

**FINDINGS AND RECOMMENDATIONS
OF THE
1986 INTEGRATED WATER QUALITY MONITORING PROGRAM**

REPORT NO. 9 UPPER DELAWARE SUMMER LIMNOLOGICAL PROGRAM

Delaware River Basin Commission
in cooperation with the National Park Service

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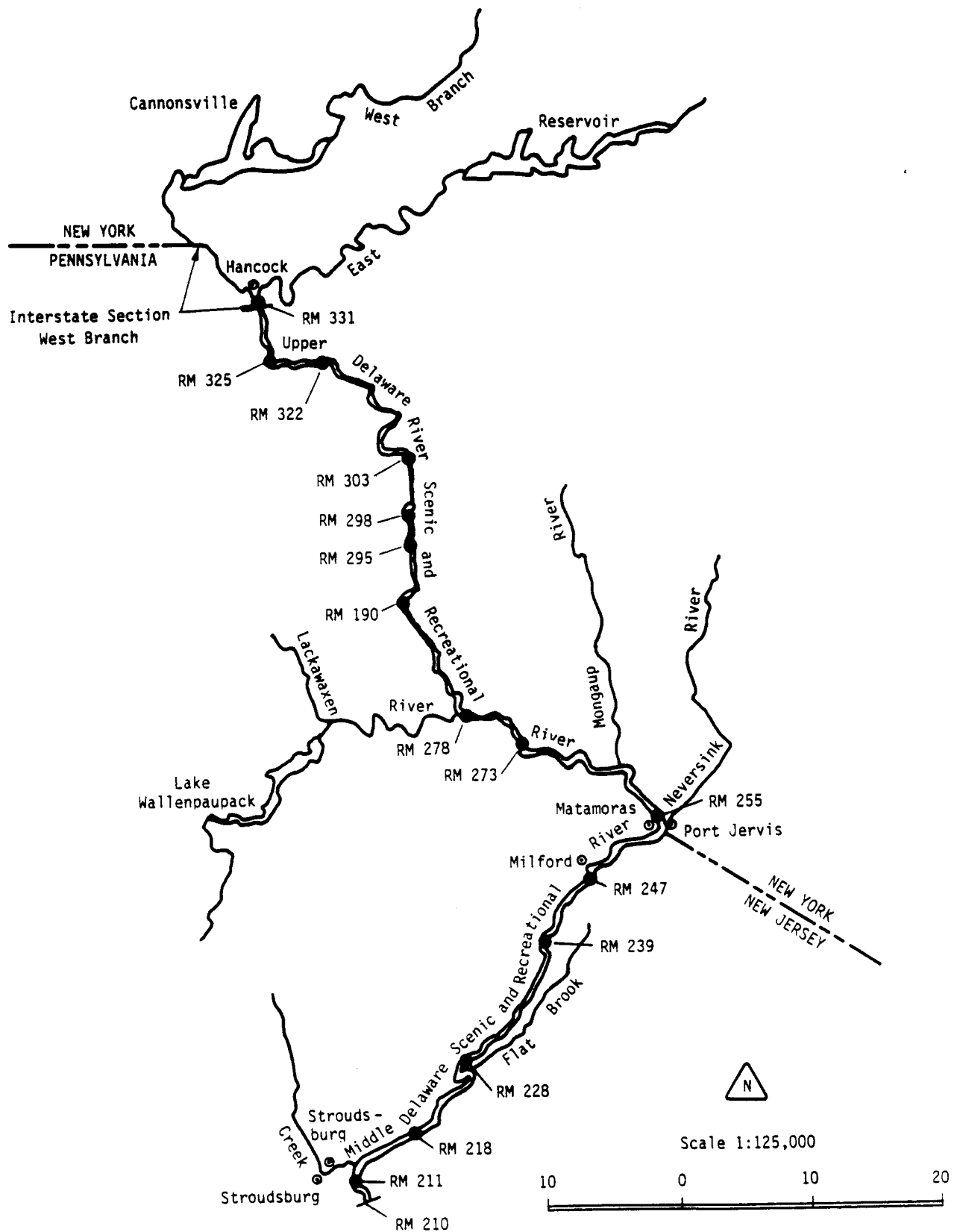
Introduction

The following report presents the findings of the 1986 Integrated Water Quality Monitoring Program carried out cooperatively by the Delaware River Basin Commission (DRBC) and the National Park Service (NPS) in the Upper Delaware Scenic and Recreational River (UDSRR) and the Delaware Water Gap National Recreation Area (DWGNRA). The study area (Figure 1) contains over 70 tributaries and 120 miles of the Delaware River including 72 miles which are in the National Wild and Scenic Rivers System.

The 1986 program is the third year of the cooperative DRBC/NPS monitoring program. The DRBC portion of the program has been conducted since 1969 under the name of the Upper Delaware Summer Limnological Program. The purposes of the integrated monitoring program are (1) to locate water quality impacts to the Delaware River, (2) to develop a water quality baseline for assessing change in water quality, (3) to expand the knowledge of water quality cause and effect relationships through small-scale research, and (4) to make recommendations concerning water quality management activities.

Summary of work

The design of the 1986 monitoring program was based on a reach prioritization strategy presented in Report No. 8 of the Upper Delaware Summer Limnological Program. This strategy assigned parameters and sampling intensity based on rating criteria for water quality impacts, degree of urbanization, public bathing and the average number of tributaries per river mile. Sampling frequency and the number of sampling locations in each reach were assigned on the basis of the reach ranking. In addition, low ranking reaches had no fecal streptococcus analyses conducted. All reaches were sampled at least three times in 1986, however. The ranking system established the following priorities to guide the 1986 effort:



1/ River Miles refers to the distance from the Atlantic Ocean.

Figure 1. Map of the Study Area

Section	Reach	Priority
1	Hancock to Kellams Bridge (RM 331 to RM 311)	Second
2	to three miles below Callicoon, NY (RM 311 to RM 300)	High
3	to below Narrowsburg, NY (RM 300 to RM 289)	Second
4	to above mouth of Laxawaxen River (RM 289 to RM 278)	Low
5	to Pond Eddy Bridge (RM 278 to RM 265)	Second
6	to above Matamoras Access (RM 265 to RM 256)	Low
7	to Milford Bridge (RM 256 to RM 246)	High
8	to above Mouth of Bushkill Creek (RM 246 to RM 227)	Low
9	to Tocks Island (RM 227 to RM 217)	Second
10	to end of DWGNRA (RM 217 to RM 209)	High

Monitoring of tributaries and the Delaware River began May 19 and was terminated on October 2, 1986. Most sampling was conducted in the June through August period. Ninety-three locations were sampled with the following distribution:

	No. of Locations Sampled				Total
	USDRR	Intervening reach	DWGNRA	Other *	
Tributaries	27	5	17	0	49
River locations	14	8	18	4	44
Total	41	13	35	4	93

* locations from Portland to Easton, Pennsylvania

Three agencies participated directly in the monitoring program: the NPS-UDSRR, the NPS-DWGNRA and DRBC. In 1986 personnel from the three agencies made 406 station-visits to collect data on one or more of the following parameters: fecal coliform bacteria, fecal streptococcus bacteria, dissolved oxygen, water temperature, pH, conductivity and biological organisms (i.e., macroinvertebrates). The monitoring program uses a water quality screening system which is described in previous reports and elsewhere. Quality assurance activities are described in an EPA-approved quality assurance plan.

Data collected during the station-visits are presented in Appendix A and B along with rainfall data collected by the National Oceanic and Atmospheric Administration (Appendix C).

