

## CHRISTINA RIVER BASIN

## 01480400 BIRCH RUN NEAR WAGONTOWN, PA

**LOCATION.**--Lat 40°01'38", long 75°50'43", Chester County, Hydrologic Unit 02040205, on right bank 15 ft upstream from SR 4005, 0.2 mi upstream of mouth, 0.6 mi downstream from Chambers Lake, and 1.1 mi northwest of Wagontown.

**DRAINAGE AREA.**--4.55 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

**PERIOD OF RECORD.**--February 1995 to current year.

**REVISED RECORDS.**--WDR PA-99-1: 1996-98 (M).

**GAGE.**--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 505.81 ft above North American Vertical Datum of 1988.

**REMARKS.**--Records fair. Flow regulated by Chambers Lake (station 01480399) 0.6 mi upstream. Satellite and landline telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	4.5	25	7.2	6.8	9.3	12	9.3	3.4	1.7	1.8	1.9
2	5.4	3.9	19	6.9	6.5	8.9	46	7.8	3.0	1.7	1.8	1.9
3	4.5	3.7	13	6.8	6.5	7.7	101	7.3	3.4	1.7	1.8	1.9
4	3.9	7.1	11	7.1	6.6	6.8	45	7.0	4.5	1.7	1.8	1.9
5	3.6	13	9.4	11	6.8	6.7	23	6.5	4.3	1.8	1.8	1.9
6	3.2	6.8	8.3	19	7.5	7.0	17	6.2	4.8	1.9	1.8	1.9
7	3.0	4.7	10	15	8.4	9.3	14	6.0	8.8	1.9	1.8	1.8
8	3.0	4.0	12	16	9.6	15	18	5.7	6.2	11	1.9	1.9
9	3.0	3.5	11	15	12	12	14	5.2	4.8	11	1.9	4.5
10	3.0	3.2	25	12	14	9.2	12	5.1	4.6	5.8	1.9	6.1
11	2.3	3.1	25	9.9	11	8.2	10	5.0	4.1	4.0	1.8	5.8
12	2.3	5.5	15	12	8.9	8.0	9.3	4.7	3.6	3.0	1.8	4.4
13	2.2	13	12	11	7.7	7.5	8.7	4.3	3.1	2.4	1.9	5.9
14	4.1	8.1	9.5	65	11	6.9	8.2	4.3	2.9	2.2	1.8	6.1
15	5.0	5.7	8.1	45	26	6.4	7.7	4.4	2.4	2.4	1.8	5.9
16	6.7	4.6	7.6	22	17	6.2	7.3	4.4	2.1	3.8	1.8	5.9
17	5.4	4.2	7.3	15	13	6.1	7.2	4.2	2.0	5.0	1.8	6.1
18	4.1	3.9	7.0	11	10	6.0	7.1	4.1	1.9	5.8	1.8	5.9
19	7.2	3.9	7.0	9.6	8.2	5.8	7.0	4.0	1.9	4.6	1.8	5.8
20	6.6	3.9	6.6	9.5	7.4	6.5	6.9	5.2	1.8	3.5	1.8	5.8
21	5.4	4.3	5.7	8.9	8.4	7.3	6.5	6.3	1.9	2.6	1.8	5.9
22	4.6	4.2	5.9	8.9	9.3	6.6	6.2	5.5	1.9	2.2	1.8	5.9
23	4.2	3.9	18	9.7	10	17	9.3	4.9	1.9	1.9	1.8	6.1
24	3.9	4.1	29	8.8	9.3	28	16	4.7	1.9	1.8	1.8	5.6
25	3.7	5.5	15	8.3	9.0	16	11	4.7	1.9	1.8	1.8	5.3
26	3.8	4.8	11	8.0	8.0	11	8.8	4.7	1.9	1.8	1.8	5.4
27	3.7	4.2	8.7	7.6	7.9	9.4	7.9	4.4	1.8	1.8	1.8	3.1
28	3.6	62	7.4	7.2	8.1	33	7.0	4.3	1.8	1.8	1.9	1.8
29	3.4	36	7.0	7.1	---	51	6.4	4.3	1.8	1.8	1.9	1.8
30	4.9	17	7.3	7.1	---	23	7.7	4.0	1.8	1.8	1.9	2.0
31	5.5	---	7.2	7.0	---	15	---	3.7	---	1.8	1.9	---
TOTAL	133.6	256.3	371.0	414.6	274.9	376.8	468.2	162.2	92.2	98.0	56.6	126.2
MEAN	4.31	8.54	12.0	13.4	9.82	12.2	15.6	5.23	3.07	3.16	1.83	4.21
MAX	8.4	62	29	65	26	51	101	9.3	8.8	11	1.9	6.1
MIN	2.2	3.1	5.7	6.8	6.5	5.8	6.2	3.7	1.8	1.7	1.8	1.8

