



**NOAA
FISHERIES**

Greater Atlantic
Regional Fisheries
Office

North Atlantic Right Whale 5-Year Review and Reinitiation of ESA Section 7 Fishery Biological Opinions

Mark Murray-Brown, GARFO PRD Section 7 Coordinator

Presentation for New England Fishery Management Council Meeting, Newport RI

December 5, 2017

Right Whale 5-Year Review

- A requirement of the Endangered Species Act and part of the North Atlantic Right Whale Recovery Plan
- Findings of the 2017 5-year review:
 - A low rate of reproduction,
 - Longer calving intervals,
 - Declining population abundance,
 - Continued mortality from vessel and fishing gear interactions,
 - Changes in prey availability, and
 - Increased transboundary movement and risk.
- Confirms endangered status

Right Whale 5-Year Review

- Recommendations for the period 2017-2022:
 - Developing a strategy for understanding the energetic stressors on right whales including the effect of chronic, sublethal entanglement on overall and reproductive health and the effects of changes in environmental conditions and prey availability.
 - Developing a long-term, cross-regional plan for monitoring right whale population trends and habitat use.
 - Prioritizing funding for a combination of acoustic, aerial, and shipboard surveys of right whales that can be used to understand right whale presence in near real time.
 - Evaluating the effectiveness of the Atlantic Large Whale Take Reduction Plan and the Ship Speed Rule to determine whether it may be necessary to modify or extend these protections for right whales.
 - Analyzing the effects of commercial fishing on right whales.

Right Whale 5-Year Review

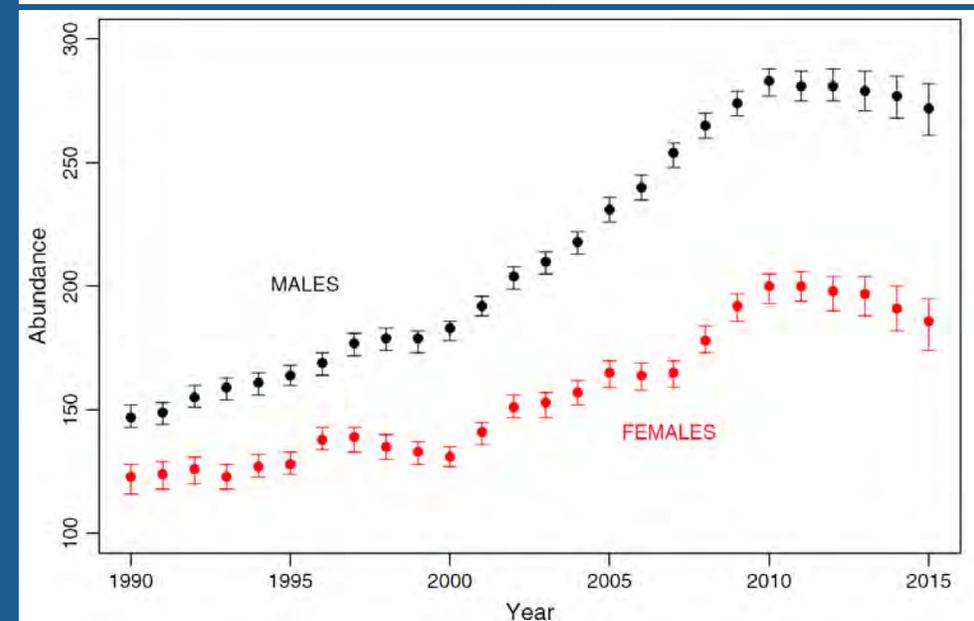
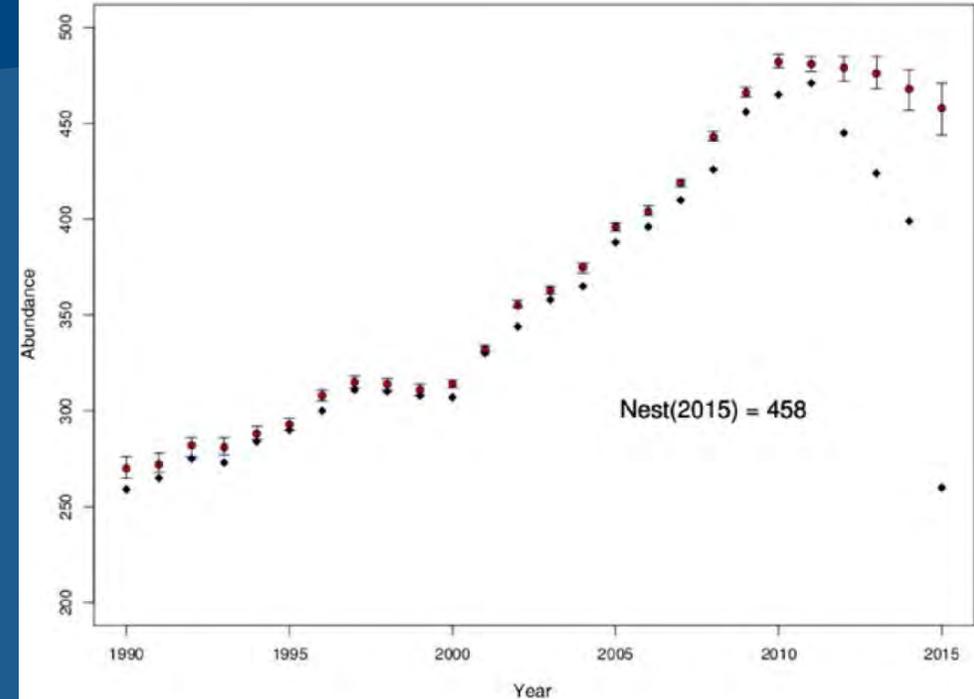
- Recommendations currently being implemented:
 - Convening a bilateral work group with Canada to focus on addressing science and management gaps
 - Reinitiate ESA section 7 consultations on fisheries actions to produce new biological opinions
 - Designating a dedicated Right Whale Recovery Coordinator in the Greater Atlantic Region
 - Developing a new North Atlantic Right Whale Recovery Team

http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale_right_northatlantic.pdf

www.greateratlantic.fisheries.noaa.gov/protected/final_narw_5-year_review_2017.pdf

