



2005 Water Year
BUSH KILL BASIN
01439500 Bush Kill at Shoemakers, PA

Latitude: 41° 05' 17"

Longitude: 075° 02' 17"

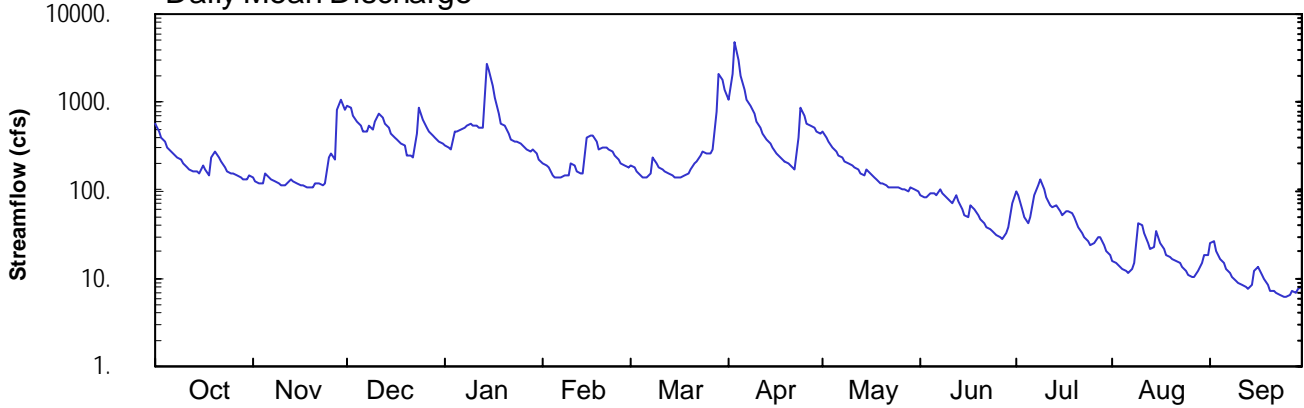
Hydrologic Unit Code: 02040104

Monroe County

Datum: 421.13 feet

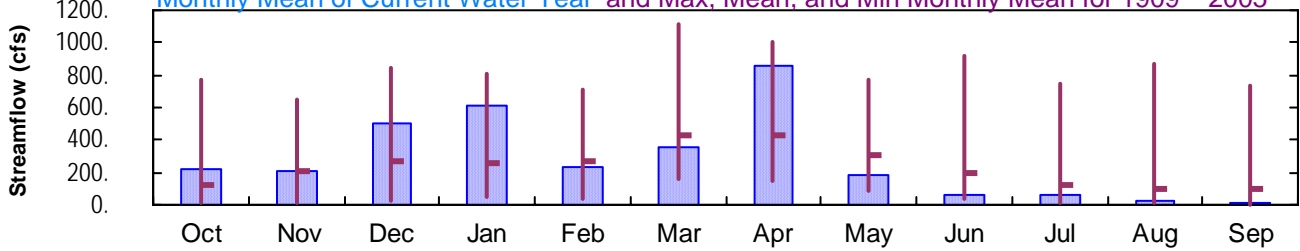
Drainage Area: 117. mi²

Daily Mean Discharge

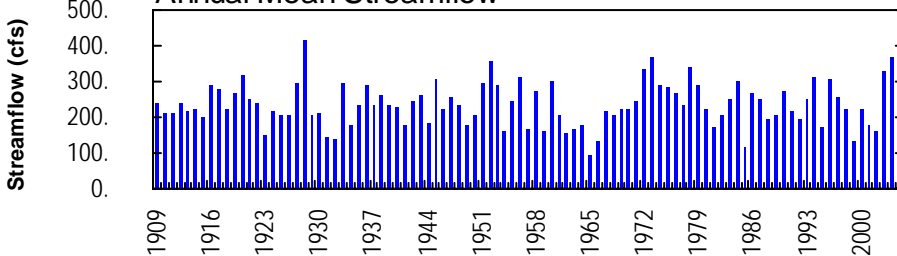


Monthly Statistics

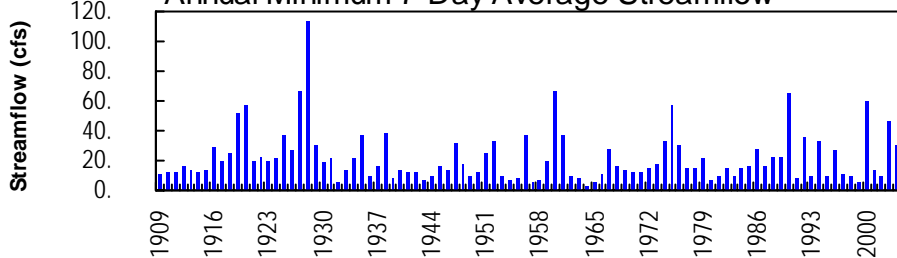
Monthly Mean of Current Water Year and Max, Mean, and Min Monthly Mean for 1909 – 2005



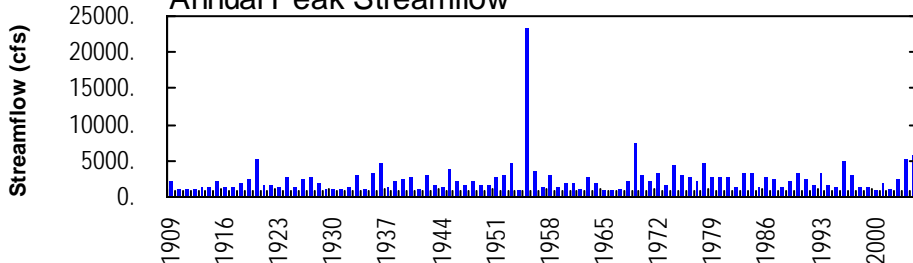
Annual Mean Streamflow



Annual Minimum 7-Day Average Streamflow



Annual Peak Streamflow



BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°05'17", long 75°02'17", Monroe County, Hydrologic Unit 02040104, on right bank 30 ft downstream from bridge on township route 523, 0.1 mi downstream from Saw Creek, 0.7 mi northwest of Shoemakers, and 2.0 mi southwest of Bushkill.

DRAINAGE AREA.--117 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1908 to current year. Monthly discharge only for some periods, published in WSP 1302. Prior to October 1928, published as Bushkill Creek near Shoemakers; October 1928 to September 1952, published as Bushkill Creek at Shoemakers.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1202: 1921, 1932(M), 1933, 1935-36, 1938(M), 1939-40, 1942, 1945, 1946(M), 1948(M). WSP 1302: 1909-15, 1920(M), 1922-29. WDR PA-89-1: 1988.

GAGE.--Water-stage recorder. Datum of gage is 421.13 ft above National Geodetic Vertical Datum of 1929. Sept. 19, 1908, to Aug. 12, 1938, nonrecording gage, and Aug. 13, 1938, to June 20, 1956, water-stage recorder at site 50 ft upstream at same datum.

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

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge ft ³ /s	Gage Height (ft)	Date	Time	Discharge ft ³ /s	Gage Height (ft)
Nov. 28	2015	1,350	3.67	Mar. 29	0530	2,260	4.60
Jan. 14	1415	3,620	5.86	Apr. 3	0345	*5,670	*7.51

