Welcome to your

DEPARTMENT OF THE

ENVIRONMENT

Watershed Restoration in Prince George's County

JULY 23, 2014

DEPARTMENT OF THE ENVIRONMENT

Prince George's County, Maryland

Welcome

from

Director Adam Ortiz

Purpose of Meeting

- Explore why watershed restoration plans are needed in Prince George's County.
- Inform the public of the steps involved in creating watershed restoration plans.
- Answer questions and gather input to help improve the process and outcomes.

The public meetings will be held as follows:

WEDNESDAY, JULY 23, 2014
6 p.m. to 8 p.m.
Partnership Activity Hall at the
Laurel Police Department
811 5th Street, Laurel, MD 20707

THURSDAY, JULY 24, 2014
6 p.m. to 8 p.m.
Offices of the Department of the Environment
1801 McCormick Drive, Suite 140, Conference Room
Largo, MD 20774

Photo Credit: M-NCPPC / Cassi Hayden

Speakers

- Melissa DeSantis, Environmental Scientist, Tetra Tech
- Mark Sievers, Environmental Engineer, Tetra Tech
- Sam Stribling, Biologist/Monitoring and Assessment Specialist, Tetra Tech

Two Regulatory Drivers

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Under the Clean Water Act

1. Municipal Separate Storm Sewer System (MS4) Permit
2. Total Maximum Daily Loads (TMDLs) = Pollutant Diet

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT

PART I. IDENTIFICATION

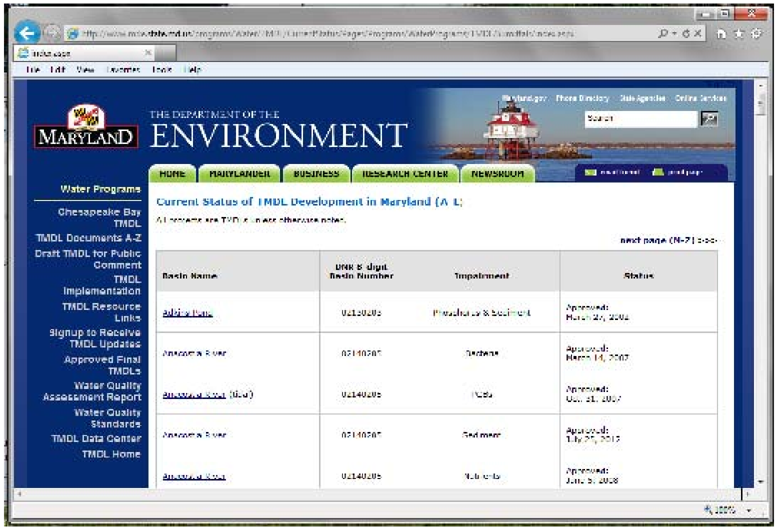
A. **Permit Number:** 11-DP-3314 MD0068284

B. **Permit Area**

This permit covers all stormwater discharges from the municipal separate storm sewer system (MS4) owned or operated by Prince George's County, Maryland, and all incorporated municipalities within the County except for the City of Bowie.

C. **Effective Date:** January 2, 2014

D. **Expiration Date:** January 1, 2019

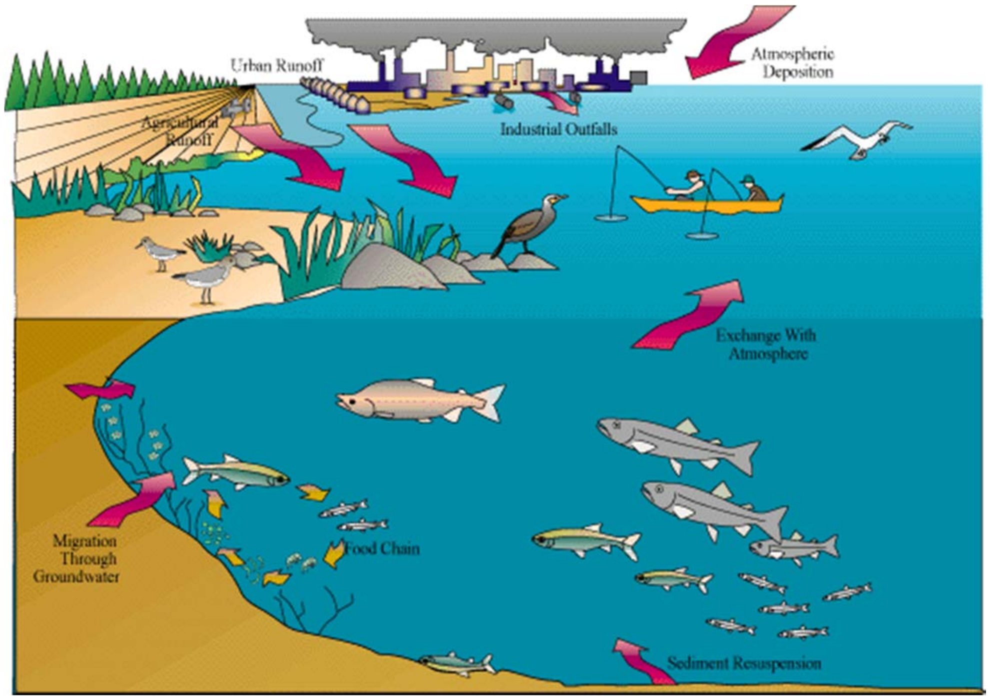


What is an MS4?

- Municipal Separate Storm Sewer System (MS4) = Conveyance system owned by a state, city, town, or other public entity that discharges to waters of the United States.

Pollution Diet (TMDLs)

- Addresses a single pollutant or stressor.
- Allocations issued to natural, point, and nonpoint sources.



