



Water-Data Report 2010

01443500 PAULINS KILL AT BLAIRSTOWN, NJ

DELAWARE RIVER BASIN

LOCATION.--Lat 40°58'51", long 74°57'12" referenced to North American Datum of 1983, Blairstown Township, Warren County, NJ, Hydrologic Unit 02040105, on right bank 1,200 ft upstream from bridge on State Route 94 in Blairstown, 1,400 ft upstream from Blair Creek, and 10 mi upstream from mouth.

DRAINAGE AREA.--126 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1921 to September 1976, October 1977 to current year.

REVISED RECORDS.--WSP 971: 1942. WSP 1382: 1952-53(M).

GAGE.--Water-stage recorder. Concrete control at current location since Aug 1941. Datum of gage is 335.86 ft above NGVD of 1929. Prior to May 23, 1922, a non-recording gage was located at former highway bridge 1,300 ft downstream of current location. From May 23, 1922 to Jun 24, 1931, a water-stage recorder was located 1,300 ft downstream at former highway bridge. Water-stage recorder was located 100 ft downstream of current location from Aug 8, 1931 to Jul 28, 1939 (same datum). Water-stage recorder was relocated to current site on Jul 28, 1939. A concrete control was 280 ft downstream of current location from Aug 1931 until it was destroyed in June 1941. Water-stage recorder was temporarily relocated to old site (100 ft downstream of current location) from Jun 9 to Aug 4, 1941 during construction of current control.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Temporary fluctuations caused by unknown source and flow regulated slightly by Swartswood Lake and other lakes and ponds. Pumpage from limestone quarry entered tributary upstream from gage for about 60 years, but largely ceased in April 2004. Several measurements of water temperature were made during the year. Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 14	1400	*2,570	*6.17
Mar 23	1500	1,750	4.91
Mar 31	0700	1,570	4.61

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	41	273	99	312	288	225	1,140	251	102	47	27	18
2	40	254	98	302	278	239	854	225	96	46	69	16
3	42	238	273	e251	269	263	696	330	84	43	64	14
4	43	221	361	e246	256	295	589	335	80	40	50	13
5	42	206	342	256	243	314	507	285	75	40	41	11
6	41	180	329	243	231	328	454	238	74	38	36	10
7	41	131	307	231	e198	350	414	212	78	34	30	10
8	36	126	294	220	e171	425	377	196	70	31	27	27
9	33	120	363	e193	161	514	399	182	70	31	25	61
10	52	118	466	e169	165	560	358	167	94	54	25	62
11	51	114	441	e168	165	560	319	153	85	71	24	60
12	46	109	355	157	161	601	294	194	75	83	23	63
13	43	104	353	136	144	820	268	208	125	65	33	64
14	42	68	548	135	101	2,270	249	182	293	107	31	60
15	84	66	566	129	100	2,070	236	171	200	101	25	54
16	188	87	540	131	101	1,560	225	155	151	76	35	51
17	178	84	465	148	99	1,070	245	139	179	62	35	51
18	151	83	385	196	106	799	230	149	159	53	30	46
19	67	80	340	199	85	658	216	223	120	48	27	43
20	50	113	322	226	83	553	202	194	110	49	22	42
21	51	166	309	214	83	490	188	163	102	46	16	36
22	72	160	299	196	83	471	182	146	93	40	18	33
23	35	150	287	157	130	1,370	173	137	100	37	33	37
24	72	135	277	145	204	1,150	162	133	87	38	48	33
25	195	114	264	347	254	813	233	127	80	37	45	33
26	212	98	284	553	242	700	420	115	71	39	89	32
27	227	94	395	609	274	593	527	110	65	37	68	29
28	303	85	498	478	241	517	423	132	62	32	45	38
29	330	109	443	379	---	776	338	116	59	33	34	41
30	302	98	331	325	---	998	286	133	53	32	27	66
31	285	---	323	303	---	1,460	---	112	---	28	21	---
Total	3,395	3,984	10,957	7,754	4,916	23,812	11,204	5,613	3,092	1,518	1,123	1,154
Mean	110	133	353	250	176	768	373	181	103	49.0	36.2	38.5
Max	330	273	566	609	288	2,270	1,140	335	293	107	89	66
Min	33	66	98	129	83	225	162	110	53	28	16	10
Cfsm	0.87	1.05	2.81	1.99	1.39	6.10	2.96	1.44	0.82	0.39	0.29	0.31
In.	1.00	1.18	3.23	2.29	1.45	7.03	3.31	1.66	0.91	0.45	0.33	0.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2010, BY WATER YEAR (WY)

