Rivers closest to Toronto have highest concentrations of PCBs, other chemicals: study

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(PhysOrg.com) -- A University of Toronto study of the concentrations of PCBs and other chemicals in the rivers running into Lake Ontario reveals significantly higher concentrations in areas closest to the centre of Toronto, an indication of the profound effects the city has on water quality.

The team looked specifically at concentrations of chemicals that have been strongly associated with human health problems: polychlorinated biphenyls (PCBs), a banned industrial chemical from the 1970s; polycyclic musks, a common fragrance compound used in a range of personal care products; polybrominated diphenyl ethers, a recently banned flame retardant; and polycyclic aromatic hydrocarbons, a toxic byproduct of fossil fuel combustion in the rivers. They also measured the concentration of these chemicals in air, soil and rain.

"In the Humber River watershed we saw an almost 100-fold increase in concentrations of polycyclic musks in the river water in the downtown area around Old Mill compared with parts of the river north of the city," said Matthew Robson, a research fellow in the Department of Geography and Program in Planning.

"We saw similar increases in concentrations for all of the other chemicals in air, rain and soil. This, in turn, has a great effect on what goes into Lake Ontario and the Great Lakes system. For example when

we looked at the amounts of PCBs entering Lake Ontario in rainfall we found that when you take into account the urban effect from Toronto alone, you get about 40 per cent more PCBs entering the lake."

Other members of the research team were Lisa Melymuk and Susan Csiszar of the Department of Chemical Engineering and Applied Chemistry and Miriam Diamond of the Department of Geography and Program in Planning, Paul Helm at the Ontario Ministry of the Environment and Sean Backus at Environment Canada. Research was funded by the Ontario Ministry of the Environment, Environment Canada and the U.S. Great Lakes Air Deposition Fund

Robson will present his findings during the International Association of Great Lakes Research conference being held at the University of Toronto May 17 to 21.

Provided by University of Toronto