

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
I. INTRODUCTION	4
A. Objectives	4
B. The Report	4
II. THE ANALYSIS	6
A. Environmental Problems are Viewed as Most Important	6
B. Toxic Chemicals Seen as Top Environmental Problem In and Around Lake Ontario	6
C. The Quality of Lake Ontario's Environment has Become Worse	8
1. Lake Ontario's environment is only fair	8
2. Hamilton residents are most concerned	11
3. Quality of environment has worsened	11
D. Health Concerns are Closely and Directly Linked to Environmental Problems of Lake Ontario	12
1. About one-in-two see "many" health risks	12
2. Health of Lake Ontario's residents is greatly affected	12
3. Health effects of environmental problems will increase in future	14
4. Deep public concern exists about specific health risks	14
5. Behaviour changes by Lake Ontario residents	17
E. Lake Ontario Residents Demand Government Action	19
1. Protecting the environment should be governments' first priority	19
2. Provincial/state governments should have primary responsibility for the environment	20
3. The United States and Canadian governments must solve Lake Ontario's environmental problems	21
4. Ten year timetable to achieve "zero discharge"	22
5. Public wants the governments to error on the side of caution	23
6. Government support for industry	25
7. High awareness of government fish advisories	27
8. More public information on nature and sources of environmental problems	28
F. Conclusions	29
TECHNICAL APPENDIXES	30





EXECUTIVE SUMMARY

- o To Lake Ontario's residents, the most important problem in their area is the environment. This is consistent with recent results of national studies by Decima which show that environmental concerns have overtaken economic issues as the most important problem.
- o The specific environment problem of greatest concern to residents living along Lake Ontario is toxic chemicals being discharged into the Lake. A second problem being cited frequently as the greatest threat is sewage.
- o A significant proportion of the Lake's residents think that the environmental problems of the Lake have become worse since five years ago.
- o People living along Lake Ontario link closely and directly the quality of their personal health with the environmental problems in and around the Lake.
- o Residents also believe that personal health has already been affected significantly by the problems of the Lake. A widespread belief among both American and Canadian residents also exists that the health effects will increase over the next five years.
- o One of the most important findings is the evidence that people are acting on their environmental concerns: those who are really concerned about the quality of the environment in and around the Lake are much less inclined to swim in the Lake or to eat fish caught there.
- o Toxic chemicals discharged into Lake Ontario, industrial air pollution and chemical seepages from landfill and storage sites are perceived as the most critical health risks for residents living near the Lake.



- o There is no doubt that Lake Ontario residents want the governments to place first priority on improving the protection of the environment. Almost seven-in-ten believe environmental protection should be either the first or second priority of the governments.
- o Perhaps one of the most interesting results of the study is that Lake Ontario residents essentially look to the Ontario and New York governments to protect the environment of Lake Ontario basin. Nevertheless, they see the Lake's problems as only being solved by the governments through joint action.
- o There is some skepticism about whether the governments will not act co-operatively to address the problems of the Lake.
- o In fact, Lake Ontario residents who are dissatisfied with the governments' actions in moving to achieve "zero discharge" commitment -- the elimination of all discharges of the most dangerous chemicals into Lake Ontario -- want the governments to achieve this goal within 10 years.
- o One of the most significant findings of the study is the overwhelming support for the governments to regulate those environmental risks, even if those risks have not been clearly identified and demonstrated. In the context of public policy, the public wants the governments to enact strong environmental laws to reduce the health risks of toxic chemicals in and around Lake Ontario, even where the consequences for health are not fully understood.
- o Strong public support exists, including among American respondents, for an "environmental tax surcharge" to generate the necessary financial resources to help industry modernize plant facilities to eliminate the discharge of toxic chemicals into Lake Ontario. Of those opposed to tax increases, most would want to see additional spending allocated to environmental protection by decreasing expenditures in other areas. Overall, there is strong public support for increased financial resources to be allocated to protecting the environment.

- o People residing around Lake Ontario clearly want the Lake's environmental problems addressed and solved. But they also take a reasonable approach on the methods to be used to solve these problems: the governments and industry should adopt creative and innovative solutions to address the problems. In doing so, there is a broad understanding that there are costs, either in the form of higher taxes and consumer prices or even decreases in public services in other areas, associated with efforts to improve environmental protection.

- o Residents prefer a common sense approach to environmental regulation: Most people believe that industry already has the resources and capacity to stop contributing to the environmental problems in and around Lake Ontario. They also believe that the governments should help financially and technologically those firms which legitimately need assistance. But, if this is not sufficient to improve environmental protection, there is a broad constituency which supports tough environmental regulation even if it means shutting down plants.

- o An overwhelming number of Lake Ontario residents want more public information from the governments on the nature and sources of the environmental problems affecting Lake Ontario.

