Water-Data Report 2012

01417500 EAST BRANCH DELAWARE RIVER AT HARVARD, NY

Upper Delaware Basin
East Branch Delaware Subbasin

LOCATION.--Lat 42°01'28.5", long 75°07'09.4" referenced to North American Datum of 1983, Delaware County, NY, Hydrologic Unit 02040102, on right bank 800 ft downstream from Baxter Brook, and 1,100 ft downstream from Harvard Road bridge at Harvard. Water-quality sampling site at discharge station.

DRAINAGE AREA.--458 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1934 to June 1967, November 1977 to current year.

REVISED RECORDS.--WDR NY-82-1: Drainage area. WDR NY-84-1: 1978-81(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,007.41 ft above NGVD of 1929. Prior to Aug. 12, 1958, water-stage recorder 1,100 ft upstream at datum 0.65 ft higher, and from Aug. 12, 1958, to June 30, 1967, water-stage recorder at site 200 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Subsequent to September 1954, entire flow from 371 mi^2 of drainage area controlled by Pepacton Reservoir (see 01416900). Part of flow diverted for New York City municipal supply. Remainder of flow (except for conservation releases and spill) impounded for release during periods of low flow in the lower Delaware River Basin, as directed by the Delaware River Master. Satellite and telephone gage-height and temperature telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge since construction of Pepacton Reservoir, 22,100 ft^3/s, June 28, 2006, gage height, 16.61 ft; minimum discharge, 7.2 ft^3/s, Oct. 13, 1954, gage height, 1.63 ft, site and datum then in use.

EXTREMES FOR PERIOD PRIOR TO REGULATION.--Maximum discharge prior to construction of Pepacton Reservoir, 31,400 ft^3/s, Sept. 22, 1938, gage height, 16.93 ft, site and datum then in use, from rating curve extended above 20,000 ft^3/s on basis of slope-area measurement at gage height 15.58 ft, datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,860 ft^3/s, Oct. 2, gage height, 6.58 ft; minimum discharge, 92 ft^3/s, Apr. 20, 21, gage height, 2.34 ft.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 01417500, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/01417500.2012.pdf

01417500 EAST BRANCH DELAWARE RIVER AT HARVARD, NY—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2,720	e820	1,360	1,020	1,010	213	179	192	235	168	167	142
2	2,790	e850	1,210	1,000	970	210	191	196	278	166	160	141
3	2,530	883	1,100	940	924	228	151	215	242	165	155	140
4	2,170	878	1,030	890	903	261	142	269	272	164	152	142
5	1,850	869	980	890	884	240	138	251	259	161	153	183
6	1,560	861	1,010	880	868	227	133	241	240	159	151	159
7	1,170	854	1,300	868	854	235	131	237	238	160	149	150
8	952	842	2,040	849	838	260	128	399	226	159	147	151
9	897	830	1,850	830	825	467	128	631	223	157	145	163
10	875	827	2,190	820	811	459	126	552	220	168	156	153
11	854	829	2,190	810	805	420	126	453	210	286	153	149
12	838	811	1,970	867	790	390	130	367	223	211	147	146
13	847	799	1,640	901	791	380	122	310	287	248	143	144
14	952	803	1,350	873	727	376	118	293	238	244	142	143
15	1,020	824	1,150	831	573	327	118	e1,380	225	229	163	146
16	940	826	1,070	830	563	310	116	e1,120	218	182	149	135
17	961	868	949	647	565	293	109	e700	212	159	146	105
18	919	848	899	869	558	277	97	e480	206	153	147	229
19	910	847	886	e814	551	264	95	e385	203	151	144	410
20	982	847	882	e736	547	257	94	e325	198	166	150	240
21	933	839	909	e690	466	242	95	e460	192	158	151	194
22	913	740	983	e691	228	235	109	686	188	152	144	176
23	896	1,370	1,160	725	220	226	297	959	184	156	142	175
24	883	1,330	1,150	788	220	215	298	992	181	163	140	155
25	868	1,220	1,110	746	217	207	304	880	185	155	138	145
26	858	1,110	1,060	741	205	197	282	640	181	163	137	140
27	884	1,040	1,060	1,100	201	185	291	457	176	157	142	135
28	893	979	1,320	1,170	205	182	240	321	172	159	186	285
29	878	1,010	1,170	1,090	207	180	210	248	174	278	157	278
30	879	1,570	1,120	1,020	---	171	192	307	171	205	149	238
31	881	---	1,070	1,040	---	178	---	268	---	177	145	---
Total	36,503	28,024	39,168	26,966	17,526	8,312	4,890	15,214	6,457	5,579	4,650	5,292
Mean	1,178	934	1,263	870	604	268	163	491	215	180	150	176
Max	2,790	1,570	2,190	1,170	1,010	467	304	1,380	287	286	186	410
Min	838	740	882	647	201	171	94	192	171	151	137	105

