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# Physical, Chemical, and Biological Data for Selected Streams in Chester County, Pennsylvania, 1981-94

by Andrew G. Reif

Open-File Report 99-216

prepared in cooperation with the

**CHESTER COUNTY WATER RESOURCES AUTHORITY**

Lemoyne, Pennsylvania  
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**U.S. DEPARTMENT OF THE INTERIOR**

**BRUCE BABBITT, Secretary**

**U.S. GEOLOGICAL SURVEY**

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## CONVERSION FACTORS AND ABBREVIATED WATER-QUALITY UNITS

<u>Multiply</u>	<u>By</u>	<u>To obtain</u>
inch (in.)	2.54	centimeter
square mile (mi <sup>2</sup> )	2.590	square kilometer
cubic foot per second (ft <sup>3</sup> /s)	0.02832	cubic meter per second
degree Fahrenheit (°F)	°C=5/9 (°F-32)	degree Celsius

### Abbreviated water-quality units used in this report:

micrograms per kilogram (µg/kg)  
micrograms per liter (µg/L)  
microsiemens per centimeter (µS/cm)  
milligram per liter (mg/L)  
millimeter (mm)  
grams per kilogram (g/kg)

# **PHYSICAL, CHEMICAL, AND BIOLOGICAL DATA FOR SELECTED STREAMS IN CHESTER COUNTY, PENNSYLVANIA, 1981-94**

*By Andrew G. Reif*

## **ABSTRACT**

Physical, chemical, and biological data were collected at 51 sampling sites in Chester County, Pa., from 1970 through 1994 as part of the Stream Conditions of Chester County Program. This report presents data collected from 1981 through 1994. Physical data include water temperature, instantaneous stream discharge, pH, alkalinity, specific conductance, and dissolved oxygen. Chemical data include laboratory determinations of nutrients, major ions, and selected metals in whole water samples and selected metals, pesticides, gross polychlorinated biphenyls (PCB's), gross polychlorinated naphthalenes (PCN's), and total carbon in stream-bottom sediment samples. The biological data consists of benthic macroinvertebrate population analyses and diversity indices. Chester County is undergoing rapid urbanization as agricultural lands are converted to residential, commercial, and industrial areas. The purpose of the Stream Conditions of Chester County Program is to further the understanding of stream habitat and chemical changes in response to this urbanization.

## **INTRODUCTION**

Chester County, in the southeast corner of Pennsylvania near Philadelphia (fig. 1), is undergoing rapid urbanization as agricultural lands are converted to residential, commercial, and industrial areas. The Stream Conditions of Chester County Program was developed by the U.S. Geological Survey (USGS) and the Chester County Water Resources Authority (CCWRA) to evaluate stream-water quality and to further the understanding of stream changes in response to urbanization (Lium, 1977, p. 6). This report presents physical, chemical, and biological data collected at 51 sites from 1981 through 1994 as part of the Stream Conditions of Chester County Program (table 1). The physical, chemical, and biological data from the Stream Conditions of Chester County Program from 1969 through 1980 are presented in a report by Moore (1989).

The streams included in the Stream Conditions of Chester County Program drain nearly 95 percent of the county (fig. 1). Valley Creek, Pickering Creek, Stony Run, Pigeon Creek, and French Creek are tributaries to the Schuylkill River. Darby, Crum, Ridley, and Chester Creeks are tributaries to the Delaware River. Buck Run, Doe Run, Indian Run, and Valley Creek are tributaries to the Brandywine Creek. The Red Clay Creek, White Clay Creek, and the Brandywine Creek are tributaries to the Christina River, which is a tributary to the Delaware River. Big Elk Creek flows into the Chesapeake Bay. Octoraro Creek is a tributary to the Susquehanna River. All streams sampled originate within the boundaries of Chester County, except for the headwaters of the West Branch Brandywine, French, and Octoraro Creeks.

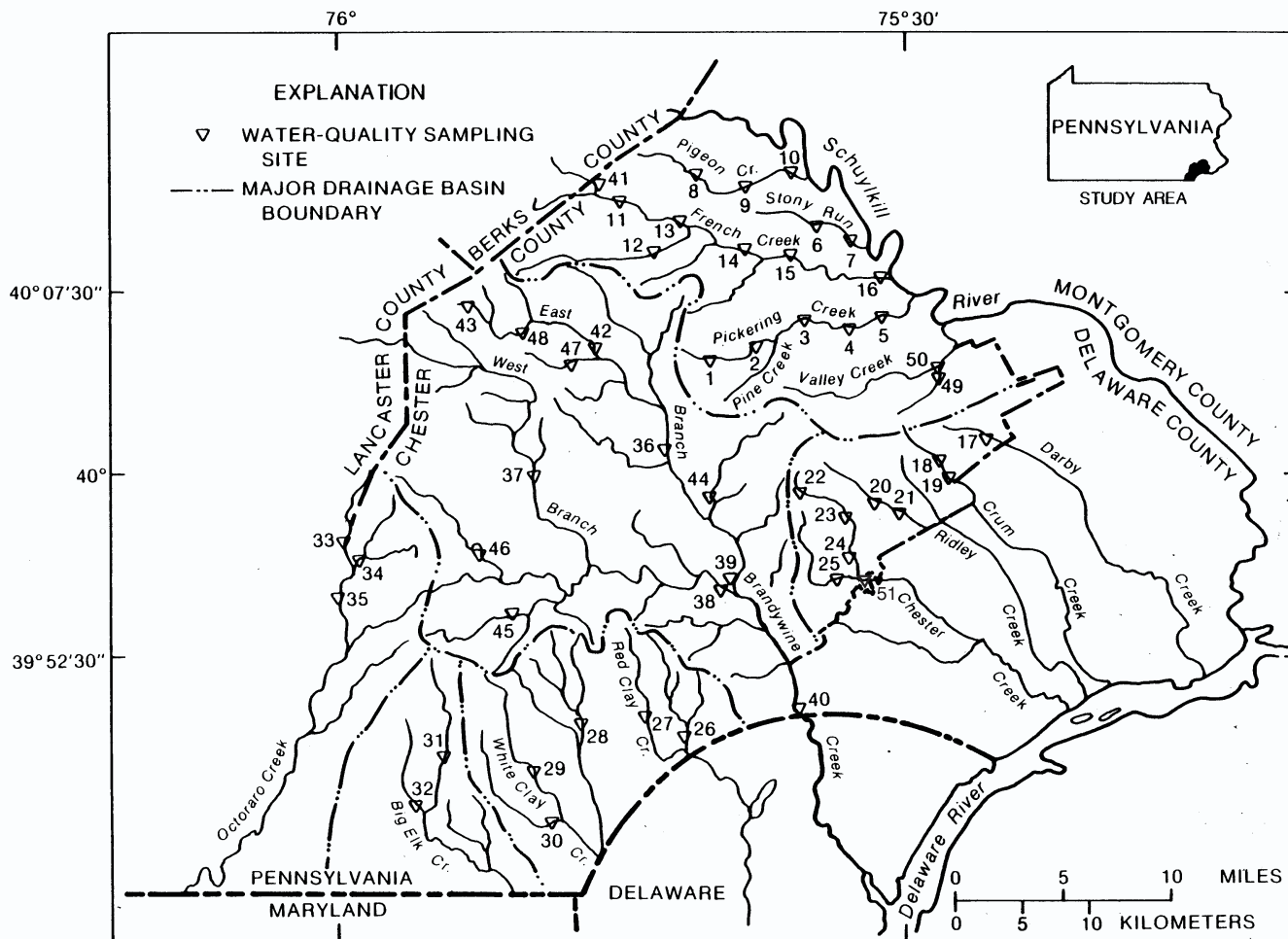


Figure 1. Location of sampling sites in Chester County, Pa.

**Table 1. Sampling sites, station numbers, names, drainage areas, and period of record**

[—, no data]

Station number	Site number	Name	Drainage area	Period of record		
				Biological	Chemical	Bottom sediment
01472054	8	Pigeon Creek near Bucktown	4.20	1970-82	1969-82	—
01472065	9	Pigeon Creek at Porters Mill	6.97	1970-82	1969-82	—
01472080	10	Pigeon Creek near Parker Ford	12.0	1970-94	1969-94	1985
01472109	6	Stony Run near Spring City	2.00	1970-94	1969-94	1985
01472110	7	Stony Run at Spring City	4.07	1970-82	1969-82	—
01472126	41	French Creek at Trythall	5.06	1982	1970-82	—
01472129	11	French Creek near Knauertown	11.7	1972-82	1969-82	—
01472138	13	French Creek near Coventryville	19.9	1970-94	1969-94	1986
01472140	12	South Branch French Creek at Coventryville	12.4	1970-94	1969-94	1985
01472154	14	French Creek near Pughtown	46.1	1970-94	1969-94	1985
01472157	15	French Creek near Phoenixville	59.1	1970-94	1969-94	1994
014721612	16	French Creek at Railroad Bridge at Phoenixville	70.7	1980-94	1970-94	1985, 1994
01472170	1	Pickering Creek near Eagle	3.09	1970-94	1969-94	1987
01472174	2	Pickering Creek near Chester Springs	5.98	1970-94	1969-94	1986
014721854	3	Pickering Creek at Merlin	21.2	1970-94	1969-94	1986
014721884	4	Pickering Creek at Charlestown Road at Charlestown	27.5	1972-94	1969-94	1985
01472190	5	Pickering Creek near Phoenixville	31.4	1970-94	1969-94	1986, 1994
01473167	49	Little Valley Creek at Howellville	6.45	1973-94	1970-94	1986, 87, 93
01473168	50	Valley Creek near Valley Forge	12.7	1973-94	1970-94	1985, 1993
01475300	17	Darby Creek at Waterloo Mills near Devon	5.15	1970-94	1969-94	—
01475830	18	Crum Creek near Paoli	6.16	1970-82	1969-82	—
01475840	19	Crum Creek at Whitehorse	10.1	1970-94	1969-94	1986
01476430	20	Ridley Creek at Goshenville	4.22	1970-94	1969-94	1985
01476435	21	Ridley Creek at Dutton Mill near West Chester	9.71	1970-94	1969-94	1986
01476790	22	East Branch Chester Creek at Green Hill	.63	1970-94	1969-94	1986
01476830	23	East Branch Chester Creek at Milltown	5.77	1970-94	1969-94	1986
01476835	24	East Branch Chester Creek at Westtown	10.4	1970-94	1969-94	1985, 1994
01476840	25	Goose Creek Tributary to East Branch Chester Creek near West Chester	4.28	1975-82 1988-94	1970-82 1988-94	1988, 1993
01476848	51	East Branch Chester Creek below Goose Creek near West Chester	19.2	1983-94	1970-94	1986, 1994
01478120	28	East Branch White Clay Creek near Avondale	11.3	1970-94	1970-94	1985, 1993
01478190	29	Middle Branch White Clay Creek near Wickerton	9.94	1970-94	1970-94	1986, 1993
01478220	30	West Branch White Clay Creek near Chesterville	9.92	1970-94	1970-94	1985, 1993
01479680	27	West Branch Red Clay Creek at Kennett Square	9.79	1970-94	1970-94	1983, 86, 93
01479800	26	East Branch Red Clay Creek near Five Point	10.2	1970-94	1970-94	1985, 1993
01480434	37	West Branch Brandywine Creek at Rock Run	37.3	1970-94	1970-94	—
01480629	46	Buck Run at Doe Run	22.6	1973-94	1971-94	1985
01480632	45	Doe Run at Springdell	11.8	1973-94	1971-94	1986
01480640	38	West Branch Brandywine Creek at Wawaset	134	1970-94	1970-94	1985, 1993
01480647	43	East Branch Brandywine Creek near Struble Dam	4.36	1973-82	1971-82	—
01480648	48	East Branch Brandywine Creek near Cupola	5.98	1973-94	1971-94	1986
01480653	42	East Branch Brandywine Creek at Glenmoore	16.5	1973-94	1971-94	1985
01480656	47	Indian Run near Springton	4.26	1974-94	1971-94	1986
01480700	36	East Branch Brandywine Creek near Downingtown	60.6	1970-94	1970-94	1985
01480903	44	Valley Creek at Mullsteins Meadows near Downingtown	16.1	1973-94	1971-94	1985
01480950	39	East Branch Brandywine Creek at Wawaset	123	1979-94	1970-94	1986, 1993
01481030	40	Brandywine Creek near Chadds Ford	291	1972-94	1970-94	1985
01494900	31	East Branch Big Elk Creek at Elkview	11.1	1970-94	1970-94	1986, 1994
01494950	32	West Branch Big Elk Creek near Oxford	10.0	1970-94	1970-94	1985, 1994
01578340	33	East Branch Octoraro Creek at Christiana	11.8	1970-94	1970-94	1994
01578343	34	Valley Creek at Atglen	10.5	1970-94	1970-94	1985
01578345	35	East Branch Octoraro Creek at Steelville	32.9	1970-82	1970-82	—

## **Study Objectives and History**

The major goal of the Stream Conditions of Chester County Program is to assess the water quality of streams in the county and to further the understanding of stream changes in response to urbanization. The physical, chemical, and biological data presented in this report were collected in support of this goal.

The investigation began in the fall of 1969 with a reconnaissance of the county to determine the general conditions of streams and land-use patterns. In 1970, the reconnaissance served as a guide to establish a chemical and biological water-quality network of 40 sites in 13 stream basins. The sites were established on the basis of equal cumulative square miles of drainage area within the basin (Lium, 1977). The sites were established away from any known source of pollution so that the water quality of the overall stream could be assessed. During 1970-72, samples were collected in the spring and fall. In 1971, 10 new stations were added to the chemical sampling program. In 1973, these 10 stations were added to the biological sampling program and sampling was reduced to once a year in the fall. In 1979, qualitative sampling was replaced by quantitative sampling at sites 16 and 39. In 1982, nine stations (sites 7, 8, 9, 11, 18, 25, 35, 41, and 43) were dropped from the network, and in 1983, one station (site 51) was added. In 1988, site 25 was reestablished, bringing the current number of active stations to 43.

## **Methods**

Biological samples consisted of benthic macroinvertebrates collected from a riffle area. During each visit, benthic macroinvertebrates were sampled by collecting 10 rocks (45-90 mm in diameter) at random (Lium, 1974). All invertebrates from the rocks were composited in a container and stored in 70 percent isopropyl alcohol for later identification. A complete description of the sampling technique is described in a report by Moore (1987, p. 7). Benthic-macroinvertebrate samples were analyzed at the U.S. Geological Survey office in Malvern, Pa. Benthic-macroinvertebrates were identified to the lowest taxonomic level possible. A voucher collection of identified organisms is located at the USGS, Water Resources Division, Malvern, Pa. A list of taxonomic references that the identifications were based on is given in table 2. Brillouin's diversity index, maximum diversity, minimum diversity, and evenness were calculated for each benthic macroinvertebrate sample (table 6). Mean and median Brillouin's diversity index along with the standard deviation and standard error of the mean were calculated for each site (table 7). Brillouin's diversity index can be calculated by the following formula:

$$H = (C/N) \log_{10}(N!/N_1!N_2!\dots N_s!) \quad (1)$$

where H is diversity,

C is 3.3219,

N is total number of individuals,

s is number of taxa, and

$N_i$  (i = 1, 2, ..., s) is number of individuals in the  $i^{\text{th}}$  taxa.



**Table 2.** List of taxonomic references used to identify macroinvertebrate samples

Taxonomic Group	Reference
Turbellaria	Pennak, 1989
Nematoda	Pennak, 1989
Nemertea	Pennak, 1989
Gastropoda	Harman and Berg, 1971
Bivalvia	Harman and Berg, 1971
Annelida	Pennak, 1989
Acariformes	Pennak, 1989
Crustacea	Pennak, 1989
Ephemeroptera	Edmunds and others, 1976
Odonata	Brigham, and others, 1982; Merritt and Cummins, 1996
Plecoptera	Brigham, and others, 1982; Merritt and Cummins, 1996
Megaloptera	Brigham, and others, 1982; Merritt and Cummins, 1996
Neuroptera	Brigham, and others, 1982; Merritt and Cummins, 1996
Trichoptera	Brigham, and others, 1982; Wiggins, 1996
Lepidoptera	Brigham, 1982; Merritt and Cummins, 1996
Coleoptera	Brown, 1976
Hymenoptera	Brigham, 1982; Merritt and Cummins, 1996
Diptera	Brigham, 1982; Merritt and Cummins, 1996

Brillouin's diversity index is based on the different kinds of organisms (taxa) present in a community and their relative abundance. In general, diversity is high if a community has many taxa and their abundance are evenly distributed; diversity is low if the taxa are few and their abundance are unevenly distributed (Moore, 1987). Brillouin's diversity can range from zero to infinity but usually is below 5.0. Brillouin's diversity values below 1.0 are associated with waters receiving heavy levels of organic wastes. Brillouin's diversity values between 1.0 and 3.0 are associated with waters receiving moderate levels of organic wastes, and Brillouin's diversity values between 3.0 and 5.0 are associated with waters receiving little or no organic wastes (Wilhm and Dorris, 1968; Wilhm, 1970). Brillouin's diversity measures the effect of community stress and not pollution directly. Community stress may be the result of many factors, including organic or toxic pollution, physical stress, or lack of habitat. Other information can be obtained from the number of taxa present in a community and their relative abundance. The maximum diversity ( $H_{max}$ ) exists when all individuals are distributed as evenly as possible among the taxa. The minimum diversity ( $H_{min}$ ) exists when all individuals are distributed as unevenly as possible among the taxa. Evenness ( $e$ ) describes the observed degree of uniformity of the distribution of individuals among the taxa in the collection. Evenness values between 0.5 and 1.0 generally indicate a balanced community (Moore, 1987). The maximum diversity ( $H_{max}$ ), minimum diversity ( $H_{min}$ ), and evenness ( $e$ ) can be calculated by use of the following formulas:

$$H_{max} = C/N \{ \log_{10}(N!) - s (\log_{10} [(N/s)!]) \}$$

$$H_{min} = C/N \left( \log_{10} (N!) - \log_{10} \{ [N - (s - 1)] ! \} \right)$$

$$e = H - H_{min} / H_{max} - H_{min}$$

Surface-water samples for chemical analysis were collected in conjunction with the biological samples by use of techniques described by Brown and others (1970, p. 5). Chemical samples collected from 1981 through 1984 were analyzed at the USGS National Water Quality Laboratory in Atlanta, Ga. Surface-water samples collected from 1985 through 1994 were analyzed at the USGS National Water Quality Laboratory in Arvada, Colo. Whole water samples were analyzed for nutrients, major ions, and selected metals. Selected metals analyzed and reported from whole water samples are arsenic, barium, beryllium, cadmium, chromium, cobalt, iron, copper, lead, lithium, manganese, mercury, nickel, silver, strontium, vanadium, and zinc.

Stream-bottom sediment samples were collected from 1985 through 1987 and from 1993 through 1994. Samples were collected by hand from the top 6 to 12 in. of sediment with a polyethylene scoop and sieved through a 2-mm polyethylene sieve to remove gravel. The sediment was washed through the sieve with native water and collected in a polyethylene collection basin. The samples were homogenized and then transferred to clean glass or polyethylene containers and placed on ice for shipment to the USGS National Water Quality Laboratory. Stream-bottom sediment samples were analyzed for selected metals, pesticides, gross polychlorinated biphenyls (PCB's), gross polychlorinated naphthalenes (PCN's), and total carbon. Selected metals analyzed and reported from stream-bottom sediment samples are arsenic, cadmium, chromium, iron, copper, lead, manganese, mercury, and zinc.

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**Table 3.** *Water-quality data from surface-water sites*

μS/CM, microsiemens per centimeter at 25 degrees Celsius

DEG C, degrees Celsius

NTU, nephelometric turbidity units

MG/L, milligrams per liter

AC-FT, acre foot

μG/L, micrograms per liter

ND, compound not detected

<, less than

—, no data

**Table 3. Water-quality data from surface-water sites**

01472054 - Pigeon Creek near Bucktown, Pa. (Site 8)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CONDUCTANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS, TOTAL (MG/L) (00900)	CALCIUM, DIS-SOLVED (MG/L) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L) (00925)	SODIUM, DIS-SOLVED (MG/L) (00930)	
OCT 1981	21...	1645	—	126	7.6	10.5	10.4	41	11	3.3	6.9
OCT 1982	29...	1030	1.5	120	7.4	7.5	9.6	41	11	3.3	5.8
DATE	SODIUM PERCENT (00932)	SODIUM TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L) AS K) (00935)	ALKA-LINITY, WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	SULFATE, DIS-SOLVED (MG/L) AS SO <sub>4</sub> ) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L) AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L) AS F) (00950)	SILICA, DIS-SOLVED (MG/L) AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	
OCT 1981	21...	26	0.5	1.2	—	22	5.3	<0.10	14	81	—
OCT 1982	29...	23	.4	.80	26	17	4.8	<.10	14	74	75
DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L) AS N) (00620)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L) AS N) (00613)	NITRO-GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L) AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L) AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L) AS NH <sub>4</sub> ) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L) AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L) AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	
OCT 1981	21...	0.11	—	0.620	<0.010	0.680	0.150	0.19	0.33	0.44	0.46
OCT 1982	29...	.10	0.30	.580	<.010	.580	<.010	.01	—	—	—
DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L) AS N) (00623)	NITRO-GEN, TOTAL (MG/L) AS N) (00600)	NITRO-GEN, DIS-SOLVED (MG/L) AS N) (00602)	PHOS-PHORUS, TOTAL (MG/L) AS P) (00665)	PHOS-PHORUS, TOTAL (MG/L) AS PO <sub>4</sub> ) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L) AS P) (00666)	PHOS-ORTH, DIS-SOLVED (MG/L) AS P) (00671)	PHOS-ORTH, DIS-SOLVED (MG/L) AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS-SOLVED (µG/L) AS AS) (01000)	CADMIUM, DIS-SOLVED (µG/L) AS CD) (01025)	
OCT 1981	21...	0.59	1.1	1.3	0.080	0.25	0.030	0.030	0.09	1	4.0
OCT 1982	29...	.60	—	1.2	—	—	.020	.020	.06	1	<1.0
DATE	CHRO-MIUM, DIS-SOLVED (µG/L) AS CR) (01030)	COBALT, DIS-SOLVED (µG/L) AS CO) (01035)	COPPER, DIS-SOLVED (µG/L) AS CU) (01040)	IRON, DIS-SOLVED (µG/L) AS FE) (01046)	LEAD, DIS-SOLVED (µG/L) AS PB) (01049)	MANGA-NESE, DIS-SOLVED (µG/L) AS MN) (01056)	MERCURY, DIS-SOLVED (µG/L) AS HG) (71890)	NICKEL, DIS-SOLVED (µG/L) AS NI) (01065)	ZINC, DIS-SOLVED (µG/L) AS ZN) (01090)	METHY-LENE BLUE SUB-STANCE (MG/L) (38260)	
OCT 1981	21...	<1	<1	1	86	<1	34	0.1	1	4	—
OCT 1982	29...	<1	1	2	86	<1	32	<.1	1	<4	0.02

Table 3. Water-quality data from surface-water sites—Continued

01472065 - Pigeon Creek at Porters Mill, Pa. (Site 9)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS, TOTAL AS (MG/L) (00900)	CALCIUM DIS-SOLVED (MG/L) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L) (00925)	SODIUM, DIS-SOLVED (MG/L) (00930)	
OCT 1981	20...	1530	—	138	7.8	8.5	12.1	48	13	3.8	7.2
OCT 1982	29...	1300	2.4	123	7.4	8.5	11.5	45	12	3.7	6.2
DATE	SODIUM PERCENT (00932)	SODIUM TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L) (00935)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L) (00410)	SULFATE, SOLVED (MG/L) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L) (00950)	SILICA, DIS-SOLVED (MG/L) (00955)	SOLIDS, RESIDUE AT 180 DEG.C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	
OCT 1981	20...	24	0.5	1.5	—	17	6.2	<0.10	17	85	—
OCT 1982	29...	22	.4	1.2	30	17	6.0	<.10	16	86	85
DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L) (00620)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L) (00613)	NITRO-GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L) (00625)	
OCT 1981	20...	0.12	—	1.00	<0.010	0.980	0.100	0.13	0.19	0.71	0.25
OCT 1982	29...	.12	0.57	1.10	<.010	1.10	.010	.01	—	.69	—
DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L) (00623)	NITRO-GEN, TOTAL (MG/L) (00600)	NITRO-GEN, DIS-SOLVED (MG/L) (00602)	PHOS-PHORUS, TOTAL (MG/L) (00665)	PHOS-PHORUS, TOTAL (MG/L) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L) (00660)	ARSENIC, DIS-SOLVED (µG/L) (01000)	CADMIUM, DIS-SOLVED (µG/L) (01025)	
OCT 1981	20...	0.81	1.2	1.8	0.040	0.12	0.020	0.020	0.06	2	<1.0
OCT 1982	29...	.70	—	1.8	—	—	.020	.020	.06	1	<1.0
DATE	CHRO-MIUM, DIS-SOLVED (µG/L) (01030)	COBALT, DIS-SOLVED (µG/L) (01035)	COPPER, DIS-SOLVED (µG/L) (01040)	IRON, DIS-SOLVED (µG/L) (01046)	LEAD, DIS-SOLVED (µG/L) (01049)	MANGA-NESE, DIS-SOLVED (µG/L) (01056)	MERCURY, DIS-SOLVED (µG/L) (71890)	NICKEL, DIS-SOLVED (µG/L) (01065)	ZINC, DIS-SOLVED (µG/L) (01090)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L) (38260)	
OCT 1981	20...	<1	<1	3	64	1	15	0.1	1	<4	—
OCT 1982	29...	<1	1	2	35	<1	9	<.1	<1	<4	0.02

**Table 3. Water-quality data from surface-water sites—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	20...	1400	—	162	7.9	7.5	—	11.8	54	—	14	4.7
OCT 1982	29...	1430	25	140	7.5	9.0	—	11.1	53	—	14	4.3
OCT 1983	21...	1400	25	159	6.7	10.0	<1.0	9.9	61	—	16	5.2
OCT 1984	22...	1500	16	141	7.4	16.0	.70	8.0	53	—	14	4.5
OCT 1985	11...	1500	6.6	165	7.4	11.5	1.0	9.9	55	—	14	4.8
OCT 1986	10...	1430	3.4	160	7.7	12.5	.90	9.5	58	—	15	4.9
NOV 1987	13...	1330	29	167	7.2	9.5	1.3	12.0	59	—	15	5.2
NOV 1988	09...	1330	5.4	172	7.5	10.5	1.7	12.2	63	—	16	5.5
OCT 1989	11...	1430	10	167	7.7	12.5	.50	11.8	55	23	14	4.9
OCT 1990	04...	0815	3.9	170	6.1	14.0	1.5	9.9	55	15	14	4.9
OCT 1991	08...	0830	3.6	171	7.2	10.0	1.2	10.8	58	32	15	5.0
OCT 1992	13...	0920	5.5	182	6.8	12.0	1.2	9.9	58	—	15	5.1
OCT 1993	08...	1140	4.2	186	7.4	13.5	—	10.0	—	—	—	—
OCT 1994	31...	0945	4.3	185	7.4	9.5	—	10.7	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 20...	8.4	24	0.5	2.1	—	—	19	8.7	<0.10	18	101
OCT 1982 29...	6.8	21	.4	1.5	32	—	18	6.9	<.10	17	103
OCT 1983 21...	8.8	23	.5	1.8	38	—	22	8.1	—	17	112
OCT 1984 22...	6.8	21	.4	1.7	36	—	18	7.6	—	15	91
OCT 1985 11...	7.6	23	.4	1.7	40	—	22	8.8	—	17	101
OCT 1986 10...	7.8	22	.4	1.8	44	—	23	8.2	—	18	114
NOV 1987 13...	8.7	23	.5	2.5	37	—	22	15	—	15	126
NOV 1988 09...	8.3	22	.5	1.8	54	—	24	9.3	—	16	—
OCT 1989 11...	8.5	24	.5	1.8	32	—	18	9.1	—	17	—
OCT 1990 04...	8.0	23	.5	1.5	40	—	18	9.8	<.10	18	—
OCT 1991 08...	7.7	22	.4	1.8	26	—	17	9.9	.10	17	—
OCT 1992 13...	8.4	23	.5	2.3	—	29	21	11	<.10	16	—
OCT 1993 08...	—	—	—	—	—	39	—	—	—	—	—
OCT 1994 31...	—	—	—	—	—	58	—	11	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 20...	—	0.14	—	1.40	—	—	<0.010	1.50	0.010	0.01	0.45
OCT 1982 29...	95	.14	6.95	1.70	—	—	<.010	1.70	.010	.01	—
OCT 1983 21...	109	.15	7.56	1.56	1.56	6.9	.040	1.60	<.010	—	—
OCT 1984 22...	97	.12	3.93	1.56	1.56	6.9	.040	1.60	.060	.08	—
OCT 1985 11...	109	.14	1.80	2.10	—	—	<.010	2.10	.010	.01	—
OCT 1986 10...	112	.16	1.03	1.60	—	—	<.010	1.60	<.010	—	.40
NOV 1987 13...	116	.17	9.87	2.20	—	—	<.010	2.20	<.010	—	.50
NOV 1988 09...	122	.17	1.78	2.00	—	—	<.010	2.00	.020	.03	.28
OCT 1989 11...	105	.14	2.84	2.79	2.79	12	.010	2.80	.010	.01	.39
OCT 1990 04...	109	.15	1.15	2.40	—	—	<.010	2.40	.020	.03	.28
OCT 1991 08...	98	.13	.96	2.00	—	—	<.010	2.00	<.010	—	—
OCT 1992 13...	105	.14	1.56	1.90	—	—	<.010	1.90	.030	.04	.27
OCT 1993 08...	—	—	—	2.30	—	—	<.010	2.30	.020	.03	—
OCT 1994 31...	—	—	—	1.90	—	—	<.010	1.90	.020	.03	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00602)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981											
20...	0.38	0.50	0.39	1.9	1.9	0.050	0.15	0.040	0.040	0.12	1
OCT 1982											
29...	.69	—	.70	—	2.4	—	—	.040	.030	.09	1
OCT 1983											
21...	—	—	.40	—	2.0	.060	.18	.050	.050	.15	—
OCT 1984											
22...	.64	—	.70	—	2.3	.030	—	.060	.070	.21	—
OCT 1985											
11...	.59	—	.60	—	2.7	.050	.15	.040	.020	.06	—
OCT 1986											
10...	—	.40	.30	2.0	1.9	.060	—	.050	.030	.09	—
NOV 1987											
13...	—	.50	<.20	2.7	—	.080	—	.050	.030	.09	—
NOV 1988											
09...	.28	.30	.30	2.3	2.3	.050	—	.040	.030	.09	—
OCT 1989											
11...	.39	.40	.40	3.2	3.2	.050	—	.030	.030	.09	—
OCT 1990											
04...	.28	.30	.30	2.7	2.7	.050	—	<.040	.030	.09	—
OCT 1991											
08...	—	<.20	.10	—	2.1	.060	—	.040	.040	.12	—
OCT 1992											
13...	.27	.30	.30	2.2	2.2	.090	—	.080	.070	.21	—
OCT 1993											
08...	—	—	—	—	—	—	—	—	.050	.15	—
OCT 1994											
31...	—	—	—	—	—	—	—	—	.030	.09	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 20...	<1.0	<1	<1	4	83	1	18	<0.1	3	6	—
OCT 1982 29...	<1.0	<1	<1	<1	40	<1	9	<.1	1	<4	0.02
OCT 1983 21...	—	—	—	—	87	—	20	—	—	—	—
OCT 1984 22...	—	—	—	—	51	—	12	—	—	—	—
OCT 1985 11...	—	—	—	—	43	—	15	—	—	—	—
OCT 1986 10...	—	—	—	—	64	—	19	—	—	—	—
NOV 1987 13...	—	—	—	—	85	—	47	—	—	—	—
NOV 1988 09...	—	—	—	—	56	—	17	—	—	—	—
OCT 1989 11...	—	—	—	—	53	—	26	—	—	—	—
OCT 1990 04...	—	—	—	—	36	—	16	—	—	—	—
OCT 1991 08...	—	—	—	—	51	—	17	—	—	—	—
OCT 1992 13...	—	—	—	—	68	—	23	—	—	—	—
OCT 1993 08...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 31...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472109 Stony Run near Spring City, Pa. (Site 6)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE, WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)
OCT 1981										
20...	1115	—	270	7.3	6.3	—	12.2	90	—	23
OCT 1982										
19...	1130	0.45	259	7.1	8.5	—	10.5	87	—	22
OCT 1983										
20...	1430	.33	150	7.2	12.2	2.2	9.7	97	—	25
OCT 1984										
11...	1145	.53	—	7.6	14.0	1.0	9.9	82	—	21
OCT 1985										
11...	1230	.75	250	7.6	12.8	1.7	11.8	85	—	21
OCT 1986										
10...	0900	.27	300	7.5	10.8	1.0	9.2	97	—	25
NOV 1987										
13...	0930	2.2	238	7.1	6.0	2.5	12.2	82	—	20
NOV 1988										
09...	0930	.41	315	7.4	10.0	1.3	12.1	95	—	24
OCT 1989										
11...	1000	2.3	248	7.5	12.5	.70	10.9	77	33	19
OCT 1990										
04...	1145	.67	242	6.8	15.0	3.0	9.9	78	12	20
OCT 1991										
08...	1045	.17	247	7.1	10.0	3.3	9.8	85	37	22
OCT 1992										
08...	1145	.25	259	7.0	10.0	3.2	11.3	89	—	23
OCT 1993										
08...	0900	.38	250	7.1	11.5	—	9.0	—	—	—
NOV 1994										
01...	0945	.65	265	7.3	13.5	—	7.8	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472109 Stony Run near Spring City, Pa. (Site 6)—Continued

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932) (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD MG/L AS CACO <sub>3</sub> (00410)	ANC WATER UNFLTRD IT FIELD MG/L AS CACO <sub>3</sub> (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981											
20...	7.8	22	33	1	4.9	—	27	32	<0.10	18	178
OCT 1982											
19...	7.7	15	27	.8	2.4	47	25	22	<.10	19	274
OCT 1983											
20...	8.3	15	23	.7	8.9	56	37	27	—	17	203
OCT 1984											
09...	7.1	14	26	.7	3.2	48	24	19	—	17	145
OCT 1985											
11...	7.8	13	24	.6	4.0	54	26	22	—	17	156
OCT 1986											
10...	8.4	21	31	.9	4.5	72	22	35	—	20	244
NOV 1987											
13...	7.8	13	24	.6	5.0	44	26	24	—	15	175
NOV 1988											
09...	8.6	22	32	1	4.7	62	25	34	—	17	—
OCT 1989											
11...	7.2	12	24	.6	3.0	44	24	20	—	15	—
OCT 1990											
04...	6.9	12	24	.6	2.3	66	21	18	<.10	17	—
OCT 1991											
08...	7.4	11	21	.5	3.4	48	22	18	<.10	18	—
OCT 1992											
08...	7.6	12	22	.6	3.0	—	40	22	<.10	18	—
OCT 1993											
08...	—	—	—	—	—	—	54	—	—	—	—
NOV 1994											
01...	—	—	—	—	—	—	54	—	19	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472109 Stony Run near Spring City, Pa. (Site 6)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS-SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS-SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981											
20...	—	0.24	—	3.40	—	—	<0.010	3.10	0.070	0.09	0.88
OCT 1982											
19...	163	.37	0.33	—	4.90	22	.010	4.90	.010	.01	—
OCT 1983											
20...	186	.28	.18	—	3.00	13	.050	3.00	.090	.12	—
OCT 1984											
09...	155	.20	.21	—	4.55	20	.050	4.60	.070	.09	—
OCT 1985											
11...	161	.21	.32	—	3.87	17	.030	3.90	.020	.03	.78
OCT 1986											
10...	190	.33	.18	—	2.38	11	.020	2.40	<.010	—	—
NOV 1987											
13...	157	.24	1.04	—	4.39	19	.010	4.40	.130	.17	.87
NOV 1988											
09...	188	.26	.21	—	3.37	15	.030	3.40	.040	.05	.36
OCT 1989											
11...	150	.20	.93	—	5.27	23	.030	5.30	.020	.03	.48
OCT 1990											
04...	156	.21	.28	—	4.29	19	.010	4.30	.020	.03	.38
OCT 1991											
08...	146	.20	.07	—	—	—	<.010	3.40	<.010	—	—
OCT 1992											
08...	151	.20	.10	—	3.99	18	.010	4.00	.050	.06	.45
OCT 1993											
08...	—	—	—	—	3.98	18	.020	4.00	.040	.05	—
NOV 1994											
01...	—	—	—	—	3.68	16	.020	3.70	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472109 Stony Run near Spring City, Pa. (Site 6)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 20...	0.90	0.94	0.97	4.3	4.1	0.500	1.5	0.260	0.230	0.71	1
OCT 1982 19...	1.7	—	1.7	—	6.6	—	—	.060	.050	.15	1
OCT 1983 20...	1.2	—	1.3	—	4.3	.270	.83	.220	.210	.64	—
OCT 1984 09...	.33	—	.40	—	5.0	.140	—	.100	.100	.31	—
OCT 1985 11...	.58	.80	.60	4.7	4.5	.160	.49	.130	.110	.34	—
OCT 1986 10...	—	.50	.40	2.9	2.8	.160	—	.120	.110	.34	—
NOV 1987 13...	.47	1.0	.60	5.4	5.0	.180	—	.140	.080	.25	—
NOV 1988 09...	.56	.40	.60	3.8	4.0	.290	—	.240	.220	.67	—
OCT 1989 11...	.58	.50	.60	5.8	5.9	.090	—	.060	.060	.18	—
OCT 1990 04...	.48	.40	.50	4.7	4.8	.050	—	<.060	.050	.15	—
OCT 1991 08...	—	.20	.30	3.6	3.7	.100	—	.050	.060	.18	—
OCT 1992 08...	.35	.50	.40	4.5	4.4	.100	—	.070	.070	.21	—
OCT 1993 08...	—	—	—	—	—	—	—	—	.080	.25	—
NOV 1994 01...	—	—	—	—	—	—	—	—	.050	.15	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472109 Stony Run near Spring City, Pa. (Site 6)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 20...	<1.0	<1.0	<1.0	3.0	150	1.0	57	<0.1	6.0	6.0	—
OCT 1982 19...	<1.0	<1.0	1.0	3.0	12	<1.0	17	.1	<1.0	7.0	0.05
OCT 1983 20...	—	—	—	—	89	—	54	—	—	—	—
OCT 1984 09...	—	—	—	—	35	—	44	—	—	—	—
OCT 1985 11...	—	—	—	—	44	—	70	—	—	—	—
OCT 1986 10...	—	—	—	—	62	—	57	—	—	—	—
NOV 1987 13...	—	—	—	—	130	—	110	—	—	—	—
NOV 1988 09...	—	—	—	—	83	—	75	—	—	—	—
OCT 1989 11...	—	—	—	—	42	—	32	—	—	—	—
OCT 1990 04...	—	—	—	—	17	—	47	—	—	—	—
OCT 1991 08...	—	—	—	—	33	—	28	—	—	—	—
OCT 1992 08...	—	—	—	—	23	—	31	—	—	—	—
OCT 1993 08...	—	—	—	—	—	—	—	—	—	—	—
NOV 1994 01...	—	—	—	—	—	—	—	—	—	—	—



Table 3. Water-quality data from surface-water sites—Continued

01472110 Stony Run at Spring City, Pa. (Site 7)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS, TOTAL (MG/L CACO <sub>3</sub> ) (00900)	CALCIUM, DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	
OCT 1981 20...	0915	—	260	7.0	5.0	8.1	86	22	7.6	17	29	
OCT 1982 19...	0955	0.75	242	6.5	7.0	8.5	83	21	7.3	13	25	
DATE	TIME	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	SULFATE, DIS-SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
OCT 1981 20...	0.8	4.9	—	30	23	<0.10	14	159	—	0.22	—	
OCT 1982 19...	.6	2.2	46	24	18	<.10	17	156	152	.21	.32	
DATE	TIME	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	
OCT 1981 20...	3.31	3.61	16	0.090	3.70	0.430	0.55	0.53	0.87	0.75		
OCT 1982 19...	4.72	4.72	21	.080	4.80	.130	.17	—	2.2	—		
DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00623)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00600)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00602)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	
OCT 1981 20...	1.3	4.1	5.0	0.210	0.64	0.190	0.170	0.52	1	3.0		
OCT 1982 19...	2.3	—	7.1	—	—	.150	.150	.46	1	<1.0		
DATE	TIME	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MERCURY, DIS-SOLVED (µG/L AS HG) (71890)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L) (38260)	
OCT 1981 20...	<1	1	4	39	1	10	<0.1	1	<4	0.10		
OCT 1982 19...	<1	1	3	17	<1	17	—	<1	5	.05		

Table 3. Water-quality data from surface-water sites—Continued

01472126 - French Creek at Trythall, Pa. (Site 41)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS TOTAL (MG/L CaCO <sub>3</sub> ) (00900)	CALCIUM, DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT 1981 22...	1045	—	75	7.0	9.0	10.1	26	6.9	2.1	4.0
OCT 1982 26...	1130	4.2	75	6.4	9.0	9.9	27	7.1	2.2	3.3
DATE	SODIUM PERCENT (00932)	SODIUM TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	SULFATE, DIS-SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 1981 22...	24	0.3	1.0	—	6.2	2.7	<0.10	6.6	43	—
OCT 1982 26...	20	.3	1.2	20	10	4.1	<.10	10	60	51
DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 1981 22...	0.06	—	0.080	<0.010	0.090	0.080	0.10	0.22	0.62	0.25
OCT 1982 26...	.08	.68	.130	<.010	.130	.030	.04	—	.77	—
DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, DIS-SOLVED TOTAL (MG/L AS N) (00600)	NITRO-GEN, DIS-SOLVED TOTAL (MG/L AS N) (00602)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED TOTAL (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)
OCT 1981 22...	0.70	0.33	0.79	<0.010	0.010	0.020	0.06	1	1.0	<1
OCT 1982 26...	.80	—	.93	—	.020	.010	.03	<1	<1.0	<1
DATE	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MERCURY, DIS-SOLVED (µG/L AS HG) (71890)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L) (38260)	
OCT 1981 22...	<1	3	130	1	52	<0.1	1	7	—	
OCT 1982 26...	<1	2	320	1	55	<.1	1	7	0.02	

Table 3. Water-quality data from surface-water sites—Continued

01472129 - French Creek near Knauertown, Pa. (Site 11)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CON-DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	CALCIUM, DIS- SOLVED (MG/L AS Ca) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg) (00925)	SODIUM, DIS- SOLVED (MG/L AS Na) (00930)
OCT 1981 22...	0900	—	92	6.6	8.0	9.1	32	8.5	2.5	3.4
OCT 1982 26...	1400	18	99	6.8	9.5	10.3	34	8.7	3.1	3.6
DATE	SODIUM PERCENT (00932)	POTAS- SIUM, AD- SORP- TION RATIO (00931)	SOLVED AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	SULFATE, DIS- SOLVED AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED AS CL) (00940)	FLUO- RIDE, DIS- SOLVED AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)
OCT 1981 22...	18	0.3	1.3	—	7.7	3.8	<0.10	9.1	56	0.08
OCT 1982 26...	—	.3	<.10	18	14	7.5	<.10	11	76	.10
DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, DIS- NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 1981 22...	—	0.160	<0.010	0.180	0.020	0.03	0.68	0.11	0.73	0.13
OCT 1982 26...	3.69	.410	<.010	.410	.020	.03	—	.48	—	.50
DATE	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00600)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
OCT 1981 22...	0.89	0.31	0.030	0.09	<0.010	<0.010	—	1	<1.0	<1
OCT 1982 26...	—	.91	—	—	.040	.020	0.06	1	<1.0	<1
DATE	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)	
OCT 1981 22...	<1	3	160	1	51	<0.1	2	6	—	
OCT 1982 26...	<1	2	350	<1	52	<.1	1	10	0.03	

**Table 3. Water-quality data from surface-water sites—Continued**

01472138 - French Creek near Coventryville, Pa. (Site 13)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
21...	1345	—	154	7.8	7.5	—	10.2	58	—	15	5.0
NOV 1982											
04...	1015	7.3	140	7.3	15.0	—	7.2	58	—	15	5.1
OCT 1983											
18...	1330	9.5	125	7.4	13.0	1.8	9.5	47	—	12	4.2
OCT 1984											
10...	1430	10	125	7.7	13.0	.50	10.6	47	—	12	4.1
OCT 1985											
10...	0830	11	125	7.2	8.5	1.0	9.9	47	—	12	4.2
OCT 1986											
22...	0900	5.0	145	7.5	10.0	1.4	7.1	54	—	14	4.7
OCT 1987											
16...	1000	10	122	7.2	10.0	.70	11.2	48	—	12	4.3
OCT 1988											
20...	0930	7.3	145	6.7	9.0	.90	11.0	56	—	14	5.0
OCT 1989											
23...	1030	32	123	7.3	9.5	1.0	11.8	44	12	11	4.0
NOV 1990											
16...	0900	16	132	6.8	6.5	1.3	12.4	49	3	12	4.6
OCT 1991											
09...	0930	6.8	146	7.1	10.0	2.5	10.6	54	17	14	4.6
OCT 1992											
15...	0900	9.8	145	7.4	11.5	0.90	10.5	54	—	14	4.6
OCT 1993											
14...	0945	16	127	7.1	8.0	—	10.7	—	—	—	—
OCT 1994											
27...	1155	10	148	7.5	8.5	—	11.1	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472138 - French Creek near Coventryville, Pa. (Site 13)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 21...	6.0	18	0.3	1.9	—	—	11	9.4	<0.10	15	86
NOV 1982 04...	5.5	17	.3	1.4	48	—	12	8.1	<.10	15	94
OCT 1983 18...	6.1	21	.4	1.6	38	—	14	8.2	—	16	100
OCT 1984 10...	5.0	18	.3	1.2	42	—	9.4	6.9	—	16	81
OCT 1985 10...	5.1	18	.3	1.4	40	—	16	7.4	—	15	83
OCT 1986 22...	5.7	18	.3	1.5	50	—	11	8.3	—	16	104
OCT 1987 16...	5.3	19	.3	1.4	44	—	15	6.6	—	15	81
OCT 1988 20...	5.6	18	.3	1.4	46	—	13	8.2	—	16	—
OCT 1989 23...	5.2	20	.3	1.5	32	—	13	6.2	—	15	—
NOV 1990 16...	5.9	20	.4	1.3	46	—	13	7.3	.30	18	—
OCT 1991 09...	5.5	18	.3	1.4	37	—	11	8.1	.10	16	—
OCT 1992 15...	6.0	19	.4	1.6	—	54	15	8.7	<.10	17	—
OCT 1993 14...	—	—	—	—	—	26	—	—	—	—	—
OCT 1994 27...	—	—	—	—	—	40	—	8.7	—	—	—

## 01472138 - French Creek near Coventryville, Pa. (Site 13)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981											
21...	—	0.12	—	0.270	—	—	<.010	0.290	0.040	0.05	0.30
NOV 1982											
04...	92	.13	1.86	.330	—	—	<.010	.330	.010	.01	—
OCT 1983											
18...	89	.14	2.57	.810	0.810	3.6	.050	.860	.120	.15	—
OCT 1984											
10...	83	.11	2.19	.770	—	—	<.010	.770	.020	.03	—
OCT 1985											
10...	89	.11	2.47	.780	—	—	<.010	.780	.020	.03	.48
OCT 1986											
22...	95	.14	1.40	.720	—	—	<.010	.720	<.010	—	.40
OCT 1987											
16...	90	.11	2.19	.800	—	—	<.010	.800	.020	.03	.48
OCT 1988											
20...	94	.13	1.85	.640	—	—	<.010	.640	.010	.01	.29
OCT 1989											
23...	79	.11	6.86	.900	—	—	<.010	.900	<.010	—	—
NOV 1990											
16...	95	.13	4.06	1.10	—	—	<.010	1.10	.050	.06	—
OCT 1991											
09...	86	.12	1.58	.630	—	—	<.010	.630	<.010	—	—
OCT 1992											
15...	103	.14	2.72	.710	—	—	<.010	.710	.020	.03	—
OCT 1993											
14...	—	—	—	.460	—	—	<.010	.460	.020	.03	—
OCT 1994											
27...	—	—	—	.420	—	—	<.010	.420	.020	.03	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472138 - French Creek near Coventryville, Pa. (Site 13)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED TOTAL (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED TOTAL (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED TOTAL (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED TOTAL (µG/L AS AS) (01000)
OCT 1981 21...	0.28	0.31	0.32	0.59	0.61	0.020	0.06	<0.010	<0.010	—	1
NOV 1982 04...	.29	—	.30	—	.63	—	—	.010	<.010	—	<1
OCT 1983 18...	.48	—	.60	—	1.5	.020	.06	.020	.010	.03	—
OCT 1984 10...	.28	—	.30	—	1.1	.040	—	.020	.020	.06	—
OCT 1985 10...	.28	.50	.30	1.3	1.1	.020	.06	.030	<.010	—	—
OCT 1986 22...	—	.40	.50	1.1	1.2	.030	—	<.010	.010	.03	—
OCT 1987 16...	.18	.50	.20	1.3	1.0	.010	—	<.010	<.010	—	—
OCT 1988 20...	.19	.30	.20	.94	.84	.010	—	.010	<.010	—	—
OCT 1989 23...	—	<.20	.30	—	1.2	.030	—	.010	.040	.12	—
NOV 1990 16...	.25	<.20	.30	—	1.4	<.010	—	<.010	<.010	—	—
OCT 1991 09...	—	<.20	—	—	—	.030	—	<.010	.010	.03	—
OCT 1992 15...	—	<.20	<.20	—	—	.030	—	.020	.020	.06	—
OCT 1993 14...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 27...	—	—	—	—	—	—	—	—	.010	.03	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472138 - French Creek near Coventryville, Pa. (Site 13)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 21...	<1.0	1	<1	2	120	<1	27	<0.1	<1	4	—
NOV 1982 04...	<1.0	<1	1	2	100	<1	29	<.1	<1	<4	0.02
OCT 1983 18...	—	—	—	—	150	—	20	—	—	—	—
OCT 1984 10...	—	—	—	—	130	—	16	—	—	—	—
OCT 1985 10...	—	—	—	—	85	—	18	—	—	—	—
OCT 1986 22...	—	—	—	—	88	—	22	—	—	—	—
OCT 1987 16...	—	—	—	—	150	—	10	—	—	—	—
OCT 1988 20...	—	—	—	—	81	—	15	—	—	—	—
OCT 1989 23...	—	—	—	—	140	—	21	—	—	—	—
NOV 1990 16...	—	—	—	—	120	—	17	—	—	—	—
OCT 1991 09...	—	—	—	—	94	—	17	—	—	—	—
OCT 1992 15...	—	—	—	—	110	—	26	—	—	—	—
OCT 1993 14...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 27...	—	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL AS (MG/L CaCO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD AS (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED AS CA (MG/L Ca) (00915)	MAGNE- SIUM, DIS- SOLVED AS MG (MG/L Mg) (00925)	
OCT 1981	21...	1500	—	182	8.5	10.5	—	13.8	63	—	17	5.1
NOV 1982	04...	1315	6.9	161	8.0	17.0	—	10.6	64	—	17	5.3
OCT 1983	18...	1500	4.7	181	8.1	14.5	<1.0	10.4	70	—	19	5.4
OCT 1984	10...	1600	7.8	185	8.1	15.0	.40	10.6	68	—	18	5.5
OCT 1985	10...	1130	7.7	195	7.4	9.5	.90	12.6	70	—	18	6.0
OCT 1986	22...	1230	4.4	180	8.0	12.0	.30	12.8	68	—	18	5.5
OCT 1987	16...	1400	7.6	190	7.7	13.5	.60	12.8	70	—	18	6.0
OCT 1988	20...	1330	5.5	198	7.1	10.0	.60	12.1	73	—	19	6.1
OCT 1989	23...	1430	19	188	7.2	12.5	1.5	9.3	66	10	17	5.6
NOV 1990	16...	1150	9.6	196	6.9	7.5	1.5	12.8	70	17	18	6.0
OCT 1991	09...	1130	4.5	203	7.2	10.5	.50	12.4	71	32	19	5.8
OCT 1992	15...	1215	5.6	208	7.2	13.0	.90	12.4	71	—	19	5.8
OCT 1993	14...	1240	8.3	196	7.3	8.0	—	11.7	—	—	—	—
OCT 1994	27...	1420	6.0	202	8.1	9.0	—	12.9	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED AS K (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED AS CL) (00940)	FLUO- RIDE, DIS- SOLVED AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 21...	8.3	21	0.5	2.8	—	—	15	12	<0.10	19	105
NOV 1982 04...	7.4	19	.4	2.2	43	—	15	12	<.10	18	116
OCT 1983 18...	7.0	17	.4	2.2	50	—	17	12	—	20	137
OCT 1984 10...	7.6	19	.4	1.9	48	—	16	12	—	19	121
OCT 1985 10...	7.9	19	.4	2.3	50	—	20	14	—	19	126
OCT 1986 22...	7.4	19	.4	2.1	51	—	16	12	—	18	128
OCT 1987 16...	8.2	20	.4	2.2	46	—	15	13	—	17	121
OCT 1988 20...	7.4	18	.4	2.0	44	—	17	13	—	18	—
OCT 1989 23...	7.3	19	.4	2.4	56	—	16	11	—	19	—
NOV 1990 16...	7.6	19	.4	2.1	53	—	21	17	.10	20	—
OCT 1991 09...	7.4	18	.4	2.2	39	—	14	15	.20	19	—
OCT 1992 15...	7.2	—	.4	<.10	—	60	18	13	.10	18	—
OCT 1993 14...	—	—	—	—	—	42	—	—	—	—	—
OCT 1994 27...	—	—	—	—	—	38	—	17	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 21...	—	0.14	—	2.00	—	—	<0.010	2.00	0.020	0.03	0.23
NOV 1982 04...	112	.16	2.17	1.99	1.99	8.8	.010	2.00	<.010	.01	—
OCT 1983 18...	125	.19	1.74	2.80	—	—	<.010	2.80	.020	.03	—
OCT 1984 10...	124	.16	2.55	3.40	—	—	<.010	3.40	.040	.05	—
OCT 1985 10...	132	.17	2.62	3.40	—	—	<.010	3.40	.010	.01	.49
OCT 1986 22...	122	.17	1.52	2.80	—	—	<.010	2.80	.010	.01	1.2
OCT 1987 16...	123	.16	2.48	3.60	—	—	<.010	3.60	.020	.03	.38
OCT 1988 20...	123	.17	1.83	3.20	—	—	<.010	3.20	.020	.03	.38
OCT 1989 23...	127	.17	6.50	3.30	—	—	<.010	3.30	.010	.01	—
NOV 1990 16...	141	.19	3.64	3.80	—	—	<.010	3.80	.050	.06	.65
OCT 1991 09...	120	.16	1.45	3.20	—	—	<.010	3.20	<.010	—	—
OCT 1992 15...	—	—	—	2.60	—	—	<.010	2.60	.010	.01	.19
OCT 1993 14...	—	—	—	2.30	—	—	<.010	2.30	.020	.03	—
OCT 1994 27...	—	—	—	2.50	—	—	<.010	2.50	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)—Continued

DATE	ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTH, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTH, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 21...	0.21	0.24	0.23	2.2	2.2	0.040	0.12	<0.010	<0.010	—	2
NOV 1982 04...	—	—	.10	—	2.1	—	—	.020	.010	0.03	<1
OCT 1983 18...	.28	—	.30	—	3.1	.040	.12	.040	<.010	—	—
OCT 1984 10...	.46	—	.50	—	3.9	.050	—	.030	.020	.06	—
OCT 1985 10...	.29	.50	.30	3.9	3.7	.020	.06	.020	.020	.06	—
OCT 1986 22...	1.2	1.2	1.2	4.0	4.0	<.010	—	<.010	.010	.03	—
OCT 1987 16...	.38	.40	.40	4.0	4.0	<.010	—	<.010	<.010	—	—
OCT 1988 20...	.38	.40	.40	3.6	3.6	.010	—	.010	<.010	—	—
OCT 1989 23...	.49	<.20	.50	—	3.8	.040	—	.030	.020	.06	—
NOV 1990 16...	.35	.70	.40	4.5	4.2	.030	—	<.010	.010	.03	—
OCT 1991 09...	—	<.20	—	—	—	.030	—	<.010	<.010	—	—
OCT 1992 15...	.19	.20	.20	2.8	2.8	.040	—	.020	.020	.06	—
OCT 1993 14...	—	—	—	—	—	—	—	—	.020	.06	—
OCT 1994 27...	—	—	—	—	—	—	—	—	.010	.03	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 21...	<1.0	<1	<1	1	53	<1	9	<0.1	<1	<4	—
NOV 1982 04...	<1.0	<1	<1	3	66	1	10	<.1	<1	<4	0.03
OCT 1983 18...	—	—	—	—	72	—	10	—	—	—	—
OCT 1984 10...	—	—	—	—	69	—	11	—	—	—	—
OCT 1985 10...	—	—	—	—	65	—	14	—	—	—	—
OCT 1986 22...	—	—	—	—	35	—	6	—	—	—	—
OCT 1987 16...	—	—	—	—	77	—	11	—	—	—	—
OCT 1988 20...	—	—	—	—	62	—	8	—	—	—	—
OCT 1989 23...	—	—	—	—	140	—	33	—	—	—	—
NOV 1990 16...	—	—	—	—	100	—	20	—	—	—	—
OCT 1991 09...	—	—	—	—	69	—	11	—	—	—	—
OCT 1992 15...	—	—	—	—	130	—	15	—	—	—	—
OCT 1993 14...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 27...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981	21...	—	164	7.1	6.5	—	11.1	57	—	15	4.8
NOV 1982	02...	19	140	7.8	14.5	—	9.6	57	—	15	4.7
OCT 1983	20...	30	147	7.1	11.0	1.9	9.6	56	—	15	4.6
OCT 1984	10...	23	150	7.7	13.0	.60	11.0	56	—	15	4.6
OCT 1985	11...	24	155	7.3	11.0	.90	10.2	55	—	14	4.8
OCT 1986	31...	17	160	7.5	9.0	.70	9.4	62	—	16	5.3
OCT 1987	14...	28	147	7.4	9.0	.40	12.2	57	—	15	4.8
OCT 1988	21...	16	163	7.5	8.5	.90	11.2	62	—	16	5.3
OCT 1989	24...	60	149	7.2	9.0	1.1	12.1	51	0	13	4.6
NOV 1990	15...	35	165	7.0	4.0	1.1	12.9	55	3	14	4.9
OCT 1991	15...	15	168	7.0	10.0	1.0	10.4	60	24	16	4.9
OCT 1992	14...	20	159	7.2	11.0	3.3	11.0	61	—	16	5.0
OCT 1993	15...	24	160	7.1	9.5	—	10.8	—	—	—	—
OCT 1994	27...	20	168	7.4	8.5	—	10.9	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 21...	7.4	21	0.4	2.3	—	—	13	9.3	<0.10	16	90
NOV 1982 02...	6.5	19	.4	1.8	42	—	14	9.7	<.10	15	92
OCT 1983 20...	6.6	19	.4	2.4	40	—	19	11	—	17	111
OCT 1984 10...	7.4	22	.4	1.5	42	—	14	9.4	—	16	92
OCT 1985 11...	6.9	21	.4	2.0	42	—	19	10	—	16	103
OCT 1986 31...	7.2	19	.4	2.4	44	—	16	11	—	17	111
OCT 1987 14...	6.7	20	.4	1.8	43	—	12	9.5	—	15	97
OCT 1988 21...	6.8	19	.4	1.7	51	—	15	10	—	16	—
OCT 1989 24...	6.0	19	.4	2.0	54	—	13	8.2	—	17	—
NOV 1990 15...	6.7	20	.4	1.9	52	—	15	9.6	<.10	17	—
OCT 1991 15...	6.5	18	.4	2.0	36	—	12	11	.20	17	—
OCT 1992 14...	6.9	19	.4	2.8	—	30	17	11	.10	16	—
OCT 1993 15...	—	—	—	—	—	38	—	—	—	—	—
OCT 1994 27...	—	—	—	—	—	43	—	11	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 21...	—	0.12	—	0.700	—	—	<.010	0.710	0.030	0.04	0.36
NOV 1982 02...	96	.13	4.72	.930	0.930	4.1	.010	.940	.040	.05	—
OCT 1983 20...	105	.15	8.99	1.17	1.17	5.2	.030	1.20	<.010	—	—
OCT 1984 10...	101	.13	5.71	1.80	—	—	<.010	1.80	.040	.05	—
OCT 1985 11...	105	.14	6.67	1.70	—	—	<.010	1.70	.010	.01	.69
OCT 1986 31...	105	.15	5.15	.800	—	—	<.010	.800	.050	.06	.25
OCT 1987 14...	98	.13	7.33	1.60	—	—	<.010	1.60	.020	.03	.38
OCT 1988 21...	108	.15	4.67	1.50	—	—	<.010	1.50	.020	.03	.18
OCT 1989 24...	103	.14	16.8	1.60	—	—	<.010	1.60	<.010	—	.40
NOV 1990 15...	108	.15	10.3	1.80	—	—	<.010	1.80	.050	.06	—
OCT 1991 15...	98	.13	4.03	1.40	—	—	<.010	1.40	.030	.04	—
OCT 1992 14...	98	.13	5.21	1.10	—	—	<.010	1.10	.030	.04	.37
OCT 1993 15...	—	—	—	1.20	—	—	<.010	1.20	.020	.03	—
OCT 1994 27...	—	—	—	.950	—	—	<.010	.950	<.015	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 21...	0.43	0.39	0.46	1.1	1.2	0.040	0.12	<0.010	<0.010	—	1
NOV 1982 02...	.26	—	.30	—	1.2	—	—	.020	<.010	—	<1
OCT 1983 20...	—	—	.60	—	1.8	.040	.12	.020	.020	0.06	—
OCT 1984 10...	.16	—	.20	—	2.0	.080	—	.080	.040	.12	—
OCT 1985 11...	.29	.70	.30	2.4	2.0	.020	.06	.010	<.010	—	—
OCT 1986 31...	.65	.30	.70	1.1	1.5	.020	—	.010	<.010	—	—
OCT 1987 14...	.28	.40	.30	2.0	1.9	.010	—	<.010	<.010	—	—
OCT 1988 21...	.18	.20	.20	1.7	1.7	.010	—	.010	<.010	—	—
OCT 1989 24...	—	.40	<.20	2.0	—	.030	—	.020	.020	.06	—
NOV 1990 15...	.25	<.20	.30	—	2.1	.030	—	.020	<.010	—	—
OCT 1991 15...	—	<.20	<.20	—	—	.070	—	.020	<.010	—	—
OCT 1992 14...	.47	.40	.50	1.5	1.6	.060	—	.030	.020	.06	—
OCT 1993 15...	—	—	—	—	—	—	—	—	.010	.03	—
OCT 1994 27...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 21...	1.0	4	<1	4	110	2	23	<0.1	<1	5	—
NOV 1982 02...	<1.0	<1	<1	1	65	1	12	<0.1	<1	<4	0.02
OCT 1983 20...	—	—	—	—	120	—	16	—	—	—	—
OCT 1984 10...	—	—	—	—	61	—	8	—	—	—	—
OCT 1985 11...	—	—	—	—	57	—	8	—	—	—	—
OCT 1986 31...	—	—	—	—	83	—	14	—	—	—	—
OCT 1987 14...	—	—	—	—	110	—	10	—	—	—	—
OCT 1988 21...	—	—	—	—	53	—	9	—	—	—	—
OCT 1989 24...	—	—	—	—	120	—	22	—	—	—	—
NOV 1990 15...	—	—	—	—	140	—	19	—	—	—	—
OCT 1991 15...	—	—	—	—	94	—	14	—	—	—	—
OCT 1992 14...	—	—	—	—	140	—	18	—	—	—	—
OCT 1993 15...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 27...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
21...	0930	17	153	7.2	5.5	—	12.0	57	—	15	4.7
NOV 1982											
02...	1300	24	137	8.3	14.5	—	10.4	57	—	15	4.7
OCT 1983											
20...	0845	44	138	7.5	11.5	1.2	9.9	56	—	15	4.5
OCT 1984											
22...	1200	30	148	7.8	16.0	.50	10.0	60	—	16	4.8
OCT 1985											
10...	1430	32	150	7.8	11.5	.90	11.4	54	—	14	4.7
DEC 1986											
05...	1530	73	138	7.6	3.0	2.7	13.6	49	—	12	4.5
OCT 1987											
14...	1400	28	147	7.6	10.5	.50	12.0	57	—	15	4.8
OCT 1988											
19...	1000	18	168	6.7	12.0	1.2	11.4	62	—	16	5.3
OCT 1989											
23...	1730	121	153	7.3	10.5	1.2	11.5	51	18	13	4.6
NOV 1990											
15...	1130	44	157	7.7	5.5	1.0	13.4	57	0	15	4.7
OCT 1991											
04...	0930	20	152	7.3	16.5	.70	10.1	59	12	16	4.6
OCT 1992											
14...	0845	27	165	7.2	9.5	1.1	12.1	58	—	15	4.9
OCT 1993											
15...	0900	47	160	7.5	9.5	—	11.0	—	—	—	—
OCT 1994											
28...	1130	30	174	7.6	8.5	—	11.8	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932) (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 21...	7.4	21	0.4	2.0	—	13	9.0	<0.10	16	92
NOV 1982 02...	6.4	19	.4	1.6	40	14	9.4	<.10	15	95
OCT 1983 20...	6.4	19	.4	2.2	38	19	9.9	—	17	109
OCT 1984 22...	6.0	17	.3	1.9	46	13	9.7	—	15	103
OCT 1985 10...	6.6	20	.4	1.9	40	18	9.2	—	17	101
DEC 1986 05...	6.2	21	.4	1.8	36	18	8.8	—	15	98
OCT 1987 14...	6.6	19	.4	1.8	42	12	9.3	—	15	97
OCT 1988 19...	6.6	18	.4	1.7	45	15	10	—	16	—
OCT 1989 23...	7.4	23	.4	2.0	33	14	9.4	—	16	—
NOV 1990 15...	6.4	19	.4	1.9	60	15	10	<.10	17	—
OCT 1991 04...	6.6	19	.4	1.8	47	13	11	.20	16	—
OCT 1992 14...	6.7	19	.4	2.8	—	28	16	.10	15	—
OCT 1993 15...	—	—	—	—	—	41	—	—	—	—
OCT 1994 28...	—	—	—	—	—	48	12	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 21...	—	0.13	—	0.770	—	—	<0.010	0.770	0.050	0.06	0.24
NOV 1982 02...	94	.13	6.05	.950	.950	4.2	.010	.960	.010	.01	—
OCT 1983 20...	102	.15	12.9	1.07	1.07	4.7	.030	1.10	<.010	—	—
OCT 1984 22...	99	.14	8.34	1.07	1.07	4.7	.030	1.10	.040	.05	—
OCT 1985 10...	103	.14	8.73	1.60	—	—	<.010	1.60	.020	.03	.28
DEC 1986 05...	96	.13	19.3	1.70	—	—	<.010	1.70	.020	.03	.28
OCT 1987 14...	96	.13	7.33	1.50	—	—	<.010	1.50	.020	.03	.48
OCT 1988 19...	104	.14	5.05	1.40	—	—	<.010	1.40	.070	.09	.23
OCT 1989 23...	94	.13	3.8	1.80	—	—	<.010	1.80	.010	.01	.39
NOV 1990 15...	114	.16	13.6	1.80	—	—	<.010	1.80	.050	.06	.15
OCT 1991 04...	104	.14	5.63	1.40	—	—	<.010	1.40	<.010	—	—
OCT 1992 14...	93	.13	6.83	1.10	—	—	<.010	1.10	.020	.03	.28
OCT 1993 15...	—	—	—	1.20	—	—	<.010	1.20	.020	.03	—
OCT 1994 28...	—	—	—	1.00	—	—	<.010	1.00	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO4) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 21...	0.24	0.32	0.29	1.1	1.1	<0.010	—	<0.010	<0.010	—	1
NOV 1982 02...	.79	—	.80	—	1.8	—	—	<.010	<.010	—	1
OCT 1983 20...	—	—	.40	—	1.5	.030	0.09	.030	.020	0.06	—
OCT 1984 22...	.26	—	.30	—	1.4	<.010	—	.030	.010	.03	—
OCT 1985 10...	.28	.30	.30	1.9	1.9	.020	.06	.020	.010	.03	—
DEC 1986 05...	.48	.30	.50	2.0	2.2	.030	—	.020	.010	.03	—
OCT 1987 14...	.38	.50	.40	2.0	1.9	<.010	—	<.010	<.010	—	—
OCT 1988 19...	.23	.30	.30	1.7	1.7	.020	—	.020	<.010	—	—
OCT 1989 23...	.39	.40	.40	2.2	2.2	.040	—	.020	.030	.09	—
NOV 1990 15...	.15	.20	.20	2.0	2.0	.020	—	<.010	<.010	—	—
OCT 1991 04...	—	<.20	—	—	—	.030	—	<.010	.010	.03	—
OCT 1992 14...	.28	.30	.30	1.4	1.4	.030	—	.030	.020	.06	—
OCT 1993 15...	—	—	—	—	—	—	—	—	.020	.06	—
OCT 1994 28...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (mG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 21...	<1.0	<1	<1	2	97	<1	6	<0.1	1	4	—
NOV 1982 02...	<1.0	<1	<1	1	51	<1	4	<.1	<1	<4	0.01
OCT 1983 20...	—	—	—	—	100	—	6	—	—	—	—
OCT 1984 22...	—	—	—	—	42	—	3	—	—	—	—
OCT 1985 10...	—	—	—	—	53	—	4	—	—	—	—
DEC 1986 05...	—	—	—	—	110	—	16	—	—	—	—
OCT 1987 14...	—	—	—	—	93	—	6	—	—	—	—
OCT 1988 19...	—	—	—	—	38	—	4	—	—	—	—
OCT 1989 23...	—	—	—	—	120	—	12	—	—	—	—
NOV 1990 15...	—	—	—	—	120	—	8	—	—	—	—
OCT 1991 04...	—	—	—	—	72	—	5	—	—	—	—
OCT 1992 14...	—	—	—	—	120	—	6	—	—	—	—
OCT 1993 15...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 28...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL AS CACO <sub>3</sub> (00900)	HARD- NESS NONCARB TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	23...	—	468	4.3	17.0	—	9.1	130	—	38	9.0	
NOV 1982	02...	30	189	8.0	14.0	—	10.7	75	—	20	6.0	
OCT 1983	20...	52	185	7.8	13.0	1.5	10.5	67	—	18	5.4	
OCT 1984	10...	0900	35	200	7.8	14.0	.80	10.6	78	—	21	6.2
OCT 1985	09...	1500	43	225	7.3	10.0	1.5	11.8	80	—	21	6.8
OCT 1986	31...	1200	24	220	8.0	12.0	.90	10.4	86	—	23	6.9
OCT 1987	13...	0930	39	188	7.5	10.0	.60	12.2	75	—	20	6.0
OCT 1988	19...	1500	35	232	7.2	13.5	1.1	11.5	87	—	23	7.2
OCT 1989	24...	1430	123	189	7.3	11.5	1.0	11.9	66	22	17	5.8
NOV 1990	15...	1400	51	197	7.4	7.5	4.5	13.1	69	13	18	5.8
OCT 1991	21...	0915	27	212	7.2	7.5	2.3	12.1	78	18	21	6.2
OCT 1992	13...	1200	45	202	7.1	12.5	1.5	11.3	71	—	19	5.8
OCT 1993	18...	0800	35	218	7.2	13.5	—	10.1	—	—	—	—
OCT 1994	28...	0830	31	219	7.8	8.0	—	11.4	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP TION RATIO (00931)	POTAS- SIUM, DIS- (SOLVED AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)
OCT 1981 23...	27	30	1	4.1	—	—	76	36	1.5	11
NOV 1982 02...	9.2	21	.5	2.0	52	—	21	12	<.10	14
OCT 1983 20...	9.2	22	.5	2.5	50	—	22	14	—	16
OCT 1984 10...	9.3	20	.5	1.9	54	—	22	13	—	15
OCT 1985 09...	11	22	.5	2.6	52	—	26	15	—	16
OCT 1986 31...	10	20	.5	2.9	62	—	24	14	—	16
OCT 1987 13...	8.6	19	.4	2.1	56	—	18	12	—	16
OCT 1988 19...	11	21	.5	2.1	58	—	24	15	—	15
OCT 1989 24...	8.1	20	.4	2.1	44	—	19	10	—	17
NOV 1990 15...	8.8	21	.5	2.1	56	—	20	13	.10	16
OCT 1991 21...	9.5	20	.5	2.7	60	—	23	16	.10	15
OCT 1992 13...	8.2	19	.4	3.0	—	35	20	13	.10	16
OCT 1993 18...	—	—	—	—	—	47	—	—	—	—
OCT 1994 28...	—	—	—	—	—	48	—	15	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 23...	323	—	0.44	—	14.0	14.0	62	0.020	14.0	0.140
NOV 1982 02...	124	120	.17	10.0	.910	.910	4.0	.010	.920	<.010
OCT 1983 20...	134	123	.18	18.8	1.17	1.17	5.2	.030	1.20	<.010
OCT 1984 10...	127	129	.17	12.0	1.70	—	—	<.010	1.70	.020
OCT 1985 09...	139	138	.19	16.1	1.78	1.78	7.9	.020	1.80	.030
OCT 1986 31...	147	138	.20	9.49	.810	—	—	<.010	.810	.050
OCT 1987 13...	121	124	.16	12.7	1.60	—	—	<.010	1.60	.030
OCT 1988 19...	—	139	.19	13.1	1.40	—	—	<.010	1.40	.030
OCT 1989 24...	—	115	.16	38.4	2.20	—	—	<.010	2.20	.010
NOV 1990 15...	—	126	.17	17.3	1.80	—	—	<.010	1.80	.060
OCT 1991 21...	—	135	.18	9.78	1.20	—	—	<.010	1.20	.030
OCT 1992 13...	—	111	.15	13.5	1.00	—	—	<.010	1.00	.020
OCT 1993 18...	—	—	—	—	1.40	—	—	<.010	1.40	.030
OCT 1994 28...	—	—	—	—	1.00	—	—	<.010	1.00	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC, DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 23...	0.18	0.42	0.36	0.49	0.50	14	15	0.310	0.95	0.280
NOV 1982 02...	.01	—	—	—	.50	—	1.4	—	—	.010
OCT 1983 20...	—	—	—	—	.50	—	1.7	.030	.09	.020
OCT 1984 10...	.03	—	.18	—	.20	—	1.9	.030	—	.020
OCT 1985 09...	.04	—	.37	—	.40	—	2.2	.050	.15	.030
OCT 1986 31...	.06	.45	.45	.50	.50	1.3	1.3	.020	—	.020
OCT 1987 13...	.04	.27	.27	.30	.30	1.9	1.9	.010	—	<.010
OCT 1988 19...	.04	.57	.47	.60	.50	2.0	1.9	.010	—	.010
OCT 1989 24...	.01	.19	.29	.20	.30	2.4	2.5	.040	—	.020
NOV 1990 15...	.08	.24	.44	.30	.50	2.1	2.3	.030	—	<.010
OCT 1991 21...	.04	.27	.17	.30	.20	1.5	1.4	.040	—	.020
OCT 1992 13...	.03	.28	.28	.30	.30	1.3	1.3	.040	—	.040
OCT 1993 18...	.04	—	—	—	—	—	—	—	—	—
OCT 1994 28...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 23...	0.270	0.83	2	—	—	5.0	7	2	22	490
NOV 1982 02...	.010	.03	1	—	—	<1.0	<1	1	5	53
OCT 1983 20...	.010	.03	<1	—	—	<1.0	<1	—	2	83
OCT 1984 10...	.010	.03	<1	—	—	<1.0	<1	—	3	100
OCT 1985 09...	.020	.06	<1	—	—	<1.0	<1	—	4	84
OCT 1986 31...	<.010	—	<1	—	—	1.0	<1	—	4	64
OCT 1987 13...	<.010	—	<1	—	—	<1.0	<1	—	1	72
OCT 1988 19...	<.010	—	<1	42	<.5	<1.0	<5	<3	<10	99
OCT 1989 24...	.020	.06	<1	44	<.5	<1.0	<5	<3	<10	110
NOV 1990 15...	.010	.03	<1	36	<.5	<1.0	<5	<3	<10	120
OCT 1991 21...	.010	.03	2	44	<.5	<1.0	<5	<3	<10	93
OCT 1992 13...	.030	.09	<1	45	.8	<1.0	<5	<3	<10	120
OCT 1993 18...	.020	.06	—	—	—	—	—	—	—	—
OCT 1994 28...	<.010	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 23...	200	—	12,000	0.7	6	—	—	—	320	0.20
NOV 1982 02...	<1	—	40	<.1	<1	—	—	—	<4	.02
OCT 1983 20...	2	—	21	<.1	1	<1.0	—	—	<3	—
OCT 1984 10...	5	—	39	<.1	2	<1.0	—	—	<3	—
OCT 1985 09...	5	—	58	<.1	2	<1.0	—	—	24	—
OCT 1986 31...	<5	—	29	<.1	3	<1.0	—	—	9	—
OCT 1987 13...	<5	—	26	<.1	<1	<1.0	—	—	3	—
OCT 1988 19...	<10	<4	30	.2	<10	<1.0	120	<6	<3	—
OCT 1989 24...	<10	<4	23	<.1	<10	<1.0	83	<6	9	—
NOV 1990 15...	<10	4	33	<.1	<10	<1.0	86	<6	<3	—
OCT 1991 21...	<10	<4	32	—	<10	<1.0	100	<6	4	—
OCT 1992 13...	<10	<4	29	<.1	<10	<1.0	94	<6	4	—
OCT 1993 18...	—	—	—	—	—	—	—	—	—	—
OCT 1994 28...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
16...	1115	—	196	7.6	12.0	—	11.5	60	—	17	4.3
OCT 1982											
18...	1145	1.3	189	7.3	8.5	—	10.9	76	—	20	6.4
OCT 1983											
17...	1415	1.1	222	7.6	15.0	4.0	9.4	83	—	22	6.8
OCT 1984											
05...	1300	1.8	205	7.8	13.5	1.0	10.3	80	—	21	6.8
OCT 1985											
08...	1100	1.8	195	7.5	7.0	1.3	11.6	73	—	19	6.3
OCT 1986											
07...	1300	.57	200	8.0	15.0	1.5	10.4	80	—	21	6.6
OCT 1987											
09...	0930	1.1	205	7.5	9.5	.80	13.0	80	—	21	6.7
OCT 1988											
13...	1500	.87	220	7.7	10.5	2.7	12.6	86	—	22	7.5
OCT 1989											
05...	1400	2.4	232	6.9	14.5	1.3	12.1	77	27	20	6.6
OCT 1990											
03...	0800	1.2	238	6.2	10.5	1.5	10.4	86	19	23	7.0
OCT 1991											
03...	1215	.78	227	7.5	17.0	2.7	10.6	81	36	22	6.4
OCT 1992											
07...	0945	.70	217	7.1	8.0	.50	11.9	85	—	23	6.7
OCT 1993											
05...	1200	1.2	239	7.1	13.5	—	11.4	—	—	—	—
OCT 1994											
25...	1230	1.4	235	7.5	11.5	—	11.2	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 16...	6.2	18	0.3	1.9	—	—	12	18	<0.10	17	120
OCT 1982 18...	6.7	15	.3	2.6	44	—	13	21	<.10	21	154
OCT 1983 17...	7.1	15	.3	2.8	48	—	15	24	—	22	167
OCT 1984 05...	8.8	19	.4	1.8	42	—	15	24	—	20	137
OCT 1985 08...	7.4	17	.4	2.0	42	—	18	18	—	20	132
OCT 1986 07...	7.9	17	.4	1.9	56	—	15	19	—	22	150
OCT 1987 09...	8.8	19	.4	2.0	51	—	14	21	—	20	138
OCT 1988 13...	8.1	17	.4	1.7	53	—	16	23	—	21	—
OCT 1989 05...	7.4	17	.4	2.0	50	—	14	21	—	19	—
OCT 1990 03...	8.3	17	.4	1.8	67	—	15	24	.10	20	—
OCT 1991 03...	7.8	17	.4	1.8	45	—	13	25	.20	20	—
OCT 1992 07...	7.6	16	.4	1.7	—	38	14	21	.10	21	—
OCT 1993 05...	—	—	—	—	—	49	—	—	—	—	—
OCT 1994 25...	—	—	—	—	—	48	—	26	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 16...	—	0.16	—	1.49	1.49	6.6	0.010	1.50	0.050	0.06	0.37
OCT 1982 18...	127	.21	.52	2.09	2.09	9.3	.010	2.10	.050	.06	—
OCT 1983 17...	141	.23	.50	2.64	2.64	12	.060	2.70	.130	.17	—
OCT 1984 05...	135	.19	.67	2.80	—	—	<.010	2.80	.060	.08	—
OCT 1985 08...	126	.18	.64	2.20	—	—	<.010	2.20	.050	.06	—
OCT 1986 07...	136	.20	.23	1.89	1.89	8.4	.010	1.90	.020	.03	.98
OCT 1987 09...	133	.19	.41	1.90	—	—	<.010	1.90	.020	.03	.38
OCT 1988 13...	142	.19	.33	2.40	—	—	<.010	2.40	.010	.01	.29
OCT 1989 05...	132	.18	.85	2.59	2.59	11	.010	2.60	.020	.03	.38
OCT 1990 03...	149	.20	.46	2.20	—	—	<.010	2.20	.010	.01	.19
OCT 1991 03...	131	.18	.28	1.80	—	—	<.010	1.80	<.010	—	—
OCT 1992 07...	127	.17	.24	2.10	—	—	<.010	2.10	.020	.03	—
OCT 1993 05...	—	—	—	2.20	—	—	<.010	2.20	.020	.03	—
OCT 1994 25...	—	—	—	1.90	—	—	<.010	1.90	<.015	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 16...	0.27	0.46	0.32	2.0	1.8	0.030	0.09	0.010	0.010	0.03	2
OCT 1982 18...	.35	—	.40	—	2.5	—	—	.040	.020	.06	1
OCT 1983 17...	.87	—	1.0	—	3.7	.050	.15	.030	.040	.12	—
OCT 1984 05...	.14	—	.20	—	3.0	.030	—	<.010	.010	.03	—
OCT 1985 08...	.55	—	.60	—	2.8	.030	.09	.020	.020	.06	—
OCT 1986 07...	.58	1.0	.60	2.9	2.5	.020	—	.020	.010	.03	—
OCT 1987 09...	—	.40	<.20	2.3	—	.010	—	<.010	<.010	—	—
OCT 1988 13...	.29	.30	.30	2.7	2.7	.010	—	.010	<.010	—	—
OCT 1989 05...	.48	.40	.50	3.0	3.1	.020	—	<.010	<.010	—	—
OCT 1990 03...	.29	.20	.30	2.4	2.5	<.010	—	<.010	<.010	—	—
OCT 1991 03...	—	<.20	.10	—	1.9	.030	—	<.010	<.010	—	—
OCT 1992 07...	—	<.20	<.20	—	—	.020	—	<.010	<.010	—	—
OCT 1993 05...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 25...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 16...	1.0	<1	2	5	110	<1	50	<0.1	1	10	—
OCT 1982 18...	<1.0	<1	<1	<1	100	<1	50	<.1	2	<4	0.02
OCT 1983 17...	—	—	—	—	170	—	56	—	—	—	—
OCT 1984 05...	—	—	—	—	93	—	35	—	—	—	—
OCT 1985 08...	—	—	—	—	95	—	54	—	—	—	—
OCT 1986 07...	—	—	—	—	110	—	23	—	—	—	—
OCT 1987 09...	—	—	—	—	110	—	43	—	—	—	—
OCT 1988 13...	—	—	—	—	100	—	23	—	—	—	—
OCT 1989 05...	—	—	—	—	180	—	48	—	—	—	—
OCT 1990 03...	—	—	—	—	100	—	43	—	—	—	—
OCT 1991 03...	—	—	—	—	150	—	28	—	—	—	—
OCT 1992 07...	—	—	—	—	110	—	36	—	—	—	—
OCT 1993 05...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 25...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS Ca) (00915)
OCT 1981	16...	—	191	7.2	9.0	—	10.8	55	—	17
OCT 1982	18...	3.5	190	6.6	5.8	—	10.2	73	—	20
OCT 1983	18...	2.6	195	7.5	13.0	1.0	8.6	81	—	23
OCT 1984	05...	4.0	200	7.7	9.5	.60	10.7	77	—	21
OCT 1985	08...	5.1	212	7.4	6.0	1.1	11.0	72	—	19
OCT 1986	07...	2.1	195	7.6	10.0	.50	9.9	79	—	22
OCT 1987	09...	2.7	195	7.5	12.0	.70	10.7	76	—	21
OCT 1988	13...	2.7	201	7.6	8.0	1.6	11.8	80	—	22
OCT 1989	05...	7.3	195	7.3	10.5	1.1	10.6	74	28	20
OCT 1990	03...	2.9	213	6.6	11.5	1.0	10.7	76	11	21
OCT 1991	03...	1.9	211	7.2	16.0	1.4	9.1	78	24	22
OCT 1992	08...	1.6	215	7.1	8.5	.60	11.5	84	—	24
OCT 1993	07...	2.5	220	7.3	10.5	—	10.7	—	—	—
OCT 1994	25...	4.3	224	7.0	10.5	—	10.5	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)—Continued

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FIELD (MG/L AS CAO <sub>3</sub> ) (00410)	ANC WATER UNFLTRD IT FIELD (MG/L AS CAO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 16...	3.1	6.1	19	0.4	2.5	—	—	13	16	<0.10	16	121
OCT 1982 18...	5.5	6.2	15	.3	1.2	50	—	15	12	<.10	20	130
OCT 1983 18...	5.8	6.7	15	.3	2.2	54	—	16	17	—	19	148
OCT 1984 05...	6.0	8.1	18	.4	1.9	52	—	16	16	—	18	127
OCT 1985 08...	6.0	7.2	17	.4	2.3	48	—	20	12	—	18	134
OCT 1986 07...	5.9	7.4	16	.4	2.2	56	—	16	12	—	21	146
OCT 1987 09...	5.8	8.5	19	.4	2.2	54	—	14	16	—	18	127
OCT 1988 13...	6.2	7.7	17	.4	1.7	56	—	16	15	—	17	—
OCT 1989 05...	5.9	7.0	17	.4	1.9	46	—	15	14	—	17	—
OCT 1990 03...	5.7	7.4	17	.4	1.9	65	—	14	17	<.10	18	—
OCT 1991 03...	5.5	7.1	16	.4	1.9	54	—	14	17	.20	17	—
OCT 1992 08...	5.9	7.1	15	.3	1.8	—	55	15	15	.10	20	—
OCT 1993 07...	—	—	—	—	—	—	52	—	—	—	—	—
OCT 1994 25...	—	—	—	—	—	—	47	—	19	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 16...	—	0.16	—	1.70	1.70	7.5	0.010	1.70	0.020	0.03	0.23
OCT 1982 18...	120	.18	1.25	—	2.20	9.7	.020	2.20	.030	.04	—
OCT 1983 18...	133	.20	1.04	—	2.30	10	.040	2.30	.110	.14	—
OCT 1984 05...	131	.17	1.37	—	—	—	<.010	2.80	.050	.06	—
OCT 1985 08...	123	.18	1.85	—	—	—	<.010	2.10	.030	.04	—
OCT 1986 07...	128	.20	.83	—	1.69	7.5	.010	1.70	.040	.05	.96
OCT 1987 09...	126	.17	.93	—	—	—	<.010	1.70	.020	.03	.38
OCT 1988 13...	129	.17	.94	—	—	—	<.010	2.10	.030	.04	—
OCT 1989 05...	120	.16	2.36	—	2.49	11	.010	2.50	.020	.03	.18
OCT 1990 03...	133	.18	1.03	—	—	—	<.010	2.00	.020	.03	.38
OCT 1991 03...	125	.17	.66	—	—	—	<.010	1.80	<.010	—	—
OCT 1992 08...	132	.18	.57	—	—	—	<.010	2.20	.020	.03	—
OCT 1993 07...	—	—	—	—	—	—	<.010	2.10	.020	.03	—
OCT 1994 25...	—	—	—	—	—	—	<.010	1.70	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 16...	0.27	0.28	0.29	2.0	2.0	0.020	0.06	<0.010	<0.010	—	2
OCT 1982 18...	.07	—	.10	—	2.3	—	—	<.010	.010	0.03	1
OCT 1983 18...	.49	—	.60	—	2.9	.020	.06	.010	.010	.03	—
OCT 1984 05...	.15	—	.20	—	3.0	.020	—	.010	.010	.03	—
OCT 1985 08...	.37	—	.40	—	2.5	.020	.06	.020	.020	.06	—
OCT 1986 07...	—	1.0	<.20	2.7	—	.010	—	.020	<.010	—	—
OCT 1987 09...	—	.40	<.20	2.1	—	<.010	—	.010	<.010	—	—
OCT 1988 13...	.17	<.20	.20	—	2.3	.010	—	.010	<.010	—	—
OCT 1989 05...	.28	.20	.30	2.7	2.8	.020	—	.010	<.010	—	—
OCT 1990 03...	.18	.40	.20	2.4	2.2	.010	—	<.010	<.010	—	—
OCT 1991 03...	—	<.20	—	—	—	.030	—	<.010	<.010	—	—
OCT 1992 08...	—	<.20	<.20	—	—	.030	—	<.010	<.010	—	—
OCT 1993 07...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 25...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)—Continued

DATE	CADMIUM	CHRO- MIUM,	COBALT,	COPPER,	IRON,	LEAD,	MANGA- NESE,	MERCURY,	NICKEL,	ZINC,	METHY- LENE
	DIS- SOLVED (µG/L AS CD) (01025)	DIS- SOLVED (µG/L AS CR) (01030)	DIS- SOLVED (µG/L AS CO) (01035)	DIS- SOLVED (µG/L AS CU) (01040)	DIS- SOLVED (µG/L AS FE) (01046)	DIS- SOLVED (µG/L AS PB) (01049)	DIS- SOLVED (µG/L AS MN) (01056)	DIS- SOLVED (µG/L AS HG) (71890)	DIS- SOLVED (µG/L AS NI) (01065)	DIS- SOLVED (µG/L AS ZN) (01090)	BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 16...	1.0	<1.0	2.0	4.0	110	<1.0	20	<0.1	3.0	<10	—
OCT 1982 18...	<1.0	1.0	<1.0	<1.0	80	<1.0	15	<.1	2.0	<4.0	0.02
OCT 1983 18...	—	—	—	—	78	—	18	—	—	—	—
OCT 1984 05...	—	—	—	—	67	—	33	—	—	—	—
OCT 1985 08...	—	—	—	—	89	—	34	—	—	—	—
OCT 1986 07...	—	—	—	—	110	—	25	—	—	—	—
OCT 1987 09...	—	—	—	—	120	—	25	—	—	—	—
OCT 1988 13...	—	—	—	—	72	—	17	—	—	—	—
OCT 1989 05...	—	—	—	—	85	—	32	—	—	—	—
OCT 1990 03...	—	—	—	—	78	—	21	—	—	—	—
OCT 1991 03...	—	—	—	—	85	—	15	—	—	—	—
OCT 1992 08...	—	—	—	—	99	—	20	—	—	—	—
OCT 1993 07...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 25...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	
OCT 1981	15...	1415	—	197	8.2	8.5	—	12.4	57	—	17	3.6	6.7
OCT 1982	18...	1435	9.1	177	8.2	8.5	—	12.4	71	—	19	5.8	6.8
OCT 1983	17...	1150	8.4	195	7.8	11.0	<1.0	10.7	80	—	22	6.1	7.1
OCT 1984	05...	1500	14	175	7.9	11.0	.40	11.4	74	—	20	5.9	8.3
OCT 1985	07...	1300	15	195	7.6	7.5	.70	13.2	73	—	19	6.1	8.0
OCT 1986	08...	0930	8.4	195	7.8	10.0	.40	10.2	82	—	22	6.6	7.9
OCT 1987	08...	1400	9.2	195	7.6	12.0	.70	11.5	75	—	20	6.1	8.8
OCT 1988	14...	0945	7.7	210	7.2	8.0	1.3	12.9	80	—	21	6.6	7.7
OCT 1989	04...	1530	26	198	7.2	13.5	.80	10.5	72	26	19	6.0	7.5
OCT 1990	03...	1230	9.7	218	6.0	12.5	1.0	11.0	78	5	21	6.2	8.1
OCT 1991	02...	1145	7.2	217	8.2	15.5	.70	12.0	80	22	22	6.2	7.7
OCT 1992	07...	1230	6.2	124	7.1	9.5	.50	12.2	88	—	24	6.9	8.1
OCT 1993	06...	1245	8.0	228	7.2	10.5	—	11.3	—	—	—	—	—
OCT 1994	25...	1430	13	219	7.5	11.5	—	11.2	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)—Continued

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
OCT 1981 15...	20	0.4	2.0	—	—	15	17	<0.10	15	117	—
OCT 1982 18...	17	.4	1.8	49	—	16	14	<.10	19	128	118
OCT 1983 17...	16	.3	1.9	55	—	17	17	—	18	141	130
OCT 1984 05...	19	.4	1.8	54	—	17	16	—	17	117	127
OCT 1985 07...	19	.4	2.2	50	—	19	15	—	18	127	124
OCT 1986 08...	17	.4	2.4	64	—	17	16	—	20	150	136
OCT 1987 08...	20	.4	2.7	50	—	17	17	—	16	129	123
OCT 1988 14...	17	.4	1.8	63	—	17	18	—	18	—	135
OCT 1989 04...	18	.4	2.2	46	—	15	15	—	17	—	117
OCT 1990 03...	18	.4	1.8	73	—	14	19	<.10	18	—	139
OCT 1991 02...	17	.4	1.8	58	—	15	20	.20	17	—	131
OCT 1992 07...	16	.4	1.9	—	44	17	22	.10	19	—	132
OCT 1993 06...	—	—	—	—	57	—	—	—	—	—	—
OCT 1994 25...	—	—	—	—	42	—	20	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)—Continued

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)
OCT 1981 15...	0.16	—	1.09	1.09	4.8	0.010	1.10	0.020	0.03	0.17	0.21
OCT 1982 18...	.17	3.15	1.38	1.38	6.1	.020	1.40	.020	.03	—	—
OCT 1983 17...	.19	3.20	1.65	1.65	7.3	.050	1.70	.170	.22	—	.13
OCT 1984 05...	.16	4.42	1.90	—	—	<.010	1.90	.070	.09	—	.53
OCT 1985 07...	.17	5.14	1.50	—	—	<.010	1.50	.020	.03	.48	.38
OCT 1986 08...	.20	3.40	1.20	—	—	<.010	1.20	<.010	—	.30	—
OCT 1987 08...	.18	3.20	1.10	—	—	<.010	1.10	.030	.04	.37	.37
OCT 1988 14...	.18	2.80	1.50	—	—	<.010	1.50	.010	.01	.29	—
OCT 1989 04...	.16	8.22	1.70	—	—	<.010	1.70	.020	.03	—	.28
OCT 1990 03...	.19	3.62	1.50	—	—	<.010	1.50	.010	.01	.29	.39
OCT 1991 02...	.18	2.55	1.40	—	—	<.010	1.40	<.010	—	—	—
OCT 1992 07...	.18	2.20	1.40	—	—	<.010	1.40	.020	.03	—	—
OCT 1993 06...	—	—	1.60	—	—	<.010	1.60	.010	.01	—	—
OCT 1994 25...	—	—	1.00	—	—	<.010	1.00	<.015	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)—Continued

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED TOTAL (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED TOTAL (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED TOTAL (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED TOTAL (µG/L AS AS) (01000)	CADMIUM, DIS- SOLVED TOTAL (µG/L AS CD) (01025)
OCT 1981 15...	0.22	0.23	1.3	1.3	0.020	0.06	<0.010	<0.010	—	2	1.0
OCT 1982 18...	—	<.10	—	—	—	—	.050	.020	0.06	1	<1.0
OCT 1983 17...	—	.30	—	2.0	.010	.03	.010	<.010	—	—	—
OCT 1984 05...	—	.60	—	2.5	.030	—	<.010	.020	.06	—	—
OCT 1985 07...	.50	.40	2.0	1.9	.020	.06	.020	.010	.03	—	—
OCT 1986 08...	.30	.20	1.5	1.4	.070	—	.010	<.010	—	<1	<1.0
OCT 1987 08...	.40	.40	1.5	1.5	.010	—	.010	<.010	—	—	—
OCT 1988 14...	.30	<.20	1.8	—	.020	—	.010	<.010	—	—	—
OCT 1989 04...	<.20	.30	—	2.0	.030	—	.020	.020	.06	—	—
OCT 1990 03...	.30	.40	1.8	1.9	<.010	—	<.010	<.010	—	—	—
OCT 1991 02...	<.20	—	—	—	.020	—	<.010	.010	.03	—	—
OCT 1992 07...	<.20	<.20	—	—	.020	—	<.010	<.010	—	—	—
OCT 1993 06...	—	—	—	—	—	—	—	<.010	—	—	—
OCT 1994 25...	—	—	—	—	—	—	—	<.010	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)—Continued

DATE	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 15...	<1	2	3	100	<1	10	<0.1	2	—	10	—
OCT 1982 18...	<1	<1	<1	63	<1	11	<.1	2	—	<4	0.02
OCT 1983 17...	—	—	—	76	—	15	—	—	—	—	—
OCT 1984 05...	—	—	—	59	—	18	—	—	—	—	—
OCT 1985 07...	—	—	—	72	—	22	—	—	—	—	—
OCT 1986 08...	<1	—	1	84	<5	10	—	2	<1.0	<3	—
OCT 1987 08...	—	—	—	79	—	13	—	—	—	—	—
OCT 1988 14...	—	—	—	63	—	10	—	—	—	—	—
OCT 1989 04...	—	—	—	130	—	25	—	—	—	—	—
OCT 1990 03...	—	—	—	67	—	14	—	—	—	—	—
OCT 1991 02...	—	—	—	180	—	14	—	—	—	—	—
OCT 1992 07...	—	—	—	77	—	17	—	—	—	—	—
OCT 1993 06...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 25...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	15...	0930	—	200	7.9	7.5	—	13.0	59	—	17	4.0
OCT 1982	19...	1345	13	192	7.5	9.5	—	11.4	79	—	21	6.4
OCT 1983	17...	0850	11	185	8.1	13.0	<1.0	1.5	81	—	22	6.3
OCT 1984	09...	0930	17	190	8.0	12.0	.50	1.8	75	—	20	6.1
OCT 1985	07...	0845	22	205	7.4	4.0	1.0	12.7	73	—	19	6.2
OCT 1986	06...	0930	11	210	7.6	15.5	.80	8.7	83	—	22	6.7
OCT 1987	08...	0930	13	200	7.3	11.0	.70	11.4	76	—	20	6.4
OCT 1988	12...	0930	11	220	7.1	1.5	1.2	11.6	80	—	21	6.7
OCT 1989	04...	1105	33	202	7.6	12.5	1.3	10.5	73	24	19	6.1
OCT 1990	02...	0930	13	189	7.5	13.5	.40	10.4	82	30	22	6.5
OCT 1991	02...	0830	8.1	218	7.6	14.5	1.0	9.6	80	17	22	6.2
OCT 1992	06...	1000	7.6	222	6.9	9.5	.40	12.4	84	—	23	6.5
OCT 1993	06...	0900	10	232	7.3	9.5	—	11.2	—	—	—	—
OCT 1994	26...	1245	15	230	7.1	9.5	—	11.9	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 15...	7.0	20	0.4	1.9	—	—	16	18	0.10	14	165
OCT 1982 19...	7.5	17	.4	1.5	49	—	16	18	<.10	20	126
OCT 1983 17...	7.6	17	.4	2.0	54	—	18	19	—	18	132
OCT 1984 09...	9.0	20	.5	1.7	52	—	17	17	—	17	121
OCT 1985 07...	8.0	19	.4	2.2	50	—	20	16	—	18	125
OCT 1986 06...	8.7	18	.4	2.7	58	—	18	17	—	20	156
OCT 1987 08...	8.5	19	.4	2.8	53	—	17	18	—	18	130
OCT 1988 12...	7.9	17	.4	2.0	66	—	17	18	—	17	—
OCT 1989 04...	8.1	19	.4	2.2	49	—	15	15	—	18	—
OCT 1990 02...	9.0	19	.4	2.0	52	—	21	20	<.10	18	—
OCT 1991 02...	8.0	17	.4	1.8	63	—	16	22	.20	18	—
OCT 1992 06...	8.4	17	.4	1.9	—	46	17	22	.10	18	—
OCT 1993 06...	—	—	—	—	—	54	—	—	—	—	—
OCT 1994 26...	—	—	—	—	—	44	—	21	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 15...	—	0.22	—	0.980	0.990	4.4	0.010	1.00	0.020	0.03	0.11
OCT 1982 19...	127	.17	4.35	1.49	1.49	6.6	.010	1.50	<.010	.01	—
OCT 1983 17...	133	.18	3.92	1.56	1.56	6.9	.040	1.60	.120	.15	—
OCT 1984 09...	128	.16	5.55	1.90	—	—	<.010	1.90	.080	.10	—
OCT 1985 07...	126	.17	7.43	1.40	—	—	<.010	1.40	.030	.04	—
OCT 1986 06...	134	.21	4.63	.960	.960	4.2	.010	.970	<.010	—	.50
OCT 1987 08...	128	.18	4.56	1.30	—	—	<.010	1.30	.020	.03	.48
OCT 1988 12...	135	.18	4.02	1.40	—	—	<.010	1.40	.010	.01	—
OCT 1989 04...	120	.16	1.7	1.50	—	—	<.010	1.50	.020	.03	.28
OCT 1990 02...	136	.19	4.64	1.50	—	—	<.010	1.50	.040	.05	.26
OCT 1991 02...	138	.19	3.02	1.40	—	—	<.010	1.40	<.010	—	—
OCT 1992 06...	130	.18	2.67	1.20	—	—	<.010	1.20	.010	.01	—
OCT 1993 06...	—	—	—	1.50	—	—	<.010	1.50	.020	.03	—
OCT 1994 26...	—	—	—	1.10	—	—	<.010	1.10	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µg/L AS AS) (01000)
OCT 1981 15...	—	0.20	<0.10	1.2	—	0.010	0.03	<0.010	<0.010	—	3
OCT 1982 19...	—	—	.90	—	2.4	—	—	.010	<.010	—	1
OCT 1983 17...	0.28	—	.40	—	2.0	.010	.03	.020	<.010	—	—
OCT 1984 09...	.22	—	.30	—	2.2	.020	—	.010	.020	0.06	—
OCT 1985 07...	.47	—	.50	—	1.9	.020	.06	.020	.020	.06	—
OCT 1986 06...	—	.50	<.20	1.5	—	.020	—	.020	.010	.03	—
OCT 1987 08...	—	.50	<.20	1.8	—	.010	—	.010	<.010	—	—
OCT 1988 12...	—	<.20	<.20	—	—	.020	—	.010	<.010	—	—
OCT 1989 04...	.38	.30	.40	1.8	1.9	.030	—	.010	.010	.03	—
OCT 1990 02...	.26	.30	.30	1.8	1.8	.010	—	.010	<.010	—	—
OCT 1991 02...	—	<.20	—	—	—	.030	—	<.010	<.010	—	—
OCT 1992 06...	—	<.20	<.20	—	—	.010	—	.010	<.010	—	—
OCT 1993 06...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 26...	—	—	—	—	—	—	—	—	<.010	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 15...	1.0	<1	2	3	80	<1	20	<0.1	2	10	—
OCT 1982 19...	<1.0	<1	2	1	67	<1	16	—	1	<4	0.05
OCT 1983 17...	—	—	—	—	92	—	21	—	—	—	—
OCT 1984 09...	—	—	—	—	59	—	16	—	—	—	—
OCT 1985 07...	—	—	—	—	84	—	16	—	—	—	—
OCT 1986 06...	—	—	—	—	170	—	28	—	—	—	—
OCT 1987 08...	—	—	—	—	86	—	15	—	—	—	—
OCT 1988 12...	—	—	—	—	62	—	12	—	—	—	—
OCT 1989 04...	—	—	—	—	140	—	22	—	—	—	—
OCT 1990 02...	—	—	—	—	70	—	21	—	—	—	—
OCT 1991 02...	—	—	—	—	68	—	18	—	—	—	—
OCT 1992 06...	—	—	—	—	82	—	19	—	—	—	—
OCT 1993 06...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 26...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	15...	1130	—	201	8.1	7.0	—	13.3	51	—	15	3.2
NOV 1982	02...	0845	16	194	7.6	13.0	—	9.9	80	—	21	6.6
OCT 1983	18...	0830	—	202	7.5	12.5	<1.0	9.9	85	—	23	6.7
OCT 1984	22...	0930	23	206	7.8	16.0	.50	9.3	83	—	22	6.7
OCT 1985	08...	1430	22	205	7.8	8.0	.80	10.5	74	—	19	6.4
OCT 1986	06...	1400	11	215	8.1	15.0	.50	9.8	83	—	22	6.9
OCT 1987	13...	1345	11	205	7.8	10.5	.50	12.3	80	—	21	6.7
OCT 1988	12...	1400	11	225	7.8	10.5	.60	12.4	85	—	22	7.2
OCT 1989	06...	1530	35	215	7.5	15.5	.70	7.4	76	19	20	6.4
OCT 1990	12...	0815	14	272	6.8	18.5	2.9	9.3	86	12	23	7.0
OCT 1991	07...	0845	10	245	7.0	12.5	.70	10.6	86	28	23	7.0
OCT 1992	06...	0745	7.1	225	7.3	9.0	.40	11.8	89	—	24	7.0
OCT 1993	07...	1215	12	230	7.4	12.0	—	11.7	—	—	—	—
OCT 1994	26...	0945	18	232	8.1	8.5	—	12.0	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 15...	7.2	23	0.4	2.1	—	—	16	18	<0.10	14	139
NOV 1982 02...	7.6	17	.4	2.2	52	—	18	16	<.10	17	127
OCT 1983 18...	8.5	17	.4	2.0	48	—	19	19	—	18	148
OCT 1984 22...	7.8	17	.4	2.3	56	—	18	20	—	17	126
OCT 1985 08...	8.2	19	.4	2.3	54	—	21	16	—	18	131
OCT 1986 06...	8.9	18	.4	2.7	68	—	19	16	—	20	152
OCT 1987 13...	8.9	19	.4	2.2	50	—	17	18	—	18	135
OCT 1988 12...	8.8	18	.4	2.1	60	—	19	19	—	17	—
OCT 1989 06...	8.2	18	.4	2.2	57	—	17	16	—	18	—
OCT 1990 12...	9.3	18	.4	3.1	74	—	18	20	<.10	19	—
OCT 1991 07...	8.7	17	.4	2.5	58	—	18	19	<.10	17	—
OCT 1992 06...	8.6	17	.4	2.0	—	43	18	21	.10	18	—
OCT 1993 07...	—	—	—	—	—	58	—	—	—	—	—
OCT 1994 26...	—	—	—	—	—	71	—	22	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 15...	—	0.19	—	0.880	0.900	4.0	0.010	0.910	0.050	0.06	0.31
NOV 1982 02...	125	.17	5.49	1.10	—	—	<.010	1.10	<.010	.01	—
OCT 1983 18...	132	.20	—	1.46	1.46	6.5	.040	1.50	.140	.18	—
OCT 1984 22...	133	.17	7.82	1.16	1.16	5.1	.040	1.20	.070	.09	—
OCT 1985 08...	130	.18	7.78	1.50	—	—	<.010	1.50	.020	.03	.48
OCT 1986 06...	140	.21	4.51	.840	—	—	<.010	.840	<.010	—	—
OCT 1987 13...	128	.18	4.01	1.30	—	—	<.010	1.30	.010	.01	.49
OCT 1988 12...	137	.19	4.07	1.30	—	—	<.010	1.30	<.010	—	.20
OCT 1989 06...	130	.18	12.3	1.80	—	—	<.010	1.80	.020	.03	.48
OCT 1990 12...	148	.20	5.47	.900	—	—	<.010	.900	.020	.03	.38
OCT 1991 07...	135	.18	3.75	1.10	—	—	<.010	1.10	<.010	—	—
OCT 1992 06...	130	.18	2.49	1.20	—	—	<.010	1.20	<.010	—	—
OCT 1993 07...	—	—	—	1.50	—	—	<.010	1.50	.010	.01	—
OCT 1994 26...	—	—	—	.980	—	—	<.010	.980	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO4) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 15...	0.07	0.37	0.12	1.3	1.0	<0.010	—	<0.010	<0.010	—	2
NOV 1982 02...	—	—	.80	—	1.9	—	—	.020	<.010	—	1
OCT 1983 18...	.26	—	.40	—	1.9	.020	0.06	.010	<.010	—	—
OCT 1984 22...	.13	—	.20	—	1.4	<.010	—	.040	.010	0.03	—
OCT 1985 08...	.48	.50	.50	2.0	2.0	.020	.06	.020	.010	.03	—
OCT 1986 06...	—	<.20	.40	—	1.2	.030	—	.020	.010	.03	—
OCT 1987 13...	—	.50	<.20	1.8	—	<.010	—	<.010	<.010	—	—
OCT 1988 12...	—	.20	.20	1.5	1.5	.010	—	.010	<.010	—	—
OCT 1989 06...	—	.50	<.20	2.3	—	.030	—	.010	.010	.03	—
OCT 1990 12...	.18	.40	.20	1.3	1.1	.040	—	.010	<.050	—	—
OCT 1991 07...	—	<.20	—	—	—	.020	—	<.010	<.010	—	—
OCT 1992 06...	—	<.20	<.20	—	—	<.010	—	.020	<.010	—	—
OCT 1993 07...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 26...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 15...	1.0	<1	2	3	70	<1	10	<0.1	5	2	—
NOV 1982 02...	<1.0	<1	<1	1	54	<1	4	<.1	<1	<4	0.03
OCT 1983 18...	—	—	—	—	53	—	6	—	—	—	—
OCT 1984 22...	—	—	—	—	48	—	3	—	—	—	—
OCT 1985 08...	—	—	—	—	53	—	6	—	—	—	—
OCT 1986 06...	—	—	—	—	100	—	7	—	—	—	—
OCT 1987 13...	—	—	—	—	57	—	4	—	—	—	—
OCT 1988 12...	—	—	—	—	43	—	3	—	—	—	—
OCT 1989 06...	—	—	—	—	91	—	8	—	—	—	—
OCT 1990 12...	—	—	—	—	47	—	7	—	—	—	—
OCT 1991 07...	—	—	—	—	49	—	7	—	—	—	—
OCT 1992 06...	—	—	—	—	55	—	7	—	—	—	—
OCT 1993 07...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 26...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)
OCT 1981										
16...	1515	—	533	8.6	14.0	—	13.4	210	—	56
OCT 1982										
15...	0930	4.8	466	8.2	12.2	—	10.4	210	—	56
OCT 1983										
21...	0900	4.0	503	7.8	9.0	<1.0	10.7	230	—	59
OCT 1984										
09...	1500	6.0	480	8.8	14.0	.40	10.9	210	—	56
OCT 1985										
09...	0830	5.9	515	7.5	7.2	.40	12.0	240	—	63
NOV 1986										
07...	0900	7.1	480	7.9	9.3	1.0	11.5	230	—	58
NOV 1987										
16...	1330	9.6	495	8.1	11.5	.20	12.0	220	—	58
OCT 1988										
26...	0930	4.6	550	7.7	10.0	1.3	11.8	230	—	60
NOV 1989										
06...	0945	8.4	530	7.8	11.0	.30	11.4	220	59	57
NOV 1990										
14...	0900	5.5	510	6.9	6.5	.30	12.7	220	51	58
OCT 1991										
28...	0915	—	570	7.6	13.0	.60	10.8	240	59	64
OCT 1992										
05...	0910	3.1	279	7.2	12.0	.20	10.8	240	—	63
NOV 1993										
18...	0915	4.4	520	8.1	10.5	—	11.4	—	—	—
NOV 1994										
07...	0900	3.5	650	7.9	10.5	—	11.2	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)—Continued

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION (MG/L AS K) (00932) (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ANC WATER UNFLTRD FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ANC WATER UNFLTRD IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED AS (MG/L) (70300)	
OCT 1981												
16...	18	24	19	0.7	2.4	—	39	45	0.20	5.6	298	
OCT 1982												
15...	18	23	19	.7	1.5	170	34	44	.20	7.5	323	
OCT 1983												
21...	19	24	19	.7	2.2	200	34	47	—	7.5	342	
OCT 1984												
09...	18	25	20	.7	2.1	174	34	41	—	7.6	297	
OCT 1985												
20...	20	26	19	.7	2.1	176	35	50	—	8.2	313	
NOV 1986												
07...	20	25	19	.7	2.2	178	32	44	—	7.9	316	
NOV 1987												
16...	19	26	20	.8	2.3	178	35	48	—	7.5	302	
OCT 1988												
26...	20	26	19	.7	2.4	178	33	47	—	8.3	—	
NOV 1989												
06...	19	26	20	.8	2.0	162	31	44	—	6.8	—	
NOV 1990												
14...	18	23	18	.7	2.3	168	29	45	<.10	7.7	—	
OCT 1991												
28...	20	26	19	.7	2.4	183	35	49	.10	7.4	—	
OCT 1992												
26...	20	25	18	.7	2.2	—	248	33	.10	7.3	—	
NOV 1993												
18...	—	—	—	—	—	—	155	29	.10	—	—	
NOV 1994												
07...	—	—	—	—	—	—	175	—	—	—	—	



**Table 3. Water-quality data from surface-water sites—Continued**

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>2</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)
OCT 1981												
16...	—	0.41	—	2.30	2.30	10	0.010	2.30	0.020	0.03	0.26	0.30
OCT 1982												
15...	298	.44	4.16	—	2.60	12	.020	2.60	.060	.08	—	.04
OCT 1983												
21...	323	.47	3.69	—	2.40	10	.040	2.40	<.010	—	—	—
OCT 1984												
09...	300	.40	4.81	—	—	—	<.010	2.70	.030	.04	—	.27
OCT 1985												
09...	322	.43	4.99	—	—	—	<.010	2.70	.030	.04	.87	.17
NOV 1986												
07...	306	.43	6.06	—	—	—	<.010	2.20	.010	.01	—	.59
NOV 1987												
16...	314	.41	7.83	—	—	—	<.010	2.50	<.010	—	—	—
OCT 1988												
26...	314	.43	3.90	—	—	—	<.010	2.40	.020	.03	—	—
NOV 1989												
06...	294	.40	6.67	—	—	—	<.010	2.50	.020	.03	—	—
NOV 1990												
14...	295	.40	4.37	—	—	—	<.010	2.40	.050	.06	—	—
OCT 1991												
28...	322	.44	—	—	—	—	<.010	1.90	.020	.03	—	—
OCT 1992												
05...	359	.49	3.00	—	—	—	<.010	2.10	<.010	—	—	—
NOV 1993												
18...	—	—	—	—	—	—	<.010	2.00	.020	.03	—	—
NOV 1994												
07...	—	—	—	—	—	—	<.010	1.90	<.015	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)—Continued

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO4) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
OCT 1981												
16...	0.31	0.32	2.6	2.6	0.030	0.09	0.010	<0.010	—	3	1.0	<1.0
OCT 1982												
15...	—	.10	—	2.7	—	—	<.010	.010	0.03	1	<1.0	1.0
OCT 1983												
21...	—	.30	—	2.7	.030	.09	.020	.020	.06	1	<1.0	<1.0
OCT 1984												
09...	—	.30	—	3.0	.050	—	.020	.020	.06	<1	<1.0	<1.0
OCT 1985												
09...	.90	.20	3.6	2.9	.020	.06	.010	.010	.03	<1	<1.0	<1.0
NOV 1986												
07...	<.20	.60	—	2.8	.020	—	.010	<.010	—	<1	<1.0	<1.0
NOV 1987												
16...	<.20	<.20	—	—	.020	—	<.010	<.010	—	<1	<1.0	<1.0
OCT 1988												
26...	<.20	<.20	—	—	.020	—	.020	.010	.03	<1	<1.0	<5.0
NOV 1989												
06...	<.20	<.20	—	—	.010	—	<.010	.010	.03	<1	1.0	<5.0
NOV 1990												
14...	<.20	<.20	—	—	<.010	—	<.010	<.010	—	<1	<1.0	<5.0
OCT 1991												
28...	<.20	<.20	—	—	<.010	—	<.010	<.010	—	1	<1.0	<5.0
OCT 1992												
05...	<.20	<.20	—	—	<.010	—	<.010	<.010	—	<1	<1.0	<5.0
NOV 1993												
18...	—	—	—	—	—	—	—	<.010	—	—	—	—
NOV 1994												
07...	—	—	—	—	—	—	—	<.010	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)—Continued

DATE	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 16...	2.0	6.0	110	<1.0	30	0.1	3.0	<10	0.00
OCT 1982 15...	<1.0	2.0	9.0	<1.0	4.0	<.1	3.0	<4.0	.04
OCT 1983 21...	—	1.0	9.0	3.0	5.0	.1	1.0	9.0	—
OCT 1984 09...	—	1.0	9.0	4.0	7.0	<.1	1.0	<3.0	—
OCT 1985 09...	—	2.0	5.0	4.0	5.0	<.1	<1.0	6.0	—
NOV 1986 07...	—	3.0	8.0	<5.0	8.0	.7	3.0	<3.0	—
NOV 1987 16...	—	2.0	4.0	<5.0	4.0	<.1	<1.0	<3.0	—
OCT 1988 26...	<3.0	<10	9.0	<10	5.0	.2	<10	<3.0	—
NOV 1989 06...	<3.0	<10	4.0	<10	6.0	<.1	<10	6.0	—
NOV 1990 14...	<3.0	<10	9.0	<10	5.0	<.1	<10	4.0	—
OCT 1991 28...	<3.0	<10	6.0	10	5.0	<.1	<10	5.0	—
OCT 1992 05...	<3.0	<10	<3.0	<10	<1.0	<.1	<10	<3.0	—
NOV 1993 18...	—	—	—	—	—	—	—	—	—
NOV 1994 07...	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	16...	1400	—	615	8.4	12.5	—	12.3	260	—	47	35
OCT 1982	15...	1200	18	498	8.3	12.0	—	10.5	230	—	45	29
OCT 1983	21...	1100	3.2	538	8.2	10.0	4.0	10.8	240	—	47	30
OCT 1984	09...	1630	17	535	9.2	14.0	.70	11.1	240	—	46	30
OCT 1985	09...	1030	10	550	7.8	9.0	1.0	12.0	250	—	49	30
NOV 1986	07...	1300	15	498	8.3	9.0	1.1	11.6	240	—	46	31
NOV 1987	16...	1000	13	515	7.9	9.0	.20	12.6	250	—	48	31
OCT 1988	26...	1345	9.8	518	7.9	9.5	2.2	12.1	250	—	47	32
NOV 1989	06...	1445	17	585	8.2	11.5	.60	11.9	250	39	50	31
NOV 1990	14...	1130	12	595	6.9	6.5	2.5	13.2	250	65	50	31
OCT 1991	28...	1200	8.2	562	8.1	14.0	2.0	11.0	250	27	49	32
OCT 1992	05...	1215	9.3	308	7.2	12.5	.30	11.6	250	—	47	31
NOV 1993	18...	1230	11	602	8.3	11.0	—	11.8	—	—	—	—
NOV 1994	07...	1130	14	580	7.9	11.5	—	11.1	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981 16...	26	18	0.7	3.1	—	—	37	39	<0.10	6.6
OCT 1982 15...	27	20	.8	2.4	200	—	35	41	<.10	8.0
OCT 1983 21...	25	18	.7	2.9	212	—	31	42	—	7.7
OCT 1984 09...	29	21	.8	3.0	214	—	31	42	—	7.7
OCT 1985 09...	25	18	.7	3.0	216	—	30	43	—	8.0
NOV 1986 07...	23	17	.6	3.0	200	—	33	36	—	8.2
NOV 1987 16...	25	18	.7	3.5	211	—	30	42	—	6.9
OCT 1988 26...	26	18	.7	3.4	214	—	31	43	—	8.1
NOV 1989 06...	27	19	.7	3.1	214	—	29	39	—	6.5
NOV 1990 14...	26	18	.7	3.5	188	—	28	45	<.10	8.0
OCT 1991 28...	26	18	.7	3.6	227	—	30	41	.10	7.2
OCT 1992 05...	23	17	.6	3.2	—	183	28	45	.10	7.8
NOV 1993 18...	—	—	—	—	—	214	26	41	<.10	—
NOV 1994 07...	—	—	—	—	—	192	—	46	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 16...	309	—	0.42	—	1.78	1.68	7.4	0.020	1.70	0.080
OCT 1982 15...	311	316	.42	15.3	1.87	1.87	8.3	.030	1.90	.050
OCT 1983 21...	325	321	.44	2.81	1.75	1.75	7.7	.050	1.80	<.010
OCT 1984 09...	311	327	.42	14.3	2.17	2.17	9.6	.030	2.20	.050
OCT 1985 09...	315	328	.43	8.51	2.17	2.17	9.6	.030	2.20	.050
NOV 1986 07...	305	310	.41	12.4	2.08	2.08	9.2	.020	2.10	.070
NOV 1987 16...	313	323	.43	11.0	2.20	—	—	<.010	2.20	<.010
OCT 1988 26...	—	330	.45	8.72	2.37	2.37	10	.030	2.40	.070
NOV 1989 06...	—	326	.44	14.9	2.58	2.58	11	.020	2.60	.020
NOV 1990 14...	—	317	.43	1.3	2.78	2.78	12	.020	2.80	.110
OCT 1991 28...	—	334	.45	7.39	1.90	—	—	<.010	1.90	.020
OCT 1992 05...	—	304	.41	7.63	2.00	—	—	<.010	2.00	.010
NOV 1993 18...	—	—	—	—	2.18	2.18	9.6	.020	2.20	.030
NOV 1994 07...	—	—	—	—	1.90	—	—	<.010	1.90	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 16...	0.10	0.35	0.03	0.50	0.11	2.3	1.8	0.020	0.06	0.010
OCT 1982 15...	.06	—	.35	—	.40	—	2.3	—	—	.010
OCT 1983 21...	—	—	—	—	.20	—	2.0	.030	.09	.010
OCT 1984 09...	.06	—	.25	—	.30	—	2.5	.020	—	.010
OCT 1985 09...	.06	—	.35	—	.40	—	2.6	.030	.09	.020
NOV 1986 07...	.09	.43	.43	.50	.50	2.6	2.6	.020	—	.020
NOV 1987 16...	—	.40	—	.40	<.20	2.6	—	.020	—	<.010
OCT 1988 26...	.09	.13	.33	.20	.40	2.6	2.8	.030	—	.020
NOV 1989 06...	.03	.48	.18	.50	.20	3.1	2.8	<.010	—	<.010
NOV 1990 14...	.14	.49	.49	.60	.60	3.4	3.4	.040	—	.020
OCT 1991 28...	.03	—	—	<.20	<.20	—	—	.030	—	<.010
OCT 1992 05...	.01	—	—	<.20	<.20	—	—	<.010	—	.020
NOV 1993 18...	.04	—	—	—	—	—	—	—	—	—
NOV 1994 07...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)—Continued

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 16...	<0.010	—	3	—	—	1.0	<1	2	3	110
OCT 1982 15...	.020	0.06	1	—	—	<1.0	<1	<1	<1	14
OCT 1983 21...	.010	.03	1	—	—	<1.0	1	—	1	7
OCT 1984 09...	.020	.06	<1	—	—	<1.0	2	—	1	7
OCT 1985 09...	.010	.03	<1	—	—	<1.0	2	—	1	5
NOV 1986 07...	<.010	—	<1	—	—	<1.0	<1	—	4	8
NOV 1987 16...	<.010	—	<1	—	—	<1.0	1	—	<1	6
OCT 1988 26...	<.010	—	<1	25	<0.5	<1.0	<5	<3	<10	20
NOV 1989 06...	<.010	—	<1	28	<.5	<1.0	<5	<3	<10	9
NOV 1990 14...	<.010	—	<1	27	<.5	<1.0	<5	<3	<10	8
OCT 1991 28...	.020	.06	<1	27	<.5	<1.0	<5	<3	<10	13
OCT 1992 05...	<.010	—	<1	24	<.5	<1.0	<5	<3	<10	5
NOV 1993 18...	<.010	—	—	—	—	—	—	—	—	—
NOV 1994 07...	<.010	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 16...	<1	—	30	<0.1	4	—	—	—	10	0.0
OCT 1982 15...	<1	100	14	<.1	4	—	—	—	<4	.03
OCT 1983 21...	2	80	13	.1	1	<1.0	—	—	11	—
OCT 1984 09...	1	100	9	<.1	1	<1.0	—	—	<3	—
OCT 1985 09...	5	98	9	.2	4	<1.0	—	—	57	—
NOV 1986 07...	<5	44	12	.2	3	<1.0	—	—	42	—
NOV 1987 16...	<5	54	15	<.1	1	<1.0	—	—	<3	—
OCT 1988 26...	<10	49	17	.2	<10	3.0	58	<6	<3	—
NOV 1989 06...	<10	98	11	.3	<10	3.0	76	<6	6	—
NOV 1990 14...	<10	57	14	<.1	<10	<1.0	63	<6	<3	—
OCT 1991 28...	<10	37	10	<.1	<10	<1.0	56	<6	4	—
OCT 1992 05...	<10	28	8	<.1	<10	<1.0	57	<6	<3	—
NOV 1993 18...	—	—	—	—	—	—	—	—	—	—
NOV 1994 07...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
19...	1530	—	230	7.0	10.0	—	10.0	93	—	22	9.3
OCT 1982											
13...	0915	2.8	266	6.9	13.0	—	9.5	99	—	23	10
OCT 1983											
27...	1430	3.8	235	7.5	10.0	1.3	9.5	99	—	24	9.5
OCT 1984											
15...	1000	3.0	250	7.5	12.5	.40	10.0	100	—	24	10
OCT 1985											
31...	1400	2.2	272	7.4	10.5	.40	11.0	99	—	23	10
NOV 1986											
14...	1400	3.5	235	7.7	4.5	6.9	12.1	97	—	23	9.6
OCT 1987											
15...	1100	2.5	190	7.5	10.5	.40	12.1	95	—	22	9.8
OCT 1988											
18...	1500	3.0	267	7.1	14.5	1.0	9.9	96	—	22	10
OCT 1989											
25...	1745	5.6	258	7.4	13.0	.80	9.6	96	30	22	10
NOV 1990											
02...	1245	2.7	262	6.7	12.5	.60	11.8	97	33	23	9.6
OCT 1991											
29...	1200	4.3	280	7.1	12.5	1.2	10.1	100	29	24	10
OCT 1992											
21...	1150	4.2	278	7.3	10.0	2.5	11.6	100	—	25	10
OCT 1993											
18...	1130	3.8	302	7.4	14.0	—	10.1	—	—	—	—
OCT 1994											
04...	1300	5.4	315	7.9	13.5	—	10.0	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)		SODIUM AD- SORP- TION (MG/L AS K) (00935)		ANC WATER UNFLTRD FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)		ANC WATER UNFLTRD IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)		SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)		CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)		FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)		SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)		SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	
	AS NA)	SODIUM PERCENT (00932)	TION RATIO (00931)	AS K)	(MG/L AS CaCO <sub>3</sub> ) (00410)	(MG/L AS CaCO <sub>3</sub> ) (00419)	(MG/L AS SO <sub>4</sub> ) (00945)	(MG/L AS CL) (00940)	(MG/L AS F) (00950)	(MG/L AS SiO <sub>2</sub> ) (00955)	(MG/L) (70300)							
OCT 1981 19...	13	23	0.6	2.7	—	—	17	21	<0.10	10	135							
OCT 1982 13...	12	21	.6	1.2	72	—	20	21	<.10	14	167							
OCT 1983 27...	10	18	.4	2.2	68	—	23	19	—	14	153							
OCT 1984 15...	11	19	.5	1.9	74	—	20	22	—	14	153							
OCT 1985 31...	14	23	.7	2.1	82	—	21	27	—	16	132							
NOV 1986 14...	10	18	.4	2.3	74	—	23	15	—	15	154							
OCT 1987 15...	12	21	.5	2.2	73	—	19	20	—	15	148							
OCT 1988 18...	12	21	.5	1.9	76	—	19	23	—	14	—							
OCT 1989 25...	12	21	.5	2.3	66	—	18	20	—	16	—							
NOV 1990 02...	12	21	.5	2.4	64	—	21	24	<.10	17	—							
OCT 1991 29...	13	21	.6	2.5	72	—	22	27	.10	14	—							
OCT 1992 21...	14	22	.6	2.2	—	110	18	26	.10	14	—							
OCT 1993 18...	—	—	—	—	—	75	—	—	—	—	—							
OCT 1994 04...	—	—	—	—	—	76	—	32	—	—	—							

**Table 3. Water-quality data from surface-water sites—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)
OCT 1981 19...	—	0.18	—	1.30	5.8	0.010	1.30	0.040	0.05	0.68	0.54
OCT 1982 13...	152	.23	1.26	1.60	7.1	.020	1.60	.020	.03	—	.08
OCT 1983 27...	150	.21	1.57	—	—	<.010	1.60	<.010	—	—	—
OCT 1984 15...	154	.21	1.24	1.37	6.1	.030	1.40	.060	.08	—	.14
OCT 1985 31...	169	.18	.78	1.39	6.2	.010	1.40	.020	.03	.38	.28
NOV 1986 14...	149	.21	1.46	—	—	<.010	1.50	.050	.06	.55	.55
OCT 1987 15...	151	.20	1.00	—	—	<.010	1.70	.020	.03	.28	.18
OCT 1988 18...	153	.21	1.24	—	—	<.010	1.30	<.010	—	—	—
OCT 1989 25...	140	.20	2.24	—	—	<.010	1.80	.020	.03	.28	.28
NOV 1990 02...	155	.21	1.13	1.58	7.0	.020	1.60	<.010	—	—	—
OCT 1991 29...	162	.22	1.88	—	—	<.010	1.30	<.010	—	—	—
OCT 1992 21...	182	.25	2.06	—	—	<.010	1.50	<.010	—	—	—
OCT 1993 18...	—	—	—	—	—	<.010	1.70	.020	.03	—	—
OCT 1994 04...	—	—	—	1.89	8.4	.010	1.90	.020	.03	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)—Continued

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)
OCT 1981 19...	0.70	0.58	2.0	1.9	0.110	0.34	0.040	0.030	0.09	1	<1.0
OCT 1982 13...	—	.10	—	1.7	—	—	.030	.020	.06	1	<1.0
OCT 1983 27...	—	.50	—	2.1	.030	.09	.020	.010	.03	—	—
OCT 1984 15...	—	.20	—	1.6	.010	—	.010	.020	.06	—	—
OCT 1985 31...	.40	.30	1.8	1.7	.030	.09	.020	.010	.03	—	—
NOV 1986 14...	.60	.60	2.1	2.1	.070	—	.020	.010	.03	—	—
OCT 1987 15...	.30	.20	2.0	1.9	.010	—	<.010	<.010	—	—	—
OCT 1988 18...	.40	.40	1.7	1.7	.020	—	.020	<.010	—	—	—
OCT 1989 25...	.30	.30	2.1	2.1	.030	—	.030	.020	.06	—	—
NOV 1990 02...	.40	.40	2.0	2.0	.020	—	<.010	.020	.06	—	—
OCT 1991 29...	.20	<.20	1.5	—	.030	—	.010	<.010	—	—	—
OCT 1992 21...	.20	<.20	1.7	—	.040	—	.010	<.010	—	—	—
OCT 1993 18...	—	—	—	—	—	—	—	.010	.03	—	—
OCT 1994 04...	—	—	—	—	—	—	—	.010	.03	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)—Continued

