

Water-Data Report 2011

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA

Upper Susquehanna Basin
Tioga Subbasin

LOCATION.--Lat 41°57'09", long 77°06'56" referenced to North American Datum of 1927, Tioga County, PA, Hydrologic Unit 02050104, on left bank 0.3 mi upstream from bridge on Township Route 722 at Tioga Junction, 3.3 mi downstream from Crooked Creek, and 5.0 mi downstream from Tioga and Hammond Dams.

DRAINAGE AREA.--446 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 990.43 ft above National Geodetic Vertical Datum of 1929. Satellite and landline telemetry at station.

COOPERATION.--Station established and maintained by the U.S. Geological Survey National Streamflow Information Program in cooperation with the U.S. Army Corps of Engineers, Baltimore District.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated since November 1979 by Tioga Dam (station 01517900) and Hammond Dam (station 01518498). Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1975 reached a stage of about 22.1 ft, from floodmarks, discharge, about 48,000 ft³/s.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,660	273	3,100	209	e130	3,940	1,170	5,310	1,200	66	44	76
2	2,220	256	4,010	223	151	3,410	1,320	5,310	784	66	43	75
3	1,120	219	4,650	230	149	1,910	1,410	5,140	581	65	44	66
4	452	233	3,450	202	e140	1,340	1,690	4,470	521	64	43	45
5	419	274	1,300	176	154	1,770	4,040	3,780	481	63	43	71
6	1,670	271	1,010	177	205	3,580	4,710	3,110	393	63	44	565
7	2,170	267	699	168	207	3,570	4,920	2,320	322	63	43	1,250
8	982	264	648	166	199	4,390	4,270	1,440	334	76	42	1,180
9	578	262	582	166	e180	4,390	2,690	905	274	70	42	331
10	454	260	473	166	e160	3,890	1,840	643	223	64	42	1,900
11	361	242	415	166	e170	2,050	1,760	583	196	63	42	3,830
12	1,130	227	497	166	168	3,320	1,710	495	200	63	41	4,710
13	987	214	687	170	168	4,980	2,030	519	191	63	41	4,840
14	649	199	678	162	171	5,040	2,000	473	189	63	43	4,610
15	550	198	636	153	189	5,010	1,570	615	161	61	43	4,370
16	414	276	666	152	203	4,700	1,560	1,920	134	60	44	2,380
17	362	1,510	658	e150	225	4,090	4,540	1,030	134	59	42	714
18	304	1,350	645	151	1,530	4,230	3,770	1,330	133	60	41	372
19	271	699	505	152	2,560	4,810	2,780	1,800	132	59	43	262
20	210	689	348	152	1,310	4,530	2,510	3,480	131	59	42	233
21	210	640	346	152	1,230	4,480	1,850	2,920	145	59	44	230
22	200	535	314	e140	944	4,230	1,490	2,700	173	59	42	229
23	183	471	273	e120	683	2,920	2,260	1,840	182	59	41	228
24	183	408	251	e120	572	1,800	2,330	1,690	146	58	41	230
25	183	387	239	e120	815	1,420	2,660	933	132	54	45	228
26	302	663	214	130	792	1,110	4,830	1,350	131	53	43	206
27	729	654	e180	137	757	1,040	3,500	2,740	115	49	43	303
28	640	559	190	137	2,400	971	4,340	2,820	85	45	59	3,350
29	424	563	198	135	---	780	5,610	1,630	68	44	52	4,530
30	280	725	209	129	---	876	5,410	2,610	67	44	68	5,010
31	276	---	207	e130	---	1,180	---	1,650	---	44	77	---
Total	20,573	13,788	28,278	4,907	16,562	95,757	86,570	67,556	7,958	1,838	1,407	46,424
Mean	664	460	912	158	592	3,089	2,886	2,179	265	59.3	45.4	1,547
Max	2,220	1,510	4,650	230	2,560	5,040	5,610	5,310	1,200	76	77	5,010
Min	183	198	180	120	130	780	1,170	473	67	44	41	45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1979, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	581	746	635	963	453	1,993	1,010	663	210	123	177	160
Max	838	1,764	1,324	1,484	597	2,355	1,404	1,365	318	181	288	278
(WY)	(1978)	(1978)	(1978)	(1979)	(1977)	(1979)	(1978)	(1978)	(1978)	(1976)	(1976)	(1977)
Min	198	181	229	97.2	380	1,478	807	311	153	78.3	65.2	80.3
(WY)	(1979)	(1979)	(1977)	(1977)	(1978)	(1977)	(1979)	(1979)	(1977)	(1979)	(1979)	(1976)

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SUMMARY STATISTICS

Water Years 1976 - 1979		
Annual mean	643	
Highest annual mean	955	1978
Lowest annual mean	429	1977
Highest daily mean	8,510	Jan 9 1978
Lowest daily mean	28	Sep 11 1977
Annual seven-day minimum	32	Sep 7 1977
Maximum peak flow	a,b 17,900	Feb 25 1977
Maximum peak stage	c 17.20	Jan 26 1978
Instantaneous low flow	26	Feb 13 1977 ^d
Annual runoff (cfsm)	1.44	
Annual runoff (inches)	19.59	
10 percent exceeds	1,520	
50 percent exceeds	232	
90 percent exceeds	69	

a From rating curve extended above 4,000 ft³/s.

