

LEHIGH RIVER BASIN

01452500 MONOCACY CREEK AT BETHLEHEM, PA

LOCATION.--Lat 40°38'28", long 75°22'47", Northampton County, Hydrologic Unit 02040106, on right bank 40 ft downstream from highway bridge at entrance to Monocacy Park at Bethlehem, and 2.1 mi upstream from mouth.

DRAINAGE AREA.--44.5 mi².

PERIOD OF RECORD.--October 1948 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Concrete control since July 17, 1969. Datum of gage is 247.24 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 15, 1962, nonrecording gage at site 40 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records fair. Some regulation at low flow since April 1954 by mill upstream. Several measurements of water temperature were made during the year. Satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 10, 1945, reached a stage of 9.74 ft, from floodmarks, discharge, about 5,200 ft³/s, by slope-area measurement.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

| Date | Time | Discharge ft ³ /s | Gage Height (ft) | Date | Time | Discharge ft ³ /s | Gage Height (ft) |
|---------|------|---------------------------------|---------------------|----------|------|---------------------------------|---------------------|
| June 21 | 1445 | 408 | 3.67 | Sept. 15 | 2045 | *735 | *4.42 |
| July 21 | 2330 | 526 | 3.94 | Sept. 23 | 0845 | 548 | 4.00 |
| Aug. 4 | 2000 | 467 | 3.81 | Sept. 28 | 1500 | 368 | 3.56 |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 16 | 23 | 26 | 62 | 33 | 45 | 90 | 45 | 105 | 77 | 50 | 51 |
| 2 | 15 | 22 | 25 | 104 | 33 | 83 | 88 | 44 | 98 | 74 | 51 | 74 |
| 3 | 15 | 20 | 24 | 103 | 33 | 129 | 81 | 44 | 91 | 70 | 54 | 64 |
| 4 | 16 | 20 | 22 | 94 | 35 | 68 | 77 | 39 | 159 | 68 | 121 | 59 |
| 5 | 15 | 19 | 24 | 80 | 34 | 90 | 77 | 40 | 147 | 64 | 149 | 54 |
| 6 | 15 | 24 | 23 | 73 | 32 | 125 | 71 | 42 | 122 | 58 | 116 | 50 |
| 7 | 15 | 21 | 22 | 65 | 34 | 80 | 69 | 41 | 152 | 61 | 101 | 48 |
| 8 | 14 | 20 | 22 | 61 | 32 | 70 | 70 | 44 | 163 | 61 | 92 | 47 |
| 9 | 14 | 19 | 22 | 59 | 31 | 117 | 73 | 42 | 140 | 58 | 82 | 46 |
| 10 | 16 | 19 | 21 | 56 | 32 | 107 | 79 | 41 | 114 | 59 | 83 | 45 |
| 11 | 83 | 19 | 37 | 51 | 31 | 76 | 84 | 40 | 98 | 59 | 86 | 44 |
| 12 | 98 | 22 | 70 | 49 | 30 | 70 | 85 | 49 | 163 | 56 | 110 | 43 |
| 13 | 50 | 23 | 56 | 48 | 29 | 84 | 81 | 43 | 142 | 54 | 87 | 50 |
| 14 | 31 | 20 | 90 | 47 | 29 | 105 | 80 | 41 | 138 | 52 | 81 | 52 |
| 15 | 24 | 21 | 94 | 46 | 30 | 88 | 77 | 38 | 125 | 52 | 76 | 197 |
| 16 | 48 | 26 | 84 | 41 | 28 | 92 | 73 | 37 | 110 | 51 | 78 | 177 |
| 17 | 54 | 69 | 69 | 43 | 27 | 96 | 68 | 38 | 98 | 50 | 79 | 106 |
| 18 | 41 | 87 | 59 | 38 | 27 | 90 | 66 | 37 | 103 | 49 | 70 | 91 |
| 19 | 33 | 74 | 53 | 38 | 29 | 80 | 65 | 37 | 101 | 52 | 64 | 145 |
| 20 | 28 | 62 | 84 | 39 | 29 | 97 | 60 | 36 | 174 | 47 | 61 | 99 |
| 21 | 25 | 51 | 83 | 37 | 28 | 190 | 59 | 38 | 354 | 86 | 59 | 88 |
| 22 | 23 | 51 | 74 | 35 | 64 | 144 | 59 | 36 | 278 | 178 | 57 | 83 |
| 23 | 22 | 47 | 65 | 34 | 203 | 118 | 56 | 36 | 208 | 88 | 55 | 292 |
| 24 | 20 | 37 | 57 | 34 | 144 | 105 | 53 | 39 | 162 | 70 | 52 | 223 |
| 25 | 20 | 34 | 61 | 35 | 82 | 92 | 52 | 38 | 135 | 61 | 51 | 166 |
| 26 | 35 | 31 | 57 | 34 | 62 | 86 | 56 | 90 | 117 | 57 | 51 | 168 |
| 27 | 24 | 32 | 49 | 33 | 54 | 88 | 53 | 69 | 105 | 57 | 50 | 133 |
| 28 | 21 | 30 | 47 | 32 | 49 | 77 | 49 | 64 | 93 | 62 | 46 | 244 |
| 29 | 20 | 28 | 44 | 34 | --- | 80 | 49 | 61 | 86 | 55 | 45 | 226 |
| 30 | 22 | 27 | 42 | 32 | --- | 99 | 46 | 55 | 81 | 49 | 49 | 175 |
| 31 | 25 | --- | 42 | 33 | --- | 93 | --- | 53 | --- | 51 | 45 | --- |
| TOTAL | 898 | 998 | 1548 | 1570 | 1304 | 2964 | 2046 | 1397 | 4162 | 1986 | 2251 | 3340 |
| MEAN | 29.0 | 33.3 | 49.9 | 50.6 | 46.6 | 95.6 | 68.2 | 45.1 | 139 | 64.1 | 72.6 | 111 |
| MAX | 98 | 87 | 94 | 104 | 203 | 190 | 90 | 90 | 354 | 178 | 149 | 292 |
| MIN | 14 | 19 | 21 | 32 | 27 | 45 | 46 | 36 | 81 | 47 | 45 | 43 |
| CFSM | 0.65 | 0.75 | 1.12 | 1.14 | 1.05 | 2.15 | 1.53 | 1.01 | 3.12 | 1.44 | 1.63 | 2.50 |
| IN. | 0.75 | 0.83 | 1.29 | 1.31 | 1.09 | 2.48 | 1.71 | 1.17 | 3.48 | 1.66 | 1.88 | 2.79 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2003, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 38.3 | 44.5 | 54.1 | 57.4 | 63.5 | 74.5 | 73.4 | 58.2 | 52.2 | 44.0 | 40.4 | 39.8 |
| MAX | 101 | 110 | 191 | 201 | 163 | 216 | 181 | 129 | 142 | 141 | 88.2 | 111 |
| (WY) | 1997 | 1973 | 1997 | 1979 | 1979 | 1994 | 1994 | 1984 | 1972 | 1984 | 1984 | 2003 |
| MIN | 8.90 | 10.0 | 6.88 | 7.14 | 13.6 | 19.8 | 18.6 | 16.2 | 15.0 | 11.6 | 10.6 | 9.51 |
| (WY) | 1966 | 1966 | 1966 | 1966 | 2002 | 2002 | 1966 | 1965 | 1965 | 1966 | 1965 | 1965 |

