

03079000 CASSELMAN RIVER AT MARKLETON, PA

Monongahela Basin
Youghiogheny Subbasin

LOCATION.--Lat 39°51'35.7", long 79°13'43.8" referenced to North American Datum of 1983, Somerset County, PA, Hydrologic Unit 05020006, on right bank at downstream side of highway bridge on Markleton School Road (SR3011) at Markleton, 2 mi southwest of Casselman, and 7 mi downstream from Coxes Creek.

DRAINAGE AREA.--382 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August to September 1913 (gage heights and discharge measurements only), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1305. October 1913 to September 1920 (gage heights and discharge measurements only) in reports of Water Supply Commission of Pennsylvania.

REVISED RECORDS.--WSP 743: Drainage area. WSP 1305: 1923-31. WSP 1435: 1932-34, 1935 (M), 1936-38. WSP 1625: 1924 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,655.29 ft above National Geodetic Vertical Datum of 1929 (from benchmark). Prior to Nov. 19, 1940, nonrecording gage at same site and datum. Satellite telemetry at station.

COOPERATION.--Station established and maintained by the U.S. Geological Survey. Funding for this station provided by the U.S. Army Corps of Engineers, Pittsburgh District, the Pennsylvania Department of Environmental Protection and the U.S. Geological Survey through the Cooperative Water Program.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Slight diversion upstream of station to city of Frostburg, MD, in the Potomac River Basin. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 31	0600	*7,900	*6.64
(No peaks greater than base discharge.)			

Minimum discharge, 64 ft³/s, Oct. 14, 15, gage height, 0.90 ft.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	174	1,860	232	e539	2,700	739	2,520	413	183	258	123	574
2	199	1,800	226	e494	1,610	628	1,960	359	167	233	118	474
3	282	1,320	254	e471	e1,260	559	1,390	324	157	348	111	397
4	182	1,050	287	e461	e1,010	e500	1,120	301	153	357	115	330
5	133	897	309	e456	e836	e444	1,000	284	145	675	106	280
6	110	773	290	e435	e707	551	1,060	267	138	653	96	245
7	97	689	376	e415	e618	516	1,020	307	220	502	91	214
8	88	593	1,360	408	e592	468	1,300	2,660	260	868	346	206
9	84	522	1,200	462	e582	425	1,280	1,980	208	534	3,160	192
10	80	516	1,540	777	549	641	1,100	1,300	177	715	3,160	175
11	77	680	1,610	941	1,230	1,300	912	1,820	255	696	1,120	163
12	75	874	1,170	2,900	2,190	4,050	1,500	1,900	208	429	664	236
13	69	1,260	900	3,970	1,380	2,790	1,510	1,240	230	344	753	208
14	65	941	754	3,360	1,110	1,720	1,060	969	320	286	773	183
15	65	696	657	2,160	974	1,300	873	819	235	225	487	155
16	69	579	599	2,400	848	1,200	760	808	171	188	375	153
17	75	494	595	2,280	730	1,220	1,040	810	212	165	308	149
18	84	432	1,180	1,590	601	1,070	883	619	203	149	272	131
19	163	394	958	1,250	693	1,130	768	530	189	135	319	123
20	187	382	894	1,130	e574	1,310	1,080	494	158	168	287	120
21	131	359	3,490	940	e455	1,010	804	453	134	216	222	174
22	102	330	1,960	e653	e418	841	688	392	119	285	343	349
23	88	309	1,350	e502	e400	744	619	382	107	632	1,130	203
24	81	315	1,100	e426	e377	757	580	381	123	568	1,240	154
25	77	299	967	e393	489	731	597	331	155	354	575	133
26	72	270	902	e389	493	697	510	285	149	227	409	121
27	68	258	e839	e393	714	646	450	253	177	196	330	112
28	71	262	753	e592	960	598	428	250	595	214	3,060	104
29	750	262	711	2,940	---	599	497	261	781	174	2,300	98
30	4,640	240	e645	2,330	---	997	464	213	377	146	1,110	96
31	1,950	---	e584	5,970	---	1,530	---	191	---	130	742	---
Total	10,388	19,656	28,692	42,427	25,100	31,711	29,773	21,596	6,706	11,070	24,245	6,252
Mean	335	655	926	1,369	896	1,023	992	697	224	357	782	208
Max	4,640	1,860	3,490	5,970	2,700	4,050	2,520	2,660	781	868	3,160	574
Min	65	240	226	389	377	425	428	191	107	130	91	96
Cfs/m	0.88	1.72	2.42	3.58	2.35	2.68	2.60	1.82	0.59	0.93	2.05	0.55
In.	1.01	1.91	2.79	4.13	2.44	3.09	2.90	2.10	0.65	1.08	2.36	0.61

