

THE RECENT HISTORY OF LAKE MICHIGAN, ACCORDING TO THE DIATOMS

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Among the Laurentian Great Lakes (LGL), Lake Michigan is the second largest by volume, and supports the highest human population (> 12 million) within its drainage basin. The lake has been subjected to a wide variety of natural and anthropogenic stressors since European colonization, including expanding populations within the basin and associated land use change, eutrophication, industrial pollution, and more recently, a rapid expansion of invasive dreissenid mussels. Paleolimnological investigations of L. Michigan document the effects of these stressors on historical diatom communities. Metrics consistent with high productivity, including frustule accumulation rates and total biomass, as well as indicators of cultural eutrophication (e.g., *Tabellaria flocculosa*, *Synedra* spp.) peaked during the mid 20th century prior to implementation of mitigation measures associated with the Great Lakes Water Quality Agreement, and show evidence of recovery in recent decades. However, this mitigation signal is confounded by the effects of invasive dreissenids, which have caused a marked increase in diatom standing crops since the early 2000s. In recent decades, we have also observed the rise of taxa within the genus *Cyclotella sensu lato*, consistent with observations from other LGL and indicative of warming water temperatures and stronger stratification in the pelagic zone.