

Final Draft

**ECOSYSTEM CHARTER
FOR
THE GREAT LAKES-
ST. LAWRENCE BASIN**

August 1994

(reflecting consideration of all comments received during review process)

Preamble

The Ecosystem Approach to Management: An Introduction

An "ecosystem approach" to management is being embraced by many public sector, non-governmental and citizen-based institutions in the Great Lakes-St. Lawrence Basin. This approach recognizes that the environmental and economic attributes of the Basin are fundamentally linked and interdependent, as are the goals for environmental protection and economic development. It also recognizes that resources must be managed as part of dynamic and complex communities and ecosystems, rather than as separate and distinct elements. Practicing the ecosystem approach means that all partners—government and private sector alike—understand the implications of their actions and strive to avoid unintended adverse consequences.

The Problem

Many of our laws, programs, policies and institutions support the concept of an ecosystem approach, yet application of the concept is difficult due to their often narrow, single media or issue specific mandates and the inherent challenges of managing on an ecosystem basis. The problem is the absence of a single, clearly articulated statement—or charter—that explicitly defines goals for an ecosystem approach to management and ties a common thread through these many activities and mandates.

Charter Format and Objectives

The Ecosystem Charter summarizes, in a concise and convenient form, commonly held principles drawn from existing laws, treaties, agreements and policies. It includes a vision statement and a series of principles in the categories of rights and responsibilities; ecological integrity and diversity; sustainable communities; institutional relations; and public information, education and participation. It includes a series of actions that all members of the Great Lakes-St. Lawrence Basin community can endorse or undertake in support of these principles.

The Charter has three primary uses. It is a tool for promoting and periodically assessing public and private sector efforts to implement an ecosystem approach. It is a tool for information and education; offering a vision for the Great Lakes-St. Lawrence Basin Ecosystem and a means to achieve it. Finally, it is a tool for advocating the interests of the Basin Ecosystem and its inhabitants; a statement of unity acknowledging that all partners in the collective management effort—despite our differences—subscribe to a single set of fundamental principles.

The Charter is a "good faith" agreement among its signatories, which can include representatives from the array of public agencies, non-governmental organizations and private interests in the Great Lakes-St. Lawrence Basin. It is not a legally-binding document, nor does it replace or otherwise affect implementation of existing laws, agreements and policies. Rather it showcases these initiatives, high-

lights their implementation and, in so doing, promotes an ecosystem approach to management in the Great Lakes-St. Lawrence Basin.

Charter Foundation

The foundation for the Ecosystem Charter is a heritage of binational cooperation to ensure the informed use, management, conservation and protection of the Great Lakes-St. Lawrence Basin Ecosystem. The Charter builds upon landmark agreements such as the U.S.-Canada Boundary Waters Treaty of 1909, which established procedures for avoiding or otherwise addressing transboundary resource management and related environmental problems, and the Great Lakes Water Quality Agreement, which commits the two countries to restoring and maintaining the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem. Through these and many other initiatives, regional leadership has pioneered the ecosystem approach to resource and environmental management, conservation and protection. The Ecosystem Charter, as a statement of shared principles and related actions for an array of stakeholders, represents an important step forward in this approach. The Charter will help guide future actions to enhance and sustain the environmental health and economic viability of the world's greatest freshwater system. In so doing, it can serve as a model in North America and globally.

Charter Process

The Charter is a living document; it will be reviewed and revised periodically to ensure that it reflects current thinking on the ecosystem approach. It offers a means for assessing progress and provides the guidance needed for further efforts. A broad cross-section of agencies, organizations and associations contributed to the draft of the Charter, and the document itself is "owned" by all signatories. The Great Lakes Commission, as a coordinating agency, will provide ongoing support in the distribution, use and updating of the Charter, including specific opportunities for periodic review and assessment of progress.

