

SHENANDOAH RIVER MERCURY MONITORING RESULTS OF 1999 FISH TISSUE SAMPLING

(Updated June 2000)

Since mercury was discovered in the South River in the early 1970s, the State Water Control Board (SWCB) and, more recently, the DEQ staff have monitored mercury levels in fish, water, and sediments in the South River and South Fork Shenandoah River. The mercury contamination originated from historic practices at the E. I. DuPont plant in Waynesboro. In a settlement between DuPont and the SWCB in the early 1980s, a trust fund was established to support monitoring in the river for a projected 100-year period.

There have been restrictions or health advisories on consumption of fish from portions of the South and South Fork Shenandoah Rivers since the 1970s. The current advisory, which includes the South River from Waynesboro to Port Republic and the South Fork Shenandoah River from Port Republic to the Page/Warren County line, has been in place since the 1980s.

The information below represents the most recent data in DEQ's ongoing monitoring program for mercury in the South River and South Fork Shenandoah River. DEQ's sampling schedule calls for fish tissue sampling every 3 years until 2005, and every 5 years thereafter. The next fish sampling for this study will be in 2002.

Planning and project design for this effort was a collaborative effort between DEQ, Department of Game & Inland Fisheries (DGIF), and the Virginia Department of Health (VDH). The results below are being evaluated by the VDH, the agency responsible for identifying the potential for human health risks from consuming contaminated fish. Detailed information on fish consumption advisories in Virginia can be found in the Virginia Freshwater Fishing Regulations booklet (published by the DGIF and available at locations where fishing licenses are sold) and on the VDH web site (www.vdh.state.va.us).

All results below are taken from fillets of individual fish. Each fish sample was analyzed for Total Mercury. Methyl Mercury, a much more expensive constituent to analyze, was measured in ten percent of the samples. As a frame of reference, the U.S. Food and Drug Administration action level for methyl mercury in the edible portion of fish is 1.0 part per million (ppm). The data gathered in this study indicate that approximately 85-90 percent of the Total Mercury in fish is in the form of Methyl Mercury.

The data tables are followed by maps which identify the individual sample locations.

STATION 1 - SOUTH RIVER AT RIDGE VIEW PARK, WAYNESBORO (upstream of Du Pont)

Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/13/99	23.2	160	0.19	
Smallmouth Bass	9/13/99	36.3	616	0.33	
Smallmouth Bass	9/13/99	22.0	106	0.17	
Smallmouth Bass	9/13/99	21.0	130	0.32	
Smallmouth Bass	9/13/99	25.2	189	0.20	
Smallmouth Bass	9/13/99	25.3	230	0.19	
Smallmouth Bass	9/13/99	21.8	133	0.11	
Smallmouth Bass	9/13/99	17.4	70	0.16	
Average Total Mercury (ppm)				0.21	

White Sucker	9/10/99	40.0	808	0.16	
White Sucker	9/10/99	36.0	532	0.12	
White Sucker	9/10/99	44.4	915	0.19	
White Sucker	9/10/99	25.0	157	0.06	
White Sucker	9/10/99	46.8	951	0.24	
White Sucker	9/10/99	40.5	710	0.13	
White Sucker	9/10/99	39.5	633	0.24	0.27
White Sucker	9/10/99	35.9	502	0.09	
White Sucker	9/10/99	39.8	581	0.15	
White Sucker	9/10/99	33.3	343	0.09	
Average Total Mercury (ppm)				0.15	

Rock Bass	9/10/99	16.4	66	0.30	0.02
Rock Bass	9/10/99	21.0	136	0.28	
Rock Bass	9/10/99	22.0	171	0.33	
Rock Bass	9/10/99	23.5	247	0.31	
Rock Bass	9/10/99	22.3	234	0.53	0.53
Rock Bass	9/10/99	21.4	183	0.28	
Rock Bass	9/10/99	22.9	258	0.35	
Rock Bass	9/10/99	20.7	178	0.25	
Rock Bass	9/10/99	22.0	221	0.34	
Rock Bass	9/10/99	23.1	245	0.27	
Average Total Mercury (ppm)				0.32	

STATION 2 -SOUTH RIVER AT CONSTITUTION PARK, WAYNESBORO (near Dupont footbridge)

Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/2/99	26.1	270	0.70	
Smallmouth Bass	9/2/99	23.8	185	0.28	
Smallmouth Bass	9/2/99	23.0	180	0.32	
Smallmouth Bass	9/2/99	19.2	113	0.24	
Smallmouth Bass	9/2/99	30.0	348	0.61	
Smallmouth Bass	9/2/99	22.0	150	0.31	
Smallmouth Bass	9/2/99	23.7	192	0.47	
Smallmouth Bass	9/2/99	32.9	505	0.65	
Smallmouth Bass	9/2/99	36.5	688	0.89	0.61
Smallmouth Bass	9/2/99	37.0	649	0.77	
Average Total Mercury (ppm)				0.52	

