



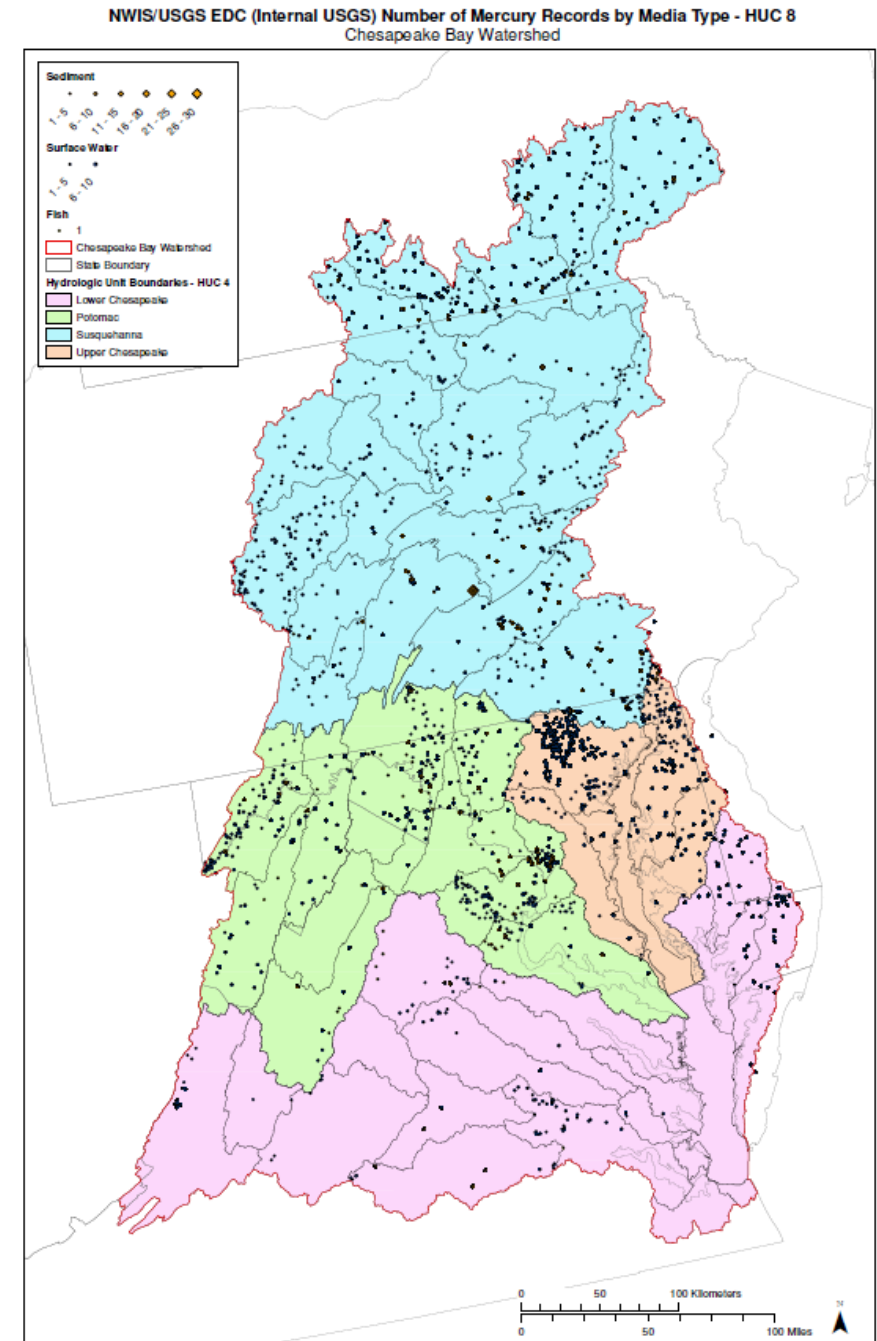
Responding to the  
PSC Request  
to Improve the CBP  
Monitoring  
Networks:  
Interaction with the  
Toxic Contaminant  
WG

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Scott Phillips and Emily Majcher,  
October 13, 2021

# Issues for New Monitoring

- Overall: Status and Trends
  - Status: help target places for mitigation
  - Trends: access if mitigation reducing contaminants
- Needs and priorities for new monitoring
- Monitoring objectives
- Network design considerations
- Existing monitoring
- Remaining gaps
- Options to address gaps



# Steps for TCW



June: Overview by P. Tango

July: Priorities and objectives, and existing data (inventory)

August: Refining objectives and design considerations

Sept: Design considerations; current monitoring to support objective

Oct-Nov: identify gaps and options

Dec.: 2-page summary to PSC with supporting materials

# Monitoring Objectives in Priority Order

## Enhance monitoring to ...

- Establish current conditions and determine if remediation or management actions are resulting in downstream reductions in PCBs.
- Determine occurrence of PFAS and microplastics in surface waters of major river basins of the Chesapeake Bay watershed with varied land use. *(STAC workshop + Action Team)*
- Determine if implementation of BMPs and conservation practices result in decline in specific (prioritized) pesticide concentration.
- Determine if reductions in air deposition of mercury are reflected in fish tissue decline, with a focus on food/recreational fishing trends in urban and non-urban areas.

