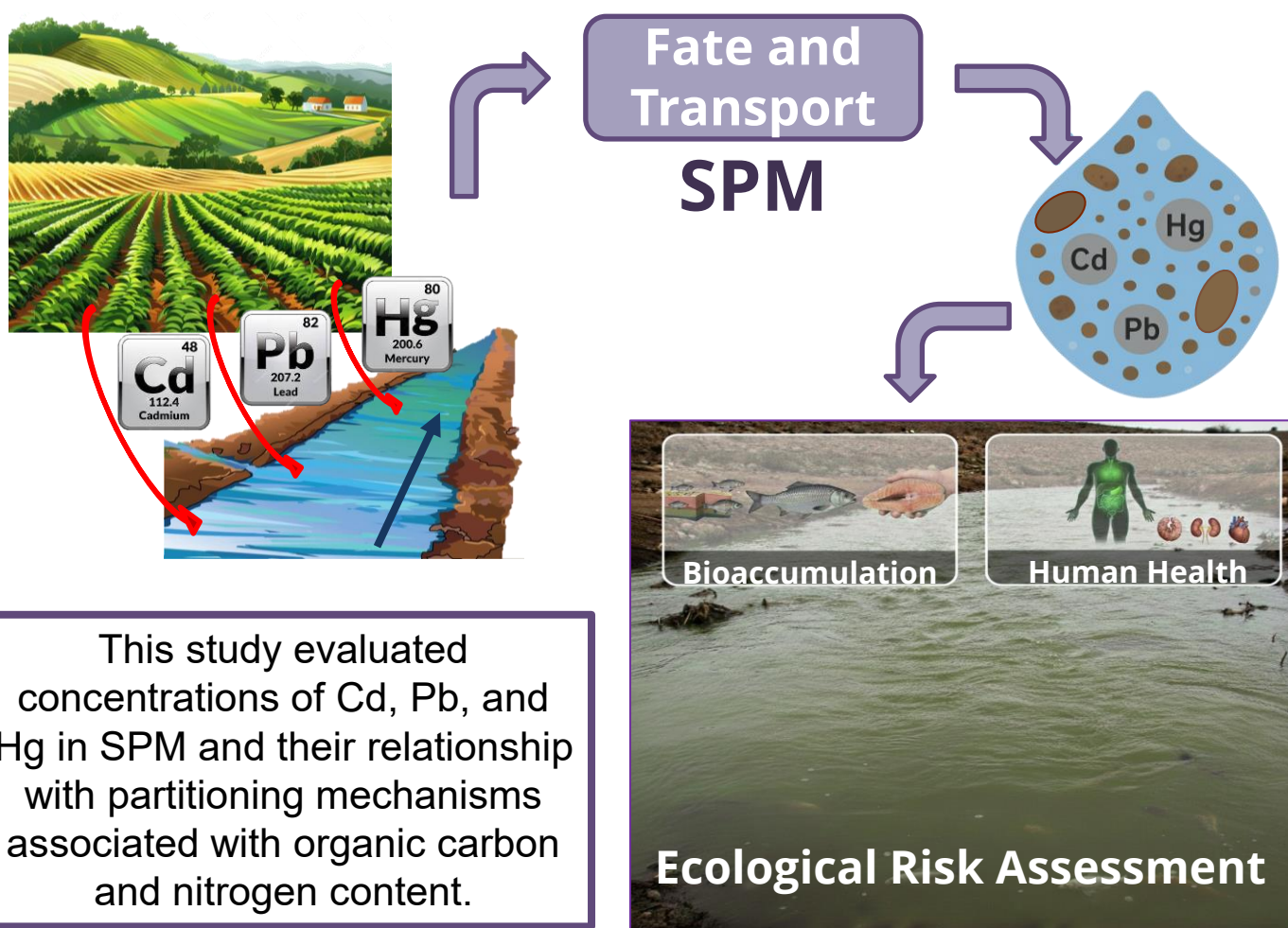


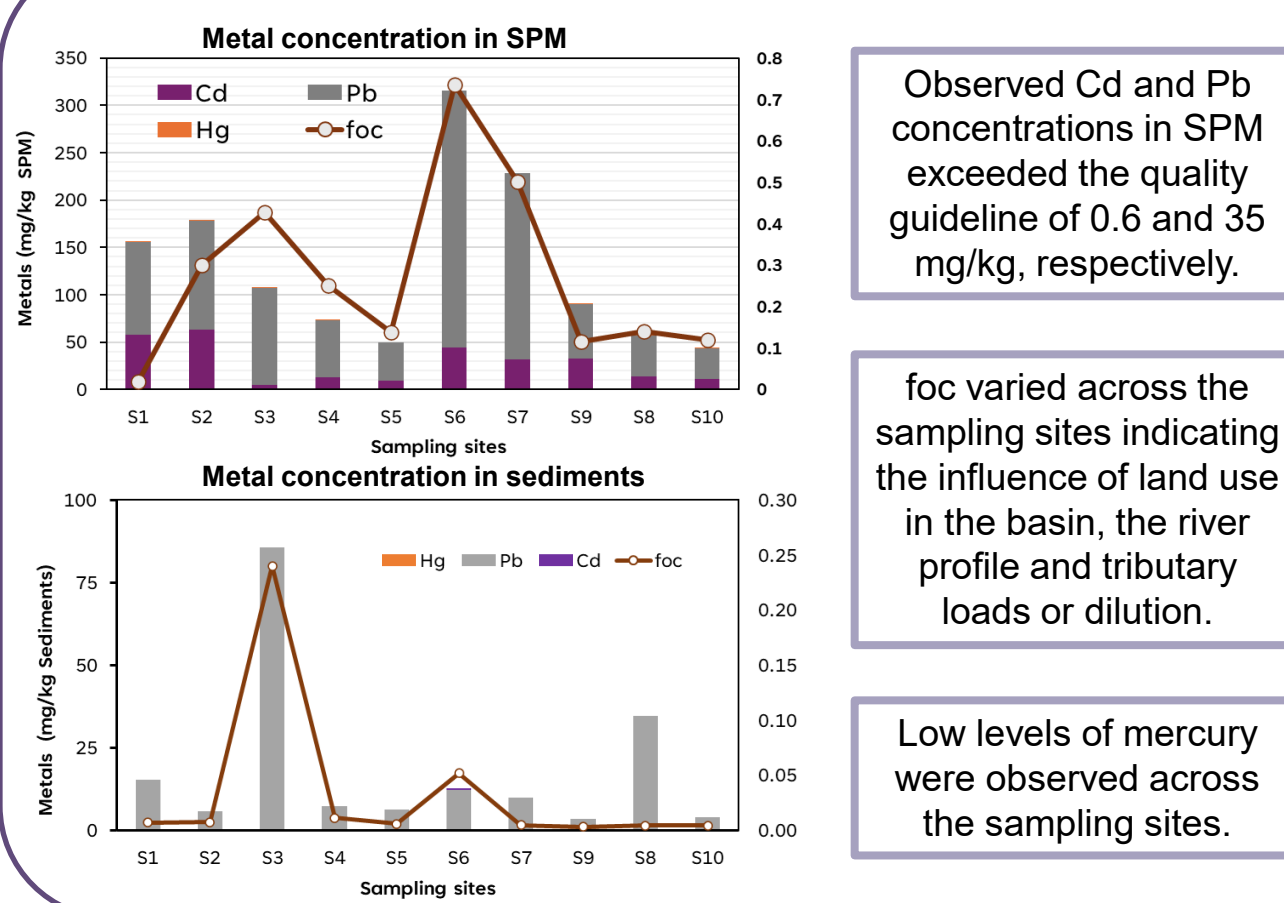
Environmental Assessment of Cadmium, Mercury and Lead in Suspended
Particulate Matter from the Sogamoso River, Colombia.Valentina Cardozo¹, Martín Anaya¹, Jorge Gallego¹¹ Biodiversity, Biotechnology and Bioengineering Research Group GRINBIO, Department of Engineering, University of Medellin, 050026, Medellín, Colombia.

