



## Lake Erie algae: Views of Ohioans on causes and solutions pre- and post-Toledo

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Brian Roe, McCormick Professor ([roe.30@osu.edu](mailto:roe.30@osu.edu))

Research contributors include: Brian Roe (*presenter*, OSU AEDE), Erik Nisbet (OSU School of Communications), and Greg Howard (East Carolina University).

**Background:** From 2:00 am on Saturday, August 2, through 10:00 am Monday, August 4, the city of Toledo advised a half million people dependent upon its municipal water supply to not drink, boil or, for some residents, bathe in the water coming from their faucets. Toxic algae blooms in Lake Erie caused city water to contain more than double the allowable threshold of microcystins, which cause numerous health problems via ingestion or skin contact. The agricultural sector received significant media coverage for its role as a leading source of the phosphorus that fueled the harmful algal blooms.

**Question:** Some argue that these 56 hours in Toledo may be a turning point for Ohio agriculture, potentially altering public sentiment and private fears about agriculture and farm runoff and its relationship with water quality and public health on par with the way in which reports of the Cuyahoga River fire of 1969 pivoted public attention to industrial pollution around the Great Lakes.

**Research:** We administered surveys to an online convenience sample of more than 1,000 Ohio residents four months prior to the Toledo water advisory and then to a subset of about 400 people from this same sample a month after the event. While not representative of the Ohio public, and while data analysis is ongoing, it will provide some first insights into Ohioans response to the event. Respondents were asked a sequence of questions that will help us understand public sentiment and concern about Lake Erie water quality; the respondent's perceptions of the role of both crop and animal agriculture in affecting water quality issues in Lake Erie; and the depth of support for possible policy responses.

**Ongoing Analyses:** Respondents were asked "What do you think is causing the increase in algal blooms in Lake Erie over the past few years?" and rated eight different possible sources, including animal agriculture, crop agriculture, industrial sources, natural weather cycles, urban sources, residential lawns, climate change and rural septic tanks. Analysis will illuminate respondent's relative attribution of Lake Erie algae problems pre- and post-Toledo as well as reveal any fundamental shifts in attribution the Toledo event might have caused. The survey also asked respondents to rate the level of risk algal blooms in Lake Erie pose to human health, the Ohio economy and their family, and to rate their levels of concern, fear, anger and worry about the Lake Erie algae problems. Analysis will help reveal how the Toledo event may have altered visceral attitudes concerning the issue of water quality.

Analysis of several questions can also illuminate the support for potential policy responses. Respondents chose between policy interventions that proposed to reduce damages from Lake Erie algae blooms. The proposed policies differed in several ways, including the amount of damage reduction provided, the type of policy (voluntary programs that pay farmers to alter practices, increased regulation of farming practices, or a fertilizer tax), the source of funds to pay for the policy (sales, income, or fertilizer tax), and the annual cost to the respondent's household. Analyses of responses pre- and post-Toledo will provide insights into the sample's appetite for various policy approaches both in terms of the types of policies and the costs that Ohioans may be willing incur to address the problem.

Additional research exploring farmer views and farmer willingness to implement best management practices is being analyzed from surveys conducted prior to the Toledo event. Future data collections involving farmers and the general public are planned and will be critical for understanding how public willingness to pay to improve Lake Erie water quality can best be channeled into effective farm-level policies to safeguard Ohio water quality while maintaining a productive and profitable agricultural sector.