Chesapeake Bay Program
Science. Restoration. Partnership.

Sediment Load Reduction BMPS

FFWG 8/13/24

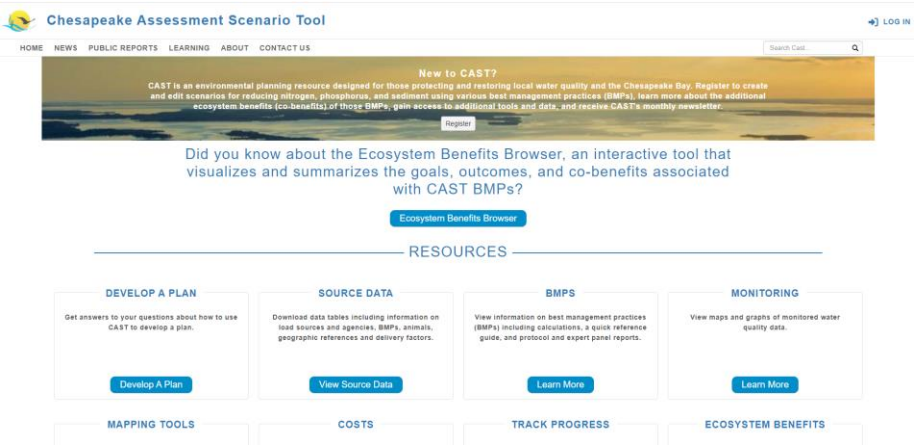
Auston Smith

Auston Smith

- Life Scientist, EPA
- Pronouns: He/Him/His

Chesapeake Bay Program
Science. Restoration. Partnership.

CAST-23: Current Model of Record



The following materials and resources utilize estimates provided by the Chesapeake Assessment Scenario Tool (CAST-23) model.

https://cast.chesapeakebay.net/

Chesapeake Bay Program
Science. Restoration. Partnership.

Most Effective Sediment Reduction BMPs?

- The cost data may be downloaded from CAST under the Public Reports > Cost Profiles. We list in a spreadsheet the typical pounds reduced for every BMP.
- The pounds reduced are those at the edge-of-tide and are **provided for nitrogen, phosphorus, and sediment.**
- BMPS can then be filtered by both TSS reduced (lbs/unit) and $/lbs reduced/year to assist with your specific goals on your facility that can vary vastly on both space and monetary availability.
- These costs and pollutant load reductions can vary across the watershed, so these data points can be filtered **by county.**

Chesapeake Bay Program
Science. Restoration. Partnership.

https://cast.chesapeakebay.net/Documentation/CostProfiles

Most Effective Sediment Reduction BMPs?

- Costs are estimated in 2018 dollars. Costs represent a single year of cost rather than the cost over the entire lifespan of the practice. Costs are annualized average costs per unit of BMP (e.g.: $/acre treated/year).

- Capital and opportunity costs are amortized over the BMP lifespan and added to annual operations and maintenance (O&M) costs for a total annualized cost. Costs are those incurred by both public and provide entities. Default costs were prepared for EPA using existing data.

Chesapeake Bay Program
Science. Restoration. Partnership.

Sediment Reduction BMPs

- BMPs sorted to determine most effective TSS reductions by unit.
- Additionally, removed Ag lands for Federal Facilities

BMPs (acre units in various categories shown only)	TSSLbsReducedPerUnit
Developed Sector	
Erosion and Sediment Control Level 1	939,427
Impervious Surface Reduction	324,078
Infiltration Practices w/o Sand, Veg. - A/B soils, no underdrain	196,224
Forest Buffer	182,808
Bioswale	165,244
Filtering Practices	165,244
Vegetated Open Channels - A/B soils, no underdrain	144,584
Natural Sector	
Abandoned Mine Reclamation	157,442
Forest Harvesting Practices	27,975
Wetland Rehabilitation	16,774

Chesapeake Bay Program
Science. Restoration. Partnership.

Sediment Reduction BMPs

- BMPs sorted to determine most cost-effective
- Additionally, removed Ag lands for Federal Facilities

BMPs (acre units in various categories shown only)	$ /lb sediment reduced/year
Developed Sector	
Advanced Grey Infrastructure Nutrient Discovery Program (IDDE)	$ 0.01
Nutrient Management Plan	$ 0.01
Conservation Landscaping Practices	$ 0.01
Forest Planting	$ 95,016.38
Forest Buffer	$ 182,807.91
Erosion and Sediment Control Level 1	$ 939,427.03
Tree Planting - Canopy	$ 41,359.62
Natural Sector	
Forest Harvesting Practices	$ 214.91
Abandoned Mine Reclamation	$ 862.70
Wetland Rehabilitation	$ 1,458.33

Chesapeake Bay Program
Science. Restoration. Partnership.

Thank you!

Any questions?
You can contact me at smith.auston@epa.gov

Chesapeake Bay Program
Science. Restoration. Partnership.