

Water-Data Report 2011

**01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA**

Upper Susquehanna Basin  
Tioga Subbasin

LOCATION.--Lat 41°59'48", long 77°08'25" referenced to North American Datum of 1927, Tioga County, PA, Hydrologic Unit 02050104, on left bank on SR 4022, 0.5 mi downstream from Cowanesque Dam, 0.8 mi upstream from highway bridge on U.S. Route 15 in Lawrenceville, and 1.4 mi upstream from mouth.

DRAINAGE AREA.--298 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--June 1951 to current year. Prior to October 1951 monthly discharge only, published in WSP 1722.

REVISED RECORDS.--WDR PA-72-1: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 983.96 ft above National Geodetic Vertical Datum of 1929. Prior to July 1976 at site 1.1 mi upstream at datum 14.07 ft higher. 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, and the Pennsylvania Department of Environmental Protection.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since December 1979 by Cowanesque Dam (station 01519995). Several measurements of water temperature were made during the year.

## 01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA—Continued

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,040	150	2,120	109	56	2,780	809	1,420	1,140	47	17	27
2	657	115	3,700	114	56	1,810	805	936	575	48	19	27
3	265	65	3,580	113	56	785	870	897	363	48	19	27
4	176	88	1,550	111	56	653	1,290	1,540	338	49	19	27
5	224	130	774	114	72	843	2,570	1,260	338	50	19	32
6	1,150	130	597	112	116	1,510	2,610	836	267	50	20	30
7	987	111	449	114	95	2,140	2,760	772	204	26	19	147
8	446	89	394	114	83	2,920	2,300	627	208	9.9	19	64
9	263	89	338	113	83	2,980	1,280	510	163	15	19	104
10	200	75	231	109	62	2,190	1,030	389	142	15	19	264
11	200	69	190	109	48	460	1,030	305	142	15	19	349
12	367	53	325	109	48	2,400	1,030	305	114	15	19	349
13	327	25	556	103	48	3,470	1,200	282	80	13	19	238
14	234	75	461	90	48	3,400	1,260	257	80	12	20	86
15	122	102	339	90	48	3,320	928	483	80	13	19	69
16	94	131	277	90	103	3,250	1,080	1,460	80	14	20	69
17	96	697	255	72	161	3,050	2,600	871	79	15	19	68
18	96	412	204	60	623	3,020	1,460	779	72	15	19	57
19	96	311	165	62	2,230	2,840	1,650	1,220	69	15	22	38
20	96	311	140	62	1,270	1,650	1,740	2,930	69	15	21	38
21	96	223	163	64	736	1,800	1,150	3,290	69	15	22	38
22	96	180	163	61	480	2,080	885	2,360	177	15	22	39
23	96	181	137	60	339	1,470	1,610	1,160	196	16	23	41
24	96	183	80	59	325	1,080	1,380	1,470	117	17	26	338
25	96	185	80	56	402	811	1,790	1,370	62	18	28	237
26	99	307	119	56	393	646	2,570	1,030	48	17	27	69
27	348	276	142	60	383	683	3,140	1,070	44	17	27	174
28	258	239	144	58	1,400	683	3,460	1,260	41	17	29	2,020
29	190	266	140	56	---	586	4,210	762	41	17	27	2,680
30	178	399	119	58	---	567	3,510	1,910	44	17	27	1,140
31	150	---	109	56	---	753	---	1,940	---	19	27	---
<b>Total</b>	8,839	5,667	18,041	2,614	9,820	56,630	54,007	35,701	5,442	684.9	671	8,886
<b>Mean</b>	285	189	582	84.3	351	1,827	1,800	1,152	181	22.1	21.6	296
<b>Max</b>	1,150	697	3,700	114	2,230	3,470	4,210	3,290	1,140	50	29	2,680
<b>Min</b>	94	25	80	56	48	460	805	257	41	9.9	17	27

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1977, BY WATER YEAR (WY) (PRIOR TO REGULATION)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	121	203	297	288	345	808	707	359	220	61.0	39.1	87.9
<b>Max</b>	809	826	860	886	1,173	1,909	1,934	797	1,366	223	125	1,054
<b>(WY)</b>	(1956)	(1978)	(1973)	(1952)	(1976)	(1964)	(1958)	(1960)	(1972)	(1977)	(1977)	(1975)
<b>Min</b>	3.33	7.95	12.2	13.9	45.6	230	167	55.5	13.8	7.00	3.11	2.52
<b>(WY)</b>	(1965)	(1965)	(1961)	(1961)	(1963)	(1965)	(1955)	(1955)	(1955)	(1966)	(1954)	(1964)

