

Watershed Summary Information

Accounting Unit Name:	Willamette
State(s):	OR
Political Boundaries:	Multnomah, Columbia, Clackamas, Clark
Major Waterways:	Willamette R Multnomah Channel Scappoose Bay Scappoose Cr Johnson Cr
Number of Stations in Watershed:	Tier1 - 21 Tier2 - 51 Tier3 - 4

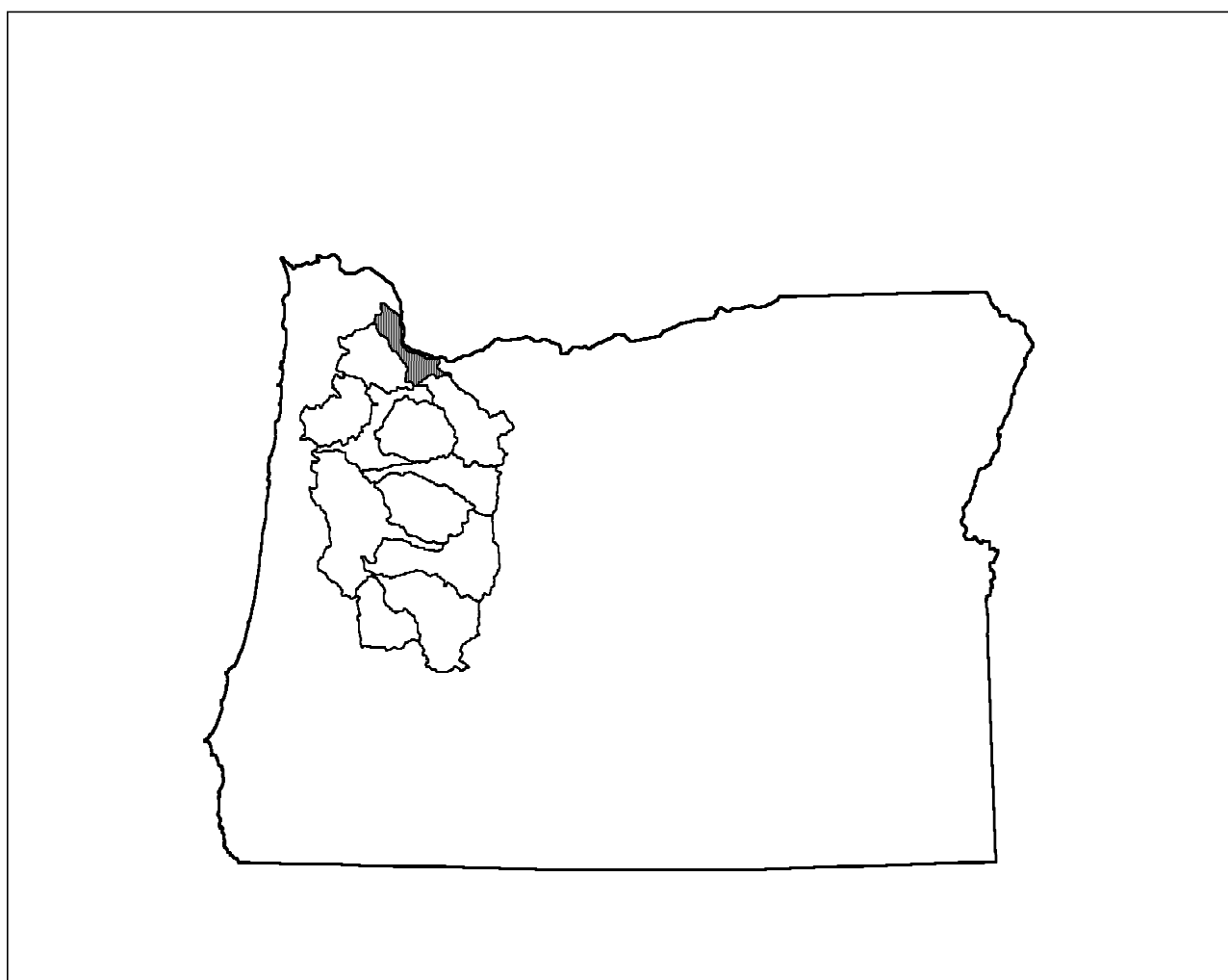


Figure 163. Watershed Location Map

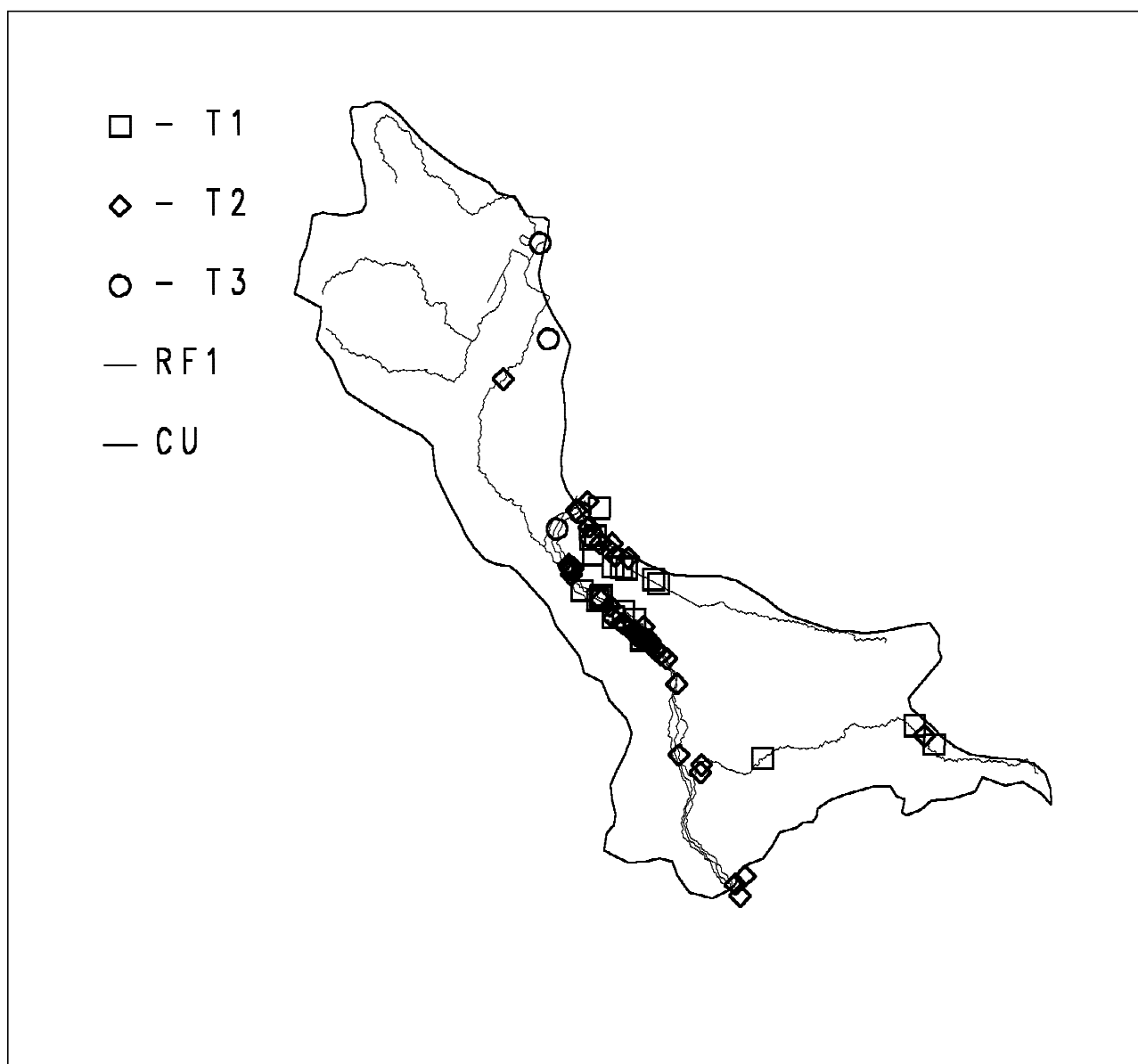


Figure 164. Major Waterways and Location of Sampling Stations

Data Source(s) Used in Evaluation

Source: **STORET** Agency: **10EPACOP**

Monitoring Program: **USEPA Region 10 Cooperative Water Data**

Num. of Stations: 22 Date Range: 1982-87

Source: **STORET** Agency: **11BIOACC**

Monitoring Program: **USEPA National Bioaccumulation Study**

Num. of Stations: 3 Date Range: 1987

Source: **STORET** Agency: **112WRD**

