



North Atlantic Right Whales: Status & Conservation



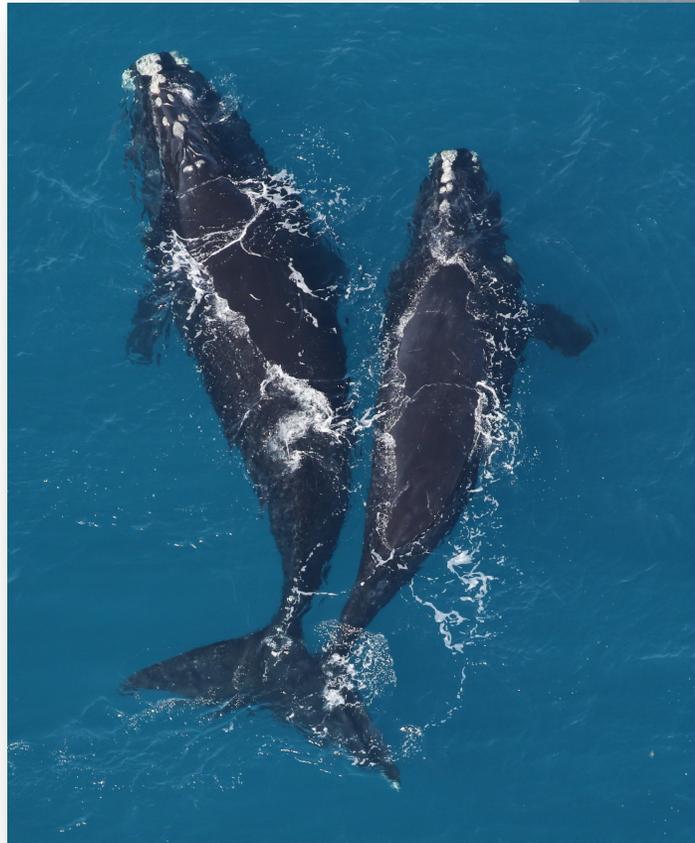
Clay George

Senior Wildlife Biologist

Wildlife Conservation Section

Natural History

- 1 of 3 species of right whales
- They're really big (40-50 tons, 40-45 feet long)
- Long-lived (~100 years)
- Feed on copepods & other small crustaceans in Northeast U.S. & Canada



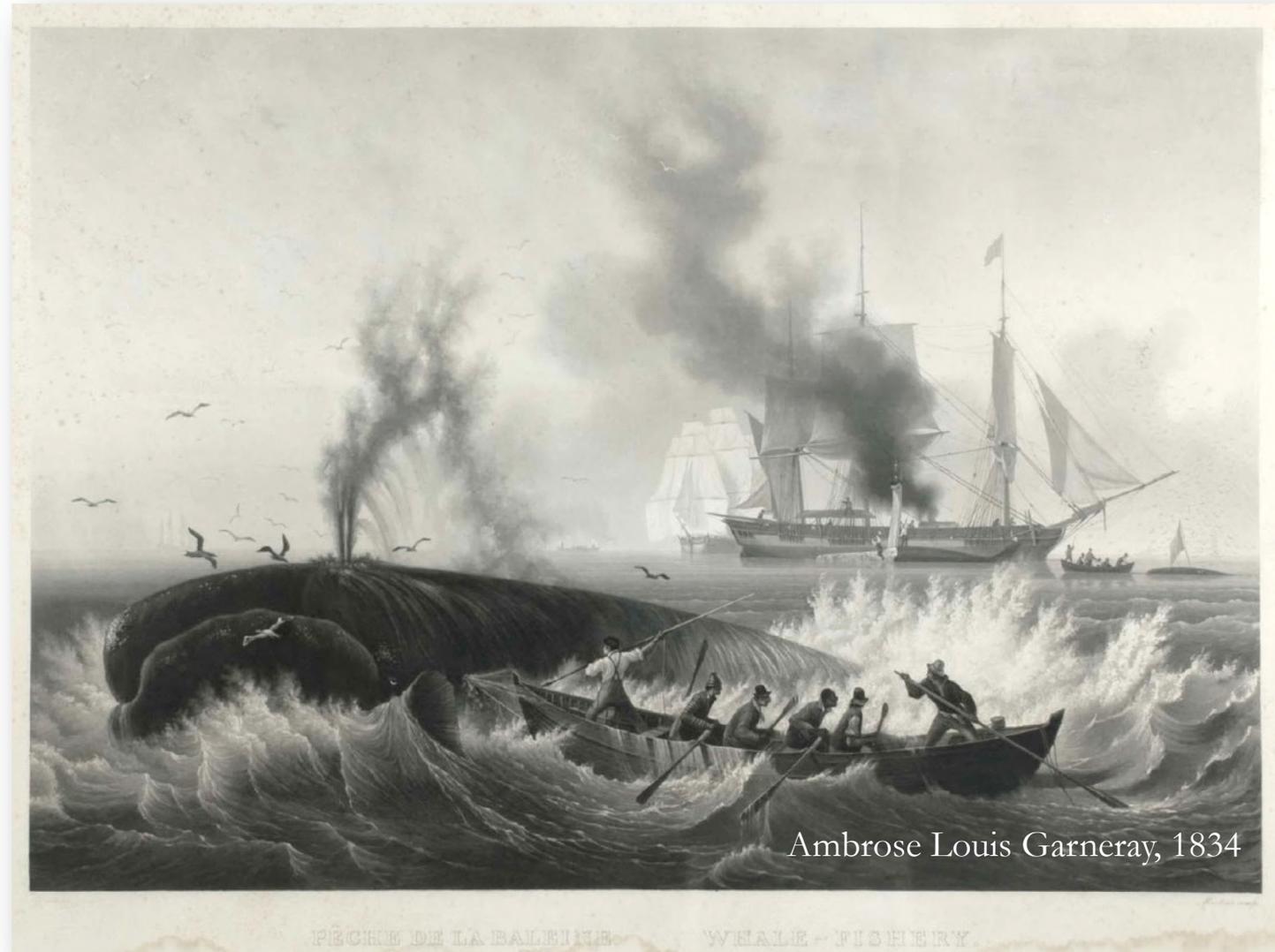
Natural History

- Reproduce slowly (1 calf every 3-4 years)
- Migrate from Northeast & Canada in December, return north by March
- Southeast U.S. coast is only known calving area
- Variable numbers of nonbreeding whales also migrate south



