



FREE
REPORT

TURNING THE TIDE

On Lake Winnipeg and our health



"Lake Winnipeg appears to be a repository or sink for a number of man-made chemicals."
Dr. Gregg T. Tomy, Research Scientist and Section Head
Department of Fisheries and Oceans, Winnipeg, Manitoba

Turning the tide on Lake Winnipeg and our health



Lake Winnipeg is a crown jewel amongst Manitoba's natural areas. The lake covers 25,000 square kilometers (an area about ½ the size of Nova Scotia) and is an ecosystem in itself. Like a giant heart lying in the center of the continent, the tenth-largest lake in the world pumps water from four provinces and four US states into Hudson Bay.

The declining health of Lake Winnipeg is no secret to Manitobans. Disturbing and frequent reports in the media tell of excess nutrients flowing into the lake, creating colossal algae blooms that suffocate other aquatic life. But Lake Winnipeg is under attack from another, unseen threat—toxins.

In North America there are over 85,000 chemicals in use, many of them found in common household products. The chemicals contained in these products include known carcinogens (cancer-causing substances), reproductive

toxins and endocrine-disrupting chemicals, most of which are unlabeled and untested.

Astoundingly, over 90% of chemicals used in North America have never been evaluated for their impact on human health and even fewer for their environmental impacts. While toxic chemicals such as polybrominated diphenyl ethers (PBDEs), disodium EDTA and methyl paraben may sound foreign and unfamiliar, these common and highly toxic chemicals can be found in places like your mattress, shampoo and shaving cream.

Over the past 60 years, tens of thousands of synthetic chemicals have found their way into our water, air and food supply, and the results are sobering:

- In the 1930s, 1 in 10 Canadians could expect to develop cancer over their lifetime. Today, that number has risen to 1 in 2.4 Canadian men and 1 in 2.7 Canadian women.¹

- Early puberty in girls and increased risk of breast cancer in women are increasingly being linked to xenoestrogens (chemicals that mimic female hormones). Phthalates in cosmetics and bisphenol-A (found in hard plastic water bottles) are among the suspects.

- In the last half-century sperm counts for men in industrialized countries have dropped by almost 50%, and in heavily industrialized Scotland a recent study showed men's sperm counts decreased by 27%² in just 12 years.

Toxins are being found in the water, soil and aquatic life of Lake Winnipeg, and the detrimental effects of chemical pollutants in nature are easy to see.

"Thousands of contaminants are now circulating in our rivers and lakes at unprecedented levels, and one of our greatest assets, Lake Winnipeg, is the ultimate recipient of our wastes. The needs are enormous for comprehensive, immediate action in the areas of baseline data acquisition, monitoring, legislation, and enforcement. All citizens of Manitoba, as well as government and industry, need to take action to reduce their use of toxic products."

Dr. Eva Pip
Professor - University of Winnipeg.
Specialist in Water Quality and Toxicology.



Toxins are everywhere

Pollution in our lives

Pollutants have many entrances into our lives, and their presence is taking a toll. In 2005 alone, the Canadian government allowed 4.7 billion kilograms of toxins to be released into our air and water, including known, proven cancer-causing chemicals.³

According to a 2007 study⁴, health problems associated with exposure to toxic chemicals are costing our health care system up to \$9.1 billion and 1.5 million hospital days annually. The study further states that pollutants cause as many as 25,000 deaths, 24,000 new cases of cancer, and 2,500 low-birth-weight babies in Canada every year. One of the authors of the study, Trudeau Scholar David Boyd, notes that among the 30-country Organization for Economic Cooperation and Development (OECD), Canada ranks 28th for its environmental track record.

