Urban Stream Restoration Credits: An Update

Water Quality Goal Implementation Team Meeting

Bill Stack
Lisa Fraley-McNeal
May 12th, 2014

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The "Test-Drive" Process

- Recommended protocols are new, somewhat complex and require project-based interpretation on the part of practitioners and regulators alike.

- Five consulting firms and one local government applied the protocols to ten different projects over the 6-month test drive period.

- Received comments from four MD counties, MD SHA and MDE.

- Also received feedback during the Mid-Atlantic Stream Restoration Association Conference last October.

General Revisions from the "Test-Drive" Process

- Questions regarding interpretation of protocols

- Flexibility so that states could apply their own monitoring protocols.

- Clarifying language for the sediment delivery factor, and use of the interim rate for planning purposes.

- Greater restoration efficiencies allowed for Protocol 1 if validated through monitoring.

- Appendix G documents clarifications and revisions from the test-drive process (e.g., Big Spring Run).

Revision of the Interim Rate

Initial CBP-Approved Stream Restoration Credit (2003)

Removal Rate per Linear Foot of Qualifying Stream Restoration			
Source	**TN**	**TP**	**TSS**
Spring Branch N=1	0.02 lbs	0.0035	2.55 lbs
At some point applied to non-urban stream restoration projects.			

Approved Interim Rate

Used for planning purposes and for projects that do not conform to the protocol requirements.

Edge-of-Stream 2011 Interim Approved Removal Rates per Linear Foot of Qualifying Stream Restoration (lb/ft/yr)			
Source	**TN**	**TP**	**TSS***
New Interim CBP Rate	0.20	0.068	310 (54.2)
Revised Interim Rate	0.075	0.068	248 (43.4)
Derived from six stream restoration monitoring studies: Spring Branch, Stony Run, Powder Mill Run, Moore's Run, Beaver Run, and Beaver Dam Creek located in Maryland and Pennsylvania *The removal rate for TSS is representative of edge-of-field rates and is subject to a sediment delivery ratio in the CBWM to determine the edge-of-stream removal rate. Additional information about the sediment delivery ratio is provided in Appendix B.			

# Protocol 2: Credit for Denitrification in the Hyporheic Zone during Base Flow

This protocol provides an annual mass nitrogen reduction credit for qualifying projects using empirical measurements of denitrification during base flow within a stream's hyporheic zone (stream, riparian and floodplain)

Step 1. Determine the total post construction stream length that has been reconnected using the bank height ratio of 1.0 or less (for NCD) or the 1.0 inch storm (other design approaches that do not use the bank full storm)

Step 2. Determine the dimensions of the hyporheic box

Step 3. Multiply the hyporheic box mass by the unit denitrification rate

Qualifying Condition: Nitrogen removal credit cannot exceed 40% of the total watershed TN load.

5 feet + stream width + 5 feet

BENCH

Hyporheic Box

5 feet depth
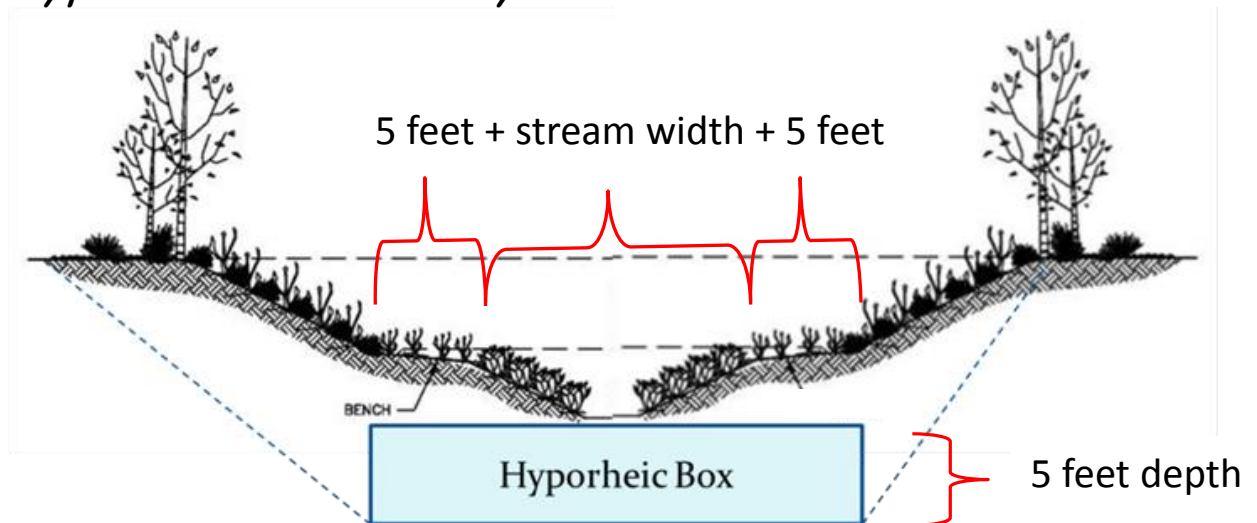
Next Steps

- Appendix F to be completed this spring/summer that addresses modeling concerns

- Updates for Phase 6 of the Chesapeake Bay Watershed Model

- User Training