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Agriculture Workgroup (AgWG)
Meeting Minutes
July 17th, 2025
10:00 AM – 12:00 PM
Meeting Materials

Summary of Actions & Decisions

Decision: The AgWG approved the minutes from the June AgWG meeting.

Action: If you are interested in attending the NFWF Chesapeake Agricultural Networking forum, fill out this Google form. If you have additional questions or feedback, reach out to Kristen Saacke Blunk (kristen@headwaters-llc.org), Kristen Hughes Evans (kristen@susches.org), Natasha Rathlev (natasha@susches.org), and Eric Hughes (Hughes.Eric@epa.gov).

Action: If you have suggestions of important topics for or people that should be invited to the Bay in the Balance conference, or you are interested in being a sponsor for the event, please contact Matt Royer (mzr154@psu.edu) and Marel King (mking@chesbay.us).

Action: The Agriculture Workgroup leadership/staff will work towards scheduling an in person meeting after the Bay in the Balance Conference, in lieu of December 18th meeting. Additional details will be brought to the group once they are available.

Decision: The Agriculture Workgroup adopts this document as a planning and agenda building guide through 2026. The document will be posted on the AgWG webpage for members and interested parties to reference as needed.

Action: Following the meeting, Caroline Kleis, AgWG staffer, will reach out with an updated link to provide responses to prompting questions related to monitoring presentations. Participants are asked to provide any responses or additional feedback via the link provided.

> **Post Meeting Note:** Due to technological difficulties, a Mentimeter survey was created and sent to members and interested parties on 7/17, and the JotBoard was deleted. Those with responses are asked to use the following Mentimeter link.

Intro & Announcements

10:00 **Welcome, roll call, review meeting minutes – 5 minutes**
Kathy Brasier, AgWG Chair

- Roll call of the governance body
- Roll call of the meeting participants - *Please enter name and affiliation under "Participants" or in "Chat" box*
- **Decision:** The AgWG approved the minutes from the June AgWG meeting.

10:05 **Upcoming Events – 5 minutes**

- NFWF Chesapeake Agricultural Networking Forum
Kristen Hughes Evans & Kristen Saacke Blunk, NFWF Field Liaisons

Discussion:

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Kristen Saacke Blunk (in chat): The National Fish and Wildlife Foundation is pleased to announce plans for the 2025 Chesapeake Agricultural Networking Forum! You've received this invitation for the space-limited event given your critical role in advancing the practice of agricultural conservation regionally. The Forum brings together NFWF grantees, partners, and practitioners in agricultural conservation from across the region to discuss emerging trends and topics, network and share information and ideas, and inform what's next in our collective efforts to further scale agricultural conservation efforts across the Bay watershed. This year's Forum will be held November 12-14 at Hershey Lodge in Hershey, Pennsylvania. If you'd like to stay informed on next steps for Forum developments, please fill out this Google form. If there are others from your organization, specific project partners, or local leaders who you believe would contribute to and gain value from the Forum, feel free to forward this Save the Date and encourage them to complete the form, as well. Formal registration and lodging information and instructions will be shared before the end of August. For now, mark your calendars!

Kristen Saacke Blunk: Also joining me from Sustainable Chesapeake is Natasha Rathlev, who is working closely with Kristen Hughes Evans in all aspects of the Ag Forum Planning. We're really excited about having the first fact to face Ag Networking Forum that is kind of for the broader community. We did have a 2023 session that was focused on some of the USDA climate smart commodities and regenerative ag discussions and work that was underway at that time. But, the Ag Networking Forum has been something that has brought together practitioners and agency partners since the 2000's. I remember my first one in 2007. I haven't missed it since it is one of the places where the NFWF funding projects and project leads doing the conservation work are all in the same room, at the same time, with a lot of other partners across districts, agencies, and otherwise really doing some solid networking about what they're excited about, what they see as needing to change, what they know they need resources for, how they're doing more with fewer resources, and how they're stacking benefits. It's a really wonderful opportunity for folks to kind of gather and hear firsthand how this work is getting done and to do some troubleshooting around it. So, I've pasted it in the chat. You should have received a save the date on this, but what we're really looking for at this point is for you to identify, yes, this is something that I'd like to make a commitment to November 12-14.

Natasha Rathlev (in chat): To emphasize the above, if you are interested in the Forum and have not done so already, please fill out this Google form.

Kristen Saacke Blunk: Natasha is pointing out that there is a Google Form in this invite that we hope you'll use so that we can be sure you're getting the details as we have them. We were expecting to provide later in August the information about the venue and just get a better sense of who could be there, when. We're excited. We have a fantastic planning team that's really doing a deep dive on how to surface the topics that need to be handled in this kind of networking environment. We're also really excited that this is taking place leading up to the Bay in the Balance, which I know we are going to hear about next, because we think that what will be surfaced here with practitioners, those out in the field doing the work, is going to be very informative to what's going to happen the next month in Gettysburg. So, thanks, Eric, for the opportunity to mention this. I just want to encourage folks to reach out to me, Natasha, Kristen Hughes Evans. Eric is on our planning team as are some others here like Marel, and Matt. We would really like to have your input. There will be a time that we're going to be spending out in

the field together to kind of kick some tires around- some practices, innovations, and approaches. So, an important conversation.
Eric Hughes: Kristen, that's great. I haven't been around long enough to participate in one of these in the past, but from what I've heard from everyone who has is that they're great. So, I'm really interested in seeing what comes of the discussion and, to your point, I think that having this discussion and then just about a month later having the Bay in the Balance conversation, I think there's going to be a lot of momentum coming out of November and December. I think they're going to be distinct, but certainly complimentary conversations happening at the November meeting that'll support the Bay in the Balance.

Action: If you are interested in attending the NFWF Chesapeake Agricultural Networking forum, fill out this Google form. If you have additional questions or feedback, reach out to Kristen Saacke Blunk: kristen@headwaters-llc.org, Kristen Hughes Evans kristen@susches.org, Natasha natasha@susches.org, and Eric Hughes (Hughes.Eric@epa.gov).

