



Water-Data Report 2006

01393450 ELIZABETH RIVER AT URSINO LAKE, AT ELIZABETH, NJ

ELIZABETH RIVER BASIN

LOCATION.--Lat 40°40'30", long 74°13'19" referenced to North American Datum of 1983, Hillside Township, Union County, NJ, Hydrologic Unit 02030104, on left bank at Ursino Lake Dam in Elizabeth, 75 ft upstream from bridge on Trotters Lane and 3.8 mi upstream from mouth.

DRAINAGE AREA.--16.9 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1921 to current year.

REVISED RECORDS.--WSP 1552: Drainage area, 1922-23, 1927-29(M), 1932, 1933-34(M), 1938(P), 1942(M) 1944(P), 1945(M), 1948(P), 1952-53(M). WDR NJ-84-1: 1974.

GAGE.--Water-stage recorder, crest-stage gage, and two concrete weirs. The right concrete weir was lowered 5 ft on Dec. 18, 1985. Datum of gage is NGVD of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1922, nonrecording gage at site 2,800 ft downstream at datum 4.14 ft higher and Oct. 1, 1922 to May 18, 1923, at same site at datum 5.23 ft higher. May 19, 1923 to Dec. 27, 1972, at site 2,800 ft downstream at datum 5.23 ft higher and published as "Elizabeth River at Elizabeth" (station 01393500), drainage area 18.0 mi².

REMARKS.--Records good, except for estimated daily discharges, which are fair. Diversion by pumpage from Hammock Well Field in Union Township for municipal supply by Elizabethtown Water Company probably reduces the flow past the station. Elizabethtown Water Company diverted water for municipal supply from Ursino Lake in Elizabeth prior to 1929. Several measurements of water temperature were made during the year.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct 08	0800	1,570	19.37
Oct 08	2300	*1,870	*19.73
Oct 13	1400	1,570	19.36

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

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	6.0	12	26	20	16	13	10	10	9.9	13	10	9.9
2	5.8	11	20	62	15	25	10	10	89	13	11	200
3	6.0	11	18	243	29	21	16	9.8	150	14	16	65
4	6.4	10	20	40	26	15	25	9.4	37	15	11	19
5	6.6	10	18	27	35	13	24	9.6	24	137	7.8	26
6	6.5	9.7	16	22	20	13	12	8.9	19	53	7.2	22
7	17	12	14	20	18	13	11	8.5	51	22	7.9	13
8	584	9.7	12	18	20	13	83	8.3	45	16	8.1	9.7
9	184	24	14	17	16	13	19	8.6	21	13	7.7	8.9
10	34	20	16	16	15	12	14	8.5	16	12	51	8.2
11	20	12	14	28	14	12	12	8.4	13	11	16	7.8
12	537	11	13	22	e16	20	11	96	12	13	8.3	7.6
13	366	9.9	12	17	e15	14	11	21	12	46	7.3	7.4
14	253	9.4	11	75	e16	13	16	15	11	19	7.0	58
15	47	9.6	10	36	e20	12	14	27	11	14	12	92
16	26	46	228	21	31	11	10	57	10	11	7.0	23
17	18	53	35	20	37	11	9.7	21	9.8	11	7.0	15
18	16	16	24	67	21	11	9.6	15	9.8	12	7.1	12
19	13	14	20	34	19	11	9.9	57	9.8	19	7.1	11
20	12	12	19	24	18	11	10	18	11	12	8.1	11
21	11	17	18	21	17	11	9.7	14	9.0	51	6.7	8.3
22	58	86	16	18	16	11	36	12	9.2	39	6.8	7.9
23	62	25	15	52	16	10	111	11	9.4	22	7.0	11
24	49	20	15	26	15	10	56	10	45	15	6.7	8.0
25	173	16	77	22	14	10	24	9.5	19	13	6.9	7.5
26	34	14	40	18	14	11	19	10	21	12	64	8.2
27	22	13	20	17	13	11	15	15	12	11	61	7.6
28	17	12	19	16	13	11	13	9.8	133	14	74	7.7
29	15	15	44	20	---	10	12	9.0	25	10	70	23
30	13	107	20	18	---	10	10	9.2	18	9.8	52	7.6
31	12	---	21	24	---	10	---	8.9	---	9.6	13	---
Total	2,630.3	647.3	865	1,081	535	392	642.9	545.4	871.9	682.4	592.7	723.3
Mean	84.8	21.6	27.9	34.9	19.1	12.6	21.4	17.6	29.1	22.0	19.1	24.1
Max	584	107	228	243	37	25	111	96	150	137	74	200
Min	5.8	9.4	10	16	13	10	9.6	8.3	9.0	9.6	6.7	7.4
Cfsm	5.02	1.28	1.65	2.06	1.13	0.75	1.27	1.04	1.72	1.30	1.13	1.43
In.	5.79	1.42	1.90	2.38	1.18	0.86	1.42	1.20	1.92	1.50	1.30	1.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2006, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	21.2	24.2	23.6	24.1	25.9	32.0	29.3	26.9	23.9	27.0	26.8	26.1
Max	84.8	90.7	85.1	86.3	55.1	75.5	97.0	83.8	81.2	83.1	195	102
(WY)	(2006)	(1973)	(1984)	(1979)	(1971)	(1983)	(1983)	(1968)	(2003)	(1922)	(1971)	(1966)
Min	1.58	5.05	6.25	3.71	6.56	6.03	10.3	5.97	3.94	3.24	0.07	1.99
(WY)	(1922)	(1923)	(1981)	(1925)	(1934)	(1981)	(1963)	(1923)	(1923)	(1923)	(1923)	(1923)