Monitoring Program: **US Geological Survey Data**

Num. of Stations: 25 Date Range: 1982-92

Source: STORET Agency: 21400000

Monitoring Program: Oregon Dept of Environ Quality Rivers Data

Num. of Stations: 26 Date Range: 1980-91

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
Copper	52	48	.	48	.	48	.	.
Polychlorinated biphenyls	59	37	13	24	9	21	6	31
Nickel	48	33	.	33	.	33	.	.
Zinc	50	28	.	28	.	28	.	.
DDT	55	27	10	17	10	17	3	10
Arsenic	51	26	.	26	.	24	.	4
Lead	53	22	.	22	.	22	.	.
Cadmium	52	21	.	21	.	21	.	.
Mercury	53	13	1	12	1	12	.	1
Bis(2-ethylhexyl)phthalate	25	13	.	13	.	13	.	.
Pyrene	30	10	4	6	4	6	.	1
Anthracene	32	10	3	7	3	7	.	.
Benzo(a)anthracene	27	9	3	6	3	6	.	6
Fluoranthene	28	9	3	6	3	6	.	1
Benzo(a)pyrene	28	9	2	7	2	4	.	9
Phenanthrene	22	8	3	5	3	5	.	.
Chlordane	56	8	.	8	.	8	.	4
Chrysene	26	7	3	4	3	4	.	1