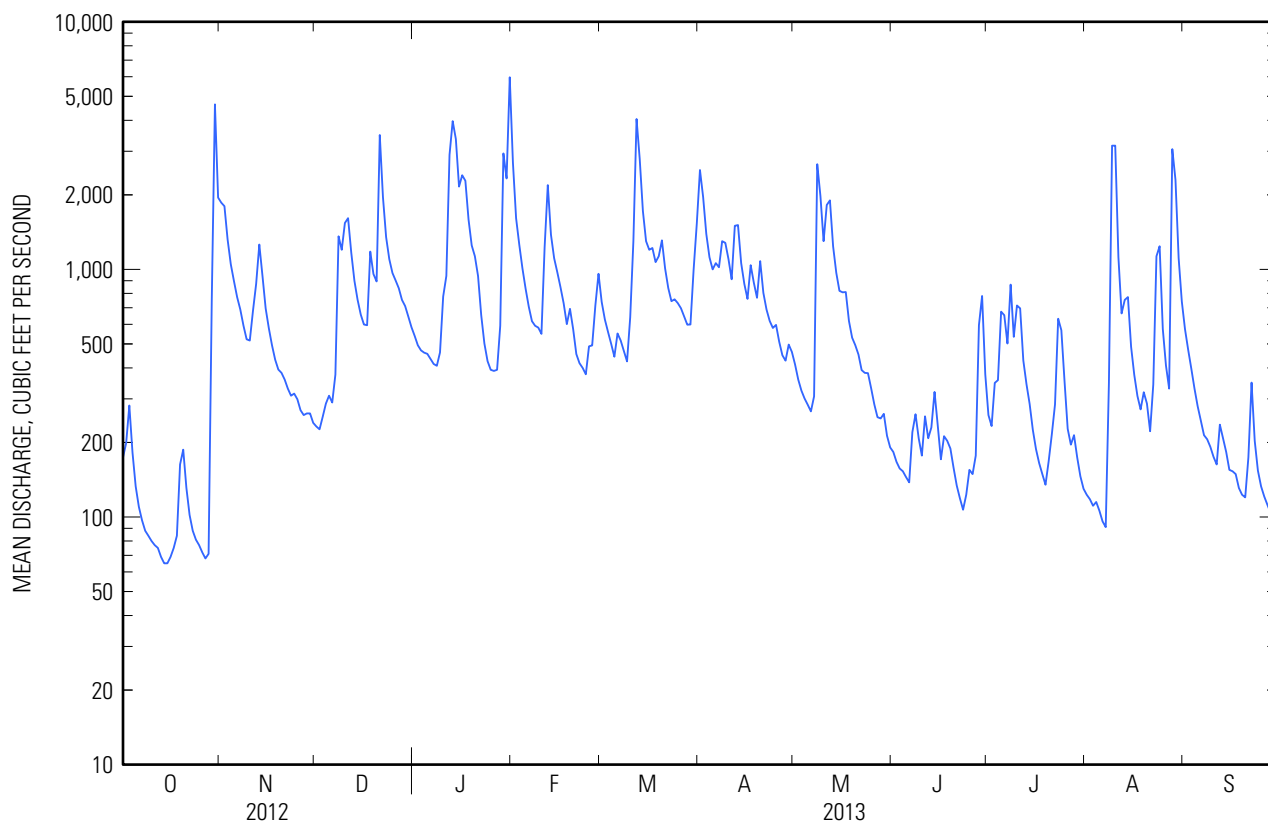
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	275	478	778	881	1,029	1,494	1,141	811	447	254	220	212
Max	1,769	2,975	2,217	2,709	2,324	3,860	2,437	2,147	1,499	920	842	1,756
(WY)	(1955)	(1986)	(1973)	(1937)	(1956)	(1936)	(1970)	(1924)	(1941)	(1924)	(1956)	(1996)
Min	14.9	22.6	55.3	133	153	307	316	126	60.6	35.6	24.5	19.9
(WY)	(1954)	(1954)	(1999)	(1925)	(1934)	(1990)	(1921)	(1926)	(1965)	(1965)	(1957)	(1943)

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SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1921 - 2013	
Annual total	209,922		257,616			
Annual mean	574		706		667	
Highest annual mean					1,151	1996
Lowest annual mean					336	1954
Highest daily mean	4,860	Mar 1	5,970	Jan 31	^a 25,000 Jan 19, 1996	
Lowest daily mean	34	Sep 17	65	Oct 14 ^b	11	Jul 23, 1936 ^c
Annual seven-day minimum	40	Sep 11	71	Oct 11	12	Sep 4, 1957
Maximum peak flow			7,900	Jan 31	^d 50,000 Oct 15, 1954	
Maximum peak stage			6.64	Jan 31	14.06	Oct 15, 1954
Instantaneous low flow			64	Oct 14 ^b	10	Sep 9, 1957
Annual runoff (cfs)	1.50		1.85		1.75	
Annual runoff (inches)	20.44		25.09		23.71	
10 percent exceeds	1,210		1,500		1,540	
50 percent exceeds	400		474		346	
90 percent exceeds	72		123		58	

^a Estimated.^b Also Oct 15.^c Also Sep 7-9, 1957.^d Estimated on basis of summation of peak flows at nearby stations.

