Focus On

Washington State Toxics Monitoring Program: Contaminants in Fish Tissue from Freshwater Environments 2004-2005

Washington State Department of Ecology, Environmental Assessment Program

The Washington State Department of Ecology (Ecology) has completed its study entitled *Washington State Toxics Monitoring Program: Contaminants in Fish Tissue from Freshwater Environments 2004-2005* (www.ecy.wa.gov/biblio/0703024.html). This study looked for contaminants in freshwater fish that Ecology scientists collected across the state in 2004 and 2005. It is intended as a preliminary screening to help focus further investigation.

Ecology's Washington State Toxics Monitoring Program samples different sites each year and gives us new information about contaminants in fish from these sites. When Ecology finds contaminants at levels of concern, the next step is to conduct more detailed studies to determine sources and appropriate actions to reduce contaminant levels.

Results

Ecology sampled 52 sites in 2004 and 2005 representing 19 species of fish. Contaminants detected include polychlorinated biphenyls (PCBs), dichloro-diphenyl-trichloroethane (DDT), polybrominated diphenyl ethers (PBDEs), dioxins, and mercury. Older and larger fish have higher concentrations of these contaminants.

Study results showed high levels of contaminants in some fish from the Wenatchee and Spokane Rivers and from Lake Washington. The study also indicated elevated levels of toxic contaminants in fish from the Snake, Columbia, and Palouse Rivers.

Scientists also detected contaminants in Chinook salmon from three coastal rivers – the Queets, Quinault, and Chehalis. They found levels of PCBs and DDT in coastal fish were lower than levels found in fish from Puget Sound and the Columbia River.

The report found that 93 of 104 fish tissue results from 45 sites did not meet Washington's water quality standards for contaminants in fish tissue. Four contaminants – PCBs, dioxins, DDT, and dieldrin – accounted for 85 percent of the results that did not meet toxic criteria required by the federal government. Other toxic substances that exceeded criteria were mercury, total chlordane, hexachlorobenzene, and toxaphene.

Study recommendations

The study recommends that 45 sites be added to Washington State's list of polluted waters – also known as the 303(d) list. Ecology uses this list to determine where action can be taken to reduce the amount of toxics entering our waters. These sites will be added to the list because contaminants in fish collected from these sites did not meet National Toxics Rule criteria. Washington uses the National Toxics Rule to determine if waterbodies are not meeting environmental quality standards.

The study also recommends that the state Department of Health, local health jurisdictions, and affected Tribes evaluate the results from this study and determine the need for additional sampling in order to assess the risks to human health from the consumption of contaminated fish.

Based on the new data and a previous 2004 Ecology study, the state Department of Health expects to issue an advisory recommending that people not eat mountain whitefish from the Wenatchee River. This advice is based on high levels of PCBs and will cover the river section from Leavenworth downstream to where it enters the Columbia River. Consumption advisories are already in place on Lake Washington and the Spokane River.

State health officials recommend that a variety of fish be included as part of a healthy diet. They recommend that people make smart choices and select fish that are low in mercury, PCBs, and other contaminants. For more information about preparing and eating fish and to see the latest fish consumption advisories, visit: www.doh.wa.gov/fish.

What is the state doing to clean up the Wenatchee River watershed?

Ecology is working in partnership with a very active watershed planning group in the Wenatchee watershed. Based on this new information, Ecology's Water Quality Program will begin prioritizing its water cleanup work with an added focus on PCBs.

Ecology currently has two draft water quality improvement reports (Total Maximum Daily Load studies or TMDLs) for the Wenatchee. They are the *Wenatchee Watershed Temperature TMDL* found online at: www.ecy.wa.gov/biblio/0710045.html and the *Mission Creek Watershed DDT TMDL* found online at: www.ecy.wa.gov/biblio/0710046.html. A 30-day public review on both reports ends June 22, 2007.

In addition, Ecology has just approved a water quality improvement report for bacteria in the Wenatchee River watershed, and Ecology is working on a phosphorous report for wastewater treatment plants, on-site septic systems, and landfills. Together, Ecology and the watershed planning group will begin working on an implementation strategy for all of these water quality improvement activities.

How Washington is working to get toxic substances out of our waters

Washington State presently uses a wide range of tools to reduce toxic discharges to our waters. Ecology:

- Monitors water quality – both ambient waters and point source discharges. Ecology continues to use more precise sampling and analysis techniques to measure the levels of toxics in fish, water, sediments, and wastewater discharges.
- Develops water quality improvement reports (TMDLs) and water quality implementation plans to identify and reduce sources of toxic chemicals and meet water quality standards.
- Issues National Pollutant Discharge Elimination System (NPDES) permits imposing pollution control requirements for point sources of pollution including industrial and municipal discharges, stormwater, and other sources of toxics.
- Prevents improper disposal of toxic waste and works to reduce or eliminate the use of toxics.

Despite these efforts, we will continue to be challenged by toxic chemicals in our waters that pose a risk to human health and the environment for years to come.

Some persistent, bioaccumulative, toxic substances (PBTs) have been banned for more than 30 years, but their presence remains in land and water across the globe. In Puget Sound, for example, PCBs deposited to sediment eventually build up in orca whales and other marine life. Good cleanup technologies don't yet exist for addressing PCB contamination in sediment and water.

PBTs come from diverse sources and are primarily manufactured by people. They are found in disposed thermometers, thermostats, and fluorescent lamps (mercury); in woodstove smoke, auto exhaust, and used motor oils (polycyclic aromatic hydrocarbons - PAHs); in ammunition, fishing sinkers, and tire-balancing weights (lead); and in foam cushions, televisions, and textiles (polybrominated diphenyl ethers – PBDEs).

Washington's progress in reducing toxics in the environment

Both Ecology and the state Department of Health are leading a coordinated strategy to reduce the impact of toxic substances on human health and the environment. Washington became the first state in the nation to target all forms of PBDE flame retardants for elimination from the many common household products in which they are used. Studies in animals show PBDEs can affect the developing brain, altering behavior and learning after birth and into adulthood. Levels of PBDEs are rising in people worldwide, but are highest in North America. Children are at the most risk from these chemicals.

Washington State is also making progress in removing mercury from the environment. In the past four years, Washington has reduced mercury use and releases to the environment by more than 10,000 pounds. People are dramatically increasing their use of mercury-free thermostats, and there are new programs underway to increase proper recycling of mercury-containing thermostats and fluorescent lamps.

Additionally, Ecology's yearly analysis from several Washington State wastewater treatment plants indicates a 50 percent drop in mercury contaminants from 2003 to 2006. The drop coincides with Washington's mercury reduction efforts, including the state's work that began in 2003 with dentists to collect and properly dispose of mercury-containing dental waste rather than washing it down the drain into wastewater treatment plants.

Find more information online

How Washington is reducing toxic substances: www.ecy.wa.gov/toxics.html
What Washington is doing to reduce mercury: www.ecy.wa.gov/mercury/
Eat Fish, Be Smart, Choose Wisely information from the state Department of Health: www.doh.wa.gov/fish

Contacts

Sandy Howard, Department of Ecology public information manager, 360-407-6408
Keith Seiders, lead author of study, 360-407-6689

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