

DELAWARE RIVER BASIN

01467150 COOPER RIVER AT HADDONFIELD, NJ

LOCATION.--Lat 39°54'11", long 75°01'19", Camden County, Hydrologic Unit 02040202, on right bank of Wallworth Lake in Pennypacker Park, 200 ft upstream from bridge on State Highway 41 (Kings Highway) in Haddonfield, 0.6 mi upstream from North Branch Cooper River, and 7.7 mi upstream from mouth.

DRAINAGE AREA.--17.0 mi².

PERIOD OF RECORD.--Water years 1968-79, 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1968 to September 1969.

WATER TEMPERATURE: March 1968 to August 1969; October 1998 to September 1999.

INSTRUMENTATION.--

WATER TEMPERATURE DATA LOGGER (in situ system at gage, measurements recorded every 15 or 20 minutes).

REMARKS.--Streambed sediment samples were collected during low-flow conditions to determine concentrations of trace metals and hydrophobic organic compounds. The bed sediment sample is a composite of the top 1-2 centimeters of material from at least 5 depositional areas within the stream reach. More information regarding methods can be found in Shelton and Capel, 1994, Guidelines for collecting and processing samples of stream bed sediments for analysis of trace elements and organic contaminants for the National Water-Quality Assessment Program: U.S. Geological Survey Open-File Report 94-458, 20 p. Fish tissue samples were collected to determine occurrence and concentrations of trace metals and organochlorine compounds. Each sample for organochlorine analysis consisted of a composite of whole white suckers (*Catostomus commersoni*) or whole common carp (*Cyprinus carpio*). Each sample for trace metals consisted of a composite of livers from white suckers or common carp. More information regarding methods can be found in Crawford and Luoma, 1993, Guidelines for studies of contaminants in biological tissues for the National Water-Quality Assessment Program: U.S. Geological Survey Open-File Report 92-494, 69 p. Fish tissue, bed sediment, and fish community data for this site and other sites are presented in the section entitled "Water Quality at Miscellaneous Sites." For the definition of the type of quality-control data listed under SAMPLE TYPE, refer to "Quality-control data" in the "Explanation of Records" section.

EXTREMES FOR CURRENT WATER YEAR.--

WATER TEMPERATURE: maximum, 34.0°C, July 6; minimum, 0.5°C, several dates in Jan.

COOPERATION.--Field data and samples for laboratory analyses on dates 12-9, 2-1, 5-11, and 8-31, were provided by the New Jersey Department of Environmental Protection. Determination of dissolved nitrite, total ammonia, dissolved ammonia, and BOD on those dates were performed by the New Jersey Department of Health, Public Health and Environmental Laboratories. Other field data and samples for laboratory analysis were provided by the Delaware River Basin National Water-Quality Assessment Program.

COOPERATIVE NETWORK SITE DESCRIPTOR.--Urban Land Use Indicator, New Jersey Department of Environmental Protection Watershed Management Area 19.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	SAMPLE TYPE	DIS-	BARO-	OXYGEN,		PH		SPE-	TEMPER-	TEMPER-	HARD-
			CHARGE,	METRIC	DIS-	WATER	SPE-	CON-				
			INST.	PRES-	SOLVED	FIELD	WHOLE	CIFIC	DUCT-	ATURE	ATURE	TOTAL
			CUBIC	SURE	(PER-	OXYGEN,	(STAND-	ANCE	ATURE	AIR	WATER	(MG/L
			FEET	(MM	CENT	DIS-	ARD	ANCE	(DEG C)	(DEG C)	(MG/L	AS
			PER	OF	SATUR-	SOLVED	UNITS)	(US/CM	(DEG C)	(DEG C)	(MG/L	AS
			SECOND	HG)	ATION)	(MG/L)	(00400)	(00095)	(00020)	(00010)	(MG/L	AS
CAC03)			(00061)	(00025)	(00301)	(00300)	(00400)	(00095)	(00020)	(00010)		
(00900)												
NOV 1998												
05...	1500	FIELD BLANK	--	--	--	--	--	--	--	--	--	1
05...	1530	ENVIRONMENTAL	5.7	760	98	11	7.3	213	8.0	9.5	60	
DEC												
03...	1430	ENVIRONMENTAL	8.0	759	92	10.3	7.0	199	20.0	10.5	60	
09...	1130	ENVIRONMENTAL	14	770	94	10.6	6.6	199	--	10.5	54	
JAN 1999												
11...	1000	ENVIRONMENTAL	13	768	95	13.5	6.8	626	-2.0	1.5	56	
FEB												
01...	1130	ENVIRONMENTAL	10	776	93	12.7	7.1	289	--	3.0	64	
04...	1310	ENVIRONMENTAL	20	756	89	10.8	6.9	258	9.5	6.5	60	
MAR												
02...	1630	ENVIRONMENTAL	22	758	107	12.4	7.0	219	9.5	8.5	53	
APR												
12...	1340	ENVIRONMENTAL	50	756	97	10.7	7.1	161	13.0	10.5	45	
MAY												
04...	1515	ENVIRONMENTAL	13	760	98	9.8	7.2	223	19.5	15.0	60	
11...	1145	ENVIRONMENTAL	12	770	115	10.9	7.1	227	--	18.5	63	
JUN												
02...	1500	ENVIRONMENTAL	9.6	760	91	7.2	7.3	239	31.0	27.0	65	
29...	1350	ENVIRONMENTAL	9.6	750	--	--	7.3	218	34.5	--	58	
AUG												
03...	1320	ENVIRONMENTAL	4.0	752	93	7.3	7.2	230	27.0	27.5	63	
31...	1130	ENVIRONMENTAL	5.7	769	82	7.6	6.7	205	--	19.5	60	
SEP												
07...	1020	ENVIRONMENTAL	76	757	90	7.7	7.0	173	28.0	23.0	49	
13...	0940	ENVIRONMENTAL	8.8	767	61	5.5	6.9	205	--	21.0	61	
16...	1800	ENVIRONMENTAL	1390	--	--	--	6.7	71	--	--	19	
29...	1100	ENVIRONMENTAL	11	766	--	--	7.1	239	--	--	--	