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WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 2005 to September, 2011 (seasonal). October, 2011 to current year.

PH: June 2005 to current year (seasonal).

WATER TEMPERATURE: June 2005 to September, 2011 (seasonal). October 2011 to current year.

INSTRUMENTATION.--Continuous water-quality monitor interfaced with a data collection platform with 30-minute recording interval.

REMARKS.--Water temperature records rated good. Specific conductance records rated good, except those from November 6 to November 7, January 22 to January 30, March 21 to March 22, and June 27 to September 2, which are fair, and those from January 31 to February 6, and September 3 to September 4, which are poor. pH records rated good except those from October 1 to October 23, which are fair. Water temperature and specific conductance are monitored year-round. pH is monitored from April to October.

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

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: maximum, 32.2°C Jul 7, 2012; minimum, -0.2°C, many days during winter periods.

SPECIFIC CONDUCTANCE: maximum, 743 microsiemens/cm, September 17, 2012; minimum, 135 microsiemens/cm, Nov 23, 2011

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 628 microsiemens/cm, Oct. 18; minimum, 147 microsiemens/cm, Aug. 28.

WATER TEMPERATURE: Maximum, 30.7°C, July 18; minimum, -0.2°C, on many days during winter periods.

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SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	422	391	404	251	220	237	376	371	373	385	364	375
2	431	419	427	224	219	221	375	367	372	372	328	359
3	443	407	427	234	222	228	391	365	374	381	335	361
4	441	417	430	238	233	235	392	362	383	374	341	355
5	436	411	421	246	235	240	362	353	356	344	325	334
6	461	434	445	255	246	250	364	348	356	326	313	318
7	477	460	466	268	254	261	349	302	335	324	315	318
8	502	477	486	279	268	273	302	229	254	345	323	334
9	524	502	510	287	279	284	229	221	225	371	325	345
10	542	524	535	293	283	290	226	202	215	377	338	348
11	559	542	550	283	244	268	202	197	199	394	341	368
12	571	554	562	245	208	229	205	199	202	369	203	283
13	577	561	570	208	172	188	214	205	209	203	165	175
14	591	574	585	193	172	181	223	214	219	166	161	163
15	590	585	587	214	193	204	232	223	228	192	166	176
16	595	582	589	231	214	223	239	232	236	291	192	229
17	613	588	603	246	231	239	243	218	239	275	203	224
18	628	597	617	258	246	252	228	216	222	209	202	205
19	597	492	550	270	258	265	218	213	215	224	209	216
20	524	481	505	285	270	279	220	191	215	236	224	232
21	488	436	458	291	282	287	196	161	175	246	236	241
22	465	443	455	305	291	300	210	161	183	246	224	231
23	487	465	475	308	305	306	225	210	220	255	232	245
24	515	487	503	321	307	315	235	217	226	263	252	257
25	539	515	529	323	317	320	260	234	245	272	262	265
26	559	539	548	333	323	327	280	260	271	273	271	272
27	568	559	564	336	331	334	270	252	258	358	271	304
28	577	565	573	359	336	347	317	270	300	440	358	375
29	575	240	498	380	355	365	327	310	317	456	301	365
30	240	170	197	379	370	375	360	309	338	301	240	273
31	251	218	232	---	---	---	395	360	383	240	168	187
Month	628	170	494	380	172	271	395	161	269	456	161	282

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SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	210	187	195	522	486	506	333	238	271	345	331	336
2	231	189	210	522	486	502	238	229	233	359	345	353
3	256	218	237	490	450	470	251	238	244	372	359	367
4	320	256	290	466	444	453	262	251	256	378	372	375
5	358	317	335	465	437	452	271	262	268	385	378	381
6	410	358	391	461	429	441	272	251	261	389	385	388
7	414	398	408	583	433	537	253	245	249	394	374	387
8	413	367	384	571	549	560	246	211	230	374	187	259
9	417	367	388	549	510	535	212	201	207	200	184	189
10	495	417	464	531	434	498	222	208	215	219	199	208
11	497	369	450	449	356	400	255	221	237	240	208	221
12	369	294	321	356	202	257	291	233	254	208	193	197
13	294	279	283	215	197	203	251	226	235	210	196	202
14	311	279	292	240	215	229	245	228	236	224	210	216
15	336	311	322	253	240	247	256	244	248	235	224	229
16	315	310	312	258	253	256	265	256	259	254	233	239
17	318	310	312	266	256	261	288	253	268	254	238	244
18	363	318	342	258	253	255	272	254	265	259	245	251
19	379	362	372	394	258	307	271	266	268	276	259	268
20	415	378	401	393	366	377	298	255	273	289	276	284
21	430	414	424	372	318	339	273	262	266	313	285	298
22	443	419	429	327	317	323	277	269	270	321	306	312
23	421	386	400	332	315	325	285	277	279	334	319	326
24	415	387	400	342	318	329	291	285	287	338	327	333
25	399	392	394	328	317	320	305	291	301	340	333	337
26	403	390	398	472	328	429	311	302	307	356	340	347
27	576	392	499	486	456	477	325	311	319	373	356	365
28	568	496	525	588	485	542	331	324	327	386	373	381
29	---	---	---	579	489	535	341	324	334	414	385	404
30	---	---	---	495	364	436	331	322	327	409	404	406
31	---	---	---	394	315	349	---	---	---	431	409	420
Month	576	187	364	588	197	392	341	201	266	431	184	307

