

LACKAWANNA RIVER BASIN

01536000 LACKAWANNA RIVER AT OLD FORGE, PA
(Pennsylvania Water-Quality Network Station)

LOCATION.--Lat 41°21'33", long 75°44'41", Lackawanna County, Hydrologic Unit 02050107, on right bank 100 ft downstream from bridge on SR 3017, 150 ft upstream from Delaware, Lackawanna, and Western Railroad bridge in Old Forge, and 0.5 mi upstream from St. Johns Creek.

DRAINAGE AREA.--332 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year.

REVISED RECORDS.--WSP 1432: 1939(M), 1940, 1945. WDR PA-90-2: 1985(M).

GAGE.--Water-stage recorder. Datum of gage is 595.26 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1974, water-stage recorder at same site and datum. Oct. 1, 1974, to Aug. 17, 1975, nonrecording gage at site 150 ft upstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since December 1959 by Stillwater Dam (station 01534180) about 33 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

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	146	324	461	1080	190	441	e1200	513	5750	393	181	357
2	122	301	405	2130	190	499	e1300	493	3140	337	199	2930
3	105	278	365	1460	188	518	1260	534	1780	289	159	1950
4	96	257	289	1250	429	435	1150	477	1390	338	280	4150
5	100	239	302	1070	482	455	1160	428	1180	271	384	2060
6	83	331	305	959	349	517	1100	380	972	228	426	1410
7	80	339	269	841	349	448	998	337	1140	200	313	1110
8	74	298	263	765	286	453	916	413	1260	223	240	837
9	70	269	232	744	280	457	827	396	1070	218	410	666
10	71	253	208	724	273	416	788	418	932	195	320	549
11	1130	250	336	627	247	365	866	438	793	339	2120	476
12	2170	371	1090	555	234	379	996	520	814	263	2040	419
13	1230	715	849	494	e200	385	875	546	751	230	1060	385
14	910	583	1280	444	e190	378	757	527	733	180	752	385
15	627	537	1380	420	213	387	678	471	954	149	549	945
16	1850	493	1150	364	167	655	624	422	715	137	505	1610
17	2280	1030	934	385	e150	1510	554	360	566	126	460	1040
18	1370	1180	735	e290	255	2520	509	315	563	133	411	791
19	1120	1040	655	319	249	2610	484	284	515	144	332	776
20	904	896	1490	346	235	2500	447	252	840	116	271	743
21	689	875	1670	287	206	3690	423	263	4260	208	232	593
22	542	942	1290	262	422	3200	474	234	5730	1040	249	500
23	457	1020	1120	257	1020	2340	459	225	2950	858	223	3410
24	394	897	934	271	919	2120	421	277	1620	548	174	2260
25	360	808	865	288	725	1870	394	288	1220	383	154	1420
26	678	711	805	289	592	1700	734	448	970	273	144	1170
27	581	669	688	e250	540	e1600	937	458	755	258	139	969
28	482	580	619	263	486	e1400	733	394	610	466	128	1320
29	418	525	573	310	---	e1300	676	381	510	267	118	1160
30	384	482	524	256	---	e1400	595	332	447	204	207	977
31	350	---	590	199	---	e1300	---	481	---	164	141	---
TOTAL	19873	17493	22676	18199	10066	38248	23335	12305	44930	9178	13321	37368
MEAN	641	583	731	587	360	1234	778	397	1498	296	430	1246
MAX	2280	1180	1670	2130	1020	3690	1300	546	5750	1040	2120	4150
MIN	70	239	208	199	150	365	394	225	447	116	118	357

e Estimated.

