

Welcome! Say hello + work out your technology



Tips for Using Zoom

- ✓ **If you don't have optimal internet connection, join the meeting via computer for video & opt to dial in via phone for audio.**
 - When you are dialing in, please be sure to enter your participant ID.
- ✓ **Mute when not speaking.**
- ✓ **Rename yourself** in the Participants tab with First & Last Name, Your Affiliation.
In front of your name:
 - Team members: put * // Alternates: put *ALT
- ✓ **Bring a tech-adaptive mindset** as we work to maximize engagement in this online setting!



...We'll formally begin the meeting at 2 PM

Attendee Controls



The screenshot displays the Zoom Meeting interface. The main area is dark with the word "Participant" in white. At the bottom, there is a toolbar with icons for Unmute, Start Video, Participants, Chat, Share Screen, Record, Reactions, and Leave. A "Raise Hand" button is highlighted with a blue arrow and a text box that says "Raise hand for questions/comments". Below the toolbar, there are reaction buttons (Yes, No, Slower, Faster) and a "Raise Hand" button. On the right side, the "Participants (1)" panel is open, showing "Participant (me)" with a red 'P' icon and a blue arrow pointing to it with the text "Change your screen name to First name Last Name, Affiliation". Below the participants panel is the "Chat" panel, which has buttons for "Invite", "Unmute Me", and "Claim Host". A blue arrow points to the "To: Everyone" dropdown menu with the text "Direct your chat to a specific person".

Zoom Meeting

Participant

Mute and unmute yourself

Turn your camera on or off

Open Participants tab

Chat host only

Raise hand for questions/comments

Change your screen name to First name Last Name, Affiliation

Direct your chat to a specific person

Participants (1)

Participant (me)

Invite Unmute Me Claim Host

Chat

To: Everyone

Type message here...

If you have any tech issues, contact Cam Hager in chat or through e-mail at chager@cbi.org

* Note- you will have to remember to put your hand down after you have spoken or it will remain up.



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Atlantic Large Whale Take Reduction Team

November/December 2022 Meeting

Day 1: November 14, 2022

Nov/Dec 2022 Meeting Goal

Create Team recommendations to NMFS to reduce M/SI of right whales in U.S. commercial fisheries to below the Potential Biological Removal Level (PBR: 0.7/year):
An additional 41 to 46% risk reduction

Objectives for Nov 14-18:

- Develop the outlines of a team recommendation to NMFS
 - Refine up to three coast-wide packages that reflect the team's analysis and discussion in service of meeting the required risk reduction
 - Capture other points of advice and guidance the Team would like transmit to NOAA as it advances rulemaking
 - Emphasize areas of team alignment and note areas of differing views, if needed














Objectives for Dec 1 & 2:










- Refine and confirm the team's recommendation
 - Agree on a short summary document that synthesizes the team's key considerations, and describes one or more packages that reflect the team's best thinking. The document can include differing viewpoints, if those exist.



Team Materials for this Meeting

There is a new folder with materials for Team members and alternates in the Google Drive entitled “2022 November Meeting Materials.” We currently have several documents in here and will be adding more throughout the meeting.

	2021 Materials
	2021- June/July Meeting Materials
	2022 May - Meeting Materials
	2022 November Meeting Materials
	2022 September Meeting Materials
	2022- March ALWTRT Getbacks
	April 2019 Team Meeting Materials
	DST Support Materials
	Large Whale Info
	TM_NMFS_NE_280.pdf 
	USCG activities alwtrt meeting may 2022 (1).pdf 

	2021 and 2022 Scoping Summaries
	ALWTRT Guide to Using Measure Menu 
	Gillnet & OTP Data Summaries Nov 8, 2022 
	High Resolution Menu of Measures: November 14, 2022
	Provisional November 2022 ALWTRT Participant Agenda..
	TRT_sept_landing_value.pdf 

ALWTRT Informational Webinar: DST Analyses for November 2022 presented on Nov 9, 2022 recorded webinar [registration link](#)

ALWTRT Informational Webinar: In-Depth Right Whale Habitat Model Webinar (Jason Roberts, Duke University) presented on Nov 10, 2022 recorded webinar [registration link](#)