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	332	389	397	364	292	493	831	505	369	255	295	375
Max	1,506	1,735	2,327	1,558	1,691	2,923	2,477	1,670	2,615	767	1,263	3,073
(WY)	(2004)	(2004)	(1997)	(1978)	(2008)	(2008)	(1993)	(1984)	(2006)	(1962)	(2011)	(2011)
Min	13.7	73.1	74.5	68.6	70.7	111	163	79.0	47.7	37.5	43.6	76.5
(WY)	(1955)	(1999)	(1961)	(1963)	(1963)	(1981)	(2012)	(1955)	(1964)	(1966)	(1965)	(1965)

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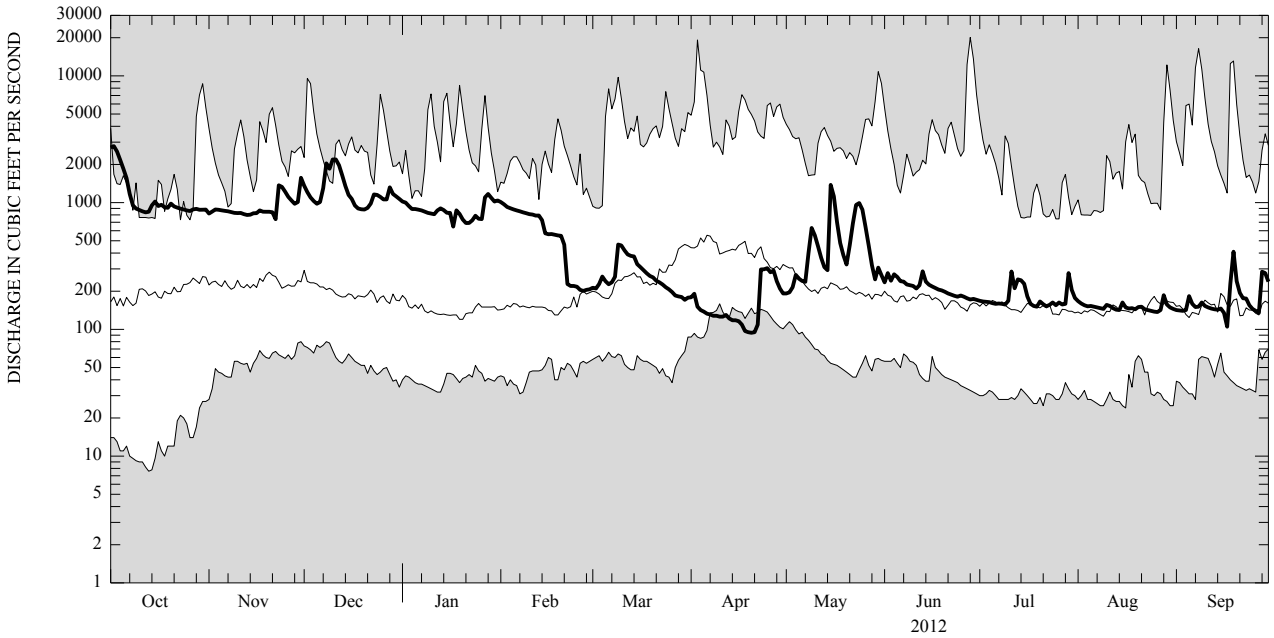
SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1955 - 2012	
Annual total	441,331		198,581			
Annual mean	1,209		543		407	
Highest annual mean					1,023	2011
Lowest annual mean					175	1999
Highest daily mean	16,400	Sep 8	2,790	Oct 2	20,100	Jun 28, 2006
Lowest daily mean	91	Feb 1	94	Apr 20	7.6	Oct 13, 1954
Annual seven-day minimum	94	Jan 28	102	Apr 16	8.6	Oct 8, 1954
10 percent exceeds	2,660		1,070		837	
50 percent exceeds	871		284		194	
90 percent exceeds	177		144		83	



CURRENT WATER YEAR DAILY MEAN DISCHARGE (BOLD) WITH DAILY MEDIAN FOR PERIOD OF RECORD.
SHADED AREAS SHOW HIGHEST AND LOWEST DAILY MEAN FOR PERIOD OF RECORD THROUGH PREVIOUS WATER YEAR.