Pace *et al.* (2017)

- Right whale abundance decline since 2010
- New modeling approach accounts for a shift in distribution
- Estimated to be significantly fewer females in population (n=186 in 2015)

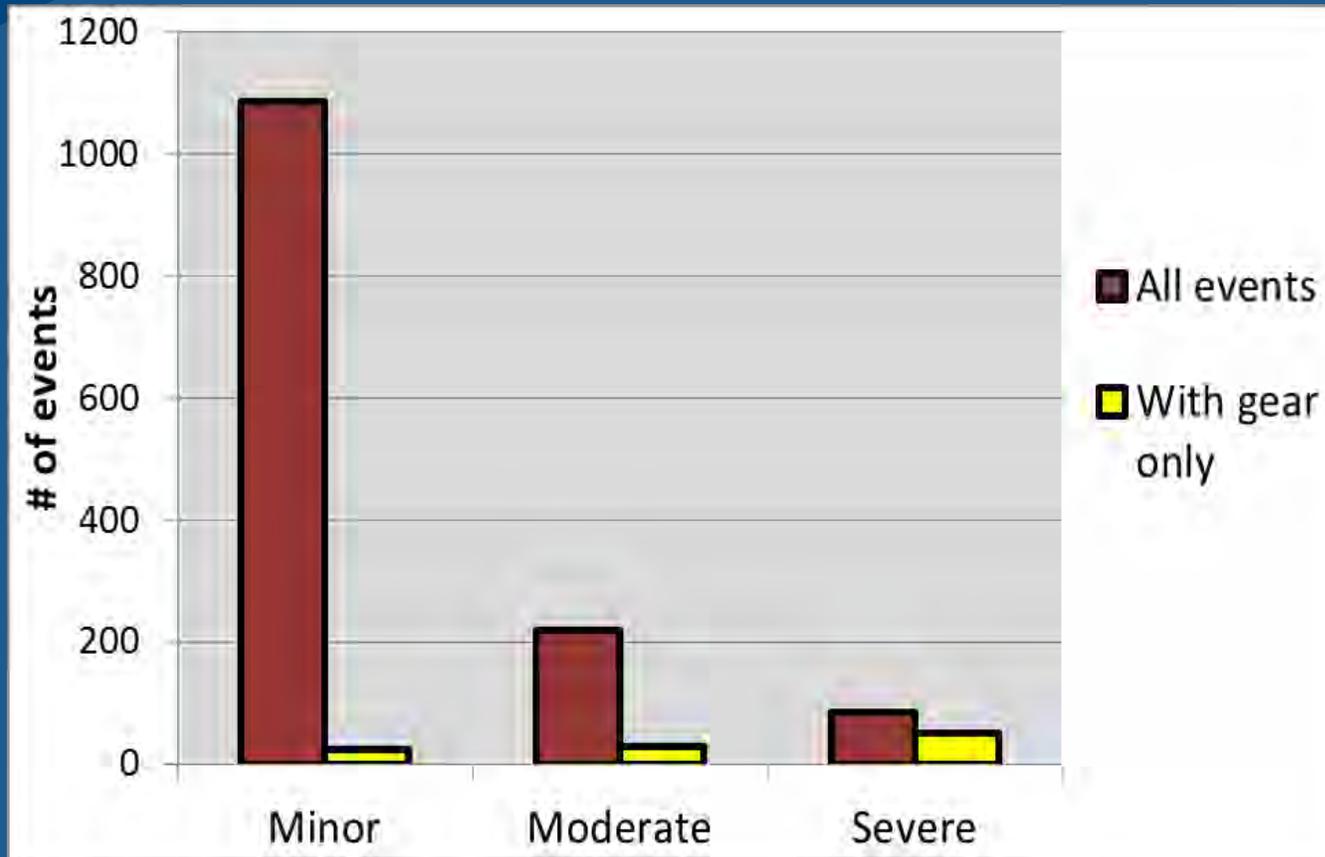


Rates of Entanglement for Humpbacks and Right Whales

- Conservatively, two thirds of the humpback population shows evidence of at least one entanglement; right whales up to 85%
- 10-20% of the population acquires new wounds each year (e.g. Humpbacks, 90-180 of 900)
- About 3% - 15% of entanglements are reported
- Most are minor and probably not observed

(Knowlton *et al.*, 2016; Knowlton *et al.*, 2012; Pettis *et al.*, 2004)

Injury severity and presence of gear on right whales



- Majority of entanglements (78%) result in minor injuries
- Most of the whales with severe injuries (NEAq criteria; $n = 85$) also have attached gear ($n = 51$)
- Moderate and severe injuries ($n = 305$) result in health impacts

(Knowlton *et al.*, 2016)

2017 Right Whale Events

Declared an Unusual Mortality Event

- Defined under the MMPA as “a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response.”
- **17 dead right whales**
 - 12 dead right whales in the Gulf of St. Lawrence, Canada in June-September
 - 7 necropsies performed (5 blunt force trauma; 2 entanglements)
 - 5 dead right whales in the US (1 blunt force trauma; 4 unknown causes)
- **7 live entanglements**
 - 5 in Canada (3 disentangled; 2 not seen again)
 - 2 in US (both disentangled)

