

03451500 FRENCH BROAD RIVER AT ASHEVILLE, NC

French Broad-Holston Basin
Upper French Broad Subbasin

LOCATION.--Lat 35°36'32", long 82°34'41" referenced to North American Datum of 1983, Buncombe County, NC, Hydrologic Unit 06010105, on right bank 27 ft upstream from Pearson Bridge (Secondary Road 1348) at Asheville, 1.4 mi downstream of bridge on U.S. Highways 19 and 23, 3.2 mi downstream of Swannanoa River, and at river mile 145.8.

DRAINAGE AREA.--945 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1895 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1901, 1914-15, 1917, 1920-22, 1927, maximum discharge.

GAGE.--Water-stage recorder. Datum of gage is 1,950.28 ft above National Geodetic Vertical Datum of 1929. September 17, 1895, to December 31, 1901, nonrecording gage at present site at different datum. March 19, 1903, to July 15, 1916, and January 1, 1917, to September 30, 1922, nonrecording gage at Smith Bridge 1.5 mi upstream at datum 1,961.80 ft. October 1, 1922, to August 9, 1930, nonrecording gage at present site and datum. Satellite and telephone telemetry at streamgage.

REMARKS.--No estimated daily discharges. Records good. Many small diversions from tributaries upstream from station for water supply. Diversions by City of Asheville and others from upstream tributaries in the Swannanoa River basin (station 03451000). An average of 32.5 ft³/s was discharged 4 mi downstream from streamgage as treated effluent. Slight diurnal fluctuation and occasional slight regulation at low flow caused by power plant 46 mi upstream and small reservoirs upstream from station. Maximum discharge for period of record, from rating curve extended above 43,000 ft³/s, by logarithmic plotting; maximum gage height, 23.10, from floodmarks. Minimum discharge for period of record also occurred August 13, 2008. Minimum discharge for current water year also occurred September 23, 25, 26.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage observed since at least 1791, that of July 16, 1916, and flood of June 17, 1876, reached a stage of 18 ft, from studies by Tennessee Valley Authority.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2,120	4,300	2,230	3,780	3,880	2,730	2,930	1,900	2,680	1,210	990	789
2	1,930	4,040	3,720	3,500	4,390	2,720	2,610	1,880	2,250	1,080	926	755
3	1,690	3,190	7,020	3,170	5,280	2,780	2,480	2,560	2,360	1,030	869	722
4	1,540	2,690	6,530	2,930	4,980	2,660	2,400	3,180	2,060	992	819	696
5	2,060	2,410	4,980	2,760	7,150	2,580	2,360	2,540	1,900	952	914	668
6	2,120	2,210	3,540	2,620	9,410	2,500	2,440	2,240	1,790	900	946	655
7	1,780	2,060	3,090	2,510	8,490	2,450	2,220	2,200	1,630	859	1,370	636
8	1,710	1,960	3,060	2,330	7,240	2,420	2,280	2,040	1,490	828	994	641
9	1,430	1,860	7,880	2,160	5,850	2,420	2,860	1,800	1,380	826	838	667
10	1,420	2,580	7,580	2,120	5,070	2,570	2,470	1,710	1,400	828	819	656
11	1,450	11,700	6,390	2,080	4,570	2,560	2,200	1,690	1,410	844	834	739
12	1,410	10,900	4,610	2,040	4,220	3,210	2,130	1,720	1,420	1,170	842	1,020
13	1,600	8,970	4,030	1,960	3,950	5,160	2,050	1,670	1,360	1,050	906	979
14	1,650	6,660	4,400	1,900	3,720	4,690	2,000	1,600	1,310	952	918	744
15	1,950	4,090	4,050	1,860	3,600	3,780	1,950	1,800	1,250	862	1,800	664
16	1,990	3,370	3,640	1,810	3,610	3,420	1,910	1,770	1,780	865	1,880	633
17	1,910	3,050	3,330	5,280	3,400	3,160	1,890	2,200	1,870	938	1,310	619
18	1,720	3,880	3,140	6,240	3,240	3,000	1,820	2,290	1,580	1,610	1,370	608
19	1,550	4,990	3,570	4,880	3,040	2,860	1,770	1,970	1,290	1,240	1,380	592
20	1,450	4,660	3,360	3,530	2,960	2,600	1,760	1,740	1,210	1,170	1,370	588
21	1,380	3,750	3,040	3,590	2,920	2,540	1,800	1,740	1,200	1,100	1,310	567
22	1,320	3,310	2,980	4,460	3,200	4,700	1,750	2,020	1,150	871	2,550	554
23	1,320	3,590	2,920	3,940	3,670	4,660	1,720	1,780	1,080	880	2,040	565
24	2,460	3,480	2,820	5,320	3,570	3,700	1,710	1,590	1,180	898	1,330	607
25	3,440	3,110	11,200	15,900	3,390	3,330	3,290	1,650	1,180	906	1,180	554
26	2,510	2,750	12,900	13,500	3,050	3,160	3,920	1,580	1,440	1,020	1,090	903
27	2,550	2,560	10,400	11,100	2,930	2,790	2,970	1,510	1,550	955	1,120	1,270
28	4,700	2,430	8,410	8,430	2,840	2,940	2,530	1,470	1,420	1,300	1,080	2,070
29	4,300	2,330	5,920	5,830	---	3,750	2,200	1,480	1,330	1,210	963	1,370
30	3,200	2,280	4,240	4,700	---	3,530	2,020	1,360	1,370	982	886	1,180
31	2,690	---	3,870	4,290	---	3,150	---	1,650	---	877	832	---
Total	64,350	119,160	158,850	140,520	123,620	98,520	68,440	58,330	46,320	31,205	36,476	23,711
Mean	2,076	3,972	5,124	4,533	4,415	3,178	2,281	1,882	1,544	1,007	1,177	790
Max	4,700	11,700	12,900	15,900	9,410	5,160	3,920	3,180	2,680	1,610	2,550	2,070
Min	1,320	1,860	2,230	1,810	2,840	2,420	1,710	1,360	1,080	826	819	554
Cfsm	2.20	4.20	5.42	4.80	4.67	3.36	2.41	1.99	1.63	1.07	1.25	0.84
In.	2.53	4.69	6.25	5.53	4.87	3.88	2.69	2.30	1.82	1.23	1.44	0.93

