Water Quality Goal Implementation Team (WQGIT)

Monday, May 18th, 2026
1:00 - 4:00 PM

Visit the meeting webpage for meeting materials and additional information.

Purpose: This is the monthly meeting of the Water Quality Goal Implementation Team (WQGIT). The WQGIT/CWGT discussed the proposed CWGT workgroup structure and voting members were asked to provide votes by email following the meeting by May 27th. Other topics included a primer on Planning Targets, an update on the hydrologic period/critical period analysis, a discussion on opportunities to deepen the use of monitoring data with partnership modeling efforts, an overview of anticipated changes to the TCI and Compacted Pervious loading rate ratios for Phase 7, and an update on the BMP remote sensing effort.

Actions & Decisions

Action: Please reach out to Caroline, Petra, Lee, or Greg to suggest any follow-up or new topics for after the June hybrid CWGT meeting.

Action: Please complete this RSVP form by **Friday, May 29** (sent via email May 11) to indicate your attendance at the June 22-23 CWGT hybrid meeting. If you are unable to access the Google Form, reach out to Caroline and Petra or you can submit your RSVP via email with the information in this PDF. Information on a hotel block will be sent to those who indicate they need hotel accommodations on the RSVP form.

Action: CWGT leadership will update the structure strawman and include additional explanation of groups' roles.

Decision Requested: CWGT voting members are asked to provide their consensus continuum vote by **Wednesday, May 27th at 12pm** on recommending the proposed CWGT Structure to the Management Board.

Action: Continued discussion will occur to reach consensus on where best the function of the current FFWG should continue, including discussion at the June 9th FFWG meeting.

Action: CWGT members with feedback on the initial remote sensing feasibility assessment or additional uses for remote sensing within the partnership are encouraged to reach out to Eric (Hughes.Eric@epa.gov). CWGT will continue to be updated on these efforts.

Action: Continue to share any feedback or ideas related to leveraging monitoring data and modeling insights with Kaylyn (Gootman.Kaylyn@epa.gov). CWGT will continue this discussion at the June CWGT meeting.

Action: An update to the Phase 7 Loading Rate Ratio for Tree Canopy over Impervious and Compacted Pervious will be made, with input from USWG.

Action: Long term, USWG and FWG will gather more up-to-date information on leaf litter collection programs and the characteristics of those organics for a better understanding of how they contribute to the overall loads.

Action: CWGT will continue discussions at the June meeting and begin working towards determining how to set planning targets for Phase 7. CBPO will develop a summary of the documentation of decision points from Phase III WIP Planning Target development to aid this. Please reach out to Alex with any questions (agunnerson@chesapeakebay.net).

Action: An FAQ document with the implications and main considerations of hydrologic period choices will be shared with the CWGT in advance of the June CWGT meeting.

Minutes

I. Welcome and Announcements
Lead: Lee McDonnell and Greg Sandi, CWGT Co-Chairs

II. Business, Workgroup & Phase 7 Decision Updates
Lead: Caroline Kleis, WQGIT Co-Staffer

Caroline provided the group with relevant announcements and updates, which are on the posted slides and at the bottom of the agenda. Multiple website updates have been made, including an update link to view all BMP Expert Panel Reports. CWGT is holding a two-day, hybrid meeting in Baltimore, MD on June 22-23. If you are interested in attending (in-person or virtually), please complete this RSVP form by Friday, May 29 (sent via email May 11th). Information on a hotel block will be sent to those who indicate they need hotel accommodations on the RSVP form.

Materials: Presentation

Actions:

1. Please reach out to Caroline, Petra, Lee, or Greg to suggest any follow-up or new topics for after the June hybrid CWGT meeting.
2. Please complete this RSVP form by **Friday, May 29** (sent via email May 11) to indicate your attendance at the June 22-23 CWGT hybrid meeting. If you are unable to access the Google Form, reach out to Caroline and Petra or you can submit your RSVP via email with the information in this PDF. Information on a hotel block will be sent to those who indicate they need hotel accommodations on the RSVP form.

III. CWGT Workgroup Assessment

Lead: Lee McDonnell and Greg Sandi, CWGT Co-Chairs

Goal Teams have been tasked with providing a recommendation on workgroup structure within the Goal Team by May 28th. Lee gave an overview of a revised CWGT structure based on feedback received after the April 27th CWGT meeting and the May 12th CWGT Office Hours. CWGT was unable to reach consensus at the meeting and determined to finalize the approval over email.

Two main points of discussion were the role and proper grouping of Criteria Assessment Protocol (CAP) and Bay Oxygen Research Group (BORG) and whether Federal Facilities should remain its own workgroup under the Goal Team or be integrated in some form into Watershed Technical Workgroup (WTWG). There were requests for additional explanation of groups' roles included on the revised structure materials, further discussion on membership of groups that would benefit from a makeup different than 9 signatory/6 at-large members, and further discussion on function for any groups that have merged groups, particularly Monitoring Workgroup.

Post Meeting Note: An updated workgroup structure with requested additional details was made for CWGT approval via email. Changes include 1) BORG and CAP are listed as separate Action Teams under the Goal Team and 2) Federal Facilities is listed as a workgroup, with discussion on its role to be continued.

