2004 Water Year

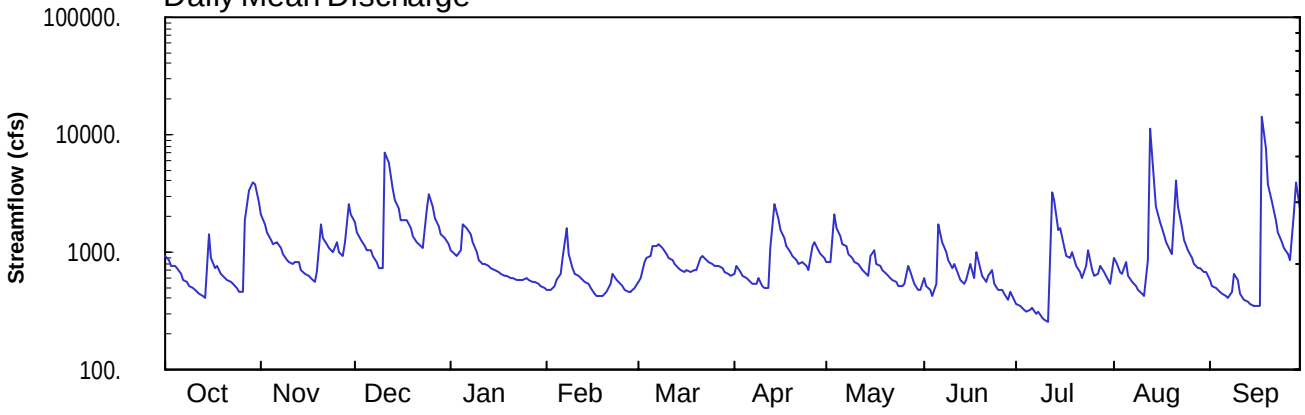
SCHUYLKILL RIVER BASIN

## 01470500 Schuylkill River at Berne, PA

Latitude: 40°31'21" Longitude: 075°59'55" Hydrologic Unit Code: 02040203

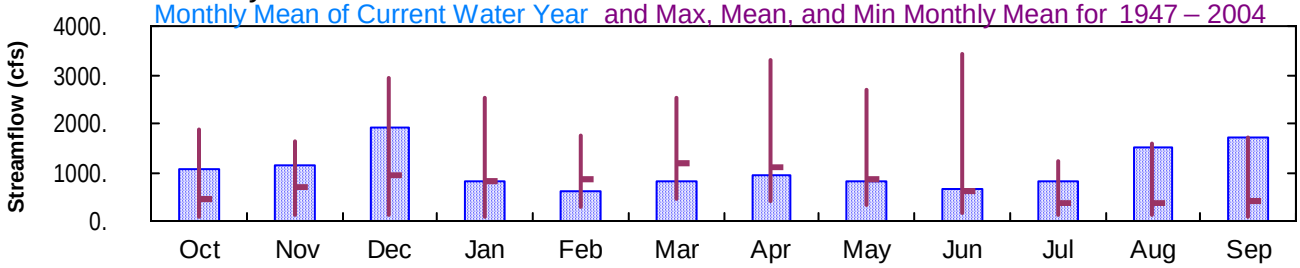
Berks County Datum: 310.65 feet Drainage Area: 355. mi²

