

## LEHIGH RIVER BASIN

## 01453000 LEHIGH RIVER AT BETHLEHEM, PA

**LOCATION.**--Lat 40°36'55", long 75°22'45", Lehigh County, Hydrologic Unit 02040106, on left bank 110 ft upstream from bridge on New Street at Bethlehem, and 1,800 ft upstream from Monocacy Creek. Records include flow of Monocacy Creek.

**DRAINAGE AREA.**--1,279 mi<sup>2</sup> (includes that of Monocacy Creek). At site used prior to Oct. 1, 1928, 1,229 mi<sup>2</sup>.

**PERIOD OF RECORD.**--October 1902 to January 1905, May 1909 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "at South Bethlehem" prior to October 1913.

**REVISED RECORDS.**--WSP 261: 1903-5. WSP 321: 1910-11. WSP 1051: Drainage area. WSP 1141: 1929-34(M). WSP 1302: 1914(M), 1916(M), 1918, 1921, 1927-28. WSP 1432: 1903, 1919(M), 1920-21, 1929, 1933.

**GAGE.**--Water-stage recorder and crest-stage gage. Datum of gage is 210.94 ft above National Geodetic Vertical Datum of 1929. Prior to October 1928, nonrecording gage at New Street bridge 120 ft downstream at same datum. Oct. 1, 1928, to Sept. 30, 1962, water-stage recorder at site 4,250 ft downstream at datum 2.49 ft lower. Oct. 1, 1963, to Dec. 14, 1975, water-stage recorder at site 40 ft downstream at same datum.

**REMARKS.**--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Wild Creek Reservoir (station 01449700) since January 1941, Penn Forest Reservoir (station 01449400) since October 1958, Francis E. Walter Reservoir (station 01447780) since February 1961, and Beltzville Lake (station 01449790) since February 1971. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of Feb. 28, 1902 reached a stage of 24.9 ft, from floodmark, present site and datum, discharge, about 88,000 ft<sup>3</sup>/s.

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	861	2330	2500	3360	1490	1990	5950	1900	9440	2600	1380	1370
2	871	2120	2380	6370	1490	2320	5310	1890	8720	2380	1450	1930
3	839	1960	2290	7040	1470	3210	5120	1770	10600	2280	1450	2620
4	831	1880	1850	5330	1630	2360	4720	1670	12000	2150	2090	2900
5	961	1760	1880	4560	2080	2410	4310	1570	10200	2060	4800	2420
6	1090	2010	1880	4180	1870	3070	3990	1590	7030	1850	6990	2000
7	722	1960	1720	4040	1890	2540	3730	1580	5890	1780	6990	1730
8	697	1820	1700	3590	e1550	2260	3250	1660	6840	1890	4740	1550
9	674	1850	1660	3140	e1400	2570	3300	1620	5130	1790	3600	1360
10	700	1920	1460	3030	e1590	2940	3450	1660	6660	1710	3720	1230
11	2540	1920	1770	2880	e1200	2310	3780	1650	5680	1660	3870	1190
12	7170	2060	4710	2690	e1100	2180	4490	1850	6070	1720	5280	1160
13	3620	2610	5130	2580	e1000	2430	4160	1760	8420	1690	5260	1300
14	2980	2600	6960	2370	e1100	3120	3840	1630	6980	1510	4130	1430
15	2960	2490	7500	2190	e1200	2700	3540	1570	5750	1380	2880	4310
16	4540	2660	6150	1920	e1100	3030	3160	1520	5270	1300	2660	8860
17	9560	4930	5250	1970	e900	4060	2960	1500	4930	1220	3250	8640
18	6820	6110	4390	e1650	e1300	7060	2880	1550	4660	1200	3300	5150
19	4140	6120	3610	e1700	1490	9300	2740	1430	4400	1410	2520	4810
20	3490	7380	4090	e1800	1820	9160	2600	1330	5270	1230	2090	4420
21	3170	4110	5000	e1650	1820	14700	2500	1370	22900	1570	1950	3950
22	2800	3860	4380	e1600	2110	13700	2420	1400	13100	6090	1830	3850
23	2220	3840	4170	e1550	4210	11300	2330	1350	11600	3760	1710	16600
24	1880	3420	4890	e1500	4070	9590	2200	1460	13500	3720	1590	15300
25	1730	3200	4540	e1500	3100	8950	2010	1570	11900	2860	1540	12400
26	2600	2930	4360	e1450	2590	7670	2150	2700	10700	2220	1450	10500
27	2480	2910	3400	e1400	2140	7350	2330	2800	9670	1980	1400	7350
28	2140	2770	2980	e1200	2020	5990	2090	2910	5380	1910	1340	8020
29	2340	2660	2890	e1400	---	5420	2040	3030	3840	1620	1260	7320
30	2470	2580	2790	1490	---	6740	2010	2580	3450	1550	1410	5750
31	2570	---	2740	1470	---	6290	---	2380	---	1450	1400	---
TOTAL	82466	90770	111020	82600	50730	168720	99360	56250	245980	63540	89330	151420
MEAN	2660	3026	3581	2665	1812	5443	3312	1815	8199	2050	2882	5047
MAX	9560	7380	7500	7040	4210	14700	5950	3030	22900	6090	6990	16600
MIN	674	1760	1460	1200	900	1990	2010	1330	3450	1200	1260	1160
CFM	2.08	2.37	2.80	2.08	1.42	4.26	2.59	1.42	6.41	1.60	2.25	3.95
IN.	2.40	2.64	3.23	2.40	1.48	4.91	2.89	1.64	7.15	1.85	2.60	4.40

