LimnoTech

Water Environment | Scientists Engineers

Technical Activities Report: Synoptic Survey and Mass Balance

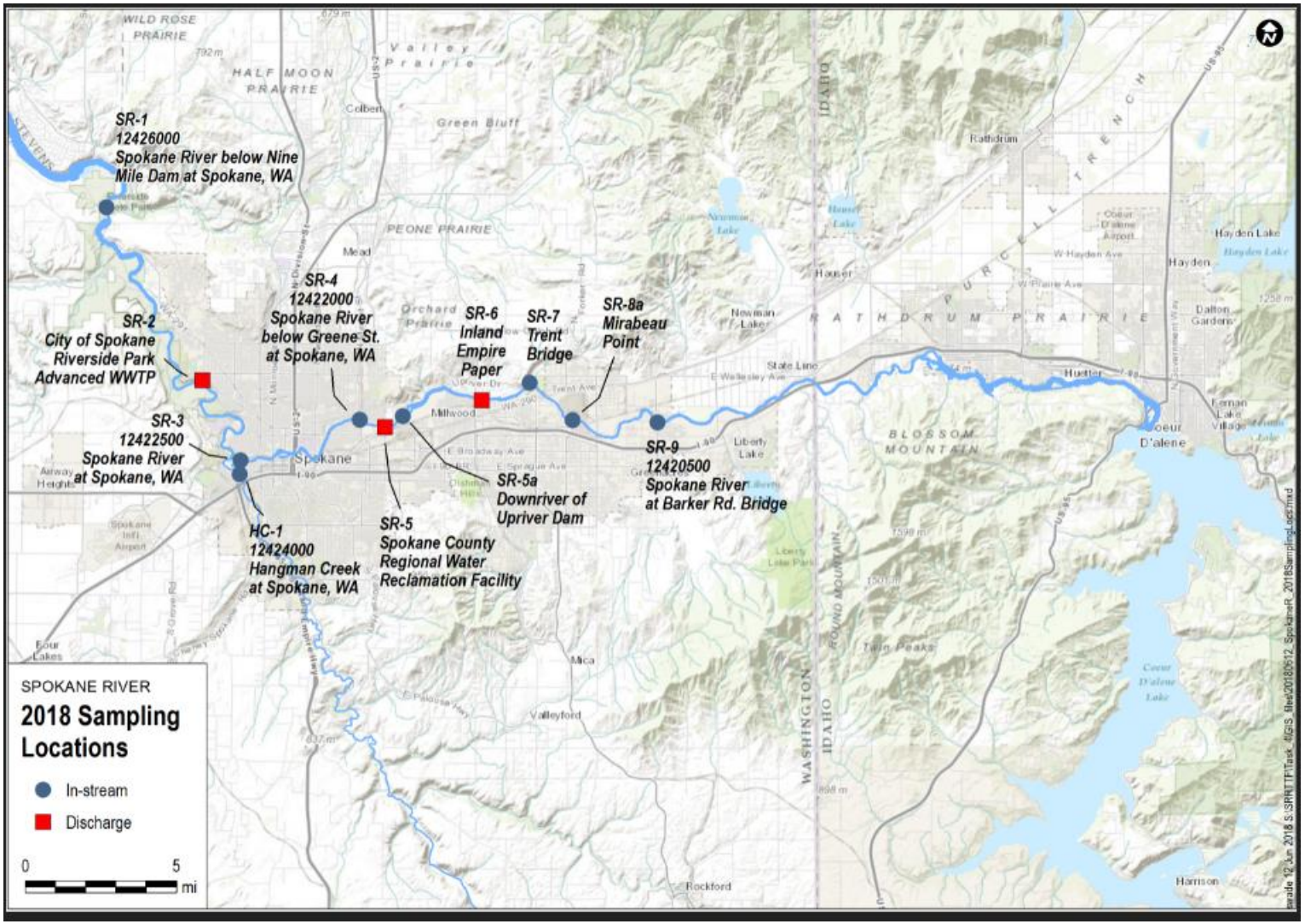
Spokane River Regional Toxics Task Force

