



NOAA
FISHERIES

Northeast
Fisheries
Science
Center

Right whale status and NEFSC research

Peter Corkeron

(using slides from talks by

Sofie Van Parijs, Richard Pace and Tim Cole)

April 27, 2015

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



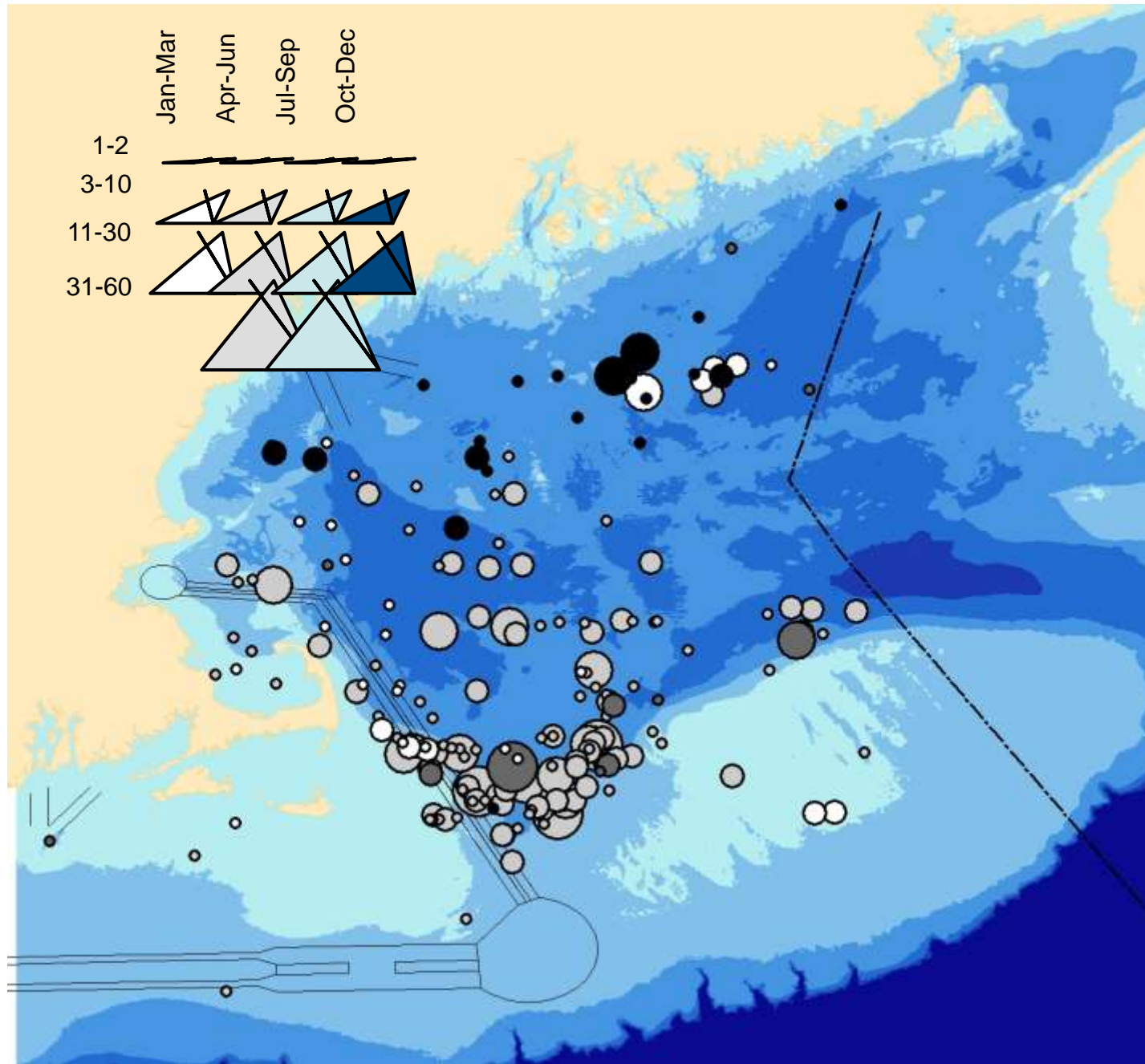
Current Threats