- Bay in the Balance 2025
  Matt Royer, PSU; Marel King, CBC

  Discussion:
  Marel King: Just some quick background. The "in the Balance" concept started back in 2016 between Penn State and the Pennsylvania Department of Agriculture, and there are a few other partners involved as well. In Pennsylvania, we were having what was called the reboot of our sort of Chesapeake Bay initiative, and this was a way to bring the ag community, the environmental community, academic, government agencies all together to really strategize about ag's role in the bay effort moving forward, and how to be successful with what Secretary Redding has continually referred to as his "co-equal goals" of thriving agriculture and clean water. So, that sort of has been the vision going forward from this, hence the "in the Balance" title. So, it was that first session in 2016, a lot of good ideas came out of there that really helped to move things forward to then 2019, when the WIP 3 was under development, and it seemed like a good time to bring the group back together again. That conference really helped to inform our WIP 3 and then going forward, that has again helped to propel Pennsylvania's implementation forward to the extent that we actually got some significant new funding in Pennsylvania in 2022. Then we thought maybe we should bring the group back together again. None of this was planned, this three year cycle just sort of happened. Now here we are again three years later, when we're facing Beyond 2025, a refreshed agreement. The jurisdictions are still looking toward agriculture for most of the remaining load reductions, and it just seemed like if we're on this sort of timeline, maybe it made sense this time to look beyond just Pennsylvania and look at agriculture more broadly in the watershed and bring everyone together. So, PDA and Penn State are on board to again be the convener, especially Penn State is doing a lot of the planning and logistics around this event. PDA has reached out to their counterparts in the other Bay States. Penn State I believe has already reached out to the Land Grants throughout the watershed, because we really do want this to be watershed wide with that broad participation again from conservation community, agriculture community, academic, NGO, and government. So, just where this sort of fits in. You just heard about the NFWF Ag Forum. Bay in the Balance is going to be more of a policy focused conference and agenda. That said, as Kristen mentioned,

those conversations are sort of going to bleed into one another. There's going to be some overlap with participants, but they are distinct in their purpose and what we want to get out of each of those. Matt has been working on a lot of the planning, logistics, and communications, so I'm sure he has more to add.

Matt Royer: We do have a date secured and location. It will be at the Wyndham Conference Center and Hotel in Gettysburg, December 8-10. So, we're excited about timing. Kristen mentioned this, and the ideas coming out of the Ag Networking Forum that may be more focused on practitioner innovations, scaling up successful pilots, those kinds of things, then can maybe be discussed in a broader policy context and provide some real ideas to hash our policy concepts that may be discussed at Bay in the Balance a month later. Similarly, there was a recent STAC workshop. Many of us on this call were down in Annapolis last week on advocating market solutions. We hope some ideas there can be put on the table and discussed further at Bay in the Balance. The three day conference concept is kind of following the model that's worked really well in our Pennsylvania in the Balance gatherings, which is a first day of plenaries to kind of set the stage for all participants and relevant information, and then a second day and then bleeding into the morning of day three where we do breakout sessions and kind of facilitated work groups around key topics of interest to advance policy for agriculture and the Chesapeake Bay. Excited about the opportunity to bring this Bay-wide. We plant to have each of the jurisdictions kind of give a little state of the states as part of that plenary, as well as set the stage on the federal involvement moving forward. Really it works best when there's a variety of and diversity of interests around the table. Farmers sitting down with agency representatives at the policy making agencies from federal/state, to the county conservation professionals that are working on the ground- industry representatives and conservation organization representatives. So, we're really excited to really open this up and have as much participation as possible from AgWG members. If you have suggestions of really important topics or folks that should be invited, please send them our way.

Eric Hughes: Excellent. Thank you, Matt. Thank you, Marel. For this one, I'll just say I'm really excited to see, sort of behind the scenes, what we're thinking. A lot of consistency, a lot of parallels with what this workgroup has discussed. I'm thinking specifically about the planning document that we're going to be talking about next. I see a lot of places where the workgroup has identified areas of interest. This is what we want to focus on, and I think there's going to be a lot of weight discussion, maybe actions or deliverables, coming out of the Bay in the Balance that potentially this workgroup is going to be really well positioned to take up and run with. I would assume that there would be some assignment or we voluntarily say, hey, we want to grab onto this and run with it.

Marel: Penn state has done a great job finding us a venue that not only meets our needs and will be comfortable, but is also affordable. That said, there will be registration costs and things like that. We are actively seeking sponsors to help defray those costs. We want to keep it affordable for folks, especially farmers to be able to attend. So, if anyone is interested in sponsoring, reach out to Matt.

Matt Royer: Yeah, please let me know. We'll get Mary Seaton of our conference office to get you the details on sponsorship levels and opportunities for sponsorship. We definitely would love some more oars in the water to bring this your way and make it affordable.

Eric Hughes: To build on this and, like we said, capitalizing on some of the momentum that we're seeing develop here, we are talking about having an AgWG in person meeting after Bay in the Balance ends. As Matt laid out, what's going to look like probably a midday conclusion on Wednesday the 10th, that would be a great opportunity, especially since we're really hoping that many of you are able to be there in person as well, for us to just maybe stick around a few hours longer in the afternoon and say there's a lot of enthusiasm around a lot of the points we just heard, what do we want to do with this? How do we keep this momentum going forward? How do we carry this forward? What do we want to really grapple with and advance? We're still working out the details, but this meeting on the 10th would be in lieu of the meeting that we already have scheduled for the 18th. That meeting would just be shifted to that week earlier, and then we would most likely cancel our November meeting, which is scheduled for the week before Thanksgiving, just to give us time. Also important to note, if you don't go to Bay in the Balance, you are still more than welcome to come to our meeting in person. They are open to the public, and this is certainly not meant to be exclusive in any way. So, something to consider. You will hear more from us on that soon, but absolutely something that you'd want to keep on your radar, and we hope to see as many of you as possible at these events.
Kristen Saacke Blunk (in chat): Thanks for mentioning registration costs. Please know that there are not registration costs associated with the Ag Networking Forum in Hershey.