Rainbow Trout	9/2/99	30.0	253	0.15	
Rainbow Trout	9/2/99	25.3	148	0.15	
Rainbow Trout	9/2/99	27.4	174	0.19	0.17
Rainbow Trout	9/2/99	26.4	201	0.17	
Rainbow Trout	9/2/99	28.1	198	0.11	
Rainbow Trout	9/2/99	32.5	357	0.10	
Rainbow Trout	9/2/99	32.0	300	0.10	
Rainbow Trout	9/2/99	33.1	280	0.11	
Rainbow Trout	9/2/99	26.9	219	0.16	
Average Total Mercury (ppm)				0.14	

Rock Bass	9/2/99	18.4	122	0.97	
Rock Bass	9/2/99	16.7	83	0.86	
Rock Bass	9/2/99	18.6	128	0.99	
Rock Bass	9/2/99	19.5	144	0.82	
Rock Bass	9/2/99	17.0	105	0.55	
Rock Bass	9/2/99	16.8	92	0.39	
Rock Bass	9/2/99	18.6	132	1.00	0.85
Rock Bass	9/2/99	16.2	87	0.30	
Rock Bass	9/2/99	17.3	105	0.77	
Rock Bass	9/3/99	17.7	117	0.38	
Average Total Mercury (ppm)				0.70	

White Sucker	9/2/99	40.3	779	0.26	0.22
White Sucker	9/2/99	33.0	391	0.19	
White Sucker	9/2/99	27.2	237	0.12	
White Sucker	9/2/99	32.4	434	0.10	
White Sucker	9/2/99	23.8	144	0.26	
White Sucker	9/3/99	29.0	279	0.10	0
White Sucker	9/2/99	22.7	122	0.19	
White Sucker	9/2/99	23.8	142	0.14	
White Sucker	9/2/99	21.6	114	0.16	
White Sucker	9/2/99	22.0	113	0.16	
Average Total Mercury (ppm)				0.17	

Rainbow Trout	11/12/99	26.5	180	0.01	
Rainbow Trout	11/12/99	28.0	257	0.01	
Rainbow Trout	11/12/99	27.3	218	0.01	
Rainbow Trout	11/12/99	24.0	140	0.01	
Rainbow Trout	11/12/99	29.7	243	0.01	
Rainbow Trout	11/12/99	28.5	228	0.02	0.025
Rainbow Trout	11/12/99	25.7	184	0.01	
Rainbow Trout	11/12/99	25.5	180	0.01	
Rainbow Trout	11/12/99	25.3	153	0.01	
Rainbow Trout	11/12/99	24.5	147	0.01	
Average Total Mercury (ppm)				0.01	

STATION 3 - SOUTH RIVER AT DOOMS (above dam @ Rt. 611 bridge)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/27/99	26.0	226	2.26	
Smallmouth Bass	9/27/99	19.6	105	1.72	1.59
Smallmouth Bass	9/27/99	23.3	165	1.83	
Smallmouth Bass	9/27/99	25.1	208	2.63	
Smallmouth Bass	9/27/99	23.9	181	2.07	
Smallmouth Bass	9/27/99	22.9	154	2.25	
Smallmouth Bass	9/27/99	23.9	173	2.20	
Smallmouth Bass	9/27/99	23.0	173	2.52	
Smallmouth Bass	9/27/99	24.3	175	2.58	
Smallmouth Bass	9/27/99	21.0	120	1.99	
Average Total Mercury (ppm)				2.21	
Redbreast Sunfish	9/27/99	17.0	82	2.73	1.63
Redbreast Sunfish	9/27/99	19.4	136	1.93	
Redbreast Sunfish	9/27/99	15.3	68	2.25	
Redbreast Sunfish	9/27/99	15.8	74	1.85	
Redbreast Sunfish	9/27/99	16.1	68	2.21	
Redbreast Sunfish	9/27/99	15.5	77	1.29	
Redbreast Sunfish	9/27/99	15.7	70	2.53	
Redbreast Sunfish	9/27/99	14.4	55	1.10	
Redbreast Sunfish	9/27/99	14.1	54	2.03	
Redbreast Sunfish	9/27/99	15.1	66	1.77	
Average Total Mercury (ppm)				1.97	
White Sucker	9/27/99	31.3	299	1.08	
White Sucker	9/27/99	30.6	292	0.97	
White Sucker	9/27/99	32.4	352	0.96	
White Sucker	9/27/99	20.0	228	1.04	1.01
White Sucker	9/27/99	30.3	303	0.98	
White Sucker	9/27/99	27.7	241	1.11	
White Sucker	9/27/99	52.4	1392	2.61	
White Sucker	9/27/99	45.9	1111	1.70	
White Sucker	9/27/99	47.5	1069	2.93	
White Sucker	9/27/99	33.3	418	1.06	
Average Total Mercury (ppm)				1.44	

