



Water-Data Report 2010

01377000 HACKENSACK RIVER AT RIVERVALE, NJ

HACKENSACK RIVER BASIN

LOCATION.--Lat 40°59'57", long 73°59'21" referenced to North American Datum of 1983, River Vale Township, Bergen County, NJ, Hydrologic Unit 02030103, on upstream right bank at bridge on Westwood Avenue in Rivervale, 1.5 mi upstream from Pascack Brook, 4.1 mi downstream of Lake Tappan, and 4.6 mi upstream from Oradell Dam.

DRAINAGE AREA.--58.0 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1941 to current year.

REVISED RECORDS.--WDR NJ-80-1: 1968-79(M).

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 22.51 ft above NGVD of 1929.

REMARKS.--Records fair, except for estimated daily discharges, which are poor. Flow regulated by DeForest Lake (since 1956, see 01376700) and Lake Tappan (since 1965, see 01376950). Diversions from DeForest Lake (see 01376699) and Hackensack River at West Nyack, NY (see 01376790), for municipal water supply. Several measurements of water temperature were made during the year. Satellite telemetry at station.

Water-Data Report 2010

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

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

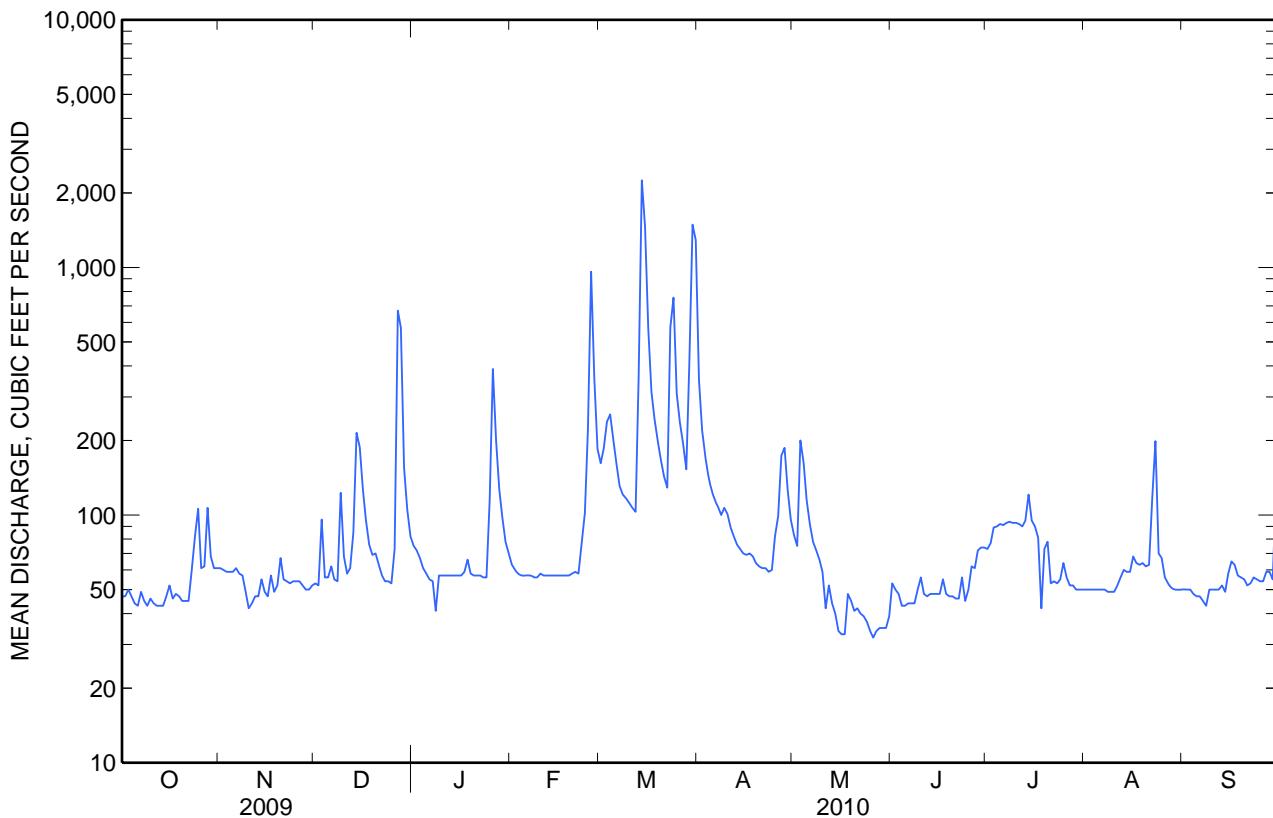
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	47	61	53	75	63	162	351	83	53	73	50	50
2	47	60	52	72	60	186	219	75	50	77	50	50
3	50	59	96	e67	58	238	173	200	48	89	50	50
4	47	59	56	61	57	255	145	163	43	90	50	48
5	44	59	56	58	57	201	126	115	43	92	50	47
6	43	61	62	55	57	160	115	92	44	91	50	47
7	49	58	55	54	57	131	108	78	44	93	50	45
8	45	57	54	41	56	121	100	72	44	94	49	43
9	43	49	123	57	56	117	107	66	50	93	49	50
10	46	42	68	57	58	112	101	59	56	93	49	50
11	44	44	58	57	57	107	89	42	48	92	52	50
12	43	47	61	57	57	103	82	52	47	90	56	50
13	43	47	85	57	57	360	76	44	48	95	60	52
14	43	55	215	57	57	2,250	73	40	48	121	59	49
15	47	49	188	57	57	1,460	70	34	48	95	59	58
16	52	47	126	57	57	570	69	33	48	90	68	65
17	46	57	95	59	57	315	70	33	55	81	64	63
18	48	49	76	66	57	245	68	48	48	42	63	57
19	47	52	69	58	57	200	64	45	47	73	64	56
20	45	67	70	57	58	167	62	41	47	78	62	55
21	45	55	63	57	59	143	61	42	46	53	63	52
22	45	54	57	57	58	129	61	40	46	54	117	53
23	60	53	e54	56	77	570	59	39	56	53	199	56
24	82	54	e54	56	102	756	60	37	45	55	70	55
25	106	54	53	115	221	310	82	34	50	64	67	54
26	61	54	73	389	961	236	99	32	62	56	56	54
27	62	52	669	200	356	194	174	34	61	52	53	59
28	107	50	571	127	185	153	187	35	72	52	51	59
29	68	50	e155	98	---	415	125	35	74	50	50	55
30	61	52	e105	78	---	1,490	96	35	74	50	50	126
31	61	---	82	70	---	1,290	---	39	---	50	50	---
Total	1,677	1,607	3,654	2,482	3,169	13,146	3,272	1,817	1,545	2,331	1,930	1,658
Mean	54.1	53.6	118	80.1	113	424	109	58.6	51.5	75.2	62.3	55.3
Max	107	67	669	389	961	2,250	351	200	74	121	199	126
Min	43	42	52	41	56	103	59	32	43	42	49	43

