

Next Steps

Summary of Key Knowns/Unknowns

Review of Candidate Studies

SRRTTF Data Synthesis Workshop

January 31, 2022



Knowns/Unknowns: Upland Surface Contamination/Stormwater

- Knowns

- Historical PCB contamination existed in the Mission Reach watershed
- Elevated PCB concentrations have been observed at some stormwater outfalls
- Elevated stormwater concentrations occurred downstream from river hot spots
- Jasper has identified potential landside sources close to a river hot spot
- Similar homolog patterns exist between stormwater and biofilm contamination
- Other?

- Unknowns

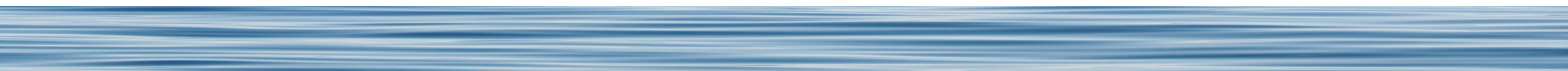
- PCB concentrations on land and in stormwater near the hot spot
- The extent to which stormwater contributes to near field biofilm and sediment PCB concentrations

Knowns/Unknowns: Upland Subsurface Contamination/Groundwater

- Knowns

- Historical contamination existed in Mission Reach watershed
- Elevated groundwater concentration was observed at the Artesian well
- Water flow is generally from the river to the aquifer, but not always
- Other?

- Unknowns

- Details on the location and timing of groundwater flow into the river
 - The specific source(s) causing elevated groundwater PCB concentrations
 - The mass loading associated with the groundwater flow
 - Other?
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Knowns/Unknowns:

Legacy Sediment Contamination from Upstream Sources

- Knowns

- Historical PCB loads caused legacy sediment contamination in portions of the river upstream of Mission Reach
- Available Mission Reach sediment data show sporadic high PCB concentrations
- Other?

- Unknowns

- Whether observed sediment contamination is caused by legacy upstream sources
- Spatial extent of elevated sediment PCB concentrations
- Environmental significance of those elevated sediment PCB concentrations
- Other?

Knowns/Unknowns: Sediment Contamination from Buried Objects

- Knowns

- Buried objects have been previously identified in the Mission Reach
- Object detection survey identified magnetic anomalies in riverbed that are potentially indicated of metallic objects
- Other?

- Unknowns

- Whether the identified magnetic anomalies represent PCB-containing objects
- Whether buried objects exist closer to Trent Ave. bridge
- Other?

Knowns/Unknowns: Sediment Contamination from Contaminated Fill

- Knowns

- Artificial fill material present in the Mission Reach (brick, concrete) had the potential to be contaminated by PCBs
- PCB content in artificial fill is at or below background levels
- Other?

- Unknowns

- Whether four samples are sufficient to rule out artificial fill as a cause
- Other?

Knowns/Unknowns: PMF Analysis

- Knowns

- Non-Aroclor PCBs are present in water column and biofilm, but not in fish
- Fish burden is shifting toward lower MW PCBs and likely declining over time
- Lower concentration biofilms have a different relative abundance of factors than high concentration samples
- Water column chlorination levels increase downstream of the Mission Reach, presumably reflecting inputs
- Others?

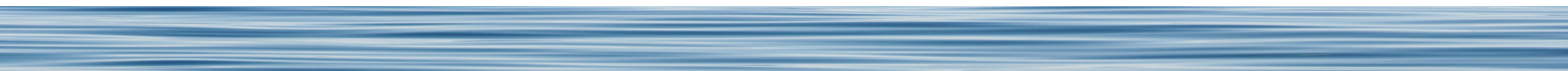
- Unknowns

- Does this shift represent a change from sediment sources to water column sources driving contamination?
- Magnitude of PCB loading from Mission Reach sources
- Others?

Review of Candidate Studies to Address Key Unknowns

- Landside Surface Contamination
 - Stormwater monitoring of Springfield outfall?
 - Landside contamination monitoring at Jasper-identified hot spots
 - More rigorous review of historical land use
 - Additional high-resolution biofilm monitoring
 - Others?
- Landside Sub-surface Contamination
 - Follow-up monitoring of artesian well PCB concentration
 - Groundwater quality sampling via piezometers
 - More rigorous review of historical land use
 - Further our understanding of groundwater hydrology
 - Others?

Review of Candidate Studies to Address Key Unknowns

- Legacy Contamination from Upstream Sources
 - Mapping of the areal extent of depositional areas
 - Sediment PCB monitoring with higher spatial resolution
 - Others?
 - Contaminated River Fill
 - Additional monitoring with greater spatial coverage of artificial fill PCB concentrations
 - Buried PCB-Containing Objects
 - Follow-up via video or diver survey to positively identify objects identified by magnetometer
 - Other?
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Review of Candidate Studies to Address Key Unknowns

- Pathway Independent Studies
 - High spatial resolution biofilm monitoring
 - Biofilm doesn't necessarily directly identify a pathway, but has been very effective in identifying river locations where sources appear to be entering
 - Others?