**SHENANDOAH RIVER MERCURY MONITORING RESULTS
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STATION 4 - SOUTH RIVER AT CRIMORA (near Rt. 612 bridge)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/24/99	32.5	469	3.38	
Smallmouth Bass	9/24/99	28.5	294	3.12	
Smallmouth Bass	9/24/99	31.8	397	3.81	
Smallmouth Bass	9/24/99	22.8	158	2.51	
Smallmouth Bass	9/24/99	24.5	181	2.24	
Smallmouth Bass	9/24/99	22.5	144	2.21	
Smallmouth Bass	9/24/99	23.5	165	2.17	
Smallmouth Bass	9/24/99	22.8	141	2.53	
Smallmouth Bass	9/24/99	18.6	84	1.86	
Smallmouth Bass	9/24/99	18.6	82	2.10	2.05
Average Total Mercury (ppm)				2.59	
Redbreast Sunfish	9/24/99	18.4	130	1.60	1.35
Redbreast Sunfish	9/24/99	18.3	130	1.68	
Redbreast Sunfish	9/24/99	17.4	95	2.44	
Redbreast Sunfish	9/24/99	17.3	104	1.37	
Redbreast Sunfish	9/24/99	16.5	81	1.42	
Redbreast Sunfish	9/24/99	16.6	85	2.30	
Redbreast Sunfish	9/24/99	17.9	95	2.36	
Redbreast Sunfish	9/24/99	18.7	105	1.88	
Redbreast Sunfish	9/24/99	16.7	87	2.24	
Redbreast Sunfish	9/24/99	17.0	95	1.64	
Average Total Mercury (ppm)				1.89	
White Sucker	9/24/99	48.8	1241	3.86	
White Sucker	9/24/99	48.5	1174	2.59	
White Sucker	9/24/99	42.3	893	2.27	
White Sucker	9/24/99	55.4	1303	2.28	
White Sucker	9/24/99	43.7	770	2.55	
White Sucker	9/24/99	42.1	778	1.87	1.47
White Sucker	9/24/99	51.7	1267	3.13	
White Sucker	9/24/99	43.5	902	2.86	
White Sucker	9/24/99	47.9	1305	2.67	
White Sucker	9/24/99	49.1	1242	3.11	
Average Total Mercury (ppm)				2.72	

STATION 5 - SOUTH RIVER AT GROTTOS (Grand Caverns)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/20/99	25.3	203	2.03	1.89
Smallmouth Bass	9/20/99	33.3	482	3.41	
Smallmouth Bass	9/20/99	38.7	758	4.05	
Smallmouth Bass	9/20/99	22.4	137	1.80	
Smallmouth Bass	9/20/99	30.8	361	2.93	
Smallmouth Bass	9/20/99	35.0	518	3.12	
Smallmouth Bass	9/20/99	31.0	371	3.21	
Smallmouth Bass	9/20/99	34.5	450	3.24	
Smallmouth Bass	9/20/99	29.5	322	2.58	
Smallmouth Bass	9/20/99	25.7	195	2.71	
Average Total Mercury (ppm)				2.91	
Redbreast Sunfish	9/20/99	16.6	86	1.93	
Redbreast Sunfish	9/20/99	14.5	56	1.58	
Redbreast Sunfish	9/20/99	17.0	88	1.24	1.03
Redbreast Sunfish	9/20/99	15.5	77	1.05	
Redbreast Sunfish	9/20/99	16.8	76	2.30	
Redbreast Sunfish	9/20/99	18.4	132	1.73	
Redbreast Sunfish	9/20/99	15.2	67	1.27	
Redbreast Sunfish	9/20/99	15.0	56	1.80	
Redbreast Sunfish	9/20/99	14.5	58	0.38	
Redbreast Sunfish	9/20/99	14.6	28	2.02	
Average Total Mercury (ppm)				1.53	
White Sucker	9/20/99	36.8	510	1.09	1.07
White Sucker	9/20/99	37.3	562	1.19	
White Sucker	9/20/99	31.9	368	0.72	
White Sucker	9/20/99	49.2	1228	1.67	
White Sucker	9/20/99	33.1	420	1.74	
White Sucker	9/20/99	50.9	1228	2.07	
White Sucker	9/20/99	32.6	415	1.53	
White Sucker	9/20/99	33.5	428	0.73	
White Sucker	9/20/99	33.5	374	1.21	
White Sucker	9/20/99	33.5	374	1.21	
Average Total Mercury (ppm)				1.32	

**SHENANDOAH RIVER MERCURY MONITORING/RESULTS
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STATION 5b - SOUTH RIVER AT PORT REPUBLIC (at DGIF landing)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Channel Catfish	7/8/99	42.8	625	0.60	
Channel Catfish	7/8/99	42.5	720	0.80	
Channel Catfish	7/8/99	68.2	3366	2.50	2.18
Channel Catfish	7/8/99	55.1	1733	1.18	
Channel Catfish	7/8/99	43.2	782	0.24	
Channel Catfish	7/8/99	30.7	244	0.22	
Channel Catfish	7/8/99	32.4	302	0.32	
Channel Catfish	7/8/99	62.4	2700	1.11	
Channel Catfish	7/8/99	76.2	6420	0.70	
Average Total Mercury (ppm)				0.85	

