



Whales in Lake Simcoe?

GOING BEHIND YOUTH EDUCATION ABOUT LAKE SIMCOE
AND THE LAKE SIMCOE WATERSHED

Research Report 2007

Ladies
of
the Lake
The Naked Truth

Whales in Lake Simcoe?

GOING BEHIND YOUTH EDUCATION ABOUT LAKE SIMCOE
AND THE LAKE SIMCOE WATERSHED

What Lake Simcoe means to me, is that if lake simcoe just dissapeared our lives would change completely.



MAY 2007

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Whales in Lake Simcoe? Going Behind Youth Education about Lake Simcoe and the Lake Simcoe Watershed

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Published by

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Roches Point ON
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Design and Production: Foundation Graphics - www.foundationstudio.ca

Special thanks to Konstantin Roussetos

Ladies of the Lake is a participating member
of the **Rescue Lake Simcoe Coalition**.



Special thanks to the children of **Thorah Central Public School in Beaverton, W.H. Day Elementary School in Bradford, and Black River, Georgina Island and Morning Glory Public Schools in Georgina** who contributed written and pictorial responses.

Foreword: Whales in Lake Simcoe?

“Some kids expect whales in Lake Simcoe!” – On October 10, 2006, Lake Simcoe made the front page of the *Toronto Star* with this headline. Teacher Jennifer Baron who runs the Sibbald Point Outdoor Centre was quoted as saying “This shows how disconnected kids are from nature.”

Jennifer knows first hand that young people in the Lake Simcoe Watershed lack knowledge about their Lake – and this Research Report you are about to read verifies that experience from many quarters. “But the remark by the Grade 4 students who hoped to see whales in the Lake,” Jennifer notes, “probably came more from the kids’ sense of wonder and hope when they saw such a large body of water than it did from ignorance.”

This little story illustrates our responsibility – and that is to help children and youth keep their sense of wonder about the magic and mystery of nature as we work with them to help them learn the science of the world.

So thank you Jennifer Baron for inspiring the title we have chosen for this report. It is catchy and also carries deep meaning for our future!

Our great thanks also to Dr. Romila Verma who went far beyond the scope of most researchers to find out what is at stake for our youth in the Lake Simcoe Watershed.

Editors

OVERVIEW

Just as nature is ever-changing, so environmental education must continually evolve. This is becoming increasingly critical given the current state of our environmental health. This research scan was conducted to take the pulse of the evolution of education here in the Lake Simcoe Watershed, given the specific issues that the Lake and Watershed are facing.

The words ‘environment’ and education’ are fully loaded, and are becoming increasingly so. Complexity is also escalating as we all become more aware of the interrelationships of all living things and the need to understand more about the interconnectedness of the world we live in. The health of our physical world now needs to move – according to those who have been thinking about this for some time – beyond science, curriculum topics, courses and programs. We need to move beyond intellectually processing subject matter, to connecting both physically and emotionally for deep learning to occur. And we have to start somewhere in order to know where things are today and where they might go tomorrow. Hence this report entitled **Whales in Lake Simcoe? Going Behind Youth Education about Lake Simcoe and the Lake Simcoe Watershed.**



The need for a report like this grew out of last summer's creation of **THE NAKED TRUTH CITIZENS' ACTION PLAN FOR LAKE SIMCOE** – a joint venture of the Ladies of the Lake and the Windfall Ecology Centre. And so, we would like to share with you some key beliefs expressed by the 300 caring residents of the Watershed who participated in developing that plan. Keeping these beliefs and the questions they stimulate in mind as you read this report, we hope will give you a farsighted lens through which to view the current reality.

1. Youth are the champions of our environment and ecological future – not tomorrow – but today.

Q. What is the readiness of our youth to champion environmental and ecological health today given the state of formal, non formal, and informal environmental education?

2. The challenges facing Lake Simcoe and Watershed are a microcosm of the larger issues facing our nation and the world.

Q. To what degree does our current environmental education deepen this awareness and willingness to learn about how to partner with the natural world?

3. We all need to learn to see, hear, and feel the threads that connect us to our habitat. Caring is essential to sustain us through the challenging times ahead.

Q. To what degree does our current environmental education restore this sense of meaning and help our youth to care and connect to the places they live?

4. Human enquiry and curiosity are at the heart of learning.

Q. To what degree does our current environmental education foster human enquiry and curiosity, especially the uncovering of deeper patterns of localized change?

5. Creativity is one of the key attributes that our youth require in order to be healthy and contributing members of society. Nature is, at its core, creative and offers human beings a powerful role model.

Q. To what degree does our current environmental education foster creativity as evidenced in nature?

These are only five criteria through which to assess the current state of environmental education, but they represent a different mindset. It is this way of thinking that we believe is needed to ensure we are not only able to survive on this Planet, but also to undertake our responsibility to restore our natural home to health.

Editors

Goody Gerner
Chair, Ladies of the Lake
Education Committee

Hilary Van Welter
Chair, Windfall Ecology Centre

Annabel Slaight
Co Founder, Ladies of the Lake

May 5, 2007

BACKGROUND

In 2006, The Ladies of the Lake, in partnership with the Windfall Ecology Centre, and with over 300 people from around Lake Simcoe set out to identify the major issues and challenges facing Lake Simcoe, and to begin to formulate strategies to address these issues. The result was a wide-ranging agenda for change – **THE NAKED TRUTH CITIZENS' ACTION PLAN to Save Lake Simcoe**. (Download at www.lakeladies.ca)

A major theme throughout the Citizens' Action Plan was that in order to save our Lake we must encourage everyone in the Watershed to treasure the environment as part of daily life. And in addition, Lake renewal and protection should be intertwined with economic growth strategies and innovative grass roots action.

One of the eight priority areas in the Plan was The Next Generation. It noted that to ensure that today's youth are equipped to be the stewards of Lake Simcoe in the future, it is critical that adequate knowledge is imparted to them both about specific Lake Simcoe-related issues, as well as an appreciation of the interconnectedness of all aspects of our environment.