DATE	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 19...	1.0	<1.0	4.0	200	2.0	23	<.1	<1.0	<4.0	—
OCT 1982 13...	<1.0	<1.0	2.0	160	<1.0	14	<.1	4.0	<4.0	0.02
OCT 1983 27...	—	—	—	110	—	18	—	—	—	—
OCT 1984 15...	—	—	—	63	—	10	—	—	—	—
OCT 1985 31...	—	—	—	53	—	10	—	—	—	—
NOV 1986 14...	—	—	—	110	—	28	—	—	—	—
OCT 1987 15...	—	—	—	45	—	10	—	—	—	—
OCT 1988 18...	—	—	—	36	—	9.0	—	—	—	—
OCT 1989 25...	—	—	—	120	—	17	—	—	—	—
NOV 1990 02...	—	—	—	50	—	8.0	—	—	—	—
OCT 1991 29...	—	—	—	36	—	8.0	—	—	—	—
OCT 1992 21...	—	—	—	41	—	11	—	—	—	—
OCT 1993 18...	—	—	—	—	—	—	—	—	—	—
OCT 1994 04...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	26...	1200	—	164	7.0	9.5	—	11.5	63	—	13	7.5
OCT 1982	13...	1230	4.0	163	7.6	13.0	—	10.4	63	—	13	7.4
OCT 1983	27...	1300	4.2	159	7.4	9.0	<1.0	11.0	67	—	14	7.8
OCT 1984	25...	1000	6.3	150	7.7	12.0	.50	10.2	68	—	14	8.0
OCT 1985	15...	0900	4.5	178	7.2	11.0	.60	10.6	65	—	13	8.0
OCT 1986	09...	1530	2.7	172	7.6	16.5	.20	10.2	67	—	14	7.8
NOV 1987	02...	1000	4.6	168	7.4	11.0	.20	11.6	68	—	14	8.1
OCT 1988	18...	1030	2.7	180	7.1	14.0	1.7	10.4	68	—	14	8.0
OCT 1989	18...	1000	9.6	189	7.4	14.0	.60	9.4	72	19	15	8.3
NOV 1990	02...	0930	4.6	190	6.7	11.5	.40	11.7	70	17	15	8.0
OCT 1991	29...	0915	4.4	182	7.3	10.0	1.4	10.7	68	1	14	7.9
OCT 1992	21...	0915	3.5	180	7.3	8.0	.70	11.8	68	—	14	8.1
OCT 1993	28...	0945	4.4	191	7.1	11.0	—	9.5	—	—	—	—
OCT 1994	03...	1030	4.2	196	6.8	11.5	—	10.4	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 26...	7.1	19	0.4	2.1	—	—	12	9.6	<0.10	16	97
OCT 1982 13...	6.6	18	.4	.90	50	—	10	9.9	<.10	17	111
OCT 1983 27...	7.0	18	.4	1.8	42	—	18	12	—	17	113
OCT 1984 25...	7.5	19	.4	2.2	56	—	12	11	—	16	109
OCT 1985 15...	7.4	19	.4	1.9	54	—	14	13	—	15	108
OCT 1986 09...	7.0	18	.4	1.9	54	—	12	11	—	18	136
NOV 1987 02...	7.2	18	.4	2.0	73	—	13	15	—	17	110
OCT 1988 18...	7.4	19	.4	1.7	59	—	12	13	—	15	—
OCT 1989 18...	8.6	20	.4	2.7	53	—	12	14	—	16	—
NOV 1990 02...	7.6	19	.4	1.8	53	—	11	14	.10	17	—
OCT 1991 29...	7.0	18	.4	2.3	67	—	11	18	.20	16	—
OCT 1992 21...	7.0	18	.4	1.9	—	47	10	15	.10	17	—
OCT 1993 28...	—	—	—	—	—	48	—	—	—	—	—
OCT 1994 03...	—	—	—	—	—	30	—	17	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 26...	—	0.13	—	1.08	—	—	<0.010	1.10	0.020	0.03	0.28
OCT 1982 13...	101	.15	1.18	1.40	—	—	<.010	1.40	.020	.03	—
OCT 1983 27...	109	.15	1.28	1.40	—	—	<.010	1.40	<.010	—	—
OCT 1984 25...	108	.15	1.85	.860	—	—	<.010	.860	.020	.03	—
OCT 1985 15...	111	.15	1.31	1.50	—	—	<.010	1.50	.020	.03	—
OCT 1986 09...	109	.18	.99	.990	0.990	4.4	.010	1.00	<.010	—	—
NOV 1987 02...	126	.15	1.37	1.20	—	—	<.010	1.20	.030	.04	.47
OCT 1988 18...	113	.15	.82	1.40	—	—	<.010	1.40	<.010	—	.40
OCT 1989 18...	115	.16	2.98	1.39	1.39	6.2	.010	1.40	.020	.03	.38
NOV 1990 02...	113	.15	1.41	1.50	—	—	<.010	1.50	.020	.03	.58
OCT 1991 29...	120	.16	1.43	.830	—	—	<.010	.830	.020	.03	.18
OCT 1992 21...	107	.15	1.01	1.19	1.19	5.3	.010	1.20	.010	.01	.19
OCT 1993 28...	—	—	—	1.20	—	—	<.010	1.20	.010	.01	—
OCT 1994 03...	—	—	—	1.40	—	—	<.010	1.40	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 26...	0.95	0.30	0.97	1.4	2.1	0.030	0.09	0.030	0.010	0.03	1
OCT 1982 13...	.18	—	.20	—	1.6	—	—	.060	.020	.06	1
OCT 1983 27...	—	—	.90	—	2.3	.030	.09	.010	<.010	—	—
OCT 1984 25...	.18	—	.20	—	1.1	<.010	—	<.010	<.010	—	—
OCT 1985 15...	.38	—	.40	—	1.9	.010	.03	.010	.010	.03	—
OCT 1986 09...	—	<.20	<.20	—	—	.020	—	.020	.010	.03	—
NOV 1987 02...	—	.50	<.20	1.7	—	.010	—	.010	.010	.03	—
OCT 1988 18...	—	.40	.40	1.8	1.8	.010	—	.010	<.010	—	—
OCT 1989 18...	.28	.40	.30	1.8	1.7	.030	—	.030	.020	.06	—
NOV 1990 02...	.38	.60	.40	2.1	1.9	.030	—	.020	.030	.09	—
OCT 1991 29...	—	.20	<.20	1.0	—	.010	—	<.010	.020	.06	—
OCT 1992 21...	.29	.20	.30	1.4	1.5	.030	—	.020	.020	.06	—
OCT 1993 28...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 03...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 26...	3.0	2	<1	4	110	4	16	<0.1	4	8	ND
OCT 1982 13...	<1.0	1	<1	2	94	<1	9	<.1	3	<4	—
OCT 1983 27...	—	—	—	—	91	—	13	—	—	—	—
OCT 1984 25...	—	—	—	—	120	—	9	—	—	—	—
OCT 1985 15...	—	—	—	—	43	—	4	—	—	—	—
OCT 1986 09...	—	—	—	—	59	—	7	—	—	—	—
NOV 1987 02...	—	—	—	—	71	—	11	—	—	—	—
OCT 1988 18...	—	—	—	—	36	—	7	—	—	—	—
OCT 1989 18...	—	—	—	—	140	—	22	—	—	—	—
NOV 1990 02...	—	—	—	—	61	—	6	—	—	—	—
OCT 1991 29...	—	—	—	—	83	—	6	—	—	—	—
OCT 1992 21...	—	—	—	—	72	—	6	—	—	—	—
OCT 1993 28...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 03...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
05...	1445	—	168	7.7	10.0	—	11.2	63	—	13	7.4
OCT 1982											
14...	1000	2.0	194	7.5	13.0	—	9.1	63	—	13	7.4
OCT 1983											
27...	1045	3.1	196	6.7	9.0	4.2	10.5	70	—	15	8.0
OCT 1984											
25...	1400	2.7	199	7.5	14.0	.50	8.8	72	—	15	8.3
OCT 1985											
15...	1230	3.3	205	7.2	12.0	1.5	11.9	69	—	14	8.2
OCT 1986											
09...	1230	1.5	235	7.8	16.0	.40	10.0	85	—	18	9.8
OCT 1987											
26...	1100	2.6	315	7.5	10.5	.60	10.5	100	—	21	12
OCT 1988											
25...	0930	3.5	224	7.4	10.0	2.8	10.5	77	—	16	9.1
NOV 1989											
14...	0900	5.4	231	7.5	10.5	.80	12.2	75	25	15	9.1
OCT 1990											
30...	0900	2.4	249	6.4	7.0	.50	12.0	89	37	19	10
NOV 1991											
06...	0915	2.3	237	7.4	5.0	.70	13.2	86	17	18	10
OCT 1992											
20...	0845	2.2	250	6.6	7.5	2.0	10.4	84	—	17	10
OCT 1993											
25...	1210	2.9	252	7.2	11.5	—	9.8	—	—	—	—
OCT 1994											
07...	1300	2.2	242	7.7	12.5	—	10.6	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 05...	10	25	0.5	1.7	—	—	15	16	<0.10	12	105
OCT 1982 14...	11	27	.6	1.8	38	—	14	17	<.10	9.7	119
OCT 1983 27...	12	26	.6	2.2	40	—	20	19	—	10	126
OCT 1984 25...	11	24	.6	2.2	48	—	17	18	—	11	128
OCT 1985 15...	11	25	.6	1.8	42	—	18	21	—	9.3	115
OCT 1986 09...	13	24	.6	1.9	58	—	16	22	—	11	140
OCT 1987 26...	26	34	1	4.4	85	—	24	35	—	10	200
OCT 1988 25...	12	25	.6	2.3	57	—	16	20	—	9.4	—
NOV 1989 14...	12	25	.6	1.6	50	—	14	21	—	8.9	—
OCT 1990 30...	14	25	.6	2.2	52	—	17	25	<.10	9.8	—
NOV 1991 06...	14	26	.7	2.0	69	—	18	29	.10	10	—
OCT 1992 20...	14	26	.7	2.0	—	59	15	25	<.10	9.7	—
OCT 1993 25...	—	—	—	—	—	57	—	—	—	—	—
OCT 1994 07...	—	—	—	—	—	53	—	32	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 05...	—	0.14	—	2.10	—	—	<0.010	1.90	<0.010	0.01	0.36
OCT 1982 14...	109	.16	0.64	2.58	2.58	11	.020	2.60	.100	.13	—
OCT 1983 27...	121	.17	1.05	2.40	—	—	<.010	2.40	<.010	—	—
OCT 1984 25...	119	.17	.93	1.70	—	—	<.010	1.70	.050	.06	—
OCT 1985 15...	120	.16	1.02	2.59	2.59	11	.010	2.60	.010	.01	.39
OCT 1986 09...	134	.19	.57	1.59	1.59	7.0	.010	1.60	<.010	—	.30
OCT 1987 26...	193	.27	1.40	1.69	1.69	7.5	.010	1.70	.030	.04	.97
OCT 1988 25...	129	.17	1.22	2.08	2.08	9.2	.020	2.10	.050	.06	.35
NOV 1989 14...	125	.17	1.82	2.99	2.99	13	.010	3.00	.020	.03	.38
OCT 1990 30...	140	.19	.90	2.47	2.47	11	.030	2.50	.020	.03	.78
NOV 1991 06...	154	.21	.95	2.50	—	—	<.010	2.50	.010	.01	—
OCT 1992 20...	139	.19	.82	2.28	2.28	10	.020	2.30	.010	.01	.19
OCT 1993 25...	—	—	—	2.08	2.08	9.2	.020	2.10	.030	.04	—
OCT 1994 07...	—	—	—	2.60	—	—	<.010	2.60	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 05...	—	0.36	0.35	2.5	2.3	0.070	0.21	0.070	0.050	0.15	ND
OCT 1982 14...	0.30	—	.40	—	3.0	—	—	.100	.080	.25	1
OCT 1983 27...	—	—	1.2	—	3.6	.130	.40	.100	.110	.34	—
OCT 1984 25...	.35	—	.40	—	2.1	.080	—	.050	.050	.15	—
OCT 1985 15...	.19	.40	.20	3.0	2.8	.080	.25	.070	.060	.18	—
OCT 1986 09...	—	.30	<.20	1.9	—	.060	—	.050	.040	.12	—
OCT 1987 26...	.27	1.0	.30	2.7	2.0	.740	—	.810	.680	2.1	—
OCT 1988 25...	.35	.40	.40	2.5	2.5	.060	—	.040	.040	.12	—
NOV 1989 14...	.28	.40	.30	3.4	3.3	.060	—	.030	.040	.12	—
OCT 1990 30...	.48	.80	.50	3.3	3.0	.080	—	.070	.090	.28	—
NOV 1991 06...	—	<.20	<.20	—	—	.060	—	.050	.050	.15	—
OCT 1992 20...	.19	.20	.20	2.5	2.5	.080	—	.110	.060	.18	—
OCT 1993 25...	—	—	—	—	—	—	—	—	.050	.15	—
OCT 1994 07...	—	—	—	—	—	—	—	—	.040	.12	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 05...	<1.0	<1	2	<1	97	<1	22	0.1	2	<4	ND
OCT 1982 14...	<1.0	<1	<1	1	51	1	11	<.1	5	<4	0.03
OCT 1983 27...	—	—	—	—	82	—	28	—	—	—	—
OCT 1984 25...	—	—	—	—	100	—	19	—	—	—	—
OCT 1985 15...	—	—	—	—	44	—	13	—	—	—	—
OCT 1986 09...	—	—	—	—	39	—	11	—	—	—	—
OCT 1987 26...	—	—	—	—	39	—	25	—	—	—	—
OCT 1988 25...	—	—	—	—	93	—	23	—	—	—	—
NOV 1989 14...	—	—	—	—	63	—	29	—	—	—	—
OCT 1990 30...	—	—	—	—	58	—	23	—	—	—	—
NOV 1991 06...	—	—	—	—	54	—	16	—	—	—	—
OCT 1992 20...	—	—	—	—	66	—	21	—	—	—	—
OCT 1993 25...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 07...	—	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
05...	1300	—	165	7.8	9.5	—	11.4	63	—	13	7.4
OCT 1982											
14...	1330	4.9	180	8.1	15.0	—	10.4	58	—	12	6.8
OCT 1983											
27...	0900	11	187	7.2	7.0	1.9	10.7	67	—	14	7.8
OCT 1984											
15...	1330	8.7	185	8.4	13.0	.70	12.7	64	—	13	7.6
OCT 1985											
15...	1430	10	190	7.6	12.5	1.2	12.2	65	—	13	7.9
OCT 1986											
09...	0900	5.7	215	7.5	13.5	.70	8.8	81	—	17	9.3
OCT 1987											
15...	1430	7.8	218	7.9	12.5	.70	13.2	74	—	15	8.8
OCT 1988											
25...	1430	5.0	231	7.3	11.5	1.9	11.0	77	—	16	9.0
NOV 1989											
14...	1345	12	220	7.8	13.5	3.4	12.5	70	24	14	8.4
OCT 1990											
30...	1145	6.2	251	6.6	8.5	1.1	12.3	83	17	18	9.3
NOV 1991											
06...	1215	4.9	252	7.4	6.0	1.3	13.5	70	6	20	4.9
OCT 1992											
20...	1215	5.0	254	6.7	8.5	.80	12.8	82	—	17	9.7
OCT 1993											
25...	0930	7.8	270	7.4	9.5	—	10.5	—	—	—	—
OCT 1994											
07...	0900	5.0	265	7.4	10.0	—	10.8	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 05...	9.2	24	0.5	1.6	—	—	13	14	<0.10	15	103
OCT 1982 14...	9.2	25	.5	1.8	36	—	13	15	<.10	13	118
OCT 1983 27...	10	24	.5	2.2	46	—	19	16	—	14	123
OCT 1984 15...	9.2	23	.5	1.5	44	—	15	17	—	12	115
OCT 1985 15...	10	24	.5	1.8	46	—	17	17	—	13	116
OCT 1986 09...	13	25	.6	2.0	54	—	16	17	—	15	152
OCT 1987 15...	14	29	.7	2.1	55	—	15	20	—	12	129
OCT 1988 25...	14	28	.7	2.6	53	—	15	19	—	13	—
NOV 1989 14...	12	27	.6	1.8	46	—	14	18	—	12	—
OCT 1990 30...	15	27	.7	2.3	66	—	15	22	.30	14	—
NOV 1991 06...	9.8	23	.5	1.5	64	—	16	25	.10	26	—
OCT 1992 20...	16	29	.8	2.6	—	61	15	24	<.10	14	—
OCT 1993 25...	—	—	—	—	—	65	—	—	—	—	—
OCT 1994 07...	—	—	—	—	53	53	—	28	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 05...	—	0.14	—	2.28	2.28	10	0.020	2.30	<0.010	0.01	0.36
OCT 1982 14...	103	.16	1.56	2.29	2.29	10	.010	2.30	.020	.03	—
OCT 1983 27...	122	.17	3.65	2.40	—	—	<.010	2.40	<.010	—	—
OCT 1984 15...	113	.16	2.70	2.57	2.57	11	.030	2.60	.070	.09	—
OCT 1985 15...	120	.16	3.13	2.89	2.89	13	.010	2.90	.010	.01	.59
OCT 1986 09...	133	.21	2.34	2.50	—	—	<.010	2.50	<.010	—	.50
OCT 1987 15...	138	.18	2.72	3.90	—	—	<.010	3.90	.020	.03	.58
OCT 1988 25...	138	.19	1.86	3.70	—	—	<.010	3.70	.050	.06	.35
NOV 1989 14...	124	.17	4.01	3.49	3.49	15	.010	3.50	.010	.01	.49
OCT 1990 30...	155	.21	2.58	4.08	4.08	18	.020	4.10	.030	.04	.87
NOV 1991 06...	159	.22	2.10	3.70	—	—	<.010	3.70	.020	.03	.18
OCT 1992 20...	153	.21	2.06	3.79	3.79	17	.010	3.80	<.010	—	.30
OCT 1993 25...	—	—	—	2.98	2.98	13	.020	3.00	.060	.08	—
OCT 1994 07...	—	—	—	3.40	—	—	<.010	3.40	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 05...	—	0.36	0.39	2.7	2.7	0.050	0.15	0.050	0.030	0.09	1
OCT 1982 14...	0.28	—	.30	—	2.6	—	—	.040	.070	.21	1
OCT 1983 27...	—	—	.50	—	2.9	.070	.21	.050	.050	.15	—
OCT 1984 15...	.23	—	.30	—	2.9	.030	—	.030	.030	.09	—
OCT 1985 15...	.19	.60	.20	3.5	3.1	.110	.34	.100	.090	.28	—
OCT 1986 09...	—	.50	<.20	3.0	—	.150	—	.140	.130	.40	—
OCT 1987 15...	.38	.60	.40	4.5	4.3	.290	—	.270	.250	.77	—
OCT 1988 25...	.35	.40	.40	4.1	4.1	.350	—	.330	.310	.95	—
NOV 1989 14...	.29	.50	.30	4.0	3.8	.200	—	.140	.140	.43	—
OCT 1990 30...	.57	.90	.60	5.0	4.7	.280	—	.260	.270	.83	—
NOV 1991 06...	—	.20	<.20	3.9	—	.340	—	.360	.290	.89	—
OCT 1992 20...	—	.30	.20	4.1	4.0	.370	—	.330	.320	.98	—
OCT 1993 25...	—	—	—	—	—	—	—	—	.190	.58	—
OCT 1994 07...	—	—	—	—	—	—	—	—	.220	.67	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 05...	<1.0	<1	<1	<1	100	<1	27	0.1	2	<4	ND
OCT 1982 14...	<1.0	4	<1	<1	86	<1	18	<.1	5	<4	0.04
OCT 1983 27...	—	—	—	—	98	—	42	—	—	—	—
OCT 1984 15...	—	—	—	—	79	—	19	—	—	—	—
OCT 1985 15...	—	—	—	—	45	—	18	—	—	—	—
OCT 1986 09...	—	—	—	—	68	—	26	—	—	—	—
OCT 1987 15...	—	—	—	—	40	—	21	—	—	—	—
OCT 1988 25...	—	—	—	—	100	—	36	—	—	—	—
NOV 1989 14...	—	—	—	—	66	—	25	—	—	—	—
OCT 1990 30...	—	—	—	—	55	—	27	—	—	—	—
NOV 1991 06...	—	—	—	—	30	—	32	—	—	—	—
OCT 1992 20...	—	—	—	—	65	—	26	—	—	—	—
OCT 1993 25...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 07...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
OCT 1981	27...	0915	—	180	6.8	12.5	—	8.2	55	—	11	6.7
OCT 1982	15...	1430	0.51	172	7.3	12.5	—	8.9	56	—	11	7.0
OCT 1983	26...	0900	.80	198	6.6	11.0	<1.0	9.2	59	—	12	7.0
OCT 1984	11...	0900	1.1	215	7.1	11.5	.60	10.2	63	—	13	7.5
OCT 1985	16...	0930	.91	215	6.6	8.0	3.0	10.8	63	—	12	8.0
OCT 1986	15...	0900	.52	210	7.0	11.5	.20	8.8	57	—	11	7.1
NOV 1987	09...	0930	.72	228	6.8	13.0	.20	10.1	70	—	14	8.4
NOV 1988	02...	0900	.77	303	7.0	9.0	2.0	10.5	95	—	20	11
OCT 1989	26...	1540	3.8	317	6.9	14.5	.90	9.4	95	53	20	11
OCT 1990	05...	1100	.74	328	6.8	14.0	7.6	9.6	100	45	22	12
	09...	0840	—	310	6.8	12.5	—	9.2	—	—	—	—
OCT 1991	21...	1249	.40	321	7.2	11.5	.40	10.6	100	23	22	12
OCT 1992	22...	1345	.59	330	7.0	11.5	.70	10.4	130	—	28	14
OCT 1993	28...	1240	.76	475	7.0	11.5	—	9.0	—	—	—	—
OCT 1994	17...	1300	.71	419	6.8	11.5	—	9.7	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED AS CL) (00940)	FLUO- RIDE, DIS- SOLVED AS F) (00950)	SILICA, DIS- SOLVED AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 27...	14	35	0.8	1.6	—	—	15	23	<0.10	7.9	107
OCT 1982 15...	13	33	.8	0.70	20	—	12	25	<.10	7.9	131
OCT 1983 26...	14	34	.8	1.3	20	—	14	28	—	7.9	127
OCT 1984 11...	15	33	.8	1.2	24	—	13	31	—	7.5	128
OCT 1985 16...	15	34	.8	1.3	22	—	15	30	—	8.0	124
OCT 1986 15...	15	36	.9	1.6	22	—	12	30	—	7.9	150
NOV 1987 09...	17	34	.9	1.5	24	—	11	34	—	7.8	141
NOV 1988 02...	19	30	.8	1.8	56	—	15	50	—	8.2	—
OCT 1989 26...	18	29	.8	1.4	42	—	16	43	—	7.9	—
OCT 1990 05... 09...	17 —	26 —	.7 —	1.8 —	59 —	— —	17 —	47 —	<.10 —	7.6 —	— —
OCT 1991 21...	18	27	.8	1.6	81	—	16	42	.10	7.2	—
OCT 1992 22...	26	30	1	1.7	—	50	14	73	<.10	7.6	—
OCT 1993 28...	—	—	—	—	—	64	—	—	—	—	—
OCT 1994 17...	—	—	—	—	—	60	—	68	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 27...	—	0.15	—	4.60	—	—	<.010	4.60	0.010	0.01	0.59
OCT 1982 15...	113	.18	0.18	5.38	5.38	24	.020	5.40	.020	.03	—
OCT 1983 26...	119	.17	.27	5.01	5.01	22	.090	5.10	<.010	—	—
OCT 1984 11...	125	.17	.38	5.00	—	—	<.010	5.00	.030	.04	—
OCT 1985 16...	127	.17	.30	5.49	5.49	24	.010	5.50	.020	.03	.28
OCT 1986 15...	123	.20	.21	5.80	—	—	<.010	5.80	<.010	—	.70
NOV 1987 09...	132	.19	.27	5.30	—	—	<.010	5.30	.020	.03	.58
NOV 1988 02...	180	.24	.37	4.80	—	—	<.010	4.80	<.010	—	.40
OCT 1989 26...	164	.22	1.68	4.70	—	—	<.010	4.70	.040	.05	.36
OCT 1990 05...	179	.24	.36	4.30	—	—	<.010	4.30	.040	.05	.26
OCT 1991 09...	—	—	—	—	—	—	—	—	—	—	—
OCT 1991 21...	187	.25	.20	4.30	—	—	<.010	4.30	.020	.03	—
OCT 1992 22...	213	.29	.34	4.28	4.28	19	.020	4.30	<.010	—	—
OCT 1993 28...	—	—	—	3.80	—	—	<.010	3.80	.010	.01	—
OCT 1994 17...	—	—	—	4.00	—	—	<.010	4.00	.020	.03	—



**Table 3. Water-quality data from surface-water sites—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 27...	0.69	0.60	0.70	5.2	5.3	0.020	0.06	<0.010	0.010	0.03	1
OCT 1982 15...	.18	—	.20	—	5.6	—	—	.050	<.010	—	<1
OCT 1983 26...	—	—	.40	—	5.5	.040	.12	.040	.040	.12	—
OCT 1984 11...	.17	—	.20	—	5.2	.020	—	.020	.010	.03	—
OCT 1985 16...	.28	.30	.30	5.8	5.8	<.010	—	<.010	.010	.03	—
OCT 1986 15...	—	.70	.90	6.5	6.7	.030	—	.020	<.010	—	—
NOV 1987 09...	—	.60	<.20	5.9	—	.010	—	<.010	<.010	—	—
NOV 1988 02...	—	.40	.40	5.2	5.2	.010	—	<.010	<.010	—	—
OCT 1989 26...	.76	.40	.80	5.1	5.5	.020	—	.010	.020	.06	—
OCT 1990 05...	.36	.30	.40	4.6	4.7	.020	—	.020	.020	.06	—
OCT 1991 21...	—	<.20	<.20	—	—	<.010	—	<.010	.020	.06	—
OCT 1992 22...	—	<.20	<.20	—	—	.030	—	.020	.010	.03	—
OCT 1993 28...	—	—	—	—	—	—	—	—	<.010	—	—
OCT 1994 17...	—	—	—	—	—	—	—	—	.020	.06	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 27...	2.0	3	<1	2	32	<1	20	0.2	2	8	ND
OCT 1982 15...	<1.0	1	<1	<1	8	<1	8	<.1	5	5	0.05
OCT 1983 26...	—	—	—	—	23	—	18	—	—	—	—
OCT 1984 11...	—	—	—	—	13	—	10	—	—	—	—
OCT 1985 16...	—	—	—	—	13	—	16	—	—	—	—
OCT 1986 15...	—	—	—	—	17	—	12	—	—	—	—
NOV 1987 09...	—	—	—	—	15	—	9	—	—	—	—
NOV 1988 02...	—	—	—	—	25	—	13	—	—	—	—
OCT 1989 26...	—	—	—	—	24	—	170	—	—	—	—
OCT 1990 05...	—	—	—	—	5	—	67	—	—	—	—
OCT 1990 09...	—	—	—	—	—	—	—	—	—	—	—
OCT 1991 21...	—	—	—	—	10	—	170	—	—	—	—
OCT 1992 22...	—	—	—	—	6	—	17	—	—	—	—
OCT 1993 28...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 17...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981 27...	1100	—	223	7.3	13.5	—	9.4	87	—	19	9.5
OCT 1982 22...	1030	1.4	256	7.5	9.5	—	11.4	96	—	22	10
OCT 1983 26...	1100	1.9	235	7.1	12.0	1.2	10.7	100	—	23	11
OCT 1984 11...	1100	3.7	268	7.9	15.0	.60	11.1	100	—	23	11
OCT 1985 16...	1300	4.2	250	7.4	12.5	.70	11.2	96	—	22	10
OCT 1986 15...	1330	1.7	240	7.5	15.0	2.6	9.6	94	—	21	10
NOV 1987 09...	1245	2.5	262	7.3	13.0	.50	11.4	110	—	23	12
NOV 1988 02...	1330	7.6	280	7.7	8.5	1.5	11.8	100	—	22	11
OCT 1989 26...	1300	6.3	281	7.3	14.0	3.0	9.9	100	41	23	11
OCT 1990 05...	0830	2.1	324	6.8	13.5	1.0	9.0	120	29	27	13
OCT 1991 21...	1430	2.5	298	7.4	11.0	2.9	11.7	110	30	27	11
OCT 1992 23...	0945	2.5	314	7.6	8.5	.70	11.8	120	—	28	13
OCT 1993 26...	1415	2.1	315	7.4	12.0	—	10.8	—	—	—	—
OCT 1994 21...	1400	4.0	302	7.0	15.0	—	10.4	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 27...	11	21	0.5	3.8	—	—	26	21	<0.10	12	136
OCT 1982 22...	8.1	15	.4	2.7	68	—	18	17	<.10	19	151
OCT 1983 26...	8.8	15	.4	3.2	66	—	25	17	—	18	161
OCT 1984 11...	11	18	.5	2.9	72	—	21	24	—	14	156
OCT 1985 16...	11	19	.5	2.6	58	—	21	21	—	12	144
OCT 1986 15...	8.5	16	.4	4.9	72	—	22	19	—	17	178
NOV 1987 09...	11	18	.5	2.6	74	—	19	27	—	12	165
NOV 1988 02...	13	21	.6	2.7	76	—	24	31	—	6.5	—
OCT 1989 26...	11	18	.5	2.4	62	—	20	26	—	13	—
OCT 1990 05...	13	19	.5	2.6	92	—	21	35	<.10	13	—
OCT 1991 21...	9.3	14	.4	5.2	83	—	34	18	.10	15	—
OCT 1992 23...	13	18	.5	2.3	—	68	21	36	.10	14	—
OCT 1993 26...	—	—	—	—	—	72	—	—	—	—	—
OCT 1994 21...	—	—	—	—	—	65	—	44	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 27...	—	0.18	—	1.17	—	—	<0.010	1.50	0.080	0.10	0.49
OCT 1982 22...	147	.21	0.57	2.09	2.09	9.3	.010	2.10	<.010	.01	—
OCT 1983 26...	156	.22	.83	2.20	—	—	<.010	2.20	<.010	—	—
OCT 1984 11...	162	.21	1.56	2.58	2.58	11	.020	2.60	.020	.03	—
OCT 1985 16...	144	.20	1.63	2.16	2.16	9.6	.040	2.20	.030	.04	.47
OCT 1986 15...	154	.24	.82	1.79	1.79	7.9	.010	1.80	<.010	—	1.0
NOV 1987 09...	160	.22	1.11	2.10	—	—	<.010	2.10	.030	.04	.37
NOV 1988 02...	163	.22	3.34	1.58	1.58	7.0	.020	1.60	.040	.05	.56
OCT 1989 26...	156	.21	2.65	2.68	2.68	12	.020	2.70	.030	.04	.57
OCT 1990 05...	189	.26	1.05	1.98	1.98	8.8	.020	2.00	.020	.03	.38
OCT 1991 21...	181	.25	1.22	2.48	2.48	11	.020	2.50	.020	.03	—
OCT 1992 23...	178	.24	1.20	2.08	2.08	9.2	.020	2.10	<.010	—	.30
OCT 1993 26...	—	—	—	3.10	—	—	<.010	3.10	.020	.03	—
OCT 1994 21...	—	—	—	1.70	—	—	<.010	1.70	.020	.03	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 27...	0.43	0.55	0.51	1.7	2.0	0.060	0.18	0.020	<0.010	—	1
OCT 1982 22...	—	—	2.3	—	4.4	—	—	.030	.010	0.03	1
OCT 1983 26...	—	—	1.3	—	3.5	.060	.18	.030	.050	.15	—
OCT 1984 11...	.28	—	.30	—	2.9	.020	—	.020	.010	.03	—
OCT 1985 16...	.27	.50	.30	2.7	2.5	.020	.06	.010	.010	.03	—
OCT 1986 15...	—	1.0	.90	2.8	2.7	.070	—	.040	.020	.06	—
NOV 1987 09...	.27	.40	.30	2.5	2.4	.020	—	.020	.010	.03	—
NOV 1988 02...	.56	.60	.60	2.2	2.2	.030	—	.010	<.010	—	—
OCT 1989 26...	.37	.60	.40	3.3	3.1	.050	—	<.010	<.010	—	—
OCT 1990 05...	.38	.40	.40	2.4	2.4	<.020	—	<.010	<.010	—	—
OCT 1991 21...	—	<.20	<.20	—	—	.020	—	<.010	.030	.09	—
OCT 1992 23...	—	.30	<.20	2.4	—	.020	—	.020	<.010	—	—
OCT 1993 26...	—	—	—	—	—	—	—	—	.020	.06	—
OCT 1994 21...	—	—	—	—	—	—	—	—	.020	.06	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 27...	3.0	<1	<1	2	380	<1	40	<0.1	2	<4	0.0
OCT 1982 22...	<1.0	<1	1	1	45	<1	33	—	<1	<4	.03
OCT 1983 26...	—	—	—	—	110	—	49	—	—	—	—
OCT 1984 11...	—	—	—	—	57	—	24	—	—	—	—
OCT 1985 16...	—	—	—	—	50	—	20	—	—	—	—
OCT 1986 15...	—	—	—	—	79	—	40	—	—	—	—
NOV 1987 09...	—	—	—	—	61	—	19	—	—	—	—
NOV 1988 02...	—	—	—	—	58	—	25	—	—	—	—
OCT 1989 26...	—	—	—	—	59	—	40	—	—	—	—
OCT 1990 05...	—	—	—	—	34	—	22	—	—	—	—
OCT 1991 21...	—	—	—	—	71	—	37	—	—	—	—
OCT 1992 23...	—	—	—	—	34	—	13	—	—	—	—
OCT 1993 26...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 21...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL AS CACO <sub>3</sub> (MG/L) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD AS CACO <sub>3</sub> (MG/L AS CA) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
27...	1215	—	226	7.5	13.5	—	10.3	85	—	19	9.1
OCT 1982											
22...	1315	2.8	284	7.1	9.5	—	10.5	99	—	23	10
OCT 1983											
26...	1300	5.3	—	—	—	2.9	—	85	—	20	8.6
OCT 1984											
11...	1400	6.0	280	7.8	16.0	.90	10.0	99	—	23	10
OCT 1985											
16...	1530	5.9	270	7.3	13.0	1.2	9.8	100	—	23	11
OCT 1986											
16...	0900	3.9	250	7.5	10.0	2.0	9.5	96	—	22	9.9
NOV 1987											
05...	0930	5.7	280	7.1	13.5	.40	10.2	110	—	25	12
NOV 1988											
03...	0845	6.3	280	7.5	8.0	3.1	11.4	100	—	22	11
OCT 1989											
26...	0915	13	296	7.3	11.5	1.0	11.0	99	37	23	10
OCT 1990											
25...	1330	7.6	298	6.8	14.0	4.0	10.0	110	38	24	11
OCT 1991											
22...	1130	4.5	321	7.4	10.0	2.0	10.4	110	45	25	11
OCT 1992											
22...	1130	3.8	330	7.2	9.5	5.1	10.8	110	—	25	12
OCT 1993											
26...	1200	6.6	302	7.2	12.0	—	9.7	—	—	—	—
OCT 1994											
21...	0900	5.0	260	7.1	12.5	—	8.6	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981 27...	12	23	0.6	3.5	—	—	27	21	0.10	14
OCT 1982 22...	13	22	.6	2.7	69	—	23	22	<.10	17
OCT 1983 26...	11	21	.5	3.5	—	—	26	19	—	13
OCT 1984 11...	13	22	.6	3.2	64	—	24	25	—	14
OCT 1985 16...	13	21	.6	3.4	60	—	24	24	—	17
OCT 1986 16...	13	22	.6	3.9	68	—	23	23	—	15
NOV 1987 05...	13	20	.5	3.3	74	—	21	28	—	13
NOV 1988 03...	12	20	.5	3.1	68	—	24	26	—	13
OCT 1989 26...	11	19	.5	2.9	62	—	21	27	—	15
OCT 1990 25...	13	20	.6	3.7	67	—	17	26	.30	15
OCT 1991 22...	14	21	.6	3.4	63	—	23	33	.10	14
OCT 1992 22...	13	20	.5	3.0	—	64	22	35	.10	15
OCT 1993 26...	—	—	—	—	—	65	—	—	—	—
OCT 1994 21...	—	—	—	—	—	66	—	43	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 27...	141	—	0.19	—	1.80	—	—	<0.010	1.70	0.020
OCT 1982 22...	153	164	.21	1.14	2.47	2.47	11	.030	2.50	.100
OCT 1983 26...	150	—	—	—	—	—	—	—	—	—
OCT 1984 11...	165	165	.22	2.67	2.89	2.89	13	.010	2.90	.080
OCT 1985 16...	160	167	.22	2.55	3.27	3.27	14	.030	3.30	.110
OCT 1986 16...	183	161	.25	1.93	2.08	2.08	9.2	.020	2.10	.040
NOV 1987 05...	174	173	.24	2.68	2.69	2.69	12	.010	2.70	.080
NOV 1988 03...	—	162	.22	2.76	2.10	—	—	<.010	2.10	.070
OCT 1989 26...	—	162	.22	5.67	3.09	3.09	14	.010	3.10	.020
OCT 1990 25...	—	163	.22	3.34	2.57	2.57	11	.030	2.60	.090
OCT 1991 22...	—	175	.24	2.13	2.89	2.89	13	.010	2.90	.030
OCT 1992 22...	—	177	.24	1.82	2.89	2.89	13	.010	2.90	.010
OCT 1993 26...	—	—	—	—	3.90	—	—	<.010	3.90	.030
OCT 1994 21...	—	—	—	—	2.30	—	—	<.010	2.30	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 27...	0.03	0.86	0.66	0.90	0.68	2.7	2.4	0.280	0.86	0.250
OCT 1982 22...	.13	—	.60	—	.70	—	3.2	—	—	.100
OCT 1983 26...	—	—	—	—	—	—	—	—	—	—
OCT 1984 11...	.10	—	.22	—	.30	—	3.2	.390	—	.370
OCT 1985 16...	.14	.59	.59	.70	.70	4.0	4.0	.460	1.4	.410
OCT 1986 16...	.05	.66	.36	.70	.40	2.8	2.5	.300	—	.280
NOV 1987 05...	.10	.42	.52	.50	.60	3.2	3.3	.260	—	.250
NOV 1988 03...	.09	.43	.43	.50	.50	2.6	2.6	.200	—	.170
OCT 1989 26...	.03	.28	.28	.30	.30	3.4	3.4	.190	—	.160
OCT 1990 25...	.12	.71	.61	.80	.70	3.4	3.3	.270	—	.210
OCT 1991 22...	.04	.47	.17	.50	.20	3.4	3.1	.340	—	.260
OCT 1992 22...	.01	.89	.39	.90	.40	3.8	3.3	.370	—	.250
OCT 1993 26...	.04	—	—	—	—	—	—	—	—	—
OCT 1994 21...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 27...	0.230	0.71	1	—	—	3.0	<1	<1	4	330
OCT 1982 22...	.070	.21	1	—	—	<1.0	<1	1	2	59
OCT 1983 26...	—	—	1	—	—	<1.0	<1	—	4	66
OCT 1984 11...	.360	1.1	<1	—	—	<1.0	<1	—	<1	55
OCT 1985 16...	.390	1.2	<1	—	—	<1.0	<1	—	2	35
OCT 1986 16...	.270	.83	<1	—	—	1.0	<1	—	3	75
NOV 1987 05...	.220	.67	<1	—	—	<1.0	<1	—	2	78
NOV 1988 03...	.160	.49	<1	46	<0.5	<1.0	<5	<3	<10	130
OCT 1989 26...	.140	.43	<1	50	<.5	<1.0	<5	<3	<10	97
OCT 1990 25...	.210	.64	<1	47	<.5	<1.0	<5	<3	<10	63
OCT 1991 22...	.230	.71	<1	47	<.5	<1.0	<5	<3	<10	87
OCT 1992 22...	.200	.61	—	53	<.5	<1.0	<5	<3	<10	83
OCT 1993 26...	.330	1.0	—	—	—	—	—	—	—	—
OCT 1994 21...	.140	.43	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 27...	<1	—	56	0.2	2	—	—	—	<4	ND
OCT 1982 22...	<1	—	100	.4	3	—	—	—	<4	0.04
OCT 1983 26...	2	—	69	.1	2	<1.0	—	—	6	—
OCT 1984 11...	2	—	29	<.1	3	<1.0	—	—	<3	—
OCT 1985 16...	<1	—	33	<.1	<1	<1.0	—	—	15	—
OCT 1986 16...	<5	—	54	<1.0	2	<1.0	—	—	<3	—
NOV 1987 05...	<5	—	41	<.1	<1	<1.0	—	—	4	—
NOV 1988 03...	<10	6	39	.6	<10	<1.0	120	<6	5	—
OCT 1989 26...	<10	5	45	.2	<10	<1.0	120	<6	14	—
OCT 1990 25...	<10	6	39	<.1	<10	<1.0	130	<6	5	—
OCT 1991 22...	<10	7	46	<.1	<10	<1.0	130	<6	9	—
OCT 1992 22...	<10	<4	47	<.1	<10	<1.0	150	<6	8	—
OCT 1993 26...	—	—	—	—	—	—	—	—	—	—
OCT 1994 21...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476840 - Goose Creek Tributary to East Branch Chester Creek near West Chester, Pa. (Site 25)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS, TOTAL (MG/L CACO <sub>3</sub> ) (00900)	HARD-NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT 1981	27...	—	935	7.3	17.0	—	5.1	140	—	35	13
OCT 1982	22...	7.9	1,180	7.2	12.5	—	7.1	160	—	38	15
NOV 1988	04...	12	1,060	7.4	15.0	4.5	8.9	180	—	44	16
OCT 1989	25...	14	950	7.4	16.5	1.7	9.4	160	79	41	15
OCT 1990	25...	12	850	7.0	15.5	2.2	9.4	170	—	43	15
NOV 1991	04...	10	680	7.5	11.0	2.5	10.8	160	49	42	14
OCT 1992	23...	10	625	7.8	13.0	3.5	10.7	160	—	42	14
NOV 1993	19...	10	660	7.5	13.5	—	9.8	—	—	—	—
OCT 1994	21...	11	484	7.3	15.5	—	9.1	—	—	—	—

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA-LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS-SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981	120	58	4	36	—	—	—	140	0.20	22
OCT 1982	110	53	4	43	130	—	130	160	.10	23
NOV 1988	130	56	4	39	106	—	180	110	—	21
OCT 1989	85	43	3	64	85	—	160	84	—	21
OCT 1990	80	44	3	41	73	—	120	86	.30	20
NOV 1991	63	44	2	9.6	114	—	50	94	.40	17
OCT 1992	45	36	2	9.4	—	82	41	82	.50	17
NOV 1993	—	—	—	—	—	73	47	83	.40	—
OCT 1994	—	—	—	—	—	67	—	96	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476840 - Goose Creek Tributary to East Branch Chester Creek near West Chester, Pa. (Site 25)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 27...	761	—	1.03	—	6.66	6.36	28	0.340	6.70	8.50
OCT 1982 22...	586	676	.80	12.4	7.30	7.30	32	.200	7.50	23.0
NOV 1988 04...	—	704	.96	22.2	19.6	19.6	87	.360	2.0	2.00
OCT 1989 25...	—	609	.83	23.0	17.7	17.7	79	.260	18.0	.280
OCT 1990 25...	—	539	.73	17.5	17.9	17.9	79	.080	18.0	.250
NOV 1991 04...	—	387	.53	11.0	5.46	5.46	24	.040	5.50	.050
OCT 1992 23...	—	365	.50	1 .2	13.0	13.0	57	.040	13.0	.040
NOV 1993 19...	—	—	—	—	17.0	17.0	75	.040	17.0	.060
OCT 1994 21...	—	—	—	—	16.9	16.9	75	.150	17.0	.090

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 27...	11	11	15	20	23	27	30	9.10	28	7.40
OCT 1982 22...	30	—	5.0	—	28	—	36	—	—	5.40
NOV 1988 04...	2.6	2.2	2.2	4.2	4.2	24	24	3.70	—	3.40
OCT 1989 25...	.36	2.1	1.9	2.4	2.2	20	20	3.60	—	3.30
OCT 1990 25...	.32	1.8	1.5	2.1	1.8	20	20	3.50	—	3.20
NOV 1991 04...	.06	1.0	.85	1.1	.90	6.6	6.4	3.10	—	3.00
OCT 1992 23...	.05	.76	.66	.80	.70	14	14	2.60	—	2.40
NOV 1993 19...	.08	—	—	—	—	—	—	—	—	—
OCT 1994 21...	.12	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476840 - Goose Creek Tributary to East Branch Chester Creek near West Chester, Pa. (Site 25)—Continued

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 27...	5.60	17	1	—	—	3.0	6	4	28	410
OCT 1982 22...	5.20	16	1	—	—	<1.0	<1	3	25	98
NOV 1988 04...	2.90	8.9	<1	42	<0.5	<1.0	<5	<3	20	63
OCT 1989 25...	2.60	8.0	<1	63	<.5	<1.0	<5	4	20	56
OCT 1990 25...	3.20	9.8	<1	46	<.5	<1.0	<5	<3	20	59
NOV 1991 04...	1.10	3.4	<1	39	<.5	<1.0	<5	<3	20	39
OCT 1992 23...	2.20	6.7	<1	38	<.5	<1.0	<5	<3	10	31
NOV 1993 19...	2.70	8.3	—	—	—	—	—	—	—	—
OCT 1994 21...	2.90	8.9	—	—	—	—	—	—	—	—

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (38260)
OCT 1981 27...	5	—	48,000	83	4	—	—	—	320	0.30
OCT 1982 22...	<1	—	150	—	7	—	—	—	52	.42
NOV 1988 04...	<10	24	76	<.1	<10	<1.0	180	<6	35	—
OCT 1989 25...	<10	22	56	.1	<10	<1.0	180	<6	50	—
OCT 1990 25...	<10	38	51	<.1	<10	<1.0	170	<6	38	—
NOV 1991 04...	<10	38	18	.2	10	<1.0	170	<6	30	—
OCT 1992 23...	<10	41	26	<.1	<10	<1.0	170	<6	38	—
NOV 1993 19...	—	—	—	—	—	—	—	—	—	—
OCT 1994 21...	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)—Continued

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
OCT 1983												
26...	1445	18	560	5.7	14.0	4.6	7.9	130	—	31	12	43
OCT 1984												
11...	1530	21	625	8.0	18.0	.90	11.4	120	—	30	12	76
OCT 1985												
28...	1530	16	550	6.5	12.0	2.4	7.7	130	—	32	13	53
OCT 1986												
16...	1300	28	650	7.7	14.0	1.4	9.1	130	—	32	12	84
NOV 1987												
05...	1300	18	620	7.5	15.0	1.7	8.2	140	—	35	13	66
NOV 1988												
03...	1300	18	780	7.4	11.0	1.9	11.2	140	—	34	13	82
OCT 1989												
25...	0945	31	500	7.4	11.5	1.2	1.4	120	60	29	12	33
OCT 1990												
25...	0900	20	590	6.5	11.5	2.0	8.8	130	56	32	12	48
OCT 1991												
22...	0900	12	465	7.5	9.5	1.4	10.3	130	55	32	12	35
OCT 1992												
22...	0930	12	480	7.6	9.0	.60	11.3	120	—	30	12	9.4
OCT 1993												
26...	0945	20	448	7.4	12.0	—	9.5	—	—	—	—	—
OCT 1994												
17...	0945	12	530	7.3	9.5	—	10.5	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED AS K (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED AS SO <sub>4</sub> (00945)	CHLO- RIDE, DIS- SOLVED AS CL (00940)	FLUO- RIDE, DIS- SOLVED AS F (00950)	SILICA, DIS- SOLVED AS SIO <sub>2</sub> (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (70301)	SOLIDS, DIS- SOLVED PER AC-FT (70303)
OCT 1983 26...	39	2	15	26	—	58	66	—	18	352	366	0.48
OCT 1984 11...	55	3	9.0	106	—	75	74	—	19	392	393	.53
OCT 1985 28...	45	2	7.2	90	—	79	59	—	19	326	348	.44
OCT 1986 16...	57	3	8.9	114	—	120	62	—	18	540	444	.73
NOV 1987 05...	45	2	26	114	—	99	61	—	17	407	417	.55
NOV 1988 03...	51	3	27	90	—	140	69	—	17	—	495	.67
OCT 1989 25...	33	1	21	62	—	60	42	—	18	—	287	.39
OCT 1990 25...	39	2	25	74	—	85	52	0.30	17	—	357	.49
OCT 1991 22...	36	1	6.4	75	—	36	52	.20	17	—	279	.38
OCT 1992 22...	14	.4	3.9	—	62	36	21	.10	15	—	210	.29
OCT 1993 26...	—	—	—	—	70	—	—	—	—	—	—	—
OCT 1994 17...	—	—	—	—	76	—	67	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)—Continued

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE (MG/L AS N) (00620)	NITRO- GEN, NITRATE (MG/L AS N) (00618)	NITRO- GEN, NITRATE (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> (MG/L AS N) (00631)	NITRO- GEN, AMMONIA (MG/L AS N) (00608)	NITRO- GEN, AMMONIA (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)
OCT 1983												
26...	17.1	20.5	20.5	91	0.520	21.0	5.10	6.6	—	0.60	—	5.7
OCT 1984												
11...	22.2	5.77	5.77	26	.530	6.30	.810	1.0	—	.79	—	1.6
OCT 1985												
28...	14.3	4.49	4.49	20	.610	5.10	3.10	4.0	1.7	1.2	4.8	4.3
OCT 1986												
16...	4.8	6.13	6.13	27	.570	6.70	4.10	5.3	3.9	1.9	8.0	6.0
NOV 1987												
05...	19.8	4.97	4.97	22	.430	5.40	1.90	2.4	1.3	1.1	3.2	3.0
NOV 1988												
03...	24.6	11.8	11.8	52	.180	12.0	.650	.84	—	2.0	—	2.7
OCT 1989												
25...	24.0	6.99	6.99	31	.210	7.20	.160	.21	.94	1.2	1.1	1.4
OCT 1990												
25...	19.3	8.37	8.37	37	.030	8.40	.090	.12	1.5	1.1	1.6	1.2
OCT 1991												
22...	9.04	8.88	8.88	39	.020	8.90	.040	.05	.56	.46	.60	.50
OCT 1992												
22...	6.87	9.37	9.37	41	.030	9.40	<.010	—	.50	—	.50	.40
OCT 1993												
26...	—	8.16	8.16	36	.040	8.20	.060	.08	—	—	—	—
OCT 1994												
17...	—	9.61	9.61	43	.190	9.80	.140	.18	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)—Continued

DATE	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)
OCT 1983 26...	—	27	2.60	8.0	2.40	2.40	7.4	1	—	—	<1.0	<1
OCT 1984 11...	—	7.9	2.00	—	1.70	1.80	5.5	<1	—	—	<1.0	<1
OCT 1985 28...	9.9	9.4	2.30	7.1	1.90	1.80	5.5	<1	—	—	<1.0	<1
OCT 1986 16...	15	13	12.0	—	15.0	1.30	4.0	<1	—	—	<1.0	<1
NOV 1987 05...	8.6	8.4	2.10	—	—	1.60	4.9	1	—	—	<1.0	<1
NOV 1988 03...	—	15	1.80	—	1.70	1.40	4.3	<1	52	<0.5	<1.0	<5
OCT 1989 25...	8.3	8.6	0.890	—	.800	.700	2.1	3	64	<.5	<1.0	<5
OCT 1990 25...	10	9.6	1.30	—	1.20	1.10	3.4	<1	59	<.5	<1.0	<5
OCT 1991 22...	9.5	9.4	1.50	—	1.40	1.20	3.7	<1	49	<.5	1.0	<5
OCT 1992 22...	9.9	9.8	1.50	—	1.50	1.30	4.0	<1	59	<.5	<1.0	<5
OCT 1993 26...	—	—	—	—	—	1.10	3.4	—	—	—	—	—
OCT 1994 17...	—	—	—	—	—	1.50	4.6	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)—Continued

DATE	COBALT,	COPPER,	IRON,	LEAD,	LITHIUM,	MANGA-	MERCURY,	NICKEL,	SILVER,	STRON-	VANA-	ZINC,
	DIS- SOLVED (µG/L AS CO) (01035)	DIS- SOLVED (µG/L AS CU) (01040)	DIS- SOLVED (µG/L AS FE) (01046)	DIS- SOLVED (µG/L AS PB) (01049)	DIS- SOLVED (µG/L AS LI) (01130)	NESE, DIS- SOLVED (µG/L AS MN) (01056)	DIS- SOLVED (µG/L AS HG) (71890)	DIS- SOLVED (µG/L AS NI) (01065)	DIS- SOLVED (µG/L AS AG) (01075)	TIUM, DIS- SOLVED (µG/L AS SR) (01080)	DIUM, DIS- SOLVED (µG/L AS V) (01085)	DIS- SOLVED (µG/L AS ZN) (01090)
OCT 1983 26...	—	9	65	2	—	130	110	6	<1.0	—	—	32
OCT 1984 11...	—	4	68	1	—	54	.6	1	<1.0	—	—	9
OCT 1985 28...	—	7	72	<1	—	50	<.1	<1	<1.0	—	—	14
OCT 1986 16...	—	10	41	<5	—	59	<1.0	<1	7.0	—	—	16
NOV 1987 05...	—	9	47	<5	—	49	<.1	3	<1.0	—	—	13
NOV 1988 03...	<3	10	90	<10	15	49	.2	<10	1.0	150	<6	20
OCT 1989 25...	<3	<10	65	<10	14	71	<.1	<10	<1.0	150	<6	17
OCT 1990 25...	<3	10	63	10	13	39	<.1	<10	<1.0	150	<6	15
OCT 1991 22...	<3	10	54	10	21	25	<.1	<10	2.0	150	<6	12
OCT 1992 22...	<3	<10	36	<10	<4	10	<.1	<10	<1.0	130	<6	5
OCT 1993 26...	—	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 17...	—	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
30...	1345	—	294	8.3	10.5	—	12.0	140	—	32	14
OCT 1982											
20...	1345	4.6	314	8.2	11.0	—	12.4	150	—	35	15
NOV 1983											
01...	1330	6.3	303	8.1	8.5	1.2	12.5	140	—	34	14
OCT 1984											
19...	1430	9.9	298	8.3	14.5	.70	11.9	130	—	32	13
OCT 1985											
25...	1330	7.9	305	7.8	11.5	1.0	12.3	130	—	31	12
OCT 1986											
30 ...	1430	5.6	315	8.2	13.0	.40	11.8	150	—	35	15
NOV 1987											
17...	0830	7.7	308	8.0	9.5	.30	12.4	150	—	35	15
NOV 1988											
08...	1500	6.6	335	7.7	9.5	1.5	12.5	150	—	35	15
OCT 1989											
31...	1545	15	319	8.0	16.0	.60	10.5	140	57	33	14
NOV 1990											
01...	0845	7.0	336	6.5	9.5	.70	12.4	150	50	36	15
NOV 1991											
14...	0900	5.1	330	7.6	6.5	1.0	12.2	150	53	35	15
NOV 1992											
16...	0930	7.5	355	7.9	4.0	.80	13.5	150	—	34	15
NOV 1993											
24...	0900	6.8	337	7.6	5.5	—	12.2	—	—	—	—
NOV 1994											
03...	0840	4.6	345	7.7	8.0	—	10.8	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 30...	8.2	11	0.3	3.1	—	—	25	15	<0.10	17	189
OCT 1982 20...	6.5	9	.2	2.2	100	—	26	15	<.10	15	193
NOV 1983 01...	7.6	10	.3	2.5	84	—	27	16	—	14	198
OCT 1984 19...	6.9	10	.3	2.6	92	—	26	16	—	14	201
OCT 1985 25...	7.0	10	.3	5.5	98	—	25	17	—	15	176
OCT 1986 30 ...	7.7	10	.3	3.3	100	—	27	15	—	15	206
NOV 1987 17...	7.3	9	.3	3.0	101	—	27	18	—	14	193
NOV 1988 08...	7.8	10	.3	3.0	100	—	27	15	—	15	—
OCT 1989 31...	8.2	11	.3	3.2	83	—	27	14	—	15	—
NOV 1990 01...	7.7	10	.3	3.0	102	—	23	14	<.10	16	—
NOV 1991 14...	7.0	9	.2	2.9	96	—	29	17	.10	14	—
NOV 1992 16...	7.4	10	.3	3.1	—	95	26	16	<.10	15	—
NOV 1993 24...	—	—	—	—	—	100	29	16	<.10	—	—
NOV 1994 03...	—	—	—	—	—	108	—	17	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO3) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 30...	—	0.26	—	3.49	3.59	16	0.010	3.60	<0.010	0.01	0.46
OCT 1982 20...	195	.26	2.42	4.59	4.59	20	.010	4.60	.020	.03	—
NOV 1983 01...	187	.27	3.37	4.79	4.79	21	.010	4.80	.060	.08	—
OCT 1984 19...	187	.27	5.37	4.66	4.66	21	.040	4.70	.040	.05	—
OCT 1985 25...	188	.24	3.75	3.78	3.78	17	.020	3.80	.040	.05	.86
OCT 1986 30...	196	.28	3.11	4.09	4.09	18	.010	4.10	.010	.01	.49
NOV 1987 17...	199	.26	4.01	4.40	—	—	<.010	4.40	<.010	—	.40
NOV 1988 08...	197	.27	3.52	4.40	—	—	<.010	4.40	.040	.05	.36
OCT 1989 31...	185	.25	7.50	4.70	—	—	<.010	4.70	<.010	—	.70
NOV 1990 01...	199	.27	3.74	5.28	5.28	23	.020	5.30	.020	.03	.78
NOV 1991 14...	200	.27	2.78	5.00	—	—	<.010	5.00	.010	.01	.29
NOV 1992 16...	196	.27	3.97	5.07	5.07	22	.030	5.10	<.010	—	.30
NOV 1993 24...	—	—	—	4.89	4.89	22	.010	4.90	.020	.03	—
NOV 1994 03...	—	—	—	3.89	3.89	17	.010	3.90	<.015	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. TOTAL (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 30...	—	0.46	0.49	4.0	4.1	0.060	0.18	0.050	0.040	0.12	ND
OCT 1982 20...	0.18	—	.20	—	4.8	—	—	.040	.020	.06	1
NOV 1983 01...	.34	—	.40	—	5.2	.030	.09	.030	.010	.03	—
OCT 1984 19...	.36	—	.40	—	5.1	.010	—	.020	.020	.06	—
OCT 1985 25...	.46	.90	.50	4.7	4.3	.050	.15	.030	.030	.09	—
OCT 1986 30...	.49	.50	.50	4.6	4.6	.030	—	.020	.020	.06	—
NOV 1987 17...	—	.40	<.20	4.8	—	.040	—	.020	.010	.03	—
NOV 1988 08...	.26	.40	.30	4.8	4.7	.030	—	.020	.010	.03	—
OCT 1989 31...	—	.70	.60	5.4	5.3	.030	—	.020	.020	.06	—
NOV 1990 01...	.58	.80	.60	6.1	5.9	.020	—	<.010	.030	.09	—
NOV 1991 14...	.19	.30	.20	5.3	5.2	.020	—	.010	.020	.06	—
NOV 1992 16...	—	.30	.20	5.4	5.3	.040	—	.030	.020	.06	—
NOV 1993 24...	—	—	—	—	—	—	—	—	<.010	—	—
NOV 1994 03...	—	—	—	—	—	—	—	—	.020	.06	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 30...	<1.0	<1	1	<1	11	<1	29	0.1	2	5	ND
OCT 1982 20...	<1.0	<1	1	2	11	<1	7	—	2	<4	0.04
NOV 1983 01...	—	—	—	—	21	—	12	—	—	—	—
OCT 1984 19...	—	—	—	—	19	—	12	—	—	—	—
OCT 1985 25...	—	—	—	—	31	—	7	—	—	—	—
OCT 1986 30...	—	—	—	—	18	—	13	—	—	—	—
NOV 1987 17...	—	—	—	—	21	—	12	—	—	—	—
NOV 1988 08...	—	—	—	—	19	—	9	—	—	—	—
OCT 1989 31...	—	—	—	—	31	—	21	—	—	—	—
NOV 1990 01...	—	—	—	—	18	—	12	—	—	—	—
NOV 1991 14...	—	—	—	—	16	—	11	—	—	—	—
NOV 1992 16...	—	—	—	—	31	—	16	—	—	—	—
NOV 1993 24...	—	—	—	—	—	—	—	—	—	—	—
NOV 1994 03...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478190 - Middle Branch White Clay Creek at Wickerton, Pa. (Site 29)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)
OCT 1981												
29...	1430	—	193	7.5	10.0	—	9.3	70	—	17	6.8	7.0
OCT 1982												
20...	1115	3.3	210	7.2	9.5	—	10.6	75	—	17	7.8	10
NOV 1983												
02...	0830	4.7	192	8.0	8.0	1.3	10.5	74	—	17	7.6	9.0
OCT 1984												
18...	1530	6.8	195	7.6	15.0	.90	9.9	70	—	16	7.4	7.4
OCT 1985												
25...	0830	6.8	215	7.0	10.5	1.6	8.5	73	—	17	7.4	8.4
DEC 1986												
02...	1300	8.8	190	7.6	6.0	2.2	11.8	70	—	16	7.2	7.4
OCT 1987												
29...	0900	7.1	200	7.3	9.0	.60	11.3	73	—	17	7.5	7.8
OCT 1988												
31...	0830	5.6	240	6.7	6.0	1.5	12.2	88	—	20	9.3	10
OCT 1989												
31...	0900	12	219	7.3	14.5	.70	9.8	75	28	17	7.8	8.6
NOV 1990												
09...	0900	5.5	231	6.8	5.5	1.4	13.4	87	29	20	8.9	9.9
NOV 1991												
13...	0930	3.7	235	7.4	6.5	1.6	12.1	82	47	19	8.4	9.7
NOV 1992												
12...	1000	5.5	236	7.5	10.5	.40	11.3	82	—	19	8.4	9.9
NOV 1993												
24...	1230	5.9	236	8.0	8.0	—	15.0	—	—	—	—	—
NOV 1994												
08...	1305	4.3	260	6.8	10.5	—	12.8	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478190 - Middle Branch White Clay Creek at Wickerton, Pa. (Site 29)—Continued

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
OCT 1981 29...	16	0.4	5.7	—	—	18	13	<0.10	15	129	—
OCT 1982 20...	22	.5	2.9	44	—	15	15	<.10	15	141	133
NOV 1983 02...	20	.5	3.1	42	—	16	15	—	14	134	131
OCT 1984 18...	18	.4	3.0	38	—	15	15	—	13	131	123
OCT 1985 25...	19	.4	5.2	48	—	19	17	—	13	134	138
DEC 1986 02...	18	.4	3.4	40	—	18	17	—	16	119	131
OCT 1987 29...	17	.4	6.4	44	—	18	18	—	14	138	133
OCT 1988 31...	19	.5	3.4	60	—	17	16	—	15	—	154
OCT 1989 31...	19	.4	3.6	47	—	15	14	—	14	—	132
NOV 1990 09...	19	.5	3.7	58	—	17	16	<.10	14	—	151
NOV 1991 13...	19	.5	4.8	35	—	19	18	.10	15	—	140
NOV 1992 12...	20	.5	3.9	—	43	17	16	.10	16	—	144
NOV 1993 24...	—	—	—	—	60	19	17	<.10	—	—	—
NOV 1994 08...	—	—	—	—	51	—	18	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478190 - Middle Branch White Clay Creek at Wickerton, Pa. (Site 29)—Continued

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)
OCT 1981 29...	0.18	—	2.94	2.75	12	0.050	2.80	0.180	0.23	0.79	1.1
OCT 1982 20...	.19	1.27	5.11	5.11	23	.090	5.20	.070	.09	—	.73
NOV 1983 02...	.18	1.70	5.09	5.09	23	.110	5.20	.390	.50	—	.41
OCT 1984 18...	.18	2.41	5.02	5.02	22	.080	5.10	.060	.08	—	.74
OCT 1985 25...	.18	2.46	4.68	4.68	21	.120	4.80	.120	.15	.98	.58
DEC 1986 02...	.16	2.83	4.67	4.67	21	.030	4.70	.300	.39	.60	.70
OCT 1987 29...	.19	2.65	3.63	3.63	16	.070	3.70	.400	.52	.80	.60
OCT 1988 31...	.21	2.32	5.58	5.58	25	.120	5.70	.630	.81	.67	.37
OCT 1989 31...	.18	4.28	5.30	—	—	<.010	5.30	.020	.03	.28	.58
NOV 1990 09...	.21	2.25	5.79	5.79	26	.010	5.80	.170	.22	.83	.73
NOV 1991 13...	.19	1.40	5.60	—	—	<.010	5.60	.020	.03	.38	.38
NOV 1992 12...	.20	2.13	6.06	6.06	27	.040	6.10	.040	.05	.26	.26
NOV 1993 24...	—	—	5.99	5.99	27	.010	6.00	.020	.03	—	—
NOV 1994 08...	—	—	6.29	6.29	28	.010	6.30	<.015	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478190 - Middle Branch White Clay Creek at Wickerton, Pa. (Site 29)—Continued

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)
OCT 1981 29...	0.90	1.3	3.9	4.1	0.360	1.1	0.290	0.260	0.80	ND	<1.0
OCT 1982 20...	—	.80	—	6.0	—	—	.370	.390	1.2	1	<1.0
NOV 1983 02...	—	.80	—	6.0	.280	.86	.260	.270	.83	—	—
OCT 1984 18...	—	.80	—	5.9	.190	—	.190	.190	.58	—	—
OCT 1985 25...	1.1	.70	5.9	5.5	.290	.89	.260	.240	.74	—	—
DEC 1986 02...	.90	1.0	5.6	5.7	.160	—	.130	.110	.34	—	—
OCT 1987 29...	1.2	1.0	4.9	4.7	.200	—	.180	.150	.46	<1	<1.0
OCT 1988 31...	1.3	1.0	7.0	6.7	.300	—	.280	.240	.74	—	—
OCT 1989 31...	.30	.60	5.6	5.9	.130	—	.110	.110	.34	—	—
NOV 1990 09...	1.0	.90	6.8	6.7	.180	—	.170	.170	.52	—	—
NOV 1991 13...	.40	.40	6.0	6.0	.220	—	.190	.180	.55	—	—
NOV 1992 12...	.30	.30	6.4	6.4	.200	—	.200	.180	.55	—	—
NOV 1993 24...	—	—	—	—	—	—	—	.180	.55	—	—
NOV 1994 08...	—	—	—	—	—	—	—	.290	.89	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478190 - Middle Branch White Clay Creek at Wickerton, Pa. (Site 29)—Continued

DATE	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 29...	<1	<1	2	220	<1	95	0.4	3	—	<4	0.10
OCT 1982 20...	<1	1	2	21	<1	14	<.1	<1	—	<4	.08
NOV 1983 02...	—	—	—	62	—	32	—	—	—	—	—
OCT 1984 18...	—	—	—	48	—	20	—	—	—	—	—
OCT 1985 25...	—	—	—	37	—	10	—	—	—	—	—
DEC 1986 02...	—	—	—	58	—	54	—	—	—	—	—
OCT 1987 29...	<1	—	1	84	<5	47	<.1	<1	<1.0	4	—
OCT 1988 31...	—	—	—	56	—	32	—	—	—	—	—
OCT 1989 31...	—	—	—	66	—	23	—	—	—	—	—
NOV 1990 09...	—	—	—	52	—	20	—	—	—	—	—
NOV 1991 13...	—	—	—	42	—	15	—	—	—	—	—
NOV 1992 12...	—	—	—	60	—	20	—	—	—	—	—
NOV 1993 24...	—	—	—	—	—	—	—	—	—	—	—
NOV 1994 08...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478220 - West Branch White Clay Creek near Chesterville (Site 30)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
29...	1330	—	167	7.6	9.5	—	10.4	56	—	14	5.2
OCT 1982											
20...	0945	3.3	145	7.6	8.5	—	10.3	49	—	12	4.6
NOV 1983											
02...	1015	4.3	144	7.3	7.0	1.6	12.0	49	—	12	4.7
OCT 1984											
18...	1400	5.4	150	7.6	15.0	.50	10.4	49	—	12	4.6
OCT 1985											
25...	1100	6.2	165	7.1	11.0	.60	11.5	51	—	12	5.0
NOV 1986											
25...	1100	9.8	160	7.5	6.0	1.4	12.7	52	—	12	5.3
OCT 1987											
29...	1230	7.6	160	7.4	10.0	.70	11.9	54	—	13	5.3
OCT 1988											
31...	1300	4.1	168	7.3	7.5	1.9	13.2	55	—	13	5.5
OCT 1989											
31...	1220	13	169	7.3	15.5	.50	9.4	53	0	13	5.1
NOV 1990											
09...	1115	4.1	177	7.4	5.5	.40	14.1	54	6	13	5.3
NOV 1991											
13...	1145	3.9	184	7.3	7.0	1.4	12.9	58	34	14	5.6
NOV 1992											
16...	1235	6.3	175	7.2	4.5	.40	13.7	55	—	13	5.4
NOV 1993											
23...	0945	5.6	180	7.3	3.5	—	13.0	—	—	—	—
NOV 1994											
03...	1150	3.0	198	7.8	9.5	—	12.4	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01478220 - West Branch White Clay Creek near Chesterville (Site 30)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CaCO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CaCO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 29...	6.4	18	0.4	6.5	—	—	17	12	<0.10	14	111
OCT 1982 20...	6.4	21	.4	3.0	24	—	12	10	<.10	13	94
NOV 1983 02...	7.6	24	.5	3.0	24	—	16	13	—	13	102
OCT 1984 18...	6.7	22	.4	2.9	32	—	14	12	—	12	99
OCT 1985 25...	7.2	22	.4	4.2	38	—	15	13	—	12	106
NOV 1986 25...	7.3	22	.4	4.3	32	—	20	12	—	14	103
OCT 1987 29...	.53	2	.0	5.9	30	—	20	12	—	13	104
OCT 1988 31...	7.7	22	.5	3.1	40	—	15	12	—	14	—
OCT 1989 31...	7.9	23	.5	3.7	310	—	15	11	—	13	—
NOV 1990 09...	7.6	22	.4	3.1	48	—	14	15	<.10	13	—
NOV 1991 13...	7.9	21	.5	5.7	24	—	18	18	<.10	13	—
NOV 1992 16...	7.5	22	.4	3.4	—	19	17	14	<.10	14	—
NOV 1993 23...	—	—	—	—	—	28	16	14	.10	—	—
NOV 1994 03...	—	—	—	—	—	29	—	17	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478220 - West Branch White Clay Creek near Chesterville (Site 30)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>2</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 29...	—	0.15	—	1.89	1.89	8.4	0.010	1.90	<0.010	0.01	0.62
OCT 1982 20...	87	.13	0.83	2.60	—	—	<.010	2.60	.030	.04	—
NOV 1983 02...	99	.14	1.18	3.49	3.49	15	.010	3.50	.030	.04	—
OCT 1984 18...	100	.13	1.44	3.56	3.56	16	.040	3.60	.060	.08	—
OCT 1985 25...	104	.14	1.77	2.89	2.89	13	.010	2.90	.030	.04	.57
NOV 1986 25...	109	.14	2.73	3.19	3.19	14	.010	3.20	.040	.05	.26
OCT 1987 29...	100	.14	2.13	2.70	—	—	<.010	2.70	.060	.08	.34
OCT 1988 31...	111	.15	1.23	3.80	—	—	<.010	3.80	.010	.01	.49
OCT 1989 31...	270	.37	9.48	3.50	—	—	<.010	3.50	<.010	—	.40
NOV 1990 09...	117	.16	1.28	3.90	—	—	<.010	3.90	.050	.06	.45
NOV 1991 13...	112	.15	1.18	3.50	—	—	<.010	3.50	.040	.05	.56
NOV 1992 16...	103	.14	1.75	3.87	3.87	17	.030	3.90	<.010	—	—
NOV 1993 23...	—	—	—	4.00	—	—	<.010	4.00	.010	.01	—
NOV 1994 03...	—	—	—	2.79	2.79	12	.010	2.80	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478220 - West Branch White Clay Creek near Chesterville (Site 30)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 29...	—	0.62	0.63	2.5	2.5	0.070	0.21	0.080	0.050	0.15	1
OCT 1982 20...	0.77	—	.80	—	3.4	—	—	.020	<.010	—	1
NOV 1983 02...	.47	—	.50	—	4.0	.030	.09	.020	<.010	—	—
OCT 1984 18...	.34	—	.40	—	4.0	<.010	—	.010	.020	.06	—
OCT 1985 25...	.37	.60	.40	3.5	3.3	.010	.03	<.010	.010	.03	—
NOV 1986 25...	.46	.30	.50	3.5	3.7	.050	—	.040	.030	.09	—
OCT 1987 29...	.14	.40	.20	3.1	2.9	.040	—	.020	.010	.03	—
OCT 1988 31...	—	.50	<.20	4.3	—	.020	—	.010	<.010	—	—
OCT 1989 31...	—	.40	.40	3.9	3.9	.020	—	.010	.010	.03	—
NOV 1990 09...	.35	.50	.40	4.4	4.3	<.010	—	<.010	<.010	—	—
NOV 1991 13...	.36	.60	.40	4.1	3.9	.030	—	.010	<.010	—	—
NOV 1992 16...	—	<.20	<.20	—	—	.020	—	.030	.010	.03	—
NOV 1993 23...	—	—	—	—	—	—	—	—	<.010	—	—
NOV 1994 03...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01478220 - West Branch White Clay Creek near Chesterville (Site 30)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 29...	<1.0	1	<1	<1	110	<1	200	0.1	2	<4	ND
OCT 1982 20...	<1.0	<1	4	2	35	<1	22	—	<1	<4	0.08
NOV 1983 02...	—	—	—	—	52	—	22	—	—	—	—
OCT 1984 18...	—	—	—	—	39	—	11	—	—	—	—
OCT 1985 25...	—	—	—	—	40	—	7	—	—	—	—
NOV 1986 25...	—	—	—	—	80	—	30	—	—	—	—
OCT 1987 29...	—	—	—	—	81	—	19	—	—	—	—
OCT 1988 31...	—	—	—	—	49	—	21	—	—	—	—
OCT 1989 31...	—	—	—	—	57	—	26	—	—	—	—
NOV 1990 09...	—	—	—	—	53	—	17	—	—	—	—
NOV 1991 13...	—	—	—	—	58	—	12	—	—	—	—
NOV 1992 16...	—	—	—	—	66	—	27	—	—	—	—
NOV 1993 23...	—	—	—	—	—	—	—	—	—	—	—
NOV 1994 03...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
30...	0845	—	288	7.8	9.0	—	11.3	130	—	30	13
NOV 1982											
01...	1030	4.9	254	8.0	12.0	—	11.1	130	—	30	14
NOV 1983											
01...	0815	5.7	345	7.3	6.5	1.6	11.0	170	—	37	18
OCT 1984											
19...	0830	8.5	270	7.7	12.5	1.0	10.1	120	—	28	12
OCT 1985											
18...	0830	6.7	299	7.5	7.0	1.5	12.0	130	—	30	13
NOV 1986											
18...	1000	6.9	305	7.8	9.5	.90	10.4	140	—	32	15
OCT 1987											
30...	0830	6.2	278	7.5	7.0	.50	12.5	130	—	30	13
NOV 1988											
08...	0900	5.6	375	7.2	9.0	1.9	12.1	160	—	37	16
OCT 1989											
30...	0930	12	285	7.6	13.0	1.6	12.2	110	36	26	11
OCT 1990											
31...	0900	6.0	300	6.7	9.0	.60	12.1	130	43	31	13
NOV 1991											
07...	1015	4.5	338	7.4	6.0	1.4	13.3	150	0	34	15
OCT 1992											
27...	1100	3.8	339	8.0	10.5	2.6	12.4	140	—	33	15
NOV 1993											
22...	0900	5.9	391	7.8	5.5	—	12.9	—	—	—	—
NOV 1994											
08...	0850	3.9	360	6.7	8.5	—	11.0	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981 30...	7.7	11	0.3	4.8	—	—	22	15	<0.10	17
NOV 1982 01...	7.3	10	.3	3.3	96	—	24	12	<.10	14
NOV 1983 01...	8.6	10	.3	3.2	90	—	26	16	—	16
OCT 1984 19...	7.4	12	.3	3.0	82	—	14	12	—	15
OCT 1985 18...	8.2	12	.3	3.5	100	—	25	13	—	16
NOV 1986 18...	8.1	11	.3	3.6	80	—	29	13	—	17
OCT 1987 30...	7.8	11	.3	4.7	80	—	25	16	—	16
NOV 1988 08...	8.9	11	.3	4.0	102	—	30	16	—	17
OCT 1989 30...	8.6	14	.4	3.9	74	—	25	15	—	14
OCT 1990 31...	8.9	13	.3	3.5	88	—	25	18	<.10	16
NOV 1991 07...	8.3	11	.3	3.3	166	—	31	18	.10	15
OCT 1992 27...	7.3	10	.3	3.6	—	95	28	17	.10	14
NOV 1993 22...	—	—	—	—	—	102	27	25	<.10	—
NOV 1994 08...	—	—	—	—	—	96	—	19	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 30...	184	—	0.25	—	3.69	3.69	16	0.010	3.70	<0.010
NOV 1982 01...	176	179	.24	2.33	3.68	3.68	16	.020	3.70	<.010
NOV 1983 01...	215	201	.29	3.31	5.00	—	—	<.010	5.00	.060
OCT 1984 19...	170	161	.23	3.90	4.55	4.55	20	.050	4.60	.050
OCT 1985 18...	171	188	.23	3.09	4.29	4.29	19	.010	4.30	.050
NOV 1986 18...	202	187	.27	3.76	4.80	—	—	<.010	4.80	.060
OCT 1987 30...	181	179	.25	3.03	4.20	—	—	<.010	4.20	.050
NOV 1988 08...	—	211	.29	3.19	4.68	4.68	21	.020	4.70	.040
OCT 1989 30...	—	169	.23	5.48	4.69	4.69	21	.010	4.70	.030
OCT 1990 31...	—	194	.26	3.14	5.58	5.58	25	.020	5.60	.280
NOV 1991 07...	—	249	.34	3.03	5.60	—	—	<.010	5.60	.030
OCT 1992 27...	—	197	.27	2.02	4.87	4.87	22	.030	4.90	.020
NOV 1993 22...	—	—	—	—	4.98	4.98	22	.020	5.00	.040
NOV 1994 08...	—	—	—	—	4.60	—	—	<.010	4.60	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 30...	0.01	0.87	—	0.89	0.49	4.6	4.2	0.090	0.28	0.080
NOV 1982 01...	.01	—	—	—	.30	—	4.0	—	—	.030
NOV 1983 01...	.08	—	1.0	—	1.1	—	6.1	.050	.15	.040
OCT 1984 19...	.06	—	.35	—	.40	—	5.0	.030	—	.030
OCT 1985 18...	.06	.35	.35	.40	.40	4.7	4.7	.030	.09	.030
NOV 1986 18...	.08	.94	.64	1.0	.70	5.8	5.5	.060	—	.030
OCT 1987 30...	.06	.25	—	.30	<.20	4.5	—	.040	—	.020
NOV 1988 08...	.05	.46	.46	.50	.50	5.2	5.2	.040	—	.030
OCT 1989 30...	.04	.27	.27	.30	.30	5.0	5.0	.030	—	.020
OCT 1990 31...	.36	.92	.82	1.2	1.1	6.8	6.7	.180	—	.120
NOV 1991 07...	.04	—	.17	<.20	.20	—	5.8	.040	—	.030
OCT 1992 27...	.03	.38	.48	.40	.50	5.3	5.4	.080	—	.060
NOV 1993 22...	.05	—	—	—	—	—	—	—	—	—
NOV 1994 08...	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 30...	0.080	0.25	<1	—	—	<1.0	3	<1	2	78
NOV 1982 01...	.030	.09	1	—	—	<1.0	<1	<1	2	37
NOV 1983 01...	.020	.06	1	—	—	<1.0	<1	<1	1	40
OCT 1984 19...	.030	.09	<1	—	—	<1.0	2	—	1	51
OCT 1985 18...	.030	.09	<1	—	—	<1.0	<1	—	<1	24
NOV 1986 18...	.020	.06	<1	—	—	<1.0	<1	—	<1	33
OCT 1987 3 ...	.020	.06	<1	—	—	<1.0	<1	—	1	43
NOV 1988 08...	.030	.09	<1	44	<0.5	<1.0	<5	<3	<10	40
OCT 1989 30...	.020	.06	<1	45	<.5	<1.0	<5	<3	<10	53
OCT 1990 31...	.120	.37	<1	42	<.5	<1.0	<5	<3	<10	50
NOV 1991 07...	.030	.09	<1	40	<.5	<1.0	<5	<3	<10	26
OCT 1992 27...	.060	.18	<1	41	<.5	<1.0	<5	<3	<10	23
NOV 1993 22...	.040	.12	—	—	—	—	—	—	—	—
NOV 1994 08...	<.010	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 30...	<1	—	130	<0.1	4	—	—	—	<4	0.10
NOV 1982 01...	<1	—	32	<.1	<1	—	—	—	<4	.04
NOV 1983 01...	<1	—	31	.2	<1	<1.0	—	—	5	—
OCT 1984 19...	2	—	40	<.1	2	<1.0	—	—	6	—
OCT 1985 18...	<1	—	30	<.1	<1	<1.0	—	—	7	—
NOV 1986 18...	5	—	42	<.1	1	<1.0	—	—	5	—
OCT 1987 30...	<5	—	46	<.1	4	<1.0	—	—	<3	—
NOV 1988 08...	<10	42	32	1.8	<10	<1.0	96	<6	20	—
OCT 1989 30...	<10	<4	48	.5	<10	3.0	110	<6	<3	—
OCT 1990 31...	<10	<4	35	<.1	<10	<1.0	100	<6	4	—
NOV 1991 07...	<10	5	22	<.1	<10	1.0	96	<6	<3	—
OCT 1992 27...	<10	<4	25	<.1	<10	<1.0	99	<6	5	—
NOV 1993 22...	—	—	—	—	—	—	—	—	—	—
NOV 1994 08...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981											
30...	1115	—	282	8.2	9.0	—	11.5	120	—	30	10
NOV 1982											
01...	0900	4.2	252	8.3	11.0	—	12.5	110	—	27	10
NOV 1983											
01...	1100	4.6	273	8.1	8.0	1.4	11.8	120	—	30	11
OCT 1984											
19...	1030	6.7	275	8.3	14.5	.50	14.1	110	—	28	10
OCT 1985											
18...	1230	5.9	298	8.2	8.0	2.0	14.5	120	—	30	11
NOV 1986											
18...	1400	7.1	300	7.9	9.0	.80	11.1	130	—	31	12
NOV 1987											
17...	1500	8.4	290	8.5	14.0	.50	14.0	120	—	30	11
NOV 1988											
08...	1200	6.4	315	7.6	9.5	3.9	12.7	130	—	32	12
OCT 1989											
30...	1230	14	305	7.5	15.0	.70	13.5	120	54	30	11
NOV 1990											
01...	1230	5.5	308	6.9	11.5	2.6	13.8	120	62	30	11
NOV 1991											
07...	1245	3.6	321	7.7	5.5	.50	16.0	140	59	33	13
OCT 1992											
27...	0915	4.0	319	7.9	8.0	.70	11.2	130	—	33	12
NOV 1993											
22...	1230	6.6	332	8.5	6.0	—	15.2	—	—	—	—
NOV 1994											
08...	1050	3.7	350	7.0	8.0	—	13.1	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981 30...	9.8	15	0.4	6.7	—	—	29	19	<0.10	18
NOV 1982 01...	9.3	15	.4	3.7	72	—	30	16	<.10	14
NOV 1983 01...	12	17	.5	4.7	86	—	37	21	—	17
OCT 1984 19...	9.2	15	.4	3.8	66	—	34	19	—	15
OCT 1985 18...	10	15	.4	4.2	74	—	33	17	—	17
NOV 1986 18...	10	14	.4	5.5	66	—	46	16	—	19
NOV 1987 17...	12	17	.5	4.2	67	—	36	23	—	15
NOV 1988 08...	11	15	.4	5.5	70	—	50	17	—	17
OCT 1989 30...	10	15	.4	4.0	66	—	35	17	—	17
NOV 1990 01...	9.9	15	.4	3.6	58	—	33	19	.30	16
NOV 1991 07...	11	15	.4	3.8	77	—	42	23	.10	15
OCT 1992 27...	35	35	1	6.7	—	66	34	61	.30	16
NOV 1993 22...	—	—	—	—	—	136	37	20	<.10	—
NOV 1994 08...	—	—	—	—	—	85	—	25	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 30...	187	—	0.25	—	2.48	2.58	11	0.020	2.60	<0.010
NOV 1982 01...	159	165	.22	1.80	2.68	2.68	12	.020	2.70	<.010
NOV 1983 01...	187	203	.25	2.32	4.08	4.08	18	.020	4.10	.070
OCT 1984 19...	168	176	.23	3.04	3.85	3.85	17	.050	3.90	.040
OCT 1985 18...	174	182	.24	2.77	3.49	3.49	15	.010	3.50	.030
NOV 1986 18...	206	198	.28	3.95	4.27	4.27	19	.030	4.30	.040
NOV 1987 17...	203	187	.28	4.60	3.60	—	—	<.010	3.60	<.010
NOV 1988 08...	—	200	.27	3.46	2.99	2.99	13	.010	3.00	.020
OCT 1989 30...	—	181	.25	6.85	3.88	3.88	17	.020	3.90	<.010
NOV 1990 01...	—	176	.24	2.61	4.08	4.08	18	.020	4.10	<.010
NOV 1991 07...	—	204	.28	1.98	3.70	—	—	<.010	3.70	.020
OCT 1992 27...	—	252	.34	2.72	3.19	3.19	14	.010	3.20	<.010
NOV 1993 22...	—	—	—	—	3.58	3.58	16	.020	3.60	.020
NOV 1994 08...	—	—	—	—	2.70	—	—	<.010	2.70	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 30...	0.01	0.74	—	0.74	0.57	3.2	3.2	0.080	0.25	0.060
NOV 1982 01...	.01	—	—	—	.70	—	3.4	—	—	.030
NOV 1983 01...	.09	—	0.73	—	.80	—	4.9	.100	.31	.080
OCT 1984 19...	.05	—	.66	—	.70	—	4.6	.050	—	.060
OCT 1985 18...	.04	.57	.57	.60	.60	4.1	4.1	.060	.18	.050
NOV 1986 18...	.05	.56	.26	.60	.30	4.9	4.6	.020	—	.050
NOV 1987 17...	—	.20	—	.20	.20	3.8	3.8	.070	—	.050
NOV 1988 08...	.03	.48	.48	.50	.50	3.5	3.5	.070	—	.050
OCT 1989 30...	—	.70	—	.70	.30	4.6	4.2	.030	—	.020
NOV 1990 01...	—	.70	—	.70	.60	4.8	4.7	.050	—	.030
NOV 1991 07...	.03	.28	.28	.30	.30	4.0	4.0	.020	—	.030
OCT 1992 27...	—	.20	—	.20	.20	3.4	3.4	.030	—	.010
NOV 1993 22...	.03	—	—	—	—	—	—	—	—	—
NOV 1994 08...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 30...	0.050	0.15	ND	—	—	<1.0	2	<1	<1	58
NOV 1982 01...	.020	.06	<1	—	—	<1.0	<1	1	1	40
NOV 1983 01...	.080	.25	1	—	—	<1.0	<1	—	2	55
OCT 1984 19...	.060	.18	<1	—	—	<1.0	<1	—	1	36
OCT 1985 18...	.050	.15	<1	—	—	<1.0	<1	—	<1	18
NOV 1986 18...	.030	.09	<1	—	—	<1.0	<1	—	4	48
NOV 1987 17...	.030	.09	<1	—	—	<1.0	<1	—	1	26
NOV 1988 08...	.040	.12	<1	54	<0.5	<1.0	<5	<3	<10	65
OCT 1989 30...	.020	.06	<1	53	<.5	<1.0	<5	<3	<10	42
NOV 1990 01...	.030	.09	<1	49	<.5	<1.0	<5	<3	<10	33
NOV 1991 07...	.010	.03	<1	52	<.5	<1.0	<5	<3	<10	26
OCT 1992 27...	.010	.03	<1	51	<.5	<1.0	<5	<3	10	49
NOV 1993 22...	.050	.15	—	—	—	—	—	—	—	—
NOV 1994 08...	<.010	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 30...	<1	—	62	0.3	1	—	—	—	<4	ND
NOV 1982 01...	<1	—	21	<.1	<1	—	—	—	<4	0.05
NOV 1983 01...	1	—	27	.2	1	<1.0	—	—	5	—
OCT 1984 19...	<1	—	17	<.1	1	<1.0	—	—	<3	—
OCT 1985 18...	<1	—	6	<.1	<1	<1.0	—	—	9	—
NOV 1986 18...	<5	—	36	<.1	3	<1.0	—	—	4	—
NOV 1987 17...	<5	—	19	<.1	1	<1.0	—	—	<3	—
NOV 1988 08...	<10	5	33	<.1	<10	<1.0	130	<6	11	—
OCT 1989 30...	<10	<4	19	.1	<10	<1.0	130	<6	<3	—
NOV 1990 01...	<10	6	15	<.1	<10	<1.0	130	<6	<3	—
NOV 1991 07...	<10	5	9	<.1	<10	<1.0	130	<6	13	—
OCT 1992 27...	<10	24	17	<.1	<10	<1.0	170	<6	23	—
NOV 1993 22...	—	—	—	—	—	—	—	—	—	—
NOV 1994 08...	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
02...	1545	—	198	8.0	12.0	—	11.4	76	—	19	7.0
OCT 1982											
27...	1535	22	196	7.5	10.5	—	12.3	76	—	19	6.9
NOV 1983											
04...	0915	19	198	7.4	8.5	1.5	—	81	—	20	7.5
OCT 1984											
30...	1430	38	200	7.5	15.5	4.1	9.8	70	—	17	6.7
OCT 1985											
21...	1200	19	200	7.4	8.0	.60	12.0	75	—	18	7.2
NOV 1986											
17...	1500	17	210	7.7	8.5	.70	11.2	82	—	20	7.9
OCT 1987											
22...	1100	23	200	7.5	9.5	.50	12.7	79	—	19	7.6
OCT 1988											
05...	1430	17	220	7.8	15.5	1.4	11.4	80	—	19	7.9
OCT 1989											
10...	1500	38	214	7.5	1 .5	.70	9.5	78	30	19	7.5
OCT 1990											
16...	1130	22	232	7.1	14.0	1.0	1.3	82	20	20	7.7
NOV 1991											
18...	1300	14	220	7.4	5.0	.60	15.2	80	31	20	7.4
OCT 1992											
30...	1100	19	234	7.2	1 .5	.90	11.8	85	—	21	7.8
NOV 1993											
15...	1330	31	205	8.2	13.5	—	11.3	—	—	—	—
OCT 1994											
13...	1120	14	238	7.6	9.0	—	12.3	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 02...	7.6	17	0.4	4.3	—	—	20	16	<0.10	12	125
OCT 1982 27...	6.6	15	.3	3.0	46	—	16	14	<.10	14	119
NOV 1983 04...	7.9	17	.4	3.5	48	—	21	17	—	15	140
OCT 1984 30...	6.6	15	.3	7.4	42	—	20	13	—	13	137
OCT 1985 21...	8.0	18	.4	3.0	50	—	18	16	—	13	118
NOV 1986 17...	8.1	17	.4	3.5	34	—	22	13	—	18	145
OCT 1987 22...	8.1	18	.4	3.3	51	—	19	15	—	14	127
OCT 1988 05...	7.6	16	.4	4.9	55	—	20	16	—	14	—
OCT 1989 10...	8.0	18	.4	2.6	48	—	17	15	—	16	—
OCT 1990 16...	8.1	17	.4	4.8	62	—	17	16	<.10	16	—
NOV 1991 18...	9.0	19	.4	2.6	49	—	22	21	<.10	12	—
OCT 1992 30...	9.5	19	.4	3.4	—	58	19	17	<.10	14	—
NOV 1993 15...	—	—	—	—	—	47	18	16	.10	—	—
OCT 1994 13...	—	—	—	—	—	52	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 02...	—	0.17	—	1.40	—	—	<0.010	1.40	<0.010	0.01	0.43
OCT 1982 27...	118	.16	7.20	2.50	—	—	<.010	2.50	.010	.01	—
NOV 1983 04...	134	.19	7.18	2.99	2.99	13	.010	3.00	.020	.03	—
OCT 1984 30...	117	.19	14.1	1.70	—	—	<.010	1.70	.030	.04	—
OCT 1985 21...	126	.16	6.05	2.90	—	—	<.010	2.90	.020	.03	.58
NOV 1986 17...	129	.20	6.66	3.60	—	—	<.010	3.60	<.010	—	—
OCT 1987 22...	130	.17	7.89	2.90	—	—	<.010	2.90	.020	.03	.78
OCT 1988 05...	136	.18	6.24	3.00	—	—	<.010	3.00	.020	.03	.58
OCT 1989 10...	131	.18	13.5	3.89	3.89	17	.010	3.90	.020	.03	.38
OCT 1990 16...	138	.19	8.18	2.39	2.39	11	.010	2.40	.030	.04	.57
NOV 1991 18...	137	.19	5.17	3.00	—	—	<.010	3.00	.020	.03	—
OCT 1992 30...	141	.19	7.40	3.29	3.29	15	.010	3.30	.020	.03	—
NOV 1993 15...	—	—	—	3.29	3.29	15	.010	3.30	.010	.01	—
OCT 1994 13...	—	—	—	3.10	—	—	<.010	3.10	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 02...	—	0.43	0.31	1.8	1.7	0.010	0.03	0.030	<0.010	—	ND
OCT 1982 27...	0.59	—	.60	—	3.1	—	—	.030	<.010	—	<1
NOV 1983 04...	.48	—	.50	—	3.5	.050	.15	.040	.020	.06	—
OCT 1984 30...	.77	—	.80	—	2.5	.150	—	.070	.090	.28	—
OCT 1985 21...	.38	.60	.40	3.5	3.3	.050	.15	.040	.040	.12	—
NOV 1986 17...	—	<.20	.60	—	4.2	.070	—	.060	.040	.12	—
OCT 1987 22...	.58	.80	.60	3.7	3.5	.040	—	.060	.030	.09	—
OCT 1988 05...	.58	.60	.60	3.6	3.6	.070	—	.060	.040	.12	—
OCT 1989 10...	.28	.40	.30	4.3	4.2	.040	—	.030	.030	.09	—
OCT 1990 16...	.47	.60	.50	3.0	2.9	.060	—	.050	.040	.12	—
NOV 1991 18...	—	<.20	<.20	—	—	<.010	—	<.010	<.010	—	—
OCT 1992 30...	.18	<.20	.20	—	3.5	.030	—	.030	.020	.06	—
NOV 1993 15...	—	—	—	—	—	—	—	—	.020	.06	—
OCT 1994 13...	—	—	—	—	—	—	—	—	.020	.06	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 02...	<1.0	<1	1	<1	140	<1	32	<0.1	4	<4	ND
OCT 1982 27...	<1.0	<1	<1	<1	71	<1	11	<.1	<1	<4	0.04
NOV 1983 04...	—	—	—	—	81	—	20	—	—	—	—
OCT 1984 30...	—	—	—	—	230	—	24	—	—	—	—
OCT 1985 21...	—	—	—	—	42	—	11	—	—	—	—
NOV 1986 17...	—	—	—	—	70	—	20	—	—	—	—
OCT 1987 22...	—	—	—	—	59	—	13	—	—	—	—
OCT 1988 05...	—	—	—	—	57	—	14	—	—	—	—
OCT 1989 10...	—	—	—	—	64	—	21	—	—	—	—
OCT 1990 16...	—	—	—	—	100	—	20	—	—	—	—
NOV 1991 18...	—	—	—	—	56	—	14	—	—	—	—
OCT 1992 30...	—	—	—	—	64	—	20	—	—	—	—
NOV 1993 15...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 13...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL AS CACO <sub>3</sub> (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED AS CA (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981	05...	—	206	—	7.5	—	11.7	82	—	21	7.1
OCT 1982	28...	11	195	7.6	7.0	—	13.5	78	—	20	6.9
OCT 1983	28...	11	214	7.5	9.0	1.2	11.4	83	—	21	7.4
OCT 1984	31...	18	220	7.3	14.0	1.1	10.5	80	—	20	7.2
OCT 1985	29...	11	260	7.3	9.0	1.0	12.2	86	—	22	7.6
OCT 1986	30...	8.6	215	7.4	11.0	1.0	9.6	79	—	20	7.0
NOV 1987	19...	15	228	7.1	9.0	.50	12.0	87	—	22	7.8
NOV 1988	14...	15	240	7.6	7.0	2.5	13.2	92	—	23	8.3
NOV 1989	07...	19	223	7.6	8.5	1.1	12.8	78	39	19	7.5
OCT 1990	17...	12	237	6.9	12.5	1.8	10.9	80	20	20	7.4
OCT 1991	31...	8.2	239	7.8	8.5	.60	11.1	83	42	21	7.3
OCT 1992	16...	13	250	7.1	14.0	.80	11.1	90	—	23	7.8
NOV 1993	08...	13	242	7.7	6.0	—	14.0	—	—	—	—
NOV 1994	14...	11	244	6.7	8.5	—	11.5	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 05...	9.6	20	0.5	2.6	—	—	17	17	<0.10	7.0	124
OCT 1982 28...	8.5	18	.4	4.0	40	—	16	17	<.10	7.8	129
OCT 1983 28...	9.2	19	.4	2.9	48	—	20	19	—	9.6	145
OCT 1984 31...	9.1	19	.4	3.0	46	—	17	15	—	8.4	126
OCT 1985 29...	10	20	.5	2.8	50	—	18	20	—	8.1	121
OCT 1986 30...	9.0	19	.4	3.3	50	—	19	17	—	9.0	141
NOV 1987 19...	11	21	.5	2.9	47	—	20	23	—	8.7	143
NOV 1988 14...	10	19	.5	3.0	48	—	19	18	—	8.8	—
NOV 1989 07...	8.1	18	.4	2.1	39	—	16	15	—	7.8	—
OCT 1990 17...	9.0	19	.4	2.7	60	—	16	17	<.10	9.7	—
OCT 1991 31...	9.2	19	.4	3.0	41	—	21	21	.10	7.8	—
OCT 1992 16...	9.1	17	.4	3.1	—	47	19	17	.10	9.1	—
NOV 1993 08...	—	—	—	—	—	49	19	19	<.10	—	—
NOV 1994 14...	—	—	—	—	—	43	—	19	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 05...	—	0.17	—	3.80	—	—	<0.010	3.90	<0.010	0.01	0.48
OCT 1982 28...	122	.18	3.97	3.99	3.99	18	.010	4.00	<.010	.01	—
OCT 1983 28...	138	.20	4.31	4.40	—	—	<.010	4.40	<.010	—	—
OCT 1984 31...	125	.17	6.12	3.90	—	—	<.010	3.90	.020	.03	—
OCT 1985 29...	139	.16	3.72	4.49	4.49	20	.010	4.50	.030	.04	.27
OCT 1986 30...	132	.19	3.27	4.00	—	—	<.010	4.00	.020	.03	.48
NOV 1987 19...	144	.19	5.60	4.60	—	—	<.010	4.60	<.010	—	.40
NOV 1988 14...	142	.19	5.76	5.18	5.18	23	.020	5.20	.020	.03	.38
NOV 1989 07...	124	.17	6.38	5.69	5.69	25	.010	5.70	.010	.01	.19
OCT 1990 17...	138	.19	4.47	4.59	4.59	20	.010	4.60	.020	.03	.88
OCT 1991 31...	134	.18	2.96	4.20	—	—	<.010	4.20	.020	.03	—
OCT 1992 16...	139	.19	4.74	5.09	5.09	23	.010	5.10	.020	.03	.28
NOV 1993 08...	—	—	—	5.48	5.48	24	.020	5.50	.020	.03	—
NOV 1994 14...	—	—	—	4.78	4.78	21	.020	4.80	<.015	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. TOTAL (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 05...	—	0.48	0.53	4.3	4.4	0.130	0.40	0.130	0.110	0.34	ND
OCT 1982 28...	—	—	.70	—	4.7	—	—	.090	.080	.25	1
OCT 1983 28...	—	—	.80	—	5.2	.100	.31	.090	.080	.25	—
OCT 1984 31...	0.28	—	.30	—	4.2	.080	—	.070	.060	.18	—
OCT 1985 29...	.17	.30	.20	4.8	4.7	.080	.25	.080	.070	.21	—
OCT 1986 30...	.38	.50	.40	4.5	4.4	.130	—	.090	.090	.28	—
NOV 1987 19...	—	.40	.30	5.0	4.9	.100	—	.070	.040	.12	—
NOV 1988 14...	.38	.40	.40	5.6	5.6	.110	—	.090	.080	.25	—
NOV 1989 07...	.39	.20	.40	5.9	6.1	.040	—	.020	.030	.09	—
OCT 1990 17...	.38	.90	.40	5.5	5.0	.070	—	.070	.050	.15	—
OCT 1991 31...	—	<.20	<.20	—	—	.060	—	.050	.040	.12	—
OCT 1992 16...	.28	.30	.30	5.4	5.4	.060	—	.050	.040	.12	—
NOV 1993 08...	—	—	—	—	—	—	—	—	.030	.09	—
NOV 1994 14...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 05...	<1.0	<1	<1	3	54	<1	25	0.7	<1	5	ND
OCT 1982 28...	<1.0	<1	1	2	76	<1	22	<.1	1	<4	0.06
OCT 1983 28...	—	—	—	—	62	—	24	—	—	—	—
OCT 1984 31...	—	—	—	—	71	—	27	—	—	—	—
OCT 1985 29...	—	—	—	—	37	—	13	—	—	—	—
OCT 1986 30...	—	—	—	—	45	—	13	—	—	—	—
NOV 1987 19...	—	—	—	—	47	—	36	—	—	—	—
NOV 1988 14...	—	—	—	—	42	—	19	—	—	—	—
NOV 1989 07...	—	—	—	—	42	—	22	—	—	—	—
OCT 1990 17...	—	—	—	—	40	—	26	—	—	—	—
OCT 1991 31...	—	—	—	—	67	—	25	—	—	—	—
OCT 1992 16...	—	—	—	—	74	—	30	—	—	—	—
NOV 1993 08...	—	—	—	—	—	—	—	—	—	—	—
NOV 1994 14...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480632 - Doe Run at Springdell, Pa. (Site 45)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981	05...	—	127	7.4	6.5	—	11.9	49	—	12	4.6
OCT 1982	28...	5.0	122	7.4	7.0	—	13.8	50	—	12	4.8
OCT 1983	28...	5.4	131	7.3	10.5	<1.0	11.5	50	—	12	4.9
OCT 1984	31...	10	135	7.5	14.0	.90	11.2	51	—	12	5.0
OCT 1985	29...	6.6	140	7.4	9.0	.80	12.9	51	—	12	5.0
OCT 1986	30...	4.6	135	7.6	12.5	.60	10.7	50	—	12	4.9
NOV 1987	19...	7.2	140	7.4	10.5	.50	12.8	54	—	13	5.3
NOV 1988	14...	6.7	150	7.2	12.0	1.4	13.4	55	—	13	5.4
NOV 1989	07...	14	152	7.6	11.5	1.5	12.5	51	20	12	5.2
OCT 1990	17...	5.9	146	7.1	11.5	1.0	10.8	51	0	12	5.1
OCT 1991	31...	4.9	142	7.0	10.0	5.7	11.4	50	7	12	4.8
OCT 1992	16...	6.4	159	7.2	13.0	.70	10.8	53	—	13	5.0
NOV 1993	08...	7.1	150	7.6	5.0	—	13.4	—	—	—	—
NOV 1994	09...	5.8	154	6.5	11.5	—	12.1	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480632 - Doe Run at Springdell, Pa. (Site 45)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 05...	4.6	16	0.3	1.9	—	—	6.9	9.6	<0.10	9.0	83
OCT 1982 28...	4.8	17	.3	2.4	28	—	10	10	<.10	9.9	85
OCT 1983 28...	5.0	17	.3	2.1	28	—	9.9	11	—	9.8	92
OCT 1984 31...	5.3	18	.3	2.0	28	—	9.3	8.7	—	9.2	82
OCT 1985 29...	5.2	18	.3	2.0	58	—	9.7	10	—	9.4	76
OCT 1986 30...	4.9	17	.3	2.6	32	—	—	—	—	10	93
NOV 1987 19...	5.7	18	.3	2.2	32	—	11	16	—	8.9	90
NOV 1988 14...	5.3	16	.3	3.0	34	—	11	11	—	9.0	—
NOV 1989 07...	5.1	17	.3	1.7	31	—	10	10	—	9.5	—
OCT 1990 17...	5.1	17	.3	2.0	51	—	7.6	9.6	<.10	11	—
OCT 1991 31...	5.0	17	.3	2.1	43	—	9.5	12	<.10	10	—
OCT 1992 16...	5.4	17	.3	2.2	—	71	8.7	11	<.10	10	—
NOV 1993 08...	—	—	—	—	—	27	8.9	11	.10	—	—
NOV 1994 09...	—	—	—	—	—	25	—	11	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480632 - Doe Run at Springdell, Pa. (Site 45)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 05...	—	0.11	—	3.00	—	—	<0.010	3.10	<0.010	0.01	0.46
OCT 1982 28...	84	.12	1.15	2.90	—	—	<.010	2.90	<.010	.01	—
OCT 1983 28...	88	.13	1.34	3.80	—	—	<.010	3.80	<.010	—	—
OCT 1984 31...	83	.11	2.21	3.40	—	—	<.010	3.40	.040	.05	—
OCT 1985 29...	106	.10	1.35	4.10	—	—	<.010	4.10	.020	.03	—
OCT 1986 30...	—	—	—	3.30	—	—	<.010	3.30	.040	.05	1.8
NOV 1987 19...	98	.12	1.75	3.80	—	—	<.010	3.80	<.010	—	.30
NOV 1988 14...	96	.13	1.74	4.09	4.09	18	.010	4.10	.030	.04	.37
NOV 1989 07...	94	.13	3.55	4.90	—	—	<.010	4.90	.030	.04	.27
OCT 1990 17...	101	.14	1.62	4.10	—	—	<.010	4.10	<.010	—	.80
OCT 1991 31...	98	.13	1.30	3.80	—	—	<.010	3.80	.010	.01	.19
OCT 1992 16...	118	.16	2.03	4.40	—	—	<.010	4.40	.020	.03	—
NOV 1993 08...	—	—	—	4.80	—	—	<.010	4.80	.020	.03	—
NOV 1994 09...	—	—	—	4.40	—	—	<.010	4.40	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480632 - Doe Run at Springdell, Pa. (Site 45)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 05...	—	0.46	0.35	3.5	3.5	0.010	0.03	0.020	<0.010	—	ND
OCT 1982 28...	—	—	.30	—	3.2	—	—	.010	<.010	—	<1
OCT 1983 28...	—	—	.10	—	3.9	.020	.06	.020	.010	0.03	—
OCT 1984 31...	0.26	—	.30	—	3.7	<.010	—	<.010	<.010	—	—
OCT 1985 29...	.28	—	.30	—	4.4	.010	.03	.010	.010	.03	—
OCT 1986 30...	.66	1.8	.70	5.1	4.0	.010	—	.010	.010	.03	—
NOV 1987 19...	—	.30	.30	4.1	4.1	.030	—	.010	<.010	—	—
NOV 1988 14...	.77	.40	.80	4.5	4.9	.030	—	.020	.010	.03	—
NOV 1989 07...	.37	.30	.40	5.2	5.3	.030	—	<.010	.020	.06	—
OCT 1990 17...	—	.80	.50	4.9	4.6	.020	—	.020	<.010	—	—
OCT 1991 31...	—	.20	<.20	4.0	—	<.010	—	<.010	<.010	—	—
OCT 1992 16...	.28	<.20	.30	—	4.7	.030	—	.030	.020	.06	—
NOV 1993 08...	—	—	—	—	—	—	—	—	.010	.03	—
NOV 1994 09...	—	—	—	—	—	—	—	—	.010	.03	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480632 - Doe Run at Springdell, Pa. (Site 45)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 05...	<1.0	<1	<1	<1	29	<1	14	0.4	1	<4	ND
OCT 1982 28...	<1.0	<1	<1	1	27	<1	8	<.1	<1	6	0.04
OCT 1983 28...	—	—	—	—	32	—	14	—	—	—	—
OCT 1984 31...	—	—	—	—	35	—	11	—	—	—	—
OCT 1985 29...	—	—	—	—	18	—	9	—	—	—	—
OCT 1986 30...	—	—	—	—	30	—	10	—	—	—	—
NOV 1987 19...	—	—	—	—	29	—	10	—	—	—	—
NOV 1988 14...	—	—	—	—	29	—	8	—	—	—	—
NOV 1989 07...	—	—	—	—	30	—	14	—	—	—	—
OCT 1990 17...	—	—	—	—	27	—	9	—	—	—	—
OCT 1991 31...	—	—	—	—	51	—	12	—	—	—	—
OCT 1992 16...	—	—	—	—	35	—	10	—	—	—	—
NOV 1993 08...	—	—	—	—	—	—	—	—	—	—	—
NOV 1994 09...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
04...	1445	—	240	7.5	10.5	—	12.0	93	—	23	8.6
OCT 1982											
21...	1530	59	238	7.7	13.0	—	10.9	86	—	21	8.1
OCT 1983											
31...	1130	71	245	7.4	8.0	1.2	11.6	92	—	23	8.3
OCT 1984											
16...	1130	100	225	8.2	13.0	.40	11.4	84	—	21	7.6
OCT 1985											
22...	1400	74	250	7.6	10.0	.60	12.6	88	—	22	8.1
NOV 1986											
03...	1130	51	245	7.8	11.0	1.0	10.3	92	—	23	8.4
NOV 1987											
03...	1000	69	230	7.4	12.0	.50	11.2	92	—	23	8.4
OCT 1988											
11...	1030	57	258	7.3	12.0	.30	11.7	95	—	23	9.0
OCT 1989											
13...	1430	106	230	7.5	15.5	.40	13.0	82	38	20	7.7
OCT 1990											
15...	1100	79	258	6.8	19.0	2.5	8.4	88	0	22	7.9
OCT 1991											
30...	0930	50	270	6.8	8.0	.30	12.1	96	27	24	8.7
OCT 1992											
29...	0915	56	270	7.8	9.0	.90	11.3	89	—	22	8.3
NOV 1993											
15...	0945	84	261	7.7	12.0	—	11.3	—	—	—	—
OCT 1994											
11...	1000	52	263	7.3	11.5	—	10.4	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
NOV 1981 04...	14	24	0.6	3.7	—	—	22	21	0.20	7.9
OCT 1982 21...	12	23	.6	3.1	56	—	20	22	.20	8.1
OCT 1983 31...	13	23	.6	4.0	52	—	25	22	—	10
OCT 1984 16...	9.6	19	.5	2.6	52	—	20	18	—	8.3
OCT 1985 22...	12	22	.6	3.7	62	—	21	20	—	9.4
NOV 1986 03...	12	21	.5	4.2	62	—	22	19	—	9.6
NOV 1987 03...	11	20	.5	3.9	60	—	22	18	—	11
OCT 1988 11...	13	22	.6	3.2	60	—	21	20	—	8.9
OCT 1989 13...	10	20	.5	3.0	44	—	20	17	—	10
OCT 1990 15...	12	22	.6	4.3	88	—	18	19	.50	13
OCT 1991 30...	13	22	.6	3.9	69	—	24	24	.20	8.8
OCT 1992 29...	12	22	.6	3.6	—	59	22	21	.30	8.4
NOV 1993 15...	—	—	—	—	—	49	26	20	.20	—
OCT 1994 11...	—	—	—	—	—	62	—	25	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
NOV 1981 04...	142	—	0.19	—	2.37	2.34	10	0.060	2.40	<0.010
OCT 1982 21...	140	139	.19	22.3	2.36	2.36	10	.040	2.40	<.010
OCT 1983 31...	153	154	.21	29.3	3.76	3.76	17	.040	3.80	.060
OCT 1984 16...	135	135	.18	36.5	3.55	3.55	16	.050	3.60	.070
OCT 1985 22...	140	148	.19	28.0	3.15	3.15	14	.050	3.20	.040
NOV 1986 03...	152	148	.21	2 .9	2.69	2.69	12	.010	2.70	<.010
NOV 1987 03...	144	148	.20	26.8	3.13	3.13	14	.070	3.20	.110
OCT 1988 11...	—	150	.20	23.1	3.50	—	—	<.010	3.50	.020
OCT 1989 13...	—	130	.18	37.3	3.59	3.59	16	.010	3.60	.010
OCT 1990 15...	—	162	.22	34.6	2.78	2.78	12	.020	2.80	.030
OCT 1991 30...	—	161	.22	21.7	2.80	—	—	<.010	2.80	<.010
OCT 1992 29...	—	149	.20	22.7	3.58	3.58	16	.020	3.60	<.010
NOV 1993 15...	—	—	—	—	3.60	—	—	<.010	3.60	.010
OCT 1994 11...	—	—	—	—	3.60	—	—	<.010	3.60	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
NOV 1981 04...	0.01	0.49	—	0.49	0.66	2.9	3.1	0.200	0.61	0.170
OCT 1982 21...	.01	—	—	—	1.7	—	4.1	—	—	.140
OCT 1983 31...	.08	—	0.34	—	.40	—	4.2	.170	.52	.150
OCT 1984 16...	.09	—	.33	—	.40	—	4.0	.130	—	.130
OCT 1985 22...	.05	.76	.66	.80	.70	4.0	3.9	.150	.46	.140
NOV 1986 03...	—	.80	—	.80	.60	3.5	3.3	.190	—	.170
NOV 1987 03...	.14	.59	.39	.70	.50	3.9	3.7	.120	—	.100
OCT 1988 11...	.03	.38	.38	.40	.40	3.9	3.9	.150	—	.140
OCT 1989 13...	.01	.49	.39	.50	.40	4.1	4.0	.080	—	.070
OCT 1990 15...	.04	.57	.57	.60	.60	3.4	3.4	.140	—	.100
OCT 1991 30...	—	.30	—	.30	<.20	3.1	—	.120	—	.110
OCT 1992 29...	—	.20	—	.20	.20	3.8	3.8	.110	—	.090
NOV 1993 15...	.01	—	—	—	—	—	—	—	—	—
OCT 1994 11...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
NOV 1981 04...	0.150	0.46	ND	—	—	<1.0	<1	<1	2	65
OCT 1982 21...	.130	.40	1	—	—	<1.0	<1	1	3	50
OCT 1983 31...	.150	.46	1	—	—	<1.0	<1	—	3	81
OCT 1984 16...	.130	.40	<1	—	—	<1.0	2	—	1	46
OCT 1985 22...	.130	.40	<1	—	—	<1.0	1	—	2	42
NOV 1986 03...	.140	.43	<1	—	—	1.0	<1	—	3	65
NOV 1987 03...	.100	.31	<1	—	—	<1.0	2	—	4	58
OCT 1988 11...	.120	.37	<1	25	<0.5	<1.0	<5	<3	<10	35
OCT 1989 13...	.060	.18	<1	25	<.5	<1.0	<5	<3	<10	41
OCT 1990 15...	.110	.34	<1	30	<.5	<1.0	<5	<3	<10	67
OCT 1991 30...	.090	.28	<1	26	<.5	1.0	<5	<3	<10	75
OCT 1992 29...	.070	.21	<1	27	<.5	<1.0	<5	<3	<10	57
NOV 1993 15...	.040	.12	—	—	—	—	—	—	—	—
OCT 1994 11...	.060	.18	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 04...	<1	—	33	<0.1	7	—	—	—	<4	0.10
OCT 1982 21...	<1	—	23	—	3	—	—	—	<4	.03
OCT 1983 31...	1	—	30	.1	4	<1.0	—	—	11	—
OCT 1984 16...	3	—	18	<.1	3	<1.0	—	—	6	—
OCT 1985 22...	<1	—	12	<.1	4	<1.0	—	—	20	—
NOV 1986 03...	<5	—	23	<.1	11	<1.0	—	—	15	—
NOV 1987 03...	<5	—	32	<.1	5	<1.0	—	—	7	—
OCT 1988 11...	<10	<4	10	—	<10	<1.0	94	<6	13	—
OCT 1989 13...	<10	4	23	.2	<10	<1.0	91	<6	<3	—
OCT 1990 15...	<10	4	32	<.1	<10	<1.0	96	<6	8	—
OCT 1991 30...	<10	5	28	<.1	<10	<1.0	97	<6	12	—
OCT 1992 29...	<10	<4	14	<.1	<10	<1.0	100	<6	7	—
NOV 1993 15...	—	—	—	—	—	—	—	—	—	—
OCT 1994 11...	—	—	—	—	—	—	—	—	—	—

Table 3. Water-quality data from surface-water sites—Continued

01480647 - East Branch Brandywine Creek near Struble Dam, Pa. (Site 43)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARDS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS TOTAL (MG/L) (00900)	CALCIUM DIS-SOLVED (MG/L) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L) (00925)	SODIUM, DIS-SOLVED (MG/L) (00930)	SODIUM PERCENT (00932)	
		OCT 1981	22...	1430	—	215	7.6	14.5	12.6	69	17	6.5
NOV 1982	03...	1100	1.6	165	7.3	14.5	9.6	66	16	6.4	6.2	16
DATE	TIME	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY WAT WH TOT FET FIELD SOLVED (MG/L AS CACO <sub>3</sub> ) (00410)	SULFATE, DIS-SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED PER AC-FT (MG/L) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
		OCT 1981	22...	0.5	3.4	—	19	15	<0.10	21	135	—
NOV 1982	03...	.3	4.0	44	16	12	.10	7.7	112	103	.15	0.49
DATE	TIME	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	
		OCT 1981	22...	3.78	4.19	19	0.010	4.20	0.130	0.17	1.5	1.3
NOV 1982	03...	1.78	1.78	7.9	.020	1.80	.040	.05	—	.46	—	
DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00623)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00600)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00602)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	
		OCT 1981	22...	1.4	5.4	5.6	0.090	0.28	0.050	0.030	0.09	1
NOV 1982	03...	.50	—	2.3	—	—	.010	<.010	—	1	<1.0	
DATE	TIME	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MERCURY, DIS-SOLVED (µG/L AS HG) (71890)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L) (38260)	
		OCT 1981	22...	5	1	20	610	1	140	0.5	22	6
NOV 1982	03...	<1	1	<1	49	<1	82	<.1	<1	<4	0.03	

**Table 3. Water-quality data from surface-water sites—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981	22...	—	185	7.3	9.5	—	10.1	64	—	17	5.3
NOV 1982	03...	2.6	158	7.7	14.5	—	10.5	67	—	17	5.9
NOV 1983	03...	3.2	121	8.0	10.0	2.0	9.3	66	—	17	5.8
OCT 1984	17...	2.9	185	7.5	12.5	.80	10.2	70	—	18	6.0
OCT 1985	23...	2.6	185	7.1	8.0	.90	10.5	67	—	17	6.0
OCT 1986	29...	3.1	180	7.5	10.0	2.6	10.8	68	—	17	6.2
OCT 1987	19...	3.6	178	7.3	10.5	2.3	11.2	68	—	17	6.1
NOV 1988	16...	4.3	180	7.4	9.5	5.2	11.4	71	—	18	6.3
OCT 1989	16...	4.4	202	7.2	16.5	1.3	10.0	75	26	19	6.6
OCT 1990	26...	2.6	212	6.2	9.5	1.9	10.5	84	26	22	7.0
NOV 1991	01...	1.9	208	7.2	11.5	1.6	10.9	78	4	20	6.7
OCT 1992	26...	2.7	204	7.0	9.0	2.4	11.5	75	—	19	6.6
NOV 1993	03...	6.1	198	7.5	7.5	—	11.0	—	—	—	—
OCT 1994	12...	1.9	210	7.0	9.0	—	10.8	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1981 22...	8.2	21	0.4	2.1	—	—	12	8.7	<0.10	24	112
NOV 1982 03...	6.9	17	.4	3.2	44	—	14	10	.10	14	107
NOV 1983 03...	7.6	19	.4	2.9	52	—	18	11	—	12	120
OCT 1984 17...	6.4	16	.3	2.8	48	—	16	11	—	15	130
OCT 1985 23...	7.3	18	.4	3.0	54	—	15	12	—	16	108
OCT 1986 29...	7.2	18	.4	3.7	48	—	17	13	—	12	119
OCT 1987 19...	7.0	18	.4	3.3	46	—	13	11	—	15	117
NOV 1988 16...	6.7	16	.3	3.5	50	—	19	11	—	10	—
OCT 1989 16...	7.1	16	.4	3.4	49	—	13	12	—	15	—
OCT 1990 26...	8.0	17	.4	3.0	58	—	21	17	.10	23	—
NOV 1991 01...	7.8	17	.4	2.9	74	—	15	15	<.10	16	—
OCT 1992 26...	7.6	17	.4	3.0	—	47	16	14	.10	15	—
NOV 1993 03...	—	—	—	—	—	50	16	12	.20	—	—
OCT 1994 12...	—	—	—	—	—	53	—	13	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 1981 22...	—	0.15	—	3.09	—	—	<0.010	3.10	0.040	0.05	0.22
NOV 1982 03...	106	.15	0.75	1.98	1.98	8.8	.020	2.00	<.010	.01	—
NOV 1983 03...	118	.16	1.04	2.77	2.77	12	.030	2.80	.130	.17	—
OCT 1984 17...	120	.18	1.02	3.44	3.44	15	.060	3.50	.130	.17	—
OCT 1985 23...	126	.15	.76	3.79	3.79	17	.010	3.80	.050	.06	—
OCT 1986 29...	113	.16	1.0	1.80	—	—	<.010	1.80	<.010	—	.90
OCT 1987 19...	115	.16	1.14	3.39	3.39	15	.010	3.40	.030	.04	1.2
NOV 1988 16...	118	.16	1.37	2.97	2.97	13	.030	3.00	.210	.27	.69
OCT 1989 16...	122	.17	1.44	3.57	3.57	16	.030	3.60	.020	.03	.78
OCT 1990 26...	159	.22	1.13	5.18	5.18	23	.020	5.20	.030	.04	.77
NOV 1991 01...	144	.20	.74	3.68	3.68	16	.021	3.70	.021	.03	.48
OCT 1992 26...	124	.17	.90	3.18	3.18	14	.020	3.20	.020	.03	.58
NOV 1993 03...	—	—	—	2.47	2.47	11	.030	2.50	.180	.23	—
OCT 1994 12...	—	—	—	3.88	3.88	17	.020	3.90	.030	.04	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
OCT 1981 22...	0.26	0.24	0.30	3.3	3.4	0.040	0.12	<0.010	0.020	0.06	2
NOV 1982 03...	—	—	.50	—	2.5	—	—	.010	.010	.03	1
NOV 1983 03...	.67	—	.80	—	3.6	.050	.15	.020	<.010	—	—
OCT 1984 17...	.47	—	.60	—	4.1	.050	—	.040	.040	.12	—
OCT 1985 23...	.35	—	.40	—	4.2	.030	—	.010	.010	.03	—
OCT 1986 29...	—	.90	.60	2.7	2.4	.050	—	<.010	<.010	—	—
OCT 1987 19...	.47	1.2	.50	4.6	3.9	.040	—	.030	<.010	—	—
NOV 1988 16...	.39	.90	.60	3.9	3.6	.040	—	.020	<.010	—	—
OCT 1989 16...	.58	.80	.60	4.4	4.2	.070	—	.030	.030	.09	—
OCT 1990 26...	.77	.80	.80	6.0	6.0	.060	—	.040	.040	.12	—
NOV 1991 01...	.28	.50	.30	4.2	4.0	.041	—	.021	<.010	—	—
OCT 1992 26...	.58	.60	.60	3.8	3.8	.050	—	.020	.010	.03	—
NOV 1993 03...	—	—	—	—	—	—	—	—	.020	.06	—
OCT 1994 12...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 22...	<1.0	2	<1	2	84	<1	25	<0.1	<1	8	—
NOV 1982 03...	<1.0	<1	<1	1	50	<1	39	<.1	<1	<4	0.04
NOV 1983 03...	—	—	—	—	70	—	54	—	—	—	—
OCT 1984 17...	—	—	—	—	120	—	33	—	—	—	—
OCT 1985 23...	—	—	—	—	36	—	13	—	—	—	—
OCT 1986 29...	—	—	—	—	37	—	27	—	—	—	—
OCT 1987 19...	—	—	—	—	61	—	22	—	—	—	—
NOV 1988 16...	—	—	—	—	38	—	25	—	—	—	—
OCT 1989 16...	—	—	—	—	48	—	28	—	—	—	—
OCT 1990 26...	—	—	—	—	93	—	52	—	—	—	—
NOV 1991 01...	—	—	—	—	54	—	26	—	—	—	—
OCT 1992 26...	—	—	—	—	66	—	26	—	—	—	—
NOV 1993 03...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 12...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARDS UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL AS CACO <sub>3</sub> (MG/L) (00900)	HARD- NESS NONCARB TOT FLD CACO <sub>3</sub> (MG/L AS CA) (00902)	CALCIUM, DIS- SOLVED (MG/L) AS CA (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L) AS MG (00925)	SODIUM, DIS- SOLVED (MG/L) AS NA (00930)	
NOV 1981	02...	1100	—	169	7.5	9.5	—	10.4	65	—	16	6.1	8.3
NOV 1982	03...	1330	7.6	154	8.0	16.5	—	9.8	61	—	16	5.1	6.6
NOV 1983	03...	1230	7.6	164	6.5	10.5	1.5	10.2	65	—	17	5.4	7.3
OCT 1984	17...	1330	9.2	178	7.8	12.5	.70	11.6	68	—	18	5.5	6.8
OCT 1985	23...	1300	7.0	170	7.7	10.0	.90	11.9	65	—	16	6.0	8.0
DEC 1986	05...	1000	25	140	7.6	3.0	2.6	13.4	60	—	15	5.5	6.7
OCT 1987	23...	1200	8.0	173	7.2	9.0	.70	12.4	66	—	17	5.7	7.2
NOV 1988	15...	0900	12	178	7.4	8.0	2.2	13.4	66	—	17	5.7	7.3
NOV 1989	01...	1145	20	193	8.0	12.5	.80	11.1	70	22	18	6.0	7.8
OCT 1990	26...	1200	11	197	6.4	10.5	1.7	11.4	73	17	19	6.1	7.9
NOV 1991	01...	1200	7.0	199	7.5	11.5	.60	12.1	71	0	19	5.8	8.0
NOV 1992	17...	1230	13	180	7.5	5.5	2.7	13.5	69	—	18	5.9	7.4
NOV 1993	04...	0950	11	198	7.6	6.0	—	11.8	—	—	—	—	—
OCT 1994	12...	1215	6.2	208	7.1	9.5	—	12.4	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)
NOV 1981 02...	21	0.4	2.3	—	—	14	11	0.10	20	113	—
NOV 1982 03...	18	.4	2.5	46	—	13	11	<.10	15	106	105
NOV 1983 03...	19	.4	2.2	42	—	16	11	—	16	120	113
OCT 1984 17...	17	.4	2.2	48	—	14	12	—	17	132	121
OCT 1985 23...	20	.4	2.5	44	—	14	11	—	18	106	115
DEC 1986 05...	19	.4	3.0	40	—	18	13	—	13	101	109
OCT 1987 23...	18	.4	3.1	48	—	11	11	—	18	114	114
NOV 1988 15...	19	.4	3.1	47	—	16	11	—	15	—	115
NOV 1989 01...	19	.4	3.0	48	—	13	12	—	17	—	120
OCT 1990 26...	18	.4	3.1	56	—	15	12	.10	21	—	133
NOV 1991 01...	19	.4	2.4	96	—	15	14	<.10	17	—	153
NOV 1992 17...	18	.4	2.7	—	36	16	13	.10	15	—	114
NOV 1993 04...	—	—	—	—	47	15	12	.10	—	—	—
OCT 1994 12...	—	—	—	—	44	—	13	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>2</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)
NOV 1981 02...	0.15	—	1.70	—	—	<0.010	1.70	<0.010	0.01	0.48	—
NOV 1982 03...	.14	2.18	1.89	1.89	8.4	.010	1.90	.010	.01	—	0.19
NOV 1983 03...	.16	2.46	2.90	—	—	<.010	2.90	.060	.08	—	.44
OCT 1984 17...	.18	3.27	3.66	3.66	16	.040	3.70	.090	.12	—	.41
OCT 1985 23...	.14	2.00	2.89	2.89	13	.010	2.90	.030	.04	.97	.47
DEC 1986 05...	.14	6.82	2.40	—	—	<.010	2.40	.030	.04	.87	.87
OCT 1987 23...	.16	2.46	2.80	—	—	<.010	2.80	.030	.04	.27	.37
NOV 1988 15...	.16	3.71	2.69	2.69	12	.010	2.70	.020	.03	.48	.38
NOV 1989 01...	.16	6.48	3.20	—	—	<.010	3.20	.030	.04	.37	.27
OCT 1990 26...	.18	3.97	3.28	3.28	15	.020	3.30	.020	.03	1.6	.78
NOV 1991 01...	.21	2.89	3.20	—	—	<.010	3.20	.021	.03	—	.28
NOV 1992 17...	.16	3.98	3.26	3.26	14	.040	3.30	.010	.01	.29	.29
NOV 1993 04...	—	—	2.89	2.89	13	.010	2.90	.020	.03	—	—
OCT 1994 12...	—	—	3.39	3.39	15	.010	3.40	<.015	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. TOTAL (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)
NOV 1981 02...	0.48	0.59	2.2	2.3	0.020	0.06	0.040	0.010	0.03	ND	<1.0
NOV 1982 03...	—	.20	—	2.1	—	—	.020	<.010	—	1	<1.0
NOV 1983 03...	—	.50	—	3.4	.030	.09	.020	<.010	—	—	—
OCT 1984 17...	—	.50	—	4.2	.030	—	.030	.030	.09	—	—
OCT 1985 23...	1.0	.50	3.9	3.4	.020	.06	.020	.010	.03	—	—
DEC 1986 05...	.90	.90	3.3	3.3	.060	—	.020	.010	.03	—	—
OCT 1987 23...	.30	.40	3.1	3.2	.030	—	<.010	<.010	—	<1	<1.0
NOV 1988 15...	.50	.40	3.2	3.1	.030	—	.020	.010	.03	—	—
NOV 1989 01...	.40	.30	3.6	3.5	.030	—	<.010	.010	.03	—	—
OCT 1990 26...	1.6	.80	4.9	4.1	.040	—	.030	.040	.12	—	—
NOV 1991 01...	<.20	.30	—	3.5	.021	—	<.010	.030	.09	—	—
NOV 1992 17...	.30	.30	3.6	3.6	.040	—	.020	<.010	—	—	—
NOV 1993 04...	—	—	—	—	—	—	—	.010	.03	—	—
OCT 1994 12...	—	—	—	—	—	—	—	.010	.03	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

DATE	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 02...	<1	1	<1	77	<1	49	<0.1	1	—	6	—
NOV 1982 03...	<1	1	<1	55	<1	22	<.1	<1	—	<4	0.02
NOV 1983 03...	—	—	—	67	—	25	—	—	—	—	—
OCT 1984 17...	—	—	—	69	—	16	—	—	—	—	—
OCT 1985 23...	—	—	—	50	—	11	—	—	—	—	—
DEC 1986 05...	—	—	—	71	—	18	—	—	—	—	—
OCT 1987 23...	<1	—	<1	67	<5	11	<.1	1	<1.0	<3	—
NOV 1988 15...	—	—	—	67	—	12	—	—	—	—	—
NOV 1989 01...	—	—	—	92	—	19	—	—	—	—	—
OCT 1990 26...	—	—	—	100	—	30	—	—	—	—	—
NOV 1991 01...	—	—	—	65	—	13	—	—	—	—	—
NOV 1992 17...	—	—	—	77	—	18	—	—	—	—	—
NOV 1993 04...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 12...	—	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
02...	1345	—	164	7.6	11.5	—	10.9	64	—	18	4.6
NOV 1982											
03...	1500	1.9	157	7.9	15.5	—	9.8	63	—	18	4.4
NOV 1983											
03...	1400	2.1	156	6.5	12.0	1.1	9.3	63	—	18	4.5
OCT 1984											
17...	1600	2.7	170	7.6	12.0	.50	9.9	63	—	18	4.4
OCT 1985											
23...	1330	.94	175	7.4	9.5	.70	10.8	61	—	17	4.4
OCT 1986											
29...	1500	1.8	185	7.5	13.0	.40	9.5	68	—	19	4.9
OCT 1987											
19...	1400	2.0	175	7.3	12.5	.30	11.2	64	—	18	4.6
NOV 1988											
15...	1300	2.2	178	7.4	10.0	1.4	12.8	64	—	18	4.7
OCT 1989											
16...	1510	3.0	183	7.1	18.5	.50	9.8	63	13	18	4.3
NOV 1990											
13...	1030	3.7	160	7.6	5.5	1.0	12.6	57	17	16	4.1
NOV 1991											
05...	1200	1.7	191	7.5	6.0	.50	13.5	82	7	17	9.5
OCT 1992											
26...	0845	1.7	202	6.7	7.0	.60	11.6	74	—	21	5.2
NOV 1993											
02...	1010	3.1	162	7.4	6.0	—	11.6	—	—	—	—
OCT 1994											
14...	0950	1.7	210	7.1	9.5	—	11.5	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 02...	8.7	22	0.5	1.4	—	—	7.6	9.8	<0.10	28	120
NOV 1982 03...	8.5	22	.5	1.6	57	—	9.0	9.7	<.10	26	117
NOV 1983 03...	9.2	23	.5	1.4	38	—	9.2	11	—	26	126
OCT 1984 17...	8.4	22	.5	1.3	50	—	8.2	11	—	25	120
OCT 1985 23...	9.0	24	.5	1.6	60	—	7.8	10	—	27	140
OCT 1986 29...	9.8	23	.5	2.0	58	—	10	12	—	28	145
OCT 1987 19...	9.3	24	.5	1.5	55	—	11	10	—	25	125
NOV 1988 15...	9.2	23	.5	1.6	49	—	14	11	—	24	—
OCT 1989 16...	9.4	24	.5	1.7	50	—	9.0	10	—	26	—
NOV 1990 13...	7.4	21	.4	1.6	40	—	13	11	<.10	24	—
NOV 1991 05...	15	28	.7	2.3	75	—	9.4	14	<.10	14	—
OCT 1992 26...	10	22	.5	1.9	—	60	8.8	12	.10	26	—
NOV 1993 02...	—	—	—	—	—	47	12	8.6	.10	—	—
OCT 1994 14...	—	—	—	—	—	58	—	13	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)—Continued

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 02...	—	0.16	—	2.69	2.89	13	0.010	2.90	<0.010	0.01	0.46
NOV 1982 03...	122	.16	0.60	2.19	2.19	9.7	.010	2.20	.040	.05	—
NOV 1983 03...	118	.17	.71	3.38	3.38	15	.020	3.40	.060	.08	—
OCT 1984 17...	122	.16	.87	3.36	3.36	15	.040	3.40	.100	.13	—
OCT 1985 23...	125	.19	.36	2.69	2.69	12	.010	2.70	.020	.03	.88
OCT 1986 29...	135	.20	.70	3.10	—	—	<.010	3.10	.020	.03	.38
OCT 1987 19...	129	.17	.68	3.60	—	—	<.010	3.60	.020	.03	.28
NOV 1988 15...	125	.17	.74	2.88	2.88	13	.020	2.90	.030	.04	.67
OCT 1989 16...	120	.16	.97	2.46	2.46	11	.040	2.50	.020	.03	.28
NOV 1990 13...	113	.15	1.13	2.59	2.59	11	.010	2.60	.060	.08	.24
NOV 1991 05...	141	.19	.65	3.40	—	—	<.010	3.40	.010	.01	.19
OCT 1992 26...	134	.18	.62	2.98	2.98	13	.020	3.00	<.010	—	.30
NOV 1993 02...	—	—	—	1.70	—	—	<.010	1.70	.030	.04	—
OCT 1994 14...	—	—	—	4.19	4.19	19	.010	4.20	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 02...	—	0.46	0.40	3.2	3.3	0.170	0.52	0.150	0.150	0.46	ND
NOV 1982 03...	0.66	—	.70	—	2.9	—	—	.320	.340	1.0	1
NOV 1983 03...	.74	—	.80	—	4.2	.140	.43	.130	.120	.37	—
OCT 1984 17...	.20	—	.30	—	3.7	.140	—	.160	.150	.46	—
OCT 1985 23...	.48	.90	.50	3.6	3.2	.130	.40	.120	.110	.34	—
OCT 1986 29...	.38	.40	.40	3.5	3.5	.180	—	.120	.120	.37	—
OCT 1987 19...	.18	.30	.20	3.9	3.8	.090	—	.080	.070	.21	—
NOV 1988 15...	.67	.70	.70	3.6	3.6	.120	—	.110	.100	.31	—
OCT 1989 16...	.28	.30	.30	2.8	2.8	.060	—	.050	.060	.18	—
NOV 1990 13...	.34	.30	.40	2.9	3.0	.040	—	.030	.040	.12	—
NOV 1991 05...	—	.20	<.20	3.6	—	.060	—	.060	.040	.12	—
OCT 1992 26...	—	.30	<.20	3.3	—	.040	—	.030	.020	.06	—
NOV 1993 02...	—	—	—	—	—	—	—	—	.030	.09	—
OCT 1994 14...	—	—	—	—	—	—	—	—	.020	.06	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 02...	<1.0	5	<1	<1	41	<1	11	0.1	1	<4	ND
NOV 1982 03...	<1.0	<1	<1	5	23	<1	3	<.1	<1	<4	0.03
NOV 1983 03...	—	—	—	—	31	—	4	—	—	—	—
OCT 1984 17...	—	—	—	—	31	—	5	—	—	—	—
OCT 1985 23...	—	—	—	—	18	—	5	—	—	—	—
OCT 1986 29...	—	—	—	—	34	—	6	—	—	—	—
OCT 1987 19...	—	—	—	—	18	—	2	—	—	—	—
NOV 1988 15...	—	—	—	—	27	—	2	—	—	—	—
OCT 1989 16...	—	—	—	—	46	—	5	—	—	—	—
NOV 1990 13...	—	—	—	—	61	—	5	—	—	—	—
NOV 1991 05...	—	—	—	—	47	—	17	—	—	—	—
OCT 1992 26...	—	—	—	—	36	—	3	—	—	—	—
NOV 1993 02...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 14...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) 00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
04...	0900	24	174	7.4	7.5	—	10.8	66	—	17	5.6
OCT 1982											
28...	1330	31	164	7.5	10.5	—	12.8	62	—	16	5.4
NOV 1983											
04...	1230	40	169	7.6	9.0	2.5	11.8	61	15	16	5.2
OCT 1984											
30...	1000	69	165	7.8	15.5	.70	10.4	58	—	15	5.0
OCT 1985											
21...	1500	36	178	7.1	9.5	.60	11.4	62	—	16	5.4
NOV 1986											
17...	0930	29	180	7.6	8.0	1.5	10.8	66	—	17	5.7
OCT 1987											
20...	1130	34	178	7.2	14.0	.60	12.0	63	—	16	5.5
OCT 1988											
05...	0900	27	193	7.3	14.5	1.5	10.8	67	—	17	6.0
OCT 1989											
10...	1015	60	187	7.2	11.0	1.1	10.7	62	8	16	5.4
OCT 1990											
16...	0845	45	186	7.8	15.0	1.5	9.3	62	6	16	5.4
NOV 1991											
05...	0930	31	193	7.4	6.0	1.5	12.6	68	20	18	5.6
OCT 1992											
30...	0900	28	200	7.4	10.5	1.3	10.7	69	—	18	5.8
NOV 1993											
03...	1245	44	195	7.6	9.0	—	10.8	—	—	—	—
OCT 1994											
13...	0915	20	208	7.2	9.0	—	11.9	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 04...	9.5	23	0.5	2.2	—	—	13	16	0.10	13	110
OCT 1982 28...	8.7	22	.5	3.0	36	—	16	15	<.10	13	108
NOV 1983 04...	9.1	24	.5	2.2	46	—	18	16	—	12	111
OCT 1984 30...	7.9	22	.5	3.2	38	—	16	12	—	11	106
OCT 1985 21...	9.0	23	.5	2.6	44	—	17	17	—	12	102
NOV 1986 17...	9.1	22	.5	2.3	30	—	18	13	—	14	122
OCT 1987 20...	9.4	23	.5	3.4	44	—	15	15	—	11	113
OCT 1988 05...	8.6	21	.5	2.6	46	—	18	15	—	14	—
OCT 1989 10...	8.2	22	.5	2.3	54	—	14	14	—	14	—
OCT 1990 16...	8.7	22	.5	2.5	56	—	14	16	<.10	11	—
NOV 1991 05...	8.8	21	.5	2.2	48	—	17	20	<.10	12	—
OCT 1992 30...	9.1	22	.5	2.3	—	49	15	16	.10	12	—
NOV 1993 03...	—	—	—	—	—	43	17	16	.10	—	—
OCT 1994 13...	—	—	—	—	—	49	—	19	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 04...	—	0.15	—	0.980	0.980	4.3	0.020	1.00	0.170	0.22	0.57
OCT 1982 28...	105	.15	9.04	1.29	1.29	5.7	.010	1.30	.060	.08	—
NOV 1983 04...	113	.15	12.0	1.49	1.49	6.6	.010	1.50	.230	.30	—
OCT 1984 30...	98	.14	19.7	1.00	—	—	<.010	1.00	.030	.04	—
OCT 1985 21...	112	.14	9.91	1.49	1.49	6.6	.010	1.50	.040	.05	—
NOV 1986 17...	105	.17	9.55	1.80	—	—	<.010	1.80	.100	.13	.20
OCT 1987 20...	109	.15	1.4	1.60	—	—	<.010	1.60	.050	.06	.65
OCT 1988 05...	118	.16	8.57	1.89	1.89	8.4	.010	1.90	<.030	—	.50
OCT 1989 10...	116	.16	18.7	1.99	1.99	8.8	.010	2.00	.090	.12	—
OCT 1990 16...	111	.15	13.4	.900	—	—	<.010	.900	.020	.03	.58
NOV 1991 05...	119	.16	9.83	1.28	1.28	5.7	.020	1.30	.120	.15	.28
OCT 1992 30...	116	.16	8.74	1.68	1.68	7.4	.020	1.70	.060	.08	.14
NOV 1993 03...	—	—	—	1.39	1.39	6.2	.010	1.40	.060	.08	—
OCT 1994 13...	—	—	—	1.89	1.89	8.4	.010	1.90	.020	.03	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 04...	0.56	0.74	0.73	1.7	1.7	0.020	0.06	0.020	<0.010	—	ND
OCT 1982 28...	.24	—	.30	—	1.6	—	—	.020	.010	0.03	<1
NOV 1983 04...	1.3	—	1.5	—	3.0	.030	.09	.020	<.010	—	—
OCT 1984 30...	.37	—	.40	—	1.4	<.010	—	<.010	.020	.06	—
OCT 1985 21...	.86	—	.90	—	2.4	.020	.06	.010	.010	.03	—
NOV 1986 17...	.50	.30	.60	2.1	2.4	.040	—	.010	<.010	—	—
OCT 1987 20...	.35	.70	.40	2.3	2.0	.010	—	<.010	<.010	—	—
OCT 1988 05...	—	.50	.50	2.4	2.4	.010	—	.010	<.010	—	—
OCT 1989 10...	.31	<.20	.40	—	2.4	.030	—	.010	<.010	—	—
OCT 1990 16...	.28	.60	.30	1.5	1.2	.020	—	<.010	<.010	—	—
NOV 1991 05...	.18	.40	.30	1.7	1.6	<.010	—	<.010	<.010	—	—
OCT 1992 30...	.14	.20	.20	1.9	1.9	<.010	—	.010	<.010	—	—
NOV 1993 03...	—	—	—	—	—	—	—	—	.010	.03	—
OCT 1994 13...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE- SUB- STANCE (MG/L) (38260)
NOV 1981 04...	<1.0	2	<1	1	240	<1	750	0.1	1	<4	ND
OCT 1982 28...	<1.0	<1	<1	2	59	<1	74	<.1	2	<4	0.03
NOV 1983 04...	—	—	—	—	150	—	140	—	—	—	—
OCT 1984 30...	—	—	—	—	71	—	23	—	—	—	—
OCT 1985 21...	—	—	—	—	54	—	27	—	—	—	—
NOV 1986 17...	—	—	—	—	120	—	140	—	—	—	—
OCT 1987 20...	—	—	—	—	87	—	96	—	—	—	—
OCT 1988 05...	—	—	—	—	290	—	99	—	—	—	—
OCT 1989 10...	—	—	—	—	190	—	160	—	—	—	—
OCT 1990 16...	—	—	—	—	87	—	34	—	—	—	—
NOV 1991 05...	—	—	—	—	370	—	350	—	—	—	—
OCT 1992 30...	—	—	—	—	98	—	240	—	—	—	—
NOV 1993 03...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 13...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	
NOV 1981	04...	—	308	7.8	8.0	—	10.9	140	—	36	
OCT 1982	28...	1445	7.3	324	8.4	10.7	—	12.4	150	—	33
OCT 1983	31...	1345	7.0	377	8.0	10.0	1.3	12.4	170	—	38
OCT 1984	16...	1500	11	370	8.7	14.0	.40	12.8	150	—	33
OCT 1985	31...	0930	8.3	340	7.6	11.0	.60	12.2	150	—	37
OCT 1986	08...	1330	5.5	345	8.5	14.5	.40	12.6	170	—	35
NOV 1987	04...	1400	7.8	335	8.6	15.0	.40	14.6	150	—	37
OCT 1988	14...	1530	12	321	7.6	12.0	1.5	13.4	130	—	33
OCT 1989	06...	1015	21	370	7.8	13.0	.40	11.5	160	54	36
OCT 1990	11...	1245	6.1	390	6.9	19.0	.50	10.2	160	48	32
NOV 1991	18...	0945	4.4	349	7.5	3.5	1.1	15.0	150	60	38
NOV 1992	17...	0915	7.4	329	7.9	4.5	.70	14.5	130	—	34
NOV 1993	04...	1300	8.6	429	8.4	9.0	—	14.0	—	—	—
OCT 1994	06...	1000	5.4	390	8.0	10.0	—	12.0	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)—Continued

