CHESAPEAKE BAY PROGRAM
WATER QUALITY GOAL IMPLEMENTATION TEAM

July 10, 2017 CONFERENCE CALL

Conference Call Phone Number: 866-299-3188 **Code:** 267-985-6222

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Summary of Actions and Decisions

Decision: The WQGIT approved option 2 for timing of updates to CAST: all updates will be incorporated at once at the end of the week, with an announcement distributed to CAST users and the WQGIT. The WQGIT also concurred that future updates to CAST will be incorporated on Fridays.

Action: The CBPO modeling team will develop a white paper for the WQGIT that differentiates between base years for planning targets and base years for Phase III WIP development in order to support upcoming WQGIT recommendations to the PSC on selecting base years for both items.

Action: Bruce Michael and Olivia Devereux will collect comments and revise the analysis in order to present Conowingo phosphorus offset options as accurately and equitably as possible to the PSC. Please send any comments on the initial analysis to Bruce Michael (Bruce.michael@maryland.gov) and Olivia Devereux (olivia@devereuxconsulting.com).

Welcome/Confirm Call Participants/Workgroup Updates – James Davis-Martin, Chair

- Reminder: The deadline for submitting GIT funding project proposals is August 4. WQGIT workgroups are asked to develop and share project ideas through July.
- Reminder: The WQGIT Face-to-Face meeting is scheduled for Sept 25-26 in Annapolis, MD. This will be a key decisional meeting.

Timeline for Updating CAST and Impact to Scenario Results—Jeff Sweeney, Olivia Devereux

Olivia and Jeff briefed the WQGIT on required updates to Phase 6 CAST, the timeline for making those changes, and the expected impacts to scenario results run in CAST. Changes that impact loads include the soil phosphorus equation, biosolids, cover management factor (C-factor), and population on septic. Three options for timing of updates were proposed: updates on a rolling basis as changes are made; updates on a set day of the week; or all updates incorporated at the end of the fatal flaw period.

Discussion:

- Jeff Sweeney: The effect of updates to loads would vary depending on items to be updated. Finer scale means greater impacts to loads at smaller scales. We need Partnership approval on the Phase 6 version of CAST by September. Updates to scenarios and tools will be completed in August and September.
- Olivia Devereux: We don't want to make changes that would change your analysis, but these changes do have to get made for greater accuracy.
- Tanya Spano: Thanks, appreciate it. To clarify—what are the options we have to choose from?
- Devereux: The options are updates are made at different days this week, or on a rolling basis.
- Spano: I think the end of the week for all changes and everyone gets a notice is better than on a rolling basis.
- Sweeney: This affects you if you're doing an analysis of scenario results in CAST. The set option would be that every few weeks we make major updates to CAST and make an announcement.
- Spano: So the decision for these first four updates will be a precedent for all updates to CAST?
- Devereux: Yes, it's possible that this might give some guidance when we identify other updates that need to be made in the future.
- Dave Montali: What if you just have all the changes ready the first day after the end of fatal flaw review? Personally, I could live with changes done this week since I haven't started any analysis yet.
- Bill Angstadt: In the calibration, the C-factor is correct, but in CAST it's not?
- Devereux: Yes. That minimum did not make it into CAST, so it can go lower than it should. And the crop land uses are grouped together, which doesn't match the calibration methods.
- Angstadt: Changing the scenarios immediately to match 10-C would work for me.
- Jim George: We are happy with option 2. We want to make sure that whatever changes are made are identified and announced to the WQGIT.
- Devereux: There is a place in CAST on the menu bar where updates are listed. Under About→ Upgrade History.
- Ted Tesler: Option 3 wouldn't be good for us. We need to see changes as part of fatal flaw review to see what the changes do and have those evaluated ASAP.
- James Davis-Martin: We had heard that soil phosphorus had been identified as a separate fatal flaw, which might be different from the scope Olivia described. Is there value on separating out soil phosphorus and address all the soil phosphorus issues at the end of the fatal flaw period?
- Devereux: The potential fatal flaw identified had to do with APLE, but this is a more specific issue.
- Sweeney: The other thing that needs resolution is the time periods for soil phosphorus scenarios.