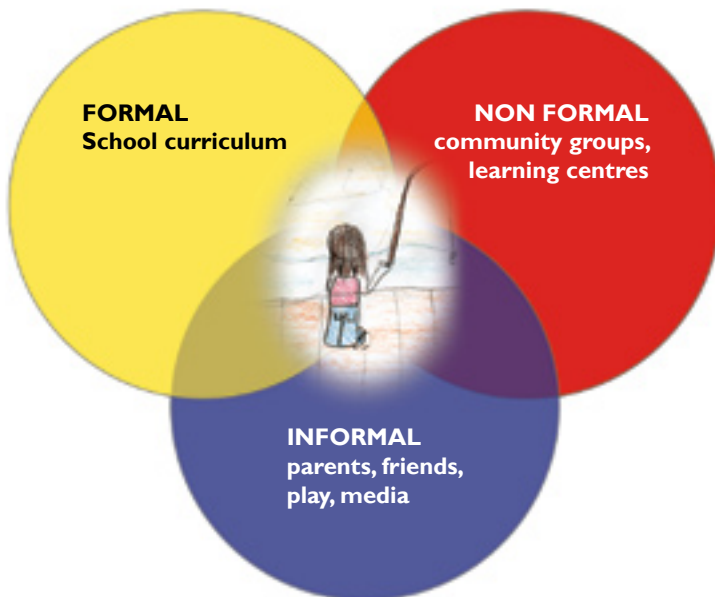
So what is the state of ecological and Lake-related education? To begin exploring the availability of programs available to the youth, the Ladies of the Lake commissioned this research report. Its goals: to identify and evaluate the resources currently available, to determine if there are any educational needs that are not being fulfilled, and to see what opportunities might be possible to move The Next Generation priority forward. This commissioned research is qualitative in nature. Its intent is to provide a framework for further more rigorous examinations of areas for improvement and opportunities for advancement.

The first step was to categorize the primary types of education available about Lake Simcoe. There are three categories:

FORMAL EDUCATION – through which learning is proscribed – as found in school curricula

NON FORMAL EDUCATION – through which learning is offered – available from Community Groups, Clubs, Youth Activities, Social Marketing and Eco Learning Centres

INFORMAL LEARNING – in which people mostly make connections themselves from information that they gravitate to or simply discover through media, first hand experiences, play and inspiring people.



All these types of education influence the ecological world view that we form. This, in turn, influences our perspective and behaviours. This research report attempts to examine both the resources currently available to form these perspectives, and to discover opportunities to expand or improve on these resources.

RESEARCH OBJECTIVES

Within **FORMAL EDUCATION**

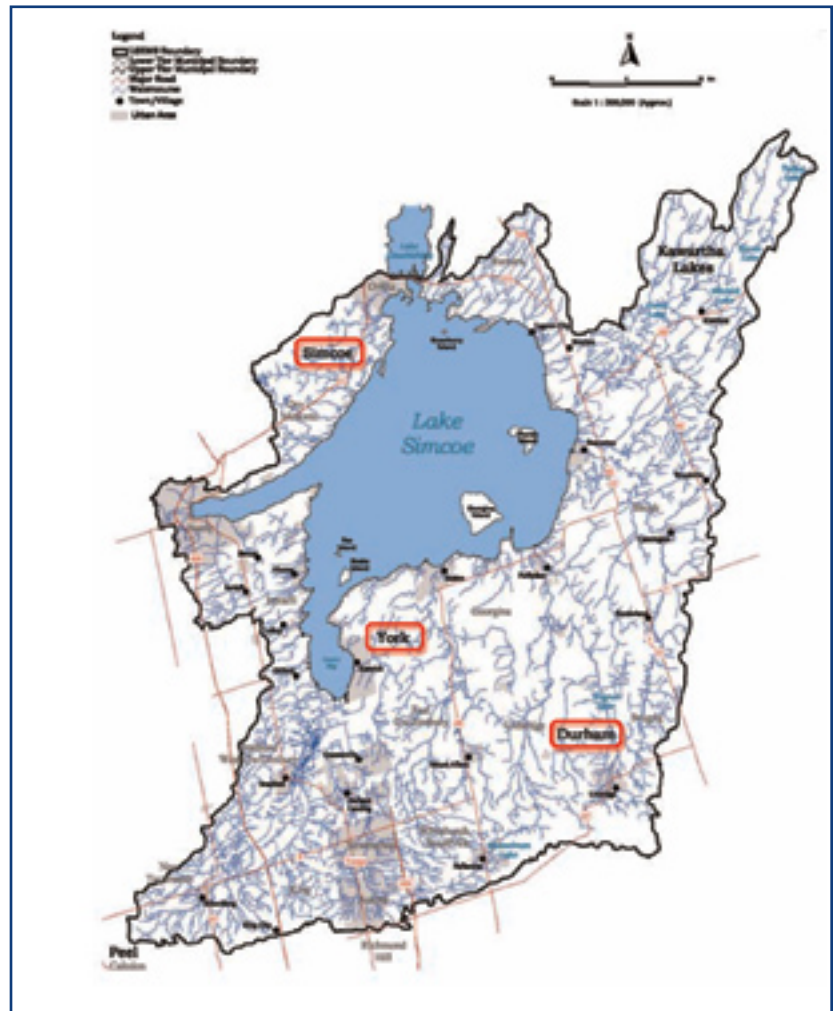
- To identify the current information about ecology and environmental topics in general, and about specific Lake/Watershed topics specifically, that are part of the formal curricula in Ontario schools.
- To explore how teachers in the Watershed are using ecological education in their classrooms.
- To assess the needs, desires and challenges of Watershed teachers related to ecological education

Within **NON FORMAL EDUCATION**

- To examine the current non formal learning opportunities available to youth in the Lake Simcoe Watershed
- To explore the effectiveness of programs in imparting environmental and ecological awareness and an understanding of Lake Simcoe and its Watershed issues to youth
- To determine if there are any opportunities to expand or modify existing programs in order to incorporate Lake Simcoe and Watershed issues
- To identify any Lake-related youth programs currently being offered in other parts of the world which may be used as a model for Lake Simcoe and Watershed.

Within **INFORMAL LEARNING:**

- To explore the current perceptions of a sample of youth who live in the Lake Simcoe Watershed in order to identify the current impact of informal activities and more formal and non formal learning.