Monitoring program staff also participated in a joint survey with the Monroe County (PA) Planning Commission. The planning commission conducts a county-wide monitoring program which is coordinated with the NPS/DRBC effort. On August 14, the lower portion of Brodhead and Cherry Creeks and the Delaware River between the mouth of Brodhead Creek and Kittatinny Beach in the Delaware Water Gap were sampled extensively by the agencies. Also in 1986 the New York Department of Environmental Conservation conducted an intensive survey of Callicoon Creek as a follow up to the NPS/DRBC findings in 1985. The Pennsylvania Department of Environmental Resources also conducted a survey in 1986 of the Delaware River in the vicinity of Matamoras, Pennsylvania. This reach of river, containing a rendering plant discharge, has been a focus of concern.

Small scale research was limited in 1986 to the initial phase of a tentative study of the river foam phenomena in the Upper Delaware region. River foam is excessive on some occasions at some locations and is perceived by the public as a pollution problem. In 1986 daily observations were made by National Park Service rangers at several locations in order to record observations concerning the relationship between weather and the amount of foam.

The following paragraphs summarizes the 1986 program findings.

General Findings

- A. Water quality in the Upper Delaware Region is generally good to excellent with several local problem areas as described below.
- B. In 1986 about 30% of all fecal coliform samples yielded values greater than 200 colonies per 100 milliliters with 58% of these values being greater than 400/100 ml. A comparison of the dates of these samples with rainfall data indicates that 45% of the values greater than 200/100 ml. can be associated with the significant amount of rainfall events which occurred in the summer, 1986. The rainfall-related bacteria are attributable to non-point sources of pollution and/or natural sources of bacteria. In most instances, the higher-than-desired bacterial levels during rain events are short-term with no corrective actions warranted.

This is indicated by the fact that many of the higher-than-desired levels occurred in pristine reaches (based on past data) of the Delaware River or in tributaries draining totally undeveloped watersheds.

The remaining 55% of the values greater than 200/100 ml. are not associated with rainfall events and are thus of greater concern. All reflect conditions in known or newly found problem areas. These were sampled more intensely by the monitoring program in accordance with the priorities established prior to the onset of sampling.

- C. River foam did not appear as abundant in 1986 as in 1985. The latter was a "dry" summer versus the former which was a "wet" summer. It has been theorized that the amount of foam observed in the Upper Delaware is related to low flow conditions, the increased presence of aquatic plants and possibly the amount of cloud cover.
- D. Increased development in the Upper Delaware region was readily observable in 1986. Data collected by the monitoring program (1984 to 1986) in developed and undeveloped watersheds indicate that all levels of development modify water quality to some extent. If so, it may be expected that water quality in the region will decline as development occurs. Poorly located or badly managed development will, of course, accelerate the decline.

Findings - Upper Delaware Scenic and Recreational River

- A. With the exception of rain-related increases in fecal coliform levels, most of the UDSRR had satisfactory water quality in 1986.
- B. As observed in 1985, the major problem area in the UDSRR region appears to be in Callicoon (Town of Delaware) New York. The lower reach of Callicoon Creek receives raw sewage and (probably) other pollution. This, in turn, flows into the Delaware River and noticeably impacts the New York side of the river (e.g., compare Callicoon, NY data with Callicoon, PA data). This finding was verified in 1986 by a special New York Department of Environmental Conservation survey. Steps are being taken with the intent of correcting the problems.

- C. Both 1985 and 1986 macroinvertebrate data for Buckingham Access Area (near Hancock, New York) suggest an environmental stress. The number of taxa, the number of observed organisms and species diversity are low in comparison to other Delaware River locations. It is likely that the lower productivity observed at Buckingham Access Area is a natural response to colder water temperatures due to reservoir releases, a response to the releases directly or a function of substrate. A follow up biological survey, however, is warranted.

Findings - Millrift to Milford, Pennsylvania

This reach of the Delaware River separates the Upper Delaware Scenic and Recreational River from the Middle Delaware Scenic and Recreational River within the Delaware Water Gap National Recreation Area. The reach received the highest score in the 1985 reach prioritization.

- A. Past data has suggested that sources of fecal bacteria in the Port Jervis, New York - Matamoras, Pennsylvania area impact water quality in the Delaware Water Gap National Recreation Area (particularly at Milford Beach). In 1986, sampling was intensified in the reach between Millrift-Port Jervis area in order to learn the source(s) of these bacteria. Generally higher levels of bacteria were not unanticipated because of the urban nature of the area. It was hoped, however, to identify major sources of bacteria if they existed.

Data collected in 1986 from Millrift to the mouth of Neversink River clearly indicate a problem on the New York State side of the river. High fecal coliform levels are seen under both rain and non-rain conditions with fecal coliform/fecal strep ratios indicative of human contamination. The data suggest that the source of the bacteria is located in the vicinity of Sparrowbush, New York. It was not possible to identify the source(s) prior to the suspension of the 1986 sampling activities.

The most serious aspect of the problem is the public health impact on the Port Jervis municipal beach. Individual bacterial concentrations ranged from 100 to 8240 colonies/100 ml. with an average concentration of

1891/100 ml. All but two of the samples taken at the beach were greater than 300/100 ml. Local county health officials were notified of the potential health threat in early August.

- B. Public concerns have been raised in the past regarding the environmental impact of the Darling-Delaware rendering plant near Matamoras, Pennsylvania. Data from the monitoring program did not indicate any water quality impact below the plant's discharge.

Findings - Delaware Water Gap National Recreation Area

- A. In general, the water quality of the Delaware River within the Delaware Water Gap National Recreation Area was good in 1986. Bacterial levels were reasonably low except during rain events. Oxygen levels were high, and macroinvertebrate samples indicated diverse rich populations.
- B. On occasion, fecal coliform values at the Milford Access Area were higher than desired. While some of these values can be associated with rainfall events, three occasions of values greater than 200/100 ml. occurred during dry weather. It is assumed that water quality at Milford is impacted to some extent by the fecal coliform source discussed above near Port Jervis. Milford appears to be the downstream extent of the impact area.
- C. As reported in past reports, water quality in the Delaware Water Gap is impacted by pollution discharged into Cherry, Brodhead and other eastern Monroe County streams. Data collected on August 14 during the Monroe County Planning Commission/DRBC/NPS survey show that the pollution stays on the Pennsylvania side of the river (behind Schellenbergers Island) until the back channel mixes with the mainstream of the river below the I-80 bridge and just above Kittatinny Beach.
- D. The most polluted tributaries entering the Middle Delaware Scenic and Recreational River continue to be Brodhead and Cherry Creeks. Problems in these watersheds require corrective actions. Although less serious, anthropogenic (man-made) sources of pollution are also noted for Shimers Creek, White Brook and Shawnee Creek. High fecal streptococcus values for

Shimers Creek, Shawnee Creek, Marshalls Creek, and Cherry Creek are suggestive of animal sources of pollution (e.g., barnyards, stables, etc.)

- E. White Brook continues to have abnormally high conductivity values. However, these are believed to be due to natural (i.e., geological) factors. As reported previously, conductivity values greater than 100 uohms/cm appear to reflect human development. Streams routinely experiencing values greater than 100 were Shimers Creek, White Brook, Flat Brook, Shawnee Creek, Marshalls Creek, Brodhead Creek, and Cherry Creek.

