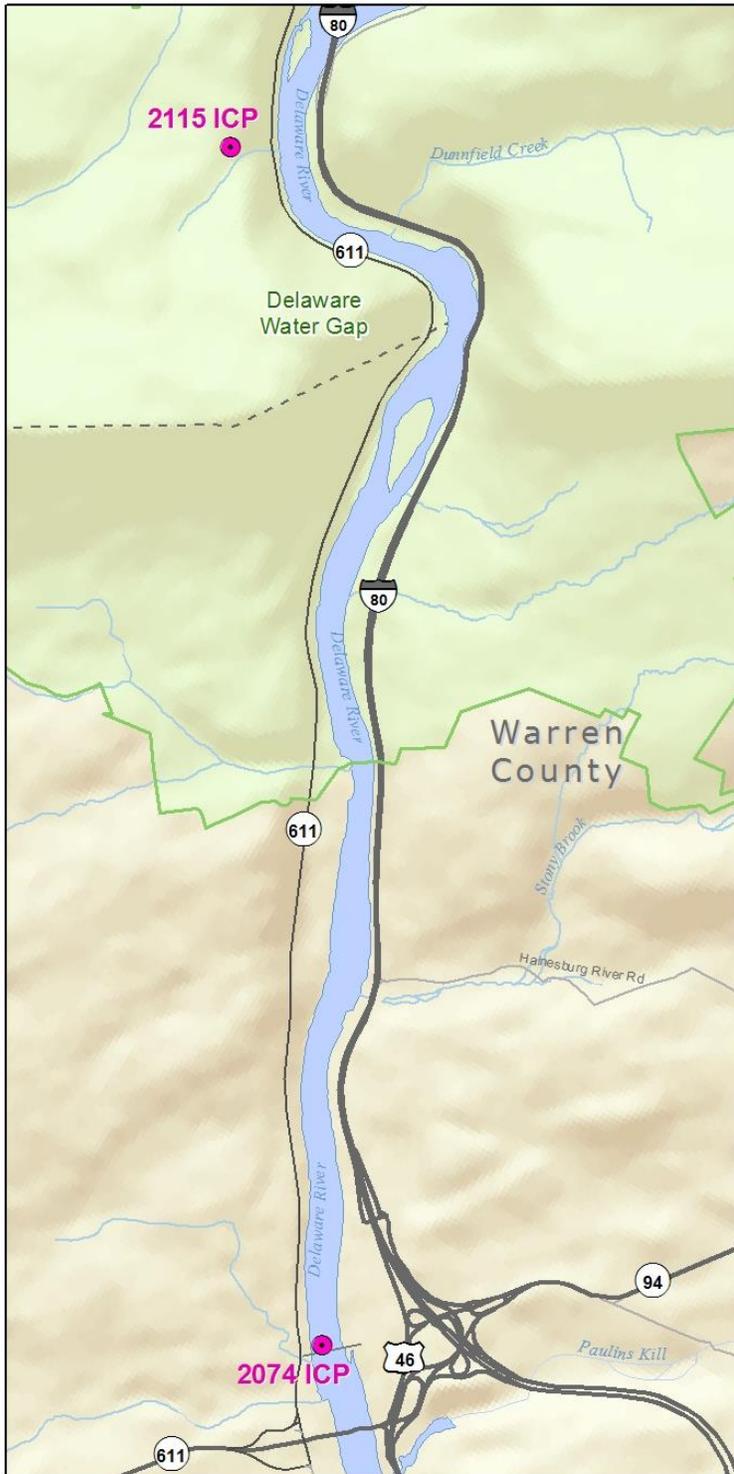
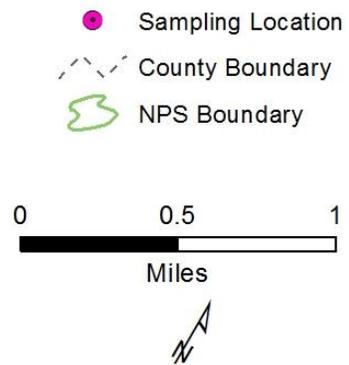


Lower Delaware Scenic and Recreational River: Significant Resource Waters

2074 ICP Delaware River at Portland Footbridge



2074 ICP
Delaware River at Portland Foot Bridge



2074 ICP Delaware River at Portland Footbridge

Warren County, NJ – Northampton County, PA; Latitude 40.92417 Longitude -75.09611 by GPS NAD83 decimal degrees.

USGS/NJDEP site no 01443000.

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 4,165 square miles, Delaware River Zone 1D

Site Specific EWQ defined 2000-2004 by the DRBC/NPS Scenic Rivers Monitoring Program.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center off I-80

Nearest downstream Interstate Control Point: 1978 ICP Delaware River at Belvidere Bridge

Known dischargers within watershed: Undefined

Tributaries to upstream reach: Major tributaries 2114 BCP Dunnfield Creek, NJ, 2095 BCP Slateford Creek, PA; minor tributaries 208.8 Stony Brook, NJ, 207.5 Jacoby Creek, PA.

No Stream Stats web site data available (drainage area too large to calculate on web site).

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
193,785	15,705	9,111	6,254	4,904	3,903	2,737	2,021	1,039

Existing Water Quality: 2074 ICP Delaware River at Portland Footbridge

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	12	11	13	$Y = -0.00019515 Q + 13.325$
Chlorophyll a (mg/m ³)	2.13	1.30	2.70	
Dissolved Oxygen (mg/L) mid-day*	8.70	8.38	9.06	
Dissolved Oxygen Saturation (%)	97%	95%	99%	
E. coli (colonies/100 ml)	16	8	25	$Y = \text{antilog}(0.00007074 Q + 0.6659)$
Enterococcus (colonies/100 ml)	20	12	60	
Fecal coliform (colonies/100 ml) *	20	12	36	$Y = \text{antilog}(0.00006854 Q + 0.955)$
Nitrate NO3-N (mg/L) *	0.68	0.48	0.74	
Orthophosphate (mg/L)	0.01	<0.01	0.01	
pH *	7.40	7.29	7.58	
Specific Conductance (uS/cm)	97	88	104	$Y = -0.00151181 Q + 106.6$
Total Dissolved Solids (mg/L)	83	74	91	
Total Kjeldahl Nitrogen (mg/L)	0.29	0.19	0.40	
Total Nitrogen (mg/L) *	0.86	0.74	1.05	
Total Phosphorus (mg/L) *	0.04	0.03	0.05	
Total Suspended Solids (mg/L) *	3.0	2.0	4.0	$Y = 0.00122363 Q - 2.8618$
Turbidity (NTU)	1.6	1.1	2.8	$Y = \text{antilog}(0.00005157 Q - 0.1356)$
Alkalinity (mg/L)	20	16	22	$Y = -0.00046984 Q + 23.547$
Hardness (mg/L)	30	28	31	

EWQ values represent data collected twice per month from May through September 2000-2004. Table from DRBC Water Quality Regulations.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

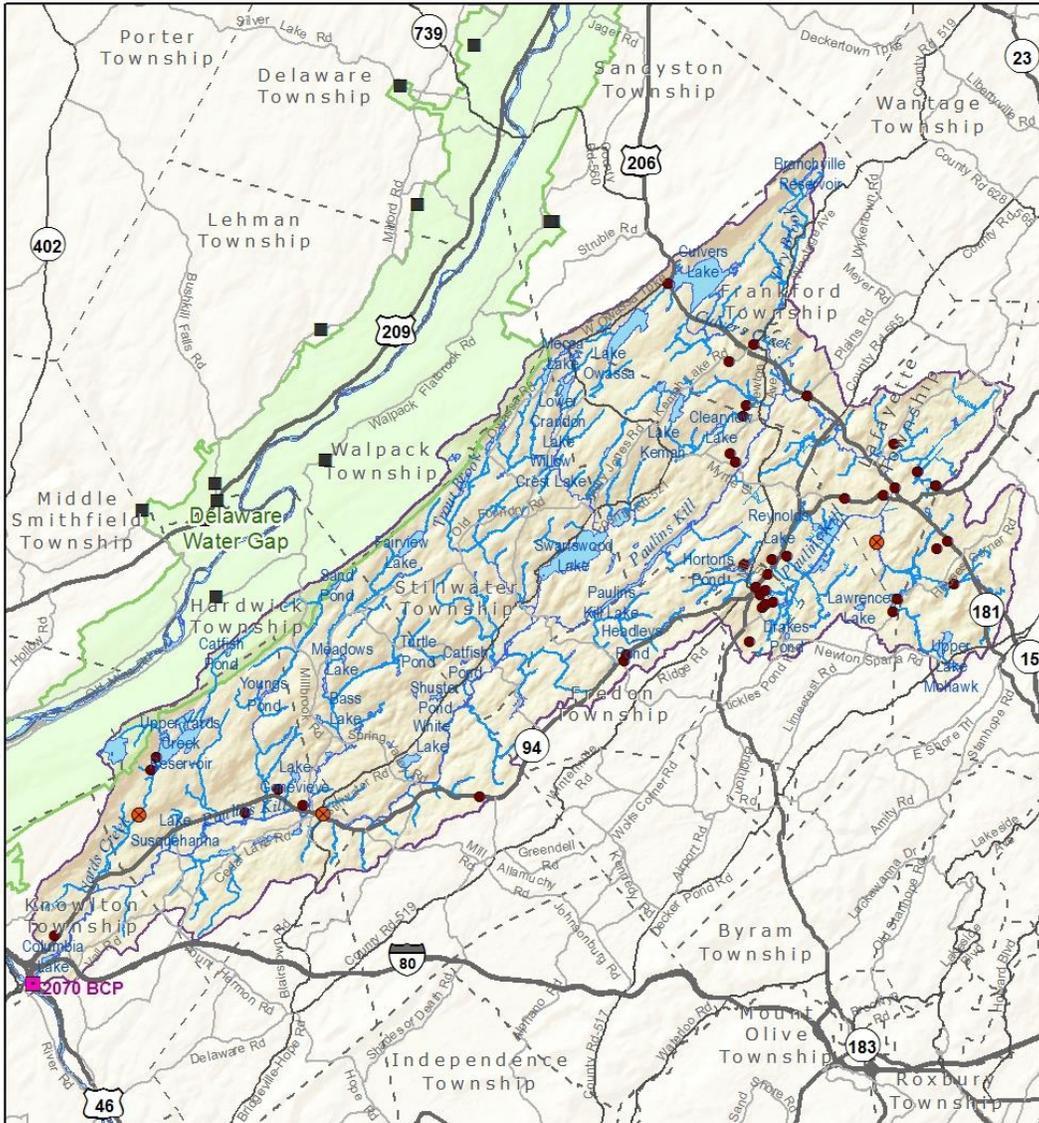
Implementation guidance should be consulted for discharge evaluations.

** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Corrections 2016:

Orthophosphate lower 95% CL should be <0.01 mg/L. Listed in rule as 0.005 mg/L.

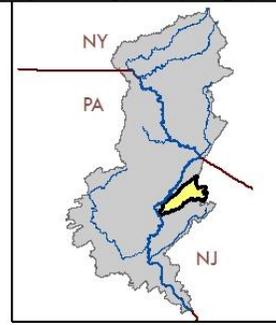
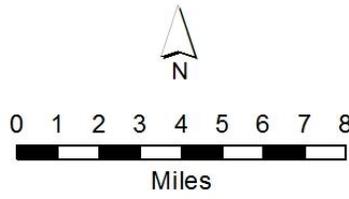
2070 BCP Paulins Kill at Rt. 46, NJ



Paulins Kill

Drainage Area = 177.07 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Stream Gage
- Drainage Area
- NPS Boundary



2070 BCP Paulins Kill at Rt. 46, NJ

Warren County, NJ. Latitude 40.92083 Longitude -75.08833 by GPS NAD83 decimal degrees.

USGS/NJDEP site 01444100

Watershed Population: 2000 = 37,762 Population 2010 = 39,226 Change: +1,464 (+3.9%)

Drainage Area: 177 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2000-2004 by the DRBC/NPS Scenic Rivers Monitoring Program.

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 2074 ICP Delaware River at Portland Foot Bridge

Nearest downstream Interstate Control Point: 1978 ICP Delaware River at Belvidere

Known dischargers within watershed: Many, as yet undefined.

Watershed is 62% forested; urban land cover is 5.9%. Watershed was 100% glaciated, and 29% underlain by carbonate bedrock. Mean annual precipitation 45.6 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics Associated with Water Quality Samples (USGS BaSE Model). Due to hydropower generation and peaking, these statistics are best estimates of flow percentiles. Flows associated with water quality sampling were obtained using a benchmark gage height and a stream discharge curve generated for this project:

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
13,145	580	335	246	200	160	103	54.5	12.02

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	66.1
M30D2Y (ft ³ /s)	77.2
M7D10Y (ft ³ /s)	42.4
M30D10Y (ft ³ /s)	49.2
M90D10Y (ft ³ /s)	59.0

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	295
QAH (ft ³ /s)	164
BF10YR (ft ³ /s)	149
BF25YR (ft ³ /s)	133
BF50YR (ft ³ /s)	124

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	4,590
PK5 (ft ³ /s)	7,500
PK10 (ft ³ /s)	9,880
PK50 (ft ³ /s)	16,300
PK100 (ft ³ /s)	19,600
PK500 (ft ³ /s)	28,800

Existing Water Quality: 2070 BCP Paulins Kill at Rt. 46, NJ

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	0.06	0.05	0.08	
Chloride (mg/L)	41.9	36	48	$Y = -17.4858 (\log Q) + 79.5946$
Chlorophyll a (mg/m ³)	3.3	2.7	5.3	
Dissolved Oxygen (mg/L) mid-day *	7.95	7.31	8.39	
Dissolved Oxygen Saturation (%)	88%	83%	91%	
E. coli (colonies/100 ml)	75	40	140	$Y = \text{antilog} (0.7993 (\log Q) + 0.157)$
Enterococcus (colonies/100 ml)	120 **	84 **	180 **	
Fecal coliform (colonies/100 ml) *	110	84	190	$Y = \text{antilog} (0.967 (\log Q) - 0.0255)$
Nitrate NO3-N (mg/L) *	0.75	0.70	0.86	
Orthophosphate (mg/L)	0.02	0.01	0.02	
pH *	7.79	7.70	7.87	
Specific Conductance (µS/cm)	416	380	453	$Y = -141.2449 (\log Q) + 715.5098$
Total Dissolved Solids (mg/L)	280	250	300	$Y = -75.186 (\log Q) + 426.1389$
Total Kjeldahl Nitrogen (mg/L)	0.39	0.29	0.53	
Total Nitrogen (mg/L) *	1.13	0.99	1.28	
Total Phosphorus (mg/L) *	0.05	0.05	0.06	
Total Suspended Solids (mg/L) *	7.0	5.0	8.0	
Turbidity (NTU)	4.0	3.0	4.8	$Y = \text{antilog} (0.4057 (\log Q) - 0.269)$
Alkalinity (mg/L)	125	110	140	$Y = -49.5 (\log Q) + 229.2$
Hardness (mg/L)	158	140	176	$Y = -56.8657 (\log Q) + 280.7477$

Two-tailed 95% (Lower and Upper) confidence limits were used for these EWQ targets

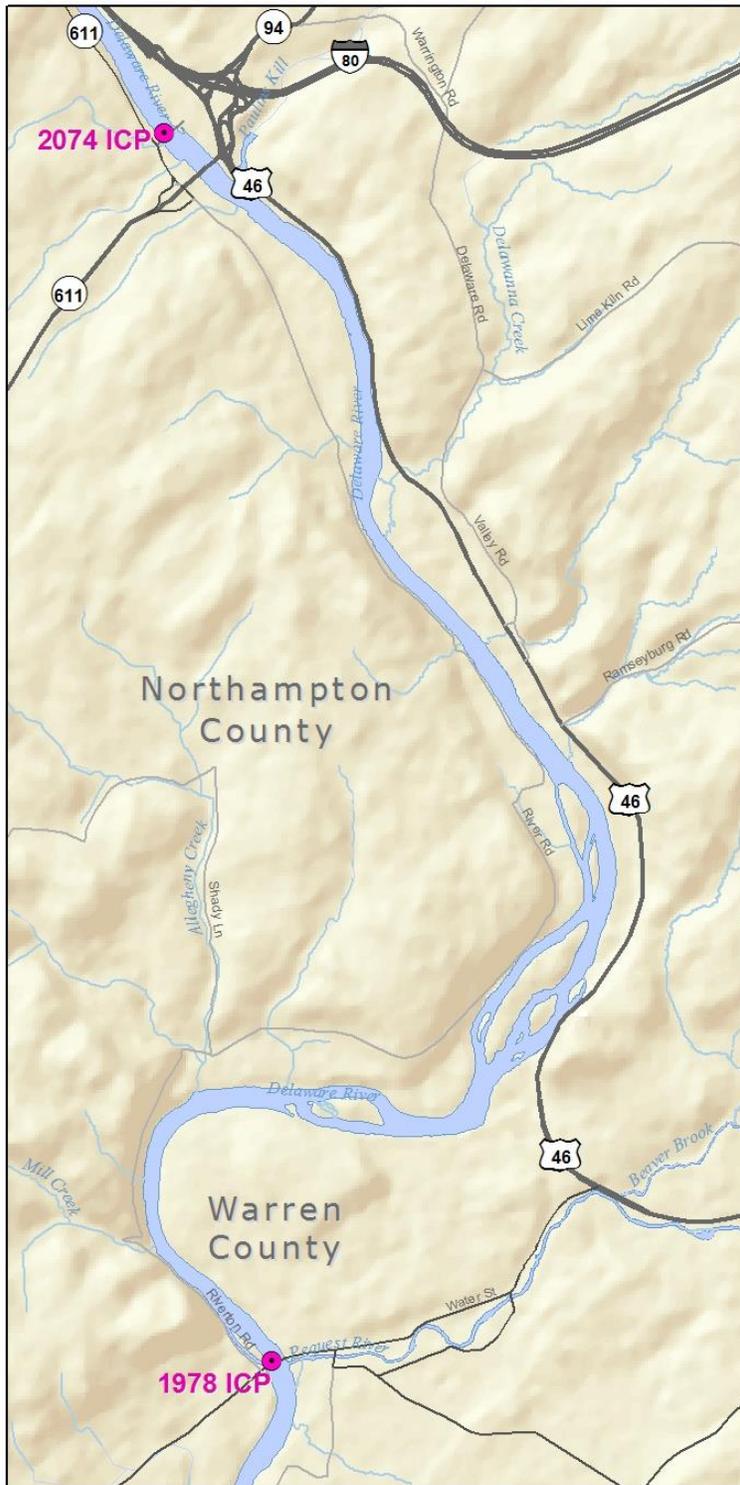
Note: All data are May to September season. Additional data are available for the October to April “non-seasonal” period, but data are insufficient in number for establishment of site-specific existing water quality targets.

EWQ established 2000-2004 by DRBC

Corrections 2016:

Ammonia lower 95% CL should be 0.05 mg/L. Listed in rule as 0.04 mg/L.

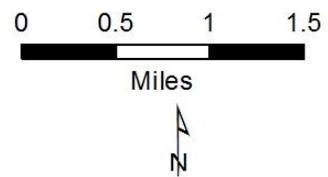
1978 ICP Delaware River at Belvidere, NJ/PA



1978 ICP
Delaware River at Belvidere Bridge



- Sampling Location
- County Boundary



1978 ICP Delaware River at Belvidere, NJ/PA

Warren County, NJ / Northampton County, PA; Latitude 40.82889 Longitude -75.085 by GPS NAD83 decimal degrees.

USGS site 01444800, PADEP site WQN0194

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 4,535 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2000-2004 by DRBC.

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 2074 ICP Delaware River at Portland Foot Bridge

Nearest downstream Interstate Control Point: 1891 ICP Delaware River at Sandts Eddy Access

Known dischargers to upstream reach: undefined.

Tributaries to Upstream Reach: Major tributary 2070 BCP Paulins Kill; Minor tributaries 205.2 Delawanna Creek, NJ;

199.6 Allegheny Creek, PA; 198.7 Mill Creek, PA.

No Stream Stats web site data available (drainage area too large to calculate on web site).

Flow Statistics Associated with Water Quality Samples (USGS Gage 01444800 1975-2014):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
211,000	17,100	9,920	6,810	5,340	4,250	2,980	2,200	1,130

Existing Water Quality: 1978 ICP Delaware River at Belvidere, NJ/PA

Delaware River at Belvidere-Riverton Bridge, NJ/PA, River Mile 197.84

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	14	12	15	Y = -0.00020113 Q + 14.872
Chlorophyll a (mg/m ³)	1.9	1.3	2.7	
Dissolved Oxygen (mg/L) mid-day*	8.52	8.00	8.95	
Dissolved Oxygen Saturation (%)	94%	92%	96%	
E. coli (colonies/100 ml)	20	5	30	Y = antilog (0.00005716 Q + 0.8244)
Enterococcus (colonies/100 ml)	50	35	68	
Fecal coliform (colonies/100 ml) *	30	20	50	Y = antilog (0.00006282 Q + 1.0055)
Nitrate NO3-N (mg/L) *	0.53	0.47	0.71	
Orthophosphate (mg/L)	<0.01	<0.01	0.02	
pH *	7.49	7.25	7.60	
Specific Conductance (uS/cm)	111.5	105	125	Y = -0.00185194 Q + 125.8
Total Dissolved Solids (mg/L)	98	86	100	
Total Kjeldahl Nitrogen (mg/L)	0.33	0.24	0.40	
Total Nitrogen (mg/L) *	0.89	0.82	1.11	
Total Phosphorus (mg/L) *	0.04	0.04	0.05	
Total Suspended Solids (mg/L) *	3.0	2.0	4.0	Y = 0.00120841 Q - 3.003
Turbidity (NTU)	1.7	1.2	2.5	Y = antilog (0.00003844 Q + 0.0483)
Alkalinity (mg/L)	26	24	28	Y = -0.00046346 Q + 29.199
Hardness (mg/L)	35	33	36	

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

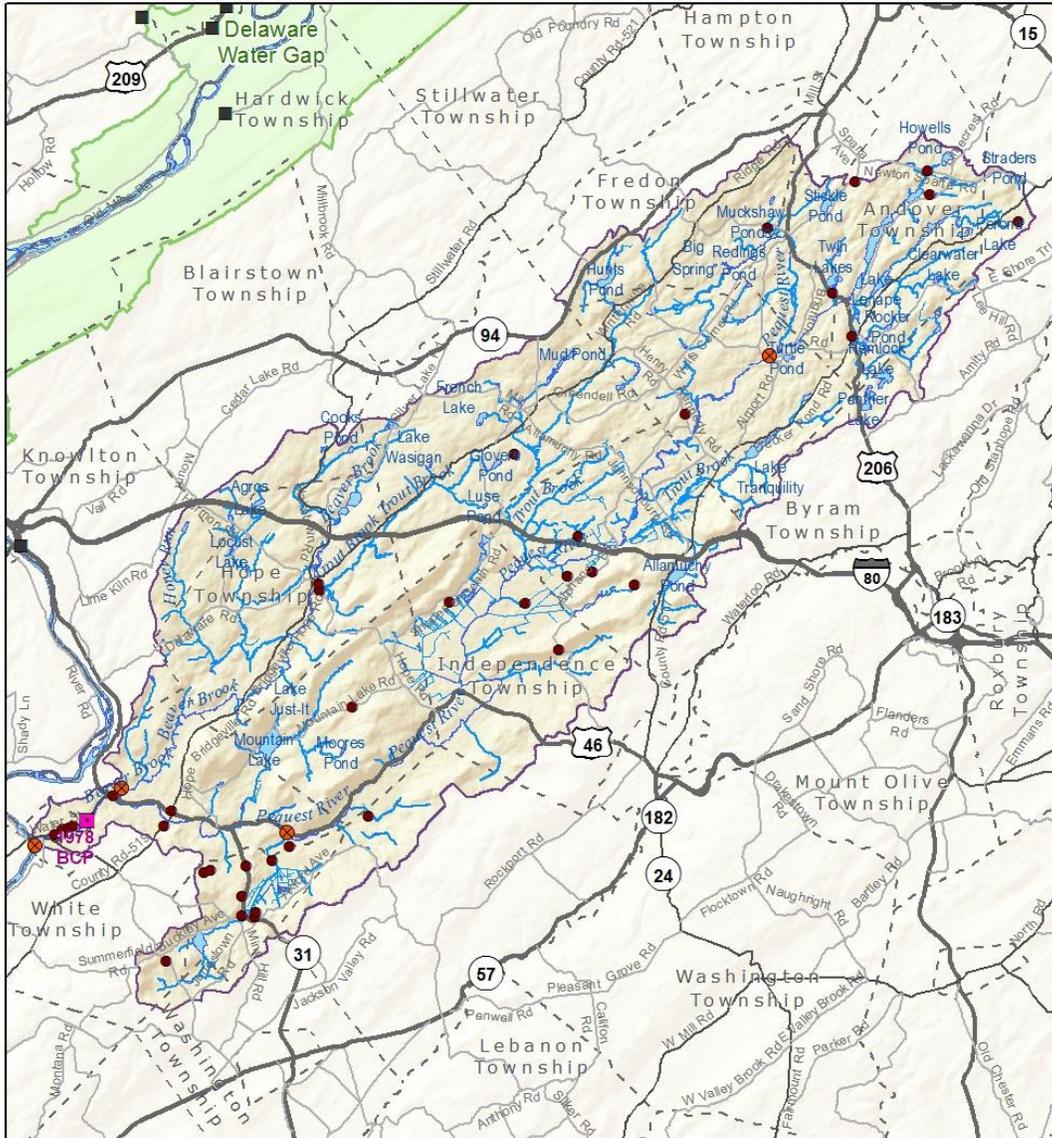
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

Alkalinity median should be 25 mg/L. Listed in rule as 26 mg/L.

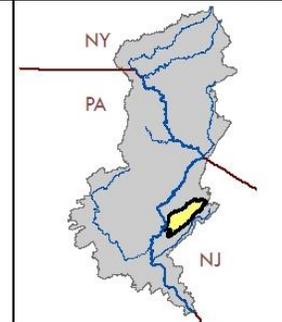
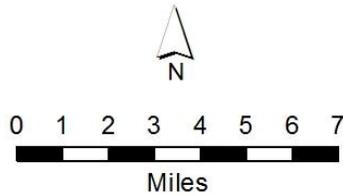
1978 BCP Pequest River at Orchard St, Belvidere, NJ



Pequest River

Drainage Area = 157.01 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Stream Gage
- Drainage Area
- NPS Boundary



1978 BCP Pequest River at Orchard St, Belvidere, NJ

Warren County, NJ. Latitude 40.83417 Longitude -75.06111 by GPS NAD83 decimal degrees.