STATION 6 (tributary control) - NORTH RIVER (near Rt. 668 bridge)						
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)	
Smallmouth Bass	10/5/99	28.8	278	0.49	0.39	
Smallmouth Bass	10/5/99	21.2	120	0.18		
Smallmouth Bass	10/5/99	22.1	133	0.21		
Smallmouth Bass	10/5/99	33.7	455	0.33		
Smallmouth Bass	10/5/99	30.5	366	0.39		
Smallmouth Bass	10/5/99	31.3	324	0.42		
Smallmouth Bass	10/5/99	28.0	275	0.30		
Smallmouth Bass	10/5/99	24.4	181	0.17		
Smallmouth Bass	10/5/99	31.7	434	0.26		
Average Total Mercury (ppm)				0.31		
Redbreast Sunfish	10/5/99	17.3	102	0.14	0.15	
Redbreast Sunfish	10/5/99	18.5	141	0.13		
Redbreast Sunfish	10/5/99	21.0	197	0.21		
Redbreast Sunfish	10/5/99	19.6	153	0.20		
Redbreast Sunfish	10/5/99	19.3	148	0.13		
Redbreast Sunfish	10/5/99	20.5	180	0.15		
Redbreast Sunfish	10/5/99	19.2	156	0.14		
Redbreast Sunfish	10/5/99	20.7	166	0.24		
Redbreast Sunfish	10/5/99	16.9	108	0.10		
Redbreast Sunfish	10/5/99	16.6	107	0.10		
Average Total Mercury (ppm)				0.15		
White Sucker	10/5/99	37.7	630	1.12		0.76
White Sucker	10/5/99	35.6	497	1.05		
White Sucker	10/5/99	33.5	418	0.69		
White Sucker	10/5/99	51.1	1468	0.68		
White Sucker	10/5/99	26.0	191	0.51		
White Sucker	10/5/99	50.0	1600	0.54		
White Sucker	10/5/99	24.5	200	0.74		
White Sucker	10/5/99	40.4	808	0.30		
White Sucker	10/5/99	33.8	453	0.48		
White Sucker	10/5/99	34.3	472	0.36		
Average Total Mercury (ppm)				0.65		
Redhorse	10/5/99	32.4	441	0.28		
Average Total Mercury (ppm)				0.28		

**SHENANDOAH RIVER MERCURY MONITORING RESULTS
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STATION 7 - SOUTH FORK SHENANDOAH RIVER AT LYNNWOOD (near Rt. 708 bridge)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/22/99	36.1	644	1.49	
Smallmouth Bass	9/22/99	34.0	420	1.52	
Smallmouth Bass	9/22/99	29.0	288	1.62	
Smallmouth Bass	9/22/99	25.8	193	0.87	0.79
Smallmouth Bass	9/22/99	24.5	177	1.01	
Smallmouth Bass	9/22/99	23.0	160	0.90	
Smallmouth Bass	9/22/99	22.8	130	1.14	
Smallmouth Bass	9/22/99	22.0	122	0.91	
Smallmouth Bass	9/22/99	21.4	117	0.70	
Smallmouth Bass	9/22/99	21.2	114	0.71	
Average Total Mercury (ppm)				1.09	
Redbreast Sunfish	9/22/99	17.3	107	0.41	
Redbreast Sunfish	9/22/99	16.5	97	0.53	
Redbreast Sunfish	9/22/99	17.0	99	0.60	0.57
Redbreast Sunfish	9/22/99	16.3	94	0.42	
Redbreast Sunfish	9/22/99	16.4	88	0.54	
Redbreast Sunfish	9/22/99	15.3	74	0.51	
Redbreast Sunfish	9/22/99	16.0	87	0.51	
Redbreast Sunfish	9/22/99	16.0	77	0.51	
Redbreast Sunfish	9/22/99	15.5	70	0.64	
Redbreast Sunfish	9/22/99	15.5	74	0.50	
Average Total Mercury (ppm)				0.52	
White Sucker	9/22/99	48.0	1246	0.08	
White Sucker	9/22/99	43.8	999	0.07	
White Sucker	9/22/99	43.4	926	0.25	
White Sucker	9/22/99	39.2	708	0.37	0.31
White Sucker	9/22/99	40.0	763	0.05	
White Sucker	9/22/99	38.5	586	0.22	
White Sucker	9/22/99	36.7	546	0.06	
White Sucker	9/22/99	37.0	583	0.09	
White Sucker	9/22/99	37.0	540	0.09	
White Sucker	9/22/99	37.6	666	0.06	
Average Total Mercury (ppm)				0.13	