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1896 - 2010, BY WATER YEAR (WY)

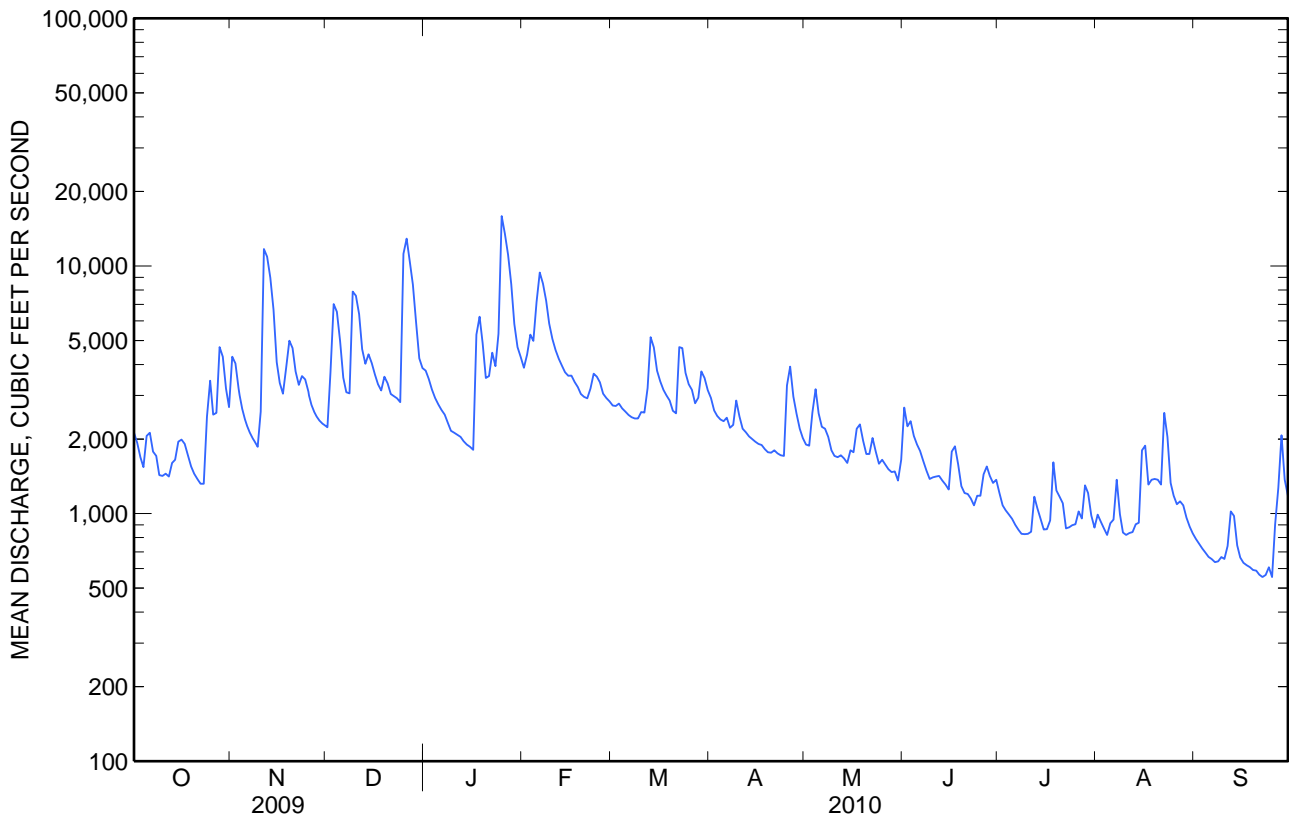
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,560	1,641	2,118	2,425	2,634	2,960	2,700	2,157	1,865	1,683	1,652	1,531
Max	7,025	5,121	5,700	6,068	6,364	7,928	5,705	4,961	5,774	11,500	8,362	10,210
(WY)	(1965)	(1980)	(1915)	(1937)	(1998)	(1899)	(1899)	(1973)	(1909)	(1916)	(1901)	(2004)
Min	353	507	636	548	788	1,037	973	852	547	440	328	346
(WY)	(1955)	(1932)	(1956)	(1956)	(2009)	(1988)	(1986)	(2001)	(1988)	(2008)	(1925)	(1954)

