

Quantifying Toxins to inform fish consumption
and identifying sources of pollutants in the Upper Columbia River Basin
Columbia River Toxins Grant (EPA)

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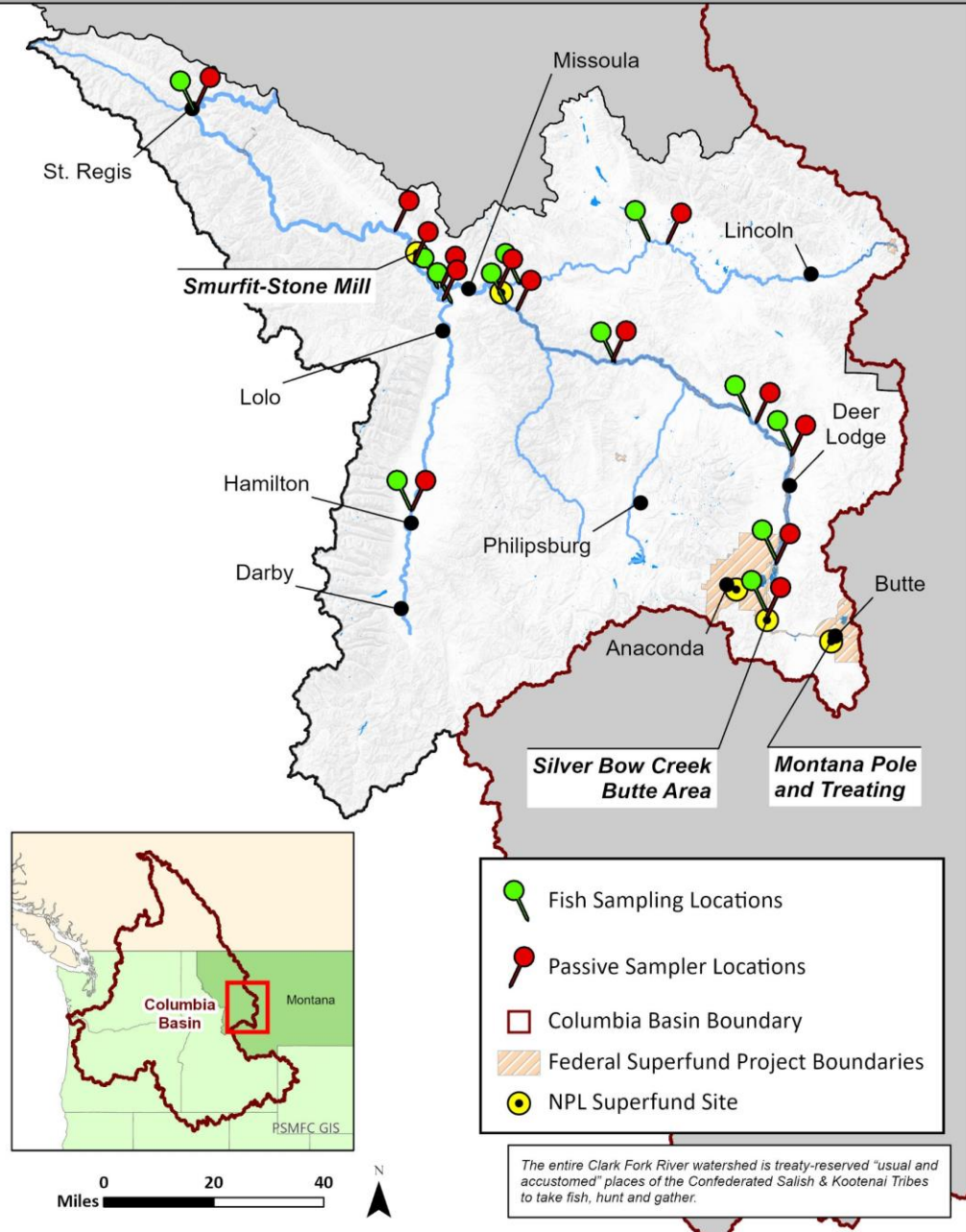
Elena Evans