Overview for this Week



- **Day 1: Monday, Nov 14**
 - Welcome, meeting goals, and process
 - Summary of scoping, entanglement updates and package analyses discussion
- **Day 2: Tuesday, Nov 15**
 - Discussion on various measures - strengths, considerations, concerns, etc.
 - Opportunity to discuss related measures
- **Wednesday, Nov 16 - NO MEETING**
- **Day 3: Thursday, Nov 17**
 - Further discussion on modeling results and small group work
- **Day 4: Friday, Nov 18**
 - Discussion of informal caucus results and next steps into December meetings
- **Day 5: Thursday, Dec 1**
- **Day 6: Friday, Dec 2**

Today's Agenda (Monday, Nov 14)



2:00 p.m.	Session 1: Introduction and Setting the Stage (Plenary) <ul style="list-style-type: none">• Purpose, agenda and ground rules review
2:20 p.m.	Session 1: Introduction and Setting the Stage (Plenary) <ul style="list-style-type: none">• Scoping Summary• Entanglement Updates and Recent Gear Marks
2:55 p.m.	Session 2: Review and Discuss Package Analyses
4:15 p.m.	Stretch Break
4:30 p.m.	Session 2: Resolving Remaining Questions on the Way Forward
5:30 p.m.	Public Comment
5:45 p.m.	Wrap-Up and Next Steps

A Word About Meeting Structure



- **Aiming for mix of plenary and small cross-caucus breakouts**
- **Providing templates as way to track & focus individual and group discussions**
- **Capturing evolving discussion through working document**

Note: Agenda times may shift slightly later in the week

Ground Rules for Team Members



Discussion protocols:

- Contribute - need to build shared understanding
- Make room for others - need to hear from all
- Ask questions of one another - no easy answers
- Make good faith effort to collaborate - patience, open ears and minds
- Not seeking consensus this week

Agency not recording to encourage candor; media may be present

To contribute to the discussion:

- Primary members
 - **Encouraged** to keep your cameras on and stay on mute unless speaking
 - Raise a virtual “hand” (remember to put it down after)
 - Chat to host only with issues (emoji reactions available)
- Alternates
 - In plenary, engage as public unless sitting in for primary
 - In cross-caucus breakouts, alternate generally in the same room as primary

Ground Rules for Public Attendees



Public welcome to attend all plenary sessions

Comment protocols - opportunity each day

- **Input welcome during public comment portion**
 - Share thoughts in chat or via comment during that time
 - Please keep all comments on-point and respectful
- **Please remain on mute and video off at other times**
- Intent is to **manage public input as if we were all in room together**

To contribute during Public Comment period

- Raise a virtual “hand” or signal interest in chat

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Scoping Summary

These slides provide a high level summary of public comments on measures that are related to risk reduction. A slide deck and table providing detailed summaries of all public comments collected during the 2021 and 2022 scoping periods linked in the 2022 November Meeting Materials/2021 and 2022 Scoping Summaries folder

2021 and 2022 Public Comment Periods

Round 1 of Scoping Comments

- Comment Period: Aug 10, 2021–Oct 21, 2021
- NMFS hosted 7 virtual public comment scoping meetings in addition to presenting/receiving comments at the NE Fishery Management Council, Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, and Atlantic States Marine Fisheries Commission. There were also 3 call in days where NMFS accepted comments via phone.
- NMFS received 1,314 comments via email, 31 comments via virtual scoping meetings, and 9 comments via the phone
- A summary of the scoping comments submitted during the first public comment period was presented to the Take Reduction Team on Jan 18, 2022* (Recording for webinar that includes a summary of 2021 comments [here](#)).