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2005, BY WATER YEAR (WY)

MEAN	5.51	4.72	9.18	7.13	8.56	11.7	9.98	6.16	6.00	2.91	3.04	4.26
MAX	19.2	11.9	30.3	16.2	14.0	17.5	17.1	9.75	25.2	6.23	6.99	11.1
(WY)	1997	2004	1997	1996	2004	2003	1998	2004	2003	1996	2003	2003
MIN	1.15	1.23	1.21	1.57	2.79	1.86	1.40	2.65	1.50	1.33	1.25	1.45
(WY)	1996	1996	1996	1999	1999	2002	2002	1999	1999	1995	1995	1995

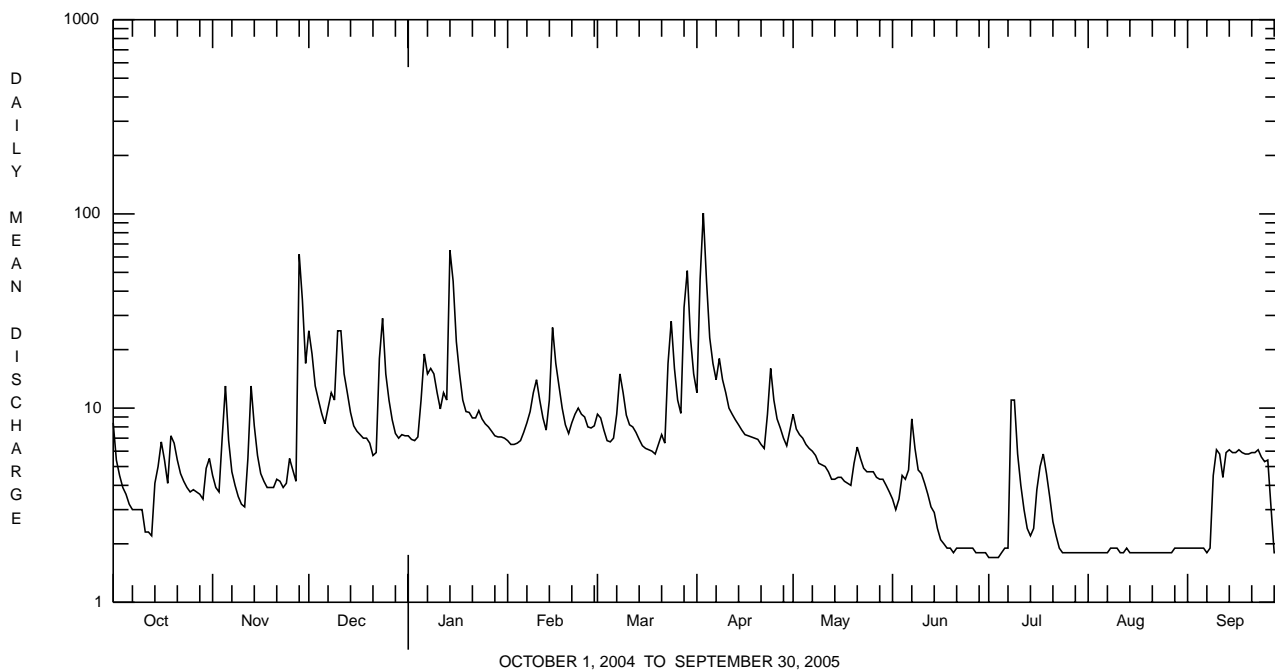
e Estimated.

