

The Land of 10,000 Impaired Lakes:

The practices and policies needed to clean-up Minnesota's waters

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Introduction

Minnesotans are known for loving lakes, but are the lakes being loved to death? In 2006, 40 percent of the state's water bodies were placed on the impaired waters list. Impaired waters are defined as lakes, rivers, or streams that do not meet federal water-quality standards. Only 12 percent of Minnesota's waters have been tested to date, and it is suspected the list will only continue to grow unless the state takes action to clean up and protect its lakes and rivers.

Willingness To Pay Survey

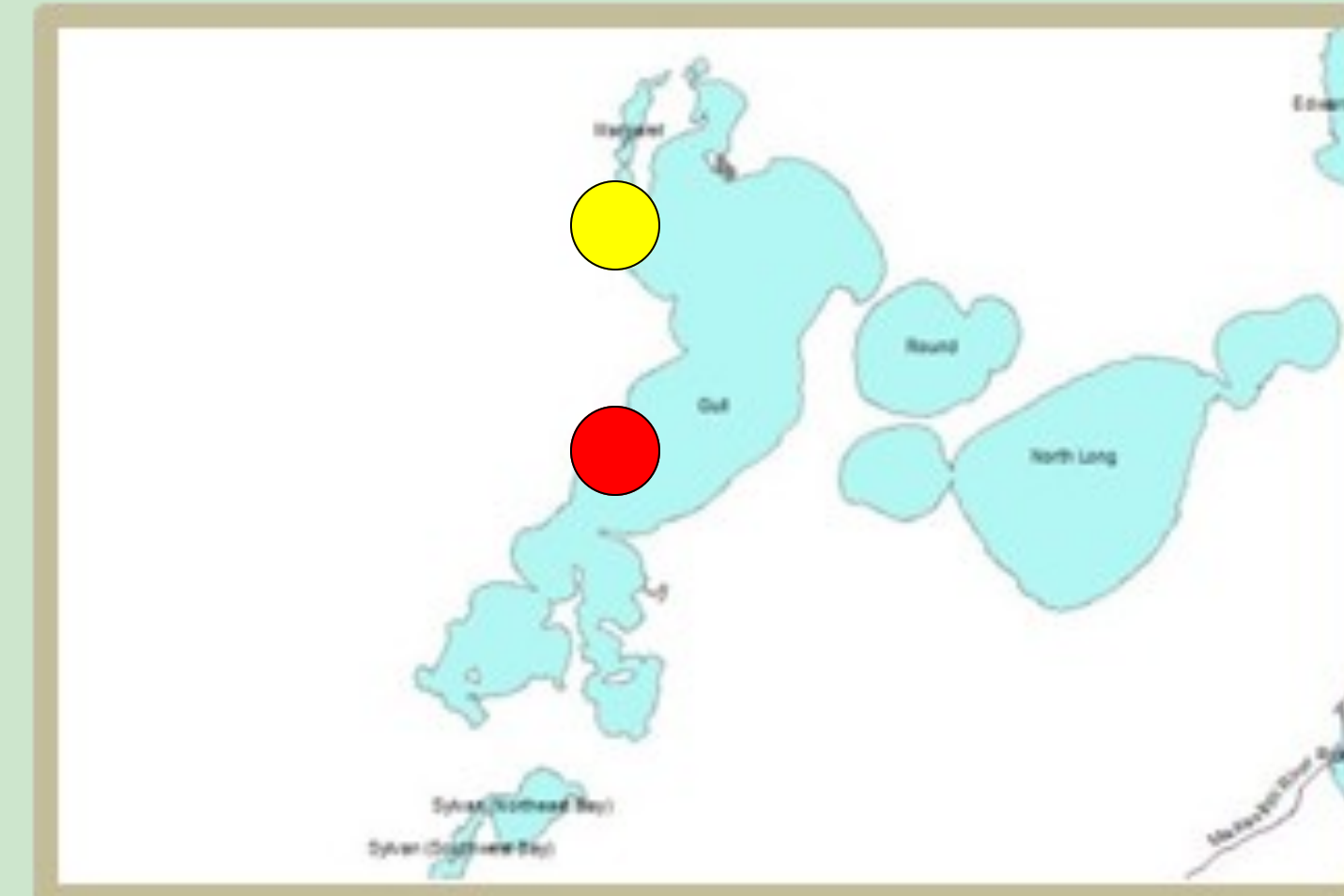
A willingness to pay survey was conducted on Lake Margaret, near Brainerd Minnesota, and the Sauk River Chain of Lakes, near Sauk Center, MN – both represented on the map. The results of the surveys, facilitated by Bemidji State University and the Minnesota Pollution Control Agency, will help the State of MN understand how the public values Minnesota's water and how much they are willing to pay to improve water quality.