USGS/NJDEP site 01446400 nearby

Watershed Population: 2000 = 31,927 Population 2010 = 34,023 Change: +2,096 (+6.6%)

Drainage Area: 157 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2000-2004 by the DRBC.

Tributary to Significant Resource Waters.

Nearest upstream Interstate Control Point: 1978 ICP Delaware River at Belvidere

Nearest downstream Interstate Control Point: 1891 ICP Delaware River at Sandts Eddy Access

Known dischargers within watershed: Many, as yet undefined.

Watershed is 57.7% forested; urban land cover is 4.5%. Watershed was 93% glaciated, and is 47.3% underlain by carbonate bedrock. Mean annual precipitation 47 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics Associated with Water Quality Samples (USGS BaSE Model using USGS gage 01446400):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
10,206	490	304	230	188	166	116	67.4	20.4

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	104
M30D2Y (ft ³ /s)	111
M7D10Y (ft ³ /s)	80.1
M30D10Y (ft ³ /s)	83.8
M90D10Y (ft ³ /s)	86.7

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	268
QAH (ft ³ /s)	209
BF10YR (ft ³ /s)	154
BF25YR (ft ³ /s)	138
BF50YR (ft ³ /s)	129

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	4,110
PK5 (ft ³ /s)	6,740
PK10 (ft ³ /s)	8,880
PK50 (ft ³ /s)	14,700
PK100 (ft ³ /s)	17,700
PK500 (ft ³ /s)	26,000

Existing Water Quality: 1978 BCP Pequest River, NJ

Pequest River, New Jersey, River Mile 197.80 – 1.48

Boundary Control Point is located at Orchard Street Bridge, Belvidere

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.05	
Chloride (mg/L)	35.9	34.0	38.0	$Y = -12.7769 (\log Q) + 62.875$
Chlorophyll a (mg/m ³)	2.14	2.00	2.70	
Dissolved Oxygen (mg/L) mid-day *	9.89	9.37	10.37	
Dissolved Oxygen Saturation (%)	103%	99%	107%	
E. coli (colonies/100 ml)	130	110	160	$Y = \text{antilog} (0.6728 (\log Q) + 0.7112)$
Enterococcus (colonies/100 ml)	250 **	140 **	460 **	
Fecal coliform (colonies/100 ml) *	180	150	230 **	
Nitrate NO3-N (mg/L) *	1.29	1.13	1.45	
Orthophosphate (mg/L)	<0.05	<0.05	0.07	
pH *	8.20	8.10	8.30	
Specific Conductance (µS/cm)	491	472	511	$Y = -0.18929204 Q + 517.8326$
Total Dissolved Solids (mg/L)	330	310	340	$Y = -75.8279 (\log Q) + 479.4783$
Total Kjeldahl Nitrogen (mg/L)	0.47	0.32	0.55	
Total Nitrogen (mg/L) *	1.69	1.54	2.00	
Total Phosphorus (mg/L) *	0.10	0.08	0.11 **	
Total Suspended Solids (mg/L) *	6.5	4.0	11.0	
Turbidity (NTU)	3.4	2.1	5.8	$Y = \text{antilog} (1.0964 (\log Q) - 1.87)$
Alkalinity (mg/L)	189	180	200	$Y = -64.33 (\log Q) + 319.85$
Hardness (mg/L)	228	220	230	$Y = -50.0952 (\log Q) + 329.8323$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

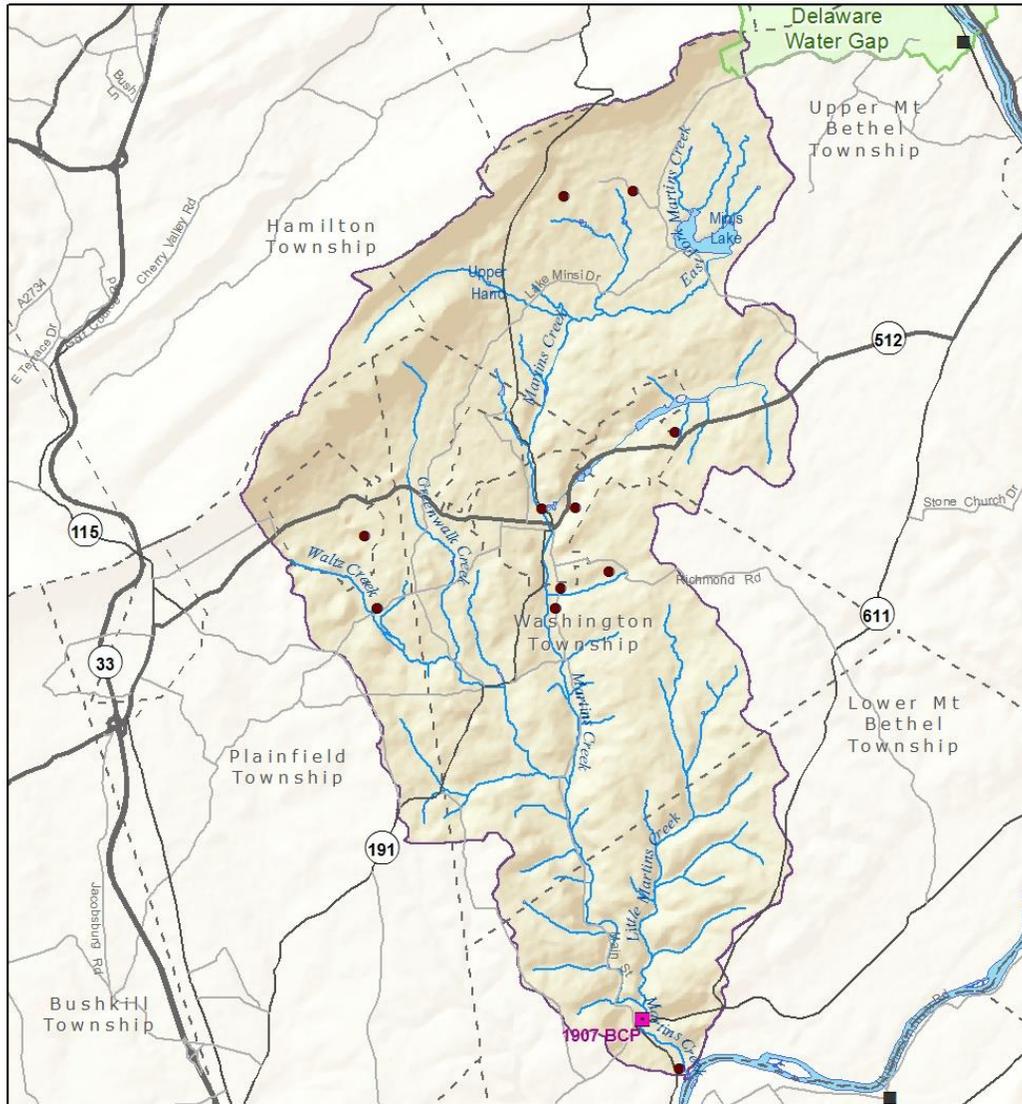
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

None

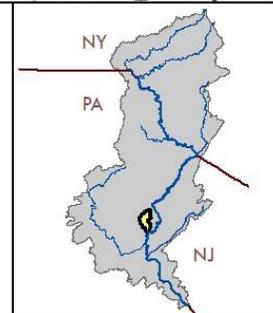
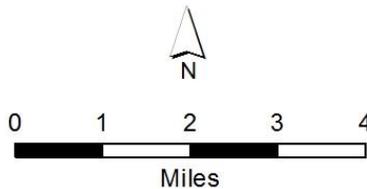
1907 BCP Martins Creek at Little Creek Road, PA



Martins Creek

Drainage Area = 44.56 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area
- NPS Boundary



1907 BCP Martins Creek at Little Creek Road, PA

Northampton County, PA. Latitude 40.78472 Longitude -75.18472 by GPS NAD83 decimal degrees.

No PADEP or USGS sites nearby

Watershed Population: 2000 = 18,814 2010 = 19,952 Change: +1,138 (+6.0%)

Drainage Area: 44.6 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2000-2004 by DRBC.

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1978 ICP Delaware River at Belvidere

Nearest downstream Interstate Control Point: 1891 ICP Delaware River at Sandts Eddy Access

Known dischargers within watershed: Some, as yet undefined.

Watershed is 54.7% forested; urban land cover is 8.4%. Watershed was 38% glaciated, and is 1.3% underlain by carbonate bedrock. Mean annual precipitation 47 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics Associated with Water Quality Samples (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
4,544	162	84.4	62.5	50.8	39.3	24.0	12.2	2.08

StreamStats Low-Flow Stream Statistics

M7D2Y (ft³/s) 9.99

M30D2Y (ft³/s) 12.9

M7D10Y (ft³/s) 5.11

M30D10Y (ft³/s) 6.57

M90D10Y (ft³/s) 9.45

StreamStats Mean/Baseflow Stream Statistics

QA (ft³/s) 76.2

QAH (ft³/s) 24.0

BF10YR (ft³/s) 30.3

BF25YR (ft³/s) 26.9

BF50YR (ft³/s) 25.0

StreamStats Peak-Flow Stream Statistics

PK2 (ft³/s) 1,600

PK5 (ft³/s) 2,690

PK10 (ft³/s) 3,580

PK50 (ft³/s) 5,940

PK100 (ft³/s) 7,140

PK500 (ft³/s) 10,400

Existing Water Quality: 1907 BCP Martins Creek at Little Creek Rd, PA

Martins Creek, Pennsylvania, River Mile 190.65 – 0.96

Boundary Control Point is located at Little Creek Road bridge in Martins Creek Village.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	0.02***	0.05	
Chloride (mg/L)	21	19	24.3	$Y = -11.0817 (\log Q) + 39.9172$
Chlorophyll a (mg/m ³)	1.80	0.50	2.70	
Dissolved Oxygen (mg/L) mid-day *	9.55	9.23	9.62	
Dissolved Oxygen Saturation (%)	98%	96%	99%	
E. coli (colonies/100 ml)	150	48	350	$Y = \text{antilog} (0.7526 (\log Q) + 0.9599)$
Enterococcus (colonies/100 ml)	380	260	620	
Fecal coliform (colonies/100 ml) *	355 **	190	640 **	
Nitrate NO3-N (mg/L) *	2.38	2.04	2.80	
Orthophosphate (mg/L)	0.11	0.07	0.13	
pH *	7.73	7.6	7.78	
Specific Conductance (µS/cm)	322	283	338	$Y = -114.3186 (\log Q) + 506.634$
Total Dissolved Solids (mg/L)	229	210	250	$Y = -89.8812 (\log Q) + 373.2748$
Total Kjeldahl Nitrogen (mg/L)	0.34	0.28	0.50	
Total Nitrogen (mg/L) *	2.95	2.65	3.32	
Total Phosphorus (mg/L) *	0.13	0.10	0.20	
Total Suspended Solids (mg/L) *	4.0	2.0	5.0	
Turbidity (NTU)	2.4	1.6	4.0	$Y = \text{antilog} (0.642 (\log Q) - 0.684)$
Alkalinity (mg/L)	50	43	52	$Y = -19.48 (\log Q) + 81.48$
Hardness (mg/L)	120	112	130	$Y = -46.9931 (\log Q) + 201.407$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

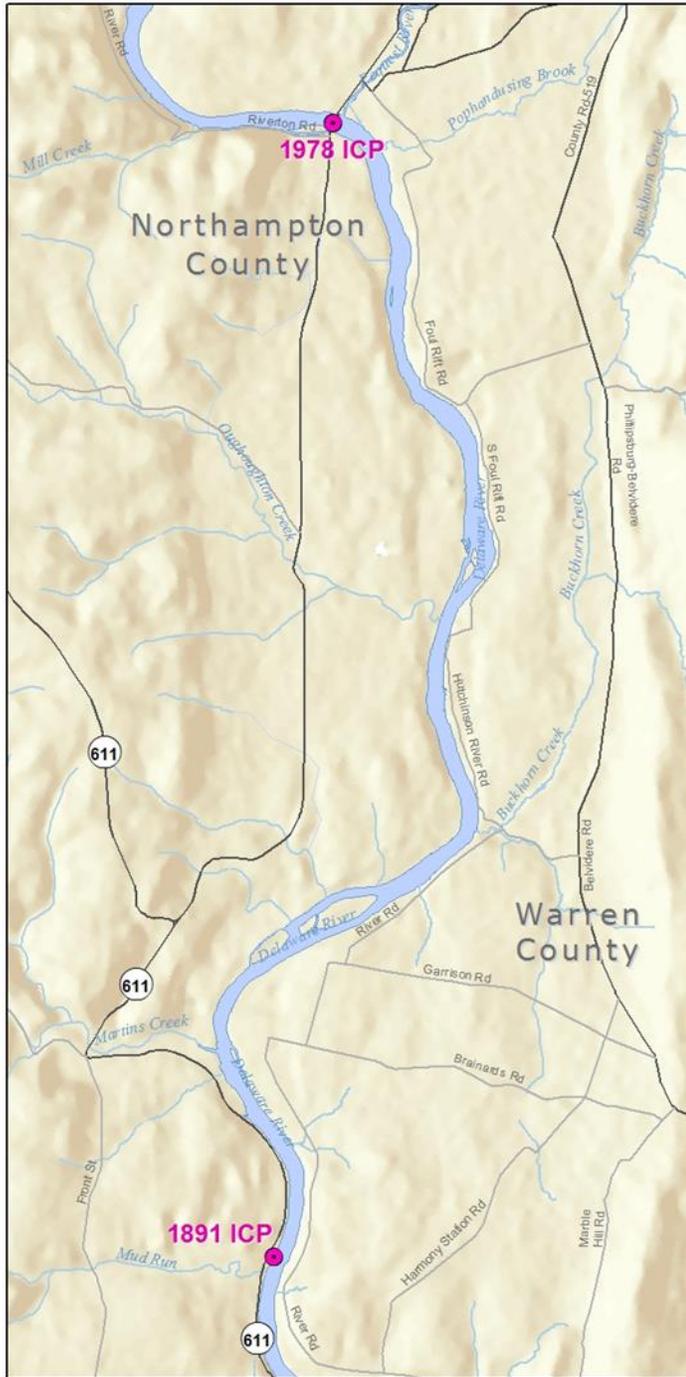
*** = Based on laboratory 'J' values reported below the 0.05 detection limit.

EWQ established 2000-2004 by DRBC

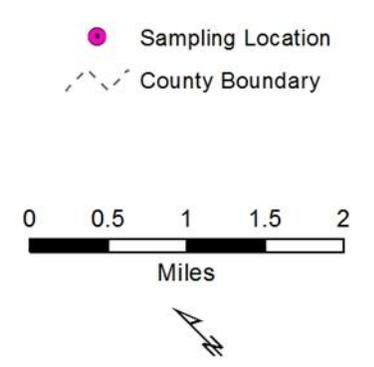
Corrections 2016:

None

1891 ICP Delaware River at Sandts Eddy Access, PA



1891 ICP
Delaware River at Sandt's Eddy Access



1891 ICP Delaware River at Sandts Eddy Access, PA

Northampton County, PA (site is sampled by wading to mid-river from PA shore, except for high water conditions)

Latitude 40.758252 Longitude -75.187719 by GPS NAD83 decimal degrees.

No USGS or State monitoring sites nearby. The closest is PADEP WQN 0148 at Martins Creek Railroad Bridge.

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 4,610 square miles, Delaware River Zone 1D

Site Specific EWQ defined 2009-2013 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1978 ICP Delaware River at Belvidere

Nearest downstream Interstate Control Point: 1838 ICP Delaware River at Easton

Known dischargers to upstream reach: Undefined

Tributaries to upstream reach: Major tributaries 1978 BCP Pequest River, NJ; 1907 BCP Martins Creek, PA; small tributaries 197.5 Pophandusing Brook, NJ; , 194.1 Oughoughton Creek, PA; 1929 BCP Buckhorn Creek, NJ.

No Stream Stats web site data available (drainage area too large to calculate on web site).

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
214,500	17,400	10,100	6,920	5,430	4,320	3,030	2,240	1,150

Existing Water Quality: 1891 ICP Delaware River at Sandts Eddy Access, PA

Parameter	N	median	L95CL	U95CL	Flow Relation	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/L	49	36.1	33.1	38.1	None	2009-2013 SRMP
Aluminum, Dissolved mg/L	14	0.006	0.005	0.009	None	2009-2010 SRMP archived*
Ammonia-Nitrogen as N, Total mg/L *	47	0.009	0.006	0.011	None	2009-2013 SRMP (14 non-detect)
Barium, Dissolved mg/L	14	0.017	0.012	0.023	None	2009-2010 SRMP archived*
Calcium, Dissolved mg/L	14	8.66	7.18	9.77	None	2009-2010 SRMP archived*
Chloride, Total mg/L	49	16.8	15.8	17.2	Inverse	2009-2013 SRMP
Dissolved Oxygen (DO) mg/L *	47	9.35	8.85	9.55	None	2009-2013 SRMP mid-day
Dissolved Oxygen Saturation %	46	106.8	100.5	109.8	None	2009-2013 SRMP mid-day
Enterococcus #/100mL {1}	28	47	27	90	None	2009-2011 SRMP
Escherichia coli #/100mL	29	21	14	50	Positive	2009-2011 SRMP
Fecal coliform #/100mL *	29	29	20	50	Positive	2009-2011 SRMP
Hardness as CaCO ₃ , Total mg/L	49	52	48.8	55	None	2009-2013 SRMP
Magnesium, Dissolved mg/L	14	3.04	1.89	3.55	Inverse	2009-2010 SRMP archived*
Manganese, Dissolved µg/L	14	2.6	1.4	4.5	Positive	2009-2010 SRMP archived*
Nitrate + Nitrite as N, Total mg/L *	49	0.323	0.286	0.429	None	2009-2013 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	49	0.229	0.217	0.251	None	2009-2013 SRMP
Nitrogen as N, Total mg/L *	49	0.605	0.521	0.680	None	2009-2013 SRMP
Orthophosphate as P, Total mg/L	49	0.018	0.016	0.021	None	2009-2013 SRMP
pH units *	47	7.96	7.75	8.20	Inverse	2009-2013 SRMP mid-day
Phosphorus as P, Total mg/L *	49	0.028	0.024	0.031	None	2009-2013 SRMP
Potassium, Dissolved mg/L	14	0.95	0.70	1.10	Inverse	2009-2010 SRMP archived*
Sodium, Dissolved mg/L	14	8.79	6.79	9.29	Inverse	2009-2010 SRMP archived*
Specific Conductance µS/cm	47	166	159	172	Inverse	2009-2013 SRMP mid-day
Strontium, Dissolved mg/L	14	0.045	0.035	0.05	Inverse	2009-2010 SRMP archived*
Sulfate as SO ₄ , Total mg/L	14	9.39	6.67	11.30	Inverse	2009-2010 SRMP archived*
Temperature, Water, degrees C	47	21.4	20.6	22.5	None	2009-2013 SRMP mid-day
Total Dissolved Solids (TDS) mg/L	49	83	81	87	None	2009-2013 SRMP
Total Suspended Solids (TSS) mg/L *	49	1.8	1.5	3.0	Positive	2009-2013 SRMP
Turbidity NTU	70	1.10	0.99	1.38	Positive	2009-2013 SRMP

Two-tailed 95% lower (L95CL) and upper (U95CL) confidence limits were used for these EWQ targets

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

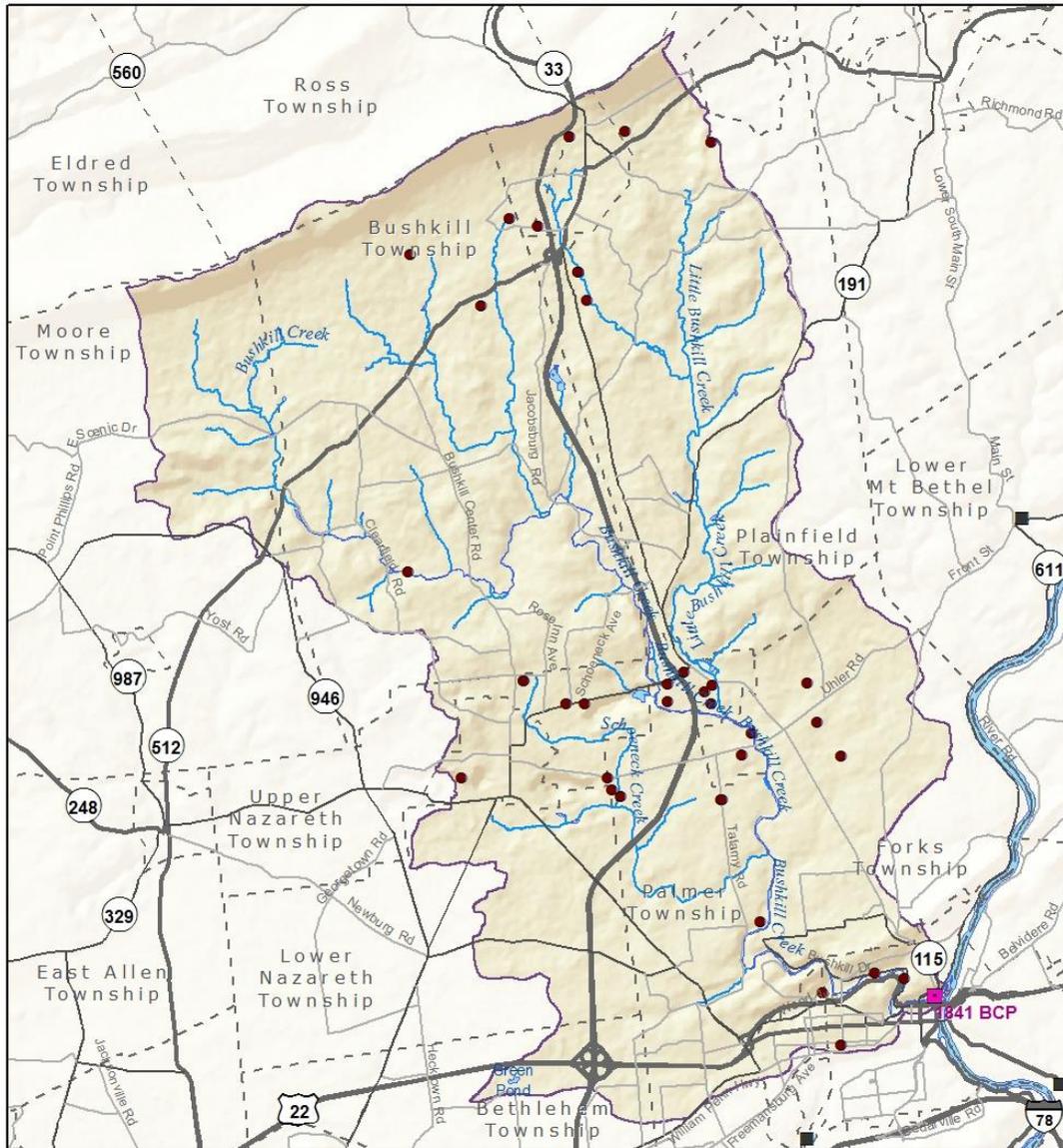
Note: All data are May to September season.

Note: Parameters denoted “archived” were 2009-2010 frozen samples analyzed in 2011 in anticipation of establishing background water quality conditions prior to natural gas development.

*Insufficient number of data to establish Existing Water Quality.

{1}: Median enterococcus concentrations exceed outdated NJ freshwater criterion.

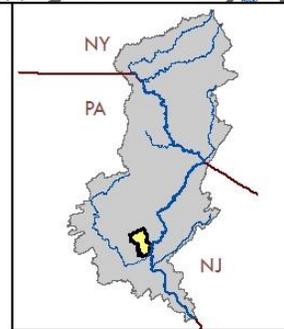
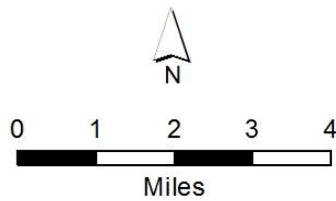
1841 BCP Bushkill Creek at Rt. 611, Easton, PA



Bushkill

Drainage Area = 79.98 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1841 BCP Bushkill Creek at Rt. 611, Easton, PA

Northampton County, PA. Latitude 40.695767 Longitude -75.205612 by GPS NAD83 decimal degrees.

No USGS or PADEP sites nearby. Closest is USGS 01446900 by Penn Pump Park in Forks Township above Easton

Watershed Population: 2000 = 59,221 2010 = 70,864 Change: +11,643 (+19.7%)

Drainage Area: 80 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2000-2004 by DRBC.

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1891 ICP Delaware River at Sandts Eddy Access

Nearest downstream Interstate Control Point: 1838 ICP Delaware River at Northampton St., Easton

Known dischargers within watershed: Many, as yet undefined.

Watershed is 31% forested; urban land cover is 15.1%. Watershed was not glaciated, and is 37.8% underlain by carbonate bedrock. Mean annual precipitation 45 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics from USGS BaSE Model:

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
5,700	233	146	102	82.8	67.2	47.4	27.0	5.58

BaSE model low flows are rarely, if ever encountered. An upstream quarry dewatering operation supports Bushkill Creek's flow at a minimum around the 40th flow percentile, or about 67 cfs. The quarry pumps about 60 cfs continually to the stream unless the pumps are out of operation, which is very rare.

