

A stylized map of the Great Lakes and St. Lawrence Seaway system is shown in a light blue color against a dark blue background. The map includes the five Great Lakes (Superior, Michigan, Huron, Erie, and Ontario) and the St. Lawrence River connecting them to the Atlantic Ocean. The surrounding landmasses are outlined in a light grey color. A large, curved white border separates the map from the text on the right.

*The*  
***ECONOMIC***  
***IMPACTS*** *of the*  
***GREAT LAKES -***  
***ST. LAWRENCE***  
***SEAWAY SYSTEM***

***EXECUTIVE***  
***SUMMARY***

*October 18, 2011*

*Martin Associates*  
*Lancaster, PA*



# ***EXECUTIVE SUMMARY***

# EXECUTIVE SUMMARY

## INTRODUCTION

From the earliest days of European settlement, the Great Lakes and St. Lawrence River have been utilized as a means of transportation. Great Lakes cities were founded as trading posts along a vast marine highway that facilitated commerce in an era pre-dating railroads and highways. This relationship to the water has enabled the region to thrive and today, the Great Lakes-St. Lawrence region is the industrial and agricultural heartland of both the United States and Canada.

Over the last 200 years, navigation improvements in both the United States and Canada have enhanced the waterway. The Welland Canal has connected Lake Ontario and Lake Erie, enabling vessels to bypass Niagara Falls. The Soo Locks have made the St. Mary's River navigable, connecting Lake Superior with Lake Huron. The St. Lawrence Seaway has tamed the St. Lawrence River, enabling ships to sail from Lake Ontario to the Atlantic Ocean.

The resulting deep draft navigation system is the longest in the world, extending 3,700 kilometers (2,300 miles) into the North American heartland. This waterway complements the region's rail and highway network and offers customers a cost-effective, safe and environmentally smart means of moving raw materials, agricultural commodities and manufactured products. Every year more than 160 million metric tons of cargo is moved on the Great Lakes-St. Lawrence Seaway System. Dominant cargoes include iron ore for steel production, coal for power generation, limestone and cement for construction, and grain for both domestic consumption and export.

Three distinct vessel-operator communities serve the waterway. These include U.S. domestic carriers ("U.S. Lakers") transporting cargo between ports on the system, Canadian domestic carriers ("Canadian Lakers") operating between ports on the system, and ocean-going vessel operators ("Salties"), which operate between system ports and overseas destinations. These carriers serve more than 110 system ports located in each of the eight Great Lakes states and the provinces of Ontario and Quebec.

In addition to locks, ships and ports, a host of maritime service providers work to ensure the safe and efficient transport of cargo. These include stevedores, warehousemen, freight forwarders, dockworkers, crane operators, vessel agents, dredging contractors, marine pilots, truck drivers, tugboat operators and shipyard workers.

## PURPOSE

This report is designed to provide the navigation community, transportation planners, government policy makers and the general public with a realistic assessment of the contributions made by the Great Lakes-Seaway system to the state, provincial, regional and national economies. This is the first-ever study that measures the economic impacts of the Great Lakes-Seaway system to both nations, at the same time, using the same methodology.

To accomplish this goal, a bi-national consortium of public and private sector Great Lakes-Seaway system stakeholders retained Martin Associates of Lancaster, Pennsylvania — a global leader in transportation economic analysis and strategic planning. Martin Associates completed Great Lakes-Seaway system economic impact studies on U.S.-specific data in 1992, 1995 and 2000, and has completed more than 250 economic impact studies for ports and port systems throughout the U.S., Canada, South America, Europe, and Asia.

## **METHODOLOGY**

This analysis estimates the combined U.S. and Canadian economic impacts of all marine cargo moving on the bi-national Great Lakes-Seaway system, including domestic cargo moving between U.S. ports; domestic cargo moving between Canadian ports; cross-lake cargo moving between the U.S. and Canada; and international cargo moving between system ports and overseas ports.

Specifically, the study measures the impacts of 2010 cargo movements at 32 U.S. and Canadian Great Lakes-Seaway system ports. The analysis was developed from a comprehensive telephone interview program of more than 900 individual firms providing maritime services at these ports. Models were then developed to expand the 32-port impacts to the state-wide and province-wide levels. It is important to note that the direct impacts generated at the 32 individual ports accounted for 71 percent of the total system-wide impacts. The 16 Canadian ports accounted for 75 percent of the total estimated Canadian impacts, while the 16 U.S. ports accounted for 66 percent of the total estimated U.S. impacts.

