



Fisheries and Oceans
Canada

Pêches et Océans
Canada

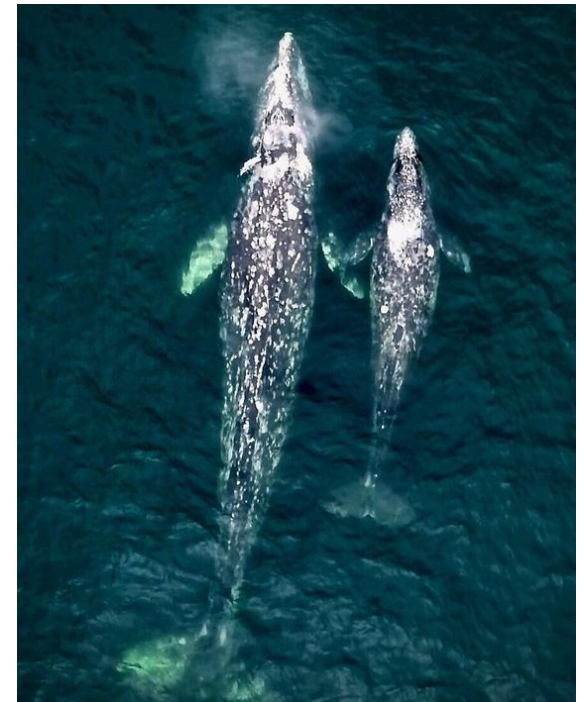
Canadian Support for Ropeless Fishing and Gear Innovation Summit

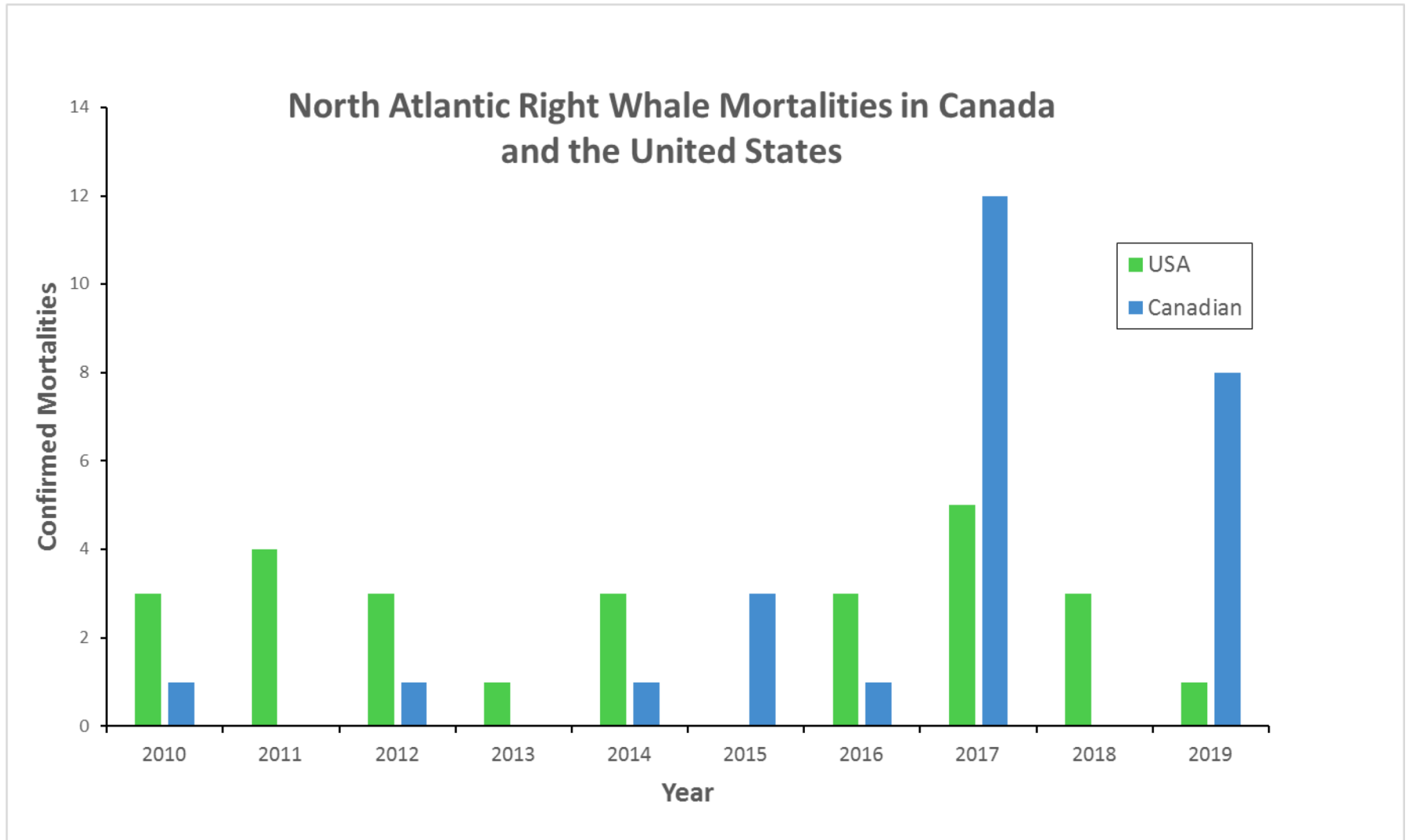
**Edward Trippel, Integrated Resource Management
Fisheries and Oceans Canada**