I. INTRODUCTION

A. Objectives

Decima Research is pleased to present to Pollution Probe, the results of a public opinion survey among residents, both Canadian and American, who live along Lake Ontario. The objectives of the study are to:

- o Assess the levels of awareness and concern regarding environmental problems among residents living near Lake Ontario;
- o Determine whether people make links between health considerations and sources of environmental problems in and around Lake Ontario; and
- o Analyse public attitudes toward the performance of governments in addressing environmental issues and public policy issues.

Telephone interviews were conducted from August 26 to September 3, 1989 among a random sample of 600 residents, 18 years of age or older, living within approximately 15 to 20 kilometers of Lake Ontario. Of the total sample, four Canadian and American communities -- Bay of Quinte area (near Kingston), Hamilton, Rochester, and Oswego -- were oversampled (i.e. sample of 100 for each community). A sample of this size produces results which are accurate for the population of lakeside area of Lake Ontario within ± 4.1 percentage points, 95 out of 100 times. The technical appendixes provide a more in-depth explanation of the sample and methodology used in this study.

B. The Report

The analysis examines the opinions and attitudes of American and Canadian residents who live along Lake Ontario with regard to the environmental problems in and around the Lake.

The report is divided into six sections. The first section begins by assessing the "top-of-mind" concerns of residents living along Lake Ontario. The next section focuses on American and Canadian perceptions of specific sources of the environmental problems



affecting Lake Ontario. The third section leads into public assessments of the quality of the environment in and around Lake Ontario. This section also explores whether people think that environmental conditions have improved or worsened over the past five years. The fourth section moves on to the linkages between environmental problems in and around Lake Ontario and human health of the public. Specifically, this section examines attitudes toward the magnitude of the present and future health risks posed by the Lake's environmental problems. This section concludes with analysis on whether people are changing their behaviour in response to their concerns about the environment. This leads into a discussion about the perceptions of the health risks of specific sources of environmental pollution. The fifth section provides an assessment of the public's expectations of the governments' role in protecting the environment. In particular, this section looks at the need for joint action by the U.S. and Canadian governments to solve the Lake's environmental problems. Most importantly, public attitudes toward further tax increases and additional spending for environmental protection is also assessed. The concluding section provides a summary of the key findings of the study.

II. THE ANALYSIS

A. Environmental Problems are Viewed as Most Important

People (15%) living around Lake Ontario cite the environment as the most important problem in their area. Lake Ontario residents are more apt to cite environmental problems than other key concerns. The next most frequently cited problem (11%) is the economy. In other recent national studies of Canadian attitudes conducted by Decima, environmental issues have overtaken economic issues as the greatest problem.

Residents of Bay of Quinte (25%) and of Hamilton (21%) think that environmental problems are the most important, while Rochester residents cite drugs and alcohol, and Oswego residents name nuclear wastes. This perspective of Oswego residents is not surprising given that a nuclear plant is located within a few kilometers of their town centre.

Table 1

MOST IMPORTANT PROBLEM IN YOUR AREA

	<u>ENVIRONMENT</u> %	<u>ECONOMY</u> %	<u>SOCIAL/ MORAL</u> %	<u>DRUGS/ ALCOHOL</u> %	<u>NUCLEAR WASTE/ PLANTS</u> %
Bay of Quinte	25	23	11	2	0
Hamilton	21	17	15	2	0
Rochester	16	6	14	29	1
Oswego	13	13	8	9	19

Well-educated people are more likely than average to cite environmental and economic problems.

B. Toxic Chemicals Seen as Top Environmental Problem In and Around Lake Ontario

One-in-two residents living around Lake Ontario identify toxic chemicals and wastes as specific environmental problems affecting the areas in and around Lake Ontario. The next most frequently cited problem afflicting the region is industrial air pollution.

Interestingly, on the Canadian side of Lake Ontario, respondents not living in Hamilton and Bay of Quinte are more likely to indicate industrial air pollution than chemical toxics as the biggest environmental problem.

As shown in Table 2, both Canadians and Americans rank specific environmental problems affecting the area in and around Lake Ontario in a similar order. The results show that when Lake Ontario basin residents think about environmental problems in their area, the first thing that comes to mind is the level of chemical toxics. More importantly, both Canadian and American respondents for this study are remarkably similar in their assessments of the specific nature of environment problems in and around Lake Ontario.

