Agriculture Workgroup (AgWG)

August 3rd, 2017

1:00 PM – 4:00 PM

AgWG Face-to-Face Meeting Summary

Meeting materials:
http://www.chesapeakebay.net/what/event/agriculture_workgroup_face_to_face_meeting_august_2017

Actions & Decisions:
ACTION: Jim Cropper will send the CBP Modeling Team the paper published by Dr. Pete Vadas on the updates potentially being made to the APLE model.
DECISION: The AgWG made a strong recommendation to the CBP Partnership that conducting an uncertainty analysis of the Bay Model should be a high priority moving forward during the Mid-Point Assessment and Phase III WIP development process. Conducting an uncertainty analysis will exemplify the CBP strategy of adaptive management and stakeholder engagement.
DECISION: The AgWG requests the WQGIT determine whether the issue of inequity in how soil-test phosphorus is dealt with as an input between the urban and agricultural sectors, is a fatal flaw under the Partnership-approved definition.
DECISION: The AgWG recommended that the Partnership explore methods to resolve the sector inequity issue for soil-test phosphorus inputs.

Welcome, introductions, roll-call, review meeting minutes Workgroup Chairs

- Meeting minutes from the July 20th Conference Call were approved.

Phase 6 Meeting Agenda Review Ed Kee

Agenda, protocol, and desired outcomes for meeting were presented.

Phase 6 Model Review M. Johnston, G. Shenk, and A. Sommerlot

- Gary Shenk, Andrew Sommerlot, and Matt Johnston presented comments received thus far on the Phase 6 model, and draft CBP responses to those comments.
- Regarding E3 scenarios, Steve Levitsky noted that there may be natural areas where P loads are negative. Matt Johnston replied that he will look into it.

Floor Comments Signatory Membership

The floor was opened to additional questions/concerns/comments related to the Phase 6 Model Review from the Workgroup Signatory Members.

- Delaware:
    - No uncertainty analysis has been performed to adequately measure performance between sectors and equity of BMP efficiency.
    - Many of our other comments concern the soil P analysis – we don't feel it was appropriate to use the APLE model without also using it on the developed sector. The UD data was

dismissed on that sector, and we have trouble pointing to a CBP decision that APLE was only appropriate for agriculture. We think that this is a fatal flaw of the model.

- Maryland:
    - Echoed comments from DE on using APLE exclusively on agricultural lands.
    - Questions on using monitored loads to generate initial loads, and then calibrating those loads back to initial loads – an issue of potential circular logic.
        - Response from CBP was that STAC said this method would be OK if the calibration pulled in different datasets to see which worked best in terms of various factors. The CBP is doing that method, and posits that its methodology is appropriate because it's just using monitored loads RIM-shed wide. For calibration, the model looks at the spatial distribution of loads, and what the model predicts is the spatial and temporal distribution of loads. It's no different than any regression model.
    - Absolute pounds are lesser in Phase 6 than Phase 5, yet we still have similar target losses for pasture and cropland. What is the justification here?
        - Response from CBP: We're not starting with a load estimating retention factor; we're looking at empirical SPARROW data, which using regression, indicates that in general there is a third as much N from pasture or developed as from crop, and 1/20th from natural as from crop. We're also using CEAP and the Phase 5.3.2 model, which essentially says the same thing. In short, the absolute pounds of nutrients do not inform total losses.
- New York:
    - I support tackling the issue of uptake versus removal for P within the AMS.
    - Echoed comments from DE on using APLE exclusively on agricultural lands.
    - What options are there for us to improve background data and APLE estimates within Phase 6, or for years to come? Or would that be such a lift that it would only be implemented in a Phase 7 model?
        - Response from CBP: The Modeling Team has said that every 2 years in the milestone periods, we do intend to collect data such as that. P soil data, nutrient data from poultry and swine, etc. – we don't have the methods fleshed out as to how/when that information will be used, but the data collection effort will continue.
- Pennsylvania:
    - A lot of our issues surround BMPs, such as nutrient management and manure transport, and the logic behind how they are effective or are not effective in the model.
    - Echoed comments from DE on using APLE exclusively on agricultural lands.
    - Intra-county manure transport is something we hadn't focused on previously, but maybe worth considering.
- Virginia:
    - Echoed comments from DE on using APLE exclusively on agricultural lands.
    - We understand the equity issues between urban and agriculture, and want to note that the thought processes on fatal flaws may not be fatal flaws, but instead disagreements with how data is presented for certain areas.
- West Virginia:
    - No separate issues raised.
- EPA:
    - No comments.
- Chesapeake Bay Commission:

- Regarding the different average loading rates, including the breakdown with natural land uses – the relative difference between natural and the other land uses seems obvious, except when you factor in that it appears there are in-stream loads that may not be in fact 'natural' (legacy sediments, streambank erosion, etc.). We want to be sure of how those types of loads are being addressed and accounted for, and whether they are being allocated properly in these land use categories.
    - Response from CBP: It's difficult to determine numbers for sediment in particular, and our efforts over the past few years have only gotten us to large averages, which suggest that deposition is roughly equal to erosion in the stream system.

