Overview of Candidate Studies from TTWG Workshop

SRRTTF TTWG Meeting

February 16, 2022

Prioritized Studies

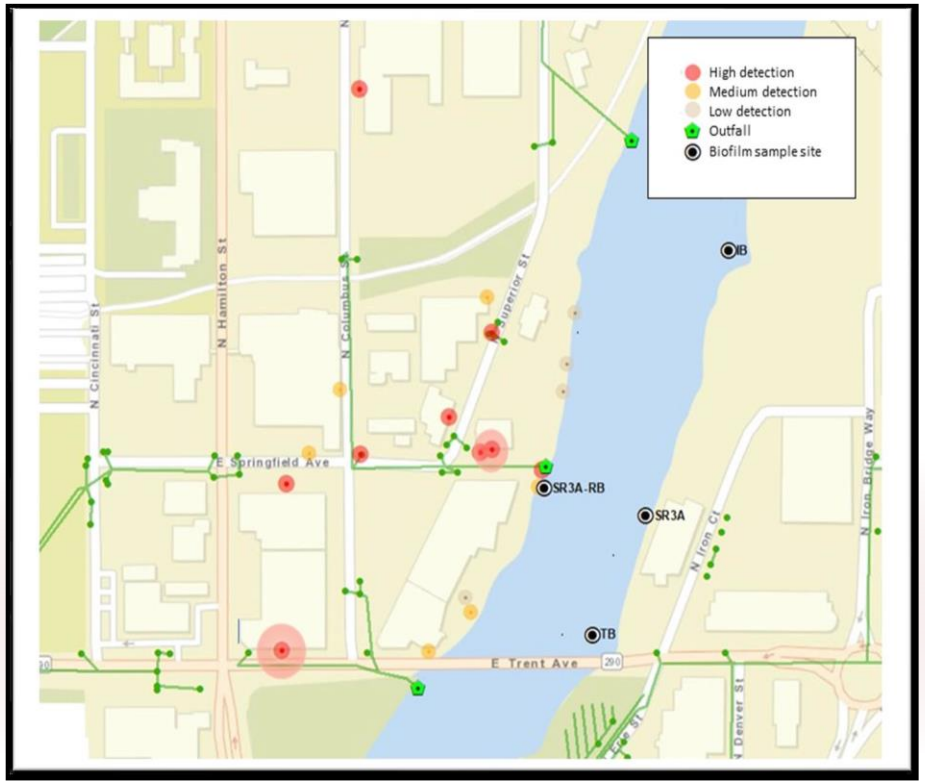
- Highest
  - Landside surface/stormwater monitoring at Jasper-identified area in Mission Reach
  - Further our understanding of groundwater hydrology
  - Mission Reach sediment (and groundwater) sampling
- Second highest
  - Follow-up monitoring of artesian well PCB concentration
  - More rigorous review of historical land use
  - Follow-up on magnetometer anomalies
  - Initial assessment of PCB loading from infiltrated dry well stormwater
  - Additional sampling at Mirabeau

Prioritized Studies

- Third Highest
  - Explore historic land use at Spokane Industrial Park
  - Synoptic survey to support mass balance assessment downstream of USGS Gage
  - Additional biofilm monitoring

Landside Surface/Stormwater Monitoring
at Mission Reach areas identified by PCB-detection dog

- Rationale
  - Jasper identified area of potential PCB contamination in areas near biofilm hot spot
  - An unmonitored stormwater outfall (Springfield) drains some of that area
- Candidate Studies
  - Stormwater monitoring of Springfield outfall
  - Landside contamination monitoring at Jasper-identified hot spots
- Discussion: Which Comes First?
  - Stormwater monitoring verifies that PCBs enter river, but is logistically difficult
  - Landside monitoring verifies presence of PCBs, but not delivery to river

