Managing Stormwater Runoff Where are we now and where are we going?

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Maryland Department of the Environment

Chesapeake Water Environment Association

Lessons Learned in Restoration & Program Implementation

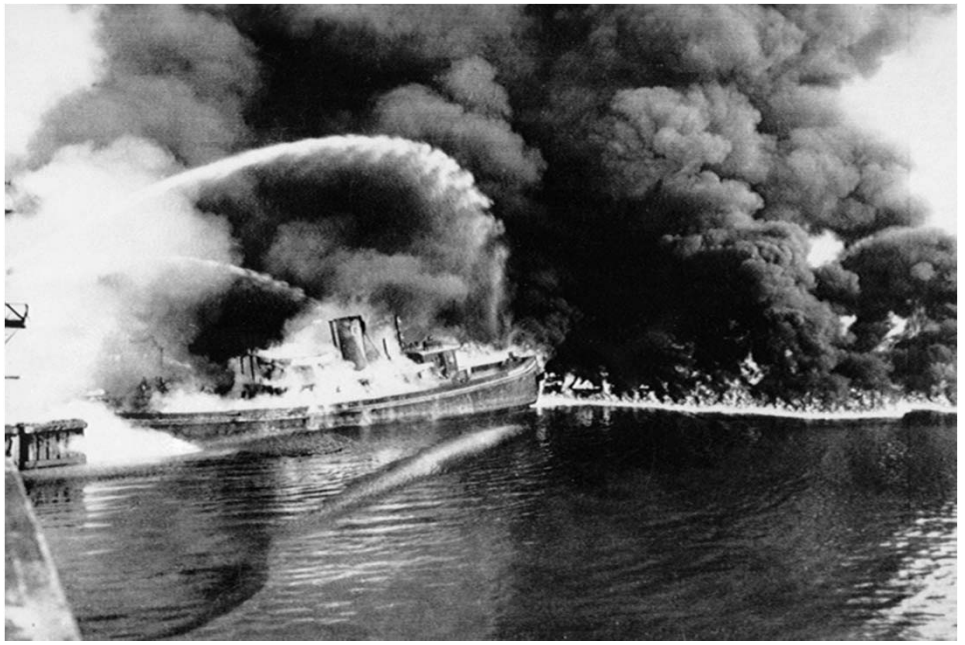
2017 Spring Seminar

MARYLAND

Maryland
Department of
the Environment

History of the Clean Water Act

- Rivers and Harbors Act (1899)
- Water Pollution Control Act (1948)
- Federal Water pollution Control Act (1956)
- Water Quality Act (1965)
- Federal Water Pollution Control Act Amendments (1972)
  - Clean Water Act (1977)
  - Water Quality Act (1987) – Stormwater Permitting – Chesapeake

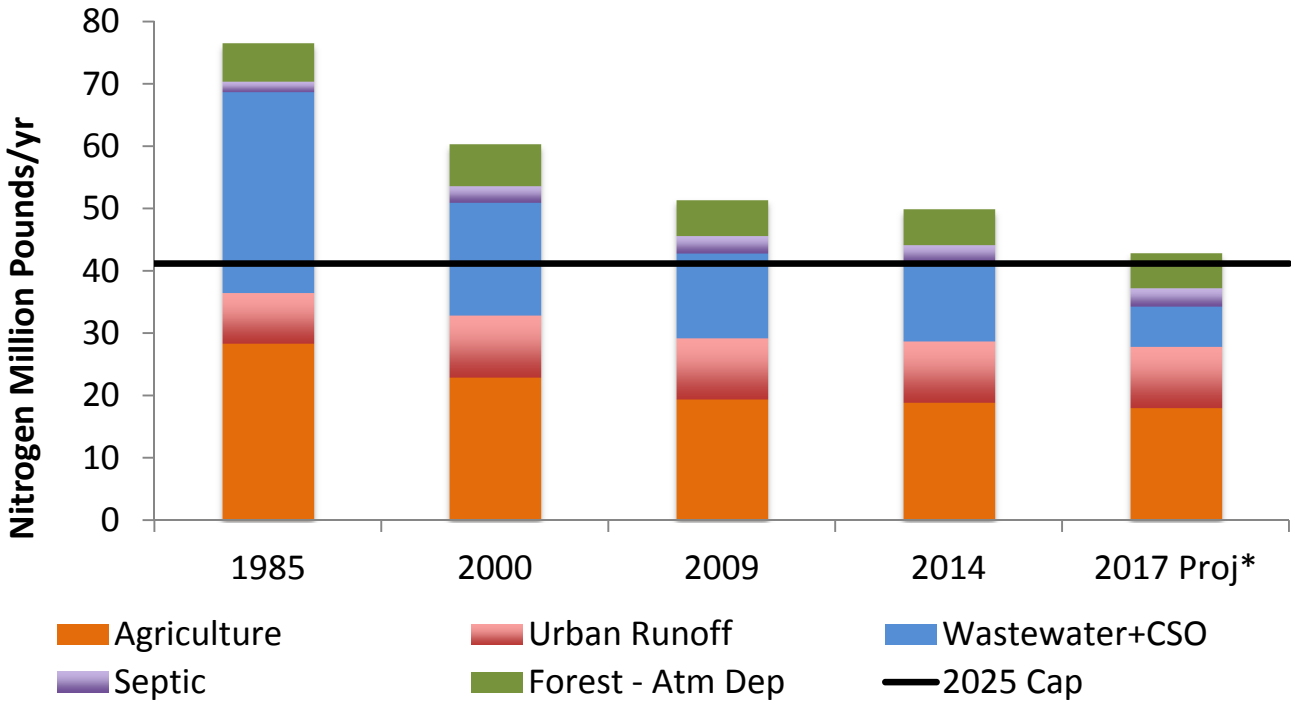


Time Magazine (1969)

