

The Chesapeake Bay TMDL - EPA's New Accountability Framework

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ASHE Chesapeake, February 16, 2010

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Presentation Overview

TMDL Definition & Context

Chesapeake Bay

- Watershed Conditions
- Restoration Efforts

**New Accountability
Framework – Impacts &
Implications**

Other Supporting Actions



Questions

TMDL - Total Maximum Daily Load

Definition

The amount of a pollutant that can be released to a waterbody such that the waterbody can still support its designated uses and meet water quality standards.

- A TMDL includes
 - **Wasteload allocation (WLA)** = loads from point sources (WWTPs, IWTPs, MS4, industrial SW, construction outside MS4, CAFOs)
 - **Load allocations (LA)** – loads from nonpoint sources = non-CAFO agricultural sources, unregulated SW, OSDS, forest and other natural sources
 - **Margin of safety**





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TMDL - Total Maximum Daily Load

Context

- Discharges from point sources historically measured as concentration (mg/L) without total volume or total mass limits
- Stormwater point sources controlled through best management practices, not effluent quality
- TMDLs now place a cap on the total quantity of pollutant entering a waterbody which applies to all sources
- Provides a regulatory/legal context for all contributing sources
- Can limit activities, growth & development in impaired watersheds



Over the last 30 years, enforcement was on the biggest individual sources, such as factories and sewage treatment plants.

Now we face different challenges. The regulated universe has expanded from the roughly 100,000 traditional point sources to nearly one million far more dispersed sources such as animal feeding operations and storm water runoff.

---USEPA. Clean Water Act Enforcement Plan

Chesapeake Bay

- Watershed Conditions
- Pollution Sources



Chesapeake Bay – A Unique Watershed Largest Estuary in North America

- Six states & D.C
- 64,000 sq miles, 41,000,000 ac
- 111,000 miles of streams
- 10,000 miles of shoreline
- Average depth 21 feet
- 17 million people
- Largest & most productive N.A. estuary
- \$750 million contribution annually to local economies
- 85,000 farms covering 8.5 million acres
- Land to water ratio = 14:1
- 3,600 species

Ratio of watershed land area to Bay water volume is the largest in the world (14:1)



Map Source: A Socioeconomic Atlas for the Chesapeake Bay Watershed and its Region, prepared for National Park Service, Jean E. McKendry 2009

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Watershed Conditions Overview

- 1970's studies identified **nutrients** as primary source of Bay degradation and loss of living resources (low DO)
- Other issues –
 - Sediments, chemicals, air pollution
 - Over-harvesting, invasive species
 - Climate change, sea level rise, coastal wetland loss
- Current overall Bay Health Index = **C-**

University of Maryland Center for Environmental Science

Watershed Conditions Geographical Extent of Nutrient Loads from Land

Multiple Jurisdictions – MD, VA, PA, DC, NY, DE, WV, Federal Lands
+ atmospheric deposition from numerous states

All Sources of Total Nitrogen Delivered Yield to the Chesapeake Bay

Delivered Nitrogen (kg/hec/yr)

- 0.0 - 1.5
- 1.6 - 3.0
- 3.1 - 4.5
- 4.6 - 6.0
- 6.1 - 7.5
- 7.6 - 9.0
- 9.1 - 10.5
- 10.6 - 12.0
- > 12.0

Delivered yield (total per area) is the amount of nutrient that is generated locally in each stream and weighted by the amount of watershed area that would enter and be transported from the point to Chesapeake Bay. The Chesapeake Bay watershed area is defined as the area of land that drains into the Bay. It includes all land within the watershed and the Chesapeake Bay. The map shows the spatial distribution of delivered yield to the Bay. The map shows the spatial distribution of delivered yield to the Bay. The map shows the spatial distribution of delivered yield to the Bay.

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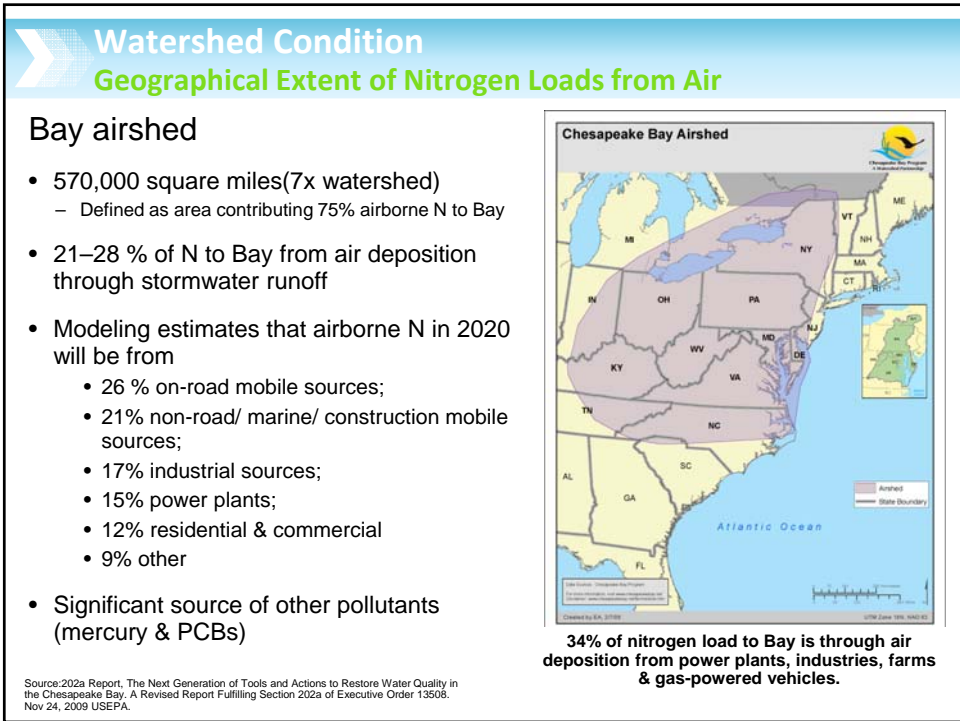
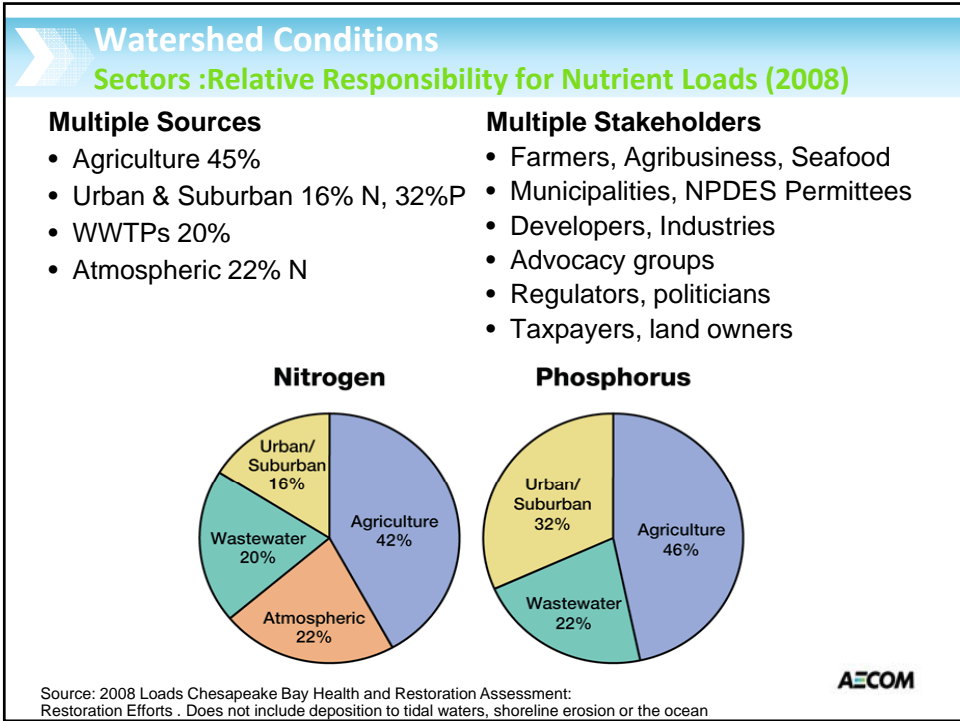
All Sources of Total Phosphorus Delivered Yield to the Chesapeake Bay

