

Executive Summary



View of Copper Harbor, Michigan, at sunset, June 2007.
Photo credit: Roger Eberhardt, Michigan Department of Environmental Quality.

Lake Superior Lakewide Management Plan 2008

Executive Summary

BACKGROUND

Since 1991, as called for in the *Canada-U.S. Great Lakes Water Quality Agreement*, the Lake Superior Lakewide Management Plan (LaMP) has provided an assessment of the state of the Lake Superior ecosystem, including its ecological impairments, emerging issues and their causes, and gaps in knowledge which require further research and monitoring. The LaMP has also identified additional actions required to achieve LaMP goals and targets. The Lake Superior Binational Program partners are continuing to develop and implement the LaMP. As will be documented in this chapter and throughout the entire LaMP 2008 document, the many accomplishments of both the Zero Discharge Demonstration Program (ZDDP) and the Broader Program (the two components of the Binational Program) reinforce the concept of the Lake Superior LaMP as an exemplary model for binational cooperative ecosystem management of the Great Lakes.

Affirmation of the Lake Superior LaMP as a Model for Ecosystem Management

With the release and publication of LaMP 2008, the U.S., Canada, Michigan, Minnesota, Wisconsin, Ontario, Tribal/First Nation and other Binational Program partners renew their commitment to a strong, active, vigorous LaMP document and process, and continue to affirm that the LaMP is uniquely positioned to serve as the most effective ecosystem management model for the Lake Superior basin.

The partners affirm that the Lake Superior LaMP should continue to provide, in partnership with other binational programs, the guiding framework for the management interventions needed to maintain and restore the “physical, chemical and biological” integrity of the lake, as well as the place to define and harmonize agency and partner commitments to those actions.

Furthermore, as the Lake Superior and Great Lakes ecosystems face increasingly serious environmental threats, the LaMP must evolve and adapt to remain the best model to address these challenges. The LaMP will do so through an “adaptive management” approach. Although there are several new Great Lakes basinwide restoration and protection initiatives, we must resist efforts to completely redo the existing successful “governance” structure of the Lake Superior LaMP. We must coordinate priorities but recognize the comparative advantage of the Lake Superior LaMP.

The partners that have created and implemented the LaMP have, among other functions, committed to a process that provides an arena for discussions, recommendations, and decisions among governments; identifies and addresses current high priority issues; facilitates initiation and implementation of joint commitments in a way that minimizes the duplication of effort; identifies funding priorities; pools and leverages resources; documents actions and projects undertaken by Binational Program partners; provides outreach and education on these projects

and the ecosystem status of the Lake; facilitates coordinated research and monitoring; provides opportunities for stakeholder input; and provides a venue for discussion of lake resource issues.

In sum, the governmental partners that have committed to building and sustaining the Binational Program, and thereby the LaMP 2008, reaffirm their support for, and commitment to, the LaMP process and the LaMP document itself.

The Lake Superior Binational Program – Background

The LaMP contains ecosystem goals and targets and funded and proposed (non-funded) actions for restoration and protection of the Lake Superior ecosystem. Actions include commitments by the government partners as well as suggested voluntary actions that could be taken by non-governmental partners. The first LaMP document, published in 2000, identified these actions in six ecosystem themes: critical pollutants, aquatic communities, terrestrial wildlife communities, habitat, human health and sustainability. Since then, each biennial LaMP update has reported accomplishments, status toward goals, challenges and next steps.

LaMP 2008

LaMP 2008 builds on the previous LaMP documents although many of the original LaMP 2000 chapters have been revised, replaced, and updated. The LaMP 2008 chapters contain a 2006-2008 progress report which presents an accomplishment summary of the 1) actions completed or underway to restore/protect the lake, 2) challenges, and 3) next steps.

Highlights of LaMP 2008 include: Public Outreach and Education projects (Chapter 2); new draft Ecosystem Goals and Objectives, including climate change and aquatics goals (Chapter 3); a Chemical Milestones reduction report as well as a Management Strategy for Substances of Emerging Concern (Chapter 4); a draft Aquatic Invasive Species “Complete Prevention Plan” (Chapter 6); Community Sustainability projects (Chapter 7); a chapter on coordination with other Great Lakes programs (Chapter 8), including the Great Lakes Regional Collaboration; a new chapter on Climate Change (Chapter 9); and highlights from the *Making a Great Lake Superior 2007* conference (Chapter 2 Addendum C, Appendix E, and Appendix F). Updates on progress to restore Areas of Concern are contained in Appendix A.

