

Water-Data Report 2008

03451000 SWANNANOA RIVER AT BILTMORE, NC

French Broad-Holston Basin
Upper French Broad Subbasin

LOCATION.--Lat 35°34'06", long 82°32'41" referenced to North American Datum of 1983, Buncombe County, NC, Hydrologic Unit 06010105, on left bank at Biltmore, 100 ft downstream of Biltmore Avenue Bridge, 200 ft upstream from Southern Railway bridge, and 1.6 mi upstream from mouth.

DRAINAGE AREA.--130 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1920 to September 1926, May 1934 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 803: 1923(M), 1925(M). WSP 823: Drainage area. WSP 1306: 1921(M), 1924(M), 1926(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,976.58 ft above NGVD of 1929 (levels by Tennessee Valley Authority). December 1, 1920, to September 30, 1926, nonrecording gage at site 100 ft upstream at same datum. Satellite and telephone telemetry at station.

REMARKS.--Records good except those for estimated daily discharges and those above 6,500 ft³/s, which are poor. Considerable regulation from 1925-50 (reservoir silted) by Lake Craig, 3.6 mi upstream from station. City of Asheville diverted an average of 27.8 ft³/s from Burnett Lake on North Fork Swannanoa River, 20 mi upstream from station. April 2008 to September 2008 an average of 2.0 ft³/s was diverted from Bee Tree Lake on Bee Tree Creek, 16 mi upstream from station. An average of 24.3 ft³/s was discharged downstream of station into the French Broad River as treated sewage effluent. Maximum discharge for period of record, from rating curve extended above 9,100 ft³/s on basis of computation of peak flow over dam 3.6 mi upstream from station. Minimum discharge for period of record occurred several days in October 1941. Minimum discharge for current water year also occurred August 21, 23, 24, 25.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage observed: 26 ft; discharge: 40,000 ft³/s in April 1791, from studies by Tennessee Valley Authority. Flood of July 1916 reached a stage of 20.7 ft; discharge, 23,000 ft³/s, from flood profile by Tennessee Valley Authority. Flood of August 16, 1928 reached a stage of 18.74 ft, from floodmarks; discharge, 17,800 ft³/s. High stages are subject to backwater from French Broad River.

03451000 SWANNANOA RIVER AT BILTMORE, NC—Continued

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	22	27	31	78	231	66	85	63	42	21	11	87
2	21	27	31	66	114	63	88	62	41	17	9.6	54
3	20	26	36	e60	85	60	90	59	38	17	9.3	42
4	24	26	34	e55	103	410	107	59	37	16	9.8	35
5	48	26	33	e51	102	419	149	55	34	20	12	31
6	40	27	32	50	96	202	203	52	34	23	8.2	28
7	28	28	31	48	90	231	172	49	41	21	7.1	27
8	e25	27	32	46	76	198	154	50	44	24	7.0	25
9	e26	25	38	45	70	154	141	60	32	63	5.9	26
10	e32	27	37	61	64	136	142	68	71	29	7.5	71
11	e29	27	33	154	58	124	211	59	83	26	7.8	110
12	e25	27	32	87	57	113	131	55	40	22	6.7	44
13	e24	27	33	71	62	103	119	53	33	24	7.3	36
14	e23	28	33	66	55	94	112	52	38	53	7.8	32
15	e23	103	43	57	51	130	193	53	35	24	8.6	29
16	e22	43	91	53	50	150	190	66	31	18	7.7	29
17	e22	33	48	77	113	112	183	55	28	16	17	31
18	22	30	38	71	198	103	80	51	25	15	11	28
19	25	31	37	59	97	153	71	58	24	15	9.2	26
20	23	29	36	52	80	196	87	52	23	14	6.6	25
21	21	30	50	e51	72	148	71	57	23	13	6.5	24
22	23	40	47	e50	68	134	66	48	26	12	6.2	25
23	38	37	112	50	66	122	63	46	35	11	6.3	23
24	91	32	80	48	61	111	59	46	24	11	5.8	22
25	52	31	56	e46	60	102	56	43	22	11	11	22
26	40	42	73	e45	127	95	57	42	19	12	409	46
27	33	44	63	44	91	90	62	43	25	13	502	131
28	29	35	86	41	71	87	111	180	22	15	112	60
29	28	33	106	41	68	127	78	178	31	13	70	46
30	26	32	129	45	---	101	67	156	23	13	48	45
31	25	---	112	46	---	87	---	52	---	12	38	---
Total	930	1,000	1,673	1,814	2,536	4,421	3,398	2,022	1,024	614	1,391.9	1,260
Mean	30.0	33.3	54.0	58.5	87.4	143	113	65.2	34.1	19.8	44.9	42.0
Max	91	103	129	154	231	419	211	180	83	63	502	131
Min	20	25	31	41	50	60	56	42	19	11	5.8	22
Cfsm	0.23	0.26	0.42	0.45	0.67	1.10	0.87	0.50	0.26	0.15	0.35	0.32
In.	0.27	0.29	0.48	0.52	0.73	1.27	0.97	0.58	0.29	0.18	0.40	0.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2008^a, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	96.5	118	138	190	220	266	244	182	134	102	100	97.7
Max	569	604	385	610	598	740	560	480	387	503	828	1,162
(WY)	(1965)	(1980)	(1962)	(1995)	(1990)	(1975)	(1936)	(1973)	(1949)	(1949)	(1940)	(2004)
Min	13.7	27.0	35.3	32.3	65.7	45.7	55.6	45.5	17.7	18.2	13.3	13.8
(WY)	(1955)	(1982)	(1989)	(1956)	(1988)	(1988)	(1986)	(1988)	(1988)	(1986)	(2002)	(1954)

03451000 SWANNANOA RIVER AT BILTMORE, NC—Continued

SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1921 - 2008 ^a	
Annual total	30,047		22,083.9			
Annual mean	82.3		60.3		157	
Highest annual mean					277	
Lowest annual mean					55.9	
Highest daily mean	753	Jan 1	502	Aug 27	10,200	Sep 8, 2004
Lowest daily mean	20	Sep 13	5.8	Aug 24	1.2	Oct 14, 1941
Annual seven-day minimum	22	Sep 7	7.0	Aug 7	6.4	Sep 7, 2002
Maximum peak flow			1,460	Aug 27	^b 18,400	Aug 13, 1940
Maximum peak stage			5.29	Aug 27	19.22	Sep 8, 2004
Instantaneous low flow			^b 5.7	Aug 9	^b 1.1	Oct 9, 1941
Annual runoff (cfs)	0.633		0.464		1.21	
Annual runoff (inches)	8.60		6.32		16.41	
10 percent exceeds	151		125		306	
50 percent exceeds	52		44		104	
90 percent exceeds	25		15		36	

^aSee Period of Record^bSee Remarks