

Water-Data Report 2013

03036500 ALLEGHENY RIVER AT KITTANNING, PA

Allegheny Basin
Middle Allegheny-Redbank Subbasin

LOCATION.--Lat 40°49'13", long 79°31'54" referenced to North American Datum of 1927, Armstrong County, PA, Hydrologic Unit 05010006, on right bank 600 ft upstream from dam at lock 7, 3,000 ft upstream from bridge on SR 1038 at Kittanning, 5.7 mi upstream from Crooked Creek, and 9.7 mi downstream from Mahoning Creek, at river mile 45.8.

DRAINAGE AREA.--8,973 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August 1904 to September 1928, October 1934 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 873: Drainage area. WSP 1305: 1906 (M), 1914, 1925. WSP 1435: 1936-37, 1939.

GAGE.--Water-stage recorder and concrete dam control. Datum of gage is 773.40 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Sep 30, 1928, non-recording gage at site 4,000 ft downstream at different datum. Oct 1, 1934 to Apr 19, 1939, non-recording gage, Apr 20, 1939 to Sep 27, 1990, water-stage recorder at present site at different datum. Satellite telemetry at station.

COOPERATION.--Station established and maintained by the U.S. Geological Survey. Funding for the operation of this station is 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 National Streamflow Information Program and Cooperative Water Program.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Sharp rises and drops in discharge during periods of low flow may be caused by hydroelectric power production. Flow regulated since 1924 by Piney Reservoir, since December 1940 by Tionesta Lake (station 03019500), since June 1941 by Mahoning Creek Lake (station 03035500), since November 1949 by Chautauqua Lake, since June 1952 by East Branch Clarion River Lake (station 03027000), since October 1965 by Allegheny Reservoir (station 03012520), since July 1970 by Union City Reservoir (station 03021518), and since January 1974 by Woodcock Creek Lake (station 03022550). Several measurements of water temperature were made during the year.