Charter Signatories

Any organization, agency or governmental jurisdiction that subscribes to these principles is invited to be a signatory to the Ecosystem Charter. Signatories agree to use the Charter as guidance in the development of their work plans and priorities, as a means to enhance communication and cooperation with others, and as a means for assessing progress toward a shared vision for the Great Lakes-St. Lawrence Basin Ecosystem. Signatories accept the overall intent of the Charter and agree to pursue principles and related actions that are consistent with their individual mandates and priorities, and within available resources. Signatories will prepare a brief statement that describes their agency/organization's commitment to the Charter, and actions to be taken to support implementation. These statements will be included in the Charter addendum and updated periodically to assess past progress and guide future efforts.

A VISION FOR THE GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM

OUR VISION IS A GREAT LAKES-ST. LAWRENCE BASIN ECOSYSTEM....

Where all people consider and conduct themselves as part of our Ecosystem;

Where all people recognize the fundamental and inextricable link between economic well-being and the health of the Ecosystem;

In which all beneficial organisms can thrive free from preventable ecological threats to their well-being;

Where environmental degradation is a legacy of the past and a basis for remedial action;

That exists as an evolving natural and cultural system which can successfully adapt to change;

In which use of natural resources is compatible with conservation of such resources;

That maintains the integrity of the Ecosystem and accommodates appropriate development;

That is a rich mosaic of waters and lands, of natural areas and places of human activity, and of different peoples who govern themselves in various ways;

That nurtures an abundance and diversity of plant and animal species in their natural communities and habitats as well as in specially protected and rehabilitated sites;

That embraces the concept of sustainable development by meeting the needs of this generation without compromising the ability of future generations to meet their needs;

Where all people and their governments act as good stewards and are committed to informed action and supportive policy decisions;

In which a shared governance process, among diverse and respected traditions, provides an accessible and equitable basis for responsible action and accountability among all people and their institutions.

RIGHTS AND RESPONSIBILITIES

Access to clean water, clean air, and healthy and productive soils is a fundamental right of all individuals within the Great Lakes-St. Lawrence Basin. This right implies a shared responsibility for the informed use, management, conservation and protection of the Basin's water and related land and air resources. The integrity of the Ecosystem—and the physical health, economic well-being and quality of life of its human element—must be enhanced and maintained for the current and future generations.

Principle I

People in the Great Lakes-St. Lawrence Basin, as well as all communities of beneficial organisms, have a right to live in an ecosystem that supports their health and well-being.

Findings:

The natural world has intrinsic value; it is the basis for life on earth and is essential to human well-being. Activities which degrade its water, air and land resources threaten the health of the Ecosystem and, hence, its ability to support the health and well-being of those dependent upon it. The fundamental right of all people to a healthy environment is a basis for sustainable development and environmental protection.

This principle shall be addressed by:

- Recognizing that the Ecosystem is comprised of both human and non-human elements, and that the latter have an intrinsic value apart from any value humans may receive from them.
- Accepting responsibility to conduct ourselves, individually and collectively, in ways that support a healthy ecosystem consistent with the principles set forth in this Charter.

Principle II

People have the right to use natural resources and ecological processes for economic purpose and enjoyment, commensurate with the responsibility to rehabilitate and maintain the integrity of the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:

People and their governments in the Great Lakes-St. Lawrence Basin are stewards of the Ecosystem; this entails a responsibility to enhance and maintain the health of the Ecosystem for the use, benefit and enjoyment of the current and future generations.

This principle shall be addressed by:

- Adopting, pursuing and promoting principles and practices of sustainable use of Ecosystem resources by businesses, agencies, organizations and individuals.
- Accepting the responsibility to minimize or prevent activities that cause environmental harm to other jurisdictions or individuals.
- Recognizing the role of the Great Lakes-St. Lawrence Basin Ecosystem in the larger global environment and taking actions, where possible, that can alleviate adverse impacts on that environment.
- Cooperating with all people in the Great Lakes-St. Lawrence Basin Ecosystem and with citizens in other biogeographical regions to achieve mutual objectives consistent with this Charter.

