**TINY THINGS TELL A BIG STORY ABOUT THE GREAT LAKES**

The widespread effects of invasive species, pollution and climate change have resulted in a never-ending call for remedial and management options in the Laurentian Great Lakes. Here I summarize two recent studies that use diatom algae to inform management decisions for these lakes: (1) Despite prevailing attention to summer cyanobacterial blooms in Lake Erie, spring diatom blooms have been determined to be the major source of biomass supporting summer anoxia, a major threat to lake health. (2) A diatom-based paleolimnology study has revealed the likely biological effects of climate change on the base of the Great Lakes food web. Atmospheric warming is the strongest correlate with these changes, and recommendations are made regarding the eventual impacts on food webs throughout the Great Lakes system. These studies illustrate the importance of diatoms in stressor/impact evaluations as they provide early data reflecting food web impacts before they are realized in higher trophic levels, thereby supporting predictions of future conditions in 90 % of North America’s fresh surface water.