TMDLs may be viewed as a pollution diet.

Overall Pollution Diet Goals

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- Restore and protect water quality.
- Improve quality of life, recreational opportunities, wildlife habitat; improve biological condition of water bodies throughout the County.
- Meet regulatory requirements.

Photo Credit: DoE

Photo Credit: M-NCPPC / Cassi Hayden

Pollution Diets in the County

Water Body	Pollutant	Percent Reduction to Stormwater
Piscataway Creek	Fecal coliform bacteria (*Escherichia coli*)	82.8%
Mattawoman Creek	Nitrogen and phosphorus	14%
Anacostia River (Tidal and Non-tidal)	Nutrients (nitrogen, phosphorus), biochemical oxygen demand	BOD: 58% TN: 81% TP: 81.2%
	Fecal coliform bacteria (enterococci)	NEB/NWB: 80.3% Tidal: 99.3%
	Sediment, total suspended solids	85%
	PCBs	NEB: 98.64% NWB: 98.1%
	Trash	100%
Western Branch Patuxent River	Biological oxygen demand	N/A
Patuxent River, Upper Basin	Fecal coliform bacteria (*Escherichia coli*)	53.4%
	Sediment	11.4%
Rocky Gorge Reservoir	Total phosphorus	15%
Potomac River, Anacostia River	PCBs – Tidal areas	Varies by water body (5%–99%)
Chesapeake Bay[1]	Nitrogen, phosphorus, and sediment	TN: Varies by water body (10%–26%) TP: Varies by water body (32%–41%) TSS: Varies by water body (29%–31%)
Cash Lake[2]	Mercury	N/A

Notes: PCBs = polychlorinated biphenyls; BOD = biological oxygen demand; TN = total nitrogen; TP = total phosphorus; TSS = total suspended solids; NEB = northeast branch; NWB = northwest branch; N/A = not applicable.

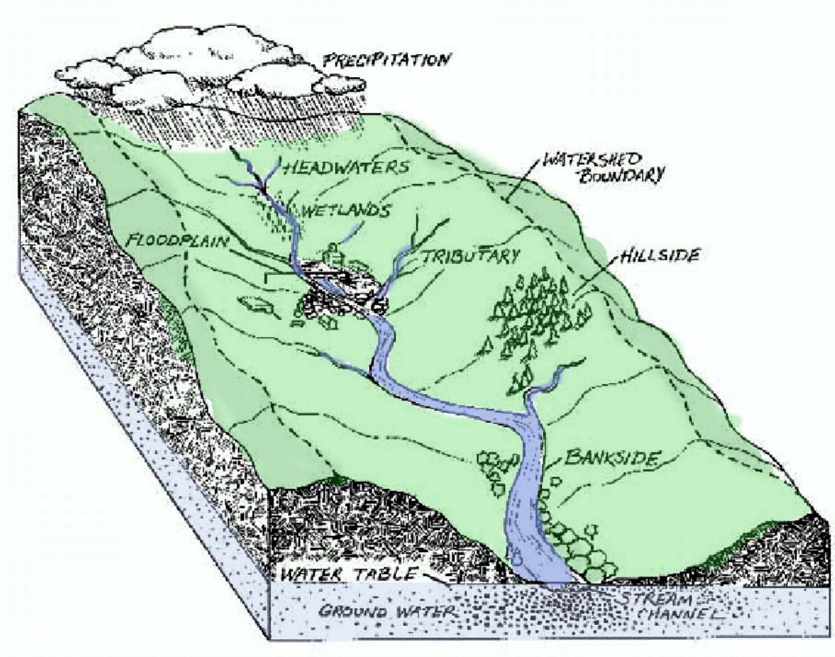
[1] *Watershed Implementation Plan developed by the County in 2011 (www.princegeorgescountymd.gov/sites/Sustainable/Services/WaterQuality/WIP/Pages/default.aspx).*

[2] *Cash Lake watershed is in the Patuxent Wildlife Refuge, and thus it is not covered by the County's MS4 permit requirements. The Patuxent Wildlife Refuge is on federal land owned by the U.S. Department of the Interior and therefore is outside the purview of Prince George's County.*

What Is a Watershed?

