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Making a difference, together

Anne Arundel County's (MD) MS4 Stormwater Work & Plan Moving Forward

MAY 1, 2025

Chesapeake Bay Commission

The Anne Arundel County's Regulatory Mandates

- Municipal Separate Storm Sewer System (MS4) Permit (issued by MDE).
- Previous permit required treatment of 20% of the untreated impervious area in the county during the permit cycle. (4,996 acres)
- Used TN/TP/TSS credits generated at the County's WWTPs to achieve permit compliance. Burned off nutrient trade in fall 2020
- Current permit, issued on November 5, 2021 requires the treatment of another 2,998 acres. (permit is through 2026)
- Stormwater work funded by the County's Watershed Protection and Restoration Fee
- A key component of the Chesapeake Bay TMDL (along with WRF upgrades and septics)

Stormwater Restoration & Impervious Surface Treatment

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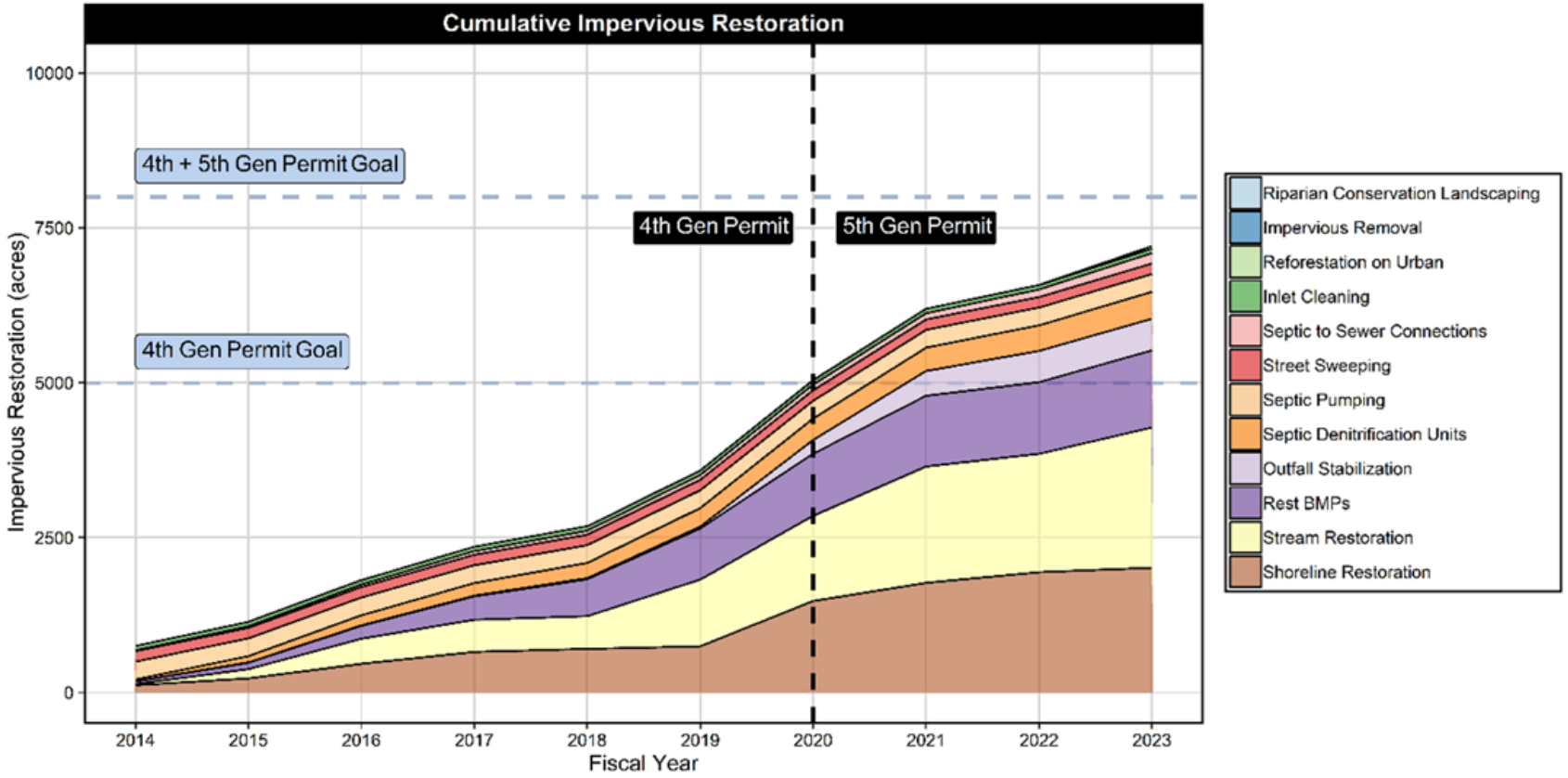
Cumulative Impervious Restoration
10000
7500
5000
2500
0
Impervious Restoration (acres)
4th + 5th Gen Permit Goal
4th Gen Permit Goal
4th Gen Permit
5th Gen Permit
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Fiscal Year
Riparian Conservation Landscaping
Impervious Removal
Reforestation on Urban
Inlet Cleaning
Septic to Sewer Connections
Street Sweeping
Septic Pumping
Septic Denitrification Units
Outfall Stabilization
Rest BMPs
Stream Restoration
Shoreline Restoration