Portland, Maine

Wednesday, November 13, 2019

Canada 








NARW Mortalities and Entanglements

	2017	2018	2019
Canada			
Mortalities	12	0	8
Entanglements	5	3	3
US			
Mortalities	5	3	1
Entanglements	2	1	2

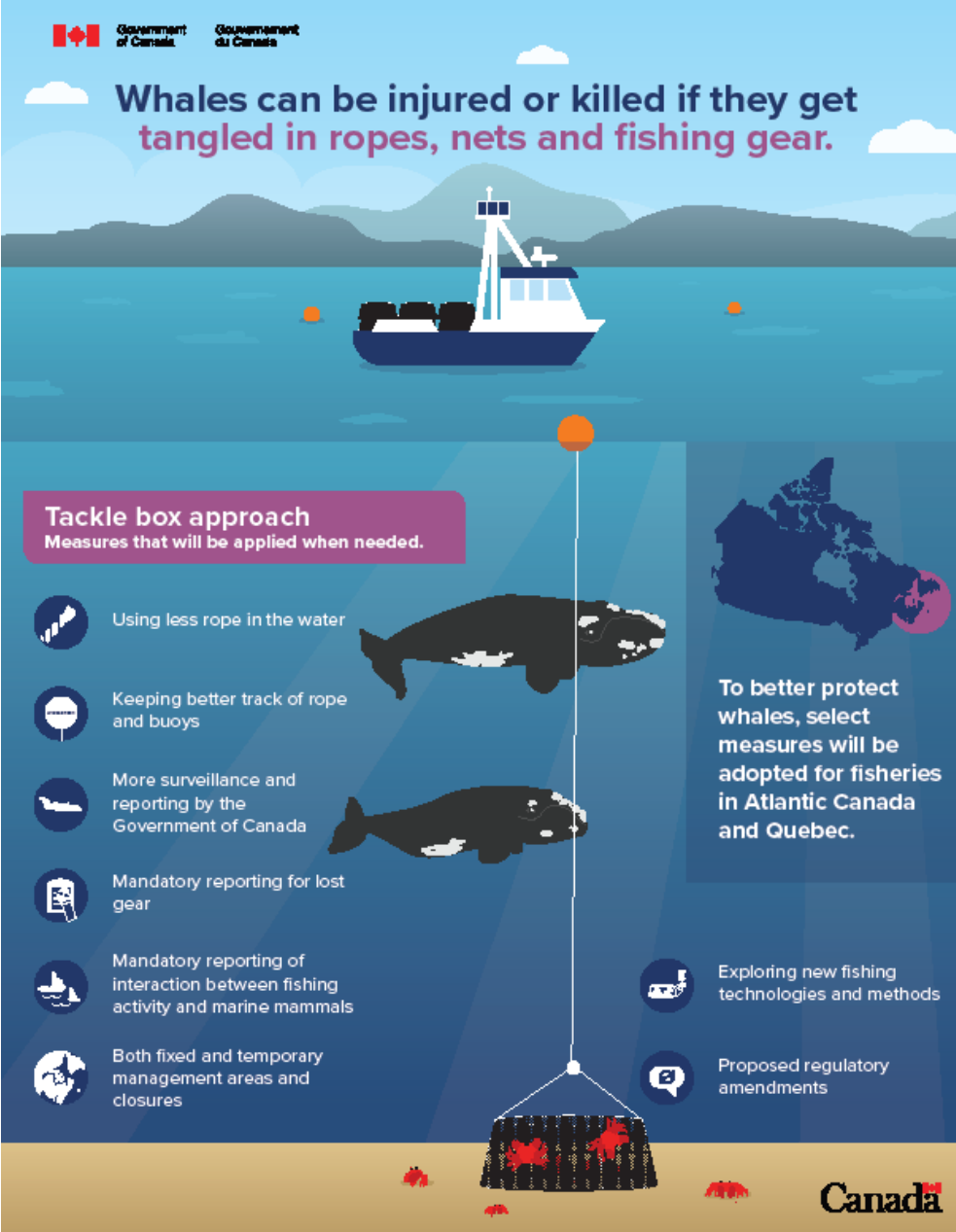


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 **Government of Canada** **Gouvernement du Canada**


Whales can be injured or killed if they get tangled in ropes, nets and fishing gear.






Tackle box approach
Measures that will be applied when needed.