Lake Simcoe Watershed: 6 school boards - 3 Public schools and 3 Catholic schools (York Region, Simcoe County and Durham)

METHODOLOGY

The present research is exploratory in nature, and therefore an eclectic approach was used to gather the data. A utilization of secondary research, using a variety of sources, forms the bulk of the findings. In addition, unstructured interviews were conducted with a sample of teachers, educational specialists, eco museum and non formal program educators in the Watershed. As well, written and pictorial responses from youth were compiled.

FINDINGS

1. FORMAL EDUCATION

A. CURRICULA

NEWS RELEASE: March 1, 2007



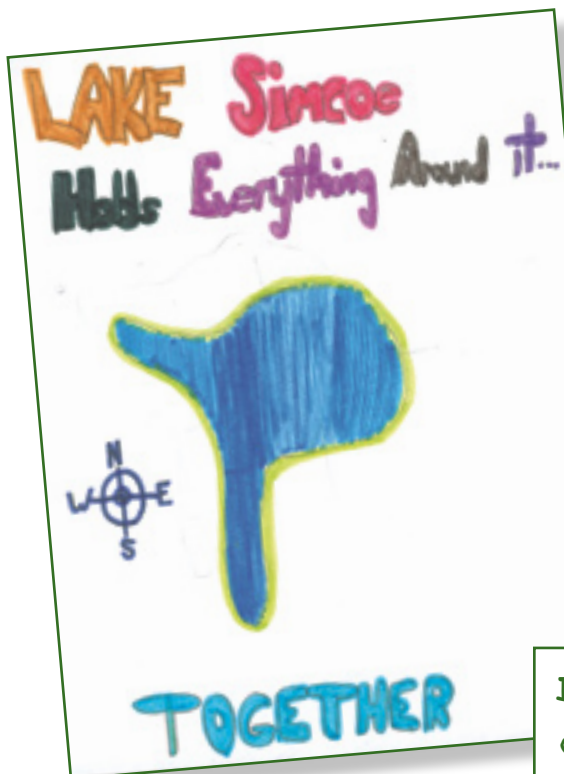
Roberta Bondar appointed to lead review of environmental education

TORONTO, March 1 - Astronaut and scientist Dr. Roberta Bondar will lead the first-ever review of how the environment and conservation are taught in Ontario schools, Education Minister Kathleen Wynne announced today.

“Community leaders, like Dr. Bondar, have valuable insights on the skills and knowledge that students need in today’s complex world,” said Wynne during a visit to Norseman Junior Middle School with Environment Minister Laurel Broten. “This review will provide me with good advice on the best ways to include the environment in the provincial curriculum.”

The McGuinty government has asked Bondar to chair a working group that will review how the environment and conservation is being taught in elementary and secondary schools. The working group will provide recommendations on ways to better support the teaching of environmental education to a newly created curriculum council.

“The space view of Earth simplifies the complex world in which we live and intrigues me to explore it close up,” said Bondar. “This council gives us a great opportunity to encourage teaching and learning about real environmental issues that influence our lives.”



I feel that Lake Simcoe is a part of me and my life here in Georgina.

THE CURRENT STATE OF ELEMENTARY SCHOOLS CURRICULA

In 1998, the Ontario Government made formal changes to the curriculum of Grade 1 to 8 students. Until that time, there were specific courses on Environmental Science. One of the changes was to combine the teaching of “science and “technology” into one stream, and within that stream “greater emphasis is placed in the expectations on relating science and technology to each other and to the world outside the school and on the need for sustainable development. Students’ understanding of the concept of sustainability is stressed in a variety of contexts.”

All Ontario elementary schools share the same curriculum with regard to science. Science appears to be the only rubric under which environmental education is formally taught. Within the science stream, there are five strands that provide focus from Grades 1 through 8. These topics are part of the mandated curriculum set out by the Ministry of Education. The specific manner and depth of teaching these topics is generally up to the discretion of the individual teachers.

In Grades 1 to 3, the focus is on “Life Systems.” They explore how primary systems work; using examples such as how animals and plants depend on the environment and the patterns and cycles of life of plants and animals. Grade 2 has a specific water-related unit “Air and Water in the Environment.”

By Grade 4, the Life Systems strands explore the ecologies of plants and animals. Students learn about the interrelationships among living and non-living things, including food chains, population dynamics and adaptations. Two main projects help define an ecological approach; an acid rain experiment and a research project on endangered species.

The Grade 6 Life Systems curriculum explores the diversity of living things more closely. Students use both formal and informal classification systems to distinguish between species, ranging from mammals to microscopic animals.

Research has indicated that at present, the level of ecological consciousness in Ontario elementary school is low (Puk and Makin). “The emphasis...is on science and technology, rather than on a more broad-based ecological literacy focusing on understanding complex global ecological systems, as well as the human relationship in these systems.”

In Grade 7 students study “Interactions with Ecosystems.” This unit builds on earlier concepts and introduces more complex interactions between organisms and their environment. Students examine energy flow, nutrient cycling and other

Environmental Curriculum at a glance				
■ Science ■ Ecological ■ Interdisciplinary				
Grades 1-3	Grade 6	Grade 8	Grade 10	Grades 11 & 12
Life Systems • How primary systems work. Grade 2 • Air and Water in the environment.	Life Systems • Explore diversity of living things more closely. Grade 7	Earth & Space Sciences • Dynamics of earth’s Water systems – impact on climate, weather and ecosystems.	Civics • What it means to be an informed, participating citizen in a democratic society. • Local, national and global contexts. • Political reactions to social change, and political decision making in Canada.	Environmental Resource Management • Prep course for university/ college. • Investigates complexity and fragility of ecosystems and pressures human activities place on them.
Grade 4 Life Systems • Ecologies of Plants and Animals. • Acid rain experiment. • Research project on endangered species.	Interactions with EcoSystems • More complex interactions between organisms. • Energy flow, nutrient cycling and other relationships with ecosystems and biomes. • Climate, effects of human activities on sustainability of ecosystems.	Grade 9 Geography • Understanding of the natural, human and global systems that shape our country.	• Module of Active Citizenship with an Environmental Focus is available. Science • Sustainability of eco-systems, and impact of human activity.	Science • Biology, Physics, Chemistry, Earth and Space Science. • Grade 11 – Biology-Environmental Science • Grade 11 – General Science-Human Impact on the Environment.
		Science • Biology, Physics, Chemistry, Earth and Space Science.		Interdisciplinary • Community Environmental Leadership. • Local Field Studies and Community Links.

relationships with ecosystems and biomes. Natural factors such as climate and the effects of human activities on the sustainability of ecosystems are also investigated.