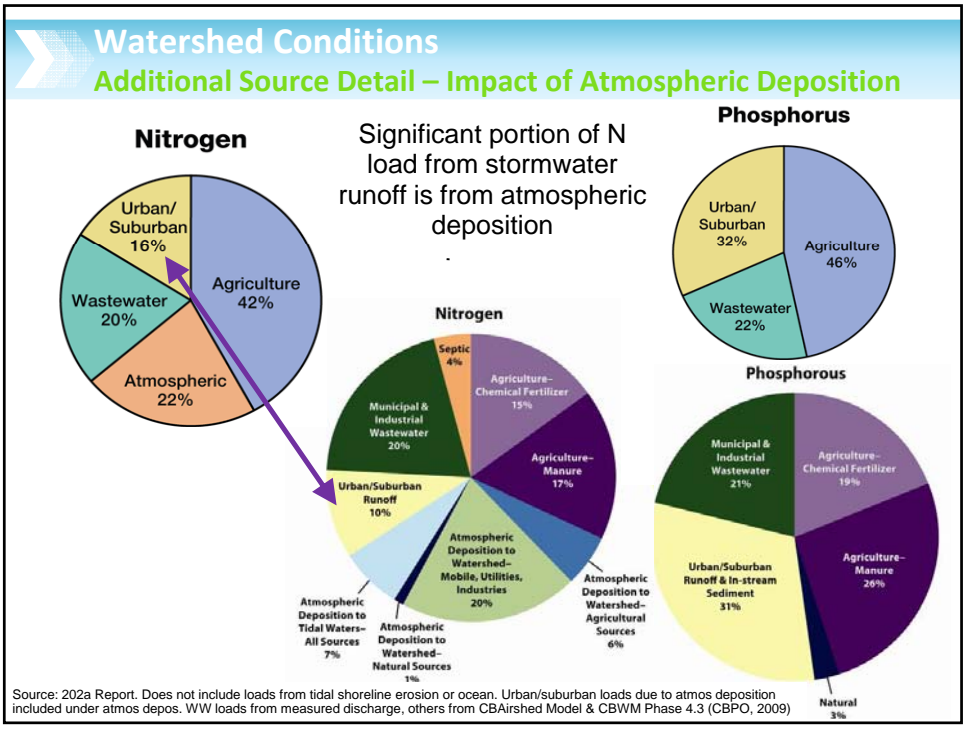
Delivered Phosphorus (kg/hec/yr)

- 0.00 - 0.05
- 0.06 - 0.10
- 0.11 - 0.15
- 0.16 - 0.20
- 0.21 - 0.25
- 0.26 - 0.30
- 0.31 - 0.35
- 0.36 - 0.40
- > 0.40

Delivered yield (total per area) is the amount of nutrient that is generated locally in each stream and weighted by the amount of watershed area that would enter and be transported from the point to Chesapeake Bay. The Chesapeake Bay watershed area is defined as the area of land that drains into the Bay. It includes all land within the watershed and the Chesapeake Bay. The map shows the spatial distribution of delivered yield to the Bay. The map shows the spatial distribution of delivered yield to the Bay. The map shows the spatial distribution of delivered yield to the Bay.

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Restoration Efforts



- Agreements & Collaboration
- Progress to Date
- Remaining Challenges



Restoration Efforts

Major Agreements & Commitments




- **1983 Chesapeake Bay Agreement**
 - Formation of Executive Council (MD, VA, PA governors, DC mayor, EPA administrator & CBC Chair)
- **1987 Chesapeake Bay Agreement**
 - Goal to reduce N&P 40% by Y2K
- **Chesapeake 2000 – Agreed to**
 - Set WQ conditions to protect living resources
 - Establish specific nutrient load reductions
 - Establish Tributary Strategies to meet load reductions
 - Headwater states signed MOU

