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

Agriculture Workgroup (AgWG)
Meeting Minutes
September 19th, 2024
10:00 AM – 12:00 PM
Meeting Materials

Summary of Actions and Decisions

Decision: The AgWG approved the minutes from the July AgWG meeting.
Action: Please reach out to Jimmy (jwebber@usgs.gov), Alex (asoroka@usgs.gov), and John (jclune@usgs.gov), with any additional feedback on their efforts on monitoring small ag watersheds.
Action: Email Ashley Hullinger (ahullinger@pa.gov), Scott Heidel (scheidel@pa.gov), and Tom Howard (thoward@resolvehydro.com) with any additional feedback, resources, lessons, or suggestions relevant to the PA DEP Remote Sensing BMP Verification Pilot Project.
Action: Please send any additional questions, concerns, or insights on the October meeting and/or future in-person meetings to AgWG leadership.

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 July AgWG meeting.

Innovation/Data & Modeling

10:05 **Monitoring Small Agricultural Watersheds to Motivate and Evaluate Conservation Actions – 55 minutes (presentation and discussion/Mentimeter activity)**
Jimmy Webber, Alex Soroka, and John Clune, USGS; Kaylyn Gootman, EPA

This presentation provided an update on efforts that are underway with EPA, NRCS and other agencies for enhanced monitoring in small watersheds to better connect conservation practices with water-quality changes. The overall objectives of this study are to 1) build partnerships with agricultural communities, and 2) evaluate the effects of agricultural conservation practices on water-quality responses. Feedback from the AgWG was generated through a Mentimeter poll.

Discussion
David Graybill (in chat): Are there opportunities to show local farmers in each of those small watersheds what you are doing now and moving forward thru time as your data builds?
Ken Staver: To your second point, "are certain practices more effective than others". You have one known, which is your water quality parameter you measure at the outlet, and there's all these things going on in the watershed that give you that known. You've got to have a couple of equations to solve multiple unknowns and, in the end, it's really hard if you only have one known and a whole bunch of unknowns. When you say this practice works, this practice doesn't, well one

could be making things worse, and one could be making things better. That's a really complicated thing to figure out with outlet monitoring of a mixed land use watershed.

Alex Soroka: That's a great point. It's well heard. There are so many variables when looking at these watersheds. Another one is you've got multiple farms that are doing different things, and you're combining multiple different types of land use. Finding the signal, what is the one thing that's driving that signal, I don't know that that's going to be the answer for us. But what could be the answer is, in these streams where you have much more riparian cover, you are finding better controls on stream temperature, for example. Stream temperature may be better controlled by that than by, for example, exclusion fencing that doesn't have any tree canopy cover. You are right, it's not like a field study where you're watching subsurface phosphorous transport, and you know the field's history for 20 years. That is why we are actually trying to build as much of a knowledge base as we can to understand these systems and how they're operating. We're not fully finished in our design of this practice, and there's other places where we need to be gathering information for sure.

Ruth Cassilly (in chat): In what ways are you documenting the agricultural land activities and conservation practices? Will you have access to detailed ag inputs, such as fertilizer, pesticides, animal numbers? Could this information be obtained through NMPs, MMPs, E&S plans, (all in aggregated form) and or farmer surveys to get more details on inputs? Also inspection reports

Jimmy Webber: Ken mentioned a bunch of unknowns in the equation, and I agree. One thing we are hoping to do with this work is to reduce some of those unknowns through partnership with local conservation and agricultural groups. To Ruth's question of how we will be documenting land use activities and conservation practices, some of it we have good data for. Some of it we have data sharing agreements for and feel like we have a good sense, but others we need help. We're hoping by being more present in these communities and building outreach and cooperation, we might have access to more of those data sets that were previously unknown to us.

John Clune: I think everyone would agree that this opportunity of getting monitoring at small ag watersheds at the outlet, kind of checks the box as far as the outputs to the system. As far as those inputs and understanding that system, one of the big questions we get not only in these watersheds, but in some of the smaller watersheds in Pennsylvania, is can we get at real time loads? That's what we're getting at these super gauge sites and stuff like that. No longer are we looking at estimated loads from a larger watershed model, these are real time loads within a watershed. So, I think we're answering some of those questions. A lot of those questions, and you highlighted one of them, we'd like to build out with researchers like yourselves.