In the “Earth and Space Sciences” strand, Grade 8 students study “water systems.” Students explore the dynamics of the earth’s water systems and the influence they have on climate, weather and ecosystems. The importance of managing these resources for sustainability is also highlighted.

The areas of the curricula that specifically address water or Watershed related topics are found in Grade 2 (Air and Water in the Environment); Grade 7 Interactions within Ecosystems and Grade 8 Earth and Space Systems.

SECONDARY SCHOOLS CURRICULA

In Ontario, there are no specific courses on Environmental Education. Rather, the topics are to be integrated throughout the curricula of a variety of disciplines. Ontario curricula documents emphasize issues like “sustainability”, “human-environment interaction” and “natural systems discussed in Geography, Civics, Interdisciplinary Studies and Science. Below is a summary of where Lake and Watershed issues might be part of curricula.

Geography: In Grade 9, students have the option of two Geography courses: Academic or Applied Geography. In the Applied Geography course students are asked to draw on local and personal experiences as they influence their understanding of the natural, human and global systems that shape our country. As such, students are asked to find a local example and examine the viewpoints of key stakeholders on a local environmental issue such as urban sprawl, waste management or changing land use. This hands-on approach gives students the opportunity to dissect an environmental issue or problem and gain a better understanding of the direct impact it has on their community and themselves. It is not clear the degree to which Lake and Watershed issues are used in this course.

“The Environmental and Resource Management” course is offered in Grades 11 and 12. This is taught as a preparation course for university and college, but also has an applied component. This course investigated the complexity and fragility of ecosystems and the pressures human activities place on them. Students examine ecological processes, the principles of sustainability and strategies for resource management, the challenges of environmental degradation and resource depletion. Students use geotechnologies and the skills of geographic inquiry. Part of this course examines how ecological processes contribute to overall ecological health, including how distinct entities like animals, plants and Watershed interact,

evaluating the impact of human activities on the natural environment; and predicting the effects on destruction of habitats on local biodiversity.

Civics: Grade 10 Civics explores what it means to be an informed, participating citizen in a democratic society. Students learn about the elements of democracy in local, national and global contexts, about political reactions to social change, and about political decision making in Canada. As part of this course, some teachers have available to them a resource unit entitled “Active Citizenship with an Environmental Focus.” This was developed by the Faculty of Environmental Studies at York University, in consultation with the York Regional District School Board and Learning for a Sustainable Future.

Science: In Grades 9 and 10, there are 5 strands within the science curriculum: biology, physics, chemistry and earth and space science. Within the Grade 10 biology section of the Science curriculum, students learn about the sustainability of ecosystems and ecosystems and human activity. This work includes a “hands-on” project. At present, Lake Simcoe or the Watershed are not used regularly as research sites.

By Grades 11 and 12, the 5 strands are offered as individual courses. Grade 11 Biology students learn about environmental science, and a section called “Human Impact on the Environment” is taught in the Grade 11 general Science course.

Interdisciplinary Studies: These courses are available to Grade 11 and 12 students. Two of the courses have the potential to incorporate ecological issues.

Community Environmental Leadership focuses on developing community living skills, relating to the natural world, developing leadership skills and living responsibly on this earth. Students learn about ethical decision making and about the political process by conducting interdisciplinary research on different environmental issues. They also explore their local bioregion and run an appropriate outdoor environmental education program for elementary students.

Local Field Studies and Community Links brings together environment and resource managements, field ecology and health and active living education in order to develop students’ interdisciplinary knowledge and skills in the areas of ecological fieldwork, data gathering, leadership, citizenship and outdoor living. Students plan, organize and implement a community-based environmental project that focuses on issues such as endangered species, biodiversity, sustainability and environmental ethics. They also help run a residential environmental education camp for elementary students.

CURRICULA SUMMARY

The curricula of Ontario covers a wide range of environmental and ecological issues under the science stream from Grades 1 to 8. The initial introduction to the environmental topics is simple and includes concepts such as the natural world, life systems and land forms. The topics become more complex in higher grades where students learn to recognize complex interactions between organisms and their environment. The students learn about the interrelationships among living and nonliving things including food chains, population dynamics and adaptations. There is some focus on ecosystems when teaching the cause and effect of human impact. The concept of Watershed is discussed in Grades 6, 7 and 8, at a cursory level, focusing on the various components of a Watershed rather than the interconnections of the a Watershed with the rest of the world.

In secondary school, environmental education is imparted through many other subjects, including Geography, Civics, History, Science, Economics, Law and Politics. The benefit of this approach is to place environmental and ecological issues within the context of broader issues and thereby emphasize the interconnectedness of these issues. However, without an underpinning of understanding of Environmental Science and its importance, this interconnectedness may not be readily apparent. In addition, most of the courses in secondary school which touch upon environmental issues are elective, rather than compulsory, and allow for students to choose topics which are completely unrelated to Watershed or Lake issues. Consequently, there are relatively few secondary students who are being exposed to the issues of concern around Lake Simcoe and the Watershed.