Principle III

The environmental and human health risks related to activities and resource uses shall be assessed and characterized, where possible, by those who propose them in the interest of demonstrating that such activities will not cause undue harm to the Ecosystem.

Findings:

Human activities in the Basin have historically been regulated in response to demonstrable proof that those activities cause injury or harm to human health or the environment. However, achieving Ecosystem integrity is difficult if it is the sole responsibility of governments to prove that a certain activity causes harm or injury. Ecosystem protection can be enhanced by placing additional responsibility on those who are proposing such activities so that risk assessment is undertaken.

This principle shall be addressed by:

- Agreeing to examine new or proposed activities in the Great Lakes-St. Lawrence Basin to identify prospective adverse impacts and means to reduce, mitigate or eliminate them.
- Undertaking risk assessment processes that incorporate risk management strategies and effective risk communication to facilitate Ecosystem policy development and implementation.
- Maintaining or encouraging maintenance of monitoring programs to provide baseline information on the environmental impacts of resource uses.

ECOLOGICAL INTEGRITY AND DIVERSITY

Ecological integrity is a state of the Ecosystem in which ecological diversity and resilience is present, allowing the Ecosystem to sustain itself and its inhabitants. Integrity cannot be achieved, however, when irresponsible actions impair the beneficial uses of Basin resources. The extent of the threats to the Ecosystem is demonstrated by the numerous Areas of Concern designated by the Parties to the Great Lakes Water Quality Agreement. Efforts to rehabilitate and protect the Ecosystem through scientific inquiry, public policy development and management programs are essential for achieving and maintaining ecological integrity.

Principle IV

The chemical, physical and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem shall be achieved by understanding, respecting, rehabilitating and protecting ecological processes and natural resources and by identifying and maintaining genetically diverse plant and animal communities within the Ecosystem.

Findings:

Binational and national commitments have been made to restore and maintain the chemical, physical, and biological integrity of the Great Lakes-St. Lawrence Basin Ecosystem. Despite some successes, the goal of Ecosystem integrity has yet to be achieved. Until that time, the health and well-being of the Ecosystem inhabitants will be compromised.

This principle shall be addressed by:

- Improving implementation of existing programs and, where appropriate, developing new ones to rehabilitate, protect and manage ecological resources and diversity within the Ecosystem.

- Providing strong citizen, government and industry support for timely and effective adoption and implementation of Lakewide Management Plans; timely and effective implementation of Remedial Action Plans for the Basin's Areas of Concern; and designation of additional Biosphere Reserve sites within the Basin.
- Increasing the binational effort to monitor aquatic species and wildlife communities in the Basin, both to sustain and rehabilitate these communities and to better understand environmental threats to human health.
- Developing, adopting, and promoting strategies to integrate and expand efforts to rehabilitate and protect areas of natural beauty and ecological significance such as wetlands and dunes.

Principle V

An ecosystem approach to management that involves rehabilitating and protecting ecological processes and resources of the Basin Ecosystem shall be fully and widely adopted, based on the understanding that human activities, natural resources and ecological processes are interdependent and parts of a unified whole.

Findings:

An ecosystem approach entails an integrated, multi-resource emphasis and broad, precautionary strategies that anticipate and prevent environmental harm. This approach respects and affirms the interconnectedness of ecological processes and requires humankind to understand and conduct itself as an integrated part of the Ecosystem rather than as an entity separate from it.

This principle shall be addressed by:

- Ensuring that ecological protection and rehabilitation efforts are based on an integrated, multi-resource approach.
- Emphasizing precautionary measures that anticipate and prevent harm to human health and the environment.
- Collaborating on and coordinating environmental quality, natural resource and economic development programs to ensure that pollution control and prevention, habitat restoration and protection, forestry management, fisheries management and other actions are consistent with ecosystem-based management.
- Adopting and applying principles of an ecosystem approach to individual agency, organization and business settings.