US/Canada Joint Effort on Right Whales

- Bilateral Right Whale Working Group
 - Representatives from the Canadian and US governments
 - Scientists and Resource Managers
- Met in Boston in September
- Meeting in Montreal in December
- Goal to identify areas where both nations can jointly fund research and management efforts

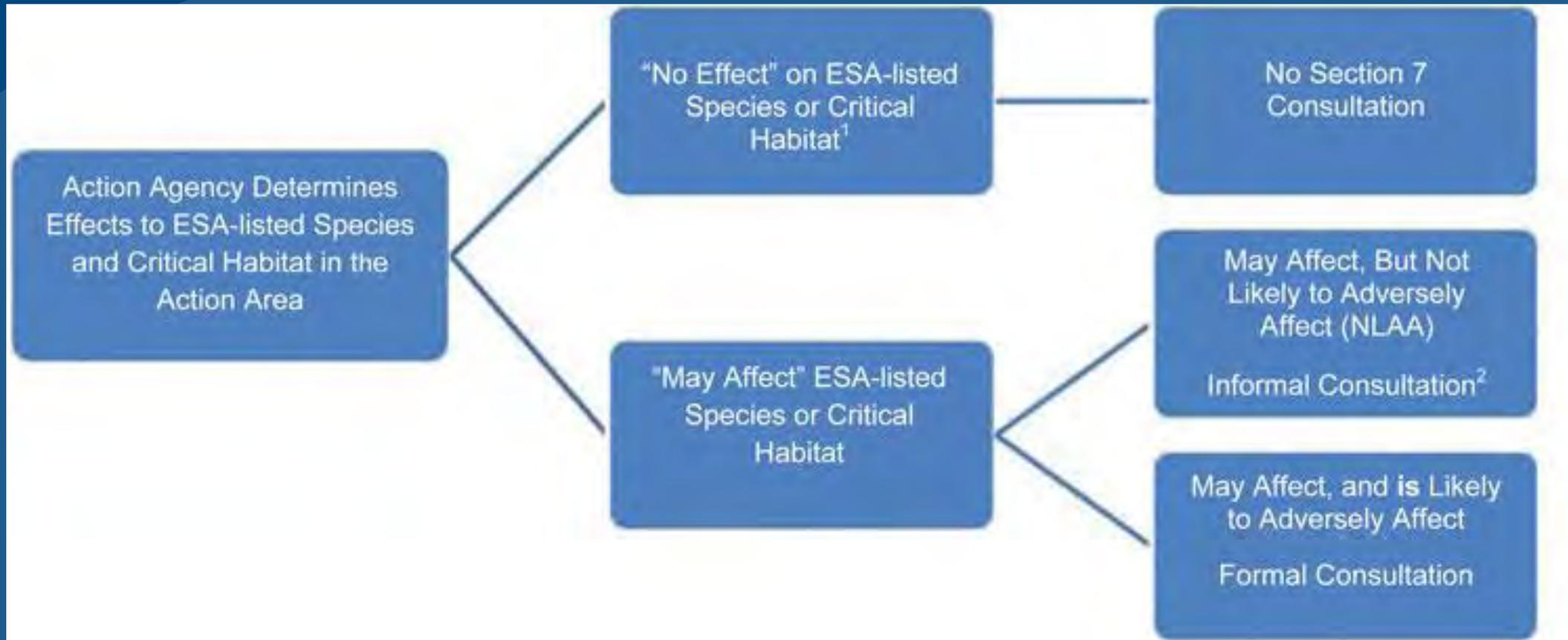
ESA Section 7 consultation

Section 7 of the ESA requires Federal agencies to:

- Use their authorities to further the purposes of the ESA by carrying out conservation programs **to benefit endangered and threatened species** – Section 7(a)(1)
- Ensure that **any action authorized, funded, or carried out** by the agency is not likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat – Section 7(a)(2)
- If a Federal agency action **“may affect”** a listed species or critical habitat, the agency must initiate section 7 consultation with NMFS or USFWS

www.greateratlantic.fisheries.noaa.gov/protected/section7

Section 7 consultation process simplified



Formal consultations – Biological Opinions

Content:

1. Introduction/Consultation History
2. Description of the Proposed Action and Action Area
3. Status of Listed Species and Critical Habitats
4. Environmental Baseline
5. Effects of the Proposed Action
6. Cumulative Effects
7. Integration and Synthesis of Effects
 - Jeopardy and Destruction/Adverse Modification analysis
8. Conclusion
9. Incidental Take Statement / (RPA)
 - includes RPMs, T&Cs, CRs, and Monitoring Measures
10. Literature Cited and Appendices

**ENDANGERED SPECIES ACT SECTION 7 CONSULTATION
BIOLOGICAL OPINION**

Action Agency: National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, through its Sustainable Fisheries Division

Activity: Endangered Species Act Section 7 Consultation on the Continued Implementation of Management Measures for the American Lobster Fishery [Consultation No. NER-2014-11076]

Consulting Agency: National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, through its Protected Resources Division

Date Issued: July 31, 2014

Approved by: Handwritten Signature
John K. Bullard
Regional Administrator



RPMs vs RPAs

Reasonable and Prudent Measures

- Measures necessary and appropriate to minimize the impacts of incidental take that is anticipated to result from implementing an action that NMFS concludes is not likely to jeopardize the species

