



---

## ***4. Environment and Health Issues***

This spring, the Environment and Health Work Group, one of five established by the Intergovernmental Waterfront Committee in September 1988, presented its report to the Royal Commission. Titled *Environment and Health*, its purpose was: to summarize current plans and initiatives related to health and the environment; to evaluate the issues that have to be addressed if the Toronto waterfront is to achieve its highest potential; and to identify new opportunities, assuming that there is greater co-ordination amongst all levels of government and public authorities. In addition, the report served as an information resource and point of departure for four days of hearings on environment and health conditions, issues, and opportunities on the Toronto waterfront.

This chapter of the Commission's interim report examines, first, key environment and public health concerns expressed at the Commission's hearings, and considers them in the context of available technical reports and studies. In many instances, the Commission re-contacted deputants who appeared at the hearings, in order to clarify and ensure the accuracy of comments on specific issues. In addition, officials of the Ontario Ministry of the Environment (MOE) who did not attend the hearings were contacted to confirm that specific concerns were presented in this report in a fair and balanced manner.

Then, the Commission makes a number of recommendations, all intended to ensure a brighter future for Toronto's waterfront. The Commission believes that, in the past 25 years, changes on the waterfront and in the watersheds draining to it have happened too quickly, with potentially damaging long-term results to the environment and health. In fact, there may be no solutions to some of the most serious effects, including the contamination of sediments by heavy metals and toxic organics.

The Commission is of the opinion that a pause is needed so that we can analyse and learn from past mistakes and,

once and for all, establish policies and techniques that would permit waterfront development with little or no environmental and health damage and risks. That is why the Commission's recommendations include the call for a hiatus in making further changes, to produce, in time, a waterfront that conforms to the principles of sustainable development and ecosystem diversity.

### **1. Background and Issues**

#### **A. Health**

Many submissions to the Royal Commission referred to health concerns in one form or another. People spoke about various ways in which the waterfront environment may be affecting their health. For example, they are concerned about the quality of water for drinking and water contact sports; contamination of fish; air pollution; soil contamination; and noise. As Sarah Miller, deputant on behalf of the Canadian Environmental Law Association, said on 25 April 1989:

Torontonians' relationship to their waterfront is a sad one. We no longer can look to our waters as a physical and spiritual source of renewal. We flee our city to swim and 48 per cent of users feel our waters are such a threat to our well-being that we spend money buying bottled water and water filters for our drinking water. Our water has become one-dimensional to us, a view or backdrop. It's too disturbing to think about what's underneath the surface.

Clearly, health implies more than the absence of disease; it also means having confidence that food, water, and air are safe. Opportunities for active recreation and passive relaxation depend on the availability of a range of accessible, public open spaces. A sense of satisfaction with the form and development of the city, as well as continuity with the past,

are important elements that contribute to a perception of a good environment for living, working, and playing. Empowerment — the ability of people to use information and power to make choices and influence their environment — is widely recognized as an important factor in promoting good health.

The Commission adopted the recent definition of health accepted by both the federal and provincial governments:

Health is the extent to which an individual or group is able on the one hand to realize aspirations and satisfy needs and, on the other hand, to change or cope with the environment. Health is therefore a resource for everyday life, not the objective of living. It is a positive concept that emphasizes social and personal resources as well as physical capacity.

In attempting to assess the links between environmental quality and human health on the Toronto waterfront, we found that very little information is available. The following review identifies some of the key issues.

## **Toxics**

In 1985, the Royal Society of Canada and the U.S. National Research Council, having reviewed several studies on the accumulations and impact of toxic chemicals in Great Lakes populations, concluded that:

In light of [available] information, the committee finds substantial evidence that the human population living in the Great Lakes basin is exposed to, and accumulates, appreciably more toxic chemical burden than people in other large regions of North America for which data are available.

[Quoted in "Great Lakes United. A Citizens' Agenda for Restoring Lake Ontario: Report of a Regional Meeting on Lake Ontario Water Quality Issues" (Buffalo: Great Lakes United, 1988), 31.]

In the summer of 1988, the Lake Ontario Organizing Network (LOON) held an outreach program in 33 communities around Lake Ontario. It found that an overwhelming number of people are convinced that their health is being negatively affected by living in the Lake Ontario basin.

