

**CHESAPEAKE BAY PROGRAM  
WATER QUALITY GOAL IMPLEMENTATION TEAM**

February 27, 2017

**Meeting Summary**

**Meeting Materials:** <http://www.chesapeakebay.net/calendar/event/24827/>

Summary of Actions and Decisions:

**Decision:** The WQGIT recommended that the outline of the fatal flaw review process be incorporated with new information regarding the changing modeling timelines and proposed strategic review guide for conducting the fatal flaw review. This collated information on the fatal flaw review of the Phase 6 modeling tools would then be presented back to the WQGIT at a later date for comprehensive review and approval.

**Decision:** The WQGIT requested an explanation document be developed in order to clearly communicate what the Phase 6 Watershed Model is, how it was developed, and any major changes between the Phase 6 Watershed Model and the previous Phase 5.3.2 version of the Watershed Model.

**Decision:** The WQGIT recommended that the loads coming from land uses with BMPs applied be allowed to fall below the loading rate of forested land.

Update on Phase 6 Modeling Timeline –Lucinda Power, EPA

The timeline for the final calibration of the Phase 6 modeling tools is in flux, with a potential 2-month shift being likely. The schedule may be compressed in regards to the review of draft Phase III WIP planning targets, but the 2-month fatal flaw review, release date for the final Phase III WIP planning targets, and Phase III WIP deadlines are proposed to be maintained. Under the proposed new timeline, the model calibration would occur in late spring/early summer, with draft Phase III WIP planning targets available in August/September. Policy issues, including climate change, the Conowingo Dam, and accounting for growth, would be considered in fall 2017. Lucinda Power will report back to the WQGIT in March with a more detailed schedule for approval, and will distribute a revised timeline to the WQGIT soon.

*Discussion:*

- James Davis-Martin: The delay in Conowingo and climate change decisions was holding up the finalization of the Phase III WIP expectations document. So is it fair to assume that date will also slide?
  - Lucinda Power: Correct – once those final decisions are made, EPA will update its expectations document to reflect those Partnership decisions. Late fall/early winter is my estimation for release of the final Phase III WIP expectations document.

- Tanya Spano: I appreciate this update, and I would like to commend the Partnership for bringing this forward and maintaining open communications.
- Lee Currey: How will that schedule be distributed?
  - Lucinda Power: Via email. The PSC won't be seeing the revised schedule document during their meeting tomorrow; I'll be providing a very broad overview of the potential revisions coming down the line. So we'll attempt to maintain the final Phase III WIP planning targets, but potentially adjust the timeline for the draft Phase III WIP planning targets. We would like to keep the 2-month fatal flaw review period, and build in an extra month in case fatal flaw issues are identified and need to be elevated. The partners can decide they want more time to review the Phase III WIP planning targets, and we can shave off time elsewhere. Those are options we can discuss when we have the detailed schedule. We still expect to be able to run scenarios during the fatal flaw review period and when the draft Phase III WIP planning targets are released. So the draft Phase III WIP planning target review period would likely be compressed to 3-4 months.
  - Dave Montali: So what would be wrong with bumping the whole schedule back to accommodate this? Is that a viable option?
  - Lucinda Power: As far as I know, EPA is maintaining the Phase III WIP deadlines. That might change, and it's a decision that would have to go up to the PSC, and EPA would need to discuss that possibility internally. We felt pretty strongly that WIPs covering the 2018-2025 time period should be submitted in that 2018 year.
  - Dave Montali: The Partnership may request we move the whole schedule back, so at this point it seems that's a conflict with what EPA wants.
  - Power: The schedule is being built right now with the assumption that the final Phase III WIP planning targets and Phase III WIP deadlines are remaining the same.
- James Davis-Martin: I'd heard that the schedule adjustment also includes some modifications of the calibration process – an abbreviated, or shortened calibration? Is there any truth to that?
  - Gary Shenk: Once we have all of the information processed as inputs to the Watershed Model, we need to have at least 2 months to calibrate. Those two months include running the calibration process, and all of this was supposed to happen in 2016 as we published the beta versions. However, the Partnership took that time in 2016 to review all of that information – so we never had the chance to do the year of calibration, and we're going to be taking these 2 months as a minimum time requirement to complete the calibration process.
- Tanya Spano: I want to raise the point for some greater clarity and external QA/QC of the calibration.

