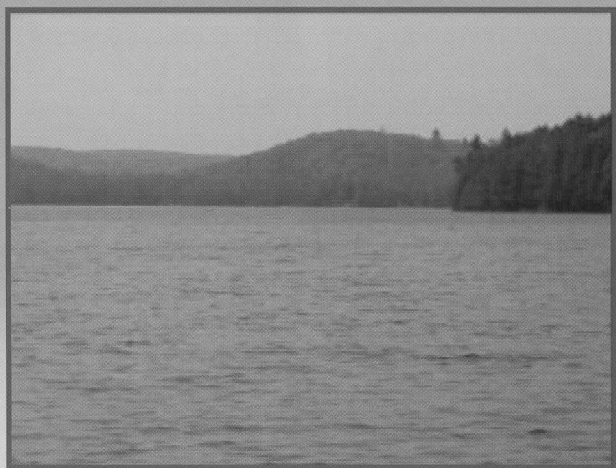


# Lake Health & Algae



*Photo Courtesy of Paul Tomlinson*



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# What are algae & algae blooms?

Algae are tiny free-floating or attached plants found in lakes and rivers. They contain chlorophyll, and carry out photosynthesis.

Algae form the basis of most aquatic food chains and are an important natural part of the ecosystems.

The ability of algae to grow depends on the degree of nutrient enrichment, the amount of grazing by animals such as tadpoles and crayfish, the water pH level, and the concentrations of heavy metals, contaminants and other trace elements. Hot summers, low rainfall and calm days combined with adequate but not necessarily increased levels of phosphorus can also promote algae growth.

Algae blooms occur when conditions favour the growth of algae. Blooms lower the aesthetic quality of an area by producing pungent odours and reducing water clarity. Blue green algae may also be toxic.

When algae die, they sink to the bottom of the lake and decompose, depleting oxygen levels. The depletion of oxygen in the bottom layer of the lake can free phosphorus trapped in the sediments, thereby further increasing the phosphorus concentrations in the water column.

This abundance of phosphorus helps increase algae growth and the nutrient enrichment cycle continues. Fish and other aquatic species that cannot survive in a eutrophic environment will die, and the overall water quality of the lake is degraded.

## What is phosphorus?

Phosphorus is a nutrient necessary for plant growth. An increase in the phosphorus entering our waterbodies causes a direct increase in the growth of algae.



## What is eutrophication?

Natural eutrophication is the process by which lakes gradually age and become more productive. It normally takes thousands of years to progress.

Human activities can greatly accelerate eutrophication by increasing the rate at which nutrients, primarily phosphorus, enters a lake from its surrounding watershed. This is known as cultural eutrophication.

Reducing the nutrients from man-made sources can usually prevent excessive algae growth in the future. Urban and agricultural runoff, sewage discharges and septic tank seepage, eroded stream banks, cleared lake fronts, fertilizer and detergent wastes, all release phosphorus and stimulate growth of algae and other plants. This accelerates lake aging.

difference!



### Low Phosphorus Lifestyle\*

Human waste	535g
No dishwasher	0g
No fertilizer	0g
Trees not cut down	0g
Use of phosphate-free products	20g

**Total Phosphorus 555g**



### High Phosphorus Lifestyle\*

Human waste	535g
Dishwasher (once a day)	650g
Fertilizer (once a year)	1960g
Lot cleared of trees	30g
Use of products containing phosphates	180g

**Total Phosphorus 3355g**

\*Figures are based on 3.7 people using a cottage, with a 40 x 80 metre lot size, for 90 days of the year.

*Source: Ministry of the Environment and Energy, 2001*

# Reduce the phosphorus load to your lake

Maintain a shoreline buffer and keep the rest of your property well forested

Manage the stormwater runoff from your property

Limit your use of fertilizers, pesticides or herbicides

Use phosphate free soaps and cleaners

Ensure your septic tank is working properly and is pumped out regularly

Build away from the shoreline

Protect wetlands because they act as natural filters

Relax and let nature take it's course



*Photo Courtesy of - MOE D.E.S.C.*

In the fall of 2005, Three Mile Lake in the District of Muskoka was covered with a toxic blue-green algae bloom.

Agricultural activity, groomed lawns and heavy development all contributed to increased phosphorus input. Unusually hot weather was also a factor.

The lake could not be used by humans or pets for drinking, washing or swimming. Plans are now underway to reduce the amount of phosphorus entering the lake.



Photo Courtesy of  
MOE D.E.S.C.

Protect our lakes by reducing  
phosphorus loading!

**Download more information on algae from:**

[www.ene.gov.on.ca/programs/4661e.pdf](http://www.ene.gov.on.ca/programs/4661e.pdf)

[www.ene.gov.on.ca/cons/5088.pdf](http://www.ene.gov.on.ca/cons/5088.pdf)



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