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	36.1
M30D2Y (ft ³ /s)	42.9
M7D10Y (ft ³ /s)	20.5
M30D10Y (ft ³ /s)	25.0
M90D10Y (ft ³ /s)	32.1

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	121
QAH (ft ³ /s)	72.8
BF10YR (ft ³ /s)	55.1
BF25YR (ft ³ /s)	48.5
BF50YR (ft ³ /s)	44.8

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	2,890
PK5 (ft ³ /s)	4,810
PK10 (ft ³ /s)	6,330
PK50 (ft ³ /s)	10,400
PK100 (ft ³ /s)	12,400
PK500 (ft ³ /s)	17,900

Existing Water Quality: 1841 BCP Bushkill Creek at Rt. 611, Easton, PA

Bushkill Creek, Northampton County, Pennsylvania, River Mile 184.10 – 0.05

Boundary Control Point is located at Route 611 bridge, Easton.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	0.10	0.07	0.13	
Chloride (mg/L)	27	25	28.4	$Y = -13.4942 (\log Q) + 54.7837$
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	10.10	9.69	10.30	
Dissolved Oxygen Saturation (%)	102%	100%	104%	
E. coli (colonies/100 ml)	330	220	620	
Enterococcus (colonies/100 ml)	350	280	540	
Fecal coliform (colonies/100 ml) *	540 **	370 **	880 **	
Nitrate NO3-N (mg/L) *	3.90	3.63	4.26	
Orthophosphate (mg/L)	0.02	0.02	0.03	
pH *	8.00	7.99	8.08	
Specific Conductance (µS/cm)	578	542	615	$Y = -1.32108663 Q + 751.3559$
Total Dissolved Solids (mg/L)	410	360	440	$Y = -394.9208 (\log Q) + 1231.0249$
Total Kjeldahl Nitrogen (mg/L)	0.40	0.29	0.50	
Total Nitrogen (mg/L) *	4.37	4.11	4.73	
Total Phosphorus (mg/L) *	0.05	0.04	0.07	
Total Suspended Solids (mg/L) *	5.0	3.0	8.0	
Turbidity (NTU)	3.0	2.5	5.1	
Alkalinity (mg/L)	140	130	155	$Y = -152.34 (\log Q) + 459$
Hardness (mg/L)	218	210	225	$Y = -159.4372 (\log Q) + 549.8009$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

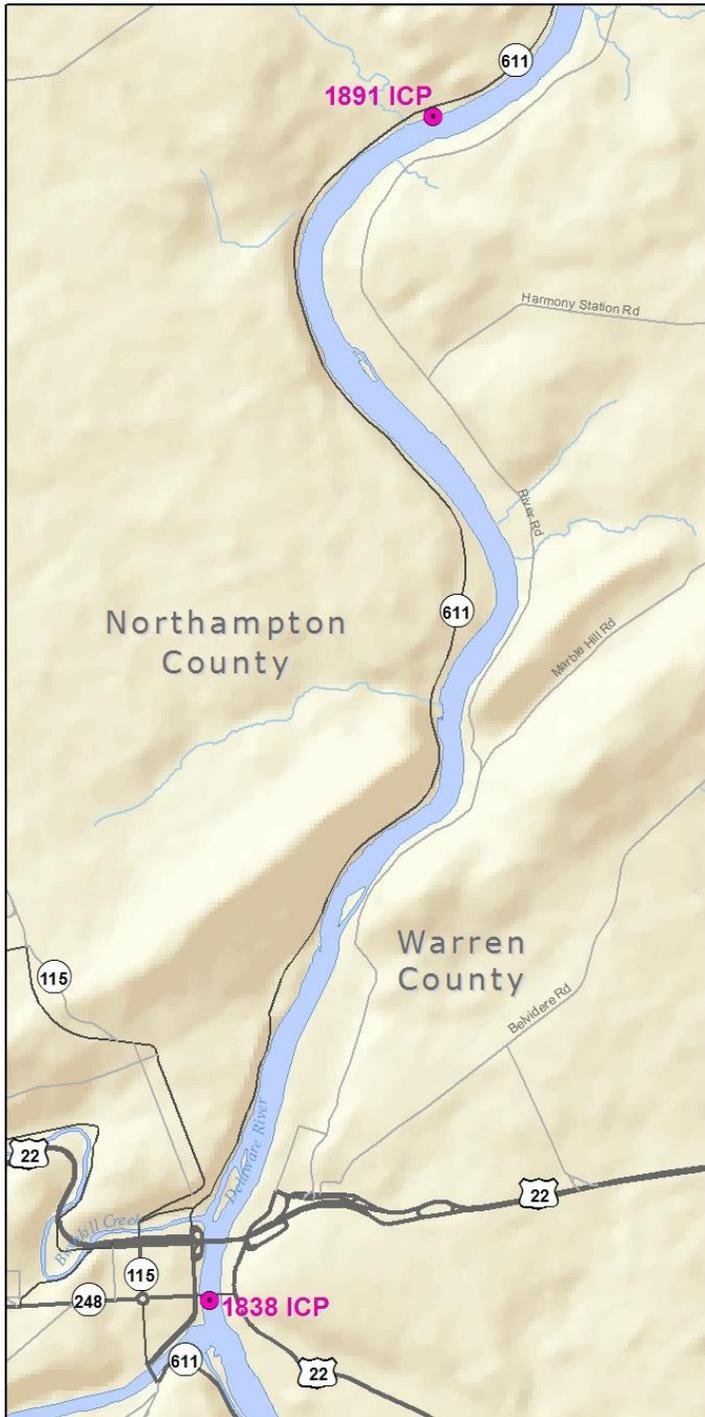
EWQ established 2000-2004 by DRBC

Corrections 2016:

Total Nitrogen median should be 4.37 mg/L. Listed in rules as 4.41 mg/L.

Total Phosphorus upper 95% CL should be 0.07 mg/L. Listed in rule as 0.06 mg/L.

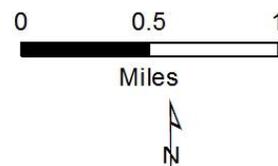
1838 ICP Delaware River at Northampton Street Bridge, PA/NJ



1838 ICP
Delaware River at Northampton Street Bridge



- Sampling Location
- - - County Boundary



1838 ICP Delaware River at Northampton Street Bridge, PA/NJ

Northampton County, PA to Warren County, NJ

Latitude 40.69111 Longitude -75.20417 by GPS NAD83 decimal degrees.

USGS site no 01447000

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 4,717 square miles, Delaware River Zone 1D

Site Specific EWQ defined 2009-2013 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1891 ICP Delaware River at Sandts Eddy Access

Nearest downstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Known dischargers within upstream reach: Undefined

Tributaries to upstream reach: Major tributary 1841 BCP Bushkill Creek; Small tributary 188.9 Mud Run, PA.

No Stream Stats web site data available (drainage area too large to calculate on web site).

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
219,468	17,786	10,318	7,083	5,554	4,421	3,100	2,288	1,175

Existing Water Quality: 1838 ICP Delaware River at Northampton St. Bridge

Delaware River at Northampton Street Bridge, Easton-Phillipsburg, PA/NJ, River Mile 183.82

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<.05	<.05	<0.05	
Chloride (mg/L)	16	14	17	Y = -0.00022184 Q + 16.751
Chlorophyll a (mg/m ³)	1.45	1.07	2.14	
Dissolved Oxygen (mg/L) mid-day*	8.10	7.90	8.58	
Dissolved Oxygen Saturation (%)	95%	92%	96%	
E. coli (colonies/100 ml)	31	24	64	Y = antilog (0.00004425 Q + 1.273)
Enterococcus (colonies/100 ml)	145	80	250	
Fecal coliform (colonies/100 ml) *	100	64	130	Y = antilog (0.00004016 Q + 1.6615)
Nitrate NO3-N (mg/L) *	0.85	0.70	0.90	
Orthophosphate (mg/L)	0.02	0.01	0.02	
pH *	7.55	7.41	7.70	
Specific Conductance (µS/cm)	142	127	155	Y = -0.0024666 Q + 158.76
Total Dissolved Solids (mg/L)	110	103	120	
Total Kjeldahl Nitrogen (mg/L)	0.35	0.26	0.46	
Total Nitrogen (mg/L) *	1.19	1.01	1.35	
Total Phosphorus (mg/L) *	0.05	0.04	0.06	
Total Suspended Solids (mg/L) *	4.0	3.0	5.0	Y = 0.00177536 Q - 4.8027
Turbidity (NTU)	2.6	1.8	4.0	Y = antilog (0.00003836 Q + 0.1845)
Alkalinity (mg/L)	34	30	39	Y = -0.00073929 Q + 39.867
Hardness (mg/L)	48	45	52	

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

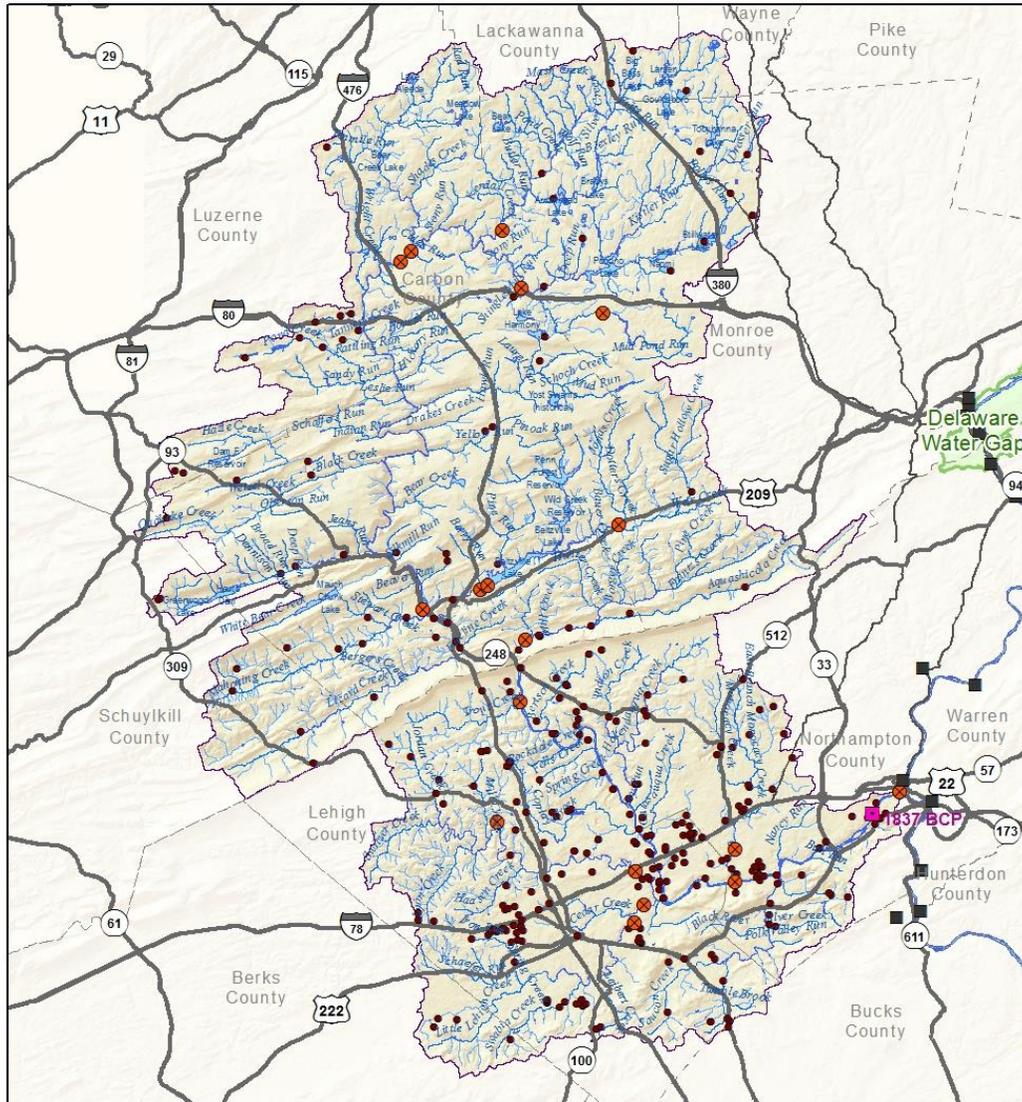
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

None

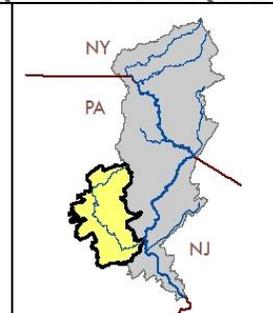
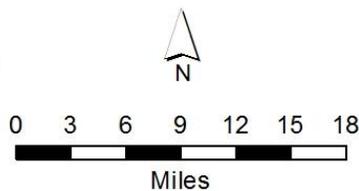
1837 BCP Lehigh River at Rt. 611, Easton, PA



Lehigh River

Drainage Area = 1360.69 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Stream Gauge
- Drainage Area
- NPS Boundary



1837 BCP Lehigh River at Rt. 611, Easton, PA

Multiple PA Counties: Northampton; Bucks; Lehigh; Berks; Carbon; Schuylkill; Luzerne; Lackawanna; Wayne

Latitude 40.66917 Longitude -75.23667 by GPS NAD83 decimal degrees.

USGS site 01454720, upstream gage USGS 01454700; PADEP site WQN0123

Watershed Population: 2000 = 604,954 2010 = 676,939 Change: +71,985 (+11.9%)

Drainage Area: 1362 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1838 ICP Delaware River at Northampton St. Bridge, Easton

Nearest downstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Known dischargers within watershed: Many, as yet undefined.

Watershed is 60.3% forested; urban land cover is 9.9%. Watershed was 28% glaciated, and is 16% underlain by carbonate bedrock. Mean annual precipitation 46 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics Associated with Water Quality Samples (Using USGS Lehigh River gage 01454700 at Glendon, PA):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
99,966	5,488	3,183	2,500	2,100	1,730	1,037	626	171

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	542
M30D2Y (ft ³ /s)	631
M7D10Y (ft ³ /s)	372
M30D10Y (ft ³ /s)	429
M90D10Y (ft ³ /s)	512

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	2,520
QAH (ft ³ /s)	1,250
BF10YR (ft ³ /s)	1,080
BF25YR (ft ³ /s)	965
BF50YR (ft ³ /s)	899

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	29,500
PK5 (ft ³ /s)	46,100
PK10 (ft ³ /s)	59,300
PK50 (ft ³ /s)	94,900
PK100 (ft ³ /s)	113,000
PK500 (ft ³ /s)	162,000

Existing Water Quality: 1837 BCP Lehigh River at Rt. 611, PA

Lehigh River, Pennsylvania, River Mile 183.66 – 0.27
Boundary Control Point is located at Route 611 bridge, Easton.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	0.08	0.06	0.09	
Chloride (mg/L)	21	19	24	$Y = -16.5077 (\log Q) + 76.7534$
Chlorophyll a (mg/m ³)	2.70	1.80	3.60	
Dissolved Oxygen (mg/L) mid-day *	8.85	8.39	9.20	
Dissolved Oxygen Saturation (%)	97%	94%	98%	
E. coli (colonies/100 ml)	49	36	120	$Y = \text{antilog} (1.5045 (\log Q) - 3.0132)$
Enterococcus (colonies/100 ml)	110	56	210	
Fecal coliform (colonies/100 ml) *	120	70	200	$Y = \text{antilog} (1.4387 (\log Q) - 2.5712)$
Nitrate NO3-N (mg/L) *	1.80	1.70	2.00	
Orthophosphate (mg/L)	0.11	0.09	0.15	
pH *	7.60	7.50	7.70	
Specific Conductance (µS/cm)	264	218	292	$Y = -186.4602 (\log Q) + 870.6296$
Total Dissolved Solids (mg/L)	180	158	195	$Y = -93.4568 (\log Q) + 482.4929$
Total Kjeldahl Nitrogen (mg/L)	0.50	0.41	0.58	
Total Nitrogen (mg/L) *	2.43	2.13	2.74	
Total Phosphorus (mg/L) *	0.17	0.15	0.24	
Total Suspended Solids (mg/L) *	4.0	3.0	6.0	
Turbidity (NTU)	3.1	2.2	6.0	$Y = \text{antilog} (0.901 (\log Q) - 2.335)$
Alkalinity (mg/L)	55	49	69	$Y = -51.44 (\log Q) + 227.86$
Hardness (mg/L)	94	77	105	$Y = -58.1224 (\log Q) + 285.2788$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

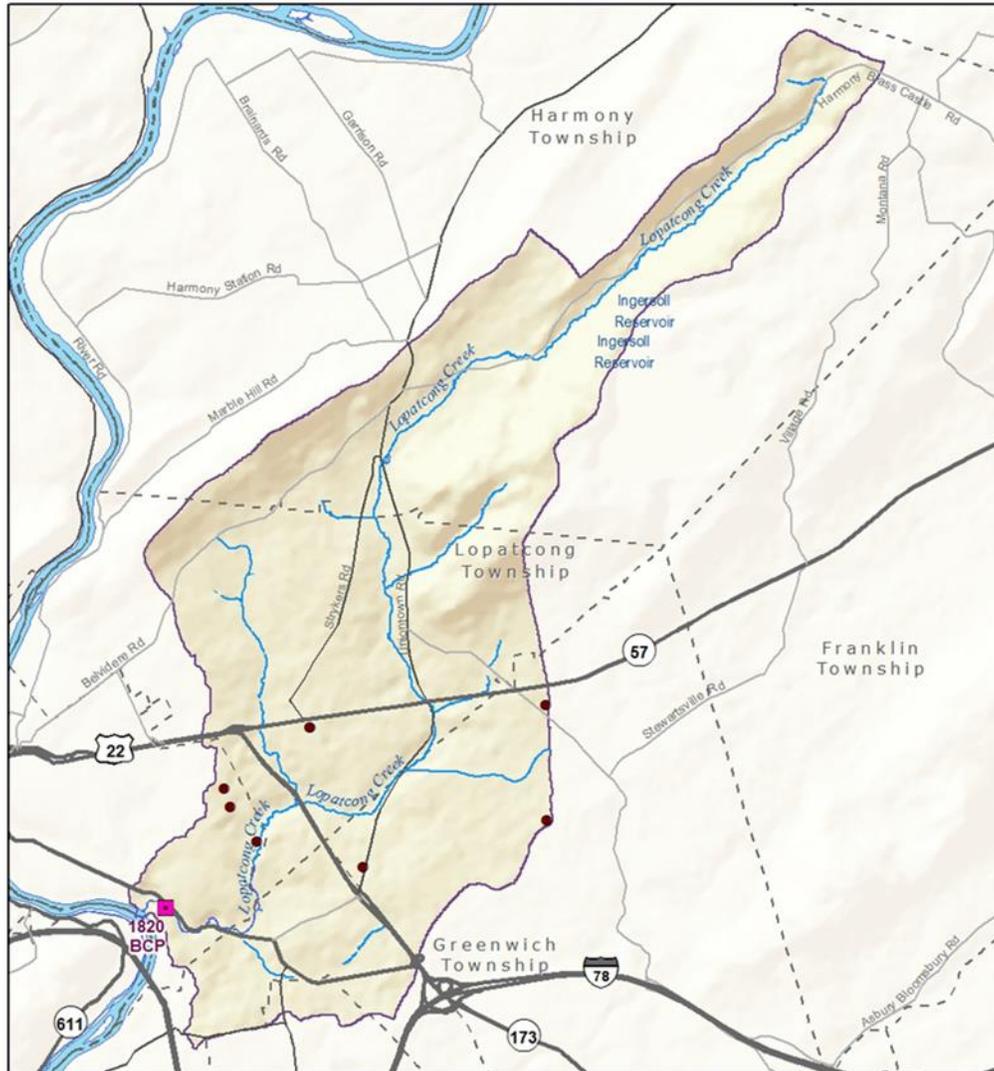
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

None

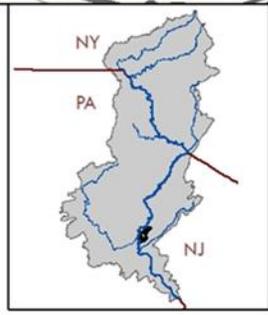
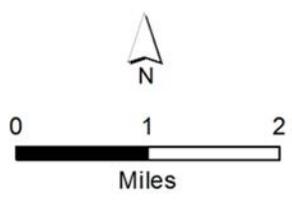
1820 BCP Lopatcong Creek above Phillipsburg WWTP, NJ



Lopatcong Creek

Drainage Area = 14.89 mi²

- Sampling Location
- NPDES
- Drainage Area



1820 BCP Lopatcong Creek above Phillipsburg WWTP

Warren County, NJ. Latitude 40.67949 Longitude -75.17499 by GPS NAD83 decimal degrees.

USGS Sites 01455100, 01455099; NJDEP Site No. 01455099

Watershed Population: 2000 = 11,262 2010 = 14,540 Change: +3,278 (+29.1%)

Drainage Area at site: 14.7 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2009-2013; additional USGS and NJDEP data from various time periods.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 1838 ICP Delaware River at Easton

Nearest downstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Known dischargers within watershed: Some, undefined. For total Lopatcong Creek effect upon the Delaware River, add loadings produced by Phillipsburg WWTP, located downstream of the monitoring site.

Watershed is 32.8% forested; urban land cover is 17%. Watershed was not glaciated, and is 63% underlain by carbonate bedrock. Mean annual precipitation 45.5 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
975	36.6	23.1	17.7	14.3	13.7	10.5	7.36	2.18

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	12.2
M30D2Y (ft ³ /s)	12.8
M7D10Y (ft ³ /s)	9.56
M30D10Y (ft ³ /s)	9.65
M90D10Y (ft ³ /s)	9.94

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	22.2
QAH (ft ³ /s)	18.2
BF10YR (ft ³ /s)	12.4
BF25YR (ft ³ /s)	11.0
BF50YR (ft ³ /s)	10.2

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	707
PK5 (ft ³ /s)	1,220
PK10 (ft ³ /s)	1,630
PK50 (ft ³ /s)	2,720
PK100 (ft ³ /s)	3,260
PK500 (ft ³ /s)	4,750

Existing Water Quality: 1820 BCP Lopatcong Creek above Phillipsburg WWTP

Parameter	N	median	L95CL	U95CL	Flow Relation	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/L	74	150	140	156	None	1980-2000 USGS; 2009-2013 SRMP
Ammonia-Nitrogen as N, Total mg/L *	58	<0.006	<0.006	0.007	None	1999-2013 SRMP (50 non-detect)
Chloride, Total mg/L	61	36.8	36.0	37.1	None	2000, 2009-2013 SRMP
Dissolved Oxygen (DO) mg/L *	57	10.04	9.80	10.26	None	2000, 2009-2013 SRMP
Dissolved Oxygen Saturation %	61	97.5	96.3	100.3	None	1999-2000, 2009-2013 SRMP
Enterococcus #/100ml {1}	40	195	140	340	None	1999-2000, 2009-2011 SRMP
Escherichia coli #/100ml {2}	31	270	170	370	None	2009-2011 SRMP
Fecal coliform #/100ml *	32	240	180	330	None	2009-2011 SRMP
Hardness as CaCO ₃ , Total mg/L	61	214	202	222	None	2000, 2009-2013 SRMP
Nitrate + Nitrite as N, Total mg/L *	54	4.43	4.23	4.65	None	2009-2013 SRMP
Nitrogen as N, Total mg/L *	53	4.47	4.31	4.79	Inverse	2009-2013 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	60	0.100	0.097	0.133	None	2000, 2009-2013 SRMP
Orthophosphate as P, Total mg/L	54	0.005	0.003	0.008	None	2000, 2009-13 SRMP (16 non-detect)
pH units *	61	7.90	7.82	7.96	None	1999-2000, 2009-2013 SRMP
Phosphorus as P, Total mg/L *	58	0.014	0.012	0.017	None	2000, 2009-2013 SRMP
Specific Conductance µS/cm	61	499	454	516	None	1999-2000, 2009-2013 SRMP
Temperature, Water, degrees C	61	14.2	13.8	14.6	None	1999-2000, 2009-2013 SRMP
Total Dissolved Solids (TDS) mg/L	60	275	269	284	None	2000, 2009-2013 SRMP
Total Suspended Solids (TSS) mg/L *	60	2.5	1.7	3.2	None	2000, 2009-2013 SRMP
Turbidity NTU	79	1.57	1.15	1.81	None	2000, 2009-2013 SRMP

Two-tailed 95% lower and upper confidence limits were used for these EWQ targets

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

Note: All data are May to September season. Additional data are available for the October to April “non-seasonal” period, but data are insufficient in number for establishment of site-specific existing water quality targets.

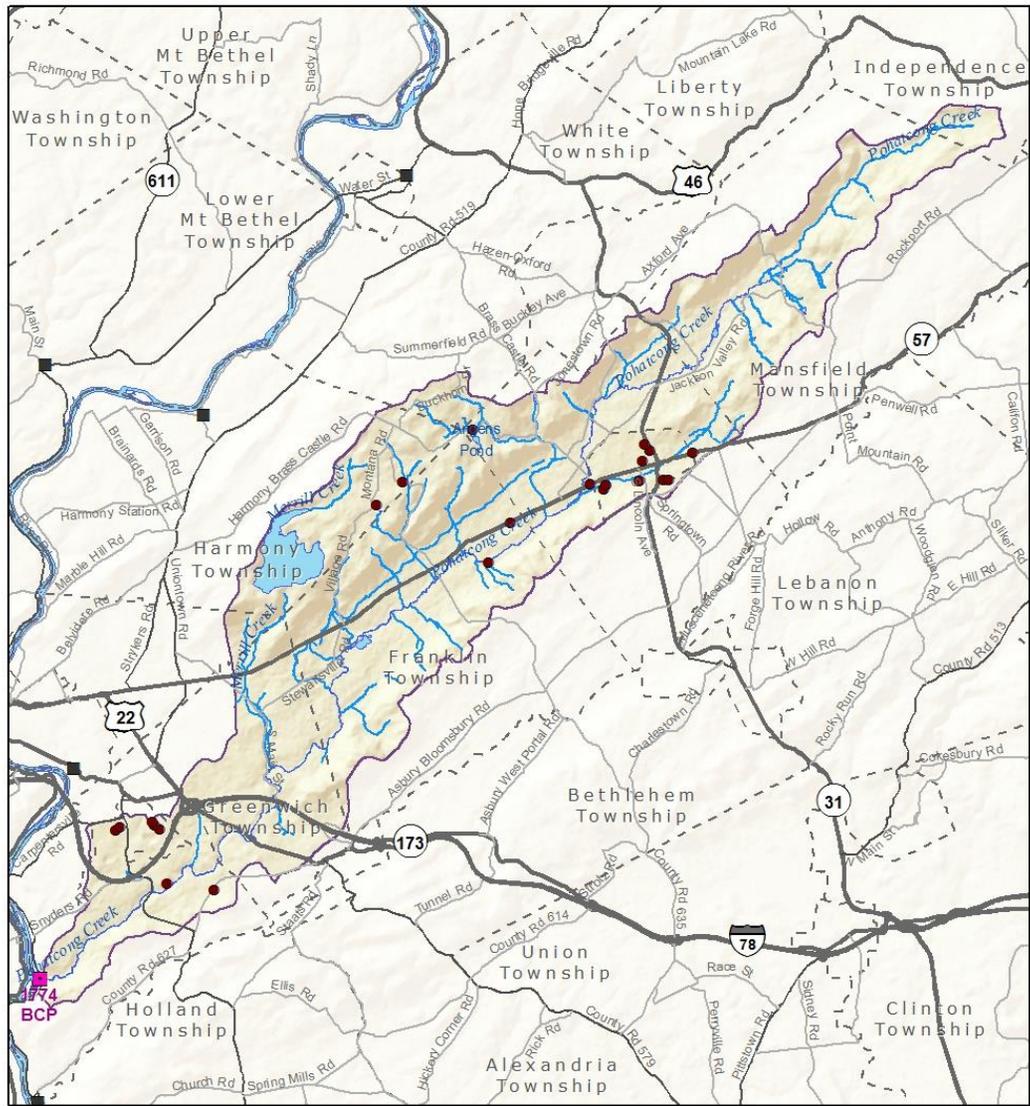
Note: Hydroqual study 2006-2007 results not included in this data set but were used in model for project development.

