



What's up with the River Water around here?

Mathews' Research Lab:
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What are the temporal and spatial dynamics of tributaries to the Spokane River?

What do we know about the tributaries and what do we want to know?

Citizen Scientists

- + We collaborated with Toni Davidson, the Spokane River Keeper, and the kids from Saint George's High School for weekly sampling.



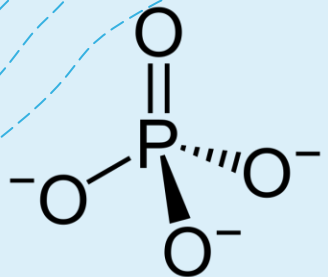
School, Saint George's. "Saint George's School." *Private School Review*, 17 May 2016, www.privateschoolreview.com/saint-george-s-school-profile. Accessed 22 Apr. 2025.



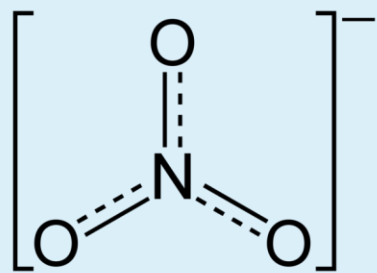
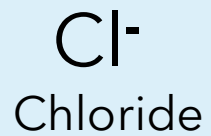
Weekly Processing Methodology

+

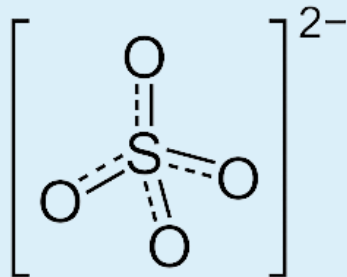
Anions



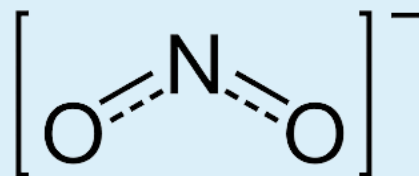
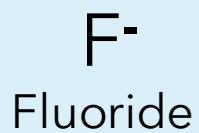
Phosphate



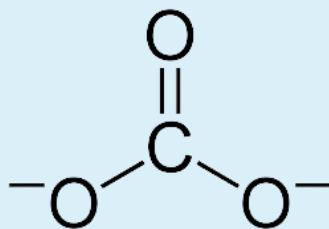
Nitrate



Sulfate



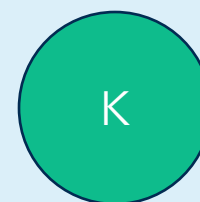
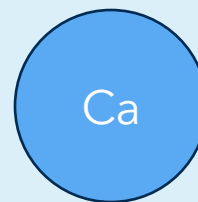
Nitrite



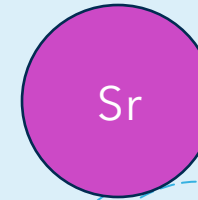
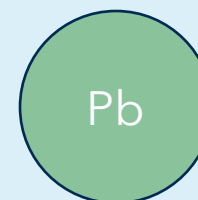
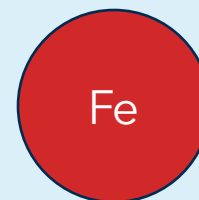
Carbonate