This analysis measures the impacts of cargo “handled” at Great Lakes-Seaway system ports. “Handled” refers to both the shipping (exporting) of the cargo from a system port, and to the receipt (importing) of that cargo in a system port. Because economic activity is created every time cargo is handled, for the purposes of this study, cargo moved between ports within the system has been handled twice. By contrast, cargo moved between system

ports and overseas ports has been handled once (in the region). For example, one ton of cargo moved to or from Europe is counted as one ton handled by a Great Lakes-Seaway system port, while one ton of cargo moved from Duluth, Minn., to Cleveland, Ohio, is counted as two tons (one ton exported in Duluth and one ton imported in Cleveland). For 2010, the 322 million metric tons of cargo identified as “handled” is based on approximately 164 million metric tons of cargo “moved.”

It is also important to note that the study does not address the economic impacts derived from international traffic originating from or destined for those ports and terminals on the St. Lawrence River east of and including Montreal. For example, the economic benefits of container movements to and from the Port of Montreal to overseas markets are not included in this analysis, as this trade does not enter or leave the Great Lakes-Seaway system. However, grain export shipments leaving the Port of Duluth, Minn., destined for overseas markets that are temporarily off-loaded at the Port of Sept-Îles, Quebec for re-loading onto a larger ocean-going vessel, are included.

Impacts are presented at the regional level, country level, state/provincial level, by commodity, by carrier flag, by employment sector and by waterway segment. Throughout the study, all values are expressed in both U.S. and Canadian dollars (using a 2010 average exchange rate of 1.03).

In order to ensure defensibility and accuracy, the study methodology and results of the analysis have been peer reviewed by leading U.S. and Canadian economists in academia and private industry. The peer review process was jointly managed by the U.S. Department of Transportation and Transport Canada.

## CATEGORIES OF IMPACTS

**Employment:** These impacts consist of four levels:

- *Direct Employment* – jobs directly generated by maritime and port activity. Direct jobs include those of dockworkers, crane operators, ships' crew, steamship agents, freight forwarders and stevedores, as well as workers with railroad and trucking companies moving the cargo handled at system ports. These jobs would experience dislocation if the activity at ports and marine terminals were to be discontinued.
- *Induced Employment* – jobs created when individuals spend their wages locally on goods and services such as food, housing and clothing.
- *Indirect Employment* – jobs created due to purchases of goods and services by businesses. These include jobs with office supply firms, maintenance and repair companies, parts and equipment suppliers, etc.
- *Related User Employment* – jobs with firms using the port to ship and receive cargo. While the facilities and services provided at the ports and marine terminals are a crucial part of the infrastructure allowing these jobs to exist, these jobs would not necessarily be immediately displaced if marine activity were to cease. For this reason, related user impacts are a separate non-additive employment category.

**Personal Income:** These impacts are a measure of the employee wages and salaries (excluding benefits) received by individuals directly employed due to port activity.

**Business Revenue:** These impacts represent the revenue generated by firms providing services at each port.

**Local Purchases:** These impacts include the value of goods and services purchased by the firms providing services at each port. Examples are office supplies, communications, utilities, fuel, maintenance and repair, goods/parts, contracted services, insurance, etc.

**Taxes:** These impacts include payments to federal, state/provincial, and local governments by companies and individuals whose jobs are directly dependent on port activity.

## RESULTS

In 2010, 322.1 million metric tons of cargo were handled by all U.S. and Canadian ports and marine terminals on the Great Lakes-Seaway system. The movement of this cargo generated the following economic impacts:

## System-wide Impacts (Chapter II)

**Employment** – Maritime commerce on the Great Lakes-Seaway system in 2010 generated **226,833 U.S. and Canadian jobs**, including **92,923 direct jobs**. As a result of local and regional purchases made by those 92,923 individuals, an additional **66,005 induced jobs** were supported in the regional economy. Finally, **67,905 indirect jobs** were supported by US\$6.4 billion (Cdn\$6.6 billion) in regional purchases by businesses supplying services at the marine terminals and ports.