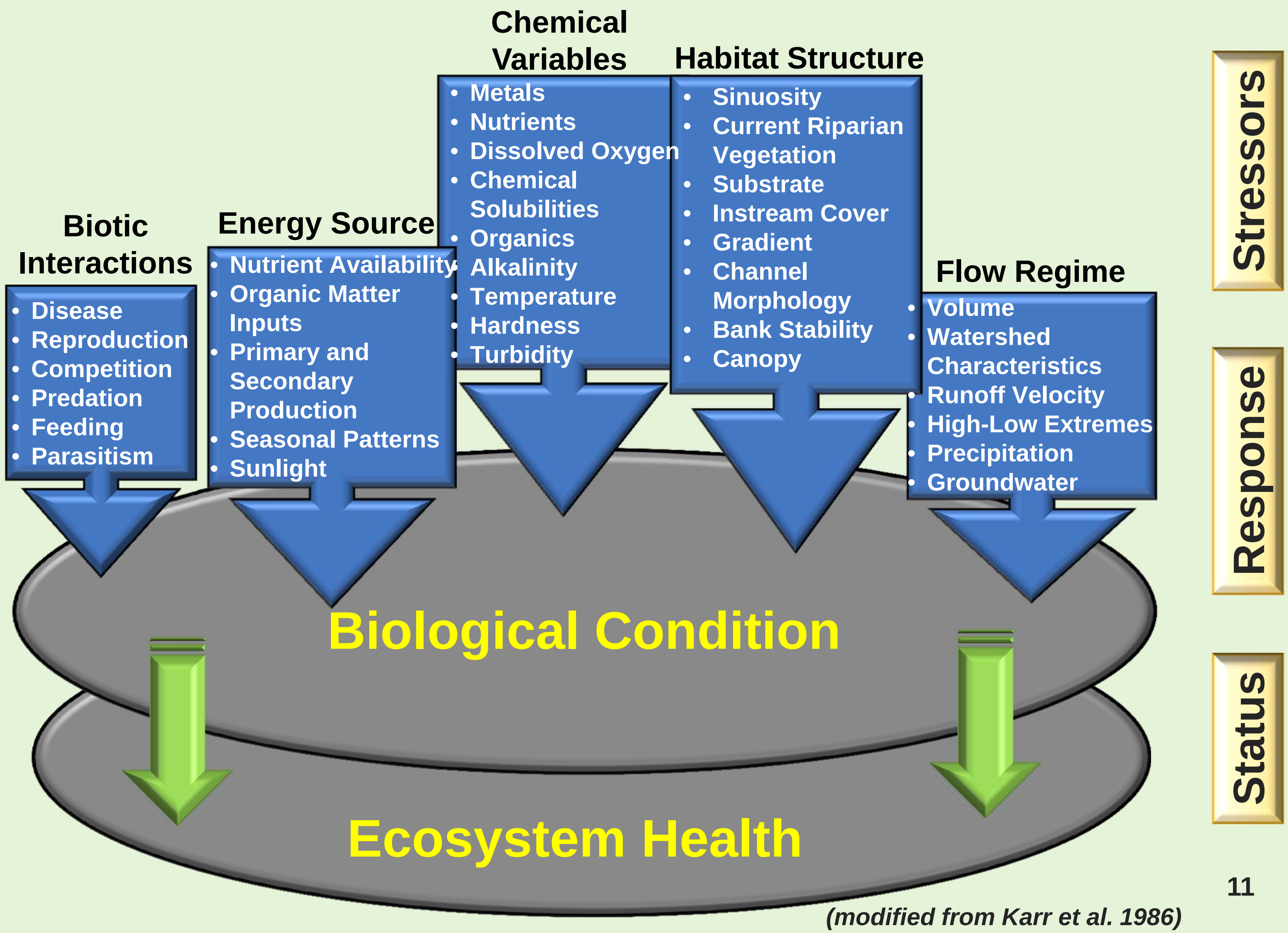
Watersheds are like sponges and drain like funnels . . .

- Land accumulates pollutants from urban, agricultural, and other areas.
- Whatever is on the land washes into the waterways directly or via storm drains.
- Appropriate land management practices can greatly reduce polluted runoff.



How Healthy Are Our Waters?

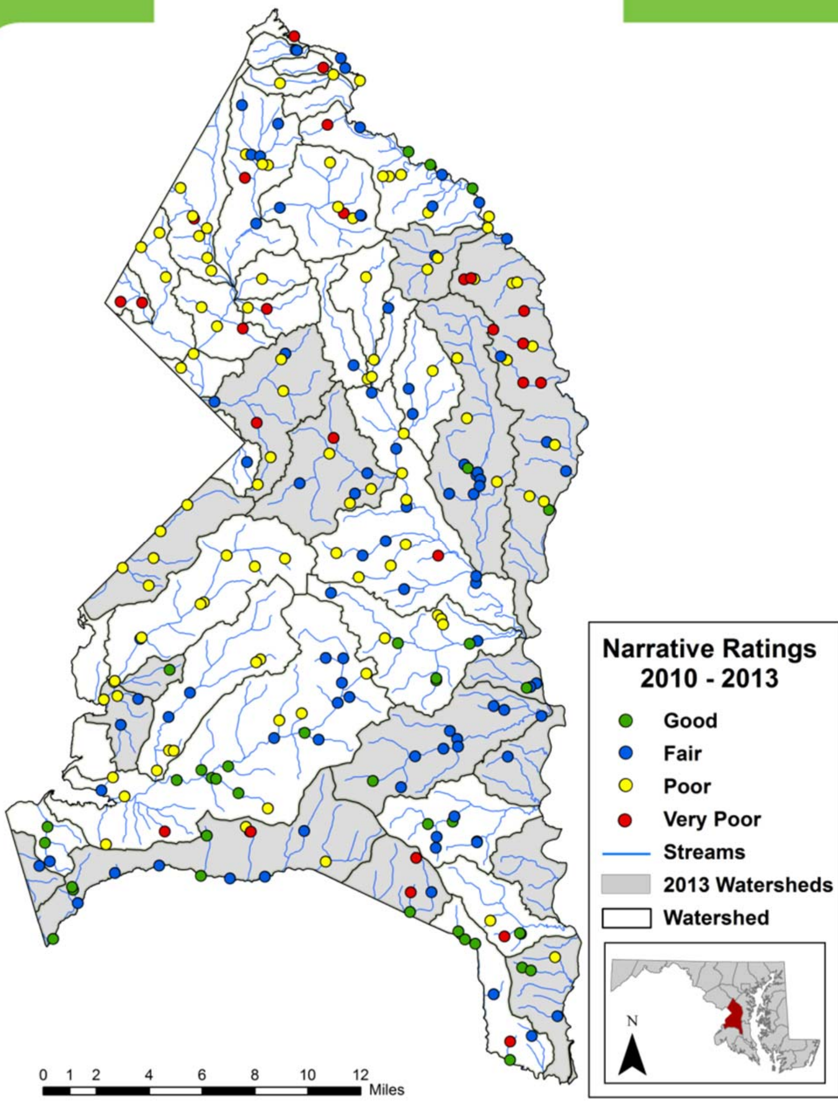
Biological Condition as Indicator of Stream and Watershed (Ecosystem) Health