Ken Staver: I didn't mean to be too negative, it's just that's a big promise. Where we are with this Ag Workgroup, and being a veteran of it for a long time, we're looking at this as what do we do more of, what do we do less of? Where do we put our resources to reach the goals? Some of these challenges aren't information challenges, they're implementation challenges that have to do with the economics of agriculture. We're AgWG, but obviously the economics of development are on the development side. Like why are we still clearing forest when our goals would obviously be don't clear forest? Well, it's because the developers make money when they develop land and developed land you have to clear forest. So, a lot of these things are technical, and this will move the ball forward, so I'm fully in support of it. You just have to be cautious. John Clune: Well said, and that's why we're here. Through a joint effort, we can hopefully get better at answering those questions.

Dave Graybill: I didn't hear you say anything about say a farmer advisory group within each one of those watersheds that would meet occasionally throughout the year. I like what you are doing, but you need to keep farmers involved. For example, whenever I look at my recommendations for

growing corn on my farm, I've got my Penn State recommendations, then I make my plans off of that. Then economics, as Ken pointed out, comes in because maybe like a couple of years ago, nitrogen went too high. So you really cut back on your fertilizer inputs to make sure you're economical. Then you apply, but the weather comes in and does its thing and then the yield does its thing in terms of plus and minuses on what's actually taken up, so you need actual farmers talking to you about what's impacting that watershed. That's where I think maybe farm bureaus could help you access those? Your conservation district has great information for you, and I like the other partners you have, but one of the pieces I'm hearing you're missing is the on the ground guys that are making the decisions day-to-day that are affecting all those land uses on the ag side.

John Clune: Yes, Dave. Thank you for that. I starred this idea of a farmer advisory group. We were actually just discussing this. Some of the idea was piggybacking on existing events like maybe the conservation district has to educate farmers on nutrient management plans or things like that. But a direct farmer advisory group is a fantastic idea, thank you. I'm sorry I used the word for conservation districts. We're interacting with the conservation groups and obviously NRCS and the conservation districts by far, but the direct interaction like a farmer advisory group is a fantastic idea.

Kristen Wolf (in chat): Really appreciate the focus on outreach, collaboration and communication. In PA, as part of our voluntary Countywide Action Plan effort, each county has a Clean Water Coordinator who is connected to local partners there, including conservation districts, ag producers, local municipal partners, watershed groups, etc. Has there been consideration of connecting with these Coordinators in PA?

Kristen Wolf: Thanks to you, and Lee, and those that are thinking about how important the collaboration and communication is. In Pennsylvania, we have our voluntary countywide action plan effort. So each county has a clean water coordinator that we provide funding to the county for. Those folks are building those coalitions continually, and they're connected to the local partners there, and often are even working in the conservation districts. They work with local producers there as well as the municipal partners and watershed groups. In the conservation districts, they work with local producers there as well as the municipal partners and watershed groups, so they're really trying to connect people to each other. Has there been consideration when you're thinking about building these kind of outreach efforts in connecting with the coordinators we have here in Pennsylvania? What we get a little overwhelmed by is our county partners have a lot of different people coming at them. Is there possibly an intersection there where we could help to connect through the coordinators?

John Clune: Yes, so they're on our list, at least in Pennsylvania. I could say that we've tangentially touched base with the Conowingo Creek Initiative and then the Nature Conservancy has a group as well in Hammer Creek, where some of those people wear dual hats. But directly contacting those CAP coordinators, I'll add to my list, to make sure that they're aware of what we're doing. We'll see how we can work together to feed them the information they need, and vice versa, back to us.

Elizabeth Hoffman (in chat): I'd agree with including your local SCD or even regional folks from state depts of ag as the folks that plan and deliver programs utilized by farmers to work towards water quality goals, etc, so helps to be aligned and hearing the same messages.