**Personal Income** – Maritime activity in 2010 supported **US\$14.1 billion (Cdn\$14.5 billion) in total personal wage and salary income and local consumption expenditures** in the regional economies of the U.S. and Canada. The 92,923 direct job holders received US\$4.4 billion (Cdn\$4.5 billion) in wage income; this equates to an **average annual salary of US\$47,000 (Cdn\$48,400)**.

**Business Revenue** – As a result of maritime activity on the Great Lakes-Seaway system, **US\$33.6 billion (Cdn\$34.6 billion) in business revenue** was received by firms supplying cargo handling and vessel services, and inland transportation services. This amount of revenue is split almost evenly between the United States and Canada.

**Local Purchases** – Businesses involved in maritime activity in the Great Lakes-Seaway system spent **US\$6.4 billion (Cdn\$6.6 billion) on purchases in their respective local economies**.

**Taxes** – A total of **US\$4.6 billion (Cdn\$4.7 billion) in federal, state/provincial and local tax revenue** was generated by maritime activity on the Great Lakes-Seaway system in 2010.

**Exhibit II-2 Total System Impacts by Country**

	Canada		United States		Total	
<b>Jobs</b>						
Direct Jobs	48,288		44,634		92,923	
Induced	21,947		44,057		66,005	
Indirect	28,320		39,585		67,905	
<b>Total</b>	<b>98,556</b>		<b>128,227</b>		<b>226,833</b>	
<b>Personal Income (1,000)</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$2,310,209	\$2,379,515	\$2,052,776	\$2,114,360	\$4,362,985	\$4,493,875
Re-Spending/ Local Consumption	\$878,987	\$905,357	\$5,974,194	\$6,153,420	\$6,853,182	\$7,058,777
Indirect	\$1,274,072	\$1,312,294	\$1,623,988	\$1,672,707	\$2,898,060	\$2,985,002
<b>Total</b>	<b>\$4,463,268</b>	<b>\$4,597,166</b>	<b>\$9,650,959</b>	<b>\$9,940,487</b>	<b>\$14,114,227</b>	<b>\$14,537,654</b>
<b>Business Revenue (1,000)</b>	\$15,425,317	\$15,888,076	\$18,135,715	\$18,679,787	\$33,561,032	\$34,567,863
<b>Local Purchases (1,000)</b>	\$3,373,601	\$3,474,809	\$3,040,143	\$3,131,347	\$6,413,744	\$6,606,156
<b>State/Provincial and Local Taxes (1,000)</b>	\$584,966	\$602,515	\$945,668	\$974,038	\$1,530,634	\$1,576,553
<b>Federal Taxes (1,000)</b>	\$1,315,681	\$1,355,151	\$1,737,173	\$1,789,288	\$3,052,853	\$3,144,439

Note: Totals may not add due to rounding

**Exhibit II-9 Economic Impacts by State — Cargo Moving via U.S. Ports and Marine Terminals on the Great Lakes-St. Lawrence Seaway System**

<b>Tonnage (1,000)</b>	<b>Indiana 28,360</b>		<b>Ohio 40,222</b>		<b>Michigan 61,302</b>	
<b>Jobs</b>						
Direct Jobs	15,516		8,504		10,603	
Induced	17,852		9,222		8,061	
Indirect	14,964		10,355		8,155	
<b>Total</b>	<b>48,332</b>		<b>28,081</b>		<b>26,819</b>	
<b>Personal Income (1,000)</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$726,283	\$748,072	\$378,968	\$390,337	\$484,116	\$498,640
Re-Spending/ Local Consumption	\$2,468,927	\$2,542,995	\$1,278,750	\$1,317,113	\$1,058,956	\$1,090,725
Indirect	\$587,445	\$605,069	\$436,985	\$450,094	\$334,688	\$344,728
<b>Total</b>	<b>\$3,782,656</b>	<b>\$3,896,135</b>	<b>\$2,094,703</b>	<b>\$2,157,544</b>	<b>\$1,877,761</b>	<b>\$1,934,093</b>
<b>Business Revenue (1,000)</b>	<b>\$7,894,646</b>	<b>\$8,131,486</b>	<b>\$3,032,330</b>	<b>\$3,123,300</b>	<b>\$3,799,899</b>	<b>\$3,913,896</b>
<b>Local Purchases (1,000)</b>	<b>\$1,133,209</b>	<b>\$1,167,206</b>	<b>\$772,802</b>	<b>\$795,986</b>	<b>\$637,553</b>	<b>\$656,680</b>
<b>State and Local Taxes (1,000)</b>	<b>\$359,352</b>	<b>\$370,133</b>	<b>\$203,186</b>	<b>\$209,282</b>	<b>\$182,143</b>	<b>\$187,607</b>
<b>Federal Taxes (1,000)</b>	<b>\$680,878</b>	<b>\$701,304</b>	<b>\$377,047</b>	<b>\$388,358</b>	<b>\$337,997</b>	<b>\$348,137</b>