LaMP 2008 is available on a CD-ROM, and is designed to be printed in a loose-leaf format that can be inserted into a three-ringed binder. LaMP 2008 will also be available on the web at www.epa.gov/glnpo.

This LaMP 2008 Report is not intended to be circulated extensively to the public; the agencies plan to produce a separate public-friendly brochure to inform the public on Binational Program activities. Citizens of the basin, as partners and stakeholders in the Binational Program, are strongly encouraged to become actively involved. The Lake Superior Binational Forum can be reached at 1-888-301-LAKE (1-888-301-5253).

ACCOMPLISHMENTS AND NEXT STEPS: HIGHLIGHTS 2006 TO 2008

The Lake Superior Binational Program Partners

The activities below represent some of the accomplishments by the various partners represented on committees of the Lake Superior Binational Program, as well as challenges and next steps. Additional details can be found in the respective chapters of LaMP 2008.

Critical Pollutants

Accomplishments include:

- Production of a Critical Chemical Reduction Milestones report which detailed reductions in critical pollutants from 1990 to 2005. Highlights include:
 - Reduction in mercury releases by 71 percent since 1990;
 - Reduction in dioxin releases by 76-79 percent since 1990;
 - Continuing phase out of PCBs; and
 - Collections of more than 12,700 kg (28,000 pounds) of waste pesticides associated with the zero discharge demonstration program since 1992.
- Collection of over 320 tons of electronic waste comprised of unwanted televisions, computers, and other waste electronics and of over one ton of unwanted medicines in the Upper Peninsula of Michigan. Collection events were sponsored through a US EPA grant to the Earth Keepers, a faith-based environmental organization.
- Implementation of both ongoing and special hazardous waste collection events. Special collections were carried out in the following locations:
 - Thunder Bay region (EcoSuperior ran collections for mercury in schools, household hazardous waste, thermostats, and compact fluorescent bulbs);
 - City of Superior (basinwide mercury reduction project with collections in Two Harbors, Minnesota; Ironwood, Michigan; and three Wisconsin locations);
 - Western Lake Superior Sanitary District (Medicine Cabinet Clean-out Days); and
 - Keweenaw Bay Indian Community (mercury thermostats and compact fluorescent bulbs).
- Continuation of burn barrel/backyard trash burning outreach and education. Bad River Air Quality Department surveys found a 31 percent reduction in the number of burn barrels by the end of 2006. Red Cliff banned burn barrels in 2007.



Figure ES-1. Despite being banned decades ago, DDT continues to be received during Lake Superior basin collections. Photo credit: Jim Bailey, EcoSuperior.

- Development of a *Management Strategy for Substances of Emerging Concern* in the Lake Superior basin.
- Planned and moderated the *Toxic Contaminants* session of the October 2007 *Making A Great Lake Superior 2007* conference. Speakers and posters included new and emerging chemical threats; water, sediment, fish and eagle toxics monitoring projects; mercury cycling; atmospheric deposition; pollution prevention; and identifying sources of toxic contaminants. In addition, Chemical Committee members presented Lake Superior posters and papers at the *Eighth International Conference on Mercury as a Global Pollutant*, Midwest Society of Environmental Toxicology and Chemistry (SETAC), SETAC North America, and the *State of the Lakes Ecosystem Conference 2006*.
- Development of a *Chemical Reduction and Inventory Activities* matrix for 2010 Milestone Targets.
- Continuation of work with other organizations to address critical pollutant sources outside the basin. Projects that will boost Lake Superior efforts include the Great Lakes Regional Collaboration's *Mercury in Products Phase-Down Strategy*, Michigan's Mercury Strategy, Minnesota's new law that requires a 90 percent reduction of mercury emissions from the largest coal-fired power plants, Ontario's new waste regulation that requires the producers of household hazardous and special wastes to develop and fund a diversion program, and Wisconsin's development of a new emissions rule for coal-fired power plants.

Next steps include:

- Implementing chemical reduction activities that will help reach the 2010 targets;
- Participating in the realtor/landowner outreach project, which educates realtors and landowners on how to protect Lake Superior, with an emphasis on preventing releases of toxic chemicals by rural landowners; and
- Preparing an inventory of critical chemical releases in 2010 in order to monitor progress against the chemical reduction milestones.