Metals

Bulk

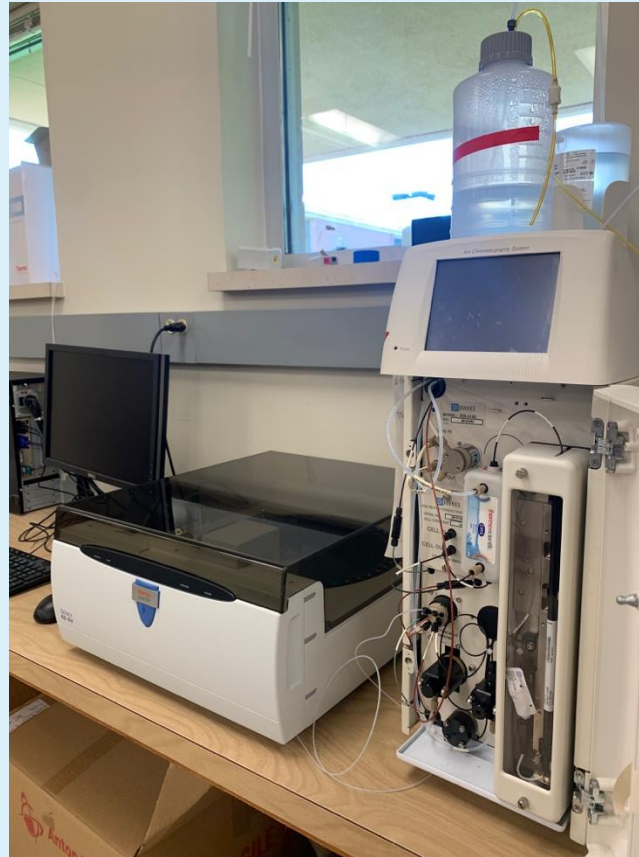


Trace



Anions: F^- , Cl^- , PO_4^{3-} , SO_4^{2-} , NO_3^- , NO_2^-

Part per million levels of ions