Mattawoman Creek watershed
(Site 31-213)

Upper Northeast Branch (Site 12-003)

Conditions of Local Streams



- 257 stream sites are distributed among 41 subwatersheds.
- 52% of streams are assessed as biologically degraded.
- Most of the County's streams are rated *Fair* or *Poor.*

Composite Conditions of Subwatersheds

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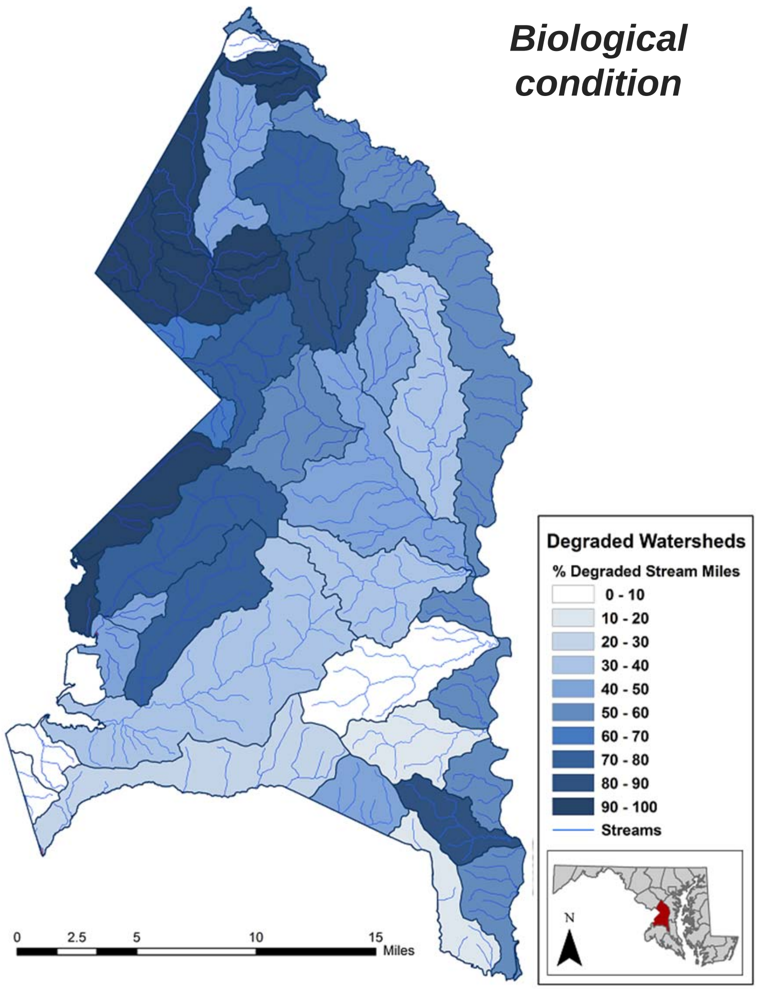


- Greater extent of degradation is in western *beltway subwatersheds*
- Healthier streams generally are in east-southeastern areas

Pollutants and Sources

- **Bacteria** from animal waste and sewer leaks and overflows
- **Nutrients** and **BOD** from sanitary waste, fertilizers, and organic material
- **Sediment** from construction sites, bare soils, and eroding streambanks
- **Trash** from littering
- **Toxics** (polychlorinated biphenyls [PCBs]) from legacy contaminated sites
- **ALL** can be contributed from urban stormwater

Polychlorinated Biphenyls (PCBs)

- Group of similar chemicals.
  - Do not readily break down in environment
  - Tend to bioaccumulate and be associated with sediment
  - Carcinogen
  - Man made

