01426500 WEST BRANCH DELAWARE RIVER AT HALE EDDY, NY

Upper Delaware Basin
Upper Delaware Subbasin

LOCATION.--Lat 42°00′11″, long 75°23′02″ referenced to North American Datum of 1927, Delaware County, NY, Hydrologic Unit 02040101, on left bank at downstream side of bridge on County Highway 56 in Hale Eddy, and 9 mi upstream from confluence of East and West Branches near Hancock. Water-quality sampling site at discharge station.

DRAINAGE AREA.--595 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--November 1912 to current year.

REVISED RECORDS.--WSP 871: 1916. WDR NY-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 946.46 ft above NGVD of 1929. Prior to Sept. 8, 1928, nonrecording gage.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Subsequent to October 1963, entire flow from 454 mi^2 drainage area controlled by Cannonsville Reservoir (see 01424997). 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 prior to construction of Cannonsville Reservoir, 28,900 ft^3/s, Mar. 22, 1948, gage height, 15.69 ft; maximum gage height, 15.8 ft, Sept. 30, 1924, from graph based on gage readings; maximum discharge since construction of Cannonsville Reservoir, 43,400 ft^3/s, June 28, 2006, gage height, 19.10 ft; minimum discharge, 17 ft^3/s, Oct. 20, 1963; minimum gage height, 1.03 ft, Aug. 4, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 10, 1903, reached a stage of 20.3 ft, from floodmarks, discharge, about 46,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,150 ft^3/s, Jan. 25, gage height, 9.46 ft; minimum discharge, 178 ft^3/s, Sept. 28, gage height, 1.84 ft.

01426500 WEST BRANCH DELAWARE RIVER AT HALE EDDY, NY—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	428	2,160	582	566	e1,710	1,660	4,830	768	400	386	898	513
2	406	2,240	483	545	e1,170	1,660	4,220	719	420	761	940	597
3	408	2,180	572	502	e748	1,670	3,610	664	408	612	1,050	1,040
4	404	2,110	517	514	e654	1,670	3,100	609	402	431	1,050	1,140
5	402	2,070	532	509	e629	1,670	2,680	541	403	420	996	1,110
6	399	2,050	635	501	e617	1,660	2,380	481	474	541	1,040	813
7	407	2,010	609	510	e606	1,680	2,130	402	444	560	1,120	764
8	682	1,980	592	727	e600	1,740	1,940	564	416	578	1,210	788
9	421	1,940	623	1,010	e597	1,830	1,890	501	459	604	1,260	855
10	402	1,820	635	1,320	e597	1,910	1,790	465	524	508	1,260	1,090
11	619	1,410	575	1,600	e594	2,230	1,660	427	449	425	1,360	1,240
12	511	1,160	557	1,640	e586	2,810	1,260	589	450	403	1,360	1,050
13	604	842	585	1,630	584	3,190	1,090	551	516	400	1,170	1,040
14	655	582	831	1,620	583	3,330	1,040	552	461	445	1,410	1,030
15	489	540	821	1,620	580	2,900	907	552	454	405	1,290	792
16	400	531	837	1,600	579	2,520	824	521	524	564	1,250	637
17	388	524	747	1,490	573	2,130	841	484	573	616	1,180	801
18	384	519	732	1,440	572	1,810	536	470	532	586	1,010	1,030
19	502	517	1,050	803	570	1,570	418	484	524	575	998	862
20	491	1,160	1,230	671	566	1,310	338	447	515	528	1,030	857
21	552	848	1,560	616	563	1,090	360	428	506	544	1,120	850
22	676	770	1,830	677	562	932	347	415	504	536	1,090	1,080
23	413	714	1,810	1,220	564	1,850	330	376	504	507	1,140	1,110
24	2,150	675	1,790	1,690	578	2,580	319	355	497	561	766	1,100
25	1,630	655	1,760	5,080	891	3,900	387	348	493	497	598	1,360
26	949	646	1,820	3,620	1,330	4,190	496	342	489	461	569	1,020
27	759	628	2,080	e2,520	1,660	3,780	762	344	487	440	501	262
28	2,280	645	1,870	e2,190	1,670	3,300	641	341	488	429	480	186
29	2,020	619	1,130	e1,980	---	3,150	712	329	488	435	454	199
30	1,480	613	608	e1,900	---	3,340	751	323	460	629	444	1,520
31	1,740	---	577	e1,820	---	4,900	---	319	---	824	429	---
Total	24,051	35,158	30,580	44,131	21,533	73,962	42,589	14,711	14,264	16,211	30,473	26,736
Mean	776	1,172	986	1,424	769	2,386	1,420	475	475	523	983	891
Max	2,280	2,240	2,080	5,080	1,710	4,900	4,830	768	573	824	1,410	1,520
Min	384	517	483	501	562	932	319	319	400	386	429	186

