



# North Atlantic Right Whale Threats and mitigation in Canadian waters

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*With thanks to Cathy Merriman*



## Recent DFO initiatives

- Oceans Protection Plan: \$1.5 Billion
  - DFO, Transport Canada and Environment and Climate Change Canada
- OPP will address threats to marine mammals:
  - Work with partners to implement a real-time whale detection system in specific areas of the species' habitat
  - Upgrade Canadian Coast Guard assets to better respond to oil spills
  - Take action to better understand the cumulative effects of shipping on marine mammals
  - Science-based review of the effectiveness of current management and recovery actions
  - Coastal Restoration Fund

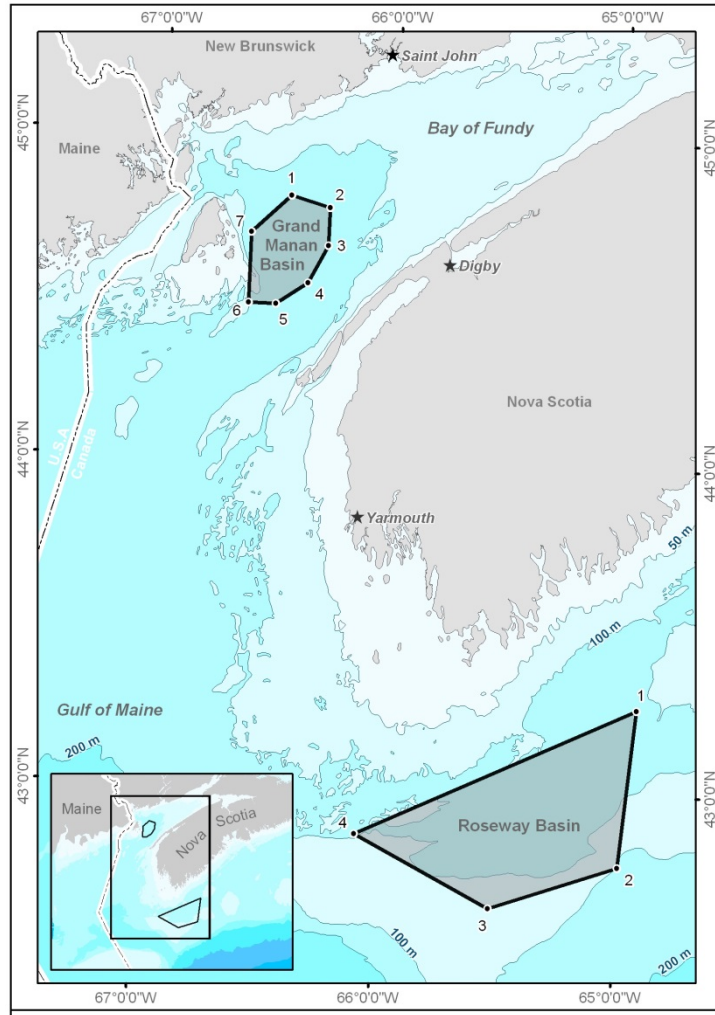


## Recent DFO initiatives cont'd

- *Fisheries General Regulation* change
  - mark only one end of the gear in certain fisheries
- *Calanus* habitat modeling
  - improve management and conservation
- Budget 2016
  - Increasing marine mammal science capacity



