



A Better Seaway

*Seven Principles to Guide Sustainable Shipping
on the Great Lakes-St. Lawrence River*

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Author: Jennifer Nalbone
Design & layout: Brent Gibson

For more information contact:
Jennifer Nalbone
Campaign Director, Navigation and Invasive Species
Great Lakes United
716-213-0408
jen@glu.org

www.abetterseaway.com

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THE TIME IS RIGHT FOR A BETTER SEAWAY

2009 marks 50 years since the opening of the St. Lawrence Seaway. This massive construction project permitted international vessels access to the Great Lakes. It also ushered in a host of environmental problems and precipitated one of the worst ecological crises to hit the region: a proliferation of aquatic invasive species.

The environmental toll wrought by the opening of the Seaway belies the claims of environmental friendliness offered by the maritime industry. In light of the environmental legacy of shipping on the Great Lakes, it is time to rethink both the Seaway and the industry as a whole, to ensure 'sustainability' is a reality not a platitude.

Despite examples of good environmental performance, overall, the shipping industry is paddling against the tide of public support for cleaning up and restoring the health of the Great Lakes and St. Lawrence River. Citizens and governments recognize that economic revitalization of a struggling region depends on the health of our freshwater ecosystem. Our region has just adopted a water resources management Compact and Agreement that is a global model for sustainable water use, and is now investing hundreds of millions of dollars in the restoration of the Great Lakes and St. Lawrence River. In the face of this progress, the shipping industry risks undermining these efforts by bringing in and spreading new invaders, dredging fragile rivers to make deeper channels, and dumping cargo residues overboard. The industry has a critical choice to make: it can continue practices that make problems worse and solutions more costly, or it can turn the corner, modernize itself, and work alongside those trying to restore the lakes and revitalize the economy.

Achieving the principles outlined in this document requires a diversity of approaches, from voluntary actions, regulatory reform and legal action, to grassroots advocacy. Industry-led initiatives can play a significant role; for example, the Green Marine Initiative¹ is an opportunity for the industry to meet meaningful environmental benchmarks, above and beyond government requirements.

Here, seven principles chart a truly sustainable future for the St. Lawrence Seaway and the shipping industry as a whole. These principles outline the basis of how commercial navigation can benefit the people and economies of the Great Lakes region, ensure its own viability, and become a true steward for this spectacular, yet fragile, natural wonder. The Seaway and shipping industry is at the headwaters of a challenging and exciting future. The decisions they make today will set a legacy that lasts well beyond the next 50 years.

Background and History

On June 26th, 1959 the St. Lawrence Seaway between Lake Ontario and Montreal was christened, and port cities along the Great Lakes and upper St. Lawrence River were connected to global trade by commercial navigation. Through the digging of new channels in the riverbed, flooding shallow sections, blasting away islands, displacing six villages and building a series of locks, the Seaway's proponents envisioned an economic renaissance.

These predictions never came to true. The Seaway has never operated at fully capacity, and total tonnage peaked in the

1970s.^{2,3} Today the Seaway continues to operate at well below capacity, serving as a route for the movement of goods domestically via Canadian vessels and for the few hundred international vessels that travel to the Great Lakes each year.⁴

Meanwhile, the environmental consequences of this massive engineering project have been tremendous. International shipping opened the doors to a new and intense wave of invasive species, while the construction and operation of the Seaway artificially stabilized water levels, damaged valuable near shore habitat and weakened native fish populations.

1

Ships must not introduce or spread aquatic invasive species.

Aquatic invasive species have irreversibly altered the Great Lakes ecosystem. Since 1959, the international vessels that ply the St. Lawrence Seaway have brought with them 57 of these unwelcome creatures.⁵ Once here, both international and domestic vessels can spread species from lake to lake. The most visible symptoms of this crisis have been scattered across our shores in the form of tens of thousands of dead waterfowl and fish, decomposing algae, and a sea of tiny, sharp, mussel shells.