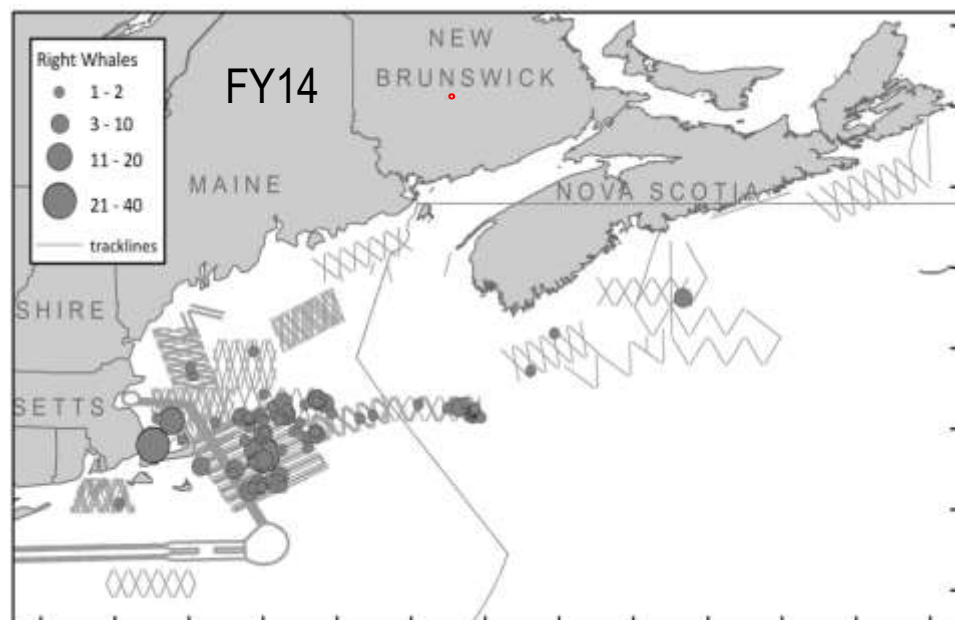
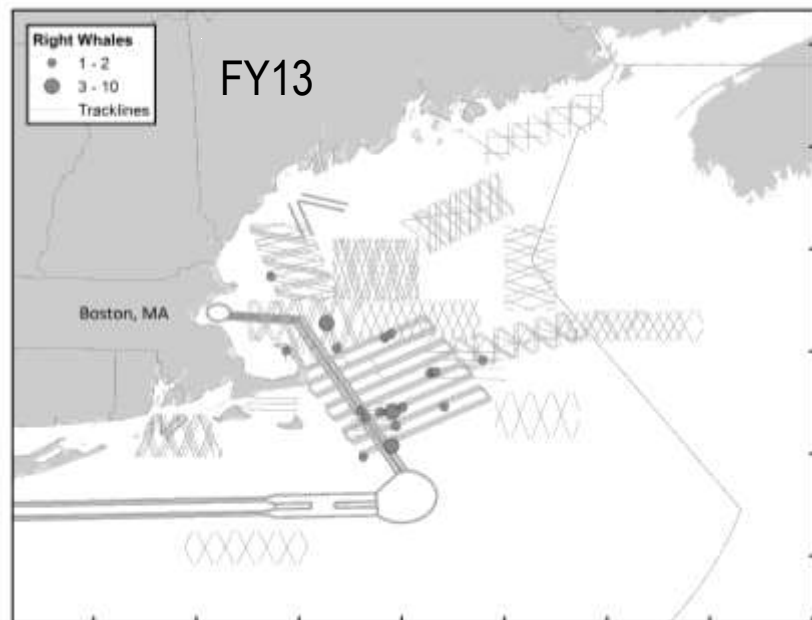
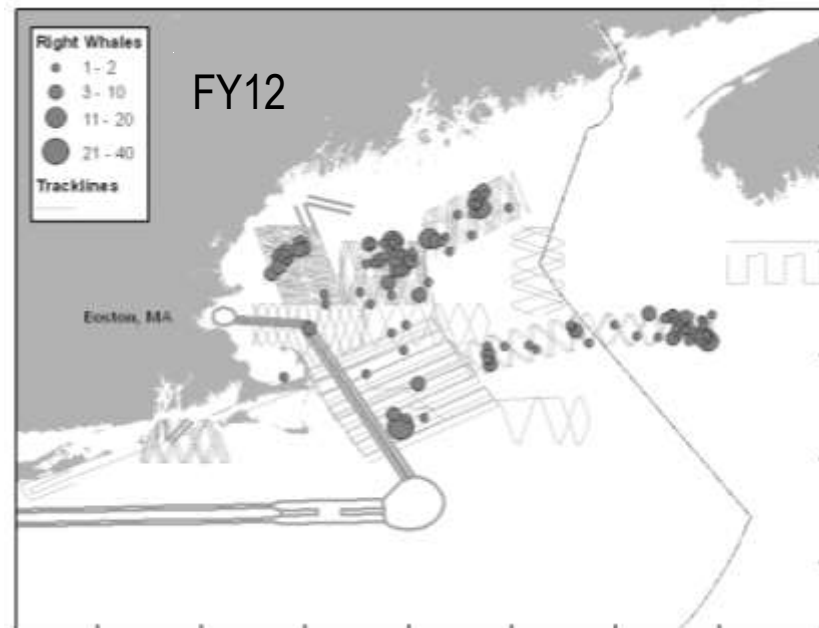
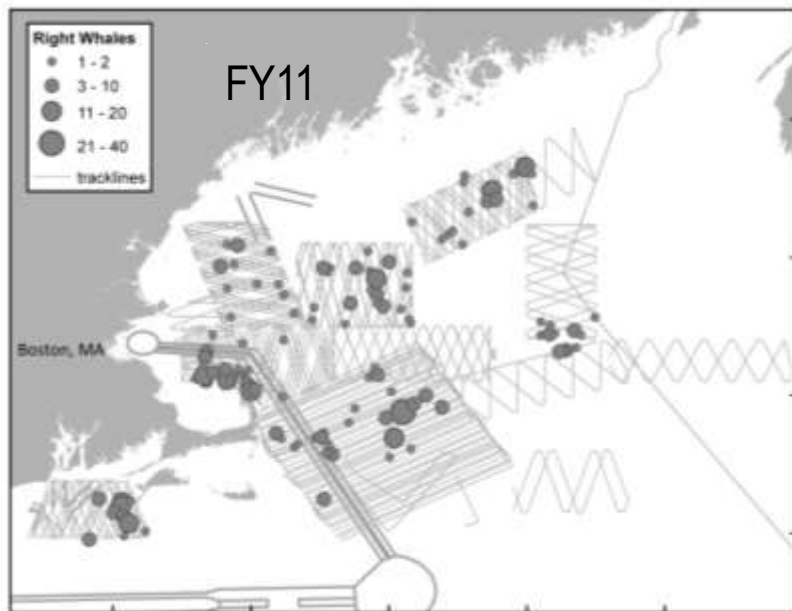
- Entanglement
 - observed + unobserved
 - mortality + morbidity
 - ~80% entangled
- Vessel Strike
- Noise (seismic)
- Climate Disruption
- Urbanization