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SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1896 - 2010	
Annual total	803,744		969,502			
Annual mean	2,202		2,656		2,074	
Highest annual mean					3,671	1901
Lowest annual mean					1,004	1988
Highest daily mean	15,200	Sep 22	15,900	Jan 25	66,000	Jul 16, 1916
Lowest daily mean	524	Sep 7	554	Sep 22	174	Aug 12, 2008
Annual seven-day minimum	591	Sep 2	575	Sep 19	190	Aug 7, 2008
Maximum peak flow			16,800	Dec 25	^a 110,000	Jul 16, 1916
Maximum peak stage			8.19	Dec 25	^a 23.10	Jul 16, 1916
Instantaneous low flow			^a 541	Sep 22	^a 170	Aug 12, 2008
Annual runoff (cfsm)	2.33		2.81		2.20	
Annual runoff (inches)	31.64		38.16		29.83	
10 percent exceeds	4,260		4,700		3,620	
50 percent exceeds	1,510		2,060		1,620	
90 percent exceeds	723		867		756	

^a See Remarks.



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CLIMATOLOGICAL RECORDS

PERIOD OF RECORD.--October 1998 to current year.

INSTRUMENTATION.--Tipping-bucket raingage and electronic datalogger. Satellite telemetry at station.

REMARKS.--Gage is operated in cooperation with Tennessee Valley Authority. Precipitation data collected during freezing periods may not be accurately reflected in daily record.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY SUM VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.00	0.09	0.00	0.00	---	0.00	0.00	0.00	0.12	0.00	0.11	0.00
2	0.00	0.00	1.07	0.00	---	---	0.00	0.00	0.20	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	---	0.00	0.58	0.00	0.00	0.00	0.00
4	0.08	0.00	0.00	0.00	---	---	0.00	0.00	0.00	0.00	0.00	0.00
5	0.72	0.00	0.09	0.00	---	---	0.00	0.00	0.00	0.00	0.66	0.00
6	0.09	0.00	0.00	0.00	---	0.00	0.00	0.00	0.19	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.47	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.16
9	0.02	0.00	0.61	0.00	0.02	0.00	0.00	0.00	0.01	0.25	0.00	0.00
10	0.05	1.98	0.00	0.00	0.00	0.00	0.00	0.03	0.49	0.00	0.00	0.00
11	0.00	1.21	0.00	0.00	0.00	0.12	0.00	0.04	0.02	0.10	0.10	0.59
12	0.15	0.00	0.00	0.00	0.17	0.93	0.00	0.00	0.00	0.58	0.00	0.01
13	0.00	0.00	0.18	0.00	0.00	0.10	0.00	0.00	0.00	0.03	0.72	0.00
14	0.55	0.00	0.00	0.00	0.00	0.02	0.00	0.26	0.00	0.00	0.00	0.00
15	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.55	0.09	0.01	0.00	0.00
17	0.02	0.08	0.00	0.85	0.00	0.00	0.00	0.36	0.00	0.14	0.01	0.06
18	0.01	0.46	---	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.34	0.00
19	0.00	0.00	---	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.08	0.00
20	0.00	0.00	---	0.02	0.00	0.00	0.09	0.00	0.00	0.23	0.00	0.00
21	0.00	0.00	---	0.17	0.00	0.62	0.02	0.20	0.05	0.00	0.63	0.00
22	0.00	0.23	---	0.02	0.18	0.12	0.00	0.04	0.00	0.00	0.04	0.00
23	0.19	0.01	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.14	0.00	---	1.34	0.00	0.00	0.29	0.02	0.01	0.00	0.00	0.00
25	0.00	0.00	---	0.02	0.00	0.00	0.44	0.03	0.04	0.11	0.00	0.01
26	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.04	0.00	0.80
27	0.99	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.10	0.02	0.01	0.65
28	0.02	0.00	0.00	0.00	0.00	0.46	0.00	0.90	0.00	0.64	0.00	0.01
29	0.00	0.00	0.00	---	---	0.01	0.00	0.00	0.01	0.00	0.00	0.33
30	0.00	0.12	0.00	---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.12
31	0.50	---	0.00	---	---	0.00	---	0.45	---	0.12	0.00	---
Total	3.65	4.18	---	---	---	---	1.59	3.46	2.33	2.66	2.70	2.74

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