Floor Comments At-Large Membership

The floor was opened to additional questions/concerns/comments related to the Phase 6 Model Review from the At-Large Workgroup Members.

- Paul Bredwell & Steve Levitsky:
    - Our comments focus on the uncertainty analysis. We understand it's a difficult process, but STAC has said numerous times that there needs to be an uncertainty analysis conducted. Without it, we worry that the model is exposed to serious credibility issues, and think this falls within the realm of fatal flaw.
    - Steve Levitsky added that this is a Partnership directive that is not being followed, and that if the uncertainty is unknown while states are producing WIPs, then it could be problematic.
    - Agreed with sector equity issue and sparsity of P data issue
- Lindsay Thompson:
    - Echoed comments from DE on using APLE exclusively on agricultural lands.
    - Concerns about use of soil P in general – whether there is enough data to draw significant conclusions from.
    - Fatal flaw that the amount of nutrients being contributed from agriculture remains the same through time and through models.
- Bill Angstadt:
    - Equity of responsibility between load sectors.
    - Target loads and average loads versus mass balances
    - Responsiveness for inputs and BMPs as WIP IIIs are developed
        - Land Use Loading Ratios have changed from beta to beta version of the model, despite the fact that the AgWG approved a set of numbers in the subcommittee report.
- Frank Coale:
    - Agree with sector equity issue and sparsity of P data issue
- Jim Cropper:
    - Question on the version of APLE model being used by the CBP.
        - Response from CBP: We are using the most widely-used version of the APLE model.

ACTION: Jim Cropper will send the CBP Modeling Team the paper published by Dr. Pete Vadas on the updates potentially being made to the APLE model.

Phase 6 Fatal Flaw Recommendation Summary All

- Ed Kee summarized the top potentially fatal flaw comments that had been raised:
- *Uncertainty Analysis:*
    - Kelly Shenk: Where does the CBP Modeling Team feel that the model may have missed the mark in terms of uncertainty in the models?
    - Gary Shenk replied that they need a fast model (which we have with Phase 6), a method for running the uncertainty analysis (which is currently unclear), a reason specified by management to run uncertainty, and the potential to quantify uncertainty in order to fully complete the analysis.
    - Chris Brosch noted that for some of the pieces in the model, there are varying degrees of best professional judgement that may impact the potential to quantify uncertainty.
    - Frank Coale: I think we need to make clear with this group that we've eliminated a lot of uncertainty with our actions to produce this model, but at the same time certain pieces need uncertainty bounds.
    - Jeff Sweeney: How else would we determine what the goals are to remove impairments on the Bay and build plans if the model is deemed uncertain?
    - Paul Bredwell and Jill Whitcomb noted that the key component to this comment is that messaging to the stakeholders and the public needs to carefully acknowledge that the model has some degree of uncertainty.
    - Gary Shenk noted that the STAC request for uncertainty is for the CBP managers to articulate the need for this analysis, not necessarily that it is a fatal flaw issue that should terminate the process of building the model (since it was not a Partnership decision that has been unfulfilled). I think this group could certainly message to the WQGIT that this analysis should be a priority once we move through the model-approval period.
    - Paul Bredwell supported Gary's suggestion.
    - Motion from Tim Sexton, seconded by Paul Bredwell, for the AgWG to make a strong recommendation to the CBP Partnership that conducting an uncertainty analysis of the Bay Model should be a high priority moving forward during the Mid-Point Assessment and Phase III WIP development process. Conducting an uncertainty analysis will exemplify the CBP strategy of adaptive management and stakeholder engagement.
        - James Davis-Martin suggested adding language that until the uncertainty analysis is available, the model be understood and implemented with a grain of salt.
        - Ken Staver cited concerns with spinning wheels – there is an understanding of the model's limitations already, and citing uncertainty with certain datasets, while at the same time not having mechanisms to improve those datasets, may not be a productive use of time.
    - Kelly Shenk: How important is it to highlight that the managers need to direct the Partnership on why to do this analysis?
        - Gary Shenk: We need to understand the question that we want answered through any potential analysis first.
    - Dave Montali: I think we need to remember the definition of a fatal flaw, and it's the intent of the Bay Program to keep moving forward to understand uncertainty. But I think it's important to note that it's not a fatal flaw, and not conditioned to be within the Phase III WIP timeframe.
        - Chris Brosch: I am comfortable with the motion as is, but would not support adding that this comment is not a fatal flaw to the motion.

DECISION: The AgWG made a strong recommendation to the CBP Partnership that conducting an uncertainty analysis of the Bay Model should be a high priority moving forward during the Mid-Point

Assessment and Phase III WIP development process. Conducting an uncertainty analysis will exemplify the CBP strategy of adaptive management and stakeholder engagement.