### Daily Mean Discharge

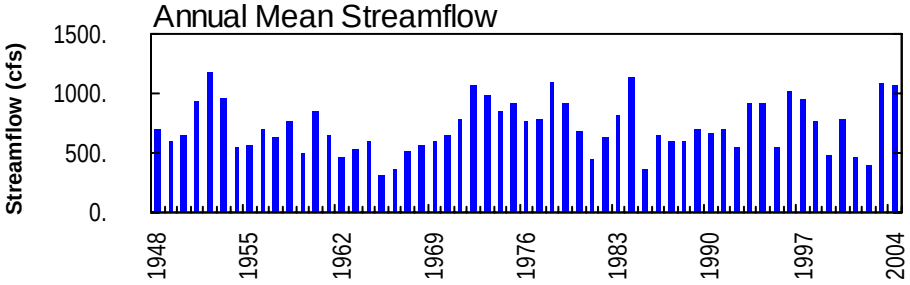



### Monthly Statistics

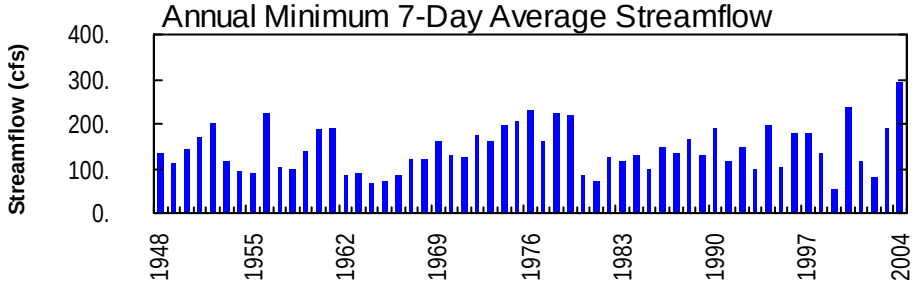
Monthly Mean of Current Water Year and Max, Mean, and Min Monthly Mean for 1947 – 2004



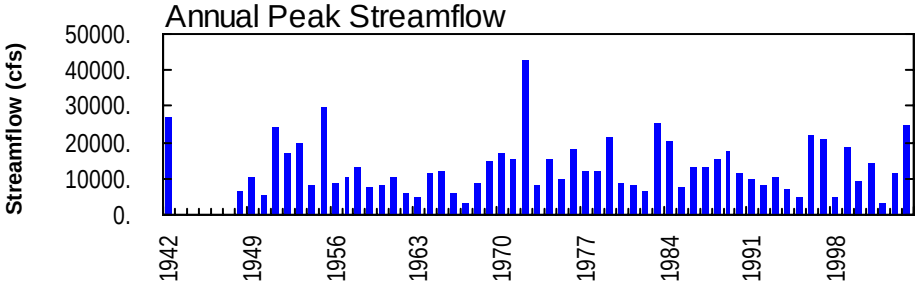

### Annual Mean Streamflow

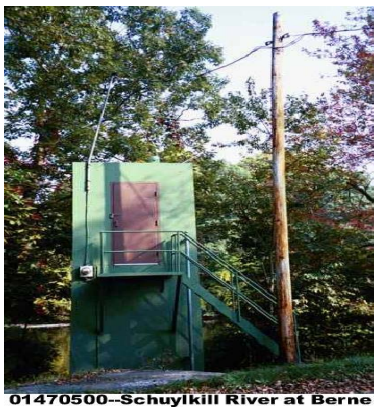



### Annual Minimum 7-Day Average Streamflow




### Annual Peak Streamflow





01470500--Schuylkill River at Berne

## SCHUYLKILL RIVER BASIN

### 01470500 SCHUYLKILL RIVER AT BERNE, PA
**(Pennsylvania Water-Quality Network Station)**

**LOCATION**.--Lat 40°31'21", long 75°59'55", Berks County, Hydrologic Unit 02040203, on right bank 50 ft upstream from bridge on Township Route 558 at Berne, 0.5 mi upstream from Mill Creek, and 6.5 mi downstream from Little Schuylkill River.

**DRAINAGE AREA**.--355 $mi^2$.

### WATER-DISCHARGE RECORDS

**PERIOD OF RECORD**.--August 1947 to current year.

**GAGE**.--Water-stage recorder and crest-stage gage. Datum of gage is 310.65 ft above National Geodetic Vertical Datum of 1929.

**REMARKS**.--Records good except those for estimated daily discharges, which are poor. Some regulation at low flow by mine pumpage and by Still Creek Reservoir (station 01469200) about 25 mi upstream. Several measurements of water temperature were made during the year. Satellite and landline telemetry at station.