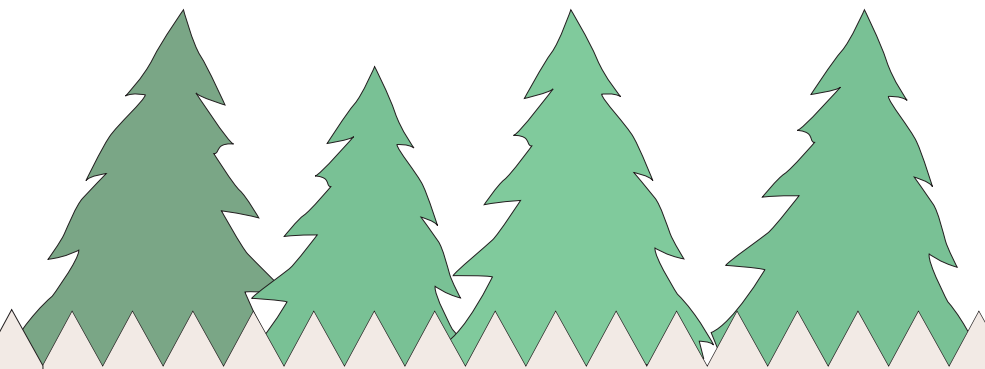
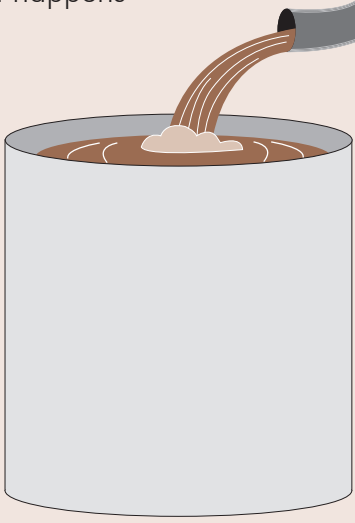
Sewage

Toxins' Gateway to Lake Winnipeg

Toxins enter our lives and our bodies through consistent exposure, and they eventually reach our aquatic ecosystems when they are released from our bodies or discharged into the sewer. About a third of the city of Winnipeg is serviced by an antiquated combined sewer system that uses single pipes to collect wastewater from homes and industries, as well as surface runoff from snow-melt and rain. The combined sewer system is designed to discharge runoffs of raw sewage into the river system during periods of high flow, which happens about 18 times per year.⁵

Even the output from our wastewater treatment plants is of concern. Toxins, metals, hydrocarbons, pharmaceutical and personal care products (PPCPs), fragrances, flame retardants, and perfluorinated compounds can not all be removed by water treatment plants. More research on advanced technologies is required.⁶ Getting our governments to take action and then implement new technology to properly treat wastewater is our collective responsibility.

On the bright side, Sweden and California recently became world leaders in producing "Bio-Gas" from sewage that now fuels cars, and generates power and heat.



In the Garden

In 2007, public outcry inspired the Manitoba government to restrict the phosphorus content of household dishwasher detergents and lawn fertilizers. While this may lower the amount of harmful nutrients in Lake Winnipeg, these measures will not address the problem of toxins found in chemicals intended for the garden or home.

Many insecticides and fungicides sold for domestic garden use contain endocrine-disruptors, reproductive toxicants and carcinogens, such as captan and maneb, both commonly used fungicides. A 2004 review by the Ontario College of Family Physicians highlighted the increased risk of cancer posed by some pesticides and called for reductions in their use. Concerned about this risk, and the link between "cosmetic pesticides" (chemicals used simply to make gardens and lawns look better) and childhood leukemia, Canadians in many communities have convinced their municipal governments to enact bylaws that restrict or ban the use of cosmetic pesticides.



In the Home

Polybrominated diphenyl ethers (PBDEs)

Like the PCBs of an earlier generation, a new persistent pollutant is showing up everywhere, from the blubber of killer whales in the Pacific Northwest to human breast milk in the Arctic. Polybrominated diphenyl ethers (PBDEs), a sub-family of brominated flame retardants (BFRs), are neurotoxins linked to behavioural problems, and learning and memory disorders.⁹ These toxins are widely used as fire retardants in such common consumer products as the foam in our furniture and mattresses, insulation materials used in our homes, and the plastic and circuitry of our television sets and computers. Banned in Europe, the North American market accounts for half of the world's consumption of PBDEs. Invisible predators, PBDEs are now found throughout our environment, from computer dust to falcon eggs. In fact, since their introduction in the 1970s, PBDE levels have doubled in North America every four to five years.



