Evaluating a Systems Approach to BMP Crediting

A 2021 STAC Programmatic Workshop

Background

- In addition to TMDL requirements, the Chesapeake Bay Agreement (CBA) has numerous other direct goals for improving habitat and living resources.
- BMPs implemented to meet the TMDL, if not appropriately designed for specific site and landscape conditions and consideration of other CBA goals, may result in unnecessary resource tradeoffs and unintended consequences.
- Wetland ecosystems are an example for considering a more holistic perspective on BMP placement in the landscape.

Two main issues:

- 1) Restoration is driven, incentivized, and accounted for to meet the TMDL's WQ benefits, leaving habitat benefits undervalued
  - Ecosystem services of wetlands cannot be fully defined by any single function, such as N/P/sediment load reduction, or a specific species habitat
    - Complement of various elements in an ecological landscape provide habitat services at a systems scale
    - Ex: wetlands within floodplains, and channelward of forested buffers, can provide additional WQ, habitat, and resilience benefits greater than any of those habitats individually

Two main issues:

- 2) Tension among competing restoration priorities and financial resources among different BMP types that include wetlands
  - TMDL nutrient and sediment reductions for riparian buffers, stream restoration, and living shorelines are typically reported to the Bay Program as pounds reduced w/o any habitat acreage information (any wetland creation/restoration is not counted)
  - Loss of data that is necessary for tracking progress towards the Wetlands Outcome.
  - Reduces the ability to meet living resource commitments.

Workshop Objectives

1) Evaluate opportunities to incentivize habitat benefits in relation to TMDL and water quality outcomes, and that are part of Chesapeake Bay Agreement commitments

2) Evaluate the efficacy of a more holistic “systems approach” to BMP accounting, specifically how wetlands are considered in multiple BMPs, workgroups, and GITs, and how wetland BMP functions are influenced by other BMP types in the connected landscape.

Management Relevancy

- Recommendations from this workshop can help ensure that:
  - 1) wetlands, stream restoration, forest buffers, etc. are working at a systems level to maximize habitat benefits
  - 2) these restoration projects are credited accurately for acres restored, not just area treated and pounds of N/P/sediment reduced
  - 3) restoration projects are being designed and constructed so that biological function is not negatively impacted while managing for WQ improvements
  - 4) all restoration projects are being sufficiently credited and counted towards their respective Outcome
  - 5) future advancements to the CBP watershed modeling system will account for finer spatial scales of BMP and natural ecosystem landscape positions and functions

Workshop Logistics

- Winter or early spring 2022
- A 2 or 2 ½ day onsite meeting (virtual if necessary) with 30-40 participants
- Agenda:
  - Topics and questions TBD prior to the workshop
  - Opportunities for group discussion
  - Facilitated working session among attendees to develop recommendations to inform the final report.
- Planning:
  - Development of specific workshop questions regarding TMDL accounting, BMPs, ecosystems, and an identification of the issues and gaps.
  - Compile a list of desired workshop participants (GIT and WG representatives, state and local personnel responsible for data tracking for water quality and/or habitat, researchers, etc.)
  - Identify and contact desired speakers with expertise in the TMDL accounting system, BMPs, habitat and living resources, co-benefits and ecosystem services, and ecological system assessment and functions.

Expected Outcomes

- Recommend policies to incentivize habitat benefits and outcomes in addition to N/P/sediment reduction goals.
  - Ex: Improvements to the current National Environmental Information Exchange Network (NEIEN) system to better account for habitat-based data and co-benefits
- Incorporation of landscape consideration and application of a systems approach (e.g. creek, shoreline reach, watershed) to maximize benefits from multi-habitat projects to improve restoration outcomes.
- Steering committee will present the recommendations to the appropriate CBP groups for evaluation and will seek implementation by the Partnership through an established approval process.

Potential Speaker Topics

- Improvements or alternatives to the current BMP accounting system that would help incentivize and maximize habitat benefits and ensure accurate credit is provided to complex restoration projects
- Identify where different types of restoration may lead to unintended ecological consequences and provide guidance for how to locate, design and build for specific site conditions
- Discuss and identify possible synergies derived from a landscape perspective of connected ecosystems from uplands to stream valleys.
- Evaluate which existing or potential CBP BMP protocols include wetland ecosystems, compare reduction estimates of these wetlands among protocols, and identify suggestions for harmonizing the crediting of wetland systems among protocols to avoid selective BMP protocol implementation that (unrealistically) maximize only water quality benefits.
- How to collect acreage data on current restoration projects that specifically include wetlands throughout the Bay watershed. For example, how can we pull out the wetland areas from the stream restoration's floodplain reconnection and buffer models? How can we add areal extent to load reductions of urban wetland BMPs currently based on area treated?

Steering Committee

- Pam Mason (VIMS, Wetland Workgroup Co-Chair)
- Denise Clearwater (MDE)
- Alison Santoro (MD DNR, Stream Health Workgroup Co-Chair)
- Greg Noe (USGS/STAC)
- Dave Goerman (PA DEP)
- Alicia Berlin (USGS, Black Duck Action Team Co-Chair)
- **Expert in WQ/ TMDL accounting**
- **Expert in systems ecology**

Discussion

- Suggestions for additional steering committee members
  - Expertise in WQ/ TMDL accounting and/or in systems ecology
- Suggestions for workshop speakers