



# 2004 Water Year CHEMUNG RIVER BASIN

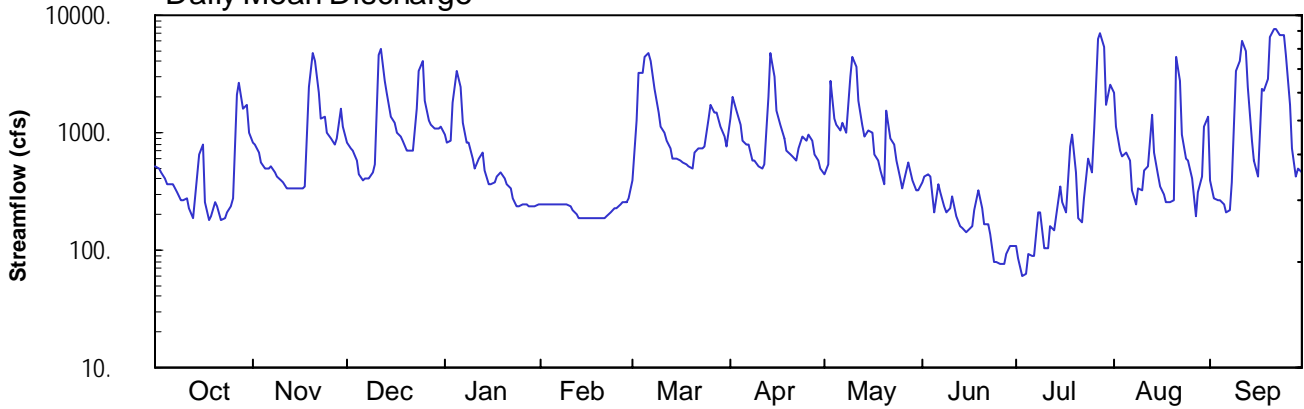
## 01518700 Tioga River at Tioga Junction, PA

Latitude: 41° 57' 09"  
Tioga County

Longitude: 077° 06' 56"  
Datum: 990.43 feet

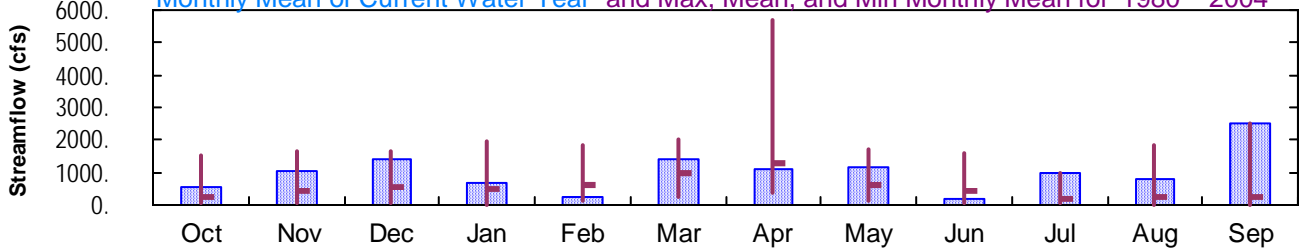
Hydrologic Unit Code: 02050104  
Drainage Area: 446. mi<sup>2</sup>

### Daily Mean Discharge

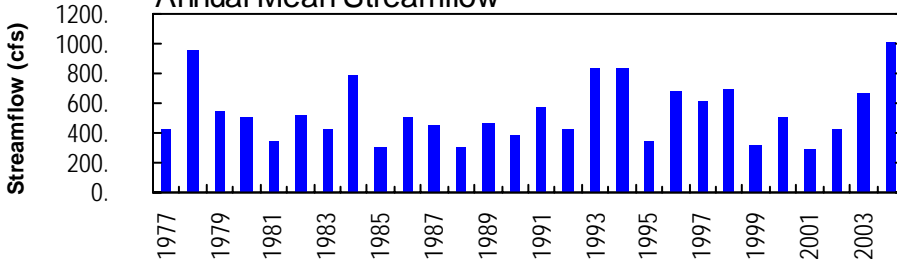


### Monthly Statistics

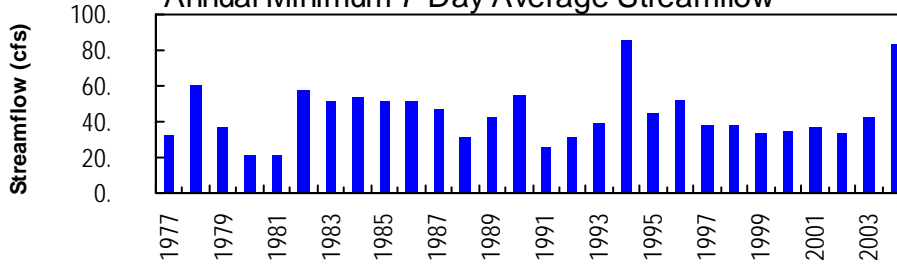
Monthly Mean of Current Water Year and Max, Mean, and Min Monthly Mean for 1980 – 2004



