



## **Contrasting patterns in dissolved organic and inorganic carbon concentration and isotopic ( $^{13}\text{C}$ ) signature in acid-recovering vs unimpacted boreal lakes**

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Land use and anthropogenic activities in the catchment area of lakes can affect the loads of many compounds in the waters changing the physical, chemical and biological properties of aquatic systems. Although management and restoration program are developed to maintain the ecosystem sustainability, there is a need to understand ecosystem resilience to anthropogenic activities.

In southern of Ontario (Canada), large reductions in sulfur and metal emissions from smelters have led to a large greening and environmental rehabilitation program. The restoration project resulted in a large reforestation and around 3,000 ha were restored. However, less is known about how past and ongoing reclamation efforts have changed the carbon dynamics in low and high-affected lakes. Here, we explore the patterns in dissolved carbon concentrations and isotopic signature of  $\delta^{13}\text{C}$  of DIC,  $\text{CO}_2$  and  $\text{CH}_4$  for 82 boreal lakes having different histories and extent of acid-contamination and restoration.