

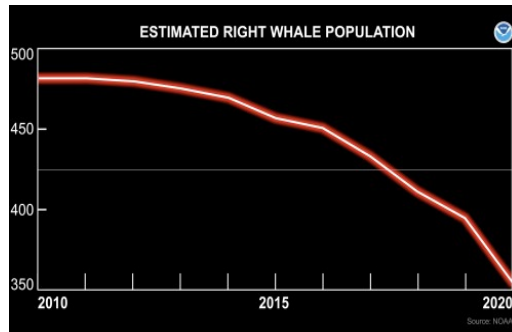
# NARW North Atlantic Right Whale



Introduce yourself  
Audience

# Fishing Technology and NARW

- [Last of the Right Whales](#)
- [whale entanglement NARW #4615](#)
- [another film - Entangled](#)



Motivation  
Summary

Portland showing of LOTRW  
Belfast showing of Entanglement

# what



- [North Atlantic Right Whale \*Eubalaena glacialis\*](#)
- [North Pacific Right Whale - \*Eubalaena japonica\*](#)
- Southern Right Whale - *E. australis*
  - Weight: Up to 140,000 pounds
  - Lifespan: up to 70 years
  - Length: up to 52 feet
  - Threats: changes in distribution of prey, climate change, entanglement in fishing gear, habitat degradation, ocean noise, pop. size, vessel strikes



Southern population larger, more healthy

## whoi

- whales <http://rwcatalog.neaq.org/#/whales>
- Snow Cone [NARW #3560](#)
- [scientists \(including citizens\)](#)
- management- multi-level
  - Atlantic Large Whale Take Reduction - 1997 (25 years)
    - yearly "stock assessment"
  - Endangered Species Act - "jeopardy"
- fishing
- whalers
  - lobster and crab fishers
  - others (lines, nets)
  - tracking vessels for research and enforcement
- shipping



where / when

<https://whalemap.ocean.dal.ca/#map>

2019 Canada - Critical Habitat (Fisheries and  
Oceans Canada, 2014



Where are the whales

When did they start moving from Bay of Fundy to Gulf  
of St, Lawrence? 2010

Map of current locations

Canadian Report on Gulf of St. Lawrence issues

## why

- "The principal factor believed to be retarding growth and recovery of the [NARW] population is entanglement with fishing gear" - [NOAA Technical Memorandum NMFS-NE-258](#)
- "There are two endangered populations at stake here: the North Atlantic right whale and the Maine lobster fishermen." - [The Lobster Trap](#)
- [The lobster industry in Maine has doubled since 2000](#)
- [Since 2010, the average number of new NARW calves per year has halved, from 23 to 12](#)
- Due to warming waters in [Gulf of Maine, lobster fishing](#) has moved farther North and off-shore, ropes got stronger
- Knowlton, A.R., J. Robbins, S. Landry, H.A. McKenna, S.D. Kraus and T.B. Werner. 2016. Effects of fishing rope strength on the severity of large whale entanglements. *Conserv. Biol.* 30:318–328. DOI: 10.1111/cobi.12590
- [A Risk Analysis of Entanglement](#)
- ["Unusual Mortality Event"](#): "a stranding that is unexpected, involves a significant die-off of any marine mammal population, and demands immediate response"



Boston Globe / Portland Herald series Lobster Trap

Graph of lobster take

## how

- [NOAA - science, regulation, and technology](#)
- [regulations for right whales \(2019\)](#)
- [AI for whale id from photos](#)  
<https://conbio.onlinelibrary.wiley.com/doi/10.1111/cobi.13226>
- Closures around Cape Code since 2015
- Closures in Maine since 2021



NOAA search – new regs

NOAA – federal regs

More traps per lines (depending on distance)

Allow ropeless gear – testing during winter

1700 pound rope breaks

Gear marking

comments, which represent up to 201,269 people, were in favor of stronger regulations to protect North Atlantic right whales.

Of the 336 unique commenters who identified themselves as fishermen, either directly or through context, 312 voiced opposition to all or part of the rule, 19 commented on particular provisions, but did not expressly support or oppose, and 5 supported the general idea of the rule,

## and how [gory details](#)

- ROVs - [acoustic detection of whales](#)
- season limits - time and area closures
- speed limits - slow down when right whales are seen

"voluntary cooperation with DMAs has not proven to have a meaningful impact on vessel speed reduction"

- traps/trawl - less vertical lines
- weak rope and [ropeless aka on-call fishing gear](#)





- o [weak rope - breaks](#)
- o [early ropeless technology](#)
- o [ongoing technology testing](#)
- o [SMELTS](#)
- o [EdgeTech](#)
- o [challenges](#)
- o [Pioneers for a Thoughtful Co-Existence](#)
- o ropeless gear should also include locator tech, so anyone (trawlers) can know where there are traps without buoys
- o gill nets - acoustic signals to warn whales
- o [2021 proposed regulation changes](#) related to [ALWTR](#)
- o around 2/3 of entanglements are occurring in Gulf Of Main and Canada



## SMELTS animation

# thanks

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[SMattin.github.io](http://SMattin.github.io) - HTML slides