Jeremy Hanson (in chat): Maryland's Whole Watershed Act will select up to 5 HUC8 watersheds, I believe two of which need to be agricultural areas and at least one interstate waterrbody. With that in mind it would be great if the small ag teams could connect with the MD's State Management Team (DNR, MDE, MDA, MDP, MDOT I think). I think it would be ideal if one or more of these small ag watersheds is located within the first five watersheds that are selected. The RFP

comes out in October and the selections are due by March I believe. Just a thought and I know I'm not the first to have it.

Alex Soroka (in chat): Jeremy that's a great point. To this end we've been talking with the surrounding Maryland counties about if this could fit into their proposal for the whole watershed act. We were a little ahead of the whole watershed act cycle but hope to marry the two. I think the whole watershed act will ask the proposals to bring monitoring and this would be an amazing investment to leverage

Elizabeth Hoffman (in chat): The WWA is not picking two ag watersheds it's selecting project proposals for two majority ag watersheds (MD HUC 8). Still an opportunity for collaboration and the proposals can include how they will work to provide monitoring and demonstrated benefits.

Marel King (in chat): To Ken's point, from a policy perspective I think we have reached the point where we know that BMPs are good and worthy of investment and support. But, I think there is value in showing a monitored benefit from that implementation -- farmers want to see the results and so do funders. Also, I think there is a really important role for this in watersheds where we are NOT seeing expected benefits so that we can figure out why and take an alternative approach.

Alex Soroka (in chat): Thanks Marel, I think that is one of the best outcomes we can achieve. The hope is to tell the story of these efforts through a combination of water quality + other monitoring.

Michael Drostin (in chat): The Delmarva Land and Litter Collaborative can help make local connections for your Bucks Branch site.

Ken Staver: You showed a slide with nitrate monitoring, and I would say, historically, I think we kind of understand the base flow of nitrate is pretty easy to keep an eye on. If you get better, more refined data, that's great. The one thing that we really have struggled with because the monitoring is so much more expensive and difficult, is the storm flow monitoring of phosphorous. Nationally, there's a lot of issues with conservation practices and phosphorous. I saw the nitrate data. In your real time monitoring, how are you handling storm flow?

Alex Soroka: At the moment, we have plans for stormflow individual samples which, of course, does not capture the entire hydrograph. Based on these watersheds, some of them are a little bit flashier than others, so you may get a good sample with the individual sample. What we're trying to do right now is find some of the support. So, in Maryland, it better meshes with the Department of the Environment program. What we're looking to do is add a robotic sampler in there to better sample over the hydrograph.

Ken Staver: You're talking about a grab sample during a storm event, or are you talking about a machine where it's taking aliquots every so many units of flow?

Jimmy Webber: Like an ISCO?

Clint Gill (in chat): ISCOs can be very difficult to try and program to get a full hydrograph in a flashy system.

Helen Golimowski (in chat): The Conservation Innovation Fund is presenting at the CAST webinar today at noon. They will be talking about their MD Whole Watershed project which is off to a great start! https://cast.chesapeakebay.net/Learning/FreeTrainingVideos

John Clune: Ken, all this discrete sampling like an NTN sort of sampling routine will feed into surrogate models that will give real time loads of phosphorous, nitrogen, and sediment. We need at least 36 samples or so to be able to do that, so you wouldn't be seeing that on the web for about at least another year.

Ken Staver: Right, but if you go out in the watershed when you know everybody just emptied their lagoons, and you get a sample and the phosphorous is five ppm, you learn a lot from that. Until your models all do their thing, that sample is going to tell you this is a really hot, really small period

of really high numbers. Those kinds of samples are real, and they're big loads, but they do kind of make a mess of models. The way we've been using this WRTDS is a storm flow sample has some influence on non-storm flow concentrations that you predict when it shouldn't, because it's not related at all to those base flow samples. No matter how close it is in time, It's just not the same water. I think, so far, our models have given us a little bit of a confusing story. So those individual samples and storm events are, I think, highly instructive, long before the models totally digest them.

