

ROANOKE RIVER BASIN

02072000 SMITH RIVER NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'50", long 80°01'30", Franklin County, Hydrologic Unit 03010103, on left bank 900 ft downstream 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 above sea level (U.S. Army Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi downstream at different datum.

REMARKS.--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. Minimum discharge observed, 2.3 ft³/s, result of repairs at dam, but may have been less during periods of estimated record. Minimum daily discharge, 20 ft³/s, caused by turbines being shut down for repair at Philpott Dam. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,490 ft³/s, Sep 1, gage height, 5.19 ft; minimum daily, 50 ft³/s, Aug 21, 28, Sep 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	267	60	226	217	160	159	171	153	275	270	53	521
2	163	222	226	54	160	159	171	58	275	268	327	515
3	57	226	221	55	159	158	60	58	251	53	327	517
4	58	227	222	160	159	e160	60	58	274	53	328	50
5	163	229	60	183	158	161	220	218	55	325	329	52
6	266	283	60	172	53	55	220	218	55	323	329	508
7	267	60	218	195	54	55	220	219	277	321	53	506
8	164	61	224	175	159	161	221	58	277	325	53	509
9	163	227	221	54	159	161	222	58	273	324	495	186
10	58	228	222	54	159	161	60	152	273	53	496	62
11	58	229	222	164	158	161	61	148	256	53	496	100
12	215	227	60	164	159	160	221	154	53	324	498	52
13	213	226	61	164	55	55	221	154	53	322	497	190
14	214	61	221	165	55	55	221	154	269	322	52	178
15	212	62	220	165	159	161	222	52	270	322	55	154
16	213	227	221	55	159	169	227	52	271	321	501	154
17	57	229	221	54	159	114	60	211	269	54	497	154
18	57	226	220	163	162	240	60	207	268	57	500	52
19	268	226	60	163	159	145	223	206	53	321	502	52
20	212	227	60	162	55	55	222	209	53	322	361	155
21	211	61	220	163	55	55	225	206	269	324	50	155
22	200	60	218	163	159	133	225	52	269	323	51	155
23	161	226	217	54	159	171	224	52	269	323	505	154
24	58	226	218	55	159	172	60	158	269	53	510	154
25	58	226	217	163	159	172	60	151	270	53	518	52
26	218	226	55	160	159	172	224	147	53	325	504	52
27	215	225	54	151	55	60	220	148	53	324	508	155
28	220	60	217	145	55	60	224	153	270	327	50	155
29	220	60	219	160	---	167	218	58	270	326	51	156
30	219	226	218	55	---	169	372	58	268	328	511	154
31	60	---	218	55	---	185	---	273	---	53	507	---
TOTAL	5185	5359	5537	4062	3620	4221	5415	4253	6360	7492	10514	6009
MEAN	167	179	179	131	129	136	180	137	212	242	339	200
MAX	268	283	226	217	162	240	372	273	277	328	518	521
MIN	57	60	54	54	53	55	60	52	53	53	50	50
(†)	-2143	-2420	-938	+3625	+2349	+2405	+319	+1492	-3998	-4427	-8898	-319
MEAN‡	.98	.98	.148	.248	.213	.214	.191	.185	.79	.99	.52	.190
CFSM‡	.45	.45	.69	1.15	.99	.99	.88	.86	.37	.46	.24	.88
IN. ‡	.52	.51	.79	1.32	1.03	1.14	.99	.99	.41	.53	.28	.98

CAL YR 1998 TOTAL 111454 MEAN 305 MAX 1290 MIN 45 MEAN‡ 300 CFSM‡ 1.39 IN.‡ 18.86
WTR YR 1999 TOTAL 68027 MEAN 186 MAX 521 MIN 50 MEAN‡ 151 CFSM‡ .70 IN.‡ 9.49

† 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 - 1999, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	237	227	249	274	271	337	385	309	281	243	258	260
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	82.2	77.4	126
(WY)	1952	1953	1996	1953	1953	1953	1969	1964	1964	1964	1964	1956

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1951 - 1999
ANNUAL TOTAL	111454	68027	
ANNUAL MEAN	305	186	277
HIGHEST ANNUAL MEAN			441
LOWEST ANNUAL MEAN			123
HIGHEST DAILY MEAN	1290	aMar 11	5710
LOWEST DAILY MEAN	45	Jan 10	c20
ANNUAL SEVEN-DAY MINIMUM	75	May 11	42
INSTANTANEOUS PEAK FLOW			1490
INSTANTANEOUS PEAK STAGE			5.19
INSTANTANEOUS LOW FLOW			d12
ANNUAL RUNOFF (CFSM)	1.41	.86	f2.3
ANNUAL RUNOFF (INCHES)	19.19	11.72	1.28
10 PERCENT EXCEEDS	756	324	655
50 PERCENT EXCEEDS	226	165	207
90 PERCENT EXCEEDS	53	54	46

- a Also Mar 12, 1998.
- b Also Aug 28 and Sep 4, 1999.
- c Caused by turbines being shut down for repair at Philpott Dam.
- d Result of regulation.
- e Estimated.
- f Result of repair at dam but may have been less during periods of estimated record.