Commercial Whaling

- Almost driven to extinction
- International protections in 1937
- Few confirmed sightings in mid 20th century
- Listed as Endangered in 1973



Ambrose Louis Garneray, 1834

PÊCHE DE LA BALEINE - WHALE - FISHERY

Rediscovering Right Whales

- Feeding habitats found Gulf of Maine in 1970s
- Mom & calf photographed off St. Simons Island, GA in 1979



Rediscovering Right Whales

- Each whale is identifiable by callosity pattern on its head
- New England Aquarium photo-ID catalog
- Intensive photo-ID survey effort from 1990 to present
- North Atlantic Right Whale Consortium

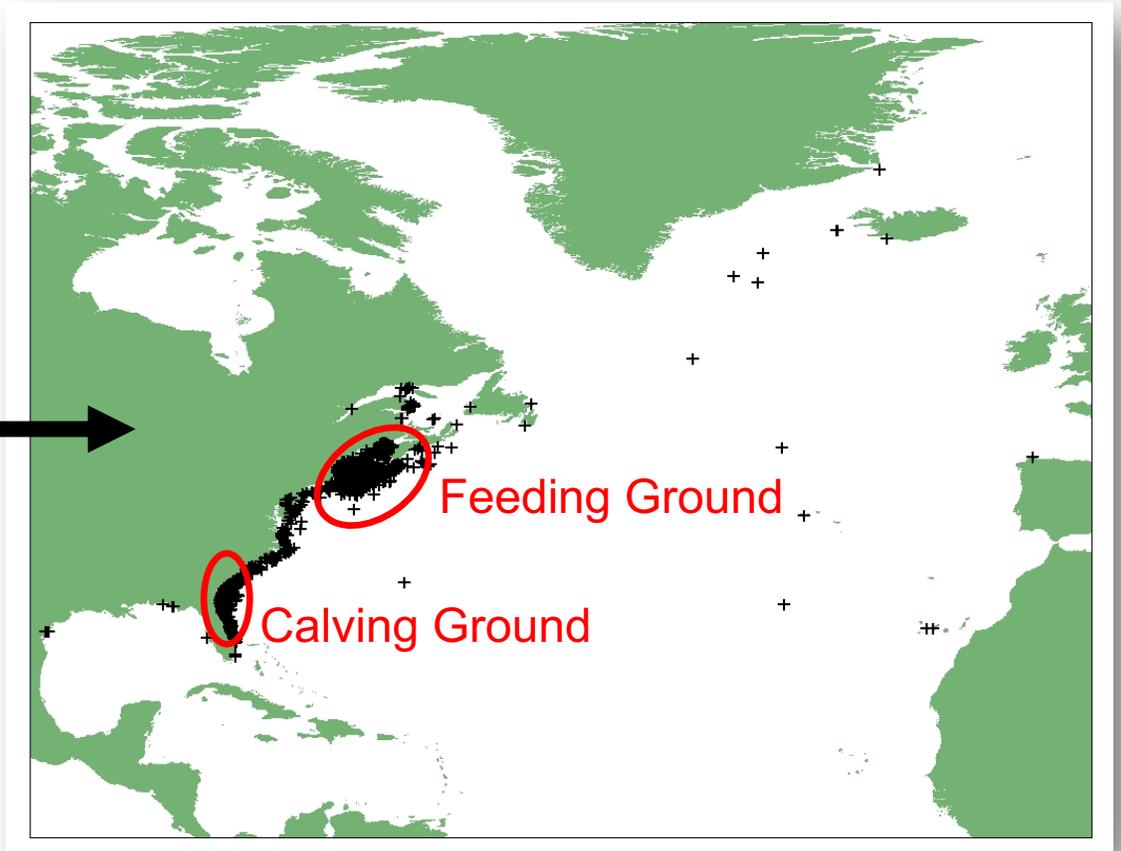


Distribution

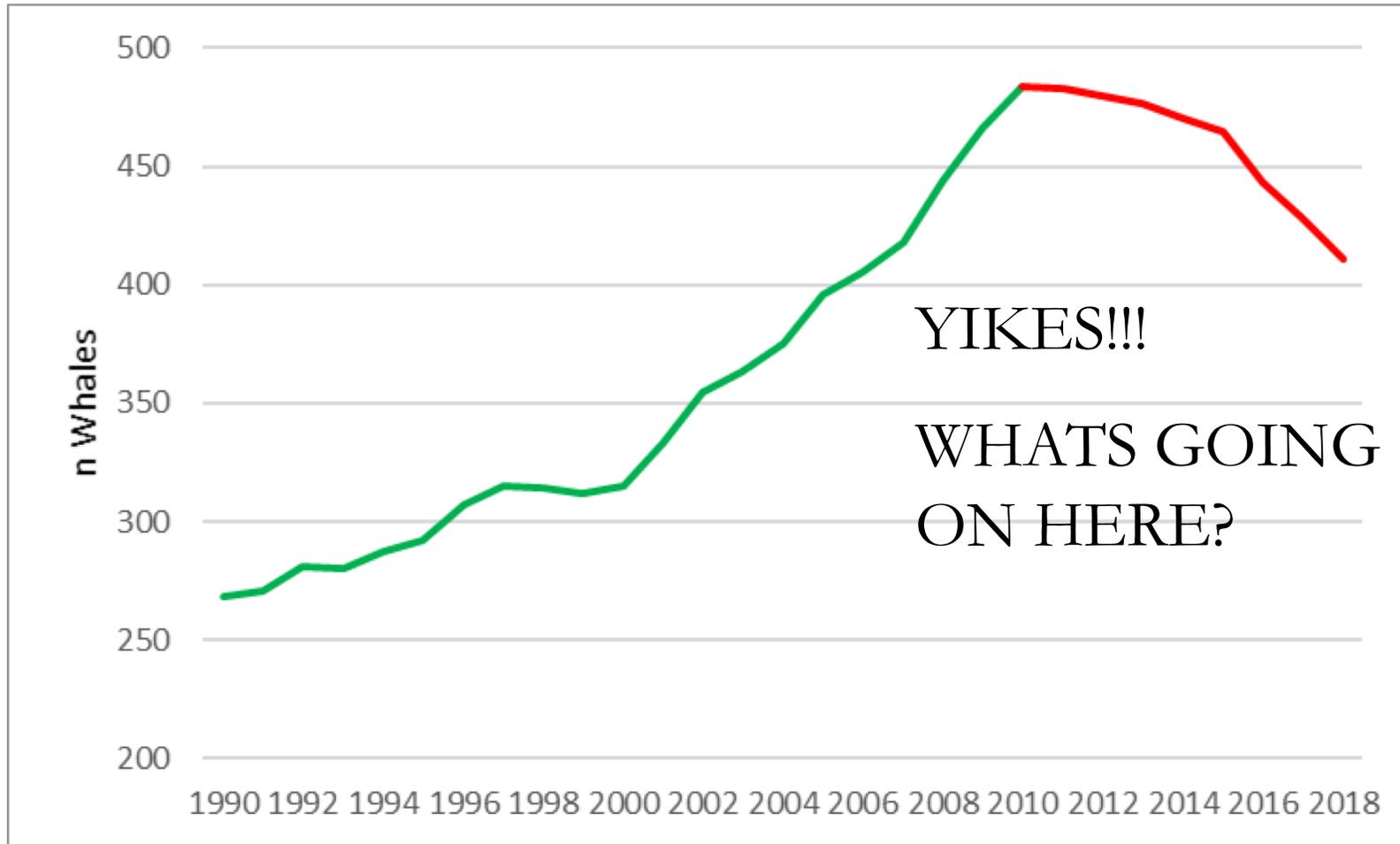
1937 – 1975



1976 – 2015

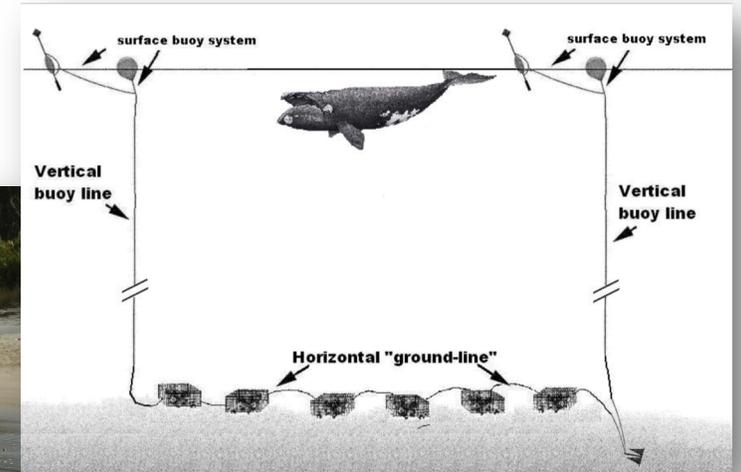


Population Size & Trends



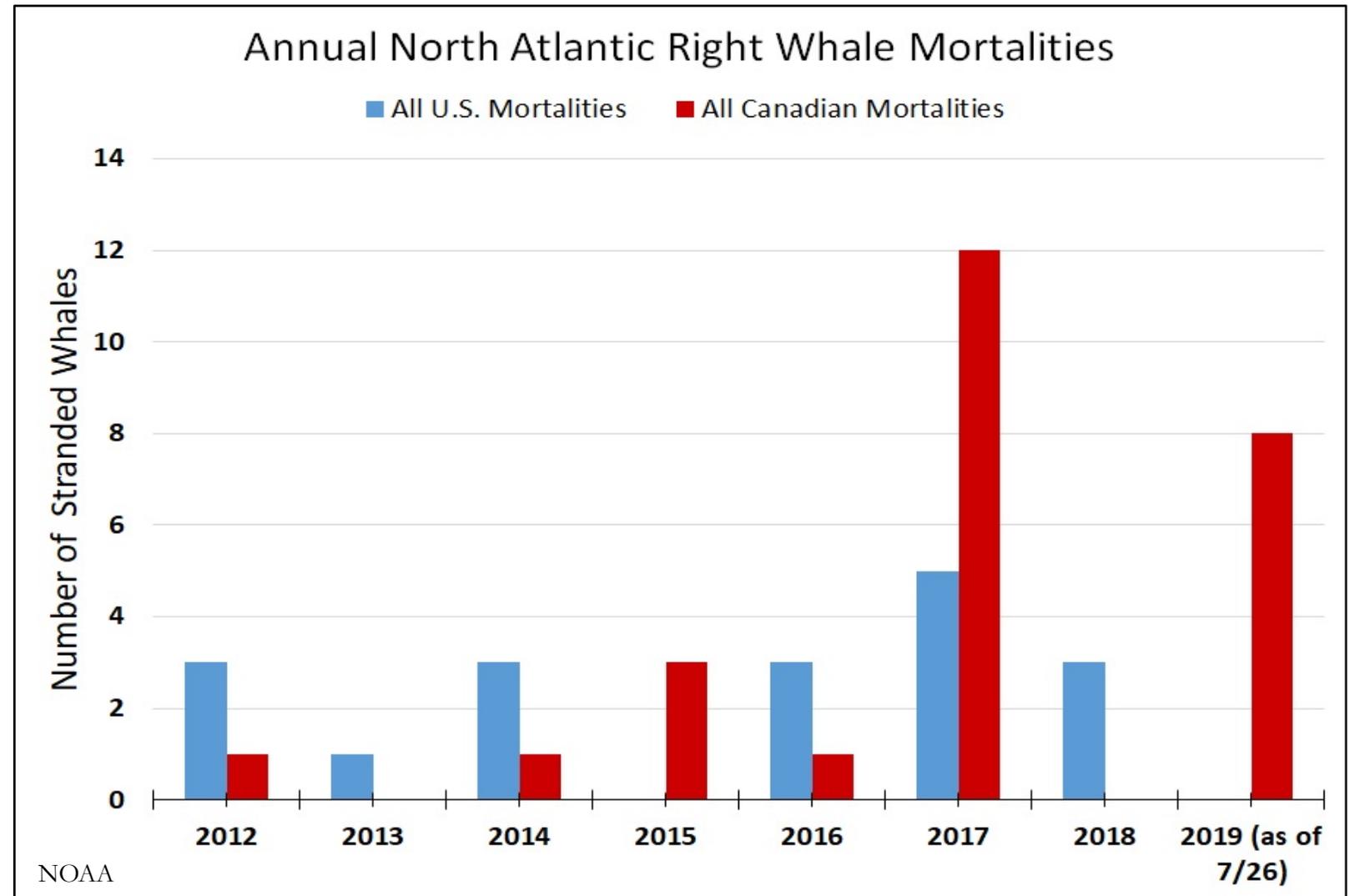
Lethal Threats

- No natural predators
- No known diseases
- Human causes:
 - Ship strikes
 - Entanglement in lobster & crab rope