The CBP STAR Modeling Workgroup Co-Chairs presented on the revised Phase 6 [fatal flaw review process](#).

*Discussion:*

- Tanya Spano: Regarding the fatal flaw definition, “the failure of the model to match observed loads and flows when compared to the level of performance in previous models” – you don’t use the word calibration in here, which makes it confusing when you define what a fatal flaw is or isn’t. Would I be correct in that this language doesn’t presume which version of the model is correct?
  - Dave Montali: We’re talking about trying to match flows and loads at rim stations, without the use of regional factors. So the performance of each station will be variable, depending on whether we can calibrate to it or not.
  - Tanya Spano: That makes sense – I would just hope that all such discrepancies are identified, and then the collective assessment of the outputs is part of what we would be looking at in the fatal flaw review. In other words, the scale of the data may be playing a role in differences we see between models, and I think it would be worthwhile to have that documented.
  - Lew Linker: If we added “overall failure of the model **calibration**” – would that help clarify things? Your comments are spot on, and when you look at the second half of the language, there may be problems with the observations - therefore the model can’t do a better job outside of the data that’s put in.
  - Tanya Spano agreed that changing the language to include ‘calibration’ would help to clarify the definition of a fatal flaw.
- George Onyullo asked how scale plays a role into what is defined as a fatal flaw – for certain stakeholders, a small-scale issue would constitute a fatal flaw. However, this may not be a fatal flaw for a state or jurisdiction.
  - Tanya Spano supported that concern, and emphasized the importance of collective agreement.
  - Dave Montali: If a certain stakeholder claims that an issue would impact the ability for them to track implementation, the Partnership would accept that comment.
- Bill Angstadt: The agenda says that we will be making a decision on this today. I don’t think we’re at that point yet; I would consider this as a piece of a larger consideration. I would suggest that we delay this decision at this time.
- George Onyullo: Perhaps we could be more categorical about the scale at which fatal flaw is defined. One of the problems we’re having is bridging the problems observed at state-basin scale and local scale. Once we make clear the assumption the scale at which a fatal flaw exists, then we can begin to make exceptions.
- James Davis-Martin asked if there would be any impact to the Modeling Team if the fatal flaw process was not approved by the WQGIT at this time.
  - Lee Currey: My opinion is that since we do have this additional time in the schedule, and the more detailed document to describe this process, outlining each workgroup’s responsibility, should probably all be combined with this fatal flaw

review process. So I would recommend that we put all of those components together, and present all of this information to the WQGIT at a later time.

- Dave Montali: I agree with Lee.
- Bill Angstadt recommended a document be developed cataloging all of the changes made to the Phase 6 modeling tools from the Phase 5.3.2 version in order to help guide review efforts.
  - Lee Currey and Nicki Kasi expressed support.
  - Gary Shenk: I think that's a good idea – to have the communications team lay out these changes. But I don't want to set the expectation too high for everything to be laid out in a one-page document. There have been a lot of changes implemented to the Phase 6 modeling tools, and they are all laid out in the Phase 6 model documentation. We could talk about broad categories of change, but this would not be an easy task to do.
  - Mary Gattis: That's what we're talking about at LGAC, and I think it would serve us all well to start thinking about which audiences need to hear what messages.
  - Lee Currey: I was visualizing 1-2 pages to document the key changes that were made to the Phase 6 modeling tools, so I think we should consider the major categories of changes that were made.
  - Joan Smedinghoff: It sounds like you would want to develop a communications piece that would be geared more towards a technical audience, so I would welcome members of the WQGIT to participate in the Communications Workgroup meetings.
  - Nicki Kasi noted that her ideal audience would not be technically-oriented modelers.
  - Gary Shenk suggested that this audience may be more interested in the process of the model development, and noted that there have been many people influencing the model in many ways.
  - Mary Gattis: I've talked with the Communications Workgroup Chair many times, and I would recommend each jurisdiction coordinate with their Communications Workgroup liaison.
- James Davis-Martin: Do we agree that having this plain-language explanation of what the Phase 6 Watershed Model is, where it came from, and how it's been improved is an important communication piece to accompany our delivery of the final modeling tools?
  - Widespread agreement was voiced.
  - James Davis-Martin asked if this communications piece was entirely separate from the fatal flaw review.
  - Lee Currey: I had envisioned a 1-2 page document listing the major changes that were made to accompany the fatal flaw review; more of an internal review document. So the first document would collate changes made, and a second piece would capture what a fatal flaw is. The third piece would constitute a proposed approach for how the Partnership can interpret and review the Phase 6 modeling tools (this would be the document Rich Batiuk is developing).