Ecosystem (Habitat, Aquatic Communities, Terrestrial Wildlife)

Accomplishments include:

- Updating and redrafting an Ecosystem Goals and Strategic Objectives document. These draft goals contain Strategic Outcomes, specific Goals and Subgoals that the Lake Superior Work Group has determined are necessary to achieve and protect a diverse, healthy and sustainable Lake Superior ecosystem;
- Addressing the emerging issue of climate change by incorporating mitigation and adaptation strategies in the draft Ecosystem Goals and Strategic Objectives, in Lake Superior Work Group committee workplans and activities and in state LaMP capacity grants;
- Final approval of a National Marine Conservation Area near Thunder Bay, Ontario.
- Development of recommendations for herptile monitoring in the Lake Superior basin in conjunction with a grantee;
- Maintaining and updating the "Important Habitat" map for the Lake Superior basin;

- Maintaining and updating a set of touch-screen kiosks located around the basin that present information about important habitat and projects;
- Maintaining a joint Habitat/Terrestrial Wildlife web site;
- Drafting a “Complete Prevention Plan” for preventing the entry of new aquatic invasive species to Lake Superior; and
- Working with the National Park Service and other agencies to draft a prevention plan for Viral Hemorrhagic Septicemia in Lake Superior.

Next steps include:

- Finalizing the Ecosystem Goals and Strategic Objectives document;
- Working with state and external grants to ensure consistency between climate change goals and adaptation/mitigation strategies;
- Completing the AIS Complete Prevention Plan;
- Working with Parks Canada to ensure the details in the new Lake Superior National Marine Conservation Area management plan support LaMP goals and objectives; and
- Participating in the Upper Great Lakes Study to examine whether the regulation of Lake Superior outflows can be improved to address the evolving needs of the upper Great Lakes.

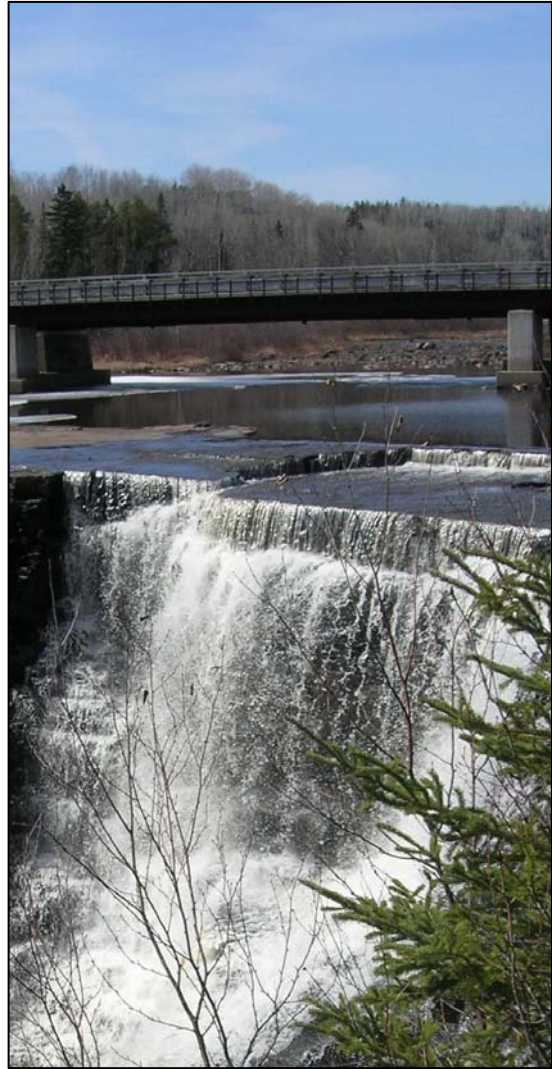


Figure ES-2. Kakabeka Falls, west of Thunder Bay. Photo credit: Melissa Simon, ORISE/US EPA-GLNPO.

Human Health

Accomplishments include:

- Meetings of the Great Lakes states in 2007 to discuss Great Lakes fish consumption advisories, including:
 - The 2007 *National Forum on Contaminants in Fish*, where the Great Lake states discussed fish consumption advisories and the mercury fish consumption protocol.
 - The *State of Lake Michigan Conference 2007*, where the Great Lakes states discussed the use of Decision Support Systems (DSS) to communicate fish consumption advisories.
 - The *Making a Great Lake Superior 2007* conference, where presentations focused on fish consumption advisories in Lake Superior.

