Nomination Submission
from Canada for the

GEORGIAN BAY LITTORAL
BIOSPHERE RESERVE

April 2004
PREFACE

The proponents for this proposed Georgian Bay Littoral Biosphere Reserve are the Greater Bay Area (GBA) Foundation and the Georgian Bay Biosphere Reserve Inc. (GBBR Inc.). Beginning in 1996, the Foundation took the main leadership role in laying the basis for a viable biosphere reserve which was based on their vision of the Georgian Bay Littoral as a natural region. It has initiated extensive discussions with government officials and people in community organizations in the area, and has helped foster biosphere reserve functions in a number of ways including provision of seed money or matching funds for some program activities. In 1998, the Foundation created a legal entity, the GBBR Inc., which is a separate non-governmental body that is to coordinate a biosphere reserve program. In February 2004, nine Directors including four Officers were appointed to this corporation in anticipation of a favourable outcome of this nomination.

The "Cooperation Plan for the GBLBR." in Appendix 1 outlines what has been accomplished so far, and the directions for actions that are planned for the immediate and longer-term future. Some additional details can be found under appropriate sections in this nomination submission. A number of organizations, programs, or broad policy statements (most of them of a collaborative nature) are mentioned in this submission.

As suggested by reviewers of an earlier draft, definitions or brief descriptions for 54 of them are given below for ease of reference. Formal government bodies (elected councils, ministries, departments or agencies) are not included here, but the official responsibilities or roles of those mentioned are indicated in the text, especially under Section 4.5 and Section 17.

This nomination submission is based on a wide array of information obtained from libraries, websites, or other sources. References to specific research or monitoring studies noted in Section 15.1 are listed at the conclusion of that Section in Part 2. Other reference materials noted in the text of the submission are listed at the end of Part 2.
Organizations, Programs and Policies Mentioned in this Nomination Submission

Alliance of Boaters and Cottagers
Formed in 1995 with representatives from the Canadian Power & Sailing Squadron, the Georgian Bay Association, the Georgian Bay Sailing Association, the Great Lakes Cruising Club, the Ontario Sailing Association, the Ontario Ministry of Environment, Parks Canada and Parks Ontario. Their goal is to cooperate to maintain the clean water of Georgian Bay through activities such as water quality monitoring, voluntary inspection programs for boats, reporting on spills, developing safer boating channels, and improving septic tank systems and municipal waste treatment facilities.

Anishinabek-Ontario Fisheries Resource Centre [www.aofro.org]
Established in 1995 as a co-managed organization (with equal representation from aboriginal and non-aboriginal Directors on the Board) to provide an independent source of information on fisheries assessment, conservation and management, based on both traditional ecological knowledge and western science.

Areas of Natural and Scientific Interest (ANSLs)
Landscape areas with particular biological and/or geological features that are not well represented in provincial parks. Site inventories and other documentation are maintained by the Ontario Ministry of Natural Resources. Provisions to protect such areas are provided by management plans for Crown (publicly-owned) lands, land use zoning in municipal plans, or special stewardship arrangements for sites that are privately owned.

Areas of Concern (AOCs) [www.on.ec.gc.ca/water/greatlakes/concern-e.html]
These are nearshore areas in the Great Lakes and "connecting channels" (rivers) between them which do not meet the water quality objectives agreed upon in the US-Canada Great Lakes Water Quality Agreement (GLWQA). They are identified for the International Joint Commission (IJC) by the Great Lakes Water Quality Board, using 14 criteria of impairment, half relating to biophysical conditions and half to restrictions on beneficial uses of the water. Remedial action plans (RAPs) are then undertaken for each AOC and once the beneficial uses of the water have been restored, the area is "de-listed" by the IJC. Severn Sound at the south end of the proposed biosphere reserve was an AOC and following implementation of a RAP it was delisted in 2002.

BirdLife International [www.birdlife.org.uk]
A global alliance of conservation organizations who are authorities on the status of birds, their habitats, and issues affecting bird conservation. BirdLife partner organizations have been formed in more than 100 countries. Canadian partners are Bird Studies Canada and the Canadian Nature Federation. BirdLife has sponsored an “important bird areas” (IBA) program throughout the world. The Limestone Islands Nature Reserve, one of the core areas within the proposed biosphere reserve is a designated IBA.

Bird Studies Canada (BSC) [www.bsc-eoc.org]
Created in 1998 as an expansion of the Long Point Bird Observatory which itself was established in 1960 to become the oldest continuously operated bird observatory in North America. (It is located in the Long Point Biosphere Reserve). BSC organizes up to 20,000 volunteers across Canada annually to participate in local, regional, national and international programs of research, monitoring and education in support of bird conservation. There are several BSC-sponsored field programs operating in the proposed biosphere reserve.
Biodiversity Investment Areas

A phrase coined by the State of the Lakes Ecosystem Conferences (SOLEC) to refer to nearshore aquatic and terrestrial ecosystems around the Great Lakes Basin having high levels of biodiversity, and, by implication, are priority areas for conservation actions. The proposed biosphere reserve is recognized to be one such area.

Canadian Heritage Rivers [www.chrs.ca]

A program established in 1984 by the federal, provincial, and territorial governments to give recognition to the role of rivers in Canada’s history and to reflect the diversity of river environments in Canada. A 15 member Board reviews nominations, and if they meet required criteria the Board recommends approval by the responsible Minister. The French River system, part of which is included among the core areas of the proposed biosphere reserve, was the first to receive this designation in 1986.

Canadian Biosphere Reserves Association (CBRA) [www.biosphere-canada.ca]

Created in 1997 as an association of biosphere reserves to provide support and networking relationships that help develop and maintain biosphere reserves in Canada. CBRA also helps organize collaborative projects among biosphere reserves, and fosters coordination with biosphere reserves in other countries, with the Canadian Commission for UNESCO and with the UNESCO/Man and the Biosphere program.

Canadian Power & Sail Squadrons [www.cps-ecp.ca]

A national non-governmental organization founded in 1938 to increase boating safety and pleasure on the waterways of Canada by providing instruction and training in all phases of seamanship and navigation by power or sail. All teaching and administration work is done by volunteers. The Parry Sound Unit, with over 200 members, provides these services within the area of the proposed biosphere reserve.

Council of Outdoor Educators of Ontario [www.coeo.org]

Founded in 1969 as a professional body providing encouragement and support for outdoor educators in both formal and informal education systems in Ontario.

Dark Skies Initiatives [www.darksky.org]

Promoted through the International Dark Sky Association founded in 1988 in Tuscon, Arizona, and now with affiliated groups in Canada and 15 other countries. Seeks to introduce night lighting designed to eliminate sky glow (“light pollution”) and reduce glare, allow greater enjoyment of astronomical features in the dark skies, reduce energy waste, and protect nocturnal biota such as small birds migrating at night. Implemented through community initiatives. A Terrance Barrens Dark Sky Conservation Reserve was established in 1999 about 20 km east of the proposed biosphere reserve as the first such initiative in Ontario. In 2001, the GBA Foundation and Georgian Bay Township endorsed initiatives from the Muskoka Heritage Foundation and Manitoulin Dark Sky Association, and provide information about reduced lighting options to Georgian Bay residents.

Eastern Georgian Bay/North Channel Fisheries Stewardship Council [www.helpourfisheries.com]

Formed in 2000 by the Ontario Ministry of Natural Resources and the Township of The Archipelago for people in Georgian Bay and North Channel of Lake Huron “to promote the protection,
enhancement, and utilization of healthy, sustainable fish populations, habitats and aquatic ecosystems”. The Council serves as a stakeholders’ consultation mechanism for providing advice to fisheries managers.

**Ecological Integrity Monitoring (National Parks) [parkscanada.pch.gc.ca/progs/np-pn/ecosystem/ecosystem3_e/asp]**

Canadian national parks have a statutory obligation to manage parks to maintain their ecological integrity. A monitoring system to guide management covers the biodiversity of plants and animals, ecological processes, and stressors impacting on ecosystems. Indicators are developed to help assess conditions of the whole ecosystem, address specific management objectives and actions, and allow for comparisons among parks. Georgian Bay Islands National Park, a major core area for the proposed biosphere reserve, is testing a monitoring program, some aspects of which extend outside of the park and involve cooperation with other organizations and people. It is subject to review and modification as experience is obtained.

**Ecological Monitoring and Assessment Network (EMAN) [www.eman-rese.ca]**

Formed by Environment Canada to link organizations and people conducting community-based ecological monitoring in Canada. EMAN promotes information exchange, adoption of shared protocols for data gathering and information management, and closer ties with users of information obtained from monitoring. EMAN has the lead responsibility in Canada for monitoring climate change, ultra-violet B radiation, toxic contaminants, and biodiversity. Staff have helped develop community-based monitoring in the proposed biosphere reserve through establishing biodiversity monitoring plots, transects to assess forest health and record air pollution indicators (lichens), and help with the training of volunteers in cooperation with members of the Georgian Bay Association.

**Enhanced Management Areas (EMAs)**

A new land use category established under Ontario’s Living Legacy (1999) to provide more detailed land use direction in areas of Crown (publicly-owned) lands having special features or values. It allows for a wide range of resource and recreational uses, but calls for special provisions in management plans for individual areas to protect features such as fish and wildlife resources, ecological values, recreational access, or Great Lakes coastal habitats. Two EMAs fall partly within the proposed biosphere reserve.

**First Nations**

The formal term for native aboriginal peoples, especially in their capacity as equals in government-to-government negotiations.

**First Nations Forestry Program [www.fnfp.ca]**

A federal program initiated in 1996 to develop partnerships with First Nations and the Government of Canada (through Indian and Northern Affairs Canada, and Natural Resources Canada) to enhance the capacity of First Nations people to manage forests, operate and participate in forest-based industries, and increase cooperation and partnerships among First Nations. There have been several joint projects with at least three First Nations in the area of the proposed biosphere reserve.

**Forest Stewardship Council (FSC) [www.fscoax.org]**

An international non-profit organization founded in 1993 and based in Bonn, Germany, with offices in Mexico, to promote sustainable management of the world’s forests. The Council developed
Principles and Criteria of Forest Stewardship for region-specific forests. Upon request, independent certification bodies accredited by the FSC will review forest management operations and if these conform with FSC standards, owners of the operation can market their products as "certified wood" and use the FSC trademark logo. "Westwind Forest Stewardship Inc.", which oversees the management of Crown (publicly-owned) forests within the proposed biosphere reserve was the first large public forest in Canada to receive a FSC certification in 2002.

Friends of Killbear [www.friendsofkillbear.com]
This is a community group of volunteers formed to help Killbear Provincial Park (a core area within the proposed biosphere reserve) to achieve its objectives in protection, education and research. The Friends raise funds, mainly through operation of a nature store in the park. Their current projects include trail construction and help with field studies of snakes.

G'Nadjiwan Ki Aboriginal Tourism Association [www.gnadjiwanki.on.ca]
Established in 1999 as an associative body to promote aboriginal tourism and help native people in the Georgian Bay-Lake Simcoe region to benefit from increasing tourism that respects aboriginal culture and the environment. Provides fee-for-service assistance for various aspects of native-owned business operations in the tourism sector.

Georgian Bay Association (GBA) [www.georgianbay.ca]
The association is a non-profit umbrella group founded in 1916. It currently represents 20 resident associations and approximately 4,200 families on the eastern and northern shores of Georgian Bay and adjacent lakes and water bodies. GBA engages in public education and advocacy on behalf of water-based communities and other stakeholders to promote stewardship of the greater Georgian Bay environment and its peaceful enjoyment.

Georgian Bay Boaters and Cottagers Code
This is a statement of principles developed by the Ontario Boating Forum and the Georgian Bay Association in 2001 and 2002 to help promote the safe enjoyment and environmental protection of shared waterways. It has been widely distributed, and has been printed in the "GBA Update", Spring 2002 (accessed through the GBA website).

Georgian Baykeeper
Founded in 2003 by the GBA Foundation as an affiliate of the Waterkeeper Alliance, a North American non-governmental organization dedicated to helping communities preserve and protect water resources. Conducts marine patrols with the "Georgian Baykeeper" to promote public safety, water quality monitoring, and public education about water-based recreation and environmental issues.

Georgian Bay Land Trust Foundation (GBLTF) [www.gblt.org]
Founded in 1991 to acquire and protect ecologically significant properties in Georgian Bay through purchase, easements or donations, which GBLT subsequently manages in conformity with standards and practices of the Ontario Land Trust Alliance. Formed a joint venture with the Nature Conservancy of Canada in 1999 which has identified the proposed biosphere reserve area as one of 50 priority locations in Canada upon which to focus conservation actions; the joint venture also helped carry out field inventories during 2001-2002 to document biodiversity, as is noted in this nomination submission.
Georgian Bay Biosphere Reserve Incorporated (GBBR Inc.)
A non-profit organization created by the GBA Foundation in 1998 to become the coordinating body for the proposed biosphere reserve. Nine Directors including four Officers were appointed to this corporation in February 2004 in anticipation of a favourable outcome for this nomination submission.

Georgian Bay Osprey Society
A volunteer network of people dedicated to the preservation and restoration of ospreys (*Pandion haliaetus*) in the Georgian Bay area, including the proposed biosphere reserve. Volunteers build safe nest platforms for ospreys and monitor the annual reproductive success at all known nest sites.

Great Lakes Fishery Commission (GLFC) [www.glfc.org]
Established in 1955 by the “Convention on Great Lakes Fisheries between Canada and the United States”. Conducts fisheries research and administers programs to control sea lamprey populations (*Petromyzon marinus*). Maintains binational committees of fisheries interests for each of the Great Lakes to coordinate stock assessments, develop fishery management objectives and recommend catch allocations to fishery managers in each jurisdiction. A Lake Huron Committee reporting to the GLFC exercises this oversight for Georgian Bay.

Great Lakes Heritage Coast [www.mnr.gov.on.ca/MNR/glhc]
This is a “featured area designation” in “Ontario's Living Legacy”, a program declared in 1999 by the Ontario provincial government. The coast that is recognized under the designation extends from Severn Sound in south-eastern Georgian Bay north along the Bay (including the proposed biosphere reserve) and then west along the north shore of Lake Huron and the entire north shore of Lake Superior to the border between Ontario and Minnesota. It also includes Manitoulin island and other nearby islands so that the total featured area includes about 1.46 million ha of coastal zone and 4,200 km of shoreline. Please see Appendix 3 for more information.

Great Lakes United (GLU) [www.glu.org]
Founded in 1982 as a binational (Canada and USA) coalition of non-governmental organizations and individuals dedicated to preserving and restoring the Great Lakes-St. Lawrence River ecosystem. Sponsors five task forces of volunteers dealing with various issues of clean water and clean air, human and ecosystem health, and promotion of a conservation ethic. GLU conducts its own studies, has wide-ranging public information programs, and lobbies actively with politicians and government agencies in both countries. The GBA has become an active member of GLU.

Great Lakes Water Quality Agreement (GLWQA) [www.on.ec.gc.ca/glwqa/facts-e.html]
This is a binational agreement between Canada and the United States, signed in 1972 and updated in 1978 and 1987, to develop agreed upon water quality objectives (later, ecosystem objectives) for the Great Lakes and coordinate federal, state and provincial government programs to achieve them. Progress is overseen by the International Joint Commission (IJC) who reports biennially to governments. Work over the last two decades has gone increasingly into the preparation of lake-wide management plans for all of the Great Lakes except Lake Huron, and implementation of remedial action plans for 43 nearshore “areas of concern”, one of which (Severn Sound) lies in the area of the proposed biosphere reserve.
**Greater Bay Area (GBA) Foundation** [www.georgianbay.ca/gbafoundation]

Established in 1995 as a voluntary community response to the growing need for major capital and research funding for projects supporting the Bay's environment and the quality of life for residents and visitors. Fosters research and monitoring initiatives and public education activities that are consistent with the functions of a biosphere reserve. The GBA Foundation is the lead proponent for this nomination submission.

**Greater Georgian Bay Reptile Awareness Program** [www.gbreptiles.com]

Dedicated to the conservation of 11 species of snakes and turtles at risk within the region covered by the Ontario Ministry of Natural Resources’ administrative districts of Parry Sound and Midhurst (and including the area of the proposed biosphere reserve). Volunteers report field observations and provide public information about the species and ways to protect them.

**Indian Reserves**

The official term for areas of land dedicated entirely for the use of native aboriginal people under terms of historical treaties signed with them. There are six of these reserves wholly or partly within the area of the proposed biosphere reserve.

**International Joint Commission (IJC)** [www.igc.org]

Established in 1912 under the terms of the Boundary Waters Treaty of 1909. The Commission has six appointees (three each from Canada and the United States) and serves as a commission of inquiry on Canada-US boundary watershed matters referred to it by both federal governments. Great Lakes issues investigated by the IJC have included the GLWQA, adaptations to fluctuating lake levels, water diversions, air quality, and the implications of climate change on the Great Lakes Basin. The GBA has made recent submissions to the IJC on lake level and water diversion issues based on concerns of people within the proposed biosphere reserve.

**Joint Strategic Plan for the Management of Great Lakes Fisheries, GLFC, 1994.**

The stated goal is "to secure fish communities based on foundations of stable self-sustaining stocks, supplemented by judicious plantings of hatchery-reared fish, and provide...an optimum contribution of fish, fishing opportunities and associated benefits...for wholesome food, recreation, employment and income, and a healthy human environment". Reviewed issues facing fishery managers in the Great Lakes and proposed general strategies for environmental management, information management, consensus-building and accountability.

**Leading Edge Conferences**

Co-sponsored by the Niagara Escarpment Commission with other agencies and escarpment businesses in 1994, 1995, 1997, 1999, 2001 and 2004 to serve as a broad forum for presentations on research, monitoring, education and demonstration projects (associated with the Niagara Escarpment Biosphere Reserve), displays to showcase local products and works of art, and discuss issues associated with the Niagara escarpment region (which includes the west coast of Georgian Bay). Usually has one session co-sponsored with CBRA to report on Canadian biosphere reserves. The proposed biosphere reserve will become a regular contributor to this event.
Nature Conservancy of Canada (NCC) [www.natureconservancy.ca]

Established in 1962 to preserve ecologically significant areas in Canada through outright purchases, donations, and conservation easements in partnership with a wide range of government agencies and other non-governmental organizations. Entered into a joint venture with the GBLTF in 1999.

Ontario Boating Forum [www.obf.on.ca]

A non-profit organization that promotes the interests of recreational boaters through lobbying with government, provision of public information, and promotion of safe boating practices. Cooperates with other organizations on environmental protection. Worked with the GBA to produce the Georgian Bay Boaters and Cottagers Code, 2002.

Ontario Forest Research Institute (OFRI) [ontariosforests.mnr.gov.on.ca]

Located in Sault Ste Marie, Ontario, as a "state-of-the-art" centre for forest ecosystem research. A wide range of laboratory and field studies are conducted on subjects such as forest genetics, plant physiology, forest growth and yields, forest health, plant and landscape ecology, and management of forests and plantations. OFRI maintains field plots throughout Ontario, including one set within the proposed biosphere reserve.

Ontario's Living Legacy (OLL) [www.ontarioslivinglegacy.com]

A program announced in 1999 by the Ontario government following two years of consultations and negotiations with stakeholder organizations about management of Crown (publicly-owned) lands in a region covering 45% of the province of Ontario. A land use strategy to implement the OLL includes 378 new provincial parks or conservation reserves, identification of nine "signature sites" that exemplify "unique natural heritage" for protection, measures to strengthen forest management and maintain employment and wood supplies for existing mills, and assistance for communities to increase access to hunting and fishing. The Great Lakes Heritage Coast is the largest of the "signature sites". Within the proposed biosphere reserve, five new conservation reserves and additions to two provincial parks under the OLL serve to strengthen the core and buffer areas. (Please see Appendix 3 for additional information).

Ontario Marine Operators Association [www.marinasontario.com]

An association to promote the interests of member businesses through marketing their products and services, and conducting advocacy with governments on their behalf. Co-sponsors quality improvement programs such as the "clean marina eco-rating certification" for environmental best practices at marina facilities in Georgian Bay and elsewhere in Ontario.

Ontario Natural Heritage Information Centre (ONHIC) [www.mnr.gov.on.ca/MNR/nhic/nhic.cfm]

Established in 1993 in Peterborough, Ontario, originally as a partnership between the Ontario Ministry of Natural Resources, the Nature Conservancy of Canada (NCC), and The (US) Nature Conservancy (TNC). The centre collects and maintains data on the occurrences of imperiled species of plants and animals and plant/habitat communities, using the criteria and information management system designed by the TNC. Conducts field work to extend the databases. Staff from the ONHIC contributed significantly to the field inventories conducted in 2001 and 2002 in the proposed biosphere reserve.

Ontario Nature [www.ontarionature.org]

Established in 1931 as the Federation of Ontario Naturalists, Ontario Nature is now a federation of some 125 member groups in Ontario. The FON provides services to its member groups, undertakes a
Parks Research Forum of Ontario [www.underlinedesign.com/PRFO]

Organized in 1996 to promote research relating to parks and protected areas and its application in management. Holds workshops and annual conferences. Co-sponsored by Parks Canada, Ontario Parks and five universities.

Parry Sound-Muskoka Stewardship Network [www.ontariostewardship.org]

A volunteer group working with a stewardship coordinator from the Ontario Ministry of Natural Resources to provide advice to private landowners about forest and other resource management. Conducts workshops, participates in various land management projects, and gives recognition awards for good practices. One of 40 such stewardship councils in Ontario.

Remedial Action Plans (RAPs) [www.on.ec.gc.ca/water/raps]

Required under the terms of the GLWQA for "areas of concern" around the Great Lakes. Promotes stakeholder consultations to identify causes of local water/environmental quality problems, the best feasible means for solving them, and organizational arrangements for implementing the required actions. Severn Sound at the south end of the proposed biosphere reserve has developed and implemented a RAP to restore conditions there.

Schad Foundation [www.huskey.ca/ehs/en4a.html]

A family foundation funded largely through Huskey Injection Molding Systems, Ltd. to promote environmentally-sound technologies and practices, and quality of life in communities. Schad has a joint venture with the Moose Deer Point First Nation (within the proposed biosphere reserve) that created Niigon ("the way ahead") Technologies Ltd. It manufactures small high-end components for the automotive and electronics industries and has achieved the QS-9000 quality certification. Niigon profits go into a trust fund for re-investment in the community.

Science North [www.sciencenorth.ca]

Located in Sudbury, Ontario, this facility hosts a wide range of science education exhibits, workshops, field camps, and other programs for schools and other visitors.

Severn Sound Environmental Association [www.severnsound.ca]

A partnership founded in 1997 among federal and provincial government agencies, local municipalities, and non-governmental groups to restore environmental quality and ensure continued protection through wise stewardship of Severn Sound and its tributaries. The partnership implemented the RAP for Severn Sound and the Association is continuing to monitor and help manage the restored ecosystem.

State of the Lakes Ecosystem Conferences (SOLEC) [www.on.ec.gc.ca/solec]

Biennial conferences initiated in 1994 and sponsored by Environment Canada and the US Environmental Protection Agency to assess and report on the conditions of the Great Lakes basin ecosystem in response to the GLWQA. Developed an elaborate set of indicators to help guide the
assessments. The SOLECs occur in alternate years to the biennial IJC meetings on the GLWQA, and allow for a report on the State of the Lakes (based on SOLEC) to be available in time for the IJC meetings.

Strategic Vision of the Great Lakes Fishery Commission for the First Decade of the New Millennium (GLFC) [www.glfc.org]

An up-date of the 1994 Joint Strategic Plan to direct the Commission's programs during 2001-2010. The vision includes healthy Great Lakes ecosystems with predominantly self-regulating fish communities, integrated management of sea lampreys that supports fish community objectives for each of the Great Lakes, and more extensive cooperative effort and partnership relations.

Westwind Forest Stewardship Inc. [westwindforests.ca]

A community-based non-profit organization funded by the forest industry and foundations to coordinate the management of the French-Severn Forest (which includes the area of the proposed biosphere reserve). The Ontario Ministry of Natural Resources continues to own the forests but Westwind manages the planning, logging, operations, and compliance with laws and regulations. It was the first large public forest in Canada to receive the FSC certification, in 2002.

Wye Marsh Wildlife Centre [www.wyemarsh.com]

Operated since 1985 by the “Friends of the Wye Marsh” in partnership with Environment Canada under a series of 5-year agreements. The marsh is part of a 47 ha site which is a “National Wildlife Area” located near Midland, Ontario. The Centre is maintained as a year-round operation with a number of special events to promote awareness, enjoyment, and understanding of the environment and wildlife; it receives about 50,000 visitors a year. Though located outside of the proposed biosphere reserve it is close enough to consider possible links with environmental education activities in eastern Georgian Bay.
INTRODUCTION

Biosphere Reserves are areas of terrestrial and coastal/marine ecosystems, or a combination thereof, which are internationally recognized within the framework of UNESCO’s Programme on Man and the Biosphere (MAB). They are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere Reserves are designated by the International Co-ordinating Council of the MAB Programme at the request of the State concerned. Individual Biosphere Reserves remain under the sovereign jurisdiction of the State where they are situated. Collectively, all biosphere reserves form a World Network in which participation by States is voluntary. The World Network is governed by the Statutory Framework adopted by the UNESCO General Conference in 1995 which presents the definition, objectives, criteria and the designation procedure for biosphere reserves. The actions recommended for the future development of biosphere reserves in the 21st century are set out in the “Seville Strategy” which was approved by the UNESCO General Conference. These documents should be used as basic references for the completion of this nomination form.

The information presented on this nomination form will be used in a number of ways by UNESCO: (a) for examination of the site by the Advisory Committee on Biosphere Reserves and by the Bureau of the MAB International Coordinating Council; (b) for use in a world-wide accessible information system, notably the UNESCO-MABnet, facilitating communications and interaction amongst persons interested in biosphere reserves throughout the world.

The nomination form consists of two parts: part one is a summary indicating how the nominated area responds to the functions and criteria for biosphere reserves set out in the Statutory Framework, and presents the endorsements for the nomination from the authorities concerned. Part two is more descriptive and detailed, referring to the human, physical and biological characteristics as well as to the institutional aspects. Amongst the supporting documents, please note that it is essential to provide a map clearly showing the zonation of the area.

The text in brackets is provided as a guidance in assisting the MAB National Committees and nominating authorities in completing particular sections of the form. The form should be completed in English, French or Spanish and sent in three copies, with maps and supporting documents to:

UNESCO Division of Ecological Sciences
1, rue Miollis
F-75352 Paris CEDEX 15, France
Tel: ++33.1.45.68.41.51
Fax: ++33.1.45.68.58.04
Email: mab@unesco.org
1. PROPOSED NAME OF THE BIOSPHERE RESERVE

[It is advisable to use a locally accepted geographic, descriptive or symbolic name which allows people to identify themselves with the site concerned (e.g. Rio Platano Biosphere Reserve, Bookmark Biosphere Reserve). Except in unusual circumstances, Biosphere Reserves should not be named after existing national parks or similar administrative areas.]

Georgian Bay Littoral Biosphere Reserve (GBLBR)

2. COUNTRY

Canada

3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES

[Article 3 of the Statutory Framework presents the three functions of conservation, development and logistic support. Explain in general terms how the area fulfills these functions.]
3.1 "Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation" *(Stress the importance of the site for conservation at the regional or global scales.)*

**Significance:**

Georgian Bay is within the Laurentian Great Lakes Basin, a 528,000 square kilometre drainage basin (with some 246,000 square kilometres of water surface) serving as the headwaters for the St. Lawrence River system which flows some 870 kilometres northeast into the Gulf of the St. Lawrence and Atlantic Ocean. While appearing to be an eastern arm of Lake Huron, Georgian Bay is sufficiently large and has its own distinctive bathymetry to merit being called “the sixth Great Lake” in the system (e.g. Barry 1995). Please see Map 1 *(Reference Map)*. Eastern Georgian Bay is thought to have the largest fresh water archipelago to be found anywhere.

The proposed biosphere reserve is a 347,000 ha area which comprises the “Thirty Thousand Islands” of eastern Georgian Bay along with some open water and the adjacent mainland. Please See Map 1 *(Reference Map)*. The complex topography of the coast is such that within the approximately 200 km length axis of the proposed biosphere reserve there is an extensive shoreline along the many islands, deep coves, fiords, and river mouths. (Please see Map 3 *(Complex Shorelines of Eastern Georgian Bay)*). This configuration has resulted in a highly variable mix of open waters, sheltered bays, coastal wetlands, exposed bedrock shores,
sandy and cobble beaches, riparian vegetation and upland forests on the mainland. While its southern end is located only 165 km from the Greater Toronto Area (the largest urban region in Canada), the proposed biosphere reserve area has very little road access in comparison to surrounding regions as well as significant portions of undeveloped shoreline. Please see Map 4 (Regional Road Network). Along with the various protected areas (national and provincial parks and conservation reserves as described in Sections 4.5 and 7) the eastern Georgian Bay coast has remained as one of the longest and largest corridors of almost continuous protected landscape/waterscape in south-central Ontario.

The resulting rich mosaics of habitats and interconnections among them, combined with the inaccessibility of much of the area, serves to support and protect a high level of biodiversity. While this biodiversity is still to be fully documented, it is known to have at least 35 rare or unusual habitat/vegetation types and over 100 species of animals and plants that are considered to be species at risk in Canada or Ontario. Examples of species at risk occurring there are birds such as red-shouldered hawk (*Buteo lineatus*), prairie warbler (*Dendroica discolor*), cerulean warbler (*Dendroica cerulea*), black tern (*Chlidonias niger*), least bittern (*Ixobrychus exilis*), loggerhead shrike (*Lanius ludovicianus*) and Henslow’s sparrow (*Ammomanus henslowii*); reptiles such as eastern massasauga rattlesnake (*Sistrurus c. catenatus*), eastern fox snake (*Elaphe gloydii*), eastern hognose snake (*Heterodon platyrhinos*) and spotted turtle (*Clemmys guttata*); eastern fox snake (*Elaphe gloydii*), eastern hognose snake (*Heterodon platyrhinos*) and spotted turtle (*Clemmys guttata*); and fish such as lake sturgeon (*Acipenser fulvescens*) and muskellunge (*Esox masquinongy*); and plants such as Pitcher's thistle (*Cirsium pitcheri*), Gattinger's false foxglove (*Agalinis gattingeri*) and spotted wintergreen (*Chimaphila maculata*).

**Current opportunities:**

In 1999, a number of protected areas within the proposed biosphere reserve were designated as part of “Ontario’s Living Legacy”. This is a provincial land use strategy directed towards completing Ontario’s system of parks and protected areas; recognizing the land use needs of the resource-based tourism industry; providing forest, mining, and other resource industries with greater land and resource use certainty; and enhancing angling, hunting, and other Crown (provincially-owned) land recreation opportunities (Government of Ontario, 1999:2). Within this strategy, the government also identified “Featured Area Designations” the most sizeable of which is the Great Lakes Heritage Coast. This designation covers some 4,200 km of coast (with varying widths of from one to several km) extending along the eastern shore of
Georgian Bay, the north shore of Lake Huron, and the north shore of Lake Superior. The objectives of the Great Lakes Heritage Coast are to:
* protect its outstanding scenic beauty and natural ecosystems;
* promote its recreational and tourism potential through the establishment of a network of parks and protected areas and complementary tourism infrastructure;
* ensure that only development that is compatible with the overall policy intent for the area is permitted; and,
* foster cooperation and actively seek partnerships with other levels of government, Aboriginal communities, and interest groups in the planning and management of this coastal area. (Government of Ontario, 1999:28).

Following further public consultations, the provincial government issued a “Charting the Course” report in 2001. It presented a vision for the Great Lakes Heritage Coast to become a world-class tourist destination, to be achieved by developing a strategy focused on:
* ecosystem protection;
* tourism development and infrastructure;
* support for tourism promotion;
* information and education, and
* private land stewardship.

Port Severn and Parry Sound are to be two “Gateways to the Coast” within the proposed biosphere reserve. [Please see Appendix 3 for background information on the Great Lakes Heritage Coast]

The proposed biosphere reserve includes approximately 200 km of this Great Lakes Heritage Coast designation and could be viewed as a finer-scale recognition of the same values and opportunities that are noted for the much larger coastal area along the upper Great Lakes. Studies associated with the Great Lakes Heritage Coast confirmed the ecological significance of the eastern Georgian Bay Coast. Important natural values include coastal wetlands, Atlantic coastal plain shallow marshes, and rare plant and animal species. Eastern Georgian Bay is recognized as having the greatest number of rare reptile species within the Great Lakes Heritage Coast. In supporting the intent of the heritage coast, the biosphere reserve would explore means to actualize its objectives in close cooperation with local residents and coastal communities.
Much of the area of the proposed biosphere reserve has been recognized as an important “biodiversity investment area” by Environment Canada and the US Environmental Protection Agency under their binational State of the Lakes Ecosystem Conferences (SOLEC). These areas are defined as “broad coastal areas that contain clusters of exceptional biodiversity values” around the Great Lakes (Reid and Holland 1996; SOLEC 1999: Part 3).

In addition, fisheries management in the Georgian Bay area is being conducted under agreements overseen by the binational Great Lakes Fishery Commission (GLFC). The Lake Huron Committee of GLFC has agreed upon the fish community objectives for the lake, including Georgian Bay (Desjardine and others 1995), and this helps guide fishery restoration work.

Municipalities and non-government organizations are also active in conservation efforts within the eastern Georgian Bay littoral zone. Municipalities along the coast (Georgian Bay Township and the Township of The Archipelago) have identified environmental issues as a top priority for consideration in planning decisions that would affect protected areas, water quality, or fish habitat. Non-government organizations with conservation activities in the proposed biosphere reserve include the Georgian Bay Association, the GBA (Greater Bay Area) Foundation, and the Georgian Bay Land Trust. This variety of conservation efforts, combined with the protected areas network, provide a strong foundation for the conservation function of the proposed biosphere reserve. For details please see Appendix 1 (A Cooperation Plan for the Georgian Bay Littoral Biosphere Reserve, 2004)

Rationale for a biosphere reserve designation:

The ecological significance of the eastern Georgian Bay littoral area has been widely recognized and is reflected in the set of parks and conservation reserves that exist there. Conservation-related programs are directed by jurisdictional requirements and policies of the individual agencies or the purposes of particular organizations. They are generally not thought about at the scale envisaged for the eastern Georgian Bay littoral biosphere reserve. The most significant divided responsibilities coincide with the littoral zone itself through the lack of effective integration of efforts dealing with both the aquatic and terrestrial components of ecosystems. Programs that focus on terrestrial conservation issues are often developed in isolation from aquatic issues in the same general area.
Nevertheless, there is a broad community of interest throughout eastern Georgian Bay among those who live, work, and enjoy recreational opportunities within this coastal environment. All recognize the need to protect significant natural attributes. There are opportunities to complement government initiatives through partnerships and cooperative management for the conservation of natural values. A biosphere reserve would provide an international focus for this outstanding landscape and for sharing relevant information and experience with people from elsewhere.

3.2 "Development - foster economic and human development which is socio-culturally and ecologically sustainable". (Indicate the potential of the proposed biosphere reserve in fulfilling this objective.)

