

ENVIRONMENT BULLETIN

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E. coli

What is *E. coli*?

Escherichia coli, commonly called *E. coli*, is one of the most common species of fecal coliform bacteria. It is a normal component of the large intestines in human and other warm-blooded animals including birds, beavers, otters, muskrats, racoons, and other mammals. There are many different strains of *E. coli*, most of which are harmless or even beneficial. Some strains, however, can make you sick. We all carry about one million *E. coli* cells per gram of feces in our guts, and if you are healthy, none of these are capable of causing gastrointestinal illness.

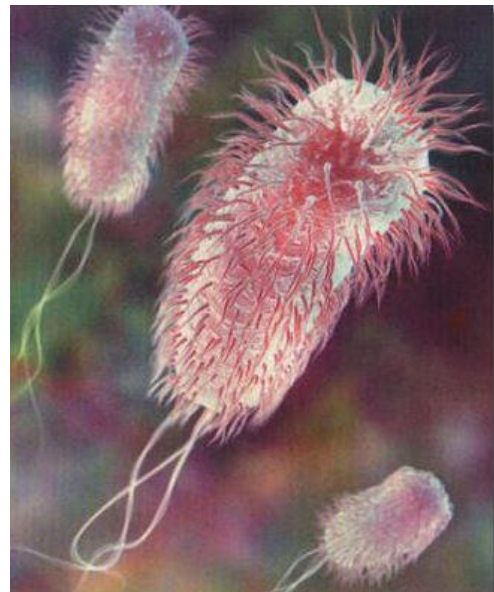
Why do we test for *E. coli*?

When *E. coli* is found in water, it is evidence of sewage or animal waste contamination. Although, on its own, *E. coli* is not likely to cause illness, it is very easy to culture in the lab, making it a useful indicator for other accompanying pathogens or toxins which are much more difficult to detect and quantify.

How and when does *E. coli* get into a lake?

Even in isolated lakes, it is common to find very low levels of *E. coli* in the water. The source of this *E. coli* can be from birds using or overflying the lake, from wild animals and *E. coli* surviving in soils near the lakeshore. When there is a rain event, some of this 'ambient' *E. coli* is washed into the lake.

Much larger and potentially dangerous levels of *E. coli* can enter a lake from upstream lakes or rivers which are used by farm animals, or by discharge from, for example, sewage treatment plants. An additional source is from faulty septic systems.



What about White Lake?

White Lake is a headwater lake, which means that there are no significant water sources upstream from the lake, and hence no significant sources of *E. coli*. There are no active farms on White Lake or large point sources such as sewage plants, so it is expected that *E. coli* values would be low for lake waters sampled distant from the shoreline.

Has White Lake been tested for *E. coli* and what were the results?

In 1973, the [White Lake Water Quality Committee](#) (which later merged with the WLPOA) measured the *E. coli* concentration at 375 separate locations over a three-day period. Shoreline samples were collected in front of most of the 414 cottages on the lake and at other locations including resorts and marinas. It was a monumental effort requiring dozens of people and a Provincial Government willing to pay the considerable costs associated with the survey. As a result of their work, the Committee found about 30 locations with elevated *E. coli* concentrations. Remedial action was left up to the property owners.

More recently, the WLPOA has also sampled White Lake for *E. coli*. The WLPOA website and documents on file show that samples were collected from 2009 to 2012, 2015, 2016 and again in 2018. These samples were collected in open waters away from the shoreline. Reported *E. coli* concentrations were very low as expected for a headwater lake.

Because the beach at White Lake village is a public beach, the local Health Unit samples beach-water at this site on a regular basis. If high *E. coli* levels are detected, the beach is closed until further testing shows that it is safe to use.

Should the WLPOA be testing for *E. coli* as part of its Water Quality Monitoring Program?

We believe that, for White Lake, testing of open waters away from the shoreline is not required unless there is a reason, such as the appearance of a new large point source, which could affect water quality. Any open water measurement giving high results would have to be followed up by a more detailed testing plan in order to identify the source of contamination. At a cost of about \$20 per sample, it would be prohibitively expensive for the WLPOA to test the waterfronts of every or even a significant number of cottages on White Lake.

It is recommended that individual cottagers, residents, resort owners, etc. take responsibility for their own *E. coli* contributions to the lake as a personal health matter. Cottages or residences on the lake which have large lawns, which attract geese during the summer, or anyone who is unsure about the efficacy of their septic systems may wish to conduct private tests. Private cottage or resort beaches should also be tested especially because it is known that *E. coli* can survive in beach sand and be re-suspended by wave action. Samples should be taken where the water is less than 1 metre deep, and after a significant rain event in order to detect *E. coli* washed into the lake.

Sources of Information:

More can be learned about *E. coli* by visiting the websites of the two Health Units serving White Lake:

[Leeds Grenville & Lanark District Health Unit](#)

[Renfrew County and District Health Unit](#)

If you would like to test your shoreline or beach for *E. coli*, sample bottles and sampling instructions can be obtained from commercial laboratories such as:

[Eurofins Ottawa](#) located at 146 Colonnade Road S., Nepean, ON; 613-727-5692

This year is the 150th anniversary of the birth of Theodor Escherich, the German physician who discovered *Escherichia coli*, and for whom the bacteria is named. This guy really knew his.....errr.....stuff!



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