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SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	440	428	433	358	328	342	450	436	442	266	249	255
2	458	439	446	373	358	366	475	450	461	284	266	274
3	469	458	462	389	312	363	480	468	475	303	284	294
4	494	468	480	355	272	319	496	475	484	324	303	315
5	501	494	496	337	194	259	506	496	503	345	324	335
6	502	495	499	263	220	236	511	501	504	364	345	353
7	524	489	509	248	221	233	518	484	511	379	364	371
8	489	446	462	280	232	244	493	399	443	395	379	385
9	455	436	444	274	241	253	400	165	245	409	395	403
10	452	436	443	308	267	274	184	170	176	430	408	419
11	494	447	469	299	275	281	219	180	200	451	427	438
12	447	432	440	294	280	284	253	219	236	483	358	442
13	469	416	436	310	294	302	282	248	261	425	360	406
14	464	394	433	328	310	320	260	236	244	427	388	408
15	394	376	387	348	328	337	274	241	256	454	427	437
16	423	394	406	374	348	360	299	274	287	461	446	453
17	428	389	420	399	374	386	319	299	308	486	460	473
18	466	409	440	423	399	410	337	319	327	498	479	486
19	455	434	440	436	423	429	390	337	351	503	495	499
20	460	442	452	439	377	414	383	342	356	520	503	512
21	478	454	461	484	405	431	383	368	375	526	399	497
22	506	478	491	428	255	386	429	330	387	454	368	421
23	519	506	511	326	273	301	330	212	275	446	418	426
24	543	519	528	327	289	305	242	215	224	444	424	431
25	551	433	486	317	290	301	275	237	257	474	442	456
26	506	426	444	345	317	329	309	275	291	499	474	487
27	521	446	483	351	327	343	338	309	327	518	499	508
28	479	312	419	381	335	365	349	147	240	541	518	530
29	326	294	309	415	381	401	208	172	195	552	541	548
30	328	296	312	419	404	410	229	208	217	569	552	560
31	---	---	---	438	419	424	249	229	237	---	---	---
Month	551	294	448	484	194	336	518	147	326	569	249	427

	Max	Min	Mean
Year	628	147	348

03079000 CASSELMAN RIVER AT MARKLETON, PA—Continued

pH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	October			November			December			January		
1	8.7	7.7	8.1	---	---	---	---	---	---	---	---	---
2	8.9	7.7	8.0	---	---	---	---	---	---	---	---	---
3	8.7	7.6	7.9	---	---	---	---	---	---	---	---	---
4	9.2	7.6	8.2	---	---	---	---	---	---	---	---	---
5	9.3	7.7	8.5	---	---	---	---	---	---	---	---	---
6	9.0	7.7	8.1	---	---	---	---	---	---	---	---	---
7	9.2	7.6	8.3	---	---	---	---	---	---	---	---	---
8	9.2	7.6	8.5	---	---	---	---	---	---	---	---	---
9	9.2	7.7	8.4	---	---	---	---	---	---	---	---	---
10	9.0	7.7	8.3	---	---	---	---	---	---	---	---	---
11	9.0	7.7	8.2	---	---	---	---	---	---	---	---	---
12	9.0	7.7	8.3	---	---	---	---	---	---	---	---	---
13	8.9	7.7	8.2	---	---	---	---	---	---	---	---	---
14	9.0	7.6	8.3	---	---	---	---	---	---	---	---	---
15	8.6	7.6	8.1	---	---	---	---	---	---	---	---	---
16	8.8	7.6	8.2	---	---	---	---	---	---	---	---	---
17	8.8	7.7	8.1	---	---	---	---	---	---	---	---	---
18	8.8	7.6	8.0	---	---	---	---	---	---	---	---	---
19	8.3	7.6	7.8	---	---	---	---	---	---	---	---	---
20	8.2	7.6	7.7	---	---	---	---	---	---	---	---	---
21	8.5	7.5	7.7	---	---	---	---	---	---	---	---	---
22	8.5	7.5	7.7	---	---	---	---	---	---	---	---	---
23	8.9	7.4	7.8	---	---	---	---	---	---	---	---	---
24	8.9	7.6	8.1	---	---	---	---	---	---	---	---	---
25	8.9	7.6	8.0	---	---	---	---	---	---	---	---	---
26	8.9	7.6	8.2	---	---	---	---	---	---	---	---	---
27	8.8	7.6	8.0	---	---	---	---	---	---	---	---	---
28	8.4	7.7	7.8	---	---	---	---	---	---	---	---	---
29	7.9	7.2	7.7	---	---	---	---	---	---	---	---	---
30	7.2	7.0	7.1	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Max	9.3	7.7	8.5	---	---	---	---	---	---	---	---	---
Min	7.2	7.0	7.1	---	---	---	---	---	---	---	---	---

