

Watershed Summary Information

Accounting Unit Name:	Southwestern Lake Michigan
State(s):	IN IL (MI)
Political Boundaries:	Lake, Porter, Berrien, Cook, La Porte, St Joseph
Major Waterways:	Burns Ditch Deep R Little Calumet R Galien R Salt Cr
Number of Stations in Watershed:	Tier1 - 45 Tier2 - 26 Tier3 - 18

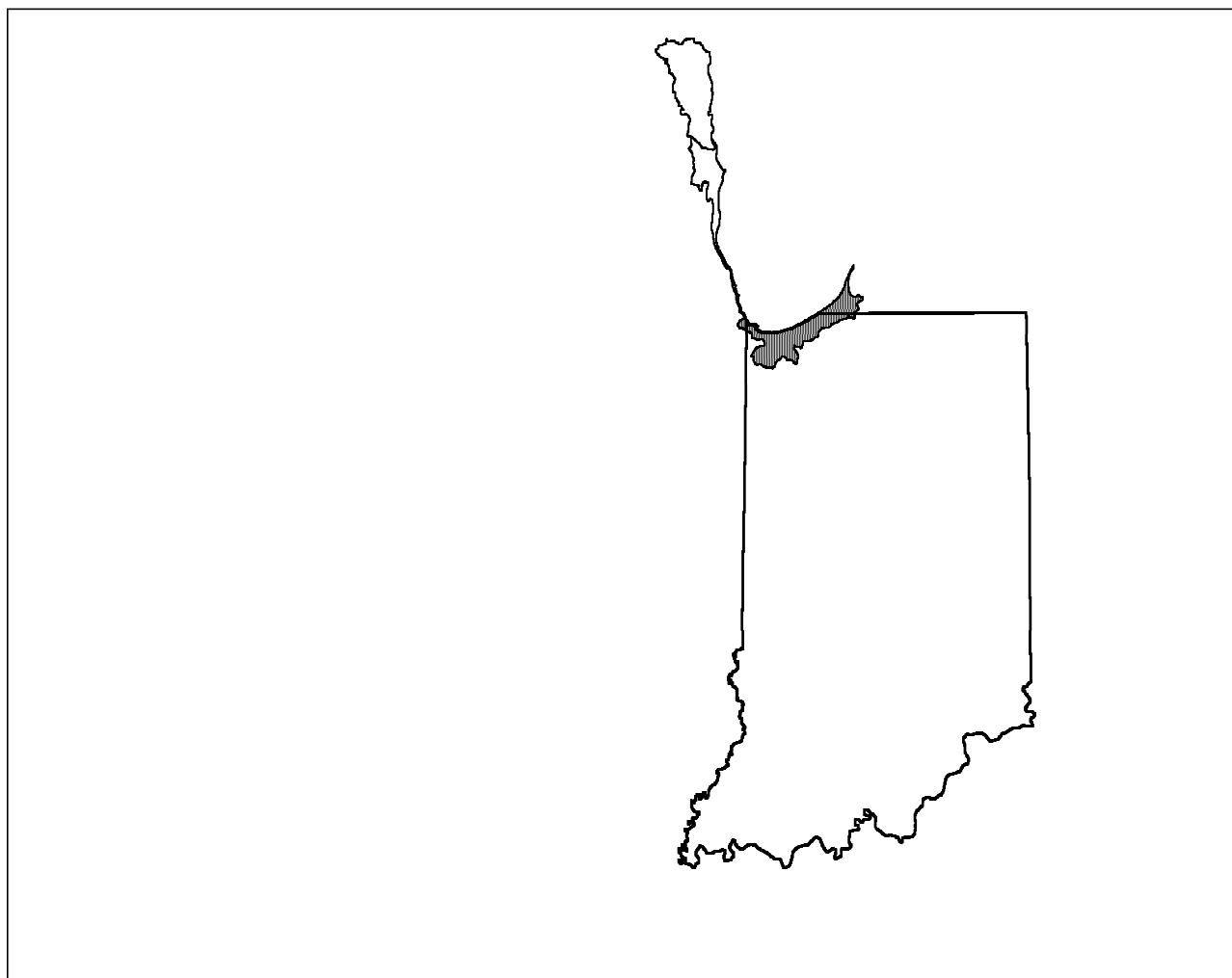


Figure 49. Watershed Location Map

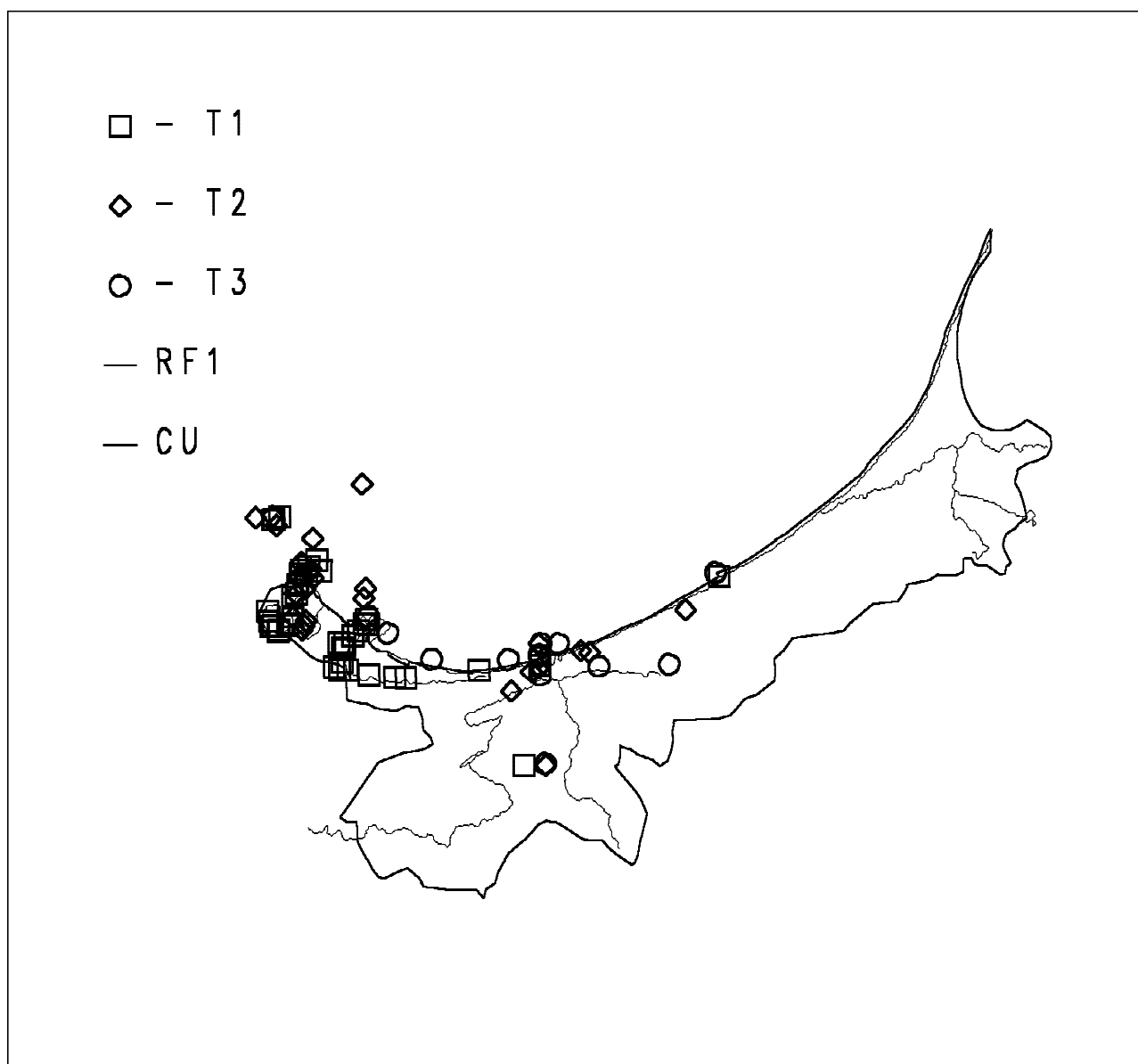


Figure 50. Major Waterways and Location of Sampling Stations

Data Source(s) Used in Evaluation

Source: **ODES** Agency: **AR**
 Monitoring Program: **GLNPO/ARCS**
 Num. of Stations: 7 Date Range: 1989