# Right Whale Critical Habitat in Canada



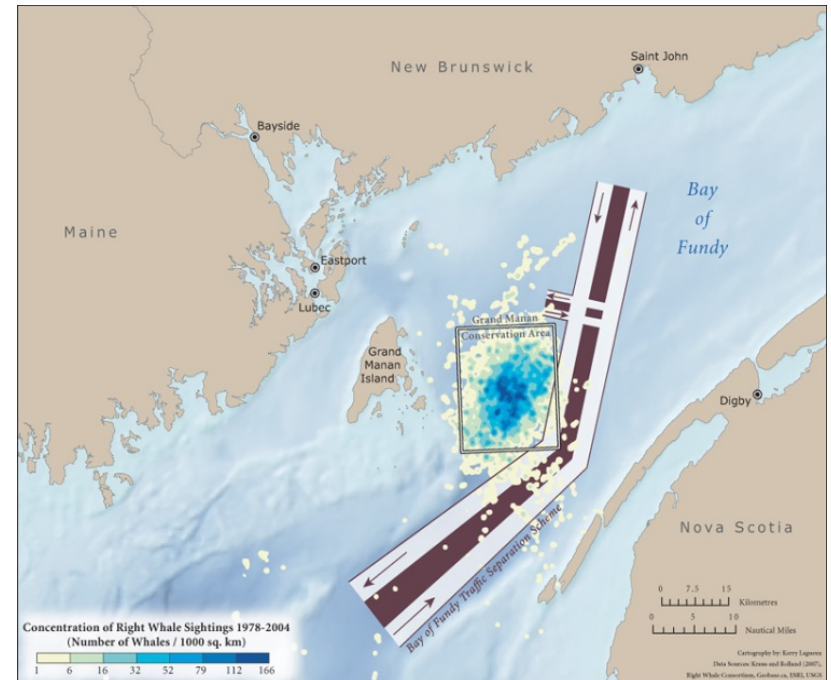
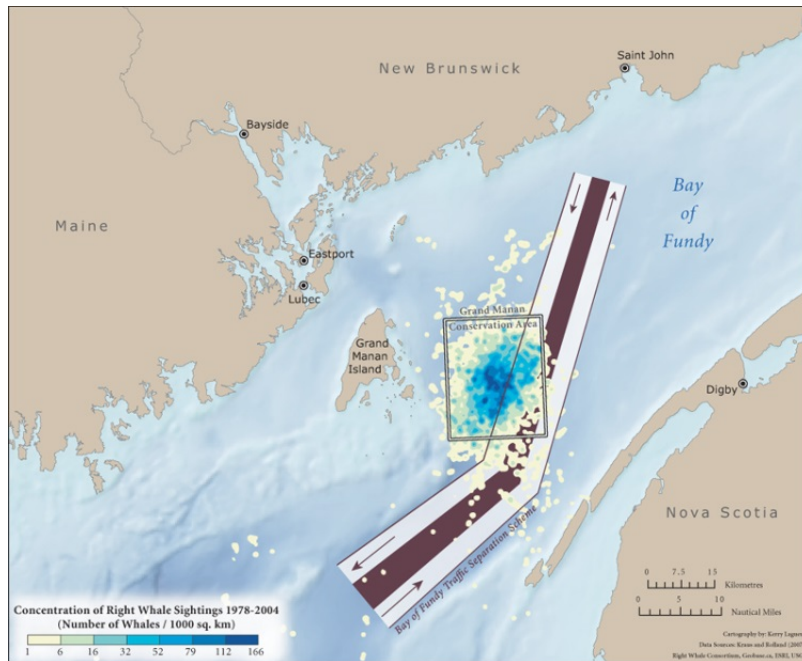
- Threats of highest priority for right whales:
- Vessel collision
  - Fishery Interactions



