Innovative Tools and Techniques

Multi Benefit Accounting of Restoration Projects

2025 Mid-Atlantic Wetland Workgroup
Canaan Valley Resort State Park Lodge - Davis, WV
September 23-25, 2025

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Department of
Environmental Protection

Overview

Program Approach

What is Multi-Benefit Accounting

Defining

Regulatory Coordination Issues

Benefits

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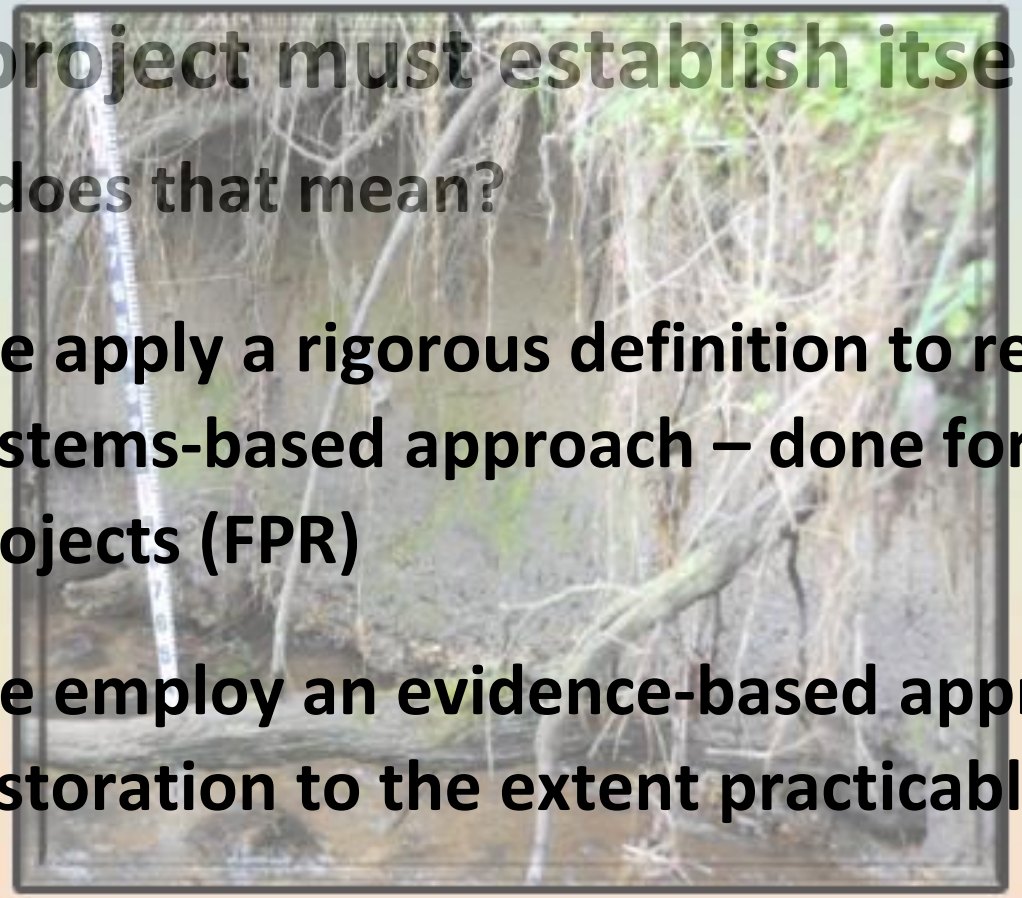
Evidence-Based Process

Program Approach

Four Core Elements of and Evidence-Based Process

The project must establish itself as a restoration project

What does that mean?



We apply a rigorous definition to restoration and use it in a systems-based approach – done for floodplain restoration projects (FPR)

We employ an evidence-based approach to demonstrating a project is restoration to the extent practicable (presented at 2023 MAWWG)

- Identify Alterations
- Paleo Environment
- Modern Constraints
- Design/Modeling