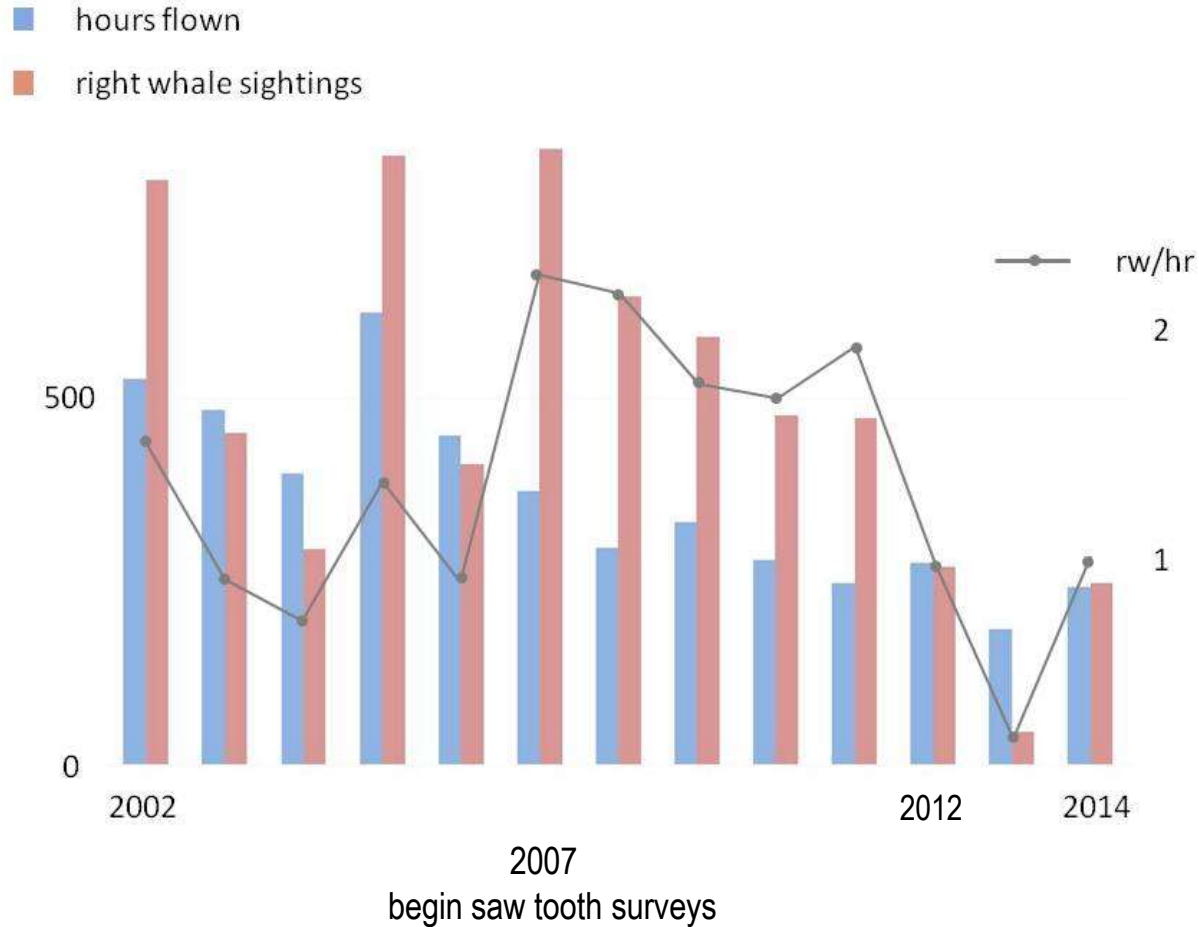
Right Whale Background

- Modeling
 - Mark-recapture
 - Habitat models
- Entanglements
 - 40 whales being monitored
 - Cryptic mortality
 - Drag & Morbidity
 - Reproductive underproduction

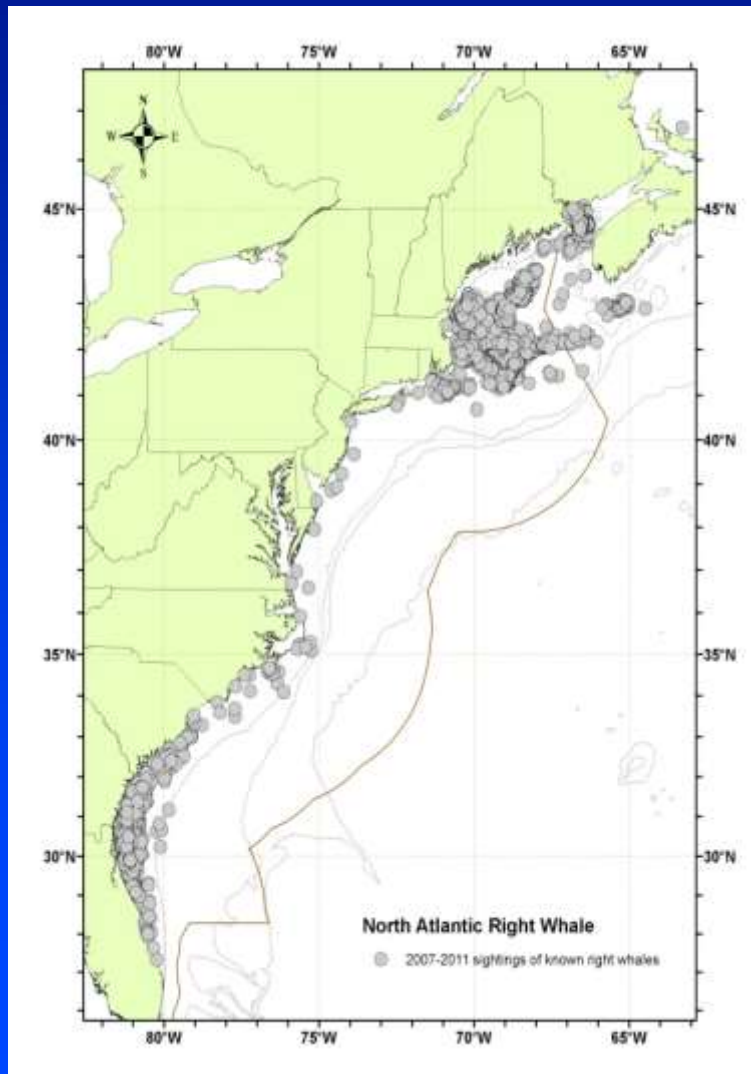




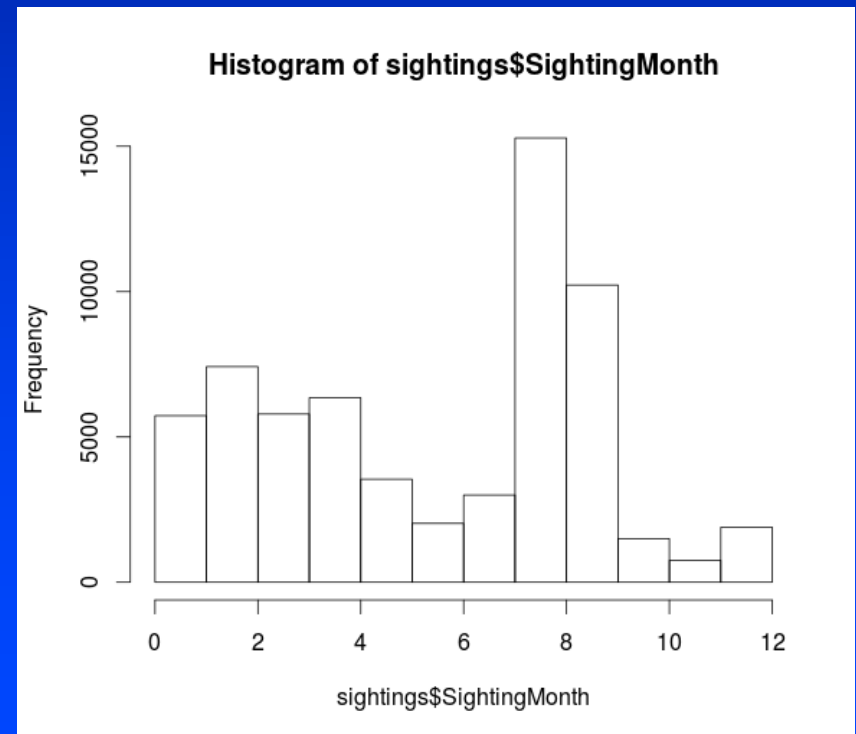
The new survey design improved our sightings rate until 2012