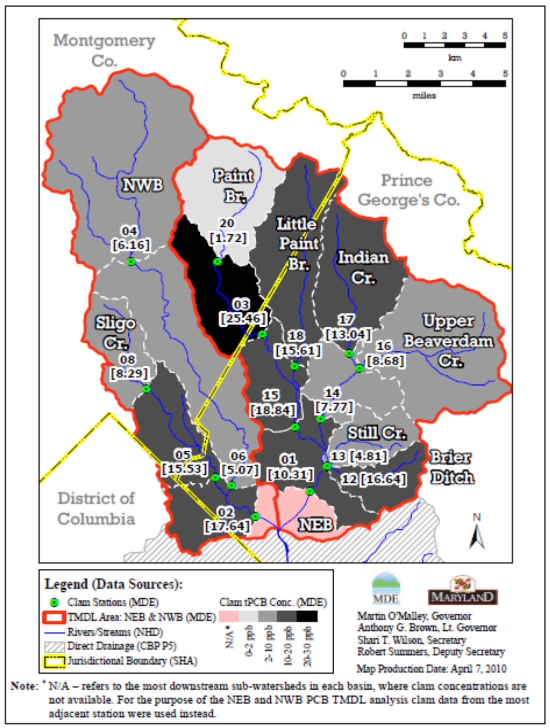


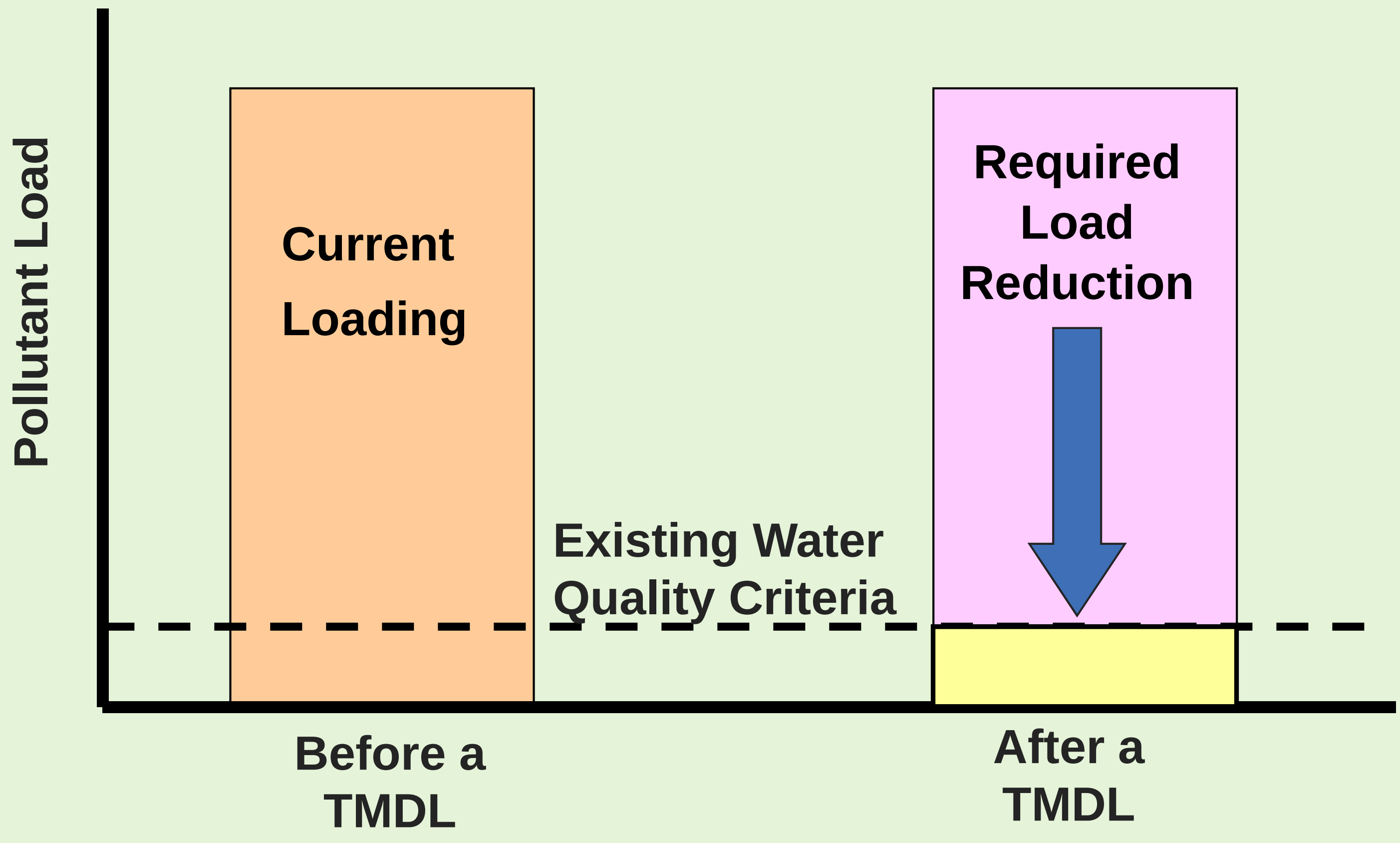
Figure 7: Location of Clam Stations in the NEB and NWB Tributary Drainage Basins

Map Credit: MDE 2011

- Uses
  - Electrical insulating
  - Cooling applications
  - Hydraulic fluids
  - Heat transfer fluid
  - Lubricants
  - Plasticizers
  - Paints
  - Power transformers
- Sources
  - Contaminated upland soils/sites
  - Contaminated stream sediments
  - Facility point sources
  - Aerial deposition

What Is a Pollution Diet/TMDL?

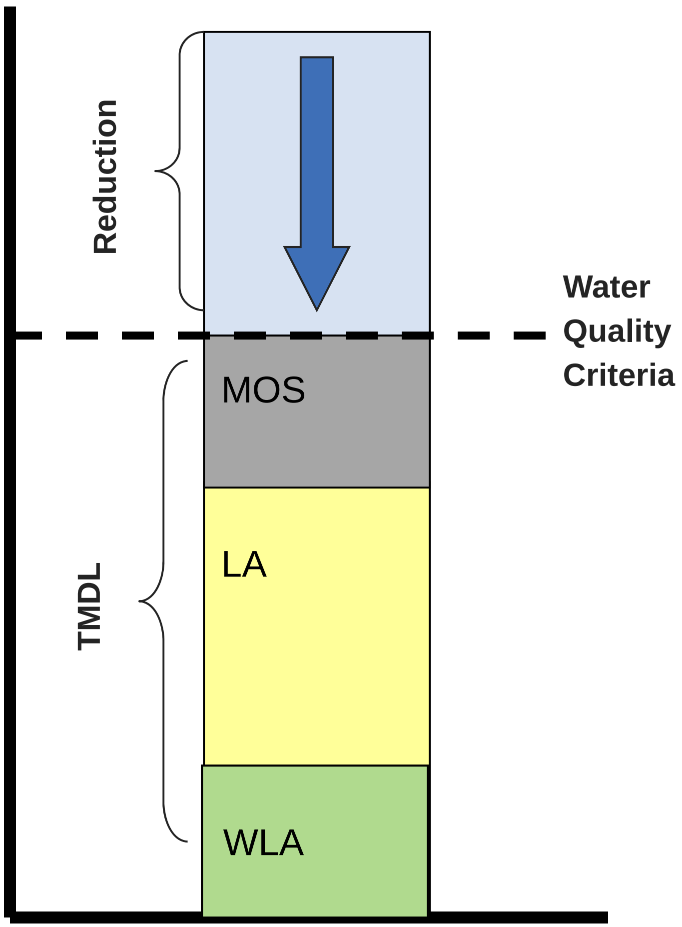
- TMDL = Total Maximum Daily Load (Pollution Diet)
- The maximum amount of a pollutant that a water body can assimilate and still meet water quality standards and designated uses.