Significance:
As noted, the southern extent of the proposed biosphere reserve is only about 165 km from the Greater Toronto Area, Canada’s largest urban region with a population of about five million people. This proximity, along with Georgian Bay’s scenic vistas, makes the area a highly attractive destination for boaters, cottagers, campers and outdoor enthusiasts. Between May and September the region attracts visitors -- overall from three to five times (and up to 25 times in some locations) the number of permanent residents -- who come as water-access cottagers and visitors for tourism and recreation. Yet despite this, the eastern Georgian Bay littoral region maintains a much reduced level of road density compared to surrounding areas (see Map 4 - Regional Road Network) and many islands and water-access seasonal properties along the archipelago and portions of shoreline remain relatively undisturbed.

The result is a spatial gradation of human interventions that lends itself well to studies on sustainability from two complementary perspectives. One is to develop “smart growth” based upon regional eco-tourism strategies that can accommodate seasonal visitors, whose numbers are expected to double over the next two decades (O’Dell 2001), while also maintaining the environmental quality and attractiveness of the eastern Georgian Bay landscapes, waterscapes, and amenities that draw the visitors. The other is to develop the service-based regional economy to sustain high quality eco-tourism in ways that also provide effective economic
opportunities for local communities and residents. This would also help counter the steep employment declines in the older resource extraction industries.

Local interest in sustainable eco-tourism is growing. This has been expressed through initiatives taken by the G’Nadjiwon Ki Aboriginal Tourism Association, by Georgian Bay and The Archipelago Townships, and by The GBA Foundation. It is supported by the Great Lakes Heritage Coast designation, and by the national parks policy that states: “cooperative arrangements for complementary use and management of lands adjacent to national parks will be pursued with government and non-government agencies at the local, provincial, territorial and federal levels in order to maintain ecosystem integrity and to foster sustainable development” (Parks Canada, 1994:1.4.9) as applied in this case through the greater park ecosystem perspective adopted by the Georgian Bay Islands National Park.

Programs underway to restore and maintain water quality and rehabilitate the fisheries in Georgian Bay (and the Great Lakes generally) are consistent with the expressed interest in eco-tourism. Support also comes indirectly through the management of provincially-owned Crown land forests in the proposed biosphere reserve by Westwind Forest Stewardship Inc. (1997) under the terms of the Ontario Crown Forests Sustainability Act (SO 1994 c. 25) and a certification awarded to Westwind in 2002 for meeting internationally established standards for good forest management.

**Current opportunities:**

There will be a number of opportunities to help realize regional eco-tourism strategies within the safeguards of environmental protection needed to sustain them. The entire Georgian Bay littoral area as identified for the proposed biosphere reserve could enhance its economic sustainability “by developing destination activity nodes, producing revenues from the operation of a resource management system, and discouraging the use of natural and uncommercialized intervening environs” (O’Dell 2001). The set of core areas and buffer zones within the proposed biosphere reserve go a long way towards protecting the valued landscapes and waterscapes. To this end, municipalities along the littoral are working together on both economic development and harmonized planning in order to respect the environmental imperatives. These are supplemented by concerted efforts from federal and provincial agencies, other associations and volunteers to restore and maintain water quality and fish habitats.
Rationale for a biosphere reserve designation:

As with conservation programs in the region, gaps exist with efforts to promote sustainable development in the proposed biosphere reserve area due to scale, institutional arrangements that keep land and water under separate jurisdictions, and lack of effective communication and cooperation. Programs reflect the jurisdictions of individual agencies and not ecological boundaries and, therefore, few initiatives focus at the scale of the entire eastern Georgian Bay littoral area. Initiatives tend to focus on water or land (but rarely consistently on both), at larger scales (such as the Great Lakes basin), or at smaller scales (such as individual municipalities).

Sustainable development is recognized by many stakeholders in the area as a priority and central to the long term vision of the region. There are opportunities for the development of sustainable tourism in association with careful protection of natural values. Community and partner participation is essential to capitalize on this. A goal of the proposed biosphere reserve is to provide a focus for these common values and to act as a mechanism to assist in the coordination and fulfillment of the sustainability objectives of these multiple programs.

3.3 "Logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development". (Indicate current or planned facilities.)

Significance:

The extensive network of protected areas within and adjacent to the proposed biosphere reserve also provides for unique opportunities related to logistic support. Parks Canada and the Ontario Ministry of Natural Resources (the governing agencies over the protected areas within the proposed biosphere reserve) each have programs which include scientific research, resource and ecological monitoring, and environmental education / heritage interpretation.

Under the US-Canada Great Lakes Water Quality Agreement (GLWQA), 1978, (IJC 1989) inter-governmental programs have been underway to restore and maintain the beneficial uses and values of the Great Lakes ecosystem. Under this Agreement, collaborative work was undertaken to implement a remedial action plan for Severn Sound at the south end of the
proposed biosphere reserve. A number of remedial projects for pollution control and habitat restoration have been completed and in October 2002, Severn Sound was officially de-listed as an “area of concern” in the Great Lakes. Community-based monitoring is continuing in Severn Sound to track its ecological restoration; it has also been introduced for the nearshore waters along eastern Georgian Bay to help detect early signs of environmental degradation. Other research and monitoring is directed towards restoration of the sports fishery, forest management and wildlife conservation.

Examples of recent or current activities include the following:

* ecological integrity monitoring at Georgian Bay Islands National Park and the development of an ecological monitoring strategy for Ontario provincial parks;

* rapid reconnaissance biological inventories for over 70 sites in the Georgian Bay Littoral conducted under the Ontario Ministry of Natural Resources/ Nature Conservancy of Canada/ Georgian Bay Land Trust Foundation joint venture in 2001 and 2002;

* monitoring local water quality conditions in 65 nearshore areas by volunteers affiliated with the Georgian Bay Association and a scientist affiliated with the Ontario Boating Forum;

* monitoring aquatic ecosystem recovery in Severn Sound under the Remedial Action Plan (Severn Sound Environmental Association);

* establishing forest biodiversity monitoring plots and transects to monitor forest health under the GBA Foundation and the Township of The Archipelago;

* heritage presentation and environmental education programs conducted by Georgian Bay Islands National Park, including an education program for local schools; and

* multi-agency education, research and monitoring efforts associated with Species-at-Risk programs such as the Recovery Plan for the Eastern Massasauga Rattlesnake (Eastern Massasauga Rattlesnake Recovery Team [www.massasauga.ca] and The Greater Georgian Bay Reptile Awareness Program [www.gbayreptiles.com]).
Current opportunities:

Besides work based in government agencies, there is a large research capacity within the 17 major universities in Ontario, most of which are within a three-to-four-hour drive to the Georgian Bay area. With contributions from government agencies, non-government organizations, consultants and universities, considerable work related to the logistic functions of a biosphere reserve has been completed, is currently on-going, or is planned within the proposed biosphere reserve area (Please see Section 15 for more details).

The GBA Foundation, a local charitable non-government organization, is very active in adding to the capacity of the region to undertake research, monitoring, inventory and education initiatives related to conservation and sustainable development. The Foundation hosts conferences to promote information sharing among stakeholders. Among recent topics have been conferences on issues associated with dredging, waste discharges from boats, and the impacts of aquaculture, a workshop on water levels (2003), and training sessions for volunteer environmental monitoring. The GBA Foundation also funds research and monitoring projects related to water and land quality, and it acquires necessary environmental data to better inform planning decisions on sustainable use issues.

The Georgian Bay Association, for its part, makes use of the research for lobbying, and it disseminates the research results at its annual conferences and through its publications and its website. As a whole, activities of these many organizations provide a substantial capacity to support and undertake demonstration projects, training, education, research, monitoring and communications in the region associated with conservation and sustainable development.

Rationale for a biosphere reserve designation:

Logistic support being provided is mainly for activities carried out more at local or site levels than at regional scales, and few focus on the interrelationships between conservation and sustainable development. Some localized inventory / research / monitoring activities are not widely known to other organizations in the area. Data sharing is often difficult, with multiple stakeholders having to negotiate separate data sharing agreements for the same information. The proposed biosphere reserve will improve communication among stakeholders for more effective communication on education, research, monitoring, inventory, and data management.
initiatives. The proponent has recently acquired the high resolution IKONOS satellite imagery for the entire area of the proposed biosphere reserve and this is now being used by universities and others for research and monitoring in the area.

In 1998, the GBA Foundation created the “Georgian Bay Biosphere Reserve, Incorporated” (GBBR Inc.) as a separate legal body that will bring together stakeholders to address these questions. This was done as a first step towards developing the new organization’s role as the coordinating body for the proposed biosphere reserve. In February 2004, nine Directors including four Officers were appointed for this corporation in anticipation of a favourable decision on this nomination submission.

4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE

[Article 4 of the Statutory Framework presents 7 general criteria for an area to be qualified for designation as a biosphere reserve which are given in order below.]

4.1. "Encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human intervention"

(The term "mosaic" refers to a diversity of natural habitats and land cover types derived from human uses such as fields, managed forests, etc. The term "major biogeographic region" is not strictly defined but it
would be useful to refer to the map of the "World Network of Biosphere Reserves" which presents 12 major ecosystem types at a global scale).

The proposed biosphere reserve is located within the “Boreal Needleleaf Forests or Woodlands” (UNESCO major ecosystem types 1996), and mainly within the Algonquin-Lake Nipissing ecoregion of the Canadian Boreal Shield ecozone (Canadian Ecological Land Classification). This ecoregion is described as having a humid high cool temperate ecoclimate. The dominant vegetation is mixedwood forest of sugar maple (*Acer saccharum*), silver birch (*Betula alleghaniensis*), eastern hemlock (*Tsuga canadensis*), and eastern white pine (*Pinus strobus*) with American beech (*Fagus grandifolia*) appearing on warmer sites. Dry sites are dominated by red pine (*Pinus resinosa*) and red oak (*Quercus rubra*). Wetter sites support red maple (*Acer rubrum*), black ash (*Fraxinus nigra*), white spruce (*Picea glauca*), black spruce (*P. mariana*), tamarack (*Larix laricina*), and eastern white cedar (*Thuja occidentalis*). The ecoregion is underlain by the massive, crystalline, acidic, Archean bedrock of the Canadian Shield that forms broad, sloping uplands and lowlands. Strongly glaciated, it is characterized by ridged to hummocky rock outcrops covered with discontinuous acidic morainal tills, and significant areas of coarse, fluvioglacial, and lacustrine deposits.

The aquatic portions of the proposed biosphere reserve represent the Lake Huron, Georgian Bay portion of the Great Lakes aquatic natural region. Fish associations nearshore are dominated by warm-water species, such as walleye/pickerel (*Stizostedion vitreum*), yellow perch (*Perca flavescens*), smallmouth bass (*Micropterus dolomieui*), largemouth bass (*Micropterus salmoides*), northern pike (*Esox lucius*), and muskellunge (*Esox masquinongy*). Offshore cold-water species such as lake whitefish (*Coregonus clupeaformis*) and lake trout (*Salvelinus namaycush*) are also present. Georgian Bay was the last Great Lakes refuge of the shortnose cisco (*Coregonus reighardi*), an extirpated species once common throughout these lakes. The southern part of the region also has a particularly rich amphibian and reptile fauna; the 33 species which occur there represent about 40% of the total species of herpetofauna in Canada. Ring-billed gulls (*Larus delawarensis*), herring gulls (*Larus argentatus*) and double-crested cormorants (*Phalacrocorax auritus*) are the most common colonial birds in the region, and they occur with lesser numbers of great blue herons (*Ardea herodias*), common terns (*Sterna hirundo*), and Caspian terns (*Sterna caspia*). Migrating waterfowl use the east shore of Georgian Bay as a staging area, but few overwinter.
The area of the proposed biosphere reserve is comprised of open water, wetlands, sparse conifer forest, mixed forest and exposed bedrock outcrops. This variety of geology and land cover types is displayed in Map 6 (Surficial Material), Map 7 (Land Cover) and Map 10 (Regional and Local Habitat Types). The proposed biosphere reserve and its surrounding landscape also represent a dramatic gradation of human intervention. This gradation is evident by the spatial distribution of road and human population densities throughout the region. Please see Map 4 (Regional Road Network), and Map 8 (Human Population Density).

Expansion of urban development in the south and cottage development in the Muskoka region to the east has created a significant human-dominated landscape, but the human influences decrease considerably within the Georgian Bay littoral area. Relatively low levels of development combined with the set of protected areas constituting the core areas and buffer zones of the proposed biosphere reserve provide for a rich mosaic of ecosystems and habitats in an extensive landscape corridor with considerable interconnectedness.

4.2 "Be of significance for biological diversity conservation".

(This should refer not only to the numbers of endemic species, or rare and endangered species at the local, regional or global levels, but also to species of globally economic importance, rare habitat types or unique land use practices (for example traditional grazing or artisanal fishing) favouring the conservation of biological diversity. Give only a general indication here.)

Biological inventories at varying levels of detail for over 70 selected sites within the proposed biosphere reserve were carried out in 2001 and 2002 under a joint venture of the Ontario Ministry of Natural Resources, Nature Conservancy of Canada, and the Georgian Bay Land Trust Foundation. Field staff identified 148 distinctive habitat / vegetation types of which 35 are considered to be rare in Ontario. The eastern Georgian Bay area also has a number of species of animals and plants designated as vulnerable, threatened or endangered at either the global, national or provincial scale. Databases managed by ONHIC, supplemented by the field work in 2001 and 2002, identify 17 species of birds, five species of fish, eight species of reptiles, 16 species of invertebrates, and 55 species of plants in these “species at risk” categories among the biota within the proposed biosphere reserve. [Please see Section 13.2 for further details].
Map 9 (Species at Risk Occurrences) displays the distribution of these occurrences within the proposed biosphere reserve area. Additional field studies will eventually add to, or refine knowledge about the biological diversity found there.

4.3 "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale".

(Describe in general terms the potential of the area to serve as a pilot site for promoting the sustainable development of its region (or "eco-region")

The proposed biosphere reserve offers considerable opportunity to explore approaches for sustainable development, especially to demonstrate high quality water-oriented eco-tourism made possible by the landscapes and waterscapes secured by federal and provincial protected areas. The proposed biosphere reserve also includes portions of two “Enhanced Management Areas” (IUCN class VIII protected areas) within the transition area. Their function is to help promote sustainable resource use practices for the Great Lakes’ coastal areas (Government of Ontario, 1999:26). Research and monitoring programs developed to track this range of human uses could provide feedback needed for improving management practices. Private stewardship also has a major role to play in environmental protection and sustainable use of renewable resources.

Examples of stewardship initiatives undertaken by governments and others include:

* plans and feasibility studies for developing destination tours by water and/or road, combined with ‘loop’ tours based around the different destination locations or ports of call and their facilities along the Georgian Bay littoral region;

* sustainable forest management of Crown (government-owned) lands by Westwind Forest Stewardship Inc. in accordance with international standards for good forest management certified by the international Forest Stewardship Council system;

* successful implementation of a multi-stakeholder remedial action plan restoring the beneficial water uses of Severn Sound (under the terms of the US-Canada Great Lakes Water Quality Agreement);
* collaborative studies under the Georgian Bay initiative of the Ontario Ministry of Natural Resources, Lake Huron Fisheries Management Unit, relating to the rehabilitation of the fisheries, as well as complementary work by the Anishinabek-Ontario Fisheries Resource Centre and the Eastern Georgian Bay/North Channel Fisheries Stewardship Council; and

* development of aboriginal tourism business opportunities in the eastern Georgian Bay region in part through the G’Nadjiwon Ki Aboriginal Tourism Association.

4.4 "Have an appropriate size to serve the three functions of biosphere reserves"
(This refers more particularly to (a) the surface area required to meet the long term conservation objectives of the core area(s) and the buffer zone(s) and (b) the availability of areas suitable for working with local communities in testing out and demonstrating sustainable uses of natural resources.)

The national and provincial parks that make up the core areas total approximately 525 km$^2$ and the provincial conservation reserves that comprise the buffer zones total approximately 396 km$^2$. Together, these areas represent 44% of the entire land base of the proposed biosphere reserve. Provincial “enhanced management areas” within the transition zone are to be managed to promote multiple use on a sustainable basis. Lands assigned to the First Nations aboriginal people as official “Indian Reserves” add an additional 504 km$^2$ or 24% of the land base. These areas are managed in a way that explicitly supports biosphere reserve functions of conservation, sustainable development and logistic support. Other areas within the proposed biosphere reserve (i.e., private lands under stewardship, municipal zoning) also contribute to these functions. Please see Map 2 (Proposed Biosphere Reserve Configuration).

In relation to long term conservation objectives, the protected areas are contiguous and form a reserve network along the eastern Georgian Bay littoral area. In terms of “availability of areas suitable for working with local communities in testing out and demonstrating sustainable uses of natural resources”, core areas are of sufficient size and are buffered such that they can serve as effective reference sites in studies assessing sustainable development strategies in the transition zone, particularly in provincial enhanced management areas. The unique combination brings together:

* an extensive protected areas network;
* gradations of human use and activity throughout the region;

* enhanced management areas for sustainable resource use;

* the desire of municipalities and First Nations communities to develop sustainable eco-tourism services;

* active non-governmental organizations who are supportive of the intent of biosphere reserves

* growing interest in private land stewardship;

* government agencies managing renewable resources through partnerships (e.g. the Westwind Stewardship Inc. for forest resources, and the Georgian Bay initiative by the Ontario Ministry of Natural Resources for restoration of sports fisheries);

* knowledge and logistic support from several universities in Ontario.

Together, this presents an exemplary opportunity to test out and demonstrate sustainable use strategies. This type of opportunity exists in few places across the country.

4.5 Through appropriate zonation:

"(a) a legally constituted core area or areas devoted to long term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives”. *(Describe the core area(s) briefly, indicating their legal status, their size, the main conservation objectives)*

**Georgian Bay Islands National Park** (1,263.03ha) - IUCN Class II.

Administered by the Canadian Parks Agency (S.C. 1998 c. 31) under the National Parks Act (S.C. 2000 c. 32 ) and Park Canada’s Guiding Principle and Operational Policies (1994).

This park includes 59 islands or parts of them along 83 km of the Georgian Bay east shore. The main management objective, as for all Canadian national parks is: “Maintenance or restoration of ecological integrity, through the protection of natural resources and natural
processes, shall be the first priority of the Minister when considering all aspects of the management of parks.” (S.C. 2000: 8.2). “Ecological integrity’ means, with respect to a park, a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes”. (S.C. 2000 c. 32:2.1). These objectives have been incorporated into the 1999 management plan for the park (Please see Appendix 5).

French River Provincial Park (35,571.88 ha of which 19,696.10 ha was added in 1999 through Ontario’s Living Legacy). Waterway Class Provincial Park - IUCN Class II. Also a designated Canadian Heritage River, 1986.

Administered by the Ontario Ministry of Natural Resources under the Provincial Parks Act (R.S.O. 1990 c. P-34). Waterway class provincial parks represent sites and selected river corridor features that are not generally found within other park classes. Management priorities focus on maintaining low intensity recreational use of the rivers and conservation of riverine systems. The French River Provincial Park extends along the 110 km river and lakes system from Lake Nipissing to Georgian Bay; its extensive delta is included within the proposed biosphere reserve.

Killbear Provincial Park (1,055.18 ha) and Massasauga Provincial Park (13,781.17 ha of which 746.11ha was added in 1999 through Ontario’s Living Legacy). Natural Environment Class Provincial Parks - IUCN Class II.

Administered by the Ontario Ministry of Natural Resources under the Provincial Parks Act (R.S.O. 1990 c. P-34). Natural Environment class parks protect landscapes and special features of the particular natural region in which they are located, while providing ample opportunities for activities such as swimming and camping. Natural Environment Parks are selected to protect large, representative, and ecologically viable areas throughout Ontario. They represent elements of geological, ecological, and species diversity commonly found within a site region, but not contained within other large parks or protected areas. (Please see management plans, Appendix 5).

O’Donnell Point Provincial Nature Reserve (802.09 ha) and Limestone Islands Provincial Nature Reserve (35.48 ha). Nature Reserve Class Provincial Park - IUCN Class I.
Administered by the Ontario Ministry of Natural Resources under the Provincial Parks Act (R.S.O. 1990 c. P-34). Nature Reserve Parks and zones are established to represent and protect Ontario’s geological, ecological, and species diversity. They are protected for educational and research purposes. Due to the fragility of many of these natural features, access to the public is restricted.

"(b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place..."

(Describe briefly the buffer zones(s), their legal status, their size, and the activities which are ongoing and planned there).

The buffer zone is composed of 14 Conservation Reserves administered by the Ontario Ministry of Natural Resources under the Public Lands Act (R.S.O. 1990 c. P-43). Conservation Reserves are: “designated...with the purpose of protecting natural heritage areas and features on public land, and preserving traditional public land uses such as wildlife viewing, hunting, fishing, walking, snowshoeing, cross-country skiing and boating. Land within a Conservation Reserve shall not be used for mining, commercial forest harvest, hydroelectric power development, extraction of aggregate and peat or other industrial uses” (Ontario Reg 805/94).

Policies differ slightly for Conservation Reserves designated under Ontario’s Living Legacy land use strategy in 1999; the latter provides under certain circumstances for mineral exploration and access roads, land swaps to permit mining development where warranted, and some up-grades in tenure arrangements for established tourism facilities. Five of these are noted with an asterisk (*) in the list below, and are being determined on a case-by-case basis in consultations underway to make final boundary determinations. (As of July 2003, mining and the exchange of lands have been ruled out for these areas and eight of the 14 Conservation Reserves have been officially regulated under the Ontario Public Lands Act).

<table>
<thead>
<tr>
<th>Conservation Reserves as the Buffer Zone</th>
<th>Size (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognashene Lake *</td>
<td>3,205.27</td>
</tr>
<tr>
<td>Cognashene Point</td>
<td>51.62</td>
</tr>
<tr>
<td>Crane Lake Forest</td>
<td>346.51</td>
</tr>
<tr>
<td>Franklin Islands White Pine Forest</td>
<td>885.87</td>
</tr>
<tr>
<td>Gibson River</td>
<td>220.75</td>
</tr>
</tbody>
</table>
While the buffer zone is deemed to be these conservation reserves, the ecological values in the proposed biosphere reserve are further buffered by extensive unused and inaccessible lands inland from the Georgian Bay shore. It is also expected that the buffer zones will be enlarged in the future through the addition of private lands under stewardship and additions of some provincial Areas of Natural and Scientific Interest (ANSIs) to the protected area system under the conservation reserve category.

"(c) an outer transition area where sustainable resource management practices are promoted and developed"

(The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather is changing in size according to the problems that arise over time. Describe briefly the transition area as envisaged at the time of nomination, the types of questions to be addressed there in the near and the longer terms. The size should be given only as an indication).

The proposed transition area (or area of cooperation) is a mix of provincially-owned Crown lands, provincial enhanced management areas (EMAs), private lands, official Indian Reserves, and open water. The approximate extent of this is about 92,019 ha of land and 140,980 ha of water. (Please see Map 2 and Section 7.4 for a description of these). The use of private lands is subject to official policy plans and regulations of municipalities.

The Crown lands within the area have been incorporated into a much larger French/Severn Forest managed by Westwinds Stewardship Inc. in consultation with various stakeholders. Portions of two provincial EMAs designated in 1999 occur within the transition area: the Great Lakes Coastal EMA (17,297 ha) will be managed to protect its outstanding
beauty and sensitive ecosystems, and to promote recreation and tourism potential, while the
North Parry Sound Area EMA (10,942 ha) is to be managed in ways that retain its semi-remote
recreational values, forest management and other resource management activities, local
cultural/historical values and provincially important hunting (deer) opportunities.

Six official Indian Reserves lie wholly or partly within the transition area. They are
administered in cooperation with First Nations communities by the federal Department of Indian
Affairs and Northern Development under the Indian Act (R.S.C. 1985 c. 1-5) and, if First Nations
so request, under the terms of a framework agreement enacted by the First Nations Land
Management Act (S.C. 1999 c. 24).

The jurisdictional responsibilities for the open waters of Georgian Bay are somewhat
ambiguous and depend mostly on the uses being made of the water by different user groups for
boating and fisheries. Navigation and shipping come under federal jurisdiction (Canada
Shipping Act, R.S.C. 1985 c. S-9). Efforts have been made by user groups themselves to clarify
this jurisdictional dilemma and establish codes of practice, for example, the Georgian Bay
Boaters and Cottagers Code (2002). The proponents of this proposed biosphere reserve intend
to investigate these questions further.

The types of management questions about the transition area will likely relate to
adopting more comprehensive approaches for planning of water and land based resources and
the sustainable use of the littoral zone. Examples of these types of questions include:

* How are patterns and trends of human use (i.e., boating, cottage development, road
devolution, angling, resource use, tourism) affecting the long term ecological and economic
viability of the region?

* How can policies regulating water and land use be better integrated at the scale of the
eastern Georgian Bay littoral area in a way that provides for ecosystem health and economic
viability?

* How can the unique character of water-access-only communities be conserved?
* How can opportunities for the development of eco-tourism be pursued in ways that are environmentally sustainable?

* How can data, information and knowledge about the natural, social and cultural environment of the proposed biosphere reserve be more effectively shared and applied to decision-making among the various stakeholders?

4.6 "Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve. (Are such arrangements in place or foreseen?)

As noted, a non-governmental organization called the “Georgian Bay Biosphere Reserve Incorporated” (GBBR inc.) was legally established in 1998. The bond that binds all the Board members is an emotional attachment to Georgian Bay and a common belief that it must be protected. The corporation has no regulatory power, rather, it provides a forum leading to consensus. It also provides linkages to area-wide information and databases for use by various groups and decision-makers throughout the area of the proposed biosphere reserve. Another purpose is to help coordinate, where possible, initiatives on conservation, sustainable development and logistic support; facilitate activities related to project funding; and promote consideration of biosphere reserve objectives in planning decisions. Directors and Officers of this corporation are a core group who, as individuals, are affiliated in various ways with the range of primary stakeholders within the proposed biosphere reserve area.

Special advisory groups or task forces will be convened by the GBBR Inc. as necessary. These will draw upon a broader representation of people who together will be knowledgeable about various biosphere reserve-related activities of organizations in and around the biosphere reserve and will provide a lead role at the projects level. Other arrangements to foster involvement and participation of a range of stakeholders include annual conferences, workshops and dissemination of information from a proposed Website for the biosphere reserve.
4.7 Mechanisms for implementation

(This refers to the administrative mechanisms, which often are determined at the national level.)

Most mechanisms for implementation already exist (i.e., national and provincial park programs, forest management on Crown lands, protection of water quality and fish habitat in Georgian Bay). The GBBR Inc. will work with these mechanisms whenever possible. This would help improve integration or communications with other initiatives throughout the eastern Georgian Bay area (such as improving the integration between land use and water use management plans along the Georgian Bay littoral) and facilitate more public awareness and understanding about what is being done. The mechanisms noted below, therefore, are already in place and exist independently of the nomination.

Does the proposed biosphere reserve have:

"(a) mechanisms to manage human use and activities in the buffer zone or zones"?

Yes.

Buffer zones are the provincial Conservation Reserves within the proposed biosphere reserve. Human use and activities within these areas are governed by the policy and procedures for Conservation Reserves (Ontario Ministry of Natural Resources 1997) and Ontario’s Living Legacy (Government of Ontario 1999). Some of these reserves will function ecologically like “core areas”.

"(b) a management plan or policy for the area as a biosphere reserve"?

Planned, to give direction to the GBBR Inc.

Initial steps for the development of a management plan for the area as a biosphere reserve began with the expression of a new vision for the eastern Georgian Bay littoral region (GBA Foundation, 1998). This vision included four broad components to realize it: an economic development plan (based on sustainable tourism); an ecosystem management plan (that, among other things, attempts to better integrate land and water conservation initiatives); consolidating information for improved decision making among stakeholders; and communication mechanisms for widening stakeholder involvement in biosphere reserve-related activities.
Initiatives have been taken to develop these further. Examples include:

* development of a “smart growth” strategic plan to identify sustainable tourism opportunities in the biosphere reserve area (this is based on a consultant’s study funded by the GBA Foundation in 2001);

* consolidation of natural heritage information along with support for additional field inventories for use in ecosystem / biodiversity conservation and management planning (much of this information was pulled together for preparing this nomination submission); and

* creation of Web sites to improve communications and information sharing, for example, the GBA Foundation (www.georgianbay.ca/gbafoundation).

These initiatives complement and build upon the basic elements of a plan for the biosphere reserve that already exist. Over 80% of the land base is Crown (state-owned) property which has designations and land use prescriptions, and a further 10% is private land subject to provisions in municipal official land use plans. In addition, harmonized planning among the coastal municipalities should strengthen environmentally-sensitive development for the entire area (Please see Appendix 7).

A biosphere reserve designation will provide more focus and higher international profile that will facilitate the further development of these initiatives. The approach to this will be similar to the cooperation plans that have been prepared on a collaborative basis in most other Canadian biosphere reserves. [Please see Appendix 1: A Cooperation Plan for the Georgian Bay Littoral Biosphere Reserve].

"(c) a designated authority or mechanism to implement this policy or plan” ?

Implementation will be through existing institutional arrangements, jurisdictions, and policies (which remain unchanged following designation). Overall coordination of biosphere reserve initiatives will be fostered through the Georgian Bay Biosphere Reserve Inc.
(d) programmes for research, monitoring, education and training”?

(Describe briefly research/activities monitoring (ongoing or planned) as well education and training activities)

The main themes for current field work, research and/or monitoring include:

* elaboration of “smart growth” eco-tourism strategies;

* assessment of spawning and recruitment success for selected fish stocks in the littoral near-shore areas;

* water quality monitoring at selected sites along the coast;

* monitoring the restoration of beneficial uses of waters in the Severn Sound following implementation of a comprehensive remedial action plan;

* initiation of new monitoring programs to assess forest biodiversity and forest health;

* biotic inventories for the newly designated conservation reserves, outlying islands, and other sites along the littoral zone of the proposed biosphere reserve;

* “core and corridor” analyses at the landscape scale to develop conservation priorities for the Georgian Bay Islands National Park and surrounding areas;

* design and testing of sampling protocols to assess ecological integrity in parks and protected areas; and

* development of landscape scale habitat models for selected species at risk.

Please see Section 15 for further details.

Public information and education activities are provided through well-developed interpretive programs in the Georgian Bay Islands National Park and Killbear Provincial Park; Parks Canada has prepared information packages for use in public schools in the southeast Georgian Bay area. The Georgian Bay Association and the GBA Foundation share a regular -
newsletter with informative features about topics the proposed biosphere reserve would also address, as well as information about the progress in developing this nomination submission. In 2000, the GBA Foundation and the Georgian Bay Association also produced a popular video presentation on “Georgian Bay: An Ecologist’s View” featuring a well-known aquatic ecologist. (Please see Appendix 4).

There is considerable potential for developing biosphere reserve functions in cooperation with other organized groups or networks in Ontario, including for example, university-based research networks, government-led research programs on water quality, fisheries and forestry, various eco-tourism initiatives from local municipalities and business groups, and links with educators such as the Council of Outdoor Educators of Ontario, 1969.

5. ENDORSEMENTS

[Note: Please see the attached letters and resolutions]
5.1 On behalf of the Minister of Natural Resources, Province of Ontario, the Hon. David Ramsay. Authority in charge of provincial core areas, buffer zones and Crown lands.
Participation by First Nation communities will be essential to ensure the future success of resource conservation and sustainable resource development within the biosphere. I applaud the inclusion of Aboriginal members on the biosphere reserve board, as well as your efforts and those of the G'Nadjiwon Ki Aboriginal Tourism Association in initiating consultations on the biosphere with local Aboriginal communities. It is my understanding that, while these important consultations are ongoing, there appears to be support for the biosphere reserve concept. I encourage the continuation of these consultations to ensure the participation of the Aboriginal community.

The Georgian Bay Littoral Biosphere provides an excellent mechanism to help us move forward with the protection of the coast and the careful use of its resources. The biosphere will be effective in contributing to our collective vision for the coast. The eastern Georgian Bay communities, stakeholders and government working co-operatively and in partnership to protect the high-quality natural environment and wild coastal landscape of Georgian Bay will contribute to healthy and vibrant coastal communities through eco-tourism.

In addition to this letter of support, I have enclosed the signed Endorsement Section, which will form part of your submission to UNESCO.

The Ministry of Natural Resources welcomes the creation of a fourth biosphere reserve in the province and is looking forward to continuing and improving its close working relationship with the Georgian Bay community.

Sincerely,

Hon. David Ramsay
Minister

Enclosure

C: Norm Miller, MPP, Muskoka-Parry Sound
   Andy Mitchell, MP, Muskoka-Parry Sound
   Premier Dalton McGuinty
5.2 On behalf of the federal and provincial members of Parliament for the electoral riding of Parry Sound-Muskoka. The proposed biosphere reserve is within this riding.

The Hon. Andy Mitchell, Member of Parliament, Canada, and Minister of Indian Affairs and Northern Development.

Mr. Norm Miller, Member of the Provincial Parliament, Ontario.
5.3 On behalf of Parks Canada. Mr. Gary McMillan, Superintendent, Georgian Bay Islands National Park. Authority in charge of the federal core area.
April 21, 2004

Patrick Northey, Director
G.B.A. Foundation
37 Woodland Ave. West,
Toronto, ON
M4V 1G6

Dear Mr. Northey,

On behalf of Parks Canada, it is my pleasure to offer this letter supporting the nomination of the Georgian Bay Littoral Biosphere Reserve for UNESCO Biosphere Reserve designation. As you are aware, Georgian Bay Islands National Park serves as a core protected portion of the Greater Georgian Bay ecosystem, and we share a commitment for the protection and commemoration of our natural environment and cultural resources with a wide variety of partners and stakeholders in the area.

With a total land area of less than 13 km², Georgian Bay Islands NP cannot protect entire ecosystems. Co-operative management is essential, and while growth is inevitable, the Biosphere Reserve would advance an integrated approach to land management in the area, establishing a framework for conservation which complements the economic and social benefits of on-going development.

Stated co-operative management can only be attained when stakeholder groups have been consulted and are offering clear support. To this end, it is essential that proponents of the Biosphere Reserve engage regional and local government as well as affected First Nations, and that this engagement continues throughout the nomination process.

Sincerely

Gary McMillan, Superintendent
Georgian Bay Islands National Park of Canada
5.4 On behalf of the MAB National Committee. Dr. E.F. Roots, Chair of Canada MAB, and Scientist Advisor Emeritus, Environment Canada.

5.5 On behalf of the elected Town and Township Councils with jurisdiction in the proposed biosphere reserve.

Town of Parry Sound;
Township of The Archipelago;
Georgian Bay Township;
Carling Township;
McDougal Township;
Seguin Township.

FILE D03 (BIO)

April 23, 2004

Mr. Pat Northey
GBA Foundation
37 Woodlawn Ave. West
Toronto, Ontario
M4V 1G6

Dear Mr. Northey:

Re: U.N.E.S.C.O. Biosphere Reserve

Pursuant to your e-mail request of Mayor Knight, the issue of the nomination of east Georgian Bay as a U.N.E.S.C.O. Biosphere Reserve was considered by Town Council at their regular meeting April 20, 2004. The attached resolution was passed in satisfaction of your request and in support of the nomination.

We ask that you and your Biosphere Reserve Committee keep us informed as to the progress of this initiative and the development of policies related to the Reserve’s management.

