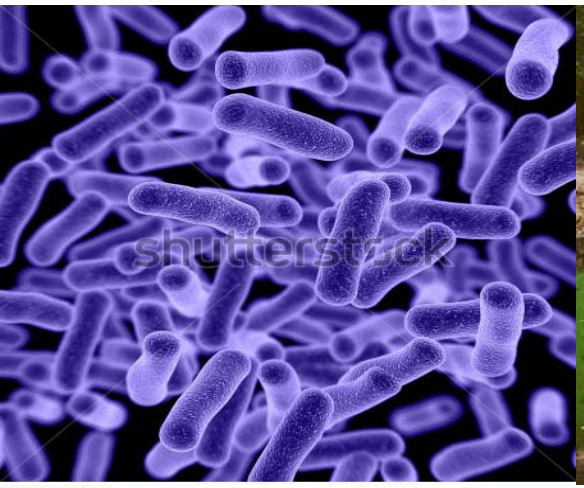
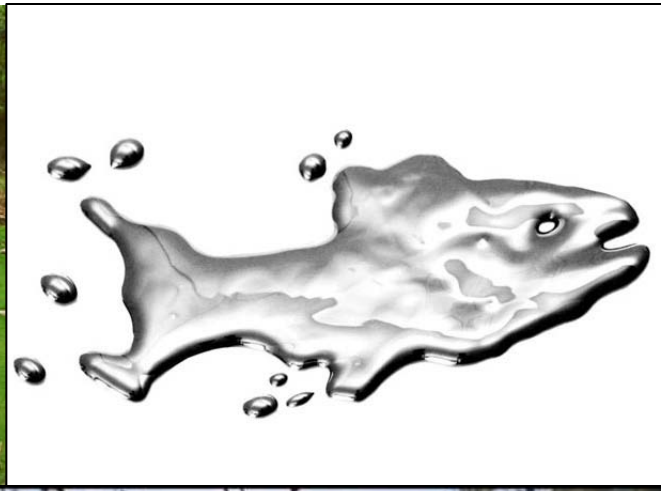
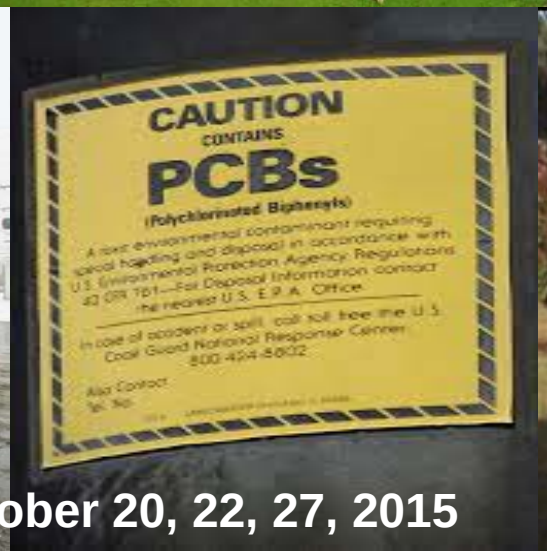
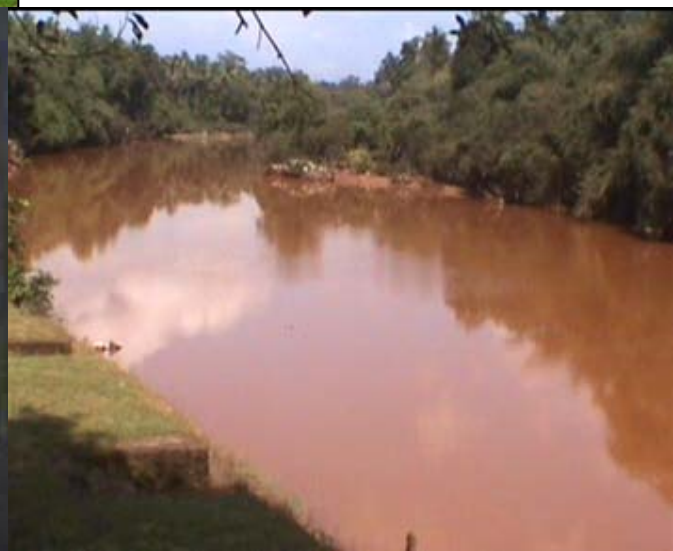
Maryland's Priority Listings

2016 – 2022









October 20, 22, 27, 2015

How do we determine what to prioritize?