Principle VI

A coordinated, multi-disciplinary research agenda is necessary to improve understanding of the scientific, social and economic dimensions of the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:

Scientific, social and economic data and information form the basis for public policies, agreements and programs in the Great Lakes-St. Lawrence Basin Ecosystem. Yet, many aspects of the Ecosystem and its various dimensions and dynamics are not well understood. An enhanced, aggressive and innovative program of basic and applied research is necessary to improve understanding of the Ecosystem.

This principle shall be addressed by:

- Forming partnerships among public agencies, academic institutions, businesses and citizens' organizations to conduct and coordinate basic and applied research on the Basin Ecosystem.
- Advancing pollution prevention efforts and supporting sustainable development in the Basin Ecosystem by conducting applied research on consumption attributes and production methods.
- Undertaking research initiatives, such as toxicological and epidemiological studies, that explore human health impacts of activities in the Basin Ecosystem.

- Making research results understandable to the public and useful by decisionmakers.
- Establishing new, and strengthening existing capabilities and networks for the exchange of data, research results and other information relevant to the Basin Ecosystem.

Principle VII

The environmental quality of the Great Lakes-St. Lawrence Basin Ecosystem shall be improved by virtually eliminating the discharge or release of persistent bioaccumulative toxic substances into the Basin Ecosystem.

Findings:

Numerous pollution control and prevention programs and measures have been implemented, and significant reductions in particular toxics and other pollutants have occurred. However, the complexity and pervasive nature of toxic contamination calls for continued vigorous action and innovative solutions. Thus, a broad-based commitment to the above principle is needed, consistent with the objectives of the Great Lakes Water Quality Agreement.

This principle shall be addressed by:

- Implementing pollution prevention practices to eliminate and/or reduce waste generation through changes in production processes, products and packaging and through resource reuse and recycling.
- Implementing policies, programs and practices to virtually eliminate the discharge or release of persistent bioaccumulative toxic substances and to prohibit the discharge in toxic amounts of toxic substances that are not for the purpose of achieving Ecosystem integrity (e.g., lamprey control.)
- Actively seeking cost-effective, benign alternatives to toxic substances and substituting them, where possible, to reduce reliance on toxic substances that threaten Ecosystem integrity.
- Supporting the development of binational objectives and measures to address air quality issues, including acid deposition, smog and airborne toxic contaminants as well as global atmospheric problems that affect the Basin, such as global warming.

Principle VIII

The natural fluctuations of the levels and flows within the Great Lakes-St. Lawrence River System shall be accommodated to the extent possible, while maintaining appropriate water use and related coastal activities.

Findings:

The freshwater resources of the Great Lakes and St. Lawrence River are interconnected and form a single hydrologic system which geographically defines the Great Lakes-St. Lawrence Basin Ecosystem. This dynamic system, which supports a variety of organisms and human activities, is naturally subject to varying levels and flows. Many ecological resources rely upon and benefit from this variance. Resource uses and economic activity in coastal and near-shore areas are highly sensitive to fluctuating levels and flows; the magnitude and direction of the fluctuation impacts different uses in different ways. Existing structures and practices that protect appropriate use and related coastal activities should be maintained with future policy also considering adaptation to fluctuations.

This principle shall be addressed by:

- Supporting a binational process that allows all stakeholders to participate in decision-making and planning related to levels and flows and land use policies for coastal areas.
- Supporting continued improvement in the collection and maintenance of data regarding levels and flows, major uses and diversions of Basin water resources and associated analysis, dissemination and public policy applications.