Round 2 of Scoping Comments

- Comment Period: Sept 9, 2022–Oct 11, 2022
- NMFS hosted a virtual scoping meeting on September 27, 2022 attended by 581 people and an in-person scoping meeting in Portland, Maine on October 5, 2022 attended by more than 500 people
- NMFS received 10,380 comments (566 unique comments) via regulations.gov, 59 comments during the virtual scoping meeting on Sept 27, ~40 comments during the in-person scoping meeting on Oct 5

Detailed summaries of all public comments collected during the 2021 and 2022 scoping periods provided in the 2022 November Meeting Materials folder



Line Reduction

- Removing Buoy Lines
 - Remove vertical buoy lines from the water, comments included:
 - In large areas used by right whales for feeding, breeding, and migration
 - Across entire Atlantic
 - Eliminate 50 percent of all vertical lines in federal and state waters
 - Allow one buoy line for trawls in offshore waters, remaining line can be full strength rope
- Trawling Up
 - Gillnets
 - Could increase number of nets in a set in Southern New England
 - Minimums related to vessel size
 - Minimums based on distance from shore
- Line Caps
 - Cap endlines and minimum traps per trawl based on distance from shore
 - Suggested areas: LMA 2, LMA 3
 - Provide tags for lines to implement line caps

Effort Reduction

- Reduce trap cap
 - Suggested numbers: 700, 600, 450-475
 - Incrementally reduce trap cap by a set amount (Suggested 100, 50) each year to lessen initial financial impact
 - Set limit based on historical landings data for each vessel (when available) or distance from shore
- Reduce soak time for gillnets to 24 hours and require tending for all anchored nets
- Reduce effort through permit buyouts, permit buybacks, and/or permit stacking
- Close recreational fishing before implementing regulations on commercial fleet
- Remove latent effort

Weak Line or Inserts

- Apply weak rope/insert requirements in Phase 1 to other trap/pot and gillnet fisheries
 - Suggested 1700 pound breaking strength or equivalent insertions in top 75%
 - 100% weak rope
- Reduce the breaking strength of inserts and rope to less than 1700 pound breaking strength for calves, juveniles, or otherwise weakened whales
- Re-implement the 600 pound breakaway for all buoys and markers in fixed gear fisheries and provide risk reduction credit
- Weak rope cannot withstand depths and weather conditions needed in LMA 3
 - Maximum breaking strength waters 50-100 fa should be closer to 2000 lb using a 9/16" or 5/8" diameter rope
 - No form of weak rope operational beyond 100 fa at the current moment (others suggest operability limited beyond 100 m)
 - Allow hybrid trawls of one end full strength and the other end weak rope offshore

Seasonal Closures - Current Closures

- Apply existing closures to all fixed gear fisheries
- Give risk reduction credit to Massachusetts for Massachusetts Restricted Area
- Identify increased risk reduction value of Massachusetts Restricted Area since first closed
- Extend LMA 1 Restricted Area
 - To include February
 - To include Stat Area 515
- Extend Massachusetts Restricted Area
 - December - May 15
 - To include Jeffreys Ledge, Stat Area 514
 - To include “gap” area closed last year
- Extend South Island Restricted Area
 - Year Round
 - To include LMA 2, LMA 2/3, Stat Area 537, Stat Area 526

Seasonal Closures - New Closures

- Implement seasonal closures previously rejected in Phase 1
- Establish new closure
 - Downeast Maine restricted area from May 1/June 1-Aug 31 (Aug 1-Oct 31 also suggested) and include all waters around Mount Desert Rock
 - Migratory corridor between Georges Bank and MRA and Gulf of St. Lawrence
 - Closure in Maine with dates based on distance from shore
 - Mid-Atlantic closures from Dec 1-May 30 inside 50 fa line from NY/CT to Cape Hatteras
 - South Atlantic closures from Dec 1 to Mar 31 inside 50 fa line from Cape Hatteras to tip of FL
- Dynamic management schemes
 - Remove regulatory obstacles to dynamic management
 - Begin working with state agencies for support for near-real time monitoring (including aerial and passive acoustics)
 - Develop framework for triggering and ending dynamic closure response
 - Consider gillnet sectors ability to develop and enforce dynamic management with 48 hour response by fleet

Rope Type and Marking Requirements

- Restrict fishing rope diameter to no greater than 0.5 inch (1.27 cm) to distinguish it from offshore Canadian gear
- Transition industry back to a biodegradable rope made of hemp, sisal, or manila
- Extend use of gear marking across U.S. Atlantic fisheries to include other trap pot and gillnet fisheries
 - Manufactured, integrated marking solutions preferred to paint, tape, etc.
 - Extend gear marking scheme to be more nuanced in Maine and include marks specific to exempted waters, state waters, and federal waters
 - Require marks that distinguish between state and federal waters without burdening those who fish in both