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	58.7	68.9	81.2	88.6	88.6	135	136	95.5	78.2	77.6	70.8	68.2
Max	312	240	248	251	221	424	438	310	319	339	197	325
(WY)	(1956)	(1956)	(1997)	(1949)	(1951)	(2010)	(1983)	(1989)	(1972)	(1945)	(1955)	(2004)
Min	12.1	16.6	12.6	18.0	19.9	11.2	14.5	20.4	13.4	11.6	11.4	7.87
(WY)	(1942)	(1996)	(1981)	(2008)	(2002)	(1981)	(1981)	(1981)	(1957)	(1954)	(1944)	(1953)

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued**SUMMARY STATISTICS**

	Calendar Year 2009	Water Year 2010		Water Years 1942 - 2010	
Annual total	27,334	38,288			
Annual mean	74.9	105		87.3	
Highest annual mean				156	1952
Lowest annual mean				30.9	1981
Highest daily mean	770	Jun 19	2,250	Mar 14	4,380 Apr 16, 2007
Lowest daily mean	40	Aug 18	32	May 26	4.4 Oct 10, 1995
Annual seven-day minimum	40	Sep 4	35	May 24	5.0 Oct 7, 1995
Maximum peak flow			2,550	Mar 14	4,620 Apr 16, 2007
Maximum peak stage			8.12	Mar 14	12.19 Apr 16, 2007
Instantaneous low flow			14	Jan 8	0.00 Jan 16, 1970
10 percent exceeds	105		169		165
50 percent exceeds	60		57		60
90 percent exceeds	45		45		21



01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1962, 1964 to current year.