SUSTAINABLE COMMUNITIES

In a sustainable society, a fundamental and inextricable linkage exists between economic activity and the natural ecosystem. Sustainable economic activity meets the needs of the present generation without compromising the ability of future generations to meet their own needs, and respects the limits imposed by the capacity of the Ecosystem to absorb the impact of human activities. Adopting principles of sustainability at the community and Basin levels will promote long-term economic viability and continued improvements in environmental quality.

Principle XI

Ecosystem integrity and the economic well-being of human communities are interdependent; achieving and protecting ecosystem integrity is, therefore, an essential part of economic activity within the Basin.

Findings:

Natural resources within the Great Lakes-St. Lawrence Basin Ecosystem supply tens of millions of people with drinking water; support a multi-billion dollar recreation/tourism industry; provide habitat for thousands of plant and animal species; offer transportation and manufacturing opportunities; and support an extensive agricultural industry. To ensure that natural resources in the Basin Ecosystem continue to provide such benefits, economic strategies and activities must ensure that essential ecological processes are maintained, natural resources are used sustainably, biological diversity is conserved and infrastructure investment is appropriately pursued.

This principle shall be addressed by:

- Incorporating principles of sustainability in relevant public and private sector plans and programs that reflect an appropriate balance between ecosystem protection and economic development.
- Supporting and pursuing policies and programs that provide for the efficient and sustainable use of natural resources, and working to revise or eliminate those that do not.
- Identifying energy efficiency and conservation as a public and private sector priority and supporting the use of renewable energy sources.
- Supporting adequate and prudent infrastructure investment, particularly for water treatment and distribution systems, consistent with the goal of sustainable human communities.
- Supporting and pursuing policies and programs that encourage the development of industries providing pollution control and mitigation products and services.
- Developing common data collection measures and indicators to integrate and/or supplement traditional, independent measures of environmental, social and economic health and well-being to gauge progress in achieving a sustainable society.

Principle XII

Industry in the Great Lakes-St. Lawrence Basin is a key partner in achieving and protecting Ecosystem integrity; industry support for and implementation of environmental, conservation, and safety standards and practices is necessary.

Findings:

The Great Lakes-St. Lawrence Basin is one of the most industrialized areas of the world. Economic development created a high standard of living and quality of life for residents. As members of the Great Lakes-St. Lawrence community, industry (including the manufacturing, transportation and agricultural sectors) recognizes that its performance and contribution to the economy depends on a healthy Great Lakes-St. Lawrence Basin Ecosystem. Accordingly,

- Developing an effective process for state/provincial and public review and consideration of diversion and consumptive use proposals, and a Basin water resources management program to ensure that relevant data and information on proposed impacts is available.

Principle IX

Societal needs for a healthy Ecosystem and economy shall be addressed by promoting the sustainable use of renewable natural resources.

Findings:

Renewable resources such as forests, wildlife and fisheries, have been threatened by poor land use practices, over-harvesting, habitat degradation and the introduction of harmful non-native species, among others. Numerous measures have been taken to check, reverse, or compensate for this damage, but the availability and quality of renewable resources remain threatened. A binational commitment to the management of such resources must recognize the need for remedial actions as well as long-term planning and management on a comprehensive Basinwide basis.

This principle shall be addressed by:

- Consulting and coordinating with affected jurisdictions when renewable resource management decisions will significantly affect their interests.
- Incorporating renewable resource needs and management objectives into broader environmental quality policies and programs.
- Developing measures to predict and assess the effects of renewable resource management practices on environmental protection efforts and economic activity.

Principle X

Biological diversity is an essential element of Ecosystem integrity, and shall be supported so that plant and animal populations may flourish in natural communities and habitats as well as in specially protected and rehabilitated sites.

Findings:

The Basin Ecosystem supports an abundance of plant and animal species including naturalized non-native species. However, the natural biological diversity once found in the Ecosystem has been substantially altered, both by intentional and unintentional introductions and other cultural factors, some beneficial and some harmful. Efforts to rehabilitate habitat and preserve species variety, particularly that of native species, are an important part of efforts to achieve Ecosystem integrity.

