Right whale status and NEFSC research

Peter Corkeron
(using slides from talks by Sofie Van Parijs, Richard Pace and Tim Cole)
Right Whale Background

- Still one of the most endangered cetaceans
- Recovering but very slowly
- Vulnerable to decline
- Resources thrown at problem
- Mortality
- Reproduction
  - NARW : 17 = 1991 and 17 = 2015
  - SRW    : 18 = 1991 and 79 = 2013
- Critical Habitat
- Foraging
- Calving
- Migration
- NEFSC and SEFSC
Current Threats

- Entanglement
  - observed + unobserved
  - mortality + morbidity
  - ~80% entangled
- Vessel Strike
- Noise (seismic)
- Climate Disruption
- Urbanization
Right Whale Background

- Modeling
  - Mark-recapture
  - Habitat models

- Entanglements
  - 40 whales being monitored
  - Cryptic mortality
  - Drag & Morbidity
  - Reproductive underproduction
The new survey design improved our sightings rate until 2012.

![Graph showing the improvement in sightings rate from 2002 to 2012 after the implementation of a new survey design. The graph compares hours flown and right whale sightings, with a notable increase in sightings after 2007.]
ID’s from both Feeding AND Calving areas throughout the Year

Every Month
Individual ID

Large amounts of Effort (Mult. Org.) Yield Frequent Re-sights of individuals

Ex. 2006
339 Whales seen >0
Median 5 times
High 46
LONG INDIVIDUAL HISTORIES:

Histogram of Catchability Span

Frequency

0  5  10  15  20  25  30

Catchability Span
Crude Recapture Success

The graph shows the trend of Crude Recapture Rate from 1980 to 2010. The rate varies over the years, with some fluctuations. The trend overall appears to be upwards from 2000 onwards.
Calculate Minimum Number Alive

\[ N_{\text{min}}(2011) = 465 \]

- High detectability
- Lag time sensitive
- Allow time to capture those missed in Year i
- No c.v. necessary for PBR calc.
Reminder –
but we've got a research effort running to address this
Archival data (2003 To 2014)

New planned data collection

Acoustics - defining migration corridors for right whales

Joint NE & SE effort & 14+ other collaborators!!

Map: Mike Thompson, NOAA/SBNMS
## Combined Available Data for Migratory Corridor Analysis

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### Key:

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Prepared for NEFSC Protected Species Science Program Review April 13-16, 2015, Woods Hole, MA | page 16
Archival data (2003 To 2014)

Recorder POC
- Yvan Simard
- Jack Lawson
- MEOPAR: Chris & Kim
- Hilary Moors Murphy
- JASCO: Bruce Martin
- NEFSC: Real Time Buoys
- NEFSC: Recorders

New planned data collection

Map: Mike Thompson, NOAA/SBNMS
Broad Sensing Network

2015 - 2017

Map: Mike Thompson, NOAA/SBNMS

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Comparative perspective

SRW calving area

NARW calving areas

NARW upcalls higher than SRW

From Dr. Trudi Webster
What next?

“An approximate answer to the right question is worth a great deal more than a precise answer to the wrong question.”

- Tukey

Figure 2 in Monsarrat et al. Historical summer distribution of the endangered North Atlantic right whale (Eubalaena glacialis): a hypothesis based on environmental preferences of a congeneric species. **Diversity and Distributions**, 2015 1–13