Yours truly,

[Signature]

Iain Laing, M.C.I.P.
Director of Community Development

Encl.

cc: Mayor Knight
CORPORATION OF THE TOWN OF PARRY SOUND

RESOLUTION IN COUNCIL
NO: 2004 - 114

DIVISION LIST  YES  NO  DATE: April 20, 2004
Councillor R. ADAMS  ____  ____  MOVED BY:
Councillor MCCULEY  ____  ____
Councillor P. BORNEMAN  ____  ____
Councillor J. MCGARVEY  ____  ____  SECONDED BY:
Councillor R. MCHIRTER  ____  ____
Councillor C. VAN DER VALK  ____  ____
Mayor T. KNIGHT  ____  ____
CARRIED:  /  DEFEATED:

WHEREAS UNESCO designated Biosphere Reserves play a significant role in the international Man and the Biosphere Program by acting as international showcases and practical demonstration sites for promoting ways in which conservation and sustainable development can work in harmony; and

WHEREAS Biosphere Reserve designation will provide a supportive framework for conservation as well as foster a wide range of economic and social benefits in ongoing local development; and

WHEREAS the Biosphere Reserve concept is flexible, inclusive and community based; and

THAT “Biosphere Reserve” does not mean “reserved”;

THEREFORE BE IT RESOLVED THAT the Town of Parry Sound supports the GBA Foundation and Georgian Bay Biosphere Reserve Incorporated’s invitation to UNESCO to formally designate the area as a Biosphere Reserve and that local stakeholders work together in support of this designation effort.

[Signature]
MAYOR
Patrick Northey  
37 Woodlawn Ave, W  
Toronto, ON  
M4V 1G6  

April 23, 2004

Dear Mr. Northey,

Please find enclosed with this e-mail a copy of the Township of The Archipelago’s resolution in support of the UNESCO Biosphere Reserve application for Eastern Georgian Bay. Should you have any additional supporting literature please do not hesitate to contact our office.

Regards,

[Signature]

Greg Mason  
Planning/Environmental Technician  
(705)746-4243 x 321
WHEREAS UNESCO has designated some 400 sites in 94 countries as World Biosphere Reserves in order to draw attention to an area that is ecologically significant and show how it can coexist with human and economic development; and

WHEREAS the GBA Foundation has undertaken and completed the extensive research necessary to prepare an application to UNESCO to have the coastal area from Port Severn to Key River declared the Georgian Bay Littoral Biosphere Reserve; and

WHEREAS that application contains the detailed action plan required, consisting of

a) a sustainable economic development plan;
b) an ecosystem management plan to conserve important biological resources;
c) a communication strategy for involving all stakeholders;
d) a network to support environmental research and monitoring; and

WHEREAS the principles embraced by that application blend with those of the Harmonized Planning strategy that this Township has initiated with other townships bordering on Eastern Georgian Bay; and

WHEREAS the actions of a biosphere reserve are based on consensus building among all the stakeholders and so the proposed biosphere reserve will not interfere with but rather lend support to the legislative duties of municipalities along the coast of Eastern Georgian Bay; and

WHEREAS letters of endorsement from stakeholder groups are an important part of the application to UNESCO;

THEREFORE BE IT RESOLVED that the Township of The Archipelago endorse the application of the GBA Foundation to UNESCO to have the coastal area of Georgian Bay from Port Severn to Key River declared a World Biosphere Reserve.
March 15, 2004

GBA Foundation
37 Woodlawn Avenue West
Toronto, ON M4V 1G6

Attention: Mr. Patrick Northey

Dear Mr. Northey:

Re: Biosphere Reserve Resolution

Please be advised that the above-noted matter was included on the Council Agenda of March 1, 2004, whereas the Council of the Township of Georgian Bay subsequently passed the following motion in support of the initiatives of the UNESCO Biosphere Reserve:

C-66-2004
WHEREAS UNESCO designated Biosphere Reserves play a significant role in the International Man and the Biosphere Program by acting as international showcases and practical demonstration sites for promoting ways in which conservation and sustainable development can work in harmony;
AND WHEREAS Biosphere Reserve designation will provide a supportive framework for conservation as well as foster a wide range of economic and social benefits in ongoing local development;
AND WHEREAS the Biosphere Reserve concept is flexible, inclusive, and community-based;
AND that “Biosphere Reserve” does NOT mean “reserved”;
AND since designation does not inhibit responsible land uses and host regions derive multiple benefits from the UNESCO biosphere reserve designation without any new regulatory requirements or rules for property owners.
NOW THEREFORE BE IT RESOLVED THAT the Township of Georgian Bay supports the GBA Foundations invitation to UNESCO to formally designate the area as a Biosphere Reserve and that local stakeholders work together in support of this designation effort;
AND FURTHER BE IT RESOLVED THAT the Township of Georgian Bay shall provide a formal letter of support for UNESCO Biosphere Reserve designation of the Georgian Bay Littoral Biosphere Reserve for inclusion in the application package.
CARRIED

Should you require further information or clarification please do not hesitate to contact the undersigned.

Sincerely,

[Signature]

Christine Koltsnak
Deputy Clerk

/cLk
April 20, 2004

Georgian Bay Foundation
48 Lesmill Road
Toronto, ON M3B 2T5

Attention: Patrick Northey

Dear Mr. Northey:

Re: Georgian Bay Littoral Biosphere Reserve

This is to advise you that Carling Township Council has enacted the following resolution:

Stark-Crookshank That Carling Township Council support an application for UNESCO Biosphere Reserve designation for the Eastern Coast of Georgian Bay, from Port Severn to Key River.
For: Harrison, Stark, Konoval Against: Crookshank Absent: Crawford
134 – 2004 Resolution Carried

If you require additional information, please contact me.

Yours truly,

Susan Murphy
Clerk Administrator
DATE: April 27, 2004
TO: Pat Northey, Georgian Bay Littoral Biosphere Reserve Inc.
    c/o Georgian Bay Association Foundation
    Jim Hanna, Georgian Bay Marketing
RE: Designation of Biosphere Reserves
FAX NO.: 416-962-7444, 746-4435
FROM: Craig Jeffery, Acting Clerk (Snr by Jackie Boggs)
# OF PAGES: (INCLUDING COVER) 2

PLEASE NOTE:
This transmission is intended only for the person to whom it is addressed. It should not be used, read by or delivered to anyone else. It may contain privileged or confidential information, the disclosure or unauthorized use of which may be a breach of law or an infringement of the legal rights of third parties. If this transmission has been received by you in error, please contact us immediately by telephone at (705) 732-4300.

MESSAGE:

At the Township of Seguin Planning Meeting, held April 26, 2004, Council passed the attached resolution providing their support to the GBA's invitation to UNESCO to formally designate the Georgian Bay Littoral area as a Biosphere Reserve.

Sincerely,

Craig Jeffery
Acting Clerk

CJ/jb

Attachment
5.6 On behalf of the Aboriginal communities. Mr. Jack Contin, Executive Director, G'Nadjiwan Ki, and Vice-President, Georgian Bay Biosphere Reserve Inc.
April 29, 2004

Patrick Northey
President
Georgian Bay Littoral Biosphere Reserve Nominating Committee
37 Woodlawn Avenue West
Toronto Ontario
M47 1G6

Dear Patrick Northey,

Re: Support for the Georgian Bay Littoral Biosphere Reserve

I am very pleased to inform you that Michael Chomyshyn and myself as Board Members of Georgian Bay Biosphere Reserve Inc. (BR Inc.) are pleased to report that former Chief Joyce Tabobondung will be joining at the next board meeting with the intent of becoming a member. Both Mike and I are strongly supportive of the Board's motion to seek Biosphere Reserve status for our area.

G'Nadjiwon Ki Aboriginal Tourism Association, which consists of representatives from the Aboriginal community supports my role with the BR Inc. of being a liaison for the First Nations communities. We support the motion for the Biosphere Reserve and the aspect of sustainable tourism and the protection mandate of the Biosphere process. Our role is to become actively involved with strategic planning process while ensuring Aboriginal inclusion in all planning processes.

In order to gauge the grass roots support from First Nations in the area of the Biosphere Reserve, G'Nadjiwon Ki Aboriginal Tourism Association has formed an Aboriginal Group comprised of the mentioned individuals. As a group, we created the process, which is attached as an Appendix. They all understand that BR Inc. has no regulatory powers over them or any other group or government institution. Those that we have
talked to understand that we are all at the beginning of an evolution and that an invitation has been extended to First Nations to become involved with the Aboriginal Working Group. We are committed to continuing the process of communicating with them as BR Inc. evolves.

During the month of March, we:

- Made presentations to Six Chiefs in the Biosphere Reserve area.
- Attended a large meeting at Deerhurst Lodge, which included all the First Nation representative.
- Presentations were conducted to:

  Wasauksing First Nation
  Magnetawan First Nation

Although the communication process is on-going, we will be arranging meetings with the other First Nations in the upcoming weeks.

I would like to extend our greatest appreciation for including G’Nadjiwon Ki Aboriginal Tourism Association into the Georgian Bay Littoral Biosphere Reserve nomination process.

Migwetch for your support,

Sincerely, yours,

Jack Contin
Executive Director
Nature Conservancy of Canada
World Wildlife Fund (Canada)
Federation of Ontario Naturalists (Ontario Nature)
Mr. Pat Northey  
Chair, Georgian Bay Littoral Biosphere Reserve Nominating Committee  
37 Woodlawn Avenue West  
Toronto, Ontario M4V 1G6

Dear Mr. Northey:

Over the past two field seasons, the Nature Conservancy of Canada (NCC) has led an ecological survey of the eastern Georgian Bay Coast. The findings of this inventory will be published in 2004. The key partner in the project has been the Ontario Ministry of Natural Resources. It is on the basis of this inventory, led by Jarmo Jalava and Wendy Cooper, that this recommendation is made to you to designate the eastern Georgian Bay coast as a World Biosphere Reserve.

The eastern Georgian Bay region from the Severn River to north of Byng Inlet was the area of study, more or less equivalent to the area nominated as Biosphere Reserve. It is an ecologically diverse landscape renowned for its rugged Precambrian bedrock shorelines, its pristine waters and its profound beauty. It is a mosaic of vast gneissic rock barrens, forested ground moraines and sand plains, and thousands of inland lakes, beaver ponds, marshes and peatlands.

The study area includes the world’s largest archipelago of freshwater islands – legend suggests 30,000 of them – surrounded by the near-shore waters of the second largest lake in the world. It supports unique plant communities, southern populations of Eastern Wolf (Canis lycaon), American Black Bear (Ursus americanus) and Moose (Alces alces), and exceptional concentrations of imperilled reptiles, as well as many other flora and fauna of global, provincial and bioregional significance. It is also widely recognised for the economic, recreational and inspirational values it offers to its residents and seasonal visitors.

The focus of the survey was on the one-third of the study area that is in formual protected-area status and on other significant natural areas in private or public ownership. Thanks in large part to the recent expansion of the provincial protected areas network through Ontario’s “Living Legacy” (OLL) strategy, this high percentage of lands are in regulated protected areas. Another 600 ha are protected as private-land nature reserves and conservation easements.

The existing network of protected areas extends far beyond the region. To the north, there is an almost continuous series of parks, conservation reserves and First Nation lands along the Georgian Bay coast to Killarney Provincial Park and beyond. To the east, parks and conservation reserves extend along the southern edge of the Canadian Shield from the Severn River Conservation Reserve to the Queen Elizabeth II Provincial Park east of Orillia.

The Ontario Ministry of Natural Resources (MNR) supported this work on the basis of its obligation to complete life science reports for all the new protected areas identified in the OLL strategy. These areas were also identified as within the “Great Lakes Heritage Coast”, a ‘signature site’ under OLL that recognised the internationally significant natural, cultural, scenic and recreational values of the Georgian Bay Coast. As a result, an agreement was signed in February 2001 in which NCC agreed to undertake the ecological survey. The Georgian Bay Land Trust (GBLT) and NCC (Ontario Region) also became supporting partners, with their funds supporting the analysis of additional key areas of conservation interest on private land. Ducks Unlimited and Parks Canada joined the project as partners in 2002, funding field surveys in areas of interest.
This combination of interest and support has resulted in the most comprehensive inventory and evaluation of natural areas and ecological features ever undertaken in the eastern Georgian Bay region, and one of the most detailed ecological theme studies in the province.

The survey focused on 15 OLL conservation reserves and provincial park additions, 11 intervening public-land sites, and over 30 key private-land natural areas. More than 35,000 species and vegetation community observations were compiled. The results of field studies are integrated with existing databases of the Ontario Natural Heritage Information Centre (NHIC), and key maps and descriptive products for public lands will be web-based, accessible and shared with the broader conservation community and the general public. The report also integrates previously reported information on natural areas, species and other natural features in the region.

As a result, approximately 150 different vegetation community types have been recorded in the study area, using standard ecological land-classification methods. These natural communities are habitat for approximately 979 vascular plant taxa (844 of them native), 34 reptile and amphibian taxa, 44 mammal species and 170 breeding bird species. Eighty-five species of fish have been documented in the eastern Georgian Bay watershed, of which at least 60 occur within the study area.

The region sustains the highest diversity of reptile and amphibian species in Canada. These include species at-risk such as Ontario’s only lizard, Five-lined Skink (Eumeces fasciatus), Massasauga rattlesnake (Sistrurus catenatus catenatus), Eastern Foxsnake (Elaphe gloydi), Eastern Hognose Snake (Heterodon platirhinos), Spotted Turtle (Clemmys guttata), Northern Map Turtle (Graptemys geographica) and Blanding’s Turtle (Emydoidea blandingii).

The shorelines of the coast and its interior lakes are habitat for Atlantic Coastal Plain flora such as Virginia Meadow-beauty (Rhexia virginica), Carolina Yellow-eyed Grass (Xyris difformis), Carey’s Smartweed (Polygonum careyi), Smith’s Spike-rush (Schoenoplectus smithii) and Military Rush (Juncus militaris), many of them significantly disjunct from their core Atlantic-coast populations.

Many other vegetation types, plants and animals of national, provincial and bioregional significance are found in the area. At least 65 globally, nationally or provincially rare species are now documented. These include eleven species designated Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or MNR, as well as eight COSEWIC Special Concern species and nine MNR Vulnerable species. Notable also are populations of large mammals and higher-level carnivores.

Documentation of human impacts and threats to the ecosystems of the eastern Georgian Bay coast was also part of the present study. The conclusions of this report include suggestions on how government and non-government organisations and the public can maintain and enhance the ecological viability of this critically important, unique and beautiful landscape into the long-term future.

In conclusion, the core natural areas of this nominated World Biosphere Reserve are well-documented as significant within the Great Lakes basin, within eastern North America, and beyond. They are formally regulated or otherwise protected within mature park and public-space agencies and non-government organisations. They are well known to the residents and visitors to the region, and are the essential ingredient in present and future tourism.
We congratulate you on the hard work that underlies any nomination of an area to UNESCO, and we commend you on the many positive community conversations that take place throughout the period of consideration of World Biosphere Reserve status.

Yours sincerely,

John Riley
Director, Conservation Science and Stewardship

c.c. Mr. Jarmo Jalava
    Ms. Wendy Cooper
    Mr. Jon K. Grant, Chair, Nature Conservancy of Canada
    Mr. John Lounds, President, Nature Conservancy of Canada
January 8, 2004

Patrick Northey
Chair
Georgian Bay Littoral Biosphere Reserve Nominating Committee
37 Woodlawn Avenue West
Toronto, Ontario
M4V 1G6

Dear Mr. Northey,

Thank you for providing World Wildlife Fund Canada (WWF) with a copy of the nomination submission for the proposed Georgian Bay Littoral Biosphere Reserve.

We have reviewed the document and wish to both congratulate the nominating committee for the preparation of a thorough application and to provide a strong endorsement for the designation of the site as a Biosphere Reserve.

As you are aware, WWF-Canada released its first Nature Audit report last spring, which assessed the state of Canada's major terrestrial and marine regions and provided recommendations for future conservation action. Both the terrestrial and aquatic regions in which the proposed Georgian Bay Littoral Biosphere Reserve falls were classified as requiring "a comprehensive set of conservation actions... including protection of remaining natural areas, adoption of best management practices for natural resource-based industries, and significant efforts to restore habitat and recover species." This reflected a detailed species and habitat assessment that documented moderate to high levels of ecological 'disruption' across large portions of these regions but with some areas still retaining good quality habitat and species assemblages worthy of significant conservation attention. More specifically, the reserve that you are proposing to designate encompasses a biologically complex area that will benefit from heightened conservation awareness. The added conservation value of designating this area, as a Biosphere Reserve would provide further context and a local framework for addressing the regional recommendations noted above.

We wish your committee success in securing the designation of the Georgian Bay Littoral Biosphere Reserve.

Sincerely,

Kevin Kavanagh
Director, Biodiversity Conservation Reporting and Field Support
World Wildlife Fund Canada
410-245 Eglinton Ave. East
Toronto, Ontario M4P 3J1
February 20, 2004

Mr. Patrick Northey
Project Director
Georgian Bay Littoral Biosphere Reserve
c/o GBA Foundation
48 Lesmill Road
Toronto, ON M3B 2T5

Dear Mr. Northey,

On behalf of the Federation of Ontario Naturalists (FON), I am pleased to write this letter in support of the application for UNESCO Biosphere Reserve Designation for the Eastern Coast of Georgian Bay from Port Severn to Key River. The Georgian Bay coastline is a unique and diverse landscape, exceedingly rich in both ecological and cultural values, and as such is an excellent candidate for the Biosphere Reserve designation.

The eastern Georgian Bay coastline is a region of spectacular beauty, tremendous significance for biological diversity (including a large number of species at risk), renowned for its clear waters and shorelines, while at the same time being either a year-round or seasonal home to thousands of people. In recent years, considerable attention has been paid to both the region's economy and its ecological wellbeing. Central to virtually all discussions about the region's future has been the importance of balancing environment and economy and safeguarding an ecosystem unique in Canada and beyond. The Biosphere Reserve designation would support efforts to achieve such a balance, and promote private stewardship and sustainable development.

The Federation of Ontario Naturalists, with its network of 130 member groups across the province and over 25,000 direct members, is intimately familiar with this region. We have been actively involved in protected areas establishment and related management issues along the coast; we are also actively engaged in educational programs that promote the restoration of natural habitats and maintenance of clean waters, with particular interest in watershed and coastal areas. A number of other FON program areas occur along this coastline, and would be supported or enhanced by the Biosphere Reserve designation. For example, this designation would support our efforts to achieve voluntary stewardship activities through the globally recognized Important Bird Areas program, and provide greater incentive for landowners to consider options to protect the coastal area in perpetuity through our role as a land trust or the donation of conservation easements. FON is also involved in programs to protect species at risk and we currently...
lead a major province-wide research project to map the distribution and abundance of all breeding birds in Ontario. Because of its ecological significance, this region is central to our overall efforts to conduct research and foster stewardship of wildlife and biodiversity, terrestrial and aquatic habitats, and other natural resources, including the water itself.

Our federation is very familiar with the region’s ecological significance, and a large number of our member groups and members live, vacation, or take part in volunteer-based research projects in the region. Biosphere Reserve designation for the region will not only foster positive stewardship and conservation actions, it will help support communities by providing job opportunities (for example, in the tourism sector), inform better land-use planning and practices, and promote increased science research by organizations, including FON.

The Federation of Ontario Naturalists enthusiastically supports the application for UNESCO Biosphere Reserve Designation for the Eastern Coast of Georgian Bay from Port Severn to Key River, and we would be pleased to provide additional supporting information.

Yours sincerely,

[Signature]

Gregor Beck
Director, Conservation and Science, Federation of Ontario Naturalists
Chair, Ontario Breeding Bird Atlas Research Project
5.8 On behalf of community stakeholder organizations that are active within the proposed biosphere reserve.

[1] Aboriginal community
G’Nadjwin Ki Aboriginal Tourism Association (see above)
2] Permanent residents

Honey Harbour, Port Severn and District Chamber of Commerce
P. O. Box 70
Port Severn, ON LOK 1S0

Mr. Pat Northev
Project Director
GBA Foundation
37 Woodlawn Avenue West
Toronto, ON M4V 1G6

March 26, 2004.

Dear Mr. Northev:

It is with great pleasure that we would like to inform you of the unanimous passing of a motion by the Honey Harbour, Port Severn and District Chamber of Commerce, showing support for the creation of the Georgian Bay Littoral Biosphere Reserve. We applaud your involvement in this vital initiative to promote meaningful discussions among all major stakeholder groups. We wish you and your fellow committee members the greatest success in the future.

Sincerely,

Armin Grigaitis, Past President
Honey Harbour, Port Severn and District Chamber of Commerce

AG/mdb
April 26, 2004

Patrick Northey  
President- Georgian Bay Biosphere Reserve Inc.  
c/o The Georgian Bay Association Foundation  
48 Lescmill Road  
Toronto, ON M3B 2T5

Dear Patrick,  

Thank you very much for attending our April 12th board meeting. We appreciated the opportunity to hear more about the Biosphere Reserve designation. The Parry Sound Area Chamber of Commerce supports the nomination submission for UNESCO Biosphere Reserve Designation for the eastern coast of Georgian Bay from Port Severn to Key River, and the board is thankful for the great efforts being undertaken by you and your colleagues.

We are impressed with the diverse partnerships that your organization is fostering. With strong grassroots support we feel that this designation will be successful. We are also very supportive of balance that The Georgian Bay Biosphere Reserve would have between Environmental protection and Economic Development. Georgian Bay is a unique and beautiful resource and we all need to work together for the future of The Bay.

The Parry Sound Area Chamber of Commerce is looking forward to working with your organization in the future and we are very interested in being updated on your progress. If there are any initiatives that we can assist with, please don't hesitate to contact us.

Sincerely,  

Tonia Blenkarn  
President  
Parry Sound Area Chamber of Commerce
Parry Sound Area
COMMUNITY BUSINESS & DEVELOPMENT CENTRE INC.
A Community Futures Development Corporation

March 22, 2004

Mr. Patrick Northing
President - Georgian Bay Littoral Biosphere Reserve Inc.
c/o Georgian Bay Association Foundation
48 Leesmill Road
Toronto, Ontario M3B 2T5

Dear Mr. Northing:

The Parry Sound Area Community Business & Development Centre is encouraged by the diverse partnership that you and your colleagues are putting together to promote the successful UNESCO designation of a Biosphere Reserve for the Georgian Bay Littoral. The intended boundaries for this designation fall inside the region served by our organization.

The Parry Sound Area CB&DC is a Community Futures Development Corporation. CFDCs have been created to support community economic development by assisting Ontario’s rural and northern communities to strengthen and diversify their economies. As community-based, non-profit organizations, CFDCs are governed by a board of local volunteers and staffed by professionals who encourage entrepreneurship and the pursuit of economic opportunities. Through Industry Canada/FedNor, the federal government provides funding, advice, and support to a network of CFDCs across Canada to provide strategic community planning and development, business services, and access to capital. Along the coastal region of Georgian Bay, the Parry Sound Area CB&DC has also recognized the importance of tourism and has undertaken the creation of Georgian Bay Country - a destination marketing organization for the region.

In step with broader economic interests, Georgian Bay Country’s mission statement recognizes that "...while the promotion of tourism is considered desirable because of its favourable impact upon the local economy, Georgian Bay Country will guide all its actions with respect for the environment. Protection of the area’s environment and outstanding natural features is an overriding operating principle for the organization."

With this in mind, the Parry Sound Area CB&DC points to the intention noted in your nomination submission: "to foster economic and human development which is socially and culturally and ecologically sustainable". We believe that building and sustaining the region’s economic foundation will be the only way to provide the educational, scientific, and social underpinnings necessary to appropriately protect and appreciate the significant qualities of our natural environment.

The Parry Sound Area Community Business & Development Centre supports the nomination submission for UNESCO Biosphere Reserve Designation for the eastern coast of Georgian Bay from Port Severn to Key River, and the board is thankful for the great efforts being undertaken by you and your colleagues. We look forward to a strong partnership between our organizations helping to meet the objectives established by the United Nations in recognizing internationally significant ecosystems.

Yours truly,

(Signature)

W. D. Spinney
General Manager

1A Church Street, Parry Sound, Ontario P2A 1Y2 • Phone: 705-746-4155 or 1-888-746-4155 • Fax: 705-746-4435
Email: info@cbdc.parrysound.on.ca • www.cbdc.parrysound.on.ca
Thursday April 22, 2004

Application for UNESCO Biosphere Reserve Designation
For the
Eastern Coast of Georgian Bay
From Port Severn to Key River

The purpose of this letter is to state that the Canadian Yachting Association supports the application for the Georgian Bay Biosphere Reserve as articulated in the application.

Sincerely,

Canadian Yachting Association
Marianne Davis
Executive Director
Ontario Boating Forum, 65 Guise St. E.
Hamilton, Ont. L8L 8B4
www.obf.on.ca

Friday April 30th, 2004

Application for UNESCO Biosphere Reserve Designation
For the
Eastern Coast of Georgian Bay
From Port Severn to Key River

The purpose of this letter is to state that the Ontario Boating Forum supports the application for the Georgian Bay Biosphere Reserve as articulated in the Nomination.

Sincerely,

Ernie Williams, President
Thursday April 8th, 2004

Application for UNESCO Biosphere Reserve Designation
For the
Eastern Coast of Georgian Bay
From Port Severn to Key River

The purpose of this letter is to state that the Ontario Sailing Association supports the application for the Georgian Bay Biosphere Reserve as articulated in the application.

Sincerely,

Al Will, Executive Director
Motion of GBA Support for UNESCO Biosphere Reserve Application

The Board of the Georgian Bay Association believes that the Georgian Bay Archipelago, which consists of approximately 30,000 Islands along the Eastern Coast of Georgian Bay, is one of a few unique and significant ecological areas in the world and should therefore be protected. We also believe that the Biosphere Reserve designation provides not only the best framework for preserving the ecology of this area, but in addition will encourage a wide range of economic and social benefits in the Georgian Bay’s coastal hamlets.

On behalf of our 4,200 member resident families, the Georgian Bay Association unanimously supports the Nomination for Biosphere Reserve status and will work together with the GBA Foundation and the other local stakeholders in support of this designation.


Passed Unanimously at GBA Board Meeting of April 19, 2004
John Birnbaum
GBA Executive Director
March 15, 2004

Patrick Northeay
GBA Foundation
37 Woodlawn Avenue West
Toronto, Ontario
M4V 1G6

Dear Pat,

I am writing on behalf of the Georgian Bay Land Trust to express our enthusiastic support of the Greater Bay Area Foundation’s application for UNESCO Biosphere Reserve designation of the Eastern Coast of Georgian Bay from Port Severn to Key River.

Like the Greater Bay Area Foundation, the Georgian Bay Land Trust understands the extreme ecological importance of this large archipelago and coastal area and is working to help protect this globally unique ecosystem. Since our formation in 1991, we have successfully conserved 11 properties in this area and continue to seek new opportunities to protect additional land along the coast that can contribute to the larger protected area network.

The Georgian Bay Land Trust was a partner in the Eastern Georgian Bay Coast Project, a regional inventory project funded by a number of organizations including the Ontario Ministry of Natural Resources, The Nature Conservancy of Canada and ourselves. The project began in the summer of 2001 and is currently wrapping up. This three-year study focused on the collection of vegetation community and species data for both Crown and privately owned protected areas. We continue to work closely with The Nature Conservancy of Canada and other partners to promote research and monitoring of the different natural communities and species that make up this unique area. We were pleased to contribute information collected from this project to help support this UNESCO Biosphere Reserve application.

We believe that the designation of this area as a UNESCO Biosphere Reserve would help recognize the significance of the Bay on a global scale, promote awareness nationally and internationally and encourage research to further understand and protect the features that make this area so distinctive.

Sincerely,

Nancy Christie
President
Mr. Patrick Northey  
Project Director  
Georgian Bay Foundation  
48 Leesmill Road  
Toronto, Ontario  
M3B 2T5

Dear Mr. Northey,

It is with great pleasure that I can tell you that the Otter Lake Ratepayers’ Association (OLRA), of Seguin Township, fully agrees with and supports in principal the Georgian Bay Association (GBA) Foundation application for UNESCO biosphere reserve designation for the eastern coast of Georgian Bay from Port Severn to the Key River.

We are especially pleased that the proposed eastern boundary is highway 400/69, thus ensuring that Otter Lake will fall within the biosphere reserve.

OLRA shares the belief that the biosphere reserve designation would heighten environmental awareness, resulting in better consideration for this precious part of our province as well as seeing increased social, economic and conservation benefits. The recent “Biosphere Reserve Update” that you circulated was very helpful in clarifying the types of benefits that a biosphere reserve designation could bring.

The broad geographic perspective created by a biosphere reserve designation, as you have proposed, appears to very nicely complement the work done on the “Great Lakes Heritage Coast” as was led by the Ontario Ministry of Natural Resources. We are hoping that our municipal, provincial and federal governments will be supportive of the GBA Foundation biosphere reserve application.

Please feel free to share our letter of support and please keep us informed of your progress. Best wishes for a successful application, we’d all be beneficiaries!

Yours sincerely,

Marilyn Campbell  
President  
Otter Lake Ratepayers’ Association

CC. OLRA Board Members
6. LATITUDES AND LONGITUDES OF AREA

[Indicate in degrees - minutes, seconds. Indicate coordinates of the central point of the proposed biosphere reserves and if possible, the outer limits of the buffer zone]

Centroid: 80° 18’28W  45° 26’16N
Northwest Limit: 81° 04’35W  45° 54’25N
Northeast Limit: 80° 35’19W  46° 01’14N
Southwest Limit: 79° 46’45W  44° 46’14N
Southeast Limit: 79° 48’50W  45° 14’20N

7. SIZE AND SPATIAL CONFIGURATION

Please see Map 2. *(Proposed Biosphere Reserve Configuration)*

7.1 Size of terrestrial Core Area(s): 52,509 ha.
<table>
<thead>
<tr>
<th>Core Area</th>
<th>IUCN Class</th>
<th>Size (ha)</th>
<th>% of Terrestrial Portion</th>
<th>% of Total Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgian Bay Islands National Park</td>
<td>II</td>
<td>1,263.03</td>
<td>0.60</td>
<td>0.36</td>
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<tr>
<td>French River Provincial Park II</td>
<td>II</td>
<td>15,875.78</td>
<td>7.58</td>
<td>4.53</td>
</tr>
<tr>
<td>Killbear Provincial Park II</td>
<td>II</td>
<td>1,055.18</td>
<td>0.50</td>
<td>0.30</td>
</tr>
<tr>
<td>Massasauga Provincial Park</td>
<td>II</td>
<td>13,035.06</td>
<td>6.22</td>
<td>3.72</td>
</tr>
<tr>
<td>O’Donnell Point Provincial Nature Reserve</td>
<td>I</td>
<td>802.09</td>
<td>0.38</td>
<td>0.23</td>
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<tr>
<td>Limestone Islands Provincial Nature Reserve</td>
<td>I</td>
<td>35.48</td>
<td>0.02</td>
<td>0.01</td>
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<tr>
<td>Massasauga - Additions II</td>
<td>II</td>
<td>746.11</td>
<td>0.36</td>
<td>0.21</td>
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<tr>
<td>French River - Additions II</td>
<td>II</td>
<td>19,696.10</td>
<td>9.40</td>
<td>5.62</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>52,508.83</td>
<td>25.06</td>
<td>14.98</td>
</tr>
</tbody>
</table>

7.2 Size of terrestrial Buffer Zone(s): 39,594 ha.

[Note: All the areas identified below are provincial “Conservation Reserves” that have been included in the Great Lakes Heritage Coast (1999). Please see Appendix 3]

<table>
<thead>
<tr>
<th>Buffer Zone Areas</th>
<th>IUCN Class</th>
<th>Size (ha)</th>
<th>% of Terrestrial Portion</th>
<th>% of Total Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognashene Lake</td>
<td>II</td>
<td>3,205.27</td>
<td>1.53</td>
<td>0.91</td>
</tr>
<tr>
<td>Cognashene Point</td>
<td>II</td>
<td>51.62</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Crane Lake Forest</td>
<td>II</td>
<td>346.51</td>
<td>0.17</td>
<td>0.10</td>
</tr>
<tr>
<td>Franklin Island</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Pine Forest</td>
<td>II</td>
<td>885.87</td>
<td>0.42</td>
<td>0.25</td>
</tr>
<tr>
<td>Gibson River</td>
<td>II</td>
<td>220.75</td>
<td>0.11</td>
<td>0.06</td>
</tr>
<tr>
<td>Lower Moon River</td>
<td>II</td>
<td>3,043.30</td>
<td>1.45</td>
<td>0.87</td>
</tr>
<tr>
<td>McRae Lake</td>
<td>II</td>
<td>1,942.58</td>
<td>0.93</td>
<td>0.55</td>
</tr>
</tbody>
</table>
Moon River II 410.67 0.20 0.12
Moreau Bay . II 356.24 0.17 0.10
North Georgian Bay Shoreline and Islands II 20,127.98 9.61 5.74
Parry Sound Interior . II 63.67 0.03 0.02
Pointe au Baril Forest and Wetlands . II 2,612.62 1.25 0.75
Shawanaga Island
White Pine Forest II 916.28 0.44 0.26
Shawanaga-Shebeshekong II 5,410.94 2.58 1.54

Subtotal 39,594.274 18.90 11.30

7.3 Approx. size of terrestrial Transition Area(s) (if applicable): 92,019 ha.
If appropriate, approx. size of aquatic Transition Area(s): 140,981 ha.

<table>
<thead>
<tr>
<th>Transition Area</th>
<th>IUCN Class</th>
<th>Size (ha)</th>
<th>% of Terrestrial Portion</th>
<th>% of Total Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Lakes Coastal Enhanced Management Area</td>
<td>V</td>
<td>17,296.63</td>
<td>8.26</td>
<td>4.94</td>
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<tr>
<td>North Parry Sound Enhanced Management Area</td>
<td>VIII</td>
<td>10,942.03</td>
<td>5.22</td>
<td>3.12</td>
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<tr>
<td>Private Land</td>
<td>N/A</td>
<td>43,356.81</td>
<td>20.70</td>
<td>12.37</td>
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<tr>
<td>Remaining Crown Land</td>
<td>N/A</td>
<td>20,423.54</td>
<td>11.28</td>
<td>5.83</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>92,019.01</td>
<td>43.93</td>
<td>26.26</td>
</tr>
<tr>
<td>Open Water</td>
<td>N/A</td>
<td>140,981.16</td>
<td>N/A</td>
<td>41.13</td>
</tr>
<tr>
<td>First Nations **[See below]</td>
<td>N/A</td>
<td>22,165.98</td>
<td>10.58</td>
<td>6.33</td>
</tr>
</tbody>
</table>

**TOTAL 347,269.30 100.0 100.0**
**IUCN Protected Areas Management Categories.**

Founded in 1948, the World Conservation Union (IUCN) is a unique world partnership of governments, government agencies and non-government organizations working together to conserve nature, and to ensure that use of natural resources is equitable and ecologically sustainable. IUCN has developed an international classification system of protected areas for comparisons among the different kinds of protected area found around the world, as follows:

(I) Strict Nature Reserve/Scientific Reserve: To protect nature and maintain natural processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, education, and for the maintenance of genetic resources in a dynamic and evolutionary state.

(II) National Park: To protect outstanding natural and scenic areas of national or international significance for scientific, educational, and recreational use. These are relatively large natural areas not materially altered by human activity where extractive resource uses are not allowed.

(III) Natural Monument/Natural Landmark: To protect and preserve nationally significant natural features because of their special interest or unique characteristics. These are relatively small areas focused on protection of specific features.

(IV) Managed Nature Reserve/Wildlife Sanctuary: To assure the natural conditions necessary to protect nationally significant species, groups of species, biotic communities, or physical features of the environment where these may require specific human manipulation for their perpetuation. Controlled harvesting of some resources can be permitted.