- Everything is important, but what are our priorities for 2016 – 2022?
  - PRIORITY: Addressing nutrient and sediment impairments to the **Chesapeake Bay** and its tidal tributaries
    - Nutrients have long been a statewide priority
      - Nutrient pollution limits are in place for >95% of State
  - PRIORITY: Addressing impairments that affect **Public Health**
  - PRIORITY: Addressing impairments that affect **Aquatic Life**

Maryland's Focus for 2016-2022

- Chesapeake Bay: Continue to support overall Bay TMDL effort
    - Large amount of program effort in support of WIP and Phase 6 model development
        - Partnering with federal and sister State agencies
- Public Health:
    - Bacteriological impairments, Polychlorinated Biphenyls (PCBs), Mercury, Toxics
- Aquatic Life:
    - Chlorides and sediments

Bacteriological Impairments: Rationale for Prioritization

- Direct risk to public health
  - Highest priority: Shellfish harvesting areas and beaches
    - Highest risk to human health
    - Economic as well as water quality benefits
  - Lower priority: Recreational uses
- TMDL development efforts directly useful in implementation measures
  - Source assessment, shoreline surveys, etc.
  - Coordination with MDE's Shellfish Program

Bacteriological Impairments: Listings to be Addressed

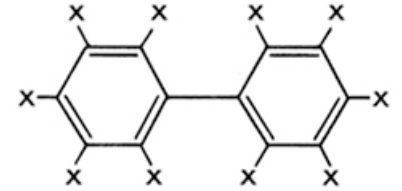
- Listed during 2012 IR or earlier
- Consistent evidence of impairment
- Shellfish:
  - Nine currently planned;
  - Specific listings and approach to be determined in consultation with MDE Shellfish Program
- Non-Shellfish: Port Tobacco (4 listings) and Baltimore Harbor

Shellfish Impairments: Listings to be Addressed

- Choptank Mesohaline Mainstem
- Patuxent Mesohaline Battle Creek 2
- Patuxent Mesohaline Battle Creek 3
- Buzzard Island Creek
- Patuxent Mesohaline Hog Neck Creek
- Patuxent Mesohaline Wells Cove
- Potomac Mesohaline Neale Sound
- Wicomico Mesohaline Ellis Bay
- Wicomico Mesohaline Mainstem

Polychlorinated Biphenyls (PCBs): Rationale

- Direct human health concern (fish tissue)
- TMDL development process helps identify source/transport
- Meshes with Chesapeake Bay Toxic Contaminants Goal (part of 2014 new CB agreement)
- Targeted: All listings in MS4 counties
  - Higher population = greater potential exposure



PCBs: Listings to be Addressed

- Bush River
- Middle River
- Lower Patuxent
- Lower Susquehanna
- Conowingo Pool
- Stansbury Pond
- Mattawoman Creek
- Piscataway Creek
- Potomac River Frederick County
- Potomac River Montgomery County
- Double Pipe Creek

Mercury in Fish Tissue: Rationale

- Methylmercury in fish tissue a direct human health hazard
- TMDL development a useful public education vehicle
- Increasing regional interest and economy of scale (NOAA Chesapeake Bay modeling)
- Indirect linkage to implementation, but in aggregate helps drive policy (federal, State, regional)
  - Maryland's Healthy Air Act
  - Integration with CAA

Mercury: Listings to be Addressed

- All current listings
  - Youghiogheny River Lake
  - Lower North Branch Potomac
  - Potomac River Washington Co., Dam #3 to #4
  - Potomac River Washington Co., Dam #4 to #5
  - Potomac River Frederick Co.
  - Conococheague Creek
  - Jennings Randolph Reservoir



