

JAMES RIVER BASIN

02026000 JAMES RIVER AT BENT CREEK, VA

LOCATION.--Lat 37°32'10", long 78°49'30", 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 mi<sup>2</sup>.

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 above sea level. Prior to Sep. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--Records fair. 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 ft<sup>3</sup>/s, from rating curve extended above 177,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow. Minimum gage height, 2.21 ft, Oct. 13, 14, 1930. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 26,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Sep 30	0245	*27,800	*10.57	No other peak greater than base discharge.			

Minimum daily discharge, 550 ft<sup>3</sup>/s, Aug 10.

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	845	815	1030	1010	2410	1880	2860	2120	1330	e1100	e650	e900
2	924	923	895	1150	2980	1780	2870	2050	1310	e1050	e900	e800
3	760	1000	925	1530	3610	1810	2880	2020	1230	e900	e800	e700
4	830	1050	1010	2410	4670	1960	2510	1990	1280	e1000	e700	821
5	804	874	1060	2150	4370	2540	2480	1940	1300	e900	e750	1830
6	836	970	922	2040	3590	3590	2530	1900	1280	e850	e600	5510
7	830	961	1080	1600	3060	3120	2610	1840	e1050	892	e620	7960
8	964	837	1060	1590	2700	3100	2460	1870	e1100	829	e650	5610
9	1380	897	1340	1580	2450	3250	2130	3020	e1160	903	e580	3650
10	1460	959	1290	1430	2620	2980	2190	4530	e1000	e720	e550	2830
11	1320	960	1350	1700	2400	2900	2220	3260	e1050	775	e630	2410
12	1170	883	1160	1610	2340	2750	2310	2710	e950	750	e600	2010
13	1180	963	1510	1830	2180	2430	2340	2480	e1000	1040	e570	1700
14	986	983	1730	1670	2000	2560	2420	2610	e950	1010	e560	1530
15	820	945	1510	2300	1940	4450	2390	5580	e1000	871	e570	2050
16	928	898	1360	4500	1770	5980	2350	7200	e750	886	e610	1870
17	950	874	1500	6030	1780	7440	2340	5380	1050	994	e630	2030
18	761	955	1450	4390	2040	10100	2340	4120	1170	e790	e570	1690
19	991	851	1170	3410	2750	12900	2260	3430	1060	875	e660	1430
20	902	888	1290	3000	3840	10200	2300	2920	1370	867	e680	1290
21	872	985	906	2940	3840	7880	2250	2720	e1000	885	e860	1120
22	880	851	1100	2540	3210	7640	2180	2550	e750	982	e800	1390
23	810	878	1050	2420	2710	8230	2130	2470	e670	929	e780	1290
24	944	900	1170	4910	2440	7580	2090	2420	e650	868	e800	1280
25	729	913	1170	14000	2330	6550	2010	2070	e900	1010	e900	1300
26	856	1000	1160	10400	2120	5690	1950	2080	e870	e870	e1180	1180
27	827	903	1070	6110	2040	4730	1970	1990	e920	920	e1100	1050
28	889	992	1120	4420	2040	4090	1980	1800	e850	e900	e1030	1870
29	836	902	1180	3500	---	3750	1990	1670	e940	e1000	e1000	7560
30	879	987	1050	2790	---	3220	1960	1590	e720	e900	e1100	17500
31	952	---	1100	2560	---	2990	---	1380	---	e750	e800	---
TOTAL	29115	27797	36718	103520	76230	150070	69300	85710	30660	28016	23230	84161
MEAN	939	927	1184	3339	2722	4841	2310	2765	1022	904	749	2805
MAX	1460	1050	1730	14000	4670	12900	2880	7200	1370	1100	1180	17500
MIN	729	815	895	1010	1770	1780	1950	1380	650	770	550	700
(†)	-4134	-3176	-2823	+10680	+5848	+10587	0	-1008	-6756	-7915	-7008	-4689
MEAN†	806	821	1093	3684	2931	5182	2310	2732	797	648	523	2649
CFSM†	.22	.22	.30	1.00	.80	1.41	.63	.74	.22	.18	.14	.72
IN.†	.25	.25	.34	1.15	.83	1.62	.70	.85	.24	.20	.16	.80

CAL YR 1998	TOTAL	2037813	MEAN	5583	MAX	61600	MIN	729	MEAN†	5563	CFSM†	1.51	IN.†	20.51
WTR YR 1999	TOTAL	744527	MEAN	2040	MAX	17500	MIN	550	MEAN†	2011	CFSM†	.55	IN.†	7.41

† 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.

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1999, BY WATER YEAR (WY) [REGULATED, UNADJUSTED]

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	2325	3302	3961	5629	6583	8312	7383	5198	3719	1955	1839	2209
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	743	927	987	858	2521	1626	1842	2765	1022	904	725	841
(WY)	1987	1999	1981	1981	1981	1981	1995	1999	1999	1999	1981	1980

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1980 - 1999	
ANNUAL TOTAL	2037813		744527			
ANNUAL MEAN	5583		2040		4354	
HIGHEST ANNUAL MEAN					5735	
LOWEST ANNUAL MEAN					1791	
HIGHEST DAILY MEAN	61600		Jan 9		142000	
LOWEST DAILY MEAN	729		Oct 25		467	
ANNUAL SEVEN-DAY MINIMUM	833		Oct 1		523	
INSTANTANEOUS PEAK FLOW					226000	
INSTANTANEOUS PEAK STAGE					30.76	
INSTANTANEOUS LOW FLOW					382	
ANNUAL RUNOFF (CFSM)	1.52		.55		1.18	
ANNUAL RUNOFF (INCHES)	20.58		7.52		16.06	
10 PERCENT EXCEEDS	13900		3790		9380	
50 PERCENT EXCEEDS	2100		1300		2490	
90 PERCENT EXCEEDS	901		800		952	

a Not determined.  
e Estimated.