03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

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	4,250	29,100	6,430	16,500	52,600	21,000	19,900	13,400	21,700	32,400	5,460	5,890
2	4,720	30,200	5,860	14,600	46,300	19,900	22,400	11,600	19,200	43,100	4,850	6,750
3	3,960	29,200	6,420	13,200	e45,000	15,700	21,600	10,600	18,300	41,200	4,930	4,720
4	3,370	27,000	9,070	12,000	e39,900	14,300	18,900	9,790	17,000	31,900	4,270	5,640
5	3,120	24,900	12,400	11,600	e35,500	12,900	17,600	9,080	12,900	25,400	4,110	5,700
6	3,160	22,400	19,400	11,100	e32,000	12,500	16,400	8,660	12,200	20,600	4,230	4,860
7	3,250	19,500	17,200	11,000	e29,000	12,000	14,800	8,100	15,300	16,900	4,140	4,350
8	3,100	17,900	18,800	10,900	26,400	11,100	14,000	7,520	23,600	13,800	5,610	3,810
9	3,700	15,000	19,300	10,500	24,200	10,300	14,300	7,010	22,500	11,500	7,090	3,630
10	3,920	13,100	23,300	11,000	20,100	9,250	16,000	7,320	19,800	11,800	6,100	4,170
11	3,710	11,600	43,400	12,300	17,800	10,300	33,400	8,400	17,000	19,300	5,340	4,590
12	3,460	11,000	40,900	21,600	20,200	17,800	55,200	10,800	17,600	17,600	5,280	4,720
13	3,510	12,100	34,600	39,700	21,300	34,400	68,600	13,300	17,800	14,300	5,340	4,680
14	3,260	12,500	30,400	44,700	20,000	30,900	55,600	10,000	24,800	12,200	5,510	4,910
15	3,340	12,800	26,300	41,000	17,500	28,000	47,000	10,100	25,900	9,960	6,100	4,270
16	3,680	12,300	22,100	38,100	15,900	24,900	41,200	9,240	22,300	8,130	5,220	4,130
17	4,100	11,400	22,100	36,300	12,900	22,800	37,600	8,820	19,200	7,510	4,590	4,310
18	4,110	10,000	31,200	33,400	10,900	20,700	34,200	8,060	18,600	6,970	3,820	4,160
19	4,650	9,490	36,400	29,700	12,800	19,600	30,200	7,530	17,000	7,540	3,580	4,050
20	4,890	9,810	37,100	27,000	13,100	18,700	26,500	7,200	14,400	6,930	3,590	4,070
21	5,150	9,420	43,500	24,900	12,500	16,600	23,600	6,650	11,600	6,890	2,970	4,360
22	5,110	8,760	45,900	20,900	11,000	14,800	21,500	e6,000	11,200	7,210	3,180	5,270
23	5,210	8,100	40,500	14,900	11,300	12,600	19,600	5,710	8,170	7,460	3,310	6,210
24	5,540	7,950	35,000	12,300	10,100	11,100	16,300	5,750	7,780	6,610	2,920	6,980
25	5,290	7,840	30,800	11,800	9,310	11,000	16,300	5,660	7,690	8,860	2,720	6,970
26	4,970	7,350	27,200	11,600	8,870	12,000	17,000	5,430	8,140	8,660	2,650	6,000
27	4,570	7,170	25,300	9,810	12,100	12,000	15,500	5,330	9,850	7,870	3,100	5,250
28	5,210	7,810	22,000	9,940	18,500	12,600	14,300	5,200	46,500	9,020	5,910	5,760
29	8,730	7,510	19,500	12,400	---	13,400	14,400	5,740	42,700	8,990	9,910	4,030
30	32,400	7,320	18,200	18,600	---	14,200	14,600	17,500	34,400	7,440	6,690	3,930
31	35,700	---	17,300	51,500	---	16,400	---	22,500	---	6,250	5,600	---
Total	193,140	420,530	787,880	644,850	607,080	513,750	778,500	278,000	565,130	444,300	148,120	148,170
Mean	6,230	14,020	25,420	20,800	21,680	16,570	25,950	8,968	18,840	14,330	4,778	4,939
Max	35,700	30,200	45,900	51,500	52,600	34,400	68,600	22,500	46,500	43,100	9,910	6,980
Min	3,100	7,170	5,860	9,810	8,870	9,250	14,000	5,200	7,690	6,250	2,650	3,630
Cfsm	0.69	1.56	2.83	2.32	2.42	1.85	2.89	1.00	2.10	1.60	0.53	0.55
In.	0.80	1.74	3.27	2.67	2.52	2.13	3.23	1.15	2.34	1.84	0.61	0.61

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 1923, BY WATER YEAR (WY) (PRIOR TO REGULATION)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	9,082	13,580	15,240	22,960	18,740	36,800	25,590	19,030	10,250	6,145	4,381	4,871
Max	27,300	35,250	28,540	62,090	42,920	57,160	54,200	43,650	31,160	21,650	14,500	21,960
(WY)	(1912)	(1922)	(1912)	(1913)	(1915)	(1910)	(1916)	(1919)	(1917)	(1917)	(1915)	(1911)
Min	968	1,155	4,424	3,128	5,314	10,550	10,540	8,782	3,605	1,599	1,274	930
(WY)	(1909)	(1909)	(1909)	(1918)	(1920)	(1915)	(1915)	(1922)	(1912)	(1923)	(1910)	(1909)

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SUMMARY STATISTICS

	Water Years 1904 - 1923	
Annual mean	15,560	
Highest annual mean	20,680	1912
Lowest annual mean	11,640	1923
Highest daily mean	253,000	Mar 26 1913
Lowest daily mean	570	Sep 15 1913 ^a
Annual seven-day minimum	610	Sep 11 1913
Maximum peak flow	269,000	Mar 26 1913
Maximum peak stage	^b 30.70	Mar 26 1913
Annual runoff (cfsm)	1.73	
Annual runoff (inches)	23.56	
10 percent exceeds	37,200	
50 percent exceeds	9,160	
90 percent exceeds	1,720	

^a Also Sep 16, 17, 1913.^b From floodmark, site and datum then in use.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2013, BY WATER YEAR (WY)

