

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA

LOCATION.--Lat 40°04'22", long 75°51'40", Chester County, Hydrologic Unit 02040205, on right bank 100 ft upstream from bridge on SR 4007 at Birdell, 0.4 mi downstream from Two Log Run, and 3.0 mi southeast of Honey Brook.

DRAINAGE AREA.--18.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1960 to current year.

REVISED RECORDS.--WDR PA-73-1: 1972(P). WDR PA-99-1: 1972, 1973, 1975, 1976, 1978, 1979, 1982, 1984, 1985, 1987-89, 1996, 1997 (P).

GAGE.--Water-stage recorder and crest-stage gage. Prior to July 1990, water-stage recorder at site 130 ft downstream on right bank at same datum. Datum of gage is 591.20 ft above sea level.

REMARKS.--Records fair, except those above 1,000 ft³/s, and those for estimated daily discharges, which are poor. 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 500 ft³/s and maximum (*):

| Date | Time | Discharge ft ³ /s | Gage Height (ft) | Date | Time | Discharge ft ³ /s | Gage Height (ft) |
|---------|------|---------------------------------|---------------------|---------|------|---------------------------------|---------------------|
| Dec. 17 | 1400 | *1,510 | *7.85 | June 23 | 0030 | 1,360 | 7.60 |
| Feb. 10 | 0230 | 663 | 6.25 | Aug. 13 | 0100 | 789 | 6.55 |