Table 2
SPECIFIC ENVIRONMENTAL PROBLEMS AFFECTING
LAKE ONTARIO*

	CANADIAN RESIDENTS OF LAKE ONTARIO SHORELINE %	AMERICAN RESIDENTS OF LAKE ONTARIO SHORELINE %	AGGREGATE %
Chemical/industrial toxics	48	48	48
Industrial air pollution	38	22	30
Sewage	29	14	22
Water pollution	20	20	20
Acid rain	13	13	13
Noise pollution	9	14	11

* Columns will not add up to 100% because respondents were asked, on unaided basis, to identify up to three specific environmental problems in and around Lake Ontario.

Not surprisingly, urban residents, especially people in Hamilton and Rochester (34% and 26% respectively), tend to cite more frequently than the average, industrial air pollution as a specific environmental problem. Residents of Oswego (37%) note nuclear wastes as a specific environmental problem, while people living in the Bay of Quinte area (25%) cite water pollution.

Given that industrial/chemical toxics are the most frequently cited environmental problem, it is not surprising that this concern is also identified by one-third of Lake Ontario basin residents as the "greatest environmental problem threatening the area in and around Lake Ontario." The well-educated and men are more inclined than average to believe that toxic chemicals are the biggest threat.

Table 3

GREATEST ENVIRONMENTAL THREAT*
TO THE LAKE ONTARIO BASIN

	<u>TOXIC CHEMICALS</u> %	<u>SEWAGE</u> %	<u>ACID RAIN</u> %
Canadian residents of Lake Ontario shoreline	38	19	9
American residents of Lake Ontario shoreline	30	11	8
Aggregate	34	15	9

* This question was posed on an "unaided" basis. These rows will not add up to 100%.

Lake Ontario basin respondents studied for this report demonstrate a relatively sophisticated understanding of the nature of the environmental problems in and around Lake Ontario. They also have a clear understanding of the causes -- chemical toxics, industrial air pollution and sewage -- of the Lake's problems. They also focus on chemical toxics as the greatest threat to the Lake's well-being.

C. The Quality of Lake Ontario's Environment has Become Worse

1. Lake Ontario's environment is only fair

Approximately 71% of Lake Ontario residents see the quality of the environment in and around Lake Ontario as "fair" or "poor." As Table 4 shows, Canadians take a much more pessimistic view of the quality of the environment in and around Lake Ontario: while 49% of Canadians perceive environmental quality in Lake Ontario as

"poor," only 15% of American respondents see it being in this shape. In contrast, Americans have a positive view of the Lake's environment: about 45% are willing to say it is in either "excellent" or "good" condition, whereas only 16% of Canadians are willing to describe it in this positive manner.

Table 4

QUALITY OF THE ENVIRONMENT
IN AND AROUND LAKE ONTARIO

	<u>POOR</u> %	<u>FAIR</u> %	<u>GOOD/ EXCELLENT</u> %
Canadian residents of Lake Ontario shoreline	49	36	15
American residents of Lake Ontario shoreline	15	42	41
Aggregate	32	39	29

Of the four specific Canadian and American communities studied for this report, Hamilton residents are the most negative about the quality of the environment in and around Lake Ontario: approximately 46% say the environment is in "poor" shape. In contrast, residents in the two U.S. communities, Oswego and Rochester, think Lake Ontario is in either "excellent" or "good" condition.

Table 5

QUALITY OF THE ENVIRONMENT
IN AND AROUND LAKE ONTARIO

	<u>POOR</u> %	<u>FAIR</u> %	<u>GOOD/ EXCELLENT</u> %
Bay of Quinte	25	46	29
Hamilton	46	38	16
Rochester	15	43	40
Oswego	12	38	50

Lake Ontario residents seem to be adopting new behaviour patterns in response to their concerns regarding the environmental problems in and around Lake Ontario.



Those people (46%) who believe the quality of the Lake's environment is poor appear to be much less inclined to swim in the Lake and to eat fish caught there. In contrast, those residents (50%) who see the lake as being in "good" or "excellent" condition are much more inclined to be willing to swim in the lake and to eat fish caught there.

Table 6

QUALITY OF THE ENVIRONMENT
IN AND AROUND LAKE ONTARIO

	<u>POOR</u> %	<u>FAIR</u> %	<u>GOOD/ EXCELLENT</u> %
<u>WILLINGNESS TO SWIM/EAT FISH INDEX*</u>			
Swim in lake/eat lake fish	13	38	48
Don't swim/eat lake fish	33	35	31
Swim in lake/don't eat lake fish	18	50	32
Neither swim nor eat lake fish	46	37	15

* This variable is constructed from the following questions: Have you or anyone else in your family gone swimming in Lake Ontario during the past 12 months? Would be willing to swim in Lake Ontario? Have you or has any member of your family eaten fish caught in Lake Ontario during the past 12 months? Would you be willing to eat fish caught in Lake Ontario?

This finding is important because there is good reason to believe that people are acting on their concerns about environmental quality of Lake Ontario.