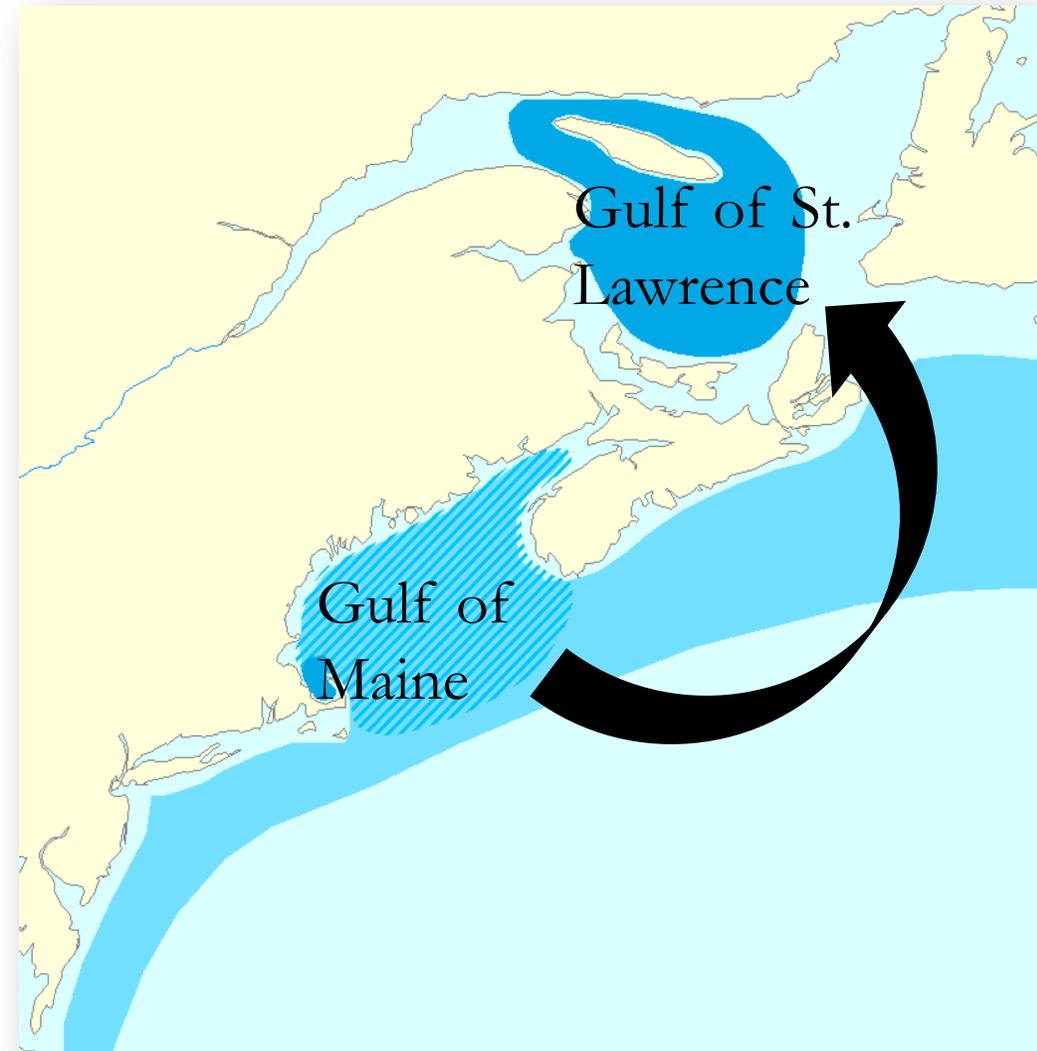
Lethal Threats

- Mortality rate has spiked
- 10% of species died since 2012
- Most cases attributed to ship strikes & entanglement



Post-2010 Distribution Shift

- Whales have abandoned summer feeding grounds in Gulf of Maine, moved north to Gulf of St. Lawrence
- More ship traffic, more & heavier fishing gear
- But why are whales shifting north?