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|--------|-------|------|------|------|-------|-------|-------|-------|-------|
| 1 | 15 | 11 | 12 | e9.5 | 52 | 18 | 32 | 15 | 14 | 9.6 | 5.8 | 4.7 |
| 2 | 15 | 11 | 11 | e9.0 | 33 | 17 | 28 | 14 | 27 | 10 | 5.0 | 4.4 |
| 3 | 14 | 11 | 9.7 | e9.0 | 22 | 16 | 25 | 14 | 15 | 9.4 | 5.4 | 4.5 |
| 4 | 26 | 11 | 9.9 | e9.0 | 17 | 19 | 23 | 14 | 13 | 10 | 5.4 | 5.3 |
| 5 | 70 | 11 | 10 | e9.5 | 26 | 24 | 22 | 15 | 12 | 11 | 5.7 | 5.3 |
| 6 | 21 | 11 | 9.5 | e9.5 | 31 | 21 | 23 | 13 | 11 | 9.9 | 5.5 | 4.7 |
| 7 | 16 | 13 | 9.5 | e10 | 31 | 29 | 23 | 13 | 11 | 8.6 | 5.1 | 4.6 |
| 8 | 14 | 11 | 9.5 | e11 | 27 | 37 | 22 | 13 | 10 | 8.9 | 4.3 | 3.9 |
| 9 | 14 | 11 | 8.8 | e11 | 52 | 37 | 22 | 13 | 9.7 | 9.7 | 4.5 | 3.8 |
| 10 | 14 | 26 | 8.6 | e12 | 222 | 26 | 27 | 12 | 9.6 | 22 | 7.4 | 5.2 |
| 11 | 13 | 13 | 10 | e11 | 27 | 22 | 30 | 12 | 9.4 | 18 | 11 | 6.2 |
| 12 | 12 | 11 | 10 | e10 | 20 | 20 | 36 | 11 | 9.4 | 9.4 | 66 | 4.6 |
| 13 | 12 | 11 | 8.8 | e9.5 | 23 | 81 | 25 | 10 | 9.6 | 8.6 | 150 | 4.4 |
| 14 | 12 | 16 | 71 | e9.5 | 26 | 33 | 19 | 11 | 9.7 | 8.0 | 12 | 4.5 |
| 15 | 12 | 14 | 28 | e32 | 30 | 25 | 19 | 11 | 8.8 | 7.7 | 8.6 | 4.0 |
| 16 | 13 | 11 | 24 | e21 | 31 | 32 | 42 | 11 | 10 | 8.0 | 7.8 | 3.7 |
| 17 | 14 | 11 | 591 | e16 | 47 | 51 | 32 | 11 | 15 | 7.8 | 7.7 | 4.2 |
| 18 | 26 | 9.6 | 48 | e14 | 20 | 28 | 62 | 11 | 9.2 | 8.2 | 6.7 | 4.1 |
| 19 | 18 | 9.6 | e25 | 174 | 18 | 22 | 33 | 11 | 8.7 | 8.0 | 6.3 | 4.1 |
| 20 | 14 | 10 | e20 | 127 | 19 | 20 | 24 | 9.9 | 8.5 | 6.9 | 9.3 | 7.2 |
| 21 | 13 | 11 | e16 | e28 | 19 | 96 | 22 | 19 | 8.6 | 6.5 | 6.5 | 13 |
| 22 | 12 | 9.6 | e15 | e23 | e14 | 64 | 21 | 30 | 56 | 6.4 | 6.2 | 5.3 |
| 23 | 12 | 8.6 | e14 | e19 | e13 | 28 | 20 | 26 | 262 | 6.8 | 6.0 | 4.4 |
| 24 | 12 | 9.2 | e13 | e15 | 15 | 23 | 19 | 15 | 22 | 6.7 | 6.2 | 12 |
| 25 | 12 | 8.7 | e13 | e14 | 29 | 21 | 18 | 12 | 14 | 7.0 | 5.4 | 59 |
| 26 | 12 | 46 | e12 | e13 | 44 | 20 | 17 | 46 | 12 | 6.4 | 5.2 | 11 |
| 27 | 12 | 23 | e11 | e12 | 24 | 19 | 17 | 45 | 11 | 6.7 | 5.6 | 8.2 |
| 28 | 12 | 15 | e10 | e12 | 21 | 19 | 16 | 19 | 11 | 5.9 | 5.6 | 7.5 |
| 29 | 11 | 14 | e10 | e12 | --- | 20 | 15 | 15 | 10 | 5.7 | 5.4 | 5.9 |
| 30 | 12 | 16 | e9.5 | 142 | --- | 180 | 15 | 13 | 9.6 | 6.7 | 5.3 | 5.5 |
| 31 | 12 | --- | e9.5 | 132 | --- | 46 | --- | 13 | --- | 6.1 | 5.3 | --- |
| TOTAL | 497 | 404.3 | 1067.3 | 945.5 | 953 | 1114 | 749 | 497.9 | 646.8 | 270.6 | 402.2 | 225.2 |
| MEAN | 16.0 | 13.5 | 34.4 | 30.5 | 34.0 | 35.9 | 25.0 | 16.1 | 21.6 | 8.73 | 13.0 | 7.51 |
| MAX | 70 | 46 | 591 | 174 | 222 | 180 | 62 | 46 | 262 | 22 | 150 | 59 |
| MIN | 11 | 8.6 | 8.6 | 9.0 | 13 | 16 | 15 | 9.9 | 8.5 | 5.7 | 4.3 | 3.7 |
| CFSM | .86 | .72 | 1.84 | 1.63 | 1.82 | 1.92 | 1.34 | .86 | 1.15 | .47 | .69 | .40 |
| IN. | .99 | .80 | 2.12 | 1.88 | 1.90 | 2.22 | 1.49 | .99 | 1.29 | .54 | .80 | .45 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2001, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 17.0 | 24.4 | 29.2 | 35.2 | 37.3 | 41.7 | 33.0 | 25.7 | 22.6 | 20.3 | 12.6 | 17.0 |
| MAX | 68.5 | 58.6 | 107 | 136 | 85.1 | 110 | 83.8 | 74.6 | 96.6 | 106 | 25.8 | 63.1 |
| (WY) | 1997 | 1973 | 1997 | 1996 | 1979 | 1994 | 1983 | 1989 | 1972 | 1984 | 1990 | 1960 |
| MIN | 5.74 | 7.35 | 7.65 | 7.03 | 14.3 | 15.3 | 11.7 | 8.84 | 6.46 | 3.79 | 3.31 | 3.62 |
| (WY) | 1965 | 1982 | 1999 | 1981 | 1969 | 1981 | 1963 | 1963 | 1963 | 1963 | 1963 | 1964 |