Action: If you have suggestions of important topics for or people that should be invited to the Bay in the Balance conference, or you are interested in being a sponsor for the event, please contact Matt Royer (mzr154@psu.edu) and Marel King (mking@chesbay.us).
Action: The Agriculture Workgroup leadership/staff will work towards scheduling an in person meeting after the Bay in the Balance Conference, in lieu of December 18th meeting. Additional details will be brought to the group once they are available.

10:10 **Other Verbal Announcements – 5 minutes** *Eric Hughes, AgWG Coordinator*

- Agricultural Advisory Committee (AAC)
    - The AAC met on Wednesday, June 25th, 6:00PM-7:30PM. At this meeting, the AAC introduced their new coordinator, Jen Nelson (Resource Smart LLC; Delaware and Maryland Associations of Conservation Districts), and elected Bill Fink (Country View Family Farms) and Bob Waring (Brandon Farms; Colonial Soil and Water Conservation District) as Chair and Vice Chair, respectively.

      Discussion:
      Kristen Saacke Blunk (in chat): One cool piece of intel on Jen Nelson - She was the coordinator of the Chester River (MD) "Showcase" Watershed (the counterpart to Smith Creek/MD and Conewago Creek/PA)

- Beyond 2025 Public Comment Period
    - The draft revised *Chesapeake Bay Watershed Agreement,* including the Reducing Excess Nitrogen, Phosphorous and Sediment outcome (page 11), is now

available for public feedback on the Chesapeake Bay Program website. The public comment period will run from July 1st to September 1st.
    - Please visit the following link to view the associated press release. For more information, please visit the Planning for 2025 and Beyond website.
- Beyond 2025: Reimagining the Chesapeake Bay Webinar Series
    - The Chesapeake Bay Program will be hosting a webinar series focused on the proposed changes to the CBP Watershed Agreement, including the draft Vision and Principles, and the revised Goal structure.
    - The kickoff webinar took place on Wednesday, July 2nd, and the recording is accessible here. The July 15th webinar will go over the Clean Water Goal, which will focus, in part, on the Reducing Excess Nitrogen, Phosphorous and Sediment Outcome.
    - Additional information on the webinars in the series and the links to register can be found on the CBP meetings calendar. All webinars will be recorded and made available on the Chesapeake Bay Program's YouTube page.

AgWG Planning

10:15 **AgWG Planning Document Adoption – 5 minutes (vote)**
Eric Hughes, AgWG Coordinator

The group was asked to vote to endorse or reject the planning document that has been discussed at AgWG meetings in recent months. The document will serve as 1) a guide to support agenda-building and 2) a public reference to help all interested parties better understand the workgroup's areas of interest.

Discussion:
Ken Staver: How binding is this? Stuff happens, stuff comes up, you know what I mean? You get the gist of my question, right?
Kathy Brasier: Yes, and it's a good question. It's a guiding document, and we've tried to put flexibility in there to recognize that things are going to come up. We know that things may change over the next year or so, particularly as the model gets implemented, as CAST gets moving forward. Beyond 2025 might have some implications as well for how we do things. So, we're recognizing that the landscape might shift around us, and that might require us to shift as well. But, we think that this is a guide for what we most care about, and provides us an anchor, an established foundation for making the decisions about how we address that changing landscape. So, it's not binding, but it does provide us that guidance throughout the next 18-24 months. Does that help, Ken?
Ken Staver: Yeah, that does help. I can see somebody coming to a meeting and someone saying well, we can't talk about that because that's not in our schedule. So, as long as we're looking at it that way, it seems fine to me.
Kathy Brasier: I think that is the way that we've been approaching it, and I think we try to say that in the preamble to the actual topics that we will talk about.

Caitlin Grady: I believe that came up in a previous feedback session, and we actually included specific language to give us that flexibility. So, there is language in the final draft here that gives us the flexibility to take on additional topics as needed.
Caroline Kleis (in chat): "There will continue to be space within AgWG meetings to address timely and emerging topics, issues and concerns raised by AgWG members, and assignments from the Water Quality Goal Implementation Team and CBP leadership bodies. This document provides a framework and workplan while providing flexibility as needed."
Eric Hughes: Thank you, Caroline, for putting the text directly in the chat for us to reference. Ken, we appreciate the comment, and we absolutely agree and, as Caitlin just said, we modified the document to explicitly state that was the intent.
Ken Staver: Yes. Looks like you have already taken care of it, so thank you.
Kathy Brasier: Yeah, and we recognize that was a workgroup, we sit under the GIT, which has it's own place within the hierarchy of the Bay Program. So, we do get assignments, we have to address those assignments, but we also have developed our own interests and culture as a workgroup that draws us together, and that we as a group want to keep moving forward. So, we're trying to balance those two intentions for the workgroup. Any other questions or comments? Hearing none, can we approve this without objection? Last chance for objections. I will consider this passed. Thank you, everybody. This was work over many months, and we really appreciate everybody's consistent contributions and feedback throughout the entire process.

Decision: The Agriculture Workgroup adopts this document as a planning and agenda building guide through 2026. The document will be posted on the AgWG webpage for members and interested parties to reference as needed.

An Overview of Chesapeake Bay Program Water Quality Monitoring

10:20 **Introduction to Chesapeake Bay Program Water Quality Monitoring – 20 minutes**
Peter Tango, CBPO Monitoring Coordinator (USGS)

The AgWG is interested in enhancing its focus on monitoring data. To support this, it is important that we collectively understand the Chesapeake Bay Program's existing water quality monitoring landscape: What monitoring efforts are being led or supported by the Bay Program? How are these efforts connected to the goals and outcomes identified in the Chesapeake Bay Watershed Agreement? Peter provided a high-level overview of CBP water quality monitoring to address these questions – and more.