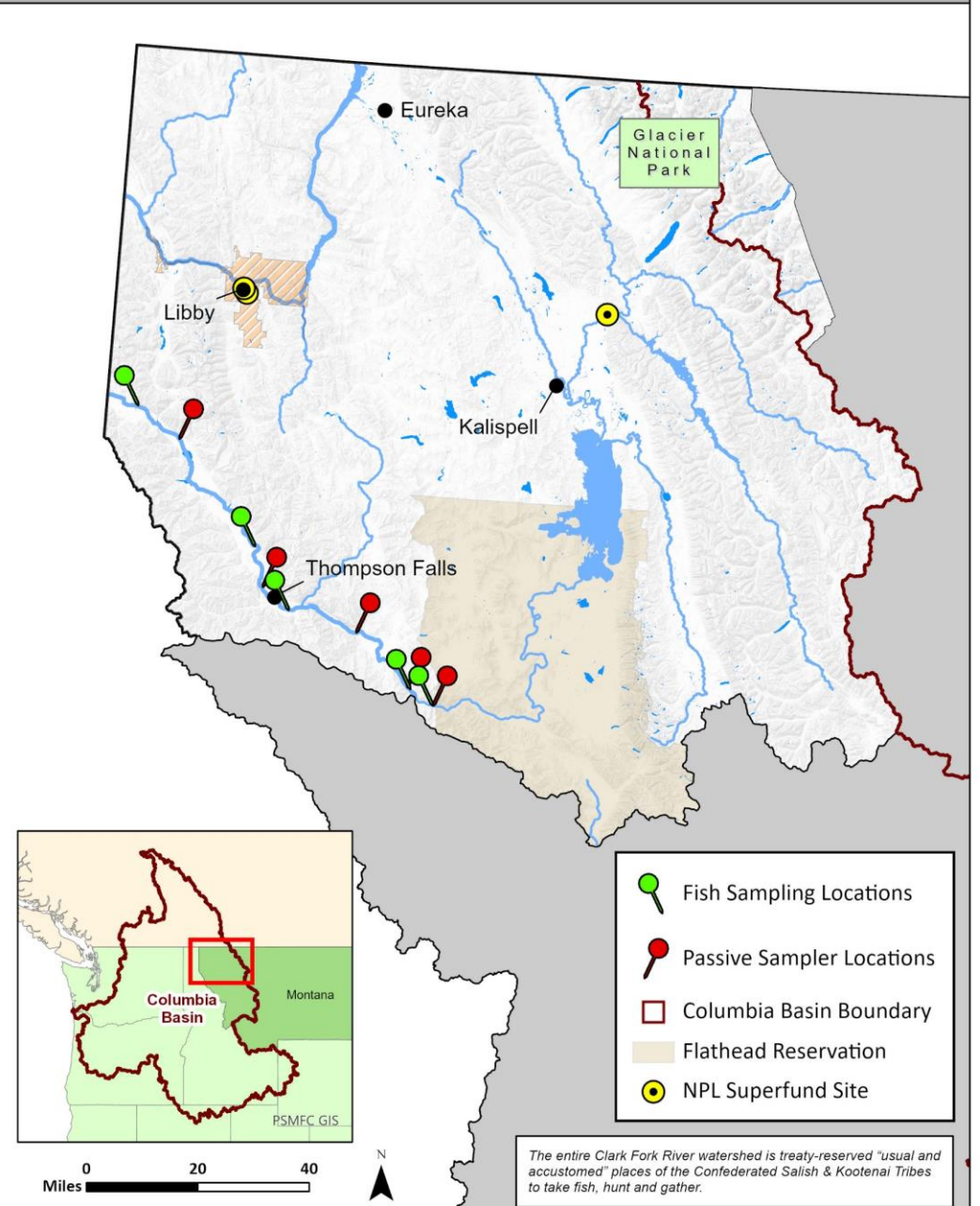
Darrin Kron



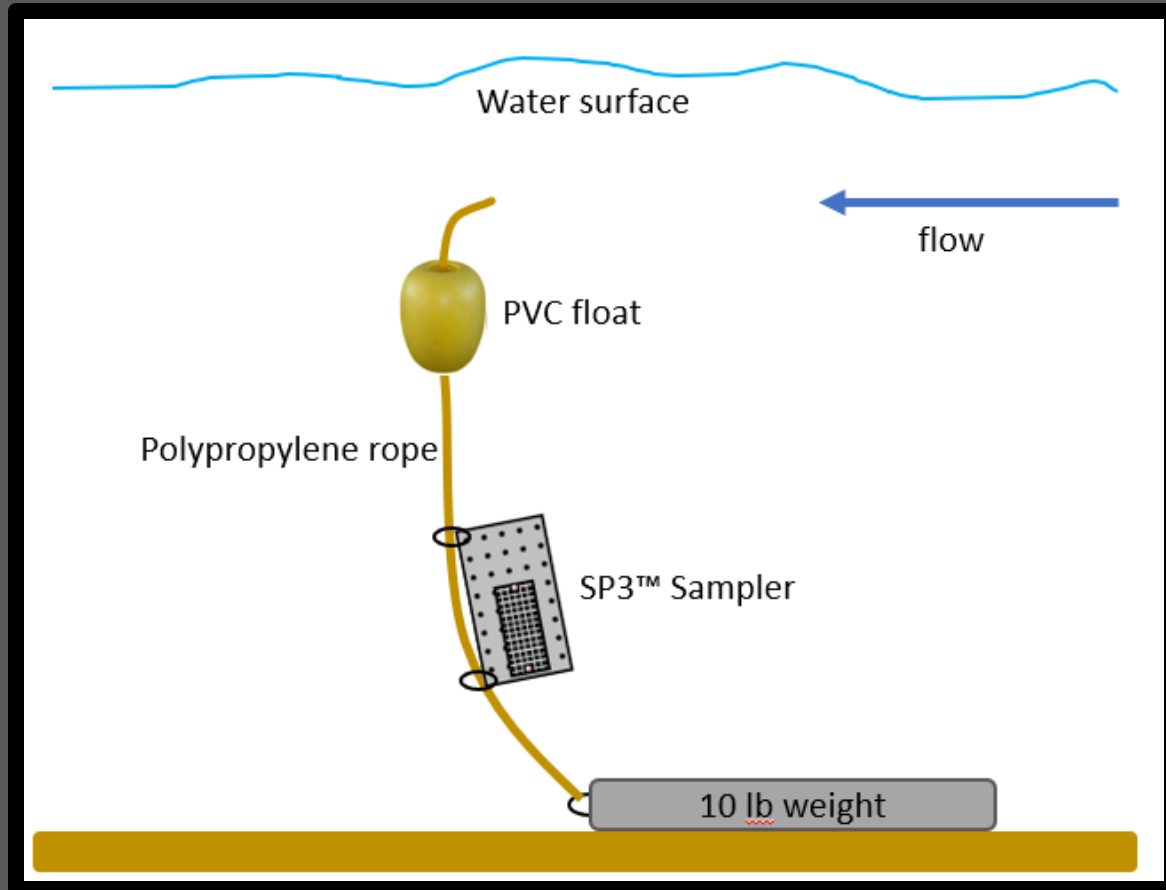
Fish and Passive Sampler Sites



Fish and Passive Sampler Sites



Passive samplers



Passive Sampler for Hydrophobic Organic Compounds

Before SiREM's SP3, it was difficult to understand just how much of the hydrophobic organic compounds measured at a given site were actually bioavailable to receptors.



CAUTION

Sensitive water quality monitoring equipment is deployed in river to measure toxins for fish health.