**Exhibit II-9 continued**

<b>Tonnage (1,000)</b>	<b>Minnesota 30,160</b>		<b>Illinois 7,219</b>		<b>Wisconsin 33,241</b>	
<b>Jobs</b>						
Direct Jobs	2,516		2,813		3,466	
Induced	2,258		2,521		3,071	
Indirect	1,496		1,842		2,240	
<b>Total</b>	<b>6,271</b>		<b>7,177</b>		<b>8,777</b>	
<b>Personal Income (1,000)</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$115,464	\$118,928	\$121,942	\$125,600	\$163,789	\$168,703
Re-Spending/ Local Consumption	\$263,731	\$271,643	\$384,763	\$396,306	\$367,057	\$378,069
Indirect	\$60,381	\$62,193	\$87,490	\$90,115	\$91,566	\$94,313
<b>Total</b>	<b>\$439,576</b>	<b>\$452,763</b>	<b>\$594,196</b>	<b>\$612,022</b>	<b>\$622,412</b>	<b>\$641,085</b>
<b>Business Revenue (1,000)</b>	<b>\$1,343,705</b>	<b>\$1,384,016</b>	<b>\$438,795</b>	<b>\$451,959</b>	<b>\$1,405,293</b>	<b>\$1,447,451</b>
<b>Local Purchases (1,000)</b>	<b>\$114,433</b>	<b>\$117,866</b>	<b>\$152,694</b>	<b>\$157,275</b>	<b>\$175,955</b>	<b>\$181,234</b>
<b>State and Local Taxes (1,000)</b>	<b>\$46,815</b>	<b>\$48,219</b>	<b>\$59,420</b>	<b>\$61,202</b>	<b>\$67,073</b>	<b>\$69,085</b>
<b>Federal Taxes (1,000)</b>	<b>\$79,124</b>	<b>\$81,497</b>	<b>\$106,955</b>	<b>\$110,164</b>	<b>\$112,034</b>	<b>\$115,395</b>

**Exhibit II-9** continued

<b>Tonnage (1,000)</b>	<b>New York 2,216</b>		<b>Pennsylvania 605</b>		<b>Total US 203,325</b>	
<b>Jobs</b>						
Direct Jobs	924		291		44,634	
Induced	763		310		44,057	
Indirect	280		252		39,585	
<b>Total</b>	<b>1,967</b>		<b>854</b>		<b>128,277</b>	
<b>Personal Income (1,000)</b>						
	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$49,646	\$51,136	\$12,568	\$12,945	\$2,052,776	\$2,114,360
Re-Spending/ Local Consumption	\$109,291	\$112,570	\$42,718	\$43,999	\$5,974,194	\$6,153,420
Indirect	\$14,770	\$15,213	\$10,662	\$10,982	\$1,623,988	\$1,672,707
<b>Total</b>	<b>\$173,708</b>	<b>\$178,919</b>	<b>\$65,948</b>	<b>\$67,926</b>	<b>\$9,650,959</b>	<b>\$9,940,487</b>
<b>Business Revenue (1,000)</b>	\$167,397	\$172,419	\$53,650	\$55,260	\$18,135,715	\$18,679,787
<b>Local Purchases (1,000)</b>	\$34,070	\$35,092	\$19,426	\$20,009	\$3,040,143	\$3,131,347
<b>State and Local Taxes (1,000)</b>	\$21,019	\$21,649	\$6,661	\$6,861	\$945,668	\$974,038
<b>Federal Taxes (1,000)</b>	\$31,267	\$32,205	\$11,871	\$12,227	\$1,737,173	\$1,789,288