- Davis-Martin: That's another case for doing soil phosphorus sooner rather than later. We also talked about land use data in VA, when can those changes be incorporated?
    - Peter Claggett: For tree canopy over impervious, we can reprocess at 10-meter resolution with post-processing.
    - Davis-Martin: No, this is using Ag Census mapping data and limiting changes based on uncertainty levels--the true-up issue (Discussed at the June 12 WQGIT Conference call).
    - Sweeney: That's not part of the updates we can do this week. That will have to go in later.
- Devereux: These updates are not being reviewed as fatal flaws, they are just issues that need to be resolved, and the updates may change scenario results.
- Spano: We have to agree on timing for these changes plus agreement on how future changes are made. What are the septic updates you're correcting?
    - Claggett: Every year, population census estimates change, which we use as control totals for septic populations. All those numbers change every year between 2011-2016. That accounts for near-term changes but longer-term, 1985-1990, those population estimates won't change that much.
    - Spano: I'm requesting more clarification in the documentation. I'd like to know what years a change would affect and what kind of changes might show up.
- Sweeney: We can't predict now what other changes we'll have to make in the future.
- Spano: I just want clarity for this update and I want to request that announcements about upcoming changes are made when we know about them.
- Mary Gattis: What about parties outside of today's call participants who are using CAST? How many people are doing an analysis now, and how will we make sure they understand the kinds of changes that have been made?
- Devereux: Whenever something changes in CAST, we always send out an email to users. A lot of the updates so far are cosmetic, like typos and such. These bigger changes are the first of their kind in Phase 6 CAST.
- Sweeney: The user group is huge. It goes way beyond the WQGIT and workgroups.
- Gattis: Do we have any sense of people who are actually using it? It makes me uncomfortable that it's still being tweaked but we are telling people to go out and use it.
- Sweeney: The user group is mostly from Phase 5, so this is a huge change from Phase 5 to Phase 6 CAST. Everyone has been told that everything in Phase 6 is new, and nothing is official, it's still in review.
- James: Now, you don't even have to log in to pull out data that may be subject to change. How do you know that your loads are subject to change?
- Devereux: We can't know who all is accessing that data. The only people notified are those who have created accounts for Phase 6 CAST.
- James: I propose Friday by noon, all scenarios in CAST will be updated. And we'll say that every Friday is the day to make regular updates. Objections, concerns?
    - No objections were heard. Approved.
    - Devereux: Friday by around noon is better than Friday at noon.

    - Devereux: You have to rerun scenarios to incorporate updates.
    - Spano: If we individually want to get notices, then we have to log in as a user. Otherwise we won't be notified of changes.
- Devereux: We will have to take CAST offline for about an hour to update it, so we'll try and do it around 7:30 AM or so, before office hours start.
- Michelle will forward the update announcement to the WQGIT email list to make sure everyone has been made aware of any updates occurring in Phase 6 CAST.

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2025 Growth Projections: Historical Trends Scenario—Peter Claggett and Jeff Sweeney

Peter and Jeff briefed the WQGIT on the first round of the Phase 6 2025 growth scenarios and implications for Phase III WIPs. These scenarios were requested at the June 7th LGAC/LUWG joint forum. The growth projections presented are based on historical trends in the watershed.

Discussion:

- Sweeney: EPA expects that each jurisdiction will describe projections for growth and develop Phase III WIPs to offset growth in their jurisdictions.
- Peter Claggett: Our timeline: July was set aside to review the Historical Trends Scenario and identify issues. Many issues were brought up at the forum, and we're working to address those. We will be addressing and reviewing the scenarios through August. We are simulating land cover and land use for the future through 2025, covering the entire Mid-Atlantic and clipping out the Bay watershed. We've automated both production and synthesis of data, so it's easier and faster than ever, but it will still take us some time to do.
- Claggett: We will be sending around a report from the forum to WQGIT and LUWG members. One commenter noted that we need more reference information to make sense of the maps we show. We are moving to a web viewer to make maps more interactive and informative for users. We can't do the "utopian" scenario this summer, that will be completed in the fall. What we can do in the near term is limited. We've looked at a lot of zoning data, but we can't use a lot of it because it's over-generalized.
- Davis-Martin: We have to choose a scenario to use for the Phase III WIPs right? And whatever we don't use would give us an idea of what would happen if our aspirations were reached for conservation, smart growth, etc.
- Claggett: We will also be looking at outcome metrics, as in what's the best for water quality, etc. Those outcome metrics should also contribute to the decision-making process.