CHRISTINA RIVER BASIN

01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1995 - 2005	
ANNUAL TOTAL	3012.9		2830.6			
ANNUAL MEAN	8.23		7.76		6.78	
HIGHEST ANNUAL MEAN					9.76 2004	
LOWEST ANNUAL MEAN					2.83 2002	
HIGHEST DAILY MEAN	69	Feb 7	101	Apr 3	250	Oct 19 1996
LOWEST DAILY MEAN	1.6	Jul 11	1.7	Jul 1-4	0.10	Feb 15 1995
ANNUAL SEVEN-DAY MINIMUM	2.1	Jul 5	1.7	Jun 28	0.27	Apr 18 1995
MAXIMUM PEAK FLOW			126	Apr 3	a401	Jan 19 1996
MAXIMUM PEAK STAGE			3.50	Apr 3	4.99	Jan 19 1996
10 PERCENT EXCEEDS	15		14		14	
50 PERCENT EXCEEDS	6.6		5.9		3.9	
90 PERCENT EXCEEDS	2.7		1.8		1.5	

a From rating curve extended above 230 ft<sup>3</sup>/s based on a slope-conveyance determination of discharge at gage height 4.99 ft.



## CHRISTINA RIVER BASIN

01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1996 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1996 to current year.

INSTRUMENTATION.--Temperature probe interfaced with a data collection platform.

REMARKS.--Water temperature records rated fair.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 27.0°C, June 26, Aug. 10, 2003; minimum, 0.0°C, several days during winters.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.5°C, July 18; minimum, 0.9°C, Jan. 22.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Agency col- lecting sample, code (00027)	Agency ana- lyzing sample, code (00028)	Instan- taneous dis- charge, cfs (00061)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unfl- lab, µS/cm 25 degC (90095)	Specif. conduc- tance, wat unfl- lab, µS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	
OCT 2004 21...	1400	1028	80020	8.0	9.8	7.2	7.2	128	116	13.5	10.8	4.90	2.73	
Date		Sodium, water, fltrd, mg/L (00930)	ANC, wat unfl- fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfl- incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Alum- inum, water, fltrd, µg/L (01106)	Arsenic water, fltrd, µg/L (01000)
OCT 2004 21...	4.29	39	48	7.17	E.1	7.5	7.0	.21	.41	.011	<.02	3	<2	
Date		Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Chrom- ium, water, fltrd, µg/L (01030)	Copper, water, fltrd, µg/L (01040)	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Mangan- ese, water, fltrd, µg/L (01056)	Mercury water, fltrd, µg/L (71890)	Molyb- denum, water, fltrd, µg/L (01060)	Nickel, water, fltrd, µg/L (01065)			
OCT 2004 21...		13	<.2	<.8	<1.2	149	<1	121	<.01	<.4	<2.0			

## CHRISTINA RIVER BASIN

01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATESREMARKS.--Samples were collected using a Hess sampler with a mesh size of 500  $\mu\text{m}$ . Each sample covered a total area of 2.4 m<sup>2</sup>.

Date	10/21/04
Benthic macroinvertebrate	Count
Platyhelminthes	
Turbellaria (FLATWORMS)	
Tricladida	
Planariidae	5
Nematoda (NEMATODES)	17
Nemertea (PROBOSCIS WORMS)	
Enopla	
Hoploneuridae	
Tetrastemmatidae	
<i>Prostoma</i>	48
Mollusca	
Bivalvia (CLAMS)	
Veneroida	
Sphaeriidae	
<i>Pisidium</i>	8
Annelida	
Oligochaeta (AQUATIC EARTHWORMS)	
Lumbriculida	
Lumbriculidae	12
Tubificida	
Tubificidae	5
Arthropoda	
Crustacea	
Cladocera	
Cyclopoida	
Cyclopidae	49
Isopoda (AQUATIC SOWBUGS)	
Asellidae	
<i>Caecidotea</i>	2
Podocopa	20
Insecta	
Ephemeroptera (MAYFLIES)	
Caenidae	
<i>Caenis</i>	1
Plecoptera (STONEFLIES)	
Capniidae	1
Megaloptera	
Corydalidae	
<i>Nigronia</i>	7
Trichoptera (CADDISFLIES)	
Hydropsychidae	
<i>Cheumatopsyche</i>	5
<i>Hydropsyche</i>	198
Philopotamidae	
<i>Chimarra</i>	1

## CHRISTINA RIVER BASIN

01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

BIOLOGICAL DATA  
BENTHIC MACROINVERTEBRATES--Continued

Date	10/21/04
Benthic macroinvertebrate	Count
Coleoptera (BEETLES)	
Elmidae (RIFFLE BEETLES)	
<i>Optioservus</i>	1
<i>Stenelmis</i>	10
Hydrophilidae	
<i>Helophorus</i>	1
Diptera (TRUE FLIES)	
Chironomidae (MIDGES)	83
Empididae (DANCE FLIES)	
<i>Hemerodromia</i>	32
Simuliidae (BLACK FLIES)	
<i>Simulium</i>	143
Tipulidae (CRANE FLIES)	
<i>Antocha</i>	4
<i>Tipula</i>	1
Total Organisms	1014
Total Taxa	24