Reasonable and Prudent Alternatives

- Alternatives to eliminate the likelihood of jeopardy or adverse modification of critical habitat
- Implemented in a manner consistent with the intended purpose of the action
- Consistent with the scope of the action agency's legal authority and jurisdiction
- Economically and technologically feasible

Biological Opinions issued on Federal FMPs

American Lobster Fishery - July 31, 2014

Batched Fisheries - December 16, 2013 (amended March 10, 2016)

- Northeast Multispecies
- Monkfish
- Spiny Dogfish
- Atlantic Bluefish
- Northeast Skate Complex
- Mackerel/Squid/Butterfish
- Summer Flounder/Scup/Black Sea Bass

Atlantic Deep-Sea Red Crab – February 6, 2002

*These BiOps concluded that the fisheries under consideration may adversely affect but were not likely to jeopardize the continued existence of any ESA listed species, including right whales

www.greateratlantic.fisheries.noaa.gov/protected/section7/bo/biological_opinions.html

Reinitiating Formal Consultation

Reinitiation of formal consultation is required (50 CFR 402.16) if:

1. the amount or extent of incidental take is exceeded;
2. new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
3. the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or
4. a new species is listed or critical habitat designated that may be affected by the action.

Numerical reinitiation triggers were identified in the Batch and lobster BiOps for each ESA-listed whale species

Batch BiOp (2013) - Right Whale Reinitiation Trigger

- Reinitiation trigger = 3
- Based on the highest number of serious injury or mortality (SI/M) observed in a single year during the previous 10 years
- Reinitiation is triggered if SI/M exceeds trigger in any year
- 2016 Marine Mammal Stock Assessment Report (SAR) exceeded trigger (June, 2017)

Right whale SI/M data*		
SAR	Year	SI/M
2015	2013	0.75
2016	2014	9

*Includes all SI/M entanglements with the exception of entanglements resulting from confirmed Canadian gear

Lobster BiOp (2014) - Right Whale Reinitiation Trigger

Based on the average annual SI/M from the previous 5 years (2007-2011):

- Right whales: 3.25

Entanglement data for each species during the next five-year period (2012-2016) will be averaged cumulatively and compared to each species' trigger.

Reinitiation will be required if NMFS determines that:

1. the annual average SI/M is \geq the species' trigger at the end of the five-year period; or
2. at any time during the five-year period the number of SI/M make it statistically impossible for the average to be $<$ the species' trigger at the end of the five-year period

Lobster BiOp - Right Whale Reinitiation Trigger

Right whale SI/M data*		
SAR	Year	SI/M
2014	2012	4
2015	2013	0.75
2016	2014	9

- Reinitiation trigger = 3.25
- 2012 and 2014 exceeded trigger; however, it did not make it statistically impossible for the average to be < the species' trigger at the end of the five-year period.

*Includes all SI/M entanglements with the exception of entanglements resulting from confirmed Canadian gear

The Draft 2017 SAR currently has 3.5 SI/M in 2015. If this number remains in the final, it will be statistically impossible for the average to be < 3.25 at the end of the five-year period.

Current Status of Fishery BiOps – Large Whales

- Pace *et al.* (2017) presents new information indicating that the fisheries considered in the batch, lobster and deep sea red crab BiOps may affect right whales in a manner or to an extent not previously considered in those BiOps
- The right whale reinitiation trigger has been exceeded for right whales in the Batch BiOp
- The right whale reinitiation trigger is expected to be exceeded for right whales in the Lobster BiOp once 2017 Final SAR is published

Based on this information reinitiation of consultation is required

Reinitiation of Formal Consultation

- On October 17, 2017, we issued a memo that reinitiates formal consultation on the Batched, Lobster, and Red Crab fisheries.
- This memo documents our determination that allowing the fisheries to continue during the reinitiation period will not violate ESA sections 7(a)(2) and 7(d).
- NMFS management actions covered by the FMPs (e.g., grants, permits and research set asides) may proceed as long as their implementation would not violate section 7(d) and would not jeopardize the continued existence of any ESA-listed species.

BiOp Development

- We have developed a formalized process to ensure a close working relationship between the Sustainable Fisheries Division (SFD) as the action agency and the Protected Resources Division (PRD) as the consulting agency as well as with the NEFSC
- SFD will coordinate closely with the Councils and ASMFC to keep them informed of progress with the BiOp(s) and any potential consequences of the reinitiation process
- GARFO will work closely with the Atlantic Large Whale Take Reduction Team (TRT) to gather advice and recommendations on management measures necessary to allow for the survival and recovery of right whales
- We encourage the Councils and ASMFC to actively participate in the TRT process as the results and outputs of the TRT process will be used to inform the development of the BiOp(s)



Consultation Timeline

- ESA regulations require that a biological opinion be completed within 135 days after the initiation of formal consultation
- However, for this reinitiation, a complex analysis is required to adequately assess the effects of the fisheries on ESA-listed species
- The outputs and advice and any recommendations of multiple working groups and the TRT will be crucial to inform the Fisheries BiOp
- Thus, the timeline for completion of the BiOp will be extended to allow us to work with NEFSC to incorporate the information put forth by the working groups and the recommendations and outputs of the TRT, which are critical to producing an accurate assessment of the effects of these fisheries on right whales

Opportunities for Councils/ASMFC Engagement and Participation in BiOp Development

- GARFO presentations to the Councils and ASMFC at their meetings
- NMFS Policy Directive 01-117 (January 19, 2015) Integration of ESA Section 7 with Magnuson-Stevens Act Processes
www.nmfs.noaa.gov/op/pds/documents/01/01-117.pdf
- Atlantic Large Whale Take Reduction Team (TRT)