February 29, 2019

Study Objectives

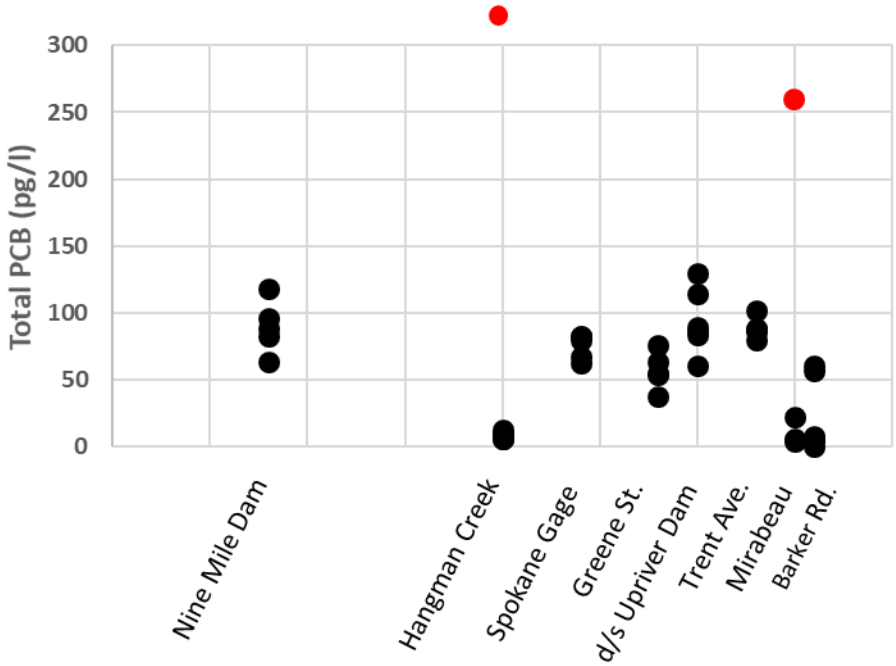
- Fill gaps in understanding from 2014 and 2015 mass balance assessments
- Are there significant groundwater PCB loads entering:
  - Upstream of Mirabeau Point?
  - Between Trent Ave. (Plante's Ferry) and Greene St.?
  - Between the Spokane USGS gage and Nine Mile?

Sampling Locations



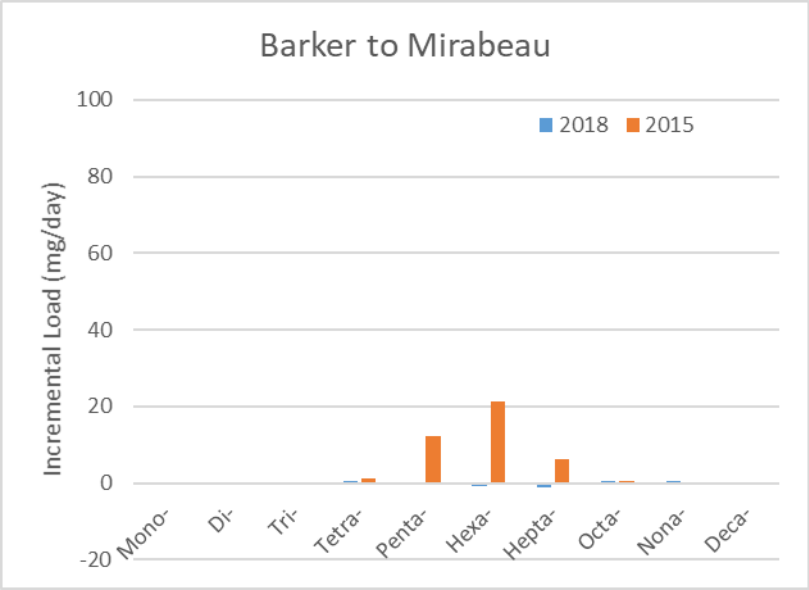
Sampling Details

- Five day summer low flow survey : August 4 – 8
  - Flows slightly higher, concentrations slightly lower than previous years



