

Northeast Regional Mercury TMDL

Fact Sheet
October 2007

What is the Northeast Regional Mercury TMDL?

The Northeast Regional Mercury TMDL is a plan to reduce mercury concentrations in fish so that water quality standards can be met. The plan covers the states of Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont and was developed in cooperation with the New England Interstate Water Pollution Control Commission (NEIWPCC).

What is a TMDL?

A TMDL, or total maximum daily load, is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet its water quality standards, and an allocation of that amount to the pollutant's sources. Section 303(d) of the Federal Clean Water Act requires that states develop lists of impaired waters, i.e., waters that are not meeting water quality standards, and develop TMDLs for these waters.

Why is mercury a concern?

Mercury is a potent neurotoxin that poses risks to human health. Exposure to this toxic metal occurs when humans consume fish that contain mercury's most toxic form, methylmercury. The majority of mercury in the environment is released into the air; it reaches waterbodies through atmospheric deposition. Mercury's health effects are primarily neurological, and developing fetuses are at the greatest risk. The U.S. EPA estimates that more than 300,000 newborns each year may have an increased risk of learning disabilities associated with in utero exposure to methylmercury.

Statewide Fish Consumption Advisories and Impaired Waters

To protect their populations from the harmful effects of mercury, states issue fish consumption advisories that provide information on the types and quantities of fish that can be safely consumed. Based on statewide advisories and



monitoring data, 10,192 lakes, ponds, and reservoirs, 46,199 river miles, and an additional 24 river segments are listed as impaired primarily due to atmospheric deposition of mercury. All of these waters, as well as any waters found to be impaired primarily by atmospheric deposition of mercury in the future, are covered by this TMDL.

Sources of Mercury to the Region

Atmospheric deposition of mercury originates from both natural and anthropogenic sources. Natural sources of mercury include volcanoes, forest fires, and geologic deposits. Anthropogenic sources include coal-fired power plants, municipal waste combustors, sewage sludge incinerators, and residential heating. Based on recent research, this TMDL attributes 75 percent of mercury deposition in the region to anthropogenic sources. Although the vast majority of mercury in Northeast waterbodies is due to atmospheric deposition, about 2 percent comes from wastewater effluent. The sources of mercury in wastewater include dental amalgam and household use of mercury-containing products.

Regional TMDL Goals and Necessary Reductions

The baseline year for the TMDL was set at 1998 to correspond with regional atmospheric deposition modeling and initial regional work to eliminate mercury releases to the environment. Using a regional dataset, the existing mercury concentration in fish was calculated as the 90th percentile for a standard length (32 cm) smallmouth bass. The target fish concentration corresponds with the EPA methylmercury fish tissue criterion of 0.3 ppm for Massachusetts, New Hampshire, New York, Rhode Island, and Vermont, whereas Connecticut and Maine use more stringent criteria of 0.1 ppm and 0.2 ppm, respectively. Existing fish tissue concentrations must be reduced by 74 to 91 percent to achieve the target concentrations.

New England Interstate Water Pollution Control Commission, Boott Mills South, 116 John Street, Lowell, MA 01852
978-323-7929(p); 978-323-7919(f); www.neiwpcc.org

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Implementation of the TMDL will be carried out in three phases. Phase I, from 1998 to 2003, has a goal of 50 percent reduction from the 1998 baseline and Phase II, from 2003 to 2010, has a goal of 75 percent reduction. In 2010, mercury emissions, deposition, and fish tissue concentration data will be re-evaluated in order to assess progress and set a timeline and goal for Phase III to make remaining necessary reductions to meet water quality standards.

Northeast Regional Commitment to Reducing Regional Sources of Mercury

The Northeast states are committed to reducing all in-state sources of mercury. As a result, regional mercury emissions have decreased by approximately 70 percent between 1998 and 2002. This reduction was achieved primarily through stringent emission limits on municipal waste combustors and medical waste incinerators.

The Northeast states are continuing to make reductions through implementation of legislation to address sale and disposal of mercury-containing products, installation of dental amalgam separators, and emissions controls on coal-fired utilities.

Adaptive Implementation of TMDL

Because the TMDL calculations conclude that substantial reductions in anthropogenic emissions are needed to eliminate fish consumption advisories, atmospheric deposition reductions will be implemented in an adaptive fashion. However, given that at least 90 percent control on out-of-region coal-fired power plants is achievable and cost-effective, this TMDL calls for this level of control as the minimum initial first stage of out-of-region implementation. In-region reductions will continue as a result of comprehensive mercury product legislation now in effect in all Northeast states, air emissions limits that control 90 to 95 percent of mercury emissions, as well as requirements for dental amalgam separators. As reductions occur, fish tissue data will be collected to monitor the fish tissue response to reductions in atmospheric deposition. If target fish concentrations are reached prior to current calculated necessary reductions, atmospheric deposition reduction goals will be modified accordingly.

For more information about the Northeast Regional Mercury TMDL, contact Beth Card, NEIWPCC at (978) 323-7929 or bcard@neiwpcc.org. The TMDL is available online at www.neiwpcc.org/mercury.