

# Human Uses

## MERCURY FELL ON ALABAMA

**What goes up must come down** - from air quality to water quality. Various particles are carried into the air by the wind, from smokestacks, exhaust pipes, natural phenomenon, and many other sources. This material can be found in dry air as well as rain which can wash into area waters.

Mercury in the environment has been a major environmental issue for the past 30-plus years. During 2001, the issue of seafood with high levels of methylmercury was raised in a series of articles appearing in the *Mobile Register*. Several area organizations took the first major step to address mercury concerns organizing The Mercury Forum, held May 2002. The Mississippi-Alabama Sea Grant Consortium (MASGC), Mobile Bay NEP, The Forum: Industrial Partners in Environmental Progress, and Mobile Bay Watch/Mobile BayKeeper sponsored the program. The Mercury Forum demonstrated the ability of partners with diverse interests to work together to provide science-based data for both the public and policy makers. The following are SOME frequently asked questions that resulted from the two day event.

**Q.** I heard there is mercury in the water and fish/shellfish. Where does the mercury come from?

**A.** Mercury is released into the environment from natural processes like weathering of mercury bearing rocks and volcanic eruptions. It is also released by man's activities such as incineration of wastes, coal burning, mining and smelting. There are hundreds of other sources ranging from batteries and thermometers to drilling mud and municipal waste

water. Most mercury in water and fish is thought to come from atmospheric deposition. After deposition, mercury may be converted by biological processes into methylmercury, which is taken up by living organisms and passed along from microscopic plants and animals to larger organisms.

**Q.** How does mercury get into fish?

**A.** Some of the mercury in water or in the water bottom is converted to methylmercury by bacteria and natural chemical processes. Bacteria are eaten by small organisms which are eaten by larger organisms which in turn are eaten by even larger organisms. At each step, the concentration of methylmercury in the organism increases. Concentrations in large predator fish may be 10,000 to 100,000 times greater than in the surrounding water.

**Q.** Is it safe to eat fish?

**A.** Fish and shellfish are food sources that are high in protein, low in saturated fats, and are direct sources of beneficial fatty acids. Hundreds of studies have demonstrated the health benefits of eating fish and shellfish. The concentration of mercury in some fish is considered unsafe (depending on the amount consumed) by the Food and Drug Administration (FDA) and EPA. The level of consumption considered safe is a very conservative standard in order to protect those most at risk (primarily unborn and young children).

**Q.** Will cooking reduce mercury in fish?

**A.** No. Methylmercury is found throughout the muscle tissue and there are no specific areas of the

edible flesh that have more or less. Similarly, there is no known marinade or "soak" that would reduce mercury.

**Q.** Are some fish or shellfish lower in methylmercury?

**A.** Yes. The amount of mercury in fish and shellfish is dependent on the age and size of the fish, what it eats and, in some cases, where it lives. Older fish that prey on large amounts of other fish tend to have higher levels. Short-lived fish that feed lower on the food chain tend to have less mercury. Shellfish like shrimp, oysters and crabs tend to be low in mercury as well as younger (and usually smaller fish) of most species. More information is needed on the mercury levels for many kinds of fish and for different ages of the same kinds of fish.

**Q.** What are the consequences of eating fish with elevated methylmercury levels?

**A.** Mercury is a heavy metal that affects the human nervous system. Most studies to date have concentrated on the effects on children born to mothers who ate large amounts fish or whale meat during pregnancy. Some of these children scored slightly lower on standard tests and showed delayed development. There is little information on the consequences to adults of eating moderate amounts of fish with mercury levels commonly found in Gulf waters. Clear evidence of nervous system impairment was obtained in a case where large quantities of fish with very high mercury concentrations were consumed in Japan.

**Q.** I'm pregnant (or trying). Should I eat fish?

**A.** The FDA advises against eating shark, swordfish, king mackerel and tilefish. The FDA further notes that "seafood can be an important part of a balanced diet for pregnant women and those of childbearing age who may become pregnant." FDA advises that these women can safely eat 12 ounces per week of shellfish, smaller ocean fish or farm-raised fish. The EPA advises to check state consumption advisories.

**Q.** Are high levels of mercury in fish peculiar to the coastal areas of the Gulf of Mexico?

**A.** No. Elevated mercury levels in some fish have been known from various locations around the U.S. for over 20 years. Currently there are 2,242 consumption advisories, primarily in specific fresh-water bodies, from 42 states. Most coastal states from Texas to New Hampshire have consumption advisories for fish like large mackerel. There is nothing unusual about local fish or levels of mercury in the Gulf of Mexico compared to other locations around the U.S.

The Mobile Bay NEP works with area groups and agencies on the mercury issue by providing funding support to initiatives such as the Mercury Forum, local research, and monitoring stations within the South Alabama area.

For fish consumption advisories in AL, log onto [www.adph.org/risk/](http://www.adph.org/risk/). To learn more on forum recommendations and see the full version of the mercury questions and answers, log onto [www.masgc.com](http://www.masgc.com). To learn more about mercury log onto [www.epa.gov/mercury/index.html](http://www.epa.gov/mercury/index.html).

Questions and answers prepared by the Auburn University Marine Extension (AUMERC) and MASGC.



Mobile Bay NEP