

## BEAVER RIVER BASIN

03106000 CONNOQUENESSING CREEK NEAR ZELIENOPLE, PA  
(Pennsylvania Water-Quality Network Station)

**LOCATION.**--Lat 40°49'01", long 80°14'33", Beaver County, Hydrologic Unit 05030105, on right bank at downstream side of highway bridge at Hazen, 0.3 mi upstream from Brush Creek, 4 mi southeast of Ellwood City, and 6.0 mi west of Zelenople.

**DRAINAGE AREA.**--356 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--October 1919 to current year. Monthly discharge only for some periods, published in WSP 1305. June 1915 to September 1919 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania. Published as "at Hazen" 1915-16, 1929-63, and as "near Hazen" 1917-28.

**REVISED RECORDS.**--WSP 743: Drainage area. WSP 893: 1937-38, 1939 (M). WSP 1305: 1922-26, 1928. WSP 1335: 1920-21, 1924 (M). WSP 1385: 1952.

**GAGE.**--Water-stage recorder. Datum of gage is 852.31 ft above National Geodetic Vertical Datum of 1929. Prior to June 23, 1941, nonrecording gage at same site and datum.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Some regulation by mills above station. Several measurements of water temperature were made during the year. Satellite telemetry at station. Estimated record during non-winter periods is a result of bridge construction.

**PEAK DISCHARGES FOR CURRENT YEAR.**--Peak discharges greater than a base discharge of 5,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)	Date	Time	Discharge ft <sup>3</sup> /s	Gage Height (ft)
Jan. 2	0200	*6,150	a8.83	No other peak greater than base discharge.			

a Maximum gage height 9.87 ft, Feb. 28 (backwater from ice).

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	41	82	93	2310	e220	e257	e344	e159	e1530	e98	304	910
2	35	66	88	4370	e239	e204	e325	e239	e824	e92	281	2120
3	31	58	75	2060	e234	e171	e319	e421	e545	e92	392	2040
4	71	54	72	1560	e454	e131	e322	e354	e462	e199	508	2910
5	91	53	e70	1090	e1050	e131	e915	e303	e405	e452	289	1970
6	69	67	e68	880	e965	e962	e1190	e612	e363	e508	230	1220
7	46	e160	e59	711	e855	e787	e826	e462	e354	e1280	194	862
8	37	97	e59	624	e741	e671	e713	e414	e306	e1070	313	611
9	32	80	e59	e549	e654	e1350	e624	e484	e538	e1000	1220	675
10	32	73	e56	e487	e592	e1170	e481	e1140	e376	e782	835	480
11	32	134	e59	e420	e535	e869	e396	e916	e347	e718	510	309
12	31	207	e62	e382	e487	e718	e376	e759	e401	e520	322	239
13	33	121	e138	e329	e416	e1100	e322	e930	e449	e336	230	199
14	35	92	e623	e296	e377	e1570	e284	e767	e1600	e238	176	177
15	39	78	e1030	e282	e339	e1850	e274	e554	e1360	e182	145	181
16	48	86	e780	e277	e301	e1570	e239	e459	e950	e186	171	235
17	122	239	536	e286	e256	e1300	e226	e360	e767	e212	673	180
18	91	e230	396	e277	e233	e1080	e194	e303	e670	e147	246	134
19	68	214	324	e272	e210	e857	e175	e284	e536	183	155	743
20	105	234	894	e272	e203	e636	e188	e290	e403	146	113	949
21	90	200	829	e258	e195	e578	e204	e1330	e328	135	95	445
22	61	169	623	e277	e241	e542	e382	e990	e269	1800	86	366
23	48	170	592	e253	e572	e485	e264	e765	e239	1790	76	1250
24	41	156	465	e243	e1200	e421	e223	e797	e179	1420	68	833
25	39	131	428	e229	e858	e421	e201	e625	e164	1170	59	668
26	121	117	409	e229	e636	e421	e175	e492	e127	794	109	643
27	183	110	311	e229	e503	e370	e162	e408	e135	614	273	544
28	88	106	255	e220	e363	e363	e166	e385	e105	1340	312	700
29	66	94	257	e215	---	e366	e159	e366	e83	995	167	486
30	68	91	224	e224	---	e421	e147	e341	e98	593	2320	366
31	93	---	414	e205	---	e379	---	e557	---	404	1550	---
TOTAL	1987	3769	10348	20316	13929	22151	10816	17266	14913	19496	12422	23445
MEAN	64.1	126	334	655	497	715	361	557	497	629	401	782
MAX	183	239	1030	4370	1200	1850	1190	1330	1600	1800	2320	2910
MIN	31	53	56	205	195	131	147	159	83	92	59	134
CFSM	0.18	0.35	0.94	1.84	1.40	2.01	1.01	1.56	1.40	1.77	1.13	2.20
IN.	0.21	0.39	1.08	2.12	1.46	2.31	1.13	1.80	1.56	2.04	1.30	2.45

