

## Projects Proposed FY2016

Requestor	Project Name	Project Description	Suggested Revised Project Description	Notes
Bud Leber	Wet and Dry Deposition of PCB in the Spokane River Watershed	The August 2014 Synoptic Sampling event collected samples from Hangman Creek at the gaging station. Samples near the end of the sampling event show what appears to be a small storm surge (spike in flow and PCB concentration) during which PCB level increased from the ~100 pg/L levels to ~ 2,400 pg/L level and then returned in a decaying fashion to ~100 pg/l levels. This suggests that either direct wet weather deposition or dry deposition followed by storm flushing could be a significant contributor of PCB during storm events. It is proposed that a wet/dry deposition monitoring network be operated to assess atmospheric levels of PCB. An active and passive monitoring system was operated in the Camden, NJ area by Dr. Rodenberg and may serve as a model for consideration in the design of a system in the Spokane Watershed.	An understanding of the contribution of atmospheric PCBs to the Spokane River watershed is an identified data gap for the SRRTTF. Sources of PCBs can be local, regional, or global and transported in the atmosphere before deposition. There is limited data on this for Washington State and none for Eastern Washington. However, the City of Spokane has noted a correlation between wind events and PCB concentrations in storm water. Also, the August 2014 Synoptic Sampling event collected samples from Hangman Creek at the gaging station. Samples near the end of the sampling event show what appears to be a small storm surge (spike in flow and PCB concentration) during which PCB level increased from the ~100 pg/L levels to ~ 2,400 pg/L level and then returned in a decaying fashion to ~100 pg/l levels. This suggests that either direct wet weather deposition or dry deposition followed by storm flushing could be a significant contributor of PCB during storm events. It is proposed that monitoring network be developed to assess wet/dry deposition and/or gaseous levels of atmospheric levels of PCB. An active and passive monitoring system was operated in the Camden, NJ area by Dr. Rodenberg and may serve as a model for consideration in the design of a system in the Spokane Watershed. The project could potentially be conducted in cooperation with the Spokane Regional Clean Air Agency who operates a series of monitoring sites in rural, upwind, and urban locations.	
Adriane Borgias	PCB in Products	The Spokane River Regional Toxics Task Force (SRRTTF) is tasked with identifying sources of PCBs to the Spokane River and developing Best Management Practices (BMPs) to reduce PCB inputs. A first step in BMP development is to gain a better understanding about consumer products that in use and the potential pathways for those products to reach the river. Recent testing by the City of Spokane and Washington State Department of Ecology has identified products of concern. This project would address additional testing that may be needed once a source has been identified. This would provide the information that State and local agencies develop appropriate Best Management Practices and implement existing purchasing regulations. Of immediate concern are hydroseed, which has been found to contain PCB up to 2.5 ppm and is routinely applied for stormwater sediment control, formulations of 2,4-D an approved aquatic herbicide, road paints that contain high levels of PCB, and caulks (bridges and buildings).		Includes hydroseed 2,4-D road paint caulks (bridges and buildings)