Silver	37	7	.	7	.	7	.	.
Fluorene	31	6	2	4	2	4	.	.
Naphthalene	32	6	2	4	2	4	.	.
Benzo(b)fluoranthene	29	6	.	6	.	2	.	6
Chromium	51	6	.	6	.	6	.	.
Dibenzo(a,h)anthracene	28	5	3	2	3	2	.	5
Indeno(1,2,3-cd)pyrene	30	4	.	4	.	3	.	4
Dioxins	4	3	3	.	.	.	3	.
Acenaphthene	33	3	2	1	2	1	.	.
Acenaphthylene	26	3	1	2	1	2	.	.
Benzo(ghi)perylene	24	3	.	3	.	3	.	.
BHC	56	3	.	3	.	3	.	2
Benzo(k)fluoranthene	29	2	.	2	.	1	.	2
Di-n-butyl phthalate	24	2	.	2	.	2	.	.
Dieldrin	54	2	.	2	.	.	.	2
Dibenzofuran	15	1	1	.	1	.	.	.
Methylnaphthalene, 2-	9	1	1	.	1	.	.	.
Di-n-octyl phthalate	27	1	.	1	.	1	.	.
Nitrosodiphenylamine, N-	24	1	.	1	.	1	.	.

Classifying Parameter	Number of Stations							
	All Parameters				Aquatic Life		Human Health	
	Total	T.1&2	Tier1	Tier2	Tier1	Tier2	Tier1	Tier2
Pentachlorophenol	27	1	.	1	.	1	.	.
Xylenes	6	1	.	1	.	1	.	.