(V) Protected Landscapes and Seascapes: To maintain nationally significant natural landscapes which are characteristic of the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal life style and economic activity of these areas. These are mixed cultural/natural landscapes of high scenic value where traditional land uses are maintained.

(VI) Resource Reserve: To protect the natural resources of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based upon appropriate knowledge and planning. This is a 'holding' category used until a permanent classification can be determined.

(VII) Anthropological Reserve/Natural Biotic Area: To allow the way of life of societies living in harmony with the environment to continue undisturbed by modern technology. This category is appropriate where resource extraction by indigenous people is conducted in a traditional manner.

(VIII) Multiple Use Management Area/Managed Resource Area: To provide for the sustained production of water, timber, wildlife, pasture and tourism, with the conservation of nature primarily oriented to the support of the economic activities (although specific zones may also be designated within these areas to achieve specific conservation objectives).

**“First Nations” lands are the official Indian Reserves within the transition area of the proposed biosphere reserve. This is given for information only, and is “without prejudice” to whatever land claims or Treaty issues there may be concerning aboriginal rights in this region.**

7.4 Brief rationale of this zonation (in terms of the various roles of biosphere reserves) as it appears on the zonation map:

The outer extent of the proposed biosphere reserve is based on landscape patterns, existing governmental jurisdictions, and the ‘sense of place’ of the local residents in the eastern Georgian Bay littoral area. The French River Provincial Park is at the northern limits of the proposed biosphere reserve which also coincides with the administrative boundary between Parry Sound District and Sudbury District to the north. The southern limit is delineated by the
Severn River at the administrative boundary between Muskoka District and Simcoe County to the south. This is also at the southern end of the exposed Canadian Shield. South of this physiographic boundary is the Great Lakes - St. Lawrence Lowlands natural region, with a host of additional jurisdictions, and more intensive patterns of urbanization and agriculture. The western boundary of the proposed biosphere reserve is represented by an imaginary line into the waters of Georgian Bay that encompasses the islands of the archipelago (approximately 2 km from the shoreline). The eastern boundary is based rather arbitrarily along provincial highway #69/400; residents to the east of this highway are much less likely to identify Georgian Bay as a significant part of their sense of place. As with other biosphere reserves in Canada, this outer extent is thought of as being flexible; it can vary with the inclusion of other stakeholders depending upon issues being addressed through the biosphere reserve organization.

The zonation for the proposed biosphere reserve within this area is based upon existing protected areas as enhanced by the Great Lakes Heritage Coast designation under the Ontario’s Living Legacy (1999). [Please see Appendix 3]. Thus, the core areas and buffer zones have been defined by the extensive set of national and provincial parks and provincial conservation reserves, respectively. Agencies that administer these lands – the Ontario Ministry of Natural Resources and Parks Canada – are guided by policies and legislation that emphasize conservation and sustainable use and, therefore, are highly compatible with the concept and functions of biosphere reserves. Ecologically, the buffering within the proposed biosphere reserve is considerably more than areas of the conservation reserves due to large unused areas of land lying inland from shorefront locations. The extent of this cannot be estimated without much more information than is available on ownerships and management practices but given the size of the protected areas themselves buffering is not a significant need.

The transition areas include parts of two provincial enhanced management areas that were designated under Ontario’s Living Legacy in 1999; they are managed for sustainable use, including sustainable eco-tourism. As noted above, there are six official Indian Reserves entirely or partly within the area of the proposed biosphere reserve. While identified as part of the transition area, given the way in which First Nations people use these areas, much could be considered ecologically to augment the core and buffer functions of the proposed biosphere reserve.
8. BIOGEOGRAPHICAL REGION

[Indicate the generally accepted name of the biogeographical region in which the proposed Biosphere Reserve is located. You may wish to refer to the map of the World Network of Biosphere Reserves presenting 12 major ecosystem types.]

Major Ecosystem Type: Boreal Needleleaf Forests or Woodlands. (UNESCO Classification, above)

Boreal Shield Ecozone, Algonquin-Lake Nipissing Ecoregion, (Canadian Ecological Land Classification).

Central Great Lakes- St. Lawrence Precambrian Region, (Canadian National Park Natural Regions).

Great Lakes: Lake Huron, Georgian Bay. (Marine Regions of Canada)

Ecological Site District 5E-7 (Ontario Site Region and District Classification)
9. LAND USE HISTORY

[If known, give a brief summary of past/historical land use(s) of the main parts of the proposed biosphere reserve]

Note: This summary was based on a number of information sources, including especially: Barry 1995; Beaulieu and others 2001; Surtees 1984, 1986; Tanner 1986; Williamson and others 1999.

The region of Ontario within which the proposed biosphere reserve is situated was probably occupied soon after deglaciation some ten to nine thousand years ago by nomadic hunters attracted to glacial lake shores to hunt under tundra-like conditions. While there is well-documented evidence of this at Sheguiandah on Manitoulin Island in northwestern Georgian Bay as well as some archaeological evidence of this just to the north of the area of the proposed biosphere reserve and to the southwest (in the Niagara Escarpment Biosphere Reserve) none has yet been documented within the proposed Georgian Bay Littoral Biosphere Reserve. Following the complete collapse of the glacial ice cap to the north and the continuing climate change over subsequent millenia, the vegetation and associated “game” species of animals gradually changed from tundra conditions through conifer forests to mixed woods on sites where soils and other micro-environmental conditions were suitable.
Over the time periods classified by archaeologists as from the “Archaic” through to the "Middle Woodlands" (from about 9,500 to 2,000 years ago) the aboriginal people were thought to have lived in small bands of from 10-50 people who gathered around lakeshores and rivers in spring and summer to fish, then moved inland in small family groups to hunt and trap during the winter. Their gradual adaptations over the millennia are indicated by elaborations in projectile points, various stone tools, pottery, and in the making of (or acquiring through trade) ornaments which have been found in some of the more recent and elaborate burial complexes. Immediately to the south of Georgian Bay, horticulture/agriculture appeared with the introduction of maize (perhaps as early as 1,350 years ago) supplemented by squash, beans, some tobacco, and wild crops. Settlements gradually became larger and served as a year-round base of operations for some people.

Beginning in the early 17th century, French explorers, traders and missionaries were the first Europeans to develop alliances with aboriginal peoples in or near to the proposed biosphere reserve. This occurred in the context of a developing fur trade which was carried out in competition against the British (and initially also the Dutch) and their aboriginal allies to the south-east. By about 1615 or so, the French had pursued exploration and trade from what is now Montreal (on the upper St. Lawrence River) up the Ottawa River and then west into the Great Lakes through the French River leading from Lake Nipissing into Georgian Bay. The French traded mainly with the Hurons (Wyandot), and through them, with various Anishnawbe groups, mainly the Ojibway (Chippewa) and Odawa (Ottawa), whose traditional lands include the area of the proposed biosphere reserve.

This competitive trade brought firearms, better quality tools, infectious diseases and alcohol to aboriginal peoples, resulting ultimately in a substantial increase in their mortality. As the fur-bearers were depleted, inter-group warfare increased in intensity and geographic range; this was especially the case between the Iroquois (Haudenosaunee) allied with the British south of the St. Lawrence River and Lake Ontario, and the Huron and Anishnawbe groups allied with the French. By 1649, the Huron settlements in the Georgian Bay area immediately south and west of the proposed biosphere reserve were completely destroyed and a few survivors escaped to islands at the south end of the Bay. Otherwise, after the mid-17th century, and as the fur trade continued to move through the upper Great Lakes and further west, the area of the proposed biosphere reserve was largely by-passed. Various Anishnawbe groups, especially the
Mississauga, Pottawatomi, and Chippewa moved into southern and central Ontario which had been “de-populated” by the late 17th century. In 1701, a major peace treaty was concluded in Montreal by the French with 32 native groups from throughout the Great Lakes Basin and beyond.

British acquisition of New France in 1763 did not appear to affect the region, nor did the US achievement of its independence and the subsequent establishment of the United States-Canada boundary by 1783. Under the terms of the Royal Proclamation of 1763, land cessions for settlement had to be negotiated with aboriginal people through the government. Settlement of what is now southern and central Ontario intensified after the British-American war of 1812-1815, but even then the littoral area of the Georgian Bay was largely avoided because of its inaccessability and lack of agricultural potential. The main effects on aboriginal people came from their displacement from lands to the south of the proposed biosphere reserve under the terms of various Treaties intended to have them resettle on Manitoulin Island (a very large island in north-western Georgian Bay).

The Robinson-Huron Treaty of 1850 included the area of the proposed biosphere reserve but its main intent was to open up for logging and mining development a large region extending along the north shore of Lake Huron from Lake Superior through to the Ottawa River; the signatories at the time included aboriginal leaders from only the north end of the proposed biosphere reserve (whose sense of place at the time centred around Pointe Au Baril through to the French River system. The Williams Treaty of 1923 was intended to clarify a number of issues that arose from interpretations of earlier Treaties in south-central Ontario. The perceived ambiguity of the situation in eastern Georgian Bay was officially resolved under the 1923 Treaty by re-affirming the intent of the 1850 Treaty to include all of eastern Georgian Bay through to the height of land to the east. The six Indian Reserves within the proposed biosphere reserve come under the terms of these two Treaties. Various adjustments were also made in the latter part of the 19th century that have led to the present situation, for example, Beausoleil Island now incorporated into the national park was formally relinquished in 1856; people from the Pottawatomi First Nations settled at Moose Deer Point reserve in the early 1870s; and people from the Mohawk (Iroquois) communities at Oka/Kanestaki near Montreal settled in the Wahra Mohawk Territory in the early 1880s.
The War of 1812 led to the preparation of detailed bathymetry and navigation charts by the British navy for Georgian Bay. This mapping was to contribute to the growth of commercial shipping activity on Georgian Bay in later years. The War also led to the commissioning of an extensive road survey between Lake Simcoe and Penetanguishene and the establishment of a road linkage into the area through the extension of Yonge Street from York (Toronto). Settlement of the Muskoka area of Georgian Bay began slowly in the late 1850's. Although much of the land was given free to British loyalists who came to Canada after US independence and to retired military and other officials, little of it was initially settled due mostly to its low farming potential. By the early 1850's, there were still only a few thousand persons living near or on Georgian Bay.

As road, rail and boat transportation developed in the second half of the 19th century, there was a rapid growth of the lumbering industry, especially to the east of the proposed biosphere reserve. This industry served markets in Britain and Europe as well as the eastern United States and southern Ontario. Major lumbering and milling centres were established at Parry Sound, Byng Inlet and Midland (just to the south of the proposed biosphere reserve). The lumber industry served to boost the population of the area, especially between 1872 and 1880. With the arrival of the railway to Midland and Penetanguishene in 1879, the industry grew even further. As white pine began to be logged out, red pine and then hardwood species were selected. Timber cutting limits began to be exhausted in the area around 1895 and many mills closed. Deforestation and land clearance peaked around 1905. Most of the major mills closed before 1914. Almost all of the areas surrounding Georgian Bay are today composed of secondary forest growth.

Commercial fishing also began in Georgian Bay in the latter part of the 19th century, but declined dramatically after the 1940s, largely through overfishing. It was partly replaced by sport fishing encouraged by private fishing clubs, especially from the 1880s to the 1920s.

Tourism was promoted from the late 19th century by railroad and shipping interests, and grew extensively from the 1920s on. By 1879, Georgian Bay was being advertised as an ideal summer destination as were the recreational fishing opportunities offered at Penetanguishene and Midland immediately south of the proposed biosphere reserve. By 1884, many small islands around the Bay were already owned by individuals from Canada and the United States and houseboats soon appeared. Recreational bathing beaches began to be established in the
1920’s and 1930’s and recreational boating in the area was given a boost with the opening of the Trent-Severn canal in 1920. The Trent-Severn is a 386 km waterway that links a number of lakes and small rivers between Port Severn on Georgian Bay with Lake Ontario. This system was built in stages over an 80 year period with the intent of becoming a viable commercial waterway. It is now maintained by Parks Canada for recreational boating and related activities. The attraction of Georgian Bay as a tourism and outdoor recreation destination continues today.

10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE

[Approximate number of people living within the proposed biosphere reserve]

10.1 Core Area(s): Approximately 10 seasonal residents (i.e., park wardens, research staff, mainly in the Georgian Bay Islands National Park)

10.2 Buffer Zone(s): Estimated 10 seasonal residents.

10.3 Transition Area(s):
Note: The orders of magnitude of the population in the proposed biosphere reserve are indicated below from official census data for 2001. However, the census tracts do not mesh well with the area of the proposed biosphere reserve. The biosphere reserve likely has fewer residents than the total shown below, however, the number of seasonal residents (during July and August especially) is much greater by an overall factor of from 3 to 5 in some estimates (and up to 25 times in some localities). For the two main municipal districts which cover the proposed biosphere reserve but extend well beyond it, the 2001 populations were: Muskoka District Municipality: 53,106; Parry Sound District: 39,665; Total: 92,771.

<table>
<thead>
<tr>
<th>Muskoka District Municipality</th>
<th>Population in 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgian Bay Township</td>
<td>1,991</td>
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</table>

<table>
<thead>
<tr>
<th>Parry Sound District</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Archipelago Township</td>
<td>505</td>
</tr>
<tr>
<td>Carling Township</td>
<td>1,063</td>
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<tr>
<td>McDougal Township</td>
<td>2,608</td>
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<tr>
<td>Parry Sound (Town)</td>
<td>6,124</td>
</tr>
<tr>
<td>Parry Sound (unorganized central)</td>
<td>2,198</td>
</tr>
<tr>
<td>Seguin Township</td>
<td>3,698</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>15,989</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indian Reserves</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Henvey Inlet</td>
<td>15</td>
</tr>
<tr>
<td>Magnetawan</td>
<td>73</td>
</tr>
<tr>
<td>Moose Deer Point</td>
<td>185</td>
</tr>
<tr>
<td>Parry Island First Nations</td>
<td>375</td>
</tr>
<tr>
<td>Shawanaga</td>
<td>174</td>
</tr>
<tr>
<td>Wahta Mohawk Territory</td>
<td>[not available -- was 130 in 1991]</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>822</strong></td>
</tr>
</tbody>
</table>

| **Total**                     | **16,811**           |

10.4 Brief description of local communities living within or near the proposed Biosphere Reserve:
Most of the native aboriginal people living in the area of the proposed biosphere reserve are descendents of Ojibway, Chippewa, Odawa and Pottawatomi bands who are united by common language, kinship and clan memberships. A small number of Huron and Mohawk people reside in the area and are linked historically with Iroquoian language and kinship groups to the south. As noted in Section 10.3, almost 1,000 people live on the six official “Indian Reserves” while an unknown number of others reside “off-reserve” for varying periods of time.

Parry Sound and the surrounding townships were settled by people of British, French or other European descent. Today the towns in the Georgian Bay area have become somewhat more multicultural because of more recent immigration from other regions of the world. In Parry Sound, about 15% of the labour force is employed by the resource extraction, manufacturing and construction sectors. Most of the rest is employed in the business and other services sectors, in wholesale and retail trade, and in health and education. Over-all, the economic base of Parry Sound is centred on tourism, retailing, services, small business, and government employment.

10.5 Name(s) of nearest major town(s):

Parry Sound, located at the eastern edge within the proposed biosphere reserve about midway along the north-south axis. Population in 2001: 6,124.


Midland, 117 km south of Parry Sound. Population in 2001: 16,214

Greater Toronto Area, 225 km south of Parry Sound. This comprises the City of Toronto, four regional municipalities and 24 local municipalities: Population in 1999: 5.1 million. Population of Toronto itself in 2001: 2,481,494.

10.6. Cultural significance:
Briefly describe the proposed Biosphere Reserve's importance in terms of cultural values (religious, historical, political, social, ethnological)

Native aboriginal people within the area of the proposed biosphere reserve have a rich cultural tradition which is expressed by oral renditions of legends, fables, and myths, and by “pow-wow” celebrations and other special events. This culture is deeply rooted in the natural world with its guiding spirits, including the Great Spirit Kitche Manitou. Many oral narratives have been translated into English, in part to help preserve them (e.g. Johnston 1976). While pow-wows are still performed as summer festivals, they also help promote native cultural values in younger people from native communities, and among non-natives generally.

Traditionally, kinship relations were extended by each individual’s membership in one of the patriarchal clans that extended across the different native bands. Each clan had special duties and responsibilities for collective well-being by providing leadership for a necessary function like group protection, food procurement, medicine, education and spiritual development, or dispute resolution through mediation. Each clan had a special animal totem such as a particular bird or mammal or a group such as fish or turtles. Token animals for the major clans, such as the eagle, loon, deer, marten, fish and turtle, are represented by wild species that occur regularly within the proposed biosphere reserve.

The first French explorers who arrived in the early 17th century sometimes expressed quite negative impressions about the area because of the severe weather, insect pests throughout the summer, dangers of becoming lost or running aground, and the barren terrain (except for readily available fish). Early settlers were generally pre-occupied with survival in a hinterland resource extraction economy. It was not until the latter part of the 19th century that boat travel and accommodation became sufficiently comfortable to allow some travellers to marvel at the scenery and wildness of the archipelago. By the early 20th century, this amenity value became more widely known and appreciated.

Artistically, Georgian Bay made its way into the public general awareness during the 1920s to 1940s through paintings of wind-blown pines and rugged landscapes by the “Group of Seven” who created a distinctive school of Canadian landscape art. The group started visiting the area around 1911. Although not a member, Tom Thompson became the most famous of the painters and frequented the area regularly between 1913 and 1917; two of Thompson's best known paintings: "West Wind" and "Jack Pine" are scenes painted of Georgian Bay. Through
the 1920’s A.Y. Jackson, F.H. Varley and Arthur Lismer, key members of the group, did a great deal of their artistic work in the Georgian Bay area. The area continues to attract artists and photographers, whose work is shown at annual art festivals, in local galleries, and on private Websites.

The French River at the north end of the proposed biosphere reserve is of historical importance given its critical geographic role as a connecting waterway into the centre of North America. There is evidence it was used by native people over many years, and they in turn introduced it to early French explorers from 1610 on. European traders used it to transport furs from western and central Canada to the east for shipment to Europe during the 18th and early 19th centuries. Later, it was used to transport timber products and bring some of the first European settlers to the north shore of Lake Huron and Georgian Bay. Today, the French River is used exclusively for recreation purposes. Its designation as a Canadian Heritage River in 1986 is a recognition of this history.

In recent years, local amateur historians have recorded the history of particular locations within the proposed biosphere reserve. They describe the first families who settled in the locale, the small communities built around resource extraction, and the hardships and tragedies from fires, storms, and shipwrecks. They commonly include local anecdotes and legends, extracts from personal letters or diaries, and photographs from old private albums (e.g. Campbell, n.d; David 1997; MacMahon 1990; McCuaig 1984). Most communities along the Georgian Bay shore have similar collections.

Since the coast remains largely roadless, boaters, cottagers and fishermen can only access their favourite areas by boat. A number of the summer homes that can only be reached from the water have been maintained by families for up to four or five generations. This has created a strong “sense of place” (said to be related to enjoyment of inconvenience as well as relative solitude) that helps to unite these groups and maintain their commitment to the future well-being of the Georgian Bay littoral and its wilderness values, as exemplified by the Georgian Bay Association. Interest in the biosphere reserve concept was first expressed by people from these summer communities.

Campbell (2003) traced the history of peoples’ evolving sense of place and community identity in eastern Georgian Bay as expressed through literature and art. In the latter 19th
century, artistic renditions were characterized by a transposed European romantic language of Nature and the aesthetic ideals of the picturesque and the sublime, all of which were quite detached from the actual biophysical conditions of eastern Georgian Bay. Later, in the first part of the 20th century, residents on the islands developed a community identity that emphasized practical concerns in a rugged environment and the adjustments required by these physical realities in contrast to easier living in more hospitable conditions to the east and south. More recently, place-specific images from Georgian Bay, such as reproductions of the Group of Seven paintings, have been used as generic symbols of the “Canadian Northland” and are sometimes set within artistic themes of Anglo-Canadian landscape nationalism.

11. PHYSICAL CHARACTERISTICS

11.1. Site characteristics and topography of area:
[Briefly describe the major topographic features (wetlands, marshes, mountain ranges, dunes etc.) which most typically characterize the landscape of the area.]

The Georgian Bay littoral includes the most extensive island archipelago found in the Great Lakes. It has long been known locally as "The Thirty Thousand Islands" because of the
complex association of bays, inlets, sounds, islands and shoals lying along the edge of the Canadian Shield. (The actual number of islands is unknown but it is generally thought to be considerably more than 30,000; many rocky shoals become exposed at low water during the periodic fluctuations of water levels in Georgian Bay). The Shield in this region is a relatively low relief landscape characterized by rock outcrops, ridges and knolls with extensive patches of forest, shallow wetlands, and small inner lakes. This diverse mosaic of land and water has high scenic value which has been attracting seasonal visitors for many decades. It also supports considerable biological diversity in comparison with other regions in the Great Lakes Basin.

Acidic runoff from the Shield does not mix very directly with the open waters of Georgian Bay because of the myriad of islands that hinder the water flows. This results in distinct gradients in conductivity (index of dissolved solids) and pH (acidification) in waters flowing from east to west through the archipelago. The semi-enclosed configurations of coastal bays also result in seasonal eutrophication and bacterial contamination near shorefront developments. (Schiefer and Schiefer 2002; 2003 – reference in Section 15). Please also see Appendix 4.

11.1.1 Highest elevation above sea level: 256 metres

11.1.2 Lowest elevation above sea level: 176 metres

11.1.3 For coastal/marine areas, maximum depth below mean sea level:

Depths of off-shore waters in the proposed biosphere reserve range up to about 20 m below an official long-term low water level, the International Great Lakes Datum (1985), which is 176m above sea level at the Parry Sound water level gauging station.

11.2. Climate:

[Briefly describe the climate of the area using one of the common climate classifications]

The proposed biosphere reserve lies within the Canadian Cool Temperate Ecoclimatic Province (Environment Canada 1989) which characterizes Eastern Canada from the Great Lakes to Nova Scotia. This ecoclimatic province is further divided into Ecoclimatic Regions, which are characterized by distinctive responses to climate. These responses are typified by unique trends in vegetation succession and specific soil types, and a unique spatio-temporal
distribution of vegetation and soils. The eastern shore of Georgian Bay is included in the Humid High Cool Temperate Ecoclimatic Region (HCTh). This region is characterized by warm summers and cold, snowy winters.

The average freeze-up period in nearshore areas occurs in late November, and the average spring break-up occurs in mid-April. The extent and depth of ice cover on more open waters varies from year to year. Only rarely does the entire Georgian Bay freeze over, and for the entire Great Lakes system there has been a regional trend towards later freeze-ups and earlier break-ups (Assel and others 2003).

Two climate stations are close to the proposed biosphere reserve and the most recent standard 30-year “climate normals” are as follows:

For the climate normal period 1961-1990.
11.2.1 Average daily temperature of the warmest month: 18.5°C
11.2.2 Average daily temperature of the coldest month: -10.5°C
11.2.3 Mean annual precipitation: 1054 mm (including 325.2 cm of snow) recorded at an elevation of 280 metres.

Name and location of station: Burks Falls. 45°36’ N 79° 34’ W  Since 1888.
For the climate normal period 1961-1990.
11.2.1 Average daily temperature of the warmest month: 17.4°C
11.2.2 Average daily temperature of the coldest month: -12.3°C
11.2.3 Mean annual precipitation: 1065.8 mm (including 209.6 cm of snow), recorded at an elevation of 320 metres.

Climate change scenarios for the Great Lakes Basin have been explored by using various global climate models (GCMs) and regional climate models. These have been “downscaled” to the Basin level, and calibrated with information from paleoclimate studies and weather data over the past century. Based on the GCMs, estimates have been made about the extent of warming eventually to accompany a doubling of carbon dioxide (CO₂) in the atmosphere since 1750 (or an “equivalent doubling” taking into account other greenhouse gases), a level expected to be reached sometime in the 2030s. Possible consequences for
hydrological patterns and aquatic and terrestrial ecosystems have been identified (e.g. Magnuson and others 1997; Mortsch and others 2003).

Annual mean temperatures in the Basin have increased by 0.7°C from 1895 to 1999 with most of the increase occurring in winter and spring. Annual precipitation has increased by about 2.1% per decade but the proportion that comes as snow has decreased. Dates of freezing of the lakes are now later and spring break-ups earlier. The model scenarios for 2xCO₂ resulted in mean air temperatures increasing between +2 to +5°C in summer and from +4 to +8°C in winter. Precipitation changes, depending on the models, either increased or decreased by some 10-20%, but either way precipitation was more episodic and intensive. On average, annual run-off decreased for most scenarios with more of it occurring in winter and less in spring and summer. In the scenarios, water levels in the Great Lakes declined by 0.5m to 2.5m (Lenters 2001), ice cover was considerably reduced, and the seasonal cycle of lake levels shifted towards earlier peaks and lows. This would lead to a number of effects especially along shorelines, in coastal wetlands and other ecosystems, and in shipping and recreational boating.

It is not possible to identify specific impacts at more local levels at this time. Local differences in topography, soils, lake morphology or hydrology give different responses. In addition, atmospheric change also includes acidic deposition, stratospheric ozone depletion (leading to increased Ultraviolet-B radiation), smog with suspended particulate matter, and hazardous pollutants (e.g. Munn 1995). All of these likely interact with other stresses.

While the low levels of water in Georgian Bay over the last two or three years lie within the recorded range of variation in Great Lakes water levels over the past century (Lofgren and others 2002), the impacts on shoreline use, wetlands, and recreational boating in the areas of the proposed biosphere reserve are consistent with the kinds of effects that climate change scenarios have suggested.

11.3. Geology, geomorphology, soils:

Briefly describe important formations and conditions, including bedrock geology, sediment deposits, and important soil types

Please see Map 6 (Surficial Material) for spatial geological patterns in the region around the proposed biosphere reserve.
Geology

The bedrock of the Canadian Shield underlies the region and originated during the Precambrian Era some 2.5 billion years ago. This bedrock consists of ancient igneous, sedimentary and metamorphic rocks from the “Grenville Province” which was last affected by orogeny (mountain-building) forces some 1 billion years ago (Robertson and Card 1972). Some of these formations are overlain by sedimentary deposits dating from the Ordovician and Silurian Eras, some 490-430 million years ago. The region has been scoured by the Pleistocene glaciations on at least six occasions and these have cut deeply into the original bedrock over large areas within the proposed biosphere reserve. The exposed rock formations provide evidence of extensive ancient orogenic processes.

The Wisconsinan glaciation starting about 100,000 years ago was the most recent. Glaciers were channeled along major bedrock valley systems that previously existed and they scoured out areas of relatively weak bedrock. The massive Laurentide ice sheet was centered on northern and eastern Canada and it reached its furthest points south, beyond the Great Lakes basin some 20,000 years ago. Its maximum thickness over the basin has been estimated to be between 750-2,500m. During the later stages of this glaciation between 35,000 and 10,000 years ago, the glaciers alternately withdrew then readvanced again as a number of lobes until they withdrew completely from the Basin by about 9,000 years ago.

Glacial meltwaters formed lakes around the margins of shrinking lobes. The locations of ice impoundments, the morphology of the glacial lake basins, and the “isostatic rebound” of the earth’s crust (gradually increasing the ‘tilt’ of the surface from north to south as the weight of the ice disappeared), largely determined the directions and volumes of water flows, the shorelines of successive glacial lakes, and the locations of drainage channels and outlets (Lewis and others 1994). Large volumes of water also came into the Great Lakes basin from glacial Lake Agassiz to the northwest between 11,000-10,500 years ago and again (after ice which readvanced to block it had receded) from 9,500-8,500 years ago with some major outbursts each time. These processes caused considerable variations in the size of successive glacial lakes overlying present-day Georgian Bay. Some 11,000 years ago the Bay was completely immersed in glacial Lake Algonquin while around 10,000 years ago, after drawdowns through various post-Algonquin phases, glacial Lake Stanley existed on its own in the northern Huron
basin while glacial Lake Hough was a separate body of water in the Georgian Bay basin. (Larson and Schaetzl 2001)

These geomorphological processes led to significant shifts in the major outflows from the glacial lakes. About 12,000 years ago, early Lake Algonquin flowed out through what is now the Severn River system to a glacial lake overlaying the Lake Ontario basin. By about 10,500 years ago the outflow was from the north-east (running approximately through present day Lake Nipissing and the Ottawa River drainage) to a Champlain Sea. Continued crustal uplifting raised water levels by blocking this outlet and causing a backflooding into the basins of the Upper Great Lakes. A new outlet formed from about 5,700 to 4,700 years ago as a channel linking southern Lake Huron with Lake Erie. The present landscape configurations of geomorphology, drainage patterns and bathymetry for the Georgian Bay and North Channel developed some 3,000 to 2,000 years ago (e.g. Karrow and Calkin 1985; Dobson and others 1995).

Soils are derived from glacial tills that were deposited among the exposed bedrock hills or knolls. Most hills are thinly covered by stony tills. Some deeper pockets of sands, silts, and fine textured silty clay loam occur in lower lying areas. Podzols have developed on better drained sites, and there are other areas with gleysols or organic muck and peat. The soils are often very stony and acidic. Glacial till deposited as sediments in Georgian Bay have been mapped and their composition analyzed (e.g. Johnson and others 1990).
12. BIOLOGICAL CHARACTERISTICS

[List main habitat types (e.g. tropical evergreen forest, savanna woodland, alpine tundra, coral reef, kelp beds) and land cover types (e.g. residential areas, agricultural land, pastoral land). For each type circle REGIONAL if the habitat or land cover type is widely distributed within the biogeographical region within which the proposed Biosphere Reserve is located to assess the habitat's or land cover type's representativeness. Circle LOCAL if the habitat is of limited distribution within the proposed Biosphere Reserve to assess the habitat's or land cover type's uniqueness. For each habitat or land cover type, list characteristic species and describe important natural processes (e.g. tides, sedimentation, glacial retreat, natural fire) or human impacts (e.g. grazing, selective cutting, agricultural practices) affecting the system. As appropriate, refer to the vegetation or land cover map provided as supporting documentation.]

Please see Map 9 (Species at Risk Occurrences) for the distribution of rare species and community types occurring throughout the proposed biosphere reserve. See Map 10 (Regional and Local Habitat Types) for a display of the major terrestrial and aquatic habitat types described below. The summaries below are for five main habitat or land cover types. They combine some of the sub-types shown on Map 10: local upland forest environments with the regional Great Lakes-St. Lawrence forest region; near-shore terrestrial, coastal wetlands, and near-shore environments; and oligotrophic pelagic region with Lake Huron.

DISTRIBUTION
12.1. **Great Lakes - St. Lawrence Forest** (Regional)

12.1.1 Characteristic species:

The mixed forests of the Great Lakes - St. Lawrence Forest Region cover most of the terrestrial portion of the proposed biosphere reserve. This transitional forest contains characteristics of the broad-leaf deciduous forests of eastern and southern Ontario as well as characteristics of the boreal forest of northern Ontario. Characteristic tree species of the region include: white spruce (*Picea glauca*), black spruce (*Picea mariana*), eastern white pine (*Pinus strobus*), red pine (*Pinus resinosa*), eastern hemlock (*Tsuga canadensis*), white cedar (*Thuja occidentalis*), trembling aspen (*Populus tremuloides*), white birch (*Betula papyrifera*), silver birch (*Betula alleghaniensis*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), basswood (*Tilia americana*) and red oak (*Quercus rubra*). This forest region also contains many species of herbs, fungi, ferns, mosses and shrubs, although their abundance and distribution is less well known. Site variations lead to mosaics of different dominant species, as do seral stages. Pine stands interspersed with rocky terrain are among the more aesthetically conspicuous associations.

Some larger or more wide-ranging mammals that characterize the area include white-tailed deer (*Odocoileus virginianus*), moose (*Alces alces*), black bear (*Ursus americanus*), wolf (*Canis lupus*), lynx (*Lynx canadensis*), river otter (*Lutra canadensis*), fisher (*Martes pennanti*), marten (*M. americanus*) and snowshoe hare (*Lepus americanus*). Several species of birds occur within this region at either the northern or southern limits of their breeding range in Canada. Examples of the former are cerulean warbler (*Dendroica cerulea*), prairie warbler (*D. discolor*), and yellow-throated vireo (*Vireo flavifrons*), and of the latter, black-backed woodpecker (*Picoides arcticus*) and boreal chickadee (*Parus hudsonicus*). Forests on deeper till formations inland are extensive enough to provide habitat for forest interior species such as red-shouldered hawk (*Buteo lineatus*) and pileated woodpecker (*Dryocopus pileatus*).

12.1.2. Important natural processes:

Glacial erosion and deposition along with isostatic rebound have determined the surficial patterns of soils types and drainages, and these are reflected in the mosaic of forest and other habitat types in a topography of rockland ridges, marshy depressions, thin soils, and deeper sandy till deposits. Fires and periodic outbreaks of forest insect species are considered to be
part of the natural ecological processes which “drive” these forest ecosystems. Spring snow melt can result in pulsating discharges of water containing nutrients or higher levels of acidity than the receiving waters (e.g. Schiefer 2001 – reference in Section 15.1).

12.1.3. Main human impacts:

Much of the forested area was heavily exploited during the late 19th and early 20th centuries, and considerable areas have been burned from time to time although not so much in the past 50 years or so. The result is that most of the present forest is second growth which can be quite dense in sites with suitable soils. Some small sawmill operations exist in the region. Developments associated with recreation or tourism such as a large network of snowmobile trails, some of which are used by people with all-terrain vehicles at other times of the year, sometimes result in habitat loss or fragmentation.

12.1.4. Relevant management practices:

All of the Crown (provincially-owned) lands in the proposed biosphere reserve have been incorporated into a 880,000 ha French/Severn Forest which also extends far to the east of the proposed biosphere reserve area. Since 1997, this forest has been administered by Westwind Forest Stewardship Incorporated under the terms of the Ontario Crown Forests Sustainability Act (S.O. 1994, C 25). In 2002, Westwind was certified as meeting internationally recognized standards for good forest management established by the Forest Stewardship Council, making it the largest certified public forest in Canada at the time.

The draft forest management plan for the 2004-2024 period and an operations plan for 2004-2009 have provisions to protect critical fish and wildlife habitats. Management is to rely mainly upon selective cutting of individually marked trees, and any small clearcuts will strive to emulate natural disturbance patterns (Westwind Plan Author Summary 2003). Almost all of the most productive forest lands are to the east of the proposed biosphere reserve.

The increase in protected lands provided by the Ontario Living Legacy/Great Lakes Heritage Coast program enhances the conservation objectives for ecosystems within the proposed biosphere reserve. (Please see sections 7.1 and 7.2, and Appendix 3). Private lands are subject to provisions in official plans of municipalities. Private stewardship for conservation purposes is also practised in the area with encouragement from the Georgian Bay Land Trust and Parry Sound-Muskoka Stewardship Network.
12.2: Island Archipelago / 30,000 Islands Region (Regional)

12.2.1 Characteristic species:

The island archipelago of Georgian Bay, often referred to as the 30,000 Islands region, is the largest archipelago in the Great Lakes system. [The Canadian Thousand Islands - Frontenac Arch Biosphere Reserve (approved in November 2002) includes the next largest archipelago in this system]. Clusters of near-shore islands offer unique and diverse habitat mosaics that often have not been subjected to the same development pressures as similar environments on the mainland. Many of the islands have never been comprehensively inventoried for occurrences of biota; the biological surveys conducted in the summers of 2001 and 2002 helped rectify this (Please see Section 13). A small number of islands in the southern portion of the proposed biosphere reserve, in and around Georgian Bay Islands National Park, have been surveyed as part of an island biogeography study (Hager 1997; 1998).