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01467150 COOPER RIVER AT HADDONFIELD, NJ--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 180 DEG. C, DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF TUENTS, DIS-SOLVED (MG/L) (70301)	TUR-BID-FIELD WATER UNFLTRD (NTU) (61028)	BORON, DIS-SOLVED (UG/L) AS B) (01020)	IRON, DIS-SOLVED (UG/L) AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L) AS MN) (01056)	CARBON, ORGANIC DIS-SOLVED (MG/L) AS C) (00681)	CARBON, ORGANIC SUS-TOTAL (MG/L) AS C) (00689)	SEDI-MENT, DIS-CHARGE, PENDED (T/DAY) (80155)	SEDI-MENT, SUS-PENDED (MG/L)
(80154)											
NOV 1998											
05...	--	<10	--	--	<16.0	<10	<3	--	--	--	--
05...	--	131	118	20	60.7	<10	98	1.8	1.1	.17	11
DEC 03...	--	125	113	30	45.0	E7	150	2.5	1.3	.32	15
09...	20	120	108	--	41.2	--	--	3.5	3.0	--	--
JAN 1999											
11...	--	343	313	20	29.1	840	120	3.4	1.2	.51	14
FEB 01...	11	169	158	--	37.7	--	--	2.5	.7	--	--
04...	--	153	143	40	30.8	400	94	3.4	.7	1.1	21
MAR 02...	--	130	117	27	27.3	140	71	3.3	1.0	1.1	18
APR 12...	--	102	88	40	25.3	320	61	4.4	2.4	3.5	26
MAY 04...	--	141	121	43	41.1	290	98	3.6	1.3	.69	20
11...	19	143	125	--	47.1	--	--	3.4	1.4	--	--
JUN 02...	--	141	132	--	60.9	550	110	3.6	2.0	.46	18
29...	--	128	119	--	45	66	92	3.3	.7	.35	13
AUG 03...	--	137	125	38	51.3	100	100	3.6	1.4	.19	18
31...	25	131	115	--	42.8	--	--	4.8	2.0	--	--
SEP 07...	--	109	97	42	39.0	170	74	4.3	1.1	4.9	24
13...	--	122	114	63	39.3	500	95	4.4	.5	.54	23
16...	--	53	38	--	19.3	460	28	5.3	>4.0	672	179
29...	--	--	--	--	--	--	--	--	--	--	--

WATER-COLUMN VOLATILE ORGANIC COMPOUND ANALYSES. Selected samples were analyzed for volatile organic compounds (VOCs) on schedule 2020 (listed with minimum reporting levels in "Explanation of Records" section). Only VOCs identified by the analyses in one or more samples are listed in the water-quality tables.

DATE	TIME	CARBON DI-SULFIDE WATER WHOLE (UG/L) (77041)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L) (34506)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	ACETONE WATER WHOLE (UG/L) (81552)	1,2,3-TRI-CHLORO-BENZENE WAT, WH UNFLTRD REC (UG/L) (77613)	BENZENE 123-TRI-WATER UNFLTRD REC (UG/L) (77221)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 124-TRI-METHYL UNFLTRD REC (UG/L) (77222)	BENZENE 135-TRI-METHYL WATER UNFLTRD REC (UG/L) (77226)
DEC 1998											
03...	1430	<.74	<.064	<.132	<.088	<10	<.54	<.24	<.38	<.112	<.088
SEP 1999											
07...	1020	<.74	<.064	<.132	<.088	<10	<.54	<.24	<.38	<.112	<.088
16...	1800	E.0353	<.032	<.066	<.044	E4.82	<.27	<.12	<.19	<.056	<.044

DATE	UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	BENZENE N-BUTYL UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY UNFLTRD REC (UG/L) (77224)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE BROMO-FORM TOTAL (UG/L) (34030)	CHLORO-BENZENE TOTAL (UG/L) (32104)	BROMO-METHANE TOTAL (UG/L) (34301)	CHLORO-DI-CHLORO-FORM TOTAL (UG/L) (32105)
(32106)										
DEC 1998										
03...	<.108	<.1	<.064	<.38	<.084	<.096	<.2	<.2	<.056	<.36
SEP 1999										
07...	<.108	<.1	<.064	<.38	<.084	<.096	<.2	<.2	<.056	<.36
16...	<.054	<.05	<.032	<.19	<.042	<.048	<.1	<.1	<.028	<.052