Sediment Chemistry Data: Chemical Summary

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Acenaphthene	51	483.43	0.00	7	14900.00	5.00
Acenaphthylene	50	94.16	0.00	6	4300.00	3.00
Acetone	14	0.00	0.00	0	.	.
Acrylonitrile	6	0.00	0.00	0	.	.
Aldrin	75	0.00	0.00	0	.	.
Anthracene	44	5003.16	0.00	21	200000.0	20.00
Antimony	51	2562.75	0.00	20	25000.00	100.00
Arsenic	78	7851.41	5000.00	72	54000.00	200.00
Benzene	18	0.00	0.00	0	.	.
Benzo(a)anthracene	37	5912.24	45.00	23	200000.0	4.00
Benzo(a)pyrene	36	8830.53	0.00	15	300000.0	50.00
Benzo(b)fluoranthene	32	9983.12	0.00	14	300000.0	80.00
Benzo(ghi)perylene	41	5472.95	0.00	13	200000.0	19.00
Benzo(k)fluoranthene	37	3054.43	30.00	20	100000.0	20.00
Benzoic acid	28	0.00	0.00	0	.	.
Benzyl alcohol	28	0.00	0.00	0	.	.
Bis(2-ethylhexyl)phthalate	36	432.44	0.00	17	2200.00	98.00
Bromophenyl phenyl ether, 4-	41	0.00	0.00	0	.	.
Butyl benzyl phthalate	41	1.41	0.00	3	44.00	6.00
BHC	266	0.12	0.00	4	13.00	6.00
Cadmium	78	690.67	501.00	52	3590.00	100.00
Chlordane	74	0.68	0.00	10	10.00	1.00
Chlorobenzene	20	0.00	0.00	0	.	.
Chromium	78	26462.82	20100.00	78	110000.0	6000.00
Chrysene	34	9405.59	40.50	21	300000.0	4.00
Copper	78	57961.54	35000.00	78	320000.0	13000.00
Cresol, o	28	0.00	0.00	0	.	.
Cresol, p-	27	0.00	0.00	0	.	.
Di-n-butyl phthalate	36	230.72	0.00	12	1965.00	40.00
Di-n-octyl phthalate	44	265.61	0.00	5	6400.00	22.00
Dibenzo(a,h)anthracene	44	11608.23	0.00	5	500000.0	160.00
Dibenzofuran	25	490.08	0.00	5	11400.00	42.00
Dibromochloromethane	20	0.00	0.00	0	.	.
Dichlorobenzene, 1,2-	41	0.63	0.00	2	13.00	13.00
Dichlorobenzene, 1,3-	41	0.00	0.00	0	.	.
Dichlorobenzene, 1,4-	41	0.12	0.00	1	5.00	5.00

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Dichloroethane 1,1-	20	0.00	0.00	0	.	.
Dichloroethane 1,2-	20	0.00	0.00	0	.	.
Dichloroethene, trans-1,2-	20	0.00	0.00	0	.	.
Dichloromethane	20	0.00	0.00	0	.	.
Dichloropropane, 1,2-	20	0.00	0.00	0	.	.
Dieldrin	74	0.02	0.00	9	0.40	0.10
Diethyl phthalate	44	0.23	0.00	3	4.00	3.00
Dimethyl phthalate	44	0.00	0.00	0	.	.
Dimethylphenol, 2,4-	49	0.00	0.00	0	.	.
Dioxins	1	0.00	0.00	0	.	.
DDT	217	36.55	0.00	92	2700.00	0.20
Endosulfan mixed isomers	10	0.00	0.00	0	.	.
Endosulfan, alpha-	64	0.00	0.00	0	.	.
Endosulfan, beta-	60	0.00	0.00	0	.	.
Endrin	74	0.00	0.00	0	.	.
Ethylbenzene	17	0.00	0.00	0	.	.
Fluoranthene	37	26199.72	110.00	25	900000.0	7.70
Fluorene	47	469.02	0.00	10	16100.00	7.00
Heptachlor	74	0.04	0.00	9	0.40	0.20
Heptachlor epoxide	74	0.00	0.00	0	.	.
Hexachlorobenzene	41	0.00	0.00	0	.	.
Hexachlorobutadiene	41	0.00	0.00	0	.	.
Hexachloroethane	41	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	44	7169.02	0.00	11	300000.0	67.00
Isophorone	41	0.15	0.00	2	3.00	3.00
Lead	79	61703.80	30000.00	79	396800.0	700.00
Mercury	75	114.83	80.00	71	1740.00	30.00
Methoxychlor	36	0.00	0.00	0	.	.
Methyl ethyl ketone	14	0.00	0.00	0	.	.
Methylnaphthalene, 2-	19	713.26	0.00	3	7200.00	52.00
Mirex/Dechlorane	10	0.00	0.00	0	.	.
Naphthalene	47	2085.85	0.00	11	50000.00	6.00
Nickel	68	26385.29	25300.00	68	73400.00	10000.00
Nitrosodiphenylamine, N-	41	12.93	0.00	1	530.00	530.00
Pentachlorophenol	43	790.70	0.00	1	34000.00	34000.00
Phenanthrene	36	24430.92	95.00	25	800000.0	22.00
Phenol	44	0.75	0.00	2	20.00	13.00
Polychlorinated biphenyls	441	35.76	0.00	51	4200.00	14.00
Pyrene	41	13547.17	51.00	25	500000.0	10.00
Silver	58	336.78	155.00	47	1720.00	10.00
Tetrachloroethane, 1,1,2,2-	20	0.00	0.00	0	.	.
Tetrachloroethene	20	0.00	0.00	0	.	.
Tetrachloromethane	20	0.00	0.00	0	.	.
Toluene	17	0.94	0.00	1	16.00	16.00

