

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 mi².

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 ft³/s.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 4,400 ft³/s and maximum (*):

Date	Time	Discharge ft ³ /s	Gage Height (ft)	Date	Time	Discharge ft ³ /s	Gage Height (ft)
Jan. 2	0730	*6,640	*11.30	Sept. 3	2315	4,620	10.05

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	96	379	337	2640	e230	e320	546	230	1030	203	1810	1780
2	84	319	285	5680	e230	e340	848	220	691	186	984	2570
3	76	252	e230	2880	e240	e350	696	209	581	178	925	2980
4	83	215	e190	1710	e340	e330	630	195	1410	166	1740	2780
5	103	199	e230	1200	e310	e380	2260	217	1290	169	1340	1740
6	92	456	e220	950	e280	e440	1940	296	974	162	916	1150
7	76	496	e210	783	e260	e380	1380	274	1010	220	682	849
8	69	405	e190	690	e240	e620	1210	379	1060	233	649	668
9	65	330	e180	696	e230	e1500	1130	417	1010	196	1010	555
10	63	285	e200	787	e220	1390	946	695	782	192	2420	476
11	66	298	e220	626	e220	1020	1360	799	642	664	1140	407
12	84	315	e230	517	e210	882	1470	621	641	375	902	357
13	126	341	e270	e470	e210	1600	1110	629	723	246	634	325
14	106	307	e500	e410	e210	2290	913	576	591	204	495	314
15	86	261	e760	e350	e200	1990	779	474	516	176	405	363
16	94	257	688	e290	e210	2460	678	551	424	216	370	396
17	200	833	561	e300	e220	2970	591	541	370	189	339	293
18	180	928	466	e290	e240	2880	522	483	656	258	314	255
19	157	659	411	e290	e260	2330	476	549	618	505	265	477
20	196	638	1710	e300	e220	2230	435	453	475	261	232	669
21	157	522	1920	e290	e220	2640	412	837	630	200	214	402
22	130	476	1260	e270	e300	1950	402	698	674	1010	200	348
23	113	462	1070	e260	e550	1450	390	590	509	971	187	1080
24	103	394	810	e250	e600	1140	339	717	420	585	170	681
25	97	365	706	e250	e490	937	311	607	361	447	161	557
26	553	328	610	e250	e400	809	307	577	316	333	366	570
27	386	315	505	e250	e370	707	304	527	283	284	1300	488
28	240	287	442	e240	e350	608	272	450	258	625	683	1090
29	192	268	425	e240	---	556	259	410	232	388	427	832
30	299	312	377	e230	---	566	244	364	214	292	2730	641
31	421	---	445	e230	---	545	---	428	---	246	2350	---
TOTAL	4793	11902	16658	24619	8060	38610	23160	15013	19391	10380	26360	26093
MEAN	155	397	537	794	288	1245	772	484	646	335	850	870
MAX	553	928	1920	5680	600	2970	2260	837	1410	1010	2730	2980
MIN	63	199	180	230	200	320	244	195	214	162	161	255
CFSM	0.49	1.26	1.71	2.52	0.91	3.95	2.45	1.54	2.05	1.06	2.70	2.76
IN.	0.57	1.41	1.97	2.91	0.95	4.56	2.74	1.77	2.29	1.23	3.11	3.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2003, BY WATER YEAR (WY)

MEAN	250	439	618	704	807	1203	934	649	399	272	207	197
MAX	915	1707	1958	2136	1924	3369	2080	1480	2446	1522	850	1349
(WY)	1928	1998	1924	1937	1918	1936	1940	1919	1972	1977	2003	1926
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.

