Chesapeake Bay Program
Science. Restoration. Partnership.

Toxic Contaminants Research Outcome

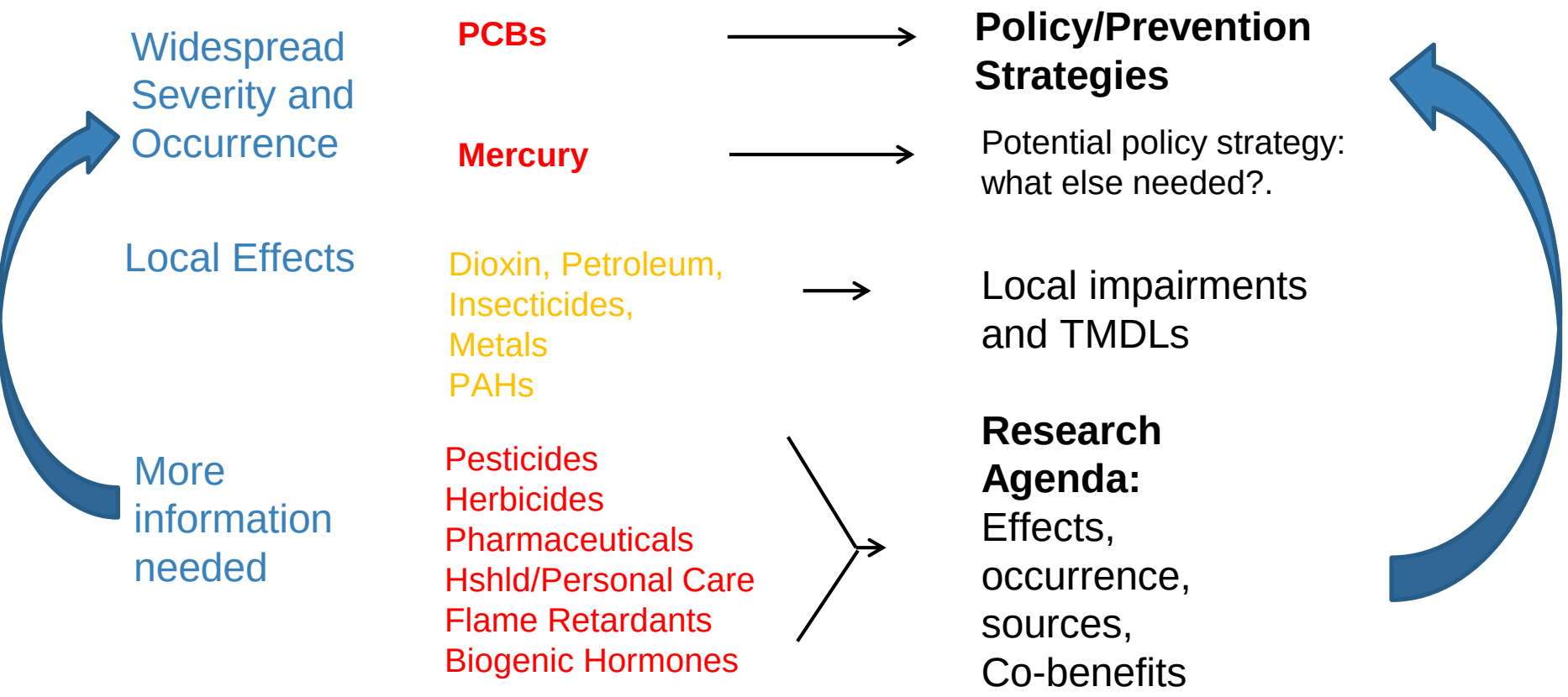
Scott Phillips, USGS
Vice Chair of TCW

Toxic Contaminants:

