

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

Jeremy Hanson, Virginia Tech Presented to Agriculture Workgroup May 17, 2018







# PREVIOUS WETLAND EXPERT PANEL (2014-2016)

- Full report approved December 2016
  - https://www.chesapeakebay.net/documen ts/Wetland Expert Panel Report WQGI T 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

### 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)

## RELATED CBP PRACTICES

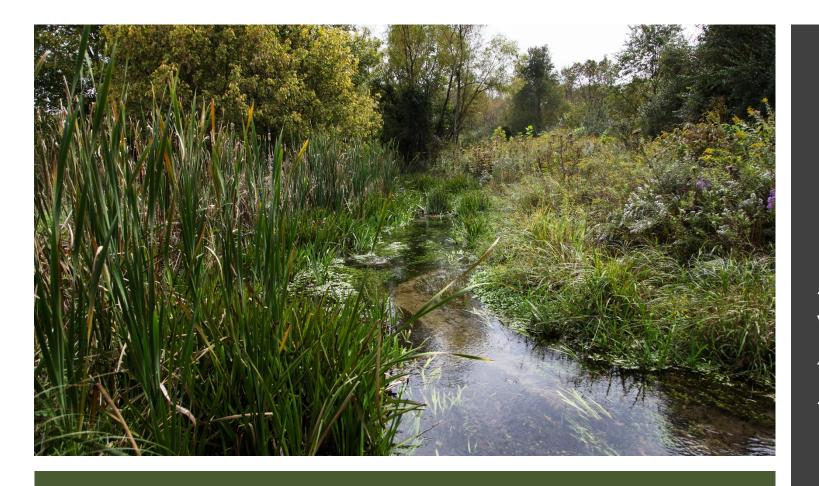


# CURRENT BMP PANEL (2017-ONGOING)

- 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



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QUESTIONS?





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 groundwaters)
- Portion of contaminated water that actually intersects carbon-rich substrate rather than by-passing wetland system

	% Efficiency			ncy	Upland Acres Treated		Watershed Model HGMR
Physiographic Province	TN	TN TP TSS		TSS	Other Wetlands	Floodplain Wetlands	
Appalachian Plateau	42	4	0	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				V	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]