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	697	622	727	728	728	1,386	1,743	923	734	679	711	695
Max	2,123	2,484	3,164	2,494	3,107	3,987	5,167	2,322	3,734	1,456	2,042	2,569
(WY)	(1976)	(2007)	(1997)	(1978)	(1976)	(2008)	(1993)	(1996)	(2006)	(1971)	(2009)	(2004)
Min	33.2	41.8	172	127	94.2	158	194	122	132	76.2	107	45.4
(WY)	(1964)	(1965)	(1982)	(1970)	(1989)	(1981)	(1985)	(1985)	(1965)	(1965)	(1985)	(1964)

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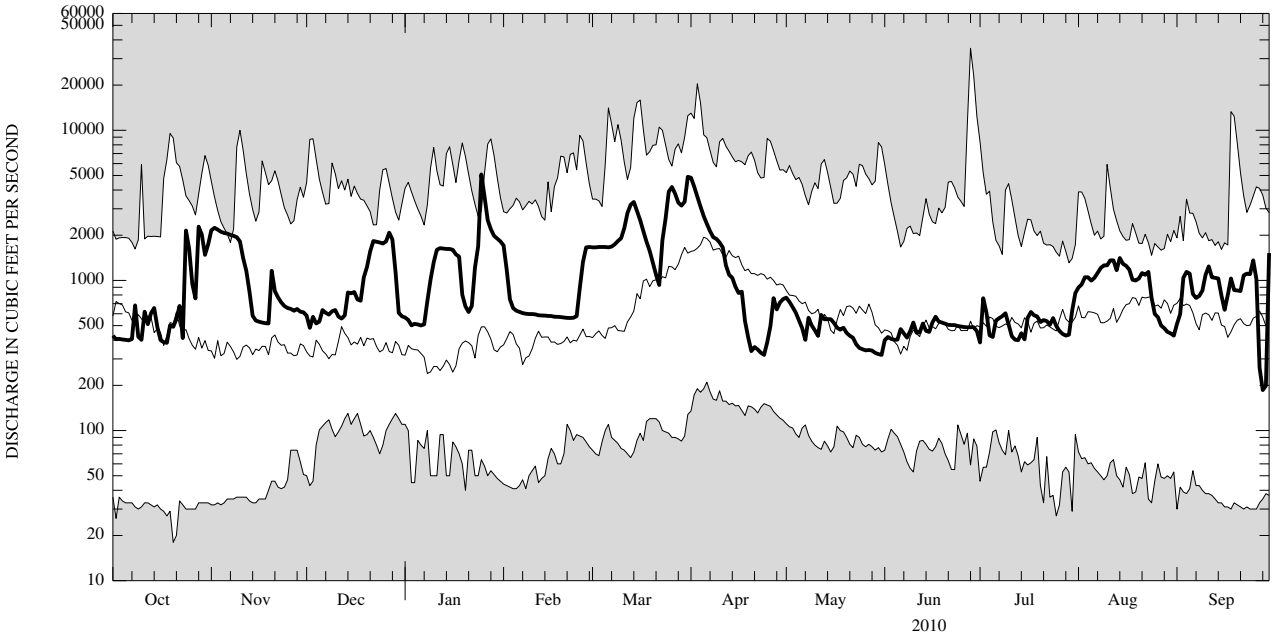
SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1964 - 2010	
Annual total	412,161		374,399			
Annual mean	1,129		1,026		864	
Highest annual mean					1,411	1978
Lowest annual mean					204	1965
Highest daily mean	5,920	Aug 10	5,080	Jan 25	35,200	Jun 28, 2006
Lowest daily mean	157	Apr 30	186	Sep 28	18	Oct 20, 1963
Annual seven-day minimum	181	Apr 25	335	May 25	26	Oct 15, 1963
10 percent exceeds	2,060		2,010		1,900	
50 percent exceeds	759		645		515	
90 percent exceeds	349		408		135	



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.

01426500 WEST BRANCH DELAWARE RIVER AT HALE EDDY, NY—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958-59, 1968 to current year.
CHEMICAL DATA: 1958-59 (d), 1970 (b), 1971-74 (d), 1975 (c).
MINOR ELEMENTS DATA: 1971-74 (a).
ORGANIC DATA: OC--1974 (a), 1975 (c).
NUTRIENT DATA: 1971-74 (d), 1975 (c).
BIOLOGICAL DATA: Bacteria--1971, 1973 (c); 1974 (d); 1975 (c).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1967 to current year (no winter record for water years 1969-77).

