2004 Water Year

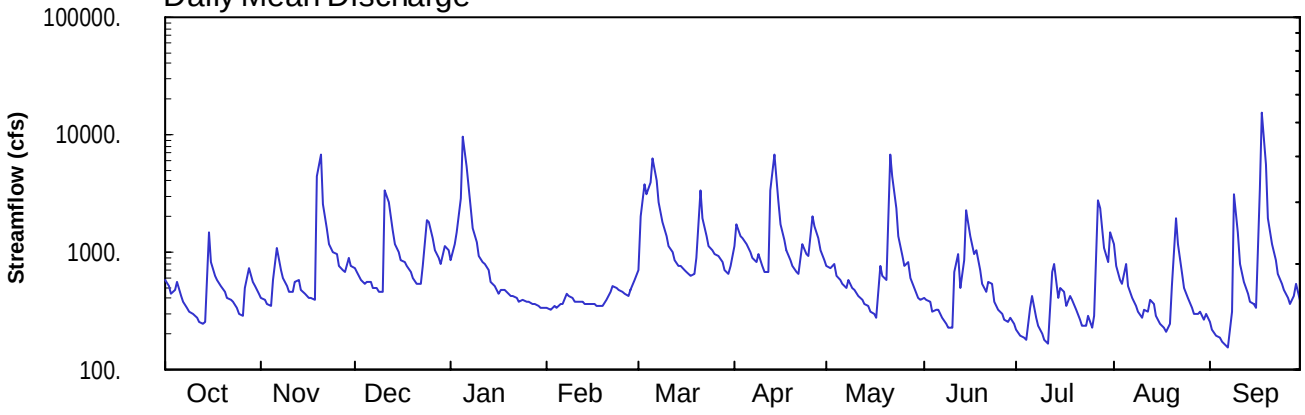
WEST BRANCH SUSQUEHANNA RIVER BASIN

01541000 West Branch Susquehanna River at Bower, PA

Latitude: 40°53'49" Longitude: 078°40'38" Hydrologic Unit Code: 02050201

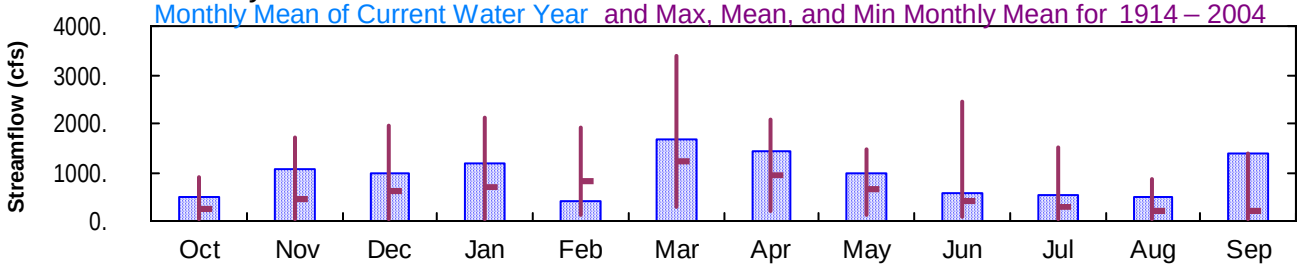
Clearfield County Datum: 1207.14 feet Drainage Area: 315. mi²

Daily Mean Discharge

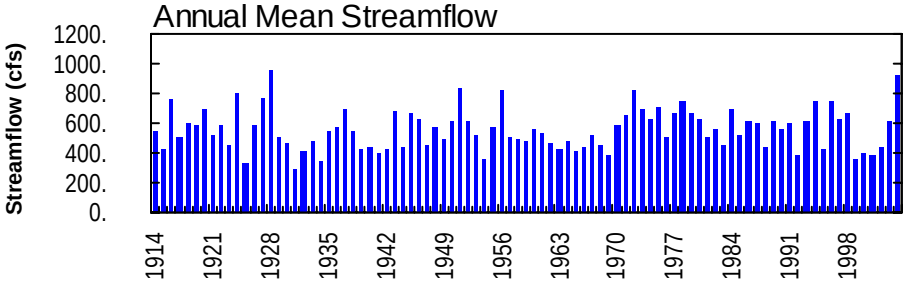


Monthly Statistics

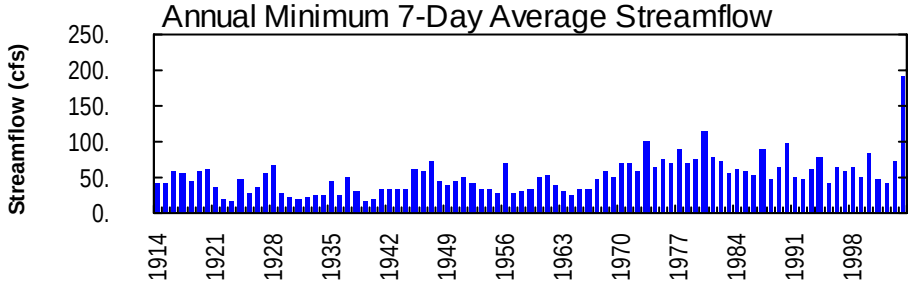
Monthly Mean of Current Water Year and Max, Mean, and Min Monthly Mean for 1914 – 2004



