

# Maritime Magazine

THE SEAWAY JOURNAL BY RICHARD CORFE

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## **Framing the future through innovation and technology**

**The St. Lawrence Seaway Management Corporation will be pursuing three major strategic directions in the coming season: growing our business, innovation, and organizational development. I reviewed these in the last issue, when I summarized the Corporation's new Vision for the future. In this issue, I would like to discuss the importance of innovation and technology in ensuring the increased efficiency of the waterway.**

A major redevelopment of the Seaway's infrastructure will be required in the longer term, based on the findings of the Great Lakes/Seaway System Study. However, these plans are still a generation away and so, for the immediate future, we have to focus on getting the maximum from the system we have now. Innovation and technology are the key here, as they have been for years, and we are constantly on the lookout for new ways to apply them to our operating equipment, systems and the process itself.

Concerning the operating equipment, a major project that started this winter is the hydraulic conversion of mechanical equipment on the Welland Canal locks. This six-year project will both decrease operating costs and increase efficiency. Replacing the cable-operated mechanical equipment for gates and valves with hydraulics will, in the long run, be cheaper than rehabilitating the 1930s vintage machinery. Hydraulic operation will also reduce downtime for the Seaway. A single cable

failure during the navigation season on a lock gate can lead to between six and nine hours of shutdown. To combat this, the cables are presently replaced on a defined schedule as part of our winter works program, and hydraulics will also eliminate that annual expense. The Seaway already has exceedingly high reliability and "uptime", in the 99% range during the season, and we look forward to approaching 100% once the new equipment is installed. Another plus for hydraulic conversion is that hydraulics will operate effectively in cold and ice, paving the way to a longer navigation season.

Secondly, in respect to the operating systems, we are moving towards a centralized approach. This involves the integration of traffic control and the operation of free-standing bridges in one centre, with the potential for further remote operation of structures in the future. In addition, we will be able to integrate water level information and control to maximize both operating efficiency and power generation, and include the capacity for remote diagnostics and troubleshooting.

The successful introduction of AIS (Automatic Identification System) last year now provides a base to leverage this technology into the future. AIS gives us the option not only to increase draft this year, but to maintain the increased draft in times of low water levels. It will also allow us to consider optimizing draft for individual vessels, based on the vessel type, speed, load, and weather and current conditions; an outcome of this



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could be the ability to schedule vessels loaded beyond 26'6", if their speed is curtailed on certain parts of the waterway.

Finally, as we look forward, we will be testing new and different lock-based equipment to simplify and speed up vessel lockage. Possibilities include automatic positioning of the vessel in the lock, automatic line release, and eventually different ways of securing vessels. At the same time, we will be doing our part to

encourage vessel owners to look at innovations in deck equipment, and perhaps changes in their crew requirements, to help everybody operate more efficiently on the Seaway.

These are some of the ways in which technology and innovation can provide us with a more flexible system, simpler and less costly overall, that positions marine transportation as the essential hub in the effective inter-modal system that we need in North America.