DATE	UNFLTRD REC (UG/L) (77093)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (32101)	BROMO-DI-CHLORO-METHANE WATER UNFLTRD REC (UG/L) (81576)	ETHER TERT-PENTYL METHYL UNFLTRD REC (UG/L) (50005)	ETHER TERT-PENTYL METHYL UNFLTRD REC (UG/L) (34371)	FURAN, TETRA-HYDRO-BENZENE UNFLTRD REC (UG/L) (81607)	ISO-DURENE WATER UNFLTRD REC (UG/L) (50000)	METHYL TERT-BUTYL ETHER UNFLTRD REC (UG/L) (78032)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)	METHYL-ENE CHLO-RIDE TOTAL (UG/L) (34423)	METHYL-ETHYL-KETONE WATER WHOLE TOTAL (UG/L)
(81595)											
DEC 1998											
03...	<.076	<.096	<.34	<.22	<.06	<18	<.4	.748	<.5	<.76	<3.2

SEP 1999											
07...	<.076	<.096	<.34	<.22	<.06	<18	<.4	E.235	<.5	<.76	<3.2
16...	<.038	<.048	<.17	<.11	<.03	<9	<.2	.876	<.25	<.38	<1.6

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	METHYL-ISO-BUTYL KETONE WAT.WH. TOTAL (UG/L)	METHYL-PARA-XYLENE WATER UNFLTRD REC (UG/L)	O-CHLORO-TOLUENE WATER WHOLE (UG/L)	O-XYLENE WATER WHOLE (UG/L)	P-ISO-PROPYL-TOLUENE WATER WHOLE (UG/L)	PREH-NITENE WATER UNFLTRD RECOVER (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE O-ETHYL WATER UNFLTRD RECOVER (UG/L)	TOLUENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)
(39180)	(78133)	(85795)	(77275)	(77135)	(77356)	(49999)	(77128)	(34475)	(77220)	(34010)	
DEC 1998											
03...	<.74	<.12	<.084	<.12	<.22	<.46	<.084	<.2	<.2	<.05	<.076
SEP 1999											
07...	<.74	<.12	<.084	<.12	<.22	<.46	<.084	<.2	<.2	<.05	<.076
16...	<.37	<.06	<.042	<.06	<.11	<.23	<.042	<.1	<.1	<.05	<.038

WATER-COLUMN PESTICIDE ANALYSES. Selected samples were analyzed for pesticides on schedule 2001 (listed with minimum reporting levels in "Explanation of Records" section). Only pesticides identified by the analyses in one or more samples are listed in the water-quality tables.

DATE	TIME	ACETO-CHLOR, WATER, FLTRD REC (UG/L)	ALA-CHLOR, WATER, DISS, REC (UG/L)	ATRA-ZINE, WATER, DISS, REC (UG/L)	BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L)	CHLOR-PYRIFOS DIS-SOLVED (UG/L)	CYANA-ZINE, WATER, DISS, REC (UG/L)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L)
JAN 1999		(49260)	(46342)	(39632)	(82673)	(82680)	(82674)	(38933)	(04041)	(82682)
11...	1000	<.002	<.002	E.0030	<.002	E.0308	<.003	.0056	<.004	<.002
FEB										
04...	1310	<.002	<.002	<.001	<.002	E.0061	<.003	.0040	<.004	<.002
MAR										
02...	1630	<.002	<.002	<.001	<.002	<.003	<.003	E.0032	<.004	<.002
APR										
12...	1340	<.002	<.002	.0145	.0086	<.003	<.003	.0063	<.004	E.0024
MAY										
04...	1515	<.002	<.002	.0114	E.0025	E.0091	<.003	.0045	<.004	<.002
JUN										
02...	1500	<.002	<.002	.0261	<.002	E.0192	<.003	<.004	<.004	E.0028
29...	1350	<.002	<.002	.0149	<.002	E.0065	<.003	<.004	<.004	<.002
AUG										
03...	1320	<.002	<.002	.0133	<.002	E.0111	<.003	<.004	<.004	<.002
SEP										
07...	1020	<.002	<.002	.0130	<.002	E.187	<.003	<.004	<.004	<.002
13...	0940	<.002	<.002	.0108	<.002	E.0440	<.003	<.004	<.004	<.002
16...	1800	<.002	<.002	.0138	<.002	E.0873	<.003	.0164	<.004	<.002

DATE	DEETHYL-ATRA-ZINE, WATER, DISS, REC (UG/L)	DI-AZINON, DIS-SOLVED (UG/L)	DI-ELDRIN DIS-SOLVED (UG/L)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L)	LINDANE DIS-SOLVED (UG/L)	LIN-URON WATER FLTRD 0.7 U GF, REC (UG/L)	MALA-THION, DIS-SOLVED (UG/L)	METHYL-AZIN-PHOS WAT FLT 0.7 U GF, REC (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)
JAN 1999	(04040)	(39572)	(39381)	(82668)	(39341)	(82666)	(39532)	(82686)	(39415)	(82630)
11...	<.002	.0098	<.001	<.002	<.004	<.002	<.005	<.001	.0055	<.004
FEB										
04...	<.002	.0042	<.001	<.002	<.004	<.002	<.005	<.001	.0055	<.004
MAR										
02...	<.002	.0171	<.001	<.002	<.004	<.002	<.005	<.001	.0044	<.004
APR										
12...	<.002	.0396	<.001	<.002	<.004	<.002	<.005	<.001	.0057	<.004
MAY										
04...	<.002	.0058	<.001	<.002	<.004	<.002	<.005	<.001	.0166	<.004
JUN										
02...	E.0041	.0143	<.001	<.002	<.004	<.002	<.005	<.001	.0096	<.004
29...	<.002	.0116	<.001	<.002	<.004	<.002	<.005	<.001	.0217	<.004
AUG										
03...	<.002	.0168	<.001	.0062	.0152	<.002	.0550	<.001	<.002	<.004
SEP										
07...	<.002	.0468	<.001	<.002	<.004	<.002	<.005	<.001	.0092	<.004
13...	<.002	<.03	<.001	<.002	<.004	<.002	<.005	<.001	.0069	<.004
16...	<.002	.105	<.001	<.002	<.004	<.002	.0131	<.001	<.002	<.004