Making smart consumer choices

Pick up a magazine, flick on the TV and the product pitches are everywhere: "get the new scrubbing power of our floor cleaner" ... "catch the scent of ocean breezes with our new air freshener" ... "feel sparkly clean with our body wash". But do you really need all these products? And even for the products that you do need, are there better choices that reduce the impact on the environment and on your health?

Sometimes the first question is easy to answer. Products like plug-in air fresheners, for example, do little more than mask odours and contribute to indoor air pollution. Heavily fragranced products often contain endocrine-disrupting synthetic musks that have been shown to cause reproductive problems in wildlife. But even for products you do need, it's important to know what the ingredients are. For example, some common household cleaning products may contain carcinogens or ingredients that are considered to be CEPA-toxic (toxic to human health and the environment under the provisions of the Canadian Environmental Protection Act). Check it out before you buy with some of these tools below:



Environmental Choice

One good product identifier is the Environmental Choice Eco-Logo, an environmental certification program developed by Environment Canada but certified by a third party, Terra Choice. This wide range of products ranging from cleaners to batteries must meet strict standards on ingredients, packaging, biodegradability and other criteria.



Green Seal

Less known in Canada, but similar in purpose is the Green Seal certification, a U.S.-based standard. Certified products must meet a set of standards on ingredients and other criteria. The range of product categories is not as wide, but within each category there are usually a number of certified products.



Beauty Products

During the 1600s ruby red cheeks and extremely white skin were considered beauty ideals in the court of Queen Elizabeth I. To achieve this look, women liberally applied white face paint made of lead and rouge derived from mercury sulphide — two toxins that slowly poisoned the user.

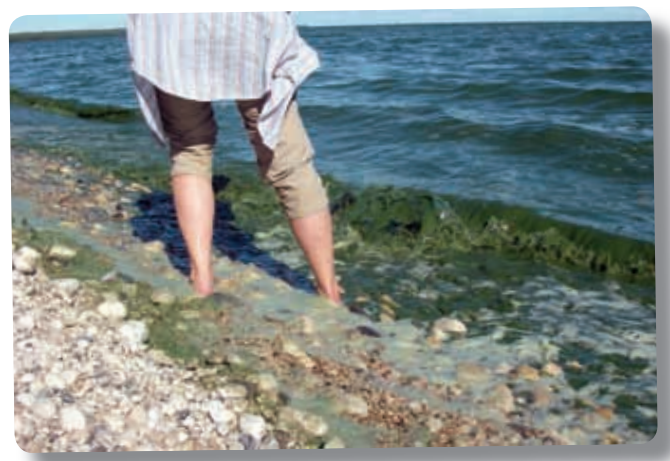
Today, 400 years later, people use beauty products with much greater confidence. But should they? Soaps, perfumes, nail polish, hair dye, skin lotions, baby shampoo and cosmetics may contain a variety of dangerous chemicals, such as formaldehyde, phenol (carbolic acid) and toluene, which are carcinogenic, mutagenic and/or can be readily absorbed through the skin.



In 2004, Department of Fisheries and Oceans researchers found four types of BFRs (Brominated Flame Retardants) in all samples of zooplankton, fish species, sediment, and water from the shores of Lake Winnipeg, near Gimli.⁸ BFRs are neurotoxins linked to human behavioural problems, and learning and memory disorders. They are widely used in many common household products.

Another study of BFRs in Manitoba showed BFRs altered the endocrine functions in juvenile lake trout, indicating the same thing is likely happening in other wild fish stocks in Lake Winnipeg.

Dr. Gregg T. Tomy et al. Bioaccumulation, Biotransformation, and Biochemical Effects of Brominated Diphenyl Ethers in Juvenile Lake Trout (*Salvelinus namaycush*) Department of Fisheries and Oceans, Freshwater Institute, Winnipeg, Manitoba



Impacts from Industry

Compared to the unknown and unseen toxins pervading our daily lives, large sources of toxic industrial pollution in Manitoba are easy to identify. Situated just a few kilometers upriver from Lake Winnipeg is a coal-fired nightmare that has been operating since the 1920s. Tembec's pulp and paper mill in Pine Falls discharges upwards of 4.5 million kilograms of pollutants every year. The worst industrial polluter in all of Canada is also right here in Manitoba—the Hudson Bay Mining & Smelting Company's complex in Flin Flon. In 2007, parents in Flin Flon were advised not to let their children play outside without gloves on due to the excessive contamination in the soil.