**Exhibit II-10 Economic Impacts by Province — Cargo Moving via Canadian Ports and Marine Terminals on the Great Lakes-St. Lawrence Seaway System**

<b>Tonnage (1,000)</b>	<b>Ontario 62,293</b>		<b>Quebec 56,511</b>		<b>Total 118,804</b>	
<b>Jobs</b>						
Direct Jobs	28,894		19,394		48,288	
Induced	12,743		9,205		21,947	
Indirect	21,906		6,414		28,320	
<b>Total</b>	<b>63,542</b>		<b>35,013</b>		<b>98,556</b>	
<b>Personal Income (1,000)</b>						
	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$1,288,019	\$1,326,659	\$1,022,190	\$1,052,856	\$2,310,209	\$2,379,515
Re-Spending/ Local Consumption	\$515,208	\$530,664	\$363,780	\$374,693	\$878,987	\$905,357
Indirect	\$940,245	\$968,452	\$333,827	\$343,842	\$1,274,072	\$1,312,294
<b>Total</b>	<b>\$2,743,471</b>	<b>\$2,825,775</b>	<b>\$1,719,797</b>	<b>\$1,771,391</b>	<b>\$4,463,268</b>	<b>\$4,597,166</b>
<b>Business Revenue (1,000)</b>	\$9,360,290	\$9,641,098	\$6,065,027	\$6,246,978	\$15,425,317	\$15,888,076
<b>Local Purchases (1,000)</b>	\$2,419,844	\$2,492,439	\$953,757	\$982,370	\$3,373,601	\$3,474,809
<b>Provincial Taxes (1,000)</b>	\$236,076	\$243,158	\$348,890	\$359,357	\$584,966	\$602,515
<b>Federal Taxes (1,000)</b>	\$908,089	\$935,332	\$407,592	\$419,820	\$1,315,681	\$1,355,151

### Impacts by Flag of Carriage (Chapter III)

Three distinct vessel operator communities serve the Great Lakes-Seaway system. U.S. flag operators are those companies whose vessels are documented under the laws of the United States; generally, these carriers operate between U.S. ports within the Great Lakes. Canadian flag operators are those companies whose vessels are documented under Canadian law. These carriers generally operate between lower St. Lawrence River ports and Great Lakes ports, carrying both domestic and bi-national commerce. Finally, foreign flag operators are those carriers whose vessels are documented under the laws of a country other than the United States or Canada. These carriers typically operate between system ports and overseas destinations.

**Employment** – Of the 226,833 jobs supported by activity on the Great Lakes-Seaway system, cargo moving on the **Canadian flag fleet supported 101,568 jobs (45 percent)**, while cargo moving on **U.S. flag vessels supported 107,612 jobs (47 percent)**. The remaining **17,653 jobs (8 percent) were supported by cargo moving on foreign flag vessels**.

**Personal Income** — For the system-wide personal income total of US\$14.1 billion (Cdn\$14.5 billion), cargo moving on **Canadian flag vessels supported 35 percent** of that income; cargo moving on **U.S. flag vessels supported 55 percent**; and cargo moving on **foreign flag vessels supported 10 percent**.