03079000 CASSELMAN RIVER AT MARKLETON, PA—Continued

pH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	February			March			April			May		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	8.1	7.5	7.7
3	---	---	---	---	---	---	---	---	---	8.2	7.5	7.7
4	---	---	---	---	---	---	---	---	---	8.2	7.6	7.8
5	---	---	---	---	---	---	---	---	---	8.2	7.6	7.8
6	---	---	---	---	---	---	---	---	---	8.1	7.6	7.8
7	---	---	---	---	---	---	---	---	---	8.0	7.6	7.7
8	---	---	---	---	---	---	---	---	---	7.6	7.3	7.4
9	---	---	---	---	---	---	---	---	---	7.4	7.3	7.3
10	---	---	---	---	---	---	---	---	---	7.6	7.3	7.4
11	---	---	---	---	---	---	---	---	---	7.4	7.4	7.4
12	---	---	---	---	---	---	---	---	---	7.5	7.4	7.4
13	---	---	---	---	---	---	---	---	---	7.5	7.3	7.4
14	---	---	---	---	---	---	---	---	---	7.6	7.3	7.4
15	---	---	---	---	---	---	---	---	---	7.7	7.3	7.5
16	---	---	---	---	---	---	---	---	---	7.7	7.4	7.5
17	---	---	---	---	---	---	---	---	---	7.7	7.3	7.5
18	---	---	---	---	---	---	---	---	---	7.7	7.3	7.5
19	---	---	---	---	---	---	---	---	---	7.7	7.4	7.5
20	---	---	---	---	---	---	---	---	---	7.6	7.3	7.5
21	---	---	---	---	---	---	---	---	---	7.6	7.3	7.5
22	---	---	---	---	---	---	---	---	---	7.6	7.4	7.5
23	---	---	---	---	---	---	---	---	---	7.6	7.4	7.4
24	---	---	---	---	---	---	---	---	---	7.5	7.4	7.5
25	---	---	---	---	---	---	---	---	---	7.6	7.4	7.5
26	---	---	---	---	---	---	---	---	---	7.5	7.4	7.5
27	---	---	---	---	---	---	---	---	---	7.6	7.4	7.5
28	---	---	---	---	---	---	---	---	---	7.6	7.4	7.5
29	---	---	---	---	---	---	---	---	---	7.6	7.4	7.6
30	---	---	---	---	---	---	---	---	---	7.6	7.5	7.5
31	---	---	---	---	---	---	---	---	---	7.7	7.4	7.5
Max	---	---	---	---	---	---	---	---	---	8.2	7.6	7.8
Min	---	---	---	---	---	---	---	---	---	7.4	7.3	7.3