INTRODUCTION



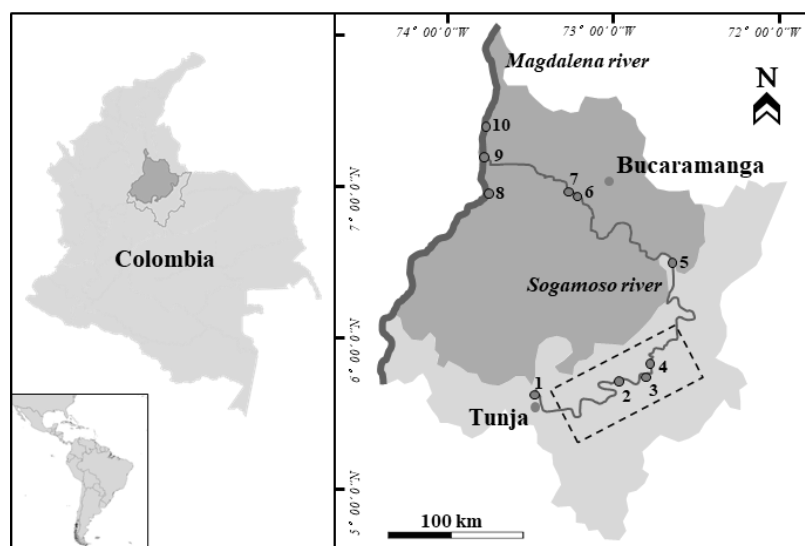
RESULTS & DISCUSSION

Metal concentration and C in SPM vs Sediments

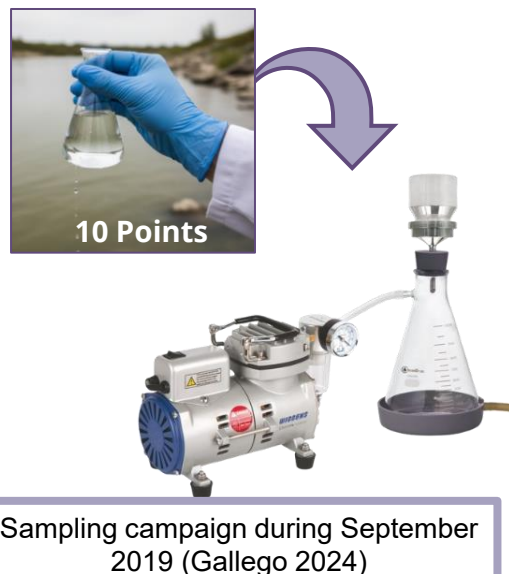


METHODS

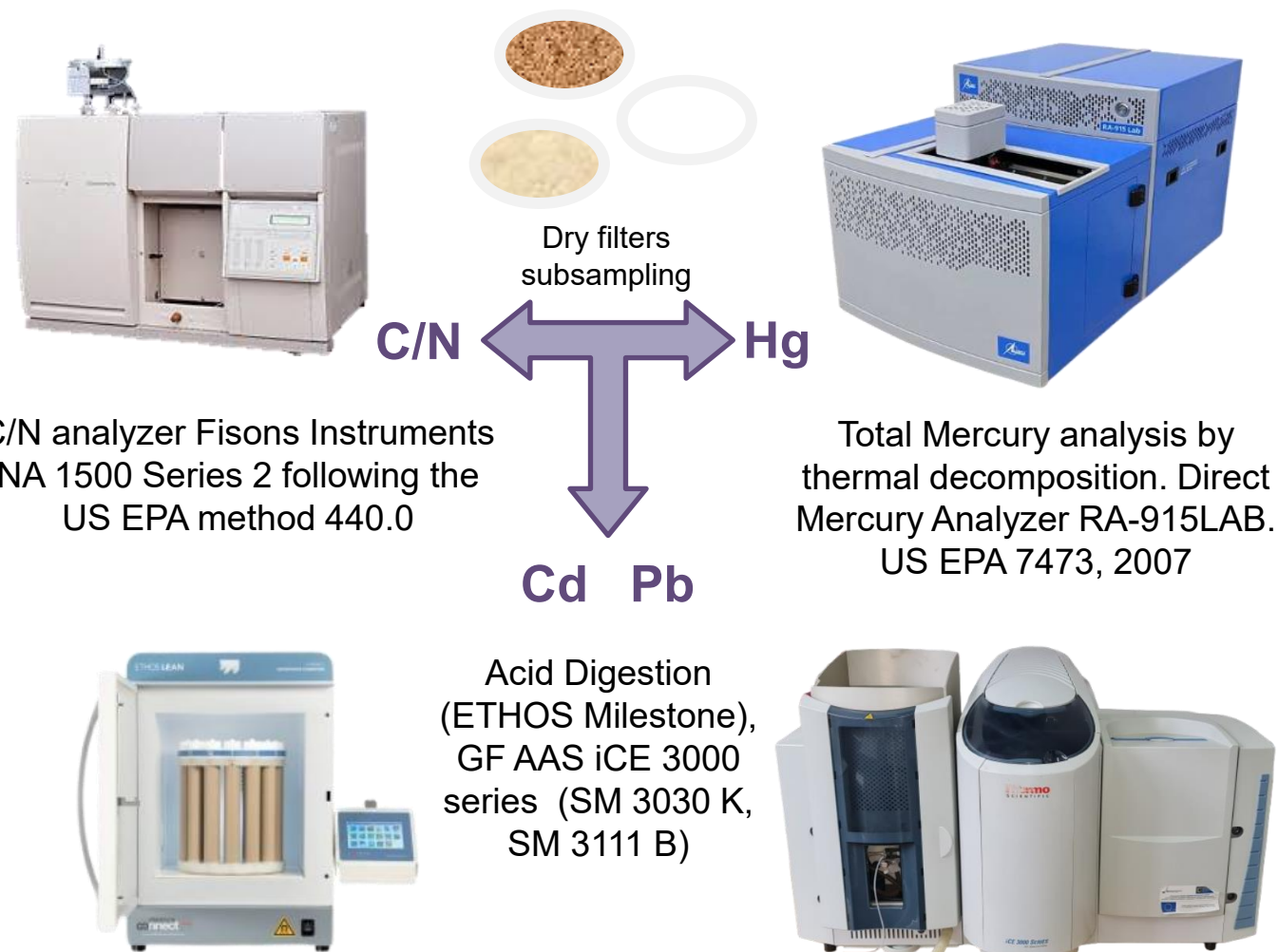
Water and SPM Sampling



Filtration 0,45 µm

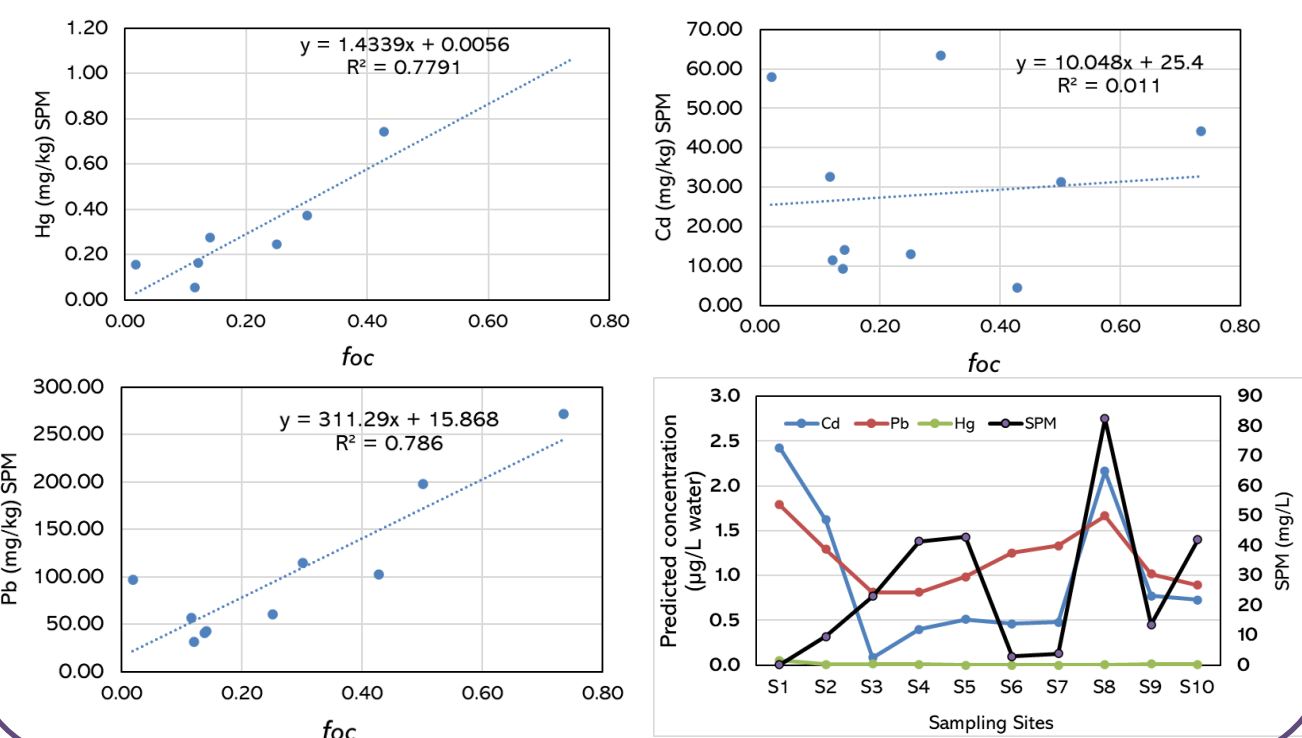


Determination of C/N and metals



Partitioning of metals in SPM

%C is a predictor of Hg and Pb content but not for Cd. The linear sorption model $K_d = C_{SPM}/C_w$ allowed to estimate the concentration of metals in water.



CONCLUSION

Low metal concentrations were observed in the upper catchment, a rise in areas dominated by cattle ranching and fruit crops, followed by continuous