Protecting Right Whales from Vessel Traffic in the Bay of Fundy and on Roseway Basin

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Goals

1. Reduce the potential for lethal vessel encounters with right whales
2. Minimal disruption to vessel operations / maintain safe navigation

Background

Right whales are one of the most endangered large whales: about 400-450 remain.

Range from northeastern Florida to the Bay of Fundy, Gulf of St. Lawrence and beyond.

Recovery hampered by a low reproductive rate and mortality from vessel strikes and entanglement in fishing gear.

Species recovery is, in part, contingent on reducing vessel-strike mortality

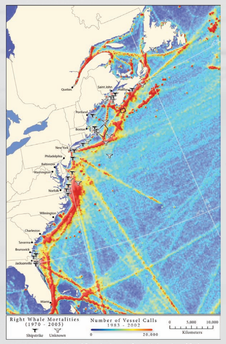
Right Whale Mortality Statistics

Since 1970 - 28 vessel strikes (~50% of all known deaths)

21/28 (75%) of vessel strikes have occurred since 1991

6 (20%) in Canadian waters

Co-occurrence: Right whale habitat in the western North Atlantic is nearly a perfect overlap with high-density shipping areas.



Vessel Density Image from University of Delaware

High density shipping areas are shown in red, lower ones in yellow and green, and an absence of shipping is shown in blue. Right whales live in the red zones along the eastern seaboard.

Right Whales in Altantic Canada

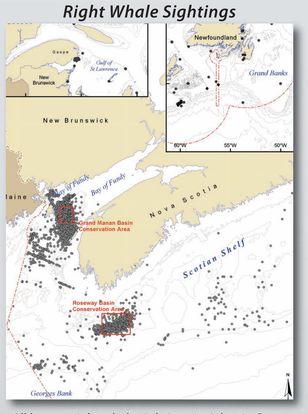
A close call between a large vessel and a right whale. Known vessel strikes in Canadian waters account for 20% of vessel related mortality for the species

Critical habitat areas and shipping lanes in Atlantic Canada

Known Vessel Strikes in Canadian Waters

- Bay of Fundy – 3 (1992, 1995, 1997)
- Roseway Basin – 1 (2006)
- Waters between Fundy and Roseway – 1 (2003)
- Bay of Fundy - 1 (2006) small vessel strike

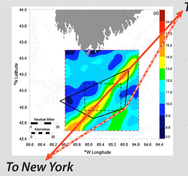
Right Whale Sightings



All known right whale sightings in Atlantic Canadian waters: 1951-2005. Source: Recovery Strategy for the Western North Atlantic Right Whale (*Eubalaena glacialis*) in Atlantic Canadian Waters.

Roseway Basin Area to be Avoided

Evaluated Risk Reduction Options

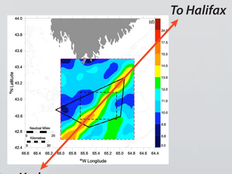


Re-route Vessels

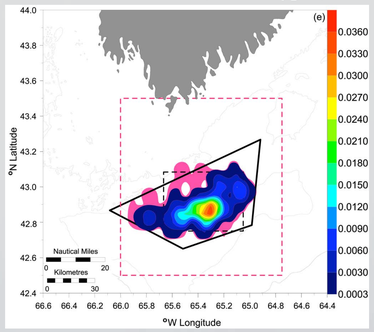
- Adjust heading by 7 ° 93 nm (172 km) outside ATBA boundary
- Increased Travel Time by 8.5 min. or 0.9%

Speed Reduction

- Speed restriction of 10 knots through ATBA
- Increased Travel Time by 120 minutes (11%)



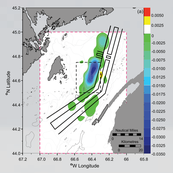
Recommended Seasonal Area to be Avoided (Black Polygon)



ATBA went into effect in May 2008, recommendatory, seasonal (June – December) for all vessels 300 gross tonnage and upwards, solely in transit.