DATE	MAGNE-	SODIUM,	SODIUM	POTAS-	ANC	ANC	SULFATE,	CHLO-	FLUO-	SILICA,	SOLIDS,	
	SIUM,	SODIUM,		SIUM,	WATER	WATER		RIDE,	RIDE,	DIS-	RESIDUE	
	DIS-	DIS-	AD-	DIS-	UNFLTRD	UNFLTRD	DIS-	DIS-	DIS-	SOLVED	AT 180	
	SOLVED	SOLVED	SORP-	SOLVED	FET	IT	SOLVED	SOLVED	SOLVED	(MG/L	DEG. C	
	(MG/L	(MG/L	TION	(MG/L	(MG/L AS	(MG/L AS	(MG/L	(MG/L	(MG/L	AS	DIS-	
	AS MG)	AS NA)	RATIO	AS K)	CA <sub>CO</sub> <sub>3</sub> )	CA <sub>CO</sub> <sub>3</sub> )	AS SO <sub>4</sub> )	AS CL)	AS F)	SIO <sub>2</sub> )	(MG/L)	
	(00925)	(00930)	(00932)	(00931)	(00935)	(00410)	(00419)	(00945)	(00940)	(00955)	(70300)	
NOV 1981												
04...	13	11	14	0.4	1.7	—	—	29	20	<0.10	6.1	190
OCT 1982												
28...	17	10	12	.4	2.4	92	—	33	19	<.10	5.7	203
OCT 1983												
04...	19	10	11	.3	2.5	84	—	55	19	—	5.4	231
OCT 1984												
16...	16	9.7	12	.3	2.1	100	—	42	19	—	4.5	196
OCT 1985												
31...	14	13	16	.5	2.0	108	—	27	28	—	6.0	195
OCT 1986												
08...	19	11	12	.4	3.2	104	—	49	20	—	6.2	240
NOV 1987												
04...	15	12	14	.4	2.5	114	—	31	23	—	5.0	202
OCT 1988												
14...	12	11	15	.4	1.7	101	—	25	22	—	6.4	—
OCT 1989												
06...	16	12	14	.4	2.4	102	—	38	23	—	7.5	—
OCT 1990												
11...	20	12	14	.4	3.1	114	—	43	24	<.10	5.8	220
NOV 1991												
18...	14	13	15	.5	1.8	93	—	32	27	.10	4.1	—
NOV 1992												
17...	12	13	17	.5	1.7	—	82	27	25	<.10	6.6	—
NOV 1993												
04...	—	—	—	—	—	—	138	40	29	<.10	—	—
OCT 1994												
06...	—	—	—	—	—	110	110	—	32	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>2</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)
NOV 1981 04...	—	0.26	—	2.40	—	—	<0.010	2.20	<0.010	0.01	—
OCT 1982 28...	186	.28	4.01	—	—	—	<.010	2.40	.020	.03	—
OCT 1983 31...	216	.31	4.37	—	3.60	16	.010	3.60	.010	.01	—
OCT 1984 16...	200	.27	5.82	—	2.96	13	.040	3.00	.050	.06	—
OCT 1985 31...	204	.27	4.37	—	—	—	<.010	2.70	.010	.01	—
OCT 1986 08...	217	.33	3.56	—	2.39	11	.010	2.40	<.010	—	—
NOV 1987 04...	205	.27	4.25	—	—	—	<.010	2.40	.020	.03	0.88
OCT 1988 14...	183	.25	5.92	—	—	—	<.010	2.50	.010	.01	—
OCT 1989 06...	208	.28	11.8	—	—	—	<.010	2.70	.010	.01	—
OCT 1990 11...	219	.30	3.63	—	—	—	<.010	2.40	<.020	—	—
NOV 1991 18...	196	.27	2.35	—	—	—	<.010	2.30	.010	.01	—
NOV 1992 17...	179	.24	3.58	—	2.36	10	.040	2.40	.040	.05	—
NOV 1993 04...	—	—	—	—	—	—	<.010	2.00	.020	.03	—
OCT 1994 06...	—	—	—	—	—	—	<.010	2.40	<.015	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 04...	—	0.31	0.24	2.7	2.4	0.100	0.31	0.110	0.090	0.28	0
OCT 1982 28...	0.78	—	.80	—	3.2	—	—	.080	.080	.25	1
OCT 1983 31...	.69	—	.70	—	4.3	.100	.31	.100	.080	.25	—
OCT 1984 16...	.35	—	.40	—	3.4	.060	—	.070	.060	.18	—
OCT 1985 31...	—	<.20	<.20	—	—	.090	.28	.080	.080	.25	—
OCT 1986 08...	—	.70	<.20	3.1	—	.050	—	.040	.030	.09	—
NOV 1987 04...	.38	.90	.40	3.3	2.8	.070	—	.060	.060	.18	—
OCT 1988 14...	—	<.20	<.20	—	—	.050	—	.050	.030	.09	—
OCT 1989 06...	.29	<.20	.30	—	3.0	.020	—	.020	.020	.06	—
OCT 1990 11...	—	.50	.20	2.9	2.6	.020	—	<.010	<.010	—	—
NOV 1991 18...	—	<.20	<.20	—	—	<.010	—	<.010	<.010	—	—
NOV 1992 17...	—	<.20	<.20	—	—	.020	—	<.010	<.010	—	—
NOV 1993 04...	—	—	—	—	—	—	—	—	.010	.03	—
OCT 1994 06...	—	—	—	—	—	—	—	—	<.010	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)—Continued

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 04...	<1.0	<1.0	2.0	<1.0	16	<1.0	46	0.1	2.0	<4.0	ND
OCT 1982 28...	<1.0	<1.0	<1.0	<1.0	18	<1.0	5.0	<.1	1.0	<4.0	0.04
OCT 1983 31...	—	—	—	—	16	—	8.0	—	—	—	—
OCT 1984 16...	—	—	—	—	13	—	4.0	—	—	—	—
OCT 1985 31...	—	—	—	—	10	—	8.0	—	—	—	—
OCT 1986 08...	—	—	—	—	13	—	8.0	—	—	—	—
NOV 1987 04...	—	—	—	—	13	—	6.0	—	—	—	—
OCT 1988 14...	—	—	—	—	17	—	6.0	—	—	—	—
OCT 1989 06...	—	—	—	—	14	—	7.0	—	—	—	—
OCT 1990 11...	—	<1.0	—	—	24	—	17	—	—	—	—
NOV 1991 18...	—	—	—	—	15	—	4.0	—	—	—	—
NOV 1992 17...	1.0	<5.0	<3.0	<10	20	<10	8.0	—	<10	<3.0	—
NOV 1993 04...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 06...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS, NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981	04...	—	328	6.7	10.5	—	12.4	120	—	29	12
OCT 1982	21...	56	290	8.0	14.5	—	11.3	100	—	25	10
OCT 1983	31...	78	284	7.5	7.5	2.4	10.8	120	—	28	11
OCT 1984	16...	68	290	7.8	13.0	1.3	12.4	110	—	26	10
OCT 1985	22...	55	290	7.5	9.5	1.0	13.8	110	—	27	11
NOV 1986	03...	50	293	7.9	12.0	.70	11.4	110	—	27	10
NOV 1987	04...	66	292	7.4	12.5	.60	12.6	110	—	28	10
OCT 1988	06...	52	374	7.8	12.5	1.8	13.4	130	—	30	13
OCT 1989	13...	113	293	7.5	13.0	.80	10.9	110	35	26	9.7
OCT 1990	15...	86	295	6.6	19.5	1.5	8.8	100	26	25	9.7
OCT 1991	30...	51	350	8.3	10.5	.50	16.4	120	45	30	11
OCT 1992	29...	46	350	7.6	11.5	.90	11.6	110	—	27	10
NOV 1993	16...	55	338	8.2	12.0	—	12.8	—	—	—	—
OCT 1994	11...	57	377	7.8	12.5	—	12.4	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	
NOV 1981 04...	20	26	0.8	3.4	—	29	24	0.10	13	
OCT 1982 21...	16	25	.7	2.8	74	32	23	.10	10	
OCT 1983 31...	16	23	.6	3.1	84	31	23	—	11	
OCT 1984 16...	16	24	.7	2.7	82	25	22	—	9.0	
OCT 1985 22...	16	23	.7	3.4	80	28	25	—	9.7	
NOV 1986 03...	17	25	.7	3.9	84	24	25	—	10	
NOV 1987 04...	18	25	.7	3.8	85	26	26	—	12	
OCT 1988 06...	19	24	.7	3.7	94	29	27	—	11	
OCT 1989 13...	15	23	.6	3.3	70	21	21	—	12	
OCT 1990 15...	15	23	.6	4.0	77	21	22	.20	12	
OCT 1991 30...	22	28	.9	4.5	75	30	33	.20	9.8	
OCT 1992 29...	19	27	.8	4.1	—	76	24	33	.20	10
NOV 1993 16...	—	—	—	—	—	70	28	26	.10	—
OCT 1994 11...	—	—	—	—	—	108	—	37	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
NOV 1981 04...	189	—	0.26	—	2.24	2.04	9.0	0.160	2.20	0.490
OCT 1982 21...	176	174	.24	26.5	1.94	1.94	8.6	.060	2.00	.060
OCT 1983 31...	188	188	.26	39.6	2.85	2.85	13	.050	2.90	.310
OCT 1984 16...	175	175	.24	32.1	2.91	2.91	13	.090	3.00	.070
OCT 1985 22...	174	180	.24	25.8	2.31	2.31	10	.090	2.40	.110
NOV 1986 03...	186	180	.25	25.1	2.23	2.23	9.9	.070	2.30	.170
NOV 1987 04...	182	188	.25	32.4	2.58	2.58	11	.020	2.60	.050
OCT 1988 06...	—	205	.28	28.8	3.09	3.09	14	.010	3.10	.020
OCT 1989 13...	—	165	.22	50.5	3.18	3.18	14	.020	3.20	.020
OCT 1990 15...	—	166	.23	38.8	2.18	2.18	9.6	.020	2.20	.040
OCT 1991 30...	—	201	.27	27.5	3.19	3.19	14	.010	3.20	.010
OCT 1992 29...	—	190	.26	23.8	3.57	3.57	16	.030	3.60	.090
NOV 1993 16...	—	—	—	—	3.67	3.67	16	.030	3.70	.050
OCT 1994 11...	—	—	—	—	4.18	4.18	19	.020	4.20	.020

**Table 3. Water-quality data from surface-water sites—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
NOV 1981 04...	0.63	1.1	0.71	1.6	1.2	4.0	3.4	0.900	2.8	0.800
OCT 1982 21...	.08	—	1.2	—	1.3	—	3.3	—	—	.530
OCT 1983 31...	.40	—	.39	—	.70	—	3.6	.520	1.6	.510
OCT 1984 16...	.09	—	.23	—	.30	—	3.3	.710	—	.670
OCT 1985 22...	.14	.59	.49	.70	.60	3.1	3.0	.480	1.5	.450
NOV 1986 03...	.22	.43	.63	.60	.80	2.9	3.1	.690	—	.660
NOV 1987 04...	.06	.65	.55	.70	.60	3.3	3.2	.530	—	.560
OCT 1988 06...	.03	.68	.68	.70	.70	3.8	3.8	.700	—	.690
OCT 1989 13...	.03	.48	.68	.50	.70	3.7	3.9	.330	—	.320
OCT 1990 15...	.05	.66	.36	.70	.40	2.9	2.6	.320	—	.320
OCT 1991 30...	.01	.39	.29	.40	.30	3.6	3.5	.350	—	.330
OCT 1992 29...	.12	.61	.51	.70	.60	4.3	4.2	.320	—	.250
NOV 1993 16...	.06	—	—	—	—	—	—	—	—	—
OCT 1994 11...	.03	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
NOV 1981 04...	0.800	2.5	1	—	—	<1.0	<1	<1	2	66
OCT 1982 21...	.570	1.7	1	—	—	<1.0	<1	1	4	45
OCT 1983 31...	.530	1.6	1	—	—	1.0	<1	—	3	74
OCT 1984 16...	.700	2.1	<1	—	—	<1.0	1	—	1	41
OCT 1985 22...	.410	1.3	<1	—	—	<1.0	<1	—	2	33
NOV 1986 03...	.640	2.0	<1	—	—	1.0	<1	—	3	68
NOV 1987 04...	.490	1.5	<1	—	—	<1.0	90	—	4	68
OCT 1988 06...	.610	1.9	<1	31	<0.5	2.0	5	<3	<10	53
OCT 1989 13...	.300	.92	<1	38	<.5	<1.0	<5	<3	<10	99
OCT 1990 15...	.340	1.0	<1	35	<.5	<1.0	<5	<3	<10	74
OCT 1991 30...	.270	.83	<1	30	<.5	<1.0	<5	<3	<10	130
OCT 1992 29...	.240	.74	<1	33	<.5	<1.0	<5	<3	<10	50
NOV 1993 16...	.330	1.0	—	—	—	—	—	—	—	—
OCT 1994 11...	.150	.46	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 04...	<1	—	49	0.1	2	—	—	—	5	0.10
OCT 1982 21...	<1	—	33	—	3	—	—	—	<4	.05
OCT 1983 31...	1	—	45	<.1	<1	<1.0	—	—	6	—
OCT 1984 16...	1	—	21	<.1	2	<1.0	—	—	<3	—
OCT 1985 22...	<1	—	18	<.1	<1	<1.0	—	—	27	—
NOV 1986 03...	<5	—	38	.1	3	<1.0	—	—	15	—
NOV 1987 04...	<5	—	43	.2	3	<1.0	—	—	5	—
OCT 1988 06...	<10	8	20	.1	<10	3.0	120	<6	12	—
OCT 1989 13...	<10	6	22	<.1	<10	<1.0	120	<6	4	—
OCT 1990 15...	<10	6	39	<.1	<10	<1.0	110	<6	8	—
OCT 1991 30...	<10	7	23	<.1	<10	<1.0	120	<6	8	—
OCT 1992 29...	<10	4	20	<.1	<10	<1.0	120	<6	10	—
NOV 1993 16...	—	—	—	—	—	—	—	—	—	—
OCT 1994 11...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CACO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
04...	1645	121	265	7.6	11.0	—	11.2	100	—	25	9.7
OCT 1982											
21...	1045	157	262	7.5	12.5	—	10.3	94	—	23	8.9
OCT 1983											
31...	1600	131	252	7.6	9.0	1.6	11.2	100	—	25	9.5
OCT 1984											
15...	1600	165	230	8.4	14.0	.60	12.4	89	—	22	8.2
OCT 1985											
30...	1100	135	250	8.0	10.0	.70	13.9	95	—	23	9.1
DEC 1986											
02...	0930	258	240	7.8	5.0	1.8	11.8	92	—	22	8.9
NOV 1987											
20...	1200	199	250	7.4	9.5	.80	11.6	90	—	22	8.4
OCT 1988											
07...	1000	116	285	7.6	12.0	1.5	10.4	100	—	24	10
OCT 1989											
17...	1030	278	260	7.3	17.5	.70	8.7	92	—	22	8.9
OCT 1990											
15...	0930	201	242	6.8	19.0	3.7	7.6	80	4	19	7.8
NOV 1991											
15...	1000	127	299	7.4	7.5	.70	12.4	100	38	26	9.4
OCT 1992											
27...	1345	135	290	8.4	10.5	.80	13.9	98	—	24	9.2
NOV 1993											
09...	0945	191	275	7.3	5.5	—	12.9	—	—	—	—
OCT 1994											
04...	1000	169	295	7.6	12.5	—	9.4	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
NOV 1981 04...	14	22	0.6	3.4	—	—	26	21	0.20	11	164
OCT 1982 21...	15	25	.7	3.0	62	—	24	24	.20	9.8	161
OCT 1983 31...	14	22	.6	3.6	64	—	29	21	—	12	172
OCT 1984 15...	11	21	.5	2.6	62	—	22	18	—	8.8	143
OCT 1985 30...	13	22	.6	3.3	70	—	23	21	—	11	146
DEC 1986 02...	11	20	.5	3.1	72	—	25	23	—	13	150
NOV 1987 20...	14	24	.6	3.5	65	—	21	24	—	11	164
OCT 1988 07...	14	22	.6	3.3	78	—	24	22	—	10	—
OCT 1989 17...	13	23	.6	3.4	58	—	21	20	—	9.9	—
OCT 1990 15...	11	22	.5	4.5	76	—	19	18	.30	12	—
NOV 1991 15...	16	24	.7	3.6	66	—	25	26	.20	8.5	—
OCT 1992 27...	15	24	.7	3.7	—	59	23	23	.20	9.3	—
NOV 1993 09...	—	—	—	—	—	64	27	22	.20	—	—
OCT 1994 04...	—	—	—	—	68	68	—	26	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)—Continued

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) 70301)	SOLIDS, DIS- SOLVED (TONS AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 1981											
04...	—	0.22	—	2.21	2.12	9.4	0.080	2.20	0.090	0.12	0.71
OCT 1982											
21...	156	.22	68.2	2.17	2.17	9.6	.030	2.20	.010	.01	—
OCT 1983											
31...	166	.23	60.8	2.88	2.88	13	.020	2.90	.040	.05	—
OCT 1984											
15...	143	.19	63.7	2.76	2.76	12	.040	2.80	.070	.09	—
OCT 1985											
30...	156	.20	53.2	2.26	2.26	10	.040	2.30	.020	.03	.58
DEC 1986											
02...	163	.20	104	2.97	2.97	13	.030	3.00	.160	.21	.94
NOV 1987											
20...	155	.22	88.1	2.49	2.49	11	.010	2.50	<.010	—	.50
OCT 1988											
07...	168	.23	52.7	3.00	—	—	<.010	3.00	<.010	—	.40
OCT 1989											
17...	147	.20	111	3.08	3.08	14	.020	3.10	.020	.03	.58
OCT 1990											
15...	147	.20	79.8	1.98	1.98	8.8	.020	2.00	.050	.06	.55
NOV 1991											
15...	169	.23	57.9	3.20	—	—	<.010	3.20	.010	.01	.29
OCT 1992											
27...	156	.21	56.8	2.88	2.88	13	.020	2.90	<.010	—	.30
NOV 1993											
09...	—	—	—	3.19	3.19	14	.010	3.20	.010	.01	—
OCT 1994											
04...	—	—	—	3.39	3.39	15	.010	3.40	<.015	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)—Continued

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)
NOV 1981 04...	0.58	0.85	0.67	3.2	2.9	0.410	1.3	0.360	0.330	1.0	1
OCT 1982 21...	.39	—	.40	—	2.6	—	—	.290	.330	1.0	1
OCT 1983 31...	.76	—	.80	—	3.7	.300	.92	.290	.250	.77	—
OCT 1984 15...	.43	—	.50	—	3.3	.250	—	.250	.260	.80	—
OCT 1985 30...	.38	.60	.40	2.9	2.7	.280	.86	.260	.240	.74	—
DEC 1986 02...	.34	1.1	.50	4.1	3.5	.200	—	.160	.130	.40	—
NOV 1987 20...	—	.50	<.20	3.0	—	.290	—	.260	.170	.52	—
OCT 1988 07...	—	.40	.40	3.4	3.4	.320	—	.310	.260	.80	—
OCT 1989 17...	.48	.60	.50	3.7	3.6	.210	—	.170	.170	.52	—
OCT 1990 15...	.75	.60	.80	2.6	2.8	.190	—	.140	.150	.46	—
NOV 1991 15...	.19	.30	.20	3.5	3.4	.150	—	.130	.120	.37	—
OCT 1992 27...	—	.30	.20	3.2	3.1	.110	—	.090	.080	.25	—
NOV 1993 09...	—	—	—	—	—	—	—	—	.110	.34	—
OCT 1994 04...	—	—	—	—	—	—	—	—	.080	.25	—

**Table 3. Water-quality data from surface-water sites—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)—Continued

DATE	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 04...	<1.0	<1	<1	1	67	<1	56	0.7	4	<4	—
OCT 1982 21...	<1.0	<1	1	4	61	<1	37	—	4	7	0.05
OCT 1983 31...	—	—	—	—	88	—	47	—	—	—	—
OCT 1984 15...	—	—	—	—	50	—	18	—	—	—	—
OCT 1985 30...	—	—	—	—	46	—	19	—	—	—	—
DEC 1986 02...	—	—	—	—	67	—	44	—	—	—	—
NOV 1987 20...	—	—	—	—	57	—	40	—	—	—	—
OCT 1988 07...	—	—	—	—	55	—	20	—	—	—	—
OCT 1989 17...	—	—	—	—	69	—	20	—	—	—	—
OCT 1990 15...	—	—	—	—	89	—	35	—	—	—	—
NOV 1991 15...	—	—	—	—	45	—	18	—	—	—	—
OCT 1992 27...	—	—	—	—	66	—	16	—	—	—	—
NOV 1993 09...	—	—	—	—	—	—	—	—	—	—	—
OCT 1994 04...	—	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981 29...	0930	—	190	7.2	9.5	—	9.8	57	—	13	6.0
NOV 1982 01...	1300	3.2	132	7.4	13.0	—	9.2	44	—	9.9	4.7
NOV 1983 02...	1430	4.7	129	7.1	11.0	1.5	9.9	42	—	9.4	4.6
OCT 1984 18...	0830	7.4	148	7.3	13.0	.90	9.9	49	—	11	5.2
OCT 1985 17...	0815	—	148	6.9	7.0	.80	10.8	50	—	11	5.4
OCT 1986 28...	0830	5.0	170	7.4	12.5	1.2	9.6	57	—	13	5.9
OCT 1987 27...	0900	4.6	145	7.1	7.0	.50	12.0	50	—	11	5.4
OCT 1988 17...	0900	4.1	169	6.8	13.5	.90	10.6	56	—	12	6.2
OCT 1989 12...	1000	11	178	7.1	11.5	.70	11.8	55	30	12	6.0
OCT 1990 18...	1245	4.7	180	6.5	16.0	1.4	9.8	56	28	13	5.8
OCT 1991 25...	1200	3.7	182	7.2	13.5	1.0	10.3	57	13	13	5.9
NOV 1992 10...	1200	5.7	170	7.6	7.0	1.7	12.8	51	—	11	5.7
NOV 1993 10...	1225	6.4	167	7.5	6.5	—	12.3	—	—	—	—
NOV 1994 04...	1315	4.4	178	7.2	12.5	—	10.4	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981 29...	13	30	0.7	7.9	—	—	14	21	0.10	14
NOV 1982 01...	6.7	23	.4	3.3	28	—	8.0	12	<.10	10
NOV 1983 02...	6.6	24	.4	2.5	22	—	8.2	12	—	11
OCT 1984 18...	6.1	20	.4	2.7	28	—	6.4	13	—	11
OCT 1985 17...	6.5	21	.4	2.9	26	—	9.0	12	—	10
OCT 1986 28...	7.4	20	.4	6.5	34	—	12	13	—	13
OCT 1987 27...	6.5	21	.4	2.8	30	—	9.7	12	—	11
OCT 1988 17...	6.9	20	.4	3.4	51	—	9.7	12	—	9.8
OCT 1989 12...	6.9	20	.4	3.5	25	—	10	12	—	11
OCT 1990 18...	7.2	20	.4	3.6	28	—	7.4	15	<.10	11
OCT 1991 25...	7.5	21	.4	4.3	44	—	11	18	<.10	11
NOV 1992 10...	8.2	25	.5	3.0	—	22	7.8	14	<.10	13
NOV 1993 10...	—	—	—	—	—	26	—	—	—	—
NOV 1994 04...	—	—	—	—	—	32	—	15	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 29...	128	—	0.17	—	3.18	3.07	14	0.030	3.10	0.020
NOV 1982 01...	85	90	.12	0.73	3.97	3.97	18	.030	4.00	.060
NOV 1983 02...	92	88	.13	1.17	4.36	4.36	19	.040	4.40	.210
OCT 1984 18...	92	97	.13	1.84	5.35	5.35	24	.050	5.40	.120
OCT 1985 17...	84	94	.11	—	4.78	4.78	21	.020	4.80	.030
OCT 1986 28...	115	113	.16	1.55	4.68	4.68	21	.020	4.70	.020
OCT 1987 27...	90	99	.12	1.12	5.09	5.09	23	.010	5.10	.030
OCT 1988 17...	—	119	.16	1.32	5.98	5.98	26	.020	6.00	.030
OCT 1989 12...	—	107	.15	3.19	6.26	6.26	28	.040	6.30	.210
OCT 1990 18...	—	109	.15	1.37	6.18	6.18	27	.020	6.20	.010
OCT 1991 25...	—	125	.17	1.25	5.98	5.98	26	.020	6.00	.020
NOV 1992 10...	—	101	.14	1.55	5.47	5.47	24	.030	5.50	<.010
NOV 1993 10...	—	—	—	—	5.69	5.69	25	.010	5.70	.010
NOV 1994 04...	—	—	—	—	4.88	4.88	22	.020	4.90	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 29...	0.03	0.89	0.79	0.90	0.81	4.1	3.9	0.220	0.67	0.230
NOV 1982 01...	.08	—	1.1	—	1.2	—	5.2	—	—	.180
NOV 1983 02...	.27	—	.89	—	1.1	—	5.5	.130	.40	.120
OCT 1984 18...	.15	—	.28	—	.40	—	5.8	.090	—	.090
OCT 1985 17...	.04	.47	.27	.50	.30	5.3	5.1	.080	.25	.080
OCT 1986 28...	.03	1.5	1.3	1.5	1.3	6.2	6.0	.190	—	.180
OCT 1987 27...	.04	.47	—	.50	<.20	5.6	—	.070	—	.080
OCT 1988 17...	.04	.87	.67	.90	.70	6.9	6.7	.710	—	.690
OCT 1989 12...	.27	.59	.39	.80	.60	7.1	6.9	.920	—	.890
OCT 1990 18...	.01	1.7	.69	1.7	.70	7.9	6.9	.420	—	.400
OCT 1991 25...	.03	.38	.18	.40	.20	6.4	6.2	.430	—	.420
NOV 1992 10...	—	.20	—	.20	.30	5.7	5.8	.100	—	.080
NOV 1993 10...	.01	—	—	—	—	—	—	—	—	—
NOV 1994 04...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 29...	0.190	0.58	ND	—	—	<1.0	<1	2	7	140
NOV 1982 01...	.180	.55	1	—	—	<1.0	<1	<1	1	56
NOV 1983 02...	.120	.37	<1	—	—	<1.0	<1	—	2	58
OCT 1984 18...	.100	.31	<1	—	—	<1.0	<1	—	2	44
OCT 1985 17...	.070	.21	<1	—	—	<1.0	<1	—	<1	23
OCT 1986 28...	.140	.43	<1	—	—	2.0	<1	—	4	66
OCT 1987 27...	.060	.18	<1	—	—	<1.0	<1	—	1	37
OCT 1988 17...	.610	1.9	<1	23	<.5	<1.0	<5	<3	<10	34
OCT 1989 12...	.890	2.7	<1	25	<.5	<1.0	<5	<3	<10	43
OCT 1990 18...	.410	1.3	<1	23	<.5	<1.0	<5	<3	<10	27
OCT 1991 25...	.370	1.1	<1	24	<.5	<1.0	<5	<3	<10	40
NOV 1992 10...	.080	.25	<1	22	.6	<1.0	<5	<3	<10	50
NOV 1993 10...	.080	.25	—	—	—	—	—	—	—	—
NOV 1994 04...	.070	.21	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 29...	<1	—	790	0.1	3	—	—	—	6	0.10
NOV 1982 01...	<1	—	23	<.1	<1	—	—	—	<4	.05
NOV 1983 02...	<1	—	20	.2	<1	<1.0	—	—	5	—
OCT 1984 18...	<1	—	11	<.1	<1	<1.0	—	—	6	—
OCT 1985 17...	<1	—	9	<.1	<1	<1.0	—	—	6	—
OCT 1986 28...	<5	—	13	<.1	3	1.0	—	—	29	—
OCT 1987 27...	<5	—	14	<.1	2	<1.0	—	—	3	—
OCT 1988 17...	<10	<4	13	.2	<10	<1.0	80	<6	27	—
OCT 1989 12...	<10	<4	18	<.1	<10	<1.0	82	<6	8	—
OCT 1990 18...	<10	<4	10	.1	<10	1.0	83	<6	3	—
OCT 1991 25...	<10	4	15	<.1	<10	<1.0	84	<6	10	—
NOV 1992 10...	<10	<4	25	<.1	<10	<1.0	80	<6	5	—
NOV 1993 10...	—	—	—	—	—	—	—	—	—	—
NOV 1994 04...	—	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
OCT 1981 29...	1100	—	180	7.5	9.5	—	10.4	56	—	13	5.8
NOV 1982 01...	1430	3.4	146	7.8	16.5	—	10.4	46	—	10	5.2
NOV 1983 02...	1300	6.6	141	6.2	11.0	1.4	11.1	46	—	10	5.1
OCT 1984 18...	1030	7.0	155	7.6	14.0	.80	11.8	46	—	10	5.2
OCT 1985 17...	1100	6.4	188	7.0	8.0	2.1	12.4	55	—	12	6.1
OCT 1986 28...	1200	4.9	200	7.6	15.5	2.8	11.1	56	—	12	6.3
OCT 1987 27...	1300	4.9	160	7.2	10.0	.80	11.4	51	—	11	5.7
OCT 1988 17...	1430	4.7	201	7.2	17.0	.80	12.4	61	—	13	6.9
OCT 1989 12...	1445	9.7	179	7.7	14.5	.70	12.9	55	32	12	6.1
OCT 1990 29...	0930	8.9	191	7.7	7.5	2.8	12.1	60	18	13	6.6
OCT 1991 25...	0915	5.0	208	7.3	13.5	.70	10.8	64	31	14	6.9
NOV 1992 10...	0945	5.7	210	7.4	6.5	.60	13.2	60	—	13	6.7
NOV 1993 10...	1000	7.6	216	7.2	5.5	—	13.4	—	—	—	—
NOV 1994 04...	1015	4.7	223	7.4	12.0	—	12.1	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
OCT 1981 29...	17	36	1	6.9	—	—	86	26	<0.10	14
NOV 1982 01...	8.7	28	.6	2.7	22	—	9.0	15	<.10	9.1
NOV 1983 02...	8.3	27	.5	2.6	18	—	9.8	15	—	10
OCT 1984 18...	7.4	25	.5	2.2	26	—	7.5	15	—	9.6
OCT 1985 17...	9.3	24	.5	6.3	30	—	16	18	—	9.7
OCT 1986 28...	9.5	25	.6	5.8	29	—	13	17	—	12
OCT 1987 27...	8.9	26	.5	2.8	24	—	11	16	—	9.0
OCT 1988 17...	13	30	.7	3.2	34	—	11	19	—	9.9
OCT 1989 12...	9.2	25	.5	2.7	23	—	10	16	—	9.0
OCT 1990 29...	9.1	24	.5	2.8	42	—	9.1	19	.20	13
OCT 1991 25...	13	30	.7	3.3	33	—	10	23	.10	9.6
NOV 1992 10...	12	29	.7	3.6	—	18	12	22	.10	12
NOV 1993 10...	—	—	—	—	—	27	—	—	—	—
NOV 1994 04...	—	—	—	—	—	40	—	23	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1981 29...	234	—	0.32	—	3.10	—	—	<0.010	3.10	<0.010
NOV 1982 01...	91	94	.12	0.84	4.56	4.56	20	.040	4.60	.050
NOV 1983 02...	104	94	.14	1.85	4.88	4.88	22	.020	4.90	.030
OCT 1984 18...	103	96	.14	1.95	5.25	5.25	23	.050	5.30	.080
OCT 1985 17...	106	118	.14	1.83	4.98	4.98	22	.020	5.00	.050
OCT 1986 28...	119	115	.16	1.57	4.98	4.98	22	.020	5.00	.030
OCT 1987 27...	102	104	.14	1.35	5.48	5.48	24	.020	5.50	.020
OCT 1988 17...	—	120	.16	1.52	5.09	5.09	23	.010	5.10	.020
OCT 1989 12...	—	103	.14	2.70	5.38	5.38	24	.020	5.40	.010
OCT 1990 29...	—	128	.17	3.09	6.68	6.68	30	.020	6.70	.070
OCT 1991 25...	—	124	.17	1.66	5.39	5.39	24	.010	5.40	<.010
NOV 1992 10...	—	119	.16	1.84	5.96	5.96	26	.040	6.00	<.010
NOV 1993 10...	—	—	—	—	5.99	5.99	27	.010	6.00	.020
NOV 1994 04...	—	—	—	—	5.48	5.48	24	.020	5.50	.020

**Table 3. Water-quality data from surface-water sites—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
OCT 1981 29...	0.01	1.2	—	1.2	1.3	4.3	4.4	0.170	0.52	0.060
NOV 1982 01...	.06	—	0.25	—	.30	—	4.9	—	—	.160
NOV 1983 02...	.04	—	.17	—	.20	—	5.1	.130	.40	.110
OCT 1984 18...	.10	—	.22	—	.30	—	5.6	.100	—	.080
OCT 1985 17...	.06	.75	.55	.80	.60	5.8	5.6	.090	.28	.070
OCT 1986 28...	.04	.97	.67	1.0	.70	6.0	5.7	.230	—	.130
OCT 1987 27...	.03	.58	.68	.60	.70	6.1	6.2	.110	—	.130
OCT 1988 17...	.03	.48	.48	.50	.50	5.6	5.6	.270	—	.260
OCT 1989 12...	.01	.29	.49	.30	.50	5.7	5.9	.090	—	.070
OCT 1990 29...	.09	1.1	.53	1.2	.60	7.9	7.3	.090	—	.070
OCT 1991 25...	—	.30	—	.30	.20	5.7	5.6	.170	—	.170
NOV 1992 10...	—	.20	—	.20	.30	6.2	6.3	.140	—	.130
NOV 1993 10...	.03	—	—	—	—	—	—	—	—	—
NOV 1994 04...	.03	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
OCT 1981 29...	0.010	0.03	ND	—	—	<1.0	<1	3	4	230
NOV 1982 01...	.150	.46	1	—	—	<1.0	<1	<1	<1	34
NOV 1983 02...	.110	.34	1	—	—	1.0	<1	—	2	46
OCT 1984 18...	.110	.34	<1	—	—	<1.0	1	—	<1	35
OCT 1985 17...	.070	.21	<1	—	—	<1.0	<1	—	1	45
OCT 1986 28...	.110	.34	<1	—	—	<1.0	<1	—	2	59
OCT 1987 27...	.100	.31	<1	—	—	<1.0	1	—	<1	28
OCT 1988 17...	.240	.74	<1	22	<.5	<1.0	<5	<3	<10	27
OCT 1989 12...	.080	.25	<1	21	<.5	1.0	<5	<3	<10	33
OCT 1990 29...	.080	.25	<1	29	<.5	<1.0	<5	<3	<10	37
OCT 1991 25...	.140	.43	<1	32	<.5	<1.0	<5	<3	<10	34
NOV 1992 10...	.130	.40	<1	29	<.5	<1.0	<5	<3	<10	60
NOV 1993 10...	.110	.34	—	—	—	—	—	—	—	—
NOV 1994 04...	.070	.21	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
OCT 1981 29...	13	—	39,000	48	4	—	—	—	8	0.10
NOV 1982 01...	<1	—	22	<.1	<1	—	—	—	<4	.03
NOV 1983 02...	<1	—	17	.7	<1	<1.0	—	—	8	—
OCT 1984 18...	1	—	17	<.1	1	<1.0	—	—	<3	—
OCT 1985 17...	1	—	18	<.1	<1	<1.0	—	—	6	—
OCT 1986 28...	<5	—	32	.3	3	<1.0	—	—	20	—
OCT 1987 27...	<5	—	13	<.1	<1	<1.0	—	—	4	—
OCT 1988 17...	<10	<4	14	.1	<10	<1.0	98	<6	6	—
OCT 1989 12...	<10	<4	12	.2	<10	<1.0	89	<6	6	—
OCT 1990 29...	<10	<4	32	<.1	<10	<1.0	100	<6	<3	—
OCT 1991 25...	<10	5	15	<.1	<10	<1.0	110	<6	6	—
NOV 1992 10...	<10	<4	22	<.1	<10	<1.0	110	<6	5	—
NOV 1993 10...	—	—	—	—	—	—	—	—	—	—
NOV 1994 04...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE ( $\mu$ S/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CaCO <sub>3</sub> ) (00900)	HARD- NESS NONCARB TOT FLD (MG/L AS CaCO <sub>3</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	
NOV 1981	03...	—	246	6.8	9.0	—	10.3	97	—	23	9.5	
OCT 1982	27...	4.0	277	6.5	6.5	—	11.3	100	52	25	10	
OCT 1983	28...	6.9	210	7.0	7.0	4.8	10.0	100	—	24	10	
OCT 1984	26...	1100	275	7.9	14.0	3.4	8.8	100	—	24	10	
OCT 1985	24...	0900	265	7.1	9.5	2.0	8.4	100	—	24	10	
NOV 1986	20...	0900	260	7.5	3.0	2.8	10.8	110	—	25	11	
NOV 1987	18...	0900	11	265	7.1	13.5	3.7	10.6	100	—	24	10
NOV 1988	07...	0845	7.1	295	7.4	9.5	6.0	10.8	120	—	28	11
OCT 1989	27...	0915	9.1	290	7.2	11.0	3.1	11.0	110	66	26	11
OCT 1990	18...	0900	5.4	299	6.2	16.0	4.0	8.2	110	48	27	11
OCT 1991	24...	0900	4.8	299	7.3	13.0	.70	8.0	110	70	26	11
NOV 1992	09...	0915	5.3	230	7.5	3.5	2.1	13.1	110	—	26	11
OCT 1993	19...	0930	7.9	308	7.2	12.0	—	9.8	—	—	—	—
NOV 1994	21...	0900	6.0	312	7.2	8.5	—	11.4	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
NOV 1981 03...	8.3	15	0.4	4.6	—	—	22	15	<0.10	16
OCT 1982 27...	8.8	14	.4	9.6	52	—	30	19	<.10	14
OCT 1983 28...	8.4	15	.4	4.5	40	—	33	18	—	16
OCT 1984 26...	9.5	16	.4	4.7	52	—	30	16	—	14
OCT 1985 24...	8.3	15	.4	4.0	54	—	28	16	—	11
NOV 1986 20...	8.1	13	.3	6.6	50	—	36	17	—	15
NOV 1987 18...	8.4	15	.4	4.5	42	—	29	19	—	12
NOV 1988 07...	8.7	13	.4	6.9	62	—	37	17	—	16
OCT 1989 27...	7.5	12	.3	4.2	44	—	30	17	—	16
OCT 1990 18...	8.6	14	.4	4.4	65	—	25	19	.10	16
OCT 1991 24...	11	17	.5	2.6	40	—	21	28	.10	15
NOV 1992 09...	9.7	15	.4	4.4	—	56	31	19	<.10	17
OCT 1993 19...	—	—	—	—	—	46	—	—	—	—
NOV 1994 21...	—	—	—	—	—	44	—	20	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
NOV 1981 03...	149	—	0.20	—	5.05	5.04	22	0.060	5.10	0.020
OCT 1982 27...	177	170	.24	1.91	4.85	4.85	21	.050	4.90	.070
OCT 1983 28...	180	168	.24	3.35	6.67	6.67	30	.030	6.70	<.010
OCT 1984 26...	172	167	.23	3.48	6.03	6.03	27	.070	6.10	.250
OCT 1985 24...	148	165	.20	2.12	6.97	6.97	31	.030	7.00	.050
NOV 1986 20...	183	177	.25	2.32	6.17	6.17	27	.030	6.20	.160
NOV 1987 18...	188	163	.26	5.58	6.98	6.98	31	.020	7.00	<.010
NOV 1988 07...	—	193	.26	3.71	6.96	6.96	31	.040	7.00	.050
OCT 1989 27...	—	179	.24	4.39	9.07	9.07	40	.030	9.10	.020
OCT 1990 18...	—	186	.25	2.72	8.06	8.06	36	.040	8.10	.030
OCT 1991 24...	—	177	.24	2.30	8.64	8.64	38	.060	8.70	.040
NOV 1992 09...	—	192	.26	2.74	8.85	8.85	39	.050	8.90	.040
OCT 1993 19...	—	—	—	—	9.78	9.78	43	.020	9.80	.030
NOV 1994 21...	—	—	—	—	9.37	9.37	41	.030	9.40	<.015

**Table 3. Water-quality data from surface-water sites—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
NOV 1981 03...	0.03	0.68	0.66	0.70	0.68	5.8	5.8	0.100	0.31	0.050
OCT 1982 27...	.09	—	.63	—	.70	—	5.6	—	—	.070
OCT 1983 28...	—	—	—	—	.60	—	7.3	.090	.28	.040
OCT 1984 26...	.32	—	.15	—	.40	—	6.5	.180	—	.140
OCT 1985 24...	.06	1.2	.55	1.3	.60	8.3	7.6	.040	.12	.020
NOV 1986 20...	.21	.74	.74	.90	.90	7.1	7.1	.150	—	.130
NOV 1987 18...	—	.60	—	.60	.80	7.6	7.8	.070	—	.040
NOV 1988 07...	.06	2.0	1.7	2.1	1.7	9.1	8.7	.160	—	.100
OCT 1989 27...	.03	.38	.58	.40	.60	9.5	9.7	.070	—	.040
OCT 1990 18...	.04	.77	.87	.80	.90	8.9	9.0	.050	—	.030
OCT 1991 24...	.05	.46	.36	.50	.40	9.2	9.1	.110	—	.060
NOV 1992 09...	.05	.26	.26	.30	.30	9.2	9.2	.060	—	.050
OCT 1993 19...	.04	—	—	—	—	—	—	—	—	—
NOV 1994 21...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
NOV 1981 03...	0.040	0.12	ND	—	—	<1.0	<1	<1	<1	74
OCT 1982 27...	.050	.15	<1	—	—	<1.0	<1	1	1	72
OCT 1983 28...	.050	.15	—	—	—	—	—	—	—	78
OCT 1984 26...	.160	.49	<1	—	—	<1.0	<1	—	3	58
OCT 1985 24...	.020	.06	<1	—	—	<1.0	<1	—	<1	26
NOV 1986 20...	.090	.28	<1	—	—	<1.0	<1	—	2	57
NOV 1987 18...	.020	.06	<1	—	—	<1.0	1	—	2	37
NOV 1988 07...	.080	.25	<1	64	<0.5	<1.0	<5	<3	<10	70
OCT 1989 27...	.030	.09	<1	65	<.5	<1.0	<5	<3	<10	47
OCT 1990 18...	.040	.12	<1	67	<.5	<1.0	<5	<3	<10	43
OCT 1991 24...	.060	.18	—	—	—	—	—	—	—	40
NOV 1992 09...	.030	.09	<1	65	<.5	<1.0	<5	<3	<10	65
OCT 1993 19...	.030	.09	—	—	—	—	—	—	—	—
NOV 1994 21...	<.010	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 03...	15	—	80	<0.1	1	—	—	—	<4	0.10
OCT 1982 27...	1	—	39	<.1	1	—	—	—	7	.06
OCT 1983 28...	—	—	73	—	—	—	—	—	—	—
OCT 1984 26...	1	<4	66	<.1	1	<1.0	—	—	7	—
OCT 1985 24...	<1	<4	16	<.1	3	<1.0	—	—	<3	—
NOV 1986 20...	<5	5	74	—	2	<1.0	—	—	3	—
NOV 1987 18...	<5	—	32	.9	1	<1.0	—	—	7	—
NOV 1988 07...	<10	<4	41	<.1	<10	<1.0	110	<6	9	—
OCT 1989 27...	<10	<4	39	<.1	<10	<1.0	120	<6	7	—
OCT 1990 18...	<10	<4	19	<.1	<10	<1.0	130	<6	3	—
OCT 1991 24...	—	—	22	—	—	—	—	—	—	—
NOV 1992 09...	<10	<4	44	<.1	<10	<1.0	130	<6	4	—
OCT 1993 19...	—	—	—	—	—	—	—	—	—	—
NOV 1994 21...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578343 - Valley Creek near Atglen, Pa. (Site 34)

DATE	TIME	DIS- CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	HARD- NESS, TOTAL (MG/L AS CACO <sub>3</sub> ) (00900)	HARD- NESS NONCARB TOT FLD (MG/L AS CACO <sub>2</sub> ) (00902)	CALCIUM, DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)
NOV 1981											
03...	1130	—	255	7.4	10.5	—	10.5	110	—	31	7.8
OCT 1982											
27...	1100	4.4	279	7.2	7.5	—	11.4	110	—	30	8.4
OCT 1983											
28...	1000	5.9	266	7.4	8.5	1.9	10.5	110	—	30	9.0
OCT 1984											
26...	1400	6.9	275	7.7	15.5	1.3	10.0	110	—	28	9.0
OCT 1985											
24...	1100	6.4	285	7.6	10.0	1.3	9.8	110	—	30	9.1
NOV 1986											
20...	1300	6.1	280	7.8	4.0	1.6	12.0	110	—	30	9.2
NOV 1987											
18...	1330	15	270	7.4	14.5	1.6	11.2	110	—	30	9.4
NOV 1988											
07...	1230	5.7	292	7.5	10.0	2.5	11.0	120	—	32	9.8
OCT 1989											
27...	1430	9.0	295	7.5	14.5	1.3	10.8	110	53	29	9.4
OCT 1990											
18...	1100	4.4	308	6.6	16.5	4.5	8.2	120	18	31	9.3
OCT 1991											
24...	1100	3.6	311	7.5	13.5	1.5	9.6	120	53	32	9.7
NOV 1992											
09...	1130	4.8	308	7.7	5.5	.80	12.2	120	—	31	9.7
OCT 1993											
19...	1145	5.9	328	7.2	12.5	—	11.8	—	—	—	—
NOV 1994											
23...	0900	5.3	328	7.4	5.5	—	11.1	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578343 - Valley Creek near Atglen, Pa. (Site 34)—Continued

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO <sub>3</sub> ) (00410)	ALKA- LINITY WAT WH TOT IT FIELD (MG/L AS CACO <sub>3</sub> ) (00419)	SULFATE, DIS- SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> ) (00955)
NOV 1981 03...	7.6	13	0.3	3.1	—	—	23	16	<0.10	9.1
OCT 1982 27...	10	—	.4	<.10	64	—	24	18	<.10	11
OCT 1983 28...	8.9	14	.4	3.6	62	—	27	18	—	12
OCT 1984 26...	8.1	14	.3	3.6	64	—	24	15	—	11
OCT 1985 24...	11	17	.5	3.5	74	—	26	19	—	9.3
NOV 1986 20...	8.7	14	.4	5.0	64	—	30	19	—	12
NOV 1987 18...	9.9	15	.4	4.5	61	—	27	24	—	10
NOV 1988 07...	9.9	15	.4	5.0	70	—	28	17	—	12
OCT 1989 27...	7.9	13	.3	3.5	58	—	23	16	—	11
OCT 1990 18...	9.0	14	.4	3.8	98	—	22	19	.10	11
OCT 1991 24...	11	16	.4	4.0	67	—	29	22	.10	11
NOV 1992 09...	11	16	.4	4.0	—	58	25	18	<.10	12
OCT 1993 19...	—	—	—	—	—	66	—	—	—	—
NOV 1994 23...	—	—	—	—	—	69	—	22	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578343 - Valley Creek near Atglen, Pa. (Site 34)—Continued

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
NOV 1981 03...	154	—	0.21	—	4.31	4.32	19	0.080	4.40	0.050
OCT 1982 27...	170	—	.23	2.03	4.55	4.55	20	.050	4.60	.110
OCT 1983 28...	178	176	.24	2.84	6.69	6.69	30	.010	6.70	<.010
OCT 1984 26...	167	161	.23	3.11	5.36	5.36	24	.040	5.40	.120
OCT 1985 24...	164	180	.22	2.83	6.06	6.06	27	.040	6.10	.180
NOV 1986 20...	162	175	.22	2.67	5.07	5.07	22	.030	5.10	.160
NOV 1987 18...	176	177	.24	7.13	5.69	5.69	25	.010	5.70	.070
NOV 1988 07...	—	182	.25	2.80	5.65	5.65	25	.050	5.70	.160
OCT 1989 27...	—	170	.23	4.13	7.77	7.77	34	.030	7.80	.150
OCT 1990 18...	—	191	.26	2.27	5.94	5.94	26	.060	6.00	.190
OCT 1991 24...	—	184	.25	1.79	5.44	5.44	24	.060	5.50	.100
NOV 1992 09...	—	178	.24	2.31	7.24	7.24	32	.060	7.30	.120
OCT 1993 19...	—	—	—	—	8.06	8.06	36	.040	8.10	.340
NOV 1994 23...	—	—	—	—	6.36	6.36	28	.040	6.40	.340

**Table 3. Water-quality data from surface-water sites—Continued**

01578343 - Valley Creek near Atglen, Pa. (Site 34)—Continued

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N) (00607)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00600)	NITRO- GEN, DIS- SOLVED TOTAL (MG/L AS N) (00602)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)
NOV 1981 03...	0.06	0.65	0.57	0.73	0.62	5.1	5.0	0.160	0.49	0.140
OCT 1982 27...	.14	—	1.6	—	1.7	—	6.3	—	—	.100
OCT 1983 28...	—	—	—	—	.80	—	7.5	.160	.49	.120
OCT 1984 26...	.15	—	.28	—	.40	—	5.8	.090	—	.110
OCT 1985 24...	.23	1.0	.32	1.2	.50	7.3	6.6	.080	.25	.050
NOV 1986 20...	.21	.94	.74	1.1	.90	6.2	6.0	.140	—	.100
NOV 1987 18...	.09	.43	.23	.50	.30	6.2	6.0	.140	—	.010
NOV 1988 07...	.21	.64	.54	.80	.70	6.5	6.4	.160	—	.140
OCT 1989 27...	.19	.75	.45	.90	.60	8.7	8.4	.100	—	.080
OCT 1990 18...	.24	.71	.81	.90	1.0	6.9	7.0	.140	—	.080
OCT 1991 24...	.13	.40	.30	.50	.40	6.0	5.9	.180	—	.160
NOV 1992 09...	.15	.28	.28	.40	.40	7.7	7.7	.080	—	.060
OCT 1993 19...	.44	—	—	—	—	—	—	—	—	—
NOV 1994 23...	.44	—	—	—	—	—	—	—	—	—



**Table 3. Water-quality data from surface-water sites—Continued**

01578343 - Valley Creek near Atglen, Pa. (Site 34)—Continued

DATE	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS- SOLVED (µG/L AS AS) (01000)	BARIUM, DIS- SOLVED (µG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (µG/L AS BE) (01010)	CADMIUM, DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)
NOV 1981 03...	0.120	0.37	ND	—	—	1.0	<1	1	1	100
OCT 1982 27...	.090	.28	<1	—	—	1.0	<1	<1	1	53
OCT 1983 28...	.120	.37	1	—	—	<1.0	<1	—	1	66
OCT 1984 26...	.090	.28	<1	—	—	<1.0	1	—	1	37
OCT 1985 24...	.050	.15	<1	—	—	<1.0	<1	—	1	26
NOV 1986 20...	.080	.25	<1	—	—	<1.0	<1	—	2	63
NOV 1987 18...	.060	.18	<1	—	—	<1.0	3	—	2	39
NOV 1988 07...	.110	.34	<1	54	<0.5	<1.0	<5	<3	<10	48
OCT 1989 27...	.070	.21	<1	47	<.5	<1.0	<5	<3	<10	34
OCT 1990 18...	.090	.28	<1	53	<.5	<1.0	<5	<3	<10	31
OCT 1991 24...	.120	.37	1	51	<.5	<1.0	10	<3	<10	45
NOV 1992 09...	.060	.18	<1	50	.6	<1.0	<5	<3	<10	56
OCT 1993 19...	.090	.28	—	—	—	—	—	—	—	—
NOV 1994 23...	.090	.28	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578343 - Valley Creek near Atglen, Pa. (Site 34)—Continued

DATE	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM, DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY, DIS- SOLVED (µG/L AS HG) (71890)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)
NOV 1981 03...	1	—	65	0.1	3	—	—	—	4	0.10
OCT 1982 27...	<1	—	33	<.1	<1	—	—	—	4	.07
OCT 1983 28...	1	—	39	<.1	3	<1.0	—	—	4	—
OCT 1984 26...	1	—	25	<.1	<1	<1.0	—	—	6	—
OCT 1985 24...	<1	—	17	<.1	4	<1.0	—	—	4	—
NOV 1986 20...	<5	—	47	<.1	<1	<1.0	—	—	4	—
NOV 1987 18...	<5	—	21	<.1	2	<1.0	—	—	<3	—
NOV 1988 07...	<10	<4	29	.2	<10	<1.0	140	<6	6	—
OCT 1989 27...	<10	<4	22	<.1	<10	<1.0	130	<6	7	—
OCT 1990 18...	<10	4	18	<.1	<10	<1.0	140	<6	<3	—
OCT 1991 24...	<10	6	23	<.1	<10	<1.0	140	<6	4	—
NOV 1992 09...	<10	<4	30	<.1	<10	1.0	140	<6	10	—
OCT 1993 19...	—	—	—	—	—	—	—	—	—	—
NOV 1994 23...	—	—	—	—	—	—	—	—	—	—

**Table 3. Water-quality data from surface-water sites—Continued**

01578345 - East Branch Octoraro Creek at Steelville, Pa. (Site 35)

DATE	TIME	DIS-CHARGE, INST. (CUBIC FEET PER SECOND) (00061)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS TOTAL (MG/L) (00900)	CALCIUM DIS-SOLVED (MG/L) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L) (00925)	SODIUM, DIS-SOLVED (MG/L) (00930)	SODIUM PERCENT (00932)	
NOV 1981	03...	—	246	7.8	11.0	—	100	27	8.1	9.5	16	
OCT 1982	27...	14	272	7.6	9.0	12.2	99	26	8.3	8.8	15	
DATE	TIME	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L) (00935)	ALKA-LINITY WAT WH TOT FET FIELD SOLVED (MG/L AS CACO <sub>3</sub> ) (00410)	SULFATE, DIS-SOLVED (MG/L AS SO <sub>4</sub> ) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)
NOV 1981	03...	0.4	3.9	—	20	15	<0.10	10	150	—	0.20	—
OCT 1982	27...	.4	8.5	54	26	19	<.10	10	170	159	.23	6.47
DATE	TIME	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO <sub>3</sub> ) (71851)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NO <sub>2</sub> +NO <sub>3</sub> DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH <sub>4</sub> ) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	
NOV 1981	03...	4.24	4.24	19	0.060	4.30	<0.010	0.01	0.52	—	0.52	
OCT 1982	27...	4.25	4.25	19	.050	4.30	.060	.08	—	0.64	—	
DATE	TIME	NITRO-GEN, AM-MONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, DIS-SOLVED (MG/L AS N) (00602)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, TOTAL (MG/L AS PO <sub>4</sub> ) (71886)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO <sub>4</sub> ) (00660)	ARSENIC, DIS-SOLVED (µG/L AS AS) (01000)	CADMIUM, DIS-SOLVED (µG/L AS CD) (01025)	
NOV 1981	03...	0.55	4.8	4.9	0.250	0.77	0.220	0.190	0.58	ND	<1.0	
OCT 1982	27...	.70	—	5.0	—	—	.180	.170	.52	1	<1.0	
DATE	TIME	CHRO-MIUM, DIS-SOLVED (µG/L AS CR) (01030)	COBALT, DIS-SOLVED (µG/L AS CO) (01035)	COPPER, DIS-SOLVED (µG/L AS CU) (01040)	IRON, DIS-SOLVED (µG/L AS FE) (01046)	LEAD, DIS-SOLVED (µG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (µG/L AS MN) (01056)	MERCURY, DIS-SOLVED (µG/L AS HG) (71890)	NICKEL, DIS-SOLVED (µG/L AS NI) (01065)	ZINC, DIS-SOLVED (µG/L AS ZN) (01090)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L) (38260)	
NOV 1981	03...	<1	<1	1	150	<1	21	0.1	1	<4	0.10	
OCT 1982	27...	<1	<1	3	71	<1	13	<.1	<1	<4	.06	

**Table 4. Results of stream-bottom sediment sampling**

[Concentrations in micrograms per gram; g/kg, gram per kilogram; µg/kg, microgram per kilogram; PBC, polychlorinated biphenyls; PCN, polychlorinated naphthalenes; <, less than; —, no data]

Station number	Site number	Date	Arsenic, total	Cadmium, recoverable	Chromium, recoverable	Iron, recoverable	Copper, recoverable	Lead, recoverable	Manganese, recoverable	Mercury, recoverable	Zinc, recoverable
01472080	10	10-11-85	—	—	—	—	—	—	—	—	—
01472109	6	10-11-85	—	—	—	—	—	—	—	—	—
01472138	13	10-22-86	—	—	—	—	—	—	—	—	—
01472140	12	10-10-85	—	—	—	—	—	—	—	—	—
01472154	14	10-11-85	—	—	—	—	—	—	—	—	—
01472157	15	10-28-94	1	<1	20	24,000	20	30	590	0.03	100
014721612	16	10-09-85	—	—	—	—	—	—	—	—	—
01472170	1	10-09-87	—	—	—	—	—	—	—	—	—
01472174	2	10-07-86	—	—	—	—	—	—	—	—	—
014721854	3	10-08-86	—	—	—	—	—	—	—	—	—
014721884	4	10-07-85	—	—	—	—	—	—	—	—	—
01472190	5	10-06-86	—	—	—	—	—	—	—	—	—
		10-26-94	1	<1	10	7,400	6	20	210	.01	40
		10-28-94	2	<1	10	17,000	20	80	460	.03	100
01473167	49	11-07-86	—	—	—	—	—	—	—	—	—
		11-16-87	—	—	—	—	—	—	—	—	—
		11-18-93	6	1	40	28,000	20	30	760	.02	100
01473168	50	10-09-85	—	—	—	—	—	—	—	—	—
		11-18-93	3	1	20	9,300	30	50	360	.03	110
01475840	19	10-09-86	—	—	—	—	—	—	—	—	—
01476430	20	10-15-85	—	—	—	—	—	—	—	—	—
01476435	21	10-09-86	—	—	—	—	—	—	—	—	—
01476790	22	10-15-86	—	—	—	—	—	—	—	—	—
01476830	23	10-15-86	—	—	—	—	—	—	—	—	—
01476835	24	10-16-85	—	—	—	—	—	—	—	—	—
		10-21-94	<1	<1	20	14,000	20	20	190	.16	80
01476840	25	11-04-88	4	1	30	—	40	60	—	.76	170
		11-19-93	1	<1	30	15,000	20	20	260	.40	90
01476848	51	10-16-86	—	—	—	—	—	—	—	—	—
		10-17-94	<1	<1	10	7,300	9	20	70	.34	50
01478120	28	10-25-85	—	—	—	—	—	—	—	—	—
		11-24-93	<1	<1	10	6,000	4	10	190	<.10	20
01478190	29	12-02-86	—	—	—	—	—	—	—	—	—
		11-24-93	2	<1	20	12,000	10	10	240	.01	40
01478220	30	10-25-85	—	—	—	—	—	—	—	—	—
		11-23-93	2	<1	20	15,000	10	10	240	.01	50
01479680	27	11-01-83	—	—	—	—	—	—	—	—	—
		11-18-86	—	—	—	—	—	—	—	—	—
		11-22-93	<1	<1	20	7,300	5	10	150	.01	40
		10-17-94	<1	<1	10	7,300	9	20	70	.34	50
01479800	26	10-18-85	—	—	—	—	—	—	—	—	—
		11-22-93	1	<1	20	10,000	7	10	240	<.10	30
01480629	46	10-29-85	—	—	—	—	—	—	—	—	—
01480632	45	10-30-86	—	—	—	—	—	—	—	—	—

**Table 4.** Results of stream-bottom sediment sampling—Continued

Station number	Site number	Date	Arsenic, total	Cadmium, recoverable	Chromium, recoverable	Iron, recoverable	Copper, recoverable	Lead, recoverable	Manganese, recoverable	Mercury, recoverable	Zinc, recoverable
01480640	38	10-22-85	—	—	—	—	—	—	—	—	—
		11-15-93	2	<1	50	17,000	10	20	210	.03	70
01480648	48	10-29-86	—	—	—	—	—	—	—	—	—
01480653	42	10-23-85	—	—	—	—	—	—	—	—	—
01480656	47	10-29-86	—	—	—	—	—	—	—	—	—
01480700	36	10-21-85	—	—	—	—	—	—	—	—	—
01480903	44	10-31-85	—	—	—	—	—	—	—	—	—
01480950	39	11-03-86	—	—	—	—	—	—	—	—	—
		11-16-93	2	<1	20	12,000	10	20	370	0.06	60
01481030	40	10-30-85	—	—	—	—	—	—	—	—	—
01494900	31	10-28-86	—	—	—	—	—	—	—	—	—
		11-04-94	<1	<1	9	10,000	6	<10	260	<.01	20
01494950	32	10-17-85	—	—	—	—	—	—	—	—	—
		11-04-94	2	<1	10	15,000	10	20	540	.02	50
01578340	33	11-21-94	2	<1	50	17,000	20	30	360	.03	100
01578343	34	10-24-85	—	—	—	—	—	—	—	—	—

Table 4. Results of stream-bottom sediment sampling—Continued

Station number	Site number	Date	Carbon, inorg + organic (gm/kg as C)	Aldrin, total (µg/kg)	Chlor-dane, total (µg/kg)	DDD, recover-able (µg/kg)	DDE, recover-able (µg/kg)	DDT, recover-able (µg/kg)	Dieldrin, total, (µg/kg)	Endo-sulfan, total (µg/kg)	Endrin, total (µg/kg)
01472080	10	10-11-85	—	<0.100	<1.00	<0.100	0.100	<0.100	<0.100	<0.100	<0.100
01472109	6	10-11-85	—	<.100	6.00	.400	1.00	<.100	.300	<.100	<.100
01472138	13	10-22-86	—	<.100	<1.00	1.20	1.10	<.100	.300	<.100	<.100
01472140	12	10-10-85	—	<.100	<1.00	.300	.400	.400	4.80	<.100	.100
01472154	14	10-11-85	—	<.100	6.00	<.100	.600	<.100	.100	<.100	<.100
01472157	15	10-28-94	15	<.100	<1.00	.100	.300	.200	<.800	<.100	<.100
014721612	16	10-09-85	—	<.100	5.00	<.100	<.100	<.100	.200	<.100	<.100
		10-28-94	18	<.100	24.0	.600	.600	.600	5.40	<.100	<.100
01472170	1	10-09-87	—	<.100	2.00	.300	.200	<1.00	<.100	<.100	<.100
01472174	2	10-07-86	—	<.100	<1.00	<.200	.500	<.100	<.100	<.200	<.100
014721854	3	10-08-86	—	<.100	<1.00	.300	.400	—	<.100	.100	<.100
014721884	4	10-07-85	—	<.100	<1.00	<.100	—	<.100	.100	<.100	<.100
01472190	5	10-06-86	—	<.100	<1.00	<.100	.400	.300	<.100	.300	<.100
		10-26-94	3.0	<.100	<1.00	<.100	<.100	<.100	<.800	<.100	<.800
01473167	49	11-07-86	—	—	—	—	—	—	—	—	—
		11-16-87	—	<1.0	13.0	.300	<1.0	<1.0	.800	<.100	<.100
		11-18-93	17	<.100	5.00	.600	<.100	<.400	1.10	.500	<.100
01473168	50	10-09-85	—	<.100	5.00	1.70	1.70	3.20	.100	<.100	<.100
		11-18-93	30	<.100	5.00	1.40	1.0	3.60	.400	<.100	<.100
01475840	19	10-09-86	—	<.100	7.00	.100	.300	2.20	.100	<.100	<.100
01476430	20	10-15-85	—	<.100	7.00	.600	.600	<.100	.300	<.100	<.100
01476435	21	10-09-86	—	<.100	<1.00	.100	.100	<.100	<.100	<.100	<.100
01476790	22	10-15-86	—	<.100	30.0	.800	1.60	1.30	.500	<.100	<.100
01476830	23	10-15-86	—	<.100	<1.00	.300	.600	<.100	.400	<.100	<.100
01476835	24	10-16-85	—	<.100	7.00	<.100	.300	<.100	.100	<.100	<.100
		10-21-94	17	<.100	6.00	.300	.800	.300	.800	<.100	<.800
01476840	25	11-04-88	20	<.100	51.0	7.50	1.90	13.0	1.80	<.100	<.100
		11-19-93	9.2	<.100	10.0	2.30	1.20	12.0	.200	<.100	<.100
01476848	51	10-16-86	—	<.100	110	5.00	2.10	1.20	.600	<.100	<.100
		10-17-94	5.0	<.100	2.00	.700	.400	.800	<.800	<.100	<.800
01478120	28	10-25-85	—	<.100	<1.00	6.30	2.80	.400	.100	<.100	<.100
		11-24-93	7.3	<.100	<1.00	<.100	.900	<.100	<.200	<.100	<.100
01478190	29	12-02-86	—	<.100	<1.00	1.10	1.20	1.30	.100	<.100	<.100
		11-24-93	4.4	<.100	1.00	<.100	1.60	<.100	<.200	<.100	<.100
01478220	30	10-25-85	—	<.100	<1.00	—	.400	<.100	<.100	<.100	<.100
		11-23-93	3.4	<.100	<1.00	<.100	.300	<.100	<.200	<.100	<.100
01479680	27	11-01-83	—	<1.00	<10.0	260	—	15.0	2.50	<1.00	<1.00
		11-18-86	—	<.100	—	—	—	—	—	<.100	<.100
		11-22-93	5.8	<.100	7.00	23.0	2.0	27.0	.200	<.100	<.200
01479800	26	10-18-85	—	<.100	5.00	36.0	22.0	61.0	<.100	<.100	<.100
		11-22-93	1.9	<.100	1.00	2.10	1.80	2.60	<.100	<.100	<.100
01480629	46	10-29-85	—	<.100	<1.00	<.100	<.100	<.100	<.100	<.100	<.100
01480632	45	10-30-86	—	<.100	4.00	.600	2.10	<.100	.700	<.100	<.100
01480640	38	10-22-85	—	<.100	3.00	.600	.200	<.100	.100	<.100	<.100
		11-15-93	3.4	<.200	4.00	1.30	1.40	1.00	.400	<.100	<.100

**Table 4.** Results of stream-bottom sediment sampling—Continued

Station number	Site number	Date	Carbon, inorg + organic (gm/kg as C)	Aldrin, total (µg/kg)	Chlor-dane, total (µg/kg)	DDD, recoverable (µg/kg)	DDE, recoverable (µg/kg)	DDT, recoverable (µg/kg)	Dieldrin, total, (µg/kg)	Endo-sulfan, total (µg/kg)	Endrin, total (µg/kg)
01480648	48	10-29-86.	—	0.100	1.00	0.300	1.80	<0.100	0.400	<0.100	<0.100
01480653	42	10-23-85	—	<.100	<1.00	<.100	.200	<.100	<.100	<.100	<.100
01480656	47	10-29-86	—	<.100	<1.00	.400	—	<.100	.400	<.100	<.100
01480700	36	10-21-85	—	<.100	<1.00	.100	.200	<.100	<.100	<.100	<.100
01480903	44	10-31-85	—	<.100	4.00	.400	<.100	<.100	.300	<.100	<.100
01480950	39	11-03-86	—	<.100	32.0	4.40	4.10	1.30	3.20	.200	<.100
		11-16-93	4.9	<.100	3.00	.200	.500	.300	.200	<.100	<.100
01481030	40	10-30-85	—	<.100	3.00	3.60	2.50	<.100	<.100	<.100	<.100
01494900	31	10-28-86	—	<.100	29.0	3.20	7.40	.800	.900	<.100	<.100
		11-04-94	1.5	<.100	<1.00	.100	<.100	.200	<.400	<.100	<.100
01494950	32	10-17-85	—	<.100	1.00	.800	1.00	3.10	<.100	<.100	<.100
		11-04-94	10	<.100	1.00	.600	.500	.600	<.400	<.100	<.100
01578340	33	11-21-94	27	<.100	5.00	1.10	1.10	1.20	<.800	<.200	<.300
01578343	34	10-24-85	—	<.100	<1.00	.100	<.100	.200	<.100	<.100	<.100

**Table 4. Results of stream-bottom sediment sampling—Continued**

Station number	Site number	Date	Hepta-chlor, total (µg/kg)	Hepta-chlor, epoxide, total (µg/kg)	Lindane, total (µg/kg)	Methoxy-chlor, total (µg/kg)	Mirex, total (µg/kg)	Per-thane, total (µg/kg)	Toxa-phene, total (µg/kg)	PCB, total (µg/kg)	PCN, total (µg/kg)
01472080	10	10-11-85	<0.100	<0.100	<0.100	<0.100	<0.100	<1.00	<10.0	<1.00	<1.00
01472109	6	10-11-85	<.100	.200	<.100	<.100	<.100	<1.00	<10.0	3.00	<1.00
01472138	13	10-22-86	<.100	<.100	.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01472140	12	10-10-85	<.100	.400	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01472154	14	10-11-85	<.100	.100	<.100	<.100	<.100	<1.00	<10.0	12.0	<1.00
01472157	15	10-28-94	<.100	<.100	<.100	<.800	<.100	<1.00	<10.0	4.00	<1.00
014721612	16	10-09-85	<.100	.100	<.100	<.100	<.100	<1.00	<10.0	5.00	<1.00
		10-28-94	.300	.600	<.100	<.800	<.100	<1.00	<10.0	18.0	<1.00
01472170	1	10-09-87	<.100	<.100	<.100	2.40	<.100	<1.00	<10.0	3.00	<1.00
01472174	2	10-07-86	<.100	<.100	<.100	<.800	<.100	<1.00	<10.0	<5.00	<1.00
014721854	3	10-08-86	<.100	3.80	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
014721884	4	10-07-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	9.00	<1.00
01472190	5	10-06-86	<.100	<.100	<.100	<.100	.200	<1.00	<10.0	<1.00	<1.00
		10-26-94	<.100	<.800	<.100	<2.40	<.100	<1.00	<10.0	1.00	<1.00
01473167	49	11-07-86	—	—	—	55.0	—	—	—	15,000	—
		11-16-87	<1.0	<.100	<.100	13.0	<1.0	<1.00	<10.0	540	<1.00
		11-18-93	<.100	<.100	<.100	<.100	<1.0	<1.00	110	<1.00	<1.00
01473168	50	10-09-85	.100	.100	<.100	<.100	<.100	<1.00	<10.0	18.0	<1.00
		11-18-93	<.100	<.100	.100	<.400	<.100	<1.00	<10.0	22.0	<1.00
01475840	19	10-09-86	<.100	<.100	<.100	<.100	.700	<1.00	<10.0	7.00	<1.00
01476430	20	10-15-85	<.100	.400	.100	<.100	<.100	<1.00	<10.0	5.00	<1.00
01476435	21	10-09-86	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01476790	22	10-15-86	<.100	.100	.100	<.100	<.100	<1.00	<10.0	8.00	<1.00
01476830	23	10-15-86	<.100	.200	<.100	<.100	<.100	<1.00	<10.0	4.00	<1.00
01476835	24	10-16-85	<.100	.100	.400	<.100	<.100	<1.00	<10.0	2.00	<1.00
		10-21-94	<.100	<.800	<.100	<22.0	<.100	<1.00	<10.0	22.0	<1.00
01476840	25	11-04-88	<.100	.300	.300	<1.00	<.100	<1.00	<10.0	120	<1.00
		11-19-93	.100	<.100	.100	<5.00	<.100	<1.00	<10.0	16.0	<1.00
01476848	51	10-16-86	<.100	.100	1.00	<.100	<.100	<1.00	<10.0	73.0	<1.00
		10-17-94	<.100	<.800	<.100	<5.20	<.100	<1.00	<10.0	10.0	<1.00
01478120	28	10-25-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
		11-24-93	<.100	<.100	<.100	<.200	<.100	<1.00	<10.0	<1.00	<1.00
01478190	29	12-02-86	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	3.00	<1.00
		11-24-93	<.100	<.100	<.100	<.200	<.100	<1.00	<10.0	<1.00	<1.00
01478220	30	10-25-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
		11-23-93	<.100	<.100	<.100	<.200	<.100	<1.00	<10.0	<1.00	<1.00
01479680	27	11-01-83	<1.00	<1.00	<1.00	88.0	<1.00	<10.0	<10.0	5,600	—
		11-18-86	<.100	<.100	<.100	<.100	.100	—	<10.0	1,400	<1.00
		11-22-93	<.100	<.100	<.100	<5.00	<.100	<1.00	<20.0	550	<1.00
01479800	26	10-18-85	—	<.100	.300	<.100	<.100	<1.00	<10.0	38.0	1.00
		11-22-93	<.100	<.100	<.100	<.400	<.100	<1.00	<10.0	2.00	<1.00
01480629	46	10-29-85	<.100	<.100	<.100	<.400	<.100	<1.00	<10.0	<1.00	<1.00
01480632	45	10-30-86	<.100	.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01480640	38	10-22-85	<.100	.100	<.100	<.100	<.100	<1.00	<10.0	11.0	<1.00
		11-15-93	<.100	<.100	<.100	<.200	<.100	<1.00	<10.0	12.0	<1.00



**Table 4. Results of stream-bottom sediment sampling—Continued**

Station number	Site number	Date	Hepta-chlor, total (µg/kg)	Hepta-chlor, epoxide, total (µg/kg)	Lindane, total (µg/kg)	Meth-oxy-chlor, total (µg/kg)	Mirex, total (µg/kg)	Per-thane, total (µg/kg)	Toxa-phene, total (µg/kg)	PCB, total (µg/kg)	PCN, total (µg/kg)
01480648	48	10-29-86	<0.100	<0.100	<0.100	<0.100	<0.100	<1.00	<10.0	<1.00	<1.00
01480653	42	10-23-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01480656	47	10-29-86	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	3.00	<1.00
01480700	36	10-21-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01480903	44	10-31-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	40.0	<1.00
01480950	39	11-03-86	<.100	<.100	.200	.200	<.100	<1.00	<10.0	14.0	<1.00
		11-16-93	<.100	<.100	<.100	<.200	<.100	<1.00	<10.0	3.00	<1.00
01481030	40	10-30-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	6.00	<1.00
01494900	31	10-28-86	.500	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
		11-04-94	<.100	<.100	<.100	<4.00	<.100	<1.00	<10.0	<1.00	<1.00
01494950	32	10-17-85	<.100	<.100	<.100	<4.00	<.100	<1.00	<10.0	<1.00	<1.00
		11-04-94	<.100	.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00
01578340	33	11-21-94	<.100	<.100	<.100	<14.0	<.100	<1.00	<10.0	3.00	<1.00
01578343	34	10-24-85	<.100	<.100	<.100	<.100	<.100	<1.00	<10.0	<1.00	<1.00

**Table 5. Benthic-macroinvertebrate data**

[<, less than; —, not found]

01472054 - Pigeon Creek near Bucktown, Pa. (Site 8)

Date	Oct. 21, 1981		Oct. 29, 1982	
	Total count			
Organism	Count	Percent	Count	Percent
Platyhelminthes (flatworms)				
Turbellaria				
Tricladida				
Planariidae	7	<1	1	<1
Nemertea (proboscis worms)				
Enopla				
Hoplonemertea				
Tetrastemmatidae				
<i>Prostoma</i>	—		4	<1
Mollusca (molluscs)				
Gastropoda				
Basommatophora				
Ancyliidae				
<i>Ferrissia</i>	1	<1	—	
Physidae				
<i>Physa</i>	1	<1	—	
Annelida (segmented worms)				
Oligochaeta	4	<1	3	<1
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	2	<1	1	<1
Insecta				
Ephemeroptera				
Baetidae				
<i>Baetis</i>	13	2	12	1
<i>Pseudocloeon</i>	—		2	<1
Ephemerellidae				
<i>Ephemerella</i>	57	7	85	9
Heptageniidae				
<i>Stenonema</i>	65	8	110	11
Isonychiidae				
<i>Isonychia</i>	2	<1	5	<1
Plecoptera				
Capniidae				
<i>Allocapnia</i>	1	<1	—	
Chloroperlidae	1	<1	10	1
Perlidae				
<i>Paragnetina</i>	—		1	<1
Perlodidae				
<i>Isoperla</i>	—		1	<1
Taeniopterygidae				
<i>Taeniopteryx</i>	27	3	44	4
Megaloptera				
Corydalidae				
<i>Nigronia</i>	—		1	<1

**Table 5.** Benthic-macroinvertebrate data—Continued

01472054 - Pigeon Creek near Bucktown, Pa. (Site 8)—Continued

Date	Oct. 21, 1981		Oct. 29, 1982	
Total count	822		975	
Organism	Count	Percent	Count	Percent
<b>Trichoptera</b>				
Brachycentridae				
<i>Micrasema</i>	—		1	<1
Glossosomatidae				
<i>Glossosoma</i>	2	<1	29	3
Hydropsychidae				
<i>Ceratopsyche</i>	2	<1	18	2
<i>Cheumatopsyche</i>	200	24	120	12
<i>Hydropsyche</i>	240	29	190	19
Philopotamidae				
<i>Chimarra</i>	37	4	100	10
Polycentropodidae				
<i>Polycentropus</i>	—		1	<1
Uenoidae				
<i>Neophylax</i>	1	<1	4	<1
<b>Coleoptera</b>				
Dytiscidae				
	1	<1	—	
Elmidae				
<i>Macronychus</i>	—		1	<1
<i>Optioservus</i>	32	4	14	1
<i>Oulimnius</i>	2	<1	—	
<i>Promoresia</i>	21	3	3	<1
<i>Stenelmis</i>	5	<1	3	<1
Psephenidae				
<i>Ectopria</i>				
<i>E. nervosa</i>	1	<1	1	<1
<b>Diptera</b>				
Chironomidae				
	65	8	92	9
Empididae				
<i>Hemerodromia</i>	12	1	5	<1
Simuliidae				
<i>Simulium</i>	12	1	18	2
Tipulidae				
<i>Antocha</i>	8	1	95	10

**Table 5. Benthic-macroinvertebrate data—Continued**

01472065 - Pigeon Creek at Porters Mill, Pa. (Site 9)

Date	Oct. 20, 1981		Oct. 29, 1982	
	Total count		482	918
Organism	Count	Percent	Count	Percent
Mollusca (molluscs)				
Gastropoda				
Basommatophora				
Lymnaeidae				
<i>Lymnaea</i>	1	<1	—	
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	2	<1	4	<1
Insecta				
Ephemeroptera				
Baetidae				
<i>Baetis</i>	2	<1	—	
<i>Pseudocloeon</i>	—		4	<1
Ephemerellidae				
<i>Ephemerella</i>	4	<1	120	13
Heptageniidae				
<i>Stenonema</i>	58	12	150	16
Isonychiidae				
<i>Isonychia</i>	27	6	46	5
Plecoptera				
Capniidae	—		1	<1
Perlidae				
<i>Paragnetina</i>	12	2	1	<1
Taeniopterygidae				
<i>Taeniopteryx</i>	6	1	5	<1
Trichoptera				
Brachycentridae				
<i>Micrasema</i>	7	2	13	1
Glossosomatidae				
<i>Glossosoma</i>	5	1	5	<1
Goeridae				
<i>Goera</i>	—		1	<1
Hydropsychidae				
<i>Ceratopsyche</i>	25	5	78	8
<i>Cheumatopsyche</i>	180	37	64	7
<i>Hydropsyche</i>	25	5	51	6
Hydroptilidae				
<i>Hydroptila</i>	—		14	2
<i>Leucotrichia</i>	2	<1	21	2
Leptoceridae				
<i>Oecetis</i>	—		1	<1
Philopotamidae				
<i>Chimarra</i>	12	2	13	1
Psychomyiidae				
<i>Psychomyia</i>	2	<1	—	

**Table 5.** Benthic-macroinvertebrate data—Continued

01472065 - Pigeon Creek at Porters Mill, Pa. (Site 9)—Continued

Date	Oct. 20, 1981		Oct. 29, 1982	
Total count	482		918	
Organism	Count	Percent	Count	Percent
<b>Coleoptera</b>				
Elmidae				
<i>Optioservus</i>	4	<1	3	<1
<i>Stenelmis</i>	1	<1	—	
Psephenidae				
<i>Ectopria</i>	1	<1	—	
Diptera				
Athericidae				
<i>Atherix</i>	—		1	<1
Chironomidae	48	10	220	24
Empididae				
<i>Hemerodromia</i>	—		8	<1
Simuliidae				
<i>Simulium</i>	6	1	5	<1
Tipulidae				
<i>Antocha</i>	51	10	89	10

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)

Date	Oct. 20, 1981		Oct. 29, 1982		Oct. 21, 1983		Oct. 22, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	2,785		1,691		969		1,492		1,032		1,133		2,098	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	11	<1	8	<1	5	<1	3	<1	1	<1	3	<1	5	<1
Nematoda (nematodes)	—		—		—		—		—		—		4	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		—		—		—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—		—		—		—		—		—		—	
Physidae														
<i>Physa</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta	5	<1	3	<1	4	<1	1	<1	—		—		—	
Tubificida														
Naididae	—		—		—		—		—		—		65	3
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	9	<1	3	<1	—		3	<1	—		—		84	4
Crustacea														
Cyclopoida														
Cyclopidae	—		—		—		—		—		—		2	<1
Amphipoda														
Talitridae														
<i>Hyalolella</i>														
<i>H. azteca</i>	—		—		—		—		—		—		1	<1
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		—		—		—		—		—		1	<1
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	29	1	11	<1	—		1	<1	4	<1	19	2	—	
<i>Pseudocloeon</i>	14	<1	16	<1	3	<1	7	<1	—		7	<1	7	<1
Ephemerellidae														
<i>Ephemerella</i>	79	3	84	5	5	<1	74	5	41	4	21	2	380	18
Heptageniidae														
<i>Epeorus</i>	—		—		—		—		—		—		4	<1
<i>Stenonema</i>	280	10	110	6	81	8	150	10	58	6	48	4	92	4
Isonychiidae	—		—		—		—		—		—		—	
<i>Isonychia</i>	57	2	13	<1	27	3	38	3	17	2	55	5	12	<1
Leptophlebiidae	—		—		—		—		—		—		—	
<i>Paraleptophlebia</i>	—		—		—		—		—		—		—	
Leptohyphidae														
<i>Tricorythodes</i>	—		—		—		2	<1	—		—		—	

Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 13, 1992		Oct. 8, 1993		Oct. 31, 1994		Date
1 2,397		2,270		1,947		1,705		440		1,161		1,599		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—		7	<1	1	<1	2	<1	3	<1	1	<1	4	<1	Planariidae
—		—		—		—		—		—		2	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		4	<1	—		1	<1	1	<1	—		4	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		—		—		—		—		2	<1	—		<i>Ferrissia</i>
														Physidae
—		—		—		—		1	<1	—		—		<i>Physa</i>
														Annelida (segmented worms)
														Oligochaeta
														Tubificida
—		4	<1	—		—		—		—		10	<1	Naididae
														Arthropoda (arthropods)
														Acariformes
—		58	3	5	<1	12	<1	37	8	36	3	39	2	Hydrachnidia
														Crustacea
														Cyclopoida
—		—		—		—		—		—		—		Cyclopidae
														Amphipoda
														Talitridae
														<i>Hyallolella</i>
—		—		—		—		1	<1	—		—		<i>H. azteca</i>
														Isopoda
														Asellidae
3	<1	—		—		—		—		—		—		<i>Caecidotea</i>
—		1	<1	—		—		—		—		—		Podocopa
														Insecta
														Ephemeroptera
														Baetidae
8	<1	11	<1	54	3	13	<1	1	<1	11	<1	2	<1	<i>Baetis</i>
—		14	<1	20	1	10	<1	—		7	<1	4	<1	<i>Pseudocloeon</i>
														Ephemerellidae
280	12	240	10	85	4	130	8	4	1	82	7	220	14	<i>Ephemerella</i>
														Heptageniidae
32	1	6	<1	12	<1	16	<1	—		13	1	5	<1	<i>Epeorus</i>
110	5	80	3	79	4	—		—		—		1	<1	<i>Stenonema</i>
—		—		—		2	<1	—		—		—		Isonychiidae
53	2	8	<1	47	2	9	<1	2	<1	8	<1	17	1	<i>Isonychia</i>
—		5	<1	5	<1	50	3	3	<1	29	2	47	3	Leptophlebiidae
5	<1	—		—		—		—		5	<1	5	4	<i>Paraleptophlebia</i>
														Leptohyphidae
—		—		—		1	<1	—		—		—		<i>Tricorythodes</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)—Continued

Date	Oct. 20, 1981		Oct. 29, 1982		Oct. 21, 1983		Oct. 22, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	2,785		1,691		969		1,492		1,032		1,133		2,098	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Plecoptera</b>														
Capniidae	3	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Allocapnia</i>	—	—	10	<1	2	<1	38	3	—	—	—	—	14	<1
Chloroperlidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Perlidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Acroneuria</i>	3	<1	—	—	1	<1	—	—	—	—	—	—	—	—
<i>Agnetina</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	6	<1	8	<1	4	<1	14	<1	2	<1	3	<1	4	<1
Perlodidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Isoperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taeniopterygidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Strophopteryx</i>	—	—	—	—	—	—	—	—	—	—	—	—	13	<1
<i>Taeniopteryx</i>	17	<1	23	1	2	<1	13	<1	—	—	7	<1	9	<1
<b>Hemiptera</b>														
Veliidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Rhagovelia</i>	1	<1	—	—	—	—	2	<1	—	—	—	—	—	—
<b>Megaloptera</b>														
Corydalidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Corydalus</i>	1	<1	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Trichoptera</b>														
Apataniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	7	<1
Brachycentridae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Micrasema</i>	17	<1	6	<1	9	<1	8	<1	17	2	110	10	82	4
Glossosomatidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Glossosoma</i>	8	<1	77	5	47	5	56	4	3	<1	17	2	10	<1
Goeridae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Goera</i>	7	<1	—	—	—	—	—	—	—	—	—	—	1	<1
Helicopsychidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydropsychidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ceratopsyche</i>	760	27	350	21	240	24	210	14	54	5	120	11	130	6
<i>Cheumatopsyche</i>	420	15	86	5	35	4	54	4	44	4	40	4	53	3
<i>Hydropsyche</i>	100	4	60	4	91	9	48	3	8	<1	80	7	83	4
Hydroptilidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hydroptila</i>	3	<1	2	<1	1	<1	2	<1	—	—	1	<1	41	2
<i>Leucotrichia</i>	20	<1	130	8	210	21	340	23	400	40	360	33	100	5
Leptoceridae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Philopotamidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Chimarra</i>	94	3	68	4	41	4	43	3	41	4	15	1	62	3
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polycentropodidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Polycentropus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Psychomyiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Psychomyia</i>	—	—	2	<1	2	<1	9	<1	21	2	52	5	61	3
Uenoidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Neophylax</i>	—	—	6	<1	—	—	—	—	—	—	—	—	—	—



Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 13, 1992		Oct. 8, 1993		Oct. 31, 1994		Date
1 2,397		2,270		1,947		1,705		440		1,161		1,599		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Plecoptera</b>														
<b>Capniidae</b>														
11	<1	2	<1	—	—	—	—	—	—	—	—	3	<1	<i>Allocapnia</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	
<b>Chloroperlidae</b>														
<b>Perlidae</b>														
3	<1	1	<1	9	<1	—	—	—	—	3	<1	7	<1	<i>Acroneuria</i>
3	<1	2	<1	—	—	1	<1	—	—	—	—	2	<1	<i>Agnetina</i>
—	—	—	—	—	—	—	—	1	<1	1	<1	2	<1	<i>Paragnetina</i>
<b>Perlodidae</b>														
16	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Isoperla</i>
<b>Taeniopterygidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Strophopteryx</i>
8	<1	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Veliidae</b>														
—	—	1	<1	—	—	1	<1	—	—	—	—	—	—	<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Corydalus</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—	—	3	<1	21	1	7	<1	—	—	14	1	4	<1	<i>Apatania</i>
<b>Brachycentridae</b>														
83	3	250	11	460	23	180	11	74	16	31	3	28	2	<i>Micrasema</i>
<b>Glossosomatidae</b>														
3	<1	11	<1	21	1	9	<1	1	<1	3	<1	13	<1	<i>Glossosoma</i>
<b>Goeridae</b>														
3	<1	4	<1	5	<1	5	<1	6	1	6	<1	4	<1	<i>Goera</i>
<b>Helicopsychidae</b>														
—	—	—	—	—	—	—	—	—	—	1	<1	1	<1	<i>Helicopsyche</i>
<b>Hydropsychidae</b>														
240	10	280	12	300	15	210	12	41	9	120	10	340	21	<i>Ceratopsyche</i>
99	4	60	3	32	2	14	<1	6	1	65	5	71	4	<i>Cheumatopsyche</i>
67	3	20	<1	26	1	25	1	7	2	160	13	100	6	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
—	—	—	—	—	—	1	<1	2	<1	10	<1	1	<1	<i>Hydroptila</i>
450	19	260	11	160	8	480	28	160	36	6	<1	1	<1	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
—	—	1	<1	—	—	—	—	4	1	—	—	1	<1	<i>Oecetis</i>
<b>Philopotamidae</b>														
83	3	51	2	58	3	25	1	4	1	6	<1	37	2	<i>Chimarra</i>
5	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Wormaldia</i>
<b>Polycentropodidae</b>														
—	—	2	<1	—	—	3	<1	—	—	1	<1	—	—	<i>Polycentropus</i>
<b>Psychomyiidae</b>														
120	5	210	9	96	5	80	5	2	<1	4	<1	13	<1	<i>Psychomyia</i>
<b>Uenoidae</b>														
13	<1	—	—	3	<1	—	—	—	—	—	—	—	—	<i>Neophylax</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472080 - Pigeon Creek near Parker Ford, Pa. (Site 10)—Continued

Date	Oct. 20, 1981		Oct. 29, 1982		Oct. 21, 1983		Oct. 22, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	2,785		1,691		969		1,492		1,032		1,133		2,098	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
Chrysomelidae	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Dryopidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helichus</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
Dytiscidae	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Elmidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	—	—	—	—	—	—	—	—	—	—	1	<1	2	<1
<i>Macronychus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>M. glabratus</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	31	1	3	<1	11	1	10	<1	4	1	5	<1	20	<1
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	2	<1	—	—	1	<1
<i>Promoresia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	6	<1	—	—	—	—	7	<1	2	<1	1	<1	7	<1
Hydrophilidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Psephenidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ectopria</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>E. nervosa</i>	1	<1	—	—	—	—	—	—	—	—	—	—	1	<1
<i>Psephenus</i>	3	<1	1	<1	—	—	—	—	—	—	—	—	5	<1
Hymenoptera	—	—	1	<1	—	—	1	<1	1	<1	—	—	—	—
<b>Diptera</b>														
Athericidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Atherix</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Chironomidae	700	25	460	27	93	9	240	16	240	24	91	8	390	19
Empididae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	7	<1	11	<1	1	<1	2	<1	—	—	1	<1	13	<1
Ephydriidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Simuliidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Simulium</i>	30	1	27	2	—	—	16	1	13	1	6	<1	110	5
Tipulidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Antocha</i>	61	2	110	6	53	5	100	7	59	6	70	6	220	10
<i>Dicranota</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 13, 1992		Oct. 8, 1993		Oct. 31, 1994		Date
1 2,397		2,270		1,947		1,705		440		1,161		1,599		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Coleoptera														
Chrysomelidae														
Dryopidae														
<i>Helichus</i>														
Dytiscidae														
Elmidae														
<i>Dubiraphia</i>														
<i>Macronychus</i>														
<i>M. glabratus</i>														
37	2	99	4	60	3	20	1	28	6	14	1	34	2	<i>Optioservus</i>
		16	<1	5	<1			2	<1	2	<1			<i>Oulimnius</i>
		1	<1	1	<1	2	<1					2	<1	<i>Promoresia</i>
11	<1	34	1	27	1	13	<1	6	1	6	<1	1	<1	<i>Stenelmis</i>
										1	<1			Hydrophilidae
Psephenidae														
<i>Ectopria</i>														
3	<1													<i>E. nervosa</i>
		2	<1			4	<1			2	<1	2	<1	<i>Psephenus</i>
5	<1	14	<1	2	<1	4	<1	1	<1	11	<1	7	<1	
Hymenoptera														
Diptera														
Athericidae														
<i>Atherix</i>														
520	22	270	12	170	9	260	15	21	5	340	28	430	27	Chironomidae
Empididae														
5	<1	20	<1			4	<1	5	1	4	<1	3	<1	<i>Hemerodromia</i>
				1	<1									Ephydriidae
Simuliidae														
8	<1	5	<1	9	<1	1	<1	1	<1	6	<1	10	<1	<i>Simulium</i>
Tipulidae														
110	5	210	9	170	9	110	6	11	2	150	13	120	8	<i>Antocha</i>
												1	<1	<i>Dicranota</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472109 - Stony Run near Spring City, Pa. (Site 6)

Date	Oct. 20, 1981		Oct. 19, 1982		Oct. 20, 1983		Oct. 9, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	1 2,760		1,265		2,082		998		550		651		1,467	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	3	<1	9	<1	83	4	41	4	14	3	10	1	34	2
Nematoda (nematodes)	—		—		—		—		—		—		4	<1
Nemertea (proboscis worms)														
Enopla														
Hoploneurtea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		1	<1	1	<1	—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	2	<1	—		—		—		—		1	<1	—	
Lymnaeidae														
<i>Lymnaea</i>	—		—		1	<1	—		—		—		—	
Physidae														
<i>Physa</i>	2	<1	—		1	<1	—		—		1	<1	1	<1
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
<i>Helisoma</i>	—		—		2	<1	—		—		3	<1	1	<1
<i>Planorbula</i>	—		—		—		—		—		—		—	
Bivalvia														
Veneroida														
Sphaeriidae	1	<1	—		11	<1	1	<1	4	<1	8	1	7	<1
<i>Pisidium</i>	—		—		—		—		—		—		—	
<i>Sphaerium</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida	120	4	—		83	4	—		3	<1	—		—	
Lumbriculidae														
Tubificida	—		—		—		—		—		—		—	
Naididae	—		—		—		1	<1	—		3	<1	140	9
Branchiobdellida	—		—		—		—		1	<1	—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		—		10	<1	—		—		—		38	3
Crustacea														
Cyclopoida														
Cyclopidae	—		—		—		—		—		—		7	<1
Amphipoda														
Gammaridae	—		—		—		—		—		—		2	<1
Talitridae	—		—		—		—		—		—		—	
<i>Hyalolella</i>	—		—		1	<1	—		—		—		—	
<i>H. azteca</i>	—		—		—		—		—		—		—	
Isopoda														
Asellidae	—		1	<1	—		—		—		—		3	<1
<i>Caecidotea</i>	—		1	<1	—		—		—		—		—	
<i>Lirceus</i>	—		—		—		—		—		—		—	
Podocopa	—		—		5	<1	—		2	<1	1	<1	1	<1

Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 8, 1992		Oct. 8, 1993		Nov. 1, 1994		Date
1 816		2,122		2,129		1,489		671		993		1,010		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
61	7	59	3	8	<1	7	<1	5	<1	19	2	8	<1	Planariidae
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—	—	—	—	—	—	1	<1	1	<1	—	—	—	—	<i>Ferrissia</i>
														Lymnaeidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Lymnaea</i>
														Physidae
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Physa</i>
—	—	—	—	6	<1	—	—	—	—	—	—	—	—	Planorbidae
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
—	3	<1	—	—	—	—	—	—	—	—	—	—	—	<i>Planorbula</i>
														Bivalvia
														Veneroida
—	—	—	—	—	—	1	<1	—	—	1	<1	1	<1	Sphaeriidae
—	1	<1	1	<1	—	—	—	—	—	—	—	—	—	<i>Pisidium</i>
—	6	<1	5	<1	—	—	—	—	—	—	—	—	—	<i>Sphaerium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Lumbriculidae
														Tubificida
3	<1	24	1	19	<1	8	<1	6	<1	—	—	9	<1	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Branchiobdellida
														Arthropoda (arthropods)
														Acariformes
3	<1	97	5	120	6	79	5	50	7	7	<1	44	4	Hydrachnidia
														Crustacea
														Cyclopoida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Cyclopidae
														Amphipoda
														Gammaridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Gammarus</i>
														Talitridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Hyallela</i>
														<i>H. azteca</i>
														Isopoda
														Asellidae
—	1	<1	—	—	—	—	—	—	—	—	—	—	—	<i>Caecidotea</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Lirceus</i>
—	7	<1	2	<1	1	<1	1	<1	—	—	—	1	<1	Podocopa

**Table 5. Benthic-macroinvertebrate data—Continued**

01472109 - Stony Run near Spring City, Pa. (Site 6)—Continued

Date	Oct. 20, 1981		Oct. 19, 1982		Oct. 20, 1983		Oct. 9, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	1 2,760		1,265		2,082		998		550		651		1,467	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
<i>Baetis</i>	75	3	45	3	16	<1	47	5	5	<1	34	5	—	—
<i>Pseudocloeon</i>	—	—	—	—	—	—	15	2	—	—	—	—	89	6
<b>Caenidae</b>														
<i>Caenis</i>	26	<1	6	<1	95	5	1	<1	1	<1	4	<1	21	1
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	8	<1	5	<1	9	<1	4	<1	1	<1	2	<1	25	2
<b>Ephemeridae</b>														
<i>Ephemera</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Heptageniidae</b>														
<i>Stenacron</i>	—	—	—	—	—	—	—	—	—	—	5	<1	—	—
<i>Stenonema</i>	94	3	120	9	43	2	67	7	5	<1	79	12	57	4
<b>Isonychiidae</b>														
<i>Isonychia</i>	7	<1	10	<1	7	<1	6	<1	—	—	2	<1	1	<1
<b>Leptohiphidae</b>														
<i>Tricorythodes</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	—	—	—	—	—	—	—	—	—	<1	9	1	—	—
<b>Odonata</b>														
<b>Calopterygidae</b>														
<i>Hetaerina</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<i>Enallagma</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
<b>Chloroperlidae</b>														
<i>Chloroperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Perlidae</b>														
<i>Agneta</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	—	—	—	—	6	<1	—	—	—	—	—	—	—	—
<b>Hemiptera</b>														
<b>Corixidae</b>														
<i>Corixa</i>	—	—	—	—	—	—	3	<1	—	—	—	—	—	—
<b>Gerridae</b>														
<i>Trepobates</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Veliidae</b>														
<i>Microvelia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Rhagovelia</i>	—	—	2	<1	—	—	2	<1	—	9	1	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Sialidae</b>														
<i>Sialis</i>	4	<1	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	29	2
<b>Brachycentridae</b>														
<i>Micrasema</i>	—	—	—	—	—	—	—	—	—	—	—	—	3	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	3	<1	—	—	—	—	2	<1	—	—	—	—

Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 8, 1992		Oct. 8, 1993		Nov. 1, 1994		Date
1 816		2,122		2,129		1,489		671		993		1,010		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Insecta														
Ephemeroptera														
Baetidae														
11	1	130	6	36	2	75	5	16	2	2	<1	41	4	<i>Baetis</i>
—	—	—	—	—	—	—	—	—	—	—	—	3	<1	<i>Pseudocloeon</i>
Caenidae														
11	1	3	<1	3	<1	3	<1	—	—	1	<1	3	<1	<i>Caenis</i>
Ephemerellidae														
5	<1	130	6	78	4	70	5	46	7	60	6	37	4	<i>Ephemerella</i>
Ephemeridae														
—	—	—	—	—	—	—	—	—	—	4	<1	—	—	<i>Ephemera</i>
Heptageniidae														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Stenacron</i>
37	5	180	9	160	8	230	15	55	8	60	6	53	5	<i>Stenonema</i>
Isonychiidae														
—	—	—	—	—	—	37	2	1	<1	23	2	4	<1	<i>Isonychia</i>
Leptohyphidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tricorythodes</i>
Leptophlebiidae														
3	<1	—	<1	66	3	24	2	51	8	—	—	27	3	<i>Paraleptophlebia</i>
Odonata														
Calopterygidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Hetaerina</i>
Coenagrionidae														
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Argia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Enallagma</i>
Plecoptera														
Capniidae														
3	<1	—	—	—	—	—	—	—	—	—	—	10	1	<i>Allocapnia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chloroperlidae														
Perlidae														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Agnatina</i>
Taeniopterygidae														
3	<1	2	<1	—	—	—	—	1	<1	1	<1	—	—	<i>Taeniopteryx</i>
Hemiptera														
Corixidae														
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	
Gerridae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Trepobates</i>
Veliidae														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Microvelia</i>
—	—	1	<1	14	<1	1	<1	8	1	4	<1	1	<1	<i>Rhagovelia</i>
Megaloptera														
Corydalidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Corydalus</i>
Sialidae														
—	—	—	—	1	<1	2	<1	—	—	—	—	—	—	<i>Sialis</i>
Trichoptera														
Apataniidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Apatania</i>
Brachycentridae														
—	—	4	<1	2	<1	—	—	—	—	—	—	—	—	<i>Micrasema</i>
Glossosomatidae														
—	—	—	—	—	—	1	<1	—	—	—	—	2	<1	<i>Glossosoma</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472109 - Stony Run near Spring City, Pa. (Site 6)—Continued

Date	Oct. 20, 1981		Oct. 19, 1982		Oct. 20, 1983		Oct. 9, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	1 2,760		1,265		2,082		998		550		651		1,467	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	13	<1	140	11	24	1	120	12	44	8	59	9	19	1
<i>Cheumatopsyche</i>	310	11	88	7	190	9	130	13	85	15	64	10	86	6
<i>Hydropsyche</i>	240	9	190	15	280	13	190	19	12	2	59	9	210	14
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	160	6	62	5	120	6	8	<1	2	<1	1	<1	12	<1
<i>Leucotrichia</i>	5	<1	12	<1	—	—	—	—	—	—	5	<1	—	—
<b>Leptoceridae</b>														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	35	1	9	<1	19	<1	4	<1	18	3	110	16	62	4
<b>Polycentropodidae</b>														
<i>Nyctiophylax</i>	4	<1	2	<1	2	<1	—	—	—	—	4	<1	—	—
<i>Polycentropus</i>	—	—	9	<1	12	<1	—	—	1	<1	2	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	110	4	150	12	59	3	12	1	—	—	1	<1	1	<1
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Dytiscidae</b>														
	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Elmidae</b>														
<i>Ancyronyx</i>														
<i>A. variegata</i>														
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	1	<1	1	<1	1	<1	—	—	1	<1	1	<1	4	<1
<i>Macronychus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	17	<1	5	<1	50	2	21	2	7	1	5	<1	5	<1
<i>Stenelmis</i>	40	1	26	2	75	4	25	3	9	2	21	3	15	1
<b>Hydrophilidae</b>														
<i>Hydrochara</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Psephenidae</b>														
<i>Ectopria</i>														
	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>E. nervosa</i>														
	2	<1	—	—	1	<1	2	<1	—	—	—	—	—	—
<i>Psephenus</i>	—	—	—	—	5	<1	2	<1	—	—	1	<1	—	—
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Ceratopogonidae</b>														
	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Chironomidae</b>														
	910	33	220	17	770	37	140	14	320	57	120	18	390	26
<b>Empididae</b>														
<i>Hemerodromia</i>	6	<1	10	<1	9	<1	6	<1	1	<1	5	<1	7	<1
<b>Muscidae</b>														
<i>Limnophora</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	540	19	110	8	39	2	78	8	8	2	6	<1	140	9



Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 8, 1992		Oct. 8, 1993		Nov. 1, 1994		Date
<sup>1</sup> 816		2,122		2,129		1,489		671		993		1,010		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Hydropsychidae														
100	12	—		1	<1	15	1	16	2	—		27	3	<i>Ceratopsyche</i>
80	10	70	3	270	13	120	8	43	6	200	20	190	19	<i>Cheumatopsyche</i>
190	23	470	22	650	31	180	12	150	22	310	31	120	12	<i>Hydropsyche</i>
Hydroptilidae														
21	3	11	<1	7	<1	9	<1	10	1	9	<1	17	2	<i>Hydroptila</i>
—		—		—		3	<1	—		—		—		<i>Leucotrichia</i>
Leptoceridae														
—		1	<1	1	<1	2	<1	—		—		—		<i>Mystacides</i>
Philopotamidae														
51	6	49	2	78	4	120	8	55	8	83	8	20	2	<i>Chimarra</i>
Polycentropodidae														
—		7	<1	34	2	2	<1	12	2	18	2	16	2	<i>Nyctiophylax</i>
—		1	<1	1	<1	4	<1	7	1	—		1	<1	<i>Polycentropus</i>
Psychomyiidae														
8	1	110	5	18	<1	20	1	8	1	2	<1	7	<1	<i>Psychomyia</i>
Rhyacophilidae														
—		—		—		1	<1	—		—		—		<i>Rhyacophila</i>
Uenoidae														
5	<1	2	<1	—		—		—		—		29	3	<i>Neophylax</i>
Lepidoptera														
Pyralidae														
—		—		—		—		—		—		2	<1	<i>Petrophila</i>
Coleoptera														
Dryopidae														
—		1	<1	1	<1	—		—		—		—		<i>Helichus</i>
Dytiscidae														
—		—		—		—		—		—		—		
Elmidae														
<i>Ancyronyx</i>														
—		—		—		—		—		2	<1	1	<1	<i>A.variegata</i>
—		23	1	8	<1	—		—		—		1	<1	<i>Dubiraphia</i>
—		—		1	<1	—		—		—		—		<i>Macronychus</i>
—		33	2	18	<1	41	3	39	6	2	<1	29	3	<i>Optioservus</i>
26	3	46	2	73	3	47	3	8	1	45	5	2	<1	<i>Stenelmis</i>
Hydrophilidae														
—		—		—		—		—		—		—		<i>Hydrochara</i>
Psephenidae														
—		—		—		—		—		—		—		<i>Ectopria</i>
—		—		—		1	<1	2	<1	—		—		<i>E. nervosa</i>
—		1	<1	1	<1	—		—		3	<1	1	<1	<i>Psephenus</i>
—		—		—		—		—		—		—		
Hymenoptera														
Diptera														
Athericidae														
—		—		1	<1	—		—		—		—		<i>Atherix</i>
—		—		—		—		—		—		—		
Ceratopogonidae														
170	21	430	20	390	19	330	22	67	10	130	13	250	25	
Chironomidae														
Empididae														
3	<1	42	2	19	<1	18	1	—		4	<1	12	1	<i>Hemerodromia</i>
Muscidae														
—		1	<1	—		—		—		—		—		<i>Limnophora</i>
Simuliidae														
11	1	110	5	5	<1	2	<1	4	<1	—		8	<1	<i>Simulium</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01472109 - Stony Run near Spring City, Pa. (Site 6)—Continued

Date	Oct. 20, 1981		Oct. 19, 1982		Oct. 20, 1983		Oct. 9, 1984		Oct. 11, 1985		Oct. 10, 1986		Nov. 13, 1987	
Total count	<sup>1</sup> 2,760		1,265		2,082		998		550		651		1,467	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Tabanidae														
<i>Tabanus</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Tipulidae														
<i>Antocha</i>	20	<1	28	2	47	2	71	7	1	<1	6	<1	49	3
<i>Hexatoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Tipula</i>	1	<1	—	—	2	<1	—	—	—	—	5	<1	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 9, 1988		Oct. 11, 1989		Oct. 4, 1990		Oct. 8, 1991		Oct. 8, 1992		Oct. 8, 1993		Nov. 1, 1994		Date
1 816		2,122		2,129		1,489		671		993		1,010		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Diptera
														Tabanidae
														<i>Tabanus</i>
														Tipulidae
														<i>Antocha</i>
														<i>Hexatoma</i>
														<i>Tipula</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

[<, less than; —, not found]

01472110 - Stony Run at Spring City, Pa. (Site 7)

Date	Oct. 20, 1981		Oct. 19, 1982	
	Total count		1,507	1,787
Organism	Count	Percent	Count	Percent
Platyhelminthes (flatworms)				
Turbellaria				
Tricladida				
Planariidae	110	7	120	7
Mollusca (molluscs)				
Gastropoda				
Basommatophora				
Ancyliidae				
<i>Ferrissia</i>	1	<1	—	
Planorbidae				
<i>Helisoma</i>	1	<1	—	
Bivalvia				
Veneroidea				
Sphaeriidae	—		2	<1
Annelida (segmented worms)				
Oligochaeta	8	<1	30	2
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	—		1	<1
Crustacea				
Isopoda				
Asellidae	1	<1	—	
<i>Caecidotea</i>	25	2	14	<1
Insecta				
Ephemeroptera				
Baetidae				
<i>Baetis</i>	52	3	130	7
Caenidae				
<i>Caenis</i>	7	<1	1	<1
Ephemerellidae				
<i>Ephemerella</i>	8	<1	2	<1
Heptageniidae				
<i>Stenonema</i>	180	12	58	3
Isonychiidae				
<i>Isonychia</i>	61	4	1	<1
Odonata				
Coenagrionidae				
<i>Argia</i>	12	<1	—	
Hemiptera				
Veliidae				
<i>Rhagovelia</i>	—		1	<1
Megaloptera				
Sialidae				
<i>Sialis</i>	2	<1	—	

**Table 5.** Benthic-macroinvertebrate data—Continued

01472110 - Stony Run at Spring City, Pa. (Site 7)—Continued

Date	Oct. 20, 1981		Oct. 19, 1982	
Total count	1,507		1,787	
Organism	Count	Percent	Count	Percent
<b>Trichoptera</b>				
Glossosomatidae				
<i>Glossosoma</i>	4	<1	1	<1
Hydropsychidae				
<i>Ceratopsyche</i>	4	<1	4	<1
<i>Cheumatopsyche</i>	200	13	110	6
<i>Hydropsyche</i>	230	15	150	8
Hydroptilidae				
<i>Hydroptila</i>	14	<1	22	1
<i>Leucotrichia</i>	—		19	1
Philopotamidae				
<i>Chimarra</i>	200	13	51	3
Polycentropodidae				
<i>Nyctiophylax</i>	2	<1	—	
<i>Polycentropus</i>	6	<1	—	
<b>Coleoptera</b>				
Elmidae				
<i>Dubiraphia</i>	—		1	<1
<i>Optioservus</i>	45	3	5	<1
<i>Stenelmis</i>	36	2	29	2
Psephenidae				
<i>Ectopria</i>	1	<1	—	
<i>Psephenus</i>	13	<1	3	<1
<b>Diptera</b>				
Athericidae				
<i>Atherix</i>	3	<1	—	
Chironomidae	250	17	320	18
Empididae				
<i>Hemerodromia</i>	4	<1	17	<1
Simuliidae				
<i>Simulium</i>	18	1	680	38
Tabanidae				
<i>Tabanus</i>	1	<1	—	
Tipulidae				
<i>Antocha</i>	4	<1	14	<1
<i>Tipula</i>	4	<1	1	<1

**Table 5.** Benthic-macroinvertebrate data—Continued

[<, less than; —, not found]

01472126 - French Creek at Trythall, Pa. (Site 41)

Date	Oct. 26, 1982	
Total count	215	
Organism	Count	Percent
Nemertea (proboscis worms)		
Enopla		
Hoplonemertea		
Tetrastemmatidae		
<i>Prostoma</i>	5	3
Mollusca (molluscs)		
Gastropoda		
Basommatophora		
Ancyliidae		
<i>Ferrissia</i>	1	<1
Annelida (segmented worms)		
Oligochaeta		
Tubificida		
Naididae	2	1
Arthropoda (arthropods)		
Acariformes		
Hydrachnidia	2	1
Insecta		
Ephemeroptera		
Ephemerellidae		
<i>Ephemerella</i>	10	5
Heptageniidae		
<i>Stenonema</i>	10	5
Plecoptera		
Taeniopterygidae		
<i>Taeniopteryx</i>	32	15
Megaloptera		
Corydalidae		
<i>Nigronia</i>	1	<1
Trichoptera		
Brachycentridae		
<i>Brachycentrus</i>	3	2
Glossosomatidae		
<i>Glossosoma</i>	3	2
Goeridae		
<i>Goera</i>	3	2
Hydropsychidae		
<i>Ceratopsyche</i>	2	1
<i>Cheumatopsyche</i>	72	33
<i>Hydropsyche</i>	11	5
Leptoceridae		
<i>Oecetis</i>	13	6
Polycentropodidae		
<i>Nyctiophylax</i>	1	<1
<i>Polycentropus</i>	1	<1

**Table 5.** Benthic-macroinvertebrate data—Continued

01472126 - French Creek at Trythall, Pa. (Site 41)—Continued

Date	Oct. 26, 1982	
Total count	215	
Organism	Count	Percent
Coleoptera		
Elmidae		
<i>Optioservus</i>	1	<1
<i>Promoresia</i>	1	<1
<i>Stenelmis</i>	1	<1
Diptera		
Chironomidae	33	15
Empididae		
<i>Hemerodromia</i>	5	3
Ephydriidae		
Simuliidae		
<i>Simulium</i>	1	<1
Tipulidae		
<i>Tipula</i>	1	<1

**Table 5.** Benthic-macroinvertebrate data—Continued

[<, less than; —, not found]

01472129 - French Creek near Knauertown, Pa. (Site 11)

Date	Oct. 22, 1981		Oct. 26, 1982	
	Total count			
Organism	Count	Percent	Count	Percent
Platyhelminthes (flatworms)				
Turbellaria				
Tricladida				
Planariidae	7	<1	29	1
Nematoda (nematodes)	1	<1	—	
Nemertea (proboscis worms)				
Enopla				
Hoplonemertea				
Tetrastemmatidae				
<i>Prostoma</i>	—		3	<1
Mollusca (molluscs)				
Gastropoda				
Mesogastropoda				
Hydrobiidae				
<i>Amnicola</i>	—		1	<1
Annelida (segmented worms)				
Oligochaeta				
Tubificida				
Naididae	5	<1	—	
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	41	4	36	2
Crustacea				
Amphipoda				
Talitridae				
<i>Hyalolella</i>				
<i>H. azteca</i>	1	<1	4	<1
Insecta				
Ephemeroptera				
Baetidae				
<i>Baetis</i>	38	3	27	1
<i>Pseudocloeon</i>	6	<1	6	<1
Ephemerellidae				
<i>Ephemerella</i>	55	5	55	3
Heptageniidae				
<i>Stenonema</i>	42	4	60	3
Isonychiidae				
<i>Isonychia</i>	15	1	10	<1
Leptohyphidae				
<i>Tricorythodes</i>	2	<1	—	
Leptophlebiidae				
<i>Paraleptophlebia</i>	1	<1	10	<1
Plecoptera				
Capniidae				
<i>Allocapnia</i>	—		11	<1
Chloroperlidae	—		5	<1
Perlidae				
<i>Acroneuria</i>	—		2	<1
<i>Paragnetina</i>	—		1	<1
Taeniopterygidae				
<i>Strophopteryx</i>	23	2	—	
<i>Taeniopteryx</i>	18	2	53	2



**Table 5.** Benthic-macroinvertebrate data—Continued

01472129 - French Creek near Knauertown, Pa. (Site 11)—Continued

Date	Oct. 22, 1981		Oct. 26, 1982	
	1,078		2,186	
Organism	Count	Percent	Count	Percent
Megaloptera				
Corydalidae				
<i>Nigronia</i>	2	<1	1	<1
Trichoptera				
Aptaniidae				
<i>Apatania</i>	—		2	<1
Brachycentridae				
<i>Brachycentrus</i>	1	<1	—	
<i>Micrasema</i>	—		2	<1
Glossosomatidae				
<i>Glossosoma</i>	91	8	35	2
Hydropsychidae				
<i>Ceratopsyche</i>	26	2	290	13
<i>Cheumatopsyche</i>	54	5	260	12
<i>Hydropsyche</i>	230	21	76	3
Hydroptilidae				
<i>Hydroptila</i>	71	6	120	5
<i>Leucotrichia</i>	6	<1	—	
Leptoceridae				
<i>Mystacides</i>	—		5	<1
<i>Oecetis</i>	1	<1	—	
<i>Triaenodes</i>	1	<1	—	
Philopotamidae				
<i>Chimarra</i>	71	6	120	5
Polycentropodidae				
<i>Nyctiophylax</i>	—		1	<1
<i>Polycentropus</i>	1	<1	1	<1
Psychomyiidae				
<i>Psychomyia</i>	3	<1	—	
Rhyacophilidae				
<i>Rhyacophila</i>	—		2	<1
Coleoptera				
Dryopidae				
<i>Helichus</i>	—		1	<1
Elmidae				
<i>Ancyronyx</i>				
<i>A. variegata</i>	—		1	<1
<i>Optioservus</i>	35	3	57	3
<i>Oulimnius</i>	1	<1	8	<1
<i>Promoresia</i>	6	<1	4	<1
<i>Stenelmis</i>	9	<1	11	<1
Psephenidae				
<i>Ectopria</i>				
<i>E. nervosa</i>	1	<1	—	
Diptera				
Chironomidae				
170	15	560	25	
Empididae				
<i>Hemerodromia</i>	6	<1	2	<1
Ephydriidae				
—		1	<1	
Simuliidae				
<i>Simulium</i>	12	1	270	12
Tipulidae				
<i>Antocha</i>	25	2	43	2

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472138 - French Creek near Coventryville, Pa. (Site 13)

Date	Oct. 21, 1981		Nov. 4, 1982		Oct. 18, 1983		Oct. 10, 1984		Oct. 10, 1985		Oct. 22, 1986		Oct. 16, 1987	
Total count	1,542		1 2,380		1 1,615		1 1,295		535		1,395		1,338	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	1	<1	5	<1	3	<1	—	—	12	2	7	<1	—	—
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	5	<1	—	—	1	<1	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	8	<1	3	<1	11	<1	64	5	8	2	21	2	10	<1
Physidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Physa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Planorbidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroida														
Sphaeriidae														
<i>Pisidium</i>	—	—	3	<1	—	—	—	—	1	<1	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	15	<1	3	<1	—	—	3	<1	1	<1	—	—	4	<1
Tubificida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Naididae	4	<1	3	<1	—	—	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	18	1	—	—	—	—	—	—	—	—	13	<1	21	2
Crustacea														
Cladocera	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Gammaridae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Gammarus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	4	<1	8	<1	5	<1	11	<1	4	<1	—	—	—	—
<i>Pseudocloeon</i>	3	<1	—	—	13	<1	13	1	9	2	3	<1	10	<1
Caenidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Caenis</i>	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ephemerella</i>	55	3	51	2	40	3	48	4	13	2	32	2	16	1
Heptageniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Epeorus</i>	7	<1	21	<1	16	1	19	1	—	—	—	—	1	<1
<i>Stenonema</i>	170	11	96	4	88	6	85	7	18	3	49	3	23	2
Isonychiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Isonychia</i>	91	6	43	2	43	3	56	4	6	1	65	5	13	1

Oct. 20, 1988	Oct. 23, 1989	Nov. 16, 1990	Oct. 9, 1991	Oct. 15, 1992	Oct. 14, 1993	Oct. 27, 1994	Date							
1,846	1,643	1,507	597	573	732	1,029	Total count							
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism						
								Platyhelminthes (flatworms)						
								Turbellaria						
								Tricladida						
								Planariidae						
—	3	<1	13	<1	1	<1	—	19	3	2	<1			
—	4	<1	3	<1	1	<1	—	—	—	2	<1			
													Nematoda (nematodes)	
													Nemertea (proboscis worms)	
													Enopla	
													Hoplonemertea	
													Tetrastemmatidae	
—	10	<1	1	<1	—	—	—	—	—	—	—	—	<i>Prostoma</i>	
													Mollusca (molluscs)	
													Gastropoda	
													Basommatophora	
													Ancylidae	
3	<1	10	<1	6	<1	21	3	10	2	15	2	45	5	<i>Ferrissia</i>
														Physidae
—	1	<1	1	<1	—	—	—	—	—	—	—	—	—	<i>Physa</i>
														Planorbidae
—	1	<1	—	—	—	—	—	—	—	—	—	—	—	<i>Gyraulus</i>
														Bivalvia
														Veneroida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Sphaeriidae
—	2	<1	2	<1	—	—	—	—	—	—	—	—	—	<i>Pisidium</i>
														Annelida (segmented worms)
—	—	—	—	—	—	—	9	2	3	<1	2	<1		Oligochaeta
														Lumbriculida
—	24	1	12	<1	3	<1	—	—	—	—	—	—	—	Lumbriculidae
														Tubificida
—	5	<1	—	—	2	<1	—	—	4	<1	1	<1		Naididae
														Arthropoda (arthropods)
														Acariformes
—	200	12	45	3	4	<1	14	2	54	7	46	5		Hydrachnidia
														Crustacea
—	2	<1	—	—	—	—	—	—	—	—	—	—	—	Cladocera
—	3	<1	1	<1	—	—	—	—	1	<1	1	<1		Cyclopoida
														Amphipoda
														Gammaridae
—	1	<1	—	—	—	—	—	—	—	—	—	—	—	<i>Gammarus</i>
—	1	<1	—	—	—	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
—	—	—	—	—	1	<1	—	—	1	<1	—	—	—	<i>Baetis</i>
11	<1	1	<1	4	<1	36	6	—	2	<1	—	—	—	<i>Pseudocloeon</i>
														Caenidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Caenis</i>
														Ephemerellidae
24	1	73	4	70	5	5	<1	7	1	8	1	11	1	<i>Ephemerella</i>
														Heptageniidae
3	<1	3	<1	2	<1	—	—	—	1	<1	—	—	—	<i>Epeorus</i>
32	2	69	4	25	2	39	6	98	17	42	6	16	2	<i>Stenonema</i>
														Isonychiidae
64	3	110	6	8	<1	—	—	27	5	22	3	23	2	<i>Isonychia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472138 - French Creek near Coventryville, Pa. (Site 13)—Continued

Date	Oct. 21, 1981		Nov. 4, 1982		Oct. 18, 1983		Oct. 10, 1984		Oct. 10, 1985		Oct. 22, 1986		Oct. 16, 1987	
Total count	1,542		1 2,380		1 1,615		1 1,295		535		1,395		1,338	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	—		—		—		—		—		—		—	
Gomphidae														
<i>Ophiogomphus</i>	—		—		—		—		—		—		—	
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	3	<1	24	1	5	<1	—		1	<1	1	<1	11	<1
Chloroperlidae	1	<1	5	<1	—		3	<1	—		1	<1	—	
Perlidae														
<i>Acroneuria</i>	10	<1	—		3	<1	3	<1	1	<1	4	<1	1	<1
<i>Agneta</i>	6	<1	3	<1	—		—		—		—		—	
<i>Paragnetina</i>	—		—		—		—		—		1	<1	2	<1
Taeniopterygidae														
<i>Strophopteryx</i>	16	1	150	6	3	<1	—		—		—		—	
<i>Taeniopteryx</i>	32	2	29	1	56	3	16	1	3	<1	14	1	80	6
<b>Hemiptera</b>														
Saldidae														
<i>Sialis</i>	—		—		3	<1	—		—		—		—	
<b>Megaloptera</b>														
Corydalidae														
<i>Corydalus</i>	1	<1	—		—		—		1	<1	1	<1	—	
<i>Nigronia</i>	—		—		—		—		1	<1	—		—	
Sialidae														
<i>Sialis</i>	—		—		—		—		—		—		—	
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	19	1	11	<1	5	<1	3	<1	1	<1	—		2	<1
Brachycentridae														
<i>Brachycentrus</i>	—		—		—		—		1	<1	—		—	
<i>Micrasema</i>	170	11	72	3	130	8	3	<1	22	4	60	4	21	2
Glossosomatidae														
<i>Glossosoma</i>	14	<1	29	1	24	2	32	2	—		7	<1	1	<1
<i>Proptila</i>	1	<1	—		—		—		—		—		—	
Goeridae														
<i>Goera</i>	5	<1	—		11	<1	—		—		—		—	
Helicopsychidae														
<i>Helicopsyche</i>	—		—		—		—		—		—		—	
Hydropsychidae														
<i>Ceratopsyche</i>	92	6	260	11	240	15	200	15	39	7	98	7	31	2
<i>Cheumatopsyche</i>	250	16	120	5	150	9	130	10	17	3	36	3	8	<1
<i>Hydropsyche</i>	1	<1	5	<1	5	<1	5	<1	1	<1	5	<1	91	7
Hydroptilidae														
<i>Hydroptila</i>	2	<1	11	<1	8	<1	—		—		—		5	<1
<i>Leucotrichia</i>	48	3	16	<1	310	19	320	25	32	6	240	17	55	4
Lepidostomatidae														
<i>Lepidostoma</i>	—		3	<1	—		—		—		—		—	
Leptoceridae														
<i>Mystacides</i>	—		—		—		—		—		—		—	
<i>Oecetis</i>	—		—		3	<1	—		—		—		—	
Philopotamidae														
<i>Chimarra</i>	25	2	51	2	77	5	11	<1	6	1	23	2	5	<1
<i>Dolophilodes</i>	—		—		3	<1	3	<1	—		4	<1	—	
<i>Wormaldia</i>	—		—		—		—		—		—		—	

Oct. 20, 1988		Oct. 23, 1989		Nov. 16, 1990		Oct. 9, 1991		Oct. 15, 1992		Oct. 14, 1993		Oct. 27, 1994		Date
1,846		1,643		1,507		597		573		732		1,029		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Odonata
														Coenagrionidae
—		1	<1	—		—		—		—		—		<i>Argia</i>
—		1	<1	—		—		—		—		—		Gomphidae
														<i>Ophiogomphus</i>
														Plecoptera
														Capniidae
—		7	<1	1	<1	—		—		2	<1	—		<i>Allocapnia</i>
—		—		—		—		—		—		1	<1	Chloroperlidae
														Perlidae
3	<1	3	<1	1	<1	2	<1	15	3	1	<1	1	<1	<i>Acroneuria</i>
—		—		—		—		—		—		—		<i>Agetina</i>
3	<1	1	<1	—		—		—		—		—		<i>Paragnetina</i>
														Taeniopterygidae
—		—		12	<1	—		—		—		—		<i>Strophopteryx</i>
91	5	15	<1	5	<1	9	2	—		13	2	9	<1	<i>Taeniopteryx</i>
														Hemiptera
														Saldidae
														Megaloptera
														Corydalidae
—		—		1	<1	—		—		1	<1	1	<1	<i>Corydalus</i>
—		—		—		1	<1	—		—		—		<i>Nigronia</i>
														Sialidae
—		—		1	<1	—		—		—		—		<i>Sialis</i>
														Trichoptera
														Apataniidae
13	<1	6	<1	10	<1	21	3	4	<1	10	1	—		<i>Apatania</i>
														Brachycentridae
—		—		—		—		—		—		9	<1	<i>Brachycentrus</i>
48	3	74	4	75	5	23	4	1	<1	28	4	4	<1	<i>Micrasema</i>
														Glossosomatidae
3	<1	10	<1	7	<1	—		—		8	1	8	<1	<i>Glossosoma</i>
														<i>Protoptila</i>
														Goeridae
—		—		—		—		—		—		—		<i>Goera</i>
														Helicopsychidae
—		—		1	<1	—		—		—		—		<i>Helicopsyche</i>
														Hydropsychidae
350	18	76	4	180	12	34	6	74	13	94	13	69	7	<i>Ceratopsyche</i>
32	2	27	2	49	3	25	4	11	2	82	11	91	9	<i>Cheumatopsyche</i>
40	2	20	1	45	3	12	2	54	9	24	3	130	13	<i>Hydropsyche</i>
														Hydroptilidae
—		10	<1	6	<1	3	<1	16	3	1	<1	12	1	<i>Hydroptila</i>
240	13	49	3	99	7	4	<1	18	3	55	7	60	6	<i>Leucotrichia</i>
														Lepidostomatidae
—		—		1	<1	—		—		—		—		<i>Lepidostoma</i>
														Leptoceridae
—		4	<1	2	<1	3	<1	—		—		—		<i>Mystacides</i>
5	<1	10	<1	—		2	<1	—		—		1	<1	<i>Oecetis</i>
														Philopotamidae
21	1	30	2	46	3	—		1	<1	18	2	—		<i>Chimarra</i>
—		—		—		—		—		—		—		<i>Dolophilodes</i>
—		3	<1	—		—		—		—		—		<i>Wormaldia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472138 - French Creek near Coventryville, Pa. (Site 13)—Continued

Date	Oct. 21, 1981		Nov. 4, 1982		Oct. 18, 1983		Oct. 10, 1984		Oct. 10, 1985		Oct. 22, 1986		Oct. 16, 1987	
Total count	1,542		<sup>1</sup> 2,380		<sup>1</sup> 1,615		<sup>1</sup> 1,295		535		1,395		1,338	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—		—		11	<1	—		—		4	<1	2	<1
<i>Nyctiophylax</i>	1	<1	3	<1	—		—		—		—		—	
<i>Polycentropus</i>	—		—		3	<1	—		—		—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	59	4	61	3	13	<1	8	<1	37	7	21	2	20	2
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	6	<1	—		5	<1	11	<1	1	<1	5	<1	1	<1
<b>Uenoidae</b>														
<i>Neophylax</i>	7	<1	—		—		—		—		—		—	
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
—	—		—		—		—		—		—		—	
<b>Pyralidae</b>														
<i>Petrophila</i>	24	2	11	<1	11	<1	—		1	<1	11	<1	1	<1
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—		—		—		—		—		—		—	
<b>Elmidae</b>														
<b>Ancyronyx</b>														
<i>A.variegata</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		1	<1	—		—	
<i>Macronychus</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	47	3	45	2	21	1	11	<1	13	2	1	<1	13	1
<i>Oulimnius</i>	1	<1	3	<1	—		—		1	<1	—		1	<1
<i>Stenelmis</i>	7	<1	5	<1	16	1	11	<1	2	<1	—		1	<1
<b>Psephenidae</b>														
<i>Psephenus</i>	2	<1	—		3	<1	—		2	<1	1	<1	—	
<b>Hymenoptera</b>														
—	—		—		—		—		2	<1	—		—	
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	1	<1	—		—		—		—		—		—	
<b>Chironomidae</b>														
—	280	18	1,000	42	210	13	170	13	230	42	590	42	800	62
<b>Empididae</b>														
<i>Chelifera</i>	—		—		—		—		—		—		—	
<i>Hemerodromia</i>	6	<1	11	<1	3	<1	—		1	<1	3	<1	—	
<b>Ephydriidae</b>														
—	—		—		—		—		—		—		—	
<b>Simuliidae</b>														
<i>Simulium</i>	—		16	<1	8	<1	32	2	34	6	12	<1	55	4
<b>Tipulidae</b>														
<i>Antocha</i>	27	2	200	8	51	3	24	2	11	2	62	4	33	3
<i>Tipula</i>	—		—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 20, 1988		Oct. 23, 1989		Nov. 16, 1990		Oct. 9, 1991		Oct. 15, 1992		Oct. 14, 1993		Oct. 27, 1994		Date
1,846		1,643		1,507		597		573		732		1,029		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Trichoptera
														Polycentropodidae
3	<1	—	—	—	—	5	<1	1	<1	—	—	—	—	<i>Neureclipsis</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nyctiophylax</i>
3	<1	—	—	1	<1	1	<1	—	—	—	—	1	<1	<i>Polycentropus</i>
														Psychomyiidae
27	1	7	<1	54	4	19	3	1	<1	14	2	54	5	<i>Psychomyia</i>
														Rhyacophilidae
3	<1	11	<1	7	<1	3	<1	9	2	2	<1	—	—	<i>Rhyacophila</i>
														Uenoidae
—	—	3	<1	1	<1	—	—	5	<1	—	—	—	—	<i>Neophylax</i>
														Lepidoptera
														Noctuidae
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	
														Pyrilidae
8	<1	2	<1	1	<1	1	<1	1	<1	2	<1	—	—	<i>Petrophila</i>
														Coleoptera
														Dryopidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Helichus</i>
														Elmidae
—	—	3	<1	—	—	—	—	—	—	1	<1	—	—	<i>Ancyronyx</i>
—	—	3	<1	2	<1	—	—	1	<1	1	<1	—	—	<i>A.variegata</i>
—	—	—	—	1	<1	1	<1	—	—	—	—	—	—	<i>Dubiraphia</i>
—	—	—	—	1	<1	1	<1	—	—	—	—	—	—	<i>Macronychus</i>
16	<1	47	3	21	1	1	<1	14	2	2	<1	2	<1	<i>Optioservus</i>
—	—	4	<1	—	—	—	—	—	—	2	<1	—	—	<i>Oulimnius</i>
8	<1	11	<1	6	<1	3	<1	—	—	2	<1	6	<1	<i>Stenelmis</i>
														Psephenidae
8	<1	—	—	—	—	1	<1	—	—	1	<1	2	<1	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
														Hymenoptera
														Diptera
														Athericidae
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Atherix</i>
680	36	390	23	520	35	250	41	140	24	120	16	360	36	
														Chironomidae
														Empididae
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Chelifera</i>
11	<1	140	8	12	<1	10	2	—	—	17	2	10	1	<i>Hemerodromia</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	
														Ephydriidae
														Simuliidae
37	2	11	<1	4	<1	1	<1	19	3	13	2	1	<1	<i>Simulium</i>
														Tipulidae
53	3	140	8	140	9	49	8	18	3	46	6	48	5	<i>Antocha</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)

Date	Oct. 21, 1981		Nov. 4, 1982		Oct. 18, 1983		Oct. 10, 1984		Oct. 10, 1985		Oct. 22, 1986		Oct. 16, 1987	
Total count	1 1,197		1 2,649		1 1,697		1 1,563		785		1,312		2,014	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—		—		5	<1	3	<1	8	1	1	<1	2	<1
Nematoda (nematodes)	—		—		—		—		—		—		—	
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		—		—		1	<1
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	11	<1	—		—		—		—		—		4	<1
Lymnaeidae														
<i>Lymnaea</i>	—		—		—		—		—		—		—	
Physidae														
<i>Physa</i>	—		—		—		—		—		—		—	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
Bivalvia														
Veneroida														
Sphaeriidae	—		—		—		—		—		—		—	
<i>Pisidium</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		—		—		—	
Tubificida														
Naididae	—		—		—		—		—		—		1	<1
Tubificidae	—		—		—		—		—		—		1	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		—		—		—		—		19	1	1	<1
Crustacea														
Cyclopoida	—		—		—		—		—		—		—	
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	16	1	5	<1	3	<1	32	2	16	2	4	<1	27	1
<i>Pseudocloeon</i>	8	<1	—		3	<1	8	<1	—		—		13	<1
Caenidae														
<i>Caenis</i>	—		—		—		—		—		—		1	<1
Ephemerellidae														
<i>Ephemerella</i>	80	7	280	10	160	9	130	8	57	7	170	13	92	5
Heptageniidae														
<i>Epeorus</i>	—		13	<1	40	2	8	<1	—		60	5	29	1
<i>Stenonema</i>	150	13	100	4	180	11	77	5	65	8	110	8	52	3
Isonychiidae														
<i>Isonychia</i>	32	3	27	1	53	3	11	<1	13	2	26	2	20	1



Oct. 20, 1988		Oct. 23, 1989		Nov. 16, 1990		Oct. 9, 1991		Oct. 15, 1992		Oct. 14, 1993		Oct. 27, 1994		Date
3,070		2,447		643		1,737		1,336		1,432		565		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
4	<1	14	<1	1	<1	1	<1	12	<1	13	<1	—	—	Planariidae
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	3	<1	—	—	—	—	—	—	6	<1	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancyliidae
1	<1	3	<1	4	<1	12	<1	22	2	11	<1	10	2	<i>Ferrissia</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Lymnaeidae
														<i>Lymnaea</i>
														Physidae
—	—	2	<1	—	—	—	—	—	—	—	—	1	<1	<i>Physa</i>
														Planorbidae
—	—	—	—	—	—	—	—	5	<1	—	—	—	—	<i>Gyraulus</i>
														Bivalvia
														Veneroidea
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	Sphaeriidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Pisidium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	Lumbriculidae
														Tubificida
6	<1	19	<1	1	<1	2	<1	—	—	20	1	—	—	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Arthropoda (arthropods)
														Acariformes
19	<1	26	1	2	<1	12	<1	28	2	34	2	7	1	Hydrachnidia
														Crustacea
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	Cyclopoida
—	—	—	—	—	—	1	<1	—	—	1	<1	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
27	<1	5	<1	—	—	15	<1	2	<1	1	<1	—	—	<i>Baetis</i>
4	<1	4	<1	2	<1	6	<1	2	<1	2	<1	5	<1	<i>Pseudocloeon</i>
														Caenidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Caenis</i>
														Ephemerellidae
180	6	430	17	63	10	110	6	71	5	54	4	11	2	<i>Ephemerella</i>
														Heptageniidae
170	5	200	8	60	9	72	4	30	2	23	2	5	<1	<i>Epeorus</i>
180	6	67	3	16	2	97	6	29	2	44	3	10	2	<i>Stenonema</i>
														Isonychiidae
140	5	83	3	1	<1	25	1	8	<1	49	3	23	4	<i>Isonychia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)—Continued

