

## **Levels and Determinants of Lipid- Adjusted Polychlorinated Biphenyls in Northern Canada**

Brian Laird, University of Waterloo; Victoria Geveart (University of Waterloo), Mylene Ratelle (University of Waterloo), Mallory Drysdale (University of Waterloo), Kelly Skinner (University of Waterloo)

Biomonitoring projects were completed between 2016-2019 to assess analyte exposures including polychlorinated biphenyl levels (PCBs) in First Nation communities from the Northwest Territories (NWT) and Yukon. A community research agreement was established, and blood samples were analyzed for fatty acids (DHA+EPA) and PCB levels. Results were lipid-normalized and summary statistics (e.g., geometric means, percentiles, detection limits) were generated. Further statistical analyses were completed for PCB congeners with a limit of detection greater than 50%. Significant differences were found between PCB level and certain variables (e.g., sex, smoking status, drinking status). Notably, PCB levels between men and women differed, with men showing higher levels than women. Significant associations were found between PCB levels and age and similar patterns were found between PCBs and omega-3 fatty acids. PCB levels appeared highest in the Sahtú and Dehcho regions of the NWT and lower in Old Crow, Yukon. Further, PCB levels appeared generally lower than or similar to other national biomonitoring data (e.g., Canadian Health Measures Survey) with the exception of participants aged 60-79 years, whose lipid-adjusted biomarkers for select PCB congeners (e.g., PCB187, 194, 201) appeared higher (up to 1.67-fold) in the Dehcho. Similar patterns with more PCB congeners (e.g., PCB 146, 153, 163) were found in the Sahtú region. Using previously defined methods, GLMs were constructed evaluating associations between PCBs and traditional food consumption patterns, controlling for age and sex. These results will add to human biomonitoring data in Arctic and subarctic regions in Canada.