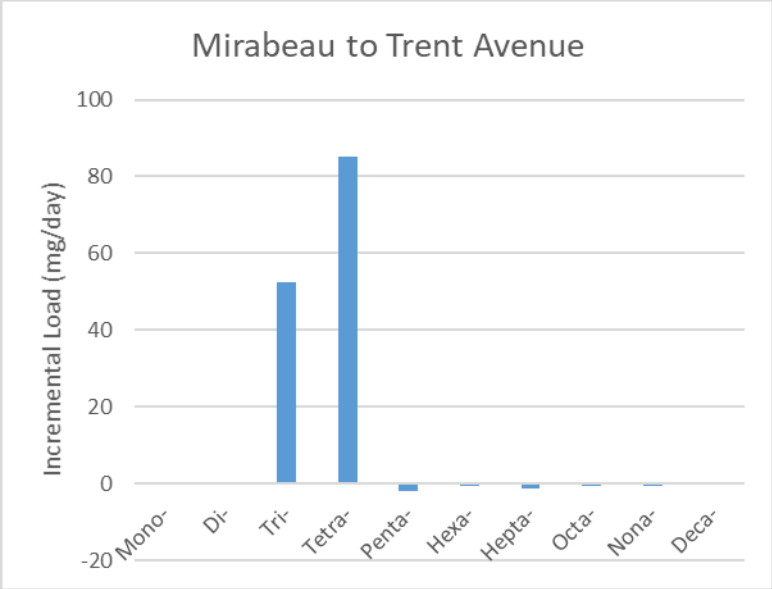
Mass Balance: Barker Road to Mirabeau Point

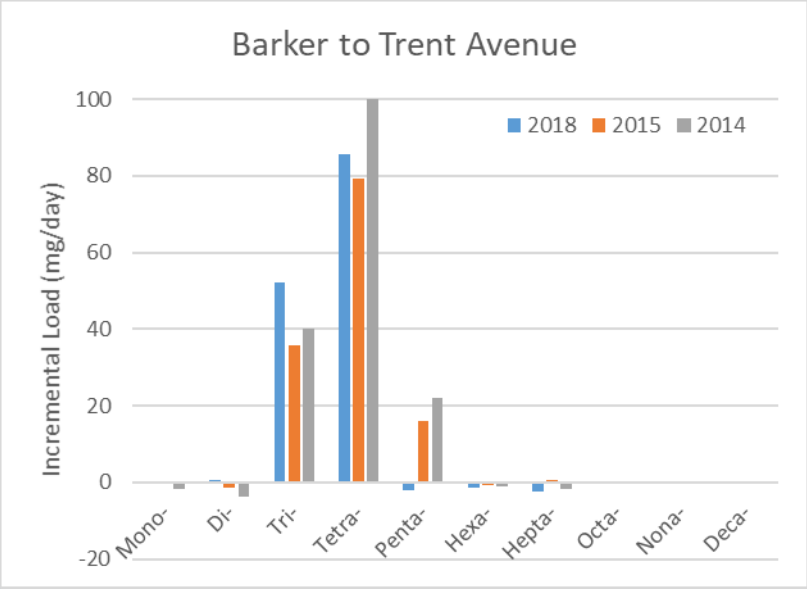
- Negligible groundwater loading observed in 2018
  - In contrast to 2015, which showed possible loading



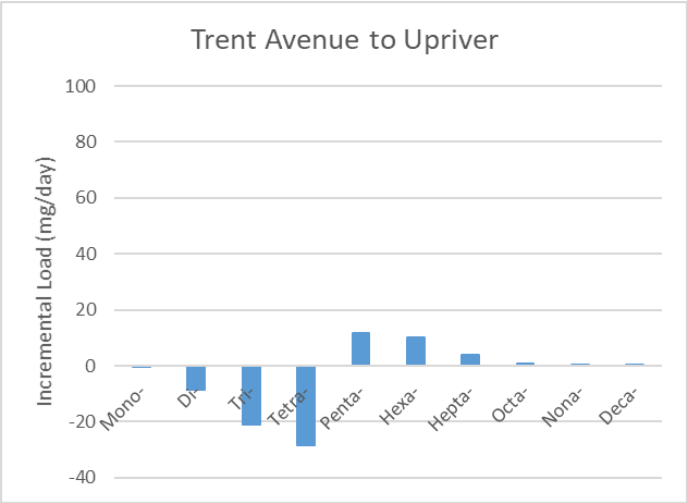
Mass Balance: Mirabeau Point to Trent Avenue