**SHENANDOAH RIVER MERCURY MONITORING (RESULTS)
RESULTS OF 1999 FISH TISSUE SAMPLING**

STATION 8 - SOUTH FORK SHENANDOAH RIVER AT TOWN OF SHENANDOAH (above dam)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/16/99	37.3	650	1.51	1.32
Smallmouth Bass	9/16/99	36.0	536	1.85	
Smallmouth Bass	9/16/99	27.2	246	0.87	
Smallmouth Bass	9/16/99	26.1	210	1.05	
Smallmouth Bass	9/16/99	23.5	165	0.63	
Smallmouth Bass	9/16/99	22.4	122	1.23	
Smallmouth Bass	9/16/99	23.6	168	0.78	
Smallmouth Bass	9/16/99	22.3	121	0.89	
Smallmouth Bass	9/16/99	20.2	91	0.75	
Smallmouth Bass	9/16/99	21.4	93	1.28	
Average Total Mercury (ppm)				1.08	
Redbreast Sunfish	9/16/99	19.8	155	1.00	
Redbreast Sunfish	9/16/99	20.4	142	0.87	
Redbreast Sunfish	9/16/99	18.0	117	0.96	
Redbreast Sunfish	9/16/99	16.2	91	0.69	
Redbreast Sunfish	9/16/99	16.5	96	0.52	
Redbreast Sunfish	9/16/99	17.3	100	0.51	
Redbreast Sunfish	9/16/99	14.4	54	0.43	
Redbreast Sunfish	9/16/99	16.9	91	0.59	
Redbreast Sunfish	9/16/99	20.7	168	1.03	0.95
Redbreast Sunfish	9/16/99	17.2	97	0.63	
Average Total Mercury (ppm)				0.72	
White Sucker	9/16/99	47.1	1214	1.09	0.82
White Sucker	9/16/99	44.3	1133	1.02	
White Sucker	9/16/99	53.3	1577	1.51	
White Sucker	9/16/99	47.3	1248	0.91	
White Sucker	9/16/99	52.5	1882	1.40	
White Sucker	9/16/99	34.8	491	0.49	
White Sucker	9/16/99	39.0	740	0.53	
White Sucker	9/16/99	41.8	843	0.49	
White Sucker	9/16/99	50.8	1554	1.25	
White Sucker	9/16/99	39.4	724	0.57	
Average Total Mercury (ppm)				0.93	
Largemouth Bass	9/16/99	25.5	182	0.88	
Largemouth Bass	9/16/99	38.3	720	1.71	1.56
Largemouth Bass	9/16/99	26.1	212	0.84	
Largemouth Bass	9/16/99	37.0	806	1.32	
Largemouth Bass	9/16/99	43.9	1312	1.02	
Largemouth Bass	9/16/99	36.5	647	1.50	
Largemouth Bass	9/16/99	39.3	870	1.64	
Largemouth Bass	9/16/99	46.7	1610	1.69	
Largemouth Bass	9/16/99	30.0	324	0.95	
Largemouth Bass	9/16/99	40.9	1002	1.43	
Average Total Mercury (ppm)				1.30	
Channel Catfish	7/14/99	36.8	410	0.49	
Channel Catfish	7/14/99	34.2	290	0.47	
Channel Catfish	7/14/99	43.5	740	0.38	
Channel Catfish	7/14/99	35.3	280	0.49	
Channel Catfish	7/14/99	62.5	2780	0.80	
Channel Catfish	7/14/99	48.0	1160	0.40	
Channel Catfish	7/14/99	67.0	3138	1.99	1.78
Channel Catfish	7/14/99	39.2	440	0.43	
Average Total Mercury (ppm)				0.68	

**SHENANDOAH RIVER MERCURY MONITORING RESULTS
RESULTS OF 1999 FISH TISSUE SAMPLING**

STATION 09 - SOUTH FORK SHENANDOAH RIVER AT NEWPORT LANDING (south of Alma, Rt. 340)

Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/13/99	32.0	417	1.60	1.32
Smallmouth Bass	9/13/99	27.0	235	1.30	
Smallmouth Bass	9/13/99	23.0	163	0.95	
Smallmouth Bass	9/13/99	27.0	242	1.30	1.16
Smallmouth Bass	9/13/99	22.5	165	0.83	
Smallmouth Bass	9/13/99	22.0	124	0.90	
Smallmouth Bass	9/13/99	22.5	144	1.20	
Smallmouth Bass	9/13/99	21.5	132	1.20	
Smallmouth Bass	9/13/99	21.5	128	0.81	
Smallmouth Bass	9/13/99	21.0	115	0.88	
Average Total Mercury (ppm)				1.10	

Redbreast Sunfish	9/13/99	20.0	164	0.86	
Redbreast Sunfish	9/13/99	17.2	113	0.50	
Redbreast Sunfish	9/13/99	17.5	101	0.66	
Redbreast Sunfish	9/13/99	20.0	151	0.88	1.16
Redbreast Sunfish	9/13/99	19.0	122	1.30	
Redbreast Sunfish	9/13/99	18.0	116	0.67	
Redbreast Sunfish	9/13/99	17.5	119	0.56	
Redbreast Sunfish	9/13/99	17.5	125	0.36	
Redbreast Sunfish	9/13/99	17.0	111	0.41	
Redbreast Sunfish	9/13/99	17.8	112	0.58	
Average Total Mercury (ppm)				0.68	