-  Using less rope in the water
-  Keeping better track of rope and buoys
-  More surveillance and reporting by the Government of Canada
-  Mandatory reporting for lost gear
-  Mandatory reporting of interaction between fishing activity and marine mammals
-  Both fixed and temporary management areas and closures

To better protect whales, select measures will be adopted for fisheries in Atlantic Canada and Quebec.



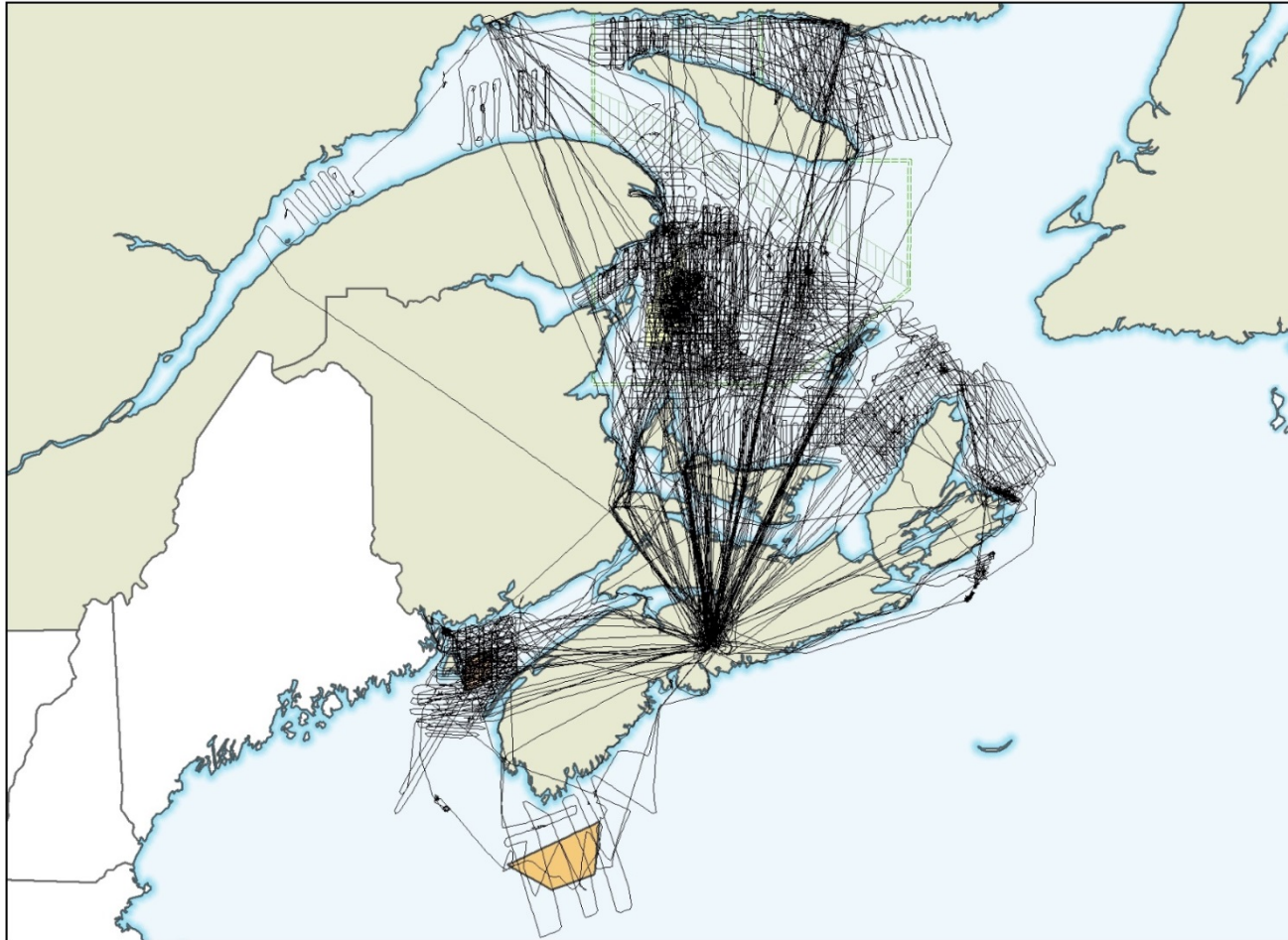
-  Exploring new fishing technologies and methods
-  Proposed regulatory amendments