The true damage caused by these plants and animals goes much deeper. Ecologically, zebra and quagga mussels have upended energy flow in the lakes, smothered native clam populations, and are suspect in the precipitous decline of *Diporeia*, a freshwater shrimp-like invertebrate that is the foundation of the food chain but has now disappeared from many parts of the lakes. Economically, new research estimates that in the eight Great Lakes states alone, ballast-mediated invasive species are costing the Great Lakes fishing industry, wildlife watching industry, and water users at least \$200 million dollars annually in damages and increased operating costs, with similar damage anticipated in Canada.⁶

The Great Lakes are the front door to the heart of North America's freshwaters. In the two decades since their arrival, zebra and quagga mussels have spread as far west as Nevada and California and are moving inland throughout Ontario and Quebec, damaging waterways along the way. The U.S. and Canadian governments must commit to ending this threat once and for all.

Recommendations:

- Establish regulations in the U.S. and Canada requiring that ships treat ballast water and eliminate the threat of introducing or spreading invasive species.
- Absent effective federal regulations, pursue alternative solutions to stop new invaders, such as a moratorium on international vessel access to the Great Lakes or implementation of state, provincial or coordinated binational regulations for the Great Lakes- St. Lawrence River.

2

Climate change is a real threat, and proactive steps must be taken to meet this challenge head on.

Scientists estimate that lake levels will drop dramatically – perhaps as much as 3 feet by the 2050s.⁷ Climate change impacts pose formidable challenges to the entire Great Lakes shipping industry, which regularly operates with minimal clearances. Shallow near-shore areas, including harbours and connecting rivers, will experience some of the most noticeable changes in depth and flow. For vessels operating on the Great Lakes and St. Lawrence River, the impact of lower lake levels on these critical areas will include restrictions in vessel draft and tonnages carried, forcing more frequent trips. This could raise transportation costs by as much as 22 per cent.⁸ Given this scenario, the entire industry has a pressing incentive to begin planning for change: its own survival.

Currently, the only options to adapt to lower water levels are to reduce cargo loads or to increase publicly-subsidized dredging. The first option may be economically unsustainable; the second, environmentally so.

There is a silver lining for the industry. The comparatively smaller carbon footprint of shipping relative to rail or truck gives this mode of transport a real advantage in the fight to slow climate change, but only if the industry can eliminate the environmental impacts addressed in this document. Adapting to climate change provides an opportunity to redefine an outdated industrial model in a way that aligns industry operations with restoration of the Great Lakes and St. Lawrence River.

Recommendations:

- Develop environmentally friendly strategies to adapt to natural fluctuations and future water level scenarios. Options to explore include rerouting international cargo to deeper ports, and shifting the fleet of domestic vessels to shallow draft.
- Examine impacts of maintaining the authorized dredging depth under different water level scenarios, including the likelihood of wetland loss, excessive channelization, or accelerated water loss.

3

Unnecessary and costly system expansion proposals must be abandoned.

The Seaway operates far below its capacity. Over the past 22 years, environmental, hunting, fishing, labour groups, states, municipalities, tribes, and a variety of other stakeholders have repeatedly fought back expansion proposals that would seek to allow wider, longer, and deeper vessels to enter and operate on the Great Lakes. The groups stood firm: the Great Lakes and St. Lawrence River would not be degraded by the construction of larger locks, dredging, and the blasting of deeper channels in an effort to see an increase of traffic through the Seaway.

In November 2007, the U.S. Army Corps of Engineers and Transport Canada released a 5-year binational study that backed away from physical expansion. After decades of promoting physical widening and deepening of the navigation locks, ports and channels, the authors instead outlined a host of needed repairs, modernization and maintenance throughout the navigation system.⁹ In other words, we don't need a bigger Seaway, we need a better Seaway.

Recommendation:

- The governments of the United States and Canada must make it unequivocally clear that expanding the size and depth of the Great Lakes–St. Lawrence Seaway navigation system is unsustainable and no longer considered an option.

4

Air emissions should be cleaned up for shipping to truly be the cleanest mode of transportation in regards to air pollution.