# Mitigating Vessel Collisions

Before

After 1 July 2003

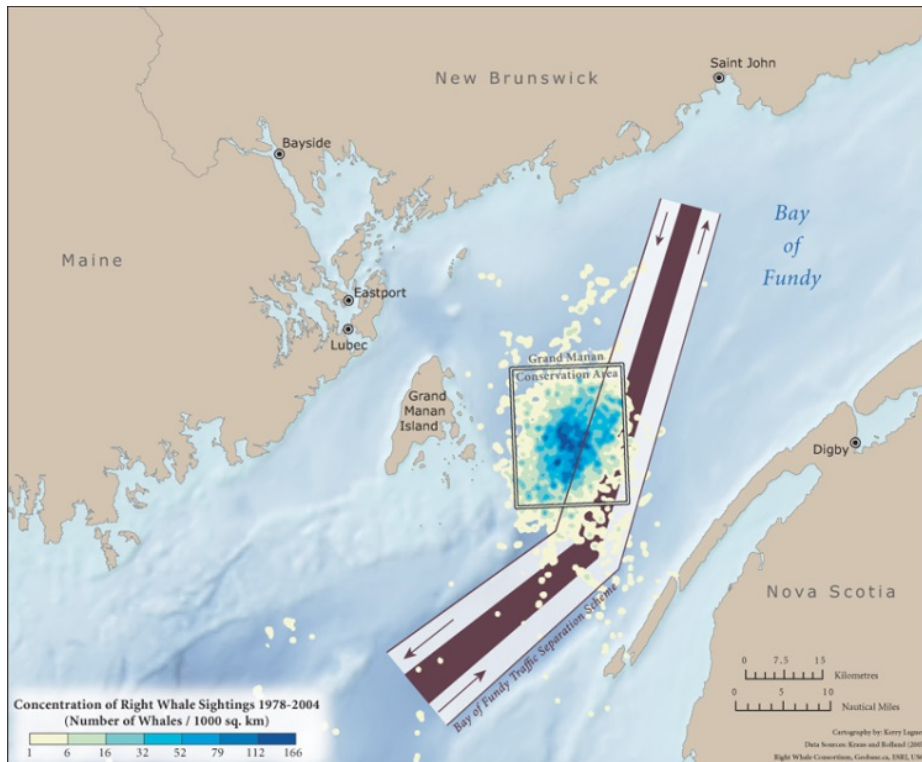




# Mitigating Vessel Collisions

## Bay of Fundy Traffic Separation Scheme (TSS)

Before



- NARW survey (SPUE) data 1987-2000 & vessel traffic data
- Relative probability of NARW/vessel encounter
- TSS shifted to reduce relative probability of overlap by ~80%
- Vanderlaan *et al.* 2008.



