



Laurentian SETAC

Laurentian Chapter of the Society of
Environmental Toxicology and Chemistry

Ottawa Pub Night

Metals in the Environment: Towards Improved Monitoring and Risk Assessment

Dr. Yamini Gopalapillai

Physical Sciences Specialist

Environment and Climate Change Canada

When: Wednesday October 30
5:00 – 7:00 p.m.

Where: Clock Tower Brew Pub
575 Bank Street

Cost: \$1 members
\$3 non-members

Join us for an engaging talk, good eats and fine brew!
For more information contact Rebecca Dalton:
becca.dalton@gmail.com



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Metals in the Environment: Towards Improved Monitoring and Risk Assessment

Yamini Gopalapillai, Ph.D

Physical Sciences Specialist

Environment and Climate Change Canada

Abstract:

The fundamental goal of my research is to reduce the uncertainty around estimating the risk of metal pollutants to the environment through characterizing the solution chemistry of the exposure medium and how that modifies fate and effects. Existing metal risk assessment and water/soil quality standards are based on total metal concentration; however, the exposure chemistry influences a metal's speciation and thereby its bioavailability to surrounding organisms. Over the past 15 years, my research has: quantified competition between other cations and the pollutant metal for binding to organic ligands including biota; identified relationships between external exposure chemistry, bioavailability and toxicity; and evaluated methods of estimating toxicity that are adjusted for solution chemistry. This work supports the development and validation of geochemistry-based toxicity models, which require high quality inputs such as environmental concentrations, equilibrium binding constants, and validation using measured abiotic and biotic parameters. My research has also validated the use of lab-based approaches in risk assessments of mining-impacted regions (Sudbury and Port Colborne, Ontario; Fort McMurray, Alberta).



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Biography:

Yamini Gopalapillai is currently a Physical Sciences Specialist with the Inorganics Unit, under the Ecological Assessment Division of Environment and Climate Change Canada (ECCC). She continues to conduct research on metals in the environment with collaborators from ECCC, University of Guelph and University of Alberta. She received her PhD in Environmental Sciences with a specialization in Toxicology from the University of Guelph, joint with CANMET Mining at Natural Resources Canada (Ottawa). Most recently, she held an NSERC post-doctoral fellowship with the Aquatic Contaminants Research Division at ECCC (Burlington), studying metals in atmospheric deposition in the Athabasca Oil Sands Region. Yamini has worked in all three sectors (academia, industry and government) and likes to apply her varied perspectives to understanding the fate and effects of metals in the environment and how they can best be monitored, regulated and assessed for risk to the environment.