b Gage height 16.70 ft.

c Backwater from ice.

d Also Sep 12, 1977, Feb 3, 1979.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	273	429	585	573	628	1,120	1,252	614	426	202	195	266
Max	1,515	1,626	1,632	1,975	1,837	3,089	5,667	2,179	1,619	976	1,836	2,534
(WY)	(1991)	(1997)	(1997)	(1996)	(1981)	(2011)	(1993)	(2011)	(1989)	(2004)	(1994)	(2004)
Min	41.4	49.0	41.5	29.5	127	259	352	151	51.4	38.4	29.6	26.3
(WY)	(1992)	(1981)	(1999)	(1981)	(1989)	(1981)	(1988)	(2001)	(1980)	(1991)	(1980)	(1980)

SUMMARY STATISTICS

	Calendar Year 2010	Water Year 2011	Water Years 1980 - 2011
Annual total	182,349	391,618	
Annual mean	500	1,073	546
Highest annual mean			1,073
Lowest annual mean			297
Highest daily mean	5,280	Jan 28	5,610
Lowest daily mean	33	Sep 22 ^a	41
Annual seven-day minimum	34	Sep 20	42
Maximum peak flow			d 6,010
Maximum peak stage			13.65
10 percent exceeds	1,140	3,800	1,270
50 percent exceeds	251	314	226
90 percent exceeds	40	56	49

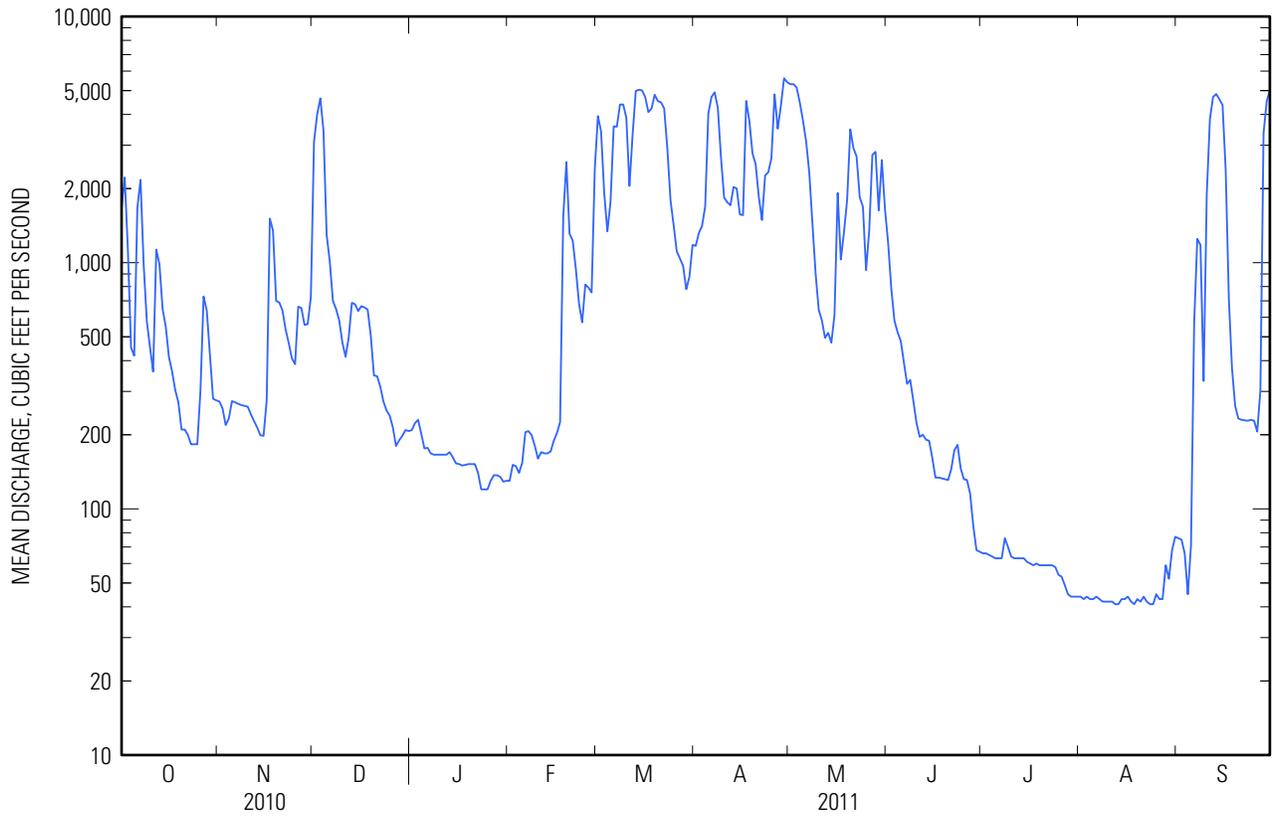
a Also Sept 23, 24, 25.

b Also Aug 13, 18, 23, 24.

c Also Aug 27, 28, 1980.

d From rating curve extended above 6,000 ft³/s.