- *Use of APLE and Soil P data:*
    - Jeff Sweeney: We need clarification on using APLE in the urban sector.
    - Chris Brosch: The issue here is sector equity – the conditions by which the CBP Partnership directed APLE to be implemented for agriculture was never duplicated for the urban realm. This data exists for DE, but may or may not exist for other states. I don't feel the soil data that was collected is a true enough representation for the Chesapeake Bay Watershed. Not considering turf and urban P loading is a fatal flaw in the model.
    - Motion from Chris Brosch, seconded by Paul Bredwell that the use of the APLE model exclusively on agricultural lands, and not on the urban sector, is a fatal flaw.
    - Frank Coale: APLE is a tool that is constructed, designed, validated, and used as an agricultural soil P management tool. I would say it's not applicable on an urban setting, and is being used currently by the modeling community where it's appropriate. This doesn't mean there is sector inequity, it's just saying you can't apply tools from one sector to another sector – the urban/turf sector needs a separate process.
    - Gary Shenk: From the fatal flaw document standpoint, a fatal flaw must be a mistake based on instructions received by the Modeling Team, or illogical results. This comment doesn't meet those criteria; I'm not sure how to implement this, but I think it's reasonable to pursue a P balance in urban areas. But it took us years to get here with agriculture, and I don't think it's something we could do in any kind of reasonable timeframe, and it doesn't meet the definition of fatal flaw as adopted by the Partnership.
    - Chris Brosch disagreed, citing that illogical results were produced as a result of this issue.
    - Motion amended by Chris Brosch such that the inequity in how soil-test Phosphorus is dealt with as an input, between the urban and agricultural sectors is a fatal flaw.
    - Chris Brosch commented that the USWG did not have the same decision-making process as the AgWG, and that this decision with APLE and Bayesian statistical models was made by the Modeling Workgroup.
    - Frank Coale objected with the motion, citing that it is not a fatal flaw, but agreed with the sentiment.
    - Kelly Shenk noted that this is an issue, but that it may not meet the criteria to be a fatal flaw.
    - Motion amended by Chris Brosch, seconded by Paul Bredwell, such that the AgWG requests the WQGIT make a determination on whether the issue of inequity in how soil-test Phosphorus is dealt with as an input between the urban and agricultural sectors, is a fatal flaw under the Partnership-approved definition.
    - Jeff Sweeney requested suggestions from the membership on how to fix this problem.
    - Chris Brosch added a motion for the AgWG to make a recommendation that the Partnership explore methods to resolve the sector inequity issue for soil-test Phosphorus inputs. Seconded by Alisha Mulkey.
        - Kelly Shenk asked if Partnership included discussing this issue again at the sector workgroup level. Have we had this type of discussion between the sector workgroups?
        - Ted Tesler noted that the USWG had considered this to some degree during their active construction ENS panel.

DECISION: The AgWG requests the WQGIT determine whether the issue of inequity in how soil-test phosphorus is dealt with as an input between the urban and agricultural sectors is a fatal flaw under the Partnership-approved definition.

DECISION: The AgWG recommended that the Partnership explore methods to resolve the sector inequity issue for soil-test phosphorus inputs.

- *Land Use Loading Ratios:*
    - Bill Angstadt: I understand that the Modeling Team is working on a mass balance, so I would like to table this issue until that information is available. Alisha Mulkey: Sometime between now and the August 14th WQGIT meeting, I would like sufficient time to review the data that you will present. Ed Kee replied that this issue would either be resolved via email, or the AgWG would hold a special meeting to resolve this issue.

Next meeting: Thursday, August 17th Face-to-Face Meeting at the Chesapeake Bay Program Office, Joe Macknis Memorial Conference Room (Fish Shack) in Annapolis 10 AM- 3PM

Participants:

Name	Affiliation
Ed Kee	DDA Retired AgWG Chair
Lindsay Thompson	DE-MD Agribusiness Assoc. AgWG Vice-Chair
Loretta Collins	UMD AgWG Coordinator
Mark Dubin	UMD
Lindsey Gordon	CRC
Chris Brosch	DDA
Clint Gill	DDA
Amir Sharifi	DC DOEE
Jason Keppler	MDA
Alisha Mulkey	MDA
Julie McGivern	MDA
Greg Albrecht	NYS
Amanda Barber	NYS
Emily Dekar	USC
Jill Whitcomb	PA DEP
Ted Tesler	PA DEP
Tim Sexton	VA DCR
Bobby Long	VA DCR
James Davis-Martin	VA DEQ
Teresa Koon	WV DEP
Marel King	CBC
Kelly Shenk	EPA
Frank Coale	UMD
Paul Bredwell	U.S. Poultry & Egg Assoc.
Ken Staver	UMD
Bill Angstadt	Angstadt Consulting
Jeremy Hanson	VT
Steve Levitsky	Perdue Farms
Jim Cropper	Northeast Pasture Consortium
Andrew Sommerlot	UMCES
Matt Johnston	UMD

Gary Shenk	USGS
Jeff Sweeney	EPA
Gary Felton	UMD
Curt Dell	USDA
Ron Ohrel	Mid-Atlantic Dairy Assoc.