

Session: X Marks the Spot – A Treasure Trove of Stormwater Solutions

MACO Summer Conference, August 16, 2018

Using CAST for Implementation Planning and Decision Making

Devereux Consulting

Data ✦ Research ✦ Analysis ✦ Strategy

Stormwater Treatment Goals

- Achieve your MS4 permit obligations
- Meet the Chesapeake Bay TMDL requirements
- Determine what actions achieve local TMDLs
- Learn what is in the Bay Model for your community

Chesapeake Assessment Scenario Tool

HOME PUBLIC REPORTS HOW TO ABOUT CONTACT US

CAST PLANNING TOOLS

Logging in to CAST allows users to rapidly develop scenarios for reducing nitrogen, phosphorus and sediment with varying best management practices to streamline environmental planning. Costs are provided so users may select the most cost-effective practices to reduce pollutant loads.

Log In To Get Started

Email

Password

[Forgot Password](#)

[Log In](#) [Register](#) [BayFast Log In](#)

RESOURCES

Frequently requested data and information associated with water quality monitoring and modeling.

[MODEL DOCUMENTATION](#) [DEVELOPING PLANS](#) [SOURCE DATA](#)

Use CAST to help document meeting permit requirements

Implementation Strategy

- Develop a plan that meets water quality permit requirements

Watershed Restoration

- Retrofit 20% of impervious surfaces not currently controlled to the maximum extent practicable (MEP)

8/16/2018

The screenshot displays the 'Chesapeake Assessment Scenario Tool' (CAST) interface. The main page is titled 'EDIT SCENARIO - Implementation Plan' and features a navigation menu with options like HOME, SCENARIOS, RESULTS, COST PROFILES, HOW TO, ABOUT, ADMIN, and CONTACT US. A modal dialog box titled 'Add BMP' is open, allowing users to input details for a new Best Management Practice (BMP). The dialog includes the following fields:

- Geographic Scale ***: County
- Geographic Area ***: Montgomery, MD
- Agency ***: Non-Federal
- BMP ***: Bioretention/raingardens
- Secondary BMP ***: Bioretention/raingardens - A/B soils, no underdrain
- Load Source ***: MS4 Developed
- Unit ***: Acres Treated
- Amount ***: (Empty input field)

Buttons for 'Save' and 'Cancel' are located at the bottom right of the dialog. The background interface shows a table of existing BMPs with columns for Agency, Description, Scenario ID, Status, Area, Unit, and Cost. A 'Download Load' button is also visible in the background.

Permitted vs. “Voluntary” BMPs



BMPs can be assigned to a MS4 area. The different options are:

- MS4 Buildings and Other
- MS4 Roads
- MS4 Tree Canopy over Impervious
- MS4 Tree Canopy over Turf Grass
- MS4 Turf Grass
- CSS Buildings and Other
- CSS Roads
- CSS Tree Canopy over Impervious
- CSS Tree Canopy over Turf Grass
- CSS Turf Grass
- Non-Regulated Buildings and Other
- Non-Regulated Roads
- Non-Regulated Tree Canopy over Impervious
- Non-Regulated Tree Canopy over Turf Grass
- Non-Regulated Turf Grass
- CSS Construction
- Regulated Construction