Discussion:
Kristen Saacke Blunk (in chat): Monitoring Q: How do the citizen science efforts roll up into your collective depiction of the data, Peter?
Breck Sullivan (in chat): The Chesapeake Bay Program engages closely with our Chesapeake Monitoring Cooperative which helps coordinate community science groups across the watershed. These community science groups can collect data from Tier 1 - Tier 3 which represents the difference in the rigor of their collection protocols. Tier 3 is at the same level as our nontidal and tidal monitoring data used by the CBP. An example of how we use the tidal tier 3 data is with our water quality standards attainment indicator

(**https://www.chesapeakeprogress.com/clean-water/water-quality**). We also use Tier 2 data to help with model validation and communication around monitoring data.

10:40 **How Monitoring Data Informs CAST – 10 minutes**

Olivia Devereux, Devereux Consulting

There is, in fact, a link between CBP monitoring and modeling data. Monitoring data is used to set the loads in CAST; Olivia explained how this is done and the impact that it has on model outputs. Olivia showed how the monitoring data is used to determine the loads in CAST answering the following questions: What does monitoring measure? How are source sector allocations made? How do the monitoring data get used in the model calibration?

Discussion:
Jimmy Webber (in chat): Learn more about the NTN here: https://www.usgs.gov/CB-wq-loads-trends

10:50 **Overview of the Total Maximum Daily Load (TMDL) Indicator and Monitored and Expected Total Reduction Indicator for the Chesapeake (METRIC) Tool – 30 minutes** *Kaylyn Gootman, CBPO Integrated Analysis Coordinator (EPA)*

The Bay TMDL indicator combines monitored and modeled data to assess progress in reducing nitrogen and phosphorus loading in the Chesapeake Bay. It addresses questions about observed and expected reductions from management practices, considering factors like implementation lags and environmental response. The indicator uses data from CAST modeling and various monitoring sources, such as river discharge and water quality measurements, to estimate load reductions. Discrepancies between expected and observed reductions can occur due to uncertainties in modeling, natural lags, climate change, and reservoir infill effects. Efforts have been made to analyze data from Chesapeake Bay Nontidal Network (NTN) stations, with results available through the METRIC tool, a web-based application for visualizing and analyzing data. Kaylyn discussed the monitoring and modeling data, the development of the TMDL Indicator, demonstrate METRIC usage, and highlight insights from comparing observed and modeled reductions. This discussion is timely, as METRIC will soon be updated with new data. Link to TMDL Indicator: https://www.chesapeakeprogress.com/charts/bay-tmdl-indicator Link to METRIC app: https://wqs.chesapeakebay.net/metric/

Discussion:
Kristen Hughes Evans (in chat): Does anyone know if there is a GIS layer for Groundwater lag time for Delmarva? We know that lag time varies widely across Delmarva and am wondering what it is for that Choptank monitoring site.
Olivia Devereux (in chat): Greg Noe has this data and if he is not on perhaps one of his USGS colleagues can share that info.
Kristen Hughes Evans (in chat): Thanks! I'll reach out to him directly.
Jimmy Webber (in chat): Kristen Hughes Evans- Yes. There is groundwater lag data available for the Eastern Shore. Below is a figure from a great report by Judy Denver: Understanding Nutrients

in the Chesapeake Bay Watershed and Implications for Management and Restoration--the Eastern Shore. I can follow up with you if you'd like more information about these estimates.

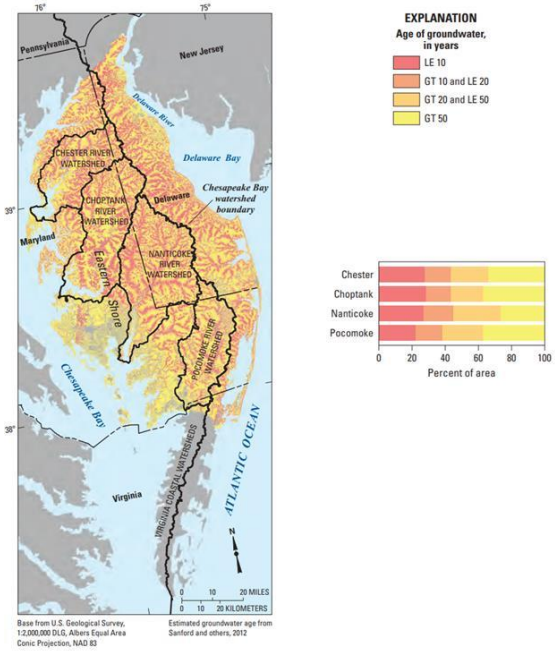

Figure 23. Estimated age of groundwater contributing to streamflow on the Eastern Shore. Most water flows along groundwater flow paths to local streams within a few decades, although much longer time periods are required for water recharging the water table along watershed divides. (GT = greater than; LE = less than or equal to.)

Natasha Rathlev (in chat): Do you have an approximate percentage of the watershed as a whole which has modeled and monitored outcomes that align?
Kaylyn Gootman (in chat): Great question. METRIC is about to be updated online but email me and we can get you this information (gootman.kaylyn@epa.gov). And by update, I mean additional years of data included.
Olivia Devereux (in chat): Here is a tool that shows the agreement for each calibration station for the Phase 6 calibration period. Overall page: https://cast.chesapeakebay.net/Documentation/ModelDocumentation ; comparison where you must select a station and N, P, or S first. https://cast.chesapeakebay.net/documentation/NonTidalWaterQualityDashboard

11:20 **Updates About a Study Designed to Monitor Water-Quality Conditions in Small Agricultural Watersheds – 10 minutes**
Jimmy Webber, USGS

Jimmy provided updates on a study initiated in 2024 in collaboration with EPA, NRCS, and other partners. Jimmy highlighted the goals of the study and provide recent examples of engagement with local and regional partners. The AgWG was asked to provide feedback about the type of information they want to see communicated from this study.