A number of islands provide sites for colonial nesting birds, notably herring gull (*Larus argentatus*), ring-billed gull (*L delawarensis*), common tern (*Sterna hirundo*), Caspian tern (*S. caspia*), and double-crested cormorant (*Phalacrocorax auritis*). Please see Map 11 (*Known Avifauna Nesting Occurrences*). The large colonies on the Limestone Islands (part of the core area) led to the designation of these islands as an “Important Bird Area” under criteria established by BirdLife International. Islands and shoals also provide spawning and nursery areas for important sports fish. Please see Map 12 (*Known Fish Spawning and Migration Sites*).

12.2.2. Important natural processes:

Many islands are small and exposed to the open waters of Georgian Bay. Their size and location make them particularly susceptible to harsh winds, ice damage and wave action. Biota on these islands often display local adaptations to these extreme climatic conditions, exemplified by the wind-blown small pine trees. Island size limits habitat availability and associated species richness and population size.

12.2.3. Main human impacts:
Isolated islands often are attractive for cottagers because of their secluded nature and scenic vistas. Cottage development and associated habitat modifications include shoreline alteration, development of docking facilities, and application of fertilizers or pesticides on manicured lawns. Cumulative effects of this on habitat quantity and quality have not been documented for the proposed biosphere reserve.

12.2.4. Relevant management practices:

The islands within the proposed biosphere reserve fall under several jurisdictions. Many islands form part of the national or provincial parks. In these cases, management practices promote conservation combined with low intensity recreation such as camping and hiking. Where islands are privately owned, human use is guided through individual municipal official plans, and/or private stewardship (e.g. Georgian Bay Land Trust).

In 2001 and 2002, under the Ontario Ministry of Natural Resources, Nature Conservancy of Canada, and the Georgian Bay Land Trust Foundation partnership, reconnaissance level biological inventories were undertaken for a number of the outlying islands, as well as for the new conservation reserves established in 1999 under Ontario’s Living Legacy (Jalava and others 2002).

12.3. Near-shore Terrestrial, Coastal Wetlands, and Aquatic Near-shore Ecosystems (Local)

12.3.1 Characteristic species:

Based on physical configurations and on water depths and circulation, there are three general types of nearshore aquatic habitats: exposed shorelines, connected channels and bays, and isolated bays (Schiefer 2001). The coastal ecosystem of wetland complexes along with nearshore terrestrial habitats provide the micro-environmental conditions preferred by distinct associations of biota.

Coastal wetland complexes and fringe wetlands, particularly in the south part of the proposed biosphere reserve, support vegetation associations of reed grass (*Phragmites communis*), cattails (*Typhia spp.*), bur reed (*Sparganium eurycarpum*), graminoids (*Panicum*
spp.), sedges (*Carex spp.*), bulrush (*Scripus validus*), pickerel weed (*Pontederia cordata*), arrowhead (*Sagittaria spp.*), and smartweed (*Polygonum spp.*). A number of the more rare or restricted plants in the proposed biosphere reserve are associated with the wetlands and shorelines along coastal embayments. They include sharp-fruit rush (*Juncus militaris*), Eaton’s quillwort (*Isoetes eatonii*), stiff yellow flax (*Linum medium*), small waterwort (*Elatina minima*), meadow-beauty (*Rhexia virginica*), and Carolina yellow-eyed grass (*Xyris diffformis*).

Georgian Bay Islands National Park, for example, appears to have more species of herpetofauna than any other national park in Canada (Parks Canada, 1999). Characteristic species include eastern massasauga rattlesnake (*Sistrurus c. catenatus*) [the only poisonous reptile in Ontario], eastern fox snake (*Elaphe gloydii*), eastern hognose snake (*Heterodon platyrhinos*) northern water snake (*Nerodia sipidon*), garter snake (*Thamnophis sirtalis*), painted turtle (*Chrysemys picta*), spotted turtle (*Clemmys guttata*), five-lined skink (*Eumeces faciatus*) [the only lizard in Ontario], red-backed salamander (*Plethodon cinereus*), blue-spotted salamander (*Ambystoma laterale*), American toad (*Bufo americanus*), peeper (*Pseudacris crucifer*), gray treefrog (*Hyla versicolor*), wood frog (*Rana sylvatica*), bullfrog (*Rana catesbeiana*), green frog (*R. clamitans*), and leopard frog (*R. p. p. p. p.*).

The more common fish found in the near-shore aquatic environment include: yellow perch (*Perca flavescens*), walleye/pickerel (*Stizostedion vitreum*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), black crappie (*Pomoxis nigromaculatus*), golden shiner (*Notemigonus crysoleucas*), spottail shiner (*Notropis hudsonius*), common carp (*Cyprinus carpio*), bluntnose minnow (*Pimephales notatus*), brook silverside (*Labidesthes sicculus*), blackchin shiner (*Notropis heterodon*), bowfin (*Amia calva*), northern pike (*Esox lucius*), white sucker (*Catostomus commersoni*), brown bullhead (*Ameiurus nebulosus*), and channel catfish (*Ictalurus punctatus*). Important plant species which provide protection and support for fish spawning include white water lily (*Nymphaea odorata*), waterweed (*Elodea canadensis*), water milfoil (*Myriophyllum alterniflorum*), wild celery (*Vallisneria americana*) and pondweed (*Potamogeton amplifolius*).

12.3.2. Important natural processes:
The configuration of different types of coastal habitats determine the extent to which water exchanges occur as a result of wind-driven currents and water level changes through the connecting channels with the open water of the bay. The more isolated bays may be similar to small shallow lakes where they are more susceptible to the effects of land run-off or contamination (Scheiffer 2001).

Water level fluctuations in Georgian Bay occur episodically through wind-driven seiche effects lasting a few hours, seasonal cycles, and through multi-year variations associated with the lag effects from variations in precipitation patterns over several (wet or dry) years. The seasonal range of variations for Lake Michigan-Lake Huron have averaged 0.33m from 1861 to 1986 and 0.27m from 1987-2000 (Quinn 2002) while the multi-year levels have fluctuated over a range of 1.8m between 1900 to 2000 (Mortsch and others 2003). It is generally assumed that Georgian Bay experienced similar variations because of its direct hydrological connections with Lake Huron.

12.3.3. Main human impacts:

Dredging and navigation improvements at the outlet of Lake Huron since the late 1880s are estimated to have lowered water levels by some 0.27m to 0.62m (Argyilan and Forman 2003; Mortsch and others 2003). Nearshore terrestrial areas are also the ones favoured by cottagers and others who access the shore areas by boat. Cottage development along with shoreline alterations and hardening and degraded water at some locations represent primary human impacts on habitat quality and quantity in eastern Georgian Bay (Michigan Office of the Great Lakes 2002). A wetland survey funded by the GBA Foundation is underway to assess impacts of low water over the last four years and has found that some fish spawning areas have been affected (GBA Update – Summer 2003). (Please also see Appendix 4).

12.3.4. Relevant management practices:

Cottage and other developments are subject to zoning provisions in township official plans, but adjustments required by changing water levels are left up to adaptive measures taken by individual property owners. Public awareness programs are underway to foster conservation for endangered reptiles that sometimes occur in coastal habitats (e.g. the Greater Georgian Bay Reptile Awareness Program).
12.4: Lake Huron, Georgian Bay (Regional)

12.4.1 Characteristic species:

Georgian Bay is an oligotrophic ecosystem characterized by clear cold water and relatively low productivity as revealed by its plankton communities. Pooled among seasons, the area supports seven species of Cyanophyta, 16 species of Chlorophyta, 11 species of Chrysophyceae, 20 species of Diatomaceae, four species of Cryptophyceae, and four species of Dinophyceae (Munawar and others 1995).

Lake Huron has 92 species of fish, of which 77 appear to be native species (the rest were deliberately or accidentally introduced into the Great Lakes). The nearshore fish community was noted in Section 12.3.1. The offshore deep water fish community is composed of species such as lake trout (Salvelinus namaycush), rainbow trout (Oncorhynchus mykiss), lake whitefish (Coregonus clupeaformis), lake herring (C. artedii), bloaters (C. hoyi), alewives (Alosa pseudoharengus), rainbow smelt (Osmerus mordax), burbot (L. lota), slimy sculpin (Cottus cognatus), deepwater sculpin (Myoxocephalus thompsoni), and trout-perch (Percopsis omiscomaycus). A lake trout population near Parry Sound is the only original naturally reproducing one left in the Great Lakes other than in Lake Superior. Please see Map 12 (Known Fish Spawning and Migration Sites).

12.4.2. Important natural processes:

The main ones are those associated with large lakes, including surface and deeper currents, upwellings, some fluctuations in lake levels, discharges of nutrients into the system from tributary rivers, and seasonal thermal stratifications during the summer months. Limnological studies for Georgian Bay have been summarized in Munawar (1988). More recent information for nearshore areas within the proposed biosphere reserve have been gathered by community-based water quality monitoring programs reported by Scheifer (2001) and Scheifer and Scheifer (2002; 2003). (Please see Section 15 and Appendix 4).

12.4.3. Main human impacts:
Overfishing had virtually collapsed the commercial fisheries along the eastern Georgian Bay by the mid-1940s. The sports fishery is widely perceived to have declined in recent years. The invasive sea lamprey (*Petromyzon marinus*) is thought to be a contributing factor. There is a continuing concern about accidental introductions of exotics into Georgian Bay (as in the other Great Lakes) and especially as one possible outcome of climate warming (e.g. Magnuson and others 1997). There have been concerns expressed about possible environmental impacts of commercial scale aquaculture of rainbow trout (GBA Update, Summer 2003).

Shoreline developments have impacted on some former spawning or overwintering areas for fish. Certain bays with road access, poor water exchange, and intensive development have localized pollution. Most human impacts have been concentrated in the southern end of Georgian Bay, especially in the Severn Sound area.

There is growing concern among riparian property owners on Georgian Bay about the impact associated with the deepening of the outlet from Lake Huron over the years, and various proposals to enlarge other shipping channels or authorize water diversions through pipelines to use the Bay as domestic water sources for urban centres in south and southwestern Ontario (Muter 2003a; 2003b). Scenarios for climate change also anticipate some permanent lowering of water levels (Please see Section 11.2). Relatively sudden declines of levels on Georgian Bay by between one and two metres since 1998 have led to declining wetland habitats and increases in dredging or rock blasting around marinas.

12.4.4 Relevant management practices:

In 1995, the Lake Huron Committee of the Great Lakes Fishery Commission agreed that the overall objective for fisheries management in Lake Huron was: “over the next two decades to restore an ecologically balanced fish community dominated by top predators and consisting largely of self-sustaining indigenous and naturalized species capable of sustaining an annual harvest of 8.9 million kg.” (Ebener 1995). Specific objectives were agreed upon for the favoured species of sports fish in particular. The area within the proposed biosphere reserve is managed by the Ontario Ministry of Natural Resources in a manner deemed to be consistent with these general objectives.
Various studies directed towards rehabilitation of the sports fishery have been sponsored by the Ontario Ministry of Natural Resources in cooperation with the Georgian Bay Association; by the Eastern Georgian Bay/North Channel Fisheries Stewardship Council, and by the Anishinabek-Ontario Fisheries Resources Centre (directed to walleye, whitefish, and lake sturgeon) in cooperation with three First Nations groups in the proposed biosphere reserve. Strict regulations are in effect to protect the self-reproducing native stock of lake trout near Parry Sound. One caged aquaculture operation has been started in the Parry Sound area under license from the provincial government. It purchases fingerling rainbow trout from private hatcheries, raises them in floating cages to marketable size over 14 months, then sells them to a fish processing plant in southern Ontario for filleting and distribution (Aqua-Cage Fisheries, Ltd.)

Public education programs about waste water management from boats are being conducted by the Georgian Bay Association, the Ontario Marine Operators Association and the Ontario Boating Forum in the Georgian Bay area.

A comprehensive remedial action plan for Severn Sound has been implemented under the terms of the Great Lakes Water Quality Agreement (IJC 1989). It included projects directed towards restoring fish and wildlife habitat, upgrading sewage treatment plants, improving agricultural lands and waste management, research on groundwater issues, sediments and point source pollution entering the Sound, monitoring of recovery processes, and public education. The Sound was officially “de-listed” by the International Joint Commission (IJC) as an “area of concern” in October 2002. Steps have been initiated by the State of Michigan to promote lake-wide management planning for Lake Huron, similar to binational efforts underway through the US and Canadian federal governments in the other Great Lakes (Michigan Office of the Great Lakes 2002). Monitoring of outflows of water from Lake Huron, and environmental assessments for proposed new navigation works and water withdrawals have been called for by the Georgian Bay Association and other groups.

12.5: Inland Lakes and Rivers (Hydrological network)

12.5.1 Characteristic species
The extensive rivers, small lakes, and streams inland from the Georgian Bay shore have a variety of fish including species of sports fishing interest such as rainbow trout (*Oncorhynchus mykiss*), lake trout (*Salvelinus namaycush*), lake herring (*Coregonus artedii*), brook trout (*Salvelinus fontinalis*), smallmouth bass (*Micropterus dolomieu*i), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Amblopites rupestris*), walleye/pickerel (*Stizostedion vitreum*), yellow perch (*Perca flavescens*), muskellunge (*Esox masquinongy*) and northern pike (*Esox lucius*). Other characteristic fish include northern brook lamprey (*Ichtyomyzon fossor*), northern redbelly dace (*Chromos eos*), common shiner (*Notropis cornutus*), spottail shiner (*N. hudsonius*), creek chub (*Semotilus atromaculatus*), johnny darter (*Etheostoma nigrum*) and mottled sculpin (*Cottus bairdi*).

12.5.2 Important natural processes

Limnological surveys were conducted on four of the larger inland lakes by Scheifer (2001). Water quality was generally very good, based on criteria of water clarity, dissolved oxygen, dissolved solids, total phosphorus, and bacterial counts. The lakes exhibited a sharp thermocline in the summer. Tributary inflows were acidic (pH levels ranged from 5.5 to a near neutral 6.9) which is characteristic of acid bog drainage on the Canadian shield. Some of the small lakes in the area are so acidic that they support few fish.

12.5.3 Main human impacts

Inland lakes which have road access also have cottage developments, some at densities that could lead to undesirable loadings of bacteria, nutrients and other pollutants from septic systems, use of lawn chemicals, and outboard motor boats. Fishing pressures could easily reach the point where they become unsustainable given the low productivity of these waters (Scheifer 2001).

12.5.4 Relevant management practices

Protection of stream and fish habitat is called for in the management plans for the French-Severn Forest (Please see Section 12.1.4). Angling in the area is carried out under fishing regulations and a permit system that are tailored to fit the biological and sports fishing characteristics of individual lakes and rivers. Some lakes are selectively stocked with hatchery-
raised fish, and community volunteers assist with re-stocking and habitat improvement projects. (Ontario Ministry of Natural Resources n.d.)

13. CONSERVATION FUNCTION

13.1. Contribution to the conservation of landscape and ecosystem biodiversity

[Describe and give location of landscapes, ecosystems, habitats and/or land cover types of particular significance for the conservation of biological diversity.]

The littoral area of eastern Georgian Bay is of particular significance for the conservation of biological diversity, as was noted in Section 12. Please see Appendix 4: An Ecologist’s View of Georgian Bay, Map 7 (Landcover) for an image of the distribution of dominant land cover types in the eastern Georgian Bay region, and Map 9 (Species at Risk Occurrences) which also note the location of some “community types”.

Several ecosystems along the eastern Georgian Bay coast are identified as “special ecological communities” that do not occur elsewhere or are otherwise of high conservation value. Biological inventories carried out in 2001 and 2002, in response to the interest and support from the proponents of the proposed biosphere reserve, have documented this more
explicitly. The special ecological communities are bedrock beach/cobble beach, islands, sand barrens, coastal gneiss rocklands, and Atlantic coastal plain plant communities. In addition, and in association with these and other ecosystems, 148 habitat / vegetation types have been recognized by biologists at the Ontario Natural Heritage Information Centre (ONHIC) based on information so far compiled for the proposed biosphere reserve; 35 are considered to be rare in Ontario. These habitat / vegetation types are listed below and the conservation status for each is given in the right hand column.

[Note: The conservation status of habitat / vegetation types throughout their known range is indicated by G = global and within a given jurisdiction by S = State, or sub-national, in this case, Ontario. The ranking system 1 to 5 was developed by The (US) Nature Conservancy and has been adopted by the Conservation Data Centres in Canada (the ONHIC is the CDC for Ontario). On this scale, 1 = extremely rare, meaning the type is known from only five or fewer locations, while 5 means that the type is common and demonstrably secure, based on the number of known occurrences recorded in the conservation databases. G3 and/or S3 = rare, meaning the type is known from only between 21 to 100 locations. The list below was compiled from the ONHIC databases supplemented by the results of the 2001 and 2002 field work in the proposed biosphere reserve by Centre staff. Types noted with an asterisk (*) were previously reported and also documented in the 2001 and 2002 field survey; (**) are types added to the list by the surveys. This list is subject to further revision and refinement after the results from the recent field surveys are further analyzed.

<table>
<thead>
<tr>
<th>Habitat / Vegetation Type</th>
<th>Conservation Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acidic Granite Open Cliff **</td>
<td>G? S3/4</td>
</tr>
<tr>
<td>Acidic Open Bedrock Shore **</td>
<td>G? S5</td>
</tr>
<tr>
<td>Acidic Open Granite Talus **</td>
<td>G4/G5 S3/S4</td>
</tr>
<tr>
<td>Acidic Open Rock Barren **</td>
<td>G? S5</td>
</tr>
<tr>
<td>Acidic Treed Talus **</td>
<td>G4/5 S3/4</td>
</tr>
<tr>
<td>Alder Mineral Thicket Swamp *</td>
<td>G5? S5</td>
</tr>
<tr>
<td>Alder Organic Thicket Swamp **</td>
<td>G5? S5</td>
</tr>
<tr>
<td>Atlantic Coastal Plain Forb Bedrock Meadow Marsh **</td>
<td>G? S2?</td>
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<tr>
<td>Atlantic Coastal Plain Meadow Marsh **</td>
<td>G2? S3</td>
</tr>
<tr>
<td>Beaked Sedge Graminoid Open Fen **</td>
<td>G3/G4 S4/S5</td>
</tr>
<tr>
<td>Black Ash Mineral Deciduous Swamp **</td>
<td>G4 S5</td>
</tr>
<tr>
<td>Black Ash Organic Deciduous Swamp **</td>
<td>G4 S5</td>
</tr>
<tr>
<td>Black Spruce Treed Bog *</td>
<td>G5 S5</td>
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<tr>
<td>Black Spruce - White Cedar Organic Coniferous Swamp **</td>
<td>G4 S5</td>
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<td>Bladderwort Mixed Shallow Aquatic **</td>
<td>G5 S5</td>
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<tr>
<td>Blueberry Acidic Shrub Rock Barren **</td>
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<tr>
<td>Blueberry Granite Shrubland Barren *</td>
<td>G? S5</td>
</tr>
<tr>
<td>Bluejoint Mineral Meadow Marsh **</td>
<td>G? S5</td>
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<tr>
<td>Bluejoint Organic Meadow Marsh **</td>
<td>G? S5</td>
</tr>
<tr>
<td>Broad-leaved Sedge Mineral Meadow Marsh **</td>
<td>G4/G5 S5</td>
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<tr>
<td>Broad-leaved Sedge Organic Meadow Marsh **</td>
<td>G4/G5 S5</td>
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<tr>
<td>Broad-leaved Sedge Organic Shallow Marsh **</td>
<td>G4/G5 S5</td>
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<tr>
<td>Bulrush Mineral Shallow Marsh Shoreline **</td>
<td>G4/G5 S5</td>
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<tr>
<td>Bur-reed Mixed Shallow Aquatic **</td>
<td>G5 S5</td>
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<tr>
<td>Environmental Type</td>
<td>GIS Code</td>
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<td>Buttonbush Mineral Thicket Swamp **</td>
<td>G4 S3</td>
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<tr>
<td>Buttonbush Organic Thicket Swamp *</td>
<td>G4 S3</td>
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<tr>
<td>Buttonbush - Sweet Gale Mineral Thicket Swamp **</td>
<td>G? S2/S3</td>
</tr>
<tr>
<td>Calla Lily Organic Shallow Marsh **</td>
<td>G? S4</td>
</tr>
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<td>Cattail Mineral Shallow Marsh **</td>
<td>G5 S5</td>
</tr>
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<td>Common Juniper Acidic Shrub Rock Barren **</td>
<td>G? S2</td>
</tr>
<tr>
<td>Common Juniper - Shrubby Cinquefoil Alvar Shrubland</td>
<td>G2? S2</td>
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<tr>
<td>Common Juniper - Sumac - Hairy Beardtongue Alvar Shrubland</td>
<td>G2? S2</td>
</tr>
<tr>
<td>Common Reed Grass Organic Shallow Marsh</td>
<td>G3/G4 S4</td>
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<tr>
<td>Cottongrass-Beak Rush / Yellow-eyed Grass Open Fen **</td>
<td>G3/G4 S3/S4</td>
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<tr>
<td>Dewberry Thicket**</td>
<td>? ?</td>
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<tr>
<td>Dry - Fresh Hardwood - Hemlock Mixed Forest **</td>
<td>G4/G5 S4/S5</td>
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<tr>
<td>Dry - Fresh Hemlock - Oak Mixed Forest **</td>
<td>G? S3/S4</td>
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<tr>
<td>Dry - Fresh Mixed Oak Deciduous Forest **</td>
<td>G? S5</td>
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<td>Dry - Fresh Oak - Red Maple Deciduous Forest *</td>
<td>G? S3/S4</td>
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<td>Dry - Fresh White Birch Deciduous Forest **</td>
<td>G4? S5</td>
</tr>
<tr>
<td>Dry - Fresh Sugar Maple Deciduous Forest **</td>
<td>G4? S5</td>
</tr>
<tr>
<td>Dry - Fresh Sugar Maple - Basswood Deciduous Forest *</td>
<td>G3/G4 S?</td>
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<tr>
<td>Dry - Fresh Sugar Maple - Oak Deciduous Forest **</td>
<td>G? S5</td>
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<tr>
<td>Dry - Fresh White Pine Coniferous Forest</td>
<td>G3/G4 S4</td>
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<tr>
<td>Dry - Fresh White Pine - Red Maple Mixed Forest **</td>
<td>G3 S5</td>
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<tr>
<td>Dry - Fresh White Pine - Oak Mixed Forest **</td>
<td>G3 S5</td>
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<tr>
<td>Dry - Fresh White Pine-Bur Oak Mixed Forest **</td>
<td>G3? S4/S5</td>
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<tr>
<td>Dry Granite Barren</td>
<td>G? S5</td>
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<tr>
<td>Dry Red Pine - White Pine Coniferous Forest</td>
<td>G3/G4 S4</td>
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<tr>
<td>Dry White Pine - Red Oak - Red Maple - Juniper - Blueberry **</td>
<td>G3 S5</td>
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<tr>
<td>Duckweeds Mixed Shallow Aquatic **</td>
<td>G5 S5</td>
</tr>
<tr>
<td>Few-seeded Sedge Graminoid Bog *</td>
<td>G3/G4 S5</td>
</tr>
<tr>
<td>Forb Bedrock Meadow Marsh **</td>
<td>G? S4/S5</td>
</tr>
<tr>
<td>Forb Mineral Meadow Marsh **</td>
<td>G? S4/S5</td>
</tr>
<tr>
<td>Forb Organic Meadow Marsh **</td>
<td>G? S4/S5</td>
</tr>
<tr>
<td>Fowl Manna Grass Organic Meadow Marsh **</td>
<td>G? S4</td>
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<td>Fresh - Moist Aspen Deciduous Forest **</td>
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<tr>
<td>Fresh - Moist Aspen Mixed Forest **</td>
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</tr>
<tr>
<td>Fresh - Moist Balsam Fir Coniferous Forest **</td>
<td>G4 S5</td>
</tr>
<tr>
<td>Fresh - Moist Bur Oak Deciduous Forest **</td>
<td>G4 S2/S3</td>
</tr>
<tr>
<td>Fresh - Moist Hemlock Coniferous Forest **</td>
<td>G3? S4/S5</td>
</tr>
<tr>
<td>Fresh - Moist Sugar Maple -Yellow Birch Deciduous Forest **</td>
<td>G3/G4 S5</td>
</tr>
<tr>
<td>Fresh - Moist Sugar Maple - Hardwood Deciduous Forest **</td>
<td>G3/G4 S5</td>
</tr>
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<td>Fresh - Moist Oak - Sugar Maple Deciduous Forest **</td>
<td>G? S5</td>
</tr>
<tr>
<td>Fresh - Moist White Pine Forest **</td>
<td>G3 S5</td>
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</tr>
<tr>
<td>Fresh White Pine - Bur Oak Mixed Forest **</td>
<td>G3? S4/S5</td>
</tr>
<tr>
<td>Georgian Bay Coastal Acidic Forb Mineral Meadow Marsh **</td>
<td>G? S4</td>
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<tr>
<td>Georgian Bay Coastal Acidic Mineral Meadow Marsh **</td>
<td>G? S4</td>
</tr>
<tr>
<td>Georgian Bay Coastal Acidic Graminoid Bedrock Meadow Marsh **</td>
<td>G? S4</td>
</tr>
<tr>
<td>Georgian Bay Coastal White Cedar Forest **</td>
<td>G4 S5</td>
</tr>
<tr>
<td>Graminoid Coastal Meadow Marsh</td>
<td>G2? S2</td>
</tr>
<tr>
<td>Hemlock - Spinulose Wood Fern - Herb Poor **</td>
<td>G3? S4/S5</td>
</tr>
</tbody>
</table>
Jack Pine - White Cedar - Common Juniper Treed Alvar Shrubland G2? S2
Jack Pine - White Cedar - Low Calamint Treed Alvar Grassland G1 S1
Jack Pine Treed Granite Barren * G5 S5

Largetooth Aspen - White Pine - Red Oak - Red Maple
  - Blueberry - Wintergreen ** G3 S5
Leatherleaf - Chain Fern / St Johns-wort Shrub Fen ** G5 S4
Leatherleaf - Forb Deciduous Shrub Fen ** G3/G4 S3
Leatherleaf Shrub Bog * G5 S5
Leatherleaf / Sweet Gale / Graminoid Shore Fen ** G4/G5 S5
Low Sedge - Clubrush Graminoid Open Fen ** G3/G5 S4

Meadowsweet Mineral Thicket Swamp ** G? S5
Myriophyllum tenellum Submerged Shallow Aquatic ** G? S?
Moist - Fresh Hemlock - Sugar Maple Mixed Forest * G4/G5 S4/S5
Moist - Fresh Sugar Maple - Yellow Birch Deciduous Forest * G5? S5
Mountain Holly Deciduous Shrub Fen** G? S3/S4
Mountain Holly Organic Thicket Swamp ** G? S3/S4

Narrow-leaved Sedge Mineral Meadow Marsh ** G? S5
Narrow-leaved Sedge Organic Meadow Marsh ** G4? S5

Oak Acidic Treed Rock Barren ** G3/G5 S3/S3S4
Oak - Red Maple - Pine Treed Granite Barren Type G? S4/S5
Open Graminoid Shore Fen ** G? S5
Open Sand Dune (beach ridge)** G? S2

Pickerel-weed Mixed Shallow Aquatic ** G5 S5
Pondweed Mixed Shallow Aquatic * G5 S5

Red Cedar Treed Granite Barren Type G? S1
Red Maple - Conifer Organic Mixed Swamp ** G3/G4 S2
Red Maple - Hemlock Organic Mixed Swamp ** G3 S3/S4
Red Maple Mineral Deciduous Swamp ** G4? S5
Red Maple Organic Deciduous Swamp /(Floodplain Forest) ** G4? S5
Red Maple - Tamarack Mineral Mixed Swamp ** G4? S5
Red Oak - Sugar Maple - Ironwood - Fly Honeysuckle ** G4/G5 S5
Reed-canary Grass Mineral Organic Meadow Marsh ** G? S5
Rice Cut-grass Organic Meadow Marsh ** G? S4

Semi-treed Bog: Black Spruce / Ericaceous Shrub / Sphagnum ** G5 S5
Shrubby Cinquefoil - Juniper - Scirpus-like Sedge Alvar Pavement G2? S2?
Shrubby Cinquefoil Coastal Meadow Marsh G2? S1
Silver / Red Maple Mineral Deciduous Swamp G4? S5
Silver Maple Organic Deciduous Swamp ** G4? S5
Stonewort Submerged Shallow Aquatic ** G5 S4/S5
Sugar Maple - Beech - Striped Maple ** G4/G5 S4/S5
Sugar Maple - Hemlock - Yellow Birch - Striped Maple Forest ** G4/G5 S4/S5
Sugar Maple - White Birch - Aspen - Red Maple - Balsam Fir Shrub ** G5 S5
Sugar Maple - White Birch - Red Maple - Beaked Hazel LOGGED ** G5 S5
Sugar Maple - Yellow Birch - Spinulose Wood Fern ** G3/G4 S5
Sweet Gale Deciduous Shrub Fen ** G? S5
Sweet Gale Organic Thicket Swamp ** G? S5
Tamarack - Black Spruce Coniferous Organic Swamp* G4 S5
Tamarack Treed Fen ** G4 S5
Trembling Aspen - White Birch - White Spruce - White & Red Pine ** G5 S5
Twig-rush Graminoid Open Fen ** G3/G5 S3?
Virginia Chain Fern Open Bog ** G3 S3
Velvet-leaf Blueberry Deciduous Shrub Fen ** G5 S5
Water Lily - Bullhead Lily Floating-leaved Shallow Aquatic * G5 S5
Water Milfoil Mixed Shallow Aquatic ** G? S5
Water-shield - Water Lily Floating-leaved Shallow Aquatic ** G? S4
White Birch - Red Maple - Trembling Aspen / Mountain Maple ** G5 S5
White Cedar - Black Ash Organic Mixed Swamp ** G4 S5
White Cedar - Tamarack Coniferous Organic Swamp G4/G5 S5
White Pine - Red Pine - Blueberry - Feathermoss - Lichen ** G3 S4
White Pine - Jack Pine Acidic Treed Rock Barren ** G3/G5 S4?
White Pine Mineral Coniferous Swamp ** G3/G4 S2
White Pine - Oak Treed Acidic Rock Barren ** G3/G5 S4?
White Pine – Red Oak Savannah/treed sand barren** ? ?
Willow Organic Thicket Swamp ** G5 S5
Willow Mineral Thicket Swamp ** G5 S5
Winterberry Organic Thicket Swamp ** G2 S3/S4

Yellow Birch Mineral Deciduous Swamp ** G4 S5
Yellow Birch – Red Oak-Red Maple** ? ?

It was this diversity of habitats and vegetation associations that led to the inclusion of eastern Georgian Bay as one of the main “biodiversity investment areas” in the entire Great Lakes system.

13.2 Conservation of species biodiversity
[Identify main species (with scientific names) or groups of species of particular interest for the conservation of biological diversity, in particular if they are rare or threatened with extinction; use additional sheets if need be.]

Although complete lists of the fauna and flora have not been compiled, it can be noted that the biological surveys in 2001 and 2002 for the proposed biosphere reserve recorded over 970 species of vascular plants. For comparison, it can also be noted in passing that more extensive field studies over a number of years in the Muskoka District along the southern half of
the proposed biosphere reserve have recorded about 1,100 species of plants, and detailed plant
inventories over a 25 year period for Manitoulin Island, a large island in north-western Georgian
Bay, recorded 1,350 species.

Several groups of biota in the proposed biosphere reserve exhibit an unusual richness. As
noted, this includes herpetofauna for which 34 species have been recorded (about 40% of the
82 species that constitute the entire herpetofauna of Canada). At the southern end of the
proposed biosphere reserve, relic disjunct populations of some plants associated with the
Atlantic coastal plains flora occur; it is assumed they dispersed into this area several millenia
ago when the outflows from the predecessor glacial lakes (of the present Upper and Middle
Great Lakes including Georgian Bay) flowed through what are now the Severn and St.
Lawrence river systems to the Atlantic. The relatively undisturbed character of the proposed
biosphere reserve supports 44 species of mammals and has allowed a number of the larger or
more wide-ranging mammals to survive (as noted in Section 12.1.1). About 170 species of
breeding birds have also been recorded (a 5-year atlas survey of breeding birds in Ontario was
underway at the time this nomination was prepared – please see Section 15.1.10).

A list of rare species that occur in and around the eastern Georgian Bay region was
compiled from the rare species database maintained for four counties - Parry Sound, Muskoka,
Manitoulin, Sudbury - by the Ontario Natural Heritage Information Centre (ONHIC). Results from
the 2001 and 2002 field survey have been added. The right-hand columns (G and S, MNR,
COSEWIC) refer to different rankings of rarity and risk of extinction, as of 2002. Species are
listed in ascending order of the most rare first.