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NAPROP-AMIDE WATER FLTRD	P,P' DDE	PENDI-METH-ALIN WAT FLTRD	PRO-METON, WATER, DISS, REC	PRON-AMIDE WATER FLTRD	PRO-PANIL WATER FLTRD	SI-MAZINE, WATER, DISS, REC	TEBU-THIURON WATER FLTRD	TER-BACIL WATER FLTRD	TRI-FLUR-ALIN WAT FLTRD
	GF, REC (UG/L)	DISSOLV (UG/L)	GF, REC (UG/L)	REC (UG/L)	GF, REC (UG/L)	GF, REC (UG/L)	REC (UG/L)	GF, REC (UG/L)	GF, REC (UG/L)	GF, REC (UG/L)
JAN 1999										
11...	<.003	<.006	<.004	E.0087	<.003	<.004	.0081	<.010	<.007	E.0024
FEB										
04...	<.003	<.006	<.004	E.0110	<.003	<.004	--	<.010	<.007	E.0016
MAR										
02...	<.003	<.006	<.004	E.0063	<.003	<.004	.0108	<.010	<.007	<.002
APR										
12...	<.003	<.006	.0669	.0252	<.003	<.004	.0100	<.010	<.007	.0114
MAY										
04...	<.003	<.006	.0149	.0258	<.003	<.004	.0102	<.010	<.007	E.0024
JUN										
02...	<.003	<.006	<.004	.209	<.003	<.004	.0114	<.010	<.007	<.002
29...	<.003	<.006	<.004	.0445	<.003	<.004	.0063	<.010	<.007	<.002
AUG										
03...	<.003	<.006	<.004	.0210	<.003	.0088	.0158	<.020	<.007	<.002
SEP										
07...	<.003	<.006	<.004	.0858	<.003	<.004	.0150	<.010	<.007	<.002
13...	<.003	<.006	<.004	.0347	<.003	<.004	.0138	<.010	<.007	<.002
16...	<.003	<.006	<.004	.0571	<.003	<.004	.0195	<.010	<.007	<.002

ANALYSIS OF TRACE ELEMENTS, ORGANOCHLORINE, AND SEMI-VOLATILE ORGANIC COMPOUNDS IN STREAMBED SEDIMENTS, CALENDAR YEAR 1999

ARSENIC	MAGNE-CALCIUM	POTAS-SIUM	SODIUM	PHOS-SULFUR	CARBON, INORG, PHORUS	CARBON, ORG + SED, BM	ALUM-INORG	ANTI-INUM	MONY	
										BOT MAT
MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	WS, <63U	SED, BM	BOT MAT	BOT
WS <63U	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	DW, REC	WS, <63U	<63U WS	<63U
DATE	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	(PER-	DW, REC	FIELD	FIELD
TIME	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	CENT)	PERCENT	PERCENT	(UG/
FIELD	(34830)	(34900)	(34940)	(34960)	(34970)	(34935)	(49269)	(49267)	(34790)	(34795)
G) (UG/G)	(34800)									

JUN 1999											
22...	0830	.51	.57	1.6	.19	.23	.59	.14	6.34	4.9	2.9

57

HOLMIUM	BARIUM	BERYL-LIUM	BISMUTH	CADMIUM	CERIUM	CHRO-MIUM	COBALT	COPPER	EURO-PIUM	GALLIUM	GOLD
MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT
WS <63U	<63U WS	<63U WS	<180UWS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U
DATE	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
FIELD	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/
G) (UG/G)	(34805)	(34810)	(34816)	(34825)	(34835)	(34840)	(34845)	(34850)	(34855)	(34860)	(34870)
(34875)											

JUN 1999												
22...	500	4	<1	3.0	1.10	150	20	69	2	13	<1	2

SELE-NIUM	IRON	LANTHA-NUM	LEAD	LITHIUM	MANGA-NESE	MERCURY	MOLYB-DENUM	NEODYM-IUM	NICKEL	NIOBIUM	SCAN-DIUM
MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT
WS <63U	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U WS	<63U
DATE	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
FIELD	PERCENT	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/
G) (UG/G)	(34880)	(34885)	(34890)	(34895)	(34905)	(34910)	(34915)	(34920)	(34925)	(34930)	(34945)
(34950)											

JUN 1999												
22...	11	52	180	39	380	.34	3	49	43	13	8	1.4

URANIUM	SILVER	STRON- TIUM	TANTA- LUM	TIN	TITA- NIUM, SED, BM	VANA- DIUM	YTTER- BIUM	YTTRIUM	ZINC	CARBON, ORGANIC SED, BM	THORIUM	
MAT BOT MAT	BOT MAT	BOT MAT	BOT MAT	BOT MAT	WS, <63U	BOT MAT	BOT MAT	BOT MAT	BOT MAT	WS, <63U	BOT	
WS <63U WS	<63U WS	<63U WS	<63U WS	<63U WS	DRY WGT	<63U WS	<63U WS	<63U WS	<63U WS	DW, REC	<63U	
FIELD	FIELD	FIELD	FIELD	FIELD	REC	FIELD	FIELD	FIELD	FIELD	(PER-	FIELD	
G) (UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	PERCENT	(UG/G)	(UG/G)	(UG/G)	(UG/G)	CENT)	(UG/	
(35000)	(34955)	(34965)	(34975)	(34985)	(49274)	(35005)	(35015)	(35010)	(35020)	(49266)	(34980)	
	JUN 1999											
5.5	22...	1.0	83	<1	10	.400	120	3	32	480	6.20	11