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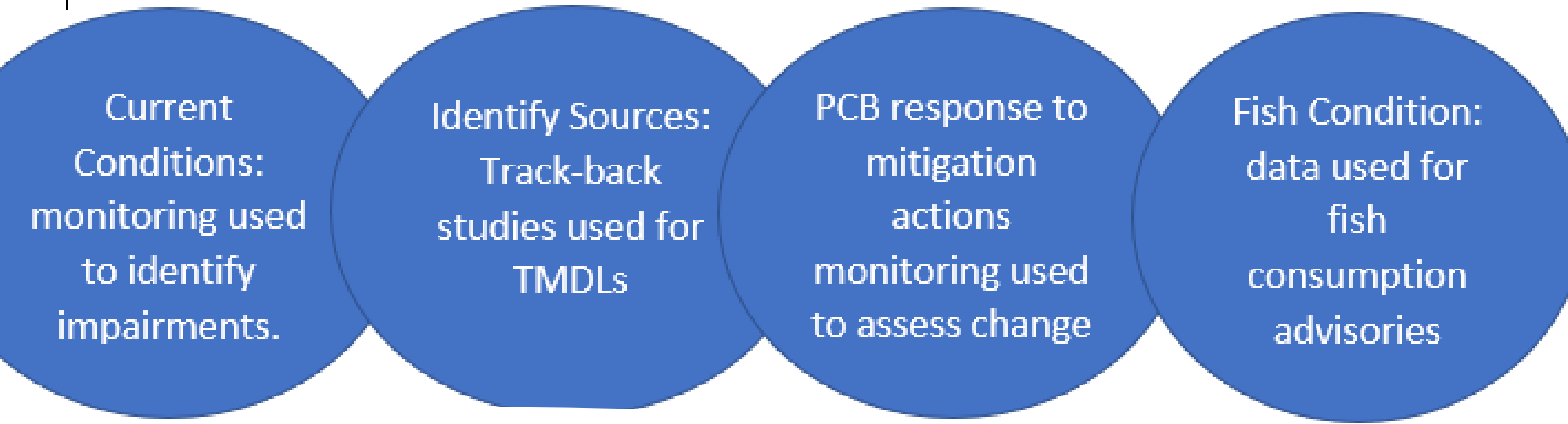
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Establish current conditions and determine if remediation or management actions are resulting in downstream reductions in PCBs.

A multi-pronged approach was described to comprehensively address the priorities of jurisdictions and monitoring agencies through several inter-related components:

- (1) current conditions,*
- (2) help identify sources,*
- (3) determine PCB response to mitigation efforts and***
- (4) assess fish conditions and relation to consumption thresholds*

Monitoring Approaches for this Objective	Assessment Endpoint	Media (sw, fish)	Frequency (Annually, quarterly, other?)	Field Method (passive, grab, other)	Analytical Method (1668, 8082, other?)	Considerations	Cost (L,M,H)	Rank
Head of tide sw sampling (DE model) – major CBW river basins, flow determination	Load reductions	sw	Variable, Biannual-5 years	Variable opinions – no resolution		Would require USGS streamflow gage to estimate loads	H	
Head of tide sw samples (major basins, or targeted to high targeted CBW river basins with high remediation or management activities	Ambient conc. that fish are exposed to	sw	TBD	Passive would likely work here, some discussion of grab		Removes need for streamflow gage, targets fish exposure	M	
Source identification	Conc and loads	Multi-media	Intensive, typically not repeat events over long timeframe	variable	variable	Fine-scale will likely make this unattainable due to cost	H	
Fish tissue sampling- major CBW river basins	Conc. In fish tissue (compare to FCA targets)	fish	Cycling strategy over 5 year period, statistical count of samples	Uniform species, fish type, composites required?	Low res 1668 may be ok	May have historical data for trends consideration, power analysis to inform frequency	MH	
Targeted Fish tissue sampling – targeted CB river basins (incl background sub watersheds) - where management activities are high and with some background watersheds, relying on NA	Conc. In fish tissue	fish	Cycling strategy over 5 year period, statistical count of samples	Uniform species, fish type, composites required?	Low res 1668 may be ok	May have historical data for trends consideration, power analysis to inform frequency	M	

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# TCW Partner Feedback On Current Monitoring

- Requested monitoring information as it related to PCB objective:
- Table for:
  - Monitoring approach(es) you are using,
  - Media you are sampling (sediment, surface water or fish),
  - Frequency (annual, cycling 5-year rotations, etc.),
  - Field/analytical methods you are using (passive, wet/dry weather grabs).
  - Assessment endpoint (e.g.. load, concentration, other).
- Questions on:
  - Better identify sources
  - Determine if fish are safe to consume
- Summary file on calendar page – thank you for your responses!

