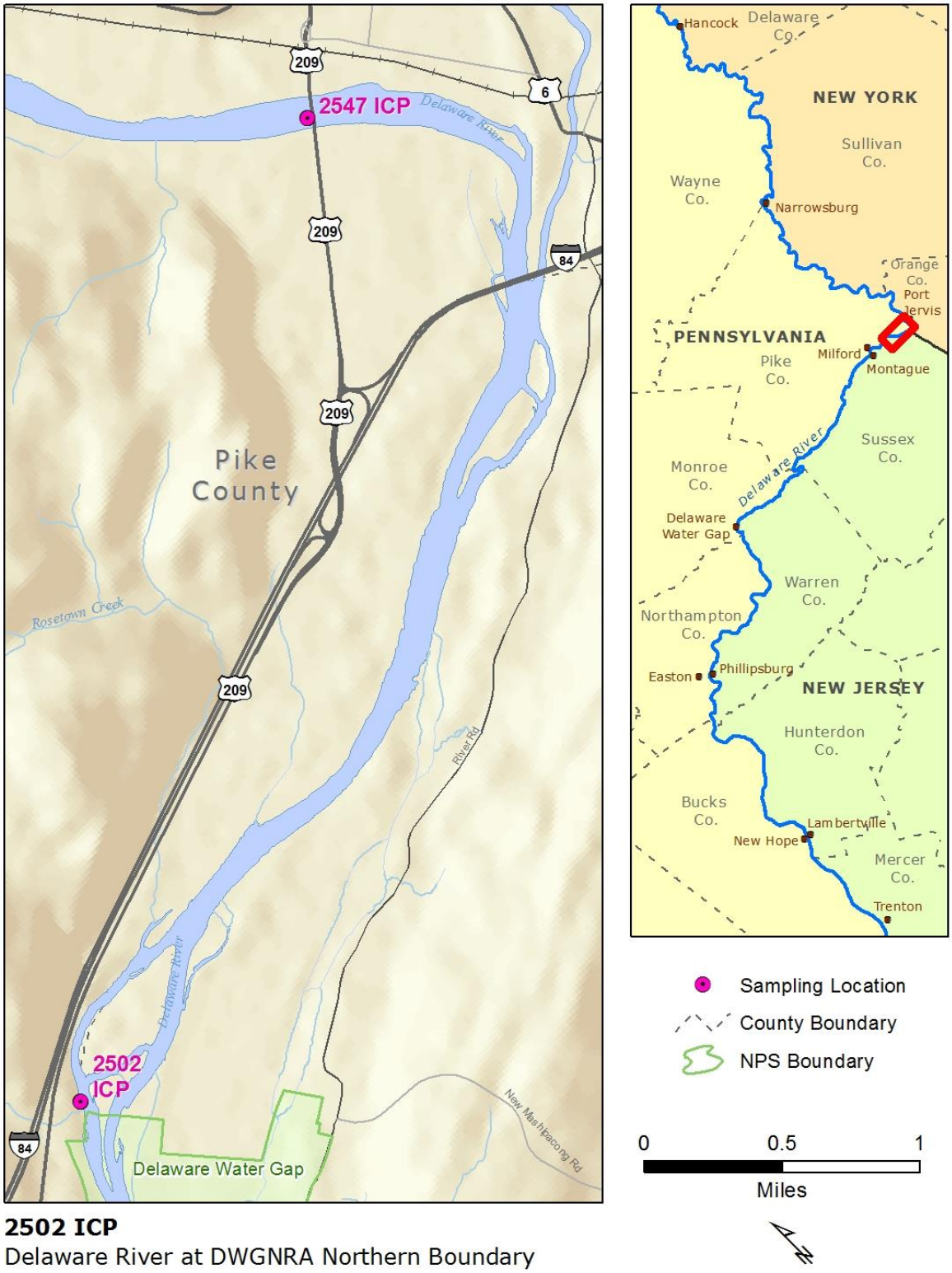
Delaware Water Gap National Recreation Area: Outstanding Basin Waters

2502 ICP Delaware River at DWGNRA Northern Boundary



2502 ICP
Delaware River at DWGNRA Northern Boundary

2502 ICP Delaware River at DWGNRA Northern Boundary

Latitude 41.343611 Longitude -74.757778 by GPS NAD83 decimal degrees.
No nearby USGS or State monitoring sites
Watershed Population figures were not calculated for main-stem Delaware River sites.
Drainage Area: 3,420 square miles, Delaware River Zone 1C

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located at the Delaware Water Gap National Recreation Area northern boundary
Classified by DRBC as Significant Resource Waters (Outstanding Basin Waters downstream of this location)

Nearest upstream Interstate Control Point: 2547 ICP Delaware River at Port Jervis
Nearest downstream Interstate Control Point: 2464 ICP Delaware River at Montague
Known dischargers within watershed: Undefined
Tributaries to upstream reach: Major tributary 2536 BCP Neversink River, NY; small tributary 250.8 Rosetown Creek, PA.

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

Flow Statistics (calculated by drainage area weighting from Port Jervis 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)
172,966	12,088	6,752	4,531	3,587	2,860	2,074	1,720	884

Existing Water Quality: 2502 ICP Delaware River at DWGNRA Northern Boundary

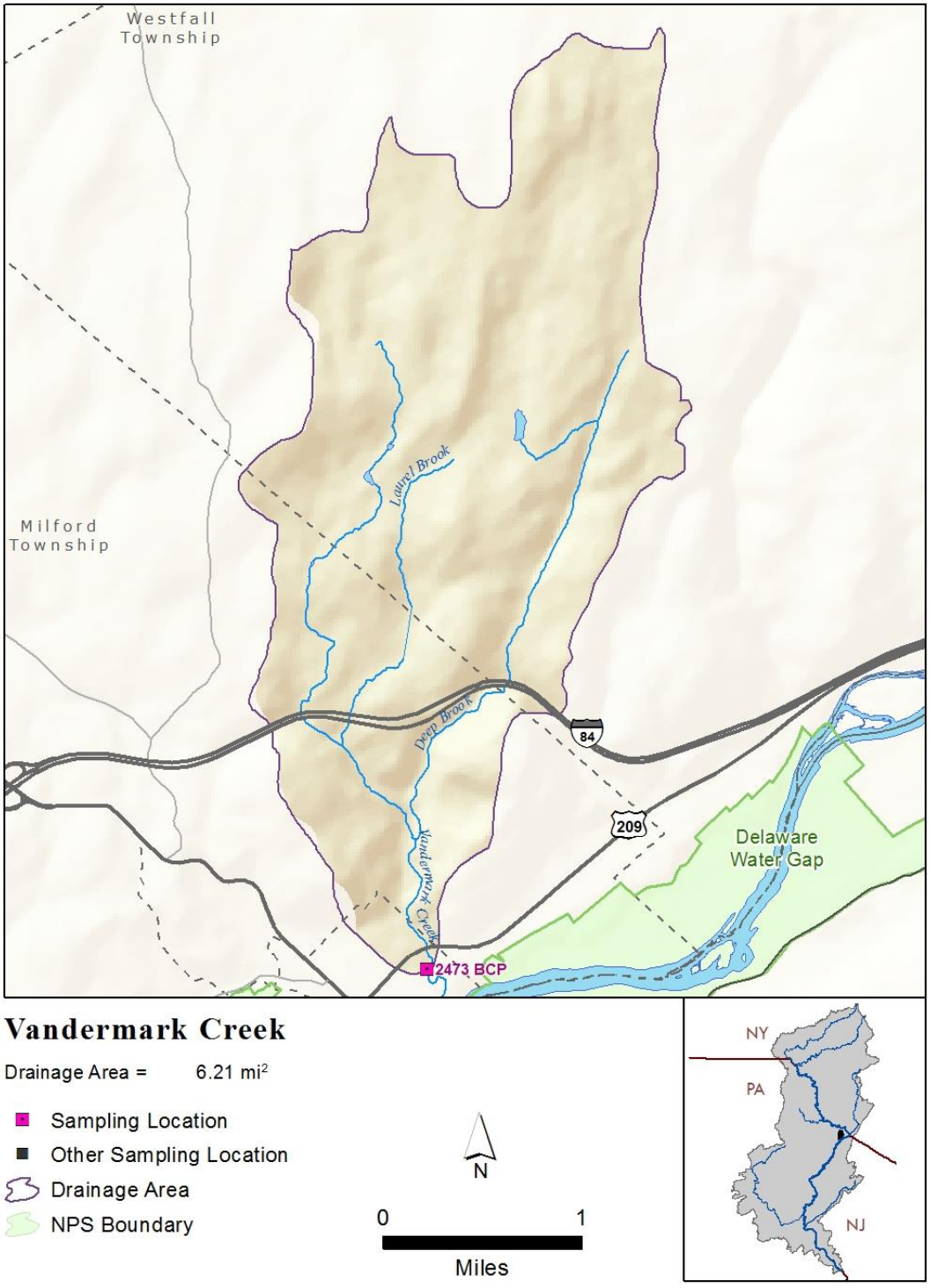
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	63	13.8	13.3	14.2	2006-2011 SRMP
Aluminum, Dissolved mg/L	15	0.004	0.003	0.004	2009-2010 SRMP archived samples
Ammonia-Nitrogen as N, Total mg/L *	61	0.009	0.008	0.010	2006-2011 SRMP
Barium, Dissolved mg/L	15	0.021	0.019	0.026	2009-2010 SRMP archived samples
Calcium, Dissolved mg/L	15	6.44	5.73	6.57	2009-2010 SRMP archived samples
Chloride, Total mg/L	63	11.6	11.2	12.2	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	58	9.49	9.12	10.00	2006-2011 SRMP
Dissolved Oxygen Saturation %	38	106.7	103.7	110.0	2008-2011 SRMP
Enterococcus #/100ml	48	24	10	42	2007-2011 SRMP
Escherichia coli #/100ml	48	19	12	24	2007-2011 SRMP
Fecal coliform #/100ml *	66	22	16	38	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	63	22.4	21.2	23.2	2006-2011 SRMP
Magnesium, Dissolved mg/L	15	1.31	1.23	1.44	2009-2010 SRMP archived samples
Manganese, Dissolved µg/L	15	6.7	4.6	16.3	2009-2010 SRMP archived samples
Nitrate+Nitrite as N, Total mg/L *	53	0.117	0.105	0.141	2007-2011 SRMP
Nitrogen as N, Total mg/L *	53	0.299	0.289	0.319	2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	53	0.184	0.173	0.194	2007-2011 SRMP
pH units *	57	7.48	7.38	7.66	2006-2011 SRMP
Phosphate as P, Total mg/L	53	0.005	0.005	0.006	2007-2011 SRMP
Phosphorus as P, Total mg/L *	53	0.012	0.011	0.013	2007-2011 SRMP
Potassium, Dissolved mg/L	15	0.73	0.65	0.80	2009-2010 SRMP archived samples
Sodium, Dissolved mg/L	15	6.85	5.83	7.75	2009-2010 SRMP archived samples
Specific Conductance µS/cm	58	83.5	78.8	86.2	2006-2011 SRMP
Strontium, Dissolved mg/L	15	0.026	0.024	0.027	2009-2010 SRMP archived samples
Sulfate, Total mg/L	13	5.74	5.41	6.00	2009-2010 SRMP archived samples
Temperature, Water, degrees C	58	20.2	19.1	21.3	2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	63	47.6	46.2	48.9	2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	55	1.7	1.2	2.4	2006-2011 SRMP
Turbidity NTU	50	2.01	1.82	2.22	2007-2011 SRMP

Two-tailed 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.

2473 BCP Vandermark Creek by 4th St.



2473 BCP Vandermark Creek by 4th St.

Milford, Pike County, PA. Latitude 41.325000 Longitude -74.796944 by GPS NAD83 decimal degrees.
USGS Site No 01438302
Watershed Population: 2000: 771 2010: 815 Change: +44 (+5.7%)
Drainage Area: 5.19 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring is incomplete: Some monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program; along with 2001 USGS data.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2502 ICP Delaware River at DWGNRA Northern Boundary
Nearest downstream Interstate Control Point: 2464 ICP Delaware River at Montague
Known dischargers within watershed: Undefined.

Watershed is 91.3% forested; urban land cover is 6.34%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.7 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)
351	17.8	9.51	5.57	3.98	3.05	1.64	0.82	0.23

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.59
M30D2Y (ft^3/s)	0.85
M7D10Y (ft^3/s)	0.21
M30D10Y (ft^3/s)	0.31
M90D10Y (ft^3/s)	0.55

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	8.86
QAH (ft^3/s)	2.14
BF10YR (ft^3/s)	3.95
BF25YR (ft^3/s)	3.56
BF50YR (ft^3/s)	3.33

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	281
PK5 (ft^3/s)	496
PK10 (ft^3/s)	670
PK50 (ft^3/s)	1,130
PK100 (ft^3/s)	1,370
PK500 (ft^3/s)	2,010

Existing Water Quality: 2473 BCP Vandermark Creek by 4th St.

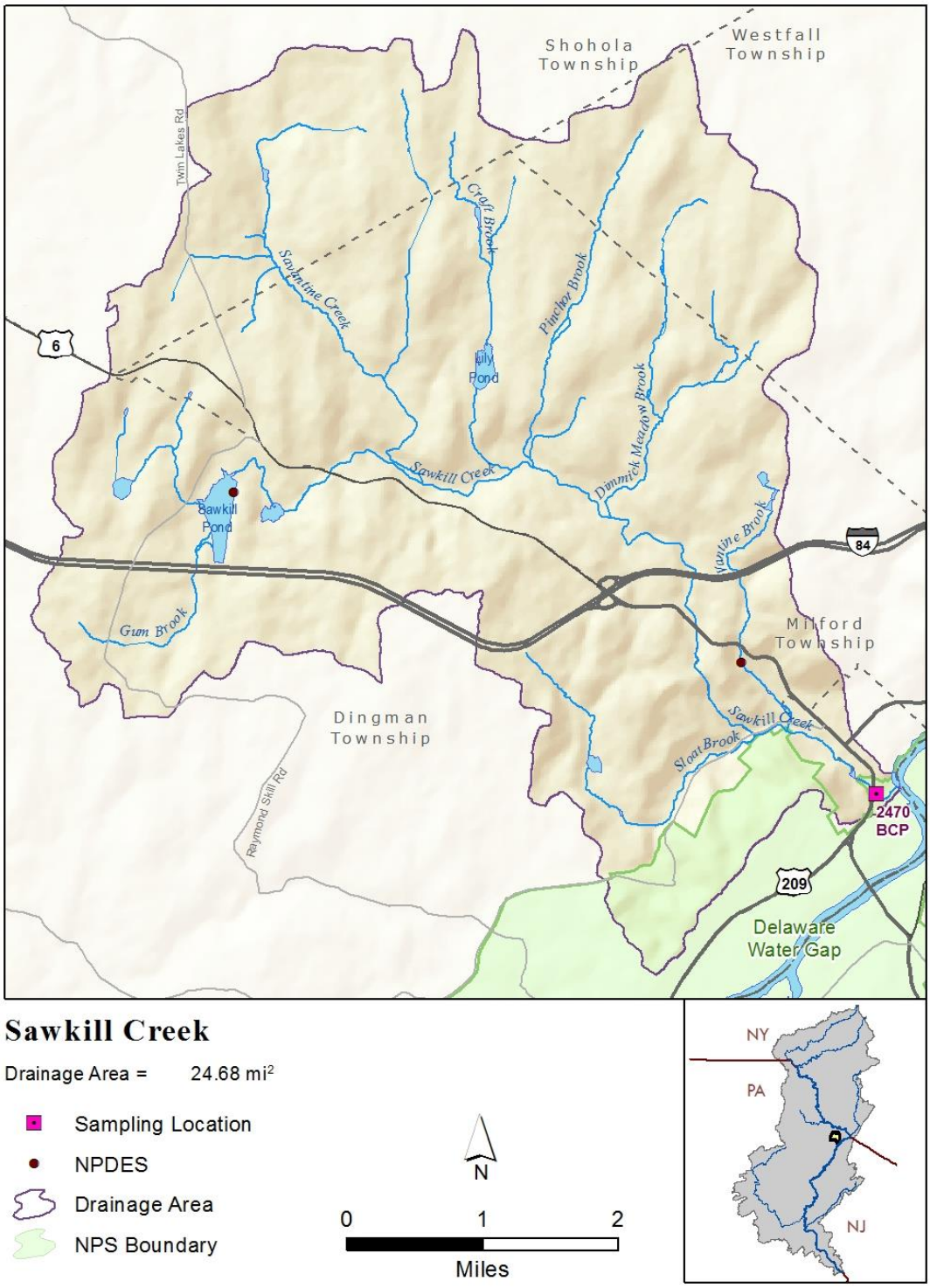
Parameter	N	Median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	23	10.2	9.0	12.0	USGS 2002-2004; SRMP 2008
Aluminum, Dissolved mg/L	7	<0.002	<0.001	<0.002	USGS 2002 (50% non-detects)
Ammonia-Nitrogen as N, Dissolved mg/L *	33	<0.015	<0.010	<0.015	USGS 2002-2004 (28 non-detects)
Boron, Dissolved µg/L	13	8.0	7.0	9.0	USGS 2002-2004
Calcium, Dissolved mg/L	13	6.18	4.44	6.80	USGS 2002-2004
Chloride, Dissolved mg/L	13	13.9	8.6	17.5	USGS 2002-2004
Chloride, Total mg/L	10	19.5	13.0	21.8	SRMP 2008
Dissolved Oxygen (DO) mg/L *	43	10.5	10.2	11.2	USGS 2001-2004; SRMP 2008
Dissolved Oxygen Saturation %	42	98	96	100	USGS 2001-2004; SRMP 2008
Enterococcus #/100ml	10	220	47	420	SRMP 2008
Escherichia coli #/100ml	10	18	4	49	SRMP 2008
Fecal coliform #/100ml *	9	16	15	63	SRMP 2008
Hardness as CaCO3, Total mg/L					No Data
Magnesium, Dissolved mg/L	13	2.26	1.76	2.74	USGS 2002-2004
Nitrate+Nitrite as N, Dissolved mg/L *	33	0.40	0.36	0.48	USGS 2002-2004
Nitrate+Nitrite as N, Total mg/L	10	0.503	0.307	0.565	SRMP 2008
Nitrogen as N, Total mg/L *	33	0.53	0.49	0.58	USGS 2002-2004; SRMP 2008
Nitrogen, Kjeldahl as N, Total mg/L	33	0.100	0.096	0.140	USGS 2002-2003; SRMP 2008
pH units *	42	7.1	7.0	7.3	USGS 2001-2004; SRMP 2008
Phosphate as P, Dissolved mg/L	33	0.016	0.013	0.020	USGS 2002-2004
Phosphorus as P, Total mg/L *	45	0.023	0.020	0.025	USGS 2001-2004; SRMP 2008
Potassium, Dissolved mg/L	13	0.63	0.50	0.83	USGS 2002-2004
Silica, Dissolved mg/L	13	6.5	5.7	6.9	USGS 2002-2004
Sodium, Dissolved mg/L	13	7.56	5.25	8.81	USGS 2002-2004
Specific Conductance µS/cm	43	95	87	109	USGS 2001-2004; SRMP 2008
Sulfate, Total mg/L	13	7.82	7.27	9.04	USGS 2002-2004
Temperature, Water, degrees C	42	14.5	13.1	15.0	USGS 2001-2004; SRMP 2008
Total Dissolved Solids (TDS) mg/L	25	56	48	62	USGS 2002-2004
Total Suspended Solids (TSS) mg/L *	18	1.0	0.4	2.0	USGS 2002-2004; SRMP 2008
Turbidity NTU	10	1.20	0.99	1.36	SRMP 2008

Two-tailed 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.

2470 BCP Sawkill Creek at DWGNRA Boundary



2470 BCP Sawkill Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.316859 Longitude -74.799220 by GPS NAD83 decimal degrees.
USGS Site No 01438396
Watershed Population: 2000: 2,644 2010: 3,085 Change: 441 (+16.7%)
Drainage Area: 24.7 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2502 ICP Delaware River at DWGNRA Northern Boundary
Nearest downstream Interstate Control Point: 2464 ICP Delaware River at Montague
Known dischargers within watershed: Undefined.

Watershed is 88.4% forested; urban land cover is 4.84%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.8 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)
2,761	92.2	46.2	33.1	26.3	20.0	12.8	7.08	1.69

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	3.48
M30D2Y (ft^3/s)	4.76
M7D10Y (ft^3/s)	1.49
M30D10Y (ft^3/s)	2.04
M90D10Y (ft^3/s)	3.29

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	42.7
QAH (ft^3/s)	11.1
BF10YR (ft^3/s)	18.3
BF25YR (ft^3/s)	16.4
BF50YR (ft^3/s)	15.4

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	906
PK5 (ft^3/s)	1,550
PK10 (ft^3/s)	2,070
PK50 (ft^3/s)	3,480
PK100 (ft^3/s)	4,200
PK500 (ft^3/s)	6,200

Existing Water Quality: 2470 BCP Sawkill Creek at DWGNRA Boundary

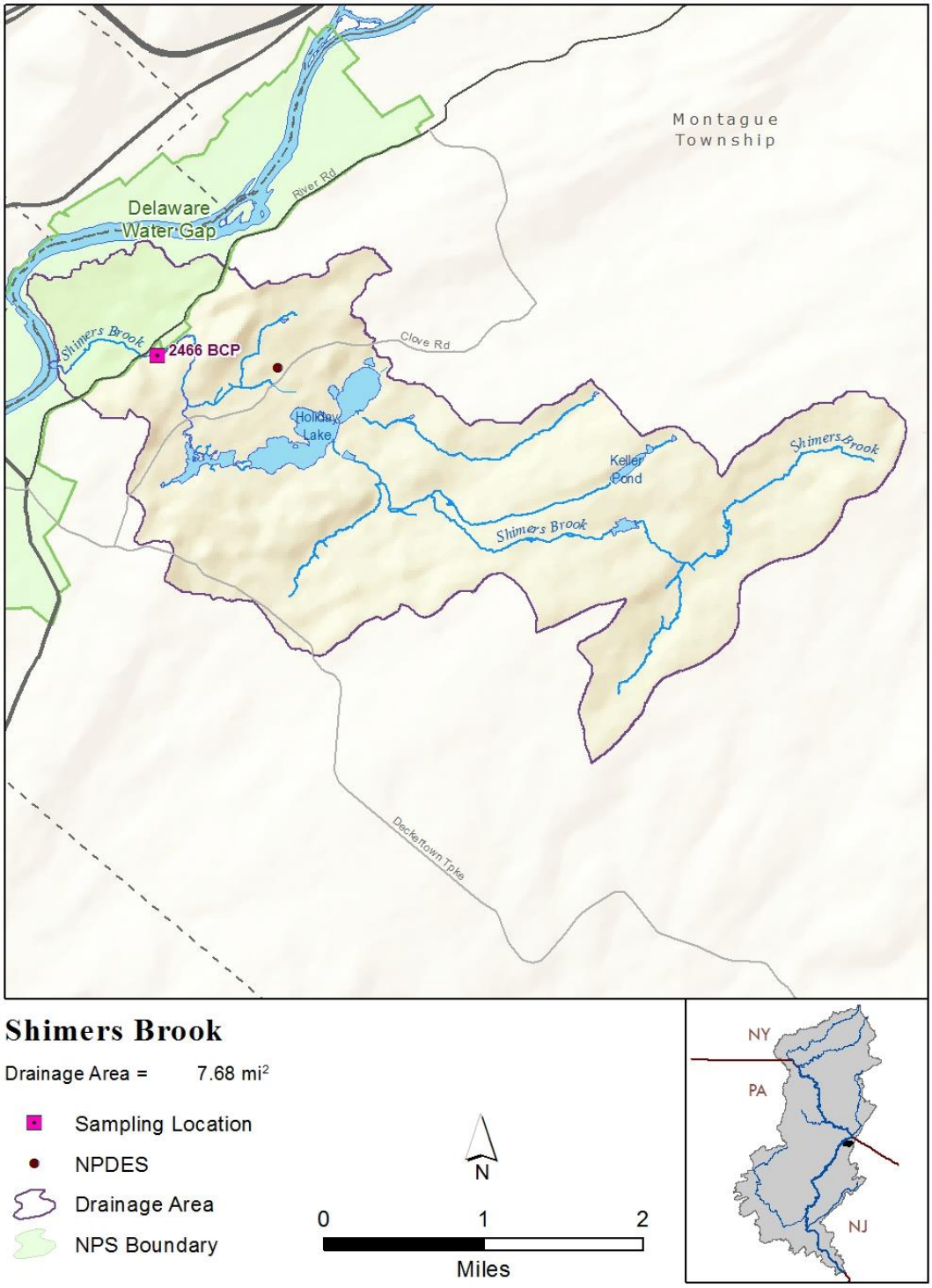
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	23	14.0	12.0	15.1	2002-2004 USGS, 2008 SRMP
Ammonia-Nitrogen as N, Total mg/L *	33	0.015	0.010	0.015	2001-2004 USGS
Calcium, Dissolved mg/L	15	7.36	6.10	9.75	2001-2004 USGS
Chloride, Dissolved mg/L	15	23.1	21.0	30.3	2001-2004 USGS
Chloride, Total mg/L	10	27.7	22.2	31.2	2008 SRMP
Dissolved Oxygen (DO) mg/L *	43	9.60	9.30	10.10	2001-2004 USGS, 2008 SRMP
Dissolved Oxygen Saturation %	43	100.0	99.0	101.7	2001-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	210	12	600	2008 SRMP
Escherichia coli #/100ml	10	8	3	21	2008 SRMP
Fecal coliform #/100ml *	9	11	5	47	2008 SRMP
Hardness as CaCO3, Total mg/L	15	26.0	23.0	36.0	2001-2004 USGS
Magnesium, Dissolved mg/L	15	2.00	1.78	2.77	2001-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	33	0.290	0.250	0.400	2001-2004 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.452	0.245	0.601	2008 SRMP
Nitrogen as N, Total mg/L *	43	0.460	0.420	0.572	2001-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	40	0.112	0.100	0.150	2001-2004 USGS, 2008 SRMP
pH units *	43	7.21	7.01	7.40	2001-2004 USGS, 2008 SRMP
Phosphate as P, Dissolved mg/L	33	0.010	0.010	0.020	2001-2004 USGS
Phosphorus as P, Total mg/L *	43	0.030	0.015	0.040	2001-2004 USGS, 2008 SRMP
Specific Conductance µS/cm	43	137	121	144	2001-2004 USGS, 2008 SRMP
Sulfate, Dissolved mg/L	15	8.34	7.21	9.43	2001-2004 USGS
Temperature, Water, degrees C	43	16.2	15.0	17.5	2001-2004 USGS, 2008 SRMP
Total Dissolved Solids (TDS) mg/L	15	85	73	95	2001-2004 USGS
Total Suspended Solids (TSS) mg/L *	10	0.85	0.45	1.05	2008 SRMP
Turbidity NTU	43	6.0	4.0	8.0	2001-2004 USGS, 2008 SRMP

Two-tailed 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.

