

## Keeping Tabs on Mercury

*It's time for the United States to set up a surveillance program modeled on lead*

By **Larry Schweiger**

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When scientist David Evers of the Biodiversity Research Institute in Gorham, Maine, saw the latest data on mercury from Vermont's Green Mountains, he was amazed. The data showed for the first time that insect-eating forest song birds were contaminated with mercury. The highest mercury concentrations were in Bicknell's thrush, the species ranked as the highest conservation priority in the Northeast. Believing he had found the "canary in the coal mine" of a broader mercury problem, Evers launched a four-year monitoring project with colleagues in Vermont and Canada. Their disturbing findings were published in the April issue of *Ecotoxicology*<sup>1</sup>: The measured mercury levels in forest songbirds were high enough to potentially interfere with their reproduction.

Mercury has long been known to be a threat to human health and the environment, but here was research showing the threat to be even broader. Evers and his colleagues published another paper that for the first time identified nine "biological hot spots" in northeastern North America, where harmful levels of mercury were found in several species, including loons, eagles, mink, and otter.<sup>2</sup> The hot spots were often located far away from industrial sources, including coal-burning power companies, indicating that emissions can both travel long distances and have a significant impact on a range of wildlife species.

What does all this mean for people? A high body burden of mercury is already borne by women and children, who are most susceptible to its effects. According to data collected by the Centers for Disease Control and Prevention (CDC) in 1999 and 2000, nearly one in six US women of childbearing age has unsafe levels of mercury in her body. Mercury affects the brain and central nervous system, can delay development of fine motor skills, and lead to poor verbal memory and lower IQ. Forty-six states warn pregnant women and young children to limit consumption of locally caught fish.

As happened with the discovery of lead in our environment and its widespread impact on the development of generations of children, we likely will remain in the dark about the full effect mercury is having on our children until we look harder. Although a national lead-poisoning surveillance program to identify at-risk children has existed in the United States for many years, no similar systematic monitoring for mercury exists at either the local, state, or national level.

The time is ripe for such action. Scientists have recently called for the development of a national network to monitor systematically the mercury levels in our air, water, aquatic life, and wildlife to better determine the current trends and how well our existing policies are working.<sup>3</sup> The proposed framework envisions monitoring at "cluster sites" scattered throughout approximately 10 ecoregions in the United States, where mercury levels in air, wet deposition, sediments, surface water, forage, and predator fish and wildlife would be measured. More intensive measurements would be obtained at a smaller number of intensive sites, which would help address questions regarding the mechanisms of mercury transport (including bioaccumulation in food webs).

In addition, we clearly need more information on human exposures to mercury in the United States and how it varies among different subpopulations. While some individual research efforts have explored this question in a limited way, we need an expansion of mercury biomonitoring in the CDC's National Health and Nutrition Examination Survey to provide more data on subpopulations at higher risk of elevated mercury exposures (including subsistence fishers, recreational anglers and their families, and others who for other reasons eat more fish).

But we shouldn't wait for all the answers – we know mercury is having an effect. Based on the successful reduction of mercury

emissions from waste incineration sectors over the past decade, the current availability of effective technologies and the continuing widespread mercury fish consumption advisories throughout the United States, we believe that requiring coal-fired power plants (the largest uncontrolled source of mercury in the United States) to control 90% of their mercury emissions is essential to accelerate progress toward making our fish safe to eat. The canary in the coal mine may still be singing, but if we continue to contaminate our nation's air and water with mercury, humans and wildlife, including the canary, will have a far more difficult path in the future.

**Larry Schweiger is president and CEO of the National Wildlife Federation, which has a program on mercury issues.**

### **References**

1. C Rimmer et al, "Mercury levels in Bicknell's thrush and other insectivorous passerine birds in montane forests of the northeastern U.S. and Canada," *Ecotoxicol* 2005, 14: 223-40. [ [Publisher Full Text](#) ]
2. DC Evers *Mercury Connections: The Extent and Effects of Mercury Pollution in Northeastern North America, Gorham, Maine: BioDiversity Research Institute* 2005, 19.
3. RF Mason et al, "Monitoring the response to changing mercury deposition," *Environ Sci Technol* 2005, 39: 16A-22A.