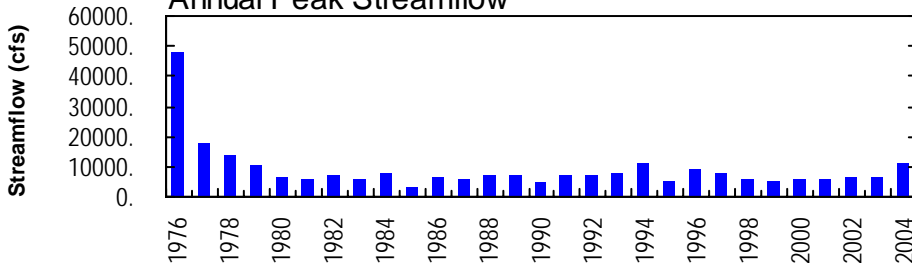
### Annual Mean Streamflow



### Annual Minimum 7-Day Average Streamflow



### Annual Peak Streamflow



**CHEMUNG RIVER BASIN**

**01518700 TIOGA RIVER AT TIOGA JUNCTION, PA  
(Pennsylvania Water-Quality Network Station)**

**LOCATION.**--Lat 41°57'09", long 77°06'56", Tioga County, Hydrologic Unit 02050104, on left bank 0.3 mi upstream from bridge on Township Route 722 at Tioga Junction, 3.3 mi downstream from Crooked Creek, and 5.0 mi downstream from Tioga and Hammond Dams.

**DRAINAGE AREA.**--446 mi<sup>2</sup>.

**WATER-DISCHARGE RECORDS**

**PERIOD OF RECORD.**--July 1976 to current year.

**GAGE.**--Water-stage recorder. Datum of gage is 990.43 ft above National Geodetic Vertical Datum of 1929.

**REMARKS.**--Records good except those for estimated daily discharges, which are poor. Flow regulated since November 1979 by Tioga Dam (station 01517900) and Hammond Dam (station 01518498). Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**EXTREMES OUTSIDE PERIOD OF RECORD.**--Flood of September 1975 reached a stage of about 22.1 ft, from floodmarks, discharge, about 48,000 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

