WASHINGTON STATE DEPARTMENT OF ECOLOGY

Focus on **Spokane River Studies**

from Ecology's Water Quality Program

Three Spokane River studies investigate toxic chemicals

Water Cleanup Plan for PCBs in the Spokane River

The Spokane River is listed by the U.S. Environmental Protection Agency as "impaired" because of several different pollutants. One of the pollutants is PCBs. Because of this, the Washington Department of Ecology (Ecology) is required to prepare a water quality cleanup plan, or as it is sometimes called, a "total maximum daily load" or TMDL report. The first step in this process was conducting a technical study, which serves as the basis of the water quality cleanup plan. A draft of the water cleanup plan, which includes the technical analysis, was released in June 2006.

The study, conducted by Ecology's environmental assessment program, concludes that PCBs in water increase as you travel downstream from the Idaho border to the Long Lake Dam. Limited fish tissue testing suggested that PCBs levels may be improving over the years. However, the concentrations of PCBs in water are significantly higher than state and Spokane Tribal water-quality standards.

PCBs get into the Spokane River from a variety of sources including industrial discharges, wastewater treatment plants, storm water and atmospheric deposition. PCBs deposited in sediments from historical discharges also find their way into fish. In order to meet PCB standards for the river and further reduce PCBs found in fish, the mount of PCBs in storm water and in industrial and municipal wastewater discharges between the Idaho border and Lake Spokane will need to be significantly reduced.

Now Ecology will meet with dischargers, Spokane Tribal members, the Environmental Protection Agency and the state of Idaho to discuss the results. We will form an advisory committee made up of these organizations and other community members and local government officials to discuss how to proceed. We will begin work with the community to develop an implementation strategy or plan, which will detail how reductions of PCBs will be accomplished.

PCBs, PBDEs and Selected Metals in Spokane River Fish

In order to obtain up-to-date information on chemical contaminants in Spokane River fish, Ecology analyzed concentrations of polychlorinated biphenyls (PCBs), polybrominated diphenylethers (PBDEs), and selected metals (arsenic, cadmium, lead, and zinc) in several species of sport fish and bottom fish from six locations.

The primary objective was to provide data to the Spokane Regional Health District (SRHD) and the Washington State Department of Health (DOH) for their use in developing a human health assessment and reviewing the current fish consumption advisories stemming from data collected in 1999 and 2001.

The current advisory, issued by DOH and the SRHD, says to avoid or limit consumption of fish in parts of the Spokane River due to elevated PCB levels. The 2003 advisory recommends

against eating fish between the Idaho border and Upriver Dam. For the reach between Upriver Dam and Ninemile Dam, DOH advises against eating more than one meal per month of any species. The fish downstream of Ninemile Dam are safe to eat.

Bottom sediments in parts of the river (from the state line to Plantes Ferry Park) are contaminated with high levels of arsenic, zinc, lead, and cadmium. DOH and SRHD have issued a warning for people to reduce exposure to shoreline sediments along parts of the river due to the arsenic and lead concentrations. In 2000, SRHD issued a fish consumption advisory due to lead.

An examination of the fish-tissue data revealed that peak concentrations occur in the Mission Park reach (PCBs), Ninemile and upper Lake Spokane (PBDEs), at the Idaho state line (zinc, lead, and cadmium), and Lake Spokane (arsenic - fillet samples only). Compared to historic levels, PCB concentrations in fish appear to have decreased in all parts of the Spokane River except the Mission Park reach.

Relative to freshwater fish in other parts of the state, the Spokane River has substantially elevated concentrations of PBDEs (both fillets and whole fish) as well as zinc, lead, and cadmium (whole fish samples only). PCB concentrations in whole fish - but not fillets - also remain relatively high compared to statewide data. Arsenic concentrations do not appear elevated in any of the 2005 Spokane fish samples compared to statewide data.

Washington State Toxics Monitoring Program (data from 2003)

The goal of the Washington State Toxics Monitoring Program is to investigate the occurrence and concentrations of toxic contaminants in edible fish tissue and surface waters in freshwater lakes, streams, and rivers in Washington.

The 2003 exploratory monitoring effort analyzed 25 samples of edible fish tissue representing eight species collected from ten sites statewide. Researchers tested for persistent, bio-accumulative, and toxic contaminants (PBTs) such as mercury, chlorinated pesticides, PCBs, dioxins and furans (PCDD/Fs), and brominated flame retardants (PBDEs).

Based on data from this report, a segment of the Spokane River (Ninemile Reservoir) was placed on the federal Clean Water Act list of impaired waters because of *dioxins and furans in rainbow trout*.

(NOTE: Problems with PCBs and PBDEs were found in subsequent studies that concentrated on different stretches of the Spokane River.)