Note: The G and S ranks for species are defined the same way as noted for habitat / vegetation types in
Section 13.1. In addition, the Ontario Ministry of Natural Resources (MNR) developed its own
classification system for use under the provincial Endangered Species Act, and the classification system
has been coordinated with one used by the Committee on the Status of Endangered Wildlife in Canada
(COSEWIC) to judge the conservation status of species on a Canada-wide (or occasionally regional)
basis, as follows: EXP = extirpated; END = endangered (of being extirpated); THR = threatened, could
become endangered; VUL = vulnerable; and SC = species is of special concern (for some given reasons).
Each of these systems uses the collective best judgements of scientists who study the different species,
and is subject to change over time as more information becomes available.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>G and S ranks</th>
<th>MNR</th>
<th>COSEWIC</th>
</tr>
</thead>
</table>

Birds: [ B = status of breeding species]
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Threatened Status</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henslow's Sparrow</td>
<td>Ammodramus henslowii</td>
<td>G4 S1B,</td>
<td>END</td>
</tr>
<tr>
<td>Black Tern</td>
<td>Chlidonias niger</td>
<td>G4 S3B</td>
<td>VUL</td>
</tr>
<tr>
<td>Cerulean Warbler</td>
<td>Dendroica cerulea</td>
<td>G4 S3B</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Peregrine Falcon</td>
<td>Falco peregrinus anatum</td>
<td>G4 S2S3B</td>
<td>END THR</td>
</tr>
<tr>
<td>Yellow Rail</td>
<td>Coturnicops noveboracensis</td>
<td>G4 S4B</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Ruddy Duck</td>
<td>Oxyura jamaicensis</td>
<td>G5 S2B</td>
<td></td>
</tr>
<tr>
<td>Black-backed Gull</td>
<td>Larus marinus</td>
<td>G5 S2B</td>
<td></td>
</tr>
<tr>
<td>Loggerhead Shrike</td>
<td>Lanius ludovicianus</td>
<td>G5 S2B</td>
<td>END END</td>
</tr>
<tr>
<td>Acadian Flycatcher</td>
<td>Empidonax virescens</td>
<td>G5 S2B</td>
<td>END</td>
</tr>
<tr>
<td>Red-necked Grebe</td>
<td>Podiceps grisegena</td>
<td>G5 S3B</td>
<td></td>
</tr>
<tr>
<td>Least Bittern</td>
<td>Ixobrychus exilis</td>
<td>G5 S3B</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Black-crowned Night Heron</td>
<td>Nycticorax nycticorax</td>
<td>G5 S3B</td>
<td></td>
</tr>
<tr>
<td>Red-headed Woodpecker</td>
<td>Melanerpes erythrocephalus</td>
<td>G5 S3B</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Caspian Tern</td>
<td>Sterna caspia</td>
<td>G5 S3B</td>
<td></td>
</tr>
<tr>
<td>Prairie Warbler</td>
<td>Dendroica discolor</td>
<td>G5 S3S4B</td>
<td></td>
</tr>
<tr>
<td>Red-Shouldered Hawk</td>
<td>Buteo lineatus</td>
<td>G5 S4B</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Short-eared Owl</td>
<td>Asio flammeus</td>
<td>G5 S4B</td>
<td>SC</td>
</tr>
<tr>
<td>Fish:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortnose Cisco</td>
<td>Coregonus reighardi</td>
<td>G1 EXP</td>
<td>EXP THR</td>
</tr>
<tr>
<td>Lake Sturgeon</td>
<td>Acipenser fulvescens</td>
<td>G3 S3</td>
<td></td>
</tr>
<tr>
<td>Kiyi</td>
<td>Coregonus kiyi</td>
<td>G3 S3?</td>
<td>THR SC</td>
</tr>
<tr>
<td>Brook Lamprey</td>
<td>Ichthyomyzon fosser</td>
<td>G4 S3</td>
<td></td>
</tr>
<tr>
<td>Deepwater Sculpin</td>
<td>Myoxocephalus thompsoni</td>
<td>G5 S4</td>
<td>THR</td>
</tr>
<tr>
<td>Reptiles:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Fox Snake</td>
<td>Elaphe gloydii</td>
<td>G3 S3</td>
<td>THR THR</td>
</tr>
<tr>
<td>Eastern Massasauga</td>
<td>Sistrurus catenatus</td>
<td>G3/G4 S3</td>
<td>THR THR</td>
</tr>
<tr>
<td>Blanding’s Turtle</td>
<td>Emydoidae blandingii</td>
<td>G4 S3?</td>
<td></td>
</tr>
<tr>
<td>Spotted Turtle</td>
<td>Clemmys guttata</td>
<td>G5 S3</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Northern Map Turtle</td>
<td>Graptemys geographica</td>
<td>G5 S3</td>
<td>SC</td>
</tr>
<tr>
<td>Stinkpot</td>
<td>Sternotherus odoratus</td>
<td>G5 S3</td>
<td>THR</td>
</tr>
<tr>
<td>Five-lined Skink</td>
<td>Eumeces fasciatus</td>
<td>G5 S3</td>
<td>VUL SC</td>
</tr>
<tr>
<td>Eastern Hognose Snake</td>
<td>Heterodon platyrhinos</td>
<td>G5 S3</td>
<td>VUL THR</td>
</tr>
<tr>
<td>Lepidoptera (Butterflies and moths):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Hairstreak</td>
<td>Erora laeta</td>
<td>G4 S1</td>
<td></td>
</tr>
<tr>
<td>Monarch Butterfly</td>
<td>Danaus paniculata</td>
<td>G4 S4</td>
<td>SC</td>
</tr>
<tr>
<td>Olympia Marble</td>
<td>Euchloe olympia</td>
<td>G4/G5 S3?</td>
<td></td>
</tr>
<tr>
<td>Sleepy Duskywing</td>
<td>Erynnis brizo</td>
<td>G5 S1</td>
<td></td>
</tr>
<tr>
<td>Garita Skipperling</td>
<td>Oarisma garita</td>
<td>G5 S1</td>
<td></td>
</tr>
<tr>
<td>Persius Duskywing</td>
<td>Erynnis persius</td>
<td>G5 SX</td>
<td></td>
</tr>
<tr>
<td>Pepper &amp; Salt Skipper</td>
<td>Amblyscirtes hegton</td>
<td>G5 S3?</td>
<td></td>
</tr>
<tr>
<td>Large Marble</td>
<td>Euchloe ausonides</td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Pine Imperial Moth</td>
<td>Eacles imperialis pini</td>
<td>G5 S3?</td>
<td></td>
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<tr>
<td>Purplish Copper</td>
<td>Lycaena helioidea</td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Odonata (Dragonflies and damselflies):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elfin Skimmer</td>
<td>Nannothemis bella</td>
<td>G4 S3</td>
<td></td>
</tr>
<tr>
<td>Twin-spotted Spiketail</td>
<td>Cordulegaster maculata</td>
<td>G5 S3</td>
<td></td>
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<tr>
<td>Sphagnum Sprite</td>
<td>Nehalennia gracilis</td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Snails:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Diurnal Ambersnail</td>
<td>Catinella aprica</td>
<td>G? S2</td>
<td></td>
</tr>
<tr>
<td>(no common name)</td>
<td>Succinea indiana</td>
<td>G? S2</td>
<td></td>
</tr>
<tr>
<td>Plant Name</td>
<td>Scientific Name</td>
<td>Habitat Code</td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Lowland Pillsnail</td>
<td><em>Euchemotrema leai</em></td>
<td>G5 S2S3</td>
<td></td>
</tr>
<tr>
<td>Rubberweed</td>
<td><em>Hymenoxys herbacea</em></td>
<td>G2 S2</td>
<td></td>
</tr>
<tr>
<td>Western Moonwort</td>
<td><em>Botrychium hesperium</em></td>
<td>G3 S1</td>
<td></td>
</tr>
<tr>
<td>Hill's Pondweed</td>
<td><em>Potamogeton hilii</em></td>
<td>G3 S2</td>
<td></td>
</tr>
<tr>
<td>Rugulose Grapefern</td>
<td><em>Botrychium rugulosum</em></td>
<td>G3 S2</td>
<td></td>
</tr>
<tr>
<td>Pitcher's Thistle</td>
<td><em>Cirsium pitcheri</em></td>
<td>G3 S2</td>
<td></td>
</tr>
<tr>
<td>Houghton's Goldenrod</td>
<td><em>Solidago houghtonii</em></td>
<td>G3 S2</td>
<td></td>
</tr>
<tr>
<td>Dwarf Lake Iris</td>
<td><em>Iris lacustris</em></td>
<td>G3 S3</td>
<td></td>
</tr>
<tr>
<td>Ram's-head Lady's-slipper</td>
<td><em>Cypripedium arietinum</em></td>
<td>G3 S3</td>
<td></td>
</tr>
<tr>
<td>Hill's Thistle</td>
<td><em>Cirsium hilii</em></td>
<td>G3 S3</td>
<td></td>
</tr>
<tr>
<td>Short-stalked Bedstraw</td>
<td><em>Galium brevipes</em></td>
<td>G3/G4 S2?</td>
<td></td>
</tr>
<tr>
<td>Broomrape</td>
<td><em>Orobanche fasciculata</em></td>
<td>G4 S1</td>
<td></td>
</tr>
<tr>
<td>Southern Twayblade</td>
<td><em>Listera australis</em></td>
<td>G4 S1</td>
<td></td>
</tr>
<tr>
<td>Engelmann's Quillwort</td>
<td><em>Isoetes engelmannii</em></td>
<td>G4 S1</td>
<td></td>
</tr>
<tr>
<td>Tuckerman's Quillwort</td>
<td><em>Isoetes tuckermanii</em></td>
<td>G4? S1</td>
<td></td>
</tr>
<tr>
<td>Gattinger's False Foxglove</td>
<td><em>Agnalinis gattingeri</em></td>
<td>G4 S2</td>
<td></td>
</tr>
<tr>
<td>Crested Arrowhead</td>
<td><em>Sagittaria cristata</em></td>
<td>G4? S2/S3</td>
<td></td>
</tr>
<tr>
<td>Hidden-fruited Bladderwort</td>
<td><em>Utricularia geminiscapa</em></td>
<td>G4/G5 S3</td>
<td></td>
</tr>
<tr>
<td>Bayonet Rush</td>
<td><em>Juncus militaris</em></td>
<td>G4 S3/S4</td>
<td></td>
</tr>
<tr>
<td>Carey's Knotweed</td>
<td><em>Polygonum careyi</em></td>
<td>G4 S3/S4</td>
<td></td>
</tr>
<tr>
<td>Long Sedge</td>
<td><em>Carex folliculata</em></td>
<td>G4/G5 S3</td>
<td></td>
</tr>
<tr>
<td>Hidden-fruited Bladderwort</td>
<td><em>Utricularia geminiscapa</em></td>
<td>G4/G5 S3</td>
<td></td>
</tr>
<tr>
<td>White-fringed Orchid</td>
<td><em>Platanthera blephariglottis</em></td>
<td>G4/G5 S3/S4</td>
<td></td>
</tr>
<tr>
<td>Ridged Yellow Flax</td>
<td><em>Linum striatum</em></td>
<td>G5 S1</td>
<td></td>
</tr>
<tr>
<td>Spotted Wintergreen</td>
<td><em>Chimaphila maculata</em></td>
<td>G5 S1</td>
<td></td>
</tr>
<tr>
<td>Twining Bartonia</td>
<td><em>Bartonia pniculata</em></td>
<td>G5 S1</td>
<td></td>
</tr>
<tr>
<td>Rough Dropseed</td>
<td><em>Sporobolus asper</em></td>
<td>G5 S1/S2</td>
<td></td>
</tr>
<tr>
<td>Green Milkweed</td>
<td><em>Asclepia viridiflora</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Arrow-arum</td>
<td><em>Peltandra virginica</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Cloud Sedge</td>
<td><em>Carex haydenii</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Puttyroot</td>
<td><em>Aplectrum hyemale</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Wallrue Spleenwort</td>
<td><em>Asplenium ruta-muraria</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Limestone Oak Fern</td>
<td><em>Gymnocarpium robertianum</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Pine-drops</td>
<td><em>Pterospora andromedea</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Panic Grass</td>
<td><em>Panicum spretum</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Yellow Screwstem</td>
<td><em>Bartonia virginica</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Eaton's Panic Grass</td>
<td><em>Panicum spretum</em></td>
<td>G5 S2</td>
<td></td>
</tr>
<tr>
<td>Smith's Bulrush</td>
<td><em>Scirpus smithii</em></td>
<td>G5? S2?</td>
<td></td>
</tr>
<tr>
<td>Small-flower Blue-eyed Mary</td>
<td><em>Collinsia parviflora</em></td>
<td>G5 S2/S3</td>
<td></td>
</tr>
<tr>
<td>Goldie's Round-leaved Orchid</td>
<td><em>Platanthera macrophylla</em></td>
<td>G5? S2</td>
<td></td>
</tr>
<tr>
<td>Thread-like Najas</td>
<td><em>Najas gracillima</em></td>
<td>G5? S2</td>
<td></td>
</tr>
<tr>
<td>Smith's Club-rush</td>
<td><em>Schoenoplectus smithii</em></td>
<td>G5? S3</td>
<td></td>
</tr>
<tr>
<td>Broad Beech Fern</td>
<td><em>Phegopteris hexagonoptera</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Roundleaf Ragwort</td>
<td><em>Senecio obovatus</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Rand's Goldenrod</td>
<td><em>Solidago simplex ssp. Randii</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Stiff Yellow Flax</td>
<td><em>Linum m. var. medium</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Lizard's Tail</td>
<td><em>Saururus cernus</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Red-disked Alphine</td>
<td><em>Erebia discoidalis</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Great Lakes Wheatgrass</td>
<td><em>Elymus lanceolatus ssp.</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Northern Dropseed</td>
<td><em>Sporobolus heterolepis</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Purple-stemmed Cliffbrake</td>
<td><em>Pellaea atropupurea</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Braun's Holly Fern</td>
<td><em>Polystichium braunii</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Sharp-fruited Rush</td>
<td><em>Juncus acuminatus</em></td>
<td>G5 S3</td>
<td></td>
</tr>
<tr>
<td>Marsh St. John's-wort</td>
<td><em>Triadenum virginicum</em></td>
<td>G5 S3</td>
<td></td>
</tr>
</tbody>
</table>
Halberd-leaved Tearthumb  *Polygonum arifolium*  G5 S3
New England Sedge  *Carex novae-angliae*  G5 S3
Carolina Yellow-eyed Grass  *Xyris differmis*  G5 S3?

13.3. Conservation of genetic biodiversity:

*[Indicate species or varieties of traditional or economic importance and their uses, e.g. for medicine, food production, etc.]*

The aboriginal peoples in the area of the proposed biosphere reserve were hunters and gatherers. Little more than this is known about the early paleo-indians, although it has been widely assumed they were dependent upon herds of caribou (*Rangifer sp.* (Peers 1985). From observations since the mid-17th century, aboriginal use of local resources in the Georgian Bay and Lake Huron area was based on rich traditional ecological knowledge. Hunting and fishing occurred year-round but there were seasonal patterns related to resource availability. In winter, family groups dispersed to favourite hunting and trapping areas, often near winter deer yards (areas where deer sought shelter under conifer trees). In spring, groups came together around spawning rivers for fish that were speared or netted for food, and in summer they congregated along lakeshores where in addition to fishing, they gathered a range of plants for food, medicines, and crafted items, and hunted waterfowl.

Larger mammals were a main source of food and hides for clothing; deer skins were made into buckskin clothing, leggings and mocassins (shoes), moose and beaver hides were made into protective outer garments including hats and mittens. Beaver pelts were the staple of the fur trade, and porcupine quills and moose hairs were used for decorations. Sturgeon, pike, trout, walleye/pickerel, suckers and whitefish were also major sources of food. Plant products included maple syrup gathered in early spring, wild rice (a staple), rushes and reeds for weaving into mats, wild berries, mushrooms, and many other plants for food and medicine. Bark from birch trees had many uses including covering for wigwams (shelters made from cedar poles), covering for canoes, storage containers, and scrolls used for a form of record-keeping.

While present-day descendents of aboriginal people are not nearly so dependent on the traditional ways for material well-being, some continue to hunt and fish and spend time away from settlements for cultural and spiritual purposes. Non-aboriginal residents and seasonal visitors to the area of the proposed biosphere reserve engage extensively in recreational fishing, especially for bass, walleye/pickerel, trout, pike and muskellunge. Deer and moose hunting is
widely practised. The local sawmills make use of red and white pine and maple and oak, processing them into flooring and other building materials, pulp logs, paperboard, woodchips and sawdust.

14. DEVELOPMENT FUNCTION

14.1 Potential for fostering economic and human development which is socio-culturally and ecologically sustainable:

[Describe how the area has potential to serve as a pilot site for promoting the sustainable development of its region or "ecoregion".]

The proposed biosphere reserve has great potential to foster economic and human development because of the extensive high quality resources for tourism-based jobs, scientific research, educational pursuits, and alternative lifestyle living and working. With continuing population growth in southern Ontario and a growing retirement demographic cohort, the area (especially immediately south and to the east of the proposed biosphere reserve) has come under increasing pressure for development. Governments are expressing interest in undertaking
tourism and settlement strategies aimed at accommodating the demand while also protecting the very environment that these demands depend upon. One result is an intensification of competing land and water uses.

The potential for developing environmentally sound water and land-based eco-tourism is one of the main ideas that led to the concept of the Eastern Georgian Bay Littoral in 1996 and for adopting the biosphere reserve model to help realize that goal. Awareness of the need to bring about a transformation of the region’s economy and settlement patterns has been growing rapidly. Employment in the older resource extraction industries has been continually declining and could virtually disappear over the next two decades. In contrast, the prospects for a vibrant year-round tourism and recreation-based economy are extremely strong. There is also a growing need to expand the community economic tax base given the decision in recent years by the provincial government to place more administrative and service responsibilities on municipalities. A comprehensive region-wide approach is needed to deal effectively with these issues.

In addition, there are initiatives underway to promote more balanced approaches to the management of renewable resources. The two “enhanced management areas” (EMAs) established in 1999 which occur partly within the proposed biosphere reserve are examples. The Great Lakes Coastal Areas EMA:

“... will be managed to protect its outstanding beauty and sensitive ecosystems, and to promote its recreation and tourism potential. The majority of lands will be retained in public ownership and the Ministry will actively seek cooperation and partnerships in its future planning and management.

Crown lands should not be sold for cottaging development and new road access should be discouraged. Any new access should be identified as part of more detailed comprehensive local planning and be consistent with maintaining the scenic and ecological values and remote characteristics of the coastal area.

Any new development such as tourism-related infrastructure (marinas, mooring areas) should be planned and implemented in a manner consistent with the overall objective of protecting the natural elements of this unique ecosystem” (Ontario Ministry of Natural Resources, Crown Land Use Atlas – Policy Report 2002).

The North Parry Sound Area EMA will be in recognition of the following:
Values include recreational values, forest management and other resource management activities, First Nation values and important hunting (big and small game, and waterfowl) opportunities. It is an important recreational area for local residents and commercial tourist operators, containing many recreation camps and recreational trails in a semi-remote setting. Forestry and fur harvesting are also important to the local economy and are important for wildlife management...rare or unique vegetation and vulnerable and threatened wildlife and plant species also occur” (*ibid.*).

Recent work of Westwinds Forest Stewardship Inc. has demonstrated a code of “best practices” which is appropriate for a biosphere reserve. Under guidance from Westwind, the French/Severn Forest produces in the order of 300,000 m$^3$ of wood (mostly sawlogs) annually; most is cut by five local companies and the rest by 24 small independent operators (much of this is east of the proposed biosphere reserve). For private landowners, advice on forest management is provided through the Parry Sound-Muskoka Stewardship Network. Forest management has also included funding over the past five years from the First Nations Forestry Program (Natural Resources Canada, Canadian Forestry Service, and Department of Indian and Northern Affairs) for three First Nations groups within the proposed biosphere reserve to enhance their forest management skills and employment in the area.

Work under the Great Lakes Water Quality Agreement, and especially implementation of the remedial action plan for Severn Sound, are commitments for maintaining the high environmental quality of the coastal and open water components of the proposed biosphere reserve. This in turn has been an incentive for municipalities to initiate septic tank re-inspection programs and for non-governmental groups to address pollution problems from recreational boating through educational programs and moral suasion, reflected, for example, by the Georgian Bay Boaters and Cottagers Code (2002).

14.2. If tourism is a major activity:

Eastern Georgian Bay is from two to four hours driving time from the Greater Toronto Area with a current population of about five million people. This population is expected to grow to about eight million by 2020. Beyond this immediate market are the rest of Ontario and the US States of Michigan, Ohio, Pennsylvania and New York, which collectively have a population of some 63 million, which is expected to grow to 69 million by 2020. The personal disposable income of this market is expected to grow by 38% over the same period (O’Dell 2001) so
tourism pressures on the area of the proposed biosphere reserve are expected to continue quite strongly.

14.2.1. Type(s) of tourism

[Study of flora and fauna, recreation, camping, hiking, sailing, horseriding, fishing, hunting, skiing, etc.]

The range of tourism and outdoor recreation activities during the summer months includes scientific and educational nature study, camping, canoeing, kayaking, cottaging, horseback riding, hiking, sailing, power-boating, water skiing, fishing, music festivals, art shows, fairs, conferences, and jamborees. The Festival of the Sound in Parry Sound is one of Canada’s premier chamber music festivals. Activities in winter months include snowmobiling, cross-country skiing, snowshoeing, ice boats, dog-sled racing, hunting and ice fishing, conferences and seasonal festivals. About 30 “adventure operators” provide seasonal or year-round activities for visitors seeking outdoor recreation.

Killbear Provincial Park received 278,732 visitors in 2001, while Massasauga Provincial Park, which is only accessible by water, had 22,789 visitors in 2001. Georgian Bay Islands National Park had 91,331 visitors in 2001. Some 12,000 boats use the Severn Locks annually on the Trent waterway at the southern entrance to the proposed biosphere reserve, and approximately 20,000 boats annually use the marina facilities at Little Current, Manitoulin Island, on the north shore channel of Lake Huron to the northwest of the proposed biosphere reserve. An estimated 2,500 cruise ship passengers visited Georgian Bay in 2002.

Recreational trails are also being developed in the area. Besides trails in the main parks (Georgian Bay Islands, Massasauga, and Killbear) there is a 230 km “park-to-park” trail to be completed by 2005 along a former railroad right-of-way to link seven provincial parks along a west to east direction inland from the Georgian Bay coast. There are also extensive well-groomed snowmobile trails around Parry Sound maintained by volunteers from local snowmobile clubs.

Please see Map 13 which identifies tourism nodes and facilities in the proposed biosphere reserve.
14.2.2. Tourist facilities and description of where these are located and in which zone of the proposed biosphere reserve:

The one main north/south highway (#69/400) running through the spine of the region, and serving as the eastern boundary for the proposed biosphere reserve, is currently being expanded to a four-lane highway along its entire length. The main tourist facilities are located within reach of it at specific centres, including Port Severn, Honey Harbour, Twelve Mile Bay, Parry Sound, and Pointe au Baril Station. The Town of Parry Sound (population in 2001: 6,124) is located just off the highway at mid-region; it has a full range of tourist facilities and is developing to become one of the main “jumping-off” points for boaters to the littoral zone. Port Severn at the southern end of the proposed biosphere reserve will become a designated gateway to the Great Lakes Heritage Coast. As part of its new gateway designation, it will bring the “Port” back into Port Severn with emphasis on boating and accommodation services. Altogether, there are about 50 hotels, motels, lodges, or inns within or close to the proposed biosphere reserve.

There is a secondary network of land and water-based services related to smaller hamlets and settlement areas. Tertiary level services exist in the campgrounds and marinas associated with the national and provincial parks, and First Nation’s lands. All of these activity and service areas are surrounded by large areas of undeveloped and in some cases pristine natural terrain, some of which would be suitable for eco-tourism programs.

14.2.3. Indicate positive and/or negative impacts of tourism at present or foreseen:

It is expected that the growth of the tourism industry will strengthen the area’s economic base with the associated employment and tax revenues. But it should also improve the sustainability of communities through enhancing community images, creating new enterprises, providing support for community organizations, emphasizing the quality-of-life aesthetics, supporting conservation and environmental protection, stimulating heritage preservation and ecological stewardship, and acting as community rallying points to celebrate important accomplishments (O’Dell 2001).

A primary strategy of the region is to generate sufficient revenues to protect effectively the natural base and infrastructures on which their tourism industry depends, and mitigate any negative impacts associated with infrastructure requirements, land use incompatibilities,
resource degradation or misuse, and lack of program continuity. Tourism is heavily concentrated during the summer season. The seasonal population is estimated to increase by an overall factor of from three to five times, and up to 25 times in some localities. For example, in 2001, 88% of the visitors to Killbear Provincial Park came in July and August. Opportunities for expanding tourism potential in the area during the “shoulder season” (early spring and late autumn) are being explored (e.g. in Parks Canada marketing strategy) and an enhanced role is being sought for historical and cultural attractions such as local museums, art galleries, and festival events.

This general approach is reflected in a draft strategic plan for Port Severn which envisages a destination stopover “Port of Port Severn” marina, hotel, and restaurant facility located to avoid encroachment on a significant wetland and fish spawning area (for muskellunge and other species). The plan indicates a market potential now for about 26,000 “transient boats” in the Port Severn area which could grow to 31,000 by 2020 (Meridian and others 2003).

14.3. Benefits of economic activities to local people:

[Indicate for the activities described above whether the local communities derive any income or benefits directly or indirectly from the site proposed as a Biosphere Reserve and through what mechanism]

Communities within the proposed biosphere reserve are expected to benefit from enhanced tourism since many local residents own, or are employed by service industries. Other benefits expected from increased investment in tourism include changes in social attitudes, renewal of public amenities, redevelopment of derelict properties, and changes to attract lifestyle growth. The challenge will be to make sure that these developments do not degrade the environment. Monitoring programs developed by the proponents of the biosphere reserve are addressing some of these issues (Please see Section 15.1.3).
15. LOGISTIC SUPPORT FUNCTION

15.1. Research and monitoring

15.1.1. To what extent has the past and planned research and monitoring programme been designed to address specific management questions in the potential biosphere reserve? (For example, to identify areas needing strict protection as core areas, or to determine causes of and means to halt soil erosion, etc.).

Research and monitoring within the proposed biosphere reserve have been conducted by a wide range of scientists to enhance basic understanding of the biophysical and human attributes of the area, and in many cases, to inform management authorities about particular issues.

Understanding the area:

Most of the past geological research has been devoted to understanding the basic features and geological history of the proposed biosphere reserve. Studies along a 140 km transect of the exposed pre-Cambrian rock of the Canadian Shield along the Georgian Bay littoral provides evidence of a one billion year old orogen (mountain-building series of events) interpreted to have been comparable in scale to the geological processes that created the large
modern mountainous areas of the world. The present erosion surface along the Georgian Bay littoral is thought to be in the order of 20 km down into the mid to deep crustal level, and provides an unrivalled opportunity to study orogenic processes revealed at these depths. The exposures exhibit different gneiss associations, shear zones, plutonic mineralization, metamorphism and deformations that have been the basis for interpretations of two major sets of geological events separated by about 265 million years. Other research has documented the post-glacial history of the present Lake Huron-Georgian Bay formation over the last 12,000 years or so.

Information about ecosystems and biota has been compiled opportunistically, or as part of management-related information gathering, such as inventories and assessments of “areas of natural and scientific interest” (e.g. Brunton 1993) and the more recent work under the Ontario Ministry of Natural Resources/Nature Conservancy of Canada/Georgian Bay Land Trust Foundation partnership (Javala and others 2002). Since 1997, staff associated with the Georgian Bay Islands National Park (a major core area for the proposed biosphere reserve) have carried out analyses of landscape ecology from a “greater ecosystem” regional perspective which includes or extends beyond the area of the proposed biosphere reserve. A number of the maps accompanying this nomination came from this work.

The landscape analyses have been used to develop predictive habitat models for species at risk and to interpret “core and corridor” patterns on the land, both of which help identify potential areas of high conservation value (for an overview, see Zorn and Quirouette 2002). This information is also necessary for park management to develop strategies for protecting the “ecological integrity” of the national park as required by law (Zorn and others 2001). To a somewhat lesser extent, there is ongoing research and monitoring in provincial parks most of which is directed to biotic components (Mulrooney and others 1999); explorations are underway for introducing ecological integrity monitoring in the provincial parks system. Several of the volunteer monitoring programs, especially for birds and reptiles, contribute data that can be used for these analyses.

Information about the human components of the area come from local histories and census data. The latter could be drawn upon to develop a “social monitoring” component as recommended by UNESCO (Lass and Reusswig 2002).
Management-oriented:

Research on Georgian Bay itself has been directed towards management issues identified under the Canada-United States “Great Lakes Water Quality Agreement” (IJC 1989), notably documentation of trends in water quality in the Bay and the implementation of a “remedial action plan” for Severn Sound. This has been supplemented by a community-based volunteer monitoring program for nearshore water quality which began in 1996 and now covers 65 locations within the proposed biosphere reserve. Some community-based studies have examined issues associated with water levels, proposed navigation works, and water withdrawals through pipelines.

Fisheries work is guided by “A Joint Strategic Plan for the Management of Great Lakes Fisheries” (GLFC 1997), a “Strategic Vision of the Great Lakes Fishery Commission for the First Decade of the New Millennium” (GLFC 2001), and especially the agreed-upon (in 1995) binational objectives for fisheries in Lake Huron. Various studies devoted to assessing the spawning and recruitment success of particular fish stocks, especially walleye/pickerel, lake trout, whitefish, and sturgeon, are set in this context. A metadata base has been compiled for about 200 spatially referenced fishery databases with over 250,000 records for the Lake Huron watershed (Bernardo 2002).

Issues of forest and wildlife management also come under the coordination responsibilities of Westwind Forest Stewardship Inc. for the entire French-Severn Forest, and under management plans for the individual Conservation Reserves and Enhanced Management Areas within the proposed biosphere reserve.

The proponents of the biosphere reserve understand the importance of research and monitoring and the need to play a constructive role in fostering it. They have contributed by helping to organize the community-based volunteer monitoring activities, and by developing area-wide information and databases for use by various groups. Their recent purchase of the high resolution IKONOS satellite imagery for the entire area of the proposed biosphere reserve has already drawn attention and use of it by faculty and students from several universities. Links with a number of universities and research networks will be explored more directly, pending the outcome of this nomination.
Examples of specific research are identified below, and the full citations are given at the end of Section 15.1. Most are of local importance, although monitoring co-sponsored by EMAN can be used for comparative studies at the national level.

15.1.2 Brief description of past research and/or monitoring activities [Indicate the dates of these activities and extent to which the research and monitoring programs are of local/national importance and/or of international importance]

Abiotic research and monitoring [climatology, hydrology, geomorphology, etc.]

Geological studies have included:

* analyses of the Grenvillian tectonic structures and metamorphism underlying the whole region of the proposed biosphere reserve along a 140 km transect from Key River to Honey Harbour (Culshaw and others 1997; Jamieson and others 1992; 1995; Ketchum 1994; Long 1994; Reynolds and others 1995; Wadicka 1994; Wadicka and others 2000)

* quaternary evolution of Lake Huron and Georgian Bay through analyses of old shorelines, stratigraphy, and biostratigraphic zonations identified through fossil molluscs (52 assemblages of about 108 taxa) for the period 12,000 to 4,000 years ago (Karrow and Calkin 1985)

* sediment layers and history (Dobson and others 1995; Johnson and others 1990)

* seismic stratigraphy and post-glacial lake level history (Moore and others 1994; Rea and others 1994)

* erosion of bedrock by subglacial meltwaters (Kor and others 1991)

Water quality and limnological studies have included:

* intensive water quality surveys for Lake Huron including Georgian Bay conducted under terms of the Great Lakes Water Quality Agreement (Dolan and others 1986; Ewins and others 1992; Munawar 1988; Stevens and others 1985)

* water quality trends in Severn Sound (Gemza 1995)

* sediment chemistry and bioassessment (Krantzberg and Sherman 1995)
* butylin compounds in Severn Sound (Wong and others 1994)

* compilation and syntheses of current scientific knowledge about the Lake Huron ecosystem (Munawar and others 1995)

* maps of the environmental sensitivity of Lake Huron’s Canadian shoreline -- maps 66-85 (1:50,000) cover eastern Georgian Bay (Environment Canada 1994)

* changes in seasonal cycles of Great Lakes water levels (Quinn 2002)

**Biotic research and monitoring** [flora, fauna]:

Past biological studies have been conducted on aquatic ecosystems (especially plankton and fisheries) and on population dynamics of terrestrial species of particular interest.

Aquatic ecosystem studies have included:

* limnology and fisheries (Munawar 1988)

* structures of plankton communities in Georgian Bay (Munawar and others 1995)

* factors effecting photosynthesis in phytoplankton (Furgal and Smith 1997; Furgal and others 1998)

* seasonal dynamics of zooplankton in Severn Sound (Gemza 1995)

Biotic inventories and studies of population dynamics have included:

* review and assessment of ANSIs in Site District 5E-7 (Brunton 1993)

* biotic inventory of natural heritage areas in the District of Muskoka, including Georgian Bay Township within the proposed biosphere reserve (Reid and Bergsma 1994)
* breeding success of ring-billed gulls and herring gulls on the Limestone Islands (Chudzik and others 1994)

* organochlorine contaminants in avian wildlife in Severn Sound (Martin and others 1995)

* reproduction and growth of spotted turtles (Litzgus and Brooks 1998; Litzgus and others 1999)

* life history and behaviour of eastern massasauga rattlesnakes (Parent and Weatherhead 2000)

**Social and economic research** [demography, economics, traditional knowledge, etc.]:

* local histories of communities within the proposed biosphere reserve (e.g. Campbell c2000; David 1997; Koennecke 1984; MacMahon 1990; McCuaig 1984)

* socio-economic studies and planning issues (e.g. Pearson 1991a; 1991b)

* census data on demographic attributes, incomes, educational levels, employment, family sizes, dwellings, and other information from enumeration districts covering the proposed biosphere reserve (Statistics Canada).

15.1.3. Brief description of on-going research and/or monitoring activities:

Current or recent research and monitoring topics include:

**Abiotic research and monitoring** [climatology, hydrology, geomorphology, etc.]:

* identification of the effects of lower water levels on habitats and ecosystems (sponsored by the GBA Foundation)

* introduction of smog season ozone monitoring in Parry Sound combined with mobile air monitoring units for issuing air quality advisories (sponsored by the Ontario Ministry of the Environment)

* monitoring of surface water quality (conductivity, pH, water clarity, total phosphorus, dissolved oxygen, thermal stratification) at various points along the littoral and in inland lakes (Schiefer 2001; Schiefer and Schiefer 2002, 2003)
* screening level assessment of the effects of climate change on GBINP, and by implication, the proposed biosphere reserve (Armitage and others 1999)

* ice phenology (sponsored by the Georgian Bay Islands National Park),

**Biotic research and monitoring [flora, fauna]**

* studies of water quality using macroinvertebrate indicators along the south-east shorelines of Georgian Bay (sponsored by the GBA Foundation, Georgian Bay Association and University of Guelph)

* inclusion of bacterial counts (total coliform and \(E. \text{ coli}\)) and sonar reconnaissance of coldwater fish communities in water quality monitoring (Schiefer and Schiefer 2002, 2003)

* water quality monitoring in bays used extensively by boaters (LeBreton 2001; 2002)

* intensive monitoring of eutrophication in Sturgeon Bay, Pointe au Baril (sponsored by the Township of The Archipelago)

* studies of the ecological effects of shelterwood regeneration and site preparation in white pine stands (sponsored by the Ontario Forest Research Institute)

* forest dynamics in an archipelago (Diver 2003)

* establishment of a ~5 km transect from outer islands to the mainland to monitor lichen growth on groups of trees as indicator of cumulative effects of air quality (sponsored by the GBA Foundation, Georgian Bay Association and Ecological Monitoring and Assessment Network)

* population trends and colony locations of double-crested cormorants (Weseloh and others 2002)

* double-crested cormorant research and monitoring program (Ontario Ministry of Natural Resources 2002)

* assessment of population trends of breeding birds by volunteers for the breeding bird census (roadside counts in June), forest bird monitoring program (within larger less disturbed forests), and the
Ontario Breeding Bird Atlas, 2000-2005. (sponsored by the Canadian Wildlife Service, Bird Studies Canada and others)

* monitoring amphibians and birds in coastal wetlands as part of the Great Lakes Marsh Monitoring Program (Weeber and Vallianatos 2000)

* stock assessment studies for lake sturgeon, walleye/pickerel and whitefish at sites in the proposed biosphere reserve (sponsored by the Anishinabek-Ontario Fisheries Resource Centre)

* sport fish contaminant monitoring in 11 species of fish (in “Block GB3”) as part of an annual Great Lakes-wide program (sponsored by the Ministry of Natural Resources and Ministry of the Environment)

* continuation of studies on massasauga rattlesnakes and other species at risk in the GBINP

* volunteer recording of occurrences of 11 species of reptiles in the Georgian Bay region (sponsored by The Greater Georgian Bay Reptile Awareness Program)

* feeding ecology and fledging success of osprey in Georgian Bay (sponsored by the Georgian Bay Osprey Society and McGill University, Montreal)

* viability of an introduced elk/wapiti (Cervus elaphus) herd on the French River delta (sponsored by Cambrian College, Ontario Ministry of Natural Resources, Ontario Ministry of Northern Development and Mines, and others)

Social and economic research [demography, economics, traditional knowledge, etc.]:

* sustainable community program, Moose Deer Point First Nation (Ontario Ministry of Northern Development and Mines, Schad Foundation, Huskey Injection Molding System and others)

* study to prepare an economic development strategy for Henvey Inlet First Nations

* community economic development plans for Britt and for Pointe au Baril

* draft strategic plan for bringing the port back into Port Severn (2003)
* demographic and socio-economic trends in the region associated with the proposed biosphere reserve (population, education, income, employment, dwellings, family size) using 2001 census data compiled by enumeration units (Statistics Canada)

* study of the effects on wood supplies available from the French/Severn Forest from decisions to create new provincial parks and conservation reserves

* development of a sustainable economic development plan based on ecotourism (East Georgian Bay municipalities)

* sustainable tourism opportunities for aboriginal people (G'Nadjiwon Ki Aboriginal Tourism Association)

* review of taxation and other implications of municipal restructuring involving the Township of Georgian Bay and the District of Muskoka

* visitor use satisfaction surveys (Georgian Bay Islands National Park)

15.1.4. Brief description of planned research and/or monitoring activities:

A goal of the proposed biosphere reserve is to foster more cooperation and information sharing on existing research and monitoring activity such that collaboration is improved, programs become more effective, and knowledge gained becomes better applied to planning and decision-making. While considerable research and monitoring have been conducted within the proposed biosphere reserve, most of it is based on the program objectives of the organization(s) conducting the work. A shared regional concept fostered by a biosphere reserve could help collate information from these different sources and use it to help communicate a “big picture” overview of conservation and sustainability issues of concern within the whole Georgian Bay littoral area.