## CHRISTINA RIVER BASIN

## 01480400 BIRCH RUN NEAR WAGONTOWN, PA--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	<b>OCTOBER</b>			<b>NOVEMBER</b>			<b>DECEMBER</b>			<b>JANUARY</b>		
1	21.7	19.2	20.3	14.2	12.9	13.4	8.9	8.3	8.6	3.8	2.8	3.2
2	20.3	19.0	19.4	14.1	12.8	13.4	8.5	8.0	8.2	3.4	2.9	3.2
3	20.2	18.2	19.1	13.8	12.4	13.3	8.2	7.4	7.9	4.0	3.2	3.6
4	19.5	17.8	18.6	12.9	12.2	12.4	7.8	7.1	7.4	4.4	3.7	3.9
5	18.3	17.0	17.7	12.8	11.6	12.3	7.8	7.0	7.3	4.1	3.8	4.0
6	18.1	16.3	17.1	12.3	11.3	11.8	7.3	6.9	7.1	4.1	3.9	4.0
7	18.5	16.2	17.4	12.9	11.2	11.9	7.4	6.8	6.9	4.0	3.6	3.9
8	18.6	16.7	17.4	11.8	10.5	11.2	7.9	7.1	7.4	4.3	3.9	4.0
9	18.2	16.8	17.5	10.9	9.7	10.3	7.6	7.0	7.2	4.0	3.8	3.8
10	18.1	16.5	17.2	10.5	9.3	9.7	7.4	7.2	7.3	4.4	3.8	4.0
11	17.0	15.6	16.2	10.6	9.1	9.8	7.8	7.2	7.5	4.0	3.7	3.9
12	16.8	15.0	15.8	9.9	9.5	9.7	7.2	6.9	7.0	4.2	3.9	4.1
13	16.4	14.7	15.6	9.8	9.0	9.5	7.0	6.2	6.7	4.9	4.0	4.4
14	16.2	14.9	15.7	9.2	8.6	8.9	6.2	5.3	5.8	5.6	4.7	5.2
15	16.2	15.7	15.9	9.2	8.2	8.7	5.3	4.5	5.0	5.2	4.7	5.0
16	16.1	15.0	15.6	9.3	8.1	8.6	5.2	4.2	4.7	4.8	4.4	4.6
17	15.2	14.3	14.8	9.4	8.2	8.7	4.8	4.0	4.5	4.4	2.5	3.6
18	15.2	13.8	14.5	9.8	8.8	9.2	4.7	3.9	4.2	2.5	1.2	1.8
19	14.5	14.0	14.2	9.9	8.9	9.4	4.5	3.2	4.1	1.9	1.3	1.6
20	14.1	13.8	13.9	9.5	8.7	9.2	3.2	1.2	2.0	2.2	1.7	1.9
21	13.8	13.5	13.7	10.0	9.1	9.5	2.7	1.5	2.1	2.2	1.6	1.8
22	13.8	12.9	13.4	10.1	9.1	9.5	3.2	2.2	2.6	2.0	0.9	1.7
23	13.7	12.5	13.0	9.8	9.1	9.4	4.1	2.8	3.3	2.2	1.6	1.8
24	13.2	12.4	12.8	9.8	9.1	9.3	3.0	2.1	2.7	2.3	1.6	1.9
25	13.6	12.7	13.1	10.5	9.2	10.0	2.4	2.0	2.2	2.6	1.9	2.2
26	13.5	12.7	13.1	9.3	8.6	9.0	2.8	2.2	2.5	2.6	1.9	2.3
27	14.0	12.5	13.1	9.3	8.6	8.8	2.4	1.8	2.2	2.1	1.4	1.7
28	13.5	12.2	12.8	9.5	8.9	9.2	2.4	1.5	1.9	2.4	1.4	1.8
29	13.3	12.2	12.8	9.3	8.9	9.1	3.0	2.1	2.5	2.8	1.7	2.2
30	13.9	12.9	13.4	9.0	8.5	8.8	3.2	2.5	2.8	2.8	2.1	2.4
31	14.5	13.1	13.8	---	---	---	3.5	2.7	3.1	2.9	1.8	2.2
