



Water-Data Report 2006

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. Flow regulated by DeForest Lake (since 1956, see 01376700) and Lake Tappan (since 1965, see 01376950). Diversions from De Forest Lake (see 01376699) and West Nyack, NY (see 01376810), for municipal water supply. Several measurements of water temperature were made during the year. Satellite gage-height telemetry at station.

Water-Data Report 2006

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006
DAILY MEAN VALUES

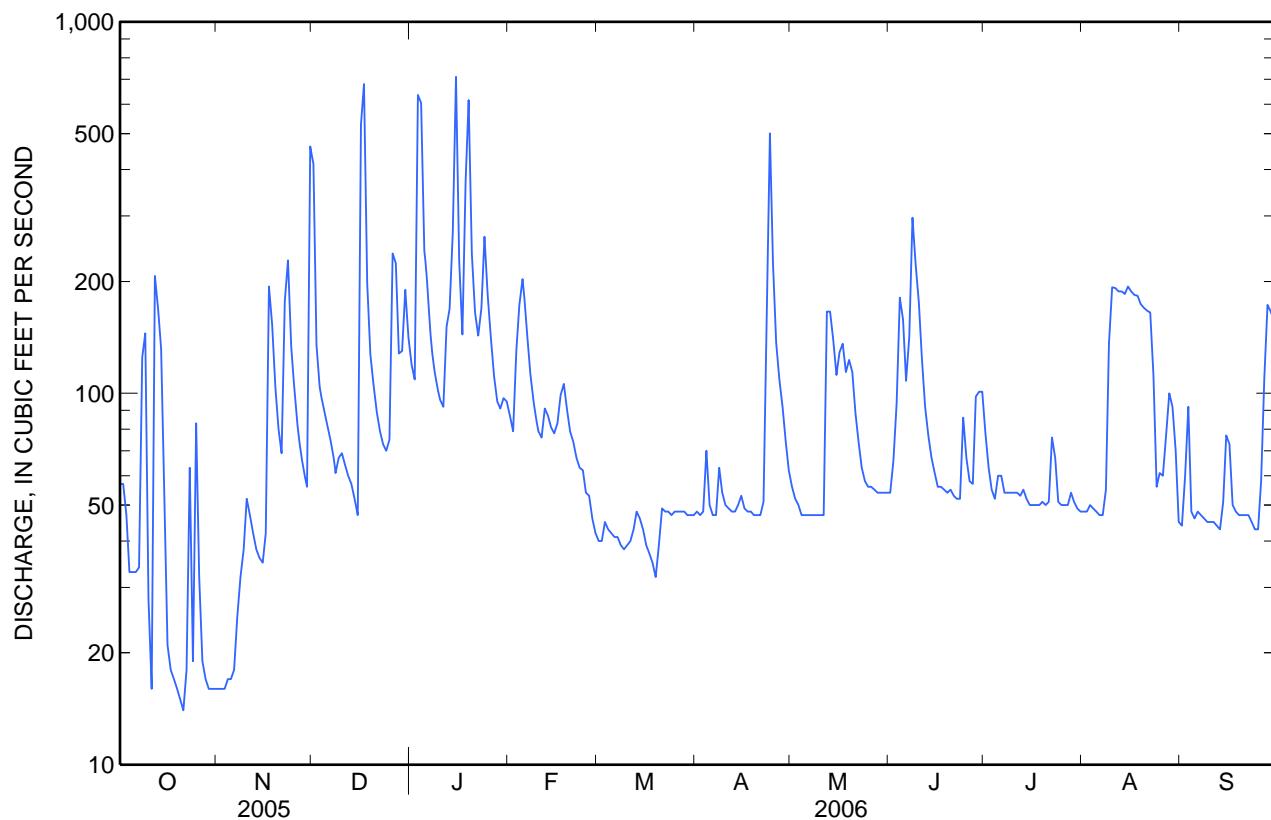
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	57	16	414	119	87	40	48	56	54	78	48	44
2	57	16	135	109	79	40	47	52	66	63	48	60
3	47	16	104	636	130	45	48	50	94	55	50	92
4	33	17	93	605	173	43	70	47	181	52	49	48
5	33	17	85	242	203	42	50	47	158	60	48	46
6	33	18	78	192	163	41	47	47	108	60	47	48
7	34	25	70	142	124	41	47	47	142	54	47	47
8	125	32	61	119	102	39	63	47	297	54	55	46
9	145	38	67	105	89	38	54	47	222	54	136	45
10	28	52	69	96	79	39	50	47	175	54	193	45
11	16	47	64	92	76	40	49	47	124	54	192	45
12	207	42	60	151	91	43	48	166	92	53	188	44
13	169	38	57	169	87	48	48	166	77	55	188	43
14	132	36	52	272	81	46	50	139	67	52	185	51
15	53	35	47	711	78	43	53	112	61	50	194	77
16	21	42	529	227	83	39	49	129	56	50	188	73
17	18	194	680	144	99	37	48	136	56	50	184	50
18	17	153	198	371	106	35	48	114	55	50	183	48
19	16	104	127	616	91	32	47	123	54	51	174	47
20	15	80	105	238	79	39	47	114	55	50	170	47
21	14	69	89	165	74	49	47	89	53	51	167	47
22	18	177	79	143	67	48	51	74	52	76	165	47
23	63	228	73	170	63	48	161	63	52	67	112	45
24	19	134	70	264	62	47	501	58	86	51	56	43
25	83	103	75	184	54	48	225	56	67	50	61	43
26	32	82	238	141	53	48	137	56	58	50	60	58
27	19	70	224	111	46	48	109	55	57	50	77	110
28	17	62	128	95	42	48	92	54	98	54	100	173
29	16	56	130	91	---	47	74	54	101	51	92	166
30	16	462	190	97	---	47	62	54	101	49	70	157
31	16	---	141	95	---	47	---	54	---	48	45	---
Total	1,569	2,461	4,532	6,912	2,561	1,335	2,470	2,400	2,919	1,696	3,572	1,935
Mean	50.6	82.0	146	223	91.5	43.1	82.3	77.4	97.3	54.7	115	64.5
Max	207	462	680	711	203	49	501	166	297	78	194	173
Min	14	16	47	91	42	32	47	47	52	48	45	43