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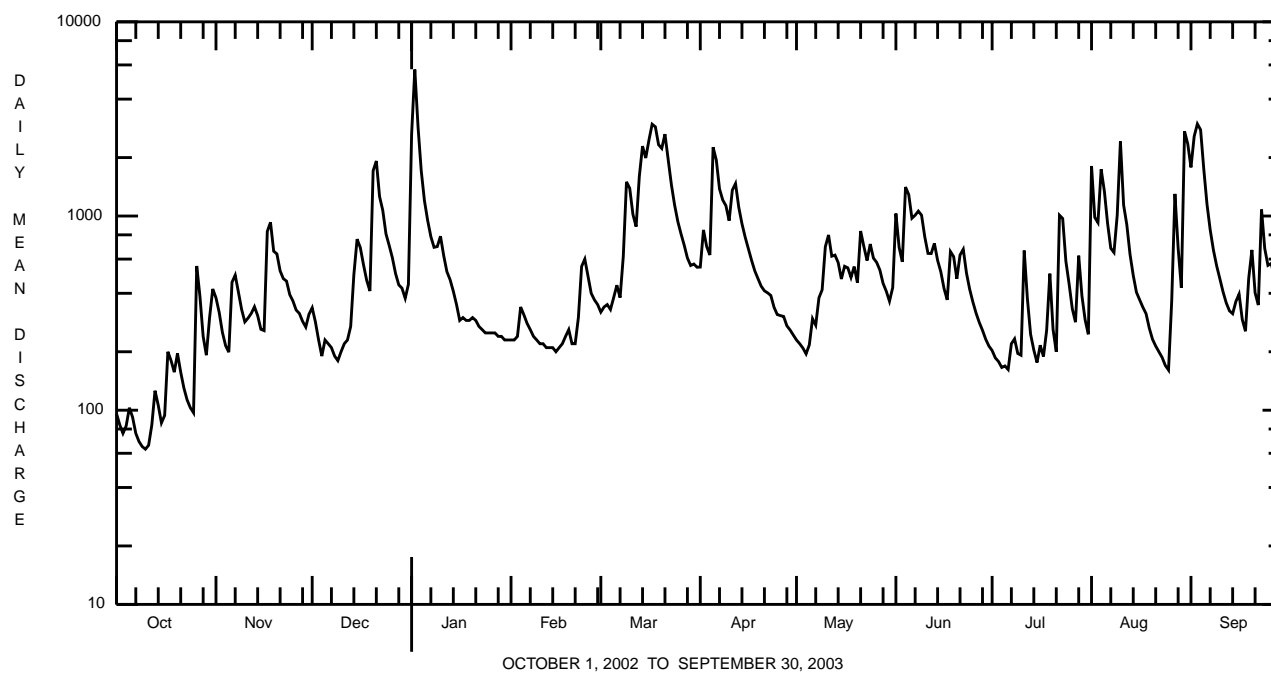
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SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1914 - 2003	
ANNUAL TOTAL	174952		225039			
ANNUAL MEAN	479		617		555	
HIGHEST ANNUAL MEAN					955	1928
LOWEST ANNUAL MEAN					294	1931
HIGHEST DAILY MEAN	4370	Mar 27	5680	Jan 2	23200	Jun 23 1972
LOWEST DAILY MEAN	42	Sep 12,13	63	Oct 10	16	Aug 29 1939 ^a
ANNUAL SEVEN-DAY MINIMUM	44	Sep 8	74	Oct 6	17	Aug 28 1939
MAXIMUM PEAK FLOW			6640	Jan 2	^b 31500	Mar 18 1936
MAXIMUM PEAK STAGE			11.30	Jan 2	^c 19.74	Mar 18 1936
INSTANTANEOUS LOW FLOW					14	Aug 29 1939
ANNUAL RUNOFF (CFSM)	1.52		1.96		1.76	
ANNUAL RUNOFF (INCHES)	20.66		26.58		23.96	
10 PERCENT EXCEEDS	1050		1320		1300	
50 PERCENT EXCEEDS	331		407		285	
90 PERCENT EXCEEDS	64		191		62	

^a Also Aug. 31 to Sept. 2, 1939.

^b From rating curve extended above 7,200 ft³/s on basis of slope-area measurement of peak flow.

^c From floodmark in gage.



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WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 368-434.

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 2002 TO SEPTEMBER 2003

Date	Time	Agency collecting sample, code (00027)	Agency analyzing sample, code (00028)	Instantaneous discharge, cfs (00061)	Sampling method, code (82398)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd μ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)
NOV 2002	12...	1028	9813	312	30	11.4	7.6	342	8.8	130	37.1	9.9	36
JAN 2003	21...	1028	9813	E290	30	13.3	7.5	326	.0	200	49.5	17.7	43
MAR	19...	1028	9813	2350	30	12.0	7.5	180	6.0	67	16.5	6.2	14
MAY	27...	1028	9813	537	30	10.9	7.8	291	13.0	120	30.7	10.3	35
JUL	23...	1028	9813	1060	30	8.8	7.4	270	17.6	110	28.3	8.7	33
SEP	29...	1028	9813	831	30	10.0	7.4	234	12.9	94	24.3	8.0	33

Date	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)	Ortho-phosphate, 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, μ g/L (01105)	Copper, water, unfltrd recoverable, μ g/L (01042)	Iron, water, unfltrd recoverable, μ g/L (01045)
NOV 2002	102	240	4	.040	.79	<.040	<.01	<.010	1.2	1.7	200	<10	490
JAN 2003	150	348	<2	.060	.97	<.040	<.01	<.010	1.3	.9	<200	<10	290
MAR	50.6	148	24	<.020	.91	<.040	.02	.017	1.1	1.7	900	<10	1430
MAY	87.3	224	<2	<.020	.53	<.040	.01	.015	.59	1.8	300	<10	550
JUL	73.1	200	134	.020	.66	<.040	.12	.118	1.1	4.3	4900	<10	7760
SEP	63.2	182	20	<.020	.73	<.040	.02	.028	1.4	3.1	700	<10	1440

Date	Lead, water, unfltrd recoverable, μ g/L (01051)	Manganese, water, unfltrd recoverable, μ g/L (01055)	Nickel, water, unfltrd recoverable, μ g/L (01067)	Zinc, water, unfltrd recoverable, μ g/L (01092)
NOV 2002				
12...	<1.0	210	<50	<10
JAN 2003				
21...	<1.0	490	<50	20
MAR				
19...	<1.0	250	<50	30
MAY				
27...	<1.0	220	<50	20
JUL				
23...	6.1	720	<50	60
SEP				
29...	<1.0	270	<50	100

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BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 (approximate) subsamples.

Date	8/27/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	10
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	10
Heptageniidae	
<u>Stenonema</u> sp	8
Isonychiidae	
<u>Isonychia</u> sp	6
Tricorythidae	
<u>Tricorythodes</u> sp	7
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalis</u> sp	1
Trichoptera (CADDISFLIES)	
Brachycentridae	
<u>Brachycentrus</u> sp	175
Hydropsychidae	
<u>Cheumatopsyche</u> sp	7
<u>Hydropsyche</u> sp	6
<u>Macrostemum</u> sp	1
Polycentropodidae	
<u>Neureclipsis</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Stenelmis</u> sp	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	18
Total Organisms	254