03079000 CASSELMAN RIVER AT MARKLETON, PA—Continued

pH, WATER, UNFILTERED, FIELD, STANDARD UNITS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	June			July			August			September		
1	7.8	7.5	7.6	7.6	7.3	7.5	8.9	7.8	8.1	7.8	7.5	7.7
2	7.8	7.5	7.6	7.9	7.5	7.6	8.9	7.8	8.3	8.1	7.5	7.7
3	7.8	7.6	7.7	7.6	7.4	7.5	8.5	7.8	8.1	8.3	7.6	7.8
4	8.1	7.6	7.8	7.6	7.3	7.4	8.7	7.8	8.1	8.5	7.6	7.8
5	8.1	7.7	7.9	7.5	7.3	7.4	8.7	7.8	8.1	8.4	7.7	7.8
6	8.0	7.7	7.8	7.8	7.4	7.6	8.8	7.8	8.0	8.4	7.7	7.8
7	8.0	7.7	7.8	8.0	7.6	7.7	8.8	7.8	8.0	8.4	7.7	7.9
8	8.1	7.8	7.8	7.7	7.6	7.6	8.0	7.7	7.8	8.5	7.7	7.9
9	8.1	7.7	7.9	7.8	7.6	7.7	7.7	7.3	7.4	8.6	7.7	7.9
10	8.2	7.7	7.8	8.0	7.6	7.7	7.5	7.3	7.4	8.6	7.6	7.8
11	8.1	7.7	7.8	8.0	7.7	7.8	7.6	7.4	7.5	8.5	7.6	7.9
12	8.1	7.7	7.9	8.2	7.8	7.9	7.9	7.5	7.6	8.3	7.6	7.8
13	7.9	7.7	7.8	8.3	7.8	7.9	8.0	7.6	7.7	8.2	7.7	7.8
14	8.0	7.7	7.8	8.6	7.7	7.9	8.0	7.7	7.8	8.2	7.7	7.8
15	7.9	7.7	7.8	8.7	7.7	8.0	8.2	7.6	7.8	8.3	7.7	7.9
16	7.9	7.6	7.7	8.8	7.7	8.1	8.4	7.6	7.8	8.2	7.7	7.8
17	7.8	7.6	7.7	8.9	7.7	8.2	8.6	7.6	7.9	8.2	7.7	7.8
18	7.8	7.6	7.6	8.9	7.7	8.2	8.7	7.6	7.9	8.3	7.7	7.9
19	7.9	7.6	7.7	8.8	7.7	8.2	8.6	7.6	7.9	8.2	7.7	7.8
20	7.9	7.6	7.7	8.3	7.8	8.0	8.8	7.7	8.1	8.1	7.7	7.8
21	7.8	7.6	7.7	8.5	7.8	7.9	8.9	7.7	8.1	8.3	7.7	7.8
22	8.2	7.6	7.8	8.6	7.5	7.8	8.6	7.7	7.9	8.1	7.7	7.8
23	8.0	7.7	7.8	8.0	7.6	7.7	7.7	7.5	7.7	8.3	7.8	7.9
24	8.0	7.7	7.8	8.1	7.7	7.8	7.7	7.5	7.6	8.3	7.7	7.9
25	7.9	7.6	7.7	8.6	7.7	7.9	8.1	7.5	7.7	8.5	7.7	7.9
26	7.9	7.6	7.8	8.9	7.7	8.1	8.4	7.6	7.8	8.4	7.7	7.9
27	7.8	7.6	7.7	8.6	7.7	8.0	8.3	7.7	7.8	8.5	7.7	7.9
28	7.7	7.4	7.6	9.0	7.7	8.2	7.8	7.2	7.4	8.4	7.7	7.9
29	7.4	7.2	7.3	9.1	7.8	8.4	7.6	7.3	7.5	8.5	7.7	7.9
30	7.3	7.2	7.2	9.1	7.8	8.5	7.7	7.5	7.5	8.4	7.7	7.9
31	---	---	---	9.1	7.8	8.4	7.8	7.5	7.6	---	---	---
Max	8.2	7.8	7.9	9.1	7.8	8.5	8.9	7.8	8.3	8.6	7.8	7.9
Min	7.3	7.2	7.2	7.5	7.3	7.4	7.5	7.2	7.4	7.8	7.5	7.7

03079000 CASSELMAN RIVER AT MARKLETON, PA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	15.4	11.4	13.3	6.6	6.0	6.3	3.1	0.4	1.7	0.8	0.1	0.4
2	16.4	13.8	14.9	6.4	5.8	6.1	4.9	1.9	3.0	0.5	-0.2	0.0
3	17.4	15.0	16.1	5.8	5.3	5.5	6.7	4.9	5.9	0.0	-0.2	-0.2
4	19.0	16.2	17.2	5.9	5.3	5.5	8.4	6.2	7.3	-0.2	-0.2	-0.2
5	18.7	14.2	16.1	5.5	4.9	5.2	8.3	5.2	7.0	0.1	-0.2	-0.1
6	15.7	12.4	14.5	5.3	3.8	4.6	5.2	2.8	3.6	0.8	-0.2	0.3
7	12.4	10.2	11.4	4.5	3.6	4.0	5.0	3.0	3.7	1.1	-0.2	0.6
8	10.2	9.1	9.6	4.2	2.5	3.5	7.0	5.0	6.2	0.0	-0.2	-0.2
9	13.9	8.7	10.8	5.0	2.7	3.9	7.3	7.0	7.1	0.5	-0.2	0.0
10	11.6	9.6	10.5	6.1	3.8	4.9	7.9	7.0	7.4	1.5	-0.1	0.7
11	12.3	7.2	9.5	6.9	4.6	5.8	7.3	5.1	6.1	3.0	1.4	2.2
12	10.3	7.1	8.5	8.8	6.2	7.4	5.1	3.1	4.1	4.2	2.7	3.3
13	11.2	5.2	8.1	8.4	5.7	7.0	3.1	1.7	2.3	5.8	4.0	4.7
14	14.3	8.6	11.1	5.7	4.1	5.0	2.1	0.8	1.6	6.1	5.1	5.8
15	13.4	11.9	12.9	4.6	3.2	3.9	3.2	1.3	2.2	5.1	3.6	4.4
16	12.7	10.1	11.4	4.3	2.6	3.6	5.0	3.2	4.0	3.6	3.2	3.3
17	13.3	7.9	10.4	4.0	2.1	3.1	6.4	5.0	5.7	3.3	2.9	3.2
18	12.5	9.1	10.8	3.8	1.8	2.8	6.4	5.0	6.0	2.9	1.3	2.0
19	13.6	10.6	12.0	4.0	1.7	3.0	5.0	4.6	4.8	2.5	0.8	1.6
20	12.4	10.2	11.2	4.5	2.9	3.8	4.6	4.0	4.2	3.1	1.5	2.4
21	10.7	8.6	9.6	4.8	2.8	3.8	4.2	2.1	3.2	1.5	-0.2	0.9
22	12.2	7.0	9.4	4.3	2.1	3.2	2.1	1.1	1.5	-0.2	-0.2	-0.2
23	13.9	9.8	11.6	3.7	2.1	2.9	1.7	0.5	1.1	-0.2	-0.2	-0.2
24	15.2	11.6	13.0	3.0	1.1	1.9	1.4	0.7	1.1	-0.2	-0.2	-0.2
25	16.1	11.2	13.5	1.8	0.5	1.0	2.4	1.4	2.1	-0.2	-0.2	-0.2
26	16.5	12.2	14.2	2.6	0.4	1.4	2.4	-0.2	0.9	-0.2	-0.2	-0.2
27	15.5	13.8	14.5	2.4	1.2	1.9	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2
28	13.8	11.3	12.5	3.0	1.1	2.0	1.1	-0.1	0.4	-0.1	-0.2	-0.1
29	11.3	5.8	9.4	1.7	-0.1	0.7	0.5	0.1	0.3	2.9	-0.2	1.3
30	5.8	4.8	5.2	1.6	-0.2	0.6	0.2	-0.2	-0.1	5.9	2.9	4.4
31	6.2	5.3	5.7	---	---	---	0.1	-0.2	-0.1	6.0	2.0	4.1
Month	19.0	4.8	11.6	8.8	-0.2	3.8	8.4	-0.2	3.4	6.1	-0.2	1.4