B. TEACHER/EDUCATOR PERCEPTIONS

Informal interviews were conducted with ten teachers and outdoor educators drawn from Simcoe County District School Board and York Region District School Board in order to understand some of their perceptions related to environmental education and to Lake Simcoe and Watershed issues. This information should be considered indicative rather than definitive. Notwithstanding this, there was general consensus as follows:

- The teachers emphasized that **lack of time and inadequate budgets** are the biggest deterrents to going beyond the existing curricula in their teaching.
- Because existing environmental/ecology/Watershed-related education is integrated into a variety of disciplines, it is left to the ingenuity and creativity of individual teachers to integrate local lake-related issues into their teaching. Many feel **ill-equipped** to do this.
- The respondents expressed a strong desire for a prescribed curriculum on environmental/ecological issues specifically geared toward **local – such as Watershed – issues**.
- Many teachers felt that not enough is being done to address critical issues like **climate change and lake ecology** in the current curriculum. They also feel that the existing curriculum leaves little time to add any tertiary material.
- The teachers reported that the **elementary students were generally more motivated** about ecology/environmental matters than secondary students.
- Elementary teachers felt the curriculum, at present, focuses more on global issues such as waste management and energy saving, and **does not allow for an exploration of local issues** such as the history of the Watershed or Lake management or which foster respect for the natural system.
- The internet has emerged as a leading training and research tool for today's students, but there are **few opportunities for hands-on experience** with ecology systems.
- Some of the teachers themselves **did not fully understand the definition of a Watershed**, and consequently did not feel that this was of relevance to their students or themselves, if they do not live directly on the Lake.
- Most of the teachers are **not aware of existing resources** beyond what their School Board supplies to help them teach these topics more effectively.

TEACHER SUMMARY

The teachers and educators in the present sample have a **strong desire to include local and Lake/Watershed** related topics into their curriculum, particularly if they live in a community directly on the lake. However, there are a number of barriers which prevent them from including these topics: primarily not enough time to go beyond the prescribed curriculum; and not possessing sufficient knowledge or resources to teach these topics effectively. The teachers also feel that they would **welcome the opportunity to provide this education in a less formal setting**, such as Outdoor Education Centres, or through touring groups who could visit their classrooms.



Did you know that people travel from all over the world just to come and ice fish expecting to bring home an awesome catch for dinner! That's awesome to know that our lake is loved by not just the people who live around it but people that are in different countries!

2. NON FORMAL EDUCATION

There is a considerable amount of research which indicates that “Place-based Education” is an effective way to involve students in learning about their relationship to the environment. This concept incorporates several characteristics and is intended to prepare students to live and work to sustain the cultural and ecological integrity of the places they inhabit. To do this, students must have knowledge of ecological patterns, systems of causation, and the long-term effects of human actions on those patterns (Orr, 1994). Place-based education emerges from the particular attributes of a place, and is inherently multidisciplinary and experiential. Although the Ontario curriculum explores local issues and local sustainability specifically, it is designed for generalization to broader objectives.

There are some non formal educational opportunities available to the youth of Lake Simcoe and the Watershed. These include Outdoor Education Centres, resource materials, and in-school visiting programs.

A. OUTDOOR EDUCATION CENTRES:

Outdoor education in some places is playing a very important role in preparing today’s youth to face the environmental challenges of tomorrow. This has become even more salient since the removal of stand-alone environmental science studies in Ontario’s schools. Increasingly, teachers are relying on outdoor education to impart local and Watershed based teaching. Besides providing valuable information about nature, outdoor education also has been found to help develop leadership skills and create a sense of community in children. In a nationwide study of U.S. schools, it was found that the more time students spent in learning outside the classroom, there was an associated increase in overall achievement scores in all school subjects (Lieberman and Hoody, 1998).

At present, outdoor education is not a significant part of most Ontario schools. The large majority of teachers in Ontario elementary schools report that they take their students outdoors to study less than one hour per month (Puk and Makin, 2006). The teachers attributed this low level of activity to lack of teacher training.

The majority of teachers say they would be more likely to teach their students outside if they received their own outdoor training. Similarly, the majority of secondary teachers report that they teach ecological literacy outdoors very little of the overall class time. (Puk and Behm, 2003).

Within the Lake Simcoe and Watershed area, there are six School Boards (Simcoe County District School Board, Simcoe Muskoka Catholic District School Board, York Region District School Board, York Catholic District School Board, Durham District School Board and Durham Catholic District School Board) and a total of 617 schools (514 elementary schools and 103 secondary schools. (This is the total number of schools in all the six school boards, but not all are situated in the Lake Simcoe Watershed.)

The area is served by four Outdoor Education Centres. In York Region, the **Sibbald Point Centre** and the **Vivian Point Centre** service the Lake Simcoe Watershed schools. **Scanlon Creek Outdoor Centre** is run by the Lake Simcoe Region Conservation Authority and caters to the York Region and Simcoe county schools. The **Nonquon Outdoor Centre** mostly serves the Durham region schools.

Scanlon Creek Outdoor Centre offers two and one-half to five day residential programs, based on the Ontario curriculum, to students from Grades 4 to 8. The centre has a 10 year contract with the York Region schools and devotes 100-110 days per year to York classes. Simcoe County uses the Centre about 35 days per year, and the remainder of time, it is used by clubs such as Girl Guides. Currently, they do not have a contract with Durham.

The centre uses games and role playing to teach students about ecological concepts and biodiversity. At present, there is nothing taught specifically about Lake Simcoe; information is, however, available about the role of Conservation Authorities and the Watershed.



Sibbald Point Outdoor Education Centre is a joint venture between the York Region District School Board and Ontario Parks (Ministry of Natural Resources). The Centre supports the Board’s outdoor education program while also promoting Ontario’s system of provincial parks to the youth of York Region. Sibbald Point does focus on local ecological issues as well as more global concerns. For example, students will hike to the shore of Lake Simcoe and observe the animals that depend on this habitat. The teachers will then discuss the Lake Simcoe ecosystem and ways to contribute to the well-being of the lake. One of the objectives of the Centre is to help students understand the complex interrelationships of water cycle, ecosystem and human impact.



Vivian Outdoor Resource Centre is operated by York Region District School Board staff. The Centre offers outdoor education to 35 schools, and is intended to meet curriculum objectives in grades 2, 4 and 7.

Nonquon Outdoor Centre is a day-use facility that services Durham District School Board students from Grades 2 to 12. The students have opportunities to view and sometimes touch many live creatures. Although there is some programming about the local ecosystem, there is little about local lake issues. There are a number of Ontario Outdoor Centres outside the Lake Simcoe/Watershed area which offer comprehensive programs for youth.