Ion-Chrom with Auto Sampler

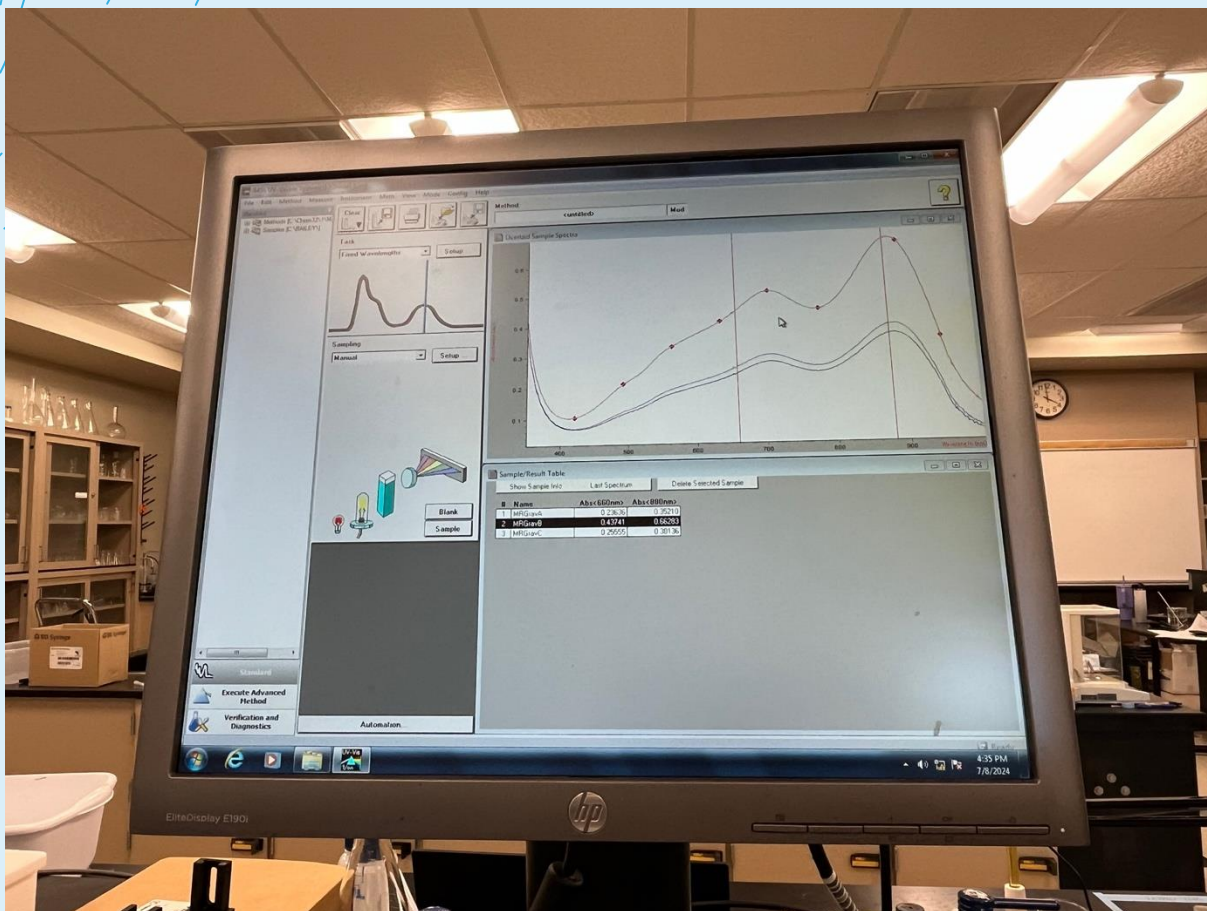
Metals

ICP-MS

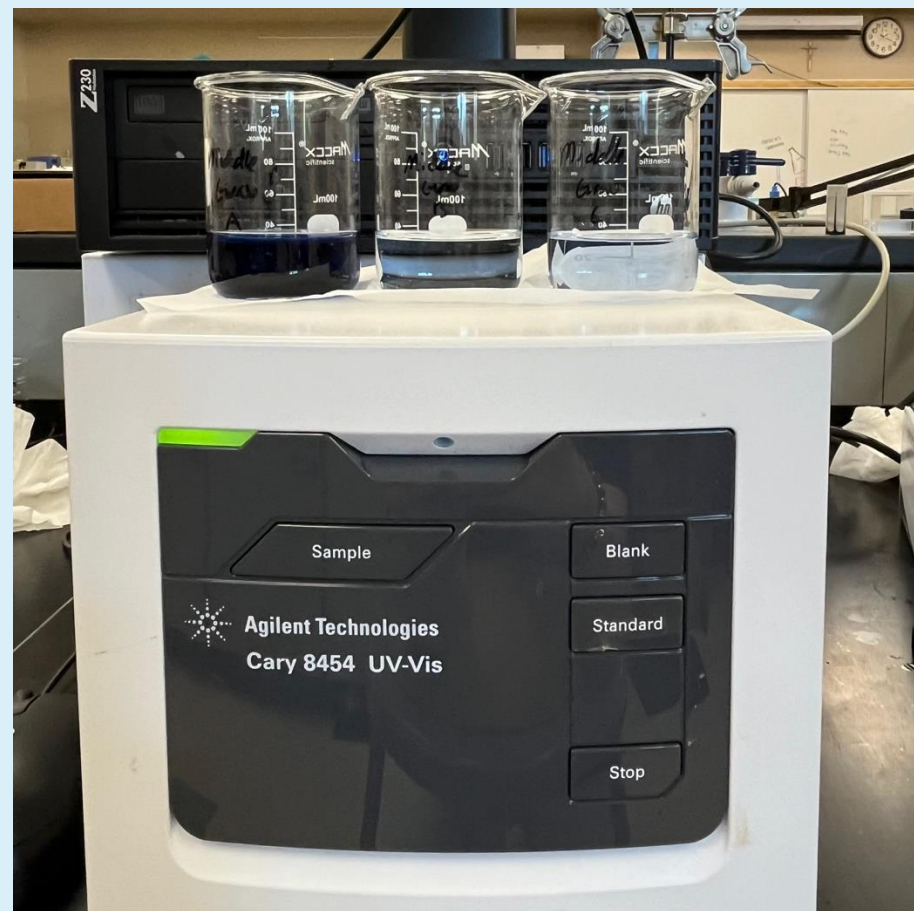


Inductively Coupled Plasma- Mass Spectrometer (So cool!!)