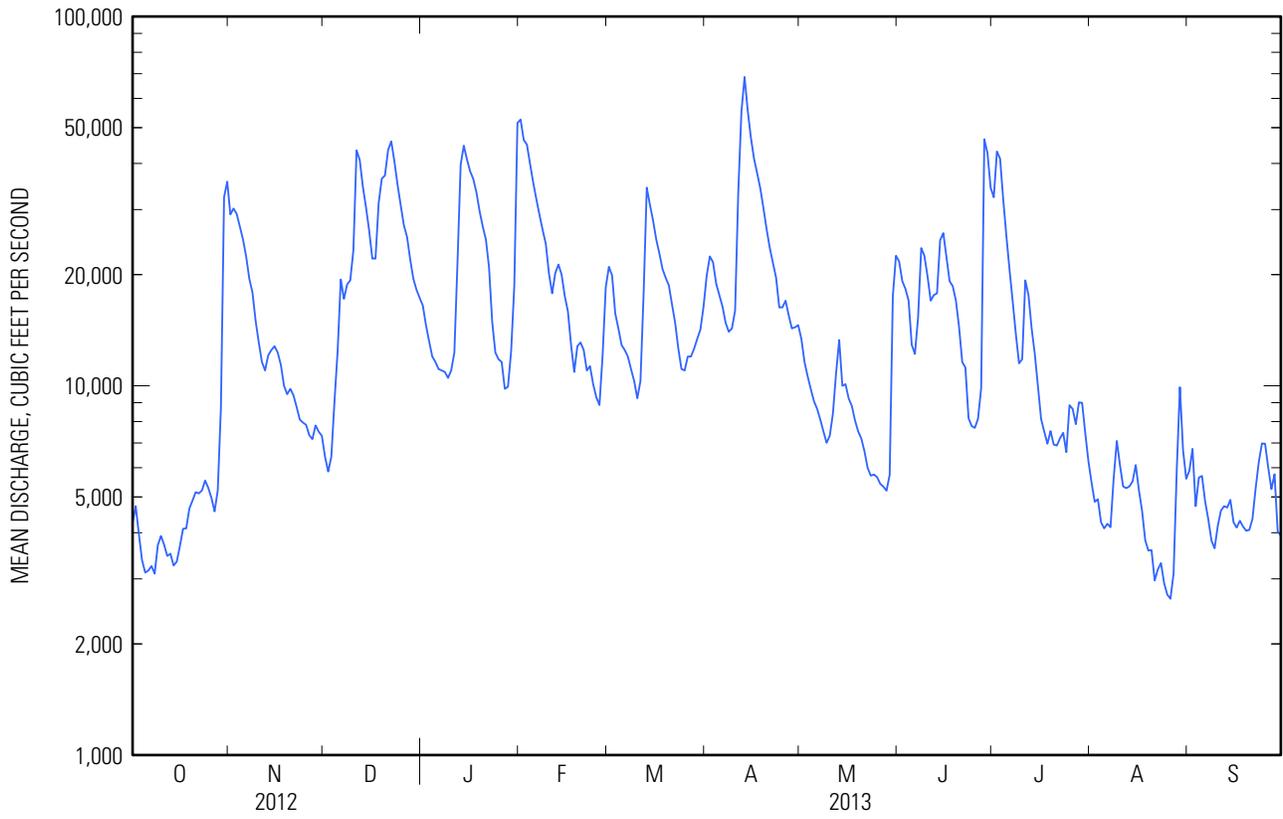
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	8,471	14,420	20,720	20,960	21,300	30,640	27,620	18,090	11,400	7,410	5,625	6,284
Max	35,750	37,830	55,850	62,840	45,020	74,110	66,140	40,520	40,230	28,200	19,250	40,250
(WY)	(2007)	(1986)	(1928)	(1937)	(1990)	(1936)	(1940)	(1943)	(1989)	(1972)	(1977)	(2004)
Min	848	1,879	1,636	2,752	4,688	8,342	6,585	4,860	2,893	1,511	1,351	1,102
(WY)	(1924)	(1924)	(1961)	(1961)	(1963)	(1969)	(1946)	(1941)	(1936)	(1966)	(1944)	(1939)