NMFS Policy Directive 01-117

- Integration of ESA Section 7 with Magnuson-Stevens Act Processes
- Roles of NMFS Offices:
 - PRD: Consulting Agency - communicate with the Action Agency, and Councils, if appropriate
 - SFD: Action Agency - facilitate direct communication with the Council
- Unique Role of Councils
 - Work collaboratively with SFD as a liaison to PRD

Atlantic Large Whale Take Reduction Team

- Established in 1996 under MMPA
 - **Purpose:** to develop a take reduction plan for reducing the incidental take of right whales, humpback whales, fin whales and minke whales in commercial trap/pot and gillnet gear in U.S. waters from Maine to Florida
 - **Goal:** reduce serious injuries and mortalities to $< \text{PBR}$ (PBR=0 for right whales at that time)

www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt

Team Membership

Group	Number
Trap/Pot Industry	18
Gillnet Industry	5*
Conservation/Environmental	6
Academic/Scientific	9
State Managers	14
Federal Managers	5
Fishery Mgmt Organizations	4
Total	61

* Some trap/pot member represent gillnet as well



July 22, 1997

- Establish TRP
- Weak link requirements
- Effective November 15, 1997

January 9, 2002

- Establish SAM and DAM program
- DAM effective February 8, 2002
- SAM effective March 2002

October 5, 2007

- Expand weak link requirements
- Implement sinking groundline requirements
- Effective April 2009
- Replaced SAM and DAM program

December 12, 2014

- Modification to time/area of closure area
- Effective immediately



December 2000

- Gear marking requirements
- Effective February 2001

June 25, 2007

- Seasonal gillnet closures in Southeast
- Effective July 2007

June 27, 2014

- Vertical line rule
- Additional gear marking requirements
- Effective June 2015

May 28, 2015

- Modification to vertical line rule. Effective immediately
- Additional gear marking requirements

Sinking Groundline Rule

- At the 2003 ALWTRT meeting, by consensus, the ALWTRT agreed to two overarching principles associated with reducing large whale entanglement risks:
 - Reducing entanglement risks associated with groundlines in commercial trap/pot gear; and
 - Reducing entanglement risks associated with vertical lines (endlines or buoy lines) in commercial trap/pot and gillnet gear.
- The ALWTRT agreed to focus first on addressing the groundline entanglement risk.
- Lengthy rule development process that ultimately led to the implementation of a sinking groundline requirements for all trap/pot fisheries throughout the entire east coast.
 - This requirement was approved in October 2007 and became effective in April 2009.



Vertical Line Rule Development

Objectives:

- Use a different approach than how the sinking groundline rule was developed.
- The approach for the vertical line rule addresses the data limitations encountered during the development of the sinking groundline rule and focuses the vertical line management scheme to smaller, high impact areas versus wide-scale, broad management.

Goals:

- Develop management options to reduce the risk of vertical line entanglements in places where it will have the most impact rather than applying broad blanket reductions all along the entire East coast.
- To be fully informed as early on in the process as possible on the economic impacts associated with any vertical line management strategy.

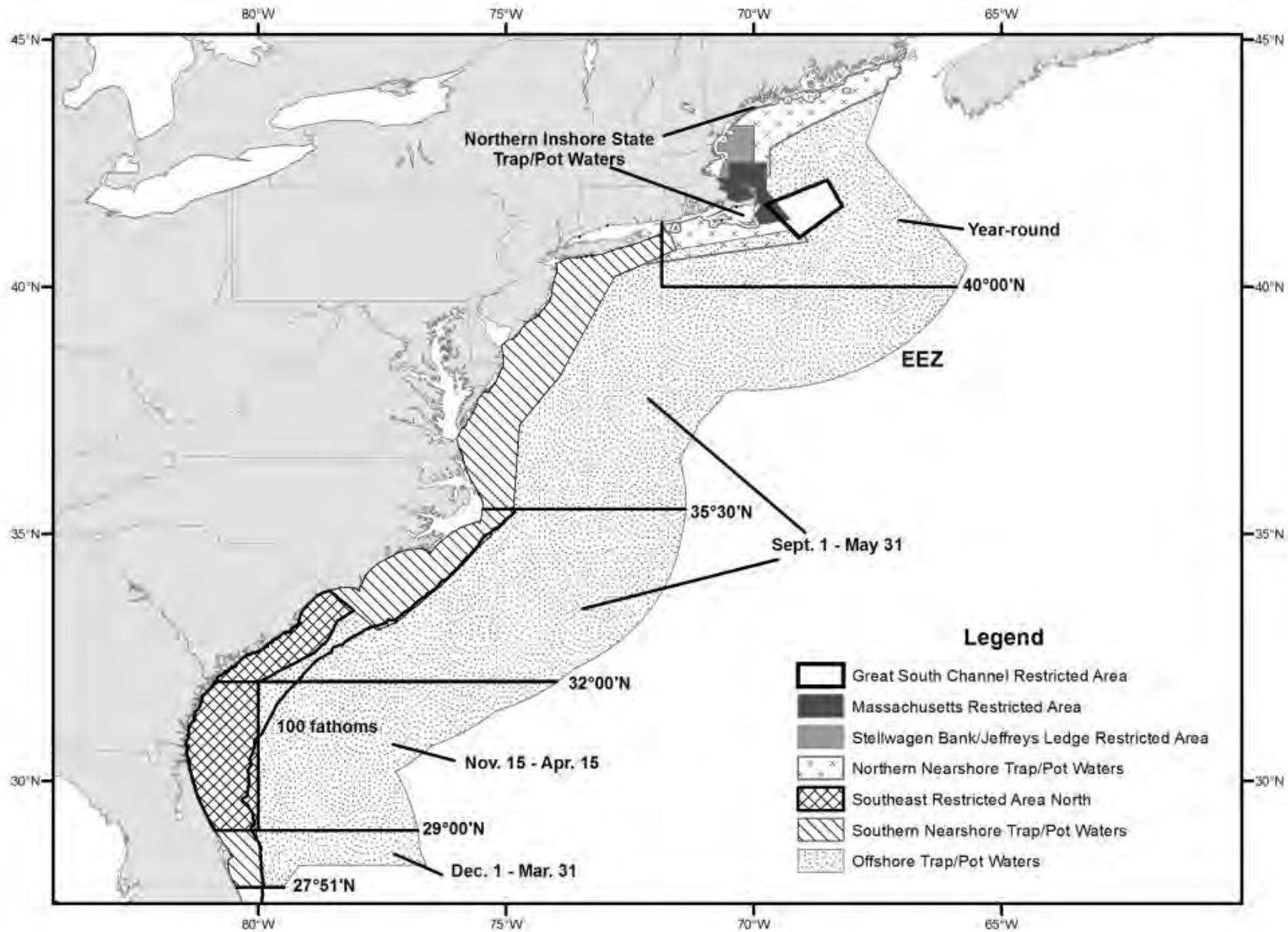
Analytical Approach:

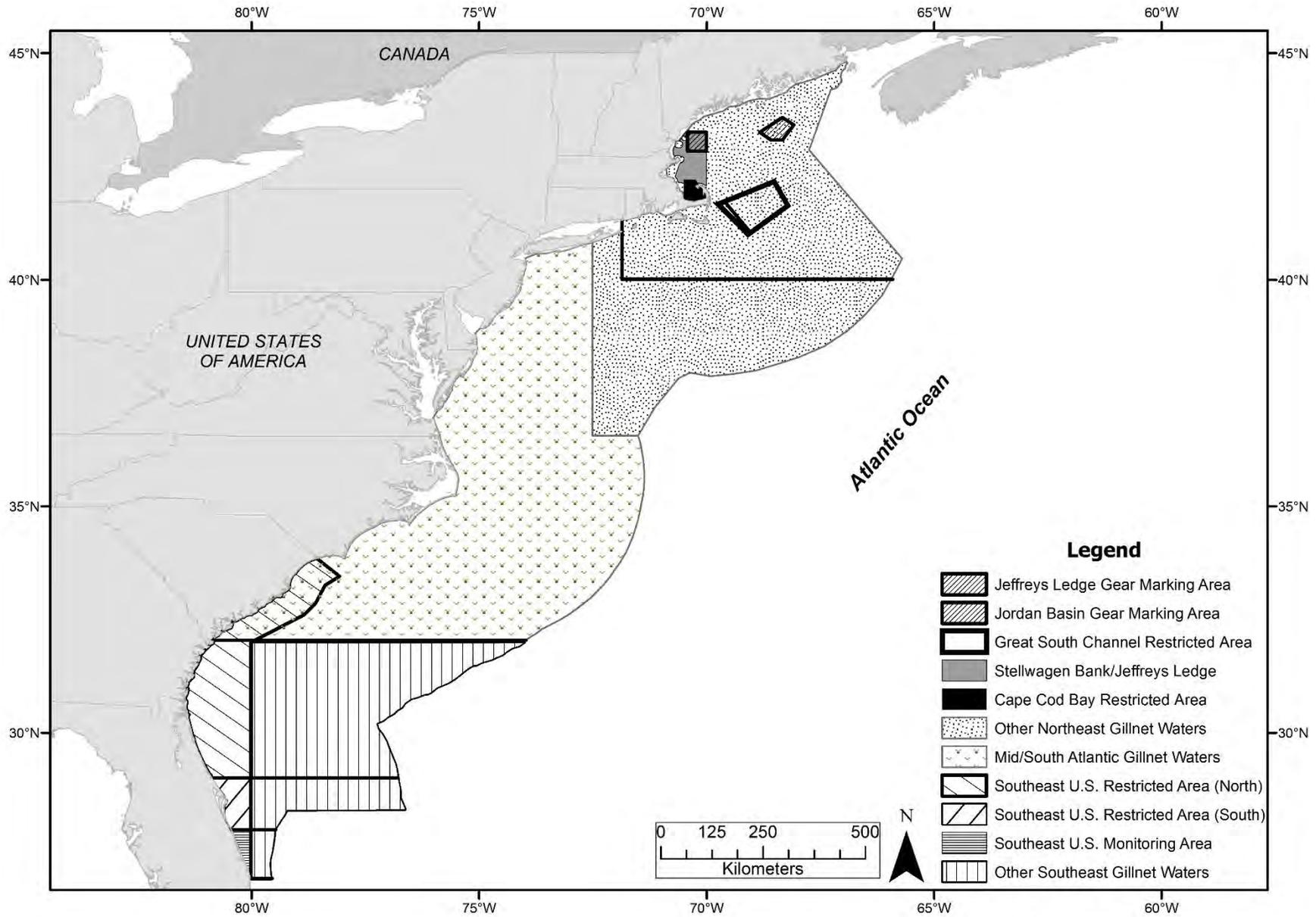
- Sightings per unit effort overlaid on;
- Gear Characterization information;
- This approach allows the Atlantic Large Whale Take Reduction Team to consider several vertical line management strategies (gear density, whale density, co-occurrence).