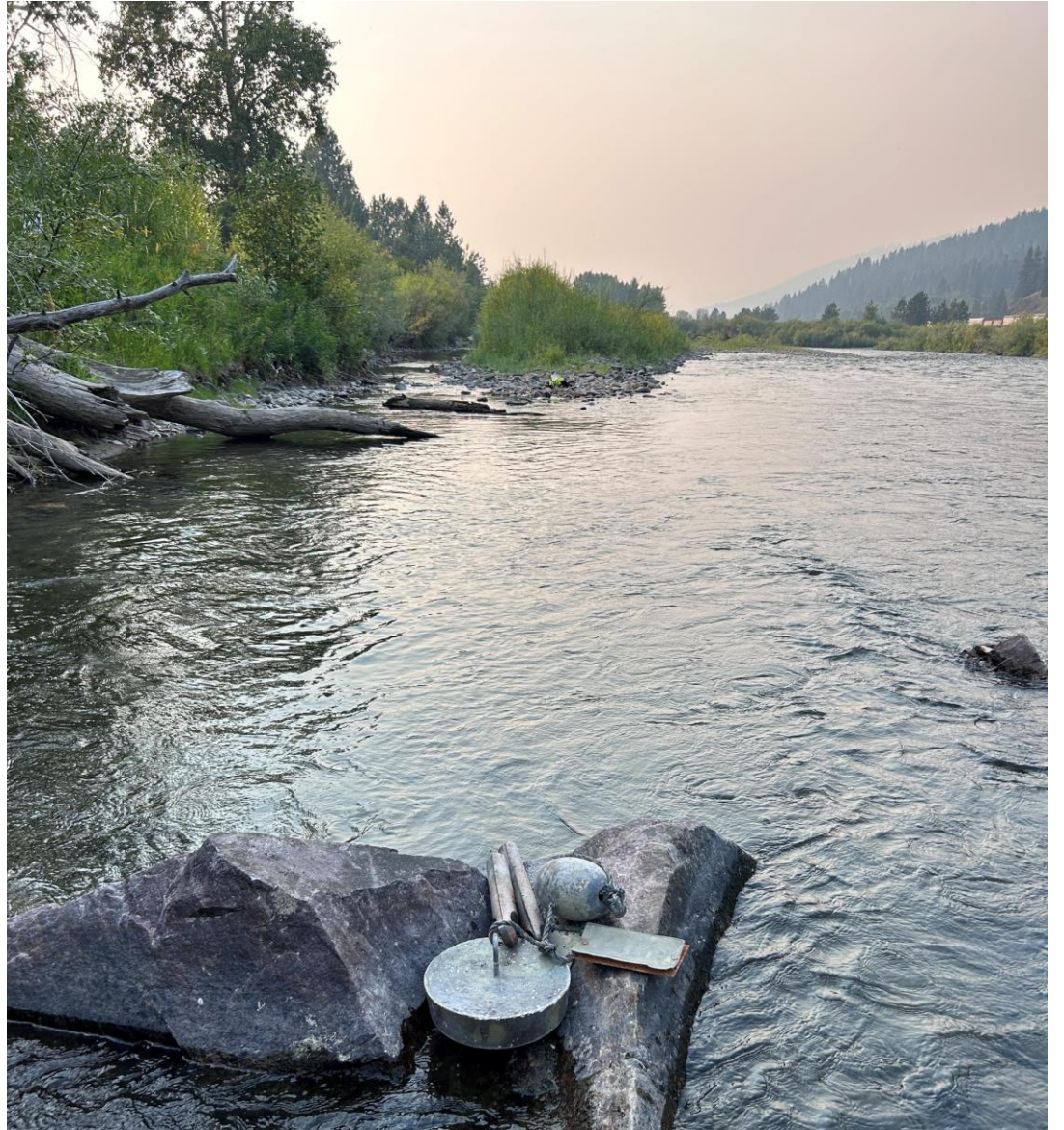
PLEASE DO NOT DISTURB

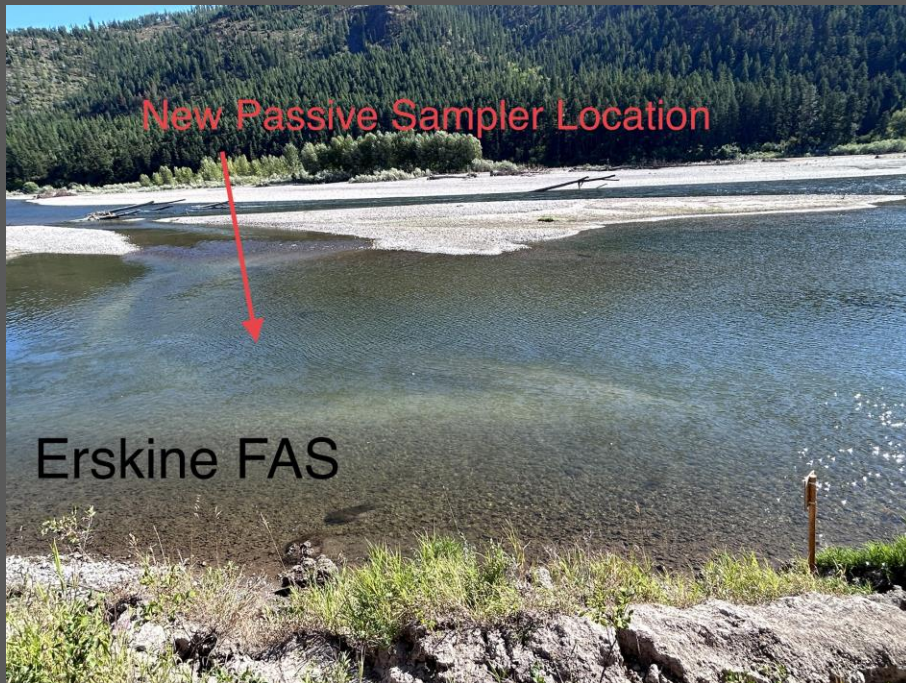


For more information, contact Trevor Se...
(406) 444-5686

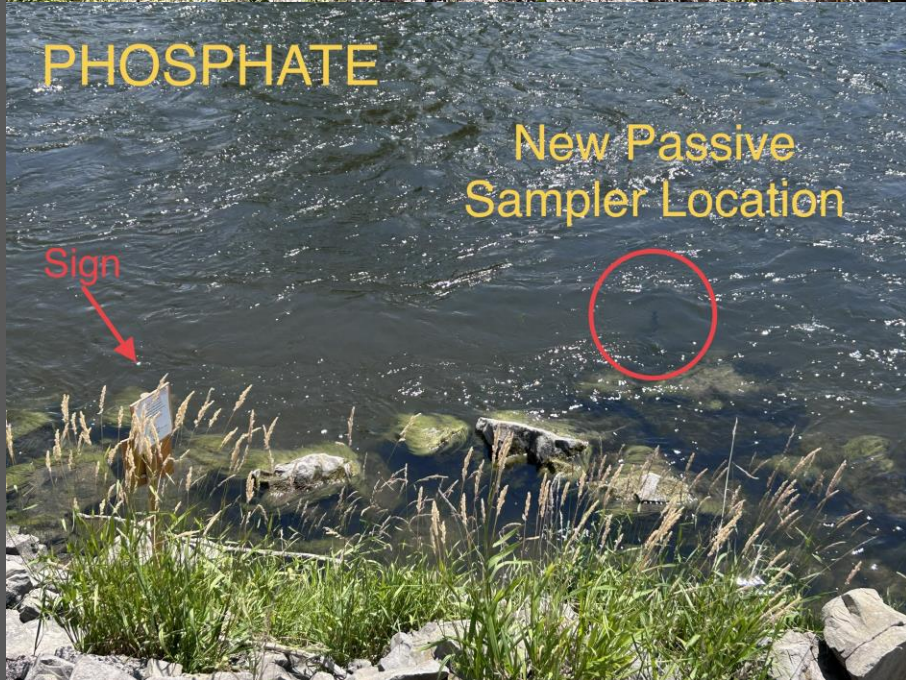








Erskine FAS



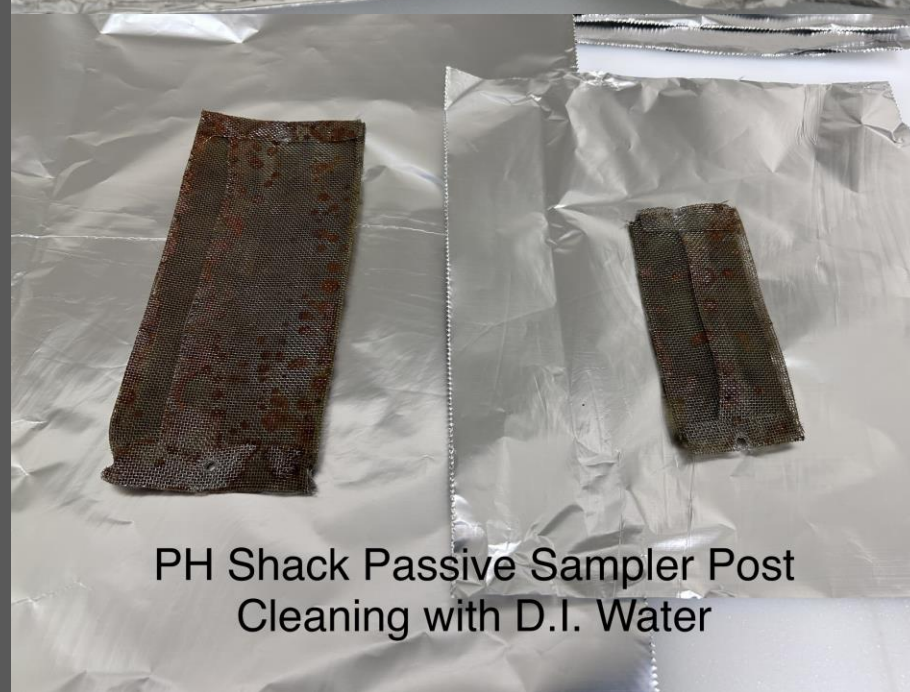
PHOSPHATE

New Passive
Sampler Location

Sign



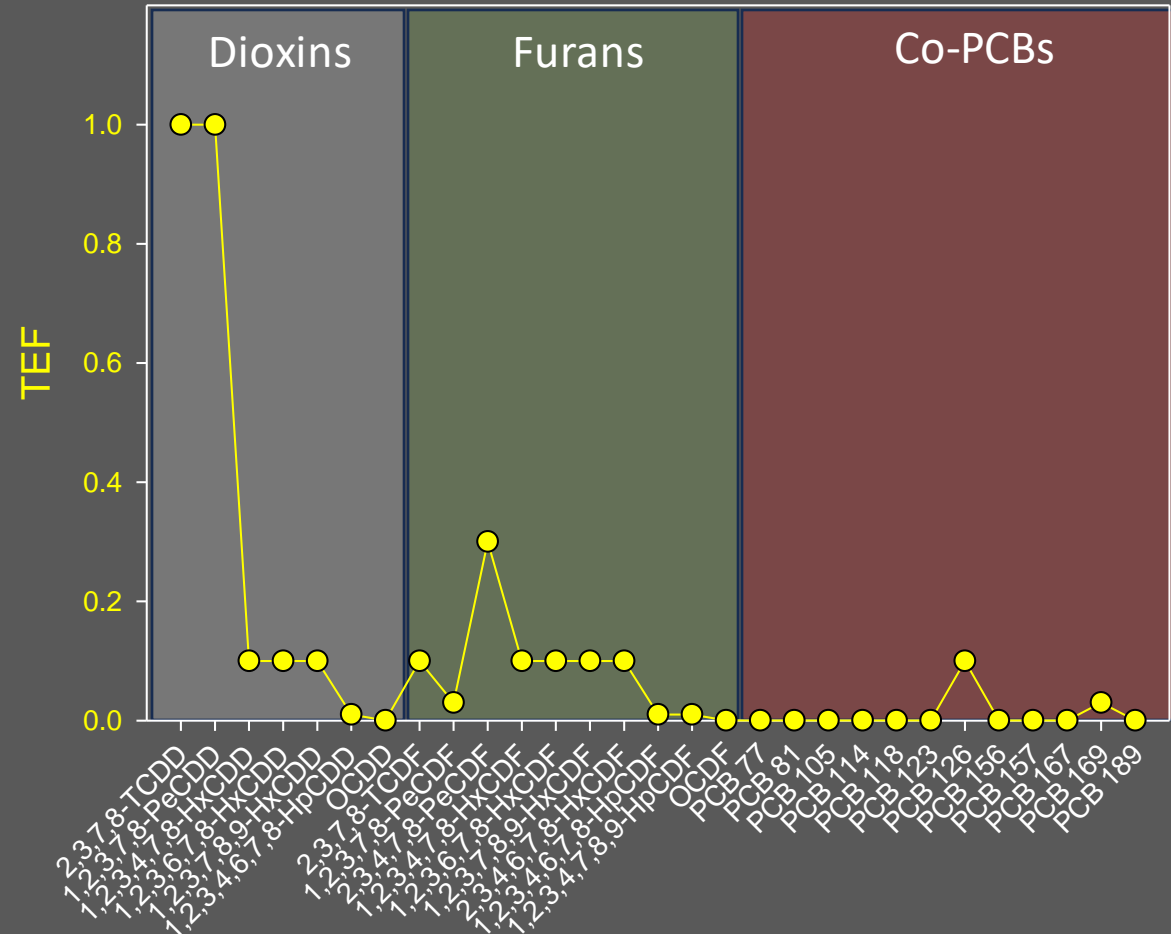
PH Shack Passive Sampler
Before Cleaning with D.I. Water

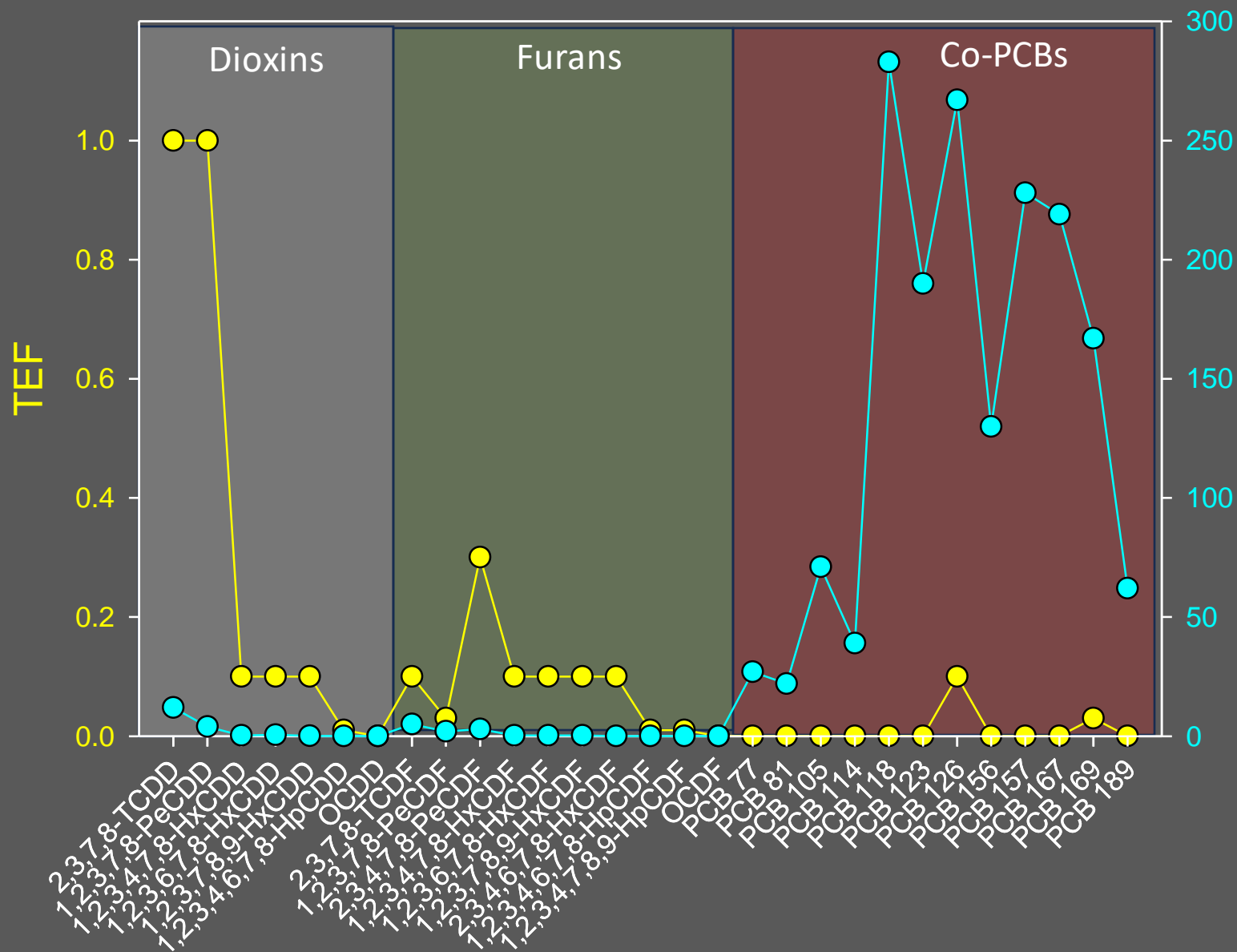


PH Shack Passive Sampler Post
Cleaning with D.I. Water

Compound	Congener	TEF	BSAF
Dioxin	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1	12
Dioxin	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	1	4
Dioxin	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.3
Dioxin	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.6
Dioxin	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.1
Dioxin	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.01	0.02
Dioxin	Octachlorodibenzo-p-dioxin (OCDD)	0.0003	0.002
Furan	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.1	5
Furan	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.03	2
Furan	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.3	3
Furan	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.3
Furan	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.3
Furan	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.1	0.03
Furan	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.08
Furan	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.01	0.04
Furan	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.01	0.06
Furan	Octachlorodibenzofuran (OCDF)	0.0003	0.01
Coplanar PCBs	PCB 77	0.0001	27
Coplanar PCBs	PCB 81	0.0003	22
Coplanar PCBs	PCB 105	0.00003	71
Coplanar PCBs	PCB 114	0.00003	39
Coplanar PCBs	PCB 118	0.00003	283
Coplanar PCBs	PCB 123	0.00003	190
Coplanar PCBs	PCB 126	0.1	267
Coplanar PCBs	PCB 156	0.00003	130
Coplanar PCBs	PCB 157	0.00003	228
Coplanar PCBs	PCB 167	0.00003	219
Coplanar PCBs	PCB 169	0.03	167
Coplanar PCBs	PCB 189	0.00003	62