- Spano: For the COG region, our cooperative forecasts use top down and bottom up. We use an econometric model that is very robust. For anyone interested in COG region projections, we would stand by those and we want to discuss how our current projections fit into these projections. Is this Bay-wide, all, or nothing scenarios? Maybe we should have an offline discussion about this.
- Claggett: It's not all or nothing, and we can have an offline discussion. We're processing COG projections and using as a weighting factor, we want to make sure we're matching that proportion of growth that COG has predicted.
- Spano: Does each jurisdiction, county, or the Partnership make a decision on how to capture growth?
- Davis-Martin: All areas where no data was submitted for zoning, that looks a lot like historical trends. In a way it's still county by county decision to see what is the best fit.
- Sweeney: If you think you'll have a more aggressive scenario that impacts growth in the future, that's something that goes into a WIP as BMPs.
- Angstadt: Historical Trends, Policy Lite, and Policy Plus are decisions we have to make as a group. We have to decide which of the three are the best predictors for future 2025 growth. Then Utopian would help us see what WIP implementation might look like.
- Jim George: What do you do for the counties without local zoning? All you can do there is historical trends, right? And you have some maps that show where divergence from historical trends might occur.
- Claggett: The patterns of changes will change across scenario projections. We're not just extrapolating trends, but we do want to illustrate that projections can be more of a desired outcome that don't account for all the dynamic factors that influence land use change. We want to know if we should continue with established projections or bring in other factors that might more accurately predict growth.
- George: What about counties that don't have projected infrastructure or zoning, then Current Policy Plus can't apply, right?
- Claggett: If there are rule-based zoning concepts we can institute that can be proxies for those policies, we will do that in the model across all jurisdictions.
- George: Why wouldn't we want zoning and planned infrastructure? What are the downsides to what appears to be the best option?
- Claggett: It depends where you are. Sometimes zoning is so generalized that historical trends are actually better predictors of future growth. Generally, the places growing most have the most data, and the ones growing the least have the least data. So we will be able to get right what we need to get right.
- George: Is this a uniform decision? Does the whole Bay have to be under one scenario?
- Claggett: That doesn't have to be true. We just want to use the best available information. All the states might pick something different and that wouldn't be a problem for me. That wouldn't be a logical flaw.
- Spano: For the COG region, I don't know that this adds anything to our current projections and planning processes. I'm not sure about the language for current policy lite

and current policy plus. Our current policy is aggressive so that's our current policy lite where others are current policy plus.

- Peter asked Tanya to send in suggested language to better fit local planning areas.
- Onyullo: I think Peter, Tanya, and I should sit down to review information for the COG region. I don't think that when Tanya says her data is robust that doesn't mean your data isn't.
- George: So are states able to choose what projections they go with or is that a Partnership decision?
- Sweeney: It's whether the group chooses to use a projected condition at all, and then to decide what projections fit best.
- Davis-Martin: Is that a decision that has to be made across all the jurisdictions or can some choose yes and some no?
- Sweeney: I think everyone has to decide whether to use 2025 projections for the WIPs or not, you can't go state by state.
- Sarah Diebel: Is this different than selecting the scenario year for the planning targets?
- Sweeney: Those are separate decisions. We have to choose a base year for establishing planning targets. There seemed to be consensus using a current condition—but there are options there - 2010, 2013, 2017, or 2025.
- Diebel: So what about areas that have growth between 2015-2017 rather than growth between 2000-2015? How is new growth accounted for? Is there a way to think about changes in projected population that way?
- Claggett: This is a best guess, but over time we will be monitoring on the ground and holding folks accountable for their projections.
- Onyullo: We need uniformity and accuracy—a balance of both that we can agree on.
- Claggett: The first 3 scenarios have uniformity in projections. There is variability in the spatial interpretation of that. For current policies, we depend on a lot of separate data coming in from each county.
- Onyullo: Can we fold in weighted factors of current planning to the scenarios?
- Claggett: Current Policy is a tweak of the trends and current policy plus is another tweak, but they have a lot of commonality between them.
- Nicki Kasi asked about the difference between the base year decision for the Phase III WIPs and the Phase III WIP planning targets.
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- Sweeney: Planning targets is the set of conditions you want to use for No Action and E3. Those are used to calculate the Phase III WIP planning targets. But you don't necessarily have to use that same year in your Phase III WIP development.
- Davis-Martin: That distinction is really complicated, and we might want to develop a white paper for when we decide on these issues.
- Sarah Diebel: Attachment B-3 from the October Face to Face might be a good starting point for reviewing and knowing what we want to make decisions on.
- Montali: If your state has no zoning and no information on planning, then the decision on planning vs Current Policy Lite and Current Policy Plus makes no difference.