Vertical Line Rule

- **Final Rule Published in June 2014**
- **Combination of NMFS, States, Conservationist, and Scientist proposals:**
 - Increase the number of traps per trawl based on area fished and miles fished from shore [(0-3), (3-12), (12+)] and [(0-3), (3-6), (6-12)(12+)]
 - Closure: Created the MA Bay Restricted Area to be closed February 1 – April 30 to trap/pot fisheries (Amended December 2014)
 - Some exemptions to the minimum number of traps per trawl
 - ¼ mile buffer from shore around islands (Monhegan, Matinicus, Ragged Islands).
 - New Hampshire state waters
 - In SER require single pots/traps, weaker weak links and breaking strength of vertical lines
 - More robust gear marking program coast wide and monitoring in the Mid-Atlantic.







Lines removed from water column

- In 2009 we required converting 27,000 miles of floating groundline to sinking groundline
- In 2015 we required removing 2,740 miles of vertical line

Enough line to encircle Earth 1.2 times



Trap/Pot and Gillnet Closure areas

31,916 TOTAL SQ MILES of seasonal closures

MA Restricted Area (trap/pot, Feb-April)

- 3,073 sq mile

Great South Channel (trap/pot and gillnet, April-June)

- 3,232 sq mile

Cape Cod Bay Restricted Area (gillnet, Jan-May)

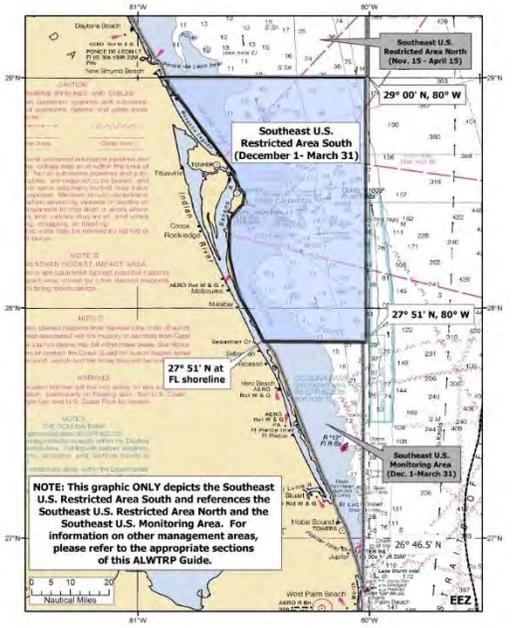
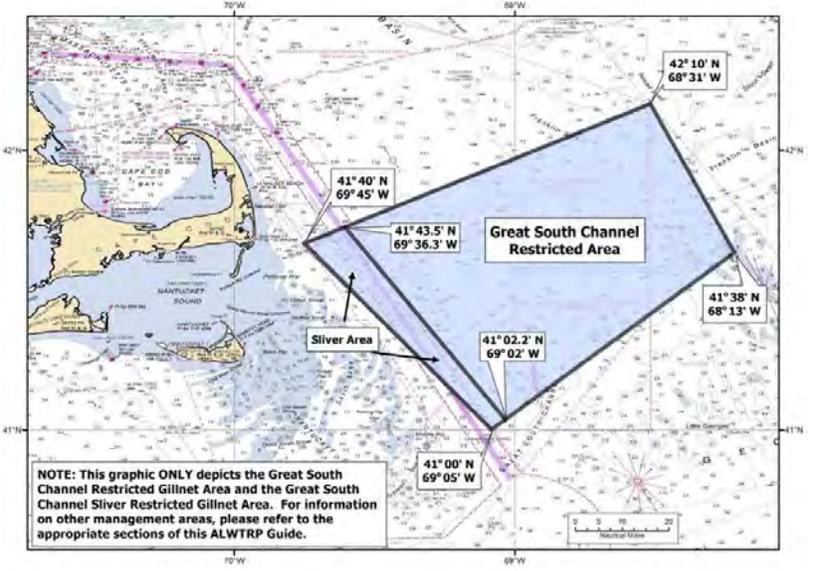
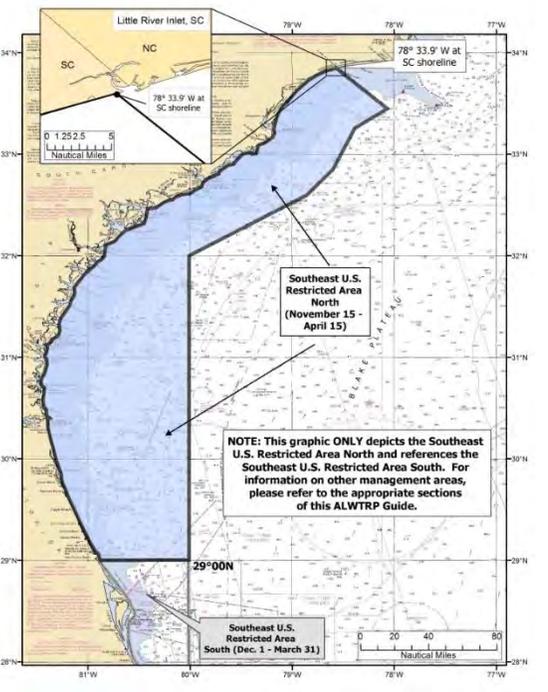
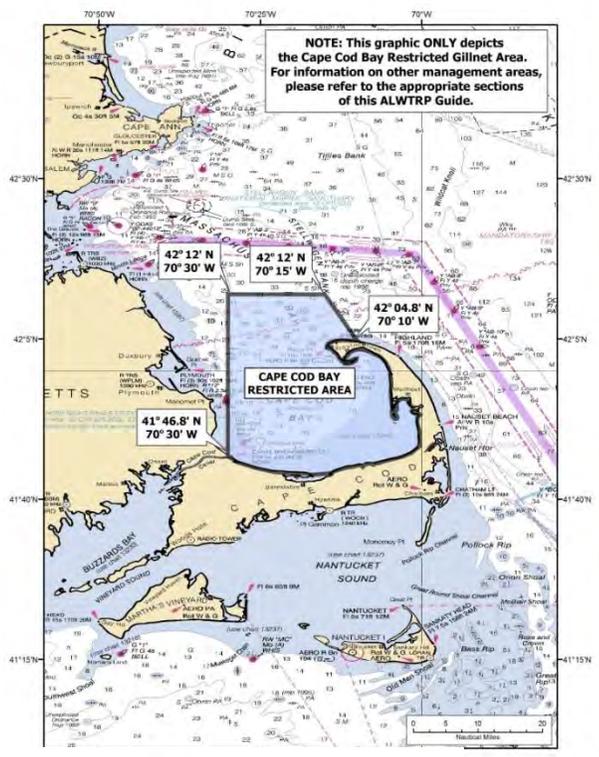
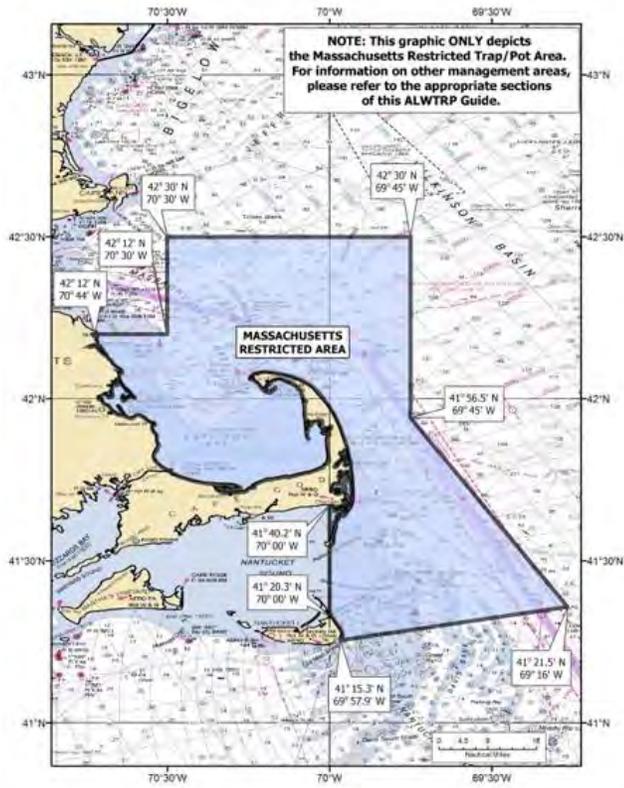
- 664 sq mile

