SMART SHIPS ACTION PLAN

The Great Lakes St. Lawrence Governors & Premiers are committed to improving the efficiency and competitiveness of the region's maritime transportation system. The Governors' and Premiers' Regional Maritime Strategy is designed to double maritime trade, shrink the environmental footprint of the regional transportation, and support the region's industrial core.

Smart ships represent a major leap forward in maritime technology that can help advance the Governors' and Premiers' goals. Emerging technologies like advanced propulsion and shore-based control are revolutionizing waterborne transportation. Human error is responsible for up to 96% of maritime accidents, and smart ship technologies can leverage investments in training, pilotage, and other safety measures to reduce accidents by eliminating human exposure to hazardous or difficult tasks. Accordingly, in the near term, smart ships are particularly well-suited for research, hazardous response, and operation in dangerous conditions.

The Great Lakes St. Lawrence Governors & Premiers have partnered with the maritime industry, universities, and other stakeholders to create the Smart Ships Coalition. This Coalition is working to establish this region as a global center of excellence for researching, developing, and testing smart ship technologies both on vessels and on shore. In the long term, smart ship technologies can improve the efficiency and competitiveness of the Great Lakes St. Lawrence maritime system, with the potential to create new high-paying and high-skill jobs, improve the environmental performance of regional transportation, and enhance the safety and security of shipping.

Building on its unique water resources and traditional strengths in transportation technology, the region can become a leader in this rapidly growing sector.
To this end, the Governors & Premiers recommend the follow actions:

THE REGULATORY COOPERATION COUNCIL SHOULD:

- To the greatest extent possible, develop a harmonized regulatory framework for smart ships in the US and Canada. Such a framework will provide predictability for smart ship operation and encourage the growth of the smart ship industry cluster in the Great Lakes St. Lawrence region. Specifically:
  - Create common standards and harmonized definitions of key terms and address the designation of "state of maneuvering" that requires a certain number of shipboard personnel on the bridge and engine room in congested waters. This harmonized approach should be permissive for testing under federal laws while also providing technical assistance, safety oversight, and cooperation with the states, provinces, and industry.
- Overall, smart ship operations including vessel "safety zones" should be regulated in the same manner as conventional vessels. Responsibility for smart ship operations should continue to lay with the ship owner/operator.

THE US AND CANADIAN FEDERAL GOVERNMENTS SHOULD:

- Encourage testing and certification of smart ship technologies by federal agencies including the US and Canadian Coast Guards, US and Royal Canadian Navies, and the National Oceanic and Atmospheric Administration at the Marine Autonomy Research Site (MARS) in Houghton, Michigan.
- Provide dedicated funding for research into fuel, emissions, and cost savings of this technology at MARS. New smart ship propulsion systems, including electrification, batteries, and liquified natural gas (LNG), as well as new vessel designs can generate significant energy and emissions savings. These steps can transform the efficiency and competitiveness of maritime transportation. The US Department of Energy's Advanced Research Projects Agency – Energy (ARPA-E) program could provide funding for this research, which could be conducted by a US national laboratory.
- Support the Coalition's efforts to facilitate workforce development though training and education. This effort can facilitate advancement of STEM education and the creation of high-skill, high-tech jobs to support this rapidly evolving industry cluster. Additionally, US and Canadian federal agencies should appoint members to the Smart Ships Coalition.
- Encourage industry and governmental collaboration to ensure cybersecurity in smart ship vessel operations. At the very least, cybersecurity best practices should be identified and incorporated into the design of all connected components and vessels to adhere to strict safety standards ensuring human and environmental protection.
- Work through the International Maritime Organization (IMO) to put in place global regulatory standards that provide long-term and global certainty for the operation of smart ships. While the US Coast Guard and Transport Canada will have authority over US and Canadian national waters, respectively, IMO standards will govern international waters. National standards should be designed to harmonize with IMO standards once they are in place so that technology is transferable globally.

THE STATE AND PROVINCES SHOULD:

- Continue to engage through the Smart Ships Coalition to foster the growth of the smart ships cluster and technology. This could include strategic partnerships with universities, research institutions, and the private sector to promote research and development and knowledge sharing. Opportunities to promote specific technologies through bilateral or multilateral agreements such as an MOU should be explored.

INDUSTRY SHOULD:

- Working through the Smart Ships Coalition, develop a basic code of conduct that can be used to provide predictability for near-term technology deployment and that could be the basis for future governmental regulation. Maritime UK's industry code of practice provides a template.