

## Reducing ship-strike risk to whales in Canadian waters

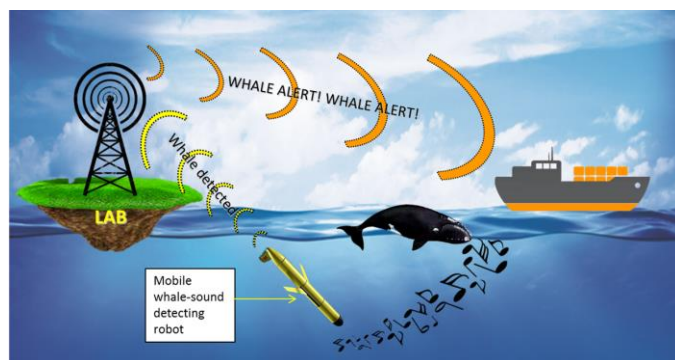
**Our research:** Monitoring at-risk whales and commercial shipping in important whale habitats.

**Our goal:** Quantify the risk of ships striking whales. Work with industry, governmental and public agencies to mitigate the risk in near real-time through the use of advanced underwater ocean gliders, passive acoustics and satellite ship-tracking technologies.

***The WHaLE project advances risk reduction by using novel technologies to monitor whales and alert ships to whale-strike risk in near real-time***

**The Issue:** The shipping industry and the Navy have asked for information on whale locations so that their navigation and operations can be adapted to help reduce the risk of harm to whales in Canada's oceans.

**Our research:** Headquartered at Dalhousie University, the WhaLE project has been working since 2002 with the Canadian Whale Institute to quantify shipping risks to whales in known habitats and to mitigate the risk via modified shipping lanes in the Bay of Fundy (2003) and an Area To Be Avoided on the Scotian Shelf (2008). Success involved support from Environment Canada and Fisheries and Oceans Canada (DFO) and working with Marine Communications and Traffic Services, Transport Canada (Marine Safety; Robert Turner), and the International Maritime Organization. The WhaLE team is now engaged in the largest multi-agency and multi-platform whale survey ever conducted in Canada that is designed to acquire essential knowledge on whale distributions and shipping risks. We are using autonomous ocean robots called "gliders" fitted with acoustic monitoring hydrophone systems that listen for and identify endangered and other whale species, while at the same time measuring the environments they live in to better predict their distributions. We then use the data to mitigate harm to whales on both the Atlantic and Pacific coasts. **We are nearing our primary goal of implementing a near real-time whale alert system.** Glider-detected whale locations are transmitted via satellite to our ground station, validated, and are then to be transmitted as a "whale alert" via the Automatic Identification System (AIS) for ships using an Aids To Navigation (ATON) system located on one of our Bell-Aliant (partner) AIS receiver towers (*see above schematic*). Defense Research and Development Canada, the Royal Canadian Navy and DFO are among several research partners contributing resources to help us reach the whale-alert goal.



**Whale-alert system:** Autonomous robot "glider" detects whale locations and transmits the data to the lab via satellite. Data are used to alert ships to the presence of whales via an AIS Aids To Navigation transceiver via our cell-tower network.

To implement the near real-time whale alert systems, one important task remains: to work with Innovation, Science & Economic Development Canada to license the ATON transmissions of the whale-alert. Transport Canada may be instrumental in helping us to establish Canada as the global leader in ship-strike mitigation of large whales.

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