Port of Montreal

Client

Port of Montreal, Transport Canada, Canadian Coast Guard, Laurentian Pilotage Authority

Vessel Type

Post-Panamax

Location

Montreal, Quebec, Canada

Transits of Post-Panamax Ships on the Saint Lawrence Waterway

The purpose of the simulations conducted during this study was mainly to determine the operating limits of post-Panamax ships in a 245 m wide channel of the Saint Lawrence River, including:

- wind limits;
- effect of the currents;
- interaction between two post-Panamax ships when meeting in a 245 m wide channel;
- interaction between a post-Panamax ship and another type of ship when meeting in a 245 m wide channel;
- interaction between two post-Panamax ships when one is overtaking the other in a 245 m wide channel; and
- interaction between a post-Panamax ship and another type of ship when one is overtaking the other in a 245 m wide channel.

Sectors between Quebec City and Montreal were selected to conduct simulation tests because of their potentially higher risk levels. These sectors, however, are representative of the entire piloting district. They also have important characteristics such as frequent significant heading changes, strong currents and a 245 m wide channel located between two areas of shallow water.

The simulations were carried out in two phases. First, accelerated simulations were carried out over three days to determine the operational limits of these types of ships, especially in strong winds. Next, real-time simulations with interaction were carried out using two bridges to simulate the ships encountering or overtaking each other. In each booth, the manoeuvres were carried out by two Grade A pilots from the Mid St-Lawrence Pilots Corporation, thus replicating the actual piloting conditions of the type of ship.