Use CAST output to help document meeting permit requirements

Report and Monitor

- Submit annual report on BMP implementation progress

	A	B	C	D
1	<i>Urban/Suburban Practices</i>	Unit	2017 Progress V9	2017 Progress V9
2				
3	Runoff Reduction Performance Standard	acres	2312.30	0.1%
4	Storm Water Treatment Performance Standard	acres	38789.30	2.1%
5	Wet Ponds & Wetlands	acres	118497.30	6.4%
6	Floating Treatment Wetlands	acres	0.00	0.0%
7	Dry Ponds	acres	47537.90	2.6%
8	Extended Dry Ponds	acres	45875.20	2.5%
9	Infiltration Practices	acres	6697.30	0.4%
10	Filtering Practices	acres	1425.10	0.1%
11	BioRetention	acres	3913.50	0.2%
12	BioSwale	acres	868.40	0.0%
13	Permeable Pavement	acres	176.00	0.0%
14	Vegetated Open Channel	acres	2537.70	0.1%
15	Urban Filter Strips	acres	2.70	0.0%
16	Grey Infrastructure(IDDE)	acres	0.00	0.0%
17	Impervious Disconnection	acres	0.00	0.0%
18	Stormwater Management Composite	acres	268632.70	14.5%
19				
20	Erosion and Sediment Control	acres	29305.20	93.0%
21	Impervious Surface Reduction	acres	291.40	0.0%
22	Urban Forest Buffers	acres	26.70	0.0%
23	Urban Grass Buffers	acres	0.00	0.0%
24	Urban Tree Planting	acres	0.00	0.0%
25	Urban Forest Planting	acres	23.90	0.0%
26	Urban Nutrient Management	acres	19194.20	1.6%
27	Urban Stream Restoration	feet	17163.50	0.0%
28	Storm Drain Cleanout	lbs TSS	0.00	
29	Street Sweeping	acres	0.00	0.0%
30	Urban Shoreline Management	feet	4152.50	0.0%
31				
32				
33	Septic Connections	systems	725.70	0.2%
34	Septic Denitrification	systems	7771.70	1.9%
35	Septic Pumping	systems	8131.40	2.0%
36				
37	<i>Land Policy</i>	Unit	2017 Progress V9	2017 Progress V9
38				
39	Forest Conservation	acres	0.00	0.0%
40	Growth Management	acres	0.00	0.0%