Materials: Workgroup Structure Strawman (version: 5.18.26), Workgroup Organizational Chart (version: 05.19.26 for decision via email), Workgroup Descriptions

Actions:

1. CWGT leadership will update the structure strawman and include additional explanation of groups' roles
2. Continued discussion will occur to reach consensus on where best the function of the current FFWG should continue, including discussion at the June 9th FFWG meeting.

Decisions:

1. **Decision Requested:** CWGT voting members are asked to provide their consensus continuum vote by **Wednesday, May 27th at 12pm** on recommending the proposed CWGT Structure to the Management Board.
    a. **Post Meeting Note:** The organizational chart, workgroup descriptions, and vote tracker with comments from the vote by email are all posted to the May calendar page (all files dated 05.28.26).

Discussion:

- Amanda Shaver, VADEQ asked for more clarity on the reasoning for maintaining ITAT and CAP separately, given that some of the work of CAP could be going away and continuing work afterwards will occur more at a jurisdictional level than in the partnership.
    - Lee responded that based on other comments heard at the office hours as well, perhaps CAP should be turned into an action team. The functions of ITAT would go into the Data, Analysis and Reporting (DAR) group in addition to bringing monitoring data into the forefront.

- Amanda agreed an action team is a good idea for CAP. Amanda suggested having someone with CAP or BORG integrate more into the modeling workgroup, so there is a crosswalk between modeling and criteria assessment groups.
- Matt Stover, MDE noted that CAP still has a lot of work, so it is not going to be an action team that would dissolve any time soon. Matt supported BORG as a subgroup to CAP because BORG is essentially developing an assessment methodology.
- Lee noted BORG would finish its task and sunset sooner than CAP, likely at the end of 2027. CAP could go longer, with the idea that that group would sunset and be formed again as needed.
- Amanda Shaver (in chat): I think end of 2027 is appropriate.
- Matt noted that one of the challenges is that BORG is developing the 4D interpolator without having all of the DO assessment rules defined. Even if the initial date for the 4D interpolator ready for the Phase 7 model is Fall 2026, there should be significant editing to make sure it captures the assessment methodologies that jurisdictions ultimately adopt.
- Lee responded that the 4D interpolator is intended to be used for stoplight charts in Jan 2027, so having something by then would be outstanding.
- Peter Tango, USGS shared he agrees with Matt and Amanda in different ways. There's a very specific charge that needs to be addressed by 2028 that is aligned with the equivalent of an action team that the jurisdictions are really focusing on. But there are also topics beyond that like SAV assessment or chlorophyll. Is that a singular topic that the workgroup takes on?
    - Matt Stover (in chat): Matt Stover: Good questions Peter. I don't have a specific vision for how that might work moving forward.
    - Amanda Shaver (in chat): MD and VA have identified some consistency issues to right with the SAV assessment that could be worked on between now and 2027. I think a document/white paper to post on the CBP webpage would be doable or it would be documented in state IR guidance methods, which are public commented on. For Chl-a, the James River Chl-a criteria development was a large investment that was invested in by the state. Not sure that is a priority to do for other tribs on the immediate horizon.
- Peter Tango (in chat): Amanda - to your questions about DAR, our outcome is water quality, stds attainment, and monitoring. The partnership has many water quality analysis and reporting responsibilities like Bay Barometer, like nutrient trends, like temperature patterns, factors affecting trends evaluations and more. One element of the work under the outcome is Standards Attainment connections. It sounds like your question was asking if CBP communications, our collective product development and publishing expectations is something you want to revisit in the context of the partnership's Water Quality work? Thank you.
    - Breck Sullivan (in chat): The current role of ITAT: Contribute to explaining changes in water quality. The "why" behind the status & trends. Explaining spatial and temporal patterns in water quality for the entire Chesapeake Bay requires gathering researchers and analysts from various governmental, academic, non-profit, and private organizations to enhance understanding of these patterns. ITAT works to enhance technical expertise and conduct analysis and synthesis of the science on changes in water quality and its connections to living resources and habitats conditions.