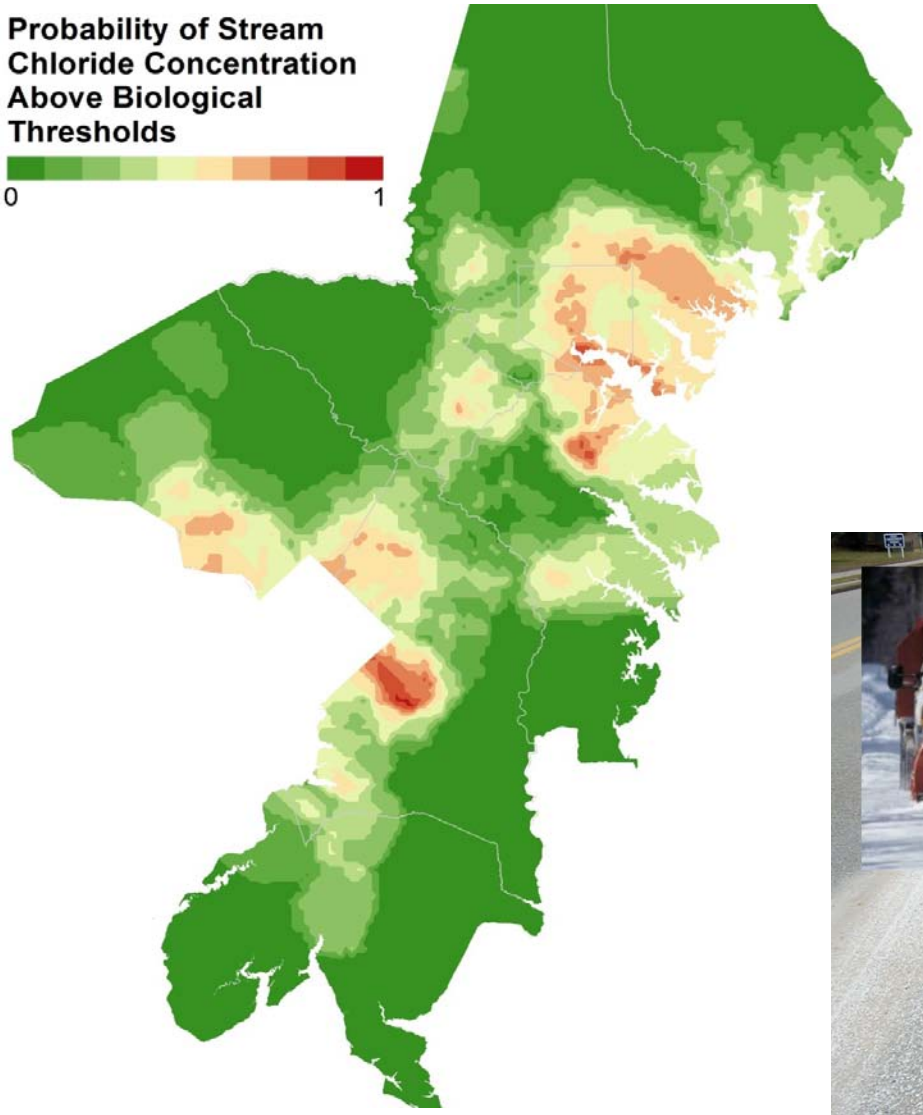

Other Toxic Contaminants

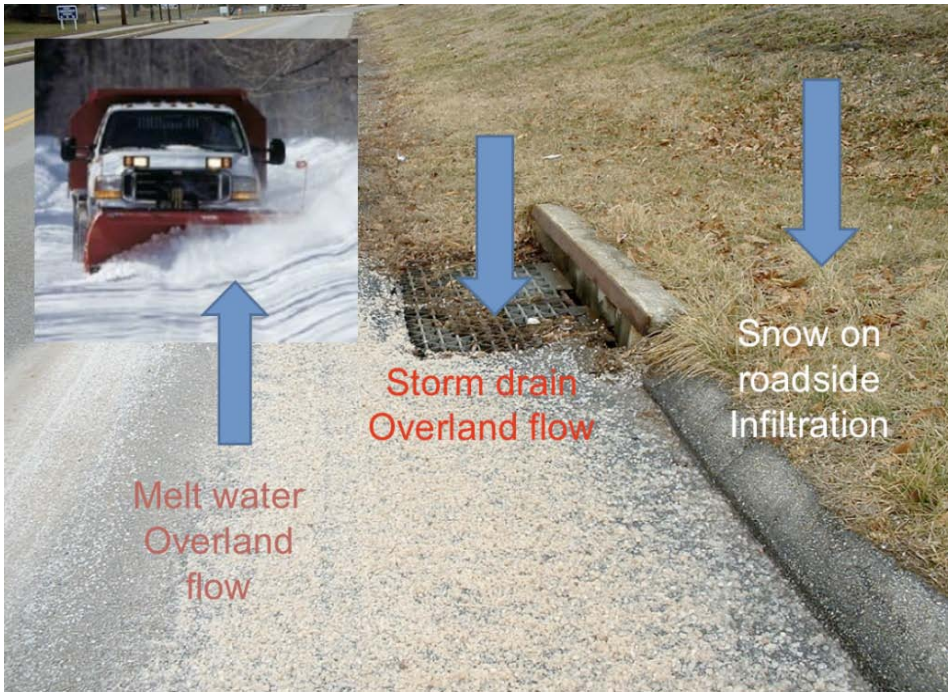
- Heptachlor Epoxide in Anacostia (two listings)
  - Human health
  - Inter-jurisdictional effort (EPA, DC DOE)
- Lead, Zinc in Baltimore Harbor
  - Aquatic life; longstanding listings warrant attention
  - Building upon existing work since 2002

