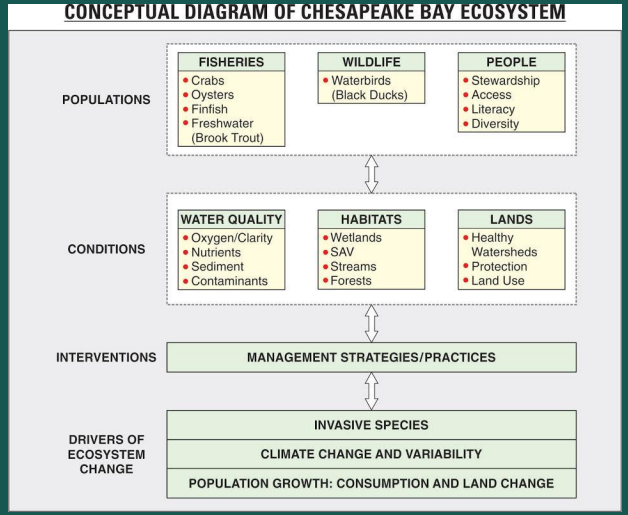
Chesapeake Bay Program
Science. Restoration. Partnership.

Toxic Contaminants Goal

Toxic Contaminants Workgroup
Greg Allen, EPA (Chair)
Scott Phillips, USGS (Vice Chair)

Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*



Goal: Ensure that the Bay and its rivers are free of effects of toxic contaminants on living resources and human health.

Outcomes:

- Policy and Prevention
- Research

Chesapeake Bay Program
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Toxic Contaminants Policy and Prevention

Scott Phillips (USGS) and other members of the Toxic Contaminants Workgroup

Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

Goal: Ensure that the Bay and its rivers are free of effects of toxic contaminants on living resources and human health.

Outcome*:* Continually improve practices and controls that reduce and prevent the effects of toxic contaminants below levels that harm aquatic systems and humans. Build on existing programs to reduce the amount and effects of PCBs in the Bay and watershed. Use research findings to evaluate the implementation of additional policies, programs and practices for other contaminants that need to be further reduced or eliminated.

What We Want

Toxic Contaminants – Policy and Prevention (PCBs)

Requests:

- Support to investigate feasibility of PCB consortium
- Progress on the co-benefits between toxic contaminants, nutrients, and sediment


DANGER!
EATING FISH FROM THIS RIVER
MAY CAUSE
CANCER

PCB Facts

- >1 million tons produced
- US largest producer
- 40% still in use

- PCBs continue to load into the Chesapeake Bay watershed
- Stormwater, wastewater and atmospheric deposition
- Some inadvertent production is possible
- Legacy and new inputs!

PCBs: Active Human Toxicity Research

March 2018 ***Society for Toxicology*** annual conference – over 25 papers were presented on PCB involvement in at least 14 different human health conditions.

Health Condition	#Papers	Health Condition	#Papers
Inflammatory bowel disease	1	Endocrine disruption	2
Atherosclerosis/hypertension	4	Impaired glucose tolerance	1
Lung Toxicity	1	DNA methylation	1
Neurodevelopmental disorders	4	Telomere lengthening	1
Nonalcoholic fatty liver disease	4	Skeletal toxicity	1
Autism spectrum disorder / Brain vascular disorder	3	Environmental PCBs in breast milk	1
Neonatal gene expression	2	Type 2 diabetes	1

