

MERCURY

AND NEW HAMPSHIRE'S FISH

A quick look at a complex issue.

MANY OF THE Granite State's waters have been dramatically cleaned up in the past 50 years, thanks in large part to the Clean Water Act and society's goals for a cleaner, healthier environment. In fact, we seldom wonder anymore whether it's wise to eat fish from a certain water body.

But one pollutant still poses potential health risks to humans: mercury. As an airborne pollutant that ends up in our waters, mercury is absorbed into fish tissue and accumulates over time. It also builds up in human tissue and can pose health risks to people, particularly young children and fetuses. Accordingly, the N.H. Department of Health and Human Services recommends following certain guidelines for eating freshwater fish.

Natural Mercury vs. Pollution

Most of us think of mercury as the liquid found in thermometers. But mercury also occurs naturally in the environment as an element in rock, soil, and water. An estimated 40 percent of mercury released into the atmosphere is through the natural process of degassing from the earth's crust and oceans.

The remaining 60 percent of

mercury released into the atmosphere is pollution, primarily by coal-fired power plants and incinerators that burn household and industrial wastes. Common sources of mercury found in homes and at the workplace include thermostats, mercury switches, old latex paint, fluorescent and mercury vapor lamps and batteries.

Mercury in the Water and in the Fish

Elemental mercury is vaporized at high temperatures. In the atmosphere, mercury particles can be captured in rain or snow, and transported long distances by wind before falling back to earth. Once deposited on land or in

By Beth Reinhart

water, elemental mercury is converted to a more toxic methyl mercury by bacteria. Fish absorb methyl mercury from water as it passes over their gills and as they eat other aquatic life forms. When larger fish eat smaller fish, the methyl mercury present in the smaller fish will be absorbed and stored in the organs and muscle tissue of the larger fish. The cumulative affect continues when humans eat fish that contain methyl mercury.

How Much Is Too Much?

The U.S. Food and Drug Administration reports that nearly all fish have trace amounts of methyl mercury. In areas with industrial mercury pollution, the levels can be quite elevated.

The N.H. Public Health Laboratory has analyzed more than 600 fish samples taken from state waters since

1990 to determine mercury levels. Mercury concentrations ranged from less than 0.0 parts per million to 2.5 ppm with a median of 0.34 ppm.

Warmwater species tended to have higher concentrations of mercury than coldwater. Coldwater fish had median values of 0.13, while warmwater fish had median values of 0.4.

Low levels of mercury found in New Hampshire fish won't cause immediate sickness. But, as in fish, it can accumulate in the body over time by eating contaminated fish. According to the Department of Health and Human Services, exposure to high levels of mercury can permanently damage the brain, kidneys, and a developing fetus. Children exposed to high levels of mercury can suffer from delayed development, such as learning to walk. Among adults, high mercury levels can cause tingling or numbness in the hands, feet or around the mouth. It may also cause problems with vision and hearing.

Fish for Dinner

Should you stop eating freshwater fish? No. Fish are high in protein and low in saturated fat and cholesterol. Eating fish is part of a healthy diet and can reduce the risk of certain cancers and heart disease.

The New Hampshire Department of Health and Human Services recommends following its guidelines for consumption of freshwater fish. Women of childbearing age and children age 6 and under should eat no more than one 8-ounce meal of freshwater fish per month. All others should eat no more than four 8-ounce meals of freshwater fish per month.

Beth Reinhart is an Aquatic Resources Education program specialist.



Mercury gets into the atmosphere from coal-fired power plants and incinerators that burn household and industrial wastes (1). It's carried long distances in the atmosphere, and deposited to land and water by rain or snow (2). In water, elemental mercury is converted into more toxic methyl mercury by bacteria (3) and is absorbed by small aquatic life and through the gills of fish. Mercury accumulates over time in fish tissue (4), particularly in older and larger fish. Mercury can also accumulate in human tissue (5) and in high concentrations, can pose health risks.

Since methyl mercury is generally present at higher concentrations in older and larger fish, women of reproductive age and young children may consider eating only smaller fish.

What's Happening to Stop Mercury Pollution?

The New England governors and eastern Canadian premiers adopted a Regional Mercury Action Plan in 1998. The plan calls for "virtual elimination of the discharge of man-made mercury into the environment," with a 50 percent reduction by 2003. So far, the group has recommended strict emission limits for waste combustors and incinerators, suggested reduction goals and options for coal-fired utilities and industrial sources, held a stakeholder summit to reduce mercury in consumer products and drafted a public outreach strategy.

Recently a bill has been filed in the New Hampshire Legislature that would require manufacturers of products containing mercury to label

them as such before those items could be sold in the state.

Here's How You Can Help

You can make a difference by disposing of mercury properly and replacing mercury-containing products with mercury-free alternative products. Here are a few tips:

- Conserve electricity to reduce mercury released from coal-fired power plants.
- Identify items in your home containing mercury and label them for proper disposal.
- Buy digital thermometers.
- Replace mercury thermostats with

non-mercury alternatives.

- Recycle fluorescent and mercury vapor lights at your town's household hazardous waste day.
- Avoid using lighted tip-ups for ice fishing.

For more information:

- New Hampshire Department of Health and Human Services (603) 271-4664; www.dhhs.state.nh.us.
- New Hampshire Department of Environmental Services (for fact sheets and information on household hazardous waste collection events): (603) 271-2047; www.des.state.nh.us/hhw. ■

Recommended Guidelines for Consumption of Freshwater Fish:

Women of childbearing age and children age 6 and under:
One 8-ounce meal per month

All other consumers:
Four 8-ounce meals per month

Source: N.H. Department of Health and Human Services

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