

TENNESSEE RIVER BASIN

03451000 SWANNANOVA RIVER AT BILTMORE, NC

LOCATION.--Lat 35°34'06", long 82°32'42", Buncombe County, 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.

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: 1921(M), 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). Dec. 1, 1920, to Sept. 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, 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 27.7 ft³/s from Burnett Lake (station 03448959) on North Fork Swannanoa River, 20 mi upstream from station. An average of 29.5 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 Oct. 1941.

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 Aug. 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.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1 | 26 | 27 | 32 | e40 | 94 | e46 | 277 | 184 | 37 | 31 | 12 | 11 |
| 2 | 24 | 27 | 28 | e40 | 94 | 74 | 232 | 102 | 35 | 47 | 10 | 13 |
| 3 | 23 | 30 | 28 | e40 | 93 | 79 | 198 | 96 | 34 | 42 | 13 | 15 |
| 4 | 23 | 30 | 27 | e40 | 81 | 55 | 177 | 175 | 42 | 33 | 12 | 11 |
| 5 | 21 | 28 | 27 | 42 | 61 | e48 | 158 | 132 | 163 | 28 | 9.9 | 9.4 |
| 6 | 20 | 29 | 27 | 93 | 66 | e46 | 142 | 122 | 88 | 25 | 8.9 | 8.1 |
| 7 | 20 | 34 | 27 | 68 | 123 | e45 | 130 | 113 | 74 | 22 | 8.4 | 7.8 |
| 8 | 18 | 35 | 27 | 45 | 144 | e46 | 122 | 103 | 53 | 21 | 7.6 | 7.1 |
| 9 | 18 | 34 | 27 | 43 | 105 | 50 | 132 | 97 | 49 | 20 | 6.9 | 6.7 |
| 10 | 18 | 33 | 70 | 42 | 104 | 49 | 145 | 96 | 44 | 25 | 7.3 | 6.4 |
| 11 | 18 | 33 | 121 | 43 | 107 | 46 | 130 | 86 | 39 | 30 | 7.9 | 6.0 |
| 12 | 24 | 32 | 55 | 42 | 88 | 57 | 116 | 81 | 37 | 21 | 7.5 | 5.6 |
| 13 | 26 | 31 | 65 | 40 | 87 | 81 | 119 | 95 | 45 | 65 | 7.7 | 4.9 |
| 14 | 59 | 31 | 61 | 39 | 97 | 61 | 123 | 95 | 56 | 51 | 11 | 25 |
| 15 | 43 | 31 | 50 | 40 | 96 | 55 | 123 | 78 | 41 | 33 | 11 | 72 |
| 16 | 24 | 26 | 45 | 39 | 84 | 68 | 113 | 72 | 36 | 25 | 18 | 33 |
| 17 | 20 | 22 | 73 | 39 | 82 | 191 | 118 | 65 | 34 | 21 | 48 | 16 |
| 18 | 20 | 21 | 114 | 48 | 74 | 234 | 175 | 144 | 32 | 20 | 27 | 16 |
| 19 | 20 | 21 | 73 | 177 | 67 | 223 | 130 | 91 | 31 | 18 | 16 | 13 |
| 20 | 21 | 21 | 65 | 181 | 67 | 191 | 116 | 80 | 29 | 17 | 13 | 13 |
| 21 | 22 | 21 | 63 | 120 | 67 | 245 | 108 | 74 | 27 | 17 | 12 | 45 |
| 22 | 22 | 20 | 57 | 94 | 60 | 206 | 99 | 67 | 26 | 18 | 11 | 66 |
| 23 | 22 | 28 | 56 | 215 | 58 | 156 | 87 | 58 | 27 | 17 | 12 | 56 |
| 24 | 23 | 41 | 60 | 195 | 56 | 140 | 80 | 53 | 27 | 20 | 11 | 21 |
| 25 | 26 | 83 | 53 | 242 | 55 | 127 | 138 | 49 | 25 | 33 | 9.9 | 39 |
| 26 | 25 | 40 | 49 | 163 | 52 | 154 | 90 | 47 | 67 | 33 | 12 | 118 |
| 27 | 22 | 32 | 47 | 135 | e48 | 163 | 83 | 62 | 99 | 18 | 32 | 227 |
| 28 | 23 | 31 | 45 | 119 | e46 | 133 | 80 | 47 | 87 | 16 | 14 | 94 |
| 29 | 25 | 29 | 45 | 117 | --- | 122 | 74 | 42 | 40 | 14 | 12 | 50 |
| 30 | 25 | 37 | 43 | 103 | --- | 214 | 67 | 39 | 33 | 13 | 10 | 38 |
| 31 | 26 | --- | 41 | 98 | --- | 255 | --- | 38 | --- | 12 | 12 | --- |
| TOTAL | 747 | 938 | 1601 | 2782 | 2256 | 3660 | 3882 | 2683 | 1457 | 806 | 411.0 | 1054.0 |
| MEAN | 24.10 | 31.27 | 51.65 | 89.74 | 80.57 | 118.1 | 129.4 | 86.55 | 48.57 | 26.00 | 13.26 | 35.13 |
| MAX | 59 | 83 | 121 | 242 | 144 | 255 | 277 | 184 | 163 | 65 | 48 | 227 |
| MIN | 18 | 20 | 27 | 39 | 46 | 45 | 67 | 38 | 25 | 12 | 6.9 | 4.9 |
| CFSM | 0.19 | 0.24 | 0.40 | 0.69 | 0.62 | 0.91 | 1.00 | 0.67 | 0.37 | 0.20 | 0.10 | 0.27 |
| IN. | 0.21 | 0.27 | 0.46 | 0.80 | 0.65 | 1.05 | 1.11 | 0.77 | 0.42 | 0.23 | 0.12 | 0.30 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2002,[®] BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MEAN | 97.22 | 115.9 | 137.4 | 192.4 | 226.0 | 275.0 | 247.4 | 184.3 | 133.9 | 99.39 | 99.64 | 84.50 |
| MAX | 569 | 604 | 385 | 610 | 598 | 740 | 560 | 480 | 387 | 503 | 828 | 421 |
| (WY) | 1965 | 1980 | 1962 | 1995 | 1990 | 1975 | 1936 | 1973 | 1949 | 1949 | 1940 | 1979 |
| 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 SWANNANOVA RIVER AT BILTMORE, NC--Continued

