

Water-Data Report 2007

**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 mi<sup>2</sup>.

**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 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 ft<sup>3</sup>/s.

## 01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**  
**DAILY MEAN VALUES**

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	129	440	488	509	273	178	676	556	156	89	53	48
2	128	445	571	504	273	1,070	698	1,190	134	89	53	48
3	127	452	418	429	e250	1,760	591	944	141	89	54	47
4	128	458	282	368	e230	1,070	539	520	196	91	53	47
5	131	394	279	424	e200	601	514	453	193	84	53	47
6	128	352	274	1,080	e180	e400	466	433	186	71	54	47
7	127	360	274	976	e180	274	373	409	140	71	56	46
8	127	393	271	1,500	e180	e300	337	400	145	70	83	47
9	125	402	261	1,070	e160	327	336	393	158	71	64	53
10	118	373	251	692	e150	382	333	559	148	69	77	49
11	112	417	236	640	e150	487	335	1,240	124	70	74	49
12	108	2,470	239	589	156	579	533	655	124	66	73	49
13	96	1,620	254	1,100	e170	1,230	866	481	122	62	72	48
14	94	1,260	260	1,670	e170	3,650	670	402	122	61	64	48
15	94	1,630	260	2,880	e160	2,660	845	366	111	60	51	50
16	95	2,250	251	2,520	e160	2,230	1,360	360	89	60	50	48
17	101	3,690	233	1,500	e170	4,860	1,260	383	94	61	50	48
18	109	2,520	225	1,040	e170	4,830	1,610	364	96	62	50	49
19	156	1,550	227	930	e170	2,740	1,810	298	87	64	50	50
20	3,130	1,140	226	820	167	950	1,500	256	93	61	53	50
21	3,040	932	226	636	172	854	1,290	240	87	60	78	49
22	1,940	768	248	543	186	1,570	939	221	86	60	146	49
23	1,030	677	283	544	186	3,580	689	199	86	59	172	49
24	702	584	280	525	e180	2,500	669	182	85	53	161	49
25	638	494	299	479	170	1,970	722	172	85	52	109	48
26	618	441	465	e360	169	1,910	1,180	176	79	52	93	49
27	518	373	562	361	168	1,680	905	186	77	54	88	51
28	1,030	371	532	372	168	1,340	812	191	79	72	52	52
29	1,050	367	480	346	---	887	709	158	91	56	50	50
30	607	365	475	e300	---	725	570	127	90	54	48	50
31	381	---	486	e270	---	664	---	138	---	53	48	---
<b>Total</b>	16,917	27,988	10,116	25,977	5,118	48,258	24,137	12,652	3,504	2,046	2,232	1,464
<b>Mean</b>	546	933	326	838	183	1,557	805	408	117	66.0	72.0	48.8
<b>Max</b>	3,130	3,690	571	2,880	273	4,860	1,810	1,240	196	91	172	53
<b>Min</b>	94	352	225	270	150	178	333	127	77	52	48	46

**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
<b>Mean</b>	581	746	635	963	453	1,993	1,010	663	210	123	177	160
<b>Max</b>	838	1,764	1,324	1,484	597	2,355	1,404	1,365	318	181	288	278
<b>(WY)</b>	(1978)	(1978)	(1978)	(1979)	(1977)	(1979)	(1978)	(1978)	(1978)	(1976)	(1976)	(1977)
<b>Min</b>	198	181	229	97.2	380	1,478	807	311	153	78.3	65.2	80.3
<b>(WY)</b>	(1979)	(1979)	(1977)	(1977)	(1978)	(1977)	(1979)	(1979)	(1977)	(1979)	(1979)	(1976)

## 01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued

## 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	<sup>a,b</sup> 17,900	Feb 25 1977
Maximum peak stage	<sup>c</sup> 17.20	Jan 26 1978
Instantaneous low flow	26	Feb 13 1977 <sup>d</sup>
Annual runoff (cfsm)	1.44	
Annual runoff (inches)	19.59	
10 percent exceeds	1,520	
50 percent exceeds	232	
90 percent exceeds	69	

<sup>a</sup> From rating curve extended above 4,000 ft<sup>3</sup>/s.

<sup>b</sup> Gage height 16.70 ft.

<sup>c</sup> Backwater from ice.