2466 BCP Shimers Brook at DWGNRA Boundary



2466 BCP Shimers Brook at DWGNRA Boundary

Pike County, PA. Latitude 41.312972 Longitude -74.778750 by GPS NAD83 decimal degrees.
USGS Site No 01438399
Watershed Population: 2000: 1,659 2010: 1,804 Change: 145 (+8.8%)
Drainage Area: 7.5 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2502 ICP Delaware River at DWGNRA Northern Boundary
Nearest downstream Interstate Control Point: 2464 ICP Delaware River at Montague
Known dischargers within watershed: Undefined.

Watershed is 72.2% forested; urban land cover is 7.20%. 100% glaciated. 16.4% carbonate bedrock. Mean annual precipitation 43.0 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)
779	22.6	11.9	8.70	6.91	5.48	3.19	1.60	0.32

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.61
M30D2Y (ft^3/s)	0.89
M7D10Y (ft^3/s)	0.21
M30D10Y (ft^3/s)	0.32
M90D10Y (ft^3/s)	0.57

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	11.9
QAH (ft^3/s)	3.89
BF10YR (ft^3/s)	5.58
BF25YR (ft^3/s)	4.98
BF50YR (ft^3/s)	4.63

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	307
PK5 (ft^3/s)	539
PK10 (ft^3/s)	731
PK50 (ft^3/s)	1,250
PK100 (ft^3/s)	1,520
PK500 (ft^3/s)	2,280

Existing Water Quality: 2466 BCP Shimers Brook at DWGNRA Boundary

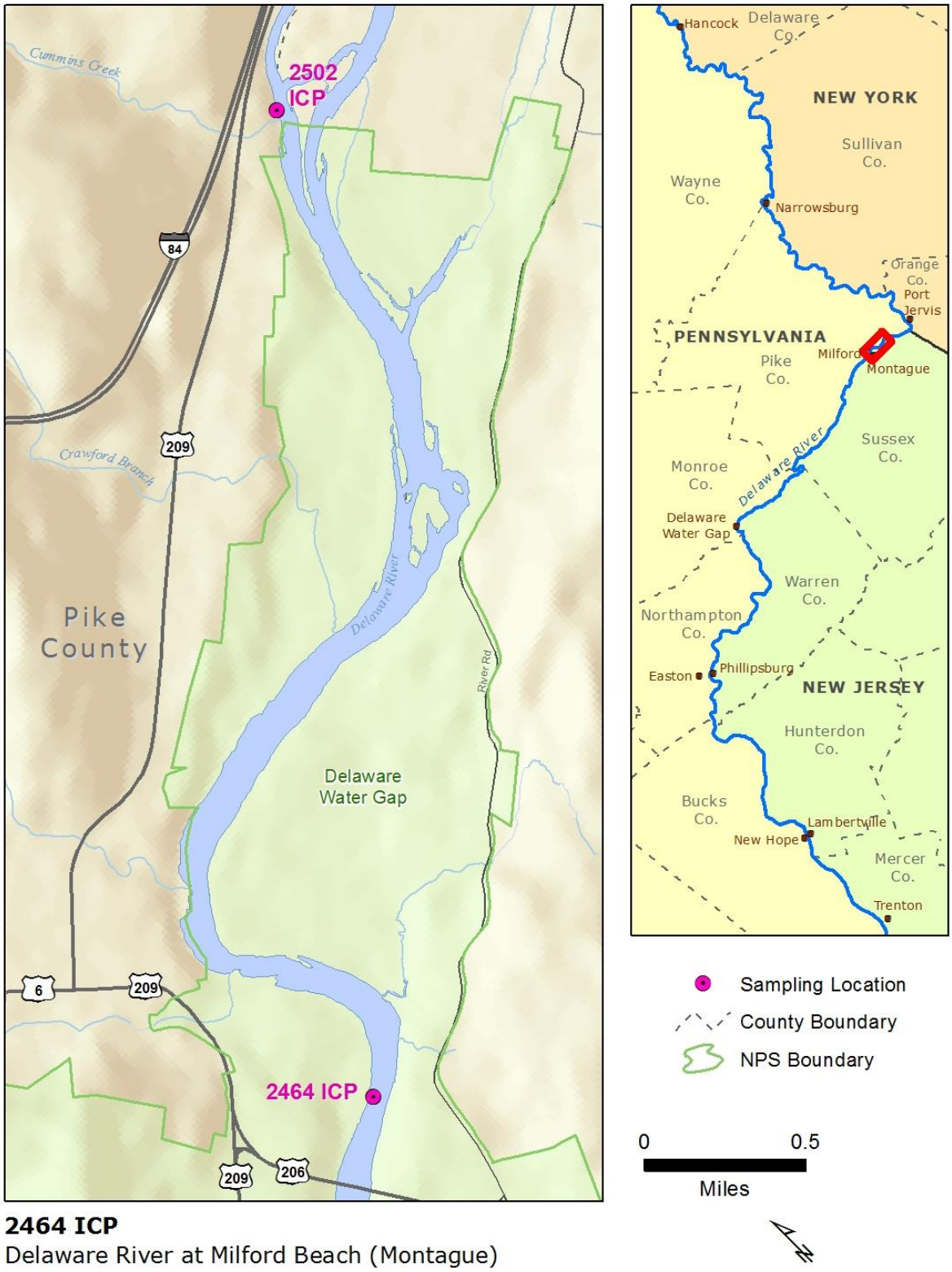
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	22	143.4	84.1	155.9	2002-2004 USGS, 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L *	33	0.015	0.010	0.015	2001-2004 USGS
Calcium, Dissolved mg/L	14	40.7	25.9	52.8	2001-2004 USGS
Chloride, Dissolved mg/L	14	29.5	16.1	38.0	2001-2004 USGS
Chloride, Total mg/L	10	33.8	26.4	39.6	2008 SRMP
Dissolved Oxygen (DO) mg/L *	43	9.0	8.6	9.3	2001-2004 USGS, 2008 SRMP
Dissolved Oxygen Saturation %	42	98.3	97.0	99.0	2001-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	250	110	340	2008 SRMP
Escherichia coli #/100ml	10	7	1	13	2008 SRMP
Fecal coliform #/100ml *	10	17	4	23	2008 SRMP
Hardness as CaCO3, Total mg/L	14	140	86	190	2001-2004 USGS
Magnesium, Dissolved mg/L	14	9.12	5.11	13.60	2001-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	33	0.180	0.130	0.200	2001-2004 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.144	0.125	0.188	2008 SRMP
Nitrogen as N, Total mg/L *	43	0.470	0.400	0.500	2001-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	42	0.295	0.250	0.340	2001-2004 USGS, 2008 SRMP
pH units *	44	8.20	8.10	8.20	2001-2004 USGS, 2008 SRMP
Phosphate as P, Dissolved mg/L	33	0.020	0.010	0.020	2001-2004 USGS
Phosphorus as P, Total mg/L *	43	0.019	0.015	0.022	2001-2004 USGS, 2008 SRMP
Specific Conductance µS/cm	45	353	297	376	2001-2004 USGS, 2008 SRMP
Sulfate, Dissolved mg/L	14	12.95	8.3	14.5	2001-2004 USGS
Temperature, Water, degrees C	44	19.0	18.0	21.0	2001-2004 USGS, 2008 SRMP
Total Dissolved Solids (TDS) mg/L	14	197.5	135.0	254.0	2001-2004 USGS
Total Suspended Solids (TSS) mg/L *	10	1.88	0.90	3.60	2008 SRMP
Turbidity NTU	10	1.49	1.26	2.02	2008 SRMP

Two-tailed 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.

2464 ICP Delaware River at Montague



2464 ICP
Delaware River at Milford Beach (Montague)

2464 ICP Delaware River at Montague

Latitude 41.309167 Longitude -74.795556 by GPS NAD83 decimal degrees.
USGS Gage 01438500; NJDEP Site No. 01438500
Watershed Population figures were not calculated for main-stem Delaware River sites.
Drainage Area: 3,480 square miles, Delaware River Zone 1C

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program; supplemented by existing USGS/NJDEP data.

This site is located in the Delaware Water Gap National Recreation Area.
Classified by DRBC as Outstanding Basin Waters

Nearest upstream Interstate Control Point: 2502 ICP Delaware River at DWGNRA Northern Boundary
Nearest downstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Known dischargers within watershed: Undefined
Tributaries to upstream reach: Major tributary 2470 BCP Sawkill Creek, PA; small tributaries 250.1 Cummins Creek, PA; 248.3 Crawford Branch, PA; 2473 BCP Vandermark Creek, PA; 2466 BCP Shimers Brook, NJ.

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

Flow Statistics (calculated by drainage area weighting from Montague 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)
176,000	12,300	6,870	4,600	3,650	2,900	2,100	1,740	900

Stream flow at this site is controlled by the Delaware River Master.

Existing Water Quality: 2464 ICP Delaware River at Montague

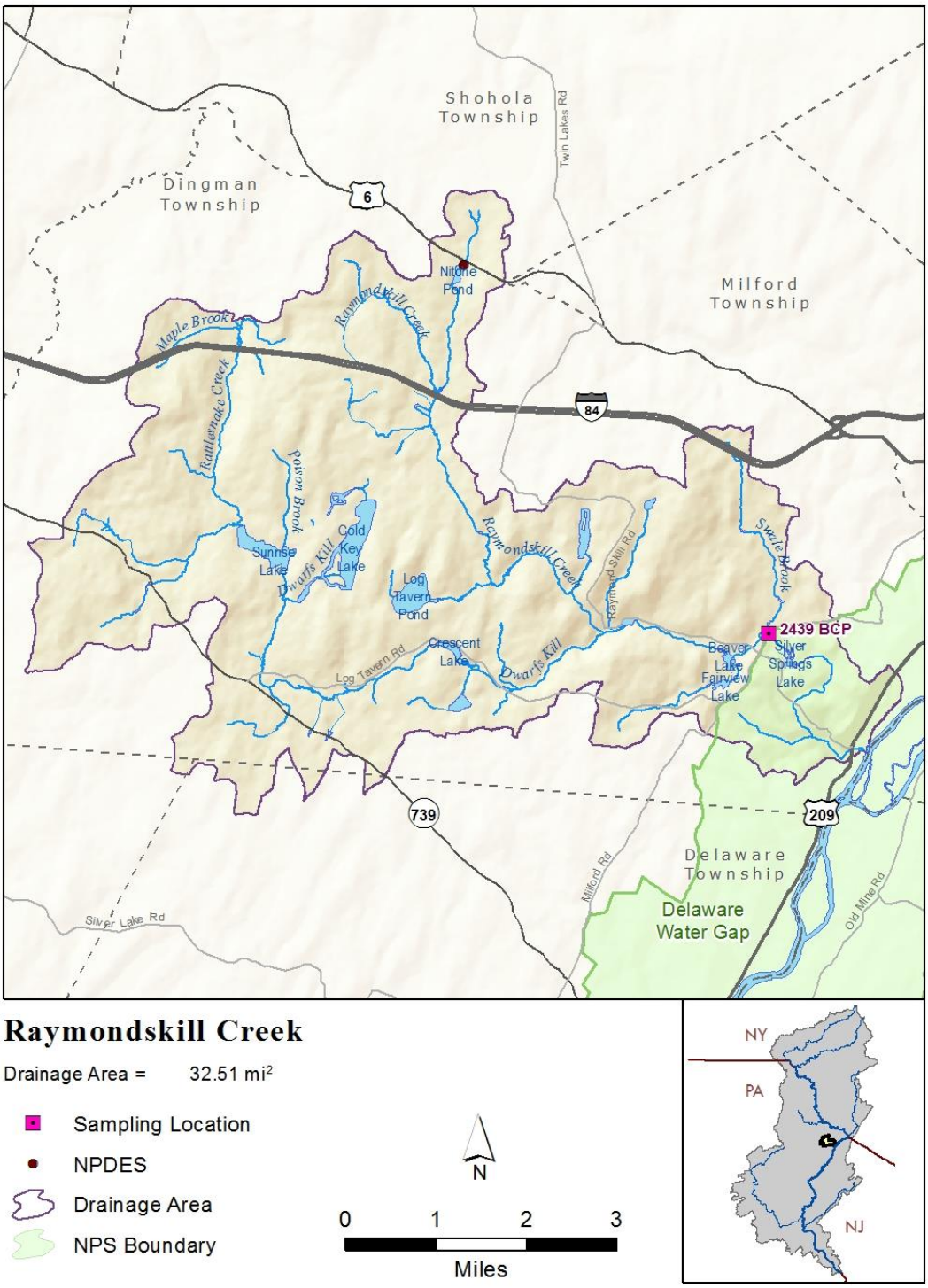
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	104	14.4	14.0	15.0	1991-2011 SRMP, USGS
Aluminum, Dissolved mg/L	14	0.005	0.004	0.006	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	66	0.012	0.011	0.014	2006-2011 SRMP
Barium, Dissolved mg/L	15	0.025	0.022	0.027	2009-2010 SRMP archived
Calcium, Dissolved mg/L	52	6.80	6.52	7.04	1991-2008 USGS, 2009-2010 SRMP archived
Chloride, Dissolved mg/L	37	10.0	9.1	11.1	1991-2009 USGS
Chloride, Total mg/L	67	12.7	12.2	13.6	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	97	8.5	8.2	8.7	1991-2011 USGS, SRMP
Dissolved Oxygen Saturation %	76	92.2	88.0	95.6	1991-2011 USGS, SRMP
Enterococcus #/100ml	103	40	23	57	1991-2006 USGS, 2007-2011 SRMP
Escherichia coli #/100ml	95	34	20	90	2000-2008 USGS/NJDEP, 2007-2011 SRMP
Fecal coliform #/100ml *	64	27	20	32	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	104	23.0	22.0	23.2	1991-2009 USGS, 2006-2011 SRMP
Magnesium, Dissolved mg/L	52	1.40	1.33	1.46	1991-2009 USGS, 2009-2010 SRMP archived
Manganese, Dissolved µg/L	15	10.6	5.0	19.1	2009-2010 SRMP archived
Nitrate as N, Dissolved mg/L	20	0.215	0.190	0.340	1991-2005 USGS
Nitrate+Nitrite as N, Dissolved mg/L	37	0.200	0.170	0.240	1991-2009 USGS
Nitrate+Nitrite as N, Total mg/L *	64	0.145	0.128	0.180	2007-2011 SRMP, 1991-1994 USGS
Nitrogen as N, Dissolved mg/L	35	0.39	0.36	0.48	1991-2009 USGS
Nitrogen as N, Total mg/L *	91	0.383	0.349	0.410	1991-2009 USGS, 2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	78	0.204	0.197	0.213	1991-2001 USGS, 2007-2011 SRMP
Organic Carbon, Dissolved mg/L	37	2.5	2.2	2.6	1991-2009 USGS/NJDEP
pH units *	97	7.38	7.30	7.40	1991-2009 USGS/NJDEP, 2006-2011 SRMP
Phosphate as P, Total mg/L	57	0.007	0.006	0.007	2007-2011 SRMP
Phosphorus as P, Total mg/L *	94	0.015	0.014	0.018	1991-2009 USGS/NJDEP, 2007-2011 SRMP
Potassium, Dissolved mg/L	15	0.74	0.64	0.79	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	7.68	6.28	8.27	2009-2010 SRMP archived
Specific Conductance µS/cm	97	88	87	89	1991-2009 USGS/NJDEP, 2006-2011 SRMP
Strontium, Dissolved mg/L	15	0.030	0.027	0.031	2009-2010 SRMP archived
Sulfate, Dissolved mg/L	37	6.81	6.51	7.40	1991-2009 USGS/NJDEP
Sulfate, Total mg/L	13	5.92	5.70	6.04	2009-2010 SRMP archived
Temperature, Water, degrees C	120	19.65	18.6	20.9	1991-2009 USGS/NJDEP, 2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	104	50.2	49.0	51.6	1991-2009 USGS/NJDEP, 2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	88	2.15	1.35	3.55	1995-2009 USGS/NJDEP, 2006-2011 SRMP
Turbidity NTU	51	2.22	1.97	2.53	2007-2011 SRMP

Two-tailed 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.

2439 BCP Raymondskill Creek at DWGNRA Boundary



2439 BCP Raymondskill Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.305771 Longitude -74.851508 by GPS NAD83 decimal degrees.
USGS Site No 01438700
Watershed Population: 2000: 6,461 2010: 8,924 Change: +2,463 (+38.1%)
Drainage Area: 24.3 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2464 ICP Delaware River at Montague
Nearest downstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Known dischargers within watershed: Undefined.

Watershed is 79.2% forested; urban land cover is 7.38%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.0 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)
3,568	122	61.2	42.8	33.7	25.4	16.5	9.25	2.40

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	3.74
M30D2Y (ft^3/s)	5.17
M7D10Y (ft^3/s)	1.55
M30D10Y (ft^3/s)	2.19
M90D10Y (ft^3/s)	3.56

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	54.4
QAH (ft^3/s)	13.6
BF10YR (ft^3/s)	21.7
BF25YR (ft^3/s)	19.4
BF50YR (ft^3/s)	18.1

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	965
PK5 (ft^3/s)	1,640
PK10 (ft^3/s)	2,200
PK50 (ft^3/s)	3,740
PK100 (ft^3/s)	4,530
PK500 (ft^3/s)	6,780

Existing Water Quality: 2439 BCP Raymondskill Creek at DWGNRA Boundary

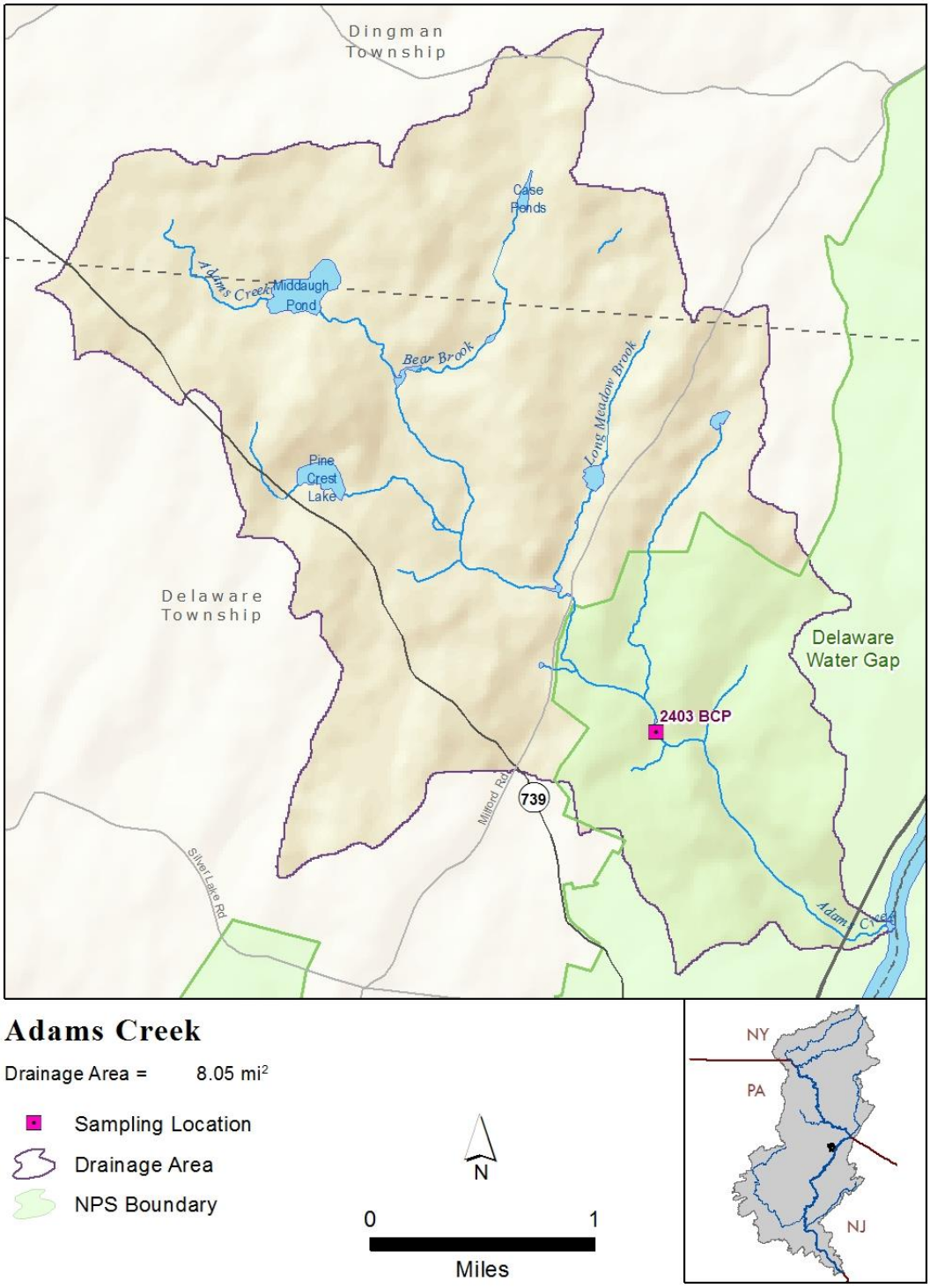
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	22	9.55	7.80	12.00	2002-2004 USGS, 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L *	32	0.015	0.011	0.015	2002-2004 USGS
Calcium, Dissolved mg/L	12	5.58	4.35	5.90	2002-2004 USGS
Chloride, Dissolved mg/L	12	18.8	17.7	21.7	2002-2004 USGS
Chloride, Total mg/L	10	25.4	22.8	26.2	2008 SRMP
Dissolved Oxygen (DO) mg/L *	42	8.57	8.0	9.2	2002-2004 USGS, 2008 SRMP
Dissolved Oxygen Saturation %	42	94	90	98	2002-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	117	13	430	2008 SRMP
Escherichia coli #/100ml	10	7	2	160	2008 SRMP
Fecal coliform #/100ml *	9	5	2	28	2008 SRMP
Hardness as CaCO3, Total mg/L	12	21.5	17.0	24.0	2002-2004 USGS
Magnesium, Dissolved mg/L	12	1.93	1.49	2.20	2002-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	32	0.060	0.040	0.060	1991-2009 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.049	0.037	0.089	2008 SRMP
Nitrogen as N, Total mg/L *	37	0.310	0.290	0.341	2002-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	32	0.260	0.230	0.290	2002-2003 USGS, 2008 SRMP
Nitrogen, Organic as N, Total mg/L	19	0.230	0.210	0.280	2002-2004 USGS
pH units *	42	6.79	6.67	6.90	2002-2004 USGS, 2008 SRMP
Phosphate as P, Dissolved mg/L	32	0.020	0.007	0.020	2002-2004 USGS
Phosphorus as P, Total mg/L *	42	0.018	0.014	0.020	2002-2004 USGS, 2008 SRMP
Specific Conductance µS/cm	42	103.5	101.0	105.0	2002-2004 USGS, 2008 SRMP
Sulfate, Dissolved mg/L	12	5.06	4.90	5.72	2002-2004 USGS
Temperature, Water, degrees C	42	19.0	17.0	20.5	2002-2004 USGS, 2008 SRMP
Total Dissolved Solids (TDS) mg/L	12	68	65	70	2002-2004 USGS
Total Suspended Solids (TSS) mg/L *	10	0.68	0.35	1.30	2008 SRMP
Turbidity NTU	40	10	8	16	2002-2004 USGS, 2008 SRMP

Two-tailed 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.