Redhorse Sucker	9/13/99	56.0	2284	0.92	
Redhorse Sucker	9/13/99	52.0	1817	0.84	
Redhorse Sucker	9/13/99	48.5	1484	0.91	
Redhorse Sucker	9/13/99	52.0	1645	0.87	0
Redhorse Sucker	9/13/99	47.0	1157	0.62	
Redhorse Sucker	9/13/99	45.5	1095	0.85	
Redhorse Sucker	9/13/99	45.5	983	0.72	
Redhorse Sucker	9/13/99	39.0	638	0.58	
Redhorse Sucker	9/13/99	37.5	636	0.52	
Redhorse Sucker	9/13/99	49.0	1437	0.83	0.44
Average Total Mercury (ppm)				0.77	

**SHENANDOAH RIVER MERCURY MONITORING RESULTS
RESULTS OF 1999 FISH TISSUE SAMPLING**

STATION 10 - SOUTH FORK SHENANDOAH RIVER - WHITE HOUSE LANDING (near Rt. 211 bridge)

Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/13/99	32.5	433	1.39	1.25
Smallmouth Bass	9/13/99	33.0	413	1.67	
Smallmouth Bass	9/13/99	29.5	284	1.61	
Smallmouth Bass	9/13/99	33.5	487	1.93	
Smallmouth Bass	9/13/99	27.5	229	1.54	
Smallmouth Bass	9/13/99	30.5	317	1.88	
Smallmouth Bass	9/13/99	26.5	224	1.68	
Smallmouth Bass	9/13/99	29.5	287	1.78	
Smallmouth Bass	9/13/99	23.5	165	1.73	
Smallmouth Bass	9/13/99	24.5	176	1.60	
Average Total Mercury (ppm)				1.68	

Redbreast Sunfish	9/13/99	18.0	116	0.84	
Redbreast Sunfish	9/13/99	18.0	125	0.54	
Redbreast Sunfish	9/13/99	17.5	128	0.78	
Redbreast Sunfish	9/13/99	18.5	126	0.79	
Redbreast Sunfish	9/13/99	17.5	107	0.75	
Redbreast Sunfish	9/13/99	17.0	103	0.78	
Redbreast Sunfish	9/13/99	17.5	111	0.74	
Redbreast Sunfish	9/13/99	17.0	92	1.36	
Redbreast Sunfish	9/13/99	17.0	87	0.88	
Redbreast Sunfish	9/13/99	14.5	59	1.27	1
Average Total Mercury (ppm)				0.87	

Channel Catfish	7/28/99	33.9	310	0.55	
Channel Catfish	7/28/99	29.6	300	0.59	
Channel Catfish	7/28/99	33.4	340	0.44	
Channel Catfish	7/28/99	50.4	1204	0.57	
Channel Catfish	7/28/99	60.6	2320	0.44	
Channel Catfish	7/28/99	31.9	310	0.61	
Channel Catfish	7/28/99	54.5	1900	0.56	
Channel Catfish	7/28/99	66.0	3050	0.79	
Channel Catfish	7/28/99	68.4	3860	2.15	1.98
Channel Catfish	7/28/99	42.2	720	0.47	
Average Total Mercury (ppm)				0.72	

Carp	7/29/99	72.5	5400	0.80	
Carp	7/29/99	76.0	9299	0.70	
Carp	7/29/99	79.5	9888	0.84	
Carp	7/29/99	77.0	7824	0.91	0.83
Carp	7/29/99	75.0	7598	0.80	
Carp	7/29/99	70.5	4620	0.79	
Carp	7/29/99	69.5	3810	0.60	
Carp	7/29/99	64.0	3510	0.88	
Carp	7/29/99	61.0	3200	0.58	
Carp	7/29/99	50.0	1680	0.18	
Average Total Mercury (ppm)				0.71	