- Davis-Martin: When you look at the county scale, all that changes is where in the county changes in land use and population occur. But changes are aggregated to the county level.
- Montali: Although some people think your projections are inaccurate, you're still going to use these numbers?
- Claggett: We don't make any of our own projections. We take data that jurisdictions have provided us, and we look at how factors might influence deviation from those trends.
- Davis-Martin: I would call for Lucinda and Jeff to help develop a white paper that clarifies the difference between the base year for the Phase III WIP planning targets and base year for Phase III WIP planning development.

Action: The CBPO modeling team will develop a white paper for the WQGIT that differentiates between base years for planning targets and base years for Phase III WIP development in order to support upcoming WQGIT recommendations to the PSC on selecting base years for both items.

Monitoring & Trend Storylines: A Choptank Case Study—Emily Trentacoste

Emily Trentacoste briefed the WQGIT on the monitoring and trend results and storyline in the Choptank River watershed, and discussed implications for Phase III WIP development and implementation.

Discussion:

- Beth McGee: I think this is really valuable work and I want to see more. The presentation makes sense, with the storyline. NRCS might be a good potential audience, and state technical committees. Using these tools that allow us to be more budget conscious is a good idea.
- Emily Trentacoste: As we go around the watershed, we want to see if it's useful to sit down with the jurisdictions to see how we can do this in their watersheds so that these tools are useful to them.
- Spano: Thank you, the storyline and relating loads to water quality impacts and management is a really good model for what we need to do more of, explicitly linking the water quality response to loads.
- Trentacoste: I'll follow up with you offline, thanks!
- Davis-Martin: We've talked about optimization and identification of specific drivers in given localities so that we can spatially optimize implementation. We can incorporate these drivers as informing our optimization system. Instead of storylines for specific geographies, maybe a storyline for similar areas that follow this template. This tells us which BMPs to implement where, which can be a really useful tool.
- Trentacoste: One of our groups at CBP will be doing user experience research for end users, and I want to follow up in the WQGIT membership with folks who would be interested in giving user feedback during that process.

- Diebel: On slide 31, I have a comment on the distribution of land uses. Agriculture makes up the primary land use, but is there a broader distribution of scale among the source sectors that would make a difference in the conclusions you draw?
- Trentacoste: It makes the analysis more complex, but we have the tools available to get at areas where you have a more even distribution of land uses in a watershed. We want to make sure we pull together those tools as we move forward.
- Sweeney: By looking across various models, you can start to see what might be causing changes in loads, whether urban or ag-driven.
- WQGIT members should contact Emily Trentacoste (trentacoste.emily@epa.gov) for more information and follow-up questions.

Exploring Land-based Strategies for Addressing Conowingo Phosphorus Infill—Bruce Michael (MDNR) and Devereux Devereux (Devereux Consulting)

Bruce and Devereux presented the first stage of a three-phase approach that explores opportunities for land-based practices to reduce phosphorus and sediment as a result of the Conowingo Reservoir at full infill capacity. The work is being conducted through the Modeling Workgroup and the CBPO modeling team. Topics included the preliminary state of knowledge, options for addressing the increased loads, and potential timelines for implementing options.

