

PRESS FACT SHEET

For a study titled:

**Ocean Shipping In the Great Lakes:
Transportation Cost Increases That Would Result From
A Cessation of Ocean Vessel Shipping**

by

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Key Findings

- This study estimates the transportation cost penalty to U.S. and Canadian shippers (manufacturers, grain trading companies, etc.) if ocean ships were no longer available to haul goods into and out of the Great Lakes. Ocean vessels primarily carry finished imported steel in, and grain out for export. These two categories account for over 74% of ocean vessel tonnage. Other goods include chemicals and petroleum, sugar, pulp and other minerals. Container ships do not enter the Great Lakes due to size and market factors.
- The study has been peer reviewed by a panel of four peer reviewers from the agricultural economics and economics profession that met to review the study and question the authors in Chicago on November 30, 2005. The reviewers were picked because of their transportation economics knowledge and all four were senior full professors from leading universities around the United States. Their report on the peer review findings, which were supportive of the studies methodology and conclusions, was written following consultation on the November 30 presentation, and is publicly available.
- The principal conclusion of this study is that a cessation of ocean shipping on the Great Lakes would result in a transportation cost penalty of US\$54.9 million per year. The relatively small transportation cost penalty of US\$54.9 million is due to the fact that just 12.3 million metric tons of ocean vessel cargo passed into and out of the Lakes via the MLO Section of the St. Lawrence Seaway in 2002, or some 6.8% of total Great Lakes –St. Lawrence Seaway System tonnage. It is also due to the fact that the costs of the alternative modes, for lakers, rail and barge primarily, are not substantially higher than the cost for the ocean direct routings into and out of Great Lakes ports, and in some cases are less expensive.
- 12.3 million metric tons of Cargo Passed Though the MLO Section of the Seaway (west of Montreal) on ocean vessels in 2002. This represents approximately 6.8% of total Great Lakes-St. Lawrence Seaway System (GL/SLSS) tonnage of approximately

180 million metric tons, and about 41.0% of total Seaway MLO Section laker/ocean tonnage of 30.0 million metric tons. The other 167.7 million metric tons of system tonnage moves on laker vessels, not ocean vessels. Ocean vessels are the primary source of waterborne Lakes invasives arriving from Europe and other continents. Note that U.S. Lakers do not leave the Great Lakes, only Canadian vessels and ocean foreign vessels transit the Seaway, and Canadian lakers do not leave the North American exclusive economic zone.

- Note that MLO Section Seaway ocean vessel tonnage has declined from a peak of some 23.1 million metric tons in 1978, but has been in the range of 9-15 million tons since 2000, with both 2003 and 2004 volumes below the 2002 volumes used in this study. Combined laker/ocean vessel Seaway forecasts over the years have been overly optimistic. Six studies between 1954-1985 forecast year 2000 volume at between 49.4-130.1 million metric tons, while the actual 2002 laker/ocean tonnage was 30.0 million metric tons.
- There have been a number of prior studies of the cost benefits of the Seaway, a number of which focused on the grain trades. One recent study by the TVA for the Army Corp of Engineers found that wheat (the dominant grain move) moving out the Seaway via the Soo Locks actually cost some \$4.99/ton more than a comparable all land move – suggesting a lack of competitiveness for the Seaway route. Other studies have found that especially in the case of U.S. grain, that there are rail/barge routes with advantages over Seaway ocean moves. Past studies have generally found small Seaway ocean vessel advantages over other routes/modes, or no advantage at all. A report on the Seaway web page as recently as November 30, 2005 titled “Transportation Cost Savings,” shows total Seaway ocean and laker vessel savings of US\$1.2 billion for U.S. industry, but then assigns all the savings to specific commodities that move only within the lakes and on laker vessels. They attribute none of the Seaway savings to ocean vessels.
- Our study is based on first identifying the nature of the 12.3 million tons of ocean vessel cargo in terms of commodities and origin-destinations, determining the overall transportation cost for those moves, then estimating the alternative routes/modes this cargo would move on if ocean vessels were not available, and then costing out the total cost using these alternative route/modes, and finally comparing the alternative costs to the current costs. Generally, our study assumes that Canadian grain would move to Montreal/Quebec City by Laker (like most of the grain already does), and by rail. We assume U.S. grain would move 50% by Laker, 25% by rail and 25% by barge down the Mississippi River. For steel, we assume 40% would move inward by rail from Montreal, 46% inward by rail from Philadelphia, and 14% inward by rail from the Gulf (Lakers cannot carry finished steel). In making cost estimates we examine all transportation costs required for that option, and also all handling charges that would be incurred.
- There are other issues that affect shipper choices about which mode/route to use, however, cost is the most important one. For society and users, there are several