2403 BCP Adams Creek at DWGNRA Boundary



2403 BCP Adams Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.252500 Longitude -74.882500 by GPS NAD83 decimal degrees.
USGS Site No 01438760; PADEP Site WQN0192
Watershed Population: 2000: 1,337 2010: 1,615 Change: +278 (+20.8%)
Drainage Area: 8.0 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program; supplemented by quarterly PADEP Water Quality Network data 2001-2011.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2464 ICP Delaware River at Montague
Nearest downstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Known dischargers within watershed: Undefined.

Watershed is 84.6% forested; urban land cover is 9.06%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.0 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)
499	26.9	14.2	8.19	5.78	4.38	2.29	1.12	0.30

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.81
M30D2Y (ft^3/s)	1.16
M7D10Y (ft^3/s)	0.29
M30D10Y (ft^3/s)	0.43
M90D10Y (ft^3/s)	0.75

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	13.3
QAH (ft^3/s)	3.19
BF10YR (ft^3/s)	5.64
BF25YR (ft^3/s)	5.06
BF50YR (ft^3/s)	4.73

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	348
PK5 (ft^3/s)	609
PK10 (ft^3/s)	823
PK50 (ft^3/s)	1,400
PK100 (ft^3/s)	1,700
PK500 (ft^3/s)	2,520

Existing Water Quality: 2403 BCP Adams Creek at DWGNRA Boundary

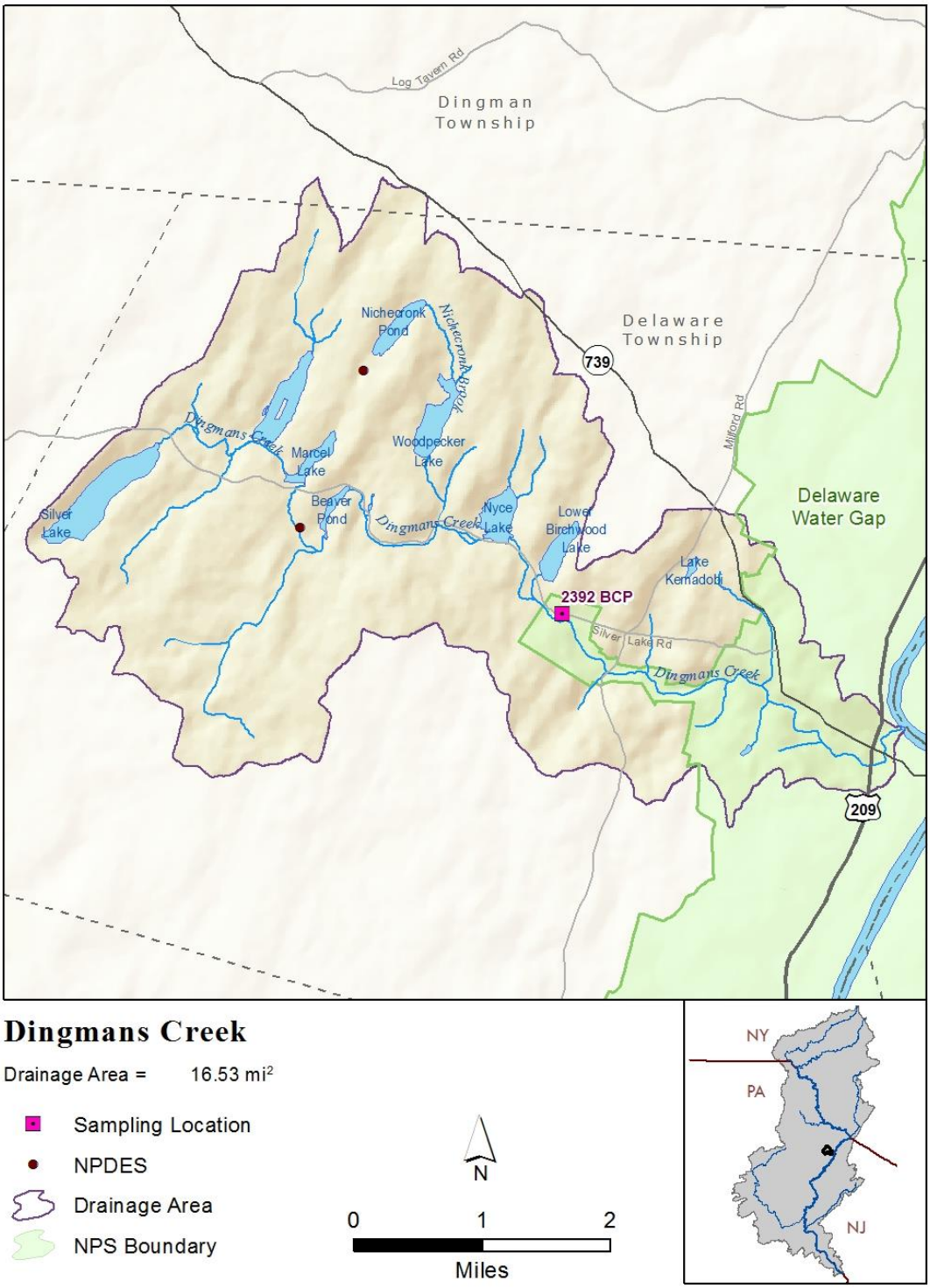
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	54	9.0	8.0	10.0	2001-2004 PADEP, USGS; 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L	31	0.015	0.012	0.015	2002-2004 USGS
Ammonia-Nitrogen as N, Total mg/L *	19	0.020	0.016	0.020	2001-2004 PADEP, USGS
Calcium, Dissolved mg/L	18	4.23	3.82	4.55	2001-2004 PADEP, USGS
Calcium, Total mg/L	20	4.75	4.32	5.26	2001-2004 PADEP
Chloride, Dissolved mg/L	27	10.90	9.45	12.40	2002-2004 USGS
Chloride, Total mg/L	30	13.40	12.30	14.37	2001-2004 PADEP, 2008 SRMP
Dissolved Oxygen (DO) mg/L *	61	9.10	8.80	9.50	2001-2004 PADEP, 2008 SRMP
Dissolved Oxygen Saturation %	41	95	91	97	2002-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	100	14	230	2008 SRMP
Escherichia coli #/100ml	10	12	4	90	2008 SRMP
Fecal coliform #/100ml *	30	20	20	22	2001-2004 PADEP, 2008 SRMP
Hardness as CaCO3, Total mg/L	32	18.0	17.0	19.1	2001-2004 PADEP
Iron, Dissolved µg/L	20	36	20	48	2001-2004 PADEP
Iron, Total µg/L	20	85	32	130	2001-2004 PADEP
Magnesium, Dissolved mg/L	18	1.56	1.41	1.63	2001-2004 PADEP
Magnesium, Total mg/L	20	1.69	1.57	1.84	2001-2004 PADEP
Manganese, Dissolved µg/L	20	<2	<2	<2	2001-2004 PADEP (16/20 Non-Detect)
Manganese, Total µg/L	20	9.65	4.2	17.0	2001-2004 PADEP
Nitrate as N, Total mg/L	20	0.090	0.045	0.160	2001-2004 PADEP
Nitrate+Nitrite as N, Dissolved mg/L *	31	0.100	0.060	0.120	2002-2004 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.093	0.054	0.158	2008 SRMP
Nitrogen as N, Total mg/L *	54	0.260	0.230	0.310	2002-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	31	0.180	0.153	0.210	2002-2003 USGS, 2008 SRMP
Nitrogen, Organic as N, Total mg/L	25	0.170	0.160	0.250	2002-2004 USGS, PADEP
pH units *	60	6.8	6.7	7.0	2001-2004 PADEP, USGS; 2008 SRMP
Phosphate as P, Dissolved mg/L	31	0.020	0.006	0.020	2002-2004 USGS (13/31 Non-detects)
Phosphorus as P, Total mg/L *	60	0.014	0.010	0.016	2001-2004 PADEP, USGS; 2008 SRMP
Specific Conductance µS/cm	61	73	71	76	2001-2004 PADEP, USGS; 2008 SRMP
Sulfate, Dissolved mg/L	27	6.50	6.07	7.01	2002-2004 USGS
Sulfate, Total mg/L	20	6.82	6.55	7.21	2001-2004 PADEP
Temperature, Water, degrees C	61	17.0	17.0	17.9	2001-2004 PADEP, USGS; 2008 SRMP
Total Dissolved Solids (TDS) mg/L	32	50.5	45.0	58.0	2001-2004 PADEP, USGS
Total Suspended Solids (TSS) mg/L *	30	2	2	2	2001-2004 PADEP, USGS; 2008 SRMP
Turbidity NTU	41	7.0	6.0	8.0	2002-2004 USGS, 2008 SRMP

Two-tailed 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.

2392 BCP Dingmans Creek at DWGNRA Boundary



2392 BCP Dingmans Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.238222 Longitude -74.917200 by GPS NAD83 decimal degrees.
USGS Site No 01438890
Watershed Population: 2000: 2,563 2010: 3,032 Change: +469 (+18.3%)
Drainage Area: 16.5 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2464 ICP Delaware River at Montague
Nearest downstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Known dischargers within watershed: Undefined.

Watershed is 80.8% forested; urban land cover is 7.90%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.0 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)
1,873	59.2	29.5	20.8	16.4	12.5	7.84	4.31	1.01

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	1.75
M30D2Y (ft^3/s)	2.47
M7D10Y (ft^3/s)	0.68
M30D10Y (ft^3/s)	0.98
M90D10Y (ft^3/s)	1.65

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	27.3
QAH (ft^3/s)	6.67
BF10YR (ft^3/s)	11.2
BF25YR (ft^3/s)	10.0
BF50YR (ft^3/s)	9.36

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	560
PK5 (ft^3/s)	965
PK10 (ft^3/s)	1,300
PK50 (ft^3/s)	2,220
PK100 (ft^3/s)	2,700
PK500 (ft^3/s)	4,040

Existing Water Quality: 2392 BCP Dingmans Creek at DWGNRA Boundary

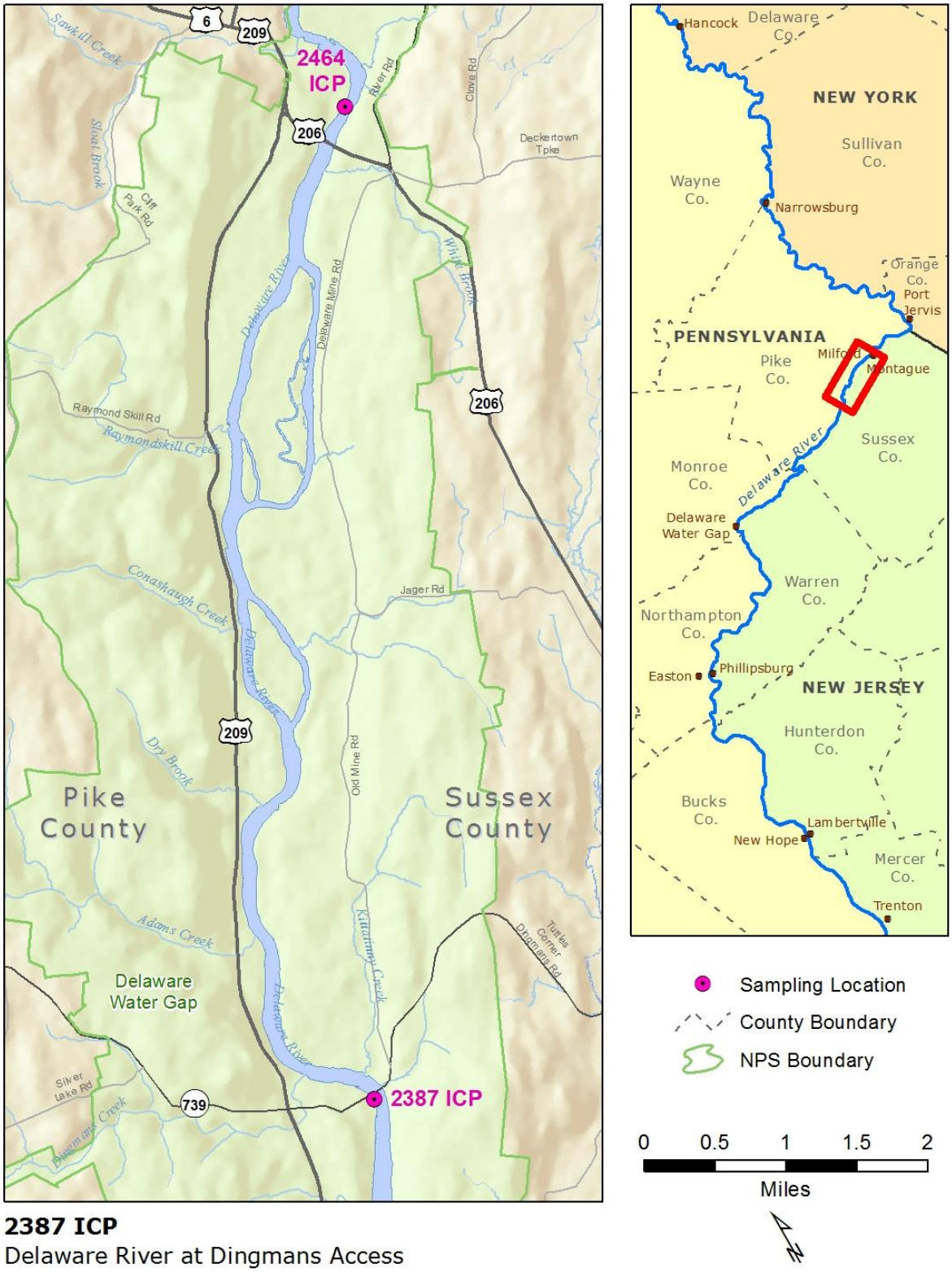
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	22	9.0	8.0	12.3	2002-2004 USGS; 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L *	33	<0.015	<0.015	<0.015	2002-2004 USGS (27/33 non-detect)
Ammonia-Nitrogen as N, Total mg/L	5	<0.005	<0.005	<0.005	2008 SRMP (all non-detects)
Calcium, Dissolved mg/L	14	4.48	3.87	6.20	2001-2004 USGS
Chloride, Dissolved mg/L	14	12.9	9.05	14.4	2001-2004 USGS
Chloride, Total mg/L	10	16.35	13.21	17.6	2008 SRMP
Dissolved Oxygen (DO) mg/L *	43	9.2	8.8	9.5	2001-2004 USGS, 2008 SRMP
Dissolved Oxygen Saturation %	43	97	95	99	2001-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	70	29	250	2008 SRMP
Escherichia coli #/100ml	10	4	1	190	2008 SRMP
Fecal coliform #/100ml *	11	10	2	62	2008 SRMP
Hardness as CaCO3, Total mg/L	14	17	15	24	2001-2004 USGS
Magnesium, Dissolved mg/L	14	1.49	1.23	2.00	2001-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	33	0.10	0.07	0.17	2001-2004 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.109	0.060	0.218	2008 SRMP
Nitrogen as N, Total mg/L *	43	0.340	0.330	0.363	2001-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	33	0.220	0.171	0.280	2001-2003 USGS, 2008 SRMP
Nitrogen, Organic as N, Total mg/L	9	0.200	0.120	0.220	2002, 2004 USGS
pH units *	43	6.9	6.8	7.1	2001-2004 USGS; 2008 SRMP
Phosphate as P, Dissolved mg/L	33	0.02	0.01	0.02	2001-2004 USGS (14/33 non-detects)
Phosphate as P, Total mg/L	5	<0.003	<0.003	<0.003	2008 SRMP
Phosphorus as P, Total mg/L *	43	0.014	0.011	0.021	2001-2004 USGS; 2008 SRMP
Specific Conductance µS/cm	43	81	75	90	2001-2004 USGS; 2008 SRMP
Sulfate, Dissolved mg/L	14	5.72	4.69	6.36	2001-2004 USGS
Temperature, Water, degrees C	43	17.5	16.5	18.0	2001-2004 USGS; 2008 SRMP
Total Dissolved Solids (TDS) mg/L	14	49.5	43.0	62.0	2001-2004 USGS
Total Suspended Solids (TSS) mg/L *	10	1.67	0.50	1.85	2008 SRMP
Turbidity NTU	43	8	5	11	2001-2004 USGS, 2008 SRMP

Two-tailed 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.

2387 ICP Delaware River at Dingmans Access



2387 ICP
Delaware River at Dingmans Access

2387 ICP Delaware River at Dingmans Access

Latitude 41.219426 Longitude -74.859879 by GPS NAD83 decimal degrees.
No USGS or State monitoring sites nearby.
Watershed Population figures were not calculated for main-stem Delaware River sites.
Drainage Area: 3,542 square miles, Delaware River Zone 1C

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program; supplemented by some older data collected by the USGS in the 1980's.

This site is located in the Delaware Water Gap National Recreation Area.
Classified by DRBC as Outstanding Basin Waters

Nearest upstream Interstate Control Point: 2464 ICP Delaware River at Montague
Nearest downstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Known dischargers within watershed: Undefined
Tributaries to upstream reach: Major tributaries 2439 BCP Raymondskill Creek, PA; 2392 BCP Dingmans Creek, PA; small tributaries 246.0 White Brook, NJ; 242.6 Conashaugh Creek, PA; 241.1 Dry Brook, PA; 2403 BCP Adams Creek, PA; 238.8 Kittatinny Creek, NJ.

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

Flow Statistics (calculated by drainage area weighting from Montague 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)
163,900	12,500	6,990	4,680	3,720	2,950	2,140	1,770	920

2387 ICP Delaware River at Dingmans Access

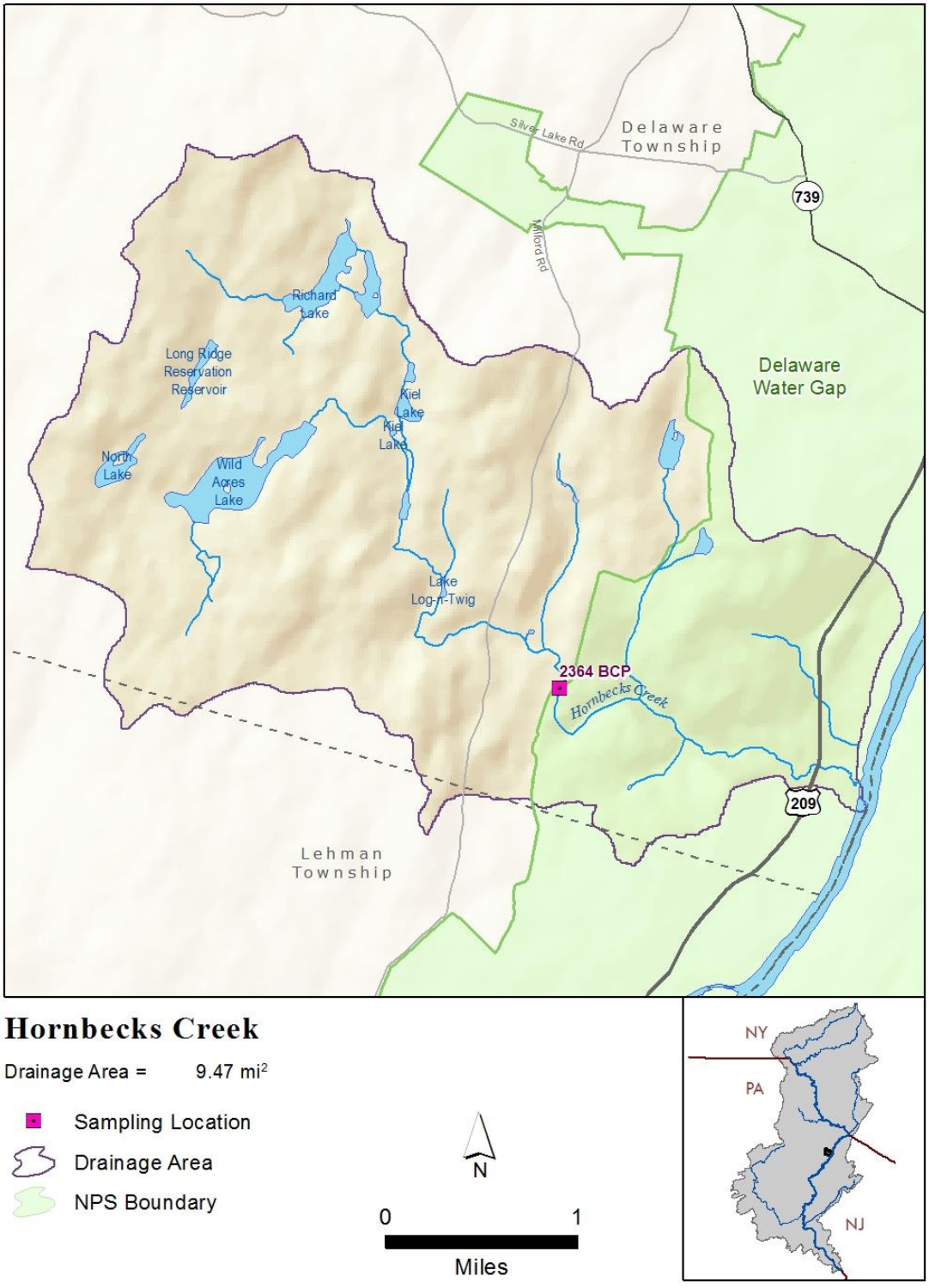
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	72	14.3	13.6	15.1	1983-1984 USGS, 2006-2011 SRMP
Aluminum, Dissolved mg/L	14	0.004	0.002	0.007	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	64	0.013	0.010	0.016	2006-2011 SRMP
Barium, Dissolved mg/L	14	0.021	0.017	0.027	2009-2010 SRMP archived
Calcium, Dissolved mg/L	21	6.50	5.68	7.70	1983-1984 USGS; 2009-2010 SRMP
Chloride, Total mg/L	65	12.7	12.16	13.37	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	66	8.54	8.3	8.9	1983-1984 USGS; 2006-2011 SRMP
Dissolved Oxygen Saturation %	41	94	92	98	1984 USGS; 2008-2011 SRMP
Enterococcus #/100ml	48	44	18	120	2007-2011 SRMP
Escherichia coli #/100ml	48	13	10	19	2007-2011 SRMP
Fecal coliform #/100ml *	62	22	13	36	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	72	23.7	22.4	24.4	1983-1984 USGS, 2006-2011 SRMP
Magnesium, Dissolved mg/L	21	1.40	1.21	1.59	1983-1984 USGS; 2009-2010 SRMP
Manganese, Dissolved µg/L	18	9.4	3.3	20.0	1983-1984 USGS; 2009-2010 SRMP
Nitrate+Nitrite as N, Total mg/L *	55	0.133	0.118	0.156	2007-2011 SRMP
Nitrogen as N, Total mg/L *	55	0.322	0.303	0.376	2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	55	0.194	0.182	0.204	2007-2011 SRMP
pH units *	65	7.29	7.18	7.40	1983-1984 USGS; 2006-2011 SRMP
Phosphate as P, Total mg/L	55	0.006	0.006	0.008	2007-2011 SRMP
Phosphorus as P, Total mg/L *	55	0.014	0.013	0.015	2007-2011 SRMP
Potassium, Dissolved mg/L	14	0.682	0.552	0.782	2009-2010 SRMP archived
Sodium, Dissolved mg/L	14	7.36	6.10	8.39	2009-2010 SRMP archived
Specific Conductance µS/cm	66	85	80	89	1983-1984 USGS; 2006-2011 SRMP
Strontium, Dissolved mg/L	14	0.027	0.025	0.032	2009-2010 SRMP archived
Sulfate, Total mg/L	13	5.91	5.51	6.11	2009-2010 SRMP archived
Temperature, Water, degrees C	66	19.9	18.8	21.6	1983-1984 USGS; 2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	72	50.3	48.9	51.9	1983-1984 USGS; 2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	58	2.08	1.45	2.70	2006-2011 SRMP
Turbidity NTU	51	2.11	1.84	2.47	2007-2011 SRMP

Two-tailed 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.

