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Dr. Jane L. Kirk, Ph.D

Research Scientist - Biogeochemistry specializing in mercury and study of cycling of elements and contaminants

Canada Centre for Inland Waters (Burlington, ON)

CURRENT S&T / RESEARCH - Understanding the biogeochemical cycling of elements and contaminants in the environment. Recently, I have been examining the deposition, transformation, and bioaccumulation of mercury and metals in aquatic ecosystems undergoing change.

- Atmopsheric deposition of contaminants in the Alberta Oil Sands region.
- Impact of multiple stressors, such as climate change and eutrophication, on mercury cycling in freshwater ecosystems of Canada, including the high and sub Arctic.
- Deposition and bioaccumulation of mercury downwind of major Canadian point sources.

KEY PUBLICATIONS

J. Kurek, **J. L. Kirk,** D. C. G. Muir, X. Wang, M. S. Evans, J. P. Smol. The legacy of a half century of Athabasca oil sands development recorded by lake ecosystems. (In press; Accepted to *PNAS,* November 2012) (journal impact factor = 10.5)

J. L. Kirk, I. Lehnherr, M. Andersson, B. Braune, L. Chan, A. Dastoor, D. Durnford, A. Gleason, L. Loseto, A. Steffen, V. St. Louis. Mercury in Arctic marine ecosystems: Sources, pathyways and exposure. 2012. *Environmental Research* 119: 64-87) (journal impact factor = 3.7)

J. Ma, H. Hintelmann, **J. L. Kirk,** D. Muir. 2011. Mercury concentrations and mercury stable isotope composition in lake sediment cores from the vicinity of a metal smelting facility in Flin Flon Manitoba. (In press; Accepted to *Chemical Geology*, October 2012) (journal impact factor = 4.0)

I. Lehnherr, **J. L. Kirk**, V. L. St. Louis. Methylmercury cycling in high Arctic wetlands: controls on sedimentary production. 2012. *Environmental Science and Technology* 46: 10523-10531. ***(Featured on the cover)*** (journal impact factor = 5.2)

Lehnherr, V. L. St. Louis, C. A. Emmerton, J. D. Barker, **J. L. Kirk**. Methylmercury cycling in high Arctic wetlands: sources and sink. 2012. *Environmental Science and Technology* 46: 10514-10522.***(Featured on the cover)***

Lehnherr, V. L. St. Louis, H. Hintelmann, **J. L. Kirk**. Production of methyl mercury in polar marine waters. 2011. *Nature Geoscience* 4: 498-302. (journal impact factor = 10.4) ***(citations = 7)***

J. L. Kirk, D. Muir, D. Antoniades, M. Douglas, M. Evans, T. Jackson, H. Kling, S. Lamoureux, S. Stewart, D. Lim, R. Pienitz, J. Smol, X. Wang, F. Yang. 2011. Climate change and mercury accumulation in Canadian high and subarctic lakes. *Environmental Science and Technology* 45: 964-970. (***citations = 8***)

Contact Dr. Jane L. Kirk, Ph.D:

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AFFILIATIONS

Research Associate, Trent University

AWARDS / EDUCATION

Ph.D. Environmental Biology and Ecology, University of Alberta, 2009

B.Sc. (Specialization) Molecular Genetics, University of Alberta, 2001

J. L. Kirk, D. Muir, D. Antoniades, M. Douglas, M. Evans, T. Jackson, H. Kling, S. Lamoureux, S. Stewart, D. Lim, R. Pienitz, J. Smol, X. Wang, F. Yang. 2011. Response to comment on climate change and mercury accumulation in Canadian high and subarctic lakes. *Environmental Science and Technology* 45: 6705-6706.

V. L. St. Louis, A. Derocher, I. Stirling, J. A. Graydon, C. Lee, E. Jocksch, E. Richardson, S. Ghorpade, A. K. Kwan, **J. L. Kirk**, I. Lehnherr, H. K. Swanson. Differences in mercury bioaccumulation in polar bears (*Ursus maritimus*) from the high and sub Canadian Arctic. *Environmental Science and Technology* 45: 5922-5928.

T. Douglas, L. Loseto, R. Macdonald, P. Outridge, A. Dommergue, A. Poulain, M. Amyot, T. Barkay, T. Berg, J. Chetelat, P. Constant, M. Evans, C. Ferrari, N. Gantner, M. Johnson, J. L. Kirk, et al. The ultimate fate of mercury deposited to Arctic marine and terrestrial ecosystems. *Environmental Chemistry* 9: 321-355. (journal impact factor = 1.8)

J. L. Kirk, V. St. Louis. 2009. Mulityear total and methyl mercury exports from two major sub-Arctic rivers draining into Hudson Bay, Canada. *Environmental Science and Technology* 43: 2254-2261. (***citations = 9***)

J. L. Kirk, V. L. St. Louis, H. Hintelmann, I. Lehnherr, B. Else, and L. Poissant. 2008. Methylated mercury species in Canadian high and sub Arctic seawater. *Environmental Science and Technology* 42: 8367-8373 (***citations = 20***)

V. L. St. Louis, H. Hintelmann, J. A. Graydon, **J. L. Kirk**, J. Barker, B. Dimock, A. Steffen, M. J. Sharp, and I. Lehnherr. 2007. Methylated mercury species in polar marine surface water and snowpacks. *Environmental Science and Technology* **41**: 6433-6441. (***citations = 26***)

J. L. Kirk, V. L. St. Louis, and M. J. Sharp. 2006. Rapid reduction and reemission of mercury deposited into snowpacks during atmospheric mercury depletion events at Churchill, Manitoba, Canada. *Environmental Science and Technology* **40**: 7590-7596. (***citations = 42***)

J. L. Kirk. 2006. Potential sources of monomethyl mercury in Arctic and subarctic seawater. *Arctic* **59** (1): 108-111. (***citations = 3***)

V. L. St. Louis, M. J. Sharp, A. Steffen, A. May, J. Barker, **J. L. Kirk**, D. J. Kelly, S. E. Arnott, B. Keatley, and J. P. Smol. 2005. Some sources and sinks of monomethyl and inorganic mercury on Ellesmere Island in the Canadian high Arctic. *Environmental Science and Technology* **39**: 2686-2701. (***citations = 39***)

Expertise Categories associated with this S&T Expert:

- Air
  - Air Pollution & Quality
    - Contaminants
    - Heavy metals
- Arctic & Northern
  - Contaminants
    - Atmospheric environment
    - Heavy metals
    - Marine environment
  - Ice
    - Snowpacks
- Climate
  - Climate Change and Processes
    - Trends and variability
- Pollution & Waste
  - Industrial
    - Mercury
- Water
  - Freshwater
    - Ecosystems
  - Great Lakes
    - Contaminants
  - Limnology
  - Sediment
    - Contaminants

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