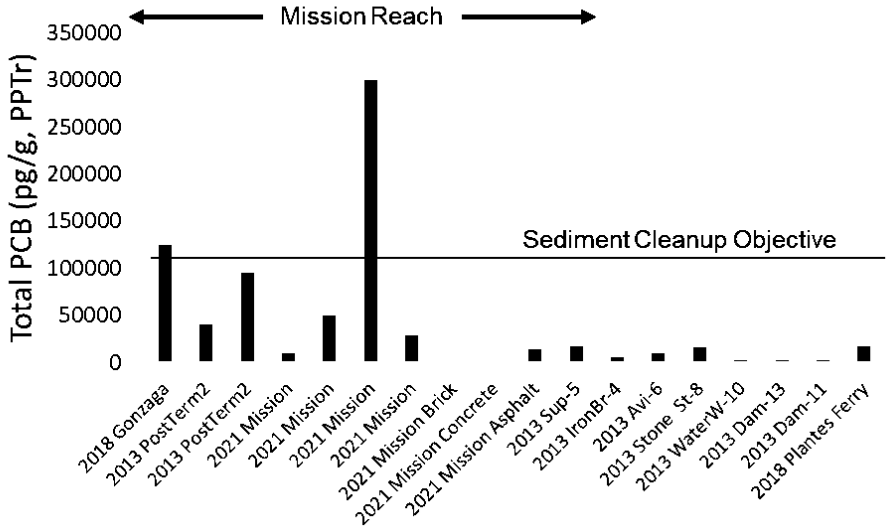


Further Our Understanding of Groundwater Hydrology
Between Plante's Ferry and USGS gage

- Rationale
  - Our understanding of the interaction between the aquifer and the river is largely based on results of an older USGS modeling study
  - Recent data (well elevations relative to river stage, presence of artesian well) suggests that our understanding is incomplete
  - Observed well concentration >2000 pg/l suggests that groundwater may be important
- Candidate Studies
  - Consult with local experts
    - Determine appropriate next step after consultation
  - Look for other sites with monitoring wells to install data loggers of water level
  - Also discussed: data mining (e.g., Avista VCP site)

Mission Reach Sediment (and Groundwater) Sampling

- Rationale
  - Existing monitoring data shows presence of patchy sediment PCB contamination
  - Additional data collection will:
    - better define extent of contamination,
    - potentially help in identifying source location, and
    - potentially support future bioaccumulation modeling



- Candidate Studies
  - Sediment PCB monitoring with greater spatial coverage
  - Groundwater PCB monitoring
    - Potentially deferred until more is known about groundwater hydrology
  - Biofilm PCB monitoring with greater spatial coverage

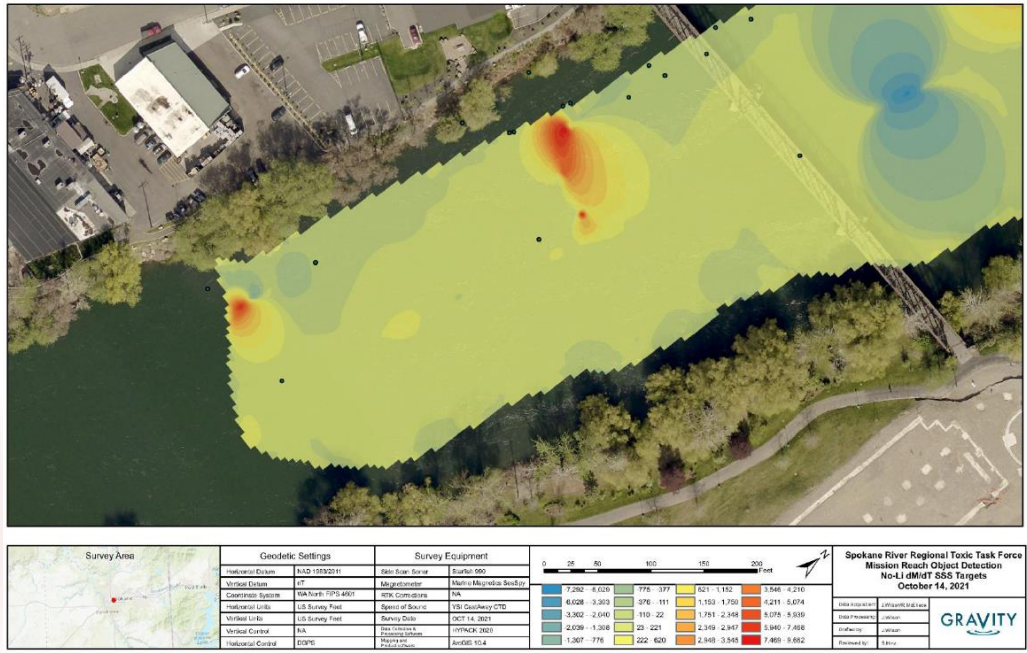
Follow-up Monitoring of Artesian Well PCB Concentration

- Rationale
  - Single grab sample showed PCB concentration in well >10x higher than typical river concentration
  - Single sample may not be representative

- Candidate Studies
  - Additional monitoring
    - Conducted opportunistically with other sampling events?