Survey Process

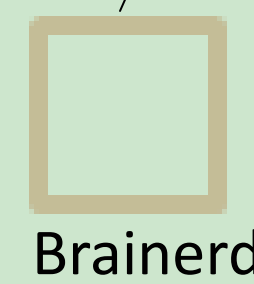
- . One intern per site (Lake Margaret and Sauk River Chain of Lakes) conducted face to face interviews with people who use or live on the lakes
- . Between the two sites, 69 in-person surveys were conducted
- . Results from the initial round of surveys were used to reformat the surveys to be sent out in the mail to a larger group of applicants in both areas
- . The results from the mail survey were used to determine how the lakes are used and how much people are willing to pay to improve water quality on the lakes



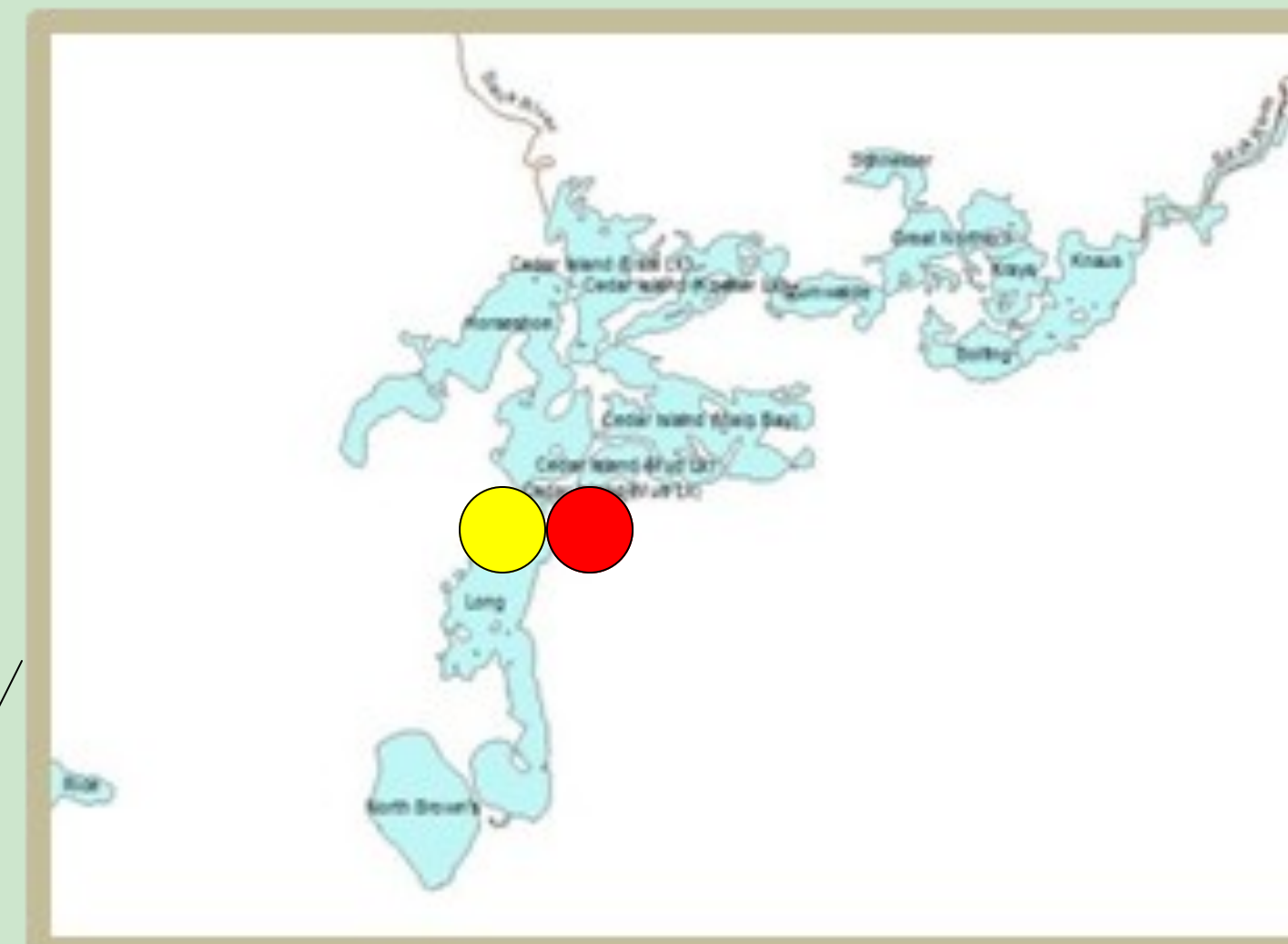
Toxic blue green algae caused by nutrient eutrophication