Ortho-Phosphate + Total Phosphorus

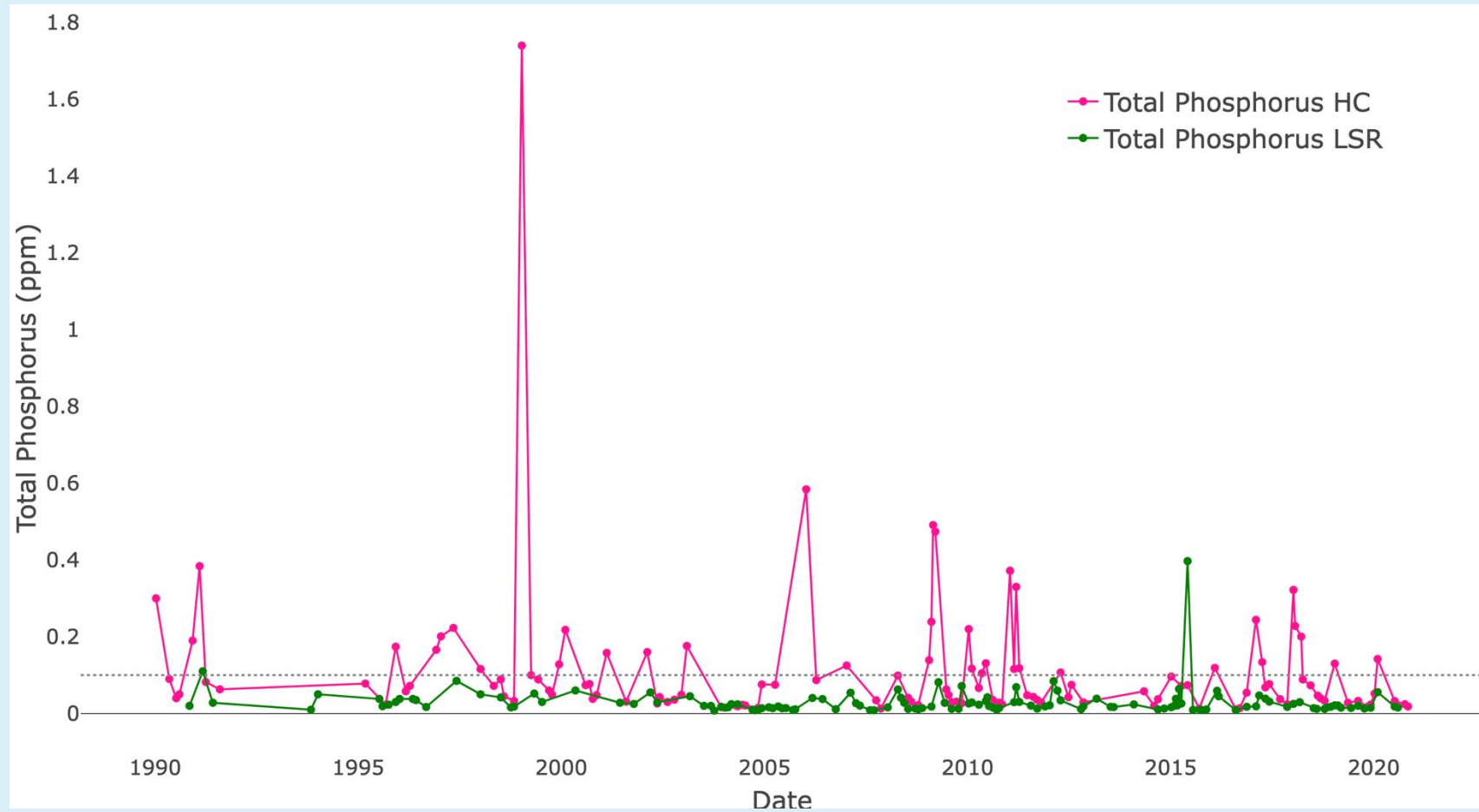


UV-Vis
EPA: 365.3



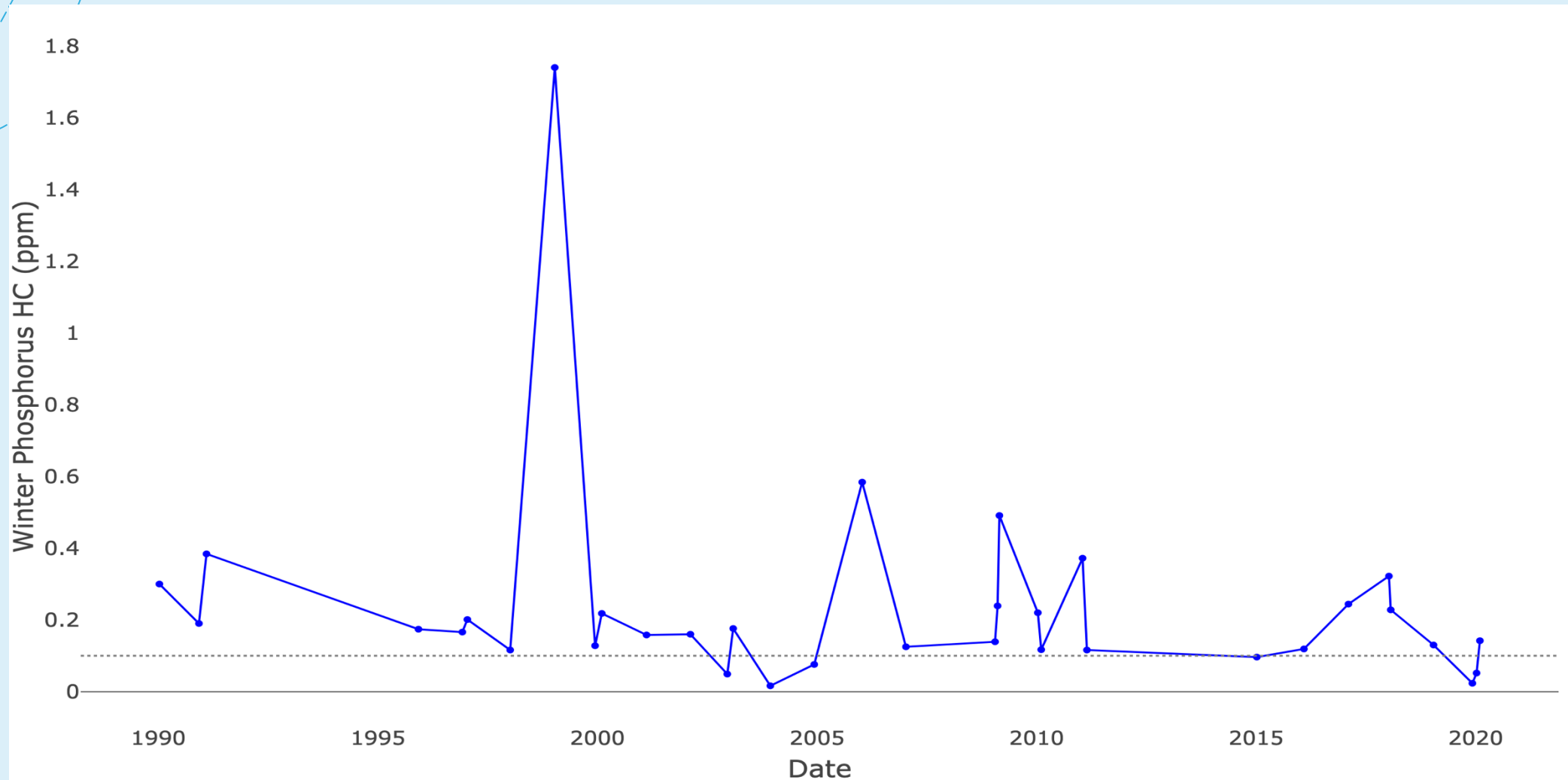
Molybdenum-phosphorus
Complex

Total Phosphorus vs Time