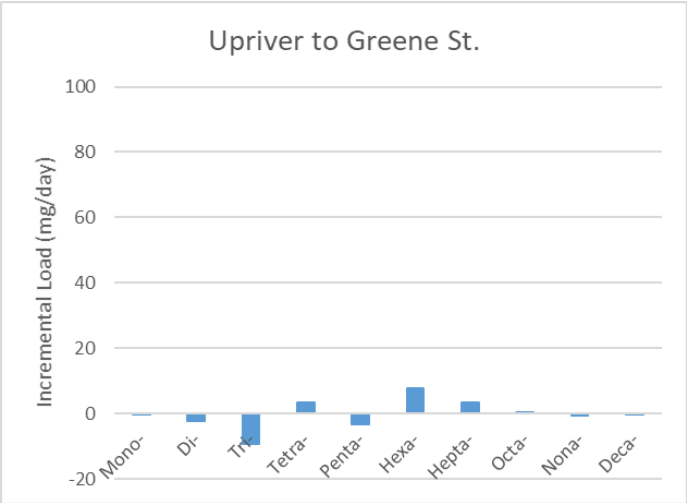
- Not included in original draft, added in response to comments
- Groundwater load very similar to prior years





Mass Balance: Trent Avenue to Greene St.

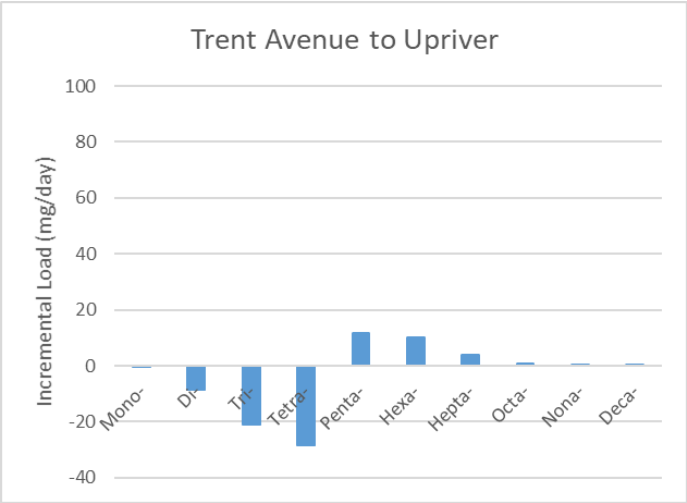


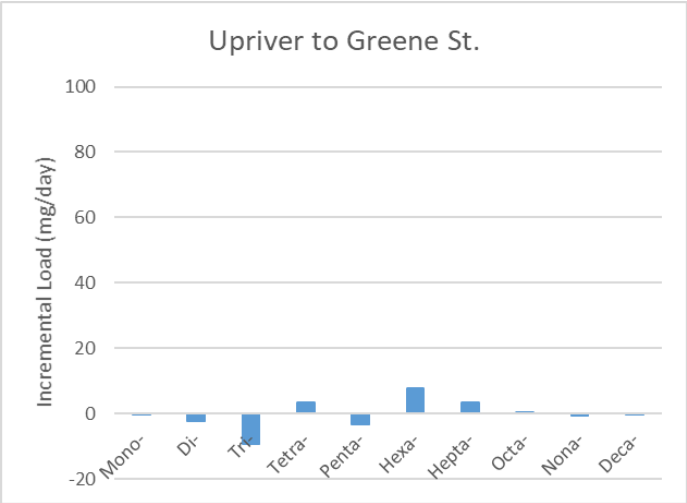


- This river segment was divided into two parts for 2018
- Loss of lower chlorinated homologs between Trent and Upriver