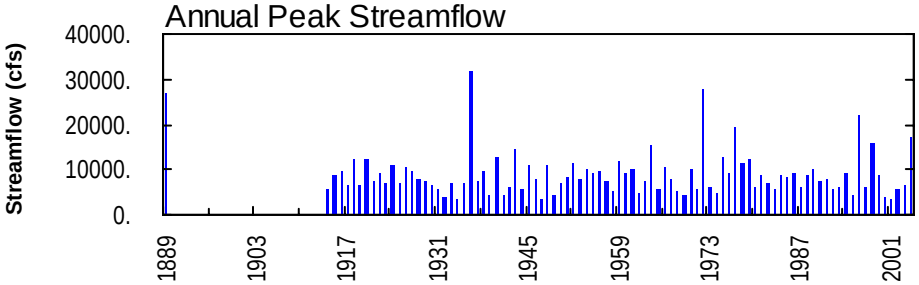
Annual Mean Streamflow



Annual Minimum 7-Day Average Streamflow



Annual Peak Streamflow



WEST BRANCH SUSQUEHANNA RIVER BASIN

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°53'49", long 78°40'38", Clearfield County, Hydrologic Unit 02050201, on right bank at downstream side of highway bridge on Township Route 418 at Bower, and 4.6 mi downstream from Chest Creek and Mahaffey.

DRAINAGE AREA.--315 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WSP 1302: 1914-17, 1918(M), 1922-23, 1924(M), 1925-29, 1930-31(M), 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,207.14 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known prior to 1913, about 18.5 ft, May 13, 1889, discharge, about 27,000 ft^3/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,400 ft^3/s and maximum (*):

Date	Time	Discharge ft^3/s	Gage Height (ft)
Nov. 20	0045	9,010	12.52
Dec. 11	1445	4,640	10.06
Jan. 5	1430	10,400	13.17
Mar. 3	0130	4,800	10.17
Mar. 6	1545	6,770	11.37
Apr. 14	0600	8,110	12.08
May 21	0945	14,000	14.60
July 27	2145	4,680	10.09
Sept. 18	0945	*17,100	*15.69

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	572	409	727	867	e340	716	1130	770	e400	214	1180	254
2	509	386	664	1170	e320	1980	1740	743	390	197	762	217
3	435	366	e590	1450	e350	3810	1380	782	372	185	576	197
4	474	343	e540	2840	e340	3070	1340	630	315	177	529	184
5	551	572	552	9700	e360	3880	1180	568	323	341	796	171
6	425	1080	e550	5330	e360	6330	982	529	323	418	517	162
7	373	710	e500	2320	e440	4050	880	498	280	279	412	156
8	341	593	e490	1570	e430	2620	829	586	250	235	355	306
9	315	509	459	1240	e410	1790	962	492	228	204	310	3100
10	294	455	457	913	e380	1360	764	481	225	179	279	1490
11	273	452	3400	831	e380	1120	684	423	667	167	316	793
12	257	553	2600	782	e370	1010	677	386	958	678	308	566
13	246	572	1530	701	e360	862	3400	356	503	785	389	449
14	256	485	1190	e560	e360	755	6660	347	847	408	360	377
15	1460	434	1010	e510	e360	765	2760	315	2300	493	283	363
16	817	409	845	e440	e360	701	1700	293	1350	460	249	333
17	631	408	807	e470	e350	668	1280	276	946	351	225	3470
18	586	387	750	e480	e350	618	1040	757	1020	426	208	15300
19	519	4390	665	e460	e350	644	872	633	713	392	247	5640
20	453	6790	609	e430	e390	901	757	582	544	324	521	1900
21	408	2530	540	e430	e460	3330	682	6840	450	269	1910	1180
22	393	1590	527	e410	e520	1980	661	4460	560	234	1170	844
23	376	1180	755	e380	e500	1360	1150	2360	536	236	662	649
24	334	989	1880	e390	e470	1120	960	1390	382	292	495	538
25	302	952	1780	e370	e450	1050	915	931	326	223	402	468
26	287	776	1300	e370	e440	979	2040	753	301	286	339	413
27	495	691	1040	e360	e430	914	1640	816	268	2760	302	368
28	737	681	881	e360	e480	817	1300	604	253	2320	295	431
29	556	893	789	e350	e570	711	1030	488	276	1090	307	542
30	511	749	1140	e340	---	654	865	412	245	830	265	392
31	443	---	1050	e330	---	749	---	388	---	1490	302	---
TOTAL	14629	31334	30617	37154	11680	51314	42260	29889	16551	16943	15271	41253
MEAN	472	1044	988	1199	403	1655	1409	964	552	547	493	1375
MAX	1460	6790	3400	9700	570	6330	6660	6840	2300	2760	1910	15300
MIN	246	343	457	330	320	618	661	276	225	167	208	156
CFSM	1.50	3.32	3.14	3.80	1.28	5.25	4.47	3.06	1.75	1.74	1.56	4.37
IN.	1.73	3.70	3.62	4.39	1.38	6.06	4.99	3.53	1.95	2.00	1.80	4.87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	253	446	622	709	802	1208	939	652	400	275	210	210
MAX	915	1707	1958	2136	1924	3369	2080	1480	2446	1522	850	1375
(WY)	1928	1998	1924	1937	1918	1936	1940	1919	1972	1977	2003	2004
MIN	22.5	27.2	51.0	32.9	120	271	202	116	82.0	49.7	25.7	24.1
(WY)	1931	1931	1931	1931	1934	1969	1925	1926	1949	1965	1930	1939