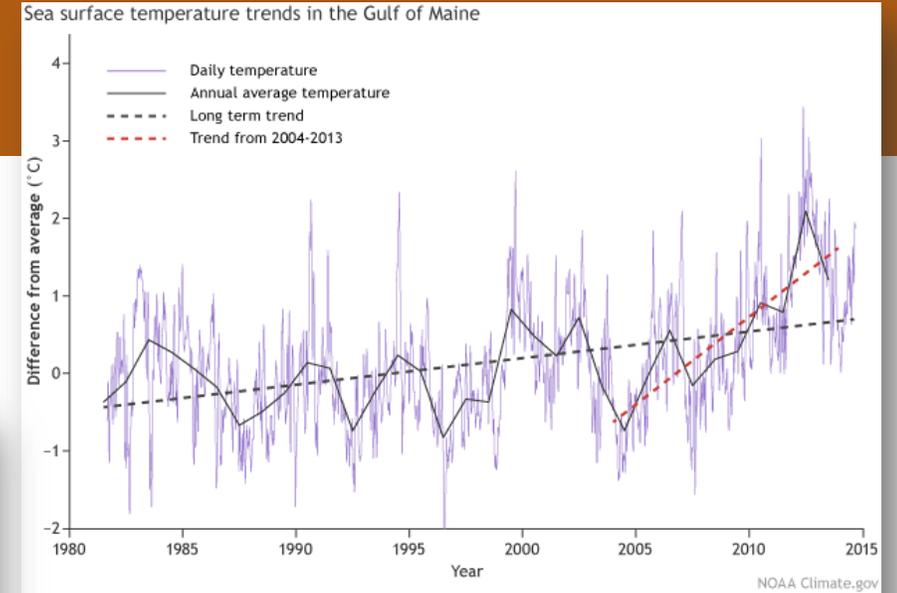


Hypothesis: Climate & Food

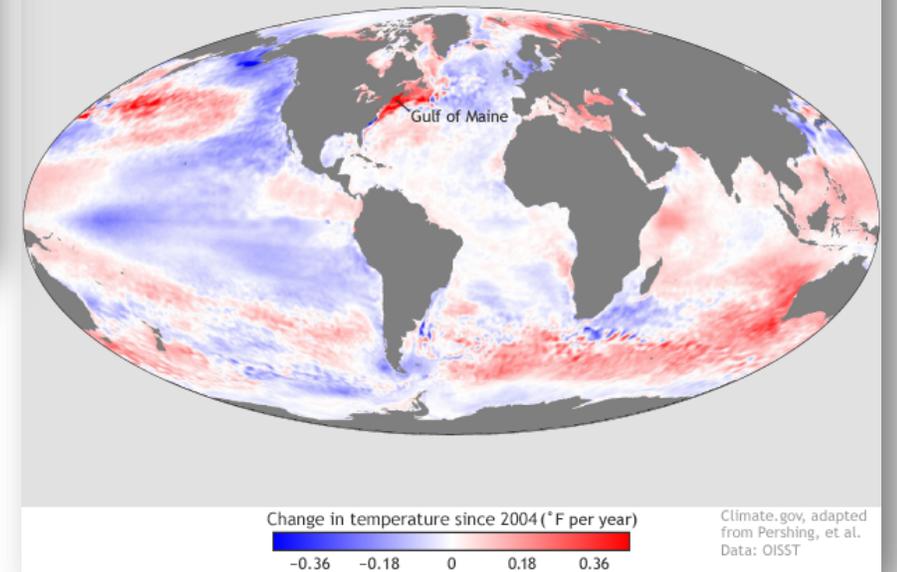
- Gulf of Maine warming faster than 10% of Earth's oceans
- Water temp & currents are changing
- Copepod distribution & abundance is changing



Mark Baumgartner

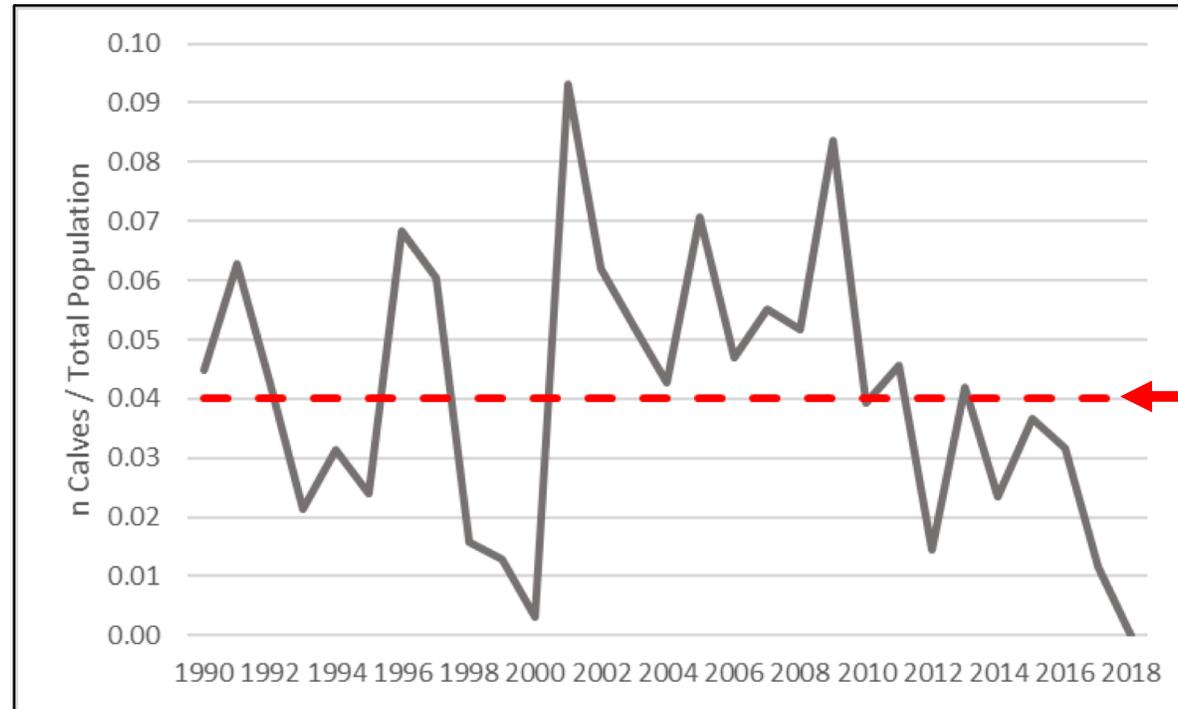


Global sea surface temperature trends from 2004 to 2013



Calving Rates Are Falling

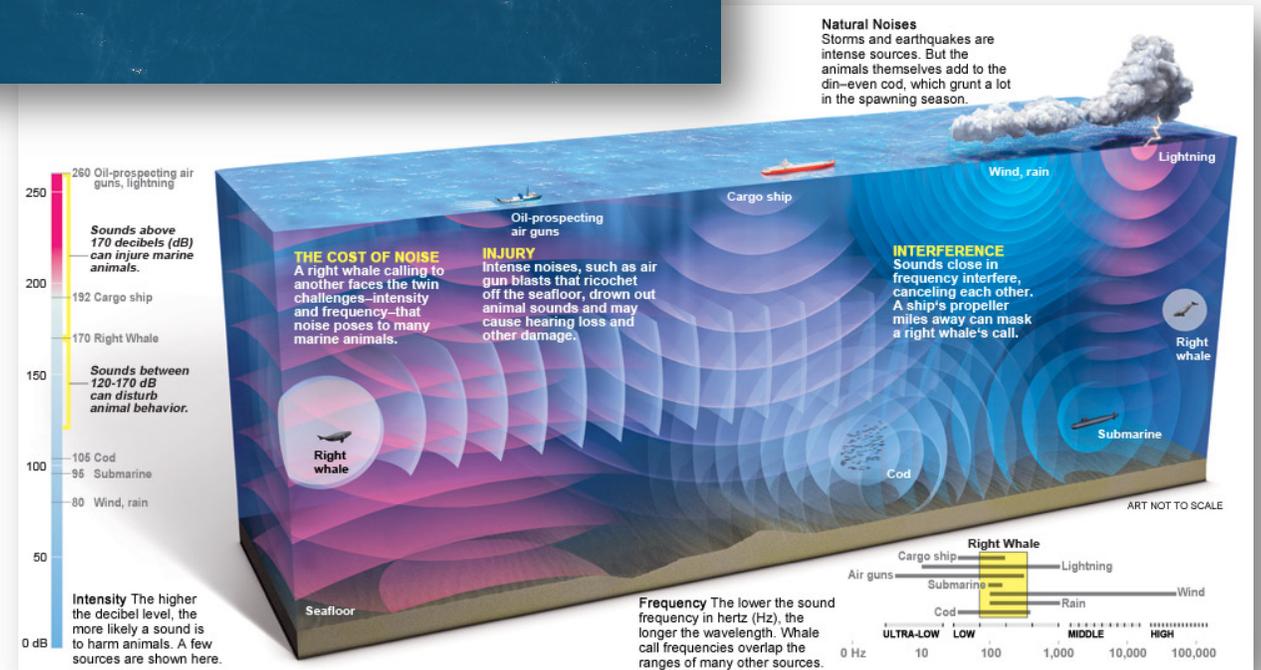
- Hungry whales make fewer babies
- Less than 100 calving females
- Females are dying younger
- Births aren't keeping up with deaths