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2003, BY WATER YEAR (WY)

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
MEAN	159	329	553	650	747	968	769	516	327	204	150	138
MAX	1290	1648	1778	2607	2048	2324	2054	1283	1518	1373	775	1743
(WY)	1955	1986	1928	1937	1956	1945	1940	1983	1989	1928	1980	1926
MIN	11.3	12.3	22.3	16.4	97.7	154	182	62.3	24.4	20.5	11.2	11.4
(WY)	1931	1931	1961	1931	1934	1969	1946	1934	1934	1936	1930	1930

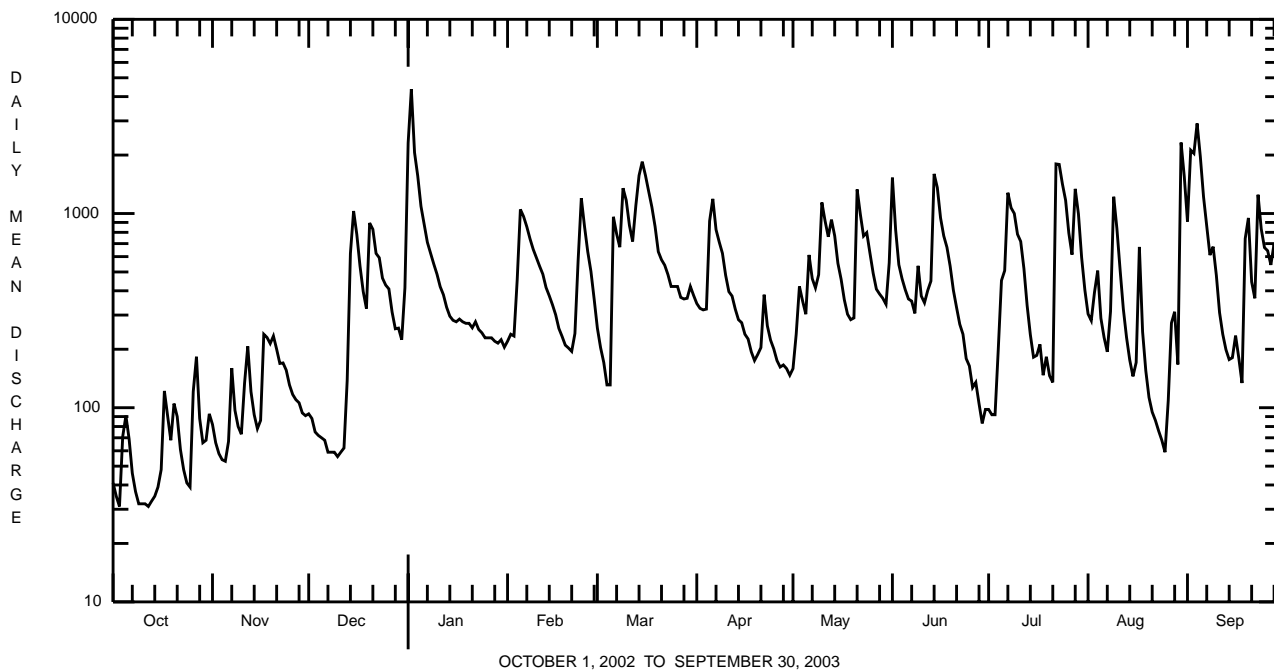
e Estimated.