Toxicity and bioaccumulation

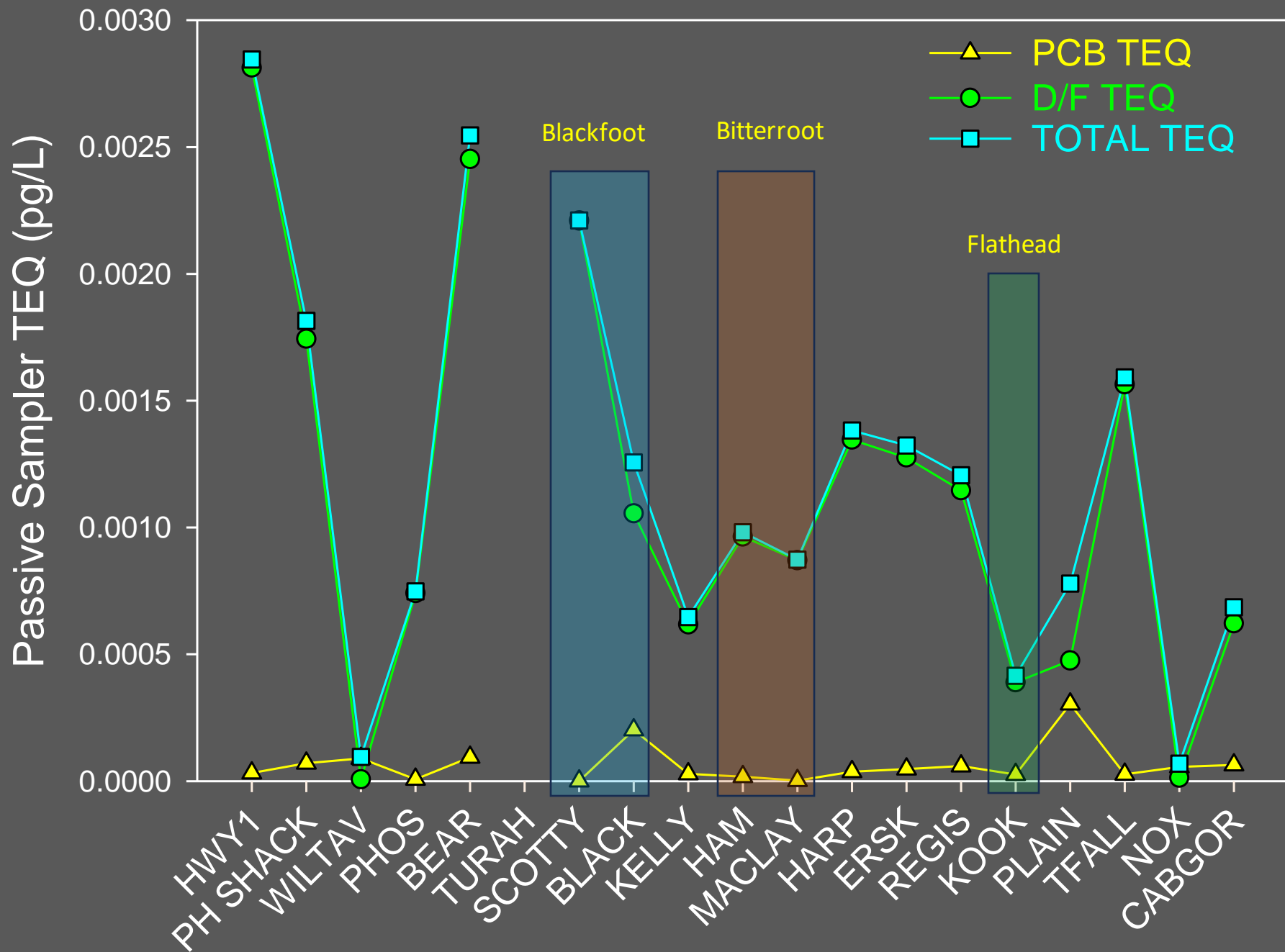
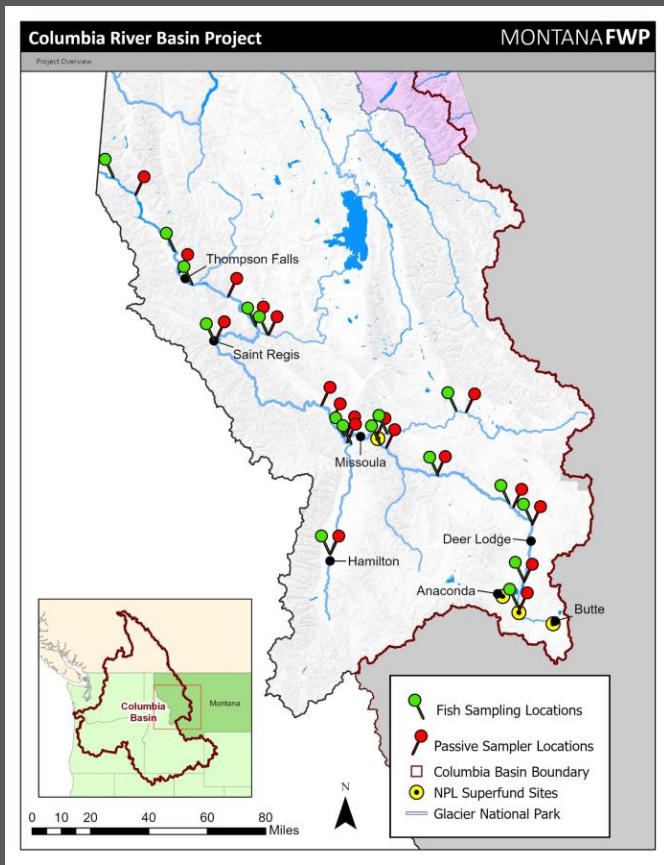