2. Hamilton residents are most concerned

As Table 7 shows, Hamilton residents are the least positive of the four Canadian and American communities regarding the environmental quality in their local area.

Table 7

QUALITY OF THE ENVIRONMENT IN LOCAL AREA

	<u>POOR</u> %	<u>FAIR</u> %	<u>GOOD/ EXCELLENT</u> %
Bay of Quinte	11	25	64
Hamilton	24	37	39
Rochester	3	42	55
Oswego	11	31	58

3. Quality of environment has worsened

Over one-third of Lake Ontario basin residents think that the quality of the environment is now worse than it was five years ago. Women tend to take a more pessimistic view than the average.

Interestingly, Bay of Quinte residents are the most inclined to think that the quality of the environment has worsened over the past five years.

Table 8

QUALITY OF THE ENVIRONMENT IN LOCAL AREA COMPARED TO FIVE YEARS AGO

	<u>WORSE</u> %	<u>ABOUT THE SAME</u> %	<u>BETTER</u> %
Bay of Quinte	46	20	33
Hamilton	35	34	30
Rochester	28	38	27
Oswego	31	36	31

D. Health Concerns are Closely and Directly Linked to Environmental Problems of Lake Ontario

1. About one-in-two see "many" health risks

Most Lake Ontario residents see a close and direct linkage between environmental problems and the quality of health in their community. In fact, almost one-in-two residents living near Lake Ontario believe there are "many health risks" associated with the environmental problems of the Lake. Another four-in-ten think that there are "some health risks" posed by these problems. Overall, almost 90% of Lake Ontario basin respondents believe that there are "many" and "some" health risks associated with the Lake Ontario environmental problems. Women (53%) are much more inclined to think that there are "many health risks," while only 42% of men believe this to be true.

This linking of health concerns with environmental problems by Lake Ontario residents is consistent with the findings of other studies conducted by Decima in this field.

2. Health of Lake Ontario's residents is greatly affected

People already believe that residents living along Lake Ontario are suffering significant health effects from the environmental problems in and around the Lake. Almost six-in-ten feel that the health of residents has been affected either "a great deal" or "a fair amount" by environmental problems. Once again, women (64%) are much more inclined to think that Lake Ontario residents have already been affected by these problems.

Table 9

PERCEPTION OF HEALTH EFFECTS
OF ENVIRONMENTAL PROBLEMS IN
AND AROUND LAKE ONTARIO

	<u>A GREAT DEAL OR FAIR AMOUNT</u> %	<u>NOT MUCH OR NOT AT ALL</u> %
Canadian residents of Lake Ontario's shoreline	64	35
American residents of Lake Ontario's shoreline	47	49
Aggregate	55	42

Residents of both Bay of Quinte and Hamilton believe that the personal health of their fellow residents has been significantly affected by the Lake's environmental problems. This is clearly demonstrated in Table 10.

Table 10

PERCEPTIONS OF HEALTH EFFECTS
OF ENVIRONMENTAL PROBLEMS IN
AND AROUND LAKE ONTARIO

	<u>A GREAT DEAL OR FAIR AMOUNT</u> %	<u>NOT MUCH OR NOT AT ALL</u> %
Bay of Quinte	58	41
Hamilton	69	30
Rochester	41	55
Oswego	53	46

As suggested earlier, there is some evidence suggesting that residents have been acting on their health concerns stemming from the Lake's environmental problems. Almost seven-in-ten of those who are not willing to swim in the Lake or eat Lake Ontario fish think that health of the Lake's residents has been affected significantly.

3. Health effects of environmental problems will increase in future

People residing along Lake Ontario, on both sides of the American and Canadian border, have adopted the pessimistic view that the health effects of environmental problems will increase, either "a lot" or "a little" over the next five years. As shown below, about 60% believe that the health effects of these problems will increase over the next five years.

Table 11

PERCEPTIONS OF FUTURE LEVELS OF HEALTH EFFECTS OF ENVIRONMENTAL PROBLEMS OF LAKE ONTARIO

	<u>INCREASE</u> %	<u>DECREASE</u> %
Canadian residents of Lake Ontario's shoreline	70	13
American residents of Lake Ontario's shoreline	50	34
Aggregate	60	24

Again, people who are not willing to either swim in the Lake or eat Lake Ontario fish are much more inclined than people involved in these activities to fear that the health effects will increase. In addition, younger people, more so than older ones, tend to share this pessimistic outlook for the environment.

4. Deep public concern exists about specific health risks

Lake Ontario basin residents feel that their personal health has been put at risk by exposure to the Lake's environmental problems. In terms of the various sources of environmental pollution, industrial disposal of chemical wastes into Lake Ontario is ranked as the most critical risk to their own personal health. Industrial air pollution and chemical seepage from landfill and storage sites are other specific environmental problems associated with Lake Ontario which are also perceived as high health risks. While residents attach a great amount of health risk to the damage of the ozone layer, this is not specifically associated with the Lake's environmental problems.

