

Shenandoah River Mercury Monitoring 2001 Fish Tissue Update

In March 2001, the Virginia Department of Health revised the fish consumption advisory for mercury in the Shenandoah River basin. New scientific data on potential health effects of mercury contamination prompted this change. Actual mercury levels in fish have shown little change in recent years.

Details of the current mercury advisory for the Shenandoah River basin can be found on the Health Department web site at:

www.vdh.state.va.us/HHControl/fishing_advisories.htm

Based on DEQ's most recent fish tissue data from the South River and the Shenandoah River (1999 collections) there appeared to be "transition" areas where further sampling was warranted to better define levels of contamination. In particular, the 5-mile stretch of South River between Constitution Park in Waynesboro and the next site downstream (Dooms, Va.) had fish tissue mercury levels generally below 0.5 parts per million at the upstream end, but above 2.0 ppm in its downstream reaches. Also, no data were available for a 43-mile section of river between the two most downstream stations in the Shenandoah River study area. Therefore, DEQ conducted a special sampling effort within these two stretches of river in late spring 2001.

Results of the spring 2001 sampling for fish of sizes typically harvested by fishermen are provided in the tables that follow. Levels at the new sample location in South River (Hopeman Parkway, Waynesboro) appear to be similar to those previously found 2.5 miles downstream, near the community of Dooms. Fish collected at two new sample stations in the Shenandoah River (Route 624 bridge below Warren Power Dam and Route 17/50 bridge) had mercury levels similar to those found at the farthest downstream sample site (Route 7 bridge at Berryville).

South River at Ridgeview Park, Waynesboro (upstream control site) 1BSTH026.12						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	04/26/01	25.8	10.2	241	BVW	0.19
Smallmouth Bass	04/26/01	29.6	11.7	364	BVW	0.40
Smallmouth Bass	04/26/01	25.7	10.1	207	BVW	0.30
Smallmouth Bass	04/26/01	29.8	11.7	358	BVW	0.30
Smallmouth Bass	04/26/01	27.1	10.7	274	BVW	0.23
Smallmouth Bass	04/26/01	31.6	12.4	387	BVW	0.55
Smallmouth Bass	04/26/01	27.5	10.8	268	BVW	0.34
Smallmouth Bass	04/26/01	22.9	9.0	166	BVW	0.18
Smallmouth Bass	04/26/01	25.7	10.1	220	BVW	0.31
Smallmouth Bass	04/26/01	27.1	10.7	266	BVW	0.24
Average for Smallmouth Bass						0.30

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South River at Constitution Park, Waynesboro 1BSTH025.10						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	04/27/01	22.2	8.7	152	BVW	0.34
Smallmouth Bass	04/27/01	27	10.6	292	BVW	0.58
Smallmouth Bass	04/27/01	24.5	9.6	213	BVW	0.58
Smallmouth Bass	04/27/01	37.7	14.8	607	BVW	1.10
Smallmouth Bass	04/27/01	28.4	11.2	335	BVW	0.98
Smallmouth Bass	04/27/01	21.5	8.5	142	BVW	0.46
Smallmouth Bass	04/27/01	36.5	14.4	665	BVW	1.11
Smallmouth Bass	04/27/01	22.5	8.9	167	BVW	0.61
Smallmouth Bass	04/27/01	15.9	6.3	52	BVW	0.38
Smallmouth Bass	04/27/01	17.3	6.8	68	BVW	0.21
Average for Smallmouth Bass						0.64

South River at Hopeman Parkway 1BSTH022.75						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	04/26/01	27.5	10.8	308	BVW	1.18
Smallmouth Bass	04/26/01	24.7	9.7	181	BVW	1.89
Smallmouth Bass	04/26/01	23.8	9.4	175	BVW	2.81
Smallmouth Bass	04/26/01	22.7	8.9	164	BVW	2.17
Smallmouth Bass	04/26/01	29.1	11.5	352	BVW	1.72
Smallmouth Bass	04/26/01	24	9.4	211	BVW	1.27
Smallmouth Bass	04/26/01	19	7.5	106	BVW	1.45
Smallmouth Bass	04/26/01	17.9	7.0	78	BVW	1.39
Smallmouth Bass	04/26/01	25.1	9.9	217	BVW	1.78
Smallmouth Bass	04/26/01	21	8.3	122	BVW	1.1
Average for Smallmouth Bass						1.68
Largemouth Bass	04/26/01	35.9	14.1	814	BVW	1.66
Largemouth Bass	04/26/01	39	15.4	1077	BVW	1.96
Largemouth Bass	04/26/01	31.5	12.4	476	BVW	1.74
Largemouth Bass	04/26/01	21.2	8.3	146	BVW	1.10
Largemouth Bass	04/26/01	28.2	11.1	348	BVW	1.91
Average for Largemouth Bass						1.67

