



Water-Data Report 2008

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 daily discharges above 500 ft³/s, 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. Satellite gage-height telemetry at station.

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)
Sep 6	2045	^a *2,970	*20.73
No other peak greater than base discharge			

^a From rating curve extended above 1,400 ft³/s on basis of theoretical rating.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	6.7	9.1	9.1	31	253	30	22	13	15	9.9	7.8	7.3
2	6.5	8.2	9.5	18	49	15	26	16	11	8.8	51	6.6
3	6.9	7.8	69	14	25	14	12	11	10	8.6	14	6.6
4	7.1	7.6	12	13	19	19	58	13	66	8.5	11	6.8
5	6.8	7.7	11	13	18	71	19	10	16	13	8.6	6.6
6	6.5	32	9.7	14	18	18	14	9.8	12	12	13	619
7	6.3	8.6	9.4	12	16	76	13	9.7	12	9.7	7.7	100
8	6.4	8.2	9.3	12	13	198	12	9.6	13	9.0	23	36
9	19	7.8	32	13	13	51	12	172	13	9.3	7.9	66
10	28	16	34	11	14	28	12	43	17	9.4	7.2	17
11	75	7.7	11	49	11	22	12	19	24	8.3	37	12
12	53	7.4	11	18	11	19	34	59	12	8.0	15	34
13	19	20	95	16	380	16	15	16	11	7.9	10	14
14	13	7.8	36	29	62	15	14	14	46	34	15	10
15	10	32	21	21	32	20	12	12	59	11	51	9.2
16	9.0	10	64	14	22	16	11	100	18	9.1	15	8.6
17	8.3	8.0	25	21	28	13	11	39	14	8.7	9.7	8.4
18	7.6	7.5	18	81	68	13	11	30	13	8.4	8.4	8.3
19	14	21	18	20	23	128	11	16	12	8.4	7.6	7.5
20	14	15	17	16	18	74	11	59	10	8.1	7.5	7.5
21	8.6	9.3	14	14	16	23	11	20	10	11	7.3	7.3
22	7.9	9.1	13	13	24	19	10	17	41	8.0	6.7	7.2
23	7.5	8.2	94	13	27	16	11	13	13	22	6.6	7.1
24	8.4	7.3	29	12	22	15	11	12	14	126	6.6	7.0
25	18	7.5	17	12	20	14	10	11	9.5	16	6.5	6.9
26	22	136	28	11	38	13	10	11	9.5	11	6.3	241
27	202	28	42	11	24	13	15	17	9.3	33	6.4	21
28	25	13	16	11	16	13	57	11	12	12	6.6	52
29	16	12	74	11	14	12	31	11	23	9.8	6.5	19
30	12	10	25	20	---	12	16	10	13	8.8	43	12
31	10	---	50	10	---	15	---	41	---	8.6	8.9	---
Total	660.5	489.8	923.0	574	1,294	1,021	524	845.1	558.3	476.3	438.8	1,371.9
Mean	21.3	16.3	29.8	18.5	44.6	32.9	17.5	27.3	18.6	15.4	14.2	45.7
Max	202	136	95	81	380	198	58	172	66	126	51	619
Min	6.3	7.3	9.1	10	11	12	10	9.6	9.3	7.9	6.3	6.6
Cfsm	1.26	0.97	1.76	1.10	2.64	1.95	1.03	1.61	1.10	0.91	0.84	2.71
In.	1.45	1.08	2.03	1.26	2.85	2.25	1.15	1.86	1.23	1.05	0.97	3.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	21.5	24.4	23.6	24.0	26.0	32.1	29.8	26.8	23.9	27.0	27.0	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)