**PEAK DISCHARGES FOR CURRENT YEAR**.--Peak discharges greater than base discharge of 4,400 $ft^3/s$ and maximum (*****):

| Date | Time | Discharge $ft^3/s$ | Gage Height (ft) |
|---|---|---|---|
| Oct. 29 | 1600 | 5,220 | 8.43 |
| Dec. 11 | 1730 | 12,700 | 11.45 |
| July 12 | 1900 | 7,420 | 9.43 |
| Aug. 13 | 1030 | 17,200 | 12.89 |
| Aug. 21 | 1100 | 6,520 | 9.04 |
| Sept. 18 | 1600 | *24,900 | *15.05 |
| Sept. 29 | 0000 | 5,660 | 8.64 |

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 | 931 | 2090 | 1790 | 1050 | e480 | 560 | 662 | 819 | 613 | 362 | 897 | 569 |
| 2 | 861 | 1710 | 1490 | 961 | e485 | 598 | 752 | 813 | 516 | 346 | 814 | 523 |
| 3 | 775 | 1460 | 1260 | 924 | e515 | 823 | 664 | 2080 | 477 | 326 | 690 | 491 |
| 4 | 772 | 1280 | 1120 | 1030 | e575 | 897 | 636 | 1570 | 426 | 312 | 644 | 461 |
| 5 | 746 | 1170 | 1040 | 1710 | e640 | 939 | 599 | 1340 | 545 | 327 | 816 | 443 |
| 6 | 646 | 1220 | 1030 | e1620 | e900 | 1110 | 558 | 1190 | 1700 | 329 | 618 | 431 |
| 7 | 583 | 1100 | 922 | e1440 | 1610 | 1140 | 539 | 1130 | 1240 | 300 | 551 | 413 |
| 8 | 547 | 945 | 831 | e1200 | 979 | 1150 | 526 | 980 | 993 | 310 | 511 | 457 |
| 9 | 520 | 855 | 737 | e1000 | 728 | 1070 | 595 | 874 | 839 | 280 | 475 | 639 |
| 10 | 495 | 810 | 737 | e850 | 655 | 967 | 517 | 826 | 741 | 264 | 440 | 581 |
| 11 | 465 | 783 | 6910 | e800 | 638 | 895 | 493 | 777 | 787 | 257 | 425 | 441 |
| 12 | 441 | 838 | 5750 | e780 | 579 | 853 | 493 | 715 | 663 | 3240 | 858 | 398 |
| 13 | 417 | 808 | 3460 | e760 | 549 | 779 | 1060 | 686 | 576 | 2770 | 11200 | 380 |
| 14 | 409 | 710 | 2710 | e730 | 531 | 730 | 2520 | 634 | 540 | 1560 | 4110 | 358 |
| 15 | 1400 | 662 | 2340 | e700 | 492 | 702 | 1960 | 925 | 583 | 1600 | 2460 | 347 |
| 16 | 897 | 628 | 1850 | e670 | 435 | 683 | 1540 | 1030 | 806 | 1110 | 1780 | 346 |
| 17 | 737 | 607 | 1850 | e650 | 425 | 696 | 1290 | 797 | 607 | 915 | 1420 | 346 |
| 18 | 748 | 566 | 1860 | e630 | 421 | 666 | 1120 | 753 | 1010 | 884 | 1200 | 14100 |
| 19 | 659 | 681 | 1580 | e620 | 419 | 701 | 995 | 697 | 739 | 999 | 1050 | 7550 |
| 20 | 602 | 1700 | 1390 | e610 | 455 | 702 | 932 | 650 | 635 | 772 | 955 | 3800 |
| 21 | 577 | 1340 | 1220 | e600 | 536 | 893 | 866 | 613 | 563 | 670 | 4130 | 2620 |
| 22 | 566 | 1160 | 1110 | e590 | 639 | 914 | 805 | 586 | 633 | 600 | 2410 | 1830 |
| 23 | 535 | 1060 | 1060 | e580 | 577 | 851 | 831 | 552 | 716 | 770 | 1610 | 1470 |
| 24 | 499 | 996 | 2320 | e570 | 562 | 807 | 768 | 515 | 536 | 1060 | 1250 | 1240 |
| 25 | 467 | 1200 | 3110 | e610 | 525 | 783 | 705 | 510 | 480 | 714 | 1040 | 1070 |
| 26 | 451 | 985 | 2420 | e580 | 481 | 768 | 1120 | 544 | 477 | 633 | 907 | 956 |
| 27 | 1890 | 931 | 1960 | e560 | 454 | 754 | 1240 | 763 | 433 | 642 | 806 | 848 |
| 28 | 3340 | 1210 | 1650 | e550 | 459 | 721 | 1030 | 690 | 399 | 776 | 746 | 2100 |
| 29 | 3990 | 2550 | 1430 | e540 | 498 | 668 | 945 | 535 | 459 | 664 | 742 | 3900 |
| 30 | 3710 | 2120 | 1330 | e520 | --- | 640 | 875 | 474 | 396 | 573 | 673 | 2340 |
| 31 | 2680 | --- | 1180 | e500 | --- | 625 | --- | 472 | --- | 537 | 680 | --- |
| TOTAL | 32356 | 34175 | 59447 | 24935 | 17242 | 25085 | 27636 | 25540 | 20128 | 24902 | 46908 | 51448 |
| MEAN | 1044 | 1139 | 1918 | 804 | 595 | 809 | 921 | 824 | 671 | 803 | 1513 | 1715 |
| MAX | 3990 | 2550 | 6910 | 1710 | 1610 | 1150 | 2520 | 2080 | 1700 | 3240 | 11200 | 14100 |
| MIN | 409 | 566 | 737 | 500 | 419 | 560 | 493 | 472 | 396 | 257 | 425 | 346 |
| CFSM | 2.94 | 3.21 | 5.40 | 2.27 | 1.67 | 2.28 | 2.59 | 2.32 | 1.89 | 2.26 | 4.26 | 4.83 |
| IN. | 3.39 | 3.58 | 6.23 | 2.61 | 1.81 | 2.63 | 2.90 | 2.68 | 2.11 | 2.61 | 4.92 | 5.39 |

