Chesapeake Bay Program
Science. Restoration. Partnership.

Forestry Workgroup Meeting Minutes
September 4th, 2024
9am-11am
Meeting Materials

Attendees

Alanna Crowley, MD DNR, USFS
Alexis Dickerson, Potomac Conservancy
Anne Gilbert, MD DNR, USFS
Anne Hairston-Strang, MD FS
Bay Hanson, USFS, MD
Brendan Durkin, DOEE
Caitlin Bolton, MWCOG
Caitlin Verdu, VA DOF
Cassandra M. Davis, NY DEC
Cathryn Soriano, DNREC
Charlotte Weinstein, Chesapeake Conservancy
Dexter Locke, USFS, MD
Elliott Kurtz, Chesapeake Conservancy
Emily Beach, Chesapeake Conservancy
Frank Rodgers, Cacapon Institute
Helen Golimowski, Devereux Consulting
Jacqueline Pickford, USGS
Jenna Talbot, DNREC
Joel Cockerham, Cacapon Institute
Judy Okay, J&J Consulting
Kalaia London, PA DCNR
Katie Brownson, USFS, MD
Kesha Braunskill, USFS, WV
Louis Keddell, Chesapeake Conservancy
Lorenzo Cinalli, USFS
Meghan Noe Fellows, Center for Inland Bays
Michael B. Coverdale, DNREC
Richard Turcotte, USFS, WV
Rob Schnabel, CBF
Robbie Coville, PA DCNR DOF
Ruth Cassilly, UMD
Sarah Brzezinski, US EPA
Susan Minnemeyer, Nature Plus

9:00 **Welcome and Introductions –** *Kesha Braunskill (USFS, FWG Co-Chair)*

9:10 **Announcements –** *Katie Brownson (USFS)*

- Beyond 2025 update: Comment letter submitted on behalf of the Forestry Workgroup based on discussions at our last meeting. The Steering Committee will be working to revise and finalize the report by the end of September.
- Update on the new 2021/22 LULC data (2024 ed.): Katie Walker will be providing a summary of the feedback received during the stakeholder review period and updates made to address concerns and improve the data during the September Land Use Workgroup meeting (Sept 18th 1-3). All are welcome to join.
- Upcoming Riparian Forest Buffer webinars:
    - September 23 (12-1): Dr. David Newburn of the University of Marland (UMD) will review his Hughes Center-funded research project, “Evaluating the Effectiveness of

Economic Incentives to Enhance Riparian Buffer Adoption and Environmental Benefits for Water Quality and Carbon Sequestration." Register here.
    - October 10 (12-1): USFS Eastern Region Watershed Forestry team will host a webinar on Riparian Forest Buffers featuring our very own Craig Highfield as well as Jeremy Geist from Trout Unlimited. Registration information and a link to sign up for email updates on future watershed forestry webinars is available here.

9:20 **Recommendations to Modify Forest Harvesting BMP efficiencies** – *Lorenzo Cinalli (USFS)*

The Timber Harvest Task Force has met and agreed upon final recommendations for an update to the Forest Harvesting BMP efficiency, which will be distributed to the FWG.

Summary of those recommendations:

- Recommend changing the credit duration to three years (to align with the harvested forest land use duration) and changing the efficiency rates to:
    - TSS from 60% to 85%
    - TN from 50% to 90%
    - TP from 60% to 85%

Discussion

Caitlin Verdu (In chat during Lorenzo's presentation): "I'm confused by this graph. I think VA has something like 98% BMP implementation on all harvested acres.?"

Caitlin Verdu askes Lorenzo to talk her through the slide, particularly what the two bars mean again because for Virginia her understanding is they have a super high BMP implementation rate.

Lorenzo explains the orange bar is Virginia's WIP 3 Goals, but just because the reported acres don't meet the goal, it could just mean that Virginia is doing less harvesting. If there's not enough harvesting, then you wouldn't be able to report that many BMPs.