Canada 

Canada 

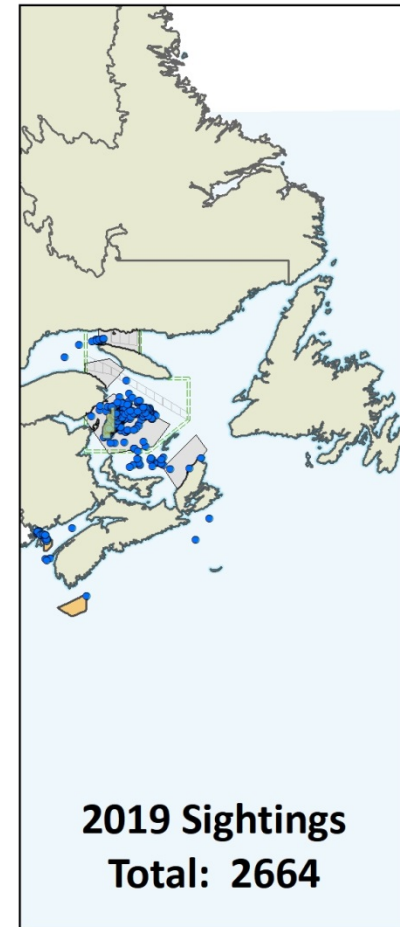
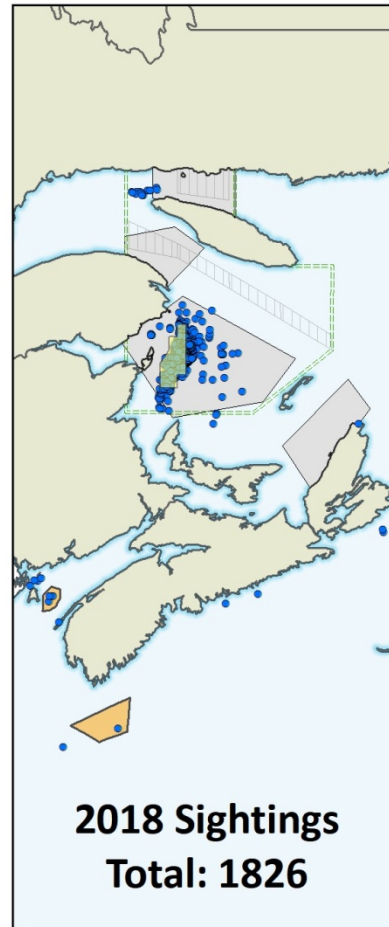


2019 Aerial Coverage





Sightings of North Atlantic Right Whales

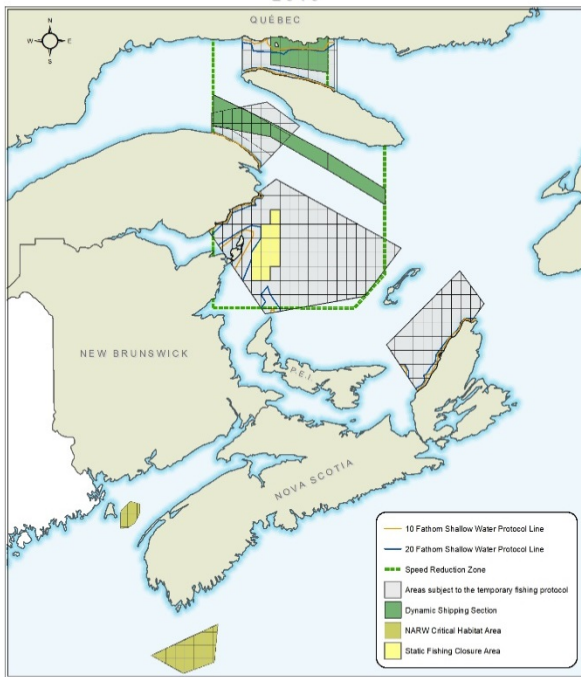




Management Measures

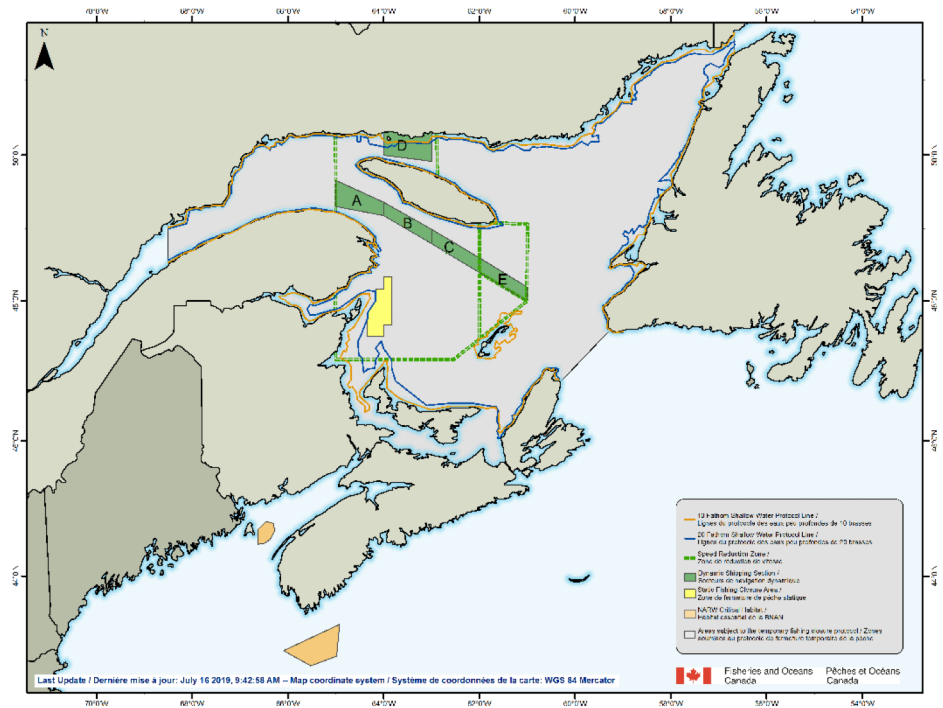
NORTH ATLANTIC RIGHT WHALES MANAGEMENT MEASURES

