Spokane River Toxics Workshop

Brainstorming and Discussion with Speakers – June 5, 2012 Summary

Spokane Watershed Work, Washington Department of Ecology Investigations

Questions relating to "sampling and analysis techniques":

- How was fish tissue background determined and what was it based on?
- Can you elaborate on the food web bioaccumulation model? Specifically, does it either assume or demonstrate that reductions in loading will translate proportionally into reductions in fish tissue concentrations? In other words, would a 50% reduction in loading translate to a 50% reduction in fish?
- What is PCB dissolved versus suspended fractions (e.g., 90% dissolved)? Most presenters have said that PCBs are hydrophobic and attach to particles. Dale Norton said 90% of PCBs in the Spokane River assessment were dissolved.
- During Dale Norton's presentation, flow estimates for CSO basins were based on simple method for stormwater. Did the load estimates assume that all stormwater in a CSO basin flow to the river (i.e., assume 100% overflow and no routing to WWTP)?

Responses and discussion relating to "sampling and analysis techniques":

- Ecology analyzed fish fillets and whole fish.
- Ecology used centrifuge/SPMD methods and a partition model.
- Regarding the bioaccumulation model used by Ecology – it indicates that PCB water quality standards could be met, but not fish tissue without more PCB reductions of the diffuse sources.
- Regarding CSO's, Dale Norton confirmed that the stormwater simple method was used. MODFLOW was used for City of Spokane high and low scenarios. The City of Spokane is required to reduce all CSO overflows to no more than one per year.
- Regarding dissolved PCBs, Ecology sampling data indicated that about 90% of Spokane River PCB was in the dissolved fraction.
- In the Delaware River Basin, it is acknowledged that PCB reductions at specific sites have been achieved. However, reductions of the diffuse sources in sediment and air will take significant time.
- The Spokane River has ultra-low PCB levels compared to many other basins involved with PCB investigations and reduction efforts (e.g., the Delaware River Basin). The ultra-low levels represent challenges associated with sampling and analysis.

Questions relating to "data results":

- How do you explain higher PCB rates in new residential versus industrial areas?

- Why and/or how can you explain 1) higher PCB concentrations in the fall during low flows, 2) stormwater inputs during low flow fall season, and 3) data presentation showed high stormwater inputs?

Responses and discussion relating to "data results":

- It is unknown why higher PCB rates have been found in new residential versus industrial areas. It is common to not see correlations between land uses.

Questions relating to "aerial deposition":

- Aerial deposition was cited as a potentially important source. Since spring runoff is snow melt and would be impacted by deposition, have you broken out the river data by using actual flow for each event instead of mean harmonic flow?

Responses and discussion relating to "aerial deposition":

- Ecology's work on the Spokane River did not separate out aerial deposition.

Work in Other Watersheds

Questions relating to "cost/benefit":

- What if any cost/benefit studies exist (aside from City of Spokane's mention of $6,000/gram to remove PCBs, or $40,000 plus or minus/gram in second round)?
- What cost/benefit analyses have been done in other watersheds and what were the implications or results?
- Have there been any human health / cancer cluster studies regarding Camden, NJ and the air deposition levels?

Responses and discussion relating to "cost/benefit":

- None of the speakers were aware of any PCB specific remediation cost/benefit studies.
- There may be some health related studies, but none of the speakers were aware of them specifically.

Questions relating to "technical considerations and loading":

- If rainwater has 1,000 to 100,000 pg/L PCB, shouldn't the water quality standards be revised to reflect this as background? Or, if "upstream" PCB equals 200 to 400 pg/L, is this background and shouldn't the water quality standards be reflect this? Or, should focus shift to product sources (oils, paints, caulk)?
- Spokane loading estimates seem to be about an order of magnitude lower than Portland Harbor and the Delaware River. What do you think is realistic for future reductions? 1.9 kg/yr at Lake Spokane dam. Is flow reduction needed?

- Did the transformer inventory done in the Delaware River Basin consider PCBs at the 50 parts per million level?

Responses and discussion relating to "technical considerations and loading":

- Contributions from aerial deposition and diffuse sources were discussed. An adaptive long-term management approach and a better understand of ongoing contributions from various products is needed.
- Since Spokane River PCB levels are so much lower than other watersheds that have been addressing PCB contamination, it is difficult to speculate how much reduction can realistically be achieved. The low levels should not deter efforts to identify sources that can be remediated.
- The Delaware River Basin transformer inventory considered various PCB levels and involved oil testing.