**Exhibit III-1 Economic Impacts by Flag of Carriage — Regional Level**

	Canadian Flag		U.S. Flag		Foreign Flag		Total	
<b>Jobs</b>								
Direct Jobs	48,660		37,220		7,043		92,923	
Induced	24,189		35,772		6,044		66,005	
Indirect	28,719		34,621		4,566		67,905	
Total	101,568		107,612		17,653		226,833	
<b>Personal Income (1,000)</b>								
	US \$	Cdn \$	US \$	Cdn \$	US \$	Cdn \$	US \$	Cdn \$
Direct	\$2,288,326	\$2,356,976	\$1,696,677	\$1,747,577	\$377,983	\$389,322	\$4,362,985	\$4,493,875
Re-Spending/ Local Consumption	\$1,309,804	\$1,349,098	\$4,750,354	\$4,892,864	\$793,025	\$816,815	\$6,853,182	\$7,058,777
Indirect	\$1,286,225	\$1,324,811	\$1,419,128	\$1,461,702	\$192,707	\$198,488	\$2,898,060	\$2,985,002
Total	\$4,884,354	\$5,030,885	\$7,866,158	\$8,102,143	\$1,363,714	\$1,404,626	\$14,114,227	\$14,537,654
<b>Business Revenue (1,000)</b>	\$15,678,458	\$16,148,812	\$15,537,600	\$16,003,728	\$2,344,974	\$2,415,323	\$33,561,032	\$34,567,863
<b>Local Purchases (1,000)</b>	\$3,323,626	\$3,423,335	\$2,685,125	\$2,765,679	\$404,992	\$417,142	\$6,413,744	\$6,606,156
<b>State/Provincial and Local Taxes (1,000)</b>	\$617,015	\$635,525	\$763,841	\$786,757	\$149,777	\$154,271	\$1,530,634	\$1,576,553
<b>Federal Taxes (1,000)</b>	\$1,343,664	\$1,383,974	\$1,445,719	\$1,489,090	\$263,470	\$271,374	\$3,052,853	\$3,144,439

Note: Totals may not add due to rounding

**Business Revenue** — Cargo moving via **Canadian flag vessels** supported US\$15.7 billion (Cdn\$16.1 billion) in direct business revenue, **47 percent of the total**, while cargo moving on **U.S.-flag vessels** supported US\$15.5 billion (Cdn\$16.0 billion), **accounting for 46 percent of the business revenue**. The cargo moving on foreign flag vessels accounted for the balance.

**Local Purchases** — Cargo moving on **Canadian flag vessels supported 52 percent of the total local purchases** made system-wide in 2010. Cargo moving on the **U.S. flag fleet supported 42 percent**, while foreign flag vessel activity supported the balance.

**Taxes** — Cargo moving on **Canadian flag vessels supported 44 percent of the total tax impact** and cargo moving on the **U.S. flag vessels accounted for 47 percent of the impact**, while the cargo moving on foreign flag vessels supported the balance of the tax impact.

#### ***St. Lawrence Seaway Impacts (Chapter IV)***

The St. Lawrence Seaway extends from Montreal to Lake Erie and is composed of a series of 15 locks that connect the Great Lakes to the lower St. Lawrence River and the Atlantic Ocean. The Welland Canal section consists of eight Canadian locks that enable ships to pass between Lakes Erie and Ontario. The Montreal-Lake Ontario (MLO) section of the Seaway consists of seven locks — five located in Canada and two in the United States. These locks enable ships to pass between Lake Ontario and the lower St. Lawrence River. During 2010, more than 35 million metric tons of cargo passed through the Seaway's infrastructure. This chapter describes the economic impacts of system traffic utilizing any segment of the Seaway. This data is intended to better inform public policy decisions regarding infrastructure investment, system management, vessel regulation, etc.

**Employment** — Maritime commerce on the St. Lawrence Seaway portion of the Great Lakes-Seaway system in 2010 impacted **86,006 U.S. and Canadian jobs**, including **37,344 direct jobs**. As a result of local and regional purchases made by those 37,344 individuals, an additional **21,830 induced jobs** were supported in the regional economy. Finally, **26,832 indirect jobs** were supported by US\$2.8 billion (Cdn\$2.9 billion) in regional purchases by businesses supplying services at the marine terminals and ports.

**Personal Income** — Maritime commerce utilizing the St. Lawrence Seaway in 2010 supported **US\$4.6 billion (Cdn\$4.7 billion) in total personal wages and local consumption expenditures**. The 37,344 direct job holders received US\$1.78 billion (Cdn\$1.83 billion) in wage income.

**Business Revenue** — In 2010, the marine cargo and vessel activity using the St. Lawrence Seaway generated **US\$12.3 billion (Cdn\$12.7 billion) in direct business revenue**.

**Local Purchases** — Businesses involved in maritime activity on the St. Lawrence Seaway spent **US\$2.8 billion (Cdn\$2.9 billion) on purchases in their respective local economies**.

**Taxes** — St. Lawrence Seaway commercial maritime activity generated **US\$1.7 billion (Cdn\$1.7 billion) in local, state/provincial and federal tax revenues**.