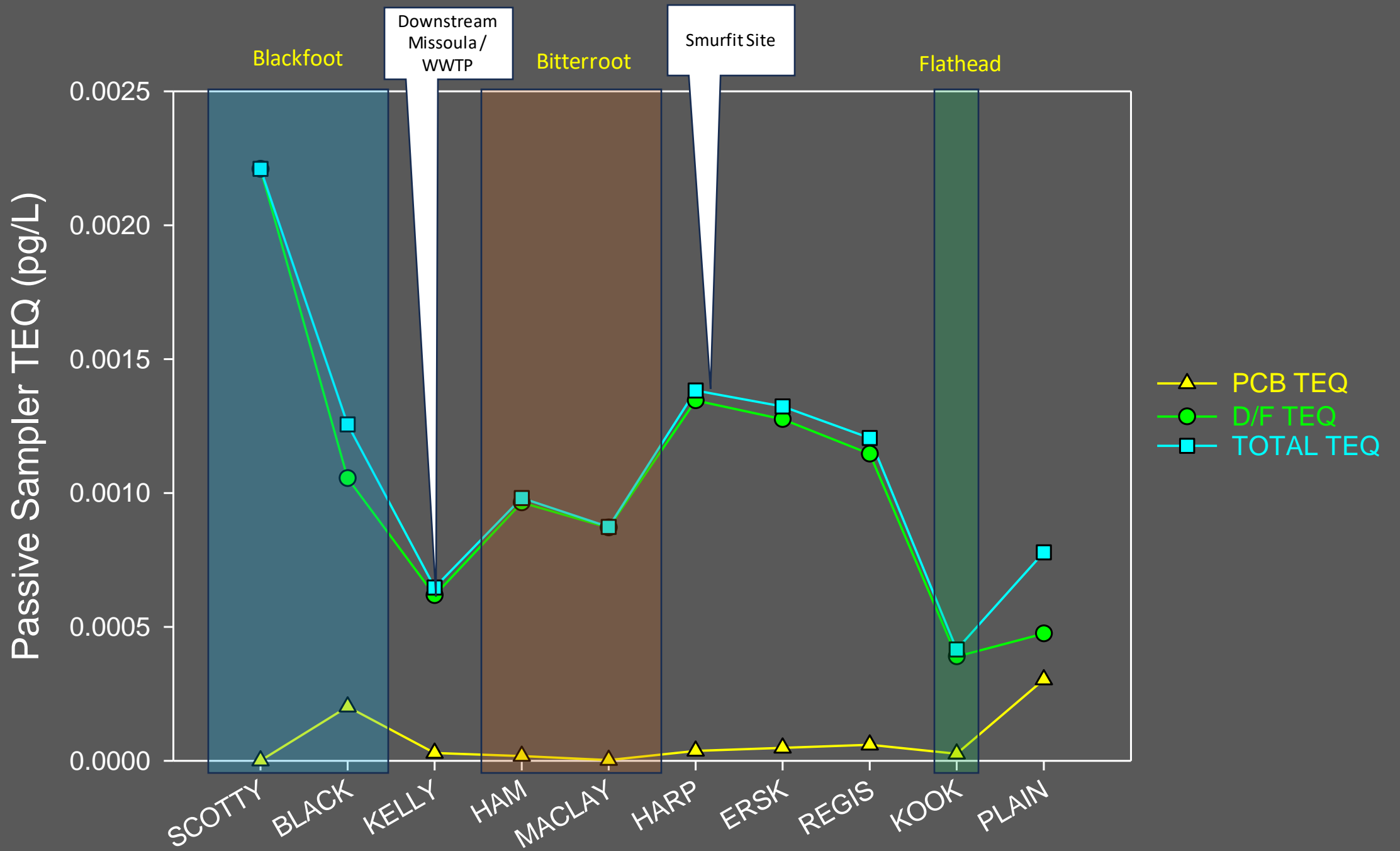


BSAF

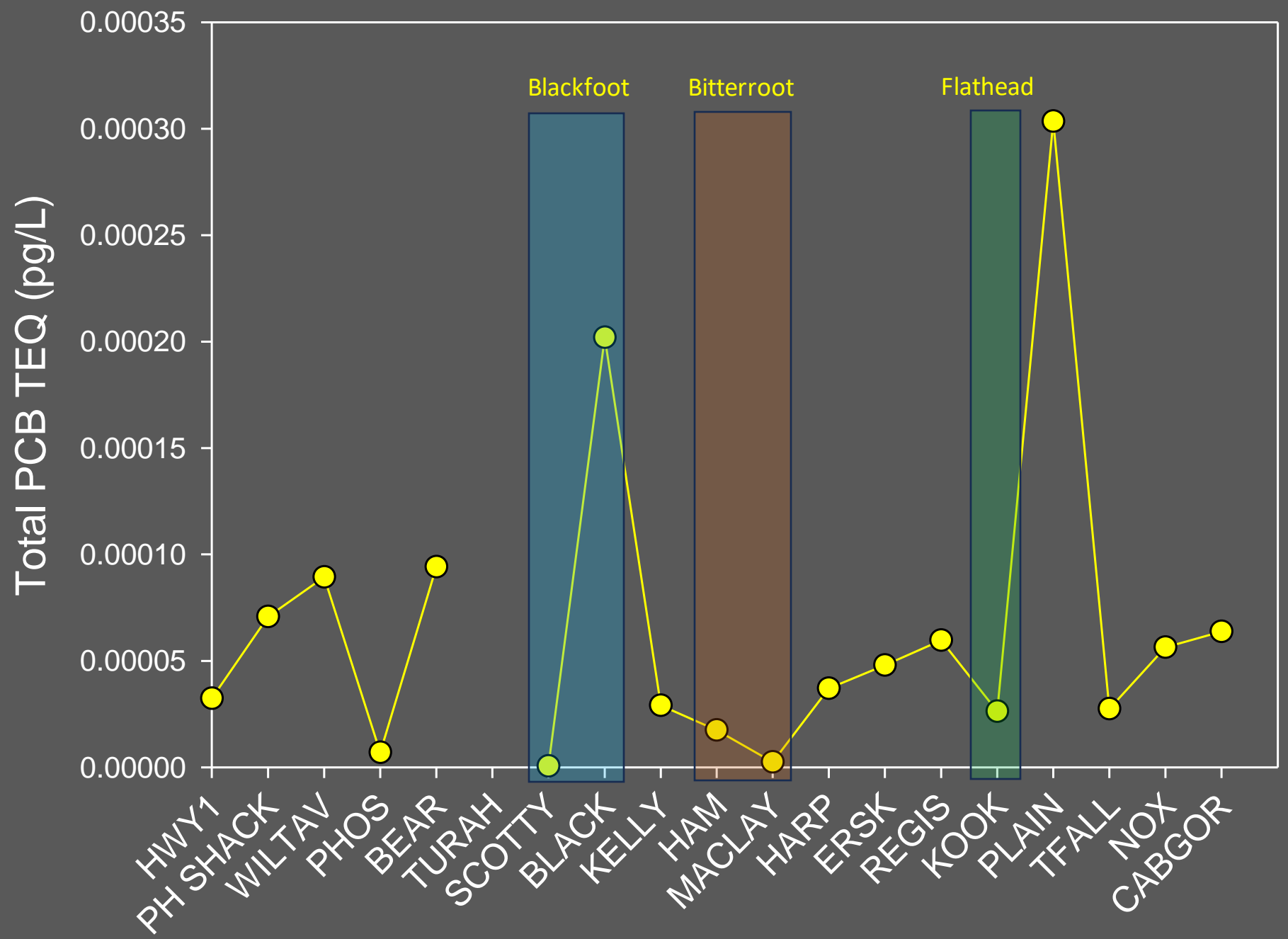
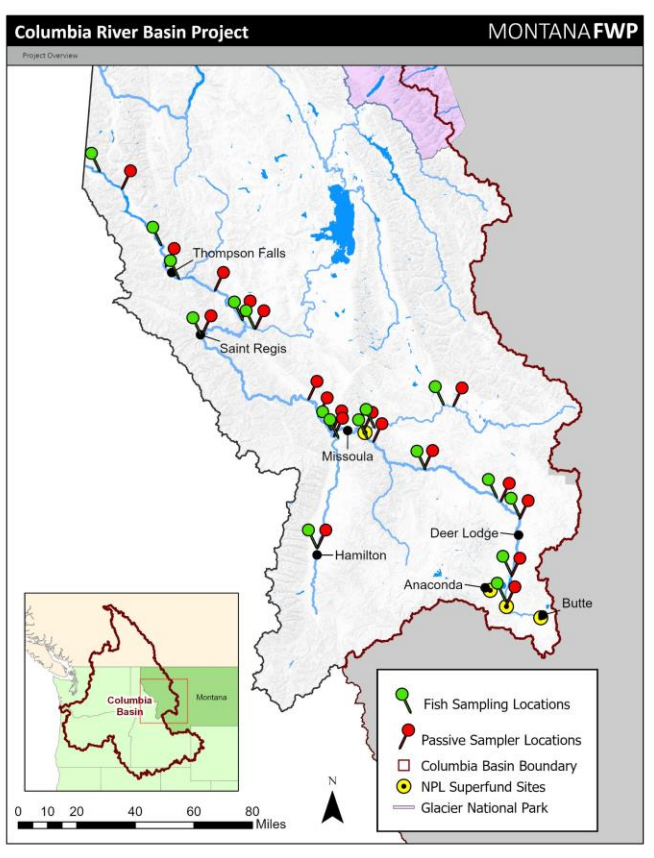