-Threats to human health

-Degrade fish and wildlife

Logic: Contaminant Groups and Strategies

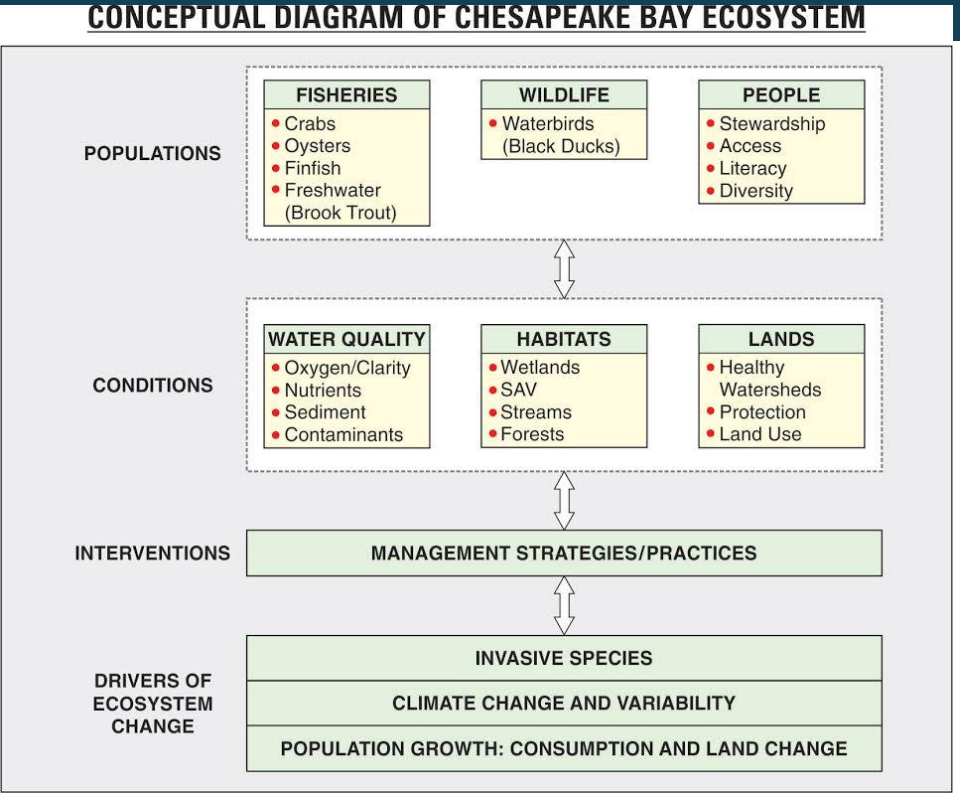


Goal: *Toxic Contaminants Goal*

Outcome:

Continually increase our understanding of the impacts and mitigation options for toxic contaminants. Develop a research agenda and further characterize the occurrence, concentrations, sources and effects of mercury, PCBs and other contaminants of emerging and widespread concern. In addition, identify which best management practices might provide multiple benefits of reducing nutrient and sediment pollution as well as toxic contaminants in waterways.

What We Want



Develop actions for Co-benefits: Next steps on co-benefits for 12 outcomes.

More emphasis on contaminants in source sectors: Nutrients, sediment, and toxic contaminants

Mercury: Options to see if plans to reduce air emissions are working

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Setting the Stage:

What are our assumptions?

Assumptions

- Improve understanding
- Management implications

Concept for Determining Highest Priorities for Research to Increase Understanding Impacts and Mitigation Options for Toxic Contaminants (Color codes are examples)

Contaminant Groups	Occurrence	Concentrations	Sources	Effects
PCBs				
Dioxins/Furans				
PAHs				
Petroleum Hydrocarbons				
Pesticides				
Bio. Hormones				
Pharms.				
HPCP				
PBDEs				
Metals				
Mixtures				

Uncertainty
Small
Mid
Large

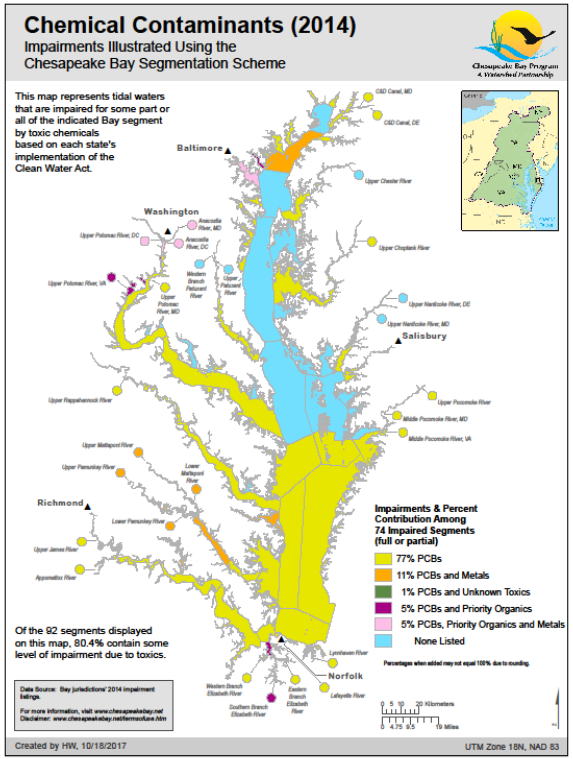
Priorities for an agenda to increase certainty?