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Toxaphene	74	0.00	0.00	0	.	.
Tribromomethane/Bromoform	20	0.00	0.00	0	.	.
Trichlorobenzene, 1,2,4-	41	0.00	0.00	0	.	.
Trichloroethane, 1,1,1-	20	0.00	0.00	0	.	.
Trichloroethane, 1,1,2-	20	0.00	0.00	0	.	.
Trichloroethene	20	0.00	0.00	0	.	.
Trichlorofluoromethane	19	0.00	0.00	0	.	.
Trichloromethane/Chloroform	20	0.00	0.00	0	.	.
Xylenes	10	4.00	0.00	1	40.00	40.00
Zinc	76	217306.6	154000.0	76	790000.0	45000.00

Tissue Residue Data: Chemical Summary

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Acenaphthene	19	0.00	0.00	0	.	.
Acrolein	5	0.00	0.00	0	.	.
Acrylonitrile	5	0.00	0.00	0	.	.
Aldrin	43	0.42	0.00	7	5.00	1.00
Anthracene	19	0.00	0.00	0	.	.
Antimony	8	48.75	40.00	4	150.00	80.00
Arsenic	21	79.05	50.00	11	280.00	50.00
Benzene	5	0.00	0.00	0	.	.
Benzidine	10	0.00	0.00	0	.	.
Benzo(a)anthracene	19	0.00	0.00	0	.	.
Benzo(a)pyrene	19	0.00	0.00	0	.	.
Benzo(b)fluoranthene	17	0.00	0.00	0	.	.
Benzo(k)fluoranthene	19	0.00	0.00	0	.	.
Beryllium	8	2.12	1.00	4	5.00	2.00
Biphenyl	2	5.37	5.37	2	7.33	3.41
Bis(2-chloroethyl)ether	10	0.00	0.00	0	.	.
Bis(2-ethylhexyl)phthalate	10	326.60	97.00	8	1500.00	31.00
Bromodichloromethane	5	0.00	0.00	0	.	.
Bromomethane	5	0.00	0.00	0	.	.
Bromophenyl phenyl ether, 4-	10	0.00	0.00	0	.	.
Butyl benzyl phthalate	10	420.00	0.00	1	4200.00	4200.00
BHC	156	0.37	0.00	8	18.60	1.00
Cadmium	29	29.07	0.00	8	357.00	4.00
Chlordane	58	2.35	0.00	4	80.00	6.70
Chlorobenzene	5	0.00	0.00	0	.	.
Chloroethane	5	0.00	0.00	0	.	.
Chloroethene	5	0.00	0.00	0	.	.
Chloroethylvinyl ether, 2-	5	0.00	0.00	0	.	.

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Chloromethane	5	0.00	0.00	0	.	.
Chloronaphthalene, 2-	10	0.00	0.00	0	.	.
Chlorophenol, 2-	10	0.00	0.00	0	.	.
Chlorpyrifos/Dursban	2	0.00	0.00	0	.	.
Chromium	21	235.24	200.00	13	1230.00	100.00
Chrysene	19	0.00	0.00	0	.	.
Copper	22	5327.27	1130.00	22	26500.00	260.00
Di-n-butyl phthalate	10	0.00	0.00	0	.	.
Di-n-octyl phthalate	10	0.00	0.00	0	.	.
Dibenzo(a,h)anthracene	19	0.00	0.00	0	.	.
Dibromochloromethane	5	0.00	0.00	0	.	.
Dichlorobenzene, 1,2-	10	0.00	0.00	0	.	.
Dichlorobenzene, 1,3-	10	0.00	0.00	0	.	.
Dichlorobenzene, 1,4-	10	0.00	0.00	0	.	.
Dichlorobenzidine, 3,3'-	10	0.00	0.00	0	.	.
Dichlorodifluoromethane	5	0.00	0.00	0	.	.
Dichloroethane 1,1-	5	0.00	0.00	0	.	.
Dichloroethane 1,2-	5	0.00	0.00	0	.	.
Dichloroethene, trans-1,2-	5	0.00	0.00	0	.	.
Dichloroethene, 1,1-	5	0.00	0.00	0	.	.
Dichloromethane	5	0.00	0.00	0	.	.
Dichlorophenol, 2,4-	10	0.00	0.00	0	.	.
Dichloropropane, 1,2-	5	0.00	0.00	0	.	.
Dicofol/Kelthane	2	0.00	0.00	0	.	.
Dieldrin	37	1.66	0.00	5	24.00	5.00
Diethyl phthalate	10	0.00	0.00	0	.	.
Dimethyl phthalate	10	0.00	0.00	0	.	.
Dimethylphenol, 2,4-	10	0.00	0.00	0	.	.
Dinitrophenol, 2,4-	10	0.00	0.00	0	.	.
Dinitrotoluene, 2,4-	10	0.00	0.00	0	.	.
Dinitrotoluene, 2,6-	10	1.00	0.00	1	10.00	10.00
Dioxins	8	0.01	0.01	8	0.03	0.00
Diphenylhydrazine, 1,2-	10	0.00	0.00	0	.	.
DCPA/Dacthal	9	0.00	0.00	0	.	.
DDT	166	78.81	11.50	96	840.00	2.00
Endosulfan, alpha-	32	0.00	0.00	0	.	.
Endosulfan, beta-	32	0.00	0.00	0	.	.
Endrin	45	0.18	0.00	2	5.00	3.00
Ethylbenzene	5	0.00	0.00	0	.	.
Fluoranthene	19	0.00	0.00	0	.	.
Fluorene	19	0.00	0.00	0	.	.
Heptachlor	42	0.00	0.00	0	.	.
Heptachlor epoxide	34	0.00	0.00	0	.	.
Hexachlorobenzene	31	1.10	0.00	7	10.00	2.00