Shenandoah River below Warren Power Dam (Rt. 624 bridge) 1BSHN047.98						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	05/11/01	35	13.8	520	BVW	0.78
Smallmouth Bass	05/11/01	38.4	15.1	665	BVW	0.91
Smallmouth Bass	05/11/01	44.1	17.4	1088	BVW	0.88
Smallmouth Bass	05/11/01	39.6	15.6	718	BVW	1.03
Smallmouth Bass	05/11/01	29.3	11.5	273	BVW	0.81
Smallmouth Bass	05/11/01	32.1	12.6	347	BVW	0.99
Smallmouth Bass	05/11/01	25.7	10.1	160	BVW	0.4
Smallmouth Bass	05/11/01	16	6.3	47	BVW	0.28
Smallmouth Bass	05/11/01	21	8.3	110	BVW	0.67
Smallmouth Bass	05/11/01	25.9	10.2	210	BVW	0.67
Average for Smallmouth Bass						0.74

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Shenandoah River at Rt. 17/50 1BSHN038.48						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	05/04/01	46.4	18.3	1320	BVW	0.81
Smallmouth Bass	05/04/01	46	18.1	1198	BVW	0.82
Smallmouth Bass	05/04/01	36.8	14.5	528	BVW	0.88
Smallmouth Bass	05/04/01	31.6	12.4	421	BVW	0.56
Smallmouth Bass	05/04/01	35	13.8	483	BVW	0.78
Smallmouth Bass	05/04/01	35	13.8	508	BVW	0.92
Smallmouth Bass	05/04/01	28.5	11.2	292	BVW	0.62
Smallmouth Bass	05/04/01	38.1	15.0	641	BVW	1.10
Smallmouth Bass	05/04/01	27	10.6	233	BVW	0.63
Smallmouth Bass	05/04/01	33.6	13.2	373	BVW	0.88
Average Smallmouth Bass						0.80
Largemouth Bass	05/04/01	46	18.1	1632	BVW	0.93
Largemouth Bass	05/04/01	43	16.9	1335	BVW	0.88
Largemouth Bass	05/04/01	46	18.1	1443	BVW	0.80
Largemouth Bass	05/04/01	38.4	15.1	838	BVW	0.54
Largemouth Bass	05/04/01	40.1	15.8	1014	BVW	0.68
Largemouth Bass	05/04/01	37.8	14.9	743	BVW	0.53
Largemouth Bass	05/04/01	38.1	15.0	968	BVW	0.46
Largemouth Bass	05/04/01	32.8	12.9	523	BVW	0.49
Largemouth Bass	05/04/01	30	11.8	400	BVW	0.42
Largemouth Bass	05/04/01	25.9	10.2	235	BVW	0.42
Average Largemouth Bass						0.62

Shenandoah River at Berryville (near Rt. 7 bridge) 1BSHN022.63						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	05/02/01	28.5	11.2	301	LMC	0.69
Smallmouth Bass	05/02/01	27.4	10.8	290	LMC	0.68
Smallmouth Bass	05/02/01	28	11.0	320	LMC	0.63
Smallmouth Bass	05/02/01	27.2	10.7	268	LMC	0.81
Smallmouth Bass	05/02/01	25	9.8	187	LMC	0.69
Smallmouth Bass	05/02/01	31.1	12.2	589	LMC	1.03
Smallmouth Bass	05/02/01	30.6	12.0	385	LMC	0.85
Smallmouth Bass	05/02/01	33	13.0	457	LMC	0.75
Smallmouth Bass	05/02/01	27	10.6	261	LMC	0.69
Smallmouth Bass	05/02/01	30	11.8	332	LMC	0.74
Average Smallmouth Bass						0.76

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Fish listed in the tables below are smaller than those typically harvested by anglers, so are presented separately. These samples are used primarily for comparisons to historic data from fish of similar sizes.

South River at Ridgeview Park, Waynesboro (upstream control site) 1BSTH026.12						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	04/26/01	19.1	7.5	112	BVW	0.13
Smallmouth Bass	04/26/01	16.4	6.5	53	BVW	0.12
Smallmouth Bass	04/26/01	14.6	5.7	37	BVW	0.10
Smallmouth Bass	04/26/01	17.7	7.0	76	BVW	0.11
Smallmouth Bass	04/26/01	22.6	8.9	170	BVW	0.17

South River at Constitution Park, Waynesboro 1BSTH025.10						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	04/27/01	15.9	6.3	57	BVW	0.24
Smallmouth Bass	04/27/01	15.7	6.2	47	BVW	0.23
Smallmouth Bass	04/27/01	15.7	6.2	43	BVW	0.19
Smallmouth Bass	04/27/01	15.3	6.0	39	BVW	0.22
Smallmouth Bass	04/27/01	14.7	5.8	39	BVW	0.27

Shenandoah River at Berryville (near Rt. 7 bridge) 1BSHN022.63						
Species	Sample Date	Length (cm)	Length (in)	Weight (g)	Collector	Total mercury (ppm)
Smallmouth Bass	05/02/01	15.6	6.1	45	LMC	0.35
Smallmouth Bass	05/02/01	16.6	6.5	54	LMC	0.18
Smallmouth Bass	05/02/01	15	5.9	42	LMC	0.17
Smallmouth Bass	05/02/01	15	5.9	39	LMC	0.40
Smallmouth Bass	05/02/01	18.4	7.2	72	LMC	0.42

November 30, 2001