

Comments on: Spokane River PCBs and Other Toxics at the Spokane Tribal Boundary:
Recommendations for Development of a Long-Term Monitoring Plan, dated October 31, 2017

From: Spokane County Environmental Services

Date: November 30, 2017

Comment 1

On page 14 – CLAMs are first described here. Considering the importance of the CLAM structure in this study, it may be useful to give the reader a more detailed overview for how this sampler works or a citation for where this background information can be found.

Suggestions-

- Cite the appropriate document in this section to inform the reader on the use of CLAMs and its component parts.
- Give a brief overview of how the CLAM works including the Solid Phase Extraction disks.

Comment 2

Table 1 on page 15 – The CLAM contamination makes this sampling timeline challenging to follow in the text. There are several methods and several collection media and three sampling points and the differences between the different sampling events could be more clearly depicted in the table.

Suggestions-

- Identify between measured parameters using a bold line and re-type the collection period for each collection method with a single collection event per line such that no columns are being shared between rows. While potentially repetitive, this approach makes it very clear which parameter was being tested, what method was used, for how long, and during which event.
- Signify which sampling events experienced contamination with a superscript so that it is clear which events are being corrected for later in the document.

Comment 3

Table 3 on page 18 – The associated text reads “There were similar concentrations of total PCBs and PBDE 47, 99 and 209 during each sampling event, though the September sampling event had less than half the concentrations of the May sampling event. The contaminant levels in the CLAM blanks indicate a fairly constant background signal, especially for PCBs.”

If the total PCBs in the Sept disk is half that of the May disk, then explanation is necessary for how these contamination values are reported as constant. Comparing the sample dates, Lab Blanks varied by 2x and Transfer Blanks varied by nearly 4x.

Suggestions-

- Identify the bounds for what constitutes a constant measure of PCBs across disk blanks.
- Explain in greater detail the contamination factor associated with the disk blanks and how/why using a common correction factor is appropriate across CLAMs.

Comment 4

Page 21, Table 7 – Change in river conductivity could be an indication that the principal source of flow during summer months is groundwater.

Comment 5

Page 22 – The text reads “As described in the *Data Quality* section, all surface water samples using CLAMs were censored against blank CLAM disk results” There were multiple types of CLAM blanks, which type was used to censor the data in Figure 5? Was the same blank used for all surface water samples that had a contaminated disk? What is the conversion process from disk tPCB (per disk) to water tPCB (per L)?

Suggestions-

- Add a table to show which disk was censored against which blank or clarify in the text which sample is being censored for which disk blank.
- Describe the method, and show the impact on each sample, for converting disk blank contamination to sample correction.

Comment 6

Page 22, Figure 5; Page 25, Table 10 – Total PCB results for surface water sampling and sediment trap sample information. It appears that in both results, the lesser of the sample volumes/weights had the higher concentration of PCBs. In the case of the surface water samples, both the May 15 L and Sept 30 L field clams had a greater concentration of PCBs relative to their 20 L and 40 L field clams respectively. Similarly, in the Fall-Winter sediment sample, the wet weight and dry weight samples were roughly half that of the other seasons, but the concentration of PCBs was almost double that of the other seasons.

This is an interesting pattern and possibly worth considering unless it has already been explored in working up the data or is inherent to how the PCB concentrations are calculated

Comment 7

Page 23 – The text reads “...that was clearly detected above the background noise of the CLAM disk blanks and laboratory method blanks (Figure 6).” What is the noise?

Suggestions-

- Add text to clarify what the noise is referring to in the PBDE CLAM disk blank.

Comment 8

Page 26 – Is it possible to estimate PCB partitioning by comparing loading from surface water and sediment samples? Is a homologue analysis possible from the surface water samples?

Suggestions-

- If these analyses are possible, they would add value to the text.

Comment 9

Page 31 – Who is the Avista Personal Communication

Suggestions-

- Add name of personal communication.

Comment 10

Page 31 – The text reads “The researchers also used CLAM disks with a stainless steel housing instead of polyethylene and found considerably less background contamination.” Are all of their results from stainless steel? As stated, it is not clear. Also, what constitutes “considerably less”? It would be good to have this value.

Suggestions-

- Clarify in the text if all of the clams used were stainless steel and quantify what the background contamination was in this case.

Comment 11

Page 31, Table 13 – The current study does not present PCB mass collected in the CLAMs. This would be a helpful indicator for understanding the analysis. Also, CLAMs were not used exclusively to obtain the tPCB values in the 2015-2016 study.

Suggestions-

- If available, add the PCB mass collected or short explanatory statement as to why the data are not available for this study.
- Alter the table text to appropriately reflect measurement type or tabled values to only include CLAM data.

Comment 12

Page 33, PCBs and PBDEs from Sediment Traps – It seems that by suggesting the seasons are similar enough for comparison, it cannot also be concluded that within season differences are the root cause of the Little Falls pool difference in Fall-Winter. Storm events in 2012-2013 and potentially lake draw-down in 2012 (if every other year) would likely have a similar effect if these processes are indeed responsible for elevated PCB concentrations.

Suggestions-

- Add the hydrograph for these seasons to support discussion of storm events as a cause of high Fall-Winter PCBs for one site and not another.

Comment 13

Page 34 – “One theory for why this occurred...” This section of text seems to add new data that might be best introduced in the results, and then discussed here. Are there data available that support this hypothesis?

Suggestions-

- Support this hypothesis with data.
- Introduce this hypothesis in the introduction and results and support with contextual information which can then be discussed in the discussion.
- Alternatively, remove this hypothesis from the report until more data is available to support it.

Comment 14

Page 35, PCB Congener Patterns – This section reads as though it should be in the results section and perhaps discussed more here.

Suggestions-

- Move this section into results and discuss why there might be such a difference in congener molecular weights between surface waters and sediments in discussion.

Comment 15

Page 35, Conclusions – “CLAMs with stainless steel disk housings were used in the *Assessment Methods for Sampling Low-Level Toxics in Surface Waters* study and were found to contain very low to virtually no PCB contamination.” This statement is not a conclusion from this study.

Suggestions-

- Remove this statement from this bullet point.

Comment 16

Page 36, Conclusions – “The Lake Spokane draw-down in January of 2016 may have provided a mechanism for depositional sediments to resuspend and mobilize downstream, carrying organic contaminants with them.” The data currently provided do not support this as a conclusion.

Suggestions-

- Remove this statement from this bullet point.