Special Pollutants - Mercury
Environmental and Health Effects of Mercury

- Effects on Human Health
- Effects on Environment

Mercury's Effects on Human Health

The three most common forms of mercury (elemental, inorganic and methylmercury) can all produce adverse health effects at sufficiently high doses. The U.S. Environmental Protection Agency has determined that eating mercury-contaminated fish is the primary route of exposure to mercury for most people.

The EPA also concluded that most Americans are not at risk from mercury exposure. Therefore, most people can continue to look to fish as a healthy, low-fat source of protein and other nutrients. However, pregnant women, women who may become pregnant within the next several years, children less than six years old and people who consume unusually large quantities of freshwater sport fish, shark, or swordfish, may be harmed by mercury.

Inhaling elemental mercury, the vapor given off when mercury is heated, can also be dangerous. For example, some people burn mercury in candles as part of rituals, a practice health professionals highly discourage.

Mercury can damage human health because it is toxic to the nervous system - the brain and spinal cord - particularly the developing nervous system of a fetus or young child. And it doesn't take much mercury. One million average northern pike from northern Minnesota lakes would contain just a pound of mercury altogether, yet the concentration in each fish would be high enough to call for limits on eating them.

Mercury's effects can be very subtle. Adults who have been exposed to too much methylmercury might begin to experience trembling hands and numbness or tingling in their lips, tongues, fingers or toes. These effects can begin long after the exposure occurred. At higher exposures, walking could be affected, as well as vision, speech and hearing. In sufficient quantities, methylmercury can be fatal.

The greatest risk, however, is for fetuses and young children because their
nervous systems are still developing. They are four or five times more sensitive to mercury than adults. Damage occurring before birth or in infancy can cause a child to be late in beginning to walk and talk and may cause lifelong learning problems. Unborn children can be seriously affected even though the methylmercury causes no symptoms in their mothers.

**Mercury's Environmental Effects**

Fish are the main source of food for many birds and other animals, and mercury can seriously damage the health of these species. Loons, eagles, otters, mink, kingfishers and ospreys naturally eat large quantities of fish. Because these predators rely on speed and coordination to obtain food, mercury may be particularly hazardous to these animals.

Research indicates that the following environmental effects are occurring:

- Minnesota loons are accumulating so much mercury that it may be affecting their ability to reproduce, (reported by K.L. Ensor, D.D. Helwig and L.C. Wemmer in "Mercury and Lead in Minnesota Common Loons," published by the MPCA Water Quality Division in 1992);

- Elevated levels of mercury have been found in Minnesota's mink and otters, (reported by K.L. Ensor, W.C. Pitt and D. D. Helwig in "Contaminants in Minnesota Wildlife 1989-1991," published by the MPCA Water Quality Division in 1993);

- Walleye reproduction may be impaired by the fish's exposure to mercury, (reported by J.G. Wiener and D.J. Spry in "Toxicological Significance of Mercury in Freshwater Fish," published by Lewis Publishers, Baca Raton, Fla., in 1996).