e Estimated.

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01453000 LEHIGH RIVER AT BETHLEHEM, PA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1583	2298	2880	2662	2749	3861	3886	3043	2174	1608	1338	1414
MAX (WY)	5778	5294	9067	7898	5820	7708	10180	7041	8199	6362	6192	6907
MIN (WY)	1956	1952	1997	1979	1951	1977	1993	1989	2003	1945	1955	1987
MIN (WY)	406	474	514	286	1132	1632	1428	1053	681	366	405	334
(WY)	1964	1965	1981	1981	1980	1981	1985	1941	1965	1965	1964	1964

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1941 - 2003

ANNUAL TOTAL		761639		1292186								
ANNUAL MEAN		2087		3540					2456			
HIGHEST ANNUAL MEAN									3973			1952
LOWEST ANNUAL MEAN									1165			1965
HIGHEST DAILY MEAN				9560	Oct 17		22900	Jun 21	70400	Aug 19		1955
LOWEST DAILY MEAN				488	Aug 23		674	Oct 9	210	Jan 31		1981
ANNUAL SEVEN-DAY MINIMUM				555	Aug 22		811	Oct 4	216	Jan 26		1981
MAXIMUM PEAK FLOW							28400	Sep 23	a92000	May 23		1942
MAXIMUM PEAK STAGE							11.77	Sep 23	b25.90	May 23		1942
ANNUAL RUNOFF (CFSM)				1.63			2.77		1.92			
ANNUAL RUNOFF (INCHES)				22.15			37.58		26.09			
10 PERCENT EXCEEDS				4300			7050		4850			
50 PERCENT EXCEEDS				1720			2540		1770			
90 PERCENT EXCEEDS				727			1390		689			

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903-1904, 1909-1940, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1532	1827	2184	2346	2430	4134	3815	2280	1753	1530	1239	1214
MAX (WY)	4808	5660	5287	5287	5913	11920	7547	3681	4255	5182	4599	6407
MIN (WY)	1903	1927	1939	1915	1915	1936	1940	1924	1928	1935	1933	1933
MIN (WY)	308	370	470	677	668	1887	1499	1020	832	572	428	374
(WY)	1911	1910	1931	1925	1934	1911	1915	1926	1921	1912	1910	1932

SUMMARY STATISTICS WATER YEARS 1903 - 1904 1909 - 1940

ANNUAL MEAN	2189
HIGHEST ANNUAL MEAN	3600
LOWEST ANNUAL MEAN	1262
HIGHEST DAILY MEAN	47900
LOWEST DAILY MEAN	160
ANNUAL SEVEN-DAY MINIMUM	260
MAXIMUM PEAK FLOW	64800
MAXIMUM PEAK STAGE	18.70
INSTANTANEOUS LOW FLOW	160
ANNUAL RUNOFF (CFSM)	1.71
ANNUAL RUNOFF (INCHES)	23.25
10 PERCENT EXCEEDS	4420
50 PERCENT EXCEEDS	1500
90 PERCENT EXCEEDS	548

- a From rating curve extended above 58,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height, 20.02 ft at present site and datum.
- b From floodmark, present site and datum.