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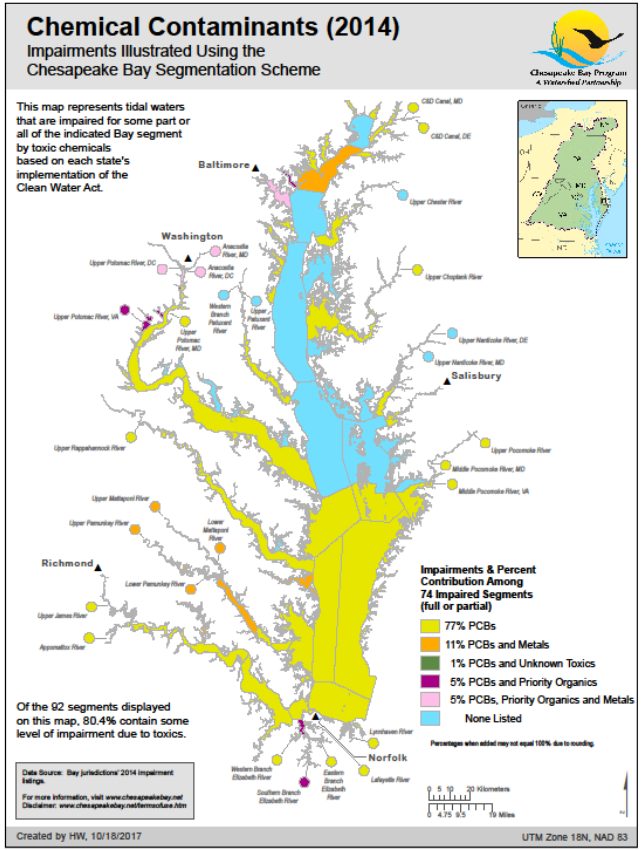
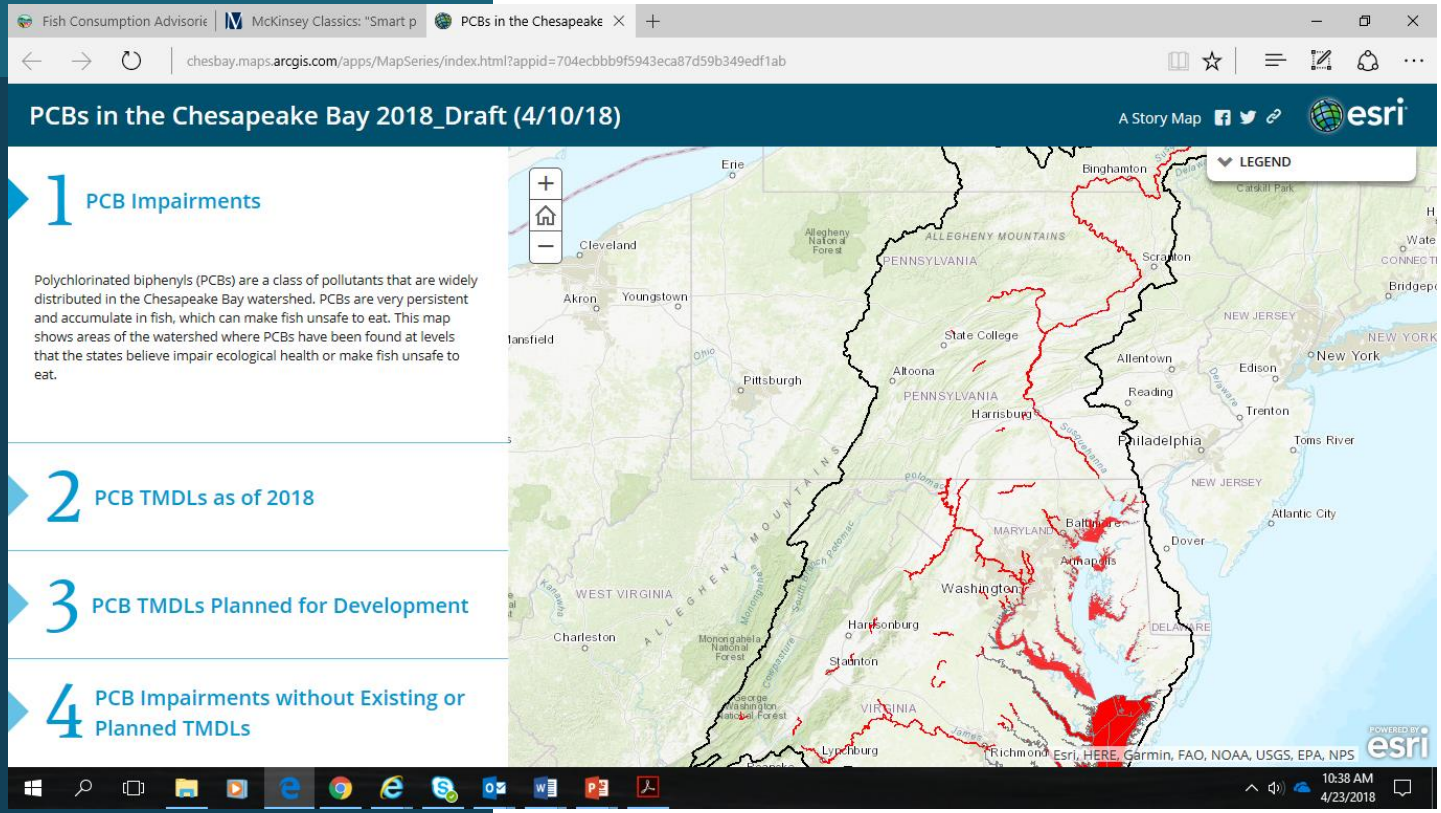
Setting the Stage:
Indicator and Story Map: Where are we now?