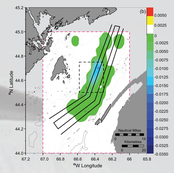
Moving the Bay of Fundy Traffic Separation Scheme

Evaluated Risk Reduction Options



Re-route Vessels

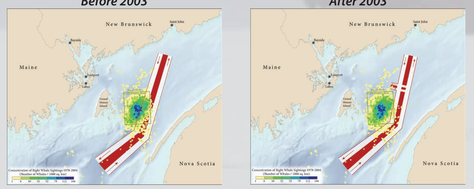
- 62% overall risk reduction
- Increased Travel Time by ~1.4%



Reduce Speed

- 52% overall risk reduction
- Increased Travel Time by 20%

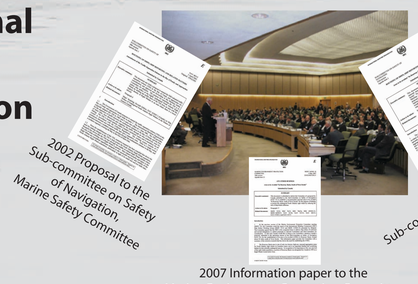
Right whale sightings and the Bay of Fundy Traffic Separation Scheme



Concentration of right whales before and after the lanes were moved 4 nautical miles to the east and a turn out was added for west bound traffic to avoid highest concentration of whales. After the lane change, there was a 90% reduction in risk to right whales in the outbound lane.

International Maritime Organization

Specialised Agency of United Nations with responsibility for "safe, secure and efficient shipping on clean oceans"

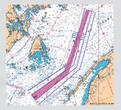


2002 Proposal to the Sub-committee on Safety of Navigation, Marine Safety Committee

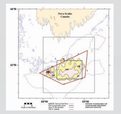
2007 Proposal to the Sub-committee on Safety of Navigation, Marine Safety Committee

2007 Information paper to the Marine Environment Protection Committee

Bay of Fundy

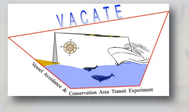


Roseway Basin

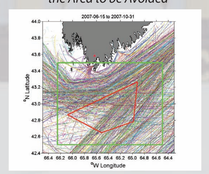


Measuring Voluntary Compliance

Are Voluntary Areas to be Avoided effective?



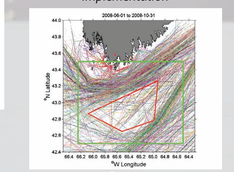
Vessel transits prior to implementation of the Area to be Avoided



June - October 2007

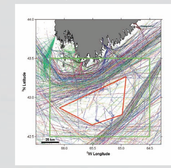
The VACATE program uses Automatic Identification System (AIS) data to determine the compliance with the Roseway Basin recommended seasonal Area to be Avoided.

Vessel transits during the first year of implementation



June - October 2008
70% Compliance

Vessel transits during the second year of implementation



June - September 2009
80% Compliance

AIS Receiver on Bell Aliant Tower

Vessels transmit AIS data which includes voyage information, position and speed

Contributors

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Bill McClellan - University of North Caroline Wilmington
Regina Campbell Malone - Woods Hole Oceanographic Institute

Additional data and help from:
Bruce Mate and Mark Baumgartner - tagged whale locations and food resrouces in Bay of Fundy
David Mellinger - passive acoustic data for Roseway Basin seasonal justification
Larry Wilson - Canadian Coast Guard
Kerry Lagueux, Jennifer Beaudiin - GIS mapping
Jerry Conway, Glen Herbert, Neil Bellefontaine - DFO
Canadian Hydrographic Service
International Maritime Organization
Lindy Johnson - NOAA

rightwhale.ca

Timeline to reduce risk of vessel strikes on Right Whales in Atlantic Canadian waters

- 1992 – 1st Dead Right Whale "Delilah"
- 1993 – Fundy Traffic Whale Alert
- 1995 – Two more right whale mortalities
- 1997
- 1999 – First industry briefing. Working group created to address risk to right whales in Bay of Fundy
- 2000 – Bay of Fundy analysis of sightings, vessels, and necropsy data
- 2001 – Routing measures proposed (2001)
- 2002 – Public consultation with fishing and shipping industries by Transport Canada
- Proposal to IMO approved and adopted (2002)
- 2003 – Ammended shipping lane implemented by Transport Canada
- 4th dead whale in the waters between Bay of Fundy and Roseway Basin
- 2005 – Working group reconvenes to address risk in Roseway Basin
- 2006 – 5th and 6th dead whales in western Bay of Fundy and on Roseway Basin
- 2007 – Transport Canada's proposal to IMO approved and adopted
- 2008 – Roseway Basin ATBA implemented