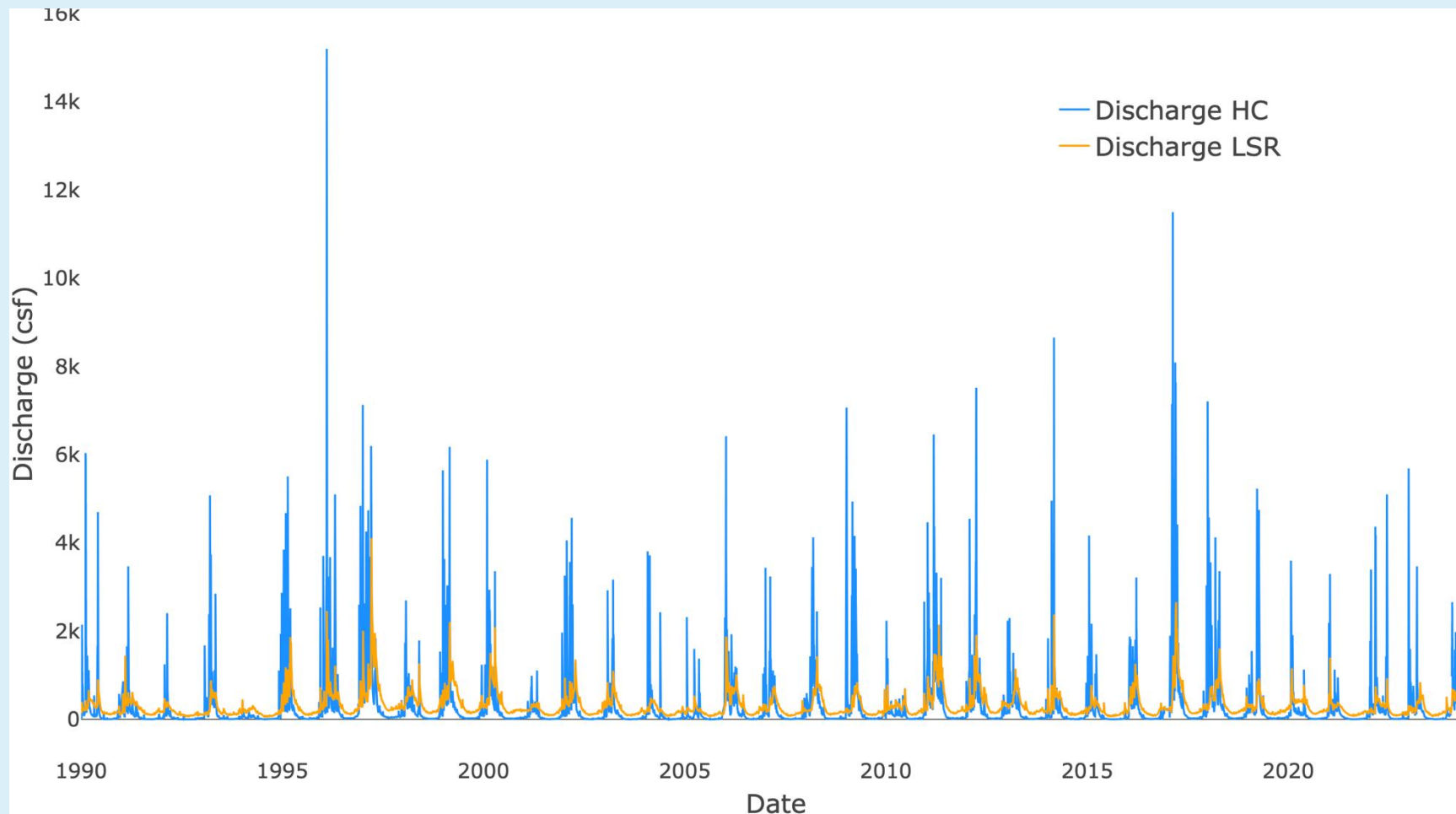


Data from: "Water Quality Monitoring Station 55B070 - LITTLE SPOKANE RIVER NEAR MOUTH." *Washington Department of Ecology*. Last modified 1970-2021.