LEHIGH RIVER BASIN

01452500 MONOCACY CREEK AT BETHLEHEM, PA--Continued

| SUMMARY STATISTICS | FOR 2002 CALENDAR YEAR | | FOR 2003 WATER YEAR | | WATER YEARS 1949 - 2003 | |
|--------------------------|------------------------|---------------------|---------------------|------------|-------------------------|-------------|
| ANNUAL TOTAL | 9765 | | 24464 | | | |
| ANNUAL MEAN | 26.8 | | 67.0 | | 53.3 | |
| HIGHEST ANNUAL MEAN | | | | | 89.7 | 1984 |
| LOWEST ANNUAL MEAN | | | | | 15.5 | 1966 |
| HIGHEST DAILY MEAN | 98 | Oct 12 | 354 | Jun 21 | 1200 | Jan 26 1978 |
| LOWEST DAILY MEAN | 12 | Feb 25 ^a | 14 | Oct 8,9 | 5.2 | Jan 1 1966 |
| ANNUAL SEVEN-DAY MINIMUM | 12 | Feb 24 | 15 | Oct 3 | 5.9 | Dec 27 1965 |
| MAXIMUM PEAK FLOW | | | b735 | Sep 15 | b3490 | Jan 25 1979 |
| MAXIMUM PEAK STAGE | | | 4.42 | Sep 15 | 8.19 | Jan 25 1979 |
| INSTANTANEOUS LOW FLOW | | | 14 | Oct 3,6-10 | 3.0 | Jan 9 1966 |
| ANNUAL RUNOFF (CFSM) | 0.60 | | 1.51 | | 1.20 | |
| ANNUAL RUNOFF (INCHES) | 8.16 | | 20.45 | | 16.27 | |
| 10 PERCENT EXCEEDS | 50 | | 119 | | 97 | |
| 50 PERCENT EXCEEDS | 20 | | 55 | | 41 | |
| 90 PERCENT EXCEEDS | 14 | | 23 | | 20 | |

^a Also Feb. 26-28, Mar. 1, 2.

^b From rating curve extended above 440 ft³/s on basis of slope-area measurement at gage height 5.47 and at peak flow.