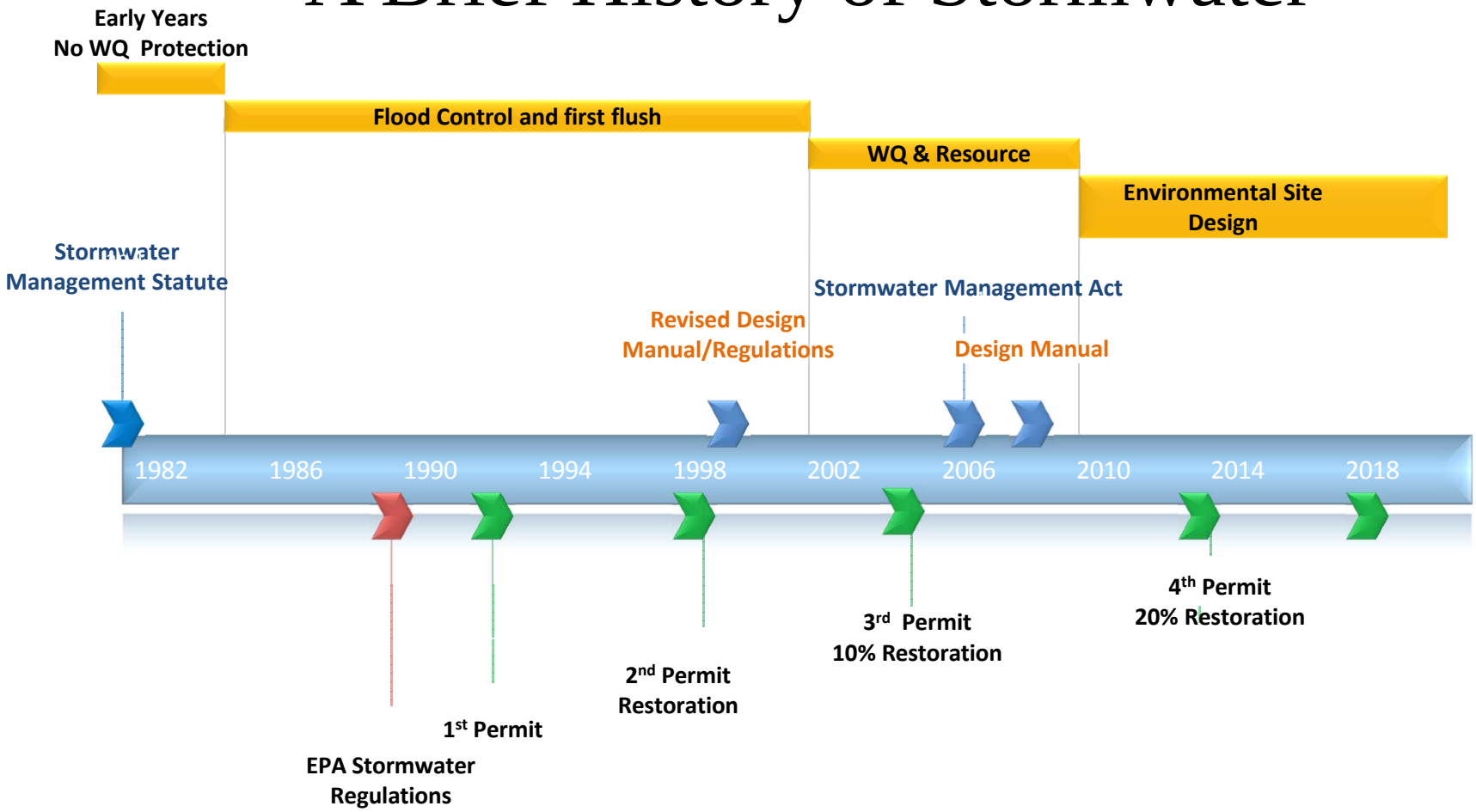
Topics

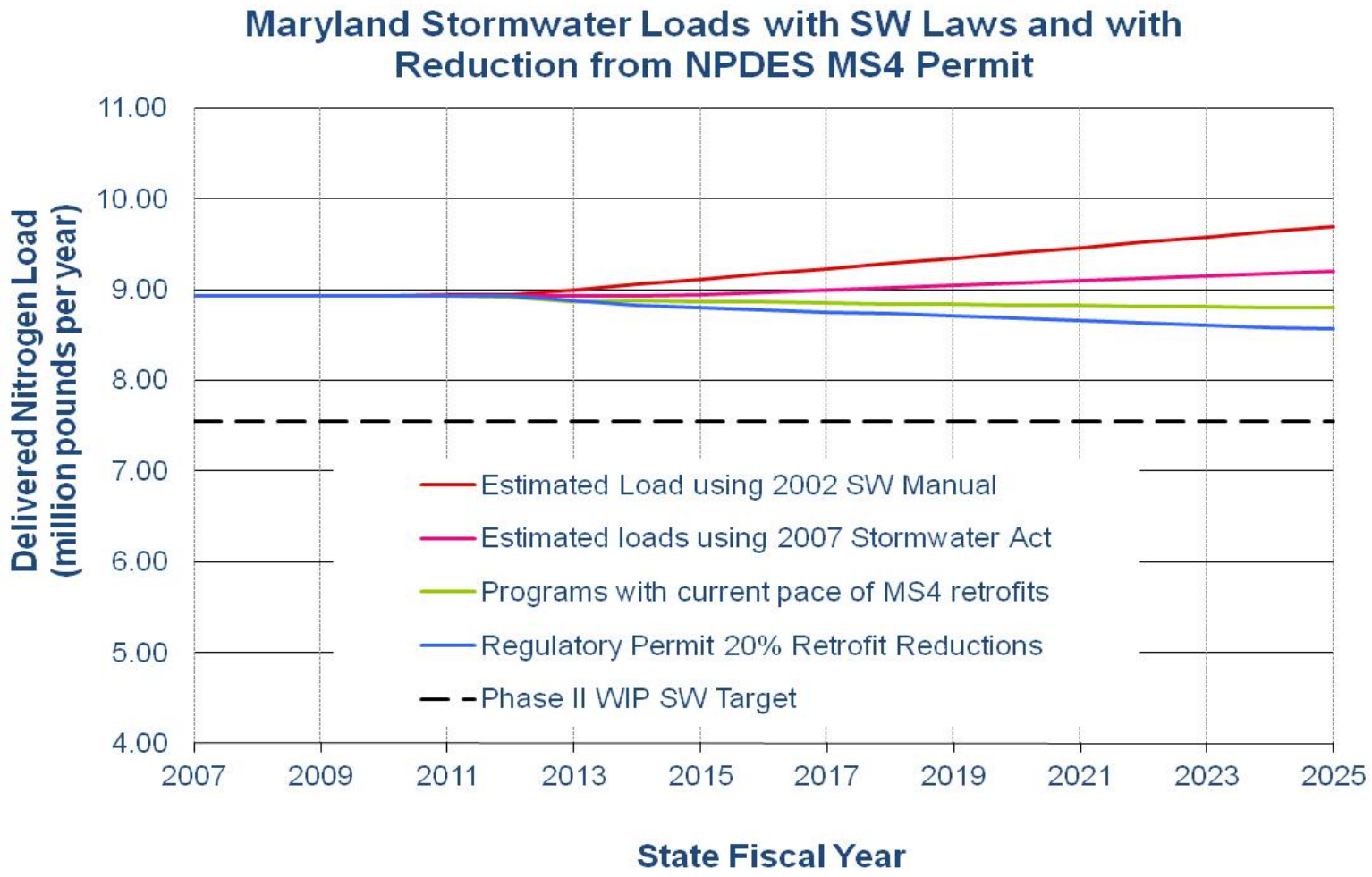
- Stormwater Runoff in Maryland
- Lessons Learned Lead to Better Solutions
- Looking Forward