<sup>d</sup> Also Sep 12, 1977, Feb 3, 1979.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	277	458	575	586	622	1,013	1,260	586	454	216	204	242
Max	1,515	1,626	1,632	1,975	1,837	2,009	5,667	1,723	1,619	976	1,836	2,534
(WY)	(1991)	(1997)	(1997)	(1996)	(1981)	(1994)	(1993)	(1989)	(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

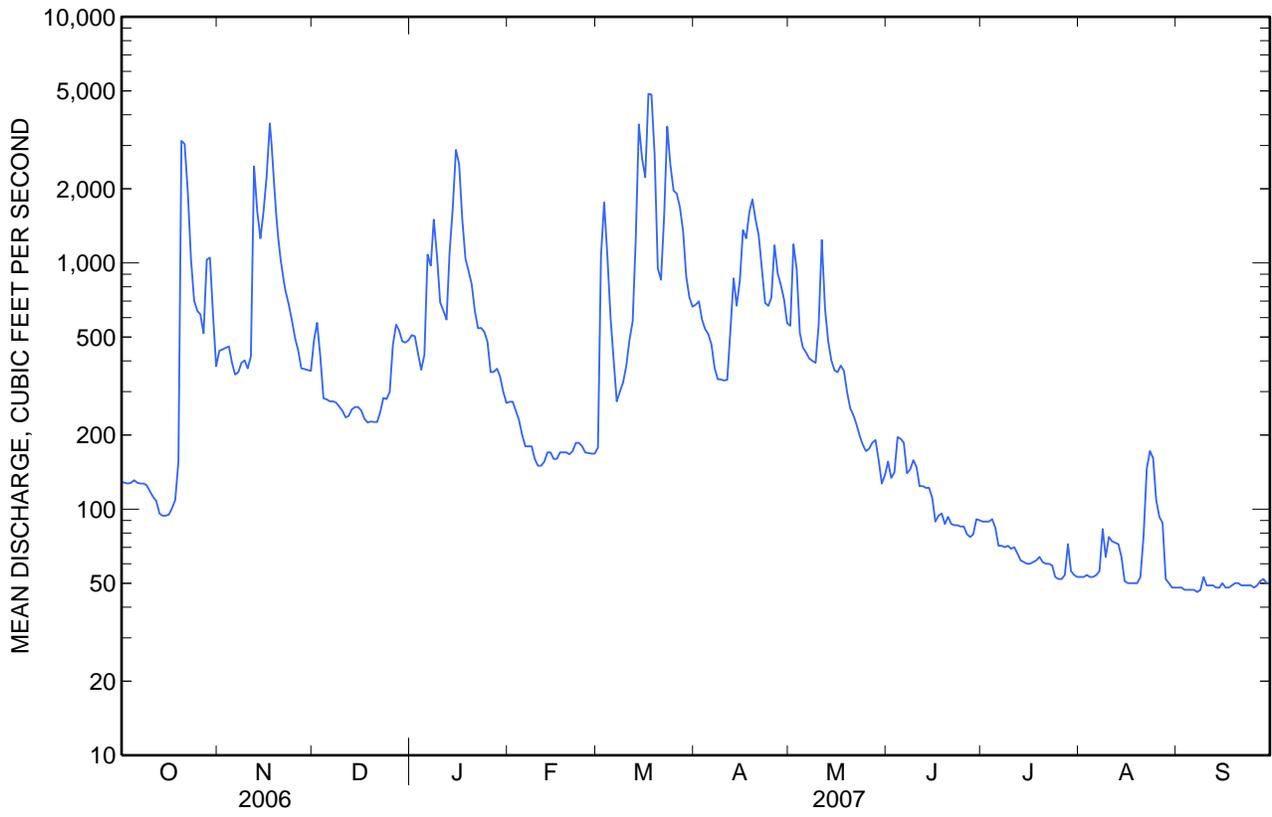
	Calendar Year 2006		Water Year 2007		Water Years 1980 - 2007	
Annual total	235,905		180,409			
Annual mean	646		494		540	
Highest annual mean					1,014	
Lowest annual mean					297	
Highest daily mean	5,570	Sep 3	4,860	Mar 17	7,490	Sep 22, 2004
Lowest daily mean	73	Aug 9 <sup>a</sup>	46	Sep 7	16	Aug 26, 1980 <sup>b</sup>
Annual seven-day minimum	80	Aug 9	47	Sep 2	21	Jan 23, 1981
Maximum peak flow			<sup>c</sup> 6,530	Mar 15	<sup>c</sup> 11,200	Aug 18, 1994
Maximum peak stage			13.89	Mar 15	15.42	Aug 18, 1994
10 percent exceeds	1,320		1,250		1,240	
50 percent exceeds	334		236		226	
90 percent exceeds	127		52		51	

<sup>a</sup> Also Aug 10.