Ropeless & On-Demand Fishing

- Allow ropeless fishing in seasonal restricted areas
- Implement mandatory ropeless fishing for the lobster and crab pot fishing industries, either ASAP or with accommodating a 12-24 month ramp up
- Streamline permitting process for on-demand fishing trials
- Require interoperability between tracking systems
- Require ropeless offshore (comments included beyond 100fa, beyond 100m, in LMA3)
- Ropeless fishing is not ready
 - Not scalable across the fisheries
 - Does not make sense for singles or in areas of dense fishing effort
 - Will cause or increase gear conflict and gear loss/ghost gear

Other Themes

- Measures should be implemented in tandem with an increase funding for research and monitoring of whales and their prey
 - Increase aerial and acoustic surveys in Gulf of Maine; extend to include Labrador, Newfoundland, and Greenland
 - Fund surveys on *C. finmarchicus*
- Risk reduction target should be higher than 90% (suggested target of 95%)
- Risk reduction credit be given back for the Massachusetts Restricted Area Closure
- Maintain Maine exemption waters
- Enact emergency regulations; implement emergency interim rule
- Concern about changing social dynamic of fishing industry, particularly for coastal and island communities with significant economic dependency on fishery
- Impacts to safety where fishermen have to compensate by increasing effort, reduce maneuverability, require to be on deck for longer periods of time, particularly for those working without crew, in small vessels, offshore, or in inclement weather





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Updates on Entanglements and Recent Gear Marks

2020 Entanglement Summary

27 new reported entanglements and preliminary gear analysis

4 right whales:

- 3 entangled, unknown gear;
- 1 dead - consistent with Canadian snow crab (Canada orange; Canada disagrees)

15 humpback whales:

- 7 entangled - 1 unk. mesh, 6 unknown gear;
- 1 partial disentanglement - U.S. lobster (red);
- 1 gear shed - U.S. monofilament;
- 1 monitor - U.S. monofilament;
- 2 dead - 1 U.S. gillnet (striped bass), 1 unknown;
- 3 disentangled - 1 U.S. trap (red), 1 U.S. trawl, 1 Canadian lobster



2020 Entanglement Summary

27 new reported entanglements and preliminary gear analysis

7 minke whales:

- 1 entangled, unknown mesh
- 1 disentangled - U.S. lobster (purple)
- 5 dead -
 - 1 U.S. lobster (purple);
 - 1 U.S. gillnet (striped bass);
 - 1 U.S. fish weir;
 - 1 unknown U.S.;
 - 1 unknown

1 unknown whale:

- unknown gear



2021 Entanglement Summary

30 new reported entanglements and preliminary gear analysis

3 right whales:

- 2 entangled - 1 unknown gear, 1 unknown Canadian;
- 1 partial disentanglement (monitor) - unknown

4 minke whales:

- 1 entangled - unknown gear;
- 1 disentangled - U.S. lobster (purple);
- 2 dead - 1 unknown mesh, 1 U.S. lobster (purple and green)

2 finback whales:

- 2 entangled - 1 unknown gear, 1 navigational buoy



2021 Entanglement Summary

30 new reported entanglements and preliminary gear analysis

21 humpback whales:

- 6 entangled - 1 unknown mesh, 1 unknown gillnet, 4 unknown gear;
- 2 disentangled - 1 monofilament, 1 U.S. lobster (purple and green);
- 5 gear shed - 2 monofilament, 2 unknown gear, 1 U.S. lobster (red);
- 8 monitor - 1 unknown mesh, 6 monofilament, 1 U.S. monofilament



2022 Entanglement Summary

27 new reported entanglements and preliminary gear analysis

5 right whales:

- 4 entangled - unknown gear
- 1 monitor - unknown gear

6 minke whales:

- 4 entangled - unknown gear
- 1 disentangled - U.S. lobster (red)
- 1 dead - unknown gear