Southeast Restricted Area North (gillnet, Nov 15- April 15)

- 21,996 sq mile

Southeast Restricted Area South (gillnet, Dec-March)

- 2,951 sq mile



Weak Links and Gear Marking

- Weak links are required coastwide



- Gear marking is required coastwide
 - Including two areas of importance for right whales with specific marks (Jordan Basin and Jeffreys Ledge)
 - 4,008 vessels are required to gear mark with three 12" marks

Thoughts

- The current status of right whales is a critical situation and using our available resources to recover right whales is of high importance and high urgency
- We recognize Canada has to do more; we have assembled multiple working groups with Canada to jointly identify data and management gaps that are impeding recovery of right whales
- We recognize and appreciate that the fishing industry has made many sacrifices to drastically reduce the number of lines in the water column, reducing the risk of serious injuries and mortalities to whales
- Past gear modifications have shown that working through the TRT process can be successful, and now we must do more with the science we have
- The TRT will be heavily involved in informing the BiOp(s) of methods to reduce entanglements
- We appreciate the support and information provided by all members of the TRT and we encourage the Councils and ASMFC to fully engage in the TRT



References

Knowlton, A.R., J. Robbins, S. Landry, H. McKenna, S.D. Kraus, and T. B. Werner. 2016. Effects of fishing gear strength on the severity of large whale entanglements. *Conservation Biology* 30: 318-328.

Knowlton, A.R., Hamilton, P.K., Marx, M.K., Pettis, H.M, and Kraus, S.D. 2012. Monitoring North Atlantic right whale *Eubalaena glacialis* entanglement rates: a 30 year retrospective. *Marine Ecology Progress Series* 466:293-302.

Pace III RM, Corkeron PJ, Kraus SD. State–space mark–recapture estimates reveal a recent decline in abundance of North Atlantic right whales. *Ecol Evol.* 2017;00:1–12

Pettis, H.M., Rolland, R.M., Hamilton, P.K., Brault, S., Knowlton, A.R., and Kraus, S.D. 2004. Visual health assessment of North Atlantic right whales (*Eubalaena glacialis*) using photographs. *Can. J. Zool.* 82(1): 8–19.

Contact Information

Mark Murray-Brown, GARFO ESA Section 7 Coordinator

- Mark.Murray-Brown@noaa.gov or (978) 281-9306

Dan Marrone, GARFO ESA Section 7 Biologist

- Daniel.Marrone@noaa.gov or (978) 282-8465

Mike Asaro, GARFO Marine Mammal and Sea Turtle Recovery Coordinator

- Michael.Asaro@noaa.gov (978) 282-8469

Questions?

Image collected under MMPA Research permit number 17355
Photo Credit: NOAA/NEFSC/Christin Khan

