

Chapter 3

Ecosystem Objectives



Great Blue Heron, Unknown Area
Photograph by: Don Breneman

Lake Superior Lakewide Management Plan
2000

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Chapter 3

Ecosystem Principles and Objectives

Lake Superior Lakewide Management Plan

EXECUTIVE SUMMARY

The Binational Program is committed to the objective of zero discharge and to a broader program to restore beneficial uses and to protect and restore ecosystem integrity in Lake Superior and its watershed. A Vision for Lake Superior (see Chapter 1) expresses this commitment to the Lake Superior ecosystem and its landscapes. It reflects the diverse pathways and mechanisms by which humans and nature interact within land and water ecosystems, and challenges the inhabitants of the Lake Superior watershed to accept personal responsibility for protecting the Lake and the landscape that sustains it. The Binational Program expanded the vision into more specific and technically precise language. The result is *Ecosystem Principles and Objectives, Indicators and Targets for Lake Superior*, first published in 1995 is now being used to guide ecosystem management and monitoring in the Lake Superior basin, and revised a number of times since then. (Access the document at: www.cciw.ca/glimr/lakes/superior/intro.html under the Publications section.) This chapter provides an overview to *Ecosystem Principles* and its approach to ecosystem management for Lake Superior.

3.0 ABOUT THIS CHAPTER

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3.1 PURPOSE

Ecosystem Principles and Objectives for Lake Superior, a discussion draft is intended to:

- 1) expand the broad objectives of A Vision for Lake Superior into more specific ecosystem principles and objectives for key elements of the Lake Superior ecosystem, including aquatic communities, terrestrial wildlife, habitat, human health, and sustainability. This discussion document has undergone review among Great Lakes practitioners. Ecosystem objectives developed by consensus do not obviate or override regulations, laws and guidelines set by governments and resource regulatory agencies. Rather, the *Ecosystem Principles and Objectives, Indicators and Targets for Lake Superior* have been prepared to encourage informed discussion of the vision and practice essential for proactive, sustainable and coordinated management of the Lake Superior ecosystem.
- 2) facilitate progress towards a set of informative ecosystem indicators, with quantitative targets, by which the health of the Lake Superior basin ecosystem, including its physical, biotic and cultural elements, can be measured.
- 3) provide guidance for land and water management in the Lake Superior ecosystem.

3.2 SCOPE AND BACKGROUND

Lake Superior ecosystem objectives and sub-objectives were developed by each of the Lake Superior Work Groups committees: chemical, aquatic community, terrestrial wildlife community, habitat, human health and developing sustainability. Table 3.1, Summary of Objectives and Sub-Objectives, presents each committee's objective and details that elaborate and clarify them in the sub-objectives column.

3.2.1 Indicators and Targets for Lake Superior

Using the same set of themes the Superior Work Group and partners were invited to draft a set of ecosystem indicators and targets for Lake Superior as measurements of progress towards Ecosystem Principles and Objectives. The Ecosystem Indicators and Targets discussion paper features specific indicators and targets.

A typical indicator identifies a practical measurement such as the abundance or distribution of a plant or animal species or an economic measure that tells us something significant about the health of the Lake Superior ecosystem. Each indicator is accompanied by a target that specifies the desired level of the indicator and its justification.

The objective of the Ecosystem Indicators and Targets discussion draft, was to attempt to specify a comprehensive spectrum of ecosystem indicators and targets. It has and will provide a reference point for discussion and refinement of binational ecosystem management and monitoring in the Lake Superior basin. The ecosystem objectives and indicators have been refined and updated since the document's original release. A Lake Superior Binational Monitoring Workshop held on October 25-27, 1999, to refine these ideas and will undergo further development towards a broad community consensus. The results will be published in the summer of 2000.