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Jimmy Webber (in chat):

11:30 **Discussion – 30 minutes**

Time was allocated for meeting attendees to ask questions of the presenters, with the intention of understanding how members would like to use the information that has been shared.

Discussion:

Joseph Waddell: I'm glad I was able to jump on. This was very insightful. I appreciate all the slides and sharing. It adds a lot of perspective. Around the trending and the reductions we've seen, I think it tells a good story. Is there any direct relationship or output that can be shown that says ag has made this much progress as far as percentage changes, besides those slides that you showed? I think it helps tell the big picture that we are moving in the right direction. That sometimes gets missed. Also, the other contributions, which way they are trending so that we understand where to maybe focus some time and effort.

Kaylyn Gootman: I'll take a first crack at that if you are talking about the tools I showed. So, I think the answer is yes. It's going to depend on the spatial scale of interest. On Chesapeake Progress, we do have an indicator that tracks progress towards our load reduction goals by jurisdiction. But, there also was a button to toggle there by source sector. I think that can be broken out by jurisdiction, so that's still at a pretty big spatial scale. If you're talking about for the non tidal network, for those basins, that you can get to through METRIC. There's a tab on there, WIP load, and you can actually see there's data behind that. There are tables. You can actually also hover over and see those green bars. So, it depends on the scale that you want to tell your story. There may be some other opportunities now to do just that, and maybe even more local scales that aren't coming to top of mind. But, at least on the big scale (jurisdiction-wide, by sector), you can do that looking at Chesapeake Progress and METRIC looking at those individual watersheds that have those monitoring stations. But, yeah, I agree very loud and clear that I think it's something that gets missed or overlooked. So, I'm glad that it's something that piqued your interest.

Kathy Boomer (in chat): Ward Sanford (USGS) developed these data. He originally focused on the Delmarva... not sure if he was able to extend the analysis to the entire Bay watershed.

Kathy Boomer: Great presentations today. Kaylyn, I really loved your conceptual model of the butterfly, snapshots, and the drawing. I think it's important to also acknowledge we're not quite sure of what the big picture is. Is it really a butterfly on the flower or something else? So, that's kind of the structural uncertainty.

Kaylyn Gootman: Yeah, there's assumptions there, right? We don't actually know really what that is. Is that the right picture? We sure hope so.

Kathy Boomer: Yep, and then the pencil rendering was beautifully detailed, and it's important to realize that our rendering might be quite a bit blurrier. So, a lot of focus- continuing to refine and focus the picture of our understanding.

Kaylyn Gootman: I will say, Kathy, that is one of the reasons why as a partnership, we have so many different phases of the model. So, Phase 6 at the time is the best representation of the collective knowledge, or the sketch of the butterfly and the flower that we have, and Phase 7 will be even better. It's a lot of work and effort and monitoring information, as well as improvement in our modeling. But, yeah, the hope is maybe in the future when we are in Phase 7, we can redo that with a less blurry drawing.

Amanda Barber (in chat): How long will you monitor - is there a plan for number of years?

Jimmy Webber (in chat): For the small ag study, we plan to monitor through the next two years, based on current funding for the project. Multiple years of data are best for interpreting monitoring data. For example, the NTN uses at least 5 years of data to report a load and 10 years of data to report a trend. So, our goal would be to find long-term funding to continue this study.

Amanda Barber (in chat): That's what I assumed - I think we would love to have all those questions answered. Understanding the time and financial commitment is important.

Kathy Boomer: I appreciated the kind of push up into the watershed that Jimmy highlighted and the questions that he's asking. In the spirit of Beyond 2025, where we are, and kind of moving forward and thinking how we can work better together more effectively, I think it's really important to look at other restoration efforts and recognize that including the stakeholders as a part of the modeling effort is really critical to generating trust, improving the reliability of the models, the relevance and the utility of the models, to the landowners who are ultimately making the decision of whether or not to adopt a practice. That discussion starts with not only sharing the model, but being willing to have an honest discussion about what's not working and what are those key assumptions that might be giving you the wrong picture or leading us down the wrong path. I think that's the power of this group. You have amazing on the ground expertise, but we haven't really done a good job, I would say, of fostering that kind of dialogue. A lot of it is disseminating information about here's the modeling, here's CAST. We haven't really done a good job of saying, ok, here's where it's not working quite well, here's where we need more information. The value of that is not only pulling in additional knowledge but also helping us to think about where do we invest in additional monitoring and research? Right now, I have concerns that the message coming out of STAC might reinforce the existing monitoring plan and kind of entrench us in what we've established already, or maybe expanding that, without really thinking about are those even the right scale and locations and timing of the data that we should be collecting to better understand the processes underlying BMP performance in different locations at different times?

Amanda Barber (in chat): Well said Kathy!

Kaylyn Gootman: Kathy, I appreciate that feedback and your comments, and I wonder if there might be future opportunities for this group maybe to interface with STAR, talking about those research questions and what do we have wrong? What do we need to look into to do better and

get more accurate? So, I think that would be a really cool and necessary dialogue between the two groups because that would be maybe a good starting point.

Eric Hughes: To build on what Kaylyn said there, when we're thinking about that objective "enhanced focus on monitoring", I think that's a really great point. There are groups where these conversations are happening. So, maybe it's just enhanced interaction with those groups and enhanced communication that way. So, I think that's a great point, Kaylyn. Kathy, thank you for your comment.

Breck Sullivan (in chat): Yes! STAR is very interested in understanding what are the science needs, what is the scientific direction we should be going in so that we can help advance our goals and outcomes of the Watershed Agreement.

Olivia Devereux: Eric, I really appreciate that you mentioned that the conversations that Kathy's asking for are currently happening in the Ag Modeling Team as well as in the Modeling Workgroup, among others. But, those are two key places you may want to tune into to participate in those conversations.

