



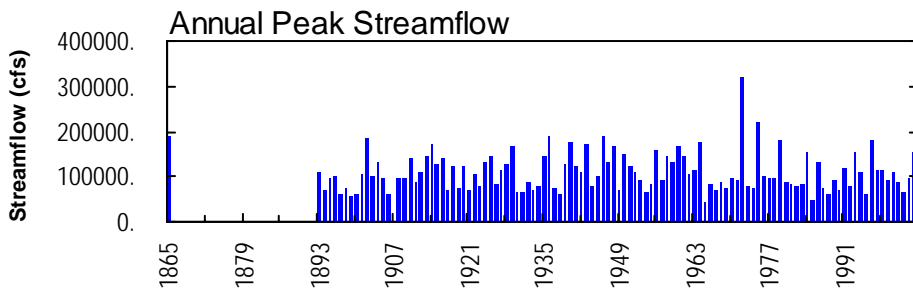
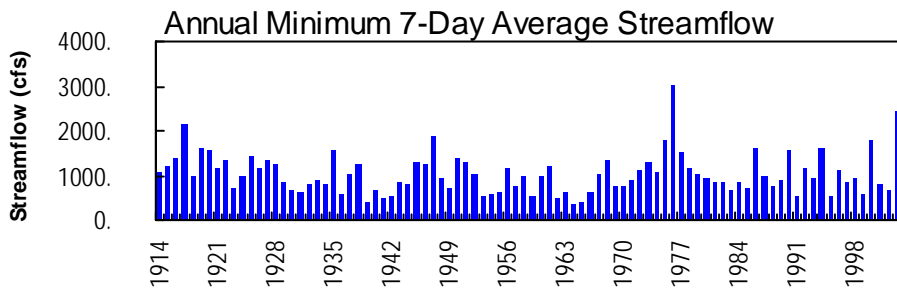
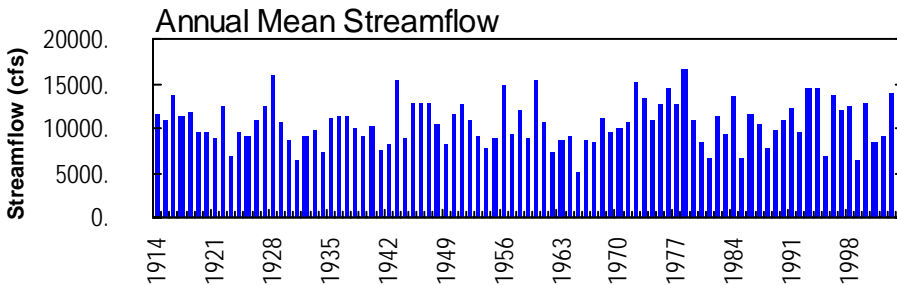
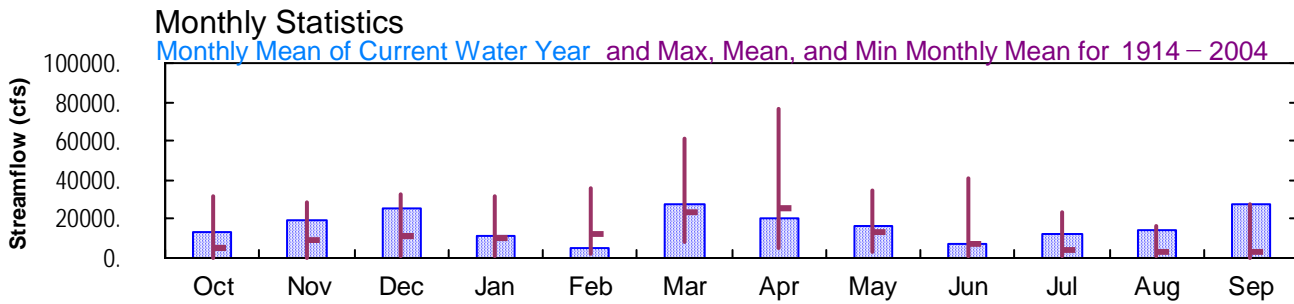
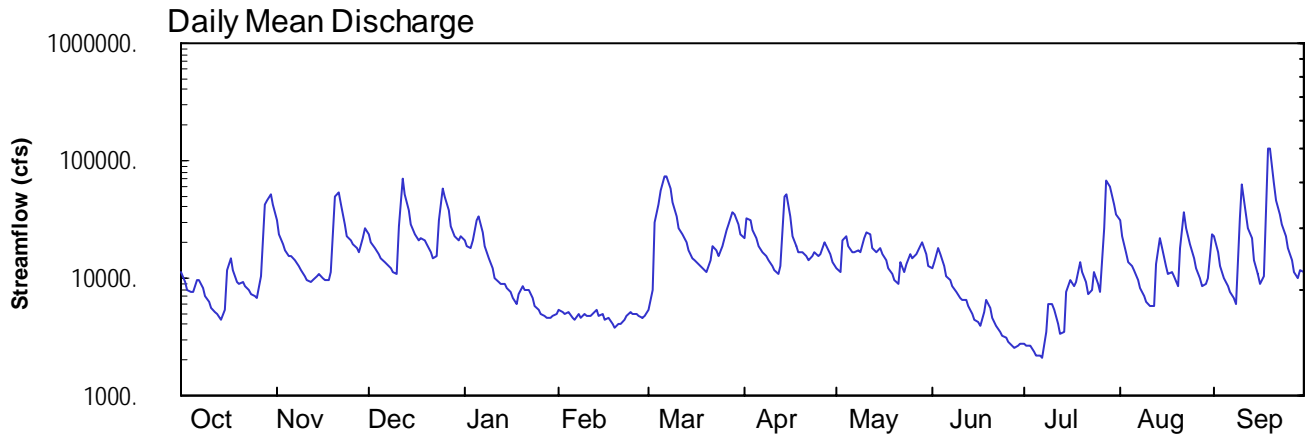
2004 Water Year SUSQUEHANNA RIVER BASIN