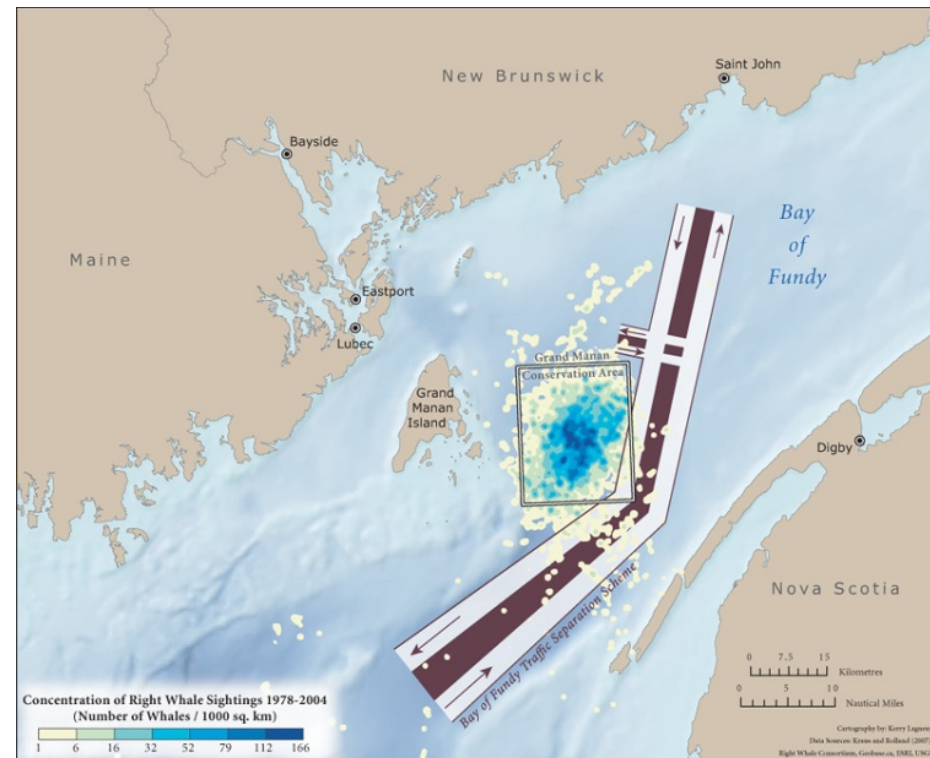


# Mitigating Vessel Collisions

## Bay of Fundy Traffic Separation Scheme

After 1 July 2003

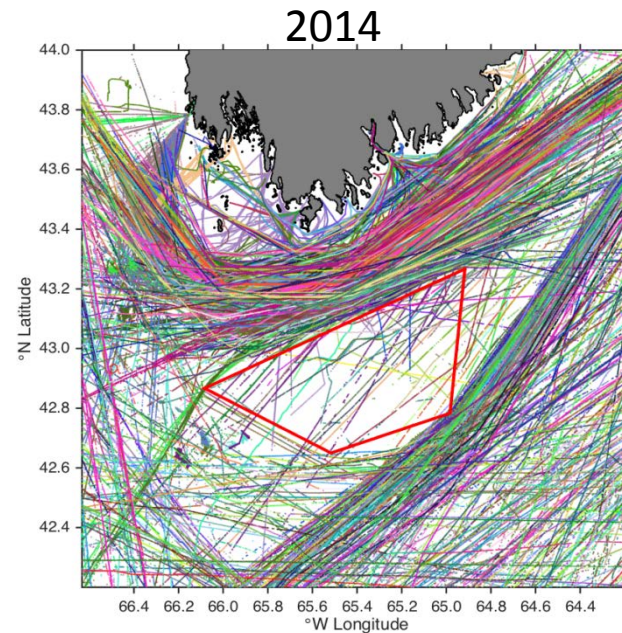
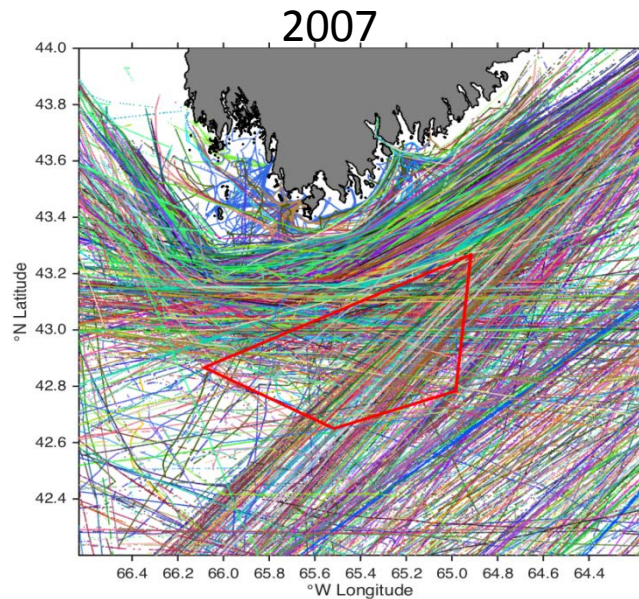
- relative risk reduction where TSS intersected right whale conservation area ~90%
- throughout the entire study area, relative risk reduced 62%
- estimate that detected mortalities from vessel strikes would change from 1 every 4 years, to 1 every 12 years
- Vanderlaan *et al.* 2008





# Mitigating Vessel Collisions

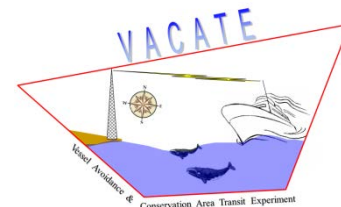
## Roseway Basin Area to be Avoided (ATBA)



Since 2008: voluntary vessel compliance → overall 92% reduction in relative risk.