Date	Oct. 21, 1981		Nov. 4, 1982		Oct. 18, 1983		Oct. 10, 1984		Oct. 10, 1985		Oct. 22, 1986		Oct. 16, 1987	
Total count	1,197		2,649		1,697		1,563		785		1,312		2,014	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
Leptophlebiidae	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
<i>Paraleptophlebia</i>	—	—	—	—	—	—	—	—	2	<1	—	—	—	—
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gomphidae														
<i>Gomphus</i>	5	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	5	<1	8	<1	5	<1	—	—	—	—	1	<1	5	<1
Chloroperlidae	3	<1	59	2	11	<1	13	<1	9	1	11	<1	—	—
Perlidae														
<i>Acroneuria</i>	—	—	—	—	—	—	—	—	5	<1	2	<1	1	<1
<i>Agnetina</i>	11	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	—	—	—	—	—	—	—	—	1	<1	1	<1	9	<1
Perlodidae														
<i>Isoperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taeniopterygidae														
<i>Strophopteryx</i>	—	—	13	<1	—	—	—	—	—	—	—	—	—	—
<i>Taeniopteryx</i>	32	3	16	<1	24	1	5	<1	7	<1	5	<1	28	1
<b>Megaloptera</b>														
Corydalidae														
<i>Corydalus</i>	3	<1	3	<1	3	<1	—	—	—	—	2	<1	1	<1
<i>Nigronia</i>	3	<1	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	<1	—	—	—	—
Brachycentridae														
<i>Micrasema</i>	19	2	75	3	45	3	3	<1	21	3	68	5	44	2
Glossosomatidae														
<i>Culoptila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Glossosoma</i>	8	<1	5	<1	8	<1	21	1	4	<1	31	2	20	1
<i>Protoptila</i>	5	<1	—	—	—	—	5	<1	—	—	—	—	—	—
Goeridae														
<i>Goera</i>	—	—	—	—	8	<1	—	—	13	2	1	<1	—	—
Helicopsychidae														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydropsychidae														
<i>Ceratopsyche</i>	120	10	270	10	430	25	310	19	130	16	140	11	490	25
<i>Cheumatopsyche</i>	360	30	380	14	440	26	300	19	140	18	82	6	90	5
<i>Hydropsyche</i>	3	<1	21	<1	24	1	32	2	10	1	170	13	180	9
<i>Macrostemum</i>	3	<1	21	<1	3	<1	3	<1	—	—	3	<1	5	<1
Hydroptilidae														
<i>Hydroptila</i>	3	<1	21	<1	3	<1	—	—	—	—	—	—	2	<1
<i>Leucotrichia</i>	3	<1	53	2	37	2	160	10	23	3	150	12	41	2
Lepidostomatidae														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
Leptoceridae														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	5	<1	—	—	—	—	—	—	1	<1	—	—	—	—
Philopotamidae														
<i>Chimarra</i>	13	1	45	2	8	<1	8	<1	18	2	17	1	23	1
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1

Oct. 20, 1988		Oct. 23, 1989		Nov. 16, 1990		Oct. 9, 1991		Oct. 15, 1992		Oct. 14, 1993		Oct. 27, 1994		Date
3,070		2,447		643		1,737		1,336		1,432		565		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Leptophlebiidae
														<i>Paraleptophlebia</i>
														Odonata
														Coenagrionidae
														<i>Argia</i>
														Gomphidae
														<i>Gomphus</i>
														Plecoptera
														Capniidae
														<i>Allocapnia</i>
19	<1	4	<1	1	<1	—	—	1	<1	—	—	—	—	
														Chloroperlidae
														Perlidae
7	<1	1	<1	6	<1	1	<1	3	<1	3	<1	—	—	<i>Acroneuria</i>
														<i>Agnatina</i>
5	<1	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Paragnetina</i>
														Perlodidae
														<i>Isoperla</i>
														Taeniopterygidae
														<i>Strophopteryx</i>
48	2	4	<1	1	<1	6	<1	5	<1	3	<1	9	2	<i>Taeniopteryx</i>
														Megaloptera
														Corydalidae
														<i>Corydalus</i>
														<i>Nigronia</i>
														Trichoptera
														Apataniidae
														<i>Apatania</i>
														Brachycentridae
30	<1	16	<1	22	3	150	9	160	12	100	7	5	<1	<i>Micrasema</i>
														Glossosomatidae
														<i>Culoptila</i>
2	<1	20	<1	24	4	5	<1	5	<1	7	<1	7	1	<i>Glossosoma</i>
3	<1	—	—	5	<1	35	2	51	4	26	2	—	—	<i>Protoptila</i>
														Goeridae
														<i>Goera</i>
														Helicopsychidae
														<i>Helicopsyche</i>
														Hydropsychidae
360	12	400	16	100	15	340	20	320	25	190	14	180	32	<i>Ceratopsyche</i>
230	7	280	11	32	5	180	11	42	3	150	11	44	8	<i>Cheumatopsyche</i>
510	16	82	3	7	1	30	2	31	2	9	<1	13	2	<i>Hydropsyche</i>
5	<1	8	<1	1	<1	2	<1	—	—	—	—	—	—	<i>Macrostemum</i>
														Hydroptilidae
														<i>Hydroptila</i>
210	7	140	6	9	1	240	14	57	4	130	9	21	4	<i>Leucotrichia</i>
														Lepidostomatidae
														<i>Lepidostoma</i>
														Leptoceridae
														<i>Mystacides</i>
6	<1	—	—	—	—	6	<1	1	<1	—	—	1	<1	<i>Oecetis</i>
														Philopotamidae
110	4	99	4	6	<1	55	3	8	<1	60	4	4	<1	<i>Chimarra</i>
														<i>Dolophilodes</i>
														<i>Wormaldia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472140 - South Branch French Creek at Coventryville, Pa. (Site 12)—Continued

Date	Oct. 21, 1981		Nov. 4, 1982		Oct. 18, 1983		Oct. 10, 1984		Oct. 10, 1985		Oct. 22, 1986		Oct. 16, 1987	
Total count	1 1,197		1 2,649		1 1,697		1 1,563		785		1,312		2,014	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	11	<1	—	—	5	<1	—	—	—	—	1	<1	1	<1
<i>Nyctiophylax</i>	—	—	8	<1	8	<1	5	<1	14	2	7	<1	10	<1
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	11	<1	8	<1	21	1	5	<1	6	<1	6	<1
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	5	<1	—	—	5	<1	2	<1	1	<1	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	8	<1	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Dubiraphia</i>	—	—	3	<1	3	<1	—	—	—	—	—	—	—	—
<i>Optioservus</i>	85	7	54	2	35	2	40	3	56	7	24	2	22	1
<i>Oulimnius</i>	—	—	3	<1	—	—	—	—	1	<1	1	<1	—	—
<i>Promoresia</i>	—	—	3	<1	—	—	—	—	—	—	1	<1	2	<1
<i>Stenelmis</i>	16	1	29	1	5	<1	5	<1	14	2	1	<1	10	<1
<b>Psephenidae</b>														
<i>Ectopria</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>E. nervosa</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
<i>Psephenus</i>	—	—	—	—	3	<1	—	—	3	<1	2	<1	3	<1
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	5	<1	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Chironomidae</b>														
	160	13	1,000	37	110	6	320	20	110	14	120	9	660	33
<b>Empididae</b>														
<i>Chelifera</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	3	<1	8	<1	—	—	—	—	2	<1	—	—	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	5	<1	11	<1	16	<1	19	1	22	3	16	1	100	5
<b>Tipulidae</b>														
<i>Antocha</i>	11	<1	88	3	11	<1	19	1	8	1	45	3	12	<1

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 20, 1988		Oct. 23, 1989		Nov. 16, 1990		Oct. 9, 1991		Oct. 15, 1992		Oct. 14, 1993		Oct. 27, 1994		Date
3,070		2,447		643		1,737		1,336		1,432		565		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
21	<1	—	—	—	—	1	<1	2	<1	—	—	1	<1	<i>Neureclipsis</i>
9	<1	13	<1	9	1	12	<1	9	<1	5	<1	—	—	<i>Nyctiophylax</i>
—	—	—	—	—	—	2	<1	1	<1	—	—	—	—	<i>Polycentropus</i>
<b>Psychomyiidae</b>														
2	<1	32	1	8	1	24	1	10	<1	31	2	11	2	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
—	—	2	<1	7	1	—	—	3	<1	2	<1	—	—	<i>Rhyacophila</i>
<b>Uenoidae</b>														
2	<1	19	<1	10	2	—	—	—	—	—	—	3	<1	<i>Neophylax</i>
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
—	—	—	—	—	—	1	<1	2	<1	15	1	8	1	<i>Petrophila</i>
<b>Coleoptera</b>														
<b>Elmidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dubiraphia</i>
30	<1	38	2	38	6	36	2	40	3	58	4	7	1	<i>Optioservus</i>
—	—	1	<1	—	—	1	<1	1	<1	3	<1	—	—	<i>Oulimnius</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Promoresia</i>
4	<1	3	<1	4	<1	11	<1	30	2	18	1	—	—	<i>Stenelmis</i>
<b>Psephenidae</b>														
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ectopria</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>E. nervosa</i>
4	<1	—	—	—	—	2	<1	—	—	1	<1	—	—	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Atherix</i>
580	19	300	12	120	18	160	9	170	13	260	19	120	21	<b>Chironomidae</b>
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<b>Empididae</b>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Chelifera</i>
5	<1	16	<1	—	—	4	<1	6	<1	4	<1	1	<1	<i>Hemerodromia</i>
<b>Simuliidae</b>														
98	3	56	2	9	1	7	<1	14	1	19	1	28	5	<i>Simulium</i>
<b>Tipulidae</b>														
27	<1	16	<1	42	6	40	2	76	6	56	4	19	3	<i>Antocha</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472154 - French Creek near Pughtown, Pa. (Site 14)

Date	Oct. 21, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 11, 1985		Oct. 31, 1986		Oct. 14, 1987	
Total count	1,760		1,543		1,432		1,716		421		1,416		1,331	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	2	<1	—	—	13	<1	—	—	—	—	4	<1	1	<1
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	6	<1	—	—	—	—	—	—	5	<1
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Pleuroceridae														
<i>Goniobasis</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	21	1	22	1	120	9	—	—	—	—	8	<1	5	<1
Physidae														
<i>Physa</i>	1	<1	—	—	2	<1	—	—	—	—	—	—	—	—
Planorbidae														
<i>Helisoma</i>	—	—	—	—	2	<1	—	—	—	—	—	—	—	—
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroidea														
Sphaeriidae														
<i>Sphaerium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	1	<1	1	<1	—	—	—	—	1	<1
Tubificida														
Naididae	—	—	—	—	—	—	—	—	—	—	—	—	18	1
Tubificidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
Hydrachnidae	1	<1	3	<1	3	<1	—	—	1	<1	27	2	—	—
Crustacea														
Cyclopoida														
Cyclopidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Isopoda														
Asellidae														
<i>Caecidotea</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa														
<i>Podocopa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	21	1	1	<1	24	2	19	1	—	—	—	—	7	<1
<i>Pseudocloeon</i>	—	—	—	—	2	<1	23	1	3	<1	—	—	12	<1
Caenidae														
<i>Caenis</i>	—	—	—	—	—	—	—	—	4	1	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>	120	7	40	3	80	6	53	3	34	8	51	4	5	<1

Oct. 21, 1988		Oct. 24, 1989		Nov. 15, 1990		Oct. 15, 1991		Oct. 14, 1992		Oct. 13, 1993		Oct. 27, 1994		Date
<sup>1</sup> 2,589		1,489		747		1,545		1,025		765		1,212		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
11	<1	14	<1	6	<1	2	<1	5	<1	2	<1	8	<1	Planariidae
—	—	—	—	—	—	—	—	1	<1	1	<1	1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Pleuroceridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Goniobasis</i>
														Basommatophora
														Ancyliidae
3	<1	2	<1	3	<1	100	6	24	2	10	1	5	<1	<i>Ferrissia</i>
														Physidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Physa</i>
														Planorbidae
—	—	—	—	—	—	—	—	—	1	<1	—	—	—	<i>Helisoma</i>
—	—	—	—	—	1	<1	4	<1	—	—	—	—	—	<i>Gyraulus</i>
														Bivalvia
														Veneroida
—	—	—	1	<1	—	—	—	—	—	—	—	1	<1	Sphaeriidae
														Annelida (segmented worms)
—	—	—	—	—	—	—	—	—	2	<1	—	—	—	Oligochaeta
														Lumbriculida
—	—	29	2	20	3	2	<1	—	—	—	—	2	<1	Lumbriculidae
														Tubificida
—	—	—	—	—	—	—	—	8	<1	—	—	6	<1	Naididae
—	—	9	<1	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Arthropoda (arthropods)
														Acariformes
—	—	10	<1	6	<1	2	<1	31	3	15	2	23	2	Hydrachnidia
														Crustacea
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Cyclopoida
														Isopoda
														Asellidae
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Caecidotea</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
88	3	2	<1	—	—	11	<1	8	<1	5	<1	—	—	<i>Baetis</i>
140	5	—	—	—	—	4	<1	2	<1	1	<1	—	—	<i>Pseudocloeon</i>
														Caenidae
—	—	3	<1	5	<1	—	—	1	<1	—	—	2	<1	<i>Caenis</i>
														Ephemerellidae
180	7	130	9	43	6	130	8	70	7	23	3	97	8	<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)—Continued

Date	Oct. 21, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 11, 1985		Oct. 31, 1986		Oct. 14, 1987	
	Total count													
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
Heptageniidae														
<i>Epeorus</i>	—		—		—		—		—		37	3	—	
<i>Heptagenia</i>	—		—		—		—		—		—		—	
<i>Stenacron</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	110	6	78	5	140	10	79	5	47	11	35	3	16	1
Isonychiidae														
<i>Isonychia</i>	260	14	67	4	190	14	130	8	25	6	44	3	28	2
Leptohiphidae														
<i>Tricorythodes</i>	—		2	<1	—		—		—		—		—	
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	6	<1	2	<1	5	<1	—		—		—		1	<1
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	—		2	<1	—		8	<1	2	<1	—		12	<1
Chloroperlidae														
<i>Peltoperla</i>	—		—		—		—		—		—		—	
Perlidae														
<i>Acroneuria</i>	2	<1	—		4	<1	4	<1	2	<1	—		—	
<i>Agneta</i>	—		—		—		—		—		—		5	<1
<i>Paragnetina</i>	2	<1	4	<1	2	<1	6	<1	—		—		—	
Taeniopterygidae														
<i>Strophopteryx</i>	—		—		—		—		—		20	1	—	
<i>Taeniopteryx</i>	12	<1	8	<1	16	1	3	<1	12	3	6	<1	43	3
<b>Hemiptera</b>														
Corixidae														
<i>Rhagovelia</i>	—		—		—		2	<1	—		—		—	
<b>Megaloptera</b>														
Corydalidae														
<i>Corydalus</i>	3	<1	3	<1	2	<1	3	<1	1	<1	—		1	<1
<i>Nigronia</i>	1	<1	—		1	<1	—		—		—		—	
<b>Neuroptera</b>														
Sisyridae														
<i>Climacia</i>	1	<1	—		—		—		—		—		—	
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	9	<1	5	<1	2	<1	4	<1	—		9	<1	1	<1
Brachycentridae														
<i>Micrasema</i>	31	2	4	<1	22	2	4	<1	1	<1	100	7	17	1
Glossosomatidae														
<i>Culoptila</i>	—		—		—		—		—		1	<1	—	
<i>Glossosoma</i>	7	<1	10	<1	7	<1	16	<1	5	1	13	<1	—	
<i>Protoptila</i>	—		—		—		—		—		—		—	
Helicopsychidae														
<i>Helicopsyche</i>	—		—		—		—		—		—		—	
Hydropsychidae														
<i>Ceratopsyche</i>	260	14	88	6	140	10	330	19	71	17	70	5	14	1
<i>Cheumatopsyche</i>	300	17	260	16	180	13	180	11	31	7	17	1	13	1
<i>Hydropsyche</i>	—		—		—		10	<1	7	2	110	8	59	5
<i>Macrostemum</i>	4	<1	1	<1	3	<1	1	<1	1	<1	—		—	
<i>Potamyia</i>	—		—		—		—		—		—		6	<1



Oct. 21, 1988		Oct. 24, 1989		Nov. 15, 1990		Oct. 15, 1991		Oct. 14, 1992		Oct. 13, 1993		Oct. 27, 1994		Date
1 2,589		1,489		747		1,545		1,025		765		1,212		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
8	<1	38	3	5	<1	34	2	14	1	—	—	14	1	<i>Epeorus</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Heptagenia</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Stenacron</i>
180	7	46	3	25	3	74	5	25	3	15	2	45	4	<i>Stenonema</i>
<b>Isonychiidae</b>														
180	7	51	3	12	2	58	4	9	<1	9	1	21	2	<i>Isonychia</i>
<b>Leptohyphidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tricorythodes</i>
<b>Odonata</b>														
<b>Coenagrionidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Argia</i>
<b>Plecoptera</b>														
<b>Capniidae</b>														
8	<1	37	2	—	—	1	<1	4	<1	2	<1	3	<1	<i>Allocapnia</i>
13	<1	28	2	—	—	3	<1	3	<1	—	—	4	<1	<i>Chloroperlidae</i>
<b>Peltoperlidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Peltoperla</i>
<b>Perlidae</b>														
3	<1	9	<1	10	1	—	—	5	<1	1	<1	5	<1	<i>Acroneuria</i>
—	—	1	<1	—	—	3	<1	2	<1	—	—	—	—	<i>Agnatina</i>
5	<1	—	—	4	<1	—	—	—	—	1	<1	1	<1	<i>Paragnetina</i>
<b>Taeniopterygidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	18	2	<i>Strophopteryx</i>
100	4	26	2	3	<1	6	<1	4	<1	5	<1	7	<1	<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Corixidae</b>														
<b>Veliidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	1	<1	—	—	1	<1	—	—	1	<1	1	<1	<i>Corydalus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nigronia</i>
<b>Neuroptera</b>														
<b>Sisyridae</b>														
<i>Climacia</i>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>C. areolaris</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
16	<1	—	—	17	2	2	<1	37	4	7	<1	10	<1	<i>Apatania</i>
<b>Brachycentridae</b>														
19	<1	15	1	88	12	58	4	150	15	220	28	40	3	<i>Micrasema</i>
<b>Glossosomatidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Culoptila</i>
—	—	55	4	16	2	—	—	—	—	—	—	5	<1	<i>Glossosoma</i>
—	—	—	—	1	<1	2	<1	1	<1	—	—	—	—	<i>Protoptila</i>
<b>Helicopsychidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Helicopsyche</i>
<b>Hydropsychidae</b>														
380	15	280	19	110	14	110	7	83	8	19	2	290	24	<i>Ceratopsyche</i>
74	3	130	9	70	9	60	4	29	3	10	1	160	13	<i>Cheumatopsyche</i>
80	3	26	2	15	2	58	4	19	2	120	15	43	4	<i>Hydropsyche</i>
3	<1	5	<1	5	<1	1	<1	—	—	2	<1	3	<1	<i>Macrostemum</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Potamyia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472154 - French Creek near Pughtown, Pa. (Site 14)—Continued

Date	Oct. 21, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 11, 1985		Oct. 31, 1986		Oct. 14, 1987	
Total count	1,760		1,543		1,432		1,716		421		1,416		1,331	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	3	<1	1	<1	6	<1	—	—	—	—	2	<1	—	—
<i>Leucotrichia</i>	120	7	430	27	300	21	390	23	83	19	310	22	57	4
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptoceridae</b>														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	—	—	—	—	2	<1	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	32	2	21	1	31	2	57	3	10	2	20	1	11	<1
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	6	<1	3	<1	18	1	1	<1	1	<1	2	<1	—	—
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	18	1	17	1	33	2	14	<1	2	<1	24	2	6	<1
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>R. fuscula</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	7	<1	2	<1	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Pyalidae</b>														
<i>Petrophila</i>	12	<1	—	—	1	<1	—	—	—	—	2	<1	2	<1
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>														
<i>A. variegata</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	16	<1	1	<1	2	<1	6	<1	5	1	5	<1	22	2
<i>Oulimnius</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	—	—	—	—	6	<1	—	—	—	—	1	<1	1	<1
<b>Hydrophilidae</b>														
<i>Helophorus</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Psephenidae</b>														
<i>Psephenus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Diptera</b>														
<b>Chironomidae</b>														
<b>Empididae</b>														
<i>Hemerodromia</i>	3	<1	8	<1	2	<1	2	<1	—	—	1	<1	1	<1
<b>Ephydriidae</b>														
<b>Simuliidae</b>														
<i>Simulium</i>	18	1	2	<1	2	<1	22	1	6	2	6	<1	12	<1
<b>Tipulidae</b>														
<i>Antocha</i>	9	<1	28	2	13	<1	13	<1	4	1	32	2	9	<1
<i>Tipula</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 21, 1988		Oct. 24, 1989		Nov. 15, 1990		Oct. 15, 1991		Oct. 14, 1992		Oct. 13, 1993		Oct. 27, 1994		Date
1 2,589		1,489		747		1,545		1,025		765		1,212		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Hydroptilidae</b>														
—		1	<1	1	<1	1	<1	1	<1	5	<1	7	<1	<i>Hydroptila</i>
100	4	120	8	73	10	230	14	190	19	130	17	120	10	<i>Leucotrichia</i>
<b>Lepidostomatidae</b>														
16	<1	—		3	<1	4	<1	3	<1	—		4	<1	<i>Lepidostoma</i>
<b>Leptoceridae</b>														
—		—		—		—		1	<1	—		—		<i>Mystacides</i>
—		—		—		—		—		2	<1	—		<i>Oecetis</i>
<b>Philopotamidae</b>														
61	2	120	8	37	5	65	4	10	1	10	1	83	7	<i>Chimarra</i>
—		3	<1	—		—		—		—		—		<i>Dolophilodes</i>
<b>Polycentropodidae</b>														
5	<1	—		—		2	<1	—		—		—		<i>Neureclipsis</i>
—		—		—		—		—		—		—		<i>Polycentropus</i>
<b>Psychomyiidae</b>														
11	<1	6	<1	1	<1	33	2	1	<1	6	<1	24	2	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
—		—		—		—		1	<1	—		—		<i>Rhyacophila</i>
—		—		—		—		—		—		—		<i>R. fuscula</i>
<b>Uenoidae</b>														
—		33	2	1	<1	—		—		—		6	<1	<i>Neophylax</i>
<b>Lepidoptera</b>														
<b>Pyalidae</b>														
3	<1	1	<1	1	<1	3	<1	—		3	<1	2	<1	<i>Petrophila</i>
<b>Coleoptera</b>														
<b>Elmidae</b>														
—		—		—		—		—		—		2	<1	<i>Ancyronyx</i>
21	<1	7	<1	19	3	14	<1	21	2	4	<1	3	<1	<i>A. variegata</i>
—		—		—		—		—		—		—		<i>Optioservus</i>
3	<1	—		1	<1	1	<1	—		2	<1	—		<i>Oulimnius</i>
—		—		—		—		—		—		—		<i>Stenelmis</i>
<b>Hydrophilidae</b>														
—		—		—		—		—		—		—		<i>Helophorus</i>
<b>Psephenidae</b>														
—		—		1	<1	—		4	<1	—		1	<1	<i>Psephenus</i>
<b>Diptera</b>														
<b>Chironomidae</b>														
530	20	190	13	100	13	430	27	230	23	100	13	130	11	
<b>Empididae</b>														
—		8	<1	—		9	<1	5	<1	—		1	<1	<i>Hemerodromia</i>
—		1	<1	—		—		—		—		—		
<b>Ephydriidae</b>														
<b>Simuliidae</b>														
320	12	10	<1	3	<1	4	<1	2	<1	16	2	1	<1	<i>Simulium</i>
<b>Tipulidae</b>														
19	<1	40	3	39	5	26	2	14	1	14	2	13	1	<i>Antocha</i>
—		—		—		—		—		1	<1	—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472157 - French Creek near Phoenixville, Pa. (Site 15)

Date	Oct. 21, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 11, 1985		Dec. 5, 1986		Oct. 14, 1987	
Total count	1 3,427		1 548		1 1,141		1 821		226		712		600	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	69	2	—	—	5	<1	5	<1	1	<1	5	<1	2	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Hydrobiidae														
<i>Ammicola</i>	—	—	—	—	—	—	—	—	2	1	30	4	9	2
Pleuroceridae														
<i>Goniobasis</i>	—	—	—	—	3	<1	—	—	4	2	1	<1	3	<1
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	11	<1	5	1	8	<1	8	1	—	—	19	3	3	<1
Lymnaeidae														
<i>Lymnaea</i>	3	<1	—	—	—	—	—	—	—	—	—	—	—	—
Physidae														
<i>Physa</i>	5	<1	—	—	—	—	—	—	1	<1	1	<1	—	—
Planorbidae														
<i>Helisoma</i>	67	2	—	—	—	—	—	—	2	1	5	<1	—	—
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroida														
Sphaeriidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Musculium</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
<i>Pisidium</i>	3	<1	—	—	—	—	—	—	—	—	—	—	1	<1
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	1	<1	4	<1	—	—
Tubificida														
Naididae	—	—	—	—	—	—	—	—	—	—	—	—	22	4
Tubificidae	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
Hirudinea	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—	—	—	—	—	—	—	—	—	—	11	2	—	—
Crustacea														
Cladocera	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—

Oct. 19, 1988		Oct. 23, 1989		Nov. 15, 1990		Oct. 4, 1991		Oct. 14, 1992		Oct. 15, 1993		Oct. 28, 1994		Date
1,2496		203		271		1,254		825		587		1,045		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
11	<1	16	7	5	2	1	<1	—		6	1	3	<1	Planariidae
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		—		—		—		2	<1	—		—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
—		5	3	6	2	2	<1	14	2	—		—		<i>Ammicola</i>
														Pleuroceridae
3	<1	—		1	<1	1	<1	3	<1	3	<1	1	<1	<i>Goniobasis</i>
														Basommatophora
														Ancylidae
21	<1	7	3	42	15	26	2	14	2	29	5	49	4	<i>Ferrissia</i>
														Lymnaeidae
8	<1	—		—		—		—		—		10	<1	<i>Lymnaea</i>
														Physidae
—		—		4	2	—		3	<1	1	<1	—		<i>Physa</i>
														Planorbidae
—		—		—		—		—		—		—		<i>Helisoma</i>
3	<1	1	<1	1	<1	2	<1	6	<1	2	<1	2	<1	<i>Gyraulus</i>
														Bivalvia
														Veneroida
—		—		—		—		16	2	1	<1	—		Sphaeriidae
—		—		—		—		—		—		—		<i>Musculium</i>
3	<1	1	<1	—		2	<1	—		—		—		<i>Pisidium</i>
														Annelida (segmented worms)
—		—		—		—		2	<1	—		—		Oligochaeta
														Lumbriculida
5	<1	2	1	1	<1	—		—		—		—		Lumbriculidae
														Tubificida
5	<1	10	5	—		—		2	<1	—		—		Naididae
—		—		—		—		—		—		—		Tubificidae
—		—		—		—		—		—		—		Hirudinea
														Arthropoda (arthropods)
														Acariformes
3	<1	8	4	5	2	13	1	25	3	4	<1	50	5	Hydrachnidia
														Crustacea
—		9	4	—		—		—		—		—		Cladocera
—		29	13	—		—		—		—		—		Cyclopoida
														Amphipoda
—		—		—		—		—		—		—		Gammaridae
														<i>Gammarus</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)—Continued

Date	Oct. 21, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 11, 1985		Dec. 5, 1986		Oct. 14, 1987	
Total count	1 3,427		1 548		1 1,141		1 821		226		712		600	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
<i>Baetis</i>	16	<1	—	—	—	—	3	<1	5	2	—	—	14	2
<i>Pseudocloeon</i>	24	<1	—	—	—	—	5	<1	—	—	—	—	—	—
<b>Caenidae</b>														
<i>Caenis</i>	—	—	—	—	—	—	—	—	11	5	—	—	1	<1
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	43	1	11	2	11	1	8	1	6	3	140	19	7	1
<b>Heptageniidae</b>														
<i>Epeorus</i>	37	1	21	4	29	3	3	<1	—	—	77	11	1	<1
<i>Stenonema</i>	80	2	35	6	64	6	91	11	13	5	22	3	16	3
<b>Isonychiidae</b>														
<i>Isonychia</i>	37	1	8	2	8	<1	8	1	4	2	3	<1	13	2
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	29	<1	—	—	—	—	—	—	—	—	3	<1	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—	—	—	—	3	<1	13	2	—	—	—	—	—	—
<b>Chloroperlidae</b>														
<i>Chloroperla</i>	24	<1	5	1	5	<1	11	1	—	—	9	1	—	—
<b>Perlidae</b>														
<i>Acroneuria</i>	3	<1	—	—	—	—	3	<1	1	<1	5	<1	2	<1
<i>Agneta</i>	3	<1	—	—	—	—	—	—	—	—	—	—	2	<1
<i>Paragnetina</i>	—	—	—	—	—	—	—	—	—	—	3	<1	—	—
<b>Taeniopterygidae</b>														
<i>Strophopteryx</i>	—	—	—	—	—	—	3	<1	—	—	3	<1	—	—
<i>Taeniopteryx</i>	11	<1	13	2	11	1	8	1	4	2	—	—	2	<1
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Nigronia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	13	<1	13	2	11	1	—	—	2	1	60	8	14	2
<b>Brachycentridae</b>														
<i>Micrasema</i>	220	6	8	2	85	8	11	1	18	8	—	—	—	—
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—	—	19	3	—	—	64	8	31	13	3	<1	23	4
<i>Proptila</i>	2,200	65	5	1	590	54	35	4	—	—	—	—	—	—
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	21	3	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	29	<1	37	7	59	5	53	6	21	9	21	3	8	1
<i>Cheumatopsyche</i>	56	2	21	4	45	4	37	4	9	4	10	1	6	1
<i>Hydropsyche</i>	3	<1	3	<1	3	<1	—	—	—	—	13	2	14	2
<i>Macrostemum</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Potamyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	5	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Leucotrichia</i>	24	<1	160	29	24	2	59	7	27	11	12	2	16	3

Oct. 19, 1988		Oct. 23, 1989		Nov. 15, 1990		Oct. 4, 1991		Oct. 14, 1992		Oct. 15, 1993		Oct. 28, 1994		Date
12,496		203		271		1,254		825		587		1,045		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Insecta														
Ephemeroptera														
Baetidae														
40	2	—	—	—	—	42	3	7	<1	4	<1	2	<1	
5	<1	—	—	2	<1	18	1	10	1	2	<1	—	—	<i>Baetis</i>
														<i>Pseudocloeon</i>
Caenidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Caenis</i>
Ephemerellidae														
13	<1	8	4	9	3	48	4	38	5	2	<1	20	2	<i>Ephemerella</i>
Heptageniidae														
35	1	1	<1	2	<1	11	<1	28	3	23	4	7	<1	<i>Epeorus</i>
64	3	6	3	20	7	67	5	12	1	12	2	43	4	<i>Stenonema</i>
Isonychiidae														
45	2	—	—	5	2	5	<1	16	2	9	2	7	<1	<i>Isonychia</i>
Leptohyphidae														
—	—	—	—	—	—	—	—	1	<1	—	—	1	<1	<i>Tricorythodes</i>
Odonata														
Coenagrionidae														
5	<1	—	—	—	—	2	<1	3	<1	—	—	1	<1	<i>Argia</i>
Plecoptera														
Capniidae														
—	—	4	2	1	<1	—	—	1	<1	—	—	—	—	<i>Allocapnia</i>
—	—	—	—	—	—	2	<1	6	<1	—	—	7	<1	<i>Chloroperlidae</i>
Perlidae														
8	<1	2	1	—	—	—	—	—	—	1	<1	1	<1	<i>Acroneuria</i>
—	—	2	1	—	—	—	—	—	—	1	<1	—	—	<i>Agnetina</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Paragnetina</i>
Taeniopterygidae														
—	—	—	—	—	—	—	—	—	—	—	—	5	<1	<i>Strophopteryx</i>
5	<1	4	2	—	—	1	<1	8	1	1	<1	—	—	<i>Taeniopteryx</i>
Megaloptera														
Corydalidae														
3	<1	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Corydalus</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Nigronia</i>
Trichoptera														
Apataniidae														
77	3	6	3	—	—	5	<1	24	3	28	5	71	6	<i>Apatania</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Brachycentridae</i>
69	3	3	2	10	4	53	4	15	2	44	7	69	6	<i>Micrasema</i>
Glossosomatidae														
11	<1	—	—	2	<1	7	<1	7	<1	3	<1	2	<1	<i>Glossosoma</i>
790	32	15	7	—	—	6	<1	81	10	210	35	110	10	<i>Protoptila</i>
Helicopsychidae														
5	<1	6	3	—	—	10	<1	19	2	21	3	44	4	<i>Helicopsyche</i>
Hydropsychidae														
140	6	1	<1	—	—	140	11	42	5	8	1	150	14	<i>Ceratopsyche</i>
11	<1	3	2	1	<1	21	2	3	<1	14	2	48	4	<i>Cheumatopsyche</i>
69	3	—	—	8	3	38	3	4	<1	—	—	5	<1	<i>Hydropsyche</i>
3	<1	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Macrostemum</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Potamyia</i>
Hydroptilidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Hydroptila</i>
680	27	1	<1	9	3	560	43	80	10	65	11	82	7	<i>Leucotrichia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472157 - French Creek near Phoenixville, Pa. (Site 15)—Continued

Date	Oct. 21, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 11, 1985		Dec. 5, 1986		Oct. 14, 1987	
Total count	1 3,427		1 548		1 1,141		1 821		226		712		600	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptoceridae</b>														
<i>Ceraclea</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	1	<1	—	—	—
<i>Oecetis</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	110	3	5	1	32	3	27	3	5	2	16	2	9	2
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
<i>Nyctiophylax</i>	—	—	—	—	—	—	5	<1	1	<1	—	—	1	<1
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	13	1	27	3	6	3	—	—	1	<1
<b>Uenoidae</b>														
<i>Neophylax</i>	160	5	—	—	—	—	3	<1	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Pyalidae</b>														
<i>Petrophila</i>	3	<1	—	—	8	<1	5	<1	2	1	2	<1	1	<1
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Microcylloepus</i>	3	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	13	<1	3	<1	11	1	5	<1	6	3	7	1	24	4
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Promoesia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	—	—	—	—	3	<1	5	<1	4	2	—	—	—	—
<b>Gyrinidae</b>														
<i>Dineutus</i>	—	—	5	1	—	—	—	—	—	—	—	—	—	—
<b>Psephenidae</b>														
<i>Ectopria</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>E. nervosa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Psephenus</i>	—	—	—	—	3	<1	—	—	5	2	1	<1	14	2
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Ceratopogonidae</b>														
<i>Chironomidae</i>	120	4	160	29	85	8	310	37	24	10	130	18	340	56
<b>Empididae</b>														
<i>Hemerodromia</i>	—	—	—	—	—	—	—	—	2	1	2	<1	1	<1
<b>Simuliidae</b>														
<i>Prosimulium</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Simulium</i>	3	<1	3	<1	—	—	3	<1	5	2	—	—	1	—
<b>Tipulidae</b>														
<i>Antocha</i>	—	—	5	1	13	1	3	<1	3	1	18	3	4	<1
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	2	<1	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Oct. 19, 1988		Oct. 23, 1989		Nov. 15, 1990		Oct. 4, 1991		Oct. 14, 1992		Oct. 15, 1993		Oct. 28, 1994		Date
12,496		203		271		1,254		825		587		1,045		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Trichoptera
														Lepidostomatidae
—		3	2	—		7	<1	8	1	2	<1	1	<1	<i>Lepidostoma</i>
														Leptoceridae
—		3	2	—		2	<1	—		—		1	<1	<i>Ceraclea</i>
—		—		—		—		—		1	<1	5	<1	<i>Mystacides</i>
5	<1	—		—		1	<1	1	<1	2	<1	—		<i>Oecetis</i>
														Philopotamidae
29	1	4	2	—		6	<1	13	2	13	2	14	1	<i>Chimarra</i>
														Polycentropodidae
3	<1	—		—		7	<1	5	<1	—		15	1	<i>Neureclipsis</i>
—		—		—		—		—		—		3	<1	<i>Nyctiophylax</i>
—		—		—		3	<1	—		2	<1	4	<1	<i>Polycentropus</i>
														Psychomyiidae
5	<1	—		—		11	<1	2	<1	3	<1	22	2	<i>Psychomyia</i>
														Uenoidae
—		7	3	5	2	—		—		—		25	2	<i>Neophylax</i>
														Lepidoptera
														Pyralidae
—		—		9	3	17	1	18	2	3	<1	5	<1	<i>Petrophila</i>
														Coleoptera
														Elmidae
—		—		—		—		—		—		—		<i>Microcylloepus</i>
27	1	7	3	1	<1	2	<1	1	<1	—		3	<1	<i>Optioservus</i>
—		—		2	<1	—		—		—		—		<i>Oulimnius</i>
—		1	<1	—		—		1	<1	—		—		<i>Promoresia</i>
8	<1	—		1	<1	—		2	<1	—		1	<1	<i>Stenelmis</i>
														Gyrinidae
—		—		—		—		—		—		—		<i>Dineutus</i>
														Psephenidae
3	<1	—		—		—		—		—		—		<i>Ectopria</i>
—		—		2	<1	—		—		—		—		<i>E. nervosa</i>
5	<1	—		—		1	<1	8	1	4	<1	4	<1	<i>Psephenus</i>
														Diptera
														Athericidae
—		—		—		—		—		—		1	<1	<i>Atherix</i>
—		1	<1	—		—		—		—		—		
														Ceratopogonidae
230	9	23	10	71	25	98	8	250	30	56	9	97	9	
														Chironomidae
														Empididae
3	<1	1	<1	—		—		5	<1	—		2	<1	<i>Hemerodromia</i>
														Simuliidae
—		—		—		—		—		—		—		<i>Prosimulium</i>
11	<1	2	1	—		7	<1	2	<1	—		1	<1	<i>Simulium</i>
														Tipulidae
27	1	1	<1	45	16	9	<1	16	2	7	1	47	4	<i>Antocha</i>
—		—		1	<1	—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)

Date	Oct. 23, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 9, 1985		Oct. 31, 1986		Oct. 13, 1987	
Total count	240		619		343		2,247		72		605		489	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	1	<1	—	—	45	13	17	<1	1	2	8	1	12	2
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	9	2	6	2	16	<1	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Hydrobiidae														
<i>Ammicola</i>	—	—	—	—	—	—	—	—	—	—	—	—	3	<1
Pleuroceridae														
<i>Goniobasis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—	—	18	3	9	3	10	<1	—	—	1	<1	1	<1
Lymnaeidae														
<i>Lymnaea</i>	—	—	—	—	9	3	—	—	—	—	—	—	—	—
Physidae														
<i>Physa</i>	10	4	—	—	81	4	14	<1	—	—	1	<1	1	<1
Planorbidae														
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helisoma</i>	—	—	—	—	23	7	1	<1	—	—	—	—	—	—
Bivalvia														
Veneroida														
Sphaeriidae														
<i>Pisidium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Polychaeta														
Sabellida														
Sabellidae														
<i>Manayunkia speciosa</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
Oligochaeta														
Lumbriculida														
Lumbriculidae	1	<1	—	—	—	—	—	—	—	—	—	—	3	<1
Tubificida														
Naididae	5	2	480	76	120	35	280	12	—	—	6	1	6	1
Tubificidae	—	—	9	2	8	2	49	2	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
Hydrachnidae	—	—	3	<1	2	<1	1	<1	2	3	3	<1	12	2
Crustacea														
Cladocera														
Cladocera	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
Cyclopoida														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Crangonyctidae														
<i>Crangonyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gammaridae														
<i>Gammarus</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—

Oct. 19, 1988		Oct. 24, 1989		Nov. 15, 1990		Oct. 21, 1991		Oct. 13, 1992		Oct. 18, 1993		Oct. 28, 1994		Date
1,340		270		113		727		115		985		656		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—		7	3	8	7	1	<1	5	5	44	4	11	2	Planariidae
—		—		—		—		—		—		—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
3	<1	8	3	8	7	3	<1	—		1	<1	5	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
—		13	5	1	1	—		4	4	1	<1	—		<i>Ammicola</i>
														Pleuroceridae
—		3	1	1	1	—		16	13	1	<1	—		<i>Goniobasis</i>
														Basommatophora
														Ancylidae
—		12	4	8	7	1	<1	—		—		1	<1	<i>Ferrissia</i>
														Lymnaeidae
3	<1	2	<1	1	1	—		—		—		—		<i>Lymnaea</i>
														Physidae
—		53	19	40	33	—		26	22	1	<1	—		<i>Physa</i>
—		—		2	2	—		—		—		—		Planorbidae
—		10	4	—		—		—		—		—		<i>Gyraulus</i>
—		—		—		—		2	2	—		—		<i>Helisoma</i>
														Bivalvia
														Veneroida
—		—		—		—		—		2	<1	—		Sphaeriidae
—		2	<1	—		—		—		—		—		<i>Pisidium</i>
														Annelida (segmented worms)
														Polychaeta
														Sabellida
														Sabellidae
—		1	<1	—		—		—		—		—		<i>Manayunkia speciosa</i>
—		—		—		—		2	2	—		—		Oligochaeta
														Lumbriculida
3	<1	3	1	3	3	1	<1	—		—		—		Lumbriculidae
														Tubificida
35	3	30	11	3	3	15	2	—		—		19	3	Naididae
—		—		7	6	—		—		5	<1	—		Tubificidae
														Arthropoda (arthropods)
														Acariformes
														Hydrachnidia
														Crustacea
														Cladocera
—		7	3	5	5	—		—		—		—		Cyclopoida
														Amphipoda
														Crangonyctidae
3	<1	—		—		—		—		—		—		<i>Crangonyx</i>
														Gammaridae
—		—		—		1	<1	2	2	5	<1	1	<1	<i>Gammarus</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

Date	Oct. 23, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 9, 1985		Oct. 31, 1986		Oct. 13, 1987	
Total count	240		619		343		2,247		72		605		489	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Isopoda</b>														
<b>Asellidae</b>														
<i>Lirceus</i>	—		—		—		5	<1	4	5	—		—	
<b>Decapoda</b>														
<b>Astacidae</b>														
—	—		—		—		—		—		—		—	
<b>Podocopa</b>														
—	—		—		—		—		—		—		—	
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
<i>Baetis</i>	—		—		—		13	<1	8	10	—		6	1
<i>Pseudocloeon</i>	—		1	<1	—		—		—		—		—	
<b>Caenidae</b>														
<i>Caenis</i>	—		—		—		—		1	2	—		—	
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	—		—		—		—		3	4	2	<1	2	<1
<b>Heptageniidae</b>														
<i>Epeorus</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	—		—		—		—		8	10	1	<1	7	2
<b>Isonychiidae</b>														
<i>Isonychia</i>	—		1	<1	2	<1	—		2	3	—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—		3	<1	7	2	—		—		3	<1	2	<1
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		—		—		—		—		1	<1
<b>Perlidae</b>														
<i>Acroneuria</i>	—		—		—		—		1	2	—		—	
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	—		—		1	<1	1	<1	—		1	<1	13	3
<b>Hemiptera</b>														
<b>Corixidae</b>														
—	—		—		—		—		1	2	—		—	
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		1	<1	—		—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		1	<1	—		—		—		—		—	
<b>Sialidae</b>														
<i>Sialis</i>	—		—		—		—		—		—		—	
<b>Neuroptera</b>														
<b>Sisyridae</b>														
<i>Climacia</i>	—		1	<1	—		—		—		—		—	
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—		—		—		—		—		1	<1	—	
<b>Brachycentridae</b>														
<i>Micrasema</i>	—		—		—		—		—		2	<1	—	
<b>Glossosomatidae</b>														
<i>Culoptila</i>	—		—		—		—		—		—		—	
<i>Glossosoma</i>	—		—		1	<1	—		—		—		—	
<i>Protoptila</i>	—		—		—		—		—		—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	1	<1	2	<1	6	2	—		6	8	2	<1	3	<1
<i>Cheumatopsyche</i>	—		7	1	2	<1	—		3	4	29	5	66	13
<i>Hydropsyche</i>	—		39	6	—		3	<1	1	2	230	38	11	2

Oct. 19, 1988		Oct. 24, 1989		Nov. 15, 1990		Oct. 21, 1991		Oct. 13, 1992		Oct. 18, 1993		Oct. 28, 1994		Date
1,340		270		113		727		115		985		656		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Isopoda
														Asellidae
														<i>Lirceus</i>
														Decapoda
														Astacidae
														Podocopa
														Insecta
														Ephemeroptera
														Baetidae
3	<1	—	—	—	—	2	<1	—	—	3	<1	—	—	<i>Baetis</i>
—	—	—	—	1	1	—	—	—	—	—	—	—	—	<i>Pseudocloeon</i>
														Caenidae
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Caenis</i>
														Ephemerellidae
—	—	8	3	1	1	2	<1	—	—	32	3	5	<1	<i>Ephemerella</i>
														Heptageniidae
—	—	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Epeorus</i>
3	<1	2	<1	1	1	1	<1	2	2	2	<1	2	<1	<i>Stenonema</i>
														Isonychiidae
—	—	1	<1	—	—	—	—	—	—	1	<1	—	—	<i>Isonychia</i>
														Odonata
														Coenagrionidae
5	<1	2	<1	2	2	3	<1	2	2	2	<1	—	—	<i>Argia</i>
														Plecoptera
														Capniidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Allocapnia</i>
														Perlidae
3	<1	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Acroneuria</i>
														Taeniopterygidae
3	<1	5	2	—	—	1	<1	—	—	2	<1	—	—	<i>Taeniopteryx</i>
														Hemiptera
														Corixidae
														Veliidae
														<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Corydalus</i>
														Stalidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Sialis</i>
														Neuroptera
														Sisyridae
														<i>Climacia</i>
														Trichoptera
														Apataniidae
—	—	—	—	1	1	—	—	—	—	1	<1	—	—	<i>Apatania</i>
														Brachycentridae
—	—	1	<1	—	—	—	—	—	—	5	<1	—	—	<i>Micrasema</i>
														Glossosomatidae
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Culoptila</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Glossosoma</i>
—	—	—	—	—	—	—	—	—	—	—	—	10	2	<i>Protoptila</i>
														Hydropsychidae
85	7	—	—	2	2	21	3	—	—	130	13	38	6	<i>Ceratopsyche</i>
140	11	3	1	—	—	44	6	—	—	130	13	32	5	<i>Cheumatopsyche</i>
700	54	9	3	—	—	67	9	—	—	100	10	94	14	<i>Hydropsyche</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

014721612 - French Creek at Railroad Bridge at Phoenixville, Pa. (Site 16)—Continued

Date	Oct. 23, 1981		Nov. 2, 1982		Oct. 20, 1983		Oct. 10, 1984		Oct. 9, 1985		Oct. 31, 1986		Oct. 13, 1987	
Total count	240		619		343		2,247		72		605		489	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	—	—	—	—	—	—	—	—	1	2	—	—	—	—
<i>Leucotrichia</i>	—	—	—	—	—	—	—	—	2	3	—	—	1	<1
<b>Leptoceridae</b>														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	—	—	1	<1	2	<1	—	—	—	—	—	—	1	<1
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
<i>Synclita</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Pyralidae</b>														
<i>Petrophila</i>	1	<1	3	<1	1	<1	17	<1	1	2	89	15	21	4
<i>Synclita</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
<b>Curculionidae</b>														
<i>Dubiraphia</i>	—	—	—	—	—	—	—	—	1	2	—	—	—	—
<b>Dytiscidae</b>														
<i>Microcyloepus</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Elmidae</b>														
<i>Optioservus</i>	—	—	1	<1	2	<1	—	—	3	4	15	2	49	10
<i>Promoresia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	—	—	—	—	—	—	—	—	—	—	—	—	6	1
<b>Hydrophilidae</b>														
<i>Berosus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psephenidae</b>														
<i>Psephenus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Chironomidae</b>														
<i>Hemerodromia</i>	220	92	21	3	9	3	1,800	78	21	26	200	33	230	46
<b>Empididae</b>														
<i>Telmatoscopus</i>	—	—	17	3	—	—	16	<1	—	—	7	1	—	—
<b>Psychodidae</b>														
<i>Simulium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Simuliidae</b>														
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	1	<1	26	5
<b>Tipulidae</b>														
<i>Antocha</i>	—	—	1	<1	—	—	—	—	—	—	1	<1	—	—
<i>Tipula</i>	—	—	—	—	1	<1	1	<1	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 19, 1988		Oct. 24, 1989		Nov. 15, 1990		Oct. 21, 1991		Oct. 13, 1992		Oct. 18, 1993		Oct. 28, 1994		Date
1,340		270		113		727		115		985		656		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Trichoptera
														Hydroptilidae
														<i>Hydroptila</i>
3	<1	—	—	—	—	2	<1	—	—	1	<1	—	—	<i>Leucotrichia</i>
														Leptoceridae
														<i>Mystacides</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	
														Philopotamidae
														<i>Chimarra</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
														Polycentropodidae
														<i>Polycentropus</i>
														Psychomyiidae
														<i>Psychomyia</i>
—	—	—	—	—	—	—	—	—	—	1	<1	2	<1	
														Uenoidea
														<i>Neophylax</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	
														Lepidoptera
														Noctuidae
														Pyralidae
8	<1	8	3	—	—	130	18	6	5	130	13	29	4	<i>Petrophila</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Synclita</i>
														Coleoptera
														Curculionidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
														Dytiscidae
														Elmidae
														<i>Dubiraphia</i>
														<i>Microcylloepus</i>
11	<1	7	3	—	—	5	<1	—	—	1	<1	—	—	<i>Optioservus</i>
—	—	—	—	—	—	3	<1	—	—	21	2	10	2	<i>Promoresia</i>
3	<1	1	<1	—	—	3	<1	2	2	10	1	—	—	<i>Stenelmis</i>
3	<1	—	—	—	—	3	<1	2	2	2	<1	2	<1	
														Hydrophilidae
														<i>Berosus</i>
3	<1	1	<1	—	—	1	<1	—	—	—	—	3	<1	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
														Hymenoptera
														Diptera
320	25	6	2	8	7	390	53	45	38	320	32	370	56	Chironomidae
														Empididae
—	—	14	5	—	—	7	1	—	—	2	<1	2	<1	<i>Hemerodromia</i>
														Psychodidae
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Telmatoscopus</i>
														Simuliidae
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Simulium</i>
														Tipulidae
—	—	—	—	1	1	4	<1	—	—	4	<1	10	2	<i>Antocha</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472170 - Pickering Creek near Eagle, Pa. (Site 1)

Date	Oct. 16, 1981		Oct. 18, 1982		Oct. 17, 1983		Oct. 5, 1984		Oct. 8, 1985		Oct. 7, 1986		Oct. 9, 1987	
Total count	1,301		2,643		2,715		1,537		765		1,102		1,431	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—		5	<1	6	<1	5	<1	15	2	19	2	15	1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		2	<1	3	<1	12	<1
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—		—		1	<1	—		3	<1	—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		—		—		—	
Tubificida														
Naididae	3	<1	80	3	14	<1	3	<1	4	<1	8	<1	1	<1
Tubificidae	—		—		—		—		—		—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		—		7	<1	—		6	<1	1	<1	19	1
Crustacea														
Cyclopoida														
Cyclopidae	—		—		—		—		1	<1	—		—	
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		—		—		—		1	<1	—		—	
Podocopa	—		—		—		—		1	<1	—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	3	<1	16	<1	19	<1	21	1	21	3	16	1	36	3
<i>Pseudocloeon</i>	—		—		6	<1	19	1	—		1	<1	2	<1
Ephemerellidae														
<i>Ephemerella</i>	24	2	19	<1	49	2	51	3	7	<1	8	<1	29	2
Heptageniidae														
<i>Epeorus</i>	—		—		—		—		—		—		—	
<i>Heptagenia</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	24	2	27	1	18	<1	53	4	14	2	47	4	24	2
Isonychiidae														
<i>Isonychia</i>	—		—		1	<1	13	<1	—		3	<1	5	<1
Leptohiphididae														
<i>Tricorythodes</i>	—		—		—		—		—		1	<1	—	
Odonata														
Coenagrionidae														
<i>Argia</i>	—		—		—		—		—		—		—	
<i>Ischnura</i>	—		—		—		—		—		—		—	



Oct. 13, 1988		Oct. 5, 1989		Oct. 3, 1990		Oct. 3, 1991		Oct. 7, 1992		Oct. 5, 1993		Oct. 25, 1994		Date
2,728		1,088		1,000		725		328		872		560		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
52	2	—	—			1	<1	5	2	26	3	12	2	Planariidae
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
1	<1	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
1	<1	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Ferrissia</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	Lumbriculidae
														Tubificida
2	<1	16	1	—	—	2	<1	—	—	26	3	53	9	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	22	4	Tubificidae
														Arthropoda (arthropods)
														Acariformes
9	<1	66	6	2	<1	3	<1	3	1	51	6	23	4	Hydrachnidia
														Crustacea
														Cyclopoida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Cyclopidae
														Isopoda
														Asellidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Caecidotea</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
10	<1	11	1	25	3	4	<1	2	<1	2	<1	3	<1	<i>Baetis</i>
8	<1	22	2	12	1	4	<1	1	<1	11	1	1	<1	<i>Pseudocloeon</i>
														Ephemerellidae
32	1	22	2	2	<1	10	1	4	1	11	1	15	3	<i>Ephemerella</i>
														Heptageniidae
2	<1	14	1	2	<1	2	<1	—	—	—	—	—	—	<i>Epeorus</i>
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Heptagenia</i>
42	2	35	3	24	2	37	5	30	9	2	<1	6	1	<i>Stenonema</i>
														Isonychiidae
25	<1	6	<1	7	<1	1	<1	1	<1	—	—	—	—	<i>Isonychia</i>
														Leptohyphidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tricorythodes</i>
														Odonata
														Coenagrionidae
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Argia</i>
—	—	—	1	<1	—	—	—	—	—	—	—	—	—	<i>Ischnura</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)—Continued

Date	Oct. 16, 1981		Oct. 18, 1982		Oct. 17, 1983		Oct. 5, 1984		Oct. 8, 1985		Oct. 7, 1986		Oct. 9, 1987	
Total count	1,301		2,643		2,715		1,537		765		1,102		1,431	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
<b>Aeshnidae</b>														
<i>Aeshna</i>	—		—		—		—		—		—		—	
<i>Boyeria</i>	—		—		—		—		—		1	<1	—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	3	<1	11	<1	1	<1	—		—		—		—	
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	16	1	3	<1	9	<1	—		1	<1	3	<1	28	2
<b>Hemiptera</b>														
<b>Gerridae</b>														
<i>Gerris</i>	—		—		—		3	<1	—		—		—	
<b>Mesoveliidae</b>														
<i>Mesovelia</i>	—		—		—		3	<1	—		—		—	
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		—		—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		—		—		—		—		—		—	
<i>Nigronia</i>	3	<1	—		1	<1	—		1	<1	4	<1	—	
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—		—		—		—		—		2	<1	—	
<b>Brachycentridae</b>														
<i>Micrasema</i>	—		—		3	<1	—		—		—		—	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	3	<1	—		—		5	<1	3	<1	3	<1	—	
<b>Goeridae</b>														
<i>Goera</i>	—		—		—		—		—		—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	40	3	160	6	100	4	230	15	130	17	230	21	77	6
<i>Cheumatopsyche</i>	88	7	110	4	70	3	27	2	60	8	84	8	5	<1
<i>Hydropsyche</i>	100	8	100	4	790	29	96	6	35	5	80	7	240	17
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	3	<1	5	<1	11	<1	3	<1	—		8	<1	4	<1
<i>Leucotrichia</i>	110	8	160	6	590	22	660	44	180	23	230	21	550	39
<b>Leptoceridae</b>														
<i>Oecetis</i>	—		—		—		—		1	<1	—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	100	8	8	<1	31	1	3	<1	5	<1	36	3	29	2
<i>Dolophilodes</i>	—		—		—		—		—		—		—	
<i>Wormaldia</i>	—		—		—		—		—		—		—	
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	3	<1	3	<1	1	<1	—		—		1	<1	1	<1
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—		3	<1	1	<1	5	<1	2	<1	4	<1	1	<1
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—		—		—		—		—		—		—	
<b>Uenoidae</b>														
<i>Neophylax</i>	—		—		—		—		—		—		—	

Oct. 13, 1988		Oct. 5, 1989		Oct. 3, 1990		Oct. 3, 1991		Oct. 7, 1992		Oct. 5, 1993		Oct. 25, 1994		Date
2,728		1,088		1,000		725		328		872		560		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Odonata														
Aeshnidae														
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Aeshna</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Boyeria</i>
Plecoptera														
Capniidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Allocapnia</i>
160	6	18	2	2	<1	2	<1	—	—	2	<1	6	1	<i>Taeniopteryx</i>
Hemiptera														
Gerridae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Gerris</i>
Mesoveliidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Mesovelia</i>
Veliidae														
—	—	—	—	—	—	2	<1	—	—	—	—	—	—	<i>Rhagovelia</i>
Megaloptera														
Corydalidae														
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Corydalis</i>
1	<1	1	<1	—	—	1	<1	—	—	—	—	—	—	<i>Nigronia</i>
Trichoptera														
Apataniidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Apatania</i>
Brachycentridae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Micrasema</i>
Glossosomatidae														
2	<1	2	<1	1	<1	2	<1	—	—	—	—	—	—	<i>Glossosoma</i>
Goeridae														
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Goera</i>
Hydropsychidae														
290	11	150	14	120	12	88	12	11	3	41	5	34	6	<i>Ceratopsyche</i>
230	9	34	3	44	4	52	7	5	2	97	11	11	2	<i>Cheumatopsyche</i>
690	26	63	6	82	8	80	11	130	39	110	13	9	2	<i>Hydropsyche</i>
Hydroptilidae														
28	1	61	6	40	4	26	4	14	4	8	<1	33	6	<i>Hydroptila</i>
73	3	120	11	220	22	170	23	12	4	170	19	35	6	<i>Leucotrichia</i>
Leptoceridae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Oecetis</i>
Philopotamidae														
32	1	3	<1	14	1	35	5	41	12	4	<1	12	2	<i>Chimarra</i>
—	—	—	—	—	—	—	—	—	—	5	<1	—	—	<i>Dolophilodes</i>
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Wormaldia</i>
Polycentropodidae														
—	—	1	<1	—	—	1	<1	—	—	—	—	1	<1	<i>Polycentropus</i>
Psychomyiidae														
1	<1	6	<1	5	<1	8	1	—	—	—	—	3	<1	<i>Psychomyia</i>
Rhyacophilidae														
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Rhyacophila</i>
Uenoidae														
—	—	2	<1	—	—	—	—	—	—	—	—	2	<1	<i>Neophylax</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472170 - Pickering Creek near Eagle, Pa. (Site 1)—Continued

Date	Oct. 16, 1981		Oct. 18, 1982		Oct. 17, 1983		Oct. 5, 1984		Oct. 8, 1985		Oct. 7, 1986		Oct. 9, 1987	
Total count	1 1,301		1 2,643		2,715		1 1,537		765		1,102		1,431	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Lepidoptera														
Noctuidae														
<i>Archanara</i>	—		—		—		—		—		—		—	
Coleoptera														
Elmidae														
<i>Dubiraphia</i>	3	<1	—		1	<1	—		1	<1	1	<1	—	
<i>Optioservus</i>	37	3	—		120	4	29	2	58	8	56	5	38	3
<i>Oulimnius</i>	—		—		2	<1	—		—		1	<1	1	<1
<i>Stenelmis</i>	10	<1	11	<1	21	<1	3	<1	14	2	7	<1	10	<1
Psephenidae														
<i>Ectopria</i>														
<i>E. nervosa</i>	—		—		—		—		—		—		—	
<i>Psephenus</i>	8	<1	—		1	<1	—		1	<1	6	<1	—	
Diptera														
Athericidae														
<i>Atherix</i>	—		—		4	<1	—		—		—		—	
Chironomidae	630	48	970	37	730	27	230	15	140	18	160	15	260	19
Empididae														
<i>Hemerodromia</i>	13	1	43	2	25	<1	8	<1	13	2	15	1	8	<1
Ephydriidae	—		—		—		—		—		—		—	
Simuliidae														
<i>Simulium</i>	13	1	820	32	26	<1	27	2	26	3	10	<1	10	<1
Stratiomyidae														
<i>Stratiomys</i>	—		3	<1	—		—		—		—		—	
Tipulidae														
<i>Antocha</i>	64	5	83	3	56	2	40	3	16	2	53	5	26	2
<i>Hexatoma</i>	—		—		—		—		2	<1	—		—	
<i>Tipula</i>	—		3	<1	—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 13, 1988		Oct. 5, 1989		Oct. 3, 1990		Oct. 3, 1991		Oct. 7, 1992		Oct. 5, 1993		Oct. 25, 1994		Date
2,728		1,088		1,000		725		328		872		560		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Lepidoptera
														Noctuidae
														<i>Archanara</i>
														Coleoptera
														Elmidae
														<i>Dubiraphia</i>
80	3	29	3	15	2	6	<1	15	5	35	4	20	4	<i>Optioservus</i>
														<i>Oulimnius</i>
10	<1	7	<1			1	<1			1	<1	2	<1	<i>Stenelmis</i>
														Psephenidae
														<i>Ectopria</i>
														<i>E. nervosa</i>
														<i>Psephenus</i>
														Diptera
														Athericidae
														<i>Atherix</i>
760	28	210	19	220	22	110	15	12	4	210	24	110	19	Chironomidae
														Empididae
6	<1	23	2	2	<1	5	<1			10	1	3	<1	<i>Hemerodromia</i>
														Ephydriidae
														Simuliidae
92	3	6	<1	38	4	14	2	12	4	9	1	6	1	<i>Simulium</i>
														Stratiomyidae
														<i>Stratiomys</i>
														Tipulidae
87	3	150	14	120	1	52	7	19	6	23	3	120	21	<i>Antocha</i>
														<i>Hexatoma</i>
														<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)

Date	Oct. 16, 1981		Oct. 18, 1982		Oct. 18, 1983		Oct. 5, 1984		Oct. 8, 1985		Oct. 7, 1986		Oct. 9, 1987	
Total count	1 747		1 1,084		526		1 1,350		595		488		170	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	5	<1	—	—	5	1	—	—	31	5	18	4	1	<1
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Physidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Physa</i>	—	—	3	<1	3	<1	—	—	1	<1	—	—	1	<1
Planorbidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroida														
Sphaeriidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Tubificida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Naididae	8	1	19	2	—	—	3	<1	—	—	1	<1	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—	—	—	—	—	—	—	—	2	<1	3	<1	—	—
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	3	<1	3	<1	5	1	32	2	11	2	5	1	—	—
<i>Pseudocloeon</i>	—	—	—	—	—	—	11	<1	—	—	2	<1	—	—
Caenidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Caenis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ephemerella</i>	75	10	260	24	80	15	360	26	42	7	27	5	9	5
Heptageniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Epeorus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenonema</i>	13	2	99	9	48	9	61	4	17	3	27	5	11	6
Isonychiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Isonychia</i>	—	—	—	—	—	—	3	<1	—	—	1	<1	—	—
Leptohyphidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Tricorythodes</i>	—	—	3	<1	—	—	—	—	—	—	—	—	1	<1
Leptophlebiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Oct. 13, 1988		Oct. 5, 1989		Oct. 3, 1990		Oct. 3, 1991		Oct. 8, 1992		Oct. 7, 1993		Oct. 25, 1994		Date
<sup>1</sup> 1,340		1,076		502		766		295		219		871		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—		6	<1	2	<1	14	2	9	3	1	<1	—		Planariidae
—		1	<1			—		—		—		1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		18	2	2	<1	—		4	1	—		—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
11	<1	11	1	8	2	5	<1	5	2	1	<1	7	<1	<i>Ferrissia</i>
														Physidae
3	<1	—		—		1	<1	—		—		1	<1	<i>Physa</i>
														Planorbidae
—		—		—		—		—		—		1	<1	<i>Gyraulus</i>
														Bivalvia
														Veneroida
—		—		—		3	<1	1	<1	—		—		Sphaeriidae
														Annelida (segmented worms)
—		—		—		—		2	<1	—		1	<1	Oligochaeta
														Lumbriculida
3	<1	1	<1	1	<1	—		—		—		—		Lumbriculidae
														Tubificida
—		3	<1	—		11	1	—		—		15	2	Naididae
														Arthropoda (arthropods)
														Acariformes
—		88	8	1	<1	31	4	26	8	2	1	86	10	Hydrachnidia
														Crustacea
—		—		—		—		2	<1	—		—		Cyclopoida
														Insecta
														Ephemeroptera
														Baetidae
—		1	<1	3	<1	2	<1	2	<1	—		3	<1	<i>Baetis</i>
—		3	<1	4	<1	1	<1	4	1	—		4	<1	<i>Pseudocloeon</i>
														Caenidae
—		—		—		2	<1	—		—		—		<i>Caenis</i>
43	3	74	7	7	1	31	4	13	4	2	1	35	4	Ephemerellidae
														<i>Ephemerella</i>
5	<1	2	<1	—		2	<1	—		—		2	<1	Heptageniidae
48	4	83	8	27	5	46	6	6	2	11	5	20	2	<i>Epeorus</i>
														<i>Stenonema</i>
43	3	66	6	60	12	53	7	3	1	4	2	6	<1	Isonychiidae
														<i>Isonychia</i>
—		—		—		—		—		—		—		Leptoxyphidae
—		—		—		1	<1	—		—		—		<i>Tricorythodes</i>
														Leptophlebiidae

**Table 5. Benthic-macroinvertebrate data—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)—Continued

Date	Oct. 16, 1981		Oct. 18, 1982		Oct. 18, 1983		Oct. 5, 1984		Oct. 8, 1985		Oct. 7, 1986		Oct. 9, 1987	
Total count	1 747		1 1,084		526		1 1,350		595		488		170	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
Calopterygidae														
<i>Calopteryx</i>	—		—		—		—		—		—		—	
<i>Hetaerina</i>	—		—		—		—		—		—		—	
Coenagrionidae														
<i>Argia</i>	—		—		—		—		—		—		—	
Aeshnidae														
<i>Boyeria</i>	—		—		—		—		2	<1	—		—	
Gomphidae														
<i>Gomphus</i>	—		—		—		—		—		—		—	
<b>Plecoptera</b>														
Capniidae														
<i>Allocaenia</i>	8	1	3	<1	40	8	5	<1	6	1	5	1	—	
Chloroperlidae														
<i>Haploperla</i>	—		—		5	1	—		—		—		—	
Perlidae														
<i>Acroneuria</i>	—		—		—		—		—		4	<1	—	
<i>Agneta</i>	—		—		—		3	<1	—		—		—	
<i>Paragnetina</i>	—		—		—		—		—		—		—	
Taeniopterygidae														
<i>Strophopteryx</i>	—		—		—		—		—		—		—	
<i>Taeniopteryx</i>	40	5	5	<1	24	5	37	3	36	6	97	19	83	46
<b>Hemiptera</b>														
Corixidae														
<i>Veliidae</i>	—		3	<1	—		—		—		—		—	
<i>Rhagovelia</i>	—		—		—		—		—		—		—	
<b>Megaloptera</b>														
Corydalidae														
<i>Nigronia</i>	—		—		—		—		1	<1	—		—	
Sialidae														
<i>Sialis</i>	—		—		—		—		—		—		—	
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	—		—		—		—		—		—		1	<1
Brachycentridae														
<i>Micrasema</i>	—		—		5	1	3	<1	—		—		—	
Glossosomatidae														
<i>Glossosoma</i>	3	<1	5	<1	3	<1	27	2	12	2	11	2	2	1
<i>Protophila</i>	—		—		3	<1	—		—		—		—	
Goeridae														
<i>Goera</i>	3	<1	—		—		—		—		—		—	
Hydropsychidae														
<i>Ceratopsyche</i>	5	<1	11	1	51	10	210	15	88	15	45	9	25	14
<i>Cheumatopsyche</i>	29	4	48	4	48	9	200	14	230	38	30	6	13	7
<i>Diplectrona</i>	—		—		—		—		—		1	<1	—	
<i>Hydropsyche</i>	—		5	<1	16	3	99	7	20	3	4	<1	3	2
<i>Potamyia</i>	—		—		—		—		—		—		2	1
Hydroptilidae														
<i>Hydroptila</i>	8	1	11	1	—		—		—		1	<1	—	
<i>Leucotrichia</i>	—		—		35	7	—		—		1	<1	2	1
Lepidostomatidae														
<i>Lepidostoma</i>	—		—		—		—		—		—		—	



Oct. 13, 1988		Oct. 5, 1989		Oct. 3, 1990		Oct. 3, 1991		Oct. 8, 1992		Oct. 7, 1993		Oct. 25, 1994		Date
1,340		1,076		502		766		295		219		871		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Odonata														
Calopterygidae														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Calopteryx</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Hetaerina</i>
Coenagrionidae														
—	—	1	<1	—	—	1	<1	—	—	—	—	—	—	<i>Argia</i>
Aeshnidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Boyeria</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	Gomphidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Gomphus</i>
Plecoptera														
Capniidae														
3	<1	—	—	—	—	1	<1	2	<1	1	<1	11	1	<i>Allocaupnia</i>
—	—	—	—	—	—	2	<1	—	—	—	—	1	<1	Chloroperlidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Haploperla</i>
Perlidae														
—	—	—	—	1	<1	—	—	2	<1	—	—	—	—	<i>Acroneuria</i>
—	—	2	<1	1	<1	—	—	—	—	—	—	—	—	<i>Agnetina</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Paragnetina</i>
Taeniopterygidae														
—	—	—	—	—	—	—	—	—	—	—	—	17	2	<i>Strophopteryx</i>
230	18	55	5	11	2	49	6	26	8	18	8	33	4	<i>Taeniopteryx</i>
Hemiptera														
Corixidae														
Veliidae														
—	—	—	—	1	<1	—	—	1	<1	—	—	—	—	<i>Rhagovelia</i>
Megaloptera														
Corydalidae														
5	<1	2	<1	—	—	—	—	2	<1	—	—	—	—	<i>Nigronia</i>
Stalidae														
—	—	—	—	—	—	—	—	—	—	1	<1	1	<1	<i>Sialis</i>
Trichoptera														
Apataniidae														
—	—	2	<1	—	—	—	—	—	—	1	<1	2	<1	<i>Apatania</i>
Brachycentridae														
3	<1	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Micrasema</i>
Glossosomatidae														
54	4	3	<1	10	2	1	<1	—	—	—	—	8	<1	<i>Glossosoma</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Protophila</i>
Goeridae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Goera</i>
Hydropsychidae														
250	19	190	17	120	24	90	12	52	17	14	6	94	11	<i>Ceratopsyche</i>
300	23	210	19	43	8	63	8	29	9	49	21	88	10	<i>Cheumatopsyche</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Diplectrona</i>
130	10	21	2	22	4	190	24	16	5	47	20	25	3	<i>Hydropsyche</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Potamyia</i>
Hydroptilidae														
—	—	—	—	1	<1	2	<1	2	<1	—	—	6	<1	<i>Hydroptila</i>
13	1	12	1	5	1	5	<1	1	<1	5	2	8	<1	<i>Leucotrichia</i>
Lepidostomatidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Lepidostoma</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472174 - Pickering Creek near Chester Springs, Pa. (Site 2)—Continued

Date	Oct. 16, 1981		Oct. 18, 1982		Oct. 18, 1983		Oct. 5, 1984		Oct. 8, 1985		Oct. 7, 1986		Oct. 9, 1987	
Total count	<sup>1</sup> 747		<sup>1</sup> 1,084		526		<sup>1</sup> 1,350		595		488		170	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Leptoceridae</b>														
<i>Mystacides</i>	3	<1	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Oecetis</i>	—	—	3	<1	—	—	3	<1	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	—	—	—	—	27	5	80	6	25	4	18	4	—	—
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Polycentropodidae</b>														
<i>Nyctiophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<i>Polycentropus</i>	—	—	8	<1	5	1	5	<1	—	—	1	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	53	7	180	16	8	2	—	—	—	—	1	<1	1	<1
<b>Coleoptera</b>														
<b>Curculionidae</b>														
<i>Dryopidae</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helichus</i>	—	—	—	—	—	—	—	—	2	<1	1	<1	—	—
<b>Elmidae</b>														
<i>Dubiraphia</i>	3	<1	5	<1	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	19	3	32	3	40	8	35	3	19	3	6	1	1	<1
<i>Oulimnius</i>	—	—	3	<1	5	1	—	—	1	<1	1	<1	—	—
<i>Promoresia</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Stenelmis</i>	—	—	8	<1	—	—	8	<1	6	1	5	1	—	—
<b>Psephenidae</b>														
<i>Psephenus</i>	3	<1	3	<1	—	—	—	—	—	—	—	—	—	—
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Blephariceridae</b>														
<i>Chironomidae</i>	420	56	260	24	48	9	160	11	13	2	120	24	12	7
<b>Dixidae</b>														
<i>Dixa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Empididae</b>														
<i>Hemerodromia</i>	—	—	8	<1	3	<1	5	<1	4	<1	1	<1	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	—	—	3	<1	—	—	—	—	17	3	30	6	—	—
<b>Tipulidae</b>														
<i>Antocha</i>	43	6	93	8	16	3	—	—	4	<1	20	4	1	<1
<i>Hexatoma</i>	3	<1	—	—	3	<1	—	—	—	—	—	—	—	—
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 13, 1988		Oct. 5, 1989		Oct. 3, 1990		Oct. 3, 1991		Oct. 8, 1992		Oct. 7, 1993		Oct. 25, 1994		Date
1,340		1,076		502		766		295		219		871		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Leptoceridae														
—		1	<1	—		4	<1	—		—		1	<1	<i>Mystacides</i>
—				—				—		—				<i>Oecetis</i>
Philopotamidae														
27	2	17	2	14	3	31	4	31	10	2	1	5	<1	<i>Chimarra</i>
—		—		2	<1	2	<1	2	<1	—		—		<i>Dolophilodes</i>
3	<1	—		—		—		—		—		—		<i>Wormaldia</i>
Polycentropodidae														
—		—		1	<1	—		—		—		1	<1	<i>Nyctiophylax</i>
3	<1	—		—		1	<1	—		—		—		<i>Polycentropus</i>
Psychomyiidae														
—		6	<1	12	2	12	2	1	<1	4	2	54	6	<i>Psychomyia</i>
Coleoptera														
Curculionidae														
Dryopidae														
—		—		—		—		—		1	<1	—		<i>Helichus</i>
Elmidae														
13	1	20	2	1	<1	10	1	14	5	—		40	<1	<i>Dubiraphia</i>
3	<1	3	<1	—		5	<1	3	1	—		—		<i>Optioservus</i>
—		—		—		—		1	<1	—		—		<i>Oulimnius</i>
3	<1	2	<1	4	<1	1	<1	3	1	1	<1	—		<i>Promoresia</i>
—		—		—		—		—		—		—		<i>Stenelmis</i>
Psephenidae														
—		—		—		—		—		—		—		<i>Psephenus</i>
Diptera														
Athericidae														
—		—		—		2	<1	—		—		—		<i>Atherix</i>
Blephariceridae														
72	6	85	8	100	20	44	6	15	5	44	19	180	20	<i>Chironomidae</i>
Dixidae														
—		—		1	<1	—		—		—		—		<i>Dixa</i>
Empididae														
—		28	3	2	<1	5	<1	1	<1	—		11	1	<i>Hemerodromia</i>
Simuliidae														
—		3	<1	1	<1	4	<1	5	2	2	1	10	1	<i>Simulium</i>
Tipulidae														
72	6	54	5	33	6	27	3	6	2	8	4	87	10	<i>Antocha</i>
—		—		—		—		—		—		—		<i>Hexatoma</i>
—		—		—		—		2	<1	—		1	<1	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

014721854 - Pickering Creek at Merlin, Pa. (Site 3)

Date	Oct. 15, 1981		Oct. 18, 1982		Oct. 17, 1983		Oct. 5, 1984		Oct. 7, 1985		Oct. 8, 1986		Oct. 8, 1987	
Total count	<sup>1</sup> 1,757		2,123		<sup>1</sup> 935		<sup>1</sup> 2,005		912		1,049		1,396	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—	—	—	—	8	<1	—	—	5	<1	4	<1	—	—
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	3	<1	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Prostoma</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae	—	—	—	—	—	—	16	1	10	1	2	<1	79	6
Lymnaeidae	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Lymnaea</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	3	<1	—	—	—	—	—	—	1	<1	—	—	—	—
Tubificida														
Naididae	—	—	3	<1	—	—	29	2	8	<1	11	1	250	18
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—	—	—	—	—	—	—	—	4	<1	10	<1	—	—
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	8	<1	8	<1	—	—	21	2	3	<1	4	<1	4	<1
<i>Pseudocloeon</i>	—	—	—	—	—	—	8	<1	—	—	—	—	—	—
Caenidae														
<i>Caenis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>	72	4	110	5	80	9	64	5	34	4	81	7	23	2
Heptageniidae														
<i>Stenacron</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Stenonema</i>	88	5	99	5	32	3	59	4	82	9	31	3	41	3
Isonychiidae														
<i>Isonychia</i>	11	<1	35	2	—	—	13	<1	22	2	8	<1	19	1
Leptohiphidae														
<i>Tricorythodes</i>	—	—	5	<1	3	<1	5	<1	—	—	3	<1	2	<1
Odonata														
Coenagrionidae														
<i>Argia</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
Gomphidae	—	—	—	—	—	—	—	—	1	<1	1	<1	1	<1
<i>Gomphus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Oct. 14, 1988		Oct. 4, 1989		Oct. 3, 1990		Oct. 2, 1991		Oct. 7, 1992		Oct. 6, 1993		Oct. 25, 1994		Date
<sup>1</sup> 1,047		1,015		430		956		1,522		939		780		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—		5	<1	—		—		24	2	1	<1	1	<1	Planariidae
—		2	<1	1	<1	—		—		—		1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		3	<1	1	<1	—		2	<1	2	<1	—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
48	4	18	2	7	2	20	2	29	2	10	1	13	2	<i>Ferrissia</i>
														Lymnaeidae
—		—		—		—		3	<1	—		—		<i>Lymnaea</i>
														Annelida (segmented worms)
—		—		—		—		—		—		2	<1	Oligochaeta
														Lumbriculida
—		4	<1	—		2	<1	—		—		—		Lumbriculidae
														Tubificida
—		9	<1	3	<1	30	3	23	2	88	9	—		Naididae
														Arthropoda (arthropods)
—		100	10	4	1	24	3	210	14	82	9	31	4	Acariformes
														Hydrachnidia
—		1	<1	—		—		1	<1	—		—		Crustacea
														Cyclopoida
														Insecta
														Ephemeroptera
														Baetidae
8	<1	2	<1	—		13	1	—		—		—		<i>Baetis</i>
—		2	<1	5	1	4	<1	—		—		—		<i>Pseudocloeon</i>
														Caenidae
—		3	<1	—		—		—		1	<1	2	<1	<i>Caenis</i>
59	5	130	13	11	3	15	2	200	13	32	3	5	<1	Ephemerellidae
														<i>Ephemerella</i>
—		—		1	<1	—		—		—		—		Heptageniidae
61	6	25	3	27	6	24	3	63	4	27	3	16	2	<i>Stenacron</i>
														<i>Stenonema</i>
19	2	24	2	26	6	24	3	16	1	4	<1	4	<1	Isonychiidae
														<i>Isonychia</i>
5	<1	1	<1	—		3	<1	2	<1	3	<1	2	<1	Leptohyphidae
														<i>Tricorythodes</i>
														Odonata
—		2	<1	—		—		—		—		—		Coenagrionidae
—		—		—		—		—		—		—		<i>Argia</i>
—		—		—		—		1	<1	—		—		Gomphidae
—		—		—		—		—		—		—		<i>Gomphus</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)—Continued

Date	Oct. 15, 1981		Oct. 18, 1982		Oct. 17, 1983		Oct. 5, 1984		Oct. 7, 1985		Oct. 8, 1986		Oct. 8, 1987	
Total count	1,757		2,123		1,935		2,005		912		1,049		1,396	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	3	<1	—	—	3	<1	—	—	—	—	—	—	—	—
<b>Chloroperlidae</b>														
<b>Perlidae</b>														
<i>Acroneuria</i>	—	—	5	<1	—	—	—	—	1	<1	2	<1	1	<1
<i>Agnatina</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	69	4	43	2	29	3	13	<1	14	2	38	3	38	3
<b>Hemiptera</b>														
<b>Corixidae</b>														
<i>Sigara</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Gerridae</b>														
<i>Metrobates</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Veliidae</b>														
<i>Rhagovelia</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Nigronia</i>	3	<1	—	—	5	<1	—	—	—	—	1	<1	3	<1
<b>Sialidae</b>														
<i>Sialis</i>	5	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	17	2	5	<1
<b>Brachycentridae</b>														
<b>Brachycentrus</b>														
<i>Micrasema</i>	27	2	8	<1	69	7	16	1	13	1	2	<1	7	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	3	<1	59	3	3	<1	16	1	2	<1	—	—	3	<1
<i>Protoptila</i>	—	—	—	—	—	—	11	<1	—	—	—	—	—	—
<b>Goeridae</b>														
<i>Goera</i>	—	—	—	—	—	—	3	<1	69	8	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	350	19	300	14	130	14	120	9	79	9	24	2	210	15
<i>Cheumatopsyche</i>	110	6	93	4	77	8	120	9	300	33	18	2	43	3
<i>Hydropsyche</i>	43	2	43	2	27	3	13	<1	6	<1	2	<1	27	2
<i>Macrostemum</i>	—	—	—	—	3	<1	—	—	—	—	—	—	2	<1
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	21	1	56	3	29	3	—	—	17	2	10	<1	22	2
<i>Leucotrichia</i>	13	<1	480	23	140	15	370	26	36	4	85	8	46	3
<b>Leptoceridae</b>														
<i>Mystacides</i>	11	<1	11	<1	—	—	—	—	7	<1	4	<1	4	<1
<i>Oecetis</i>	—	—	—	—	8	<1	3	<1	2	<1	2	<1	2	<1
<b>Philopotamidae</b>														
<i>Chimarra</i>	—	—	5	<1	—	—	—	—	1	<1	2	<1	—	—
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	13	<1	—	—	8	<1	—	—	9	1	—	—	6	<1
<i>Nyctiophylax</i>	5	<1	8	<1	16	2	13	<1	16	2	1	<1	2	<1
<i>Polycentropus</i>	—	—	5	<1	61	6	—	—	—	—	1	<1	1	<1
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	5	<1	3	<1	—	—	8	<1	7	<1	—	—	15	1

Oct. 14, 1988		Oct. 4, 1989		Oct. 3, 1990		Oct. 2, 1991		Oct. 7, 1992		Oct. 6, 1993		Oct. 25, 1994		Date
1,047		1,015		430		956		1,522		939		780		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Plecoptera</b>														
<b>Capniidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Allocapnia</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	Chloroperlidae
<b>Perlidae</b>														
—	—	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Acroneuria</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Agnetina</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Paragnetina</i>
<b>Taeniopterygidae</b>														
83	8	38	4	4	1	12	1	44	3	20	2	3	<1	<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Corixidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Sigara</i>
<b>Gerridae</b>														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Metrobates</i>
<b>Veliidae</b>														
—	—	—	—	2	<1	—	—	7	<1	—	—	1	<1	<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Corydalus</i>
3	<1	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Nigronia</i>
<b>Stalidae</b>														
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Sialis</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—	—	6	<1	3	<1	13	1	40	3	30	3	13	2	<i>Apatania</i>
<b>Brachycentridae</b>														
—	—	27	3	12	3	10	1	45	3	140	15	26	3	<i>Brachycentrus</i>
<b>Micrasema</b>														
—	—	2	<1	—	—	—	—	1	<1	—	—	—	—	<i>Glossosoma</i>
<b>Glossosomatidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Protoptila</i>
<b>Goeridae</b>														
—	—	3	<1	—	—	—	—	2	<1	—	—	—	—	<i>Goera</i>
<b>Hydropsychidae</b>														
140	13	45	5	28	6	58	6	56	4	91	10	81	10	<i>Ceratopsyche</i>
27	2	72	7	6	1	45	5	62	4	63	7	44	6	<i>Cheumatopsyche</i>
3	<1	5	<1	—	—	8	<1	7	<1	2	<1	34	4	<i>Hydropsyche</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Macrostemum</i>
<b>Hydroptilidae</b>														
37	3	14	1	24	5	22	2	72	5	39	4	40	5	<i>Hydroptila</i>
35	3	25	3	10	2	—	—	63	4	—	—	1	<1	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
—	—	3	<1	—	—	3	<1	6	<1	—	—	—	—	<i>Mystacides</i>
—	—	4	<1	1	<1	3	<1	4	<1	2	<1	—	—	<i>Oecetis</i>
<b>Philopotamidae</b>														
—	—	4	<1	—	—	1	<1	4	<1	—	—	—	—	<i>Chimarra</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
<b>Polycentropodidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Neureclipsis</i>
11	1	1	<1	8	2	1	<1	4	<1	—	—	—	—	<i>Nyctiophylax</i>
21	2	2	<1	6	1	3	<1	13	<1	6	<1	4	<1	<i>Polycentropus</i>
<b>Psychomyiidae</b>														
—	—	8	<1	21	5	5	<1	11	<1	14	1	10	1	<i>Psychomyia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

014721854 - Pickering Creek at Merlin, Pa. (Site 3)—Continued

Date	Oct. 15, 1981		Oct. 18, 1982		Oct. 17, 1983		Oct. 5, 1984		Oct. 7, 1985		Oct. 8, 1986		Oct. 8, 1987	
Total count	<sup>1</sup> 1,757		2,123		<sup>1</sup> 935		<sup>1</sup> 2,005		912		1,049		1,396	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	—	—	—	—	—	—	—	—	2	<1	—	—	3	<1
<b>Coleoptera</b>														
<b>Curculionidae</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>A. variegata</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	18	1	3	<1	24	3	—	—	23	3	9	<1	3	<1
<b>Macronychus</b>														
<i>M. glabratus</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<i>Optioservus</i>	8	<1	16	<1	3	<1	3	<1	17	2	19	2	9	<1
<i>Oulimnius</i>	3	<1	5	<1	—	—	—	—	1	<1	1	<1	—	—
<i>Promoesia</i>	—	—	—	—	3	<1	3	<1	10	1	—	—	—	—
<i>Stenelmis</i>	—	—	5	<1	8	<1	—	—	6	<1	—	—	14	1
<b>Psephenidae</b>														
<i>Psephenus</i>	—	—	3	<1	—	—	—	—	—	—	—	—	1	<1
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
<b>Chironomidae</b>														
	820	46	640	30	150	16	430	31	48	5	560	51	410	29
<b>Empididae</b>														
<i>Hemerodromia</i>	5	<1	3	<1	—	—	—	—	—	—	1	<1	2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	24	1	21	1	—	—	—	—	—	—	1	<1	1	<1
<b>Syrphidae</b>														
	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Tipulidae</b>														
<i>Antocha</i>	16	<1	45	2	16	2	48	3	51	6	88	8	93	7
<i>Tipula</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Oct. 14, 1988		Oct. 4, 1989		Oct. 3, 1990		Oct. 2, 1991		Oct. 7, 1992		Oct. 6, 1993		Oct. 25, 1994		Date
1,047		1,015		430		956		1,522		939		780		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Lepidoptera
														Pyrilidae
11	1	12	1	9	2	2	<1	10	<1	15	2	7	<1	<i>Petrophila</i>
														Coleoptera
														Curculionidae
														Elmidae
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ancyronyx</i>
—	—	—	—	—	—	—	—	—	—	—	—	3	<1	<i>A.variegata</i>
—	—	3	<1	—	—	18	2	25	2	16	2	—	—	<i>Dubiraphia</i>
														<i>Macronychus</i>
														<i>M. glabratus</i>
6	<1	26	3	9	2	9	<1	32	2	7	<1	3	<1	<i>Optioservus</i>
—	—	2	<1	—	—	—	—	2	<1	—	—	—	—	<i>Oulimnius</i>
—	—	—	—	—	—	8	<1	3	<1	9	1	2	<1	<i>Promoresia</i>
8	<1	6	<1	3	<1	5	<1	13	<1	6	<1	4	<1	<i>Stenelmis</i>
														Psephenidae
														<i>Psephenus</i>
—	—	1	<1	—	—	—	—	1	<1	—	—	—	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
														Hymenoptera
														Diptera
														Athericidae
														<i>Atherix</i>
310	28	280	28	96	22	500	52	290	19	190	20	340	43	Chironomidae
														Empididae
3	<1	47	5	—	—	—	—	6	<1	5	<1	3	<1	<i>Hemerodromia</i>
														Simuliidae
—	—	7	<1	—	—	42	4	1	<1	—	—	—	—	<i>Simulium</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Syrphidae
														Tipulidae
140	13	37	4	100	23	27	3	120	8	32	3	82	10	<i>Antocha</i>
—	—	1	<1	—	—	—	—	1	<1	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)

Date	Oct. 15, 1981		Oct. 19, 1982		Oct. 17, 1983		Oct. 9, 1984		Oct. 7, 1985		Oct. 6, 1986		Oct. 8, 1987	
Total count	3,611		1,887		1,316		1,943		557		2,593		2,312	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	16	<1	3	<1	16	1	3	<1	15	3	13	<1	86	4
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		—		3	<1	—	
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Hydrobiidae														
<i>Ammicola</i>	—		—		—		—		—		1	<1	4	<1
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	8	<1	—		—		—		—		10	<1	17	<1
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
<i>Helisoma</i>	—		—		—		—		2	<1	1	<1	—	
Bivalvia														
Veneroida														
Sphaeriidae														
—	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae														
—	—		—		—		—		—		—		—	
Tubificida														
Naididae	2	<1	—		—		3	<1	—		—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
—	—		—		3	<1	3	<1	2	<1	9	<1	—	
Crustacea														
Cyclopoida														
—	—		—		—		—		—		—		—	
Amphipoda														
Crangonyctidae														
<i>Crangonyx</i>	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	130	4	13	<1	13	1	53	3	4	<1	43	2	76	3
<i>Pseudocloeon</i>	6	<1	—		—		21	1	2	<1	14	<1	84	4
Caenidae														
<i>Caenis</i>	—		—		—		—		—		—		10	<1
Ephemerellidae														
<i>Ephemerella</i>	83	2	24	1	59	5	110	6	29	5	180	7	390	17
Heptageniidae														
<i>Epeorus</i>	—		—		—		3	<1	—		—		—	
<i>Stenonema</i>	32	<1	64	3	100	8	51	3	27	5	45	2	20	<1
Isonychiidae														
<i>Isonychia</i>	64	2	21	1	16	1	—		32	6	25	<1	43	2
Leptohyphidae														
<i>Tricorythodes</i>	—		3	<1	—		—		—		—		2	<1

Oct. 12, 1988		Oct. 4, 1989		Oct. 2, 1990		Oct. 2, 1991		Oct. 6, 1992		Oct. 6, 1993		Oct. 26, 1994		Date
14,090		1,147		1,684		1,514		2,247		2,535		1,325		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
59	1	87	7	50	3	11	<1	45	2	32	1	2	<1	Planariidae
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
3	<1	10	<1	—	—	—	—	1	<1	6	<1	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
19	<1	5	<1	11	<1	7	<1	69	3	19	<1	—	—	<i>Ammicola</i>
														Basommatophora
														Ancylidae
5	<1	4	<1	1	<1	37	2	71	3	65	3	4	<1	<i>Ferrissia</i>
														Planorbidae
3	<1	—	—	—	—	—	—	43	2	4	<1	8	<1	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
														Bivalvia
														Veneroida
—	—	—	—	—	—	—	—	2	<1	2	<1	—	—	Sphaeriidae
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	—	1	<1	—	—	—	—	—	—	—	—	—	Lumbriculidae
														Tubificida
3	<1	2	<1	2	<1	—	—	11	<1	39	2	—	—	Naididae
														Arthropoda (arthropods)
														Acariformes
—	—	38	3	3	<1	3	<1	72	3	120	5	18	1	Hydrachnidia
														Crustacea
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Cyclopoida
														Amphipoda
														Crangonyctidae
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Crangonyx</i>
														Insecta
														Ephemeroptera
														Baetidae
180	4	18	2	59	3	25	2	11	<1	12	<1	3	<1	<i>Baetis</i>
—	—	35	3	51	3	5	<1	58	3	13	<1	1	<1	<i>Pseudocloeon</i>
														Caenidae
—	—	—	—	—	—	1	<1	8	<1	15	<1	—	—	<i>Caenis</i>
														Ephemerellidae
260	6	73	6	20	1	28	2	170	7	120	5	31	2	<i>Ephemerella</i>
														Heptageniidae
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Epeorus</i>
29	<1	5	<1	6	<1	26	2	61	3	49	2	4	<1	<i>Stenonema</i>
														Isonychiidae
120	3	11	<1	14	<1	33	2	43	2	26	1	7	<1	<i>Isonychia</i>
														Leptohiphididae
—	—	—	—	—	—	—	—	3	<1	2	<1	—	—	<i>Tricorythodes</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)—Continued

Date	Oct. 15, 1981		Oct. 19, 1982		Oct. 17, 1983		Oct. 9, 1984		Oct. 7, 1985		Oct. 6, 1986		Oct. 8, 1987	
Total count	3,611		1,887		1,316		1,943		557		2,593		2,312	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	2	<1	—	—	—	—	—	—	—	—	2	<1	9	<1
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	1	<1	5	<1	—	—	—	—	1	<1	—	—	3	<1
<b>Chloroperlidae</b>														
<i>Perlidae</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Acroneuria</i>	—	—	3	<1	—	—	—	—	—	—	1	<1	—	—
<i>Agnetina</i>	4	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	—	—	3	<1	3	<1	—	—	—	—	11	<1	7	<1
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	59	2	16	<1	3	<1	16	<1	9	2	7	<1	32	1
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	1	<1	—	—	—	—	3	<1	—	—	2	<1	—	—
<b>Sialidae</b>														
<i>Sialis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	1	<1	—	—	—	—	—	—	—	—	30	1	8	<1
<b>Brachycentridae</b>														
<i>Brachycentrus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Micrasema</i>	2	<1	—	—	5	<1	—	—	2	<1	3	<1	4	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	8	<1	37	2	3	<1	53	3	3	<1	14	<1	2	<1
<i>Protophila</i>	—	—	—	—	—	—	19	1	—	—	—	—	—	—
<b>Goeridae</b>														
<i>Goera</i>	—	—	3	<1	—	—	—	—	3	<1	—	—	—	—
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	750	21	480	25	130	10	580	31	100	18	510	20	520	23
<i>Cheumatopsyche</i>	230	6	170	9	160	12	300	16	190	34	110	4	71	3
<i>Hydropsyche</i>	490	14	80	4	27	2	67	4	6	1	130	5	520	23
<i>Macrostemum</i>	—	—	5	<1	3	<1	—	—	—	—	2	<1	1	<1
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	7	<1	11	<1	24	2	3	<1	—	—	1	<1	21	<1
<i>Leucotrichia</i>	83	2	430	23	290	22	280	15	29	5	310	12	220	10
<b>Leptoceridae</b>														
<i>Mystacides</i>	1	<1	5	<1	13	1	—	—	—	—	—	—	—	—
<i>Ocetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Philopotamidae</b>														
<i>Chimarra</i>	3	<1	45	2	5	<1	11	<1	13	2	14	<1	35	2
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—	—	5	<1	—	—	—	—	1	<1	2	<1	3	<1
<i>Nyctiophylax</i>	7	<1	5	<1	24	2	3	<1	3	<1	3	<1	2	<1
<i>Polycentropus</i>	2	<1	—	—	13	1	—	—	—	—	1	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	6	<1	40	2	19	1	8	<1	12	2	13	<1	26	1
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Oct. 12, 1988		Oct. 4, 1989		Oct. 2, 1990		Oct. 2, 1991		Oct. 6, 1992		Oct. 6, 1993		Oct. 26, 1994		Date
14,090		1,147		1,684		1,514		2,247		2,535		1,325		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Odonata</b>														
<b>Coenagrionidae</b>														
8	<1	—	—	—	—	1	<1	—	—	1	<1	1	<1	<i>Argia</i>
<b>Plecoptera</b>														
<b>Capniidae</b>														
—	—	—	—	—	—	—	—	—	—	2	<1	1	<1	<i>Allocapnia</i>
—	—	—	—	—	—	—	—	—	—	2	<1	4	<1	<i>Chloroperlidae</i>
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Perlidae</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Acroneuria</i>
—	—	3	<1	4	<1	—	—	—	—	—	—	—	—	<i>Agnetina</i>
5	<1	—	—	—	—	—	—	—	—	3	<1	—	—	<i>Paragnetina</i>
<b>Taeniopterygidae</b>														
59	1	4	<1	2	<1	3	<1	—	—	2	<1	3	<1	<i>Taeniopteryx</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	2	<1	—	—	—	—	—	—	—	—	1	<1	<i>Corydalus</i>
<b>Sialidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Sialis</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—	—	2	<1	1	<1	5	<1	27	1	49	2	13	1	<i>Apatania</i>
<b>Brachycentridae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	8	<1	<i>Brachycentrus</i>
8	<1	6	<1	4	<1	3	<1	21	<1	26	1	20	2	<i>Micrasema</i>
<b>Glossosomatidae</b>														
11	<1	18	2	10	<1	—	—	—	—	—	—	—	—	<i>Glossosoma</i>
5	<1	—	—	12	<1	4	<1	5	<1	19	<1	—	—	<i>Protoptila</i>
<b>Goeridae</b>														
—	—	—	—	—	—	—	—	—	—	2	<1	10	<1	<i>Goera</i>
<b>Helicopsychidae</b>														
—	—	—	—	—	—	—	—	53	2	93	4	110	8	<i>Helicopsyche</i>
<b>Hydropsychidae</b>														
1,000	24	250	21	420	25	390	26	150	7	410	16	280	22	<i>Ceratopsyche</i>
120	3	16	1	87	5	130	9	91	4	420	17	190	15	<i>Cheumatopsyche</i>
570	14	54	5	52	3	42	3	280	12	23	<1	96	7	<i>Hydropsyche</i>
3	<1	2	<1	—	—	—	—	—	—	—	—	2	<1	<i>Macrostemum</i>
<b>Hydroptilidae</b>														
3	<1	2	<1	—	—	2	<1	19	<1	14	<1	3	<1	<i>Hydroptila</i>
110	3	94	8	350	21	270	18	260	11	170	7	180	14	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
3	<1	1	<1	—	—	—	—	4	<1	3	<1	—	—	<i>Mystacides</i>
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Oecetis</i>
<b>Philopotamidae</b>														
3	<1	17	1	5	<1	1	<1	25	1	16	<1	1	<1	<i>Chimarra</i>
<b>Polycentropodidae</b>														
—	—	—	—	—	—	—	—	—	—	2	<1	2	<1	<i>Neureclipsis</i>
3	<1	9	<1	4	<1	11	<1	4	<1	8	<1	—	—	<i>Nyctiophylax</i>
8	<1	2	<1	1	<1	2	<1	7	<1	12	<1	3	<1	<i>Polycentropus</i>
<b>Psychomyiidae</b>														
3	<1	15	1	29	2	110	7	9	<1	160	6	65	5	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhyacophila</i>
<b>Uenoidae</b>														
—	—	—	—	1	<1	—	—	1	<1	—	—	—	—	<i>Neophylax</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

014721884 - Pickering Creek at Charlestown Road Bridge at Charlestown, Pa. (Site 4)—Continued

Date	Oct. 15, 1981		Oct. 19, 1982		Oct. 17, 1983		Oct. 9, 1984		Oct. 7, 1985		Oct. 6, 1986		Oct. 8, 1987	
Total count	3,611		1,887		<sup>1</sup> 1,316		1,943		557		2,593		2,312	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—		—		—		—		—		—		1	<1
<b>Elmidae</b>														
<i>Ancyronyx</i>														
<i>A. variegata</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		—		1	<1	—	
<i>Optioservus</i>	—		3	<1	16	1	11	<1	5	<1	12	<1	8	<1
<i>Oulimnius</i>	2	<1	3	<1	—		—		—		—		—	
<i>Promoesia</i>	—		—		—		—		—		1	<1	1	<1
<i>Stenelmis</i>	2	<1	3	<1	—		—		—		3	<1	10	<1
<b>Psephenidae</b>														
<i>Ectopria</i>														
<i>E. nervosa</i>	—		—		—		—		—		—		—	
<i>Psephenus</i>	—		—		5	<1	3	<1	—		—		1	<1
<b>Diptera</b>														
<b>Chironomidae</b>														
	1,500	42	300	16	280	22	280	15	31	6	1,000	38	—	
<b>Empididae</b>														
<i>Hemerodromia</i>	5	<1	5	<1	3	<1	3	<1	2	<1	7	<1	2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	63	2	27	1	8	<1	24	1	15	3	4	<1	13	<1
<b>Tipulidae</b>														
<i>Antocha</i>	41	1	72	4	75	6	32	2	18	3	55	2	59	3

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 12, 1988		Oct. 4, 1989		Oct. 2, 1990		Oct. 2, 1991		Oct. 6, 1992		Oct. 6, 1993		Oct. 26, 1994		Date
14,090		1,147		1,684		1,514		2,247		2,535		1,325		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														<b>Lepidoptera</b>
														<b>Pyralidae</b>
—		1	<1	1	<1	1	<1	1	<1	8	<1	7	<1	<i>Petrophila</i>
														<b>Coleoptera</b>
														<b>Dryopidae</b>
—		—		—		—		1	<1	—		—		<i>Helichus</i>
														<b>Elmidae</b>
														<i>Ancyronyx</i>
—		—		—		—		1	<1	—		—		<i>A.variegata</i>
—		—		1	<1	1	<1	2	<1	3	<1	—		<i>Dubiraphia</i>
11	<1	26	2	10	<1	3	<1	3	<1	21	<1	4	<1	<i>Optioservus</i>
—		3	<1	2	<1	—		1	<1	—		—		<i>Oulimnius</i>
3	<1	—		1	<1	4	<1	8	<1	2	<1	1	<1	<i>Promoresia</i>
5	<1	10	<1	13	<1	8	<1	16	<1	13	<1	8	<1	<i>Stenelmis</i>
														<b>Psephenidae</b>
														<i>Ectopria</i>
—		—		—		—		3	<1	—		—		<i>E.nervosa</i>
—		2	<1	1	<1	1	<1	1	<1	2	<1	5	<1	<i>Psephenus</i>
														<b>Diptera</b>
														<b>Chironomidae</b>
1,300	32	180	15	400	24	300	20	510	22	400	16	190	15	
														<b>Empididae</b>
8	<1	20	2	3	<1	4	<1	17	<1	31	1	3	<1	<i>Hemerodromia</i>
														<b>Simuliidae</b>
130	3	88	7	43	3	1	<1	31	1	5	<1	2	<1	<i>Simulium</i>
														<b>Tipulidae</b>
24	<1	29	2	9	<1	41	3	25	1	85	3	32	2	<i>Antocha</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)

Date	Oct. 15, 1981		Nov. 2, 1982		Oct. 18, 1983		Oct. 22, 1984		Oct. 8, 1985		Oct. 6, 1986		Oct. 13, 1987	
Total count	2,081		3,232		2,183		1,513		438		1,150		2,029	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—		—		—		—		1	<1	11	<1	—	
Nematoda (nematodes)	—		2	<1	1	<1	—		—		1	<1	—	
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		3	<1	—		—		—		1	<1
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Hydrobiidae														
<i>Ammicola</i>	—		—		—		—		—		—		—	
Basommatophora														
Ancylidae														
<i>Ferrissia</i>	20	<1	7	<1	6	<1	—		9	2	17	1	150	8
Lymnaeidae														
<i>Lymnaea</i>	—		1	<1	—		—		—		—		—	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
<i>Helisoma</i>	—		—		—		—		—		1	<1	—	
Bivalvia														
Veneroida														
Sphaeriidae	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	1	<1	1	<1	3	<1	—		—		1	<1	—	
Tubificida														
Naididae	—		17	<1	25	1	—		—		2	<1	—	
Tubificidae	—		—		—		—		—		1	<1	—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		—		—		—		1	<1	12	1	3	<1
Crustacea														
Cyclopoida	—		—		—		—		—		—		1	<1
Amphipoda	1	<1	—		—		—		—		—		—	
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		1	<1	—		—		—		—		—	
Decapoda														
Cambaridae														
<i>Cambarus</i>	—		—		—		—		—		1	<1	—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	5	<1	1	<1	—		7	<1	—		13	1	19	<1
<i>Pseudocloeon</i>	7	<1	6	<1	8	<1	2	<1	1	<1	10	<1	18	<1
Caenidae														
<i>Caenis</i>	3	<1	—		—		1	<1	—		2	<1	5	<1



Oct. 12, 1988		Oct. 6, 1989		Oct. 12, 1990		Oct. 7, 1991		Oct. 6, 1992		Oct. 7, 1993		Oct. 26, 1994		Date
1 2,651		373		948		3,066		1,775		1,259		1,177		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
3	<1	3	<1	2	<1	58	2	89	5	3	<1	16	1	Planariidae
—	—	—	—	—	—	—	—	3	<1	—	—	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Ammicola</i>
														Basommatophora
														Ancyliidae
27	1	6	2	2	<1	31	1	12	<1	1	<1	—	—	<i>Ferrissia</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Lymnaeidae
—	—	—	—	—	—	1	<1	2	<1	—	—	—	—	<i>Lymnaea</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Planorbidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
														Bivalvia
														Veneroida
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Sphaeriidae
														Annelida (segmented worms)
														Oligochaeta
—	—	—	—	—	—	—	—	5	<1	—	—	1	<1	Lumbriculida
8	<1	1	<1	—	—	1	<1	—	—	—	—	—	—	Lumbriculidae
														Tubificida
—	—	4	1	—	—	3	<1	42	2	—	—	1	<1	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Arthropoda (arthropods)
														Acariformes
—	—	15	4	—	—	36	1	56	3	4	<1	11	<1	Hydrachnidia
														Crustacea
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Cyclopoida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Amphipoda
														Isopoda
														Asellidae
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Caecidotea</i>
														Decapoda
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Cambaridae
														<i>Cambarus</i>
														Insecta
														Ephemeroptera
														Baetidae
48	2	2	<1	4	<1	31	1	2	<1	6	<1	2	<1	<i>Baetis</i>
16	<1	7	2	3	<1	23	<1	26	1	17	1	2	<1	<i>Pseudocloeon</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Caenidae
														<i>Caenis</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)—Continued

Date	Oct. 15, 1981		Nov. 2, 1982		Oct. 18, 1983		Oct. 22, 1984		Oct. 8, 1985		Oct. 6, 1986		Oct. 13, 1987	
Total count	2,081		3,232		2,183		1,513		438		1,150		2,029	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	120	6	220	7	200	9	200	13	45	10	64	5	63	3
<b>Heptageniidae</b>														
<i>Epeorus</i>	—		3	<1	—		6	<1	—		—		—	
<i>Stenonema</i>	69	3	58	2	60	3	76	5	19	4	17	1	59	3
<b>Isonychiidae</b>														
<i>Isonychia</i>	14	<1	3	<1	11	<1	5	<1	4	1	14	1	58	3
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	—		—		—		—		—		—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	4	<1	—		1	<1	1	<1	—		—		1	<1
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	3	<1	10	<1	11	<1	25	2	1	<1	—		4	<1
<b>Chloroperlidae</b>														
<i>Nemouridae</i>	—		—		—		—		—		—		—	
<b>Perlidae</b>														
<i>Acroneuria</i>	1	<1	—		—		—		2	<1	4	<1	2	<1
<i>Agneta</i>	—		—		—		—		—		—		—	
<i>Paragnetina</i>	—		1	<1	—		—		—		1	<1	4	<1
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	29	1	32	1	7	<1	1	<1	9	2	14	1	48	2
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		3	<1	—		—		—		1	<1
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		2	<1	2	<1	1	<1	1	<1	—		1	<1
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	1	<1	—		—		—		—		5	<1	—	
<b>Brachycentridae</b>														
<i>Micrasema</i>	8	<1	29	<1	190	9	4	<1	3	<1	42	3	12	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	3	<1	52	2	8	<1	100	7	1	<1	8	<1	12	<1
<i>Protophila</i>	4	<1	6	<1	48	2	37	2	—		—		—	
<b>Goeridae</b>														
<i>Goera</i>	—		2	<1	3	<1	—		—		—		—	
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—		—		—		—		1	<1	1	<1	—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	140	7	460	14	380	17	290	19	120	27	160	13	310	16
<i>Cheumatopsyche</i>	130	6	87	3	160	7	93	6	53	12	14	1	40	2
<i>Hydropsyche</i>	200	10	74	2	46	2	47	3	—		11	<1	31	2
<i>Macrostemum</i>	5	<1	1	<1	4	<1	3	<1	—		—		5	<1
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	8	<1	13	<1	6	<1	1	<1	1	<1	—		21	1
<i>Leucotrichia</i>	210	10	950	30	520	24	260	17	72	16	84	7	430	22
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>	—		—		—		—		—		—		—	
<b>Leptoceridae</b>														
<i>Mystacides</i>	—		—		6	<1	—		—		—		1	<1
<i>Oecetis</i>	—		—		—		—		—		1	<1	1	<1

Oct. 12, 1988		Oct. 6, 1989		Oct. 12, 1990		Oct. 7, 1991		Oct. 6, 1992		Oct. 7, 1993		Oct. 26, 1994		Date
<sup>1</sup> 2,651		373		948		3,066		1,775		1,259		1,177		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Ephemerellidae
59	2	30	8	26	3	150	5	160	9	11	<1	27	2	<i>Ephemerella</i>
														Heptageniidae
—		2	<1	—		1	<1	—		—		—		<i>Epeorus</i>
43	2	4	1	11	1	13	<1	34	2	24	2	4	<1	<i>Stenonema</i>
														Isonychiidae
19	<1	1	<1	9	<1	94	3	32	2	35	3	6	<1	<i>Isonychia</i>
														Leptohiphidae
—		—		—		—		1	<1	—		—		<i>Tricorythodes</i>
														Odonata
														Coenagrionidae
—		—		—		—		—		1	<1	—		<i>Argia</i>
														Plecoptera
														Capniidae
—		—		—		5	<1	—		—		—		<i>Allocapnia</i>
—		—		—		12	<1	10	<1	—		—		<i>Chloroperlidae</i>
—		—		1	<1	—		—		—		—		<i>Nemouridae</i>
														Perlidae
—		—		3	<1	2	<1	2	<1	7	<1	2	<1	<i>Acroneuria</i>
—		—		1	<1	14	<1	6	<1	1	<1	—		<i>Agnatina</i>
—		—		—		3	<1	—		—		2	<1	<i>Paragnetina</i>
														Taeniopterygidae
40	1	6	2	3	<1	23	<1	9	<1	3	<1	—		<i>Taeniopteryx</i>
														Hemiptera
														Veliidae
5	<1	—		—		—		—		—		—		<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—		—		1	<1	2	<1	—		4	<1	—		<i>Corydalus</i>
														Trichoptera
														Apataniidae
—		—		—		3	<1	7	<1	—		8	<1	<i>Apatania</i>
														Brachycentridae
32	1	12	3	6	<1	32	1	78	4	16	1	1	<1	<i>Micrasema</i>
														Glossosomatidae
8	<1	1	<1	7	<1	1	<1	2	<1	6	<1	—		<i>Glossosoma</i>
														Goeridae
—		—		—		—		—		—		—		<i>Goera</i>
—		2	<1	—		—		3	<1	—		2	<1	<i>Helicopsyche</i>
														Hydropsychidae
540	20	51	13	170	18	590	19	120	7	50	4	70	6	<i>Ceratopsyche</i>
69	3	5	1	12	1	160	5	25	1	41	3	35	3	<i>Cheumatopsyche</i>
13	<1	1	<1	6	<1	97	3	12	<1	190	15	300	25	<i>Hydropsyche</i>
11	<1	—		2	<1	—		2	<1	6	<1	4	<1	<i>Macrostemum</i>
														Hydroptilidae
5	<1	2	<1	—		5	<1	22	1	1	<1	—		<i>Hydroptila</i>
930	34	86	22	480	50	97	3	390	22	560	43	400	33	<i>Leucotrichia</i>
														Lepidostomatidae
—		—		—		—		1	<1	—		—		<i>Lepidostoma</i>
														Leptoceridae
—		—		—		—		—		—		—		<i>Mystacides</i>
—		—		—		—		—		—		—		<i>Oecetis</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01472190 - Pickering Creek near Phoenixville, Pa. (Site 5)—Continued

Date	Oct. 15, 1981		Nov. 2, 1982		Oct. 18, 1983		Oct. 22, 1984		Oct. 8, 1985		Oct. 6, 1986		Oct. 13, 1987	
Total count	2,081		3,232		2,183		1,513		438		1,150		2,029	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Philopotamidae</b>														
<i>Chimarra</i>	4	<1	22	<1	9	<1	27	2	1	<1	1	<1	7	<1
<i>Wormaldia</i>	—		—		—		—		—		—		—	
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—		—		—		1	<1	—		—		10	<1
<i>Nyctiophylax</i>	19	<1	24	<1	29	1	7	<1	3	<1	1	<1	4	<1
<i>Polycentropus</i>	—		2	<1	5	<1	—		—		—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	29	1	30	<1	8	<1	3	<1	29	6	64	5	160	8
<b>Uenoidae</b>														
<i>Neophylax</i>	—		17	<1	—		—		—		—		—	
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	2	<1	3	<1	1	<1	—		3	<1	—		31	2
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>														
<i>A. variegata</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Macronychus</i>	—		—		—		—		—		—		—	
<i>M. glabratus</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	2	<1	5	<1	14	<1	3	<1	11	2	29	2	3	<1
<i>Oulimnius</i>	—		5	<1	6	<1	—		—		3	<1	3	<1
<i>Promoresia</i>	—		—		—		—		—		1	<1	—	
<i>Stenelmis</i>	—		—		15	<1	1	<1	2	<1	5	<1	1	<1
<b>Psephenidae</b>														
<i>Ectopria</i>														
<i>E. nervosa</i>	—		—		—		—		—		—		—	
<i>Psephenus</i>	5	<1	9	<1	9	<1	2	<1	6	1	21	2	7	<1
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—		—		—		—		—		—		—	
<b>Chironomidae</b>														
	1,000	48	870	27	230	10	240	16	11	2	370	31	380	19
<b>Empididae</b>														
<i>Hemerodromia</i>	2	<1	4	<1	3	<1	2	<1	3	<1	11	<1	2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	—		2	<1	—		3	<1	1	<1	1	<1	—	
<b>Tipulidae</b>														
<i>Antocha</i>	32	2	200	6	140	6	58	4	23	5	130	11	120	6
<i>Tipula</i>	—		—		—		—		—		1	<1	—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 12, 1988		Oct. 6, 1989		Oct. 12, 1990		Oct. 7, 1991		Oct. 6, 1992		Oct. 7, 1993		Oct. 26, 1994		Date
1 2,651		373		948		3,066		1,775		1,259		1,177		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Philopotamidae														
—	—	—	—	16	2	34	1	20	1	11	<1	10	<1	<i>Chimarra</i>
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Wormaldia</i>
Polycentropodidae														
—	—	—	—	—	—	1	<1	2	<1	—	—	—	—	<i>Neureclipsis</i>
16	<1	6	2	—	—	1	<1	—	—	2	<1	—	—	<i>Nyctiophylax</i>
3	<1	—	—	—	—	—	—	1	<1	3	<1	—	—	<i>Polycentropus</i>
Psychomyiidae														
16	<1	6	2	27	3	79	3	5	<1	13	1	5	<1	<i>Psychomyia</i>
Uenoidae														
—	—	25	6	3	<1	—	—	1	<1	—	—	—	—	<i>Neophylax</i>
Lepidoptera														
Pyrilidae														
8	<1	—	—	1	<1	—	—	2	<1	4	<1	—	—	<i>Petrophila</i>
Coleoptera														
Elmidae														
—	—	—	—	—	—	—	—	—	—	8	<1	—	—	<i>Ancyronyx</i>
—	—	—	—	—	—	5	<1	2	<1	—	—	—	—	<i>A. variegata</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dubiraphia</i>
—	—	—	—	—	—	4	<1	—	—	—	—	—	—	<i>Macronychus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>M. glabratus</i>
16	<1	8	2	2	<1	37	1	22	1	8	<1	6	<1	<i>Optioservus</i>
—	—	1	<1	—	—	—	—	—	—	1	<1	2	<1	<i>Oulimnius</i>
—	—	—	—	1	<1	96	3	62	3	—	—	—	—	<i>Promoresia</i>
6	<1	1	<1	—	—	5	<1	4	<1	17	1	7	<1	<i>Stenelmis</i>
Psephenidae														
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Ectopria</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>E. nervosa</i>
27	1	4	1	3	<1	4	<1	2	<1	4	<1	2	<1	<i>Psephenus</i>
Diptera														
Athericidae														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Atherix</i>
600	22	52	13	10	1	1,200	39	380	21	160	12	210	18	
Chironomidae														
Empididae														
11	<1	6	2	90	9	14	<1	9	<1	7	<1	3	<1	<i>Hemerodromia</i>
Simuliidae														
—	—	2	<1	2	<1	42	1	62	3	13	1	3	<1	<i>Simulium</i>
Tipulidae														
72	3	18	5	44	5	55	2	42	2	20	2	35	3	<i>Antocha</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)

Date	Oct. 16, 1981		Oct. 15, 1982		Oct. 21, 1983		Oct. 9, 1984		Oct. 9, 1985		Nov. 6, 1986		Nov. 16, 1987	
	Total count		Total count		Total count		Total count		Total count		Total count		Total count	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	9	<1	7	<1	24	2	31	3	5	<1	14	1	19	1
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—		—		1	<1	—		1	<1	—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida	29	1	3	<1	3	<1	—		—		—		—	
Lumbriculidae	—		—		—		—		—		—		5	<1
Tubificida	—		—		—		—		—		—		—	
Naididae	—		—		—		—		—		—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		3	<1	3	<1	6	<1	2	<1	1	<1	—	
Crustacea														
Amphipoda														
Gammaridae	—		3	<1	3	<1	6	<1	2	<1	1	<1	—	
<i>Gammarus</i>	43	1	160	7	99	8	8	<1	24	4	130	12	190	14
Isopoda	—		—		—		—		1	<1	—		—	
Asellidae	—		—		—		—		1	<1	—		—	
<i>Lirceus</i>	2	<1	9	<1	2	<1	8	<1	5	<1	70	6	12	<1
Decapoda	—		1	<1	—		—		—		—		—	
Cambaridae	—		1	<1	—		—		—		—		—	
<i>Cambarus</i>	—		1	<1	—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae	—		—		—		—		64	11	—		73	5
<i>Baetis</i>	310	11	350	14	140	11	83	7	31	6	220	20	30	2
<i>Pseudocloeon</i>	—		—		—		—		64	11	—		73	5
Ephemerellidae	—		—		—		—		—		—		—	
<i>Ephemerella</i>	300	10	190	8	490	40	480	40	150	27	230	21	430	31
Heptageniidae	—		—		—		—		—		1	<1	—	
<i>Stenonema</i>	—		—		—		—		—		1	<1	—	
Plecoptera	—		—		—		—		—		—		—	
Capniidae	—		—		—		—		—		—		—	
<i>Allocapnia</i>	—		—		—		—		—		—		—	
Taeniopterygidae	—		1	<1	—		—		—		—		—	
<i>Taeniopteryx</i>	—		1	<1	—		—		—		—		—	
Hemiptera	—		—		—		—		—		—		—	
Corixidae	—		—		—		—		—		—		—	
<i>Trichocorixa</i>	2	<1	—		—		—		—		—		—	
Veliidae	—		—		—		1	<1	—		—		—	
<i>Rhagovelia</i>	1	<1	—		—		1	<1	—		—		—	
Trichoptera	—		—		—		—		—		—		—	
Brachycentridae	—		—		—		—		—		—		—	
<i>Micrasema</i>	—		—		—		—		—		—		—	
Glossosomatidae	—		—		—		—		—		—		—	
<i>Glossosoma</i>	28	<1	140	6	19	2	98	8	2	<1	32	3	130	9

Oct. 26, 1988		Nov. 6, 1989		Nov. 14, 1990		Oct. 28, 1991		Oct. 5, 1992		Nov. 18, 1993		Nov. 7, 1994		Date
1,375		346		518		481		913		804		1,068		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
8	<1	13	4	7	1	—		18	2	9	1	13	1	Planariidae
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
3	<1	—		—		—		1	<1	—		—		<i>Ferrissia</i>
														Annelida (segmented worms)
—		—		—		—		—		—		—		Oligochaeta
														Lumbriculida
—		1	<1	—		—		—		—		—		Lumbriculidae
														Tubificida
—		8	2	—		—		—		—		1	<1	Naididae
														Arthropoda (arthropods)
														Acariformes
—		—		—		—		5	<1	2	<1	—		Hydrachnidia
														Crustacea
														Amphipoda
														Gammaridae
110	8	7	2	42	8	14	3	42	5	43	5	11	1	<i>Gammarus</i>
														Isopoda
—		—		—		—		—		—		—		Asellidae
11	<1	1	<1	—		—		1	<1	—		—		<i>Lirceus</i>
														Decapoda
														Cambaridae
—		—		—		—		—		—		—		<i>Cambarus</i>
														Insecta
														Ephemeroptera
														Baetidae
77	6	20	6	11	2	17	4	46	5	9	1	47	4	<i>Baetis</i>
16	1	2	<1	30	6	2	<1	6	<1	28	3	120	11	<i>Pseudocloeon</i>
														Ephemerellidae
330	24	57	16	100	19	40	8	180	20	110	14	140	13	<i>Ephemerella</i>
														Heptageniidae
—		—		—		—		—		—		—		<i>Stenonema</i>
														Plecoptera
														Capniidae
—		—		3	<1	2	<1	—		—		—		<i>Allocapnia</i>
														Taeniopterygidae
3	<1	—		—		—		—		—		—		<i>Taeniopteryx</i>
														Hemiptera
														Corixidae
—		—		—		—		—		—		—		<i>Trichocorixa</i>
														Veliidae
—		—		—		—		—		—		—		<i>Rhagovelia</i>
														Trichoptera
														Brachycentridae
3	<1	—		—		—		—		—		—		<i>Micrasema</i>
														Glossosomatidae
120	9	53	15	51	10	6	1	9	1	4	<1	71	6	<i>Glossosoma</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01473167 - Little Valley Creek at Howellville, Pa. (Site 49)—Continued

Date	Oct. 16, 1981		Oct. 15, 1982		Oct. 21, 1983		Oct. 9, 1984		Oct. 9, 1985		Nov. 6, 1986		Nov. 16, 1987	
Total count	2,871		2,454		1,231		1,218		551		1,102		1,357	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	390	13	690	28	190	15	200	17	170	30	200	18	160	11
<i>Cheumatopsyche</i>	88	3	16	<1	—	—	4	<1	14	3	2	<1	11	<1
<i>Hydropsyche</i>	530	18	120	5	140	11	48	4	11	2	47	4	120	9
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<i>Leucotrichia</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptoceridae</b>														
<i>Oecetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Dolophilodes</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	1	<1	1	<1	4	<1	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
—	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Coleoptera</b>														
<b>Chrysomelidae</b>														
<i>Donacia</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Curculionidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Dryopidae</b>														
<i>Helichus</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Elmidae</b>														
<i>Dubiraphia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	14	<1	7	<1	8	<1	27	2	7	1	58	5	84	6
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	2	<1	1	<1	—	—
<i>Stenelmis</i>	2	<1	—	—	—	—	4	<1	—	—	—	—	8	<1
<b>Hymenoptera</b>														
<b>Ichneumonidae</b>														
—	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Diptera</b>														
<b>Chironomidae</b>														
—	1,000	34	660	27	73	6	200	17	41	7	33	3	53	4
<b>Empididae</b>														
<i>Chelifera</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	8	<1	8	<1	—	—	—	—	—	—	—	—	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	3	<1	—	—	3	<1	3	<1	15	3	36	3	—	—
<b>Tipulidae</b>														
<i>Antocha</i>	110	4	85	3	30	3	16	1	4	<1	26	2	32	2
<i>Tipula</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Oct. 26, 1988		Nov. 6, 1989		Nov. 14, 1990		Oct. 28, 1991		Oct. 5, 1992		Nov. 18, 1993		Nov. 7, 1994		Date
1,375		346		518		481		913		804		1,068		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Hydropsychidae														
310	22	84	24	21	4	78	16	180	20	46	6	140	13	<i>Ceratopsyche</i>
16	1	—	—	3	<1	9	2	17	2	2	<1	15	1	<i>Cheumatopsyche</i>
91	7	20	6	39	8	35	7	140	15	130	16	150	14	<i>Hydropsyche</i>
Hydroptilidae														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Hydroptila</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Leucotrichia</i>
Leptoceridae														
5	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Oecetis</i>
Philopotamidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
Psychomyiidae														
—	—	1	<1	5	1	—	—	—	—	—	—	—	—	<i>Psychomyia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lepidoptera														
Coleoptera														
Chrysomelidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Donacia</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	
Curculionidae														
Dryopidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helichus</i>
Elmidae														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dubiraphia</i>
86	6	14	4	24	5	41	9	90	10	70	9	33	3	<i>Optioservus</i>
—	—	5	2	—	—	—	—	2	<1	—	—	—	—	<i>Oulimnius</i>
8	<1	—	—	—	—	—	—	1	<1	2	<1	—	—	<i>Stenelmis</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Hymenoptera														
Ichneumonidae														
Diptera														
130	9	46	13	61	12	140	29	61	7	290	36	150	14	Chironomidae
Empididae														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Chelifera</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Hemerodromia</i>
Simuliidae														
8	<1	3	1	—	—	73	15	98	11	20	2	130	12	<i>Simulium</i>
Tipulidae														
37	3	11	3	120	23	22	5	15	2	38	5	46	4	<i>Antocha</i>
—	—	—	—	—	—	2	<1	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)

Date	Oct. 16, 1981		Oct. 15, 1982		Oct. 21, 1983		Oct. 9, 1984		Oct. 9, 1985		Nov. 7, 1986		Nov. 16, 1987	
Total count	2,183		3,144		1,745		2,073		1,354		1,820		1,625	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	24	1	80	3	31	2	120	6	47	3	75	4	87	5
Nematoda (nematodes)	—		—		—		—		—		—		3	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		—		—		—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	17	<1	3	<1	7	<1	5	<1	10	<1	1	<1	1	<1
Lymnaeidae														
<i>Lymnaea</i>	—		—		—		—		—		—		1	<1
Planorbidae	—		—		1	<1	—		—		—		—	
<i>Gyraulus</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		—		—		—	
Tubificida														
Naididae	34	2	—		—		—		3	<1	1	<1	19	1
Tubificidae	—		—		—		—		1	<1	—		5	<1
Hirudinea														
Pharyngobdellida														
Erpobdellidae	—		1	<1	—		—		—		—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		8	<1	—		—		—		—		1	<1
Crustacea														
Amphipoda														
Gammaridae														
<i>Gammarus</i>	42	2	7	<1	17	1	2	<1	34	2	16	<1	15	<1
Isopoda														
Asellidae														
<i>Lirceus</i>	110	5	740	24	410	24	480	123	320	23	470	26	220	14
Decapoda														
Cambaridae	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	110	5	69	2	41	2	150	7	62	4	16	<1	42	3
<i>Pseudocloeon</i>	—		—		—		—		—		—		—	
Ephemerellidae														
<i>Ephemerella</i>	—		1	<1	2	<1	4	<1	1	<1	2	<1	7	<1
Heptageniidae														
<i>Stenonema</i>	—		—		—		—		—		—		—	
Leptophlebiidae	—		—		—		—		—		—		—	

Oct. 26, 1988		Nov. 6, 1989		Nov. 14, 1990		Oct. 28, 1991		Oct. 5, 1992		Nov. 18, 1993		Nov. 7, 1994		Date
1 2,278		1,046		1,557		1,020		1,848		1,307		1,561		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
140	6	58	6	75	5	58	6	130	7	63	5	130	8	Planariidae
—	—	6	<1	—	—	1	<1	—	—	—	—	1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	1	<1	—	—	1	<1	3	<1	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Ferrissia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Lymnaeidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Lymnaea</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	Planorbidae
														<i>Gyraulus</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	7	<1	—	—	—	—	—	—	—	—	—	—	Lumbriculidae
—	—	73	7	2	<1	6	<1	9	<1	11	<1	70	4	Tubificida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Hirudinea
														Pharyngobdellida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Erpobdellidae
														Arthropoda (arthropods)
														Acariformes
—	—	4	<1	1	<1	4	<1	39	2	18	1	21	1	Hydrachnidia
														Crustacea
														Amphipoda
														Gammaridae
35	2	28	3	28	2	38	4	34	2	35	3	5	<1	<i>Gammarus</i>
														Isopoda
														Asellidae
510	22	53	5	170	11	44	4	110	6	3	<1	2	<1	<i>Lirceus</i>
														Decapoda
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Cambaridae
														Insecta
														Ephemeroptera
														Baetidae
19	<1	37	4	17	1	4	<1	12	<1	2	<1	30	2	<i>Baetis</i>
—	—	—	—	—	—	1	<1	—	—	2	<1	4	<1	<i>Pseudocloeon</i>
3	<1	22	2	24	2	9	<1	16	<1	17	1	17	1	Ephemerellidae
														<i>Ephemerella</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Heptageniidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Stenonema</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Leptophlebiidae

**Table 5. Benthic-macroinvertebrate data—Continued**

01473168 - Valley Creek near Valley Forge, Pa. (Site 50)—Continued

Date	Oct. 16, 1981		Oct. 15, 1982		Oct. 21, 1983		Oct. 9, 1984		Oct. 9, 1985		Nov. 7, 1986		Nov. 16, 1987	
Total count	2,183		3,144		1,745		2,073		1,354		1,820		1,625	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Hemiptera</b>														
<b>Corixidae</b>														
<i>Sigara</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	4	<1	—	—	9	<1	—	—	3	<1	2	<1
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	340	15	860	28	370	22	200	10	160	11	590	33	210	13
<i>Cheumatopsyche</i>	120	5	44	1	48	3	6	<1	20	1	8	<1	13	<1
<i>Hydropsyche</i>	120	5	410	13	500	29	220	10	62	4	150	8	270	17
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	4	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Leucotrichia</i>	—	—	1	<1	—	—	1	<1	—	—	1	<1	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	—	—	—	—	4	<1	1	<1	7	<1	27	2	2	<1
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Elmidae</b>														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	17	<1	20	<1	15	<1	22	1	44	3	47	3	67	4
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Promoresia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	9	<1	13	<1	8	<1	7	<1	10	<1	1	<1	38	2
<b>Psephenidae</b>														
<i>Ectopria</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Psephenus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Chironomidae</b>														
	1,100	50	640	21	160	9	720	34	490	35	120	7	350	22
<b>Empididae</b>														
<i>Hemerodromia</i>	6	<1	3	<1	1	<1	1	<1	2	<1	2	<1	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	6	<1	2	<1	—	—	22	1	5	<1	110	6	21	1
<b>Tipulidae</b>														
<i>Antocha</i>	120	5	200	6	130	8	100	5	73	5	180	10	250	16

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 26, 1988		Nov. 6, 1989		Nov. 14, 1990		Oct. 28, 1991		Oct. 5, 1992		Nov. 18, 1993		Nov. 7, 1994		Date
1 2,278		1,046		1,557		1,020		1,848		1,307		1,561		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														<b>Hemiptera</b>
														<b>Corixidae</b>
—		1	<1	—		—		—		—		—		<i>Sigara</i>
—		—		—		—		—		—		—		
														<b>Trichoptera</b>
														<b>Glossosomatidae</b>
—		10	1	2	<1	—		1	<1	—		9	<1	<i>Glossosoma</i>
														<b>Hydropsychidae</b>
290	13	110	11	300	19	92	9	140	7	120	9	170	11	<i>Ceratopsyche</i>
27	1	2	<1	8	<1	17	2	20	1	10	<1	17	1	<i>Cheumatopsyche</i>
510	22	82	8	260	16	120	12	280	15	120	9	110	7	<i>Hydropsyche</i>
														<b>Hydroptilidae</b>
—		—		—		1	<1	—		—		—		<i>Hydroptila</i>
—		—		—		—		2	<1	1	<1	1	<1	<i>Leucotrichia</i>
														<b>Philopotamidae</b>
3	<1	2	<1	—		11	1	19	1	52	4	37	2	<i>Chimarra</i>
														<b>Psychomyiidae</b>
—		—		—		—		—		—		—		<i>Psychomyia</i>
—		—		—		—		—		—		—		
														<b>Coleoptera</b>
														<b>Dryopidae</b>
—		—		—		—		1	<1	—		—		<i>Helichus</i>
														<b>Elmidae</b>
—		—		—		2	<1	—		—		—		<i>Ancyronyx</i>
67	3	54	5	51	3	100	10	370	19	81	6	160	10	<i>Optioservus</i>
—		—		—		—		—		5	<1	1	<1	<i>Oulimnius</i>
—		—		—		—		—		1	<1	—		<i>Promoresia</i>
35	2	21	2	10	<1	—		57	3	5	<1	9	<1	<i>Stenelmis</i>
														<b>Psephenidae</b>
—		—		1	<1	—		—		—		—		<i>Ectopria</i>
—		—		—		—		1	<1	—		1	<1	<i>Psephenus</i>
—		—		—		—		—		—		—		
														<b>Hymenoptera</b>
														<b>Diptera</b>
550	24	300	30	440	27	340	34	470	25	620	48	530	33	<i>Chironomidae</i>
														<b>Empididae</b>
—		2	<1	—		1	<1	6	<1	6	<1	6	<1	<i>Hemerodromia</i>
														<b>Simuliidae</b>
27	1	33	3	26	2	30	3	91	5	14	1	120	8	<i>Simulium</i>
														<b>Tipulidae</b>
59	3	140	14	140	9	140	14	36	2	120	9	110	7	<i>Antocha</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)

Date	Oct. 19, 1981		Oct. 13, 1982		Oct. 27, 1983		Oct. 15, 1984		Oct. 31, 1985		Nov. 14, 1986		Oct. 15, 1987	
Total count	524		215		403		1,208		968		706		1,115	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	3	<1	3	2	4	1	6	<1	3	<1	28	4	5	<1
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		1	<1	—		—		2	<1	—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—		—		—		—		—		1	<1	—	
Lymnaeidae														
<i>Lymnaea</i>	—		—		—		—		—		—		—	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
<i>Helisoma</i>	—		—		—		—		—		1	<1	—	
Bivalvia														
Veneroidea														
Sphaeriidae	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		1	<1	—		4	<1
Tubificida														
Naididae	1	<1	—		2	<1	—		—		—		29	3
Tubificidae	—		—		—		—		—		—		1	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		1	<1	1	<1	3	<1	1	<1	—		17	2
Crustacea														
Cladocera	—		—		—		—		—		—		—	
Cyclopoida	—		—		—		—		—		—		—	
Cyclopidae	—		—		—		—		—		—		1	<1
Amphipoda														
Gammaridae														
<i>Gammarus</i>	3	<1	1	<1	—		2	<1	1	<1	5	<1	—	
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		—		—		—		—		—		—	
Decapoda														
Cambaridae	—		—		—		—		—		—		—	
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	5	1	—		1	<1	19	2	4	<1	1	<1	—	
<i>Pseudocloeon</i>	—		—		—		—		—		—		8	<1
Ephemerellidae														
<i>Ephemerella</i>	6	1	3	2	8	2	24	2	12	1	12	2	27	2

Oct. 18, 1988	Oct. 25, 1989	Nov. 2, 1990	Oct. 29, 1991	Oct. 21, 1992	Oct. 18, 1993	Oct. 4, 1994	Date							
<sup>1</sup> 2,008	1,165	450	1,352	918	369	883	Total count							
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism						
								Platyhelminthes (flatworms)						
								Turbellaria						
								Tricladida						
5	<1	8	<1	2	<1	6	<1	22	2	19	5	2	<1	Planariidae
—		1	<1	—		—		—		—		1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		2	<1	—		2	<1	4	<1	—		—		<i>Prostoma</i>
														Mollusca (molluscs)
—		—		—		—		—		—		1	<1	Gastropoda
														Basommatophora
														Ancylidae
—		—		—		1	<1	10	1	6	2	3	<1	<i>Ferrissia</i>
														Lymnaeidae
—		1	<1	—		—		—		—		—		<i>Lymnaea</i>
														Planorbidae
—		—		—		—		2	<1	—		—		<i>Gyraulus</i>
—		—		—		—		—		—		—		<i>Helisoma</i>
														Bivalvia
														Veneroida
—		—		—		—		2	<1	—		—		Sphaeriidae
														Annelida (segmented worms)
—		—		—		—		—		—		—		Oligochaeta
														Lumbriculida
—		—		—		—		—		—		—		Lumbriculidae
														Tubificida
8	<1	15	1	—		6	<1	15	2	—		6	<1	Naididae
—		—		—		—		—		—		—		Tubificidae
														Arthropoda (arthropods)
—		58	5	—		8	<1	27	3	3	<1	9	1	Acariformes
														Hydrachnidia
—		—		—		—		—		—		2	<1	Crustacea
—		3	<1	1	<1	—		14	2	—		150	17	Cladocera
—		—		—		—		—		—		—		Cyclopoida
														Cyclopidae
														Amphipoda
														Gammaridae
3	<1	—		—		—		—		—		—		<i>Gammarus</i>
														Isopoda
—		1	<1	—		—		—		—		—		Asellidae
														<i>Caecidotea</i>
—		—		—		—		1	<1	—		—		Decapoda
—		2	<1	—		—		—		—		—		Cambaridae
														Podocopa
														Insecta
														Ephemeroptera
														Baetidae
56	3	3	<1	—		—		—		—		20	2	<i>Baetis</i>
—		—		2	<1	—		—		—		1	<1	<i>Pseudocloeon</i>
														Ephemerellidae
11	<1	110	9	6	1	49	3	83	9	1	<1	11	1	<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)—Continued