Dave Graybill: My original question about nitrates was actually related to groundwater concentrations, and then that obviously gets into drinking water. The question I have for our experts here, it's maybe a little bit outside of the scope of what we look at with what's impacting the bay, or maybe not, but how does USGS interact with all the monitoring that happens in all the drinking water reservoirs and wells that get used? There would be a lot of monitoring of those by whoever's running those facilities. Do we collect anything, or do we collaborate with any of those individuals? Is there a resource out there that can be looked at across the watershed, whether it's just Pennsylvania, Maryland, or wherever, with the nitrates in drinking water?

Jimmy Webber: Thanks for making the connection between some of the monitoring data and human health issues. That's certainly a topic of conversation for some of our partners. USGS works with some different state departments of health when these questions come up. But, to your point of are we considering their monitoring data or monitoring data about drinking water reservoirs and intakes, if that information is shared or is publicly available, it absolutely can help inform our work. So, sometimes it's just a matter of trying to make sure we're establishing those connections and, if they're sharing data with us, they probably have different topics they'd like us to address. But, yeah, that's all part of the conversation. Certainly, in the plot I showed you, you saw some high nitrate concentrations in some of these streams.

Dave Graybill: Thanks for that, and I appreciate all the other information you sent to me, too, Jimmy.

Gurpal Toor (in chat): Hi Jimmy, The study basins (~10 mi^2, ~6,400 acres) are referred to as a small watershed, but this is still a large area with a diversity of land uses, ownerships, and field management practices. What specific process insights, cause–effect linkages, or model parameter constraints can be robustly obtained at this spatial scale? How will these results differ from those of other catchments with a much larger area, say 50–100 mi^2 ?

Scott Heidel (in chat): Great presentations. Thank you! Have the Integrated Reports and data used to build them been used as sources of monitoring data? DEP uses water quality data as well as Index of Biotic Integrity (macroinvertebrate) scores to determine local attainment throughout the state. These reports also track delistings of local waters and the long-term trends in attainment. It would be really interesting to visualize that on Kaylyn's interactive map.

Kathy Boomer (in chat): Dave - appreciated the groundwater question... an example of how our model structure might not adequately capture the full science or meet decision needs. More

examples likely would emerge through open, transparent conversations with a more diverse group of experts than the current community of watershed modelers.

Amanda Barber (in chat): NRCS has done edge of field monitoring for BMPs. Have they shared that data or should there be coordination?

Jimmy Webber (in chat): We have shared this work with the USDA CEAP program, which runs a lot of their edge of field work. NRCS is an important partner in this process.

Olivia Devereux (in chat): The Bay Program Partnership uses those published and publicly available data in establishing the BMP effectiveness rates.

Ken Staver: For our group, what we're thinking about in terms of implementation and what we need to do more or less of, we were talking about management at the field scale. That's where the management gets done. It gets done by individual farmers, on individual fields, going on specific crops. Now we're talking about 10,000 acres being a small watershed. But, honestly, that's not that much smaller than the Greensboro Station. It's interesting how the Greensboro station is the tiniest of the RIM stations. It is your small watershed compared to the Susquehanna or the Potomac or all of those. I love monitoring data, but I'm thinking about, from our group, in terms of pushing for where we put investments, I'm still not thinking we're at a scale here that tells us much that we don't already know. We're all interested in generally how we are doing. But, if you were saying what is our adaptive management response, what do we do more of? What do we do less of? I'm still concerned at this scale we're not getting that information. The one thing that really tweaked me was that one nitrate spike. I'm pretty sure if you can find somebody that knows somebody that surface applied a bunch of nitrogen in your watershed, and you happen to get a storm right after that, and that's what you see. That's what's been missed in an awful lot of RIM station monitoring. You never get that individual practice, individual storm kind of information that singles out a practice. I think you got a little bit of it there, unless somebody dropped a bag of fertilizer in your stream. Other than that, somebody didn't apply ammonium nitrate on 1,000 acres of cropland in your watershed. Usually, we think about that as part of our phosphorous issue that we're not dealing with because we have conservation tillage like crazy. We're pushing it, and we have surface application of soluble phosphorous. So, that's the phosphorous thing we're dealing with. But, you can see with the nitrate it tells you kind of the same thing that this surface application is going to create very quick responses of very high numbers that are mostly missed. So, anyway, I guess I'm just worried about the scale of it and how we get down to giving us information that guides management.

Jimmy Webber: Those comments are well received, Ken. Certainly, we need all sorts of scales. We need the edge of field, we need the large scale. I think what this study was trying to fill was a gap between the RIM scale and the edge of field work. There is a lot of edge of field work going on in the Bay Watershed that provides really valuable insights. Then there is a lot of large basin studies happening. The Greensboro site you referenced, that's about 100 square miles. So, we're at kind of the intermediate between those two, and there's pros and there's cons to that. Some of the logistical constraints that took us there were making sure we have enough water to keep our instruments submerged, so that we can provide a real time measurement of stream flow. Totally appreciate your thoughts there. If we can't address necessarily mechanistic or process- based understanding at that 10 square mile scale. But, we do get an integrated water quality signal that shows some of those spikes like you highlighted that we missed at the 1000 square mile watershed scale.

Ken Staver: I think your nitrate sensor is going to force you to think mechanistically whether you are thinking about that or not. That's where it has to go. Everybody has to be thinking about what

is it we're doing in ag that creates these high loads, and where are points of making a difference? Where are our interventions? Our BMPs are interventions, and they have to intervene on the mechanisms that are problematic. So, I do think, no matter what scale you work, sooner or later you're back to mechanisms. Whether it's Conowingo filling up, or nitrate moving through forest land, whatever it is, you're getting back to mechanisms. So, I think we might as well just stop trying to make excuses for the models about mechanisms and just say, look, that's our goal is to work this all down to the mechanism scale of management of reducing nutrient loads.

