

**Sethajintanin D, Johnson ER, Loper BR, Anderson KA. "Bioaccumulation Profiles of Chemical Contaminants in Fish from the Lower Willamette River, Portland Harbor, Oregon." *Archives of Environmental Contamination and Toxicology*. 2004 Jan; 46(1): 114-23.**

**Baibergenova A, Kudyakov R, Zdeb M, Carpenter DO. "Low Birth Weight and Residential Proximity to PCB-contaminated Waste Sites." *Environmental Health Perspectives*. 2003 Aug;111(10):1352-7.**

(Reviewed by Grace Wang)

Sethajintanin et al studied the chemical contaminations in fish found in the Willamette River. Various types of PCBs (polychlorinated biphenyls), OC (organochlorine) pesticides, and mercury are found in these fish, which is a major source of human exposure to these chemicals. In 2000, the authors collected different kinds of fish in a 20 mile stretch of the Willamette River and measured chemical concentrations in whole fish samples. They compared these data to the size, habitat, position in the food web, and other biological data. According to their study, concentrations of OC pesticides and PCBs are not correlated to tissue lipid content or fish size, contrary to prior studies. Predator fish species had higher contaminant levels as a result of contaminant biomagnification. Highly chlorinated PCBs dominated in PCB pollution. DDT concentration in fish ranged from 17 to 510 ng/g, with the worst ones at the superfund site. All fish contained dieldrin. All fish contained mercury, mostly in the form of methyl mercury, ranging from 13 to 520 ng/g, without a pattern of geographical distribution. Average PCB concentration exceeds US EPA human health screening values. DDT in smallmouth bass at lower superfund site exceed US EPA value. Only one fish exceeds US EPA value for mercury.

Baibergenova et al performed a statistical evaluation of birth weight and PCB pollution correlation. Using zip codes as selection method, they collected data on birth weights of all births from 1994 to 2000 in New York State hospitals except from New York City. They calibrated data, including factors such as sex of the infant, mother's age, race, weight, height, education, income, marital status, and smoking. The result reveals a 6% increased chance of a mother exposed to PCB giving birth to a underweight male infant. The result is statistically significant. Exposure to PCB in drinking water or airborne contamination of waste site have a negative impact on male infants.

## **Critique**

Both studies are from reliable sources. Though experimental methods differ, each uses appropriate methods to evaluate data, and both are published in trustworthy scientific journals.

Sethajintanin et al is specific to the Willamette River, and reveals contamination problems in fish. Fish is a primary source of human consumption of contaminating chemicals, so this study directly relates to our project. The paper is published recently, so it specifically addresses current problems. This paper is also helpful in that it provides US EPA standards as a comparison. The journal is located in the UO

## Science Library.

Baibergenova et al is indirectly related to the project. Although it is not specific to the Willamette Valley, it does address effect of PCBs on human health. This paper is also published recently. A drawback is that it is a mere statistical analysis, but does not provide mechanisms of PCB effect. Nevertheless, it shows that PCB has a significant effect on male infant birth weight. The journal is located in the Science Library. An online copy may be found at <http://ehpnet1.niehs.nih.gov/members/2003/6053/6053.html>

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