



CAN WE DRINK THE WATER?

Drinking Water Quality

The Issue: Millions of people depend on the Great Lakes for drinking water free of chemical and microbial contamination.

- The Great Lakes region is home to approximately 33.5 million people, a majority of whom depend on one of the five Great Lakes for drinking water.
- The region has been subjected to decades of pollution, threatening the integrity of the Lakes and the purity of the water for consumption.
- Testing determines the chemical and microbial contaminant levels in drinking water and the effectiveness of policies and technologies intended to protect the safety of drinking water.

The Indicator - SOGL 2003

This indicator tracks the integrity of Great Lakes water by examining data from a portion of the basin's public water systems (Figure 1) including the concentrations of contaminants such as:



- Atrazine: an agricultural pesticide;
- Nitrate/nitrite: naturally occurring nutrients that are found at high levels in fertilizers; and,
- Total coliform, *E. coli*, *Giardia*, *Cryptosporidium*: disease-causing organisms that can contaminate water supplies.

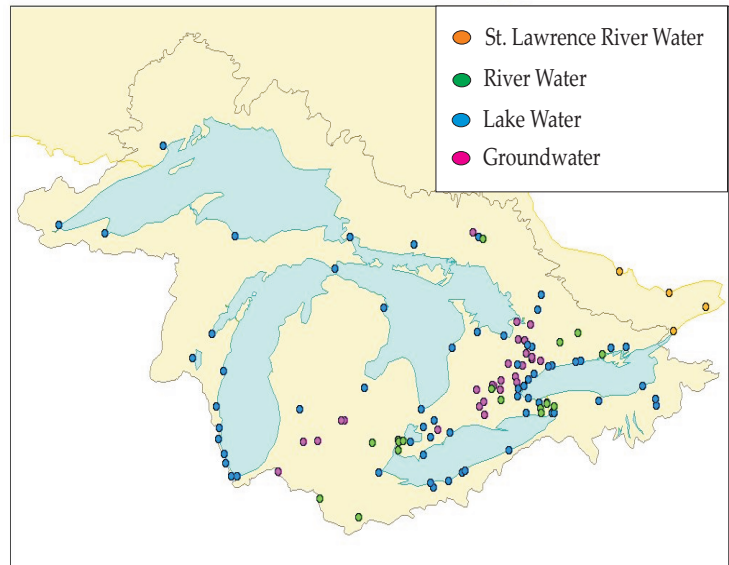


Figure 1. Public water systems that provided data for the drinking water quality assessment, as reported in the State of the Great Lakes 2003 report.

This indicator also examines the turbidity, taste, odor, and organic carbon content as a way of assessing drinking water supplies for other water quality problems.

The Assessment

Chemical/Nutrient Contamination

Atrazine and nitrate/nitrite are consistently found at minimal concentrations following water treatment processes. Public water systems have rarely found chemical levels exceeding drinking water standards between 1999 and 2001 (Table 1).

	Atrazine	Nitrate/Nitrite
Exceedances after Treatment	0	1
Number of Public Water Systems Reporting	104	56

Table 1. Number of atrazine, nitrate/nitrite violations of drinking water standards at reporting public water system facilities (1999-2001).

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Atrazine and nitrate/nitrite are occasionally detected in the Great Lakes basin. In the rare cases where treatment is necessary, advanced technologies are able to reduce the levels of these contaminants so that the drinking water meets standards.

The Assessment

Microbial Contamination

Microbial contamination of drinking water rarely occurs after treatment. Public water systems monitor *E. coli*, a harmful bacterium; total coliform, a benign group of bacteria often present under similar conditions as *E. coli*; and other harmful pathogens. On the U.S. side of the basin, very few microbial violations occur in drinking water following treatment, according to the U.S. Safe Drinking Water Information System (SDWIS) (Table 2). Higher microbial counts are, however, measured in source waters.

	Total Coliform	<i>E. coli</i>
Exceedances Reported in SDWIS	1	0
Number of Water Treatment Plants Reporting	48	48

Table 2. Drinking water microbial violations reported in the SDWIS from 1999-2001 in the U.S. Great Lakes basin.

The United States and Canada are developing rapid tests that quickly detect the presence of coliforms, *E. coli*, and other microbial organisms such as *Giardia* and *Cryptosporidium*.

Additionally, better data will be generated to track the presence of these organisms in both source water and drinking water as detection techniques improve.



The Outlook

Water treatment technologies ensure the high quality of our regional drinking water. Increased development and the use of new chemicals in the Great Lakes basin continue to threaten the integrity of our source waters. Treatment technologies are excellent, however, one of the best ways to ensure high quality drinking water is to reduce contaminant input into the basin.

The importance of high-quality source water cannot be overemphasized. It reduces costs associated with treating water, promotes a healthier ecosystem, and lessens potential contaminant exposure to humans.

For More Information...

Visit the web site, www.binational.net, to access the *State of the Great Lakes 2003* and other references reporting on the state of the Great Lakes.