01417500 EAST BRANCH DELAWARE RIVER AT HARVARD, NY—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1978 to current year.

INSTRUMENTATION.--Water-temperature satellite and telephone telemeter provides 15-minute-interval readings. Prior to June 1994, water-temperature recorder provided one-hour interval readings.

REMARKS.--Temperature readings prior to Oct. 1, 2007, rounded to nearest 0.5°C. Water temperature is affected by release of water from upstream reservoir. Interruption of record was due to malfunction of recording instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Prior to Oct. 1, 2007--Maximum (water years 1978, 1981-82, 1984-2007), 28.0°C, June 30, 1981; minimum (water years 1979-87, 1989-2007), 0.0°C on many days during winter periods, except 1989, 1998.
WATER TEMPERATURE: After Oct. 1, 2007--Maximum, 22.8°C, June 10, 2008, July 18, 2010, June 21, 2012; minimum, -0.2°C, Feb. 11, 29, 2008.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 22.8°C, June 21; minimum, 0.3°C, Feb. 26.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	13.0	11.4	12.4	7.1	---	---	6.5	5.5	6.1	6.4	5.8	6.1
2	14.0	12.2	13.0	7.3	---	---	6.3	5.4	6.0	6.2	4.1	5.0
3	13.3	12.0	12.8	7.3	5.5	6.4	6.2	5.2	5.8	4.1	2.4	3.1
4	12.5	11.6	12.1	7.2	5.7	6.5	6.7	5.5	6.1	3.1	2.1	2.6
5	12.9	10.6	11.9	6.4	4.5	5.5	7.4	5.7	6.6	4.1	3.0	3.6
6	11.5	9.4	10.3	6.4	4.3	5.4	8.1	7.3	7.8	4.9	3.6	4.3
7	10.6	8.2	9.3	6.9	4.6	5.9	8.0	6.2	7.4	5.1	3.7	4.5
8	10.2	7.6	8.8	8.2	6.3	7.2	6.2	5.2	5.6	4.8	3.8	4.4
9	10.1	7.4	8.6	8.0	6.4	7.2	6.2	5.2	5.7	4.4	3.2	3.9
10	10.0	7.3	8.6	7.4	6.7	7.2	6.6	5.8	6.3	4.7	3.9	4.3
11	9.6	7.4	8.6	6.7	5.4	5.9	6.5	5.6	6.0	5.0	3.7	4.4
12	8.7	7.6	8.1	6.6	5.0	5.8	6.6	5.7	6.1	5.1	4.4	4.8
13	9.2	7.6	8.4	6.7	4.9	6.0	6.4	5.3	5.9	4.9	2.9	4.1
14	9.8	8.5	9.1	6.8	5.9	6.3	6.7	5.7	6.2	3.4	2.4	2.9
15	9.3	8.0	8.4	7.7	6.8	7.3	6.9	6.5	6.6	2.4	1.6	2.0
16	8.5	7.4	8.0	7.3	6.8	7.1	6.9	5.9	6.3	3.0	1.4	2.2
17	9.4	7.3	8.2	7.1	5.5	6.3	5.9	4.8	5.6	3.3	2.8	3.0
18	8.5	6.7	7.6	5.8	4.5	5.2	4.8	3.6	4.1	3.3	2.3	2.9
19	8.5	6.9	7.7	6.2	4.5	5.4	5.8	3.6	4.6	2.6	1.6	2.1
20	10.1	8.4	9.3	7.5	5.4	6.5	6.1	5.6	5.8	2.5	1.7	2.2
21	8.4	7.5	7.8	7.5	6.0	6.7	6.5	5.6	6.0	2.4	1.4	2.0
22	7.8	7.3	7.6	6.4	5.2	5.9	7.1	6.5	6.8	3.0	1.2	2.1
23	8.8	7.0	7.8	6.8	6.0	6.4	6.7	5.0	5.9	4.0	2.8	3.3
24	8.1	6.4	7.4	6.6	5.3	6.0	5.0	3.8	4.4	4.0	3.6	3.9
25	8.2	6.6	7.4	6.9	5.6	6.2	5.2	3.6	4.4	3.6	3.0	3.3
26	7.6	6.6	7.2	6.9	5.6	6.3	5.4	4.9	5.1	3.6	3.0	3.4
27	7.4	6.0	7.0	7.0	5.7	6.4	5.6	4.3	4.8	3.6	3.1	3.4
28	7.0	5.2	6.1	8.2	6.9	7.6	5.6	3.4	4.7	4.1	2.9	3.5
29	6.3	4.7	5.5	9.6	7.5	8.4	4.0	2.6	3.3	3.4	2.1	2.8
30	6.5	4.5	5.4	9.1	6.5	7.7	5.4	4.0	4.7	3.0	2.2	2.6
31	6.8	5.0	5.9	---	---	---	6.2	5.1	5.6	4.6	2.6	3.5
Month	14.0	4.5	8.6	9.6	---	---	8.1	2.6	5.7	6.4	1.2	3.4

