Narrowing of Options for Long-Term Monitoring/Tracking Program

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SRRTTF Joint Tech Track/Fish Work Group Meeting

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Background

- Overall objective is to develop a long term monitoring program capable of tracking the effectiveness of PCB reduction activities
  - First step: Assess which sampling methodologies and which media to use in the plan
- March 3 TTWG meeting discussed sixteen candidate media and methodologies
  - Narrowed list down to five
- Follow-up task to better estimate costs associated with each option, leading to recommendation to the full Task Force
  - Consider equivalent temporal representation
  - Provide costs for two stations and six stations

Short List of Media and Methodologies

- Water Column
  - in situ solid phase extraction (CLAM)
  - passive sampling (SPMD)
  - passive sampling (solid-phase passive devices)
  - particulates (sediment trap)

- Fish tissue
  - One year old rainbow trout

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Summary of Methods and Costs

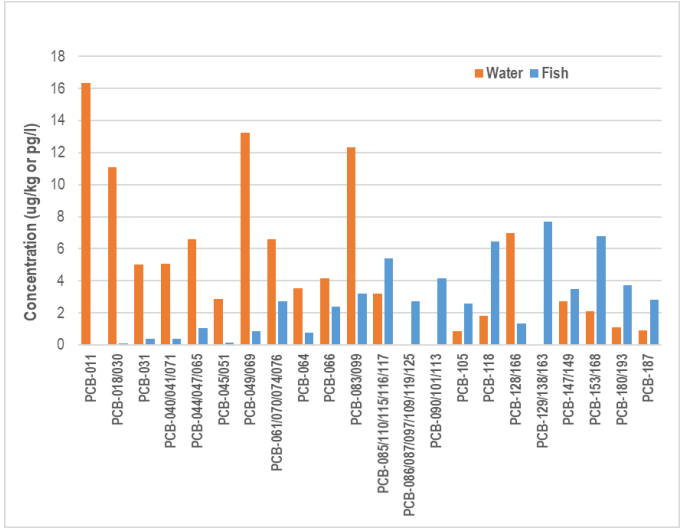
Methodology	PCB Fraction Considered	Integration Period	Number of Samples/Year		Cost Per Year* (Crude/BPJ)	
			Crude	BPJ	Two stations**	Six stations**
in situ solid phase extraction (CLAM)	• Total water column PCB	• One day	365	6	$6,408,550/ $108,100	$9,328,550/ $156,100
Passive sampling	• Total dissolved phase PCB	• One month	12	3	$305,200/ $78,400	$401,200/ $102,400
Particulates (sediment trap)	• Particle-bound PCBs	• Three to four months	4	3	$74,600/ $56,650	$98,800/ $74,800
Year-old wild rainbow trout	• Bioaccumulative fraction	• One year	1	1	$32,200/ $32,200	$56,400/ $56,400

* Not required to be conducted annually, consider three to five year frequency

** Not locked into two or six stations

How Well Do Surrogate Measures Represent Water Column?

- Fish tissue
  - Congener distribution in fish is different than the congener distribution in the water column



- Particulates
  - Better than fish, but (limited) available data suggest that particles under-represent dichloro homologs and over represent hexachloro and heptachloro homologs
- Passive devices
  - Use of a controlled sorbent allows more accurate estimation of (dissolved phase) distribution

Summary of Advantages/Disadvantages

Methodology	Advantages	Disadvantages
in situ solid phase extraction (CLAM)	• Direct representation of one of the media of concern (total water column PCB)	• Cost to generate annual average • Concerns about whether method is fully proven
Passive sampling	• 2nd best representation of total water column PCB	• Still an indirect representation of total water column PCB • 2nd highest cost
Particulates (sediment trap)	• Good temporal integration -> 2nd lowest cost	• Poorer representation of total water column PCB
Year-old wild rainbow trout	• Best temporal integration -> lowest cost • Direct representation of a medium of concern (fish)	• Poor representation of total water column PCB

Straw Man Decision Tree

- Year old rainbow trout should be included in long term monitoring
  - Covers all bases except accurate representation of water column PCBs
  - $30-60k per sampling year
- Do we also need a better representation of the water column?
  - Passive water column sampling ($80-100k per year) provides the best balance between representativeness and cost
- Do we have the resources to support a second water column measure?
  - Add sediment traps ($60-75k per year)
- Consider CLAMs opportunistically
  - e.g. if/when they are demonstrated to accurately match whole water column samples

Discussion