# NOV 2017 EMAIL DISCUSSIONS REGARDING GOALS AND OBJECTIVES OF THE:

# Fish Sampling (Fish Tissue/Sediment/Water Column) Work Group Meeting

**EXCERPT FROM EMAIL From:** Donley, Christopher (DFW), **Sent:** Monday, November 13, 2017 3:06 PM

My initial impression of what we have so far for fish studies, is that we need to take a structured approach at deciding what the initial studies tell us and collecting data that answers specific questions that aren’t answered by the existing information.  Seems as if a starting point for all of this would be to convene and discuss specific questions that we want to ask.

It sounds as if some of us have questions about whether a bio-accumulation model would be appropriate for the Spokane River.  Perhaps after folks have had time to chew on this concept we could get together and flesh out specific ideas we have for additional fish studies. I have heard several ideas up to this point from individuals that are interested.  It seems that once we decide the direction of study(ies) that we would like to pursue we can seek experts to assist us with how to shape a study or studies to address our questions.   For the sake of things to think about, I will list some of the study concepts that I have heard or thought about myself. If you would like to join in this brainstorming please reply to all in this email and I will keep track of the ideas you send so that we can use them as discussion points for our first meeting.

Study concepts:

1. Use fish tissue data to fingerprint whether the contaminants going in the river are also those that reside in fish tissue ( i.e., are the dischargers responsible for the bulk of the tissue contamination?)
2. Use fish tissue sampling to identify if there are PCB hotspots that are not already identified. Focus in on finding and reducing PCB sources in the river that haven’t already been identified.
3. Use fish tissue sampling to set a baseline for PCB contamination.  Track PCB levels in fish tissue over time to determine if Comprehensive Plan implementation is reducing PCB concentrations in fish tissue.

**EXCERPT FROM RESPONSE** FROM Brandee Era-Miller, **Sent:** Friday, November 17, 2017

A few thoughts and a point of clarification:

* We may have enough data now to answer study concept #1.
* I’m not sure about study concept #2.  We’ve covered the river pretty well already at a reasonable resolution.  In other words, I’m not sure we can study fish at a finer scale than we already have because fish are mobile within any given reach.
* If folks can wait until fall of 2022 (or possibly a little earlier), Ecology’s fish contaminant monitoring program will be revisiting the Spokane River.  We set a robust baseline with our 2012 effort.  These chemicals are persistent and we aren’t likely to see dramatic changes in fish in the time frame of just a few years.  This might take care of study concept #3.
* I will be sampling biofilm (periphyton) in the Spokane River next summer (2018).  Maybe we can tie my project in somehow.

**EXCERPT FROM RESPONSE** FROM Dave Dilks, S**ent:** Monday, November 20, 2017

Chris’s three concepts match my understanding of what Task Force members have been asking. Slightly re-stated, they are:

1. What “sources” (e.g., WWTPs, groundwater, stormwater, legacy sediments) are responsible for the PCBs observed in fish? This information could help focus future efforts on those controls that will most likely lead to a reduction in fish tissue contamination.
2. Do isolated hotspots significantly contribute to observed fish tissue contamination?  If so, this could also target remediation efforts.
3. What are current PCB levels in fish? This information will be useful in terms of defining the extent to which existing sources need to be reduced, as well as to provide a baseline for assessing effectiveness of future controls.

Here are some thoughts on monitoring and analytical activities to help answer those questions:

1. As Brandee said, the data currently available are sufficient to go a long way towards answering this question. Specific activities that could be done with the existing data include:
   1. Calculating the concentrations of PCBs in Spokane River sediments that would be expected to occur given currently observed water column concentrations. This will allow us to distinguish whether the sediment contribution to PCBs in fish is driven by existing water column sources or legacy sediment contamination.
   2. Updating the existing Spokane River bioaccumulation model (from Serdar, 2011) with recently collected data to make a first cut assessment of whether fish are primarily obtaining their PCBs via the water column or sediment pathway.

This data mining would also likely identify key information gaps that would help inform future monitoring efforts.

1. I agree with Brandee’s comment that this question will be difficult to answer solely with fish tissue data due to mobility of fish, but it could be addressed with targeted sediment sampling.
2. Any baseline fish monitoring needs to be coordinated with Ecology’s upcoming monitoring to prevent unnecessary duplication.

**EXCERPT FROM RESPONSE** **From:**Lisa Dally Wilson **Sent:**Monday, November 20, 2017

I think the concepts below do a good job of articulating the issues we are grappling with.  I wanted to second Dave Dilk’s “re-stating” of concept #1 below.  The SRRTTF has been very focused on the water column, both in sampling and subsequent analyses.  In our reach by reach mass balance analyses, we have considered only the water column in evaluating unknown loads. We have not focused on sediment at this point in time.  Per the concepts below, a primary goal of this study should be to determine ***what sources are responsible for the PCBs observed in fish*** so that future control efforts can be focused to reduce PCB concentrations in fish.  It will take a well thought out scope to address the sediment/water column issue as it pertains to fish exposure- and we will certainly need to address all potential sources (WWTPs, groundwater, stormwater, legacy sediments [both hotspots and dispersed]).