Jimmy Webber: Ken, we hope that some of what we are measuring in real time in the stream may be related to those pulses of phosphorous. So, in other watersheds, we know there can be relations between the turbidity, which is measured every 15 minutes, and phosphorous concentrations. Those correlations can help us get a higher resolution idea of what's happening with phosphorous, but that one is challenging. We have a nitrate sensor. We measure nitrate directly. We would love to have a phosphate sensor to do that, too.

Ken Staver: If you really want to move the ball forward, the stormflow one is where the ball needs to move forward more than the base-line one. That's my sense of our understanding gaps. The stormflow one is harder, so it's not surprising that we're further behind on it.

Alex Soroka: One thing we didn't mention when talking about continuous sensors is that we are going to have continuous turbidity out there and then the hope is that we find support for a sampling robot to take aliquots over the storm hydrograph.

Ken Staver: You guys are bringing all the resources to bear, so that's good.

Alex Soroka: Not all of them. We're looking for funding, so there could always be more!

Ken Staver: You showed that nitrate data. When you show those little blips, 10^{th} of a ppm, what's your sense of when you get 8.1? When you do calibration on those sensors and you get 8.1, what is 8.1? Is it somewhere between 8 and 8.5, or is it somewhere between 8.025 and 8.06 or something? What's your sense of how those sensors are on that kind of fine scale measurement?

Jimmy Webber: There is a technical answer to that, and I'm not going to be able to pull it off the top of my head. I would say closer to your latter example. They're very accurate instruments, and there are documents and manuals that USGS has about the range of uncertainty and how we maintain and calibrate these instruments. The other important checks we do are comparing those concentrations against the grab samples, the samples that we take to the lab for analysis. So I would say we have a higher degree of confidence in those concentrations. When you see 8.1, it's high. That's one of the big takeaways and seeing the differences among the watersheds is already really cool. But, yeah, I think they're pretty accurate.

Clint Gill (in chat): in terms of weather data for bucks branch, UD has an extensive weather station network that might be helpful: https://www.deos.udel.edu/

Bo Williams (in chat): Would you be able to access enough of the stream/waterbody to gather a complete picture of riparian habitat?

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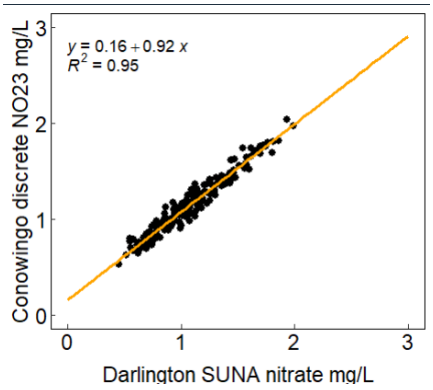
Alex Soroka (in chat): Great point, and to a large extent this relies on private landowners who have said yes in Maryland. I believe we also have similar access in the Delaware site. I'd imagine the same for the VA site and at least one of the PA sites.



Alex Soroka: Ken, I shared a figure in the chat that has about 10 years of overlap between a continuous monitor and discrete samples collected and analyzed at a lab. Those sampling points are five miles apart, but it's on the Susquehanna.

John Clune: Ken, USGS did a rigorous process of trying to see which instruments from which manufacturers are the best. We're using the ones that are most highly recommended based on USGS research now, so best we can do.

Jimmy Webber: I see a couple ideas for engaging farmers with this work, and I'd say that's probably an area where we are extremely interested in getting your feedback and thoughts. If folks want to reach out to us, we'd love to hear those comments of how to get farmers to the table or how to present these data in a manner that resonates with these local communities.

Eric Hughes: That was fantastic, thank you so much. The question I would ask of you all is what do you need from us? Where do you think the value is? What value can we add to you? Is it the local connections that would be helpful? What can we do for you?

Alex Soroka: The door is always open. If you think of things now or in the future, please reach out to us. We'd be happy to talk more about this.