Kaylyn Gootman: I really appreciate your comments. I think with the small ag watershed sites, we're really trying to get down to as small as we can go with the instruments and those limitations. But, it's really that next step of those relationships- talking with landowners that work with producers, and it's that people to people connection, because we're looking at integrated places. This is water. It's integrating all that's coming to that point on the landscape and, like Jimmy said, this program, as designed, is to fill that gap, and that doesn't get you 100% of the way there. That's only a portion, but it's that person to person connection. How is this information best suited to help inform decision making? Who are the right trusted sources? We're hopeful that these places across the watershed, these small ag sites, can be some meeting points and some touch points for physically getting people out there to talk and meet. To get to know each other and get people the information they need and get those connectors the info they need as well with the conservation districts or other local groups, because we all want the same thing. It's a matter of people talking to one another. So, we're trying to think about ways to do that. How can we get people the information they want and the way they want it?

Ken Staver: I think that might be the most valuable part is getting the communication. Then maybe you'll get more of the information that you need to make sense of it all. If you can do that, that'll be a big step for us.

Amanda Barber (in chat): communication is always the key!

Gurpal Toor: I guess I will just reiterate what Ken said. You can go on a small farm with 50 acres. He might have 2-3 different fields. He has a very different management on these three fields. He's growing different things, and now you are going at a much bigger scale within that catchment, capturing multiple farms. Every farmer is doing a different thing, planting different things, and using different products. The other thing that you have is you also have other land uses, because it's not 100 percent agriculture. You also have other land uses that are potentially diluting the signal in some cases, mostly if you have other forest land uses. So, yes, we use some of these sensors. You get great information. You can get with some of the sensors, even one minute data if you choose to, and all you learn is concentration. But, that still doesn't get us to the question that Ken was asking. What are the mechanistic drivers of that loss, and how do you actually go back on those individual farm fields to try and fix that? I think unless you're done, we're just going to keep monitoring, keep calling them different things (small, medium, large, extra- large), but we're still not addressing the problem that exists at the field scale. What intervention should really be there? What new BMPs need to be implemented at that scale to reduce that? Eric, thanks for giving me time. It's getting late. I don't think we're going to resolve all those questions today, but this might be food for thought.

Jimmy Webber: I agree with everything you said, Gurpal, and, yeah, we can talk more about the details of that. I think what you shared raises the real need to support this study is local and accurate explanatory data sets by working with the farming community in these areas. That's kind of the collaboration and partnership we're trying to build because in these smaller scales, we can't use county scale estimates to accurately represent nutrient inputs and land use. So, it's kind of

hopefully a partnership of local producers, conservation districts, and folks that are willing to share more detailed, specific information that will allow us to have a better understanding of cause-and-effect patterns.

Amanda Barber: I think the Ag Advisory Committee is really interested in providing feedback to all of you and helping to make those connections. Just some of the things that I heard at the Committee where there's a lot of skepticism, there's a lot of suspicion within the agricultural community about what's been done and what the assumptions are that are being made. I think we need to communicate more with agriculture. I think conservation districts are going to be a great conduit to garner that support and further those relationships with producers to get you the data that you need. We just need to know what you need, and we'll find the people that will give you the information. So, sounds like you've already got some great partners that you're working with and keep up the good work.

Joseph Waddell (in chat): are there projects similar to the ag smaller scale monitoring going on around major Metropolitan water sheds?

Jimmy Webber (in chat): Yes. From my USGS knowledge, there are examples of this kind of monitoring in urban areas- this work is usually funded by local governments. Two examples are in Fairfax County, VA and Hampton Roads, VA.

- Fairfax County Water Resources Monitoring Network | U.S. Geological Survey
- Hampton Roads | U.S. Geological Survey

Scott Heidel: DEP does some really robust monitoring throughout our state, and we produce every two years the integrated report that displays all that data. Within that, we track what's attaining, what's not attaining, what we've restored and de-listed. It would be really interesting if possible to get that integrated into Kaylyn's map that she displayed, so that we can see the finer scale stuff that's happening and what we're monitoring, because we're doing a heck of a lot of monitoring and assessments up here.

Kaylyn Gootman: Thanks, Scott. I appreciate that thought and idea. That would be interesting if you all took a look at what you've got for your datasets that go into your IR, and those data on METRIC are downloadable. You can certainly import those. That would be really challenging for us at the Bay Program to do that with METRIC. That's based on Bay Program models and monitoring at those NTN sites only. What makes that possible is that it's consistent for all of the modeled sites, all of the monitoring. It's being able to do that, taking modeling and monitoring to be apples to apples. Each jurisdiction does unique and fantastic work differently with what they monitor, how they monitor, how they do their assessments. So, what happens in Pennsylvania is very different than what happens in Virginia. So, that wouldn't be on that same one to one scale. So, to do that watershed-wide would be pretty challenging. But, I really appreciate and like the way you're thinking and trying to paint the fuller story, color in between the lines of those NTN stations in terms of the monitoring information and how you're working in PA to improve water quality.

Scott Heidel: Thank you. I really appreciate that explanation and we do have to communicate out to our agricultural community, usually through the conservation district. One thing that inevitably comes up is that the farming community doesn't want to be pointed at as the polluters. So, we do have a very fine line to walk with that. So, we do take it to that very fine scale localized layer using our integrated report information. So, just trying to dial that in with the communication. We normally don't get into the meetings as somebody that they really want to see there. What I'm getting at is all of these advancements in communication and the visualization tools are highly appreciated. I really do appreciate it. Thank you.

