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Agriculture Workgroup (AgWG)

Meeting Minutes

April 17th, 2025

10:00 AM – 12:00 PM

Meeting Materials

Summary of Actions & Decisions

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

Action: AgWG staff followed up via email with members who were unable to attend the meeting to request their vote on the methodology guidance for remote sensing verification of tillage BMPs.

Decision: The AgWG approves as proposed the final methodology guidance for remote sensing verification of tillage BMPs.

Action: All are invited to review the following draft prioritization document.

Action: AgWG staff followed up with members with instructions and next steps for reviewing the draft prioritization document and providing feedback.

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 March AgWG meeting.

Discussion:

Kristen Saacke Blunk (in chat): Kristen Saacke Blunk, Headwaters LLC, serving as a field liaison in support of NFWF Chesapeake Bay Stewardship Program - and RFPs for Small Watershed Grants and CWILD is OPEN - with May 13 deadlines for proposals. Please reach out to me or Kristen Hughes Evans if you have project ideas that you'd like to explore and socialize ahead of putting pen to paper.

Innovation/Data & Modeling

10:05 **Independent Review Presentation: PA DEP Remote Sensing BMP Verification Pilot Project - 75 minutes (presentation, discussion, and vote)**

Aileen Molloy & Brian Pickard, Tetra Tech

At last month's AgWG meeting, Tom Howard of Resolve Hydro presented the draft guidance for remote sensing-based verification of tillage BMPs. This document was the subject of a third-party (Tetra Tech) review to determine how closely the proposed guidance aligns with the existing Chesapeake Bay Program remote sensing-based BMP verification guidance. This review was

finalized and shared for the workgroup's consideration on 4/3 and is intended to provide an independent assessment of the tillage-specific guidance for interested parties to consider and ultimately support partnership decision-making around the approval of the proposed guidance. This month, the Tetra Tech team presented their findings to the workgroup, sharing the key elements of their review. Pennsylvania was given the opportunity to provide a brief response. The floor was then open to all AgWG participants for discussion to raise all questions, comments, and/or concerns. Finally, voting procedure was reviewed and a vote to approve the proposed guidance document was held.

Discussion:

Ken Staver: Given the way technology has advanced so much, I am still having a problem with having this outside review done that basically points out the 50%/70% issue. I guess what I just heard was that you are sticking to the 50% position and basically making a justification for sticking with it. Why aren't we going for 70% here? Do you think you can't meet 70%? Obviously, you are defending the 50% because you're thinking you're going to have trouble meeting the 70%. Is that the bottom line here?

Ashley Hullinger: Thanks, Ken. I would refer back to those notes about the compounding accuracy metrics. Absolutely, for a pure remote sensing project, that 71-79% or even higher would be a good standard to use, but this is using our historic roadside transit survey data, and combining those two methods actually creates this 50% threshold that we're looking for. Of course we've got Tom on, and I'm not sure if we've got Dean Hively on as well, but could definitely hand it over to some experts to explain more.

Tom Howard: That's a great question. I think Ashley summed it up pretty well. I just want to point out a few things. One is that what's called for in the method is that you construct a confidence interval that constrains your uncertainty and your estimate. So, your mean estimate of overall accuracy is higher than that 50% threshold. What the method calls for is the lower limit on what you're saying you have greater than 90% confidence with, is being set at that 50%. The second point, to what Ashley said, is that there is a lot of uncertainty currently in the transect method and the data that the different jurisdictions will be able to collect going forward in which they have collected historically, will likely be that transect survey method. So, for us to be able to verify the results each year at a county or jurisdictional scale, we need to set the standard such that the two different methods can be compared to themselves. So, Ashley had a sample image of a field, and you can see the simulated pixel output of a satellite remote sensing measurement versus the output of a human classification. We're getting much finer detail from the satellites, and those satellite estimates are consistent with themselves. But, when comparing that to a human's classification of the whole field, which is only one classification versus many, we get these compounding accuracy metrics that make the computation of our level of certainty in overall accuracy relatively lower. I hope that made sense. Do you have any follow up questions on that?

Elizabeth Hoffman (in chat): Is there a thought that the accuracy would improve moving ahead, as more data is collected?

Ken Staver: So, one is strictly just a value you're collecting from the satellite image. Then are you saying the verification is based on the human observer classifying the field and seeing how those two match up?

Tom Howard: Exactly. So, within the Chesapeake Bay framework, we require a certain number of samples to get verified through a different method. That different method is the traditional method of driving transect surveys where some human looks out the windshield or steps out on the field, and they make a classification of that field into one of the four bins. So, it's either less than 15% residue, 15-30, 30-60, or greater than 60% residue on the field. A human observer will make those classifications at a large number of fields throughout a particular county to create results to which we compare and estimate the satellite performance to.

