

## JAMES RIVER BASIN

## 02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

**LOCATION.**--Lat 38°04'10", long 79°53'50", 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 mi<sup>2</sup>.

## 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 above sea level.

**REMARKS.**--No estimated daily discharges. Records good. 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 ft<sup>3</sup>/s, U.S. Army Corps of Engineers satellite water temperature and gage-height telemeter at station. Maximum discharge, 18,400 ft<sup>3</sup>/s, from rating curve extended above 14,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

**EXTREMES FOR CURRENT YEAR.**--Maximum discharge, 3,840 ft<sup>3</sup>/s, Feb. 19, gage height, 7.10 ft; minimum discharge, 16 ft<sup>3</sup>/s, Oct. 4, 9, minimum gage height, 2.09 ft, July 19.

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	31	23	198	48	46	129	117	123	112	168	189	42
2	23	102	145	44	37	126	93	118	97	93	282	76
3	19	239	111	42	36	126	74	109	106	81	343	260
4	18	140	93	39	36	125	236	104	72	90	282	342
5	24	88	81	39	34	118	530	102	51	99	225	240
6	22	65	81	38	33	110	516	100	105	76	153	141
7	19	52	82	37	33	110	292	95	184	72	108	85
8	17	43	75	36	34	109	278	77	152	46	96	74
9	16	38	70	37	39	108	242	55	78	41	73	64
10	224	35	317	76	55	104	147	53	47	40	69	112
11	185	35	484	146	83	127	140	72	40	40	57	78
12	95	33	392	165	145	1140	138	88	39	42	43	73
13	62	31	497	197	194	656	136	90	38	42	41	72
14	51	29	1240	203	789	416	135	87	37	36	39	69
15	42	28	1050	207	1060	246	130	67	37	33	38	58
16	36	27	714	195	715	215	118	39	42	32	36	53
17	33	26	557	157	333	240	110	38	50	31	33	43
18	29	25	475	120	280	264	975	37	220	30	347	41
19	27	25	387	91	2520	249	694	43	314	31	480	41
20	44	24	278	77	979	362	490	54	435	35	209	39
21	55	24	211	65	614	800	258	49	245	31	120	36
22	46	25	176	60	374	851	220	91	274	31	87	37
23	38	29	156	56	299	574	188	137	192	30	63	38
24	33	29	136	50	283	321	118	251	121	40	89	38
25	29	36	116	56	215	409	396	249	83	55	68	48
26	27	531	105	60	121	525	477	144	77	44	90	127
27	26	680	95	60	100	274	428	158	51	46	73	207
28	25	557	83	60	129	190	401	181	132	47	68	192
29	24	395	71	60	128	176	249	427	407	44	57	249
30	24	273	60	58	---	171	166	373	304	43	43	372
31	23	---	54	52	---	149	---	183	---	44	42	---
TOTAL	1367	3687	8590	2631	9744	9520	8492	3794	4142	1613	3943	3347
MEAN	44.1	123	277	84.9	336	307	283	122	138	52.0	127	112
MAX	224	680	1240	207	2520	1140	975	427	435	168	480	372
MIN	16	23	54	36	33	104	74	37	37	30	33	36