| DAY   | OCT   | NOV   | DEC   | JAN   | FEB  | MAR   | APR   | MAY   | JUN  | JUL   | AUG   | SEP   |
|-------|-------|-------|-------|-------|------|-------|-------|-------|------|-------|-------|-------|
| 1     | 525   | 813   | 824   | 953   | 247  | 385   | 1310  | 442   | 383  | 107   | 2210  | 384   |
| 2     | 495   | 794   | 736   | 829   | e250 | 1250  | 2020  | 528   | 425  | 84    | 1140  | 276   |
| 3     | 462   | 678   | 699   | 872   | 246  | 3170  | 1530  | 2810  | 441  | 59    | 705   | 267   |
| 4     | 410   | 557   | 586   | 1780  | 245  | 3250  | 1170  | 1300  | 425  | 63    | 634   | 262   |
| 5     | 369   | 498   | 443   | 3360  | e250 | 4340  | 867   | 1160  | 213  | 91    | 677   | 247   |
| 6     | 364   | 496   | 398   | 2440  | 245  | 4850  | 792   | 1050  | 357  | 89    | 576   | 210   |
| 7     | 360   | 519   | 400   | 1210  | 246  | 4020  | 787   | 1190  | 310  | 90    | 319   | 222   |
| 8     | 312   | 457   | 403   | 834   | e250 | 2340  | 587   | 995   | 240  | 209   | 245   | 375   |
| 9     | 261   | 429   | 464   | 839   | e250 | 1500  | 581   | 2970  | 213  | 209   | 337   | 3310  |
| 10    | 264   | 389   | 545   | 599   | 233  | 1100  | 519   | 4400  | 223  | 104   | 323   | 4000  |
| 11    | 272   | 373   | 4580  | e500  | 216  | 996   | 499   | 3630  | 284  | 102   | 473   | 5990  |
| 12    | 230   | 334   | 5160  | 612   | e200 | 853   | 537   | 1900  | 196  | 157   | 510   | 4970  |
| 13    | 185   | 339   | 2800  | 680   | 190  | 728   | 1990  | 1180  | 162  | 148   | 1420  | 2480  |
| 14    | 276   | 337   | 2180  | e480  | 190  | 611   | 4750  | 937   | 156  | 197   | 668   | 845   |
| 15    | 642   | 335   | 1380  | e360  | e190 | 593   | 3000  | 1040  | e143 | 353   | 445   | 576   |
| 16    | 785   | 332   | 1230  | e360  | e190 | 587   | 1550  | 998   | 145  | 258   | 352   | 429   |
| 17    | 256   | 331   | 1000  | e380  | e190 | 566   | 1150  | 646   | 161  | 211   | 294   | 2400  |
| 18    | 178   | 346   | 940   | 422   | e190 | 542   | 907   | 571   | 220  | 773   | 255   | 2240  |
| 19    | 191   | 2450  | 858   | 452   | 184  | 519   | 690   | 469   | 322  | 947   | 252   | 2910  |
| 20    | 252   | 4840  | 716   | 404   | 184  | 494   | 661   | 361   | 231  | 466   | 262   | 6590  |
| 21    | 232   | 4020  | 699   | 368   | 189  | 671   | 628   | 1560  | 168  | 185   | 4360  | 7480  |
| 22    | 183   | 2190  | 699   | e330  | 198  | 719   | 590   | 885   | 165  | 176   | 2760  | 7490  |
| 23    | 187   | 1310  | 1610  | e280  | e210 | 729   | 718   | 789   | 137  | 273   | 954   | 6850  |
| 24    | 207   | 1390  | 3410  | e240  | 229  | 770   | 938   | 573   | 80   | 602   | 606   | 6840  |
| 25    | 238   | 984   | 4100  | e240  | e230 | 1310  | 853   | 407   | 78   | 450   | 579   | 4590  |
| 26    | 278   | 875   | 1890  | e250  | 241  | 1730  | 976   | 340   | 77   | 1070  | 414   | 1690  |
| 27    | 2130  | 778   | 1280  | e250  | 257  | 1470  | 844   | 477   | 76   | 6170  | 194   | 726   |
| 28    | 2620  | 883   | 1160  | 238   | 252  | 1460  | 646   | 554   | 92   | 7010  | 311   | 426   |
| 29    | 1620  | 1610  | 1090  | e240  | 276  | 1110  | 579   | 389   | 109  | 5340  | 418   | 504   |
| 30    | 1740  | 1110  | 1090  | e240  | ---  | 913   | 501   | 325   | 107  | 1750  | 1110  | 453   |
| 31    | 996   | ---   | 1120  | e250  | ---  | 773   | ---   | 326   | ---  | 2510  | 1390  | ---   |
| TOTAL | 17520 | 30797 | 44490 | 21292 | 6468 | 44349 | 33170 | 35202 | 6339 | 30253 | 25193 | 76032 |
| MEAN  | 565   | 1027  | 1435  | 687   | 223  | 1431  | 1106  | 1136  | 211  | 976   | 813   | 2534  |
| MAX   | 2620  | 4840  | 5160  | 3360  | 276  | 4850  | 4750  | 4400  | 441  | 7010  | 4360  | 7490  |
| MIN   | 178   | 331   | 398   | 238   | 184  | 385   | 499   | 325   | 76   | 59    | 194   | 210   |

e Estimated.

**CHEMUNG RIVER BASIN**

**01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued**

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2004, BY WATER YEAR (WY) (SINCE REGULATION)**

|      | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 254  | 426  | 550  | 498  | 628  | 1002 | 1287 | 618  | 456  | 214  | 215  | 239  |
| MAX  | 1515 | 1626 | 1632 | 1975 | 1837 | 2009 | 5667 | 1723 | 1619 | 976  | 1836 | 2534 |
| (WY) | 1991 | 1997 | 1997 | 1996 | 1981 | 1994 | 1993 | 1989 | 1989 | 2004 | 1994 | 2004 |
| MIN  | 41.4 | 49.0 | 41.5 | 29.5 | 127  | 259  | 352  | 151  | 51.4 | 38.4 | 29.6 | 26.3 |
| (WY) | 1992 | 1981 | 1999 | 1981 | 1989 | 1981 | 1988 | 2001 | 1980 | 1991 | 1980 | 1980 |