01531500 Susquehanna River at Towanda, PA

Latitude: 41° 45 ' 55"
Bradford County

Longitude: 076° 26 ' 28"
Datum: 694.38 feet

Hydrologic Unit Code: 02050106
Drainage Area: 7797. mi²



SUSQUEHANNA RIVER BASIN

**01531500 SUSQUEHANNA RIVER AT TOWANDA, PA
(Pennsylvania Water-Quality Network Station)**

LOCATION.--Lat 41°45'55", long 76°26'28", Bradford County, Hydrologic Unit 02050106, on right bank at Bridge Street in Towanda, and 1.8 mi upstream from Towanda Creek.

DRAINAGE AREA.--7,797 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to current year. Gage-height records collected at same site since October 1892 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 756: Drainage area. WSP 1302: 1922, 1929.

GAGE.--Water-stage recorder. Datum of gage is 694.38 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 18, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow slightly regulated by 7 flood-control reservoirs which have a combined capacity of 356,800 acre-ft. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than a base discharge of 68,000 ft³/s and maximum (*):

Date	Time	Discharge ft ³ /s	Gage Height (ft)	Date	Time	Discharge ft ³ /s	Gage Height (ft)
Dec. 12	1000	76,000	13.32	July 28	0730	75,600	13.27
Mar. 6	2030	77,400	13.50	Sept. 18	2000	*154,000	*22.26

**DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11200	31300	24000	21100	5460	5390	21800	12200	11900	2710	31400	22300
2	9150	23800	20500	18800	5080	8020	31800	11200	13600	2700	22300	16300
3	8050	19500	18300	17700	4950	29500	31000	21000	18300	2630	16700	12700
4	7480	17100	16100	20900	5090	42000	25500	22800	16200	2340	13600	9900
5	7670	15500	14600	31200	4530	55000	21800	18800	12800	2190	12700	8430
6	9780	15300	13900	33200	e4400	73600	18900	16900	10600	2150	11500	7480
7	9580	14300	13000	24400	e4900	74300	16700	16700	9450	2140	9640	6650
8	8100	12900	12200	18600	e4500	58300	15300	17400	8480	3450	8110	6100
9	7010	11500	11300	e15000	e4900	44500	14000	16700	7580	5990	6950	32400
10	6190	10400	10900	e12000	e4700	33000	12900	22200	6820	6090	6260	61400
11	5510	9530	28100	e9900	e4700	26400	11600	24400	6430	5420	5870	35300
12	5230	9230	69900	e9400	e5000	23300	10700	23300	6460	4110	5880	26900
13	4880	9500	52500	e9000	5360	20400	12600	17900	5870	3390	13100	21900
14	4470	10400	38200	e8900	4730	17400	49400	16400	5010	3440	21800	14200
15	5390	10700	28500	e8300	4880	14800	51300	e18000	4480	7740	17700	10700
16	11700	10200	23900	e7600	4390	14000	33900	e16000	4160	9480	12700	8910
17	14700	9670	20900	e6800	e4500	e13000	23000	e14000	3930	8420	11000	10300
18	11600	9750	21500	e6100	e4000	12700	18700	12300	5250	9370	11100	127000
19	9140	11300	21400	e7400	e3800	11900	16600	10800	6420	13500	10300	127000
20	8750	49700	19200	8510	e4000	11400	16500	9560	5520	11200	8480	64500
21	9130	54500	16800	7780	4130	14300	15300	8840	4570	9140	18200	45500
22	8630	43000	14800	7810	4460	19000	14300	13500	3850	7450	36400	34900
23	7830	29000	15300	6820	4790	17100	15200	11000	3470	7770	26400	28400
24	7320	22900	30400	e5770	5120	15100	16700	13200	3280	11100	19600	22700
25	7010	20800	58600	e5300	5030	19000	15300	16100	3080	9010	14700	18000
26	6720	19700	49100	e5000	4950	25500	15700	14700	2890	7480	12000	14300
27	10200	18100	37600	e4700	4860	28500	20200	16000	2690	26300	10100	11300
28	42400	16300	27600	e4500	4620	36100	18900	18600	2580	67500	8700	9910
29	45100	22200	22800	e4600	4700	35000	15900	20500	2620	60700	8940	11600
30	51500	26300	20700	e4700	---	29100	13700	15800	2730	42400	9880	11300
31	42700	---	22800	e4900	---	24100	---	12500	---	34600	23900	---
TOTAL	404120	584380	795400	356690	136530	851710	615200	499300	201020	391910	445910	838280
MEAN	13040	19480	25660	11510	4708	27470	20510	16110	6701	12640	14380	27940
MAX	51500	54500	69900	33200	5460	74300	51300	24400	18300	67500	36400	127000
MIN	4470	9230	10900	4500	3800	5390	10700	8840	2580	2140	5870	6100
CFSM	1.67	2.50	3.29	1.48	0.60	3.52	2.63	2.07	0.86	1.62	1.84	3.58
IN.	1.93	2.79	3.79	1.70	0.65	4.06	2.94	2.38	0.96	1.87	2.13	4.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 2004, BY WATER YEAR (WY)

MEAN	5379	9429	11220	10620	11740	23630	25190	13240	7347	4203	3151	3560
MAX	31270	28940	32550	31200	35700	60780	76640	34770	41150	23840	16210	27940
(WY)	1978	1928	1997	1996	1976	1936	1993	1943	1972	1915	1915	2004
MIN	507	495	1459	1273	1821	8417	4975	3297	1381	783	571	432
(WY)	1965	1965	1931	1931	1920	1981	1946	1985	1999	1962	1964	1964

e Estimated.

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1914 - 2004	
ANNUAL TOTAL	5941860		6120450			
ANNUAL MEAN	16280		16720		10710	
HIGHEST ANNUAL MEAN					16720	
LOWEST ANNUAL MEAN					5104	
HIGHEST DAILY MEAN	91100	Mar 22	127000	Sep 18,19	283000	Jun 23 1972
LOWEST DAILY MEAN	2370	Aug 30,31	2140	Jul 7	340	Sep 23 1964
ANNUAL SEVEN-DAY MINIMUM	2530	Aug 26	2410	Jul 1	348	Sep 18 1964
MAXIMUM PEAK FLOW			154000	Sep 18	a 320000	Jun 24 1972
MAXIMUM PEAK STAGE			22.26	Sep 18	b 33.43	Jun 24 1972
INSTANTANEOUS LOW FLOW					334	Sep 23,24 1964
ANNUAL RUNOFF (CFSM)	2.09		2.14		1.37	
ANNUAL RUNOFF (INCHES)	28.35		29.20		18.66	
10 PERCENT EXCEEDS	36800		33400		26000	
50 PERCENT EXCEEDS	11300		12400		5560	
90 PERCENT EXCEEDS	4400		4590		1260	

a From rating curve extended above 180,000 ft³/s.

b From floodmark.

