

**01389500 PASSAIC RIVER AT LITTLE FALLS, NJ**

PASSAIC RIVER BASIN

LOCATION.--Lat 40°53'05", long 74°13'34" referenced to North American Datum of 1983, Totowa Borough, Passaic County, NJ, Hydrologic Unit 02030103, on left bank 0.6 mi downstream from Beatties Dam in Little Falls, and 1.0 mi upstream from Peckman River.

DRAINAGE AREA.--762 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--September 1897 to current year. Monthly discharge only for September 1897, published in WSP 1302. Published as "at Paterson", September 1897 to September 1955.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 120.00 ft above NGVD of 1929 (levels by Passaic Valley Water Commission). Prior to September 1955, discharge determined at site 3.7 mi downstream at Paterson. Prior to Jan 8, 1933, non-recording gage operated by the Society for Establishing Useful Manufacturers and data were reviewed by the USGS. From Jan 8, 1933, to Sep 30, 1955, water-stage recorder, at site 3.7 mi downstream at NGVD of 1929 (levels from New Jersey Geological Survey benchmark).

COOPERATION.--Gage-height record collected in cooperation with the Passaic Valley Water Commission.

REMARKS.--Records good, except for estimated daily discharges which are fair. Significant fluctuations at medium and low flow due to operation of hydroelectric plant at Beatties Dam. Flow regulated by reservoirs in Rockaway (see 01379990 and 01380900), Pequannock (see 01382100, 01382200, 01382300, 01382380, and 01382400), Wanaque (see 01383000, 01384002, and 01386990), and Ramapo River subbasins. Large diversions for municipal supply from Passaic River above Beatties Dam (see 01389490), and from Rockaway (see 01380800), Pequannock (see 01382370), Pompton (see 01388980, 01388981, 01388982), Ramapo (see 01387990), and Wanaque (see 01386980) Rivers. In addition, the New Jersey-American Water Company (formerly Commonwealth Water Company) diverts from Canoe Brook near Summit (see 01379529) and from Passaic River near Summit (see 01379510); that company, the city of East Orange, and others also divert water for municipal supply by pumping wells in the basin. Flow includes sewage effluent from several treatment plants upstream of gage. Several measurements of water temperature were made during the year. National Weather Service telephone telemetry and USGS satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,400 ft<sup>3</sup>/s and (or) maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar 12	2045	15,600	11.81
Apr 18	2145	10,100	9.02
May 20	2100	7,310	7.39
Aug 30	0800	*20,800	*14.19
Sep 9	1945	14,000	11.05