Note: Sample results do not incorporate City of Phillipsburg WWTP discharge, which is about 200 meters downstream of monitoring point and just upstream of Lopatcong Creek confluence with the Delaware River.

{1}: Enterococcus concentrations exceed outdated NJ freshwater criterion of 33 #/100 ml.

{2}: Escherichia coli concentrations exceed NJ freshwater criterion of 126 #/100 ml.

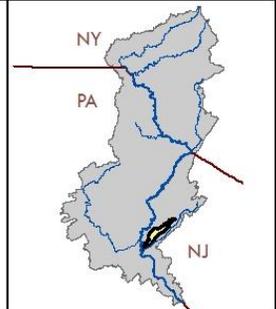
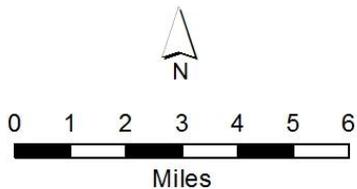
1774 BCP Pohatcong Creek at River Road, NJ



Pohatcong Creek

Drainage Area = 57.1 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1774 BCP Pohatcong Creek at River Road, NJ

Warren County, NJ. Latitude 40.62472 Longitude -75.18611 by GPS NAD83 decimal degrees.

USGS/NJDEP site 01455300

Watershed Population: 2000 = 19,781 2010 = 19,547 Change: -234 (-1.2%)

Drainage Area: 57.1 square miles, tributary to Delaware River Zone 1E.

Site Specific EWQ defined by DRBC.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Classified by DRBC as Significant Resource Waters.

Nearest upstream Interstate Control Point: 1838 ICP Delaware River at Easton

Nearest downstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Known dischargers within watershed: Some, undefined.

Watershed is 48.8% forested; urban land cover is 8%. Watershed was 0.3% glaciated, and is 47% underlain by carbonate bedrock. Mean annual precipitation 47.6 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
3,886	169	108	80.9	66.5	66.4	52.2	34.8	16.1

StreamStats Low-Flow Stream Statistics

M7D2Y (ft³/s) 38.7

M30D2Y (ft³/s) 42.2

M7D10Y (ft³/s) 26.1

M30D10Y (ft³/s) 27.8

M90D10Y (ft³/s) 32.6

StreamStats Mean/Baseflow Stream Statistics

QA (ft³/s) 97.3

QAH (ft³/s) 73.6

BF10YR (ft³/s) 54.4

BF25YR (ft³/s) 48.5

BF50YR (ft³/s) 45.2

StreamStats Peak-Flow Stream Statistics

PK2 (ft³/s) 2,070

PK5 (ft³/s) 3,470

PK10 (ft³/s) 4,590

PK50 (ft³/s) 7,580

PK100 (ft³/s) 9,090

PK500 (ft³/s) 13,200

Existing Water Quality: 1774 BCP Pohatcong Creek at River Road, NJ

Pohatcong Creek, New Jersey, River Mile 177.36 – 0.35

Boundary Control Point is located at River Road bridge.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<.05	<.05	<0.05	
Chloride (mg/L)	20	19	21	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	9.50	9.20	9.90	
Dissolved Oxygen Saturation (%)	97%	96%	100%	
E. coli (colonies/100 ml)	305	190	550	Y = antilog (1.0503 (log Q) + 0.976)
Enterococcus (colonies/100 ml)	610 **	380 **	820 **	
Fecal coliform (colonies/100 ml) *	580 **	420 **	810 **	
Nitrate NO3-N (mg/L) *	2.61	2.30	2.88	
Orthophosphate (mg/L)	0.05	0.05	0.07	
pH *	7.90	7.88	7.95	
Specific Conductance (µS/cm)	340	316	352	Y = -0.84542072 Q + 365.5539
Total Dissolved Solids (mg/L)	220	211	260	Y = -99.9173 (log Q) + 381.5349
Total Kjeldahl Nitrogen (mg/L)	0.33	0.19	0.36	
Total Nitrogen (mg/L) *	3.14	2.87	3.26	
Total Phosphorus (mg/L) *	0.10	0.08	0.11 **	
Total Suspended Solids (mg/L) *	6.5	5.0	8.0	
Turbidity (NTU)	4.6	2.1	5.1	Y = antilog (0.867 (log Q) – 0.69)
Alkalinity (mg/L)	116	104	120	Y = -81.8 (log Q) + 238.83
Hardness (mg/L)	140	135	160	Y = -76.5277 (log Q) + 261.5315

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

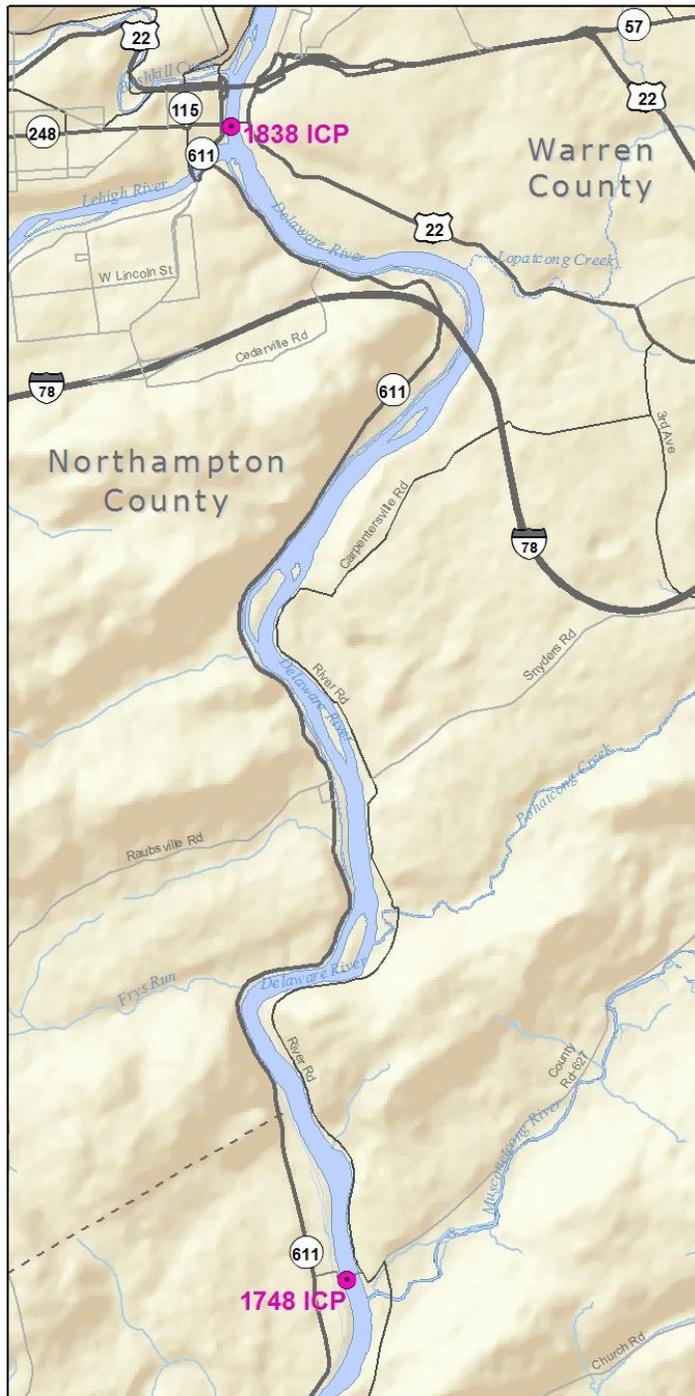
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

Alkalinity median should be 116 mg/L. Listed in rule as 113 mg/L.

1748 ICP Delaware River at Riegelsville Bridge, PA/NJ



1748 ICP
Delaware River at Riegelsville Bridge



- Sampling Location
- - - County Boundary



1748 ICP Delaware River at Riegelsville Bridge, PA/NJ

Bucks County, PA to Warren County, NJ

Latitude 40.59389 Longitude -75.19111 by GPS NAD83 decimal degrees.

USGS site 01457500; NJDEP sites 01457500, 5700017400

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 6,328 square miles, Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1838 ICP Delaware River at Northampton St. Bridge, Easton

Nearest downstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Known dischargers within reach: Easton WWTP, others undefined

Tributaries to upstream reach: Major tributaries 1837 BCP Lehigh River, PA; 1820 BCP Lopatcong Creek, NJ; 1774 BCP Pohatcong Creek, NJ; small tributary 176.6 Frys Run, PA.

No Stream Stats web site data available because drainage area is too large for web site retrieval as of 2012.

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
214,667	24,080	14,280	9,987	8,157	6,543	4,629	3,201	1,773

Existing Water Quality: 1748 ICP Delaware River at Riegelsville Bridge, PA/NJ

Delaware River at Riegelsville Bridge, PA/NJ, River Mile 174.80

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.05	
Chloride (mg/L)	17	15	19	$Y = -0.00026948 Q + 19.644$
Chlorophyll a (mg/m ³)	2.42	1.80	3.60	
Dissolved Oxygen (mg/L) mid-day *	8.80	8.20	9.05	
Dissolved Oxygen Saturation (%)	97%	95%	98%	
E. coli (colonies/100 ml)	40	20	80	$Y = \text{antilog} (0.0000513 Q + 0.9973)$
Enterococcus (colonies/100 ml)	80	52	110	
Fecal coliform (colonies/100 ml) *	84	54	160	$Y = \text{antilog} (0.00003636 Q + 1.5438)$
Nitrate NO3-N (mg/L) *	1.17	1.02	1.23	
Orthophosphate (mg/L)	0.04	<0.04	0.07	
pH *	7.60	7.48	7.80	
Specific Conductance (µS/cm)	183	155	197	$Y = -0.00298102 Q + 207.26$
Total Dissolved Solids (mg/L)	140	130	150	$Y = -0.00168753 Q + 152.78$
Total Kjeldahl Nitrogen (mg/L)	0.31	0.22	0.46	
Total Nitrogen (mg/L) *	1.44	1.31	1.62	
Total Phosphorus (mg/L) *	0.09	0.07	0.12	
Total Suspended Solids (mg/L) *	4.5	3.5	6.5	$Y = 0.00061523 Q + 0.2725$
Turbidity (NTU)	2.7	2.1	3.5	$Y = \text{antilog} (0.00002645 Q + 0.2252)$
Alkalinity (mg/L)	42	36	48	$Y = -0.0008322 Q + 50.44$
Hardness (mg/L)	65	54	70	$Y = -0.00121951 Q + 73.708$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

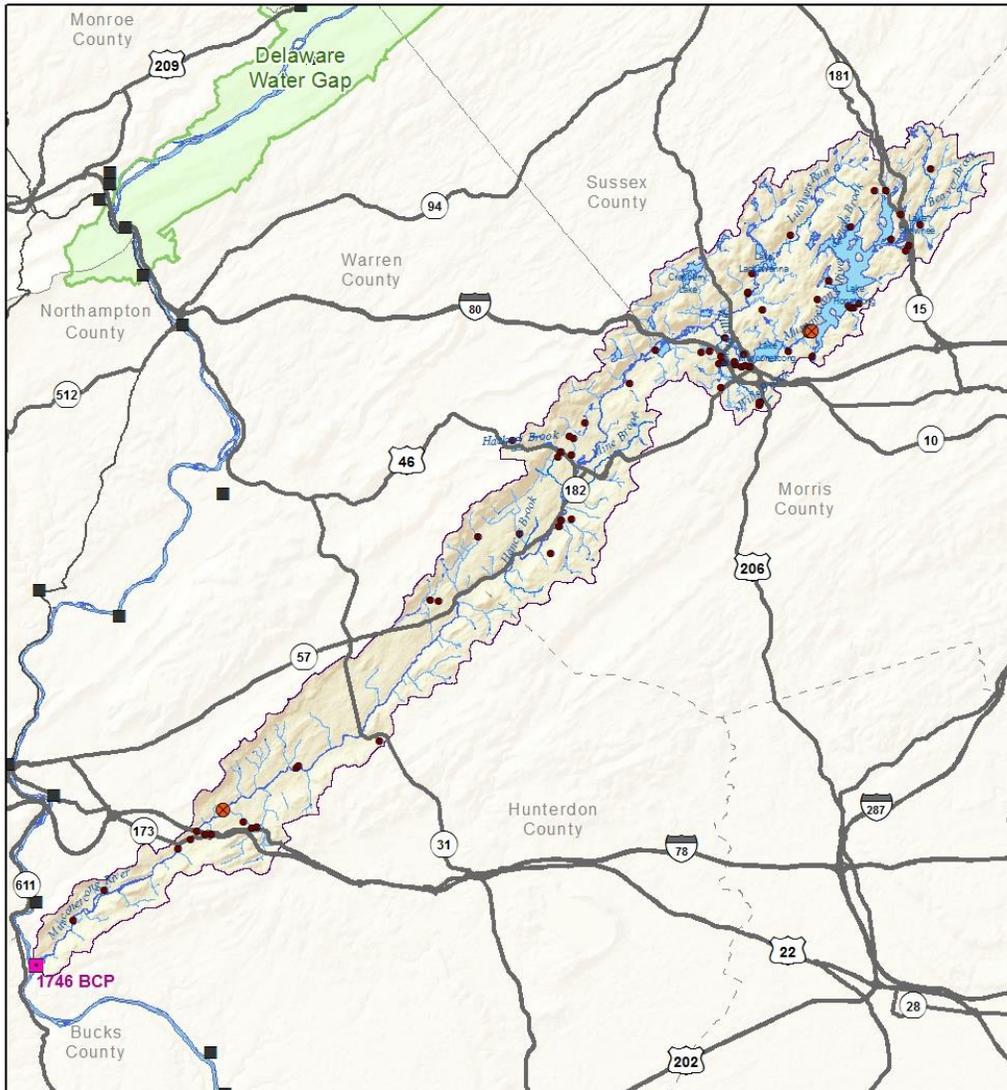
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

None

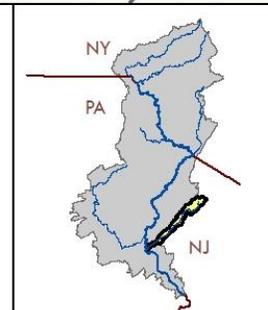
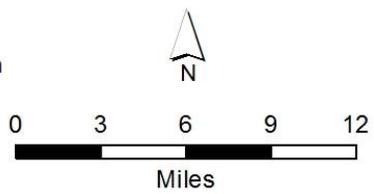
1746 BCP Musconetcong River at River Road, NJ



Musconetcong River

Drainage Area = 155.78 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Stream Gage
- Drainage Area
- NPS Boundary



1746 BCP Musconetcong River at River Road, NJ

Multiple NJ Counties: Warren, Sussex, Hunterdon and Morris

Site location Warren County, NJ. Latitude 40.5925 Longitude -75.18667 by GPS NAD83 decimal degrees.

USGS site 01457400, upstream USGS gage 01457100 Bloomsbury; NJDEP sites 01457400, 8983200070

Watershed Population: 2000 = 84,699 2010 = 89358 Change: +4,659 (+5.5%)

Drainage Area at site: 156 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2000-2004.

The Musconetcong River is a National Wild and Scenic designated river.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Nearest downstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Known dischargers within watershed: Many, undefined.

Watershed is 57.6% forested; urban land cover is 11.3%. Watershed was 48% glaciated, and is 25.4% underlain by carbonate bedrock. Mean annual precipitation 49 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model calculation from USGS Musconetcong River gage 01457100 at Bloomsbury, NJ):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
11,848	569	341	257	212	191	144	91.3	32.0

StreamStats Low-Flow Stream Statistics

M7D2Y (ft³/s) 88.0

M30D2Y (ft³/s) 98.5

M7D10Y (ft³/s) 59.6

M30D10Y (ft³/s) 65.0

M90D10Y (ft³/s) 77.8

StreamStats Mean/Baseflow Stream Statistics

QA (ft³/s) 302

QAH (ft³/s) 187

BF10YR (ft³/s) 152

BF25YR (ft³/s) 136

BF50YR (ft³/s) 128

StreamStats Peak-Flow Stream Statistics

PK2 (ft³/s) 4,130

PK5 (ft³/s) 6,770

PK10 (ft³/s) 8,920

PK50 (ft³/s) 14,800

PK100 (ft³/s) 17,700

PK500 (ft³/s) 26,000

Existing Water Quality: 1746 BCP Musconetcong River at River Road, NJ

Musconetcong River, New Jersey, River Mile 174.60 – 0.15

Boundary Control Point is located at River Road (Rt. 627) bridge

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	0.06	0.05	0.08	
Chloride (mg/L)	43	42	45	
Chlorophyll a (mg/m ³)	3.20	2.56	3.71	
Dissolved Oxygen (mg/L) mid-day *	9.10	8.90	9.60	
Dissolved Oxygen Saturation (%)	99%	97%	100%	
E. coli (colonies/100 ml)	125	70	240	Y = antilog (1.0008 (log Q) – 0.0526)
Enterococcus (colonies/100 ml)	210 **	150 **	360 **	
Fecal coliform (colonies/100 ml) *	270 **	190	400 **	
Nitrate NO3-N (mg/L) *	2.09	1.85	2.30	
Orthophosphate (mg/L)	0.02	0.02	0.03	
pH *	7.90	7.80	8.00	
Specific Conductance (µS/cm)	396	375	426	Y = -0.23045946 Q + 440.1906
Total Dissolved Solids (mg/L)	255	240	270	Y = -0.0954 Q + 272.5773
Total Kjeldahl Nitrogen (mg/L)	0.49	0.37	0.87	
Total Nitrogen (mg/L) *	2.56	2.36	2.91	
Total Phosphorus (mg/L) *	0.07	0.05	0.09	
Total Suspended Solids (mg/L) *	7.0	5.5	11.0	
Turbidity (NTU)	3.5	2.3	5.4	Y = antilog (0.86 (log Q) – 1.294)
Alkalinity (mg/L)	103	97	118	Y = -79.84 (log Q) + 298.41
Hardness (mg/L)	149	130	160	Y = -67.6003 (log Q) + 297.8314

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

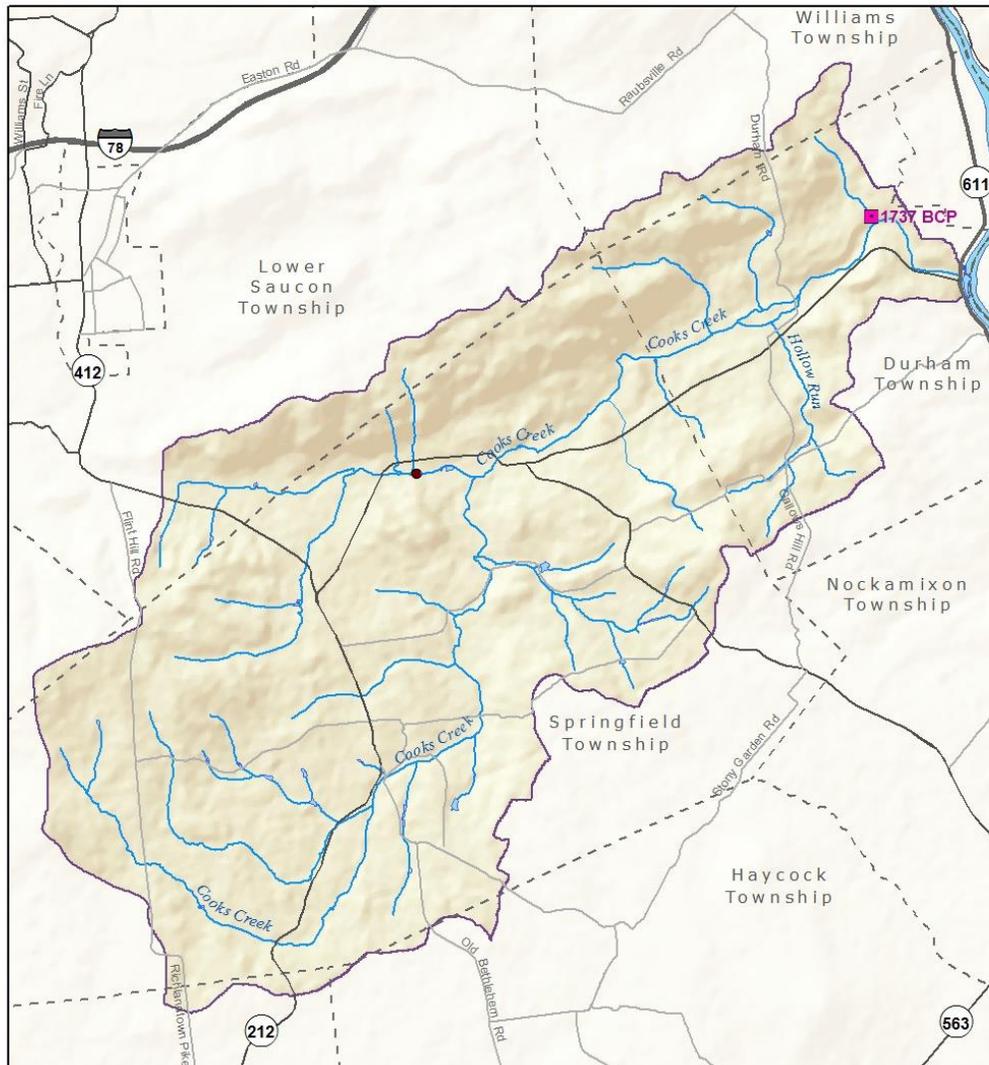
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

pH lower 95% CL should be 7.80. Listed in rules as 7.90.

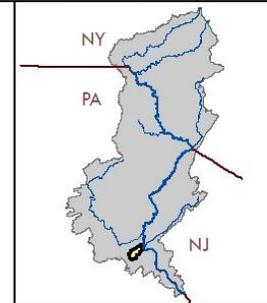
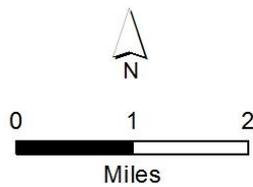
1737 BCP Cooks Creek at Red Bridge Road, PA



Cooks Creek

Drainage Area = 29.61 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1737 BCP Cooks Creek at Red Bridge Road, PA

Bucks County and Northampton County, PA

Site location Bucks County, PA. Latitude 40.58737 Longitude -75.21157 by GPS NAD83 decimal degrees.

USGS Sites 01457800, 01457790; PADEP Site WQN0187

Watershed Population: 2000 = 4,744 2010 = 4,813 Change: +69 (+1.4%)

Watershed Drainage Area: 29.6 square miles, tributary to Delaware River Zone 1E

Drainage Area at site: 28.9 square miles

Site Specific EWQ defined by DRBC 2000-2004.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Nearest downstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Known dischargers within watershed: Few, undefined.