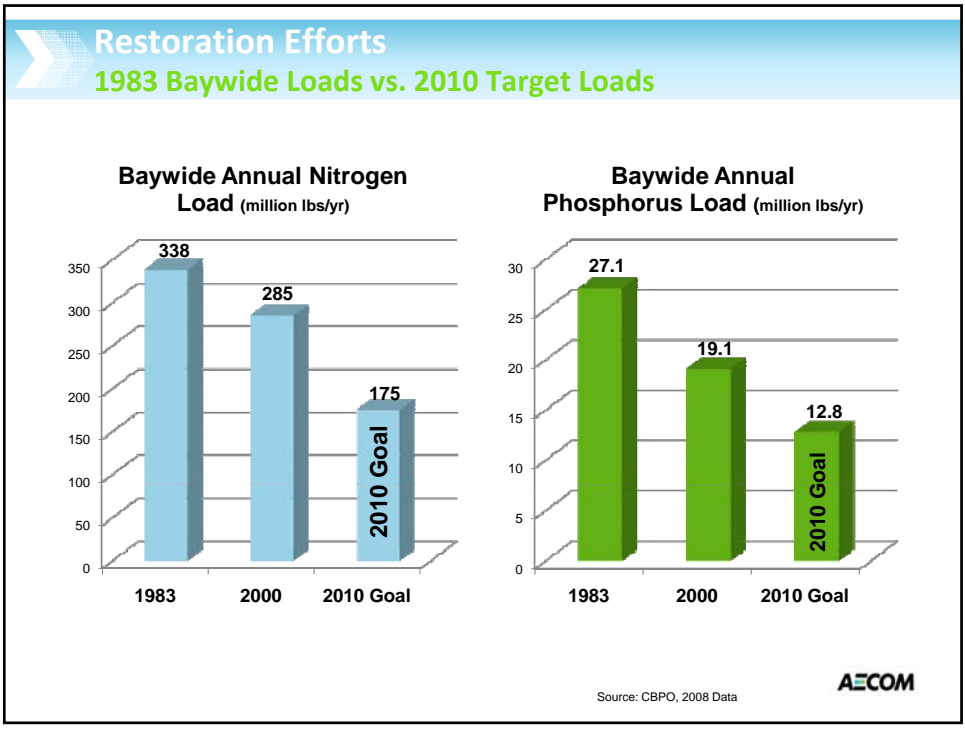



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Restoration Efforts

Chesapeake Bay Program History

| | | |
|---|---|--|
| <p>1970s Identification of the nutrient problem</p> <p>1983 Chesapeake Bay Agreement- formation of Executive Council</p> <p>1987 Chesapeake Bay Agreement set 40% nutrient reduction goal by 2010</p> <p>1992 Amendment – identified upstream sources, agreed to focus on tributaries. Outreach to NY, DE, WV</p> <p>1994 MOU 25 Federal agencies commit to ecosystem management</p> <p>Chesapeake 2000 established voluntary actions to meet 2010 goals. Headwater states MOU.</p> <p>2005 GAO Study of restoration deficiencies</p> <p>2007 Executive Council announced 2010 goals would not be met, TMDL will be set</p> <p>2008 Chesapeake Action Plan detailed status, needs and actions</p> <p>2008 Milestones Executive Council committed to 2 year milestones</p> <p>2009 Executive Order established Federal Leadership Committee. Two-year milestones set.</p> |  | <p>1970s Bay degradation studied</p> <p>1983 1st Chesapeake Bay Agreement</p> <p>1987 Goals set for 2000 CBPO formed</p> <p>1992 Focus on tributaries</p> <p>1994 Federal partners join</p> <p>2000 </p> <p>2007 TMDL will be needed</p> <p>2008 Status toward goals</p> <p>2008 </p> <p>2009 Commitment for new Federal policy</p> |
|---|---|--|



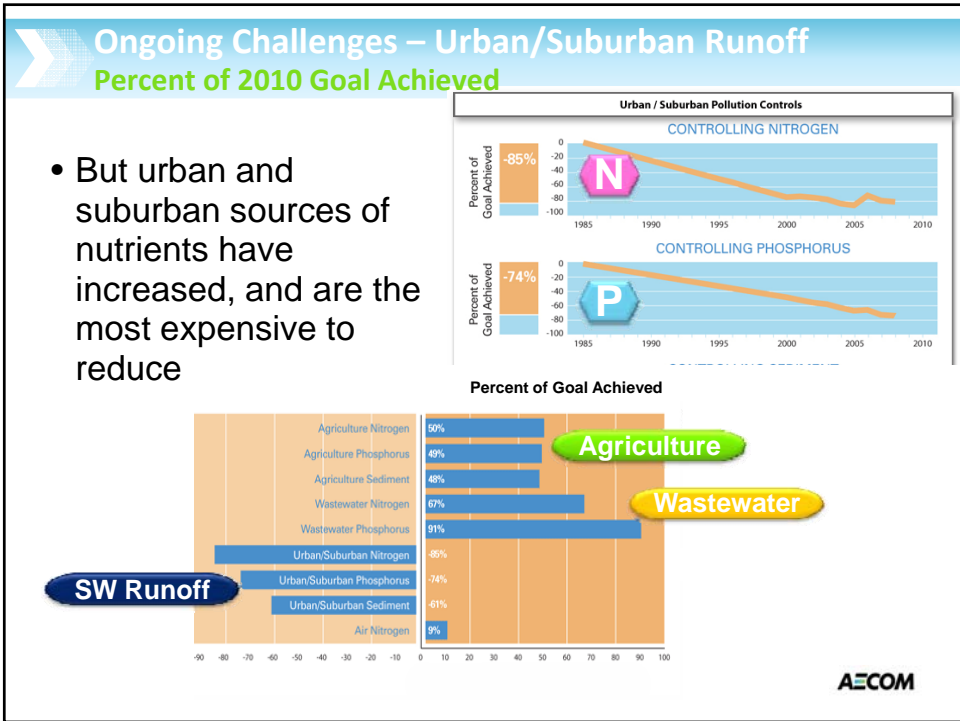
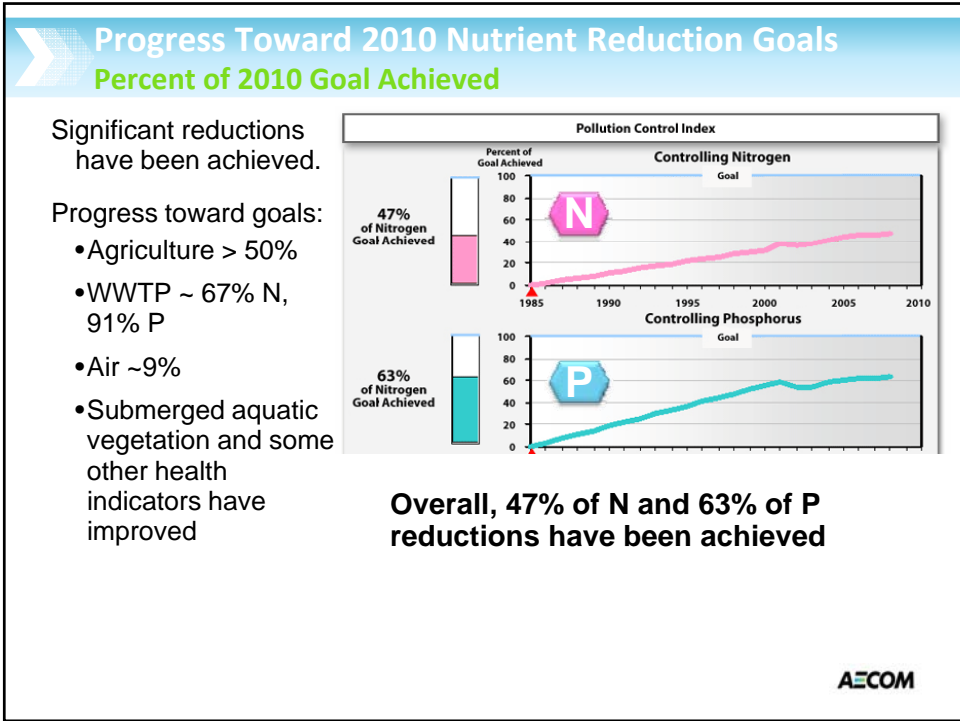
Restoration Efforts Numerous Strategies Implemented Since 1983

- Wastewater Treatment Plant Upgrades – BNR & ENR
- Stormwater BMPs - Rural, Urban, Suburban
 - Conservation Tillage
 - Riparian Buffers
 - Conservation Plans
 - Wetland Restoration
 - Cover Crops
 - Stormwater Detention
 - Off-stream Watering
 - Erosion & Sediment Control
 - Fencing
 - Stream & Forest Restoration, etc.
- Legislation, Policies, Programs, \$\$\$\$\$

The diagram shows a cross-section of a landscape with various restoration strategies labeled A through F. A red arrow indicates the path of nutrients from a source (like a farm or house) towards a water body. Strategies include:

- A** Cover crops: Nutrients absorbed by cover crops vs. nutrients exported without cover crops.
- B** Riparian buffers: Vegetation along the water's edge.
- C** Animal manure management: Handling manure from farm animals.
- D** Septic tank upgrades and Drainfields: Wastewater treatment systems.
- E** Nutrients Percolation Purification: Groundwater treatment.
- F** Enhanced nutrient removal: Biological nutrient removal processes.


 A legend at the bottom right shows a red arrow for 'Nutrients' and a brown arrow for 'Sediments'.

