

2005 Fish Tissue Monitoring – South River Mercury
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Since mercury contamination was discovered in the South River system in the mid 1970s, fish have been collected regularly to determine the risk of human consumption. Samples were collected by DEQ in the initial characterization of the problem every year from 1977 to 1981. After the 100-year monitoring program was developed, AMRL collected fish in 1992, 1994, and 1996. DEQ and DGIF continued collecting fish in 1999 and 2002.

Until 1999, collections were targeted to trophic levels rather than individual species. One collection event could include ten fish of any species within a trophic group. Because of this, earlier data are inconsistent in sample size for each species. In 1999, we switched to a design targeting individual species.

We are proposing to sample the same sites sampled in 2002. The sampling will include the collection of samples from 17 sites on the South River, North River, South Fork Shenandoah River and main-stem Shenandoah River. Sampling will take place during spring 2005. At each location 10 fish from each of 3 trophic groups will be collected, as follows:

- Predators – smallmouth bass will be the target species, with largemouth bass as the alternate.
- Foragers – redbreast sunfish will be the target species, with rock bass as the alternate.
- Bottom Feeders – white suckers will be the target species, with carp as the alternate.

Target and alternate species will not be mixed for samples of a trophic group at each site.

Additional smallmouth bass (10 individuals each season) will be collected from Grottoes (STH004.21) in the summer and the fall to determine seasonal variation in mercury.

Channel catfish (10 individuals per site) will be collected from the following locations:

- SSF078.24 (Shenandoah, VA)
- SSF054.20 (White House Landing)
- SSF010.18 (Karo Landing)
- SHN038.48 (Rt. 17/50 Landing)

Trout (10 individuals per site) will be collected from the South River at designated stocking locations in Waynesboro and Grottoes. In addition, ten individuals will be collected from the fish hatchery prior to stocking and ten individuals that are marked holdovers from the previous year's stocking will be collected from Waynesboro.

Table B1.1 – Sampling sites and collection goals.

Station	Trophic Groups	Seasonal Smallmouth	Channel Catfish	Trout
STH026.12	30			
STH025.10	30			20
STH023.73	30			
STH022.75	30			
STH020.44	30			
STH014.49	30			
STH004.21	30	20		10
NTH004.10	30			
SSF100.10	30			
SSF078.24	30		10	
SSF063.17	30			
SSF054.20	30		10	
SSF037.60	30			
SSF020.70	30			
SSF010.18	30		10	
SHN038.48	30		10	
SHN022.63	30			
Hatchery				10
Total	510	20	40	40

Total sample numbers to be analyzed are 610 samples for total mercury, and 61 samples (one for each species at each site) for methyl mercury.