**SHENANDOAH RIVER MERCURY MONITORING RESULTS
RESULTS OF 1999 FISH TISSUE SAMPLING**

STATION 11 - SOUTH FORK SHENANDOAH RIVER AT FOSTERS LANDING (vicinity of Rt. 684)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/15/99	30.0	497	1.59	
Smallmouth Bass	9/15/99	33.0	525	1.31	
Smallmouth Bass	9/15/99	26.0	269	1.28	
Smallmouth Bass	9/15/99	23.0	206	1.10	
Smallmouth Bass	9/15/99	25.0	252	1.07	
Smallmouth Bass	9/15/99	24.0	198	1.09	
Smallmouth Bass	9/15/99	23.0	106	1.25	
Smallmouth Bass	9/15/99	36.0	634	2.02	1.37
Smallmouth Bass	9/15/99	35.0	490	1.64	
Smallmouth Bass	9/15/99	37.0	601	1.97	
			Average Total Mercury (ppm)	1.43	
Redbreast Sunfish	9/15/99	17.0	124	1.51	
Redbreast Sunfish	9/15/99	22.0	243	0.95	
Redbreast Sunfish	9/15/99	22.0	200	1.10	
Redbreast Sunfish	9/15/99	22.0	248	1.38	0.93
Redbreast Sunfish	9/15/99	18.0	148	0.98	
Redbreast Sunfish	9/15/99	19.0	141	0.73	
Redbreast Sunfish	9/15/99	20.0	155	0.92	
Redbreast Sunfish	9/15/99	18.0	127	0.96	
Redbreast Sunfish	9/15/99	18.0	128	0.74	
Redbreast Sunfish	9/15/99	17.0	108	0.87	
			Average Total Mercury (ppm)	1.01	
Northern Hogsucker	9/15/99	28.0	291	0.72	
Northern Hogsucker	9/15/99	35.0	539	0.46	
Northern Hogsucker	9/15/99	29.0	302	0.64	
Northern Hogsucker	9/15/99	37.0	533	0.94	0.8
Northern Hogsucker	9/15/99	37.0	653	0.59	
Northern Hogsucker	9/15/99	35.0	513	0.52	
Northern Hogsucker	9/15/99	34.0	497	0.49	
Northern Hogsucker	9/15/99	38.0	701	0.57	
Northern Hogsucker	9/15/99	36.0	584	0.60	
Northern Hogsucker	9/15/99	32.0	372	0.64	
			Average Total Mercury (ppm)	0.62	

**SHENANDOAH RIVER MERCURY MONITORING RESULTS
RESULTS OF 1999 FISH TISSUE SAMPLING**

STATION 12 - SOUTH FORK SHENANDOAH RIVER AT BENTONVILLE (near Rt. 684 bridge)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/2/99	34.9	354	2.19	
Smallmouth Bass	9/2/99	32.6	462	1.52	1.55
Smallmouth Bass	9/2/99	29.2	331	1.32	
Smallmouth Bass	9/2/99	22.7	134	0.97	
Smallmouth Bass	9/2/99	21.2	114	1.15	
Smallmouth Bass	9/2/99	24.7	172	0.94	
Smallmouth Bass	9/2/99	34.1	501	1.38	
Smallmouth Bass	9/2/99	24.5	170	0.80	
Smallmouth Bass	9/2/99	23.5	161	0.88	
Smallmouth Bass	9/2/99	26.4	245	0.92	
Average Total Mercury (ppm)				1.21	
Redbreast Sunfish	9/2/99	20.5	179	1.05	0.86
Redbreast Sunfish	9/2/99	17.9	110	0.70	
Redbreast Sunfish	9/2/99	19.2	132	0.82	
Redbreast Sunfish	9/2/99	18.8	137	0.81	
Redbreast Sunfish	9/2/99	20.6	163	1.12	
Redbreast Sunfish	9/2/99	20.6	171	0.98	
Redbreast Sunfish	9/2/99	19.4	157	0.62	
Redbreast Sunfish	9/2/99	19.1	127	0.72	
Redbreast Sunfish	9/2/99	18.2	120	0.69	
Redbreast Sunfish	9/2/99	18.0	133	0.62	
Average Total Mercury (ppm)				0.81	
Northern Hogsucker	9/17/99	41.5	884	0.94	0.82
Northern Hogsucker	9/17/99	37.8	683	0.82	
Northern Hogsucker	9/17/99	37.4	652	0.53	
Northern Hogsucker	9/17/99	31.5	380	0.60	
Northern Hogsucker	9/17/99	36.2	546	0.40	
Northern Hogsucker	9/17/99	36.1	592	0.57	
Northern Hogsucker	9/17/99	39.1	727	0.78	
Northern Hogsucker	9/17/99	35.0	521	0.62	
Northern Hogsucker	9/17/99	30.7	338	0.46	
Northern Hogsucker	9/17/99	30.1	328	0.66	
Average Total Mercury (ppm)				0.64	

STATION 13 - SOUTH FORK SHENANDOAH RIVER AT KARO LANDING (near Gooney Run)

Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	9/23/99	33.7	515	1.66	
Smallmouth Bass	9/23/99	30.8	367	0.60	
Smallmouth Bass	9/23/99	23.2	164	0.93	
Smallmouth Bass	9/23/99	38.3	725	1.67	1.54
Smallmouth Bass	9/23/99	34.5	649	1.55	
Smallmouth Bass	9/23/99	28.0	268	1.32	
Smallmouth Bass	9/23/99	34.1	514	1.41	
Smallmouth Bass	9/23/99	30.2	346	0.94	
Smallmouth Bass	9/23/99	26.6	231	0.98	
Smallmouth Bass	9/23/99	24.2	176	1.00	
Average Total Mercury (ppm)				1.21	