Ken Staver: I guess I kind of assumed the human was going to have a drone or they were going to have images, too. I guess I wasn't thinking that we're going to verify the spectral image with somebody driving by a field and giving it a number. That seems problematic to me. I don't know what to say. That's like me weighing something by holding it in my arm and saying what it weighs versus verifying it with a scale or something.

Tom Howard: That's a great comparison. You might be able to hold something and classify its weight into one of four bins, and of course there's uncertainty with your human classification. At the same time, you could have a scale that classifies into those one to four bins. So, the accuracy metrics, the performance metrics of the scale versus the human, kind of reflect that it's not going to be 1 to 1. If human accuracy is what we consider truth, then some of the human bias begins to impact the actual accuracy metric, which is why we're not using that higher value. We are kind of recognizing that and proposing the lower value.

Ken Staver: So, you do a spectral image and you're going to get a value, and they you're going to put it in four bins, right? It's going to generate a particular value of residue cover which puts it in a bin. The bins are just bins that you create around the values. If you're cut off is 60, the satellite could give you 61 and it's in the same bin, and it could give you 59 and it's in another bin, right? So, the human literally can't drive by it and say that's a 59 or a 61. We're not that good. Maybe somebody is, but most of us aren't. We can hit the middle of the bins pretty well, probably, but when we get to the edges of the bins, is there any sense of the errors? If you've gone through this exercise, can you see how these values that are close to the edge of the bin cutoffs are? It seems like that's where you're going to not have the matching up. 50% doesn't sound very good. I've been trying to think of that with another BMP of verification where we'd say if we're right half the time, we are good with it.

Tom Howard: I think these are very real concerns. Ashley has a backup slide that shows the Chesapeake Bay Program guidance for the in place transect survey, and they recognize that delta between human observation and ground truth exists. So, in the existing guidance which has been used since March of 2017 by the jurisdictions, the Chesapeake Bay Program's defined accuracy metric is matching what we've proposed. It's matching that overall accuracy should be greater than 50%, and that recognizes the inherent uncertainty with this method. We're not having someone do a line transect where we go out on the field and we measure exactly the percent residue coverage on the ground, because we wouldn't be able to scale that to verify throughout the entire Bay Program. So, the proposal here is that we recognize the accuracy limitations of the existing methods that are available to verify results, and we kind of assimilate those into the framework we've proposed.

Ken Staver: Is there a sense of the errors being, to some extent, canceling? Like the "overs" equal the "unders"? Overall, it wouldn't make that big of a difference if your errors were even, like if you put as many in the next bin up as you incorrectly put in a lower bin. At the end of the day,

we're trying to do impacts on loads, right? The point of all of this is to estimate how much progress is being made on reducing sediment nutrient losses. So, I guess I am also wondering about the impact of the errors and if they're cancelling, then it's not as serious.

Tom Howard: That's a great question. I have two points that unfortunately don't directly respond to that. The first is that we have four bins we have to classify into. So, a random classification into any one of these bins has a 25% probability. So, that's kind of the baseline for a random classification. Then you also have to kind of consider what you were saying with this human inability to distinguish between boundary cases, and I think that Dean Hively could probably speak to this a little more because he has compared, to some extent, the windshield survey to the more sophisticated infield measurements of residue cover and, generally, the higher residue classifications will have higher certainty, but the lower residue classifications have greater uncertainty. So, it's not perfectly linear where they'll all cancel out. The 0-15 bucket is most likely to be misclassified into the 15-30 bucket. That 15-30 bucket has misclassifications that can fall on either side. So, the problem setup varies, but also your oblique viewing angle makes it a little more difficult natively to distinguish between 0-15, 15-30, and 30-60 than it is to distinguish between greater than 60 or less than 15.

Ken Staver: It's easy to tell a no till field, and it's easy to tell a tilled field. Those two are pretty easy. The in between ones are where the trouble lies. From a context standpoint, how big is this conservation tillage practice? How big of a chunk of load are we talking about? I should know this, but I don't really remember seeing it in the background slides. What are the stakes here in terms of loads?

Elizabeth Hoffman (in chat): That's an interesting point as well, because the higher residue would be the larger efficiencies for reductions, so the inaccuracy is tending towards the conservative "credit" buckets. For Maryland it is a large load reduction practice because of the footprint it can be applied against in acres. It's about 10% of the load reduction in our WIP plan, back when we did WIP III development in 2018.

Jeff Sweeney: I'm not sure about the loads themselves, but I know there's about 700,000 acres in high tillage reported in Pennsylvania. There was a big jump between 2014-2016 where a lot of the acres were transformed from the middle category, conservation tillage, to the higher category, high tillage. I don't know what the load is, but it's about that many acres in Pennsylvania's portion of the Bay watershed.

Ken Staver: I don't want to spend too much time working on something where the stakes aren't very high, but it sounds like it could be pretty high stakes here in terms of loads. I appreciate all the answers.