While the waterborne mode of transportation may be the most fuel efficient, it does not mean that dirty air emissions are not a problem. The majority of international vessels entering the Great Lakes are newer vessels which have efficient diesel engines. Unfortunately they generally burn the same dirty fuel (bunker oil) that most international vessels are allowed to burn under current international mandates. In contrast, the older domestic Great Lakes fleet is a mix of different vessels, engines and fuels. Some are decades old with older engines burning diesel, while others are still steamships that, despite burning dirty bunker oil, emit fewer emissions than their diesel counterparts because of how the fuel is burned.

Regardless, numerous scientific reports find that poor air quality increases the risk of cancer, leads to asthma, and is associated with heart attacks and bronchitis.^{10,11} When it comes to human health, 'cleaner than the competition' is not enough. Shipping contributes to this decrease in air quantity. Both international and domestic vessels must reduce their air emissions.

Canada and the US are proposing to create a North American Emission Control Area, starting in 2015 to control nitrogen oxides, sulphur oxides and particulate matter emissions.¹² For example, international vessels coming to U.S. and Canadian waters, including those entering the Great Lakes, will be required to meet sulphur-dioxide emission reductions equivalent to burning fuel with less than 0.1 per cent sulphur. Sulphur oxides also contribute to climate change and the proposal is a significant decrease from current international mandates. Unfortunately, domestic vessels are not yet required to meet these same standards.

Recommendations:

- Ensure international vessels meet the emissions standards outlined by the Canada-U.S. Emission Control for Ships and targeted for implementation in 2015.
- Extend these standards to apply to all ships operating on the Great Lakes-St. Lawrence River, whether flagged internationally or domestically.

5

Work towards the elimination of all pollutants into the Great Lakes.

While significant steps have been made in stopping regular discharges into the Great Lakes from ships, vessels continue to sweep dry cargo from their decks and into the water. Every year over the past 150 years, an estimated 2,500 tons of cargo residue have been dumped into the Lakes.

For pollutants such as ship-board sewage and greywater, there are established regulations under the Coast Guard's Marine Sanitation Devices Requirements, the Canada Shipping Act of 2001 as well as the U.S. Clean Water Act. Oily water slops are retained onboard and then pumped to an on-shore

wastewater treatment facility under Coast Guard and Transport Canada regulations. Virtually every other waste stream is now regulated under a host of state, federal and international requirements. However, across the board, monitoring and inspection of regulation compliance is dependent merely upon auditing of vessels log books. Without increased monitoring and enforcement diligence can turn to negligence very quickly.

Recommendations:

- Existing laws that prohibit dry cargo dumping must be enforced by the Canadian and U.S. governments.
- The U.S. and Canadian federal governments must honour their commitments under the Great Lakes Water Quality Agreement to regularly scrutinize the effectiveness of existing inspection, monitoring and enforcement pollution control programs and make improvements as necessary.



Minimize ice-breaking, especially in sensitive areas.

Winter ice on the St. Lawrence River is like a giant blanket protecting fragile shores and resting fish, plants, and animals. When a vessel tears through this blanket the disturbance to the water below erodes sensitive wetlands and coastal habitat. The resulting open water on the river can disrupt the migration and feeding of bird species, as well as the movement of large mammals. Additionally, ice breaking facilitates commercial vessel operation in ice conditions. Emergency response is more difficult in ice conditions than in open water, which can significantly slow response and worsen impacts from hazardous material spills.¹³ On the Seaway, the opening and closing dates for both the Montreal–Lake Ontario section and the Welland Canal are flexible, taking into account ice conditions, the demand for service, and maintenance requirements. But how these factors are evaluated in decision-making is a mystery.

More broadly, ice breaking across the region also raises questions associated with climate change. Scientists predict increased evaporation will be the primary cause of water loss in the Great Lakes, and know that ice cover is the ecosystem’s most effective defence against evaporation in the winter.¹⁴ But whether ice-breaking accelerates spring ice break up and reduces the lakes natural protection against evaporation is not known. Understanding and addressing this issue is pertinent to both protecting the resource and the shipping industry itself. Otherwise, the industry may be accelerating the very problems they are facing.