NOAA

Sublethal Threats

- Females injured by rope have fewer calves
- 80% of whales have rope scars
- Small boat strikes
- Chronic noise
 - Boats & ships
 - Military activities
 - Seismic surveys
 - Wind generators
 - In-water construction



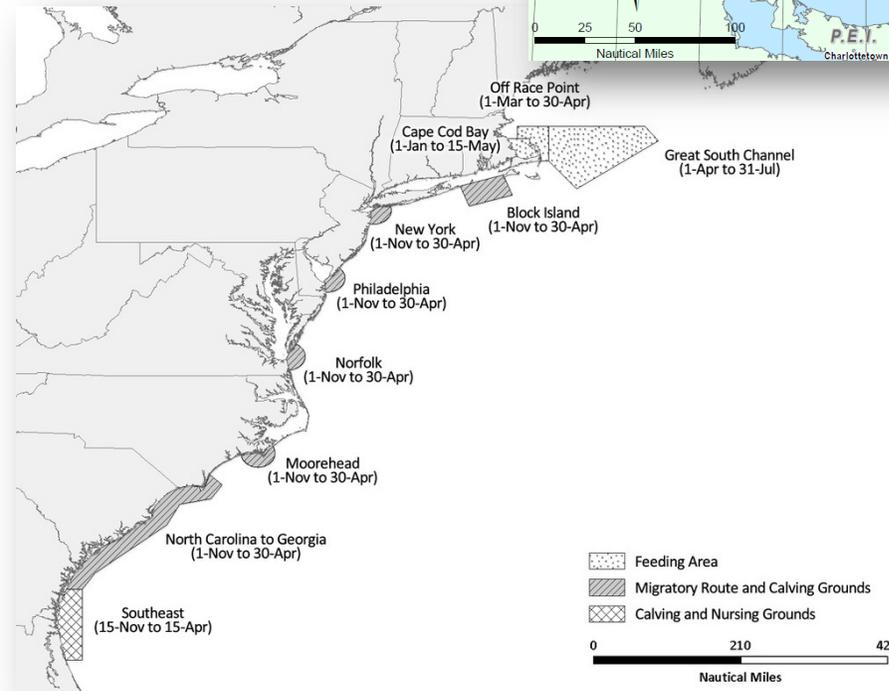
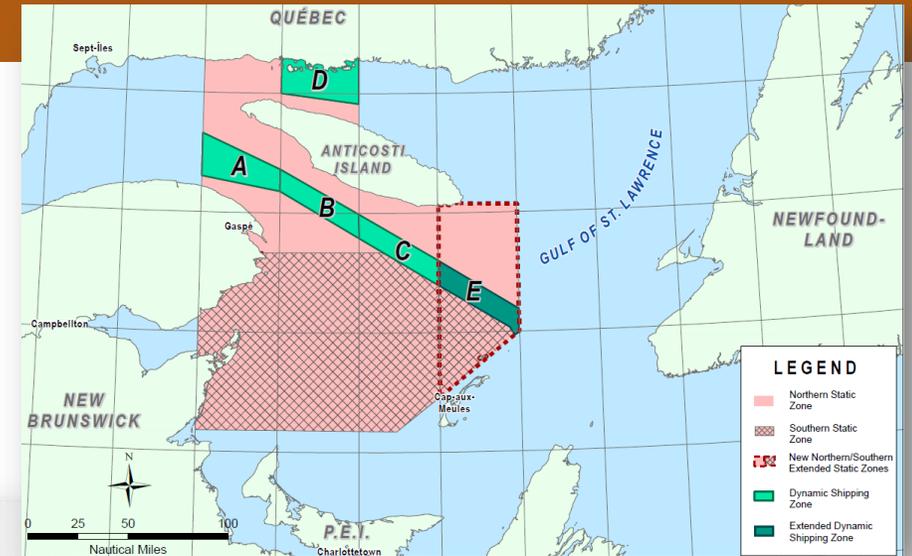
What Can Be Done About It?

Conservation

1. Reduce human causes of mortality & injury
2. Help whales directly when practical
3. Protect right whale habitat
4. Research & monitoring
5. Education & outreach