Conclusions and Recommendations

- A. The reach prioritization system and the water quality screening protocol employed by the integrated monitoring program were effective in denoting problem areas. It is recommended that each be used again in 1987.
- B. In 1987 parallel sampling of fecal coliform and E. coli should occur at numerous Delaware River locations as the first step in possibly replacing the former with the latter. At a minimum, E. coli sampling should occur at all designated beaches.
- C. The highest priority in 1987 is finding the source of pollution above the Port Jervis municipal beach. Bathing at the beach should not occur until the problem observed in 1986 is corrected or until additional monitoring demonstrates that high bacterial levels at the beach no longer exist.
- D. As recommended by previous reports, the DWGNRA beach monitoring protocol that was used in past years should be reinstated. This protocol called for weekly sampling of beaches and resampling whenever a routine value exceeded 200/100 ml. As before, the resampling should be repeated for several consecutive days after the high value is observed. Similar monitoring should occur at all undesignedated and designated beaches. Weekly beach monitoring should be the responsibility of the agencies or entities managing the beach.

APPENDIX A
1986 WATER QUALITY DATA

Notes on Appendix A

- Ac - refers to an established access area
- ? - indicates that the validity of the data is questionable (usually because of abnormalities in the bacterial growth on the filters)
- R - indicates that the fecal coliform value was affected by rainfall runoff (shown for values greater than 200/100 ml. only)
- PA, NY, NJ - indicates that the sampling location is a Delaware River location. The state designation refers to the side of the river sampled
- () - values enclosed in parentheses are duplicates, replicates or different dilutions taken for quality assurance purposes.

Data found in Appendix A have been entered into the U.S. EPA STORET system under agency code 31DRBCSP

RIVER MILE	LOCATION	DATE	AGENCY	Fecal Coliform (#/100ML)	Fecal Strep	FC/FS Ratio	Dissolved Oxygen	Water Temp (C)	Percent Sat.	PH	Spec Cond. uohms/cm
325.0	Buckingham Ac, PA	6/03	NPS	89							
325.0	Buckingham Ac, PA	6/12	NPS	224 R				18.0			50
325.0	Buckingham Ac, PA	6/19	NPS	42				15.0			50
325.0	Buckingham Ac, PA	6/24	NPS	26				20.0			55
325.0	Buckingham Ac, PA	7/14	DRBC	0?	314		9.5	17.5	97	7.00	60
325.0	Buckingham Ac, PA	7/30	DRBC	204 R	4700	0.04	8.4	19.0	91	6.75	55
325.0	Buckingham Ac, PA	8/11	DRBC	632 R			9.1	20.0	100	6.75	58
322.6	Factory Creek	7/14	DRBC	100 (92)			8.7	19.5	95	6.75	38
322.6	Factory Creek	7/30	DRBC	24	670	0.04	8.4	19.5	91	6.75	41
322.6	Factory Creek	8/11	DRBC	256 R			8.3	19.0	89	6.7	39
322.5	Equinunk Creek	7/14	DRBC	168			9.0	18.5	96	6.75	55
322.5	Equinunk Creek	7/30	DRBC	1420 R	5470	0.26	7.2	21.0	81	6.75	55
322.5	Equinunk Creek	8/11	DRBC	412 R			8.6	21.0	97	6.75	58
321.6	Equinunk, PA	7/14	DRBC	460 R	178	2.58	8.9	17.5	93	6.75	65
321.6	Equinunk, PA	7/30	DRBC	0?	1960		8.3	20.0	91	6.75	61
321.6	Equinunk, PA	8/11	DRBC	324 R			8.5	20.0	94	6.75	59
316.0	Pea Brook	7/14	DRBC	4			9.3	17.0	96		75
315.8	Hoolihan Creek	7/14	DRBC	72			9.0	16.0	91	6.75	45
314.1	Basket Creek	7/14	DRBC	0			9.5	17.0	98	7.00	50
312.7	L. Equinunk Creek	7/14	DRBC	268 R			8.5	19.0	92	7.00	55
312.7	L. Equinunk Creek	7/30	DRBC	296 (380) R	1990	0.15	8.9	21.5	101	7.00	59
312.7	L. Equinunk Creek	8/11	DRBC	90 (40)			8.5	21.0	95	7.00	65
311.7	Cooley Creek	7/10	DRBC	60	61	0.98	9.0	17.5	83	6.7	45
311.7	Cooley Creek	7/22	DRBC	4	408	0.01	9.2	13.0	87	6.75	68
311.7	Cooley Creek	8/04	DRBC	0	630	0.00	8.4	18.3	89	6.75	65
311.7	Cooley Creek	8/18	DRBC	0	390	0.00	8.8	18.0	93	6.75	40
311.2	Hankins Creek	7/10	DRBC	58	59	0.98	9.1	19.0	98	7.2	60
311.2	Hankins Creek	7/22	DRBC	20 (16,30)	760	0.03	9.4	19.0	101	7.00	68
311.2	Hankins Creek	8/04	DRBC	100	910	0.11	9.4	20.0	103	6.75	55
311.2	Hankins Creek	8/18	DRBC	4	220	0.02	9.3	20.0	102	7.25	70
305.2	Hollister Creek	7/07	DRBC	154	118	1.31	8.6	19.7	91	7.00	80
305.2	Hollister Creek	7/22	DRBC	4	1132	0.00	9.3	16.0	94	7.00	68
305.2	Hollister Creek	8/04	DRBC	30	950	0.03	9.3	18.5	99	7.00	62
305.2	Hollister Creek	8/18	DRBC	0	220	0.00	8.5	18.0	90	7.00	70
303.6	Callicoon Creek	7/07	DRBC	>400	112		8.8	22.0	101	7.50	95
303.6	Callicoon Creek	7/22	DRBC	696	272	2.56	9.3	22.0	108	7.50	99
303.6	Callicoon Creek	7/25	DRBC	324							
303.6	Callicoon Creek	8/04	DRBC	611 R	970	0.63	8.9	21.0	100	7.00	80
303.6	Callicoon Creek	8/18	DRBC	364 R	360	1.01	9.8	20.0	108	7.50	95
303.5	Callicoon, NY Ac	6/03	NPS	480							

Notes: Locations described with a state (eg. PA) are Delaware River sampling sites.