Caitlin responds with a question asking if the WIP3 Goals are set as an acreage because she has only seen them as a percentage of harvesting.

Lorenzo responds yes.

Katie Brownson mentions that Virginia may just not be harvesting the number of acres the planners planned for when they developed their WIPs.

Frank Rodgers points out that the implications of a state not meeting its harvest goals depends on what was done with the forest instead and whether the forest was cleared for building.

Frank then moved on to say his question was on the slide entitled "NPS Load Reduction from Harvesting BMPs" and asks if it's displaying the old efficiency or the proposed new efficiency. He

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says it would be interesting to see how the model will change when the new rule is implemented when all those go from 50 to 90.

Katie says they don't think they can do those proposed numbers now, but that she thinks they'd be able to compare after.

Frank continues that we should make sure we're not just adding value based on the statistical adjustment as opposed to a real-world change.

Anne Hairston-Strang chimes in to say she hopes the take home point for a lot of this is that, we have made some exceptionally conservative decisions when we first started crediting harvesting BMPs and these recommendations are checking the most current research to ask "Is that on target?" and what they have come back with is "well no" and we may not be valuing the role of these harvest BMPs as much as we really ought to.

Lorenzo echoes Anne's comment saying that states should be able to get the credits that they deserve based off reporting these BMP's and it seems that based off the current literature they're not. The reasoning being that maybe these original numbers were too conservative but also given the new science that has emerged in the past 15 years.

Katie To wrap up the discussion, she explains that normally the BMP efficiency determinations require a multi-year expert panel process. However, the WQGIT developed new protocols that are allowing some flexibility to potentially avoid the multi-year expert panel process when we're re-evaluating existing BMPs using new science. Even with this timeline, she explains the changes would not be implemented until Phase 7 of the Watershed Model, which is not until around 2028, so it will be a long time before we see these changes reflected in the model.

The WQGIT could still come back and decide that they want a more detailed evaluation.

Robbie Coville responds saying he thinks the recommendations look good to him and that the old ones were a little too conservative.

He then asks about the process for some of the reporting, like in PA he was surprised how low the acres in harvested forest are, and he was wondering if a summary of how those harvested acres are reported could be provided. In addition, he thinks of harvested acres as having more nutrient loading than an unharvested forest and yet also we know that actively managed forests are going to be healthier in the long run, so he was wondering if those nuances are captured at all, or is it as simple in the model as something is reported as just forest that's not being actively harvested, and then when a harvest is planned, that becomes sort of different type of land use with different loading of 3 years.

Katie responds that reporting varies a little from state to state. She says for states that have good permit information, they report their permitted harvest forest acres every year to the Bay Program as part of their annual progress reporting – and then BMPs can be reported and

allocated to those harvested forest acres – and so when you're reporting a harvested forest, it then transitions from forest into the harvested forest class and gets an increased loading. She notes it's not a developed level of loading, but it's in between the two – and if the BMP is applied then the loads get reduced from that harvest above what it would be otherwise.

For PA, they don't report harvested forest acres because they don't have the data to do it, so they get the default rate currently.

Robbie follows-up up with a question asking if the model is capturing those nuances, given that the land cover would remain forested longer in theory if there are these periods of harvest.

Katie responds there is also an interface with the land use/land cover data, where they are tracking that every 4-5 years and developing more advanced processes for being able to tell if it's a managed harvest, if it's actually going to result in it staying a forest in a long term versus a harvest that's a precursor to development – in which case it would go to a different pathway – but if it's a harvest that's part of management, then it's going back into forest and therefore goes from harvested forest to a natural succession type class and then back to true forest again. We will need to unpack a bit more with the Land Use Workgroup as we continue our planning for the Phase 7 model.

Rob Schnabel is called to ask his question about the duration of 3 years asking if it goes back to better water quality land use after the 3rd year.