2022 Entanglement Summary

27 new reported entanglements and preliminary gear analysis

16 humpback whales:

- 6 entangled - 5 unknown gear, 1 U.S. lobster (purple);
- 3 disentangled - 2 unknown, 1 U.S. lobster (purple);
- 1 gear shed - unknown;
- 6 monitor - 5 monofilament, 1 monofilament and lures



Credit: CCS



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2020-2022 Color Mark Entanglement Summary

Year	Species	Total #	Total w/ color mark	Color	1st sighting location
2020	Right	4	1	Orange - Canada (1)	Massachusetts
	Humpback	15	2	Red - MA (1), 1 unknown	Massachusetts
	Minke	7	2	Purple - ME (2)	Maine
	Unknown	1	0		
2021	Right	3	0		
	Humpback	21	2	Red - MA (1), Purple & Green - ME Fed. (1)	Massachusetts
	Minke	4	2	Purple - ME (1), Purple & Green - ME Fed. (1)	Maine
	Finback	2	0		
2022	Right	5	0		
	Humpback	16	2	Purple - ME (2)	Massachusetts
	Minke	6	1	Red - MA (1)	Massachusetts

- 84 new reported entangled whales with gear present since 2020.
 - 12 right whales, 52 humpback, 17 minkes, 2 fin, and 1 unknown whale
- Reported entanglements represent the minimum number of occurrences. This does not include cases with new entanglement trauma but no gear documented.





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Report Back on Analyses

Review and Discuss Package Analyses

Back to Basics: Short DST Recap

- Team requested a risk reduction **target** and **method to compare** risk reduction among proposals at October 2018 ALWTRT Meeting
- Built the DST in Spring of 2019
 - An expansion of the previously-used “Co-occurrence Model” from Industrial Economics (IEc), which used whale sightings per unit effort (SPUE) to model whale density
 - Duke Habitat Density Model improved upon incomplete SPUE model
 - Limited in scope to lobster and crab vertical lines in the northeast U.S., used 2017 line model from original IEc Co-occurrence Model
- Reviewed by the Center for Independent Experts in 2019

Quantifying Risk

- Relative Risk Units based on approach in SE – Farmer *et al.* 2016
- Whale Density – Roberts *et al.* 2016

$$\mathbf{RISK = WHALES \times GEAR DENSITY \times SEVERITY}$$

- Calculated for each month and area
- Summed across all months and locations

Farmer, N. A., T. A. Gowan, J. R. Powell, and B. J. Zoodsma. 2016. Evaluation of Alternatives to Winter Closure of Black Sea Bass Pot Gear: Projected Impacts on Catch and Risk of Entanglement with North Atlantic Right Whales *Eubalaena glacialis*. *Marine and Coastal Fisheries* 8(1):202-221.

Roberts, J. J., B. D. Best, L. Mannocci, E. Fujioka, P. N. Halpin, D. L. Palka, L. P. Garrison, K. D. Mullin, T. V. N. Cole, C. B. Khan, W. A. McLellan, D. A. Pabst, and G. G. Lockhart. 2016. Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. *Scientific Reports* 6:22615.



Current DST Layers: Most Recent Data Available

- Current right whale density using 2010 through Sept 2020 (2010-2019, v12, Roberts et al. 2021a & b)
- Fishery layers:
 - Built new layers based on updated methods and data (buoy lines, groundline, and gillnet profiles)
 - Includes all ALWTRP fisheries coastwide
 - Worked closely with team, states, and other experts to refine
 - Will be reviewed by the Atlantic Scientific Review Group on Dec 12-14
- Empirical threat model informed by Knowlton *et al.* 2016 & Arthur *et al.* 2015

Arthur, L. H., W. A. McLellan, M. A. Piscitelli, S. A. Rommel, B. L. Woodward, J. P. Winn, C. W. Potter, and D. Ann Pabst. 2015. Estimating maximal force output of cetaceans using axial locomotor muscle morphology. *Marine Mammal Science* 31:1401–1426.

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: Fishing Rope and Whale Entanglements. *Conservation Biology* 30:318–328.