2364 BCP Hornbecks Creek at DWGNRA Boundary



2364 BCP Hornbecks Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.196053 Longitude -74.909046 by GPS NAD83 decimal degrees.
USGS Site No 01439092
Watershed Population: 2000: 1,927 2010: 2,264 Change: +337 (+17.5%)
Drainage Area: 9.5 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Nearest downstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Known dischargers within watershed: Undefined.

Watershed is 77.1% forested; urban land cover is 10.09%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.0 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)
1,103	31.5	15.6	11.2	8.82	7.03	4.32	2.29	0.55

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.85
M30D2Y (ft^3/s)	1.23
M7D10Y (ft^3/s)	0.30
M30D10Y (ft^3/s)	0.46
M90D10Y (ft^3/s)	0.80

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	15.2
QAH (ft^3/s)	3.70
BF10YR (ft^3/s)	6.30
BF25YR (ft^3/s)	5.63
BF50YR (ft^3/s)	5.25

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	363
PK5 (ft^3/s)	633
PK10 (ft^3/s)	857
PK50 (ft^3/s)	1,470
PK100 (ft^3/s)	1,780
PK500 (ft^3/s)	2,670

Existing Water Quality: 2364 BCP Hornbecks Creek at DWGNRA Boundary

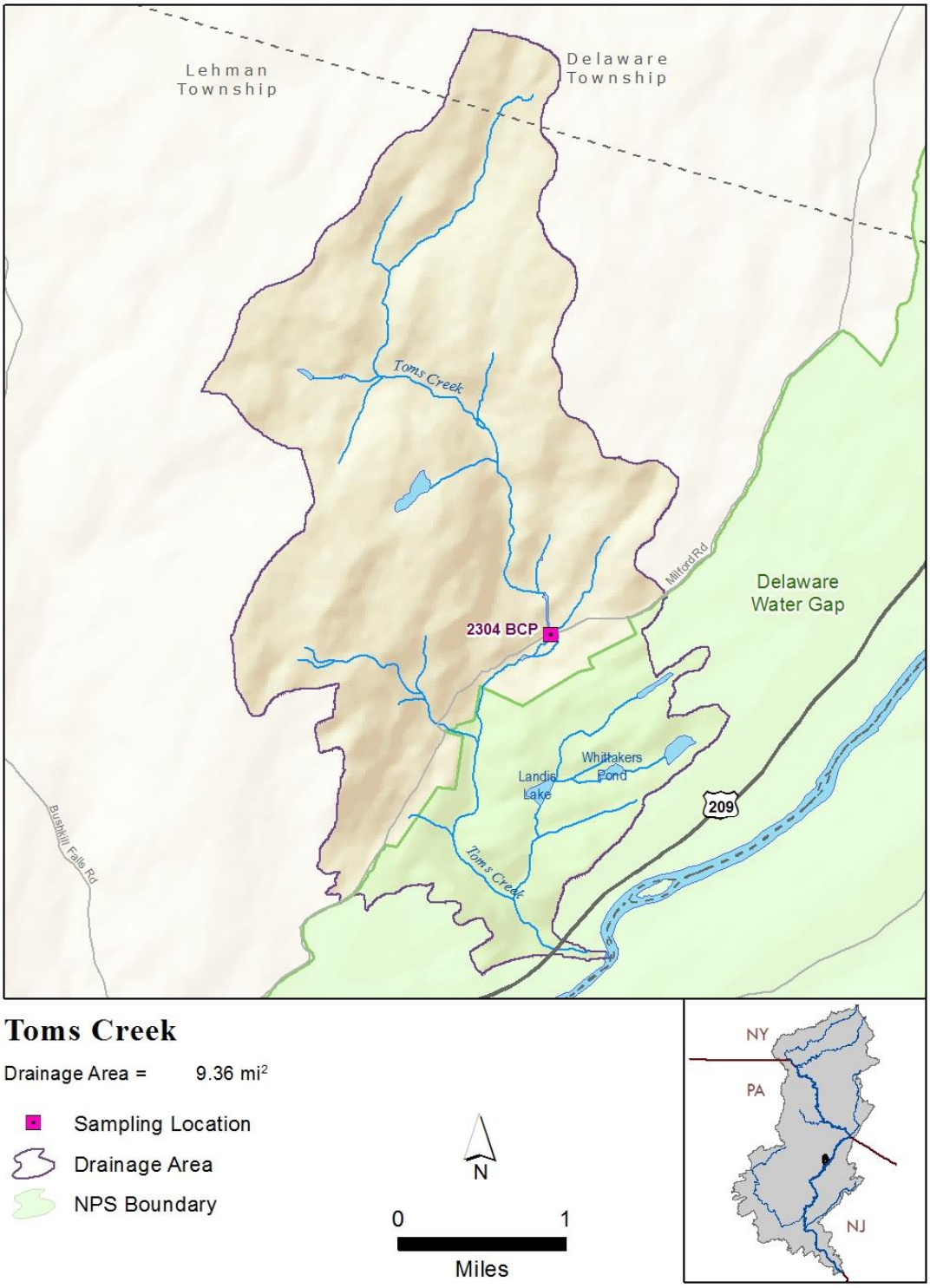
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	22	11.0	10.0	12.3	2002-2004 USGS, 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L *	31	0.015	0.012	0.018	2002-2004 USGS
Ammonia-Nitrogen as N, Total mg/L	10	<0.005	<0.005	<0.005	2008 SRMP (all 10 samples non-detects)
Calcium, Dissolved mg/L	12	6.45	5.48	8.22	2002-2004 USGS
Chloride, Dissolved mg/L	12	21.4	16.7	39.5	2002-2004 USGS
Chloride, Total mg/L	10	30.6	23.8	36.8	2008 SRMP
Dissolved Oxygen (DO) mg/L *	41	8.4	7.7	9.1	2002-2004 USGS, 2008 SRMP
Dissolved Oxygen Saturation %	41	93	85	95	2002-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	175	27	600	2008 SRMP
Escherichia coli #/100ml	10	35	10	300	2008 SRMP
Fecal coliform #/100ml *	9	57	20	180	2008 SRMP
Hardness as CaCO3, Total mg/L	12	25.0	22.0	32.0	2002-2004 USGS
Magnesium, Dissolved mg/L	12	2.19	1.94	2.63	2002-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	31	0.080	0.070	0.110	2002-2004 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.093	0.056	0.137	2008 SRMP
Nitrogen as N, Total mg/L *	38	0.315	0.282	0.350	2002-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	31	0.228	0.179	0.250	2002-2003 USGS, 2008 SRMP
Nitrogen, Organic as N, Total mg/L	21	0.200	0.160	0.240	2002-2004 USGS
pH units *	41	6.7	6.4	6.8	2002-2004 USGS, 2008 SRMP
Phosphate as P, Dissolved mg/L	31	0.020	0.006	0.020	2002-2004 USGS (25/31 non-detects)
Phosphate as P, Total mg/L	10	<0.003	<0.003	<0.003	2008 SRMP (all 10 samples non-detects)
Phosphorus as P, Total mg/L *	41	0.015	0.010	0.040	2002-2004 USGS, 2008 SRMP
Specific Conductance µS/cm	41	128	112	155	2002-2004 USGS, 2008 SRMP
Sulfate, Dissolved mg/L	12	7.81	7.12	10.30	2002-2004 USGS
Temperature, Water, degrees C	41	17.0	17.0	19.3	2002-2004 USGS, 2008 SRMP
Total Dissolved Solids (TDS) mg/L	12	68	61	99	2002-2004 USGS
Total Suspended Solids (TSS) mg/L *	10	1.33	0.80	1.95	2008 SRMP
Turbidity NTU	41	9.0	7.0	11.0	2002-2004 USGS, 2008 SRMP

Two-tailed 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.

2304 BCP Toms Creek at DWGNRA Boundary



2304 BCP Toms Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.152203 Longitude -74.954079 by GPS NAD83 decimal degrees.
USGS Site No 01439400
Watershed Population: 2000: 2,074 2010: 2,299 Change: +225 (+10.9%)
Drainage Area: 9.4 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed 2008 by DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Nearest downstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Known dischargers within watershed: Undefined.

Watershed is 72.1% forested; urban land cover is 24.5%. 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.0 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)
1,082	32.1	16.5	11.3	8.90	7.14	4.61	2.53	0.75

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.77
M30D2Y (ft^3/s)	1.12
M7D10Y (ft^3/s)	0.27
M30D10Y (ft^3/s)	0.41
M90D10Y (ft^3/s)	0.72

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	15.7
QAH (ft^3/s)	2.14
BF10YR (ft^3/s)	6.36
BF25YR (ft^3/s)	5.73
BF50YR (ft^3/s)	5.36

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	429
PK5 (ft^3/s)	750
PK10 (ft^3/s)	1,010
PK50 (ft^3/s)	1,700
PK100 (ft^3/s)	2,060
PK500 (ft^3/s)	3,030

Existing Water Quality: 2304 BCP Toms Creek at DWGNRA Boundary

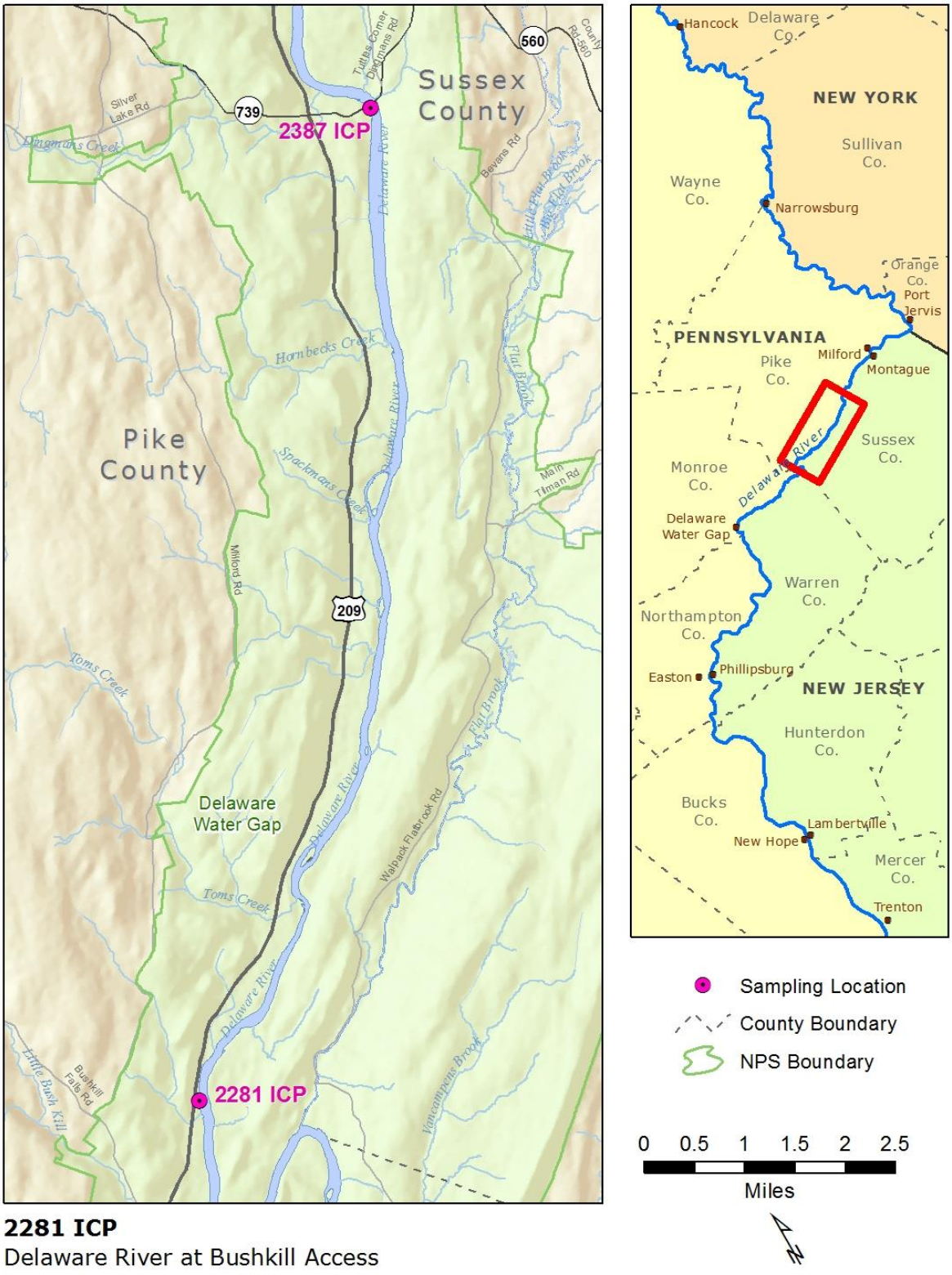
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	23	13.5	12.0	14.9	2002-2004 USGS, 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L *	34	<0.015	<0.015	<0.015	2002-2004 USGS, all non-detects
Ammonia-Nitrogen as N, Total mg/L	10	<0.005	<0.005	<0.005	2008 SRMP (all 10 samples non-detects)
Calcium, Dissolved mg/L	15	6.26	5.87	6.58	2001-2004 USGS
Chloride, Dissolved mg/L	15	10.5	9.6	11.3	2001-2004 USGS
Chloride, Total mg/L	10	13.8	13.4	14.9	2008 SRMP
Dissolved Oxygen (DO) mg/L *	44	9.7	9.4	10.1	2001-2004 USGS, 2008 SRMP
Dissolved Oxygen Saturation %	44	98	97	99	2001-2004 USGS, 2008 SRMP
Enterococcus #/100ml	10	135	8	600	2008 SRMP
Escherichia coli #/100ml	10	6	2	130	2008 SRMP
Fecal coliform #/100ml *	9	10	3	15	2008 SRMP
Hardness as CaCO3, Total mg/L	15	25.0	23.0	26.0	2001-2004 USGS
Magnesium, Dissolved mg/L	15	2.22	2.01	2.43	2001-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	34	0.155	0.140	0.220	2001-2004 USGS
Nitrate+Nitrite as N, Total mg/L	10	0.196	0.091	0.279	2008 SRMP
Nitrogen as N, Total mg/L *	39	0.251	0.220	0.270	2001-2004 USGS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	34	0.070	0.060	0.100	2001-2003 USGS, 2008 SRMP
pH units	45	7.1	6.9	7.3	2001-2004 USGS, 2008 SRMP
Phosphate as P, Dissolved mg/L	34	<0.01	<0.01	<0.01	2001-2004 USGS (24/34 non-detects)
Phosphate as P, Total mg/L	10	<0.003	<0.003	<0.003	2008 SRMP (all 10 samples non-detects)
Phosphorus as P, Total mg/L *	44	0.012	0.010	0.013	2001-2004 USGS, 2008 SRMP
Specific Conductance µS/cm	45	90	86	91	2001-2004 USGS, 2008 SRMP
Sulfate, Dissolved mg/L	15	8.82	8.41	9.23	2001-2004 USGS
Temperature, Water, degrees C	44	15.1	14.0	16.2	2001-2004 USGS, 2008 SRMP
Total Dissolved Solids (TDS) mg/L	15	56	51	57	2001-2004 USGS
Total Suspended Solids (TSS) mg/L *	10	0.42	0.20	2.00	2008 SRMP
Turbidity NTU	43	4.0	3.0	5.0	2001-2004 USGS, 2008 SRMP

Two-tailed 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.

2281 ICP Delaware River at Bushkill Access



2281 ICP
Delaware River at Bushkill Access

2281 ICP Delaware River at Bushkill Access

Latitude 41.107497 Longitude -74.983409 by GPS NAD83 decimal degrees.
No USGS or State monitoring sites nearby.
Watershed Population figures were not calculated for main-stem Delaware River sites.
Drainage Area: 3,625 square miles, Delaware River Zone 1C

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located in the Delaware Water Gap National Recreation Area.
Classified by DRBC as Outstanding Basin Waters

Nearest upstream Interstate Control Point: 2387 ICP Delaware River at Dingmans Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined
Tributaries to upstream reach: Major tributaries NONE; small tributaries 2364 BCP Hornbecks Creek, PA; 234.4 Spackmans Creek, PA; 2304 BCP Toms 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 Montague 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)
167,700	12,800	7,160	4,790	3,800	3,020	2,190	1,810	940

Existing Water Quality: 2281 ICP Delaware River at Bushkill Access

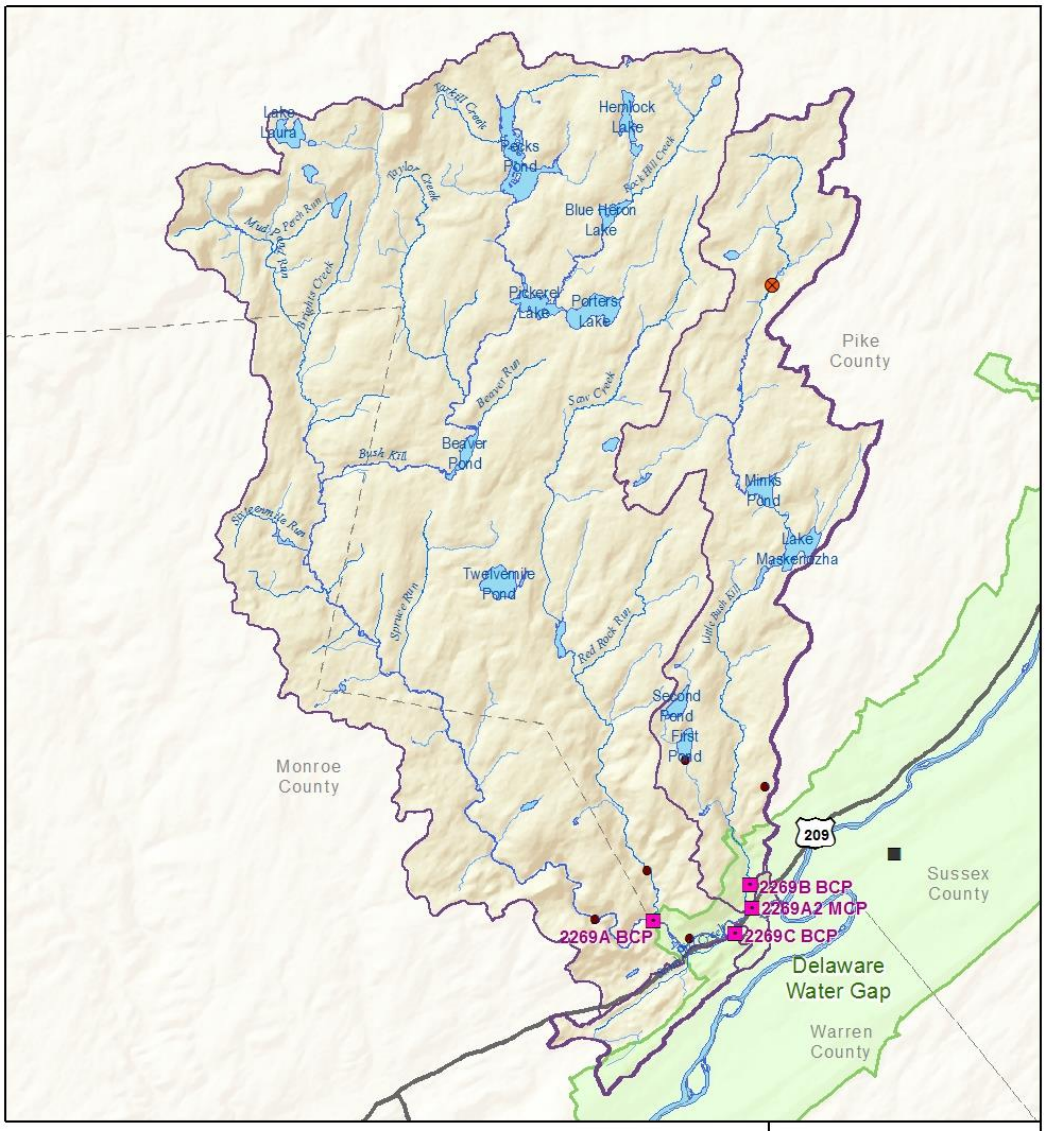
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	64	15.0	14.2	15.9	2006-2011 SRMP
Aluminum, Dissolved mg/L	15	0.004	0.003	0.005	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	63	0.011	0.010	0.012	2006-2011 SRMP
Barium, Dissolved mg/L	15	0.022	0.019	0.025	2009-2010 SRMP archived
Calcium, Dissolved mg/L	15	6.49	6.17	7.07	2009-2010 SRMP archived
Chloride, Total mg/L	64	12.83	12.00	13.60	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	59	8.35	8.05	8.87	2006-2011 SRMP
Dissolved Oxygen Saturation %	39	94.8	92.6	97.9	2008-2011 SRMP
Enterococcus #/100ml	49	27	17	45	2007-2011 SRMP
Escherichia coli #/100ml	49	10	6	16	2007-2011 SRMP
Fecal coliform #/100ml *	67	11	8	17	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	64	24.0	23.2	25.2	2006-2011 SRMP
Magnesium, Dissolved mg/L	15	1.39	1.30	1.51	2009-2010 SRMP archived
Manganese, Dissolved µg/L	15	8.2	2.9	12.3	2009-2010 SRMP archived
Nitrate+Nitrite as N, Total mg/L *	57	0.123	0.103	0.140	2007-2011 SRMP
Nitrogen as N, Total mg/L *	57	0.305	0.295	0.352	2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	57	0.194	0.184	0.203	2007-2011 SRMP
pH units *	59	7.40	7.28	7.56	2006-2011 SRMP
Phosphate as P, Total mg/L	54	0.005	0.004	0.006	2007-2011 SRMP
Phosphorus as P, Total mg/L *	57	0.012	0.011	0.015	2007-2011 SRMP
Potassium, Dissolved mg/L	15	0.73	0.61	0.80	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	7.30	6.60	7.89	2009-2010 SRMP archived
Specific Conductance µS/cm	59	89.5	86.3	94.0	2006-2011 SRMP
Strontium, Dissolved mg/L	15	0.028	0.027	0.031	2009-2010 SRMP archived
Sulfate, Total mg/L	13	5.74	5.34	6.23	2009-2010 SRMP archived
Temperature, Water, degrees C	59	20.4	19.5	22.9	2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	64	51.7	49.7	528	2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	57	1.7	1.1	2.4	2008 SRMP
Turbidity NTU	50	2.17	1.79	2.60	2007-2011 SRMP

Two-tailed 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.