One local example was brought to the attention of the Commission at the hearings:

I was very disturbed to learn that four mothers in my own community on Toronto Island had their breast milk tested and found that it contained excessive, dangerous levels of PCBs. These are women who do not eat fish from the lake and lead health-conscious lives...[Sarah Miller, deputant for the Canadian Environmental Law Association, 25 April 1989.]

While the pathways of this contamination are not known, we do know that PCBs are widespread in our environment, for example in sediments in the Toronto Harbour, in the rivers, in emissions from incinerators that burn sewage sludge, and in lakefill sites.

The sources of toxic chemicals in Lake Ontario include municipal sewage treatment plants, industrial facilities, stormwater run-off (direct discharges to the lake plus indirect discharges via the rivers), and the Niagara River. Thus the contaminant loadings in the sediments and waters of the Toronto waterfront are the result of lakewide, as well as local, problems. Therefore, in order to achieve a healthy environment on the waterfront, it is necessary to ensure that remedial and preventive actions are taken throughout the Great Lakes basin, as well as in the Area of Concern being addressed by the Toronto Remedial Action Plan.

The Lake Ontario Toxics Management Plan (as detailed in *A Report by the Lake Ontario Toxics Committee of Environment Canada, U.S. Environmental Protection Agency, Ontario Ministry of the Environment and New York State Department of*

*Environmental Conservation*, 1989) summarized the key issues on the impact of toxics in Lake Ontario on human health:

1. Certain toxics (PCBs, mirex, chlordane, dioxin, mercury, hexachlorobenzene, DDT and metabolites, and dieldrin) bioaccumulate in some Lake Ontario sportfish at levels that make them unsuitable for unrestricted consumption by humans.
2. Hexachlorobenzene, DDT and metabolites, and dieldrin are found in the ambient water column at levels above standards and criteria designed to protect human health.
3. No toxics are found in drinking water at levels above standards designed to protect human health.
4. Generally accepted direct indicators of the impact of toxics in Lake Ontario on human health are not presently available.
5. While the levels of some problem toxics in Lake Ontario have been reduced over the past two decades, they may be stabilizing at unacceptably high levels.

While there is little information on the effects of toxics on human health, there is conclusive evidence to link toxic substances in Lake Ontario with severe problems in wildlife. As *A Citizens' Agenda for Restoring Lake Ontario* (page 33) points out:

Linking reproductive failures and birth defects in fish and wildlife to human health effects is not an exact science. But it is obvious that if fish and wildlife are sick, the ecosystem is not well, and humans, as part of that ecosystem, are likely to be affected also.

Some investigations of health issues in the Great Lakes basin are under way, and several major studies are due to be released in the fall of 1989:

1. "The Impact of Great Lakes Toxic Chemicals on Human Health, A Working Paper", by Dr. Theo Colborn, for the Environmental Health Directorate of Canada.

2. "In Sickness and in Health: The State of the Environment of the Great Lakes", a joint project of the Conservation Foundation, Washington, D.C., and the Institute for Research and Public Policy, Ottawa.
3. A report of the Toxics Task Force, a group comprising officials of Environment Canada, Health and Welfare Canada, and Fisheries and Oceans Canada. The study will provide a review and synopsis of existing data on the occurrence of toxics in the environment (sediments, suspended sediments, and water) and their effects on health in the food chain (fish, turtles, fish-eating birds, and humans).

### Drinking Water

In view of the number of toxic substances in Lake Ontario sediments and water, there is considerable public concern about the safety of drinking water. Public authorities provide assurances that our drinking water *is* safe. Raw and treated water from the three major Metro Toronto water treatment plants is regularly tested for 154 parameters under the Ontario Ministry of the Environment's Drinking Water Surveillance Plan. There have been rare exceedances of the Canadian drinking water concentration guidelines by one or two substances in the treated drinking water.

However, there is insufficient information on the potential health effects of many chemicals, and there are no health-related guidelines for many of them. The list of parameters is continually updated to reflect lower detection levels, add new chemicals of concern, and delete chemicals which are never detected.

Trihalomethanes (THMs) are formed when the chlorine used to disinfect the raw water as it enters the treatment plant combines with trace levels of organics in the water. Although the health risks of THM levels warrant further research, alternate methods of water treatment, including

ozonation and activated carbon filtration, are currently being assessed.