Follow-Up on Magnetometer Anomalies

- Rationale
  - Object detection survey identified presence of likely metal-containing objects in river bed
- Candidate Studies
  - Video or diver survey to positively identify objects
    - Will only identify partially buried objects
  - Sediment or biofilm sampling immediately downstream of objects detected
    - Could identify completely buried objects
  - Additional magnetometer survey further downstream

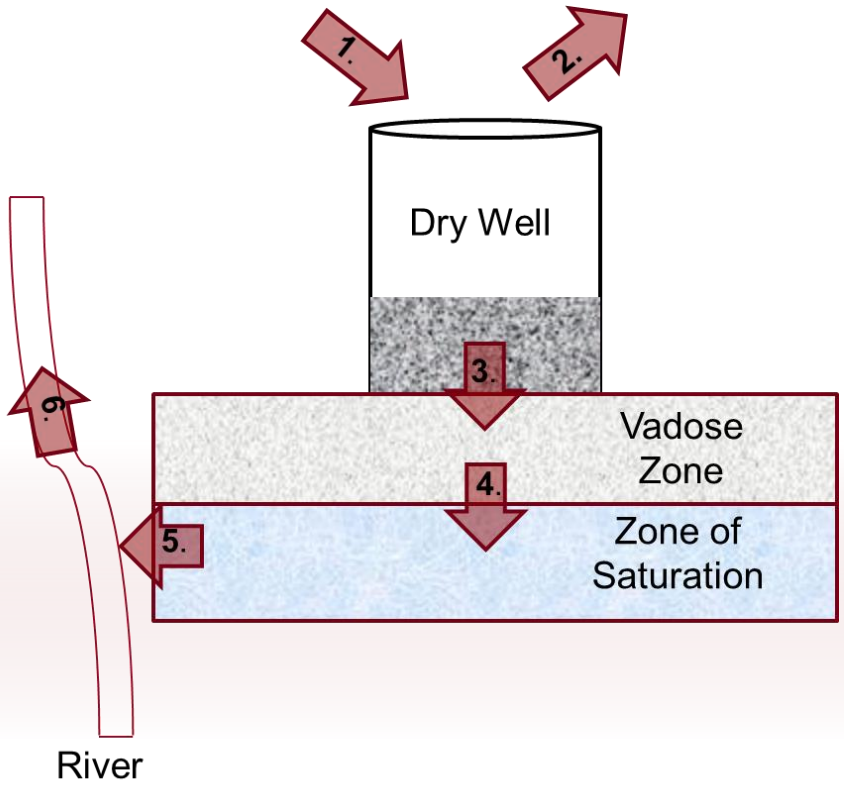


More Rigorous Review of Historical Land Use

- Rationale
  - Most of the identified studies focus on delivery mechanisms (e.g., groundwater) and do not address where PCBs came from
  - Resources exist (e.g., Sanborn maps) to identify historical land uses associated with the use of PCBs
- Candidate Studies
  - Review cleanup levels and Aroclor use at previously identified contaminated sites
  - Purchase and review Sanborn maps

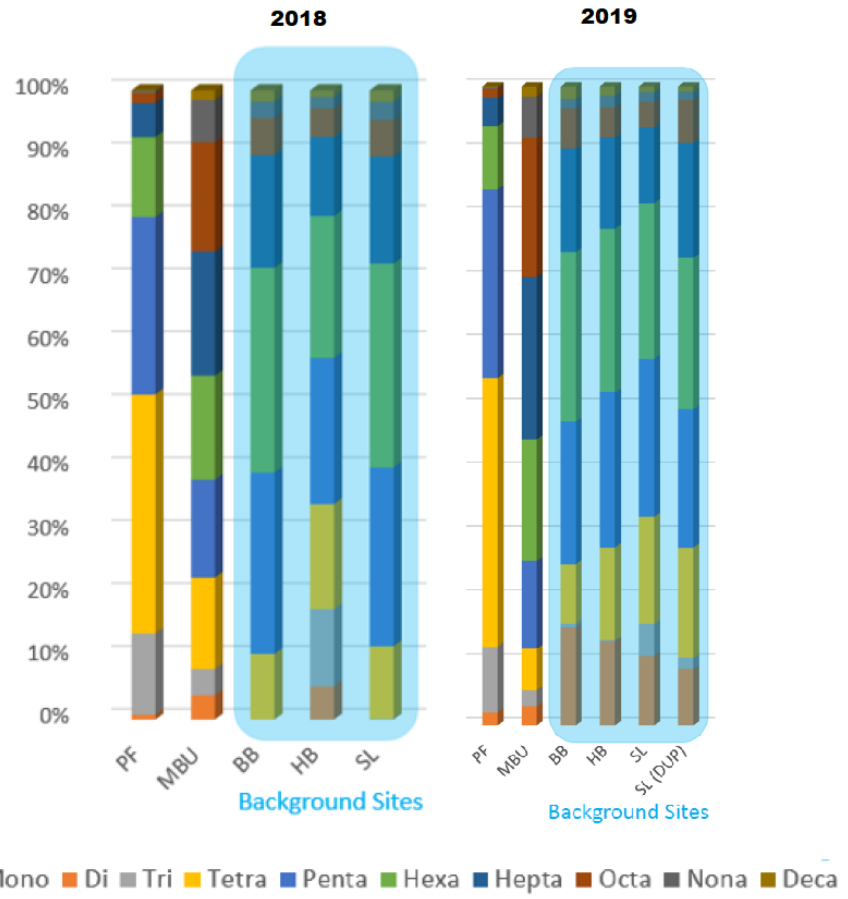
Initial Assessment of PCB Loading from Infiltrated Dry Well Stormwater