- Discussions at the *Making a Great Lake Superior 2007* Human Health Session on beach monitoring, e-coli sources at beaches, and amphibole mineral fiber issues on the Mesabi Range;
- Funding by US EPA of a project to determine whether hair mercury measurement has a long-term effect on an individual's fish consumption habits and reduces their risk of exposure to methylmercury;
- Funding by US EPA of a Lake Superior project entitled "Mercury Levels in Blood from Newborns" to determine if newborns have been exposed to mercury from maternal fish consumption; and
- Continuation of the Great Lakes Public Health Network (GLPHN), led by Health Canada, which has held eleven teleconferences on such issues as transboundary air pollution, health effects of PBDE (flame retardants), children's health and environment, health based air quality index, environmental and occupational causes of cancer and health risks of pesticides.

Next steps include:

- Completion of the above projects and reporting the results;
- Continuation of the outreach/education of the Great Lakes Public Health Network;
- Coordination between Health Canada and the US EPA to establish a Binational Human Health network; and
- Continued outreach/education on Great Lakes fish advisories.

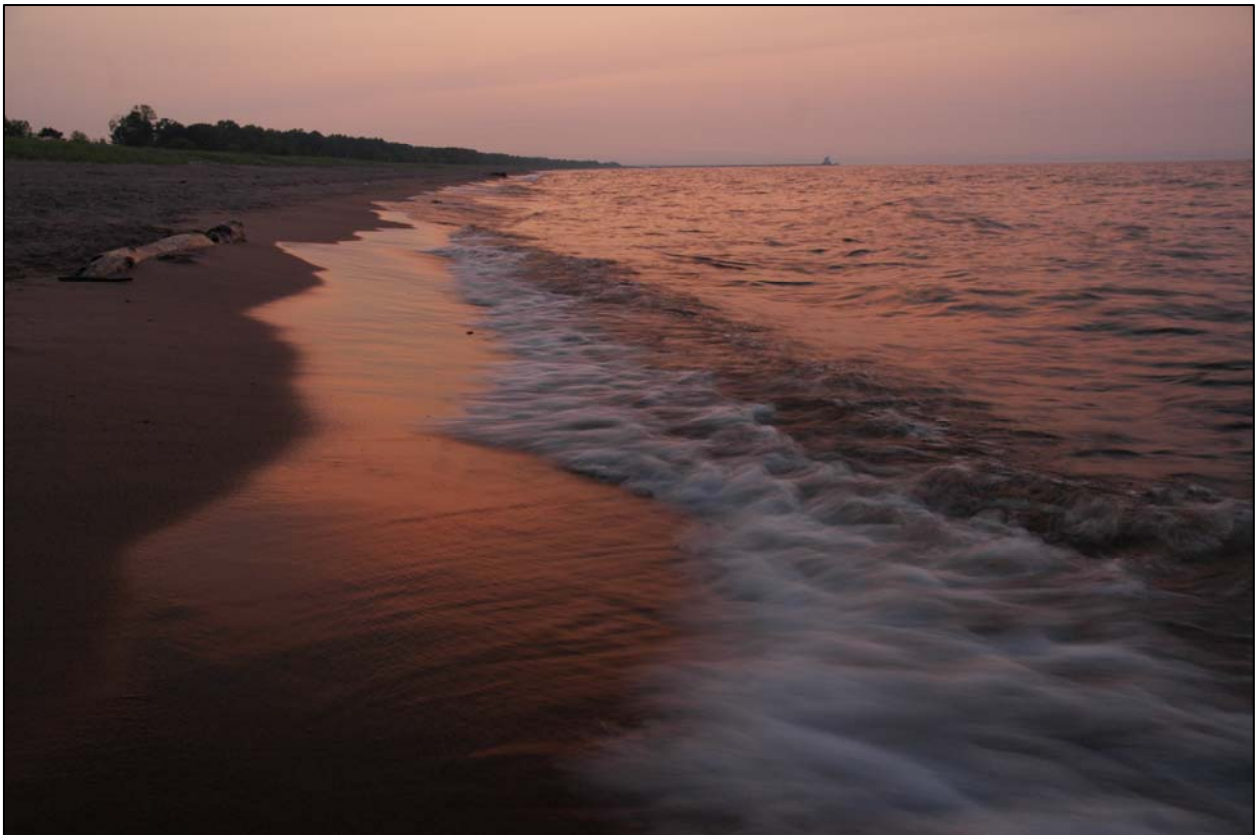


Figure ES-3. Wisconsin Point on Lake Superior at Superior, Wisconsin. Photo Credit: Frank Koshere, Wisconsin Department of Natural Resources.