This principle shall be addressed by:

- Developing strategies for the conservation of biological diversity, particularly for native species, and integrating those strategies into plans and practices concerning economic activities, environmental protection and resource management.
- Nurturing biological diversity and reducing habitat fragmentation by encouraging the establishment of publicly-owned protected areas, networks of protected areas and encouraging stewardship by private landowners.
- Modifying land use practices and other human activities to prevent the loss of biodiversity and habitat.
- Preventing new introductions of nonindigenous nuisance species and controlling existing ones.

through supporting and maintaining environmental, conservation and safety standards and practices, industry can help improve its workforce, the communities where facilities exist and workers live and its long-term profitability.

This principle shall be addressed by:

- Supporting an active role by business and industry in environmental policymaking.
- Encourage the development of information programs to demonstrate that environmental management is good for business and can improve profitability.
- Encouraging the development of cost accounting and pricing mechanisms that determine the real cost of goods and services based on production and marketing costs, as well as costs of environmental management associated with their production, use and disposal.
- Encouraging the development and use of innovative conservation, environmental protection and related pollution prevention mechanisms by business and industry, including the incorporation of economically and environmentally sustainable practices in management and operations.
- Ensuring effective communication between industrial facilities and local communities to provide information on local impacts and environmental management practices.

INSTITUTIONAL RELATIONS

Two federal governments, eight U.S. States, two Canadian provinces, numerous regional agencies, thousands of substate/provincial governments, many Native American authorities/First Nations and a multitude of other governmental entities have some legal authority or responsibility for matters pertaining to the Basin Ecosystem. The complexity and sophistication of the "institutional ecosystem" for Basin governance has garnered global recognition. Cooperative and collaborative relations among these jurisdictions, in partnership with business and industry, citizen organizations and all other Basin interests, are needed if Ecosystem integrity is to be achieved and maintained.

Principle XIII

Cooperation is essential among government entities, including federal, state, provincial, Native American authorities/First Nations, regional and local governments, if the principles of this Charter are to become public policy priorities.

Findings:

Institutional arrangements in the Great Lakes-St. Lawrence Basin Ecosystem can provide innovative opportunities for addressing complex ecological problems, but they can also be rigid, fragmented, and even contradictory. The most effective means of overcoming institutional barriers and ensuring the integrity of the Ecosystem is through cooperative, coordinated and collaborative policies and programs agreed upon and implemented by Basin jurisdictions.

This principle shall be addressed by:

- Using the principles of the Charter as a basis to develop common objectives consistent with extant agreements, policies and laws, directed at achieving and maintaining the integrity of the Basin Ecosystem.
- Consulting with affected jurisdictions and other interested parties regarding the development and/or consideration of proposals with Basinwide implications.

- Working to ensure that public and private sector activities are consistent with international, binational and regional obligations and agreements regarding the Basin Ecosystem.
- Continuing the practice and tradition of binational dispute management and resolution in the Basin Ecosystem.
- Ensuring that public policies are based on mutual respect and justice for all peoples, free from any discrimination or bias.

Principle XIV

Great Lakes-St. Lawrence Basin Ecosystem governance and management shall emphasize partnership arrangements among government entities, the private sector, citizen organizations and other interests.

Findings:

The interdependence of the economy and the environment amplify the consequences of the individual and collective actions of all agencies, organizations, businesses and individuals within the Basin Ecosystem. Their mutual interests must be explicitly acknowledged and partnerships developed to pursue public and private sector actions that benefit the Basin Ecosystem.

