

Questions/Action Items for AQUATOX Model Calibration

Black Text = Questions/statements

Blue Text = Responses to questions

Red Text = Ongoing action Items

Yellow Highlight = Action Items for week of September 10, 2013

Green Text = Completed Items

Status

- 13-Segment Model is functional and runs
- Water balance seems not unreasonable but needs to be checked.
- Majority of water data updated with information, following questions remain.

Questions/Action Items

Water Quantity

Water Quality

- Only water quality data see for model simulation period are the following. Are there other data for the period? Where? All - compare historical values/averages to modeled periods to check for appropriate interpolation between sample points probably to be addressed by Darcy et al. during the model calibration:
 - 8/21/12
 - 10/29/12
 - 3/4/13
- What is zMean input? Text includes the following. Need to update? Need to look at other spreadsheets? (Darcy et al. is/will be looking at this as part of the calibration exercise)
 - Uses RAP Depth Discharge 1-98 to 9-02 Darcy may have this answered but needs to document.
 - Depth Discharge calibration.xls
 - Probably should look at stage data and build depth discharge spreadsheet.
 - Sensitivity analysis looking at factors such as riffle/run/pool, manning's (had a greater effect than riffle-run-pool ratios), slope, etc.
- Most to all of the tribs do not have BOD data, need?
 - ~~Michael asked Kate and Kate replied; have not updated to her response.~~ Calibration will likely help determine the need for this data.
- Zero unaccounted/groundwater flow into Segment 12, all into Segment 13, don't know if should be split.
 - ✓ Darcy to look at USGS 2012 information for insights on assigning unaccounted flows between Segment 12 and 13. Will go with the USGS Mass Balance data and seasonal

interpolation (see Decision Log). ~~Troy to locate data for input spreadsheet.~~ Alex provided groundwater data for synoptic events. ~~Troy will check with Alex regarding Michael's proposed approach—others (e.g. Ben et al. to also review approach and provide feedback).~~ Troy to verify Alex's recommended approach for groundwater concentrations, also. **Troy will get clarification from Alex on what the concentration values represent.**

Initial Conditions

- Not updated
 - Available for view in AQUATOX

Completed Items

- ✓ COB Lander and West estimated for April 2013 as average of flow 1/1/12 through 4/1/13
 - ✓ ~~Troy will follow up with Kate to provide the City of Boise data for 4/1/13 through 4/30/13?~~ – **Kate has provided this data to Michael.**
- ✓ IDFG Eagle Fish Hatchery uses original Aquatox flow of 32 cfs.
 - ✓ ~~DEQ working on compiling point source data Existing data has been collected and provided. Boise has concentration data that was used in the previous AQUATOX model—Troy will follow up with Kate about updating this with the City of Boise's data.~~ – **Kate has provided this information to Michael.**
- ✓ Have not seen water column Chlorophyll a data for the model simulation period. Are data available? Where?
 - ✓ ~~Michael asked Kate and Kate replied; have not updated to her response. Troy will compare this data with the input file and coordinate with Michael.~~ **Kate has provided this data to Michael.**
- ✓ IDFG Eagle Fish Hatchery WQ data?
 - ✓ ~~DEQ working on compiling point source data Existing data has been provided. Troy will follow up with Kate (see Water Quantity) –~~ **Kate has provided to Michael**
- ✓ Not sure have data for NMD and SMD (N. Midd. Drain and S. Midd. Drain)? ~~Troy to investigate.~~ **No additional data could be located.**
- ✓ Not sure have data for Mason Drain? ~~Troy to investigate.~~ **No additional data could be located.**
- ✓ Not sure have data for Hartley Drain? ~~Troy to investigate.~~ **Troy provided ISDA 2006-2007 data.** ~~Michael asked Kate and Kate replied; have not updated to her response.~~
 - ✓ ~~Robbin believes there may be other ISDA available to share with group.~~ – **Robbin verified that ISDA does not have additional data available.**
- ✓ Caldwell WWTF data?
 - ✓ ~~Caldwell has provided some data, Troy is requesting additional data, if available.~~ **Lee and Caldwell are working to provide data.** **Lee has provided Caldwell data through 4/30/13.**
- ✓ Middleton WWTF flow? Set at constant 0.8 cfs.
 - ✓ ~~Troy working on compiling point source data. Troy has obtained data and being put into spreadsheet.~~ **Is updated and included on import spreadsheet.**