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued
(Pennsylvania Water-Quality Network Station)

WATER-QUALITY RECORDS

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

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 2003 TO SEPTEMBER 2004

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 recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
OCT 2003	06...	1028	9813	9730	11.4	7.9	7.9	249	245	10.6	87	26.1	5.3
DEC	08...	1028	9813	11800	13.3	7.9	7.9	227	240	.0	82	25.1	4.7
FEB 2004	05...	1028	9813	3960	14.3	8.0	7.8	327	307	.0	120	36.7	6.2
APR	21...	1028	9813	15300	10.4	7.6	8.0	215	219	12.1	75	23.3	4.0
JUN	21...	1028	9813	4620	9.1	8.3	8.1	288	289	21.4	140	41.6	7.6
AUG	25...	1028	9813	14500	9.5	7.7	8.0	201	204	19.7	74	23.0	4.0

Date	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417)	Sulfate water, fltrd, 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)	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, µg/L (01105)	Copper, water, unfltrd recoverable, µg/L (01042)
OCT 2003	75	12.5	174	10	<.020	.56	<.040	.04	.038	.90	3.3	<200	<10
DEC	08...	67	12.6	190	6	<.020	.90	<.040	.03	.031	1.1	2.4	300
FEB 2004	05...	89	16.8	210	<2	.110	1.44	<.040	.04	.041	1.9	1.7	<200
APR	21...	58	11.6	164	4	<.020	.77	<.040	.03	.036	1.1	2.6	500
JUN	21...	86	13.6	216	6	.040	.60	<.040	.03	.044	1.1	3.7	300
AUG	25...	62	8.5	130	30	<.020	.45	<.040	.04	.055	.78	4.3	900

Date	Iron, water, unfltrd recoverable, µg/L (01045)	Lead, water, unfltrd recoverable, µg/L (01051)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
OCT 2003	480	<1.0	20	<50	<10
DEC	08...	360	<1.0	30	<50
FEB 2004	05...	130	<1.0	10	<50
APR	21...	670	<1.0	40	<50
JUN	21...	480	<1.0	60	90
AUG	25...	1290	1.0	70	<50

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, 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	10/06/03
Benthic Macroinvertebrate	Count
Nematoda (NEMATODES)	1
Mollusca	
Gastropoda (SNAILS)	
Pleuroceridae	
<i>Elimia</i>	2
<i>Leptoxis carinata</i>	2
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	7
<i>Pisidium</i>	1
<i>Sphaerium</i>	3
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Tubificida	
Tubificidae	10
Insecta	
Ephemeroptera (MAYFLIES)	
Baetidae	
<i>Baetis</i>	3
Ephemerellidae	
<i>Serratella</i>	3
Heptageniidae	2
<i>Leucrocuta</i>	2
<i>Stenacron</i>	3
<i>Stenonema</i>	9
Isonychiidae	
<i>Isonychia</i>	2
Potamanthidae	
<i>Anthopotamus</i>	43
Odonata (DRAGONFLIES AND DAMSELFLIES)	
Coenagrionidae	1
Plecoptera (STONEFLIES)	
Perlidae	
<i>Agneta</i>	2
Taeniopterygidae	
<i>Taeniopteryx</i>	1
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<i>Cheumatopsyche</i>	5
Hydroptilidae	
<i>Hydroptila</i>	2
Philopotamidae	
<i>Chimarra</i>	3

SUSQUEHANNA RIVER BASIN

01531500 SUSQUEHANNA RIVER AT TOWANDA, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

Date	10/06/03
Benthic Macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<i>Dubiraphia</i>	1
<i>Optioservus</i>	19
<i>Promoresia</i>	1
<i>Stenelmis</i>	13
Psephenidae (WATER PENNIES)	
<i>Psephenus</i>	10
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	11
Total Organisms	162
Total Taxa	27