Date	Oct. 19, 1981		Oct. 13, 1982		Oct. 27, 1983		Oct. 15, 1984		Oct. 31, 1985		Nov. 14, 1986		Oct. 15, 1987	
Total count	524		215		403		1,208		968		706		1,115	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
<i>Stenacron</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	30	6	15	7	55	13	46	4	32	3	51	7	70	6
<b>Isonychiidae</b>														
<i>Isonychia</i>	—		—		2	<1	21	2	6	<1	12	2	39	4
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	—		—		—		—		—		—		—	
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	—		—		—		—		—		—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—		—		1	<1	—		—		—		—	
<b>Aeshnidae</b>														
<i>Boyeria</i>	1	<1	—		—		—		—		—		—	
<b>Gomphidae</b>														
<i>Gomphus</i>	—		—		—		—		—		—		—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	9	2	—		—		15	1	2	<1	—		—	
<b>Chloroperlidae</b>														
<i>Taeniopterygidae</i>	—		—		—		—		—		—		—	
<i>Taeniopteryx</i>	—		—		—		—		—		—		—	
<b>Hemiptera</b>														
<b>Gerridae</b>														
<i>Gerris</i>	—		—		—		—		—		—		—	
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		6	2	—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		—		—		2	<1	—		1	<1	2	<1
<i>Nigronia</i>	1	<1	—		1	<1	1	<1	—		2	<1	—	
<b>Sialidae</b>														
<i>Sialis</i>	—		—		—		—		—		—		1	<1
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	9	2	4	2	13	3	49	4	23	2	31	4	30	3
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	24	5	17	8	77	19	140	12	69	7	87	12	240	22
<i>Cheumatopsyche</i>	41	8	19	9	100	24	140	12	92	9	59	8	70	6
<i>Diplectrona</i>	—		—		—		—		—		—		—	
<i>Hydropsyche</i>	39	7	10	5	4	1	52	4	19	2	59	8	130	12
<b>Hydroptilidae</b>														
<i>Agraylea</i>	—		—		—		1	<1	—		—		—	
<i>Hydroptila</i>	38	7	5	3	15	4	20	2	2	<1	14	2	5	<1
<i>Leucotrichia</i>	—		3	2	1	<1	200	17	260	27	14	2	17	2
<b>Leptoceridae</b>														
<i>Oecetis</i>	—		—		—		—		—		—		—	
<i>Triaenodes</i>	—		—		—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	37	7	18	8	30	7	70	6	68	7	160	23	9	<1
<i>Dolophilodes</i>	—		—		—		—		—		—		—	
<i>Wormaldia</i>	—		—		—		—		—		—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—		—		—		—		—		—		—	



Oct. 18, 1988	Oct. 25, 1989	Nov. 2, 1990	Oct. 29, 1991	Oct. 21, 1992	Oct. 18, 1993	Oct. 4, 1994	Date							
1 2,008	1,165	450	1,352	918	369	883	Total count							
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Heptageniidae
—		—		1	<1	—		—		—		—		<i>Stenacron</i>
53	3	91	8	29	6	26	2	40	4	5	1	34	4	<i>Stenonema</i>
														Isonychiidae
43	2	10	<1	1	<1	5	<1	21	2	1	<1	1	<1	<i>Isonychia</i>
														Leptohyphidae
—		2	<1	—		—		—		—		—		<i>Tricorythodes</i>
														Leptophlebiidae
—		—		—		2	<1	—		—		—		<i>Paraleptophlebia</i>
														Odonata
														Coenagrionidae
—		—		—		—		—		—		—		<i>Argia</i>
														Aeshnidae
—		—		—		—		1	<1	—		—		<i>Boyeria</i>
														Gomphidae
—		—		—		—		2	<1	—		—		<i>Gomphus</i>
														Plecoptera
														Capniidae
3	<1	3	<1	—		—		—		—		—		<i>Allocapnia</i>
—		—		—		—		1	<1	—		1	<1	<i>Chloroperlidae</i>
														Taeniopterygidae
3	<1	10	<1	1	<1	—		1	<1	—		—		<i>Taeniopteryx</i>
														Hemiptera
														Gerridae
—		—		—		—		—		1	<1	—		<i>Gerris</i>
														Veliidae
3	<1	—		—		—		—		—		—		<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—		—		—		—		—		—		—		<i>Corydalus</i>
—		1	<1	—		—		1	<1	—		—		<i>Nigronia</i>
														Sialidae
—		—		—		—		1	<1	—		—		<i>Sialis</i>
														Trichoptera
														Glossosomatidae
11	<1	13	1	15	3	—		4	<1	—		6	<1	<i>Glossosoma</i>
														Hydropsychidae
300	15	230	19	110	24	86	6	62	7	1	<1	93	10	<i>Ceratopsyche</i>
99	5	24	2	6	1	55	4	14	2	11	3	170	19	<i>Cheumatopsyche</i>
—		—		—		2	<1	—		—		—		<i>Dipletrona</i>
220	11	100	8	27	6	180	13	130	14	280	74	130	15	<i>Hydropsyche</i>
														Hydroptilidae
—		—		—		—		—		—		—		<i>Agraylea</i>
11	<1	5	<1	—		1	<1	6	<1	1	<1	4	<1	<i>Hydroptila</i>
5	<1	2	<1	—		—		—		—		—		<i>Leucotrichia</i>
														Leptoceridae
—		1	<1	—		—		—		—		1	<1	<i>Oecetis</i>
—		—		—		—		—		—		1	<1	<i>Trienodes</i>
														Philopotamidae
37	2	52	4	48	10	87	6	2	<1	1	<1	9	1	<i>Chimarra</i>
—		1	<1	—		—		—		—		—		<i>Dolophilodes</i>
—		—		—		—		1	<1	—		—		<i>Wormaldia</i>
														Psychomyiidae
—		1	<1	—		—		—		—		—		<i>Psychomyia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01475300 - Darby Creek at Waterloo Mills near Devon, Pa. (Site 17)—Continued

Date	Oct. 19, 1981		Oct. 13, 1982		Oct. 27, 1983		Oct. 15, 1984		Oct. 31, 1985		Nov. 14, 1986		Oct. 15, 1987	
Total count	524		215		403		1,208		968		706		1,115	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	—	—	—	—	—	—	1	<1	1	<1	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>	—	—	—	—	1	<1	3	<1	—	—	—	—	—	—
<b>Macronychus</b>														
<i>M. glabratus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<i>Microcylloepus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	27	5	19	9	6	2	25	2	38	4	14	2	36	3
<i>Oulimnius</i>	2	<1	9	4	4	1	17	1	16	2	1	<1	22	2
<i>Stenelmis</i>	36	7	18	8	17	4	39	3	35	4	1	<1	23	2
<b>Psephenidae</b>														
<b>Ectopria</b>														
<i>E. nervosa</i>	—	—	—	—	2	<1	—	—	1	<1	—	—	—	—
<i>Psephenus</i>	17	3	12	5	4	1	19	2	53	5	15	2	110	10
<b>Diptera</b>														
<b>Chironomidae</b>														
	170	32	51	23	41	10	240	20	170	18	77	11	150	14
<b>Empididae</b>														
<b>Chelifera</b>														
<i>Hemerodromia</i>	5	1	1	<1	—	—	6	<1	6	<1	—	—	7	<1
<b>Simuliidae</b>														
<i>Simulium</i>	19	4	3	2	1	<1	22	2	20	2	25	4	13	1
<b>Tipulidae</b>														
<i>Antocha</i>	1	<1	3	2	4	1	25	2	33	3	32	5	49	4
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 18, 1988		Oct. 25, 1989		Nov. 2, 1990		Oct. 29, 1991		Oct. 21, 1992		Oct. 18, 1993		Oct. 4, 1994		Date
1 2,008		1,165		450		1,352		918		369		883		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Trichoptera
														Rhyacophilidae
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Rhyacophila</i>
														Uenoidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Neophylax</i>
														Coleoptera
														Elmidae
—	—	5	<1	—	—	—	—	4	<1	—	—	—	—	<i>Ancyronyx</i>
														<i>Macronychus</i>
														<i>M. glabratus</i>
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Microcylloepus</i>
21	1	22	2	7	2	19	1	43	5	4	1	3	<1	<i>Optioservus</i>
—	—	7	<1	—	—	1	<1	3	<1	—	—	—	—	<i>Oulimnius</i>
22	1	85	7	10	2	21	2	15	2	4	1	4	<1	<i>Stenelmis</i>
														Psephenidae
														<i>Ectopria</i>
—	—	2	<1	—	—	3	<1	—	—	—	—	—	—	<i>E. nervosa</i>
11	<1	32	3	15	3	10	<1	17	2	3	<1	3	<1	<i>Psephenus</i>
														Diptera
														Chironomidae
1,000	50	170	14	140	30	730	52	320	34	21	6	170	19	
														Empididae
														<i>Chelifera</i>
8	<1	15	1	—	—	7	<1	7	<1	3	<1	11	1	<i>Hemerodromia</i>
														Simuliidae
27	1	3	<1	—	—	3	<1	21	2	—	—	4	<1	<i>Simulium</i>
														Tipulidae
48	2	72	6	28	6	42	3	20	2	3	<1	32	4	<i>Antocha</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Tipula</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

[<, less than; —, not found]

01475830 - Crum Creek near Paoli, Pa. (Site 18)

Date	Oct. 26, 1981		Oct. 13, 1982	
	Total count			
Organism	Count	Percent	Count	Percent
Platyhelminthes (flatworms)				
Turbellaria				
Tricladida				
Planariidae	6	<1	9	2
Mollusca (molluscs)				
Gastropoda				
Basommatophora				
Ancyliidae				
<i>Ferrissia</i>	4	<1	3	<1
Lymnaeidae				
<i>Lymnaea</i>	2	<1	—	
Annelida (segmented worms)				
Oligochaeta				
Tubificida				
Naididae	—		6	1
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	25	2	39	7
Crustacea				
Decapoda				
Cambaridae				
<i>Procambarus</i>	—		1	<1
Insecta				
Ephemeroptera				
Baetidae				
<i>Baetis</i>	4	<1	—	
<i>Pseudocloeon</i>	2	<1	—	
Ephemerellidae				
<i>Ephemerella</i>	87	8	26	4
Heptageniidae				
<i>Stenonema</i>	160	15	75	13
Isonychiidae				
<i>Isonychia</i>	82	7	8	1
Odonata				
Coenagrionidae				
<i>Argia</i>	1	<1	1	<1
Plecoptera				
Perlidae				
<i>Paragnetina</i>	2	<1	1	<1
Taeniopterygidae				
<i>Taeniopteryx</i>	5	<1	—	
Megaloptera				
Corydalidae				
<i>Corydalus</i>	1	<1	1	<1
Trichoptera				
Glossosomatidae				
<i>Glossosoma</i>	2	<1	1	<1
Hydropsychidae				
<i>Ceratopsyche</i>	100	9	28	5
<i>Cheumatopsyche</i>	73	7	32	5
<i>Hydropsyche</i>	100	9	40	7

**Table 5.** Benthic-macroinvertebrate data—Continued

01475830 - Crum Creek near Paoli, Pa. (Site 18)—Continued

Date	Oct. 26, 1981		Oct. 13, 1982	
Total count	1,133		581	
Organism	Count	Percent	Count	Percent
<b>Trichoptera</b>				
<b>Hydroptilidae</b>				
<i>Hydroptila</i>	23	2	30	5
<i>Leucotrichia</i>	11	1	63	11
<b>Philopotamidae</b>				
<i>Chimarra</i>	12	1	2	<1
<b>Lepidoptera</b>				
<b>Noctuidae</b>				
	—		1	<1
<b>Pyalidae</b>				
<i>Petrophila</i>	53	5	52	9
<b>Coleoptera</b>				
<b>Elmidae</b>				
<i>Optioservus</i>	2	<1	4	<1
<i>Stenelmis</i>	4	<1	6	1
<b>Psephenidae</b>				
<i>Ectopria</i>				
<i>E. nervosa</i>	1	<1	—	
<i>Psephenus</i>	3	<1	1	<1
<b>Diptera</b>				
<b>Chironomidae</b>				
	280	25	120	20
<b>Empididae</b>				
<i>Hemerodromia</i>	25	2	13	2
<b>Simuliidae</b>				
<i>Simulium</i>	30	3	1	<1
<b>Tipulidae</b>				
<i>Antocha</i>	33	3	17	3

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)

Date	Oct. 26, 1981		Oct. 13, 1982		Oct. 27, 1983		Oct. 25, 1984		Oct. 15, 1985		Oct. 9, 1986		Nov. 2, 1987	
Total count	992		1,636		525		1,222		568		907		1,285	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	6	<1	50	3	12	2	6	<1	1	<1	1	<1	8	<1
Nematoda (nematodes)	—		2	<1	2	<1	—		—		—		—	
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		7	<1	—		—		—		—		—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	9	<1	11	<1	2	<1	7	<1	6	1	36	4	19	1
Lymnaeidae														
<i>Lymnaea</i>	1	<1	—		—		—		—		—		2	<1
Physidae														
<i>Physa</i>	—		—		1	<1	—		—		—		—	
Planorbidae														
<i>Helisoma</i>	—		—		—		—		—		—		2	<1
Bivalvia														
Veneroidea														
Sphaeriidae	—		—		—		—		—		—		—	
<i>Pisidium</i>	—		—		—		—		—		—		—	
<i>Sphaerium</i>	3	<1	—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	5	<1	—		—		1	<1	—		—		—	
Tubificida														
Naididae	22	2	98	6	3	<1	7	<1	2	<1	1	<1	150	12
Tubificidae	—		—		—		—		—		—		3	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	1	<1	4	<1	—		—		3	<1	1	<1	87	7
Crustacea														
Cyclopoida														
Cyclopoida	—		—		—		—		—		—		—	
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		—		1	<1	—		—		—		—	
Decapoda														
Cambaridae	—		1	<1	—		—		—		—		—	
<i>Cambarus</i>	1	<1	—		—		—		—		—		—	
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	4	<1	5	<1	—		2	<1	2	<1	12	1	10	<1
<i>Pseudocloeon</i>	5	<1	—		1	<1	—		3	<1	—		—	
Caenidae														
<i>Caenis</i>	1	<1	—		2	<1	—		—		—		4	<1
Ephemerellidae														
<i>Ephemerella</i>	29	3	67	4	19	4	34	3	20	3	21	2	40	3

Oct. 18, 1988	Oct. 18, 1989	Nov. 2, 1990	Oct. 29, 1991	Oct. 21, 1992	Oct. 28, 1993	Oct. 3, 1994	Date							
<sup>1</sup> 2,028	1,644	1,117	1,789	1,881	538	1,240	Total count							
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—	8	<1	19	2	20	1	5	<1	22	4	12	1		Planariidae
—	5	<1	3	<1	16	1	—	—	—	—	1	<1		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
3	<1	2	<1	2	<1	11	<1	5	<1	—	—	3	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—	—	—	1	<1	1	<1	4	<1	1	<1	6	<1		<i>Ferrissia</i>
														Lymnaeidae
—	—	—	—	—	—	—	—	—	—	—	—	—		<i>Lymnaea</i>
														Physidae
—	1	<1	1	<1	—	—	—	—	—	—	—	—		<i>Physa</i>
														Planorbidae
—	—	—	—	—	—	—	—	—	—	—	—	—		<i>Helisoma</i>
														Bivalvia
														Veneroida
—	—	—	—	1	<1	—	—	—	—	—	—	—		Sphaeriidae
—	2	<1	—	—	—	—	—	—	—	—	—	—		<i>Pisidium</i>
—	—	—	—	—	—	—	—	—	—	—	—	—		<i>Sphaerium</i>
														Annelida (segmented worms)
—	—	—	—	—	—	—	—	—	2	<1	—	—		Oligochaeta
														Lumbriculida
—	—	—	—	—	—	—	—	—	—	—	—	—		Lumbriculidae
														Tubificida
21	1	98	6	10	<1	95	5	250	13	—	—	45	4	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Arthropoda (arthropods)
														Acariformes
—	87	5	40	4	51	3	36	2	3	<1	16	1		Hydrachnidia
														Crustacea
—	—	—	—	2	<1	—	—	—	—	—	—	—		Cyclopoida
														Isopoda
														Asellidae
—	—	—	—	—	—	—	—	—	—	—	—	—		<i>Caecidotea</i>
														Decapoda
—	—	—	—	—	—	—	—	—	—	—	—	—		Cambaridae
—	—	—	—	—	—	—	—	—	—	—	—	—		<i>Cambarus</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—		Podocopa
														Insecta
														Ephemeroptera
														Baetidae
—	1	<1	—	1	<1	1	<1	1	<1	—	—	52	4	<i>Baetis</i>
27	1	<1	1	<1	2	<1	6	<1	1	<1	7	<1		<i>Pseudocloeon</i>
														Caenidae
5	<1	—	—	—	—	—	—	—	—	—	2	<1		<i>Caenis</i>
														Ephemerellidae
—	29	2	15	1	75	4	53	3	13	2	17	1		<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)—Continued

Date	Oct. 26, 1981		Oct. 13, 1982		Oct. 27, 1983		Oct. 25, 1984		Oct. 15, 1985		Oct. 9, 1986		Nov. 2, 1987	
Total count	992		1,636		525		1,222		568		907		1,285	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
<i>Epeorus</i>	1	<1	—	—	5	1	—	—	—	—	—	—	35	3
<i>Stenonema</i>	55	6	51	3	24	4	39	3	25	4	33	4	39	3
<b>Isonychiidae</b>														
<i>Isonychia</i>	17	2	14	<1	19	4	27	2	8	1	19	2	21	2
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	—	—	2	<1	1	<1	—	—	—	—	—	—	—	—
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	1	<1	—	—	—	—	—	—	—	—	1	<1
<b>Aeshnidae</b>														
<i>Aeshna</i>	1	<1	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Gomphidae</b>														
<i>Gomphidae</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—	—	—	—	—	—	—	—	3	<1	—	—	18	1
<b>Chloroperlidae</b>														
<i>Chloroperlidae</i>	—	—	—	—	—	—	—	—	—	—	—	—	12	<1
<b>Perlidae</b>														
<i>Acroneuria</i>	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
<i>Agneta</i>	—	—	2	<1	—	—	—	—	—	—	—	—	—	—
<i>Neoperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	1	<1	1	<1	2	<1	1	<1	—	—	2	<1	55	4
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	1	<1	3	<1	—	—	—	—	—	—	—	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	1	<1	—	—	—	—	6	<1	1	<1	—	—	—	—
<i>Nigronia</i>	1	<1	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Sialidae</b>														
<i>Sialis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Brachycentridae</b>														
<i>Micrasema</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	1	<1	—	—	5	<1	3	<1	1	<1	3	<1
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	160	16	270	17	43	8	210	18	36	6	48	5	200	15
<i>Cheumatopsyche</i>	68	7	55	3	8	2	130	11	35	6	7	<1	9	<1
<i>Hydropsyche</i>	32	3	67	4	1	<1	10	<1	1	<1	24	3	40	3
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	65	7	3	<1	14	3	19	2	2	<1	7	<1	14	1
<i>Leucotrichia</i>	63	6	290	18	35	6	420	35	100	17	420	46	170	13
<b>Leptoceridae</b>														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	49	5	35	2	3	<1	12	1	3	<1	11	1	14	1



Oct. 18, 1988		Oct. 18, 1989		Nov. 2, 1990		Oct. 29, 1991		Oct. 21, 1992		Oct. 28, 1993		Oct. 3, 1994		Date
1 2,028		1,644		1,117		1,789		1,881		538		1,240		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
—		11	<1	11	<1	12	<1	10	<1	—		—		<i>Epeorus</i>
11	<1	41	2	36	3	26	1	19	1	7	1	11	<1	<i>Stenonema</i>
<b>Isonychiidae</b>														
27	1	4	<1	13	1	21	1	27	1	5	1	13	1	<i>Isonychia</i>
<b>Leptohyphidae</b>														
—		—		—		—		1	<1	—		—		<i>Tricorythodes</i>
<b>Leptophlebiidae</b>														
3	<1	—		—		2	<1	—		—		—		<i>Paraleptophlebia</i>
<b>Odonata</b>														
<b>Coenagrionidae</b>														
—		—		—		—		—		—		—		<i>Argia</i>
<b>Aeshnidae</b>														
—		—		—		—		—		—		—		<i>Aeshna</i>
<b>Gomphidae</b>														
<b>Plecoptera</b>														
<b>Capniidae</b>														
5	<1	1	<1	1	<1	7	<1	6	<1	1	<1	—		<i>Allocapnia</i>
—		—		4	<1	19	1	3	<1	—		—		<i>Chloroperlidae</i>
<b>Perlidae</b>														
—		2	<1	—		—		3	<1	—		—		<i>Acroneuria</i>
—		—		—		—		—		—		—		<i>Agnatina</i>
—		1	<1	—		—		—		—		—		<i>Neoperla</i>
—		—		—		—		—		—		—		<i>Paragnetina</i>
80	4	46	3	9	<1	19	1	13	<1	—		5	<1	<i>Taeniopterygidae</i>
<b>Taeniopteryx</b>														
<b>Hemiptera</b>														
<b>Veliidae</b>														
—		—		—		—		—		—		—		<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—		—		—		1	<1	—		—		—		<i>Corydalus</i>
—		1	<1	—		—		—		—		—		<i>Nigronia</i>
<b>Sialidae</b>														
—		—		—		—		—		—		1	<1	<i>Sialis</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—		—		—		—		—		—		—		<i>Apatania</i>
<b>Brachycentridae</b>														
—		—		1	<1	7	<1	6	<1	2	<1	3	<1	<i>Micrasema</i>
<b>Glossosomatidae</b>														
3	<1	6	<1	2	<1	—		2	<1	—		3	<1	<i>Glossosoma</i>
<b>Hydropsychidae</b>														
67	3	60	4	130	12	120	7	110	6	14	3	210	18	<i>Ceratopsyche</i>
11	<1	9	<1	14	1	58	3	42	2	20	4	44	4	<i>Cheumatopsyche</i>
8	<1	1	<1	3	<1	11	<1	1	<1	57	10	11	<1	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
3	<1	160	9	20	2	20	1	110	6	5	1	22	2	<i>Hydroptila</i>
330	17	410	24	280	25	130	7	270	14	95	17	170	14	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
—		—		1	<1	—		—		—		—		<i>Mystacides</i>
<b>Philopotamidae</b>														
—		4	<1	14	1	8	<1	3	<1	4	<1	3	<1	<i>Chimarra</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01475840 - Crum Creek at Whitehorse, Pa. (Site 19)—Continued

Date	Oct. 26, 1981		Oct. 13, 1982		Oct. 27, 1983		Oct. 25, 1984		Oct. 15, 1985		Oct. 9, 1986		Nov. 2, 1987	
Total count	992		1,636		525		1,222		568		907		1,285	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Polycentropus</i>	—	—	2	<1	2	<1	—	—	—	—	1	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	2	<1	1	<1	—	—	—	—	—	—	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	24	2	31	2	62	11	24	2	5	<1	39	4	24	2
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Dubiraphia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	15	2	17	1	7	1	15	1	16	3	4	<1	14	1
<i>Oulimnius</i>	—	—	—	—	—	—	7	<1	1	<1	—	—	—	—
<i>Stenelmis</i>	6	<1	7	<1	1	<1	7	<1	2	<1	5	<1	5	<1
<b>Psephenidae</b>														
<i>Ectopria</i>	2	<1	2	<1	—	—	—	—	—	—	—	—	—	—
<i>Psephenus</i>	2	<1	4	<1	—	—	7	<1	6	1	3	<1	—	—
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Chironomidae</b>														
<i>Chironomidae</i>	270	27	450	28	200	37	160	13	250	43	140	15	150	12
<b>Empididae</b>														
<i>Hemerodromia</i>	15	2	15	<1	2	<1	4	<1	3	<1	4	<1	6	<1
<b>Simuliidae</b>														
<i>Simulium</i>	5	<1	46	3	2	<1	2	<1	12	2	11	1	28	2
<b>Tipulidae</b>														
<i>Antocha</i>	47	5	19	1	49	9	60	5	18	3	49	5	100	8

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 18, 1988		Oct. 18, 1989		Nov. 2, 1990		Oct. 29, 1991		Oct. 21, 1992		Oct. 28, 1993		Oct. 3, 1994		Date
1 2,028		1,644		1,117		1,789		1,881		538		1,240		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Trichoptera
														Polycentropodidae
														<i>Neureclipsis</i>
—		2	<1	1	<1	1	<1	—		—		—		<i>Polycentropus</i>
														Psychomyiidae
														<i>Psychomyia</i>
—		1	<1	—		—		—		5	1	1	<1	
														Rhyacophilidae
														<i>Rhyacophila</i>
—		—		—		—		—		—		—		
														Uenoidae
														<i>Neophylax</i>
—		1	<1	—		—		—		—		—		
														Lepidoptera
														Pyalidae
														<i>Petrophila</i>
37	2	67	4	37	3	35	2	49	3	33	6	45	4	
														Coleoptera
														Elmidae
														<i>Dubiraphia</i>
—		1	<1	—		—		—		—		—		
8	<1	16	<1	6	<1	67	4	34	2	5	1	31	3	<i>Optioservus</i>
—		1	<1	6	<1	2	<1	—		—		4	<1	<i>Oulimnius</i>
3	<1	6	<1	6	<1	34	2	9	<1	17	3	21	2	<i>Stenelmis</i>
														Psephenidae
														<i>Ectopria</i>
3	<1	2	<1	2	<1	—		—		—		—		
3	<1	—		5	<1	3	<1	5	<1	2	<1	8	<1	<i>Psephenus</i>
—		—		—		—		—		—		—		
														Hymenoptera
														Diptera
														Athericidae
														<i>Atherix</i>
1,300	65	420	25	280	25	800	44	690	36	180	33	340	28	
														Chironomidae
														Empididae
														<i>Hemerodromia</i>
3	<1	41	2	16	1	9	<1	11	<1	5	1	28	2	
														Simuliidae
														<i>Simulium</i>
27	1	10	<1	5	<1	2	<1	13	<1	1	<1	34	3	
														Tipulidae
														<i>Antocha</i>
40	2	85	5	120	11	100	6	84	4	38	7	71	6	

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)

Date	Nov. 5, 1981		Oct. 14, 1982		Oct. 27, 1983		Oct. 25, 1984		Oct. 15, 1985		Oct. 9, 1986		Oct. 26, 1987		
Total count	241		1,345		1,855		1,688		722		980		1,881		
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	
Platyhelminthes (flatworms)															
Turbellaria															
Tricladida															
Planariidae	1	<1	8	<1	5	<1	—	—	41	6	36	4	35	2	
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	7	<1	
Nemertea (proboscis worms)															
Enopla															
Hoplonemertea															
Tetrastemmatidae															
<i>Prostoma</i>	2	1	3	<1	—	—	3	<1	—	—	3	<1	—	—	
Mollusca (molluscs)															
Gastropoda															
Basommatophora															
Ancyliidae															
<i>Ferrissia</i>	—	—	3	<1	—	—	—	—	—	—	—	—	20	1	
Lymnaeidae															
<i>Lymnaea</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—	
Physidae															
<i>Physa</i>	6	3	—	—	3	<1	—	—	—	—	—	—	4	<1	
Planorbidae															
<i>Gyraulus</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—	
<i>Helisoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1	
Bivalvia															
Veneroida															
Sphaeriidae															
<i>Pisidium</i>	—	—	5	<1	5	<1	5	<1	—	—	—	—	—	6	<1
<i>Sphaerium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Annelida (segmented worms)															
Oligochaeta															
Lumbriculida															
Lumbriculidae	—	—	—	—	5	<1	8	<1	—	—	—	—	—	—	
Tubificida															
Naididae	—	—	—	—	—	—	—	—	—	—	—	—	94	5	
Tubificidae	3	1	—	—	—	—	—	—	—	—	—	—	6	<1	
Arthropoda (arthropods)															
Acariformes															
Hydrachnidia	—	—	3	<1	—	—	—	—	8	1	26	3	58	3	
Crustacea															
Cyclopoida															
Cyclopidae	—	—	—	—	—	—	—	—	—	—	—	—	3	<1	
Amphipoda															
Crangonyctidae															
<i>Crangonyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Gammaridae															
<i>Gammarus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Talitridae															
<i>Hyallole</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
<i>H. azteca</i>	—	—	—	—	—	—	—	—	—	—	—	—	11	<1	
Isopoda															
Asellidae															
<i>Caecidotea</i>	1	<1	—	—	3	<1	—	—	—	—	—	—	—	—	
Podocopa															
Podocopa	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Oct. 25, 1988		Nov. 14, 1989		Oct. 30, 1990		Nov. 6, 1991		Oct. 20, 1992		Oct. 25, 1993		Oct. 7, 1994		Date
1,660		767		757		547		1,297		511		572		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
35	2	18	2	31	4	6	1	58	4	65	13	14	2	Planariidae
—	—	—	—	—	—	1	<1	1	<1	—	—	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	2	<1	—	—	1	<1	3	<1	—	—	10	2	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—	—	2	<1	3	<1	1	<1	1	<1	1	<1	25	4	<i>Ferrissia</i>
														Lymnaeidae
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Lymnaea</i>
														Physidae
—	—	1	<1	1	<1	—	—	—	—	—	—	—	—	<i>Physa</i>
														Planorbidae
—	—	—	—	1	<1	—	—	3	<1	—	—	—	—	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
														Bivalvia
														Veneroidea
—	—	—	—	—	—	1	<1	13	1	2	<1	—	—	Sphaeriidae
8	<1	3	<1	1	<1	—	—	—	—	—	—	—	—	<i>Pisidium</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Sphaerium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	2	<1	1	<1	1	<1	5	<1	3	<1	3	<1	Lumbriculidae
														Tubificida
3	<1	17	2	40	5	4	<1	25	2	4	<1	3	<1	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Arthropoda (arthropods)
														Acariformes
—	—	74	10	15	2	19	3	72	6	55	11	30	5	Hydrachnidia
														Crustacea
														Cyclopoida
—	—	—	—	6	<1	—	—	—	—	—	—	—	—	Cyclopidae
														Amphipoda
														Crangonyctidae
—	—	—	—	—	—	—	—	—	—	3	<1	—	—	<i>Crangonyx</i>
														Gammaridae
—	—	7	<1	3	<1	—	—	21	2	—	—	—	—	<i>Gammarus</i>
														Talitridae
														<i>Hyalolella</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>H. azteca</i>
														Isopoda
														Asellidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Caecidotea</i>
—	—	—	—	—	—	—	—	17	1	—	—	—	—	Podocopa

**Table 5. Benthic-macroinvertebrate data—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)—Continued

Date	Nov. 5, 1981		Oct. 14, 1982		Oct. 27, 1983		Oct. 25, 1984		Oct. 15, 1985		Oct. 9, 1986		Oct. 26, 1987	
Total count	241		1,345		1,855		1,688		722		980		1,881	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
<i>Baetis</i>	—		3	<1	—		3	<1	5	<1	38	4	4	<1
<i>Pseudocloeon</i>	—		3	<1	—		—		—		—		—	
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	14	6	32	2	130	15	130	8	17	2	57	6	120	6
<b>Heptageniidae</b>														
<i>Stenacron</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	17	7	48	3	35	4	19	1	16	2	73	7	79	4
<b>Isonychiidae</b>														
<i>Isonychia</i>	—		—		5	<1	3	<1	—		—		3	<1
<b>Leptohiphidae</b>														
<i>Tricorythodes</i>	—		—		—		3	<1	—		—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	1	<1	—		—		—		—		2	<1	2	<1
<i>Enallagma</i>	—		—		—		—		—		—		—	
<b>Aeshnidae</b>														
<i>Aeshna</i>	—		—		—		—		—		—		—	
<i>Boyeria</i>	—		—		—		—		1	<1	—		—	
<b>Plecoptera</b>														
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	1	<1	3	<1	—		—		1	<1	1	<1	20	1
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		—		—		—		1	<1	—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Nigronia</i>	1	<1	3	<1	3	<1	—		—		1	<1	—	
<b>Sialidae</b>														
<i>Sialis</i>	2	1	—		—		—		—		—		—	
<b>Trichoptera</b>														
<b>Brachycentridae</b>														
<i>Micrasema</i>	—		—		—		3	<1	—		—		—	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	5	<1	3	<1	21	1	1	<1	2	<1	1	<1
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	12	5	220	16	150	17	290	17	90	12	99	10	220	12
<i>Cheumatopsyche</i>	23	9	290	21	40	5	400	24	83	11	18	2	58	3
<i>Hydropsyche</i>	14	6	45	3	35	4	100	6	31	4	220	22	310	16
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	2	1	48	3	13	2	11	<1	4	<1	25	3	100	5
<i>Leucotrichia</i>	—		130	9	—		3	<1	12	2	73	7	56	3
<b>Leptoceridae</b>														
<i>Mystacides</i>	—		—		—		—		—		—		—	
<i>Oecetis</i>	—		5	<1	—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	—		53	4	37	4	29	2	7	1	49	5	2	<1
<i>Wormaldia</i>	—		—		—		—		—		—		—	
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	2	1	11	<1	—		—		—		2	<1	—	

Oct. 25, 1988		Nov. 14, 1989		Oct. 30, 1990		Nov. 6, 1991		Oct. 20, 1992		Oct. 25, 1993		Oct. 7, 1994		Date
1,660		767		757		547		1,297		511		572		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
3	<1	—	—	—	—	1	<1	—	—	—	—	1	<1	<i>Baetis</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Pseudocloeon</i>
<b>Ephemerellidae</b>														
37	2	36	5	4	<1	1	<1	8	<1	27	5	17	3	<i>Ephemerella</i>
<b>Heptageniidae</b>														
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Stenacron</i>
110	6	7	<1	10	1	—	—	14	1	—	—	5	<1	<i>Stenonema</i>
<b>Isonychiidae</b>														
3	<1	1	<1	1	<1	—	—	—	—	—	—	—	—	<i>Isonychia</i>
<b>Leptohyphidae</b>														
—	—	—	—	1	<1	—	—	1	<1	—	—	—	—	<i>Tricorythodes</i>
<b>Odonata</b>														
<b>Coenagrionidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	2	<1	<i>Argia</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Enallagma</i>
<b>Aeshnidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Aeshna</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Boyeria</i>
<b>Plecoptera</b>														
<b>Taeniopterygidae</b>														
19	1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Veliidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	2	<1	<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Nigronia</i>
<b>Sialidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Sialis</i>
<b>Trichoptera</b>														
<b>Brachycentridae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Micrasema</i>
<b>Glossosomatidae</b>														
—	—	2	<1	1	<1	—	—	—	—	—	—	—	—	<i>Glossosoma</i>
<b>Hydropsychidae</b>														
150	9	84	11	56	7	23	4	36	3	22	4	18	3	<i>Ceratopsyche</i>
96	6	28	4	10	1	100	18	11	<1	9	2	81	14	<i>Cheumatopsyche</i>
120	7	14	2	24	3	95	17	140	11	28	5	53	9	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
250	15	67	9	17	2	—	—	11	<1	3	<1	16	3	<i>Hydroptila</i>
44	3	—	—	4	<1	—	—	—	—	—	—	—	—	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Mystacides</i>
—	—	—	—	—	—	—	—	—	—	3	<1	—	—	<i>Oecetis</i>
<b>Philopotamidae</b>														
3	<1	—	—	—	—	—	—	5	<1	—	—	6	1	<i>Chimarra</i>
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Wormaldia</i>
<b>Polycentropodidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Polycentropus</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476430 - Ridley Creek at Goshenville, Pa. (Site 20)—Continued

Date	Nov. 5, 1981		Oct. 14, 1982		Oct. 27, 1983		Oct. 25, 1984		Oct. 15, 1985		Oct. 9, 1986		Oct. 26, 1987	
Total count	241		<sup>1</sup> 1,345		<sup>1</sup> 855		<sup>1</sup> 1,688		722		980		1,881	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
Psychomyiidae														
<i>Psychomyia</i>	2	1	110	8	—	—	—	—	—	—	—	—	—	—
Rhyacophilidae														
<i>Rhyacophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Uenoidae														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
Noctuidae														
<i>Archanara</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
Curculionidae														
Elmidae														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>A. variegata</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	2	1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	1	<1	56	4	13	2	8	<1	1	<1	4	<1	16	<1
<i>Oulimnius</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
<i>Promoresia</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	1	<1	5	<1	3	<1	—	—	—	—	—	—	—	—
Psephenidae														
<i>Ectopria</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>E. nervosa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Psephenus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hymenoptera</b>														
Diptera														
Chironomidae	39	16	140	10	180	21	260	15	280	38	82	8	250	13
Empididae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Chelifera</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	4	2	11	<1	11	1	3	<1	4	<1	10	1	13	<1
Ephydriidae	—	—	—	—	19	2	—	—	—	—	—	—	2	<1
Psychodidae	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Telmatoscopus</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Simuliidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Simulium</i>	80	32	27	2	130	15	290	17	47	6	58	6	240	13
Tipulidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Antocha</i>	7	3	69	5	27	3	96	6	73	10	96	10	140	7
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Oct. 25, 1988		Nov. 14, 1989		Oct. 30, 1990		Nov. 6, 1991		Oct. 20, 1992		Oct. 25, 1993		Oct. 7, 1994		Date
1,660		767		757		547		1,297		511		572		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Psychomyiidae</b>														
—		—		—		—		—		—		1	<1	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
3	<1	—		—		—		—		—		—		<i>Rhyacophila</i>
<b>Uenoidae</b>														
3	<1	1	<1	—		—		—		—		—		<i>Neophylax</i>
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
—		—		—		—		—		—		1	<1	<i>Archanara</i>
<b>Coleoptera</b>														
<b>Curculionidae</b>														
—		—		—		—		1	<1	—		—		
<b>Elmidae</b>														
8	<1	—		—		—		—		4	<1	—		<i>Ancyronyx</i>
—		—		2	<1	—		—		—		—		<i>A. variegata</i>
—		—		—		—		—		3	<1	—		<i>Dubiraphia</i>
22	1	10	1	8	1	31	6	39	3	87	17	45	8	<i>Optioservus</i>
—		—		—		—		—		—		1	<1	<i>Oulimnius</i>
—		—		—		—		—		—		—		<i>Promoresia</i>
8	<1	4	<1	2	<1	4	<1	5	<1	30	6	10	2	<i>Stenelmis</i>
<b>Psephenidae</b>														
<b>Ectopria</b>														
—		1	<1	1	<1	1	<1	2	<1	21	4	17	3	<i>E. nervosa</i>
—		—		—		—		—		—		—		<i>Psephenus</i>
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Chironomidae</b>														
420	25	260	34	330	43	190	35	510	39	110	21	130	22	
<b>Empididae</b>														
—		—		1	<1	—		—		—		—		<i>Chelifera</i>
8	<1	6	<1	14	2	2	<1	13	1	6	1	7	1	<i>Hemerodromia</i>
<b>Ephydriidae</b>														
<b>Psychodidae</b>														
—		—		—		—		—		—		—		<i>Telmatoscopus</i>
<b>Simuliidae</b>														
210	12	100	13	37	5	64	12	210	16	1	<1	30	5	<i>Simulium</i>
<b>Tipulidae</b>														
88	5	19	2	130	17	1	<1	66	5	21	4	44	8	<i>Antocha</i>
—		—		—		—		2	<1	—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)

Date	Nov. 5, 1981		Oct. 14, 1982		Oct. 27, 1983		Oct. 15, 1984		Oct. 15, 1985		Oct. 9, 1986		Oct. 15, 1987	
Total count	1,407		1 1,578		1 1,697		1 3,842		1,617		1,629		1,198	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	31	2	—	—	61	4	27	<1	37	2	50	3	10	<1
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	2	<1	3	<1	—	—	—	—	5	<1	2	<1	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	2	<1	—	—	—	—	21	<1	5	<1	13	<1	47	4
Lymnaeidae														
<i>Lymnaea</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Physidae														
<i>Physa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Planorbidae														
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroidea														
Sphaeriidae	—	—	—	—	—	—	—	—	10	<1	8	<1	—	—
<i>Pisidium</i>	3	<1	—	—	5	<1	—	—	—	—	—	—	—	—
<i>Sphaerium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	3	<1	—	—	3	<1	—	—	—	—	1	<1
Tubificida														
Naididae	1	<1	—	—	—	—	—	—	—	—	—	—	2	<1
Tubificidae	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—	—	3	<1	3	<1	—	—	3	<1	140	9	16	1
Crustacea														
Cyclopoida														
Cyclopidae	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Amphipoda														
Crangonyctidae														
<i>Crangonyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Isopoda														
Asellidae														
<i>Caecidotea</i>	—	—	—	—	5	<1	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—	—	35	2	5	<1	64	2	4	<1	18	1	10	<1
<i>Pseudocloeon</i>	—	—	19	1	35	2	80	2	—	—	—	—	42	3
Caenidae														
<i>Caenis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>	110	8	64	4	260	15	200	5	100	6	72	5	27	2

Oct. 25, 1988		Nov. 14, 1989		Oct. 30, 1990		Nov. 6, 1991		Oct. 20, 1992		Oct. 25, 1993		Oct. 7, 1994		Date
<sup>1</sup> 2,446		1,347		2,813		1,509		1,391		1,467		1,322		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
3	<1	7	<1	27	<1	3	<1	21	2	25	2	14	1	Planariidae
—		3	<1	—		—		—		1	<1	—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		1	<1	4	<1	—		1	<1	—		—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
19	<1	2	<1	32	1	—		120	9	11	<1	4	<1	<i>Ferrissia</i>
—		—		—		—		—		—		—		Lymnaeidae
—		—		—		—		—		—		—		<i>Lymnaea</i>
—		—		—		—		1	<1	—		—		Physidae
—		—		1	<1	—		—		—		—		<i>Physa</i>
—		—		—		—		—		—		—		Planorbidae
—		—		—		—		—		—		—		<i>Gyraulus</i>
														Bivalvia
														Veneroida
—		—		—		—		—		—		—		Sphaeriidae
—		1	<1	—		—		—		—		—		<i>Pisidium</i>
—		—		1	<1	—		—		—		—		<i>Sphaerium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—		—		1	<1	—		—		—		—		Lumbriculidae
—		21	2	—		—		4	<1	4	<1	2	<1	Tubificida
—		—		—		—		—		—		—		Naididae
—		—		—		—		—		—		—		Tubificidae
														Arthropoda (arthropods)
—		19	1	15	<1	13	<1	21	2	11	<1	10	<1	Acariformes
														Hydrachnidia
—		4	<1	2	<1	—		—		1	<1	—		Crustacea
—		—		—		—		—		—		—		Cyclopoida
—		—		—		—		—		—		—		Cyclopidae
														Amphipoda
—		—		—		—		—		1	<1	—		Crangonyctidae
—		—		—		—		—		—		—		<i>Crangonyx</i>
														Isopoda
—		—		—		—		—		—		—		Asellidae
—		—		—		—		—		—		—		<i>Caecidotea</i>
														Insecta
														Ephemeroptera
														Baetidae
21	<1	—		—		—		1	<1	7	<1	52	4	<i>Baetis</i>
—		—		2	<1	—		—		2	<1	2	<1	<i>Pseudocloeon</i>
—		—		—		—		—		2	<1	—		Caenidae
—		—		—		—		—		—		—		<i>Caenis</i>
61	2	77	6	150	5	28	2	36	3	37	2	10	<1	Ephemerellidae
														<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)—Continued

Date	Nov. 5, 1981		Oct. 14, 1982		Oct. 27, 1983		Oct. 15, 1984		Oct. 15, 1985		Oct. 9, 1986		Oct. 15, 1987	
Total count	1,407		1,578		1,697		3,842		1,617		1,629		1,198	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
<i>Epeorus</i>	2	<1	5	<1	5	<1	3	<1	—	—	—	—	—	—
<i>Stenonema</i>	44	3	91	6	170	10	91	2	38	2	78	5	51	4
<b>Isonychiidae</b>														
<i>Isonychia</i>	3	<1	—	—	21	1	72	2	41	3	99	6	37	3
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	—	—	—	—	3	<1	—	—	—	—	—	—	1	<1
<b>Leptophlebiidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	3	<1	3	<1	—	—	—	—	—	—	—	—
<b>Aeshnidae</b>														
<i>Boyeria</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Macromiidae</b>														
<i>Macromia</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocaenia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Chloroperlidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Nemouridae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Perlidae</b>														
<i>Acroneuria</i>	3	<1	—	—	—	—	3	<1	—	—	—	—	—	—
<i>Agneta</i>	—	—	5	<1	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	1	<1	—	—	3	<1	—	—	—	—	—	—	—	—
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	7	<1	3	<1	8	<1	13	<1	17	1	2	<1	95	8
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Microvelia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	2	<1	—	—	5	<1	—	—	—	—	3	<1	—	—
<i>Nigronia</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Brachycentridae</b>														
<i>Micrasema</i>	1	<1	—	—	—	—	3	<1	4	<1	19	1	1	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	3	<1	3	<1	16	<1	—	—	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	180	13	420	26	310	18	1000	26	440	27	260	16	240	20
<i>Cheumatopsyche</i>	240	17	59	4	270	16	660	17	260	16	27	2	18	2
<i>Hydropsyche</i>	10	<1	11	<1	24	1	91	2	36	2	100	6	78	7
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	4	<1	3	<1	3	<1	—	—	5	<1	4	<1	1	<1
<i>Leucotrichia</i>	210	15	130	8	11	<1	140	4	4	<1	120	8	8	<1
<b>Philopotamidae</b>														
<i>Chimarra</i>	79	6	72	5	61	4	80	2	24	2	2	<1	3	<1
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	3	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Polycentropus</i>	4	<1	3	<1	—	—	3	<1	1	<1	1	<1	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	29	2	3	<1	—	—	—	—	1	<1	—	—	—	—

Oct. 25, 1988		Nov. 14, 1989		Oct. 30, 1990		Nov. 6, 1991		Oct. 20, 1992		Oct. 25, 1993		Oct. 7, 1994		Date
1 2,446		1,347		2,813		1,509		1,391		1,467		1,322		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Heptageniidae
														<i>Epeorus</i>
110	4	24	2	160	6	15	1	90	6	76	5	51	4	<i>Stenonema</i>
														Isonychiidae
51	2	42	3	79	3	34	2	60	4	23	2	36	3	<i>Isonychia</i>
														Leptohyphidae
8	<1	2	<1	1	<1	3	<1	2	<1	—		—		<i>Tricorythodes</i>
—		1	<1	—		—		—		—		—		Leptophlebiidae
														Odonata
														Coenagrionidae
—		—		1	<1	—		2	<1	—		—		<i>Argia</i>
														Aeshnidae
—		—		1	<1	—		—		—		—		<i>Boyeria</i>
														Macromiidae
—		—		—		—		—		—		—		<i>Macromia</i>
														Plecoptera
														Capniidae
8	<1	8	<1	3	<1	8	<1	4	<1	30	2	—		<i>Allocapnia</i>
—		—		—		—		1	<1	1	<1	—		Chloroperlidae
3	<1	—		—		—		—		—		—		Nemouridae
														Perlidae
—		—		—		—		—		—		—		<i>Acroneuria</i>
—		—		—		—		—		—		—		<i>Agnetina</i>
—		—		—		—		—		—		—		<i>Paragnetina</i>
														Taeniopterygidae
200	8	62	4	24	<1	23	2	23	2	18	1	—		<i>Taeniopteryx</i>
														Hemiptera
														Veliidae
—		—		—		—		—		—		1	<1	<i>Microvelia</i>
														Megaloptera
														Corydalidae
—		3	<1	2	<1	1	<1	1	<1	1	<1	1	<1	<i>Corydalus</i>
—		—		—		—		—		—		—		<i>Nigronia</i>
														Trichoptera
														Brachycentridae
3	<1	—		2	<1	—		2	<1	6	<1	8	<1	<i>Micrasema</i>
														Glossosomatidae
—		3	<1	2	<1	—		1	<1	1	<1	1	<1	<i>Glossosoma</i>
														Hydropsychidae
640	26	240	17	870	31	320	21	310	22	250	17	260	20	<i>Ceratopsyche</i>
160	6	21	2	110	4	110	7	54	4	280	19	110	8	<i>Cheumatopsyche</i>
500	20	18	1	190	7	63	4	150	11	49	3	180	14	<i>Hydropsyche</i>
														Hydroptilidae
19	<1	—		2	<1	20	1	15	1	23	2	17	1	<i>Hydroptila</i>
8	<1	1	<1	13	<1	—		—		2	<1	1	<1	<i>Leucotrichia</i>
														Philopotamidae
3	<1	—		36	1	—		1	<1	7	<1	66	5	<i>Chimarra</i>
—		—		—		—		—		—		1	<1	<i>Dolophilodes</i>
														Polycentropodidae
—		—		—		—		—		—		—		<i>Neureclipsis</i>
3	<1	—		1	<1	—		—		—		—		<i>Polycentropus</i>
														Psychomyiidae
—		—		—		—		1	<1	—		—		<i>Psychomyia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476435 - Ridley Creek at Dutton Mill near West Chester, Pa. (Site 21)—Continued

Date	Nov. 5, 1981		Oct. 14, 1982		Oct. 27, 1983		Oct. 15, 1984		Oct. 15, 1985		Oct. 9, 1986		Oct. 15, 1987	
Total count	1,407		<sup>1</sup> 1,578		<sup>1</sup> 1,697		<sup>1</sup> 3,842		1,617		1,629		1,198	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Trichoptera														
Uenoidae														
<i>Neophylax</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Lepidoptera														
Pyralidae														
<i>Petrophila</i>	37	3	—	—	3	<1	3	<1	1	<1	2	<1	1	<1
Coleoptera														
Elmidae														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>A.variegata</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
<i>Optioservus</i>	8	<1	16	1	6	<1	21	<1	10	<1	6	<1	5	<1
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
<i>Stenelmis</i>	6	<1	3	<1	13	<1	30	<1	4	<1	8	<1	2	<1
Psephenidae														
<i>Psephenus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hymenoptera														
Diptera	—	—	—	—	—	—	—	—	2	<1	1	<1	—	—
Chironomidae														
Empididae	160	11	430	27	290	17	680	18	400	25	410	26	310	26
Chelifera	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	7	<1	—	—	—	—	3	<1	6	<1	14	<1	3	<1
Ephydriidae	—	—	3	<1	3	<1	—	—	—	—	5	<1	—	—
Simuliidae	170	12	180	11	96	6	530	14	120	8	63	4	110	9
Tipulidae	45	3	5	<1	5	<1	5	<1	39	2	99	6	78	7
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 25, 1988		Nov. 14, 1989		Oct. 30, 1990		Nov. 6, 1991		Oct. 20, 1992		Oct. 25, 1993		Oct. 7, 1994		Date
1 2,446		1,347		2,813		1,509		1,391		1,467		1,322		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Trichoptera
														Uenoidae
														<i>Neophylax</i>
														Lepidoptera
														Pyralidae
3	<1	—		1	<1	2	<1	1	<1	—		2	<1	<i>Petrophila</i>
														Coleoptera
														Elmidae
														<i>Ancyronyx</i>
—		—		—		—		2	<1	3	<1	—		<i>A.variegata</i>
—		3	<1	3	<1	—		—		—		—		<i>Dubiraphia</i>
—		1	<1	—		—		—		1	<1	—		<i>Optioservus</i>
6	<1	4	<1	11	<1	54	4	11	<1	88	6	11	<1	<i>Oulimnius</i>
—		—		—		—		—		2	<1	—		<i>Stenelmis</i>
11	<1	1	<1	12	<1	6	<1	2	<1	50	3	5	<1	Psephenidae
—		—		4	<1	3	<1	—		3	<1	5	<1	<i>Psephenus</i>
—		—		—		—		—		—		—		Hymenoptera
														Diptera
														Chironomidae
460	18	610	44	880	31	750	50	390	28	350	23	340	26	Empididae
														<i>Chelifera</i>
—		—		1	<1	—		—		—		—		<i>Hemerodromia</i>
3	<1	21	2	23	<1	8	<1	3	<1	5	<1	18	1	Ephydriidae
—		—		—		—		—		—		—		Simuliidae
43	2	110	8	29	1	44	3	17	1	26	2	65	5	<i>Simulium</i>
														Tipulidae
100	4	37	3	110	4	1	<1	43	3	69	5	49	4	<i>Antocha</i>
—		—		1	<1	—		—		1	<1	—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)

Date	Nov. 27, 1981		Oct. 15, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 15, 1986		Nov. 9, 1987	
Total count	323		464		319		519		247		338		1,304	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—	—	—	—	—	—	1	<1	—	—	—	—	16	1
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	<1	1
Nemertea (proboscis worms)														
Enopla														
Hoploneurata														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Lymnaeidae														
<i>Lymnaea</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Physidae														
<i>Physa</i>	1	<1	—	—	5	2	—	—	—	—	4	1	2	<1
Bivalvia														
Veneroida														
Sphaeriidae	1	<1	—	—	—	—	—	—	—	—	—	—	2	<1
<i>Pisidium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Tubificida														
Naididae	3	1	—	—	—	—	—	—	—	—	1	<1	390	30
Tubificidae	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
<i>Hydrachna</i>	—	—	1	<1	3	1	1	<1	—	—	1	<1	35	3
Crustacea														
Cyclopoida														
Cyclopidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Gammaridae	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<i>Gammarus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Isopoda														
Asellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Caecidotea</i>	9	3	4	<1	6	2	4	<1	—	—	4	1	3	<1
<i>Lirceus</i>	—	—	4	<1	—	—	—	—	—	—	—	—	—	—
Podocopa	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Baetis</i>	15	5	51	11	1	<1	32	6	7	3	18	5	91	7
<i>Pseudocloeon</i>	—	—	—	—	—	—	—	—	—	—	—	—	96	7
Ephemerellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ephemerella</i>	28	8	75	16	4	1	21	4	19	8	2	<1	130	10



Nov. 2, 1988		Oct. 26, 1989		Oct. 5, 1990		Oct. 21, 1991		Oct. 22, 1992		Oct. 28, 1993		Oct. 17, 1994		Date
<sup>1</sup> 1,014		231		425		505		451		106		294		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
—	14	6	1	<1	—	—	—	—	—	7	3	Planariidae		
—	—	—	1	<1	1	<1	—	—	—	2	<1	Nematoda (nematodes)		
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
—	2	1	—	—	—	—	—	—	—	—	—	<i>Prostoma</i>		
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Lymnaeidae														
—	—	—	—	6	1	—	—	—	—	—	—	<i>Lymnaea</i>		
Physidae														
—	2	1	2	<1	4	<1	8	2	—	1	<1	<i>Physa</i>		
Bivalvia														
Veneroida														
—	—	—	—	—	—	—	—	—	—	—	—	Sphaeriidae		
—	4	2	—	1	<1	—	—	—	—	—	—	<i>Pisidium</i>		
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
—	2	1	1	<1	—	—	—	—	—	—	—	Lumbriculidae		
Tubificida														
—	170	71	39	9	180	35	—	—	—	4	2	Naididae		
—	4	2	—	—	—	—	—	—	—	—	—	Tubificidae		
Arthropoda (arthropods)														
Acariformes														
—	3	1	—	3	<1	—	—	—	—	4	2	Hydrachnidia		
Crustacea														
—	1	<1	—	—	—	—	—	—	—	—	—	Cyclopoida		
Cyclopidae														
Amphipoda														
Gammaridae														
—	d	—	—	—	—	—	—	—	1	1	—	<i>Gammarus</i>		
Isopoda														
Asellidae														
3	<1	1	<1	—	—	—	4	<1	—	2	<1	<i>Caecidotea</i>		
—	—	—	—	—	—	—	6	1	—	—	—	<i>Lirceus</i>		
—	—	—	—	1	<1	1	<1	—	—	1	<1	Podocopa		
Insecta														
Ephemeroptera														
Baetidae														
3	<1	—	—	—	—	17	4	8	8	13	4	<i>Baetis</i>		
—	—	—	—	—	—	6	1	—	—	2	<1	<i>Pseudocloeon</i>		
Ephemerellidae														
130	13	—	—	—	—	—	—	4	4	4	2	<i>Ephemerella</i>		

**Table 5. Benthic-macroinvertebrate data—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)—Continued

Date	Nov. 27, 1981		Oct. 15, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 15, 1986		Nov. 9, 1987	
Total count	323		464		319		519		247		338		1,304	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
<i>Stenonema</i>	47	14	82	17	54	16	36	7	36	14	51	15	28	2
<b>Isonychiidae</b>														
<i>Isonychia</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
<b>Calopterygidae</b>														
<i>Calopteryx</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—	—	1	<1	33	10	36	7	16	6	100	29	100	8
<b>Chloroperlidae</b>														
<i>Chloroperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	3	<1
<b>Perlodidae</b>														
<i>Isoperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	2	<1	4	<1	—	—	5	1	—	—	—	—	1	<1
<b>Megaloptera</b>														
<b>Sialidae</b>														
<i>Sialis</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	3	1	—	—	—	—	—	—	—	—	—	—	14	1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	57	17	39	8	64	19	160	31	39	16	23	7	86	7
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	53	16	55	12	63	19	75	14	24	10	30	9	24	2
<i>Cheumatopsyche</i>	7	2	35	7	17	5	20	4	23	9	16	5	5	<1
<i>Diplectrona</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hydropsyche</i>	19	6	23	5	17	5	44	8	22	9	11	3	84	6
<i>Potamyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Leucotrichia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptoceridae</b>														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Philopotamidae</b>														
<i>Chimarra</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dolophilodes</i>	2	<1	2	<1	6	2	4	<1	1	<1	1	<1	2	<1
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	2	<1	2	<1	—	—	—	—	—	—	1	<1	1	<1
<b>Uenoidae</b>														
<i>Neophylax</i>	6	2	—	—	1	<1	—	—	—	—	—	—	7	<1

Nov. 2, 1988		Oct. 26, 1989		Oct. 5, 1990		Oct. 21, 1991		Oct. 22, 1992		Oct. 28, 1993		Oct. 17, 1994		Date
1,014		231		425		505		451		106		294		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
100	10	—	—	—	—	1	<1	1	<1	3	3	—	—	<i>Stenonema</i>
<b>Isonychiidae</b>														
<i>Isonychia</i>														
<b>Leptohiphidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Tricorythodes</i>
<b>Leptophlebiidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Paraleptophlebia</i>
<b>Odonata</b>														
<b>Calopterygidae</b>														
<i>Calopteryx</i>														
<b>Plecoptera</b>														
<b>Capniidae</b>														
5	<1	—	—	—	—	2	<1	—	—	—	—	—	—	<i>Allocapnia</i>
<b>Chloroperlidae</b>														
<b>Perlodidae</b>														
5	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Isoperla</i>
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>														
<b>Megaloptera</b>														
<b>Sialidae</b>														
<i>Sialis</i>														
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>														
<b>Glossosomatidae</b>														
59	6	1	<1	—	—	1	<1	2	<1	1	1	4	2	<i>Glossosoma</i>
<b>Hydropsychidae</b>														
170	17	—	—	—	—	1	<1	—	—	1	1	6	2	<i>Ceratopsyche</i>
—	—	—	—	1	<1	—	—	1	<1	1	1	1	<1	<i>Cheumatopsyche</i>
53	5	1	<1	—	—	10	2	—	—	6	6	26	9	<i>Diplectrona</i>
88	9	6	3	—	—	15	3	200	43	28	25	42	14	<i>Hydropsyche</i>
—	—	—	—	—	—	—	—	41	9	—	—	—	—	<i>Potamyia</i>
<b>Hydroptilidae</b>														
—	—	—	—	1	<1	1	<1	—	—	—	—	—	—	<i>Hydroptila</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
<i>Mystacides</i>														
<b>Philopotamidae</b>														
<i>Chimarra</i>														
—	—	—	—	—	—	21	4	2	<1	—	—	2	2	<i>Dolophilodes</i>
—	—	—	—	—	—	—	—	—	—	—	—	14	5	
<b>Polycentropodidae</b>														
<i>Polycentropus</i>														
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>														
11	1	—	—	—	—	—	—	2	<1	—	—	—	—	
<b>Uenoidae</b>														
3	<1	4	2	—	—	—	—	—	—	—	—	—	—	<i>Neophylax</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476790 - East Branch Chester Creek at Green Hill, Pa. (Site 22)—Continued

Date	Nov. 27, 1981		Oct. 15, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 15, 1986		Nov. 9, 1987	
Total count	323		464		319		519		247		338		1,304	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
Curculionidae	—		—		—		1	<1	—		—		—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>A. variegata</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	1	<1	—		—		—		—		—		—	
<i>Optioservus</i>	29	9	37	8	9	3	17	3	37	15	14	4	42	3
<i>Oulimnius</i>	1	<1	2	<1	3	1	2	<1	2	1	3	1	9	<1
<i>Promoresia</i>	1	<1	—		1	<1	—		—		—		—	
<i>Stenelmis</i>	—		—		—		—		—		—		—	
<b>Hydrophilidae</b>														
<i>Helophorus</i>	—		—		—		—		—		—		—	
<b>Psephenidae</b>														
<i>Psephenus</i>	—		—		—		—		—		—		—	
<b>Hymenoptera</b>														
<i>Helophorus</i>	—		1	<1	—		—		—		3	1	—	
<b>Diptera</b>														
<b>Chironomidae</b>														
<i>Chironomidae</i>	24	7	35	7	23	7	39	8	12	5	17	5	110	8
<b>Empididae</b>														
<i>Chelifera</i>	—		—		—		—		—		—		—	
<i>Clinocera</i>	—		—		—		—		—		—		—	
<i>Hemerodromia</i>	—		—		—		—		—		—		3	<1
<b>Simuliidae</b>														
<i>Simulium</i>	3	1	2	<1	1	<1	17	3	—		1	<1	2	<1
<b>Tipulidae</b>														
<i>Antocha</i>	5	2	10	2	5	2	—		9	4	35	10	12	<1
<i>Hexatoma</i>	—		—		—		—		—		—		—	
<i>Tipula</i>	3	1	—		1	<1	2	<1	—		2	<1	2	<1

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 2, 1988		Oct. 26, 1989		Oct. 5, 1990		Oct. 21, 1991		Oct. 22, 1992		Oct. 28, 1993		Oct. 17, 1994		Date
1,014		231		425		505		451		106		294		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Coleoptera														
Curculionidae														
Elmidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Ancyronyx</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>A. variegata</i>
—	—	—	—	—	—	—	—	—	—	1	1	—	—	<i>Dubiraphia</i>
75	8	6	3	1	<1	2	<1	—	—	—	—	1	<1	<i>Optioservus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Oulimnius</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Promoresia</i>
—	—	1	<1	3	<1	—	—	—	—	3	3	2	<1	<i>Stenelmis</i>
Hydrophilidae														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Helophorus</i>
Psephenidae														
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Hymenoptera														
Diptera														
280	28	3	1	320	74	170	33	120	26	35	32	110	37	
Chironomidae														
Empididae														
—	—	—	—	1	<1	10	2	—	—	—	—	—	—	<i>Chelifera</i>
—	—	—	—	—	—	2	<1	—	—	—	—	—	—	<i>Clinocera</i>
5	<1	1	<1	—	—	5	1	—	—	—	—	—	—	<i>Hemerodromia</i>
Simuliidae														
5	<1	2	1	49	11	63	12	16	3	9	9	42	14	<i>Simulium</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Tipulidae														
13	1	—	—	1	<1	2	<1	2	<1	—	—	—	—	<i>Antocha</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Hexatoma</i>
—	—	1	<1	2	<1	3	<1	1	<1	—	—	4	2	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)

Date	Oct. 27, 1981		Oct. 22, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 15, 1986		Nov. 9, 1987	
Total count	1,371		1,700		1,247		1,085		991		518		2,252	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	6	<1	7	<1	4	<1	5	<1	15	2	—	—	7	<1
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prostoma	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ferrissia	31	2	19	1	16	1	15	1	24	2	56	11	110	5
Lymnaeidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lymnaea	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Physidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Physa	1	<1	—	—	1	<1	1	<1	—	—	1	<1	3	<1
Planorbidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Helisoma	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Veneroida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sphaeriidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida	—	—	13	<1	10	<1	3	<1	2	<1	—	—	—	—
Lumbriculidae	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Tubificida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Naididae	25	2	—	—	—	—	—	—	—	—	—	—	160	7
Tubificidae	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—	—	1	<1	1	<1	—	—	4	<1	—	—	27	1
Crustacea														
Amphipoda														
Gammaridae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gammarus	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Isopoda	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Asellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Caecidotea	1	<1	—	—	1	<1	—	—	—	—	—	—	2	<1
Lirceus	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Podocopa	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae	—	—	9	<1	4	<1	100	9	26	3	—	—	11	<1
Baetis	—	—	9	<1	4	<1	100	9	26	3	—	—	11	<1
Pseudocloeon	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerella	3	<1	1	<1	—	—	1	<1	2	<1	—	—	17	<1
Ephemeridae	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Ephemera	—	—	—	—	—	—	—	—	1	<1	—	—	—	—

Nov. 2, 1988		Oct. 26, 1989		Oct. 5, 1990		Oct. 21, 1991		Oct. 23, 1992		Oct. 26, 1993		Oct. 21, 1994		Date
<sup>1</sup> 2,477		4,174		2,625		1,731		2,926		693		2,643		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
16	<1	110	3	45	2	9	<1	36	1	—		18	<1	Planariidae
—		5	<1	2	<1	—		2	<1	—		2	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		8	<1	2	<1	—		9	<1	—		11	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		—		—		—		—		—		—		<i>Ferrissia</i>
														Lymnaeidae
—		1	<1	—		—		—		—		—		<i>Lymnaea</i>
														Physidae
—		—		—		—		1	<1	—		—		<i>Physa</i>
														Planorbidae
—		—		—		—		—		—		—		<i>Helisoma</i>
														Bivalvia
														Veneroidea
—		—		—		—		1	<1	—		—		Sphaeriidae
														Annelida (segmented worms)
—		—		—		—		—		—		—		Oligochaeta
														Lumbriculida
—		2	<1	—		—		—		—		—		Lumbriculidae
														Tubificida
—		480	11	10	<1	1	<1	75	3	—		64	2	Naididae
—		—		—		—		—		—		—		Tubificidae
														Arthropoda (arthropods)
—		190	5	58	2	8	<1	140	5	17	2	56	2	Acariformes
														Hydrachnidia
														Crustacea
														Amphipoda
														Gammaridae
—		—		—		—		1	<1	—		—		<i>Gammarus</i>
														Isopoda
														Asellidae
—		1	<1	—		—		—		—		—		<i>Caecidotea</i>
—		—		—		—		—		—		—		<i>Lirceus</i>
—		—		10	<1	—		—		—		—		Podocopa
														Insecta
														Ephemeroptera
														Baetidae
3	<1	12	<1	55	2	6	<1	2	<1	2	<1	4	<1	<i>Baetis</i>
—		—		—		3	<1	3	<1	1	<1	—		<i>Pseudocloeon</i>
														Ephemerellidae
16	<1	42	1	13	<1	6	<1	85	3	5	<1	21	<1	<i>Ephemerella</i>
														Ephemeridae
—		—		1	<1	—		—		—		—		<i>Ephemera</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)—Continued

Date	Oct. 27, 1981		Oct. 22, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 15, 1986		Nov. 9, 1987	
Total count	1,371		1,700		1,247		1,085		991		518		2,252	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
<i>Stenacron</i>	—		—		—		—		—		20	4	—	
<i>Stenonema</i>	69	5	110	6	63	5	76	7	58	6	12	2	130	6
<b>Leptohiphidae</b>														
<i>Tricorythodes</i>	—		5	<1	1	<1	—		—		1	<1	3	<1
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	—		—		—		—		—		—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—		1	<1	1	<1	—		—		—		—	
<b>Gomphidae</b>														
—	—		—		—		—		—		—		—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		—		—		—		—		2	<1
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	—		—		—		—		—		—		2	<1
<b>Hemiptera</b>														
<b>Corixidae</b>														
<i>Trichocorixa</i>	—		1	<1	11	<1	3	<1	—		—		—	
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		2	<1	—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		—		1	<1	—		—		—		—	
<i>Nigronia</i>	—		—		1	<1	—		—		—		—	
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		—		—		1	<1	—		—		2	<1
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	360	26	300	18	150	12	140	13	150	15	44	8	220	10
<i>Cheumatopsyche</i>	100	7	64	4	28	2	22	2	31	3	1	<1	19	<1
<i>Diplectrona</i>	—		—		—		—		—		—		—	
<i>Hydropsyche</i>	16	1	84	5	38	3	35	3	10	1	2	<1	52	2
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	200	14	290	17	220	17	70	6	20	2	2	<1	46	2
<i>Leucotrichia</i>	10	<1	100	6	57	4	250	23	80	8	2	<1	370	16
<b>Leptoceridae</b>														
<i>Mystacides</i>	—		—		—		—		—		—		—	
<i>Oecetis</i>	—		—		—		1	<1	1	<1	—		—	
<i>Triaenodes</i>	—		—		—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	3	<1	13	<1	1	<1	11	1	23	2	—		6	<1
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	1	<1	—		1	<1	1	<1	—		1	<1	—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	1	<1	14	<1	95	7	61	6	120	12	190	37	660	29
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
<i>—</i>	1	<1	—		—		—		—		—		—	



Nov. 2, 1988		Oct. 26, 1989		Oct. 5, 1990		Oct. 21, 1991		Oct. 23, 1992		Oct. 26, 1993		Oct. 21, 1994		Date
1 2,477		4,174		2,625		1,731		2,926		693		2,643		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Ephemeroptera														
Heptageniidae														
13	<1	7	<1	—	—	—	—	—	—	—	—	—	—	<i>Stenacron</i>
150	6	100	2	77	3	46	3	110	4	12	2	58	2	<i>Stenonema</i>
Leptohyphidae														
13	<1	14	<1	26	1	12	<1	77	3	—	—	25	<1	<i>Tricorythodes</i>
—	—	—	—	3	<1	—	—	—	—	—	—	—	—	<i>Leptophlebiidae</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Paraleptophlebia</i>
Odonata														
Coenagrionidae														
—	—	2	<1	3	<1	—	—	6	<1	—	—	3	<1	<i>Argia</i>
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	Gomphidae
Plecoptera														
Capniidae														
—	—	—	—	—	—	—	—	1	<1	1	<1	1	<1	<i>Allocapnia</i>
—	—	1	<1	—	—	—	—	1	<1	—	—	—	—	Taeniopterygidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Taeniopteryx</i>
Hemiptera														
Corixidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Trichocorixa</i>
Veliidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhagovelia</i>
Megaloptera														
Corydalidae														
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Corydalus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nigronia</i>
Trichoptera														
Glossosomatidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Glossosoma</i>
Hydropsychidae														
130	5	120	3	200	8	230	14	60	2	23	3	64	2	<i>Ceratopsyche</i>
77	3	15	<1	56	2	17	1	14	<1	4	<1	13	<1	<i>Cheumatopsyche</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Dipletrona</i>
270	11	180	4	180	7	45	3	81	3	41	6	54	2	<i>Hydropsyche</i>
Hydroptilidae														
48	2	480	11	310	12	270	16	390	13	26	4	390	15	<i>Hydroptila</i>
210	8	1	<1	6	<1	—	—	—	—	—	—	—	—	<i>Leucotrichia</i>
Leptoceridae														
—	—	—	—	—	—	1	<1	26	<1	—	—	—	—	<i>Mystacides</i>
—	—	8	<1	30	1	2	<1	10	<1	3	<1	24	<1	<i>Oecetis</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Trienodes</i>
Philopotamidae														
75	3	36	<1	3	<1	4	<1	—	—	—	—	8	<1	<i>Chimarra</i>
Polycentropodidae														
3	<1	—	—	6	<1	2	<1	5	<1	1	<1	1	<1	<i>Polycentropus</i>
Psychomyiidae														
77	3	1	<1	1	<1	—	—	—	—	—	—	4	<1	<i>Psychomyia</i>
Lepidoptera														
Noctuidae														

**Table 5. Benthic-macroinvertebrate data—Continued**

01476830 - East Branch Chester Creek at Milltown, Pa. (Site 23)—Continued

Date	Oct. 27, 1981		Oct. 22, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 15, 1986		Nov. 9, 1987	
Total count	1,371		1,700		1,247		1,085		991		518		2,252	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
Curculionidae	—		1	<1	—		—		—		—		—	
Elmidae														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>A. variegata</i>	—		—		—		—		—		—		1	<1
<i>Dubiraphia</i>	1	<1	1	<1	2	<1	1	<1	1	<1	2	<1	—	
<i>Macronychus</i>														
<i>M. glabratus</i>	—		—		—		1	<1	—		—		—	
<i>Optioservus</i>	4	<1	11	<1	13	1	6	<1	11	1	1	<1	26	1
<i>Oulimnius</i>	2	<1	1	<1	—		2	<1	—		—		2	<1
<i>Stenelmis</i>	12	<1	23	1	63	5	12	1	21	2	17	3	31	1
Hydrophilidae														
<i>Berosus</i>	—		—		1	<1	—		—		1	<1	—	
Psephenidae														
<i>Psephenus</i>	—		—		—		—		1	<1	—		11	<1
Hymenoptera	1	<1	—		—		—		1	<1	—		—	
<b>Diptera</b>														
Chironomidae	420	30	570	34	400	31	190	17	170	17	120	23	230	10
Dixidae														
<i>Dixa</i>	—		—		—		1	<1	—		—		—	
Empididae														
<i>Hemerodromia</i>	15	1	15	<1	5	<1	8	<1	6	<1	—		21	<1
Simuliidae														
<i>Simulium</i>	21	2	9	<1	6	<1	61	6	63	6	34	7	49	2
Tipulidae														
<i>Antocha</i>	64	5	36	2	49	4	6	<1	150	15	11	2	30	1
<i>Dicranota</i>	—		—		—		—		—		—		—	
<i>Tipula</i>	—		—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 2, 1988		Oct. 26, 1989		Oct. 5, 1990		Oct. 21, 1991		Oct. 23, 1992		Oct. 26, 1993		Oct. 21, 1994		Date
1 2,477		4,174		2,625		1,731		2,926		693		2,643		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
—		—		—		—		—		—		—		Coleoptera
														Curculionidae
														Elmidae
3	<1	—		—		2	<1	3	<1	—		—		<i>Ancyronyx</i>
—		7	<1	2	<1	—		—		—		—		<i>A. variegata</i>
—		8	<1	1	<1	—		42	1	—		5	<1	<i>Dubiraphia</i>
—		—		—		—		3	<1	—		—		<i>Macronychus</i>
—		—		—		—		—		—		—		<i>M. glabratus</i>
35	1	51	1	38	1	28	2	110	4	14	2	62	2	<i>Optioservus</i>
—		7	<1	1	<1	6	<1	8	<1	3	<1	10	<1	<i>Oulimnius</i>
29	1	32	<1	78	3	22	1	290	10	2	<1	93	4	<i>Stenelmis</i>
—		—		—		—		4	<1	—		1	<1	Hydrophilidae
—		—		—		—		—		—		—		<i>Berosus</i>
19	<1	44	1	62	2	29	2	57	2	10	1	31	1	Psephenidae
—		—		—		—		—		—		—		<i>Psephenus</i>
—		—		—		—		—		—		—		Hymenoptera
960	38	1,700	40	1,300	50	880	52	1,200	41	480	69	1,500	58	Diptera
—		—		—		—		—		—		—		Chironomidae
—		—		—		—		—		—		—		Dixidae
—		—		—		—		—		—		—		<i>Dixa</i>
3	<1	130	3	26	1	13	<1	23	<1	10	1	73	3	Empididae
—		—		—		—		—		—		—		<i>Hemerodromia</i>
310	12	350	8	3	<1	20	1	30	1	—		27	1	Simuliidae
—		—		—		—		—		—		—		<i>Simulium</i>
11	<1	29	<1	16	<1	68	4	16	<1	36	5	19	<1	Tipulidae
3	<1	—		—		—		1	<1	—		—		<i>Antocha</i>
—		—		—		—		1	<1	—		1	<1	<i>Dicranota</i>
—		—		—		—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)

Date	Oct. 27, 1981		Oct. 22, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 16, 1986		Nov. 5, 1987	
Total count	1,783		3,535		2,250		2,424		1,365		1,026		2,592	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	16	<1	33	<1	65	3	43	2	13	<1	8	<1	77	3
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	3	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	32	2	1	<1	—	—	13	<1	1	<1	—	—	4	<1
Physidae														
<i>Physa</i>	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
Planorbidae														
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helisoma</i>	4	<1	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroidea														
Sphaeriidae	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Pisidium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tubificida														
Naididae	—	—	—	—	—	—	—	—	—	—	—	—	78	3
Hirudinea														
Pharyngobdellida														
Erpobdellidae	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	2	<1	1	<1	2	<1	1	<1	1	<1	—	—	31	1
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Talitridae														
<i>Hyalolella</i>														
<i>H. azteca</i>	—	—	—	—	—	—	—	—	—	—	—	—	4	<1
Isopoda														
Asellidae	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Podocopa	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	26	1	40	1	15	<1	26	1	4	<1	22	2	—	—
<i>Pseudocloeon</i>	9	<1	—	—	10	<1	90	4	—	—	—	—	16	<1
Ephemerellidae														
<i>Ephemerella</i>	2	<1	2	<1	10	<1	5	<1	3	<1	2	<1	45	2

Nov. 3, 1988		Oct. 26, 1989		Oct. 25, 1990		Oct. 22, 1991		Oct. 22, 1992		Oct. 26, 1993		Oct. 21, 1994		Date
1,677		1,518		3,087		1,808		2,471		643		767		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
56	3	86	6	110	4	22	1	88	4	28	4	1	<1	Planariidae
—		3	<1	—		—		—		—		—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		1	<1	3	<1	—		2	<1	—		—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		6	<1	1	<1	13	<1	4	<1	5	<1	—		<i>Ferrissia</i>
														Physidae
—		—		—		—		—		—		—		<i>Physa</i>
														Planorbidae
—		—		2	<1	1	<1	—		—		—		<i>Gyraulus</i>
—		—		—		—		—		—		—		<i>Helisoma</i>
														Bivalvia
														Veneroidea
—		—		2	<1	—		—		—		—		Sphaeriidae
—		1	<1	—		—		—		—		—		<i>Pisidium</i>
														Annelida (segmented worms)
—		—		—		—		—		—		—		Oligochaeta
														Lumbriculida
3	<1	—		—		—		—		—		—		Lumbriculidae
														Tubificida
—		460	31	360	12	2	<1	29	1	9	1	—		Naididae
														Hirudinea
														Pharyngobdellida
—		—		—		—		—		—		—		Erpobdellidae
														Arthropoda (arthropods)
														Acariformes
—		89	6	62	2	7	<1	3	<1	50	8	1	<1	Hydrachnidia
														Crustacea
—		1	<1	17	<1	—		—		—		—		Cyclopoida
														Amphipoda
														Gammaridae
—		1	<1	2	<1	—		—		—		—		<i>Gammarus</i>
														Talitridae
—		—		—		—		—		—		—		<i>Hyalolella</i>
														<i>H. azteca</i>
														Isopoda
—		—		—		—		—		—		—		Asellidae
—		—		3	<1	—		1	<1	1	<1	—		Podocopa
														Insecta
														Ephemeroptera
														Baetidae
3	<1	—		4	<1	11	<1	11	<1	—		13	2	<i>Baetis</i>
—		—		—		3	<1	—		—		3	<1	<i>Pseudocloeon</i>
														Ephemerellidae
67	4	15	1	5	<1	12	<1	2	<1	7	1	1	<1	<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

Date	Oct. 27, 1981		Oct. 22, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 16, 1986		Nov. 5, 1987	
Total count	1,783		3,535		2,250		2,424		1,365		1,026		2,592	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
Heptageniidae														
<i>Stenonema</i>	73	4	79	2	120	5	110	5	12	<1	51	5	60	2
Leptohephidae														
<i>Tricorythodes</i>	13	<1	22	<1	24	1	1	<1	—	—	1	<1	4	<1
Leptophlebiidae														
<i>Paraleptophlebia</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	1	<1	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	2	<1	—	—	2	<1	—	—	3	<1	—	—	—	—
<b>Megaloptera</b>														
Corydalidae														
<i>Corydalis</i>	—	—	—	—	1	<1	1	<1	—	—	—	—	—	—
<i>Nigronia</i>	3	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glossosomatidae														
<i>Glossosoma</i>	1	<1	—	—	—	—	1	<1	—	—	—	—	—	—
Hydropsychidae														
<i>Ceratopsyche</i>	150	8	380	11	600	26	440	18	41	3	260	26	180	7
<i>Cheumatopsyche</i>	120	7	240	7	370	16	160	7	71	5	86	9	41	2
<i>Hydropsyche</i>	72	4	180	5	96	4	180	7	20	1	200	20	220	8
Hydroptilidae														
<i>Hydroptila</i>	180	10	69	2	120	5	4	<1	4	<1	3	<1	79	3
<i>Leucotrichia</i>	85	5	120	3	56	2	540	22	27	2	14	1	62	2
Leptoceridae														
<i>Oecetis</i>	—	—	—	—	1	<1	2	<1	—	—	—	—	1	<1
Philopotamidae														
<i>Chimarra</i>	4	<1	16	<1	4	<1	17	<1	2	<1	88	9	180	7
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polycentropodidae														
<i>Polycentropus</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Psychomyiidae														
<i>Psychomyia</i>	—	—	—	—	—	—	1	<1	2	<1	—	—	6	<1
<b>Lepidoptera</b>														
Pyralidae														
<i>Petrophila</i>	2	<1	3	<1	9	<1	29	1	5	<1	2	<1	4	<1
<b>Coleoptera</b>														
Elmidae														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>A. variegata</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
<i>Dubiraphia</i>	—	—	—	—	—	—	—	—	1	<1	—	—	2	<1
<i>Macronychus</i>	—	—	1	<1	—	—	1	<1	1	<1	—	—	—	—
<i>Optioservus</i>	2	<1	3	<1	13	<1	9	<1	11	<1	16	2	34	1
<i>Oulimnius</i>	—	—	—	—	1	<1	—	—	—	—	—	—	3	<1
<i>Promoresia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	15	<1	31	<1	27	1	46	2	36	3	49	5	38	1
Hydrophilidae														
<i>Berosus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Psephenidae														
<i>Psephenus</i>	—	—	—	—	1	<1	—	—	1	<1	—	—	3	<1

Nov. 3, 1988		Oct. 26, 1989		Oct. 25, 1990		Oct. 22, 1991		Oct. 22, 1992		Oct. 26, 1993		Oct. 21, 1994		Date
1,677		1,518		3,087		1,808		2,471		643		767		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Ephemeroptera														
Heptageniidae														
43	3	4	<1	44	1	46	3	13	<1	13	2	13	2	<i>Stenonema</i>
Leptohyphidae														
11	<1	—	—	5	<1	2	<1	—	—	—	—	—	—	<i>Tricorythodes</i>
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	Leptophlebiidae
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Paraleptophlebia</i>
Odonata														
Coenagrionidae														
—	—	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Argia</i>
Plecoptera														
Capniidae														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Allocapnia</i>
Megaloptera														
Corydalidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Corydalus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nigronia</i>
Trichoptera														
Apataniidae														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Apatania</i>
Glossosomatidae														
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Glossosoma</i>
Hydropsychidae														
100	6	23	2	110	4	150	8	78	3	87	13	61	8	<i>Ceratopsyche</i>
59	3	22	1	550	18	130	7	43	2	53	8	53	7	<i>Cheumatopsyche</i>
360	21	160	11	350	11	340	19	410	16	92	14	97	13	<i>Hydropsyche</i>
Hydroptilidae														
3	<1	10	<1	79	3	16	<1	30	1	5	<1	1	<1	<i>Hydroptila</i>
11	<1	2	<1	—	—	14	<1	1	<1	5	<1	10	1	<i>Leucotrichia</i>
Leptoceridae														
—	—	—	—	—	—	1	<1	—	—	1	<1	—	—	<i>Oecetis</i>
Philopotamidae														
29	2	1	<1	10	<1	21	1	4	<1	3	<1	9	1	<i>Chimarra</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Wormaldia</i>
Polycentropodidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Polycentropus</i>
Psychomyiidae														
—	—	—	—	—	—	58	3	4	<1	—	—	1	<1	<i>Psychomyia</i>
Lepidoptera														
Pyalidae														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Petrophila</i>
Coleoptera														
Elmidae														
—	—	—	—	—	—	7	<1	—	—	2	<1	2	<1	<i>Ancyronyx</i>
—	—	4	<1	5	<1	—	—	—	—	—	—	—	—	<i>A. variegata</i>
—	—	—	—	3	<1	—	—	—	—	—	—	—	—	<i>Dubiraphia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Macronychus</i>
75	4	37	2	51	2	25	1	78	3	40	6	33	4	<i>Optioservus</i>
—	—	2	<1	3	<1	4	<1	1	<1	9	1	—	—	<i>Oulimnius</i>
5	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Promoresia</i>
32	2	25	2	61	2	44	2	36	1	38	6	6	<1	<i>Stenelmis</i>
Hydrophilidae														
—	—	—	—	1	<1	—	—	—	—	1	<1	—	—	<i>Berosus</i>
Psephenidae														
3	<1	14	<1	8	<1	9	<1	—	—	18	3	2	<1	<i>Psephenus</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01476835 - East Branch Chester Creek at Westtown, Pa. (Site 24)—Continued

Date	Oct. 27, 1981		Oct. 22, 1982		Oct. 26, 1983		Oct. 11, 1984		Oct. 16, 1985		Oct. 16, 1986		Nov. 5, 1987	
Total count	1,783		3,535		2,250		2,424		1,365		1,026		2,592	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Hymenoptera	—		—		2	<1	1	<1	2	<1	—		—	
Diptera														
Ceratopogonidae	—		—		—		—		—		—		—	
Chironomidae	450	25	700	20	330	14	400	17	260	19	56	6	230	9
Empididae														
<i>Hemerodromia</i>	55	3	2	<1	6	<1	19	<1	—		1	<1	8	<1
Simuliidae														
<i>Simulium</i>	440	24	1,600	46	310	13	230	9	780	56	150	15	1,100	42
Tipulidae														
<i>Antocha</i>	15	<1	10	<1	51	2	51	2	63	5	16	2	77	3

<sup>1</sup> Extrapolated from a 3/8 subsample.



Nov. 3, 1988		Oct. 26, 1989		Oct. 25, 1990		Oct. 22, 1991		Oct. 22, 1992		Oct. 26, 1993		Oct. 21, 1994		Date
1,677		1,518		3,087		1,808		2,471		643		767		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
—		—		—		—		—		—		—		Hymenoptera
—		—		3	<1	—		—		—		—		Diptera
510	30	250	17	1,000	32	680	38	950	38	80	12	220	29	Ceratopogonidae
														Chironomidae
														Empididae
5	<1	17	1	33	1	7	<1	8	<1	16	2	2	<1	<i>Hemerodromia</i>
														Simuliidae
280	16	230	15	100	3	93	5	580	23	5	<1	210	27	<i>Simulium</i>
														Tipulidae
16	<1	53	4	96	3	90	5	94	4	75	12	25	3	<i>Antocha</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476840 - Goose Creek tributary to East Branch Chester Creek near West Chester, Pa. (Site 25)

Date	Oct. 27, 1981		Oct. 22, 1982		Nov. 4, 1988		Oct. 25, 1989		Oct. 25, 1990	
	Total count		356	<sup>1</sup> 9,644	<sup>2</sup> 587		3,091		1,111	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)										
Turbellaria										
Tricladida										
Planariidae	—	—	—	—	11	2	91	3	73	7
Nematoda	—	—	—	—	—	—	—	—	—	—
Nemertea (proboscis worms)										
Enopla										
Hoplonemertea										
Tetrastemmatidae										
<i>Prostoma</i>	—	—	—	—	—	—	—	—	—	—
Mollusca (molluscs)										
Gastropoda										
Basommatophora										
Ancyliidae										
<i>Ferrissia</i>	—	—	—	—	—	—	7	<1	3	<1
Physidae										
<i>Physa</i>	71	20	88	<1	—	—	—	—	—	—
Bivalvia										
Veneroida										
Sphaeriidae	—	—	—	—	—	—	—	—	2	<1
Annelida (segmented worms)										
Oligochaeta										
Lumbriculida										
Lumbriculidae	—	—	—	—	—	—	—	—	7	<1
Tubificida										
Naididae	—	—	—	—	5	<1	450	15	1	<1
Tubificidae	9	3	—	—	—	—	74	2	—	—
Arthropoda (arthropods)										
Acariformes										
Hydrachnidia										
Cyclopoida	—	—	—	—	—	—	7	<1	42	4
Crustacea										
Cyclopoida										
Isopoda	—	—	—	—	—	—	1	<1	2	<1
Asellidae										
<i>Caecidotea</i>	2	<1	—	—	3	<1	21	<1	27	2
Podocopa	—	—	—	—	—	—	—	—	110	10
Insecta										
Ephemeroptera										
Baetidae										
<i>Baetis</i>	2	<1	4	<1	—	—	—	—	—	—
<i>Pseudocloeon</i>	—	—	—	—	3	<1	—	—	—	—
Ephemerellidae										
<i>Ephemerella</i>	—	—	—	—	—	—	—	—	—	—
Heptageniidae										
<i>Epeorus</i>	—	—	—	—	—	—	—	—	—	—
<i>Stenonema</i>	—	—	4	<1	—	—	—	—	—	—
Leptohyphidae										
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	1	<1
Odonata										
Gomphidae	—	—	—	—	—	—	—	—	—	—
Hemiptera										
Corixidae	—	—	—	—	—	—	—	—	—	—

Nov. 4, 1991		Oct. 23, 1992		Nov. 19, 1993		Oct. 21, 1994		Date
2,108		1,095		756		671		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
								Platyhelminthes (flatworms)
								Turbellaria
								Tricladida
5	<1	32	3	17	2	1	<1	Planariidae
1	<1	2	<1	6	<1	2	<1	Nematoda
								Nemertea (proboscis worms)
								Enopla
								Hoplonemertea
								Tetrastemmatidae
1	<1	—	—	—	—	—	—	<i>Prostoma</i>
								Mollusca (molluscs)
								Gastropoda
								Basommatophora
								Ancylidae
1	<1	—	—	1	<1	—	—	<i>Ferrissia</i>
								Physidae
—	—	—	—	—	—	—	—	<i>Physa</i>
								Bivalvia
								Veneroida
—	—	—	—	—	—	—	—	Sphaeriidae
								Annelida (segmented worms)
—	—	26	2	—	—	—	—	Oligochaeta
								Lumbriculida
—	—	—	—	—	—	—	—	Lumbriculidae
								Tubificida
2	<1	—	—	74	10	—	—	Naididae
—	—	—	—	—	—	—	—	Tubificidae
								Arthropoda (arthropods)
								Acariformes
12	<1	55	5	9	1	—	—	Hydrachnidia
								Crustacea
—	—	—	—	—	—	—	—	Cyclopoida
								Isopoda
								Asellidae
19	<1	4	<1	—	—	—	—	<i>Caecidotea</i>
								Podocopa
								Insecta
								Ephemeroptera
								Baetidae
—	20	2	—	—	—	1	<1	<i>Baetis</i>
—	—	—	—	—	—	—	—	<i>Pseudocloeon</i>
								Ephemerellidae
1	<1	—	—	—	—	—	—	<i>Ephemerella</i>
								Heptageniidae
—	—	2	<1	—	—	—	—	<i>Epeorus</i>
—	—	—	—	—	—	—	—	<i>Stenonema</i>
								Leptohyphidae
—	—	—	—	—	—	—	—	<i>Tricorythodes</i>
								Odonata
—	—	—	—	1	<1	—	—	Gomphidae
								Hemiptera
—	—	2	<1	—	—	—	—	Corixidae

**Table 5. Benthic-macroinvertebrate data—Continued**

01476840 - Goose Creek tributary to East Branch Chester Creek near West Chester, Pa. (Site 25)—Continued

Date	Oct. 27, 1981		Oct. 22, 1982		Nov. 4, 1988		Oct. 25, 1989		Oct. 25, 1990	
Total count	356		<sup>1</sup> 9,644		<sup>2</sup> 587		3,091		1,111	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Trichoptera										
Hydropsychidae										
<i>Ceratopsyche</i>	4	1	4	<1	11	2	—	—	3	<1
<i>Cheumatopsyche</i>	—	—	—	—	3	<1	—	—	1	<1
<i>Diplectrona</i>	—	—	—	—	—	—	1	<1	—	—
<i>Hydropsyche</i>	—	—	—	—	150	25	3	<1	15	1
Hydroptilidae										
<i>Agraylea</i>	—	—	—	—	—	—	—	—	1	<1
<i>Hydroptila</i>	2	<1	—	—	5	<1	1	<1	16	1
<i>Leucotrichia</i>	—	—	—	—	—	—	1	<1	—	—
Lepidoptera										
Noctuidae										
<i>Archanara</i>	—	—	—	—	—	—	1	<1	—	—
Coleoptera										
Elmidae										
<i>Optioservus</i>	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	—	—	4	<1	3	<1	2	<1	7	<1
Psephenidae										
<i>Psephenus</i>	—	—	—	—	—	—	—	—	—	—
Diptera										
Chironomidae										
	230	64	2,300	24	160	27	490	16	190	17
Empididae										
<i>Hemerodromia</i>	—	—	—	—	3	<1	140	5	9	<1
Psychodidae										
<i>TelmatoSCOPIUS</i>	1	<1	—	—	—	—	—	—	—	—
Simuliidae										
<i>Simulium</i>	35	10	6,800	71	230	39	1,800	58	600	55
Tipulidae										
<i>Antocha</i>	—	—	—	—	—	—	—	—	—	—
<i>Tipula</i>	—	—	—	—	—	—	1	<1	1	<1

<sup>1</sup> Extrapolated from a 3/8 subsample.

<sup>2</sup> Extrapolated from a 1/4 subsample.

Nov. 4, 1991		Oct. 23, 1992		Nov. 19, 1993		Oct. 21, 1994		Date
2,108		1,095		756		671		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera								
Hydropsychidae								
21	1	23	2	29	4	8	1	<i>Ceratopsyche</i>
2	<1	7	<1	69	9	110	16	<i>Cheumatopsyche</i>
—	—	—	—	—	—	—	—	<i>Diplectrona</i>
24	1	190	17	150	20	60	9	<i>Hydropsyche</i>
Hydroptilidae								
—	—	—	—	—	—	—	—	<i>Agraylea</i>
1	<1	2	<1	—	—	—	—	<i>Hydroptila</i>
1	<1	—	—	—	—	—	—	<i>Leucotrichia</i>
Lepidoptera								
Noctuidae								
—	—	—	—	—	—	—	—	<i>Archanara</i>
Coleoptera								
Elmidae								
—	—	1	<1	1	<1	—	—	<i>Optioservus</i>
2	<1	10	<1	—	—	—	—	<i>Stenelmis</i>
—	—	3	<1	—	—	—	—	Psephenidae
—	—	—	—	—	—	—	—	<i>Psephenus</i>
Diptera								
Chironomidae								
1,200	57	570	52	360	47	94	14	
Empididae								
5	<1	10	<1	4	<1	3	<1	<i>Hemerodromia</i>
Psychodidae								
—	—	—	—	1	<1	—	—	<i>Telmatoctopus</i>
Simuliidae								
810	39	130	12	17	2	390	58	<i>Simulium</i>
Tipulidae								
—	—	2	<1	16	2	1	<1	<i>Antocha</i>
—	—	4	<1	1	<1	1	<1	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)

Date	Oct. 26, 1983		Oct. 11, 1984		Oct. 28, 1985		Oct. 16, 1986		Nov. 15, 1987		Nov. 3, 1988		Oct. 25, 1989	
Total count	2,869		2,874		4,236		1,514		12,174		1 3,963		926	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	195	7	351	12	32	<1	17	1	69	<1	16	<1	—	—
Nematoda (nematodes)	2	<1	4	<1	—	—	—	—	—	—	—	—	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
Prostoma	1	<1	1	<1	8	<1	—	—	—	—	8	<1	1	<1
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
Ferrissia	—	—	—	—	32	<1	1	<1	20	<1	—	—	9	1
Lymnaeidae														
Lymnaea	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Physidae														
Physa	18	<1	—	—	—	—	—	—	—	—	—	—	2	<1
Planorbidae														
Gyraulus	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Helisoma	—	—	—	—	8	<1	3	<1	1	<1	—	—	—	—
Bivalvia														
Veneroida														
Sphaeriidae	—	—	—	—	16	<1	53	4	30	<1	—	—	—	—
Pisidium	—	—	—	—	—	—	—	—	—	—	5	<1	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	—	—	—	—	3	<1
Tubificida														
Naididae	110	4	190	7	—	—	—	—	7,200	60	960	24	300	32
Tubificidae	380	13	190	7	1,400	33	7	<1	120	1	27	<1	—	—
Hirudinea														
Pharyngobdellida														
Erpobdellidae	—	—	—	—	8	<1	1	<1	1	<1	—	—	—	—
Rhynchobdellida														
Glossiphoniidae	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	1	<1	4	<1	8	<1	1	<1	4	<1	—	—	78	8
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Amphipoda														
Gammaridae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gammarus	2	<1	—	—	8	<1	—	—	—	—	—	—	—	—
Isopoda														
Asellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Caecidotea	1,000	34	18	<1	180	4	93	6	51	<1	—	—	1	<1
Decapoda														
Cambaridae	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
Podocopa	79	3	—	—	16	<1	4	<1	20	<1	—	—	—	—

Oct. 25, 1990		Oct. 22, 1991		Oct. 22, 1992		Oct. 26, 1993		Oct. 17, 1994		Date
3,033		3,951		3,046		1,169		2,093		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Platyhelminthes (flatworms)										
Turbellaria										
Tricladida										
Planariidae										
—		4	<1	8	<1	17	1	6	<1	
3	<1	9	<1	—		1	<1	1	<1	
Nematoda (nematodes)										
Nemertea (proboscis worms)										
Enopla										
Hoplonemertea										
Tetrastemmatidae										
16	<1	17	<1	2	<1	3	<1	2	<1	
<i>Prostoma</i>										
Mollusca (molluscs)										
Gastropoda										
Basommatophora										
Ancyliidae										
61	2	16	<1	7	<1	21	2	21	1	
<i>Ferrissia</i>										
Lymnaeidae										
—		—		—		—		—		
<i>Lymnaea</i>										
Physidae										
—		—		—		—		—		
<i>Physa</i>										
Planorbidae										
2	<1	—		—		1	<1	—		
—		—		—		—		—		
<i>Gyraulus</i>										
<i>Helisoma</i>										
Bivalvia										
Veneroidea										
3	<1	—		—		—		—		
—		—		—		—		—		
Sphaeriidae										
<i>Pisidium</i>										
Annelida (segmented worms)										
Oligochaeta										
Lumbriculida										
5	<1	—		—		—		—		
Lumbriculidae										
Tubificida										
68	2	430	11	—		230	19	53	3	
—		—		—		—		—		
Naididae										
Tubificidae										
Hirudinea										
Pharyngobdellida										
—		—		—		—		1	<1	
Erpobdellidae										
Rhynchobdellida										
—		—		—		—		—		
Glossiphoniidae										
Arthropoda (arthropods)										
Acariformes										
110	4	19	<1	3	<1	28	2	13	<1	
Hydrachnidia										
Crustacea										
Cyclopoida										
1	<1	—		—		—		—		
Amphipoda										
Gammaridae										
1	<1	—		1	<1	—		—		
<i>Gammarus</i>										
Isopoda										
Asellidae										
—		—		1	<1	—		—		
<i>Caecidotea</i>										
Decapoda										
Cambaridae										
12	<1	2	<1	5	<1	—		—		
Podocopa										

**Table 5. Benthic-macroinvertebrate data—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)—Continued

Date	Oct. 26, 1983		Oct. 11, 1984		Oct. 28, 1985		Oct. 16, 1986		Nov. 15, 1987		Nov. 3, 1988		Oct. 25, 1989	
Total count	2,869		2,874		4,236		1,514		12,174		1 3,963		926	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
<i>Baetis</i>	—		3	<1	—		1	<1	—		—		—	
<i>Pseudocloeon</i>	—		—		—		—		—		—		—	
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	—		—		—		—		—		3	<1	2	<1
<b>Heptageniidae</b>														
<i>Stenonema</i>	3	<1	1	<1	—		3	<1	1	<1	21	<1	3	<1
<b>Isonychiidae</b>														
<i>Isonychia</i>	—		—		—		—		—		—		—	
<b>Leptohiphidae</b>														
<i>Tricorythodes</i>	3	<1	—		—		1	<1	—		3	<1	4	<1
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—		—		—		2	<1	—		—		—	
<i>Enallagma</i>	—		—		—		—		—		—		1	<1
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		—		—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		—		—		—		1	<1	—		—	
<b>Sialidae</b>														
<i>Sialis</i>	—		—		—		—		—		—		—	
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		—		—		—		—		—		—	
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—		—		—		—		—		—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	11	<1	430	15	8	<1	110	7	60	<1	260	7	58	6
<i>Cheumatopsyche</i>	16	<1	63	2	—		28	2	—		160	4	9	1
<i>Hydropsyche</i>	40	1	140	5	—		490	33	750	6	1,500	38	220	23
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	—		—		8	<1	—		17	<1	—		72	8
<i>Leucotrichia</i>	—		2	<1	—		—		—		—		—	
<b>Leptoceridae</b>														
<i>Oecetis</i>	—		—		—		—		—		—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—		—		—		—		—		—		—	
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	—		3	<1	—		—		—		—		—	



Oct. 25, 1990		Oct. 22, 1991		Oct. 22, 1992		Oct. 26, 1993		Oct. 17, 1994		Date
3,033		3,951		3,046		1,169		2,093		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Insecta										
Ephemeroptera										
Baetidae										
2	<1	4	<1	9	<1	—		6	<1	<i>Baetis</i>
—		—		2	<1	1	<1	1	<1	<i>Pseudocloeon</i>
Ephemerellidae										
—		1	<1	3	<1	1	<1	—		<i>Ephemerella</i>
Heptageniidae										
10	<1	4	<1	22	<1	3	<1	3	<1	<i>Stenonema</i>
Isonychiidae										
—		—		1	<1	—		—		<i>Isonychia</i>
Leptohyphidae										
9	<1	3	<1	14	<1	1	<1	5	<1	<i>Tricorythodes</i>
Odonata										
Coenagrionidae										
1	<1	—		—		—		1	<1	<i>Argia</i>
—		—		—		—		—		<i>Enallagma</i>
Plecoptera										
Capniidae										
—		—		—		1	<1	—		<i>Allocapnia</i>
Megaloptera										
Corydalidae										
—		—		—		—		2	<1	<i>Corydalis</i>
Sialidae										
—		—		—		1	<1	—		<i>Sialis</i>
Trichoptera										
Glossosomatidae										
—		1	<1	1	<1	—		—		<i>Glossosoma</i>
Helicopsychidae										
—		—		—		—		7	<1	<i>Helicopsyche</i>
Hydropsychidae										
340	11	780	20	250	8	140	12	450	21	<i>Ceratopsyche</i>
54	2	44	1	—		23	2	98	5	<i>Cheumatopsyche</i>
1,100	37	1,200	30	690	22	47	4	290	14	<i>Hydropsyche</i>
Hydroptilidae										
55	2	24	<1	10	<1	10	<1	25	1	<i>Hydroptila</i>
2	<1	1	<1	4	<1	2	<1	5	<1	<i>Leucotrichia</i>
Leptoceridae										
2	<1	—		—		2	<1	—		<i>Oecetis</i>
Psychomyiidae										
1	<1	1	<1	4	<1	—		1	<1	<i>Psychomyia</i>
Lepidoptera										
Pyralidae										
—		—		—		—		—		<i>Petrophila</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01476848 - East Branch Chester Creek below Goose Creek near West Chester, Pa. (Site 51)—Continued

Date	Oct. 26, 1983		Oct. 11, 1984		Oct. 28, 1985		Oct. 16, 1986		Nov. 15, 1987		Nov. 3, 1988		Oct. 25, 1989	
Total count	2,869		2,874		4,236		1,514		12,174		<sup>1</sup> 3,963		926	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
Curculionidae	—		1	<1	—		—		—		—		—	
Dytiscidae	1	<1	—		—		—		—		—		—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		1	<1	—		—		3	<1
<i>Dubiraphia</i>	—		—		8	<1	—		—		—		1	<1
<i>Optioservus</i>	1	<1	3	<1	—		2	<1	1	<1	13	<1	4	<1
<i>Oulimnius</i>	—		—		—		—		—		—		6	<1
<i>Promoesia</i>	—		—		—		—		—		—		—	
<i>Stenelmis</i>	4	<1	30	1	72	2	25	2	44	<1	170	4	22	2
<b>Hydrophilidae</b>														
<i>Berosus</i>	—		—		—		—		—		—		—	
<b>Psephenidae</b>														
<i>Psephenus</i>	—		—		—		—		—		—		1	<1
Hymenoptera	—		2	<1	8	<1	1	<1	—		—		—	
<b>Diptera</b>														
Chironomidae	920	32	950	33	1,100	26	590	39	2,900	24	440	11	55	6
<b>Empididae</b>														
<i>Clinocera</i>	—		—		—		—		—		—		—	
<i>Hemerodromia</i>	1	<1	18	<1	16	<1	2	<1	24	<1	8	<1	28	3
<b>Simuliidae</b>														
<i>Simulium</i>	75	3	470	16	1,300	31	78	5	860	7	340	9	32	3
<b>Tipulidae</b>														
<i>Antocha</i>	—		—		—		—		—		29	<1	8	<1
<i>Hexatoma</i>	—		—		—		—		—		—		—	
<i>Tipula</i>	—		—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 25, 1990		Oct. 22, 1991		Oct. 22, 1992		Oct. 26, 1993		Oct. 17, 1994		Date
3,033		3,951		3,046		1,169		2,093		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Coleoptera										
Curculionidae										
Dytiscidae										
Elmidae										
—		3	<1	—		—		4	<1	<i>Ancyronyx</i>
—		—		—		1	<1	1	<1	<i>Dubiraphia</i>
7	<1	54	1	18	<1	33	3	19	<1	<i>Optioservus</i>
3	<1	1	<1	1	<1	6	<1	—		<i>Oulimnius</i>
—		—		—		—		1	<1	<i>Promoresia</i>
130	4	180	5	98	3	110	9	120	6	<i>Stenelmis</i>
Hydrophilidae										
<i>Berosus</i>										
Psephenidae										
<i>Psephenus</i>										
2	<1	—		—		—		1	<1	
—		—		—		—		—		
Hymenoptera										
Diptera										
Chironomidae										
Empididae										
—		—		—		—		1	<1	<i>Clinocera</i>
18	<1	24	<1	2	<1	4	<1	16	<1	<i>Hemerodromia</i>
Simuliidae										
<i>Simulium</i>										
110	4	58	1	410	13	17	1	83	4	
Tipulidae										
<i>Antocha</i>										
74	2	68	2	180	6	93	8	45	2	
—		—		—		—		1	<1	<i>Hexatoma</i>
1	<1	—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)

Date	Oct. 30, 1981		Oct. 20, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 25, 1985		Oct. 30, 1986		Nov. 17, 1987	
Total count	836		1,295		1,368		932		1,007		1,025		4,223	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	95	11	46	4	11	<1	—	27	3	4	<1	25	<1	
Nematoda (nematodes)	—		—		—		—		—		—		—	
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		—		—		—	
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Hydrobiidae														
<i>Ammicola</i>	—		—		—		—		—		—		—	
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	1	<1	3	<1	1	<1	—	1	<1	—		1	<1	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
Bivalvia														
Veneroidea														
Sphaeriidae														
<i>Pisidium</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		—		—		—	
Tubificida														
Naididae	29	3	84	6	—		—		—		5	<1	1,300	31
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	45	5	65	5	2	<1	2	<1	4	<1	4	<1	—	
Crustacea														
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—		—		—		—		—		—		1	<1
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		2	<1	2	<1	—		—		—		1	<1
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—		—		1	<1	2	<1	—		1	<1	—	
<i>Pseudocloeon</i>	—		—		1	<1	2	<1	8	<1	—		—	
Ephemerellidae														
<i>Ephemerella</i>	—		—		—		—		—		—		3	<1
Heptageniidae														
<i>Epeorus</i>	—		—		—		—		—		—		—	
<i>Stenacron</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	12	1	10	<1	13	<1	7	<1	2	<1	19	2	11	<1
Isonychiidae														
<i>Isonychia</i>	—		—		—		1	<1	5	<1	5	<1	5	<1

Nov. 8, 1988		Oct. 31, 1989		Nov. 1, 1990		Nov. 14, 1991		Nov. 16, 1992		Nov. 24, 1993		Nov. 3, 1994		Date
1 2,624		1,797		1,492		2,007		2,514		2,090		1,779		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
40	2	52	3	180	12	28	1	190	8	89	4	20	1	Planariidae
—	—	2	<1	—	—	—	—	—	—	—	—	3	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Amnicola</i>
														Basommatophora
														Ancylidae
—	—	—	—	—	—	—	—	—	—	—	—	5	<1	<i>Ferrissia</i>
														Planorbidae
—	—	—	—	—	—	—	—	1	<1	—	—	3	<1	<i>Gyraulus</i>
														Bivalvia
														Veneroidea
														Sphaeriidae
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Pisidium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	1	<1	—	—	—	—	1	<1	—	—	—	—	Lumbriculidae
														Tubificida
3	<1	61	3	5	<1	84	4	160	6	140	7	170	9	Naididae
														Arthropoda (arthropods)
														Acariformes
5	<1	9	<1	4	<1	4	<1	250	10	37	2	15	<1	Hydrachnidia
														Crustacea
														Amphipoda
														Gammaridae
—	—	—	—	1	<1	—	—	5	<1	1	<1	—	—	<i>Gammarus</i>
														Isopoda
														Asellidae
—	—	1	<1	—	—	—	—	3	<1	—	—	—	—	<i>Caecidotea</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
—	—	1	<1	1	<1	—	—	4	<1	—	—	—	—	<i>Baetis</i>
—	—	11	<1	—	—	—	—	—	—	—	—	—	—	<i>Pseudocloeon</i>
														Ephemerellidae
16	<1	52	3	—	—	15	<1	180	7	39	2	2	<1	<i>Ephemerella</i>
														Heptageniidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Epeorus</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Stenacron</i>
11	<1	41	2	2	<1	31	2	44	2	17	<1	48	3	<i>Stenonema</i>
														Isonychiidae
5	<1	6	<1	—	—	3	<1	—	—	1	<1	5	<1	<i>Isonychia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)—Continued

Date	Oct. 30, 1981		Oct. 20, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 25, 1985		Oct. 30, 1986		Nov. 17, 1987	
Total count	836		1,295		1,368		932		1,007		1,025		4,223	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
Leptohephidae														
<i>Tricorythodes</i>	—		1	<1	—		—		—		—		—	
Leptophlebiidae														
—														
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	3	<1	1	<1	—		—		—		—		—	
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	—		—		—		—		1	<1	—		1	<1
Nemouridae														
—	—		—		—		—		—		—		—	
Taeniopterygidae														
<i>Taeniopteryx</i>	—		1	<1	1	<1	6	<1	10	1	5	<1	—	
<b>Hemiptera</b>														
Veliidae														
<i>Rhagovelia</i>	—		—		1	<1	—		—		—		—	
<b>Trichoptera</b>														
Brachycentridae														
<i>Micrasema</i>	—		—		—		—		—		—		—	
Glossosomatidae														
<i>Glossosoma</i>	—		—		—		—		—		—		—	
Hydropsychidae														
<i>Ceratopsyche</i>	51	6	42	3	360	26	140	15	220	22	180	18	37	<1
<i>Cheumatopsyche</i>	10	1	4	<1	44	3	30	3	48	5	7	<1	29	<1
<i>Hydropsyche</i>	36	4	45	3	260	19	34	4	44	4	60	6	270	6
Hydroptilidae														
<i>Hydroptila</i>	—		3	<1	—		—		7	<1	12	1	—	
<i>Leucotrichia</i>	130	15	330	25	310	22	3	<1	11	1	3	<1	—	
Leptoceridae														
<i>Mystacides</i>	—		—		—		—		—		—		—	
Philopotamidae														
<i>Chimarra</i>	—		—		—		—		—		—		—	
Psychomyiidae														
<i>Psychomyia</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
Dryopidae														
<i>Helichus</i>	1	<1	—		—		—		—		—		—	
Elmidae														
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Macronychus</i>	—		1	<1	—		—		—		—		—	
<i>Microcyloepus</i>	—		—		—		—		—		—		1	<1
<i>Optioservus</i>	56	7	28	2	17	1	4	<1	14	1	5	<1	43	1
<i>Oulimnius</i>	—		—		—		—		—		—		—	
<i>Stenelmis</i>	10	1	8	<1	—		—		3	<1	—		2	<1
Hydrophilidae														
<i>Berosus</i>	1	<1	—		—		1	<1	—		—		—	
—	—		1	<1	—		—		—		—		—	
Psephenidae														
<i>Psephenus</i>	—		—		—		—		—		—		1	<1
<b>Hymenoptera</b>														
—														
<b>Diptera</b>														
Chironomidae														
—	280	33	500	38	170	12	530	56	450	45	430	43	1,900	45
Empididae														
<i>Hemerodromia</i>	16	2	32	2	1	<1	—		2	<1	1	<1	—	
Muscidae														
<i>Limnophora</i>	—		1	<1	—		—		—		—		—	

Nov. 8, 1988		Oct. 31, 1989		Nov. 1, 1990		Nov. 14, 1991		Nov. 16, 1992		Nov. 24, 1993		Nov. 3, 1994		Date
1 2,624		1,797		1,492		2,007		2,514		2,090		1,779		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Leptohiphidae
—	—	—	—	—	—	—	—	22	<1	1	<1	1	<1	<i>Tricorythodes</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	Leptophlebiidae
														Odonata
														Coenagrionidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Argia</i>
														Plecoptera
														Capniidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Allocapnia</i>
—	—	1	<1	—	—	—	—	—	—	—	—	1	<1	Nemouridae
														Taeniopterygidae
—	—	11	<1	—	—	6	<1	1	<1	5	<1	4	<1	<i>Taeniopteryx</i>
														Hemiptera
														Veliidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhagovelia</i>
														Trichoptera
														Brachycentridae
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Micrasema</i>
														Glossosomatidae
3	<1	—	—	—	—	1	<1	1	<1	2	<1	—	—	<i>Glossosoma</i>
														Hydropsychidae
370	14	440	24	220	15	170	9	150	6	170	8	220	12	<i>Ceratopsyche</i>
140	5	110	6	68	5	35	2	33	1	33	2	42	2	<i>Cheumatopsyche</i>
180	7	190	11	150	10	150	8	160	6	160	8	79	4	<i>Hydropsyche</i>
														Hydroptilidae
8	<1	—	—	6	<1	56	3	170	7	12	<1	21	1	<i>Hydroptila</i>
16	<1	3	<1	7	<1	110	6	12	<1	27	1	—	—	<i>Leucotrichia</i>
														Leptoceridae
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Mystacides</i>
														Philopotamidae
—	—	—	—	1	<1	4	<1	52	2	3	<1	—	—	<i>Chimarra</i>
														Psychomyiidae
—	—	3	<1	—	—	—	—	1	<1	7	<1	2	<1	<i>Psychomyia</i>
														Coleoptera
														Dryopidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helichus</i>
														Elmidae
—	—	—	—	—	—	—	—	1	<1	1	<1	—	—	<i>Dubiraphia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Macronychus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Microcyloepus</i>
40	2	42	2	20	1	14	<1	39	2	59	3	18	1	<i>Optioservus</i>
—	—	1	<1	—	—	—	—	—	—	2	<1	2	<1	<i>Oulimnius</i>
5	<1	12	<1	2	<1	—	—	11	<1	2	<1	3	<1	<i>Stenelmis</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Hydrophilidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Berosus</i>
														Psephenidae
—	—	3	<1	2	<1	—	—	—	—	5	<1	—	—	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
														Hymenoptera
														Diptera
1,300	50	410	23	560	37	770	39	650	26	820	39	660	37	Chironomidae
														Empididae
8	<1	22	1	5	<1	12	<1	18	<1	7	<1	19	1	<i>Hemerodromia</i>
														Muscidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Limnophora</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01478120 - East Branch White Clay Creek at Avondale, Pa. (Site 28)—Continued

Date	Oct. 30, 1981		Oct. 20, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 25, 1985		Oct. 30, 1986		Nov. 17, 1987	
Total count	836		1,295		1,368		932		1,007		1,025		4,223	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Psychodidae	—	—	—	—	—	—	—	—	3	<1	—	—	—	—
<i>Telmatoscopus</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
Simuliidae														
<i>Simulium</i>	9	1	13	1	3	<1	19	2	15	2	12	1	52	1
Tipulidae														
<i>Antocha</i>	51	6	74	6	170	12	150	16	120	12	270	27	540	13
<i>Dicranota</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Nov. 8, 1988		Oct. 31, 1989		Nov. 1, 1990		Nov. 14, 1991		Nov. 16, 1992		Nov. 24, 1993		Nov. 3, 1994		Date
1 2,624		1,797		1,492		2,007		2,514		2,090		1,779		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
—		—		—		—		—		—		—		Diptera
—		—		—		—		—		—		—		Psychodidae
														<i>Telmatoscopus</i>
														Simuliidae
21	<1	38	2	17	1	14	<1	3	<1	9	<1	22	1	<i>Simulium</i>
														Tipulidae
450	17	270	15	240	16	500	25	350	14	440	21	410	23	<i>Antocha</i>
—		—		—		—		—		—		1	<1	<i>Dicranota</i>
—		—		1	<1	—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01478190 - Middle Branch White Clay Creek near Wickerton, Pa. (Site 29)

Date	Oct. 29, 1981		Oct. 20, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 25, 1985		Dec. 2, 1986		Oct. 29, 1987	
Total count	780		1,697		833		1,742		1,265		898		1,314	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	160	21	2	<1	10	1	16	<1	24	2	13	1	2	<1
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		1	<1	1	<1	—		—		—		—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—		—		—		—		—		1	<1	—	
Physidae														
<i>Physa</i>	—		1	<1	—		—		—		—		—	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
<i>Helisoma</i>	—		—		—		—		—		1	<1	—	
Mesogastropoda														
Hydrobiidae														
<i>Amnicola</i>	—		—		—		—		—		—		—	
Bivalvia														
Veneroidea														
Sphaeriidae	—		—		—		—		—		—		—	
<i>Pisidium</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		1	<1	—		—	
Tubificida														
Naididae	23	3	—		—		—		5	<1	9	1	11	<1
Tubificidae	—		—		—		—		—		—		2	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	9	1	6	<1	2	<1	—		10	<1	—		—	
Crustacea														
Cyclopoida	—		—		—		—		—		—		—	
Isopoda														
Asellidae														
<i>Caecidotea</i>	4	<1	—		—		—		1	<1	—		3	<1
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—		1	<1	—		14	<1	6	<1	2	<1	1	<1
<i>Pseudocloeon</i>	—		—		—		2	<1	—		—		—	
Ephemerellidae														
<i>Ephemerella</i>	—		—		1	<1	2	<1	4	<1	2	<1	6	<1
Heptageniidae														
<i>Epeorus</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	1	<1	6	<1	25	3	32	2	22	2	7	<1	—	
Isonychiidae														
<i>Isonychia</i>	—		1	<1	9	1	4	<1	4	<1	3	<1	10	<1

Oct. 31, 1988	Oct. 31, 1989	Nov. 9, 1990	Nov. 13, 1991	Nov. 12, 1992	Nov. 24, 1993	Nov. 8, 1994	Date							
<sup>1</sup> 3,440	1,438	2,008	2,464	1,458	829	1,912	Total count							
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
53	2	74	5	47	2	39	2	67	4	—		100	5	Planariidae
—		2	<1	1	<1	—		—		—		—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		5	<1	3	<1	—		—		—		5	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		—		1	<1	1	<1	1	<1	—		—		<i>Ferrissia</i>
														Physidae
—		—		—		—		—		—		—		<i>Physa</i>
														Planorbidae
—		—		1	<1	—		1	<1	—		—		<i>Gyraulus</i>
—		—		—		—		—		—		—		<i>Helisoma</i>
														Mesogastropoda
														Hydrobiidae
—		—		—		—		—		1	<1	—		<i>Amnicola</i>
														Bivalvia
														Veneroida
—		—		—		—		1	<1	—		—		Sphaeriidae
—		—		1	<1	—		—		—		—		<i>Pisidium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—		—		1	<1	—		—		—		—		Lumbriculidae
														Tubificida
5	<1	150	11	36	2	3	<1	20	1	—		15	<1	Naididae
—		—		—		—		—		—		—		Tubificidae
														Arthropoda (arthropods)
														Acariformes
—		8	<1	9	<1	9	<1	13	<1	—		19	1	Hydrachnidia
														Crustacea
—		1	<1	—		—		1	<1	—		—		Cyclopoida
														Isopoda
3	<1	36	3	3	<1	—		1	<1	1	<1	—		Asellidae
														<i>Caecidotea</i>
														Insecta
														Ephemeroptera
														Baetidae
8	<1	3	<1	11	<1	5	<1	20	1	—		—		<i>Baetis</i>
—		—		4	<1	—		4	<1	—		—		<i>Pseudocloeon</i>
														Ephemerellidae
16	<1	6	<1	6	<1	4	<1	19	1	3	<1	12	<1	<i>Ephemerella</i>
														Heptageniidae
—		1	<1	—		—		—		—		—		<i>Epeorus</i>
21	<1	12	<1	22	1	32	1	25	2	17	2	11	<1	<i>Stenonema</i>
														Isonychiidae
—		—		7	<1	25	1	15	1	5	<1	4	<1	<i>Isonychia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01478190 - Middle Branch White Clay Creek near Wickerton, Pa. (Site 29)—Continued

Date	Oct. 29, 1981		Oct. 20, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 25, 1985		Dec. 2, 1986		Oct. 29, 1987	
Total count	780		1,697		833		1,742		1,265		898		1,314	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Potamanthidae</b>														
<i>Anthopotamus</i>	—		—		—		—		—		—		—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		—		—		—		—		1	<1
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		—		—		—		—		—		—	
<i>Nigronia</i>	1	<1	—		—		—		1	<1	—		2	<1
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—		—		—		—		—		—		—	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		—		—		7	<1	2	<1	—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	21	3	130	8	120	14	460	27	180	14	89	10	35	3
<i>Cheumatopsyche</i>	80	10	440	26	180	21	150	9	64	5	210	23	71	5
<i>Hydropsyche</i>	61	8	600	35	200	24	230	14	110	8	140	15	270	21
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	1	<1	2	<1	3	<1	1	<1	10	<1	5	<1	9	<1
<i>Leucotrichia</i>	—		10	<1	34	4	4	<1	8	<1	18	2	20	2
<b>Leptoceridae</b>														
<i>Oecetis</i>	—		—		—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	—		—		—		4	<1	4	<1	5	<1	—	
<i>Wormaldia</i>	—		—		—		—		—		—		—	
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	—		—		—		—		1	<1	—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—		—		—		—		—		—		—	
<b>Uenoidae</b>														
<i>Neophylax</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—		1	<1	—		—		—		—		—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>A. variegata</i>	—		—		—		—		—		2	<1	—	
<i>Dubiraphia</i>	—		—		—		—		—		2	<1	—	
<i>Microcylloepus</i>	—		—		—		—		—		—		1	<1
<i>Optioservus</i>	3	<1	18	1	10	1	18	1	34	3	48	5	68	5
<i>Oulimnius</i>	—		—		—		—		7	<1	2	<1	1	<1
<i>Stenelmis</i>	2	<1	11	<1	—		7	<1	12	<1	22	2	47	4
<b>Psephenidae</b>														
<i>Psephenus</i>	—		—		—		—		—		1	<1	2	<1
<b>Diptera</b>														
<b>Ceratopogonidae</b>														
<i>Ceratopogonidae</i>	—		—		—		—		—		—		1	<1
<b>Chironomidae</b>														
<i>Chironomidae</i>	190	24	310	18	110	13	620	36	520	40	140	15	520	40
<b>Empididae</b>														
<i>Hemerodromia</i>	150	19	15	<1	6	<1	4	<1	34	3	8	<1	1	<1
<b>Simuliidae</b>														
<i>Simulium</i>	73	9	32	2	1	<1	27	2	1	<1	8	<1	—	

Oct. 31, 1988		Oct. 31, 1989		Nov. 9, 1990		Nov. 13, 1991		Nov. 12, 1992		Nov. 24, 1993		Nov. 8, 1994		Date
1 3,440		1,438		2,008		2,464		1,458		829		1,912		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Potamanthidae
—		1	<1	—		—		—		—		—		<i>Anthopotamus</i>
														Plecoptera
														Capniidae
—		5	<1	—		—		2	<1	—		—		<i>Allocapnia</i>
														Megaloptera
														Corydalidae
—		—		—		—		2	<1	—		—		<i>Corydalus</i>
3	<1	—		—		—		—		—		—		<i>Nigronia</i>
														Trichoptera
														Apataniidae
3	<1	—		—		—		—		—		—		<i>Apatania</i>
														Glossosomatidae
3	<1	—		—		—		—		—		—		<i>Glossosoma</i>
														Hydropsychidae
760	22	210	15	430	22	380	15	220	15	37	4	390	21	<i>Ceratopsyche</i>
450	13	90	6	92	5	140	6	55	4	150	18	170	9	<i>Cheumatopsyche</i>
580	17	260	19	180	9	550	22	280	19	230	28	160	8	<i>Hydropsyche</i>
														Hydroptilidae
210	6	10	<1	120	6	13	<1	34	2	2	<1	54	3	<i>Hydroptila</i>
—		—		4	<1	88	4	84	6	130	16	99	5	<i>Leucotrichia</i>
														Leptoceridae
—		—		—		—		—		—		1	<1	<i>Oecetis</i>
														Philopotamidae
—		1	<1	1	<1	28	1	46	3	25	3	88	5	<i>Chimarra</i>
—		1	<1	—		—		—		—		—		<i>Wormaldia</i>
														Polycentropodidae
—		—		4	<1	2	<1	—		—		—		<i>Polycentropus</i>
														Psychomyiidae
—		—		5	<1	7	<1	5	<1	1	<1	4	<1	<i>Psychomyia</i>
														Uenoidae
—		—		—		—		—		—		1	<1	<i>Neophylax</i>
														Coleoptera
														Dryopidae
—		—		—		—		1	<1	—		—		<i>Helichus</i>
														Elmidae
—		—		—		—		1	<1	1	<1	—		<i>Ancyronyx</i>
—		2	<1	—		—		—		—		—		<i>A. variegata</i>
—		—		—		—		1	<1	—		—		<i>Dubiraphia</i>
—		—		—		—		—		—		—		<i>Microcylloepus</i>
11	<1	7	<1	4	<1	12	<1	17	1	8	1	67	4	<i>Optioservus</i>
—		—		—		1	<1	—		—		5	<1	<i>Oulimnius</i>
13	<1	1	<1	7	<1	2	<1	3	<1	16	2	23	1	<i>Stenelmis</i>
														Psephenidae
5	<1	—		—		1	<1	2	<1	—		12	<1	<i>Psephenus</i>
—		—		—		—		—		—		—		
														Diptera
														Ceratopogonidae
1,000	29	330	24	760	38	890	36	390	26	110	13	390	21	
														Chironomidae
3	<1	28	2	6	<1	8	<1	3	<1	3	<1	9	<1	<i>Hemerodromia</i>
														Simuliidae
110	3	74	5	2	<1	4	<1	14	<1	2	<1	33	2	<i>Simulium</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01478190 - Middle Branch White Clay Creek near Wickerton, Pa. (Site 29)—Continued

Date	Oct. 29, 1981		Oct. 20, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 25, 1985		Dec. 2, 1986		Oct. 29, 1987	
Total count	780		1,697		833		1,742		1,265		898		1,314	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Tipulidae														
<i>Antocha</i>	—		110	6	120	14	140	8	200	15	160	18	230	18
<i>Hexatoma</i>	—		—		—		—		—		—		—	
<i>Tipula</i>	1	<1	—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 31, 1988		Oct. 31, 1989		Nov. 9, 1990		Nov. 13, 1991		Nov. 12, 1992		Nov. 24, 1993		Nov. 8, 1994		Date
1 3,440		1,438		2,008		2,464		1,458		829		1,912		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Diptera
														Tipulidae
180	5	120	9	240	12	220	9	110	7	87	10	240	13	<i>Antocha</i>
3	<1	—		—		—		—		—		—		<i>Hexatoma</i>
—		—		—		—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01478220 - West Branch White Clay Creek near Chesterville, Pa. (Site 30)

Date	Oct. 29, 1981		Oct. 20, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 25, 1985		Nov. 25, 1986		Oct. 29, 1987	
Total count	1,216		2,270		794		1,232		836		1,079		1,665	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Cnidaria (cnidarians)														
Hydrozoa														
Hydroida														
Hydridae														
<i>Hydra</i>														
	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae														
	2	<1	2	<1	14	2	1	<1	2	<1	4	<1	1	<1
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>														
	—	—	—	—	4	<1	1	<1	5	<1	—	—	2	<1
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>														
	—	—	1	<1	—	—	1	<1	1	<1	—	—	—	—
Physidae														
<i>Physa</i>														
	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Planorbidae														
<i>Helisoma</i>														
	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
	—	—	—	—	4	<1	1	<1	—	—	—	—	—	—
Lumbriculida														
Lumbriculidae														
	—	—	—	—	—	—	—	—	1	<1	1	<1	—	—
Tubificida														
Naididae														
	4	<1	—	—	—	—	—	—	—	—	—	—	8	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
	14	1	25	1	48	6	—	—	6	<1	1	<1	—	—
Crustacea														
Isopoda														
Asellidae														
<i>Caecidotea</i>														
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>														
	1	<1	—	—	—	—	19	2	—	—	1	<1	5	<1
<i>Pseudocloeon</i>														
	8	<1	24	1	2	<1	34	3	7	<1	—	—	17	1
Caenidae														
<i>Caenis</i>														
	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>														
	2	<1	2	<1	—	—	13	1	16	2	27	2	30	2
Heptageniidae														
<i>Epeorus</i>														
	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenonema</i>														
	5	<1	19	<1	21	3	29	2	32	4	21	2	65	4
Isonychiidae														
<i>Isonychia</i>														
	5	<1	7	<1	12	2	14	1	19	2	27	2	110	6
Leptophlebiidae														
<i>Habrophlebia</i>														
	—	—	—	—	—	—	—	—	1	<1	—	—	—	—



Oct. 31, 1988		Oct. 31, 1989		Nov. 9, 1990		Nov. 13, 1991		Nov. 16, 1992		Nov. 23, 1993		Nov. 3, 1994		Date
<sup>1</sup> 2,065		1,114		1,794		1,438		1,472		1,270		1,027		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Cnidaria (cnidarians)
														Hydrozoa
														Hydroida
														Hydridae
—		—		—		—		—		—		—		<i>Hydra</i>
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
8	<1	11	1	18	1	—		16	1	20	2	5	<1	Planariidae
—		2	<1	1	<1	—		—		5	<1	—		Nematoda (nematodes)
—		2	<1	—		—		—		5	<1	—		Nemertea (proboscis worms)
														Enopla
														Hoploneuridae
—		6	<1	—		—		2	<1	1	<1	—		Tetrastemmatidae
														<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
—		—		—		—		1	<1	—		—		Ancylidae
														<i>Ferrissia</i>
—		—		1	<1	—		—		—		—		Physidae
														<i>Physa</i>
—		—		—		—		—		—		—		Planorbidae
														<i>Helisoma</i>
—		—		—		—		—		—		—		Annelida (segmented worms)
														Oligochaeta
—		4	<1	—		—		4	<1	—		—		Lumbriculida
														Lumbriculidae
—		14	1	8	<1	1	<1	7	<1	6	<1	1	<1	Tubificida
														Naididae
8	<1	28	3	1	<1	2	<1	24	2	19	1	11	1	Arthropoda (arthropods)
														Acariformes
														Hydrachnidia
														Crustacea
														Isopoda
—		1	<1	—		—		—		—		—		Asellidae
														<i>Caecidotea</i>
														Insecta
														Ephemeroptera
														Baetidae
13	<1	4	<1	—		—		2	<1	3	<1	—		<i>Baetis</i>
27	1	12	1	4	<1	3	<1	1	<1	2	<1	2	<1	<i>Pseudocloeon</i>
—		—		—		—		—		—		—		Caenidae
														<i>Caenis</i>
35	2	30	3	40	2	15	1	160	11	67	5	6	<1	Ephemerellidae
														<i>Ephemerella</i>
—		1	<1	3	<1	3	<1	—		2	<1	2	<1	Heptageniidae
100	5	77	7	67	4	34	2	87	6	21	2	22	2	<i>Epeorus</i>
														<i>Stenonema</i>
140	7	16	1	40	2	28	2	37	2	19	1	15	2	Isonychiidae
														<i>Isonychia</i>
—		—		—		—		—		—		—		Leptophlebiidae
														<i>Habrophlebia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01478220 - West Branch White Clay Creek near Chesterville, Pa. (Site 30)

Date	Oct. 29, 1981		Oct. 20, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 25, 1985		Nov. 25, 1986		Oct. 29, 1987	
Total count	1,216		2,270		794		1,232		836		1,079		1,665	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
<b>Aeshnidae</b>														
<i>Boyeria</i>	—		—		1	<1	—		1	<1	—		—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		—		—		2	<1	2	<1	4	<1
Chloroperlidae	—		—		—		—		—		—		—	
Nemouridae	—		—		—		—		—		—		—	
<b>Peltoperlidae</b>														
<i>Peltoperla</i>	—		1	<1	—		—		—		—		—	
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	—		1	<1	—		—		1	<1	3	<1	6	<1
<b>Hemiptera</b>														
Corixidae	—		—		—		—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—		1	<1	—		—		—		—		—	
<i>Nigronia</i>	1	<1	2	<1	1	<1	1	<1	—		—		—	
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—		—		—		—		—		—		—	
<b>Brachycentridae</b>														
<i>Micrasema</i>	—		—		—		—		—		—		—	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		3	<1	2	<1	6	<1	2	<1	5	<1	1	<1
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	340	28	110	5	58	7	130	11	140	17	190	17	210	12
<i>Cheumatopsyche</i>	200	17	140	6	4	<1	100	8	47	6	110	10	130	8
<i>Hydropsyche</i>	72	6	110	5	32	4	110	9	56	7	210	19	250	15
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	2	<1	1	<1	1	<1	—		6	<1	1	<1	19	1
<i>Leucotrichia</i>	10	<1	1,400	61	110	14	450	38	—		160	15	220	13
<b>Leptoceridae</b>														
<i>Oecetis</i>	—		—		—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	—		1	<1	—		4	<1	8	1	12	1	9	<1
<i>Dolophilodes</i>	—		—		—		—		1	<1	—		—	
<i>Wormaldia</i>	—		—		—		—		—		—		—	
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—		—		—		—		—		—		—	
<i>Polycentropus</i>	—		—		—		—		1	<1	—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—		—		—		—		—		—		—	
<b>Uenoidae</b>														
<i>Neophylax</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		1	<1	—		—		2	<1	—	
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Microcylloepus</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	13	1	17	<1	18	2	27	2	26	3	29	3	9	<1
<i>Oulimnius</i>	—		—		—		1	<1	7	<1	9	<1	—	
<i>Stenelmis</i>	1	<1	2	<1	1	<1	5	<1	3	<1	1	<1	4	<1
<b>Psephenidae</b>														
<i>Psephenus</i>	—		—		—		—		1	<1	—		1	<1

Oct. 31, 1988		Oct. 31, 1989		Nov. 9, 1990		Nov. 13, 1991		Nov. 16, 1992		Nov. 23, 1993		Nov. 3, 1994		Date
1 2,065		1,114		1,794		1,438		1,472		1,270		1,027		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Odonata
														Aeshnidae
														<i>Boyeria</i>
														Plecoptera
														Capniidae
3	<1	15	1	6	<1	9	<1	8	<1	2	<1	—	—	<i>Allocapnia</i>
—	—	—	—	—	—	2	<1	1	<1	—	—	1	<1	Chloroperlidae
—	—	7	<1	—	—	—	—	—	—	—	—	—	—	Nemouridae
														Peltoperlidae
														<i>Peltoperla</i>
														Taeniopterygidae
3	<1	—	—	3	<1	12	<1	7	<1	18	1	3	<1	<i>Taeniopteryx</i>
														Hemiptera
														Corixidae
														Megaloptera
														Corydalidae
														<i>Corydalus</i>
—	—	1	<1	—	—	2	<1	2	<1	—	—	—	—	<i>Nigronia</i>
														Trichoptera
														Apataniidae
														<i>Apatania</i>
														Brachycentridae
5	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Micrasema</i>
														Glossosomatidae
—	—	7	<1	8	<1	1	<1	8	<1	2	<1	2	<1	<i>Glossosoma</i>
														Hydropsychidae
360	17	210	19	290	16	150	11	160	11	160	12	270	27	<i>Ceratopsyche</i>
100	5	64	6	140	8	31	2	45	3	15	1	78	8	<i>Cheumatopsyche</i>
270	13	83	8	130	7	270	19	160	11	97	7	92	9	<i>Hydropsyche</i>
														Hydroptilidae
5	<1	1	<1	52	3	4	<1	3	<1	—	—	5	<1	<i>Hydroptila</i>
580	28	75	7	350	19	280	20	150	10	16	1	6	<1	<i>Leucotrichia</i>
														Leptoceridae
														<i>Oecetis</i>
														Philopotamidae
21	1	23	2	14	<1	6	<1	25	2	50	4	10	1	<i>Chimarra</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Wormaldia</i>
														Polycentropodidae
—	—	—	—	1	<1	5	<1	2	<1	1	<1	—	—	<i>Neureclipsis</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Polycentropus</i>
														Psychomyiidae
—	—	—	—	—	—	—	—	—	—	1	<1	1	<1	<i>Psychomyia</i>
														Uenoidae
—	—	—	—	2	<1	—	—	10	<1	1	<1	—	—	<i>Neophylax</i>
														Coleoptera
														Elmidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ancyronyx</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Dubiraphia</i>
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Microcylloepus</i>
13	<1	27	2	10	<1	6	<1	47	3	10	<1	3	<1	<i>Optioservus</i>
—	—	7	<1	1	<1	1	<1	4	<1	2	<1	—	—	<i>Oulimnius</i>
3	<1	5	<1	1	<1	—	—	3	<1	2	<1	2	<1	<i>Stenelmis</i>
														Psephenidae
—	—	7	<1	2	<1	—	—	1	<1	2	<1	1	<1	<i>Psephenus</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01478220 - West Branch White Clay Creek near Chesterville, Pa. (Site 30)

