

POTOMAC RIVER BASIN

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION.--Lat 38°54'50", long 78°12'40", 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 above sea level. Jun. 1899 to Jul. 1906, nonrecording gage at site 1.0 mi upstream at different datum.

REMARKS.--Records good. 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. Minimum gage height, 0.56 ft, Jan. 30, 1934. 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.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 6,950 ft³/s, Sep 30, gage height, 5.72 ft, peak occurred Oct 1, 1999; 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)
Mar 19	1300	*4,900	*4.58	No peak greater than base discharge.			

Minimum discharge, 197 ft³/s, Aug 12, gage height, 0.91 ft.

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	470	482	408	352	1010	802	1270	595	483	340	364	336
2	448	493	386	363	973	792	1230	608	468	348	342	289
3	423	525	384	363	940	823	1270	599	451	370	311	252
4	405	506	390	567	1050	1030	1220	608	432	366	304	286
5	410	510	382	1260	1100	1030	1140	605	414	358	302	409
6	442	515	374	e1400	1010	1030	1090	597	386	356	267	915
7	435	517	389	933	966	991	1030	596	392	328	257	2670
8	498	457	433	487	923	939	977	629	395	320	232	3500
9	531	464	501	744	903	944	949	660	371	304	228	2410
10	586	489	519	801	857	967	971	824	363	314	220	1880
11	692	507	601	759	815	923	967	1080	353	335	221	1570
12	562	463	604	1690	785	956	943	875	348	330	212	1220
13	488	499	475	1060	752	986	902	792	348	328	216	973
14	420	469	479	803	723	1000	870	700	334	339	252	842
15	392	453	471	933	710	1080	838	756	353	344	233	795
16	377	460	515	979	692	1310	803	1030	333	384	215	1170
17	371	470	495	1000	696	1870	772	1090	365	389	250	1690
18	354	434	456	1160	755	3080	769	1020	370	364	296	1480
19	374	418	413	1080	888	4660	738	909	353	355	242	1240
20	390	427	392	920	1250	4250	718	813	358	349	256	1020
21	381	414	391	1000	1230	3460	695	769	389	352	297	1160
22	392	375	392	1180	1150	3920	704	701	370	412	271	2010
23	394	392	385	959	1050	4160	694	736	369	414	289	1640
24	411	423	379	1760	966	3340	686	715	378	373	387	1350
25	412	395	367	3370	903	2860	689	706	367	353	372	1090
26	458	395	353	3470	872	2460	681	679	363	380	327	926
27	517	368	365	2620	817	2090	656	634	349	352	322	851
28	530	397	365	1960	819	1890	623	579	353	390	361	846
29	551	368	374	1570	---	1700	609	538	358	385	381	834
30	535	398	358	1250	---	1550	597	522	342	363	343	3670
31	518	---	364	1120	---	1360	---	501	---	322	323	---
TOTAL	14167	13483	13160	37913	25605	58253	26101	22466	11308	11017	8893	39324
MEAN	457	449	425	1223	914	1879	870	725	377	355	287	1311
MAX	692	525	604	3470	1250	4660	1270	1090	483	414	387	3670
MIN	354	368	353	352	692	792	597	501	333	304	212	252
CFSM	.28	.27	.26	.74	.56	1.14	.53	.44	.23	.22	.17	.80
IN.	.32	.31	.30	.86	.58	1.32	.59	.51	.26	.25	.20	.89

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1155	1225	1480	1942	2240	2882	2453	1851	1333	801	940	962
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	348	632	516	578	377	252	281	314
(WY)	1931	1931	1966	1966	1931	1981	1981	1977	1999	1966	1932	1965

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1931 - 1999
ANNUAL TOTAL	996822	281690	
ANNUAL MEAN	2731	772	1602
HIGHEST ANNUAL MEAN			3189
LOWEST ANNUAL MEAN			680
HIGHEST DAILY MEAN	32500	Jan 9	4660
LOWEST DAILY MEAN	353	Dec 26	212
ANNUAL SEVEN-DAY MINIMUM	364	Dec 25	224
INSTANTANEOUS PEAK FLOW			6950
INSTANTANEOUS PEAK STAGE			5.72
INSTANTANEOUS LOW FLOW			197
ANNUAL RUNOFF (CFSM)	1.66	.47	.98
ANNUAL RUNOFF (INCHES)	22.58	6.38	13.25
10 PERCENT EXCEEDS	7040	1270	3210
50 PERCENT EXCEEDS	967	518	950
90 PERCENT EXCEEDS	407	335	388

a From floodmarks.
e Estimated.