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	561	138	925	330	e200	188	1070	461	87	98	16	26
2	472	126	880	305	e190	180	2140	401	82	89	15	26
3	405	122	709	294	e180	e160	4800	350	85	62	14	21
4	353	122	601	466	e150	e150	2960	306	95	49	13	17
5	310	155	531	453	e140	e140	1950	273	90	42	12	15
6	282	141	470	497	e140	e140	1380	250	87	50	12	13
7	259	130	462	517	e140	155	1070	235	104	87	13	12
8	239	124	540	540	146	232	930	218	92	115	15	11
9	224	119	487	578	146	198	751	203	85	131	41	9.4
10	205	114	617	530	201	e180	612	192	78	104	40	8.9
11	185	112	748	531	189	e170	517	181	71	83	33	8.4
12	173	123	654	526	166	160	440	171	86	68	26	8.0
13	163	136	576	523	153	153	379	155	76	66	21	7.6
14	162	124	509	2660	156	147	333	151	62	69	e23	8.4
15	157	119	447	e2300	393	141	299	173	53	58	e35	12
16	191	116	402	e1500	421	141	265	158	50	52	26	13
17	172	111	375	e1100	418	139	247	141	69	57	22	11
18	151	108	344	e760	367	144	225	131	60	59	19	9.6
19	239	108	321	e570	292	152	210	122	52	56	17	8.4
20	282	109	252	e540	e300	170	197	119	47	51	17	7.4
21	238	123	e250	e450	312	202	186	111	42	39	16	7.1
22	210	120	e240	e370	290	217	173	107	37	33	15	6.8
23	186	114	443	e360	270	253	405	107	36	30	13	6.4
24	165	121	850	e360	243	270	888	106	34	27	12	6.2
25	156	237	622	e340	226	261	705	105	31	24	11	6.2
26	153	257	526	e300	e200	265	557	105	30	26	10	6.3
27	146	226	463	e290	e190	297	556	103	28	29	10	7.3
28	138	814	412	e280	183	765	528	100	33	30	12	6.8
29	133	1070	e390	e290	---	2130	456	109	37	23	15	7.4
30	134	828	359	e260	---	1780	442	101	71	21	19	8.1
31	149	---	337	e220	---	1350	---	95	---	18	19	---
TOTAL	6993	6367	15742	19040	6402	11030	25671	5540	1890	1746	582	321.7
MEAN	226	212	508	614	229	356	856	179	63.0	56.3	18.8	10.7
MAX	561	1070	925	2660	421	2130	4800	461	104	131	41	26
MIN	133	108	240	220	140	139	173	95	28	18	10	6.2
CFSM	1.93	1.81	4.34	5.25	1.95	3.04	7.31	1.53	0.54	0.48	0.16	0.09
IN.	2.22	2.02	5.01	6.05	2.04	3.51	8.16	1.76	0.60	0.56	0.19	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2005, BY WATER YEAR (WY)

MEAN	128	212	270	262	270	431	432	302	197	126	101	99.5
MAX	773	643	841	807	706	1119	1002	773	919	747	864	735
(WY)	1956	1933	1997	1979	1909	1936	1993	1989	1972	1945	1955	2004
MIN	7.74	13.6	21.7	44.2	39.7	156	141	90.7	32.8	13.4	8.33	4.39
(WY)	1965	1965	1999	1981	1934	1981	1985	1941	1962	1999	1964	1964

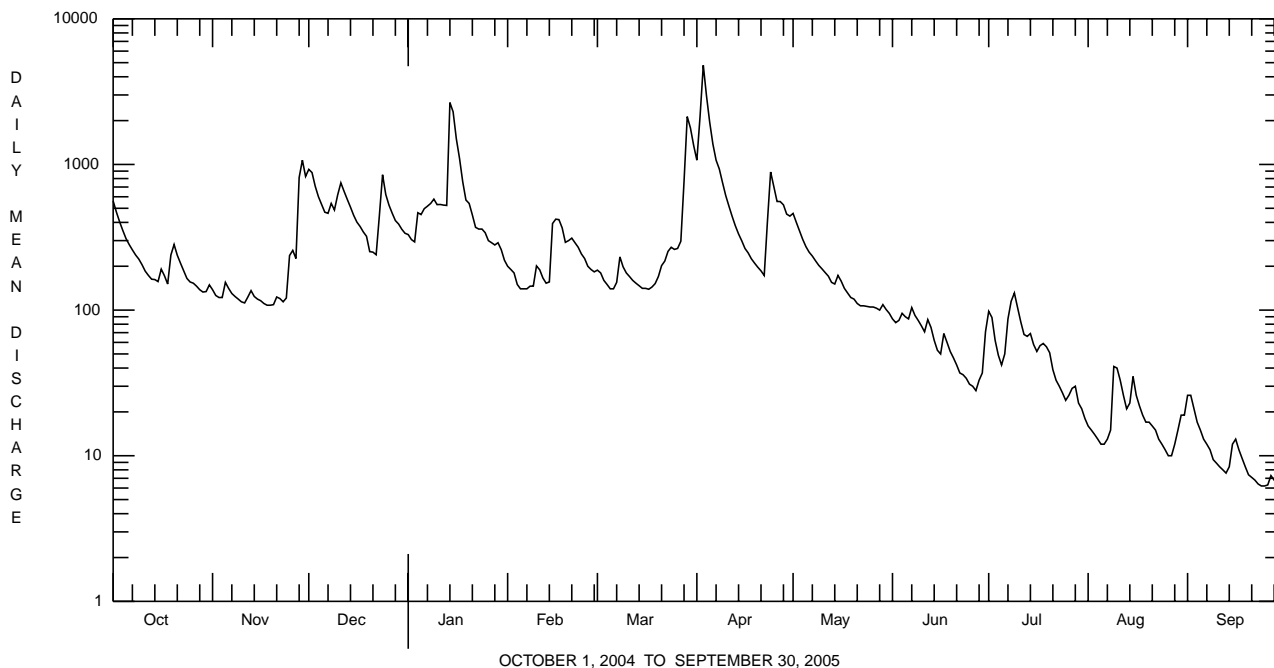
e Estimated.

BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, PA--Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1909 - 2005	
ANNUAL TOTAL	113821		101324.7			
ANNUAL MEAN	311		278		236	
HIGHEST ANNUAL MEAN					419	1928
LOWEST ANNUAL MEAN					95.4	1965
HIGHEST DAILY MEAN	3770	Sep 18	4800	Apr 3	11800	Aug 19 1955
LOWEST DAILY MEAN	24	Jul 11	6.2	Sep 24,25	2.6	Sep 25 1964
ANNUAL SEVEN-DAY MINIMUM	31	Jul 5	6.6	Sep 22	2.7	Sep 21 1964
MAXIMUM PEAK FLOW			a5670	Apr 3	a23400	Aug 19 1955
MAXIMUM PEAK STAGE			7.51	Apr 3	b13.95	Aug 19 1955
INSTANTANEOUS LOW FLOW					2.6	Sep 25 1964
ANNUAL RUNOFF (CFSM)	2.66		2.37		2.01	
ANNUAL RUNOFF (INCHES)	36.19		32.22		27.37	
10 PERCENT EXCEEDS	579		565		522	
50 PERCENT EXCEEDS	230		153		160	
90 PERCENT EXCEEDS	80		15		27	

a From rating curve extended above 2,600 ft³/s on basis of slope-area measurement of peak flow.
 b From floodmark.



BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

REMARKS.--Some values for "dissolved" parameters exceed values for the corresponding "total" parameter. These results are within the limits of analytical precision and methods.

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 2004 TO SEPTEMBER 2005

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 unfltrd lab, µS/cm 25 degC (90095)	Specif. conductance, wat unfltrd lab, µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, unfltrd, mg/L (00915)	Calcium water, unfltrd recoverable, mg/L (00916)
NOV 2004 04...	0900	1028	9813	115	13.3	6.8	6.6	41	39	7.4	12	3.0	3.1
JAN 2005 06...	1630	1028	9813	528	13.4	6.0	6.8	41	42	2.1	11	2.6	2.9
MAR 10...	1030	1028	9813	E180	15.6	7.0	7.1	52	42	.1	14	3.8	3.8
MAY 19...	0900	1028	9813	125	10.9	7.0	7.1	48	40	13.4	13	3.2	3.4
JUL 07...	1130	1028	9813	103	8.7	6.4	7.2	46	41	22.1	14	3.8	3.7
SEP 12...	0950	1028	9813	7.7	10.2	7.1	7.3	86	77	16.7	23	6.8	6.3