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Hexachlorobutadiene	12	0.00	0.00	0	.	.
Hexachloroethane	10	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	19	0.00	0.00	0	.	.
Isophorone	10	0.00	0.00	0	.	.
Isopropalin	2	0.00	0.00	0	.	.
Lead	28	132.14	0.00	9	680.00	150.00
Mercury	23	313.39	190.00	21	1160.00	10.00
Methoxychlor	14	0.93	0.00	1	13.00	13.00
Mirex/Dechlorane	11	0.00	0.00	0	.	.
Molybdenum	1	0.00	0.00	0	.	.
Naphthalene	19	0.00	0.00	0	.	.
Nickel	9	511.11	280.00	7	2680.00	150.00
Nitrobenzene	10	0.00	0.00	0	.	.
Nitrophenol, 4	10	0.00	0.00	0	.	.
Nitrosodi-n-propylamine, N-	8	0.00	0.00	0	.	.
Nitrosodiphenylamine, N-	8	0.00	0.00	0	.	.
Pentachlorobenzene	2	0.00	0.00	0	.	.
Pentachloronitrobenzene/Quin	2	0.00	0.00	0	.	.
Pentachlorophenol	18	8.33	0.00	8	36.00	6.00
Phenol	10	0.00	0.00	0	.	.
Polychlorinated biphenyls	243	2051.72	0.00	36	480000.0	16.00
Pyrene	19	0.00	0.00	0	.	.
Selenium	9	106.67	50.00	9	230.00	30.00
Silver	8	4.00	0.00	1	32.00	32.00
Tetrachlorobenzene, 1,2,4,5-	2	0.00	0.00	0	.	.
Tetrachloroethane, 1,1,2,2-	5	0.00	0.00	0	.	.
Tetrachloroethene	5	22.00	0.00	1	110.00	110.00
Tetrachloromethane	5	0.00	0.00	0	.	.
Toluene	5	0.00	0.00	0	.	.
Toxaphene	32	0.00	0.00	0	.	.
Tribromomethane/Bromoform	5	0.00	0.00	0	.	.
Trichlorobenzene, 1,2,4-	12	0.00	0.00	0	.	.
Trichloroethane, 1,1,1-	5	0.00	0.00	0	.	.
Trichloroethane, 1,1,2-	5	0.00	0.00	0	.	.
Trichloroethene	5	0.00	0.00	0	.	.
Trichlorofluoromethane	5	0.00	0.00	0	.	.
Trichloromethane/Chloroform	5	0.00	0.00	0	.	.
Trichlorophenol, 2,4,6-	10	0.00	0.00	0	.	.
Trifluralin/Treflan	2	0.00	0.00	0	.	.
Vanadium	1	340.00	340.00	1	340.00	340.00
Zinc	9	15055.56	17100.00	9	24300.00	7400.00