03079000 CASSELMAN RIVER AT MARKLETON, PA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	2.0	-0.2	0.7	2.1	1.2	1.6	4.9	4.2	4.4	17.6	12.4	14.9
2	-0.1	-0.2	-0.2	1.4	0.5	1.0	4.5	2.5	3.5	18.4	12.8	15.7
3	0.9	-0.2	0.2	1.1	-0.2	0.4	5.2	2.7	3.8	18.4	13.1	15.9
4	0.1	-0.2	-0.1	1.9	-0.2	0.5	5.0	2.2	3.7	18.4	13.2	15.9
5	1.2	0.0	0.6	2.9	-0.2	1.2	7.7	3.5	5.4	18.3	13.2	15.8
6	1.3	0.4	0.9	2.3	0.4	1.4	8.0	4.5	6.3	15.9	13.0	14.4
7	1.0	-0.2	0.3	2.8	1.3	1.9	9.4	6.1	7.7	15.0	13.6	14.3
8	1.4	0.5	0.9	2.2	1.2	1.7	10.6	8.2	9.3	14.3	11.9	13.2
9	0.9	-0.2	0.2	4.2	-0.2	2.1	12.3	9.0	10.5	14.0	12.5	13.2
10	0.9	-0.2	0.2	5.9	2.2	3.9	14.8	11.1	12.8	14.9	12.7	13.7
11	3.7	0.4	2.0	5.0	4.2	4.7	14.9	13.0	14.0	14.3	13.4	13.9
12	3.4	1.9	2.5	5.0	3.2	4.0	14.1	12.7	13.5	13.4	11.2	12.3
13	2.7	1.9	2.3	3.2	2.5	2.9	12.7	10.1	11.3	11.2	9.4	10.4
14	3.3	1.6	2.4	2.5	1.3	1.9	11.9	8.7	10.4	10.9	8.2	9.7
15	3.9	2.6	3.1	3.9	1.2	2.5	11.8	10.4	11.0	16.6	9.9	12.9
16	2.9	1.2	2.3	4.3	3.6	4.0	14.8	10.4	12.4	18.0	15.2	16.4
17	1.2	-0.2	0.1	4.2	3.4	3.9	14.3	13.3	13.8	19.2	15.5	17.3
18	0.8	-0.2	0.1	3.7	0.8	2.0	17.3	13.1	15.1	19.8	15.6	17.8
19	1.4	0.0	0.7	4.0	0.8	2.3	16.1	13.0	15.1	19.1	16.6	17.7
20	0.8	-0.2	-0.1	3.2	1.9	2.6	13.0	9.3	10.8	21.3	15.4	18.3
21	0.0	-0.2	-0.2	2.4	0.9	1.6	11.6	7.4	9.4	23.1	17.9	20.5
22	-0.2	-0.2	-0.2	2.2	0.0	1.0	12.6	8.3	10.3	23.2	19.3	21.3
23	1.8	-0.2	0.6	4.1	0.3	2.1	14.0	8.8	11.4	22.5	19.5	20.8
24	1.4	0.0	0.9	3.2	2.0	2.6	13.7	10.6	12.2	20.6	13.0	16.4
25	2.7	-0.2	1.1	2.5	0.5	1.4	14.1	10.0	12.0	15.6	11.0	13.2
26	1.7	0.8	1.0	3.6	1.5	2.4	14.9	10.2	12.5	17.4	11.0	14.3
27	2.3	0.9	1.6	3.6	2.2	3.0	15.5	10.0	12.9	15.5	12.3	13.8
28	2.3	1.6	1.9	3.8	2.7	3.2	14.2	11.3	12.1	17.2	13.2	15.0
29	---	---	---	6.5	2.8	4.4	12.9	10.3	11.6	21.7	15.2	18.3
30	---	---	---	7.4	3.6	5.4	14.9	11.7	13.2	24.3	17.8	21.1
31	---	---	---	5.8	4.5	4.9	---	---	---	26.4	19.7	23.2
Month	3.9	-0.2	0.9	7.4	-0.2	2.5	17.3	2.2	10.4	26.4	8.2	15.9