R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
303.5	Callicoon, NY Ac	6/12	DRBC	>1000 R							
303.5	Callicoon, NY Ac	6/19	NPS	0?				17.0			75
303.5	Callicoon, NY Ac	6/24	NPS	375 (360)				18.0			80
303.5	Callicoon, NY Ac	7/07	DRBC	214 (164)	26	8.23	9.1	25.0	110	7.00	90
303.5	Callicoon, NY Ac	7/22	DRBC	4	716	0.01	8.6	20.0	95	7.00	70
303.5	Callicoon, NY Ac	7/25	DRBC	12							
303.5	Callicoon, NY Ac	8/04	DRBC	170	160	1.06	8.9	20.5	99	7.00	75
303.5	Callicoon, NY Ac	8/18	DRBC	248 R	120	2.07	7.4	21.0	83	6.75	85
303.5	Callicoon, NY Ac	9/09	NPS	104							
303.5	Callicoon, NY Ac	10/02	NPS	840 R							80
303.4	E Br. Callicoon Ck	7/07	DRBC	22			8.3	27.0	104	7.50	95
303.4	E Br. Callicoon Ck	7/22	DRBC	28	1028	0.03	8.5	23.0	99	7.25	100
303.4	E Br. Callicoon Ck	7/25	DRBC	56							
303.4	E Br. Callicoon Ck	8/04	DRBC	440 (360) R	1190	0.37	8.6	22.5	99	6.75	85
303.4	E Br. Callicoon Ck	8/18	DRBC	60	110	0.55	10.0	20.0	110	7.75	90
303.3	N Br. Callicoon Ck	7/07	DRBC	256			9.1	26.0	112		90
303.3	N Br. Callicoon Ck	7/22	DRBC	0	828	0.00	9.3	20.5	103	7.00	93
303.3	N Br. Callicoon Ck	7/25	DRBC	122							
303.3	N Br. Callicoon Ck	8/04	DRBC	0?	1000		8.9	19.8	97		60
303.3	N Br. Callicoon Ck	8/18	DRBC	60 (92)	32	1.88	9.4	22.0	108	7.50	95
303.2	Callicoon, PA Ac	6/03	NPS	41							
303.2	Callicoon, PA Ac	6/12	NPS	>200 R							
303.2	Callicoon, PA Ac	6/19	NPS	50				15.0			52
303.2	Callicoon, PA Ac	6/24	NPS	66				18.0			55
303.2	Callicoon, PA Ac	7/07	DRBC	14	20	0.70	8.0	25.0	95	7.00	80
303.2	Callicoon, PA Ac	7/22	DRBC	0	668	0.00	8.1	21.0	91	7.00	65
303.2	Callicoon, PA Ac	7/25	DRBC	28							
303.2	Callicoon, PA Ac	8/04	DRBC	100	640	0.16	8.7	21.0	98	7.00	50
303.2	Callicoon, PA Ac	8/18	DRBC	32	170	0.19	7.4	21.0	83	6.75	65
303.2	Callicoon, PA Ac	9/22	NPS	152							
298.4	Damascus, PA Ac	7/10	DRBC	26			8.0	23.0	93	6.75	75
298.4	Damascus, PA Ac	7/29	DRBC	188			7.6	22.0	87	6.75	65
298.4	Damascus, PA Ac	8/25	DRBC	40 (64)			8.7	19.0	94	7.00	72
295.6	Calkins Creek	7/10	DRBC	24			9.1	20.0	100	7.50	70
295.6	Calkins Creek	7/29	DRBC	72			8.4	21.0	94	7.25	80
295.6	Calkins Creek	8/25	DRBC	96			10.0	17.0	103	7.50	78
295.4	Skidders Falls, NY	6/03	NPS	76							
295.4	Skidders Falls, NY	6/12	NPS	>400 R							
295.4	Skidders Falls, NY	6/24	NPS	148				22.0			70
295.4	Skidders Falls, NY	7/10	DRBC	18			8.6	25.0	104	7.50	80

Notes: Locations described with a state (eg. PA) are Delaware River sampling sites.

R.M.	Location	Date	Agency	Coliform	Strep	FC/FS D.O.	Temp.	% Sat.	Ph	Cond.
295.4	Skinnners Falls, NY	7/29	DRBC	232		7.3	23.0	85	6.75	70
295.4	Skinnners Falls, NY	8/25	DRBC	42 (58)		8.7	18.5	93	7.00	70
295.4	Skinnners Falls, NY	9/09	NPS	13						
295.4	Skinnners Falls, NY	9/22	NPS	120						
295.4	Skinnners Falls, NY	10/02	NPS	1200 R			18.0			80
290.0	Narrowsburg, NY Ac	6/03	NPS	76						
290.0	Narrowsburg, NY Ac	6/12	NPS	>200 R						
290.0	Narrowsburg, NY Ac	6/19	NPS	86			18.0			55
290.0	Narrowsburg, NY Ac	6/24	NPS	56			22.0			60
290.0	Narrowsburg, NY Ac	7/16	DRBC	44		8.6	21.5	97	7.00	70
290.0	Narrowsburg, NY Ac	7/29	DRBC	116		7.8	23.0	91	7.00	70
290.0	Narrowsburg, NY Ac	8/25	DRBC	66 (54)		9.0	20.0	99	7.50	70
290.0	Narrowsburg, NY Ac	9/09	NPS	61						
290.0	Narrowsburg, NY Ac	9/22	NPS	52						
290.0	Narrowsburg, NY Ac	10/02	NPS	196			18.0			70
289.8	Narrowsburg, PA Ac	6/03	NPS	94?						
289.8	Narrowsburg, PA Ac	6/19	NPS	54			17.0			50
289.8	Narrowsburg, PA Ac	6/24	NPS	72			23.0			60
289.8	Narrowsburg, PA Ac	7/16	DRBC	168		8.5	21.5	96		65
289.8	Narrowsburg, PA Ac	7/29	DRBC	168		7.5	24.0	89	7.00	70
289.8	Narrowsburg, PA Ac	8/25	DRBC	236 (146)		8.6	20.5	96	7.25	72
289.8	Narrowsburg, PA Ac	9/22	NPS	20						
289.8	Narrowsburg, PA Ac	10/02	NPS	38						70
284.4	Ten Mile R. (W Br)	7/25	DRBC	36						
284.3	Ten Mile R. (E Br)	7/25	DRBC	0 (2)						
284.2	Ten Mile River	7/16	DRBC	30		8.3	20.0	91	6.75	45
284.2	Ten Mile River	7/25	DRBC	40						
284.2	Ten Mile River	7/29	DRBC	42 (40)		8.1	24.0	96	6.75	45
282.5	Mast Hope Creek	7/18	DRBC	32		8.4	24.0	100	6.75	45
282.2	Mast Hope Creek	8/05	DRBC	28		8.4	23.0	98	7.00	48
280.0	Westcolang, PA	7/16	DRBC	12		9.4	17.5	98	6.75	65
279.8	nr. Westcolang, PA	10/02	NPS	22 (80)						
278.7	abve Lack. R., PA	7/18	DRBC	36		8.6	25.0	104	7.00	70
278.2	abve Lack. R., PA	8/05	DRBC	36		8.8	25.0	106	7.00	60
277.7	Lackawaxen River	7/18	DRBC	4		9.0	23.0	105	7.00	60
277.7	Lackawaxen River	8/05	DRBC	16		9.1	22.5	105	7.00	58
273.6	Shohola, PA	6/03	NPS	12						
273.6	Shohola, PA	6/12	NPS	170						
273.6	Shohola, PA	6/19	NPS	43						51
273.6	Shohola, PA	6/24	NPS	55						

Note: Locations described with a state (eg. PA) are Delaware River sampling sites.