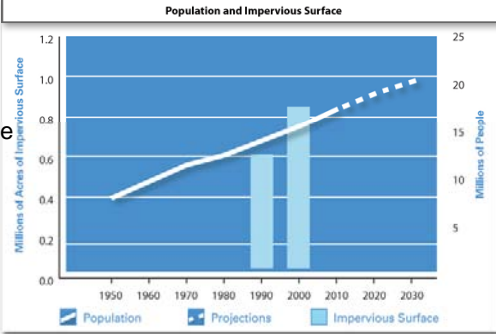


Ongoing Challenges – Growth & Development

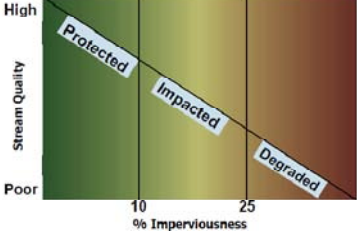
Growing Population

- 170,000 new people/year
- 1990- 2000:
 - 8% population growth,
 - 41% impervious cover increase
- Urban areas average 21% impervious cover
- Losing 100 acres of forest/day





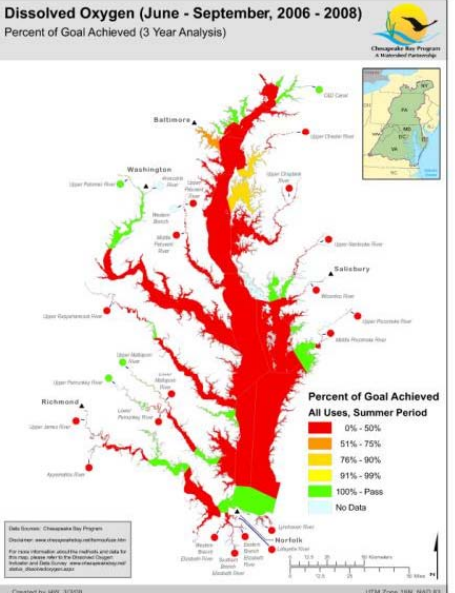
| Year | Population (Millions) | Impervious Surface (Millions of Acres) |
|------|-----------------------|--|
| 1950 | 5.0 | 0.4 |
| 1960 | 6.0 | 0.5 |
| 1970 | 7.0 | 0.6 |
| 1980 | 8.0 | 0.7 |
| 1990 | 9.0 | 0.8 |
| 2000 | 10.0 | 1.1 |
| 2010 | 11.0 | 1.3 |
| 2020 | 12.0 | 1.5 |
| 2030 | 13.0 | 1.7 |



Ongoing Challenges – Continued Impairment

Legal Impetus for TMDL

- 2010 Goals will not be met
- EPA mandates TMDLs 8 – 13 years of original listing if WQ criteria not achieved
- 1999 Consent Decree requires EPA to establish TMDL by May 1, 2011
- TMDL will be finalized December 2010
- Continued water quality impairment requires issuance of TMDL per Clean Water Act





Accountability Framework - A New Era of Oversight
Accountability Framework Defined

- EPA released new framework for accelerating cleanup of the Chesapeake Bay - December 29, 2009

Accountability Framework

Bay TMDL

Executive Order 13508

CWA Authorities

- Restoration to be achieved through authority of:
 - The Chesapeake Bay TMDL
 - President Obama's Executive Order - EO13508 Chesapeake Bay Restoration and Protection
 - The authorities of the Clean Water Act

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Accountability Framework - A New Era of Oversight
Accountability Framework Defined

- EPA will provide technical assistance and an additional \$11.2 million in grants in FY10 (2x 2009 funding)
- State grants are *to improve permitting, enforcement and other key regulatory activities*

Accountability Framework

Bay TMDL

Executive Order 13508

CWA Authorities

- The jurisdictions must meet milestones every two years for implementing pollution controls.
- EPA may impose a variety of consequences for inadequate plans or failure to meet the milestones

State Actions

“...we're increasing support and accountability to be sure we get the job done.”

---Lisa Jackson, Dec 29, 2009

Consequences

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New Accountability Framework – Basinwide TMDL

TMDL: The amount of a pollutant that can be released to a waterbody such that the waterbody can still support it's designated uses and meet water quality standards.

Accountability Framework - A New Era of Oversight
Basinwide TMDL

TMDL to be finalized December 2010

- Largest and most complex TMDL ever prepared
- Load limits for N, P, S
- Eight major basins
- 92 jurisdictional sub-basins = 92 allocations
- All TMDLs will include
 - Waste Load Allocations (WLA) - NPDES point sources + regulated storm systems)
 - Load Allocations (LA = natural sources, non-point sources, unregulated stormwater)
 - Margin of Safety

Accountability Framework

Bay TMDL

Executive Order 13508

CWA Authorities

Source: Correspondence, EPA to PSC re: basinwide target loads and working jurisdiction basin target loads, Nov 3, 2009

Created by EA 2/04/08

Accountability Framework - A New Era of Oversight

Basinwide TMDL

- Since 1985, annual load of total N has been reduced ~ 114 million lbs in 23 yrs (~29%)
- Another ~86 mill lbs/yr reduction needed as soon as possible, no later than 2025 (~30% in 17 yrs)
- Based on current data (Phase 5.2), annual P loads have been reduced ~ 50% since 1985, another ~10% needed
- Current loads are working targets for states to develop action plans
- Target loads and current estimates may change with additional modeling before 2010 TMDL

Baywide Target Nitrogen Load To be Achieved No Later than 2025 (million lbs/yr)

| Year | Total Load (million lbs/yr) |
|----------------------|-----------------------------|
| 1985 | 398 |
| 2008 | 284 |
| Working Target Loads | 198 |

Note: The 2008 and Working Target Loads bars are broken to indicate they exceed the 400 million lbs/yr scale shown on the y-axis.

Sources: Section 202a report, Nov 2009; and Correspondence, EPA to PSC re: basinwide target loads and working jurisdiction basin target loads, Nov 3, 2009

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Executive Order 13508

Section 202a: Next Generation of "Tools" and Actions

Accountability Framework - A New Era of Oversight

The Tools – Executive Order 13508

- **Chesapeake Bay Restoration and Protection Executive Order, May 12 2009**
- Establishes a Federal Leadership Committee to oversee Bay restoration activities
- November 2009 “Section 202” reports recommend framework for Section 203
- **New Federal Bay Strategy (May 2010)**

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Accountability Framework - A New Era of Oversight

EO 13508 202a: Tools to Reduce Nutrient & Sediment Loads

Federal Leadership: Next Generation of Tools
Executive Order Section 202a Recommendations:

| 1. Accountability program | 2. New CWA, CAA Rulemaking | 3. Enhanced USDA & EPA partnership |
|--|--|---|
| WIPs - Watershed Implementation Plans | CAFOs - Expand coverage and set stronger standards | Target resources in priority watersheds |
| Actions - Achieve reductions through regulations, permits, enforceable agreements | Stormwater - Expand MS4 program to include high-growth areas & strengthen standards | Establish centerpiece projects to address agricultural challenges |
| Metrics - Adopt 2-yr milestones to identify & measure progress | Offsets – Ensure new or expanded discharges are offset | Collaborate in developing next-generation conservation planning tools |

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Accountability Framework - A New Era of Oversight

EO 13508 202a: The Tools - State Accountability

Federal Leadership: Accountability Program
Reasonable Assurance:

- Watershed Implementation Plans (WIPs) will provide **Reasonable Assurance** that TMDLs will be met by 2025
- Signatory states expected to base WIP actions on regulations, permits, or enforceable agreements
 - Headwater states encouraged to do same

Accountability Framework

Bay TMDL Executive Order 13508 CWA Authorities

WIPs - Watershed Implementation Plans

Actions - Achieve reductions through regulations, permits, enforceable agreements

State Actions

Reasonable assurance. Demonstration that each wasteload allocation and load allocation in a TMDL will be implemented. – *Clean Water Act*

Reasonable assurance. Enforceable or otherwise binding programs to achieve TMDL compliance – *Chuck Fox, EPA, Sept 11, 2009 to CBC*

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Accountability Framework - A New Era of Oversight

EO 13508 202a: The Tools – State Accountability

Federal Leadership: Accountability Program
WIP Contents:

1. Interim and final nutrient and sediment loads
2. Current loading baseline and program capacity
3. Account for growth - offset any new or increased loads from population growth & anticipated land use changes
4. Gap analysis
5. Commitment and strategy to fill gaps
 - new/enhanced policies, programs, permits, enforceable agreements, authorities, and/or regulations
6. Tracking and reporting protocols
7. Contingencies for slow or incomplete implementation
8. Appendix with detailed targets and schedule

Accountability Framework

Bay TMDL Executive Order 13508 CWA Authorities

State Actions

Actions - Achieve reductions through regulations, permits, enforceable agreements


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Source: Correspondence, EPA to PSC re: establishment of an accountability framework to ensure the restoration of the Chesapeake Bay, December 29, 2009

Accountability Framework - A New Era of Oversight

EO 13508 202a: The Tools – State Accountability

- Phase 1 WIPs due Nov 2010 (draft June-Aug 2010)
 - Divide targets into NPS sectors⁽¹⁾ & point sources⁽²⁾ in each segment
 - Provide description of authorities, actions, and control measures
 - EPA will consider this when establishing TMDL WLAs & LAs
- Phase 2 WIPs due Nov 2011
 - Finer scale allocations to divide NPS LAs and any aggregate WLAs to smaller geographic areas, eg, counties, sub-watersheds, facilities or sources
 - Identify interim water quality goals with 60% of the controls in place by 2017
- Phase 3 WIPs due 2017:
 - Refined actions and controls to be implemented 2018 to 2025



Bay TMDL

Executive Order 13508

CWA Authorities

WIPs - Watershed Implementation Plans

(1) NPS sectors = non-CAFO ag, unregulated SW, OSDS, forest
(2) point sources = WWTPs, IWTPs, MS4, industrial SW, construction outside MS4


Source: Correspondence, EPA to PSC re: expectations for Watershed Implementation Plans, November 4, 2009

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Accountability Framework - A New Era of Oversight

EO 13508 202a: The Tools - Two-Year Milestones

- States will commit to implement specific pollutant reduction controls and actions in successive 2-year milestones
 - First set of milestones: May 2009 - Dec 2011
- EPA will evaluate if past milestone commitments have been fulfilled and if future commitments are sufficient
- Insufficient progress or documentation will be grounds for EPA consequences

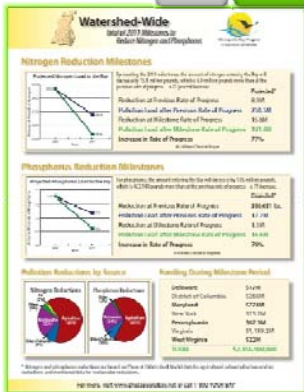


Metrics - Adopt 2-yr milestones to identify & measure progress

Bay TMDL

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CWA Authorities



*Phosphorus and nitrogen reduction rates are based on those of 10 states that have been able to report reduction rates for the same period as the milestone commitment period for nitrogen reduction.

NOI Title 40 CFR 135.104(b)(2)(ii) and 135.104(b)(3)

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Executive Order 13508

Section 202c: Federal Leadership – Stormwater Management on Federal Lands

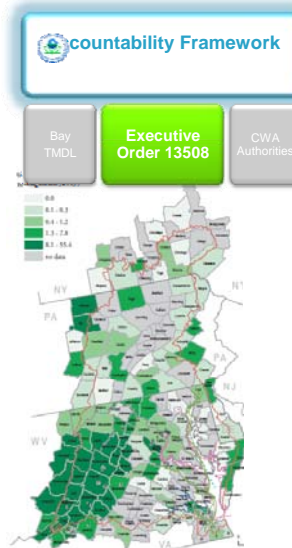


Accountability Framework - A New Era of Oversight

EO 13508 202c: Stormwater Pollution from Federal Lands

Federal Leadership:
Stormwater Management on Federal Lands

- Federal government second largest landowner in watershed (after PA)
 - 3.2m ac – most in VA & WV
 - 2% of developed land (84k ac)
- Fed gov't owns more undeveloped than developed land but contributes larger load /ac from developed land
- Section 202c led by DOD, technical guidance by EPA



Federal Land in Bay Watershed


Presentation Title

Map Source: A Socioeconomic Atlas for the Chesapeake Bay Watershed and its Region, National Park Service, Jean E. McKendry 2009

Accountability Framework - A New Era of Oversight

EO 13508 202c: SW Management on Federal Lands


Federal Leadership: SW Management on Federal Lands
Executive Order Section 202c Recommendations:

- Implement Energy Independence & Security Act (EISA) Section 438 
- Watershed planning in site selection, layout & SW management

- Install urban SW retrofits for developed areas
- Prioritize SW retrofits for paved roads

Require Retrofits

- Install buffers & restoration practices on impacted lands
- Implement non-structural SW BMPs in developed areas
- Institute erosion control practices for unpaved roads & trails
- Expand land conservation programs where retrofits infeasible
- Improve GIS to aid development & implementation of Bay TMDL.




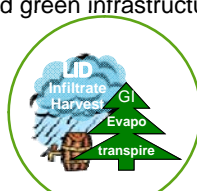
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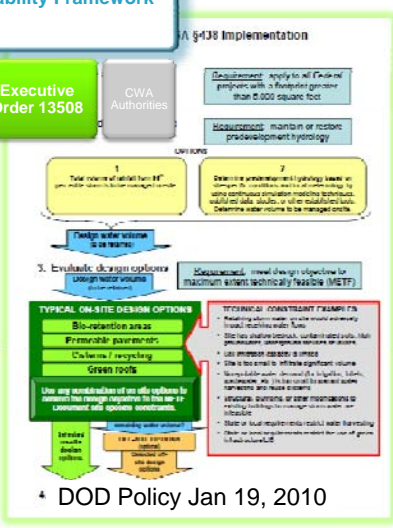
Accountability Framework - A New Era of Oversight

Section 202c & Energy Independence & Security Act of 2007

- EISA Stormwater Provision-Section 438
 - Maintain or restore pre-development site hydrology
 - Maintain or restore stream flow to protect receiving waters from changes in runoff temperature, & volumes,
 - Achieve pre-development conditions through the use of low impact development tools and green infrastructure







4 DOD Policy Jan 19, 2010

Source: Jan 19, 2010 Memorandum, DoD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act (EISA)