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY) (SINCE REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	263	397	483	433	501	821	929	604	391	189	146	200
MAX (WY)	1276	1223	1414	1521	1198	1767	2712	1658	1498	566	432	1246
MIN (WY)	1978	1973	1997	1996	1981	1977	1993	1989	2003	1984	1994	2003
MIN (WY)	37.3	45.2	76.2	61.4	88.7	291	353	192	69.8	46.4	45.4	37.8
(WY)	1965	1965	1999	1981	1980	1981	1985	2001	1962	1965	1999	1964

SUMMARY STATISTICS FOR 2002 CALENDAR YEAR FOR 2003 WATER YEAR WATER YEARS 1960 - 2003

ANNUAL TOTAL	170928		266992		446		2003	
ANNUAL MEAN	468		731		194		1965	
HIGHEST ANNUAL MEAN					10700		Jan 19 1996	
LOWEST ANNUAL MEAN					23		Sep 5 1999	
HIGHEST DAILY MEAN	2890	May 14	5750	Jun 1				
LOWEST DAILY MEAN	34	Sep 14	70	Oct 9				
ANNUAL SEVEN-DAY MINIMUM	41	Sep 8	82	Oct 4			Aug 30 1999	
MAXIMUM PEAK FLOW			8680	Jun 1	a24000		Sep 27 1985	
MAXIMUM PEAK STAGE			9.04	Jun 1	b16.49		Sep 27 1985	
10 PERCENT EXCEEDS	1110		1400		1060			
50 PERCENT EXCEEDS	336		482		246			
90 PERCENT EXCEEDS	69		200		64			

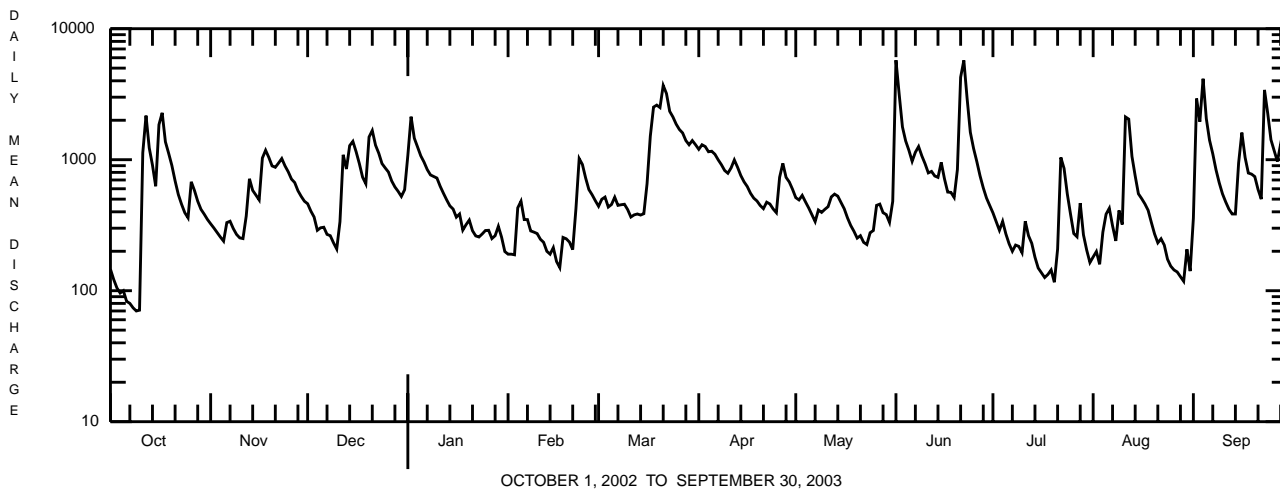
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1959, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	305	503	600	512	531	986	1195	814	454	360	303	229
MAX (WY)	1618	1199	1260	1047	1263	1652	2614	1750	866	1375	1448	778
MIN (WY)	1956	1956	1939	1949	1939	1945	1958	1947	1946	1947	1955	1945
MIN (WY)	106	122	169	166	160	526	368	262	188	125	130	116
(WY)	1942	1942	1942	1944	1940	1941	1946	1941	1955	1955	1954	1943