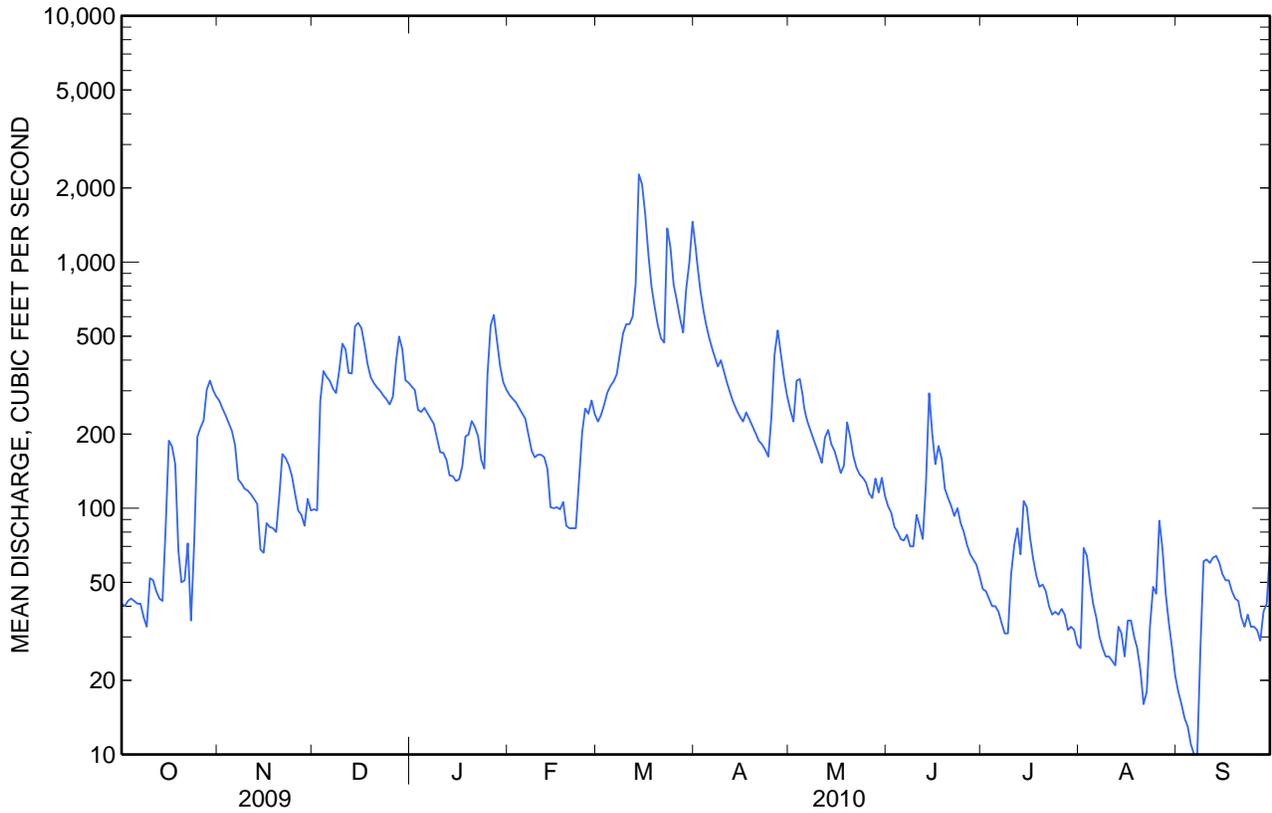
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	122	173	228	232	249	374	339	221	161	113	104	108
Max	767	479	862	712	747	963	930	650	773	527	663	626
(WY)	(2006)	(1933)	(1997)	(1979)	(2008)	(1936)	(1983)	(1989)	(2003)	(1945)	(1955)	(1933)
Min	20.5	22.1	35.5	37.8	47.3	65.0	106	54.6	41.0	19.4	19.6	18.2
(WY)	(1964)	(1965)	(1999)	(2002)	(2002)	(2002)	(1985)	(1941)	(1965)	(1955)	(1932)	(1964)

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SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1922 - 2010	
Annual total	72,006		78,522			
Annual mean	197		215		202	
Highest annual mean					362	1952
Lowest annual mean					67.4	1965
Highest daily mean	944	Jun 19	2,270	Mar 14	5,950	Aug 19, 1955
Lowest daily mean	33	Oct 9	10	Sep 6, 7	5.0	Aug 13, 1930
Annual seven-day minimum	40	Oct 3	13	Sep 1	11	Aug 3, 1999
Maximum peak flow			2,570	Mar 14	8,750	Aug 19, 1955
Maximum peak stage			6.17	Mar 14	^a 11.12	Aug 19, 1955
Instantaneous low flow			9.2	Sep 8	2.8	Nov 1, 1922
Annual runoff (cfsm)	1.57		1.71		1.60	
Annual runoff (inches)	21.26		23.18		21.75	
10 percent exceeds	363		468		423	
50 percent exceeds	164		136		136	
90 percent exceeds	60		33		35	

^a From high-water mark in gage house.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1921, 1925, 1957-60, 1962-63, 1976 to current year.