- ✓ Middleton WWTF data? Text includes Data from Basil Tupy, Holliday Engineering
 - ✓ ~~Troy working on compiling point source data Troy has obtained data and being put into spreadsheet.~~ **Is updated and included on import spreadsheet.**
- ✓ Unclear what data goes into some of the Segment numbers and why?
 - ✓ ~~How to deal with unnamed/unidentified inputs? Michael says unidentified data in segments 1, 2, and 3. Michael will talk with Ben Nydegger to try and identify these sources.~~ **These serve as driver variables in model (neither state nor observed variables). Have input files ready for review and discussion at subsequent meetings. – Tom looking further into the TSS question with Jonathan Clough. Tom discussed Jonathan's response and his email is included in the July 16, 2013 Meeting Summary.**
- ✓ Fifteenmile Creek flow? Set at constant 100 cfs. Need to review available data for 2012 flows.
 - ✓ Alex's estimation: too high - was 92 cfs in Aug (irrigation season) and 31 cfs in late Oct, 17 cfs in March –
 - ✓ ~~Troy will follow on this with Alex (Michael thinks these numbers seem too high) – this data is not on IDWR website – may need to check with irrigation districts~~ **Irrigation districts do not have data. Troy provided ISDA 2008 report from Kirk Campbell that has data.**
 - ✓ ~~USGS collected data on 5-10-15 mile creeks – Tom will check to see if Michael has already obtained this data from Alex – Michael is working on this and a 5-10-15 mile Creek analysis – to provide spreadsheet of monthly flows.~~ **Per Michael's July 16, 2013 memo, "Use the Estimated monthly flows for Fifteenmile Creek flows in the AQUATOX model."**
 - ✓ ~~Robbin believes ISDA has newer data. Robbin will send out most recent ISDA data –~~ **Robbin verified that ISDA does not have additional flow data available.**
- Are there recent TSS data from USGS or other?
 - ✓ ~~Troy to coordinate with Alex, USGS as to what TSS data is available.~~ **TSS data is on the ftp site.**
- Previous model segment breaks did not identify GIS coordinates. (Troy looked at previous model report and checked with Ben Nydegger).
 - ✓ ~~Troy will work with Alex, Michael et al. to verify the river miles/segment breaks via USGS convention vs. previous model set up (and identify coordinates/river miles for LBR AUs) - Troy work with others to re-evaluate and make changes, as appropriate (questions about segments 5-8 to be resolved).~~ **Segments revised and provide as kml and excel files as, "...Revised 2013_0723"**
- Caldwell WWTF flow? Set at constant 12.2 cfs.
 - ✓ ~~DEQ working on compiling point source data – Caldwell has provided some data, Troy is requesting additional data, if available. Lee and Caldwell are working to provide data. Lee has provided Caldwell data through 4/30/13. Data gap from June 1 to Aug 31...Lee and Troy to look for additional Data. Will use the DMR flow data, Lee may possibly have additional data.~~ **All data has been provided (unless as Lee puts it, "you want to search through 150 boxes."**

- ✓ ~~Darcy will be utilizing a hydrolab during the LBR data collection on 6/20 and 6/21 which may shed additional light on this.~~ Darcy to deal with this through model calibration and USGS data.
- Groundwater/Unaccounted flows water quality unchanged
 - ✓ Further investigation in calibration process. Use USGS flow balance and concentrations for WQ constituents. Will utilize USGS data.
- Groundwater Inputs for all unaccounted flows. No other estimates used for groundwater, such as Schmidt estimates used previously. Rely on USGS information rather than Schmidt. No change.
 - ✓ ~~Actions needed?~~ For the Decision Log – the previous model used Schmidt, but this model calibration will use USGS empirical data.
- Need to update Shade? Have data/basis? Set at zero, maintain for now. No change.
 - ✓ Darcy/Troy to see if Mark Shumar (DEQ) can perform basic shade analysis. Robbin says that Freshwater Trust has completed Shadealator and T-Tools analysis for approximately 54 miles of the LBR using the green lidar data. Troy and Robbin will put Mark Shumar and Alex Johnson in contact to assess data for use in AQUATOX model. Mark Shumar will review the Freshwater Trust data/analysis and discuss how to proceed with use for AQUATOX. – Mark believes the Freshwater Trust analysis may be too general for our purposes; however, he will perform a shade analysis to meet our current modeling needs. Kate to provide more information to be used in decision. Will get additional opinion from Mark following upriver LBR data collection. Freshwater Trust provided their shade data that was analyzed for the City of Boise. Additionally, Mark Shumar provided his professional opinion for interpretation of the data and his own experience on the LBR. Troy created a hybrid of the two, which resulted in the following shading (when leaves are present). This is currently in the AQUATOX model unless new information becomes available:
 - ✓ Segment 1 = 5 percent
 - ✓ Segment 2 = 10 percent
 - ✓ Segment 3, 4, 5, 6, 7 = 15 percent
 - ✓ Segment 8 = 10 percent
 - ✓ Segment 9, 10, 11, 12, 13 = 5 percent
- Indian Creek flow? Set at constant 25 cfs. Need to review available data for 2012 flows.
 - ✓ Riverside/City of Caldwell flow data available from 11/10/11 through 9/17/12, Troy is requesting data through 4/30/13, if available. Troy will follow up on how this flow data is collected. Flow data is collected via pressure transducer set up for Indian Creek at Kimbal (sp??). Jack is working to provide the data from 9/18/12 through 4/30/13. Probably going to provide daily average data...probably this week. – At least winter flows, not sure about other seasons. Jack has provided data extending through February 13, 2013. Unfortunately, the flow data through April 30 will take a bit longer, and will likely have data gaps due equipment. Data received and is being input.

✓