R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
273.6	Shohola, PA	7/11	DRBC	8			9.2	23.0	107	7.50	72
273.6	Shohola, PA	7/23	DRBC	4			8.9	25.0	108	7.00	70
273.6	Shohola, PA	8/22	DRBC	0?			8.3	21.0	93	7.00	50
273.5	Barryville, NY	6/03	NPS	24							
273.5	Barryville, NY	6/12	NPS	586 R							
273.5	Barryville, NY	6/19	NPS	15							49
273.5	Barryville, NY	6/24	NPS	55				22.0			60
273.5	Barryville, NY	7/11	DRBC	18		9.1		22.0	104		73
273.5	Barryville, NY	7/23	DRBC	16		8.8		25.0	106	7.00	68
273.5	Barryville, NY	8/22	DRBC	0?		8.9		19.0	96	7.00	60
273.5	Barryville, NY	9/22	NPS	44							
273.4	Halfway Brook	7/16	DRBC	110 (130)		8.8		18.0	93	6.50	60
273.4	Halfway Brook	7/23	DRBC	76		8.8		21.0	99	6.75	80
273.4	Halfway Brook	8/22	DRBC	0?		9.0		18.0	95	6.75	70
273.2	Shohola Creek	7/11	DRBC	18		8.6		20.0	95	6.75	82
273.2	Shohola Creek	8/05	DRBC	36		8.1		23.0	94	6.50	80
273.2	Shohola Creek	8/22	DRBC	0?		8.9		20.5	99	6.50	40
269.9	Twin Lakes Creek	7/16	DRBC			7.5		17.0	78	6.00	60
266.3	Pond Eddy, NY	6/03	NPS	8							
266.3	Pond Eddy, NY	6/12	NPS	154							
266.3	Pond Eddy, NY	6/12	NPS	>200 R							
266.3	Pond Eddy, NY	6/19	NPS	24							50
266.3	Pond Eddy, NY	6/19	NPS	10							42
266.3	Pond Eddy, NY	6/24	NPS	25				18.0			40
266.3	Pond Eddy, NY	6/24	NPS	80				18.0			40
266.3	Pond Eddy, NY	7/11	DRBC	>400 R		8.7		22.5	101		70
266.3	Pond Eddy, NY	7/23	DRBC	0?		7.6		25.0	92		72
266.3	Pond Eddy, NY	8/22	DRBC	0?		8.4		23.0	98	6.75	62
266.3	Pond Eddy, NY	9/22	NPS	9							
266.3	Pond Eddy, NY	10/02	NPS	20 (12)							
266.2	Pond Eddy, PA	6/03	NPS	0 (12)							
266.2	Pond Eddy, PA	6/12	NPS	154							
266.2	Pond Eddy, PA	6/19	NPS	47 (64)							
266.2	Pond Eddy, PA	6/24	NPS	31 (32)							
265.6	Mill Brook	7/11	DRBC	80		9.2		18.0	97		53
265.6	Mill Brook	7/23	DRBC	0		8.9		20.5	99	6.75	58
265.6	Mill Brook	8/22	DRBC	0		9.0		19.0	97	6.75	53
264.5	Fish Cabin Creek	7/02	DRBC	148		9.2		16.0	93	6.75	40
261.1	Mongaup River	7/02	DRBC	40		8.2		18.0	87	6.75	58
258.6	Bushkill Creek	7/02	DRBC	1040 R		9.9		16.0	100	6.50	40

Notes: Locations described with a state (eg. PA) are Delaware River sampling sites.

R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
258.4	Millrift, PA	8/06	DRBC	80	1480	0.05					
258.4	Millrift, PA	8/20	DRBC	30 (20)	240	0.13					
257.3	abve Sparrowbush, NY	8/06	NPS	40	1020	0.04					
257.3	abve Sparrowbush, NY	8/20	DRBC	90	660	0.14					
257.2	Ck.abve Sparrowbush	8/06	DRBC	200	140	1.43					
257.2	Ck belw Sparrowbush	8/06	DRBC	1460	1180	1.24					
257.2	Ck.abve Sparrowbush	8/20	DRBC	30	400	0.08					
257.2	Ck.belw Sparrowbush	8/20	DRBC	140	680(780)	0.21					
257.1	NY side, Del. River	8/06	DRBC	6190	740	8.36					
257.1	NY side, Del. River	8/20	DRBC	>1000	420						
256.2	N. Port Jervis, NY	8/06	DRBC	2400	1080	2.22					
256.2	N. Port Jervis, NY	8/20	DRBC	>1000	360						
255.2	Matamoras Ac, PA	7/02	DRBC		1944		8.4	20.0	92	6.75	68
255.2	Matamoras Ac, PA	7/09	NPS	48	240	0.20		26.0		7.01	66
255.2	Matamoras Ac, PA	7/16	NPS	122				22.0		6.30	70
255.2	Matamoras Ac, PA	7/24	DRBC	64	676	0.09					
255.2	Matamoras Ac, PA	7/30	NPS	146	940	0.16	11.0	26.0	136	7.40	64
255.2	Matamoras Ac, PA	8/06	DRBC	10	1020	0.01					
255.2	Matamoras Ac, PA	8/14	NPS	22	312	0.07	12.0	25.0	145	6.56	60
255.2	Matamoras Ac, PA	8/20	DRBC	30	1640	0.02					
255.2	Matamoras Ac, PA	8/22	NPS				8.9	24.5	107	6.68	51
255.2	Matamoras Ac, PA	8/22	DRBC				8.7	24.5	104	6.75	61
255.2	Matamoras Ac, PA	9/16	DRBC	78	48	1.63	12.0	18.0	127	6.20	65
255.1	Pt Jervis beach, NY	7/02	DRBC		1004		8.2	19.5	89	6.75	60
255.1	Pt Jervis beach, NY	7/09	NPS	315	440	0.72		26.0		6.89	60
255.1	Pt Jervis beach, NY	7/16	NPS	300	130	2.31		22.0		6.15	58
255.1	Pt jervis beach, NY	7/24	DRBC	492 (576)	448	1.10					
255.1	Pt Jervis beach, NY	7/24	DRBC	212	1084	0.20					
255.1	Pt Jervis beach, NY	7/30	NPS	1640 R	390	4.21	10.0	27.0	126	6.60	60
255.1	Pt Jervis beach, NY	7/31	NPS	3320 R	470	7.06				6.24	
255.1	Pt Jervis beach, NY	8/06	DRBC	100	560	0.18					
255.1	Pt Jervis beach, NY	8/06	DRBC	890	220	4.05					
255.1	Pt Jervis beach, NY	8/14	NPS	4900	500	9.80	12.0	25.0	145	6.40	52
255.1	Pt Jervis beach, NY	8/20	DRBC	8240 (>1000) R	440	18.73					
255.1	Pt Jervis beach, NY	9/16	NPS	400	200	2.00	12.0	12.0	111	6.27	60
254.8	Pt Jervis Bridge PA	8/06	DRBC	0	760	0.00					
254.8	Pt Jervis Bridge, PA	8/20	DRBC	10	380	0.03					
254.7	Pt Jervis Bridge NY	8/06	DRBC	110	1520	0.07					
254.7	Pt Jervis Bridge, NY	8/20	DRBC	6720	580	11.59					
253.9	Port Jervis Cem., NY	5/28	NPS	104							

