Beneficial Effects of Healthy Watersheds on Pollutant Fate and Transport:
A CBP STAC workshop to examine how natural landscape features protect water quality
Date: March 7-8, 2012

Location: Claggett Retreat Center 3035 Buckeystown Pike, Buckeystown, MD

Purpose of the workshop
To examine and discuss how important attributes such as natural variation within a feature class, anthropogenic degradation, management status, and spatial factors (e.g., hydrologic connectivity, location in watershed.) affect how nutrient and/or sediment retention/loading rates are assigned to natural landscape features (wetlands, forests, riparian buffers, and streams, including hyporheic zones) within the Chesapeake Bay Watershed Model.

General Workshop Guiding Questions

- *How can we improve quantification of nutrient and sediment retention/loading rates of existing forests, wetlands, riparian buffers, and streams, including hyporheic zones, in the Chesapeake Bay Watershed?*
- *How can the beneficial effects of existing forests, wetlands, riparian buffers, and streams, including hyporheic zones, in the Chesapeake Bay Watershed be credited by the Bay TMDL?*

March 7, 2012

9:00 am Breakfast (Provided)

10:00 am **Welcome –** *Mark Bryer, The Nature Conservancy*

10:15 am **Why does this all matter? –** *Ann Swanson, Chesapeake Bay Commission*
Swanson will address the underlying policy issues that this workshop seeks to inform.

10:30 am **Healthy Forests/Riparian Buffers Panel**

- *Nitrogen removal in forests and riparian buffers: The role of spatially variable hydro-ecology - Luc Claessens, University of Delaware*
- *Trees, water quality, and stream ecosystem health: Lessons learned from the field and literature - Bern Sweeney, Stroud Center*
- *Nitrate removal by Chesapeake watershed riparian buffers and potential additional removal from buffer restoration - Don Weller, Smithsonian Environmental Research Center*

12:00 pm **Lunch (Provided)**

1:00 pm Healthy Streams Panel

- *In-stream nutrient retention: Do healthy streams do it better? - Paul Bukaveckas, VCU*
- *Trends in surface-water nitrate concentrations and loads from predominantly forested subwatersheds of the Chesapeake Bay basin - Keith Eshleman, UMCES*
- *Hydrologic retention within streams: Where, when and why this matters - Durelle Scott, VT*

2:30 pm Break (Provided)

2:45 pm Healthy Wetlands Panel

- *The importance of groundwater flow patterns to the mitigation of nitrate transport by depressional wetlands - Scott Ator, USGS*
- *Factors influencing nutrient and sediment retention by riverine wetlands in the Chesapeake watershed - Greg Noe, USGS*
- *Wetland condition and functional assessment: Effects on nutrient and sediment retention - Steve Faulkner, USGS*

4:15 pm Closing Remarks – *Mark Bryer, The Nature Conservancy*

4:30 pm Recess

March 8, 2012

9:00 am Breakfast (Provided)

10:00 am **Welcome –** *Mark Bryer, The Nature Conservancy*

10:10 am **Landscape Ecology Overview**

- *Connectivity: A critical component of hydrological and ecological flux assessments - Laurel Larsen, USGS*
- *Linking landscape scale patterns of nutrient and sediment sources and buffers to hydrologic connectivity - Matt Baker, UMBC*

11:15 am **Chesapeake Bay Watershed Model Panel** –*Gary Shenk, EPA-CBPO*

Shenk will address how the current Chesapeake Bay Watershed Model estimates nutrient and sediment loading rates of the natural landscape features (forests, wetlands, riparian buffers, streams, including hyporheic zones) and discuss opportunities to include improved simulation of these features in the current or future versions of the model.

12:30 pm **Lunch (Provided)**

1:30 pm Breakout Discussion Session Groups
Participants will break into groups to discuss the following:

- *What changes could be made to the existing Bay Program model to better simulate the functioning of natural landscapes?*
- *What functions should be considered in any future modeling effort?*
- *What questions need to be addressed by the scientific community before any model or tool can appropriately simulate or account for natural landscape functions?*

3:00 pm Break

3:00 pm General Session Discussion

4:00 pm Concluding Remarks – *Mark Bryer, The Nature Conservancy*

4:30 pm Adjourn