Watershed is 59.9% forested; urban land cover is 1.3%. Watershed was not glaciated, and is 35.5% underlain by carbonate bedrock. Mean annual precipitation 45 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model from nearby gage):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
2,268	80.3	47.8	34.9	28.3	26.4	17.5	9.65	3.12

StreamStats Low-Flow Stream Statistics

M7D2Y (ft³/s) 8.20

M30D2Y (ft³/s) 10.0

M7D10Y (ft³/s) 4.33

M30D10Y (ft³/s) 5.35

M90D10Y (ft³/s) 7.53

StreamStats Mean/Baseflow Stream Statistics

QA (ft³/s) 44.5

QAH (ft³/s) 24.1

BF10YR (ft³/s) 24.4

BF25YR (ft³/s) 21.6

BF50YR (ft³/s) 20.1

StreamStats Peak-Flow Stream Statistics

PK2 (ft³/s) 1,210

PK5 (ft³/s) 2,060

PK10 (ft³/s) 2,740

PK50 (ft³/s) 4,550

PK100 (ft³/s) 5,460

PK500 (ft³/s) 7,960

Existing Water Quality: 1737 BCP Cooks Creek at Red Bridge Road, PA

Cooks Creek, Pennsylvania, River Mile 173.70 – 1.06
Boundary Control Point is located at Red Bridge Road bridge.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	9.7	8.9	10.9	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	9.93	9.70	10.30	
Dissolved Oxygen Saturation (%)	102%	98%	108%	
E. coli (colonies/100 ml)	110	80	200	Y = antilog (1.1307 (log Q) + 0.6483)
Enterococcus (colonies/100 ml)	380	250	520	
Fecal coliform (colonies/100 ml) *	210 **	140	360 **	
Nitrate NO3-N (mg/L) *	1.80	1.70	1.90	
Orthophosphate (mg/L)	0.01	0.01	0.02	
pH *	8.04	7.94	8.19	
Specific Conductance (µS/cm)	258	244	278	Y = -0.94618228 Q + 290.6508
Total Dissolved Solids (mg/L)	180	161	194	Y = -0.7015 Q + 197.6165
Total Kjeldahl Nitrogen (mg/L)	0.21	0.13	0.34	
Total Nitrogen (mg/L) *	2.01	1.95	2.32	
Total Phosphorus (mg/L) *	0.04	0.03	0.06	
Total Suspended Solids (mg/L) *	2.5	2.0	4.0	
Turbidity (NTU)	1.5	1.1	2.3	Y = antilog (0.888 (log Q) - 0.981)
Alkalinity (mg/L)	98	89	104	Y = -50.25 (log Q) + 168.52
Hardness (mg/L)	120	110	125	Y = -40.8625 (log Q) + 175.8628

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

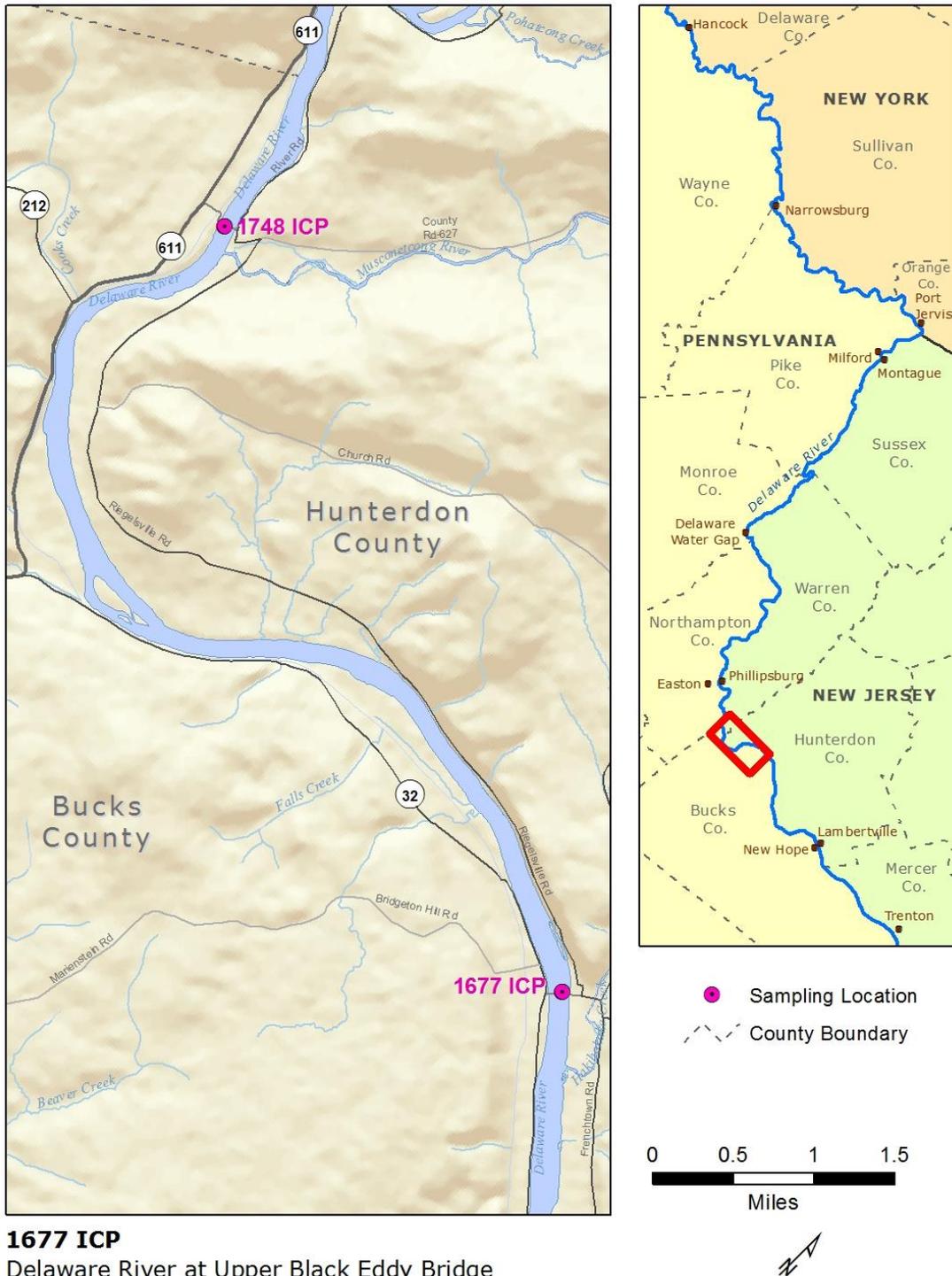
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

EWQ established 2000-2004 by DRBC

Corrections 2016:

None

1677 ICP Delaware River at Upper Black Eddy Bridge, PA/NJ



1677 ICP
Delaware River at Upper Black Eddy Bridge

1677 ICP Delaware River at Upper Black Eddy Bridge, PA/NJ

Bucks County, PA and Hunterdon County, NJ

Latitude 40.566667 Longitude -75.098611 by GPS NAD83 decimal degrees.

USGS site 01458000, no PADEP or NJDEP sites at bridge.

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 6,381 square miles, Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1748 ICP Delaware River at Riegelsville

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Known dischargers to upstream reach: Undefined

Tributaries to upstream reach: Major tributaries 1746 BCP Musconetcong River, NJ; 1737 BCP Cooks Creek, PA; small tributaries 173.5 Rodges Run, PA; 171.8 Gallows Run, PA; 170.3 Falls Creek, PA.

No Stream Stats web site data available because drainage area is too large for web site retrieval.

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
216,465	24,282	14,400	10,070	8,226	6,597	4,668	3,228	1,788

Existing Water Quality: 1677 ICP Delaware River at Upper Black Eddy, PA/NJ

Delaware River at Milford-U. Black Eddy Bridge, NJ/PA, River Mile 167.70

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.05	
Chloride (mg/L)	17	15	20	$Y = -0.00027835 Q + 20.221$
Chlorophyll a (mg/m ³)	1.80	0.90	2.70	
Dissolved Oxygen (mg/L) mid-day *	8.74	8.20	8.96	
Dissolved Oxygen Saturation (%)	96%	95%	97%	
E. coli (colonies/100 ml)	28	15	60	$Y = \text{antilog} (0.00004814 Q + 0.905)$
Enterococcus (colonies/100 ml)	45	28	98	
Fecal coliform (colonies/100 ml) *	60	40	120	$Y = \text{antilog} (0.00004177 Q + 1.2688)$
Nitrate NO3-N (mg/L) *	1.09	0.96	1.25	
Orthophosphate (mg/L)	0.04	0.04	0.07	
pH *	7.58	7.44	7.80	
Specific Conductance (µS/cm)	189	159	203	$Y = -0.00313416 Q + 212.42$
Total Dissolved Solids (mg/L)	149	130	160	$Y = -0.00270722 Q + 173.806$
Total Kjeldahl Nitrogen (mg/L)	0.34	0.26	0.46	
Total Nitrogen (mg/L) *	1.48	1.23	1.68	
Total Phosphorus (mg/L) *	0.09	0.07	0.12	
Total Suspended Solids (mg/L) *	6.0	4.5	7.0	$Y = 0.0006379 Q + 0.3729$
Turbidity (NTU)	2.9	2.2	3.8	$Y = \text{antilog} (0.00002693 Q + 0.1674)$
Alkalinity (mg/L)	44	37	49	$Y = -0.00087657 Q + 51.613$
Hardness (mg/L)	67	55	73	$Y = -0.0011369 Q + 74.63$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

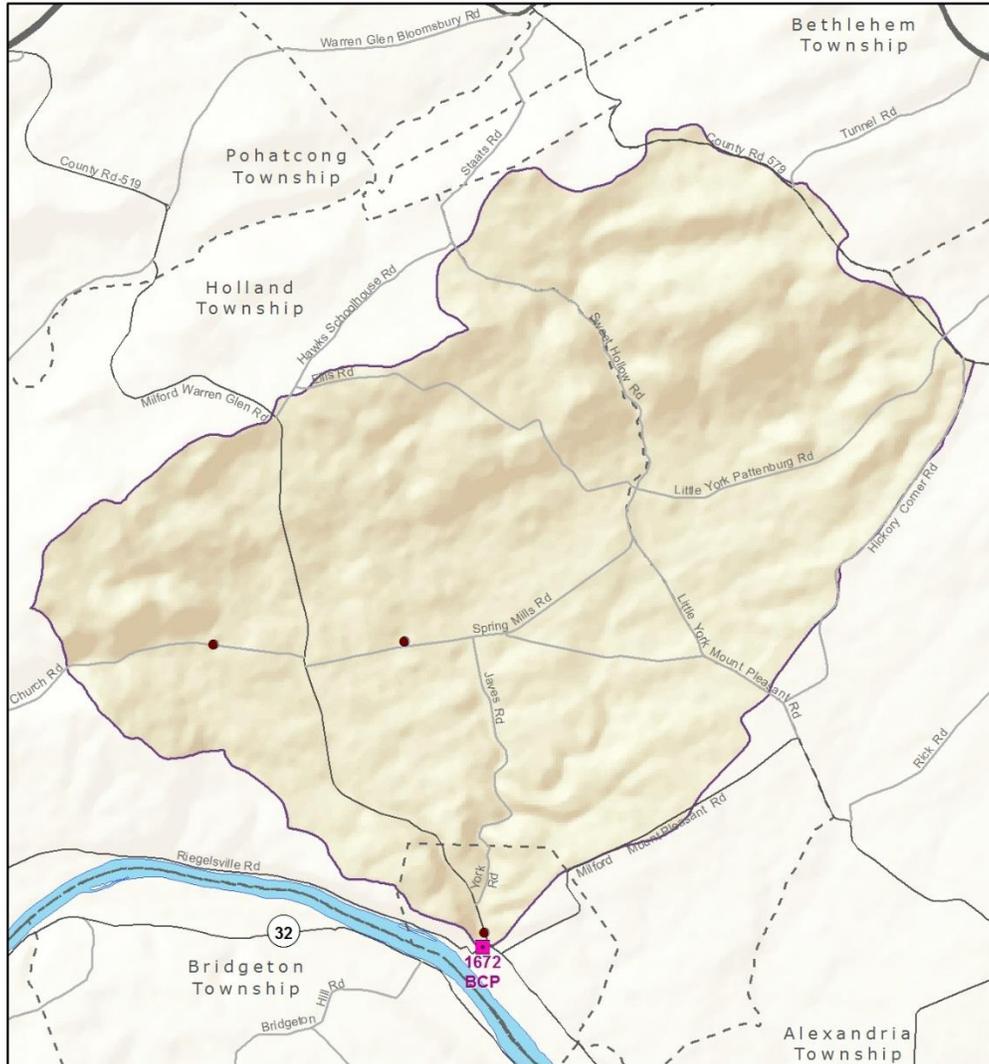
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

Corrections 2016:

None

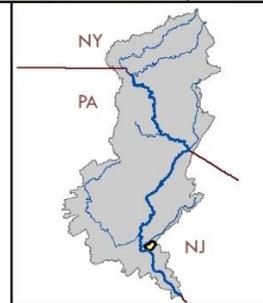
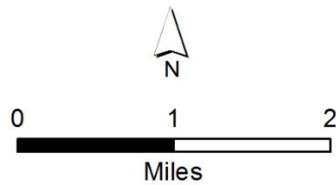
1672 BCP Hakiokake Creek at Bridge St., Milford, NJ



Hakiokake Creek

Drainage Area = 17.294955 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1672 BCP Hakhokake Creek at Bridge St., Milford, NJ

Hunterdon County, NJ. Latitude 40.568444 Longitude -75.095167 by GPS NAD83 decimal degrees.

USGS/NJDEP site 01458100; NJDEP BA200: NJDEP AN0077

Watershed Population: 2000 = 4,262 2010 = 4,325 Change: +63 (+1.5%)

Watershed Drainage Area: 17.6 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ definition underway by DRBC 2014-present; with additional USGS/NJDEP available data.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Known dischargers within watershed: Few, undefined.

Watershed is 53.7% forested; urban land cover is 5.8%. Watershed was not glaciated, and is 1.5% underlain by carbonate bedrock. Mean annual precipitation 46.9 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2014).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
1,909	56.9	30.8	22.5	18.5	18.2	12.8	7.35	2.91

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	6.89
M30D2Y (ft ³ /s)	8.10
M7D10Y (ft ³ /s)	3.91
M30D10Y (ft ³ /s)	4.63
M90D10Y (ft ³ /s)	5.94

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	28.5
QAH (ft ³ /s)	8.84
BF10YR (ft ³ /s)	11.9
BF25YR (ft ³ /s)	10.6
BF50YR (ft ³ /s)	9.79

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	763
PK5 (ft ³ /s)	1,310
PK10 (ft ³ /s)	1,750
PK50 (ft ³ /s)	2,930
PK100 (ft ³ /s)	3,530
PK500 (ft ³ /s)	5,170

Existing Water Quality: 1672 BCP Hakiwokake Creek, Milford, NJ

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/L	46	81	70	86	USGS 1980-82; NJDEP 2005-11; SRMP 2000, 2014-15
Ammonia-Nitrogen as N, Diss. mg/L	10	<0.012	<0.002	0.021	NJDEP 2004-2011 (4/10 non-detects)
Ammonia-Nitrogen as N, Total mg/L *	33	<0.006	<0.005	0.026	USGS 1980-82; NJDEP 2003; SRMP 2014-15 (20/33 ND)
Calcium, Dissolved mg/L	18	25.0	23.7	27.0	USGS 1980-82; NJDEP 2005-11
Chloride, Total mg/L	33	19.5	17.6	21.1	NJDEP 2003-10; SRMP 2014-15
Dissolved Oxygen (DO) mg/L mid-day *	65	9.57	9.34	9.90	USGS 1980-82; NJDEP 2003-11; SRMP 1999-2000, 2014-15
Dissolved Oxygen Saturation % mid-day	44	105.1	102.5	108.1	NJDEP 2005-11; SRMP 1999-2000, 2014-15
Enterococcus #/100ml {1}	8				Insufficient data for EWQ definition
Escherichia coli #/100mL {2}	10	100	21	194 **	NJDEP 2007, 2012; Insufficient data for EWQ definition
Fecal coliform #/100mL *	24	750 **	170	1300 **	USGS 1980-82; NJDEP 2006-07, 2012
Hardness as CaCO ₃ , Total mg/L	48	110	103	121	USGS 1980-82; NJDEP 2005-11; SRMP 2000, 2014-15
Magnesium, Dissolved mg/L	18	9.7	7.7	11.0	USGS 1980-82; NJDEP 2005-11
Nitrate+Nitrite as N, Total mg/L *	43	1.35	1.30	1.48	USGS 1980-82; NJDEP 2003-11; SRMP 1999, 2014-15
Nitrogen as N, Total mg/L *	27	1.67	1.49	1.77	USGS 1980-82, 2011; SRMP 2014-15
Nitrogen, Kjeldahl as N, Total mg/L	43	0.171	0.139	0.220	USGS 1980-82; NJDEP 2005-11; SRMP 2014-15
Organic Carbon, Total mg/L	17	1.70	1.27	2.26	USGS 1980-82; NJDEP 2005-11
pH units, mid-day *	53	8.20	8.10	8.30	USGS 1980-82; NJDEP 2003-11; SRMP 1999-2000, 2014-15
Phosphate as P, Dissolved mg/L	11	0.031	0.020	0.041	NJDEP 2003-2010
Phosphate as P, Total mg/L	22	0.031	0.026	0.033	SRMP 2014-15
Phosphorus as P, Dissolved mg/L	13	0.048	0.042	0.085	NJDEP 2003-2010
Phosphorus as P, Total mg/L *	48	0.045	0.040	0.050	USGS 1980-82; NJDEP 2003-11; SRMP 2000, 2014-15
Potassium, Dissolved mg/L	18	1.42	1.32	1.59	USGS 1980-82; NJDEP 2005-11
Sodium, Dissolved mg/L	18	9.7	8.3	10.0	USGS 1980-82; NJDEP 2005-11
Specific Conductance μ S/cm	53	262	250	272	USGS 1980-82; NJDEP 2003-11; SRMP 1999-2000, 2014-15
Sulfate, Total mg/L	10	15.4	12.8	18.7	NJDEP 2003-2010
Temperature, Water, degrees C mid-day	66	18.7	17.5	20.1	USGS 1980-82; NJDEP 2003-12; SRMP 1999-2000, 2014-15
Total Dissolved Solids (TDS) mg/L	50	170	164	181	USGS 1980-82; NJDEP 2003-11; SRMP 2000, 2014-15
Total Suspended Solids (TSS) mg/L *	41	3.0	2.0	5.0	NJDEP 2003-2010; SRMP 2000, 2014-15
Turbidity NTU	34	0.93	0.62	1.28	NJDEP 2004-2011; SRMP 2014-15

Two-tailed 95% (Lower and Upper) confidence limits were used for these EWQ targets

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

** Value exceeds state and/or DRBC water quality criterion

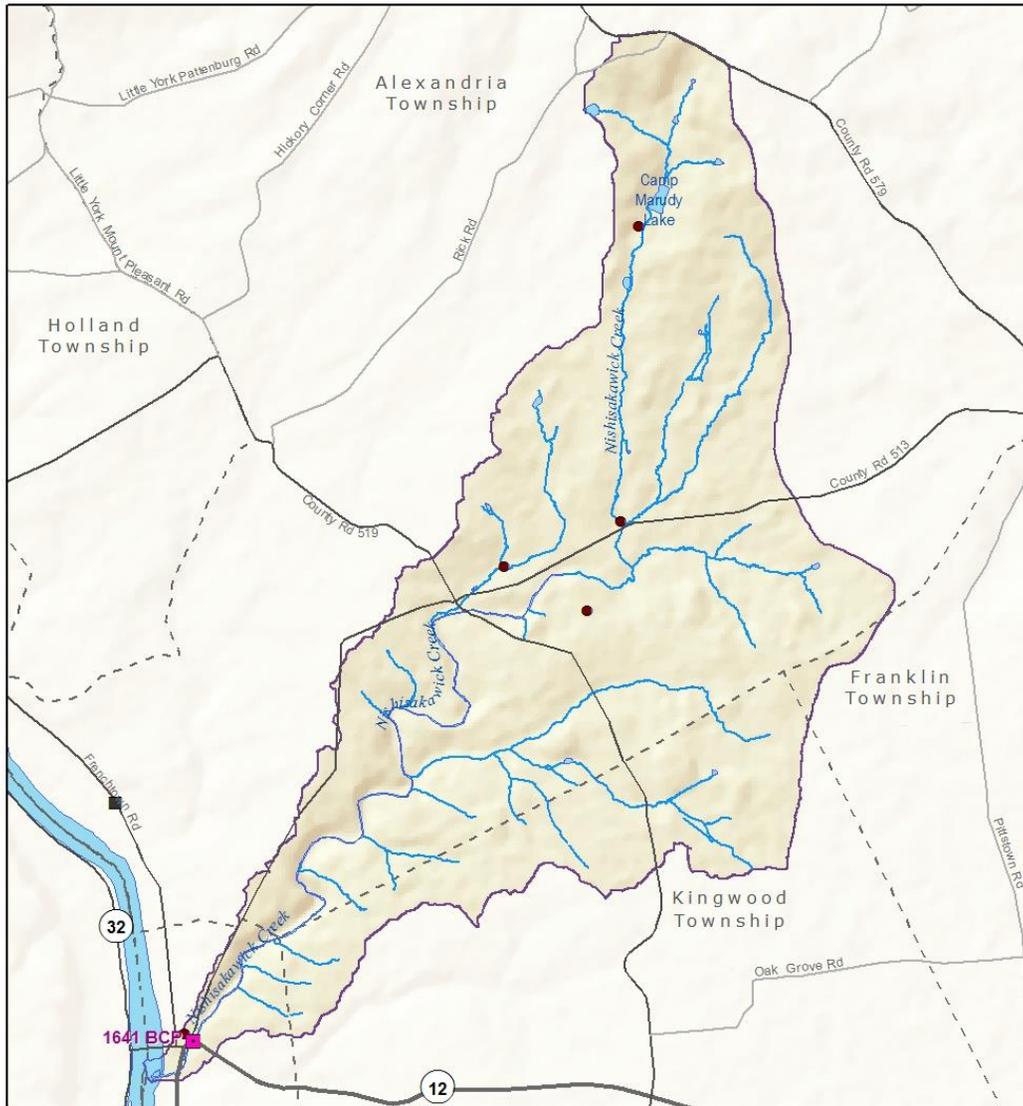
Note: All data are May to September season. Additional data are available for the October to April “non-seasonal” period, but data are insufficient in number for establishment of site-specific existing water quality targets.

There were many more parameters collected at this site over the years, but were excluded from this table because of insufficient frequency of sampling or because most results were not detected.

Dissolved oxygen, pH and temperature data represent mid-day near maximum values, as they are all grab samples taken between 10 AM and 3 PM.

This table is incomplete. The SRMP is conducting one more year of confirmatory monitoring in 2016 to supplement historical and current NJDEP and USGS data used to calculate existing water quality at this site.

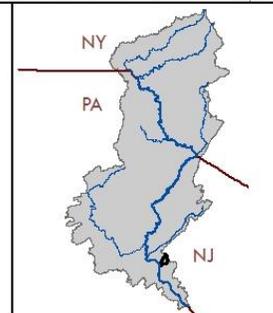
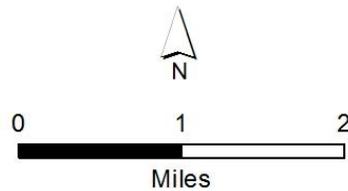
1641 BCP Nishisakawick Creek at Kingwood Ave., Frenchtown, NJ



Nishisakawick Creek

Drainage Area = 11.21 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- 🗺️ Drainage Area



1641 BCP Nishisakawick Creek at Kingwood Ave., Frenchtown, NJ

Hunterdon County, NJ. Latitude 40.5268 Longitude -75.0597 by GPS NAD83 decimal degrees.

USGS sites 01458600, 01458570

Watershed Population: 2000 = 2,077 2010 = 2,114 Change: +37 (+1.8%)

Watershed Drainage Area: 11.2 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2000-2004.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters. Small tributary representative of NJ Piedmont streams.

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Known dischargers within watershed: Few, undefined.

Watershed is 30.2% forested; urban land cover 2001 is 2.8%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 47.2 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
1,265	37.3	19.6	14.7	12.1	9.30	4.86	2.03	0.27

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	0.79
M30D2Y (ft ³ /s)	1.20
M7D10Y (ft ³ /s)	0.29
M30D10Y (ft ³ /s)	0.46
M90D10Y (ft ³ /s)	0.90

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	16.7
QAH (ft ³ /s)	4.53
BF10YR (ft ³ /s)	5.97
BF25YR (ft ³ /s)	5.20
BF50YR (ft ³ /s)	4.77

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	518
PK5 (ft ³ /s)	901
PK10 (ft ³ /s)	1,210
PK50 (ft ³ /s)	2,030
PK100 (ft ³ /s)	2,450
PK500 (ft ³ /s)	3,590

Existing Water Quality: 1641 BCP Nishisakawick Creek, Frenchtown, NJ

Nishisakawick Creek, New Jersey, River Mile 164.10 – 0.35

Boundary Control Point is located at Route 12 bridge, Frenchtown.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.06	
Chloride (mg/L)	15	14	16	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	9.65	9.11	10.10	
Dissolved Oxygen Saturation (%)	101%	99%	105%	
E. coli (colonies/100 ml)	48	20	96	$Y = \text{antilog}(0.5217(\log Q) + 1.5665)$
Enterococcus (colonies/100 ml)	240 **	170 **	790 **	
Fecal coliform (colonies/100 ml) *	85	50	120	
Nitrate NO3-N (mg/L) *	1.62	1.52	1.83	
Orthophosphate (mg/L)	0.04	0.03	0.05	
pH *	7.89	7.56	8.00	
Specific Conductance (µS/cm)	181	176	190	$Y = -24.8604(\log Q) + 189.4554$
Total Dissolved Solids (mg/L)	130	120	144	$Y = -0.9989 Q + 139.9081$
Total Kjeldahl Nitrogen (mg/L)	0.35	0.21	0.59	
Total Nitrogen (mg/L) *	2.09	1.70	2.39	
Total Phosphorus (mg/L) *	0.06	0.05	0.07	
Total Suspended Solids (mg/L) *	1.5	1.0	2.0	
Turbidity (NTU)	1.3	0.9	2.0	$Y = \text{antilog}(0.0315 Q - 0.1328)$
Alkalinity (mg/L)	45	40	51	$Y = -16.39(\log Q) + 55.14$
Hardness (mg/L)	60	59	65	$Y = -12.5184(\log Q) + 66.8341$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

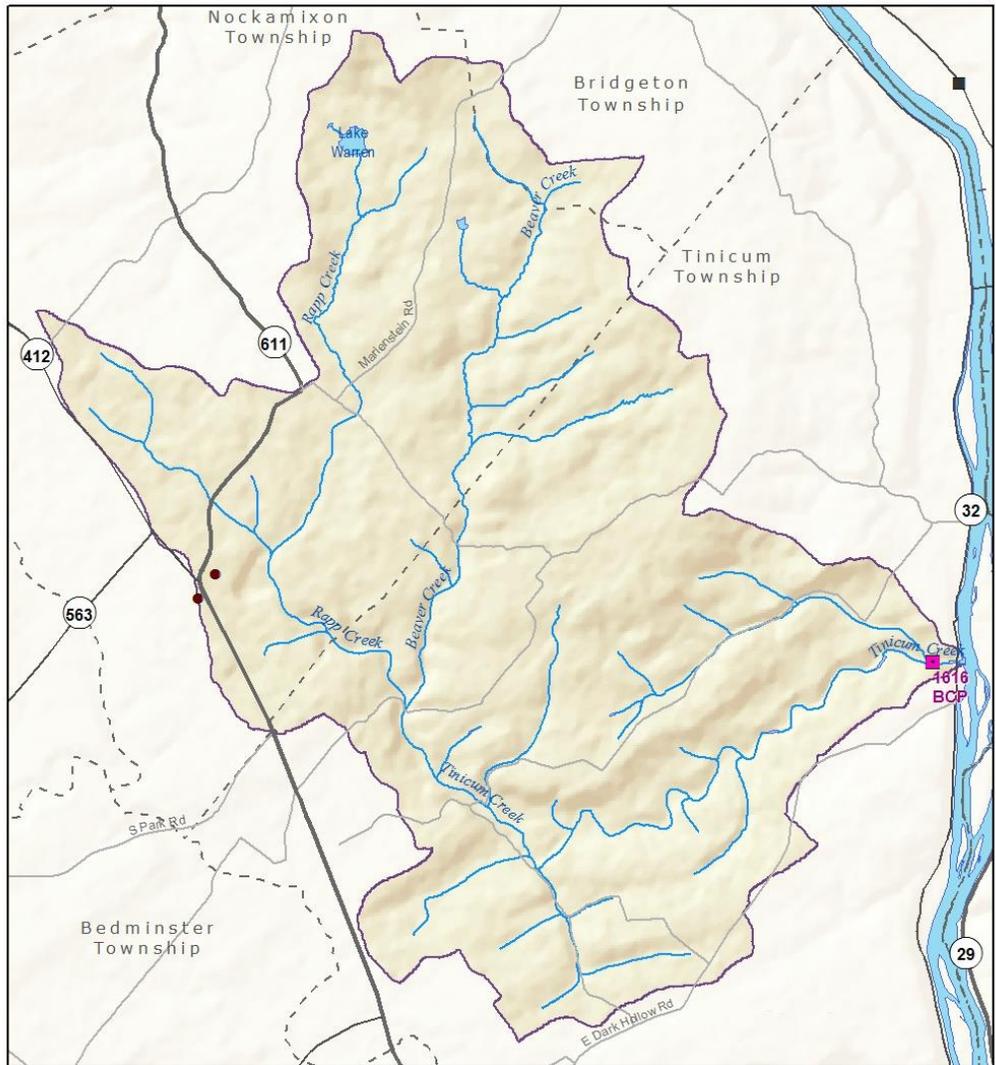
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined by DRBC 2000-2004.