| SUMMARY STATISTICS | FOR 2001 CALENDAR YEAR | | FOR 2002 WATER YEAR | | WATER YEARS 1921 - 2002 [®] | |
|--------------------------|------------------------|--------|---------------------|--------|--------------------------------------|-------------|
| ANNUAL TOTAL | 25824 | | 22277.0 | | 157.3 | |
| ANNUAL MEAN | 70.75 | | 61.03 | | 277 | |
| HIGHEST ANNUAL MEAN | | | | | 1949 | |
| LOWEST ANNUAL MEAN | | | | | 1988 | |
| HIGHEST DAILY MEAN | 468 | Mar 30 | 277 | Apr 1 | 7560 | Aug 13 1940 |
| LOWEST DAILY MEAN | 18 | Oct 8 | 4.9 | Sep 13 | 1.2 | Oct 14 1941 |
| ANNUAL SEVEN-DAY MINIMUM | 19 | Oct 5 | 6.4 | Sep 7 | 6.4 | Sep 7 2002 |
| MAXIMUM PEAK FLOW | | | 539 | Jun 5 | 18400* | Aug 13 1940 |
| MAXIMUM PEAK STAGE | | | 3.19 | Jun 5 | 19.00 | Aug 13 1940 |
| INSTANTANEOUS LOW FLOW | | | 4.7 | Sep 13 | 1.1* | Oct 9 1941 |
| ANNUAL RUNOFF (CFSM) | 0.54 | | 0.47 | | 1.21 | |
| ANNUAL RUNOFF (INCHES) | 7.39 | | 6.37 | | 16.44 | |
| 10 PERCENT EXCEEDS | 137 | | 132 | | 308 | |
| 50 PERCENT EXCEEDS | 54 | | 43 | | 104 | |
| 90 PERCENT EXCEEDS | 25 | | 13 | | 36 | |

e Estimated.
[®] See PERIOD OF RECORD.
 * See REMARKS.