ID's from both Feeding AND Calving areas throughout the Year



Every Month



Individual ID

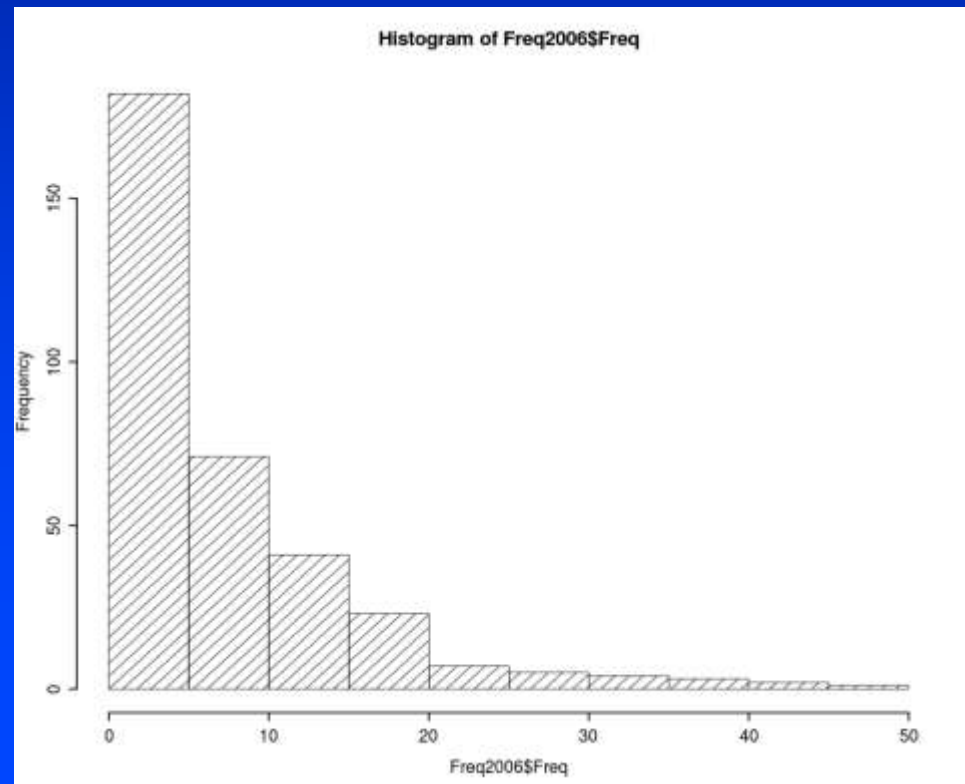
Large amounts of Effort (Mult. Org.) Yield
Frequent Re-sights of individuals