This principle shall be addressed by:

- Supporting existing partnerships that integrate interests and management approaches in the Basin Ecosystem, such as Remedial Action Plans and Lakewide Management Plans.
- Implementing binational agreements and initiatives, such as the Great Lakes Water Quality Agreement and the Convention on Great Lakes Fisheries, in such a way that recognizes broader issues of shared concern, including habitat protection, fisheries management, shoreline protection, biodiversity and water quantity management.
- Supporting full implementation of relevant federal, state and provincial laws and programs, and securing requisite resources to accomplish stated goals.
- Developing partnerships among Basin interests to address commonly identified problems and to harmonize institutional relationships and authorities.
- Basing Ecosystem policies and programs on the findings of sound scientific research.
- Evaluating current and prospective policies and programs on the basis of their consistency with, and responsiveness to, the principles of the Charter and the goals and objectives of relevant Basin laws and agreements.

PUBLIC INFORMATION, EDUCATION, AND PARTICIPATION

Public participation is the cornerstone for the development of public policies that promote a clean environment, strong economy and high quality of life in the Great Lakes-St. Lawrence Basin. Such participation ensures that the needs and concerns of interested individuals are heard, understood and incorporated into the policymaking process. In order to participate effectively in that process, residents must be informed of political, ecological, social, and economic issues in the Basin Ecosystem. This requires timely, accurate, and accessible information; a forum in which to voice concerns; and a mechanism to become involved in policymaking and implementation efforts.

Principle XV

Timely, accurate and accessible information shall be provided to the public regarding all planned activities that may significantly affect the Great Lakes-St. Lawrence Basin Ecosystem.

Findings:

Timely information enables the public to respond to current issues and opportunities in an appropriate time frame; accurate information enables the public to make informed decisions about their interests and concerns; and accessible information allows for all interested persons to obtain the desired information with relative ease. Programs that reflect these qualities help promote informed public policy, efficient and effective implementation and strong partnerships among Basin interests.

This principle shall be addressed by:

- Gathering timely, accurate and meaningful information about the state of the Basin Ecosystem and monitoring and reporting on progress in implementing programs consistent with the principles of the Charter and other relevant laws and agreements.
- Supporting full and equal access to available public data, policies, programs, and related information concerning current and prospective conditions of the Basin Ecosystem and the associated impact of proposed actions.
- Creating and supporting formal information links to ensure ongoing and substantive dialogue on and dissemination of data and information relating to the Basin Ecosystem.

Principle XVI

Stewardship of the Great Lakes-St. Lawrence Basin Ecosystem shall be fostered through educational efforts that promote greater understanding of the Ecosystem, the problems and opportunities facing it and policies and programs designed to improve, protect and manage it.

Findings:

Education in ecological, economic, social and political matters relating to the Basin Ecosystem broadens the basis for enlightened public opinion and responsible conduct by all who make, implement or otherwise affect public policy. Education on such matters is a life-long process; it must be pursued by children and adults alike, and in both classroom and non-formal settings. Further, it must be multi-disciplinary and integrative, allowing all interested individuals to understand the basic elements and processes of the Basin Ecosystem; how various actions affect them; how the public policymaking process functions; and how the individual can make a difference.

This principle shall be addressed by:

- Establishing and enhancing Great Lakes-St. Lawrence education programs and curricula in both classrooms and non-traditional settings, with a special focus on at-risk groups.
- Encouraging coordination of, and partnerships among educators in the Basin to ensure that educational efforts are consistent, comprehensive and accessible.
- Establishing and/or maintaining permanent systems to disseminate and promote the use of education materials.
- Improving stewardship of the Basin Ecosystem by educating ourselves and others about the needs of a healthy Ecosystem, and opportunities to address these needs through individual and collective action.

Principle XVII

Meaningful public participation in decision making processes regarding the Great Lakes-St. Lawrence Basin Ecosystem shall be encouraged by providing enhanced opportunities for public involvement and empowerment.

Findings:

All people should have the opportunity for informed participation in the development, implementation and evaluation of public policies that affect the Basin Ecosystem. Meaningful public participation requires the public to be an active partner in the decision making process, including the identification and assessment of issues.