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2004, BY WATER YEAR (WY)**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 432 | 693 | 938 | 814 | 869 | 1181 | 1120 | 869 | 598 | 385 | 364 | 388 |
| MAX | 1896 | 1631 | 2932 | 2547 | 1735 | 2525 | 3319 | 2689 | 3410 | 1240 | 1594 | 1715 |
| (WY) | 1977 | 1971 | 1997 | 1979 | 1981 | 1994 | 1993 | 1989 | 1972 | 1984 | 1955 | 2004 |
| MIN | 75.7 | 120 | 125 | 88.4 | 274 | 462 | 424 | 314 | 148 | 104 | 105 | 94.6 |
| (WY) | 1964 | 1965 | 1981 | 1981 | 2002 | 1985 | 1985 | 1999 | 1965 | 1999 | 2002 | 1964 |

**e** Estimated.

## 01470500 SCHUYLKILL RIVER AT BERNE, PA--Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1947 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 438121 | | 389802 | | | |
| ANNUAL MEAN | 1200 | | 1065 | | 720 | |
| HIGHEST ANNUAL MEAN | | | | | 1182 | 1952 |
| LOWEST ANNUAL MEAN | | | | | 321 | 1965 |
| HIGHEST DAILY MEAN | 8820 | Jun 21 | 14100 | Sep 18 | 26000 | Jun 23 1972 |
| LOWEST DAILY MEAN | **e**280 | Feb 17 | 257 | Jul 11 | 40 | Sep 2 1949 |
| ANNUAL SEVEN-DAY MINIMUM | **a**307 | Feb 12 | 295 | Jul 5 | 52 | Aug 30 1999 |
| MAXIMUM PEAK FLOW | | | **b**24900 | Sep 18 | **b**42800 | Jun 22 1972 |
| MAXIMUM PEAK STAGE | | | 15.05 | Sep 18 | **c**19.00 | Jun 22 1972 |
| INSTANTANEOUS LOW FLOW | | | 254 | Jul 11,12 | 31 | Sep 2 1949 |
| ANNUAL RUNOFF (CFSM) | 3.38 | | 3.00 | | 2.03 | |
| ANNUAL RUNOFF (INCHES) | 45.91 | | 40.85 | | 27.56 | |
| 10 PERCENT EXCEEDS | 2360 | | 1850 | | 1490 | |
| 50 PERCENT EXCEEDS | 856 | | 750 | | 458 | |
| 90 PERCENT EXCEEDS | 389 | | 455 | | 159 | |

**a** Computed using estimated daily discharges.
**b** From rating curve extended above 20,800 $ft^3/s$.
**c** From floodmark in gage shelter.
**e** Estimated.