## 01389500 PASSAIC RIVER AT LITTLE FALLS, NJ—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	2,140	143	1,080	521	437	4,010	1,770	3,190	1,560	743	193	14,400
2	2,420	136	2,620	579	545	4,100	1,780	2,850	1,330	591	176	11,300
3	1,970	137	2,850	745	762	3,750	1,710	2,550	1,100	583	164	8,860
4	1,520	313	2,460	817	718	3,330	1,570	2,350	866	749	340	6,910
5	1,280	527	2,160	782	697	2,940	1,470	2,320	709	780	295	5,430
6	1,070	522	1,890	709	799	3,200	1,450	2,130	600	655	201	5,370
7	809	409	1,600	650	909	6,600	1,450	1,890	543	537	315	7,800
8	542	295	1,290	612	1,050	9,590	1,440	1,660	491	522	483	11,200
9	335	226	998	569	1,110	9,440	1,380	1,450	501	1,200	511	13,600
10	224	172	764	480	1,080	8,440	1,280	1,250	492	1,100	795	13,400
11	157	166	608	388	960	10,700	1,180	1,080	817	771	749	11,400
12	325	186	1,190	395	846	14,700	1,220	e920	858	565	543	9,340
13	276	161	2,310	393	735	15,000	1,990	e850	829	431	354	7,440
14	240	150	2,450	348	697	12,800	2,320	792	742	355	1,020	5,980
15	393	167	2,220	343	855	10,400	2,350	1,060	743	274	1,940	4,720
16	387	287	1,940	345	930	8,550	2,620	1,340	722	235	2,410	3,780
17	415	614	1,670	323	929	7,220	6,350	1,910	1,280	207	2,600	3,080
18	380	663	1,410	416	1,140	6,090	9,440	2,980	1,920	186	2,620	2,560
19	284	568	1,190	784	1,720	4,920	9,730	5,220	1,760	191	2,590	2,140
20	186	427	1,010	1,010	1,940	3,850	8,470	7,030	1,440	209	2,410	1,830
21	198	352	832	1,010	1,950	3,230	7,130	7,080	1,190	175	2,250	1,570
22	176	340	703	887	1,890	3,010	5,910	6,290	1,010	166	2,220	1,400
23	159	305	620	709	1,710	2,870	5,030	5,350	1,640	149	2,010	1,470
24	140	284	557	582	1,530	2,870	4,680	4,610	3,930	134	1,750	2,000
25	128	312	509	570	2,220	2,760	4,230	3,970	3,860	189	1,560	2,250
26	117	319	475	538	3,160	2,610	3,720	3,400	3,060	330	1,650	2,230
27	141	339	386	517	3,230	2,470	3,300	2,920	2,380	331	1,790	2,070
28	158	318	521	593	3,500	2,330	3,290	2,520	1,820	233	8,350	1,930
29	164	282	563	541	---	2,180	3,660	2,180	1,350	278	16,600	2,030
30	171	275	568	500	---	1,990	3,490	2,000	1,000	327	20,500	2,560
31	158	---	540	457	---	1,810	---	1,800	---	241	17,900	---
<b>Total</b>	17,063	9,395	39,984	18,113	38,049	177,760	105,410	86,942	40,543	13,437	97,289	170,050
<b>Mean</b>	550	313	1,290	584	1,359	5,734	3,514	2,805	1,351	433	3,138	5,668
<b>Max</b>	2,420	663	2,850	1,010	3,500	15,000	9,730	7,080	3,930	1,200	20,500	14,400
<b>Min</b>	117	136	386	323	437	1,810	1,180	792	491	134	164	1,400

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 2011, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	647	942	1,313	1,352	1,412	2,360	2,076	1,293	804	530	565	578
<b>Max</b>	5,613	4,757	4,497	4,039	3,787	6,755	5,761	4,554	4,290	3,124	3,138	5,668
<b>(WY)</b>	(1904)	(1908)	(1903)	(1979)	(1973)	(1936)	(1983)	(1989)	(1972)	(1945)	(2011)	(2011)
<b>Min</b>	44.5	56.5	44.8	42.3	31.0	131	167	227	64.5	60.3	30.4	28.9
<b>(WY)</b>	(1931)	(1999)	(1999)	(2002)	(2002)	(2002)	(2002)	(1965)	(1999)	(1954)	(1923)	(1964)

