

Water-Data Report 2011

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

**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, nonrecording gage at site 4,000 ft downstream at different datum. Oct 1, 1934 to Apr 19, 1939, nonrecording 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 in cooperation with the U.S. Army Corps of Engineers, Pittsburgh District and the Pennsylvania Department of Environmental Protection.

REMARKS.--Records good except for those below 2,000 ft<sup>3</sup>/s, and 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 2010 TO SEPTEMBER 2011**  
**DAILY MEAN VALUES**  
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,750	9,260	79,600	11,100	7,300	93,300	15,900	37,200	30,200	4,890	2,250	3,220
2	6,520	8,820	89,000	33,400	8,080	62,900	14,700	25,000	25,400	4,160	2,330	3,790
3	6,870	7,990	51,200	39,300	9,450	56,500	14,200	23,500	23,100	3,810	2,640	3,810
4	5,960	7,530	43,500	34,600	9,920	53,200	14,100	39,800	17,900	3,560	3,060	3,600
5	6,650	7,400	43,700	30,100	9,820	51,300	32,800	40,000	12,800	3,380	3,180	3,570
6	7,900	7,200	45,100	26,900	9,710	96,900	52,900	35,700	11,800	2,890	3,140	3,620
7	9,080	7,860	42,300	24,400	9,050	95,700	50,700	35,300	11,000	4,110	3,450	4,010
8	10,600	8,270	40,600	21,500	9,340	70,600	58,400	33,400	8,830	4,420	3,680	4,320
9	9,780	8,090	38,100	18,900	7,010	66,100	65,400	31,300	9,460	4,550	3,940	5,050
10	8,220	7,680	34,900	17,300	7,370	76,100	56,800	29,500	8,750	4,330	3,900	8,190
11	7,330	6,570	32,800	16,200	7,010	108,000	50,500	27,900	8,270	3,690	3,750	10,900
12	6,810	5,840	31,000	e15,100	7,120	93,400	46,800	26,600	6,990	3,680	3,510	11,200
13	6,350	5,450	35,100	e13,500	6,510	86,200	56,800	26,100	6,170	3,820	3,220	10,100
14	5,650	5,350	37,000	e12,400	7,190	79,300	57,200	26,200	5,700	2,860	2,940	8,900
15	5,400	5,190	34,000	e11,000	8,070	71,800	46,100	35,200	5,370	2,560	3,490	8,540
16	5,150	5,620	31,000	e9,470	9,180	67,400	39,700	56,800	5,180	2,570	3,920	6,250
17	5,000	6,180	28,900	e9,410	10,800	65,700	51,500	46,200	5,090	2,930	3,620	6,360
18	4,940	8,530	27,000	e9,140	16,000	63,000	47,100	43,400	5,310	3,220	3,350	4,830
19	5,010	11,300	25,600	10,000	44,700	63,300	46,200	45,300	5,110	3,460	3,100	4,380
20	4,560	15,700	24,000	9,800	44,400	59,200	52,000	44,600	4,870	3,340	3,010	4,890
21	4,290	14,600	23,200	9,020	39,700	54,900	51,600	43,400	4,330	3,200	3,030	4,780
22	4,220	13,200	20,100	6,970	33,000	58,000	47,800	39,600	5,090	3,620	3,600	5,980
23	4,180	13,100	16,200	6,400	27,300	54,700	51,200	36,900	6,010	3,150	3,490	6,810
24	4,680	14,600	13,900	4,450	26,300	53,800	66,500	35,700	6,650	3,030	3,390	6,830
25	5,310	16,700	12,800	5,600	27,200	53,600	64,300	38,800	8,930	3,800	3,430	7,090
26	5,360	25,100	10,800	6,370	25,600	50,100	71,600	38,800	10,100	4,760	3,750	7,310
27	6,830	36,900	10,000	6,830	21,100	45,400	68,500	42,700	8,800	3,330	4,030	6,700
28	10,500	26,700	8,640	6,870	44,300	41,700	57,400	42,200	7,960	3,070	4,080	7,100
29	11,500	22,200	8,600	6,710	---	34,400	53,700	42,400	6,570	3,390	3,860	6,470
30	10,300	21,600	8,700	6,240	---	25,400	49,900	38,700	5,650	4,070	3,540	6,990
31	9,610	---	9,240	6,270	---	19,000	---	34,500	---	2,660	3,190	---
<b>Total</b>	210,310	360,530	956,580	445,250	492,530	1,970,900	1,452,300	1,142,700	287,390	110,310	104,870	185,590
<b>Mean</b>	6,784	12,020	30,860	14,360	17,590	63,580	48,410	36,860	9,580	3,558	3,383	6,186
<b>Max</b>	11,500	36,900	89,000	39,300	44,700	108,000	71,600	56,800	30,200	4,890	4,080	11,200
<b>Min</b>	4,180	5,190	8,600	4,450	6,510	19,000	14,100	23,500	4,330	2,560	2,250	3,220
<b>Cfsm</b>	0.76	1.34	3.44	1.60	1.96	7.09	5.40	4.11	1.07	0.40	0.38	0.69
<b>In.</b>	0.87	1.49	3.97	1.85	2.04	8.17	6.02	4.74	1.19	0.46	0.43	0.77

