



People, Mercury, and the River

Mercury in fish in Virginia's South River and South Fork Shenandoah River has been investigated since its discovery in the 1970s. Mercury is a neurotoxin, meaning it may have harmful effects on the human nervous system and, hence, it may pose a risk to people who are exposed to it in the environment. While the most common potential route of exposure is from eating contaminated fish, other routes of exposure are also possible.

Though human exposure always has been a focus of mercury investigations, the South River Science Team formed a dedicated work group to systematically identify, study, and communicate potential risks and uncertainties associated with human exposure to mercury. This Fact Sheet summarizes what researchers on the Science Team have learned and plans to further understand potential exposure to mercury in these rivers.

Fish Consumption

The risks associated with eating mercury-contaminated fish have been studied extensively in many locations around the world. As a neurotoxin, mercury is particularly harmful to young children and pregnant women.



Eating the fish you catch is safe as long as you follow the advisories.

Fish consumption advisories have been in place on the South River for more than three decades. The Virginia Department of Health's current advisory on the South River recommends that people eat only trout (no other fish) caught in the South River between Waynesboro and Port Republic. Trout are safe to eat because they are stocked as adults and do not live in the river long enough to build up significant amounts of mercury. The fish consumption advisories are listed in the next column.

Signs outlining these consumption advisories are posted in English and Spanish at all public access points along these rivers. Additional information is available at local health clinics and on the Virginia Department of Health's web site [here](#).

South River: *Fish caught in these waters may contain mercury. Mercury may be hazardous to your health. No fish other than trout should be eaten from these waters. Stocked trout have been tested and are safe to eat.*

South Fork Shenandoah River: *Fish caught in these waters may contain mercury, which may be hazardous to your health. No more than two meals (1/2 pound each or the size of your hand) of fish per month should be eaten from these waters. Women who are pregnant or may become pregnant, nursing mothers, and young children should not eat fish from these waters.*

Users of the rivers should follow these advisories.

River Recreation

Swimming, boating, and wading in any natural water body poses some risk, generally from possible bacterial contamination. But the mercury levels in the South River and South Fork Shenandoah River do not pose a significant health concern to people participating in these recreational activities.



People enjoy many forms of recreation on the South River and the South Fork Shenandoah River.

Drinking Water

The U.S. Environmental Protection Agency (USEPA) has established a maximum contaminant level of mercury in water that is considered safe for drinking. With the exception of a few groundwater monitoring wells located on the former DuPont plant site, mercury concentrations in the rivers as well as the groundwater in the area are below this level. In fact, mercury concentrations in these rivers are well below the safe drinking water level, seldom reaching even 1% of the level.

Floodplain Soil

Periodic flooding has deposited mercury in South River floodplain soil, so the Science Team has been sampling and studying floodplain soil extensively. In general, the Science Team has found that the vast majority of samples have low levels of mercury. These low levels are below the USEPA level that is considered safe for people (including children) who routinely have contact with the soil. Higher levels of mercury were measured at a limited number of sample locations. The majority of these sample locations were from forested, agricultural, or commercial/industrial areas where direct human contact is expected to be infrequent, and potential risks to humans are expected to be limited to nonexistent. A few samples with higher levels of mercury were obtained from areas where more frequent contact might be expected. These areas will be revisited to determine the current uses of the properties and to determine if additional soil samples should be obtained to further define the extent of elevated mercury levels.



The Science Team used a hand auger (see photo inset) to collect floodplain soil samples.

Floodplain Crops

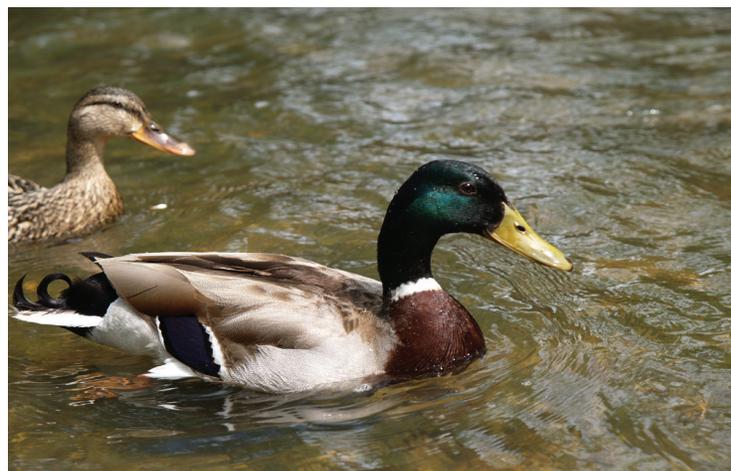
Scientific literature has shown that mercury in soil does not usually find its way into food crops. To validate these findings, the Science Team planted and harvested 17 garden crops over two growing seasons on the South River floodplain in Crimora, Virginia. The results show that mercury in edible crops is not a significant route of exposure to people.

Mercury in the Air

Mercury can be present in air as it escapes from soil and as emissions from burning fossil fuels. The Science Team performed an outdoor air study in 2005 and 2006 to determine whether mercury levels were higher than normal background levels in the vicinity of the South River and its floodplain. All measured concentrations were comparable to global background levels, meaning that the amount of mercury in the air is similar to what is normally found on Earth in places that do not have a local mercury pollution problem.

Livestock on the Floodplain

Shortly after mercury was discovered on the floodplain in the 1970s, samples from edible portions of a limited number of cattle that grazed in the area were analyzed for mercury. No mercury was found. Sampling was limited in the study, so additional investigation may be needed to confirm these findings.



The Science Team is performing studies on waterfowl.

Floodplain Wildlife

Much less is known about mercury concentrations in wildlife than in fish from the South River. Mercury contamination may be a concern for the wildlife itself, as well as for people who eat wild game. The Science Team has begun sampling wildlife and waterfowl.

Additional Information

Working with the Department of Health, the Science Team will complete a survey in South River health clinics to determine how well the fish consumption advisories have reached communities. Local health clinics and private physicians along the South River have been informed about mercury contamination in fish and asked to report any signs and symptoms that could be associated with eating fish contaminated with mercury. To date, the Virginia Department of Health has received no such reports.

Contacts

For more information about the potential for human exposure, contact:

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