Questions relating to "regulatory issues/considerations":

- The Spokane Tribe Water Quality Standard of 3.37 pg/L – should it be updated to include the new "cancer slope factors" for cancer risk (i.e., Dr. Fikslin presentation)? It sounds like the Tribe standard could be three times too low without considering the new "cancer slope factors".
- Since federal court has ruled that downstream water quality standards must be met by upstream states, then upstream states are stakeholders in downstream state rule-making. How does Washington ensure upstream state stakeholder involvement in its rule-making (such as fish consumption rate, sediment and water quality standards)?
- In this Inland Northwest basin, current estimates are about 10% of PCBs are from point sources and 50% are from nonpoint sources. Are there other areas in the country where NPDES point source permittees are by permit being required to account for and/or remediate all PCBs in the system?

Responses and discussion relating to "regulatory issues/considerations":

- Regarding "cancer slope factors", none of the speakers could provide any input.
- The Delaware Basin Commission is an example of bi-state agency and stakeholder collaboration that considers upstream and downstream.
- There are examples where NPDES permittees are being required to remediate nonpoint PCBs in the system.

Questions relating to "Implementation":

- What kinds of strategies have been placed in the Delaware Basin PCB Minimization Plans (PMP) for stormwater?
- What was the process for adopting the Delaware Basin PMP regulations? Did it involve EPA approval?
- Can Dr. Fikslin describe how the Delaware River Basin Commission relates and interacts with other regulatory agencies, stakeholders (e.g., environmental groups), and the regulated community?

- How did the Delaware River Basin PCB TMDL propose to achieve compliance with different criteria at boundary of each new zone?
- In the Delaware River Basin, how have PCB TMDL compliance schedules been handled? Are the NPDES permittees in danger of "no discharge" to the watershed?
- Have NPDES permits in the Delaware River Basin involved long-term variances (e.g., 40 year)?

Responses and discussion relating to "implementation":

- Long-term adaptive management is important.
- Delaware River Basin Commission develops conditions for Pollution Mitigation Plans (PMPs), but they are not PCB specific. The states reference PMPs in permits. PMPs and associated strategies are developed by the permittees specific for their sites. Examples of strategies in PMPs include removing transformers and contaminated soil at multiple sites. More information can be found on the DRBC website.
- The Delaware River Basin Commission has a long history. It has commissioners and an advisory committee that includes agency and stakeholder members (e.g., environmental representatives). Participation is voluntary.
- The Delaware PCB TMDL was adopted in 1968. The TMDL does not include effluent limits. If numeric limits are established in the future (no current plans), then what has been achieved will be considered. No indication of long-term variances or risks of no discharge concerns were noted. Since the TMDL does not include effluent limits, compliance at the different zones is not yet an issue.

Task Force Work Plan Development

Questions relating to "work plan needs":

- One of the Toxic Task Force's first major decision points will be to hire a technical expert to assist in preparing the Task Force Work Plan. What qualifications or expertise do you recommend the Task Force identify or look for in this technical expert?

Responses and discussion relating to "work plan needs":

- The Task Force should evaluate early on if a model will be selected and used, so all data collected can consider the model requirements and so all data integrates. The ability to integrate sub-models and PCB components is important. Use caution and avoid an overly complex model if a simpler one will accommodate needs. A model should be selected specific for the Spokane River – need long-term history/data and consider Spokane River low sediment levels.
- The Task Force technical expert should have experience with 1) modeling water quality and PCB contaminants, 2) sediment expertise, including water/sediment interaction, and 3) PCB sampling and results analysis/interpretation.

Questions relating to "work plan process":

- What is the consensus from folks doing river sampling on how to best quantify PCB river concentrations? This seems critical with respect to future Task Force work plans.
- The importance of data compatibility was presented. How can data compatibility between dischargers, agencies and Task Force be achieved? What are the considerations?

Responses and discussion relating to "work plan process":

- There is no one way / "good" way to quantify PCBs in rivers. For the Spokane River, low concentrations are a concern that needs to be taken into consideration when selecting the sampling and analysis methods. The purpose of the ambient monitoring should be considered.
- The majority of speakers recommend using Method 1668 to analyze congeners. Congeners should be looked at to identify correlations. The limitations and concerns about Aroclor analysis were discussed.
- One standard PCB analysis method should be used for the entire basin!! This is critical to ensure that the data is comparable. Different labs can be used as long as they all use specific instructifb Cyssd s2Tses2TzzMtDO/1-q//MtDOE-LFL/q//MtDOz1xz–/2M D–12Lx/qMHDO/1L/q//M5DzE1——qMM