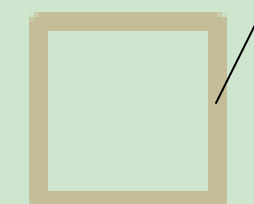
Lake Margaret/Gull Lake - data from the MPCA



Brainerd





Sauk River Chain of Lakes—data from the MPCA



Sauk Centre

Common Impairments:

- . DDT
- . Dioxin
- . Fecal Coliform
- .  Mercury in fish tissue*
- .  Nutrient Eutrophication*
- . Turbidity

*Note: the red and yellow symbols represent the type of impairments documented in the areas the willingness to pay surveys were conducted in. The impairments are based on the "2008 Final Draft TMDL List of Impairments" from the MPCA.

Proposed Best Management Practices

(based on results from the Willingness to Pay Surveys conducted in the Lake Margaret and Sauk River Chain of Lakes areas)

- . Participate in the Conservation Reserve Program
- . Purchase additional park land
- . Restore natural shore land areas
- . Restore sensitive prairie lands
- . Restore sensitive wetlands
- . Construct municipal type wastewater treatment facilities
- . Construct additional on-site wastewater treatment facilities
- . Increase shore land protection regulations
- . Increase no wake zones
- . Increase no horsepower law

Clean Water Legacy Act

"The purpose of the Clean Water Legacy Act is to protect, restore, and preserve the quality of Minnesota's surface waters by providing authority, direction, and resources to achieve and maintain water quality standards for surface waters..." MN Statutes, 2007

- (1) Identify all impaired waters
- (2) Submit Total Maximum Daily Load's* to the United States Environmental Protection Agency
- (3) Set a reasonable time for implementing the restoration of each identified impaired water
- (4) Provide assistance and incentives to prevent waters from becoming impaired
- (5) Improve the quality of waters that are listed as impaired
- (6) Seek the delisting of waters from the impaired waters list when those waters are shown to achieve the designated uses applicable to the waters
- (7) Achieve compliance with federal Clean Water Act requirements in Minnesota. MN Statutes, 2007

*A **Total Maximum Daily Load** is a calculation of the maximum amount of a pollutant a water body can receive and still meet water quality standards. Environmental Protection Agency

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