Katie responds that that depending on the timing with the land use data, it might go into a natural succession type class if they're still low vegetation on the landscape and not the forest, and she thinks their processes for doing that are evolving with the next phase of land use monitoring. Further discussion is needed.

Anne asks Katie if we know when the modelers would need all the decisions rules to be in Phase 7.

Katie says she thinks there is still a bit of time, however, sooner is better, especially if we need to iterate a little bit, for instance if we send it to the WQGIT and they send it back – that is why they are trying to be proactive. She believes it should be 2025 sometime.

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Judy Okay (in chat): Is there uniformity in terms of BMPS and application in all the states or is there a choice of usage and variation?

Robbie Coville (in chat): I'd think forestry BMPs are relatively consistent across the Bay, but that's a good question about comparing apples to apples in the lit review

Lorenzo chimes in to highlight Judy Okay's comment in the chat. He responds that looking at the literature we reviewed there were differences in what types of BMPs were reported. They did not separate the data based off of the type of BMP being utilized because CAST does not model different BMPs. So even if there was variation in the different Chesapeake Bay states on

the types of BMPs or the amounts of BMPs utilized, they didn't look at that because CAST doesn't have the nuance on that.

Judy Okay responds that the reason she asks is because these are pretty hefty changes and when you're asking for changes like this and do not know whether there's uniformity through the states, she is cautious. She asks if there is some way to have these variables taken into consideration, because some BMPs are better than others.

Anne responds that BMP reporting absolutely varies by the state, but in terms of what is being put on the ground, there is a fair bit of consistency and some of the specifics such as the buffer rules or the percent of slope, that rule can vary from state to state, however you're looking at buffers, water bars, and slope restrictions pretty much everywhere in the watershed and it all comes down under the same federal standard of preventing sediment in the water.

Katie follows up to Anne's response saying that's helpful context and responds to Judy saying that we were to differentiate between BMPs or different BMP intensities she thinks that would require more of a multi-year expert panel process.

Judy responded yeah that she believes CAST doesn't look at the different BMPs.

Katie said yes, they are all lumped together under one right now and that if we were going to separate them it would be a new BMP creation.

Rob Schnabel asks how the states set their WIPS for this process and what kind of coordination is involved.

Anne responds saying she does not remember a lot of specificity in that, and it might be one of those things where a question is answered using a statewide average.

Caitlin chimes in saying that she would argue it is a very inexact science and there's no way to predict it accurately, saying you can do whatever you can, but it's essentially a shot in the dark.

Rob follows up saying when we do this next round in the GIS land use map, it would be great to break out forest cover that's been zoned as agricultural versus nonagricultural land to categorize potential harvest versus this flat-out kind of clearing. He doesn't know if it gets more protection if its currently agricultural land as opposed to other land uses, and it would be nice to have that data to strengthen agricultural preservation regulations.

Katie responds by saying that's a great direction and the land use/land cover data improvements will help too. Right now, we don't have as much confidence in the low veg classes and the harvest mapping in particular is only capturing a subset of harvest in the land cover data because we're not capturing more selective harvests for example and in some states that's like most of the harvests, so that's definitely worth exploring.

Rob follows up by saying he's not a forester, but it's a little scary there's not that much protection on some of these lands.

Katie responds by saying some states have permits to harvest forest acres and the GIS team can detect something that looks like a harvest, but if it's not reported by the state, it does not get mapped as harvest. Instead, it gets mapped as a low veg class, so there may be cases of clearings that may not be captured as harvest, however a transition would still be tracked, so figuring out how to disentangle that is going to be a good project for us.

Joel (in chat): You may have said this, and I missed it, but how many articles were reviewed and how many total evaluated bmp's were in this study to come up with the average TSS, TN, TP reduction? And how many were looked at to get the original reduction numbers?

