

ELKE SHAW-TULLOCH – CHIEF BUREAU OF COMMUNITY & ENVIRONMENTAL HEALTH 450 West State Street, 6th Floor P.O. Box 83720 Boise, Idaho 83720-0036 PHONE 208-334-5927 FAX 208-334-6573

May 21, 2012

Erin Mader Pend Oreille Basin Commission 1224 Washington Avenue Suite 101 Sandpoint, ID 83864

Dear Ms. Mader:

I am writing in response to your request that the Idaho Department of Health and Welfare's (IDHW) Environmental Health Education and Assessment Program (EHEAP) review the sampling results from the Washington Department of Ecology (ECY) for polychlorinated biphenyls (PCBs) in fish tissue from Upper Priest Lake in Bonner County, Idaho. You requested that EHEAP determine if the levels of PCBs reported by ECY would be considered harmful to those who eat the fish and if this would have an impact on the current advisory for mercury in fish in Priest Lake. We have reviewed the data and determined that the levels of PCBs in lake trout and bass are not likely to harm those who eat the fish. We have made this determination since the levels of PCBs are relatively low and the current mercury in fish advisory for the lake restricts consumption to amounts of fish in which the PCBs would not likely harm the health of those eating the fish. Below is a review of the data and details of the assessment we conducted.

The PCB data were reported in an ECY study [1], which was conducted to determine background levels of contaminants in fish and water bodies in the Northeast Washington area. In this study, lake trout, smallmouth bass, and largescale suckers were collected from Upper Priest Lake in Idaho on October 1, 2010 by the Idaho Department of Fish and Game. They were provided to ECY for organic compound analysis. The lake trout and smallmouth bass were processed into composite samples using only the fillets. Samples of largescale sucker used whole body tissue. Pacific Rim Laboratory in Surrey, British Columbia, Canada analyzed the composite samples of lake trout and bass for 209 PCBs. The PCB results in ECY's study are reported as total PCBs, the sum of the individual PCB congeners detected. The analytical result for total PCBs in the lake trout composite was 15,311 nanograms/kilogram (ng/kg), which is equivalent to 15 parts per billion (ppb) wet weight. The smallmouth bass result was 1.6 ppb wet weight for total PCBs. PCB values for largescale sucker are not reported. The EPA's 2000 *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories* [2] provides risk-based consumption limits for fish contaminated with PCBs. The following table shows the suggested consumption limits for which no adverse non-cancerous health effect would be expected.

Fish Tissue Concentrations	Fish Meals Per Month
(ppb, wet weight)	(8 ounces)
0-5.9	Unrestricted (16 or more per month)
>5.9 - 12	16
>12 - 16	12
>16 - 23	8
>23 - 47	4
>47 - 63	3
>63 - 94	2
>94 - 190	1
>190 - 380	0.5
>380	Do not eat

 Table 1. Monthly Consumption Limits for Non-carcinogenic Health Endpoints for PCBs

IDHW issues a fish consumption advisory when it is not possible to follow the American Heart Association's recommendation to eat at least 2 fish meals, including seafood, a week. Our recommended serving size is 4 ounces per meal for adults. Therefore, as is shown in the table above, it is possible to eat up to twelve 8-ounce meals (96 ounces) per month of fish with these levels of PCBs and not expect adverse health effects.

The IDHW advisory for Priest Lake for mercury in fish recommends that women who are pregnant, planning to become pregnant or who are breastfeeding to limit their lake trout meals to four 4-ounce meals per month (16 ounces). For children under 15 it is recommended that they limit their consumption of lake trout to 4 meals per month but at a reduced serving size of 2-2.5ounces (8-10 ounces). For the general population it is suggested that they limit their consumption of lake trout to fourteen 4-ounce meals (56 ounces) per month.

The IDHW statewide bass advisory is more restrictive suggesting that pregnant women, nursing women and children under 15 limit bass meals to 2 meals per month (8 ounces/month) and general population limit bass meals to 8 meals per month (32 ounces/month). Because these recommendations for mercury are more restrictive, they are also protective for non-cancer health effects from PCBs; thus, for those who follow our current advisory for mercury there is additional protection from PCB exposure.

According to the Agency for Toxic Substances and Disease Registry (ATSDR), exposure to large amounts of PCBs may cause skin conditions such as acne and rashes [3]. Animal studies have suggested liver damage, changes in the immune system, behavioral changes, acne-like skin conditions, stomach, thyroid gland damage and other adverse health effects. PCBs are also classified as probable human carcinogens. To determine if the concentration of PCBs detected in lake trout at Upper Priest Lake (15 ppb) presented a cancer risk that was unacceptable, EHEAP calculated the dose of total PCBs that one would receive if they ate according to the current recommendation (up to 56 ounces per month). For the estimated dose calculation, it was assumed that 56 ounces would be consumed per month for 12 months. The default body weight used was 70 kilograms (approximately 154 lbs.). The estimated dose was calculated to be 0.00001 milligram per kilogram of body weight per day. Using the estimated dose and the oral slope factor for PCBs, we determined that the risk of developing cancer from exposure to eating fish was low; approximately one excess cancer in 100,000 people exposed for 30 years over the course of a lifetime (70 years).

After reviewing the data, IDHW has concluded that the levels of PCBs in lake trout and bass from Upper Priest Lake are below a level for which we would issue an advisory. Also the current advisory for mercury in fish in Priest Lake provides additional protection from PCBs. Thus, we conclude that by

following our current mercury fish advisory, eating fish from Upper Priest Lake is not expected to harm people's health because the levels of PCBs found in lake trout are low.

At this time we do not have any further recommendations and no public health actions are needed. We are willing to review future PCB tissue sampling data as it becomes available and provide our insights.

If you have any questions, please do not hesitate to contact me at 208-334-4964 or at vannoyj@dhw.idaho.gov.

Best regards,

Jim Vannoy, MPH Program Manager Environmental Health Education and Assessment Program

References

1. Washington State Department of Ecology. Background Characterization for Metals and Organic Compounds in Northeast Washington Lakes. Publication No. 11-03-054. December 2011. Available online at http://www.ecy.wa.gov/pubs/1103054.pdf

2. EPA, 2000. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories. Vol. 1-4. U.S. Environmental Protection Agency, Office of Water. EPA-823-B-00-007. Available onnline at http://water.epa.gov/scitech/swguidance/fishshellfish/techguidance/risk/volume2_index.cfm

3. ATSDR. ToxFAQs for Polychlorinated Biphenyls (PCBs). Available online at <u>http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=140&tid=26</u>.