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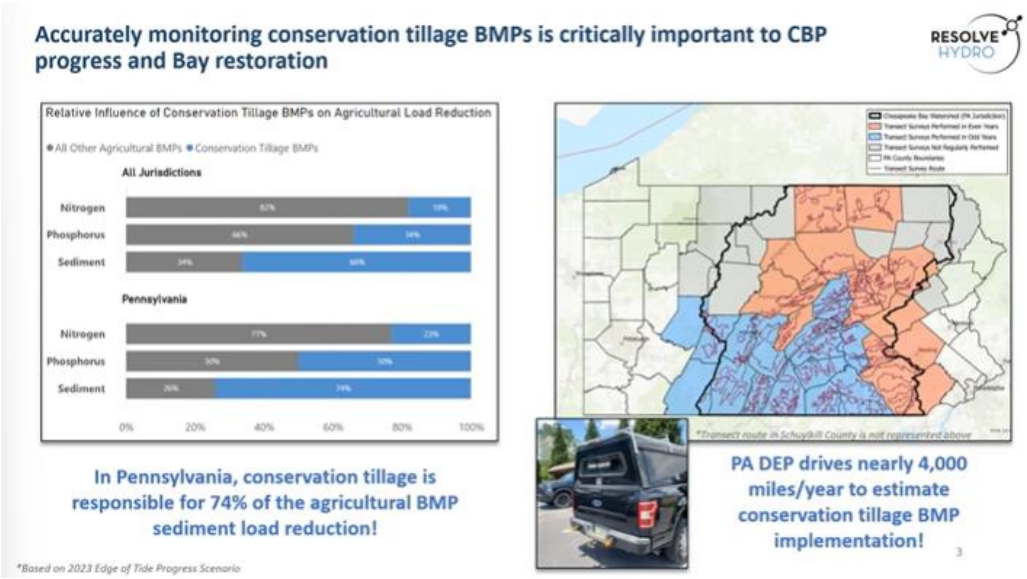

Ashley Hullinger: In response to Ken's questions about the loads and the overall impact, we put together these slides earlier in the process about six months ago.

Olivia Devereux (in chat): The amount from the WIPs is here: https://cast.chesapeakebay.net/Documentation/wipbmpcharts About 10%, in answer to Ken's question. That is watershed wide and 10.55% of the PA WIP load.

Ken Staver: Let me make sure I understand. So, I'm looking at all jurisdictions' nitrogen. 82% of our nitrogen reduction is going to come from conservation tillage?

Ashley Hullinger: 18% would be from conservation tillage, whereas sediment would be 66%. Obviously, comparing to Pennsylvania, it's larger. 74% for sediment and, overall, averages around two thirds of all of our reductions.

Ken Staver: Right, and half of phosphorous. So, it's not the majority except for sediment. It's the majority for sediment everywhere across the board.

Dave Graybill: One of the salient points in the presentation was the technology moves so fast, and we know that from a computer standpoint, but one of the things that our model looks at is the farming practices. That note that was just given about how farming practices have changed so drastically in the last couple of years, I think that erases some of the worry about different buckets you are sticking residual into, because farming practices are constantly changing, and we're noticing that. This new method may be able to keep up with that rapid change in farming practices.

Tom Howard: I think that's a great point. Thank you for adding that. The other important component is to think about what data is available right now and, in some cases, it takes several years between roadside transect surveys for updates to occur. Looking at the data from the last 10 years of Pennsylvania's transects, we do see significant changes year to year and field to field that can't be captured using lower temporal resolution methods.

Dave Graybill: If you would look at the tillage equipment that's used today versus 20 years ago, you would immediately see why that change has happened.

Ken Staver: If the struggle is in the middle ranges and we're good at the highs and the lows, maybe the middle two categories should be one category. Would that do away with a lot of this handwringing? I don't see how technology moves ahead very well with all of this. If the

verification ends up being somebody doing a windshield survey, doesn't matter how good the imagery is, if the verification is somebody making a judgement, you're never going to match up those borderline values. It seems like you will always have trouble with those. It seems like a lot of the issues would go away merging the middle two. If we can tell a tilled field and we can tell a no tilled field, in the middle we've got this huge range of some kind of tillage but not full tillage.

Tom Howard: That's one of the exact conversations we've had and one of the reasons why we are proposing this 50%. The satellites and the machine learning variables are advancing very quickly, and they're getting better and more reliable. We do still face the issue or the limitation that our field verification data is the method that is currently being discussed, that transect survey. So, again, even though the reported accuracy through that verification approach is some number, there can be reasonably understood a difference between what's true and what we are able to verify. To that second question of those bins, I think that's a conversation that kind of falls outside of the scope of this methodology. The existing framework calls for the four tillage categories. The larger Bay community discussion on how those are accounted for, I don't think is something I'm able to comment on, unfortunately.