2019



Prepared by Marine Fish and Mammals Section, Fisheries and Ecosystems Science, Fisheries and Oceans Canada
Gulf Fisheries Centre, Moncton, New Brunswick

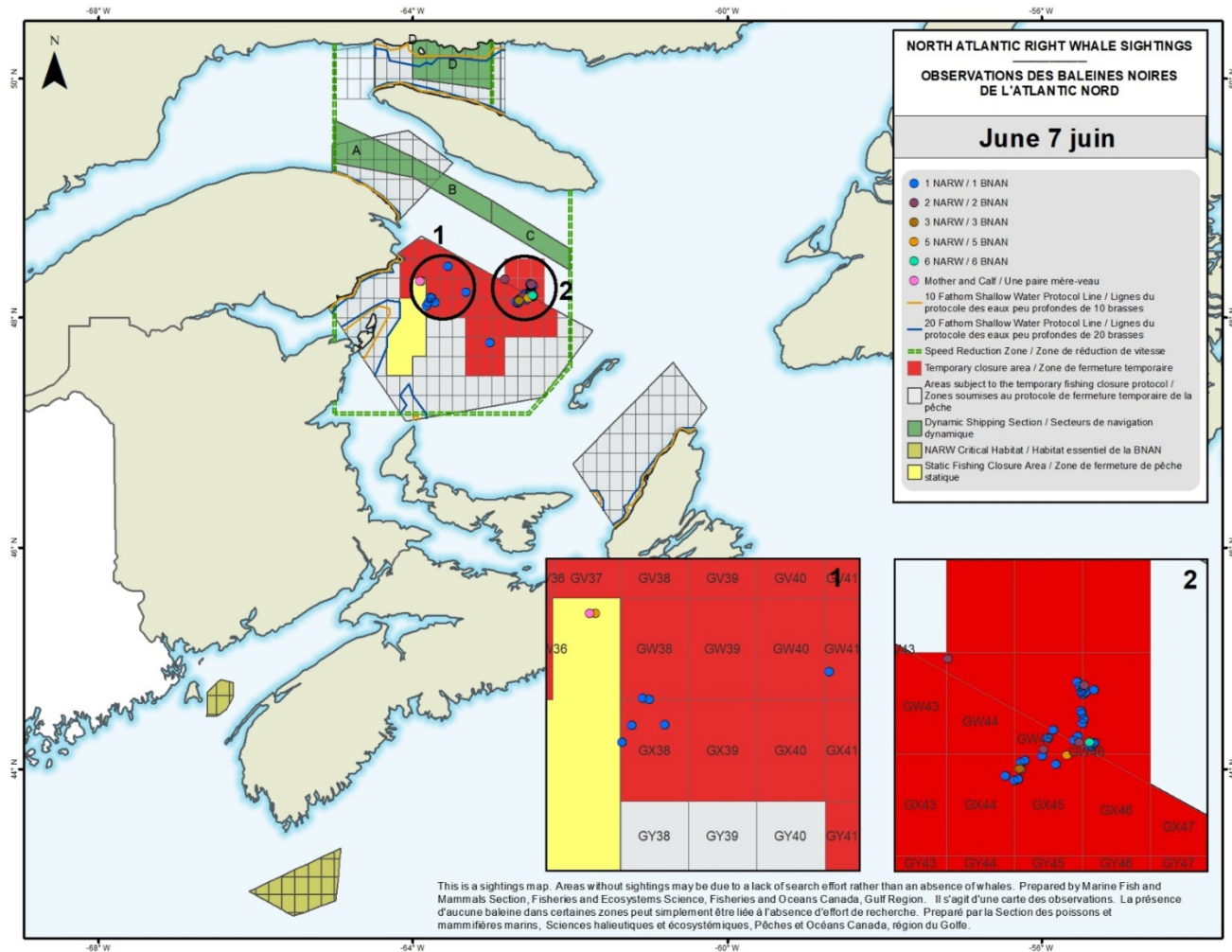
2019



After July 8th 2019



2019 Static and Dynamic Closures (Example)





Purpose of Developing “Whale Safe” Gear

- Aids in population recovery
- Potential access to closed areas
- Credibility of harvesting in a “whale safe” manner





Technological Innovations

Ropeless Gear:

