

Water-Data Report 2008

03453500 FRENCH BROAD RIVER AT MARSHALL, NC

French Broad-Holston Basin
Upper French Broad Subbasin

LOCATION.--Lat 35°47'11", long 82°39'39" referenced to North American Datum of 1983, Madison County, NC, Hydrologic Unit 06010105, on right bank 0.7 mi upstream from Hayes Creek, 1.0 mi downstream of Ivy River, 1.5 mi southeast of Marshall, and at river mile 126.7.

DRAINAGE AREA.--1,332 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1436: 1954(M).

GAGE.--Water-stage recorder. Datum of gage is 1,646.79 ft above NGVD of 1929 (levels by Tennessee Valley Authority). Satellite and telephone telemetry at station.

REMARKS.--No estimated daily discharges. Records good. Small diversions from tributaries for water supply. Slight diurnal fluctuation and occasional slight regulation at low flow caused by small reservoirs upstream from station. Prior to July 1963, some regulation by Progress Energy Company, Weaver Plant, 15 mi upstream, after November 1986 the same power plant was operated by the Metropolitan Sewage Treatment Plant. Minimum discharge for period of record and current water year also occurred August 12, 13, 2008.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage observed since at least 1791: 22.0 ft, July 16, 1916; discharge: 115,000ft³/s. Flood of August 30, 1940, reached a stage of 16.6 ft; discharge, 70,000 ft³/s, from high water marks, flood profiles, and studies by Tennessee Valley Authority.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	383	599	684	2,680	2,830	1,540	1,720	1,390	860	574	421	890
2	384	573	650	1,960	4,960	1,450	1,690	1,310	808	487	357	827
3	374	565	648	1,500	3,540	1,380	1,660	1,260	795	426	321	716
4	387	547	631	1,300	2,720	2,910	1,740	1,230	751	395	304	630
5	545	518	610	1,240	2,530	7,670	2,300	1,170	713	411	278	569
6	677	539	598	1,170	2,140	6,510	3,540	1,110	666	428	260	513
7	612	523	574	1,120	2,410	5,820	3,280	1,100	657	667	241	482
8	531	501	566	1,030	2,470	5,650	2,660	1,080	669	777	231	472
9	477	497	588	1,010	1,960	5,120	2,330	1,090	645	1,080	232	472
10	499	494	621	1,020	1,700	4,050	2,110	1,190	643	1,020	218	560
11	534	490	593	1,850	1,530	3,340	2,060	1,160	1,010	875	200	934
12	478	491	586	2,570	1,400	2,910	1,950	1,230	735	617	195	711
13	425	490	570	1,910	1,370	2,580	1,840	1,220	627	573	210	701
14	411	496	564	1,530	1,490	2,340	1,720	1,060	688	796	216	670
15	403	808	558	1,320	1,370	2,370	1,670	1,020	853	596	315	572
16	399	812	790	1,200	1,260	3,320	1,630	1,090	666	488	378	500
17	406	719	1,010	1,240	1,260	2,900	1,570	1,160	581	427	315	513
18	406	609	879	1,530	3,230	2,400	1,450	1,090	544	405	294	526
19	443	570	714	1,560	3,190	2,360	1,370	1,080	504	382	304	503
20	474	559	665	1,370	2,250	4,490	1,500	1,020	475	348	273	463
21	505	538	686	1,200	1,870	4,350	1,390	983	470	363	249	439
22	503	561	773	1,120	1,690	3,310	1,310	945	511	340	223	427
23	525	701	1,160	1,130	1,690	2,790	1,270	896	561	319	209	423
24	1,600	841	2,890	1,120	1,580	2,480	1,250	854	554	372	202	401
25	2,080	673	2,230	1,080	1,460	2,250	1,200	841	488	399	203	382
26	1,350	641	1,510	1,040	1,710	2,070	1,190	830	447	398	1,090	375
27	954	824	1,430	995	2,170	1,960	1,410	802	479	387	7,300	593
28	784	1,040	1,380	971	1,790	1,870	1,740	1,180	501	396	4,760	662
29	686	869	2,550	937	1,570	1,940	1,980	1,470	581	444	2,470	506
30	639	743	2,970	974	---	1,950	1,670	1,200	611	396	1,560	470
31	611	---	3,400	1,110	---	1,830	---	979	---	482	1,050	---
Total	19,485	18,831	34,078	41,787	61,140	97,910	54,200	34,040	19,093	16,068	24,879	16,902
Mean	629	628	1,099	1,348	2,108	3,158	1,807	1,098	636	518	803	563
Max	2,080	1,040	3,400	2,680	4,960	7,670	3,540	1,470	1,010	1,080	7,300	934
Min	374	490	558	937	1,260	1,380	1,190	802	447	319	195	375
Cfs/m	0.47	0.47	0.83	1.01	1.58	2.37	1.36	0.82	0.48	0.39	0.60	0.42
In.	0.54	0.53	0.95	1.17	1.71	2.73	1.51	0.95	0.53	0.45	0.69	0.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,739	2,011	2,423	2,880	3,250	3,646	3,315	2,604	2,151	1,778	1,742	1,660
Max	8,172	5,640	5,465	6,279	7,373	7,170	6,149	5,585	4,191	5,214	4,905	10,430
(WY)	(1965)	(1980)	(1962)	(1998)	(1998)	(1975)	(1983)	(2003)	(1989)	(2005)	(1994)	(2004)
Min	450	628	778	715	1,547	1,235	1,191	1,066	636	518	577	384
(WY)	(1955)	(2008)	(1956)	(1956)	(2002)	(1988)	(1986)	(1988)	(2008)	(2008)	(2002)	(1954)

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SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1943 - 2008	
Annual total	541,614		438,413			
Annual mean	1,484		1,198		2,429	
Highest annual mean					3,573	
Lowest annual mean					1,198	
Highest daily mean	11,100	Jan 1	7,670	Mar 5	32,400	Sep 8, 2004
Lowest daily mean	333	Sep 13	195	Aug 12	195	Aug 12, 2008
Annual seven-day minimum	361	Sep 7	215	Aug 8	215	Aug 8, 2008
Maximum peak flow			9,240	Aug 27	54,000	Nov 6, 1977
Maximum peak stage			5.11	Aug 27	13.64	Nov 6, 1977
Instantaneous low flow			^a 190	Aug 11	^a 190	Aug 11, 2008
Annual runoff (cfs)	1.11		0.899		1.82	
Annual runoff (inches)	15.13		12.24		24.78	
10 percent exceeds	2,730		2,470		4,340	
50 percent exceeds	938		828		1,940	
90 percent exceeds	478		387		876	

^aSee Remarks.