Logic Behind Our Outcome

Following the Decision Framework:

Logic Behind Our Outcome

Factors



- Different assumptions about fish consumption
- Causes of the degradation to fish and wildlife
- Lack of consistent information
- Lack of toxicity thresholds
- Prioritizing contaminants and addressing mixtures
- Resource constraints

Management Approaches

Logic Behind Our Outcome

- Fish and shellfish safer for human consumption;
- Contaminants degrading the health, and contributing to mortality, of fish and wildlife;
- Occurrence, concentrations and sources;
- Assess relative risk of contaminants, and options for mitigation, to inform policy and prevention strategies,
- Issues of emerging concern

2

Progress:

Are we doing what we said we would do?

Are we on track?

Analysis

- Fish and shellfish safer for human consumption:
  PCBs; Mercury
- Contaminants degrading the health, and contributing to mortality, of fish and wildlife:
  Effects; Causes
- Occurrence, concentrations and sources:
  EDC study; State monitoring;
- Assess relative risk of contaminants, and options for mitigation, to inform policy and prevention strategies:
  Relative risk; Co-benefits
- Issues of emerging concern: Micro-plastics

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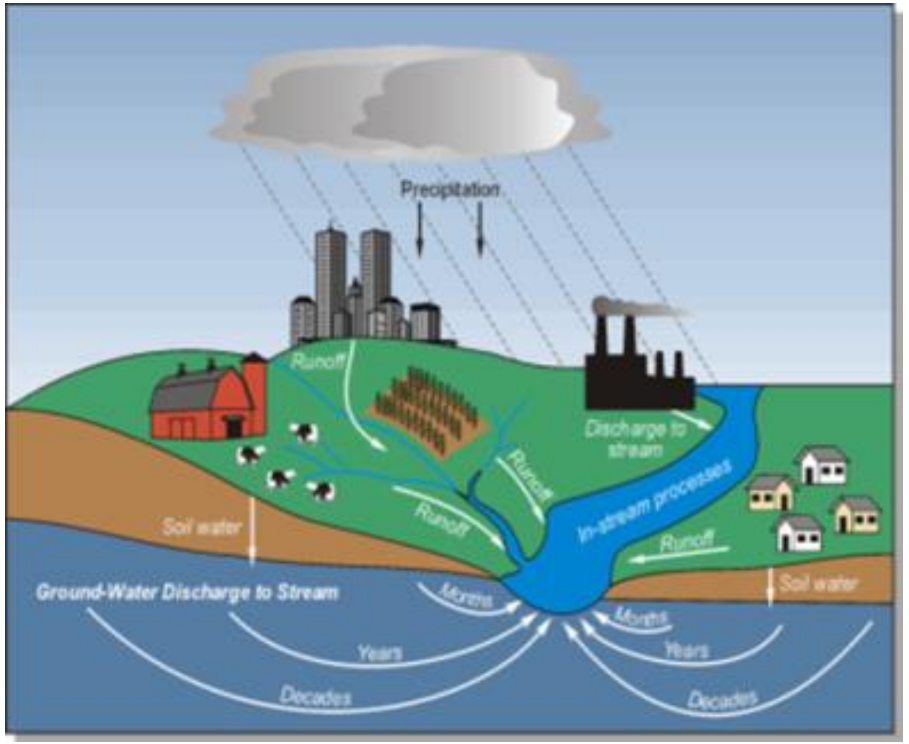
Challenges:

Are our actions having the expected effect?

Challenges

- "Too many" contaminants and mixtures
- Understanding causes
- Risk and prioritization
- Resource constraints & lack of capacity

- Synthesis and implications



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Adaptations:

How should we adapt?

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

- Address Mercury
- Less focus on impacts of individual contaminants
- More use of state monitoring and academic research
- Greater focus on potential co-benefits of practices
  - -WWTP, storm water, and agriculture
- More syntheses
- Management implications and WQ GIT WGs

Mercury Issues

- Reductions in air emissions
- Less fish consumption advisories
- Concern: mercury already in environment
- Are additional practices needed?