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# Identification of Gaps

## Feedback Needed- Are these accurate?

- Limited monitoring to directly assess change due to mitigation at a scale of interest (exceptions, some DE fish data collection, some Anacostia work)
- Sampling locations are currently limited in number and frequency that samples are collected
  - Sample fish every 2-5 years
  - Streamflow gages may limit calculations of loads (vs. concentration)
- Methods to collect and analyze surface water vary among jurisdictions and federal agencies (may also vary for fish\*- 8082 vs. 1668)

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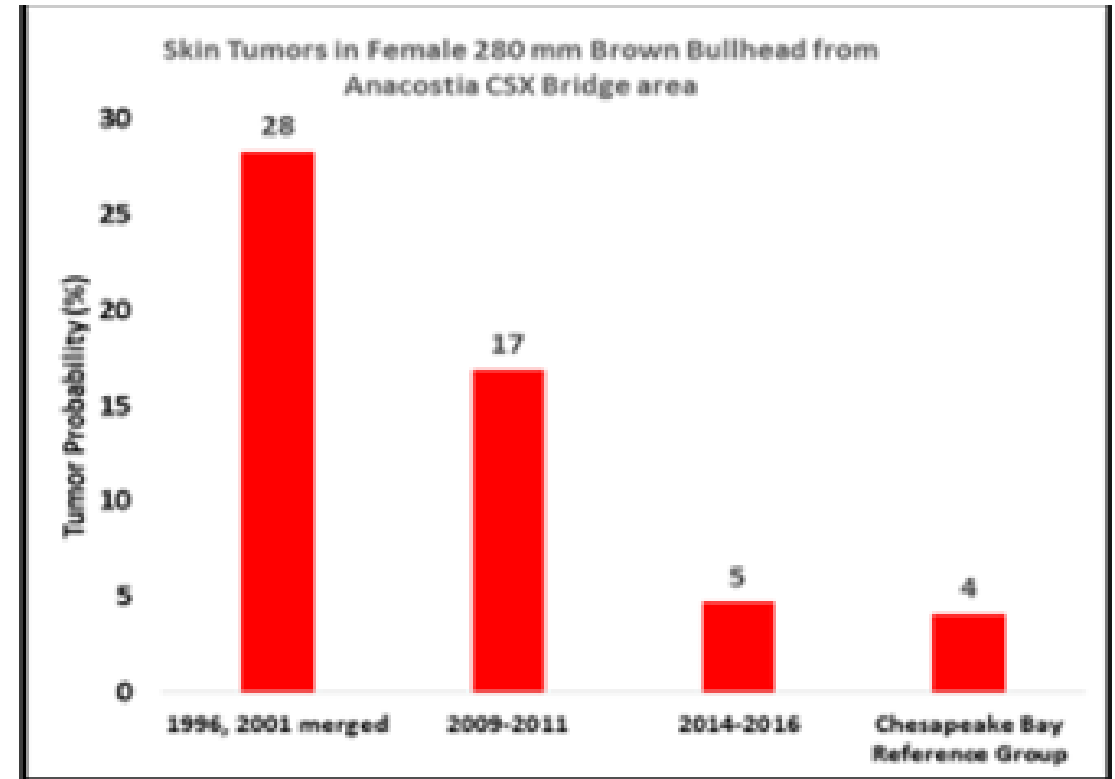
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# How to fill the gaps: Options?

- Design considerations of an example sampling “site”:
  - Be downstream of migration actions but in close enough proximity to detect PCB changes
    - What is threshold for # actions to qualify as a site? (based on estimates of loading, # of actions, other criteria?)
  - In order to leverage ongoing fish data collection, consider an expansion of the fish data collection efforts using low-level detection methods and a uniform approach to collection and processing
  - Sample at a frequency that is determined adequate to detect changes over time
- *What* would we do?
- *Where* do we want to do it?

# Gaps and Options: What could be done

- *What* would we do? – remaining questions for input
  - Media specified: Fish vs. surface water (response time?)
  - Statistical power decline vs. observational decline
  - How many sites in a location?
  - Frequency



*Decrease in skin tumor prevalence Brown Bullhead, Anacostia River (Pinkney 2019)*

# Gaps and Options: Where?

- *Where* would we do it?
  - Could be based on where active (or planned) implementation mitigation practices for a TMDL
  - Each jurisdiction has potential places
- Feedback:
  - Does the TCW want to include potential locations?
  - Could you suggest for your jurisdiction? (meet criteria agreed upon within TCW)



# Next Steps

- Review of discussion paper (2-weeks) – October 29
- Distribute Final discussion paper and 2-pager prior to Nov. 10 meeting
- Brief discussion and concurrence of 2-pager as part of Nov. 10 meeting