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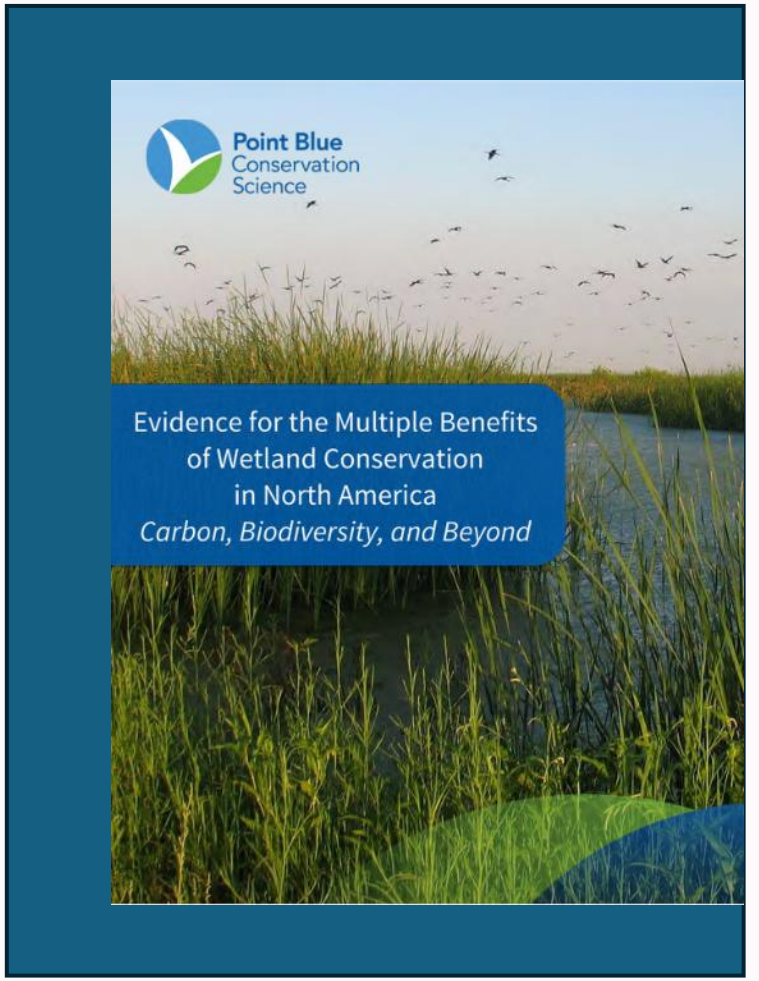
Multi-Benefit Accounting

This term is used a lot, and it can have broad applicability depending upon the perspective.

The benefits resulting from a project that are in addition to the expected ecological and process improvements associated with restoring the targeted system(s).



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Multi-Benefit Accounting

Possible Benefit Categories

- Storm or Flood Flow Attenuation
- Pollution Prevention
- Pollution Abatement (not treatment wetlands)
- Climate Change

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Category

Storm or Flood Flow Attenuation

Accounting for the restoration project's benefits that affect Post Construction Stormwater Management of Peak Rate and Volume related to storm runoff from a specific site and associated development or redevelopment.

Restored area not used to meet water quality requirements of stormwater management program, this must be met prior to discharge

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Regulatory Coordination Issues

State Program Coordination/Integration

PA's NPDES program in state regulations has coupled the discharges during construction program (US CWA) and the post construction stormwater management requirements (PA CSL)

The post construction stormwater management requirements (PA CSL) have no basis in federal law and therefore no CWA nexus.

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Regulatory Coordination Issues

Federal Program Misconceptions

That there is a CWA 404 and 402 conflict. Issues raised - an area to meet 404 requirements cannot also meet a 402 requirement (i.e., double dipping).

Past contention with USACE and EPA over "splitting" of resource functions/processes. This argument negates all multi-benefit accounting. Mitigation rule provides for this occurrence.

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Category

Storm or Flood Flow Attenuation

- **Peak Rate**: Post-construction peak flow must match (or be less than) existing peak flow, with consideration for the proposed impervious cover.

  This is a function of the increased storage in the restored floodplain at a given flow rate. Basically, we have made the bathtub bigger and therefore more water remains in the restoration area for a longer period of time and leaves the system more slowly, as compared to the pre-restoration condition.

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Category

Storm or Flood Flow Attenuation

- **Volume**: Storm flow volume must match (or be less than) existing storm flow. This is a function of encouraging out of bank flow in small, frequent storm events and increasing the wetted surface area, while eliminating the relatively impermeable layers created by the legacy sediment impairment.

  Effectively, we are spreading out storm flows even for very small events that are typically below the threshold for required stormwater management and creating opportunities for storage, infiltration, and evapotranspiration.

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Benefits

So What?

- There are achievable benefits on a watershed scale that small, conventional BMPs cannot provide, particularly in terms of water quality and peak and volume treatment of smaller, “nuisance” flooding events.
- We typically attempt to address all of the required peak and volume function with the floodplain calculations and avoid the need for additional peak and volume treatment with site BMPs.

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Benefits

So What?

- Peak management function potential diminishes for a given FPR site as the upstream watershed area increases. This is just a function of the relative size of the watershed to the size of the restoration area (we just can't make the bathtub big enough to manage the discharge from a fire hose). Volume reduction and water quality functions remain significant regardless of watershed size.

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Benefits

So What?

Private equity investment in restoring resources

Restoration results in

- removal of pollutant loads (i.e., sediment),
- water quality benefits are realized for the site discharges as well as for the upstream watershed incoming flows, especially for smaller flooding events
- Ecological improvements
- Sediment storage
- Recreation benefits integrated

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Get In Touch

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