Maryland Nitrogen Loads from 1985 - 2009



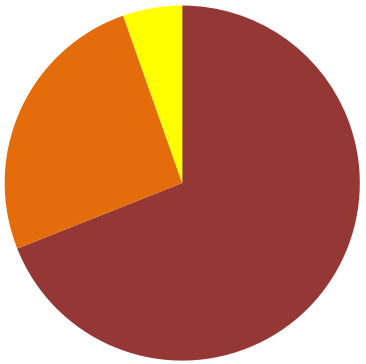
A Brief History of Stormwater

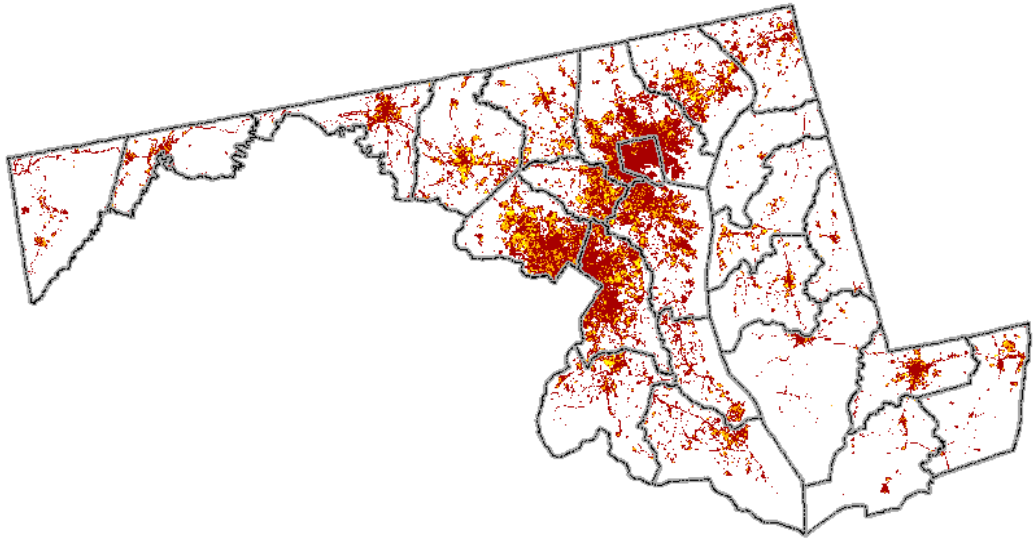




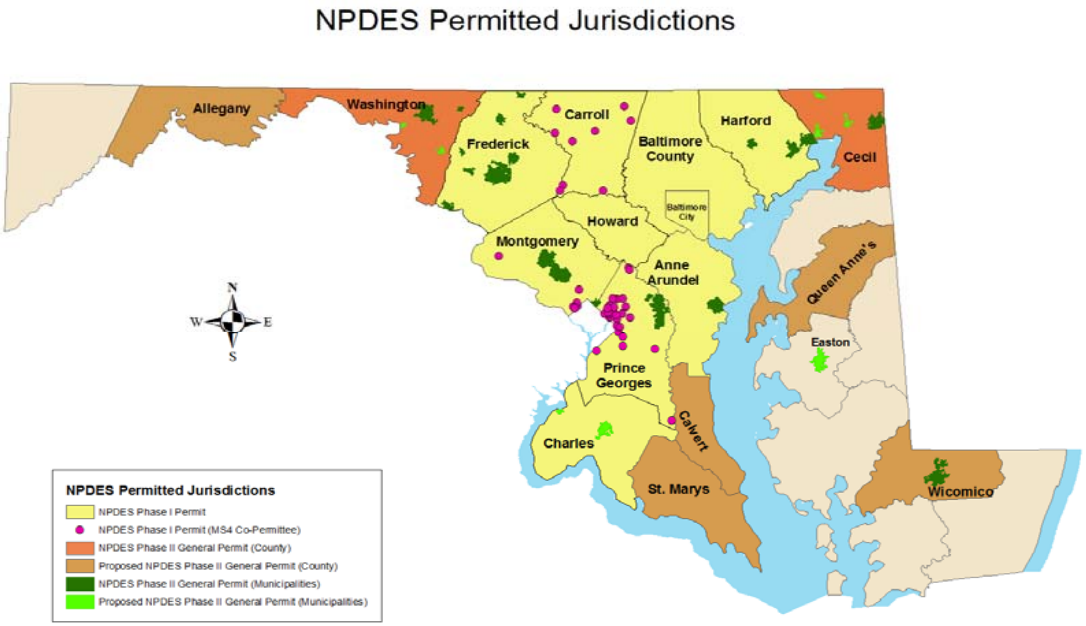
Source: MDE 2013, Phase II WIP

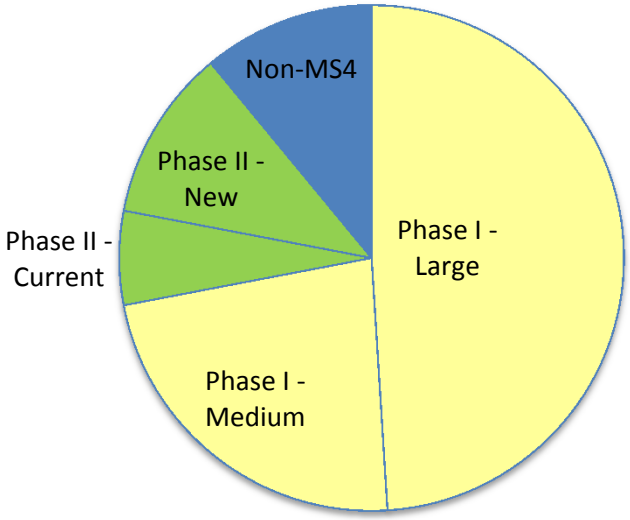
Urban stormwater runoff from older areas is perhaps one of our most significant challenges





MS4 Permits Cover the Majority of MD's Urban Runoff





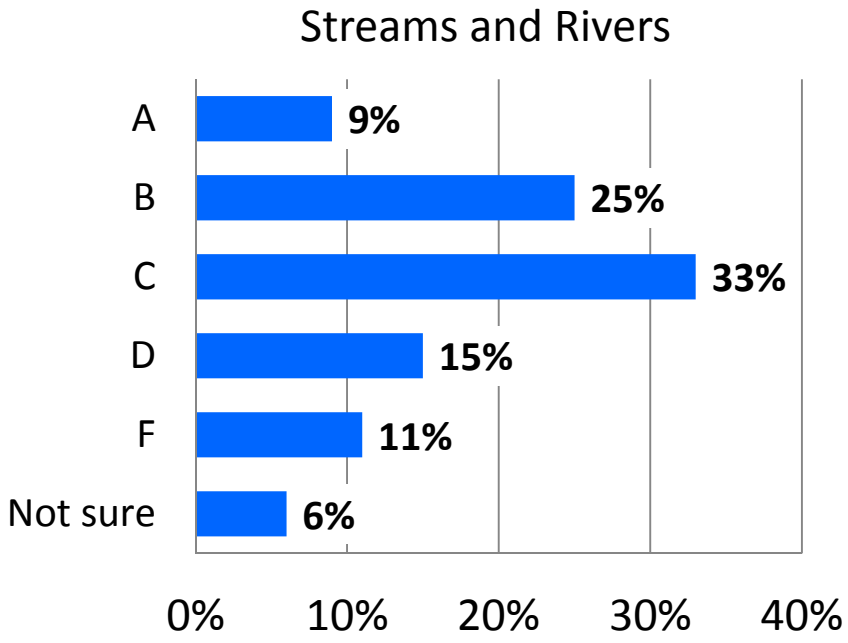
MS4 Permit Approach To Achieving Clean Water Goals