**Exhibit IV-2 Economic Impacts of the St. Lawrence Seaway — Country Level**

Impacts	Canada		United States		Total	
<b>Jobs</b>						
Direct Jobs	29,512		7,832		37,344	
Induced	13,310		8,520		21,830	
Indirect	20,220		6,613		26,832	
Total	63,041		22,965		86,006	
<b>Personal Income (1,000)</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$1,387,919	\$1,429,557	\$385,809	\$397,383	\$1,773,728	\$1,826,940
Re-Spending/ Local Consumption	\$522,014	\$537,675	\$1,125,765	\$1,159,538	\$1,647,780	\$1,697,213
Indirect	\$888,709	\$915,370	\$274,725	\$282,967	\$1,163,434	\$1,198,337
Total	\$2,798,643	\$2,882,602	\$1,786,299	\$1,839,888	\$4,584,942	\$4,722,490
<b>Business Revenue (1,000)</b>	\$9,522,050	\$9,807,711	\$2,797,763	\$2,881,696	\$12,319,813	\$12,689,407
<b>Local Purchases (1,000)</b>	\$2,321,135	\$2,390,769	\$524,495	\$540,230	\$2,845,629	\$2,930,998
<b>State/Provincial and Local Taxes (1,000)</b>	\$323,447	\$333,150	\$177,427	\$182,749	\$500,873	\$515,899
<b>Federal Taxes (1,000)</b>	\$862,260	\$888,128	\$321,534	\$331,180	\$1,183,794	\$1,219,308

Note: Totals may not add due to rounding

**Impacts of New York Ballast Water Regulations (Chapter V)**

This chapter describes the economic impact of all commercial cargo moving through New York waters of the Great Lakes-Seaway system. This traffic includes the cargo moving on New York sections of the St. Lawrence River through the Montreal-Lake Ontario (MLO) section of the St. Lawrence Seaway, as well as cargo moving to and from Buffalo, N.Y. (intra-lake commerce) and not transiting any Seaway locks.

This analysis is meant to inform the public policy debate surrounding New York State ballast water regulations on vessels transiting New York waters. In December 2008, New York established state regulations governing the discharge of ballast water from commercial vessels operating in New York's jurisdiction. The regulations seek to address the problem of aquatic nuisance species being introduced into New York waters via ships' ballast water.

Under New York's rules, by 2013, all vessels operating in New York waters will be required to install environmental technology that can clean or treat ballast water to meet a specific water quality standard. The State of New York's water quality standard is 100 times more stringent than international standards. The regulations apply to vessels that call on New York ports and vessels that transit New York waters destined for ports in other states.

A July 2011 evaluation by the U.S. Environmental Protection Agency (EPA) determined that technology does not exist to meet the water quality level stipulated by New York. For this reason, the maritime industry believes these regulations to be unworkable and, if left unchanged, will cause economic harm when they come into effect, resulting in complete cessation of commercial maritime commerce in New York waters. The economic impacts presented in this chapter demonstrate the economic-opportunity cost of the proposed regulations on the U.S. and Canadian economies.

**Employment** — In 2010, Great Lakes-Seaway system maritime commerce that transited New York waters impacted **72,061 U.S. and Canadian jobs**, including **31,314 direct jobs**. As a result of local and regional purchases made by those 31,314 individuals, an additional **18,306 induced jobs** were supported in the regional economy. Finally, **22,442 indirect jobs** were supported by US\$2.4 billion (Cdn\$2.5 billion) in regional purchases by businesses supplying services at the marine terminals and ports.

**Personal Income** — Cargo moving via New York waters of the Great Lakes-Seaway system supported **US\$3.8 billion (Cdn\$3.9 billion) in total personal wages and local consumption expenditures** in the regional economies of the U.S. and Canada. The 31,314 direct jobholders received US\$1.5 billion (Cdn\$1.6 billion) in direct wage and salary income.

**Business Revenue** — In 2010, the marine cargo and vessel activity on the New York waters of the Great Lakes-Seaway system generated a total of **US\$10.5 billion (Cdn\$10.8 billion) in direct business revenue** in Canada and the United States.

**Local Purchases** — Businesses involved in Great Lakes-Seaway system maritime activity transiting New York waters spent **US\$2.4 billion (Cdn\$2.5 billion) on purchases in their respective local economies**.

**Taxes** — Great Lakes-Seaway system commercial maritime activity moving on New York waters generated **US\$1.4 billion (Cdn\$1.5 billion) in local, state/provincial and federal tax revenues**.

