The St. Lawrence Seaway

A vital transportation treasure.

by Mr. Collister Johnson, Jr.
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Constructing the Saint Lawrence Seaway was a tremendous human endeavor. The goal: Extend deep-draft navigation from the Atlantic Ocean to the Great Lakes.

- Total cost to build the waterway was $1 billion.
- Construction took three million cubic yards of concrete, and 112 million cubic yards of dirt had to be moved.
- It utilized enough steel to circle the equator.
- Some 6,500 residents had to be relocated, and 10,000 workers were needed for its construction.

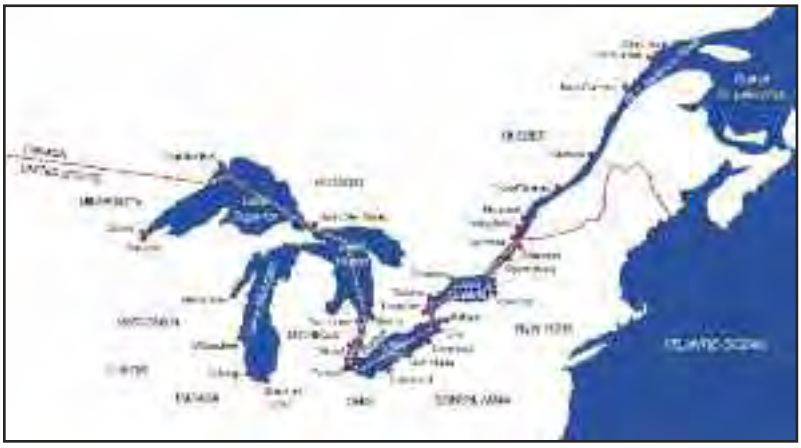
The waterway was envisioned primarily as a bulk commodity system (ore in, grain out) despite many attempts to broaden the cargo base. The St. Lawrence Seaway, coupled with the New York Power Project development in upstate New York, produced massive hydroelectric generation capabilities as well as numerous non-economic benefits like beaches, parks, and boating facilities.

Perhaps the greatest historic legacy of the seaway, however, is its role as a model of international cooperation. The idea of a deep-draft seaway predated the 1950s by decades, but came to fruition then, just as the world was rebuilding after World War II.

President Eisenhower understood better than just about anyone that a significant benefit of building the seaway, while economically important, was the opportunity to forge a closer relationship with our neighbor to the north. As the former commander of WWII Allied forces in Europe, President Eisenhower knew first-hand the practical benefits of good transportation logistics, and he also understood how enduring alliances could be built around common economic goals.

A large part of the history of our successful relationship with Canada includes efforts to forge closer economic ties. Today, the Canadian-U.S. trade relationship is the largest in the world, symbolized by the unique binational waterway that is the Saint Lawrence River and the Great Lakes.

For example, a ship transiting from Montreal to Lake Erie traverses the international border 27 times. The system is comprised of a series of 15 locks managed through three traffic control areas. The U.S. Saint Lawrence Seaway Development Corporation (SLSDC) was created with unique authorities to manage this transportation route.



The Great Lakes St. Lawrence Seaway System. Graphics courtesy of the Saint Lawrence Seaway Development Corporation.

Aging Infrastructure

St. Lawrence Seaway System stakeholders gathered in Massena, N.Y., in July 2009 to celebrate the 50th anniversary of the seaway's inception. While 50 years is not old in human terms, for civil works projects, this milestone means that it is near the end of its planned work life. Realizing that a perpetual infrastructure asset, such as a lock, needs a capital investment equivalent to its original cost over its design life (typically 50 years), the SLSDC developed an asset renewal pro-

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Environmental Challenges

The joint ballast water inspection program administered by the U.S. and Canadian Seaway entities, the U.S. Coast Guard, and Transport Canada has been enhanced, and now subjects all ships for all transits outside the Canadian Exclusive Economic Zone to inspection. All tanks (ballast on board and no ballast on board) are inspected to verify proper flushing no matter their port of destination.

The ongoing work of the Ballast Water Collaborative is also gaining national attention. This group is comprised of Great Lakes stakeholders including representatives from state and provincial government; U.S. and Canadian federal regulatory agencies; representatives from the U.S.-flag laker, Canadian-flag laker, and international fleets; leading ballast water scientific researchers; non-governmental organizations; and ballast water treatment system vendors.

The collaborative meets periodically to facilitate open and substantive discussions about how to better protect against introduction and spread of aquatic invasive species. The Saint Lawrence Seaway Development Corporation (SLSDC) is also a supporter of the "Great Ships Initiative Program," an industry-led cooperative effort aimed at ending the problem of ship-mediated invasive species in the Great Lakes St. Lawrence Seaway System. The program conducts independent research and demonstration of environmental technology, financial incentives, and consistent basin-wide harbor monitoring.