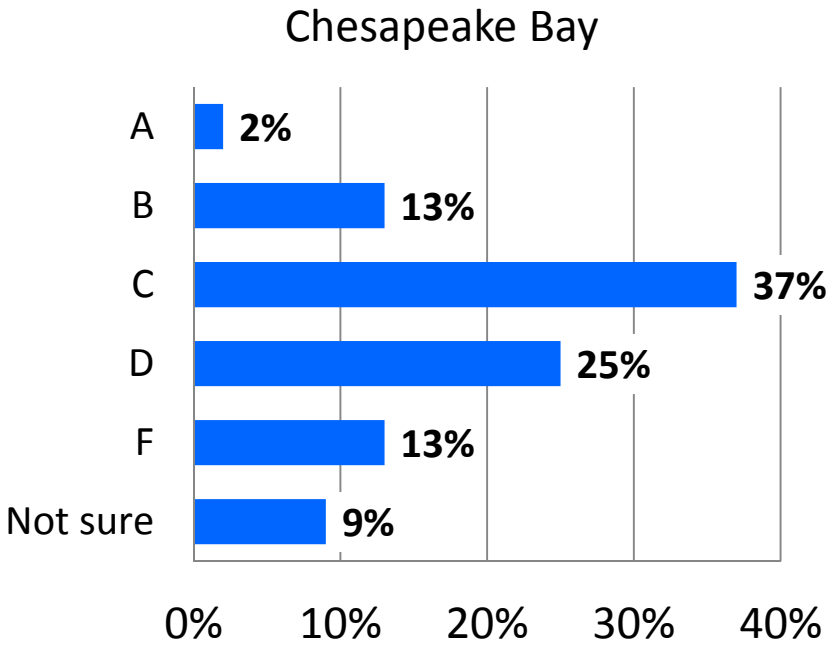
- Source identification
- Specific management programs
  - SWM, E&SC, Trash and litter, education, Illicit Discharge
- Restoration plans and TMDLs
  - Baselines, prioritization and progress
- Assessment of controls
- Funding
- Chesapeake Bay Nutrient and sediment goals

Lessons Learned Lead to Better Solutions

- Public education is essential
- Clear restoration goals
- A focus on funding, financing and efficiencies
- Measure for Results
- Foster innovation and collaboration

Public Perception of MD Waters

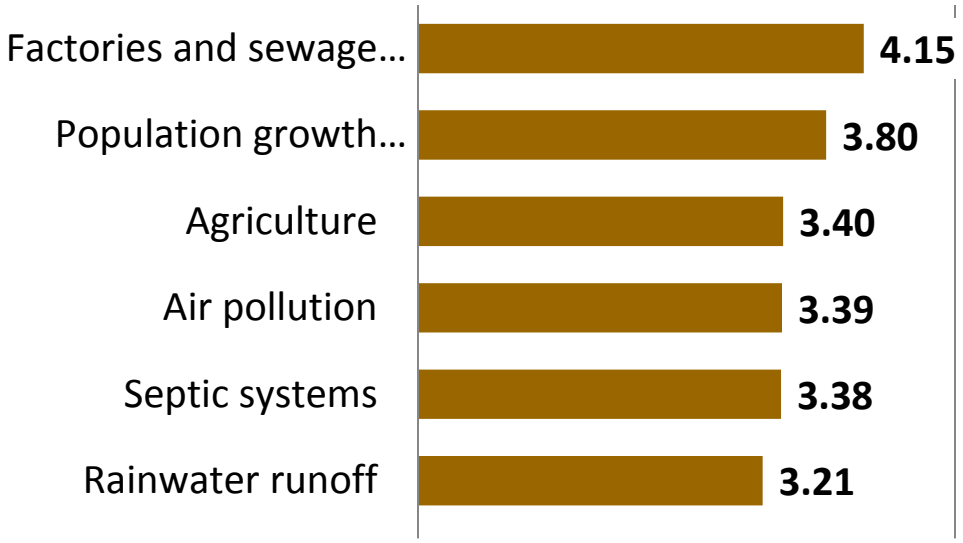




Source: Opinion Works (2016)

Water Protection Ranks High but…

- More than 80% as a moderate to high priority
- Only 26% believe they are contributing meaningfully to water pollution
- Most people think rainwater runoff is less of concern than other issues



Source: Opinion Works (2016)