Pollution Diet Jargon

TMDL =
Waste Load Allocation (WLA)
+ Load Allocation (LA)
+ Margin of Safety (MOS)

- WLA = Point Source (PS)
  - Individual allocations for major traditional PS
  - Lump allocation for minor traditional PS
  - Aggregate allocation for regulated stormwater
- LA = Nonpoint Source (NPS)
- MOS = Margin of Safety

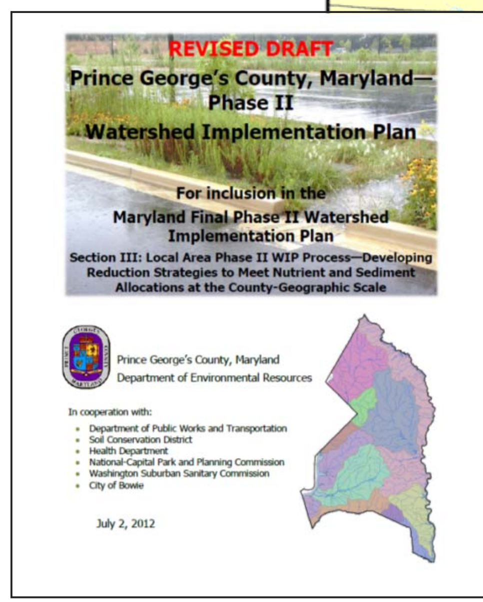


Maryland's TMDL Program

- Maryland Department of the Environment (MDE) is the state's regulatory agency for TMDLs.
- Maryland is required under the Clean Water Act to list impaired waters and to take action to restore them.
- Impaired waters are identified every two years.
- A two-part process is used for restoration:
  1. Establish and submit a TMDL to EPA.
  2. Once TMDL is approved, develop a restoration plan.

Chesapeake Bay TMDL

- Bay nutrient and sediment TMDL: December 2010.
- County received overall nutrient and sediment target loadings.
  - Urban, agriculture, septic systems, forestry activities, construction, point sources (municipal and industrial)
- County developed County-wide *Watershed Implementation Plan* (WIP) in 2011/2012.



REVISED DRAFT

Prince George's County, Maryland—Phase II

Watershed Implementation Plan

For inclusion in the Maryland Final Phase II Watershed Implementation Plan

Section III: Local Area Phase II WIP Process—Developing Reduction Strategies to Meet Nutrient and Sediment Allocations at the County-Geographic Scale

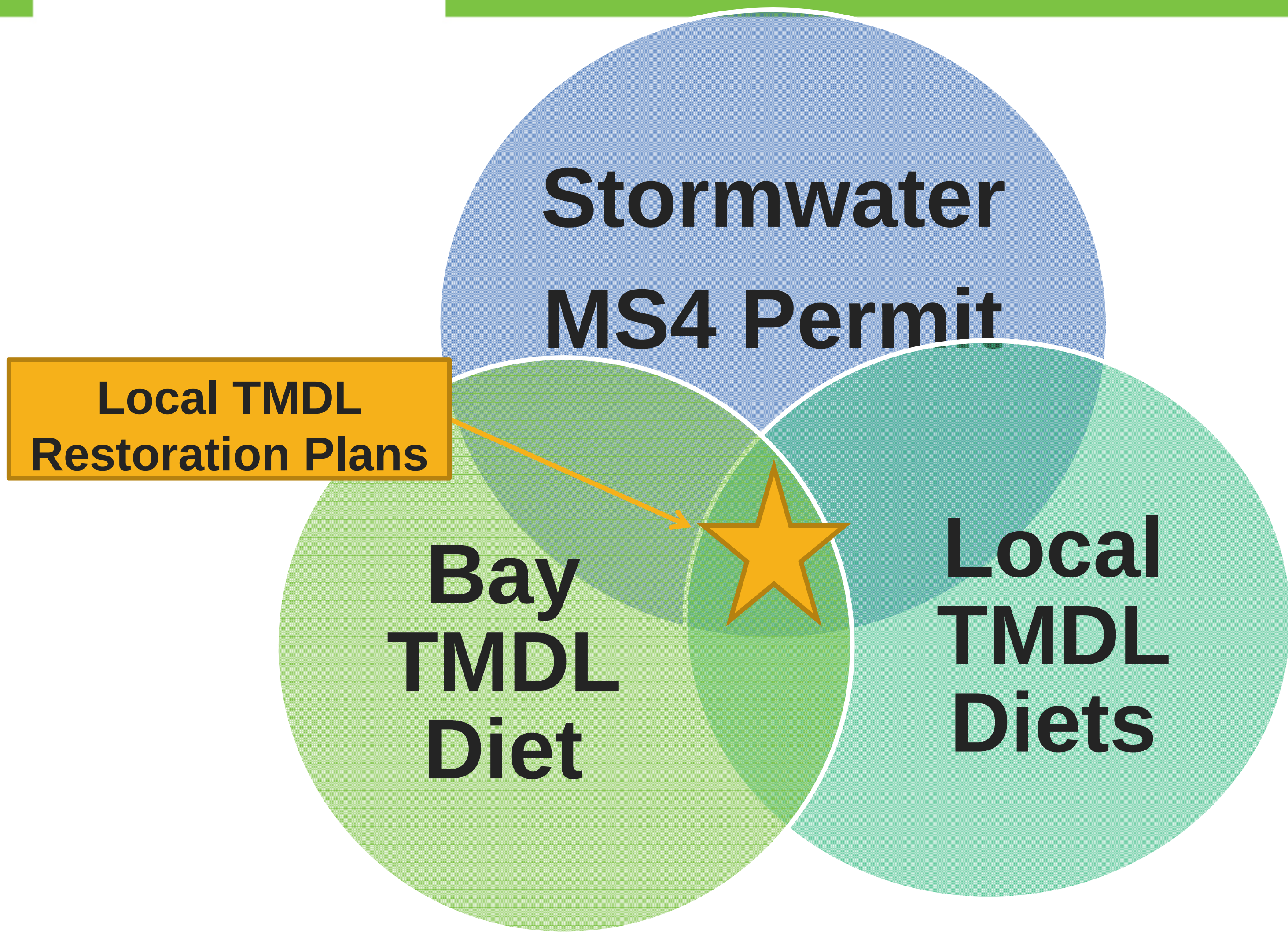
Prince George's County, Maryland
Department of Environmental Resources