other issues that impact the value of ocean shipping on the Lakes. Favorable factors relating to continued ocean shipping include maintenance of existing tolls from ocean vessels, a lack of disruption to employment levels in Lakes port cities and on foreign ocean vessels, continuation of a competitive option to rail and lakers, and the elimination of any need to deal with possible capacity issues in rail and lakers. Other positives relate to possibly shorter cycle times, less handling/damage especially of grain, and several other issues. Unfavorable factors for ocean shipping include the environmental and economic negatives of invasive species, the use of foreign ocean vessel crews as opposed to domestic crews with lakers and rail, and national security concerns with foreign ships/crews entering the North American heartland. Other unfavorable factors include limitations on Seaway vessel sizes and constraints on future efficiency gains as compared to rail where efficiency continues to improve, the limited nine month Seaway navigation season, and possible future cost increases to address invasives damage costs.

- In terms of Lakes ocean shipping, it is important to note that the Duluth ocean direct route accounts for 1.9% of all U.S. grain exports, and for Canada, that the Thunder Bay ocean direct route accounts for 10.9% of all Canadian grain exports. For the U.S., the ocean route to the Lakes accounts for 6.3% of all iron and steel imports, while for Canada the ocean direct route accounts for 21.4% of total steel imports. The calculated cost penalty of US\$54.9 million represents a 5.9% increase in the current door to door transportation cost for the goods currently moving via ocean shipping in the Great Lakes. The transportation cost penalty for Duluth and Thunder Bay ocean shipped grain represents a roughly estimated .1% of the transportation cost for all U.S. and Canadian exported grain. For steel, the transportation cost penalty on the Great Lakes ocean shipped product represents a rough .7% of the transportation cost for all Canadian and U.S. imported steel.
- By way of comparison, we estimate the costs of existing invasive species on the Great Lakes at a minimum of US\$200-500 million per year, based on a literature review of the scientific literature. However, these cost estimates by scientists vary considerably, and range as high as \$5 billion per year, and therefore, the invasives cost estimates must be considered very rough and preliminary. It should also be noted however that the costs of future invasives that might be introduced by continued ocean shipping is not known at all. It also should be noted that we did not calculate invasive species costs, and only show the cost estimates from other scientists for purposes of perspective and comparison.
- By transferring the 12.3 million metric tons of ocean borne cargo to alternative modes, there would be some modal shift effects. The net result would be that an additional 2.97 million metric tons would move by laker, 5.98 million metric tons by rail, 1.18 million metric tons by barge, and 2.16 million metric tons by truck. This volume would require an additional 7.4 lakers worth of capacity per year, an additional 1.6 trains per day, and 197 trucks per day, in addition to the extra 1.18 million metric tons of barge traffic. For perspective, there currently are some 70 lakers in the Canadian fleet making Seaway transits, there are some 100-150 trains

per day in the relevant east-west corridors north and south of Lake Erie, and there of course are many hundreds of thousands of truck trips per day in these areas. While laker capacity has been raised as an issue, we believe the industry would find the capacity, and if not we believe rail could handle the additional volume.

- We would also note that the modal shift would have a very small effect on air pollution levels, with a roughly estimated 5.3% increase in the total of five pollutant categories as compared to the ocean direct pollution levels. This is partly due to the fact that ships have far higher emissions of PM10 and SO2 than rail or truck, and also have higher emissions than rail in two other categories on a per million ton miles of goods carried basis. However the total 116,952 short tons of emissions that would be generated in total by the “most likely” alternative routing/modes compares to total U.S. only transportation source emissions of 106.5 million tons.

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For a full copy of the report and peer review see www.gvsu.edu/business under Faculty and then Faculty Research – Logistics buttons.