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01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued

WATER-QUALITY RECORDS

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

REMARKS.--Analyses for pH, water temperature, specific conductance, and dissolved oxygen were performed on site. All other sample analyses were performed at the Pennsylvania Department of Environmental Protection laboratory in Harrisburg, Pa.

COOPERATION.--Water-quality 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 2010 TO SEPTEMBER 2011

Part 1 of 4

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified]

Date	Sample start time	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Osmotic pressure, water, unfiltered, milliosmoles per kilogram (82550)	pH, water, field, standard units (00400)	pH, water, laboratory, standard units (00403)	Specific conductance, water, unfiltered, laboratory, µS/cm at 25 °C (90095)	Specific conductance, water, unfiltered, µS/cm at 25 °C (00095)	Temperature, water, °C (00010)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)
11-03-2010	1000	220	11.8	3.0	7.5	7.2	180	165	7.5	114
01-11-2011	1130	207	14.1	16	7.3	7.3	170	169	1.0	136
03-09-2011	1200	4,390	15.2	9.0	7.3	7.1	106	83	.7	78
05-19-2011	0945	1,610	9.2	3.0	6.7	7.2	140	134	14.4	96
07-12-2011	0900	69	6.0	1.0	6.0	7.4	195	195	23.2	146
09-22-2011	1130	292	6.8	< 1.0	7.2	7.5	176	160	17.9	130

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 2 of 4

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified]

Date	Sample start time	Hardness, water, mg/L as CaCO ₃ (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, unfiltered, recoverable, mg/L (00916)	Magnesium, water, unfiltered, recoverable, mg/L (00927)	Sodium, water, unfiltered, recoverable, mg/L (00929)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO ₃ (00417)	Bromide, water, filtered, mg/L (71870)	Chloride, water, filtered, mg/L (00940)	Sulfate, water, filtered, mg/L (00945)
11-03-2010	1000	63	< 5	17.7	4.4	6.5	28	< .1	11.4	35.5
01-11-2011	1130	56	6	15.4	4.2	5.1	24	< .1	9.1	36.1
03-09-2011	1200	33	42	9.6	2.3	4.6	17	< .1	8.2	11.8
05-19-2011	0945	48	12	13.2	3.5	4.2	24	< .1	5.8	28.6
07-12-2011	0900	75	10	21.5	5.2	6.4	43	< .1	8.9	33.6
09-22-2011	1130	64	12	17.5	4.9	5.9	29	< .1	8.2	36.4

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WATER-QUALITY DATA

WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 3 of 4

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified]

Date	Sample start time	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate, water, unfiltered, mg/L as N (00620)	Nitrite, water, unfiltered, mg/L as N (00615)	Orthophosphate, water, unfiltered, mg/L as P (70507)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, unfiltered, mg/L (00600)	Aluminum, water, unfiltered, recoverable, µg/L (01105)	Barium, water, unfiltered, recoverable, µg/L (01007)	Copper, water, unfiltered, recoverable, µg/L (01042)
11-03-2010	1000	< .020	.21	< .040	< .01	.014	.38	< 200	M	< 4
01-11-2011	1130	< .020	.51	< .040	.01	.012	.63	< 200	M	< 4
03-09-2011	1200	.040	.47	< .040	.03	.077	.75	1,700	M	< 4
05-19-2011	0945	.050	.25	< .040	.01	.021	.40	600	M	< 4
07-12-2011	0900	.030	.43	< .040	< .01	.025	.64	< 200	M	< 4
09-22-2011	1130	.060	.41	< .040	.01	.030	.77	800	M	< 4

WATER-QUALITY DATA

WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 4 of 4

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than; M, presence verified but not quantified]

Date	Sample start time	Iron, water, unfiltered, recoverable, µg/L (01045)	Lead, water, unfiltered, recoverable, µg/L (01051)	Manganese, water, unfiltered, recoverable, µg/L (01055)	Nickel, water, unfiltered, recoverable, µg/L (01067)	Strontium, water, unfiltered, recoverable, micrograms per liter (01082)	Zinc, water, unfiltered, recoverable, µg/L (01092)	Boron, water, unfiltered, recoverable, micrograms per liter (01022)	Selenium, water, unfiltered, µg/L (01147)
11-03-2010	1000	90	< 1.0	220	< 50	60	10	< 200	< 7
01-11-2011	1130	170	< 1.0	460	< 50	50	40	< 200	< 7
03-09-2011	1200	2,650	M	340	< 50	30	20	< 200	< 7
05-19-2011	0945	750	< 1.0	540	< 50	40	30	< 200	< 7
07-12-2011	0900	230	< 1.0	360	< 50	70	< 10	< 200	< 7
09-22-2011	1130	800	< 1.0	400	< 50	60	20	< 200	< 7