John Clune: This is an iterative process, so if you wouldn't mind inviting us back, maybe in a year from now or something when we're at a point we can start showing you some data and the collaborations we are building. Like you started a farm advisory group, which is one thing I'm definitely going to do, but are we getting the right people involved? If that's ok, we'll continue to come back, and you can help us refine our approach.

Jimmy Webber: I'll just echo the ideas with productive ways for farmer engagement. I think you all have great ideas about that. If anyone wants to serve as kind of a sounding board for us, we've got a lot of value when we bring scientific information to kind of select smaller groups and say is this going to resonate well? Is this a story that helps your communities and your word you live in? We've gotten great feedback that way, so I think your willingness to be engaged with us would be beneficial.

John Clune (in chat): For more info…here is where you can find us: Science to Inform Management Priorities from Loads to Endpoints (SIMPLE) | U.S. Geological Survey (usgs.gov)

Action: Please reach out to Jimmy (jwebber@usgs.gov), Alex (asoroka@usgs.gov), and John (jclune@usgs.gov), with any additional feedback on their efforts on monitoring small ag watersheds.

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11:00 **PA DEP Remote Sensing BMP Verification Pilot Project Updates - 20 minutes**
Ashley Hullinger & Scott Heidel, PA DEP; Tom Howard, Resolve Hydro

The DEP/Resolve Hydro team provided the AgWG with relevant updates on the ongoing remote sensing verification pilot project, and time was allocated to address questions and comments from the group.

Discussion

Eric Hughes: As soon as you have any thoughts for the team on this information that they're presenting to us, flag that for them, and we'll get that addressed, keeping the thought in mind that this will be coming to a vote in early 2025.

Eric Hughes: With what you've seen of this work so far, is this something others are looking to implement in your own jurisdiction? This is a Pennsylvania specific project, Ashley made that clear, but I'm just curious if there is interest from other jurisdictions in doing similar work?

Clint Gill (in chat): Yes, Delaware is interested.

Elizabeth Hoffman (in chat): Maryland has an interest. We rely on NASS and our AIR data but could always improve.

Ken Staver: Is the whole BMP landscape in terms of verification, or this is just about residue cover?

Ashley Hullinger: Conservation tillage and residue cover, so not the whole BMP landscape. We're focused on conservation tillage, although there are opportunities, and we're definitely interested in those on how this might be broadened.

Ken Staver: So that's a sediment thing, TMDL is the nutrient side of it. Is there any thought given to the application of nutrients interacting with tillage and residue cover? In the Fall the landscape is painted with slurry, emptying tanks, so there's no tillage there, but it is a water quality event of some sort. So, is there any accounting for the other things going on?

Eric Hughes: Ashley, is that something that has come up in the PAC?

Ashley Hullinger: We've talked about applied nutrients, and we're talking with lots of partners about the outreach to producers and surveys that could be initiated. But with the remote sensing, we're quite limited with what we would be able to pick up. So that has not come up as much.

Scott Heidel: I think what we're trying to do here is verify highly effective BMPs and conservation tillage is one of those that controls that runoff of soil and sediment and the associated phosphorous nutrients. We've noticed that in Pennsylvania, our most impacted streams are impacted primarily from sediment. So we've worked very closely with our local TMDL development team to come up with a tool that's going to benefit both us in clean water and within our Bureau of Watershed Restoration. The conservation tillage BMP is what we found to be the most effective to do that.

Elizabeth Hoffman (in chat): Ken's question about verification brings up a good point, that outside of the structural BMPs we often think of for verification, states also have to justify how they verify these management or annual practices in their QAPP. Not sure everyone always thinks of that side.

Ruth Cassilly: Pennsylvania was working on a novel method to do cover crops with the transect survey, combined with the Penn State survey, to get that nutrient application information. That information is important when you're giving reductions in cover crops, because you're determining if it's commodity or cover crop with fall nutrients, or just a traditional cover crop

which factors into CAST. In terms of conservation tillage, you are getting an efficiency reduction for the BMP, so that nutrient application is not factored into that BMP. Maybe Mark has something to add, but it's not an issue in terms of the model.

