



Chesapeake Bay Program
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Sediment Load Reduction BMPS

FFWG 8/13/24

Auston Smith



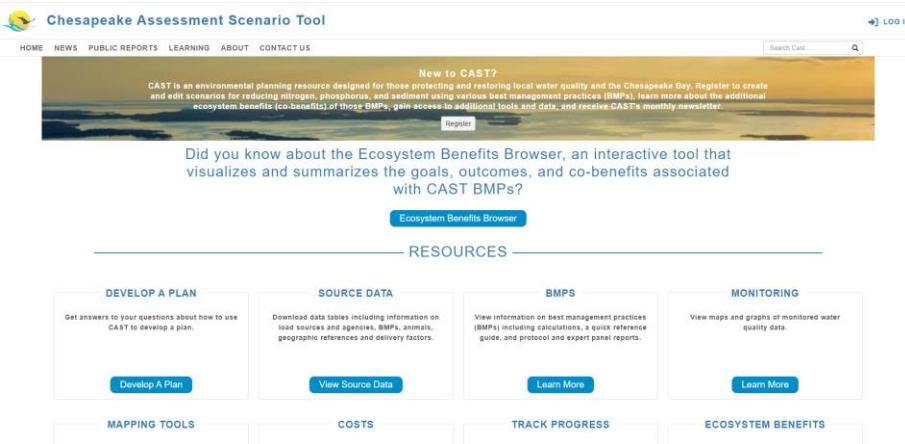
Auston Smith

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



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CAST-23: Current Model of Record



The screenshot shows the homepage of the Chesapeake Assessment Scenario Tool (CAST-23). At the top, there is a navigation bar with links for HOME, NEWS, PUBLIC REPORTS, LEARNING, ABOUT, and CONTACT US. A search bar is located on the right side of the navigation bar. Below the navigation bar, there is a large banner image with a sunset over water. The banner contains the text "New to CAST?" and a description of the tool: "CAST is an environmental planning resource designed for those protecting and restoring local water quality and the Chesapeake Bay. Register to create and edit scenarios for reducing nitrogen, phosphorus, and sediment using various best management practices (BMPs), learn more about the additional ecosystem benefits (co-benefits) of those BMPs, gain access to additional tools and data, and receive CAST's monthly newsletter." A "Register" button is visible. Below the banner, there is a section titled "Did you know about the Ecosystem Benefits Browser, an interactive tool that visualizes and summarizes the goals, outcomes, and co-benefits associated with CAST BMPs?" with an "Ecosystem Benefits Browser" button. Below this, there is a "RESOURCES" section with four columns: "DEVELOP A PLAN" (with a "Develop A Plan" button), "SOURCE DATA" (with a "View Source Data" button), "BMPs" (with a "Learn More" button), and "MONITORING" (with a "Learn More" button). At the bottom, there are four more sections: "MAPPING TOOLS", "COSTS", "TRACK PROGRESS", and "ECOSYSTEM BENEFITS".

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

<https://cast.chesapeakebay.net/>



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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.**



<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 private entities. Default costs were prepared for EPA using existing data.



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



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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



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Thank you!

Any questions?

You can contact me at smith.auston@epa.gov



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