Source: **STORET** Agency: **11BIOACC**
 Monitoring Program: **USEPA National Bioaccumulation Study**
 Num. of Stations: 2 Date Range: 1984-87

Source: **STORET** Agency: **11COECHI**
 Monitoring Program: **Corps of Engineers Data Chicago District**
 Num. of Stations: 34 Date Range: 1980-81

Source: **STORET** Agency: **11140100**
Monitoring Program: **USEPA Region 5 Data**
Num. of Stations: 2 Date Range: 1980

Source: **STORET** Agency: **1115GLSB**
Monitoring Program: **USEPA Region 5 Great Lakes Surveillance Branch Data**
Num. of Stations: 11 Date Range: 1980-81

Source: **STORET** Agency: **112WRD**
Monitoring Program: **US Geological Survey Data**
Num. of Stations: 6 Date Range: 1980

Source: **STORET** Agency: **21ILFISH**
Monitoring Program: **USEPA Region 5 Data**
Num. of Stations: 5 Date Range: 1982-92

Source: **STORET** Agency: **21ILLAKE**
Monitoring Program: **USEPA Region 5 Data**
Num. of Stations: 7 Date Range: 1989-93

Source: **STORET** Agency: **21ILSED**
Monitoring Program: **Illinois EPA Div of Water Pollution Control Data**
Num. of Stations: 5 Date Range: 1980-82

Source: **STORET** Agency: **21IND**
Monitoring Program: **Indiana Board of Health General Water Quality & Bioassay Data**
Num. of Stations: 10 Date Range: 1980-88

Chemicals Responsible for Sampling Station Classification as Tier 1 or Tier 2

Classifying Parameter	Number of Stations							
	All Parameters				Aquatic Life		Human Health	
	Total	T.1&2	Tier1	Tier2	Tier1	Tier2	Tier1	Tier2
Lead	73	53	.	53	.	53	.	.
Arsenic	67	50	4	46	4	43	.	3
Copper	66	48	.	48	.	48	.	.
Polychlorinated biphenyls	71	46	40	6	31	5	9	37
Cadmium	69	44	.	44	.	44	.	.
Mercury	68	34	10	24	10	24	.	.
Chromium	70	28	13	15	13	15	.	.
Zinc	43	26	.	26	.	26	.	.
Nickel	38	20	.	20	.	20	.	.
DDT	35	17	8	9	8	2	.	15
Dieldrin	37	15	3	12	3	1	.	15
Chlordane	30	11	.	11	.	6	.	10
Heptachlor epoxide	30	11	.	11	.	.	.	11
BHC	37	10	7	3	7	.	.	9
Silver	38	10	7	3	7	3	.	.
Bis(2-ethylhexyl)phthalate	13	9	8	1	8	1	.	5
Aldrin	35	8	.	8	.	.	.	8

Classifying Parameter	Number of Stations							
	All Parameters				Aquatic Life		Human Health	
	Total	T.1&2	Tier1	Tier2	Tier1	Tier2	Tier1	Tier2
Anthracene	10	7	7	.	7	.	.	.
Benzo(a)anthracene	10	7	7	.	7	.	.	7
Benzo(a)pyrene	10	7	7	.	7	.	.	7
Chrysene	10	7	7	.	7	.	.	2
Fluorene	10	7	7	.	7	.	.	.
Naphthalene	10	7	7	.	7	.	.	.
Pyrene	10	7	7	.	7	.	.	.
SEM_est	7	7	7	.	7	.	.	.
Dibenzofuran	10	7	4	3	4	3	.	.
Dioxins	9	7	2	5	.	.	2	5
Benzo(b)fluoranthene	10	7	.	7	.	7	.	7
Benzo(ghi)perylene	7	7	.	7	.	7	.	.
Benzo(k)fluoranthene	10	7	.	7	.	7	.	4
Indeno(1,2,3-cd)pyrene	10	7	.	7	.	7	.	7
Methylnaphthalene, 2-	7	6	6	.	6	.	.	.
Phenanthrene	7	5	5	.	5	.	.	.
Fluoranthene	10	4	4	.	4	.	.	.
Dichlorobenzene, 1,4-	10	3	2	1	2	1	.	.
Hexachlorobenzene	20	2	.	2	.	.	.	2
Butyl benzyl phthalate	10	1	1	.	1	.	.	.
Di-n-octyl phthalate	10	1	.	1	.	1	.	.
Endosulfan, alpha-	13	1	.	1	.	1	.	.
Endosulfan, beta-	13	1	.	1	.	1	.	.