        - Amanda Shaver (in chat): Peter - I am all for revisiting reporting products on water quality status/condition/trends to ensure consistent messaging, which is why I was thinking combining those would be a good idea.
        - Matt Stover (in chat): I second that thought of Amanda's.
- George Onyullo, DC DOEE (in chat): We should be clear about what exactly separates "BORG" from "CAP"?
    - Kaylyn Gootman, EPA CBPO (in chat): BORG is the Bay Oxygen Research Group, the team charged with developing the 4D Interpolator, which is a new tool. CAP, is the Criteria Assessment Protocol Workgroup, charged with addressing and advising on questions related to water quality criteria assessment protocols.
    - Peter Tango (in chat): BORG creates a habitat evaluation. Rules for assessment can be applied after you have a dependable habitat evaluation framework. It's not only a criterion assessment tool.
    - Matt Stover (in chat): Peter and Kaylyn, For its current implementation with DO, the 4D interpolator is a model-based assessment methodology for assessing DO water quality criteria. In this case, the habitat it is "evaluating" is just the DO conditions that support aquatic life, thus assessing criteria attainment.
    - Matt Stover (in chat): Kaylyn and Peter, Perhaps you're intimating that it will be used for targeting the Phase 7 loading model which makes sense but that is no different than how States develop TMDLs for water quality impairments. The TMDL endpoints are still based on the 303d assessments and the rules established for those.
    - Peter Tango (in chat): Hi Matt, thanks for your thoughts here. Can I clarify something with 4D world that might help us please - So far, the 4D interpolator is only doing one thing. It is filling in dissolved oxygen values in places and at times that we don't have measurements in hourly time steps. That is all it is doing. There are no assessment methods attached to it. Resolution needs in time and space have helped guide what is useful for our criteria assessment but they are not necessary for creating a workable 4D interpolator of the Bay. We can ask the output to be evaluated any way anyone wants. For example, if fisheries just wants a summary of annual dissolved oxygen below 2 mg/L, we can do that, important to fisheries but not connected to a specific criterion evaluation. If we want it to evaluate space-time for summer 30D mean, we can evaluate that. I hope that is helpful but welcoming your thoughts.
    - Matt Stover (in chat): I hear you Peter. To paraphrase, you see this tool (i.e., the 4D) as broader in purpose than what I do. It may be true that its capable of more things, but what was the reason for its creation? It was to provide estimates of DO everywhere to improve our assessment methods. And for better informing pollutant loading estimates through the Phase 7. Without those needs, you likely wouldn't have put this many resources into it. And to my knowledge, none of these other purposes are being realized or sought at this time. So again, in practice, its serving in the Clean Water Act regulatory realm to inform assessments of criteria attainment and improving loading estimates.
- Liz Dawson, USFWS and FFWG Member, shared that she and others from FFWG would not like to meet more frequently than every other month and if they are merged with WTWG that would be too frequent of a schedule for their purposes. FFWG also promotes collaboration between the states and the federal facilities.
    - Lee responded that the idea of FFWG sunsetting and the function moving into WTG would be to use WTWG as a venue 2-3 times a year, or as needed, for current topics

discussed at FFWG. Jurisdictional partners you would want to interact with would be part of WTWG and current workload could also be brought up at the monthly FMC and could, a couple times a year, have dedicated agenda time for issues for the FFWG.

- Liz responded: I am wondering if that would have the same amount of meetings, but dilute the purpose of the group. Maybe the FFWG is at a point where it can dissolve - just dissolve and not become a part of a workgroup. I think that might be preferable to the members of the workgroup, rather than join another workgroup.
- Lee added that FFWG has been searching for a chair for the past two years and no one has shared interest. Understanding that a lot of FFWG discussions are on annual progress submissions, we wanted to make sure there is a place for those discussions.
- Liz responded: I'm having trouble seeing a benefit in rolling the group into another group that's doing something else.
- Kevin DuBois, DOW (in chat): Absolutely against dissolution of the FFWG.
- Auston Smith, FFWG and WTWG Coordinator, responded that with the exception of the very specific Phase 7 item covered in August 2025 a lot of conversations FFWG has had in their past agendas has been focused on the reporting of BMPS on federal lands and Progress. Those are already topics the WTWG discusses each month. So, we thought the WG membership at the FFWG could be involved at those discussions in the month really where it is relevant, maybe 5-6 times a year. It would depend on the topics that the existing FFWG members would want to bring forward.
- Katie Brownson, USFS (in chat): At a minimum there should be a discussion with the FFWG before it is formally dissolved to determine how best to engage federal land managers in the program going forward.
- Suzanne Trevena, EPA R3 shared that it was helpful to hear from workgroup members directly, which is similar to the general consensus she has been hearing upon reaching out. She thinks it would be better if we could work offline and engage with partners, before we formally say ‘let’s get rid of this group.’ There does not seem to be consensus from this group at this time.
- Mike LaSala, Land Studies (in chat): Agree with Suzanne.
- Kevin DuBois noted that membership of WTWG and FFWG is very different. Most of the Federal Agencies do not participate in WTWG. I think that might be because the WTWG tends to focus on more urban or suburban, whereas FFWG is more rural. I definitely don’t want to see the dissolution of the functions of the FFWG. Not necessarily opposed to combining the group, but I think we would have to go through some sort of re-envisioning how that would work, including how to dedicate agenda time, what topics we would cover, etc. I think that would ease a lot of the concerns from folks about combining the two. I agree with a lot of the comments so far from Suzanne and others.
- Auston responded that, regarding the jurisdictional representatives on both workgroups, membership is almost exactly the same. WTWG currently doesn't have any membership slots for federal facilities. And so that is skewing this percentage because FFWG is very unique in its membership structure. Completely agreed that we would need to work out workgroup structure, meeting frequency, allotment of time for topics, scheduling, voting structure, and other considerations if FFWG is folded into WTWG.
- Auston added that, regarding Kevin’s comment about WTWG’s focus being more urban, some of our at-large membership or specific jurisdictions may have more