Abiotic research and monitoring [climatology, hydrology, geomorphology, etc.]:

* continuation of water quality monitoring in Georgian Bay in the context of the Great Lakes Water Quality Agreement, and for community involvement in nearshore areas
* develop Georgian Baykeeper’s capacity for environmental monitoring

* enhance air quality monitoring to include both ozone and particulate matter, Parry Sound (Ontario Ministry of the Environment)

* addition of abiotic indicators to Parks Canada’s ecological integrity monitoring framework.

**Biotic research and monitoring [flora, fauna]:**

* comprehensive, ongoing monitoring program focused on a suite of indicators that represent levels of biodiversity, ecosystem functions and stressors to implement the Ecological Integrity Monitoring Program for Georgian Bay Islands National Park

* multiple ‘species-at-risk’ habitat modeling and spatial population viability analyses including habitat mapping and development of spatial predictive models for eastern massasauga rattlesnake, eastern hognose snake and eastern fox snake (Parks Canada)

* development and implementation of an ecological monitoring framework for assessing the sustainability of Ontario’s provincial parks (Ontario Parks)

* continued field inventory of biota on islands in the littoral zone

* monitoring forest ecosystem biodiversity and forest health (GBA Foundation with the Ecological Monitoring and Assessment Network, Environment Canada)

* monitoring pest infestations in forests (Township of The Archipelago)

**Social and economic research [demography, economics and traditional knowledge]:**

* set of studies constituting a human dimensions strategy for Georgian Bay Islands National Park including: the economic impact of the park and of park visitors on the local economy; assessment of policies, laws and decision-making of stakeholder groups and partners within the greater park ecosystem, and fostering improvements in communications and planning processes

* towards a “smart growth” tourism plan for eastern Georgian Bay (the GBA Foundation)
* develop strategy to reposition Port Severn and its environs to become a gateway to the Great Lakes Heritage Coast and also serve as a working demonstration model for use by other eastern Georgian Bay communities and hamlets (GBA Foundation)

* strategic economic development plan and implementation (Township of The Archipelago)

15.1.5. Estimated number of national scientists participating in research within the proposed biosphere reserve on

- a permanent basis: 10
- an occasional basis: 35

(as judged from the research literature and on-going work)

15.1.6. Estimated number of foreign scientists participating in research within the proposed Biosphere Reserve. [not known]

15.1.7. Estimated number of masters and/or doctoral theses carried out on the proposed biosphere reserve each year:

Approximately four per year (based on previous publications). This number may be expected to increase following biosphere reserve designation.

15.1.8. Research station(s) within the proposed Biosphere Reserve:

Georgian Bay Islands National Park (Beausoleil Island and Honey Harbour, Ontario)
Killbear Provincial Park (in park interpretive centre)
Massassauga Provincial Park (in park compound)
Ontario Ministry of Natural Resources - Parry Sound District Office (Parry Sound, Ontario).

15.1.9. Permanent research station(s) outside the proposed Biosphere Reserve:

[If no permanent research station exists within the proposed Biosphere Reserve, indicate the location, distance to the core area, name and address of the most relevant research station]
Several sets of research facilities exist within about 300 km of the proposed biosphere reserve. These include (but are not limited to) the following: Brock University (St. Catherines), Georgian College (Barrie), Laurentian University (Sudbury), McMaster University (Hamilton), Nipissing University (North Bay), Ryerson Polytechnic University (Toronto), Science North (Sudbury), University of Guelph (Guelph), University of Toronto (Toronto), University of Waterloo (Waterloo), University of Western Ontario (London) and York University (Toronto).

15.1.10. Permanent monitoring plots

[Indicate the year established, the objective of monitoring, the type and frequency of observations and measurements, and whether an internationally recognized protocol is being used, for example the Smithsonian-MAB MAPMON protocol for monitoring forest biodiversity]:

Forest conditions and management

[a] White Pine Reproduction: Purpose is to examine the effects of the seeding out of the shelterwood system and four site preparation techniques on various components of white pine ecosystems. Plots are 100 m x 50 m with 30 m buffers in randomized block design, with five treatments replicated in each of three blocks. Baseline data were collected in 1995 and post-treatment data have been collected since 1998. Located about 65 km north of Parry Sound near Grundy Lake Provincial Park (immediately east of the highway used to designate the approximate eastern limits of the proposed biosphere reserve). Sponsored by the Ontario Forest Research Institute, Sault Ste Marie, Ontario.

[b] Forest Ecosystem Monitoring, established in 2002 and 2003. Thirty-four 20m x 20m stations have been set out to record tree diversity and health, regeneration, downed woody debris, soil decomposition, lichen abundance and diversity, disease and pest infestations, and salamander diversity and abundance, using sampling protocols developed by the Smithsonian Institution (SI/MAB) and the Ecological Monitoring and Assessment Network (EMAN). Twelve stations were established by Parks Canada in Georgian Bay Islands National Park, and 22 stations were established by the GBA along the coast from Honey Harbour in the south to Nares Inlet north of Parry Sound. Additional stations and indicators (e.g. small mammals) are planned. Maintained largely by community volunteers. Sponsored by the GBA Foundation, Georgian Bay Association and EMAN, (Environment Canada) with assistance from the Canadian Forestry Service and the Ontario Ministry of Natural Resources.

Bird population trends.
[a] Breeding Bird Survey: Canada and the US, since 1966. Roadside counts every half mile on a 25 mile route, once annually in June. Three routes are assigned to volunteers within the proposed biosphere reserve. Data are compiled to detect large scale fluctuations in populations over the years. Sponsored by the Canadian Wildlife Service and Bird Studies Canada.

[b] Forest Bird Monitoring Survey: Canada, since 1987. 100m circle plots in the interiors of mature forests away from roads, visited twice during the breeding season (June) to count number of birds of each species detected and prepare vegetation descriptions. Complements roadside breeding bird counts. Three or four sites within the proposed biosphere reserve are covered by volunteers each year. Sponsored by the Canadian Wildlife Service.

[c] Ontario Atlas of Breeding Birds: 2000-2005, repeats the first atlas done in 1980-1985 to document changes in bird distributions. 100 km$^2$ “squares” delineated on national topographic maps (1:50,000) are covered by volunteers for the five year period to record all species of birds and obtain evidence of their breeding, combined with 25-50 point counts in each square to give an index of relative abundance. Three regional coordinators help organize volunteers to cover the area of the proposed biosphere reserve (and beyond). Sponsored by the Canadian Wildlife Service, Ontario Ministry of Natural Resources, Bird Studies Canada, Federation of Ontario Naturalists, and the Ontario Field Ornithologists.

Particular species monitoring

[a] Georgian Bay Osprey Survey: To assess nesting success of about 50 pairs of ospreys ($Pandion haliaetus$) within the proposed biosphere reserve and encourage population increase by construction of artificial nest platforms. Annual observations by volunteers of occupancy rate and fledgling success at known nest sites in trees, on electricity transmission poles, or artificial platforms. Sponsored by the Georgian Bay Osprey Society with assistance in some analyses from the Avian Science and Conservation Centre, McGill University, Montreal.

[b] Marsh Monitoring Survey: To monitor populations of amphibians and marsh birds over time and at different scales within the Great Lakes Basin, since 1995. Surveys use standard protocol for recording calling amphibians and detecting marsh birds (using taped calls); three visits annually from between April to July to selected sites. At least four sets of sites have been set up within the proposed biosphere reserve. Sponsored by Bird Studies Canada, Environment Canada, US/Environmental Protection Agency, and Great Lakes United.

Environmental quality monitoring
[a] Drinking Water Quality. Routine monitoring of drinking water supplied by municipalities and water works serving designated facilities (e.g. restaurants, camp grounds). Conducted by the Muskoka-Parry Sound Health Unit and Ontario Ministry of the Environment.

[b] Contaminants in Sport Fish. Compiled annually for Ontario from about 5,000 fish samples tested for up to 70 contaminants, with results presented by species and size specific advice on fish consumption from more than 1,700 locations throughout Ontario; 11 species monitored for eastern Georgian Bay area. Conducted by the Ontario Ministry of Natural Resources and the Ontario Ministry of the Environment (2003).

[c] Nearshore Water Quality Monitoring: Purpose is to help identify sources of localized pollution (e.g. leaking septic tanks, vessel discharges, other sources of nutrient enrichment) in areas known to have deteriorating water quality. Monitoring was initially for benthic conditions using a suite of ten macro-invertebrate indicators, testing for bacterial contamination (total coliforms and \textit{E. coli}), and measurement of water clarity. Started as a pilot project that sampled 12 locations in 1995, then carried out annually. Scope increased in 1999 to include measurements of pH, total phosphorus, water conductivity, thermal stratification, dissolved oxygen profiles, and sonar reconnaissance of coldwater fish communities. Number of sites sampled has increased as volunteers joined in, especially from inland lake cottage communities; 65-66 sites were tested within the proposed biosphere reserve during the summers of 2001 and 2002. Sponsored by the GBA Foundation, Georgian Bay Association, The Townships of The Archipelago and Georgian Bay, and District of Muskoka, with help as necessary from biologists associated with Beak Consultants Ltd., the Ontario Ministry of Natural Resources, University of Guelph, and University of Toronto.

[d] Other Water Quality Monitoring off Massasauga Provincial Park: Purpose is to detect evidence of illegal discharges of wastes by boaters at anchorage sites in bays or leakage of septic tanks near this core area park (which can only be accessed by water), since 2000. Water quality monitoring in bays extensively used by boaters, 2001, 2002. Sponsored by members of the Ontario Boating Forum and the Ontario Ministry of the Environment.

[e] Lichens as Indicators of Cumulative Effects of Air Quality: One ~5 km transect line was established in 2002 from an outer island (near Sans Souci) eastwards to the mainland at Massasauga Provincial Park; another similar transect is planned for an area to the north. At points of land along the transect, groups of 5 trees, each with a DBH of 1 m or more, are tagged (mainly maples and oaks) and the occurrence and extent of trunk coverage by lichens is recorded for a suite of 15 species, following the lichen watch protocol developed by EMAN. Sponsored by the GBA Foundation, Georgian Bay
Association and the Ecological Monitoring and Assessment Network (EMAN), Environment Canada, with assistance from the Canadian Forestry Service and Georgian Bay Islands National Park.

15.1.11. Research facilities of research station(s)

[meteorological and/or hydrological station, experimental plots, laboratory, computerized databases, Geographical Information System, library, vehicles, etc.]:

Federal and provincial resource management agencies have a wide variety of facilities within the proposed biosphere reserve, and at different locations. Facilities are shared among partners to conduct specific work (e.g., collaborative research projects between parks and universities). A detailed catalogue of such facilities currently does not exist; available research facilities include, but are not limited to, the following:

* automated weather stations
* computerized databases on a range of ecological features
* Geographical Information Systems (managed by full time staff)
* resource libraries
* land and water-based vehicles
* First Aid equipment
* radio-communications equipment
* Global Positioning System (GPS) units
* assorted field equipment
* office and storage facilities
* centralized, electronic data storage capabilities
* data analysis software

15.1.12. Other facilities

[e.g. facilities for lodging or for overnight accommodation for scientists etc.]:

In addition to facilities noted in Section 15.1.8 & .11, assorted accommodation for scientists (free of charge and for fee) can be found throughout the proposed biosphere reserve. Accommodations are located at Honey Harbour, Port Severn, and Parry Sound.

15.1.13. Does the proposed biosphere reserve have an Internet connection?
Yes. The website of the Georgian Bay Association serves this purpose for the time being.
(www.georgianbay.ca)

References cited in 15.1


15.2. Environmental education and public awareness

[Environmental education -- sometimes now referred to as education for sustainable development -- can be aimed at school children, the adult population of the local communities, and visitors from home and abroad].

15.2.1 Describe environmental education and public awareness activities, indicating the target group(s)

National and provincial parks within the proposed biosphere reserve maintain environmental education and interpretation programs. The programs are typically a mix of in-park programs for visitors at outdoor theaters or guided hikes, and outreach and awareness programs for local schools, land owners, and others (e.g. through school curricula activities or special workshops). In addition to these, many other groups participate in public awareness activities such as:

* the Georgian Bay Association through a detailed newsletter (Georgian Bay Update) issued three times a year to its membership and to the general public through its Website, and annual conferences for land owners, government officials, and other groups in order to discuss issues relevant to the local economy and environmental protection;

* the GBA Foundation through co-sponsored conferences and workshops on issues of general interest or concern;

* the Georgian Baykeeper, associated with the North American Waterkeeper Alliance, launched by the GBA Foundation in 2003;

* the G’Nadjiwon Ki Aboriginal Tourism Association through the promotion of aboriginal spiritual tourism and provision of products and services to aboriginal communities and organizations;

* Severn Sound Environment Association to mobilize support for implementing the Remedial Action Plan that includes landowner contact programs to inform people about the effects of shoreline
alteration, upland agricultural practices, and habitat loss on the health of the aquatic ecosystem throughout the Severn Sound watershed;

* the Georgian Bay Osprey Society to publicize trends in nesting success and overall abundance and distribution of ospreys, viewed in part as an indicator species for the effects of contaminants within the Georgian Bay ecosystem;

* the Greater Georgian Bay Reptile Awareness Program which compiles volunteer observations on the occurrences of 11 species of snakes and turtles, and,

* Wye Marsh Wildlife Centre (Midland, Ontario) and Science North (Sudbury, Ontario), while just south and north of the proposed biosphere reserve area respectively, provide on-going, high quality public awareness, science and and environmental education programs for tourists, schools and various other groups.

15.2.2. Indicate facilities for environmental education and public awareness activities

[visitors' centre; interpretative programmes for visitors and tourists; nature trails; ecomuseum demonstration projects on sustainable use of natural resources]:

Permanent facilities, including visitor centres, interpretative programs, and nature trails, exist in some core areas within the proposed biosphere reserve. These facilities are managed and supported by park interpreters, other staff or volunteers (such as the Friends of Killbear) dedicated to environmental education, public awareness and the presentation of the region’s natural and cultural heritage.

15.3 Specialist training

[Acquisition of professional skills by managers, university students, decision-makers etc.]

[Describe specialist training activities: for example research projects for students; professional training and workshops for scientists; professional training and workshops for resource managers and planners; extension services to local people; training for staff in protected area management]

The following is just an indication of the current activities within the eastern Georgian Bay region related to the functions of a biosphere reserve:
the GBA Foundation in cooperation with the Townships and others, funds summer students to work on community marine patrols, the re-inspection of septic tanks, water quality sampling, wetland studies, and forest monitoring projects;

* Parks Canada (Georgian Bay Islands National Park) orientation program on the concepts of ecological integrity, biodiversity conservation and related Parks Canada programs;

* Young Canada Works programs employing individuals under 24 years of age and providing them with an opportunity to learn and gain experience in biodiversity conservation (for example, Georgian Bay Islands National Park and Ontario Ministry of Natural Resource have employed students through this program to work on the conservation of the eastern massasauga rattlesnake – a threatened species); and

* the Ecological Monitoring and Assessment Network (EMAN), Environment Canada which provides monitoring protocols and training for volunteers to undertake various kinds of ecological monitoring throughout Canada.

15.4 Potential to contribute to the World Network of Biosphere Reserves

[Collaboration among biosphere reserves at a national, regional and global level in terms of exchange of scientific information, experience in conservation and sustainable use, study tours of personnel, joint seminars and workshops, Internet connections and discussion groups, etc.]

15.4.1. Collaboration with existing biosphere reserves at the national level (indicate on-going or planned activities):

Specific initiatives to collaborate with other Canadian biosphere reserves have not yet been considered. However, if this proposal is approved by UNESCO, the new Georgian Bay Littoral Biosphere Reserve will:

* seek membership in the Canadian Biosphere Reserves Association (CBRA) and become involved in some national pilot projects sponsored by the Association;

* participate in Leading Edge conferences co-sponsored by the Niagara Escarpment Commission (which includes the west coast of Georgian Bay);
* adopt additional standardized monitoring protocols promoted by EMAN (Ecological Monitoring and Assessment Network) to allow for larger spatial scale trends analysis among biosphere reserves and other sites in Canada; and,

* expand the existing Georgian Bay Association Website or create a special one to allow for improved information sharing among people within the proposed biosphere reserve as well as with people in other biosphere reserves.

15.4.2. Collaboration with existing biosphere reserves at the regional or subregional levels, including promoting transfrontier sites and twinning arrangements (indicate on-going or planned activities)

[Here, “regional” refers to the regions as Africa, Arab region, Asia and Pacific Latin America and the Caribbean, Europe. Transfrontier biosphere reserves can be created by two or more contiguous countries to promote cooperation to conserve and sustainably use ecosystems which straddle the international boundaries. Twinning arrangements usually consist of agreements between sites located at some distance in different countries to promote activities such as cooperative research projects, cultural exchanges for schoolchildren and adults, etc.]

Formal “twinning” agreements among sites at regional or subregional levels (i.e., transfrontier or multi-national) are currently not planned. Initial efforts over the first two or three years following designation will go towards working with other biosphere reserves in Ontario and elsewhere in Canada.

There are major opportunities for developing shared activities with the Niagara Escarpment Biosphere Reserve which includes the west shore of Georgian Bay (and has different geological and hydrological conditions as well as a different pattern of development), with the Canadian Thousand Islands-Frontenac Arch Biosphere Reserve which includes the other main freshwater archipelago in the Great Lakes-St. Lawrence Basin, and with the Long Point Biosphere Reserve on Lake Erie. Long Point has some of the same concerns about coastal aquatic ecosystems, and is already sharing its experience from biodiversity monitoring plots with the proponents for this proposed Georgian Bay Littoral Biosphere Reserve. In the longer term, possibilities for cooperation among all the biosphere reserves in the Great Lakes St. Lawrence Basin should be examined.
15.4.3 Collaboration with existing biosphere reserves in thematic networks at the regional or international levels (indicate ongoing and planned activities)

[Networks of sites which have a common geographic theme such as islands and archipelagos, mountains, or grassland systems, or a common topic of interest such as ecotourism, ethnobiology etc.]

Following designation, efforts will be made to find out how best to share information with other biosphere reserves around the world that share similar conservation and sustainable development issues. In particular, sites that encompass island archipelagos and coastal environments (such as the Archipelago Sea Biosphere Reserve in Finland) will be sought in order to learn from each other on issues pertaining to:

* holistic approaches to the management of coastal regions, including open water and upland areas, such that the unique character of littoral zones is recognized and integrated into decision making;

* approaches to the development of eco-tourism services and products that are truly environmentally and economically sustainable;

* methods of monitoring ecological indicators associated with littoral regions that are implementable given limited resources;

* identification of information gaps required to adequately manage coastal regions and that can be targetted with research, inventory and monitoring programs; and

* special considerations regarding the application of human dimensions (i.e., values, socio-economic, governance mechanisms) information to developing conservation and sustainable development strategies in coastal environments.

It is anticipated that sharing of this kind of information will take place through Internet connections, conferences, and potential twinning agreements.

15.4.4 Collaboration with existing biosphere reserves at the international level (indicate ongoing and planned activities:}
The proposed biosphere reserve will keep track of opportunities for collaboration by following announcements on the UNESCO/MAB website, subscribing to the “Biosphere Reserves Bulletin of the World Network”, and acquiring reports such as the one from the “Special Meeting on Biosphere Reserve Integrated Monitoring” held in Rome in September 2001, and the “Workshop Summary Report on Ecotourism and Sustainable Development in Biosphere Reserves” held in Quebec City in May 2002; both topics are germane to issues of interest in Georgian Bay.

16. USES AND ACTIVITIES

16.1 Core Area(s):

16.1.1 Describe the uses and activities occurring within the core area(s):

[While the core area is intended to be strictly protected, certain activities and uses may be occurring or allowed, consistent with the conservation objectives of the core area.]
One national park (Georgian Bay Islands National Park) and five provincial parks comprise the core areas of the proposed biosphere reserve. Of the five provincial parks there are two Nature Reserve class parks (O'Donnell Point Provincial Park, Limestone Islands Provincial Park), two Natural Environment class parks (Killbear Provincial Park and Massasauga Provincial Park) and one Waterway class park (French River Provincial Park).

The national park is managed by the Parks Canada Agency (S.C. 1998 c. 31) according to the Canadian National Parks Act (SC 2000, c 32) which states that ecological integrity will be the top priority in management decisions. As such, only non-consumptive outdoor recreational activities are permitted (e.g., hiking, camping, wildlife viewing). Georgian Bay Islands National Park’s management plan (Parks Canada, 1999) outlines park zones which govern patterns of visitor use and associated facilities (i.e., campgrounds, trails) in relation to environmental protection zones. Construction of roads and other infrastructure is not allowed. [Please see Appendix 5]

The provincial parks are managed by the Ontario Ministry of Natural Resources under the Ontario Provincial Parks Act, (R.S.O 1990, c. P-34). In May 1996, the provincial parks were reorganized to become “Ontario Parks” and given the mandate: “To protect, plan, develop and manage Ontario's system of provincial parks while improving their self-reliance”. Under this “new business model”, four objectives were sought:

"* protection of significant elements of our natural and cultural landscape;
* opportunity for exploration and appreciation of our natural and cultural heritage;
* provision of recreational opportunities ranging from day use to wilderness experience; and
* encouragement of economic benefits through tourism”.

Nature Reserve class provincial parks are categorized as IUCN Class I protected areas. Nature Reserve parks are established to represent and protect the distinctive natural habitats and landforms of the province. These areas are protected for educational and research purposes. Due to the fragility of many of these natural features, only a few nature reserves are accessible to the public. Both nature reserve parks in the proposed biosphere reserve have restricted access.
Natural Environment provincial parks are IUCN class II protected areas. Natural Environment Parks are selected to protect large, representative, and ecologically viable areas throughout Ontario. They represent elements of geological, ecological, and species diversity commonly found within a site region, but not contained within Provincial Wilderness Parks or National Park equivalents. These parks provide opportunities for outdoor recreation including sport fishing.

Waterway provincial parks are river corridors that provide canoeists with high-quality recreation, and in this case, travel along a river historically associated with the 17th century fur trade.

Policies associated with human use in all these core areas are consistent in that they place priority on conservation but allow in most cases for low intensity, high quality outdoor recreation. They provide sites for research and monitoring, and have the ability to function as reference (or “quality control”) sites for regional studies on sustainable development.

16.1.2. Possible adverse effects on the core area(s) of uses or activities occurring within or outside the core area(s):

(Indicate trends and give statistics if available)

Potential stressors originating from within the core areas would mainly arise from park infrastructure or visitor use. Two of the core area parks, Killbear Provincial Park and Georgian Bay Islands National Park, have by far the most visitors (about 370,000 together in 2001). Georgian Bay Islands National Park has begun to remove some park infrastructure to lessen the impact on the environment. Visitor use is monitored in all parks, to ensure that the parks are used in a sustainable manner.

The main external stressors to the core areas would be increasing urbanization, shoreline facilities, and road development, which have the potential to result in habitat fragmentation, loss of species corridors and isolation of the core areas from each other. Increasing urbanization may also lead to shoreline erosion and increased nutrient inflow into the waterways. Other external stressors include air pollution, global warming and ozone layer depletion.
16.2. Buffer zone(s)

16.2.1 Describe the main land uses and economic activities in the buffer zone(s):

(Buffer zones may support a variety of uses which promote the multiple functions of a Biosphere Reserve while helping to ensure the protection and natural evolution of the core area(s).)

The buffer zones are constituted by provincial Conservation Reserves managed under the Ontario Public Lands Act (RSO 1990 c. P-43). As noted in Section 4.5.b, Conservation Reserves are dedicated to protecting natural heritage areas and features on public land, and preserving traditional public land uses such as wildlife viewing, hunting, fishing, walking, snowshoeing, cross-country skiing and boating. Mining, commercial forest harvest, hydroelectric power development, and extraction of aggregate and peat or other industrial uses are not allowed. Five of the 14 Conservation Reserves in the proposed biosphere reserve were first designated in 1999, and local consultations are underway with stakeholder groups to decide on their precise boundaries.

It is anticipated that a number of these conservation reserves will function ecologically as “core areas”. In addition, the buffer zones might expand following designation to include provincial Areas of Natural and Scientific Interest (ANSIs) and some private land, particularly areas under private stewardship through arrangements with the Georgian Bay Land Trust Foundation.

16.2.2. Possible adverse effects on the buffer zone(s) of uses or activities occurring within or outside the buffer zone(s) in the near and longer terms:

As in the core areas, adverse effects on the buffer zones will mainly come from regional scale stresses such as increased urbanization, use of all-terrain vehicles, and road development. These can result in habitat loss and fragmentation, loss of movement corridors, shoreline alterations and increased erosion and potential degradation of water quality. Recognition of this underlies the intent of the proposed biosphere reserve to promote environmentally-sensitive tourism and other development throughout the entire area.

16.3. Transition area (zone of cooperation)
[The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather is changing in size according to the problems that arise over time. Describe briefly the transition area as envisaged at the time of nomination, the types of questions to be addressed there in the near and the longer terms. The size should be given only as an indication]

16.3.1 Describe the main uses and major economic activities in the transition area(s):

The transition area consists of about 92,000 ha of land and 141,000 ha of open water. Primary human uses and major economic activities occurring in the transition area will increasingly be associated with tourism development and its associated impacts as noted in Section 14. Georgian Bay remains a very popular destination for cottagers and other vacationers. The local economy is shifting from a resource extraction base towards a service economy based around tourism. Multiple-use forest management is also being practised. Provincial and municipal governments are currently considering strategies to support the development of sustainable tourism and its associated services and products.

The Township of The Archipelago initiated an undertaking called “Harmonized Planning” which now involves four other townships and the Town of Parry Sound along the coast of eastern Georgian Bay. Its main thrust is to have a common protective approach to the environment. This is being reflected in municipal development plans or strategies. (Please see Appendix 7 Harmonization of Planning Along the Eastern Georgian Bay Coast).

16.3.2 Possible adverse effects of uses or activities on the transition area(s):

The main highway that represents the eastern extent of the proposed biosphere reserve is currently being expanded from two to four lanes to accommodate increasing traffic to and through the area. Adverse effects of roads and other development include increased probability of human-wildlife conflicts, some loss of habitat, degradation in habitat quality, functional isolation of wildlife populations and possible reduction in the viability of meta-populations of sensitive flora and fauna. The challenge is to design developments in ways that minimize this degradation and also maintain the attractiveness and environmental quality that attract the visitors. There is a range of recreational boating activities on the Bay that have the potential for some mutual interference or conflicts; the user groups themselves are striving to resolve these issues.
17. INSTITUTIONAL ASPECTS

17.1. STATE, PROVINCE, REGION OR OTHER ADMINISTRATIVE UNITS:
[List in hierarchical order administrative division(s) in which the proposed Biosphere Reserve is located (e.g. state(s), counties, districts)]

Province of Ontario.

District of Muskoka; Town of Parry Sound; Township of Georgian Bay; Township of The Archipelago; Carling Township; Seguin Township (part); McDougall Township (part); Henvey Township (part); and part of an unincorporated area at the northern end of the proposed biosphere reserve.

17.2 UNITS OF THE PROPOSED BIOSPHERE RESERVE:
[Indicate the name of the different units (as appropriate) making up the core area(s), the buffer zone(s) and the transition area.]
Core areas:

- French River Provincial Park (Waterway)
- Killbear Provincial Park (Natural Environment)
- Massasauga Provincial Park (Natural Environment)
- O’Donnell Point Provincial Nature Reserve (Nature Reserve)
- Limestone Islands Provincial Nature Reserve (Nature Reserve)
- Georgian Bay Islands National Park

Buffer zones (Conservation Reserves):

- Moon River
- Lower Moon River
- Cognashene Point
- McRae Lake
- Cognashene Lake
- Gibson River
- Moreau Bay
- Pointe au Baril Forests and Wetlands
- Crane Lake Forest
- Shawanaga Island White Pine Forest
- Franklin Island White Pine Forest
- Parry Sound Interior
- North Georgian Bay Shoreline and Islands
- Shawanaga-Shebeshekong

Transition Area:

- Great Lakes Coastal Areas Enhanced Management Area (portion)
- North Parry Sound Area Enhanced Management Area (portion)
- Remaining provincially-owned Crown land
- Privately-owned lands in the municipalities

First Nations “Indian Reserves”:Henvey Inlet; Magnetawan; Moose Deer Point; Wasauksing (Parry Island); Shawanaga; Wahta Mohawk Territory.
17.2.1. Are these units contiguous or are they separate?

[A biosphere reserve made up of several geographically separate units is called a "cluster biosphere reserve". Please state if this is the case of the proposal.]

The core areas and buffer zones form a protected area network, which, along with parts of two designated “enhanced management areas” within the transition area, altogether constitute a contiguous corridor through the littoral region of eastern Georgian Bay (Please see Map 2).

17.3. Protection Regime of the core area(s) and, if appropriate of the buffer zone(s)

17.3.1. Core area(s):

[Indicate the type (e.g. under national legislation) and date since when the legal protection came into being and provide justifying documents (with English or French summary of the main features)]

Please see Appendix 6 for copies of the main statutes.

**Federal Legislation:**

Canada National Parks Act, S.C. 2000 c. 32
Georgian Bay Islands National Park, established in 1929

**Provincial Legislation:**

Provincial Parks Act, R.S.O. 1990 c. P-34
Killbear Provincial Park, established in 1956
Limestone Islands Nature Reserve, established in 1980
O’Donnell Point Nature Reserve, established in 1985
Massasauga Provincial Park, established in 1989
French River Provincial Park, established in 1989

17.3.2 Buffer zone(s)

[Indicate the type (e.g. under national legislation) and date since when the legal protection came into being and provide justifying documents (with English or French summary of the main features. If the buffer zone does not have legal protection, indicate the regulations that apply for its management.)]

**Provincial Legislation:**
Ontario Public Lands Act, RSO 1990, c. P-43

17.4. Land use regulations or agreements applicable to the transition area (if appropriate)

Note: There are a number of policies, statutes, and regulations that do, or could apply to the area of the proposed biosphere reserve. The main ones include the following:

**Land Use Planning and Management**

**Federal**

Canadian Environmental Protection Act, S.C.1999, c. 33
Indian Act, R.S.C. 1985 c. I-5

**Ontario**

Crown Forests Sustainability Act, S.O. 1994, c. 25
Endangered Species Act, R.S.O. 1990, c.28
Environmental Assessment Act, R.S.O. 1990, c. E-18
Fish and Wildlife Conservation Act, S.O. 1997, c. 41
Lakes and Rivers Improvements Act, R.S.O. 1990, c.L-3
Planning Act, R.S.O. 1990, c. P-13
  * Township of Georgian Bay Official Plan and Zoning By-Laws
  * Town of Parry Sound Official Plan and Zoning By-Laws
  * Township of The Archipelago Official Plan and Zoning By-Laws
  * Townships of Carling, Foley and MacDougall joint Official Plan and Zoning Bylaws
Public Lands Act, R.S.O. 1990, c. P-43

**Great Lakes - Georgian Bay**

**Federal**

Canada Water Act, R.S.C. 1985, c. C-11
  Great Lakes Water Quality Agreement, 1972; 1978; 1987(binational)
Canada Shipping Act, R.S.C. 1985, c. S-9
Fishing and Recreational Harbours Act, R.S.C. 1985, c. F-24
Fisheries Act, R.S. C. 1985, c. F-14 [delegated to Ontario to administer]
Great Lakes Fisheries Convention Act, R.S.C. 1985, c. F-17
Great Lakes Fishery Commission (binational)

Ontario

Environmental Protection Act, R.S.O. 1990, c. E-19
Ontario Water Resources Act, R.S.O. 1990, c. 0-40

17.5. Land tenure of each zone:
[Describe and give the relative percentage of ownership in terms of national, state/provincial, local government, private ownership, etc. for each zone.]

Please see Map 14 (Land Tenure) for a spatial representation of land tenure in the eastern Georgian Bay area. See Section 17.2 for a description of the areas that comprise these zones. The federal area is mainly Georgian Bay Islands National Park. Provincial areas include provincial parks (core), conservation reserves (buffer), enhanced management areas, and remaining Crown land (transition). The transition area also includes official Indian Reserves and other private lands. Proportions of land tenure are based on the entire biosphere reserve area which includes a substantial open water area in Georgian Bay.

17.5.1. Core area(s):

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Federal Government</td>
<td>1.8%</td>
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<tr>
<td>Provincial Government</td>
<td>98.2%</td>
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<tr>
<td>Private Lands</td>
<td>-</td>
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</tbody>
</table>

17.5.2. Buffer zone(s):

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
<td>-</td>
</tr>
<tr>
<td>Provincial Government</td>
<td>100.0%</td>
</tr>
<tr>
<td>Private Lands</td>
<td>-</td>
</tr>
</tbody>
</table>

17.5.3. Transition area(s):

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
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</tr>
<tr>
<td>Provincial Government</td>
<td>80.1%</td>
</tr>
<tr>
<td>Official Indian Reserves</td>
<td>15.7%</td>
</tr>
</tbody>
</table>
17.5.4. Foreseen changes in land tenure:

[Is there a land acquisition programme, e.g. to purchase private lands, or plans for privatization of state-owned lands?]

There is presently no government land acquisition program for the proposed biosphere reserve, nor is one anticipated. Some areas may become added to buffer zones (from transition zones) upon the request of private landowners, and some private lands may become part of formal stewardship agreements with the Georgian Bay Land Trust Foundation. Some aboriginal rights issues are being addressed by First Nations people under interpretations of Treaty provisions (e.g. a land swap at O'Donnell Point), but the resolution of these is not expected to change substantially the land use configurations in the proposed biosphere reserve.

17.6. Management plan or policy and mechanisms for implementation

[The Seville Strategy recommends promoting the management of each biosphere reserve essentially as a "pact" between the local community and society as a whole. Management should be open, evolving and adaptive. While the aim is to establish a process leading to elaborating a comprehensive management plan for the whole site reflecting these ideas, this may not yet exist at the time of nomination. In this case however, it is necessary to indicate the main features of the management policy which is being applied to guide land use.]