### Vessel Avoidance and Conservation Area Transit Experiment

- Vanderlaan and Taggart, unpublished data
- Brown, MW., Taggart, CT, and ASM Vanderlaan. *In prep.* for Marine Policy: Mitigation of Vessel Strikes of North Atlantic Right Whales in Canadian Waters: Development, Implementation, Monitoring, and Stewardship
- *With support from:* CWI, HSP, Lindy Johnson Fellowship, DFO, and Bell Aliant







# Mitigating Fishery Interactions

Inshore lobster fishery in Bay of Fundy largely fishes during time of year when NARW are not present.

- Mitigation program: aerial surveys before opening of season in November (Bay of Fundy)
- Vessel call-in program for NARW sightings

Voluntary Standard Practices to reduce slack rope & reduce encounter risk.

- SW Nova Scotia and Bay of Fundy inshore lobster (LFAs 33, 34, 36, 37, 38); offshore lobster; <45' groundfish gillnet-longline)
- No formal monitoring



# Understanding Entanglement Risk

DFO multi-sector working group

- Maritimes Region & will expand to all Atlantic regions
- Initiated quantification of fishing effort
- Baselines for identification of potential measures to reduce risk of entanglements
- Discussions initiated with lobster, snow crab, groundfish, hagfish fisheries

DFO undertaking analysis of right whale – fishery overlap in Atlantic regions

- Timeline for completion: 2018
- DFO collaborating with U.S. scientists, co-occurrence model



# Incident Response

## National Marine Mammal Response Program (MMRP)

- Supports partner organizations and regional networks involved in marine mammal incident responses on all coasts including:
  - Track and respond to marine mammal entanglements, strandings (dead & live), ship strikes, contaminated animals (oiled), and other threats
- Fishery Officers are trained in species ID, and support role protocols for incident response
- Looking at ways to make to build capacity in program
- Trilateral discussions with Mexico and US on MOU



# Known NARW Incidents 2008-2016 in Atlantic Canada

	No. of reports	Fishing gear	Vessel strike	Other/Unk	Total No. dead	No. dead of known causes
2008-2014*	19	18	1	-	3	3
2015-2016	11	8	-	3	4	1