- Ashored Innovations
- Desert Star Systems
- EdgeTech
- Fiomarine
- Lobster Lift





Technological Innovations

Ropeless Gear:

- Longsoaker Fishing Systems
- On-Call Spooled Buoy System
- Ropeless Riser
- SMELTS





2018-19 Ropeless Gear Pilot Projects

- The Acadian Crabbers Association supported by the Atlantic Fisheries Fund and the Province of New Brunswick for gear research and development (15 sub-projects over 3 years) including:
Desert Star, EdgeTech, Ashored Innovations and other ropeless device trials
- Atlantic Fisheries Fund, DFO, and the Province of Nova Scotia supported pilot tests of Desert Star ARC-1 in 2018 in different sea states, depths, visibility and tide conditions by Coldwater Lobster Association and Grand Manan Fishermen's Association



Effort in Canada with Desert Star System

- Coldwater Lobster Association, SW Nova Scotia
3 vessels, two weeks in Oct (~**220 sets**)
including use of Ropeless Fisher App
- Grand Manan Fishermen's Association
Bay of Fundy
2 vessels, Sep-Oct (~**50 sets**)
- Acadian Crabbers Association
Southern Gulf of St. Lawrence
3 vessels, Aug 19-Sep 25 (~**30 sets**)





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Technological Innovations

Grand
Manan
Fishermen's
Association



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Effort in Canada with EdgeTech

- 5112 Ropeless Fishing System (RFS)
and Trap Tracker App
- Gulf of St. Lawrence, Cape Breton, BOF (~**15 sets**)



2018



2019



2018-19 Ropeless Pilot Projects and Prototype Development

- Canadian Wildlife Federation in 2019 received 3 years of funding from Canada Nature Fund (Aquatic Species at Risk) and are exploring EdgeTech, Ashored Innovations, Fiomarine and other ropeless technologies
- Ashored Innovations developed acoustic and time buoy release technologies and a rope storage system (MOBI) as well as virtual gear mapping (ATLAS) (funded by DFO and Innovative Solutions Canada – Sustainable Fishing and Aquaculture Gear Challenge Phase I)



Effort in Canada with Fiomarine

- Fiobuoy
- SW Nova Scotia and Cape Breton (~**15 sets**)





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Technological Innovations

Ashored Innovations

Halifax, Nova Scotia

The Navigator Magazine
October 2018

COVER STORY



THE CO-FOUNDERS OF ASHORED INNOVATIONS (FROM LEFT): AARON STEVENSON (CEO), ROSS ARSENAULT (COO) AND MAXWELL POOLE (VP MARKETING AND PRODUCT DEVELOPMENT). CONTRIBUTED PHOTO

SMART BUOY TECHNOLOGY AIMING TO PROVIDE ROPELESS GEAR OPTION FOR FISHERMEN

By Kathy Johnson
Contributor - Nova Scotia

A smart buoy that will provide a ropeless gear option for crab and lobster fishermen is set to be unveiled this fall by Halifax-based Ashored Innovations. Initial testing of the smart buoy, which has been designed from a fishermen's perspective, was slated to begin in September. "At the current stage we expect to start testing in two weeks (early September) so we're really excited about that," said Ross Arsenaault, co-founder and Chief Operating Officer (COO) for Ashored Innovations.

In a nutshell, the smart buoy is designed to stay on the ocean floor with the fishing gear and can be deployed to the surface by fishermen when checking their catch. An onboard system would allow all fishermen to see the plotted buoys and the direction

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Vol. 21, No. 10 • October 2018 51

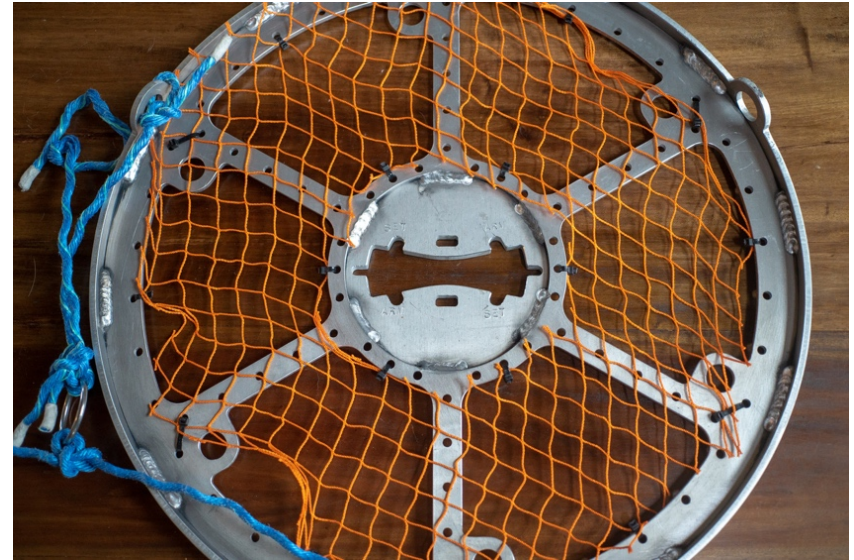


Effort in Canada with Ashored Innovations

2018

Time Based Release
(SW Nova Scotia, Coldwater
Lobster Association)