Additionally, the SLSDC is part of the "green marine" initiative, a marine industry partnership program aimed at realizing measurable improvements in the shipping industry's environmental standards and performance.

The Statistics

- Seaway dimensions currently permit ships up to 35,000 DWT.
- Most vessels that transit are international carriers and Canadian lakers, and most cargo through the seaway originated from or is destined for U.S. markets.
- Since the seaway opened in 1959, more than 2.5 billion tons of cargo with an estimated value of $375 billion has been shipped through the waterway from more than 50 nations.
- In an average year, over 40 million tons of cargo moves through the seaway.
- Maritime commerce overall on the Great Lakes St. Lawrence Seaway System annually generates 150,000 jobs, $4.3 billion in personal income, $3.4 billion in business revenues, and $1.3 billion in federal, state, and local taxes in the U.S. Great Lakes region.
- In 2007, the joint U.S-Canadian Great Lakes Saint Lawrence Seaway Study calculated that the system offers shippers an average savings of $14.80/ton in transportation and handling charges, or approximately $3 billion a year in savings. The U.S. Army Corps of Engineers has since updated that figure to $3.6 billion a year in savings.
- The fastest growing seaway cargo sector is project cargo (wind turbines), which underscores the continuing need for the seaway. Without a deep-draft waterway to transport these huge components economically, the recent Midwest wind energy boom would not be possible.
- The seaway is a harbinger of the health of the overall economy. Seaway traffic numbers for the 2009 navigation season showed the most dramatic downturn in 25 years. The 17 percent rebound in overall tonnage realized in 2010 was a reflection of the gradually increasing health of the economy.

Statistics: http://www.seaway.dot.gov/

Vessels transit the St. Lawrence Seaway.

gram as part of its FY 2009 budget request to Congress to address the long-term asset renewal needs of the U.S. seaway infrastructure.

Congress approved the start of the program that will provide a complete rehabilitation of U.S. seaway lock, channel, and bridge infrastructure. During the program's first two years, the Saint Lawrence Seaway Development Corporation spent nearly $34 million on 29 capital projects. The scheduled 10-year program includes more than 50 projects at a cost of nearly $190 million. This long-range plan complements the ongoing Canadian effort to rehabilitate its 13 seaway locks.

The infrastructure rehabilitation will help position the St. Lawrence Seaway for future growth, as increasing congestion in other transportation modes along the corridor served by the seaway make it an increasingly attractive transportation option. Despite the recent global economic downturn, the need for the seaway and maritime transportation on the Great Lakes remains as significant as ever. Growth in bulk cargoes is expected to remain steady but modest; container shipments will also experience growth.

Short Sea Shipping

Unfortunately, shipment of high-value cargo in containers has been historically absent on the Great Lakes, even though many in the industry have looked at this possibility. A number of hurdles are cited, such as seasonality, logistics, costs, and lack of infrastructure.

Yet we are living in an interesting moment in transportation history. The capacity constraints of our surface transportation modes seem to have been reached. We are seriously reconsidering the way we make transportation energy consumption decisions. World trade will continue to grow, and maritime is the only viable link to world markets.

At the St. Lawrence Seaway, we are giving the possibility of containers a hard look. We are trying to facilitate intermodal collaboration and education about the social, economic, and environmental benefits of moving more cargo by ship, and we are closely watching developments on the Harbor Maintenance Tax waiver legislation in Congress. But for this and certain other regulatory impediments identified by industry entrepreneurs, short sea shipping would be more prevalent.

Looking Ahead

The Great Lakes Seaway System has great potential for short sea shipping, as there is a high concentration of producers and users in the Great Lakes region as well as excellent rail and roadway connections. The tremendous congestion pressures in places like Chicago, Detroit, and Buffalo play into many of the marine industry's inherent advantages. Additionally, there is a diverse and mature commercial navigation industry capable of starting up short sea shipping services in the Great Lakes.

The St. Lawrence Seaway continues to prepare for the future by renewing aging infrastructure, adopting new marine technologies that make the waterway safer and allow for the transport of more cargoes, promoting ballast water treatment efforts to better protect the environment of the Great Lakes, and working to improve supply chain management in North America. These collective efforts provide the opportunity to reinforce our role in domestic, binational, and international commerce and to address the changes required for the seaway to remain a vital international transportation route.

About the author:
Collister Johnson, Jr., became the ninth administrator of the Saint Lawrence Seaway Development Corporation in 2006. He leads the federal government corporation responsible for maintaining and operating the two U.S. Seaway locks and vessel traffic control in areas of the St. Lawrence River and Lake Ontario, in collaboration with its Canadian partner, the St. Lawrence Seaway Management Corporation. Prior to his appointment, Mr. Johnson was a senior consultant at Mercer Management Consulting, Inc., in Washington, D.C. He earned a B.A. in American studies from Yale University, and a J.D. from the University of Virginia.

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www.seaway.dot.gov