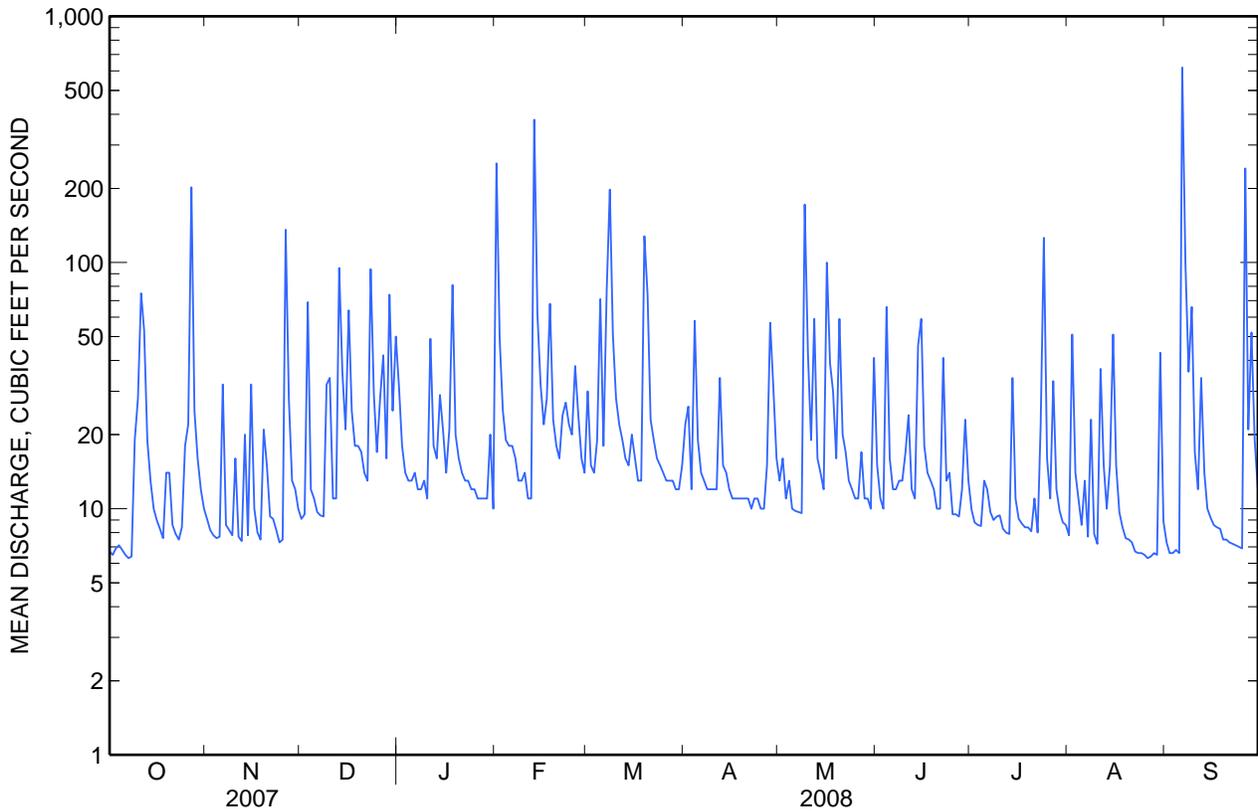
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SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1922 - 2008	
Annual total	11,699.8		9,176.7			
Annual mean	32.1		25.1		26.0	
Highest annual mean					48.3	1971
Lowest annual mean					10.2	1923
Highest daily mean	607	Apr 15	619	Sep 6	1,900	Aug 28, 1971
Lowest daily mean	6.3	Oct 7	6.3	Many days	0.00	Jul 14, 1922
Annual seven-day minimum	6.6	Oct 2	6.5	Aug 23	0.00	Aug 7, 1923
Maximum peak flow			^a 2,970	Sep 6	^a 4,510	Sep 16, 1999
Maximum peak stage			20.73	Sep 6	^b 25.77	Aug 2, 1973
Instantaneous low flow			6.0	Many days	0.00	Jul 14, 1922
Annual runoff (cfsm)	1.90		1.48		1.54	
Annual runoff (inches)	25.75		20.20		20.92	
10 percent exceeds	50		50		51	
50 percent exceeds	14		13		12	
90 percent exceeds	8.0		7.6		5.7	

^a From rating curve extended above 1,400 ft³/s on basis of theoretical rating.

^b Recorded before right weir was lowered 5 ft. Maximum gage height after right weir lowered, 21.61 ft, Sep 16, 1999.



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-97, 2000, 2003, 2005-08.

REMARKS.--Cooperative Network Site Descriptor: Trace Element Assessment (303d) special study site.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of the NJ Department of Environmental Protection.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 1 of 2

[QC, quality control sample. Remark codes: <, less than.]

Date	Time	Sample medium and type	Turbidity white light, det ang 90+/-30 corrctd NTRU (63676)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif- ic conduc- tance, wat un- ftrd µS/cm 25 degC (00095)	Temper- ature, air, deg C (00020)
Jan									
09...	1015	Surface water, regular	2.4	755	9.1	81	7.8	894	17.0
Mar									
27...	0930	QC - Artificial, field blank	--	--	--	--	--	--	--
27...	1000	Surface water, regular	2.1	764	10.4	90	7.8	907	10.5
Jun									
20...	1045	Surface water, regular	2.1	762	6.8	75	7.7	737	25.5

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007
TO SEPTEMBER 2008

Part 2 of 2

[QC, quality control sample.

Remark codes: <, less than.]

Date	Temper- ature, water, deg C (00010)	Mercury water, fltrd, µg/L (71890)	Mercury water, unfltrd recover- able, µg/L (71900)
Jan			
09...	10.2	<.010	<.010
Mar			
27...	--	<.010	--
27...	8.9	<.010	<.010
Jun			
20...	19.1	<.010	<.010