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Infrastructure Projects

Piney Orchard pond maintenance

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Infrastructure Projects

Glen Burnie park outfall

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Lake Waterford Stormwater Wetland (Magothy watershed)

Ruth Parker Eason Outfall (Patapsco tidal watershed)

Jabez Branch Stream & Wetland (Severn watershed)

Community Grant Projects

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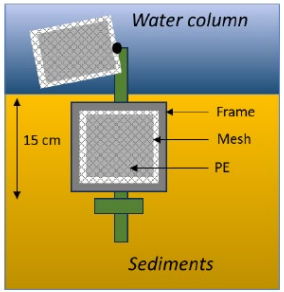
Maintenance Inspections

- 7,774 Three-Year Maintenance Inspections;
- 845 Three-Year Maintenance Correction Notices
- 16 Three-Year Maintenance Violation Notices.

TMDLs, Including PCB Work

PCB Monitoring in Sawmill Creek with UMBC

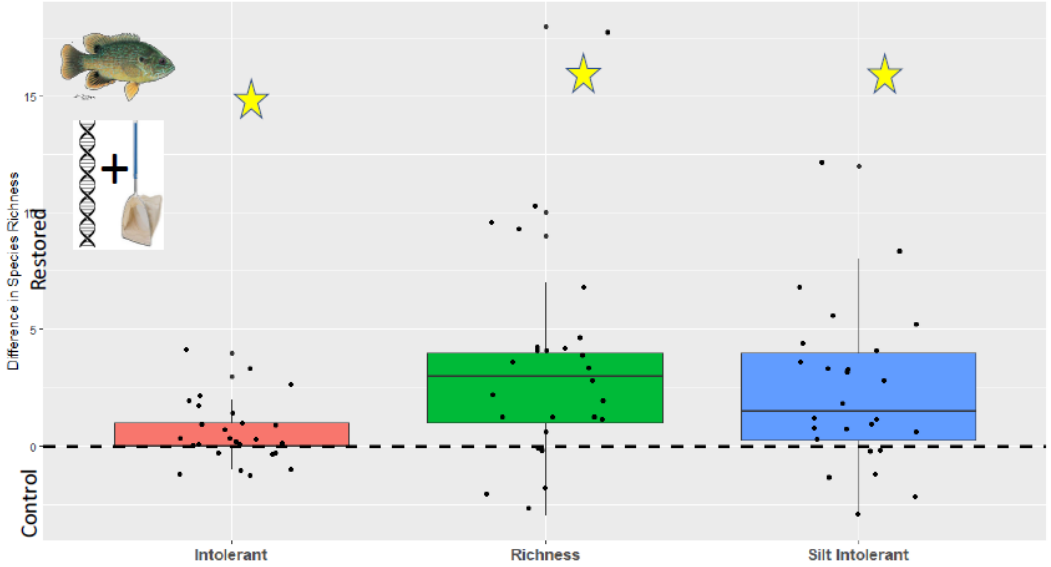


3.2.6 Main findings and recommendations

Decrease of the freely dissolved concentrations at PT7-RW-03 suggests that PCB source(s) identified between PT7-RW-04 and PT7-RW-03 in 2020 may not be active in 2022. This PCB source cutoff may be linked to the construction of a stream restoration project in the Ferndale Branch that occurred between PT7-RW-03 and PT7-RW-04 from March 2022 and July 2023 (Griffith, Personal communication). Stream restoration included removal of legacy sediments and addition of wood chips to the bottom substrate, that may have helped reduce the freely dissolved concentrations through PCB partitioning to the wood chips. Further analysis of the wood chip PCB partitioning properties would confirm the hypothesis.