Recommendations:

- Ice condition criteria to set the opening date of the Seaway should be based on best-available scientific evidence, be environmentally justified, and be subject to public comment.
- The U.S. and Canadian federal governments must examine the relationship between ice-breaking and evaporation and reassess ice breaking policies if needed.



Citizen engagement and industry transparency should become the norm in Seaway governance.

The culture of the Seaway has historically been resistant to outside input. Initiatives which directly impact the vitality of the Great Lakes and St. Lawrence River are often developed behind closed doors. On the U.S. side, the Seaway is governed by the St. Lawrence Seaway Development Corporation (SLSDC). It is advised by a 5-person President-appointed Advisory Board and accountable to the Department of Transportation. On the Canadian side, the Seaway is managed by the St. Lawrence Seaway Management Corporation (SLSMC). It is a not-for-profit organization set up by the government, accountable to its board of directors. In order for current and future challenges to be recognized and incorporated into the decision making process, agency governance needs to be reformed.

Good governance, accountability and transparency are essential to ensuring that decision makers receive and properly evaluate all the information necessary to make informed policy or regulatory decisions and that the public has access to enough information to help shape and review government decisions. Public involvement in Seaway planning must reflect a willingness on behalf of the agencies themselves to be challenged to move in a sustainable direction and to change a longstanding culture that caters only to a narrow group of stakeholders. Public involvement offers an opportunity to develop plans that are compatible with goals of Great Lakes restoration and ensure that the Seaway and the shipping industry operate sustainably for the next 50 years and beyond.

Recommendations:

- Expand the interests represented on the SLSDC Advisory Board and SLSMC Board of Directors to include resource management agencies, such as members of the U.S. Great Lakes Interagency Task Force.
- Create a binational multi-stakeholder working group to provide advice to both boards on making navigation decisions that are compatible with Great Lakes restoration priorities.
- Provide improved electronic notification and access to Seaway activities, policies, and regulations.

ENDORISING ORGANIZATIONS

More than 50 years ago, the United States and Canada worked together to build the Great Lakes-St. Lawrence Seaway, and now they must come together once again to harmonize Seaway operations with ecosystem protection. While progress has been made, profound environmental challenges remain. “Business as usual” will neither preserve the industry nor protect the ecosystem. Instead, a sustainable environment and industry will be achieved by improving federal, state and provincial laws and regulations, ensuring the two Seaway agencies are accountable and transparent, embracing citizen involvement in decision-making, and committing to continuous improvements in the environmental performance of the Great Lakes shipping industry.

On the 50th anniversary of the St. Lawrence Seaway, over 50 organizations, representing every state and province in the Great Lakes–St. Lawrence River region, are calling for a change.

Alliance for the Great Lakes	Illinois Council of Trout Unlimited	Northwest Indiana Steelheaders
Asbury Woods Nature Center	Indiana Wildlife Federation	Ottawa Riverkeeper
Binational Public Advisory Council- St. Clair River Area of Concern	Izaak Walton League of America- Indiana Division	Port Hope Community Health Concerns Committee
Buffalo Niagara Riverkeeper	Izaak Walton League of America- Illinois Division	Quinte Watershed Cleanup Inc
Canadian Environmental Law Association	Izaak Walton League of America- New York Division	Rock River Coalition
Canadians for Action on Climate Change	Izaak Walton League of America- Wisconsin Division	Save Lake Superior Association
Citizens for Renewable Energy	Izaak Walton League of America- Ohio Division	Save the River
Coalition Eau Secours	Izaak Walton League of America- Michigan Division	Sierra Club
Conservation Minnesota	Izaak Walton League of America- Great Lakes Committee	Sierra Club -Atlantic Chapter
Council of Canadians- London Chapter	Kalamazoo River Sturgeon for Tomorrow	Sierra Club- Great Waters Group
Council of Canadians- Montreal Chapter	Lake Erie-Allegheny Earth Force	Sisters of St. Joseph, Northwest Pennsylvania
Environmental Association for Great Lakes Education	Lake Erie Region Conservancy	University of Buffalo Environmental Network
Eastern Surfing Association- Great Lakes District	Ludington Area Charterboat Association	Union of Ontario Indians
Environmental Defence	Michigan Charter Boat Association	The Watershed Center of Grand Traverse Bay
Essex County Field Naturalists Club	Michigan Recreation and Park Association	Town and Country Resource Conservation and Development
Freshwater Future	Milwaukee Riverkeeper	Western Basin Charter Boat Association
Georgian Bay Association	National Wildlife Federation- Great Lakes Office	Western Lake Erie Waterkeeper Association
Georgian Bay Land Trust	Nature Quebec	Western New York Climate Action Coalition
Great Lakes Sport Fishing Council- New York Chapter	Nukewatch and The Progressive Foundation	Western New York Sustainable Energy Association
Great Lakes United		Wisconsin Society for Ornithology
Hoosier Environmental Council		