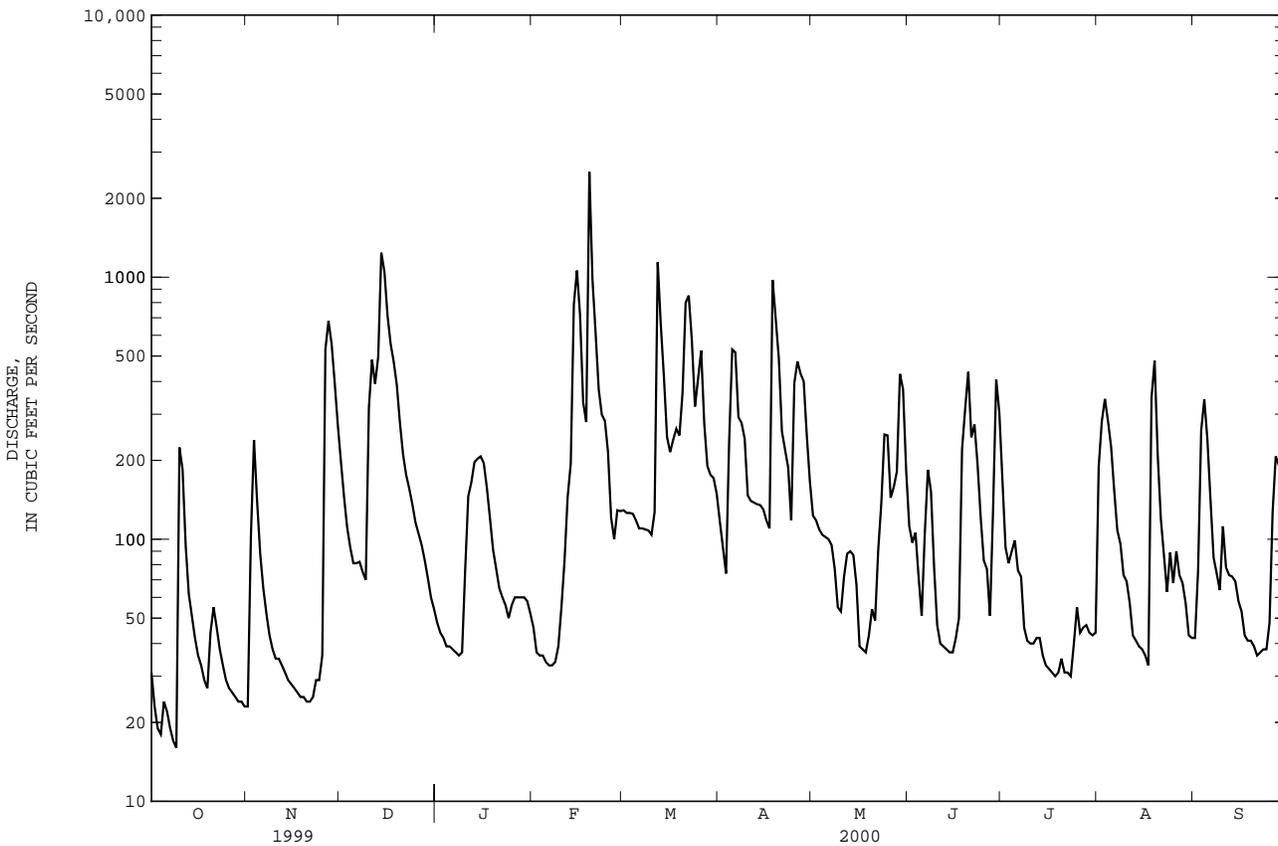
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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	51.7	135	194	302	288	394	261	242	119	48.5	49.9	54.6
MAX	246	696	392	818	608	833	824	528	351	105	127	300
(WY)	1990	1986	1997	1996	1998	1993	1987	1996	1995	1994	2000	1996
MIN	18.9	11.4	12.6	77.7	107	92.8	77.6	62.9	18.2	14.0	17.9	16.5
(WY)	1999	1999	1999	1986	1993	1988	1999	1991	1999	1999	1987	1985

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1985 - 2000
ANNUAL TOTAL	41995	60870	
ANNUAL MEAN	115	166	178
HIGHEST ANNUAL MEAN			262
LOWEST ANNUAL MEAN			81.3
HIGHEST DAILY MEAN	1310	Jan 24	9940
LOWEST DAILY MEAN	10	Jul 20	8.4
ANNUAL SEVEN-DAY MINIMUM	11	Jul 18	9.1
INSTANTANEOUS PEAK FLOW			18400
INSTANTANEOUS PEAK STAGE			12.41
INSTANTANEOUS LOW FLOW			b5.3
ANNUAL RUNOFF (CFSM)	.86	1.24	1.33
ANNUAL RUNOFF (INCHES)	11.66	16.90	18.05
10 PERCENT EXCEEDS	296	398	414
50 PERCENT EXCEEDS	48	88	77
90 PERCENT EXCEEDS	14	31	20

a Also Oct. 9, 1999.  
 b Result of freezeup.



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## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature recorder since June 1978.

