

Sources & Pathways of PCB-11, Phase 1: 3rd Party Research Effort
Scope of Work

Task: Identify the sources and pathways of PCB-11 in the Spokane River.

Research on PCB-11 is needed due to its significance in the Spokane River watershed as the most prominent congener found in the water column. SRRTTF functions include *preparing recommendations for controlling and reducing the sources of listed toxics in the Spokane River; reviewing proposed Toxic Management Plans, Source Management Plans, and BMPs; and monitoring and assessing the effectiveness of toxic reduction measures*. In the interest of fulfilling these prescribed functions of the Task Force, reducing the amount of PCBs in the Spokane River, and ultimately bringing the Spokane River into compliance with applicable water quality standards for PCBs, it is necessary to identify the sources and pathways of PCB-11 to the Spokane River. Understanding the relevance of PCB-11 in the water column and in fish tissue will also help prioritize the efforts of the SRRTTF and more specifically the iPCB/TSCA workgroup.

The scope of this proposed research effort is limited to PCB-11 since it is easily identifiable, known to be specifically associated with yellow-based pigments, and is a subject of controversy. Additionally, significant data currently exists on this congener that can be utilized for the proposed study. If the results of this study are found to warrant further research, PCBs of other molecular weights that are found to be associated with pigments may be studied.

Known sources of PCB-11 include industrial and municipal wastewater treatment facilities, groundwater, and stormwater. A mass balance should be performed in the Spokane River in order to verify whether the known sources fully explain the mass load of PCB-11 found. If the mass load is not explained by known sources, then a subsequent effort can be made to identify unknown sources.

Research Question:

How do the data obtained from known sources of PCB-11 (i.e. industrial and municipal treatment plants, groundwater, stormwater, etc.) equate to the total mass load of PCB-11 observed in water in the water column and concentrations in fish tissue?

Sources of Data:

The proposed study should utilize existing data. If the study identifies large data gaps, further data sampling and research will be proposed.

- PCB concentration measured by industrial and municipal treatment plants
- PMF analysis conducted by Lisa Rodenberg of Rutgers University
- Fish tissue studies
- Water column data
- Biofilm data

Testing Methodology: EPA Method 1668