focus or expertise in some of the urban sectors, but all the more reason to have the federal agencies then express their views at WTWG so the rural aspects of BMP implementation are not overlooked.
    - Kevin McLean, VADEQ (in chat): Auston basically just said what I had raised my hand to say. As a jurisdiction, we've rarely yielded results from FFWG that can't be covered as an agenda item within another group.
    - Lee concluded that FFWG will be put back on the organizational chart with an annotation that discussions are ongoing about possibly combining FFWG and WTWG. I see that there is a FFWG meeting for June 9 and would ask that the bulk of that meeting be focused on this topic.
- Aaron Bever, Anchor QEA and Hypoxia Collaborative Team member, asked for more detail on what it means for the Hypoxia Collaborative Team to be "integrated into" the Monitoring Workgroup. The data that's being collected is real-time so it is far more useful when it is gotten promptly. Having regular updates on when stations are going in, where they are, and which are online is very helpful. Is there a way to continue to get near-term updates and not wait for infrequent updates every ~6-months?
    - Lee responded that any topics or things that need to be discussed in terms of what the hypoxia collaborative was working on would be folded into that monitoring workgroup. We're still looking at how best to structure that group. It was suggested at the office hours that this monitoring group meet monthly and topics to rotate, so there is the opportunity for those discussions to happen at that group.
- KC Filippino, HRPDC suggested an explanation of what these workgroups do would be helpful and how they are impacting/working towards each outcome.
    - Lee responded an explanation of workgroups can be made.
    - Amanda Shaver (in chat): I agree with KC, especially the ties to Outcomes and targets.
- KC Filippino asked if the idea of distinguishing implementation and policy groups went away.
    - Lee responded the official distinction of the two types of workgroups went away, but there may be some exceptions, such as for Modeling Workgroup and some groups under the WQSAM Outcome, in terms of membership.
    - KC asked when those conversations will happen.
    - Lee responded that the Modeling Workgroup will carry on the way they have been for the short term. Determining whether or not we end up with something like the 15 member groups can be discussed moving forward. I think we have the latitude to allow some exceptions to what the 15-person membership looks like.
    - KC responded that the current draft of the Governance and Management Framework (GMF) does not appear to have a lot of flexibility. If the flexibility and exceptions are decided on the side, it just takes us backwards to where we've been. I like flexibility, but I don't know how that's built into the current draft of the GMF or this proposed structure. I do believe there are things that the modeling workgroup should be deciding out in the open that they don't. So, I just want to give a little bit more thought to how that flexibility is going to be built in when everything seems very structured right now.
    - Lee responded that he sees things as less structured.
    - Breck Sullivan (in chat): I would encourage ITAT/DAR and BORG have the same flexibility to include academics and other analysts.

- Elizabeth Hoffman, MDA (in chat): Under RENPS -- any clarity on why WTWG is now lateral to sector WGs? WTWG has traditionally been a filter for technical issues from the source sector workgroups.
- Dave Montali, WVDEP/Tetra Tech, shared that there are concerns in his mind about putting too much time towards governance and structure. For modeling workgroup, I personally have thought that maybe we continue with how we are going until we get that work done. I'm ready to listen and talk about the future of the modeling workgroup, but I really believe in the principles that we have. The MWG has got to put out a draft Phase 7 suite of models, scenarios and stoplight plots, and BORG has got to put out a working 4D interpolator and CAP has to guide future criteria assessment protocols. Where do we talk about what we're going to do with the new model and the TMDL related to what criteria are we going to set planning targets for, are we going to use the 4D interpolator or 3D interpolator for some of those, etc. I think it happens at the CWGT with input from these various groups that will still be in place.
    - Lee responded that the CWGT is the place for those conversations, with heavy input from CAP and Modeling Workgroup.
    - KC Filippino (in chat): I think that's more my point Dave, there are decisions that SHOULD start at the Modeling WG but end up above our heads or made by CBPO staff, sometimes they make it through the WQGIT but sometimes they don't. I'm seeking consistency in those decisions.
- Lee shared we will put together a revised version of the proposed CWGT structure along with explanations of the functions and relationships between workgroups. A vote is needed ahead of the deadline of May 28, so we will send this out ASAP and request a vote by May 27.
    - Kevin DuBois noted the next FFWG is June 9, which is after the vote is due.
    - Lee responded that until those discussion can take place, FFWG will be put back on the organization chart with an annotation that it is being looked at to possibly merge the function with WTWG and continued discussions are needed.
    - KC Filippino (in chat): Can we have an explainer to go with that before we vote?
    - Kaylyn Gootman (in chat): More information on how the subgroups under Monitoring would operate would be very helpful too.
- Suzanne Trevena (in chat): I think we need to address function in any space where we are "merging" groups and membership.
- Peter Tango (in chat): How do you envision workgroup leadership structure with changing and compressing groups. And who leads an outcome versus workgroups?
- Ken Hyer (in chat): Consider adding some subgroups under the monitoring WG - perhaps a tidal and nontidal distinction - right now there are so many teams under the monitoring team, we likely need some substructure to keep things organized and operational.
    - Peter Tango (in chat): Per Ken's comment, given the culture of how the monitoring groups function, that cohesion that maintains integrity of the monitoring program operations and applicability happens because of those groups. Sub-structure will be critical for sustaining particular network interests and functions. We can discuss how the large Mon Team can operates in coordination with a suitable sub-structure.
    - Amanda Shaver (in chat): Virginia suggested a quarterly rotation between tidal, non-tidal and a combined or community science focus. Folks on my team didn't see the need to attend multiple monitoring WG meetings as the content was typically the same. The attendees for these WG seem to have a wide overlap according to my staff.