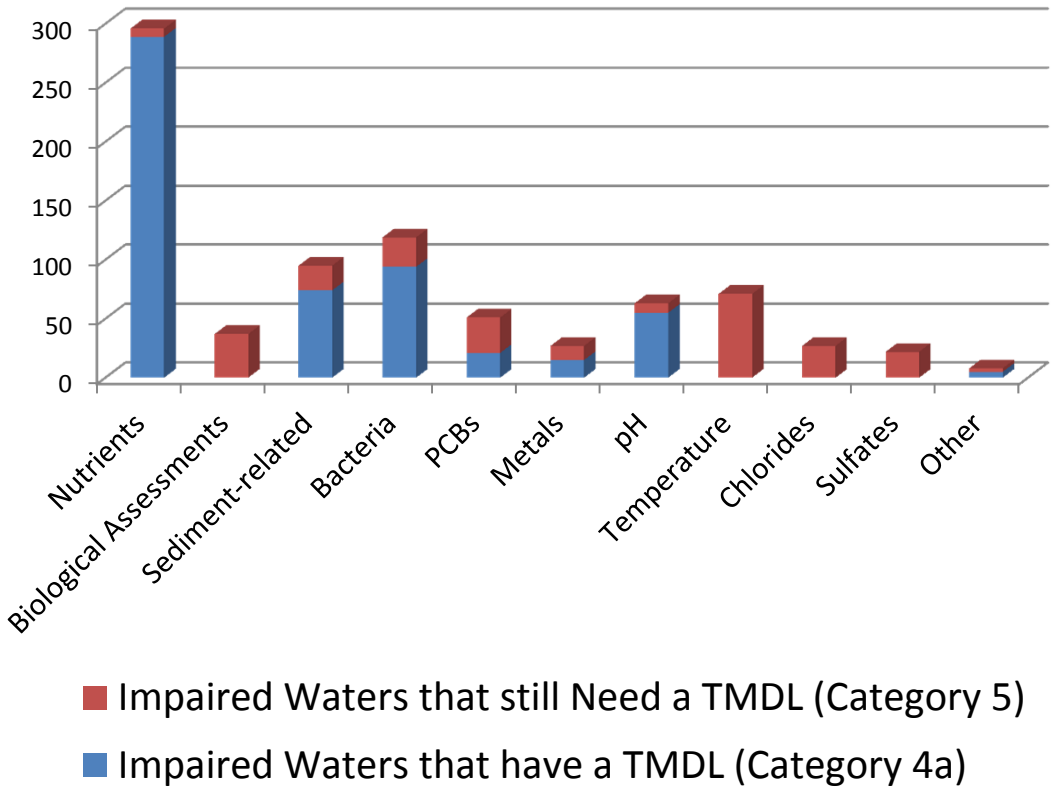
Education is Essential

- 91% believe water pollution can be fixed
- 62% believe their own action would make a difference
- Learning about progress is encouraging

Source: Opinion Works (2016)

Restoration Goals: TMDLs by the Numbers

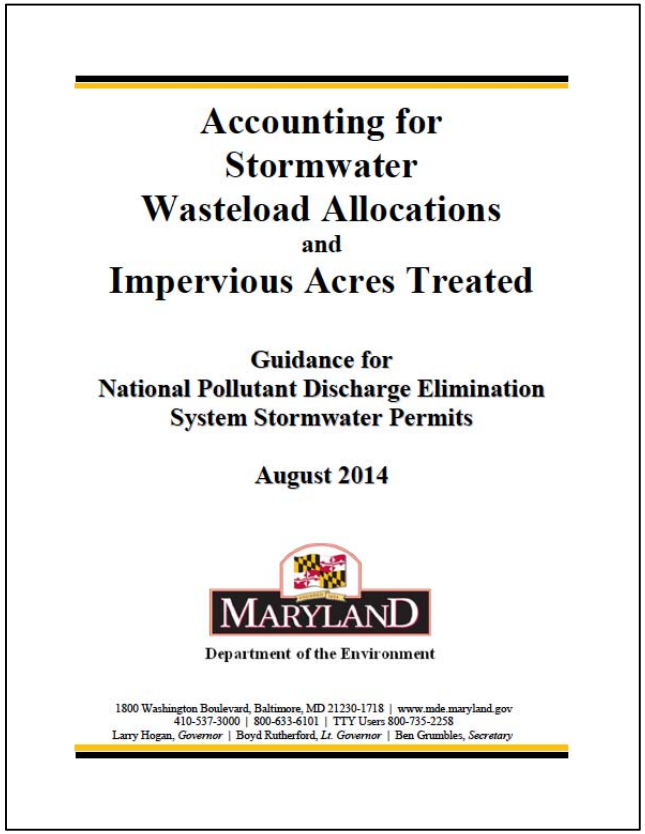
- Phase I MS4s jurisdictions– 279 TMDLs
- Progress reporting
- Programmatic actions
- Emerging issues



Source: MD's Integrated Report

A Metric to Drive Restoration
Impervious Acres Treated

- Clear and straight forward permit goal
- A pragmatic solution to addressing multiple TMDLs
- Science based
- Successfully defended through highest MD court
- Considers equity across jurisdictions
- Recognizes each jurisdiction faces unique challenges and provides flexibility



Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated

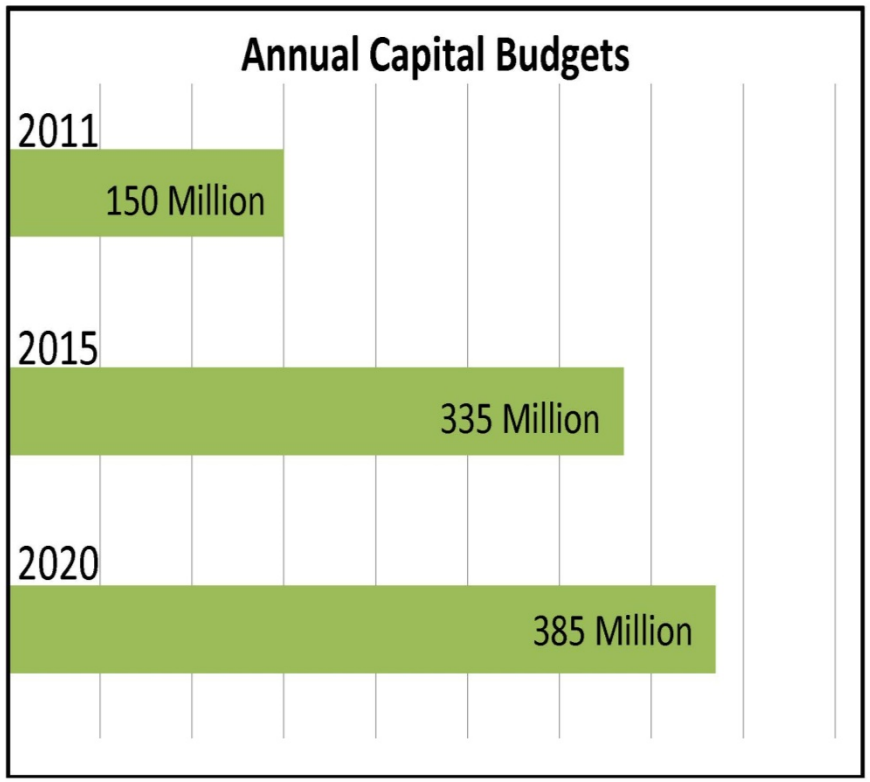
Guidance for National Pollutant Discharge Elimination System Stormwater Permits

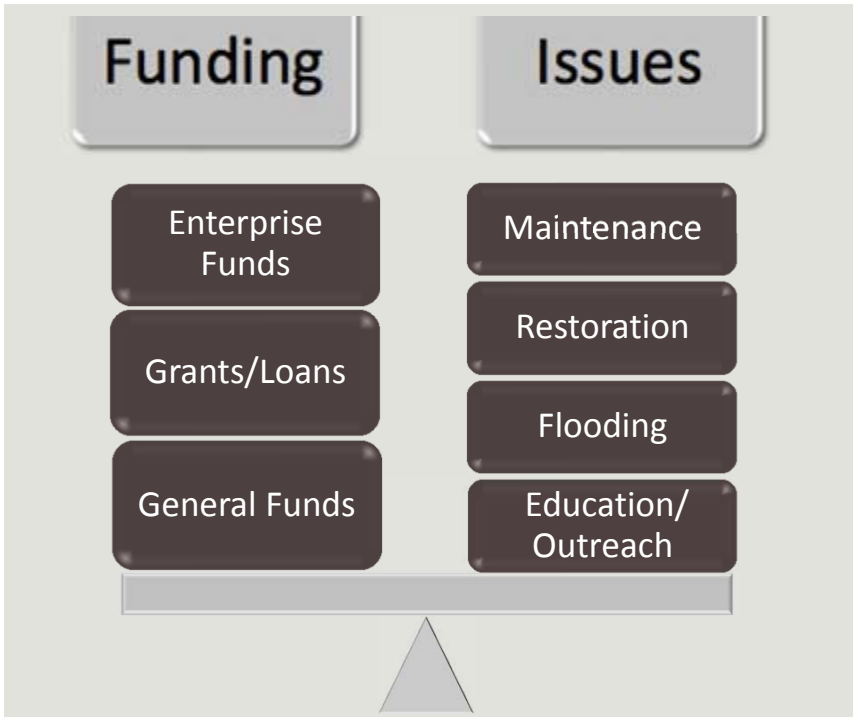
August 2014

MARYLAND
Department of the Environment

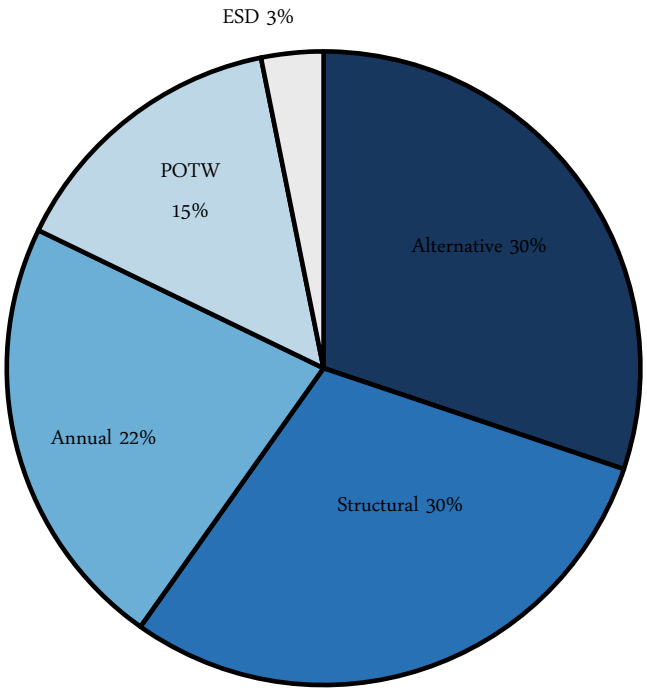
1800 Washington Boulevard, Baltimore, MD 21230-1718 | www.mde.maryland.gov
410-537-3000 | 800-633-6101 | TTY Users 800-735-2258
Larry Hogan, *Governor* | Boyd Rutherford, *Lt. Governor* | Ben Grumbles, *Secretary*