Table 12 illustrates the ranking of the various sources of environmental pollution by the level of perceived "health risk." Both Americans and Canadians rank the various environmental sources of health risks in a similar order.

Table 12

DEGREE OF HEALTH RISK ASSOCIATED WITH
ENVIRONMENTAL PROBLEMS OF LAKE ONTARIO*

	CANADIAN RESIDENTS OF LAKE ONTARIO SHORELINE (mean)	AMERICAN RESIDENTS OF LAKE ONTARIO SHORELINE (mean)	AGGREGATE (mean)
Pollution of Lake Ontario water due to the industrial disposal of chemical waste in the Lake	8.31	7.23	7.77
Global damage to the earth's ozone layer due to industrial and consumer products such as aerosol cans	7.99	7.21	7.60
Air pollution caused when industry releases toxic chemicals into the air	7.97	7.14	7.56
Pollution of the water due to seepage of chemicals from landfill and storage sites around Lake Ontario	7.85	7.02	7.44
Pollution of the water caused by chemical pesticides and fertilizers sprayed on food crops which wash into Lake Ontario	7.15	6.62	6.88
Eating fish caught in Lake Ontario	6.55	5.41	5.98
Transportation of dangerous wastes or chemicals through your area	5.71	5.55	5.66

* To ascertain these rankings, the following question was posed to respondents: In general, when people talk about environmental issues, they talk about a lot of different topics including the health risks caused by certain environmental problems. I'm going to name some of these issues and I would like to know how much of a health risk you personally feel is associated with these things by giving me a number between "1" and "10," where "1" means that you believe there is no health risk at all, and where "10" means you think there is a critical health risk associated with that environmental issue. The first one is..."Where would you place yourself on this scale?"

Another interesting facet of these results is that Lake Ontario's residents attach much greater risk to those environmental problems where they cannot exercise any control over their exposure to the problem. That is, they have a much greater fear and concern about "involuntary" risks such as the industrial disposal of chemical wastes into Lake Ontario than they do about "voluntary" risks such as the consumption of fish.

Table 13 shows Hamilton residents have the greatest fears regarding the health risks of specific environmental problems. Of greater importance, American and Canadian residents in the four communities oversampled for this study rank the specific health risks generally in a similar order.

Table 13

DEGREE OF HEALTH RISK ASSOCIATED WITH
WITH ENVIRONMENTAL PROBLEMS OF LAKE ONTARIO

	<u>BAY OF QUINTE</u> (mean)	<u>HAMILTON</u> (mean)	<u>ROCHESTER</u> (mean)	<u>OSWEGO</u> (mean)
Pollution of Lake Ontario water due to the industrial disposal of chemical waste in the Lake	8.00	8.37	7.18	7.27
Global damage to the earth's ozone layer due to industrial and consumer products such as aerosol cans	7.65	8.20	7.42	7.26
Air pollution caused when industry releases toxic chemicals into the air	7.51	8.21	7.23	6.86
Pollution of the water due to seepage of chemicals from landfill and storage sites around Lake Ontario	7.44	7.82	6.89	7.03
Pollution of the water, caused by chemical pesticides and fertilizers sprayed on food crops which wash into Lake Ontario	7.11	7.58	6.80	6.33
Eating fish caught in Lake Ontario	5.80	6.58	5.52	5.18
Transportation of dangerous wastes or chemicals through your area	5.40	6.20	5.27	5.47

Not surprisingly, women also consistently rank all these problems higher than do men on this scale.

These findings illustrate the high level of concern over potential health risks among Lake Ontario basin residents and demonstrate the level of anxiety and seriousness with which they view the environmental issues surrounding Lake Ontario.

5. Behaviour changes by Lake Ontario residents

As noted previously, Lake Ontario residents seem to be adopting new behaviour patterns in response to their concerns regarding the environmental problems in and around Lake Ontario. There is some evidence that people could be declining to swim in the Lake and to eat fish caught there to reduce the health risks associated with the Lake's environmental problems.

Table 14

WILLINGNESS TO SWIM/EAT FISH INDEX

	SWIM IN LAKE/ EAT FISH %	SWIM/DON'T EAT FISH %	DON'T SWIM/ EAT FISH %	NEITHER SWIM NOR EAT FISH %
<u>PERCEPTIONS OF HEALTH RISKS OF ENVIRONMENTAL PROBLEMS IN AND AROUND LAKE ONTARIO</u>				
Many health risks	21	10	12	57
Some health risks	37	12	9	41
No/very few health risks	25	30	6	38

Urban residents on both sides of the U.S.-Canada border tend to be the most reluctant to swim in Lake Ontario.