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R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
253.9	Port Jervis Cem., NY	6/05	NPS	64			10.0	25.0	121	6.45	62
253.9	Port Jervis Cem., NY	7/02	DRBC	520 (450)	1000	0.52		20.0		6.26	59
253.9	Port Jervis Cem., NY	7/02	DRBC	450							
253.9	Port Jervis Cem., NY	7/09	NPS	124	652	0.19	6.5	25.0	79	6.09	60
253.9	Port Jervis Cem., NY	7/16	NPS	136	284	0.48		21.5		6.25	59
253.9	Port Jervis Cem., NY	7/24	DRBC	392	1980	0.20	8.4	26.5	81	7.25	69
253.9	Port Jervis Cem., NY	7/30	NPS	340			11.0	26.0	136	7.50	60
253.9	Port Jervis Cem., NY	7/31	DRBC	1180	150	7.87				6.34	
253.9	Port Jervis Cem., NY	8/06	DRBC	190	1040	0.18					
253.9	Port Jervis Cem., NY	8/14	NPS	2560	1450	1.77	11.0	22.0	126	6.60	55
253.9	Port Jervis Cem., NY	8/20	DRBC	2600	600	4.33					
253.9	Port Jervis Cem., NY	9/16	NPS	340	650	0.52	12.0	20.0	136	6.32	55
253.8	Neversink above STP	8/06	DRBC	0	300	0.00					
253.8	Neversink below STP	8/06	DRBC	50	960	0.05					
253.8	Neversink above STP	8/20	DRBC	120	20	6.00					
253.7	Neversink River	5/28	NPS	150							
253.7	Neversink River	6/05	NPS	108			10.0	21.0	112	6.16	80
253.7	Neversink River	7/02	DRBC	3760 R	2560	1.47	7.3	20.0	80	6.05	70
253.7	Neversink River	7/09	NPS	170	140	1.21		25.0		5.94	80
253.7	Neversink River	7/16	NPS	324	284	1.14		21.0		5.86	70
253.7	Neversink River	7/24	DRBC	300	256	1.17	7.3	25.0	88	6.75	80
253.7	Neversink River	7/30	NPS	440 R			10.0	24.0	119	6.70	72
253.7	Neversink River	7/31	NPS	950 R	260	3.65				6.18	
253.7	Neversink River	8/06	DRBC	20							
253.7	Neversink River	8/14	NPS	60	450	0.13	9.0	22.0	103	6.06	70
253.7	Neversink below STP	8/20	DRBC	450	380(420)	1.18					
253.7	Neversink River	9/16	NPS	155	185	0.84	12.0	16.0	122	6.25	65
250.1	Cummings Creek	7/09	NPS	31	2056	0.02		18.0		6.60	40
250.1	Cummings Creek	7/16	NPS	25				16.0		5.96	30
250.1	Cummings Creek	7/30	NPS	208 R				18.0		6.55	35
250.1	Cummings Creek	8/14	NPS	14	372	0.04	12.0	18.0	127	6.24	35
250.1	Cummings Creek	9/16	NPS	5 (3)	444	0.01	13.0	14.0	126	6.20	40
247.3	Vandermark Creek	7/02	DRBC	1588 R	1416	1.12	9.6	23.0	112	6.75	40
247.3	Vandermark Creek	8/01	DRBC	2340 R			9.3	18.0	98		42
247.3	Vandermark Creek	8/26	NPS	70 (80)	100	0.70	9.6	17.5	100	6.75	45
247.0	Sawkill Creek	5/28	NPS	16							
247.0	Sawkill Creek	6/05	NPS	24			12.0	17.0	124	6.30	55
247.0	Sawkill Creek	6/19	NPS	32 (30,31)			10.0	18.0	106	6.34	49
247.0	Sawkill Creek	7/02	NPS		4130			17.0		6.19	45
247.0	Sawkill Creek	7/09	NPS	30	260	0.12	8.9	21.0	100	6.63	50

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R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
247.0	Sawkill Creek	7/16	NPS	136	224	0.61		21.0		5.91	40
247.0	Sawkill Creek	7/24	NPS	24	1948	0.01		24.0		7.14	59
247.0	Sawkill Creek	7/30	NPS	72			11.0	21.0	124	7.25	50
247.0	Sawkill Creek	7/31	NPS	640 R	590	1.08				6.47	
247.0	Sawkill Creek	8/14	NPS	35	1664	0.02	11.0	16.0	111	6.40	40
247.0	Sawkill Creek	9/16	NPS	4	850	0.00	13.0	13.0	123	6.42	40
246.9	N. of Milford, PA	6/02	NPS	20 (25)							
246.9	N. of Milford, PA	6/02	NPS	47							
246.8	Milford Ac, PA	5/19	NPS	110							
246.8	Milford Ac, PA	5/28	NPS	60							
246.8	Milford Ac, PA	6/05	NPS	28			10.0	21.0	112	6.49	62
246.8	Milford Ac, PA	6/18	NPS	94							
246.8	Milford Ac, PA	7/01	NPS	96							
246.8	Milford Ac, PA	7/02	NPS	180	420	0.43		20.0		5.74	55
246.8	Milford Ac, PA	7/08	NPS	156							
246.8	Milford Ac, PA	7/09	NPS	82	300	0.27		25.0		6.08	60
246.8	Milford Ac, PA	7/16	NPS	180	224	0.80		21.0		5.93	55
246.8	Milford Ac, PA	7/17	NPS	18							
246.8	Milford Ac, PA	7/21	NPS	36							
246.8	Milford Ac, PA	7/24	NPS	272			9.0	27.0	113	7.29	55
246.8	Milford Ac, PA	7/29	NPS	450							
246.8	Milford Ac, PA	7/30	NPS	298 R	940	0.32	10.0	25.0	121	6.66	60
246.8	Milford Ac, PA	7/31	NPS	660 R	300	2.20				6.35	
246.8	Milford Ac, PA	8/05	NPS	110							
246.8	Milford Ac, PA	8/14	NPS	635	1640	0.39	10.0	22.0	114	6.00	50
246.8	Milford Ac, PA	9/16	NPS	115	720	0.16	10.0	16.0	101	6.10	55
246.6	Shimers Creek	5/28	NPS	34							
246.6	Shimers Creek	6/05	NPS	80			11.0	24.0	131	7.82	261
246.6	Shimers Creek	6/19	NPS	16			11.0	21.0	123	7.37	175
246.6	Shimers Creek	7/02	NPS	380 R	14440	0.03		19.0		7.55	170
246.6	Shimers Creek	7/09	NPS	24	7300	0.00		23.0		7.53	210
246.6	Shimers Creek	7/16	NPS	304	7300	0.04		20.0		7.59	160
246.6	Shimers Creek	7/24	NPS	>1000			10.0	25.0	121	7.78	210
246.6	Shimers Creek	7/30	NPS	26	1550	0.02	10.0	22.5	115	8.00	212
246.6	Shimers Creek	7/31	NPS	250 (290) R	570(680)	0.44				7.82	
246.6	Shimers Creek	8/14	NPS	35	6050	0.01	11.0	20.0	121	7.60	150
246.6	Shimers Creek	9/16	NPS	16	3700	0.00	12.0	13.0	114	7.13	162
245.8	White Brook	7/09	NPS	110				17.0		7.73	320
245.8	White Brook	7/16	NPS	202				16.0		7.76	270
245.8	White Brook	7/24	NPS	264	664	0.40					