decline due to the dilution by tributary steams. Positive correlations with organic carbon highlight that SPM with higher organic content serves as the main carrier of these contaminants. Findings suggest that trace metals in the Sogamoso River are predominantly bound to fine suspended fractions, favoring downstream transport to the Magdalena River and posing moderate to high ecotoxicological risks.

REFERENCES

- CCME, 1999. Canadian Sediment Quality Guidelines for the Protection of Aquatic Life. Canadian Council of Ministers of the Environment, Winnipeg.
- Gallego, J. L., Shipley, E. R., Vlahos, P., & Olivero-Verbel, J. (2024). Occurrence and toxicological relevance of pesticides and trace metals in agricultural soils, sediments, and water of the Sogamoso River basin, Colombia. *Chemosphere*, 354, 141713.
- Gallego, J.L., Olivero-Verbel, J., 2021. Cytogenetic toxicity from pesticide and trace element mixtures in soils used for conventional and organic crops of Allium cepa L. *Environ. Pollut.* 276, 116558 <https://doi.org/10.1016/j.envpol.2021.116558>.
- U.S. EPA, 2007. Method 3051A (SW-846): Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils, Revision 1. US Environmental Protection Agency, Washington, DC.
- U.S. EPA, 1998. Method 7473 (SW-846): Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry. US Environmental Protection Agency, Washington, DC.