Hi Dave,

I only have two comments for the Comp Plan Magnitudes of Loading memo:

First suggestion: I think it would be helpful to have a pie-chart or graphic display for the PCB Loading Rate (Table 2) in addition Table 2.

Second suggestion: Hangman Creek puts some 25,000 to 150,000 thousand tons of Palouse region top soil into the river annually - this is flow dependant of course. I believe that this soil may be very rich in organic matter/carbon. My thought is that even if this soil is relatively free of PCBs in Hangman Creek (or the Little Spokane for that matter) it may provide a medium for PCBs from up river sources in areas where they converge down river. Hangman soils enter the main stem of the Spokane River, travel to the low velocity environments, fall out of the water column down river (see images), and then, at these geographic points (Long Lake reservoir, 9 Mile reservoir, Mission Street, Up River Dam Reservoir), take up PCBs that have arrived in solute from up river. They then become an archive for PCBs that are mobilized over and over again by carp in Long Lake.

Interestingly, the carp in long lake are a real problem for Avista in the DO TMDL world because of their propensity to root around (bio-turbate) in the shallow sediments (see the image at the head of Long Lake with the mud flats that show up as green on the aerial photo). I am curious about the high numbers of PCBs in carp flesh and whether they might be pointing us to investigate this idea. If so, are the carp and/or the sediment an "**Intermediate Transport Pathway**" deserving of a place on Page 10? (First, through bio-turbation and the **remobilization** of PCBs from the sediment archive to the water column and perhaps second, by way of carp carrying bio-accumulated/bio-magnified PCBs to other areas of the watershed? Ex: Do they entrain and exit to the lower river?).
http://www.spokesman.com/stories/2014/dec/09/avista-studying-long-lake-carps-effect-on-water/

The slide show in which Will Hobbs (WDOE) pointed out the strong correlations between sediment rich environments and high levels of PCBs in fish tissue in the SF Bay and other places is striking to me.
It got me to thinking about (see the attached slide) about these sediments in the shallow bays (where the velocity of the reservoir slows) grabbing and holding PCBs only to have fish interacting with it in a in a biological feedback system… "Hot spots", so to speak.

I'll call Meghan Lunney at Avista and see what they know to point you in the right direction.

Anyhow, food for thought.. have a good weekend.

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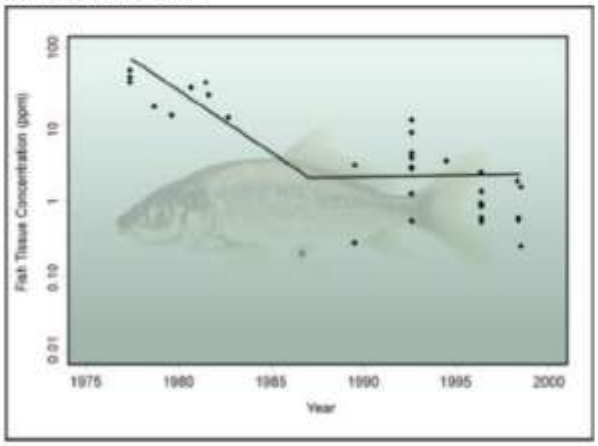
Figure 1 Long Lake Sediment Bed

Case studies: Fox River, MI

Figure 9 - PCB Concentration (ppm) in Little Lake Butte des Morts Carp, Whole Body, versus Time



- 1970s the point source discharges were reduced dramatically
- ~15 year lag to see change close to target
- Little overall change in the 10 years after declines – sediments
- Sediments capped in 2008