Mark Dubin: It's not a direct factor/element into those BMPs. Where you might see some sort of a factor would be if you're applying a high residue manure material on the field, and you're boosting the residue that's already there from the. The other element I wanted to make a note about is the value of land uses and land use change over time. So that's another added benefit to this. That is, of course, relevant to BMP implementation as well.

Ashley Hullinger: Thanks, Mark, and that is something we hear from Capital RC&D, the group that leads the roadside transect surveys throughout the 40 different counties. Those land use changes require changes to their routes, and it's creating issues for tracking that the work with Tom could ease a little bit.

Ken Staver: Sediments have a huge impact on flowing streams, whereas dissolved nutrients are more of a problem when they get to tidal waters. Nutrients that moved downstream are the dissolved nutrients, primarily. Finding that tradeoff between controlling sediment but nutrients where we're surface applying high nutrient source material, is something we need to keep sight of.

Scott Heidel: I would absolutely agree with that. One thing we found with the 319 program is they do a great job at stream restoration, your multi-year BMPs. But what they're not capturing, and what they're not even actually able to fund, are these annual BMPs like conservation tillage and cover crops. So, there's a large hole in the funding whereas with our CAP program, we can fill that hole and fund these BMPs. Conservation tillage is one of the most effective BMPs in our agricultural areas, so filling that need gets to that holistic watershed restoration approach. The 319 programs are putting in some great riparian buffers, livestock exclusion, fencing, animal waste management systems, but they're not doing anything really on crop lands. When you look at these watersheds and you do the modeling, you can pretty safely say that if you don't address what's coming off croplands, you're not going to restore that watershed. We've run into that in Lancaster County on a watershed named Fishing Creek. We did everything that you could possibly do to fence out every single livestock that was in that watershed. We restored all the stream banks, planted all the buffers, but we didn't do a great job on the crop lands, and we still have not delisted any stream segments down there. What we're trying to get at is this holistic watershed restoration approach so that once the watershed is actually restored, it's going to be cycling the nutrients at a higher rate to where these then become nutrient sinks, rather than nutrient sources.

Tom Howard: Tyler who's with PADEP did some preliminary estimates and about 2/3 of all agricultural BMP load reductions of sediment across the entire Chesapeake Bay Watershed are coming from conservation tillage BMPs right now, and it's closer to 3/4 of load reductions of sediment coming from conservation to BMPs in Pennsylvania's jurisdiction of the Bay. So definitely a hugely important BMP for this region.

Tom Howard (in chat): In this project, the machine learning model being developed is specifically calibrated to PA lands. Theoretically, this model may be applied to other areas outside of PA in the future. To "transfer" this model between regions, some degree of testing and performance quantification will be required, and some degree of further calibration may also be required. How should the developed methodology address this question of model transfer? Should this question of model transfer even be included in the methodology being developed for PA? Has this transfer question been separately addressed in conversations around verification methodologies for other BMPs?

Emily Heller (in chat: Great presentation Tom!

Eric Hughes (in chat): Thanks for the question, Tom. We can still talk about this at the end if there's time, but it seems like this would be a good question for the PAC for now. I'll chew on this and we can chat offline

Action: Email Ashley Hullinger (ahullinger@pa.gov), Scott Heidel (scheidel@pa.gov), and Tom Howard (thoward@resolvehydro.com) with any additional feedback, resources, lessons, or suggestions relevant to the PA DEP Remote Sensing BMP Verification Pilot Project.

Wrap-up

11:20 **New Business, Announcements & Updates**

- **Agricultural Modeling Team – 20 minutes (presentation and Q&A)**
  - Tom Butler (AMT Coordinator) provided an update on items discussed by and related to the AMT.

Discussion

Jim Riddell: What are some of your discussion points on why there is such a difference there?

