Toxic Pollutants Found in Connecticut River Fish Tissue

Mercury, PCBs, DDT, and Dioxins

The Connecticut River Fish Tissue Contaminant Study found evidence of mercury, PCBs, DDT, and dioxins. Mercury is a highly toxic poison that attacks the brain and central nervous system of both humans and wildlife. PCBs, DDT, and dioxin can cause cancer and other health problems. Dioxins, DDT, and PCBs break down very slowly in the environment and, like mercury, bio-accumulate in food chains.

Mercury

Mercury in the Connecticut River watershed arrives largely from the atmosphere, carried on prevailing winds from Midwest power plants and other coal-burning industries. There are also local sources of mercury, such as old landfills that leach contaminants to surface waters, trash incinerators that burn items containing mercury that people have discarded in the trash instead of taking them to a household hazardous waste collection, and the burning of fossil fuels like coal and oil.

A single drop of methylmercury[1] on a human hand can be fatal. A single drop in a large lake can make all the fish in it unsafe to eat. Trace amounts of mercury can damage a brain as it grows – that's why unborn children, babies, and young children are at most risk. Mercury may affect behavior and how well children learn, think, and solve problems later in life. Mercury in larger amounts can also harm older children and adults, causing troubles with coordination, vision, and speech.

The good news is that strong action by a consortium of the New England states and eastern Canadian provinces has resulted in a reduction of over 60 percent in mercury emissions within the region since 1998, when 47 percent of the mercury deposited in the Northeast came from human sources within the region. In New Hampshire, requirements for emission controls on municipal trash combustors are now three times more stringent than the federal standard. As a result, emissions from those incinerators, including Claremont's, have dropped 95 percent. The New England states' regulations controlling emissions from medical waste incinerators are 10 times more stringent than federal regulations and have resulted in a 99 percent drop in mercury emissions. The consortium's next goal is a 75 percent reduction in mercury deposition from regional sources by 2010. Reducing atmospheric mercury originating from Midwest smokestacks will require action at the federal level, through new legislation and enforcement of laws already on the books.

PCBs, DDT, and Dioxins

There are no known current sources of PCBs or DDT to the Connecticut River, so contaminants in the fish result from past pollution in the watershed. Use of the pesticide DDT was severely restricted by EPA in 1972 after application of over 1.3 billion pounds during the previous 30 years. EPA banned the use and manufacture of PCBs, used in fire retardants, in the U.S. in 1977 after production of over 1.5 billion pounds. Dioxins are produced in nature and inadvertently by humans, often through combustion processes such as burning of construction and demolition debris and other waste incineration. Levels of dioxin in Connecticut River fish reflect historic and possibly current sources. Both New Hampshire and Vermont have banned backyard burning of trash – a major source of dioxin.

While federal and state leadership is needed to address the sources of mercury and other airborne toxins, there are meaningful steps individuals can take in their homes and businesses to prevent more of these pollutants from entering the environment.

Finding mercury in your home[2]

- fever thermometers with silver-colored liquid (mercury) inside
- fluorescent and other mercury vapor lights
- automotive headlamps that are blue when lit
- latex paint made before 1990 and some oil-based paints

- non-electronic thermostats and barometers
- pilot light sensors in some older gas appliances: ovens, clothes dryers, water heaters, furnaces, space heaters
- switches and relays in some older chest freezers, sump pumps, electric space heaters, vehicles, farm equipment
- chemistry sets, vintage toy drawing screens, mercury maze games
- button batteries in some novelty children's books and toys, greeting cards, watches, and hearing aids
- clothes irons with automatic or tilt shut-offs
- small amounts in oil burned in residential furnaces

Steps you can take

- Avoid buying products that contain mercury whenever non-mercury substitutes are available.
- Don't put items containing mercury into the trash, down the drain, or burn it. Take it to the household hazardous waste collection in your area. If hazardous waste collections are held too far away for your convenience, ask your town to organize one, or create a "waste pool" of drivers willing to make the trip.
- Label mercury-containing items in your home to ensure they get recycled properly when ready for disposal.
- Replace your mercury-containing thermostat with a mercury-free, programmable thermostat that will save you energy and protect you from mercury.
- Exchange mercury thermometers for digital or alcohol-filled models.
- Never use a vacuum cleaner or shop vac to clean up a mercury spill. For clean up instructions, see www.anr.state.vt.us/dec/ead/mercury/dispose/index.htm.
- Take old paint to household hazardous waste collections.
- When replacing an older appliance, arrange for the mercury-containing portion to be recycled. Contact your state HHW coordinator to find out how (contact information below).
- Handle fluorescent and other mercury vapor bulbs carefully and recycle them or dispose of them as hazardous waste. While requiring special handling and disposal, these bulbs are highly efficient and long lasting, reducing our reliance on coal burning - a major source of mercury pollution. Some area hardware stores offer recycling for these bulbs.
- Keep your furnace serviced to ensure it burns as cleanly as possible. Weatherproof your home to reduce the amount of oil you burn. When replacing your furnace, choose a high efficiency model.
- Conserve electricity to reduce reliance on coal burning to fuel electric power plants.
- Obey the states' ban on barrel burning of trash.
- Avoid burning construction and demolition debris: it may contain mercury and burning may release dioxins
- Urge Congress to advance legislation to curb acid-rain producing pollutants, including mercury.
- Support use of clean sources of energy.[3]

For further reading

Evers, David C. 2005. Mercury Connections: The extent and effects of mercury pollution in northeastern North America. Biodiversity Research Institute. Gorham, Maine. www.briloon.org/mercury/mercon_contents.htm
Schweiger, Larry, Felice Stadler, and Christine Bowman, 2006. Poisoning Wildlife: The Reality of Mercury Pollution. National Wildlife Federation. www.nwf.org/mercury.

Contacts

New Hampshire: Stephanie D'Agostino, NH Department of Environmental Services Pollution Prevention Coordinator, 603-271-6398, www.des.state.nh.us/nhppp/Mercury/

Vermont: Karen Knaeble, VT Department of Environmental Conservation Mercury Education and Reduction Campaign Coordinator, 802-241-3455, www.anr.state.vt.us/dec/ead/mercury/facts/index.htm

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[1]Methyl mercury is the most dangerous form of mercury, created when bacteria in the sediment of rivers, lakes, and ponds convert elemental mercury into this toxic form.

[2] For information on mercury containing products and their disposal see the Interstate Mercury Education and Reduction Clearinghouse (IMERC), www.newmoa.org/prevention/mercury/

[3]Sources and steps lists based on information from the Mercury Awareness Project, Indiana Department of Environmental Management, and Stephanie D'Agostino, NH DES Pollution Prevention Coordinator.