Chlorides: Rationale for Prioritizing

- Potent stressor to aquatic life
  - 1st- through 4th-order streams
- A growing concern of water supply managers
- Biological Stressor ID (BSID) analysis indicates widespread impact to biological communities, particularly in more urbanized watersheds
- Implementation likely to be source-focused; thus, may see rapid improvements in water quality

BSID Analysis Results: Chlorides





Chlorides: Listings to be Addressed

- Those in MS4 counties
- Attributable Risk (AR) in BSID analysis of 75% or greater for chlorides
  - Greater confidence that biology will be improved by removing stressor
- Watershed size ≤ 75mi^2
  - Greater feasibility of implementation
  - Potentially more rapid response

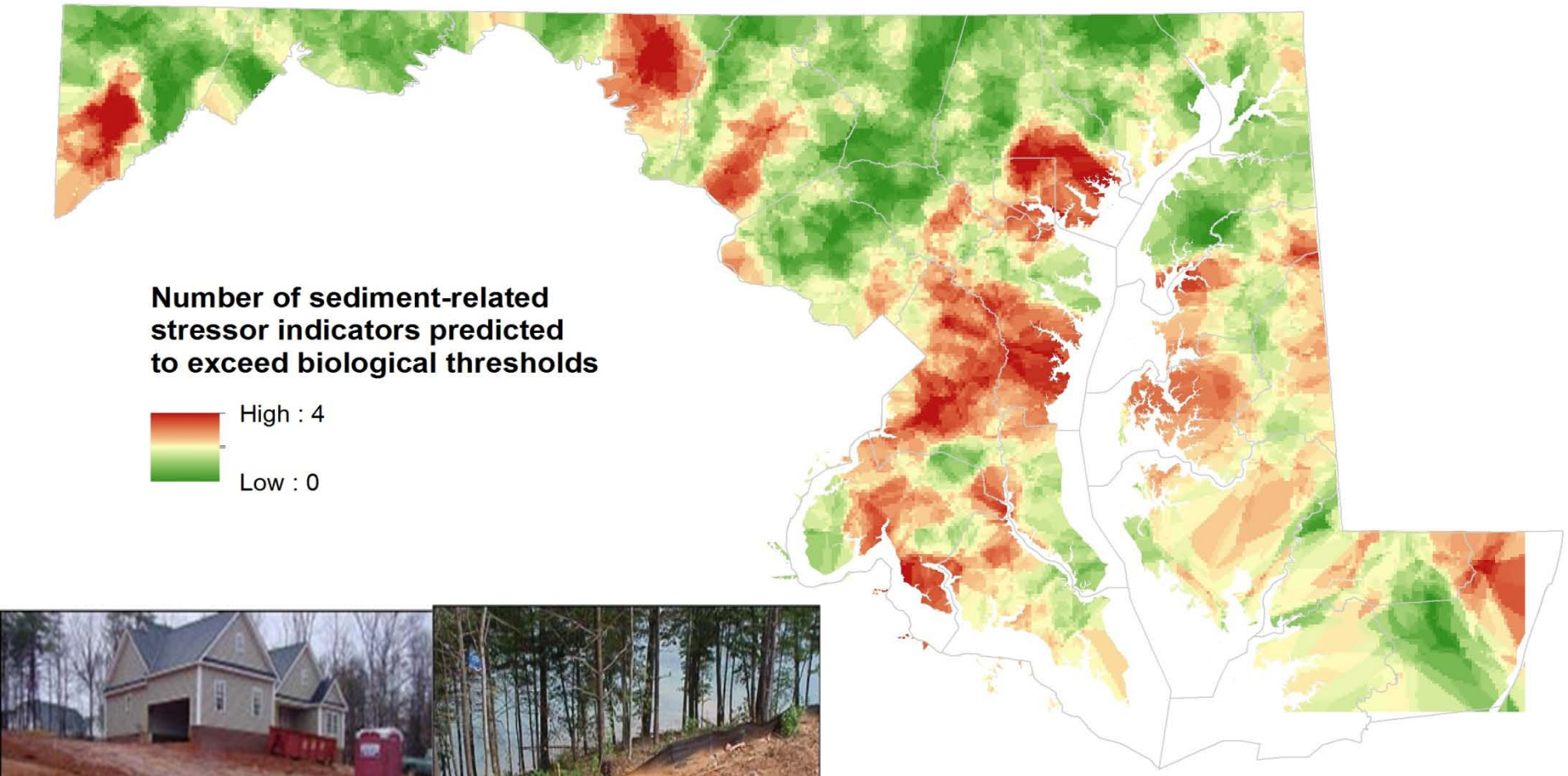
Chlorides: Listings to be Addressed

- Jones Falls
- Gwynns Falls
- Back River
- Cabin John Creek
- Patapsco Lower North Branch

Sediments: Rationale for Prioritization

- Widespread impacts to Aquatic Life throughout State
  - 1st – 4th order streams
- Implementation facilitated via MS4 permitting
- Implementation activities typically have ancillary benefits:
  - Many pollutants bind to sediments (particularly phosphorus)
  - Vegetation establishment enhances habitat for both aquatic and terrestrial wildlife
- Established methodology facilitates cost-effective TMDL development

BSID Results: Sediments



Sediments: Listings to be Addressed

All unaddressed listings for which current methodology is appropriate

- Baltimore Harbor
- Back River
- Lower Patuxent
- Middle Patuxent
- "Other West Chesapeake"
- South River
- Marshyhope Creek
- Upper Chester
- Upper Choptank