Chesapeake Assessment Scenario Tool

HOME SCENARIOS RESULTS COST PROFILES HOW TO ABOUT ADMIN CONTACT US

Create Reports

Submit Report

Report Type *

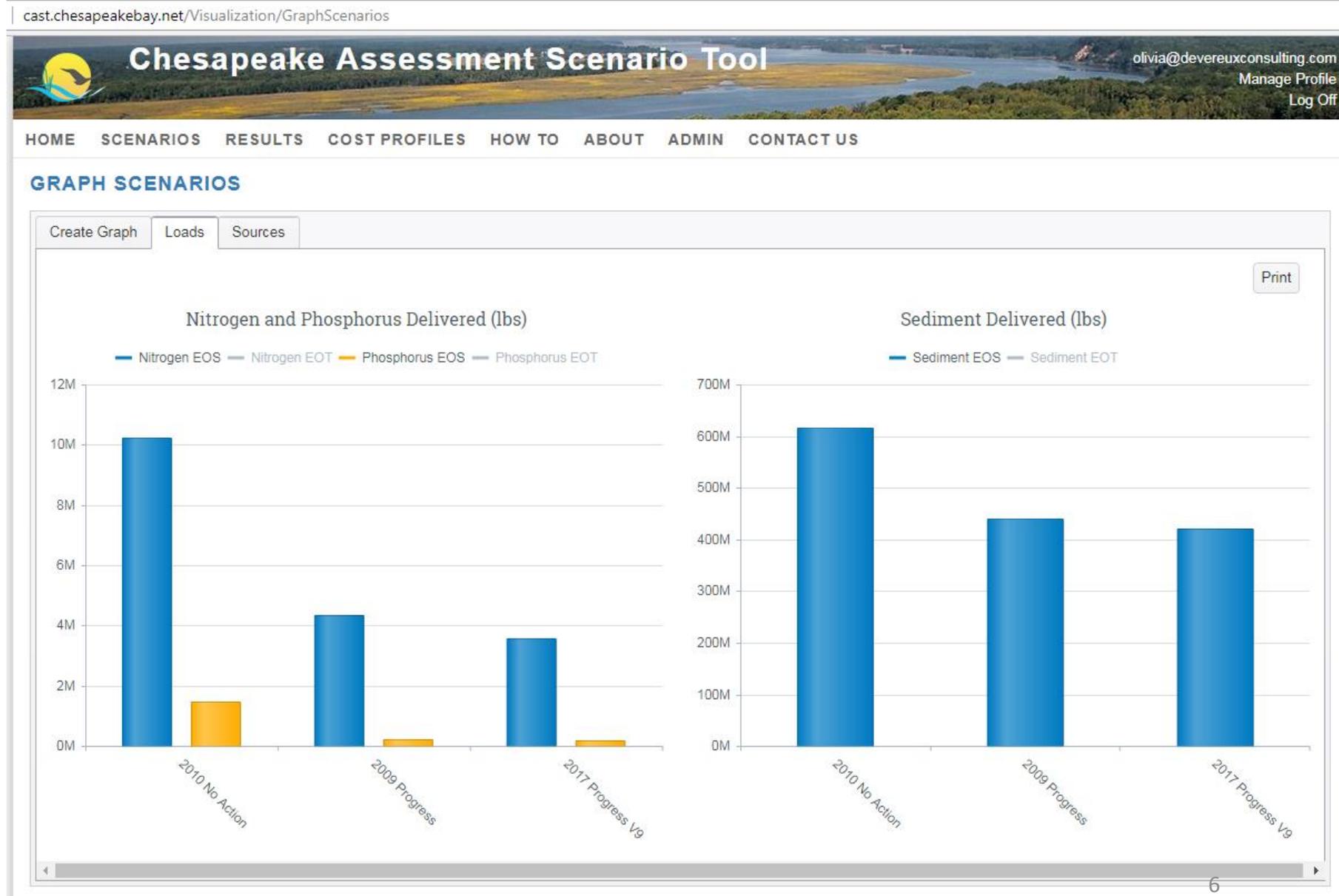
BMP Summary Report

8/16/2018

Use CAST output to help document meeting permit requirements

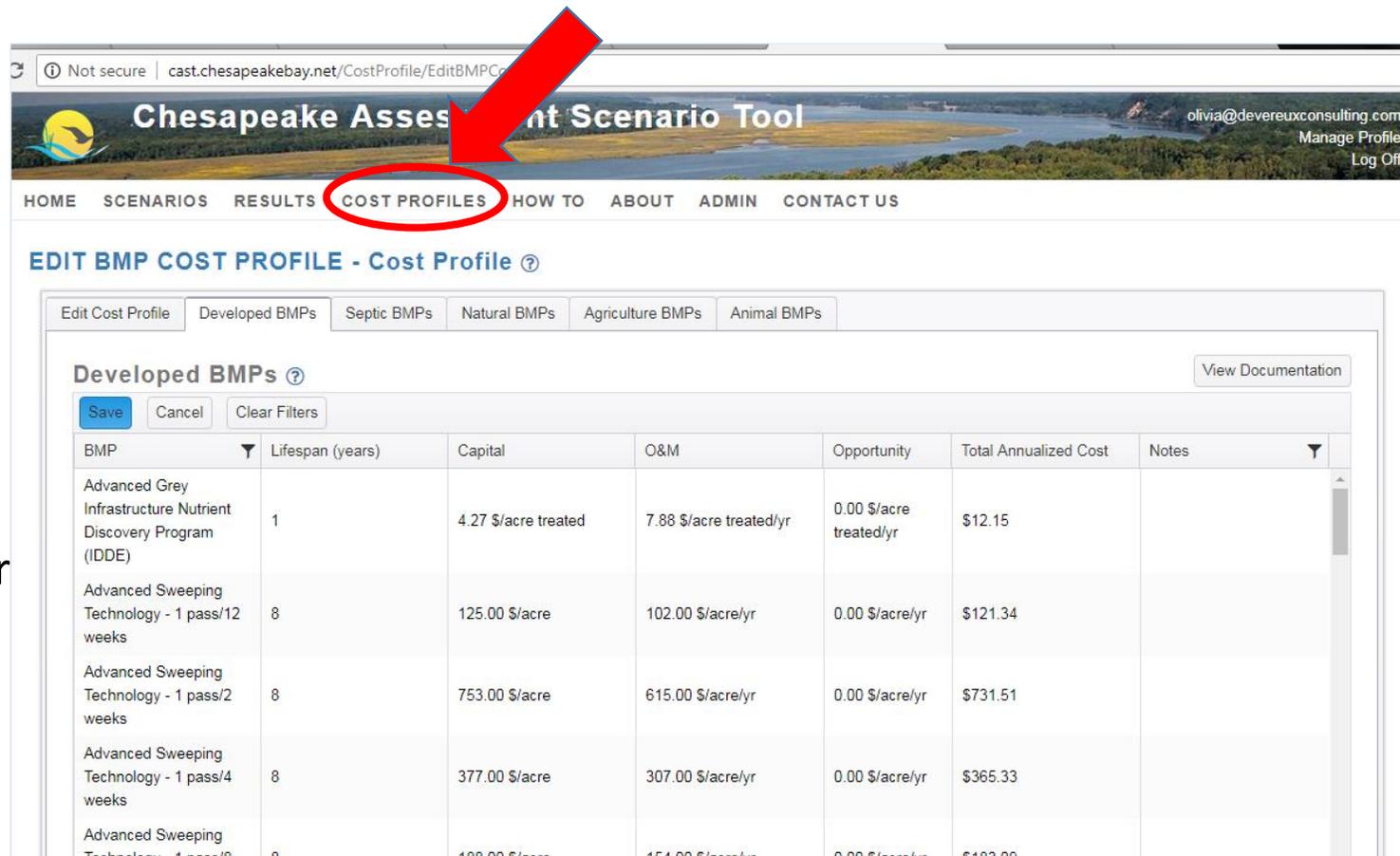
Report and Monitor

- Submit annual report on water quality progress



Typical Questions Answered with CAST

- What is the current land use and land cover in my community and where can I quickly access these data?
- How do I find out how my pollutant loads and land uses are projected to change for various 2025 development scenarios for my community?
- Which BMPs are currently in the Model for my community?
- How can I estimate which of those BMPs were implemented as part of my MS4 permit?
- Which BMPs are most cost-effective?



The screenshot shows the 'EDIT BMP COST PROFILE - Cost Profile' page in the CAST application. The navigation bar includes 'HOME', 'SCENARIOS', 'RESULTS', 'COST PROFILES' (highlighted with a red circle and a red arrow), 'HOW TO', 'ABOUT', 'ADMIN', and 'CONTACT US'. The page title is 'EDIT BMP COST PROFILE - Cost Profile'. Below the title, there are tabs for 'Edit Cost Profile', 'Developed BMPs', 'Septic BMPs', 'Natural BMPs', 'Agriculture BMPs', and 