Ex. 2006

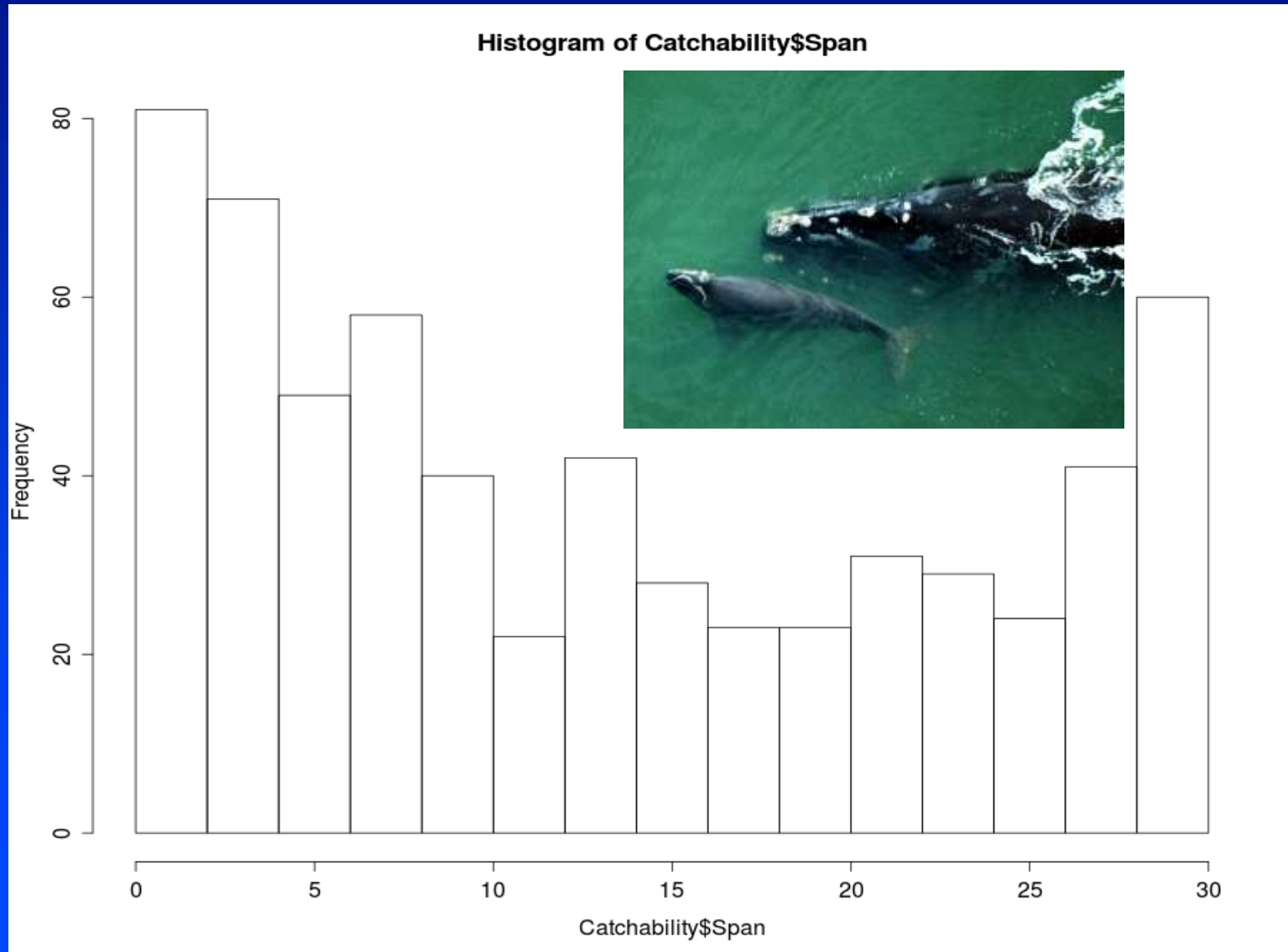
339 Whales seen >0

Median 5 times

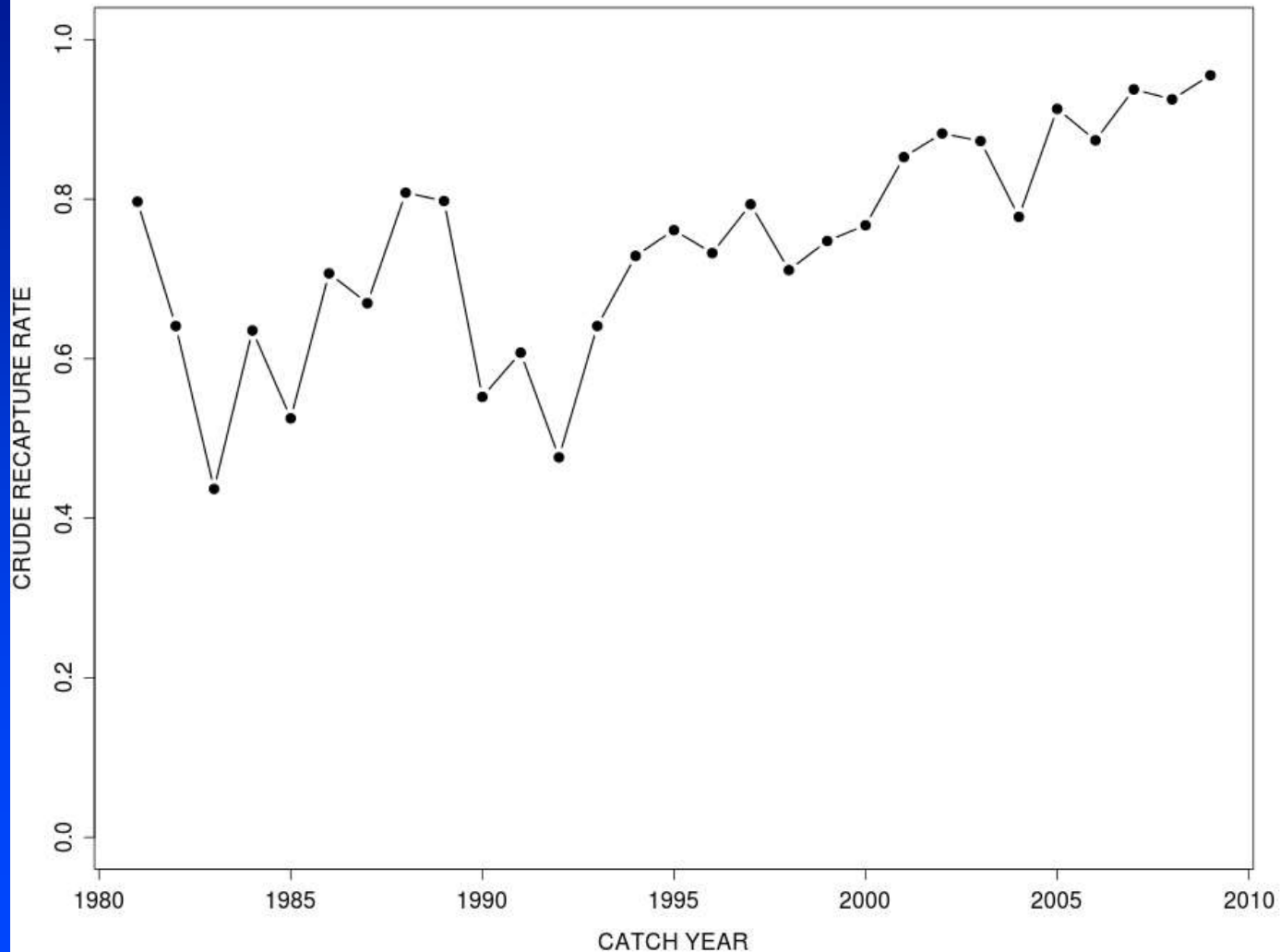
High 46



LONG INDIVIDUAL HISTORIES:



Crude Recapture Success



Calculate Minimum Number Alive

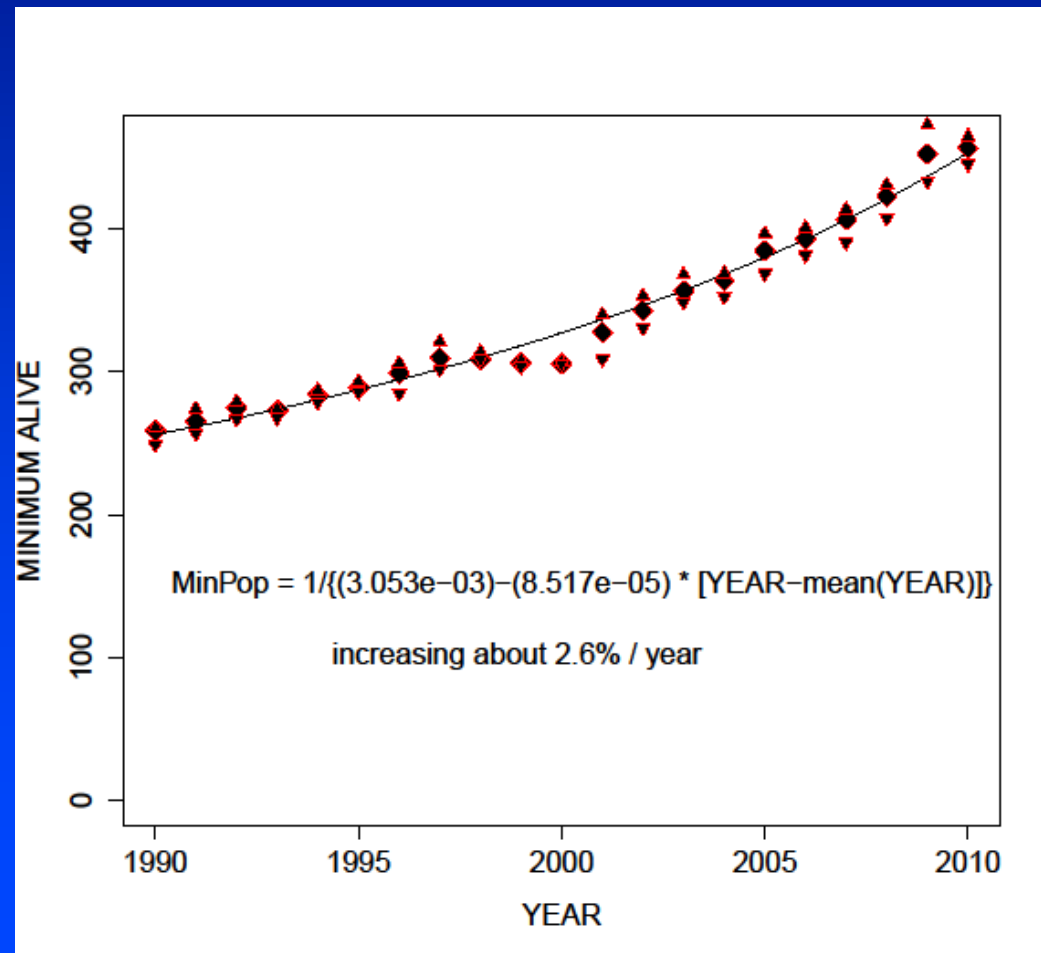
$$N_{\min}(2011) = 465$$

High detectability

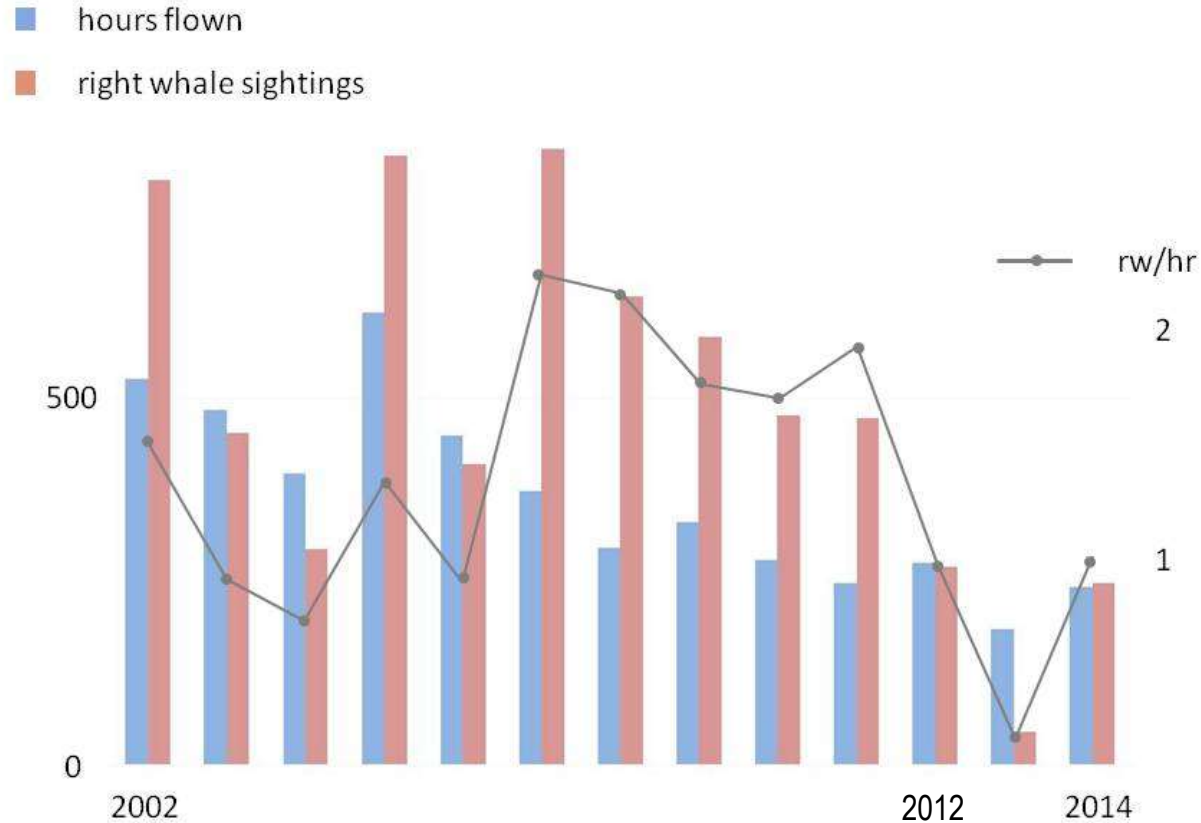
Lag time sensitive

Allow time to capture
those missed in Year
i

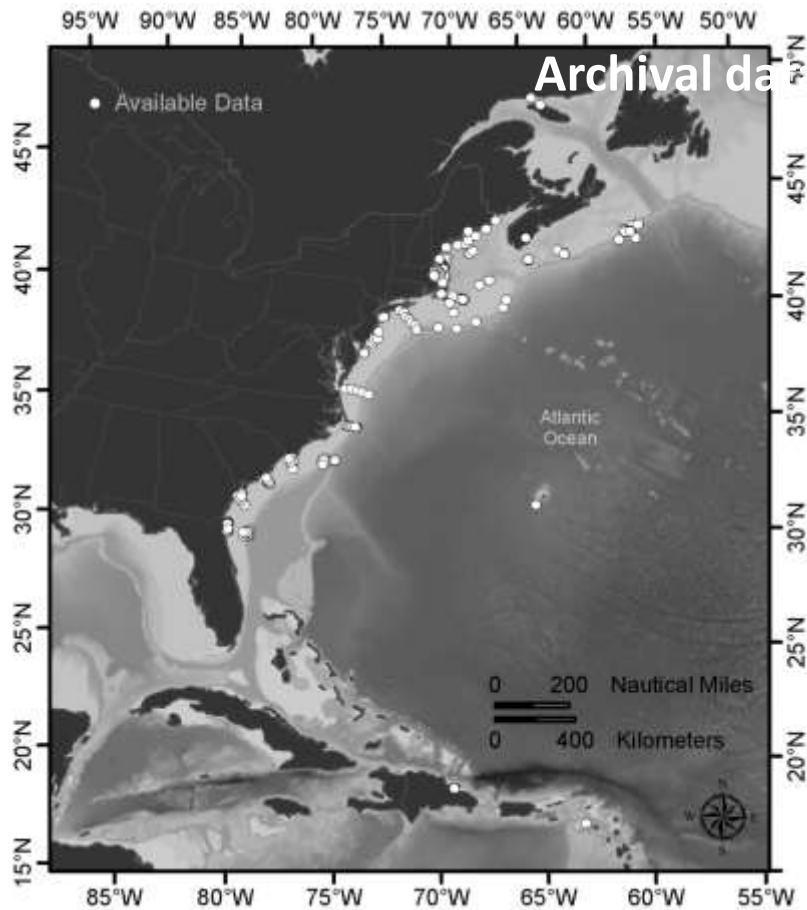
No c.v. necessary for
PBR calc.