- Rationale
  - "Old style" drywells (i.e., those that accept stormwater without pretreatment) have been hypothesized as a potential source of PCB delivery to the river via groundwater
- Candidate Studies
  - Review of existing soil data at dry wells to assess PCB-binding capacity
  - Other future studies could be conducted if binding capacity is determined to be low



Additional Sampling at Mirabeau

- Rationale
  - Biofilm homolog patterns suggest that a unique PCB source is entering the river upstream of Kaiser
  - Existing water column data is too patchy to assess the magnitude of the load
- Candidate Studies
  - Biofilm (medium)
  - Additional grab sampling at Mirabeau (low)
    - Require numerous samples to account for observed patchiness
  - Deployment of SPMD (low)
    - Provides time-integrated sample, although uncertain representativeness

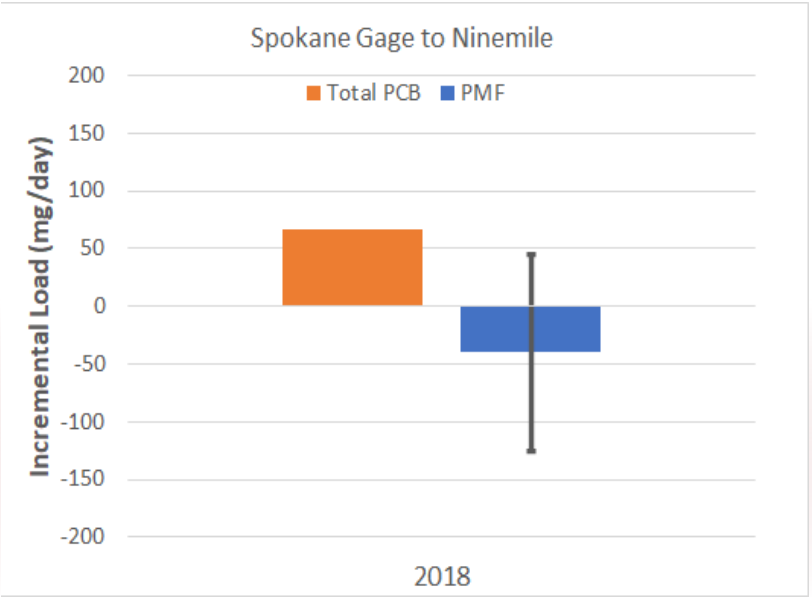


Evaluation of PCB Sources from Spokane Industrial Park

- Rationale
  - Historic reports of elevated PCBs in oxidation pond of wastewater treatment plant indicates that PCBs were used somewhere in the park
  - The origin of those PCBs is not currently known
- Candidate Studies
  - Explore historic land use at SIP
  - Review past Ecology studies

Synoptic Survey to Support Mass Balance Assessment

- Rationale
  - Only a single year of data are available to support the mass balance assessment downstream of USGS gage
  - Survey data would serve purposes other than mass balance
    - check for potential unknown source of PCB-11
    - provide data to support trend assessment
- Candidate Studies
  - Synoptic survey covering USGS gage to Nine Mile
    - currently budgeted in 2021-2023 work plan



Additional Biofilm Monitoring

- Rationale
  - Existing Ecology biofilm monitoring has been invaluable in identifying Mission Reach as having elevated PCBs
  - Spatial resolution of existing studies is too coarse to pinpoint source locations
- Candidate Studies
  - Additional biofilm monitoring with sufficient spatial resolution to identify source locations
    - Less-rigorous analytical method to offset costs?