All numbers are underestimates of actual incidents

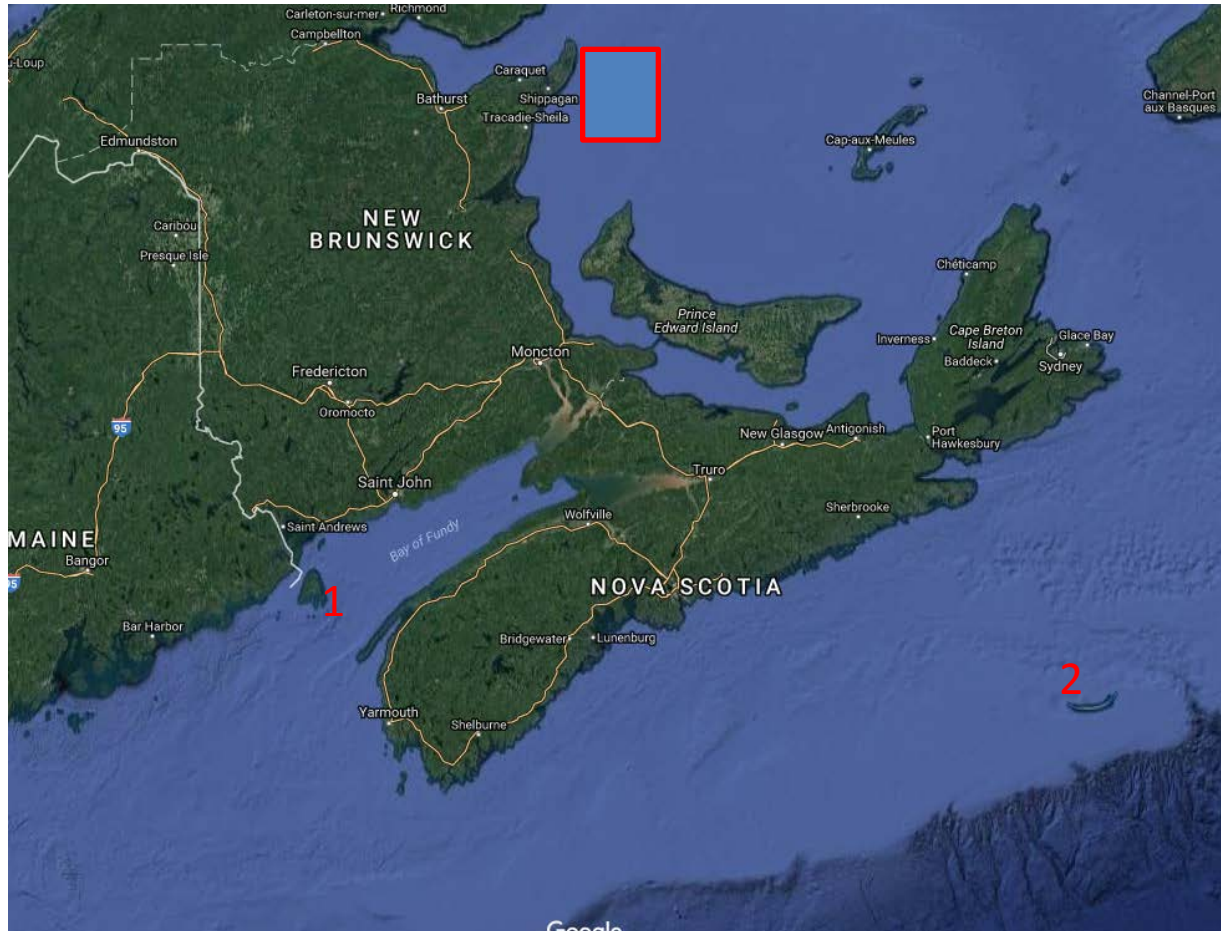
\*numbers are from opportunistic sightings as presented in Themelis *et al.* 2016





## Two incidents Aug 2016 – FDR Eg4057 disentangled (1) and Sable Island carcass (2)

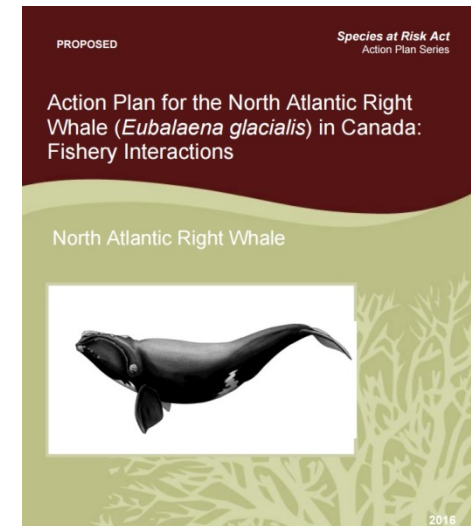
- Both carried snow crab gear with the same gear markings





# SARA Documents

- Right whale Endangered – *Species At Risk Act (SARA)*; Recovery Strategy published 2009, amended 2014
- Action Plans:
  - I. Fishery interactions – Public comment period, Aug – Oct 2016; final in preparation
  - II. Other threats – stakeholder workshop and survey 2016; draft in preparation





## Next steps

- National multi-species threat-based SARA Action Plan on entanglement is in development 2017-18
  - Whales, sea turtles, Pacific basking sharks
- Analysis of fishery / right whale overlap in all Atlantic Canada underway (to 2018) – will inform mitigation measures
- Measures to reduce entanglement risk
- Roll out of OPP initiatives
- Continued collaboration with partners
  - DFO contingent to the Atlantic Large Whale Take Reduction Team meeting April 25-27