In cooperation with:

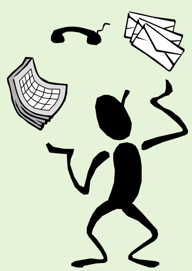
- Department of Public Works and Transportation
- Soil Conservation District
- Health Department
- National-Capital Park and Planning Commission
- Washington Suburban Sanitary Commission
- City of Bowie

July 2, 2012

Interrelationship of the County's TMDLs and Stormwater Management Mandates



How Will We Get There?
Restoration Planning Steps

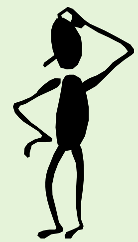


Characterize Watershed

- Gather existing data
- Inventory TMDLs
- Create data inventory
- Identify data gaps
- Collect additional data, if needed
- Analyze data

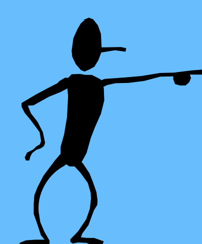
Design Restoration Program

- Develop restoration strategies
- Develop restoration schedule and milestones
- Develop monitoring component and evaluation process
- Identify financial assistance needed



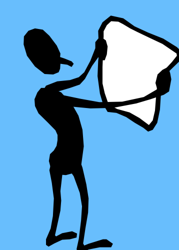
Implement Restoration Plan

- Implement management strategies
- Conduct monitoring
- Conduct outreach activities



Measure Progress and Make Adjustments

- Review and evaluate
- Share results
- Prepare annual plans
- Make adjustments



Elements of Restoration Plans

- Determine common baseline loadings, calculate reductions from current implementation activities, identify gaps.
  - Watershed Treatment Model (WTM).
- Proposed restoration strategies.
  - Calculate proposed load reductions from BMPs and programmatic activities.
  - Prioritize for biggest impact.
- Implementation plan.
  - Restoration strategies, costs, funding, project schedule, milestones.
  - Public education, outreach, and involvement.
- Monitoring/tracking progress and adaptive management approach.
  - Measurable interim milestones, track progress, calculate load reductions, report to MDE.
  - Measure progress and see if changes need to be made.

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Determine Restoration Strategies

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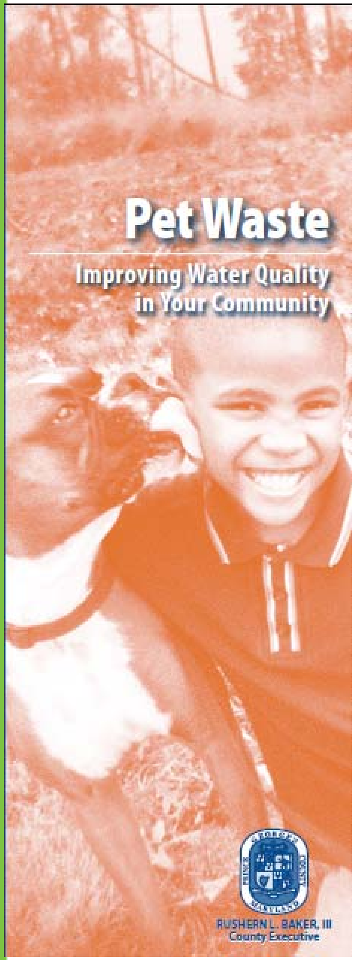
- Current and planned best management practices (BMPs) and other strategies
- Physical BMPs vs. policy and outreach strategies
- Strategy type and placement
- Prioritization

Potential Restoration Plan Strategies



- Sewer Inflow and Infiltration: WSSC Consent Decree
- Failing Septic Systems
- Regulations and Illegal Dumping/Littering Deterrents (Fines)
- Pet Waste Control
- Implementing BMPs
- Stream Restoration
- Street Sweeping
- Nutrient Management
- Source Identification, Control, and Elimination
- Outreach and Education

Photo Credit: M-NCPPC / Cassi Hayden

Schedule and Cost

- Schedule
  - MS4 requirements
  - Chesapeake Bay Watershed Implementation Plan (WIP)
- Cost
  - Current funds include Capital Improvement Plan (CIP) budget, Clean Water Act fee, and public-private partnerships (P3)
  - Additional sources include grants and watershed restoration partners
  - Alternative compliance by residents and organizations

