

## **DO INDIVIDUAL DIATOM SPECIES REFLECT SPECIFIC STRESSORS?**

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Are certain diatom species indicative of stressors like agriculture, mining and deforestation? To investigate we compiled a detailed set of long-term, quantitative stressor data for 60 watersheds surrounding the Laurentian Great Lakes and related these parameters with fossil diatom relative abundances recovered from sediment cores. Stressors included population, mining, deforestation and GIS coverages for agricultural land, with records extending back as far as 1780. A distinct suite of diatom species was associated with agricultural activity which peaked in the mid-20<sup>th</sup> century. Another subset of taxa are associated with population growth, a trend that may be concurrently related to climate change. Despite the unique physico-chemical characteristics of each lake, Great Lakes basin-wide indicators of stress were detectable. This work clarifies the indicator role of several diatom species in the world's largest freshwater resource. Further, having clear, species-specific stressor information enables alternative diatom-based interpretations when more traditional methods (transfer functions, IBIs) fail.