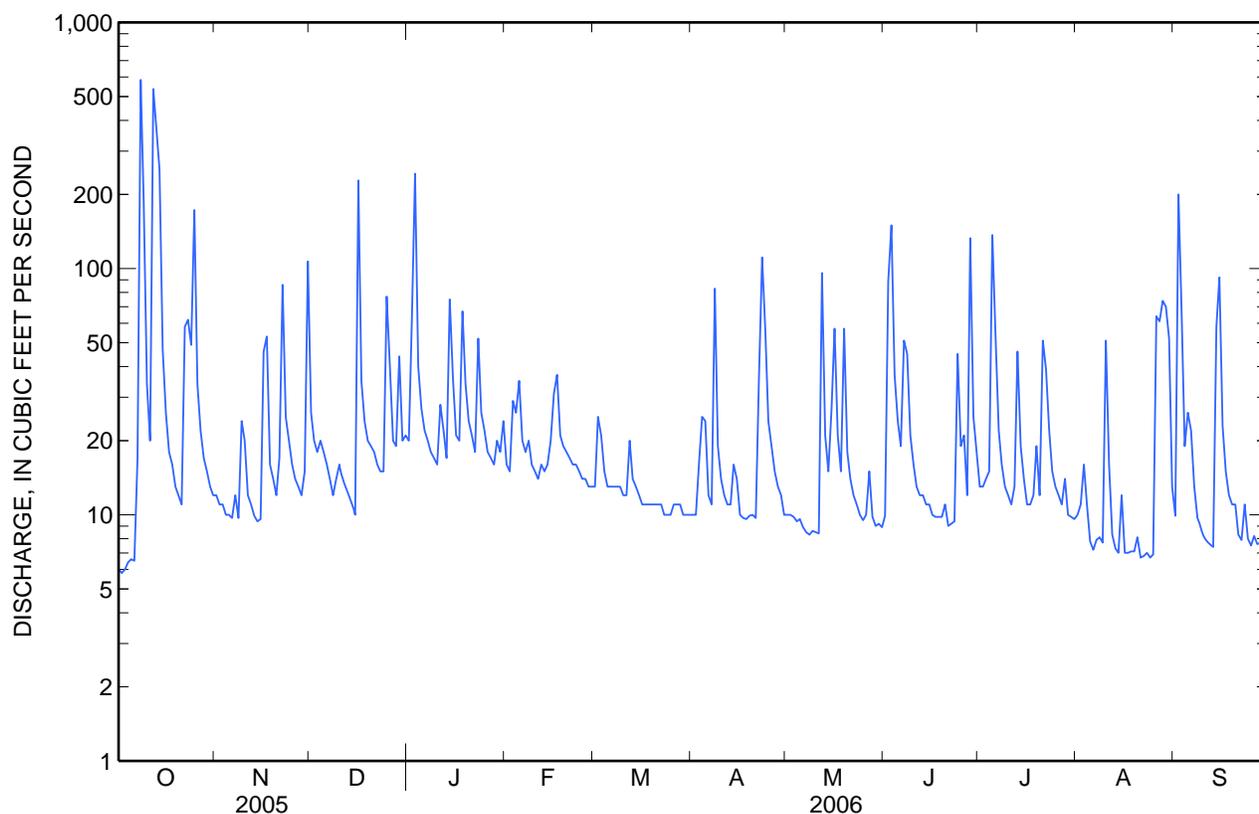
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SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1922 - 2006	
Annual total	9,618.9		10,209.2			
Annual mean	26.4		28.0		25.9	
Highest annual mean					48.3	1971
Lowest annual mean					10.2	1923
Highest daily mean	584	Oct 8	584	Oct 8	1,900	Aug 28, 1971
Lowest daily mean	5.0	Sep 11	5.8	Oct 2	0.00	Jul 14, 1922
Annual seven-day minimum	5.3	Sep 7	7.0	Aug 19	0.00	Aug 7, 1923
Maximum peak flow			1,870	Oct 8	^a 4,510	Sep 16, 1999
Maximum peak stage			19.73	Oct 8	^b 25.77	Aug 2, 1973
Instantaneous low flow			5.6	Oct 2	0.00	Jul 14, 1922
Annual runoff (cfsm)	1.56		1.66		1.53	
Annual runoff (inches)	21.17		22.47		20.84	
10 percent exceeds	38		52		51	
50 percent exceeds	14		14		11	
90 percent exceeds	6.9		8.3		5.7	