Reminder –
but we've got a research effort running to address this



Acoustics - defining migration corridors for right whales



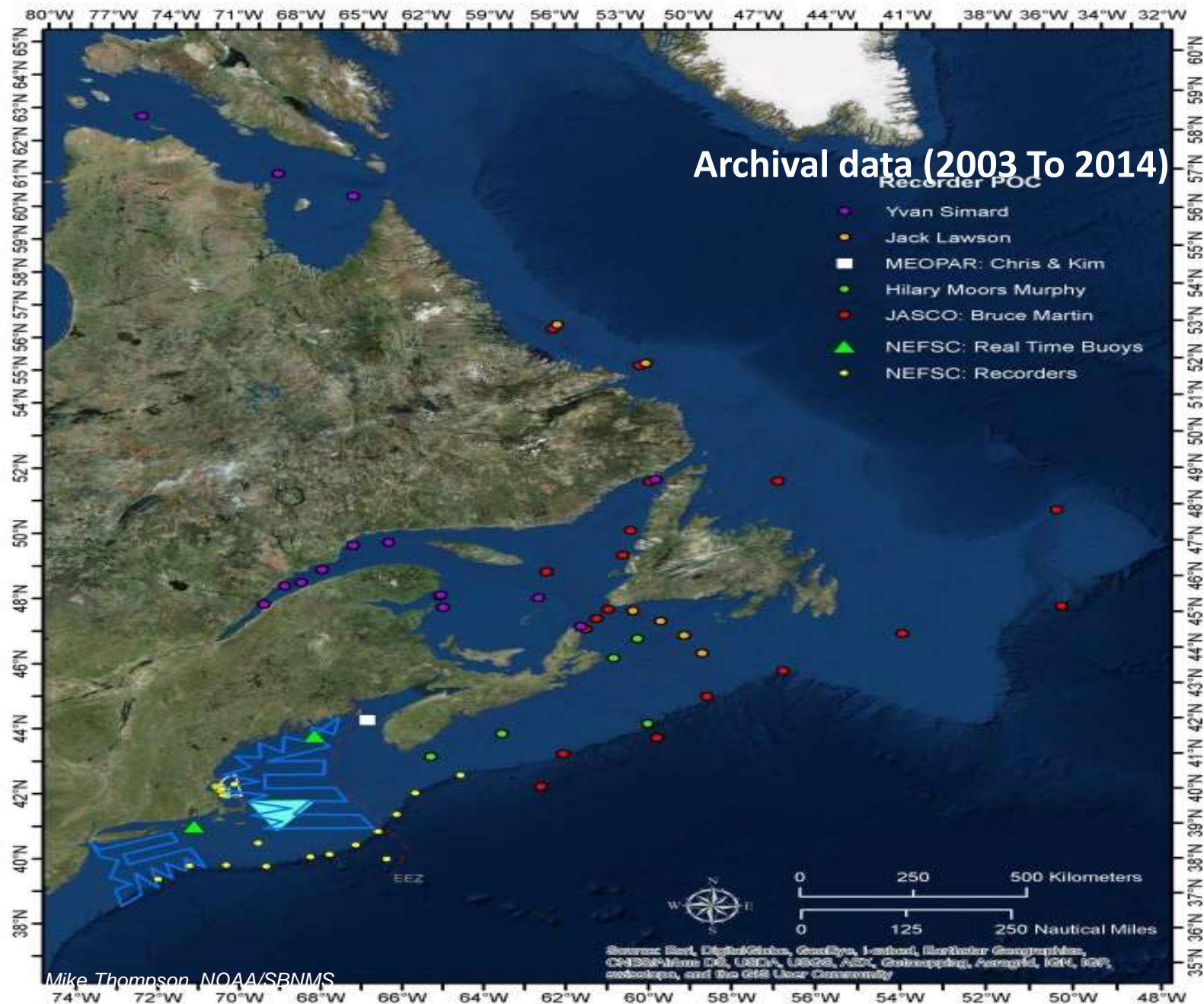
Joint NE & SE effort & collaborators

Combined Available Data for Migratory Corridor Analysis



Key:	
% of Month	Color Code
25	<div></div>
50	<div></div>
75	<div></div>
100	<div></div>

Year	2004				2005				2006				2007				2008				2009				2010				2011				2012				2013				2014			
Season	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F								
Region																																												
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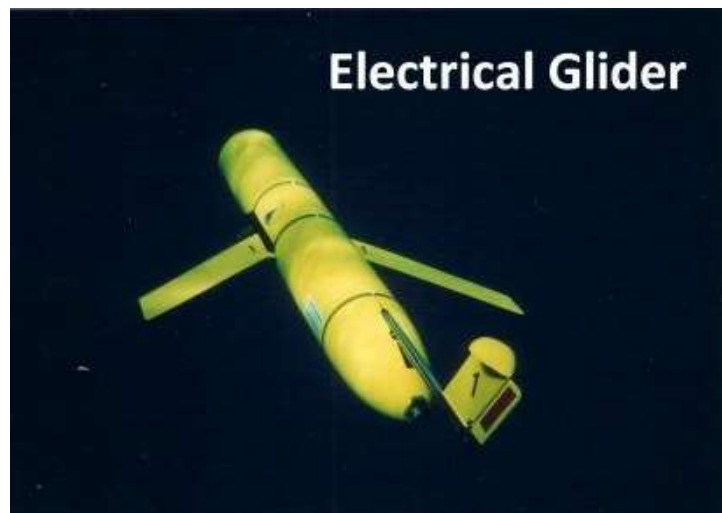


