Update: Wetlands Expert Panel

Modeling Quarterly

July 22, 2015

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

Coordinator: Jeremy Hanson, Virginia Tech and CBPO

Virginia Tech 1872 Invent the Future

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Background

- Panel convened in Fall 2014
- Charge included:
  - Assessment and recommendation of potential wetlands land use(s) for the Phase 6 Watershed Model
  - Evaluation of existing wetland restoration BMP and proposed new wetland enhancement BMP
- Public stakeholder forum held in November 2014

More context

- Center for Watershed Protection (CWP) coordinated panel from November until early 2015, when their cooperative agreement with EPA was updated; CWP was unable to continue work on the panel (~February).
- Habitat GIT and WQ GIT coordinators worked to find new coordinator; Virginia Tech (Jeremy Hanson) was asked to assume role of panel coordinator
- Jeremy became panel coordinator in May; panel was re-convened

Current status

- Tetra Tech has completed a literature review for the panel.
  - Studies of nutrient and sediment loads from wetlands are limited; available studies often assess loads from the watershed and are unable to distinguish the contribution of the wetlands
- STAC (2008) and Simpson & Weammert (2009) used first order kinetic equation developed by Tom Jordan et al to estimate TN and TP removal for restored wetlands. The panel felt that this equation could be useful to help estimate the relative effectiveness of wetlands using available data from NWI

STAC. 2008. Quantifying the Role of Wetlands in Achieving Nutrient and Sediment Reductions in Chesapeake Bay. Publication 08-006.

Simpson, T. and S. Weammert. 2009. *Developing Nitrogen, Phosphorus and Sediment Reduction Efficiencies for Tributary Strategy Practices, BMP Assessment: Final Report*. Mid-Atlantic Water Program, University of Maryland.

Current status

- The panel agrees that NWI can be used to set baseline of wetlands for the entire watershed.
  - NWI is not perfect, but it is consistent and available for whole watershed
- Wetland land use(s) classification options under evaluation:
  1. Tidal, Non-tidal (divided into sub-classes based on hydroperiod)
  2. Tidal fresh, Tidal brackish/saline, Floodplain, and Headwater/Depressional
- The panel is still considering what splits, if any, are needed for Phase 6 and purposes of simulating wetlands in the landscape.

Current status

- Wetland land use efficiencies (reductions on loads from upslope land uses) are still under investigation with focus on applying Tom Jordan's first-order kinetic equation (SERC 2008) to non-tidal wetlands in areas dominated by surface (vs groundwater) flow paths and averaging the results by NHD+ catchment to serve as a variable in SPARROW (along with forested riparian buffers).

- Wetland BMP efficiencies may follow a similar logic but include more factors due to the greater availability of data.

- Wetland loading rates (irrespective of upslope land use and drainage) are being evaluated based on the literature. The default loading rate will be equivalent to forests.

Next steps for the panel

- Panel has next call at end of July with goal of resolving the land uses, loads, and land use efficiencies.
  - Best case: agreement on wetland land use(s), loading rates, and efficiencies. Recommended land uses submitted to WQGIT and Habitat GIT as early as August 10.
  - If agreement not reached, recommendations delayed until September 10 WQGIT call.
- Implement 1st-order kinetic equation using NWI and 10m DEM for non-tidal wetlands and summarize by NHD+ catchment.
- Following October calibration: Panel will continue working to provide Phase 6 recommendations for wetlands restoration, creation and enhancement BMPs

Questions?

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