Table 15

SWIMMING IN LAKE ONTARIO

	HAVE ALREADY SWUM IN LAKE ONTARIO %	WILLING TO SWIM %	NOT WILLING TO SWIM %
Bay of Quinte	48	18	34
Hamilton	12	14	74
Rochester	24	28	47
Oswego	54	25	20

Like urban residents, women, who are very concerned about the health risks associated with the Lake's environmental problems, are unwilling to swim in Lake Ontario.

For the consumption of Lake Ontario fish, a somewhat similar pattern emerges: women (59%), Rochester residents (51%) and Hamilton residents (63%) tend not to want to eat fish caught in the Lake.

Table 16

CONSUMPTION OF LAKE ONTARIO FISH

	EATEN FISH IN LAST 12 MONTHS %	WILLING TO EAT FISH %	NOT WILLING TO EAT FISH %
Bay of Quinte	39	25	37
Hamilton	18	18	63
Rochester	23	25	51
Oswego	54	16	31

2. Provincial/state governments should have primary responsibility for the environment

One of the most interesting findings of this study is that respondents indicate that provincial/state governments should have the primary responsibility for protecting the environment. Over one-in-two Lake Ontario residents believe that the governments must take primary responsibility for environmental protection.

Table 18

PRIMARY RESPONSIBILITY FOR ENVIRONMENTAL PROTECTION

	<u>FEDERAL</u>	<u>PROVINCIAL/ STATE</u>	<u>INDUSTRY</u>	<u>INDIVIDUAL</u>
	%	%	%	%
Canadian residents of Lake Ontario's shoreline	26	37	14	9
American residents of Lake Ontario's shoreline	21	32	24	10
Aggregate	24	35	19	9

Recent national studies by Decima of Canadian attitudes show that the public thinks the federal governments should have the ultimate responsibility for environmental protection, whereas U.S. studies show the responsibility should rest with the State government. This divergence can be partly explained by the study's focus on the environmental problems in and around Lake Ontario. This also suggests that when people think of what level of government should be responsible for protecting Lake Ontario's environment, they first think of the Ontario and New York governments.

Generally, respondents indicated that they were not impressed with efforts of governments in dealing with the basin's environmental problems. About eight-in-ten believe that governments' actions have been either "poor" or "fair."

3. The United States and Canadian governments must solve Lake Ontario's environmental problems

Lake Ontario basin residents (88%) think the environmental problems in and around Lake Ontario can only be solved through co-operative efforts between United States and Canada. Very few people believe that these problems can be solved successfully by one national government acting alone. Residents most inclined to believe joint action is required include high social activists in the community. (Decima's social activist scale is a computer-generated index based on a respondent's involvement in political and community affairs.) High public expectations exist that governments should jointly implement solutions to the Lake's problems.

While there is a widespread recognition that Canada and U.S. will need to act together to solve Lake Ontario's environmental problems, there exists a reservoir of skepticism that the governments will not be able to devise solutions addressing these problems: about 55% of the Canadian residents do not have confidence that the governments will be able to act together. In contrast, U.S. residents are particularly confident of the governments' capacity to act co-operatively.

Table 19

GOVERNMENTS WILL ACT TOGETHER TO IMPLEMENT SOLUTIONS ADDRESSING LAKE ONTARIO'S ENVIRONMENTAL PROBLEMS

	<u>NOT CONFIDENT</u> %	<u>CONFIDENT</u> %
Canadian residents of Lake Ontario's shoreline	55	45
American residents of Lake Ontario's shoreline	25	74
Aggregate	40	60

People expressing less confidence tend to be those individuals who say they are adopting new behaviour to minimize health risks associated with Lake Ontario's environmental issues: people who are not willing to eat Lake fish or swim there.

Hamilton residents are the least confident of the four communities studied: approximately 63% express no or little confidence in the governments acting in concert to address the Lake's environmental problems.

4. Ten-year timetable to achieve "zero discharge"

In 1978, the U.S. and Canadian governments committed themselves to achieving zero discharge, which means eliminating all discharge of the most dangerous toxic chemicals into Lake Ontario. A surprising 42% of the respondents surveyed for this study indicate an awareness of the existence of the agreement. The most aware include Canadians, men, high social activist, and older people.

A broad public perception (79%) exists that the governments have been moving too slowly in implementing their goal of zero discharge and setting appropriate time-frames and reduction targets.

Table 20

PACE OF ZERO DISCHARGE IMPLEMENTATION

	<u>TOO SLOW</u> %	<u>RIGHT PACE</u> %
Canadian residents of Lake Ontario's shoreline	86	12
American residents of Lake Ontario's shoreline	71	19
Aggregate	79	16

Those individuals who are not willing to swim in the Lake or eat Lake fish are much more inclined to think the governments are moving too slowly.