**SUMMARY STATISTICS FOR 2003 CALENDAR YEAR FOR 2004 WATER YEAR WATER YEARS 1980 - 2004**

|                          |  |        |      |        |  |        |        |  |        |           |  |      |
|--------------------------|--|--------|------|--------|--|--------|--------|--|--------|-----------|--|------|
| ANNUAL TOTAL             |  | 308210 |      | 371105 |  |        |        |  |        |           |  |      |
| ANNUAL MEAN              |  | 844    |      | 1014   |  |        |        |  | 531    |           |  |      |
| HIGHEST ANNUAL MEAN      |  |        |      |        |  |        |        |  | 1014   |           |  | 2004 |
| LOWEST ANNUAL MEAN       |  |        |      |        |  |        |        |  | 297    |           |  | 2001 |
| HIGHEST DAILY MEAN       |  |        | 6330 | Mar 25 |  | 7490   | Sep 22 |  | 7490   | Sep 22    |  | 2004 |
| LOWEST DAILY MEAN        |  |        | 65   | Aug 30 |  | 59     | Jul 3  |  | 16     | Aug 26-28 |  | 1980 |
| ANNUAL SEVEN-DAY MINIMUM |  |        | 92   | Aug 25 |  | 83     | Jul 1  |  | 21     | Jan 23    |  | 1981 |
| MAXIMUM PEAK FLOW        |  |        |      |        |  | a11000 | Sep 17 |  | a11200 | Aug 18    |  | 1994 |
| MAXIMUM PEAK STAGE       |  |        |      |        |  | 15.33  | Sep 17 |  | 15.42  | Aug 18    |  | 1994 |
| 10 PERCENT EXCEEDS       |  |        | 1990 |        |  | 2540   |        |  | 1220   |           |  |      |
| 50 PERCENT EXCEEDS       |  |        | 429  |        |  | 519    |        |  | 214    |           |  |      |
| 90 PERCENT EXCEEDS       |  |        | 152  |        |  | 190    |        |  | 50     |           |  |      |

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1979, BY WATER YEAR (WY) (PRIOR TO REGULATION)**

|      | OCT  | NOV  | DEC  | JAN  | FEB  | MAR  | APR  | MAY  | JUN  | JUL  | AUG  | SEP  |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 581  | 746  | 635  | 963  | 453  | 1993 | 1010 | 663  | 210  | 123  | 177  | 160  |
| MAX  | 838  | 1764 | 1324 | 1484 | 597  | 2355 | 1404 | 1365 | 318  | 181  | 288  | 278  |
| (WY) | 1978 | 1978 | 1978 | 1979 | 1977 | 1979 | 1978 | 1978 | 1978 | 1976 | 1976 | 1977 |
| MIN  | 198  | 181  | 229  | 97.2 | 380  | 1478 | 807  | 311  | 153  | 78.3 | 65.2 | 80.3 |
| (WY) | 1979 | 1979 | 1977 | 1977 | 1978 | 1977 | 1979 | 1979 | 1977 | 1979 | 1979 | 1976 |

**SUMMARY STATISTICS WATER YEARS 1976 - 1979**

|                          |  |         |  |                                    |  |      |  |  |  |  |  |  |
|--------------------------|--|---------|--|------------------------------------|--|------|--|--|--|--|--|--|
| ANNUAL MEAN              |  | 643     |  |                                    |  |      |  |  |  |  |  |  |
| HIGHEST ANNUAL MEAN      |  | 955     |  |                                    |  | 1978 |  |  |  |  |  |  |
| LOWEST ANNUAL MEAN       |  | 429     |  |                                    |  | 1977 |  |  |  |  |  |  |
| HIGHEST DAILY MEAN       |  | 8510    |  | Jan 9                              |  | 1978 |  |  |  |  |  |  |
| LOWEST DAILY MEAN        |  | 28      |  | Sep 11                             |  | 1977 |  |  |  |  |  |  |
| ANNUAL SEVEN-DAY MINIMUM |  | 32      |  | Sep 7                              |  | 1977 |  |  |  |  |  |  |
| MAXIMUM PEAK FLOW        |  | bc17900 |  | Feb 25                             |  | 1977 |  |  |  |  |  |  |
| MAXIMUM PEAK STAGE       |  | d17.20  |  | Jan 26                             |  | 1978 |  |  |  |  |  |  |
| INSTANTANEOUS LOW FLOW   |  | 26      |  | Feb 13, Sep 12, 1977; Feb 3, 1979. |  |      |  |  |  |  |  |  |
| ANNUAL RUNOFF (CFSM)     |  | 1.44    |  |                                    |  |      |  |  |  |  |  |  |
| ANNUAL RUNOFF (INCHES)   |  | 19.59   |  |                                    |  |      |  |  |  |  |  |  |
| 10 PERCENT EXCEEDS       |  | 1520    |  |                                    |  |      |  |  |  |  |  |  |
| 50 PERCENT EXCEEDS       |  | 232     |  |                                    |  |      |  |  |  |  |  |  |
| 90 PERCENT EXCEEDS       |  | 69      |  |                                    |  |      |  |  |  |  |  |  |