A focus on funding, financing and efficiencies





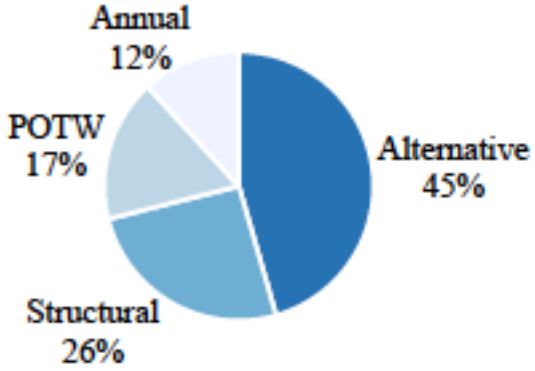
Environmental Financial Planning

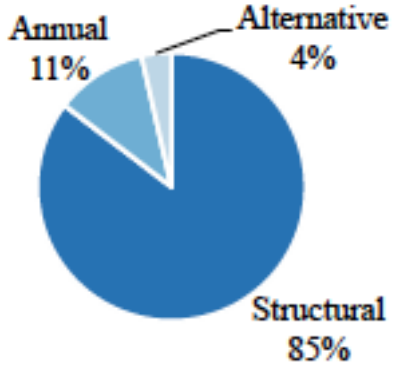


- Diverse practices used
- In total, 26% ISR complete at a cost of about $19,000 per acre
- All jurisdictions showed they had budgets to fund 75% ISR
- A projected 102% over full permit at a cost of about $30k per acre
- Wide disparity in costs
- Funding gap is decreasing
- About a $1.1 billion investment at about $30k per acre

Annual Report on Financial Assurance Plans and the Watershed Protection and Restoration Program, Maryland Department of the Environment, October 2016,

Flexibility Leading to Meaningful Local Benefits





Innovative Finance, P3 and Pay for Performance

clean HOWARD
Howard County Stormwater Solutions

- Increase project competitiveness
  - Phasing
  - Scale
  - Leveraging
- P3 Solutions
  - Incentives
  - Pay for performance
  - Procurement

Markets: Water Quality Trading

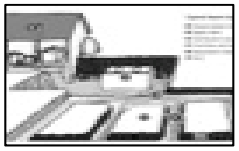
Wastewater

$400/lb TN

Agriculture

$200/lb TN

Septic Systems



$3,200/lb TN

Funding $$

Credits

$3,800/lb TN

Stormwater

- Advisory Committee
- Draft manual
- Regulations proposed summer 2017

Improving Program Efficiencies

Better Tools

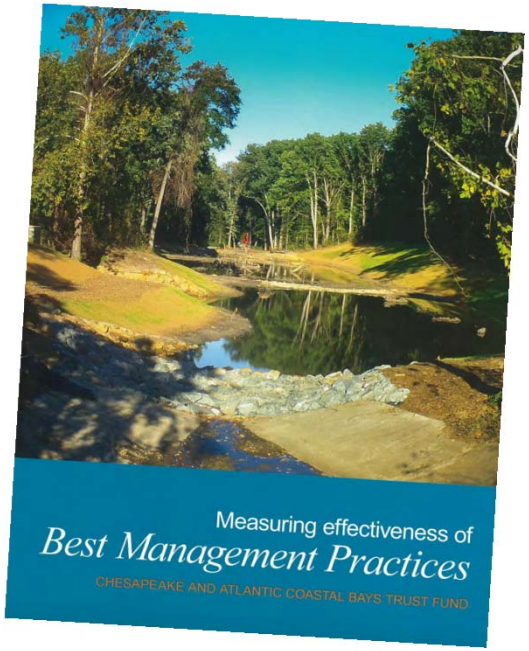
- Online reporting database
- Better landuse
- Online watershed model
- Cost and optimization
- Expanded list of BMPs

Efficient Restoration Permitting

- A separate path for restoration project permitting
- Dedicated staff to review restorative projects
- Online collaboration
- Faster permit turnaround time for most projects
- Improved customer service

Measuring for Results

- Measure
  - Effectiveness of restoration programs
  - Effectiveness of practices at the project scale
  - Trade-offs in resource improvements
- Pooled monitoring
  - Collaboration to answer critical questions
- Assist regulators, practitioners and funders
- Foster innovation



Foster Innovation and Collaboration

"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."

Lessons Learned in Restoration & Program Implementation: From Program Startup to Innovation in BMP Design

May 18, 2017
8:30 AM to 4:00 PM
Maritime Institute of Technology (MITAGS), Linthicum, MD

cwea
Chesapeake Water Environment Association

CWEA Stormwater Committee
2017 Spring Seminar

Who should attend?
MS4 program compliance managers, watershed planners, water quality specialists, and environmental consultants

$80 CWEA Members/$90 Non-members
$30 Government and Student Rate (w/ID)

After May 5: $95 Members /$105 Non-members

PDHs will be awarded

Register Online:
https://www.memberleap.com/members/srvreg_event.php?orgcode=CWEA&evid=9003371

Looking Forward

- Finalizing Phase II MS4
- Bay TMDL Phase III WIP
- Developing next Phase I MS4
- Next round of FAPs
- Completing current Phase I

Thank You!

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