Pooled Monitoring (Chesapeake Bay Trust)

eDNA+Electrofishing strongly suggests RESTORED sections have higher fish species richness, more intolerant, and more silt intolerant species



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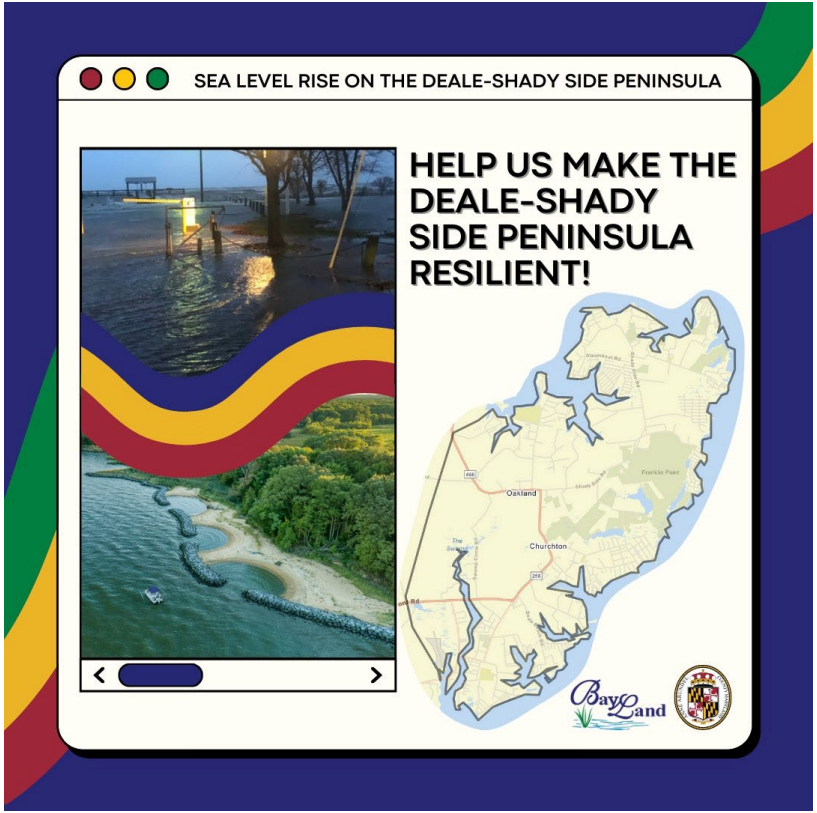
Adaptive Management

Incorporating Climate Resilience



Anne Arundel County Restoration Grant Program

- Open to non-profit partners
- Administered through the Chesapeake Bay Trust (www.cbtrust.org)
- Through 10 years, we have awarded approximately $9.3 million in grants to local watershed organizations and leveraged approximately $17 million in additional, outside dollars.

The dead can rest in peace again at Broadneck church after stormwater project addresses flooding cemetery

By RACHAEL PACELLA
STAFF WRITER | JUN 27, 2019 | 5:00 AM

Asbury UMC stream and graveyard protection
Children and adults crowd a new bridge over a new stream bed as they celebrate the completion of a
odist Church. Prior to the project, a

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NATION AND WORLD NEWS

'Basic and fundamental errors' in Russia investigation, government watchdog tells Congress

12m

NATION AND WORLD NEWS

Which members of Congress back

Non-profits are well-positioned to pursue experimental or innovative restoration approaches. This site involved using “reef balls” inoculated with seed oyster as “living breakwaters” in a shoreline project.