01417500 EAST BRANCH DELAWARE RIVER AT HARVARD, NY—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	5.0	3.5	4.2	2.6	1.6	2.1	6.6	5.7	6.1	11.3	9.4	10.4
2	4.3	3.0	3.7	3.1	2.5	2.8	9.6	5.0	6.9	10.7	9.9	10.3
3	3.9	2.3	3.2	6.0	2.4	3.8	10.2	4.7	7.5	14.5	9.5	11.6
4	4.2	3.2	3.6	4.0	2.3	3.2	11.7	7.3	9.4	16.5	11.9	13.9
5	3.8	2.3	3.0	4.2	1.0	2.3	10.9	7.0	8.7	16.6	12.5	14.1
6	4.4	2.3	3.3	3.8	0.4	2.0	10.6	5.7	8.1	16.7	11.4	13.8
7	3.6	2.8	3.2	6.3	1.6	3.8	10.7	5.8	8.2	13.5	12.0	12.8
8	3.5	2.2	3.0	7.4	3.6	5.6	11.6	6.4	9.0	12.1	10.4	11.0
9	4.2	2.3	3.2	6.3	2.6	4.6	10.1	7.2	8.6	12.1	10.3	11.1
10	3.7	1.9	3.0	3.7	1.5	2.4	8.9	6.5	7.8	10.7	9.2	10.2
11	4.1	2.7	3.4	5.9	1.4	3.4	8.6	6.7	7.6	13.3	8.2	10.4
12	2.7	1.4	1.9	6.8	3.3	5.0	10.7	7.0	8.6	15.0	8.7	11.8
13	4.0	1.7	2.8	9.1	5.6	7.1	12.2	6.4	9.3	15.7	11.1	13.4
14	3.9	2.1	3.0	9.1	5.8	7.3	12.5	7.8	10.3	13.8	12.3	13.0
15	3.8	3.1	3.5	8.5	5.1	6.8	12.1	10.9	11.6	12.3	11.4	11.8
16	3.1	2.4	2.7	8.0	6.2	6.9	16.7	10.7	13.6	14.3	11.0	12.4
17	4.5	3.0	3.6	10.8	6.2	8.2	16.5	13.2	14.8	13.6	9.7	11.5
18	3.6	2.2	3.0	11.8	6.8	9.0	13.5	11.3	12.4	14.6	9.0	11.6
19	4.9	2.7	3.6	12.0	7.6	9.7	15.4	9.4	12.4	16.0	10.0	12.9
20	4.5	2.3	3.3	13.9	9.0	11.1	17.4	11.6	14.3	17.5	11.8	14.4
21	3.3	1.4	2.6	14.0	9.4	11.5	16.2	13.6	14.7	14.2	12.7	13.5
22	5.5	3.1	4.2	14.4	9.9	11.9	13.8	9.4	11.9	15.3	12.3	13.9
23	5.6	4.0	4.6	12.3	9.7	11.1	9.4	7.7	8.4	19.0	15.1	16.8
24	4.0	2.4	2.9	11.6	9.3	10.3	8.8	6.9	7.7	18.8	16.5	17.6
25	3.0	1.2	2.3	11.1	8.5	9.7	9.5	6.2	7.8	18.8	16.8	17.7
26	3.6	0.3	1.7	10.5	6.2	8.9	7.8	6.3	7.2	19.3	16.2	17.6
27	3.5	0.9	2.3	8.4	3.6	6.0	7.5	5.5	6.7	18.3	14.5	16.5
28	4.6	2.2	3.2	9.6	4.8	7.0	10.2	4.4	7.2	18.6	15.0	16.7
29	3.0	1.8	2.2	8.7	6.5	7.5	12.0	5.8	8.8	20.3	15.0	17.3
30	---	---	---	9.9	5.0	7.4	12.5	6.5	9.6	17.5	14.8	16.1
31	---	---	---	8.2	6.2	6.9	---	---	---	17.2	13.1	15.1
Month	5.6	0.3	3.1	14.4	0.4	6.6	17.4	4.4	9.5	20.3	8.2	13.6