Kaylyn Gootman: Thanks, Scott and Eric. I've got to get on to the next meeting, so if there's more for me, please have folks follow up. I really appreciate the opportunity and hope you have us back. Jimmy, maybe we need to get some time on the Ag Advisory schedule.
Kathy Boomer: The last conversation about sensitivity to placing blame on farmers I think really points to the need to understand the mechanisms driving aquatic conditions. In a way, that also helps us understand the impacts of development, too. We can't silo the two efforts. We really need to better understand land water connections, how that affects nutrients that emit discharge, as well as the timing of water discharge, the temperature of water discharge. Until we start looking at this mechanistically, it seems like we may continue to point fingers at each other instead of finding ways to manage our resources more effectively.
Amanda Barber (in chat): Olivia's overview of the model and all these discussions would be great background information for the Ag Advisory Committee. They have a steep learning curve ahead, but need to understand that this group is here to support them and visa versa.
Olivia Devereux (in chat): I am happy to present to that group so they can learn of the link between models and monitoring and the reasons for using one or the other as we work for environmental improvements.
Eric Hughes (in chat): Pivoting here at the end: added some of our prompting questions to a Jotboard (similar to what was previously called "JamBoard"). Jimmy, I tried to add your screenshot with questions, but it unfortunately didn't work. Anyone interested can answer the handful of questions here: https://www.jotboard.com/app/boards/rFJbOfAsGlMSbWpZxwLf

Action: Following the meeting, Caroline Kleis, AgWG staffer, will reach out with an updated link to provide responses to prompting questions related to monitoring presentations. Participants are asked to provide any responses or additional feedback via the link provided.

Post Meeting Note: Due to technological difficulties, a Mentimeter survey was created and sent to members and interested parties on 7/17, and the JotBoard was deleted. Those with responses are asked to use the following Mentimeter link.

Wrap-up

New Business, Announcements & Updates

- **High-Resolution Land Use/Land Cover Data Project and Hyper-Resolution Hydrography Project Data Release and Webinar**
    - On June 26th, the Chesapeake Bay Program announced the latest data release from the High-Resolution Land Use/Land Cover Data Project and the Hyper-Resolution Hydrography Project. New products from the release include: A new Land Use/Land Cover (LULC) dataset representing 2021/2022, updates to the 2013/2014 and 2017/2018 High-Resolution Land Use/Land Cover Data and Change Data, and a new Hyper-Resolution Hydrography Dataset, identifying the location, dimensions, and connectivity of streams, ditches, and other waterways.
    - Visit the following links to view the associated press release and recent webinar discussing the new data. To explore and download the Land Use/Land Cover and hydrography data with the web viewer, please visit lulc-viewer.cicapps.org.

This meeting will be recorded. Sharing of recordings is not permitted due to current EPA policy.

- **International Leadership Alumni Conference 2025**
  - The 2025 International Leadership Alumni Conference will be hosted by The Pennsylvania Rural-Urban Leadership Program (RULE). The theme of this year's conference is "Rurban: Two sides of the PA Coin".
  - The conference will take place in Lancaster, PA, from September 2nd-5th. Speakers, travel options, and hotel accommodations are available on the ILAC 2025 page, and registration information is forthcoming.
- **Other Announcements?**
  - Send to Caroline Kleis (Kleis.Caroline@epa.gov) for inclusion in "Recap" email.

12:00 **Adjourn**

Next Meeting: **Thursday, August 21st, 10:00AM-12:30PM**

Participants:

Kathy Brasier, PSU
Caitlin Grady, GWU
Eric Hughes, EPA
Caroline Kleis, CRC
Gregory Mitchell, AAC Member
Dave Graybill, PA Farm Bureau
Cindy Shreve, WVCA
Tom Butler, EPA
Bill Keeling, VA DEQ
Auston Smith, EPA
Emily Heller, EPA
Jim Riddell, VA Cattlemen Association
Olivia Devereux, Devereux Consulting/CBPO
Jimmy Webber, USGS
Kristen Saacke Blunk, Headwaters LLC
Tyler Groh, PSU
Ashley Hullinger, PA DEP
Hilary Dozier, USGS
Jeff Hill, York County Conservation District
Marel King, CBC
Natasha Rathlev, Sustainable Chesapeake
Caroline Harper, Campbell Foundation
Helen Golimowski, Devereux Consulting/CBPO
Seth Mullins, VA DCR
Spencer Tassone, USGS
Clint Gill, DDA
Matt Royer, PSU
Bailey Robertory, MD DNR
Emily Dekar, USC
Jenna Schueler, CBF
Sara Ramotnik, NWF
Kristof Grina, AAC Member
Elizabeth Hoffman, MDE
Emily Woodward, USGS
Gurpal Toor, UMD
Scott Heidel, PA DEP
Alex Echols, Campbell Foundation
Anne Coates, TJSWCD
Hunter Landis, VA DCR
Ken Staver, UMD/Wye
Karl Blankenship, Bay Journal
Natalie Schmer, USGS
Peter Tango, USGS/CBPO
Kaylyn Gootman, EPA
Amanda Barber, NY Cortland County SWCD
Dean Hively, USGS
Scott Raubenstine, Perdue
Breck Sullivan, USGS
Kathy Boomer, FFAR
Joseph Waddell, Horizon Farm Credit
Kristen Hughes Evans, Sustainable Chesapeake

Acronym List

AgWG- Agriculture Workgroup

This meeting will be recorded. Sharing of recordings is not permitted due to current EPA policy.

AMT- Agricultural Modeling Team (Phase 7)
BMP – Best Management Practice
CAST- Chesapeake Assessment Scenario Tool (user interface for the CBP Watershed Model)
CBP- Chesapeake Bay Program
CBPO- Chesapeake Bay Program Office
CBW-Chesapeake Bay Watershed
CTIC – Conservation Technology Information Center
CVN – Conservation Validation Network
EPA - [United States] Environmental Protection Agency
FSA – Farm Service Agency
MLRI – Modeled Load Reduction Indicator
NRCS – Natural Resources Conservation Service
NFWF – National Fish and Wildlife Foundation
ORISE – Oak Ridge Institute for Science and Education
PADEP – Pennsylvania Department of Environmental Protection
PSC – Principals' Advisory Committee (CBP)
PSU- Penn State University
SWCD – Soil and Water Conservation Districts
WQGIT- Water Quality Goal Implementation Team
UMD - University of Maryland
USDA – United States Department of Agriculture
USGS – United States Geological Survey
USFS – United States Forestry Service