Reef balls find new role as part of Edgewater living shoreline

By RACHAEL PACELLA
CAPITAL GAZETTE | AUG 15, 2019 | 5:15 AM

Workers from the Resource Restoration Group place reef balls along the shore of Glebe Bay in Edgewater on August 14. (Rachael Pacella/Capital Gazette)

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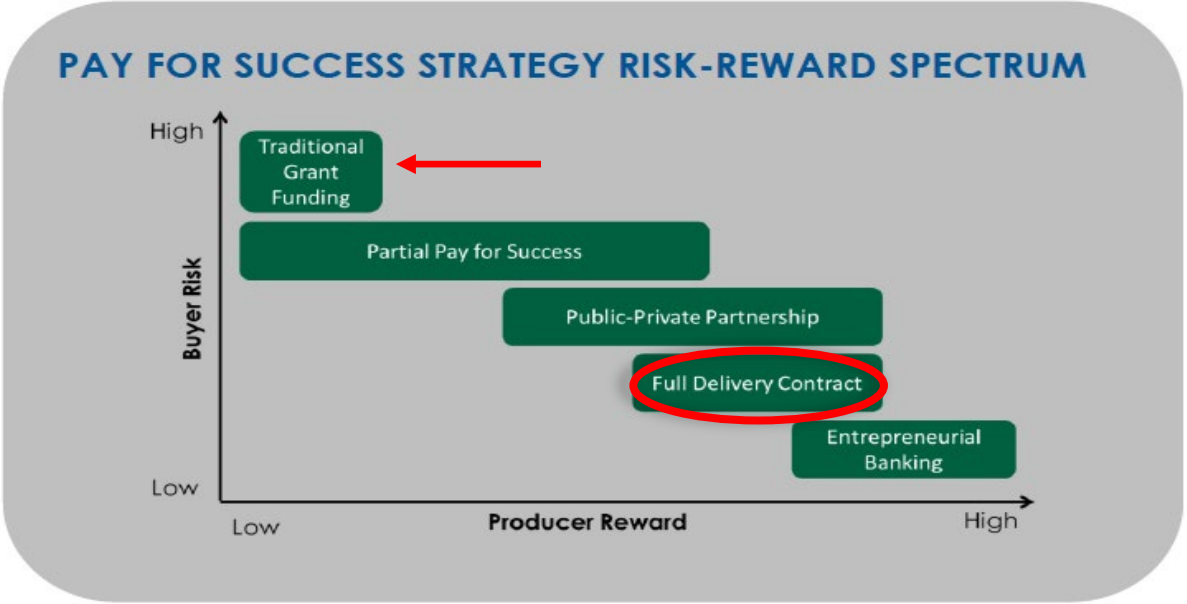
Community Grant Projects

Lake Marion retrofit

Public engagement is critical

TECHNICAL BRIEF

PAY FOR PERFORMANCE CONTRACT MECHANISMS FOR STORMWATER MANAGEMENT



Cost Per Acre Treated

Practice	Cost per Acre Treated
Bioretention retrofits	~$200k
Stormwater pond retrofits	~$75k
Stream restoration	~$50k
Full Delivery award, Cycle 1	~$16k
Full Delivery award, Cycle 2	~$15k
Full Delivery award, Cycle 3	~$21k
Full Delivery award, Cycle 4	~$26k
Full Delivery award, Cycle 5	~$12k
Full Delivery award, Cycle 6	~$9k
Full Delivery award, Cycle 7	<$5k
Full Delivery award, Cycle 8	~$10.5k
Full Delivery award, Cycle 9	~$11.8k

Treated acres provided through the Full Delivery award:

Cycle 1: ~131 for $2.1M
Cycle 2: ~113 for $1.7M
Cycle 3: ~255 for $5.4M
Cycle 4: ~115 for $3M
Cycle 5: ~137 for $1.6M
Cycle 6: ~219 for $2M
Cycle 7: ~412 for $2M
Cycle 8: ~175 for $1.84M
Cycle 9: ~170 for $2M

Challenges

- Regulatory hurdles to project implementation.
- Working with MDE to ensure new permits reflect past experience
- Keeping the public informed about progress.
- Improving water quality while encouraging economic growth.
- Long term funding reliability.

Beyond 2025

- Evaluating the success of prior implementation
- Preparing for WIP 4 (Watershed Implementation Plan)
- Exploring innovative implementation strategies (e.g., oyster restoration, more creative contracting)
- Bolstering partnerships (with Annapolis and the MD State Highway Administration)
- Continuing to better understand and maintain our existing infrastructure

Questions?

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