MONTH	21.7	12.2	15.4	14.2	8.1	10.1	8.9	1.2	5.0	5.6	0.9	3.1
	<b>FEBRUARY</b>			<b>MARCH</b>			<b>APRIL</b>			<b>MAY</b>		
1	3.0	1.8	2.2	3.6	2.4	3.0	11.1	6.8	8.5	14.3	12.8	13.4
2	3.1	1.8	2.3	3.7	1.5	2.8	9.1	7.1	7.9	14.2	12.2	12.9
3	3.2	2.1	2.5	2.9	1.1	1.9	9.1	8.3	8.8	13.7	11.7	12.6
4	3.2	2.3	2.7	3.1	1.3	2.2	8.9	7.9	8.4	13.7	12.1	12.6
5	3.6	2.4	2.8	3.7	1.6	2.5	10.5	8.3	9.3	13.8	11.6	12.4
6	3.7	2.5	3.0	4.1	2.2	3.0	14.3	9.3	11.4	12.4	11.7	11.9
7	3.8	2.6	3.1	5.1	2.8	3.7	13.8	11.3	12.6	14.2	11.2	12.6
8	3.8	3.0	3.3	3.9	2.4	3.4	14.5	12.6	13.3	14.9	11.8	13.2
9	3.9	3.2	3.4	3.3	2.1	2.6	13.6	12.1	12.9	15.5	12.1	13.6
10	3.4	3.0	3.2	3.6	1.8	2.6	15.9	12.4	14.2	15.7	12.3	13.7
11	3.6	2.8	3.1	4.2	2.6	3.3	16.4	14.0	15.1	17.7	13.5	15.4
12	3.7	2.9	3.2	4.5	2.5	3.3	15.5	12.9	14.3	16.8	14.8	15.9
13	3.8	2.9	3.3	4.6	2.7	3.7	15.1	13.0	13.8	15.6	13.4	14.5
14	3.7	3.2	3.5	4.9	3.2	3.9	15.1	10.8	13.4	16.9	13.3	15.0
15	3.8	3.3	3.6	5.3	2.9	4.0	13.9	10.5	12.4	16.5	14.9	15.6
16	4.4	3.6	3.8	5.5	3.4	4.4	13.8	11.5	12.5	16.9	14.5	15.6
17	4.0	3.1	3.5	5.7	4.2	4.7	14.9	11.6	13.3	15.9	13.9	14.8
18	3.1	2.4	2.8	6.7	4.1	5.2	16.3	13.0	14.7	16.1	13.5	14.7
19	3.2	1.7	2.5	6.7	4.5	5.3	18.1	14.0	16.0	16.0	13.4	14.6
20	3.7	2.4	3.0	5.5	4.7	5.2	18.4	15.9	17.1	14.9	13.2	13.9
21	3.7	2.6	3.3	6.1	5.2	5.6	17.2	15.3	16.4	16.6	14.3	15.5
22	3.9	3.1	3.4	7.9	4.9	6.3	15.3	12.9	14.1	16.1	14.6	15.4
23	4.0	3.0	3.5	6.5	5.2	5.7	15.1	12.8	14.0	15.7	14.3	14.7
24	3.8	3.1	3.4	6.3	5.2	5.8	14.8	13.2	14.2	14.5	13.9	14.3
25	3.5	2.1	2.9	6.6	6.0	6.2	13.2	11.9	12.6	14.0	13.4	13.7
26	3.9	2.2	2.9	6.5	5.7	6.0	13.8	11.5	12.2	14.9	13.3	13.9
27	3.7	2.2	3.0	6.3	5.7	5.9	14.2	12.1	13.0	16.0	13.0	14.4
28	3.9	3.0	3.5	6.1	5.5	5.8	14.3	12.3	13.1	16.5	13.6	14.8
29	---	---	---	7.5	6.1	6.8	13.5	11.9	12.5	16.6	14.1	15.1
30	---	---	---	10.2	6.7	7.5	13.3	12.1	12.6	16.6	13.9	14.9
31	---	---	---	7.2	6.3	6.7	---	---	---	16.9	13.5	15.1
MONTH	4.4	1.7	3.1	10.2	1.1	4.5	18.4	6.8	12.8	17.7	11.2	14.2