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2006, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	58.8	68.5	81.2	89.7	88.9	130	135	97.2	78.3	77.5	71.4	69.2
Max	312	240	248	251	221	379	438	310	319	339	197	325
(WY)	(1956)	(1956)	(1997)	(1949)	(1951)	(1953)	(1983)	(1989)	(1972)	(1945)	(1955)	(2004)
Min	12.1	16.6	12.6	22.6	19.9	11.2	14.5	20.4	13.4	11.6	11.4	7.87
(WY)	(1942)	(1996)	(1981)	(1982)	(2002)	(1981)	(1981)	(1981)	(1957)	(1954)	(1944)	(1953)

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

	Calendar Year 2005	Water Year 2006			Water Years 1942 - 2006	
Annual total	36,805		34,362			
Annual mean	101		94.1		87.1	
Highest annual mean					156	1952
Lowest annual mean					30.9	1981
Highest daily mean	1,780	Apr 3	711	Jan 15	2,190	May 31, 1984
Lowest daily mean	14	Oct 21	14	Oct 21	4.4	Oct 10, 1995
Annual seven-day minimum	16	Oct 28	16	Oct 28	5.0	Oct 7, 1995
Maximum peak flow			951	Jan 15	2,530	May 17, 1989
Maximum peak stage			4.15	Jan 15	8.08	May 17, 1989
Instantaneous low flow			13	Oct 12	0.00	Jan 16, 1970
10 percent exceeds	158		183		165	
50 percent exceeds	78		57		60	
90 percent exceeds	33		39		21	



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

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

REMARKS.--Total nitrogen (00600) equals the sum of filtered ammonia plus organic nitrogen (00623), filtered nitrite plus nitrate nitrogen (00631), and total particulate nitrogen (49570). Bacteria samples were collected synoptically over a 30-day period during the summer. 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 -) or 5% of the measured value; Dissolved Oxygen, the greater of 0.3 mg/L (+ or -) or 5% of the measured value; pH, 0.3 units (+ or -); Turbidity, the greater of 0.5 FNU (+ or -) or 5% of the measured value. 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 period(s) were adjusted - NONE.

COOPERATIVE NETWORK SITE DESCRIPTOR: Urban Land Use Indicator and Watershed Reconnaissance, New Jersey Department of Environmental Protection (NJDEP) Watershed Management Area 5.

COOPERATION.—Periodic physical measurements and samples for laboratory analyses were provided by personnel of the NJDEP. Bacteria samples were provided by the local county health department under the direction of the NJDEP through the County Environmental Health Act. Determinations of filtered ammonia, filtered orthophosphorus, BOD, total suspended residue, fecal coliform, E. coli, and enterococcus bacteria were performed by the NJ Department of Health and Senior Services.

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

Part 1 of 4

[Remark codes: <, less than; E, estimated.]