Sediment Chemistry Data: Chemical Summary

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Aldrin	51	19.10	0.00	7	330.00	34.00
Anthracene	7	24128.57	3400.00	7	130000.0	1400.00
Antimony	15	0.00	0.00	0	.	.
Arsenic	96	20242.81	12600.00	89	93000.00	1100.00
Benzo(a)anthracene	7	13600.00	7300.00	7	30000.00	4200.00
Benzo(a)pyrene	7	15271.43	10000.00	7	29000.00	5700.00
Benzo(b)fluoranthene	7	14371.43	8900.00	7	26000.00	5600.00
Benzo(ghi)perylene	7	16042.86	9600.00	7	31000.00	6300.00
Benzo(k)fluoranthene	7	12142.86	10000.00	7	23000.00	4200.00
Bis(2-ethylhexyl)phthalate	10	35710.00	7650.00	10	290000.0	100.00
Butyl benzyl phthalate	7	2285.71	0.00	1	16000.00	16000.00
BHC	117	5.92	0.00	9	290.00	34.00
Cadmium	98	5852.04	1900.00	61	110000.0	300.00
Chlordane	76	8.47	0.00	6	170.00	66.00
Chromium	99	174044.4	32000.00	87	2610000	2600.00

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Chrysene	7	18342.86	9400.00	7	39000.00	5200.00
Copper	95	91348.42	45000.00	81	490000.0	2500.00
Di-n-octyl phthalate	7	6575.71	1900.00	5	37000.00	430.00
Dibenzofuran	7	10345.71	2400.00	7	53000.00	920.00
Dichlorobenzene, 1,4-	7	248.29	110.00	7	930.00	31.00
Dieldrin	53	24.26	0.00	6	343.00	5.00
Dimethyl phthalate	7	0.00	0.00	0	.	.
Dioxins	16	0.10	0.00	6	0.58	0.10
DDT	183	8.18	0.00	24	210.00	1.50
Endosulfan, alpha-	16	2.56	0.00	1	41.00	41.00
Endosulfan, beta-	16	13.44	0.00	2	160.00	55.00
Endrin	51	0.86	0.00	1	44.00	44.00
Fluoranthene	7	20028.57	9600.00	7	56000.00	4800.00
Fluorene	7	11998.57	3200.00	7	61000.00	790.00
Heptachlor	24	0.00	0.00	0	.	.
Heptachlor epoxide	33	30.06	0.00	5	320.00	63.00
Hexachlorobenzene	13	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	7	11000.00	7300.00	7	22000.00	5300.00
Lead	102	483079.4	163000.0	89	15000000	7200.00
Mercury	91	410.63	100.00	59	12000.00	3.00
Methoxychlor	42	0.00	0.00	0	.	.
Methylnaphthalene, 2-	7	4818.57	2000.00	6	20000.00	930.00
Naphthalene	7	8685.71	6300.00	7	24000.00	3600.00
Nickel	66	48780.30	16500.00	53	890000.0	2800.00
Phenanthrene	7	21485.71	9900.00	7	79000.00	3400.00
Polychlorinated biphenyls	283	920.79	0.00	50	43000.00	0.70
Pyrene	7	26500.00	16000.00	7	55000.00	5500.00
Silver	60	1375.73	0.00	19	16000.00	23.00
SEM_est	7	70.10	66.25	7	133.02	40.09
Toxaphene	38	0.00	0.00	0	.	.
Zinc	72	1286044	211000.0	65	7960000	19000.00

Tissue Residue Data: Chemical Summary

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Acenaphthene	4	0.00	0.00	0	.	.
Acetone	6	235.00	200.00	6	430.00	130.00
Aldrin	27	2.22	0.00	2	50.00	10.00
Anthracene	5	0.00	0.00	0	.	.
Arsenic	18	161.61	170.00	18	500.00	18.00
Benzene	5	7.20	0.00	2	21.00	15.00
Benzo(a)anthracene	5	0.00	0.00	0	.	.