2269A BCP Bushkill, 2269B BCP Little Bushkill, and 2269C BCP Sand Hill Creek



Bush Kill Creek, Little Bushkill Creek, and Sandhill Creek

Drainage Area = 157.46 mi^2

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

N

0 2 4 6

Miles

2269C BCP Sand Hill Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.084850 Longitude -75.008890 by GPS NAD83 decimal degrees.
USGS Site No 01439570
Watershed Population: 2000: 452 2010: 729 Change: +277 (+61.2%)
Drainage Area: 3.5 square miles, tributary to Bushkill Creek to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 77.0% forested; urban land cover is 8.00%. 100% glaciated. 24% carbonate bedrock. Mean annual precipitation 45.0 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)
338	9.91	5.86	4.14	3.33	2.91	2.11	1.32	0.36

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.33
M30D2Y (ft^3/s)	0.48
M7D10Y (ft^3/s)	0.11
M30D10Y (ft^3/s)	0.17
M90D10Y (ft^3/s)	0.31

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	5.64
QAH (ft^3/s)	2.40
BF10YR (ft^3/s)	3.15
BF25YR (ft^3/s)	2.83
BF50YR (ft^3/s)	2.65

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	154
PK5 (ft^3/s)	275
PK10 (ft^3/s)	376
PK50 (ft^3/s)	652
PK100 (ft^3/s)	795
PK500 (ft^3/s)	1,200

Existing Water Quality: 2269C BCP Sand Hill Creek at DWGNRA Boundary

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	10	107	93	126	2002-2004 USGS
Ammonia-Nitrogen as N, Dissolved mg/L *	27	0.013	0.010	0.015	2002-2004 USGS
Calcium, Dissolved mg/L	10	46.3	41.3	60.0	2002-2004 USGS
Chloride, Dissolved mg/L	10	23.5	14.6	50.4	2002-2004 USGS
Dissolved Oxygen (DO) mg/L *	28	8.4	8.0	9.1	2002-2004 USGS
Dissolved Oxygen Saturation %	26	91.5	85	96	2002-2004 USGS
Hardness as CaCO3, Total mg/L	10	125	110	160	2002-2004 USGS
Magnesium, Dissolved mg/L	10	2.22	2.03	2.80	2002-2004 USGS
Nitrate as N, Dissolved mg/L	6	0.23	0.16	0.36	2002-2004 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	27	0.27	0.15	0.33	2002-2004 USGS
Nitrogen as N, Total mg/L *	28	0.57	0.55	0.64	2002-2004 USGS
Nitrogen, Kjeldahl as N, Total mg/L	19	0.35	0.24	0.43	2002-2003 USGS
Nitrogen, Organic as N, Total mg/L	17	0.33	0.27	0.38	2002-2004 USGS
pH units *	28	7.8	7.7	7.9	2002-2004 USGS
Phosphate as P, Dissolved mg/L	27	0.016	0.010	0.020	2002-2004 USGS
Phosphorus as P, Total mg/L *	28	0.019	0.010	0.038	2002-2004 USGS
Specific Conductance µS/cm	26	293	270	318	2002-2004 USGS
Sulfate, Dissolved mg/L	10	14.9	12.7	22.1	2002-2004 USGS
Temperature, Water, degrees C	28	17.3	15.5	18.0	2002-2004 USGS
Total Dissolved Solids (TDS) mg/L	10	183	167	249	2002-2004 USGS
Total Suspended Solids (TSS) mg/L *	0				No data
Turbidity NTU	28	11	8	12	2002-2004 USGS

Two-tailed 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.

2269B BCP Little Bushkill Creek at DWGNRA Boundary

Pike County, PA. Latitude 41.097731 Longitude -75.003818 by GPS NAD83 decimal degrees.
USGS Site No 01439680
Watershed Population: 2000: 2,398 2010: 3,452 Change: +1,054 (+44.0%)
Drainage Area: 32.9 square miles, tributary to Bushkill Creek to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed by DRBC/NPS Scenic Rivers Monitoring Program 2008-2011.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 77.6% forested; urban land cover is 5.5%. Watershed was 100% glaciated. No carbonate bedrock. Mean annual precipitation 43.0 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)
3,530	124	62.1	43.3	33.9	25.5	16.2	8.93	2.32

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	3.68
M30D2Y (ft^3/s)	5.10
M7D10Y (ft^3/s)	1.52
M30D10Y (ft^3/s)	2.15
M90D10Y (ft^3/s)	3.51

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	53.7
QAH (ft^3/s)	12.9
BF10YR (ft^3/s)	21.2
BF25YR (ft^3/s)	18.9
BF50YR (ft^3/s)	17.6

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	860
PK5 (ft^3/s)	1,460
PK10 (ft^3/s)	1,970
PK50 (ft^3/s)	3,380
PK100 (ft^3/s)	4,120
PK500 (ft^3/s)	6,220

Existing Water Quality: 2269B BCP Little Bushkill Creek at DWGNRA Boundary

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	54	5.95	5.1	6.1	2002-2004 USGS, 2008-2011 SRMP
Aluminum, Dissolved mg/L	14	0.004	0.002	0.008	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	35	0.007	0.006	0.008	2008-2011 SRMP (12/35 non-detects)
Barium, Dissolved mg/L	14	0.009	0.008	0.009	2009-2010 SRMP archived
Calcium, Dissolved mg/L	28	3.61	3.31	4.04	2002-2004 USGS, 2009-2010 SRMP
Chloride, Dissolved mg/L	14	5.67	4.42	6.74	2001-2004 USGS
Chloride, Total mg/L	42	6.95	6.70	7.67	2008-2011 SRMP
Dissolved Oxygen (DO) mg/L *	72	9.41	9.20	9.56	2001-2004 USGS; 2008-2011 SRMP
Dissolved Oxygen Saturation %	72	98	97	98.4	2001-2004 USGS; 2008-2011 SRMP
Enterococcus #/100ml	39	30	12	90	2008-2011 SRMP
Escherichia coli #/100ml	39	10	6	16	2008-2011 SRMP
Fecal coliform #/100ml *	39	12	9	16	2008-2011 SRMP
Hardness as CaCO3, Total mg/L	56	15.0	13.8	16.0	2001-2004 USGS; 2008-2011 SRMP
Magnesium, Dissolved mg/L	28	1.33	1.13	1.49	2001-2004 USGS; 2009-2010 SRMP
Manganese, Dissolved µg/L	14	13.7	10.7	15.2	2009-2010 SRMP archived
Nitrate+Nitrite as N, Dissolved mg/L	33	0.11	0.06	0.13	2001-2004 USGS
Nitrate+Nitrite as N, Total mg/L *	42	0.094	0.075	0.112	2008-2011 SRMP
Nitrogen as N, Total mg/L *	72	0.360	0.340	0.379	2001-2004 USGS; 2008-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	65	0.234	0.212	0.268	2001-2003 USGS; 2008-2011 SRMP
Nitrogen, Organic as N, Total mg/L	11	0.28	0.16	0.41	2002-2004 USGS
pH units *	72	6.90	6.80	7.02	2001-2004 USGS; 2008-2011 SRMP
Phosphate as P, Dissolved mg/L	33	<0.013	<0.010	<0.020	2001-2004 USGS (>16/33 non-detects)
Phosphate as P, Total mg/L	35	0.008	0.007	0.009	2008-2011 SRMP (0 non-detects)
Phosphorus as P, Total mg/L *	75	0.016	0.015	0.017	2001-2004 USGS; 2008-2011 SRMP
Potassium, Dissolved mg/L	14	0.28	0.22	0.31	2009-2010 SRMP archived
Sodium, Dissolved mg/L	14	3.73	3.22	4.05	2009-2010 SRMP archived
Specific Conductance µS/cm	72	49.8	47.2	53.6	2001-2004 USGS; 2008-2011 SRMP
Strontium, Dissolved mg/L	14	0.016	0.012	0.019	2009-2010 SRMP archived
Sulfate, Dissolved mg/L	14	5.52	4.46	6.08	2001-2004 USGS
Sulfate, Total mg/L	12	4.87	4.42	5.29	2009-2010 SRMP archived
Temperature, Water, degrees C	72	17.5	16.5	18.0	2001-2004 USGS; 2008-2011 SRMP
Total Dissolved Solids (TDS) mg/L	56	37.5	35.9	39.0	2001-2004 USGS; 2008-2011 SRMP
Total Suspended Solids (TSS) mg/L *	42	1.33	1.00	1.70	2008-2011 SRMP
Turbidity NTU	73	2.06	1.65	8.00	2001-2004 USGS; 2008-2011 SRMP

Two-tailed 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.

2269A BCP Bushkill Creek at DWGNRA Boundary

Monroe County, PA. Latitude 41.0882 Longitude -75.00379 by GPS NAD83 decimal degrees.
USGS Site No 01439500; PADEP Site No. WQN0139
Watershed Population: 2000: 10,920 2010: 16,114 Change: +5,194 (+47.6%)
Drainage Area: 117 square miles, tributary to Delaware River Zone 1C
Water quality at this location does not include Little Bushkill Creek or Sand Hill Creek drainage.

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed by DRBC/NPS Scenic Rivers Monitoring Program 2008-2011. Data also include quarterly samples 2000-2011 by PADEP.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 82.4% forested; urban land cover is 3.78%. Watershed was 100 glaciated, and is underlain by 0.5% carbonate bedrock. Mean annual precipitation 43.4 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)
4,800	531	302	201	159	120	71.0	26.0	2.60

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	18.1
M30D2Y (ft^3/s)	24.0
M7D10Y (ft^3/s)	8.91
M30D10Y (ft^3/s)	11.6
M90D10Y (ft^3/s)	17.5

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	198
QAH (ft^3/s)	52.6
BF10YR (ft^3/s)	79.9
BF25YR (ft^3/s)	71.5
BF50YR (ft^3/s)	66.7

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	2,960
PK5 (ft^3/s)	4,890
PK10 (ft^3/s)	6,470
PK50 (ft^3/s)	10,800
PK100 (ft^3/s)	13,100
PK500 (ft^3/s)	19,400

Existing Water Quality: 2269A BCP Bushkill Creek at DWGNRA Boundary

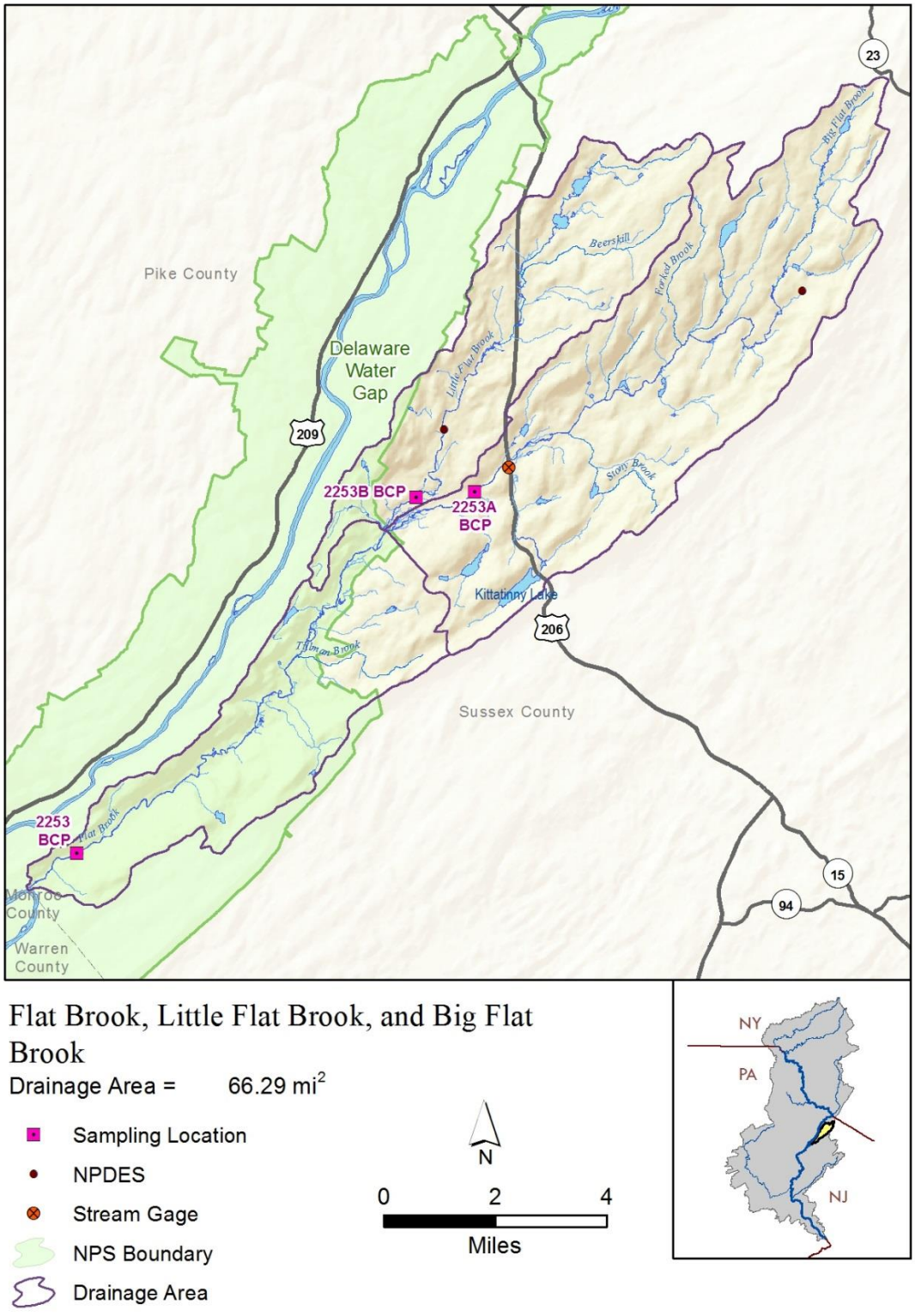
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	80	7.0	6.1	7.2	1999-2009 USGS/PA; 2008-2011 SRMP
Aluminum, Dissolved mg/L	15	0.004	0.003	0.005	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	62	<0.012	<0.007	<0.016	1999-2009 USGS/PA; 2008-2011 SRMP
Barium, Dissolved mg/L	15	0.010	0.008	0.012	2009-2010 SRMP archived
Calcium, Dissolved mg/L	59	3.54	3.45	3.80	1999-2009 USGS/PA; 2009-2010 SRMP
Calcium, Total mg/L	27	3.54	3.34	4.11	1999-2009 USGS/PA
Chloride, Dissolved mg/L	18	5.03	4.27	5.64	1999-2009 USGS/PA
Chloride, Total mg/L	44	5.03	4.80	6.03	2008-2011 SRMP
Dissolved Oxygen (DO) mg/L *	103	9.60	9.30	9.75	1999-2009 USGS/PA; 2008-2011 SRMP
Dissolved Oxygen Saturation %	72	100.5	99.0	102.2	1999-2009 USGS/PA; 2008-2011 SRMP
Enterococcus #/100ml	39	70	30	120	2008-2011 SRMP
Escherichia coli #/100ml	39	21	11	27	2008-2011 SRMP
Fecal coliform #/100ml *	39	28	19	42	2008-2011 SRMP
Hardness as CaCO3, Total mg/L	84	13.8	13.0	14.4	1999-2009 USGS/PA; 2008-2011 SRMP
Iron, Dissolved µg/L	30	46	38	62	1999-2009 USGS/PA
Iron, Total µg/L	27	99	74	149	1999-2009 PADEP
Magnesium, Dissolved mg/L	58	1.06	1.02	1.13	1999-2009 USGS/PA; 2009-2010 SRMP
Magnesium, Total mg/L	27	1.06	1.02	1.17	1999-2009 PADEP
Manganese, Dissolved µg/L	44	4.75	3.70	5.20	1999-2009 USGS/PA; 2009-2010 SRMP
Manganese, Total µg/L	27	11.3	9.0	15.7	1999-2009 PADEP
Nitrate as N, Total mg/L	28	<0.040	<0.040	0.056	1999-2009 USGS/PA (14/28 non-detect)
Nitrate+Nitrite as N, Dissolved mg/L	31	0.060	0.050	0.130	2002-2004 USGS/NPS (7/31 non-detect)
Nitrate+Nitrite as N, Total mg/L *	41	0.037	0.027	0.065	2008-2011 SRMP
Nitrogen as N, Total mg/L *	86	0.275	0.245	0.290	1999-2009 USGS/PA, 2008-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	64	0.182	0.178	0.200	1999-2003 USGS/NPS, 2008-2011 SRMP
Nitrogen, Organic as N, Total mg/L	14	0.190	0.140	0.240	2002-2004 USGS/PADEP
pH units *	100	6.97	6.84	7.16	1999-2009 USGS/PA, 2008-2011 SRMP
Phosphate as P, Dissolved mg/L	33	<0.020	<0.010	<0.030	1999-2004 USGS (8/33 non-detects)
Phosphate as P, Total mg/L	55	0.010	0.010	0.018	2002-2009 USGS/PA, 2008-2011 SRMP
Phosphorus as P, Total mg/L *	101	0.022	0.019	0.026	1999-2009 USGS/PA, 2008-2011 SRMP
Potassium, Dissolved mg/L	15	0.31	0.27	0.59	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	3.35	2.96	5.42	2009-2010 SRMP archived
Specific Conductance µS/cm	100	45	43	47	1999-2009 USGS/PA, 2008-2011 SRMP
Strontium, Dissolved mg/L	15	0.016	0.015	0.024	2009-2010 SRMP archived
Sulfate, Dissolved mg/L	35	6.0	5.7	6.3	1999-2009 USGS
Sulfate, Total mg/L	40	5.74	5.60	6.16	1999-2009 PADEP, 2009-2010 SRMP
Temperature, Water, degrees C	100	18.05	17.20	19.10	1999-2009 USGS/PA, 2008-2011 SRMP
Total Dissolved Solids (TDS) mg/L	81	35.6	33.6	39.4	1999-2009 USGS/PA, 2008-2011 SRMP
Total Suspended Solids (TSS) mg/L *	69	2.00	1.15	2.00	1999-2009 USGS/PA, 2008-2011 SRMP
Turbidity NTU	74	2.00	1.68	8.00	1999-2009 USGS/PA, 2008-2011 SRMP

Two-tailed 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.

2253, 2253A, 2253B BCP Flat Brook, Big Flat Brook and Little Flat Brook



2253 BCP Flat Brook at Flatbrookville

Sussex County, NJ. Latitude 41.106101 Longitude -74.952504 by GPS NAD83 decimal degrees.
USGS Gage No 01440000; NJDEP Site No. 01440000
Watershed Population: 2000: 2,028 2010: 2,272 Change: +244 (+12.0%)
Drainage Area: 64.00 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring is incomplete; and will be defined using NJDEP long-term quarterly water quality samples, as well as DRBC/NPS Scenic Rivers Monitoring Program 2014-2016 confirmatory data.

Water quality at this site reflects the entire watershed near the Delaware River confluence.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 87.3% forested; urban land cover is 1.38%. Watershed was 100 glaciated, and is 12.2% underlain by carbonate bedrock. Mean annual precipitation 43.8 inches. (http://water.usgs.gov/osw/streamstats/, accessed 2012).

Flow Statistics (USGS BaSE Model, data from USGS Gage 01440000, 1923-2013):

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)
5,110	219	125	84.0	65.0	48.0	26.0	14.0	4.60

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	10.7
M30D2Y (ft^3/s)	14.3
M7D10Y (ft^3/s)	5.11
M30D10Y (ft^3/s)	6.71
M90D10Y (ft^3/s)	10.3

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	110
QAH (ft^3/s)	39.0
BF10YR (ft^3/s)	53.2
BF25YR (ft^3/s)	47.7
BF50YR (ft^3/s)	44.6

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	2,200
PK5 (ft^3/s)	3,670
PK10 (ft^3/s)	4,860
PK50 (ft^3/s)	8,060
PK100 (ft^3/s)	9,670
PK500 (ft^3/s)	14,100

Existing Water Quality: 2253 BCP Flat Brook at Flatbrookville

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, mg/L, Total	64	69.5	59.0	79.0	USGS/NJDEP 1993-2015; SRMP 2014-15
Ammonia as N, mg/L, Dissolved	45	<0.03	<0.02	<0.03	USGS/NJDEP 1993-2015 (23 ND)
Ammonia as N, mg/L, Total *	40	<0.03	0.006	<0.03	NJDEP 1993-2003; SRMP 2014-15 (21 ND)
Calcium, mg/L, Dissolved	47	24.9	21.0	27.6	USGS/NJDEP 1993-2015
Chloride, mg/L, Dissolved	47	15.3	14.2	16.4	USGS/NJDEP 1993-2015
Chloride, mg/L, Total	22	16.4	13.5	18.8	SRMP 2014-2015
Dissolved Oxygen, mg/L *	68	9.6	9.3	9.9	USGS/NJDEP 1993-2015; SRMP 2014-15
Dissolved Oxygen Saturation, %	67	101	99.5	103.5	USGS/NJDEP 1993-2015; SRMP 2014-15
Enterococcus, #/100 ml	47	70	50	130	USGS/NJDEP 1993-2006
E. coli, #/100 ml	25	60	40	250	USGS/NJDEP 2006-2012 (removed older)
Fecal Coliform, #/100 ml *	77	42	40	70	USGS/NJDEP 1993-2015; SRMP 2014-15
Hardness as CaCo3, mg/L, Total	69	87	79	100	USGS/NJDEP 1993-2015; SRMP 2014-15
Magnesium, mg/L, Dissolved	14	5.28	3.71	7.59	USGS/NJDEP 2001, 2010-2015
Nitrate + Nitrite as N, Diss., mg/L *	47	0.070	0.050	0.100	USGS/NJDEP 1993-2015
Nitrate + Nitrite as N, Total, mg/L	24	0.155	0.099	0.195	USGS 1993; SRMP 2014-2015
Nitrogen as N, Dissolved, mg/L	29	0.280	0.210	0.320	USGS/NJDEP 1993-2015
Nitrogen as N, Total, mg/L *	47	0.330	0.300	0.347	USGS/NJDEP 1993-2015; SRMP 2014-15
Nitrogen, Kjeldahl as N, Diss. mg/L	12	0.150	0.110	0.200	USGS/NJDEP 2010-2015
Nitrogen, Kjeldahl as N, Total mg/L	41	0.178	0.170	0.201	USGS 1993-2001; SRMP 2014-2015
Nitrogen, Organic as N, Diss. mg/L	11	0.130	0.080	0.180	USGS/NJDEP 2010-2015
Organic Carbon, Dissolved, mg/L	47	2.10	1.95	2.60	USGS/NJDEP 1993-2015
Organic Carbon, Particulate, mg/L	12	0.22	0.15	0.30	USGS/NJDEP 2010-2015
pH, standard units *	70	8.0	7.9	8.1	USGS/NJDEP 1993-2015; SRMP 2014-15
Phosphate as P, Dissolved mg/L	21	0.010	0.008	0.020	USGS/NJDEP 1999-2009
Phosphate as P, Total mg/L	22	0.008	0.006	0.012	SRMP 2014-2015
Phosphorus as P, Dissolved mg/L	12	0.008	0.005	0.013	USGS/NJDEP 2010-2015
Phosphorus as P, Total mg/L *	69	0.017	0.014	0.021	USGS/NJDEP 1993-2015; SRMP 2014-15
Potassium, Dissolved mg/L	12	0.57	0.54	0.71	USGS/NJDEP 2010-2015
Silica, Dissolved mg/L	12	3.95	3.36	4.91	USGS/NJDEP 2010-2015
Sodium, Dissolved mg/L	12	9.57	8.23	10.20	USGS/NJDEP 2010-2015
Specific Conductance, µS/cm	69	229	198	237	USGS/NJDEP 1993-2015; SRMP 2014-15
Sulfate as SO4, Dissolved mg/L	47	12.0	10.5	13.6	USGS/NJDEP 1993-2015
Temperature, Water, Degrees C	103	17.3	16.6	18.5	USGS/NJDEP 1993-2015; SRMP 2014-15
Total Carbon, Suspended mg/L	12	0.22	0.15	0.30	USGS/NJDEP 2010-2015
Total Dissolved Solids, mg/L	69	129	119	141	USGS/NJDEP 1993-2015; SRMP 2014-15
Total Suspended Solids, mg/L *	58	<1.0	<1.0	2.0	USGS/NJDEP 1993-2015; SRMP 2014-15
Turbidity, NTU	35	0.72	0.57	1.17	USGS/NJDEP 1999-2004; SRMP 2014-15

The Scenic Rivers Monitoring Program is monitoring the Flat Brook in 2016, adding one more year to the EWQ data set (10 more samples). This table will be revised once 2016 monitoring is completed.

Two-tailed 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.

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

2253A BCP Big Flat Brook at DWGNRA Boundary

Sussex County, NJ. Latitude 41.190000 Longitude -74.845833 by GPS NAD83 decimal degrees.
USGS Site No 01439830
Watershed Population: 2000: 682 2010: 797 Change: +115 (+16.9%)
Drainage Area: 32.7 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed by DRBC/NPS Scenic Rivers Monitoring Program 2008-2011.