New Accountability Framework – Clean Water Act Authorities

Accountability Framework - A New Era of Oversight
Clean Water Act Authorities

Proposed Rulemaking Oct 26, 2009
Post-Construction Stormwater Management

- Approx 2% of US land area is “developed” according to definition used for NPDES Phase I & Phase II permits
- Regulated MS4s carry ~ 2% of urban/suburban stormwater’s nitrogen load to Bay (6% P, 4% sediment), remainder unregulated
- Oct 26, 2009 FR Notice to begin Information Collection
- Draft rule anticipated late 2011, final action Nov 2012

Stormwater - Expand MS4 program to include high-growth areas & strengthen standards

Bay TMDL EO 13508 CWA Authorities

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Accountability Framework - A New Era of Oversight Clean Water Act Authorities

Proposed Rulemaking Oct 26, 2009 Post-Construction Stormwater Management

- Expand NPDES program
- Establish SWM standards
- Goal is to align the program with recommendations of 2008 National Research Council (NRC) report

Stormwater - Expand MS4 program to include high-growth areas & strengthen standards

Bay TMDL

EO 13508

CWA Authorities

KEY NRC Report Recommendations

“A straightforward way to regulate stormwater contributing to waterbody impairment would be to use flow or a surrogate such as impervious cover, as a measure of stormwater loading.”

Retrofit

“Efforts to reduce stormwater flow will automatically result in reductions in pollutant loading. Moreover, flow is itself responsible for additional erosion and sedimentation that adversely impacts surface water quality.”

Reduce Runoff

“Stormwater control measures that harvest, infiltrate, and evapotranspire stormwater are critical to reducing the erosion and pollutant loading of small storms.”

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Accountability Framework - A New Era of Oversight Clean Water Act Authorities

Proposed Rulemaking: Oct 26, 2009 Post-Construction Stormwater Management Current Considerations

Expand Authority

Reduce Runoff

Uniform Standards

Retrofit development

Expand Authority

| | | | | |
|--|--|--|--|---|
| <ul style="list-style-type: none"> • Expand to developing areas • County or other jurisdictional boundaries? • Criteria to define permit area: % impervious? • Cover specific types or sizes of development? | <ul style="list-style-type: none"> • Mimic natural infiltration, recharge, evapotranspiration, harvest & reuse • Considering storm size stds, imperv limits, site by site, regional criteria • Same for new vs redevelopment? | <ul style="list-style-type: none"> • To replace Phase I & II • Apply Phase I inspection, monitoring, other to all • Apply 6 Minimum Control Measures to all • Require all to control industrial discharges | <ul style="list-style-type: none"> • Require retrofit in all MS4s? • Require retrofit plans • Require plan implementation • Start with large MS4s? • Limit to WQ impaired waters? | <ul style="list-style-type: none"> • Additional rules for active construction • Buffer requirements • Further extend area of coverage • May apply Chesapeake Bay rules to other sensitive areas of US |
|--|--|--|--|---|

Residual Designation

Stormwater - Expand MS4 program to include high-growth areas & strengthen standards

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Bay TMDL

Executive Order 13508

CWA Authorities

Accountability Framework - A New Era of Oversight
Clean Water Act Authorities

Proposed Rulemaking – USEPA Jan11 2010

1. CAFO Expansion

Approx ½ of agricultural load is from animal manure, 1/3 of which is CAFO-regulated

- Will consider expanding CAFOs definition (smaller operations) & more nutrient standards
- Options for streamlining the designation process & improving off-site manure management may be considered for Chesapeake Bay or nationally
- Draft rule anticipated 2012, final action late 2013

2. Offsets

EPA will initiate rule-making to provide options for offsetting loads from new or expanding sources under the Bay TMDL

Accountability Framework

Bay TMDL EO 13508 CWA Authorities

CAFOs - Expand coverage and set stronger standards

Offsets – Ensure new or expanded discharges are offset

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Accountability Framework - A New Era of Oversight
Clean Water Act Authorities

New Rulemaking: October 5, 2009
Clean Water Act Enforcement Plan

Enforcement
 Fines & Consent Decrees

Accountability Framework

Bay TMDL EO 13508 CWA Authorities

- Improve national WQ compliance & enforcement
 - **Target enforcement to most important problems**
 - stormwater (urban streets& construction sites)
 - CSOs & sanitary sewer overflows
 - CAFOs
 - **Strengthen oversight of the states**
 - Ensure that states protect WQ and consistently apply the law through permits & vigorous enforcement
 - EPA to disapprove permits & pursue federal enforcement if states too lenient
 - **Improve transparency and accountability**
 - Electronic reporting & make data available to the public

State Actions

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New Accountability Framework – Other Supporting Actions



Other Regulatory Actions Highway Bill

- Environmental and other groups requested Congress to address stormwater in new highway funding bill by including stormwater mitigation requirements as a threshold for funding
- Provisions in reauthorization of Surface Transportation Act would set policy and create guidance to mitigate stormwater discharges to the maximum extent practicable (MEP)
- Governors from all six Chesapeake Bay states supported the legislation
- House was expected to pass the measure, but Senate and Obama administration support extending the current transportation bill for 18 months to address shortfall in the Highway Trust Fund

Source: VAMSA Feb 2010 Status Report

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Other Regulatory Actions

Clean Air Act Tools Anticipated to Provide Nitrogen Reductions

- Clean Air Interstate Rule (CAIR): To control emissions from electric utilities to help states meet ozone and fine particulate standards
- National Ambient Air Quality Standards: To improve AQ for protection of human health, including standards for ozone & NOx
- Stationary Source Rules: Rules under sections 129 & 111 (solid waste combustion & NSPS) have NOx reduction benefits
- Mobile Source Rules: Implementing regulations that will reduce NOx from a variety of mobile sources, including
 - cars, trucks, buses, trains, ships, and off-road vehicles
 - Tier-2 Light-Duty Vehicle Rule, the Nonroad Engine Rule, the Heavy Duty Diesel Engine Rule, and the Locomotive/Marine Engine Rule
- State and Local Greenhouse Gas and Energy Programs

Source: 202a report

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New Accountability Framework – Consequences

To address these challenges, we must revamp federal and state enforcement to tackle sources posing the biggest threats to water quality while we intensify vigorous civil and criminal enforcement against traditional end-of-pipe pollution.

---USEPA 2009

Accountability Framework - A New Era of Oversight

EPA Consequences

Accountability Framework
 Bay TMDL Executive Order 13508 CWA Authority

- The jurisdictions must meet milestones every 2-years for implementing pollution controls
- EPA may impose a variety of consequences for inadequate plans or failure to meet the milestones, including:
 1. Expand coverage of NPDES permits to sources that are currently unregulated
 2. Increasing oversight of state-issued NPDES permits, e.g., object to permits
 3. Require net improvement offsets

Residual Designation. The CWA recognizes that sources such as commercial properties may need to be regulated on a case-by-case basis.

