UPDATE: NONTIDAL WETLAND REHABILITATION, ENHANCEMENT AND CREATION BMP EXPERT PANEL

Jeremy Hanson, Virginia Tech

Presented to Agriculture Workgroup

May 17, 2018

VIRGINIA TECH

Chesapeake Bay Program

Science. Restoration. Partnership.

All photos from Chesapeake Bay Program: https://flic.kr/ps/rYeEj

PREVIOUS WETLAND EXPERT PANEL (2014-2016)

- Full report approved December 2016
  - https://www.chesapeakebay.net/documents/Wetland_Expert_Panel_Report_WQGIT_approved_December_2016.pdf
- Two land uses for nontidal wetlands in Phase 6, lowest loading rates, equal to pristine Forest
  - Floodplain
  - Other
- Described four BMP categories:
  - Restoration
  - Creation*
  - Enhancement*
  - Rehabilitation*
- Defined reductions for Restoration BMP based on framework described in report; other 3 categories (*) required another panel

RELATED CBP PRACTICES

Practices with existing CBP definitions, outside the scope of the Wetlands BMP Panel:

- Wet Ponds and Wetlands (urban stormwater)
  - Urban stormwater practice; wet ponds and wetlands also considered “stormwater treatment” under protocols for performance standards and retrofits
- Floating Treatment Wetlands (urban stormwater)
- Stream Restoration (urban and non-urban)
- Shoreline Management (urban and non-urban)
  - Includes protocols for living shorelines (vegetated or hybrid)
- Forest Buffers (agricultural)

CURRENT BMP PANEL (2017-ONGOING)

- Membership approved by Wetland Workgroup in September 2017
- Formed to evaluate remaining three BMPs:
  - Rehabilitation
  - Enhancement
  - Creation
- Convened for first call in November 2017
- Goal to deliver draft report within 12 months; additional 3+ months typically needed for partnership review, comment and approval
- Right now: Actively discussing literature, how to use available information

Panel membership and support roster

Name	Affiliation	Role
Neely L. Law, PhD	**The Center for Watershed Protection (CWP)**	**Panel Chair**
Kathleen Boomer, PhD	**The Nature Conservancy**	**Panel Member**
Jeanne Christie	**Association of State Wetland Managers**	**Panel Member**
Greg Noe, PhD	**U.S. Geological Survey**	**Panel Member**
Erin MacLaughlin	**Maryland DNR**	**Panel Member**
Solange Filoso, PhD	**Chesapeake Biological Lab**	**Panel Member**
Denice Wardrop, PhD, PE	**Penn State**	**Panel Member**
Scott Jackson	**University of Massachusetts**	**Panel Member**
Steve Strano	**NRCS**	**Panel Member**
Rob Roseen, PhD, PE, D.WRE	**Waterstone Engineering**	**Panel Member**
Ralph Spagnolo	**EPA Region 3**	**Panel Member**
Jeremy Hanson	*Virginia Tech*	*Panel Coordinator*
Brian Benham	*Virginia Tech*	*VT Principal Investigator*
Lisa Fraley-McNeal	*CWP*	*Support*
Bill Stack	*CWP*	*Support*
Deb Caraco	*CWP*	*Support*
Jeff Sweeney	*EPA CBPO*	*CBPO Modeling Team and Watershed Technical Workgroup rep*
Carrie Travers	*EPA Region 3*	*EPA Region 3 rep*

QUESTIONS?

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EXTRA SLIDES

WETLAND EXPERT PANEL (2014-2016)

- Logic framework: Wetland Water Quality Function

F(reaction rate(k), input concentration(A))

- Rate = k[A]

Retention Efficiency ~ Reaction Rate ~ Retention Potential

- Soil carbon availability
- Water chemistry
- Temperature

Initial concentration

- Amount/rate of contamination in inflow (surface- and ground-waters)
- Portion of contaminated water that actually intersects carbon-rich substrate rather than by-passing wetland system

Physiographic Province	% Efficiency			Upland Acres Treated		Watershed Model HGMR
	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

"CONSTRUCTED WETLANDS"

How the previous Wetland Expert Panel (2016) defines them--

Wetlands constructed specifically, and singularly, for water quality treatment purposes of a defined source. These constructed wetlands are generally of simple hydrology, limited inflow and outflow, and typically vegetated with herbaceous plants only, specifically monocultures of species known for high rates of pollutant uptake, such as cattails (*Typha* spp.) and common reed (*Phragmites*)…[WEP 2016, Box 2 on page 54]