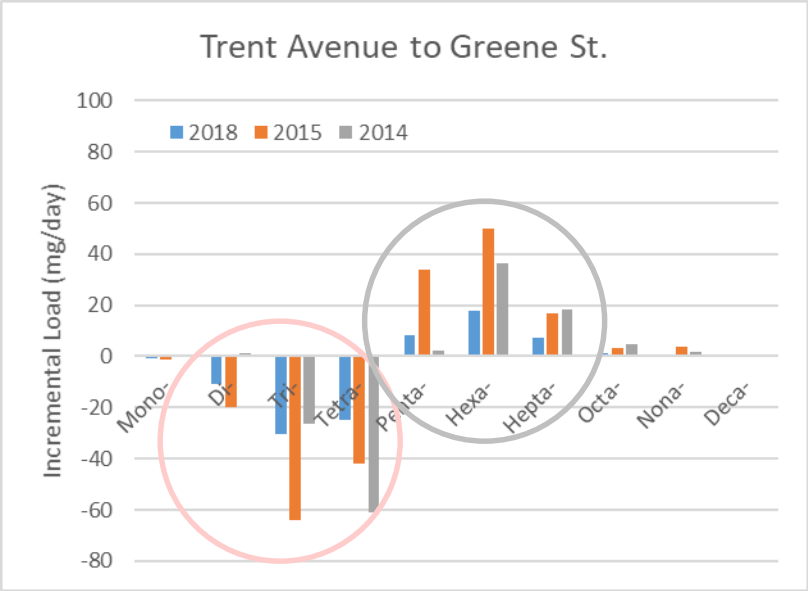
Mass Balance: Trent Avenue to Greene St.

2018: Divided into Two Reaches





Comparison to Previous Years

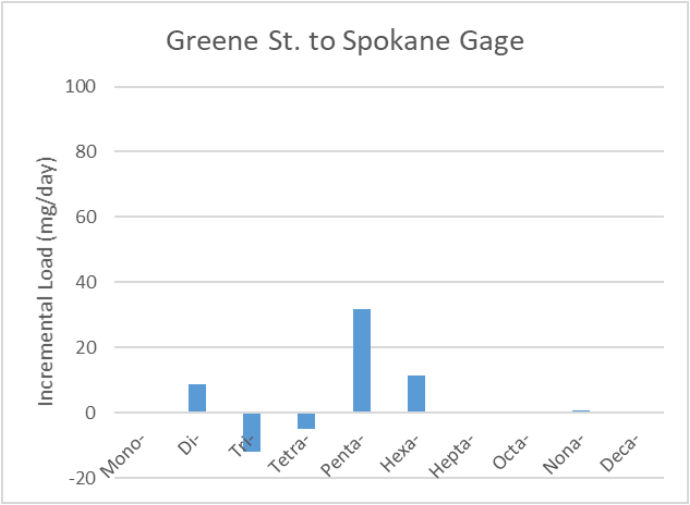


- Similar phenomena observed across years
  - Loss of di- through tetra- homologs
  - Gain of penta- through hepta-

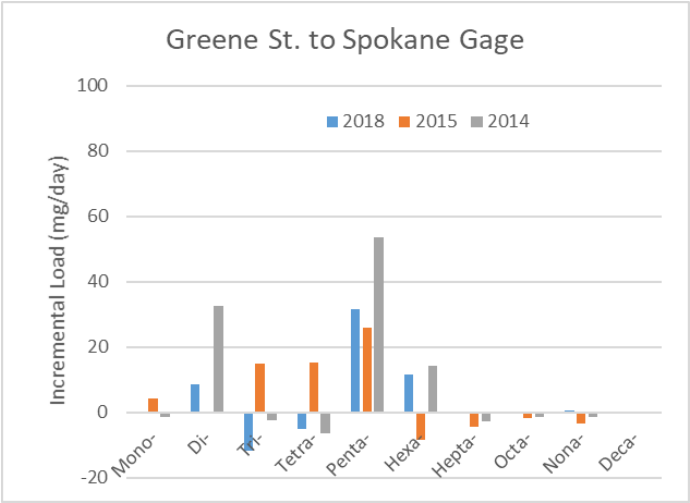
Mass Balance: Greene St. -> USGS Gage

- Gain of penta-chloro homolog seen
  - Consistent with previous years
- Inconclusive regarding other homologs