INSTRUMENTATION.--Water-temperature satellite and telephone telemeter provides 15-minute-interval readings. From October 1976 to April 1993, water-temperature recorder provided one-hour-interval readings. Prior to October 1976, water-temperature recorder provided continuous readings.

REMARKS.--Temperature readings prior to Oct. 1, 2007, rounded to the nearest 0.5°C. Water temperature is affected by release of water from upstream reservoir.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Prior to Oct. 1, 2007--Maximum (water years 1968-77, 1979-83, 1985, 1988-96, 1998-2007), 30.5°C, July 22, 23, 1972, June 16, 1981; minimum (water years 1968, 1978-2007), 0.0°C on many days during winter periods.
WATER TEMPERATURE: After Oct. 1, 2007--Maximum, 20.2°C, Sept. 8, 15, 2008; minimum, 0.0°C, Dec. 2, 2007, Nov. 23, 2008.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 19.4°C, May 26, Sept. 29; minimum, 0.1°C, Feb. 7.

01426500 WEST BRANCH DELAWARE RIVER AT HALE EDDY, NY—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	12.6	11.2	11.9	12.1	10.9	11.4	8.0	6.8	7.3	4.1	3.1	3.5
2	12.2	11.0	11.6	12.2	10.4	11.0	8.0	6.2	7.1	3.3	0.9	2.2
3	15.9	12.2	14.0	11.5	10.4	10.8	9.3	8.0	8.8	1.3	0.4	0.9
4	14.9	11.9	13.4	11.3	10.2	10.7	8.3	6.8	7.5	2.5	1.2	1.9
5	13.7	11.7	12.7	11.4	10.4	10.8	6.8	5.9	6.2	2.8	1.7	2.2
6	15.5	11.2	13.3	10.6	9.9	10.3	7.2	5.6	6.3	2.8	1.9	2.3
7	13.9	11.7	12.9	11.6	9.7	10.5	6.5	5.1	5.8	2.7	2.0	2.4
8	14.8	11.0	12.9	12.2	10.2	10.9	7.1	6.1	6.5	3.3	2.0	2.7
9	13.5	12.5	13.0	12.0	9.9	10.8	6.5	3.8	5.3	3.2	1.7	2.3
10	14.2	11.7	13.3	11.3	10.5	10.8	6.4	4.0	5.6	3.2	1.7	2.2
11	14.3	10.8	12.4	11.3	9.5	10.3	4.7	3.1	3.9	3.5	1.8	2.6
12	12.5	10.5	11.6	10.4	8.8	9.6	5.9	4.1	4.8	3.1	2.5	2.8
13	13.0	11.6	12.2	10.7	8.0	9.3	5.3	3.7	4.5	3.8	2.4	2.9
14	13.2	11.1	12.1	10.7	9.0	9.8	5.7	4.6	5.2	4.2	2.5	3.1
15	11.8	11.0	11.4	11.6	9.9	10.6	6.1	5.0	5.7	3.5	2.6	3.1
16	11.8	10.3	11.2	10.6	8.9	9.8	5.0	3.3	4.0	4.5	2.8	3.5
17	12.2	10.7	11.4	10.5	8.1	9.1	3.3	2.2	2.9	3.5	2.7	3.0
18	13.4	10.6	11.8	9.6	6.9	8.3	4.5	2.0	3.1	3.2	2.1	2.8
19	14.1	9.6	11.7	10.5	7.6	9.0	4.6	3.6	4.1	3.3	2.6	2.9
20	13.3	10.8	12.1	10.4	8.5	9.5	4.9	4.0	4.3	3.2	2.5	2.8
21	14.4	12.3	13.1	8.7	7.9	8.4	5.4	4.3	4.9	4.0	1.8	2.7
22	15.1	11.9	13.3	9.3	8.0	8.8	5.6	4.5	4.8	3.5	1.2	2.2
23	13.2	10.8	12.2	8.9	7.7	8.3	5.0	4.3	4.6	4.4	1.9	2.7
24	12.5	10.5	11.4	10.1	8.6	9.2	5.5	4.5	4.9	3.5	2.5	3.0
25	12.2	10.3	11.2	9.5	8.9	9.2	5.4	4.5	4.9	4.1	2.5	3.3
26	11.9	9.1	10.4	10.2	8.9	9.5	5.7	5.0	5.2	3.1	2.4	2.7
27	11.3	9.4	10.4	9.4	7.7	8.5	5.8	4.6	5.2	3.4	2.3	2.7
28	11.3	11.1	11.2	7.8	7.3	7.6	5.0	4.3	4.7	3.3	1.7	2.5
29	11.6	10.9	11.2	9.1	6.9	8.0	4.3	2.3	2.9	3.2	1.7	2.1
30	11.6	11.2	11.4	8.7	7.5	8.4	3.6	2.1	2.8	2.9	1.7	2.1
31	12.6	11.2	11.9	---	---	---	3.3	2.3	2.9	3.8	1.8	2.5
Month	15.9	9.1	12.1	12.2	6.9	9.6	9.3	2.0	5.1	4.5	0.4	2.6