Roberts JJ, Schick RS, Halpin PN (2021) Final Project Report: Marine Species Density Data Gap Assessments and Update for the AFTT Study Area, 2020 (Option Year 4). Document version 2.2. Report prepared for Naval Facilities Engineering Command, Atlantic by the Duke University Marine Geospatial Ecology Lab, Durham, NC

Roberts JJ, Halpin PN (2021) North Atlantic right whale v12 model overview. Duke University Marine Geospatial Ecology Lab, Durham, NC



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What makes a good baseline model for ALWTRT?

- Appropriate timeframe reflecting whale and fishery distribution
 - Long enough to capture variability
 - Short enough to reflect more recent trends
- The 2010–2019 right whale habitat density model was recommended for management
 - Enough data to produce a quality model
 - Captured the ecological shift
- Right whales have experienced major shifts and are known to revisit areas
- Right whales are very cryptic, not always reliably sighted when detected acoustically (e.g. Murray *et al.* 2022)

Why do some areas appear more or less risky than expected?

Area	Pre/Post Phase 1	Mean Rope Strength	# VBLs / nm ²	# Whales / nm ²	Risk / nm ²
Maine Zone A	Pre	2191	377	0.006	8.0
	Post	2039	328	0.006	5.9
Maine Zone G	Pre	2184	255	0.04	9.3
	Post	2034	223	0.04	6.8
LMA 2	Pre	2418	13	0.06	1.4
	Post	2227	12	0.06	0.8

- 10 times fewer whales in Maine zone A than LMA 2 but 25 times more lines
- To get risk reduction, need to modify gear layer because we can't modify whale layer

Overview of Our Risk Reduction Goals

- We need to reduce mortality and serious injury of North Atlantic right whales to a level below PBR (i.e. 0.7 whales a year)
- We recently updated the estimated risk reduction needed to achieve this goal
 - Total estimated mortality data 2016 - 2020
 - Observed mortality and serious injury from 2017 - 2021
 - Need an estimated 88 to 93 percent risk reduction to get **below** PBR
- What risk reduction was achieved in Phase 1?
 - Minor tweaks to the model and shapefiles since September
 - Now rounding up to 47% risk reduction from Phase 1 measures
 - A 41 to 46 % reduction is still needed, depending on country apportionment



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Developing and Testing Ideas

Ideas refined and aggregated from team breakouts, team requests, caucus meetings, and scoping

Developing a Menu of Measures

- Measures analyzed in September were used to create initial Menu of Measures for the team
- Modelers from the DST Team met with various caucus groups to discuss measures put forth for preliminary analyses.
 - Caucus Meetings Held in October:
 - Oct 3 in Gloucester MA with lobster fishers from NH and Massachusetts LMA1
 - Oct 4 in Plymouth MA with lobster fishers from Massachusetts LMA1 and OCC
 - Oct 5 hybrid in New Hampshire with gillnet fishers from Gulf of Maine
 - Oct 5 in New Bedford MA with lobster fishers from SNE LMA2 and LMA3
 - Oct 6 in New Bedford MA with gillnet fishers from SNE LMA2 and LMA3
 - Maine DMR and Zone Council caucuses
 - Produced Requests From: Massachusetts Division of Marine Fisheries, New Hampshire, Northeast Gillnet, Rhode Island Department of Environmental Management, Atlantic Offshore Lobstermen's Association
 - Informal Drop-in Caucus Nights: Oct 14, 17, 20
- Maine DMR presented some general ideas received from industry on Wednesday Nov 9, similar to measures already captured in menu and Draft Packages
- Review [November 9 presentation](#) for more detail

Menu of Measures

- Three tabs dividing individual measures into measure type
 1. Line / Gear Reduction (ex. trawling up, 1 end ropeless, etc)
 2. Weak Rope
 3. Closure (gear moves and lines out closures)
- Items within the same individual menu tab are somewhat interchangeable

High Resolution Menu of Measures: November 8, 2022 ☆ 🗑️ 🔄

File Edit View Insert Format Data Tools Extensions Help Last edit was made 2 hours ago by Marisa Trego - NOAA Federal