Redbreast Sunfish	9/23/99	15.8	75	0.84	
Redbreast Sunfish	9/23/99	19.5	156	0.87	
Redbreast Sunfish	9/23/99	18.0	104	0.96	
Redbreast Sunfish	9/23/99	17.8	105	1.24	
Redbreast Sunfish	9/23/99	15.5	80	1.09	
Redbreast Sunfish	9/23/99	17.0	100	1.02	0.93
Redbreast Sunfish	9/23/99	17.8	128	0.79	
Redbreast Sunfish	9/23/99	19.7	152	1.44	
Redbreast Sunfish	9/23/99	19.5	133	0.89	
Redbreast Sunfish	9/23/99	18.3	137	0.78	
Average Total Mercury (ppm)				0.99	

Channel Catfish	7/22/99	64.2	3420	0.89	
Channel Catfish	7/22/99	69.4	4060	1.08	0.94
Channel Catfish	7/22/99	49.8	1400	0.45	
Channel Catfish	7/22/99	62.7	2530	0.40	
Channel Catfish	7/22/99	39.4	640	0.36	
Channel Catfish	7/22/99	54.8	1730	0.63	
Channel Catfish	7/22/99	51.7	1870	0.42	
Channel Catfish	7/22/99	46.7	1040	0.58	
Channel Catfish	7/22/99	40.9	690	0.42	
Channel Catfish	7/22/99	39.0	560	0.38	
Average Total Mercury (ppm)				0.56	

Largemouth Bass	9/23/99	36.3	721	0.83	
Largemouth Bass	9/23/99	35.0	640	1.08	
Largemouth Bass	9/23/99	36.4	709	1.13	
Largemouth Bass	9/23/99	35.2	558	0.76	
Largemouth Bass	9/23/99	29.8	410	0.51	
Largemouth Bass	9/23/99	32.9	505	0.97	0.73
Largemouth Bass	9/23/99	28.1	335	1.13	
Largemouth Bass	9/23/99	27.8	316	0.75	
Largemouth Bass	9/23/99	24.9	220	0.97	
Largemouth Bass	9/23/99	24.8	184	0.52	
Average Total Mercury (ppm)				0.87	

Northern Hogsucker	9/23/99	32.8	401	0.66	
Northern Hogsucker	9/23/99	35.3	522	0.46	
Northern Hogsucker	9/23/99	34.0	506	0.47	
Northern Hogsucker	9/23/99	31.9	384	0.58	0.52
Northern Hogsucker	9/23/99	30.8	333	0.50	
Northern Hogsucker	9/23/99	29.7	329	0.71	
Northern Hogsucker	9/23/99	29.2	290	0.60	
Northern Hogsucker	9/23/99	29.9	325	0.67	
Northern Hogsucker	9/23/99	30.0	296	0.64	
Northern Hogsucker	9/23/99	28.7	260	0.58	
Average Total Mercury (ppm)				0.59	

STATION 14 - SHENANDOAH RIVER AT BERRYVILLE (near Rt. 7 bridge)					
Species	DATE	Length (cm)	Weight (g)	Total Mercury (ppm)	Methyl Mercury (ppm)
Smallmouth Bass	10/6/99	29.8	341	0.78	
Smallmouth Bass	10/6/99	29.7	306	0.81	
Smallmouth Bass	10/6/99	38.3	651	1.00	0.89
Smallmouth Bass	10/6/99	30.5	382	0.48	
Smallmouth Bass	10/6/99	25.2	199	0.55	
Smallmouth Bass	10/6/99	30.8	352	0.65	
Smallmouth Bass	10/6/99	30.0	323	0.48	
Smallmouth Bass	10/6/99	30.5	337	0.56	
Smallmouth Bass	10/6/99	34.6	528	0.70	
Smallmouth Bass	10/6/99	25.4	218	0.35	
Average Total Mercury (ppm)				0.64	
Redbreast Sunfish	10/6/99	29.8	341	0.31	
Redbreast Sunfish	10/6/99	29.7	306	0.49	
Redbreast Sunfish	10/6/99	28.3	651	0.31	
Redbreast Sunfish	10/6/99	30.5	382	0.30	
Redbreast Sunfish	10/6/99	25.2	199	0.25	
Redbreast Sunfish	10/6/99	30.8	352	0.28	
Redbreast Sunfish	10/6/99	30.0	323	0.34	
Redbreast Sunfish	10/6/99	30.5	337	0.55	0.45
Redbreast Sunfish	10/6/99	34.6	528	0.40	
Redbreast Sunfish	10/6/99	25.4	218	0.28	
Average Total Mercury (ppm)				0.35	
White Sucker	10/6/99	40.8	821	0.39	0.29
White Sucker	10/6/99	36.9	563	0.27	
White Sucker	10/6/99	38.3	613	0.30	
White Sucker	10/6/99	35.9	511	0.24	
White Sucker	10/6/99	39.0	604	0.22	
White Sucker	10/6/99	41.3	798	0.22	
White Sucker	10/6/99	30.8	267	0.22	
White Sucker	10/6/99	37.7	540	0.28	
White Sucker	10/6/99	37.6	593	0.27	
White Sucker	10/6/99	29.9	269	0.10	
Average Total Mercury (ppm)				0.25	