

US: Government study finds widespread mercury contamination

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Mercury is polluting streams across the country with alarming frequency, according to a study published last month by US Geological Survey. More than two-thirds of fish samples in nearly 300 water bodies exceeded levels of concern for the environment, and a quarter exceeded levels safe for human consumption. Every single fish sampled was contaminated with some level of mercury.

Widespread mercury in the environment is not new. In fact, 48 states have mercury fish advisories in place, warning residents to avoid consuming local fish. Nonetheless, the study helps scientists gain a more complete picture of the extent of mercury pollution.

According to USGS Scientist Barbara Scudder, “This study improves our understanding of where mercury ends up in fish in freshwater streams. The findings are critical for decision-makers to effectively manage mercury sources and to better anticipate concentrations of mercury and methylmercury in unstudied streams in comparable environmental settings.”

Methylmercury is the most significant mercury pollutant because of its propensity to accumulate in animal tissue and its severe impacts on human health. A USGS fact sheet sums up these threats: “It affects the immune system, alters genetic and enzyme systems, and damages the nervous system, including coordination and the senses of touch, taste, and sight. Methylmercury is particularly damaging to developing embryos, which are five to ten times more sensitive than adults.”

Broad layers of the population are exposed to dangerous levels of methylmercury, especially in the critical years of early development. The National Research Council estimated in a 2000 study that each year over 60,000 children are born at risk for adverse

neurological development due to mercury exposure. Another study by the Centers for Disease Control showed that 8 percent of women of childbearing age had mercury concentrations in the blood and hair exceeding the level considered safe by the federal government.

Human exposure to methylmercury comes primarily through ingestion of fish. Concentrations accumulate in fish faster than their bodies are able to eliminate methylmercury, leading to a magnification of contamination in species at the top of the aquatic food chain. Once eaten by humans, methylmercury is readily absorbed from the digestive tract and enters the blood stream, with potentially severe consequences. However protecting human health it is not simply a matter of avoiding fish consumption. Fish provide essential proteins and fatty acids not readily found elsewhere.

Methylmercury is typically not emitted into the environment directly. Rather, elemental mercury is emitted to the air, is deposited in soils or waterways and is subsequently converted by microbes into methylmercury. The elemental mercury emissions come mostly from anthropogenic sources, though some natural sources such as volcanic activity play a role. Researchers estimate that mercury levels in the atmosphere are three to six times the pre-industrial level.

In the US, coal combustion in power plants and industrial boilers account for the bulk of human-induced emissions. Other sources, including incineration of medical waste and other mercury-containing products, make a lesser though still meaningful contribution.

Many of the major emitters of mercury have exerted their influence to escape meaningful nationwide regulation for decades, despite the passage of the Clean

Air Act Amendments in 1990, which imposed mercury regulations. Cement kilns, coal-fired power plants and other sources continue to emit approximately 115 tons of mercury each year. Although new federal regulation is on the horizon for cement kilns and power plants, it is uncertain whether widespread human exposure to mercury will decline.

Andy O'Hare of the Portland Cement Association, in his comments on the proposed rules for cement kilns, pointed to some potential unintended consequences of national regulation. According to Reed Business Information, he stated, "If this rule is adopted, domestic cement supply will be constrained and investments in cement capacity expansion avoided.... Pushing cement production to other countries would 'OPEC' the industry and make the US dependent on cement imports. In addition, because these countries have fewer regulations global emissions of mercury and carbon dioxide could actually increase."

This claim, though overstated and self-serving given that the cost of the technology in some cases is quite small compared to the cost of pollution control equipment already used, nonetheless points to the inability to protect the environment solely on a national basis.

Cuts in US emissions alone would not necessarily reduce exposure of Americans to mercury. Mercury pollution can be carried large distances in the atmosphere. One study has determined that mercury can travel 2500 kilometers in the atmosphere prior to deposition.

The US Environmental Protection Agency estimates that over half of the mercury deposited in the US originates elsewhere. Ocean currents can also transport mercury long distances after deposition. To make matters worse, soil and water surfaces can re-emit mercury, greatly enhancing the residence time in the environment.

Furthermore, world trade in fish has grown rapidly in the past 30 years, increasing more than sevenfold from 1976 to 2002. China has emerged as the largest single exporter of fish products. A significant and growing portion of fish consumed domestically is caught elsewhere.

These issues highlight the necessity of coordinated global action to address environmental issues. But the need for such coordination is stymied by the division of

the world into rival nation-states, increasingly at odds with each other as a result of the economic crisis. National ruling elites around the world are jealously guarding any competitive advantage, even if it means poisoning masses of people.

Relatively cheap technology is now available to greatly reduce mercury pollution. A Government Accountability Office study of 14 coal-fired plants found that, on average, end-of-pipe technology could reduce 90 percent of mercury emissions at a cost of 0.12 cents per kilowatt hour, equivalent to less than a dollar a month on a typical consumer's electricity bill. Even larger reductions can be achieved by switching to materials and fuels that don't contain mercury, for example switching from coal-based power generation to alternative sources.

However what would seem completely rational measures to protect humanity from a devastating poison remain elusive under a capitalist system that subjugates all else to the accumulation of profit.



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