- Peter Tango (in chat): Amanda - thank you. Keep that thought on hand please for us working together on organizing an annual plan for ensuring how we cover the bases with all our groups.
- Ken Hyer (in chat): Thanks, Amanda. Appreciate a tidal/Non-tidal distinction.. Still a lot to juggle under a monthly meeting, but I understand your vision.

IV. Remote Sensing of BMPs

Lead: Eric Hughes, EPA CBPO

Eric provided an overview of EPA's efforts on remote sensing of BMPs. Eric shared a brief summary noting EPA's interest in remote sensing-based tracking and verification of BMPs as additional funding has been provided from EPA for AI and machine learning projects. Due to a short turnaround time to develop a proposal, initial funding has been dedicated to support remote sensing-based tracking and verification of cover crop and tillage BMPs. Eric walked the group through a spreadsheet that provides an initial assessment of the feasibility of remote sensing of BMPs across all source sectors, which he is soliciting feedback from source sector workgroups on.

Materials: Presentation, Spreadsheet

Actions:

1. CWGT members with feedback on the initial remote sensing feasibility assessment or additional uses for remote sensing within the partnership are encouraged to reach out to Eric (Hughes.Eric@epa.gov). CWGT will continue to be updated on these efforts.

Discussion:

- Mike LaSala, Land Studies (in chat): Are the remote sensing opportunities for other BMPs you are looking to solicit from this group limited to existing methods/technology (e.g. sat imagery) or could opps. be expanded to potentially exploring other tech that may be needed to broaden the suite of BMPs that can be sensed remotely (e.g. drones/UAVs) for verifications, etc. purposes? This may open the door for several of the BMPs coded yellow and red.
- Dave Montali asked about example of BMPs listed "green".
    - Eric responded one example is Abandoned Mine Reclamation, and others can be viewed in the spreadsheet.
    - Dave added that a concern to consider is that even if this can be used for the present situation of a BMP, being able to track history is a challenge.

V. Leveraging Monitoring Data and Modeling Insights Across the Partnership

Lead: Kaylyn Gootman, EPA CBPO

Kaylyn gave an overview of how the partnership currently integrates monitoring data with modeling tools to inform decision making and strengthen our understanding of watershed conditions. Overall, models are used to plan and monitoring data is used to help assess conditions in the Bay. Both combined are used to achieve WQ standards and restore living resources. Kaylyn noted current partnership monitoring networks and monitoring/modeling data uses within the partnership, highlighted the METRIC Tool, and outlined Indicators as potential opportunities to tie modeling and monitoring together. The group engaged in initial discussions on sets of

questions provided on the posted slides about Indicators, frequency of monitoring data updates in the modeling suite, aligning with jurisdiction goals, and more.

Materials: Presentation

Actions:

1. Continue to share any feedback or ideas related to leveraging monitoring data and modeling insights with Kaylyn (Gootman.Kaylyn@epa.gov). CWGT will continue this discussion at the June CWGT meeting.

Discussion:

- Breck Sullivan, USGS noted that we currently only showed the nontidal trends. With WQSAM Target #4, we speak to tidal and nontidal trends. So, I would encourage for a new indicator to show Bay-wide tidal trends. This is work that is already done annually, so there is known capacity. It just now would be able to showcase and provide guidance on our progress.
    - Kaylyn responded that is a great opportunity. Tidal trends with monitoring data is an annual activity that ITAT leads in collaboration with jurisdictional partners and staff in the office, so we already have the information to do it.
- Peter Tango, USGS (in chat): Estimated standards attainment, some criteria are assessed, some criteria are not assessed yet. So, the indicator estimates where data gaps exist.
- Amanda Shaver, VADEQ shared that in terms of indicators, we need to follow along with the target to assess DO criteria. I hope an indicator update would be more closely aligned with what we put out for our integrated report. The ultimate goal is to try to get these waters off the 303(d) list in terms of meeting the TMDL. For trends, communication is key to ensure people understand loads vs. concentration trends and the different kind of status or trend analyses that are being presented across the watershed so that they can research or reference what is most appropriate.
    - Kaylyn responded that is something to continue to discuss. One of the communication challenges is just the years that are included in a particular analysis, if it's annual or a block of multiple years.
    - Matt Stover, MDE (in chat): I cosign Amanda's comment.
    - Amanda Shaver responded that Tish Robertson, VADEQ developed a DO explorer, available on VADEQ's website, which is an informal assessment but one that could report on different designated uses. It's a very complex assessment.
    - Amanda added another communication challenge is that when seeing a declining trend, people assume the water quality is bad, but that's not necessarily the case. There might be something that is pristine but degrading at a very low rate over 20 years and still exceeding state water quality criteria. Making sure we're speaking to trends within the context of state water quality criteria is important.
    - Kaylyn responded that within CBP we are looking at the whole Bay and we have many jurisdictions, so how we sort that out is really important. She added that we have a lot of information in terms of the attainment deficit, so we have the opportunity to explore beyond segments passing or failing.
- Kevin Mclean, VADEQ shared that in addition to the DO explorer, Virginia (Bill Keeling in particular) has been tinkering with eutrophication units looking at how DO and nutrients work together. Not sure that is an indicator we need, but it is a useful way to simplify and display trends and communicate to policy makers and implementation folks. That may be something that could be useful as a presentation in a workgroup.