e Estimated.

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	268266		338895			
ANNUAL MEAN	735		926		559	
HIGHEST ANNUAL MEAN					955	1928
LOWEST ANNUAL MEAN					294	1931
HIGHEST DAILY MEAN	6790	Nov 20	15300	Sep 18	23200	Jun 23 1972
LOWEST DAILY MEAN	161	Aug 25	156	Sep 7	16	Aug 29 1939**a**
ANNUAL SEVEN-DAY MINIMUM	183	Jun 30	192	Sep 1	17	Aug 28 1939
MAXIMUM PEAK FLOW			**b**17100	Sep 18	**b**31500	Mar 18 1936
MAXIMUM PEAK STAGE			15.69	Sep 18	**c**19.74	Mar 18 1936
INSTANTANEOUS LOW FLOW					14	Aug 29 1939
ANNUAL RUNOFF (CFSM)	2.33		2.94		1.78	
ANNUAL RUNOFF (INCHES)	31.68		40.02		24.13	
10 PERCENT EXCEEDS	1480		1780		1300	
50 PERCENT EXCEEDS	516		532		290	
90 PERCENT EXCEEDS	230		278		62	

a Also Aug. 31 to Sept. 2, 1939.
b From rating curve extended above 7,200 ft^3/s on basis of slope-area measurement of peak flow.
c From floodmark in gage.

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

COOPERATION.--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specif. conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003													
23...	1100	1028	9813	380	11.5	6.9	7.0	339	331	8.2	150	38.4	13.6
DEC													
22...	0930	1028	9813	540	13.8	6.8	7.4	345	359	.6	160	40.8	14.2
APR 2004													
26...	1130	1028	9813	2320	10.5	7.1	7.3	239	235	10.7	99	25.8	8.3
JUN													
22...	1030	1028	9813	450	9.2	7.2	7.6	323	322	16.8	130	33.8	11.6
AUG													
16...	1100	1028	9813	250	10.4	7.9	7.4	416	399	17.6	160	42.5	14.3

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total at 105 deg. C, suspended, mg/L (00530)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Orthophosphate, water, unfltrd mg/L as P (70507)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, water, unfltrd mg/L (00600)	Organic carbon, water, unfltrd mg/L (00680)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)
OCT 2003													
23...	42	106	476	8	<.020	.52	<.040	<.01	<.010	.72	1.7	<200	<10
DEC													
22...	37	115	296	<2	.030	.73	<.040	<.01	.010	.61	1.0	500	20
APR 2004													
26...	23	72.8	170	60	.030	.51	<.040	.01	.045	.92	2.8	3100	<10
JUN													
22...	40	97.6	256	<2	<.020	.78	<.040	.01	.015	.79	1.6	400	<10
AUG													
16...	52	122	358	2	<.020	.53	<.040	<.01	<.010	.61	1.8	<200	<10

Date	Iron, water, unfltrd recoverable, µg/L (01045)	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
OCT 2003					
23...	380	<1.0	230	<50	<10
DEC					
22...	850	<1.0	430	<50	20
APR 2004					
26...	3930	2.7	450	<50	40
JUN					
22...	680	<1.0	200	<50	<10
AUG					
16...	350	<1.0	140	<50	<10

01541000 WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 μm. Samples represent counts per 100 animal (approximate) subsamples.

Date	10/23/03
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
Ferrissia	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	6
Tubificida	
Naididae	12
Arthropoda	
Acariformes	
Hydrachnidia (WATER MITES)	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
Plauditus	2
Heptageniidae	1
Stenonema	5
Isonychiidae	
Isonychia	5
Plecoptera (STONEFLIES)	
Taeniopterygidae	
Taeniopteryx	4
Trichoptera (CADDISFLIES)	
Brachycentridae	
Brachycentrus	60
Micrasema	8
Hydropsychidae	
Cheumatopsyche	3
Hydropsyche	20
Macrostemum	1
Uenoidae	
Neophylax	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
Optioservus	1
Oulimnius	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	5
Tipulidae (CRANE FLIES)	
Antocha	3
Total Organisms	142
Total Taxa	19