Discussion:

- Bruce Michael: Conowingo has reached trapping capacity, and we want to explore options for addressing those phosphorus loads. 3 segments will not meet water quality standards with reduced trapping capacity, based on: Lower Chester, Eastern Bay, and segment CB4—deep channel dissolved oxygen won't be attained with additional phosphorus loads from Conowingo. More information on the demontration project with Exelon for upstream implementation is coming in next few months. Olivia Devereux developed cost scenarios for options to address Conowingo infill in the Susquehanna watershed.
- Michael: We're asking for comments over the next couple weeks. Once we get input, we will rerun the scenario on Phase 5 and later on Phase 6 to give the PSC the most accurate information available. This is one tool that the PSC will use in late October to determine how these loads should be addressed. We just want input today on the tool we're presenting. We also ask everyone to read the report—that has a list of all the appendices for data that we used.
- Davis-Martin: If we spread implementation over the watershed, that means more implementation overall since we're not targeting the area of highest load.
- Michael: But we can put more cost effective BMPs at different areas in the watershed, which is why it might be a more viable option, and why we included it.
- Devereux: Each state has a mix of BMPs implemented.
- Suzanne Trevena: Why does DE have such a high percentage of implementation?
- Spano: How was this allocation determined for the all-state option?

- Devereux: This follows the TMDL allocation methodology. We ran the model with isolation scenarios to determine level of effectiveness and impact on the watershed with BMP implementation.
- Montali: It's a little disingenuous to put out scenario 3. It seems good politically but I don't know if it's really the best option to go with. I know all the WV folks who heard this are really taken aback and want to really scrutinize and fine tune this.
- Michael: We also heard that from the source sector workgroups. We need that reality check added in.
- Devereux: This is an early analysis done in April on Phase 5.3.2, and we didn't have a current Phase 5 E3 scenario. We will redo this in Phase 6 and use E3 as a parameter. This information will be combined with other information to help the PSC understand the decision. Another piece of information would be to leave the WIPs as they are and include nitrogen/phosphorus exchanges which are not in this current analysis.
- Michael: I think we will have much better information when we actually run this on Phase 6.
- Bill Ball: This is more a policy than science decision. The DE question is interesting. Would the PSC be interested in a scenario #4 where things are manipulated so that percent increase is equalized?
- Devereux: That violates assumptions made already that states that have already started implementation should have that count towards their credit.
- Ball: With historical contributions from each jurisdiction, normally it makes sense. But this might be an exception that might necessitate a change in the approach.
- Spano: I have a problem with the language used. I think we need to be more clear going forward with what's a policy issue versus what is a technical issue. For instance, what are the TMDL implementation rules? If it's a policy decision to make the change, the rationale has to be addressed.
- King: It is the MD study that also looked at bioavailability of nutrients that are coming over, right? Is there a chance that that could impact our expectations for the phosphorus impacts?
- Michael: I don't think that will have an impact on water quality attainment predictions. There's a report that just came in that I think addresses some of those issues.
- King: The delivery factors have been updated right?
- Devereux: That's right, we used new information to adjust the Phase 5 delivery factor.
- John Schneider: I want to address where the money is. If it's more cost effective to implement highest in DE, then we'd like to see that cost analysis and know who's going to fund it.
- Michael: Funding decisions will be made elsewhere. We're just presenting policy options here. We will have to have multiple solutions to this. For instance, dredging will significantly affect the amount of upstream and downstream load in the analysis.
- Onyullo: Why did PA's cost decrease from Phase II WIP costs?