Source: Correspondence, EPA to PSC re: Consequences, Dec 29, 2009

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Accountability Framework - A New Era of Oversight

EPA Consequences

Accountability Framework
 Bay TMDL Executive Order 13508 CWA Authority

- EPA consequences, continued:
 4. Establish finer scale WLAs and LA's in the Bay TMDL than those proposed in the WIFs e.g., to MS4s
 5. Require additional reductions from point sources, e.g., reallocate NPS reductions to point sources such as WWTPs & CAFOs
 6. Increase and target federal enforcement and compliance – air & water
 7. Condition or redirect EPA grants
 8. Federal promulgation of local nutrient WQ standards where states not protective of designated uses

Source: Correspondence, EPA to PSC re: Consequences, Dec 29, 2009

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Accountability Framework - A New Era of Oversight

EPA Consequences

1. Expand coverage of NPDES permits
2. Increasing oversight of state-issued NPDES permits
3. Require net improvement offsets
4. Establish finer scale WLAs and LA's in the Bay TMDL
5. Require additional reductions from point sources
6. Increase and target federal enforcement and compliance
7. Condition or redirect EPA grants
8. Federal promulgation of local nutrient WQ standards

Source: Correspondence, EPA to PSC re: Consequences, Dec 29, 2009



State Actions

Bay State Efforts to Reduce Nutrient & Sediment Loads

Bay states are & will continue to initiate efforts such as:

- Increased stormwater control - new local ordinances, development requirements, fees
- Expansion of permit coverage – more area under Phase II
- Increased requirements in revised MS4 permits
 - Increased retrofit requirements (MOCO doubled from 10 to 20%)
 - Watershed plans, funding & implementation schedules
 - Permits tied to TMDLs, report progress every 2 years
- Enforcement - requirements & documentation no longer goals
 - Enforced with fines & Consent Decrees
 - May impose reduction of WWTP WLAs or other development controls
- New offset and trading programs (nutrients & ecosystem)
- Anti-degradation rules, limit development in Tier II waters
- Increased erosion & sediment control standards
- Increased public participation in permit process (more difficult)

State Actions (and Re-Actions)

Evolving Stormwater Management Requirements

A Lot of Change Going On in the Bay States

| STATE | Runoff Reduction | Channel Protection | Status |
|-------|--|--------------------|--------------------------|
| DC | Reduce Runoff 1st Inch of Rainfall | No | New Regs New Manual |
| DE | Reduce Runoff from 2.4 inches of rainfall | YES | New Regs New Manual |
| MD | Reduce Runoff from 1.0 to 2.4 inches of rainfall | YES | New Regs New Manual |
| PA | Reduce Runoff from 1.0 to 2.4 inches of rainfall | YES | 2005 Manual |
| VA | Reduce Runoff from 1.0 to 2.4 inches of rainfall | YES | New Regs New Manual |
| WV | Reduce runoff from 1st Inch of rainfall | No | New Permit New Manual |

•MS4 permit revisions on hold

•Emergency HB 420 proposes 10-year stay for developers, projects to be grandfathered under existing SWM requirements if they obtain final approval for Erosion & Sediment Control and SWM Plans by May 4, 2020 (vs. current May 4, 2010 requirement)

•VASWCB suspended effective date of revisions to SWM Permit Regulations on 1-17-10

•Regs revised to increase P effluent limits from proposed 0.28 to 0.45 lb/ac/yr.

•VASWCB directed DCR to initiate rulemaking related to TMDL.

•Finalization of SW regs expected to stall and be reinitiated after final Dec 2010 TMDL.

Reduce Runoff

Runoff reduction

- the total volume reduced thru canopy interception, soil infiltration, rainfall harvesting engineered infiltration, extended filtration or evapotranspiration

Source: 1. Tom Schueler, CSN, The Road Ahead: Implementing Environmental Site Design in Maryland Oct 22, 2009. 2. VAMSA Feb 2010 Status report.

State Actions
Potential WIP Contingencies (Consequences)

- Requirements for local governments to form SW Utilities or establish Enterprise Funds
- State-imposed impervious fees
- Require conversion of non-performing OSDS to public sewer
- Development offset requirements
- Septic offset requirements
- Potential lowering of WWTP nutrient limits


Source: J. Sakia (MD only)

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Implications
What to Expect


Implications – What to Expect Stormwater Management

- Continued focus on runoff control
 - Runoff reduction through non-structural BMPs to the maximum extent possible (MEP)
 - Standards that require onsite reduction of specific sized storm (95th %)
 - Continued focus on BMPs that reduce runoff through infiltration, harvest, & evapotranspiration
 - Increased focus on ecosystem restoration
 - National standards with Bay-specific requirements by 2013



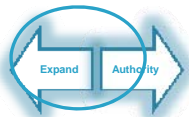

Reduce Runoff

Maintain or restore pre-development site hydrology
With respect to temperature, rate, volume & duration of flow.



Implications – What to Expect Stormwater Management

- Expansion of EPA & State Permit Authority
 - Many unregulated areas will be covered under Phase II requirements, or new combined requirements
 - Jurisdictions covered under II will see increased requirements – new combined requirements likely to be similar to current Phase I
 - Permits will be tied to TMDLs and require plans with detailed actions, schedule and funding for implementation
 - Reporting and progress will be monitored
 - Retrofits will be required!!
 - Proof of adequate funding will be required





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Implications – What to Expect

Stormwater Management


- Increased enforcement & consequences
 - “Section 308” letters first step in enforcement actions – priority historically on WWTPs and CSOs/SSOs
 - Current priorities expanded to include
 - stormwater (urban & construction sites)
 - CAFOs




MS4 Enforcement Increasing

Examples of 2009 Enforcement Actions

- Recent EPA Stormwater Enforcement Actions:
 - Region I - 8 MA Communities and 1 NH Community (all small MS4s), Administrative Complaints, Penalties \$580,000
 - Region III – Administrative Orders against 1 MD community July 2009, 1 MD community & 14 PA communities Sept 2009
 - Typical EPA Allegations:
 - Failure to submit annual report
 - Failure to Develop Storm Sewer Map
 - Failure to Prohibit Non-SW Discharges through Ordinance
 - Failure to Develop/Implement IDDE Program
 - Failure to Publicize Hazards of Illegal Discharge
 - Failure of SWPPP to meet terms of permit







Implications – What to Expect

Other

- Increased focus on watershed-based planning and data management
 - Conservation opportunities
 - Install buffers & restoration practices
 - Improve GIS-based data
- Water quality credit trading programs (point source/NPS for nutrients, ecosystem services, etc)
- Additional programs to promote use of renewable energy to decrease NOx, and biofuels from non-food nutrient sequestering crops
- Stakeholder collaboration for improvements, such as the **EPA, DOT, HUD Partnership for Sustainable Communities** to reduce the impact of development

Partnership for Sustainable Communities

Partnership in Action January 2002

Livability Principles

1. Provide more transportation choices
2. Promote affordable equitable, housing
3. Increase economic competitiveness
4. Support existing communities
5. Leverage federal investment
6. Value communities

Suggestions

Suggestions
NPDES Permit Management

- Negotiate permits carefully
 - Clearly document responsibilities related to WLAs & Las
 - Include language on non-attainable WQ standards
 - Be sure you can comply with and document all requirements
- Be diligent in compliance, documentation and reporting of all permit requirements
- Create efficient data collection and management tools
- Understand all TMDLs within permit area (and currently unregulated areas in your jurisdiction)
- Understand your state's WIP and proposed allocations of WLAs and LA's for Bay TMDL
- Collaborate with watershed groups, non-profits & other jurisdictions to maximize use of resources

Enforcement

MDE Reports 2nd Straight Year Increase in Enforcement Actions.
MDE issued more enforcement actions and increased the number of sites inspected. Between July 2008 and June 2009, MDE had a total of 2,901 enforcement actions, an increase of more than 7%. MDE collected over \$6.5m in penalties.