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

## 03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

## SUMMARY STATISTICS

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

<sup>a</sup> Also Sep 16, 17, 1913.<sup>b</sup> From floodmark, site and datum then in use.

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2011, BY WATER YEAR (WY)

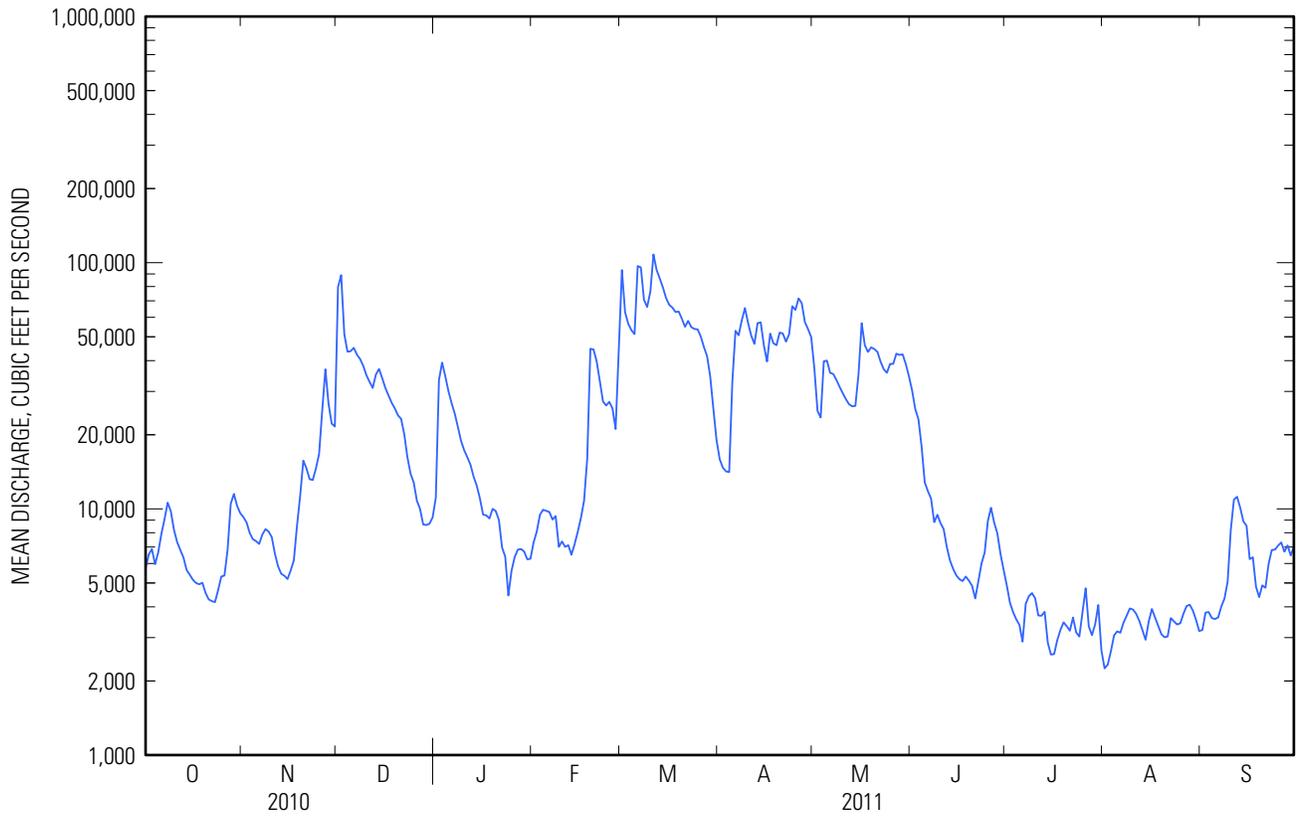
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	8,443	14,350	20,570	20,830	21,330	30,910	27,880	18,250	11,380	7,367	5,659	6,325
<b>Max</b>	35,750	37,830	55,850	62,840	45,020	74,110	66,140	40,520	40,230	28,200	19,250	40,250
<b>(WY)</b>	(2007)	(1986)	(1928)	(1937)	(1990)	(1936)	(1940)	(1943)	(1989)	(1972)	(1977)	(2004)
<b>Min</b>	848	1,879	1,636	2,752	4,688	8,342	6,585	4,860	2,893	1,511	1,351	1,102
<b>(WY)</b>	(1924)	(1924)	(1961)	(1961)	(1963)	(1969)	(1946)	(1941)	(1936)	(1966)	(1944)	(1939)