1 vessel (~**5 sets**)



2019

Acoustic Release (MOBI), Rope Spooling and Gear Tracking
(ATLAS) with RFID Tags on Traps (Halifax Harbour, Cape
Breton, SW Nova Scotia, Southern Gulf of St. Lawrence)

4 vessels (~**20 sets**)



Captains Piloting Ropeless Gear

Snow Crab

- Lévis Noël (Acadian Crabbers Association)
- Martin Noël (Acadian Crabbers Association)
- Pierre Haché (Acadian Crabbers Association)

Lobster

- Laurence Cook (Grand Manan Fishermen's Association)
- Brian Guptil (Grand Manan Fishermen's Association)
- Cole MacLellan (Cape Breton Harvesters Association)
- Robert Harris (Coldwater Lobster Association)
- Steve Pothier (Coldwater Lobster Association)
- Kevin Shaw (Coldwater Lobster Association)
- Hubert Saulnier (N/A)





Fishing Regulations

Fisheries Management and Conservation & Protection Considerations

- Lack of information on location and direction of sets
- Absence of compliance gear identification
- Grappling of gear would likely take place
- Gear conflicts
- Increased chances of illegal ghost fishing



Challenges for Surveillance

- Master Key for C&P – ability to bring all gear to surface by enforcement officers and have the knowledge and training to be able to re-set it properly and transmit the modified location back to the owner
- Greater density of traps the greater the risk of gear conflicts
- Bait Issues – illegal bait species, inspection of bait in set traps enables an evaluation of state of decomposition, thereby estimation of duration trap has been in the water (maximum soak time 72 h)
- Size & Quality of Escape Panel for Trap Fisheries – need to ensure compliance
- Scaling up of Ropeless Fishing – number of acceptable varieties of ropeless gear, different company apps for underwater gear marking, central DFO data depository, costs to fishers, training of enforcement staff



Information Exchange

- 2019 Eastern Canadian Fisheries Exposition, Yarmouth, Nova Scotia
- Pros and Cons of 2018 Canadian Ropeless Pilot Trials - Teleconference Among Grand Manan Fishermen's Association, Coldwater Lobster Association, Acadian Crabbers Association and Fisheries and Oceans Canada
- Consultation with National Marine Fisheries Service, California Department of Fish and Wildlife, Western Australia Department of Fisheries and others
- Gear Innovation Technologies Piloted to Mitigate Large Whale/Fishery Interactions (Draft DFO Report)



Gear Innovation Summit

February 11-12, 2020

Halifax Convention Centre





Main Objectives - Gear Innovation Summit

1. Present and assess a range of options, both short and long term, on **innovative fishing gear to mitigate whale entanglements**
2. Share information and learn of technologies and programs aimed at the **prevention, reduction and retrieval** of abandoned, lost, or otherwise discarded fishing gear (ALDFG), otherwise known as “**ghost gear**”