**Exhibit V-2 Economic Impacts of the Commerce Transiting New York Waters of the Great Lakes-Seaway System — Country Level**

Impacts	Canada		United States		Total	
<b>Jobs</b>						
Direct Jobs		25,360		5,954		31,314
Induced		11,477		6,829		18,306
Indirect		18,117		4,324		22,442
Total		54,954		17,108		72,061
<b>Personal Income (1,000)</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>	<b>US \$</b>	<b>Cdn \$</b>
Direct	\$1,202,427	\$1,238,500	\$301,286	\$310,325	\$1,503,713	\$1,548,824
Re-Spending/ Local Consumption	\$448,315	\$461,765	\$898,078	\$925,021	\$1,346,393	\$1,386,785
Indirect	\$797,643	\$821,573	\$179,162	\$184,537	\$976,806	\$1,006,110
Total	\$2,448,385	\$2,521,837	\$1,378,526	\$1,419,882	\$3,826,912	\$3,941,719
<b>Business Revenue (1,000)</b>	\$8,404,342	\$8,656,472	\$2,081,001	\$2,143,431	\$10,485,343	\$10,799,904
<b>Local Purchases (1,000)</b>	\$2,090,243	\$2,152,950	\$349,540	\$360,026	\$2,439,782	\$2,512,976
<b>State/Provincial and Local Taxes (1,000)</b>	\$289,027	\$297,697	\$137,400	\$141,522	\$426,427	\$439,219
<b>Federal Taxes (1,000)</b>	\$749,856	\$772,351	\$248,135	\$255,579	\$997,991	\$1,027,930

Note: Totals may not add due to rounding

## Related User Impacts (Chapter VI)

This chapter presents information on related user impacts, which measure jobs, income, output and tax impacts with shippers/consignees and supporting industries that move cargo through the ports and marine terminals on the Great Lakes-Seaway system. These impacts are classified as “related” because the firms using system ports and marine terminals to move cargo can — and, in some cases, do — use other ports and marine terminals outside the Great Lakes-Seaway System. As a result, these impacts cannot be counted as exclusively dependent upon the marine terminals in the system.

**Employment** — In addition to the 226,833 U.S. and Canadian jobs impacted by Great Lakes-Seaway system maritime commerce, there are **an additional 477,593 related user jobs**, including *393,262 in the*

*United States and 84,331 in Canada.* The majority of the related user impacts occur in the U.S. as a result of the iron ore and coal movements on the Great Lakes.

**Personal Income** — In 2010, individuals employed by related users accounted for **US\$22.7 billion (Cdn\$23.4 billion) in total personal wages and local consumption expenditures.**

**Business Revenue** — Related user business revenue totaled **US\$115.5 billion (Cdn\$119.0 billion)** in Canada and the United States in 2010.

**Taxes** — The activity created in the related user sector in 2010 generated **US\$7.1 billion (Cdn\$7.4 billion) in tax revenue** for federal, state/provincial, and local governments.

**Exhibit VI-1 Related User Impacts**

User Impacts	Canada		United States		Total	
	US \$	Cdn \$	US \$	Cdn \$	US \$	Cdn \$
<b>Jobs</b>		84,331		393,262		477,593
<b>Personal Income (1,000)</b>	\$4,552,340	\$4,688,910	\$18,179,620	\$18,725,008	\$22,731,960	\$23,413,919
<b>Business Revenue (1,000)</b>	\$31,608,507	\$32,556,763	\$83,906,441	\$86,423,634	\$115,514,949	\$118,980,397
<b>State/Provincial and Local Taxes (1,000)</b>	\$543,053	\$559,345	\$1,853,928	\$1,909,546	\$2,396,981	\$2,468,891
<b>Federal Taxes (1,000)</b>	\$1,382,022	\$1,423,482	\$3,272,332	\$3,370,501	\$4,654,353	\$4,793,984

Note: Totals may not add due to rounding

***These summary findings highlight the significant contribution of maritime commerce on the Great Lakes-St. Lawrence Seaway System to the bi-national regional economy and to the economy of North America as a whole.***

***To view the full study, please visit: [www.marinedelivers.com](http://www.marinedelivers.com)***



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