SUMMARY STATISTICS WATER YEARS 1939 - 1959

ANNUAL MEAN	566		
HIGHEST ANNUAL MEAN	781	1956	
LOWEST ANNUAL MEAN	401	1944	
HIGHEST DAILY MEAN	14000	Aug 19 1955	
LOWEST DAILY MEAN	73	Sep 26 1943	
ANNUAL SEVEN-DAY MINIMUM	87	Oct 8 1943	
MAXIMUM PEAK FLOW	a31000	Aug 19 1955	
MAXIMUM PEAK STAGE	b20.05	Aug 19 1955	
INSTANTANEOUS LOW FLOW	54	Sep 1,2 1957	
ANNUAL RUNOFF (CFSM)	1.70		
ANNUAL RUNOFF (INCHES)	23.16		
10 PERCENT EXCEEDS	1200		
50 PERCENT EXCEEDS	340		
90 PERCENT EXCEEDS	138		

- a From rating curve extended above 3,800 ft³/s on basis of slope-area measurements at gage heights 15.30 ft, 16.49 ft, and at peak flow.
- b From floodmark.



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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)	Specif. 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 end pt, lab, mg/L as CaCO3 (00417)
NOV 2002 19...	1500	1028	9813	1010	40	11.9	7.2	164	5.7	38	9.6	3.5	15
JAN 2003 21...	1700	1028	9813	279	40	14.9	7.1	296	.0	74	16.3	8.0	27
MAR 19...	1000	1028	9813	2480	40	12.6	7.0	166	3.1	32	8.1	2.8	16
MAY 27...	1810	1028	9813	433	40	10.2	7.4	221	15.3	54	12.6	5.5	22
JUL 28...	1440	1028	9813	409	40	9.3	8.6	242	20.1	63	13.8	6.9	26
SEP 17...	1430	1028	9813	1010	40	11.5	7.5	160	17.3	54	11.8	6.0	21

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 recover-able, μ g/L (01105)	Copper, water, unfltrd recover-able, μ g/L (01042)	Iron, water, unfltrd recover-able, μ g/L (01045)
NOV 2002 19...	21.7	92	24	.030	.49	<.040	.04	.072	1.0	3.0	<200	<10	250
JAN 2003 21...	45.8	194	4	.820	.69	.180	.16	.212	1.9	2.2	<200	<10	190
MAR 19...	16.2	124	28	.100	.37	<.040	.03	.059	.71	2.3	600	<10	880
MAY 27...	29.2	144	10	.150	.45	.140	.11	.160	.95	2.9	<200	<10	270
JUL 28...	36.0	166	22	.050	1.15	<.040	.20	.242	1.5	3.3	800	<10	1120
SEP 17...	32.3	146	<2	.050	.51	<.040	.05	.079	.90	3.5	<200	<10	420

Date	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)
NOV 2002 19...	1.1	80	<50	<10
JAN 2003 21...	<1.0	140	<50	30
MAR 19...	3.1	200	<50	30
MAY 27...	1.1	90	<50	20
JUL 28...	4.0	100	<50	20
SEP 17...	2.1	90	<50	60

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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	8/21/02
Benthic Macroinvertebrate	Count
Mollusca	
Gastropoda (SNAILS)	
Basommatophora	
Ancylidae	
<u>Ferrissia</u> sp	1
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	2
Tubificida	
Naididae	2
Arthropoda	
Crustacea	
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
<u>Caecidotea</u> sp	1
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<u>Baetis</u> sp	10
Heptageniidae	
<u>Leucrocuta</u> sp	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<u>Cheumatopsyche</u> sp	20
<u>Hydropsyche</u> sp	18
Hydroptilidae	
<u>Leucotrichia</u> sp	1
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<u>Optioservus</u> sp	2
<u>Stenelmis</u> sp	4
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	49
Empididae (DANCE FLIES)	
<u>Hemerodromia</u> sp	1
Total Organisms	112