Ken Staver: I knew that was an out of bounds issue for now. If you did your roadside survey and said the human judgement only had to say it was one of the two middle classes, could you hit the 70% as long as the verification only had to be that it was in the middle two? Could you hit the 70% if you did it that way?

Tom Howard: Perhaps a good distinction to draw is the difference between the methodology and the model. What we are proposing here is a methodology that is agnostic of model, because I think that different counties and throughout time different entities, will be able to develop new models for estimating the same parameters using either different satellite methods, different machine learning methods, other information, etc. So, your question of what happens to accuracy if we combine those two categories, it depends on which model is being used. But, which model is being used is not kind of the framework we're trying to discuss here. The framework we are trying to discuss is if someone brings a model, does it meet these agreed upon guidelines for acceptability, or does it not? If it does not, then those results can't be used within the Chesapeake Bay Program's model because they don't meet the agreed upon frameworks.

Elizabeth Hoffman (in chat): So, the inaccuracy is not over-crediting the practice. If I'm understanding that correctly. Which is what the verification guidance from CBPO is intended to prevent.

Elizabeth Hoffman: I understand where Ken is coming from. Going back to the beginning, one of the questions I had, if I'm understanding it correctly, is as more data is collected because this is a pilot, is there a thought that the accuracy would improve moving ahead? Then I'll make a comment about Ken's observation. I completely understand the call for increased accuracy, but there are many datasets we rely upon in the model that are also fueled by human bucketing. How people report on ag census, how people report on other reports, I understand that. For this one, though, if it's a pilot, is the thought that the accuracy would improve moving ahead as more data is collected? I heard you mention that the inaccuracy tends towards those lower residue categories, which would be the smaller efficiencies. So, the inaccuracy is tending towards the more conservative credited buckets, if I am understanding that correctly, which makes sense, right? You can clearly see if it's high residue. So, in that way, it feels like the intention of the

verification guidance from the CBPO is to prevent inaccuracy of over crediting is what I would think. So, this feels like it is kind of at least inaccurate in a way that is conservative. I still understand the need for wanting to be accurate between those two lower residue buckets. I get that, and Ken weighed in on that, but just making that point there. The last thing I mentioned was impact. When we developed our Phase III WIP plans in 2018, from where we were starting from and where we additionally committed to being this progress year, it was about 10% of our total load reductions. The model has changed since we did that analysis, but it was a big chunk because think of all the acres that this can be applied against. So, those are my couple of thoughts. I think the only question I had was about the accuracy changing over time.

Ashley Hullinger: Thanks so much, Elizabeth. In terms of accuracy improving over time, we will be working with Capital RC&D, our contractor who conducts roadside transect surveys, to actually kind of improve the methods or modify them, of course in keeping still within the lines of the guidance, to actually be more efficient with the goal of remote sensing as being the method that we're going to be ground truthing for. So, yes, we do expect that the accuracy can be improved over time as well. Tom, do you want to add anything on that before answering her additional questions?

Tom Howard: I appreciate those comments. Yes, accuracy is fully expected to improve over time, which is why we kind of wrote the methodology such that it is model agnostic. In a few years, a new satellite will be launched that is specifically designed for monitoring conservation tillage practices, and that data is going to be freely available, and it's going to be rapidly sampled. It will have a high temporal revisit. So, that's part of the direction of this. We want to establish our rules that are clear, because we know future approaches that are going to be really well suited to answer these questions will be available and currently there are methods that are available, which is what we're using for the pilot, but kind of a broader scale implementation with a global or near global model is something that's not too far off.

Ashley Hullinger: In terms of Elizabeth's other comment questions, she was very astute in stating that this is the conservative end of the accuracy. So, the lower tillage would actually be what's falling under than above 50%.

Greg Albrecht: This is really innovative and, Ken, I appreciate all of your comments a lot as always. I wonder if more structurally based on prior recommendation or guidelines from 2017, if the clear minimum requirement is 50%, and the 70% is more of a finding or recommendation and not a guideline, Eric and others correct me if that's a fair characterization from a quick read and the presentations today, then we'd be achieving the 50%. We all want higher. Ashley just articulated, of course, we are going to pursue more accuracy as better data sets and more efficient procedures come by. It seems like accepting this and moving forward with it would help the innovation continue at a faster pace than maybe continuing to hone and limit its testing in the field.

Eric Hughes: Thanks for that, Greg. This I think really came to light in Tetra Tech's evaluation and, as they were looking through the 2017 guidance, I think the point that we heard was with the technology that's available today, we can do an awful lot. So, even that 71%, what do we want to hold ourselves to? That's the decision that it comes down to, and if 50% is what is feasible, if that's the decision, that's absolutely fine. If we want to raise that, that's also fine. The point that's been made here, you put it in place, you approve it, and it's something that you can build on. I think from the Bay Program Office standpoint, I think we would love to see folks build on

that. Bottom line, approve what you want to approve and then always strive for as highly accurate a method as you can get.

Greg Albrecht: I don't know what practices might help with the verification step, but Ken did mention another more local, potentially higher resolution image capture approach with a drone. It's kind of interesting to do better than our current transect approach to verify as an opportunity in the future.

Ashley Hullinger: Thank you, Greg. I completely agree with what was said. I want to second that we are always looking for more ways to improve accuracy. So, that's not going to stop from here. If anything, we will just be able to pursue that more.

Mark Dubin: I really appreciate the presentations, discussion, the questions. This is really positive to walk through this and look at the different perspectives. Being one of the old timers with this, I was thinking back on what we've done, historical precedents that we worked through and, back in the day, transect surveys were one of the things that we introduced and went through a process for that to basically expand on it. The lower category for the reduced tillage, that's something that only came around with the Phase 6 models. It hasn't been around very long in reality for reporting for us. So, that's a relatively new BMP as well. Previously, it was just conservation tillage and a number of years ago, we added the high residue on top of that. I think the other thing that was thought about as well was that we launched some programs, Pennsylvania specifically, to look at transect survey methods for cover crops. So, we went through that process as sort of this concept idea and came to the AgWG about it and they said, yeah, let's try this, and basically gave us an opportunity to do it and then come back to the AgWG and say we've implemented this, here's what we found. So, I think that's maybe another opportunity here. I know Tom's still working on the modeling tools, there's AI, so maybe this is an opportunity to think about getting some opportunity for the concepts and coming back to this to look at what the results are. The other thing as far as with the Tetra Tech guidance, is saying maybe we need to rethink this, reopen it up, look at updating the guidance for these, and maybe it might be good timing for this as well. So, I think there's more than one way to approach this. I don't think it's either one way or another. I think there's multiple options that the group could consider and, again, promote this and give it a little bit of time to develop and come back and take a look at it.

Ashley Hullinger: I'll just thank Mark. He's been really helpful throughout the last 15 months. So, that historical perspective is really valuable. Thanks, again.

Kathy Boomer: I can't resist pushing us to think about doing better and really in two ways. One, I will continue to beat the drum for a need or a wish that we would invest in mapping land water connections as much as we invest in mapping land use land cover conditions, because it's so critically important to understanding where we can implement practices for the benefits that we are seeking. The second lament, or maybe encouragement, is to share concern about the resolution of these data and to think maybe we should flip the target audience to the landowners, the producers, and helping them think about where they might shift or think about implementing practices or how they might implement practices more effectively, and really engaging them in evaluating the utility, the reliability and the credibility of the data. I would love reactions from some of the folks outside of the research space.

Ashley Hullinger: Thanks, Kathy. I can respond really quickly to the second half of your question. I just actually presented this project to the Adams County Conservation District. They had their

annual soil health meeting with local farmers, and we have also put together a dashboard that's more in a beta testing phase right now that would be able to look at historic data as well and start these conversations. So, I think you really hit it on the head in that we are really looking at this from different ways and that it's also working with producers and how we target areas or really highlight areas that are doing well as well as improve our data accuracy and results. I'll leave it open for other people to respond.

Elizabeth Hoffman: I'll add to that, because I think it's a good point, but I want to just speak to the verification element of that. Agreed, we should be focusing on how to shift and make changes of focusing efforts moving ahead, but the challenge before us is that we were assigned to verify the existence of practices. So, sometimes we live in this space of having to just document and understand what is already occurring before we can even get to the targeting and honing in. I'll just say that Maryland supports this as we feel like the alternative is less understanding, no way to recognize and look at the implementation of these tillage practices, so I think it's only a positive. Then the last thing I'll say is we say that as a jurisdiction that has other avenues of obtaining this data, right? From the load question, we don't have a lot in the game there, but we still support because we understand verification, and that ask was a very heavy lift for the ag sector. So, whatever we can do to help each other understand our landscape better and our producers better, we are all for it.

Tom Howard: I think those are great points to raise. One of the conversations I've had is that the intention of remote sensing is that it answers more questions. It gives us more data across larger extents and generally at a much lower price than traditional methods. So, this verification framework, as Elizabeth was saying, is part of the Chesapeake Bay Program's requirements in the TMDL reporting requirements. What's really awesome about building these models is that you are not restricted in how you apply them. So, in the past, there have been some maps where you can see field by field which practices are implementing conservation tillage and which ones are not. So, there's broader discussions of privacy and how that data is used, but it really helps to allow us to figure out how to pinpoint efforts separately from this broader question of what's the degree of implementation? So, I think that was a great point, Kathy. There's some additional specificity that you can get through this data that you just can't get through traditional methods.

Amanda Cather (in chat): Amanda Cather from the AAC here - very curious to hear how Kathy would envision producers taking on that responsibility for verification - aware that that is probably a longer conversation than we have time for here!

Kristen Saacke Blunk (in chat): I will be jumping off the call soon - but Natasha Rathlev, Sustainable Chesapeake - will be on for the announcements/updates portion of the agenda later if there are Qs here about the RFPs open with NFWF. Please note that BOTH the NFWF CWILD and the NFWF Small Watersheds Grants RFPs are open with May 13 proposal deadlines. Application info is at: SWG - https://www.nfwf.org/programs/chesapeake-small-watershed-grants/chesapeake-bay-small-watershed-grants-2025-request - CWILD - https://www.nfwf.org/programs/chesapeake-wild/chesapeake-watershed-investments-landscape-defense-wild-grants-2025

Eric Hughes: Thanks, Tom. Kathy, your hand is up, and I know there was a comment from Amanda in the chat. Final brief word on this. We had 75 minutes for this on the agenda, and I was not expecting to blow through that, but I think we're in a position where we are heading that way. So, if you have a quick final word on that you want to share, go for it.

Kathy Boomer: I intended to respond to Amanda's comment about engaging producers in the verification process and just share a concern about framing this all as kind of a top-down verification. Basically, deeming whether a farmer is meeting expectations and missing the opportunity to really engage them collaboratively and thinking about how we work together to steward land more effectively. So, just wanting to share is there a way for us to think about other ways that we can move forward in developing the work and valuing the work?
Eric Hughes: Thanks, Kathy. An important conversation and, as Amanda said, indeed one that is longer than we have time to really go into here. I think we're going to need to do something about two-hour meetings, folks. Unfortunately, I don't know if anybody wants to hear that, but there's so much that we want to talk about, and it's becoming clear that that's less and less manageable for these bigger discussions.

Eric Hughes, AgWG Coordinator, provided an overview of the consensus voting process and walked the group through the different stages of the consensus continuum.

Eric Hughes: I would like to go to this vote tracker. As always, if there are any stops or holds, as we've done in the past, you have to provide your feedback. My humble ask of everyone here is if you're a four or a five that you tell us what you really like about the proposal. I think it's potentially just a nice opportunity to give kudos to your other partners. Because we haven't done this before, you don't need to maybe verbalize it this time, but in the chat, if you want to go and add something, then we'll go ahead and populate that. Caroline, you can just go ahead and run through the members.
Rosita Musgrove: I am going to vote with number four.
Elizabeth Hoffman: Maryland endorses this, number 5, kind of as a best faith endorsement and understanding that approval of the methodology will only help us increase accuracy and have better understanding of this not only method, but practice.
Greg Albrecht: New York votes with a five to endorse, and that's contingent on what Ashley nicely articulate about their sincere interest in improving the accuracy of their checks.
Kate Bresaw: Pennsylvania is a five.
Seth Mullins: Virginia is a five as well.
Cindy Shreve: West Virginia is a four.
Marel King: I'm a five, thanks. I just really appreciate the time and the transparency that has been a part of the whole process.
Jeff Sweeney (in chat): EPA votes to stand aside. There are some reservations. Given the impressive cost-effective capabilities of modern remote sensing technology, future remote sensing-based verification guidance should contain accuracy thresholds that more closely align with existing Chesapeake Bay Program and industry standards.
Jeff Sweeney: I put a response in the chat maybe to help you out a little bit, but EPA votes to stand aside. There are some reservations that you can read in the chat but, essentially, it's saying what many of the commenters have said during this presentation that when there's a lot of impressive cost-effective capabilities of modern remote sensing, future remote sensing based on verification guidance should contain accuracy thresholds that more closely align with existing Chesapeake Bay Program industry standards. Like our statement reads, remote sensing offers a very cost effective, spatially comprehensive way to monitor the practices like residue cover and