Date	Oct. 29, 1981		Oct. 20, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 25, 1985		Nov. 25, 1986		Oct. 29, 1987	
Total count	1,216		2,270		794		1,232		836		1,079		1,665	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Athericidae														
<i>Atherix</i>	—		—		—		—		—		—		—	
Chironomidae	340	28	260	11	240	30	170	14	410	49	94	9	290	17
Empididae														
<i>Clinocera</i>	—		—		—		—		—		—		—	
<i>Hemerodromia</i>	27	2	11	<1	8	1	3	<1	3	<1	11	1	11	<1
Simuliidae														
<i>Simulium</i>	130	11	—		—		2	<1	3	<1	8	<1	3	<1
Tipulidae														
<i>Antocha</i>	37	3	130	6	210	26	110	9	28	3	150	14	260	15
<i>Tipula</i>	—		—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 31, 1988		Oct. 31, 1989		Nov. 9, 1990		Nov. 13, 1991		Nov. 16, 1992		Nov. 23, 1993		Nov. 3, 1994		Date
1 2,065		1,114		1,794		1,438		1,472		1,270		1,027		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Diptera
														Athericidae
														<i>Atherix</i>
—		—		—		—		—		1	<1	—		Chironomidae
240	11	240	22	450	25	470	34	350	23	580	45	190	19	Empididae
														<i>Clinocera</i>
—		—		—		—		—		3	<1	—		<i>Hemerodromia</i>
5	<1	48	4	10	<1	11	<1	17	1	9	<1	8	<1	Simuliidae
														<i>Simulium</i>
3	<1	14	1	1	<1	6	<1	6	<1	33	3	—		Tipulidae
														<i>Antocha</i>
120	6	67	6	140	8	84	6	120	8	98	8	290	29	<i>Tipula</i>
—		1	<1	—		1	<1	—		—		—		

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)

Date	Oct. 30, 1981		Nov. 1, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 18, 1985		Nov. 18, 1986		Oct. 30, 1987	
Total count	211		777		84		468		326		107		267	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	16	7	110	14	8	10	—	—	6	2	8	8	17	6
Nematoda (nematodes)	—	—	—	—	—	—	4	1	—	—	—	—	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	1	<1	25	3	9	11	1	<1	12	4	3	3	—	—
Nematomorpha														
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—	—	1	<1	8	10	37	8	110	33	6	6	35	13
Lymnaeidae														
<i>Lymnaea</i>	—	—	—	—	2	3	—	—	1	<1	—	—	—	—
Physidae														
<i>Physa</i>	—	—	—	—	1	2	—	—	—	—	—	—	1	<1
Planorbidae														
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helisoma</i>	1	<1	—	—	—	—	—	—	1	<1	—	—	3	1
Bivalvia														
Veneroida														
Sphaeriidae														
<i>Pisidium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae														
Tubificida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Naididae														
Tubificidae	—	—	3	<1	—	—	—	—	6	2	3	3	78	29
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
Hydrachnidia	1	<1	24	3	—	—	—	—	2	<1	3	3	15	6
Crustacea														
Cladocera														
Cladocera	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cyclopoida														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Isopoda														
Asellidae														
<i>Caecidotea</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
Podocopa	—	—	110	14	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Pseudocloeon</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Nov. 8, 1988		Oct. 30, 1989		Oct. 31, 1990		Nov. 7, 1991		Oct. 27, 1992		Nov. 22, 1993		Nov. 8, 1994		Date
546		758		1,843		424		410		834		922		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
25	5	11	1	12	<1	—	—	2	<1	3	<1	—	—	Planariidae
—	—	2	<1	1	<1	—	—	—	—	2	<1	6	<1	Nematoda (nematodes)
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
—	—	8	1	12	<1	—	—	—	—	11	1	9	1	<i>Prostoma</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Nematomorpha
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
32	6	26	3	83	5	18	4	36	9	13	2	24	3	<i>Ferrisia</i>
Lymnaeidae														
11	2	—	—	3	<1	—	—	—	—	—	—	—	—	<i>Lymnaea</i>
Physidae														
8	2	—	—	—	—	—	—	—	—	—	—	—	—	<i>Physa</i>
Planorbidae														
—	—	—	—	13	<1	—	—	—	—	—	—	—	—	<i>Gyraulus</i>
7	1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
Bivalvia														
Veneroidea														
Sphaeriidae														
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	<i>Pisidium</i>
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae														
46	8	42	5	9	<1	240	56	—	—	230	27	160	17	Naididae
—	—	—	—	—	—	1	<1	—	—	4	<1	—	—	Tubificidae
Arthropoda (arthropods)														
Acariformes														
87	16	68	9	210	12	11	3	4	1	47	6	40	4	Hydrachnidia
Crustacea														
Cladocera														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	—
Cyclopoida														
—	—	—	—	—	—	—	—	—	—	1	<1	1	<1	—
Amphipoda														
Gammaridae														
—	—	—	—	—	—	—	—	41	10	3	<1	—	—	<i>Gammarus</i>
Isopoda														
Asellidae														
—	—	3	<1	4	<1	1	<1	2	<1	—	—	—	—	<i>Caecidotea</i>
—	—	—	—	—	—	—	—	—	—	—	—	2	<1	—
Podocopa														
Insecta														
Ephemeroptera														
Baetidae														
—	—	4	<1	—	—	—	—	—	—	5	<1	—	—	<i>Baetis</i>
—	—	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Pseudocloeon</i>
Ephemerellidae														
2	<1	9	1	4	<1	—	—	—	—	3	<1	1	<1	<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

Date	Oct. 30, 1981		Nov. 1, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 18, 1985		Nov. 18, 1986		Oct. 30, 1987	
Total count	211		777		84		468		326		107		267	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
Heptageniidae														
<i>Stenonema</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Isonychiidae														
<i>Isonychia</i>	—	—	—	—	—	—	—	—	—	—	1	1	—	—
Leptohyphidae														
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
Coenagrionidae	—	—	—	—	1	2	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taeniopterygidae														
<i>Taeniopteryx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hemiptera</b>														
Veliidae														
<i>Microvelia</i>	—	—	—	—	—	—	—	—	2	<1	—	—	—	—
<b>Megaloptera</b>														
Corydalidae														
<i>Nigronia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
Brachycentridae														
<i>Brachycentrus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glossosomatidae														
<i>Glossosoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydropsychidae														
<i>Ceratopsyche</i>	—	—	2	<1	4	5	—	—	—	—	—	—	—	—
<i>Cheumatopsyche</i>	2	1	—	—	—	—	—	—	7	2	—	—	1	<1
<i>Hydropsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydroptilidae														
<i>Hydroptila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Leucotrichia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polycentropodidae														
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Psychomyiidae														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
Elmidae														
Ancyronyx														
<i>A. variegata</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	—	—	—	—	—	—	—	—	—	—	1	1	1	<1
<i>Macronychus</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<i>Optioservus</i>	4	2	3	<1	7	8	8	2	20	6	22	20	8	3
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	2	<1	—	—	1	<1
<i>Stenelmis</i>	1	<1	2	<1	—	—	1	<1	3	1	—	—	—	—
Psephenidae														
<i>Psephenus</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Diptera</b>														
Chironomidae														
Empididae	130	59	310	40	36	40	240	51	130	39	59	54	78	29
<i>Clinocera</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	1	<1	44	6	4	5	5	1	3	1	—	—	5	2
Muscidae														
<i>Limnophora</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—



Nov. 8, 1988		Oct. 30, 1989		Oct. 31, 1990		Nov. 7, 1991		Oct. 27, 1992		Nov. 22, 1993		Nov. 8, 1994		Date
546		758		1,843		424		410		834		922		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
—		11	1	2	<1	—		2	<1	3	<1	—		<i>Stenonema</i>
<b>Isonychiidae</b>														
—		2	<1	—		—		—		—		—		<i>Isonychia</i>
<b>Leptohyphidae</b>														
—		—		2	<1	—		—		—		—		<i>Tricorythodes</i>
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<b>Plecoptera</b>														
<b>Capniidae</b>														
—		1	<1	—		—		—		—		—		<i>Allocapnia</i>
<b>Taeniopterygidae</b>														
—		1	<1	—		—		—		—		—		<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Veliidae</b>														
—		—		—		—		—		—		—		<i>Microvelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—		—		—		—		—		1	<1	—		<i>Nigronia</i>
<b>Trichoptera</b>														
<b>Brachycentridae</b>														
—		—		—		—		—		—		1	<1	<i>Brachycentrus</i>
<b>Glossosomatidae</b>														
—		2	<1	—		—		—		—		—		<i>Glossosoma</i>
<b>Hydropsychidae</b>														
3	<1	130	17	28	2	2	<1	—		18	2	8	<1	<i>Ceratopsyche</i>
1	<1	41	5	11	<1	4	1	—		19	2	4	<1	<i>Cheumatopsyche</i>
—		100	13	17	<1	21	5	170	41	23	3	11	1	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
—		2	<1	—		—		2	<1	1	<1	1	<1	<i>Hydroptila</i>
—		1	<1	—		—		—		—		—		<i>Leucotrichia</i>
<b>Polycentropodidae</b>														
—		1	<1	—		—		—		—		—		<i>Polycentropus</i>
<b>Psychomyiidae</b>														
—		1	<1	—		—		—		—		—		<i>Psychomyia</i>
<b>Coleoptera</b>														
<b>Elmidae</b>														
<b>Ancyronyx</b>														
—		—		—		—		—		1	<1	2	<1	<i>A. variegata</i>
1	<1	1	<1	1	<1	—		—		2	<1	1	<1	<i>Dubiraphia</i>
<b>Macronychus</b>														
15	3	16	2	10	<1	2	<1	8	2	9	1	10	1	<i>Optioservus</i>
—		7	<1	—		—		—		—		1	<1	<i>Oulimnius</i>
3	<1	11	1	11	<1	2	<1	2	<1	3	<1	2	<1	<i>Stenelmis</i>
<b>Psephenidae</b>														
—		4	<1	—		—		—		2	<1	—		<i>Psephenus</i>
<b>Diptera</b>														
<b>Chironomidae</b>														
<b>Empididae</b>														
8	2	45	6	6	<1	2	<1	—		9	1	15	2	<i>Clinocera</i>
<b>Hemerodromia</b>														
—		—		—		—		—		—		—		<i>Hemerodromia</i>
<b>Muscidae</b>														
—		—		—		—		—		—		—		<i>Limnophora</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01479680 - West Branch Red Clay Creek at Kennett Square, Pa. (Site 27)—Continued

Date	Oct. 30, 1981		Nov. 1, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 18, 1985		Nov. 18, 1986		Oct. 30, 1987	
Total count	211		777		84		468		326		107		267	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Simuliidae														
<i>Simulium</i>	53	24	140	18	4	5	6	1	18	5	1	1	20	7
Stratiomyidae	—		—		—		—		—		—		—	
Tipulidae														
<i>Antocha</i>	—		—		—		36	8	1	<1	—		3	1
<i>Tipula</i>	—		—		—		—		—		—		—	

Nov. 8, 1988		Oct. 30, 1989		Oct. 31, 1990		Nov. 7, 1991		Oct. 27, 1992		Nov. 22, 1993		Nov. 8, 1994		Date
546		758		1,843		424		410		834		922		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Diptera
														Simuliidae
														<i>Simulium</i>
220	40	6	<1	110	6	6	2	8	2	33	4	10	1	
—		—		—		—		—		1	<1	—		
														Stratiomyidae
														Tipulidae
10	2	100	13	85	5	14	3	75	18	85	10	81	9	<i>Antocha</i>
—		—		1	<1	—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)

Date	Oct. 30, 1981		Nov. 1, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 18, 1985		Nov. 18, 1986		Nov. 17, 1987	
Total count	1,055		285		577		2,375		627		34		577	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	6	<1	3	1	5	<1	—	1	<1	—	—	—	—	—
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	16	1	11	4	8	1	2	<1	9	2	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	53	5	28	10	2	<1	6	<1	17	3	1	4	5	<1
Physidae														
<i>Physa</i>	59	5	9	3	1	<1	1	<1	—	—	—	—	1	<1
Planorbidae														
<i>Helisoma</i>	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
Naididae	30	3	10	3	5	<1	—	—	19	3	1	4	38	7
Tubificidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	39	4	11	4	3	<1	7	<1	50	8	1	4	3	<1
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Crangonyctidae														
<i>Crangonyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Isopoda														
Asellidae														
<i>Caecidotea</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Podocopa	1	<1	1	<1	1	<1	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
Heptageniidae														
<i>Stenonema</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
Odonata														
Calopterygidae														
<i>Hetaerina</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coenagrionidae														
<i>Argia</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Plecoptera														
Taeniopterygidae														
<i>Taeniopteryx</i>	—	—	—	—	—	—	—	—	—	—	1	4	—	—

Nov. 8, 1988		Oct. 30, 1989		Nov. 1, 1990		Nov. 7, 1991		Oct. 27, 1992		Nov. 22, 1993		Nov. 8, 1994		Date
920		545		2,652		700		1,054		761		998		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—	—	—	—	—	—	—	—	9	<1	4	<1	21	2	Planariidae
—	—	2	<1	3	<1	—	—	4	<1	—	—	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	2	<1	9	<1	4	<1	16	1	11	1	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
3	<1	5	1	32	1	35	5	12	1	14	2	29	3	<i>Ferrissia</i>
														Physidae
1	<1	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Physa</i>
														Planorbidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
														Annelida (segmented worms)
														Oligochaeta
														Tubificida
51	6	27	5	58	2	5	<1	86	8	120	16	3	<1	Naididae
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
														Arthropoda (arthropods)
														Acariformes
33	4	48	9	130	5	10	1	56	5	63	8	6	<1	Hydrachnidia
														Crustacea
—	—	1	<1	—	—	—	—	5	<1	1	<1	2	<1	Cyclopoida
														Amphipoda
														Crangonyctidae
—	—	—	—	—	—	—	—	—	—	5	<1	—	—	<i>Crangonyx</i>
														Isopoda
														Asellidae
—	—	—	—	12	<1	—	—	—	—	—	—	—	—	<i>Caecidotea</i>
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Baetis</i>
														Ephemerellidae
—	—	2	<1	—	—	—	—	2	<1	3	<1	2	<1	<i>Ephemerella</i>
														Heptageniidae
—	—	—	—	3	<1	—	—	1	<1	4	<1	3	<1	<i>Stenonema</i>
														Odonata
														Calopterygidae
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Hetaerina</i>
														Coenagrionidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Argia</i>
														Plecoptera
														Taeniopterygidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Taeniopteryx</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01479800 - East Branch Red Clay Creek near Five Point, Pa. (Site 26)—Continued

Date	Oct. 30, 1981		Nov. 1, 1982		Nov. 1, 1983		Oct. 19, 1984		Oct. 18, 1985		Nov. 18, 1986		Nov. 17, 1987	
Total count	1,055		285		577		2,375		627		34		577	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		—		—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Nigronia</i>	—		—		—		—		1	<1	1	4	3	<1
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		—		—		—		—		—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	—		31	11	400	68	1	<1	—		—		—	
<i>Cheumatopsyche</i>	—		6	2	25	4	—		—		—		1	<1
<i>Hydropsyche</i>	—		3	1	—		—		2	<1	—		14	2
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	—		—		—		—		—		—		—	
<i>Leucotrichia</i>	—		—		—		—		1	<1	—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	1	<1	—		—		—		—		—		—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>A.variegata</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	3	<1	6	2	12	2	17	<1	23	4	13	34	5	<1
<i>Oulimnius</i>	—		—		—		—		1	<1	—		1	<1
<i>Stenelmis</i>	—		—		—		1	<1	—		—		1	<1
<b>Hydrophilidae</b>														
<i>Berosus</i>	—		—		—		—		—		—		—	
<b>Psephenidae</b>														
<b>Ectopria</b>														
<i>E.nervosa</i>	—		—		—		—		1	<1	—		—	
<i>Psephenus</i>	—		—		—		—		—		—		2	<1
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—		—		2	<1	—		—		—		—	
<b>Chironomidae</b>														
	280	25	110	38	68	12	250	10	390	62	12	32	210	36
<b>Empididae</b>														
<i>Chelifera</i>	—		—		—		—		—		—		—	
<i>Clinocera</i>	—		—		—		—		—		—		—	
<i>Hemerodromia</i>	63	6	15	5	8	1	1	<1	24	4	—		2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	500	45	35	12	25	4	6	<1	24	4	1	4	230	40
<b>Tipulidae</b>														
<i>Antocha</i>	—		5	2	10	2	83	3	62	10	2	7	58	10
<i>Tipula</i>	—		—		1	<1	—		—		—		—	

Nov. 8, 1988		Oct. 30, 1989		Nov. 1, 1990		Nov. 7, 1991		Oct. 27, 1992		Nov. 22, 1993		Nov. 8, 1994		Date
920		545		2,652		700		1,054		761		998		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Hemiptera
														Veliidae
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—	—	1	<1	—	—	3	<1	3	<1	—	—	—	—	<i>Nigronia</i>
														Trichoptera
														Glossosomatidae
—	—	—	—	1	<1	—	—	—	—	—	—	3	<1	<i>Glossosoma</i>
														Hydropsychidae
—	—	2	<1	1	<1	1	<1	2	<1	23	3	24	2	<i>Ceratopsyche</i>
—	—	1	<1	1	<1	—	—	—	—	4	<1	9	<1	<i>Cheumatopsyche</i>
—	—	—	—	—	—	2	<1	6	<1	43	6	4	<1	<i>Hydropsyche</i>
														Hydroptilidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Hydroptila</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Leucotrichia</i>
														Philopotamidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Chimarra</i>
														Coleoptera
														Dryopidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helichus</i>
														Elmidae
—	—	—	—	—	—	—	—	—	—	—	—	2	<1	<i>Ancyronyx</i>
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>A.variegata</i>
—	—	—	—	—	—	—	—	2	<1	—	—	1	<1	<i>Dubiraphia</i>
27	3	21	4	22	<1	26	4	73	7	46	6	13	1	<i>Optioservus</i>
—	—	—	—	3	<1	—	—	2	<1	1	<1	—	—	<i>Oulimnius</i>
—	—	1	<1	6	<1	1	<1	9	<1	14	2	2	<1	<i>Stenelmis</i>
														Hydrophilidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Berosus</i>
														Psephenidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ectopria</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>E.nervosa</i>
—	—	—	—	—	—	1	<1	2	<1	—	—	2	<1	<i>Psephenus</i>
														Hymenoptera
														Diptera
														Athericidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Atherix</i>
190	21	89	16	1,600	59	440	63	530	48	280	36	510	51	Chironomidae
														Empididae
—	—	—	—	8	<1	—	—	—	—	2	<1	—	—	<i>Chelifera</i>
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Clinocera</i>
8	<1	38	7	130	5	3	<1	46	4	32	4	11	1	<i>Hemerodromia</i>
														Simuliidae
560	61	270	49	570	21	70	10	52	5	42	5	200	20	<i>Simulium</i>
														Tipulidae
45	5	34	6	61	2	98	14	130	12	45	6	150	15	<i>Antocha</i>
—	—	1	<1	—	—	1	<1	—	—	1	<1	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)

Date	Nov. 2, 1981		Oct. 27, 1982		Nov. 4, 1983		Oct. 30, 1984		Oct. 21, 1985		Nov. 17, 1986		Oct. 22, 1987	
Total count	551		1,086		1,241		1,052		1,711		646		1,278	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—		8	<1	—		—		4	<1	6	<1	3	<1
Nematoda (nematodes)	—		—		—		—		—		—		—	
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		1	<1	—		—		—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	8	2	37	3	28	2	4	<1	5	<1	9	1	1	<1
Lymnaeidae														
<i>Lymnaea</i>	—		—		—		—		—		1	<1	—	
Physidae														
<i>Physa</i>	—		—		—		—		2	<1	2	<1	—	
Bivalvia														
Veneroida														
Sphaeriidae	—		—		—		—		—		—		1	<1
<i>Pisidium</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
Naididae	—		1	<1	—		—		2	<1	—		3	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
Hydrachnidia	—		—		1	<1	2	<1	4	<1	2	<1	25	2
Crustacea														
Decapoda														
Cambaridae														
<i>Cambarus</i>	—		—		1	<1	—		—		—		—	
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—		1	<1	1	<1	3	<1	14	<1	1	<1	2	<1
<i>Pseudocloeon</i>	—		2	<1	—		3	<1	9	<1	—		11	<1
Caenidae														
<i>Caenis</i>	—		—		—		—		—		—		1	<1
Ephemerellidae														
<i>Ephemerella</i>	15	3	28	3	28	2	24	2	51	3	25	4	81	6
Heptageniidae														
<i>Epeorus</i>	3	<1	14	1	9	<1	27	2	—		—		—	
<i>Stenacron</i>	—		—		—		—		—		1	<1	—	
<i>Stenonema</i>	80	14	110	10	50	4	62	6	63	4	54	8	92	7
Isonychiidae														
<i>Isonychia</i>	44	8	87	8	27	2	26	2	92	5	64	10	86	7
Leptohiphidae														
<i>Tricorythodes</i>	—		—		—		—		—		—		4	<1
Leptophlebiidae	—		—		—		—		—		—		—	



Oct. 5, 1988		Oct. 10, 1989		Oct. 16, 1990		Nov. 18, 1991		Oct. 30, 1992		Nov. 15, 1993		Oct. 11, 1994		Date
1,182		1,399		1,020		1,793		1,376		665		1,471		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
1	<1	1	<1	—	—	2	<1	3	<1	—	—	—	—	Planariidae
—	—	3	<1	—	—	—	—	2	<1	—	—	2	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	1	<1	—	—	—	—	—	—	—	—	1	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
1	<1	2	<1	8	<1	10	<1	15	1	8	1	16	1	<i>Ferrissia</i>
—	—	—	—	—	—	1	<1	—	—	1	<1	—	—	Lymnaeidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Lymnaea</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Physidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Physa</i>
														Bivalvia
														Veneroida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Sphaeriidae
—	—	3	<1	—	—	—	—	—	—	—	—	—	—	<i>Pisidium</i>
														Annelida (segmented worms)
														Oligochaeta
														Tubificida
—	—	5	<1	—	—	—	—	4	<1	—	—	17	1	Naididae
														Arthropoda (arthropods)
														Acariformes
—	—	6	<1	—	—	9	<1	18	1	5	<1	19	1	Hydrachnidia
														Crustacea
														Decapoda
														Cambaridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Cambarus</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
110	9	57	4	4	<1	—	—	6	<1	—	—	29	2	<i>Baetis</i>
3	<1	3	<1	—	—	1	<1	3	<1	—	—	4	<1	<i>Pseudocloeon</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Caenidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Caenis</i>
12	1	54	4	47	5	43	2	110	8	35	5	18	1	Ephemerellidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ephemerella</i>
5	<1	50	4	15	2	1	<1	17	1	2	<1	5	<1	Heptageniidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Epeorus</i>
32	3	80	6	38	4	33	2	68	5	3	<1	54	4	<i>Stenacron</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Stenonema</i>
34	3	20	1	19	2	5	<1	6	<1	—	—	8	<1	Isonychiidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Isonychia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Leptohiphidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Tricorythodes</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Leptophlebiidae

**Table 5. Benthic-macroinvertebrate data—Continued**

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)—Continued

Date	Nov. 2, 1981		Oct. 27, 1982		Nov. 4, 1983		Oct. 30, 1984		Oct. 21, 1985		Nov. 17, 1986		Oct. 22, 1987	
Total count	551		1,086		1,241		1,052		1,711		646		1,278	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	—	—	2	<1	—	—	—	—	1	<1	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	2	<1	—	—	—	—	1	<1	4	<1	—	—	7	<1
Chloroperlidae	3	<1	2	<1	1	<1	—	—	—	—	—	—	10	<1
Nemouridae	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Perlidae</b>														
<i>Acroneuria</i>	—	—	4	<1	2	<1	3	<1	3	<1	—	—	3	<1
<i>Agetina</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<i>Paragnetina</i>	—	—	3	<1	1	<1	—	—	2	<1	1	<1	2	<1
<b>Taeniopterygidae</b>														
<i>Strophopteryx</i>	2	<1	—	—	2	<1	—	—	—	—	—	—	—	—
<i>Taeniopteryx</i>	45	8	45	4	10	<1	3	<1	45	3	4	<1	21	2
<b>Hemiptera</b>														
<b>Velidae</b>														
<i>Microvelia</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Rhagovelia</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	2	<1	2	<1	2	<1	5	<1	1	<1	—	—	3	<1
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
<b>Brachycentridae</b>														
<i>Micrasema</i>	1	<1	1	<1	—	—	1	<1	1	<1	10	2	—	—
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	1	<1	4	<1	3	<1	2	<1	13	2	2	<1
<i>Protophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	25	4	56	5	120	10	100	9	250	15	99	15	49	4
<i>Cheumatopsyche</i>	100	18	64	6	32	3	90	8	87	5	14	2	12	<1
<i>Hydropsyche</i>	2	<1	7	<1	18	2	12	1	31	2	60	9	29	2
<i>Macrostemum</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	5	<1	3	<1	1	<1	1	<1	—	—	2	<1	2	<1
<i>Leucotrichia</i>	2	<1	240	22	750	63	420	38	410	24	100	15	240	18
<b>Leptoceridae</b>														
<i>Oecetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	19	3	6	<1	18	2	28	3	9	<1	21	3	10	<1
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—	—	—	—	1	<1	1	<1	—	—	1	<1	—	—
<i>Nyctiophylax</i>	1	<1	2	<1	3	<1	—	—	1	<1	1	<1	—	—
<i>Polycentropus</i>	—	—	1	<1	—	—	—	—	1	<1	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	20	4	4	<1	—	—	13	1	14	<1	1	<1	7	<1
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
<i>Archanara</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1

Oct. 5, 1988		Oct. 10, 1989		Oct. 16, 1990		Nov. 18, 1991		Oct. 30, 1992		Nov. 15, 1993		Oct. 11, 1994		Date
1,182		1,399		1,020		1,793		1,376		665		1,471		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>														
1	<1	1	<1	—	—	2	<1	—	—	7	1	—	—	
—	—	—	—	2	<1	6	<1	15	1	3	<1	2	<1	
Chloroperlidae														
Nemouridae														
<b>Perlidae</b>														
<i>Acroneuria</i>														
—	<1	5	<1	3	<1	—	—	5	<1	—	—	—	—	
—	—	—	—	1	<1	4	<1	5	<1	—	—	2	<1	
3	<1	—	—	—	—	2	<1	—	—	—	—	—	—	
<i>Paragnetina</i>														
<b>Taeniopterygidae</b>														
<i>Strophopteryx</i>														
—	—	—	—	—	—	—	—	—	—	18	3	—	—	
27	2	4	<1	3	<1	10	<1	2	<1	1	<1	5	<1	
<i>Taeniopteryx</i>														
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Microvelia</i>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	
<i>Rhagovelia</i>														
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>														
2	<1	1	<1	—	—	—	—	—	—	1	<1	—	—	
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>														
—	—	—	—	5	<1	17	<1	30	2	11	2	3	<1	
<b>Brachycentridae</b>														
<i>Micrasema</i>														
—	—	5	<1	13	1	22	1	26	2	20	3	34	2	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>														
—	—	6	<1	1	<1	—	—	9	<1	2	<1	1	<1	
—	—	1	<1	—	—	2	<1	—	—	1	<1	—	—	
<i>Protoptila</i>														
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>														
—	—	—	—	—	—	—	—	2	<1	1	<1	—	—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>														
96	8	170	12	120	12	180	10	75	5	66	10	49	3	
26	2	36	3	34	3	110	6	51	4	24	4	33	2	
17	1	31	2	4	<1	110	6	70	5	13	2	120	8	
—	—	1	<1	—	—	1	<1	—	—	—	—	—	—	
<i>Macrostemum</i>														
<b>Hydroptilidae</b>														
<i>Hydroptila</i>														
610	51	260	19	410	41	50	3	260	19	130	19	390	26	
<i>Leucotrichia</i>														
<b>Leptoceridae</b>														
<i>Oecetis</i>														
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	
<b>Philopotamidae</b>														
<i>Chimarra</i>														
25	2	30	2	14	1	13	<1	24	2	6	<1	2	<1	
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	
<i>Nyctiophylax</i>														
—	—	—	—	1	<1	—	—	1	<1	—	—	—	—	
<i>Polycentropus</i>														
<b>Psychomyiidae</b>														
<i>Psychomyia</i>														
2	<1	4	<1	11	1	3	<1	4	<1	6	<1	20	1	
<b>Uenoidae</b>														
<i>Neophylax</i>														
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
<i>Archana</i>														
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	

**Table 5.** Benthic-macroinvertebrate data—Continued

01480434 - West Branch Brandywine Creek at Rock Run, Pa. (Site 37)—Continued

Date	Nov. 2, 1981		Oct. 27, 1982		Nov. 4, 1983		Oct. 30, 1984		Oct. 21, 1985		Nov. 17, 1986		Oct. 22, 1987	
Total count	551		1,086		1,241		1,052		1,711		646		1,278	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Microcylloepus</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	6	1	2	<1	21	2	11	1	7	<1	10	2	19	1
<i>Oulimnius</i>	—		—		—		—		—		—		—	
<i>Promoesia</i>	1	<1	—		—		—		2	<1	7	1	2	<1
<i>Stenelmis</i>	1	<1	4	<1	1	<1	—		4	<1	11	2	4	<1
<b>Psephenidae</b>														
<i>Psephenus</i>	1	<1	—		11	<1	—		—		1	<1	2	<1
<b>Diptera</b>														
<b>Ceratopogonidae</b>														
<i>Chironomidae</i>	120	21	280	25	82	7	180	16	500	29	96	15	530	41
<b>Empididae</b>														
<i>Chelifera</i>	—		—		—		—		—		—		—	
<i>Hemerodromia</i>	1	<1	5	<1	2	<1	2	<1	1	<1	2	<1	2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	4	<1	2	<1	2	<1	9	<1	55	3	8	1	5	<1
<b>Tipulidae</b>														
<i>Antocha</i>	35	6	64	6	10	<1	15	1	35	2	16	2	4	<1

Oct. 5, 1988		Oct. 10, 1989		Oct. 16, 1990		Nov. 18, 1991		Oct. 30, 1992		Nov. 15, 1993		Oct. 11, 1994		Date
1,182		1,399		1,020		1,793		1,376		665		1,471		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Coleoptera
														Elmidae
4	<1	—		—		3	<1	—		—		1	<1	<i>Microcylloepus</i>
12	1	9	<1	7	<1	8	<1	30	2	12	2	26	2	<i>Optioservus</i>
—		5	<1	—		1	<1	1	<1	2	<1	—		<i>Oulimnius</i>
—		—		—		25	1	17	1	1	<1	3	<1	<i>Promoresia</i>
5	<1	2	<1	13	1	40	2	8	<1	—		9	<1	<i>Stenelmis</i>
														Psephenidae
14	1	23	2	3	<1	2	<1	7	<1	16	2	18	1	<i>Psephenus</i>
														Diptera
														Ceratopogonidae
110	9	470	34	180	18	1,000	56	390	28	210	31	490	33	
														Chironomidae
														Empididae
—		—		—		1	<1	—		—		—		<i>Chelifera</i>
2	<1	12	<1	1	<1	3	<1	9	<1	4	<1	6	<1	<i>Hemerodromia</i>
														Simuliidae
13	1	11	<1	1	<1	4	<1	16	1	2	<1	5	<1	<i>Simulium</i>
														Tipulidae
10	<1	25	2	58	6	65	4	64	5	53	8	79	5	<i>Antocha</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480629 - Buck Run at Doe Run, Pa. (Site 46)

Date	Nov. 5, 1981		Oct. 28, 1982		Oct. 28, 1983		Oct. 31, 1984		Oct. 29, 1985		Oct. 30, 1986		Nov. 19, 1987		
Total count	1,026		1,647		1,846		2,272		1,091		1,769		1,644		
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	
Platyhelminthes (flatworms)															
Turbellaria															
Tricladida															
Planariidae	23	2	11	<1	24	1	13	<1	91	8	8	<1	88	5	
Nematoda (nematodes)	—	—	—	—	—	—	—	—	—	—	—	—	5	<1	
Nemertea (proboscis worms)															
Enopla															
Hoplonemertea															
Tetrastemmatidae															
<i>Prostoma</i>	1	<1	—	—	—	—	3	<1	8	<1	—	—	—	—	
Mollusca (molluscs)															
Gastropoda															
Basommatophora															
Ancyliidae															
<i>Ferrissia</i>	13	1	53	3	29	2	19	<1	89	8	51	3	5	<1	
Lymnaeidae	—														
<i>Lymnaea</i>	—														
Physidae	—														
<i>Physa</i>	—														
Planorbidae	—														
<i>Gyraulus</i>	—														
<i>Helisoma</i>	—											8	<1	1	<1
Bivalvia															
Veneroida															
Sphaeriidae	—		—		—		—		—		7	<1	2	<1	
<i>Pisidium</i>	—		5	<1	3	<1	—		—		—		—		
<i>Sphaerium</i>	—		—		—		3	<1	—		—		—		
Annelida (segmented worms)															
Oligochaeta															
Lumbriculida															
Lumbriculidae	—														
Tubificida	—														
Naididae	21	2	—		16	<1	—		—		—		2	<1	
Tubificidae	—		—		—		—		—		—		1	<1	
Arthropoda (arthropods)															
Acariformes															
Hydrachnidia	—		—		—		3	<1	2	<1	—		8	<1	
Crustacea															
Cyclopoida	—														
Isopoda	—														
Asellidae	—														
<i>Caecidotea</i>	1	<1	8	<1	—		—		2	<1	—		—		
Podocopa	—														
Insecta															
Ephemeroptera															
Baetidae	—														
<i>Baetis</i>	—		3	<1	—		—		—		—		—		
<i>Pseudocloeon</i>	2	<1	—		—		13	<1	44	4	5	<1	—		
Ephemerellidae	—														
<i>Ephemerella</i>	7	<1	—		43	2	37	2	46	4	21	1	39	2	
Heptageniidae	—														
<i>Epeorus</i>	—														
<i>Stenonema</i>	180	18	130	8	88	5	59	3	41	4	19	1	32	2	

Nov. 14, 1988		Nov. 7, 1989		Oct. 17, 1990		Oct. 31, 1991		Oct. 16, 1992		Nov. 8, 1993		Nov. 14, 1994		Date
1 2,070		1,353		1,804		1,756		1,432		1,403		2,602		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
77	4	6	<1	30	2	32	2	44	3	51	4	34	1	Planariidae
—	—	—	—	5	<1	—	—	—	—	—	—	—	—	Nematoda (nematodes)
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
—	—	1	<1	8	<1	—	—	3	<1	6	<1	—	—	<i>Prostoma</i>
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
27	1	52	4	130	7	22	1	16	1	4	<1	7	<1	<i>Ferrissia</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Lymnaeidae
—	—	—	—	6	<1	1	<1	—	—	—	—	—	—	<i>Lymnaea</i>
—	—	—	—	6	<1	1	<1	—	—	—	—	—	—	Physidae
—	—	—	—	6	<1	1	<1	—	—	—	—	—	—	<i>Physa</i>
5	<1	1	<1	4	<1	—	—	2	<1	—	—	—	—	Planorbidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
Bivalvia														
Veneroida														
—	—	—	—	—	—	—	—	—	—	12	<1	4	<1	Sphaeriidae
11	<1	4	<1	—	—	2	<1	—	—	—	—	—	—	<i>Pisidium</i>
—	—	—	—	7	<1	—	—	16	1	—	—	—	—	<i>Sphaerium</i>
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
—	—	1	<1	—	—	—	—	1	<1	—	—	—	—	Lumbriculidae
—	—	—	—	20	1	—	—	—	—	—	—	—	—	Tubificida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Naididae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
Arthropoda (arthropods)														
Acariformes														
—	—	3	<1	38	2	1	<1	26	2	9	<1	5	<1	Hydrachnidia
Crustacea														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Cyclopoida
Isopoda														
—	—	1	<1	—	—	—	—	1	<1	—	—	—	—	Asellidae
—	—	—	—	3	<1	—	—	—	—	—	—	1	<1	<i>Caecidotea</i>
Podocopa														
Insecta														
Ephemeroptera														
Baetidae														
13	<1	—	—	10	<1	—	—	4	<1	1	<1	—	—	<i>Baetis</i>
—	—	6	<1	8	<1	1	<1	1	<1	—	—	—	—	<i>Pseudocloeon</i>
Ephemerellidae														
100	5	18	1	38	2	100	6	280	20	90	6	120	5	<i>Ephemerella</i>
Heptageniidae														
—	—	—	—	—	—	—	—	—	—	2	<1	4	<1	<i>Epeorus</i>
67	3	44	3	81	5	27	2	57	4	15	1	36	1	<i>Stenonema</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)—Continued

Date	Nov. 5, 1981		Oct. 28, 1982		Oct. 28, 1983		Oct. 31, 1984		Oct. 29, 1985		Oct. 30, 1986		Nov. 19, 1987	
Total count	1,026		1 1,647		1 1,846		1 2,272		1,091		1,769		1,644	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Isonychiidae</b>														
<i>Isonychia</i>	7	<1	80	5	69	4	110	5	68	6	170	9	16	<1
<b>Leptohephalidae</b>														
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	—	—	3	<1	—	—	—	—	1	<1	1	<1
<b>Aeshnidae</b>														
<i>Boyeria</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Gomphidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocaenia</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Chloroperlidae</b>														
—	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Perlidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	—	—	—	—	—	—	—	—	1	<1	4	<1	6	<1
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Brachycentridae</b>														
<i>Micrasema</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—	—	—	—	—	—	11	<1	—	—	1	<1	—	—
<i>Protophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	120	12	110	6	110	6	310	13	190	17	220	12	76	4
<i>Cheumatopsyche</i>	21	2	3	<1	5	<1	3	<1	12	1	8	<1	6	<1
<i>Hydropsyche</i>	—	—	—	—	8	<1	8	<1	18	2	91	5	110	6
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	5	<1	—	—	3	<1	—	—	—	—	1	<1	2	<1
<i>Leucotrichia</i>	400	40	900	53	1,300	72	980	43	87	8	870	48	710	42
<b>Leptoceridae</b>														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	—	—	—	—	3	<1	13	<1	1	<1	5	<1	—	—
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
<i>Archanara</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Nov. 14, 1988		Nov. 7, 1989		Oct. 17, 1990		Oct. 31, 1991		Oct. 16, 1992		Nov. 8, 1993		Nov. 14, 1994		Date
1 2,070		1,353		1,804		1,756		1,432		1,403		2,602		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Isonychiidae
88	4	60	4	32	2	23	1	34	2	35	3	50	2	<i>Isonychia</i>
														Leptohyphidae
—	—	—	—	2	<1	1	<1	—	—	—	—	—	—	<i>Tricorythodes</i>
														Odonata
														Coenagrionidae
3	<1	—	—	4	<1	1	<1	2	<1	—	—	—	—	<i>Argia</i>
														Aeshnidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Boyeria</i>
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	Gomphidae
														Plecoptera
														Capniidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Allocapnia</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	Chloroperlidae
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	Perlidae
														Taeniopterygidae
11	<1	—	—	1	<1	—	—	1	<1	1	<1	1	<1	<i>Taeniopteryx</i>
														Hemiptera
														Veliidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—	—	1	<1	—	—	—	—	—	—	1	<1	—	—	<i>Corydalus</i>
														Trichoptera
														Apataniidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Apatania</i>
														Brachycentridae
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Micrasema</i>
														Glossosomatidae
8	<1	3	<1	11	<1	—	—	1	<1	3	<1	—	—	<i>Glossosoma</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Proptila</i>
														Hydropsychidae
140	7	120	9	170	9	78	4	110	8	140	10	70	3	<i>Ceratopsyche</i>
11	<1	6	<1	11	<1	3	<1	1	<1	7	<1	33	1	<i>Cheumatopsyche</i>
200	10	180	13	220	12	190	11	85	6	82	6	890	34	<i>Hydropsyche</i>
														Hydroptilidae
5	<1	4	<1	6	<1	1	<1	3	<1	—	—	—	—	<i>Hydroptila</i>
740	35	670	48	420	23	980	54	480	34	510	36	630	24	<i>Leucotrichia</i>
														Leptoceridae
—	—	1	<1	—	—	—	—	24	2	—	—	—	—	<i>Mystacides</i>
3	<1	—	—	1	<1	—	—	2	<1	1	<1	1	<1	<i>Oecetis</i>
														Philopotamidae
27	1	2	<1	2	<1	53	3	24	2	85	6	72	3	<i>Chimarra</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
														Polycentropodidae
3	<1	—	—	12	<1	—	—	1	<1	1	<1	—	—	<i>Neureclipsis</i>
3	<1	1	<1	15	<1	—	—	—	—	—	—	—	—	<i>Polycentropus</i>
														Psychomyiidae
—	—	—	—	1	<1	—	—	—	—	1	<1	1	<1	<i>Psychomyia</i>
														Uenoidae
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Neophylax</i>
														Lepidoptera
														Noctuidae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Archanara</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	

**Table 5. Benthic-macroinvertebrate data—Continued**

01480629 - Buck Run at Doe Run, Pa. (Site 46)—Continued

Date	Nov. 5, 1981		Oct. 28, 1982		Oct. 28, 1983		Oct. 31, 1984		Oct. 29, 1985		Oct. 30, 1986		Nov. 19, 1987	
Total count	1,026		<sup>1</sup> 1,647		<sup>1</sup> 1,846		<sup>1</sup> 2,272		1,091		1,769		1,644	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	3	<1	5	<1	—		8	<1	6	<1	4	<1	1	<1
<i>Oulimnius</i>	—		—		—		—		—		—		—	
<i>Stenelmis</i>	—		3	<1	—		3	<1	—		—		—	
<b>Psephenidae</b>														
<i>Psephenus</i>	—		—		—		—		—		—		—	
<b>Diptera</b>														
<b>Chironomidae</b>														
<i>Chironomidae</i>	140	14	170	10	88	5	290	13	190	17	55	3	270	16
<b>Empididae</b>														
<i>Hemerodromia</i>	1	<1	5	<1	—		3	<1	3	<1	—		1	<1
<b>Ephydriidae</b>														
<i>Ephydriidae</i>	—		—		—		—		—		—		—	
<b>Simuliidae</b>														
<i>Simulium</i>	28	3	51	3	3	<1	290	13	41	4	160	9	190	11
<b>Stratiomyidae</b>														
<i>Stratiomyidae</i>	—		—		—		—		—		—		—	
<b>Tipulidae</b>														
<i>Antocha</i>	52	5	110	6	51	3	93	4	150	14	58	3	70	4
<i>Tipula</i>	—		—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 14, 1988		Nov. 7, 1989		Oct. 17, 1990		Oct. 31, 1991		Oct. 16, 1992		Nov. 8, 1993		Nov. 14, 1994		Date
1 2,070		1,353		1,804		1,756		1,432		1,403		2,602		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Coleoptera
														Elmidae
—		—		—		—		—		—		5	<1	<i>Ancyronyx</i>
—		1	<1	1	<1	—		—		1	<1	—		<i>Dubiraphia</i>
13	<1	12	<1	14	<1	24	1	48	3	21	2	16	<1	<i>Optioservus</i>
—		—		2	<1	2	<1	2	<1	—		—		<i>Oulimnius</i>
—		—		—		2	<1	11	<1	5	<1	3	<1	<i>Stenelmis</i>
														Psephenidae
—		1	<1	—		—		—		1	<1	—		<i>Psephenus</i>
														Diptera
210	10	62	4	350	19	84	5	95	7	190	14	390	15	Chironomidae
														Empididae
—		14	1	5	<1	1	<1	3	<1	3	<1	—		<i>Hemerodromia</i>
—		1	<1	—		—		—		—		—		Ephydriidae
														Simuliidae
220	10	45	3	64	4	85	5	14	1	41	3	150	6	<i>Simulium</i>
—		—		—		—		1	<1	—		—		Stratiomyidae
														Tipulidae
85	4	30	2	68	4	40	2	38	3	81	6	78	3	<i>Antocha</i>
—		—		2	<1	—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480632 - Doe Run at Springdell, Pa. (Site 45)

Date	Nov. 5, 1981		Oct. 28, 1982		Oct. 28, 1983		Oct. 31, 1984		Oct. 29, 1985		Oct. 30, 1986		Nov. 19, 1987	
Total count	1,133		1,620		1,405		1,608		974		774		1,617	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	43	4	16	1	8	<1	16	1	11	1	13	2	27	2
Nematoda (nematodes)	—	—	—	—	5	<1	—	—	—	—	—	—	1	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Prostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ferrissia</i>	29	3	11	<1	93	7	—	—	—	—	31	4	7	<1
Physidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Physa</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Lumbriculidae	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
Tubificida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Naididae	5	<1	11	<1	5	<1	8	<1	—	—	—	—	10	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—	—	5	<1	3	<1	—	—	5	<1	—	—	15	<1
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Baetis</i>	5	<1	3	<1	—	—	3	<1	—	—	1	<1	—	—
<i>Pseudocloeon</i>	11	1	16	1	13	<1	8	<1	24	2	7	<1	6	<1
Ephemerellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ephemerella</i>	37	3	40	3	100	7	56	3	7	<1	7	<1	31	2
Heptageniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Epeorus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenonema</i>	120	11	59	4	40	3	120	8	21	2	24	3	75	5
Isonychiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Isonychia</i>	72	7	120	8	24	2	40	3	46	5	17	2	42	3
Leptoheptageniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
Odonata	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coenagrionidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Argia</i>	3	<1	3	<1	—	—	—	—	—	—	—	—	—	—
Plecoptera	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Allocapnia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taeniopterygidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Taeniopteryx</i>	—	—	—	—	—	—	3	<1	—	—	8	1	6	<1

Nov. 14, 1988		Nov. 7, 1989		Oct. 17, 1990		Oct. 31, 1991		Oct. 16, 1992		Nov. 8, 1993		Nov. 9, 1994		Date
1,818		1,430		1,752		1,392		1,195		1,229		1,300		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
19	1	22	2	55	3	11	<1	4	<1	3	<1	5	<1	Planariidae
—		1	<1	—		—		—		—		—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		1	<1	—		2	<1	—		4	<1	—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
56	3	28	2	300	17	63	5	200	17	63	5	15	1	<i>Ferrissia</i>
														Physidae
—		—		—		—		—		—		1	<1	<i>Physa</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
														Lumbriculidae
														Tubificida
—		—		—		1	<1	—		1	<1	—		Naididae
														Arthropoda (arthropods)
														Acariformes
—		16	1	34	2	20	1	7	<1	16	1	2	<1	Hydrachnidia
														Crustacea
—		—		—		—		—		1	<1	—		Cyclopoida
—		1	<1	—		—		—		—		—		Podocopa
														Insecta
														Ephemeroptera
														Baetidae
16	<1	2	<1	4	<1	1	<1	2	<1	4	<1	4	<1	<i>Baetis</i>
8	<1	32	2	14	<1	13	<1	23	2	6	<1	—		<i>Pseudocloeon</i>
														Ephemerellidae
61	3	100	7	74	4	41	3	4	<1	11	<1	8	<1	<i>Ephemerella</i>
														Heptageniidae
—		4	<1	2	<1	—		7	<1	36	3	—		<i>Epeorus</i>
270	15	180	13	85	5	58	4	66	6	59	5	120	9	<i>Stenonema</i>
														Isonychiidae
32	2	58	4	21	1	7	<1	19	2	7	<1	50	4	<i>Isonychia</i>
														Leptohyphidae
3	<1	—		—		—		—		—		—		<i>Tricorythodes</i>
														Odonata
														Coenagrionidae
—		—		—		—		—		—		—		<i>Argia</i>
														Plecoptera
														Capniidae
—		—		—		—		—		1	<1	—		<i>Allocapnia</i>
														Taeniopterygidae
24	1	5	<1	11	<1	1	<1	—		—		—		<i>Taeniopteryx</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480632 - Doe Run at Springdell, Pa. (Site 45)

Date	Nov. 5, 1981		Oct. 28, 1982		Oct. 28, 1983		Oct. 31, 1984		Oct. 29, 1985		Oct. 30, 1986		Nov. 19, 1987	
Total count	1,133		1,620		1,405		1,608		974		774		1,617	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Megaloptera</b>														
Corydalidae														
<i>Corydalus</i>	—		—		—		—		—		—		—	
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	—		—		—		—		1	<1	—		7	<1
Glossosomatidae														
<i>Glossosoma</i>	3	<1	5	<1	8	<1	16	1	—		—		2	<1
<i>Proptila</i>	3	<1	—		—		—		—		—		—	
Hydropsychidae														
<i>Ceratopsyche</i>	230	21	120	8	360	26	400	25	430	44	130	17	160	10
<i>Cheumatopsyche</i>	140	13	37	2	8	<1	27	2	34	3	1	<1	35	2
<i>Hydropsyche</i>	13	1	13	<1	16	1	5	<1	26	3	44	6	24	2
Hydroptilidae														
<i>Hydroptila</i>	8	<1	11	<1	3	<1	—		—		—		22	1
<i>Leucotrichia</i>	11	1	140	9	390	28	290	18	100	10	270	35	560	35
Philopotamidae														
<i>Chimarra</i>	—		21	1	5	<1	21	1	—		3	<1	22	1
<i>Dolophilodes</i>	—		—		—		—		—		—		—	
Polycentropodidae														
<i>Neureclipsis</i>	—		—		—		—		—		2	<1	—	
<i>Polycentropus</i>	—		3	<1	—		—		—		—		—	
Psychomyiidae														
<i>Psychomyia</i>	—		3	<1	—		—		—		—		—	
Uenoidae														
<i>Neophylax</i>	3	<1	—		—		5	<1	—		—		—	
<b>Lepidoptera</b>														
Noctuidae														
<i>Archanara</i>	—		—		—		—		—		—		—	
Pylalidae														
<i>Petrophila</i>	13	1	61	4	21	2	3	<1	2	<1	2	<1	13	<1
<b>Coleoptera</b>														
Elmidae														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		—		—		1	<1
<i>Optioservus</i>	8	<1	—		—		24	2	3	<1	2	<1	6	<1
<i>Oulimnius</i>	—		3	<1	—		—		1	<1	—		—	
<i>Stenelmis</i>	3	<1	—		3	<1	3	<1	—		—		—	
Psephenidae														
<i>Psephenus</i>	—		—		—		—		—		—		—	
<b>Diptera</b>														
Chironomidae														
Empididae	250	23	720	45	230	16	180	11	160	16	110	14	370	23
<i>Hemerodromia</i>	5	<1	11	<1	3	<1	3	<1	4	<1	—		1	<1
Simuliidae														
<i>Simulium</i>	8	<1	8	<1	3	<1	300	19	15	2	37	5	22	1
Tipulidae														
<i>Antocha</i>	110	10	180	11	61	4	77	5	82	8	65	8	150	9

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 14, 1988		Nov. 7, 1989		Oct. 17, 1990		Oct. 31, 1991		Oct. 16, 1992		Nov. 8, 1993		Nov. 9, 1994		Date
1,818		1,430		1,752		1,392		1,195		1,229		1,300		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Megaloptera</b>														
Corydalidae														
—		1	<1	—		—		—		—		—		<i>Corydalus</i>
<b>Trichoptera</b>														
Apataniidae														
—		—		—		—		—		—		—		<i>Apatania</i>
Glossosomatidae														
3	<1	9	<1	23	1	1	<1	1	<1	20	2	—		<i>Glossosoma</i>
—		—		—		—		—		—		—		<i>Protoptila</i>
Hydropsychidae														
320	18	350	25	220	12	250	18	74	6	280	23	140	11	<i>Ceratopsyche</i>
21	1	46	3	6	<1	10	<1	3	<1	75	6	19	1	<i>Cheumatopsyche</i>
67	4	48	3	74	4	110	8	250	21	84	7	270	21	<i>Hydropsyche</i>
Hydroptilidae														
8	<1	8	<1	1	<1	1	<1	4	<1	1	<1	1	<1	<i>Hydroptila</i>
450	25	260	19	520	29	140	10	180	15	300	25	230	18	<i>Leucotrichia</i>
Philopotamidae														
19	1	26	2	18	1	21	2	1	<1	17	1	11	<1	<i>Chimarra</i>
—		1	<1	—		—		—		—		—		<i>Dolophilodes</i>
Polycentropodidae														
—		—		—		7	<1	—		—		—		<i>Neureclipsis</i>
—		3	<1	—		—		—		—		—		<i>Polycentropus</i>
Psychomyiidae														
—		2	<1	17	<1	24	2	17	1	33	3	20	2	<i>Psychomyia</i>
Uenoidae														
3	<1	1	<1	—		—		—		1	<1	—		<i>Neophylax</i>
<b>Lepidoptera</b>														
Noctuidae														
—		—		—		—		—		—		1	<1	<i>Archanara</i>
—		1	<1	—		—		—		—		—		
Pyralidae														
24	1	1	<1	4	<1	3	<1	12	1	4	<1	11	<1	<i>Petrophila</i>
<b>Coleoptera</b>														
Elmidae														
—		—		—		—		—		2	<1	—		<i>Ancyronyx</i>
—		—		—		—		—		—		—		<i>Dubiraphia</i>
11	<1	6	<1	19	1	21	2	5	<1	22	2	1	<1	<i>Optioservus</i>
—		1	<1	—		1	<1	—		—		—		<i>Oulimnius</i>
—		—		—		1	<1	—		1	<1	5	<1	<i>Stenelmis</i>
Psephenidae														
—		1	<1	5	<1	2	<1	—		2	<1	—		<i>Psephenus</i>
<b>Diptera</b>														
Chironomidae														
190	11	110	8	140	8	300	21	97	8	98	8	240	18	
Empididae														
—		3	<1	3	<1	5	<1	—		2	<1	2	<1	<i>Hemerodromia</i>
Simuliidae														
160	9	9	<1	2	<1	27	2	98	8	14	1	24	2	<i>Simulium</i>
Tipulidae														
53	3	93	7	100	6	250	18	120	10	59	5	120	9	<i>Antocha</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 3, 1987	
	Total count		1,655		1,110		1,402		1,085		769		402	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	17	3	—	—	19	2	1	<1	19	2	2	<1	16	4
Nematoda	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	1	<1	—	—	—	—	1	<1	1	<1	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Hydrobiidae														
<i>Ammicola</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Basommatophora														
Ancylidae														
<i>Ferrissia</i>	7	1	45	3	26	2	6	<1	15	1	6	<1	1	<1
Lymnaeidae														
<i>Lymnaea</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Physidae														
<i>Physa</i>	—	—	—	—	—	—	—	—	—	—	3	<1	3	<1
Planorbidae														
<i>Gyraulus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helisoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bivalvia														
Veneroida														
Sphaeriidae	—	—	—	—	—	—	—	—	—	—	3	<1	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tubificida														
Naididae	—	—	—	—	—	—	2	<1	—	—	—	—	—	—
Hirudinea														
Pharyngobdellida														
Glossiphoniidae	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	1	<1	—	—	2	<1	2	<1	2	<1	—	—	8	2
Crustacea														
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	6	1	6	<1	1	<1	14	1	11	1	1	<1	—	—
<i>Pseudocloeon</i>	2	<1	—	—	—	—	—	—	—	—	—	—	10	2
Caenidae														
<i>Caenis</i>	—	—	—	—	2	<1	—	—	—	—	—	—	1	<1
Ephemerellidae														
<i>Ephemerella</i>	6	1	14	<1	40	4	3	<1	5	<1	5	<1	10	2



Oct. 11, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 15, 1993		Oct. 11, 1994		Date
1,939		1,631		1,532		1,418		1,041		764		1,005		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
5	<1	37	2	34	2	45	3	60	6	57	7	33	3	Planariidae
—	—	—	—	2	<1	—	—	—	—	—	—	—	—	Nematoda
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	3	<1	1	<1	—	—	6	<1	1	<1	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Ammicola</i>
														Basommatophora
														Ancylidae
5	<1	25	2	53	4	20	1	18	2	27	3	11	1	<i>Ferrissia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Lymnaeidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Lymnaea</i>
—	—	—	—	3	<1	—	—	—	—	1	<1	—	—	Physidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Physa</i>
—	—	—	—	—	—	—	—	1	<1	1	<1	1	<1	Planorbidae
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
														Bivalvia
														Veneroida
—	—	—	—	3	<1	—	—	—	—	1	<1	1	<1	Sphaeriidae
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	Lumbriculidae
—	—	3	<1	—	—	1	<1	3	<1	1	<1	—	—	Tubificida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Naididae
														Hirudinea
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Pharyngobdellida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Glossiphoniidae
														Arthropoda (arthropods)
														Acariformes
3	<1	20	1	12	<1	6	<1	26	3	32	4	12	1	Hydrachnidia
														Crustacea
														Amphipoda
—	—	—	—	6	<1	—	—	—	—	—	—	1	<1	Gammaridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Gammarus</i>
														Podocopa
														Insecta
														Ephemeroptera
														Baetidae
120	6	7	<1	3	<1	—	—	5	<1	—	—	38	4	<i>Baetis</i>
—	—	2	<1	4	<1	—	—	2	<1	—	—	5	<1	<i>Pseudocloeon</i>
—	—	—	—	1	<1	—	—	—	—	6	<1	3	<1	Caenidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Caenis</i>
5	<1	23	1	35	2	21	2	65	7	37	5	21	2	Ephemerellidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ephemerella</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 3, 1987	
Total count	598		1,655		1,110		1,402		1,085		769		402	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
<i>Epeorus</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	130	21	170	10	68	6	41	3	33	3	110	14	52	13
<b>Isonychiidae</b>														
<i>Isonychia</i>	1	<1	2	<1	7	<1	6	<1	3	<1	13	2	2	<1
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	10	2	6	<1	34	3	1	<1	5	<1	—		7	2
<b>Leptophlebiidae</b>														
	1	<1	—		—		—		—		—		—	
<b>Potamanthidae</b>														
<i>Anthopotamus</i>	—		—		—		—		—		—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	2	<1	—		10	<1	—		—		4	<1	—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		1	<1	—		—		1	<1	1	<1
<b>Chloroperlidae</b>														
	—		—		—		—		—		—		—	
<b>Perlidae</b>														
<i>Acroneuria</i>	—		—		—		—		—		—		—	
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	1	<1	1	<1	1	<1	—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	1	<1	—		—		1	<1	—		—		—	
<b>Neuroptera</b>														
<b>Sisyridae</b>														
<i>Climacia</i>														
<i>C. areolaris</i>	—		—		—		—		—		1	<1	—	
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—		—		—		—		—		—		—	
<b>Brachycentridae</b>														
<i>Micrasema</i>	—		—		—		—		—		—		—	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		3	<1	13	1	2	<1	—		3	<1	1	<1
<i>Protophila</i>	—		—		—		—		—		—		—	
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—		—		—		—		—		—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	150	25	480	28	220	20	240	17	190	17	240	31	95	23
<i>Cheumatopsyche</i>	120	20	190	11	150	14	200	14	33	3	11	1	11	3
<i>Hydropsyche</i>	4	<1	24	1	6	<1	20	1	13	1	19	2	12	3
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	1	<1	—		2	<1	—		1	<1	—		—	
<i>Leucotrichia</i>	54	9	340	20	320	29	—		3	<1	100	13	17	4
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>	—		—		—		—		—		—		—	
<b>Leptoceridae</b>														
<i>Mystacides</i>	—		—		—		—		—		—		—	
<i>Oecetis</i>	—		—		—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	2	<1	1	<1	—		—		—		—		—	

Oct. 11, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 15, 1993		Oct. 11, 1994		Date
1,939		1,631		1,532		1,418		1,041		764		1,005		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Heptageniidae</b>														
—		1	<1	2	<1	—		—		1	<1	—		
270	14	49	3	270	18	83	6	79	8	62	8	86	9	<i>Epeorus</i>
														<i>Stenonema</i>
<b>Isonychiidae</b>														
8	<1	—		7	<1	1	<1	4	<1	1	<1	25	3	<i>Isonychia</i>
<b>Leptohyphidae</b>														
—		—		2	<1	1	<1	4	<1	7	<1	2	<1	<i>Tricorythodes</i>
—		—		—		—		—		—		1	<1	
<b>Leptophlebiidae</b>														
<b>Potamanthidae</b>														
—		—		—		—		—		1	<1	—		<i>Anthopotamus</i>
<b>Odonata</b>														
<b>Coenagrionidae</b>														
—		1	<1	—		4	<1	—		3	<1	1	<1	<i>Argia</i>
<b>Plecoptera</b>														
<b>Capniidae</b>														
—		—		—		—		—		—		—		<i>Allocapnia</i>
—		1	<1	2	<1	—		—		—		2	<1	
<b>Chloroperlidae</b>														
<b>Perlidae</b>														
—		—		—		—		—		—		1	<1	<i>Acroneuria</i>
<b>Taeniopterygidae</b>														
—		2	<1	1	<1	—		—		—		—		<i>Taeniopteryx</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—		—		—		—		—		1	<1	—		<i>Corydalus</i>
<b>Neuroptera</b>														
<b>Sisyridae</b>														
—		—		—		—		—		—		—		<i>Climacia</i>
														<i>C. areolaris</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—		—		—		—		—		1	<1	—		<i>Apatania</i>
<b>Brachycentridae</b>														
—		—		—		—		1	<1	—		—		<i>Micrasema</i>
<b>Glossosomatidae</b>														
3	<1	5	<1	—		—		—		—		2	<1	<i>Glossosoma</i>
3	<1	44	3	4	<1	75	5	10	1	27	3	5	<1	<i>Protoptila</i>
<b>Helicopsychidae</b>														
—		—		10	<1	470	34	14	1	120	15	140	14	<i>Helicopsyche</i>
<b>Hydropsychidae</b>														
730	38	400	25	480	32	220	16	150	15	54	7	120	12	<i>Ceratopsyche</i>
280	15	69	4	69	5	52	4	27	3	8	1	110	11	<i>Cheumatopsyche</i>
150	8	110	7	76	5	19	1	25	3	4	<1	130	13	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
—		—		1	<1	3	<1	2	<1	5	<1	—		<i>Hydroptila</i>
43	2	6	<1	4	<1	18	1	5	<1	17	2	68	7	<i>Leucotrichia</i>
<b>Lepidostomatidae</b>														
—		—		1	<1	3	<1	4	<1	5	<1	3	<1	<i>Lepidostoma</i>
<b>Leptoceridae</b>														
—		—		—		1	<1	3	<1	—		1	<1	<i>Mystacides</i>
—		—		5	<1	1	<1	—		2	<1	6	<1	<i>Oecetis</i>
<b>Philopotamidae</b>														
5	<1	8	<1	—		18	1	16	2	29	4	43	4	<i>Chimarra</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480640 - West Branch Brandywine Creek at Wawaset, Pa. (Site 38)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 3, 1987	
Total count	598		1,655		1,110		1,402		1,085		769		402	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	1	<1	6	<1	—	—	—	—	—	—	5	<1	—	—
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	5	<1	9	<1	19	2	9	<1	19	2	26	3	3	<1
<i>Synclita</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
<b>Curculionidae</b>														
<b>Elmidae</b>														
<i>Dubiraphia</i>	1	<1	—	—	1	<1	—	—	—	—	—	—	—	—
<i>Optioservus</i>	—	—	—	—	19	2	1	<1	27	2	17	2	9	2
<i>Oulimnius</i>	1	<1	—	—	1	<1	—	—	4	<1	—	—	—	—
<i>Stenelmis</i>	1	<1	3	<1	1	<1	1	<1	2	<1	1	<1	—	—
<b>Hydrophilidae</b>														
<i>Berosus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psephenidae</b>														
<i>Psephenus</i>	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Chironomidae</b>														
	58	10	240	14	74	7	410	29	630	57	86	11	94	23
<b>Empididae</b>														
<i>Hemerodromia</i>	1	<1	1	<1	1	<1	—	—	1	<1	—	—	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	5	<1	71	4	16	1	340	24	26	2	45	6	40	10
<b>Tipulidae</b>														
<i>Antocha</i>	4	<1	42	2	56	5	100	7	40	4	66	8	7	2
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Oct. 11, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 15, 1993		Oct. 11, 1994		Date
<sup>1</sup> 1,939		1,631		1,532		1,418		1,041		764		1,005		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
3	<1	—		9	<1	2	<1	—		1	<1	3	<1	<i>Neureclipsis</i>
—		—		4	<1	—		—		—		—		<i>Polycentropus</i>
<b>Psychomyiidae</b>														
5	<1	28	2	66	4	5	<1	6	<1	13	2	9	<1	<i>Psychomyia</i>
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
19	1	9	<1	16	1	11	<1	10	1	5	<1	18	2	<i>Petrophila</i>
—		—		—		—		—		—		—		<i>Synclita</i>
<b>Coleoptera</b>														
<b>Curculionidae</b>														
<b>Elmidae</b>														
—		—		2	<1	—		—		1	<1	—		<i>Dubiraphia</i>
16	<1	41	3	19	1	51	4	42	4	22	3	16	2	<i>Optioservus</i>
—		—		—		—		—		—		—		<i>Oulimnius</i>
11	<1	31	2	9	<1	13	<1	4	<1	6	<1	7	<1	<i>Stenelmis</i>
<b>Hydrophilidae</b>														
—		—		—		—		1	<1	—		—		<i>Berosus</i>
<b>Psephenidae</b>														
—		—		1	<1	—		1	<1	5	<1	—		<i>Psephenus</i>
—		—		—		—		—		—		—		
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
—		1	<1	—		—		—		—		—		<i>Atherix</i>
180	9	610	38	220	15	220	16	340	34	170	22	64	6	
<b>Chironomidae</b>														
<b>Empididae</b>														
—		14	<1	1	<1	—		2	<1	4	<1	—		<i>Hemerodromia</i>
<b>Simuliidae</b>														
67	4	18	1	18	1	4	<1	59	6	2	<1	3	<1	<i>Simulium</i>
<b>Tipulidae</b>														
8	<1	60	4	76	5	47	3	45	5	23	3	12	1	<i>Antocha</i>
—		1	<1	—		1	<1	1	<1	—		—		<i>Tipula</i>

<sup>1</sup> Extrapolated from a 3/8 subsample.

**Table 5.** Benthic-macroinvertebrate data—Continued

[<, less than; —, not found]

01480647 - E Br Brandywine Creek near Struble Dam, Pa. (Site 43)

Date	Oct. 22, 1981		Nov. 3, 1982	
	Total count			
Organism	Count	Percent	Count	Percent
Platyhelminthes (flatworms)				
Turbellaria				
Tricladida				
Planariidae	150	48	100	18
Nemertea (proboscis worms)				
Enopla				
Hoplonemertea				
Tetrastemmatidae				
<i>Prostoma</i>	7	2	9	2
Mollusca (molluscs)				
Gastropoda				
Basommatophora				
Ancyliidae				
<i>Ferrissia</i>	—		3	<1
Physidae				
<i>Physa</i>	4	1	—	
Bivalvia				
Veneroida				
Sphaeriidae	2	<1	14	2
Annelida (segmented worms)				
Oligochaeta				
Lumbriculida				
Lumbriculidae	—		1	<1
Tubificida				
Naididae	51	16	13	2
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	4	1	35	6
Crustacea				
Amphipoda				
Gammaridae				
<i>Gammarus</i>	5	2	—	
Podocopa	35	11	10	2
Insecta				
Ephemeroptera				
Baetidae				
<i>Baetis</i>	1	<1	1	<1
Ephemerellidae				
<i>Ephemerella</i>	—		3	<1
Odonata				
Calopterygidae				
<i>Calopteryx</i>	2	<1	—	
Coenagrionidae				
<i>Enallagma</i>	6	2	—	
Megaloptera				
Corydalidae				
<i>Nigronia</i>	—		1	<1
Sialidae				
<i>Sialis</i>	3	1	—	

**Table 5.** Benthic-macroinvertebrate data—Continued

01480647 - E Br Brandywine Creek near Struble Dam, Pa. (Site 43)—Continued

Date	Oct. 22, 1981		Nov. 3, 1982	
Total count	303		566	
Organism	Count	Percent	Count	Percent
<b>Trichoptera</b>				
Hydropsychidae				
<i>Cheumatopsyche</i>	—		54	9
<i>Hydropsyche</i>	7	2	15	3
Hydroptilidae				
<i>Hydroptila</i>	10	3	43	8
<i>Orthotrichia</i>	—		1	<1
Leptoceridae				
<i>Mystacides</i>	—		1	<1
<i>Oecetis</i>	1	<1	—	
<i>Triaenodes</i>	—		6	1
Psychomyiidae				
<i>Psychomyia</i>	—		3	<1
<b>Coleoptera</b>				
Elmidae				
<i>Dubiraphia</i>	1	<1	6	1
<i>Optioservus</i>	—		3	<1
<i>Stenelmis</i>	2	<1	4	<1
<b>Diptera</b>				
Chironomidae				
	7	2	63	11
Empididae				
<i>Hemerodromia</i>	—		6	1
Psychodidae				
<i>Telmatoscopus</i>	1	<1	—	
Simuliidae				
<i>Simulium</i>	2	<1	160	28
Tipulidae				
<i>Antocha</i>	1	<1	11	2

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)

Date	Oct. 22, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Oct. 29, 1986		Oct. 19, 1987	
Total count	1,310		2,529		733		1,652		689		895		1,139	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	10	<1	63	3	41	6	76	4	47	7	3	<1	41	4
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	10	<1	13	<1	10	1	6	<1	7	1	1	<1	—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—		1	<1	—		—		—		—		—	
Physidae														
<i>Physa</i>	—		—		—		—		—		—		—	
Bivalvia														
Veneroida														
Sphaeriidae	8	<1	—		1	<1	—		1	<1	—		—	
<i>Pisidium</i>	—		—		—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		—		1	<1	2	<1	1	<1
Tubificida														
Naididae	30	2	—		9	1	—		—		—		31	3
Tubificidae	—		—		—		—		—		—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	31	2	1	<1	3	<1	—		6	<1	1	<1	8	<1
Crustacea														
Cladocera	—		—		—		—		—		—		—	
Cyclopoida	—		—		—		—		—		—		—	
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—		—		—		—		—		—		4	<1
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		1	<1	1	<1	—		2	<1	—		—	
Podocopa	14	1	1	<1	1	<1	1	<1	—		—		3	<1
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	35	3	52	2	5	<1	9	<1	4	<1	6	<1	13	1
<i>Pseudocloeon</i>	1	<1	3	<1	—		—		—		—		5	<1
Ephemerellidae														
<i>Ephemerella</i>	30	2	24	<1	28	4	14	<1	1	<1	2	<1	18	2
Ephemeridae														
<i>Ephemera</i>	—		—		—		—		—		—		—	
Heptageniidae														
<i>Epeorus</i>	7	<1	—		—		—		—		—		—	
<i>Stenonema</i>	40	3	110	4	70	9	120	7	46	7	71	8	69	6



Nov. 16, 1988		Oct. 16, 1989		Oct. 26, 1990		Nov. 1, 1991		Oct. 26, 1992		Nov. 3, 1993		Oct. 12, 1994		Date
1,984		3,846		538		926		610		2,016		973		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
21	1	83	2	110	20	82	9	69	11	71	4	19	2	Planariidae
—		1	<1	—		1	<1	—		2	<1	—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
3	<1	20	<1	—		4	<1	—		2	<1	—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		1	<1	—		—		—		—		—		<i>Ferrissia</i>
														Physidae
—		—		1	<1	—		—		2	<1	—		<i>Physa</i>
														Bivalvia
														Veneroida
—		—		—		—		—		2	<1	—		Sphaeriidae
—		2	<1	—		—		—		—		—		<i>Pisidium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
														Lumbriculidae
														Tubificida
24	1	21	<1	2	<1	2	<1	—		3	<1	17	2	Naididae
11	<1	—		—		—		—		4	<1	4	<1	Tubificidae
														Arthropoda (arthropods)
														Acariformes
														Hydrachnidia
—		110	3	—		7	<1	3	<1	68	3	14	1	Crustacea
														Cladocera
—		7	<1	—		1	<1	—		120	6	—		Cyclopoida
														Amphipoda
														Gammaridae
—		—		—		—		—		—		—		<i>Gammarus</i>
														Isopoda
														Asellidae
—		—		—		—		1	<1	5	<1	1	<1	<i>Caecidotea</i>
—		5	<1	—		1	<1	—		3	<1	2	<1	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
16	<1	38	<1	—		19	2	2	<1	6	<1	68	7	<i>Baetis</i>
—		2	<1	—		1	<1	—		—		—		<i>Pseudocloeon</i>
														Ephemerellidae
24	1	80	2	7	1	42	4	41	7	72	4	22	2	<i>Ephemerella</i>
														Ephemeridae
—		—		—		—		—		3	<1	—		<i>Ephemera</i>
														Heptageniidae
3	<1	4	<1	—		—		—		1	<1	—		<i>Epeorus</i>
94	5	300	8	7	1	29	3	37	6	24	1	25	3	<i>Stenonema</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)—Continued

Date	Oct. 22, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Oct. 29, 1986		Oct. 19, 1987	
Total count	1,310		2,529		733		1,652		689		895		1,139	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Isonychiidae</b>														
<i>Isonychia</i>	—	—	—	—	1	<1	—	—	—	—	2	<1	—	—
<b>Leptohephidae</b>														
<i>Tricorythodes</i>	3	<1	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	7	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Aeshnidae</b>														
<i>Boyeria</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Gomphidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—	—	—	—	—	—	—	—	—	—	—	—	4	<1
<b>Perlidae</b>														
<i>Agnetina</i>	2	<1	2	<1	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	1	<1	4	<1	1	<1	—	—	—	—	—	—	—	—
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	4	<1	21	<1	7	1	15	<1	26	4	30	3	36	3
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	5	<1	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<i>Nigronia</i>	2	<1	—	—	3	<1	—	—	—	—	—	—	1	<1
<b>Sialidae</b>														
<i>Sialis</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	2	<1	2	<1	—	—	—	—	1	<1	2	<1
<b>Brachycentridae</b>														
<i>Micrasema</i>	11	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	9	<1	24	<1	16	2	44	3	7	1	16	2	1	<1
<b>Goeridae</b>														
<i>Goera</i>	—	—	1	<1	—	—	—	—	—	—	3	<1	—	—
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	95	7	320	13	170	23	400	24	58	8	130	14	32	3
<i>Cheumatopsyche</i>	82	6	190	8	84	11	130	8	15	2	38	4	26	2
<i>Hydropsyche</i>	180	14	89	4	79	11	410	24	150	21	68	8	130	12
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	57	4	3	<1	2	<1	—	—	7	1	13	1	2	<1
<i>Leucotrichia</i>	84	6	680	27	—	—	23	1	12	2	15	2	2	<1
<b>Leptoceridae</b>														
<i>Mystacides</i>	33	3	1	<1	2	<1	—	—	—	—	8	<1	—	—
<i>Oecetis</i>	5	<1	—	—	4	<1	1	<1	2	<1	—	—	—	—
<b>Limnephilidae</b>														
<i>Hydatophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Odontoceridae</b>														
<i>Psilotreta</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—

Nov. 16, 1988		Oct. 16, 1989		Oct. 26, 1990		Nov. 1, 1991		Oct. 26, 1992		Nov. 3, 1993		Oct. 12, 1994		Date
1,984		3,846		538		926		610		2,016		973		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Ephemeroptera
														Isonychiidae
—		1	<1	1	<1	—		—		—		—		<i>Isonychia</i>
														Leptohephalidae
—		—		—		1	<1	1	<1	6	<1	5	<1	<i>Tricorythodes</i>
—		1	<1	—		—		—		—		—		Leptophlebiidae
—		—		—		2	<1	—		—		2	<1	<i>Paraleptophlebia</i>
														Odonata
														Coenagrionidae
—		2	<1	—		—		1	<1	—		—		<i>Argia</i>
														Aeshnidae
—		—		—		—		1	<1	—		—		<i>Boyeria</i>
—		—		—		—		—		2	<1	—		Gomphidae
														Plecoptera
														Capniidae
3	<1	1	<1	—		4	<1	—		11	<1	—		<i>Allocapnia</i>
														Perlidae
—		1	<1	—		1	<1	—		2	<1	—		<i>Agnatina</i>
—		—		—		—		—		—		—		<i>Paragnetina</i>
														Taeniopterygidae
16	<1	7	<1	—		1	<1	—		2	<1	—		<i>Taeniopteryx</i>
														Hemiptera
														Veliidae
—		—		—		—		—		—		—		<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—		—		—		—		1	<1	—		—		<i>Corydalus</i>
3	<1	1	<1	—		—		—		1	<1	—		<i>Nigronia</i>
														Sialidae
—		—		—		—		—		1	<1	—		<i>Sialis</i>
														Trichoptera
														Apataniidae
—		14	<1	—		3	<1	7	1	4	<1	—		<i>Apatania</i>
														Brachycentridae
—		3	<1	1	<1	—		—		—		—		<i>Micrasema</i>
														Glossosomatidae
10	<1	48	1	4	<1	2	<1	10	2	1	<1	5	<1	<i>Glossosoma</i>
														Goeridae
—		1	<1	—		3	<1	7	1	22	1	1	<1	<i>Goera</i>
														Helicopsychidae
—		—		—		—		—		2	<1	—		<i>Helicopsyche</i>
														Hydropsychidae
86	4	260	7	7	1	4	<1	—		10	<1	31	3	<i>Ceratopsyche</i>
48	2	67	2	1	<1	7	<1	—		9	<1	3	<1	<i>Cheumatopsyche</i>
280	14	640	16	83	15	68	7	160	26	40	2	130	13	<i>Hydropsyche</i>
														Hydroptilidae
5	<1	67	2	4	<1	5	<1	—		1	<1	10	1	<i>Hydroptila</i>
35	2	37	<1	2	<1	—		—		—		2	<1	<i>Leucotrichia</i>
														Leptoceridae
3	<1	6	<1	16	3	36	4	16	3	19	<1	—		<i>Mystacides</i>
—		13	<1	6	1	—		3	<1	8	<1	1	<1	<i>Ocetis</i>
														Limnephilidae
—		—		—		5	<1	—		—		—		<i>Hydatophylax</i>
														Odontoceridae
—		—		—		—		—		—		—		<i>Psilotreta</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480648 - East Branch Brandywine Creek near Cupola, Pa. (Site 48)—Continued

Date	Oct. 22, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Oct. 29, 1986		Oct. 19, 1987	
Total count	1,310		2,529		733		1,652		689		895		1,139	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Philopotamidae</b>														
<i>Chimarra</i>	86	7	18	<1	1	<1	1	<1	5	<1	32	4	12	1
<i>Dolophilodes</i>	—		—		—		1	<1	—		—		—	
<b>Polycentropodidae</b>														
<i>Cyrnellus</i>	1	<1	—		—		—		—		—		—	
<i>Neureclipsis</i>	1	<1	—		1	<1	1	<1	—		1	<1	—	
<i>Nyctiophylax</i>	—		—		—		—		—		—		—	
<i>Polycentropus</i>	1	<1	—		—		1	<1	—		—		—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—		—		—		—		—		2	<1	—	
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	1	<1	—		—		—		—		—		—	
<b>Uenoidae</b>														
<i>Neophylax</i>	—		—		—		—		—		—		—	
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—		—		—		—		—		1	<1	—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		3	<1	—	
<i>Dubiraphia</i>	1	<1	—		6	<1	—		—		—		1	<1
<i>Macronychus</i>														
<i>M. glabratus</i>	1	<1	—		—		—		2	<1	—		—	
<i>Optioservus</i>	41	3	23	<1	8	1	2	<1	13	2	76	8	59	5
<i>Oulimnius</i>	—		—		—		—		—		3	<1	—	
<i>Stenelmis</i>	92	7	20	<1	37	5	9	<1	18	3	14	2	37	3
<b>Gyrinidae</b>														
<i>Dineutus</i>	—		—		—		—		—		—		—	
<b>Hydrophilidae</b>														
<i>Berosus</i>	—		—		—		—		—		—		—	
<i>Hydrochara</i>	—		—		—		—		—		—		—	
<b>Psephenidae</b>														
<i>Ectopria</i>	—		—		—		—		—		—		—	
<i>E. nervosa</i>	—		—		—		—		—		1	<1	—	
<i>Psephenus</i>	3	<1	1	<1	—		2	<1	7	1	10	1	2	<1
<b>Hymenoptera</b>														
—	—		—		—		—		1	<1	1	<1	—	
<b>Diptera</b>														
<b>Ceratopogonidae</b>														
—	1	<1	—		—		—		—		—		—	
<b>Chironomidae</b>														
—	220	17	220	9	71	10	130	8	160	23	160	18	470	43
<b>Empididae</b>														
<i>Hemerodromia</i>	13	1	10	<1	7	1	2	<1	2	<1	1	<1	1	<1
<b>Ephydriidae</b>														
—	—		—		—		—		—		—		2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	1	<1	560	22	38	5	220	13	59	8	50	6	100	9
<b>Tipulidae</b>														
<i>Antocha</i>	50	4	66	3	23	3	34	2	29	4	130	14	25	2
<i>Dicranota</i>	—		—		—		—		—		—		—	
<i>Tipula</i>	—		—		—		—		—		—		1	<1

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 16, 1988		Oct. 16, 1989		Oct. 26, 1990		Nov. 1, 1991		Oct. 26, 1992		Nov. 3, 1993		Oct. 12, 1994		Date
1,984		3,846		538		926		610		2,016		973		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Philopotamidae</b>														
3	<1	39	1	—	—	40	4	27	4	3	<1	15	2	<i>Chimarra</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
<b>Polycentropodidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Cyrnellus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Neureclipsis</i>
—	—	—	—	—	—	—	—	—	—	3	<1	—	—	<i>Nyctiophylax</i>
—	—	2	<1	1	<1	2	<1	—	—	1	<1	—	—	<i>Polycentropus</i>
<b>Psychomyiidae</b>														
—	—	1	<1	—	—	1	<1	—	—	1	<1	—	—	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhyacophila</i>
<b>Uenoidae</b>														
40	2	—	—	1	<1	—	—	—	—	15	<1	—	—	<i>Neophylax</i>
<b>Lepidoptera</b>														
<b>Pyrilidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Petrophila</i>
<b>Coleoptera</b>														
<b>Dryopidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helichus</i>
<b>Elmidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ancyronyx</i>
8	<1	1	<1	3	<1	2	<1	—	—	10	<1	—	—	<i>Dubiraphia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Macronychus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>M. glabratus</i>
110	6	100	3	48	9	50	5	7	1	130	7	88	9	<i>Optioservus</i>
3	<1	3	<1	—	—	2	<1	—	—	2	<1	1	<1	<i>Oulimnius</i>
61	3	120	3	56	10	36	4	37	6	160	8	90	9	<i>Stenelmis</i>
<b>Gyrinidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Dineutus</i>
<b>Hydrophilidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Berosus</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Hydrochara</i>
<b>Psephenidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ectopria</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>E. nervosa</i>
16	<1	11	<1	26	5	24	3	60	10	62	3	33	3	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Ceratopogonidae</b>														
590	30	950	24	110	20	330	35	97	16	430	22	240	24	
<b>Chironomidae</b>														
<b>Empididae</b>														
19	<1	73	2	2	<1	3	<1	—	—	13	<1	4	<1	<i>Hemerodromia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
<b>Ephydriidae</b>														
<b>Simuliidae</b>														
280	14	530	14	2	<1	74	8	5	<1	8	<1	85	9	<i>Simulium</i>
<b>Tipulidae</b>														
160	8	170	4	37	7	31	3	15	2	45	2	49	5	<i>Antocha</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Dicranota</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Dec. 5, 1986		Oct. 23, 1987	
Total count	752		1,708		1,338		1,008		1,361		723		1,435	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	4	<1	1	<1	6	<1	2	<1	23	2	24	3	14	1
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	2	<1	5	<1	6	<1	2	<1	1	<1	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	34	4	4	<1	11	<1	14	1	21	2	2	<1	5	<1
Lymnaeidae			1	<1					1	<1				
<i>Lymnaea</i>			1	<1					1	<1				
Physidae			6	<1							4	<1		
<i>Physa</i>			6	<1							4	<1		
Planorbidae														
<i>Gyraulus</i>														
<i>Helisoma</i>	4	<1	—	—	2	<1	—	—	—	—	1	<1	1	<1
Bivalvia														
Veneroida														
Sphaeriidae	—	—	6	<1	—	—	—	—	—	—	—	—	—	—
<i>Pisidium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Sphaerium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
Tubificida														
Naididae	3	<1	17	1	16	1	—	—	2	<1	4	<1	—	—
Tubificidae	1	<1	2	<1	2	<1	—	—	—	—	—	—	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	14	2	170	10	99	7	3	<1	3	<1	2	<1	35	3
Crustacea														
Cladocera	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Amphipoda														
Talitridae														
<i>Hyalolella</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>H. azteca</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Isopoda														
Asellidae														
<i>Lirceus</i>	—	—	—	—	—	—	—	—	—	—	2	<1	—	—
Podocopa	—	—	6	<1	17	1	—	—	1	<1	—	—	—	—

Nov. 15, 1988		Nov. 1, 1989		Oct. 26, 1990		Nov. 1, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 12, 1994		Date
1,671		2,617		973		1,825		1,330		1,554		1,378		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—		8	<1	13	1	1	<1	33	3	7	<1	—		Planariidae
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
3	<1	100	4	8	<1	2	<1	12	<1	15	<1	18	1	<i>Prostoma</i>
—		1	<1	—		—		—		—		—		Nematoda (nematodes)
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		17	<1	69	7	14	<1	7	<1	47	3	43	3	<i>Ferrissia</i>
														Lymnaeidae
—		—		3	<1	—		2	<1	1	<1	1	<1	<i>Lymnaea</i>
														Physidae
—		—		1	<1	1	<1	—		1	<1	—		<i>Physa</i>
														Planorbidae
—		4	<1	9	<1	1	<1	1	<1	1	<1	1	<1	<i>Gyraulus</i>
—		—		—		—		—		—		—		<i>Helisoma</i>
														Bivalvia
														Veneroidea
—		—		—		—		3	<1	3	<1	—		Sphaeriidae
—		—		—		1	<1	—		—		—		<i>Pisidium</i>
—		3	<1	2	<1	—		—		—		—		<i>Sphaerium</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
3	<1	2	<1	—		—		—		—		—		Lumbriculidae
														Tubificida
3	<1	21	<1	—		—		3	<1	12	<1	52	4	Naididae
—		—		—		—		—		—		—		Tubificidae
														Arthropoda (arthropods)
														Acariformes
3	<1	670	26	130	13	72	4	280	22	250	16	100	7	Hydrachnidia
														Crustacea
—		—		—		—		—		1	<1	—		Cladocera
—		1	<1	1	<1	—		—		—		—		Cyclopoida
														Amphipoda
														Talitridae
—		—		—		—		—		—		—		<i>Hyalolela</i>
—		—		—		—		—		—		—		<i>H. azteca</i>
														Isopoda
														Asellidae
—		—		—		—		—		—		—		<i>Lirceus</i>
—		—		—		—		—		—		—		Podocopa

**Table 5. Benthic-macroinvertebrate data—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Dec. 5, 1986		Oct. 23, 1987	
Total count	752		1,708		1,338		1,008		1,361		723		1,435	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
<i>Baetis</i>	—		1	<1	1	<1	17	2	31	2	2	<1	8	<1
<i>Pseudocloeon</i>	2	<1	1	<1	2	<1	4	<1	8	<1	—		7	<1
<b>Caenidae</b>														
<i>Caenis</i>	—		—		14	1	—		2	<1	14	2	—	
<b>Ephemerellidae</b>														
<i>Ephemerella</i>	6	<1	31	2	43	3	44	4	120	9	65	9	79	6
<b>Heptageniidae</b>														
<i>Epeorus</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	82	11	120	7	—		34	3	51	4	30	4	65	5
<b>Isonychiidae</b>														
<i>Isonychia</i>	—		2	<1	—		—		—		1	<1	—	
<b>Leptohyphidae</b>														
<i>Tricorythodes</i>	2	<1	1	<1	3	<1	—		—		—		—	
<b>Leptophlebiidae</b>														
—	—		—		—		4	<1	—		—		—	
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—		—		—		—		1	<1	—		—	
<b>Aeshnidae</b>														
<i>Boyeria</i>	—		—		—		1	<1	—		—		—	
<b>Gomphidae</b>														
—	—		—		—		—		—		1	<1	—	
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		5	<1	1	<1	1	<1	5	<1	1	<1	11	<1
<b>Chloroperlidae</b>														
<i>Haploperla</i>	—		—		1	<1	—		—		—		2	<1
<b>Nemouridae</b>														
—	—		—		—		—		—		—		—	
<b>Peltoperlidae</b>														
<i>Peltoperla</i>	—		—		—		—		—		—		—	
<b>Perlidae</b>														
<i>Acroneuria</i>	—		4	<1	—		—		6	<1	2	<1	1	<1
<i>Agneta</i>	—		—		—		—		—		—		—	
<i>Paragnetina</i>	2	<1	—		—		4	<1	—		—		—	
<b>Taeniopterygidae</b>														
<i>Strophopteryx</i>	—		—		—		—		—		2	<1	—	
<i>Taeniopteryx</i>	7	<1	50	3	44	3	33	3	42	3	17	2	98	7
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		—		—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Chauliodes</i>	1	<1	—		—		—		—		—		—	
<i>Corydalus</i>	—		—		—		—		1	<1	—		—	
<i>Nigronia</i>	—		2	<1	1	<1	—		—		—		—	
<b>Sialidae</b>														
<i>Sialis</i>	—		—		—		—		—		—		—	
<b>Neuroptera</b>														
<b>Sisyridae</b>														
<i>Climacia</i>	—		2	<1	—		—		—		—		—	



Nov. 15, 1988		Nov. 1, 1989		Oct. 26, 1990		Nov. 1, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 12, 1994		Date
1,671		2,617		973		1,825		1,330		1,554		1,378		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Insecta</b>														
<b>Ephemeroptera</b>														
<b>Baetidae</b>														
—		6	<1	3	<1	—		2	<1	—		9	<1	<i>Baetis</i>
3	<1	5	<1	—		—		2	<1	2	<1	4	<1	<i>Pseudocloeon</i>
<b>Caenidae</b>														
13	<1	—		—		—		4	<1	3	<1	6	<1	<i>Caenis</i>
<b>Ephemerellidae</b>														
64	4	70	3	27	3	50	3	120	9	63	4	45	3	<i>Ephemerella</i>
<b>Heptageniidae</b>														
—		4	<1	—		—		6	<1	—		—		<i>Epeorus</i>
24	1	60	2	29	3	78	4	27	2	22	1	62	4	<i>Stenonema</i>
<b>Isonychiidae</b>														
—		5	<1	4	<1	5	<1	—		1	<1	7	<1	<i>Isonychia</i>
<b>Leptohyphidae</b>														
—		—		—		—		10	<1	—		2	<1	<i>Tricorythodes</i>
—		—		—		—		—		—		—		
<b>Leptophlebiidae</b>														
<b>Odonata</b>														
<b>Coenagrionidae</b>														
—		4	<1	—		2	<1	—		1	<1	—		<i>Argia</i>
<b>Aeshnidae</b>														
—		—		1	<1	—		—		—		—		<i>Boyeria</i>
—		—		—		—		—		—		—		
<b>Gomphidae</b>														
<b>Plecoptera</b>														
<b>Capniidae</b>														
3	<1	—		—		—		5	<1	—		—		<i>Allocapnia</i>
—		4	<1	—		—		—		1	<1	—		<i>Chloroperlidae</i>
—		—		2	<1	—		—		—		—		<i>Haploperla</i>
—		—		—		—		1	<1	—		—		<i>Nemouridae</i>
<b>Peltoperlidae</b>														
—		—		1	<1	—		—		—		—		<i>Peltoperla</i>
<b>Perlidae</b>														
—		—		—		—		1	<1	2	<1	1	<1	<i>Acroneuria</i>
—		—		—		—		3	<1	—		2	<1	<i>Agnetina</i>
—		—		—		—		—		—		1	<1	<i>Paragnetina</i>
<b>Taeniopterygidae</b>														
—		—		—		—		—		—		—		<i>Strophopteryx</i>
8	<1	10	<1	12	1	6	<1	8	<1	5	<1	16	1	<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Veliidae</b>														
—		1	<1	—		—		—		—		—		<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—		—		—		—		—		—		—		<i>Chauliodes</i>
—		—		—		—		—		—		2	<1	<i>Corydalus</i>
3	<1	1	<1	—		—		2	<1	2	<1	1	<1	<i>Nigronia</i>
<b>Sialidae</b>														
—		—		—		2	<1	—		—		—		<i>Sialis</i>
<b>Neuroptera</b>														
<b>Sisyridae</b>														
—		—		—		—		—		—		—		<i>Climacia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Dec. 5, 1986		Oct. 23, 1987	
Total count	752		1,708		1,338		1,008		1,361		723		1,435	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	3	<1	—	—	—	—	13	2	13	<1
<b>Brachycentridae</b>														
<i>Micrasema</i>	11	1	34	2	59	4	6	<1	9	<1	48	6	45	3
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	6	<1	9	<1	11	<1	53	5	24	2	16	2	—	—
<i>Protophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Goeridae</b>														
<i>Goera</i>	1	<1	—	—	—	—	12	1	7	<1	20	3	2	<1
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	3	<1	8	<1
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	96	13	110	6	200	14	200	20	240	17	42	6	390	28
<i>Cheumatopsyche</i>	75	10	120	7	110	8	92	9	150	11	56	8	78	6
<i>Hydropsyche</i>	240	32	160	9	160	11	26	3	31	2	26	4	86	6
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	8	1	40	2	35	3	4	<1	3	<1	—	—	3	<1
<i>Leucotrichia</i>	35	5	300	18	200	14	170	17	71	5	10	1	48	3
<b>Leptoceridae</b>														
<i>Mystacides</i>	46	6	3	<1	5	<1	—	—	—	—	3	<1	—	—
<i>Oecetis</i>	—	—	1	<1	7	<1	2	<1	3	<1	1	<1	—	—
<i>Triaenodes</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<b>Limnephilidae</b>														
<i>Hydatophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	1	<1	14	<1	12	<1	7	<1	28	2	13	2	6	<1
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	1	<1	9	<1	2	<1	7	<1	4	<1	4	<1	4	<1
<i>Nyctiophylax</i>	2	<1	4	<1	3	<1	12	1	5	<1	4	<1	5	<1
<i>Polycentropus</i>	4	<1	9	<1	17	1	2	<1	4	<1	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	3	<1	2	<1	—	—	—	—	—	—	—	—
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	—	—	1	<1	3	<1	13	<1	—	—	6	<1
<i>R. fuscata</i>	—	—	—	—	—	—	—	—	—	—	5	<1	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	10	1	—	—
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	7	<1	2	<1	—	—	—	—	—	—	—	—	—	—
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Elmidae</b>														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Dubiraphia</i>	4	<1	12	<1	8	<1	2	<1	1	<1	1	<1	1	<1
<i>Macronychus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>M. glabratus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	10	1	6	<1	16	1	12	1	45	3	34	5	9	<1
<i>Oulimnius</i>	—	—	2	<1	3	<1	—	—	4	<1	1	<1	6	<1
<i>Promoresia</i>	—	—	1	<1	3	<1	1	<1	1	<1	2	<1	—	—
<i>Stenelmis</i>	8	1	7	<1	12	<1	11	1	7	<1	7	1	16	1
<b>Hydrophilidae</b>														
<i>Berosus</i>	—	—	—	—	1	<1	—	—	—	—	1	<1	—	—

Nov. 15, 1988		Nov. 1, 1989		Oct. 26, 1990		Nov. 1, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 12, 1994		Date
1,671		2,617		973		1,825		1,330		1,554		1,378		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Apataniidae														
3	<1	78	3	2	<1	13	<1	22	2	32	2	3	<1	<i>Apatania</i>
Brachycentridae														
140	8	410	16	43	4	180	10	93	7	270	17	120	9	<i>Micrasema</i>
Glossosomatidae														
8	<1	7	<1	2	<1	20	1	9	<1	4	<1	17	1	<i>Glossosoma</i>
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Proptila</i>
Goeridae														
—	—	2	<1	—	—	4	<1	5	<1	10	<1	1	<1	<i>Goera</i>
Helicopsychidae														
—	—	—	—	—	—	—	—	3	<1	9	<1	—	—	<i>Helicopsyche</i>
Hydropsychidae														
250	15	250	10	130	13	230	13	82	6	140	9	160	11	<i>Ceratopsyche</i>
210	12	51	2	34	3	120	7	23	2	130	8	140	10	<i>Cheumatopsyche</i>
120	7	120	5	22	2	92	5	31	2	82	5	58	4	<i>Hydropsyche</i>
Hydroptilidae														
3	<1	5	<1	1	<1	—	—	7	<1	2	<1	1	<1	<i>Hydroptila</i>
110	6	16	<1	120	12	35	2	16	1	31	2	110	8	<i>Leucotrichia</i>
Leptoceridae														
5	<1	—	—	—	—	2	<1	10	<1	1	<1	1	<1	<i>Mystacides</i>
—	—	40	2	5	<1	12	<1	6	<1	10	<1	3	<1	<i>Oecetis</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Triaenodes</i>
Limnephilidae														
—	—	—	—	—	—	—	—	1	<1	—	—	1	<1	<i>Hydatophylax</i>
Philopotamidae														
—	—	1	<1	4	<1	19	1	2	<1	3	<1	12	<1	<i>Chimarra</i>
Polycentropodidae														
—	—	—	—	3	<1	14	<1	1	<1	1	<1	4	<1	<i>Neureclipsis</i>
8	<1	9	<1	1	<1	1	<1	—	—	—	—	—	—	<i>Nyctiophylax</i>
16	<1	3	<1	3	<1	3	<1	1	<1	—	—	1	<1	<i>Polycentropus</i>
Psychomyiidae														
—	—	—	—	—	—	3	<1	—	—	3	<1	—	—	<i>Psychomyia</i>
Rhyacophilidae														
8	<1	21	<1	3	<1	9	<1	13	1	5	<1	18	1	<i>Rhyacophila</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>R. fuscula</i>
Uenoidae														
3	<1	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Neophylax</i>
Lepidoptera														
Pyralidae														
—	—	1	<1	—	—	—	—	—	—	1	<1	—	—	<i>Petrophila</i>
Coleoptera														
Dryopidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helichus</i>
Elmidae														
—	—	—	—	—	—	—	—	3	<1	1	<1	—	—	<i>Ancyronyx</i>
3	<1	13	<1	5	<1	4	<1	12	<1	1	<1	2	<1	<i>Dubiraphia</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Macronychus</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>M. glabratus</i>
45	3	38	1	27	3	60	3	100	8	95	6	32	2	<i>Optioservus</i>
—	—	4	<1	1	<1	5	<1	1	<1	9	<1	3	<1	<i>Oulimnius</i>
—	—	—	—	—	—	1	<1	1	<1	—	—	1	<1	<i>Promoresia</i>
40	2	43	2	25	3	92	5	33	3	57	4	12	<1	<i>Stenelmis</i>
Hydrophilidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Berosus</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01480653 - East Branch Brandywine Creek at Glenmoore, Pa. (Site 42)—Continued

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Dec. 5, 1986		Oct. 23, 1987	
Total count	752		1,708		1,338		1,008		1,361		723		1,435	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Coleoptera														
Psephenidae														
<i>Ectopria</i>														
<i>E. nervosa</i>	—		—		—		—		—		—		—	
<i>Psephenus</i>	5	<1	1	<1	1	<1	—		2	<1	12	2	10	<1
Hymenoptera														
Diptera														
Athericidae														
<i>Atherix</i>	—		—		—		—		—		3	<1	1	<1
Chironomidae	14	2	310	18	110	8	160	16	320	23	150	20	310	22
Empididae														
<i>Hemerodromia</i>	1	<1	9	<1	3	<1	7	<1	5	<1	2	<1	6	<1
Ephydriidae	—		—		—		—		1	<1	—		—	
Simuliidae														
<i>Simulium</i>	—		20	1	2	<1	20	2	23	2	13	2	4	<1
Tipulidae														
<i>Antocha</i>	12	2	84	5	82	6	35	3	40	3	45	6	51	4
<i>Tipula</i>	1	<1	—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 15, 1988		Nov. 1, 1989		Oct. 26, 1990		Nov. 1, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 12, 1994		Date
1,671		2,617		973		1,825		1,330		1,554		1,378		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Coleoptera
														Psephenidae
														<i>Ectopria</i>
														<i>E. nervosa</i>
														<i>Psephenus</i>
—		—		—		—		1	<1	—		1	<1	
13	<1	3	<1	3	<1	1	<1	7	<1	12	<1	6	<1	
—		—		—		—		—		—		—		
														Hymenoptera
														Diptera
														Athericidae
														<i>Atherix</i>
3	<1	1	<1	—		1	<1	—		—		1	<1	
460	27	290	11	200	20	550	31	210	16	120	8	250	18	
														Chironomidae
														Empididae
														<i>Hemerodromia</i>
13	<1	130	5	2	<1	5	<1	40	3	8	<1	8	<1	
—		—		—		—		—		—		—		
														Ephydriidae
														Simuliidae
														<i>Simulium</i>
16	<1	11	<1	2	<1	2	<1	13	1	1	<1	4	<1	
														Tipulidae
														<i>Antocha</i>
64	4	73	3	19	2	110	6	52	4	74	5	35	3	
—		—		—		—		—		—		—		
														<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480656 - Indian Run near Springton, Pa. (Site 47)

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Oct. 29, 1986		Oct. 19, 1987	
Total count	1,050		1,883		1,165		1,027		729		688		640	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	1	<1	—	—	—	—	—	—	—	—	1	<1	3	<1
Nematoda (nematodes)	—	—	—	—	—	—	2	<1	—	—	—	—	2	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	57	5	24	1	17	1	—	—	1	<1	16	2	3	<1
Physidae														
<i>Physa</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Bivalvia														
Veneroidea														
Sphaeriidae	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
<i>Sphaerium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
Naididae	18	2	26	1	27	2	23	2	—	—	—	—	8	1
Tubificidae	6	<1	3	<1	3	<1	—	—	—	—	—	—	1	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	25	2	10	<1	17	1	12	1	—	—	—	—	4	<1
Crustacea														
Decapoda														
Cambaridae	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Podocopa	—	—	1	<1	—	—	1	<1	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	1	<1	19	1	—	—	7	<1	20	3	11	2	7	1
<i>Pseudocloeon</i>	—	—	—	—	3	<1	20	2	6	<1	—	—	—	—
Ephemerellidae														
<i>Ephemerella</i>	310	28	360	19	390	33	200	20	150	20	280	40	50	8
Ephemeridae														
<i>Ephemera</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Heptageniidae														
<i>Epeorus</i>	—	—	15	<1	100	8	52	5	—	—	—	—	—	—
<i>Stenonema</i>	29	3	50	3	54	5	46	5	56	8	71	10	63	10
Isonychiidae														
<i>Isonychia</i>	1	<1	2	<1	8	<1	1	<1	1	<1	5	<1	1	<1
Leptophlebiidae														
<i>Paraleptophlebia</i>	1	<1	—	—	1	<1	—	—	—	—	2	<1	—	—

Nov. 15, 1988		Oct. 16, 1989		Nov. 13, 1990		Nov. 5, 1991		Oct. 23, 1992		Nov. 2, 1993		Oct. 14, 1994		Date
1 787		1,288		840		589		440		770		1,232		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
—	—	—	—	—	—	—	—	—	—	3	<1	—	—	Planariidae
—	—	—	—	—	—	—	—	—	—	3	<1	—	—	Nematoda (nematodes)
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
—	—	11	<1	—	—	—	—	—	—	—	—	—	—	<i>Prostoma</i>
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancylidae														
—	—	12	<1	28	3	10	2	16	4	36	5	9	<1	<i>Ferrissia</i>
Physidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Physa</i>
Bivalvia														
Veneroida														
Sphaeriidae														
—	—	3	<1	—	—	—	—	—	—	—	<1	—	—	<i>Sphaerium</i>
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
—	—	23	2	11	1	1	<1	—	—	21	3	22	2	Naididae
3	<1	—	—	—	—	—	—	—	—	—	—	2	<1	Tubificidae
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
3	<1	13	1	11	1	1	<1	—	—	9	1	26	2	Crustacea
Decapoda														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Cambaridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Podocopa
Insecta														
Ephemeroptera														
Baetidae														
8	1	1	<1	4	<1	—	—	—	—	—	—	11	<1	<i>Baetis</i>
3	<1	18	1	1	<1	2	<1	1	<1	1	<1	26	2	<i>Pseudocloeon</i>
Ephemerellidae														
170	22	61	5	36	4	11	2	7	2	17	2	58	5	<i>Ephemerella</i>
Ephemeridae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ephemera</i>
Heptageniidae														
19	2	61	5	15	2	24	4	5	1	9	1	12	1	<i>Epeorus</i>
21	3	28	2	30	4	21	3	35	8	19	2	34	3	<i>Stenonema</i>
Isonychiidae														
—	—	—	—	—	—	9	2	38	8	13	2	7	<1	<i>Isonychia</i>
Leptophlebiidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Paraleptophlebia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Oct. 29, 1986		Oct. 19, 1987	
Total count	1,050		1,883		1,165		1,027		729		688		640	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
<b>Aeshnidae</b>														
<i>Boyeria</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Gomphidae</b>														
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	17	2	—	—	—	—	56	6	110	15	3	<1	19	3
<b>Chloroperlidae</b>														
<b>Leuctridae</b>														
<b>Nemouridae</b>														
<b>Peltoperlidae</b>														
<i>Peltoperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Perlidae</b>														
<i>Acroneuria</i>	2	<1	10	<1	10	<1	5	<1	—	—	2	<1	4	<1
<i>Agnestina</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Neoperla</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Paragnetina</i>	—	—	—	—	—	—	—	—	3	<1	2	<1	2	<1
<b>Taeniopterygidae</b>														
<i>Strophopteryx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Taeniopteryx</i>	1	<1	17	<1	64	5	—	—	—	—	1	<1	—	—
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	—	—	—	—	1	<1	—	—	—	—	—	—	3	<1
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Nigronia</i>	3	<1	2	<1	1	<1	—	—	—	—	1	<1	—	—
<b>Sialidae</b>														
<i>Sialis</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	62	6	61	3	20	2	16	2	6	<1	26	4	31	5
<b>Brachycentridae</b>														
<i>Micrasema</i>	13	1	19	1	8	<1	6	<1	1	<1	2	<1	—	—
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—	—	82	4	52	4	75	8	16	2	27	4	15	2
<b>Goeridae</b>														
<i>Goera</i>	10	<1	9	<1	1	<1	—	—	2	<1	2	<1	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	8	<1	47	2	34	3	24	2	41	6	17	2	33	5
<i>Cheumatopsyche</i>	24	2	95	5	64	5	140	14	40	5	17	2	13	2
<i>Diplectrona</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hydropsyche</i>	12	1	62	3	66	6	16	2	4	<1	4	<1	12	2
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	18	2	3	<1	—	—	1	<1	—	—	—	—	1	<1
<i>Leucotrichia</i>	5	<1	12	<1	7	<1	22	2	6	<1	23	3	3	<1
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptoceridae</b>														
<i>Mystacides</i>	7	<1	8	<1	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Philopotamidae</b>														
<i>Chimarra</i>	1	<1	1	<1	14	1	37	4	4	<1	13	2	4	<1
<i>Dolophilodes</i>	—	—	—	—	3	<1	13	1	10	1	18	3	15	2
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—



Nov. 15, 1988		Oct. 16, 1989		Nov. 13, 1990		Nov. 5, 1991		Oct. 23, 1992		Nov. 2, 1993		Oct. 14, 1994		Date
1 787		1,288		840		589		440		770		1,232		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Odonata</b>														
<b>Aeshnidae</b>														
<i>Boyeria</i>														
—	—	—	<1	—	—	—	—	—	—	—	—	—	—	
<b>Gomphidae</b>														
<b>Plecoptera</b>														
<b>Capniidae</b>														
24	3	—	—	14	2	6	1	4	1	36	5	—	—	
<i>Allocapnia</i>														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	
<b>Chloroperlidae</b>														
—	—	—	—	16	2	1	<1	—	—	—	—	—	—	
<b>Leuctridae</b>														
21	3	—	—	—	—	—	—	—	—	—	—	—	—	
<b>Nemouridae</b>														
<b>Peltoperlidae</b>														
<i>Peltoperla</i>														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	
<b>Perlidae</b>														
3	<1	6	<1	—	—	—	—	—	—	1	<1	2	<1	
<i>Acroneuria</i>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	
<i>Agetina</i>														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	
<i>Neoperla</i>														
—	—	3	<1	—	—	1	<1	—	—	—	—	—	—	
<i>Paragnetina</i>														
<b>Taeniopterygidae</b>														
37	5	—	—	—	—	—	—	—	—	—	—	—	—	
<i>Strophopteryx</i>														
—	—	140	11	1	<1	3	<1	1	<1	10	1	8	<1	
<i>Taeniopteryx</i>														
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Nigronia</i>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
<b>Sialidae</b>														
<i>Sialis</i>														
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>														
32	4	21	2	44	5	20	3	—	—	30	4	59	5	
<b>Brachycentridae</b>														
<i>Micrasema</i>														
—	—	8	<1	3	<1	3	<1	50	11	1	<1	2	<1	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>														
64	8	32	2	16	2	27	5	10	2	42	5	63	5	
<b>Goeridae</b>														
<i>Goera</i>														
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>														
99	12	55	4	15	2	26	4	1	<1	83	11	69	6	
<i>Cheumatopsyche</i>														
32	4	28	2	9	1	28	5	—	—	31	4	50	4	
<i>Diplectrona</i>														
—	—	—	—	—	—	5	<1	2	<1	17	2	—	—	
<i>Hydropsyche</i>														
11	1	140	11	40	5	31	5	75	17	16	2	150	13	
<b>Hydroptilidae</b>														
<i>Hydroptila</i>														
3	<1	—	—	3	<1	—	—	1	<1	—	—	—	—	
<i>Leucotrichia</i>														
—	—	18	1	28	3	43	7	10	2	2	<1	1	<1	
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>														
—	—	—	—	—	—	—	—	—	—	6	<1	—	—	
<b>Leptoceridae</b>														
<i>Mystacides</i>														
<i>Oecetis</i>														
<b>Philopotamidae</b>														
<i>Chimarra</i>														
11	1	21	2	1	<1	6	1	9	2	6	<1	28	2	
<i>Dolophilodes</i>														
—	—	22	2	—	—	—	—	—	—	—	—	26	2	
<i>Wormaldia</i>														
5	<1	—	—	—	—	—	—	—	—	2	<1	—	—	

**Table 5. Benthic-macroinvertebrate data—Continued**

01480656 - Indian Run near Springton, Pa. (Site 47)

Date	Nov. 2, 1981		Nov. 3, 1982		Nov. 3, 1983		Oct. 17, 1984		Oct. 23, 1985		Oct. 29, 1986		Oct. 19, 1987	
Total count	1,050		1,883		1,165		1,027		729		688		640	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Cyrnellus</i>	—		7	<1	—		—		—		—		—	
<i>Neureclipsis</i>	—		1	<1	—		—		—		—		—	
<i>Nyctiophylax</i>	6	<1	—		1	<1	2	<1	—		1	<1	—	
<i>Polycentropus</i>	7	<1	7	<1	1	<1	—		1	<1	2	<1	—	
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	96	9	59	3	16	1	5	<1	9	1	29	4	10	2
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	1	<1	10	<1	5	<1	18	2	9	1	4	<1	6	1
<b>Uenoidae</b>														
<i>Neophylax</i>	—		—		—		—		—		3	<1	—	
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	7	<1	27	1	13	1	—		4	<1	10	1	9	1
<i>Oulimnius</i>	2	<1	3	<1	2	<1	5	<1	1	<1	—		5	<1
<i>Promoresia</i>	—		—		—		—		—		—		—	
<i>Stenelmis</i>	15	1	2	<1	—		4	<1	—		1	<1	1	<1
<b>Psephenidae</b>														
<b><i>Ectopria</i></b>														
<i>E. nervosa</i>	—		1	<1	—		—		—		—		—	
<i>Psephenus</i>	5	<1	3	<1	2	<1	—		1	<1	3	<1	8	1
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—		—		2	<1	—		—		—		—	
<b>Blephariceridae</b>														
<i>Blepharicera</i>	—		—		—		—		—		—		—	
<b>Chironomidae</b>														
<i>Chironomus</i>	170	15	670	35	120	10	180	18	190	26	59	8	250	38
<b>Empididae</b>														
<i>Hemerodromia</i>	7	<1	4	<1	2	<1	1	<1	—		—		1	<1
<b>Simuliidae</b>														
<i>Simulium</i>	—		7	<1	7	<1	7	<1	17	2	1	<1	21	3
<b>Tipulidae</b>														
<i>Antocha</i>	100	9	140	7	27	2	28	3	16	2	30	4	24	4
<i>Hexatoma</i>	—		—		—		1	<1	—		—		—	
<i>Tipula</i>	—		—		—		—		3	<1	—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 15, 1988		Oct. 16, 1989		Nov. 13, 1990		Nov. 5, 1991		Oct. 23, 1992		Nov. 2, 1993		Oct. 14, 1994		Date
1 787		1,288		840		589		440		770		1,232		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Cyrnellus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Neureclipsis</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nyctiophylax</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Polycentropus</i>
<b>Psychomyiidae</b>														
13	2	—	—	62	7	47	8	5	1	45	6	13	1	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
5	<1	29	2	11	1	11	2	25	6	21	3	38	3	<i>Rhyacophila</i>
<b>Uenoidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Neophylax</i>
<b>Coleoptera</b>														
<b>Elmidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	3	<1	<i>Ancyronyx</i>
—	—	—	—	3	<1	—	—	6	1	—	—	—	—	<i>Dubiraphia</i>
24	3	24	2	—	—	12	2	6	1	23	3	19	2	<i>Optioservus</i>
—	—	11	<1	—	—	1	<1	—	—	—	—	3	<1	<i>Oulimnius</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Promoresia</i>
3	<1	2	<1	6	<1	1	<1	—	—	—	—	—	—	<i>Stenelmis</i>
<b>Psephenidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Ectopria</i>
—	—	—	—	1	<1	1	<1	3	<1	9	1	9	<1	<i>E. nervosa</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Psephenus</i>
<b>Diptera</b>														
<b>Athericidae</b>														
3	<1	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Atherix</i>
—	—	3	<1	—	—	—	—	—	—	—	—	—	—	<b>Blephariceridae</b>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Blepharicera</i>
140	18	390	30	270	32	170	28	85	19	150	19	380	32	<b>Chironomidae</b>
<b>Empididae</b>														
—	—	6	<1	6	<1	—	—	—	—	—	—	4	<1	<i>Hemerodromia</i>
<b>Simuliidae</b>														
8	1	80	6	12	1	6	1	18	4	8	1	49	4	<i>Simulium</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<b>Tipulidae</b>
16	2	16	1	140	16	60	10	25	6	97	12	46	4	<i>Antocha</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Hexatoma</i>
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)

Date	Nov. 4, 1981		Oct. 28, 1982		Nov. 4, 1983		Oct. 30, 1984		Oct. 21, 1985		Nov. 17, 1986		Oct. 20, 1987	
Total count	1 2,450		1 11,821		1 2,848		1 5,962		1,866		2,232		2,179	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	45	2	3	<1	8	<1	—	8	<1	2	<1	6	<1	
Nematoda (nematodes)	—		—		—		—	—		—		2	<1	
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		8	<1	5	<1	13	<1	—	—	—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	3	<1	3	<1	—		—	—	—	2	<1	1	<1	
Lymnaeidae														
<i>Lymnaea</i>	—		—		—		—	—	—	—		1	<1	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—	—	—	—		—		
Bivalvia														
Veneroida														
Sphaeriidae	—		—		—		—	—	—	—		—		
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae														
Tubificida														
Naididae	—		—		3	<1	3	<1	—	—	—	27	1	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	3	<1	—		5	<1	11	<1	—	3	<1	35	2	
Crustacea														
Cladocera														
Cyclopoida	—		—		—		—	—	—	—		—		
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—		—		—		—	—	—	—		—		
Podocopa	—		—		—		—	—	—	—		—		
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—		35	<1	—		—	110	6	—		—		
<i>Pseudocloeon</i>	16	<1	40	<1	32	1	16	<1	23	1	2	<1	33	2
Caenidae														
<i>Caenis</i>	—		—		—		—	—	—	—		—		
Ephemerellidae														
<i>Ephemerella</i>	—		48	<1	83	3	61	1	12	<1	8	<1	11	<1
Heptageniidae														
<i>Epeorus</i>	—		—		—		3	<1	—	—	—	—	—	
<i>Stenonema</i>	75	3	91	<1	51	2	110	2	33	2	31	1	71	3
Isonychiidae														
<i>Isonychia</i>	—		8	<1	—		—	—	—	—		—		
Leptohiphidae														
<i>Tricorythodes</i>	3	<1	5	<1	—		—	—	—	—		—		

Oct. 5, 1988		Oct. 10, 1989		Oct. 16, 1990		Nov. 5, 1991		Oct. 30, 1992		Nov. 3, 1993		Oct. 13, 1994		Date
1,499		2,207		2,488		1,398		2,426		1,896		1,022		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
3	<1	20	<1	11	<1	1	<1	11	<1	22	1	1	<1	Planariidae
3	<1	—	—	—	—	—	—	—	—	1	<1	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		8	<1	1	<1	1	<1	—	—	3	<1	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		3	<1	3	<1	—	—	—	—	1	<1	1	<1	<i>Ferrissia</i>
—		—	—	—	—	—	—	—	—	—	—	—	—	Lymnaeidae
—		—	—	—	—	—	—	—	—	—	—	—	—	<i>Lymnaea</i>
—		1	<1	1	<1	—	—	—	—	—	—	—	—	Planorbidae
—		—	—	—	—	—	—	—	—	—	—	—	—	<i>Gyraulus</i>
														Bivalvia
														Veneroida
—		—	—	3	<1	—	—	—	—	—	—	—	—	Sphaeriidae
														Annelida (segmented worms)
—		—	—	—	—	—	—	1	<1	1	<1	—	—	Oligochaeta
														Lumbriculida
—		—	—	1	<1	—	—	—	—	—	—	—	—	Lumbriculidae
														Tubificida
3	<1	15	<1	20	<1	4	<1	6	<1	4	<1	1	<1	Naididae
														Arthropoda (arthropods)
														Acariformes
—		89	4	28	1	5	<1	120	5	25	1	13	1	Hydrachnidia
														Crustacea
—		13	<1	—	—	—	—	—	—	—	—	—	—	Cladocera
—		5	<1	—	—	—	—	—	—	—	—	—	—	Cyclopoida
														Amphipoda
														Gammaridae
—		4	<1	1	<1	—	—	3	<1	—	—	—	—	<i>Gammarus</i>
—		—	—	—	—	—	—	—	—	1	<1	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
45	3	9	<1	5	<1	8	<1	—	—	—	—	28	3	<i>Baetis</i>
—		22	1	10	<1	1	<1	10	<1	—	—	41	4	<i>Pseudocloeon</i>
														Caenidae
—		1	<1	2	<1	—	—	—	—	—	—	—	—	<i>Caenis</i>
														Ephemerellidae
11	<1	75	3	150	6	49	3	180	8	140	7	24	2	<i>Ephemerella</i>
														Heptageniidae
—		7	<1	9	<1	1	<1	5	<1	2	<1	1	<1	<i>Epeorus</i>
29	2	69	3	180	7	64	5	57	2	11	<1	27	3	<i>Stenonema</i>
														Isonychiidae
3	<1	—	—	1	<1	—	—	17	<1	4	<1	76	8	<i>Isonychia</i>
														Leptohiphidae
—		—	—	—	—	—	—	—	—	1	<1	—	—	<i>Tricorythodes</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)—Continued

Date	Nov. 4, 1981		Oct. 28, 1982		Nov. 4, 1983		Oct. 30, 1984		Oct. 21, 1985		Nov. 17, 1986		Oct. 20, 1987	
Total count	1 2,450		1 11,821		1 2,848		1 5,962		1,866		2,232		2,179	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
Calopterygidae														
<i>Hetaerina</i>	—	—	—	—	—	—	3	<1	—	—	—	—	—	—
Plecoptera														
Capniidae														
<i>Allocapnia</i>	—	—	—	—	3	<1	—	—	—	—	—	—	4	<1
Chloroperlidae	—	—	—	—	8	<1	3	<1	—	—	1	<1	5	<1
Nemouridae	—	—	—	—	—	—	3	<1	—	—	—	—	—	—
Perlidae														
<i>Acroneuria</i>	—	—	3	<1	3	<1	—	—	1	<1	—	—	—	—
<i>Agneta</i>	—	—	—	—	—	—	3	<1	—	—	—	—	—	—
<i>Paragnetina</i>	19	<1	13	<1	—	—	—	—	1	<1	3	<1	1	<1
Taeniopterygidae														
<i>Taeniopteryx</i>	75	3	35	<1	37	1	8	<1	16	<1	16	<1	37	2
Hemiptera														
Veliidae														
<i>Rhagovelia</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
Megaloptera														
Corydalidae														
<i>Corydalus</i>	8	<1	—	—	13	<1	3	<1	—	—	2	<1	2	<1
<i>Nigronia</i>	5	<1	—	—	—	—	—	—	—	—	1	<1	—	—
Sialidae														
<i>Sialis</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
Neuroptera														
Sisyridae														
<i>Climacia</i>	—	—	—	—	—	—	—	—	2	<1	—	—	—	—
<i>C. areolaris</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trichoptera														
Apataniidae														
<i>Apatania</i>	—	—	—	—	—	—	3	<1	—	—	1	<1	—	—
Brachycentridae														
<i>Micrasema</i>	29	1	—	—	16	<1	8	<1	15	<1	69	3	20	<1
Glossosomatidae														
<i>Glossosoma</i>	3	<1	13	<1	3	<1	37	<1	7	<1	16	<1	3	<1
<i>Protophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Goeridae														
<i>Goera</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Helicopsychidae														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydropsychidae														
<i>Ceratopsyche</i>	1,100	44	1,100	9	880	30	500	8	470	25	240	11	320	15
<i>Cheumatopsyche</i>	170	7	48	<1	250	9	48	<1	110	6	61	3	48	2
<i>Hydropsyche</i>	140	6	85	<1	200	7	56	<1	92	5	280	13	220	10
Hydroptilidae														
<i>Hydroptila</i>	—	—	—	—	8	<1	16	<1	1	<1	1	<1	2	<1
<i>Leucotrichia</i>	11	<1	16	<1	—	—	290	5	160	8	130	6	190	9
Lepidostomatidae														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leptoceridae														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	—	—	—	—	—	—	5	<1	1	<1	4	<1	—	—
Philopotamidae														
<i>Chimarra</i>	3	<1	—	—	11	<1	—	—	1	<1	—	—	—	—

Oct. 5, 1988		Oct. 10, 1989		Oct. 16, 1990		Nov. 5, 1991		Oct. 30, 1992		Nov. 3, 1993		Oct. 13, 1994		Date
1,499		2,207		2,488		1,398		2,426		1,896		1,022		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Odonata
														Calopterygidae
														<i>Hetaerina</i>
														Plecoptera
														Capniidae
3	<1	—	—	—	—	4	<1	5	<1	—	—	—	—	<i>Allocapnia</i>
—	—	4	<1	—	—	19	1	60	3	12	<1	2	<1	Chloroperlidae
														Nemouridae
														Perlidae
—	—	—	—	4	<1	2	<1	5	<1	3	<1	2	<1	<i>Acroneuria</i>
—	—	1	<1	41	2	2	<1	9	<1	3	<1	3	<1	<i>Agnetina</i>
3	<1	—	—	—	—	—	—	1	<1	2	<1	—	—	<i>Paragnetina</i>
														Taeniopterygidae
35	2	15	<1	6	<1	6	<1	8	<1	19	1	4	<1	<i>Taeniopteryx</i>
														Hemiptera
														Veliidae
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
5	<1	—	—	—	—	2	<1	8	<1	3	<1	1	<1	<i>Corydalus</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Nigronia</i>
														Sialidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Sialis</i>
														Neuroptera
														Sisyridae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Climacia</i>
														<i>C. areolaris</i>
														Trichoptera
														Apataniidae
3	<1	19	<1	12	<1	11	<1	22	<1	67	4	2	<1	<i>Apatania</i>
														Brachycentridae
5	<1	97	4	100	4	50	4	56	2	220	12	19	2	<i>Micrasema</i>
														Glossosomatidae
8	<1	44	2	3	<1	13	<1	22	<1	39	2	10	1	<i>Glossosoma</i>
—	—	—	—	—	—	1	<1	—	—	3	<1	2	<1	<i>Protoptila</i>
														Goeridae
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Goera</i>
														Helicopsychidae
—	—	1	<1	6	<1	—	—	22	<1	10	<1	8	<1	<i>Helicopsyche</i>
														Hydropsychidae
600	40	310	14	620	25	340	24	360	15	520	27	290	29	<i>Ceratopsyche</i>
45	3	55	3	82	3	41	3	17	<1	79	4	27	3	<i>Cheumatopsyche</i>
83	6	37	2	130	5	110	8	100	4	190	10	67	7	<i>Hydropsyche</i>
														Hydroptilidae
—	—	9	<1	—	—	1	<1	1	<1	1	<1	—	—	<i>Hydroptila</i>
75	5	36	2	170	7	75	5	73	3	88	5	180	18	<i>Leucotrichia</i>
														Lepidostomatidae
—	—	—	—	6	<1	2	<1	19	<1	13	<1	—	—	<i>Lepidostoma</i>
														Leptoceridae
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Mystacides</i>
—	—	5	<1	17	<1	2	<1	12	<1	2	<1	1	<1	<i>Oecetis</i>
														Philopotamidae
—	—	—	—	9	<1	6	<1	12	<1	9	<1	3	<1	<i>Chimarra</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480700 - East Branch Brandywine Creek near Downingtown, Pa. (Site 36)—Continued

Date	Nov. 4, 1981		Oct. 28, 1982		Nov. 4, 1983		Oct. 30, 1984		Oct. 21, 1985		Nov. 17, 1986		Oct. 20, 1987	
Total count	1 2,450		1 11,821		1 2,848		1 5,962		1,866		2,232		2,179	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	11	<1	—	—	3	<1	43	<1	—	—	25	1	1	<1
<i>Nyctiophylax</i>	3	<1	—	—	—	—	3	<1	—	—	1	<1	2	<1
<i>Polycentropus</i>	3	<1	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	13	<1	35	2	8	<1	120	5
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—	—	—	—	—	—	3	<1	—	—	2	<1	—	—
<b>Uenoidae</b>														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
<i>Petrophila</i>	21	<1	—	—	—	—	—	—	—	—	1	<1	2	<1
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Elmidae</b>														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	5	<1	—	—	5	<1	5	<1	2	<1	—	—	—	—
<i>Optioservus</i>	13	<1	13	<1	32	1	19	<1	10	<1	—	—	18	<1
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	1	<1	—	—	8	<1
<i>Promoresia</i>	—	—	—	—	—	—	—	—	2	<1	5	<1	—	—
<i>Stenelmis</i>	14	<1	3	<1	13	<1	3	<1	3	<1	—	—	—	—
<b>Hydrophilidae</b>														
<i>Berosus</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
<b>Psephenidae</b>														
<i>Ectopria</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
<i>Psephenus</i>	—	—	—	—	3	<1	—	—	—	—	—	—	—	—
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
<i>Atherix</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Chaoboridae</b>														
<i>Chaoborus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Chironomidae</b>														
	570	23	10,000	83	770	27	3,400	57	580	31	400	18	840	38
<b>Empididae</b>														
<i>Hemerodromia</i>	3	<1	19	<1	8	<1	3	<1	4	<1	6	<1	5	<1
<b>Simuliidae</b>														
<i>Simulium</i>	83	3	200	2	380	13	1,200	20	99	5	780	35	14	<1
<b>Stratiomyidae</b>														
	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Tipulidae</b>														
<i>Antocha</i>	16	<1	37	<1	3	<1	75	1	53	3	130	6	130	6
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Oct. 5, 1988		Oct. 10, 1989		Oct. 16, 1990		Nov. 5, 1991		Oct. 30, 1992		Nov. 3, 1993		Oct. 13, 1994		Date
1,499		2,207		2,488		1,398		2,426		1,896		1,022		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
—		—		12	<1	6	<1	8	<1	1	<1	—		<i>Neureclipsis</i>
3	<1	1	<1	12	<1	2	<1	5	<1	1	<1	—		<i>Nyctiophylax</i>
—		2	<1	2	<1	—		4	<1	—		—		<i>Polycentropus</i>
<b>Psychomyiidae</b>														
16	1	7	<1	35	1	16	1	5	<1	4	<1	2	<1	<i>Psychomyia</i>
<b>Rhyacophilidae</b>														
—		—		4	<1	1	<1	20	<1	8	<1	1	<1	<i>Rhyacophila</i>
<b>Uenoidae</b>														
—		—		—		—		—		2	<1	—		<i>Neophylax</i>
<b>Lepidoptera</b>														
<b>Pyralidae</b>														
—		—		3	<1	7	<1	5	<1	1	<1	2	<1	<i>Petrophila</i>
<b>Coleoptera</b>														
<b>Dryopidae</b>														
—		—		1	<1	—		—		—		—		<i>Helichus</i>
<b>Elmidae</b>														
—		—		—		—		—		—		1	<1	<i>Ancyronyx</i>
—		1	<1	3	<1	—		6	<1	5	<1	—		<i>Dubiraphia</i>
24	2	34	2	71	3	66	5	140	6	92	5	44	4	<i>Optioservus</i>
—		—		—		—		2	<1	8	<1	—		<i>Oulimnius</i>
—		—		1	<1	—		18	<1	39	2	37	4	<i>Promoresia</i>
5	<1	5	<1	22	<1	1	<1	16	<1	8	<1	4	<1	<i>Stenelmis</i>
<b>Hydrophilidae</b>														
—		—		—		—		—		—		—		<i>Berosus</i>
<b>Psephenidae</b>														
—		—		—		—		—		—		—		<i>Ectopria</i>
—		—		3	<1	5	<1	4	<1	3	<1	2	<1	<i>Psephenus</i>
—		—		—		—		—		—		—		
<b>Hymenoptera</b>														
<b>Diptera</b>														
<b>Athericidae</b>														
—		1	<1	—		—		—		—		—		<i>Atherix</i>
<b>Chaoboridae</b>														
—		1	<1	—		—		—		—		—		<i>Chaoborus</i>
430	29	980	45	620	25	420	30	880	37	180	9	65	7	<b>Chironomidae</b>
<b>Empididae</b>														
—		110	5	6	<1	1	<1	15	<1	5	<1	1	<1	<i>Hemerodromia</i>
<b>Simuliidae</b>														
59	4	75	3	16	<1	1	<1	37	2	5	<1	25	3	<i>Simulium</i>
—		—		—		—		—		—		—		
<b>Stratiomyidae</b>														
<b>Tipulidae</b>														
—		15	<1	45	2	49	3	37	2	34	2	4	<1	<i>Antocha</i>
—		—		—		—		2	<1	—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)

Date	Nov. 4, 1981		Oct. 28, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 31, 1985		Oct. 8, 1986		Nov. 4, 1987	
Total count	2,812		1,556		1,918		1,475		2,091		1,079		2,352	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	38	1	27	2	39	2	6	<1	62	3	13	1	21	<1
Nematoda (nematodes)	1	<1	1	<1	—	—	3	<1	—	—	—	—	1	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—	—	—	—	1	<1	—	—	—	—	1	<1	—	—
Physidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Physa</i>	1	<1	16	1	—	—	—	—	—	—	—	—	—	—
Planorbidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Helisoma</i>	—	—	3	<1	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae														
Tubificida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Naididae	—	—	4	<1	—	—	1	<1	1	<1	2	<1	5	<1
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	28	1	6	<1	18	<1	10	<1	1	<1	1	<1	6	<1
Crustacea														
Cyclopoida														
Amphipoda	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gammaridae														
<i>Gammarus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa	1	<1	—	—	—	—	—	—	1	<1	—	—	1	<1
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	16	<1	4	<1	—	—	30	2	14	<1	26	2	2	<1
<i>Pseudocloeon</i>	—	—	5	<1	1	<1	3	<1	12	<1	—	—	21	<1
Caenidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Caenis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ephemerellidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Ephemerella</i>	230	8	180	11	330	17	44	3	260	12	30	3	200	8
Heptageniidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Epeorus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenonema</i>	83	3	90	6	84	4	29	2	31	1	10	<1	31	1
Isonychiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Isonychia</i>	10	<1	17	1	14	<1	19	1	3	<1	2	<1	3	<1
Leptohyphidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Tricorythodes</i>	3	<1	5	<1	5	<1	—	—	3	<1	—	—	4	<1
Leptophlebiidae	—	—	—	—	—	—	1	<1	—	—	—	—	—	—

Oct. 14, 1988		Oct. 6, 1989		Oct. 11, 1990		Nov. 18, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 6, 1994		Date
1 2,626		1,105		1,100		1,499		1,380		1,179		1,163		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
21	<1	6	<1	10	<1	7	<1	93	7	38	3	52	4	Planariidae
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	1	<1	1	<1	1	<1	—	—	—	—	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Ferrissia</i>
														Physidae
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Physa</i>
														Planorbidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
														Annelida (segmented worms)
														Oligochaeta
														Tubificida
—	—	6	<1	1	<1	—	—	11	<1	7	<1	—	—	Naididae
														Lumbriculida
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	Lumbriculidae
														Arthropoda (arthropods)
														Acariformes
—	—	12	1	3	<1	4	<1	51	4	17	1	6	<1	Hydrachnidia
														Crustacea
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	Cyclopoida
														Amphipoda
														Gammaridae
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Gammarus</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
85	3	34	3	36	3	—	—	—	—	2	<1	58	5	<i>Baetis</i>
5	<1	8	<1	—	—	—	—	1	<1	—	—	5	<1	<i>Pseudocloeon</i>
														Caenidae
—	—	—	—	—	—	—	—	—	—	1	<1	1	<1	<i>Caenis</i>
														Ephemerellidae
110	4	360	33	94	9	150	10	310	22	230	19	46	4	<i>Ephemerella</i>
														Heptageniidae
—	—	2	<1	3	<1	4	<1	2	<1	2	<1	—	—	<i>Epeorus</i>
45	2	13	1	46	4	37	2	37	3	25	2	2	<1	<i>Stenonema</i>
														Isonychiidae
3	<1	—	—	3	<1	9	<1	2	<1	9	<1	47	4	<i>Isonychia</i>
														Leptohyphidae
11	<1	4	<1	—	—	—	—	8	<1	4	<1	—	—	<i>Tricorythodes</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Leptophlebiidae

**Table 5. Benthic-macroinvertebrate data—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)—Continued

Date	Nov. 4, 1981		Oct. 28, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 31, 1985		Oct. 8, 1986		Nov. 4, 1987	
	Total count													
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Plecoptera														
Capniidae														
<i>Allocapnia</i>	11	<1	2	<1	9	<1	5	<1	68	3	—	—	6	<1
Chloroperlidae	3	<1	—	—	6	<1	2	<1	9	<1	—	—	7	<1
Perlidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Agneta</i>	12	<1	1	<1	—	—	—	—	1	<1	5	<1	1	<1
Taeniopterygidae	—	—	—	—	—	—	—	—	1	<1	—	—	2	<1
<i>Taeniopteryx</i>	—	—	—	—	—	—	—	—	1	<1	—	—	2	<1
Hemiptera														
Veliidae														
<i>Rhagovelia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Megaloptera														
Corydalidae														
<i>Corydalus</i>	1	<1	1	<1	—	—	4	<1	2	<1	2	<1	4	<1
<i>Nigronia</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
Trichoptera														
Apataniidae														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Brachycentridae														
<i>Micrasema</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glossosomatidae														
<i>Glossosoma</i>	2	<1	13	<1	20	1	28	2	4	<1	1	<1	2	<1
Helicopsychidae														
<i>Helicopsyche</i>	11	<1	—	—	—	—	—	—	—	—	—	—	6	<1
Hydropsychidae														
<i>Ceratoopsyche</i>	680	24	250	16	510	27	590	39	400	19	250	23	630	26
<i>Cheumatopsyche</i>	220	8	42	3	120	6	90	6	130	6	28	3	60	3
<i>Hydropsyche</i>	76	3	75	5	60	3	88	6	9	<1	50	5	200	8
Hydroptilidae														
<i>Hydroptila</i>	2	<1	—	—	—	—	—	—	2	<1	—	—	1	<1
<i>Leucotrichia</i>	110	4	410	26	270	14	75	5	63	3	290	26	300	13
Lepidostomatidae														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leptoceridae														
<i>Mystacides</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Philopotamidae														
<i>Chimarra</i>	150	5	9	<1	14	<1	21	1	55	3	52	5	26	1
<i>Dolophilodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polycentropodidae														
<i>Nyctiophylax</i>	8	<1	3	<1	11	<1	—	—	—	—	—	—	—	—
<i>Polycentropus</i>	1	<1	—	—	1	<1	—	—	—	—	—	—	—	—
Psychomyiidae														
<i>Psychomyia</i>	4	<1	2	<1	5	<1	1	<1	17	<1	9	<1	8	<1
Lepidoptera														
Noctuidae														
<i>Pyrallidae</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Petrophila</i>	—	—	—	—	1	<1	—	—	2	<1	—	—	1	<1

Oct. 14, 1988		Oct. 6, 1989		Oct. 11, 1990		Nov. 18, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 6, 1994		Date
1 2,626		1,105		1,100		1,499		1,380		1,179		1,163		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Odonata														
Coenagrionidae														
—		1	<1	—		—		—		—		—		<i>Argia</i>
Plecoptera														
Capniidae														
—		—		—		1	<1	11	<1	4	<1	—		<i>Allocapnia</i>
—		—		—		8	<1	10	<1	3	<1	—		Chloroperlidae
—		—		—		1	<1	—		—		—		Perlidae
3	<1	5	<1	8	<1	—		1	<1	—		—		<i>Agneta</i>
Taeniopterygidae														
—		—		—		—		—		—		—		<i>Taeniopteryx</i>
Hemiptera														
Veliidae														
—		—		—		—		—		1	<1	—		<i>Rhagovelia</i>
Megaloptera														
Corydalidae														
—		6	<1	2	<1	—		—		—		1	<1	<i>Corydalis</i>
—		—		—		—		—		—		1	<1	<i>Nigronia</i>
Trichoptera														
Apataniidae														
—		—		—		—		—		1	<1	—		<i>Apatania</i>
Brachycentridae														
—		—		—		—		2	<1	1	<1	—		<i>Micrasema</i>
Glossosomatidae														
—		4	<1	1	<1	2	<1	4	<1	—		—		<i>Glossosoma</i>
Helicopsychidae														
—		18	2	—		—		11	<1	11	<1	58	5	<i>Helicopsyche</i>
Hydropsychidae														
1,200	46	280	25	560	51	490	33	270	19	280	23	260	22	<i>Ceratopsyche</i>
40	2	13	1	33	3	28	2	12	<1	55	5	72	6	<i>Cheumatopsyche</i>
93	4	23	2	75	7	25	2	33	2	38	3	58	5	<i>Hydropsyche</i>
Hydroptilidae														
3	<1	—		—		—		3	<1	—		—		<i>Hydroptila</i>
340	13	58	5	3	<1	—		—		2	<1	1	<1	<i>Leucotrichia</i>
Lepidostomatidae														
—		—		—		—		—		1	<1	—		<i>Lepidostoma</i>
Leptoceridae														
—		—		—		—		—		—		—		<i>Mystacides</i>
—		1	<1	—		—		—		—		—		<i>Oecetis</i>
Philopotamidae														
11	<1	14	1	—		1	<1	2	<1	30	3	30	3	<i>Chimarra</i>
—		—		2	<1	—		—		—		—		<i>Dolophilodes</i>
—		—		—		—		—		—		1	<1	<i>Wormaldia</i>
Polycentropodidae														
3	<1	—		—		—		—		1	<1	—		<i>Nyctiophylax</i>
—		—		1	<1	—		—		—		—		<i>Polycentropus</i>
Psychomyiidae														
11	<1	3	<1	23	2	7	<1	5	<1	3	<1	3	<1	<i>Psychomyia</i>
Lepidoptera														
Noctuidae														
—		—		—		—		—		1	<1	1	<1	
Pyralidae														
—		—		—		—		—		—		—		<i>Petrophila</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480903 - Valley Creek at Mullsteins Meadows near Downingtown, Pa. (Site 44)—Continued

