



MERCURY FROM COAL COMBUSTION: STILL A PROBLEM FOR IOWA'S AIR AND WATER QUALITY?

Forty years after passage of the Clean Air Act, **mercury** pollution still exists in Iowa.

- Mercury is present in potentially toxic amounts in smokestack exhausts and coal ash from coal-fired electric utilities and industries that burn coal to heat boilers.
- Once on the surface **mercury** changes into a more toxic form, **methyl mercury**, through biological processes.
- **Methyl mercury** accumulates in game fish and ecosystems, and there is mounting evidence that numerous bird and mammal species suffer health problems from it.
- **Methyl mercury** is clearly linked to problems with the human nervous system, especially for children and the unborn, who are exposed to relatively small amounts over a period of years, and for children and adults who ingest a large amount. Problems include impaired senses and muscular control, mental retardation, and cerebral palsy. At small doses, mercury may lead to problems with the heart and circulatory system and to reduced immune system responses.
- Iowa has **no monitoring system for mercury levels in outdoor air.**



Mercury is one pollutant that ties air quality issues to water quality. The main way that the general public in Iowa is exposed to toxic mercury is through eating fish and shellfish, from Iowa's lakes and rivers and from store-bought seafood. The DNR tests fish tissues every year from a few sites in Iowa for mercury and other toxic substances. The results are reported jointly by the DNR and the US Environmental Protection Agency. The Iowa Department of Public Health and Department of Natural Resources regard fish caught from the state's waters as generally safe to eat. However, a few lakes and rivers have fish consumption advisories, based on higher risks of mercury intake.

Using data from the Regional Ambient Fish Tissue (RAFT) monitoring studies, those few lakes and river sections have specific advisories, usually a recommendation to eat no more than one meal of tested species per week. A list of



these waters is available at the DNR web site, <http://www.iowadnr.gov/fish/news/consump.html>. However, the US Food and Drug Administration suggests that pregnant and nursing women, children 12 years of age and under, and women who plan to become pregnant consume only one meal a week of large predatory fish that is either locally caught (bass, muskellunge, pike, walleye, and others) or purchased (for example, salmon, swordfish, tuna, whitefish).

The Iowa standard for a fish consumption advisory for mercury currently is 0.3 parts per million (ppm). A tougher standard has been debated in Iowa in the past, and the Iowa DNR web site notes, "There is also some evidence suggesting lower-dose exposures can have cardiovascular and immunological effects, but good epidemiological data is lacking."

Members of some ethnic and socioeconomic groups in the state practice subsistence fishing for cultural and economic reasons. Several outdoor organizations encourage fishing for food, as well as for sport. Others would like to include more fish in their diets than is currently advisable. Those who rely on fish regularly may be exposed to unsafe levels of mercury.



To further reduce exposure to mercury and associated risks, two remedies lie at hand. One is to aggressively pursue clean forms of energy for homes and businesses, so that coal is no longer a primary fuel for electricity and industry. The other is to pursue better and up-to-date filter and scrubber technologies on the smokestacks of industries that still burn coal. In addition, recent attention to water quality problems related to coal ash stored on the ground demonstrates that solutions from the past are not as safe as once thought.

Iowa needs to address a wide variety of air and water pollution issues. While we understand enough about mercury's effects on human brain development to have put in place a reasonable standard, research indicates that we don't know much about its effects on the rest of our bodies. And research on ecological effects is only beginning to piece together how wildlife and other living things are affected. Solutions that result in reduced mercury air emissions will improve water quality in our lakes and rivers and benefit us with less risk of certain health problems associated with unsafe levels of mercury in the fish we eat.



Left: Cast netting for fish in the Des Moines river below its confluence with the Raccoon River. Other photos, from beginning: A coal-fired electrical utility in Iowa. Fishing on the Mississippi River just below Lock and Dam 16 at Muscatine. Ice fishing at Raccoon River Park, West Des Moines.

Information in this Iowa Environmental Council fact sheet is current as of April 2010. The Council's web site is www.iaenvironment.org. The address is 521 E. Locust St., Des Moines, IA, 50309. You can call the IEC at 515-244-1194.