Tom Butler: There's a concern with how CAST is applying nutrients. Essentially, we currently apply organic sources then inorganic sources, and the way that those applications occur, that's something people have a little bit of concern with. How we calculate PAN is another thing people have expressed a desire to talk about. We currently have a method where we apply manure and fertilizer but if you have a certain production of manure application, you still meet that crop's requirement of nitrogen and you end up filling that with inorganic fertilizer. So that leads to some potentially negative impacts that maybe weren't the intent or maybe could be looked at in a different fashion. So those are a few of the things that we've been requested to look at.

Marel King (in chat): This leads to the question of: Since not all manure N is plant-available, what is the fate of the non-available N? Doesn't nutrient management planning account for that?

Tom Butler: Great question, and it probably does to an extent. The way that I would try and phrase it, or what I've shown here, is that you have to look at the average behavior of the watershed and the difference of your specific location. So it's not necessarily that nutrient management would be in all the acres. We would need to get that put in to see the impact of that but, really, it's the difference between the average behavior of CAST and the specific location, and that's going to factor much more into what happens in terms of runoff.

Ruth Cassilly: Part of the manure that's not available to the plant, it's in the soil still, we usually refer to as residual nitrogen that stays in the soil or gets run off. Gradually over time, it will become available eventually through bacterial transition through the nitrogen cycle. So we do have the ratio of residual soil in the model, right Tom? That kind of accounts for the non-plant available nitrogen.

Tom Butler: We don't necessarily carry over residuals from year to year. There is an impact of that towards fixation, so it does factor in in that fashion. It isn't necessarily that we hold that pool because there are varying rates to which you would expect it to be available next year. The physical transport of what actually happens to that leaves my purview and that gets into Gary Shenk's and the modeling world more, so I don't want to go too much into that.

Ken Staver: That's always been a problem because the model runs year to year. When you write nutrient management plans, the second year, some of that N is in your second nutrient management plan after manure application. So it does show up in longer term nutrient management, but the model doesn't really deal with it very well. Rotating the soybeans, it

doesn't matter anyway because they're going to fix N, so it just kind of disappears in a corn/soybean rotation because it offsets N fixation. One of the reasons that the acres that get manure have a higher base loading rate for nitrogen is because you do have that extra TN in the system that can be mineralized later in the season. It's messy, but that's the way it is.
Tom Butler: Thanks Ken. Marel, to your comment, we had 9-12 months of discussion about the land uses in CAST centered largely around that grain with and without manure, simply because of the behavior that you would expect historically from a manure-based system to non-manure based for grains. So that's been a hot topic, and we haven't been able to decide on anything concretely. So that led us down some of these other rabbit holes towards plant available nitrogen, because that's the basis that most nutrient management or other ag practices would probably rely on, rather than something like animal units.
Mark Dubin: I wanted to make a note on the phosphorous side. That was one of the major changes between Phase 5 and Phase 6 modeling tools was the addition of soil residual phosphorous in the calculations. So that was the change on that side of the county balance, but we're still not fully there on the nation side as of yet.
Dave Graybill (in chat): Does the model account for the temp in weather that can affect available nitrogen
Tom Butler (in chat): we are attempting to use temperature as a variable to help us with Crop Yield trends. Not necessarily in terms of the rate of mineralization
Olivia Devereux (in chat): Mineralization is factored in, not directly related to temp. in the model
Dave Graybill (in chat): We see it "in field" on cool springs and summers

- **<u>October in-person AgWG Meeting Overview</u> – 20 minutes (discussion)**
    - Eric Hughes (AgWG Coordinator) provided an update to the AgWG on the October in-person meeting. Due to a lack of member attendance, the AgWG leadership team has decided to cancel the October in-person meeting. Instead, we will hold the meeting virtually from 10:00AM-12:00PM on Thursday, October 17th. Member attendance was prioritized for this meeting given its intended focus: strategic planning for the future of the AgWG. The leadership team will work toward developing a plan for in-person meetings that best fit the group's needs moving forward.

  Eric Hughes (in chat): We will hold future in-person meetings regardless of the number of AgWG members ultimately able to attend.