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 creek by temperature cross section on June 28, 1995. No variation of temperature was found within the cross section.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 33.5°C, Aug. 14, 1988; minimum recorded, 0.0°C on many days during winter periods.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 27.3°C, July 14; minimum recorded, 0.0°C, on several days during winter.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.7	12.4	14.7	13.5	9.2	11.4	6.4	4.2	5.4	4.2	2.1	3.2
2	17.3	11.7	14.5	13.5	10.6	12.3	6.0	3.2	4.6	6.7	3.2	4.8
3	19.3	13.5	16.0	10.6	6.7	8.5	7.4	3.9	5.7	8.1	4.9	6.5
4	16.5	15.0	15.8	8.5	4.6	6.6	9.5	6.4	7.9	9.9	7.4	9.0
5	17.3	13.9	15.2	8.5	4.6	6.8	9.9	8.1	8.9	7.4	2.8	5.0
6	16.1	11.3	13.6	9.9	6.0	7.9	9.9	7.4	9.1	3.2	.7	2.0
7	16.5	11.3	13.5	11.0	7.8	9.1	7.4	5.7	6.5	3.2	.7	2.0
8	14.6	11.7	13.1	9.5	5.7	7.8	6.4	3.9	5.4	2.8	.0	1.7
9	14.3	12.1	13.4	9.9	6.4	8.5	6.7	3.9	5.4	3.9	2.5	3.1
10	16.1	14.3	15.2	11.3	7.8	9.7	8.5	6.7	7.4	6.7	3.9	4.9
11	18.5	15.8	16.9	12.8	9.5	11.2	8.5	5.7	7.0	5.3	3.2	4.2
12	17.7	13.9	15.8	12.8	10.6	11.5	7.8	6.0	6.8	6.7	2.8	4.6
13	16.5	13.1	15.0	11.3	8.8	10.3	8.8	6.7	7.6	7.1	4.6	5.5
14	16.9	13.1	14.6	11.7	8.1	10.0	10.2	8.8	9.6	4.6	2.1	3.3
15	15.0	10.2	12.5	10.2	7.1	8.4	10.6	9.2	9.8	5.3	2.1	3.6
16	15.8	10.6	12.8	9.2	5.7	6.8	9.2	7.4	8.6	6.7	4.2	5.3
17	15.8	12.4	13.9	6.4	3.5	5.0	8.8	6.4	7.6	4.6	1.4	2.8
18	16.5	12.4	14.0	6.4	2.5	4.3	9.2	7.1	7.9	2.5	1.4	2.1
19	12.4	9.5	11.2	6.7	2.8	4.9	7.8	6.4	7.2	3.5	1.1	2.3
20	12.1	10.6	11.4	8.5	4.2	6.7	8.8	7.4	8.0	2.5	.0	1.6
21	13.5	9.2	10.9	9.9	6.4	8.3	8.1	7.1	7.7	.4	.0	.0
22	12.1	9.2	10.4	11.7	9.5	10.7	7.1	4.9	6.6	.0	.0	.0
23	9.9	7.8	8.8	13.1	11.3	12.0	4.9	3.2	4.3	.0	.0	.0
24	9.9	7.4	8.5	13.1	11.0	12.1	4.2	2.8	3.7	1.4	.0	.0
25	10.6	6.0	8.1	12.8	12.1	12.5	3.2	1.1	2.3	2.1	.4	1.5
26	11.3	6.0	8.7	12.8	11.0	12.3	3.5	.7	2.2	1.4	.0	.3
27	11.7	7.1	9.2	13.1	10.6	11.6	3.5	2.1	2.9	.4	.0	.0
28	11.3	6.7	9.0	12.1	9.2	11.1	3.2	1.4	2.3	.0	.0	.0
29	11.7	7.1	9.5	9.2	7.4	8.2	2.8	.7	1.8	.0	.0	.0
30	12.4	7.8	10.1	7.4	6.0	7.0	3.2	.0	1.7	.0	.0	.0
31	12.8	9.2	11.2	---	---	---	5.3	2.5	3.7	.0	.0	.0
MONTH	19.3	6.0	12.5	13.5	2.5	9.1	10.6	.0	6.0	9.9	.0	2.6

