



Recommendations for the Phase 6 Watershed Model from the Wetland Expert Panel

Monday, December 19, 2016

Water Quality Goal Implementation Team

Panel Co-Chairs: Pam Mason, VIMS & Ralph Spagnolo, EPA Region 3

Jeremy Hanson, Virginia Tech, Panel Coordinator

Erin McLaughlin, MD DNR, Panel member & Wetland Workgroup Co-Chair

Judy Denver, USGS, Panel member

Photo courtesy of UMD-Extension

Overview

- Summary of recommendations for Phase 6
- Review comments received and changes to the report
- Group discussion and seek approval

Timeline

- **Tuesday November 22:** Report released for expedited review and comment
- **Friday December 2, 10:00AM-12:00PM:** Webinar.
- **Wednesday December 7:** Comments and feedback on the report due.
- **Tuesday, December 13, 1:00-3:00PM: Wetland Workgroup, joined by Watershed Technical Workgroup.** Present and discuss comments received and revisions made to report.
 - Consensus support from Wetland Workgroup (MDE standing aside); WTWG consensus support on the call and subsequently via e-mail (VA DEQ standing aside)
- **Monday, December 19, 10:00AM-3:00PM: Water Quality Goal Implementation Team, joined by Habitat Goal Implementation Team.** Seek WQGIT and HGIT approval of report.

Recap

- Two new land uses for nontidal wetlands added for Phase 6: “Floodplain” and “Other” (approved Fall 2015)
 - No land use for tidal wetlands, which are simulated in estuarine model, not Watershed Model
- Four wetland BMP categories for Phase 6
 - **Wetland restoration (re-establishment)**
 - Wetland creation (establishment)
 - Wetland enhancement
 - Wetland rehabilitation
- Report provides suggested definitions for the four categories, but only effectiveness values for Wetland Restoration (re-establishment) at this time. Preliminary placeholder values for Creation, Enhancement and Rehabilitation have been adopted until a future panel can recommend improved estimates for Phase 6.

Summary of how they will work in P6 CBWM

- Use panel's definitions and categories for Phase 6 to replace Phase 5 "Wetland Restoration" BMP; use average Phase 5.3.2 values as placeholder for other categories
 - For Phase 6 **Wetland Restoration**: Land use change plus apply panel's new efficiency to new upland acre ratios. Update if changes made as result from review/approval process of full report.
 - For Phase 6 **Wetland Creation**: Land use change plus apply Phase 5 efficiencies using Phase 5 upland acre ratio (1:1 acres). Update based on future panel.
 - For Phase 6 **Wetland Enhancement**: Apply Phase 5 efficiencies using Phase 5 upland acre ratio (1:1). No land use change since it is a gain in function. Update based on future panel.
 - For Phase 6 **Wetland Rehabilitation**: Apply Phase 5 efficiencies using Phase 5 upland acre ratio (1:1). No land use change since it is a gain in function. Update based on future panel.

Summary of Proposed P6 Wetland Restoration BMP Function across the CBW

	% Efficiency			Upland Acres Treated*		Watershed Model HGMR
Physiographic Province	TN	TP	TSS	Other Wetlands	Floodplain Wetlands	
Appalachian Plateau	42	40	31	1	2	Appalachian Plateau Siliciclastic
Appalachian Ridge and Valley				1	2	Valley and Ridge Siliciclastic
Blue Ridge				2	3	Blue Ridge
Piedmont				2	3	Piedmont Crystalline Mesozoic Lowlands
Inner Coastal Plain				4	6	Western Shore: Coastal Plain Uplands Coastal Plain Dissected Uplands
Outer Coastal Plain- Poorly Drained				1	2	Eastern Shore: Coastal Plain Uplands
Outer Coastal Plain- Well Drained				2	3	Eastern Shore: Coastal Plain Dissected Uplands
Coastal Plain Lowland				2	3	Coastal Plain Lowlands
Karst Terrain				2	3	Piedmont Carbonate Valley and Ridge Carbonate Appalachian Plateau Carbonate

* Best professional judgment (will discuss this more later in presentation)

Wetland Type	Vegetation Type	TN % Reduction Mean Range Median (#)	TP % Reduction	TSS % Reduction
Headwater/ Depressional	ALL	33% -8-97 34% (9)	25% -15-94 10% (13)	28% -30-75% 37% (6)
Floodplain	ALL	44% -8-94 38% (24)	37% -41-100 29% (24)	32% -15-95 14% (7)
All except constructed	Forest, mixed and unknown	47% -8-97 59% (16)	45% -47-100 43% (44)	37% -15-95 32% (8)
All except constructed	Emergent	39% -8-89 36% (20)	31% -15-100 30% (20)	25% -30-75 27% (7)
All except constructed	ALL	42% -8-97 39% (36)	40% -47-100 41% (64)	31% -30-95 27% (15)

Updates to NEIEN Reporting

- NEIEN has been updated for Phase 6 to reflect the 4 categories of wetland BMPs. Appendix C provides more information for NEIEN reporting.
 1. Acreage gain – Reestablishment
 2. Acreage gain – Establishment
 3. Functional gain – Enhancement
 4. Functional gain – Rehabilitation
- State databases must be also be updated to accommodate the enhancement and rehabilitation categories