Take Action

Organizations and citizens can show their support for the protection of the Great Lakes and St. Lawrence River by endorsing the principles outlined in this document. Organizations are invited to add their name to the list of endorsing groups and citizens are encouraged to sign a petition of support.

Visit www.abetterseaway.com to participate.

ENDNOTES

- ¹ www.green-marine.org
- ² “Seaway’s place in world shipping shrinking every year.” Marc Heller, Watertown Daily Times. 10 January 2005.
- ³ Seaway History. Great Lakes St. Lawrence River Seaway System. <http://www.greatlakes-seaway.com/en/seaway/history/index.html>
- ⁴ The St. Lawrence Seaway Traffic Reports (2000-2008) <http://www.greatlakes-seaway.com/en/seaway/facts/traffic/index.html>
- ⁵ USGS. 2009. Nonindigenous Aquatic Species Database, Gainesville, FL. <http://nas.er.usgs.gov>
- ⁶ Annual Losses to Great Lakes Region by Ship-borne Invasive Species at least \$200 Million. David Lodge and David Finnoff. July 2008. http://www.glu.org/sites/default/files/lodge_factsheet.pdf
- ⁷ Great Lakes St. Lawrence Seaway Study. Transport Canada et al. Fall 2007. <http://www.gls-study.com/Supporting%20documents/GLSLS%20finalreport%20Fall%202007.pdf>
- ⁸ “Global Climate Change and Great Lakes International Shipping “ Dr. Frank Millerd, Wilfrid Laurier University, National Academy of Sciences Transportation Research Board Special Report 291, May 2007. http://onlinepubs.trb.org/onlinepubs/sr/sr291_millerd.pdf
- ⁹ Great Lakes St. Lawrence Seaway Study. Transport Canada et al. Fall 2007. <http://www.gls-study.com/Supporting%20documents/GLSLS%20finalreport%20Fall%202007.pdf>
- ¹⁰ Clean Air Task Force, David Marshall, October 9, 2008 Thousands of Lives to be Saved each Year Under the New Pollution Accord. http://www.catf.us/press_room/20081009-CATF_shipping_pr.pdf <http://www.catf.us/press_room/20081009-CATF_shipping_pr.pdf>
- ¹¹ California Air Resources Board, Diesel Risk Reduction Plan, October 2000.
- ¹² The North American Emissions Control Area application submitted by the U.S. and Canada to the International Maritime Organization: <http://www.epa.gov/otaq/oceanvessels.htm#emissioncontrol>
- ¹³ Save The River Policy Statement on Opening of the St. Lawrence Seaway Shipping Season , March 2007 http://www.savetheriver.org/docs/STR_opening_criteria_white_paper.pdf
- ¹⁴ *Confronting Climate Change in the Great Lakes Region*, by George W. Kling et al, Union of Concerned Scientists 2003. <http://www.ucsusa.org/greatlakes/glchallengereport.html>

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www.glu.org

Buffalo
c/o Daemen College
4380 Main Street
Amherst, New York, 14226
Telephone: (716) 886-0142
Fax: (716) 204-9521

Toronto
120-215 Spadina Avenue
Toronto, Ontario, M5T 2C7
Telephone (613) 797-9532

Montreal
3388 Rue Adam
Montréal, Québec, H1W 1Y1
Telephone: (514) 396-3333
Fax: (514) 396-0297