2018

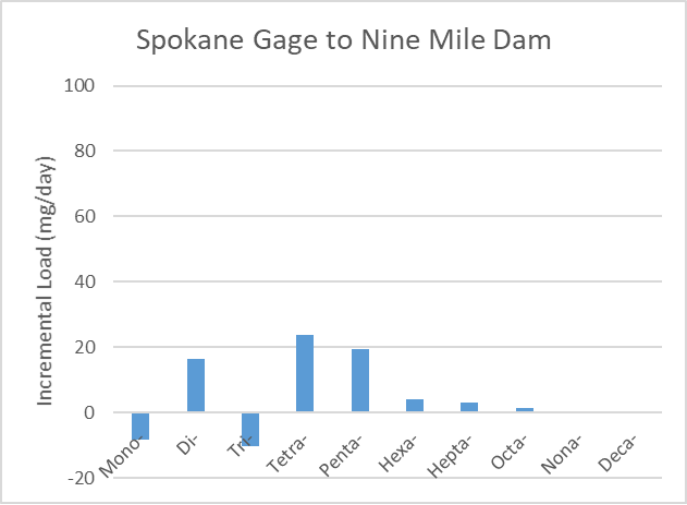


Comparison to Previous Years

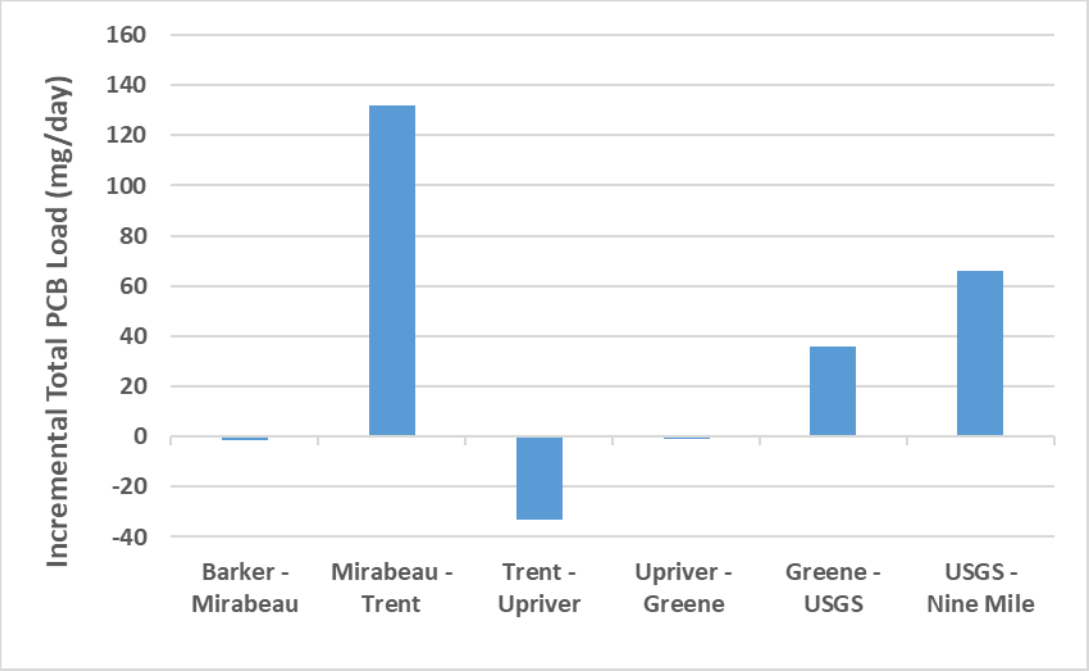


Mass Balance: USGS Gage -> Nine Mile

- Some gain in several homologs observed below Spokane gage



Summary



- Negligible load upstream of Mirabeau Point
- Load near Kaiser similar to past years
- Interesting results between Trent and Greene
- Some PCB gain downstream of Greene

Observations/Questions

- Results don't eliminate the possibility of a load upstream of Mirabeau at other times
  - Load, if it exists here, appears to be sporadic
  - Results support conclusion that it is infrequent
- What is going on downstream of Trent Ave.?
  - Phenomenon too consistent to be noise
- Are estimated loads downstream of Greene St. outside of the noise?

Potential Next Steps

- Items to be further discussed in the Tech Track Work Group
  - Deeper dive into what is happening below Trent Ave.
  - Determination if loads downstream of Greene St. are real or “noise”
- May lead to additional monitoring recommendations

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Questions?