SUMMARY STATISTICS

	Calendar Year 2012	Water Year 2013	Water Years 1924 - 2013
Annual total	4,846,520	5,529,450	
Annual mean	13,240	15,150	16,050
Highest annual mean			24,460
Lowest annual mean			10,080
Highest daily mean	66,500	Jan 28	68,600
Lowest daily mean	2,550	Jul 9	2,650
Annual seven-day minimum	2,840	Jul 9	2,980
Maximum peak flow			70,700
Maximum peak stage			16.11
Annual runoff (cfsm)	1.48	1.69	1.79
Annual runoff (inches)	20.09	22.92	24.31
10 percent exceeds	31,600	32,800	37,100
50 percent exceeds	7,840	11,600	10,500
90 percent exceeds	3,230	4,170	2,680

^a From rating curve above 169,000 ft³/s based on straight-line extension.

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03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 2009 to September 2009.

SPECIFIC CONDUCTANCE: May 2009 to September 2009.

pH: May 2009 to September 2009.

DISSOLVED OXYGEN: May 2009 to September 2009.

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.

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. Occasionally, values for filtered parameters may exceed values for the corresponding unfiltered parameter. These results are within the limits of analytical precision and methods.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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; --, no data; <, 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, unfiltered, field, standard units (00400)	pH, water, unfiltered, 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)
11-28-2012	0930	9,460	12.5	2.0	--	7.8	218	216	4.1	146
01-14-2013	1130	45,400	12.1	< 1.0	8.5	7.4	168	172	4.8	110
03-06-2013	0800	14,800	15.4	3.0	8.1	7.5	227	249	1.7	154
05-20-2013	1200	7,250	8.9	4.0	8.1	7.8	213	208	18.1	212
07-16-2013	0700	9,460	8.4	4.0	7.7	8.0	190	191	23.8	148
09-03-2013	1300	2,970	6.6	5.0	7.5	7.7	229	232	24.5	150

03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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; --, no data; <, 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)	Bromide, water, filtered, mg/L (71870)	Chloride, water, filtered, mg/L (00940)	Sulfate, water, filtered, mg/L (00945)
							titration, laboratory, mg/L as CaCO ₃ (00417)			
11-28-2012	0930	70	6	19.9	4.8	10.8	48	0.1	18.5	25.7
01-14-2013	1130	53	34	14.7	3.9	9.2	29	M	14.8	25.6
03-06-2013	0800	71	< 5	19.6	5.4	13.6	36	M	25.0	32.2
05-20-2013	1200	70	20	18.8	5.5	10.5	42	.1	17.9	31.9
07-16-2013	0700	65	< 5	18.2	4.7	8.1	42	.1	13.8	26.2
09-03-2013	1300	78	< 5	21.8	5.8	12.0	45	.1	16.9	35.8

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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; --, 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)
								< 200	M	< 4
11-28-2012	0930	< .020	0.42	< .040	< .01	0.015	0.53	< 200	M	< 4
01-14-2013	1130	< .020	.64	< .040	< .01	.051	.90	700	M	< 4
03-06-2013	0800	.020	.62	< .040	< .01	.017	.80	< 200	M	< 4
05-20-2013	1200	< .020	.25	< .040	< .01	.023	.52	< 200	M	< 4
07-16-2013	0700	.030	.49	< .040	< .01	.023	.69	< 200	M	< 4
09-03-2013	1300	.070	.35	< .040	.01	.019	.65	< 200	M	< 4

03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

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; --, 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)
11-28-2012	0930	230	< 1.0	70	< 50	80	< 10	< 200	< 7
01-14-2013	1130	1,580	M	250	< 50	50	20	< 200	< 7
03-06-2013	0800	330	< 1.0	130	< 50	70	20	< 200	< 7
05-20-2013	1200	440	< 1.0	180	< 50	80	< 10	< 200	< 7
07-16-2013	0700	330	< 1.0	100	< 50	80	< 10	< 200	< 7
09-03-2013	1300	350	M	140	< 50	100	< 10	< 200	< 7