Date	Nov. 4, 1981		Oct. 28, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 31, 1985		Oct. 8, 1986		Nov. 4, 1987	
Total count	2,812		1,556		1,918		1,475		2,091		1,079		2,352	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Dubiraphia</i>	—		—		—		—		—		—		—	
<i>Optioservus</i>	48	2	12	<1	75	4	22	1	51	2	36	3	67	3
<i>Oulimnius</i>	—		—		—		—		3	<1	—		—	
<i>Stenelmis</i>	13	<1	1	<1	6	<1	2	<1	6	<1	4	<1	4	<1
<b>Psephenidae</b>														
<i>Psephenus</i>	—		1	<1	—		—		—		2	<1	—	
<b>Diptera</b>														
<b>Ceratopogonidae</b>														
<i>Chironomidae</i>	400	14	240	15	220	12	160	11	330	16	41	4	340	14
<b>Empididae</b>														
<i>Hemerodromia</i>	5	<1	3	<1	2	<1	—		2	<1	—		2	<1
<b>Simuliidae</b>														
<i>Simulium</i>	600	21	120	8	82	4	230	15	500	24	220	20	360	15
<b>Tipulidae</b>														
<i>Antocha</i>	42	2	10	<1	14	<1	11	<1	46	2	3	<1	29	1
<i>Tipula</i>	1	<1	1	<1	—		—		1	<1	1	<1	1	<1

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 14, 1988		Oct. 6, 1989		Oct. 11, 1990		Nov. 18, 1991		Nov. 17, 1992		Nov. 4, 1993		Oct. 6, 1994		Date
1 2,626		1,105		1,100		1,499		1,380		1,179		1,163		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Coleoptera
														Elmidae
—		—		—		—		—		—		1	<1	<i>Dubiraphia</i>
67	3	31	3	36	3	24	2	140	10	54	5	110	9	<i>Optioservus</i>
—		—		3	<1	3	<1	—		—		—		<i>Oulimnius</i>
6	<1	15	1	—		—		5	<1	6	<1	48	4	<i>Stenelmis</i>
														Psephenidae
8	<1	7	<1	5	<1	—		—		4	<1	14	1	<i>Psephenus</i>
														Diptera
														Ceratopogonidae
420	16	110	10	110	10	580	39	240	17	250	21	240	20	
														Chironomidae
														Empididae
—		8	<1	—		—		9	<1	4	<1	3	<1	<i>Hemerodromia</i>
														Simuliidae
130	5	54	5	19	2	87	6	49	3	18	2	22	2	<i>Simulium</i>
														Tipulidae
11	<1	7	<1	19	2	30	2	56	4	70	6	22	2	<i>Antocha</i>
—		1	<1	—		—		—		—		—		<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 4, 1987		
	Total count		641		2,825		771		2,999		699		2,583		1,115
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	
Platyhelminthes (flatworms)															
Turbellaria															
Tricladida															
Planariidae	5	<1	19	<1	110	14	11	<1	13	2	28	1	44	4	
Nematoda	—		—		1	<1	—		—		—		2	<1	
Nemertea (proboscis worms)															
Enopla															
Hoploneurata															
Tetrastemmatidae															
<i>Prostoma</i>	—		—		—		3	<1	—		—		—		
Mollusca (molluscs)															
Gastropoda															
Mesogastropoda															
Hydrobiidae															
<i>Ammicola</i>	—		—		—		—		—		—		—		
Basommatophora															
Ancyliidae															
<i>Ferrissia</i>	51	8	31	1	22	3	17	<1	10	1	23	<1	10	<1	
Lymnaeidae															
<i>Lymnaea</i>	1	<1	—		—		—		—		—		1	<1	
Physidae															
<i>Physa</i>	—		12	<1	2	<1	1	<1	—		2	<1	—		
Planorbidae															
<i>Gyraulus</i>	—		—		—		—		—		—		—		
<i>Helisoma</i>	3	<1	2	<1	2	<1	—		—		1	<1	2	<1	
<i>Planorbula</i>	—		—		—		—		—		—		—		
Bivalvia															
Veneroida															
Sphaeriidae	1	<1	5	<1	1	<1	1	<1	—		1	<1	—		
<i>Pisidium</i>	—		—		—		—		—		—		—		
<i>Sphaerium</i>	—		—		—		—		—		—		—		
Annelida (segmented worms)															
Oligochaeta															
Tubificida															
Naididae	26	4	52	2	1	<1	120	4	—		1	<1	48	4	
<i>Stylaria</i>	—		—		—		—		2	<1	—		—		
Tubificidae	1	<1	—		2	<1	1	<1	3	<1	—		13	1	
Hirudinea	1	<1	—		—		—		—		—		—		
Pharyngobdellida															
Erpobdellidae	—		1	<1	—		—		—		—		—		
Arthropoda (arthropods)															
Acariformes															
Hydrachnidia	—		30	1	4	<1	8	<1	3	<1	9	<1	33	3	
Crustacea															
Cladocera	—		—		—		—		—		1	<1	—		
Cyclopoida															
Cyclopidae	—		1	<1	—		—		—		—		—		
Amphipoda															
Crangonyctidae															
<i>Crangonyx</i>	—		—		1	<1	4	<1	—		—		—		
Gammaridae															
<i>Gammarus</i>	—		—		—		—		—		3	<1	5	<1	
Talitridae															
<i>Hyalolella</i>															
<i>H. azteca</i>	—		11	<1	—		—		1	<1	7	<1	—		



Oct. 6, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 16, 1993		Oct. 11, 1994		Date
1,357		2,698		3,793		11,771		1,354		1,701		792		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
7	<1	29	1	21	<1	13	<1	20	1	71	4	28	3	Planariidae
—		1	<1	—		—		—		—		—		Nematoda
														Nemertea (proboscis worms)
														Enopla
														Hoploneurata
														Tetrastemmatidae
—		5	<1	1	<1	—		—		—		9	1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Hydrobiidae
—		2	<1	—		—		—		1	<1	—		<i>Ammnicola</i>
														Basommatophora
														Ancylidae
4	<1	11	<1	1	<1	1	<1	—		1	<1	14	2	<i>Ferrissia</i>
—		—		1	<1	6	<1	—		—		11	1	<i>Lymnaea</i>
—		1	<1	3	<1	9	<1	—		—		110	14	Physidae
—		—		—		—		—		—		1	<1	<i>Physa</i>
—		—		—		—		—		—		—		Planorbidae
—		—		—		—		—		—		—		<i>Gyraulus</i>
—		—		—		—		—		—		—		<i>Helisoma</i>
—		—		—		1	<1	—		—		—		<i>Planorbula</i>
														Bivalvia
														Veneroida
—		—		—		—		—		—		1	<1	Sphaeriidae
—		4	<1	—		10	<1	—		—		—		<i>Pisidium</i>
—		—		7	<1	7	<1	—		—		—		<i>Sphaerium</i>
														Annelida (segmented worms)
														Oligochaeta
														Tubificida
—		61	2	—		1	<1	—		—		6	<1	Naididae
—		—		—		—		—		—		—		<i>Stylaria</i>
—		—		4	<1	—		—		—		—		Tubificidae
—		—		—		—		—		—		—		Hirudinea
—		—		—		—		—		—		—		Pharyngobdellida
—		—		—		—		—		—		—		Erpobdellidae
														Arthropoda (arthropods)
														Acariformes
—		47	2	16	<1	19	<1	—		2	<1	6	<1	Hydrachnidia
		—		—		—		—		—		—		Crustacea
		—		—		—		—		—		—		Cladocera
		—		—		—		—		—		—		Cyclopoida
		—		—		—		—		—		—		Cyclopidae
		—		—		—		—		—		—		Amphipoda
		—		—		—		—		—		—		Crangonyctidae
		—		—		—		—		—		—		<i>Crangonyx</i>
3	<1	10	<1	19	<1	8	<1	4	<1	2	<1	5	<1	Gammaridae
—		—		—		—		—		—		—		<i>Gammarus</i>
—		—		—		—		—		—		—		Talitridae
—		—		—		—		—		—		—		<i>Hyalolella</i>
—		—		—		—		—		—		—		<i>H. azteca</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 4, 1987		
	Total count		641		2,825		771		2,999		699		2,583		1,115
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	
<b>Decapoda</b>															
Cambaridae	—		—		—		—		—		—		—		
<i>Orconectes</i>	—		—		—		1	<1	—		—		—		
Podocopa	17	3	270	10	39	5	1	<1	—		2	<1	—		
<b>Insecta</b>															
<b>Ephemeroptera</b>															
Baetidae															
<i>Baetis</i>	2	<1	27	<1	—		150	5	—		2	<1	—		
<i>Pseudocloeon</i>	—		—		—		—		9	1	—		6	<1	
Caenidae															
<i>Caenis</i>	1	<1	—		1	<1	4	<1	2	<1	3	<1	4	<1	
Ephemerellidae															
<i>Ephemerella</i>	9	1	2	<1	6	<1	7	<1	16	2	140	5	18	2	
Heptageniidae															
<i>Epeorus</i>	—		—		—		—		—		—		—		
<i>Stenonema</i>	19	3	130	5	55	7	260	9	69	10	270	10	56	5	
Isonychiidae															
<i>Isonychia</i>	—		—		—		—		—		1	<1	—		
Leptohyphidae															
<i>Tricorythodes</i>	6	1	12	<1	16	2	4	<1	11	2	11	<1	46	4	
Leptophlebiidae															
<i>Paraleptophlebia</i>	—		—		—		—		—		—		—		
Potamanthidae															
<i>Anthopotamus</i>	—		—		—		—		—		1	<1	5	<1	
<b>Odonata</b>															
Coenagrionidae															
<i>Amphiagrion</i>	—		—		1	<1	—		—		—		—		
<i>Argia</i>	13	2	48	2	2	<1	—		1	<1	11	<1	3	<1	
<i>Enallagma</i>	—		—		—		—		—		—		—		
<i>Ischnura</i>	—		—		—		—		—		—		—		
Gomphidae															
<i>Stylogomphus</i>	—		—		1	<1	—		—		—		—		
<b>Plecoptera</b>															
Capniidae															
<i>Allocapnia</i>	—		—		—		1	<1	1	<1	—		—		
Perlidae															
<i>Acroneuria</i>	—		—		—		—		—		—		—		
<i>Agneta</i>	—		—		—		—		—		—		—		
<i>Neoperla</i>	—		—		—		—		—		—		—		
<i>Paragnetina</i>	—		—		—		3	<1	—		—		—		
Taeniopterygidae															
<i>Taeniopteryx</i>	1	<1	2	<1	—		5	<1	—		—		1	<1	
<b>Hemiptera</b>															
Corixidae															
<i>Sigara</i>	—		—		—		—		—		—		—		
Gerridae															
<i>Rheumatobates</i>	—		—		—		1	<1	—		—		—		
Veliidae															
<i>Microvelia</i>	—		—		—		—		—		—		—		
<b>Megaloptera</b>															
Corydalidae															
<i>Corydalus</i>	—		—		—		1	<1	—		—		—		
Sialidae															
<i>Sialis</i>	—		1	<1	—		—		—		—		1	<1	

Oct. 6, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 16, 1993		Oct. 11, 1994		Date
1,357		2,698		3,793		11,771		1,354		1,701		792		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Decapoda
														Cambaridae
														<i>Orconectes</i>
														Podocopa
														Insecta
														Ephemeroptera
														Baetidae
														<i>Baetis</i>
														<i>Pseudocloeon</i>
														Caenidae
														<i>Caenis</i>
														Ephemerellidae
														<i>Ephemerella</i>
														Heptageniidae
														<i>Epeorus</i>
														<i>Stenonema</i>
														Isonychiidae
														<i>Isonychia</i>
														Leptohyphidae
														<i>Tricorythodes</i>
														Leptophlebiidae
														<i>Paraleptophlebia</i>
														Potamanthidae
														<i>Anthopotamus</i>
														Odonata
														Coenagrionidae
														<i>Amphiagrion</i>
														<i>Argia</i>
														<i>Enallagma</i>
														<i>Ischnura</i>
														Gomphidae
														<i>Stylogomphus</i>
														Plecoptera
														Capniidae
														<i>Allocapnia</i>
														Perlidae
														<i>Acroneuria</i>
														<i>Agnetina</i>
														<i>Neoperla</i>
														<i>Paragnetina</i>
														Taeniopterygidae
														<i>Taeniopteryx</i>
														Hemiptera
														Corixidae
														<i>Sigara</i>
														Gerridae
														<i>Rheumatobates</i>
														Veliidae
														<i>Microvelia</i>
														Megaloptera
														Corydalidae
														<i>Corydalus</i>
														Sialidae
														<i>Sialis</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 4, 1987		
	Total count		641		2,825		771		2,999		699		2,583		1,115
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	
<b>Trichoptera</b>															
<b>Apataniidae</b>															
<i>Apatania</i>	—		—		—		—		—		—		—		
<b>Brachycentridae</b>															
<i>Brachycentrus</i>	—		—		—		—		—		—		—		
<i>Micrasema</i>	2	<1	—		—		—		—		—		—		
<b>Glossosomatidae</b>															
<i>Culoptila</i>	—		—		—		—		—		—		—		
<i>Glossosoma</i>	—		—		1	<1	—		—		—		—		
<i>Protoptila</i>	—		—		—		—		—		9	<1	1	<1	
<b>Helicopsychidae</b>															
<i>Helicopsyche</i>	—		—		1	<1	—		—		580	22	320	29	
<b>Hydropsychidae</b>															
<i>Ceratopsyche</i>	110	17	270	10	140	18	500	17	120	17	230	9	130	12	
<i>Cheumatopsyche</i>	73	11	310	11	61	8	140	5	46	6	34	1	29	3	
<i>Hydropsyche</i>	26	4	54	2	62	8	100	3	13	2	52	2	29	3	
<b>Hydroptilidae</b>															
<i>Hydroptila</i>	7	1	77	3	4	<1	2	<1	—		32	1	—		
<i>Leucotrichia</i>	20	3	14	<1	1	<1	30	1	6	<1	55	2	5	<1	
<b>Lepidostomatidae</b>															
<i>Lepidostoma</i>	—		—		—		—		—		—		—		
<b>Leptoceridae</b>															
<i>Mystacides</i>	—		—		1	<1	1	<1	—		9	<1	4	<1	
<i>Oecetis</i>	2	<1	6	<1	1	<1	1	<1	3	<1	4	<1	14	1	
<b>Philopotamidae</b>															
<i>Chimarra</i>	—		—		—		—		—		2	<1	—		
<b>Polycentropodidae</b>															
<i>Neureclipsis</i>	—		—		—		4	<1	—		2	<1	1	<1	
<i>Nyctiophylax</i>	—		—		—		—		—		—		—		
<i>Polycentropus</i>	—		—		—		—		2	<1	1	<1	1	<1	
<b>Psychomyiidae</b>															
<i>Psychomyia</i>	—		—		—		11	<1	8	1	9	<1	—		
<b>Lepidoptera</b>															
<b>Noctuidae</b>															
<b>Pyralidae</b>															
<i>Petrophila</i>	17	3	9	<1	23	3	5	<1	8	1	15	<1	11	1	
<b>Coleoptera</b>															
<b>Elmidae</b>															
<i>Ancyronyx</i>	—		—		—		—		—		—		—		
<i>A. variegata</i>	1	<1	1	<1	1	<1	—		—		1	<1	2	<1	
<i>Dubiraphia</i>	—		3	<1	2	<1	1	<1	—		10	<1	12	1	
<i>Macronychus</i>	—		—		—		—		—		—		—		
<i>M. glabratus</i>	—		—		—		—		—		—		—		
<i>Optioservus</i>	2	<1	—		1	<1	5	<1	—		7	<1	5	<1	
<i>Oulimnius</i>	—		—		—		—		—		—		—		
<i>Promoresia</i>	—		—		—		—		—		—		—		
<i>Stenelmis</i>	59	9	66	2	64	8	34	1	29	4	120	5	34	3	
<b>Hydrophilidae</b>															
<i>Berosus</i>	—		2	<1	2	<1	—		—		1	<1	2	<1	
<b>Psephenidae</b>															
<i>Psephenus</i>	—		—		—		1	<1	1	<1	6	<1	1	<1	
<b>Hymenoptera</b>															
	—		1	<1	—		1	<1	—		1	<1	—		

Oct. 6, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 16, 1993		Oct. 11, 1994		Date
1,357		2,698		3,793		11,771		1,354		1,701		792		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Apataniidae														
—	—	—	—	1	<1	1	<1	—	—	—	—	—	—	<i>Apatania</i>
Brachycentridae														
—	—	—	—	—	—	—	—	—	—	3	<1	—	—	<i>Brachycentrus</i>
—	—	—	—	—	—	1	<1	2	<1	—	—	—	—	<i>Micrasema</i>
Glossosomatidae														
—	—	220	8	—	—	—	—	—	—	—	—	—	—	<i>Culoptila</i>
3	<1	—	—	—	—	—	—	—	—	3	<1	—	—	<i>Glossosoma</i>
—	—	—	—	4	<1	77	<1	—	—	—	—	7	<1	<i>Protoptila</i>
Helicopsychidae														
—	—	89	3	1,300	34	9,700	81	300	21	290	17	29	4	<i>Helicopsyche</i>
Hydropsychidae														
320	23	540	20	420	11	250	2	100	7	51	3	77	10	<i>Ceratopsyche</i>
120	9	120	4	130	3	150	1	41	3	150	9	25	3	<i>Cheumatopsyche</i>
140	10	180	7	69	2	26	<1	110	8	180	11	2	<1	<i>Hydropsyche</i>
Hydroptilidae														
—	—	2	<1	14	<1	57	<1	3	<1	1	<1	5	<1	<i>Hydroptila</i>
29	2	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Leucotrichia</i>
Lepidostomatidae														
—	—	—	—	4	<1	4	<1	—	—	—	—	—	—	<i>Lepidostoma</i>
Leptoceridae														
—	—	—	—	9	<1	32	<1	—	—	—	—	2	<1	<i>Mystacides</i>
2	<1	4	<1	8	<1	15	<1	—	—	2	<1	67	8	<i>Oecetis</i>
Philopotamidae														
—	—	—	—	1	<1	—	—	—	—	1	<1	3	<1	<i>Chimarra</i>
Polycentropodidae														
7	<1	—	—	—	—	—	—	—	—	—	—	3	<1	<i>Neureclipsis</i>
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nyctiophylax</i>
—	—	2	<1	1	<1	—	—	—	—	—	—	1	<1	<i>Polycentropus</i>
Psychomyiidae														
5	<1	21	<1	10	<1	2	<1	—	—	—	—	—	—	<i>Psychomyia</i>
Lepidoptera														
Noctuidae														
Pyralidae														
65	5	14	<1	4	<1	7	<1	—	—	13	<1	12	2	<i>Petrophila</i>
Coleoptera														
Elmidae														
—	—	—	—	—	—	1	<1	—	—	1	<1	4	<1	<i>Ancyronyx</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>A.variegata</i>
—	—	1	<1	—	—	3	<1	1	<1	4	<1	—	—	<i>Dubiraphia</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>Macronychus</i>
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	<i>M. glabratus</i>
1	<1	11	<1	19	<1	62	<1	11	<1	97	6	3	<1	<i>Optioservus</i>
—	—	—	—	2	<1	3	<1	—	—	2	<1	—	—	<i>Oulimnius</i>
—	—	—	—	—	—	—	—	—	—	4	<1	—	—	<i>Promoresia</i>
37	3	110	4	320	8	170	1	6	<1	170	10	14	2	<i>Stenelmis</i>
Hydrophilidae														
—	—	—	—	1	<1	1	<1	—	—	—	—	1	<1	<i>Berosus</i>
Psephenidae														
1	<1	8	<1	9	<1	4	<1	—	—	1	<1	1	<1	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Hymenoptera

**Table 5. Benthic-macroinvertebrate data—Continued**

01480950 - East Branch Brandywine Creek at Wawaset, Pa. (Site 39)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 16, 1984		Oct. 22, 1985		Nov. 3, 1986		Nov. 4, 1987	
	Total count		2,825		771		2,999		699		2,583		1,115	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Chironomidae	130	20	600	21	130	17	1,000	33	270	38	780	30	170	15
Empididae														
<i>Hemerodromia</i>	1	<1	12	<1	2	<1	7	<1	2	<1	1	<1	3	<1
Ephydriidae	—		3	<1	—		—		—		—		—	
Simuliidae														
<i>Simulium</i>	13	2	170	6	—		430	14	3	<1	5	<1	9	<1
Stratiomyidae														
<i>Stratiomys</i>	—		—		—		1	<1	—		—		—	
Tabanidae														
<i>Tabanus</i>	—		—		—		—		—		—		—	
Tipulidae														
<i>Antocha</i>	21	3	570	20	7	<1	120	4	47	7	100	4	33	3
<i>Tipula</i>	—		1	<1	—		—		—		—		1	<1

Oct. 6, 1988		Oct. 13, 1989		Oct. 15, 1990		Oct. 30, 1991		Oct. 29, 1992		Nov. 16, 1993		Oct. 11, 1994		Date
1,357		2,698		3,793		11,771		1,354		1,701		792		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
140	10	610	23	660	17	730	6	480	34	190	11	250	31	Diptera
														Chironomidae
1	<1	32	1	3	<1	2	<1	—		3	<1	6	<1	Empididae
—		—		—		—		—		—		—		<i>Hemerodromia</i>
														Ephydriidae
18	1	140	5	2	<1	49	<1	100	7	15	<1	2	<1	Simuliidae
														<i>Simulium</i>
—		—		—		—		—		—		—		Stratiomyidae
														<i>Stratiomys</i>
—		—		—		1	<1	—		—		—		Tabanidae
				1	<1	—		—		—		—		<i>Tabanus</i>
42	3	74	3	280	7	130	1	62	4	81	5	16	2	Tipulidae
—		1	<1	—		—		—		—		—		<i>Antocha</i>
														<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 15, 1984		Oct. 30, 1985		Dec. 2, 1986		Nov. 20, 1987	
Total count	651		1,673		1,009		1,446		993		428		1,046	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	67	10	27	2	16	2	18	1	4	<1	32	7	20	2
Nematoda (nematodes)														
Nemertea (proboscis worms)														
Enopla														
Hoploneurtea														
Tetrastemmatidae														
<i>Prostoma</i>	1	<1	—	—	—	—	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	4	<1	26	2	3	<1	8	<1	38	4	—	—	17	2
Physidae														
<i>Physa</i>	—	—	—	—	—	—	—	—	—	4	1	—	—	—
Planorbidae														
<i>Helisoma</i>	—	—	—	—	1	<1	—	—	—	—	1	<1	—	—
Bivalvia														
Veneroida														
Sphaeriidae														
<i>Pisidium</i>	5	<1	5	<1	3	<1	—	—	1	<1	20	5	6	<1
<i>Sphaerium</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
Naididae	3	<1	10	<1	2	<1	1	<1	—	—	1	<1	32	3
Tubificidae	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
Hydrachnidia	—	—	1	<1	3	<1	1	<1	—	—	—	—	35	3
Crustacea														
Cyclopoida														
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—	—	—	—	—	—	—	—	—	—	8	2	1	<1
Isopoda														
Asellidae														
<i>Caecidotea</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa														
Podocopa	—	—	1	<1	—	—	—	—	—	—	1	<1	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	3	<1	24	1	10	1	46	3	7	<1	3	<1	—	—
<i>Pseudocloeon</i>	—	—	4	<1	—	—	—	—	28	3	—	—	1	<1
Caenidae														
<i>Caenis</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Ephemerellidae														
<i>Ephemerella</i>	33	5	92	5	93	9	10	<1	65	7	10	2	42	4
Heptageniidae														
<i>Epeorus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenacron</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenonema</i>	100	15	220	13	170	17	130	9	53	5	25	6	39	4



Oct. 7, 1988		Oct. 17, 1989		Oct. 15, 1990		Nov. 15, 1991		Oct. 27, 1992		Nov. 9, 1993		Oct. 4, 1994		Date
1,824		2,155		1,702		2,380		1,835		1,142		1,424		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
43	2	35	2	74	4	11	<1	1	<1	92	8	33	2	Planariidae
—		1	<1	—		—		—		—		—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		3	<1	1	<1	—		—		—		—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
11	<1	3	<1	—		21	<1	—		2	<1	3	<1	<i>Ferrissia</i>
—		—		—		—		1	<1	—		—		Physidae
—		—		—		—		—		—		—		<i>Physa</i>
—		—		—		—		—		—		—		Planorbidae
—		—		—		—		—		—		—		<i>Helisoma</i>
														Bivalvia
														Veneroidea
—		—		—		—		—		3	<1	—		Sphaeriidae
—		2	<1	—		—		—		—		—		<i>Pisidium</i>
3	<1	—		—		—		—		—		—		<i>Sphaerium</i>
														Annelida (segmented worms)
														Oligochaeta
														Tubificida
—		26	1	1	<1	9	<1	—		10	<1	—		Naididae
—		—		—		—		—		—		—		Tubificidae
														Arthropoda (arthropods)
														Acariformes
3	<1	46	2	9	<1	18	<1	13	<1	77	6	12	<1	Hydrachnidia
														Crustacea
														Amphipoda
														Gammaridae
—		3	<1	—		2	<1	—		1	<1	—		<i>Gammarus</i>
—		1	<1	—		—		—		—		—		Cyclopoida
														Isopoda
														Asellidae
—		—		—		—		1	<1	—		—		<i>Caecidotea</i>
—		—		—		—		—		—		—		Podocopa
														Insecta
														Ephemeroptera
														Baetidae
80	4	11	<1	4	<1	5	<1	1	<1	1	<1	26	2	<i>Baetis</i>
5	<1	—		—		9	<1	—		4	<1	18	1	<i>Pseudocloeon</i>
—		—		—		—		3	<1	1	<1	2	<1	Caenidae
—		—		—		—		—		—		—		<i>Caenis</i>
88	5	220	10	240	14	120	5	520	29	66	6	160	11	Ephemerellidae
—		8	<1	3	<1	—		—		—		—		<i>Ephemerella</i>
—		—		—		—		—		—		10	<1	Heptageniidae
—		—		—		—		—		—		—		<i>Epeorus</i>
53	3	150	7	97	6	87	4	130	7	21	2	78	6	<i>Stenacron</i>
—		—		—		—		—		—		—		<i>Stenonema</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 15, 1984		Oct. 30, 1985		Dec. 2, 1986		Nov. 20, 1987	
Total count	651		1,673		1,009		1,446		993		428		1,046	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
<b>Isonychiidae</b>														
<i>Isonychia</i>	3	<1	—	—	3	<1	—	—	—	—	—	—	2	<1
<b>Leptohephidae</b>														
<i>Tricorythodes</i>	—	—	6	<1	6	<1	1	<1	—	—	1	<1	7	<1
<b>Leptophlebiidae</b>														
<i>Paraleptophlebia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Potamanthidae</b>														
<i>Anthopotamus</i>	—	—	—	—	1	<1	1	<1	—	—	1	<1	3	<1
<b>Odonata</b>														
<b>Coenagrionidae</b>														
<i>Argia</i>	—	—	—	—	3	<1	—	—	—	—	7	2	5	<1
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocaenia</i>	—	—	1	<1	2	<1	—	—	—	—	—	—	—	—
<b>Chloroperlidae</b>														
<b>Perlidae</b>														
<i>Acroneuria</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>Agnetina</i>	—	—	—	—	—	—	—	—	—	—	—	—	7	<1
<i>Paragnetina</i>	—	—	—	—	—	—	—	—	2	<1	—	—	—	—
<b>Taeniopterygidae</b>														
<i>Taeniopteryx</i>	—	—	4	<1	3	<1	—	—	2	<1	2	<1	2	<1
<b>Hemiptera</b>														
<b>Corixidae</b>														
<i>Sigara</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Gerridae</b>														
<i>Metrobates</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
<b>Veliidae</b>														
<i>Rhagovelia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	—	—	—	—	—	—	—	—	1	<1	—	—	1	<1
<i>Nigronia</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	12	2	14	<1	4	<1	3	<1	25	3	2	<1	1	<1
<i>Protophila</i>	—	—	—	—	—	—	—	—	—	—	—	—	5	<1
<b>Helicopsychidae</b>														
<i>Helicopsyche</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	86	13	180	11	47	5	180	12	100	10	50	11	99	9
<i>Cheumatopsyche</i>	80	12	43	3	24	2	74	5	28	3	6	1	24	2
<i>Hydropsyche</i>	3	<1	110	6	6	<1	77	5	5	<1	1	<1	28	3
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	—	—	1	<1	3	<1	—	—	2	<1	1	<1	1	<1
<i>Leucotrichia</i>	13	2	170	10	120	12	8	<1	150	15	42	10	72	7
<b>Lepidostomatidae</b>														
<i>Lepidostoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Leptoceridae</b>														
<i>Oecetis</i>	—	—	—	—	1	<1	—	—	—	—	—	—	1	<1
<b>Philopotamidae</b>														
<i>Chimarra</i>	4	<1	5	<1	5	<1	1	<1	45	5	50	11	31	3

Oct. 7, 1988		Oct. 17, 1989		Oct. 15, 1990		Nov. 15, 1991		Oct. 27, 1992		Nov. 9, 1993		Oct. 4, 1994		Date
1,824		2,155		1,702		2,380		1,835		1,142		1,424		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Isonychiidae</b>														
8	<1	2	<1	1	<1	—	—	14	<1	1	<1	15	1	<i>Isonychia</i>
<b>Leptohyphidae</b>														
3	<1	—	—	18	1	—	—	—	—	—	—	—	—	<i>Tricorythodes</i>
<b>Leptophlebiidae</b>														
—	—	4	<1	—	—	—	—	—	—	—	—	—	—	<i>Paraleptophlebia</i>
<b>Potamanthidae</b>														
3	<1	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Anthopotamus</i>
<b>Odonata</b>														
<b>Coenagrionidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	1	<1	<i>Argia</i>
<b>Plecoptera</b>														
<b>Capniidae</b>														
—	—	2	<1	1	<1	—	—	—	—	1	<1	—	—	<i>Allocapnia</i>
—	—	7	<1	4	<1	56	2	—	—	9	<1	—	—	<i>Chloroperlidae</i>
<b>Perlidae</b>														
—	—	—	—	—	—	—	—	4	<1	—	—	—	—	<i>Acroneuria</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Agetina</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Paragnetina</i>
<b>Taeniopterygidae</b>														
3	<1	4	<1	—	—	2	<1	—	—	—	—	1	<1	<i>Taeniopteryx</i>
<b>Hemiptera</b>														
<b>Corixidae</b>														
—	—	—	—	3	<1	—	—	—	—	—	—	—	—	<i>Sigara</i>
<b>Gerridae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Metrobates</i>
<b>Veliidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Corydalus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Nigronia</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Apatania</i>
<b>Glossosomatidae</b>														
—	—	—	—	—	—	—	—	5	<1	—	—	—	—	<i>Glossosoma</i>
99	6	330	15	19	1	58	2	7	<1	77	6	46	3	<i>Protoptila</i>
<b>Helicopsychidae</b>														
—	—	—	—	—	—	310	13	6	<1	180	15	1	<1	<i>Helicopsyche</i>
<b>Hydropsychidae</b>														
350	19	240	11	130	8	60	3	68	4	68	6	190	14	<i>Ceratopsyche</i>
110	6	21	<1	33	2	54	2	100	6	55	5	240	17	<i>Cheumatopsyche</i>
37	2	40	2	2	<1	67	3	230	13	31	3	96	7	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
—	—	—	—	7	<1	8	<1	—	—	3	<1	1	<1	<i>Hydroptila</i>
290	16	11	<1	4	<1	15	<1	16	<1	63	5	190	14	<i>Leucotrichia</i>
<b>Lepidostomatidae</b>														
—	—	55	3	63	4	5	<1	9	<1	5	<1	9	<1	<i>Lepidostoma</i>
<b>Leptoceridae</b>														
—	—	5	<1	4	<1	15	<1	4	<1	10	<1	2	<1	<i>Oecetis</i>
<b>Philopotamidae</b>														
53	3	10	<1	110	6	52	2	38	2	58	5	24	2	<i>Chimarra</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01481030 - Brandywine Creek near Chadds Ford, Pa. (Site 40)—Continued

Date	Nov. 4, 1981		Oct. 21, 1982		Oct. 31, 1983		Oct. 15, 1984		Oct. 30, 1985		Dec. 2, 1986		Nov. 20, 1987	
Total count	651		1,673		1,009		1,446		993		428		1,046	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Trichoptera</b>														
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	2	<1	2	<1	22	2	7	<1	—	—	6	1	4	<1
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Psychomyiidae</b>														
<i>Psychomyia</i>	—	—	—	—	—	—	—	—	1	<1	—	—	13	1
<b>Lepidoptera</b>														
<b>Noctuidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Pyralidae</b>														
<i>Petrophila</i>	16	2	58	3	88	9	45	3	92	9	2	<1	51	5
<b>Coleoptera</b>														
<b>Elmidae</b>														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>A.variegata</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
<i>Dubiraphia</i>	—	—	—	—	1	<1	—	—	—	—	1	<1	—	—
<i>Optioservus</i>	12	2	14	<1	9	<1	3	<1	25	3	9	2	16	1
<i>Stenelmis</i>	5	<1	15	<1	23	2	20	1	6	<1	5	1	6	<1
<b>Hydrophilidae</b>														
<i>Berosus</i>	—	—	—	—	—	—	—	—	—	—	2	<1	1	<1
<b>Psephenidae</b>														
<i>Psephenus</i>	—	—	—	—	—	—	—	—	—	—	11	3	—	—
<b>Hymenoptera</b>														
—	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
<b>Diptera</b>														
<b>Blephariceridae</b>														
—	160	24	550	32	310	31	610	41	270	27	43	10	380	35
<b>Chironomidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Empididae</b>														
<i>Hemerodromia</i>	7	1	6	<1	—	—	2	<1	—	—	1	<1	3	<1
<b>Ephydriidae</b>														
—	—	—	2	<1	—	—	—	—	—	—	—	—	—	—
<b>Simuliidae</b>														
<i>Simulium</i>	28	4	65	4	11	1	150	10	21	2	43	10	53	5
<b>Tipulidae</b>														
<i>Antocha</i>	4	<1	16	<1	15	2	49	3	21	2	29	7	37	3
<i>Dicranota</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Tipula</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.

Oct. 7, 1988		Oct. 17, 1989		Oct. 15, 1990		Nov. 15, 1991		Oct. 27, 1992		Nov. 9, 1993		Oct. 4, 1994		Date
1,824		2,155		1,702		2,380		1,835		1,142		1,424		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Trichoptera														
Polycentropodidae														
5	<1	8	<1	11	<1	2	<1	—	—	1	<1	3	<1	<i>Neureclipsis</i>
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Polycentropus</i>
Psychomyiidae														
13	<1	78	4	37	2	1	<1	2	<1	7	<1	5	<1	<i>Psychomyia</i>
Lepidoptera														
Noctuidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	
Pyralidae														
130	7	22	1	56	3	100	4	97	5	34	3	82	6	<i>Petrophila</i>
Coleoptera														
Elmidae														
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Ancyronyx</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>A.variegata</i>
—	—	—	—	2	<1	—	—	—	—	1	<1	—	—	<i>Dubiraphia</i>
8	<1	20	<1	31	2	49	2	55	3	42	3	8	<1	<i>Optioservus</i>
66	4	61	3	35	2	9	<1	24	1	16	1	2	<1	<i>Stenelmis</i>
Hydrophilidae														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Berosus</i>
Psephenidae														
—	—	2	<1	—	—	—	—	—	—	—	—	—	—	<i>Psephenus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Hymenoptera														
Diptera														
Blephariceridae														
180	10	660	30	540	32	1,200	50	460	26	150	13	150	11	
Chironomidae														
Empididae														
—	—	20	<1	—	—	2	<1	—	—	8	<1	3	<1	<i>Hemerodromia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Ephydriidae														
Simuliidae														
180	10	9	<1	32	2	6	<1	6	<1	16	1	11	<1	<i>Simulium</i>
Tipulidae														
—	—	34	2	130	8	26	1	18	1	25	2	—	—	<i>Antocha</i>
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	<i>Dicranota</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)

Date	Oct. 29, 1981		Nov. 1, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 17, 1985		Oct. 28, 1986		Oct. 27, 1987	
Total count	846		1,416		1,171		1,216		546		851		1,638	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—		—		—		—		5	1	31	4	5	<1
Nematoda (nematodes)	—		—		—		—		—		—		4	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		1	<1	—		—		—	
Mollusca (molluscs)														
Gastropoda														
Mesogastropoda														
Pleuroceridae														
<i>Goniobasis</i>	—		—		—		—		—		—		—	
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	28	3	25	2	7	<1	47	4	9	2	16	2	16	1
Physidae														
<i>Physa</i>	1	<1	2	<1	—		—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae														
Tubificida	—		—		—		—		—		—		—	
Naididae														
Naididae	18	2	29	2	4	<1	2	<1	6	1	7	<1	510	32
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia														
Hydrachnidia	1	<1	19	1	17	1	7	<1	—		6	<1	82	5
Crustacea														
Podocopa														
Podocopa	—		—		—		1	<1	—		—		1	<1
Insecta														
Ephemeroptera														
Baetidae														
Baetidae	—		1	<1	—		—		—		—		—	
<i>Baetis</i>	1	<1	—		—		11	<1	—		—		—	
<i>Pseudocloeon</i>	—		—		2	<1	11	<1	—		—		—	
Caenidae														
<i>Caenis</i>	3	<1	1	<1	—		—		1	<1	—		1	<1
Ephemerellidae														
<i>Ephemerella</i>	1	<1	10	<1	4	<1	13	1	—		3	<1	2	<1
Heptageniidae														
<i>Stenacron</i>	22	3	—		4	<1	—		—		—		—	
<i>Stenonema</i>	13	2	13	<1	51	4	15	1	3	<1	3	<1	—	
Isonychiidae														
<i>Isonychia</i>	—		—		4	<1	1	<1	—		—		—	
Leptohyphidae														
<i>Tricorythodes</i>	1	<1	—		—		1	<1	—		—		—	
Leptophlebiidae														
Leptophlebiidae	—		—		—		—		—		—		—	
Odonata														
Aeshnidae														
<i>Boyeria</i>	—		—		—		—		1	<1	—		—	

Oct. 17, 1988		Oct. 12, 1989		Oct. 18, 1990		Oct. 25, 1991		Nov. 10, 1992		Nov. 10, 1993		Nov. 4, 1994		Date
1,357		1,722		1,387		810		755		948		553		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
4	<1	8	<1	10	<1	—	—	—	—	11	1	—	—	Planariidae
—	—	—	—	—	—	—	—	—	—	1	<1	1	<1	Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	1	<1	—	—	—	—	—	—	2	<1	—	—	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Mesogastropoda
														Pleuroceridae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Goniobasis</i>
														Basommatophora
														Ancylidae
130	9	92	5	120	9	40	5	2	<1	6	<1	1	<1	<i>Ferrissia</i>
														Physidae
—	—	—	—	1	<1	1	<1	2	<1	—	—	—	—	<i>Physa</i>
														Annelida (segmented worms)
—	—	—	—	—	—	—	—	—	—	2	<1	—	—	Oligochaeta
														Lumbriculida
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Lumbriculidae
														Tubificida
9	<1	55	3	13	<1	20	2	79	10	9	<1	82	15	Naididae
														Arthropoda (arthropods)
														Acariformes
1	<1	96	6	20	1	—	—	20	3	32	3	2	<1	Hydrachnidia
														Crustacea
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Baetidae
4	<1	7	<1	1	<1	—	—	1	<1	—	—	—	—	<i>Baetis</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Pseudocloeon</i>
														Caenidae
1	<1	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Caenis</i>
														Ephemerellidae
5	<1	5	<1	2	<1	3	<1	23	3	8	<1	—	—	<i>Ephemerella</i>
														Heptageniidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Stenacron</i>
19	1	3	<1	3	<1	—	—	10	1	2	<1	—	—	<i>Stenonema</i>
														Isonychiidae
2	<1	2	<1	—	—	3	<1	8	1	6	<1	2	<1	<i>Isonychia</i>
														Leptohyphidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tricorythodes</i>
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	Leptophlebiidae
														Odonata
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Aeshnidae
														<i>Boyeria</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

Date	Oct. 29, 1981		Nov. 1, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 17, 1985		Oct. 28, 1986		Oct. 27, 1987	
Total count	846		1,416		1,171		1,216		546		851		1,638	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Plecoptera</b>														
<b>Capniidae</b>														
<i>Allocapnia</i>	—		—		—		—		—		—		—	
<b>Nemouridae</b>														
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Microvelia</i>	—		—		—		—		1	<1	—		—	
<i>Rhagovelia</i>	—		1	<1	—		—		1	<1	—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Nigronia</i>	—		1	<1	—		—		—		—		1	<1
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	—		—		1	<1	9	<1	—		2	<1	—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	25	3	95	7	85	7	46	4	50	9	59	7	20	1
<i>Cheumatopsyche</i>	110	13	140	10	170	14	160	13	58	11	50	6	2	<1
<i>Hydropsyche</i>	13	2	63	5	88	7	130	11	42	8	170	20	33	2
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	44	5	26	2	7	<1	—		3	<1	61	7	7	<1
<i>Leucotrichia</i>	8	1	47	3	280	23	320	27	—		—		—	
<b>Leptoceridae</b>														
<i>Oecetis</i>	—		2	<1	—		—		—		—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	4	<1	16	1	4	<1	2	<1	1	<1	3	<1	2	<1
<i>Dolophilodes</i>	—		—		—		—		—		—		—	
<b>Polycentropodidae</b>														
<i>Polycentropus</i>	—		1	<1	4	<1	—		—		—		—	
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—		—		—		—		—		—		—	
<i>R. fuscula</i>	—		—		—		1	<1	—		—		—	
<b>Uenoidae</b>														
<i>Neophylax</i>	—		—		—		—		—		—		—	
<b>Coleoptera</b>														
<b>Curculionidae</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—		—		—		—		—		1	<1	—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	1	<1	—		—		—		1	<1	—		—	
<i>Dubiraphia</i>	—		—		—		—		—		—		3	<1
<i>Macronychus</i>														
<i>M. glabratus</i>	1	<1	—		2	<1	—		—		—		—	
<i>Optioservus</i>	37	4	29	2	9	<1	19	2	8	2	4	<1	13	<1
<i>Oulimnius</i>	—		—		1	<1	—		7	1	4	<1	4	<1
<i>Stenelmis</i>	4	<1	8	<1	10	<1	12	1	6	1	14	2	43	3
<b>Gyrinidae</b>														
<i>Dineutus</i>	—		—		—		—		—		—		—	
<b>Hydrophilidae</b>														
<i>Hydrobius</i>	—		—		—		—		1	<1	—		—	
<b>Psephenidae</b>														
<i>Psephenus</i>	7	<1	2	<1	—		4	<1	—		2	<1	—	



Oct. 17, 1988		Oct. 12, 1989		Oct. 18, 1990		Oct. 25, 1991		Nov. 10, 1992		Nov. 10, 1993		Nov. 4, 1994		Date
1,357		1,722		1,387		810		755		948		553		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Plecoptera</b>														
<b>Capniidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Allocapnia</i>
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	Nemouridae
<b>Hemiptera</b>														
<b>Veliidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Microvelia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Rhagovelia</i>
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—	—	—	—	—	—	—	—	1	<1	—	—	1	<1	<i>Nigronia</i>
<b>Trichoptera</b>														
<b>Glossosomatidae</b>														
—	—	6	<1	4	<1	—	—	10	1	3	<1	—	—	<i>Glossosoma</i>
<b>Hydropsychidae</b>														
270	19	71	4	100	7	49	6	38	5	72	8	37	7	<i>Ceratopsyche</i>
53	4	9	<1	7	<1	4	<1	23	3	74	8	77	14	<i>Cheumatopsyche</i>
71	5	370	22	83	6	61	8	67	9	28	3	21	4	<i>Hydropsyche</i>
<b>Hydroptilidae</b>														
89	6	59	3	18	1	11	1	22	3	11	1	14	3	<i>Hydroptila</i>
5	<1	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
—	—	1	<1	—	—	1	<1	—	—	2	<1	1	<1	<i>Oecetis</i>
<b>Philopotamidae</b>														
7	<1	30	2	2	<1	—	—	8	1	9	<1	—	—	<i>Chimarra</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Dolophilodes</i>
<b>Polycentropodidae</b>														
1	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Polycentropus</i>
<b>Rhyacophilidae</b>														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Rhyacophila</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>R. fuscula</i>
<b>Uenoidae</b>														
—	—	—	—	—	—	—	—	2	<1	—	—	—	—	<i>Neophylax</i>
<b>Coleoptera</b>														
<b>Curculionidae</b>														
—	—	—	—	—	—	—	—	—	—	1	<1	—	—	<i>Dryopidae</i>
<b>Dryopidae</b>														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Helichus</i>
<b>Elmidae</b>														
—	—	1	<1	—	—	—	—	—	—	—	—	—	—	<i>Ancyronyx</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dubiraphia</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Macronychus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>M. glabratus</i>
10	<1	15	<1	4	<1	6	<1	25	3	48	5	9	2	<i>Optioservus</i>
3	<1	2	<1	—	—	—	—	—	—	4	<1	—	—	<i>Oulimnius</i>
16	1	43	3	8	<1	6	<1	11	1	22	2	3	<1	<i>Stenelmis</i>
<b>Gyrinidae</b>														
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Dineutus</i>
<b>Hydrophilidae</b>														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Hydrobius</i>
<b>Psephenidae</b>														
1	<1	1	<1	—	—	—	—	—	—	1	<1	—	—	<i>Psephenus</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01494900 - East Branch Big Elk Creek at Elkview, Pa. (Site 31)—Continued

Date	Oct. 29, 1981		Nov. 1, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 17, 1985		Oct. 28, 1986		Oct. 27, 1987	
Total count	846		1,416		1,171		1,216		546		851		1,638	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Diptera														
Chironomidae	450	53	650	46	280	23	370	31	290	53	340	40	610	38
Empididae														
<i>Hemerodromia</i>	19	2	43	3	17	1	3	<1	11	2	15	2	49	3
Simuliidae														
<i>Simulium</i>	3	<1	11	<1	—		2	<1	3	<1	—		—	
Tipulidae														
<i>Antocha</i>	31	4	180	13	120	10	28	2	38	7	60	7	230	14
<i>Tipula</i>	—		1	<1	—		—		—		—		—	

Oct. 17, 1988		Oct. 12, 1989		Oct. 18, 1990		Oct. 25, 1991		Nov. 10, 1992		Nov. 10, 1993		Nov. 4, 1994		Date
1,357		1,722		1,387		810		755		948		553		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
440	31	620	36	760	54	510	63	220	29	360	38	160	29	Diptera
														Chironomidae
3	<1	37	2	15	1	8	1	5	<1	13	1	1	<1	Empididae
														<i>Hemerodromia</i>
9	<1	17	1	3	<1	—		4	<1	—		—		Simuliidae
														<i>Simulium</i>
200	14	170	10	210	15	87	11	170	22	220	23	140	25	Tipulidae
														<i>Antocha</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)

Date	Oct. 29, 1981		Nov. 1, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 17, 1985		Oct. 28, 1986		Oct. 27, 1987	
Total count	1,517		2,458		1,203		1,875		1,124		1,402		1,309	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	14	<1	15	<1	2	<1	2	<1	1	<1	—	—	3	<1
Nematoda	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	3	<1	1	<1	4	<1	—	—	—	—	—	—	—	—
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	—	—	1	<1	1	<1	1	<1	—	—	—	—	—	—
Physidae														
<i>Physa</i>	1	<1	—	—	—	—	—	—	—	—	4	<1	—	—
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tubificida														
Naididae	—	—	—	—	—	—	—	—	—	—	4	<1	94	7
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	8	<1	13	<1	12	1	2	<1	2	<1	3	<1	17	1
Crustacea														
Cyclopoida	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Podocopa	—	—	2	<1	—	—	—	—	—	—	—	—	—	—
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—	—	—	—	3	<1	49	3	12	1	4	<1	1	<1
<i>Pseudocloeon</i>	—	—	—	—	1	<1	—	—	—	—	—	—	2	<1
Caenidae														
<i>Caenis</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Ephemerellidae														
<i>Ephemerella</i>	34	2	2	<1	3	<1	38	2	17	2	19	1	24	2
Heptageniidae														
<i>Stenonema</i>	15	1	39	2	22	2	42	2	63	6	48	3	65	5
Isonychiidae														
<i>Isonychia</i>	2	<1	—	—	1	<1	4	<1	4	<1	4	<1	14	1
Leptohyphidae														
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leptophlebiidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Odonata														
Coenagrionidae														
<i>Argia</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—
Plecoptera														
Capniidae														
<i>Allocapnia</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
Chloroperlidae	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Taeniopterygidae														
<i>Taeniopteryx</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1

Oct. 17, 1988		Oct. 12, 1989		Oct. 29, 1990		Oct. 25, 1991		Nov. 10, 1992		Nov. 10, 1993		Nov. 4, 1994		Date
<sup>1</sup> 2,245		1,533		1,536		2,733		752		424		1,587		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
—	—	—	—	2	<1	1	<1	2	<1	1	<1	3	<1	Planariidae
—	—	—	—	1	<1	—	—	—	—	—	—	3	<1	Nematoda
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—	—	5	<1	—	—	1	<1	—	—	—	—	1	<1	<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
3	<1	—	—	—	—	3	<1	—	—	—	—	8	<1	<i>Ferrissia</i>
														Physidae
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	<i>Physa</i>
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Lumbriculidae
														Tubificida
53	2	37	2	23	2	100	4	15	2	—	—	63	4	Naididae
														Arthropoda (arthropods)
														Acariformes
8	<1	43	3	12	<1	35	1	22	3	—	—	61	4	Hydrachnidia
														Crustacea
—	—	—	—	—	—	1	<1	—	—	—	—	—	—	Cyclopoida
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Podocopa
														Insecta
														Ephemeroptera
														Baetidae
3	<1	7	<1	—	—	3	<1	—	—	—	—	2	<1	<i>Baetis</i>
—	—	13	<1	—	—	2	<1	2	<1	—	—	5	<1	<i>Pseudocloeon</i>
														Caenidae
—	—	—	—	1	<1	3	<1	—	—	—	—	1	<1	<i>Caenis</i>
														Ephemerellidae
21	<1	17	1	55	4	110	4	21	3	2	<1	36	2	<i>Ephemerella</i>
														Heptageniidae
67	3	22	1	47	3	21	<1	12	2	10	2	57	4	<i>Stenonema</i>
														Isonychiidae
19	<1	—	—	10	<1	64	2	14	2	8	2	7	<1	<i>Isonychia</i>
														Leptohiphidae
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	<i>Tricorythodes</i>
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Leptophlebiidae
														Odonata
														Coenagrionidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Argia</i>
														Plecoptera
														Capniidae
—	—	—	—	—	—	2	<1	—	—	—	—	—	—	<i>Allocapnia</i>
—	—	—	—	—	—	—	—	1	<1	—	—	—	—	Chloroperlidae
—	—	—	—	—	—	4	<1	—	—	—	—	—	—	Taeniopterygidae
														<i>Taeniopteryx</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

Date	Oct. 29, 1981		Nov. 1, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 17, 1985		Oct. 28, 1986		Oct. 27, 1987	
Total count	1,517		2,458		1,203		1,875		1,124		1,402		1,309	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Hemiptera</b>														
<b>Veliidae</b>														
<i>Rhagovelia</i>	—		—		2	<1	—		—		—		—	
<b>Megaloptera</b>														
<b>Corydalidae</b>														
<i>Corydalus</i>	3	<1	1	<1	—		4	<1	—		2	<1	—	
<i>Nigronia</i>	1	<1	—		—		—		—		—		—	
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>	—		—		—		—		1	<1	—		—	
<b>Brachycentridae</b>														
<i>Brachycentrus</i>	—		—		—		—		—		—		—	
<b>Glossosomatidae</b>														
<i>Glossosoma</i>	1	<1	—		—		4	<1	—		—		—	
<b>Hydropsychidae</b>														
<i>Ceratopsyche</i>	120	8	160	6	120	10	470	25	260	24	400	29	210	16
<i>Cheumatopsyche</i>	310	21	220	9	180	15	320	17	200	18	120	9	41	3
<i>Hydropsyche</i>	260	17	460	18	84	7	120	6	9	<1	140	10	51	4
<i>Macrostemum</i>	1	<1	—		3	<1	—		—		—		—	
<b>Hydroptilidae</b>														
<i>Hydroptila</i>	62	4	46	2	17	1	3	<1	4	<1	23	2	50	4
<i>Leucotrichia</i>	320	21	860	34	180	15	470	25	—		180	13	14	1
<b>Leptoceridae</b>														
<i>Oecetis</i>	9	<1	5	<1	—		—		2	<1	—		—	
<b>Philopotamidae</b>														
<i>Chimarra</i>	—		—		4	<1	—		18	2	22	2	18	1
<i>Dolophilodes</i>	—		—		—		—		—		1	<1	—	
<b>Polycentropodidae</b>														
<i>Neureclipsis</i>	8	<1	—		4	<1	—		—		—		—	
<i>Polycentropus</i>	1	<1	1	<1	1	<1	—		1	<1	6	<1	—	
<b>Rhyacophilidae</b>														
<i>Rhyacophila</i>	—		—		—		—		—		—		—	
<b>Uenoidae</b>														
<i>Neophylax</i>	2	<1	1	<1	—		—		—		—		—	
<b>Lepidoptera</b>														
<b>Pyalidae</b>														
<i>Pyalis</i>	—		—		—		1	<1	—		—		—	
<b>Coleoptera</b>														
<b>Dryopidae</b>														
<i>Helichus</i>	—		—		2	<1	—		—		—		—	
<b>Dytiscidae</b>														
<i>Agabus</i>	—		—		—		—		—		—		—	
<b>Elmidae</b>														
<i>Ancyronyx</i>	—		—		—		—		—		—		—	
<i>Dubiraphia</i>	3	<1	—		—		—		—		—		—	
<i>Optioservus</i>	6	<1	9	<1	2	<1	10	<1	5	<1	6	<1	3	<1
<i>Oulimnius</i>	1	<1	—		—		5	<1	2	<1	10	<1	—	
<i>Stenelmis</i>	31	2	17	<1	4	<1	11	<1	2	<1	25	2	—	
<b>Gyrinidae</b>														
<i>Dineutus</i>	1	<1	—		—		—		—		—		—	
<b>Hydraenidae</b>														
<i>Limnebius</i>	—		—		—		—		—		—		—	
<b>Hydrophilidae</b>														
<i>Berosus</i>	—		—		—		—		—		—		—	
<b>Psephenidae</b>														
<i>Psephenus</i>	—		1	<1	—		—		—		—		—	

Oct. 17, 1988		Oct. 12, 1989		Oct. 29, 1990		Oct. 25, 1991		Nov. 10, 1992		Nov. 10, 1993		Nov. 4, 1994		Date
1 2,245		1,533		1,536		2,733		752		424		1,587		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Hemiptera
														Veliidae
—		—		—		—		—		—		—		<i>Rhagovelia</i>
														Megaloptera
														Corydalidae
—		6	<1	3	<1	3	<1	1	<1	1	<1	2	<1	<i>Corydalus</i>
—		—		—		—		—		—		—		<i>Nigronia</i>
														Trichoptera
														Apataniidae
—		—		—		—		—		—		—		<i>Apatania</i>
														Brachycentridae
—		—		—		—		—		—		1	<1	<i>Brachycentrus</i>
														Glossosomatidae
—		—		1	<1	—		—		—		—		<i>Glossosoma</i>
														Hydropsychidae
590	27	400	27	290	19	580	21	91	12	80	19	410	26	<i>Ceratopsyche</i>
160	7	190	13	86	6	250	9	57	8	17	4	270	17	<i>Cheumatopsyche</i>
64	3	280	19	120	8	100	4	19	3	69	16	99	6	<i>Hydropsyche</i>
—		—		—		—		1	<1	—		—		<i>Macrostemum</i>
														Hydroptilidae
69	3	10	<1	18	1	6	<1	19	3	—		13	<1	<i>Hydroptila</i>
220	10	99	7	150	10	240	9	96	13	2	<1	—		<i>Leucotrichia</i>
—		—		—		—		1	<1	—		—		
														Leptoceridae
—		1	<1	—		7	<1	4	<1	—		5	<1	<i>Oecetis</i>
														Philopotamidae
—		4	<1	4	<1	10	<1	4	<1	1	<1	—		<i>Chimarra</i>
—		—		—		—		—		—		—		<i>Dolophilodes</i>
														Polycentropodidae
13	<1	3	<1	7	<1	2	<1	1	<1	—		7	<1	<i>Neureclipsis</i>
5	<1	—		—		1	<1	—		—		—		<i>Polycentropus</i>
														Rhyacophilidae
—		—		—		—		—		3	<1	—		<i>Rhyacophila</i>
														Uenoidae
—		—		2	<1	—		—		—		—		<i>Neophylax</i>
														Lepidoptera
														Pyalidae
—		—		—		—		—		—		—		
														Coleoptera
														Dryopidae
—		—		—		—		—		—		—		<i>Helichus</i>
														Dytiscidae
—		1	<1	—		—		—		—		—		<i>Agabus</i>
														Elmidae
—		—		—		—		—		—		2	<1	<i>Ancyronyx</i>
—		—		—		—		—		—		—		<i>Dubiraphia</i>
3	<1	11	<1	10	<1	33	1	7	<1	4	1	6	<1	<i>Optioservus</i>
—		1	<1	6	<1	9	<1	—		1	<1	—		<i>Oulimnius</i>
21	<1	2	<1	6	<1	12	<1	9	1	2	<1	—		<i>Stenelmis</i>
														Gyrinidae
—		—		—		—		—		—		—		<i>Dineutus</i>
														Hydraenidae
—		4	<1	—		—		—		—		—		<i>Limnebius</i>
														Hydrophilidae
—		—		1	<1	—		—		—		—		<i>Berosus</i>
														Psephenidae
—		—		—		1	<1	2	<1	2	<1	1	<1	<i>Psephenus</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01494950 - West Branch Big Elk Creek near Oxford, Pa. (Site 32)—Continued

Date	Oct. 29, 1981		Nov. 1, 1982		Nov. 2, 1983		Oct. 18, 1984		Oct. 17, 1985		Oct. 28, 1986		Oct. 27, 1987	
Total count	1,517		2,458		1,203		1,875		1,124		1,402		1,309	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Coleoptera														
Ptilodactylidae														
<i>Anchytarsus</i>														
<i>A. bicolor</i>	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Hymenoptera														
Diptera														
Athericidae														
<i>Atherix</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chironomidae	140	9	410	16	400	33	270	14	490	45	190	14	610	47
Empididae														
<i>Chelifera</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Hemerodromia</i>	5	<1	9	<1	9	<1	3	<1	3	<1	9	<1	5	<1
Simuliidae														
<i>Simulium</i>	3	<1	3	<1	3	<1	28	1	5	<1	—	—	8	<1
Tipulidae														
<i>Antocha</i>	150	10	170	7	100	8	16	<1	23	2	180	13	76	6
<i>Tipula</i>	—	—	1	<1	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Extrapolated from a 3/8 subsample.



Oct. 17, 1988		Oct. 12, 1989		Oct. 29, 1990		Oct. 25, 1991		Nov. 10, 1992		Nov. 10, 1993		Nov. 4, 1994		Date
1 2,245		1,533		1,536		2,733		752		424		1,587		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Coleoptera
														Ptilodactylidae
														<i>Anchytarsus</i>
														<i>A. bicolor</i>
—		—		—		—		—		—		—		
—		—		—		—		—		—		—		
														Hymenoptera
														Diptera
														Athericidae
														<i>Atherix</i>
—		—		—		—		—		—		2	<1	
620	28	250	17	560	37	810	30	230	30	130	30	380	24	
														Chironomidae
														Empididae
														<i>Chelifera</i>
3	<1	42	3	9	<1	18	<1	5	<1	5	1	13	<1	
														<i>Hemerodromia</i>
														Simuliidae
														<i>Simulium</i>
—		4	<1	—		1	<1	5	<1	—		8	<1	
														Tipulidae
300	14	81	5	110	7	290	11	110	14	86	20	120	8	
														<i>Antocha</i>
—		—		—		—		—		—		—		
														<i>Tipula</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)

Date	Nov. 3, 1981		Oct. 27, 1982		Oct. 28, 1983		Oct. 26, 1984		Oct. 24, 1985		Nov. 20, 1986		Nov. 18, 1987	
Total count	978		1,670		856		1,518		593		1,110		1,421	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	5	<1	10	<1	21	2	38	3	41	7	35	3	39	3
Nematoda (nematodes)	—		1	<1	—		—		—		—		3	<1
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	150	15	140	8	19	2	—		1	<1	1	<1	1	<1
Physidae														
<i>Physa</i>	—		—		—		—		—		—		—	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
<i>Helisoma</i>	1	<1	—		—		—		—		1	<1	—	
Bivalvia														
Veneroida														
Sphaeriidae	—		—		—		—		1	<1	3	<1	2	<1
<i>Pisidium</i>	—		—		1	<1	—		—		—		—	
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
Naididae	97	10	61	4	7	<1	3	<1	8	1	2	<1	320	23
Tubificidae	—		—		—		—		4	<1	—		—	
Hirudinea														
Pharyngobdellida														
Erpobdellidae	—		1	<1	1	<1	—		1	<1	—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		—		1	<1	—		1	<1	2	<1	48	3
Crustacea														
Amphipoda														
Gammaridae	—		—		—		—		—		—		—	
<i>Gammarus</i>	—		—		—		—		—		—		—	
Isopoda														
Asellidae	—		—		—		—		—		—		—	
<i>Caecidotea</i>	21	2	110	6	6	<1	32	2	6	1	6	<1	4	<1
<i>Lirceus</i>	—		—		—		—		—		—		—	
Podocopa	—		—		—		—		—		—		—	
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	—		6	<1	—		2	<1	3	<1	—		1	<1
<i>Pseudocloeon</i>	—		—		—		2	<1	—		—		—	
Ephemerellidae														
<i>Ephemerella</i>	1	<1	9	<1	41	5	16	1	61	10	180	16	150	11
Heptageniidae														
<i>Stenacron</i>	—		—		—		—		—		—		—	
<i>Stenonema</i>	3	<1	12	<1	12	1	5	<1	7	1	10	<1	4	<1
Isonychiidae														
<i>Isonychia</i>	—		—		—		—		1	<1	1	<1	—	
Leptohyphidae														
<i>Tricorythodes</i>	—		—		—		—		—		—		—	

Nov. 9, 1988		Oct. 27, 1989		Oct. 18, 1990		Oct. 24, 1991		Nov. 9, 1992		Oct. 19, 1993		Nov. 21, 1994		Date
1,953		2,083		1,419		1,476		1,268		558		2,194		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
160	8	120	6	57	4	30	2	15	1	36	6	47	2	Planariidae
—	—	—	—	—	—	—	—	—	—	—	—	—	—	Nematoda (nematodes)
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
—	—	3	<1	23	2	5	<1	—	—	—	—	5	<1	<i>Ferrissia</i>
Physidae														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	<i>Physa</i>
Planorbidae														
—	—	—	—	—	—	—	—	—	—	—	—	1	<1	<i>Gyraulus</i>
—	—	—	—	—	—	—	—	—	—	—	—	—	—	<i>Helisoma</i>
Bivalvia														
Veneroidea														
—	—	—	—	—	—	1	<1	3	<1	—	—	2	<1	Sphaeriidae
—	—	25	1	3	<1	—	—	—	—	—	—	—	—	<i>Pisidium</i>
Annelida (segmented worms)														
Oligochaeta														
Tubificida														
3	<1	7	<1	18	1	4	<1	—	—	—	—	65	3	Naididae
3	<1	—	—	—	—	—	—	—	—	—	—	—	—	Tubificidae
Hirudinea														
Pharyngobdellida														
—	—	—	—	1	<1	—	—	—	—	—	—	—	—	Erpobdellidae
Arthropoda (arthropods)														
Acariformes														
—	—	12	<1	6	<1	3	<1	5	<1	4	<1	19	<1	Hydrachnidia
Crustacea														
Amphipoda														
—	—	—	—	—	—	—	—	—	—	—	—	3	<1	Gammaridae
—	—	—	—	—	—	1	<1	3	<1	—	—	—	—	<i>Gammarus</i>
Isopoda														
—	—	—	—	—	—	—	—	8	<1	—	—	—	—	Asellidae
21	1	13	<1	34	2	6	<1	—	—	—	—	—	—	<i>Caecidotea</i>
—	—	—	—	—	—	—	—	—	—	—	—	8	<1	<i>Lirceus</i>
—	—	1	<1	1	<1	—	—	—	—	—	—	—	—	Podocopa
Insecta														
Ephemeroptera														
Baetidae														
3	<1	9	<1	12	<1	16	1	—	—	4	<1	1	<1	<i>Baetis</i>
—	—	—	—	3	<1	—	—	—	—	—	—	—	—	<i>Pseudocloeon</i>
Ephemerellidae														
600	30	570	27	250	18	180	12	260	20	120	21	180	8	<i>Ephemerella</i>
Heptageniidae														
—	—	—	—	—	—	2	<1	—	—	—	—	—	—	<i>Stenacron</i>
24	1	52	2	32	2	37	2	19	1	7	1	5	<1	<i>Stenonema</i>
Isonychiidae														
—	—	2	<1	1	<1	4	<1	5	<1	1	<1	1	<1	<i>Isonychia</i>
Leptohyphidae														
—	—	—	—	—	—	—	—	—	—	—	—	2	<1	<i>Tricorythodes</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

Date	Nov. 3, 1981		Oct. 27, 1982		Oct. 28, 1983		Oct. 26, 1984		Oct. 24, 1985		Nov. 20, 1986		Nov. 18, 1987	
Total count	978		1,670		856		1,518		593		1,110		1,421	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Odonata</b>														
Coenagrionidae														
<i>Argia</i>	—	—	—	—	—	—	—	—	—	—	—	—	1	<1
Plecoptera														
Chloroperlidae														
Taeniopterygidae														
<i>Taeniopteryx</i>	—	3	<1	—	—	7	<1	—	—	1	<1	—	—	—
Hemiptera														
Saldidae	—	1	<1	—	—	—	—	—	—	—	—	—	—	—
Megaloptera														
Corydalidae														
<i>Corydalus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Nigronia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sialidae														
<i>Sialis</i>	—	—	—	1	<1	—	—	—	—	—	—	—	—	—
Neuroptera														
Sisyridae														
<i>Climacia</i>	—	—	—	—	—	—	—	—	—	—	1	<1	—	—
<i>C. areolaris</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Trichoptera														
Apataniidae														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	6	<1
Brachycentridae														
<i>Micrasema</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glossosomatidae														
<i>Glossosoma</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydropsychidae														
<i>Ceratopsyche</i>	42	4	76	4	28	3	76	5	78	13	100	9	27	2
<i>Cheumatopsyche</i>	150	15	110	6	83	10	270	18	77	13	10	<1	36	3
<i>Hydropsyche</i>	89	9	250	15	120	14	220	15	35	6	69	6	71	5
<i>Potamyia</i>	—	—	47	3	1	<1	—	—	—	—	—	—	—	—
Hydroptilidae														
<i>Hydroptila</i>	—	—	18	1	2	<1	3	<1	2	<1	7	<1	39	3
<i>Leucotrichia</i>	150	15	390	23	340	40	53	4	120	20	65	6	120	9
Leptoceridae														
<i>Ceraclea</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Oecetis</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Philopotamidae														
<i>Chimarra</i>	5	<1	4	<1	20	2	10	<1	8	1	130	12	110	8
<i>Wormaldia</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Polycentropodidae														
<i>Polycentropus</i>	—	—	—	—	—	—	—	—	—	—	3	<1	—	—
Psychomyiidae														
<i>Psychomyia</i>	—	—	—	—	—	—	18	1	1	<1	—	—	6	<1
Uenoidae														
<i>Neophylax</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Coleoptera														
Curculionidae														
Dytiscidae	—	—	—	—	1	<1	—	—	—	—	—	—	—	—
Elmidae														
<i>Ancyronyx</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	—	—	—	—	1	<1	—	—	—	—	1	<1	1	<1
<i>Optioservus</i>	—	—	—	—	—	—	2	<1	1	<1	1	<1	1	<1
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Stenelmis</i>	20	2	26	2	9	1	18	1	6	1	2	<1	3	<1

Nov. 9, 1988		Oct. 27, 1989		Oct. 18, 1990		Oct. 24, 1991		Nov. 9, 1992		Oct. 19, 1993		Nov. 21, 1994		Date
1,953		2,083		1,419		1,476		1,268		558		2,194		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Odonata</b>														
<b>Coenagrionidae</b>														
—		1	<1	—		—		—		—		—		<i>Argia</i>
<b>Plecoptera</b>														
—		—		—		—		—		—		1	<1	Chloroperlidae
—		—		1	<1	—		—		—		2	<1	Taeniopterygidae
<i>Taeniopteryx</i>														
<b>Hemiptera</b>														
—		—		—		—		—		—		—		Saldidae
<b>Megaloptera</b>														
—		—		—		—		—		1	<1	—		Corydalidae
<i>Corydalus</i>														
—		2	<1	—		—		—		—		—		<i>Nigronia</i>
—		—		1	<1	—		—		1	<1	—		Sialidae
<i>Sialis</i>														
<b>Neuroptera</b>														
<b>Sisyridae</b>														
<i>Climacia</i>														
<i>C. areolaris</i>														
<b>Trichoptera</b>														
<b>Apataniidae</b>														
<i>Apatania</i>														
—		—		—		—		5	<1	1	<1	3	<1	Brachycentridae
<i>Micrasema</i>														
—		—		—		1	<1	—		—		—		Glossosomatidae
<i>Glossosoma</i>														
37	2	84	4	59	4	9	<1	—		14	3	55	3	Hydropsychidae
16	<1	75	4	14	<1	28	2	12	<1	22	4	120	5	<i>Ceratopsyche</i>
210	11	290	14	100	7	110	7	200	15	84	15	100	5	<i>Cheumatopsyche</i>
<i>Hydropsyche</i>														
<i>Potamyia</i>														
29	1	14	<1	5	<1	8	<1	6	<1	—		20	<1	Hydroptilidae
310	16	230	11	170	12	210	14	2	<1	3	<1	13	<1	<i>Hydroptila</i>
<i>Leucotrichia</i>														
—		—		—		—		2	<1	—		—		Leptoceridae
<i>Ceraclea</i>														
—		—		—		1	<1	—		—		—		<i>Oecetis</i>
260	13	180	9	170	12	85	6	19	1	54	10	81	4	Philopotamidae
<i>Chimarra</i>														
<i>Wormaldia</i>														
—		1	<1	3	<1	—		—		1	<1	—		Polycentropodidae
<i>Polycentropus</i>														
—		4	<1	2	<1	1	<1	—		—		—		Psychomyiidae
<i>Psychomyia</i>														
—		—		—		—		—		—		1	<1	Uenoidae
<i>Neophylax</i>														
<b>Coleoptera</b>														
—		—		—		—		—		—		—		Curculionidae
—		—		1	<1	—		—		—		—		Dytiscidae
—		1	<1	—		—		—		—		—		Elmidae
3	<1	—		—		—		5	<1	—		—		<i>Ancyronyx</i>
—		1	<1	1	<1	1	<1	—		—		3	<1	<i>Dubiraphia</i>
—		1	<1	—		—		3	<1	—		—		<i>Optioservus</i>
35	2	30	1	25	2	20	1	21	2	26	5	9	<1	<i>Oulimnius</i>
<i>Stenelmis</i>														

**Table 5.** Benthic-macroinvertebrate data—Continued

01578340 - East Branch Octoraro Creek at Christiana, Pa. (Site 33)—Continued

Date	Nov. 3, 1981		Oct. 27, 1982		Oct. 28, 1983		Oct. 26, 1984		Oct. 24, 1985		Nov. 20, 1986		Nov. 18, 1987	
Total count	978		1,670		856		1,518		593		1,110		1,421	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Coleoptera														
Psephenidae														
<i>Psephenus</i>	2	<1	4	<1	11	1	—		2	<1	3	<1	6	<1
Diptera														
Chironomidae	210	21	300	18	120	14	450	30	120	20	420	38	340	24
Empididae														
<i>Hemerodromia</i>	11	1	24	1	1	<1	4	<1	4	<1	3	<1	8	<1
Simuliidae														
<i>Simulium</i>	6	<1	30	2	1	<1	240	16	—		18	2	44	3
Stratiomyidae														
<i>Stratiomys</i>	—		—		—		—		—		—		—	
Tipulidae														
<i>Antocha</i>	15	2	37	2	8	<1	49	3	4	<1	35	3	30	2
<i>Dicranota</i>	—		—		—		—		—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 9, 1988		Oct. 27, 1989		Oct. 18, 1990		Oct. 24, 1991		Nov. 9, 1992		Oct. 19, 1993		Nov. 21, 1994		Date
1 1,953		2,083		1,419		1,476		1,268		558		2,194		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Coleoptera
														Psephenidae
8	<1	23	1	30	2	7	<1	8	<1	13	2	17	<1	<i>Psephenus</i>
														Diptera
														Chironomidae
180	9	180	9	320	23	640	43	620	48	120	21	1,300	59	
														Empididae
3	<1	14	<1	4	<1	9	<1	—		1	<1	12	<1	<i>Hemerodromia</i>
														Simuliidae
40	2	18	<1	16	1	11	<1	28	2	6	1	15	<1	<i>Simulium</i>
														Stratiomyidae
—		—		—		—		1	<1	—		—		<i>Stratiomys</i>
														Tipulidae
8	<1	120	6	54	4	46	3	18	1	38	7	95	4	<i>Antocha</i>
—		—		—		—		—		—		8	<1	<i>Dicranota</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

[<, less than; —, not found]

01578343 - Valley Creek at Atglen, Pa. (Site 34)

Date	Nov. 3, 1981		Oct. 27, 1982		Oct. 28, 1983		Oct. 26, 1984		Oct. 24, 1985		Nov. 20, 1986		Nov. 18, 1987	
Total count	2,173		2,478		930		2,239		962		783		2,316	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Platyhelminthes (flatworms)														
Turbellaria														
Tricladida														
Planariidae	—		1	<1	—		—		1	<1	—		7	<1
Nematoda (nematodes)	1	<1	1	<1	—		—		—		—		1	<1
Nemertea (proboscis worms)														
Enopla														
Hoplonemertea														
Tetrastemmatidae														
<i>Prostoma</i>	—		—		—		—		1	<1	—		—	
Mollusca (molluscs)														
Gastropoda														
Basommatophora														
Ancyliidae														
<i>Ferrissia</i>	32	1	48	2	14	1	—		—		—		1	<1
Physidae														
<i>Physa</i>	1	<1	1	<1	—		—		—		—		—	
Planorbidae														
<i>Gyraulus</i>	—		—		—		—		—		—		—	
Bivalvia														
Veneroidea														
Sphaeriidae	—		—		—		—		—		—		1	<1
Annelida (segmented worms)														
Oligochaeta														
Lumbriculida														
Lumbriculidae	—		—		—		1	<1	—		—		—	
Tubificida														
Naididae	68	3	45	2	10	1	48	2	2	<1	—		470	20
Tubificidae	—		4	<1	—		—		—		—		3	<1
Hirudinea														
Pharynobdellidae														
Erpobdellidae	—		—		—		1	<1	—		—		—	
Arthropoda (arthropods)														
Acariformes														
Hydrachnidia	—		—		—		—		—		—		56	2
Crustacea														
Amphipoda														
Gammaridae														
<i>Gammarus</i>	—		1	<1	—		—		1	<1	2	<1	—	
Isopoda														
Asellidae														
<i>Caecidotea</i>	—		1	<1	8	<1	1	<1	1	<1	4	<1	8	<1
Podocopa	—		—		—		—		—		—		3	<1
Insecta														
Ephemeroptera														
Baetidae														
<i>Baetis</i>	3	<1	—		—		5	<1	17	2	4	<1	—	
<i>Pseudocloeon</i>	1	<1	4	<1	—		6	<1	2	<1	1	<1	19	<1
Ephemerellidae														
<i>Ephemerella</i>	3	<1	6	<1	4	<1	16	<1	10	1	3	<1	140	6
Heptageniidae														
<i>Stenonema</i>	170	8	190	8	13	1	110	5	21	2	2	<1	54	2
Isonychiidae														
<i>Isonychia</i>	9	<1	24	<1	2	<1	15	<1	7	<1	4	<1	34	1



Nov. 7, 1988		Oct. 27, 1989		Oct. 18, 1990		Oct. 24, 1991		Nov. 9, 1992		Oct. 19, 1993		Nov. 23, 1994		Date
1 2,916		3,051		1,262		3,201		1,788		825		2,936		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
														Platyhelminthes (flatworms)
														Turbellaria
														Tricladida
13	<1	36	1	9	<1	66	2	23	1	1	<1	4	<1	Planariidae
—		—		—		—		—		—		—		Nematoda (nematodes)
														Nemertea (proboscis worms)
														Enopla
														Hoplonemertea
														Tetrastemmatidae
—		10	<1	2	<1	—		—		—		—		<i>Prostoma</i>
														Mollusca (molluscs)
														Gastropoda
														Basommatophora
														Ancylidae
—		4	<1	2	<1	4	<1	—		2	<1	1	<1	<i>Ferrissia</i>
—		—		1	<1	—		1	<1	—		—		Physidae
—		—		—		—		—		—		—		<i>Physa</i>
—		3	<1	—		—		—		—		—		Planorbidae
—		—		—		—		—		—		—		<i>Gyraulus</i>
														Bivalvia
														Veneroida
—		—		—		1	<1	—		—		—		Sphaeriidae
														Annelida (segmented worms)
														Oligochaeta
														Lumbriculida
—		—		—		—		—		—		—		Lumbriculidae
—		—		—		—		—		—		—		Tubificida
88	3	210	7	19	1	110	3	—		—		4	<1	Naididae
—		—		—		—		—		—		—		Tubificidae
														Hirudinea
														Pharyngobdellida
—		—		—		—		—		—		—		Erpobdellidae
														Arthropoda (arthropods)
														Acariformes
—		97	3	4	<1	47	1	22	1	4	<1	180	6	Hydrachnidia
														Crustacea
														Amphipoda
														Gammaridae
—		1	<1	—		1	<1	4	<1	1	<1	27	<1	<i>Gammarus</i>
														Isopoda
—		2	<1	—		—		1	<1	—		—		Asellidae
—		6	<1	3	<1	—		—		—		—		<i>Caecidotea</i>
														Podocopa
														Insecta
														Ephemeroptera
														Baetidae
16	<1	22	<1	18	1	19	<1	—		1	<1	—		<i>Baetis</i>
—		4	<1	—		—		5	<1	—		—		<i>Pseudocloeon</i>
														Ephemerellidae
160	6	310	10	63	5	220	7	7	<1	—		2	<1	<i>Ephemerella</i>
														Heptageniidae
110	4	120	4	23	2	11	<1	4	<1	—		—		<i>Stenonema</i>
														Isonychiidae
21	<1	10	<1	4	<1	3	<1	2	<1	—		—		<i>Isonychia</i>

**Table 5. Benthic-macroinvertebrate data—Continued**

01578343 - Valley Creek at Atglen, Pa. (Site 34)—Continued

Date	Nov. 3, 1981		Oct. 27, 1982		Oct. 28, 1983		Oct. 26, 1984		Oct. 24, 1985		Nov. 20, 1986		Nov. 18, 1987	
Total count	2,173		2,478		930		2,239		962		783		2,316	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Ephemeroptera</b>														
Leptohephidae														
<i>Tricorythodes</i>	—	—	—	—	—	—	—	—	—	—	—	—	4	<1
Leptophlebiidae														
<i>Paraleptophlebia</i>	—	—	—	—	—	—	—	—	1	<1	—	—	—	—
Potamanthidae														
<i>Anthopotamus</i>	—	—	4	<1	—	—	—	—	—	—	—	—	—	—
<b>Plecoptera</b>														
Capniidae														
<i>Allocapnia</i>	—	—	—	—	2	<1	3	<1	—	—	—	—	1	<1
Taeniopterygidae														
<i>Taeniopteryx</i>	—	—	—	—	1	<1	3	<1	2	<1	—	—	—	—
<b>Megaloptera</b>														
Corydalidae														
<i>Corydalus</i>	2	<1	—	—	—	—	—	—	—	—	—	—	—	—
Sialidae														
<i>Sialis</i>	—	—	1	<1	—	—	1	<1	—	—	—	—	—	—
<b>Trichoptera</b>														
Apataniidae														
<i>Apatania</i>	—	—	—	—	—	—	—	—	—	—	—	—	2	<1
Glossosomatidae														
<i>Glossosoma</i>	—	—	1	<1	—	—	—	—	5	<1	9	1	1	<1
Hydropsychidae														
<i>Ceratopsyche</i>	310	14	370	15	87	9	240	11	180	19	71	9	79	3
<i>Cheumatopsyche</i>	460	21	450	18	100	11	210	10	100	10	16	2	140	6
<i>Hydropsyche</i>	300	14	300	12	130	14	96	4	40	4	120	15	200	9
<i>Potamyia</i>	—	—	—	—	7	<1	1	<1	—	—	—	—	—	—
Hydroptilidae														
<i>Hydroptila</i>	—	—	7	<1	—	—	—	—	1	<1	1	<1	4	<1
<i>Leucotrichia</i>	90	4	100	4	300	32	170	8	250	26	73	9	230	10
Leptoceridae														
<i>Mystacides</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Philopotamidae														
<i>Chimarra</i>	1	<1	4	<1	4	<1	6	<1	32	3	53	7	55	2
<i>Dolophilodes</i>	—	—	—	—	—	—	3	<1	—	—	—	—	—	—
Polycentropodidae														
<i>Polycentropus</i>	—	—	5	<1	2	<1	—	—	—	—	—	—	—	—
Psychomyiidae														
<i>Psychomyia</i>	2	<1	46	2	17	2	2	<1	21	2	12	2	110	5
<b>Coleoptera</b>														
Elmidae														
<i>Ancyronyx</i>	—	—	1	<1	1	<1	—	—	—	—	—	—	—	—
<i>Dubiraphia</i>	—	—	1	<1	—	—	1	<1	—	—	—	—	—	—
<i>Microcylloepus</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<i>Optioservus</i>	—	—	—	—	1	<1	4	<1	1	<1	1	<1	1	<1
<i>Oulimnius</i>	—	—	—	—	—	—	—	—	2	<1	—	—	—	—
<i>Stenelmis</i>	44	2	130	5	10	1	16	<1	16	2	18	2	20	<1
Hydrophilidae														
<i>Helophorus</i>	—	—	—	—	—	—	1	<1	—	—	—	—	—	—
Psephenidae														
<i>Psephenus</i>	—	—	1	<1	2	<1	—	—	1	<1	2	<1	1	<1

Nov. 7, 1988		Oct. 27, 1989		Oct. 18, 1990		Oct. 24, 1991		Nov. 9, 1992		Oct. 19, 1993		Nov. 23, 1994		Date
1 2,916		3,051		1,262		3,201		1,788		825		2,936		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
<b>Ephemeroptera</b>														
<b>Leptohyphidae</b>														
—		4	<1	3	<1	4	<1	—		—		—		<i>Tricorythodes</i>
—		3	<1	5	<1	—		—		—		—		Leptophlebiidae
3	<1	—		—		3	<1	—		—		—		<i>Paraleptophlebia</i>
<b>Potamanthidae</b>														
—		—		—		—		—		—		—		<i>Anthopotamus</i>
<b>Plecoptera</b>														
<b>Capniidae</b>														
—		—		—		—		—		—		—		<i>Allocapnia</i>
3	<1	2	<1	1	<1	—		1	<1	—		—		Taeniopterygidae
<i>Taeniopteryx</i>														
<b>Megaloptera</b>														
<b>Corydalidae</b>														
—		1	<1	—		1	<1	—		—		—		<i>Corydalus</i>
<b>Sialidae</b>														
—		—		—		—		—		—		—		<i>Sialis</i>
<b>Trichoptera</b>														
<b>Apataniidae</b>														
—		—		—		—		—		—		1	<1	<i>Apatania</i>
<b>Glossosomatidae</b>														
—		4	<1	7	<1	5	<1	1	<1	—		—		<i>Glossosoma</i>
<b>Hydropsychidae</b>														
230	8	240	8	70	5	43	1	9	<1	1	<1	47	2	<i>Ceratopsyche</i>
620	21	340	11	76	6	190	6	89	5	21	3	250	9	<i>Cheumatopsyche</i>
350	12	960	31	310	24	730	23	460	26	370	45	160	6	<i>Hydropsyche</i>
—		—		—		—		—		—		—		<i>Potamyia</i>
<b>Hydroptilidae</b>														
3	<1	6	<1	—		11	<1	—		—		5	<1	<i>Hydroptila</i>
240	8	8	<1	16	1	98	3	5	<1	1	<1	8	<1	<i>Leucotrichia</i>
<b>Leptoceridae</b>														
—		2	<1	—		—		—		—		—		<i>Mystacides</i>
<b>Philopotamidae</b>														
40	1	37	1	74	6	20	<1	7	<1	—		—		<i>Chimarra</i>
—		2	<1	—		—		—		—		—		<i>Dolophilodes</i>
<b>Polycentropodidae</b>														
—		1	<1	—		—		—		—		—		<i>Polycentropus</i>
<b>Psychomyiidae</b>														
13	<1	14	<1	15	1	45	1	9	<1	18	2	27	<1	<i>Psychomyia</i>
<b>Coleoptera</b>														
<b>Elmidae</b>														
—		5	<1	—		1	<1	—		—		1	<1	<i>Ancyronyx</i>
3	<1	—		—		—		3	<1	—		2	<1	<i>Dubiraphia</i>
3	<1	—		—		—		—		—		—		<i>Microcylloepus</i>
3	<1	8	<1	4	<1	14	<1	22	1	10	1	7	<1	<i>Optioservus</i>
—		4	<1	—		2	<1	3	<1	2	<1	—		<i>Oulimnius</i>
45	2	160	5	73	6	120	4	110	6	120	14	110	4	<i>Stenelmis</i>
<b>Hydrophilidae</b>														
—		—		—		—		—		—		—		<i>Helophorus</i>
<b>Psephenidae</b>														
—		17	<1	3	<1	14	<1	6	<1	9	1	2	<1	<i>Psephenus</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

01578343 - Valley Creek at Atglen, Pa. (Site 34)—Continued

Date	Nov. 3, 1981		Oct. 27, 1982		Oct. 28, 1983		Oct. 26, 1984		Oct. 24, 1985		Nov. 20, 1986		Nov. 18, 1987	
Total count	2,173		2,478		930		2,239		962		783		2,316	
Organism	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
<b>Diptera</b>														
Chironomidae	370	17	450	18	130	14	640	29	170	18	210	27	440	19
Empididae														
<i>Hemerodromia</i>	14	<1	9	<1	—		7	<1	2	<1	1	<1	2	<1
Simuliidae														
<i>Simulium</i>	250	11	91	4	3	<1	600	27	8	<1	85	11	170	7
Stratiomyidae	—		—		—		1	<1	—		—		—	
Tipulidae														
<i>Antocha</i>	42	2	180	7	82	9	30	1	67	7	87	11	59	3
<i>Dicranota</i>	—		—		—		—		—		4	<1	—	
<i>Hexatoma</i>	—		1	<1	—		—		—		—		—	
<i>Tipula</i>	—		—		—		1	<1	—		—		—	

<sup>1</sup> Extrapolated from a 3/8 subsample.

Nov. 7, 1988		Oct. 27, 1989		Oct. 18, 1990		Oct. 24, 1991		Nov. 9, 1992		Oct. 19, 1993		Nov. 23, 1994		Date
1 2,916		3,051		1,262		3,201		1,788		825		2,936		Total count
Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Organism
520	18	210	7	330	25	1,200	38	190	11	150	18	1,500	52	Diptera
														Chironomidae
5	<1	46	1	—		15	<1	3	<1	2	<1	12	<1	Empididae
														<i>Hemerodromia</i>
400	14	42	1	53	4	12	<1	680	38	2	<1	260	9	Simuliidae
—		—		—		—		—		—		—		<i>Simulium</i>
														Stratiomyidae
24	<1	99	3	73	6	180	6	120	7	110	13	320	11	Tipulidae
3	<1	—		—		10	<1	—		—		6	<1	<i>Antocha</i>
—		1	<1	1	<1	1	<1	1	<1	—		—		<i>Dicranota</i>
—		—		—		—		—		—		—		<i>Hexatoma</i>
														<i>Tipula</i>

**Table 5.** Benthic-macroinvertebrate data—Continued

[<, less than; —, not found]

01578345 - East Branch Octoraro Creek at Steelville, Pa. (Site 35)

Date	Nov. 3, 1981		Oct. 27, 1982	
	Count	Percent	Count	Percent
Total count	1,041		1,791	
Organism	Count	Percent	Count	Percent
Platyhelminthes (flatworms)	4	<1	1	<1
Turbellaria				
Tricladida				
Planariidae	3	<1	4	<1
Mollusca (molluscs)				
Gastropoda				
Basommatophora				
Ancyliidae				
<i>Ferrissia</i>	5	<1	24	1
Lymnaeidae				
<i>Lymnaea</i>	1	<1	—	
Annelida (segmented worms)				
Oligochaeta	—		1	<1
Tubificida				
Tubificidae	1	<1	—	
Arthropoda (arthropods)				
Acariformes				
Hydrachnidia	58	6	32	2
Crustacea				
Isopoda				
Asellidae				
<i>Caecidotea</i>	1	<1	1	<1
Insecta				
Ephemeroptera				
Baetidae				
<i>Pseudocloeon</i>	1	<1	—	
Ephemerellidae				
<i>Ephemerella</i>	55	6	78	4
Heptageniidae				
<i>Stenonema</i>	160	16	110	6
Isonychiidae				
<i>Isonychia</i>	—		10	<1
Plecoptera				
Capniidae				
<i>Allocapnia</i>	—		2	<1
Chloroperlidae	—		1	<1
Taeniopterygidae				
<i>Strophopteryx</i>	2	<1	—	
Megaloptera				
Corydalidae				
<i>Nigronia</i>	—		2	<1
Sialidae				
<i>Sialis</i>	3	<1	—	
Trichoptera				
Hydropsychidae				
<i>Ceratopsyche</i>	180	18	220	12
<i>Cheumatopsyche</i>	48	5	120	7
<i>Hydropsyche</i>	21	2	35	2
Hydroptilidae				
<i>Hydroptila</i>	12	1	20	1
<i>Leucotrichia</i>	51	5	400	22
Philopotamidae				
<i>Chimarra</i>	6	<1	30	2

## 01578345 - East Branch Octoraro Creek at Steelville, Pa. (Site 35)—Continued

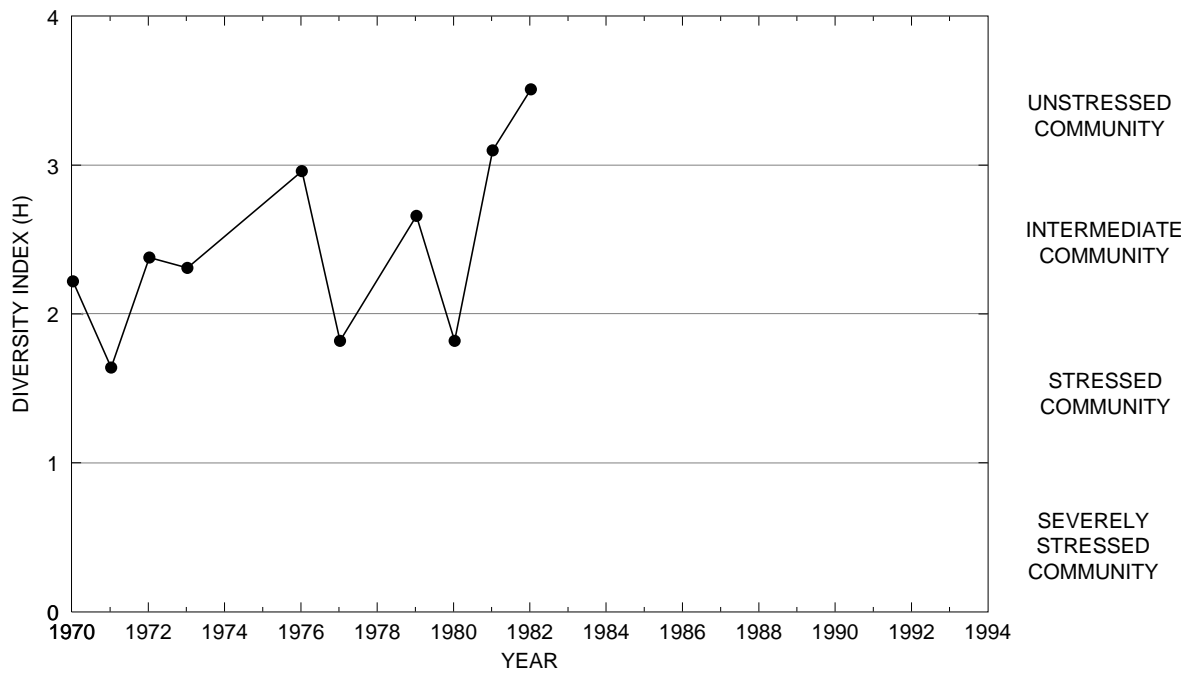
Date	Nov. 3, 1981		Oct. 27, 1982	
Total count	1,041		1,791	
Organism	Count	Percent	Count	Percent
Coleoptera				
Chrysomelidae	1	<1	—	
Elmidae				
<i>Dubiraphia</i>	1	<1	—	
<i>Optioservus</i>	2	<1	—	
<i>Oulimnius</i>	—		1	<1
<i>Stenelmis</i>	14	1	3	<1
Psephenidae				
<i>Psephenus</i>	5	<1	1	<1
Diptera				
Chironomidae	360	36	530	29
Empididae				
<i>Hemerodromia</i>	2	<1	3	<1
Simuliidae				
<i>Simulium</i>	14	1	2	<1
Tipulidae				
<i>Antocha</i>	30	3	160	9

**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site

[—, no data]

**01472054 PIGEON CREEK NEAR BUCKTOWN (SITE 8)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	822	28	3.11	4.77	0.32	0.63
1982	975	31	3.52	4.93	.30	.70

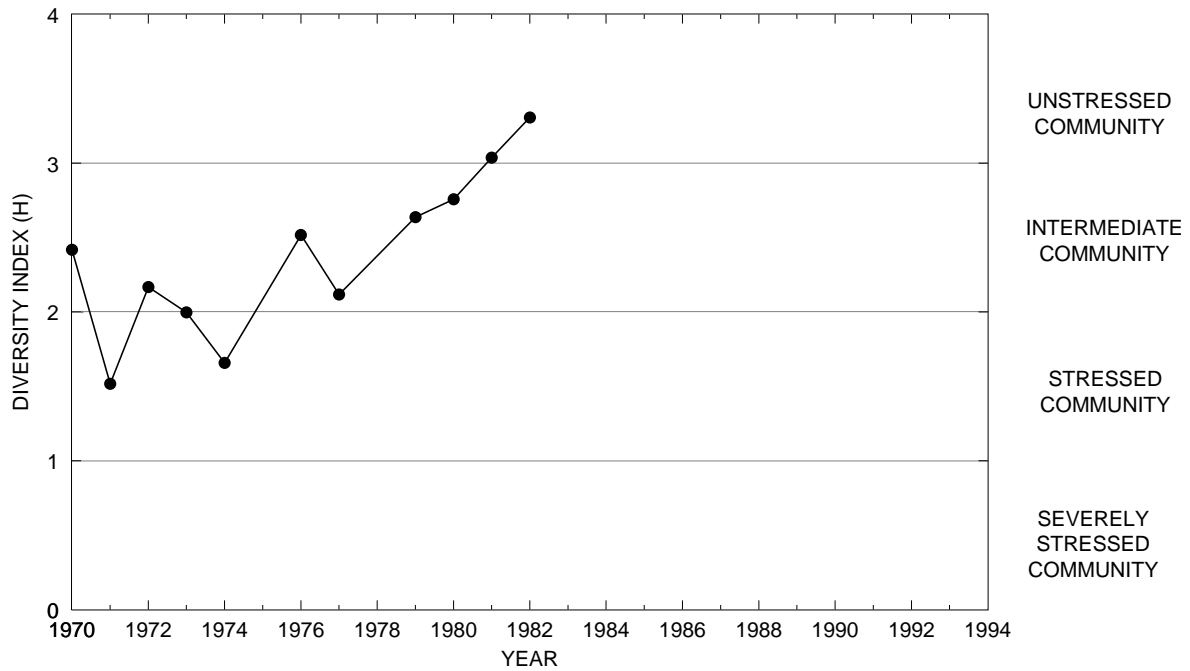




**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472065 PIGEON CREEK AT PORTERS MILL (SITE 9)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity ( $H_{max}$ )	Minimum diversity ( $H_{min}$ )	Evenness (E)
1981	482	23	3.03	4.57	0.41	0.63
1982	918	24	3.30	5.50	.25	.72

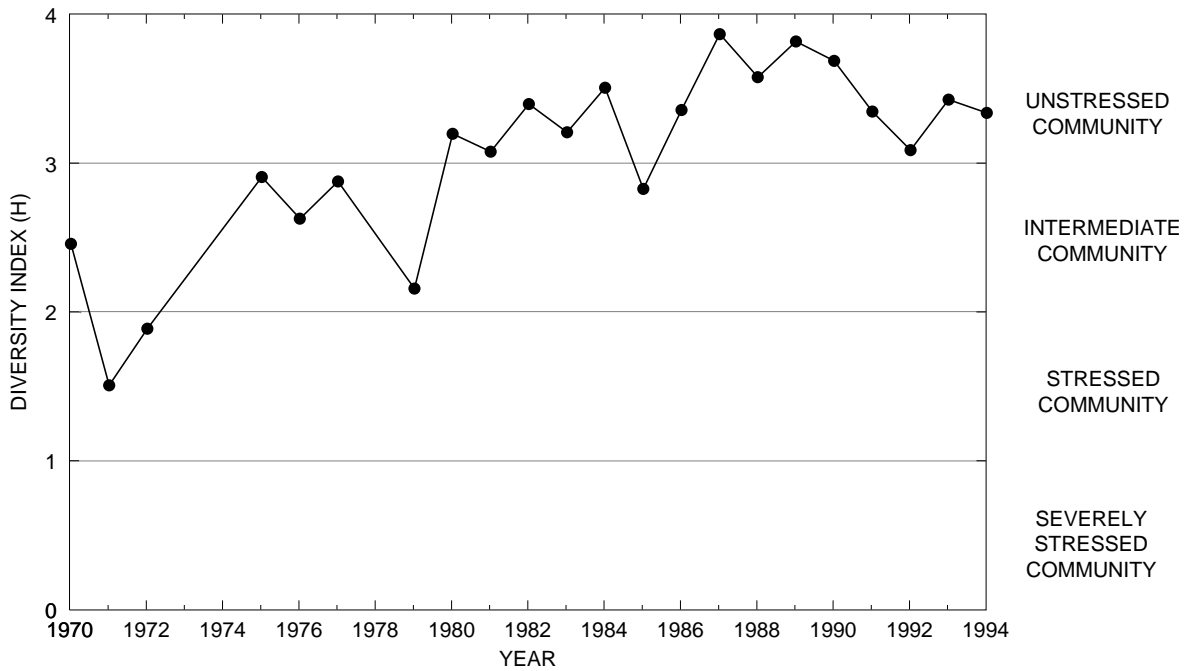


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472080 PIGEON CREEK NEAR PARKER FORD (SITE 10)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	2,785	33	3.07	5.03	0.13	0.60
1982	1,691	30	3.39	4.86	.18	.69
1983	969	24	3.20	4.56	.23	.69
1984	1,492	29	3.50	4.83	.20	.71
1985	1,032	21	2.82	4.33	.19	.63
1986	1,133	24	3.35	4.59	.21	.72
1987	2,098	39	3.86	5.29	.20	.72
1988	<sup>1</sup> 2,397	31	3.57	4.93	.14	.71
1989	2,270	40	3.81	5.32	.19	.71
1990	1,947	32	3.68	4.95	.17	.73
1991	1,705	34	3.34	5.06	.21	.65
1992	440	30	3.08	4.90	.57	.58
1993	1,161	35	3.42	5.03	.30	.66
1994	1,599	41	3.33	5.28	.26	.61

<sup>1</sup> Extrapolated from a 3/8 subsample.

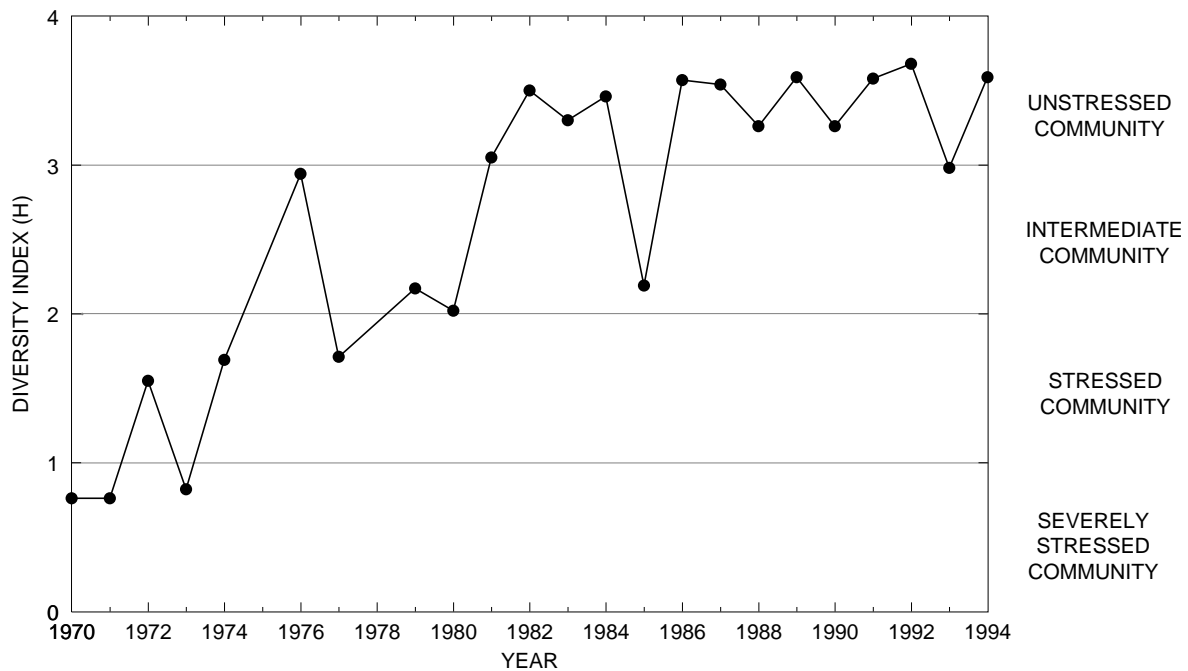


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472109 STONY RUN NEAR SPRING CITY (SITE 6)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 2,760	32	3.08	4.95	0.13	0.61
1982	1,265	27	3.53	4.76	.21	.73
1983	2,082	37	3.33	5.16	.19	.63
1984	998	26	3.49	4.66	.25	.74
1985	550	26	2.22	4.54	.41	.44
1986	651	38	3.60	5.08	.53	.67
1987	1,467	34	3.57	5.03	.24	.70
1988	<sup>1</sup> 816	24	3.29	4.50	.27	.71
1989	2,122	35	3.62	5.13	.18	.70
1990	2,129	37	3.29	5.18	.19	.62
1991	1,489	35	3.61	5.08	.24	.70
1992	671	29	3.71	4.90	.39	.74
1993	993	24	3.01	4.54	.23	.64
1994	1,010	36	3.62	5.08	.34	.69

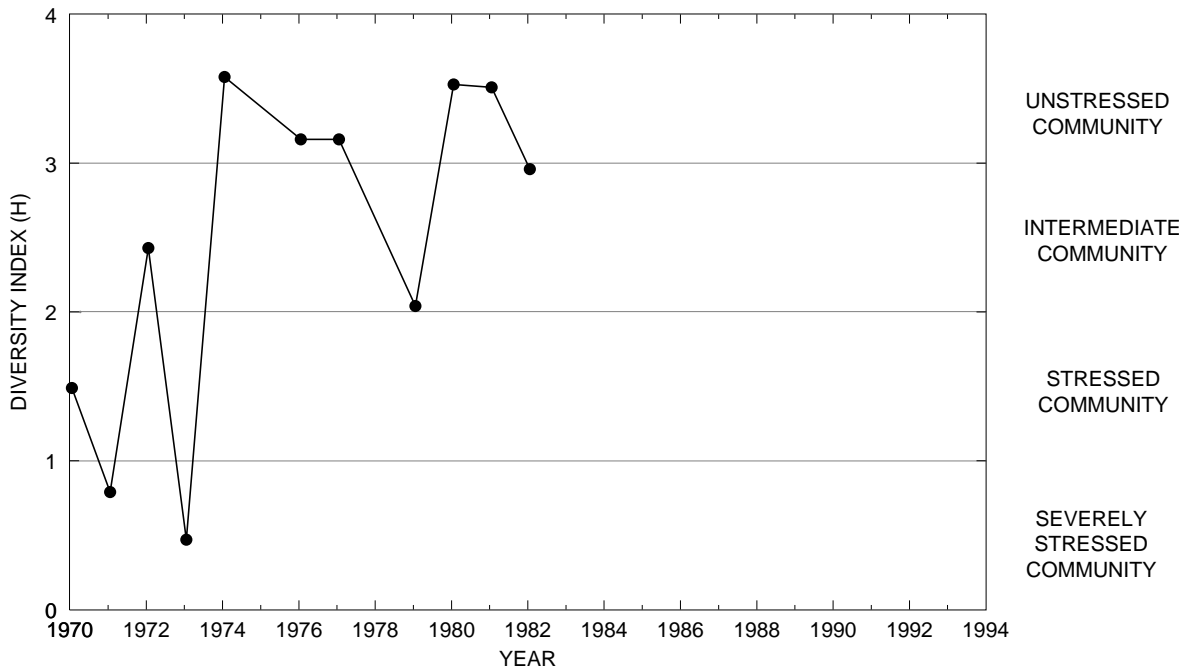
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472110 STONY RUN AT SPRING CITY (SITE 7)**

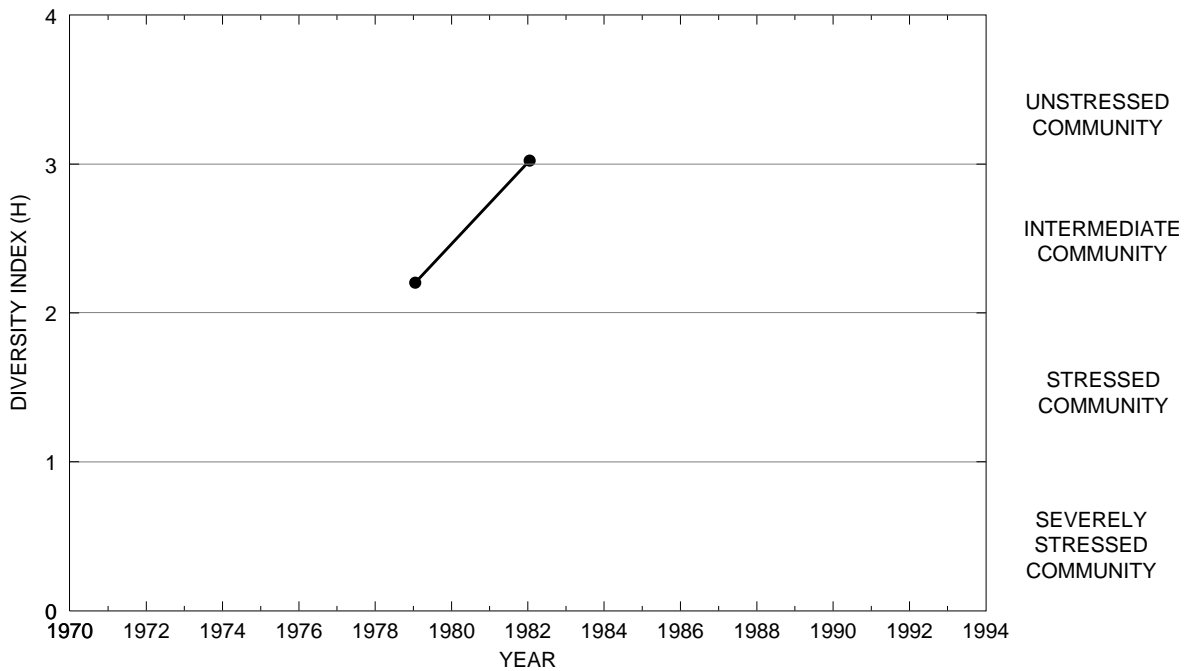
Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,507	32	3.52	4.95	0.22	0.70
1982	1,787	27	2.97	4.70	.16	.62



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472126 FRENCH CREEK AT TRYTHALL (SITE 41)**

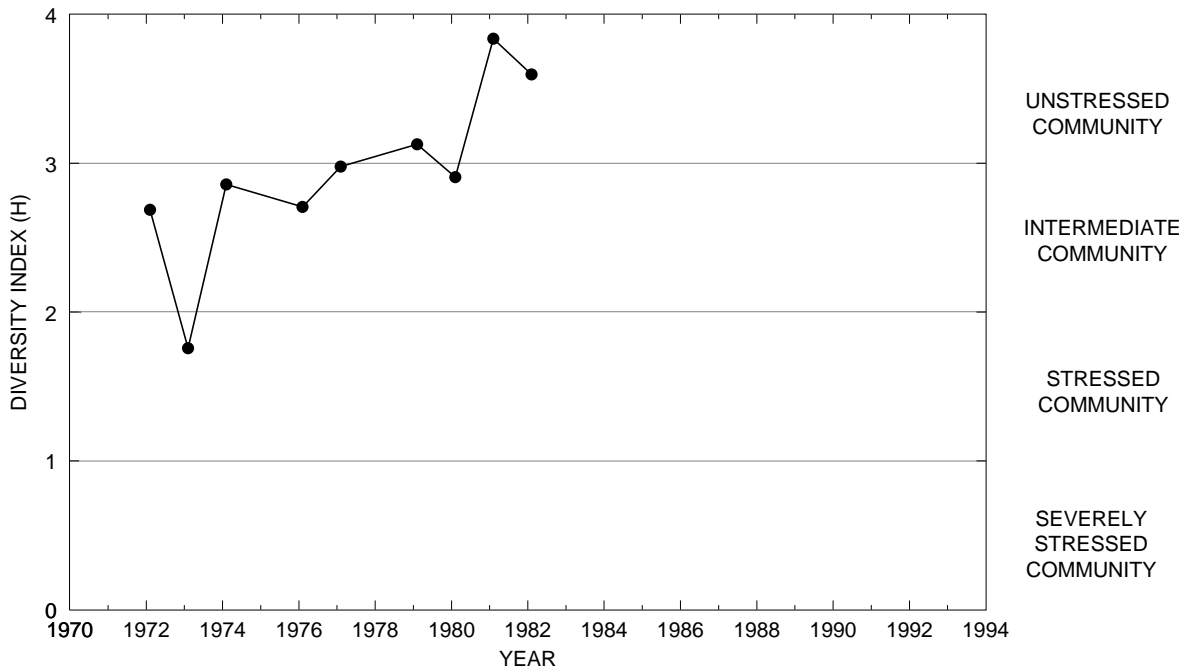
Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity ( $H_{max}$ )	Minimum diversity ( $H_{min}$ )	Evenness (E)
1981	—	—	—	—	—	—
1982	215	24	3.02	4.62	0.82	0.58



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472129 FRENCH CREEK NEAR KNAUERTOWN (SITE 11)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity ( $H_{max}$ )	Minimum diversity ( $H_{min}$ )	Evenness (E)
1981	1,078	36	3.83	5.20	0.33	0.72
1982	2,186	40	3.59	5.27	.20	.67

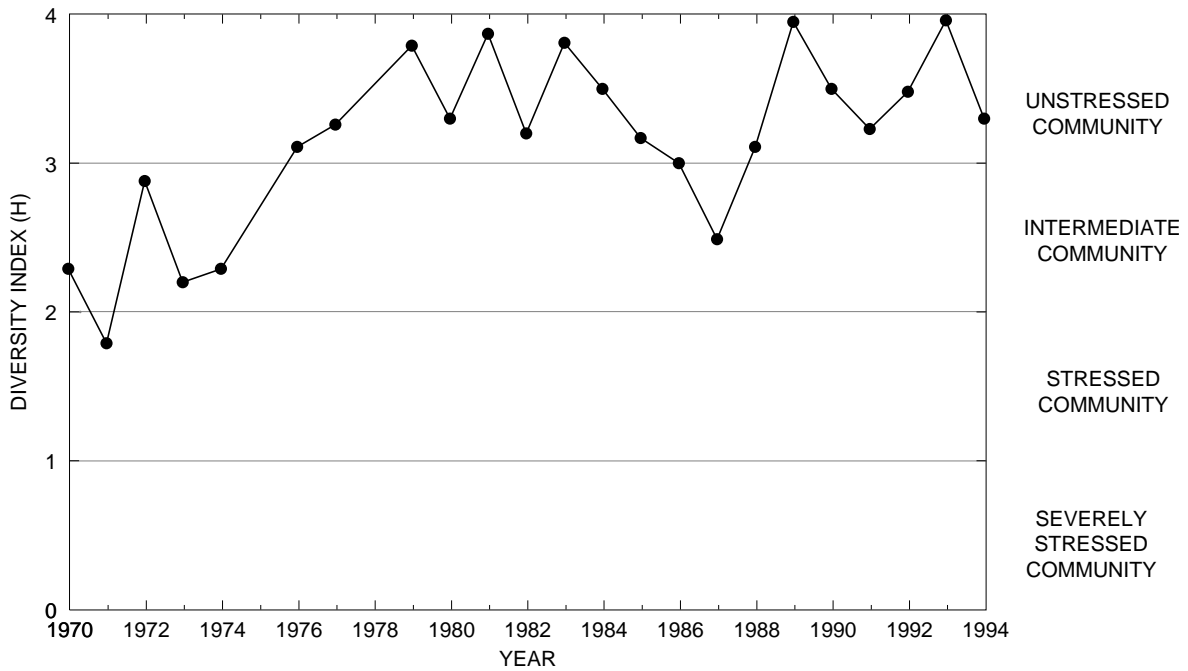


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472138 FRENCH CREEK NEAR COVENTRYVILLE (SITE 13)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,542	43	3.88	5.44	0.29	0.70
1982	<sup>1</sup> 2,380	35	3.21	5.10	.16	.62
1983	<sup>1</sup> 1,615	38	3.82	5.19	.24	.72
1984	<sup>1</sup> 1,295	27	3.51	4.77	.21	.72
1985	535	36	3.18	5.21	.59	.56
1986	1,395	31	3.01	4.87	.22	.60
1987	1,338	31	2.50	4.89	.23	.49
1988	1,846	31	3.12	4.94	.18	.62
1989	1,643	51	3.96	5.51	.33	.69
1990	1,507	46	3.51	5.53	.31	.61
1991	597	35	3.24	4.95	.52	.61
1992	573	29	3.49	4.88	.44	.69
1993	732	38	3.97	5.13	.48	.75
1994	1,029	32	3.31	4.91	.30	.65

<sup>1</sup> Extrapolated from a 3/8 subsample.

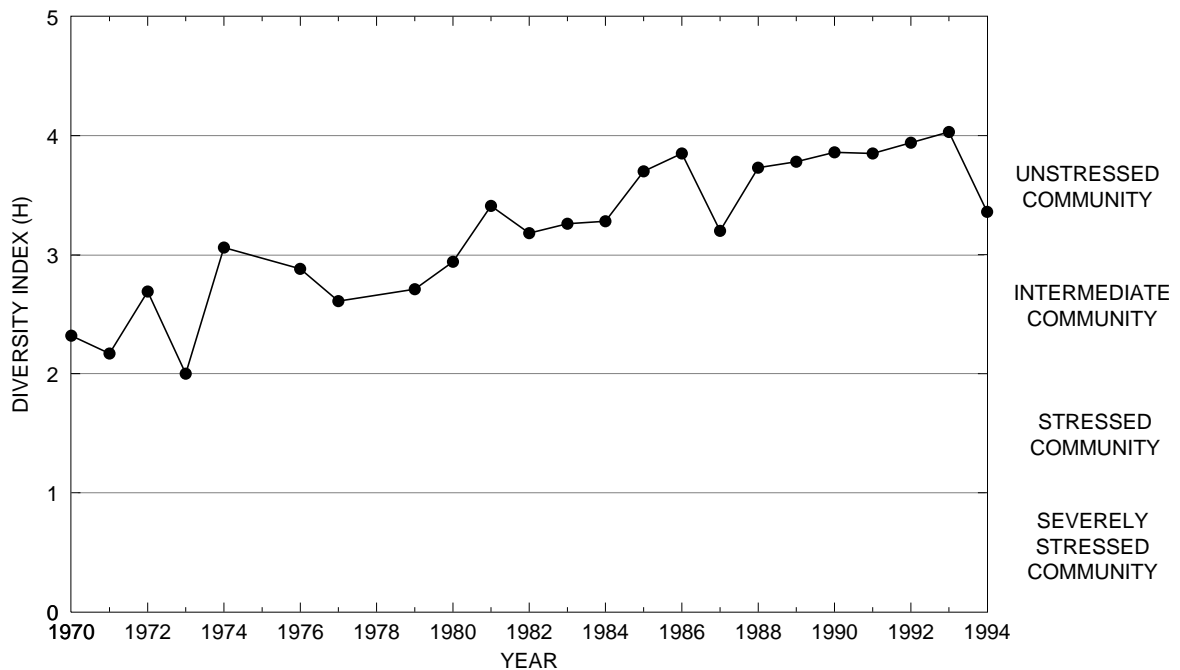


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472140 SOUTH BRANCH FRENCH CREEK AT COVENTRYVILLE (SITE 12)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 1,197	32	3.41	4.91	0.27	0.68
1982	<sup>1</sup> 2,649	33	3.18	5.01	.14	.63
1983	<sup>1</sup> 1,697	31	3.26	4.91	.19	.65
1984	<sup>1</sup> 1,563	26	3.28	4.63	.17	.70
1985	785	34	3.75	5.13	.40	.71
1986	1,312	39	3.85	5.24	.30	.72
1987	2,014	40	3.20	5.29	.21	.59
1988	3,070	40	3.73	5.31	.15	.69
1989	2,447	41	3.78	5.34	.18	.70
1990	643	36	3.86	5.20	.50	.72
1991	1,737	43	3.85	5.38	.26	.70
1992	1,336	48	3.94	5.60	.36	.68
1993	1,432	42	4.03	5.29	.30	.75
1994	565	29	3.36	4.76	.45	.67

<sup>1</sup> Extrapolated from a 3/8 subsample.



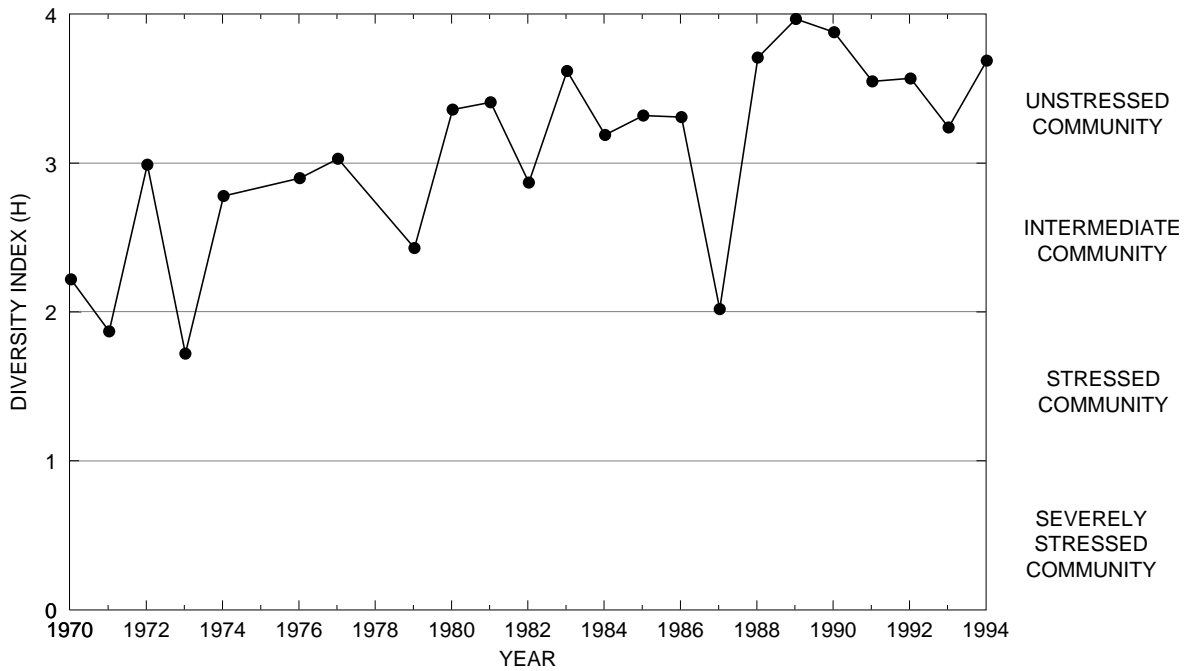


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472154 FRENCH CREEK NEAR PUGHTOWN (SITE 14)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,760	35	3.42	5.09	0.21	0.66
1982	1,543	29	2.88	4.81	.19	.58
1983	1,432	40	3.63	5.31	.29	.66
1984	1,716	31	3.20	4.93	.19	.64
1985	421	24	3.33	4.53	.47	.70
1986	1,416	32	3.32	4.96	.23	.65
1987	1,331	31	2.03	4.97	.23	.38
1988	<sup>1</sup> 2,589	33	3.72	5.03	.14	.73
1989	1,489	38	3.98	5.15	.26	.76
1990	747	35	3.89	5.02	.43	.75
1991	1,545	36	3.56	5.10	.24	.68
1992	1,025	40	3.58	5.32	.38	.65
1993	765	34	3.25	5.02	.41	.61
1994	1,212	40	3.70	5.21	.33	.69

<sup>1</sup> Extrapolated from a 3/8 subsample.

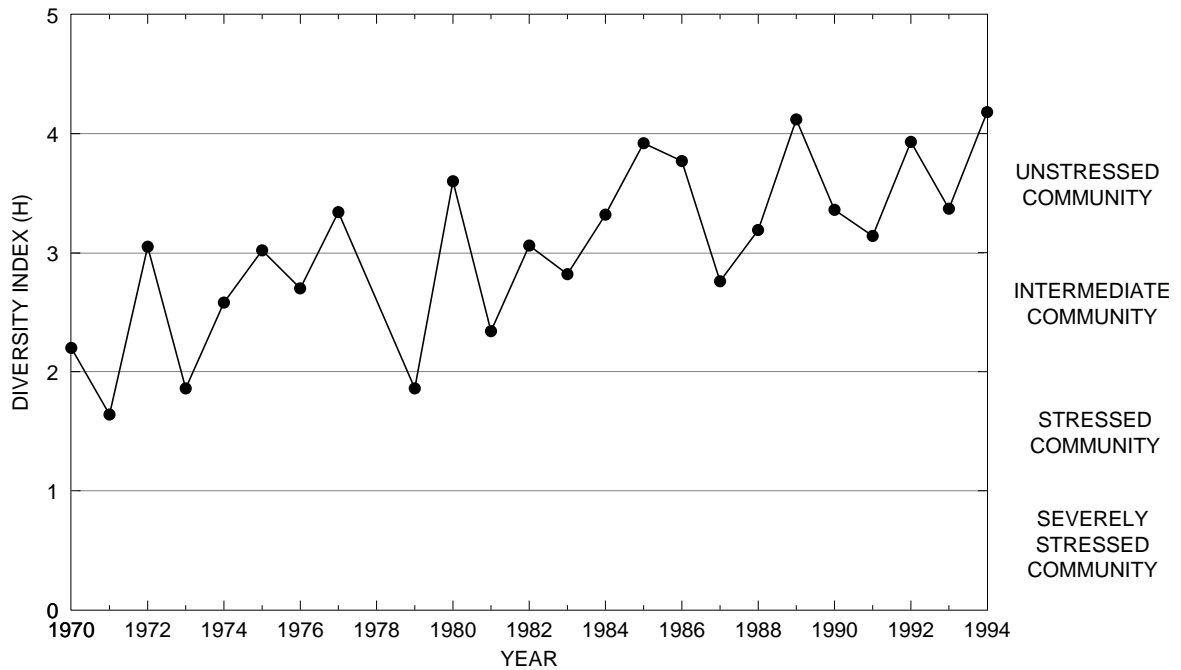


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472157 FRENCH CREEK NEAR PHOENIXVILLE (SITE 15)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 3,427	32	2.34	5.00	0.11	0.46
1982	<sup>1</sup> 548	22	3.06	4.48	.35	.66
1983	<sup>1</sup> 1,141	28	2.82	4.80	.24	.57
1984	<sup>1</sup> 821	29	3.32	4.78	.33	.67
1985	226	30	3.92	4.77	.99	.77
1986	712	36	3.77	5.21	.46	.70
1987	600	35	2.76	4.99	.52	.50
1988	<sup>1</sup> 2,496	41	3.19	5.37	.18	.58
1989	203	35	4.12	5.06	1.26	.75
1990	271	28	3.36	4.75	.80	.65
1991	1,254	38	3.14	5.29	.30	.57
1992	825	45	3.93	5.36	.52	.71
1993	587	34	3.37	4.96	.51	.64
1994	1,045	47	4.18	5.42	.44	.75

<sup>1</sup> Extrapolated from a 3/8 subsample.

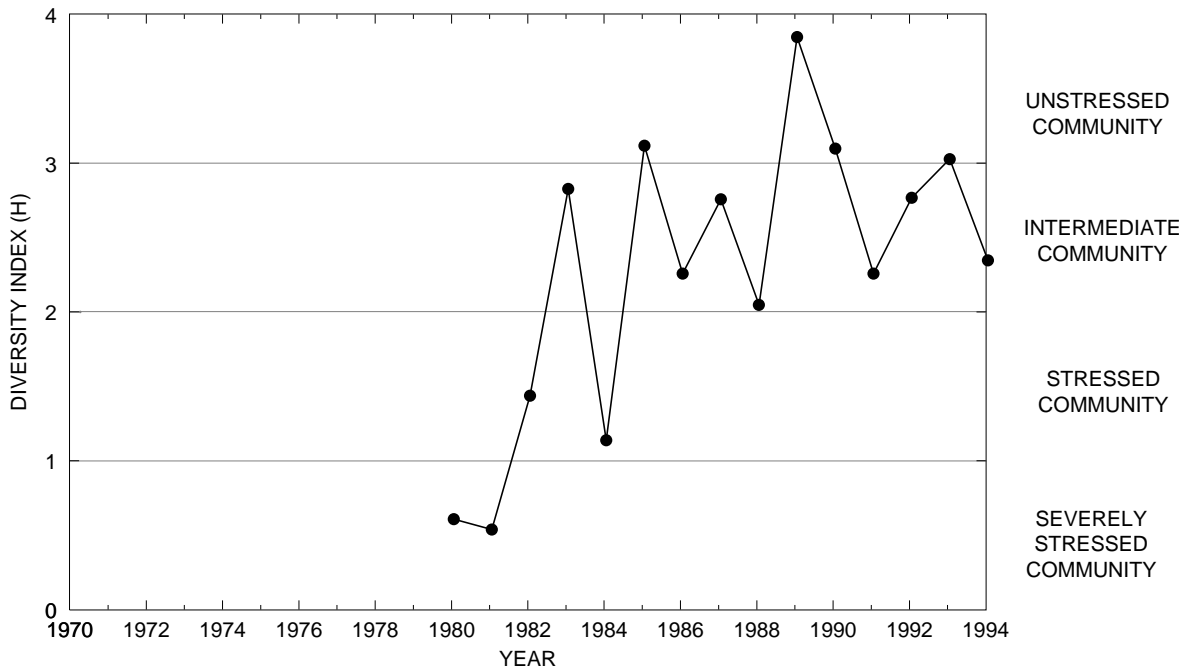


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**014721612 FRENCH CREEK AT RAILROAD BRIDGE AT PHOENIXVILLE (SITE 16)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	240	8	0.53	2.96	0.23	0.11
1982	619	20	1.43	4.21	.28	.29
1983	343	24	2.82	4.44	.56	.58
1984	2,247	18	1.13	4.18	.08	.26
1985	72	21	3.11	4.03	1.66	.61
1986	605	21	2.25	4.36	.31	.48
1987	489	25	2.75	4.61	.44	.55
1988	<sup>1</sup> 1,340	20	2.04	4.34	.15	.45
1989	270	36	3.84	5.01	1.03	.71
1990	113	22	3.09	4.07	1.24	.65
1991	727	24	2.25	4.52	.30	.46
1992	115	13	2.76	3.61	.67	.71
1993	985	33	3.02	5.05	.32	.57
1994	656	22	2.34	4.45	.30	.49

<sup>1</sup> Extrapolated from a 3/8 subsample.

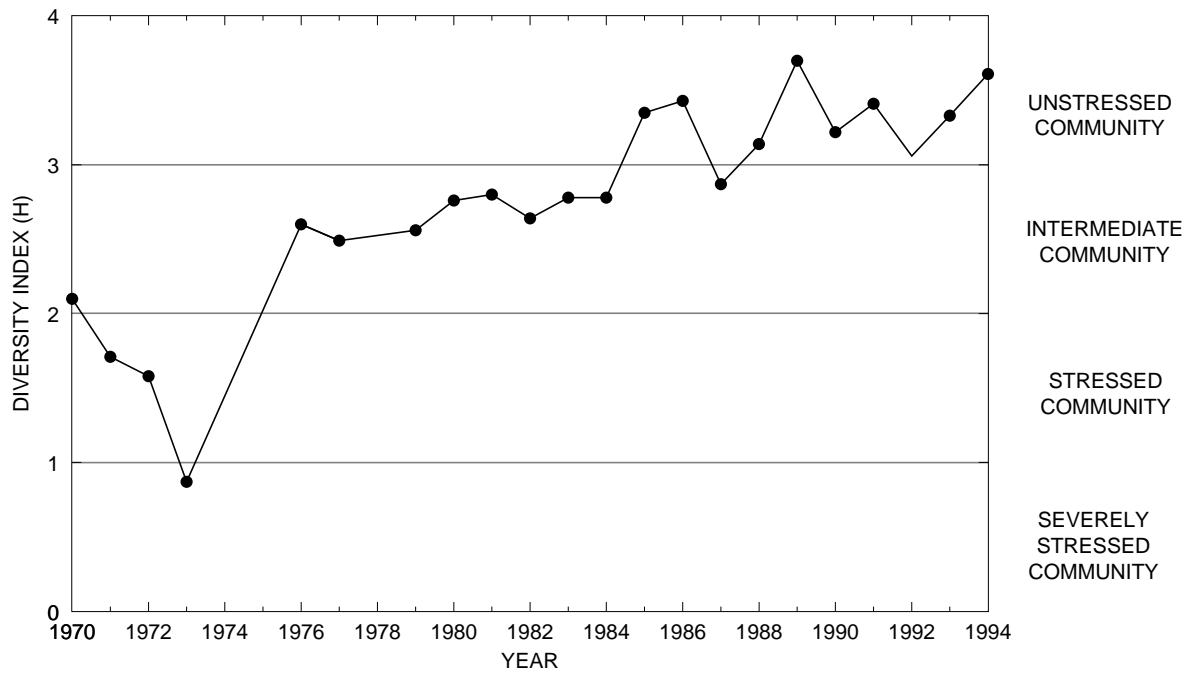


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472170 PICKERING CREEK NEAR EAGLE (SITE 1)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 1,301	23	2.80	4.54	0.17	0.60
1982	<sup>1</sup> 2,643	22	2.64	4.45	.09	.58
1983	2,715	31	2.78	4.94	.13	.55
1984	<sup>1</sup> 1,537	23	2.78	4.55	.15	.60
1985	765	31	3.35	4.91	.38	.66
1986	1,102	32	3.43	4.93	.29	.68
1987	1,431	25	2.87	4.63	.17	.61
1988	2,728	29	3.14	4.82	.12	.64
1989	1,088	32	3.70	5.02	.29	.72
1990	1,000	23	3.22	4.46	.22	.71
1991	725	29	3.41	4.87	.37	.68
1992	328	21	3.06	4.29	.51	.67
1993	872	26	3.33	4.68	.28	.69
1994	560	27	3.61	4.70	.43	.74

<sup>1</sup> Extrapolated from a 3/8 subsample.

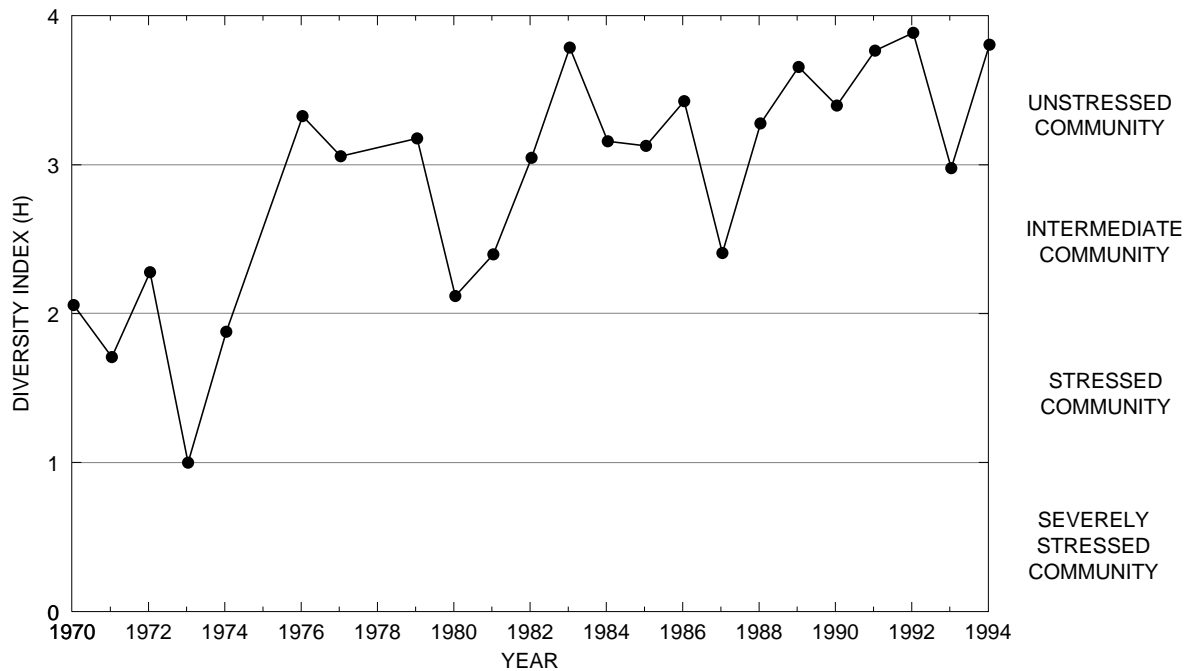


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472174 PICKERING CREEK NEAR CHESTER SPRINGS (SITE 2)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 747	20	2.41	4.26	0.24	0.54
1982	<sup>1</sup> 1,084	26	3.06	4.72	.23	.63
1983	526	24	3.80	4.62	.39	.80
1984	<sup>1</sup> 1,350	21	3.17	4.36	.15	.72
1985	595	28	3.14	4.73	.42	.63
1986	488	30	3.44	4.75	.53	.69
1987	170	18	2.42	4.04	.73	.51
1988	<sup>1</sup> 1,340	24	3.29	4.60	.18	.70
1989	1,076	35	3.67	5.13	.32	.70
1990	502	32	3.41	4.94	.55	.65
1991	766	39	3.78	5.27	.47	.69
1992	295	35	3.90	4.97	.94	.74
1993	219	21	2.99	4.27	.70	.64
1994	871	39	3.82	5.17	.43	.72

<sup>1</sup> Extrapolated from a 3/8 subsample.