<sup>b</sup> Also Aug 27, 28, 1980.

<sup>c</sup> From rating curve extended above 6,000 ft<sup>3</sup>/s.

01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued



## 01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued

## WATER-QUALITY RECORDS

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

REMARKS.--Analysis for pH, water temperature, specific conductance, and dissolved oxygen is performed on site. All other sample analyses were performed at the Pennsylvania Department of Environmental Protection laboratory in Harrisburg, Pa. Some values for filtered parameters exceed values for the corresponding unfiltered parameter. These results are within the limits of analytical precision and methods.

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 2006 TO SEPTEMBER 2007**

Part 1 of 3

[Remark codes: <, less than; M, presence verified but not quantified.]

Date	Time	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf lab, µS/cm 25 degC (90095)	Specif- ic conduc- tance, wat unf lab, µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO3 (00900)	Calcium water unfltrd recover -able, mg/L (00916)	Magnes- ium, water, unfltrd recover -able, mg/L (00927)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Sulfate water, fltrd, mg/L (00945)
<b>Oct</b>													
<b>26...</b>	0900	625	13.4	7.3	7.5	142	143	8.7	50	14.7	3.3	34	20.9
<b>Nov</b>													
<b>16...</b>	1430	1,240	12.0	7.4	7.6	133	135	9.0	58	17.2	3.6	35	19.6
<b>Dec</b>													
<b>20...</b>	1330	227	14.2	7.5	7.5	153	156	3.3	56	15.3	4.2	26	32.8
<b>Jan</b>													
<b>25...</b>	1100	495	13.5	6.9	7.3	131	132	.9	50	13.6	3.8	23	26.6
<b>Feb</b>													
<b>13...</b>	1230	166	13.6	7.4	7.4	156	161	.4	56	15.6	4.2	27	32.9
<b>Mar</b>													
<b>14...</b>	1445	3,770	15.8	7.1	7.3	146	149	2.3	54	15.8	3.6	28	23.9
<b>Apr</b>													
<b>12...</b>	0900	402	12.6	7.5	7.3	128	134	5.0	49	13.7	3.5	21	25.0
<b>May</b>													
<b>24...</b>	1030	183	11.0	7.5	7.5	147	152	15.8	56	15.6	4.2	27	30.8
<b>Jun</b>													
<b>07...</b>	1015	142	9.6	7.5	7.6	161	165	16.6	64	18.2	4.5	29	32.1
<b>Jul</b>													
<b>19...</b>	1100	69	8.8	7.4	7.8	198	206	22.0	72	20.7	5.0	40	39.7
<b>Aug</b>													
<b>08...</b>	1200	82	8.7	7.5	7.9	201	210	24.3	79	23.2	5.0	45	33.2
<b>Sep</b>													
<b>10...</b>	1100	48	8.2	7.5	7.8	227	237	21.4	90	25.8	6.3	47	46.7

## 01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 2 of 3

[Remark codes: &lt;, less than; M, presence verified but not quantified.]

Date	Residue on evap. at 105degC wat flt mg/L (00515)	Residue total non- filter- able, mg/L (00530)	Ammonia water, fltrd, mg/L as N (00608)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrate + nitrite water unfltrd mg/L as N (00630)	Total nitro- gen, water, fltrd, mg/L (00602)	Total nitro- gen, water, unfltrd mg/L (00600)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Ortho- phos- phate, water, unfltrd mg/L as P (70507)	Phos- phorus, water, fltrd, mg/L (00666)	Phos- phorus, water, unfltrd mg/L (00665)	Organic carbon, water, unfltrd mg/L (00680)
<b>Oct</b>													
26...	112	14	<.020	<.020	.300	.310	.59	.68	<.010	.04	.013	.037	4.2
<b>Nov</b>													
16...	130	34	<.020	<.020	.260	.260	.52	.53	<.010	.01	<.010	.038	3.2
<b>Dec</b>													
20...	128	<2	<.020	<.020	.420	.430	--	--	<.010	.01	.012	.012	2.0
<b>Jan</b>													
25...	172	<2	<.020	<.020	.480	.480	.73	.67	<.010	<.01	<.010	.022	2.2
<b>Feb</b>													
13...	100	6	.020	.030	.560	.540	.72	.71	<.010	.01	<.010	.017	1.8
<b>Mar</b>													
14...	86	50	.060	.090	.610	.610	.96	1.0	<.010	.01	<.010	.066	2.9
<b>Apr</b>													
12...	124	8	<.020	.020	.540	.520	--	--	<.010	.03	<.010	.027	1.9
<b>May</b>													
24...	102	14	<.020	<.020	.280	.300	.48	.44	<.010	.01	<.010	.018	1.9
<b>Jun</b>													
07...	112	6	.040	.040	.310	.300	.62	.56	.017	.02	.017	.033	1.9
<b>Jul</b>													
19...	134	8	<.020	.020	.340	.340	.53	.55	<.010	.03	<.010	.022	2.2
<b>Aug</b>													
08...	80	14	.020	.030	.370	.370	.70	.69	.011	.02	.013	.040	2.6
<b>Sep</b>													
10...	162	4	.030	.040	.400	.420	.68	.64	<.010	.01	.011	.024	2.4