- Kristin Saunders, MD DNR (in chat): I don't have an answer to whether or not new indicators are needed, but I am reminded of the opportunity CESR suggested to look at a tiered implementation approach to the TMDL and there may be some shallow water metrics and indicators that are more focused on living resources you may want to consider adding into the mix. It would follow the "multiple lines of evidence" intent that I believe STAC suggested, and include water temperature and some other factors that we don't traditionally consider as an indictor but could show signals of change sooner than the deeper water indicator measures. Just a thought. I think of it as baby steps toward the habitat suitability model and monitoring both in tidal and non-tidal areas joined with the existing model and monitoring.
- Peter Tango noted that we're not alone in terms of putting out information in indicators, noting work by UMCES, NOAA and others. There are a variety of bay-wide indicators and summaries oftentimes using the same datasets but built to tell slightly different stories. Maybe a workshop could be helpful to discuss how we can blend them together.
- Ken Hyer, USGS (in chat): Since we're almost out of time, here's my thinking, Kaylyn - I'd like to see a better synthesis of the "story" and how we could communicate, The 5 separate indicators can be confusing to the public, and result in an "it depends" answer. I've been wondering if there's a better way to roll these indicators up to tell a holistic story. Thanks.
- Kaylyn asked whether there is interest in a truly monitoring based indicator.
    - Dave Montali, WVDEP/Tetra Tech, responded that it is complicated and needs to be discussed. I like to look at monitoring for progress assessment and not conflate that with modeling that's primarily an accountability system for getting practices on the ground. Talking about attainment deficit might be a very helpful way to talk about it.
- Dave Montali noted that in the nontidal network (NTN) stations are classified in terms of their yield (low, medium, high) and it gives insight as to where the loading is, which is helpful for West Virginia. So, that could be emphasized more.
- KC Filippino, HRPDC (in chat): Just have to be mindful that monitoring data isn't everywhere so this isn't a one-size fits all approach.
    - KC elaborated that if the monitoring data isn't everywhere, it's also not fueling the model appropriately. It's still not a perfect full image no matter what. So, I'm all for monitoring, but it has to be able to be used effectively well across the watershed equally. I don't know if that's possible and would caution adding to the workload right now.
    - Kaylyn responded that in the short-term there are some low hanging fruit, but recognizing there are considerations more for medium- and long- term.
- Kevin DuBois (in chat): Kaylyn, DoW is on track to meet one of its 2025 Federal Planning targets based on CAST scenario outputs.
- Carol Cain, DNR (in chat): Are there areas/segments where the modeling and monitoring trends are closest to what was expected to be remediated by prior implemented BMPs? Can percent attainment then show a direct correlation?
    - Kaylyn (in chat): Hi Carol. Appreciate the question. Theres a distinction between the expected model results for the Nontidal Network Watersheds compared to observed results, and the Attainment Deficit tool for tidal Chesapeake Bay segments. Now, making connections between Nontidal and Tidal monitoring information, is something partners have been exploring at ITAT. How the model ties in, is another dimension worth exploring, as well as how these pieces link to tidal segment attainment.

- Peter Tango (in chat): Carol and Kaylyn, per Carol's question about modeling and monitoring comparisons, that is kind of what the STAC CESR Report takes on. I would suggest checking that out. It doesn't answer all the possible questions but it gives you good info regarding your question Carol.

VI. Updates to TCI and Compacted Pervious Loading Rate Ratios

Lead: David Wood, CSN, USWG Coordinator

David updated the CWGT on anticipated changes to the Tree Canopy over Impervious and Compacted Pervious Loading Rate Ratios for Phase 7. The issue and proposed fix for each are outlined on the posted slides. Broader discussion included clarity on the timeline and discovery of this needed update and what decision processes the Phase 7 Loading Rate Ratios went through.

Materials: Presentation

Actions:

1. An update to the Phase 7 Loading Rate Ratio for Tree Canopy over Impervious and Compacted Pervious will be made, with input from USWG.
2. Long term, USWG and FWG will gather more up-to-date information on leaf litter collection programs and the characteristics of those organics for a better understanding of how they contribute to the overall loads.