- James Davis-Martin: So the document noting the changes made could help inform the outward-facing document that Nicki is describing.
- Tanya Spano: My thought was that the elements in the piece Lee is describing need to be compatible with the other documentation that we are developing; i.e. – between the non-technical audiences and the technical audiences.
- Dave Montali asked who was responsible for developing this document.
  - Lee Currey: I think it's the responsibility of the Modeling Workgroup.

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Updated Information on Effects of Lower Susquehanna River Watershed, Conowingo Dam, and Reservoir Nutrient and Sediment Loads – Lee Currey, MDE, and Dave Montali, Tetra Tech

Representatives from the Modeling Workgroup [updated the WQGIT](#) on additional analyses of the effects of the lower Susquehanna River watershed, Conowingo Dam, and reservoir nutrient and sediment loads on upper Chesapeake Bay water quality, following Partnership-approved procedures.

*Discussion:*

- Gary Shenk: This confirms a decision made by the WQGIT in the Phase II WIPs – we used to have delivery factors for the river system that varied across scenarios. This made developing WIPs difficult, so we decided that for the purposes of scenarios, we would have the delivery factors constant. What the HDR model concluded is that for the Conowingo Reservoir, that ratio is constant across scenarios. It happened that the ratio was always 1, because it was modeled as a dynamic equilibrium, but it also confirms our initial assumption that even in its trapping state, the percent trapping doesn't change across scenarios.
- James Davis-Martin: By distributing loads across all jurisdictions, would it be reasonable to say that the number of BMPs that would have to be implemented across all of the states would be significantly higher than the number of BMPs if implementation took place only in PA and NY? Simply because of the effectiveness factor you described.
  - Lee Currey: Yes, essentially.
  - James Davis-Martin: So by spreading the load, we're inserting an inefficiency that essentially drives up the cost of the clean-up effort.

- Tanya Spano asked how the increase in load percentages were generated.
  - Gary Shenk: We went back to the hockey stick charts, and assumed there was a higher delivery. We then have an estimate of the P delivery, so we go back and adjust states' values based on whether the jurisdiction has a high point versus non-point source ratio.
- James Davis-Martin: It seems to me we should wait for the final calibration of the Phase 6 models before we can really nail down the effect of Conowingo.
  - Lee Currey: Before, we thought that with models even in draft form, we could pin down that effect. My thinking is that we should be able to provide information on this issue, and present back to the WQGIT as it evolves. We won't have information until we've been through the fatal flaw review, but that doesn't preclude us from presenting information as it evolves.
- Tanya Spano: Understanding that the decisional timeline might change, when will the Modeling Workgroup have quantified what they believe are the final loads and then decide upon allocation rules? Who makes that decision?
  - James Davis-Martin: My intent is that the WQGIT will make a recommendation forward to the Management Board, which will likely be based on a recommendation we receive from the Modeling Workgroup.
  - Lee Currey: Could you be more specific on the recommendation you envision from the Modeling Workgroup?
  - James Davis-Martin: I think we need the best or latest estimates, and understanding of what else is still subject to change, what variability still remains, or risk that we face in making this decision before the final calibration. Ultimately, I suspect the PSC will make a recommendation in the fall.
  - Lucinda Power: That's correct – the PSC has indicated they want to see the quantification of the Conowingo load, and how that compares to their draft Phase III WIP planning targets. That information won't be available until the August – September timeframe. So we'd like to tee this up to the WQGIT in mid-fall. We hope to have the quantification finalized by the end of August, and this is dependent on what fatal flaws are identified. So the PSC will make the final policy decision on who should be responsible for addressing that load, and we will rely on the Modeling Workgroup to quantify that load.