Table 3-1 Summary of Objectives and Sub-Objectives

<p>3. Terrestrial Wildlife</p>	<p>The Lake Superior ecosystem should support a diverse, healthy and sustainable wildlife community in the Lake Superior Basin.</p>	<ul style="list-style-type: none"> • There is a wildlife community-based program to monitor the health of LSB ecosystems. • Species at risk/concern (federally threatened and endangered) are recovered. • Encourage disturbances that are within natural variation. • Manage land and wildlife populations using practices that mimic natural disturbances. • Understand the relationship between wildlife and disturbance. • Keep wildlife species free of contamination. • Encourage the use of native species in all remedial projects. • h) Prevent and control the spread of undesirable exotic species. • Educate the public to integrate the values of wildlife in economic development. • Meet the restoration needs of wildlife communities.
<p>4. Habitat</p>	<p>To protect and maintain existing high-quality habitat sites in the Lake Superior basin and the ecosystem processes that sustain them. Extensive natural environments such as forests, wetlands, lakes and watercourses are necessary to sustain healthy native animal and plant populations in the Lake Superior ecosystem, and have inherent spiritual, aesthetic and educational value. Land and water uses should be designed and located in harmony with the protective and productive ecosystem functions provided by these natural landscape features. Degraded features should be rehabilitated or restored where this is beneficial to the Lake Superior ecosystem.</p>	<ul style="list-style-type: none"> • Ecological health of the Lake determined largely by the health of tributary lakes and rivers; land use planning/regulation should eliminate/avoid destructive water linkages and foster healthy land-water linkages; • Long-term consequences of incremental landscape change, habitat destruction and fragmentation should be avoided through research and planning; • Importance of nearshore, shoreline and wetland habitats should be addressed through identification, protection and restoration of sites for reproduction and rearing of fish, water birds, mammals, other wildlife and plants;
<p>5. Human Health</p>	<p>The health of humans in the Lake Superior ecosystem should not be at risk from contaminants of human origin. The appearance, taste and odour of water and food supplied by the Lake Superior ecosystem should not be degraded by human activity.</p>	<ul style="list-style-type: none"> • Fish and wildlife should be safe to eat, and consumption should not be limited by contaminants of human origin; • Water quality should be protected where currently high, and improved where degraded; communities, industries and regulators outside the basin should be informed of consequences of long-range atmospheric transport of contaminants into the basin; • Lake Superior should be safe for total body contact activities, including areas adjacent to urban and industrial areas; • Air quality should be protected where currently high, and improved where degraded; communities, industries and regulators outside basin should be informed of consequences of long-range atmospheric transport of contaminants into the basin;

Table 3-1 Summary of Objectives and Sub-Objectives

<p>6. Developing Sustainability</p>	<p>Human use of the Lake Superior ecosystem by all people in the watershed should be consistent with the highest social and scientific standards for sustainable use. Land, water and air use in the Lake Superior ecosystem should not degrade it, nor any adjacent ecosystems. Use of the Basin's natural resources should not impair the natural capability of the Basin ecosystem to sustain its natural identity and ecological functions, nor should such use place at significant risk the socioeconomic and cultural foundations for any group of citizens in the watershed, nor should we deny current and future generations the benefits of a healthy, natural Lake Superior ecosystem. Policies directed at the wise management of natural and social resources in the Basin should not usurp the right of local communities to determine their future within the guidelines established by existing statutes and regulations. Technologies and development plans that preserve natural ecosystems and their biodiversity should be encouraged.</p>	<ul style="list-style-type: none"> • Public and private decisions should be based on understandings, rooted in formal and informal educational settings, which contribute to the integrity and stability of social and biotic communities. • The Lake Superior ecosystem provides resources and services to humans. These include air, water, fiber, minerals, energy, waste transport and treatment, food, recreation, and spiritual sustenance. These resources should be valued as environmental capital, in the same way that other capital is assigned value. • Institutional capacity to integrate technology and sustainable design should be developed within the Lake Superior ecosystem that are compatible with existing and emergent social conditions. • The basis for guiding sustainable development at the scale of the Lake Superior ecosystem (especially in reference to community land use or comprehensive planning) should be the pattern of land, water, and air use, as these affect ecological, social and economic processes.
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