01417500 EAST BRANCH DELAWARE RIVER AT HARVARD, NY—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	14.7	12.9	13.9	21.5	16.3	19.0	18.2	14.7	16.4	17.9	14.3	16.2
2	14.5	12.4	13.3	21.2	15.8	18.5	20.3	15.1	17.6	18.0	13.7	15.9
3	14.9	12.1	13.4	20.9	15.3	18.3	20.8	15.8	18.4	16.4	13.6	14.4
4	13.1	11.3	12.4	22.1	16.4	19.3	21.8	16.1	19.0	14.2	12.7	13.4
5	12.7	10.4	11.6	22.3	17.3	19.8	19.9	17.8	18.6	15.4	14.0	14.6
6	14.1	10.7	12.4	22.2	16.0	19.3	19.5	16.1	17.8	17.0	13.2	15.0
7	16.0	11.7	13.8	20.2	16.9	18.3	19.5	14.7	17.0	17.5	13.9	15.6
8	17.9	12.5	15.1	19.8	15.0	17.5	20.0	14.8	17.4	16.0	13.7	15.0
9	15.2	12.8	13.8	20.9	15.1	17.8	19.7	15.3	17.5	16.5	13.1	14.7
10	17.6	11.9	14.7	19.2	14.5	17.1	17.9	15.3	16.4	15.1	12.4	13.6
11	18.1	13.9	16.2	17.1	13.3	15.1	17.5	14.4	15.9	14.7	10.9	12.8
12	16.3	14.3	14.9	18.7	13.2	15.8	19.2	14.7	17.1	15.9	11.3	13.5
13	17.3	12.9	14.9	16.4	13.5	14.9	19.1	15.3	17.3	16.7	12.3	14.4
14	19.5	13.2	16.2	17.5	12.8	15.0	17.1	14.4	15.4	16.5	12.6	14.6
15	19.0	14.0	16.6	15.8	12.9	14.1	15.7	13.9	14.8	15.0	12.6	13.8
16	20.0	14.2	17.0	18.4	12.8	15.4	18.1	13.6	15.8	14.5	11.1	12.8
17	20.4	14.4	17.2	20.8	15.2	17.9	16.5	14.4	15.4	15.1	11.3	13.3
18	17.2	14.9	15.6	22.5	16.8	19.6	17.7	13.5	15.4	15.5	13.7	14.4
19	17.8	13.7	15.5	20.3	17.2	19.0	16.7	13.2	15.0	15.8	13.3	14.3
20	21.5	15.0	18.1	18.9	14.8	16.3	15.8	13.2	14.6	15.7	12.3	13.8
21	22.8	16.6	19.7	19.1	13.0	16.0	17.4	12.9	15.0	14.4	12.7	13.5
22	20.8	17.2	18.9	19.9	15.3	17.6	17.8	13.6	15.7	14.6	12.3	13.4
23	20.6	15.0	17.7	19.0	15.7	17.5	18.5	14.2	16.3	14.4	12.3	13.3
24	19.8	15.3	17.7	19.1	15.3	17.0	18.1	14.1	16.2	13.6	10.9	12.2
25	18.9	15.3	16.9	20.6	14.2	17.5	17.9	14.2	16.0	13.8	9.9	11.9
26	15.9	13.4	14.4	20.0	16.1	18.2	18.6	14.4	16.5	12.9	11.9	12.3
27	18.4	11.8	15.1	19.3	16.0	17.7	17.3	14.6	16.0	15.3	11.8	13.4
28	20.8	14.1	17.5	17.8	15.2	16.4	18.5	15.0	16.5	13.8	12.0	12.8
29	22.2	15.8	19.0	17.6	13.8	15.7	18.7	14.1	16.3	13.2	12.0	12.5
30	21.9	16.2	19.2	21.2	16.0	18.3	17.5	13.6	15.6	13.3	11.3	12.1
31	---	---	---	18.9	16.6	17.4	18.0	13.5	15.8	---	---	---
Month	22.8	10.4	15.8	22.5	12.8	17.3	21.8	12.9	16.4	18.0	9.9	13.8