the tillage intensity. Regarding cost effectiveness, perhaps some of this data will even be free in the future as it was when we used the CTIC from 1984-2004, which is conservation tillage information center, which is essentially what we're doing with the transect surveys. There's' a lot of scholarly articles out there about remote sensing conservation tillage. If you want to look some of these up and see what other people are doing, the ones I found of most interest were USDA and Agricultural Research Service, USGS, and a group called Conservation Institute, just to name three of many that are working on this same technique.
Jeff Hill: My vote is five.
Dave Graybill: I believe I would give this a five. However, there is a small comment that should be given there. Privacy of the data should be adhered to, but I like the increased accuracy that's possible in the future.
Jenna Schueler: CBF is going to go with a five with agreement of what everyone's been saying about increased accuracy metrics into the future.
Ken Staver: I'm going to stand aside. Overall, I was satisfied with the answers. I'm not enough of an expert to really fully get it all. My overall concern with all this emphasis toward less tillage is that we're not dealing with the interaction of manure applications and no till. Overall, we've done super well on sediment at least from ag fields, but I'm worried that we're charging ahead with all this carbon storage and soil health, pushing it on tillage, and not dealing with surface applied nutrients. But I certainly wouldn't stand in the way. I see all these fives, and I'm trusting the group here.
Kathy Boomer (in chat): Agree Ken- even more concerning that we don't consider interactions with water mng't.
Paul Bredwell: I'm going to rank it a four. I would like to see the increased accuracy now, but as it says on four, we can live with it.
Emily Dekar: I'm going to with a five, and you can put the same notes as Greg had.
Matt Royer: I'll go with a five. I think the presentation showed that it's time to advance this kind of technology for verification, and I appreciate DEP and Ashley's commitment to improving methods of accuracy for the ground truthing element. So, I'm giving a five.
Jim Riddell (in chat): As my system may stop, my rec is to approve.
Caroline Kleis: Great, thank you. I believe Jim had to step off but indicated in the chat that he was a five in support of it. Jim, if you are on, I can edit that or take any comments.
Eric Hughes: The one thing I do want to note, we do need to get input from all, and this hasn't been clearly articulated in the past. The idea I had was that we don't want to penalize folks if unforeseen circumstances prevent them from being on our call in a particular month when a vote like this is up. So, we don't necessarily want to limit the vote to leading up to the call and on the call, because there are still votes we need. What I figured we would do is give absent members five business days, so a week from today, to provide their feedback. They can ask questions if they need to and, if they missed the materials, I can talk to folks and they can reach out to the presenters, and they can provide their votes. If we don't hear anything by next Thursday, they will automatically be populated as a 3, stand aside, with a note there was no vote recorded. They did not participate. All signs indicate that this will be passed, but we will know for certain next Thursday and we will, of course, provide notice to all. So, just want to address that because there may be questions about the people who didn't vote.

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Elizabeth Hoffman (in chat): Appreciate comments weighing in on conservation tillage as a practice (possible future meeting topic?) but today's vote was about expanding the ability of jurisdictions to verify the implementation of practices, conservation tillage in this case, not about how we prioritize/plan/promote those practices or any revisiting of their effectiveness within restoration efforts. Those topics may have become conflated.

Action: AgWG staff followed up via email with members who were unable to attend the meeting to request their vote on the methodology guidance for remote sensing verification of tillage BMPs.

Decision: The AgWG approves as proposed the final methodology guidance for remote sensing verification of tillage BMPs.

AgWG Planning

11:20 **AgWG Planning Update – 30 minutes (presentation and discussion)**
Eric Hughes, AgWG Coordinator

Eric provided an overview of a document capturing AgWG areas of interest, synthesized from the presentations given and discussions held through the initial part of the workgroup's planning effort (10-2024 – 02-2025). This document can be considered a preliminary draft of the plan that will guide the group's work through 2026. Next steps in the planning process were shared and a request was made of the group to provide input on the document's contents ahead of our May meeting.

Discussion:
Note: Presentation extended beyond the scheduled meeting end time, so no comments related to the presentation were verbalized or left in the chat.

Kristen Hughes Evans (in chat): Just a reminder from your friendly NFWF Field Liaisons: BOTH the NFWF Chesapeake WILD and the NFWF Small Watersheds Grants RFPs are open with May 13 proposal deadlines. Application info is at: SWG - https://www.nfwf.org/programs/chesapeake-small-watershed-grants/chesapeake-bay-small-watershed-grants-2025-request - CWILD - https://www.nfwf.org/programs/chesapeake-wild/chesapeake-watershed-investments-landscape-defense-wild-grants-2025
Kristen Hughes Evans (in chat): Please don't hesitate to reach out to us if you have any questions or want to discuss: kristen@susches.org; natasha@susches.org; kristen@headwaters-llc.org

Action: All are invited to review the following draft prioritization document.

Action: AgWG staff followed up with members with instructions and next steps for reviewing the draft prioritization document and providing feedback.