The **Canadian Ecology Centre** is located in Northeastern Ontario, in Samuel de Champlain Park. This centre is unique in that they incorporate up-to-date technologies (e.g. GPS and GIS) in their programs. Although the programs are designed to complement the Ontario Curriculum, they are adaptable for community groups and College/University courses. All of the programs may be individually tailored to meet specific learning objectives. This centre charges a range of fees, depending on the activity or group (corporate vs educational rates).

Just outside the Lake Simcoe Watershed, **Camp Kawartha** is a year round learning centre dedicated to promoting natural awareness, recreational opportunities and leadership. The centre offers residential programs ranging from overnight to one week in length, and has developed over 45 programs which can be modified to fit any grade level or specific local topic.

NON FORMAL EDUCATION SUMMARY

The Outdoor Education Centres in the Lake Simcoe Watershed area offers many comprehensive programs, but relatively few are **specifically geared to the local issues about the Lake**. Place-based education, as described above, is not a formal part of any of the programs. Although some of their programs are open to modification, but most of the content is intended to complement and expand on the existing curricula, which does not include local issues.

The Centres are **not currently being utilized by the majority of schools** in the area. Private organizations and camps offer more opportunity to modify content, but are also not utilized by most schools. Notwithstanding this, the Outdoor Centres are available for use for part of the year by outside organizations.



B. ENVIRONMENTAL OUTREACH

There are many organizations which have developed materials or are implementing programs for environmental education, usually based on the Ontario curriculum. Some of the most successful programs are described below:

The Faculty of Environmental Science at York University has produced EcoSchools: Resources for Ontario Schools, to support environmental curriculum development. The purposes of this project are to 1) provide teachers with climate change resource units for elementary and secondary grades, based on the Ontario curriculum, 2) provide guides that promote taking individual action to reduce greenhouse gas emissions, 3) align what is taught in classrooms with school operations (curriculum and facilities), save money and reduce our impact on the environment (e.g. conserve energy and minimize waste) and 5) provide related opportunities for learning and action outside the classroom.

This program consists of 14 Guides and three multi-media presentations. This program is well implemented in the Durham Region, but is used less often in the other areas around Lake Simcoe. The main focus of this program is on energy conservation and waste management, and contains little relevant information about Lake Simcoe and the Watershed.

The York Environmental Education Consortium is comprised of a number of School Boards in Southern Ontario. The Consortium has produced seven Resource Units for elementary and secondary school grades, created by classroom teachers, aimed at assisting in teaching the units in the curriculum. There is little specific information about Lake Simcoe issues.

The York Children's Water Festival teaches children about water conservation and related environmental issues through the use of interactive activities. The Festival is designed specifically for Grade 4 students of York Region and is held at the Bruce's Mill Conservation Area. The Water Festival is associated with the York Region's Water for Tomorrow program, an initiative designed to educate the community on water conservation issues.

EARTH DAY CANADA is a national environmental communications organization mandated to improve the state of the environment by empowering Canadians to achieve local solutions. Earth Day Canada offers Earth Day/Earth Month events as well as many community programs.

The organization's website is a clearing house for all their activities. On this site, there is a resource section for educators and students broken down by age. Ekokids is a site containing games, activities and information for children 7 to 12 years old. EcoMentors matches high school students with elementary classes, and offers environmental content to be presented by secondary school students that is a supplement to units of the Ontario curriculum. Ecomentor hours count as volunteer hours that are required for graduation. This program is currently not being used in the Lake Simcoe area.

LAKE CHAMPLAIN offers a number of programs to their Watershed areas. LAKE CHAMPLAIN SEA GRANT manages the Watershed Alliance, which supports bi-state education and environmental monitoring for secondary schools and youth groups. The curriculum includes classroom, field monitoring and analytical activities that meet state approved protocols. By adopting a section of their Watershed, students monitor and analyze Watershed data and make their local communities aware of actions needed. In 2004/2005, 15 schools and over 1000 students from Grades 5-12 throughout the state of Vermont participated in Watershed Alliance education and investigation programs.

The Watershed Alliance also trains and supports 6-12 Watershed Educator interns annually, who assist teachers in implementing Watershed education and field activities. Teacher training is an important component of the WSA activities. The WSA, in partnership with other organizations, is a major resource for educators, providing information on Watershed and water quality material, resources and teaching methods.



Lake Champlain Aquarium

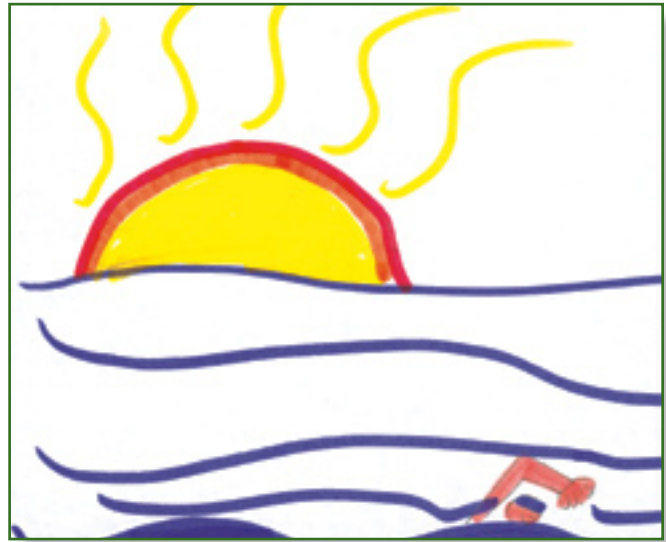


ECHO Lake Aquarium and Science Center is in Vermont, and offers programs for Grades K to 10, all linked to Vermont Grade Expectations. For example, “Marsh Madness” for grades K to 2, teaches students the unique characteristics

that help plants and animals survive in a wetland, and encourages them to understand why people should care about such a fragile habitat. Students receive hands-on, experiential, age-appropriate learning. The workshops are 45-60 minutes in length, and cost \$30.

Lake Champlain Basin Program is a federal, state, provincial and local non-profit initiative to restore and protect Lake Champlain and its surrounding Watershed for future generations. This is a joint venture in New York, Vermont and Quebec.