'Animal BMPs'. The 'Developed BMPs' tab is active, showing a table of BMPs with columns for BMP name, Lifespan (years), Capital, O&M, Opportunity, Total Annualized Cost, and Notes. The table contains several rows of data for different BMP types, including 'Advanced Grey Infrastructure Nutrient Discovery Program (IDDE)', 'Advanced Sweeping Technology - 1 pass/12 weeks', 'Advanced Sweeping Technology - 1 pass/2 weeks', 'Advanced Sweeping Technology - 1 pass/4 weeks', and 'Advanced Sweeping Technology - 1 pass/8 weeks'. A 'View Documentation' button is located in the top right corner of the table area.

BMP	Lifespan (years)	Capital	O&M	Opportunity	Total Annualized Cost	Notes
Advanced Grey Infrastructure Nutrient Discovery Program (IDDE)	1	4.27 \$/acre treated	7.88 \$/acre treated/yr	0.00 \$/acre treated/yr	\$12.15	
Advanced Sweeping Technology - 1 pass/12 weeks	8	125.00 \$/acre	102.00 \$/acre/yr	0.00 \$/acre/yr	\$121.34	
Advanced Sweeping Technology - 1 pass/2 weeks	8	753.00 \$/acre	615.00 \$/acre/yr	0.00 \$/acre/yr	\$731.51	
Advanced Sweeping Technology - 1 pass/4 weeks	8	377.00 \$/acre	307.00 \$/acre/yr	0.00 \$/acre/yr	\$365.33	
Advanced Sweeping Technology - 1 pass/8 weeks	8	188.00 \$/acre	154.00 \$/acre/yr	0.00 \$/acre/yr	\$182.00	

Questions?

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