Over eight-in-ten Lake Ontario residents want the governments to take the necessary actions to realize their commitment of zero discharge within 10 years.

Table 21

RESPONSIBLE TIME-FRAME FOR REALIZING
ZERO DISCHARGE OBJECTIVE

	<u>IMMEDIATELY</u> %	<u>ONE TO FIVE YEARS</u> %	<u>WITHIN 10 YEARS</u> %	<u>GRADUALLY OVER TIME</u> %
Canadian residents of Lake Ontario's shoreline	7	62	18	11
American residents of Lake Ontario's shoreline	8	62	13	14
Aggregate	7	62	15	12

These findings indicate that Lake Ontario basin residents are not satisfied with the current efforts of the governments in dealing with the environmental problems of Lake Ontario. Equally important, high expectations exist that governments should address these problems in an expedient manner over the next 10 years.

5. Public wants the governments to err on the side of caution

An important area of this study's investigation is to ascertain the public's attitudes on whether the governments should seek to regulate environmental risks which have not been identified and demonstrated. Over three-quarters of the Lake Ontario basin residents believe that the risks of toxic chemicals, even if those risks have not been clearly identified, demonstrated and quantified, are too great not to implement strong environmental laws. Only 21% feel that when too much uncertainty and doubt exists regarding the actual environmental consequences of certain toxic chemicals, the governments should not seek to regulate unknown risks.

Table 22

REGULATION OF UNKNOWN ENVIRONMENTAL RISKS

	<u>CAN'T REGULATE UNKNOWN RISKS</u> %	<u>NEED TO REGULATE UNKNOWN RISKS</u> %
Canadian residents of Lake Ontario's shoreline	13	87
American residents of Lake Ontario's shoreline	28	69
Aggregate	21	78

Respondents (82%) also indicate that the governments should take strong action -- either banning the chemical or restricting its use -- if the chemical being discharged into Lake Ontario has been proven to cause birth defects in animals, but no similar scientific proof has been found that it causes health problems in humans. As the following table shows, women are much more inclined than men to take the tougher environmental protection approach.

Table 23

REGULATION OF TOXIC CHEMICALS
CAUSING BIRTH DEFECTS IN ANIMALS

	<u>IMMEDIATELY BAN THE CHEMICAL</u> %	<u>RESTRICT ITS USE</u> %	<u>PROVIDE PRODUCT WARNING</u> %	<u>WAIT TO TAKE ACTION</u> %
Men	50	29	7	12
Women	59	26	6	7
Aggregate	54	28	7	10

These results focus on a major issue in public policy debates on the environment. Clearly, Lake Ontario residents believe that even when scientific proof is neither complete nor absolutely definitive on the nature of the risks or consequences of specific environmental problems, they want the governments to regulate such problems because the risks of major environmental problems need to be reduced.

6. Government support for industry

Lake Ontario residents believe that there are major environmental problems in and around Lake Ontario. More importantly, they feel major health risks are linked to these problems. But, people around Lake Ontario take a reasonable approach to solving these environmental problems: the governments and industry should adopt creative and innovative solutions to address the problems already.

There is a widespread perception (74%) among Lake Ontario residents that companies already have the resources and capacity to stop discharging toxic chemicals into Lake Ontario. Only 24% believe that the costs are too high for companies to stop discharging toxic chemicals into Lake Ontario.

If it can be shown that specific companies do not have sufficient resources, the governments should provide assistance rather than seeing a plant shut down and put people out of work. Lake Ontario basin residents believe (53%) that the governments should offer technological and financial assistance to encourage firms to eliminate toxic chemical discharges, if they do not have sufficient resources. Four-in-ten of the respondents support the idea of the governments simply imposing tough environmental regulation, and if companies cannot meet those regulations, they should be forced to shutdown.

Table 24

TOUGH ENVIRONMENTAL REGULATION VERSUS FINANCIAL INCENTIVES

	COMPANIES MUST MEET REGULATIONS OR CLOSE %	GOVERNMENTS PROVIDE TECHNOLOGICAL AND FINANCIAL ASSISTANCE %
Canadian residents of Lake Ontario's shoreline	43	47
American residents of Lake Ontario's shoreline	36	59
Aggregate	40	53

Lake Ontario residents also indicate a willingness to pay higher consumer prices if it means that companies can acquire the necessary resources to acquire pollution-reducing production equipment and machinery. About 86% of the residents living along the Lake claim they would be willing to pay higher consumer prices to provide greater resources to firms for this purpose.