- Lower Choptank
- Deep Creek Lake

Top: Scotts Level Branch (Gwynns Falls Watershed) before stream restoration

Bottom: Scotts Level Branch after stream restoration

To reiterate: We are NOT ignoring nutrients

- Over 95% of the State has LAs and WLAs in place for established nutrient TMDLs
  - Chesapeake Bay TMDL;
  - Maryland Coastal Bays TMDLs
  - Deep Creek Lake WQA
- A large component of Program staff time is dedicated to Bay TMDL support
  - Partnerships with DNR, CBP, MDP
- Some revisions are necessary to early nutrient TMDLs in small impoundments…

Needed Revisions to Lake TMDLs

- Phosphorus TMDLs for small, recreational impoundments
- Among the oldest TMDLs in Maryland
  - Dated land use information and water quality data
  - Early lake TMDLs based on empirical relationships using CBP Phase 4 load basis
  - Some TMDL endpoints have changed
- Better science and improved methodologies available
- Currently collecting data and exploring options
- Need to be compatible with Chesapeake Bay TMDL to facilitate implementation

Lake TMDLs

Candidates for Revision

- Tony Tank Lake
- Adkins Pond
- Lake Linganore
- Centennial Lake
- Clopper Lake
- Lake Habeeb
- Urieville Lake
- Broadford Lake
- Big Millpond

Closing Thoughts on Prioritization

- What it is:
  - MDE's good-faith commitment to develop new TMDLs from 2016 – 2022
  - Continued support of the ongoing Chesapeake Bay TMDL effort

- What it is not:
  - A retreat from our commitment to address all impairments in a timely manner

Questions?

Thank you!

Maryland Department of the Environment

TMDL Technical Development Program

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