Lorenzo (in chat): Shares the full reports for people to view:

Allana and I's full report:
https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/Timber-Harvest-Water-Quality-Review_2024-08-30-195900_claw.pdf

BMP Quick Reference Guide (Page 162):
https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/BMP-Guide_Full.pdf

Edwards and Williard Study:
https://archive.chesapeakebay.net/pubs/BMP_ASSESSMENT_REPORT.pdf

Lorenzo responds saying in the original Edwards and Williard study they reviewed many studies, but ultimately only three studies were used to get the efficiency averages. He follows by saying in his report with Alanna, they looked at 11 total studies that they utilized to get the efficiency rates and not all those studies had those nitrogen and phosphorus rates.

Anne chimes in to clarify why Edwards and Williard only ended up with three studies as it was really challenging to find studies who had examples without any BMP installations, since the 70s and 80s it's become standard practice.

Katie closes out the discussion by thanking Lorenzo and Alanna for their hard work and for digging in and taking a close look at the literature and what we've learned since 2009.

With that, Katie asks if there are any outstanding comments or concerns moving forward and if not, then we will consider the Timber Harvest Task Force recommendations approved. (No one responds)

Decision: The FWG approves the Forest Harvesting BMP recommendations from the THTF to change the credit duration to three years and update the efficiency rates to the following: TSS from 60%-85%, TN from 50%-90%, and TP from 60% to 85%. (*NOTE: These efficiency recommendations were revised following review by the WTWG. See November 2024 meeting minutes for revised recommendations*).

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Action: The FWG will move forward with presenting these recommendations to the WTWG & WQGIT for review and requested approval.

9:50 **Timber Harvest Task Force – proposed changes for forest harvesting in Phase 7** – *Katie Brownson (USFS)*

Katie presented on other proposed updates from the Timber Harvest Task Force to improve the way forest harvesting is modeled in Phase 7 of the Watershed Model.

Summary of those recommendations:

- Modify the harvested forest land use duration from one year to three years
- Change the default rate for states that don't report annual harvested forest acres from 1.5% of true forest to 1.1% of true forest
- Implement new processes to reconcile reported and mapped harvest data to avoid double-counting of clearcuts and improve spatial allocation of harvest

Discussion:

Anne (during the presentation) chimes in by saying the thing we gain from this is not just taking advantage of the additional efforts to identify harvesting and land use data, but the biggest win is that you're getting better spatial distribution and so you're less likely to run out of acres for applying BMPs because you're putting the practices closer to where they actually are, at least some subset of them.

Katie responds with "exactly" and hopefully we'll also eliminate the potential for us to potentially be double counting clear cuts.

Katie (at the end of the presentation) discusses the remaining work is related to back-casting forest harvest acres. Sarah McDonald is leading this effort and working on exploring data sets and approaches to back-cast estimates of forest harvest to 1985.

Katie wrapped up this agenda item by noting that, aside from the final point still in progress, we can move forward with approving these recommendations if there are no other concerns and questions. (No one responds)

Decision: The FWG approves the THTF's recommendations for improving modeling of forest harvesting in Phase 7 in CAST.

Action: The FWG will move forward with presenting these recommendations to the WTWG & WQGIT for review and requested approval.

10:05 **State of Chesapeake Forests 2.0 Update** – *Katie Brownson (USFS)*

Katie gave an overview of the background and updates to the State of Chesapeake Forests Storymap to set the backdrop for the Chesapeake Conservancy's following presentation.

The State of the Chesapeake Forests Storymap project was initiated to update the original 2006 report with new data, aiming to better equip practitioners and policymakers with insights into forest and tree canopy changes within the watershed using the high-resolution land use and land use change data.

10:20 **State of Chesapeake Forests 2.0 – Plantable Areas and Fragmentation Analyses** – *Charlotte Weinstein and Emily Beach (Chesapeake Conservancy)*
CC will be supporting USFS with geospatial analyses that will be included in the State of the Chesapeake Forests 2.0 Storymap. These analyses will identify areas for new tree plantings and investigate the health of our forests through patterns of fragmentation. CC will be coordinating with USFS and USGS on proposed methods, using analyses performed for the Maryland Forest Technical Study as a basis.