- Devereux: 3 BMPs changed in this scenario, where we took out some of the more expensive ones and preplaced them with more cost-effective ones. That offset the costs in PA.
- Onyullo: Focusing on PA from a scenario standpoint, depending on which one you consider, for example scenario 3 when it goes lower, cost becomes insignificant for PA in scenario 3. The other point is the intensity of investment, as you want to not only find where it's cheaper, but you want to see the cost per pound reduction in each state. I have a back of the envelope spreadsheet that I can share with you.
- Michael: Thanks, that's a good point. Please share that spreadsheet with us.
- Jim George: Are you finding that you run into non-linearities, in terms of cost effectiveness for implementation? Are you running into diminishing returns in the Susquehanna?
- Devereux: Yes, there are only so many BMPs you can implement in one place. We're already in the ridiculous area of implementation for Ag BMPs, and those are the most cost effective BMPs. Things get very expensive when you move to urban BMPs.
- Spano: There's really more detail that needs to be shared here to make sure it's being distributed equitably.
- Onyullo: Each jurisdiction is supposed to come up with an offset strategy for these kinds of problems, but we don't have good coordination Bay-wide for this kind of problem.
- Davis-Martin: Thanks George, I see what you're talking about.
- Davis-Martin: Can we represent this in the chart as extra cost instead of savings? how would that affect the other states in the watershed?
- Norm Goulet: What Olivia suggested is what the USWG also brought up. I think we're a little premature on jumping on the cost aspect before the final analysis has been done.
- Angstadt: I want to suggest a bar chart instead of a pie chart.
- Michael: I'd like to request that we take some time to incorporate these comments and run more accurate analyses and bring them back to the WQGIT for further discussion.
- Devereux: We will redo the entire analysis with Phase 6 BMPs and cost effectiveness, based on feedback from the group.
- Davis-Martin: Make sure you read that report and send in comments to Bruce and Olivia so they can incorporate these comments.
- Devereux: All the BMP information is in the report, so look at that for information.

Action: Bruce Michael and Olivia Devereux will collect comments and revise the analysis in order to present Conowingo phosphorus offset options as accurately and equitably as possible to the PSC. Please send any comments on the initial analysis to Bruce Michael (Bruce.michael@maryland.gov) and Olivia Devereux (olivia@devereuxconsulting.com).

Phase 6 Fatal Flaw Review—standing item for any issues to be addressed

Presentation of any identified fatal flaws in the Phase 6 suite of modeling tools and recommended resolutions of the identified flaws.

- Power: We have an updated version of the fatal flaw comments spreadsheet that's posted every Tuesday. It will be updated tomorrow.
- Davis-Martin: The sooner you get in comments to us, the sooner we can address them, so please submit comments on a rolling basis to Gary Shenk (gshenk@chesapeakebay.net).

Adjourned

Participants:

James Davis-Martin, VA DEQ
Teresa Koon, WV DEP
Lucinda Power, EPA CBPO
Michelle Williams, CRC
Lindsey Gordon, CRC
John Schneider, DE
George Onyullo, DOEE
Jim George, MDE
Dinorah Dalmasy, MDE
Bruce Michael, MDNR
Chris Thompson, Lancaster County Conservation District
Mary Gattis, LGAC Coordinator
Jessica Blackburn, CAC Coordinator
Dave Montali, WV DEP
Loretta Collins, AgWG Coordinator
Norm Goulet, USWG Chair
Tanya Spano, MWCOG
Olivia Devereux, Devereux Consulting
Emily Trentacoste, EPA CBPO
Jeff Sweeney, EPA CBPO
Jeremy Hanson, VT
Anne Carkuff, EPA R3
Amir Sharifi, DOEE
Nicki Kasi, PA DEP
Ann Jennings, CBC
Beth McGee, CBF
Peter Claggett, USGS
Sarah Diebel, DOD
Emily Dekar, USC
Bill Ball, CRC
Bill Stack, Center for Watershed Protection
Jenn Volk, U Del
Joel Blomquist, ITAT coordinator
Joe Wood, CBF
Kristen Wolf, PA DEP
Sarah Diebel, DOD

Lew Linker, EPA CBPO
Lisa Oschenhirt, VAMWA/MAMWA
Marel King, CBC
Mukhtar Ibrahim, NYSDEC
Russ Baxter, VA Office of Natural Resources
Paul Emmart, MDE
Teresa Koon, WV DEP
Will Hunley, HRSD
Sarah Latessa, NYSDEC
Ruth Izraeli, EPA R2
Caroline Donovan, UMCES