Corrections 2016:

None

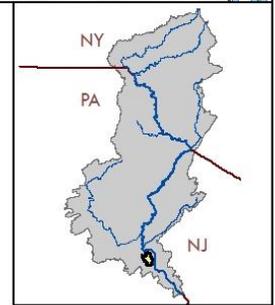
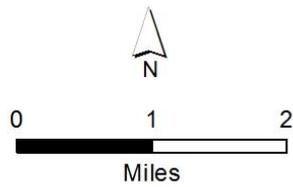
1616 BCP Tincum Creek above Rt. 32, PA



Tincum Creek

Drainage Area = 23.95 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Drainage Area



1616 BCP Tinicum Creek above Rt. 32, PA

Bucks County, PA. Latitude 40.4857 Longitude -75.0725 by GPS NAD83 decimal degrees.

USGS Sites 01458920. 01458900 nearby

Watershed Population: 2000 = 3,297 2010 = 3,103 Change: -194 (-5.9%)

Drainage Area at site: 24 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2000-2004.

Tinicum Creek is a designated national Wild and Scenic River.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Known dischargers within watershed: Few, undefined.

Watershed is 76.8% forested; urban land cover is 0.8%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 45.1 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
2,594	75.1	35.9	28.2	23.0	18.3	9.70	4.35	0.58

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	3.82
M30D2Y (ft ³ /s)	5.07
M7D10Y (ft ³ /s)	1.76
M30D10Y (ft ³ /s)	2.39
M90D10Y (ft ³ /s)	3.78

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	36.8
QAH (ft ³ /s)	10.9
BF10YR (ft ³ /s)	17.2
BF25YR (ft ³ /s)	15.3
BF50YR (ft ³ /s)	14.3

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	1,010
PK5 (ft ³ /s)	1,730
PK10 (ft ³ /s)	2,300
PK50 (ft ³ /s)	3,830
PK100 (ft ³ /s)	4,600
PK500 (ft ³ /s)	6,710

Existing Water Quality: 1616 BCP Tinicum Creek above Rt. 32, PA

Tinicum Creek, Pennsylvania, River Mile 161.60 – 0.24

Boundary Control Point is located on private property by Tinicum Creek Road, just below confluence of first unnamed tributary.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	14	12	16	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	9.80	8.90	10.10	
Dissolved Oxygen Saturation (%)	104%	101%	107%	
E. coli (colonies/100 ml)	80	55	180	$Y = \text{antilog}(0.4334(\log Q) + 1.5807)$
Enterococcus (colonies/100 ml)	200	96	340	
Fecal coliform (colonies/100 ml) *	155	124	280 **	
Nitrate NO3-N (mg/L) *	0.79	0.64	1.00	
Orthophosphate (mg/L)	0.01	0.01	0.02	
pH *	8.00	7.70	8.30	
Specific Conductance (µS/cm)	247	219	262	$Y = -69.3482(\log Q) + 285.899$
Total Dissolved Solids (mg/L)	180	170	190	$Y = -39.2799(\log Q) + 204.5375$
Total Kjeldahl Nitrogen (mg/L)	0.30	0.13	0.41	
Total Nitrogen (mg/L) *	1.14	0.79	1.23	
Total Phosphorus (mg/L) *	0.04	0.03	0.04	
Total Suspended Solids (mg/L) *	2.0	1.0	3.0	
Turbidity (NTU)	1.1	0.9	1.8	$Y = \text{antilog}(0.4453(\log Q) - 0.2226)$
Alkalinity (mg/L)	61	52	72	$Y = -19.56(\log Q) + 75.97$
Hardness (mg/L)	91	75	101	$Y = -29.6089(\log Q) + 113.3701$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

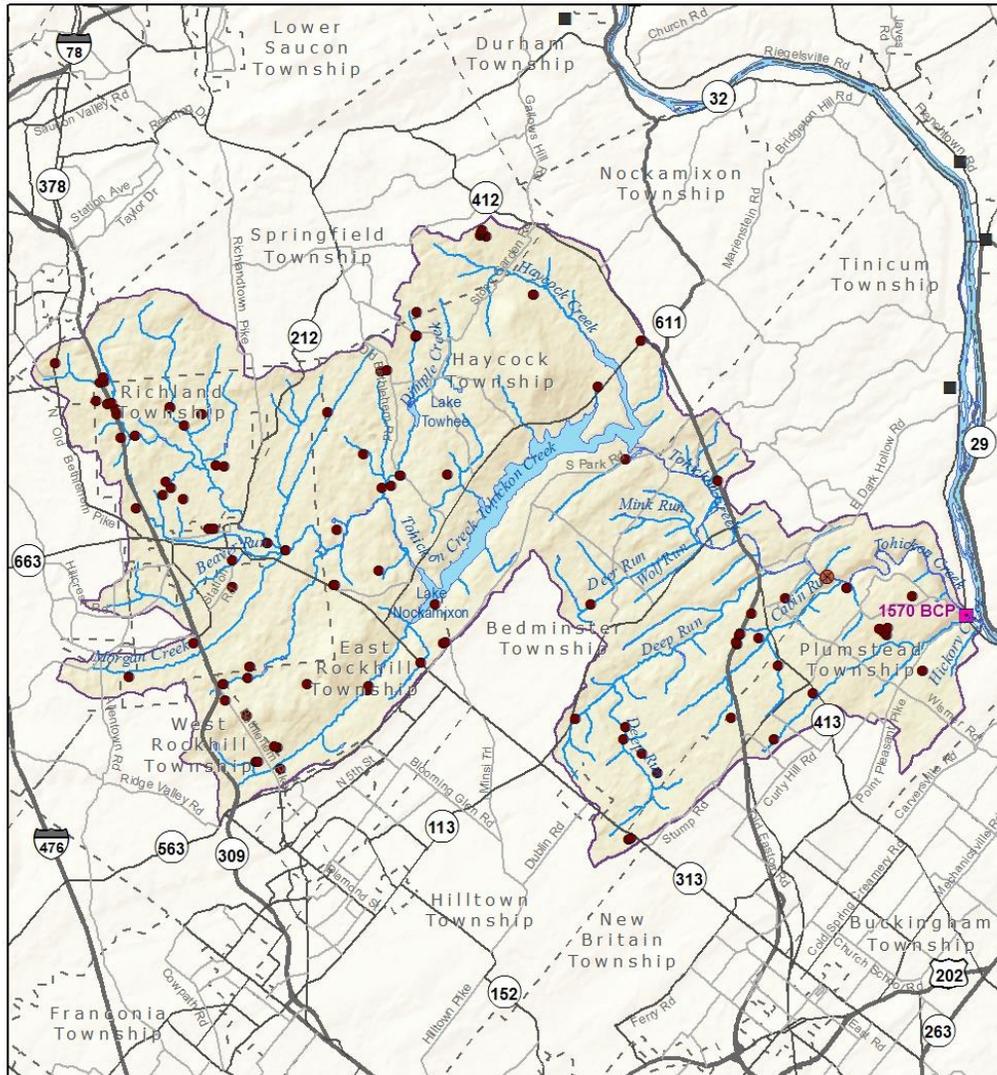
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined by DRBC 2000-2004.

Corrections 2016:

None

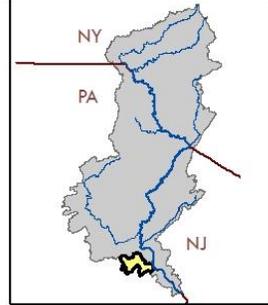
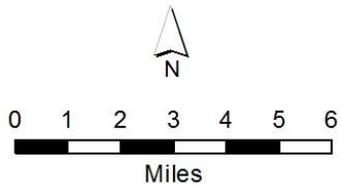
1570 BCP Tohickon Creek at Aqueduct below Rt. 32, PA



Tohickon Creek

Drainage Area = 113.77 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Stream Gage
- Drainage Area



1570 BCP Tohickon Creek at Aqueduct below Rt. 32, PA

Bucks County, PA. Latitude 40.42306 Longitude -75.06667 by GPS NAD83 decimal degrees.

USGS sites 01459500 Pipersville gage, 01460000 water quality site near BCP

Watershed Population: 2000 = 38,249 2010 = 42,600 Change: +4,351 (+11.4%)

Drainage Area: 113.9 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2000-2004.

The lower Tohickon Creek is a designated national Wild and Scenic River.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Known dischargers within watershed: Many, undefined. Nockamixon Reservoir controls flow.

Watershed is 57.3% forested; urban land cover is 4.4%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 45 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model estimates based on USGS Tohickon Creek gage 01459500 at Pipersville, PA):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
7,875	450	159	141	52.0	85.1	17.3	5.77	0.69

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	8.05
M30D2Y (ft ³ /s)	12.3
M7D10Y (ft ³ /s)	3.16
M30D10Y (ft ³ /s)	4.93
M90D10Y (ft ³ /s)	10.5

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	174
QAH (ft ³ /s)	53.5
BF10YR (ft ³ /s)	70.2
BF25YR (ft ³ /s)	62.2
BF50YR (ft ³ /s)	57.6

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	3,480
PK5 (ft ³ /s)	5,740
PK10 (ft ³ /s)	7,560
PK50 (ft ³ /s)	12,500
PK100 (ft ³ /s)	14,900
PK500 (ft ³ /s)	21,800

Existing Water Quality: 1570 BCP Tohickon Creek at Aqueduct below Rt. 32, PA

Tohickon Creek, Pennsylvania, River Mile 157.00 – 0.19

Boundary Control Point is located at the Delaware Canal Aqueduct crossing in Point Pleasant.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	27	25	29	$Y = -4.6046 (\log Q) + 34.3562$
Chlorophyll a (mg/m ³)	2.14	1.07	3.20	
Dissolved Oxygen (mg/L) mid-day *	9.06	8.60	9.20	
Dissolved Oxygen Saturation (%)	100%	98%	103%	
E. coli (colonies/100 ml)	38	20	60	$Y = \text{antilog} (0.8609 (\log Q) + 0.2319)$
Enterococcus (colonies/100 ml)	540	250	980	
Fecal coliform (colonies/100 ml) *	90	60	170	$Y = \text{antilog} (0.6939 (\log Q) + 0.9399)$
Nitrate NO3-N (mg/L) *	0.63	0.52	0.72	
Orthophosphate (mg/L)	0.015	0.01	0.02	
pH *	8.00	7.80	8.20	
Specific Conductance (µS/cm)	218	212	226	$Y = -27.1873 (\log Q) + 261.345$
Total Dissolved Solids (mg/L)	162	150	170	$Y = -27.494 (\log Q) + 204.9618$
Total Kjeldahl Nitrogen (mg/L)	0.37	0.34	0.49	
Total Nitrogen (mg/L) *	1.03	0.87	1.16	
Total Phosphorus (mg/L) *	0.04	0.04	0.05	
Total Suspended Solids (mg/L) *	2.0	1.0	2.5	
Turbidity (NTU)	1.3	0.9	2.0	$Y = \text{antilog} (0.5292 (\log Q) - 0.6216)$
Alkalinity (mg/L)	46	40	49	$Y = -8.96 (\log Q) + 60$
Hardness (mg/L)	64	62	68	$Y = -10.6687 (\log Q) + 81.5734$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

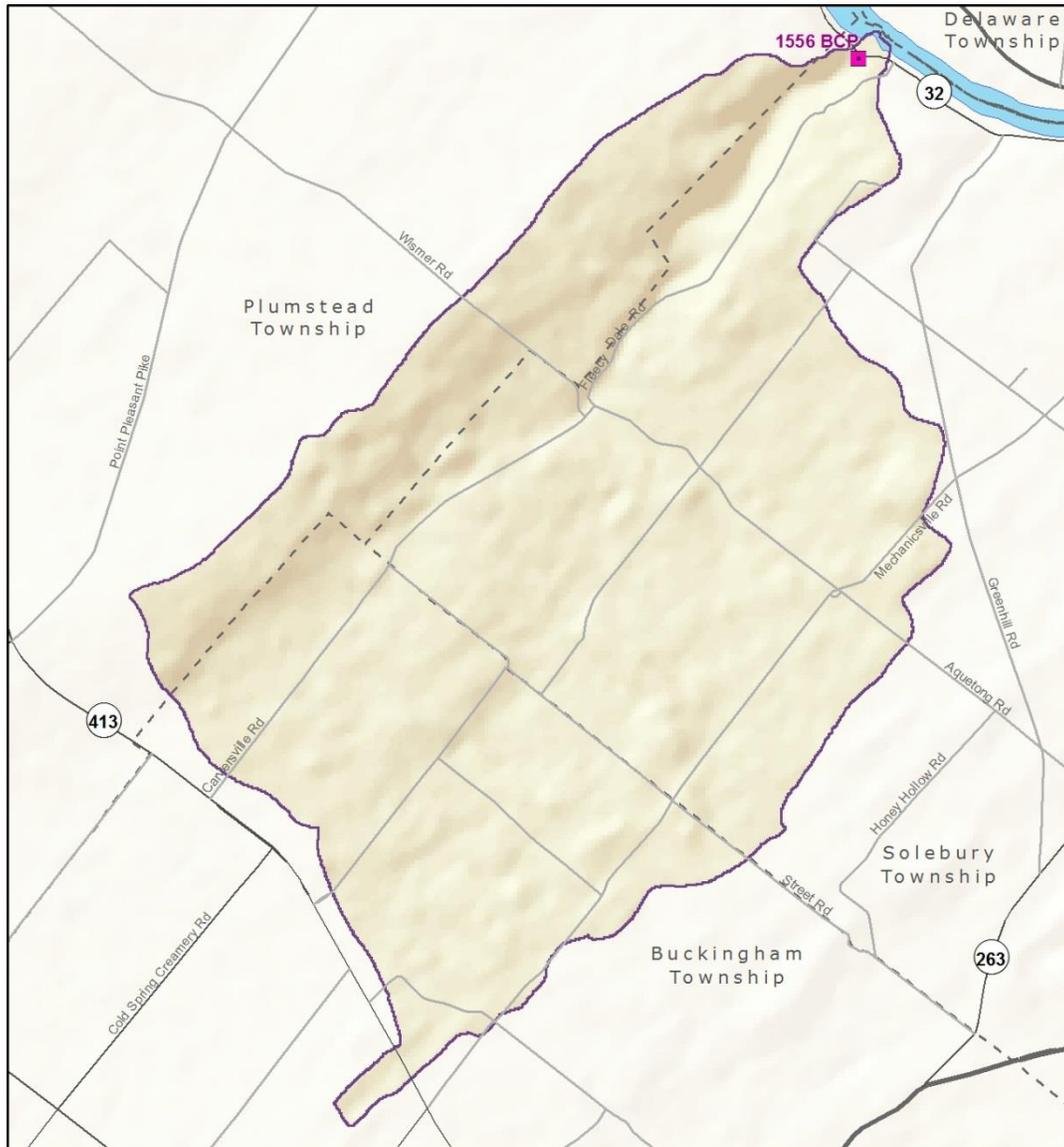
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined by DRBC 2000-2004.

Corrections 2016:

None

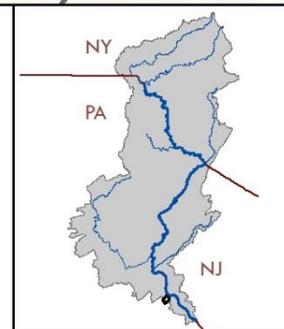
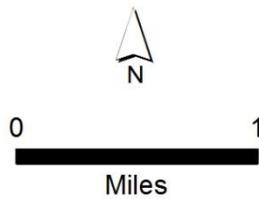
1556 BCP Paunacussing Creek at Rt. 32, PA



Paunacussing Creek

Drainage Area = 7.9 mi²

- Sampling Location
- Other Sampling Location
- 🌀 Drainage Area



1556 BCP Paunacussing Creek at Rt. 32, PA

Bucks County, PA. Latitude 40.4076 Longitude -75.0416 by GPS NAD83 decimal degrees.

No USGS or PADEP sites nearby

Watershed Population: 2000 = 2,359 2010 = 2,558 Change = +199 (+8.4%)

Drainage Area at site: 7.9 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined by DRBC 2000-2004.

Paunacussing Creek is a designated National Wild and Scenic River.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Known dischargers within watershed: None.

Watershed is 49.7% forested; urban land cover is 0.9%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 45 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics from flow duration curve associated with water quality samples (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
911	23.2	11.0	8.78	7.13	5.78	2.99	1.33	0.17

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	0.87
M30D2Y (ft ³ /s)	1.25
M7D10Y (ft ³ /s)	0.34
M30D10Y (ft ³ /s)	0.51
M90D10Y (ft ³ /s)	0.95

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	11.0
QAH (ft ³ /s)	2.84
BF10YR (ft ³ /s)	4.48
BF25YR (ft ³ /s)	3.93
BF50YR (ft ³ /s)	3.62

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	411
PK5 (ft ³ /s)	720
PK10 (ft ³ /s)	968
PK50 (ft ³ /s)	1,620
PK100 (ft ³ /s)	1,950
PK500 (ft ³ /s)	2,860

Existing Water Quality: 1556 BCP Paunacussing Creek at Rt. 32, PA

Paunacussing Creek, Pennsylvania, River Mile 155.90 – 0.12

Boundary Control Point is located at Route 32 bridge, Lumberville.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	24	23	25	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	9.42	8.90	9.81	
Dissolved Oxygen Saturation (%)	98%	96%	101%	
E. coli (colonies/100 ml)	28	15	84	$Y = \text{antilog}(0.742(\log Q) + 1.3102)$
Enterococcus (colonies/100 ml)	320	160	520	
Fecal coliform (colonies/100 ml) *	80	60	130	$Y = \text{antilog}(0.5676(\log Q) + 1.7382)$
Nitrate NO3-N (mg/L) *	2.58	2.15	2.75	
Orthophosphate (mg/L)	0.05	0.04	0.05	
pH *	7.60	7.47	7.72	
Specific Conductance (µS/cm)	229	218	242	$Y = -18.8373(\log Q) + 238.7433$
Total Dissolved Solids (mg/L)	130	120	144	$Y = -24.3907(\log Q) + 154.9198$
Total Kjeldahl Nitrogen (mg/L)	0.30	0.17	0.36	
Total Nitrogen (mg/L) *	2.96	2.83	3.15	
Total Phosphorus (mg/L) *	0.07	0.06	0.08	
Total Suspended Solids (mg/L) *	1.0	1.0	2.0	
Turbidity (NTU)	0.8	0.5	1.6	
Alkalinity (mg/L)	47	42	55	$Y = -13.64(\log Q) + 52.88$
Hardness (mg/L)	80	75	85	$Y = -12.1905(\log Q) + 84.3707$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

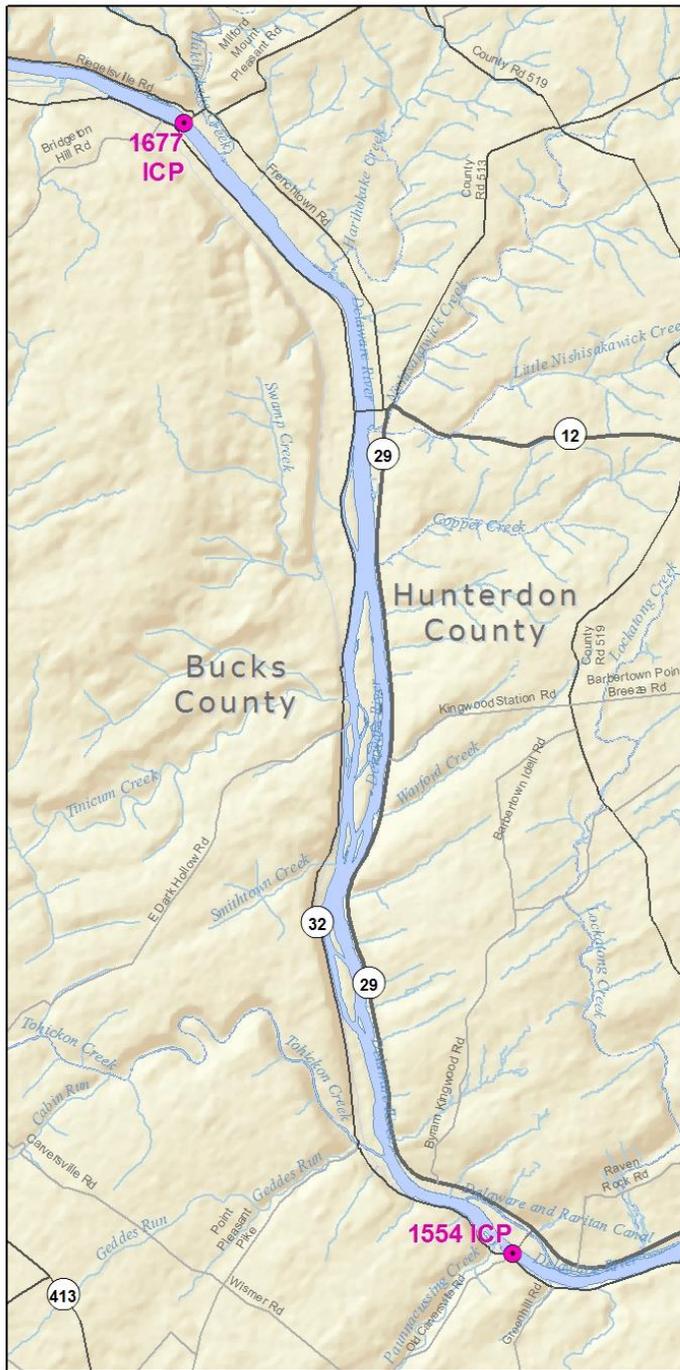
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined by DRBC 2000-2004.

Corrections 2016:

None

1554 ICP Delaware River at Bulls Island Foot Bridge, PA/NJ



1554 ICP
Delaware River at Bull's Island Foot Bridge



- Sampling Location
- - - County Boundary



1554 ICP Delaware River at Bulls Island Foot Bridge, PA/NJ

Hunterdon County, NJ and Bucks County, PA

Latitude 40.4075 Longitude -75.03778 by GPS NAD83 decimal degrees.

USGS sites 01461000, 01460820; NJDEP site 01461000

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 6,598 square miles, Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1677 ICP Delaware River at Milford / Upper Black Eddy Bridge

Nearest downstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Known dischargers within upstream reach: Undefined

Tributaries to upstream reach: Major tributaries 1672 BCP Hakhokake Creek, NJ; 1641 BCP Nishisakawick Creek, NJ; 1616 BCP Tinicum Creek, PA; 1570 BCP Tohickon Creek, PA; 1556 BCP Paunacussing Creek, PA. Small tributaries 165.7 Harihokake Creek, NJ; 164.9 Little Nishisakawick Creek, NJ; 162.9 Copper Creek, NJ; 161.1 Warford Creek, NJ; 160.6 Smithtown Creek, PA; 160.2 Warsaw Creek, NJ.

No Stream Stats web site data available because drainage area too large for web site retrieval.