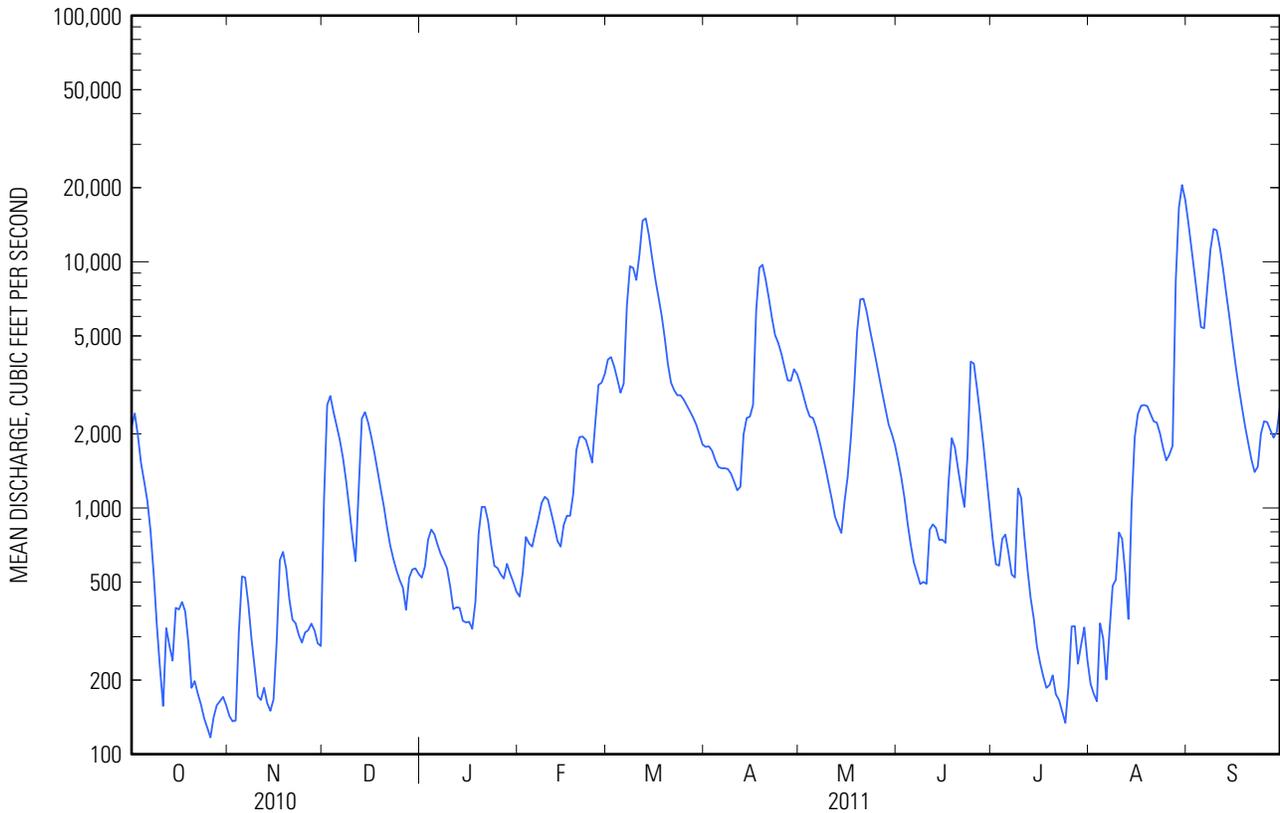
0138950 PASSAIC RIVER AT LITTLE FALLS, NJ—Continued

SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1898 - 2011	
<b>Annual total</b>	486,970		814,035			
<b>Annual mean</b>	1,334		2,230		1,155	
<b>Highest annual mean</b>					2,394	1903
<b>Lowest annual mean</b>					199	2002
<b>Highest daily mean</b>	15,600	Mar 16	20,500	Aug 30	28,000	Oct 10, 1903
<b>Lowest daily mean</b>	48	Sep 24	117	Oct 26	0.00	Jul 3, 1904
<b>Annual seven-day minimum</b>	58	Sep 21	144	Oct 23	13	Sep 19, 1932
<b>Maximum peak flow</b>			20,800	Aug 30	<sup>a</sup> 31,700 Oct 10, 1903	
<b>Maximum peak stage</b>			14.19	Aug 30	<sup>b</sup> 14.19 Aug 30, 2011	
<b>Instantaneous low flow</b>			111	Oct 26	0.00	Jul 3, 1904
<b>10 percent exceeds</b>	2,730		5,940		2,770	
<b>50 percent exceeds</b>	593		1,100		645	
<b>90 percent exceeds</b>	103		225		120	

<sup>a</sup> Maximum discharge at present site, determined by flow-over-dam computation, no peak stage available, dam breaks occurred upstream at Pompton Lake and other locations.

<sup>b</sup> Maximum stage recorded since 1956, at present site.



**01389500 PASSAIC RIVER AT LITTLE FALLS, NJ—Continued****WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1963-96, 1998 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to November 1986.

WATER TEMPERATURE: Water years 1963 to 1980 (once daily), September 1980 to November 1986.

DISSOLVED OXYGEN: October 1970 to September 1980 (once daily).

SUSPENDED-SEDIMENT DISCHARGE: August 1963 to July 1965.