17.6.1 Year of start of implementation of management plan or land use policy:

In 1996, the proponent of this nomination developed a vision statement to recognize the area of the proposed biosphere reserve as a unity which was called “the littoral”. The statement also outlined collaborative work needed in four main areas to help realize the vision:

* formulating an economic development statement based on sustainable eco-tourism, which was of particular interest to the mayors and reeves of the key municipalities;

* preparing documentation of the area’s environmental quality and biodiversity; this was of particular interest to Georgian Bay Islands National Park and its exploration of a greater
ecosystem perspective for addressing conservation issues, and it also contributed to the proponents’ “ecosystem management plan”;

* consolidating information and databases at the scale of the littoral for sharing among partners, and

* working out a communication strategy for widening stakeholder involvement, promoting collaboration, and consensus building. (GBA Foundation, 1998).

The Georgian Bay Biosphere Reserve Inc. (GBBR Inc.) was incorporated as a non-profit organization in 1998 to follow-up initiatives in these areas through consultation and cooperation with other stakeholders, and major stakeholders were appointed to its Board in February 2004 for the inaugural meeting of the corporation. Please see Appendix 1, A Cooperation Plan for the Georgian Bay Littoral Biosphere Reserve, for more information.

17.6.2 Main features of management plan or land use policy and means of application

[For example through contractual agreements with landowners or resource users, financial incentives etc.]:

Policies and plans appropriate for a biosphere reserve are administered through different government agencies, private land owners or other business groups within the proposed biosphere reserve. No special authority is being sought for the GBBR Inc. It will continue to work informally with others to support research and other studies, foster information exchange and a stronger communication network for the proposed biosphere reserve and promote cooperation where needed to address conservation and sustainability issues.

17.7. Personnel

17.7.1 Total number of staff of proposed biosphere reserve:

[Provide estimates of the total existing number of personnel, including part-time personnel, working at the proposed Biosphere Reserve]
Most “staff time” for the proposed biosphere reserve will come from in-kind contributions of participating partners. Membership on the Board of Georgian Bay Biosphere Reserve Inc., the primary coordinating body for the proposed biosphere reserve, is not fixed but numbers will likely be in the order of ten people at any one time. Advisory groups and task forces for the GBBR Inc. will be convened to help build the network of cooperation and information exchange throughout the area of the proposed biosphere reserve.

The number of staff for administration, research, or management for biosphere reserve-related activities will depend upon the projects adopted and the range of partner groups who agree to devote resources to them.

17.8. Financial source(s) and yearly budget:

[Biosphere reserves require technical and financial support for their management and for addressing interrelated environmental, land use, and socio-economic development problems. Indicate the source and the relative percentage of the funding (e.g. from national, regional, local administrations, private funding, international sources etc.) and the estimated yearly budget in the national currency]

The proposed biosphere reserve does not have a fixed budget. The GBA Foundation raises about $80-100k annually for projects that address many of the same kinds of issues that the proposed biosphere reserve would likely take up. Financial sources and amount of funding will likely fluctuate over time. If designated, some annual “seed money” funding will be sought from Parks Canada which has traditionally provided $5,000 annually to each biosphere reserve that includes a national park in order to help with some administrative expenses.

It is estimated that approximately $1 million per year is spent on projects pertaining to biosphere reserve related functions in the eastern Georgian Bay region (this is a rough estimate from existing programs of federal and provincial agencies such as: Parks Canada, Environment Canada, Natural Resources Canada, Department of Fisheries and Oceans, Ontario Ministry of Natural Resources, Ontario Ministry of the Environment). Funding for research and monitoring has come mainly from government sources supplemented by funding for academic research from federal government sources, and funding for community-based work from private foundations. A primary contribution of the proposed biosphere reserve is not to supplement
these expenditures *per se*, but rather to assist in the integration of these efforts for more effective planning.

17.9. Authority in charge of administration

17.9.1. The proposed biosphere reserve as a whole:
Name: Georgian Bay Biosphere Reserve Incorporated (GBBR Inc.)

17.9.2. The core area(s):

*Indicate the name of the authority or authorities in charge of administering its legal powers (in original language with English or French translation)*

Name(s): Parks Canada Agency (national parks), and Ontario Ministry of Natural Resources (provincial parks)
Legal powers: Authorized by the Canada National Parks Act (SC 2000, c. 32), and the Ontario Provincial Parks Act (R.S.O. 1990, c. P-34)

17.9.3. The buffer zone(s)
Name: Ontario Ministry of Natural Resources
Legal powers (if appropriate): Ontario Public Lands Act (R.S.O. 1990, c. P-43)

17.9.4. Mechanisms of consultation and coordination among these different authorities:

*(For example through consultative meetings, the designation of a special coordinator or facilitator to maintain contacts with all stakeholders and actors.)*

Mechanisms for consultation and coordination will take the form of regular meetings of the Georgian Bay Biosphere Reserve Inc. (representing primary stakeholders), regular conferences (e.g., GBA Foundation, Parks Research Forum of Ontario, Leading Edge conferences), and an Internet-based information network.
17.10. Local organizational arrangements

17.10.1. Indicate how and to what extent the local communities living within and next to the proposed biosphere reserve have been associated with the nomination process (for example through public hearings, participation of local authorities at preparatory meetings, etc.)

Exploration of the biosphere reserve model began in 1997 when the similarities between it and the vision of the Georgian Bay Littoral became apparent. The GBA Foundation funded background studies to assemble information to advance the goals of the Littoral and also provide documentation needed for this nomination submission. An Honourary Director of the Canadian Biosphere Reserves Association provided some advice. The proponents convened informal meetings two or three times a year which were attended by representatives of municipal councils and various local associations to present information, give progress reports, and answer questions; they also participated in meetings convened by others.

There was a period of two to three years when there was some uncertainty about the institutional context within which the biosphere reserve was to be developed. Part of this arose from the provincial government’s policy for municipal restructuring and amalgamations in Ontario during the late 1990s. This raised debates about possible changes in municipal organization for the area of the proposed biosphere reserve, and became a pre-occupation among some stakeholders. Part of it also arose from the provincial government’s announcement of the Great Lakes Heritage Coast in 1999. This sketched out a much larger-scale vision which is inherently compatible with the biosphere reserve concept. The province then prepared an information dissemination and consultation process for deciding how best to realize the Heritage Coast concept; they came to view it as a tourism marketing opportunity rather than “another” land use plan. The proposed biosphere reserve can best be viewed as a more fine-grained, community-based expression of the same general idea for one major geographic section of the Heritage Coast. Some resolution of these uncertainties was a pre-requisite for government support.

During this period, the GBA Foundation created the GBBR Inc, and continued to carry out projects that helped to lay the basis for a functioning biosphere reserve. The Foundation also continued to host public meetings and workshops on various subjects. Over the past two years or so, several “focus group” sessions were held to consult with different business sectors,
aboriginal leaders, and community organizations on the biosphere reserve proposal, while also meeting government officials regularly to keep them apprised of progress being made. These meetings also helped identify candidates for the Board for the GBBR Inc. With the Directors and Officers appointed in February 2004 the GBBR Inc. has now become the recognized coordinating body for the proposed biosphere reserve.

17.10.2. Indicate how and to what extent the local communities can participate in the formulation and the implementation of the management plan or land use policy:

The GBBR Inc. and its advisory groups will foster public involvement in matters relating to conservation and sustainable development, and the initial members of this group are themselves affiliated with a number of other agencies and organizations active within the proposed biosphere reserve. Government agencies also have their own legal or policy requirements for public consultations.

18. SPECIAL DESIGNATIONS
Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name.

Name:

( ) UNESCO World Heritage Site
( ) RAMSAR Wetland Convention Site
( ) Other international conservation conventions/directives

[Please specify]

( ) Long term monitoring site [Please specify]
(X) Other. The French River system at the northern end of the proposed biosphere reserve was designated as a “Canadian Heritage River” in 1986. The Limestone Islands Nature Reserve (one of the core areas for the proposed biosphere reserve) has been designated an “Important Bird Area” for congregatory species (terns and gulls) of national importance under criteria established by BirdLife International.
19. SUPPORTING DOCUMENTS (to be submitted with nomination form)

[Clear, well-labelled maps are indispensable for evaluating Biosphere Reserve proposals. The maps to be provided should be referenced to standard coordinates wherever possible.]

[Please also see Appendices 2-7]

(X) General location map

[A GENERAL LOCATION MAP of small or medium scale must be provided showing the location of the proposed Biosphere Reserve, and all included administrative areas, within the country, and its position with respect to major rivers, mountain ranges, principal towns, etc.]

Please see Appendix 2 [a] Ontario Recreation Map, and [b] Map of the Parry Sound Area (1:125,000) as well as Map 1 (Reference Map).

(X) Biosphere Reserve zonation map (large scale, preferably in black & white for photocopy reproduction)

[A BIOSPHERE RESERVE ZONATION MAP of a larger scale (1:25,000 or 1:50,000) showing the delimitations of all core area(s) and buffer zone(s) must be provided. The approximate extent of the transition area(s) should be shown, if possible. While large scale and large format maps in colour are advisable for reference purposes, it is recommended to also enclose a Biosphere Reserve zonation map in a A-4 writing paper format in black & white for easy photocopy reproduction.]

Please see Map 2 (Proposed Biosphere Reserve Configuration). Complete coverage of the area of the proposed biosphere reserve would require ten maps at the 1:50:000 scale.

(X) Vegetation map or land cover map

[A VEGETATION MAP or LAND COVER MAP showing the principal habitats and land cover types of the proposed Biosphere Reserve should be provided, if available].

Please see Map 7 (Land Cover).

(X) List of legal documents (if possible with English or French translation)

[List the principal LEGAL DOCUMENTS authorizing the establishment and governing use and management of the proposed Biosphere Reserve and any administrative area(s) they contain. Please provide a copy of these documents, if possible with English or French translation].

Please see Appendix 6.
(X) List of land use and management plans

[List existing LAND USE and MANAGEMENT PLANS (with dates and reference numbers) for the administrative area(s) included within the proposed Biosphere Reserve. Provide a copy of these documents]


( ) Species list (to be annexed)

[Provide a LIST OF IMPORTANT SPECIES (threatened species as well as economically important species) occurring within the proposed Biosphere Reserve, including common names, wherever possible.]

Please see Sections 12 and 13.

(X) List of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve over the past 5-10 years].

Please see list of references cited at the end of Section 15.1 and the list of materials drawn upon for this nomination submission (below).

20. ADDRESSES

20.1 Contact address of the proposed biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: Patrick Northey, President,
Georgian Bay Biosphere Reserve Inc.
37 Woodlawn Avenue West,
20.2. Administering entity of the federal core area:
Name: Gary McMillan, Superintendent,
Georgian Bay Islands National Park,
Box 28, Honey Harbour, Ontario, L0K 1S0
Phone: (705) 756-2415

20.3. Administering entity of the provincial core areas and buffer zones:
Name: District Manager,
Ontario Ministry of Natural Resources, Parry Sound District,
Address: 7 Bay Street, Parry Sound, Ontario, P2A 1S4
Telephone: (705) 746-4201.

List of Maps and Appendices
[Maps 1-14 are attached to this nomination]

Map 1 Reference Map  [Please also see Appendix 2]
<table>
<thead>
<tr>
<th>Map 2</th>
<th>Proposed Biosphere Reserve Configuration - Foldout map</th>
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</thead>
<tbody>
<tr>
<td>Map 3</td>
<td>Complex Shoreline of Eastern Georgian Bay</td>
</tr>
<tr>
<td>Map 4</td>
<td>Regional Road Network</td>
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</tbody>
</table>
| Map 5 | Geology – map not available.  
(The Canadian Shield bedrock originated during the Precambrian Era) |
| Map 6 | Surficial Material |
| Map 7 | Land Cover |
| Map 8 | Human Population Density |
| Map 9 | Species at Risk Occurrences |
| Map 10 | Regional and Local Habitat Types |
| Map 11 | Known Avifauna Nesting Occurrences |
| Map 12 | Known Fish Spawning and Migration Sites |
| Map 13 | Tourism Nodes and Facilities |
| Map 14 | Land Tenure |

**Appendix 1:** A Cooperation Plan for the Georgian Bay Littoral Biosphere Reserve, 2004.  
(included in this nomination document)

**Appendix 2:** [a] Ontario Recreation Map (supplement for Map 1)
[b] Map of Parry Sound Area, 1:125,000. Ontario Ministry of Natural Resources. August 1997. (Note: The new Conservation Reserves (buffer zones) are not shown on this map)

Appendix 3: Great Lakes Heritage Coast Program
[b] Future Directions: Charting the course, Ted Chudleigh. 2001.


Appendix 6: Main Statutes for Core Areas and Buffer Zones
[a] Canada National Parks Act, S.C. 2000 c. 32
[b] Provincial Parks Act, R.S.O 1990, c.P-34
[c] Ontario Public Lands Act, R.S.O. 1990, c. P-43


Reference Materials Drawn Upon for this Nomination Submission
[In addition to references for specific research and monitoring projects within the proposed biosphere reserve listed under Section 15.1]


Ontario Ministry of Natural Resources. Undated. *Fishing in the Parry Sound Area*.


---

Annex to Biosphere Reserve Nomination Form, February 2004

MABnet Directory of Biosphere Reserves

Biosphere Reserve Description¹

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<td><strong>Name of BR:</strong></td>
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</table>

¹ To be posted on the MABnet once the nomination has been approved. The numbers refer to the relevant sections of the nomination form.
Year designated: *(to be completed by MAB Secretariat)*
Administrative authorities: Georgian Bay Biosphere Reserve Incorporated
Name Contact: c/o GBA Foundation
Contact address: 48 Lesmill Road, Toronto, Ontario, Canada, M3B 2T5

Related links (web sites): www.georgianbay.ca/

**Description**

*General description: (Site characteristics in 11.1; human population in 10; land management units in 17.2)*

Approximately 25 lines
This biosphere reserve encompasses the largest island archipelago of the North American Great Lakes. Known locally as “The Thirty Thousand Islands”, it is a complex association of bays, inlets, sounds, islands and shoals lying along the edge of the Canadian Shield bedrock which rises as low lying hills and ridges on the adjacent mainland. This topography supports a rich mosaic of forest, wetlands, and rocky habitat types with associated biodiversity. It also has high scenic values which attract large numbers of summer residents, cruising boaters, and seasonal visitors. The number of permanent residents associated with the biosphere reserve is about 17,000, but summer residents and visitors increase this some 3 to 5 times more, and up to 25 times in some more accessible localities. Most of the area is accessible only by boats. The main development issues are promotion of best practices, especially for water-oriented recreation and ecotourism linked to particular destinations. The core area is made up of one national park and five natural environment or nature reserve provincial parks. The buffer zone is composed of 14 provincial Conservation Reserves, and the core and buffers together form a contiguous landscape unit along the eastern Georgian Bay coast. The inaccessibility of much of the transition area adds to the conservation function. The “Georgian Bay Biosphere Reserve, Incorporated” represents a number of stakeholder interests which together coordinate the biosphere reserve program.

**Major ecosystem type:** Boreal Needleleaf Forests or Woodlands
**Major habitats & land cover types:** Great Lakes-St. Lawrence forest; island archipelago; nearshore and coastal terrestrial and aquatic ecosystems; Georgian Bay; and inland lakes and rivers.
**Location (latitude & longitude):** Centroid: 80° 18’28 W 45° 26’16 N
**Area (ha) Total:** 347,270
**Core area(s):** 52,509
**Buffer zone(s):** 39,595
**Transition area(s):** 255,166
**Different existing zonation:** N/A
**Altitudinal range** (metres above sea level): 176 to 256

**Research and monitoring**
**Brief description: 15.1.3)**

Approximately 5 lines
Geological studies and biological inventories have added to the basic knowledge of the area. Management-oriented studies have been undertaken for fisheries and forest management and for issues of environmental quality. Economic studies have been devoted to prospects for developing environmentally-sound local development and ecotourism. Monitoring is connected mainly to issues of resource management, environmental quality, population biology of selected biota, and ecosystem health.

**Specific variables (please fill in the table below and tick the relevant parameters)**

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- Microorganisms
- Migrating populations
- Modeling
- Monitoring/methodologies
- Mountain and highland systems
- Natural and other resources
- Natural medicinal products
- Perturbations and resilience
- Pests/Diseases
- Phenology
- Phytosociology/Succession
- Plankton
- Plants
- Polar systems
- Pollination
- Population genetics/dynamics
- Productivity
- Rare/Endangered species
- Reptiles
- Restoration/Rehabilitation
- Species (re) introduction
- Species inventorying
- Sub-tropical and temperate rainforest
- Taxonomy
- Temperate forest systems
- Temperate grassland systems
- Tropical dry forest systems
- Tropical grassland and savannah systems
- Tropical humid forest systems
- Tundra systems
- Vegetation studies
- Volcanic/Geothermal systems
- Wetland systems
- Wildlife

### Socio-economic
| Agriculture/Other production systems | Biogeochemical studies |
| Agroforestry | X |
| Anthropological studies | X |
| Aquaculture | X |
| Archaeology | X |
| Bioprospecting | X |
| Capacity building | X |
| Cottage (home-based) industry | X |
| Cultural aspects | X |
| Demography | X |

### Integrated monitoring
<p>| Biogeochemical studies | X |
| Carrying capacity | X |
| Conflict analysis/resolution | X |
| Ecosystem approach | X |
| Education and public awareness | X |
| Environmental changes | X |
| Geographic Information System (GIS) | X |
| Impact and risk studies | X |
| Indicators | X |
| Indicators of environmental quality | X |</p>
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**Appendix 1**

**A Cooperation Plan for the Georgian Bay Littoral Biosphere Reserve**

*Note: This Plan follows a general format adopted by the Canadian Biosphere Reserves Association*
Preamble

A biosphere reserve is an area designated by UNESCO (the United Nations Educational, Scientific and Cultural Organization) to demonstrate innovative approaches to living and working in harmony with nature. As of April 2004, there were 440 biosphere reserves in 97 countries, each of which represents one of the world’s major ecosystems.

The three major functions of a biosphere reserve are: Sustainable Development, Conservation of Biodiversity, and Logistic Support. This latter term refers to actions such as research, monitoring, education, training, or demonstration projects which various partners in a biosphere reserve provide in support of actions promoting conservation and sustainability. Biosphere reserves in Canada tend to refer to this third function as Capacity Building, the term also used here.

UNESCO encourages biosphere reserves to develop management or coordination plans to guide their work. Like other biosphere reserves in Canada, the proposed Georgian Bay Littoral Biosphere Reserve has no authority over land and water use, hence everything it fosters depends on cooperation. This cooperation plan has been developed for the residents, businesses and other organizations and agencies of the proposed biosphere reserve. The Plan interprets the three functions of a biosphere reserve in terms of accomplishments, current actions and challenges that best reflect the local or regional circumstances. It is meant to encourage innovation, foster pride in local achievements, and create a desire to share experiences with others in Canada and elsewhere.

Vision of the Proposed Biosphere Reserve

In 1996, the Greater Bay Area (GBA) Foundation presented the concept and vision of the “Georgian Bay Littoral” as follows:

The simplest and most logical way to look at the Bay is as a single entity, a region we call the “Littoral” – the geographic term for an area that depends on or is related to the shore. Like a rainbow stretching for hundreds of miles, the Littoral is composed of separate but interdependent bands. From west to east they are:

- the open waters of Georgian Bay
- the outer islands and channels
- the Thirty Thousand Islands and their water-based communities
- the immediate shoreline of the mainland
the inland lakes and rivers with no road access
the road-accessed inland lakes and recreation areas
the land-based permanent service centres
the land transport corridor

Each of these bands has its own character, concerns and potential. But they are all dependent on each other for their economic and environmental health. By recognizing the natural unity of the Littoral, we can reunite the bands of the rainbow. We can transform it into a single economically prosperous area, based on ecotourism, instead of a series of fragmented and struggling communities whose needs and interrelationships are too often unrecognized.”

[“The Littoral: a new vision for Georgian Bay”, Georgian Bay Update, Summer 1996]

This vision and the biosphere reserve concept were soon recognized to be mutually compatible, to the extent that this vision for the Littoral has been adopted to guide the proposed Georgian Bay Littoral Biosphere Reserve (GBLBR). Besides the vision, local consultations about the proposed biosphere reserve revealed a “Georgian Bay feeling” – a profound feeling of attachment and sense of place which is widely shared by people in the Littoral. This cooperation plan reflects the practical expression of this feeling.

**Outline of the Cooperation Plan**

The GBA Foundation and the Georgian Bay Biosphere Reserve Inc. (GBBR Inc.) are the proponents of this Biosphere Reserve. The Foundation is the original and funding proponent. It was established in 1995 as a voluntary community response to the growing need for major capital and research funding for projects supporting the Bay’s environment and the quality of life for all residents and visitors to enjoy. The goals of the Foundation are: “to educate residents of the Georgian Bay Area and the public on issues of environmental protection, conservation, safety and preservation of the water and natural features in the Georgian Bay Area of Ontario by conducting conferences, workshops, and seminars on these issues; and to conduct research, in conjunction with qualified educational institutes and others, into water and land quality matters to add to the public knowledge and appreciation of these matters”.

In 1998, the GBA Foundation created the GBBR Inc. to coordinate the biosphere reserve program after the nomination is approved. It had its first official Board meeting in February 2004. The new Directors and Officers of this corporation are people, who as individuals, are affiliated with the range of primary stakeholders within the proposed biosphere reserve. They include
three people from aboriginal communities, three other permanent residents from the area, and
two each from the cottage and boating communities. The significance of this representation is
that each of what some people had perceived as four traditional “warring factions” in the
biosphere reserve area are now fully involved.

While the nomination was created and funded by the Foundation, it is now obvious that
the individual credibility of the GBBR Inc. Board members has broadened the base of support
for the nomination across the biosphere reserve area. This in turn, made it easier for
government representatives to give their full support to the nomination, and to the work of the
biosphere reserve.

In addition, GBBR Inc. has begun to develop linkages to area-wide information and
databases for use by various groups, help coordinate, where it can, initiatives taken by others
that help fulfill the functions of a biosphere reserve, and report on conditions, trends, and issues
from the larger-scale and longer-term perspective of the Littoral region.

The GBBR Inc. works in close partnerships with key stakeholder groups, as noted
below. This cooperation plan first summarizes what has been undertaken so far to lay the basis
for a biosphere reserve. It then identifies strategic directions and some immediate priorities for
the next few years under the three headings of sustainable development, biodiversity
conservation, and capacity building. It also notes the roles of partner organizations, and
identifies tools and resources for priority actions to implement this cooperation plan. The
provisions of this Plan will be reviewed and updated by the GBBR Inc. from time-to-time.

**Sustainable Development**

The future economic success of the Littoral area depends largely on sustainable “smart
growth” tourism. This in turn depends upon preserving the unique ecosystems and
environmental quality of the area, and assuring the sustainable use of water and land resources
by different user groups. To this end, the GBA Foundation has:
• supported the provincial government’s concept of the Great Lakes Heritage Coast while promoting the importance of local participation and partnerships with coastal communities to implement it (Please see Appendix 3)

• funded a “smart growth” tourism study that promotes the concept of destination nodes with service facilities, road access, and associated “loop tours” that can be taken from these locations

• endorsed the campaign to “bring the Port back to Port Severn” as part of the gateway to the coast component of the heritage coast concept

• worked closely with cottagers, boaters, marina operators and others to develop a Georgian Bay Boaters and Cottagers Code of Conduct and other agreed practices which help reconcile some divergent interests in recreational use of the Bay while also protecting environmental quality

• initiated extensive volunteer-based environmental quality monitoring for nearshore areas subject to degradation from waste disposal or eutrophication

• launched initiatives with provincial and federal ministries and industry to assure that open net cage aquaculture is truly sustainable in the shared public waters in Georgian Bay

• worked with the provincial government and other stakeholders to change the fishing regulations to protect and begin to restore the local sport fishery

• promoted monitoring of ozone levels and particulate matter by the Ministry of the Environment, and the provision of air quality reports for the area

• launched Georgian Baykeeper in 2003, as a member of the North American Waterkeeper Alliance, and based on several years experience with community marine patrols to promote public safety, water quality monitoring, and education about water-based recreation and environmental issues

• cooperated with the Muskoka Heritage Foundation to extend the “Dark Skies” project.

Strategic Directions

• continue to foster sustainable tourism in ways that demonstrate how a biosphere reserve can promote community economic sustainability as well as conservation of ecological values
• continue to monitor problem areas and work with other partners and stakeholders to restore and maintain environmental quality

Immediate Priorities

• starting with Port Severn as a demonstration model, promote “smart growth” tourism in cooperation with “gateway” communities and coastal hamlets to demonstrate effective ways for the Great Lakes Heritage Coast concept to be implemented through involvement of local coastal communities
• work as a partner with First Nations to help develop their spiritual tourism opportunities as a distinctive component of sustainable tourism
• continue to work with different water-based user or recreation groups and regulatory agencies to help develop user-guided “management regimes” to reconcile potential conflicts of interest among different groups on Georgian Bay
• equip the Georgian Baykeeper operation.

Conservation of Biodiversity

Conservation of biodiversity in the proposed biosphere reserve has been secured largely by the national and provincial parks and conservation reserves which serve as the core areas and buffer zones. These are also an important base for the provincial Great Lakes Heritage Coast designation. However, more field information about the occurrences of plant and animal associations was sought, especially for some of the new conservation reserves, a number of the outer islands, and in some of the more inaccessible sites on the mainland away from the coast. This additional information can help develop priorities for conservation actions. To this end, the GBA Foundation has:

• strongly supported the joint venture between the Ministry of Natural Resources, the Nature Conservancy of Canada and the Georgian Bay Land Trust (MNR/NCC/GBLTF) to develop biological inventories for over 70 priority sites undertaken in varying degrees of detail by staff from the Ontario Natural Heritage Information Centre and other agencies during the summers of 2001 and 2002
• funded the purchase of the IKONOS high resolution satellite imagery of the proposed biosphere reserve area for use in wetland, forest and other research
• strongly supported the work of the Georgian Bay Land Trust Foundation and their conservation acquisitions through purchases of properties, easements, or arranging for donations
• funded studies by a consulting firm to undertake landscape spatial (GIS) analyses for conservation purposes for the entire area of the proposed biosphere reserve
• established 22 biodiversity monitoring plots using protocols adopted by the Ecosystem Monitoring and Assessment Network (EMAN) of Environment Canada
• established a ~5 km transect to record lichen growth on trees as an indicator of cumulative effects of air quality on forest ecosystem health
• participated in public education and awareness programs for wildlife, e.g. nuisance bears, massasauga rattlesnakes, zebra mussels, transmission of West Nile virus
• encouraged individuals in membership organizations to participate in volunteer monitoring programs, e.g. marsh monitoring, occurrences of reptiles, breeding birds
• begun the development of youth programs to help monitor some indicator species.

Strategic Directions

• participate in the preparation and/or review of management plans for federal and provincial parks and for conservation reserves that constitute the core areas and buffer zones for the proposed biosphere reserve
• maintain and extend, where warranted, volunteer-based biodiversity monitoring in cooperation with EMAN and other organizations
• foster environmentally sensitive, harmonized planning for land and water use in local municipalities
• explore opportunities for productive cooperation with forest stewardship organizations

Immediate Priorities

• set up long-term arrangements to maintain biodiversity monitoring plots and transects to monitor ecosystem health
• help ensure that the results from the OMNR/NCC/GBLTF inventories of priority sites are taken into account properly in the development of management plans for parks and conservation reserves, and in local municipal planning
• continue to collaborate with Parks Canada in the “greater ecosystem” concept of the Georgian Bay Islands National Park

Capacity Building

The key for developing the biosphere reserve and extending community and public support for it lies in communication strategies and in consolidating data and information from multiple sources. These can be used to provide a “Littoral” scale interpretation of conditions, trends, and issues associated with sustainable development and biodiversity conservation which is one of the distinctive contributions of a biosphere reserve. To this end, the GBA Foundation has:

• created the GBBR Inc. that is acquiring, maintaining and disseminating information from different sources to different constituencies in a fair, unbiased manner
• maintained a website with links to different information sources (http://www.georgianbay.ca)
• continued to raise funds that are used as seed money or matching funds to carry out pilot projects on various subjects that also relate to the functions of a biosphere reserve
• sponsored workshops and community meetings on a range of topics of public interest

Strategic Directions

• identify information and databases that would be useful for the purposes of a biosphere reserve and negotiate terms for access and the use of them
• involve a growing variety of stakeholders in reviewing, revising, and updating this cooperation plan from time to time and have components of the cooperation plan
become recognized formally as part of the operational plans of other agencies and organizations
- develop the reporting capacity and information linkages for users of the biosphere reserve

Immediate Priorities

- make additional appointments to the Board of GBBR Inc., and engage them in a process to develop the organization’s major roles and priorities in fostering the biosphere reserve
- develop a “world-class” website with links to all partner organizations
- develop a communications and fund-raising strategy

Roles of Biosphere Reserve Partners

Major Partners

The Georgian Bay Association
The GBA is a not-for-profit umbrella group founded in 1916. It now represents 20 resident associations and 4,200 families on the eastern and northern shores of Georgian Bay and the adjacent inland lakes and water bodies. GBA’s mission “is to work with water-based communities and other stakeholders to ensure the careful stewardship of the greater Georgian Bay environment and to promote the quiet enjoyment of its diverse and finite spaces”.

The Georgian Bay Land Trust Foundation
The Trust was formed in 1991 “to preserve the unique archipelago and its adjacent water bodies which lie along the eastern shore and North Channel of Georgian Bay that are of ecological, geological and historical importance, and to promote the appreciation of this special area”. The Trust works in partnership with the Nature Conservancy of Canada, the Ontario Nature Trust Alliance, and the US Land Trust Alliance.
**Georgian Bay Islands National Park**

This is a key core area for the proposed biosphere reserve. National park staff have provided information and data from landscape analyses for use by the proponents of the biosphere reserve. There will also be informal cooperation on matters relating to the “greater ecosystem” concept based on the national park.

**Ontario Ministry of Natural Resources**

The proponents of the biosphere reserve have worked closely with staff of the Ministry on matters relating to sports fishing in Georgian Bay, the biological inventories of priority sites carried out in 2001-2002, and on aspects of the Great Lakes Heritage Coast concept. They will also keep in touch with matters relating to conservation reserves which serve as the buffer zone for the proposed biosphere reserve.

**Ontario Parks (within OMNR)**

It manages five of the core areas in the proposed biosphere reserve. The proponents of the proposed biosphere reserve have participated in consultations or other activities associated with at least three of the areas, and will continue to do so as may be appropriate.

**Township of The Archipelago and Township of Georgian Bay**

These townships have municipal planning and other local responsibilities for most of the littoral zone in the proposed biosphere reserve.

**Other Partners**

**Canadian Coast Guard**

With support from members of the Alliance for Boaters and Cottagers, the GBA Foundation provided funding for the Coast Guard to install and maintain a Cognashene By-Pass Channel and the Outside Channel (in the open waters of the Bay) over a five-year period, 1996-2001.
**Canadian Power & Sail Squadrons**

The Parry Sound Unit of the Squadrons provides instruction on boating safety on all phases of seamanship and navigation. It works closely with other partners on this and related matters.

**Ecological Monitoring and Assessment Network (EMAN), Environment Canada**

As stated by EMAN, the network is made up of linked organizations and individuals involved in ecological monitoring in Canada to better detect, describe, and report on ecosystem changes in order to ensure informed decision-making and to create environmental awareness among Canadians. It includes federal, provincial and municipal governments, academic institutions, aboriginal communities and organizations, industry, environmental non-government organizations, volunteer community groups, elementary and secondary schools and other groups/individuals involved in ecological monitoring. Coordination and support is provided by the EMAN Coordinating Office in Environment Canada. EMAN staff have worked with volunteers associated with the Georgian Bay Association to establish biodiversity monitoring plots, transects to assess forest health, and help with the training of volunteers.

**Georgian Baykeeper**

This was formed by the GBA Foundation in 2003, and one boat (as a start) has been equipped to conduct marine patrols to promote public safety, water quality monitoring and public education about water-based recreation and environmental issues.

**G'Nadjiwon Ki, beautiful land, Aboriginal Tourism Association**

The association was established in 1998 in response to the growing need for an official associative body to promote Aboriginal Tourism and help aboriginal people in the Georgian Bay - Lake Simcoe region to benefit from the increasing popularity of aboriginal Tourism. The Vision of the Association is to “be a leader in promoting aboriginal tourism; and will help aboriginal people in the region to benefit from a unique and viable aboriginal tourism industry which will be an economic cornerstone for aboriginal communities and which presents, protects, and respects aboriginal culture and preserves our Mother Earth”. The Association encourages and supports the development of aboriginal tourism through provision of a range of services and products to Aboriginal communities, organizations, and liaison with non-aboriginal groups.
Severn Sound Environmental Association

The mission of the Association is to restore and maintain environmental quality and to ensure continued protection through a legacy of wise stewardship of Severn Sound and its tributaries. Severn Sound was one of 43 “areas of concern” designated under the Canada-United States Great Lakes Water Quality Agreement. Through the efforts of the Association and others, it was “de-listed” as an area of concern in October 2002. The Association continues to monitor the ecological recovery of the area.

Potential Partners

Parry-Sound-Muskoka Stewardship Network

The stated mission of the network is “advancing and influencing the responsible care and use of our natural resources in the Parry Sound-Muskoka Area, for this and future generations”. Its goals are to: “strive to ensure landowners are aware of and have access to relevant management information; work together with landowners, agencies and associations to deliver resource management programs and services; provide educational opportunities that promote responsible resource stewardship; initiate and support stewardship projects that address locally identified resource concerns and recognizing stewardship practices of landowners and associations”.

Westwind Forest Stewardship Inc.

Since 1997, Westwind has been responsible for the 880,000 ha French/Severn Forest which encompasses the proposed biosphere reserve and applies to all Crown (publicly-owned) lands in it. These are managed under the terms of the Ontario Crown Forests Sustainability Act, as well as standards endorsed by the international Forest Stewardship Council, and contribute substantially towards the sustainable development ideal of a biosphere reserve.

Tools and Resources for Coordination

The GBBR Inc.

(as noted previously)
The website

The website of the Georgian Bay Association will serve this function initially. The GBA newsletter (“GBA UPDATE”), posted also on its website, disseminates information and has links to other organizations and information sources. The website will be further developed as the GBBR Inc. and its activities take shape. A listserve is also being considered.

Canadian Biosphere Reserves Association

The CBRA was incorporated in 1997 to work with, through and alongside biosphere reserves in Canada to actively support and advise on how they might fulfill the UNESCO requirements in various ways. This includes fund-raising and the development of collaborative projects. Individual biosphere reserves are the members of the Association, and as new biosphere reserves are designated they are invited to join. At the time of this nomination submission, the Association had 12 member biosphere reserves, a part-time Executive-Secretary, two representatives from federal agencies that have helped fund the organization (Environment Canada and Parks Canada) and five honorary (non-voting) members appointed because of the experience with biosphere reserves they could bring to the organization.

Resources

The GBA Foundation has funded background studies, pilot projects and education/awareness programs that contribute directly to the functions of a biosphere reserve. Funding has been in the order of $80-100k annually. The proposed biosphere reserve does not have a fixed budget at this time. Most of the activities will be undertaken by partnership organizations using their own staff, volunteers, and resources.

Faculty members from several Ontario universities have conducted research in the proposed biosphere reserve and others have assisted with the nomination submission process. These connections will be strengthened in the future, and they are expected to provide links to a number of research networks.