

Below are the main points/action items I noted from the August 27, 2013 Model Work Session:

#### Upcoming Model Work Session Schedule

- Next weekly meeting September 3, 2013 10 a.m. @ DEQ

Decision Points (all of these decisions are “final” pending need to further reevaluate)

Based on discussions and input with Dick Park during the meeting, the following decisions were confirmed and agreed to for calibrating the model:

- Can ignore animals in simulation.
- Macrophytes can be ignored, although they do occur in the Lower Boise River (LBR).
- Algal Groups – the current assemblage of algal groups in model consists of *Peri Low-Nut Diatoms*, *Peri High-Nut Diatoms*, *Phyt High-Nut Diatoms*, *Phyt Low-Nut Diatoms*, *Cladophora*, *Peri-Green*, *Phyto-Green*, and *Cyanobacteria (blue-greens)*:
  - *Cladophora*, a nuisance filamentous macroalga, does occur and should be modeled.
  - *Cyanobacteria* (blue-greens) should also be modeled and may help with calibration issues (e.g. Glenwood and other March 2013 periphyton observed data).
  - Include paired periphyton and phytoplankton model—the latter are mostly sloughed and scoured periphyton, so-called “sestonic” algae.
  - Periphyton mats have been observed on sand substrates, but they do not appear to be important and can be ignored.
- Pools account for a very small percentage of the LBR habitat and can be ignored.
- The newly-collected data by DEQ in June and August 2013 identify the available substrate and periphyton abundance throughout the river. Also, periphyton appear to inhabit riffles and runs and are probably more influenced by other environmental factors including water depth, velocity, turbidity, temperature, etc. As such, data transformation/normalization is not needed to interpret AQUATOX output, which provides average values (e.g. peri biomass, etc.) on a per-segment basis. It is not possible to narrow the scope of output to specific locations within each segment.

#### Action Item Updates

- All
  - A. When updated AQUATOX files are posted (soon), evaluate the model set-up, coefficients, water balance, state variables,...to help ensure the model becomes calibrated appropriately.
- Troy
  - A. Updated run/riffle/pool percentages are below:

ATOX Segment	%		
	Run	% Riffle	% Pool
1	93.0%	4.5%	2.6%
2	72.6%	26.5%	0.9%
3	69.2%	30.4%	0.5%

4	65.5%	34.5%	0.0%	
5	72.8%	26.1%	1.1%	Segments 6 and 7 (South Channel) were averaged to estimate Segment 5 (North Channel), which was not sampled
6	62.6%	37.4%	0.0%	
7	75.1%	23.6%	1.3%	
8	68.2%	29.7%	2.0%	This represents total for segment 8 (part of 8 was sampled in June and part in August)
9	69.5%	29.0%	1.5%	
10	80.4%	19.1%	0.5%	
11	72.9%	27.1%	0.0%	
12	75.4%	24.6%	0.0%	
13	75.4%	24.6%	0.0%	Segment 12 values were used to estimate Segment 13, which was not sampled

- B. Will further discuss with Alex, Michael's proposed analysis for using the synoptic data to address groundwater questions in the model.
- Michael/Tom
    - A. Will contact Dick Park (cc Troy on correspondence) to verify f-crit values recommended by Dick for use in model.
    - B. Work with Troy, Alex, Ben, et al. to determine groundwater quantity/quality appropriation in model (e.g. interpolating between August and March for gains and using October data for losses).
    - C. Will re-run and post model files on the ftp site once remaining questions (e.g. groundwater, f-crit, periphyton observed data, etc.) have been resolved.
  - Darcy
    - A. Continuing to work on the morphometry and looking more closely at the velocity components of the model. Will further evaluate once update input files are ready.
    - B. Will summarize and present run/riffle/pool, substrate, periphyton results for Diversion to Star.
    - C. Will be conducting sensitivity analyses of factors such as riffle/run/pool percentages, Manning's coefficient, slope, and other parameters next.
  - Ben et al.
    - A. Make sure that we have a calibration "fiesta" period in which everyone has a shot at thoroughly vetting the model calibration and raising questions/issues.
    - B. Help ensure historical periphyton values vs. model output are updated to get a sense of how model may be performing.
  - Jack (although in attendance at the meeting, these items from the 6/11 were kept on the agenda and addressed in today's discussion)
    1. How to best characterize riffles/runs/pools on the LBR for use in the model?
      - Data was collected by DEQ in June and August 2013
    2. How to apply the USGS periphyton data collection to riffles vs. runs in the model and interpret results?

- Previously, Alex's and Dick's professional opinions were interpreted as believing periphyton growth would likely be similar in riffles and runs, given the appropriate substrate, but that other factors could be more influential such as turbidity, water velocity, water depth, etc. Also confirmed by DEQ's data collection in June and August 2013.
3. Ensuring that the target and data transformation/normalization procedures are clear, aligned, and appropriate.
- The newly-collected data by DEQ in June and August 2013 identify the available substrate and periphyton abundance throughout the river. Also, periphyton appear to inhabit riffles and runs and are probably more influenced by other environmental factors including water depth, velocity, turbidity, temperature, etc. As such, data transformation/normalization is not needed to interpret AQUATOX output, which provides average values (e.g. periphyton biomass, etc.) on a per-segment basis. It is not possible to narrow the scope of output to specific locations within each segment.

As always, please let me know what I missed or misinterpreted and thanks for your participation today! Cheers,

-Troy

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