REMARKS.--Cooperative Network Site Descriptor: Urban Land Use Indicator, NJ Department of Environmental Protection Watershed Management Area 4. Post-Hurricane Synoptic for bacteria concentrations included stations 01381900, 01388000, 01388500, 01389500, 01389880, and 01391500.

COOPERATION.--Physical measurements and samples for laboratory analysis were collected in cooperation with the NJ Department of Environmental Protection. Determination of concentrations of ammonia in filtered water was performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory (DHSS-ECL) except during the period May 12 through August 25, 2011 when the determination was performed by the National Water-Quality Laboratory. Determination of concentrations of suspended solids in unfiltered water was performed by the DHSS-ECL except during the period June 17 through August 25, 2011 when samples could not be accepted. Determination of concentrations of E. coli and total coliform bacteria was performed by the NJ Department of Health and Senior Services, Sanitary Bacteriology Laboratory.

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

Part 1 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/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]

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 <sup>3</sup> /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
11-22-2010	1200	762	18.0	.170	.130	344	13.9	118	7.8
02-23-2011	1230	765	3.5	.145	.111	1,700	14.9	107	7.4
06-14-2011	1230	755	23.0	.142	.107	733	9.8	111	7.7
09-19-2011	1100	766	18.0	.312	.243	2,150	10.0	102	7.3

## 01389500 PASSAIC RIVER AT LITTLE FALLS, NJ—Continued

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

Part 2 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/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]

Date	Sample start time	Specific conductance, water, unfiltered, µS/cm at 25 °C (00095)	Temperature, 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 constituents, mg/L (70301)	Hardness, water, mg/L as CaCO <sub>3</sub> (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)
11-22-2010	1200	572	8.2	4.2	326	312	141	3	36.7
02-23-2011	1230	672	1.6	7.9	369	357	101	4	27.0
06-14-2011	1230	498	21.1	7.8	312	268	114	8	29.7
09-19-2011	1100	327	16.6	5.9	192	168	76.9	7	20.1

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

Part 3 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/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]

Date	Sample start time	Magnesium, water, filtered, mg/L (00925)	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 <sub>3</sub> (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 <sub>2</sub> (00955)
11-22-2010	1200	12.0	3.93	54.4	78.3	.38	107	.08	< .03	12.0
02-23-2011	1230	8.28	2.02	83.7	46.0	.56	176	.08	< .03	9.31
06-14-2011	1230	9.65	2.51	49.5	66.7	.81	99.7	.11	.04	10.2
09-19-2011	1100	6.48	2.12	28.4	54.6	.49	52.4	.07	< .03	12.0

## 01389500 PASSAIC RIVER AT LITTLE FALLS, NJ—Continued

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

Part 4 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/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]

Date	Sample start time	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	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)
11-22-2010	1200	28.2	.42	.039	2.52	.049	.307	.348	2.9	3.0
02-23-2011	1230	17.7	.29	.032	1.18	.070	.05	.12	1.5	1.5
06-14-2011	1230	19.2	.40	.092	1.54	.081	.16	.22	1.9	2.0
09-19-2011	1100	10.8	.44	.053	.68	.050	.12	.15	1.1	1.2

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

Part 5 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; cm, centimeter; ft<sup>3</sup>/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]

Date	Sample start time	Organic carbon, suspended sediment, total, mg/L (00689)	Organic carbon, water, filtered, mg/L (00681)
11-22-2010	1200	.38	5.25
02-23-2011	1230	.56	4.04
06-14-2011	1230	.78	4.03
09-19-2011	1100	.49	6.79

**01389500 PASSAIC RIVER AT LITTLE FALLS, NJ—Continued****WATER-QUALITY DATA  
WATER YEAR OCTOBER 2010 TO SEPTEMBER  
2011**[MF, membrane filter; col/100 mL, colonies per 100  
milliliters]

<b>Date</b>	<b>Sample start time</b>	<b>Escherichia coli, m-TEC MF method, water, col/100 mL (31633)</b>	<b>Total coliform, water, most probable number per 100 milliliters (31686)</b>
<b>08-31-2011</b>	<b>1340</b>	1,000	35,000
<b>09-01-2011</b>	<b>1140</b>	300	24,000