DELAWARE RIVER BASIN

01467150 COOPER RIVER AT HADDONFIELD, NJ--Continued

	P, P'- DDE, SED, BM	P, P'- DDT, SED, BM	PCB, SED, BM	P- CRESOL SED, BM	PENTA- CHLORO- ANISOLE SED, BM	PHENAN THRENE SED, BM	PHENAN THRENE SED, BM	PHENAN- THRI- DINE SED, BM	PHENOL C8- ALKYL- SED, BM	PHENOL, 2CHLORO BED MAT SED, BM	PHENOL WS <2MM
SED, BM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM	WS, <2MM
WS, <2MM	DATE	DW, REC	DW, REC	DW, REC	DW, REC	DW, REC	DW, REC	DW, REC	DW, REC	DW, REC	REC DW,
REC		(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)	(UG/KG)
(UG/KG)		(49328)	(49330)	(49459)	(49451)	(49460)	(49410)	(49409)	(49393)	(49424)	(49467)
(49413)											
JUN 1999	22...	11.0	E5.80	E73	E45	<2.0	E85	690	<130	<130	<130
	22...	15.0	18.0	98	E55	<2.0	E92	920	<150	<150	<150
	DATE	PHTHALA TE, BIS2 ETHHEXL SED, BM WS, <2MM DW, REC (UG/KG)	PHTHALA TEBUTYL- BENZYL- SED, BM WS, <2MM DW, REC (UG/KG)	PHTHAL- ATE, DIBUTYL SED, BM WS, <2MM DW, REC (UG/KG)	PHTHAL- ATE, D IETHYL SED, BM WS, <2MM DW, REC (UG/KG)	PHTHAL- ATE, DI- METHYL SED, BM WS, <2MM DW, REC (UG/KG)	PHTHAL ATE, D IOCTYL SED, BM WS, <2MM DW, REC (UG/KG)	PYRENE, 1- METHYL, SED, BM WS, <2MM DW, REC (UG/KG)	PYRENE, PYRENE, SED, BM WS, <2MM DW, REC (UG/KG)	QUINO- LINE, SED, BM WS, <2MM DW, REC (UG/KG)	THIOPH ENE, DI- BENZO- SED, BM WS, <2MM DW, REC (UG/KG)
JUN 1999	22...	980	180	E50	E17	<130	E93	E32	1200	<130	E4.0
	22...	1500	230	E49	E50	<150	E100	E32	1700	<150	E11
	DATE	TOLUENE 2,4-DI- NITRO- SED, BM WS, <2MM DW, REC (UG/KG)	TOLUENE 2,6-DI- NITRO- SED, BM WS, <2MM DW, REC (UG/KG)	TOXA- PHENE SED, BM WS, <2MM DW, REC (UG/KG)	TRANS- CHLOR- DANE, SED, BM WS, <2MM DW, REC (UG/KG)	TRANS- NONA- CHLOR, SED, BM WS, <2MM DW, REC (UG/KG)	TRANS- PER- METHRIN SED, BM WS, <2MM DW, REC (UG/KG)	BED MAT. SIEVE DIAM. % FINER THAN (80164)			
JUN 1999	22...	<130	<130	<400	14.0	9.30	<10.0	25			
	22...	<150	<150	<400	22.0	15.0	<10.0	--			

ANALYSIS OF TRACE ELEMENTS AND ORGANOCHLORINE COMPOUNDS IN FISH TISSUE, CALENDAR YEAR 1999

	TIME	SPECIES	TOTAL LENGTH, MEDIAN (MM)	TOTAL LENGTH, MIN MAX (MM)	WEIGHT, MEDIAN (GM)	WEIGHT, MIN MAX (GM)	NUMBER IN COMPOSITE				
JUL 1999	14...	1545 COMMON CARP	442	383 503	1178	844 1739	6				
	14...	1550 WHITE SUCKER	285	261 320	238	190 350	8				
COPPER, BIOTA, TISSUE, WGT DRY WGT DATE REC G) (UG/G) (49241)		ALUMI- WATER, PRESENT BIO TIS	ANTI- NUM, BIOTA, TISSUE,	ARSENIC BIOTA, TISSUE,	BERYL- LIUM-, BIOTA, TISSUE,	BORON, BIOTA, TISSUE,	CHROM- IUM-, BIOTA, TISSUE,	COBALT, BIOTA, TISSUE,			
		DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT			
		REC	REC	REC	REC	REC	REC	REC			
		PERCENT	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)			
		(49273)	(49237)	(49246)	(49247)	(49238)	(49248)	(49239)			
		(49249)	(49240)	(49250)							
JUL 1999	14...	78	22	<.2	.6	.3	<.2	1.2	5.1	<.5	1.1
	14...	69	1.6	<.2	.3	<.1	<.2	.9	.3	<.5	.8
24		IRON, BIOTA, TISSUE,	MANGAN- ESE, BIOTA, TISSUE,	MOLYB- DENUM, BIOTA, TISSUE,	SELEN- IUM, BIOTA, TISSUE,	STRON- TIUM, BIOTA, TISSUE,	VANA- DIUM BIO TIS	ZINC, BIOTA, TISSUE,			