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
223,826	25,107	14,889	10,413	8,505	6,822	4,827	3,338	1,849

Existing Water Quality: 1554 ICP Delaware River at Bulls Island Foot Bridge

Delaware River at Bulls Island (Lumberville-Raven Rock) Foot Bridge, PA/NJ, River Mile 155.40

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	17	15	20	$Y = -0.00044266 Q + 21.906$
Chlorophyll a (mg/m ³)	2.70	1.07	3.20	
Dissolved Oxygen (mg/L) mid-day *	8.80	8.40	9.30	
Dissolved Oxygen Saturation (%)	98%	95%	100%	
E. coli (colonies/100 ml)	40	23	80	$Y = \text{antilog}(0.00003626 Q + 1.0914)$
Enterococcus (colonies/100 ml)	49	32	100	
Fecal coliform (colonies/100 ml) *	71	36	90	$Y = \text{antilog}(0.00003537 Q + 1.3646)$
Nitrate NO3-N (mg/L) *	1.00	0.88	1.23	
Orthophosphate (mg/L)	0.04	0.04	0.06	
pH *	7.60	7.50	7.74	
Specific Conductance (µS/cm)	186	170	202	$Y = -0.00482529 Q + 229.19$
Total Dissolved Solids (mg/L)	140	130	160	$Y = -0.00277475 Q + 169.368$
Total Kjeldahl Nitrogen (mg/L)	0.32	0.27	0.55	
Total Nitrogen (mg/L) *	1.48	1.26	1.59	
Total Phosphorus (mg/L) *	0.10	0.07	0.12	
Total Suspended Solids (mg/L) *	5.0	4.0	7.0	$Y = 0.0007482 Q - 0.48$
Turbidity (NTU)	3.8	2.2	6.0	
Alkalinity (mg/L)	45	38	51	$Y = -0.00129755 Q + 56.978$
Hardness (mg/L)	68	60	72	$Y = -0.00134498 Q + 78.78$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

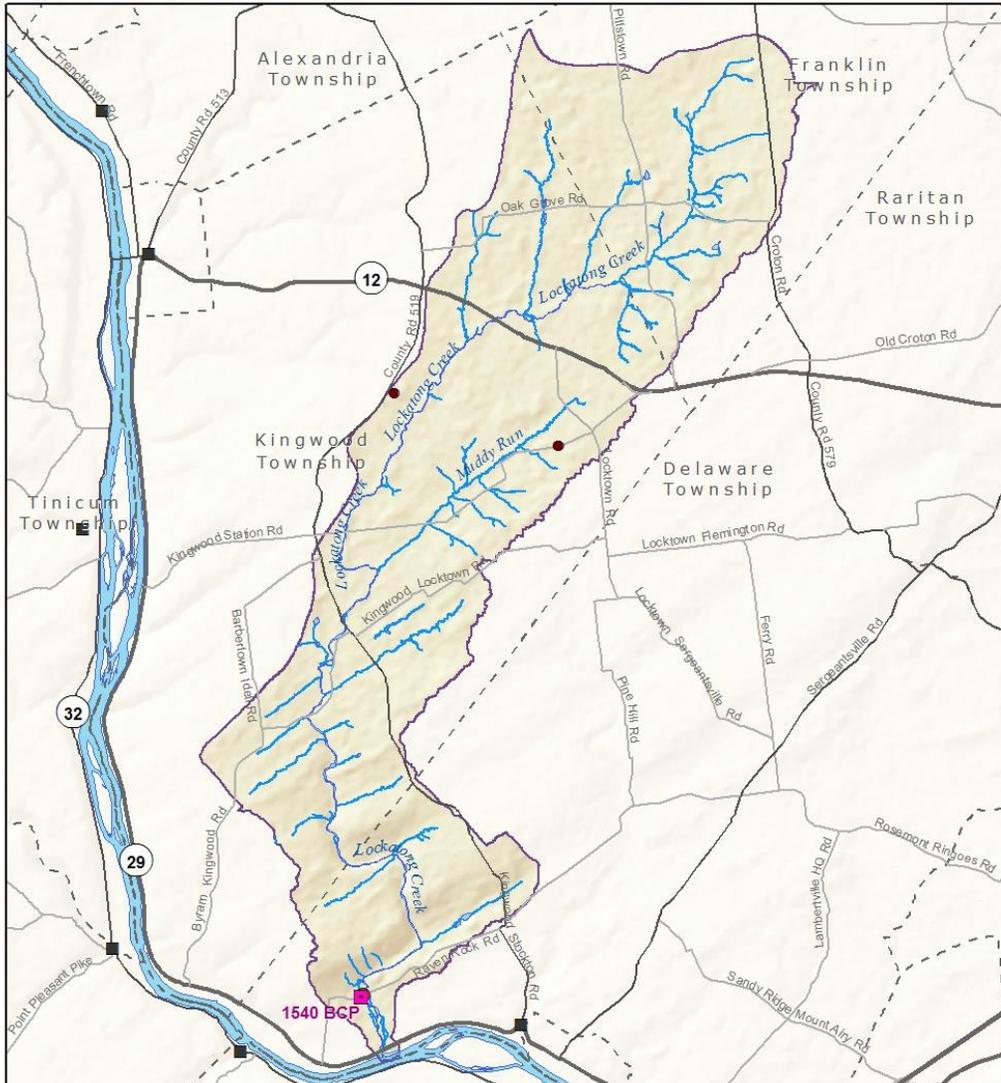
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

Corrections 2016:

None

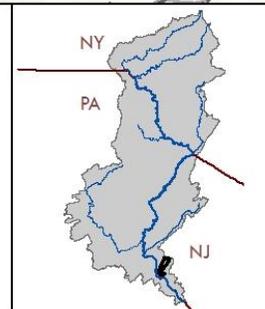
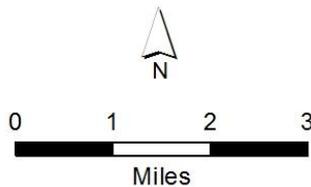
1540 BCP Lockatong Creek at Raven Rock-Rosemont Rd., NJ



Lockatong Creek

Drainage Area = 23.11 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- Stream Gage
- ▭ Drainage Area



1540 BCP Lockatong Creek at Raven Rock-Rosemont Rd., NJ

Hunterdon County, NJ. Latitude 40.41583 Longitude -75.01806 by GPS NAD83 decimal degrees.

USGS/NJDEP site 01460900

Watershed Population: 2000 = 2,413 2010 = 2,514 Change: +101 (+4.2%)

Watershed Drainage Area: 23.1 square miles, tributary to Delaware River Zone 1E

Drainage Area at site 1540 BCP: 22.7 square miles.

Site Specific EWQ defined 2000-2004 by DRBC.

Watershed is tributary to the Delaware and Raritan Canal and the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Nearest downstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Known dischargers within watershed: Few, undefined. Lockatong Creek provides water supply to the New Jersey Water Supply Authority.

Watershed is 40.7% forested; urban land cover is 0.5%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 47.1 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
2,525	77.6	38.8	30.5	25.1	20.1	10.9	4.89	0.71

StreamStats Low-Flow Stream Statistics

M7D2Y (ft³/s) 1.01

M30D2Y (ft³/s) 1.68

M7D10Y (ft³/s) 0.32

M30D10Y (ft³/s) 0.56

M90D10Y (ft³/s) 1.42

StreamStats Mean/Baseflow Stream Statistics

QA (ft³/s) 35.3

QAH (ft³/s) 10.1

BF10YR (ft³/s) 13.4

BF25YR (ft³/s) 11.8

BF50YR (ft³/s) 10.8

StreamStats Peak-Flow Stream Statistics

PK2 (ft³/s) 884

PK5 (ft³/s) 1,510

PK10 (ft³/s) 2,020

PK50 (ft³/s) 3,400

PK100 (ft³/s) 4,090

PK500 (ft³/s) 6,020

Existing Water Quality: 1540 BCP Lockatong Creek, NJ

Lockatong Creek, New Jersey, River Mile 154.00 – 0.75

Boundary Control Point is located at Rosemont-Raven Rock Road bridge.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	13	11	14	$Y = -3.0659 (\log Q) + 14.6262$
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	n/a
Dissolved Oxygen (mg/L) mid-day *	8.70	8.30	9.10	
Dissolved Oxygen Saturation (%)	94%	90%	96%	
E. coli (colonies/100 ml)	33	20	50	$Y = \text{antilog} (0.6703 (\log Q) + 1.1906)$
Enterococcus (colonies/100 ml)	260 **	98 **	480 **	
Fecal coliform (colonies/100 ml) *	32	20	76	$Y = \text{antilog} (1.0321 (\log Q) + 1.1157)$
Nitrate NO3-N (mg/L) *	1.13	0.92	1.40	
Orthophosphate (mg/L)	0.03	0.02	0.04	
pH *	7.30	7.20	7.50	
Specific Conductance (µS/cm)	180	165	191	$Y = -35.3137 (\log Q) + 193.0827$
Total Dissolved Solids (mg/L)	140	130	142	$Y = -24.7785 (\log Q) + 150.0884$
Total Kjeldahl Nitrogen (mg/L)	0.39	0.23	0.58	
Total Nitrogen (mg/L) *	1.56	1.26	1.81	
Total Phosphorus (mg/L) *	0.05	0.05	0.06	
Total Suspended Solids (mg/L) *	1.0	0.5	2.0	
Turbidity (NTU)	1.2	0.8	3.0	$Y = \text{antilog}(0.6517 (\log Q) - 0.2066)$
Alkalinity (mg/L)	43	35	46	$Y = -11.425 (\log Q) + 48.85$
Hardness (mg/L)	60	56	63	

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

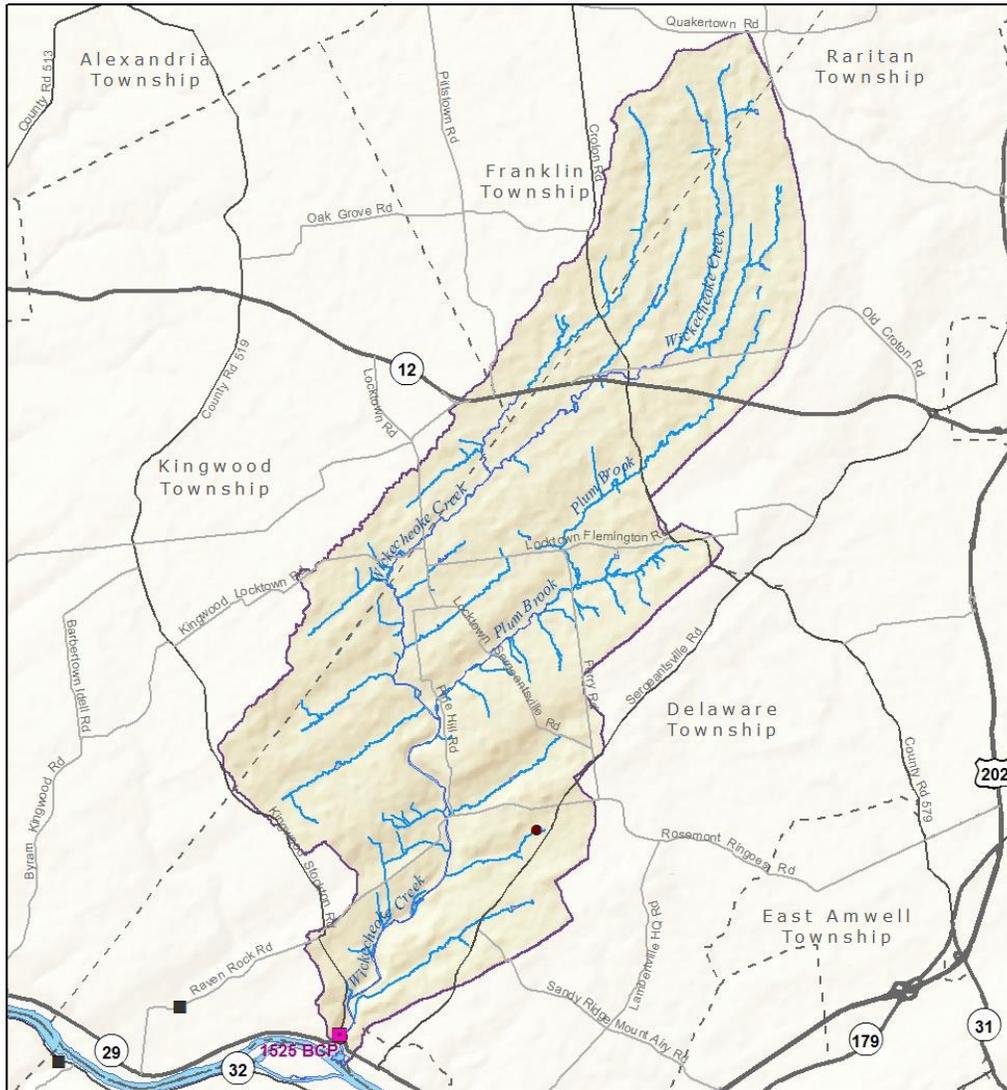
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

Corrections 2016:

None

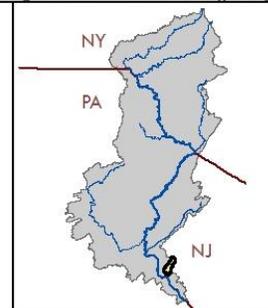
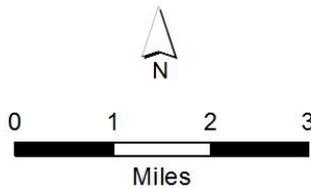
1525 BCP Wickecheoke Creek at Rt. 29, NJ



Wickecheoke Creek

Drainage Area = 27.01 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- ⊗ Stream Gage
- Drainage Area



1525 BCP Wickecheoke Creek at Rt. 29, NJ

Hunterdon County, NJ. Latitude 40.41167 Longitude -75.98694 by GPS NAD83 decimal degrees.

USGS/NJDEP site 01461300

Watershed Population: 2000 = 3,095 2010 = 3,167 Change: +72 (+2.3%)

Watershed Drainage Area and site drainage area: 27 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

This watershed is tributary to the Delaware and Raritan Canal and Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Foot Bridge

Nearest downstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Known dischargers within watershed: Few, undefined. Wickecheoke Creek also provides water supply to the New Jersey Water Supply Authority via the Delaware and Raritan Canal.

Watershed is 47.9% forested; urban land cover is 0.6%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 47.2 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
2,935	91.1	44.8	35.9	29.6	23.8	12.8	5.81	0.81

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	1.82
M30D2Y (ft ³ /s)	2.80
M7D10Y (ft ³ /s)	0.66
M30D10Y (ft ³ /s)	1.05
M90D10Y (ft ³ /s)	2.31

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	42.1
QAH (ft ³ /s)	12.6
BF10YR (ft ³ /s)	16.9
BF25YR (ft ³ /s)	14.9
BF50YR (ft ³ /s)	13.7

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	1,010
PK5 (ft ³ /s)	1,730
PK10 (ft ³ /s)	2,310
PK50 (ft ³ /s)	3,870
PK100 (ft ³ /s)	4,660
PK500 (ft ³ /s)	6,850

Existing Water Quality: 1525 BCP Wickecheoke Creek at Rt. 29, NJ

Wickecheoke Creek, New Jersey, River Mile 152.51 – 0.21

Boundary Control Point is located at Route 29 bridge, Stockton.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	17	15	18	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	
Dissolved Oxygen (mg/L) mid-day *	9.45	8.95	9.90	
Dissolved Oxygen Saturation (%)	101%	96%	104%	
E. coli (colonies/100 ml)	52	40	76	$Y = \text{antilog}(0.5393(\log Q) + 1.4795)$
Enterococcus (colonies/100 ml)	170 **	84 **	300 **	
Fecal coliform (colonies/100 ml) *	92	65	190	
Nitrate NO3-N (mg/L) *	1.83	1.69	2.20	
Orthophosphate (mg/L)	0.03	0.03	0.04	
pH *	7.53	7.40	7.70	
Specific Conductance (µS/cm)	183	175	200	$Y = -28.7787(\log Q) + 199.7338$
Total Dissolved Solids (mg/L)	130	120	134	$Y = -30.5576(\log Q) + 148.5061$
Total Kjeldahl Nitrogen (mg/L)	0.44	0.30	0.70	
Total Nitrogen (mg/L) *	2.12	1.99	2.65	
Total Phosphorus (mg/L) *	0.06	0.05	0.07	
Total Suspended Solids (mg/L) *	1.0	<0.5	1.5	
Turbidity (NTU)	1.2	0.7	2.0	$Y = \text{antilog}(0.5729(\log Q) - 0.2123)$
Alkalinity (mg/L)	40	33	43	$Y = -9.35(\log Q) + 45.46$
Hardness (mg/L)	58	51	62	

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ.

Implementation guidance should be consulted for discharge evaluations.

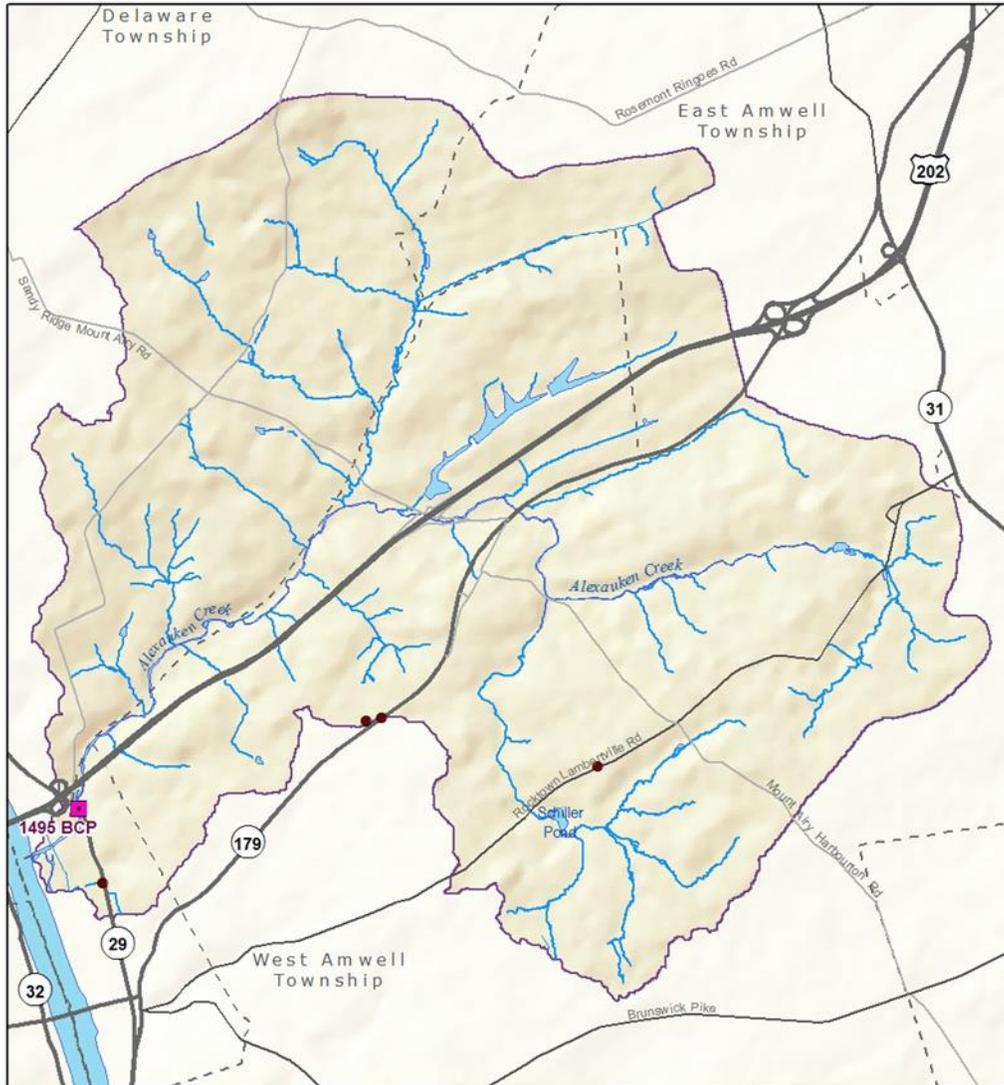
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

Corrections 2016:

None

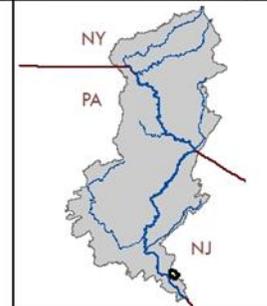
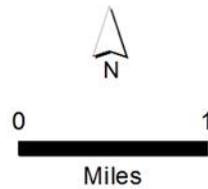
1495 BCP Alexauken Creek at Rt. 29, NJ



Alexauken Creek

Drainage Area = 15.45 mi²

- Sampling Location
- NPDES
- Drainage Area



1495 BCP Alexauken Creek at Rt. 29, NJ

Hunterdon County, NJ. Latitude 40.3806 Longitude -74.947961 by GPS NAD83 decimal degrees.

USGS Site No. 01461900; NJDEP Site No. 01461900

Watershed Population: 2000 = 2,409 2010 = 2,496 Change: +87 (+3.6%)

Drainage Area at site: 15.0 square miles, tributary to Delaware River Zone 1E

Site Specific EWQ monitoring began 2014 by DRBC; supplements USGS/NJDEP long-term quarterly and other data.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Nearest upstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Footbridge

Nearest downstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Known dischargers within watershed: Few, undefined.

Watershed is 44.3% forested; urban land cover is 1.6%. Watershed was not glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 45.1 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
1,750	45.3	21.9	16.7	14.1	11.8	6.92	3.28	0.54

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	1.93
M30D2Y (ft ³ /s)	2.70
M7D10Y (ft ³ /s)	0.81
M30D10Y (ft ³ /s)	1.17
M90D10Y (ft ³ /s)	2.07

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	20.6
QAH (ft ³ /s)	5.76
BF10YR (ft ³ /s)	8.43
BF25YR (ft ³ /s)	7.38
BF50YR (ft ³ /s)	6.79

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	670
PK5 (ft ³ /s)	1,160
PK10 (ft ³ /s)	1,550
PK50 (ft ³ /s)	2,600
PK100 (ft ³ /s)	3,130
PK500 (ft ³ /s)	4,590

Existing Water Quality: 1495 BCP Alexauken Creek at Rt. 29, NJ

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO ₃ , Total mg/L	35	61	55	66	USGS 1980-82; SRMP 2014-15
Ammonia-Nitrogen as N, Total mg/L *	28	0.005	0.004	0.044	USGS 1980-82; NJDEP 2003; SRMP 2014-15 (16/28 ND)
Calcium, Dissolved mg/L	10	24.5	20	31	USGS 1980-82, 2000
Chloride, Total mg/L	23	62.6	53.1	84.5	NJDEP 2003-04; SRMP 2014-15
Dissolved Oxygen (DO) mg/L mid-day *	42	8.71	8.10	9.17	USGS 1980-82; NJDEP 2003-11; SRMP 1999, 2014-15
Dissolved Oxygen Saturation % mid-day	26	94.9	87.3	106.0	USGS 2000, NJDEP 2004; SRMP 1999, 2014-15
Enterococcus #/100ml {1}	3	40			Insufficient data for EWQ definition
Escherichia coli #/100mL {2}	0				No Data
Fecal coliform #/100mL *	8				Insufficient data for EWQ definition
Hardness as CaCO ₃ , Total mg/L	30	117	107	128	USGS 1980-82, 2000; SRMP 2014-15
Magnesium, Dissolved mg/L	10	8.5	7.1	10.0	USGS 1980-82, 2000
Nitrate+Nitrite as N, Total mg/L *	30	0.197	0.140	0.588	USGS 1980-82; NJDEP 2003-04; SRMP 2014-15
Nitrogen as N, Total mg/L *	26	0.463	0.289	0.720	USGS 1980-82, 2000; SRMP 2014-15
Nitrogen, Kjeldahl as N, Total mg/L	31	0.203	0.150	0.272	USGS 1980-82, 2000; NJDEP 2004; SRMP 2014-15
Nitrogen, Organic as N, Total mg/L	9	0.26	0.18	0.61	USGS 1980-82, 2000
Organic Carbon, Total mg/L	7	1.6	0.1	5.9	USGS 1980-82
pH units, mid-day *	40	7.61	7.53	7.78	USGS 1980-82, 2000; NJDEP 2001-11; SRMP 1999, 2014-15
Phosphate as P, Total mg/L	20	0.033	0.025	0.040	SRMP 2014-15
Phosphorus as P, Total mg/L *	32	0.047	0.038	0.060	USGS 1980-82; NJDEP 2003-11; SRMP 2000, 2014-15
Potassium, Dissolved mg/L	10	2.2	2.0	2.5	USGS 1980-82, 2000
Silica, Dissolved mg/L	10	9.9	7.5	12.5	USGS 1980-82, 2000
Sodium, Dissolved mg/L	10	11.0	8.6	14.0	USGS 1980-82, 2000
Specific Conductance μ S/cm	40	326	288	406	USGS 1980-82, 2000; NJDEP 2001-11; SRMP 1999, 2014-15
Sulfate, Dissolved mg/L	10	38.7	32.0	57.0	USGS 1980-82, 2000
Temperature, Water, degrees C mid-day	43	20.3	19.3	22.0	USGS 1980-82, 2000; NJDEP 2001-13; SRMP 1999, 2014-15
Total Dissolved Solids (TDS) mg/L	32	226	176	270	USGS 1980-82, 2000; NJDEP 2003-04; SRMP 2014-15
Total Suspended Solids (TSS) mg/L *	22	3.5	1.0	4.0	NJDEP 2003-04; SRMP 2014-15
Turbidity NTU	23	0.55	0.33	0.71	USGS 2000; NJDEP 2004; SRMP 2014-15

Two-tailed 95% (Lower and Upper) confidence limits were used for these EWQ targets

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

** Value exceeds state and/or DRBC water quality criterion

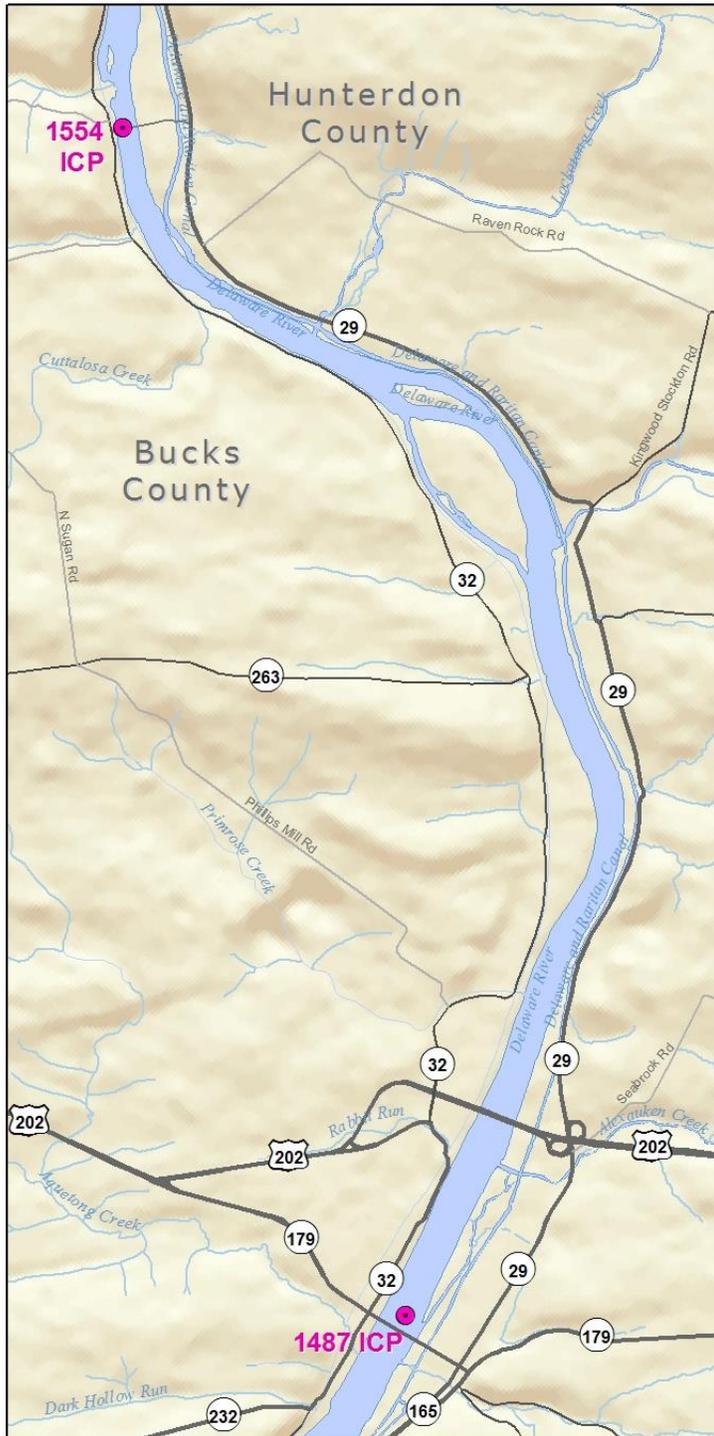
Note: All data are May to September season. Additional data are available for the October to April “non-seasonal” period, but data are insufficient in number for establishment of site-specific existing water quality targets.