Water quality at this site reflects the portion of the watershed entering the park, but not the entire watershed.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 95.2% forested; urban land cover is 0.5%. Watershed was 100 glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 43.8 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)
3,570	116	58.3	41.7	33.2	24.7	14.3	6.82	1.25

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	5.40
M30D2Y (ft^3/s)	7.26
M7D10Y (ft^3/s)	2.46
M30D10Y (ft^3/s)	3.23
M90D10Y (ft^3/s)	5.10

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	55.3
QAH (ft^3/s)	14.6
BF10YR (ft^3/s)	24.8
BF25YR (ft^3/s)	22.3
BF50YR (ft^3/s)	20.9

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	1,200
PK5 (ft^3/s)	2,040
PK10 (ft^3/s)	2,720
PK50 (ft^3/s)	4,540
PK100 (ft^3/s)	5,470
PK500 (ft^3/s)	8,030

Existing Water Quality: 2253A BCP Big Flat Brook at DWGNRA Boundary

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	94	27.5	24.1	32.9	1981-2009 USGS; 2008-2011 SRMP
Aluminum, Dissolved mg/L	15	0.003	0.003	0.006	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Dissolved mg/L	68	<0.015	<0.015	<0.020	1993-2009 USGS (>38/68 non-detects)
Ammonia-Nitrogen as N, Total mg/L *	57	0.014	0.008	0.030	1980-2009 USGS; 2008-2011 SRMP
Barium, Dissolved mg/L	15	0.023	0.020	0.024	2009-2010 SRMP archived
Calcium, Dissolved mg/L	74	12.0	10.0	19.1	1980-2009 USGS; 2009-2010 SRMP
Chloride, Dissolved mg/L	59	13.1	11.2	15.0	1999-2009 USGS
Chloride, Total mg/L	41	13.1	11.2	14.1	2008-2011 SRMP
Dissolved Oxygen (DO) mg/L *	118	9.54	9.33	9.88	1980-2009 USGS; 2008-2011 SRMP
Dissolved Oxygen Saturation %	108	99	97	100	1993-2009 USGS; 2008-2011 SRMP
Enterococcus #/100ml	122	70	50	90	1993-2009 USGS; 2008-2011 SRMP
Escherichia coli #/100ml	54	35	21	61	2006-2009 USGS; 2008-2011 SRMP
Fecal coliform #/100ml *	105	40	26	50	1980-2008 USGS; 2008-2011 SRMP
Hardness as CaCO3, Total mg/L	90	42.0	36.2	49.8	1980-2009 USGS; 2009-2011 SRMP
Iron, Dissolved µg/L	5	51	21	89	1997-2001 USGS
Magnesium, Dissolved mg/L	74	3.61	3.43	4.11	1980-2009 USGS; 2009-2010 SRMP
Manganese, Dissolved µg/L	21	4.1	2.5	8.0	1997-2001 USGS; 2009-2010 SRMP
Nitrate+Nitrite as N, Dissolved mg/L	69	0.07	0.06	0.08	1993-2009 USGS (12/69 non-detect)
Nitrate+Nitrite as N, Total mg/L *	52	0.079	0.056	0.094	1980-1993 USGS; 2008-2011 SRMP
Nitrogen as N, Dissolved mg/L	21	0.28	0.21	0.31	1993-2009 USGS
Nitrogen as N, Total mg/L *	93	0.260	0.237	0.290	1980-2009 USGS, 2008-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	93	0.164	0.153	0.192	1980-2003 USGS, 2008-2011 SRMP
Nitrogen, Organic as N, Total mg/L	16	0.23	0.16	0.29	1980-2004 USGS
Organic Carbon, Dissolved mg/L	38	2.1	1.9	2.8	1980-2009 USGS
pH units *	119	7.60	7.49	7.67	1980-2009 USGS, 2008-2011 SRMP
Phosphate as P, Dissolved mg/L	52	<0.01	<0.01	<0.01	1997-2009 USGS (almost all non-detects)
Phosphate as P, Total mg/L	31	0.005	0.004	0.005	2009-2011 SRMP
Phosphorus as P, Total mg/L *	110	0.012	0.011	0.014	1993-2009 USGS, 2008-2011 SRMP
Potassium, Dissolved mg/L	15	0.509	0.362	0.558	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	8.01	6.49	8.19	2009-2010 SRMP archived
Specific Conductance µS/cm	119	112.2	103.1	123.0	1980-2009 USGS, 2008-2011 SRMP
Strontium, Dissolved mg/L	15	0.041	0.031	0.048	2009-2010 SRMP archived
Sulfate, Dissolved mg/L	59	10.5	9.9	12.0	1980-2009 USGS
Sulfate, Total mg/L	14	7.25	6.37	8.26	2009-2010 SRMP archived
Temperature, Water, degrees C	142	17.0	16.1	17.6	1980-2009 USGS, 2008-2011 SRMP
Total Dissolved Solids (TDS) mg/L	90	68.5	64.5	88.0	1980-2009 USGS, 2009-2011 SRMP
Total Suspended Solids (TSS) mg/L *	68	1.15	1.00	1.70	1995-2009 USGS, 2008-2011 SRMP
Turbidity NTU	54	1.57	1.44	1.98	1999-2004 USGS, 2008-2011 SRMP

Two-tailed 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.

2253B BCP Little Flat Brook at DWGNRA Boundary

Sussex County, NJ. Latitude 41.190278 Longitude -74.846944 by GPS NAD83 decimal degrees.
USGS Site No 01439920
Watershed Population: 2000: 1,285 2010: 1,444 Change: +159 (+12.3%)
Drainage Area: 16.0 square miles, tributary to Flat Brook, to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed by DRBC/NPS Scenic Rivers Monitoring Program 2008-2011.

Water quality at this site reflects the portion of the watershed entering the park, but not the entire watershed.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 69.7% forested; urban land cover is 3.2%. Watershed was 100 glaciated, and is underlain by 26.1% carbonate bedrock. Mean annual precipitation 43 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)
1,490	47.4	26.1	19.0	15.1	12.7	7.85	4.15	1.02

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	1.44
M30D2Y (ft^3/s)	2.07
M7D10Y (ft^3/s)	0.53
M30D10Y (ft^3/s)	0.81
M90D10Y (ft^3/s)	1.37

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	25.2
QAH (ft^3/s)	10.1
BF10YR (ft^3/s)	12.6
BF25YR (ft^3/s)	11.2
BF50YR (ft^3/s)	10.4

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	628
PK5 (ft^3/s)	1,080
PK10 (ft^3/s)	1,450
PK50 (ft^3/s)	2,460
PK100 (ft^3/s)	2,980
PK500 (ft^3/s)	4,420

Existing Water Quality: 2253B BCP Little Flat Brook at DWGNRA Boundary

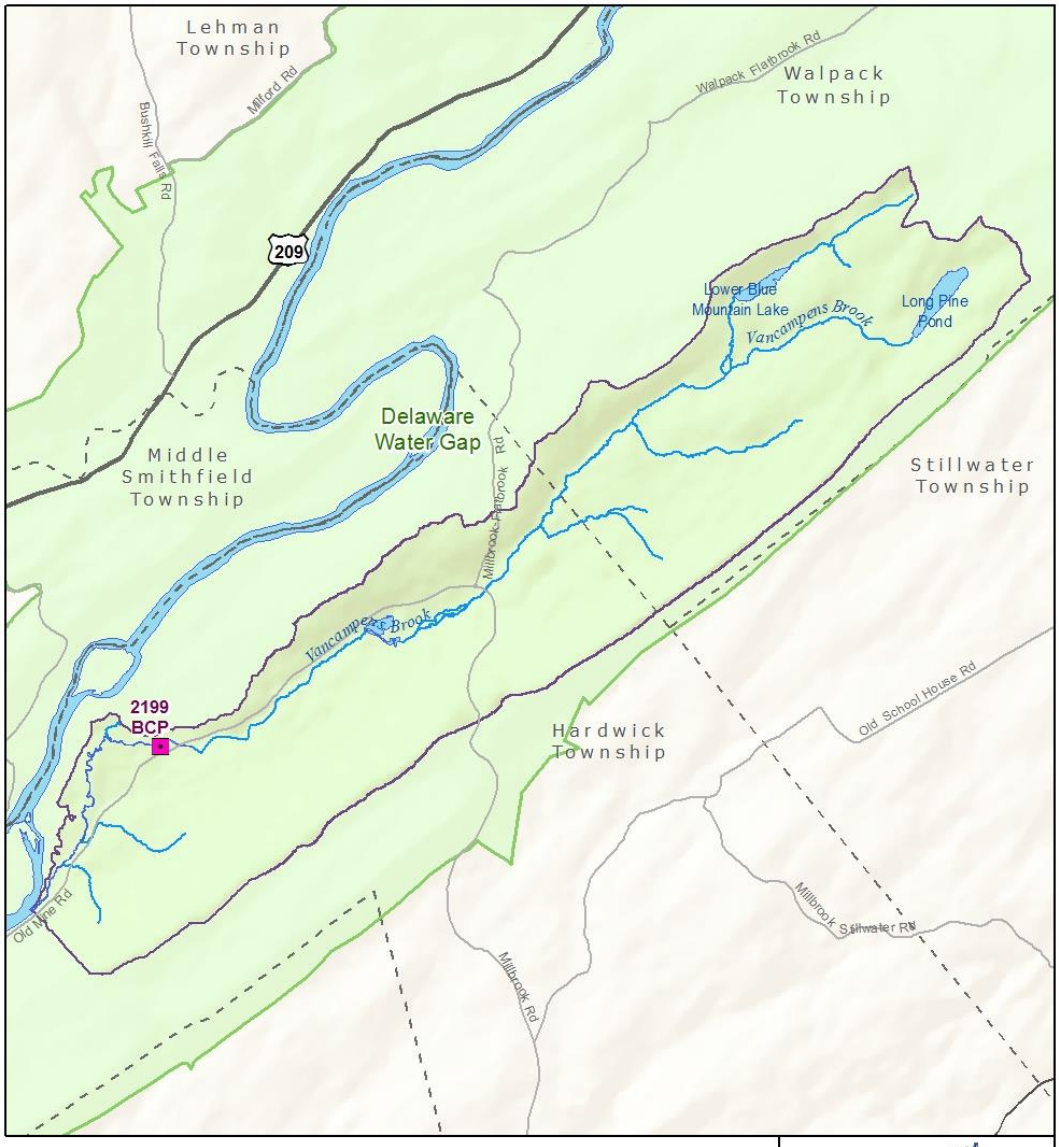
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	54	114.4	101.0	124.7	2002-2004 USGS/NPS; 2008-2011 SRMP
Aluminum, Dissolved mg/L	15	0.003	0.001	0.003	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Dissolved mg/L	31	0.015	0.010	0.016	2002-2004 USGS/NPS (8 non-detects)
Ammonia-Nitrogen as N, Total mg/L *	31	0.008	0.006	0.011	2009-2011 SRMP (9 non-detects)
Barium, Dissolved mg/L	15	0.007	0.004	0.011	2009-2010 SRMP archived
Calcium, Dissolved mg/L	27	21.86	9.77	34.00	2002-2004 USGS/NPS; 2009-2010 SRMP
Chloride, Dissolved mg/L	12	35.0	25.1	44.5	2002-2004 USGS/NPS
Chloride, Total mg/L	42	33.9	31.6	35.8	2008-2011 SRMP
Dissolved Oxygen (DO) mg/L *	71	9.88	9.32	10.21	2002-2004 USGS/NPS; 2008-2011 SRMP
Dissolved Oxygen Saturation %	71	100.5	97.0	105.2	2002-2004 USGS/NPS; 2008-2011 SRMP
Enterococcus #/100ml	39	100	54	130	2008-2011 SRMP
Escherichia coli #/100ml	39	68	44	130	2008-2011 SRMP
Fecal coliform #/100ml *	36	147	104	215	2008-2011 SRMP
Hardness as CaCO3, Total mg/L	44	132.9	112.6	145.4	2002-2004 USGS/NPS; 2009-2011 SRMP
Magnesium, Dissolved mg/L	27	8.23	6.48	10.19	2002-2004 USGS/NPS; 2009-2010 SRMP
Manganese, Dissolved µg/L	15	0.3	0.1	0.9	2009-2010 SRMP archived
Nitrate+Nitrite as N, Dissolved mg/L	31	0.28	0.24	0.34	2002-2004 USGS/NPS
Nitrate+Nitrite as N, Total mg/L *	42	0.318	0.291	0.364	2008-2011 SRMP
Nitrogen as N, Total mg/L *	73	0.592	0.560	0.650	2002-2004 USGS/NPS, 2008-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	63	0.252	0.231	0.312	2002-2003 USGS/NPS, 2008-2011 SRMP
Nitrogen, Organic as N, Total mg/L	27	0.27	0.22	0.33	2002-2004 USGS/NPS
pH units *	70	8.06	7.90	8.10	2002-2004 USGS/NPS, 2008-2011 SRMP
Phosphate as P, Dissolved mg/L	31	<0.019	<0.010	<0.020	2002-2004 USGS/NPS (9 non-detects)
Phosphate as P, Total mg/L	32	0.005	0.003	0.008	2009-2011 SRMP
Phosphorus as P, Total mg/L *	73	0.016	0.015	0.021	2002-2004 USGS/NPS, 2008-2011 SRMP
Potassium, Dissolved mg/L	15	0.76	0.60	1.15	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	19.15	17.36	20.45	2009-2010 SRMP archived
Specific Conductance µS/cm	71	334	317	355	2002-2004 USGS/NPS, 2008-2011 SRMP
Strontium, Dissolved mg/L	15	0.127	0.111	0.142	2009-2010 SRMP archived
Sulfate, Dissolved mg/L	12	9.73	7.99	11.20	2002-2004 USGS/NPS
Sulfate, Total mg/L	14	8.47	6.95	10.81	2009-2010 SRMP archived
Temperature, Water, degrees C	71	17.5	17.0	18.7	2002-2004 USGS/NPS, 2008-2011 SRMP
Total Dissolved Solids (TDS) mg/L	44	194	177	210	2002-2004 USGS/NPS, 2009-2011 SRMP
Total Suspended Solids (TSS) mg/L *	42	2.20	1.65	3.05	2002-2004 USGS/NPS, 2009-2011 SRMP
Turbidity NTU	42	1.91	1.67	2.55	2008-2011 SRMP

Two-tailed 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.

2199 BCP Van Campens Brook at DePew Recreation Site Rd.



2199 BCP Van Campens Brook at DePew Recreation Site Rd.

Sussex County, NJ. Latitude 41.057780 Longitude -75.00333 by GPS NAD83 decimal degrees.
USGS Site No 01440100; NJDEP Site No. 01440000
Watershed Population: 2000: 4 2010: 5 Change: +1

Drainage Area: 8.00 square miles, tributary to Delaware River Zone 1C

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was completed by DRBC/NPS Scenic Rivers Monitoring Program 2008.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Known dischargers within watershed: Undefined.

Watershed is 77.5% forested; urban land cover is 16.1%. Watershed was 100 glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 45.5 inches. (http://water.usgs.gov/osw/streamstats/, accessed 2012).

Flow Statistics (USGS BaSE Model, data from USGS Gage 01440000, 1923-2013):

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)
1,060	33.3	17.2	12.5	10.0	7.31	3.96	1.78	0.29

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	1.08
M30D2Y (ft^3/s)	1.53
M7D10Y (ft^3/s)	0.41
M30D10Y (ft^3/s)	0.61
M90D10Y (ft^3/s)	1.02

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	16.9
QAH (ft^3/s)	4.83
BF10YR (ft^3/s)	7.30
BF25YR (ft^3/s)	6.59
BF50YR (ft^3/s)	6.19

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	411
PK5 (ft^3/s)	717
PK10 (ft^3/s)	966
PK50 (ft^3/s)	1,640
PK100 (ft^3/s)	1,980
PK500 (ft^3/s)	2,920

NOTE: USGS Stream Stats land use statistics for this site appear to be incorrect. The Van Campens Brook watershed is entirely within the park boundaries of the Delaware Water Gap National Recreation Area. Aerial photography indicates that infrastructure was constructed for a residential development, but these properties were bought up for construction of Tocks Island Dam. The dam was never constructed, and the properties went to the National Park Service. A few houses were in place, but most of the lots were not developed. Thus the urban land cover should be much lower than indicated above.

Existing Water Quality: 2199 BCP Van Campens Brook at DePew Recreation Site Rd.

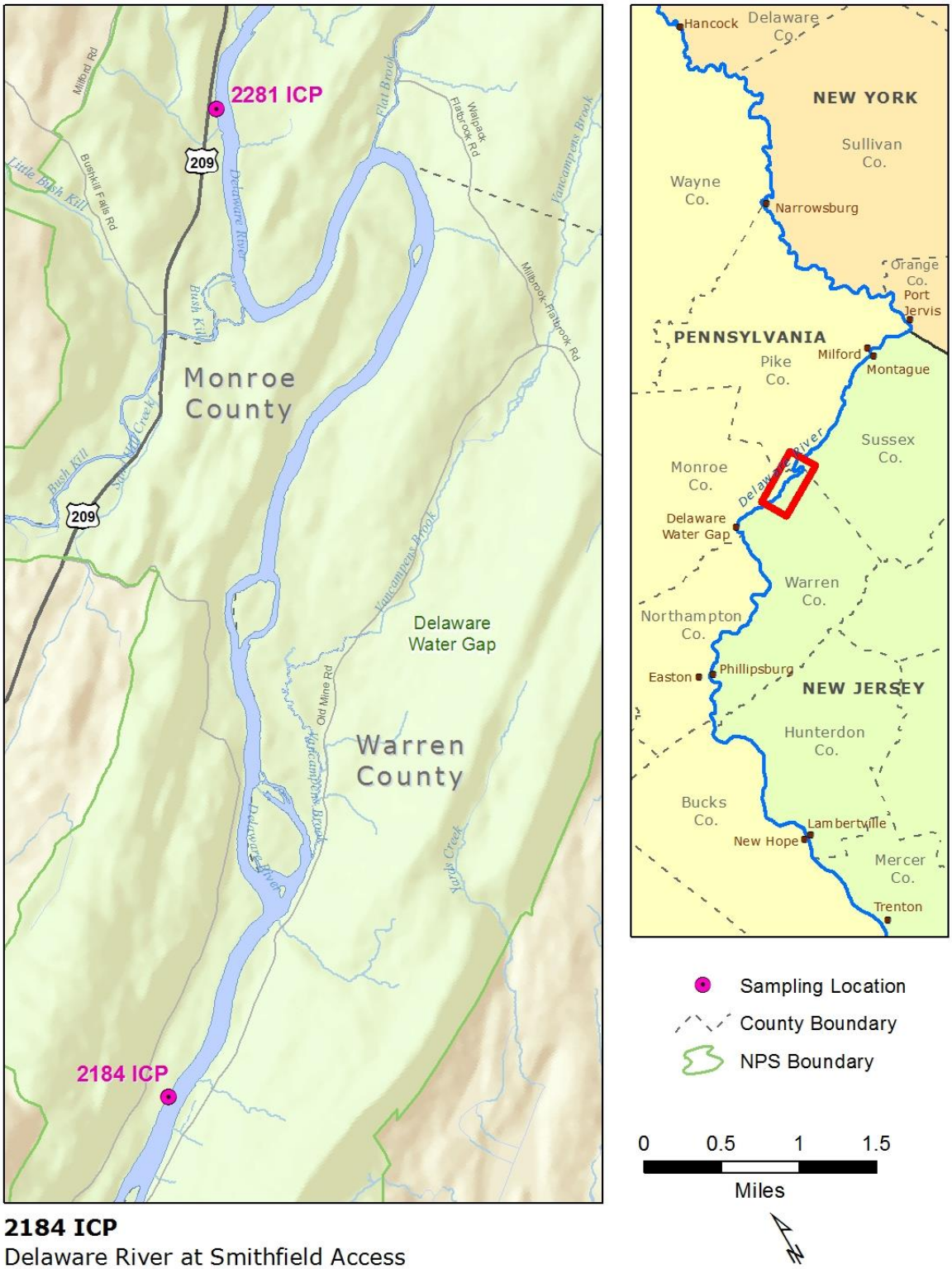
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	25	22.0	18.0	27.0	2002-2006 USGS; 2008 SRMP
Ammonia-Nitrogen as N, Dissolved mg/L *	31	<0.015	<0.015	<0.015	2002-2004 USGS/NPS (8 non-detects)
Ammonia-Nitrogen as N, Total mg/L	5	<0.005	<0.005	<0.005	2008 SRMP (all non-detects)
Calcium, Dissolved mg/L	15	6.70	5.14	8.44	2002-2006 USGS/NPS
Chloride, Dissolved mg/L	15	2.63	1.34	3.06	2002-2006 USGS/NPS
Chloride, Total mg/L	10	3.80	3.10	4.15	2008 SRMP
Dissolved Oxygen (DO) mg/L *	46	9.29	9.00	9.70	2001-2006 USGS/NPS/NJDEP; 2008 SRMP
Dissolved Oxygen Saturation %	44	96.0	94.4	97.7	2002-2006 USGS/NPS; 2008 SRMP
Enterococcus #/100ml	20	80	30	120	2005-2006 USGS; 2008 SRMP
Escherichia coli #/100ml	20	33	17	<100	2005-2006 USGS; 2008 SRMP
Fecal coliform #/100ml *	23	20	<20	52	2005-2006 USGS; 2008 SRMP
Hardness as CaCO3, Total mg/L	15	25.0	20.0	32.0	2002-2006 USGS/NPS
Magnesium, Dissolved mg/L	15	2.11	1.70	2.60	2002-2006 USGS/NPS
Nitrate+Nitrite as N, Dissolved mg/L *	32	<0.060	<0.060	0.070	2002-2006 USGS/NPS (19 non-detects)
Nitrate+Nitrite as N, Total mg/L	10	0.052	0.016	0.085	2008 SRMP
Nitrogen as N, Total mg/L *	25	0.130	0.120	0.143	2002-2004 USGS/NPS, 2008 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	30	0.087	0.070	0.100	2002-2003 USGS/NPS, 2008 SRMP
pH units *	46	7.30	7.10	7.44	2001-2006 USGS/NPS/NJDEP, 2008 SRMP
Phosphate as P, Dissolved mg/L	32	<0.020	0.007	0.020	2002-2004 USGS/NPS (22 non-detects)
Phosphate as P, Total mg/L	5	<0.003	<0.003	<0.003	2008 (all non-detects)
Phosphorus as P, Total mg/L *	42	0.013	0.009	0.040	2002-2006 USGS/NPS, 2008 SRMP
Specific Conductance µS/cm	46	69.5	64.0	79.6	2001-2006 USGS/NPS/NJDEP, 2008 SRMP
Sulfate, Dissolved mg/L	15	7.68	7.25	7.96	2002-2006 USGS/NPS/NJDEP
Temperature, Water, degrees C	56	16.6	15.6	17.5	2001-2006 USGS/NPS/NJDEP, 2008 SRMP
Total Dissolved Solids (TDS) mg/L	15	38.0	35.0	56.0	2002-2006 USGS/NPS/NJDEP
Total Suspended Solids (TSS) mg/L	13	0.55	0.20	1.00	2005-2006 USGS, 2008 SRMP
Turbidity NTU	11	1.18	1.06	1.49	2008 SRMP

Two-tailed 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.