Mike Thompson NOAA/SBNMS

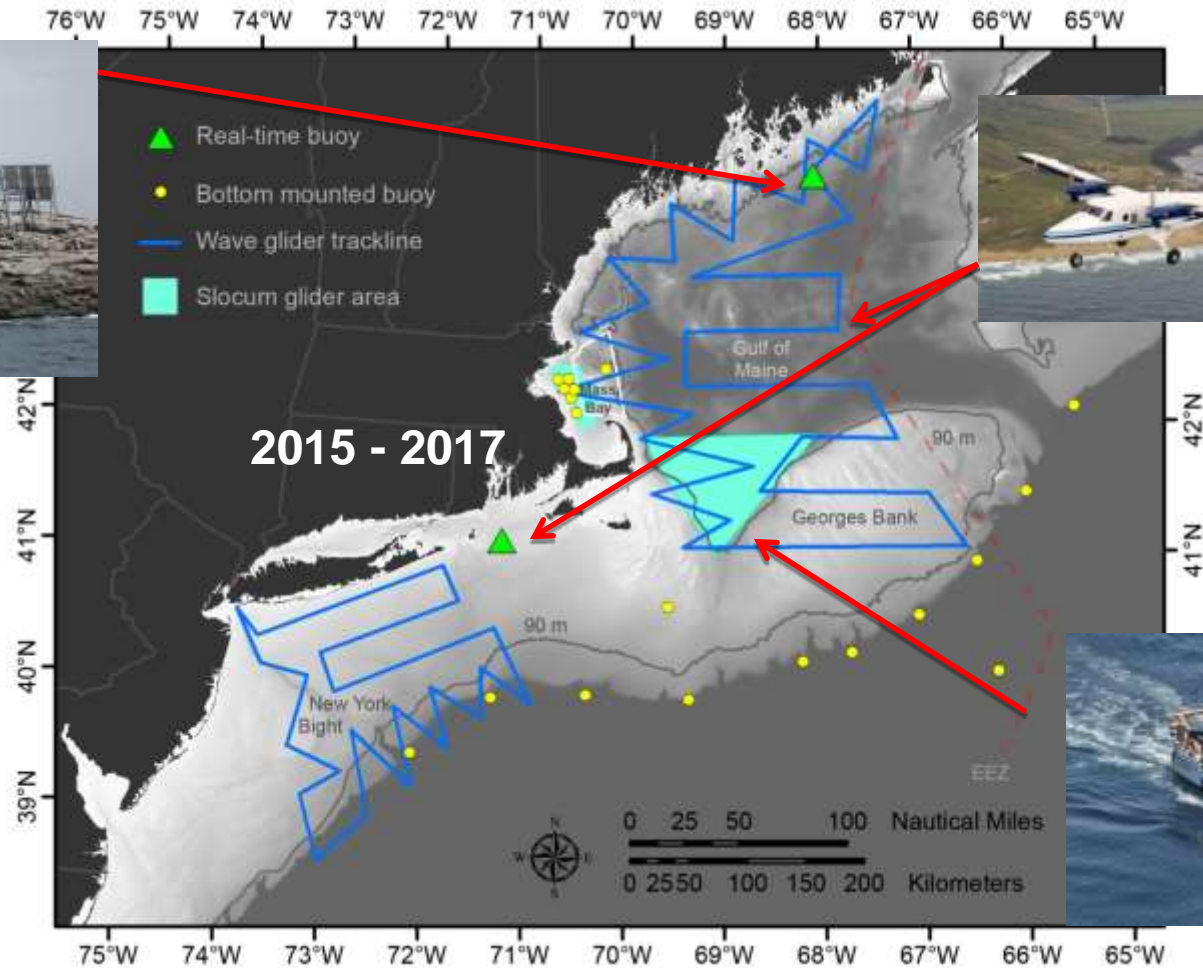


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Real Time



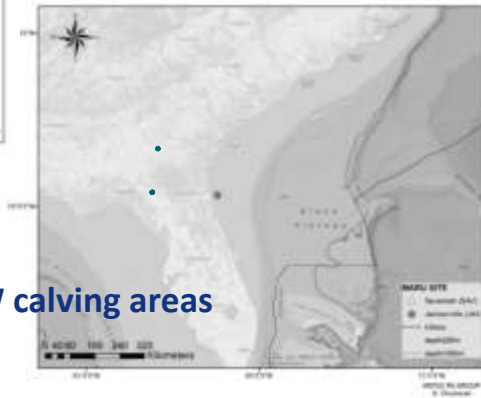
Broad Sensi



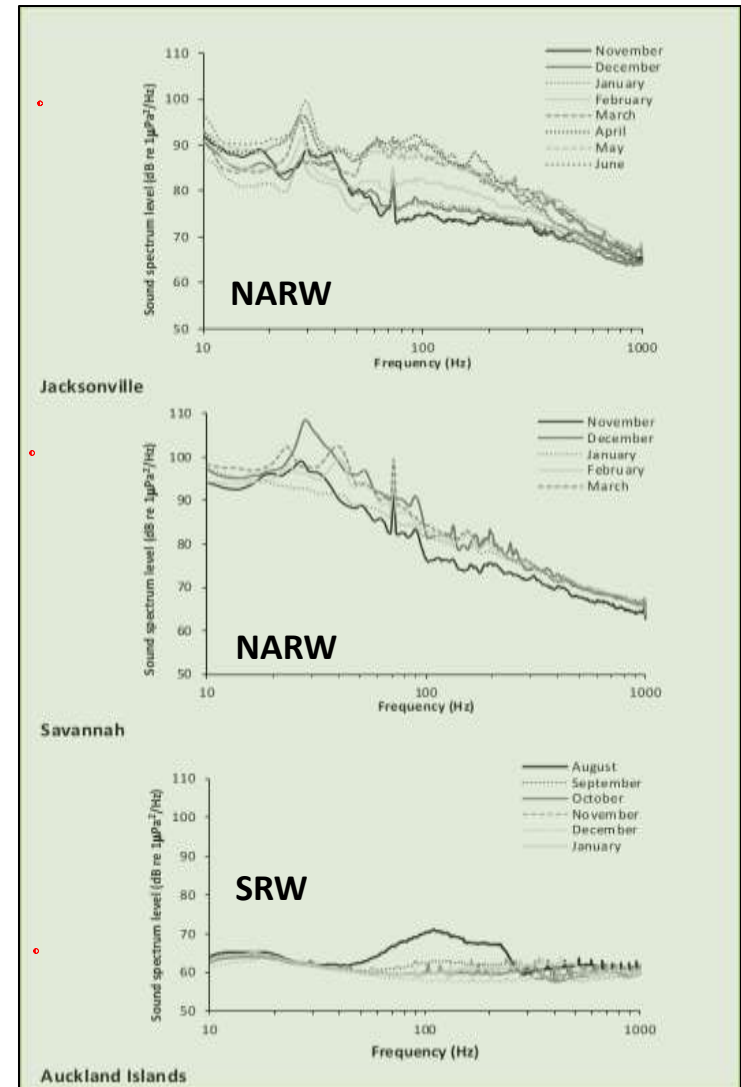
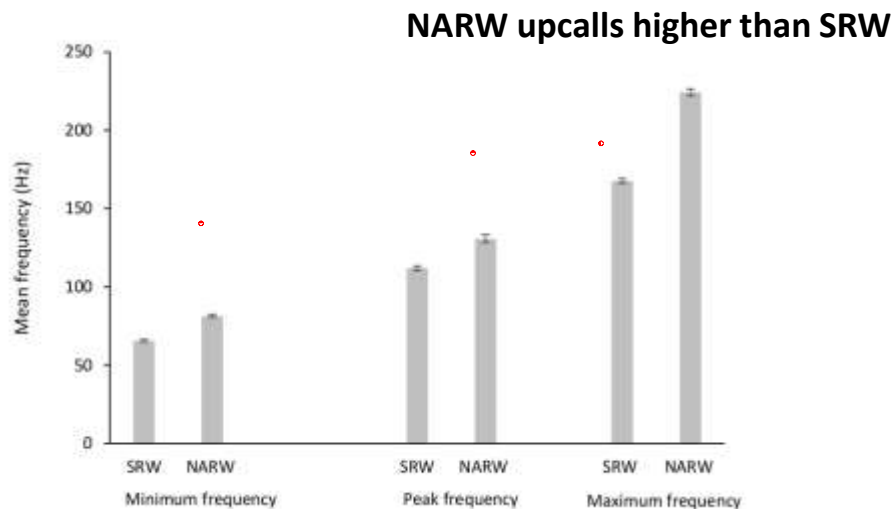
Comparative perspective



SRW calving area



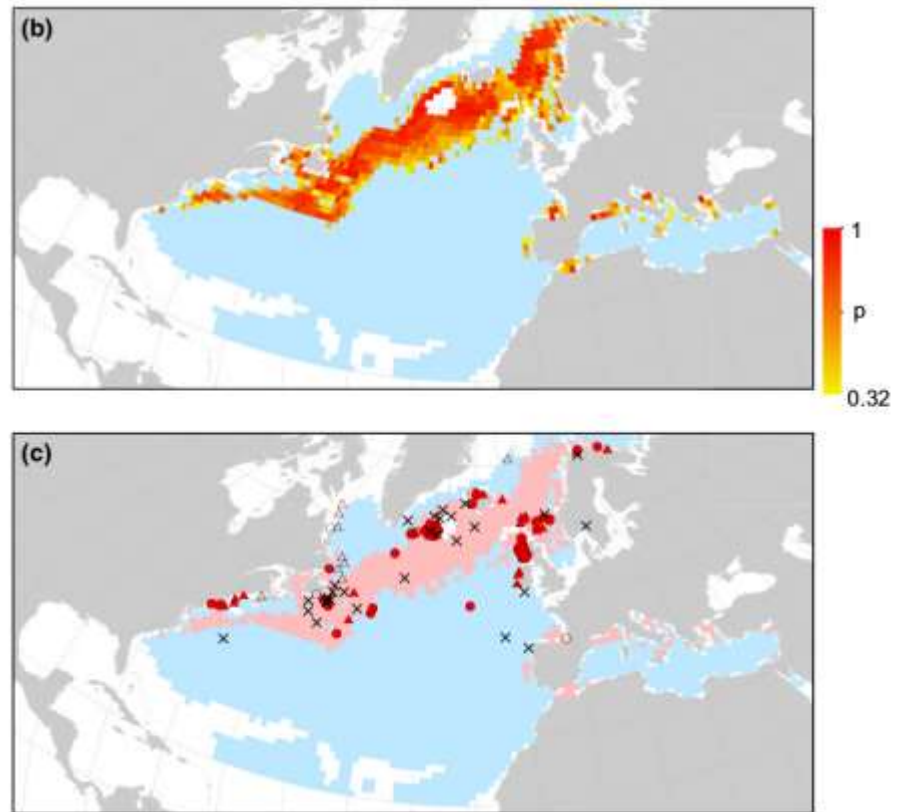
NARW calving areas



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