Tidal Waters Full or Partial Overlay with Toxic Impairments



PCB Story Map

Documents PCB impairments and states of TMDLs

(Live Link: https://tinyurl.com/PCBStoryMap2017)

Logic Behind Our Outcome

Following the Decision Framework:

Factors Influencing Success

Toxic Contaminants – Policy and Prevention (PCBs)

- Broad geographic extent and distribution of PCBs
- Political will to modify regulatory programs and/or create voluntary programs
- High cost of remedies and testing
- Variety of sources and pathways for PCBs entering the environment that necessitate a wide-range of different management responses
- Knowledge gaps on relative sizes of PCB sources
- Need to shift paradigm to acknowledge that there are ongoing sources of PCBs not static “legacy” contaminants
- New factor: Need for a larger-scale forum to connect science and management and advance interstate collaboration and implementation of PCB TMDLs

Current Efforts and Gaps

Toxic Contaminants – Policy and Prevention (PCBs)

Current efforts center on excellent work by the jurisdictions to develop PCB TMDLs

Major rivers have or will have large-scale PCB TMDLs:

- Multi-jurisdiction tidal Potomac in place; non-tidal Potomac under development
- Conowingo Pool and Lower Susquehanna in development
- James scheduled for development

Gaps

- Lack of forum of appropriate scale for TMDL coordination
- Coordinated monitoring program
- Air deposition and flux data for use in PCB TMDL modeling

Management Approaches

Toxic Contaminants – Policy and Prevention (PCBs)

- Regulatory programs
- Education and Awareness
- Voluntary programs
- Science
- New management approach: **PCB Consortium**

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Progress:

Are we doing what we said we would do?

What is our progress?

Toxic Contaminants – Policy and Prevention (PCBs)

Estimates are PCB levels in fish are level or slightly declining. Some local areas may be declining. Lack of PCB indictor and coordinated monitoring

Regulatory Management Approach

- Substantial progress by jurisdictions to advance PCB TMDLs (e,g, MS4 monitoring for WLAs)
- Progress on PCB track-down guidance
- PCB Story map
- Workshop on PCB science and management implications

What is our progress?

Education and Awareness

- Fish Consumption Advisory Infographic (GIT Funding)

Voluntary Programs

- 2018 Study on the feasibility and value of a voluntary PCB removal (GIT Funding)

Science

- Estimating reduction of PCBs in effluent following upgrade of wastewater treatment plants (GIT Funding)

Overall Workplan: 30% complete; 40% some progress; 30% no progress
CBPO campus invests approximately 0.7 FTE in toxic contaminants strategies

Analysis

-All previous management approaches still valid.