2184 ICP Delaware River at Smithfield Access



2184 ICP
Delaware River at Smithfield Access

2184 ICP Delaware River at Smithfield Access

Latitude 41.029409 Longitude -75.049839 by GPS NAD83 decimal degrees.
No USGS or State monitoring sites nearby.
Watershed Population figures were not calculated for main-stem Delaware River sites.
Drainage Area: 3,850 square miles, Delaware River Zone 1C

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located in the Delaware Water Gap National Recreation Area.
Classified by DRBC as Outstanding Basin Waters

Nearest upstream Interstate Control Point: 2281 ICP Delaware River at Bushkill Access
Nearest downstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center
Known dischargers within watershed: Undefined
Tributaries to upstream reach: Major tributaries 2269A BCP, 2269B BCP, 2269C BCP Bushkill Creek and tributaries, PA; 2253 BCP, 2253A BCP, 2253B BCP Flat Brook and tributaries, NJ; small tributary 2199 BCP Van Campens Brook, 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)
178,100	13,600	7,600	5,090	4,040	3,210	2,320	1,930	996

Existing Water Quality: 2184 ICP Delaware River at Smithfield Access

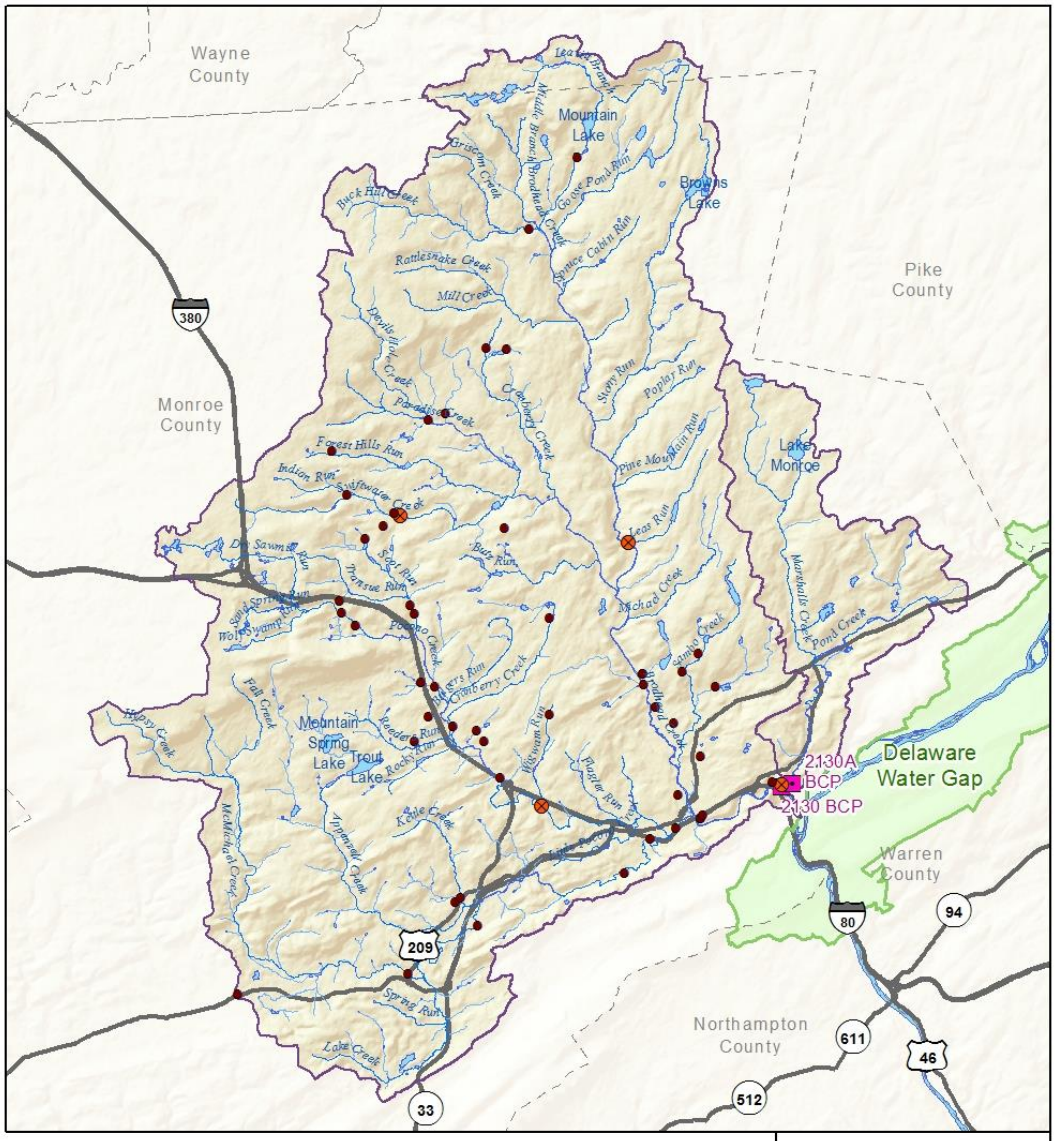
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	63	17.2	16.0	18.0	2006-2011 SRMP
Aluminum, Dissolved mg/L	15	0.004	0.004	0.007	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	61	0.012	0.010	0.015	2006-2011 SRMP
Barium, Dissolved mg/L	15	0.022	0.018	0.025	2009-2010 SRMP archived
Calcium, Dissolved mg/L	15	6.96	6.54	7.57	2009-2010 SRMP archived
Chloride, Total mg/L	62	12.35	11.84	13.40	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	58	8.55	8.12	8.93	2006-2011 SRMP
Dissolved Oxygen Saturation %	38	96.5	94.3	97.8	2008-2011 SRMP
Enterococcus #/100ml	48	22	16	41	2007-2011 SRMP
Escherichia coli #/100ml	48	9	7	22	2007-2011 SRMP
Fecal coliform #/100ml *	71	14	10	22	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	63	27.0	25.8	28.0	2006-2011 SRMP
Magnesium, Dissolved mg/L	15	1.61	1.28	1.71	2009-2010 SRMP archived
Manganese, Dissolved µg/L	15	8.8	4.6	11.8	2009-2010 SRMP archived
Nitrate+Nitrite as N, Total mg/L *	53	0.112	0.086	0.123	2007-2011 SRMP
Nitrogen as N, Total mg/L *	53	0.300	0.268	0.337	2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	53	0.200	0.184	0.209	2007-2011 SRMP
pH units *	58	7.44	7.27	7.60	2006-2011 SRMP
Phosphate as P, Total mg/L	53	0.006	0.005	0.007	2007-2011 SRMP
Phosphorus as P, Total mg/L *	53	0.013	0.012	0.015	2007-2011 SRMP
Potassium, Dissolved mg/L	15	0.68	0.55	0.75	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	6.89	6.33	7.79	2009-2010 SRMP archived
Specific Conductance µS/cm	58	93.5	90.0	97.1	2006-2011 SRMP
Strontium, Dissolved mg/L	15	0.045	0.038	0.050	2009-2010 SRMP archived
Sulfate, Total mg/L	13	6.06	5.32	6.92	2009-2010 SRMP archived
Temperature, Water, degrees C	58	20.7	19.7	22.7	2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	63	53.0	52.0	54.6	2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	54	1.85	1.50	2.80	2006-2011 SRMP
Turbidity NTU	50	2.21	1.85	2.56	2007-2011 SRMP

Two-tailed 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.

2130A BCP Brodhead Creek at River Rd. and 2130B Marshalls Creek



Brodhead Creek and Marshalls Creek

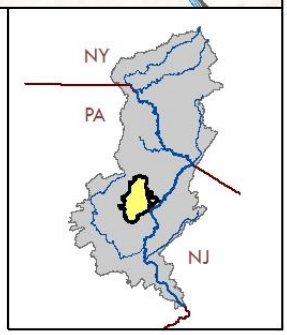
Drainage Area = 287.71 mi^2

- NPDES
- Stream Gage
- Sampling Location
- NPS Boundary

N

0 2 4 6 8

Miles



2130A BCP Brodhead Creek at River Rd.

Monroe County, PA. Latitude 40.993490 Longitude -75.137610 by GPS NAD83 decimal degrees.
USGS Gage No 01442500; PADEP Site No. WQN0137
Watershed Population: 2000: 85,986 2010: 103,182 Change: +17,196 (+20.0%)
Drainage Area: 294 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program; supplemented by quarterly PADEP Water Quality Network samples 2000-2011.

Water quality at this site includes that of 2130B BCP Marshalls Creek, a tributary that is partially within the DWGNRA.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Nearest downstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center
Known dischargers within watershed: Numerous, as yet undefined.

Watershed is 79.6% forested; urban land cover is 8.6%. Watershed was 96% glaciated, and is 0.13% underlain by carbonate bedrock. Mean annual precipitation 46.3 inches. (http://water.usgs.gov/osw/streamstats/, accessed 2012).

Flow Statistics Associated with Water Quality Samples (USGS BaSE Model, data from USGS Gage 01442500):

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)
27,040	1,245	644	466	675	272	177	96.7	19.2

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	64.1
M30D2Y (ft^3/s)	81.9
M7D10Y (ft^3/s)	36.4
M30D10Y (ft^3/s)	45.9
M90D10Y (ft^3/s)	64.3

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	552
QAH (ft^3/s)	190
BF10YR (ft^3/s)	233
BF25YR (ft^3/s)	210
BF50YR (ft^3/s)	197

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	7,840
PK5 (ft^3/s)	12,700
PK10 (ft^3/s)	16,500
PK50 (ft^3/s)	26,900
PK100 (ft^3/s)	32,200
PK500 (ft^3/s)	46,600

Existing Water Quality: 2130A BCP Brodhead Creek at River Rd.

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	91	29.9	26.2	34.0	1999-2009 USGS/PA; 2006-2011 SRMP
Aluminum, Dissolved mg/L	14	0.003	0.002	0.005	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	91	0.020	0.017	0.025	1999-2009 USGS/PA; 2006-2011 SRMP
Barium, Dissolved mg/L	14	0.006	0.004	0.008	2009-2010 SRMP archived
Calcium, Dissolved mg/L	16	15.16	13.77	17.67	1999 USGS; 2009-2010 SRMP archived
Calcium, Total mg/L	28	15.8	12.6	17.4	1999-2009 USGS/PADEP
Chloride, Total mg/L	65	28.2	26.1	30.2	2006-2011 SRMP, PADEP
Dissolved Oxygen (DO) mg/L *	91	9.76	9.49	10.02	1999-2009 USGS/PA; 2006-2011 SRMP
Dissolved Oxygen Saturation %	43	102.8	100.4	108.5	1999, 2007 USGS; 2008-2011 SRMP
Enterococcus #/100ml	51	44	22	70	2007-2011 SRMP
Escherichia coli #/100ml	52	47	31	90	2007-2011 SRMP
Fecal coliform #/100ml *	70	66	42	86	1999-2001 USGS/PA; 2006-2011 SRMP
Hardness as CaCO3, Total mg/L	93	49.7	45.0	53.6	1999-2009 USGS/PA; 2006-2011 SRMP
Iron, Total µg/L	28	90	69	108	1999-2009 USGS/PADEP
Magnesium, Dissolved mg/L	16	2.69	2.44	3.20	1999 USGS; 2009-2010 SRMP archived
Manganese, Dissolved µg/L	16	3.0	0.7	6.3	2009-2010 SRMP archived
Manganese, Total µg/L	28	22.0	17.0	25.0	1999-2009 USGS/PADEP
Nitrate as N, Total mg/L	29	0.41	0.37	0.49	1999-2009 USGS/PADEP
Nitrate+Nitrite as N, Total mg/L *	52	0.386	0.365	0.447	2007-2011 SRMP
Nitrogen as N, Total mg/L *	74	0.590	0.573	0.682	1999-2009 USGS/PA; 2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	54	0.197	0.185	0.226	1999 USGS; 2007-2011 SRMP
Organic Carbon, Total mg/L	16	2.05	1.70	2.40	1999-2004 USGS/PADEP
pH units *	92	7.62	7.55	7.70	1999-2009 USGS/PA; 2006-2011 SRMP
Phosphate as P, Total mg/L	72	0.040	0.035	0.051	2002-2009 USGS/PA; 2007-2011 SRMP
Phosphorus as P, Total mg/L *	84	0.043	0.037	0.055	1999-2009 USGS/PA; 2007-2011 SRMP
Potassium, Dissolved mg/L	14	0.67	0.49	0.81	2009-2010 SRMP archived
Sodium, Dissolved mg/L	14	10.85	8.95	12.85	2009-2010 SRMP archived
Specific Conductance µS/cm	92	184	172	191	1999-2009 USGS/PA; 2006-2011 SRMP
Strontium, Dissolved mg/L	14	0.081	0.071	0.114	2009-2010 SRMP archived
Sulfate, Dissolved mg/L	22	12.35	11.20	14.40	1999-2009 USGS/PADEP
Sulfate, Total mg/L	41	14.4	12.4	15.9	1999-2009 PADEP; 2009-2010 SRMP
Temperature, Water, degrees C	92	18.7	18.1	19.6	1999-2009 USGS/PA; 2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	91	110.0	104.0	118.6	1999-2009 PADEP; 2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	85	2.0	1.95	3.0	1999-2009 USGS/PA; 2006-2011 SRMP
Turbidity NTU	53	1.55	1.38	1.75	2007-2011 SRMP

Two-tailed 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.

2130B BCP Marshalls Creek at DWGNRA Boundary

Monroe County, PA. Latitude 40.998885 Longitude -75.137717 by GPS NAD83 decimal degrees.
No USGS or PADEP sites nearby.
Watershed Population: 2000: 6,975 2010: 9,023 Change: +2,048 (+29.4%)
Drainage Area: 20.9 square miles, tributary to Brodhead Creek, to Delaware River Zone 1D

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Nearest downstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center
Known dischargers within watershed: Some, as yet undefined.

Watershed is 79.2% forested; urban land cover is 11.5%. Watershed was 100% glaciated, and is 0.14% underlain by carbonate bedrock. Mean annual precipitation 46.4 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)
2,860	100	52.0	38.1	30.8	24.6	15.5	8.30	1.89

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	4.18
M30D2Y (ft^3/s)	5.71
M7D10Y (ft^3/s)	1.83
M30D10Y (ft^3/s)	2.57
M90D10Y (ft^3/s)	4.03

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	49.3
QAH (ft^3/s)	15.7
BF10YR (ft^3/s)	22.1
BF25YR (ft^3/s)	19.9
BF50YR (ft^3/s)	18.7

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	979
PK5 (ft^3/s)	1,670
PK10 (ft^3/s)	2,230
PK50 (ft^3/s)	3,740
PK100 (ft^3/s)	4,520
PK500 (ft^3/s)	6,660

Existing Water Quality: 2130B BCP Marshalls Creek at DWGNRA Boundary

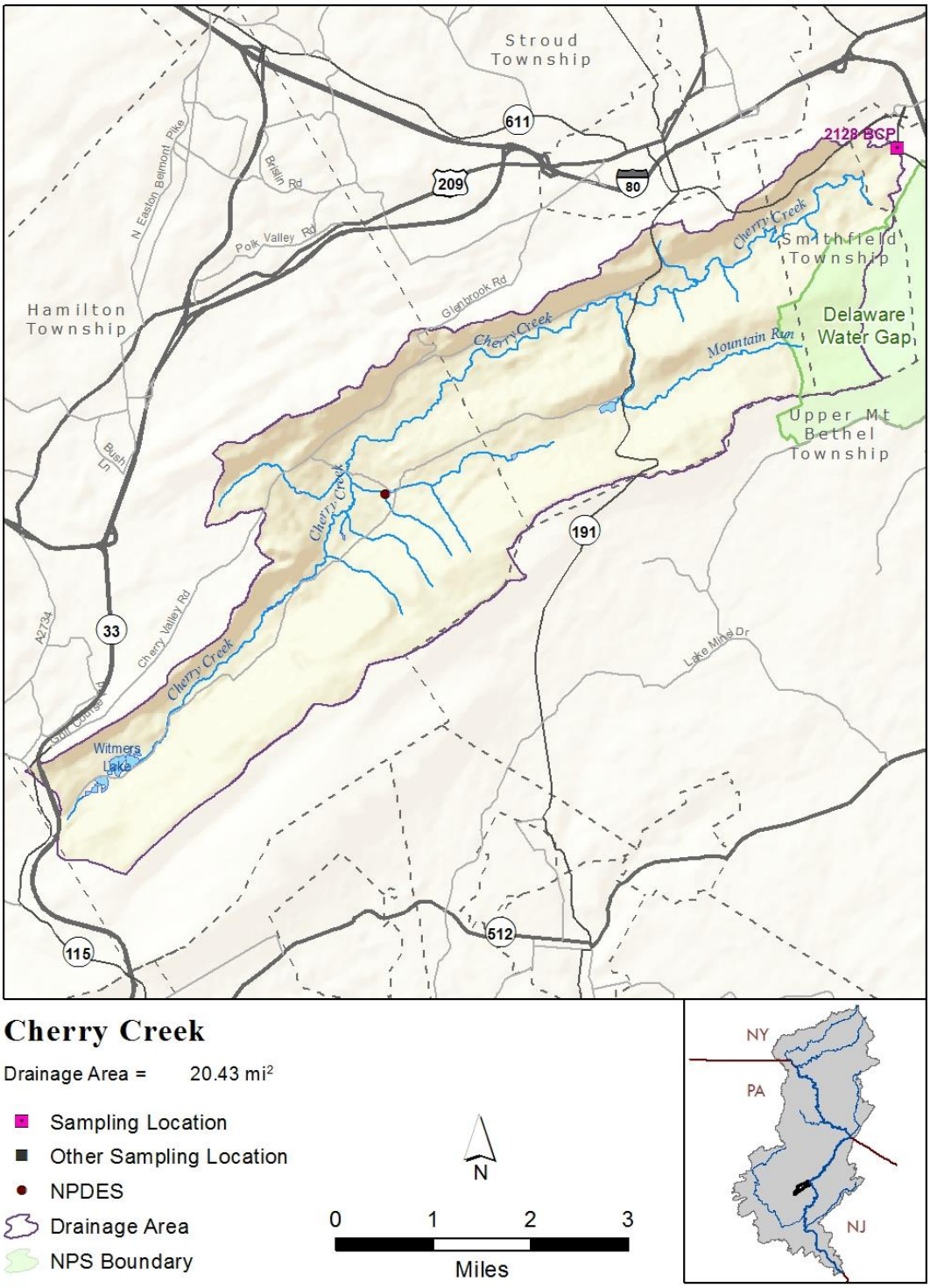
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	61	41.8	35.7	48.8	2006-2011 SRMP
Aluminum, Dissolved mg/L	15	0.004	0.003	0.005	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	60	0.009	0.006	0.010	2006-2011 SRMP (13 non-detects)
Barium, Dissolved mg/L	15	0.012	0.010	0.013	2009-2010 SRMP archived
Calcium, Dissolved mg/L	15	13.77	11.17	15.81	2009-2010 SRMP archived
Chloride, Total mg/L	61	18.63	16.30	19.58	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	60	9.43	8.95	9.84	2006-2011 SRMP
Dissolved Oxygen Saturation %	40	100.2	96.6	103.5	2008-2011 SRMP
Enterococcus #/100ml	44	81	47	180	2007-2011 SRMP
Escherichia coli #/100ml	44	60	38	90	2007-2011 SRMP
Fecal coliform #/100ml *	66	61	48	78	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	61	63.6	54.8	71.8	2006-2011 SRMP
Magnesium, Dissolved mg/L	15	2.52	2.22	3.00	2009-2010 SRMP archived
Manganese, Dissolved µg/L	15	3.6	2.1	5.5	2009-2010 SRMP archived
Nitrate+Nitrite as N, Total mg/L *	51	0.256	0.231	0.288	2007-2011 SRMP
Nitrogen as N, Total mg/L *	51	0.433	0.411	0.467	2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	51	0.174	0.166	0.195	2007-2011 SRMP
pH units *	59	7.56	7.48	7.60	2006-2011 SRMP
Phosphate as P, Total mg/L	51	0.011	0.009	0.012	2007-2011 SRMP
Phosphorus as P, Total mg/L *	51	0.021	0.017	0.024	2007-2011 SRMP
Potassium, Dissolved mg/L	15	0.80	0.68	1.20	2009-2010 SRMP archived
Sodium, Dissolved mg/L	15	14.5	13.4	19.4	2009-2010 SRMP archived
Specific Conductance µS/cm	60	165.4	153.7	182.7	2006-2011 SRMP
Strontium, Dissolved mg/L	15	0.060	0.053	0.083	2009-2010 SRMP archived
Sulfate, Total mg/L	14	12.55	10.69	16.49	2009-2010 SRMP archived
Temperature, Water, degrees C	60	18.2	16.9	19.4	2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	61	109.0	102.9	115.6	2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	53	1.80	1.20	2.45	2006-2011 SRMP
Turbidity NTU	51	1.69	1.46	1.96	2007-2011 SRMP

Two-tailed 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.

2128 BCP Cherry Creek at Rt. 611 (Incomplete)



2128 BCP Cherry Creek at Rt. 611

Monroe County, PA. Latitude 40.985106 Longitude -75.144737 by GPS NAD83 decimal degrees.
No USGS or PADEP sites nearby.
Watershed Population: 2000: 1,915 2010: 2,204 Change: +289 (+15.1%)
Drainage Area: 20.9 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ sampling began 2014 by the DRBC/NPS Scenic Rivers Monitoring Program.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Nearest downstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center
Known dischargers within watershed: Some, as yet undefined.

Watershed is 80.8% forested; urban land cover is 2.5%. Watershed was 88% glaciated, and is 16.3% 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)
1,890	67.4	37.4	28.2	23.0	19.1	11.6	5.90	1.27

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	3.16
M30D2Y (ft^3/s)	4.40
M7D10Y (ft^3/s)	1.33
M30D10Y (ft^3/s)	1.93
M90D10Y (ft^3/s)	3.07

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	37.9
QAH (ft^3/s)	15.9
BF10YR (ft^3/s)	19.8
BF25YR (ft^3/s)	17.8
BF50YR (ft^3/s)	16.7

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	828
PK5 (ft^3/s)	1,420
PK10 (ft^3/s)	1,900
PK50 (ft^3/s)	3,180
PK100 (ft^3/s)	3,840
PK500 (ft^3/s)	5,640

Existing Water Quality: 2128 BCP Cherry Creek at Rt. 611

Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	20	90	82	97	SRMP 2014-2015
Ammonia-Nitrogen as N, Total mg/L *	20	0.010	0.007	0.012	SRMP 2014-2015 (5/20 non-detects)
Chloride, Total mg/L	20	11.2	10.8	11.7	SRMP 2014-2015
Dissolved Oxygen (DO) mg/L *	20	9.53	9.21	9.79	SRMP 2014-2015
Dissolved Oxygen Saturation %	20	99.7	98.6	100.7	SRMP 2014-2015
Enterococcus #/100ml					No Data
Escherichia coli #/100ml					No Data
Fecal coliform #/100ml *					No Data
Hardness as CaCO3, Total mg/L	20	129	107	145	SRMP 2014-2015
Nitrate+Nitrite as N, Total mg/L *	20	0.320	0.270	0.384	SRMP 2014-2015
Nitrogen as N, Total mg/L *	20	0.548	0.419	0.627	SRMP 2014-2015
Nitrogen, Kjeldahl as N, Total mg/L	20	0.194	0.161	0.237	SRMP 2014-2015
pH units *	20	8.03	7.98	8.13	SRMP 2014-2015
Phosphate as P, Total mg/L	20	0.019	0.017	0.022	SRMP 2014-2015
Phosphorus as P, Total mg/L *	20	0.034	0.029	0.043	SRMP 2014-2015
Specific Conductance µS/cm	20	258	222	293	SRMP 2014-2015
Temperature, Water, degrees C	20	18.8	16.6	19.3	SRMP 2014-2015
Total Dissolved Solids (TDS) mg/L	20	166	144	170	SRMP 2014-2015
Total Suspended Solids (TSS) mg/L *	20	4.5	2.0	7.0	SRMP 2014-2015
Turbidity NTU	20	1.90	1.14	2.64	SRMP 2014-2015

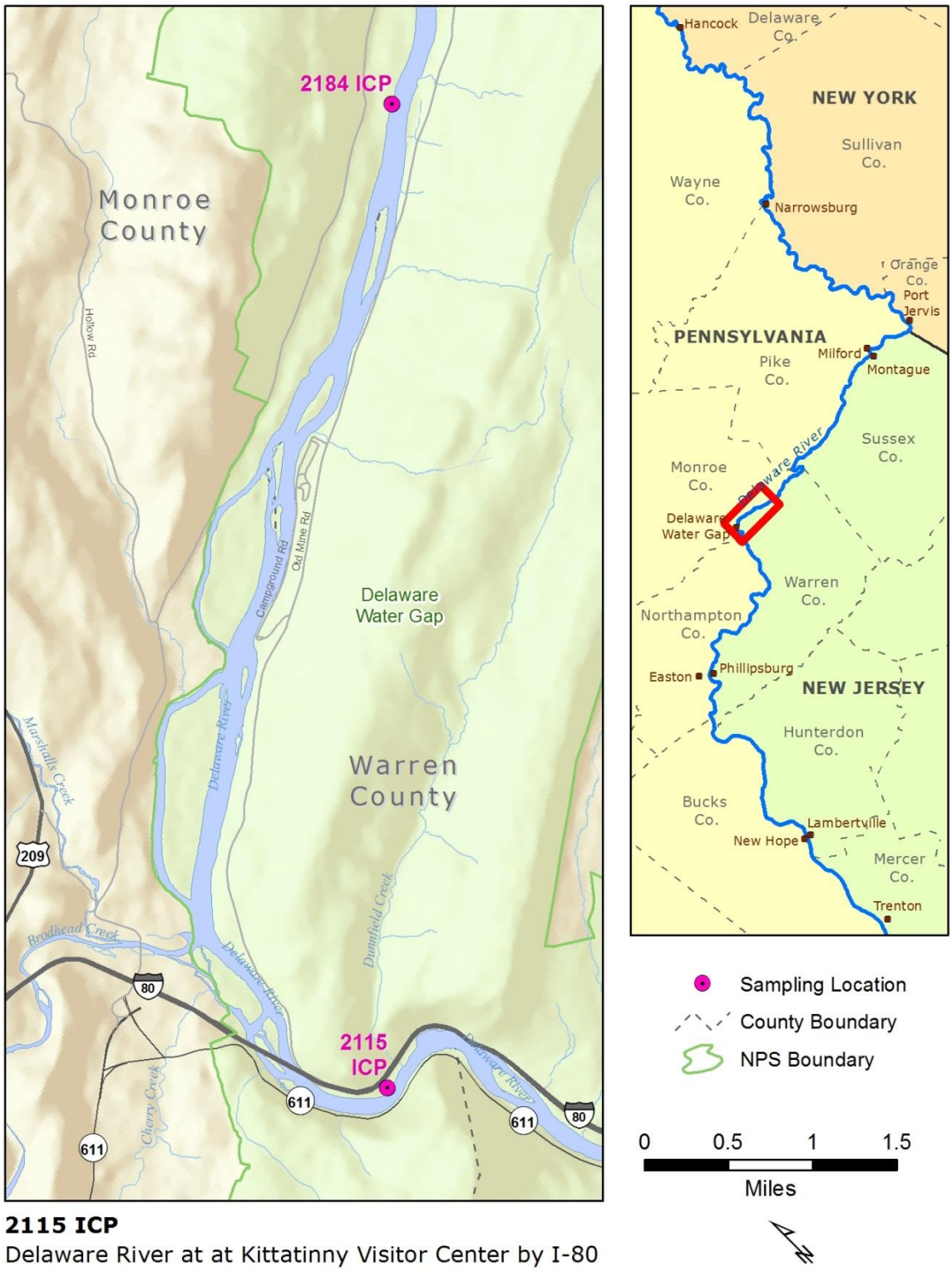
Two-tailed confidence limits were used for these EWQ targets

* = 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.