Date	Time	Turbdty white light, det ang 90+/-30 corrctd	UV absorb- ance, 254 nm, wat flt units /cm (50624)	UV absorb- ance, 280 nm, wat flt units /cm (61726)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfiltrd field, std units (00400)	Specif. conduc- tance, uS/cm 25 degC (00095)	Temper- ature, wat unf air, deg C (00020)	Temper- ature, water, deg C (00010)	Hard- ness, water, mg/L as CaCO3 (00900)
Nov												
01...	0900	16	7.7	.142	.107	765	7.2	63	7.4	411	12.6	9.7
Feb												
08...	1000	100	4.6	.123	.092	762	13.0	98	8.1	549	.5	3.6
May												
02...	0800	52	4.1	.114	.085	765	7.3	71	7.8	578	11.3	14.1
Aug												
09...	0800	100	28	.130	.093	766	6.6	81	7.9	461	20.0	26.1

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006

Part 2 of 4

[Remark codes: <, less than; E, estimated.]

Date	ANC, wat unf								Residue water, filtrd, sum of consti- tuents	Residue on evap. at 180degC	Residue total at 105 deg. C,	Ammonia + org-N, water, filtrd, mg/L as N (00623)	
	Calcium water, filtrd, mg/L (00915)	Magnes- ium, water, filtrd, mg/L (00925)	Potas- sium, water, filtrd, mg/L (00935)	Sodium, water, filtrd, mg/L (00930)	fixed end pt, lab, mg/L as CaCO ₃ (90410)	Chlor- ide, water, filtrd, mg/L (00940)	Fluor- ide, water, filtrd, mg/L (00950)	Silica, water, filtrd, mg/L (00955)	Sulfate water, filtrd, mg/L (00945)	mg/L (70301)	mg/L (70300)	mg/L (00530)	
Nov 01...	37.8	7.14	2.08	30.9	83	57.6	E.05	10.3	20.1	221	238	6	.55
Feb 08...	32.2	5.79	1.79	56.5	70	104	E.08	2.9	14.7	262	279	5	1.2
May 02...	39.6	6.75	1.86	58.7	85	113	E.06	1.9	15.1	290	318	8	.48
Aug 09...	31.2	5.78	2.00	46.8	77	88.4	E.09	5.0	9.06	235	267	48	.85

WATER-QUALITY DATA
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006

Part 3 of 4

[Remark codes: <, less than; E, estimated.]

Date	Ortho- phos- phate, water, filtrd, mg/L as P (00671)								Total carbon, suspd sedimnt	Inor- ganic carbon, suspd sedimnt	Organic carbon, suspd sedimnt	Organic carbon, water, filtrd, mg/L (00681)	BOD, water, unfiltrd 5 day 20 degC (00310)
	Nitrite + nitrate water, filtrd, mg/L as N (00608)	Partic- ulate nitro- gen, susp, water, filtrd, mg/L (49570)	Total nitro- gen, water, filtrd, mg/L (00602)	Total nitro- gen, water, unfiltrd mg/L (00600)	Phos- phorus, water, filtrd, mg/L (00666)	Phos- phorus, water, unfiltrd mg/L (00665)	Total mg/L (00694)	Total mg/L (00688)	Total mg/L (00689)				
Nov 01...	.069	1.27	.11	1.8	1.9	.016	.025	.062	1.2	<.1	1.2	3.7	<1.0
Feb 08...	.026	.62	.29	1.8	2.1	E.007	.009	.032	2.1	<.1	2.1	3.8	<1.1
May 02...	.082	.38	.11	.86	.97	.012	.021	.042	.9	<.1	.9	3.9	E2.0
Aug 09...	.100	.16	.73	1.0	1.7	<.010	.015	.194	5.2	<.1	5.1	5.0	E1.4

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

**WATER-QUALITY
DATA
WATER YEAR
OCTOBER 2005 TO
SEPTEMBER 2006**

Part 4 of 4

[Remark codes:
<, less than;
E, estimated.]

Date	Boron, water, fltrd, ug/L (01020)
Nov	
01...	53
Feb	
08...	43
May	
02...	43
Aug	
09...	51

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**

[Remark codes: <, less than.]

Date	Time	Instan- taneous dis- charge, cfs (00061)	Temper- ature, deg C (00010)	Enter- cocci,		E coli, m-E MF, water, col/ 100 mL (31649)	Fecal coli- form, m-TEC MF, water, col/ 100 mL (31633)	Fecal coli- form, ECbroth MPN/ 100 mL (31615)
				100 mL	(31649)			
Jul								
12...	1122	52	24.2	140	<10	602		
19...	1131	50	25.1	220	<10	140		
26...	1125	50	24.8	170	220	230		
Aug								
02...	1114	48	26.6	80	<10	110		
09...	1135	100	26.6	90	60	300		

01377000 HACKENSACK RIVER AT RIVERVALE, NJ—Continued

**WATERSHED RECONNAISSANCE STUDY
HOURLY WATER-QUALITY-MONITOR VALUES
JULY 28, 2006 to AUGUST 4, 2006**