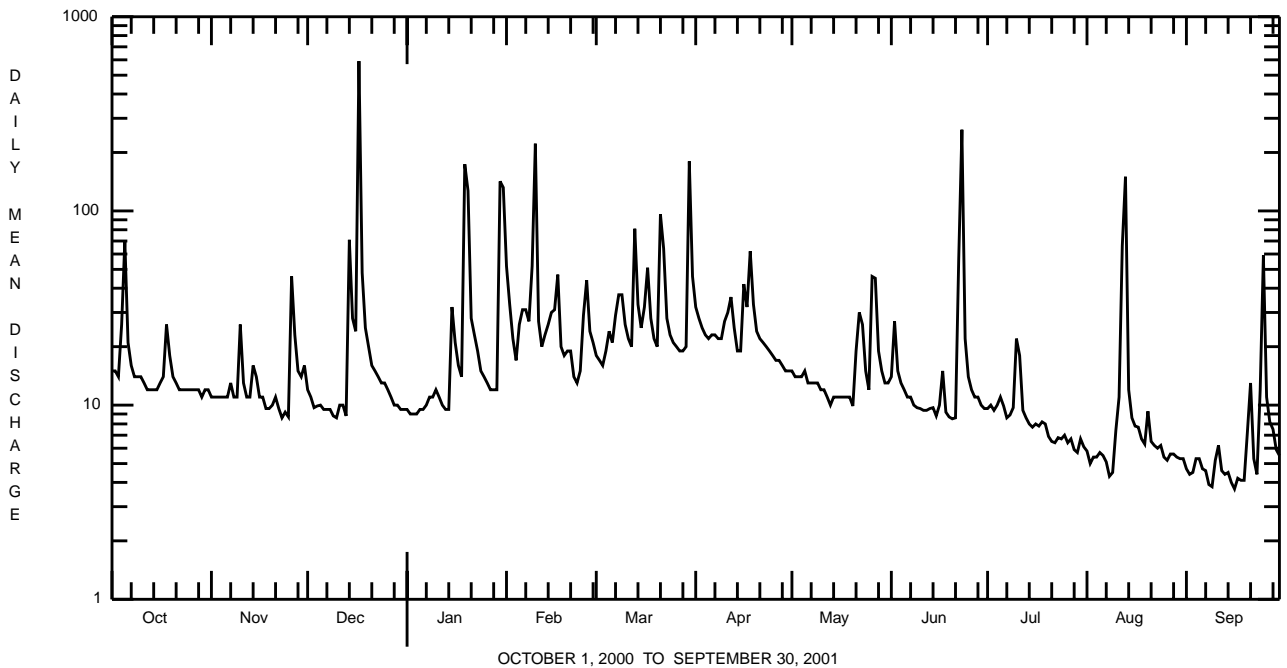
e Estimated.

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

| SUMMARY STATISTICS | FOR 2000 CALENDAR YEAR | | FOR 2001 WATER YEAR | | WATER YEARS 1960 - 2001 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|-------------|
| ANNUAL TOTAL | 9767.1 | | 7772.8 | | | |
| ANNUAL MEAN | 26.7 | | 21.3 | | 26.2 | |
| HIGHEST ANNUAL MEAN | | | | | 46.3 | 1984 |
| LOWEST ANNUAL MEAN | | | | | 12.8 | 1981 |
| HIGHEST DAILY MEAN | 776 | Mar 22 | 591 | Dec 17 | 1400 | Jun 22 1972 |
| LOWEST DAILY MEAN | 7.7 | Aug 27 | 3.7 | Sep 16 | 1.7 | Aug 19 1963 |
| ANNUAL SEVEN-DAY MINIMUM | 8.6 | Aug 21 | 4.1 | Sep 13 | 2.1 | Sep 7 1966 |
| MAXIMUM PEAK FLOW | | | a1510 | Dec 17 | a3800 | Jan 19 1996 |
| MAXIMUM PEAK STAGE | | | 7.85 | Dec 17 | 11.62 | Jan 19 1996 |
| INSTANTANEOUS LOW FLOW | | | 3.2 | Sep 19 | 1.7 | Aug 15 1963 |
| ANNUAL RUNOFF (CFSM) | 1.43 | | 1.14 | | 1.40 | |
| ANNUAL RUNOFF (INCHES) | 19.43 | | 15.46 | | 19.04 | |
| 10 PERCENT EXCEEDS | 41 | | 32 | | 41 | |
| 50 PERCENT EXCEEDS | 14 | | 12 | | 15 | |
| 90 PERCENT EXCEEDS | 9.6 | | 5.7 | | 6.9 | |

a From rating curve extended above 1,000 ft³/s on basis of runoff comparison with nearby stations.



CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1965 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

| DATE | TIME | AGENCY ANA-LYZING SAMPLE (CODE NUMBER) | AGENCY COL-LECTING SAMPLE (CODE NUMBER) | DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061) | OXYGEN, DIS-SOLVED (MG/L) (00300) | PH WATER WHOLE FIELD (STAND-ARD (MG/L) UNITS) (00400) | SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095) | TEMPER-ATURE WATER (DEG C) (00010) | CALCIUM DIS-SOLVED (MG/L) AS CA (00915) | MAGNE-SIUM, DIS-SOLVED (MG/L) AS MG (00925) | POTAS-SIUM, DIS-SOLVED (MG/L) AS K (00935) | SODIUM, DIS-SOLVED (MG/L) AS NA (00930) |
|-------------------|------|--|---|---|-----------------------------------|---|---|------------------------------------|---|---|--|---|
| OCT 2000 11... | 0815 | 80020 | 1028 | 13 | 10.3 | 7.4 | 298 | 9.0 | 25.3 | 9.16 | 3.08 | 9.1 |