Emily presented a brief overview of these methods and intended output. Before starting, Emily updated the workgroup about a staffing change: Katie Walker, the original point of contact for this project, is no longer with the Chesapeake Conservancy and Louis Keddell, their conservation data manager, will be moving into her role to oversee the project. Emily provided her email and invited anyone to reach out to her in case they have any questions or concerns: ebeach@chesapeakeconservancy.org

Summary of Methodology Design:

- Maryland Forest Technical conducted by the CIC in 2022 is the basis for the analysis. Their methods for inventorying forest and tree canopy cover rely on high resolution 1m land use land cover data at two different scales, examining trends over the past two decades with data from FIA and the NLCD for 2001 to 2019.
- This high-resolution data can detect changes in individual trees, allowing for monitoring of both losses due to pests and logging and gains from natural growth. However, the infrequent collection of this data limits change detection to 2013 and 2018, with a 2024 update planned to include LIDAR and ground-based sources.

Emily asked for input on refining for guiding principles on the plantable area analysis, particularly whether to focus on larger, easily plantable areas or to take a broader approach that includes all potential planting sites.

Discussion:
Anne mentioned the goal of planting an additional 5 million trees in Maryland and noted that while they are considering all spaces for planting, equity considerations tend to focus on smaller urban areas. However, larger rural areas present greater opportunities for planting. Therefore, rural and urban planting opportunities would be approached differently in terms of outreach and implementation. So, they would like 2 categories, the larger would be one category and the developed lands would be another category.

Susan Minnemeyer agrees that including the smaller areas are good. She highlighted the importance of differentiating between areas for forest expansion and those suitable for tree

canopy growth. Additionally, she noted opportunities for expanding tree canopy in protected areas like parks and conservation easements. Susan emphasized the need to consider both public and private land strategies, encouraging local jurisdictions to enhance tree canopy in recreational spaces. She cautioned against mapping plantable areas that naturally don't have tree cover.

Katie chimed in suggesting that looking at opportunities within protected areas may be beyond the scope of what the Conservancy can do through this grant, but once we have the plantable space that she thinks there will be a lot of opportunities to do additional analysis or overlays. For the initial steps, she thinks it's a good idea to focus on figuring out what we want to even include as potentially plantable. She raised a question about whether agricultural lands were initially considered as plantable areas and how to address this if they should be included.

Susan says that agricultural lands outside of riparian buffers were excluded because they were looking at areas where the Bay Program might want to prioritize adding tree cover.

Frank Rogers asked Emily if they parsed out schools, parks, and sport facilities, noting that the large grass areas in these locations cannot be planted. He also mentioned a Martinsburg, WV study where they analyzed tree canopy grouping across different tax brackets to find an average of which helped with targeting.

Susan (in chat): Zoning school properties on a local basis for plantable areas is something I'm very interested in...just extremely challenging at large scales!

Steven Guinn (in chat): The CIC has bay wide school data used in the LULC model.

Emily responded first by saying golf courses were excluded in the Maryland study and she does not see anything about sport fields, so she will investigate that.

Action: Emily will investigate whether sport fields were included in the study.

Susan says she understands the point about sports fields, but does not believe that level of detail will be available.

Anne recommends if they reach out to schools to approach the administrators with resources in hand – not asking them for things that they can't afford but having curriculum ready to engage them.

Emily continues her presentation asking for input on what land classifications should be defined as suitable areas for planning versus unsuitable areas. Lastly, she asked about an exclusion layer and what should be included.

Cassie Davis (in chat): I think the suspended succession could be added as plantable areas.

Steven Guinn (in chat): **41; 53; 63; 73 Tree Canopy, Other (TCOT)** = Small patches of contiguous tree canopy that do not meet forest area and/or width requirements such as agricultural windbreaks and small woodlots whose understory is assumed to be undergoing natural or managed succession. Trees within wetlands are included in this class. The new Forested other only removes the forest area requirements

Katie seconds Cassie's comment in the chat to include suspended succession and maybe barren, herbaceous, and shrubland in plantable areas. She also thinks it would be beneficial to cast a wider net and not cut these land uses out at the beginning. Similarly, she thinks there could be value in adding agricultural lands since there are opportunities for plantings on old pasture if the landowners are supportive.