🖨️ ▾ 100% ▾ View only ▾

	A	B	C	D	E	F	G			
1	Measure	Fishery	Region	Time Constraint	Applied to ME Exempt Y/N	Risk Reduction Points (Contributions to the Total After Phase 1)	Requested By			
2	60% gear reduction in coastwide waters for all gear	All	Coastwide	Year-Round	Yes	30	MMC- Sept 30 Measure 1			
3	TrapCap: 150 traps	Lobster	LMA1,2,2-3overlap,OCC	Year-Round	Yes	25	Anonymous			
4	Reduce 1 Endline All Fisheries Coastwide	All	Coastwide (State and Federal Waters)	Year-Round	Yes	22	Science Caucus- Requested Sept 21			
5	Reduce 1 Endline, Coastwide Lobster	Lobster	Coastwide	Year-Round	Yes					
6	60 line cap per vessel for all trap/pot fisheries coastwide	All Trap/Pot	Coastwide	Year-Round	Yes					
7	Reduce traps by 50% in LMA1 (implemented on 225 traps/vessel)	All Trap/Pot	LMA 1	Year-Round	Yes					
							Gulf of Maine	Southern New England	Mid Atlantic	Southeast
							Yes	Yes	Yes	Yes
							Yes	Yes		

☰ 🔒 Line/Gear Reduction Menu ▾ 🔒 Weak Rope Menu ▾ 🔒 Closure Menu ▾ 🔒 Combo Measures ▾

Menu of Measures

- Final two tabs with combinations of measures and draft package results
- Review measures thoroughly, use them for crafting new requests or package modifications.

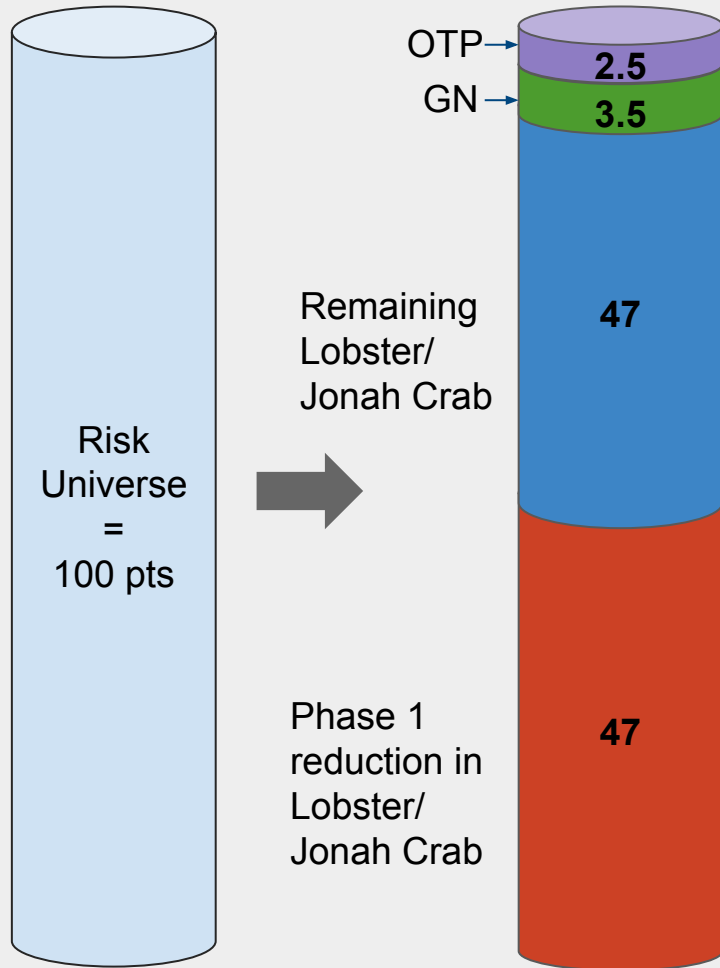
High Resolution Menu of Measures: November 8, 2022