The outreach programs include, among other things, cooperating with other non-for-profits on education programs and bringing Lake programs to local schools. Presentations are tailored to meet the needs of different age groups. For example, the Lake Champlain Issues Slideshow for Grades 4-12, presents an overview of the environmental and cultural issues facing the Lake Champlain Basin and efforts to implement their pollution and restoration plan. Topics include Watersheds, water quality (phosphorus and toxics), non-native nuisance aquatic species (zebra mussels, lamprey, water chestnut, milfoil), wildlife, wetlands, cultural heritage, individual and community stewardship and recreation. Programs are free and are 25-40 minutes in length.



I don't live really close to Lake Simcoe but I know it's a great lake. Sometimes when the community tries to go swimming the lake is closed because it is polluted. It's not good because once the lake gets permanently polluted, we won't be able to do all the things we love to do there.

ENVIRONMENTAL OUTREACH SUMMARY

There are **not many Environmental Outreach programs currently available in the Lake Simcoe area**. However, there are a number of exemplars (Lake Champlain Watershed Alliance, Lake Champlain Basin Program, Earth Day Canada) which offer models which could easily be adapted to the needs of Lake Simcoe and the Watershed. The Lake Champlain programs have been developed in cooperation with government and school board representatives and also include teacher training. In contrast, Earth Day is a Non-Governmental Agency and has programs which may be modified to suit any local area.

3. INFORMAL EDUCATION

It is beyond the scope of the present research to attempt to quantify the influences which affect children's perceptions of environmental and ecological issues. These influences include parents, friends, media and more formal education, as well as the less obvious interactions of a child with society.

In order to obtain a snapshot of the current perceptions of children about Lake Simcoe, students in three classes from Grade 1-Grade 8, from three areas around the Lake, were asked "What does Lake Simcoe mean to you?" They responded with both pictures and text.

Not surprisingly, the responses from the children in primary grades focused on year-round recreational activities, and almost always mentioned enjoying these activities with family and friends. There was no concern voiced that there were any problems they associated with the lake.

In contrast, the older students emphasized the enjoyment they receive from Lake Simcoe, and had a strong awareness of the importance of the Lake. Students talked about the need for clean and non-polluted water and there was some awareness that Lake Simcoe is an ecosystem. The large majority of students appear to believe that the biggest problem facing the Lake is pollution from "garbage," although a few of the older respondents mentioned that residents should not use fertilizers and should not wash their cars in their driveways.



Lake Simcoe means alot,
because that is where we
get most of our water.

The ECHO Centre on Lake Champlain

MISSION

ECHO at the Leahy Center for Lake Champlain educates and delights people about the **E**cology, **C**ulture, **H**istory, and **O**pportunities for stewardship of the Lake Champlain Basin.

GUIDING PRINCIPLES

We are committed to the highest scientific integrity and everything we say and do must be accurate and trusted beyond reproach.

We are not an advocacy organization but rather one that presents facts and positions from a neutral and unbiased perspective allowing individuals to learn and develop their own positions. The goal is to allow individuals to develop informed and educated decisions creating a better future for the Lake and the Basin.

ECHO VISION

Ecology

All people, animals, plants, and organisms in the Basin are interrelated and connected to each other and to their environments. Environmental science remains at the core of our exhibits, programs and activities. Water is the life force common to all of us and all ecosystems and must be protected and respected.

Culture

Human knowledge, beliefs, and behavior are profoundly affected by the surroundings: Lake Champlain and the adjacent mountains and Watersheds. Continued growth and progress in improving our environment comes from lifelong learning at all levels.

History

We gain knowledge from sharing, recording, and explaining important events from our past. Decisions today should be made with the advantage of knowledge of the events and decisions of the past. What has happened in the past echoes to the present and to our future.

Opportunity

We have a responsibility to learn from the past and project a vision of a future that invites us to improve the Basin we live in through individual and collective environmental stewardship.

CONCLUSIONS AND OPPORTUNITIES

The need: Local Focus & Place-Based Education

As we come to the conclusions/ recommendations section of this Report, we would first like to acknowledge the work of many caring people who are striving to provide environmental education to youth in the Lake Simcoe Watershed area. But, given the enormous urgency caused by the current health of Lake Simcoe and the Watershed, their endeavours fall far short of sufficient. Indeed, the conclusion is that: currently, environmental education for children is inadequate, and there is almost nothing about the Lake and Watershed.

There are two choices for a better future – ramp up or rethink. If we were to “rethink,” the opportunity exists to make the Lake Simcoe Watershed a model that employs the world’s best thinking about place-based environmental education. There is also the opportunity to help our young people benefit from learning that embraces science, geography and history and links it all with artistic and literary development.

Possible Directions

Where to focus and where to start? Clues are found in the five key beliefs articulated in the overview on pages 3 and 4. Matched with the findings of this report, they suggest five possible directions that could be taken to ramp up in the Formal, Informal, and Non-formal education arenas. Like nature itself, all possibilities are interrelated.

1. Help Youth Become Champions Today



It is hoped that all the recommendations in this and other “Possible Directions” would lead towards cultivating our youth as environmental “Lake Simcoe” champions. But two ideas in particular target this goal:

- A stand-alone mentoring program, similar to EcoMentors, could be developed, training high school students to present ecological programs to elementary students.
- A youth-oriented, youth driven, and youth “owned” web-site created by youth to provide a forum for ecological issues.

2. View Lake Simcoe as a Microcosm of the World and Partnering with Nature



There’s a need to develop a greater understanding of the local/global connection. A partnership with EarthDay Canada could be formed to organize programs in the Lake Simcoe area with the content of the program specifically dedicated to Lake/Watershed issues.

At the same time, there is a need to draw attention to all levels of Government, the dearth of local material in the Ontario curriculum, with the intention of seeking modification of the existing formal Ontario curricula to accommodate more Lake/Watershed issues.

More effective ways to turn kids on to the environment must be found. There is no point reinventing the wheel, so it would be advantageous to connect with other organizations doing research. The needs is to explore more about how to make youth messaging and activities more effective both in Lake and Watershed specific applications and in a macro sense.

3. Restore a Sense of Meaning



Restoring a sense of meaning and caring is not an intellectual exercise – but a multi-sensory one. There are the seeds greatness in existing Outdoor Centres and The Children’s Water Festival but these need to be cultivated and grown.