A 2007 report found that more than half of Manitoba's waterways failed Environment Canada's pollution tests.⁷ Industry must share in the responsibility for keeping toxins out of our air, water and soil.



Under the Sink

Many common household cleaning and home maintenance products contain toxic chemicals, including carcinogens and endocrine-disrupting chemicals. When the same products are used in the workplace, federal legislation requires that the hazardous ingredients be labeled, but there is no such requirement for consumer use.

Some detergents and toilet bowl cleaners, for example, contain ethoxylated nonyl phenols, endocrine-disrupting chemicals that can interfere with reproduction in marine and other species. Some laundry detergents contain trisodium nitrilotriacetate, listed by the International Agency for Research on Cancer as a possible human carcinogen.

The CancerSmart 3.0 Consumer Guide, published in French and English by the Labour Environmental Alliance Society (LEAS), is a useful reference to check the ingredients in common consumer products and to find alternatives (see back page for details).



You can also call the 1-800 number listed on many products and request a Material Safety Data Sheet that lists product ingredients.



Spare any Change? the myth of Canada's leadership on pollution control

If you're looking for tough laws that protect you and your family from toxic pollution, Canada may not have the high standards you thought. Patchwork laws across the provinces, national laws based on "downstream solutions", and an over-reliance on "voluntary" industry measures to remove the most dangerous chemicals from production, have contributed to a 49% increase in the volume of chemicals reported as released into the environment over the past decade.¹⁰ As a result, Canada has one of the worst pollution rankings in the world amongst industrialized countries, coming in 28th out of 30 in the most recent annual environmental ranking of OECD countries (the 30 most industrialized nations in the world).¹¹

The passage of the Canadian Environmental Protection Act (CEPA) in

1999 was a welcome step, but CEPA clearly needs to be strengthened to be effective at protecting Canadians and our environment from toxic contamination. Some needed actions are to:

- 1 initiate an immediate ban on the most toxic and persistent chemicals, such as PBDEs;
- 2 expand CEPA's registry to include all known products containing toxins, and ensure they are labeled with clear, plain language warnings for consumers;
- 3 provide money to provinces and cities to ensure toxins in sewage can be recovered;
- 4 shift the onus to industry to prove chemicals are safe before they are approved for use.

The time to incorporate these higher standards is right now. Please take the time today to let the Prime Minister and your Member of Parliament know how you feel about turning the tide on toxic pollution in Lake Winnipeg and our lives (contact information in the box below — no postage required).



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- ⁶ University of Waterloo (Dept. of Civil Engineering), Hydromantis Inc. "Review of the State of Knowledge of Municipal Effluent Science and Research; Review of Existing and Emerging Technologies; Review of Wastewater Treatment Best Management Practices." ES-2. January 2006.
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- ¹⁰ Environmental Defence and Canadian Environmental Law Association (December 2004). Shattering the Myth of Pollution Progress: A National Report. p.1.
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CancerSmart Consumer Guide

The Toronto Star has said that the Labour Environmental Alliance's CancerSmart Consumer Guide should be "required reading in every home". This 52-page book, revised for 2007, has sections on what to avoid in cleaning products, personal care products and household plastics, as well as alternatives to pesticides. It's available for \$13 from the LEAS website www.leas.ca or call them at 604-669-1921 to order your copy.



Glossary

- Bio-accumulation**
The general term for the accumulation of substances, such as pesticides, in organisms.
- Carcinogen**
A toxic substance that can cause cancer.
- Endocrine disruptor**
A synthetic chemical that mimics or blocks hormones, and disrupts the body's normal functions
- PBDEs**
Polybrominated Diphenyl Ethers are highly toxic chemicals frequently added to foams and plastics as a fire retardant.
- Persistent pollutant**
A toxin, such as mercury, that doesn't break down readily in the environment.
- Reproductive toxins**
Substances that negatively affect reproductive capacity.

Contact your MP and the Prime Minister

You can search for your MP at www.parl.gc.ca or by calling the Canadian Parliament Information Centre toll free at 1-866-599-4999

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