Susan chimes in that maybe rather than looking at prime farmland soils, instead they could look at cropland vs. pasture, because increasing tree canopy in pasture is a climate resiliency strategy to increase shade and protection for grazing animals.

Robbie Coville also suggests casting a wider net would be beneficial and refers to the slide of all the land classifications saying many of them could be considered plantable. Regarding agroforestry, he asks if examples such as pairing buffers to alley cropping or silvopasture would be under class 41, tree canopy, or other? How would they be classified?

Katie seconds that as good question regarding and thinks that right now a lot of these examples get classified as tree canopy, other. In terms of plantable space, she thinks we could identify agricultural areas as plantable and having messaging about the potential of agroforestry to integrate trees into production systems would be helpful.

Charlotte provided an overview of the fragmentation analysis planned for the study, referencing methods from the University of Connecticut's Center for Land Use Education and Research, which she will refer to as the CLEAR tool.

Summary of Fragmentation Analysis – Clear Methods:
The analysis begins with land use data, categorizing it into three groups:

1. Forest features
2. Fragmenting features – elements that disrupt forest continuity
3. Non-fragmenting features – natural features like water or wetlands that do not negatively impact forest integrity, though this category was not used in the Maryland Forest Technical Study.

Charlotte sought feedback from the group on whether to include non-fragmenting features in the analysis and, if so, what those features might be.

Anne (in chat): For plantable area in developed land uses, we have done some setbacks from buildings (e.g., don't grow trees out of foundations).

Susan (in chat): Naturally treeless areas, grasslands.

Joel (in chat): ^Rock outcrops, boulder fields, or bedrock/serpentine barrens that couldn't support trees.

Katie thinks we could consider water and wetlands. If there is a stream running through the forest, she wouldn't consider that a fragmenting feature, but rather a natural part of the landscape. Thinks we need to specify that as a non-fragmenting feature and questions whether we should distinguish between the different water wetland types or if there's a size threshold for waterbodies below X amount of area as non-fragmenting.

Anne says more than 300 feet away.

Robbie says it depends on the species and re-emphasizes casting a broader net of land classifications, making sure we're including bigger water bodies.

Charlotte responds by suggesting they take this feedback and come back to the group with a few proposed options for how to handle non fragmenting features and bring them back to the group to see what they think.

Action: The CIC will come back to the Forestry Workgroup with proposed options on how to handle non-fragmenting features, with attention to water bodies and naturally treeless areas.

With time running out, Charlotte skims through her last slide, which gave an overview of the outputs from the CLEAR tool, which categorizes forest cover into four types: patch forests, edge forests, perforated forests, and core forests. She mentioned the need for feedback on the acceptable edge distance, currently set at 100 meters, and sought input on which land use types to include in defining forest cover for the study.

Additionally, she noted the exploration of new tools for the analysis, such as the Landscape Metrics package and an updated CLEAR tool called Morphological Spatial Pattern Analysis, which may enhance scalability for the Chesapeake Bay watershed. Finally, she introduced the idea of using a graph network to assess connectivity between forest patches, suggesting a small test area to evaluate its feasibility and usefulness for study users.

Katie closes out the meeting by thanking Charlotte and Emily for their presentation, recognizing that there are two analyses that require dedicated and setting up a follow-up meeting will be needed.

Action: The FWG will put out a call for interested forestry workgroup and advisory members to have a separate follow-up meeting with the Chesapeake Conservancy to continue this discussion.

10:50 **Round Robin**
Ran out of time

Caitlin Verdu (in chat): The VA Buffer Action Plan is COMPLETED!

11:00 Adjourn