01426500 WEST BRANCH DELAWARE RIVER AT HALE EDDY, NY—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	3.7	2.2	2.7	4.3	2.9	3.5	6.1	3.8	4.7	14.1	8.1	11.1
2	3.1	1.9	2.4	5.0	3.2	3.8	6.8	4.0	5.1	14.1	8.8	11.5
3	3.0	2.1	2.4	4.0	3.1	3.5	7.9	4.4	6.0	12.8	9.6	11.1
4	3.8	1.0	2.3	4.9	2.8	3.5	8.0	4.8	6.0	13.1	8.3	10.6
5	3.1	0.9	2.0	5.1	2.6	3.5	7.1	4.8	5.7	15.2	7.9	11.4
6	3.2	0.9	2.2	5.7	2.3	3.5	7.5	4.4	5.7	14.8	9.4	11.9
7	2.7	0.1	1.3	5.8	2.5	3.7	8.2	5.1	6.3	14.1	7.9	11.3
8	3.2	1.1	2.0	5.9	2.5	3.7	9.1	4.9	6.6	14.4	10.1	12.1
9	4.0	1.7	2.7	5.9	2.7	3.8	6.4	4.7	5.7	10.1	6.3	7.8
10	2.9	2.1	2.5	5.3	2.6	3.6	7.7	4.2	5.4	12.2	5.1	8.4
11	3.9	1.3	2.3	5.8	3.0	3.9	8.5	4.4	6.0	9.4	6.4	8.2
12	3.7	1.5	2.5	3.7	3.0	3.2	9.3	4.6	6.4	8.2	6.9	7.4
13	2.9	1.1	2.0	3.8	3.0	3.4	7.8	4.9	6.1	12.5	6.8	9.7
14	2.6	1.7	2.1	3.9	3.0	3.4	9.8	4.3	6.5	15.7	9.8	12.4
15	4.4	2.1	3.0	4.1	3.4	3.7	8.8	4.4	6.3	15.0	9.9	12.4
16	3.2	2.3	2.8	6.1	3.0	4.2	9.5	5.2	7.2	14.9	9.6	12.0
17	3.8	2.0	2.8	6.4	2.8	4.3	7.7	5.5	6.7	14.8	9.2	12.2
18	3.1	2.3	2.7	6.7	3.0	4.5	7.6	5.2	6.1	12.6	9.8	10.7
19	3.1	2.2	2.6	7.2	3.1	4.8	9.9	4.8	7.3	11.8	9.4	10.5
20	3.7	2.4	3.0	7.4	3.3	5.1	12.7	6.1	9.5	17.8	10.0	13.7
21	5.4	2.1	3.5	8.1	4.1	5.8	11.5	7.2	9.5	17.4	11.5	14.4
22	4.2	1.5	2.9	6.2	4.5	5.4	13.5	7.6	10.3	15.8	10.8	13.5
23	3.8	2.6	3.2	7.5	5.9	6.8	13.2	6.7	10.0	15.9	11.7	13.5
24	4.4	2.7	3.5	6.3	3.8	5.0	13.1	6.8	10.2	17.0	11.0	14.0
25	3.6	1.6	2.7	4.4	3.3	3.9	11.1	8.5	9.2	18.2	12.1	15.3
26	4.5	1.5	3.0	5.0	3.2	4.0	8.7	7.9	8.4	19.4	12.2	15.8
27	4.2	3.1	3.5	4.9	2.8	3.7	10.6	7.5	8.9	18.0	12.4	15.6
28	4.7	3.0	3.6	3.9	3.1	3.6	8.5	5.9	7.1	16.6	12.1	14.4
29	---	---	---	4.6	3.8	4.2	12.0	5.1	8.4	14.8	12.0	13.4
30	---	---	---	4.0	3.8	3.8	13.5	6.7	9.9	17.2	10.9	14.2
31	---	---	---	4.4	3.8	4.0	---	---	---	17.7	11.8	15.0
Month	5.4	0.1	2.6	8.1	2.3	4.1	13.5	3.8	7.2	19.4	5.1	12.1