To increase impact, there should be more collaboration between existing Outdoor Centres to supply common content related to the ecology of the Lake/Watershed. In addition, work could be done to increase the reach of these programs to more schools in the area and to heighten the impact framed in the power of the multi-sensory learning.

4. Stimulate Human Enquiry – Deeper Patterns of Localized Change



Opening up and sustaining curiosity in today’s youth is not an easy task especially given the diversity of interests and aptitudes. The principles of place-based education should be explored for Lake Simcoe, focusing on a multidisciplinary approach. Lake Simcoe is a fascinating heritage gateway for Canada. Learning about it could embrace artistic and physical interaction between the natural world and human cultures.

In addition, new Lake/Watershed specific teacher-training and teaching materials, especially for Elementary teachers, could be developed and disseminated.

5. Look to Nature as a Mentor for Creativity



Nature holds magic and mystery that goes beyond the “normal” curriculum and programs. Nature embodies many of the creative solutions we are looking for in how to live more harmonious lives on this planet. To capture the magic of nature, a new Learning Centre dedicated to Lake Simcoe and the Watershed could be developed similar in scope to the highly successful Lake Champlain ECHO Centre. Like the ECHO Centre, it could cater to the entire family as a recreational activity that creates, coordinates and brands many outreach initiatives. While such a centre would have grounding in the environment, the possibilities are endless. It could therefore, as does the ECHO Centre, provide economic benefit to the community that would house it.

RECOMMENDATIONS

The research has indicated that there is a clear need for more comprehensive, locally-focussed environmental education for the youth in the Lake Simcoe/Watershed area. This need is consistent with the recommendations in **THE NAKED TRUTH CITIZENS' ACTION PLAN** (Ladies of the Lake and Windfall Ecology Centre 2006) which suggested a multidisciplinary and multifaceted approach to environmental literacy.

The question becomes – *now what?*

THREE OPTIONS COME TO MIND:



- 1 Undertake additional research on the matter, which has been the more customary approach on matters pertaining to the environment in this Lake and Watershed.**



- 2 Take the incremental approach, and identify one particular opportunity at a time to chip away at which would certainly be an improvement. But the issues of our environment and our youth perhaps need more momentum.**



- 3 Draw people together in a place-based exploration forum to review the suggested directions in this report and determine collectively how to get traction and momentum about localized environmental/ecological education for youth. Assemble for participation in this forum, youth and adults who really care, those who are vitally interested and knowledgeable in this area, and those who can make changes happen.**

It may not be a surprise that we are strongly recommending option 3. This option comprises meeting the issues facing Lake Simcoe and the Watershed head on while simultaneously engaging many people in the education of our youth. To get things started, **we suggest an innovative conference held within a year to develop a strategy and a pilot project to build on what exists today.**

Lake Simcoe and its Watershed is a diverse and large area. But it is, as well, a controllable and manageable area that could be used to set the pace as a vanguard for integrated, place-based environmental education in Ontario.

In conclusion, we would like to suggest that this Research Paper be the rallying cry for a Conference to take environmental education – much needed – to a new level.

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<http://www.uvm.edu/~seagrant/education/default.html>

ACKNOWLEDGEMENTS

Susan Sheard.....Elementary School Teacher, York Region
Nancy Elgie.....York School Board
Jennifer Baron.....Science Teacher and Outdoor Specialist,
Sibbald Point Outdoor Education Centre
Dan Williams..... Outdoor Educator, Scanlon Creek, LSRCA
Glen Mullings.....Simcoe County Resource Teacher, Science
and Technology
Judy Gould..... Waste & Energy Officer, Durham Region
School Board
Sheryl Pearson.....Environmental Educator, Simcoe Muskoka
Catholic School Board
Ross Pityk.....Elementary School Teacher, Bradford
Jane Smith.....Science Teacher, Bear Creek High School, Barrie
Tim Moore.....Librarian, Warnica Public School
M. Bisbee.....High School Teacher, Newmarket
Pekka Baier-Reinio.....Special Needs Teacher, Simcoe County School

Karen Friedman.....Superintendent, Aurora, Oak Ridges Moraine, King
Julie Silverman.....Coordinator, ECHO Programs
Yurij Homziak.....Executive Director, ECHO, University of Vermont
Lori McLean.....LSRCA, a watershed for life
Katie Altoft.....Earth Rangers, Director of Education
Karen Fulbrook.....Vivian Point Outdoor Education Centre
Nadine Dodds.....Elementary School Science Teacher, W.H.Day
Public School, Bradford
Catherine Mahlar.....EcoSchool, York University
Jason Kun.....EcoMentors Manager, Earth Day Canada
Tom Puk.....Professor, Lakehead University
Tina Verma.....Senior Writer, CBC Television
Willena Harrison.....Librarian and Resource Teacher,
Thorah Central Public School
Margaret Black.....Elementary School Teacher, Harriet Todd
Public School

APPENDIX

Name of the School Board	Elementary School	Secondary School	Total Number of Schools within a School Board	Total Number of Schools within a School Board
Simcoe County District School Board	83	18	101	114
Simcoe Muskoka Catholic District School Board	47	7	40	51
York Region District School Board	48	9	57	181
York Catholic District School Board	21	3	24	96
Durham District School Board	20	4	24	124
Durham Catholic District School Board	6	0	6	51
Total	225	41	252	617

Table: Number of Elementary and Secondary Schools within the Lake Simcoe Watershed

The Lake Simcoe Watershed has approximately 252 schools within its region (Table). Out of which 225 are primary schools and 41 secondary schools. These numbers are a rough estimate based on the list of schools from the ministry of education website <http://esip.edu.gov.on.ca/english/core/BoardListingAllItems.asp>

This is not based on any scientific estimation or precise geographical mapping. Approximately 40% of the schools within the Watershed is the responsibility of Simcoe County district board followed by York region district board at 22.6%, Simcoe Muskoka Catholic district board at 15.8%, both York Catholic board and Durham district board at 9.5% and the lowest number of schools falling under the Lake Simcoe Watershed is the Durham Catholic board at 2.3%.

