

# Over 60 years of citizen science observations detect trends in Midwestern lakes

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Over 60 years of data collected across 8 states by citizen scientists may demonstrate their potential to contribute to monitoring long-term lake water trends over a large area, according to results published April 30, 2014, in the open access journal *PLOS ONE* by Noah Lottig from University of Wisconsin and colleagues.

Lakes provide valuable resources for people, animals, and fish, among others. Long-term monitoring of 'lake health' across a large region can be difficult and expensive, but using a simple, standardized tool, the Secchi disk—a circular disk that measures water transparency in oceans and lakes—anyone can measure lake [water clarity](#)—a major indicator of lake health. Midwestern lake goers have been collecting information about lake clarity using the Secchi disk for over 60 years, and in this study, scientists compiled this publicly available data from across eight states in the Upper Midwest, USA, to assess long-term water clarity trends and their relationships to spatial location, [lake](#) size, and period of monitoring. The database consisted of >140,000 individual, citizen-collected Secchi observations from 3,251 lakes observed during the summer.

Overall, water clarity has been increasing slightly, 1%, across all monitored lakes. Lakes situated further south showed more of a long-term decline in water clarity, whereas lakes further north showed an overall trend toward increasing water clarity. These patterns may correlate with latitude, but the authors suggest that they were likely influenced by additional factors, such as land use or climate. Although

these factors are more difficult to measure, researchers hope that this water clarity data demonstrate how citizen science can provide critical monitoring data needed to address environmental questions at for large spaces and over long time scales. Fostering collaborations among citizens, researchers, and the government may help us obtain important data sets that indicate trends in macroscale environmental patterns.

Noah Lottig added, "Because citizens collect so much data, their efforts enabled us to examine water clarity trends using data intensive approaches at spatial and temporal scales that would not have been possible with data collected from traditional monitoring groups"

**More information:** Lottig NR, Wagner T, Norton Henry E, Spence Cheruvellil K, Webster KE, et al. (2014) Long-Term Citizen-Collected Data Reveal Geographical Patterns and Temporal Trends in Lake Water Clarity. *PLoS ONE* 9(4): e95769. [DOI: 10.1371/journal.pone.0095769](https://doi.org/10.1371/journal.pone.0095769)

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