REMARKS.--Cooperative Network Site Descriptor: Urban Land Use Indicator, NJ Department of Environmental Protection Watershed Management Area 5.

COOPERATION.--Physical measurements and samples for laboratory analyses 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.

**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, 280 nm, 1 cm path length, water, filtered, units per centimeter (61726)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, mg/L (00300)		Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
							Absorbance, UV, organic constituents, cm path length, water, filtered, units per centimeter	Dissolved oxygen, water, unfiltered, mg/L (00300)		
11-09-2009	1000	772	11.0	.116	.084	54	7.9	70	7.6	
02-08-2010	1000	760	1.0	.102	.075	56	11.5	81	8.0	
06-07-2010	1000	757	19.0	.126	.092	43	5.1	56	7.6	
08-17-2010	0800	762	23.0	.154	.112	62	2.8	32	7.3	

**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 conductance, water, unfiltered, µS/cm at 25 °C (00095)	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Dissolved solids, (400-680 nm), detectors at multiple angles	Dissolved solids, dried at 180 °C, water, filtered, milligrams per liter (70300)	Dissolved solids, sum of constituents, milligrams per liter (70301)	Dissolved solids, Hardness, water, mg/L as CaCO ₃ (00900)		Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)
							Suspension, water, mg/L (00900)	Calcium, water, mg/L (00915)			
11-09-2009	510	9.8	2.1	284	E 255	125	2	39.2	6.57		
02-08-2010	548	1.4	5.6	299	E 274	120	12	37.4	6.39		
06-07-2010	501	19.9	7.0	281	256	124	26	38.7	6.62		
08-17-2010	441	24.1	5.9	251	E 225	93.9	4	27.6	6.03		

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

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)
11-09-2009	1.82	45.8	95	.65	85.7	E .06	< .06	6.7	10.3	.59
02-08-2010	1.90	51.4	90	1.02	105	E .04	< .06	3.0	12.8	.39
06-07-2010	1.79	47.5	92	1.19	90.1	.08	< .06	3.8	10.4	.47
08-17-2010	1.86	45.4	63	2.13	86.6	E .06	< .06	8.9	9.14	1.5

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	Nitrate plus nitrite, water, filtered, mg/L as N (00608)	Orthophos phate, water, filtered, mg/L as N (00631)	Particulate nitrogen, suspended water, filtered, mg/L (00671)	Phosphorus, in water, as P (49570)	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	nitrogen, water, unfiltered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)	Total nitrogen, water, unfiltered, mg/L (00600)	Organic carbon, suspended sediment, total, mg/L (00689)
11-09-2009	.134	.39	< .010	.10	.013	.033	.98	1.1	.62	
02-08-2010	.048	.48	E .006	.12	E .008	.035	.87	.99	1.02	
06-07-2010	.092	.38	--	.13	.034	.072	.85	.99	1.17	
08-17-2010	.832	.26	--	.35	.061	.127	1.8	2.1	2.13	

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

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

Part 5 of 5
 [%; percent; ANC, acid
 neutralizing capacity;
 CaCO_3 , calcium carbonate;
 N, nitrogen; NTRU,
 nephelometric turbidity
 ratio unit; P, phosphorus;
 SiO_2 , silicon dioxide; cm,
 centimeter; ft^3/s , cubic
 feet per second; mg/L,
 milligrams per liter; mm
 Hg, millimeters of
 mercury; nm, nanometers;
 $^{\circ}\text{C}$, degrees Celsius;
 $\mu\text{S}/\text{cm}$, microsiemens per
 centimeter; <, less than; E,
 estimated]

Date	Organic carbon, water, filtered, mg/L (00681)
11-09-2009	5.1
02-08-2010	3.9
06-07-2010	4.5
08-17-2010	6.6