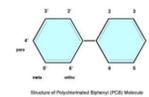




The Challenge of PCBs in the Spokane River



What are PCBs?

Polychlorinated biphenyls (PCBs) are a family of toxic man-made compounds that persist in the environment and accumulate in animal tissue. There are 209 different PCB congeners that range in toxicity. PCB mixtures vary, from thin and light-colored liquids to yellow or even black waxy solids.

Background on PCBs

PCBs were first produced in 1927 and became commercially manufactured in 1935 for their insulating and fire resistant properties. They were used in many products including: oil-based paints, hydraulic fluids, electrical equipment (transformers, capacitors, light ballasts, switches, and electromagnets) as well as adhesives and tapes, cable insulation, building caulking, and floor finish.

When it was found that PCBs build up in the environment and result in serious health effects in animals and humans:

- Commercial production of PCBs was curtailed in 1977.
- The uncontained use of PCBs was banned in the United States in 1979 via the Toxics Substances Control Act (TSCA).
- There were no regulatory controls on PCB disposal before 1979 therefore legacy PCBs can still be found throughout the environment.
- In 1979 the estimated global inventory of PCBs was 1.5 million tons.

PCBs Today

PCBs are not only a legacy pollutant. US EPA regulations allow for the production of "inadvertent" PCBs; they are still found in many products in use today.



PCB Cleanup and Source Reduction

In the past 20 years there has been a significant decrease of PCBs in the Spokane River because of cleanup and regulatory actions.

- Remediation has directly removed significant sources of PCBs.
- Natural reductions in PCB have also occurred due to EPA bans on commercial production and restrictions on use.

More work is needed, however, if we are to have a clean river. In order to achieve the water quality goals for the river we need to significantly reduce levels of PCBs. This will take a coordinated approach where everyone works together – locally, across the state, and at the national level – to achieve this goal.

What are PCB Limits?

The Spokane River fails to meet PCB water quality standards federally, at a Washington state level, and The Spokane Tribe of Indians level. Currently the Spokane Tribe's PCB limit of 0.0000000137 parts per million (ppm) is the most stringent level.

PCB Regulatory Relationships (ppm) Magnitude Difference Relative to Toxic Substance Control Act (TSCA) Allowance	
Reference	PCB Concentration (ppm)
Federal Allowance (under TSCA)	50
WA Current HHWQC*	0.00000017
EPA Current HHWQC*	0.000000064
**Spokane Tribe WQS	0.0000000137

* HHWQC - Human Health Water Quality Criteria
** Adopted a Fish Consumption Rate of 865 grams/day (1.9 pounds per day)

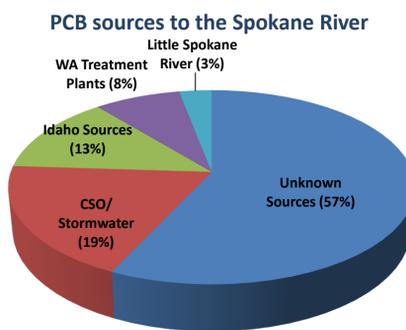
What can you do about PCBs?

- Manage PCBs better and prevent them from entering the environment. This will take a comprehensive approach that addresses many sources including consumer products.
- Properly store and dispose of your household waste.
- Cover waste to prevent contact with storm water.
- Fix vehicle fluid leaks.



How do PCBs enter the Spokane River ?

PCBs are not manufactured in Spokane. Wastewater treatment plants receive PCBs that are contaminants in consumer products, clothing dyes, and the inks in recycled newsprint. The wastewater treatment plants are effective in removing most of the PCBs from water but are unable to get down to the low levels of the water quality standards. While much work has been done to reduce PCBs in contaminated soils, from stormwater systems, and in waste treatment plants, there are still unknown sources that need to be addressed. Once sources are more clearly understood, identification of the best way to reduce the sources of PCB to the river can begin. PCBs enter the river:



Reference: Ecology Spokane River PCB Source Assessment, April 2011

- Through storm water run-off
- Through the atmosphere from the water cycle - rain and snow - atmospheric deposition
- Through the home and PCB-containing consumer products
- Through wastewater treatment plants:
 - Human waste flushed down our toilets
 - Printed clothing and paint products
 - Pigments in recycled newspaper

Health Effects of PCBs

PCBs end up in our environment, including our lakes and rivers. Here they persist and travel up through the food chain, in some cases having ongoing impacts to humans and the environment. PCBs concentrate in fish tissue if they are living in PCB contaminated water, even at low levels. This is a serious issue, particularly for people that consume fish from the Spokane River. Exposure to PCBs can result in skin ailment and liver damage, and they are a probable carcinogen. PCBs also have negative health effects on immune, reproductive, nervous, and endocrine systems.