Total Phosphorus vs Time- Winter at Hangman Creek

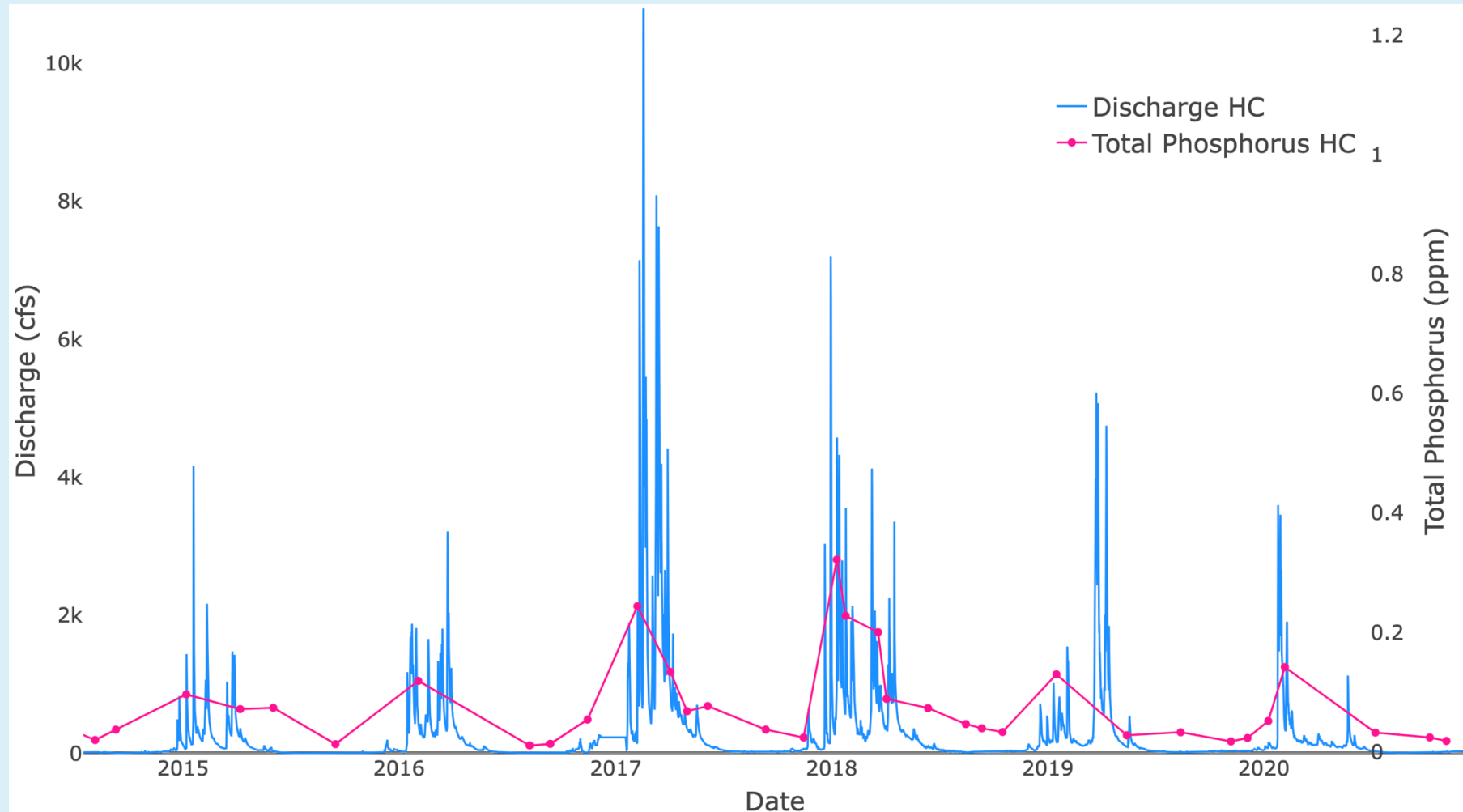


Discharge vs. Time



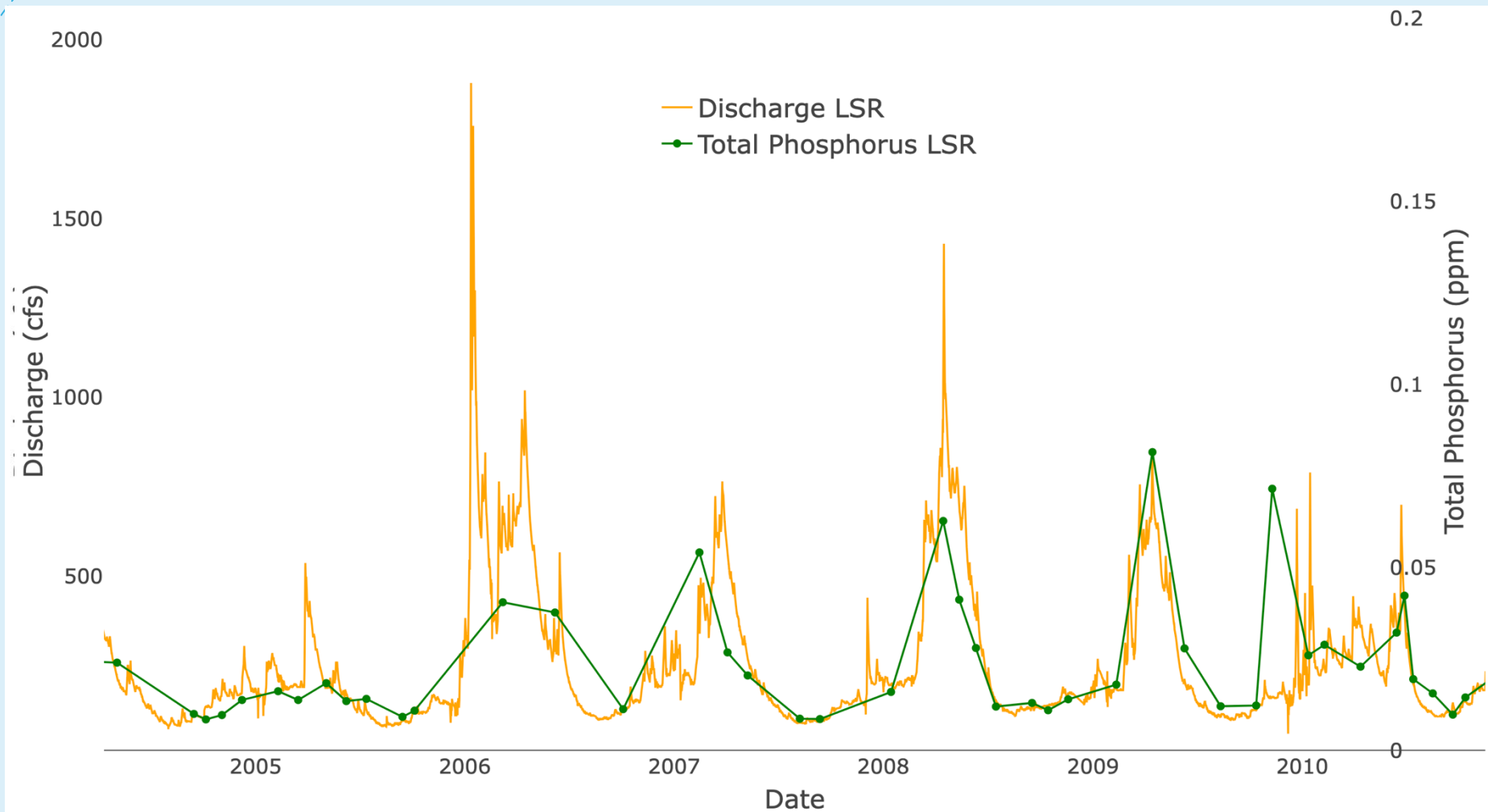
Data from: "Water Quality Monitoring Station 55B070 - LITTLE SPOKANE RIVER NEAR MOUTH." *Washington Department of Ecology*. Last modified 1970-2021.