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Benzo(a)pyrene	5	0.00	0.00	0	.	.
Benzo(b)fluoranthene	5	0.00	0.00	0	.	.
Benzo(k)fluoranthene	5	0.00	0.00	0	.	.
Benzoic acid	5	0.00	0.00	0	.	.
Benzyl alcohol	5	0.00	0.00	0	.	.
Biphenyl	2	24.45	24.45	2	26.40	22.50
Bis(2-chloroethyl)ether	5	0.00	0.00	0	.	.
Bis(2-ethylhexyl)phthalate	5	0.00	0.00	0	.	.
Bromodichloromethane	6	0.00	0.00	0	.	.
Bromomethane	6	0.00	0.00	0	.	.
Bromophenyl phenyl ether, 4-	5	0.00	0.00	0	.	.
Butyl benzyl phthalate	5	0.00	0.00	0	.	.
BHC	147	14.12	1.00	77	408.00	1.00
Cadmium	23	52.52	19.00	15	280.00	10.00
Carbon disulfide	6	64.83	59.50	6	120.00	16.00
Chlordane	173	311.37	65.00	155	4700.00	1.00
Chlorobenzene	6	0.00	0.00	0	.	.
Chloroethane	6	0.00	0.00	0	.	.
Chloroethene	6	0.00	0.00	0	.	.
Chloromethane	5	0.00	0.00	0	.	.
Chloronaphthalene, 2-	5	0.00	0.00	0	.	.
Chlorophenol, 2-	5	0.00	0.00	0	.	.
Chlorpyrifos/Dursban	2	0.00	0.00	0	.	.
Chromium	18	489.11	435.00	17	980.00	140.00
Chrysene	5	0.00	0.00	0	.	.
Copper	18	1070.11	1125.00	18	1616.00	330.00
Cresol, o	5	0.00	0.00	0	.	.
Cresol, p-	3	5633.33	2900.00	2	14000.00	2900.00
Di-n-butyl phthalate	5	0.00	0.00	0	.	.
Di-n-octyl phthalate	5	0.00	0.00	0	.	.
Dibenzo(a,h)anthracene	5	0.00	0.00	0	.	.
Dibenzofuran	4	0.00	0.00	0	.	.
Dibromochloromethane	5	0.00	0.00	0	.	.
Dichlorobenzene, 1,2-	5	0.00	0.00	0	.	.
Dichlorobenzene, 1,3-	5	0.00	0.00	0	.	.
Dichlorobenzene, 1,4-	5	0.00	0.00	0	.	.
Dichlorobenzidine, 3,3'-	5	0.00	0.00	0	.	.
Dichloroethane 1,1-	5	0.00	0.00	0	.	.
Dichloroethane 1,2-	6	0.00	0.00	0	.	.
Dichloroethene, 1,1-	6	0.00	0.00	0	.	.
Dichloromethane	5	5.40	7.00	3	11.00	7.00
Dichlorophenol, 2,4-	5	0.00	0.00	0	.	.
Dichloropropane, 1,2-	6	0.00	0.00	0	.	.
Dicofol/Kelthane	2	0.00	0.00	0	.	.