^a From rating curve extended above 1,100 ft³/s on basis of contracted-opening measurement of peak flow.

^b Recorded before right weir was lowered 5 ft.



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-97, 2000, 2003, 2005 to current year.

REMARKS.--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: Watershed Reconnaissance and Trace Element Assessment (303d) special study site. The samples on May 12 were for the trace element assessment (303d).

COOPERATION.--Physical measurements and samples for laboratory analyses on May 12 were provided by personnel of the New Jersey Department of Environmental Protection.

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

Part 1 of 3

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

Date	Time	Sample type	Turbidity white light, 90+/-30 corrected NTRU (63676)	Baro- metric pres- sure mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfiltered, field, std units (00400)	Specific conductance, water unfiltered uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, filtered, mg/L (00915)
May												
12...	0930	Trip Blank	--	--	--	--	--	--	--	--	--	--
12...	1000	Field Blank	--	--	--	--	--	--	--	--	--	<.02
12...	1030	Environmental	12	752	8.2	84	7.2	245	22.5	15.8	52	16.9

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

Part 2 of 3

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

Date	Magnesium, water, filtered, mg/L (00925)	Arsenic water, filtered, ug/L (01000)	Arsenic water, unfiltered, ug/L (01002)	Cadmium water, filtered, ug/L (01025)	Cadmium water, unfiltered, ug/L (01027)	Chromium, water, filtered, ug/L (01030)	Chromium, water, unfiltered, recoverable, ug/L (01034)	Copper, water, filtered, ug/L (01040)	Copper, water, unfiltered, recoverable, ug/L (01042)	Lead, water, filtered, ug/L (01049)	Lead, water, unfiltered, recoverable, ug/L (01051)	Mercury water, filtered, ug/L (71890)	Mercury water, unfiltered, recoverable, ug/L (71900)
May													
12...	--	--	E.07	--	<.04	--	.10	--	<.6	--	<.06	--	<.010
12...	<.008	<.12	--	<.04	--	<.04	--	<.4	--	<.08	--	<.010	--
12...	2.33	1.1	1.3	.14	.23	.81	1.7	13.6	21.8	1.58	11.2	<.010	.014

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006

Part 3 of 3

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

Date	Nickel, water, unfltrd, recover- able, ug/L (01065)	Nickel, water, unfltrd recover- able, ug/L (01067)	Selen- ium, water, fltrd, ug/L (01145)	Selen- ium, water, unfltrd ug/L (01147)	Silver, water, unfltrd, recover- able, ug/L (01075)	Silver, water, unfltrd recover- able, ug/L (01077)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)
May								
12...	--	<.16	--	<.08	--	<.16	--	<2
12...	<.06	--	<.08	--	<.2	--	<.6	--
12...	3.16	3.26	.31	.39	<.2	E.10	32.8	41

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WATERSHED RECONNAISSANCE STUDY
HOURLY WATER-QUALITY-MONITOR VALUES
AUGUST 11, 2006 to AUGUST 18, 2006