Sustainability

Accomplishments include:

- Creating groundwork for better informed future activities with the completion of the Canadian portion of the Aboriginal Community Awareness Review and Development Project, which assesses aboriginal attitudes towards environmental issues;
- Cataloging and encouraging sustainability initiatives through the development of the Tracking of Community Sustainability Project;
- Increased awareness and knowledge of sustainability challenges and opportunities facing Lake Superior Binational Program and basin communities by organizing a Sustainability session at the *Making a Great Lake Superior 2007* conference; and
- Exploring the effects of mineral mining on Lake Superior's environment and communities through the establishment of the Ad Hoc Mining Committee.

Next steps include:

- Promote the adoption of a sustainable approach to resource management and decision-making throughout the Lake Superior basin.
- Expanding the internal and external network of Lake Superior basin sustainability partners.

Outreach and Education

Accomplishments include:

- Planned and held the *Making a Great Lake Superior 2007* conference that attracted over 450 participants. The conference brought together educators, researchers, federal, state, provincial and tribal managers, the public and scientists for a conference focused on Lake Superior critical issues;
- Engaged students and teachers in Lake Superior environmental action through the creation and dissemination of an interactive web-based curriculum *Connecting the Coast*, which connects people with service projects that support LaMP priorities;
- Continuation of the Pathfinders Program, an outreach/education program targeted to youth and students; and
- Completion and issuance of the Chemical Milestones Fact Sheet, in coordination with the Chemical Committee.

Next steps include:

- Writing of the Lake Superior LaMP 2008 public friendly brochure; and
- Planning for the next Lake Superior conference.

The Lake Superior Binational Forum

The Lake Superior Binational Forum, the citizen's group associated with the government agencies responsible for carrying out the Binational Program, has been key to establishing an effective multi-stakeholder process. The Forum has held many workshops over the years for the purpose of acquiring necessary background information to help develop recommendations and

proposals for sustainable development, human health and reducing the Lake Superior nine critical pollutants. They have also held very successful public input sessions and published many documents on key issues relating to the LaMP.

Accomplishments include:

- Conducted an annual Lake Superior Environmental Stewardship Awards Program that recognizes outstanding sustainable and best management practices in five categories in the U.S. and Canada;
- Developed and promoted an annual Lake Superior Day celebration held on the third Sunday in July around the basin; and
- Held public input sessions on a variety of topics including land use planning and management, invasive species, impacts of pharmaceuticals on water quality, and impacts of the shipping industry on Lake Superior.

Next steps include:

- Seek to involve more youth in Lake Superior leadership activities, with a focus on university and college students;
- Work with the Sustainability Committee to develop a database of key communities that are initiating sustainable projects that protect the lake basin; and
- Identify ways to collaborate with citizen groups in Areas of Concern communities to share resources, staff, and create synergy with their outreach efforts.

