Degraded Water Quality in Lakes: Consequences for Use

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Recommended Citation
Available at: http://lib.dr.iastate.edu/agpolicyreview/vol2015/iss3/6

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IOWA, LIKE many states in the Midwest, suffers from poor water quality. Excess nutrients in the state’s lakes and streams contribute to odor, limited clarity, excess algae and plant growth, and can contribute to a number of other undesirable changes to habitat and water quality. These changes, in turn, can reduce the usage and enjoyment of lakes and streams. Likewise, improvements in water quality brought about by reduced nutrient pollution or lake improvement projects can increase the number of visitors and their enjoyment of natural environments. To better understand what Iowans value about their natural environment and how changes in water quality and other factors alter that value, the Center for Agricultural and Rural Development (CARD), with funding from the Iowa Department of Natural Resources and the US Environmental Protection Agency, initiated a set of household surveys in 2002.

Surveys were conducted each year from 2002 to 2005, then again in 2009, and most recently in 2014. The information collected in the most recent household level survey is the subject of this review. Specifically, we consider how the current usage of Iowa’s lakes compares to usage in previous years.

The 2014 survey was mailed to nearly 7,000 Iowa households, about half of whom had responded to prior surveys and the remainder came from households who were not included in earlier surveys. Over 50 percent of surveys were returned, with the majority of respondents between the ages of 35 and 75. This response rate is similar to the rates from the previous years’ surveys.

Approximately 60 percent of respondents reported that their household visited a lake at least once during the year and about 20 percent reported spending at least one trip where they stayed overnight at a lake. This large usage rate of lakes is consistent with previous surveys, indicating that a majority of Iowa households continue to use and enjoy these natural areas. The average number of single-day trips by all respondents was more than 8. The estimates of 2014 Iowa lake visits are slightly lower than the average from the visitation rates over the five previous surveys (2002–2005 and 2009), while the numbers are greater than 2009 Iowa lake usage estimates. This is likely due to the 2008–2009 economic downturn and associated change in travel and expenditure patterns. It is important to recognize however that while the overall usage of Iowa’s lakes is relatively stable over the set of surveyed years, there are increases and declines on an individual annual basis across lakes.
The number of visits to Iowa lakes varies with household characteristics such as age, income, education, number of children, and number of persons in a family. Middle age households (35–49 and 50–59) visit more than younger and older age households, as shown in Figure 1. Moreover, there are some difference in the number of visits between low-, mid-, and high-income households, as detailed in Figure 2. There are also observable differences in lake visitations based on education, with college educated households visiting lakes more often, as shown in Figure 3. As shown in Figures 4 and 5, lake visitation patterns also differ based on the number of children in a family, and the total number of persons in a family—families with only one child visit lakes most frequently, as do families with a total of five members. While the data indicate that there are differences in visitation rates across these household characteristics, it is perhaps most striking how relatively small these differences are. The data suggests that these natural assets are used by low- and high-income families, households of all age and education categories, and households with and without children at home.

Figure 6 shows the distribution of the most popular activities. The top three activities selected by respondents were relaxing and/or picnicking, fishing, and nature/wildlife watching, respectively. When choosing a lake for recreation, respondents considered several factors to be important. As shown in Figure 7, water quality is by far considered the most important, with park facilities and proximity to home second and third, respectively.

Table 1 shows the 10 most popular lakes and estimated annual household trips. Saylorville Lake was the most visited lake in 2014 with over a half-million visitors. The survey results show that many of the most popular lakes are located in urban areas (e.g., Saylorville Lake, Clear Lake, Gray Lake, and Big Creek Lake are all located in urban areas).

While not a measure of the value of these lakes for their enjoyment and addition to the quality of life experienced by Iowans, it is worth noting that visitors to these lakes bring economic activity in the form of spending in retail and service sectors such as fuel costs and food. Based on estimated single-day household trips, we estimate that recreational trips to the 139 surveyed lakes was accompanied by over $800 million of local spending.

The number of Iowans that utilize the state’s lakes (60 percent) for various forms of recreation, and the economic impact of those trips ($800 million annually), is undoubtedly reflective of the importance of studying and understanding the usage of Iowa’s lakes. The data provided by this study can help ensure proper management of the state’s natural resources, which will benefit all Iowans.

Agricultural Policy Review is a quarterly newsletter published by the Center for Agricultural and Rural Development (CARD). This publication presents summarized results that emphasize the implications of ongoing agricultural policy analysis of the near-term agricultural situation, and discussion of agricultural policies currently under consideration.

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