PERIOD OF DAILY RECORD.--

- DISSOLVED OXYGEN: June-July 2010.
- DISSOLVED OXYGEN, PERCENT OF SATURATION: June-July 2010.
- pH: September 2009, June-July 2010.
- SPECIFIC CONDUCTANCE: September 2009, June-July 2010.
- WATER TEMPERATURE: September 2009, June-July 2010.

REMARKS.--Cooperative Network Site Descriptor: Undeveloped Land Use Indicator and Watershed Reconnaissance, NJ Department of Environmental Protection Watershed Management Area 1. The accuracy of continuous water-quality data is routinely verified through inspections for fouling and calibration drift. The New Jersey Water Science Center requires that either constant or prorated adjustments be made to the continuous water-quality record when the difference between a sensor's response and a known value exceeds the following criteria: Water Temperature, 0.2 degrees Celsius (+ or -); Specific Conductance, the greater of 5 microsiemens/cm or 3% (+ or -) of the measured value; Dissolved Oxygen, the greater of 0.3 mg/L or 5% (+ or -) of the measured value; pH, 0.3 units (+ or -). If the difference between a sensor's response and a known value is within specified criteria, the data are considered to be reliable and are not adjusted. Data from the following periods were adjusted - SPECIFIC CONDUCTANCE: Jun 29 to Jul 7; DISSOLVED OXYGEN: Jun 29 to Jul 7; pH: Jun 29 to Jul 7.

COOPERATION.--Physical measurements and samples for laboratory analysis on Nov 16, Feb 1, May 17, and Sep 2 were provided by personnel of the NJ Department of Environmental Protection. Determinations of dissolved ammonia, dissolved orthophosphate, and suspended residue were performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory. Determination of chlorophyll-a was performed by the New Jersey Department of Environmental Protection, Bureau of Freshwater and Biological Monitoring Laboratory.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 1 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Absorbance, UV, 254 nm, 1 cm path length, water, filtered, units per centimeter (50624)	Absorbance, UV, organic constituents, 280 nm, 1 cm path length, water, filtered, units per centimeter (61726)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
11-16-2009	1000	754	10.1	.091	.070	88	10.4	95	8.2
02-01-2010	0930	760	-4.5	.112	.085	285	12.8	90	8.4
05-17-2010	1000	759	14.0	.097	.073	138	9.8	99	8.2
07-07-2010	1020	754	35.5	--	--	33	7.3	91	8.1
09-02-2010	0830	753	21.0	.100	.074	17	6.0	70	8.3

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Specific conduc- tance, water, unfiltered, μS/cm at 25 °C (00095)	Tempera- ture, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)	Dissolved solids, water, filtered, sum of constituen- ts, milligrams per liter (70301)	Hardness, water, mg/L as CaCO ₃ (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)	Magne- sium, water, filtered, mg/L (00925)
11-16-2009	484	10.8	1.8	259	E 254	173	< 1	42.7	16.2
02-01-2010	417	.6	2.8	223	E 216	135	9	33.9	12.2
05-17-2010	457	15.5	2.9	254	E 238	161	4	39.7	15.0
07-07-2010	521	26.8	4.1	--	--	--	5	--	--
09-02-2010	553	23.2	1.5	307	291	186	3	42.1	19.6

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 3 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO ₃ (90410)	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623)
11-16-2009	1.43	29.3	150	.27	50.8	E .05	< .06	3.1	18.2	.21
02-01-2010	1.51	27.6	113	.65	50.5	E .06	< .06	5.6	14.1	.37
05-17-2010	1.12	28.1	144	.65	49.2	E .06	< .06	4.2	13.2	.22
07-07-2010	--	--	162	--	--	--	--	--	--	--
09-02-2010	1.95	38.6	160	.40	68.9	.09	< .06	4.1	18.6	.32

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 4 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Orthophosphate, water, filtered, mg/L as P (00671)	Particulate nitrogen, suspended in water, mg/L (49570)	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, filtered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)	Chlorophyll a, fluorometric method, uncorrected, micrograms per liter (32217)
11-16-2009	E .008	.38	E .005	.04	E .007	.016	.59	.64	--
02-01-2010	.032	.72	E .010	.07	.009	.024	1.1	1.2	--
05-17-2010	.015	.36	--	.09	.014	.028	.58	.67	--
07-07-2010	--	.25	--	--	--	.05	--	--	2.50
09-02-2010	.018	.10	--	.06	.032	.043	.42	.48	--

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO
SEPTEMBER 2010**

Part 5 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)
11-16-2009	.26	3.0
02-01-2010	.64	3.6
05-17-2010	.64	3.1
07-07-2010	--	3.7
09-02-2010	.39	3.1

01443500 PAULINS KILL AT BLAIRSTOWN, NJ—Continued

HOURLY WATER-QUALITY-MONITOR VALUES AT 01443500,
PAULINSKILL AT BLAIRSTOWN NJ FROM
JUNE 29, 2010 TO JULY 07, 2010

