

Scientific and Technical Advisory Committee

Request for Responsive Workshop Proposals

March 10, 2008

Workshop Title:

Evaluating Phosphorus Index Effectiveness within the Chesapeake Bay Watershed

Workshop Proposal Requestors:

David Kindig, VADCR; Agricultural Nutrient and Sediment Reduction
Workgroup (AgNSRWG)

Tom Simpson, UMD; Nutrient Subcommittee (NSC)

Workshop Steering Committee:

David Kindig, AgNSRWG Chair- VA-DCR

Mark Dubin, AgNSRWG Coordinator- UMD

Sally Bradley, Nutrient Subcommittee Staff- CRC

Kelly Shenk, EPA-CBPO

Daphne Pee, Regional Coordinator- MAWP

Dave Hanson, STAC Representative- UDel

Workshop Objectives:

The proposed workshop will provide a forum to evaluate the effectiveness of Phosphorus Indexing (P Index) tools in addressing soil phosphorus levels within the Chesapeake Bay watershed. The P Index system was developed for planners and operators to assess the potential risk of phosphorus movement from diverse land uses and management systems to surface water sources. Subsequently, federal and state nutrient management programs across the region have adopted differing versions of the P Index system to improve management of phosphorus levels in agricultural soils receiving phosphorus nutrients through commercial fertilizers, livestock and poultry manures. Despite widespread implementation of phosphorus-based nutrient planning using P Index tools within the watershed, there are concerns that soil phosphorus levels continue to increase. The workshop will address the current research and data to evaluate the trends in soil phosphorus levels and water quality impacts, as well as compare the P Index tools being implemented by federal and state partners in the Bay watershed.

Topic Background:

The Chesapeake Bay 2000 agreement calls for significant improvements to the water quality of the Bay which will remove it from the EPA Impaired Waters classification, otherwise known as the 303(d) list. Phosphorus is one of two nutrients of primary concern for the restoration of the Chesapeake Bay which has been identified as a contributor to water quality impairment. Excess phosphorus within the Bay and its freshwater tributaries leads to nutrient enrichment of water bodies and exacerbates non-beneficial aquatic surface vegetation and eutrophication. Phosphorus movement factors in the watershed can be attributed to transport from soil and irrigation erosion; particulate or soluble forms of phosphorus; and the level and type of phosphorus management systems implemented.

The Phosphorus Index system, better known as the P Index, was developed for planners and operators to assess the potential risk of phosphorus movement from diverse land uses and management systems to surface water sources. The planning tool uses eight site specific characteristics in combination with five value categories to create a decision matrix to assess risk and management options. The numerical value of the site specific characteristics can be adjusted for field level assessment. In addition, the numerical range of the five value categories can also be modified for implementation by various federal and state programs, leading to differences of P Index applications between the Chesapeake Bay Program partners.

Despite widespread implementation of phosphorus-based nutrient planning using P Index tools within the watershed, there are concerns that soil phosphorus levels continue to increase. The workshop will address the current research and data to evaluate the trends in soil phosphorus levels and water quality impacts, as well as compare the P Index tools being implemented by the federal and state partners in the Bay watershed

Anticipated Audience:

Targeted participants would involve persons involved with nutrient management planning and programs; including federal and state agency representatives, county conservation district staff, non-profit organizations, private sector consultants and agricultural industry representatives. Proposed speakers would include university and USDA-ARS soil scientists, USDA-NRCS agronomists, USGS hydrologists, state nutrient management program representatives, private agricultural consultants, and agricultural industry representatives.

Workshop Details:

Due to the near universal use of P-Index tools by agricultural and environmental organizations within the Chesapeake Bay watershed, the audience for the proposed workshop would be extensive. A conservative estimate of workshop participants is between 50 and 100 individuals.

The location of the proposed workshop would facilitate participation from all six states within the Chesapeake Bay watershed. Possible centralized locations with adequate facilities would include Frederick and Hagerstown within Maryland; and Chambersburg and Gettysburg within Pennsylvania. All of these localities are easily accessible by major interstate arteries and offer multiple options for meeting facilities, catering, overnight accommodations, etc.

A two-day workshop is envisioned providing for a general forum session on the first day and a committee type session on the second day. The general forum session would allow participation from a diverse group of stakeholders, including federal and state agencies, university faculty, county staff, private consultants, non-profit organizations and agricultural industry representatives. The second day would allow a subset group of stakeholders to distill the previous day's discussion and create a draft set of recommendations for the Chesapeake Bay Program partnership to consider, as well as to

be added to the workshop proceedings. The proceedings and recommendations will be published for distribution and implementation.