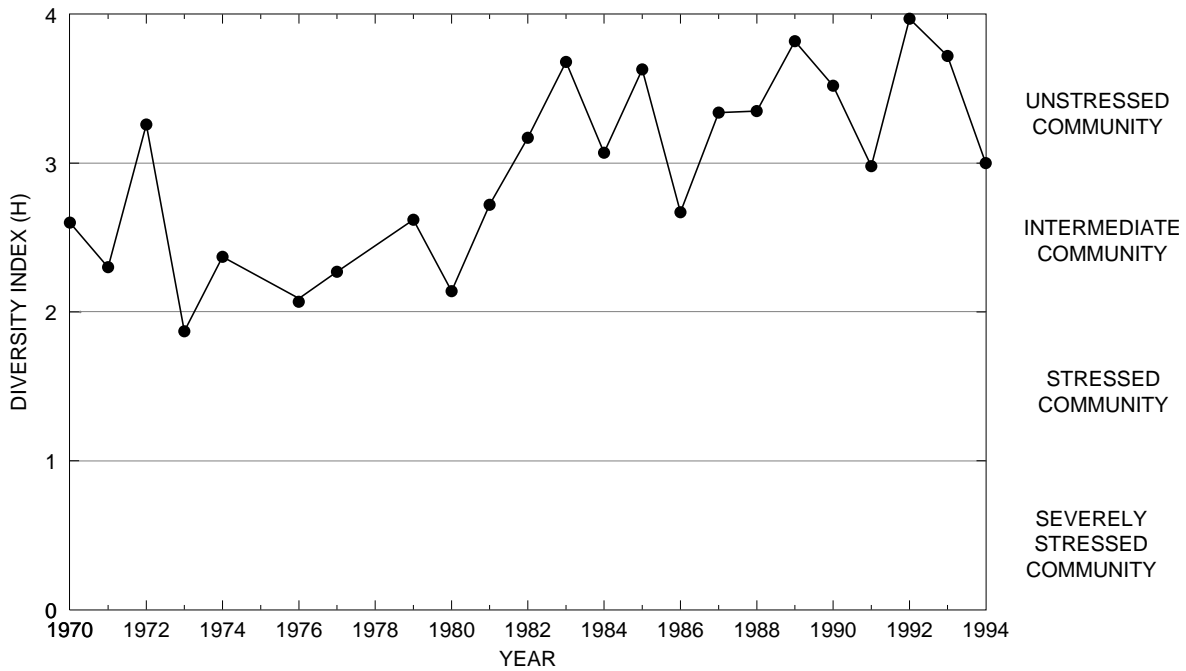


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**014721854 PICKERING CREEK AT MERLIN (SITE 3)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 1,757	27	2.72	4.70	0.16	0.56
1982	2,123	30	3.17	4.90	.15	.63
1983	<sup>1</sup> 935	25	3.68	4.58	.25	.79
1984	<sup>1</sup> 2,005	24	3.07	4.52	.17	.66
1985	912	39	3.63	5.25	.41	.67
1986	1,049	36	2.67	5.08	.33	.49
1987	1,396	38	3.34	5.24	.28	.62
1988	<sup>1</sup> 1,047	24	3.35	4.56	.22	.72
1989	1,015	45	3.82	5.42	.43	.68
1990	430	29	3.52	4.89	.56	.68
1991	956	33	2.98	5.08	.33	.56
1992	1,522	44	3.97	5.44	.30	.72
1993	939	30	3.72	4.80	.31	.76
1994	780	31	3.00	4.85	.37	.59

<sup>1</sup> Extrapolated from a 3/8 subsample.

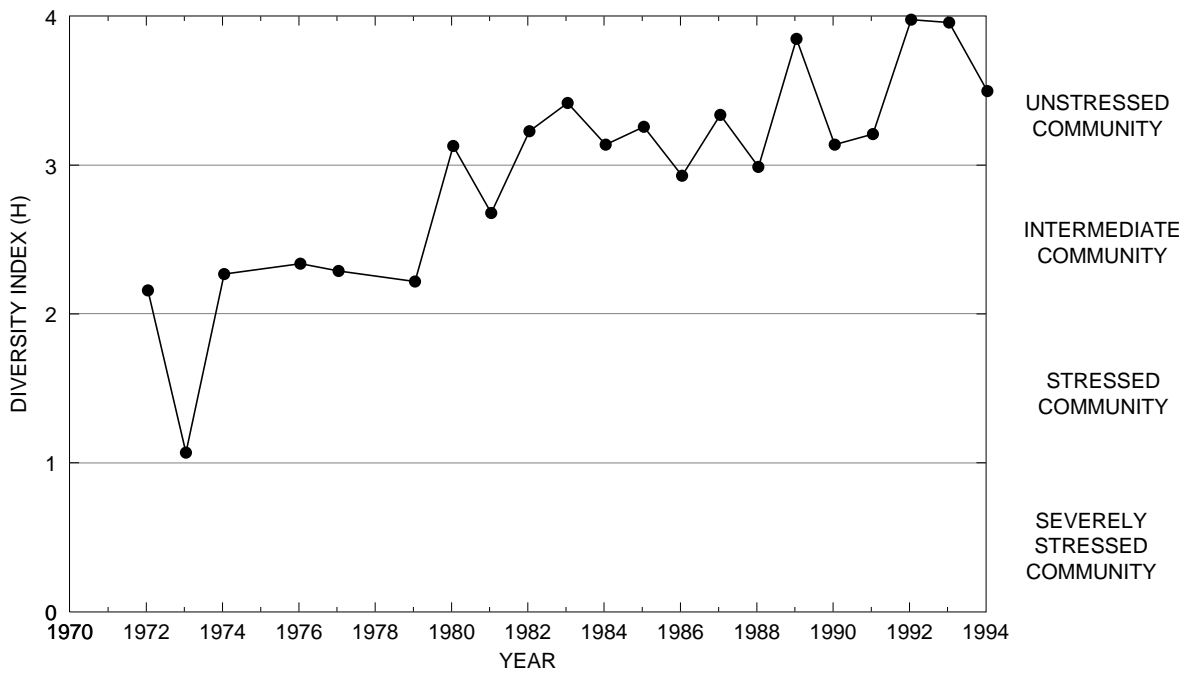


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**014721884 PICKERING CREEK AT CHARLESTOWN ROAD AT CHARLESTOWN (SITE 4)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	3,611	32	2.68	4.96	0.10	0.53
1982	1,887	31	3.23	4.97	.17	.64
1983	<sup>1</sup> 1,316	27	3.42	4.72	.21	.71
1984	1,943	26	3.14	4.72	.14	.66
1985	557	27	3.26	4.72	.42	.66
1986	2,593	38	2.93	5.25	.15	.54
1987	2,312	36	3.34	5.16	.17	.64
1988	<sup>1</sup> 4,090	36	2.99	5.17	.10	.57
1989	1,147	39	3.85	5.23	.34	.72
1990	1,684	37	3.14	5.19	.23	.59
1991	1,514	34	3.21	5.05	.23	.62
1992	2,247	46	3.98	5.53	.22	.71
1993	2,535	48	3.96	5.59	.21	.70
1994	1,325	40	3.50	5.32	.31	.64

<sup>1</sup> Extrapolated from a 3/8 subsample.

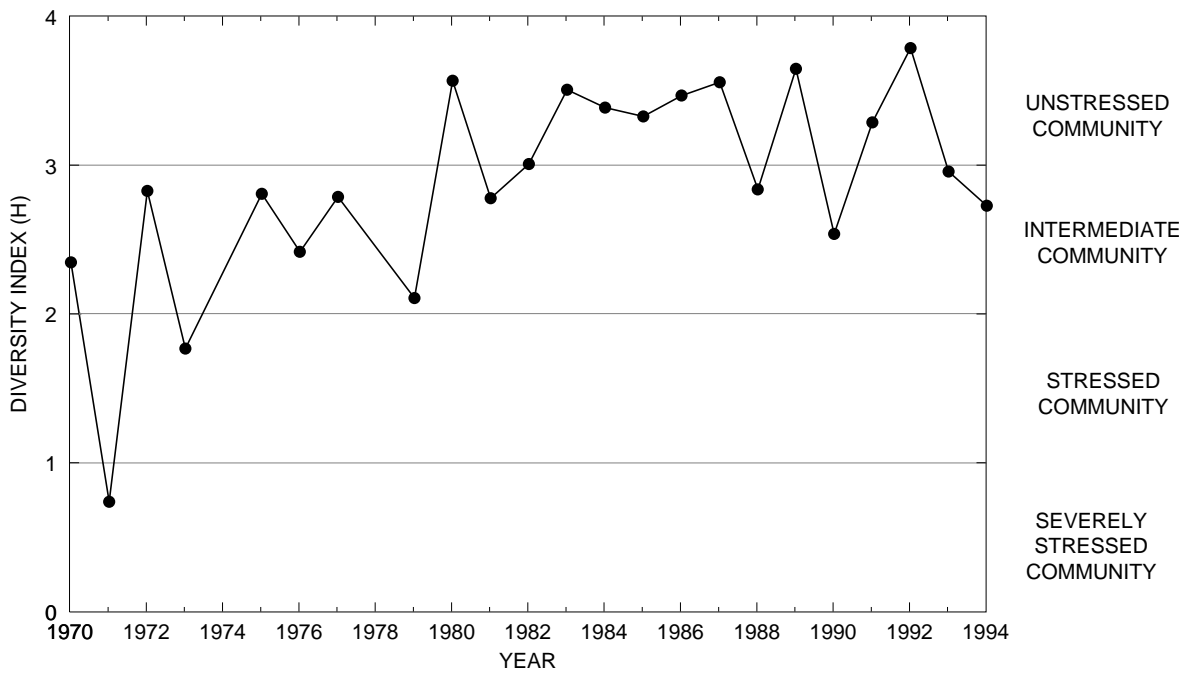


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01472190 PICKERING CREEK NEAR PHOENIXVILLE (SITE 5)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	2,081	32	2.77	4.98	0.17	0.54
1982	3,232	39	3.00	5.30	.14	.56
1983	2,183	38	3.50	5.18	.19	.66
1984	1,513	32	3.38	4.92	.22	.67
1985	438	30	3.32	4.81	.58	.65
1986	1,150	40	3.46	5.34	.34	.62
1987	2,029	39	3.55	5.30	.21	.66
1988	<sup>1</sup> 2,651	28	2.83	4.81	.12	.58
1989	373	34	3.64	5.13	.75	.66
1990	948	30	2.53	4.88	.49	.49
1991	3,066	42	3.28	5.37	.16	.60
1992	1,775	47	3.78	5.78	.28	.66
1993	1,259	36	2.95	5.18	.29	.55
1994	1,177	29	2.72	4.87	.24	.54

<sup>1</sup> Extrapolated from a 3/8 subsample.



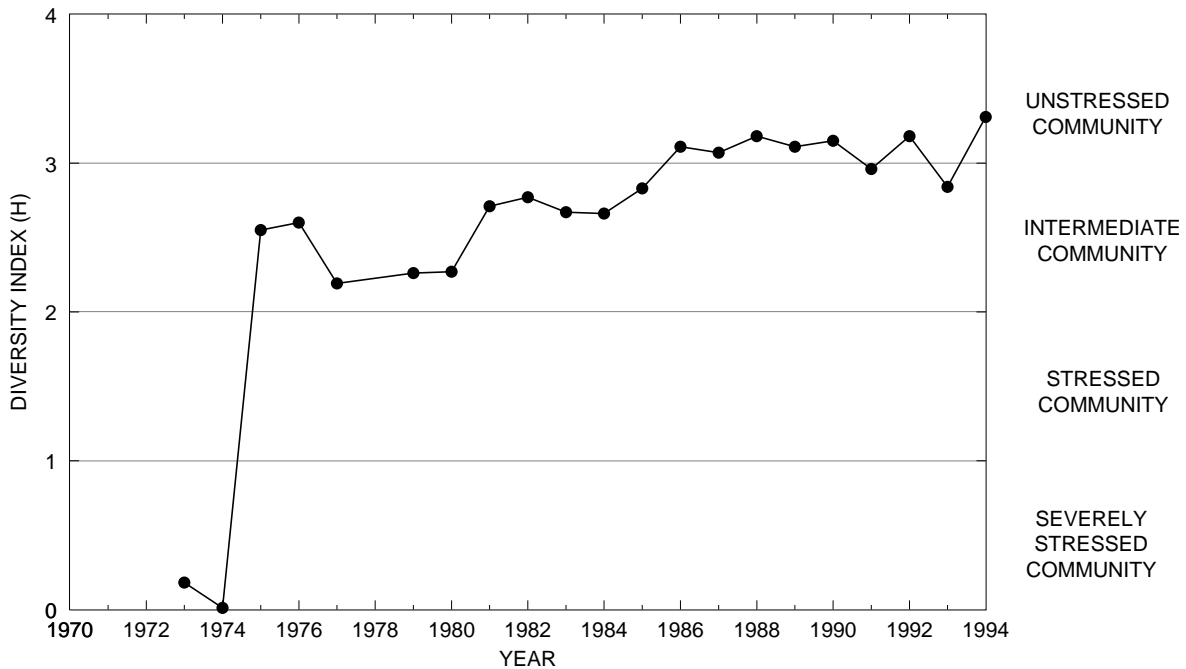


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01473167 LITTLE VALLEY CREEK AT HOWELLVILLE (SITE 49)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	2,871	20	2.70	4.31	0.08	0.62
1982	2,454	21	2.76	4.37	.09	.62
1983	1,231	18	2.66	4.13	.14	.63
1984	1,218	17	2.65	4.05	.14	.64
1985	551	20	2.82	4.27	.31	.63
1986	1,102	17	3.10	4.05	.15	.75
1987	1,357	15	3.06	3.89	.11	.78
1988	<sup>1</sup> 1,375	20	3.17	4.32	.14	.73
1989	346	17	3.10	4.01	.39	.75
1990	518	15	3.14	3.84	.24	.80
1991	481	14	2.95	3.78	.24	.77
1992	913	19	3.17	4.19	.19	.74
1993	804	16	2.83	3.83	.18	.71
1994	1,068	15	3.30	3.86	.13	.85

<sup>1</sup> Extrapolated from a 3/8 subsample.

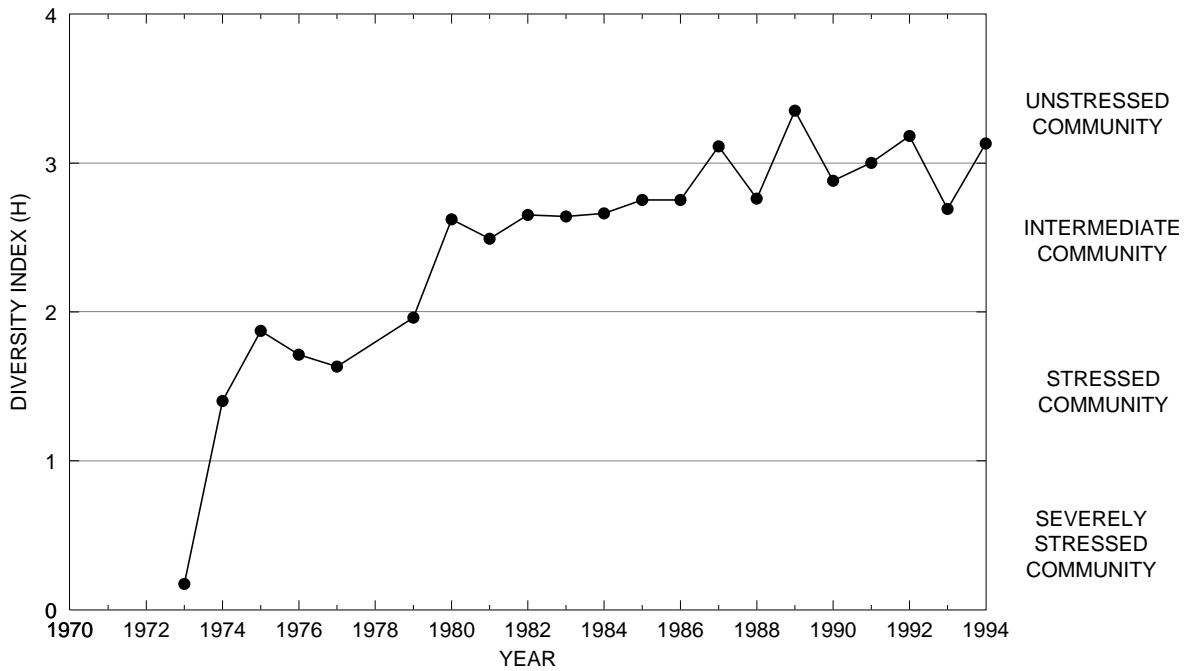


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01473168 VALLEY CREEK NEAR VALLEY FORGE (SITE 50)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	2,183	20	2.51	4.29	0.10	0.58
1982	3,144	20	2.67	4.33	.07	.61
1983	1,745	16	2.66	3.96	.09	.66
1984	2,073	21	2.68	4.35	.11	.61
1985	1,354	19	2.77	4.25	.14	.64
1986	1,820	19	2.77	4.20	.11	.65
1987	1,625	22	3.13	4.47	.14	.69
1988	<sup>1</sup> 2,278	15	2.78	3.92	.07	.71
1989	1,046	22	3.37	4.43	.20	.75
1990	1,557	19	2.90	4.27	.12	.67
1991	1,020	21	3.02	4.38	.20	.68
1992	1,848	23	3.20	4.50	.13	.70
1993	1,307	22	2.71	4.46	.17	.59
1994	1,561	23	3.15	4.55	.15	.68

<sup>1</sup> Extrapolated from a 3/8 subsample.

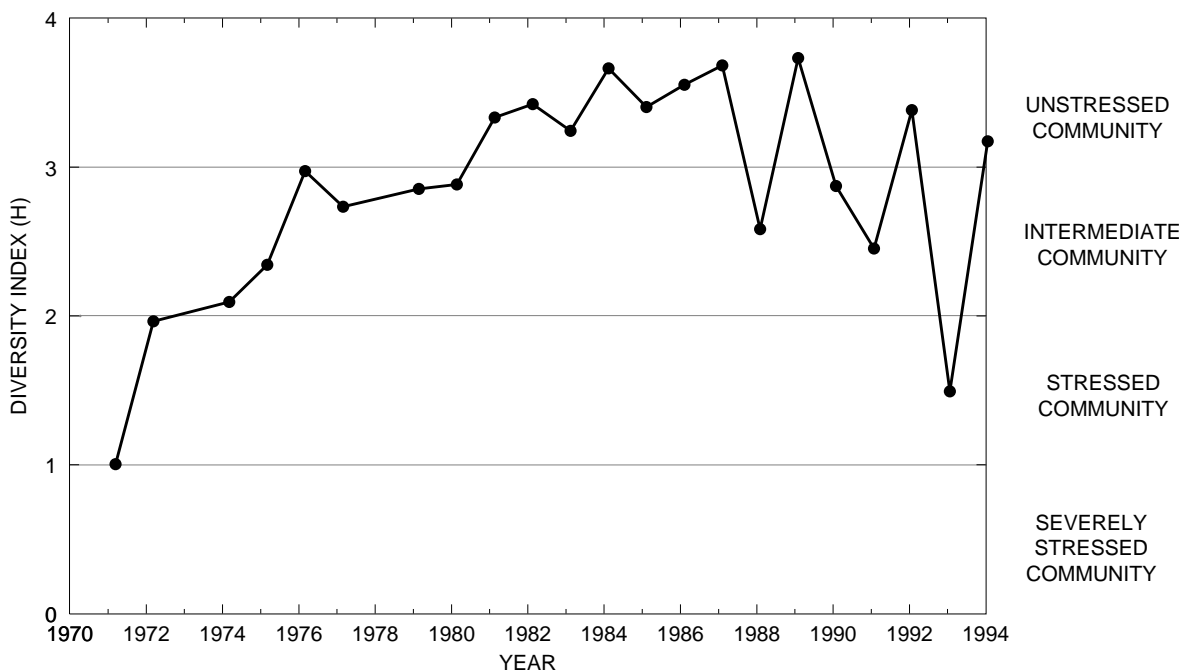


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01475300 DARBY CREEK AT WATERLOO MILLS NEAR DEVON (SITE 17)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	524	23	3.35	4.57	0.38	0.71
1982	215	20	3.44	4.30	.68	.76
1983	403	28	3.26	4.71	.58	.65
1984	1,208	28	3.68	4.73	.23	.77
1985	968	26	3.42	4.62	.26	.73
1986	706	26	3.57	4.62	.33	.76
1987	1,115	27	3.70	4.70	.24	.78
1988	<sup>1</sup> 2,008	24	2.60	4.59	.12	.56
1989	1,165	39	3.75	5.32	.33	.69
1990	450	19	2.89	4.21	.35	.66
1991	1,352	24	2.47	4.57	.18	.52
1992	918	35	3.40	5.04	.36	.65
1993	369	19	1.51	4.20	.41	.29
1994	883	29	3.19	4.80	.31	.64

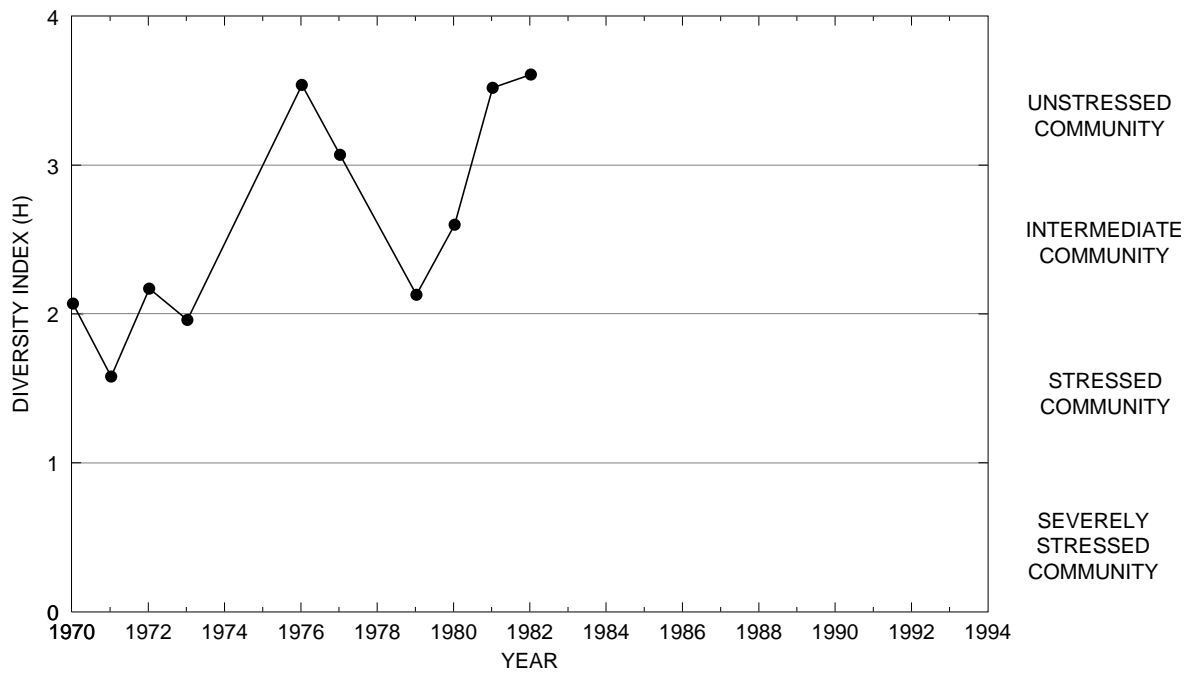
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01475830 CRUM CREEK NEAR PAOLI (SITE 18)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,133	29	3.53	4.78	0.25	0.73
1982	581	27	3.62	4.68	.41	.75

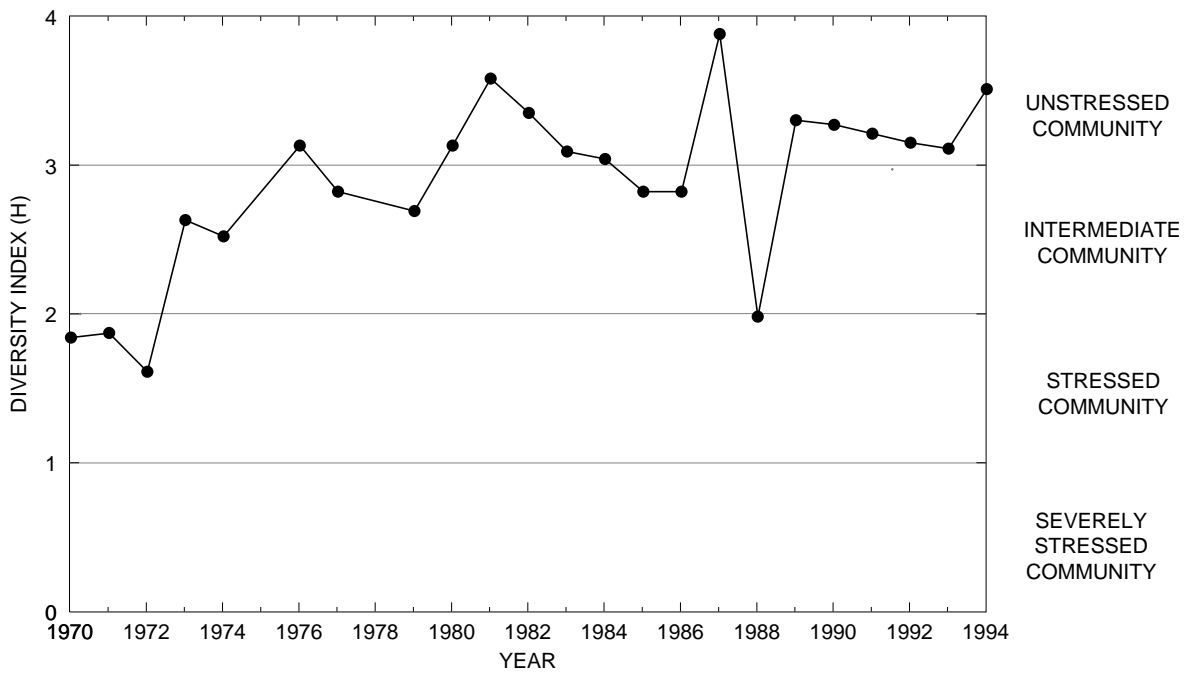


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01475840 CRUM CREEK AT WHITEHORSE (SITE 19)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	992	38	3.61	5.14	0.37	0.68
1982	1,636	35	3.38	5.11	.22	.65
1983	525	30	3.12	4.85	.50	.60
1984	1,222	26	3.07	4.73	.21	.63
1985	568	28	2.85	4.73	.43	.56
1986	907	28	2.85	4.78	.29	.57
1987	1,285	33	3.91	5.08	.26	.76
1988	<sup>1</sup> 2,028	24	2.01	4.59	.13	.42
1989	1,644	38	3.33	5.19	.24	.62
1990	1,117	37	3.30	5.12	.33	.62
1991	1,789	36	3.24	5.20	.21	.61
1992	1,881	32	3.18	4.99	.18	.62
1993	538	25	3.14	4.62	.40	.65
1994	1,240	32	3.54	4.97	.26	.70

<sup>1</sup> Extrapolated from a 3/8 subsample.

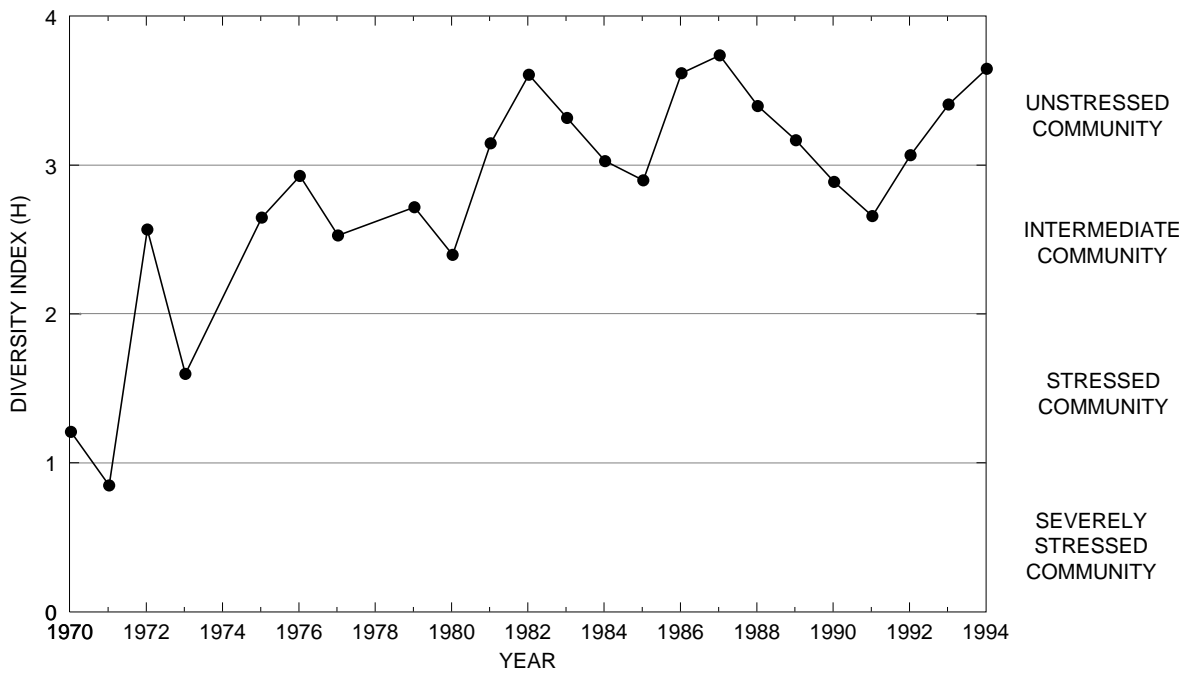


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476430 RIDLEY CREEK AT GOSHENVILLE (SITE 20)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	241	27	3.14	4.78	0.85	0.58
1982	<sup>1</sup> 1,345	29	3.60	4.81	.22	.74
1983	<sup>1</sup> 855	22	3.31	4.45	.24	.73
1984	<sup>1</sup> 1,688	21	3.02	4.42	.13	.67
1985	722	19	2.89	4.27	.24	.66
1986	980	26	3.61	4.68	.25	.76
1987	1,881	30	3.73	4.90	.17	.75
1988	<sup>1</sup> 1,660	26	3.39	4.65	.16	.72
1989	767	26	3.16	4.66	.31	.65
1990	757	30	2.88	4.81	.37	.56
1991	547	20	2.65	4.27	.31	.59
1992	1,297	31	3.06	4.87	.24	.61
1993	511	24	3.40	4.50	.40	.73
1994	572	26	3.64	4.56	.40	.78

<sup>1</sup> Extrapolated from a 3/8 subsample.

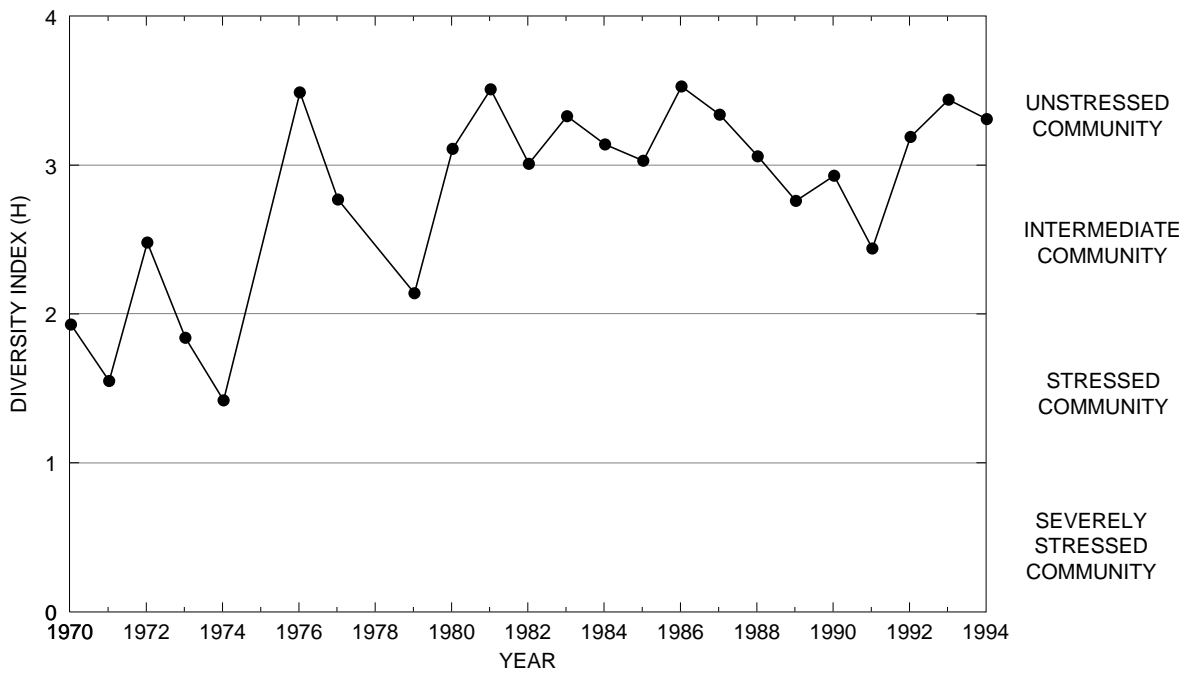


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476435 RIDLEY CREEK AT DUTTON MILL NEAR WEST CHESTER (SITE 21)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,407	33	3.52	5.02	0.24	0.69
1982	<sup>1</sup> 1,578	27	3.02	4.76	.17	.62
1983	<sup>1</sup> 1,697	32	3.34	5.02	.20	.65
1984	<sup>1</sup> 3,842	26	3.15	4.68	.08	.67
1985	1,617	27	3.04	4.77	.17	.62
1986	1,629	30	3.54	4.88	.19	.71
1987	1,198	27	3.35	4.71	.22	.70
1988	<sup>1</sup> 2,446	25	3.07	4.66	.11	.65
1989	1,347	29	2.77	4.84	.22	.55
1990	2,813	39	2.94	5.30	.16	.54
1991	1,509	21	2.45	4.37	.14	.55
1992	1,391	32	3.20	4.96	.23	.63
1993	1,467	36	3.45	5.17	.25	.65
1994	1,322	28	3.32	4.73	.21	.69

<sup>1</sup> Extrapolated from a 3/8 subsample.

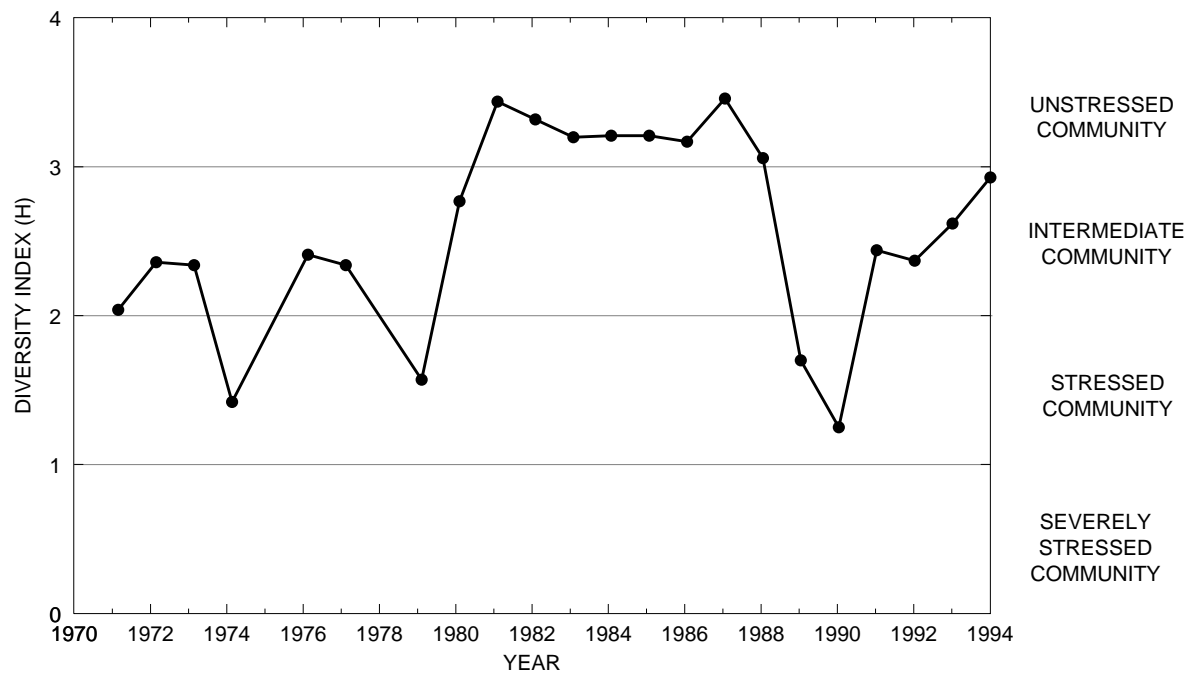


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476790 EAST BRANCH CHESTER CREEK AT GREEN HILL (SITE 22)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	323	25	3.44	4.68	0.62	0.70
1982	464	20	3.32	4.23	.36	.77
1983	319	22	3.20	4.39	.54	.69
1984	519	21	3.21	4.36	.35	.71
1985	247	13	3.21	3.54	.38	.89
1986	338	21	3.17	4.25	.49	.71
1987	1,304	32	3.46	5.01	.25	.67
1988	<sup>1</sup> 1,014	19	3.06	4.18	.18	.72
1989	231	22	1.70	4.29	.72	.28
1990	425	16	1.25	3.93	.31	.26
1991	505	23	2.44	4.55	.39	.49
1992	451	19	2.37	4.20	.35	.52
1993	106	15	2.62	3.59	.88	.64
1994	294	23	2.93	4.46	.62	.60

<sup>1</sup> Extrapolated from a 3/8 subsample.



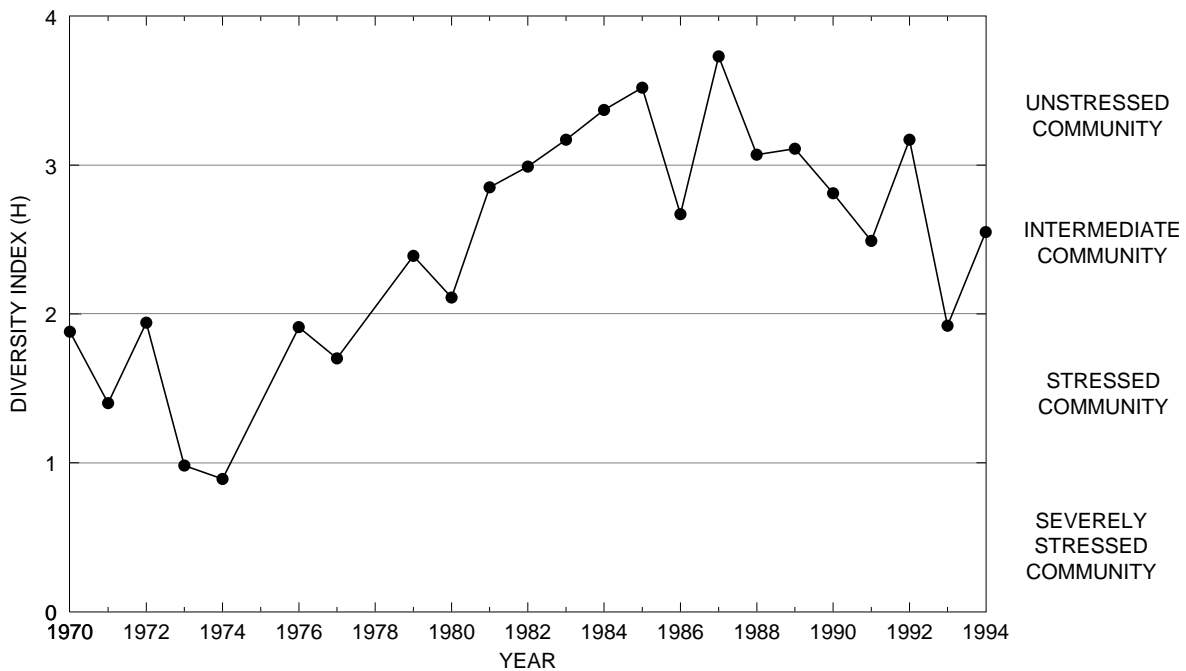


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476830 EAST BRANCH CHESTER CREEK AT MILLTOWN (SITE 23)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,371	28	2.84	4.73	0.20	0.58
1982	1,700	27	2.98	4.70	.16	.62
1983	1,247	31	3.16	4.90	.25	.63
1984	1,085	29	3.36	4.82	.26	.68
1985	991	25	3.51	4.55	.24	.76
1986	518	19	2.66	4.12	.32	.62
1987	2,252	31	3.72	4.92	.15	.75
1988	<sup>1</sup> 2,477	24	3.06	4.60	.10	.66
1989	4,174	33	3.10	5.06	.09	.60
1990	2,625	33	2.80	5.05	.14	.54
1991	1,731	26	2.48	4.68	.16	.51
1992	2,926	38	3.16	5.21	.14	.60
1993	693	20	1.91	4.28	.26	.41
1994	2,643	30	2.54	4.92	.13	.50

<sup>1</sup> Extrapolated from a 3/8 subsample.

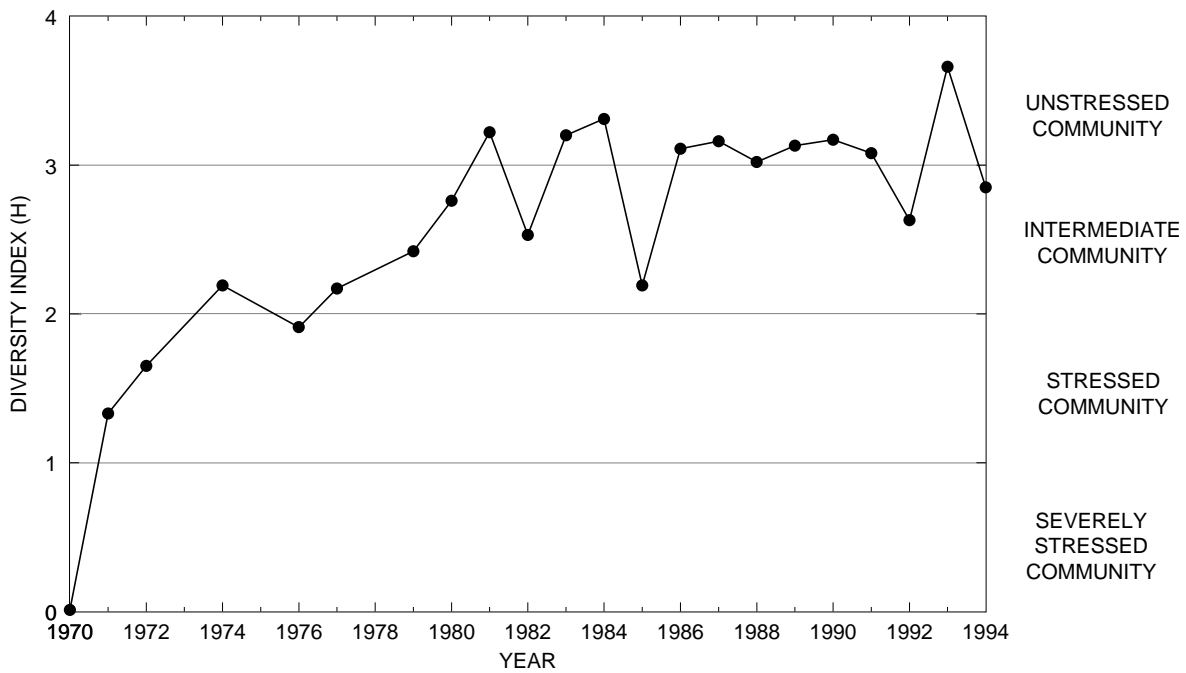


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476835 EAST BRANCH CHESTER CREEK AT WESTTOWN (SITE 24)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,783	28	3.21	4.83	0.16	0.65
1982	3,535	22	2.52	4.45	.07	.56
1983	2,250	30	3.19	4.85	.14	.65
1984	2,424	30	3.30	4.86	.13	.67
1985	1,365	25	2.18	4.60	.18	.45
1986	1,026	19	3.10	4.27	.18	.71
1987	2,592	29	3.15	4.87	.12	.64
1988	<sup>1</sup> 1,677	22	3.01	4.47	.13	.66
1989	1,518	27	3.12	4.71	.18	.65
1990	3,087	33	3.16	5.01	.12	.62
1991	1,808	27	3.07	4.76	.16	.63
1992	2,471	24	2.62	4.59	.10	.56
1993	643	24	3.65	4.60	.33	.78
1994	767	24	2.84	4.51	.28	.60

<sup>1</sup> Extrapolated from a 3/8 subsample.



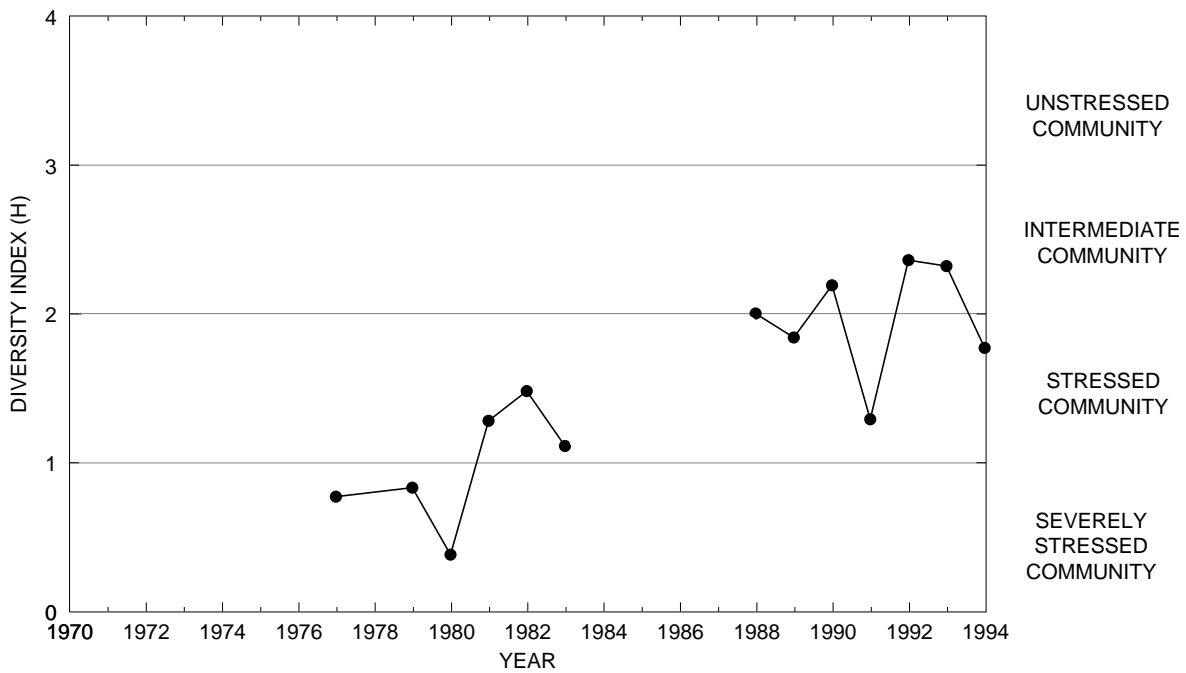
**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476840 GOOSE CREEK TRIBUTARY TO EAST BRANCH CHESTER CREEK NEAR WEST CHESTER (SITE 25)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	356	9	1.50	3.13	0.19	0.45
1982	<sup>1</sup> 9,644	8	1.13	3.00	.01	.37
1983	—	—	—	—	—	—
1984	—	—	—	—	—	—
1985	—	—	—	—	—	—
1986	—	—	—	—	—	—
1987	—	—	—	—	—	—
1988	<sup>2</sup> 587	12	2.02	3.56	.17	.55
1989	3,091	17	1.86	4.09	.06	.45
1990	1,111	20	2.21	4.32	.17	.49
1991	2,108	17	1.31	4.08	.08	.31
1992	1,095	20	2.31	4.32	.18	.52
1993	765	16	2.34	3.92	.19	.58
1994	671	11	1.86	3.46	.14	.52

<sup>1</sup> Extrapolated from a 1/4 subsample.

<sup>2</sup> Extrapolated from a 3/8 subsample.

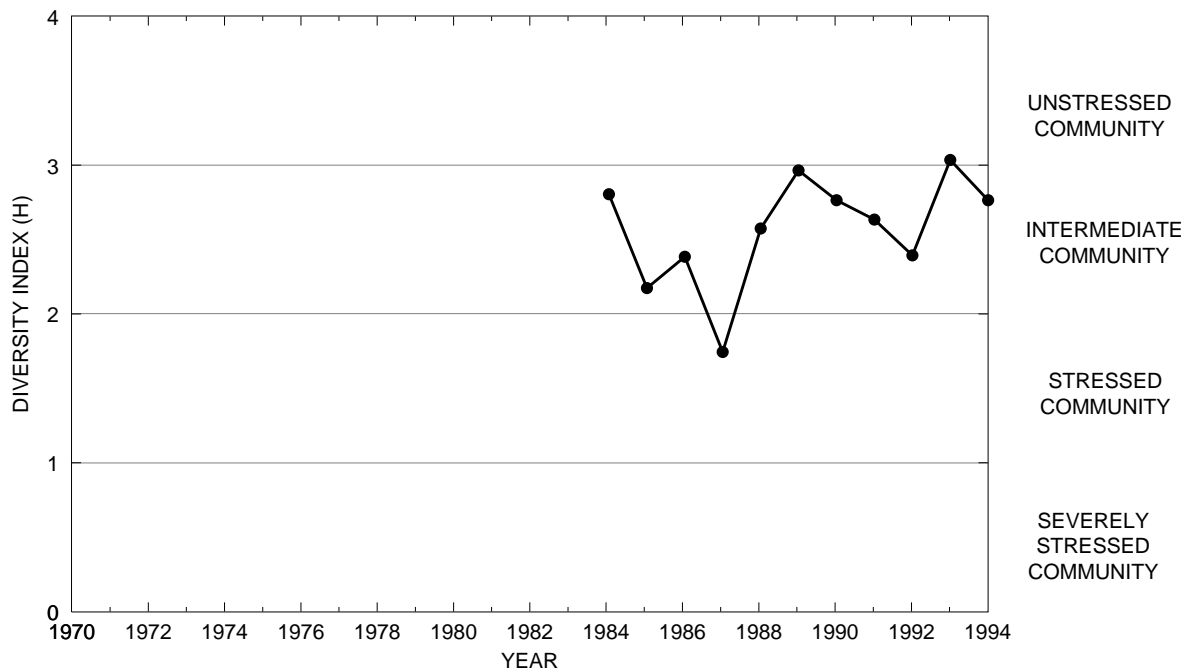


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01476848 EAST BRANCH CHESTER CREEK BELOW GOOSE CREEK NEAR WEST CHESTER (SITE 51)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	—	—	—	—	—	—
1982	—	—	—	—	—	—
1983	2,869	22	2.41	4.44	0.08	0.53
1984	2,874	22	2.81	4.47	.08	.62
1985	4,236	19	2.18	4.24	.05	.51
1986	1,514	23	2.39	4.47	.15	.52
1987	12,174	20	1.75	4.33	.02	.40
1988	<sup>1</sup> 3,963	17	2.58	4.09	.05	.63
1989	926	28	2.97	4.75	.28	.60
1990	3,033	31	2.77	4.54	.11	.55
1991	3,951	27	2.64	4.76	.08	.55
1992	3,046	26	2.40	4.70	.10	.50
1993	1,169	28	3.04	4.79	.24	.62
1994	2,093	32	2.77	5.02	.16	.54

<sup>1</sup> Extrapolated from a 3/8 subsample.

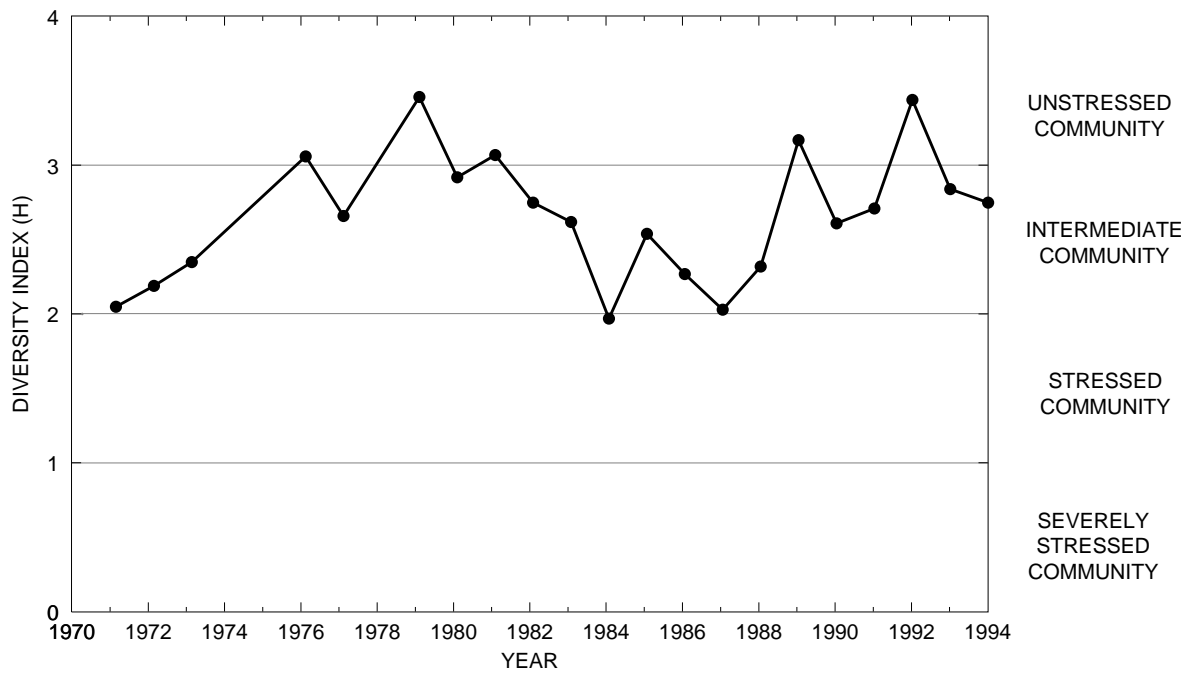


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01478120 EAST BRANCH WHITE CLAY CREEK NEAR AVONDALE (SITE 28)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	836	18	3.06	4.14	0.20	0.73
1982	1,295	23	2.74	4.50	.18	.59
1983	1,368	18	2.61	4.19	.13	.61
1984	932	16	1.96	3.93	.16	.48
1985	1,007	22	2.53	4.49	.21	.54
1986	1,026	19	2.26	4.23	.18	.51
1987	4,223	19	2.02	4.26	.05	.47
1988	<sup>1</sup> 2,624	19	2.31	4.26	.08	.53
1989	1,797	29	3.16	4.79	.17	.65
1990	1,492	20	2.60	4.29	.13	.59
1991	2,007	19	2.70	4.25	.10	.63
1992	2,514	29	3.43	4.83	.13	.70
1993	2,090	27	2.83	4.72	.12	.61
1994	1,779	28	2.74	4.79	.16	.56

<sup>1</sup> Extrapolated from a 3/8 subsample.

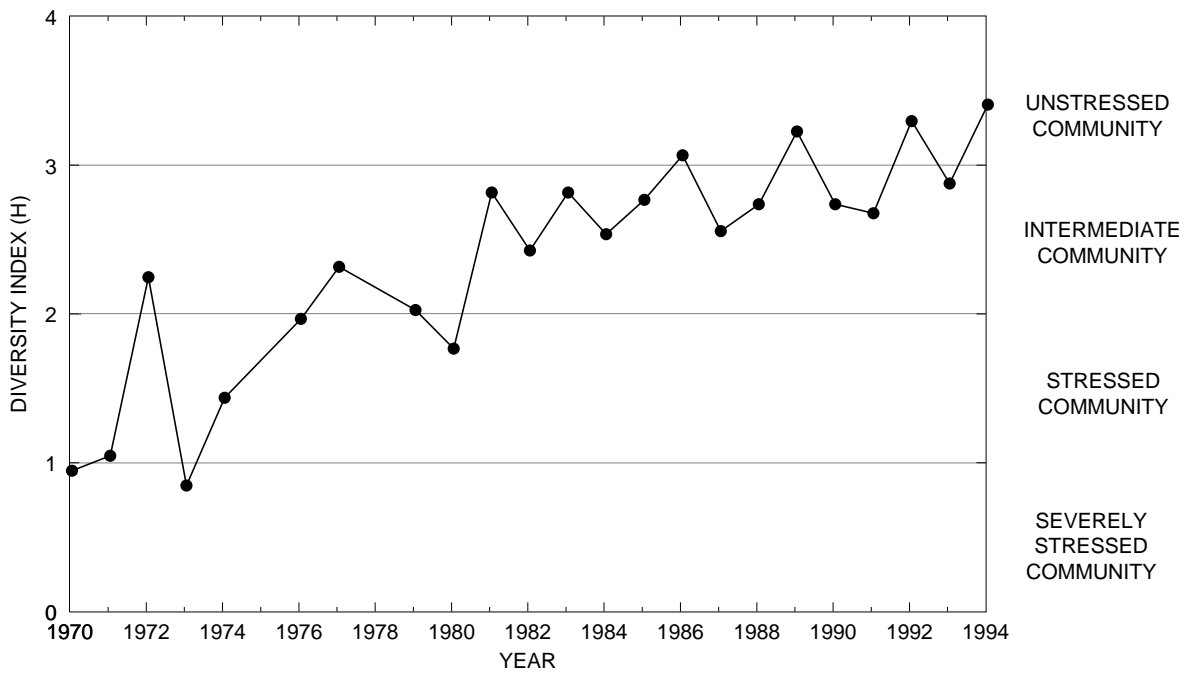


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01478190 MIDDLE BRANCH WHITE CLAY CREEK NEAR WICKERTON (SITE 29)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	780	16	2.82	4.00	0.18	0.69
1982	1,697	19	2.43	4.23	.11	.56
1983	833	17	2.82	4.12	.19	.67
1984	1,742	19	2.54	4.25	.11	.59
1985	1,265	25	2.77	4.57	.19	.59
1986	898	24	3.07	4.59	.25	.65
1987	1,314	23	2.56	4.48	.17	.55
1988	<sup>1</sup> 3,440	21	2.74	4.37	.07	.62
1989	1,438	26	3.23	4.66	.18	.68
1990	2,008	29	2.74	4.83	.15	.55
1991	2,464	24	2.68	4.57	.11	.58
1992	1,458	32	3.30	4.98	.22	.65
1993	829	19	2.88	4.19	.21	.67
1994	1,912	24	3.41	4.58	.13	.74

<sup>1</sup> Extrapolated from a 3/8 subsample.

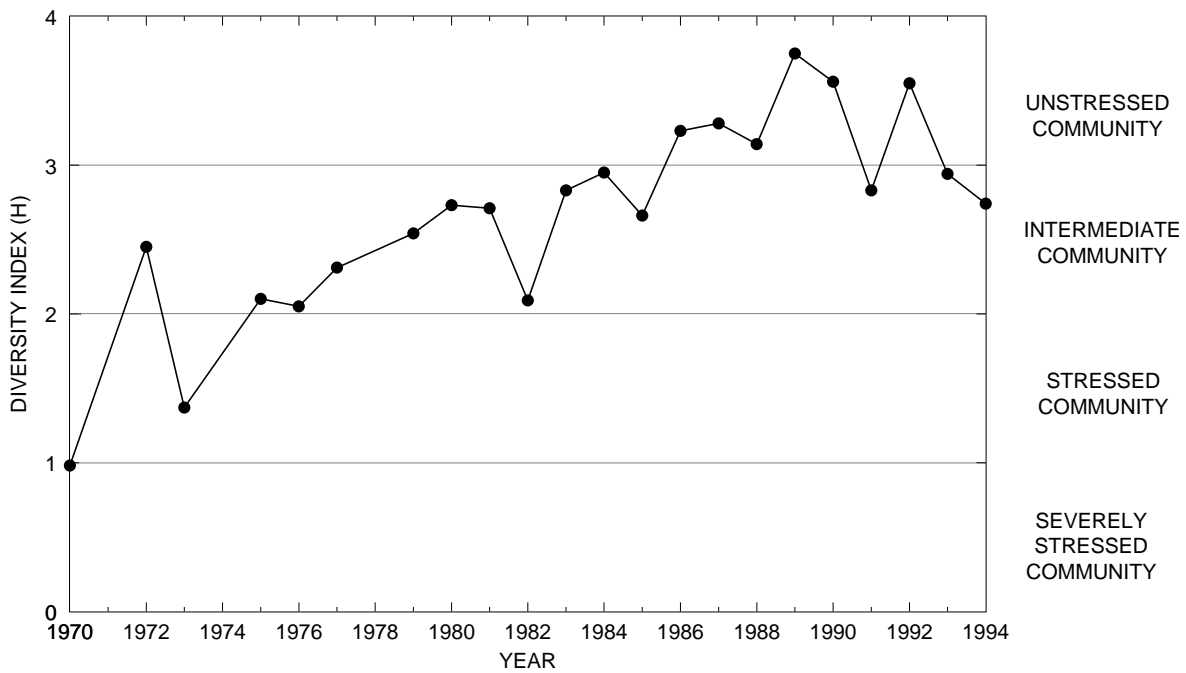


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01478220 WEST BRANCH WHITE CLAY CREEK NEAR CHESTERVILLE (SITE 30)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,216	22	2.70	4.42	0.18	0.59
1982	2,270	23	2.08	4.50	.11	.45
1983	794	23	2.82	4.50	.27	.60
1984	1,232	23	2.94	4.45	.18	.65
1985	836	29	2.65	4.84	.33	.52
1986	1,079	24	3.22	4.56	.21	.69
1987	1,665	24	3.27	4.58	.15	.71
1988	<sup>1</sup> 2,065	23	3.13	4.48	.12	.69
1989	1,114	34	3.74	5.08	.30	.72
1990	1,794	29	3.55	4.87	.16	.72
1991	1,438	27	2.82	4.82	.19	.58
1992	1,472	34	3.54	5.07	.23	.68
1993	1,270	33	2.93	4.98	.26	.57
1994	1,027	25	2.73	4.68	.23	.56

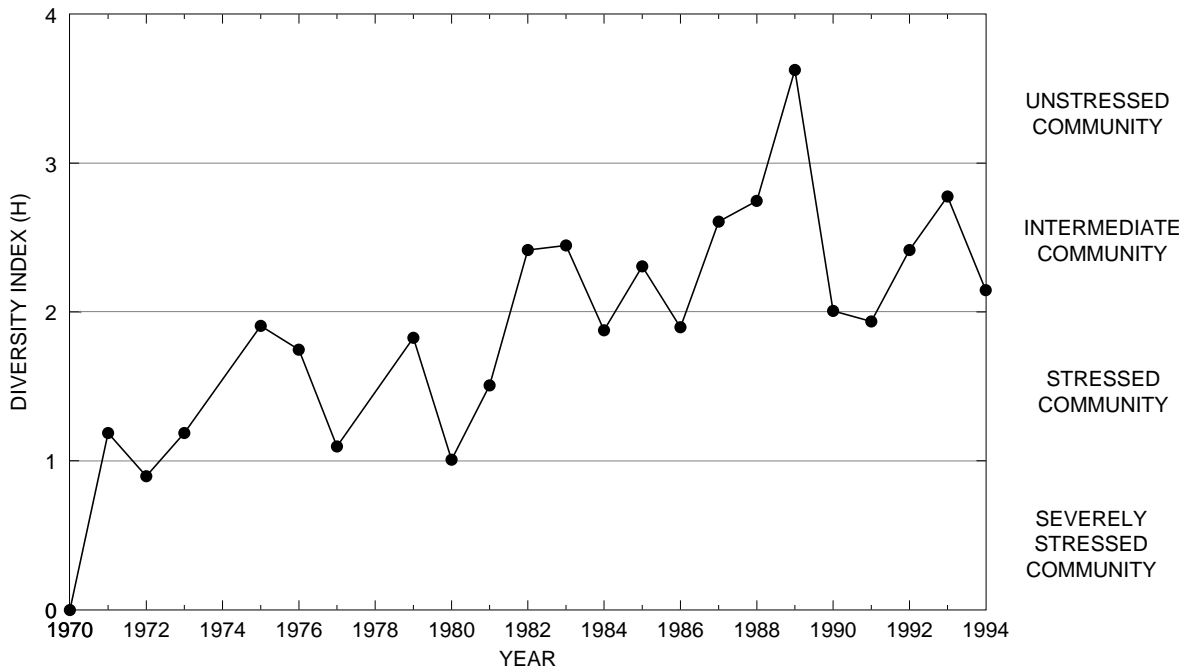
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01479680 WEST BRANCH RED CLAY CREEK AT KENNETT SQUARE (SITE 27)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	211	11	1.51	3.32	0.37	0.39
1982	777	13	2.42	3.71	.15	.64
1983	84	11	2.45	3.39	.75	.64
1984	468	10	1.88	3.35	.17	.54
1985	326	18	2.31	4.04	.43	.52
1986	107	10	1.90	3.31	.56	.49
1987	267	15	2.61	3.92	.42	.63
1988	546	17	2.75	4.13	.27	.64
1989	758	33	3.63	4.90	.40	.72
1990	1,843	26	2.01	4.64	.15	.41
1991	424	14	1.94	3.69	.27	.49
1992	410	14	2.42	3.78	.27	.61
1993	834	28	2.78	4.84	.31	.55
1994	922	24	2.15	4.52	.25	.44

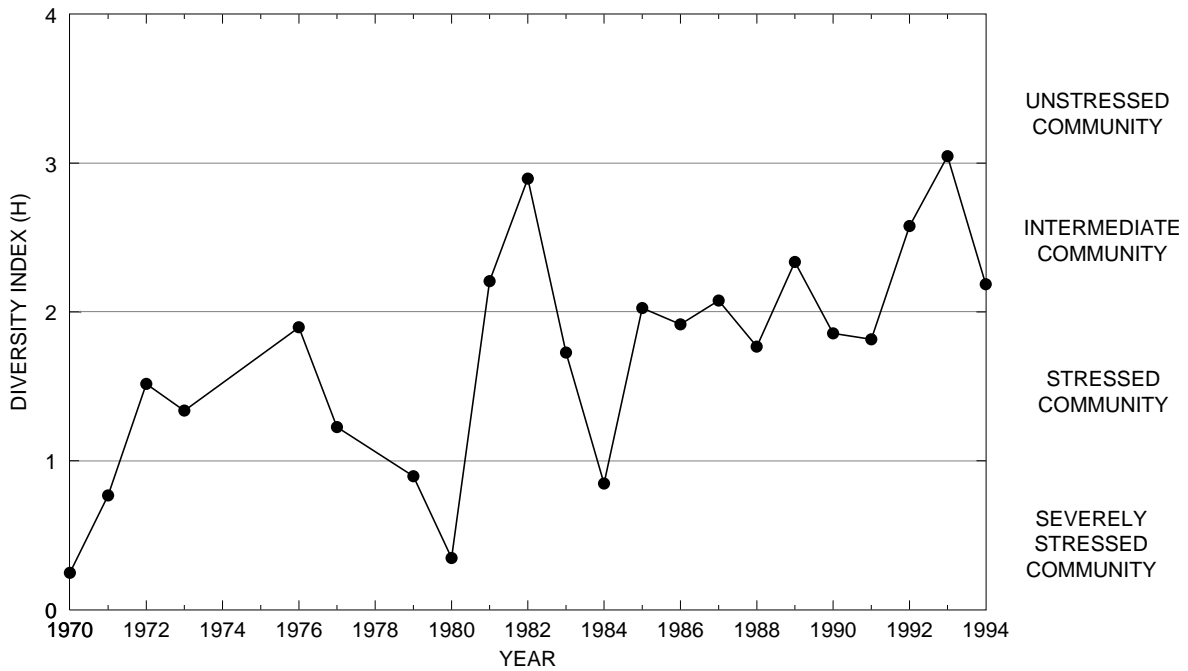




**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01479800 EAST BRANCH RED CLAY CREEK NEAR FIVE POINT (SITE 26)**

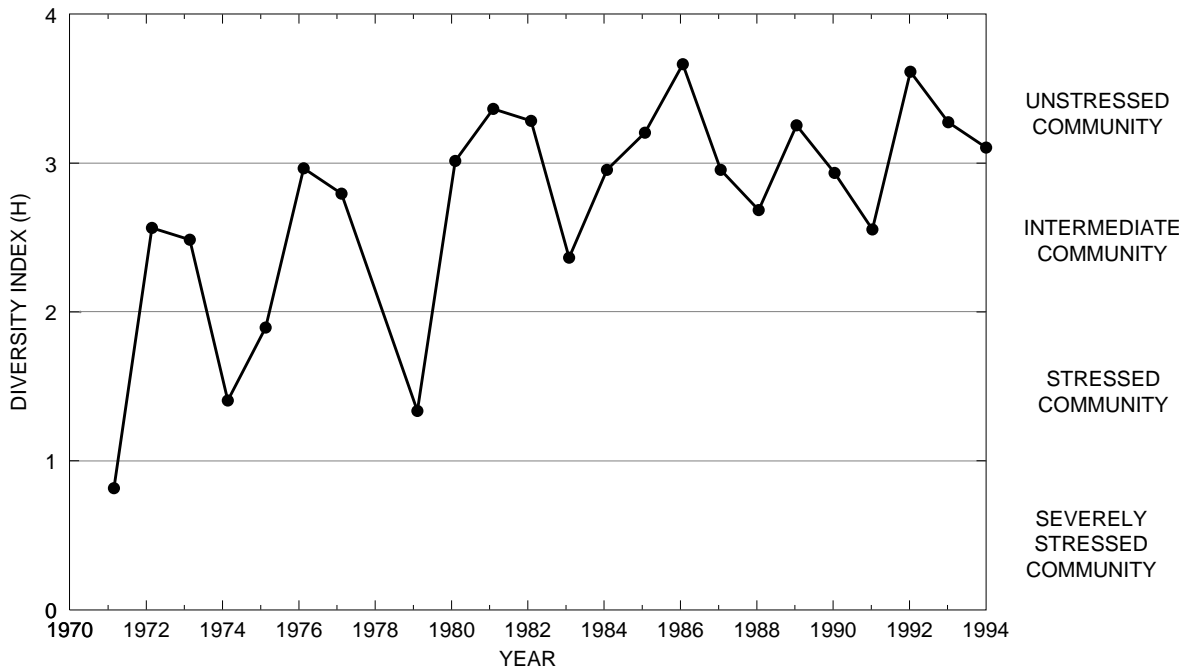
Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,055	14	2.21	3.82	0.12	0.56
1982	285	16	2.90	3.96	.43	.70
1983	577	17	1.73	3.98	.25	.39
1984	2,375	12	.85	3.59	.05	.23
1985	627	16	2.03	3.92	.22	.49
1986	34	10	1.92	3.00	1.30	.37
1987	577	17	2.08	4.11	.25	.47
1988	920	11	1.77	3.45	.11	.50
1989	545	17	2.34	3.99	.27	.56
1990	2,652	19	1.86	4.23	.08	.43
1991	700	15	1.82	3.88	.19	.44
1992	1,054	26	2.58	4.67	.24	.53
1993	761	23	3.05	4.44	.28	.67
1994	998	21	2.19	4.37	.20	.48



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480434 WEST BRANCH BRANDYWINE CREEK AT ROCK RUN (SITE 37)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	551	29	3.36	4.75	0.46	0.68
1982	1,086	31	3.28	4.94	.28	.64
1983	1,241	31	2.36	4.87	.25	.46
1984	1,052	30	2.95	4.81	.28	.59
1985	1,711	32	3.20	4.95	.20	.63
1986	646	34	3.66	4.92	.47	.72
1987	1,278	36	2.95	5.14	.28	.55
1988	1,182	28	2.68	4.78	.23	.54
1989	1,399	36	3.25	5.07	.26	.62
1990	1,020	29	2.93	4.78	.27	.59
1991	1,793	38	2.55	5.20	.22	.47
1992	1,376	38	3.61	5.15	.28	.68
1993	665	31	3.27	4.87	.42	.64
1994	1,471	32	3.10	5.03	.22	.60

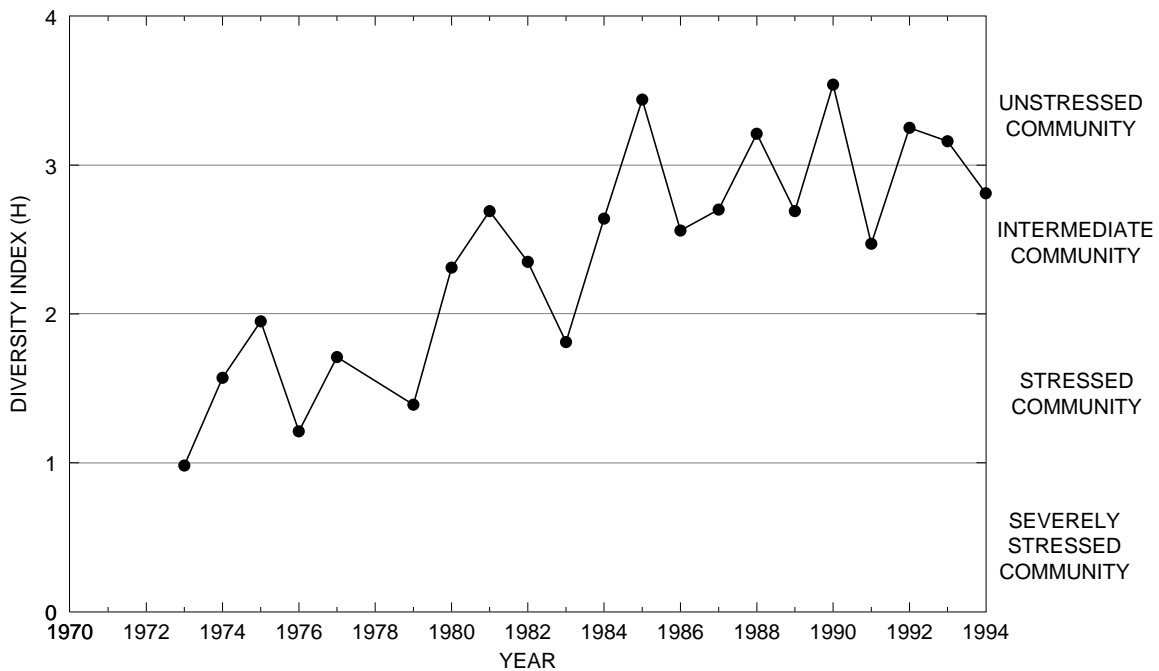


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480629 BUCK RUN AT DOE RUN (SITE 46)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,026	19	2.68	4.26	0.18	0.61
1982	<sup>1</sup> 1,647	16	2.34	4.00	.10	.57
1983	<sup>1</sup> 1,846	17	1.80	4.05	.09	.43
1984	<sup>1</sup> 2,272	21	2.63	4.41	.10	.59
1985	1,091	21	3.43	4.42	.18	.77
1986	1,769	23	2.55	4.47	.13	.56
1987	1,644	25	2.69	4.66	.16	.56
1988	<sup>1</sup> 2,070	24	3.20	5.54	.12	.70
1989	1,353	32	2.68	4.98	.24	.51
1990	1,804	39	3.53	5.24	.23	.66
1991	1,756	26	2.46	4.67	.15	.51
1992	1,432	34	3.24	5.01	.24	.63
1993	1,403	31	3.15	4.87	.22	.63
1994	2,602	24	2.80	4.59	.10	.60

<sup>1</sup> Extrapolated from a 3/8 subsample.

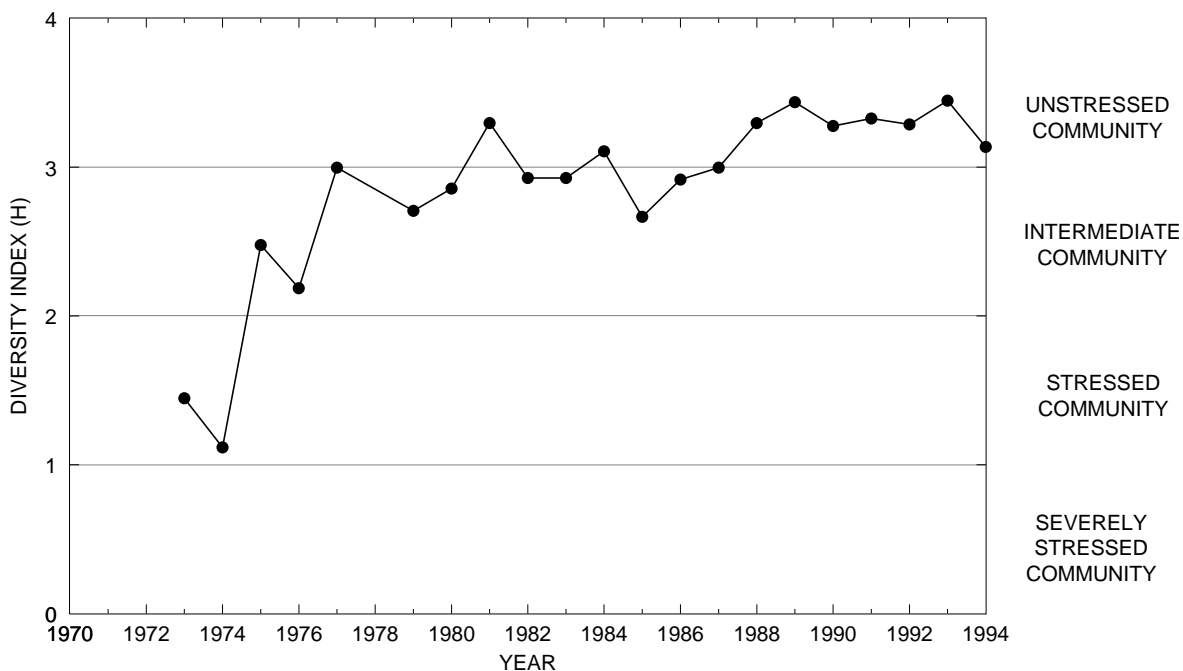


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480632 DOE RUN AT SPRINGDELL (SITE 45)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 1,133	24	3.30	4.60	0.21	0.71
1982	<sup>1</sup> 1,620	25	2.93	4.58	.16	.63
1983	<sup>1</sup> 1,405	23	2.93	4.55	.16	.63
1984	<sup>1</sup> 1,608	22	3.11	4.46	.14	.69
1985	974	20	2.67	4.24	.19	.61
1986	774	19	2.92	4.25	.22	.67
1987	1,617	26	3.00	4.66	.16	.63
1988	<sup>1</sup> 1,818	22	3.30	4.42	.13	.74
1989	1,430	34	3.44	5.12	.24	.66
1990	1,752	25	3.28	4.60	.15	.70
1991	1,392	29	3.33	4.88	.21	.67
1992	1,195	23	3.29	4.52	.19	.71
1993	1,229	32	3.45	4.92	.26	.68
1994	1,300	23	3.14	4.51	.17	.69

<sup>1</sup> Extrapolated from a 3/8 subsample.

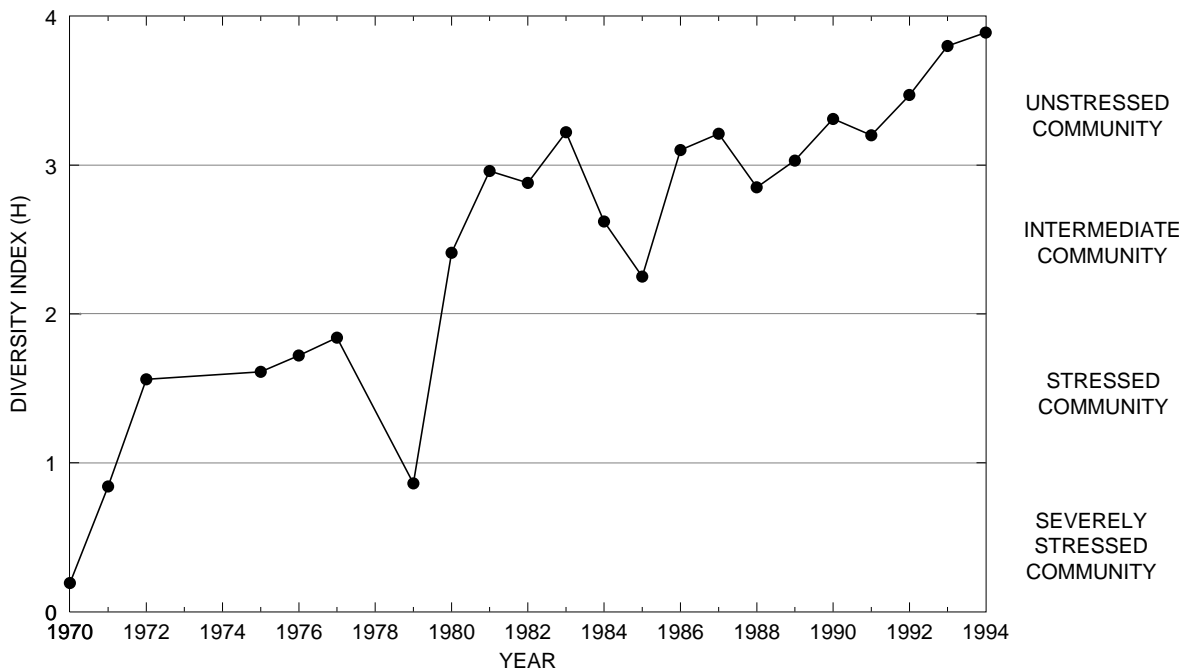


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480640 WEST BRANCH BRANDYWINE CREEK AT WAWASET (SITE 38)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	598	31	2.95	4.90	0.46	0.56
1982	1,655	21	2.87	4.40	.13	.64
1983	1,110	27	3.21	4.78	.24	.66
1984	1,402	22	2.61	4.48	.16	.57
1985	1,085	24	2.24	4.62	.21	.46
1986	769	24	3.09	4.52	.28	.66
1987	402	23	3.20	4.46	.47	.69
1988	<sup>1</sup> 1,939	22	2.84	4.43	.12	.63
1989	1,631	31	3.02	4.95	.20	.59
1990	1,532	39	3.30	5.23	.26	.61
1991	1,418	31	3.19	4.94	.22	.63
1992	1,041	34	3.46	5.07	.32	.66
1993	764	39	3.79	5.28	.47	.69
1994	1,005	37	3.88	5.11	.36	.74

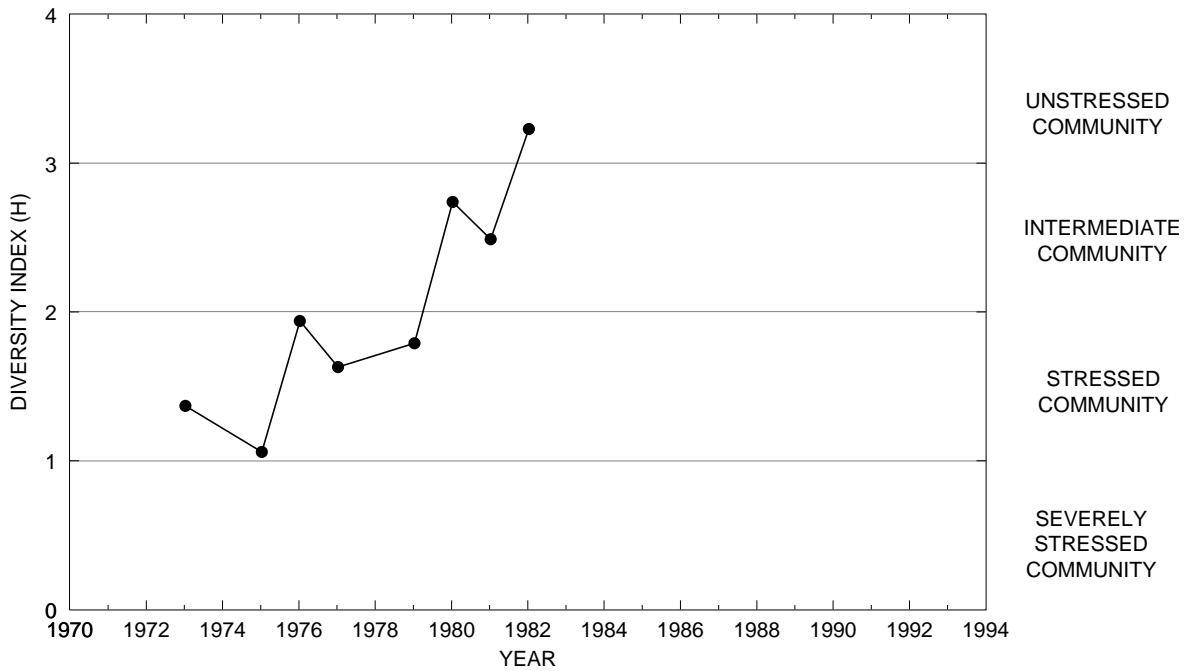
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480647 EAST BRANCH BRANDYWINE CREEK NEAR STRUBLE DAM (SITE 43)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity ( $H_{max}$ )	Minimum diversity ( $H_{min}$ )	Evenness (E)
1981	303	22	2.50	4.39	0.58	0.50
1982	566	25	3.24	4.67	.38	.67

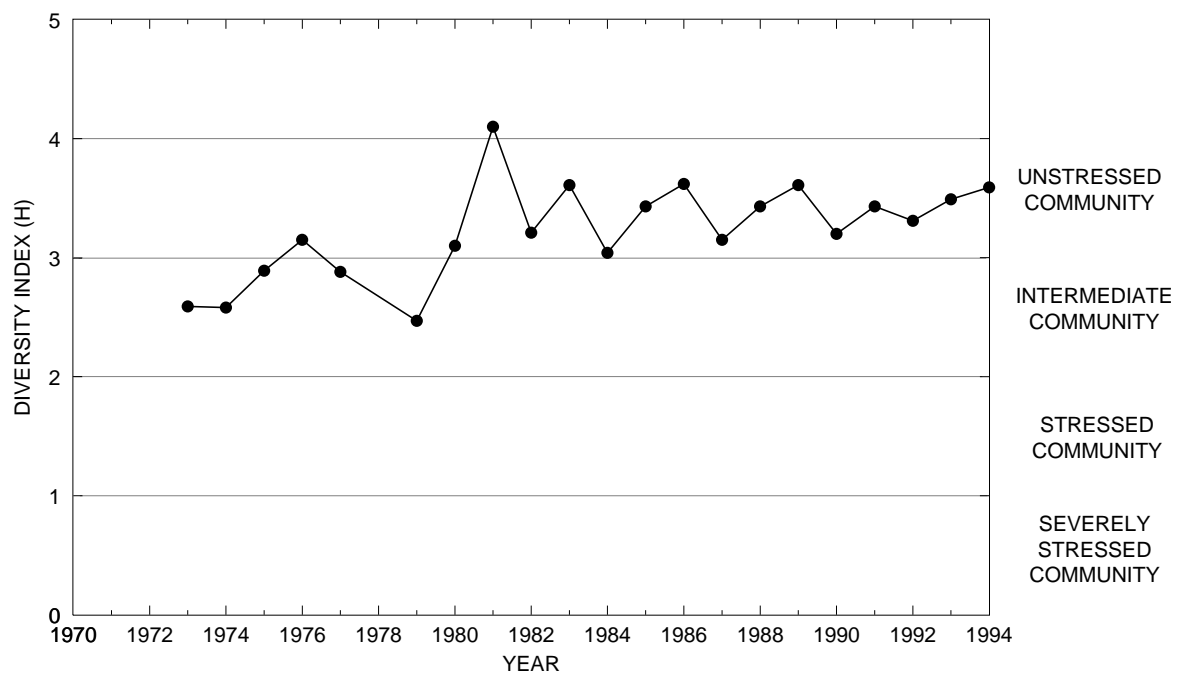


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480648 EAST BRANCH BRANDYWINE CREEK NEAR CUPOLA (SITE 48)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,310	43	4.10	5.37	0.33	0.75
1982	2,529	35	3.21	5.08	.15	.62
1983	733	32	3.61	5.03	.40	.69
1984	1,652	24	3.04	4.58	.15	.65
1985	689	28	3.43	4.75	.37	.70
1986	895	33	3.64	4.94	.35	.72
1987	1,139	31	3.15	4.96	.27	.61
1988	<sup>1</sup> 1,984	32	3.43	4.94	.17	.68
1989	3,846	46	3.61	5.51	.14	.65
1990	538	25	3.20	4.59	.40	.67
1991	926	37	3.43	5.09	.38	.65
1992	610	25	3.31	4.58	.36	.70
1993	2,016	49	3.49	5.55	.26	.61
1994	973	31	3.59	4.87	.31	.72

<sup>1</sup> Extrapolated from a 3/8 subsample.

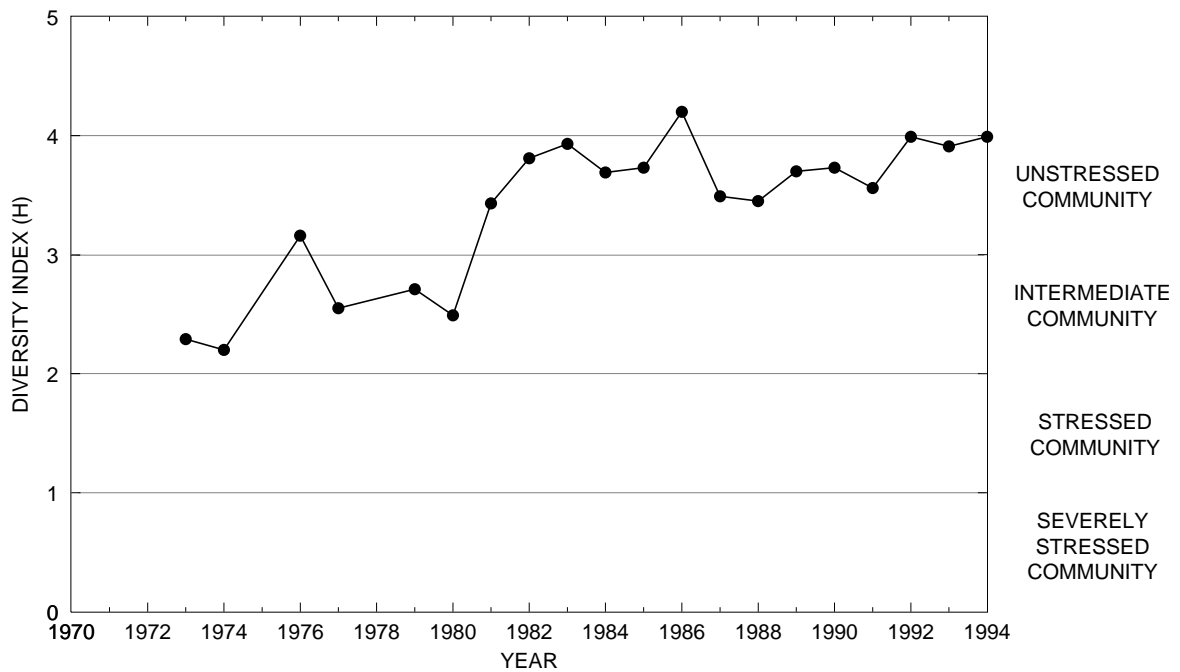


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480653 EAST BRANCH BRANDYWINE CREEK AT GLENMOORE (SITE 42)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	752	36	3.43	5.18	0.44	0.63
1982	1,708	47	3.81	5.51	.30	.67
1983	1,338	45	3.93	5.50	.34	.70
1984	1,008	36	3.69	5.20	.35	.69
1985	1,361	43	3.73	5.41	.32	.67
1986	723	48	4.20	5.63	.62	.72
1987	1,435	36	3.49	5.20	.25	.65
1988	<sup>1</sup> 1,671	33	3.45	5.01	.21	.68
1989	2,617	46	3.70	5.55	.19	.66
1990	973	41	3.73	5.31	.41	.68
1991	1,825	42	3.56	5.36	.24	.65
1992	1,330	50	3.99	5.60	.38	.69
1993	1,554	48	3.91	5.52	.32	.69
1994	1,378	47	3.99	5.47	.35	.71

<sup>1</sup> Extrapolated from a 3/8 subsample.



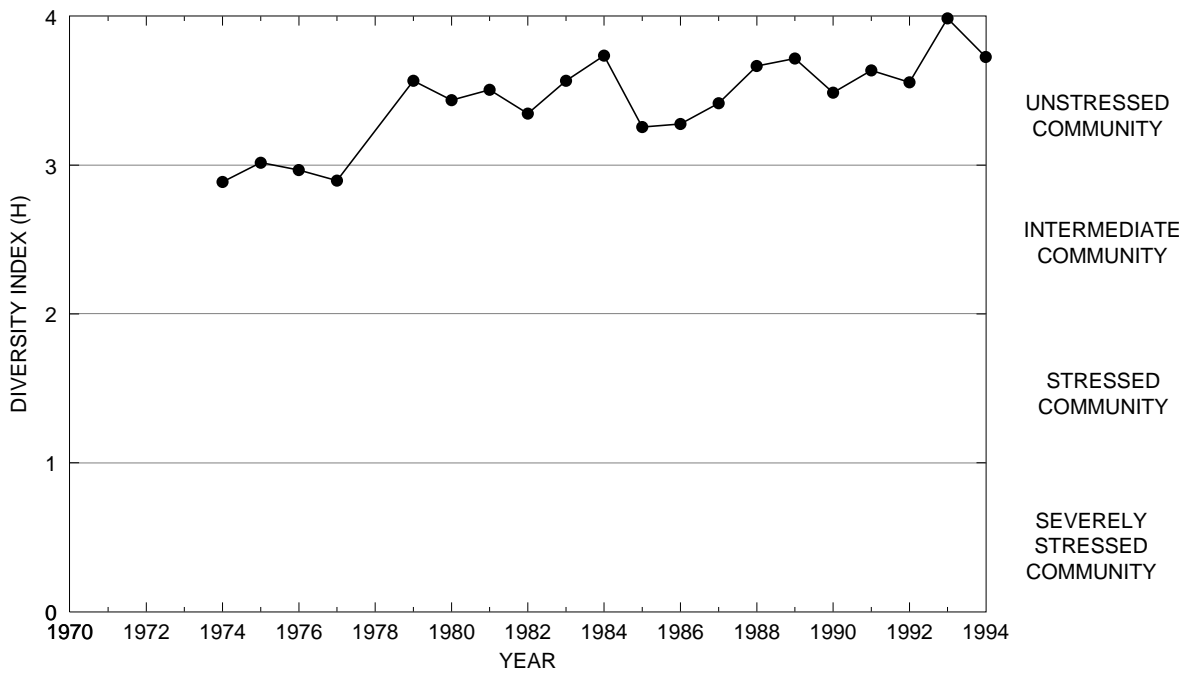


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480656 INDIAN RUN NEAR SPRINGTON (SITE 47)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,050	37	3.51	5.16	0.34	0.66
1982	1,883	40	3.35	5.24	.23	.62
1983	1,165	38	3.57	2.25	.32	.66
1984	1,027	33	3.74	4.95	.31	.74
1985	729	29	3.26	4.73	.37	.66
1986	688	34	3.28	4.95	.45	.63
1987	640	35	3.42	5.02	.49	.65
1988	<sup>1</sup> 787	29	3.67	4.77	.34	.75
1989	1,288	32	3.72	4.91	.25	.75
1990	840	32	3.49	4.89	.36	.69
1991	589	31	3.64	4.81	.46	.73
1992	440	25	3.56	4.61	.48	.75
1993	770	34	3.99	5.08	.41	.77
1994	1,232	34	3.73	5.02	.27	.73

<sup>1</sup> Extrapolated from a 3/8 subsample.

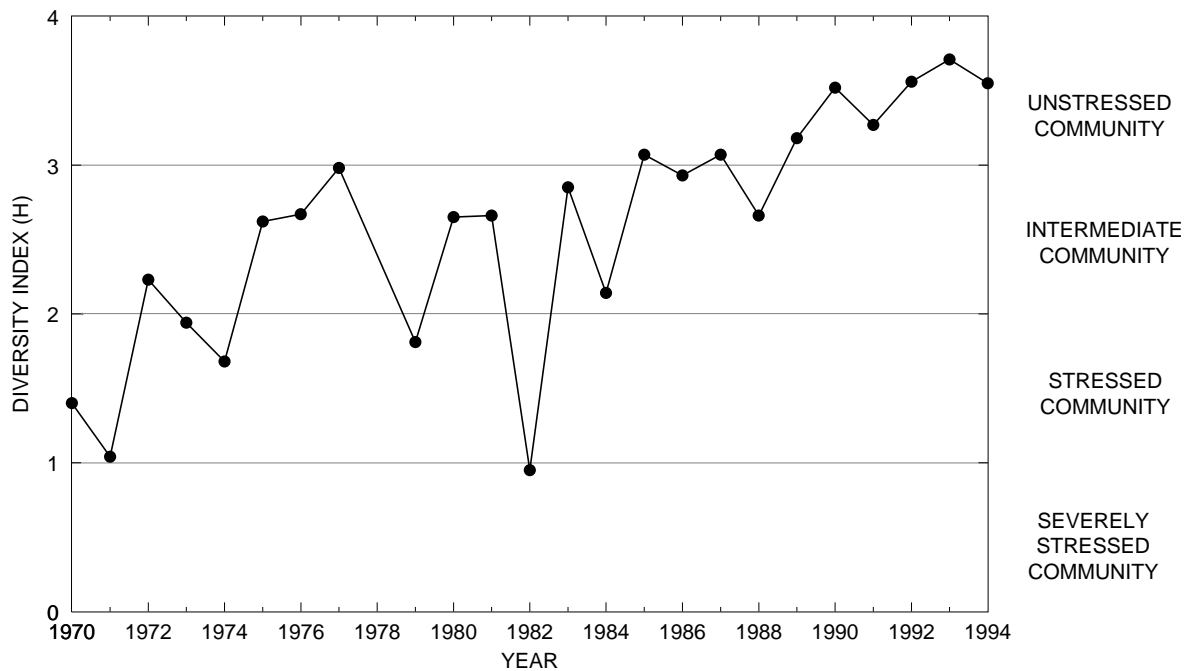


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480700 EAST BRANCH BRANDYWINE CREEK NEAR DOWNINGTOWN (SITE 36)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	<sup>1</sup> 2,450	28	2.65	4.81	0.12	0.54
1982	<sup>1</sup> 11,821	23	.94	4.52	.02	.20
1983	<sup>1</sup> 2,848	31	2.84	4.95	.12	.56
1984	<sup>1</sup> 5,962	33	2.13	5.03	.07	.42
1985	1,866	30	3.06	4.91	.17	.61
1986	2,232	31	2.92	4.90	.15	.58
1987	2,179	31	3.06	4.93	.15	.61
1988	<sup>1</sup> 1,499	24	2.65	4.56	.16	.57
1989	2,207	41	3.17	5.36	.20	.58
1990	2,488	46	3.51	5.46	.20	.63
1991	1,398	41	3.26	5.27	.30	.60
1992	2,426	46	3.55	5.50	.21	.63
1993	1,896	49	3.70	5.61	.28	.64
1994	1,022	38	3.54	5.27	.36	.65

<sup>1</sup> Extrapolated from a 3/8 subsample.

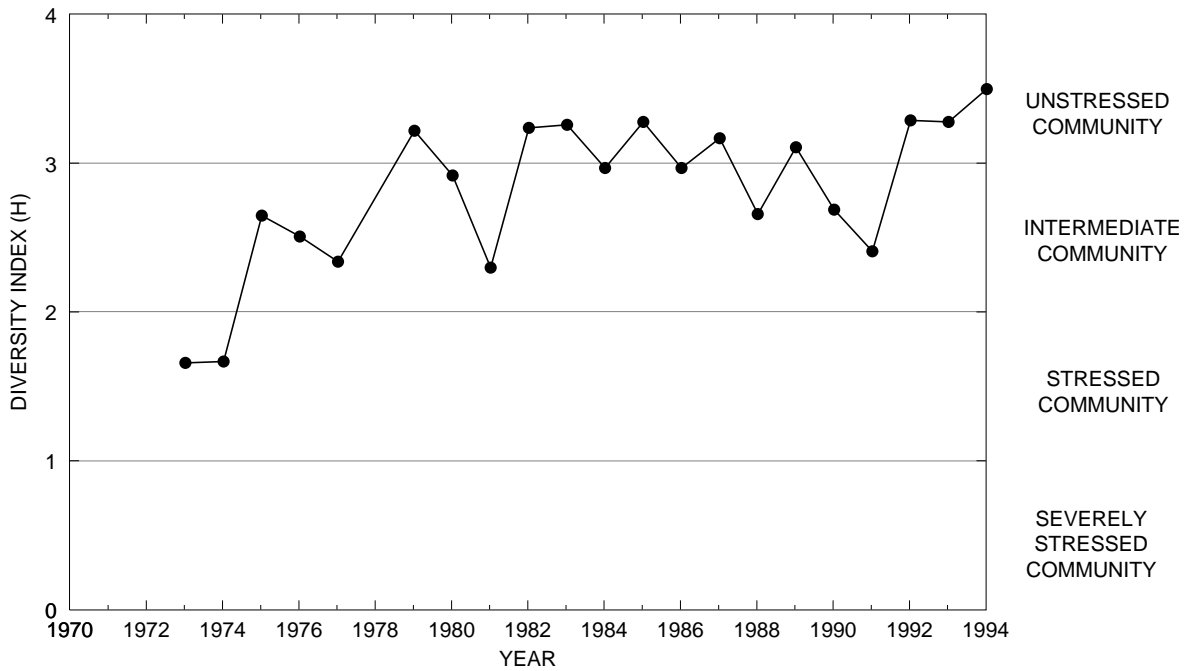


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480903 VALLEY CREEK AT MULLSTEINS MEADOW NEAR DOWNINGTOWN (SITE 44)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	2,812	33	2.29	5.02	0.13	0.65
1982	1,556	33	3.23	4.98	.22	.63
1983	1,918	26	3.25	4.70	.14	.68
1984	1,475	25	2.96	4.67	.17	.62
1985	2,091	33	3.27	5.03	.17	.64
1986	1,079	24	2.96	4.50	.21	.64
1987	2,352	33	3.16	5.01	.15	.62
1988	<sup>1</sup> 2,626	22	2.65	4.46	.09	.59
1989	1,105	30	3.10	4.93	.26	.61
1990	1,100	28	2.68	4.84	.25	.53
1991	1,499	21	2.40	4.34	.14	.54
1992	1,380	28	3.28	4.76	.20	.67
1993	1,179	36	3.27	5.14	.30	.61
1994	1,163	27	3.49	4.68	.23	.73

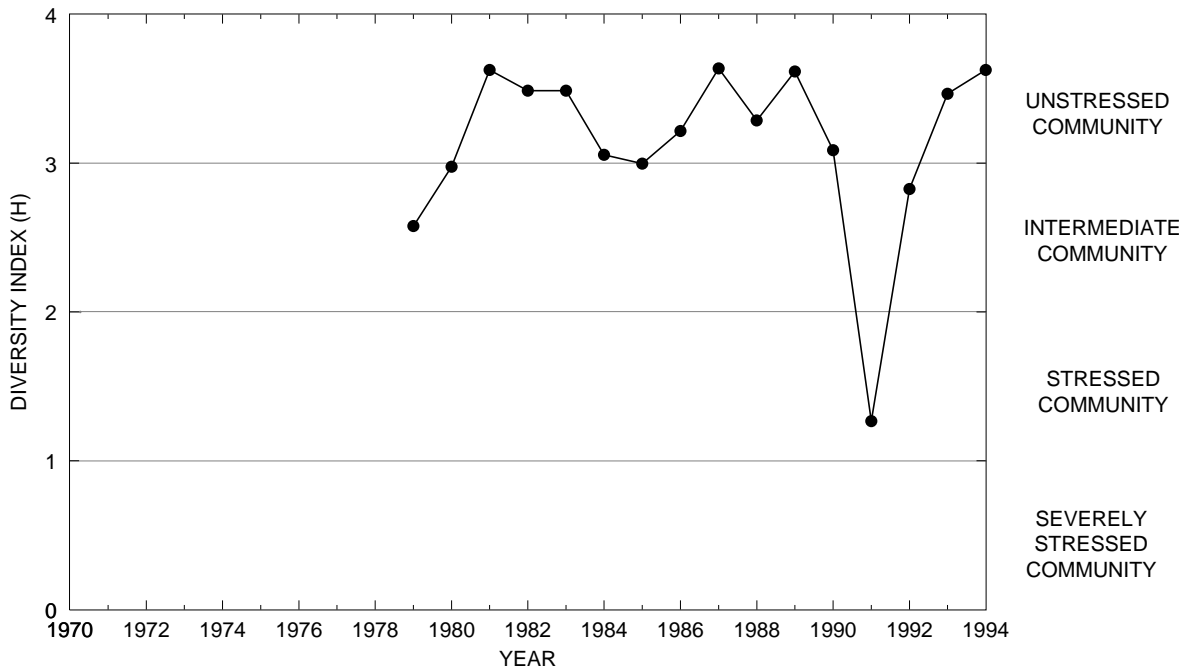
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01480950 EAST BRANCH BRANDYWINE CREEK AT WAWASET (SITE 39)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	641	31	3.63	4.93	0.44	0.71
1982	2,825	36	3.49	5.13	.14	.67
1983	771	36	3.49	5.07	.44	.66
1984	2,999	42	3.06	5.37	.16	.56
1985	699	27	3.00	4.80	.35	.60
1986	2,583	44	3.22	5.46	.19	.57
1987	1,115	40	3.64	5.32	.35	.66
1988	1,357	28	3.29	4.77	.21	.68
1989	2,698	40	3.62	5.28	.17	.67
1990	3,793	44	3.09	5.46	.14	.55
1991	11,771	50	1.28	5.63	.06	.22
1992	1,354	19	2.83	4.23	.14	.66
1993	1,701	33	3.47	5.00	.20	.68
1994	792	41	3.63	5.23	.49	.66

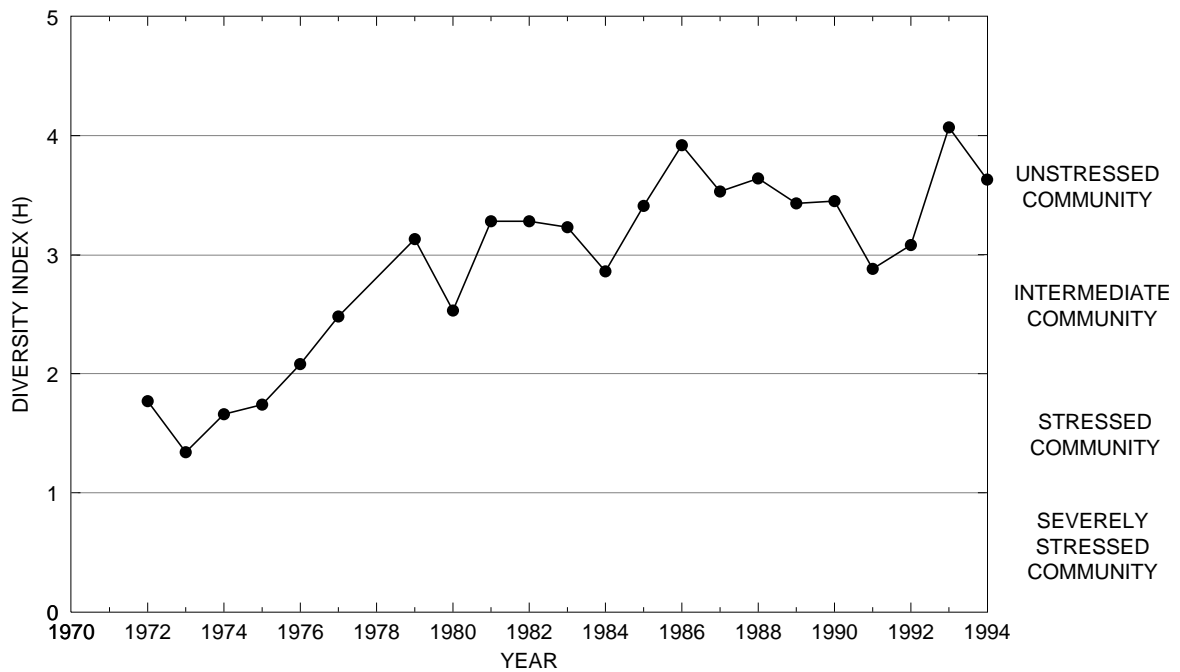


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01481030 BRANDYWINE CREEK NEAR CHADDS FORD (SITE 40)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	651	23	3.28	4.45	0.32	0.72
1982	1,673	30	3.28	4.88	.19	.66
1983	1,009	32	3.24	5.01	.30	.62
1984	1,446	24	2.86	4.52	.17	.62
1985	993	25	3.41	4.68	.24	.72
1986	428	36	3.92	5.19	.71	.72
1987	1,046	37	3.53	5.14	.34	.66
1988	<sup>1</sup> 1,824	25	3.64	4.65	.14	.78
1989	2,155	37	3.43	5.16	.18	.65
1990	1,702	31	3.45	4.96	.19	.68
1991	2,380	31	2.88	4.91	.14	.57
1992	1,835	29	3.08	4.83	.16	.62
1993	1,142	36	4.02	5.16	.31	.76
1994	1,424	32	3.63	4.93	.23	.72

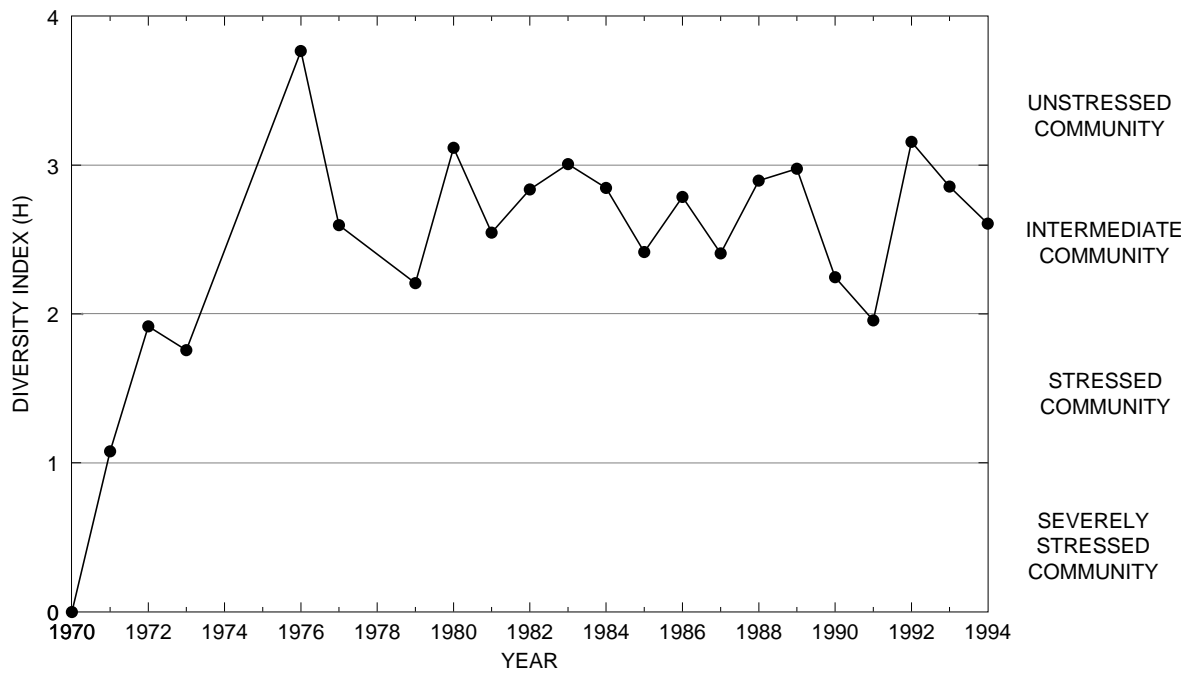
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01494900 EAST BRANCH BIG ELK CREEK AT ELKVIEW (SITE 31)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	846	25	2.55	4.67	0.28	0.52
1982	1,416	26	2.84	4.66	.18	.59
1983	1,171	23	3.01	4.45	.19	.66
1984	1,216	25	2.85	4.63	.26	.60
1985	546	22	2.42	4.50	.35	.50
1986	851	20	2.79	4.27	.22	.63
1987	1,638	21	2.41	4.35	.13	.54
1988	1,357	26	2.90	4.73	.19	.60
1989	1,722	26	2.98	4.71	.16	.62
1990	1,387	23	2.25	4.46	.17	.49
1991	810	15	1.96	3.84	.17	.49
1992	755	26	3.16	4.59	.32	.66
1993	948	26	2.86	4.68	.26	.59
1994	553	17	2.61	4.12	.26	.61

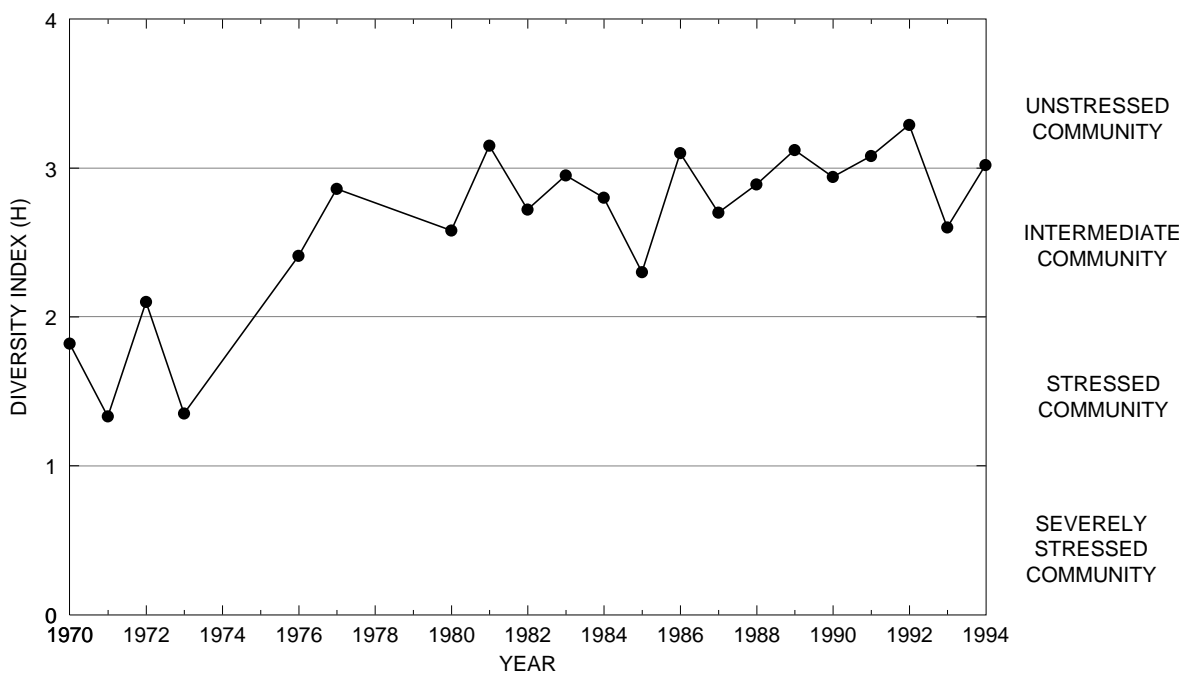


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01494950 WEST BRANCH BIG ELK CREEK NEAR OXFORD (SITE 32)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,517	30	3.16	4.84	0.20	0.64
1982	2,458	26	2.73	4.69	.11	.57
1983	1,203	28	2.96	4.80	.23	.60
1984	1,875	23	2.81	4.49	.13	.62
1985	1,124	21	2.31	4.32	.18	.52
1986	1,402	24	3.11	4.55	.17	.67
1987	1,309	22	2.71	4.43	.17	.60
1988	<sup>1</sup> 2,245	20	2.90	4.29	.09	.67
1989	1,533	25	3.13	4.61	.17	.67
1990	1,536	27	2.95	4.75	.18	.61
1991	2,733	32	3.09	4.98	.13	.61
1992	752	27	3.30	4.64	.33	.69
1993	424	18	2.61	4.14	.35	.60
1994	1,587	29	3.03	4.85	.19	.61

<sup>1</sup> Extrapolated from a 3/8 subsample.

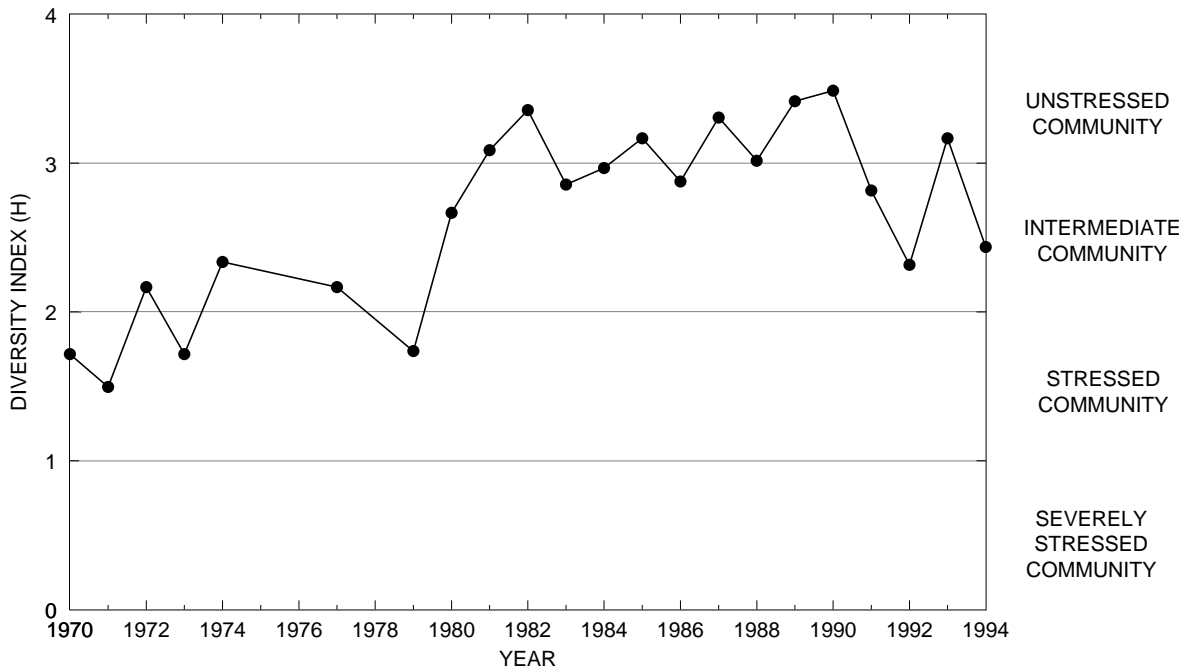


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01578340 EAST BRANCH OCTORARO CREEK AT CHRISTIANA (SITE 33)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity ( $H_{max}$ )	Minimum diversity ( $H_{min}$ )	Evenness (E)
1981	978	18	3.09	4.12	0.17	0.74
1982	1,670	24	3.36	4.58	.15	.72
1983	856	25	2.86	4.54	.27	.61
1984	1,518	21	2.97	4.41	.14	.66
1985	593	25	3.17	4.64	.37	.65
1986	1,110	27	2.88	4.78	.24	.58
1987	1,421	27	3.31	4.70	.19	.69
1988	<sup>1</sup> 1,953	20	3.02	4.33	.11	.69
1989	2,083	30	3.42	4.89	.15	.69
1990	1,419	33	3.49	4.95	.24	.69
1991	1,476	28	2.82	4.74	.19	.58
1992	1,268	23	2.32	4.46	.18	.50
1993	558	22	3.17	4.39	.34	.70
1994	2,194	31	2.44	4.97	.15	.48

<sup>1</sup> Extrapolated from a 3/8 subsample.



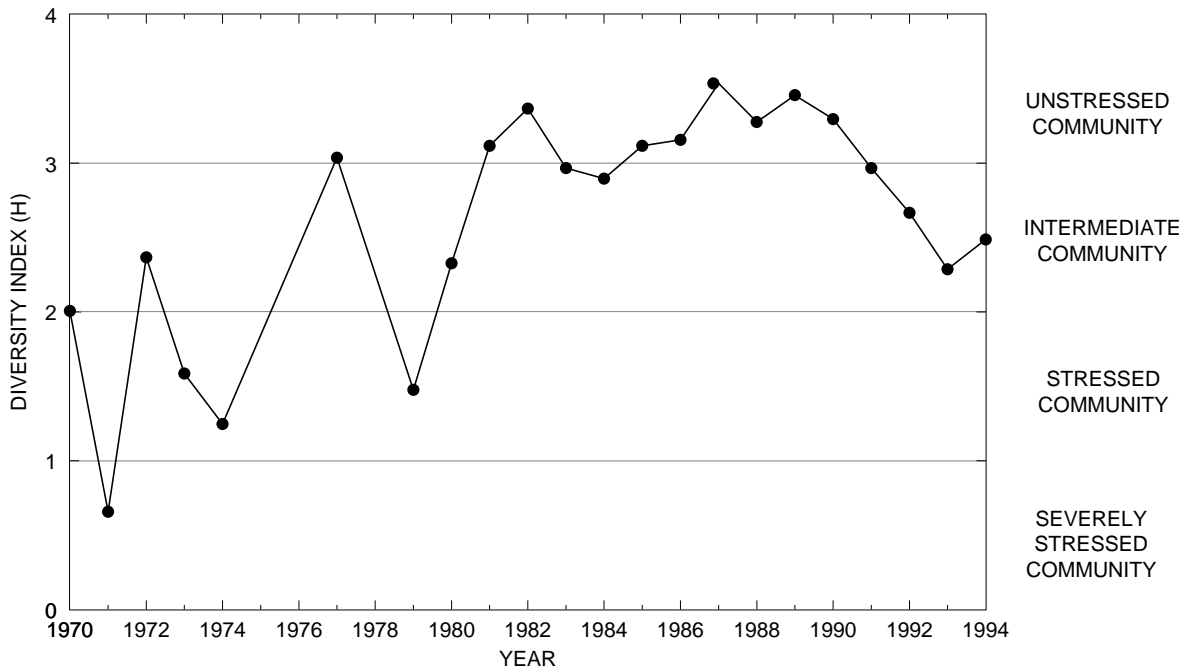


**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01578343 VALLEY CREEK AT ATGLEN (SITE 34)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	2,173	21	3.12	4.35	0.10	0.71
1982	2,478	32	3.37	5.02	.14	.66
1983	930	23	2.97	4.53	.23	.64
1984	2,239	30	2.90	4.85	.14	.59
1985	962	28	3.12	4.77	.28	.63
1986	783	23	3.16	4.53	.27	.68
1987	2,316	31	3.54	4.94	.15	.71
1988	<sup>1</sup> 2,916	24	3.28	4.60	.09	.71
1989	3,051	39	3.46	5.25	.14	.65
1990	1,262	28	3.30	4.72	.22	.68
1991	3,201	32	2.97	4.97	.11	.59
1992	1,788	27	2.67	4.73	.16	.54
1993	825	18	2.29	4.11	.20	.53
1994	2,936	23	2.49	4.50	.09	.55

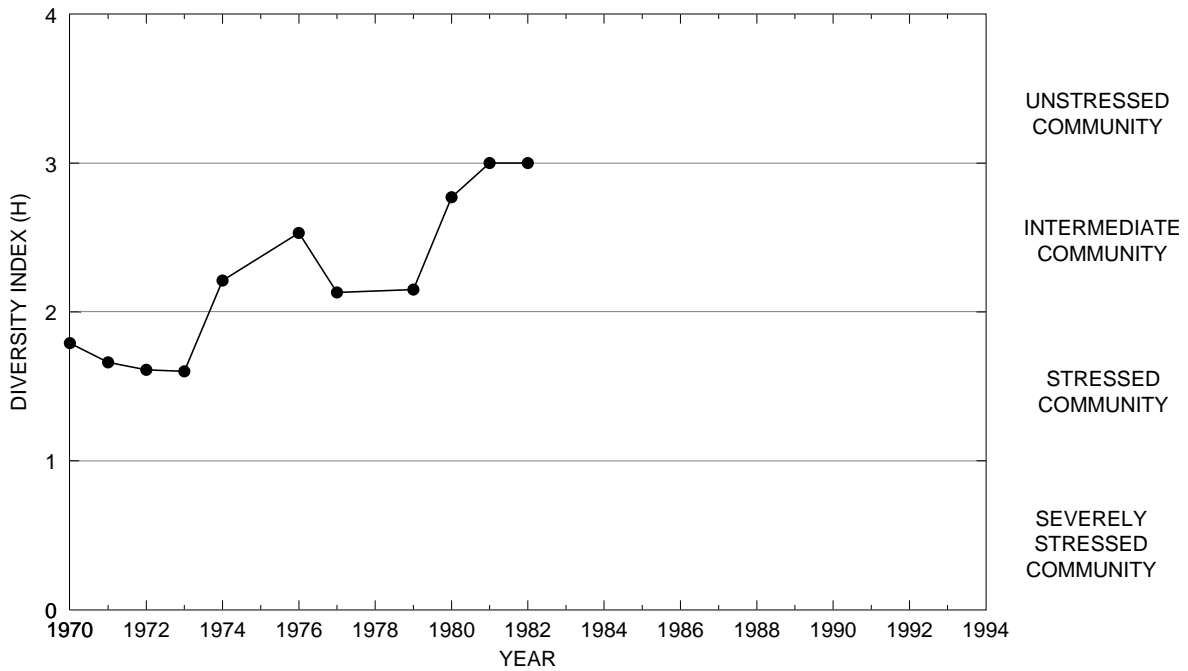
<sup>1</sup> Extrapolated from a 3/8 subsample.



**Table 6.** Brillouin's diversity index, maximum diversity, minimum diversity, and relative evenness by site—Continued

**01578345 EAST BRANCH OCTORARO CREEK AT STEELVILLE (SITE 35)**

Year	Total number of organisms	Total number of taxa	Brillouin's diversity index (H)	Maximum diversity (H <sub>max</sub> )	Minimum diversity (H <sub>min</sub> )	Evenness (E)
1981	1,041	27	2.99	4.74	0.25	0.61
1982	1,791	25	2.99	4.60	.15	.64



**Table 7.** Median, mean, standard deviation, and standard error values of Brillouin's diversity index by site  
[—, no data]

Station number	Site number	Number of samples	Median	Mean	Standard deviation	Standard error
01472054	8	2	3.32	3.32	0.29	0.15
01472065	9	2	3.17	3.17	.19	.10
01472080	10	14	3.37	3.39	.29	.75
01472109	6	14	3.51	3.36	.39	.10
01472110	7	2	3.25	3.25	.39	.20
01472126	41	1	—	—	—	—
01472129	11	2	3.71	3.71	.17	.09
01473138	13	14	3.40	3.41	.42	.11
01472140	12	14	3.71	3.60	.30	.08
01472154	14	14	3.49	3.39	.49	.13
01472157	15	14	3.34	3.38	.55	.14
014721612	16	14	2.55	2.38	.88	.23
01472170	1	14	3.18	3.15	.34	.09
01472174	2	14	3.35	3.31	.48	.13
014721854	3	14	3.35	3.33	.41	.11
014721884	4	14	3.25	3.33	.39	.10
01472190	5	14	3.30	3.19	.39	.10
01473167	49	14	3.00	2.96	.22	.06
01473168	50	14	2.78	2.88	.25	.07
01475300	17	14	3.38	3.15	.61	.16
01475830	18	2	3.58	3.58	.06	.03
01475840	19	14	3.21	3.18	.44	.11
01476430	20	14	3.24	3.25	.33	.09
01476435	21	14	3.18	3.15	.30	.08
01476790	22	14	3.12	2.83	.66	.17
01476830	23	14	3.02	2.95	.46	.12
01476830	24	14	3.11	3.01	.37	.09
01456840	25	9	1.86	1.84	.45	.14
01476848	51	12	2.61	2.53	.38	.11
01478120	28	14	2.65	2.64	.41	.11
01478190	29	14	2.82	2.86	.29	.08
01478220	30	14	2.94	3.01	.44	.11
01479680	27	14	2.37	2.34	.52	.13
01479800	26	14	2.06	2.10	.54	.14
01480434	37	14	3.15	3.13	.44	.11
01480629	46	14	2.69	2.80	.47	.12
01480632	45	14	3.21	3.15	.23	.06
01480640	38	14	3.14	3.12	.43	.11
01480647	43	2	2.87	2.87	.52	.26
01480648	48	14	3.43	3.44	.27	.07
01480653	42	14	3.73	3.76	.23	.06

**Table 7.** Median, mean, standard deviation, and standard error values of Brillouin's diversity index by site—Continued

Station number	Site number	Number of samples	Median	Mean	Standard deviation	Standard error
01480656	47	14	3.57	3.57	0.20	0.05
01480700	36	14	3.06	2.93	.71	.18
01480903	44	14	3.13	3.00	.36	.09
01480950	39	14	3.38	3.20	.62	.16
01481030	40	14	3.42	3.41	.35	.09
01494900	31	14	2.81	2.69	.33	.09
01494950	32	14	2.96	2.91	.26	.07
01578340	33	14	3.06	3.02	.35	.09
01578343	34	14	3.12	3.05	.36	.09
01578345	35	2	2.99	2.99	.00	.00

**Table 8.** *Alphabetic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94*

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Acroneuria sp.  
Aeshna sp.  
Agabus sp.  
Agnetina sp.  
Agraylea sp.  
Allocaonia sp.  
Amnicola sp.  
Amphiagrion sp.  
Anchytarsus bicolor  
Ancyronyx sp.  
Ancyronyx variegata  
Anthopotamus sp.  
Antocha sp.  
Apatania sp.  
Archanara sp.  
Argia sp  
Atherix sp.

Baetis sp.  
Berosus sp.  
Blephariceridae  
Blepharicera sp.  
Boyeria sp.  
Brachycentrus sp.  
Branchiobdellida

Caecidotea sp.  
Caenis sp  
Calopteryx sp.  
Cambaridae  
Cambarus sp.  
Ceraclea sp.  
Ceratopogonidae  
Ceratopsyche sp.  
Chaoborus sp.  
Chauliodes sp.  
Chelifera sp.  
Cheumatopsyche sp.  
Chimarra sp.  
Chironomidae  
Chloroperlidae  
Chrysomelidae  
Cladocera  
Climacia sp.  
Climacia areolaris  
Clinocera sp.  
Coenagrionidae  
Corixidae  
Corydalus sp.  
Crangonyx sp.  
Culoptila sp.  
Curculionidae  
Cyclopidae

**Table 8.** *Alphabetic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued*

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Dicranota sp.  
Dineutus sp.  
Diplectrona sp.  
Dixa sp.  
Dolophilodes sp.  
Dryopidae  
Dubiraphia sp.  
Dytiscidae

Ectopria sp.  
Ectopria nervosa  
Empididae  
Enallagma sp.  
Epeorus sp.  
Ephemera sp.  
Ephemerella sp.  
Ephydriidae  
Erpobdellidae

Ferrissia sp.

Gammaridae  
Gammarus sp.  
Gerridae  
Gerris sp.  
Glossiphoniidae  
Glossosoma sp.  
Goera sp.  
Gomphidae  
Gomphus sp.  
Goniobasis sp.  
Gyraulus sp.  
Gyrinidae

**Table 8.** *Alphabetic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued*

---

Habrophlebia sp.  
Haploperla sp.  
Helichus sp.  
Helicopsyche sp.  
Helisoma sp.  
Helophorus sp.  
Hemerodromia sp.  
Hemiptera  
Heptagenia sp.  
Hetaerina sp.  
Hexagenia sp.  
Hexatoma sp.  
Hirudinea  
Hirudinidae  
Hyalloleila azteca  
Hydatophylax sp.  
Hydra sp.  
Hydrachnidia  
Hydrobius sp.  
Hydrochara sp.  
Hydrophilidae  
Hydropsyche sp.  
Hydroptila sp.

Ichneumonidae  
Ischnura sp.  
Isonychia sp.  
Isoperla sp.

Lepidostoma sp.  
Leptophlebiidae  
Leucotrichia sp.  
Limnophora sp.  
Lirceus sp.  
Lumbriculidae  
Lymnaea sp.

Macromia sp.  
Macronychus sp.  
Macronychus glabratus  
Macrostemum sp.  
Manayunkia speciosa  
Mesovelgia sp.  
Metrobates sp.  
Micrasema sp.  
Microcyllloepus sp.  
Microvelia sp.  
Muscidae  
Musculium sp.  
Mystacides sp.

**Table 8.** *Alphabetic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued*

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Naididae  
Nematoda  
Nematomorpha  
Nemouridae  
Neoperla sp.  
Neophylax sp.  
Neureclipsis sp.  
Nigronia sp.  
Noctuidae  
Nyctiophylax sp.

Ochrotrichia sp.  
Oecetis sp.  
Oligochaeta  
Ophiogomphus sp.  
Optioservus sp.  
Orconectes sp.  
Oulimnius sp.

Paragnetina sp.  
Paraleptophlebia sp.  
Peltoperla sp.  
Petrophila sp.  
Physa sp.  
Pisidium sp.  
Planariidae  
Planorbidae  
Planorbula sp.  
Podocopa  
Polycentropus sp.  
Polychaeta  
Potamyia sp.  
Procambarus sp.  
Promoresia sp.  
Prosimulium sp.  
Prostoma sp.  
Protoptila sp.  
Psephenus sp.  
Pseudocleon sp.  
Psilotreta sp.  
Psychomyia sp.  
Pyralidae

Rhagovelia sp.  
Rheumatobates sp.  
Rhyacophila sp.  
Rhyacophila fuscula



**Table 8.** *Alphabetic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued*

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Sabellidae  
Saldidae  
Sialis sp.  
Sigara sp.  
Simulium sp.  
Sisyridae  
Sphaeriidae  
Sphaerium sp.  
Stenacron sp.  
Stenelmis sp.  
Stenonema sp.  
Stratiomyidae  
Stratiomys sp.  
Strophopteryx sp.  
Stylaria sp.  
Stylogomphus sp.  
Synclita sp.  
Syrphidae

Tabanus sp.  
Taeniopteryx sp.  
Telmatoscopus sp.  
Tipula sp.  
Trepobates sp.  
Triaenodes sp.  
Trichocorixa sp.  
Tricorythodes sp.  
Tubificidae

Wormaldia sp.

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**Table 9.** Systematic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94

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Cnidaria (Hydroids)

Hydra sp.

Platyhelminthes (Flatworms)

Planariidae

Nematoda (Round Worms)

Nematomorpha (Horsehair Worms)

Nemertea (Proboscis worms)

Prostoma sp.

Gastropoda (Snails)

Amnicola sp.

Ferrissia sp.

Goniobasis sp.

Gyraulus sp.

Helisoma sp.

Lymnaea sp.

Physa sp.

Planorbidae

Planorbula sp.

Bivalvia (Clams)

Musculium sp.

Pisidium sp.

Sphaeriidae

Sphaerium sp.

Annelida (Segmented worms)

Branchiobdellida

Erpobdellidae

Hirudinea

Hirudinidae

Glossiphoniidae

Lumbriculidae

Manayunkia speciosa

Naididae

Oligochaeta

Polychaeta

Sabellidae

Stylaria sp.

Tubificidae

Acariformes (Water mites)

Hydrachnidia

Cladocera (Water fleas)

**Table 9.** Systematic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued

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Cyclopoida (Copepods)

Cyclopidae

Amphipoda (Scuds)

Crangonyx sp.

Gammaridae

Gammarus sp.

Hyallega azteca

Isopoda (Sow bugs)

Caecidotea sp.

Lirceus sp.

Decapoda (Crayfish)

Cambaridae

Cambarus sp.

Orconectes sp.

Procambarus sp.

Podocopa (Seed shrimps)

Ephemeroptera (Mayflies)

Anthopotamus sp.

Baetis sp.

Caenis sp.

Epeorus sp.

Ephemera sp.

Ephemerella sp.

Habrophlebia sp.

Heptagenia sp.

Hexagenia sp.

Isonychia sp.

Leptophlebiidae

Paraleptophlebia sp.

Pseudocloeon sp.

Stenacron sp.

Stenonema sp.

Tricorythodes sp.

**Table 9.** Systematic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued

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Odonata (Dragonflies and Damselflies)

Aeshna sp.  
Amphiagrion sp.  
Argia sp.  
Boyeria sp.  
Calopteryx sp.  
Coenagrionidae  
Enallagma sp.  
Gomphidae  
Gomphus sp.  
Hetaerina sp.  
Ischnura sp.  
Macromia sp.  
Ophiogomphus sp.  
Stylogomphus sp.

Plecoptera (Stoneflies)

Acroneuria sp.  
Agnetina sp.  
Allocapnia sp.  
Chloroperlidae  
Haploperla sp.  
Isoperla sp.  
Nemouridae  
Neoperla sp.  
Paragnetina sp.  
Peltoperla sp.  
Strophopteryx sp.  
Taeniopteryx sp.

Hemiptera (True Bugs)

Corixidae  
Gerridae  
Gerris sp.  
Mesovelina sp.  
Metrobates sp.  
Microvelia sp.  
Rhagovelia sp.  
Rheumatobates sp.  
Saldidae  
Sigara sp.  
Trepobates sp.  
Trichocorixa sp.

**Table 9.** Systematic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued

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Megaloptera (Alderflies and Dobsonflies)

Chauliodes sp.  
Corydalus sp.  
Nigronia sp.  
Sialis sp.

Neuroptera (Spongillafies)

Climacia sp.  
C. areolaris  
Sisyridae

Trichoptera (Caddisflies)

Agraylea sp.  
Apatania sp.  
Brachycentrus sp.  
Ceraclea sp.  
Ceratopsyche sp.  
Cheumatopsyche sp.  
Chimarra sp.  
Culoptila sp.  
Diplectronea sp.  
Dolophilodes sp.  
Glossosoma sp.  
Goera sp.  
Helicopsyche sp.  
Hydatophylax sp.  
Hydropsyche sp.  
Hydroptila sp.  
Lepidostoma sp.  
Leucotrichia sp.  
Macrostemum sp.  
Micrasema sp.  
Mystacides sp.  
Neophylax sp.  
Neureclipsis sp.  
Nyctiophylax sp.  
Ochrotrichia sp.  
Oecetis sp.  
Polycentropus sp.  
Potamyia sp.  
Protophylax sp.  
Psilotreta sp.  
Psychomyia sp.  
Rhyacophila sp.  
Rhyacophila fuscula  
Triaenodes sp.  
Wormaldia sp.

**Table 9.** Systematic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued

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Lepidoptera (Butterflies and Moths)

Archanara sp.  
Noctuidae  
Petrophila sp.  
Pyralidae  
Synclita sp.

Coleoptera (Beetles)

Agabus sp.  
Anchytarsus bicolor  
Ancyronyx sp.  
Ancyronyx variegata  
Berosus sp.  
Chrysomelidae  
Curculionidae  
Dineutus sp.  
Dryopidae  
Dubiraphia sp.  
Dytiscidae  
Ectopria sp.  
Ectopria nervosa  
Gyrinidae  
Helichus sp.  
Helophorus sp.  
Hydrobius sp.  
Hydrochara sp.  
Hydrophilidae  
Macronychus sp.  
Macronychus glabratus  
Microcylloepus sp.  
Optioservus sp.  
Oulimnius sp.  
Promoresia sp.  
Psephenus sp.  
Stenelmis sp.

Hymenoptera (Wasps)

Ichneumonidae

**Table 9.** Systematic checklist of taxa reported from Chester County Biological Monitoring Network, 1981-94—Continued

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Diptera (Flies)

Antocha sp.  
Atherix sp.  
Blephariceridae  
Blephariceria sp.  
Ceratopogonidae  
Chaoborus sp.  
Chelifera sp.  
Chironomidae  
Clinocera sp.  
Dicranota sp.  
Dixa sp.  
Empididae  
Ephydriidae  
Hemerodromia sp.  
Hexatoma sp.  
Limnophora sp.  
Muscidae  
Prosimulium sp.  
Simulium sp.  
Stratiomyidae  
Stratiomys sp.  
Syrphidae  
Tabanus sp.  
Telmatoscopus sp.  
Tipula sp.

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