	--	--	--	--
17...	1045	Environmental	2.72	869	4.5	763	8.6	97	7.6	79	24.0	21.1
Jun												
06...	1130	Environmental	2.62	668	2.2	750	7.9	96	7.4	86	25.5	24.7
28...	1130	Environmental	2.05	175	.2	760	7.4	98	7.4	94	32.0	29.6
Jul												
11...	0945	Environmental	1.90	108	.4	759	6.6	86	7.4	99	30.5	28.9
Aug												
08...	1030	Environmental	1.72	56	1.3	756	7.7	104	8.3	122	36.5	31.3
Sep												
05...	1230	Environmental	1.95	91	2.5	762	8.5	108	8.4	90	29.0	27.4

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

[Remark codes: <, less than; M, presence verified but not quantified.]

Date	Silica, water, fltrd, mg/L (00955)	Residue	Residue	Residue	Ammonia water, fltrd, mg/L as N (00608)	Nitrate +	Nitrate water, fltrd, mg/L as N (00618)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro- gen, water, fltrd, mg/L (00602)	Total nitro- gen, water, unfltrd mg/L (00600)	Ortho-	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)
		fixed non- filter- able, mg/L (00540)	total non- filter- able, mg/L (00530)	vola- tile, sus- pended, mg/L (00535)		Nitrate nitrite water fltrd, mg/L as N (00631)					phos- phate, water, fltrd, mg/L as P (00671)		
Oct													
18...	12.2	<3	<3	<3	.005	.590	.59	<.002	.77	.77	.010	.020	.030
Nov													
09...	8.60	126	148	22	<.004	.480	.48	<.002	.89	1.6	.030	.050	.350
13...	8.90	129	147	18	.009	.460	.46	<.002	.87	1.4	.030	.060	.320
13...	9.00	127	144	17	.007	.450	.45	<.002	.85	1.4	.030	.060	.340
Dec													
11...	12.6	<3	<3	<3	.006	.910	.91	<.002	.99	1.1	.010	.020	.030
Jan													
10...	11.4	20	24	4	.010	.570	.57	<.002	.87	.97	.010	.020	.080
30...	11.9	<3	<3	<3	.004	.770	.77	<.002	.84	.89	.004	.010	.020
Feb													
08...	12.0	<3	<3	<3	.010	.780	.78	<.002	.83	.94	.010	.010	.020
Mar													
02...	10.0	189	210	21	.020	.640	.64	<.002	.99	1.4	.010	.020	.320
07...	<.100	<3	<3	<3	<.004	<.004	<.0040	<.002	<.0040	<.10	.003	<.001	<.010
07...	11.8	16	19	3	<.004	.730	.73	<.002	.73	.92	.010	.010	.040
17...	7.80	175	306	131	.100	.610	.60	.002	1.1	1.7	.030	.050	.470
Apr													
04...	8.60	<3	3	<3	.009	.370	.37	<.002	.45	.54	.006	.010	.020
09...	8.10	<3	<3	<3	<.004	.280	.28	<.002	.40	.44	.006	.010	.020
May													
03...	8.10	12	14	<3	.010	.360	.36	<.002	.49	.61	.004	.010	.030
09...	8.60	<3	3	<3	.006	.310	.31	<.002	.50	.56	.008	.010	.020
09...	8.60	<3	<3	<3	.005	.310	.31	<.002	.46	.52	.008	.010	.020
17...	6.00	3	4	<3	.010	.260	.26	.002	.48	.51	.006	.010	.030
Jun													
06...	10.1	<3	3	<3	.020	.480	.47	.002	.72	.76	.010	.030	.040
28...	5.40	<3	<3	<3	.010	.020	.02	<.002	.25	.26	.010	.020	.030
Jul													
11...	6.90	<3	<3	<3	.020	.010	.01	<.002	.26	.34	.010	.020	.040
Aug													
08...	7.30	<3	3	<3	.022	.004	<.004	.004	.32	.40	.015	.022	.030
Sep													
05...	9.30	<3	<3	<3	.024	.343	.34	.002	.70	.73	.020	.029	.050

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

[Remark codes: <, less than; M, presence verified but not quantified.]

Date	Total nitrogen, suspnd sediment total, mg/L (00601)	Phos-phorus, suspnd sediment total, mg/L (00667)	Total carbon, suspnd sediment total, mg/L (00694)	Inor-ganic carbon, suspnd sediment total, mg/L (00688)	Organic carbon, water, fltrd, mg/L (00681)	Chloro-phyll a phyto-plank-ton, fluoro, µg/L (70953)	Pheo-phytin a, phyto-plank-ton, µg/L (62360)	Suspnd. sedi-ment, sieve diametr percent <.063mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)
Oct									
18...	.02	.007	.2	<.02	3.0	<.5	<.5	82	8
Nov									
09...	--	.230	7.2	M	5.4	3.8	2.5	87	174
13...	.50	.110	4.8	<.02	5.0	2.1	1.4	85	186
13...	.53	.230	5.4	<.02	5.2	3.1	1.7	87	183
Dec									
11...	.01	.009	.2	<.02	<2.0	<.5	<.5	--	3
Jan									
10...	.10	.040	1.3	<.02	2.7	1.8	1.2	89	28
30...	.02	.008	.2	<.02	<2.0	.9	<.5	--	3
Feb									
08...	.03	.008	.3	<.02	2.1	1.0	<.5	--	4
Mar									
02...	.53	.210	6.3	<.02	3.2	10.3	3.7	71	330
07...	<.01	.001	<.02	<.02	<2.0	<.5	<.5	--	<.5
07...	.08	.030	.7	<.02	<2.0	1.2	4.6	94	21
17...	.53	.130	5.8	.1	5.5	--	--	69	395
Apr									
04...	.04	.009	.4	<.02	<2.0	--	--	93	3
09...	.02	.007	.2	<.02	<2.0	1.0	<.5	87	5
May									
03...	.06	.020	.8	<.02	2.4	5.1	2.5	74	13
09...	.01	.007	.2	<.02	<2.0	1.6	<.5	89	3
09...	.02	.007	.2	<.02	<2.0	1.3	<.5	70	3
17...	.06	.006	.4	<.02	<2.0	3.2	1.7	88	5
Jun									
06...	.03	.009	.5	<.02	<2.0	.6	<.5	89	5
28...	.01	.006	.1	<.02	2.0	.6	<.5	83	4
Jul									
11...	.01	.007	.3	<.02	2.5	<.5	<.5	64	3
Aug									
08...	--	.012	.6	<.02	2.8	3.2	<.5	36	7
Sep									
05...	.04	.008	.4	<.02	3.5	.7	<.5	93	4