## 01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA—Continued

## SUMMARY STATISTICS

Water Years 1952 - 1977		
Annual mean	286	
Highest annual mean	453	1956
Lowest annual mean	135	1965
Highest daily mean	21,500	Jun 23 1972
Lowest daily mean	1.0	Sep 1 1962
Annual seven-day minimum	1.5	Sep 22 1964
Maximum peak flow	<sup>a</sup> 43,700	Sep 26 1975
Maximum peak stage	<sup>b</sup> 18.13	Sep 26 1975
Instantaneous low flow	0.80	Aug 31 1964 <sup>c</sup>
Annual runoff (cfsm)	.99	
Annual runoff (inches)	13.40	
10 percent exceeds	666	
50 percent exceeds	93	
90 percent exceeds	9.6	

<sup>a</sup> From rating curve extended above 6,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow.

<sup>b</sup> From floodmark; site and datum then in use.

<sup>c</sup> Also Sep 1, 27, 1964.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	165	281	370	360	359	737	716	378	265	111	109	143
Max	1,122	1,114	864	1,198	1,027	1,827	2,773	1,152	1,222	628	889	1,724
(WY)	(1991)	(1997)	(1991)	(1996)	(1981)	(2011)	(1993)	(2011)	(1989)	(2003)	(1994)	(2004)
Min	13.9	14.3	19.1	23.3	57.6	158	230	48.9	17.4	14.1	11.9	5.09
(WY)	(1989)	(1992)	(1999)	(1981)	(1980)	(1981)	(2010)	(1985)	(1991)	(1991)	(1983)	(1980)

## SUMMARY STATISTICS

	Calendar Year 2010	Water Year 2011	Water Years 1978 - 2011
Annual total	102,131.7	207,002.9	
Annual mean	280	567	332
Highest annual mean			632
Lowest annual mean			165
Highest daily mean	3,760	Jan 26	4,210
Lowest daily mean	8.0	Aug 19 <sup>a</sup>	9.9
Annual seven-day minimum	9.0	Aug 14	14
Maximum peak flow			4,680
Maximum peak stage			11.58
10 percent exceeds	618	1,800	810
50 percent exceeds	114	142	114
90 percent exceeds	12	19	18

<sup>a</sup> Also Aug 20.

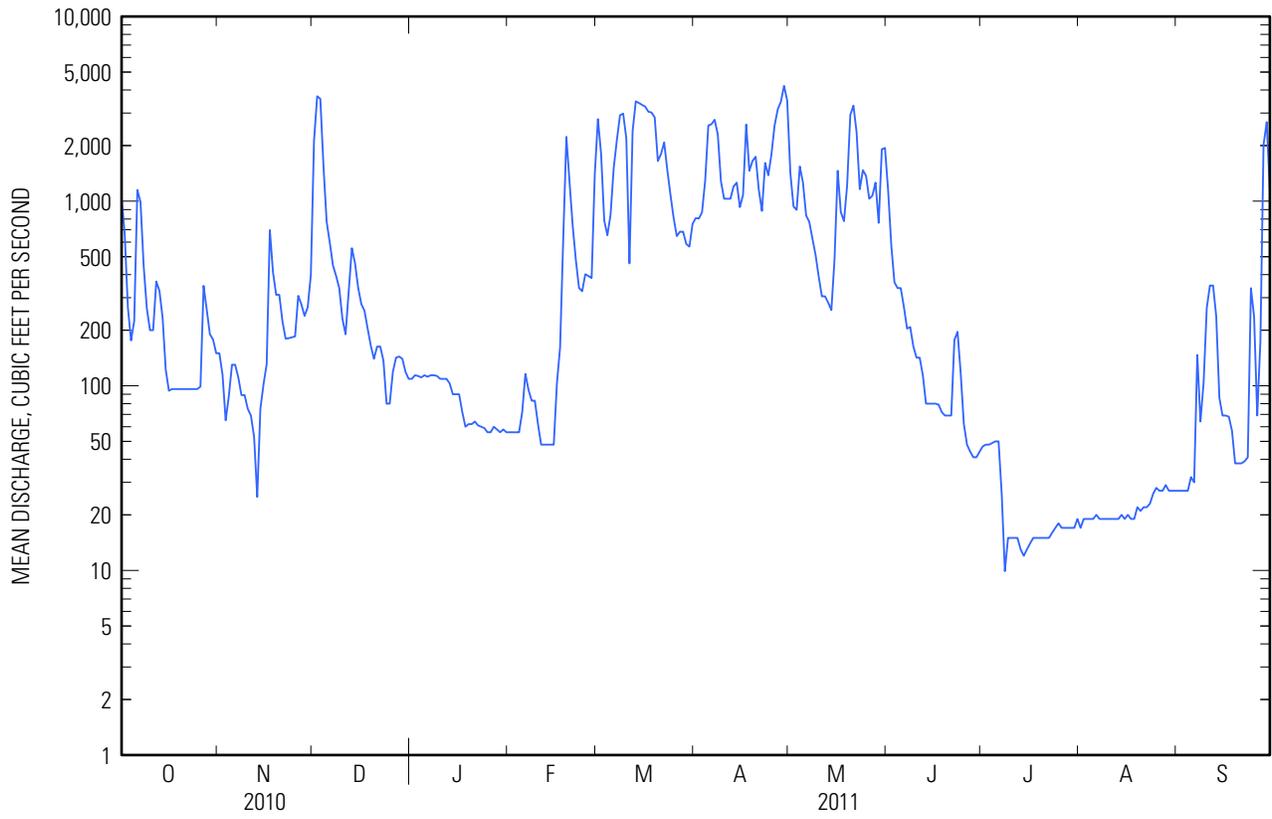
<sup>b</sup> Result of construction of Cowanesque Dam.