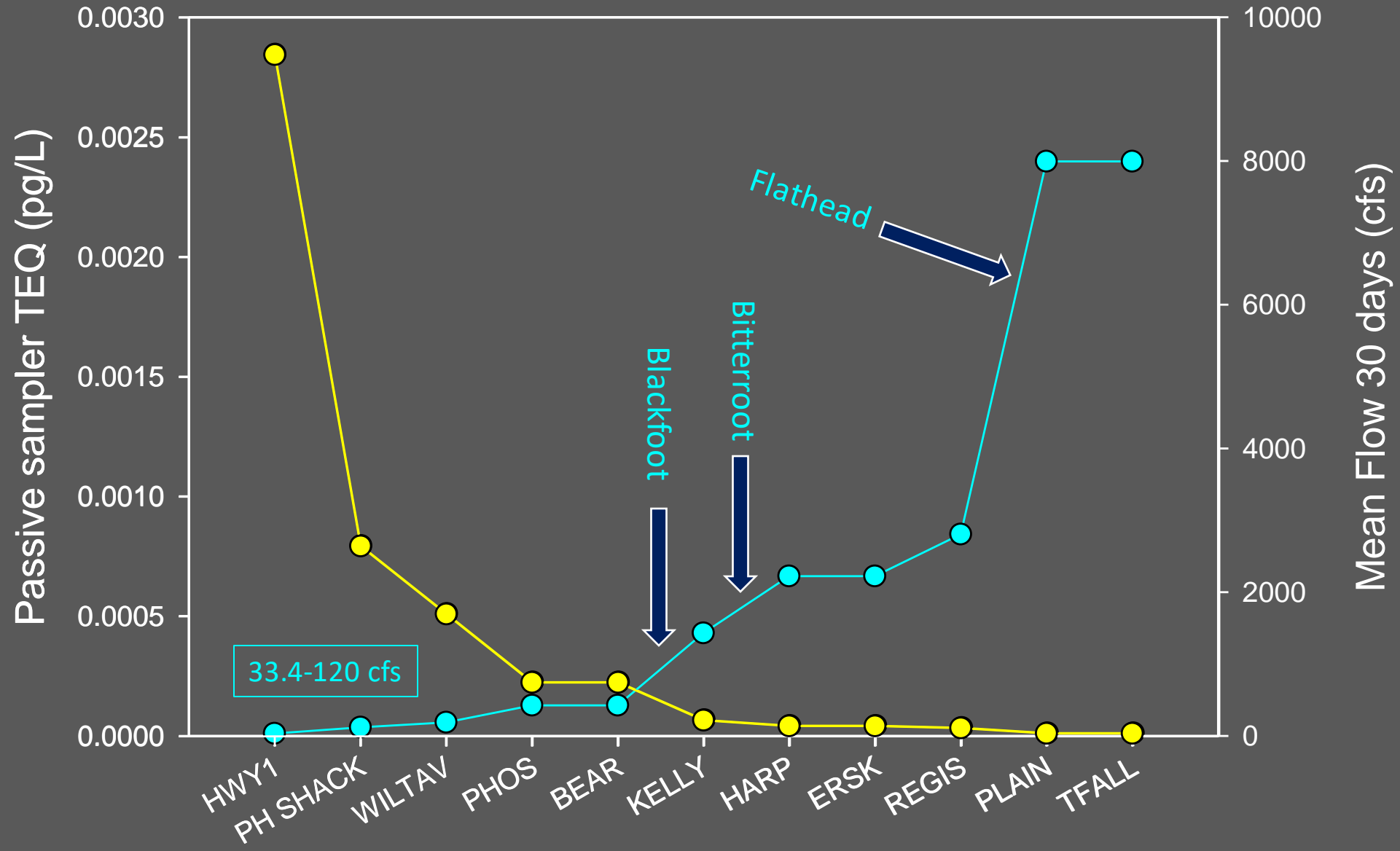
Passive sampler TEQ



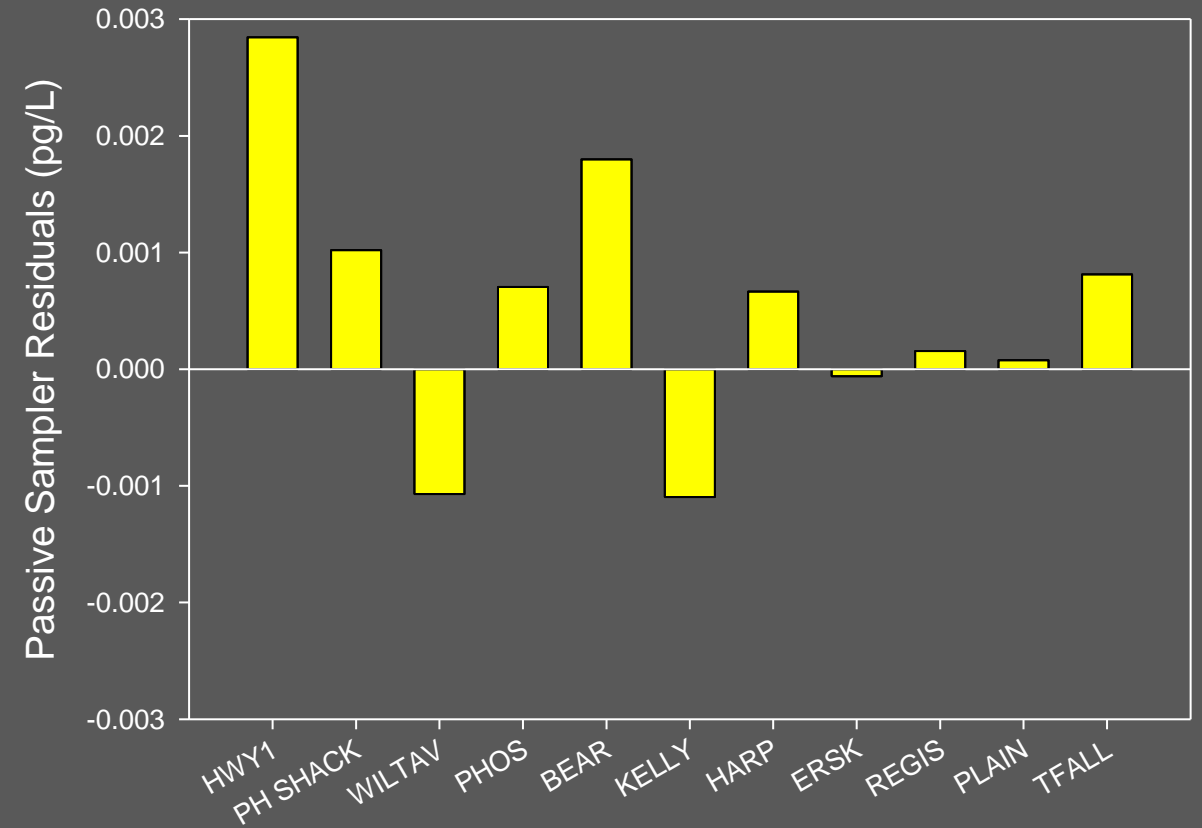
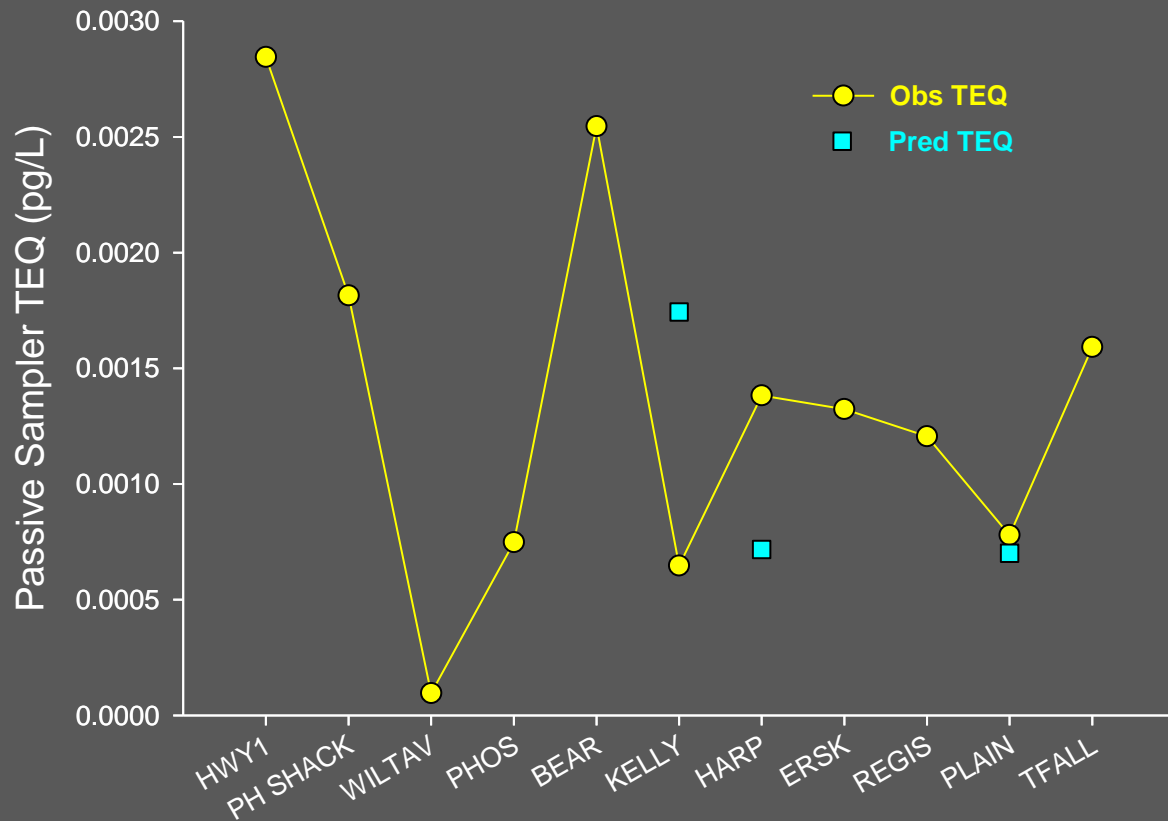