The table above is incomplete. The SRMP continues to define Existing Water Quality, monitoring Cherry Creek in 2016 and 2017. Once those additional 20 samples are collected, this table will be updated and finalized. Bacteria data have not been collected here, and may be added at some future date.

2115 ICP Delaware River at Kittatinny Visitor Center off I-80



2115 ICP
Delaware River at at Kittatinny Visitor Center by I-80

2115 ICP Delaware River at Kittatinny Visitor Center off I-80

Latitude 40.9700 Longitude -75.1375 by GPS NAD83 decimal degrees.
No USGS or State monitoring sites nearby.
Watershed Population figures were not calculated for main-stem Delaware River sites.
Drainage Area: 4,150 square miles, Delaware River Zone 1D

Site Specific EWQ defined 2006-2011 by the DRBC/NPS Scenic Rivers Monitoring Program.

This site is located in the Delaware Water Gap National Recreation Area.
Classified by DRBC as Outstanding Basin Waters

Nearest upstream Interstate Control Point: 2184 ICP Delaware River at Smithfield Access
Nearest downstream Interstate Control Point: 2074 ICP Delaware River at Portland Footbridge
Known dischargers within watershed: Undefined
Tributaries to upstream reach: Major tributaries 2130A BCP, 2130B BCP Brodhead Creek and tributaries, PA; 2128 BCP Cherry Creek, PA; small tributary 214.4 Shawnee Creek, PA; 212.2 Caledonia 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)
174,800	15,600	9,100	6,230	4,890	3,890	2,730	2,020	1,030

Existing Water Quality: 2115 ICP Delaware River at Kittatinny Visitor Center

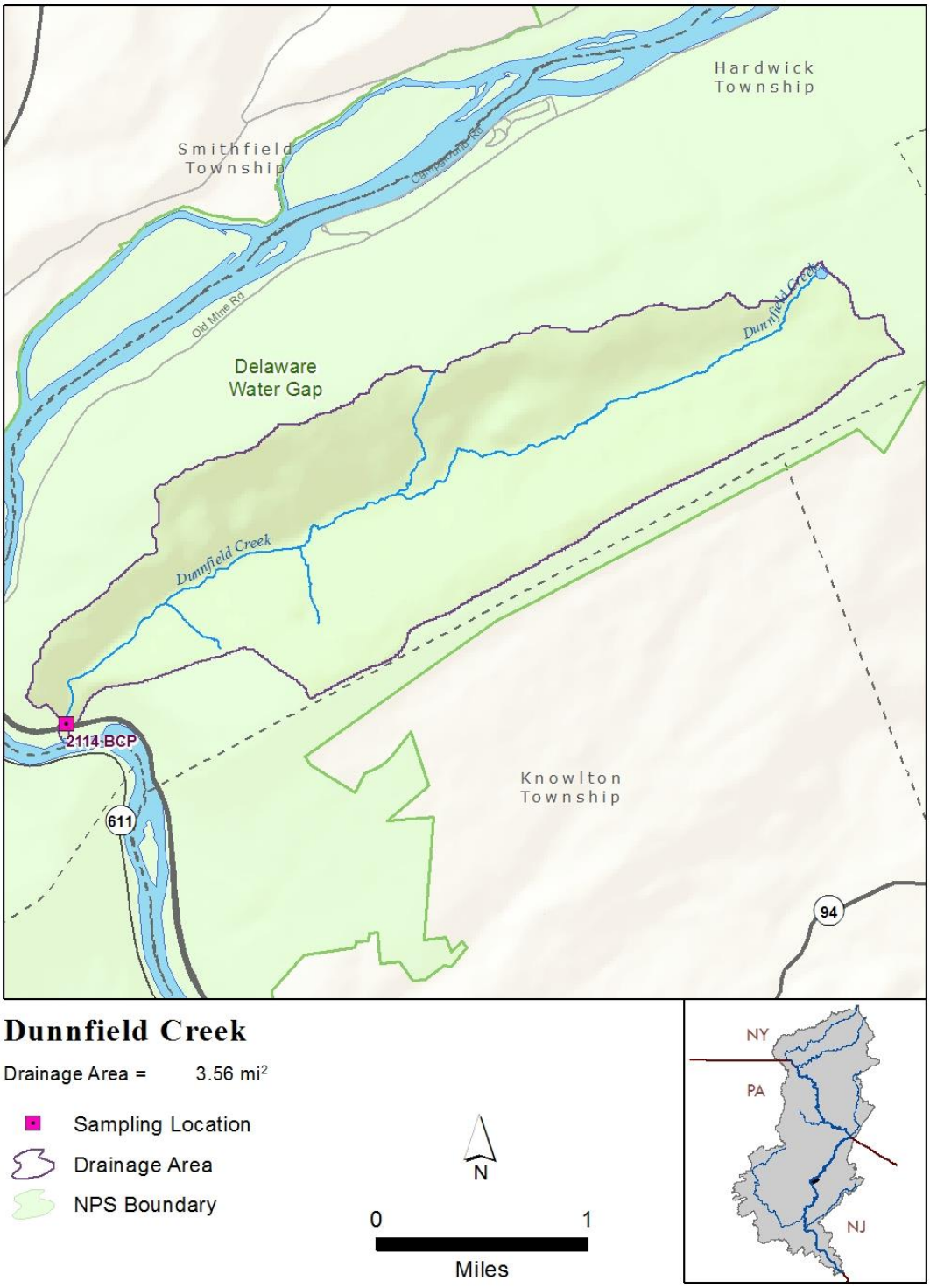
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	63	17.3	15.6	18.0	2006-2011 SRMP
Aluminum, Dissolved mg/L	14	0.004	0.003	0.005	2009-2010 SRMP archived
Ammonia-Nitrogen as N, Total mg/L *	62	0.014	0.013	0.017	2006-2011 SRMP
Barium, Dissolved mg/L	14	0.023	0.021	0.024	2009-2010 SRMP archived
Calcium, Dissolved mg/L	14	7.34	5.46	7.99	2009-2010 SRMP archived
Chloride, Total mg/L	63	12.9	12.3	13.4	2006-2011 SRMP
Dissolved Oxygen (DO) mg/L *	57	8.30	7.62	8.50	2006-2011 SRMP
Dissolved Oxygen Saturation %	39	91.4	86.9	95.4	2008-2011 SRMP
Enterococcus #/100ml	49	21	15	35	2007-2011 SRMP
Escherichia coli #/100ml	49	15	10	20	2007-2011 SRMP
Fecal coliform #/100ml *	69	22	16	30	2006-2011 SRMP
Hardness as CaCO3, Total mg/L	62	26.4	24.2	28.0	2006-2011 SRMP
Magnesium, Dissolved mg/L	14	1.52	1.12	1.73	2009-2010 SRMP archived
Manganese, Dissolved µg/L	14	15.4	5.6	22.2	2009-2010 SRMP archived
Nitrate+Nitrite as N, Total mg/L *	53	0.115	0.095	0.131	2007-2011 SRMP
Nitrogen as N, Total mg/L *	53	0.311	0.275	0.335	2007-2011 SRMP
Nitrogen, Kjeldahl as N, Total mg/L	52	0.207	0.192	0.224	2007-2011 SRMP
pH units *	59	7.40	7.27	7.45	2006-2011 SRMP
Phosphate as P, Total mg/L	53	0.008	0.006	0.011	2007-2011 SRMP
Phosphorus as P, Total mg/L *	53	0.016	0.012	0.018	2007-2011 SRMP
Potassium, Dissolved mg/L	14	0.69	0.61	0.82	2009-2010 SRMP archived
Sodium, Dissolved mg/L	14	7.35	6.47	8.24	2009-2010 SRMP archived
Specific Conductance µS/cm	59	95.0	88.4	98.6	2006-2011 SRMP
Strontium, Dissolved mg/L	14	0.037	0.025	0.047	2009-2010 SRMP archived
Sulfate, Total mg/L	12	6.24	5.66	7.32	2009-2010 SRMP archived
Temperature, Water, degrees C	59	20.9	20.1	23.0	2006-2011 SRMP
Total Dissolved Solids (TDS) mg/L	62	52.4	51.0	56.0	2006-2011 SRMP
Total Suspended Solids (TSS) mg/L *	54	1.90	1.30	3.50	2006-2011 SRMP
Turbidity NTU	50	2.19	1.84	2.43	2007-2011 SRMP

Two-tailed 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.

2114 BCP Dunnfield Creek at Appalachian Trail



2114 BCP Dunnfield Creek at Appalachian Trail

Warren County, NJ. Latitude 40.97101 Longitude -75.1268 by GPS NAD83 decimal degrees.
USGS Site No. 01442760; NJDEP Site No. 01442760
Watershed Population: 2000: 4 2010: 5 Change: +1
Drainage Area: 3.56 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ monitoring was completed 2004 by USGS/NPS Delaware Water Gap Study: Hickman R.E., and Fischer J.M. 2008. Water quality of streams in and near the Delaware Water Gap National Recreation Area, Pennsylvania and New Jersey, 2002-04: U.S. Geological Survey Scientific Investigations Report 2007-5290, 65 p.

Additional monitoring was conducted quarterly by NJDEP/USGS 2001-2011.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center
Nearest downstream Interstate Control Point: 2074 ICP Delaware River at Portland Foot Bridge
Known dischargers within watershed: None.

Watershed is 96.8% forested; urban land cover is 0.1%. Watershed was 100% glaciated, and is not underlain by carbonate bedrock. Mean annual precipitation 48 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)
424	13.4	7.14	5.30	4.29	3.15	1.65	0.72	0.11

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.63
M30D2Y (ft^3/s)	0.88
M7D10Y (ft^3/s)	0.25
M30D10Y (ft^3/s)	0.35
M90D10Y (ft^3/s)	0.59

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	7.11
QAH (ft^3/s)	1.97
BF10YR (ft^3/s)	3.43
BF25YR (ft^3/s)	3.10
BF50YR (ft^3/s)	2.91

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	197
PK5 (ft^3/s)	351
PK10 (ft^3/s)	476
PK50 (ft^3/s)	810
PK100 (ft^3/s)	979
PK500 (ft^3/s)	1,440

Existing Water Quality: 2114 BCP Dunnfield Creek at Appalachian Trail

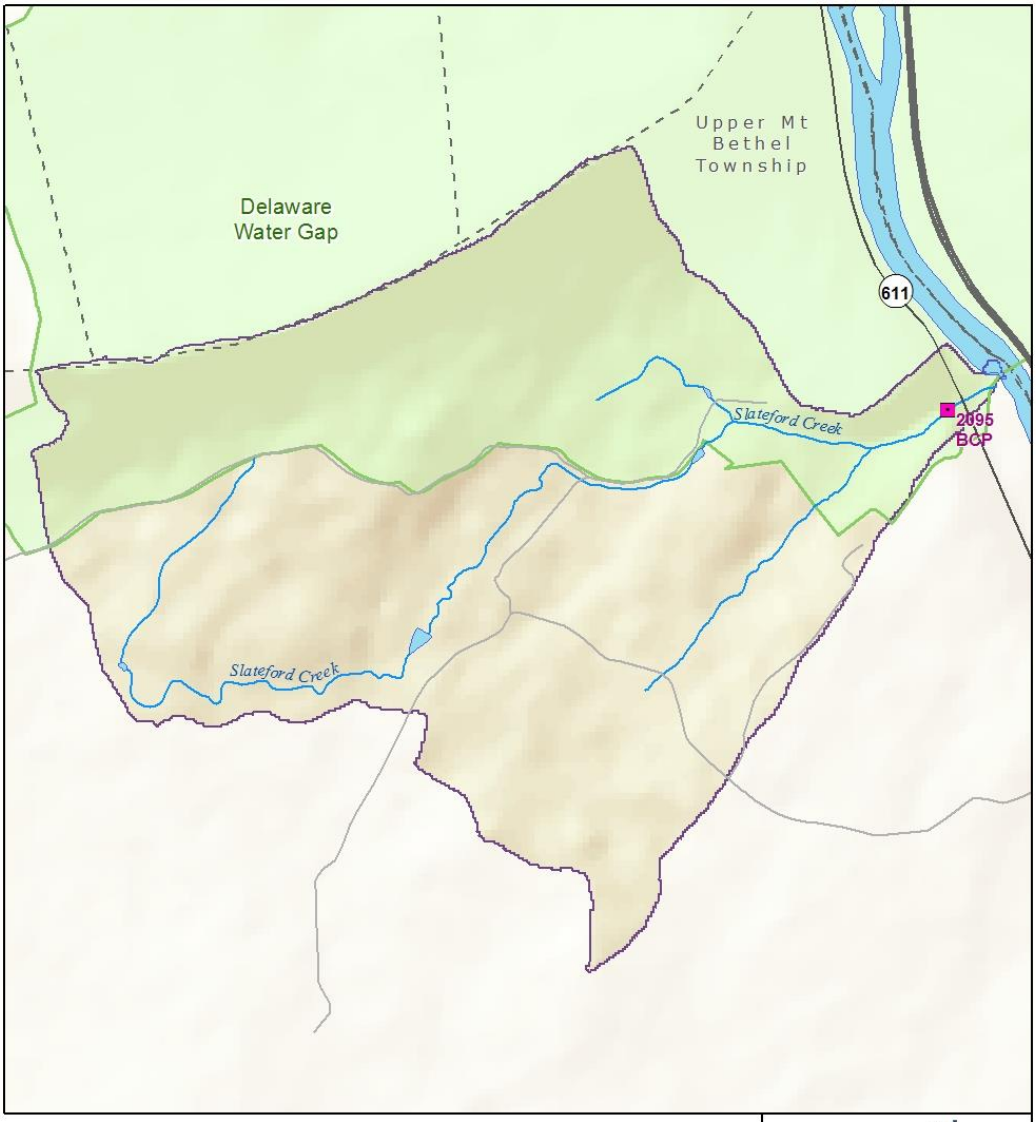
Parameter	N	median	L95CL	U95CL	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	22	6.0	5.0	7.0	1998-2008 USGS
Ammonia Nitrogen as N, Dissolved mg/L	25	<0.030	0.016	<0.030	1998-2009 USGS (16 non-detects)
Ammonia-Nitrogen as N, Total mg/L *	12	<0.030	<0.030	<0.030	1998-2003 USGS (10 non-detects)
Calcium, Dissolved mg/L	24	3.10	2.81	3.26	1998-2009 USGS
Chloride, Dissolved mg/L	24	1.13	1.03	1.28	1998-2009 USGS
Dissolved Oxygen (DO) mg/L *	26	9.95	9.10	10.90	1998-2009 USGS
Dissolved Oxygen Saturation %	25	98	96	100	1998-2009 USGS
Enterococcus #/100ml	40	50	40	80	1998-2006 USGS
Escherichia coli #/100ml	42	<100	<100	<100	2000-2008 USGS
Fecal coliform #/100ml *	50	<20	<20	<20	1998-2008 USGS
Hardness as CaCO3, Total mg/L	24	12.0	11.0	13.0	1998-2009 USGS
Magnesium, Dissolved mg/L	24	1.05	0.97	1.14	1998-2009 USGS
Nitrate+Nitrite as N, Dissolved mg/L *	25	<0.06	<0.05	0.16	1998-2009 USGS (12 non-detects)
Nitrogen as N, Dissolved mg/L	9	0.21	0.10	0.48	1999-2006 USGS
Nitrogen as N, Total mg/L *	7	0.42	0.15	1.30	1998-2004 USGS
Nitrogen, Kjeldahl as N, Total mg/L	8	0.09	0.04	0.42	1998-2001 USGS (3 non-detects)
Organic Carbon, Dissolved mg/L	24	0.8	0.7	1.0	1998-2009 USGS
pH units *	27	6.7	6.5	6.9	1998-2009 USGS
Phosphate as P, Total mg/L	17	0.01	0.007	0.02	1998-2009 USGS (8 non-detects)
Phosphorus as P, Total mg/L *	24	0.019	0.008	0.054	1998-2009 USGS (6 non-detects)
Specific Conductance µS/cm	27	34	33	37	1998-2009 USGS
Sulfate, Dissolved mg/L	24	7.44	7.02	7.75	1998-2009 USGS
Temperature, Water, degrees C	57	16.3	14.7	17.0	1998-2009 USGS
Total Dissolved Solids (TDS) mg/L	24	26	24	28	1998-2009 USGS
Total Suspended Solids (TSS) mg/L *	21	<1.0	<1.0	3.0	1998-2009 USGS (11 non-detects)
Turbidity NTU	7	0.5	0.2	1.2	2001-2004 USGS

Two-tailed 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.

2095 BCP Slateford Creek at National Park Drive

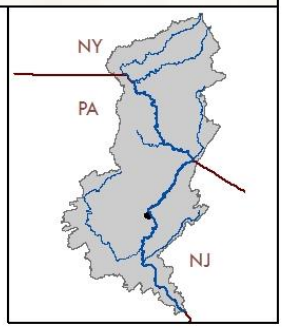


Slateford Creek

Drainage Area = 2.97 mi²

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

N



2095 BCP Slateford Creek at National Park Drive

Northampton County, PA. Latitude 40.946735 Longitude -75.115074 by GPS NAD83 decimal degrees.
No USGS or PADEP sites nearby.
Watershed Population: 2000 = 173 2010 = 283 Change = +110 (+63.9%)
Drainage Area: 2.95 square miles, tributary to Delaware River Zone 1D

Site Specific EWQ defined 2011-2013 by DRBC.

This watershed is tributary to the Delaware Water Gap National Recreation Area (DEWA)
Classified by DRBC as Outstanding Basin Waters.

Nearest upstream Interstate Control Point: 2115 ICP Delaware River at Kittatinny Visitor Center
Nearest downstream Interstate Control Point: 2074 ICP Delaware River at Portland Foot Bridge
Known dischargers within watershed: Few, as yet undefined.

Watershed is 89.2% forested; urban land cover is 0.1%. Watershed was 100% glaciated, and is not 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)
353	9.78	5.22	3.83	3.10	2.73	1.67	0.86	0.24

StreamStats Low-Flow Stream Statistics

M7D2Y (ft^3/s)	0.51
M30D2Y (ft^3/s)	0.67
M7D10Y (ft^3/s)	0.24
M30D10Y (ft^3/s)	0.31
M90D10Y (ft^3/s)	0.46

StreamStats Mean/Baseflow Stream Statistics

QA (ft^3/s)	5.34
QAH (ft^3/s)	1.44
BF10YR (ft^3/s)	2.57
BF25YR (ft^3/s)	2.31
BF50YR (ft^3/s)	2.16

StreamStats Peak-Flow Stream Statistics

PK2 (ft^3/s)	153
PK5 (ft^3/s)	274
PK10 (ft^3/s)	373
PK50 (ft^3/s)	641
PK100 (ft^3/s)	778
PK500 (ft^3/s)	1,160

Existing Water Quality: 2095 BCP Slateford Creek at National Park Drive

Parameter	N	median	L95CL	U95CL	Flow Relationship	Period of Record (May-Sep data)
Alkalinity as CaCO3, Total mg/L	30	51.5	45	62	Inverse	SRMP 2011-2013
Ammonia-Nitrogen as N, Total mg/L *	30	<0.006	<0.006	<0.006	None	SRMP 2011-2013 (26/30 non-detects)
Chloride, Total mg/L	30	7.4	6.1	8.1	Inverse	SRMP 2011-2013
Dissolved Oxygen (DO) mg/L *	28	9.40	8.83	9.71	None	SRMP 2011-2013 mid-day
Dissolved Oxygen Saturation %	28	96.7	95.5	99.2	None	SRMP 2011-2013 mid-day
Enterococcus #/100mL	7	30	11	240	None	SRMP 2011 – insufficient data for EWQ
Escherichia coli #/100mL	8	16	6	180	Positive	SRMP 2011 – insufficient data for EWQ
Fecal coliform #/100mL *	8	17	1	270	Positive	SRMP 2011 – insufficient data for EWQ
Hardness as CaCO3, Total mg/L	30	78.3	67.4	83.2	Inverse	SRMP 2011-2013
Nitrate+Nitrite as N, Total mg/L *	30	0.250	0.171	0.283	None	SRMP 2011-2013
Nitrogen as N, Total mg/L *	30	0.398	0.365	0.440	None	SRMP 2011-2013
Nitrogen, Kjeldahl as N, Total mg/L	30	0.149	0.126	0.197	None	SRMP 2011-2013
pH units *	28	7.74	7.68	7.85	None	SRMP 2011-2013 mid-day
Phosphate as P, Total mg/L	30	0.009	0.007	0.014	None	SRMP 2011-2013
Phosphorus as P, Total mg/L *	30	0.013	0.010	0.017	Positive	SRMP 2011-2013
Specific Conductance µS/cm	28	180	153	204	Inverse	SRMP 2011-2013
Temperature, Water, degrees C	28	17.1	16.3	18.2	None	SRMP 2011-2013 mid-day
Total Dissolved Solids (TDS) mg/L	30	105	89	112	Inverse	SRMP 2011-2013
Total Suspended Solids (TSS) mg/L *	30	2.0	1.0	3.3	None	SRMP 2011-2013
Turbidity NTU	47	1.56	1.25	2.20	Positive	SRMP 2011-2013

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.

Slateford Creek is located at the southern terminus of the Delaware Water Gap National Recreation Area (shown in green on the map). DRBC took 30 samples from the National Park Drive road crossing for the May to September period of three years: 2011-2013. The watershed is only 2.97 square miles, and was chosen for EWQ establishment not because of the stream's potential influence upon the Delaware River, which is small, but because of pending development in the watershed and for the watershed's partial location within the Delaware Water Gap National Recreation Area.