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Tracking Progress

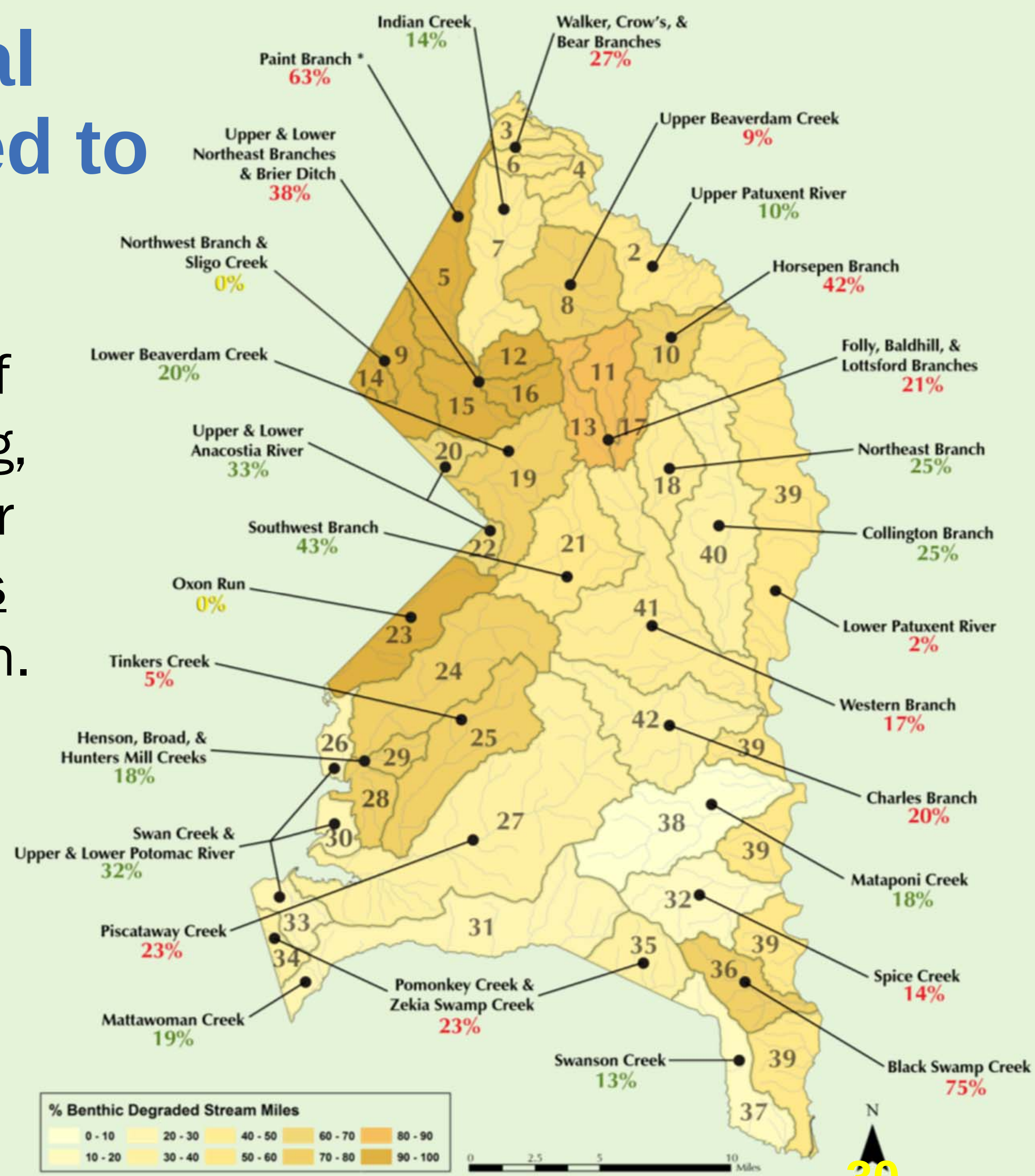
- Monitoring
  - Biological
  - Chemical
  - Physical

Biological Monitoring

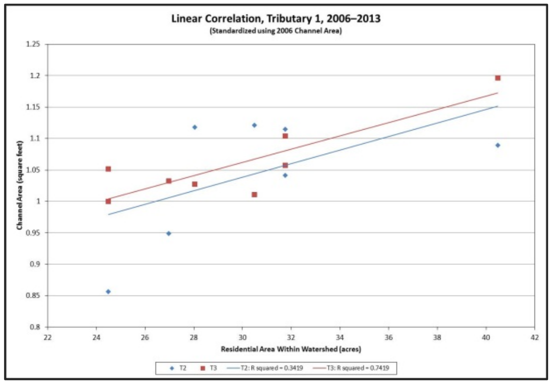
How Will Biological Monitoring Be Used to Track Changes?

- With the third round of countywide monitoring, the County will look for <u>substantial reductions</u> in percent degradation.
  - Countywide scale
  - Subwatershed scale

Degradation Change Map (2003–2013)



Chemical and Physical Monitoring



Project Timeline

2014

May–July	Review TMDLs Determine existing watershed conditions Identify existing credit opportunities Calculate load reduction gap
July–September	Develop restoration strategies
August–October	Develop draft restoration plans
November	Plans available for public review and comment
December	Revise plans on the basis of public input

2015

January 2	Draft Restoration Plans to MDE

Reforms in Place to Strengthen Program

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- Funding
- Inspection/Enforcement
- Green Infrastructure
- Partnerships
- Performance Management

Expectations Once Plans Are Complete

- County will implement plan and track.
  - Adjust if necessary (adaptive management).
- Public outreach and information.
- County will work with MDE.
- Public participation.

Your Role in Restoration

- Become informed.
- Provide input.
- Support implementation by preventing stormwater pollution.
  - Pick up after pets, plant trees, install rain barrels, leave grass clippings on lawn, don't litter, etc.
- Use County Click (http://countyclick.princegeorgescountymd.gov/).

Photo Credit: M-NCPPC / Cassi Hayden

Questions?

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- Contact:
  Mr. Lilantha Tennekoon
  301-883-5833
  LTennekoon@co.pg.md.us
- www.princegeorgescountymd.gov/sites/stormwatermanagement

Thank you for attending!

Please remember to sign in if you have not done so already and to turn in any comment forms!