| DATE | ANC WATER UNFLTRD IT FIELD (MG/L AS CACO3) (00419) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940) | SILICA, DIS-SOLVED (MG/L AS SIO2) (00955) | SULFATE DIS-SOLVED (MG/L AS SO4) (00945) | NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608) | NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631) | NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613) | PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00671) | BORON, DIS-SOLVED (µG/L AS B) (01020) | IRON, DIS-SOLVED (µG/L AS FE) (01046) |
|-------------------|--|--|---|--|---|---|---|--|---------------------------------------|---------------------------------------|
| OCT 2000 11... | 63 | 17.7 | 18.3 | 20.8 | <.041 | 6.44 | .010 | .032 | 17 | 90 |

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500 µm. Each sample covered a total area of 3.2 m².

| Date | 10/11/00 |
|----------------------------------|----------|
| Benthic Macroinvertebrate | Count |
| Nematoda (NEMATODES) | 9 |
| Nemertea (PROBOSAS WORMS) | |
| Enopla | |
| Hoplonemertea | |
| Tetrastemmatidae | |
| <u>Prostoma</u> sp | 5 |
| Mollusca | |
| Gastropoda (SNAILS) | |
| Basommatophora | |
| Ancyliidae | |
| <u>Ferrissia</u> sp | 8 |
| Annelida | |
| Oligochaeta (AQUATIC EARTHWORMS) | 2 |
| Tubificida | |
| Naididae | 25 |
| Arthropoda | |
| Acariformes | |
| Hydrachnidia (WATER MITES) | 50 |
| Crustacea | |
| Amphipoda (SCUDS) | |
| Talitridae | |
| <u>Hyalolella azteca</u> | 1 |
| Isopoda (AQUATIC SOWBUGS) | |
| Asellidae | |
| <u>Caecidotea</u> sp | 1 |
| Insecta | |
| Ephemeroptera (MAYFLIES) | |
| Baetidae | |
| <u>Baetis</u> sp | 6 |
| Ephemeridae | |
| <u>Ephemera</u> sp | 1 |
| Heptageniidae | |
| <u>Stenonema</u> sp | 1 |
| Plecoptera (STONEFLIES) | |
| Nemouridae | 1 |
| Taeniopterygidae | |
| <u>Taeniopteryx</u> sp | 24 |
| Trichoptera (CADDISFLIES) | |
| Hydropsychidae | |
| <u>Cheumatopsyche</u> sp | 58 |
| <u>Hydropsyche</u> sp | 334 |
| Hydroptilidae | |
| <u>Hydroptila</u> sp | 19 |
| Leptoceridae | |
| <u>Oecetis</u> sp | 1 |

CHRISTINA RIVER BASIN

01480300 WEST BRANCH BRANDYWINE CREEK NEAR HONEY BROOK, PA--Continued

BIOLOGICAL DATA
BENTHIC MACROINVERTEBRATES--Continued

| Date | 10/11/00 |
|---------------------------------|----------|
| Benthic Macroinvertebrate | Count |
| Coleoptera (BEETLES) | |
| Elmidae (RIFFLE BEETLES) | |
| <u>Ancyronyx</u> sp | 1 |
| <u>Dubiraphia</u> sp | 13 |
| <u>Optioservus</u> sp | 86 |
| <u>Oulimnius</u> sp | 12 |
| <u>Stenelmis</u> sp | 333 |
| Psephenidae (WATER PENNIES) | |
| <u>Psephenus</u> sp | 1 |
| Diptera (TRUE FLIES) | |
| Ceratopogonidae (BITING MIDGES) | 1 |
| Chironomidae (MIDGES) | 420 |
| Empididae (DANCE FLIES) | |
| <u>Hemerodromia</u> sp | 25 |
| Simuliidae (BLACK FLIES) | |
| <u>Simulium</u> sp | 10 |
| Tabanidae (HORSE FLIES) | 2 |
| Tipulidae (CRANE FLIES) | |
| <u>Antocha</u> sp | 45 |
| <u>Hexatoma</u> sp | 13 |
| <u>Tipula</u> sp | 3 |
| Total Organisms | 1511 |
| Total Taxa | 31 |