Discussion:

- Dave Montali, WVDEP/Tetra Tech, asked when this discussion is happening.
  - David responded discussion has been happening over the last week, but we do not want to move this forward without the USWG looking at it, which would be in June or a discussion over email.
- Dave Montali asked if it will be a loading rate less than turf. In a rural environment, it should be, because some of the improvements made in the land use were things that were previously classified as turf which was basically just low vegetation from other things now considered compacted pervious. So, it would be counterproductive to come up with a land use loading ratio that's greater than turf.
  - David responded one thing we were just trying to wrap our heads around was making sure that it wasn't a much larger proportion of kind of active and reclaimed mines in that proportion. Some of those have potential to be higher loads. We're trying to figure out that breakout a little bit.
- KC Filippino noted the fact that Phase 6 loading rate ratios were just going to be carried over into the Phase 7 model was just made apparent to us last week and that is a bit concerning on a variety of fronts. We're going to move forward with this, but we're essentially pulling out numbers on the fly in a very short amount of time with very little debate and discussion, when in reality, all of these loading rate ratios should have been evaluated, but we weren't given the opportunity. The flux of staff at CBPO and lack of documentation likely led to this falling through the cracks.
- KC added that we talked about being able to evaluate the information once it comes out of CalCAST and what these loading rates will actually come out to be and compare them to what we're seeing out of the National Stormwater Database to see if they're appropriate. We want to be able to evaluate these data following CalCAST and calibration to make sure it passes the "does this make sense?" test. We now have new Land Use broken out from mixed open that we never had before and shifting numbers

around at will. Hopefully it all makes sense, but it doesn't give comfort knowing that this decision was just kind of carried forward without any other input from workgroups.

- Dave responded that in his mind the land use loading rates were not a function of the Modeling Workgroup. They were a function of source sector workgroups. You're probably right, it should have been offered. I think there was an opportunity for AMT and they chose not to go down that path, but on the urban side, I don't know how that went.
    - Norm Goulet responded that it might not have been a Modeling Workgroup decision, but via email there was a decision from Gary Shenk. USWG was not given an opportunity to look at these. It's only been in the last few weeks that this was noticed and kicked off discussions. If we were given the option to examine loading rates, I think it would've been a completely different workflow. For those not familiar with the land uses, for Phase 4, 5 and 6 our loading rate ratios were determined from the water quality database, not CalCAST. In addition to that change, we changed our land use classifications, so there is now some land in the developed sector that used to be in the natural sector.
- Norm noted they are going to bring this to the USWG. It's not their intentions to blow up the model development timeline, but there are some things here that have to be discussed. They've asked for a detailed delineation of what is comprised in compacted pervious and that will function into what the ratios will be.

VII. Break

VIII. Review of the Phase III WIP Planning Targets Method

Lead: Alex Gunnerson, CBPO Contractor

Alex provided an overview of how Phase III WIP planning targets were set. He outlined the foundational partnership decisions, how the needed load reductions to meet water quality standards were determined, and how those loads were distributed across jurisdictions. Essentially, the planning targets answered the question: What loads, given the hydrology of 1991-2000, would have been sufficient to meet WQ standards in 1993-1995? Alex explained key concepts including assimilative capacity, overall effectiveness, eutrophication units, and the "hockey stick" distribution method.

Materials: Presentation, Recording

Actions:

1. CWGT will continue discussions at the June meeting and begin working towards determining how to set planning targets for Phase 7. CBPO will develop a summary of the documentation of decision points from Phase III WIP Planning Target development to aid this. Please reach out to Alex with any questions (agunnerson@chesapeakebay.net).

Discussion:

- KC Filippino thanked Alex for this presentation, which distilled information it took years to understand. KC asked for confirmation that this is outlining how things were done last time, and we do not have to necessarily do it the same way. KC asked if there is documentation of the decision points, what the alternatives were, what the sticking points were, where the challenges were to come up with those decisions, etc. This would be helpful to have for the June CWGT meeting.
    - Alex responded he went through much of that document and can work on that with CBPO staff for the June CWGT meeting.

    - Lee added that this is a basis for understanding the default method. There are a number of things to discuss on how to set planning targets this time including criteria to include, whether or not our starting point should be Ph III WIPs, and how to include living resources. This will be discussed at the June CWGT meeting.
- Kevin DuBois (in chat): Alex, can we call you to discuss offline?
    - Alex (in chat): Yes, feel free to email me to set up a time.

IX. Hydrologic Period Update

Lead: Robin Glas, USGS

Robin shared progress on the analysis of an updated hydrologic and critical period for the Phase 7 model. Robin presented two scoring methods - the Mean Absolute Percent Difference (MAPD) and Kolmogorov-Smirnov (K-S) Test - and showed results for candidate hydrologic period windows based on these methods. The 2001-2010 window is the combined best, though other windows score highly on one or the other. The final selection requires policy judgement and model period constraints and temporal relevance need to be considered.

Materials: Presentation

Actions:

1. An FAQ document with the implications and main considerations of hydrologic period choices will be shared with the CWGT in advance of the June CWGT meeting.