-Regulatory/TMDL still thought to be most critical and provides greatest leverage point.

-Addresses factor related to many different point and non-point sources

-New management approach – PCB Consortium

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Challenges:

Are our actions having the expected effect?

Challenges

Toxic Contaminants – Policy and Prevention (PCBs)

Scientific, fiscal or policy-related developments or lessons learned (if any) have changed logic or assumptions:

- Lack of capacity: Toxic contaminants Workgroup and PCB progress
- Limited investment--slow progress
- High cost of PCB analysis limits availability of low-detection data needed to track sources
- Lack of coordinated monitoring to assess environmental progress

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Adaptations:

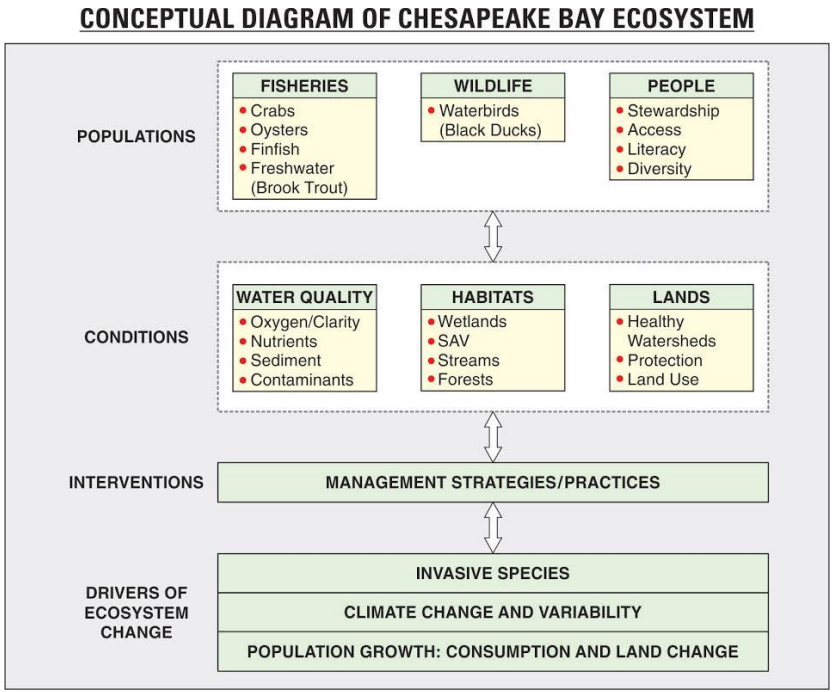
How should we adapt?

Based on what we've learned, we plan to…

Toxic Contaminants – Policy and Prevention (PCBs)

- Continue to support the jurisdictions & PCB TMDLs
- Explore the PCB consortium concept
- FCA infographic and determine next action for education and awareness
- Conduct voluntary program feasibility analysis
- Science –
  - -complete WWTP study
  - -explore coordinated monitoring
  - -Need for air deposition/flux

Cross-Outcome Considerations



Cross-Outcome Projects

- BMP cross-benefit scoring and WIP III Fact Sheet
- Wastewater Workgroup – WWTP upgrade project
- Climate Resiliency Workgroup – Pilot for climate resiliency method
- Diversity Workgroup – EJ Screen demonstration: FCA infographic
- Work with WWTP and Storm water WGs

What We Want

Toxic Contaminants – Policy and Prevention (PCBs)

- Support to investigate feasibility of PCB consortium
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Discussion

PCB Consortium MB Ask

- Exploratory team will form on volunteer basis
- Participants could be EPA and other CBPO staff, EPA R3, USGS, Baltimore Urban Waters, Jurisdictions, Academics
- Back to MB in June with a charge
- Subsequent MB meeting with findings