

BEAVER RIVER BASIN

03105500 BEAVER RIVER AT WAMPUM, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 40°53'19", long 80°20'14", Lawrence County, Hydrologic Unit 05030104, on right bank at downstream side of bridge on State Highway 288 at Wampum, 2.9 mi upstream from Connoquenessing Creek, at mile 15.4.

DRAINAGE AREA.--2,235 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1914 to September 1918, August 1932 to current year. Monthly discharge only for some periods, published in WSP 1305. Published as "at Newport" 1914-18.

REVISED RECORDS.--WSP 728: Drainage area. WSP 1385: 1933-40, 1946, 1951-52. WSP 1725: 1960 (adjusted runoff). WDR PA-85-3: 1984 (M).

GAGE.--Water-stage recorder. Datum of gage is 736.24 ft above National Geodetic Vertical Datum of 1929 (Penn Central Railroad bench mark). Prior to Sept. 20, 1914, nonrecording gage at site 500 ft downstream at datum 0.76 ft lower. Oct. 1, 1914 to Sept. 30, 1918, nonrecording gage at site 1 mi upstream at datum 0.84 ft higher. Aug. 26, 1932 to Nov. 16, 1938, nonrecording gage at present site and datum. Since 1932 an auxiliary gage 10 mi downstream at Beaver Falls (station 03107500) is used during periods of backwater from Connoquenessing Creek.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1916 by Milton Reservoir, since November 1929 by Meander Creek Reservoir, since December 1933 by Pymatuning Reservoir (station 03100500), since December 1942 by Berlin Lake, since October 1943 by Mosquito Creek Lake, since December 1966 by Michael J. Kirwan Reservoir, and since January 1967 by Shenango River Lake 40 mi upstream. Several measurements of water temperature were made during the year. U.S. Army Corps of Engineers satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1912, 29.9 ft, Mar. 26, 1913, from floodmark, discharge, about 87,000 ft³/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	757	581	967	5850	951	2860	3110	1240	10700	1270	6940	2530
2	666	532	922	6780	1040	2610	2840	1220	7660	1210	6790	15300
3	591	463	879	5020	1040	2710	2600	1350	5670	1270	8680	9730
4	578	439	811	4330	2660	2640	2460	1320	4440	1300	9070	6230
5	620	448	851	4190	3310	3930	6040	1310	4660	2300	8600	4500
6	591	583	845	3920	2550	5470	7590	1770	4510	1760	8910	4100
7	561	666	815	3830	3040	4190	6710	1800	4280	3630	8300	3650
8	541	615	841	3970	2660	4030	6060	1460	3530	4240	7670	3460
9	535	546	811	3860	2430	7850	6830	1620	4990	8290	6780	2790
10	534	530	784	3680	2290	7190	6520	5900	4350	7170	12900	2080
11	532	2370	840	3190	1810	5580	6040	7540	3310	11600	8080	2000
12	528	1970	1080	2610	1700	5040	3920	5580	3070	7450	6430	1840
13	533	1330	1220	2290	1320	6460	3220	4870	4830	5810	5600	1480
14	524	985	2120	2180	1250	8320	3020	5950	7440	4780	5190	1400
15	513	822	3110	1950	1220	6820	2740	5750	5130	4000	4990	1470
16	624	861	2480	1480	1140	6540	2240	5910	3910	3860	4870	1830
17	855	1050	2040	1290	1100	6450	2400	5860	3540	3530	5090	1490
18	682	1310	1760	1100	1200	6290	2300	5450	4270	3030	4640	1370
19	616	1260	1630	1100	1190	5450	2100	4130	4160	2790	4410	5120
20	697	1360	2770	1110	1200	3960	1630	3670	4130	2440	3560	5570
21	636	1210	2890	1080	1230	3110	2410	6940	3630	2510	2320	4380
22	584	1150	2230	1010	1440	3050	2450	6260	2700	15100	1630	3910
23	549	1310	2150	968	5400	3300	2110	4770	2350	27500	1300	8410
24	505	1310	1990	996	4430	2950	2220	10100	2170	25700	1330	6670
25	510	1220	1980	952	3840	2690	2120	8830	1650	13400	1290	5470
26	995	1100	1920	951	3580	2810	1650	6430	1510	6820	2010	4730
27	969	1040	1600	889	3150	3380	1510	5490	1540	7090	2610	5920
28	753	1000	1460	911	3110	3240	1420	4830	1500	24300	1800	9230
29	645	968	1380	895	---	3140	1190	4190	1280	16700	1500	8040
30	626	963	1350	830	---	4040	1150	3170	1250	9290	6530	5890
31	612	---	2830	830	---	3730	---	4630	---	7550	3600	---
TOTAL	19462	29992	49356	74042	61281	139830	98600	139340	118160	237690	163420	140590
MEAN	628	1000	1592	2388	2189	4511	3287	4495	3939	7667	5272	4686
MAX	995	2370	3110	6780	5400	8320	7590	10100	10700	27500	12900	15300
MIN	505	439	784	830	951	2610	1150	1220	1250	1210	1290	1370
CFSM	0.28	0.45	0.71	1.07	0.98	2.02	1.47	2.01	1.76	3.43	2.36	2.10
IN.	0.32	0.50	0.82	1.23	1.02	2.33	1.64	2.32	1.97	3.96	2.72	2.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 2003, BY WATER YEAR (WY)