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245.8	White Brook	7/30	NPS	254			12.0	18.0	127	8.30	322
245.8	White Brook	7/31	NPS	1810 R	570	3.18				7.90	
245.8	White Brook	9/16	NPS	152	408	0.37	12.0	12.0	111	7.62	260
239.2	Dingmans Creek	5/28	NPS	8 (8)							
239.2	Dingmans Creek	6/05	NPS	4			13.0	21.0	146	6.45	40
239.2	Dingmans Creek	6/19	NPS	52			10.0	17.0	103	6.69	79
239.2	Dingmans Creek	9/16	NPS	104	1552	0.07	12.0	15.0	119	6.06	42
238.7	Dingmans Ac, PA	5/28	NPS	56							
238.7	Dingmans Ac, PA	6/05	NPS	14			12.0	22.0	137	6.85	63
238.7	Dingmans Ac, PA	6/19	NPS	92			9.0	19.0	97	6.42	49
238.7	Dingmans Ac, PA	6/30	DRBC	14			8.9	24.0	106	8.00	68
238.7	Dingmans Ac, PA	9/16	NPS	40	900	0.04	11.0	18.0	116	6.27	62
236.4	Hornbecks Creek	5/28	NPS	15							
236.4	Hornbecks Creek	6/11	NPS	32			12.0	21.0	135	6.72	50
236.4	Hornbecks Creek	7/08	DRBC	162			8.5	26.0	105	6.50	65
230.4	Toms Creek	5/28	NPS	25							
230.4	Toms Creek	6/11	NPS	2			13.0	20.0	143	6.83	40
230.4	Toms Creek	7/08	DRBC	18			8.9	19.0	96	6.75	50
228.3	Bushkill Ac, PA	5/28	NPS	58							
228.3	Bushkill Ac, PA	6/11	NPS	40			10.0	22.0	114	6.82	53
228.3	Bushkill Ac, PA	6/30	DRBC	10			8.5	23.5	100	7.00	65
226.9	Bushkill Creek	5/28	NPS	36							
226.9	Bushkill Creek	6/11	NPS	24			8.0	21.0	90	6.52	35
226.9	Bushkill Creek	7/08	DRBC	110			9.6	24.0	114	7.00	55
226.9	Bushkill Creek	7/17	DRBC	32			8.8	19.2	96	6.50	60
226.9	Bushkill Creek	8/01	DRBC	330 R			7.7	21.8	88	6.75	42
226.8	Little Bushkill Ck.	5/28	NPS	14							
226.8	Little Bushkill Ck.	6/11	NPS	20			8.0	21.0	90	6.18	28
226.6	Walpack Bend, PA	7/08	DRBC	52			7.6	26.0	94	7.00	90
226.6	Walpack Bend, PA	7/17	DRBC	44			8.0	21.0	90		65
226.6	Walpack Bend, PA	8/01	DRBC	1050 R			7.6	22.0	87	6.75	65
225.3	Flat Brook	6/19	NPS	80			9.0	20.0	99	7.84	122
225.3	Flat Brook	6/27	NPS				11.5	20.0	127	9.00	147
225.3	Flat Brook	7/03	DRBC	266 R			9.9	17.5	103	8.25	150
225.3	Flat Brook	7/21	DRBC	356			8.5	20.0	94		185
221.2	Depew Ac, NJ	7/03	DRBC	24 (50)			8.4	19.5	91		89
221.2	Depew Ac, NJ	7/21	DRBC	24 (28)			7.5	23.0	87	6.75	70
221.2	Depew Ac, NJ	8/13	DRBC	72			8.0	20.0	88		62
220.1	VanCampens Brook	6/19	NPS	23			9.0	18.0	95	7.00	60
220.1	VanCampens Brook	6/27	NPS				9.6	16.0	97	7.00	55

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R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
220.1	VanCampens Brook	7/03	DRBC	150			9.5	16.0	97	7.25	85
220.1	VanCampens Brook	7/21	DRBC	56			8.8	19.0	95		82
219.4	Poxono Ac, NJ	7/03	DRBC	32			9.1	23.0	106		90
219.4	Poxono Ac, NJ	7/21	DRBC	20			7.9	24.0	94	6.75	72
219.4	Poxono Ac, NJ	8/13	DRBC	68			8.0	21.0	90	6.75	69
217.9	Smithfield Ac, PA	5/28	NPS	68							
217.9	Smithfield Ac, PA	6/11	NPS	70			8.0	22.0	92	6.77	55
217.9	Smithfield Ac, PA	6/18	NPS	78							
217.9	Smithfield Ac, PA	6/30	DRBC	12			8.3	23.5	98		62
217.9	Smithfield Ac, PA	7/01	NPS	6							
217.9	Smithfield Ac, PA	7/08	NPS	14							
217.9	Smithfield Ac, PA	7/09	DRBC	96			7.5	26.0	92	7.00	85
217.9	Smithfield Ac, PA	7/17	DRBC	16			8.2	22.0	94		70
217.9	Smithfield Ac, PA	7/21	DRBC	28							
217.9	Smithfield Ac, PA	7/28	NPS	230 R							
217.9	Smithfield Ac, PA	7/31	DRBC	20	2950	0.01					
217.9	Smithfield Ac, PA	8/04	NPS	170							
217.9	Smithfield Ac, PA	8/12	DRBC	156			8.2	24.0	98		65
214.8	Worthington Ac, NJ	7/09	DRBC	2	86	0.02	7.3	26.0	90	7.00	84
214.8	Worthington Ac, NJ	7/15	DRBC	300 R	188	1.60	8.0	22.0	92	7.00	70
214.8	Worthington Ac, NJ	7/28	DRBC	56	76	0.74	7.8	26.5	97	6.75	82
214.8	Worthington Ac, NJ	8/13	DRBC	52	1240	0.04	7.9	21.0	89	6.75	65
214.6	N. Shawnee Is., PA	8/12	DRBC	52	410	0.13					
214.5	near Shawnee Is., PA	8/12	DRBC	40	40	1.00					
214.4	Shawnee Creek	6/11	NPS	410			10.0	23.5	118	7.53	102
214.4	Shawnee Creek	7/01	DRBC	196	374	0.52	9.0	19.0	97	8.50	180
214.4	Shawnee Creek	7/15	DRBC	244	732	0.33	8.6	21.0	97	8.00	185
214.4	Shawnee Creek	7/28	DRBC	07	1724		8.0	23.5	94	8.00	202
214.4	Shawnee Creek	7/31	DRBC	440 R	7650	0.06					
214.4	Shawnee Creek	8/13	DRBC	120	930	0.13	8.9	19.0	96	8.00	190
214.3	S. Shawnee Is., PA	8/12	DRBC	68	490	0.14					
214.3	S. Shawnee Is., PA	8/12	DRBC	60	410	0.15					
213.2	Price's landing, PA	8/12	DRBC	36 (28)	100	0.36					
213.1	Marshall's Creek	6/30	NPS	84	140	0.60	9.9	17.5	103	7.50	115
213.1	Marshall's Creek	7/15	DRBC	92	292	0.32	8.7	20.0	96	7.50	125
213.1	Marshall's Creek	7/28	DRBC	280 R	1216	0.23	9.0	23.0	105	7.50	138
213.1	Marshall's Creek	7/31	DRBC		38950						
213.1	Marshall's Creek	8/13	DRBC	72	730	0.10	9.5	17.5	99	7.00	100
213.1	Marshall's Creek	8/26	NPS	140	200	0.70	9.5	17.0	98	7.25	100
213.0	Brodhead Creek	5/28	NPS	80							

Notes: Locations described with a state (eg. PA) are Delaware River sampling sites.