- a From rating curve extended above 6,000 ft<sup>3</sup>/s.
- b From rating curve extended above 4,000 ft<sup>3</sup>/s.
- c Gage height 16.70 ft.
- d Backwater from ice.

**CHEMUNG RIVER BASIN**

**01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued  
(Pennsylvania Water-Quality Network Station)**

**WATER-QUALITY RECORDS**

**PERIOD OF RECORD.**--April 2002 to current year.

**COOPERATION.**--Samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

**WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004**

| Date           | Time | Agency collecting sample, code (00027) | Agency analyzing sample, code (00028) | Instantaneous discharge, cfs (00061) | Dissolved oxygen, mg/L (00300) | pH, water, unfltrd field, std units (00400) | pH, water, unfltrd lab, std units (00403) | Specif. conductance, wat unfltrd lab, $\mu$ S/cm 25 degC (90095) | Specif. conductance, wat unfltrd lab, $\mu$ S/cm 25 degC (00095) | Temperature, water, deg C (00010) | Hardness, water, mg/L as CaCO3 (00900) | Calcium water unfltrd recover, mg/L (00916) | Magnesium, water, unfltrd recover, mg/L (00927) |
|----------------|------|--|---------------------------------------|--------------------------------------|--------------------------------|---|---|--|--|-----------------------------------|--|---|---|
| OCT 2003 22... | 0945 | 1028                                   | 9813                                  | 183                                  | 10.1                           | 7.3   | 7.0                                       | 178  | 170  | 10.4                              | 65                                     | 18.4  | 4.7   |
| DEC 16...      | 1115 | 1028                                   | 9813                                  | 1280                                 | 13.2                           | 7.2   | 7.0                                       | 112  | 117  | 1.7                               | 42                                     | 12.1  | 2.8   |
| FEB 2004 23... | 0930 | 1028                                   | 9813                                  | E210                                 | 14.7                           | 7.3   | 7.0                                       | 198  | 195  | .2                                | 73                                     | 20.4  | 5.4   |
| APR 07...      | 0930 | 1028                                   | 9813                                  | 838                                  | 12.0                           | 7.3   | 7.5                                       | 128  | 128  | 5.9                               | 47                                     | 13.6  | 3.1   |
| JUN 02...      | 0930 | 1028                                   | 9813                                  | 438                                  | 8.9                            | 7.2   | 7.2                                       | 165  | 163  | 17.4                              | 62                                     | 17.3  | 4.6   |
| AUG 04...      | 0930 | 1028                                   | 9813                                  | 604                                  | 8.7                            | 6.8   | 6.9                                       | 124  | 121  | 19.3                              | 45                                     | 12.7  | 3.2   |

| Date           | ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (00417) | Sulfate water, fltrd, mg/L (00945) | Residue on evap. at 105degC, wat fltrd, mg/L (00515) | Residue total at 105 deg. C, suspended, mg/L (00530) | Ammonia water, unfltrd, mg/L as N (00610) | Nitrate water, unfltrd, mg/L as N (00620) | Nitrite water, unfltrd, mg/L as N (00615) | Ortho-phosphate, water, unfltrd, mg/L as P (70507) | Phosphorus, water, unfltrd, mg/L (00665) | Total nitrogen, water, unfltrd, mg/L (00600) | Organic carbon, water, unfltrd, mg/L (00680) | Aluminum, water, unfltrd recover, mg/L (01105) | Copper, water, unfltrd recover, mg/L (01042) |
|----------------|---|------------------------------------|--|--|---|---|---|--|--|--|--|--|--|
| OCT 2003 22... | 33  | 34.4                               | 132  | <2   | <.020                                     | .26                                       | <.040                                     | .01  | .012                                     | .54  | 2.6  | <200   | <10  |
| DEC 16...      | 24  | 17.7                               | 108  | 22   | .020                                      | .55                                       | <.040                                     | .10  | .047                                     | .75  | 3.5  | 1700   | <10  |
| FEB 2004 23... | 29  | 45.0                               | 124  | 12   | .070                                      | .75                                       | <.040                                     | .01  | .011                                     | .90  | 1.5  | <200   | <10  |
| APR 07...      | 23  | 22.5                               | 92   | 16   | <.020                                     | .52                                       | <.040                                     | .02  | .022                                     | .84  | 2.2  | 300  | <10  |
| JUN 02...      | 28  | 33.4                               | 124  | 4  | .040                                      | .35                                       | <.040                                     | .02  | .019                                     | .36  | 2.3  | 200  | <10  |
| AUG 04...      | 28  | 19.9                               | 86   | 6  | .070                                      | .33                                       | <.040                                     | .03  | .024                                     | .61  | 3.9  | 500  | <10  |