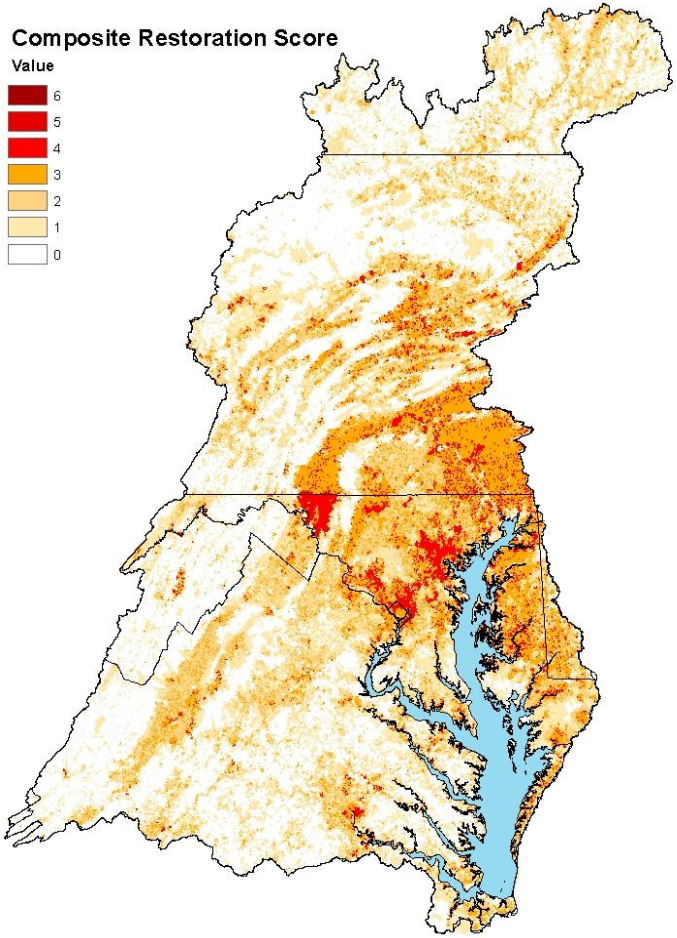
Cross-Outcome Considerations

WQ: Source sector WGs and co-benefits of nutrient and sediment practices

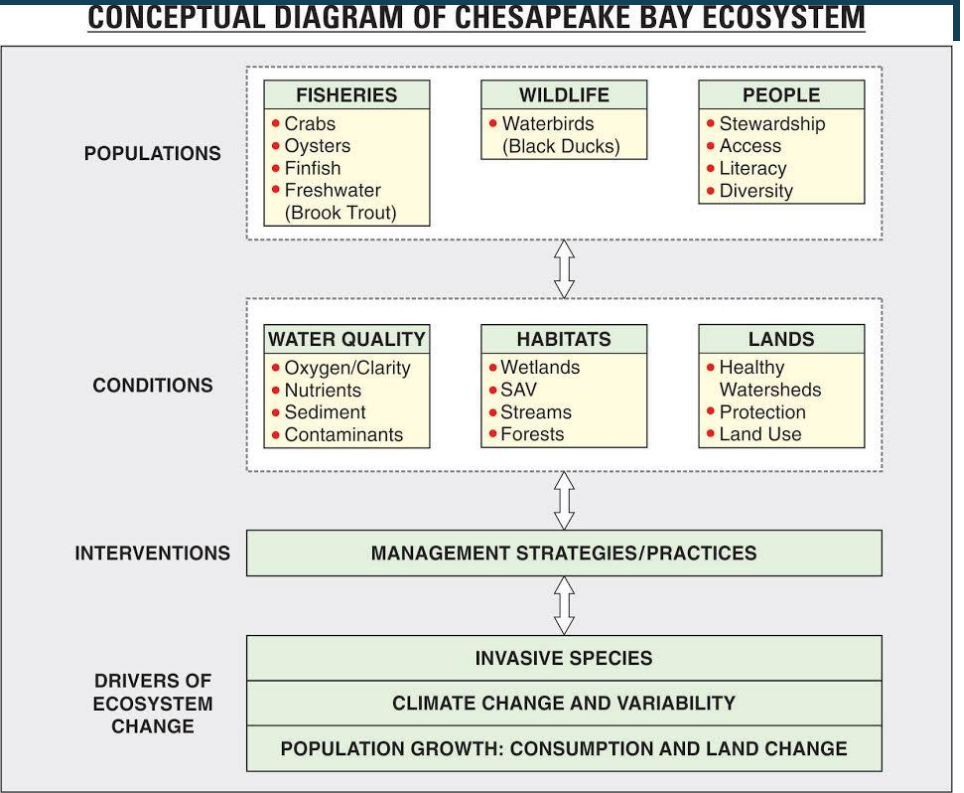
Habitat: Stream health, lessen impacts from contaminants

Fisheries: crabs, oysters, fish habitat

Stewardship: safe access, fish consumption, diversity



What We Want



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Mercury: Options to see if plans to reduce air emissions are working

Discussion

Discussion for MB "asks"

Mercury: Options to see if plans to reduce air emissions are working

- Trend analysis to see changes
- Synthesis on recycling in watershed
- Implications

▪Develop next steps for co-benefits:

- More focus in revised work plans of each outcome
- List specific actions to be taken
- Identify geographic areas to focus efforts

▪Contaminants & source sectors:

- WQ GIT work groups
- CAST
- BMP efficiencies