

Farmland and septic tanks undoing decades of Great Lakes cleanup

Tom Spears

The Ottawa Citizen

Sunday, November 16, 2003

When politicians banned phosphates in detergents back in the 1970s, they thought they had solved the big water pollution issue of the day -- thick algae mats that turned much of Lake Erie into a "dead zone."

They were only half right, says Canada's leading freshwater expert, David Schindler of the University of Alberta. They fixed the detergent, but didn't fix the other source of chemicals that can spoil water quality: the runoff from farmland and septic tanks.

Where manure and sewage go, they carry "nutrient" chemicals such as phosphates (which cause algae and weed growth). But they also carry disease-causing bacteria: E. coli and others, which form in the intestines of any warm-blooded animal.

A couple of decades later, this has come back to hurt us.

This fall, beaches along Lake Huron have been posted as permanently unfit for swimming because of 10 years of consistently high levels of E. coli bacteria.

The E. coli were the only type of bacteria counted, says microbiologist Michael Brodsky, who reviewed the data and recommended closing the beaches.

But they are certainly not the only bacteria washing into the lake. The presence of E. coli show that fecal matter is contaminating the water, bringing with it a variety of bacteria.

The Lake Huron beaches are probably not more contaminated than many other beaches that don't happen to have been monitored as well, he said.

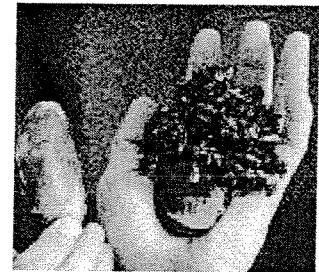
And in Lake Winnipeg, nutrient chemicals from fertilizers, manure and sewage are running into the water to such an extent that an algae bloom this summer covered 6,000 square kilometres. Satellites could see it from space.

Meanwhile scientists are just beginning to learn of other hazardous bacteria in the lakes: botulism.

Dead birds were the key: In 2002 hundreds dead loons, gulls and cormorants started appearing on the shores of Lake Erie and Huron, poisoned by the toxins that botulism bacteria produce. The bacteria were in the fish, and became concentrated as the loons and other water birds ate fish every day.

Fish died in Lake Erie by the hundreds of thousands.

Hundreds more water birds have died again this fall on Lake Huron, and botulism is again suspected.



Scientists believe a strange form of botulism known as type E was brought to the Great Lakes by foreign invaders such as zebra mussels, above, the round goby and zebra-like quagga mussels.

CREDIT: Chris Mikula, The Ottawa Citizen

The puzzle was two-fold: Why had this not happened in the past? And why did the birds suffer from a strange form of botulism known as type E, which is not widely found in animals in this part of North America?

Scientists believe it was carried by foreign invaders carried to the Great Lakes aboard foreign freighters: The round goby, a small bottom-feeding fish; zebra mussels; and the zebra-like quagga mussels.

Since the 1970s, when the Great Lakes emerged as one of the most studied freshwater systems in the world, much of the focus has been on trace levels of chemicals with long names: hexachlorobenzene, trichloroethylene and polychlorinated biphenyls.

Suddenly the plain old germs are back. In fact, many of them never left.

E. coli and the other coliform bacteria, which come from the intestines animals in feces, have been at some level forever.

"Just because it's common doesn't mean it isn't hazardous," says Tom Adams of the Environmental Bureau of Investigation.

"Some of these little rural streams actually have more bacteria per litre of water than urban sewers," he said.

"You can bet that if coliform bacteria are getting in, so are nutrients, which will cause eutrophication problems," says the University of Alberta's Mr. Schindler, who won the \$1-million prize as Canada's top scientist of 2002 from the Natural Sciences and Engineering Research Council. Eutrophication means the kind of mucky green water that plagued Lake Erie in the past.

"The bacterial contamination and boil-water orders and so on are a direct result of the way programs on this have been emasculated by the federal government and provincial governments in the last 25 or 30 years," he said.

"The politicians assumed that the problem went away" when they took phosphates out of detergents, he said. It wasn't enough.

"Land use changes including manure applications and so on have exploded," he said.

Ontario's Ministry of Agriculture and Food says it is not pursuing or supporting any research on environmental and health effects of manure from intensive hog farming.

© Copyright 2003 The Ottawa Citizen

CLOSE WINDOW

Copyright © 2003 CanWest Interactive, a division of [CanWest Global Communications Corp.](#) All rights reserved.
Optimized for browser versions 4.0 and higher.

canada.com