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Wrap-up

11:50 **New Business, Announcements & Updates**

- **Agricultural Advisory Committee (AAC) Kickoff Update**
  - The AAC held its kickoff meeting on March 27th, 1-4pm. Meeting materials can be found here.
  - Eric Hughes: The AAC is going to be working on building their agendas – it will be interesting to see what they ultimately come up with. There is no date set for the next meeting. There is no chair yet and the coordinator role is being filled in an interim capacity. It was a very successful kickoff. 14 phenomenal folks, so happy to have them in the Bay Program fold, and I'm really forward to what the group is able to do. In the meeting, we spent a lot of time on the outcome discussion, so they got a primer for that there. The focus, beyond that, there was a discussion about the soil health outcome and how to slot that into the Beyond 2025 process.
- **Beyond 2025 Update (2025 WIP, soil health outcomes)**
  - 2025 WIP Outcome – The Management Board reached consensus agreement at their 3/27 meeting to update the 2025 WIP outcome. The Water Quality Goal Implementation Team serves as the outcome lead for the 2025 WIP outcome and was delegated the responsibility of recommending draft outcome language to be considered for the "update". The WQGIT has prepared this form [no longer active] to solicit feedback from all parties interested in participating in the process of updating the outcome language. The form also provides an excellent overview of the steps that have been taken to arrive at this point, as well as the limited information available regarding next steps in the outcome updating process.
  - Soil Health Outcome – The soil health outcome discussion continued at the Water Quality Goal Implementation Team meeting on 3/24. Eric Hughes summarized the AgWG's March 20th discussion on the outcome and listed some of the workgroup members' key questions, comments, and concerns. WQGIT members generally felt similarly to the AgWG members about the introduction of soil health as a new outcome. The outcome, framed as non-ag-specific, was ultimately championed by STAC at the 3/27 Management Board meeting. The Management Board voted at its April 10th meeting to refer the outcome "back to GIT" for further discussion; next steps are still being determined, though soil health will not be considered as an outcome for the 2025 update to the Watershed Agreement.
- **NFWF Chesapeake WILD Grants Program Request for Proposals (RFP)**
  - NFWF, in conjunction with the U.S. Fish and Wildlife Service and the Chesapeake Bay Program, is now accepting proposals for the Chesapeake Watershed Investments for Landscape Defense (WILD) grants program. The request for proposals can be accessed here. Proposals are due by noon on Tuesday, May 13, and an informational webinar can be accessed on the program page.
  - For additional questions, contact Jake Reilly (jake.reilly@nfwf.org) or Tori Sullens (tori.sullens@nfwf.org).
- **Other Announcements?**
  - Send to Caroline Kleis (Kleis.Caroline@epa.gov) for inclusion in "Recap" email.

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12:00 **Adjourn**

Next Meeting: Thursday, May 15th, 10:00AM-12:00PM

Participants

Kathy Brasier, PSU
Caitlin Grady, GWU
Eric Hughes, EPA
Caroline Kleis, CRC
Bailey Robertory, DNR/UMCES
Cindy Shreve, WVCA
Emily Dekar, USC
Olivia Devereux, Devereux Consulting
Dave Graybill, Farm Bureau
Emily Heller, EPA
Robert Waring, Colonial SWCD/ AAC Member
Scott Heidel, PA DEP
Tyler Trostle, PA DEP
Aileen Malloy, Tetra Tech
Jeff Sweeney, EPA
Jackie Pickford, USGS
Tyler Groh, PSU
Kristen Wolf, PA DEP
Seth Mullins, VA DCR
Nathan Radabaugh, PA DEP
Roland Owens, VA DCR
Jenna Schueler, CBF
Alex Echols, Campbell Foundation
Jeff Hill, York County Conservation District
Paul Bredwell, U.S. Poultry and Egg Association
Grant Gulibon, Pennsylvania Farm Bureau
Natahnee Miller, PA DEP
Mark Dubin, UME/CBPO
Cassie Davis, NYSDEC
Jeremy Daubert, VT
Kelly Shenk, EPA
Helen Golimowski, Devereux Consulting
Kate Bresaw, PA DEP
Matt Royer, PSU
Elizabeth Hoffman, MDA
Brian Pickard, Tetra Tech
Jim Wallace, Colonial SWCD
Kathy Boomer, FFAR
Marel King, CBC
Kristen Saacke Blunk, Headwaters LLC
Hunter Landis, VA DCR
Greg Albrecht, NY Dept of Ag & Markets
Amanda Cather, Plow and Stars Farm/ AAC
Ken Staver, UMD Wye
Sara Ramotnik, NWF
Jessica Shippen, TJSWCD
Carlington Wallace, ICPRB
Brady Seeley, PA DEP
Erin Sonnenburg, CRC
Patrick Thompson, Energy Works
Jim Riddell, VA Cattleman Association
Jeremy Hanson, CRC
Tom Howard, Resolve Hydro
Ruth Cassilly, UMD/CBPO
Todd Deroba, PA DEP
Rosita Musgrove, DOEE
Mchezaji Axum, UDC/AAC
Jill Whitcomb, PA DEP
Doug Austin, EPA
Kristen Hughes Evans, Sustainable Chesapeake
Natasha Rathlev, Sustainable Chesapeake
Anne Coates, TJSWCD
Mark Rohrbach, AAC
Tom Butler, EPA

Acronym List

AgWG- Agriculture Workgroup
AMT- Agricultural Modeling Team (Phase 7)
BMP – Best Management Practice

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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