**01470500 SCHUYLKILL RIVER AT BERNE, PA**--Continued
**(Pennsylvania Water-Quality Network Station)**

## WATER-QUALITY RECORDS

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

**REMARKS**.--Some values for "*dissolved*" parameters exceed values for the corresponding "*total*" parameter. These results are within the limits of analytical precision and methods.

**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. conduct-ance, wat unf lab, µS/cm 25 degC (90095) | Specif. conduct-ance, wat unf µS/cm 25 degC (00095) | Temper-ature, water, deg C (00010) | Hard-ness, water, mg/L as CaCO3 (00900) | Calcium water, fltrd, mg/L (00915) | Calcium water unfltrd recover-able, mg/L (00916) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 2003 | | | | | | | | | | | | | |
| 02... | 1030 | 1028 | 9813 | 862 | 10.5 | 7.4 | 6.8 | 252 | 249 | 12.3 | 97 | 20.7 | 20.7 |
| DEC | | | | | | | | | | | | | |
| 08... | 1200 | 1028 | 9813 | 832 | 14.5 | 7.7 | 7.4 | 257 | 270 | 1.9 | 100 | 19.3 | 19.6 |
| FEB 2004 | | | | | | | | | | | | | |
| 05... | 0915 | 1028 | 9813 | E640 | 13.8 | 7.8 | 7.3 | 392 | 387 | .0 | 140 | 27.9 | 28.7 |
| APR | | | | | | | | | | | | | |
| 05... | 1000 | 1028 | 9813 | 609 | 11.5 | 7.3 | 7.6 | 277 | 269 | 5.7 | 100 | 21.2 | 20.9 |
| JUN | | | | | | | | | | | | | |
| 22... | 1145 | 1028 | 9813 | 554 | 8.5 | 7.5 | 6.8 | 265 | 249 | 19.6 | 92 | 18.8 | 19.1 |
| AUG | | | | | | | | | | | | | |
| 10... | 0900 | 1028 | 9813 | 439 | 8.0 | 7.5 | 6.8 | 322 | 322 | 19.7 | 120 | 23.7 | 24.2 |

| Date | Magnes-ium, water, fltrd, mg/L (00925) | Magnes-ium, water, unfltrd recover-able, mg/L (00927) | ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417) | Acidity water, unfltrd heated, mg/L as CaCO3 (70508) | Sulfate water, fltrd, mg/L (00945) | Residue on evap. at 105degC wat flt mg/L (00515) | Residue total at 105 deg. C, sus-pended, 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-phos-phate, water, unfltrd mg/L as P (70507) | Phos-phorus, water, unfltrd mg/L (00665) | Total nitro-gen, water, unfltrd mg/L (00600) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 2003 | | | | | | | | | | | | | |
| 02... | 11.2 | 11.1 | 21 | .00 | 80.7 | 206 | 2 | .020 | 1.02 | <.040 | .01 | .025 | 1.1 |
| DEC | | | | | | | | | | | | | |
| 08... | 12.4 | 12.6 | 18 | .00 | 80.0 | 246 | <2 | .050 | .93 | <.040 | .01 | .012 | 1.2 |
| FEB 2004 | | | | | | | | | | | | | |
| 05... | 16.6 | 17.1 | 29 | .00 | 106 | 270 | 12 | .230 | .99 | <.040 | .02 | .023 | 1.5 |
| APR | | | | | | | | | | | | | |
| 05... | 12.6 | 12.5 | 21 | 17 | 75.6 | 224 | 6 | .040 | .97 | <.040 | -- | -- | 1.1 |
| JUN | | | | | | | | | | | | | |
| 22... | 11.0 | 10.7 | 23 | 11 | 74.6 | 192 | 4 | <.020 | 1.09 | <.040 | .01 | .035 | 1.2 |
| AUG | | | | | | | | | | | | | |
| 10... | 14.3 | 14.5 | 29 | .80 | 94.0 | 254 | <2 | <.020 | .87 | <.040 | <.01 | .012 | .99 |