03079000 CASSELMAN RIVER AT MARKLETON, PA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	26.7	21.3	24.1	24.2	21.0	22.5	23.7	20.2	21.5	21.0	19.1	20.1
2	24.5	21.8	23.1	24.4	21.2	22.8	24.9	19.3	21.8	22.6	19.1	20.8
3	22.3	19.0	20.9	24.6	21.1	22.6	22.0	19.9	20.8	22.0	19.5	20.9
4	23.1	15.9	19.5	25.7	21.3	23.2	23.5	18.5	20.6	21.4	18.0	19.8
5	23.1	17.0	20.0	25.0	21.9	23.5	23.7	17.9	20.6	19.8	17.2	18.4
6	20.8	18.5	19.6	24.6	21.7	23.2	26.5	18.6	22.0	19.8	15.1	17.6
7	18.7	17.7	18.2	24.4	22.3	23.2	26.4	20.8	23.2	20.0	15.4	17.8
8	19.8	16.5	18.0	23.1	20.1	21.6	23.8	20.0	22.0	21.1	17.2	19.2
9	23.0	16.9	20.0	22.7	20.8	21.6	22.4	19.5	20.2	21.0	17.5	19.4
10	22.9	20.5	21.7	23.8	20.9	21.9	20.3	18.5	19.4	23.7	18.3	20.9
11	21.3	19.1	20.0	22.3	20.3	21.1	21.7	18.4	20.0	24.8	20.7	22.5
12	23.9	18.9	21.4	21.2	19.6	20.5	22.2	19.7	20.8	23.3	21.3	22.3
13	22.7	19.0	21.1	22.7	19.5	20.9	21.6	19.7	20.5	21.3	17.4	19.4
14	21.7	17.2	19.5	26.8	20.6	23.6	19.8	16.8	17.9	17.9	15.1	16.3
15	23.7	17.7	20.7	27.5	22.4	25.1	19.9	15.3	17.5	18.1	13.5	15.8
16	22.0	19.7	21.0	29.0	23.5	26.1	20.6	15.7	18.3	17.1	15.4	16.1
17	23.6	19.6	21.4	29.8	24.4	26.8	20.4	16.5	18.7	18.7	14.4	16.2
18	21.7	20.0	20.7	30.7	24.7	27.7	20.5	17.8	19.1	17.1	12.6	15.0
19	24.4	18.9	21.5	29.8	25.6	27.3	20.3	17.9	19.0	18.2	14.5	15.9
20	26.0	19.2	22.6	26.0	22.8	24.3	23.0	18.0	20.3	20.1	15.5	17.5
21	27.6	20.6	23.9	24.6	21.9	23.1	23.5	19.2	21.4	18.3	16.1	17.3
22	28.0	21.8	24.9	24.6	21.4	22.9	22.6	20.3	21.4	16.6	14.8	15.6
23	29.0	22.4	25.5	23.2	20.3	21.5	20.9	18.7	19.5	15.1	13.1	14.1
24	27.7	23.1	25.5	22.2	20.3	21.2	20.8	17.6	18.9	16.7	11.1	13.7
25	28.8	22.8	25.6	23.4	18.3	20.8	20.9	17.3	19.2	16.2	12.2	14.1
26	25.7	23.1	24.4	24.7	18.7	21.7	22.2	17.6	19.9	18.2	12.7	15.1
27	23.5	21.1	22.0	22.4	19.6	20.4	21.5	19.9	20.5	17.5	12.6	15.0
28	21.5	19.0	20.5	23.6	18.6	20.8	20.9	18.9	19.7	17.4	12.7	14.9
29	21.8	18.0	19.9	22.5	18.8	20.8	20.4	18.4	19.2	17.4	12.5	14.9
30	23.9	19.0	21.4	23.6	18.6	21.0	21.6	18.4	19.9	16.4	13.0	14.8
31	---	---	---	23.3	19.2	21.2	21.5	19.0	20.1	---	---	---
Month	29.0	15.9	21.6	30.7	18.3	22.7	26.5	15.3	20.1	24.8	11.1	17.4

	Max	Min	Mean
Year	30.7	-0.2	11.0