Table 25

HIGHER PRICES FOR COMPANIES TO ACQUIRE
POLLUTION-REDUCING EQUIPMENT

	<u>SUPPORT</u> %	<u>OPPOSE</u> %
Canadian residents of Lake Ontario's shoreline	87	10
American residents of Lake Ontario's shoreline	85	13
Aggregate	86	12

In addition, there is significant public support for an "environmental tax surcharge" to help provide financial resources to assist industry to modernize plant facilities to reduce discharges of toxic chemicals into Lake Ontario. Almost seven-in-ten claim they would be willing to support a tax increase in this instance.

Table 26

INCREASE TAXES TO HELP INDUSTRY REDUCE POLLUTION

	<u>SUPPORT</u> %	<u>OPPOSE</u> %
Canadian residents of Lake Ontario's shoreline	67	32
American residents of Lake Ontario's shoreline	69	28
Aggregate	68	31

The high level of support among Canadians for a further tax increase is extraordinary given the current public debate over the "Goods and Service Tax" and recent increases in federal and provincial taxes. Interestingly, high social activists are the most supportive of a tax hike to pay for improved environmental protection. U.S. studies on public attitudes show that Americans also support tax increases for environmental protection.

Of those opposed to tax increases, most would want to see additional spending allocated to environmental protection by decreasing expenditures in other areas. Overall, there is strong public support (90%) for increased financial resources to be allocated to protecting the environment.

These findings illustrate that broad public support, among both Canadian and American residents, exists for additional expenditures to be allocated to environmental protection.

7. High awareness of government fish advisories

The governments regularly publish fish consumption guidelines, often referred to as fish advisories, which indicate the type and amount of fish that is not safe to eat in certain locations. These advisories are typically used by fishermen. Of the respondents surveyed for this study, approximately 52% claim to be aware of the existence of these fish advisories. People most aware of these advisories tend to be more educated, older, men, and Americans.

People who are aware of these fish advisories are much less inclined, to see health risks in eating Lake Ontario fish. As shown in Table 27, people who are aware of the fish advisories are more inclined to eat fish from the Lake and even swim there than are people who are not aware of these advisories.

Table 27

WILLINGNESS TO SWIM/EAT FISH INDEX

	SWIM/ EAT LAKE FISH %	DON'T SWIM/ EAT LAKE FISH %	SWIM/ DON'T EAT FISH %	NEITHER SWIM NOR EAT FISH %
<u>FISH ADVISORY AWARENESS</u>				
Yes	44	13	14	28
No	25	13	17	45
Aggregate	36	17	15	35

There is some awareness of fish advisories. There is some evidence, suggesting that some Lake basin residents could be using fish advisories to guide their fish consumption. Before any firm conclusion can be made, further research needs to be undertaken.

8. More public information on nature and sources of environmental problems

A consensus exists that the governments should provide greater information on the sources and nature of the environmental problems which exist in and around Lake Ontario: virtually everyone (98%) thinks that the state/province should inform people about which companies are discharging toxic chemicals. There appears to be a deep yearning for more public information from government on environmental problems that they believe are significantly affecting their health. In a sense, the public tends to have a far greater concern and fear of environmental risks, which they do not understand and where they are unable to exert some control over their exposure to such risks.

F. Conclusions

There is a broad recognition that major environmental problems, particularly toxic chemicals, exist in and around Lake Ontario. Lake Ontario residents see significant health risks associated with the Lake's environmental problems. In fact, they link environmental problems directly with the the quality of health living near the Lake. There is some evidence that residents are acting on their concerns about the quality of the environment.

As a consequence, a consensus exists that the "top" priority of the governments should be improving the protection of the environment. There appears to be some skepticism about governments' actions to address the Lake's problems: residents perceive the governments are currently moving too slowly toward fulfilling their commitment of "zero discharge" -- the elimination of all discharges of the most dangerous chemicals. The public clearly wants the governments to keep their commitment within ten years. But, residents take a common sense approach to improving environmental protection: they want government and industry to adopt creative and innovative solutions to address the environmental problems in and around Lake Ontario.

One of the significant findings of the study was the overwhelming support for the governments to regulate those environmental risks, even if those risks have not been clearly identified and demonstrated. In the context of public policy, the public wants the governments to enact strong environmental laws to reduce the health risks of toxic chemicals in and around Lake Ontario, even where the consequences for health are not fully understood.

There is an understanding among Lake basin residents that improved environmental protection will be accompanied with higher living costs in the form of higher taxes and consumer prices or even less public services in other areas. Most residents support an "environmental tax surcharge" to support improved environmental protection. Of those opposed tax increases, most would want to see additional spending allocated to environmental protection by decreasing expenditures in other areas. There is strong public support for increased financial resources to be allocated to protection the environment.

C