This principle shall be addressed by:

- Developing and maintaining decision making processes that promote and encourage active and informed public participation.
- Identifying and using resources, such as information networks and other communication technology, through which public participation can be enhanced.
- Planning and engaging in outreach efforts to increase public access to, and use of those resources.
- Taking advantage of current and prospective means to further our knowledge of the Basin Ecosystem and opportunities to enhance environmental health, economic well-being and quality of life.

GLOSSARY

beneficial organisms: Organisms inhabiting the Great Lakes-St. Lawrence Basin Ecosystem, which are not known to threaten ecosystem integrity or otherwise have any harmful impacts on the ecosystem or the beneficial uses of ecosystem resources.

beneficial uses: Those activities which are dependent on the chemical, physical and biological integrity of the waters of the Great Lakes system; the impairment of which is identified under Annex 2 of the Great Lakes Water Quality Agreement.

bioaccumulative: Any substance which has the ability to bioaccumulate, where bioaccumulate means the retention of a chemical in the tissues of an organism as a result of uptake from all routes of exposure (i.e., absorption, consumption).

biological diversity/biodiversity: The full range of variety and variability within and among living organisms and the natural associations in which they occur.

ecological processes: The flow of energy, and nutrients (including water) through the ecosystem.

ecosystem: An interacting system consisting of groups of organisms together with their non-living or physical environment, which are highly interrelated.

ecosystem approach: An approach to perceiving, managing and otherwise living in an ecosystem that recognizes the need to preserve the ecosystem's biochemical pathways upon which the welfare of all life depends in the context of multifaceted relationships (biological, social, economic, etc.) that distinguish that particular ecosystem.

ecosystem-based management: Stewardship of our living natural resources to maintain the functional integrity of large, complex environmental units called ecosystems. Ecosystem-based management is an active process that emphasizes the maintenance of biological diversity, of natural relationships among species, and dynamic processes that make ecosystems sustainable.

ecosystem integrity: The ability of an ecosystem to maintain its organization (i.e., structures, processes, diversity) when confronted with environmental disturbance and change.

Great Lakes-St. Lawrence Basin: The watershed, including all land and freshwater (both surface and groundwater) within the confines of the drainage area defined by topographic high points surrounding the five Great Lakes and the St. Lawrence River to Beaupré, Quebec.

Great Lakes-St. Lawrence Basin Ecosystem: The interacting system consisting of groups of organisms together with their non-living or physical environment, which are highly interrelated, as it pertains to the Great Lakes-St. Lawrence Basin.

hydrologic system: A group of interrelated surface and ground water bodies or forces within the same drainage basin.

integrated, multi-resource approach: collaborative management (e.g., rehabilitation, protection) by individuals with expertise in all relevant fields of ecosystem resources with full recognition of the interrelatedness and interdependence of such resources.

naturalized species: A species adapted to an environment outside of its normal historic range.

nonindigenous/non-native species: A species that enters an ecosystem beyond its historic range, including any such organism transferred from one country to another. These species are also known as "exotic".

nonindigenous nuisance species: A nonindigenous species that threatens the diversity or abundance of native species or otherwise threatens ecosystem integrity or commercial, agricultural and/or recreational activities dependent on it.

persistent toxic substance: Any substance which can cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances that has a half-life in water greater than eight weeks; where half-life means the time required for the concentration of a substance to diminish to one-half of its original value in a lake or water body.

stewardship: The careful and responsible management of ecosystem resources entrusted to humans in the interest of achieving and protecting ecosystem integrity for the benefit of current and future generations.

sustainable community: A community where the natural environment and the human populations that inhabit it interrelate in a manner that maintains ecosystem integrity and provides a high quality of life for humans.

sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs and respects the limits imposed by the capacity of the ecosystem to absorb the impact of human activities.

sustainable use (of resources): Consumption or employment of resources which, all other factors being equal, does not cause depletion that harms the resource or constitutes a threat to ecosystem integrity.