Total Phosphorus and Discharge vs. Time



Data from: "Water Quality Monitoring Station 55B070 - LITTLE SPOKANE RIVER NEAR MOUTH." *Washington Department of Ecology*. Last modified 1970-2021.

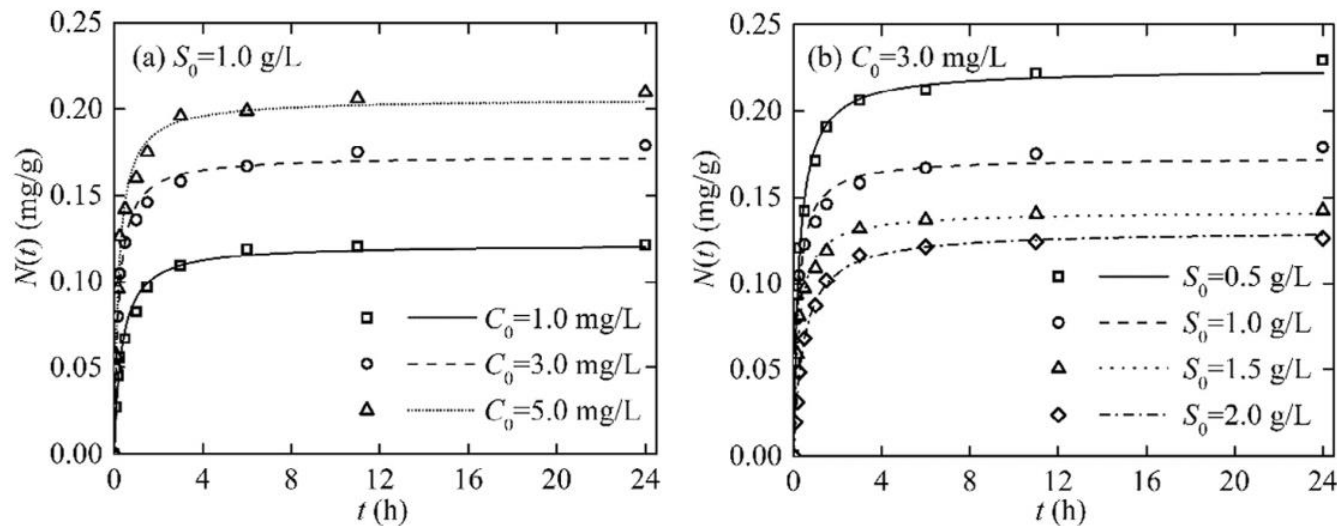
Total Phosphorus and Discharge vs. Time



"Water Quality Monitoring Station 55B070 - LITTLE SPOKANE RIVER NEAR MOUTH." *Washington Department of Ecology*. Last modified 1970-2021. <https://apps.ecology.wa.gov/eim/search/SMP/RiverStreamSingleStationOverview.aspx?LocationUserIds=55B070&ResultType=RiverStreamOverviewList>.

New Projects

- + Storm Event Phosphorus Monitoring
- + Phosphorus Kinetics



Zhiwei Li, Hongwu Tang, Yang Xiao, Hanqing Zhao, Qingxia Li, Fei Ji,
Journal of Hydro-environment Research, 2016

Acknowledgements

- + Dr. Mathews
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