TISSUE,												
WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT	DRY WGT
REC	DATE	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC
G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)	(UG/G)
(49257)		(49242)	(49251)	(49243)	(49258)	(49252)	(49253)	(49254)	(49255)	(49244)	(49465)	(49245)
	JUL 1999											
<.2	14...	1500	.3	4.9	.1	1.4	.5	8.9	1.5	.9	.8	1200
<.2	14...	800	<.2	3.7	.1	.7	.6	4.4	<.2	.4	<.2	65

TIME	SPECIES	TOTAL LENGTH, MEDIAN (MM)	TOTAL LENGTH, MIN MAX (MM)	WEIGHT, MEDIAN (GM)	WEIGHT, MIN MAX (GM)	NUMBER IN COMPOSITE
JUL 1999						
14...	1535 COMMON CARP	455	365 569	1500	1100 2900	6
14...	1540 WHITE SUCKER	321	272 359	371	231 485	7

DELAWARE RIVER BASIN

01467150 COOPER RIVER AT HADDONFIELD, NJ--Continued

DATE	AGENCY	AGENCY	ALPHA-		BENZENE		CIS-		CIS-		DELTA-	
	ANA- LYZING SAMPLE (CODE NUMBER) (00028)	COL- LECTING SAMPLE (CODE NUMBER) (00027)	ALDRIN, BIOTA, WH ORG (UG/KG) (49353)	BHC, BIOTA, WH ORG (UG/KG) (49366)	HEXA- CHLORO- BIOTA, WH ORG (UG/KG) (49367)	BETA- BHC, BIOTA, WH ORG (UG/KG) (49365)	CHLOR- DANE, BIOTA, WH ORG (UG/KG) (49380)	NONA- CHLOR, BIOTA, WH ORG (UG/KG) (49359)	DCPA, BIOTA, WH ORG (UG/KG) (49378)	BHC, BIOTA, WH ORG (UG/KG) (49364)		
JUL 1999												
14...	80020	1028	<5.00	<5.00	<5.00	<5.00	34.0	8.00	<5.00	<5.00		<5.00
14...	80020	1028	<5.00	<5.00	<5.00	<5.00	83.0	17.0	<5.00	<5.00		<5.00
			HEPTA- CHLOR		METHOXY CHLOR		METHOXY CHLOR			O,P'-	O,P'-	
O,P'- DDT, BIOTA, WH ORG REC KG	DRIN, BIOTA, WH ORG WW, REC (UG/KG) (49371)	ENDRIN, BIOTA, WH ORG WW, REC (UG/KG) (49370)	EPOXIDE BIOTA, WH ORG WW, REC (UG/KG) (49368)	CHLOR, BIOTA, WH ORG WW, REC (UG/KG) (49369)	LINDANE BIOTA, WH ORG WW, REC (UG/KG) (49363)	LIPIDS, BIOTA, WH ORG PERCENT (49289)	O,P'-, BIOTA, WH ORG (UG/KG) (49362)	P,P'-, BIOTA, WH ORG (UG/KG) (49361)	MIREX, BIOTA, WH ORG (UG/KG) (49360)	DDD, BIOTA, WH ORG (UG/KG) (49374)	DDE, BIOTA, WH ORG (UG/KG) (49373)	
JUL 1999												
<5.00	14...	10.0	<5.00	<5.00	<5.00	4.10	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
<5.00	14...	55.0	<5.00	E4.80	<5.00	<5.00	6.70	<5.00	<6.00	<5.00	12.0	E11.0
			OXY- CHLOR		PENTA- CHLORO		TRANS- TOXA-		TRANS- CHLOR-		NONA- CHLOR,	
DATE	WH ORG WW, REC (UG/KG) (49357)	P,P'- DDD, BIOTA, WH ORG WW, REC (UG/KG) (49375)	P,P'- DDE, BIOTA, WH ORG WW, REC (UG/KG) (49372)	P,P'- DDT, BIOTA, WH ORG WW, REC (UG/KG) (49376)	PCB, BIOTA, WH ORG WW, REC (UG/KG) (49354)	ANISOLE BIOTA, WH ORG WW, REC (UG/KG) (49356)	PHENE, BIOTA, WH ORG WW, REC (UG/KG) (49355)	DANE, BIOTA, WH ORG WW, REC (UG/KG) (49379)	BIOTA, WH ORG WW, REC (UG/KG) (49358)			
JUL 1999												
14...	E43.0	<5.00	88.0	<5.00	320	<5.00	<200	15.0	23.0			
14...	E17.0	116	240	14.0	590	<5.00	<200	29.0	44.0			