01426500 WEST BRANCH DELAWARE RIVER AT HALE EDDY, NY—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	16.2	12.4	14.4	14.6	8.6	11.6	11.8	8.0	9.8	17.0	12.1	14.8
2	16.5	9.9	13.2	13.1	7.5	10.3	13.7	8.3	10.4	17.1	11.4	14.0
3	14.7	10.7	12.7	15.8	7.4	11.2	12.4	8.6	10.2	14.4	10.8	12.4
4	15.4	10.0	12.8	17.5	8.2	12.7	13.0	8.7	10.3	13.2	10.6	11.5
5	15.2	10.4	12.9	17.5	9.3	13.6	13.0	8.8	10.4	13.3	10.2	11.4
6	15.3	10.5	13.0	16.1	9.5	12.9	13.8	8.7	10.5	15.1	10.2	12.3
7	14.3	9.6	12.0	16.5	8.8	12.4	13.5	8.1	10.2	16.5	10.8	13.2
8	14.1	8.3	11.3	16.2	8.5	12.2	13.4	8.1	10.2	14.1	11.3	12.4
9	11.3	8.3	8.9	14.3	9.9	11.9	12.9	8.5	10.2	12.0	11.0	11.5
10	13.7	9.0	11.3	16.2	10.1	12.7	12.4	8.9	10.2	13.4	11.2	12.0
11	15.2	9.1	12.1	17.8	10.9	14.3	12.8	8.9	10.3	14.9	10.9	12.4
12	14.5	9.5	12.1	16.1	10.7	13.7	10.3	8.8	9.4	12.0	11.3	11.7
13	13.7	11.7	12.7	14.6	11.2	13.0	12.0	8.9	10.2	14.4	11.7	12.8
14	13.0	10.5	11.9	14.5	10.0	12.3	12.3	8.8	10.3	15.2	11.5	12.9
15	16.6	9.8	13.0	16.2	10.1	13.2	10.2	9.2	9.7	13.9	11.3	12.2
16	13.3	8.8	10.1	14.5	9.8	12.4	12.7	9.4	10.7	13.6	10.9	12.3
17	11.0	9.7	10.3	15.6	9.0	11.9	13.9	9.3	11.0	13.3	12.1	12.7
18	16.1	8.5	12.0	16.5	9.0	12.4	12.8	9.5	10.8	15.9	11.9	13.4
19	16.6	9.2	12.9	15.3	8.8	11.8	13.3	9.3	11.0	15.0	12.2	13.4
20	15.6	9.7	12.7	13.6	9.5	11.5	14.6	9.7	11.6	15.9	11.7	13.5
21	16.6	9.0	12.7	13.9	9.0	11.3	12.4	9.3	10.6	16.1	11.5	13.6
22	12.5	9.1	10.4	16.7	10.6	13.5	12.8	10.2	11.4	16.4	12.5	14.2
23	16.2	9.4	12.4	13.7	10.3	11.8	15.6	11.4	13.2	16.3	13.7	14.7
24	15.3	9.7	12.4	18.9	12.3	15.3	15.9	13.6	14.7	18.1	14.0	15.6
25	16.2	9.2	12.6	15.9	12.9	14.1	14.3	12.9	13.5	18.0	14.3	15.9
26	12.2	9.0	10.6	17.5	10.8	14.0	16.2	12.7	14.3	17.0	14.0	15.3
27	15.2	8.6	11.6	17.5	10.8	14.2	16.7	11.4	13.9	15.5	14.2	14.9
28	13.2	10.2	11.6	17.6	11.2	14.4	17.4	11.2	14.3	19.3	15.5	17.2
29	15.8	9.2	12.3	17.3	12.2	14.8	18.0	11.8	14.9	19.4	15.9	17.5
30	14.5	7.8	11.4	14.2	9.1	11.6	18.2	11.9	15.1	17.0	15.5	16.3
31	---	---	---	13.6	8.1	10.6	18.4	12.5	15.5	---	---	---
Month	16.6	7.8	12.0	18.9	7.4	12.7	18.4	8.0	11.6	19.4	10.2	13.6

	Max	Min	Mean
Year	19.4	0.1	8.8