Potential sources of PCBs in the Spokane River Watershed

- Motor oil (up to 2 ppm allowed by EPA)
- Detergent bars (up to 5 ppm allowed by EPA)
- Fish and animal feed (up to 2 ppm allowed by FDA)
- Food wrappers (up to 10 ppm allowed by FDA)
- Human food (0.2 to 3 ppm in milk, eggs, other dairy products, poultry, fish, shellfish, and infant foods allowed by FDA)

"Be careful what you put down the drain; only rain down the storm drain".



SPOKANE RIVER REGIONAL TOXICS TASK FORCE

Members of the Community, Stewards of the River



Our Vision - The Spokane River Regional Toxics Task Force will work collaboratively to characterize the sources of toxics in the Spokane River and identify and implement appropriate actions needed to make measurable progress towards meeting applicable water quality standards for the State of Washington, State of Idaho, and The Spokane Tribe of Indians and in the interests of public and environmental health.



Dave Moss gives a talk at the Spokane County Water Resource Center.

Direct to Implementation Approach to Toxics Reductions

To accelerate clean-up actions, interest groups and governments in the Spokane River basin have collaborated on a unique and innovative approach to reduce PCBs and dioxins in the river. We are pursuing a direct-to-implementation strategy that includes the establishment of a Spokane River Regional Toxics Task Force (Toxics Task Force) to identify and reduce PCBs and dioxins at their source in the watershed.

The Toxics Task Force's current mission is to tackle the most difficult problem in the Spokane River, PCBs. This toxic chemical is ubiquitous and can be found in nearly every water body around the world.



The SRRTTF

The Spokane River Regional Toxics Task Force (SRRTTF) was formed in 2012. Participants include: City of Spokane, Spokane County, Liberty Lake Sewer and Water District, Inland Empire Paper Company, Kaiser Aluminum, Washington State Department of Ecology (Ecology), Spokane Regional Health District, Washington State Department of Health, Lake Spokane Association, The Lands Council, Riverkeepers, and the Cities of Coeur d'Alene, Post Falls and Hayden in Idaho. Ecology has joined as a Task Force member, and the Idaho Department of Environmental Quality (IDEQ), and the Environmental Protection Agency (EPA) serve as advisors to the Task Force and are very supportive of this innovative and cooperative approach as a more direct means of improving the quality of our waters.

The SRRTTF is working to identify sources of PCBs that continue to enter the watershed and develop a plan for their removal. To start the process, we are actively engaged in water quality data collection.

- 👉 We have conducted a gap analysis.
- 👉 We are currently conducting the first comprehensive and methodical sampling program for PCBs from the outlet of Lake Coeur d'Alene to Nine Mile Dam.
- 👉 The information from this sampling effort will provide the first comprehensive snapshot of PCBs in our river system and identify unknown sources of PCBs to the river.
- 👉 We are the first in the country to measure PCBs at these very low levels in the river, and are pushing the limits of technology in both sampling and analytical techniques needed to measure PCB at levels that are important for achieving our water quality standards.

“We fully recognize these efforts will need to continue for years to come given the ubiquitous nature of PCBs. We are convinced that a collaborative effort is the best approach to environmental improvement and is necessary to keep our river healthy and clean”

(Task Force, Op Ed Spokesman Review).



