

US EPA ARCHIVE DOCUMENT



CAN WE DRINK THE WATER?

Yes, current water treatment technologies ensure the high quality of our drinking water.

The Issues

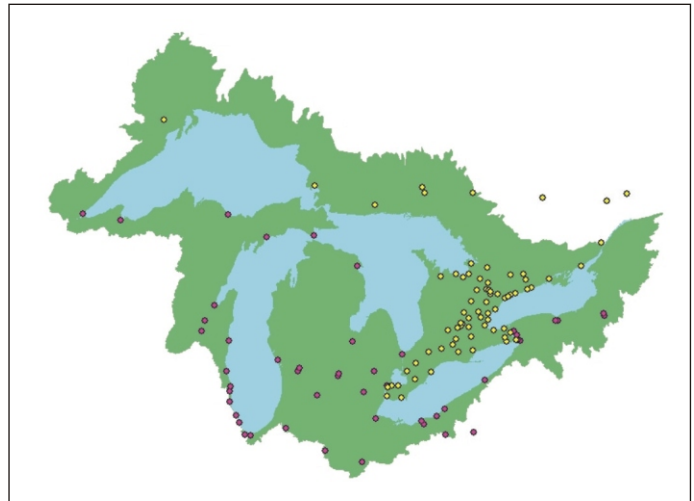
- Every day, millions of people drink treated water that comes from the lakes, rivers and wells of the Great Lakes region. For decades, these sources have been subjected to pollution, threatening the purity of the water for consumption.
- The greatest threat to drinking water comes from bacteria, viruses and parasites found in human and animal wastes as well as from chemical contamination. These pollutants frequently enter lakes, rivers and groundwater through contaminated runoff as a result of heavy rainfall. When ingested by humans they may cause illness, including gastrointestinal distress, which can be fatal in severe cases.
- While technology allows municipalities to treat water to make it free from dangerous levels of contamination, it is important to realize that the quality of source water, such as lakes, rivers, streams or reservoirs, will impact the level of treatment necessary to make the water safe to drink.
- Nitrate and nitrite: derivatives of nitrogen, they are naturally occurring nutrients that are found at high levels in fertilizers.
- Total coliform, *E. coli*, *Cryptosporidium* and *Giardia*: disease-causing organisms that can contaminate water supplies.
- Turbidity and organic carbon (total or dissolved): these parameters do not pose a direct threat to human health, but are often indicative of health hazards, as they can absorb, bond or react with toxic substances and provide nutrients for bacterial growth.
- Taste and odour: attributed to natural compounds released by algae during warmer months, and can affect consumer perception of drinking water quality. Potential health hazards related to algae are currently being studied.

The Indicator

Testing of both source and treated water serves to assess the potential for human exposure to drinking water contaminants and the effectiveness of policies and technologies to ensure safe drinking water. This report focuses on treated water.

Drinking water quality has been assessed using data from various treatment facilities across the region. Assessments are based on information from these major treatment facilities only. Several drinking water parameters are monitored, including:

- Atrazine: an agricultural herbicide.



Locations of water treatment plants (●United States) and drinking water systems (●Canada) in the Great Lakes region, assessed in this report. Source: *State of the Great Lakes 2005* report.

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The Assessment

Chemical contaminants

Atrazine, nitrate and nitrite are commonly detected in source and treated water. Although atrazine levels were highest in treated water samples where the water source was located in an agricultural watershed, there were no occasions in 2001 and 2002 when the levels exceeded drinking water standards set by Canada or the United States.

Nitrate is considered a reoccurring contaminant, because it is commonly detected in both source and treated water, while nitrite is rarely detected in treated water. Nitrate in treated water was not detected above drinking water standards at the facilities surveyed in 2001, and only one water treatment plant violated drinking water standards for nitrate in 2002. Nitrite was never detected in treated water above drinking water standards in 2001 and 2002.

Microbiological contaminants

This contamination occurs predominantly in source water; however, inadequate treatment technologies or contamination post-treatment may result in its presence in drinking water. Information from water facilities within the Great Lakes region used in this report show that, while these micro-organisms were detected in source water across the basin, at no point did their concentrations in treated water exceed standards in 2001 and 2002. The presence of these contaminants in source, but not treated, water indicates that current treatment techniques are effective at removing them from drinking water.

Other compounds

Total organic carbon was detected in treated water samples from all sources except those using source water from lakes Huron and Superior. Dissolved organic carbon was detected in Ontario, but never exceeded the established objectives or standards.

Bad taste and odour complaints were recorded during the summer months of 2001 and 2002. These occurrences were attributed to natural compounds



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released by algae during warmer weather.

Current Actions

Both the Great Lakes states and Ontario actively conduct source water assessment and protection measures. The results of the assessments are published in the annual Consumer Confidence and Water Quality Reports in the United States and annual reports from the drinking water systems in Ontario.

Actions Needed

Implementing measures to prevent or reduce chemical and microbial contamination from source waters must remain a priority. High-quality source water reduces the costs associated with treating water promotes a healthier ecosystem and lessens potential contaminant exposure to humans.

Standardized reporting on the status of drinking water, including the analysis of source versus treated water, needs to be developed in order to improve the assessment of the potential human health risks from drinking water.

To Learn More

For further information about the quality of Great Lakes drinking water, refer to the *State of the Great Lakes 2005* report which, along with other Great Lakes references, can be accessed at www.epa.gov/glnpo/solec.