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
				MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	11.5	10.0	10.5	10.5	9.5	10.0	2.5	2.0	2.0			
2	---	---	---	12.0	10.0	11.0	10.0	8.5	9.0	2.0	1.5	1.5			
3	---	---	---	10.5	10.0	10.0	10.5	8.5	9.5	6.0	1.5	3.5			
4	---	---	---	10.0	8.5	9.5	11.5	9.5	10.5	4.5	1.0	3.0			
5	---	---	---	9.0	8.0	8.5	12.0	11.0	11.5	1.5	.5	1.0			
6	---	---	---	8.0	6.5	7.5	13.0	11.5	12.0	1.0	.5	1.0			
7	---	---	---	8.0	6.0	7.0	13.5	12.0	13.0	2.5	.5	1.5			
8	---	---	---	8.0	7.0	7.5	13.0	12.0	12.5	2.0	1.0	1.5			
9	---	---	---	9.0	7.5	8.5	12.0	10.0	10.5	2.0	.5	1.0			
10	---	---	---	9.0	8.0	8.5	10.0	8.0	8.5	2.0	.5	1.5			
11	---	---	---	12.5	9.0	11.0	8.0	6.5	7.5	1.5	.5	1.5			
12	---	---	---	11.0	10.0	10.0	6.5	6.0	6.0	2.5	1.0	1.5			
13	---	---	---	10.0	8.5	9.0	6.0	6.0	6.0	3.5	2.5	3.0			
14	---	---	---	9.5	8.0	8.5	6.5	5.5	6.0	3.5	1.5	3.0			
15	---	---	---	10.0	9.0	9.5	6.0	4.5	5.0	1.5	.5	1.0			
16	---	---	---	10.0	8.5	9.5	5.0	4.0	4.5	3.0	.5	1.5			
17	---	---	---	10.5	9.0	9.5	5.0	4.0	4.5	4.5	2.0	3.0			
18	---	---	---	10.0	9.0	9.5	5.0	3.5	4.0	7.5	3.5	5.0			
19	---	---	---	9.5	8.0	9.0	5.5	3.5	4.5	6.0	4.5	5.5			
20	---	---	---	10.0	9.0	9.5	6.5	5.5	6.0	5.5	4.0	4.5			
21	---	---	---	10.0	9.5	9.5	8.5	6.0	7.5	5.5	4.0	5.0			
22	---	---	---	9.5	8.0	9.0	10.0	7.0	9.0	6.5	5.5	6.0			
23	---	---	---	9.0	7.5	8.5	7.0	3.5	5.0	10.0	6.5	7.5			
24	---	---	---	9.5	8.0	9.0	3.5	2.5	3.0	12.0	9.5	11.0			
25	---	---	---	8.5	8.0	8.5	3.5	2.0	2.5	9.5	6.5	8.0			
26	---	---	---	9.5	8.0	8.5	3.0	2.0	2.5	6.5	5.5	6.0			
27	---	---	---	9.0	8.5	9.0	2.5	1.5	2.0	6.0	4.0	5.5			

28	13.5	12.0	13.0	9.0	8.0	8.5	3.0	2.0	2.5	6.0	5.5	6.0
29	13.5	12.0	13.0	9.0	8.0	8.5	3.5	3.0	3.0	7.0	6.0	6.5
30	13.0	11.0	12.0	9.5	8.5	9.0	3.5	3.0	3.5	6.0	4.5	5.0
31	12.0	10.0	11.0	---	---	---	3.0	2.0	2.5	4.5	2.5	3.5
MONTH	13.5	10.0	12.0	12.5	6.0	9.0	13.5	1.5	6.5	12.0	.5	4.0