There were many more parameters collected at this site over the years, but were excluded from this table because of insufficient frequency of sampling or because most results were not detected.

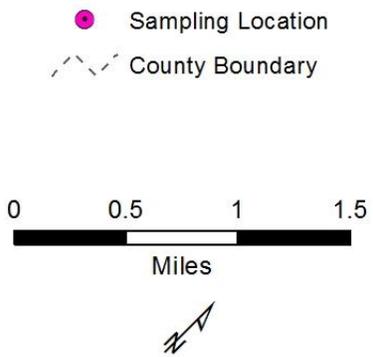
Dissolved oxygen, pH and temperature data represent mid-day near maximum values, as they are all grab samples taken between 10 AM and 3 PM.

This table is incomplete. The SRMP is conducting one more year of confirmatory monitoring in 2016 to supplement historical and current NJDEP and USGS data used to calculate existing water quality at this site.

1487 ICP Delaware River at Lambertville Bridge, PA/NJ



1487 ICP
Delaware River at Lambertville Bridge



1487 ICP Delaware River at Lambertville Bridge, PA/NJ

Bucks County, PA and Hunterdon County, NJ

Latitude 40.36583 Longitude -74.94917 by GPS NAD83 decimal degrees.

USGS site 01462000.

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 6,680 square miles, Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1554 ICP Delaware River at Bulls Island Footbridge

Nearest downstream Interstate Control Point: 1418 ICP Delaware River at Washington Crossing

Known dischargers within upstream reach: Undefined

Tributaries to upstream reach: Major tributaries 1540 BCP Lockatong Creek, NJ; 1525 BCP Wickecheoke Creek, NJ; 1495 BCP Alexauken Creek, NJ; small tributaries 154.7 Cuttalossa Creek, PA; , 150.3 Primrose Creek, PA.

No Stream Stats web site data available because drainage area is too large for web site retrieval.

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
226,608	25,419	15,074	10,542	8,611	6,907	4,887	3,379	1,872

Existing Water Quality: 1487 ICP Delaware River at Lambertville Bridge

Delaware River at Lambertville-New Hope Bridge, NJ/PA, River Mile 148.70

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.05	
Chloride (mg/L)	18	16	20	$Y = -0.00046965 Q + 22.449$
Chlorophyll a (mg/m ³)	2.95	2.00	4.70	
Dissolved Oxygen (mg/L) mid-day *	8.50	7.90	8.63	
Dissolved Oxygen Saturation (%)	94%	93%	95%	
E. coli (colonies/100 ml)	40	16	62	$Y = \text{antilog}(0.00004662 Q + 1.0027)$
Enterococcus (colonies/100 ml)	60	38	80	
Fecal coliform (colonies/100 ml) *	55	32	120	$Y = \text{antilog}(0.00003689 Q + 1.3656)$
Nitrate NO3-N (mg/L) *	1.11	0.90	1.28	
Orthophosphate (mg/L)	0.04	0.04	0.07	
pH *	7.55	7.40	7.60	
Specific Conductance (µS/cm)	191	156	207	$Y = -0.00448812 Q + 229.4$
Total Dissolved Solids (mg/L)	140	127	160	$Y = -0.0020763 (\log Q) + 159.338$
Total Kjeldahl Nitrogen (mg/L)	0.46	0.34	0.66	
Total Nitrogen (mg/L) *	1.56	1.36	1.84	
Total Phosphorus (mg/L) *	0.10	0.08	0.12	
Total Suspended Solids (mg/L) *	6.5	3.5	9.0	$Y = 0.00075399 Q - 0.3458$
Turbidity (NTU)	2.5	1.8	6.0	$Y = \text{antilog}(0.00003256 Q + 0.0989)$
Alkalinity (mg/L)	46	36	52	$Y = -0.00162641 Q + 60.322$
Hardness (mg/L)	68	56	77	$Y = -0.00146091 Q + 80.092$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

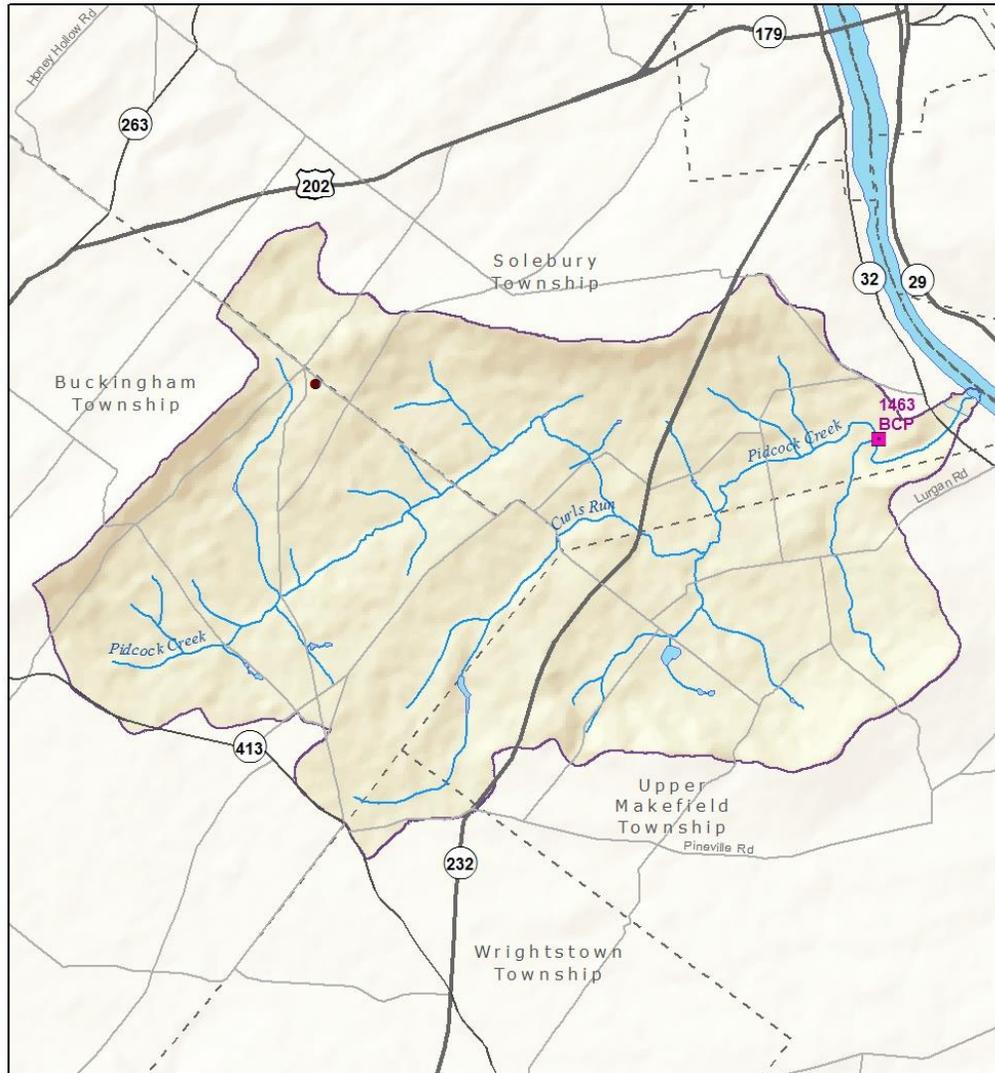
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

Corrections 2016:

None

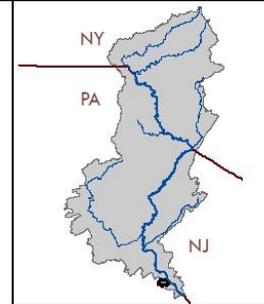
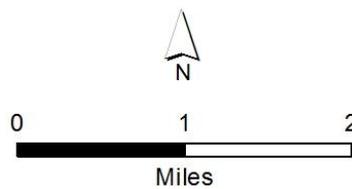
1463 BCP Pidcock Creek at BHWP Stone Bridge, PA



Pidcock Creek

Drainage Area = 12.73 mi²

- Sampling Location
- Other Sampling Location
- NPDES
- 🗺 Drainage Area



1463 BCP Pidcock Creek at BHWP Stone Bridge, PA

Bucks County, PA. Latitude 40.328961 Longitude -75.945116 by GPS NAD83 decimal degrees.

USGS site 01462100 nearby

Watershed Population: 2000 = 1,960 2010 = 2,012 Change: +52 (+2.6%)

Watershed Drainage Area: 12.7 square miles, tributary to Delaware Canal and Delaware River Zone 1E

Site drainage area: 11.7 square miles

Site Specific EWQ defined 2000-2004 by DRBC.

This watershed is tributary to the Lower Delaware Scenic and Recreational River (LDEL)

Tributary to DRBC Significant Resource Waters.

Pidcock Creek was chosen as a small stream representative of the Piedmont physiographic province.

Nearest upstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Nearest downstream Interstate Control Point: 1418 ICP Delaware River at Washington Crossing

Known dischargers within watershed: Few, undefined. Pidcock Creek flows to Delaware Canal at low-flow, and to the Delaware River via a canal overspill under high-flow conditions.

Watershed is 59.9% forested; urban land cover is 0.3%. Watershed was not glaciated, and is 2.8% underlain by carbonate bedrock. Mean annual precipitation 45 inches. (<http://water.usgs.gov/osw/streamstats/>, accessed 2012).

Flow Statistics associate with water quality samples (USGS BaSE Model):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
1,408	35.7	16.5	13.8	11.3	9.15	4.50	1.91	0.20

StreamStats Low-Flow Stream Statistics

M7D2Y (ft ³ /s)	1.38
M30D2Y (ft ³ /s)	1.96
M7D10Y (ft ³ /s)	0.55
M30D10Y (ft ³ /s)	0.82
M90D10Y (ft ³ /s)	1.50

StreamStats Mean/Baseflow Stream Statistics

QA (ft ³ /s)	16.9
QAH (ft ³ /s)	5.29
BF10YR (ft ³ /s)	8.08
BF25YR (ft ³ /s)	7.14
BF50YR (ft ³ /s)	6.60

StreamStats Peak-Flow Stream Statistics

PK2 (ft ³ /s)	574
PK5 (ft ³ /s)	994
PK10 (ft ³ /s)	1,330
PK50 (ft ³ /s)	2,240
PK100 (ft ³ /s)	2,700
PK500 (ft ³ /s)	3,960

Existing Water Quality: 1463 BCP Pidcock Creek at BHWP Stone Bridge, PA

Pidcock Creek, Pennsylvania, River Mile 146.30 – 0.90

Boundary Control Point is located at stone foot bridge within Bowman’s Hill Wildflower Preserve.

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.06	
Chloride (mg/L)	19	17	21	
Chlorophyll a (mg/m ³)	n/a	n/a	n/a	
Dissolved Oxygen (mg/L) mid-day *	7.45	7.20	8.50	
Dissolved Oxygen Saturation (%)	81%	78%	86%	
E. coli (colonies/100 ml)	91	64	170	Y = antilog (0.6675 (log Q) + 1.5652)
Enterococcus (colonies/100 ml)	485	170	720	
Fecal coliform (colonies/100 ml) *	195	130	310 **	Y = antilog (0.6669 (log Q) + 1.8192)
Nitrate NO3-N (mg/L) *	0.99	0.90	1.28	
Orthophosphate (mg/L)	0.07	0.05	0.08	
pH *	7.39	7.20	7.44	
Specific Conductance (µS/cm)	255	243	276	Y = -45.1671 (log Q) + 281.0884
Total Dissolved Solids (mg/L)	185	170	190	
Total Kjeldahl Nitrogen (mg/L)	0.50	0.28	0.72	
Total Nitrogen (mg/L) *	1.63	1.46	2.09	
Total Phosphorus (mg/L) *	0.10	0.08	0.12	
Total Suspended Solids (mg/L) *	3.0	2.0	4.0	
Turbidity (NTU)	3.7	2.5	5.3	Y = antilog (0.6463 (log Q) + 0.163)
Alkalinity (mg/L)	77	64	87	Y = -27.32 (log Q) + 92.67
Hardness (mg/L)	108	97	110	Y = -15.6248 (log Q) + 112.7103

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

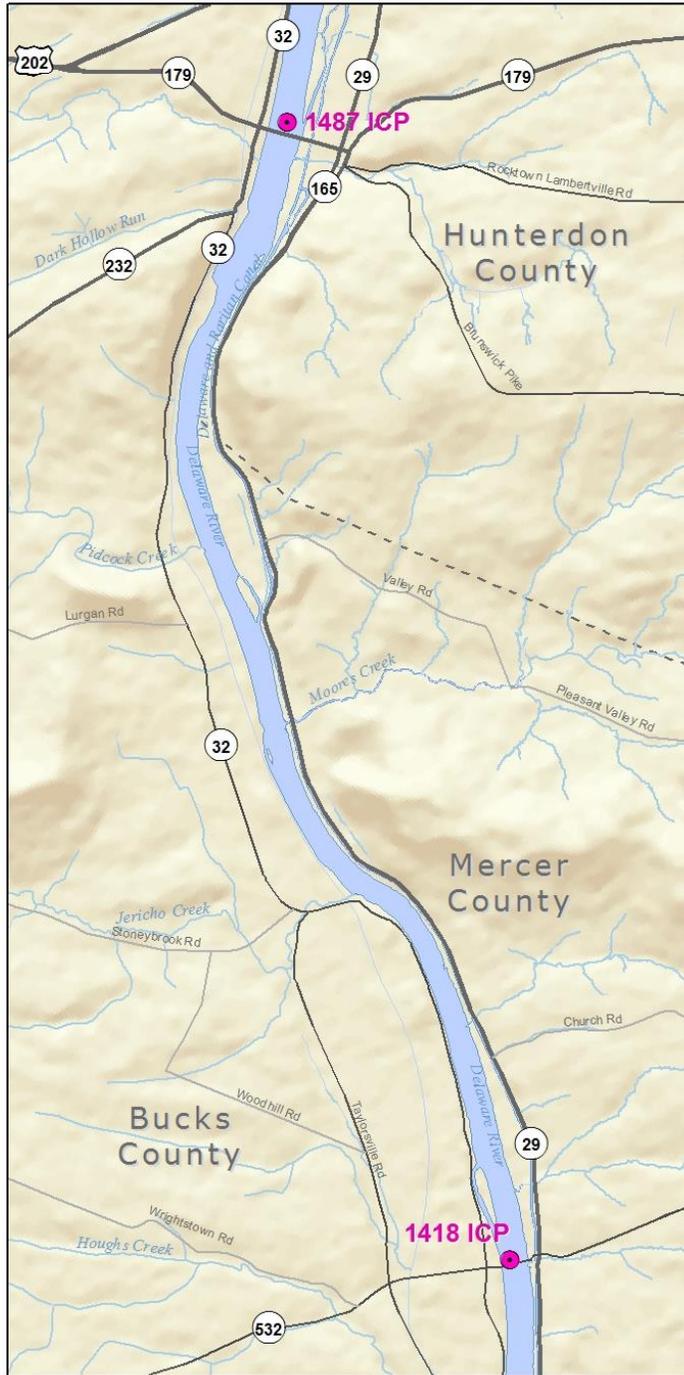
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

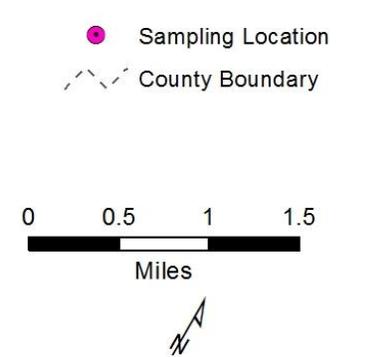
Corrections 2016:

None

1418 ICP Delaware River at Washington Crossing Bridge, PA/NJ



1418 ICP
Delaware River at Washington Crossing Bridge



1418 ICP Delaware River at Washington Crossing Bridge, PA/NJ

Bucks County, PA and Mercer County, NJ

Latitude 40.295278 Longitude -74.868889 by GPS NAD83 decimal degrees.

USGS site 01462500.

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 6,735 square miles, Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

This site is located in the Lower Delaware Scenic and Recreational River.

Classified by DRBC as Significant Resource Waters

Nearest upstream Interstate Control Point: 1487 ICP Delaware River at Lambertville

Nearest downstream Interstate Control Point: 1343 ICP Delaware River at Calhoun St. Bridge, Trenton

Known dischargers within upstream reach: Lambertville WWTP, others unknown.

Tributaries to upstream reach: Major tributaries 1463 BCP Pidcock Creek, PA; small tributaries 148.6 Swan Creek, NJ; 148.5 Aquetong Creek, PA; 145.2 Moore Creek, NJ; 144.2 Jericho Creek, PA; 143.2 Fiddler Creek, NJ.

No Stream Stats web site data available because drainage area too large for web site retrieval.

Flow Statistics Associated with Water Quality Samples (calculated by drainage area weighting from USGS gage data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
228,473	25,629	15,198	10,629	8,682	6,963	4,927	3,407	1,887

Existing Water Quality: 1418 ICP Delaware River at Washington Crossing

Delaware River at Washington Crossing Bridge, PA/NJ, River Mile 141.80

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	0.09	
Chloride (mg/L)	18	16	20	$Y = -0.00032977 Q + 21.336$
Chlorophyll a (mg/m ³)	2.30	1.30	4.27	
Dissolved Oxygen (mg/L) mid-day *	8.69	8.46	9.00	
Dissolved Oxygen Saturation (%)	96%	95%	99%	
E. coli (colonies/100 ml)	33	20	60	$Y = \text{antilog}(0.00003267 Q + 1.1795)$
Enterococcus (colonies/100 ml)	55	23	90	
Fecal coliform (colonies/100 ml) *	70	48	110	$Y = \text{antilog}(0.00002852 Q + 1.4892)$
Nitrate NO3-N (mg/L) *	0.99	0.86	1.20	
Orthophosphate (mg/L)	0.04	0.03	0.06	
pH *	7.69	7.52	7.90	
Specific Conductance (µS/cm)	187	158	206	$Y = -0.00579709 Q + 239.8$
Total Dissolved Solids (mg/L)	138	130	160	$Y = -0.00317926 Q + 175.218$
Total Kjeldahl Nitrogen (mg/L)	0.37	0.30	0.64	
Total Nitrogen (mg/L) *	1.47	1.24	1.69	
Total Phosphorus (mg/L) *	0.10	0.07	0.12	
Total Suspended Solids (mg/L) *	6.0	5.0	8.0	$Y = 0.0007895 Q + 0.7126$
Turbidity (NTU)	4.0	2.4	5.3	
Alkalinity (mg/L)	45	36	50	$Y = -0.00128607 Q + 56.134$
Hardness (mg/L)	67	53	75	$Y = -0.0019019 Q + 82.144$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

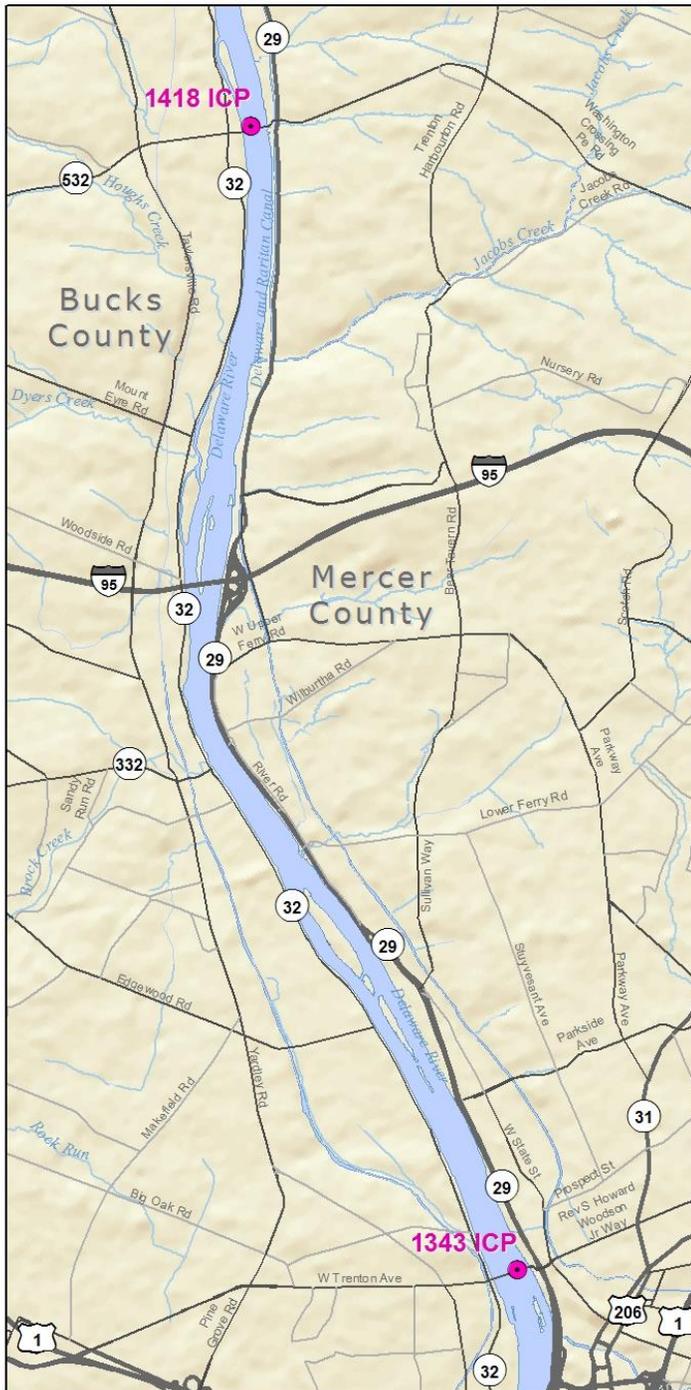
** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

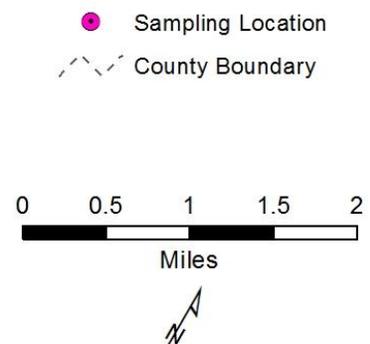
Corrections 2016:

None

1343 ICP Delaware River at Calhoun St. Bridge, PA/NJ



1343 ICP
Delaware River at Calhoun Street Bridge, Trenton



1343 ICP Delaware River at Calhoun St. Bridge, PA/NJ

Bucks County, PA and Mercer County, NJ

Latitude 40.22032 Longitude -74.7777 by GPS NAD83 decimal degrees.

USGS site 01463500; PADEP site WQN0101; NJDEP site 01463500

Watershed Population figures were not calculated for main-stem Delaware River sites.

Drainage Area: 6,780 square miles, Delaware River Zone 1E

Site Specific EWQ defined 2000-2004 by DRBC.

Lower terminus of DRBC Significant Resource Waters; just upstream of head-of-tide.

Downstream-most site of the DRBC Scenic Rivers Monitoring Program.

Sites downstream are monitored by the DRBC Delaware Estuary Boat Run Monitoring Program.

Nearest upstream Interstate Control Point: 1418 ICP Delaware River at Washington Crossing

Nearest downstream Interstate Control Point: NONE

Known dischargers within upstream reach: Undefined

Tributaries to upstream reach: No Major tributaries; small tributaries 140.4 Houghs Creek, PA; , 140.3 Jacobs Creek, NJ; 139.7 Dyers Run, PA; 137.8 Buck Creek, PA; 137.0 Gold Run, NJ.

No Stream Stats web site data available because drainage area is too large for web site retrieval.

Flow Statistics Associated with Water Quality Samples (from USGS gage 01463500 data):

Max Flow (CFS)	90% Flow (CFS)	75% Flow (CFS)	60% Flow (CFS)	50% Flow (CFS)	40% Flow (CFS)	25% Flow (CFS)	10% Flow (CFS)	Min Flow (CFS)
230,000	25,800	15,300	10,700	8,740	7,010	4,960	3,430	1,900

Existing Water Quality: 1343 ICP Delaware River at Calhoun St. Bridge

Delaware River at Calhoun Street Bridge, Trenton-Morrisville, NJ/PA, River Mile 134.34

Parameter (Y)	Definition of Existing Water Quality			
	Median	Lower 95%CI	Upper 95%CI	Flow-Relationships Site specific regression equation.
Ammonia NH3-N (mg/L) *	<0.05	<0.05	<0.05	
Chloride (mg/L)	17	16	21	$Y = -0.00046454 Q + 22.687$
Chlorophyll a (mg/m ³)	2.70	1.60	4.81	
Dissolved Oxygen (mg/L) mid-day *	8.74	8.40	9.20	
Dissolved Oxygen Saturation (%)	97%	94%	101%	
E. coli (colonies/100 ml)	40	24	65	$Y = \text{antilog}(0.00002609 Q + 1.2844)$
Enterococcus (colonies/100 ml)	45	20	80	
Fecal coliform (colonies/100 ml) *	88	60	140	
Nitrate NO3-N (mg/L) *	1.05	0.85	1.21	
Orthophosphate (mg/L)	0.04	0.03	0.06	
pH *	7.78	7.56	8.00	
Specific Conductance (µS/cm)	185	163	202	$Y = -0.00563728 Q + 240.35$
Total Dissolved Solids (mg/L)	140	130	156	$Y = -0.00300322 Q + 169.514$
Total Kjeldahl Nitrogen (mg/L)	0.48	0.36	0.58	
Total Nitrogen (mg/L) *	1.45	1.22	1.71	
Total Phosphorus (mg/L) *	0.10	0.07	0.12	
Total Suspended Solids (mg/L) *	6.3	5.0	8.5	$Y = 0.00085809 Q - 0.2021$
Turbidity (NTU)	2.9	2.2	5.8	
Alkalinity (mg/L)	45	36	50	$Y = -0.00160669 Q + 58.973$
Hardness (mg/L)	69	60	73	$Y = -0.00141561 Q + 79.891$

EWQ values represent data collected twice per month from May through September 2000-2004.

* = Dischargers may be required to evaluate this parameter for permit limits necessary to meet EWQ. Implementation guidance should be consulted for discharge evaluations.

** = EWQ exceeds DRBC or state water quality criteria. Discharge evaluations should be conducted at criterion concentration.

Site Specific EWQ defined 2000-2004 by DRBC.

Corrections 2016:

None