Date	Magnesium, water, unfltrd, mg/L (00925)	Magnesium, water, unfltrd recoverable, mg/L (00927)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (00417)	Sulfate water, unfltrd, mg/L (00945)	Residue on evap. at 105degC, wat fltrd, 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)	Total nitrogen, water, unfltrd, mg/L (00600)	Orthophosphate, water, unfltrd, mg/L as P (70507)	Phosphorus, water, unfltrd, mg/L (00665)	BOD, water, unfltrd 5 day, 20 degC, mg/L (00310)
NOV 2004 04...	.96	1.0	9	5.2	28	<2	<.020	<.04	<.040	.21	.01	.01	1.4
JAN 2005 06...	.85	.92	7	6.2	40	2	<.020	.05	<.040	.23	<.01	.02	.7
MAR 10...	1.1	1.2	8	7.0	--	<2	<.020	.07	<.040	.08	<.01	<.01	1.2
MAY 19...	.93	1.0	7	6.5	78	<2	<.020	.05	<.040	.14	.02	.03	.4
JUL 07...	1.1	1.1	8	5.5	28	<2	.080	.14	<.040	.53	.03	.04	1.1
SEP 12...	1.9	1.7	14	7.4	--	4	.040	.94	<.040	1.1	.15	.18	.4

Date	Aluminum, water, unfltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Copper, water, unfltrd, µg/L (01040)	Copper, water, unfltrd recoverable, µg/L (01042)	Iron, water, unfltrd, µg/L (01046)	Iron, water, unfltrd recoverable, µg/L (01045)	Lead, water, unfltrd, µg/L (01049)	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd, µg/L (01090)
NOV 2004 04...	40	40	<4	<4	50	90	<1.0	<1.0	2	4	<4.0	<4.0	<5.0
JAN 2005 06...	30	60	<4	<4	50	100	<1.0	<1.0	2	8	<4.0	<4.0	<5.0
MAR 10...	20	30	<4	<4	40	60	<1.0	<1.0	3	4	<4.0	<4.0	<5.0
MAY 19...	10	40	<4	<4	30	70	<1.0	<1.0	2	7	<4.0	<4.0	<5.0
JUL 07...	20	40	<4	<4	80	120	<1.0	<1.0	5	10	<4.0	<4.0	<5.0
SEP 12...	20	20	<4	<4	<20	20	<1.0	<1.0	7	7	<4.0	<4.0	<5.0

Date	Zinc, water, unfltrd recoverable, µg/L (01092)
NOV 2004 04...	<5.0
JAN 2005 06...	5.4
MAR 10...	<5.0
MAY 19...	<5.0
JUL 07...	<5.0
SEP 12...	<5.0

BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, 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	10/28/04
Benthic macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Lymnaeidae	
<i>Fossaria</i>	1
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<i>Sphaerium</i>	1
Arthropoda	
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<i>Acentrella</i>	5
Ephemerellidae	
<i>Dannella</i>	3
<i>Ephemerella</i>	4
Heptageniidae	
<i>Epeorus</i>	17
<i>Rhithrogena</i>	8
<i>Stenonema</i>	7
Isonychiidae	
<i>Isonychia</i>	5
Leptophlebiidae	
<i>Paraleptophlebia</i>	20
Plecoptera (STONEFLIES)	
Leuctridae	1
Perlidae	
<i>Acroneuria</i>	4
<i>Neoperla</i>	1
Pteronarcyidae	
<i>Pteronarcys</i>	1
Taeniopterygidae	
<i>Taeniopteryx</i>	2
Trichoptera (CADDISFLIES)	
Glossosomatidae	
<i>Glossosoma</i>	4
Hydropsychidae	
<i>Cheumatopsyche</i>	6
<i>Hydropsyche</i>	2
<i>Potamyia</i>	1
Lepidostomatidae	
<i>Lepidostoma</i>	1
Leptoceridae	
<i>Oecetis</i>	2
Philopotamidae	
<i>Chimarra</i>	2
<i>Dolophilodes</i>	1

BUSH KILL BASIN

01439500 BUSH KILL AT SHOEMAKERS, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/28/04
Benthic macroinvertebrate	Count
Diptera (TRUE FLIES)	
Athericidae	
<i>Atherix</i>	1
Chironomidae (MIDGES)	6
Simuliidae (BLACK FLIES)	
<i>Simulium</i>	1
Total Organisms	107
Total Taxa	26