Bud Leber	Little Spokane River Fish Hatchery Case Study	<p>Concerns have been raised about the potential of PCB in fish food impacting PCB levels in fish tissue and hatchery water discharge quality. A case study of the hatchery is proposed. The scope of the study would be to track the following parameters over the life cycle of a "batch" of hatchery fish:</p> <ul style="list-style-type: none"> <li>• Routinely collect and measure PCB levels in fish food used in the hatchery at congener levels</li> <li>• Collect fish tissue samples at the end of the life cycle of a "batch" of fish and determine PCB levels at the congener level</li> <li>• Routinely collect water discharge samples and analyze them for PCB at the congener level and track hatchery discharge rates for determining loading to the Little Spokane River</li> <li>• Occasionally collect incoming water samples at the congener level to determine background loading</li> </ul> <p>This case study would provide information on impacts to the Little Spokane River from the Hatchery discharge, but would provide insight into the relationship between PCB uptake by fish from food and the Water column and the PCB levels and congener pattern seen in fish tissue. This information may assist in helping to determine sources Based on fish tissue PCB patterns.</p>		
Bud Leber	Stocked Fish Impacts	<p>Concerns have been raised about the potential for stocked fish impacting the fish tissue levels found in the Spokane River. It is proposed that a study be conducted to determine the following:</p> <ul style="list-style-type: none"> <li>• Where on the Spokane River are stocked fish introduced to the river</li> <li>• What is the source of stocked fish introduced into the river</li> <li>• What is the PCB level in fish tissue in the stocked fish</li> </ul>		
Lisa Dally Wilson	Exposure Pathways for PCB	<p>The Spokane River Regional Toxics Task Force (SRRTTF) supports the collection and analysis of PCBs in bottom sediments in the Spokane River in the two reaches where the highest fish tissue concentrations have been observed. This project will help to confirm the exposure pathways for PCB and related toxics to fish in the Spokane River system and the findings will help guide future source reduction activities and BMPs addressing reduced exposure to fish.</p>	<p>2. The Spokane River Regional Toxics Task Force (SRRTTF) is tasked with identifying sources of PCBs to the Spokane River and identifying the Best Management Practices (BMPs) needed to reduce PCB inputs to the river. PCBs in sediment could be a source of PCBs to the water column. There are two reaches in the Spokane River where the highest fish tissue concentrations have been observed, which could be an indicator of high PCB concentrations in the sediment. This project proposes to collect and analyze sediments in these reaches in order to help guide future source reduction activities and BMPs.</p> <p>7. This project has been endorsed by the Spokane River Regional Toxics Task Force (SRRTTF). The voting members include 5 Spokane River NPDES holders, 2 state and regional agencies, 3 environmental organizations. The advisory members include USEPA, Idaho, and Washington, with Tribal interest. The project assists the SRRTTF in filling identified data gaps. Collecting and testing sediments for PCBs in bottom of the river bed in the reaches where fish tissue sampling has indicated the most elevated fish tissue PCB concentrations in the Spokane River system is designed to help in identification of pathways, sources, source reduction activities, and applicable Best Management Practices.</p>	

BiJay Adams	PCB in Hatchery Fish	Recent reports have indicated that commercially farmed salmon, hatchery-raised trout, and the feed used to grow them may contain polychlorinated biphenyls (PCBs) and other persistent organic pollutants. Currently there is no statewide program in Washington to evaluate toxic chemicals in hatchery feed or hatchery fish. There is statewide concern regarding the PCB levels in stocked fish and the potential for PCB loading in rivers and lakes where stocking occurs. This study would explore the potential loading to any waterbody and to other fish from state and commercial hatchery fish used to stock lakes and rivers in Wa state. The study will also provide information regarding the bioaccumulative impacts from such stocking. This work is intended to serve as an update and follow up to the 2006 study (1) and further explore the issue on a statewide basis.	In 2006 Ecology conducted a study of Persistent Organic Pollutants (POPs), including PCBs in feed and Rainbow Trout from selected trout hatcheries in Washington State. Since the 2006 study, changes in hatchery operations and food supply have occurred. This project will update and follow up on the 2006 study. The 2006 study concluded that that some portion of POP concentrations in trout from unpolluted waters may originate from hatcheries. In addition, some catchable trout contain POP concentrations above regulatory criteria when they are planted in lakes. Of particular concern is the potential for PCBs to be present in fish food which then contributes PCB loading to any waterbody in Washington State that is supplied by fish from state and commercial hatcheries. This is of interest to the Spokane River Regional Toxics Task Force because of the potential impacts of hatchery fish on the Spokane River, its tributaries and, Lake Spokane. The results of this study are also of statewide significance	Of statewide importance
Adriane Borgias	Evaluation of High Volume Water Samplers	High volume water sampling methods are needed in water bodies that have low concentrations of PCB. There are a number of sampling approaches that could be used (SPMDs, CLAMs, Infiltrax System, PV2900, manufacture custom resin columns or other passive, samplers). Another possibility is to evaluate surrogate metrics like particulates. This project would contribute to the SRRTTF studies that are evaluating the CLAM and other water sampling methods for use in low level PCB sampling on the Spokane River.		Originally suggested by EAP and is of statewide importance.
John Beacham	Concurrent water sampling events	The Idaho dischargers will be embarking on twice annual surface water sampling for PCBs beginning in the April/May timeframe this year. We currently expect to be sampling using a combined effort and on the same day. This would be an opportunity to perform similar work in WA at the same time. The end result might be a larger dataset. We are required to collect grab samples by our permits.		