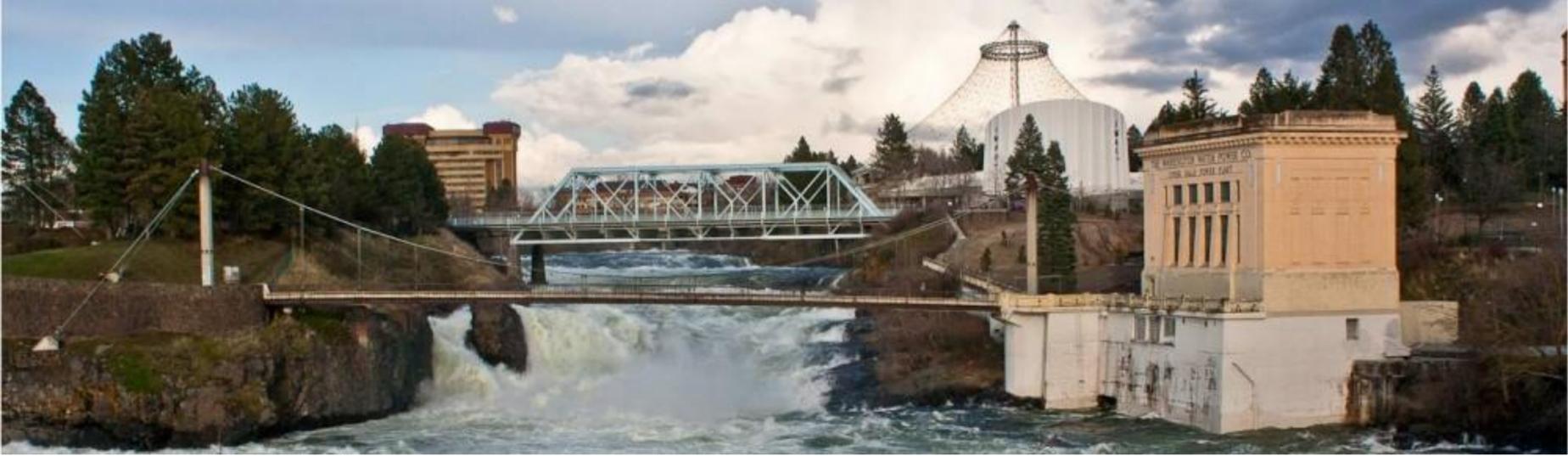
2012: Task Force formed

2013-2015: Technical analysis, source ID, collaboration with cities and businesses

2016: Refine and revise cleanup plan and implement cleanup actions

On-going PCB reductions of known sources: catch basin cleaning, street sweeping, treatment facility upgrades, community education, etc.





- 🐦 **We are working together on a new approach that identifies sources of PCBs and dioxins, directly applies a plan for reduction and elimination, and results in improvements to the river.**
- 🐦 **The Task Force is the only regional group in Washington and Idaho that is working to make measurable progress towards reducing PCBs, dioxins, and their sources.**
- 🐦 **We expect this innovative approach to be faster and less expensive than the traditional method for improving the river.**

Ongoing Activities:

- Gathering and analyzing existing and future data to better characterize the amounts, sources, and locations of PCBs and dioxins in the environment and the Spokane River.
- Preparing recommendations for controlling and reducing these sources of toxics in the Spokane River.
- Monitoring and assessing the effectiveness of toxics reduction measures.



- The Spokane River Regional Toxics Task Force (Task Force) is established and an initial funding commitment is provided for the first year of administration.
- The Task Force develops a Conceptual Model to help identify possible sources and sinks of PCBs to the Spokane River watershed.
- The Ruckleshaus Center is selected to act as a facilitator as the Task Force organizes and prepares its Toxics Reduction Work Plan.
- The Task Force convenes its first technical workshop. Local and national experts present on the “state of the knowledge” with respect to PCBs in the environment.
- The Task Force adopts the First Draft Work Plan and issues a Request for Proposal for a Technical Consultant.
- Funding Concepts are prepared that help the Task Force coordinate and support consistent and predictable funding needed to accomplish its vision and goals.



- LimnoTech is selected to serve as the independent Technical Consultant. LimnoTech conducts a gap analysis of available Spokane River data; refines the Conceptual Model for further study of the Spokane River; and develops a Quality Assurance Project Plan (QAPP), Sampling Analysis Plan, and Standard Operating Procedures.
- Task Force members are working actively with EPA on Toxic Substance Control Act reform to regulate inadvertent PCBs.
- Task Force meets with members of the Center for Environmental Research, Education, and Outreach (CEREO) at WSU, identify potential research projects, and participates in the WSU Undergraduate Multidisciplinary Research Challenge titled “Saving the Spokane River”.
- The Task Force holds its second technical workshop. The workshop addresses experiences from other watersheds, source identification and reduction, QAPP and data management, modeling, and monitoring plans for loading assessment.



- The Department of Ecology Urban Waters team conducts confidence sampling on the river in May of 2014 and Ecology’s Environmental Assessment Program assists with the 2014 synoptic sampling events, carp reduction project, and evaluation of groundwater wells.
- The City of Spokane and the SRRTTF partner to request funding for implementation of the City’s Integrated Clean Water Plan.
- The Task Force selects LimnoTech as the project manager, AXYS Analytical and SVL Analytical laboratories for processing samples, and Gravity Consulting to perform in-river sampling during low river flow. Synoptic sampling includes ambient and in-river sampling completed from August 12th to August 25th.
- The Task Force opens up its MOA for edits and the addition of new signatories.
- Task Force members contribute to the development of Ecology’s Chemical Action Plan.



- The Task Force schedules its **third technical workshop for January 13th and 14th, 2015**. The purpose of this workshop is to provide a forum for the open exchange of information on the results of the 2014 confidence and synoptic sampling events and the establishment of “where do we go from here” for further understanding of the source contribution of PCBs to the Spokane River as well as identifying any appropriate near term source reduction efforts. The workshop will include:
 - Analytical Session: quality and meaning of laboratory data
 - Sampling Session: synoptic sampling event of August 2014 lessons learned
 - Statistical Results and Mass Balance: statistical analysis of the results from the August 2014 sampling
 - Where Do We Go From Here: feedback from experts on data and results thus far and next steps for the SRRTTF
- **For more information about the January 2015 Workshop, go to the Task Force website at www.srrttf.org**