## 01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 3 of 3

[Remark codes: &lt;, less than; M, presence verified but not quantified.]

Date	Alum- inum, water, unfltrd recover -able, µg/L (01105)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, unfltrd recover -able, µg/L (01051)	Mangan- ese, water, unfltrd recover -able, µg/L (01055)	Nickel, water, unfltrd recover -able, µg/L (01067)	Zinc, water, unfltrd recover -able, µg/L (01092)
<b>Oct</b>							
26...	700	<10	790	<1.0	150	<50	10
<b>Nov</b>							
16...	1,700	<10	2,220	M	240	<50	20
<b>Dec</b>							
20...	<200	<10	200	<1.0	380	<50	20
<b>Jan</b>							
25...	300	<10	360	<1.0	390	<50	30
<b>Feb</b>							
13...	<200	<10	210	<1.0	350	<50	30
<b>Mar</b>							
14...	1,700	<10	1,910	M	380	<50	20
<b>Apr</b>							
12...	600	<10	690	<1.0	340	<50	20
<b>May</b>							
24...	200	<10	350	<1.0	420	<50	10
<b>Jun</b>							
07...	<200	<10	200	<1.0	270	<50	<10
<b>Jul</b>							
19...	<200	<10	380	<1.0	110	<50	10
<b>Aug</b>							
08...	1,100	<10	880	<1.0	180	<50	<10
<b>Sep</b>							
10...	<200	<10	140	<1.0	120	<50	<10

**01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued****ECOLOGICAL RECORDS**

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

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

REMARKS.--Samples were collected using rapid bioassessment protocols for benthic macroinvertebrates using a D-Frame net with a mesh size of 500 mm. Counts are based on a randomly-selected 100-organism (approximate) subsample.

**BIOLOGICAL DATA-BENTHIC MACROINVERTEBRATES**

Date	9/20/06
Benthic Macroinvertebrate	Count
Nemertea (PROBOSCIS WORMS)	•
Enopla	•
Hoplonemertea	•
Tetrastemmatidae	•
<i>Prostoma</i>	• 5
Arthropoda	•
Acariformes	•
Hydrachnidia (WATER MITES)	• 4
Insecta	•
Ephemeroptera (MAYFLIES)	•
Baetidae	•
<i>Baetis</i>	• 2
Ephemerellidae	•
<i>Maccaffertium</i>	• 1
Isonychiidae	•
<i>Isonychia</i>	• 2
Plecoptera (STONEFLIES)	•
Taeniopterygidae	•
<i>Taeniopteryx</i>	• 2
Megaloptera	•
Corydalidae (FISHFLIES AND DOBSONFLIES)	•
<i>Corydalis</i>	• 1
Trichoptera (CADDISFLIES)	•
Hydropsychidae	•
<i>Cheumatopsyche</i>	• 43
<i>Hydropsyche</i>	• 37
<i>Macrostemum</i>	• 10
Philopotamidae	•
<i>Chimarra</i>	• 2
Psychomyiidae	•
<i>Psychomyia</i>	• 1
Coleoptera (BEETLES)	•
Elmidae (RIFFLE BEETLES)	•
<i>Optioservus</i>	• 2

**01518700 TIOGA RIVER AT TIOGA JUNCTION, PA—Continued**

Date	9/20/06
Benthic Macroinvertebrate	Count
<i>Stenelmis</i>	• 2
Diptera (TRUE FLIES)	•
Chironomidae (MIDGES)	• 8
Empididae (DANCE FLIES)	•
<i>Hemerodromia</i>	• 1
Simuliidae (BLACK FLIES)	•
<i>Simulium</i>	• 8
Total Organisms	131