Discussion:

- Norm Goulet asked whether the deviation in the K-S on the 2015-2024 period of time could not only be the impact of land use change, but also the changing climate.
    - Robin responded that the whole distribution includes the extremes but the metrics that are put into the mean absolute percent difference only get to the 5th and 95th percentile. So, that's certainly possible that that could be a deviation in that higher end. Assuming that the climate change effect would be in the higher end in the most extreme precipitation, that would kind of cascade into stream flow.
- Lew Linker, EPA CBPO noted that the latest land use data ends in 2022, so that may be a reason to restrict the range to 1985-2022. He also noted that some of the stations don't actually fall at the River Input Monitoring (RIM) stations. Maybe there can be a basin ratio correction to adjust for that. In addition, we don't have any of the flows below the fall line, which may be able to be included for the western and eastern shore.
    - Robin asked to speak separately on that and is interested to see the additional available data and how we could use it.
- KC Filippino (in chat): Will the assumptions & decisions here be put up for discussion and decision-making at a future WQGT meeting?
    - Lee responded that CBPO is putting together a document to outline the considerations for making a change to the hydrologic and critical period. The CWGT will need to make a decision in September, and there is time for discussion at the June CWGT meeting.
- Peter Tango (in chat): 2015-2024 includes our 1939-present record flow. 2001-2010 includes the end of a 4 year drought and has Hurricane Isabel. Some big events in each time period. Interesting opportunities.

X. Wrap-Up

Lead: Caroline Kleis, WQGIT Co-Staffer

XI. Adjourn

Next Meeting: June 22-23 - Clean Water GT Meeting, hybrid in Baltimore, MD

Attendance

Lee McDonnell EPA CBPO (CWGT Co-Chair)
Greg Sandi, MDE (CWGT Co-Chair)
Petra Baldwin, CRC (CWGT Co-Staffer)
Caroline Kleis, CRC (CWGT Co-Staffer)
Kaylyn Gootman, EPA CBPO
David Wood, CSN
Eric Hughes, EPA CBPO
Alex Gunnerson, CBPO Contractor
Robin Glas, USGS
George Onyullo, DC DOEE
Holly Walker, DNREC
Cassie Davis, NYS DEC
Scott Heidel, PADEP
Ashley Hullinger, PADEP
Kevin McLean, VA DEQ
Amanda Shaver, VA DEQ
Dave Montali, WV DEP
Marel King, CBC
Suzanne Trevena, EPA R3
Bo Williams, EPA CBPO
KC Filippino, HRPDC
Kevin DuBois, DoW
Joe Wood, CBF
Mike LaSala, LandStudies
Emily Dekar, Upper Susquehanna Coalition
Elizabeth Hoffman, MDA
Christina Lyerly, MDE
Dylan Burgevin, MDE
Matt Stover, MDE
Kathy Stecker, MDE
Kristin Saunders, MD DNR
Brian Smith, MD DNR
Andrew Keppel, MD DNR
Anne Hairston-Strang, MD DNR
Carol Cain, MD DNR
Tyler Trostle, PADEP
John Lancaster, PADEP
Arianna Johns, VADEQ
Tony Timpano, VADEQ
Rachel Owrutsky, DNREC
Cass Klingaman, NYSDEC
Callie Sams, WVDEP
Maggie Woodward, CBC
Norm Goulet, NVRC
Angela Jones, DoW
Katie Brownson, USFS
Liz Dawson, USFWS
Auston Smith, EPA CBPO
Megan Thynge, EPA CBPO
Doug Bell, EPA CBPO
Lew Linker, EPA CBPO
Kelly Gable, EPA
Patrick Woolford, EPA
Juan Vicenty-Gonzalez, EPA
Ken Hyer, USGS
Breck Sullivan, USGS
Peter Tango, USGS
Peter Claggett, USGS
John Wolf, USGS
Melissa Fagan, CRC
Gabriel Duran, CRC
Allison Welch, CRC
Rebecca Murphy, UMCES
Joseph Delesantro, CBPO Contractor
Eugenia Hart, TetraTech
Emily Young, ICPRB
Mary Stack, ICPRB
Caitlin Bolton, MWCOG
Steven Bieber, MWCOG
Chris Hartley, USDA
Olivia Martin, Devereux Consulting
Aaron Bever, Anchor QEA
James Shallenberger, SRBC
Tyler Shenk, SRBC
Renee Karrh

Acronyms

AgWG: Agriculture Workgroup
AMT: Agricultural Modeling Team
BMP: Best Management Practice
BORG: Bay Oxygen Research Group
CAP: Criteria Assessment Protocol
CAST: Chesapeake Assessment Scenario Tool
CBP: Chesapeake Bay Program
CESR: A Comprehensive Evaluation of System Response
CWGT: Clean Water Goal Team
DAR: Data, Analysis and Reporting
DO: Dissolved Oxygen
E3: Everything, by Everyone, Everywhere
EPA: Environmental Protection Agency
FFWG: Federal Facilities Workgroup
FWG: Forestry Workgroup
FMC: Federal Management Committee
ITAT: Integrated Trends Analysis Team
GMF: Governance and Management Framework
MBM: Main Bay Model
METRIC: Monitored and Expected Total Reduction Indicator for the Chesapeake
NTN: Nontidal Network
MTM: Multiple Tributary Model
PSC: Principals Staff Committee
RENPS: Reducing Excess Nitrogen, Phosphorus and Sediment Outcome
RIM: River Input Monitoring
SAV: Submerged Aquatic Vegetation
STAC: Scientific and Technical Advisory Committee
TMDL: Total Maximum Daily Load
USWG: Urban Stormwater Workgroup
WIP: Watershed Implementation Plan
WQGIT: Water Quality Goal Implementation Team
WQSAM: Water Quality, Standards Attainment and Monitoring
WTWG: Watershed Technical Workgroup