R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
213.0	Brodhead Creek	6/11	NPS				11.0	22.0	126	7.36	82
213.0	Brodhead Creek	6/30	NPS	198	60	3.30	9.4	18.5	100	7.50	95
213.0	Brodhead Creek	7/15	DRBC	176 (950,990)	152	1.16	9.2	20.0	101	7.25	100
213.0	Brodhead Creek	7/28	DRBC	784 R	288(360)	2.72	8.4	23.0	98	7.25	100
213.0	Brodhead Creek	7/31	DRBC	?	36250						
213.0	Brodhead Creek	8/12	DRBC	884	210	4.21	9.7	19.0	105	7.50	95
213.0	Brodhead Creek	8/14	DRBC	2536	1580	1.61					
213.0	Brodhead Creek	8/14	DRBC	1336	1110	1.20					
213.0	Brodhead Creek	8/26	NPS	650	100	6.50	9.6	18.0	101	7.50	100
213.0	Brodhead Creek	8/26	NPS	640	60	10.67	9.5	18.5	101	7.00	110
212.6	Cherry Creek	5/28	NPS	9100							
212.6	Cherry Creek	6/30	DRBC	5740 (5700)	2500	2.30	9.2	18.0	97	8.25	195
212.6	Cherry Creek	7/15	DRBC	1740	570	3.05	8.7	18.0	92	7.50	205
212.6	Cherry Creek	7/28	DRBC	?	1800		7.8	21.0	88	8.00	210
212.6	Cherry Creek	7/31	DRBC	8000 R	49850	0.16					
212.6	Cherry Creek	8/13	DRBC	9600	1400	6.86	8.4	16.0	85	8.00	175
212.6	Cherry Creek	8/14	DRBC	1448 (1396)	410	3.53					
212.1	180 Bridge-PA	8/14	DRBC	828	940	0.88					
212.1	180 Bridge-NJ	8/14	DRBC	84	1010	0.08					
211.5	Kittatinny Ac, NJ	5/28	NPS	1870							
211.5	Kittatinny Ac, NJ	6/30	DRBC	308							
211.5	Kittatinny Ac, NJ	6/30	DRBC	134	48	2.79	8.1	22.2	96	7.00	60
211.5	Kittatinny Ac, NJ	7/08	NPS	260							
211.5	Kittatinny Ac, NJ	7/09	DRBC	76 (86)	60	1.27	7.6	26.0	94	7.00	85
211.5	Kittatinny Ac, NJ	7/15	DRBC	268	236	1.14	8.0	22.0	92	6.75	70
211.5	Kittatinny Ac, NJ	7/17	NPS	40							
211.5	Kittatinny Ac, NJ	7/21	NPS	48							
211.5	Kittatinny Ac, NJ	7/28	DRBC	0?	176		7.5	26.0	92	7.25	85
211.5	Kittatinny Ac, NJ	7/31	DRBC	1055 R	12550	0.08					
211.5	Kittatinny Ac, NJ	8/04	NPS	502 R							
211.5	Kittatinny Ac, NJ	8/13	DRBC	128	510	0.25	7.6	19.0	82	7.00	62
211.5	Kittatinny Ac, NJ	8/14	DRBC	88	680	0.13					
211.5	Kittatinny Ac, PA	8/14	DRBC	316	820	0.39					
211.4	Dunfield Creek	6/30	DRBC	628	492	1.28	10.0	15.0	99	6.50	40
211.4	Dunfield Creek	7/09	DRBC	6	670	0.01	9.2	27.0	116	6.50	35
211.4	Dunfield Creek	7/15	DRBC	68	276	0.25	9.6	16.5	98	6.75	30
211.4	Dunfield Creek	7/28	DRBC	108	624	0.17	8.8	19.7	96	6.75	65
211.4	Dunfield Creek	7/31	DRBC	3900 R	3300	1.18					
211.4	Dunfield Creek	8/13	DRBC	20 (20)	950	0.02	10.0	14.7	99	6.50	30
206.5	MetEd, Portland PA	8/07	DRBC	12 (8)	880	0.01	8.2	23.0	96		89

Notes: Locations described with a state (eg. PA) are Delaware River sampling sites.

R.M.	Location	Date	Agency	Coliform	Strep	FC/FS	D.O.	Temp.	% Sat.	Ph	Cond.
206.5	MetEd, Portland PA	8/19	DRBC	388 R	610	0.64	7.4	23.0	86	7.25	90
198.0	Belvidere, NJ	8/07	DRBC	24	1070	0.02	7.6	22.5	88	7.25	102
198.0	Belvidere, NJ	8/19	DRBC	24	470	0.05	8.3	24.0	99	7.00	95
194.0	nr. PP&L plant, PA	8/07	DRBC	8	400	0.02	6.2	24.0	74	8.25	320
191.0	nr. PP&L plant, PA	8/19	DRBC	336 (332) R	470	0.71	7.4	25.0	90	9.00	385
184.5	Eddyside, PA	8/07	DRBC		1130		7.3	24.0	87	7.00	120
184.5	Eddyside, PA	8/19	DRBC	2000 R	1310	1.53	7.5	24.0	89	7.50	135

APPENDIX B

1986 MACROINVERTEBRATE DATA

SUMMARY OF 1986 MACROINVERTEBRATE DATA

R.M.	Location	Date	#Taxa	SDI	equitability
325.0	Buckingham Acc. (PA)	14 Jul	14	1.9	0.35
321.6	Equinunk, PA	11 Aug	31	4.1	0.79
303.5	Callicoon (NY side)	7 Jul	28	3.5	0.57
303.2	Callicoon (PA side)	7 Jul	25	4.3	1.15
290.0	Narrowsburg (NY Acc.)	16 Jul	17	3.3	0.83
289.8	Narrowsburg (PA Acc.)	16 Jul	19	3.3	0.75
273.5	Barryville, NY	23 Jul	25	4.1	1.03
273.5	Shohola, PA	23 Jul	27	4.0	0.87
238.7	Dingmans Acc. (PA)	30 Jun	30	4.1	0.84
228.3	Bushkill Acc. (PA)	30 Jun	24	3.4	0.62
217.9	Smithfield Acc. (PA)	30 Jun	14	3.4	1.05
213(0.5)	Brodhead Creek (PA)	14 Aug	21	3.7	0.88
211.5	Kittatinny (NJ)	30 Jun	19	3.5	0.87

Notes:

- (a) The Species Diversity Index (SDI) and equitability number are calculated using the technique described in Weber (Biological Field and Laboratory Methods for Measuring the Quality of Surface Waters and Effluents, EPA 1973). SDI refers to a number calculated from data on the sample richness and the number of organisms per taxa. High SDI values (greater than 3) reflect balanced, healthy biological communities. Equitability refers to a number that is obtained from comparing the calculated SDI value with a theoretical ideal SDI value. It is generally considered more sensitive than the corresponding SDI value. Generally numbers greater than 0.8 reflect good water quality.
- (b) Data sheets showing the number of organisms per taxa for each sample are available upon request.

APPENDIX C

NOAA RAINFALL DATA COLLECTED FOR SELECTED LOCATIONS
DURING THE CONDUCT OF THE MONITORING PROGRAM

RAINFALL AT THREE LOCATIONS DURING THE MONITORING SEASON

(inches of rain for the 24-hour period preceding 8 a.m. on the date listed. Values <0.10 inches are not listed except when accompanied by values >0.10 at other locations)

Date		Equinunk, PA	Port Jervis, NY	Stroudsburg, PA
May	20	0.44	0.15	0.23
	21	1.26	0.13	0.56
	22	0.64	1.28	1.11
Jun	1	0.68	-	-
	6	0.83	1.83	0.37
	7	0.53	0.44	1.05
	8	-	0.02	0.31
	12	0.40	1.72	1.39
	13	0.47	0.06	0.39
	15	-	0.42	-
	17	0.31	0.33	-
	20	0.03	0.04	0.13
	28	0.20	0.01	-
July	2	0.66	1.20	0.97
	3	0.38	-	-
	9	0.31	0.06	0.20
	12	0.54	1.25	1.76
	13	0.40	1.98	0.09
	14	0.99	0.27	-
	16	-	-	0.13
	19	0.25	0.02	0.74
	26	0.02	0.19	0.56
	27	0.21	0.02	-
	28	-	-	1.68
	29	-	-	0.11
	30	0.25	0.53	-
	31	0.30	1.30	3.72
Aug	2	0.70	0.81	1.73
	3	0.49	-	0.43
	6	-	-	0.23
	7	0.19	-	0.01
	8	0.13	-	-
	9	0.25	-	-
	11	1.02	-	0.05
	16	0.19	-	-
	18	0.01	0.37	0.23
	19	0.05	-	0.29
	21	0.01	0.50	0.34
	22	0.12	-	0.52
	23	-	-	0.49
Sept	24	0.23	0.30	-
	5	0.03	0.10	0.59
	6	0.24	-	0.13
	16	0.11	-	0.05
	19	0.32	0.14	0.24
	21	0.04	0.47	0.02
	23	0.05	0.14	0.47
	24	0.19	-	0.23
	26	0.40	0.10	-
	27	1.13	0.40	0.28
	28	0.05	0.05	0.48
Oct	2	0.75	NA	NA