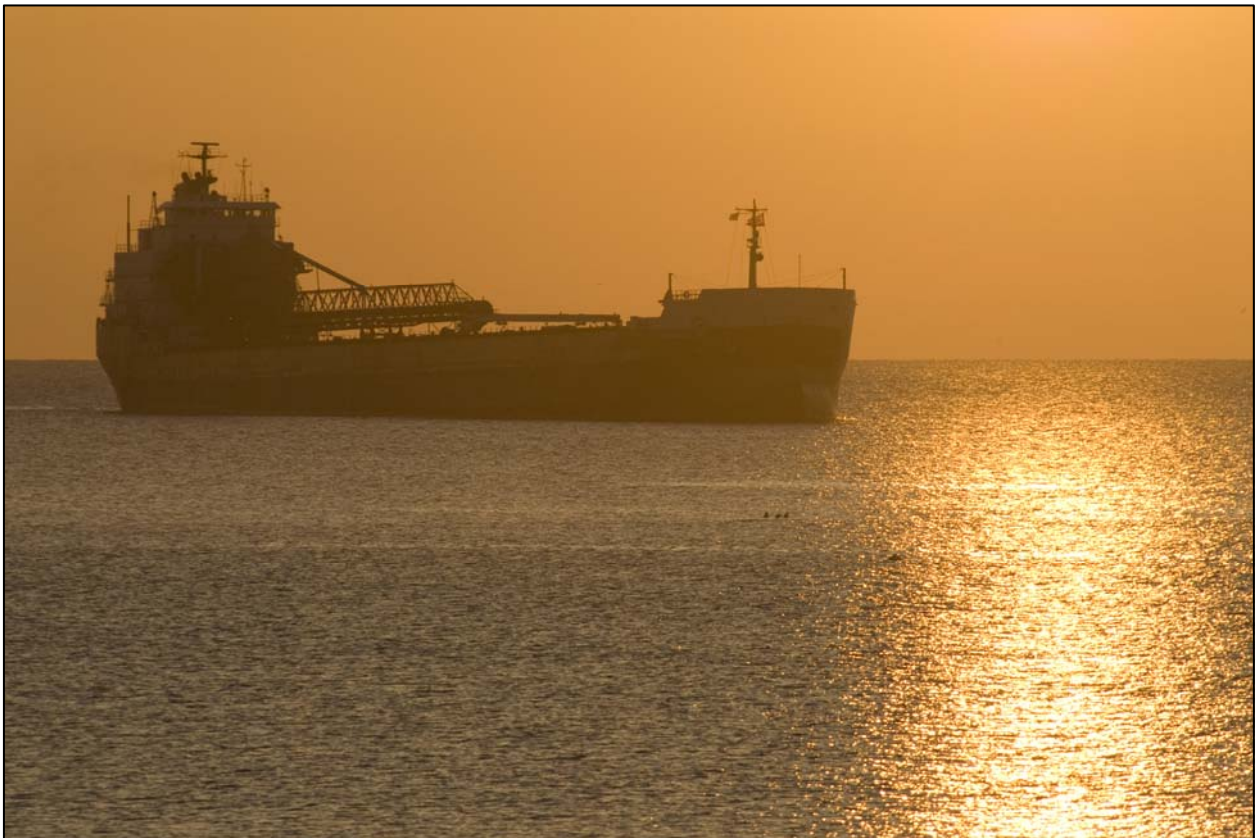


Figure ES-4. Freighter on Lake Superior at sunrise. Photo credit: Brenda Jones, US EPA.

NEXT STEPS AND CHALLENGES OF THE BINATIONAL PROGRAM

In general, the next steps for the Binational Program are to:

- Continue to implement projects and priorities identified in the LaMP;
- Advocate the benefits of toxic chemical reduction activities to decision makers and the public to ensure continued support;
- Implement the management framework for substances of emerging concern;
- Focus project, activities and research on nearshore activities and the connection to water quality;
- Continue communication and outreach activities that will achieve measurable progress toward the Binational Program goals;
- Continue with priority ecosystem monitoring, mapping, research, and restoration efforts;
- Prepare various internal and public reports, including the biennial LaMP updates;
- Build capacity in the Binational Program by recruiting additional partners;
- Continue to coordinate with critical Great Lakes initiatives such as the Great Lakes Regional Collaboration, the Binational Toxics Strategy, AOCs, COA and the Great Lakes Legacy Act; and
- Seek additional funding for LaMP implementation from a wide variety of sources.

Future accomplishments will be dependent upon commitments by governments, NGOs, and individuals to support the science, resource management, and activities that will protect and restore the basin.

Challenges include:

- Addressing new emissions of critical pollutants, especially mercury, from new or expanded mining sources;
- Addressing the emerging issue of climate change;
- Development of capacity and committees (as necessary) to address mining, coordinated monitoring and climate change issues;
- Protecting critical lake and tributary habitats;
- Continuing rehabilitation plans for sturgeon, walleye, lake trout, and brook trout;
- Preventing invasion and transport of non-native species within the basin;
- Ensuring the maintenance of healthy aquatic communities on rivers with hydropower;
- Establishing long-term monitoring programs of biological communities;
- Establishing monitoring programs for invasive species and fish community changes and status;
- Ongoing support and maintenance of the geographic database and projects associated with the Lake Superior Decision Support System;
- Closing information gaps on the status and trends of habitat conditions;
- Developing land use change models;
- Maintaining the capacity of the Lake Superior Binational Program;
- Educating the public on important habitat and ecological resources in the Lake Superior basin by webinars, conferences, workshops, interactive information kiosks and other web-based informational methods; and

- Implementing the recommendations of the Great Lakes Regional Collaboration in coordination with other LaMP priorities.



Figure ES-5. Isle Royale, June 2007. Photo credit: John Marsden, Environment Canada.