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Dieldrin	58	162.13	20.50	45	2029.00	1.00
Diethyl phthalate	5	0.00	0.00	0	.	.
Dimethyl phthalate	5	0.00	0.00	0	.	.
Dinitrophenol, 2,4-	5	0.00	0.00	0	.	.
Dinitrotoluene, 2,4-	5	0.00	0.00	0	.	.
Dinitrotoluene, 2,6-	5	0.00	0.00	0	.	.
Dioxins	6	0.01	0.01	6	0.03	0.01
DDT	150	719.20	90.50	125	16140.00	0.03
Endosulfan, alpha-	6	0.00	0.00	0	.	.
Endosulfan, beta-	6	0.00	0.00	0	.	.
Endrin	31	0.61	0.00	2	18.00	1.00
Ethylbenzene	3	20.67	21.00	3	21.00	20.00
Fluoranthene	5	0.00	0.00	0	.	.
Fluorene	5	0.00	0.00	0	.	.
Heptachlor	29	0.00	0.00	0	.	.
Heptachlor epoxide	52	38.49	2.00	28	600.00	1.00
Hexachlorobenzene	59	34.94	2.00	33	994.00	1.00
Hexachlorobutadiene	7	0.00	0.00	0	.	.
Hexachloroethane	5	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	5	0.00	0.00	0	.	.
Isophorone	5	0.00	0.00	0	.	.
Isopropalin	2	0.00	0.00	0	.	.
Lead	24	314.58	180.00	14	980.00	70.00
Mercury	22	69.41	58.00	20	164.00	31.00
Methoxychlor	23	0.00	0.00	0	.	.
Methyl ethyl ketone	6	10.17	9.00	3	24.00	18.00
Methyl isobutyl ketone	6	0.00	0.00	0	.	.
Mirex/Dechlorane	17	0.37	0.00	1	6.22	6.22
Naphthalene	5	0.00	0.00	0	.	.
Nitrobenzene	5	0.00	0.00	0	.	.
Nitrophenol, 4	5	0.00	0.00	0	.	.
Nitrosodi-n-propylamine, N-	5	0.00	0.00	0	.	.
Nitrosodiphenylamine, N-	5	0.00	0.00	0	.	.
Pentachlorobenzene	2	0.00	0.00	0	.	.
Pentachloronitrobenzene/Quin	2	0.00	0.00	0	.	.
Pentachlorophenol	5	0.00	0.00	0	.	.
Phenol	5	0.00	0.00	0	.	.
Polychlorinated biphenyls	66	11473.98	1460.50	63	155700.0	100.00
Pyrene	5	0.00	0.00	0	.	.
Styrene	6	0.00	0.00	0	.	.
Tetrachlorobenzene, 1,2,4,5-	2	0.00	0.00	0	.	.
Tetrachloroethane, 1,1,2,2-	6	0.00	0.00	0	.	.
Tetrachloroethene	5	11.20	0.00	2	39.00	17.00
Tetrachloromethane	6	0.00	0.00	0	.	.

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Toluene	4	33.50	34.00	4	56.00	10.00
Toxaphene	21	0.00	0.00	0	.	.
Tribromomethane/Bromoform	6	0.00	0.00	0	.	.
Trichlorobenzene, 1,2,4-	7	0.00	0.00	0	.	.
Trichloroethane, 1,1,1-	5	30.60	8.00	3	130.00	8.00
Trichloroethane, 1,1,2-	6	0.00	0.00	0	.	.
Trichloroethene	6	0.00	0.00	0	.	.
Trichloromethane/Chloroform	2	0.00	0.00	0	.	.
Trichlorophenol, 2,4,5-	5	0.00	0.00	0	.	.
Trichlorophenol, 2,4,6-	5	0.00	0.00	0	.	.
Trifluralin/Treflan	2	0.00	0.00	0	.	.
Vinyl acetate	6	0.00	0.00	0	.	.
Xylenes	6	60.83	59.00	6	110.00	9.00
Zinc	11	68681.82	71400.00	11	130000.0	12100.00

Biotoxicity Data

Lat.	Long.	Date	Species Name	Phase	% Mortality		Sign.
					Test	Control	
Monitoring Program: GLNPO/ARCS							
41.6458	87.4722	89-08-10	Chironomus Tentans	S	100.00	0.00	Yes
			Hyallella Azteca	S	100.00	7.50	Yes
41.6550	87.4597	89-08-09	Chironomus Tentans	S	100.00	0.00	Yes
			Hyallella Azteca	S	98.75	7.50	Yes
41.6678	87.4361	89-08-09	Chironomus Tentans	S	73.30	0.00	Yes
			Hyallella Azteca	S	100.00	7.50	Yes
41.6736	87.4392	89-08-09	Chironomus Tentans	S	53.30	0.00	Yes
			Hyallella Azteca	S	98.75	7.50	Yes