| Date | BOD, water, unfltrd 5 day, 20 degC mg/L (00310) | Alum-inum, water, fltrd, µg/L (01106) | Alum-inum, water, unfltrd recover-able, µg/L (01105) | Copper, water, fltrd, µg/L (01040) | Copper, water, unfltrd recover-able, µg/L (01042) | Iron, water, fltrd, µg/L (01046) | Iron, water, unfltrd recover-able, µg/L (01045) | Lead, water, fltrd, µg/L (01049) | Lead, water, unfltrd recover-able, µg/L (01051) | Mangan-ese, water, fltrd, µg/L (01056) | Mangan-ese, water, unfltrd recover-able, µg/L (01055) | Nickel, water, fltrd, µg/L (01065) | Nickel, water, unfltrd recover-able, µg/L (01067) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCT 2003 | | | | | | | | | | | | | |
| 02... | .6 | 10 | 80 | <4 | <4 | <20 | 250 | <1.0 | <1.0 | 360 | 380 | 10 | 10 |
| DEC | | | | | | | | | | | | | |
| 08... | 1.6 | 20 | 80 | <4 | <4 | 30 | 260 | <1.0 | <1.0 | 540 | 560 | 10 | 20 |
| FEB 2004 | | | | | | | | | | | | | |
| 05... | 1.9 | 20 | 120 | <4 | <4 | 60 | 390 | <1.0 | <1.0 | 740 | 750 | 20 | 20 |
| APR | | | | | | | | | | | | | |
| 05... | .9 | 20 | 80 | <4 | <4 | 60 | 300 | <1.0 | <1.0 | 370 | 390 | 10 | 10 |
| JUN | | | | | | | | | | | | | |
| 22... | .9 | 20 | 160 | <4 | 9 | 30 | 350 | <1.0 | 1.0 | 120 | 240 | 7 | 8 |
| AUG | | | | | | | | | | | | | |
| 10... | 1.1 | 10 | 70 | <4 | <4 | 50 | 220 | <1.0 | <1.0 | 110 | 170 | 5 | 6 |

| Date | Zinc, water, fltrd, µg/L (01090) | Zinc, water, unfltrd recover-able, µg/L (01092) |
|---|---|---|
| OCT 2003 | | |
| 02... | 20 | 40 |
| DEC | | |
| 08... | 30 | 40 |
| FEB 2004 | | |
| 05... | 50 | 50 |
| APR | | |
| 05... | 20 | 20 |
| JUN | | |
| 22... | 7 | 20 |
| AUG | | |
| 10... | <5 | 8 |

**01470500 SCHUYLKILL RIVER AT BERNE, 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 | 09/04/03 |
|---|---|
| Benthic macroinvertebrate | Count |
| Nematoda (NEMATODES) | 3 |
| Arthropoda | |
| Acariformes | |
| Hydrachnidia (WATER MITES) | 3 |
| Insecta | |
| Ephemeroptera (MAYFLIES) | |
| Baetidae | 17 |
| *Acentrella* | 9 |
| *Plauditus* | 34 |
| Caenidae | |
| *Caenis* | 2 |
| Heptageniidae | 1 |
| *Stenonema* | 2 |
| Trichoptera (CADDISFLIES) | |
| Glossosomatidae | |
| *Protoptila* | 2 |
| Hydropsychidae | |
| *Cheumatopsyche* | 17 |
| *Hydropsyche* | 45 |
| Hydroptilidae | |
| *Dibusa* | 2 |
| Lepidoptera (MOTHS AND BUTTERFLIES) | |
| Pyralididae | |
| *Petrophila* | 3 |
| Coleoptera (BEETLES) | |
| Elmidae (RIFFLE BEETLES) | |
| *Optioservus* | 6 |
| *Oulimnius* | 1 |
| Diptera (TRUE FLIES) | |
| Chironomidae (MIDGES) | 7 |
| Simuliidae (BLACK FLIES) | |
| *Simulium* | 2 |
| Total Organisms | 156 |
| Total Taxa | 17 |