Passive sampler PCB TEQ

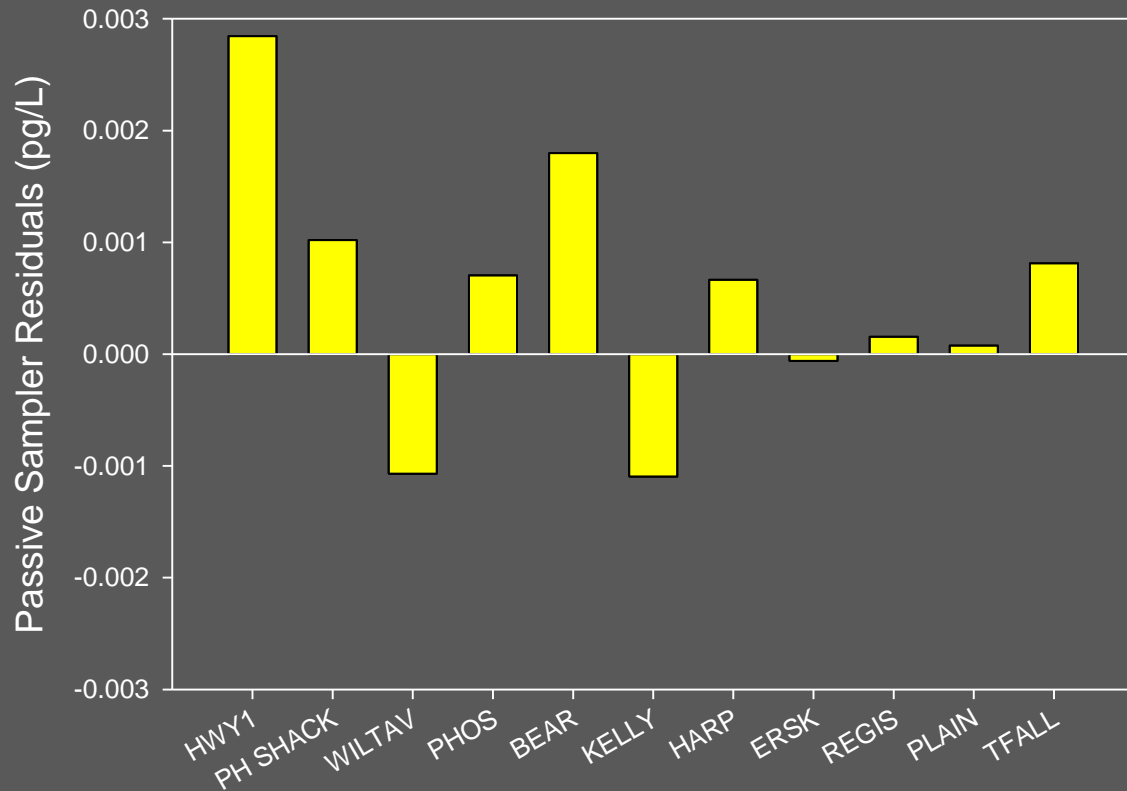




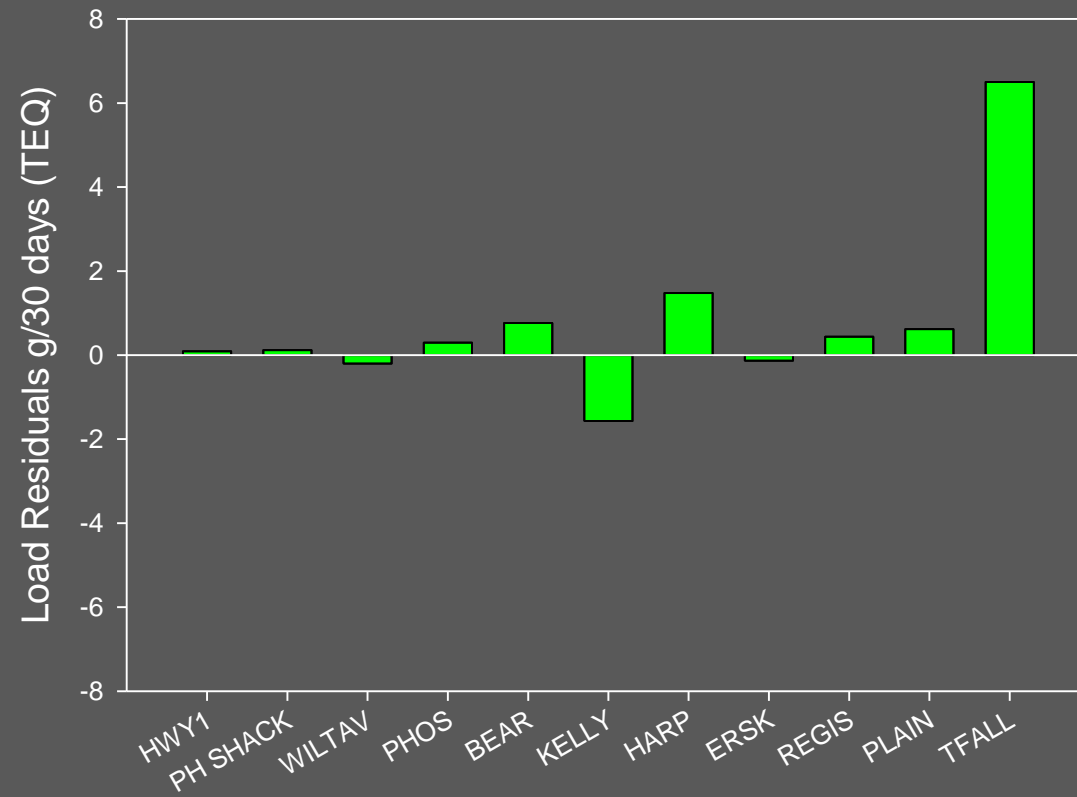
Flow modeling



CONCENTRATION



LOAD





Summary

- Passive samplers vs. water
- Fish tissue
- Outreach
- Future work