Verification

- Verification is required to ensure wetland restoration projects are performing as designed.
- Initial verification – as-built survey
- Onsite monitoring for 3 years following construction is recommended.
 - Vegetation, hydrology, soils
- Aerial imagery/remote observations for long-term monitoring
- Existing BMP verification guidance for wetlands is available online as part of the CBP's adopted BMP Verification Framework at:
http://www.chesapeakebay.net/about/programs/bmp/verification_guidance

Future research or management needs

1. Promote standardized approach to monitoring wetland function and measuring retention efficiencies based on wetland type, location, and condition.
2. Improve understanding (and mapping) of features that affect near-surface and groundwater transport in different hydrogeologic settings of the Chesapeake Bay Watershed.
3. Explore the use of the SPARROW model (and other tools) to assess the overall role and magnitude of impact that existing wetlands have at the watershed scale. Such an analysis would serve as an informative next step toward understanding the effect of wetlands as sources, sinks, or both across the Chesapeake Bay region, as well as providing a comparison with forest land.
Explore refining (floodplain and other) wetland land use loading rates.

Future research or management needs

4. Develop or enhance accounting systems/tools that better capture the multiple co-benefits of wetland practices (and other BMPs).
5. Given need for practitioners to assess and select BMP practices to address their interests and needs, and the potential confusion caused of the plethora of possible practices, the panel recommends development of materials to further clarify selection and use of the CBP approved practices for reporting purposes.

Summary of comments received

THANK YOU TO EVERYONE WHO READ THE REPORT and/or WATCHED THE WEBINAR (live or recorded). EXTRA BIG THANK YOU TO THOSE WHO TOOK TIME TO PROVIDE COMMENTS.

- Comments received from: DC DOEE, MDE, MDA, PA DEP, USACE
 - Panel itself provided extensive input (MDE, MD DNR, VIMS, EPA, USGS, TNC, PA DEP, NRCS, and others)
- The following slides summarize comments to indicate some changes that were, or were not, made. See Appendix G for more information.
- Overall, comments addressed with clarifying additions or edits. No comments required substantive changes, i.e. changes to key recommended values for Phase 6 (e.g., Table 12).
- Some more minor editing is still expected to improve grammar, accuracy, word choice (e.g., “physiographic province setting”), or to fix errors (e.g., “OBJ” errors on page 18). This will occur post-WQGIT approval. A second revised draft won’t be provided this week unless necessary.

Comments received

- DC DOEE
 - New wetlands registry for the District. DC staff should work directly with GIS staff as part of final land use review. No change in report.
- MDE
 - Suggests explicit accounting of upland treatment for existing wetland land use acres (i.e., non-BMP wetland acres). Additional suggestion how the ratio of upland acres could be determined.
 - Modeling staff indicates these changes can not be made in necessary timeline; effects are incorporated implicitly. These are great ideas. Existing language in Chapter 8 recommends more future analysis of existing wetlands' effects. [MDE provided suggested language 12/16, see next slide]

- Will add this text to p. 45 (preceding Table 7)
- "While this report does not propose to apply wetland BMP efficiencies to natural wetlands in this model calibration, the recommended upland treatment efficiencies proposed for wetland BMPS, being based in part of studies in natural wetlands, could also be applied to natural existing wetlands simulated by the wetland land uses. The failure to assign a unique loading rate and upland treatment efficiency to existing nontidal wetlands is due to constraints and timing of the current model for inclusion of appropriate rates that avoid potential double-counting between other related factors, rather than lack of scientific information in support of the role existing wetlands play in reduction of nutrients and sediment into surface waters. Existing nontidal wetlands, given their extent in the Chesapeake Bay watershed, play a greater role in providing water quality benefits than the smaller number of restoration, creation, and enhancement/rehabilitation projects. As mentioned in other sections of this report, there is a need for a continued literature review and use of the SPARROW model or similar tools to analyze the contributions provided by existing nontidal wetlands beyond their modeled forest loading rate equivalent, and a commitment to include these results when possible."

Comments received (continued)

- MDA
 - Clarifying questions about recommended Phase 6 BMPs; annual BMP reporting through NEIEN.
 - Provided answers for each question to MDA, and Appendix C provided additional details for annual reporting through NEIEN. MDA indicated their questions were resolved.
 - We would like to add an Executive Summary following WQGIT approval.

Comments received (continued)

- USACE
 - Many specific suggested edits for improvement, clarifications. Made many of them where possible. Ran out of time to address each of them.
- Amy Jacobs, TNC and WWG Co-Chair
 - Requested some specific examples to help illustrate/clarify recommended definitions and reductions. PA DEP made similar request.

