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Study says Great Lakes ships are most carbon-friendly, efficient transport mode

by Marine Matters

A comprehensive study released on February 5 has revealed the environmental advantages of using marine shipping to transport goods in the Great Lakes-St. Lawrence Seaway region.

The Environmental and Social Impacts of Marine Transport in the Great Lakes-St. Lawrence Seaway Region, which was carried out by Ontario transportation consultants Research and Traffic Group and peer reviewed by independent experts in Canada and the United States, reported that Great Lakes ships are more fuel-efficient and emit fewer greenhouse gases per cargo tonne-kilometre than land-based alternatives.

The bi-national study, which was overseen by a steering committee including Transport Canada and WWF Canada, also shows that a shift of cargo carried by marine vessels on the Great Lakes-St. Lawrence Seaway navigation system to trucks and/or rail would lead to increased levels of traffic congestion, higher infrastructure costs to maintain highways and significantly greater levels of noise.

This is the first time a study has examined the external impacts of the U.S., Canadian and international vessels operating on the navigation system, using actual data provided by major shipping firms. The study was carried out to provide marine stakeholders, transportation planners and government policymakers with an assessment of the potential environmental and social impacts that could occur, if cargo carried by marine vessels on the Great Lakes-Seaway navigation system shifted to road and/or rail modes of transport.

According to marine industry stakeholders, the study's results underscore the importance of investing in the infrastructure and technology required to foster growth in Great Lakes-Seaway transportation.

"This study reinforces that this vital marine navigation system is the most efficient and sustainable way to transport goods in the region," said Ray Johnston, president of the Ottawa-based Chamber of Marine Commerce. "Marine shipping's greatest environmental asset is its ability to carry vast amounts of cargo long distances on significantly less fuel than land alternatives.

"Domestic and international shipowners are investing more than $1 billion on new ships and engine technology over the next few years that will only serve to increase these benefits."

Terence Bowles, president and CEO of the St. Lawrence Seaway Management Corporation, said: "This ground-breaking study confirms that the Great Lakes-Seaway system is an essential transportation artery. Our waterway provides thousands of companies with the means of connecting with new markets overseas, and at the same time, reducing their greenhouse gas footprints."

WWF Canada's Hadley Archer, vice-president of strategic partnerships, said: "WWF-Canada applauds the Great Lakes-Seaway shipping industry for seeking to better understand the impacts and opportunities to improve environmental performance within the transportation sector, which we hope will lead to finding more sustainable ways of moving the goods we all rely on."

In terms of energy efficiency and greenhouse gas emissions, the study shows that:

- The Great Lakes-Seaway fleet is nearly seven times more fuel-efficient than trucks and 1.14 times more fuel-efficient than rail.
- Rail and trucks would emit 19 per cent and 533 per cent more green house gas emissions, respectively, if these modes carried the same cargo the same distance as the Great Lakes-Seaway fleet.

The study reveals the significant role that marine transport plays in reducing congestion on roads and railways:

- It would take 3 million railcar trips to carry the total cargo transported by the Great Lakes-Seaway fleet in 2010, as much as double the existing traffic on some rail lines in Canada and at least a 50-per-cent increase in traffic on some of the busiest lines in the U.S.
- It would take 7.1 million truck trips to carry the total cargo handled by the Great Lakes-Seaway fleet in 2010. That would increase existing truck traffic by 35 per cent to 100 per cent on highways in the region.
- If Great Lakes-Seaway marine shipping cargo shifted permanently to trucks, it would lead to $4.6 billion in additional highway maintenance costs over a 60-year period.

The study also calculated the emissions performance of Great Lakes vessels after meeting new regulatory standards and achieving improvements with new technology and the use of low-sulphur fuels over the time frame 2012-2025. The Great Lakes-Seaway fleet will achieve significant decreases in GHG, NOx, SOx and particulate matter emissions (which contribute to smog and acid rain):

- GHG emission reductions of 32 per cent
- NOx emission reductions of 86 per cent
- SOx emission reductions of 99.9 per cent
- Particulate matter emission reductions of 85 per cent.