

Abstract Preview of 'GL Passive Screening' (MY80K5)

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Screening for Chemicals of Concern Across the Great Lakes Nearshore Using POCIS Passive Samplers **P. Helm, P. Yang and D. Morse**, Ontario Ministry of the Environment, Toronto, ON, M9P 3R7; **C. Hamilton and R. Grace**, AXYS Environmental Services Ltd, Sidney, BC, V8L 5X2; **A. Mostafa and L. McCarthy**, Ryerson University, Toronto, ON, M5B 2K3

Passive samplers provide a convenient media for monitoring for chemicals of concern in the aquatic environment, including both legacy chemicals and reconnaissance for emerging chemicals. POCIS (Polar Organic Chemical Integrative Samplers) were deployed in nearshore zones of the Great Lakes in Lake Superior (2011), Lake Ontario (2012), and Lake Erie/Lake St. Clair (2013). Sites included background locations and areas influenced by urban and industrial development. POCIS were analyzed for pharmaceuticals, personal care products, and hormones by AXYS Analytical Services, while selected POCIS were subjected to non-targeted screening at the Ontario Ministry of the Environment. This presentation summarizes findings to date for PPCPs and non-targeted screening in POCIS. Of the 135 chemicals analyzed for in POCIS, 40 compounds were detected, and 23 compounds were detected in greater than 33% of the POCIS. Among the compounds occurring more frequently and in relatively greater amounts were codeine, atenolol, valsartan, DEET, sulfamethoxazole, carbamazepine, and naproxen. Estimated concentrations were very low in Lake Superior, ranging from <0.1 to 10 ng/L, while estimated concentrations in Lake Ontario were up to an order of magnitude greater. POCIS from selected locations influenced by urban stream waters and wastewater effluents were screened using ultra-high performance liquid chromatography (UHPLC) - high resolution Orbitrap mass spectrometry for up to 380 non-target analytes, including degradation by-products.

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