MEAN	1243	1775	2810	3391	3859	4818	3922	2702	1999	1553	1300	1226
MAX	5888	7936	7978	13030	8779	9098	9226	8362	8004	7667	5272	4759
(WY)	1991	1986	1991	1937	1915	1916	1994	1996	1989	2003	2003	1990
MIN	168	278	447	534	304	1074	657	288	222	198	156	153
(WY)	1934	1915	1961	1918	1934	1969	1915	1934	1934	1918	1933	1916

BEAVER RIVER BASIN

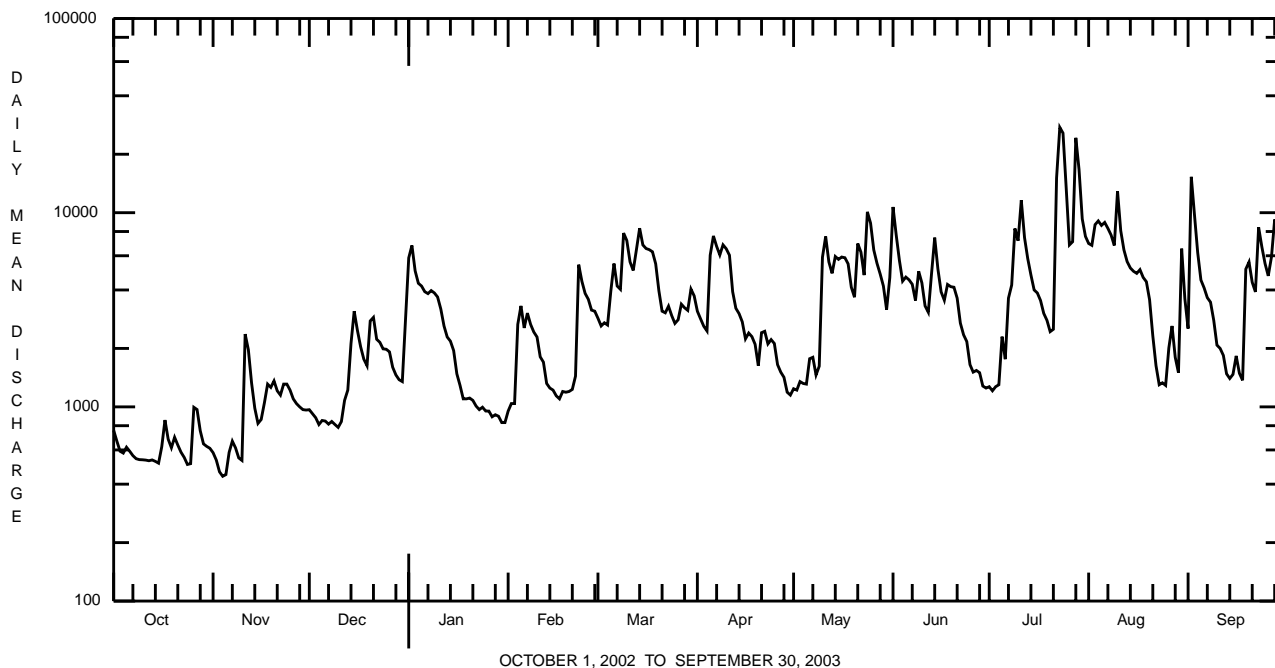
03105500 BEAVER RIVER AT WAMPUM, PA--Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1915 - 2003	
ANNUAL TOTAL	821980		1271763			
ANNUAL MEAN	2252		3484		2550	
HIGHEST ANNUAL MEAN					3995	1956
LOWEST ANNUAL MEAN					834	1934
HIGHEST DAILY MEAN	17900	May 14	27500	Jul 23	47500	Jan 22 1959
LOWEST DAILY MEAN	439	Nov 4	439	Nov 4	88	Oct 5 1914
ANNUAL SEVEN-DAY MINIMUM	523	Oct 31	523	Oct 31	94	Oct 3 1914
MAXIMUM PEAK FLOW			a29100	Jul 23	a50100	May 28 1946
MAXIMUM PEAK STAGE			15.65	Jul 23	b21.53	May 28 1946
INSTANTANEOUS LOW FLOW					c74	Jul 30 1933
ANNUAL RUNOFF (CFSM)	1.01		1.56		1.14	
ANNUAL RUNOFF (INCHES)	13.68		21.17		15.50	
10 PERCENT EXCEEDS	5520		7000		5850	
50 PERCENT EXCEEDS	1310		2530		1430	
90 PERCENT EXCEEDS	666		731		577	

a From slope-rating curve extended above 28,000 ft³/s on basis of contracted-opening measurement at gage height 21.44 ft.