## SUMMARY STATISTICS

	Calendar Year 2010	Water Year 2011	Water Years 1924 - 2011
<b>Annual total</b>	4,772,270	7,719,260	
<b>Annual mean</b>	13,070	21,150	16,080
<b>Highest annual mean</b>			24,460
<b>Lowest annual mean</b>			10,080
<b>Highest daily mean</b>	89,000	Dec 2	108,000
<b>Lowest daily mean</b>	3,420	Jul 8	2,250
<b>Annual seven-day minimum</b>	3,740	Aug 15	2,750
<b>Maximum peak flow</b>			125,000
<b>Maximum peak stage</b>			19.54
<b>Annual runoff (cfsm)</b>	1.46		2.36
<b>Annual runoff (inches)</b>	19.78		32.00
<b>10 percent exceeds</b>	31,100		53,600
<b>50 percent exceeds</b>	8,540		9,450
<b>90 percent exceeds</b>	4,140		3,530

<sup>a</sup> From rating curve above 169,000 ft<sup>3</sup>/s.

03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued



**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.

REMARKS.--Specific conductance, pH, water temperature, and dissolved oxygen records rated good. Other interruptions in the record were due to malfunctions of the equipment.

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, 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, laboratory, μS/cm at 25 °C (00095)	Temperature, water, °C (00010)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)
11-17-2010	1500	6,020	11.8	4.0	8.1	8.0	250	248	8.0	82
01-12-2011	1330	16,300	--	24	7.7	7.5	169	165	.0	116
03-22-2011	1230	59,900	16.6	3.0	7.5	7.1	132	127	6.0	78
05-18-2011	1200	41,900	10.3	3.0	7.6	7.4	138	128	13.6	124
07-20-2011	1100	3,340	6.7	3.0	7.7	7.8	267	260	27.9	206
09-20-2011	0800	5,400	10.7	< 1.0	7.7	7.6	--	254	15.0	180

## 03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

**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)
11-17-2010	1500	81	< 5	23.9	5.3	14.4	56	.1	26.9	25.4
01-12-2011	1330	54	< 5	15.7	3.6	9.6	34	< .1	16.9	18.2
03-22-2011	1230	42	18	11.6	3.2	6.8	21	< .1	11.3	19.4
05-18-2011	1200	48	40	13.2	3.6	5.3	25	< .1	7.5	21.5
07-20-2011	1100	88	6	24.5	6.4	14.7	47	.1	20.0	46.2
09-20-2011	0800	110	< 5	28.5	8.6	6.3	43	.1	10.6	59.5

**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)
11-17-2010	1500	< .020	.20	< .040	.01	.018	.36	< 200	M	< 4
01-12-2011	1330	.030	.56	< .040	.02	.022	.70	< 200	M	< 4
03-22-2011	1230	.020	.45	< .040	< .01	.028	.72	700	M	< 4
05-18-2011	1200	.060	.34	< .040	< .01	.048	.61	1,100	M	< 4
07-20-2011	1100	.020	.14	< .040	< .01	.016	.32	< 200	M	< 4
09-20-2011	0800	.020	.78	< .040	< .01	.011	.97	M	M	< 4

## 03036500 ALLEGHENY RIVER AT KITTANNING, PA—Continued

**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)
11-17-2010	1500	330	< 1.0	80	< 50	200	10	< 200	< 7
01-12-2011	1330	320	< 1.0	60	< 50	80	< 10	< 200	< 7
03-22-2011	1230	1,070	< 1.0	170	< 50	60	10	< 200	< 7
05-18-2011	1200	1,520	M	200	< 50	80	20	< 200	< 7
07-20-2011	1100	100	< 1.0	60	< 50	120	< 10	< 200	< 7
09-20-2011	0800	420	< 1.0	120	< 4.0	120	M	< 200	< 7