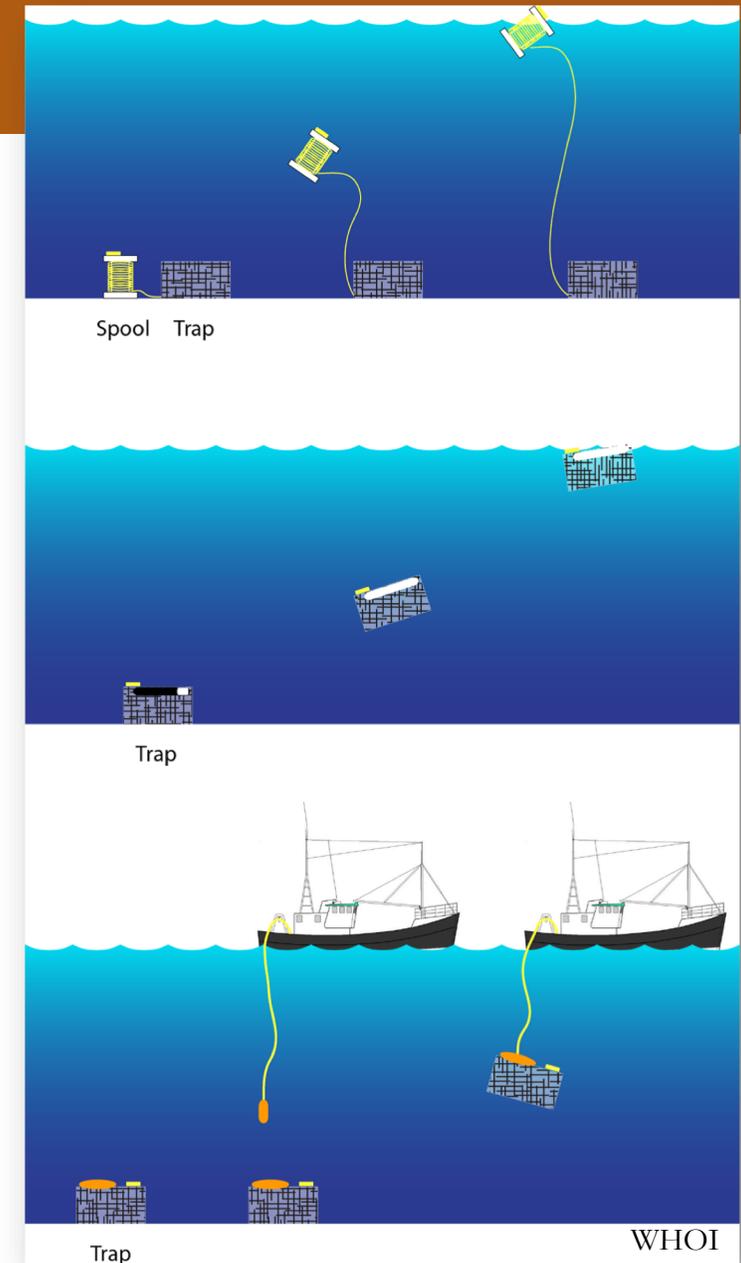
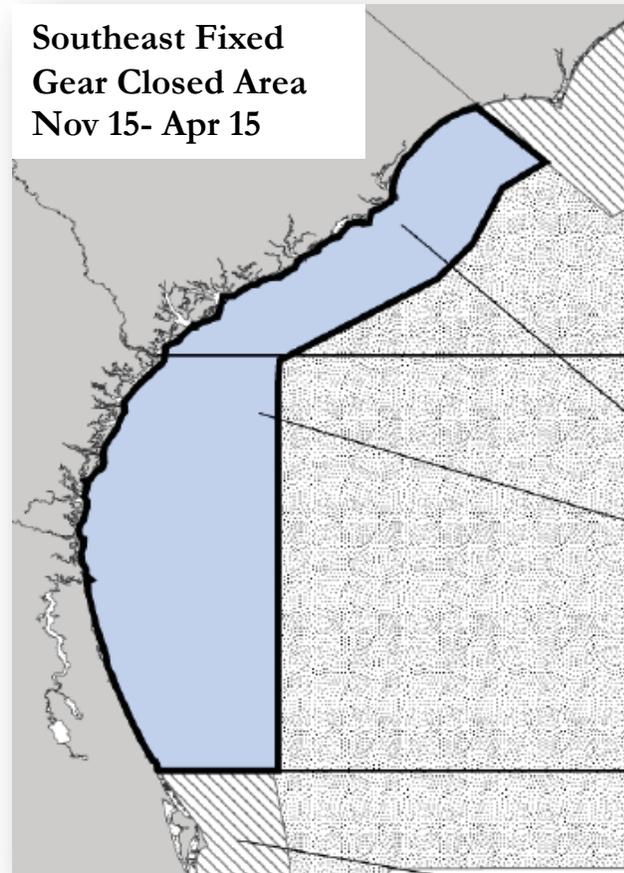
Reduce Mortality & Injury

- Ship strikes:
 - NOAA Ship Speed Rule:
 - Seasonal speed zones
 - Routing measures
 - Canada is working on their own rules
 - More data on whale distribution needed in Mid-Atlantic & Canada



Reduce Mortality & Injury

- Synthetic rope lets fishermen fish farther from shore, in deeper water where whales are
- Fishing Regulations:
 - Seasonal closures
 - Effort reduction
 - Caps on rope strength
 - Emerging technologies
 - Ropeless gear
 - Weak ropes