<sup>c</sup> At gage height 12.41 ft.

<sup>d</sup> From rating curve extended above 4,900 ft<sup>3</sup>/s.

<sup>e</sup> Backwater from coffer dam.

01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA—Continued



## 01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, 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; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; M, presence verified but not quantified]

Date	Sample start time	Discharge, instantaneous, ft <sup>3</sup> /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	0800	65	10.7	4.0	7.7	7.3	193	186	9.6	112
01-11-2011	1100	109	14.0	14	7.4	7.7	158	154	2.7	88
03-09-2011	1030	2,990	15.8	6.0	7.7	7.3	130	104	.6	100
05-19-2011	0830	1,020	9.7	4.0	--	7.3	114	109	12.7	98
07-12-2011	1000	15	8.4	< 1.0	--	7.8	154	147	23.3	106
09-15-2011	1330	69	8.0	3.0	7.9	8.1	168	156	18.9	196

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011**

Part 2 of 4

[ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than; M, presence verified but not quantified]

Date	Sample start time	Hardness, water, mg/L as CaCO <sub>3</sub> (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 <sub>3</sub> (00417)	Bromide, water, filtered, mg/L (71870)	Chloride, water, filtered, mg/L (00940)	Sulfate, water, filtered, mg/L (00945)
11-03-2010	0800	71	< 5	21.2	4.3	7.5	59	< .1	14.0	12.9
01-11-2011	1100	55	8	16.1	3.5	5.3	44	< .1	10.0	11.4
03-09-2011	1030	45	78	12.5	3.4	5.2	31	< .1	9.1	9.0
05-19-2011	0830	44	26	12.8	3.0	3.9	36	< .1	4.9	8.8
07-12-2011	1000	61	60	17.9	4.0	5.4	57	< .1	6.2	9.2
09-15-2011	1330	68	6	20.8	3.9	5.6	60	< .1	7.3	9.4

## 01520000 COWANESQUE RIVER NEAR LAWRENCEVILLE, PA—Continued

## WATER-QUALITY DATA

## WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 3 of 4

[ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, 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	0800	.050	.16	< .040	.02	.018	.51	< 200	M	< 4
01-11-2011	1100	.030	.73	< .040	.07	.042	.96	500	M	< 4
03-09-2011	1030	.070	.69	< .040	.05	.119	1.1	2,900	M	M
05-19-2011	0830	.050	.42	< .040	.04	.068	.65	1,800	M	< 4
07-12-2011	1000	.020	.15	< .040	.01	.025	.43	300	M	< 4
09-15-2011	1330	.040	.08	< .040	< .01	.023	.42	< 200	M	< 4

## WATER-QUALITY DATA

## WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 4 of 4

[ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, 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	0800	200	< 1.0	200	< 50	70	< 10	< 200	< 7
01-11-2011	1100	820	< 1.0	160	< 50	50	< 10	< 200	< 7
03-09-2011	1030	5,110	M	140	< 50	40	20	< 200	< 7
05-19-2011	0830	3,060	M	160	< 50	40	10	< 200	< 7
07-12-2011	1000	310	< 1.0	90	< 50	60	< 10	< 200	< 7
09-15-2011	1330	310	< 1.0	130	< 50	60	< 10	< 200	< 7