#### Phase 6 Land Use Debrief – Peter Claggett, USGS

Peter Claggett [briefed the WQGIT](#) on the recently completed land use database that will be used to inform the Phase 6 modeling tools.

#### *Discussion:*

- James Davis-Martin asked whether mixed open was categorized as an urban land use, and whether the agricultural open space land use class represented rural/natural mixed open.

- Peter Claggett replied that mixed open is currently considered natural as a mapped land use, and that the agricultural open space land use was derived from the Agricultural Census.
- Tanya Spano: So between Phase 5.3 and Phase 5.3.2, we doubled the amount of identified impervious surfaces. However, that trend is not matched when you look at the differences between Phase 5.3.2 and Phase 6.
- Peter Claggett noted that the GIS team hopes to release the 1-meter data for download in the summer of 2017.
- Marel King asked if there were additional tables and values available for the change in undeveloped land use classes between model versions.
  - Peter Claggett replied that he could make that information available, and will have the tabular Phase 6 land use data available for download soon.
- James Davis-Martin asked what the major concern was from the local government review.
  - Peter Claggett: By far most of the comments were concerned with our low-vegetation classes – turf grass, mixed open, and agricultural land. In response to this, we altered our classification of low-vegetation on federal lands, and for non-federal areas we shrunk the buffer we used around non-road impervious surfaces. That way, we didn't assume too large of an area around homes and parking lots.

#### Lowest Loading Land Use in the Phase 6 Model – Olivia Devereux, Devereux Consulting

Loads from land uses other than forest are sometimes lower than forest loads. The circumstances that cause this to arise and the frequency of occurrences [were discussed](#).

#### *Discussion:*

- James Davis-Martin: So this does not happen without BMPs, correct?
  - Olivia Devereux: Only when BMPs are the driver of the loading rate.
  - James Davis-Martin: That wouldn't bother me then; I don't recall anything saying that it's impossible to get your loads below forest.
- Mark Dubin noted that the AgWG recommended that land uses be allowed to go below the loading rate of forest given specific combinations of BMPs on land uses. Norm Goulet explained that the USWG could not reach consensus, and that a number of members thought it would be possible for loads to dip below forest.
- Beth McGee: It seems like people's gut reactions indicate this is possible, but that it would be great if we could identify real-world data to demonstrate this as an example.
- Tanya Spano: I agree with Beth; if everyone believes it can happen, then presumably it has happened somewhere.
  - James Davis-Martin: My gut is that it's probably wishful thinking that there would be published literature available to justify this recommendation one way or the other.

- Olivia Devereux: That's been my experience with the Phase 5 modeling tools, and sometimes I get questions from CAST users when they see this because it doesn't match their gut expectations.

**Decision:** The WQGIT recommended that the loads coming from land uses with BMPs applied be allowed to fall below the loading rate of forested land.

Discussion of Phase 6 Scenarios and Data Request Memo - James Davis-Martin, VA DEQ, and Matt Johnston, UMD

James Davis-Martin explained that the Partnership will have to begin considering when to submit their historical data in order to support the development of a 2016 historical progress scenario, as per the 2016 grant guidance. The current deadline for submission of this data is April 1<sup>st</sup>, but the WQGIT will be asked to consider whether this deadline should be shifted to account for the changing modeling timelines.

#### **Participants:**

<b>Name</b>	<b>Affiliation</b>
James Davis-Martin	VA DEQ WQGIT Chair
Teresa Koon	WV DEP WQGIT Vice-Chair
Lucinda Power	EPA WQGIT Coordinator
Lindsey Gordon	CRC
Michelle Williams	CRC
John Schneider	DNREC
Lori Brown	DNREC
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George Onyullo	DOEE
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Jim George	MDE
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Emily Trentacoste	EPA
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Sally Claggett	USFS
Norm Goulet	NVRC
Olivia Devereux	Devereux Consulting
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Karl Blankenship	Bay Journal
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Gary Shenk	USGS
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