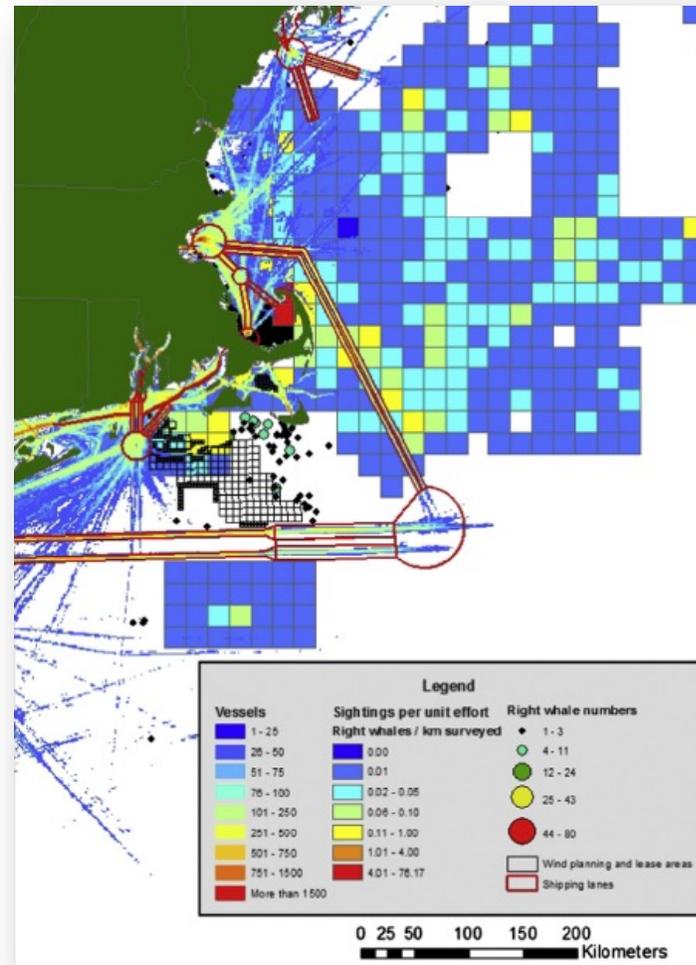
Help Whales Directly

- Disentanglement response

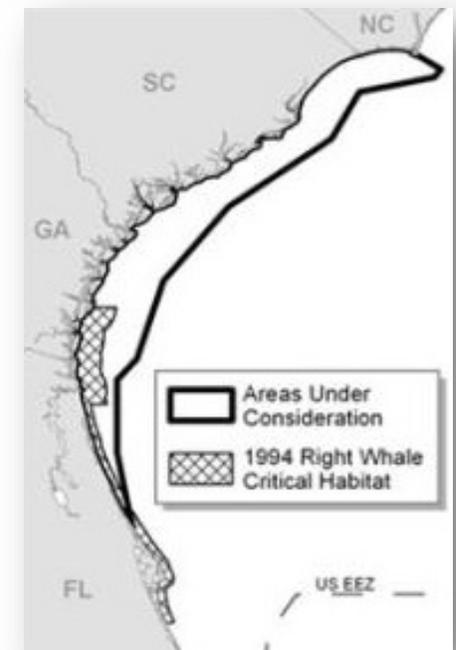
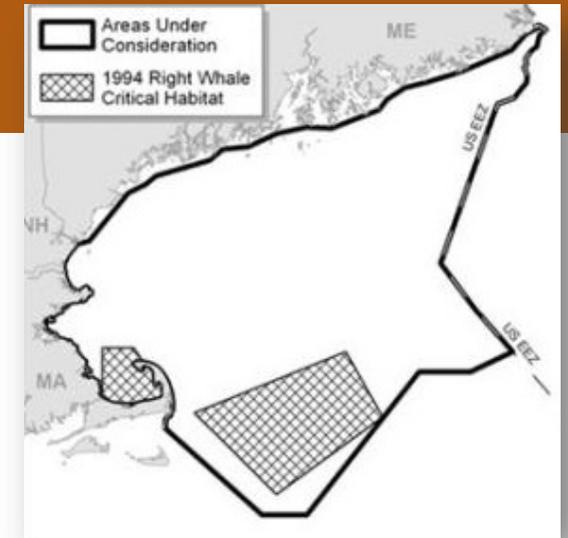


Protect Whale Habitat

- Critical habitat
- Permit & project reviews
- Marine spatial planning



Petruny et al. 2014

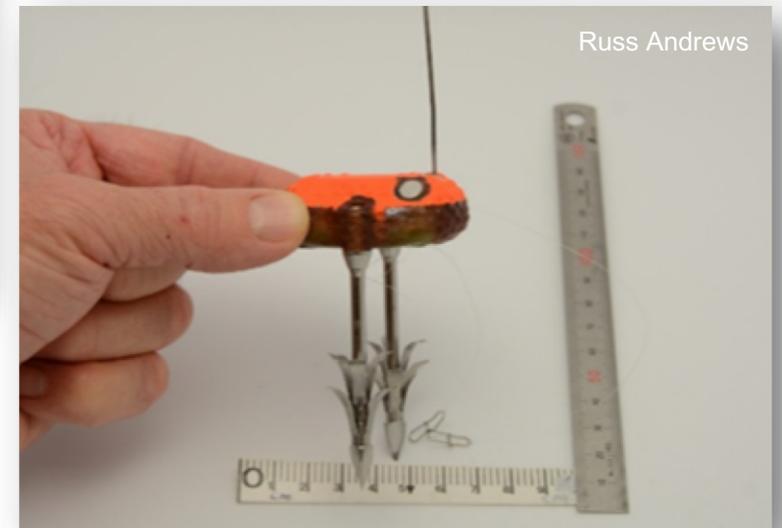


Southeast U.S. Mitigation Measures

- **Quandary:** Activities that can ‘take’ right whales can’t be permitted
- Can’t depend on visual detection because whales are usually subsurface, not visible
- No technology exists to detect whales remotely
- Avoid loud & potentially injurious activities in Critical Habitat from December 1 to March 31
- 10 knot speed restrictions for all vessels >40 feet December 1 to March 31

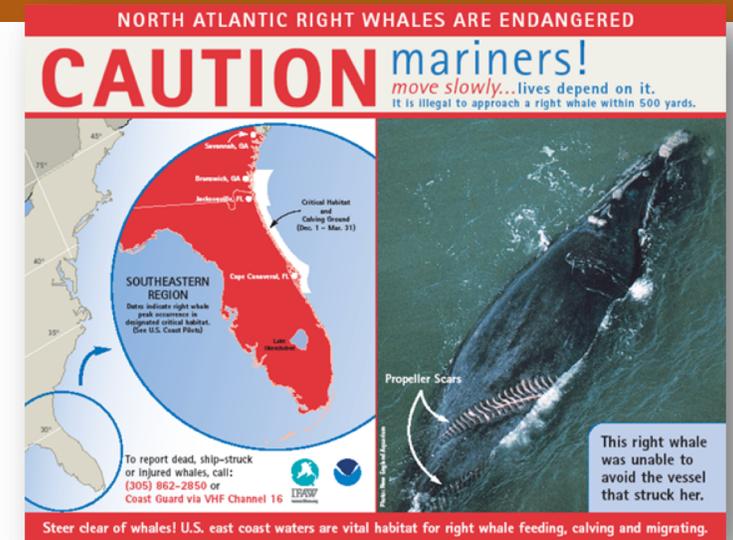
Research & Monitoring

- Aerial & boat surveys
- Photo-ID
- Satellite tagging
- Passive acoustic detection
- Plankton studies
- Much, much more



Education & Outreach

- Most people will never see a right whale
- How do you raise awareness and promote stewardship?



Summary

- We almost drove right whales to extinction before...this time it could happen for real
- Mortality & injury must be reduced immediately:
 - Ship strikes in Canada
 - Fishing rope in Northeast U.S. & Canada
- Fluctuation in calving rates not necessarily a problem if females live full, long life
- Protect calving habitat & other critical habitat

Right Whale Conservation is a Cooperative Effort!