Comments received (continued)

- PA DEP
 - “The statements and procedures outlined in this Expert Panel Report are intended to supplement existing jurisdictional requirements. Nothing in the Expert Panel Report shall affect jurisdictional regulatory and other legal requirements.” [Disclaimer added.](#)
 - [Moved two examples in Table 2 from restoration row → rehabilitation row.](#)
 - Requested additional language to clarify upland acre ratios (Table 12) are based on best professional judgment; uncertainty in the values and they can be strengthened when additional information is available in the future.
[Changes made to text preceding Table 12.](#)

Comments received (continued)

- PA DEP (continued)
 - Concern about discrepancy between existing effectiveness values for Riparian Forest Buffer BMP and new Phase 6 Wetland Restoration BMP values. This goes beyond this panel's scope/charge, but we will help DEP identify this concern for the partnership; GIs and workgroups can consider how to proceed and if another panel is warranted (2014 RFB panel report mentioned some ideas how the RFB rates may be improved in the future).
 - Discrepancy may have unintended consequences. Additional co-benefits, other factors should supplement decision-making, not just N, P and sediment reductions in the modeling tools. We've added language to Chapter 8 following our 11/30 discussion with DEP.
 - Opportunity/need for improved understanding of prior-converted areas. Added as part of revisions/additions to Chapter 8.
 - Concern over possible confusion with new definitions, many different users/practitioners, various tracking and reporting needs. Added suggestion to Chapter 8 that materials/resources should be provided for benefit of community, with specific examples, etc. Partnership and this workgroup should discuss what materials should be (fact-sheets, webcast), how to distribute. Ex: Chesapeake Stormwater Network and new/revised stormwater BMPs.

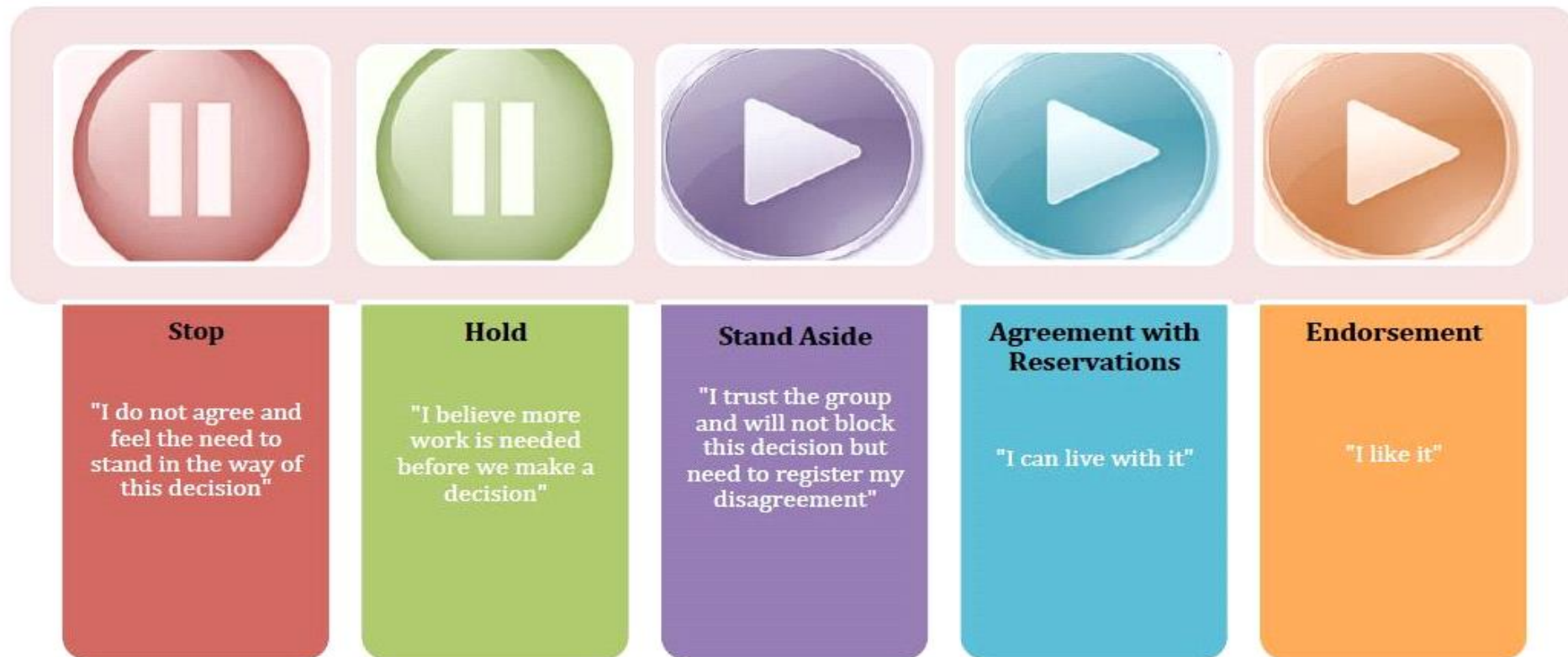


Questions and discussion

Photos by the Chesapeake Bay Program
<http://www.flickr.com/photos/29388462@N06/sets/>



Consensus Continuum



Thank you!

Contact Jeremy with any questions or comments

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Recording of 12/2 webinar and other information can be found on the
CBP calendar:

<http://www.chesapeakebay.net/calendar/event/24625/>