Gear Innovation Summit

1) Whale Entanglements

Whale Release Innovations

Ropeless Fishing

2) Ghost Fishing & Ocean Plastics

Gear Detection and Retrieval

End of Life Gear Disposal

& Repurposing

New Products





Retrieval of Ghost Fishing Gear



Photo credits: Fundy North Fishermen's
Association



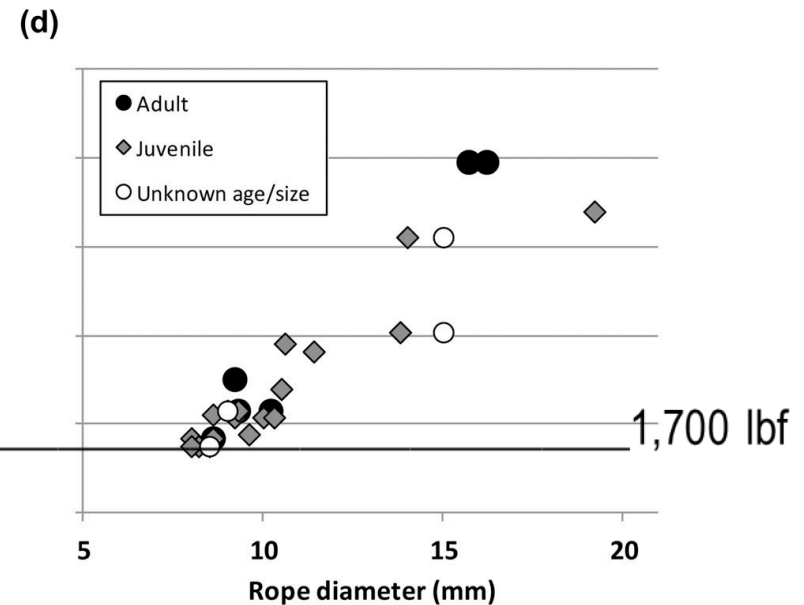
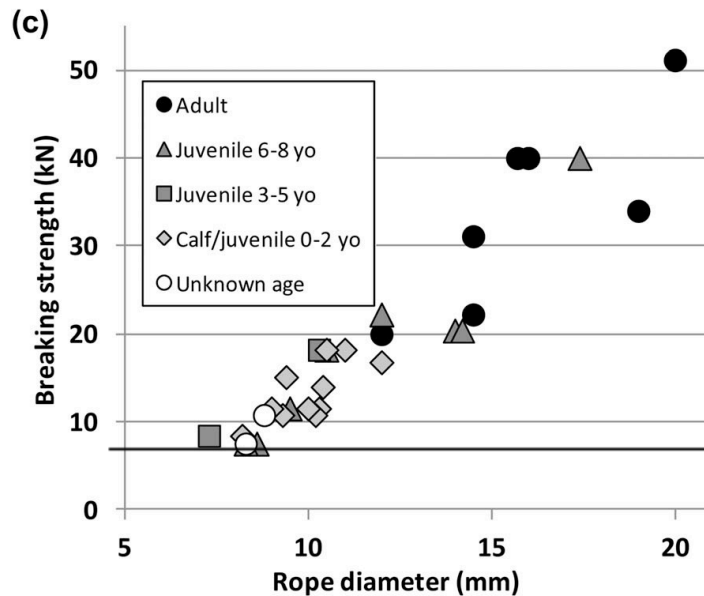
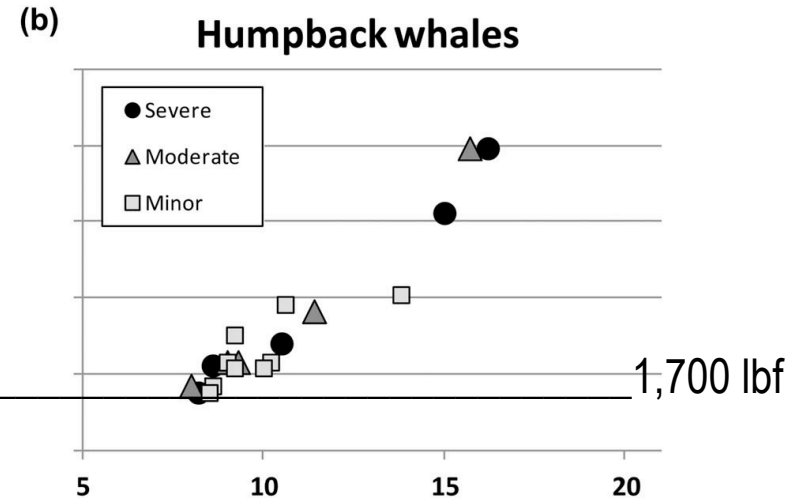
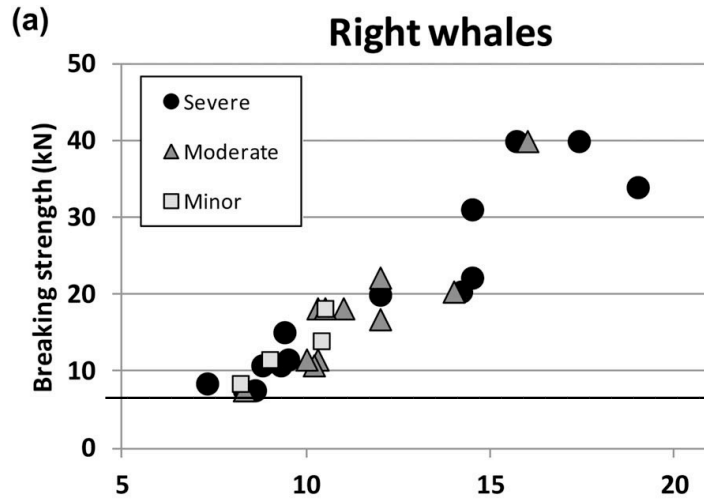
Gear Innovation Summit

- National and International Participation
- Invited Talks
- Panel Discussion and Open Floor
- Trade Show
- Evening Reception



Summit Participants

- Fishing Industry
- Captains/Crew, Fishing Association Representatives
- Entrepreneurs of two Key Summit Topics
- Federal, Provincial and State Government
- Aboriginal Representation
- NGOs



New rope breaking strength and diameter relative to (a) right whale injury severity, (b) humpback whale injury severity, (c) right whale age, and (d) humpback whale age (yo, years old). (Knowlton et al., 2016)



Technological Innovations (Whale Release)





Technological Innovations (Whale Release)





Going Forward

- Ongoing consultation including 2020 Gear Summit in Halifax, Nova Scotia
- Initiatives, pilots and further testing for 2020