  Action: Please send any additional questions, concerns, or insights on the October meeting and/or future in-person meetings to AgWG leadership.
- **September Principals' Staff Committee Meeting**
    - The Principals' Staff Committee met on September 17th, from 9:00AM-12:00PM. Maryland Department of Agriculture Secretary and Ag Action Team Chair Kevin Atticks gave an overview of the final Draft EC directive to create the Ag Advisory Committee and discussed potential funding mechanisms. Final approval of the directive will occur at the October PSC meeting. See the calendar page and agenda for additional information.
- **Beyond 2025 Report Public Comments**
    - The Beyond 2025 Draft Report comment period ended August 30th, 2024. A compilation of the public comments can be found through this link.

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- **SRBC/MDE "Pay-for-Success" Award Recipients Announced**
  - The Susquehanna River Basin Commission (SRBC) and the Maryland Department of the Environment (MDE) announced $11 million in funding through their "pay-forsuccess" model. For more information and a list of awardees, view the August 15th SRBC press release.
- **Animal Agriculture and Water Quality Subcommittee**
  - The EPA Animal Agriculture and Water Quality Subcommittee met on August 9, 2024. Video recording can be accessed on through this link.
- **Request for Proposals (RFP): NFWF Innovative Nutrient and Sediment Reduction (INSR) Grants**
  - Proposals for NFWF INSR Grants are due at noon on November 5, 2024. Consultation with NFWF program staff is encouraged and can be scheduled through this link. For more information and to view the RFP, visit NFWF's website. Contact Jake Reilly (jake.reilly@nfwf.org) or Tori Sullens (tori.sullens@nfwf.org) with additional questions.
- **Maryland Water Monitoring Council Annual Conference**
  - MWMC's 30th annual conference will take place at the Maritime Conference Center on November 21, 2024. The theme for this one-day conference is "MWMC @30: Celebrating Successes and Tackling Emerging Challenges". Registration information to follow.

12:00 **Review of Action and Decision Items; Adjourn**

Next Meeting: **Thursday, October 17th, 2024: 8:30AM-4:00PM (In-Person and Virtual)**

Participants

Eric Hughes, EPA
Caroline Kleis, CRC
Kathy Braiser, PSU
Caitlin Grady, GWU
Emily Dekar, USC
Mark Dubin, UMD/CBPO
Cindy Shreve, WVCA
Olivia Devereux, Devereux Consulting/CBPO
Wells Hively, USGS
David Graybill, Farm Bureau
Jimmy Webber, USGS
Brady Seeley, PA SCC
John Clune, USGS
Greg Albrecht, NY Dept. Of Ag & Markets
Erin Sonnenburg, CRC
Michele Drostin
Scott Heidel. PA DEP
Cassie Davis, NYS DEC
Tom Butler, EPA
Jeff Sweeney, EPA
Virginia Hogsten, EPA
Spencer Tassone, USGS
Helen Golimowski, Devereux Consulting/CBPO
Clint Gill, DDA
Elizabeth Hoffman, MDA
Ashley Hullinger, PA DEP
Hunter Landis, VA DCR
Nick Hepfl, HRG
Jenna Schueler, CBF
Alex Soroka, USGS
Pat Thompson, EnergyWorks Group
Kate Bresaw, PA DEP
Suzanne Trevena, EPA
Matthew Kearns
Kristen Hughes Evans, Sustainable Chesapeake
Marel King, CBC
Auston Smith, EPA
Emily Heller, EPA
RO Britt, Smithfield Foods
Gurpal Toor, UMD
Hannah Sanders, EPA
Mark Nardi, USGS

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

Ruth Cassilly, UMD/CBPO
Ken Staver, UMD/WyeREC
Matt Monroe, WVDA
Dylan Burgevin, MDE
Carol Bean
Seth Mullins, VA DCR
Leah Martino, EPA
Jackie Pickford, USGS
James Colgin
Jeremy Hanson, CRC
Bo Williams, EPA
Jim Riddell, VA Cattlemens Association
Tim Rosen, ShoreRivers
Carlington Wallace, ICPRB
Kristen Wolf, PA
Thomas Howard, ResolveHydro

Acronym List

AgWG- Agriculture Workgroup
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