DELAWARE RIVER BASIN

01467150 COOPER RIVER AT HADDONFIELD, NJ--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	3.5	2.5	3.0	7.5	6.5	7.0	13.5	12.0	12.5	17.5	15.0	16.0
2	8.0	3.5	5.5	8.5	5.0	6.5	15.5	12.0	13.5	17.0	15.0	16.0
3	9.0	7.0	8.0	10.0	6.0	7.5	16.5	13.5	14.5	16.0	13.5	14.5
4	8.0	6.0	6.5	10.0	5.5	8.0	16.5	14.0	15.0	15.0	13.5	14.5
5	7.0	5.5	6.5	7.5	3.5	5.5	16.0	13.0	14.5	18.5	15.0	16.5
6	6.0	5.0	5.5	7.0	5.5	6.0	15.0	12.0	14.0	18.5	17.0	17.5
7	5.5	4.5	4.5	7.0	3.5	5.5	17.5	13.0	15.0	17.0	16.0	16.0
8	5.0	4.0	4.5	4.5	1.5	3.5	19.0	14.5	16.5	19.0	15.5	17.0
9	5.0	3.0	4.0	3.5	2.5	3.0	18.0	12.0	15.5	21.0	17.5	19.0
10	6.5	4.0	5.0	6.0	3.5	4.5	15.0	10.5	12.5	21.0	18.0	19.5
11	7.5	5.0	6.5	6.0	3.5	5.0	13.5	9.5	11.5	21.0	18.0	19.5
12	10.5	6.5	8.5	5.0	3.0	4.0	12.5	9.0	10.5	22.0	18.5	20.0
13	9.5	5.5	7.0	6.0	3.0	4.5	---	---	---	21.5	17.0	18.5
14	5.5	3.0	4.5	6.0	3.5	5.5	---	---	---	18.5	15.5	17.0
15	5.5	3.0	4.5	3.5	2.0	3.0	---	---	---	18.5	15.5	17.0
16	7.0	3.5	5.5	7.0	2.0	4.5	---	---	---	18.0	15.5	17.0
17	7.0	5.5	6.0	10.0	4.5	7.0	---	---	---	18.5	16.0	17.5
18	7.5	6.5	7.0	12.5	8.0	10.0	---	---	---	19.5	17.0	18.5
19	8.5	5.5	7.0	11.0	8.0	9.5	---	---	---	19.0	17.5	18.5
20	7.5	5.5	6.5	11.5	8.0	9.5	---	---	---	21.0	17.0	18.5
21	5.5	3.5	4.5	10.0	8.0	8.5	---	---	---	21.5	17.5	19.5
22	4.0	1.5	3.0	8.5	7.0	8.0	16.5	10.5	13.0	23.5	18.5	21.0
23	3.0	1.5	2.5	10.0	6.0	8.0	14.5	12.0	13.5	21.5	19.0	20.0
24	3.5	2.5	3.0	11.5	8.0	9.5	15.5	10.5	13.0	19.5	17.5	18.5
25	5.5	3.0	4.0	12.0	9.5	10.5	15.5	11.5	13.5	21.0	16.5	18.5
26	7.0	3.5	5.5	11.0	8.0	9.5	17.0	13.0	15.0	21.0	16.5	19.0
27	7.0	4.0	6.0	10.0	8.0	9.5	17.0	13.5	15.5	21.5	17.0	19.5
28	7.5	6.0	7.0	9.5	8.0	8.5	16.5	14.5	15.5	23.0	17.5	20.5
29	---	---	---	13.5	8.0	10.5	17.0	13.5	15.5	25.5	19.5	22.5
30	---	---	---	13.5	10.5	12.0	18.5	15.0	16.0	26.5	21.0	23.5
31	---	---	---	14.5	10.5	12.5	---	---	---	27.0	22.0	24.5
MONTH	10.5	1.5	5.5	14.5	1.5	7.5	---	---	---	27.0	13.5	18.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	27.5	23.0	25.0	26.5	24.5	25.0	32.0	29.0	30.5	21.0	19.0	20.0
2	29.0	23.5	26.0	28.5	24.5	26.5	31.0	28.5	30.0	22.0	19.5	21.0
3	26.5	24.5	25.5	30.5	26.5	28.5	30.0	28.0	28.5	22.5	20.5	21.5
4	26.5	22.0	24.0	33.0	28.0	30.0	29.5	26.5	28.0	22.5	21.5	22.0
5	26.0	21.5	24.0	33.5	29.5	31.5	28.5	26.5	27.5	22.5	22.0	22.0
6	26.5	21.5	24.0	34.0	30.5	32.5	28.5	25.0	27.0	24.5	22.0	23.0
7	28.5	23.0	26.0	33.0	30.5	32.0	28.0	25.0	26.5	24.5	23.0	23.5
8	29.5	25.5	27.5	31.5	29.0	30.5	27.0	26.0	26.5	25.5	23.0	24.0
9	29.0	26.0	27.5	31.0	28.0	29.5	26.0	24.0	25.0	25.0	23.0	24.0
10	27.0	23.0	25.0	29.5	27.5	28.5	26.0	23.5	25.0	23.5	22.0	22.5
11	26.0	21.5	23.5	28.5	25.0	27.0	27.0	24.5	25.5	23.5	21.0	22.0
12	24.0	22.0	22.5	28.0	25.5	26.5	28.0	25.5	26.5	23.5	20.5	22.0
13	23.0	21.5	22.5	27.5	24.5	25.5	28.5	26.5	27.5	23.0	21.0	22.0
14	25.0	21.5	23.5	26.0	24.5	25.0	27.5	24.5	26.0	22.5	21.0	22.0
15	26.5	22.5	24.5	28.5	23.0	25.5	27.0	24.5	25.5	22.0	20.5	21.0
16	26.0	23.0	24.5	30.5	26.0	28.0	28.0	25.5	26.5	20.5	20.0	20.0
17	24.5	21.5	23.0	32.0	27.5	30.0	29.0	25.5	27.5	20.5	18.5	19.5
18	23.0	20.5	22.0	33.0	29.0	31.0	28.5	26.5	27.5	21.0	17.0	19.0
19	24.0	21.0	22.5	33.0	27.5	30.5	28.0	25.0	26.5	20.5	17.0	19.0
20	23.0	19.5	21.5	28.5	27.0	27.5	26.5	23.5	25.0	20.5	17.0	19.0
21	20.0	18.5	19.5	29.0	26.5	28.0	23.5	21.5	22.0	20.0	17.5	18.5
22	25.0	18.5	21.5	28.5	26.5	27.5	22.0	20.5	21.5	18.0	16.0	17.0
23	26.5	21.5	24.0	31.5	27.5	29.0	24.5	20.5	22.0	18.5	14.5	16.5
24	27.5	22.5	25.0	31.0	29.0	30.0	24.0	22.5	23.5	19.5	15.5	17.5
25	26.5	23.5	25.5	32.0	29.0	30.5	24.5	22.0	23.0	20.5	17.0	18.5
26	29.5	24.5	27.0	31.0	28.5	30.0	24.5	21.5	23.0	20.0	17.0	18.5
27	30.5	26.5	28.5	32.0	28.5	30.0	24.5	22.0	23.0	19.0	17.5	18.5
28	28.5	27.0	28.0	32.0	29.5	30.5	26.5	22.0	24.0	20.5	18.5	19.5
29	30.5	26.5	28.5	30.5	28.5	30.0	27.0	23.5	25.0	22.0	19.5	20.5
30	29.0	26.5	27.5	31.0	28.5	30.0	24.5	20.5	21.5	21.0	18.0	19.5
31	---	---	---	33.0	29.5	31.0	21.0	19.0	20.0	---	---	---
MONTH	30.5	18.5	24.5	34.0	23.0	29.0	32.0	19.0	25.5	25.5	14.5	20.5