| Date           | Iron, water, unfltrd recover, mg/L (01045) | Lead, water, unfltrd recover, mg/L (01051) | Manganese, water, unfltrd recover, mg/L (01055) | Nickel, water, unfltrd recover, mg/L (01067) | Zinc, water, unfltrd recover, mg/L (01092) |
|----------------|--|--|---|--|--|
| OCT 2003 22... | 120  | <1.0                                       | 120   | <50  | 10   |
| DEC 16...      | 1610                                       | 1.1  | 240   | <50  | 20   |
| FEB 2004 23... | 180  | <1.0                                       | 680   | <50  | 50   |
| APR 07...      | 420  | <1.0                                       | 290   | <50  | 20   |
| JUN 02...      | 300  | <1.0                                       | 440   | <50  | <10  |
| AUG 04...      | 640  | <1.0                                       | 290   | <50  | 30   |

## CHEMUNG RIVER BASIN

## 01518700 TIOGA RIVER AT TIOGA JUNCTION, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES

REMARKS.--Samples were collected using a D-Frame net with a mesh size of 500 µm. Samples represent counts per 100 animal (approximate) subsamples.

| Date                             | 10/22/03 |
|----------------------------------|----------|
| Benthic Macroinvertebrate        | Count    |
| Nematoda (NEMATODES)             | 1        |
| Mollusca                         |          |
| Gastropoda (SNAILS)              |          |
| Basommatophora                   |          |
| Ancyliidae                       |          |
| <i>Ferrissia</i>                 | 2        |
| Planorbidae                      |          |
| <i>Planorbella</i>               | 1        |
| Annelida                         |          |
| Oligochaeta (AQUATIC EARTHWORMS) |          |
| Tubificida                       |          |
| Naididae                         | 1        |
| Arthropoda                       |          |
| Acariformes                      |          |
| Hydrachnidia (WATER MITES)       | 4        |
| Insecta                          |          |
| Ephemeroptera (MAYFLIES)         |          |
| Ephemerellidae                   |          |
| <i>Ephemerella</i>               | 1        |
| Heptageniidae                    |          |
| <i>Stenonema</i>                 | 5        |
| Isonychiidae                     |          |
| <i>Isonychia</i>                 | 2        |
| Leptophlebiidae                  |          |
| <i>Paraleptophlebia</i>          | 1        |
| Plecoptera (STONEFLIES)          |          |
| Capniidae                        | 1        |
| Taeniopterygidae                 |          |
| <i>Taeniopteryx</i>              | 6        |
| Trichoptera (CADDISFLIES)        |          |
| Brachycentridae                  |          |
| <i>Micrasema</i>                 | 1        |
| Hydropsychidae                   |          |
| <i>Cheumatopsyche</i>            | 36       |
| <i>Hydropsyche</i>               | 23       |
| <i>Macrostemum</i>               | 1        |
| Hydroptilidae                    |          |
| <i>Hydroptila</i>                | 3        |
| Philopotamidae                   |          |
| <i>Chimarra</i>                  | 2        |
| Psychomyiidae                    |          |
| <i>Psychomyia</i>                | 1        |
| Coleoptera (BEETLES)             |          |
| Elmidae (RIFFLE BEETLES)         |          |
| <i>Promoresia</i>                | 1        |
| Diptera (TRUE FLIES)             |          |
| Chironomidae (MIDGES)            | 20       |
| Empididae (DANCE FLIES)          |          |
| <i>Hemerodromia</i>              | 1        |
| Tipulidae (CRANE FLIES)          |          |
| <i>Antocha</i>                   | 3        |
| Total Organisms                  | 117      |
| Total Taxa                       | 22       |