b Maximum gage height, 24.86 ft, Jan. 22, 1959 (backwater from Connoquenessing Creek).

c Minimum discharge observed.



BEAVER RIVER BASIN

03105500 BEAVER RIVER AT WAMPUM, PA--Continued
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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 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, μ 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 pt, lab, mg/L as CaCO3 (00417)
NOV 2002 12...	0930	1028	9813	2010	40	8.4	7.4	509	12.3	160	49.0	9.6	88
JAN 2003 22...	1300	1028	9813	970	40	14.8	7.5	673	2.0	200	56.3	14.0	91
MAR 11...	1030	1028	9813	5440	40	13.9	7.3	469	.8	120	34.4	8.5	55
MAY 20...	1245	1028	9813	3510	40	8.3	8.2	448	16.5	120	30.9	10.3	74
JUL 10...	1445	1028	9813	6480	40	7.4	7.6	360	--	110	32.3	8.0	68
SEP 15...	1400	1028	9813	1420	40	6.7	7.5	504	22.5	170	48.4	11.9	99

Date	Fluoride, water, unfltrd, mg/L (00951)	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 recover -able, μ g/L (01105)	Copper, water, unfltrd recover -able, μ g/L (01042)
NOV 2002 12...	.3	65.5	346	26	.080	1.40	<.040	.12	.202	2.5	6.7	700	10
JAN 2003 22...	.3	75.4	454	<2	.330	2.65	<.200	.09	.115	3.5	4.8	<200	<10
MAR 11...	<.2	43.4	300	38	.180	1.51	<.200	.07	.125	2.4	5.9	1400	<10
MAY 20...	.2	47.3	340	26	.070	.99	<.200	.05	.127	1.8	6.3	--	<10
JUL 10...	.2	38.7	210	80	.040	.87	<.200	.12	.221	1.7	9.4	2300	10
SEP 15...	.2	64.5	368	<2	.040	1.38	<.040	.08	.100	.84	6.0	<200	<10

Date	Cyanide amenable to chlorination, wat unfltrd, mg/L (00722)	Iron, water, unfltrd recover -able, μ g/L (01045)	Lead, water, unfltrd recover -able, μ g/L (01051)	Manganese, water, unfltrd recover -able, μ g/L (01055)	Nickel, water, unfltrd recover -able, μ g/L (01067)	Zinc, water, unfltrd recover -able, μ g/L (01092)	Phenolic compounds, water, unfltrd, μ g/L (32730)
NOV 2002 12...	<1.00	1700	4.2	140	<50	30	<5
JAN 2003 22...	--	520	<1.0	130	<50	30	<5
MAR 11...	<1.00	2410	3.8	210	<50	40	<5
MAY 20...	<1.00	1710	4.0	160	<50	140	<5
JUL 10...	<1.00	4520	9.0	290	<50	70	<5
SEP 15...	<1.00	730	2.0	100	<50	40	<5

BEAVER RIVER BASIN

03105500 BEAVER RIVER AT WAMPUM, PA--Continued

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
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	1
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	9
Bivalvia (CLAMS)	
Veneroida	
Corbiculidae	
<u>Corbicula fluminea</u>	1
Annelida	
Hirudinea (LEECHES)	
Arhynchobdellida	
Erpobdellidae	
<u>Erpobdella punctata</u>	1
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	4
<u>Branchiura sowerbyi</u>	1
Arthropoda	
Crustacea	
Amphipoda (SCUDS)	
Crangonyctidae	
<u>Crangonyx</u> sp	1
Gammaridae	
<u>Gammarus</u> sp	3
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	6
Heptageniidae	
<u>Stenacron</u> sp	6
<u>Stenonema</u> sp	4
Tricorythidae	
<u>Tricorythodes</u> sp	4
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	
<u>Argia</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	1
<u>Hydropsyche</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Stenelmis</u> sp	40

BEAVER RIVER BASIN

03105500 BEAVER RIVER AT WAMPUM, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	9/6/02
Benthic Macroinvertebrate	Count
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	34
Simuliidae (BLACK FLIES)	
<u>Simulium</u> sp	1
Total Organisms	119