In response to residents' concerns about the quality of their drinking water, the City of Toronto's Environmental Protection Office recently undertook a study, to be published this fall, of "The Quality of Drinking Water in Toronto: A Comparison of Tap Water, Water Treated by a Point-of-Use Device, and Bottled Water".

### **Bacterial Contamination**

One of the most visible symbols of pollution of the Toronto waterfront is the placarding of the swimming beaches during the summer. People are advised not to swim in the lake because of high levels of fecal coliforms, which are indicators of a risk of gastrointestinal, ear, or throat infections. While designated bathing areas are placarded, there is also a risk in other parts of the waterfront to windsurfers and small dinghy sailors who are in direct body contact with the water.

The impact on recreational enjoyment of the waterfront as the result of bacterial contamination of water was emphasized in several submissions to the Commission. For example, one person commented that windsurfers are the most intensive users of the water, and are very concerned about its quality. Another deputant said that it is a sad situation for residents of a waterfront city to be denied access to the cooling waters of the lake during a long, hot summer.

### **Air Pollution**

At the public hearings on environment and health, the Citizens for a Safe Environment group and several residents' associations expressed concern that air pollution is endangering their health.

The air quality of the Toronto waterfront is a product of the range of sources in a major urban airshed. These include:

sulphur and nitrogen oxides and hydrocarbons from industrial sources and residential heating; particulate matter from incinerators, industrial sources, vehicles, and construction activities; ozone created when nitrogen dioxide reacts with hydrocarbons in the presence of sunlight; and contaminants transported from distant sources.

There are three important reasons to consider air quality within the specific context of the Toronto waterfront:

1. Atmospheric deposition is a potentially significant, although as yet poorly understood, source of pollutants to the watersheds, rivers, and lake.
2. Historically, the waterfront has been home to a variety of polluting industries, generating stations, and incinerators, and this pattern of location may well continue.
3. The waterfront is a major corridor for large numbers of vehicles on the Gardiner Expressway and Lakeshore Boulevard. High-density development along the Toronto and Etobicoke waterfronts, on the railway lands, and St. Lawrence Square will act as a magnet to bring an increasing number of vehicles to the waterfront.

The report *Toronto: State of the Environment* (City of Toronto, Department of Public Health, 1988) cites findings that the ambient air quality in the City of Toronto is generally satisfactory. Ambient air quality criteria are usually met for all of the conventional pollutants which have such criteria (carbon monoxide, nitrogen dioxide, sulphur dioxide, ozone, and total suspended particulates). Reductions in emissions have been achieved from all sources except vehicle emissions, which have been increasing.

When compared with other Ontario communities, Toronto has the highest annual average concentrations of carbon monoxide, nitrogen oxides, and respirable particulates. There are many occasions when recommended levels of some pollutants, especially ozone, are exceeded. A recent example occurred in July 1988, when ozone levels were so

high that the Ontario Ministry of the Environment advised residents of Toronto and many other municipalities not to exercise outdoors, while those with respiratory disease and the elderly were urged to stay indoors.

While vehicle emissions are the primary source of urban air pollutants, there are some existing and potential point sources on the waterfront to consider.

For example, the Main Sewage Treatment Plant has an incinerator that burns approximately 73,000 tonnes (80,482.5 tons) of sewage sludge per year. There is little information on the chemicals in the emissions and the fly ash from the incinerator.

A 1987 review by the City of Toronto Board of Health of the environmental fate and persistence of potentially hazardous chemicals in waste incinerator emissions found that data are incomplete for many substances and pathways are poorly characterized. Therefore, it is difficult to determine the contribution of chemicals emitted from incinerators compared to other loadings in the ecosystem. There is also limited information on the health effects of long-term low-level exposure.

Proposals to locate energy generating facilities on the Toronto waterfront include:

1. A refuse-fired steam plant to be built at the bottom of Cherry Street, originally a City project, now transferred to Metro to consider in the context of SWEAP (Solid Waste Environmental Assessment Plan); an individual environmental assessment of this proposal is in progress.
2. Trintek Systems Inc. energy-from-waste plant to be located at Bouchette Avenue and Commissioners Street; an environmental assessment is in progress.
3. A steam-from-gas facility proposed by the Toronto and District Heating Corporation.