Based on the STAC proposal submission timeline of early June of 2008 for funding approval and the significant coordination required to prepare for the workshop, the program would be scheduled for early November of 2008.

Cost Estimate:

The budget is unknown at this time. It will cover facility rental, catering, registration activities, steering committee and speaker expenses and publication of the proceedings. The proposed STAC budget of \$10,000.00 will be applied to these expenses. Additional funds may be provided by other workshop partners.

Previous Nutrient Subcommittee Workshops:

1) Atmospheric Deposition of Nitrogen: Estimating local emission sources, near-field deposition, and fate on the landscape

Date(s): May 30, 2007

Location: SUNY Binghamton, Binghamton, New York

The workshop, held May 30, 2007, brought together key experts to document the current state of knowledge and identify priorities and recommendations for advancing scientific knowledge, and improving monitoring and modeling efforts for atmospheric deposition of nitrogen. With a better understanding of atmospheric deposition, scientists can more appropriately advise future management actions.

2) Understanding Fertilizer Sales and Reporting Information

Date(s): May 1, 2007

Location: Holiday Inn - Ft. Detrick, Frederick, MD

In order to better understand how fertilizer runoff is affecting the health of the Chesapeake Bay and its watershed, scientists must first be able track its usage back to the stores and distributors. However, as it turns out, each state collects this data differently; making it virtually impossible to compare how and in what quantities each state uses its fertilizer. Additionally, the states' individual fertilizer accounting systems, originally designed to separate fertilizer sales into taxable and non-taxable fractions, often lend to double counting and miscounts all together. Subsequently, even the best available data is deemed as unreliable data sources for modeling nutrient flows to the Bay. STAC and the Chesapeake Bay Program's Nutrient Subcommittee co-hosted a workshop in May 2007 aimed to initiate a discussion that would address some of the key concerns with current state fertilizer accounting systems and provide recommendations for syncing state collection methods.

3) An Introduction to Sedimentsheds: Sediment and its Relationship to Chesapeake Bay Water Clarity

Date(s): January 30 - 31, 2007

Location: Doubletree Hotel, Annapolis, MD

A “sedimentshed” is a concept used to determine sediment sources affecting the water clarity of near-shore submerged aquatic vegetation (SAV) grow zones of the Chesapeake Bay. Decreases in water clarity due to massive sediment input from the surrounding watershed and sediment resuspension has had a direct impact on the health of SAV beds, and in turn on the health of aquatic life. In 2006, the Chesapeake Bay Program’s Sediment Workgroup began developing an introductory report on “sedimentsheds” (see Workshop Webpage to access the report) in hopes that identifying both the spatial location and categorical components of sediment sources would ensure the use of efficient and effective management strategies for attaining water clarity goals. The STAC funded workshop, held in January 2007, provided a forum for the Sediment Workgroup to share a draft of the Sedimentshed Report with watershed-wide expertise for review and comments. The group was also able to collect invaluable insight on sediment, and its impacts on water clarity and SAV health. One of the most surprising conclusions from the workshop was the importance of understanding the effects of different sediment types in different ecosystems. For example, while previously perceived as damaging, sand plays an essential role in maintaining healthy SAV beds; reducing sand sources many cause more harm than good.

4) Urban Tree Canopy

Date(s): May 24, 2004

Location: Radisson Hotel, Annapolis, Maryland

STAC responded to a request from the Chesapeake Bay Program’s Forestry Workgroup to create a workshop that would help partners implement the urban canopy cover goals of the Riparian Forest Buffer Directive No. 03-01, signed by the Chesapeake Executive Council in December 2003. The workshop brought together urban forestry researchers and practitioners from federal, state, and local levels in the Chesapeake Bay region and beyond to: define the water quality benefits that urban tree canopy provides and how these can contribute toward Chesapeake Bay Program goals; address what an appropriate canopy cover goal for urban watersheds is to produce measurable water quality and quantity benefits; and synthesize knowledge and ideas for the creation of a guide for local governments and community organizations to use in conducting urban canopy cover assessments, developing canopy cover goals, and implementing canopy cover enhancement strategies. The workshop and its report are technology transfer tools intended to help local jurisdictions accomplish the directive’s goals. The workshop and proceedings assist local practitioners in understanding the role of urban tree canopy cover in addressing the goals of the *Chesapeake 2000* agreement; learning about various data sources for, and methods of, quantifying tree canopy cover; learning how to set appropriate canopy cover enhancement goals; and, strategies for implementing those goals.

Workshop Partners:

UMD-Mid-Atlantic Water Program: In-Kind, Financial Support Possible

Environmental Defense Fund: In-Kind

STAC Request:
\$10,000.00