BEAVER RIVER BASIN

03106000 CONNOQUENESSING CREEK NEAR ZELIENOPLE, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1920 - 2003	
ANNUAL TOTAL	124825		170858			
ANNUAL MEAN	342		468		458	
HIGHEST ANNUAL MEAN					816	1928
LOWEST ANNUAL MEAN					221	1931
HIGHEST DAILY MEAN	4340	Mar 27	4370	Jan 2	16000	Jun 29 1924
LOWEST DAILY MEAN	17	Sep 11,12,14	31	Oct 3,12	6.5	Jul 21 1936
ANNUAL SEVEN-DAY MINIMUM	18	Sep 8	33	Oct 8	8.7	Oct 13 1939
MAXIMUM PEAK FLOW			6150	Jan 2	<b>b</b> 23000	Jun 29 1924
MAXIMUM PEAK STAGE			<b>a</b> 8.83	Jan 2	16.66	Jun 29 1924
INSTANTANEOUS LOW FLOW			30	Oct 3,9-13	6.0	Jul 21 1936
ANNUAL RUNOFF (CFSM)	0.96		1.31		1.29	
ANNUAL RUNOFF (INCHES)	13.04		17.85		17.47	
10 PERCENT EXCEEDS	740		1060		1090	
50 PERCENT EXCEEDS	169		311		210	
90 PERCENT EXCEEDS	29		71		32	

**a** Maximum gage height 9.87 ft, Feb. 28 (backwater from ice).  
**b** About.



## BEAVER RIVER BASIN

03106000 CONNOQUENESSING CREEK NEAR ZELIENOPE, PA--Continued  
(Pennsylvania Water-Quality Network Station)

## WATER-QUALITY RECORDS

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

REMARKS.--Other data for the Water-Quality Network can be found on pages 242-289.

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, $\mu$ S/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd, mg/L as CaCO3 (00900)	Calcium, water, unfltrd recover, -able, mg/L (00916)	Magnesium, water, unfltrd recover, -able, mg/L (00927)	ANC, wat unfltrd fixed lab, mg/L as CaCO3 (00417)
NOV 2002	05...	1028	9813	52	40	12.2	7.7	475	6.2	290	91.9	14.9	88
JAN 2003	08...	1028	9813	616	40	15.8	7.6	494	2.2	130	36.6	9.6	38
MAY	20...	1028	9813	E290	40	9.7	8.3	480	16.0	160	45.9	10.7	50
JUL	24...	1028	9813	1540	40	8.6	7.2	338	--	100	29.5	7.3	55
SEP	04...	1028	9813	2690	40	8.6	7.2	267	20.0	88	24.6	6.5	47

Date	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105degC, suspended, 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 recover, -able, $\mu$ g/L (01105)	Copper, water, unfltrd recover, -able, $\mu$ g/L (01042)	Iron, water, unfltrd recover, -able, $\mu$ g/L (01045)	
NOV 2002	05...	132	704	<2	.060	1.78	<.200	.01	.023	2.5	3.9	<200	<10	200
JAN 2003	08...	58.4	268	4	.050	3.04	<.200	.02	.026	3.5	2.1	200	<10	450
MAY	20...	70.0	344	<2	<.020	1.19	<.200	.03	.025	1.6	2.5	<200	<10	480
JUL	24...	40.8	252	28	<.020	1.43	<.040	.07	.140	1.9	3.9	3300	<10	4720
SEP	04...	31.9	408	86	.050	1.53	<.040	.14	.291	2.4	5.4	4300	10	8740

Date	Lead, water, unfltrd recover, -able, $\mu$ g/L (01051)	Manganese, water, unfltrd recover, -able, $\mu$ g/L (01055)	Nickel, water, unfltrd recover, -able, $\mu$ g/L (01067)	Zinc, water, unfltrd recover, -able, $\mu$ g/L (01092)	
NOV 2002	05...	<1.0	30	<50	10
JAN 2003	08...	<1.0	150	<50	<10
MAY	20...	<1.0	100	<50	20
JUL	24...	6.2	280	<50	20
SEP	04...	11.1	540	<50	50

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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	9/6/02
Benthic Macroinvertebrate	Count
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
<u>Corbicula fluminea</u>	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	8
Heptageniidae	
<u>Stenonema</u> sp	1
Isonychiidae	
<u>Isonychia</u> sp	1
Megaloptera	
Corydalidae (FISHFLIES AND DOBSONFLIES)	
<u>Corydalus</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	46
<u>Hydropsyche</u> sp	11
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Stenelmis</u> sp	20
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	25
Total Organisms	114