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Source: MAMWA Feb 2010 Status Report

Suggestions

Stormwater Management Practices

- Expand knowledge of non-structural BMPs
 - applications, constraints, runoff reduction and nutrient removal capabilities
- Increase staff training, revise SOPs, design manuals, construction supervision, O&M practices
- Conduct watershed-based planning
 - Understand & document physical and hydraulic/hydrological characteristics
 - Identify opportunities and constraints for BMPs & restoration practices
- Establish growth & development priorities, understand impairments & offset requirements
- Revise ordinances, policies, development review procedures

Annual Runoff Reduction Rates (%)

| | |
|---------------------|----------|
| Infiltration | 50 to 90 |
| Bioretention | 40 to 80 |
| Pervious Pavers | 45 to 75 |
| Green Roof | 45 to 60 |
| Dry Swale | 40 to 60 |
| Rain Tanks/Cisterns | 40 + |
| Roof Disconnection | 25 to 50 |
| Grass Channel | 15 to 30 |
| Dry ED Pond | 0 to 15 |
| Wet Pond | 0 |
| Sand Filter | 0 |



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Source: 1. Tom Schueler, CSN, The Road Ahead: Implementing Environmental Site Design in Maryland Oct 22, 2009


Suggestions

Stormwater Program

- Plan for retrofits
- Prepare Capital Improvement Plans, budgets & schedules
- Create effective SW organization
- **Initiate measures to obtain funding**
 - Enterprise funds
 - Stormwater utilities
 - State & federal funding
 - Organizational commitment

Retrofit Planning – Establish Priorities
Existing SWM Infrastructure, new construction, O&M

Retrofit Analysis



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Montgomery County has received the first revised Phase I MS4 permit in Maryland, which includes a doubling of retrofit requirements, expanded coverage and other requirements.

Montgomery County's 6-yr \$3.9 billion FY 2011-2016 CIP budget keeps an overall spending increase of 4.5% , **with an increase of over 240% to the Stormwater Management program** to improve water quality in the county's streams and to comply with the new MS4 permit. These increases are funded by the Water Quality Protection Charge and long-term debt financing.

Source: MAMWA Feb 2010 Status Report

Thank you
and
Happy Mardi Gras!

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Other Related Actions – Cardin
Bill, Funding

Restoration Efforts
Legal Framework – Clean Water Act

- CWA Section 117 includes provisions specific to Chesapeake Bay
- Congress added Section 117 (g) in 2000
- Section 117(g) provides a legal framework for ensuring that the signatory jurisdictions develop and begin implementing management plans that achieve the nutrient and sediment loading
 - Establishment of water quality conditions
 - Actions to reduce nutrient loads

Clean Water Act Section 117

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Other Regulatory Actions
Proposed Revisions to CWA Section 117

- Cardin Bill(SB 1816) – Section 117 Reauthorization – would codify:
 - TMDL schedule and requirements to include point source WLAs and “enforceable or otherwise binding” NPS (LAs)
 - “No Net Increase” requirement –for new or increased impervious surfaces, CAFOs, transportation systems, and OSDSs (offsets)
 - Significant EPA control over WIPs (review and approval)
 - EPA Authority to Promulgate NPS Regulations if WIP disapproved
 - State demonstration of adequate resources
 - Increased strength of Citizen Suits Against States for failure to submit an approvable WIP or meet milestones
- Industry groups (agriculture, poultry) opposition due to due to authority over NPS traditionally excluded from CWA,
- Some legislators have objected to impression of attempts to “remove States and local officials as decision makers”
- Cummings’ bill (HR 3852) is similar but also includes provisions from HR 3265, (Connolly) to establish federal min std for to retain 95th % storm, & expand NPDES permit coverage to rural areas. Cummings & Connolly bills are pending in Water Res & Environment Subcommittee

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Source: :VAMSA Feb2010 Status Report

Funding to States & Chesapeake Bay Program Office

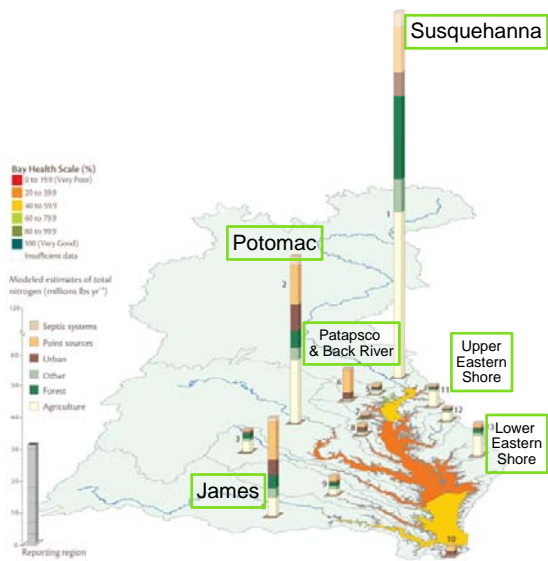
- FY10 – EPA’s budget finalized late 2009 through Department of Interior, Environment, and Related Agencies Appropriations Act
 - \$50 million to fund the Chesapeake Bay Program (CBPO) to support additional regulatory and accountability programs to control urban, suburban, and agricultural runoff in the watershed.
 - Additional \$11.2 million in state grants (2x 2009) for permitting, enforcement, other key regulatory actions
- FY11 - Governors O’Malley & Kaine requested \$365 m (EPA’s estimate to implement most important EO13508 recommendations)
 - Request was said to be “similar in magnitude to the level of federal investments being made in restoring the Everglades, the Great Lakes, and other natural treasures...” .
 - FY11 budget (released Feb1) includes \$63 million for CPBO
 - Other federal money to Bay restoration through USDA, NOAA, USACE, and the SRF program which provides loans to states for upgrading WWTPs and storm water controls



Watershed Conditions Relative Contribution from Drainage Basins

WATERSHEDS

1. Susquehanna River
2. Potomac River
3. Rappahannock River
4. James River
5. Upper Western Shore
6. Patapsco and Back Rivers
7. Lower Western Shore
8. Patuxent River
9. York River
10. Elizabeth River
11. Upper Eastern Shore
12. Choptank River
13. Lower Eastern Shore



http://www.eco-check.org/reportcard/chesapeake/2008/overview/#_Background



Chesapeake Bay Program – A Unique Collaboration

Ches2000 Signatories, Headwater States, Federal & Other Partners

Chesapeake 2000 Signatories & Headwater State Partners

| | | | | | | | | |
|---|---|---|---|---|---|--|---|---|
| MD | DE | VA | PA | NY | D.C. | WV | CBC | EPA |
|  |  |  |  |  |  |  |  |  |

Federal Partners

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| USDA  | FSA  | NRCS  | Commerce  | DOD  | Interior  | DOT  | |
| Education  | USPS  | GSA  | NASA  | USGS  | | | NCPC  |
| | | | | | | National Capital Planning Commission  | |

Other Partners

| | | | | | |
|---|---|--|--|---|---|
| Academic  | Research  | Municipal  | Civic  | Advocacy  | Non-Profit  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |