

## Water-Data Report 2011

**01387500 RAMAPO RIVER NEAR MAHWAH, NJ**

## PASSAIC RIVER BASIN

LOCATION.--Lat 41°05'53", long 74°09'46" referenced to North American Datum of 1983, Mahwah Township, Bergen County, NJ, Hydrologic Unit 02030103, on left bank 350 ft downstream from State Highway 17, 0.6 mi downstream from Mahwah River, 1.0 mi west of Mahwah, and 1.2 mi downstream of New York-New Jersey State line.

DRAINAGE AREA.--120 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--October 1902 to December 1906, September 1922 to current year. October 1902 to February 1905 monthly discharge only, published in WSP 1302. Figures of daily discharge Feb 10, 1903 to Dec 31, 1904, published in WSP 97 and 125, are unreliable and should not be used. Gage-height records for 1903-14 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 781: 1904(M). WSP 1031: 1938, 1940. WSP 1552: 1923(M), 1924, 1925-26(M), 1927-28, 1933, 1937. WRD-NJ 1971: 1968(M). WDR NJ-82-1: Drainage area. WDR-NJ-87-1: 1986. WDR US-2011: 1984(M), 1999(M), 2010(M).

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft above NGVD of 1929. Prior to Dec 31, 1906, non-recording gage on former bridge at site 250 ft downstream at different datum. Sep 1, 1922 to Dec 23, 1936, water-stage recorder just below former bridge at present datum.

REMARKS.--Records good. Flow affected by diversion from United Water-New York well field upstream from station (see 01387420). Occasional regulation from lakes and ponds upstream from the station. Several measurements of water temperature were made during the year. Satellite telemetry at station.

REVISIONS.--The peak discharges reported for water years 1984, 1999, and 2010 have been revised as shown in the following table. These values supersede the previously published peaks in their respective annual water data reports.

Water Year	Date	Gage height (ft)	Discharge (ft <sup>3</sup> /s)
1984	Apr 5, 1984	13.35	12,100
1999	Sep 16, 1999	12.52	11,000
2010	Mar 14, 2010	11.90	10,200

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft<sup>3</sup>/s and (or) maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec 2	0500	2,400	7.94
Mar 7	0700	8,680	11.16
Mar 11	0645	7,670	10.72
Apr 17	0345	5,040	9.55
May 19	1115	2,420	7.96
Jun 23	1500	3,550	8.74
Aug 28	1600	*15,000	*15.77
Sep 8	0530	4,970	9.54

## Water-Data Report 2011

**01387500 RAMAPO RIVER NEAR MAHWAH, NJ—Continued**

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

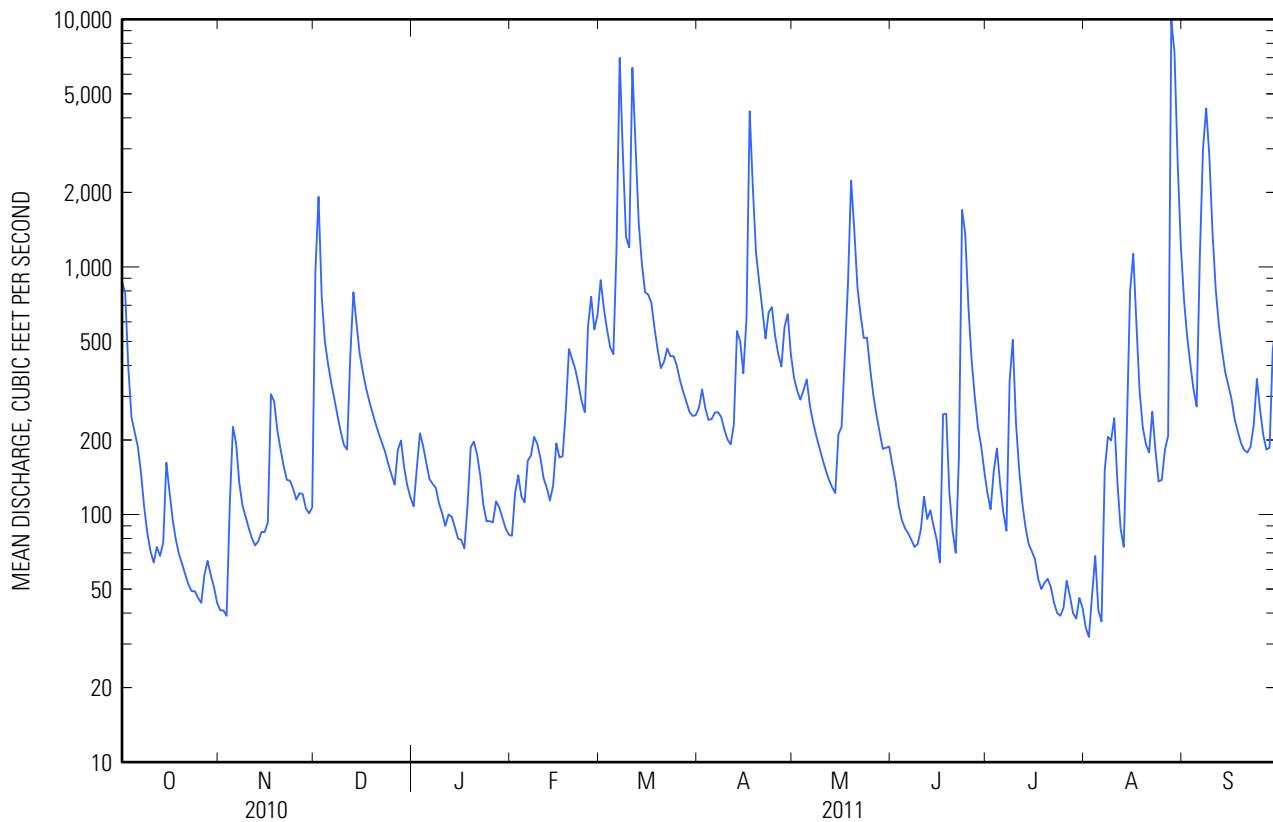
<b>Day</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>
<b>1</b>	869	41	953	108	82	885	270	356	159	122	35	740
<b>2</b>	789	41	1,920	154	122	679	320	316	136	105	32	523
<b>3</b>	390	39	757	213	144	559	269	291	109	150	47	405
<b>4</b>	247	110	499	189	118	474	241	318	95	185	68	321
<b>5</b>	215	226	406	161	112	444	243	351	88	133	41	273
<b>6</b>	188	194	340	139	165	1,190	258	275	84	102	37	1,100
<b>7</b>	147	134	293	133	173	6,990	259	236	79	86	151	2,990
<b>8</b>	107	109	250	128	206	2,850	248	208	74	347	206	4,370
<b>9</b>	84	98	216	111	193	1,320	221	186	76	508	199	2,800
<b>10</b>	71	88	191	101	169	1,200	201	167	87	235	245	1,380
<b>11</b>	64	80	183	90	140	6,370	192	151	118	152	135	816
<b>12</b>	74	75	433	100	128	3,090	230	138	96	111	88	583
<b>13</b>	68	78	790	98	114	1,510	551	129	104	89	74	460
<b>14</b>	77	85	586	89	131	1,030	501	122	90	76	230	376
<b>15</b>	162	85	445	80	194	791	372	211	79	71	800	332
<b>16</b>	123	93	375	79	170	773	621	226	64	66	1,130	292
<b>17</b>	95	306	324	73	172	716	4,250	434	254	55	590	242
<b>18</b>	79	286	287	109	265	563	2,090	853	255	50	315	216
<b>19</b>	69	219	258	187	466	461	1,140	2,230	122	53	225	194
<b>20</b>	63	184	233	197	424	390	868	1,410	86	55	192	182
<b>21</b>	57	157	212	175	386	415	674	828	70	51	178	178
<b>22</b>	52	138	195	144	335	468	514	637	170	44	260	188
<b>23</b>	49	137	179	109	287	436	656	516	1,700	40	182	230
<b>24</b>	49	127	160	94	259	436	688	518	1,360	39	136	353
<b>25</b>	46	115	145	94	574	400	529	388	690	42	138	265
<b>26</b>	44	122	132	93	758	349	446	304	422	54	183	210
<b>27</b>	57	121	182	113	559	314	396	252	300	47	208	183
<b>28</b>	65	106	199	107	640	286	572	215	225	40	9,970	186
<b>29</b>	57	101	155	97	---	260	644	184	190	38	7,350	462
<b>30</b>	51	107	131	88	---	250	443	186	150	46	2,650	594
<b>31</b>	44	---	117	83	---	252	---	188	---	42	1,220	---
<b>Total</b>	4,552	3,802	11,546	3,736	7,486	36,151	18,907	12,824	7,532	3,234	27,315	21,444
<b>Mean</b>	147	127	372	121	267	1,166	630	414	251	104	881	715
<b>Max</b>	869	306	1,920	213	758	6,990	4,250	2,230	1,700	508	9,970	4,370
<b>Min</b>	44	39	117	73	82	250	192	122	64	38	32	178
<b>Cfsm</b>	1.22	1.06	3.10	1.00	2.23	9.72	5.25	3.45	2.09	0.87	7.34	5.96
<b>In.</b>	1.41	1.18	3.58	1.16	2.32	11.21	5.86	3.98	2.33	1.00	8.47	6.65

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2011, BY WATER YEAR (WY)**

	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>
<b>Mean</b>	153	224	286	268	275	451	398	252	159	96.2	106	119
<b>Max</b>	1,119	736	873	877	701	1,270	1,055	994	735	602	881	715
(WY)	(2006)	(1978)	(1984)	(1979)	(1970)	(2010)	(1984)	(1989)	(1972)	(1945)	(2011)	(2011)
<b>Min</b>	13.8	17.9	19.8	16.5	42.7	113	88.4	79.5	29.6	15.8	11.3	11.1
(WY)	(1942)	(2002)	(1999)	(1981)	(2002)	(2006)	(1985)	(1905)	(1999)	(1993)	(1993)	(1964)

**01387500 RAMAPO RIVER NEAR MAHWAH, NJ—Continued****SUMMARY STATISTICS**

	<b>Calendar Year 2010</b>	<b>Water Year 2011</b>			<b>Water Years 1903 - 2011</b>	
<b>Annual total</b>	94,583		158,529			
<b>Annual mean</b>	259		434		232	
<b>Highest annual mean</b>					461	1903
<b>Lowest annual mean</b>					80.0	2002
<b>Highest daily mean</b>	9,420	Mar 14	9,970	Aug 28	9,970	Aug 28, 2011
<b>Lowest daily mean</b>	12	Aug 21	32	Aug 2	1.2	Aug 12, 1993
<b>Annual seven-day minimum</b>	14	Aug 8	40	Jul 27	3.7	Sep 7, 1995
<b>Maximum peak flow</b>			15,000	Aug 28	15,000	Aug 28, 2011
<b>Maximum peak stage</b>			15.77	Aug 28	15.77	Aug 28, 2011
<b>Instantaneous low flow</b>			27	Aug 3	0.20	Aug 11, 1993
<b>Annual runoff (cfsm)</b>	2.16		3.62		1.93	
<b>Annual runoff (inches)</b>	29.32		49.14		26.29	
<b>10 percent exceeds</b>	509		790		505	
<b>50 percent exceeds</b>	127		191		139	
<b>90 percent exceeds</b>	18		65		26	



**01387500 RAMAPO RIVER NEAR MAHWAH, NJ—Continued****WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1964 to June 1965.

REMARKS.--Cooperative Network Site Descriptor: Mixed Land Use Indicator, NJ Department of Environmental Protection Watershed Management Area 3.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of 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.

**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)	Tempera-ture, 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, instant-aneous, 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)
11-23-2010	1000	753	13.0	.095	.072	137	10.0	86	7.6
03-07-2011	1030	758	2.0	.155	.122	8,460	12.3	95	7.1
06-28-2011	1100	754	26.0	.122	.092	229	8.4	94	7.6
09-14-2011	1000	754	23.5	.126	.096	382	8.0	87	7.5

**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 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, sum of constituents, mg/L (70301)	Suspended Hardness, water, mg/L as CaCO <sub>3</sub> (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)
11-23-2010	1000	397	8.3	1.5	211	207	84.0	3	23.4
03-07-2011	1030	138	4.2	21	80	73	23.8	26	6.42
06-28-2011	1100	351	20.7	4.5	205	186	76.1	--	20.7
09-14-2011	1000	348	19.3	2.5	190	181	75.8	5	20.8

**01387500 RAMAPO RIVER NEAR MAHWAH, NJ—Continued**

**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	Magne-		Potassium,		Sodium,	titration, laboratory, mg/L as CaCO <sub>3</sub>	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)
		sium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	(pH 4.5) plus Carbon endpoint (inorganic)							
11-23-2010	1000	6.21	1.56	42.4	56.0	.20	75.3	.11	<.03	5.80		
03-07-2011	1030	1.88	.96	16.1	16.1	1.28	26.4	.05	<.03	4.99		
06-28-2011	1100	5.95	1.31	38.0	56.3	.73	64.3	.08	<.03	7.99		
09-14-2011	1000	5.81	1.27	35.4	61.4	.29	57.7	.06	<.03	9.46		

**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	Ammonia		Nitrate		Particulate nitrogen, suspended in water, mg/L (49570)	Phos- phorus, 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)
		Sulfate, water, filtered, mg/L (00945)	plus organic nitrogen, water, filtered, mg/L as N (00623)	Ammonia, water, filtered, mg/L as N (00608)	plus nitrite, water, filtered, mg/L as N (00631)					
11-23-2010	1000	13.9	.31	.038	1.07	.021	.09	.11	1.4	1.4
03-07-2011	1030	6.00	.31	.044	.21	.127	.03	.10	.52	.65
06-28-2011	1100	10.4	.29	.048	.82	.077	.08	.11	1.1	1.2
09-14-2011	1000	10.7	.28	.035	.57	.039	.04	.06	.85	.89

**01387500 RAMAPO RIVER NEAR MAHWAH, NJ—Continued**

**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	Organic
		carbon, suspended sediment, total, mg/L (00689)	carbon, water, filtered, mg/L (00681)
11-23-2010	1000	.20	3.03
03-07-2011	1030	1.28	3.81
06-28-2011	1100	.73	3.72
09-14-2011	1000	< .12	3.63