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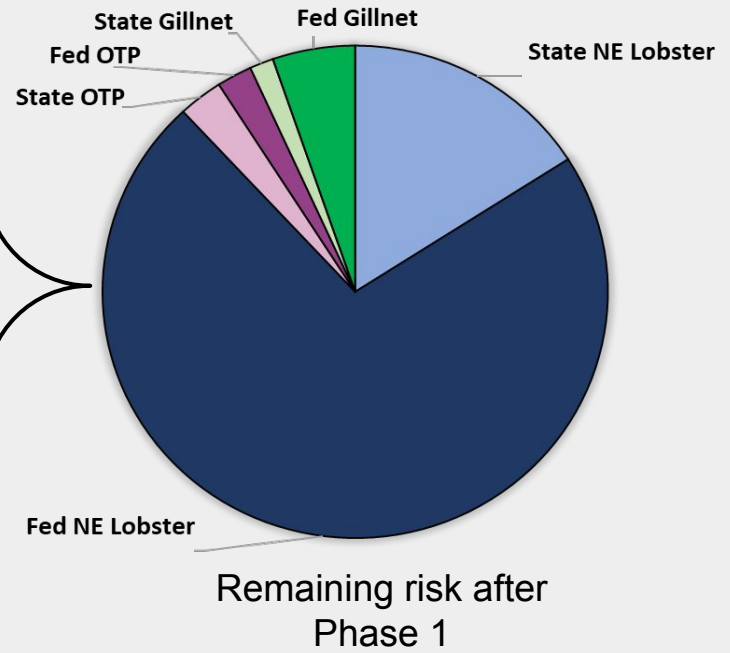
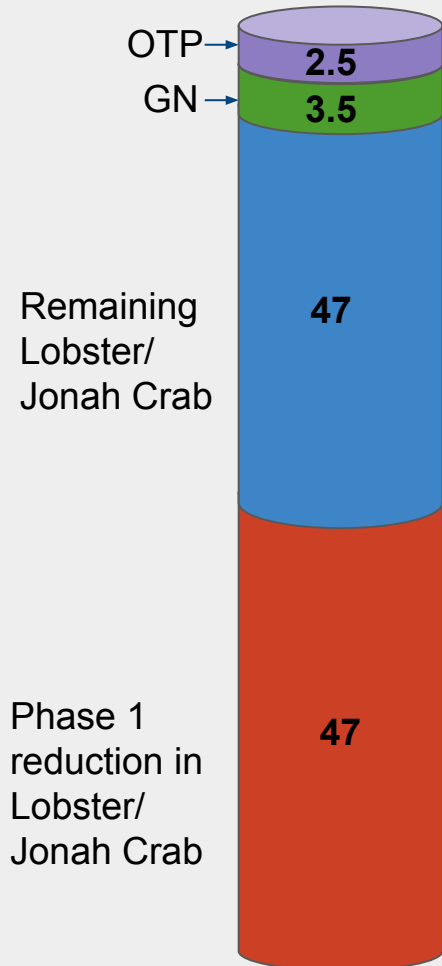
	A	B	C	D
1	Package Measures	Total Risk Reduction (With Phase 1)	Risk Reduction Points (Contributions to the Total After Phase 1)	Requested By
2	Draft Package 2 - Sept 22 version	92	45	Illustrative Example
3	Draft Package 3 - Sept 29 version - add ropeless > 100 fathoms	91	44	Illustrative Example
4	Draft Package 3 Modifications from Group 3: - Line Cap of 10 lines per permit in Gillnet fishery (GOM-MATL and NC Non-Exempt Waters) - Paneling up to minimum of 25 panels per string in gillnet fishery (GOM-MATL and NC Non-Exempt Waters) - Top 75% of VBL with 1700 lb max breaking strength and headrope fully weak with 1,100 lb max breaking strength in gillnet fishery (GOM-MATL and NC Non-Exempt Waters) - One end ropeless, the other end tended by the vessel for Smooth dogfish, spiny dogfish, bluefish medium mesh anchored gillnet in MATL including NJ and NC - Max tie-down height set to 4ft for Monkfish fishery - Close to buoylines for all Trap Pot anywhere that rope with max breaking strength of 1700	91	44	Full series of changes suggested by Group 3 on Package 3 requested on Sept 22 by

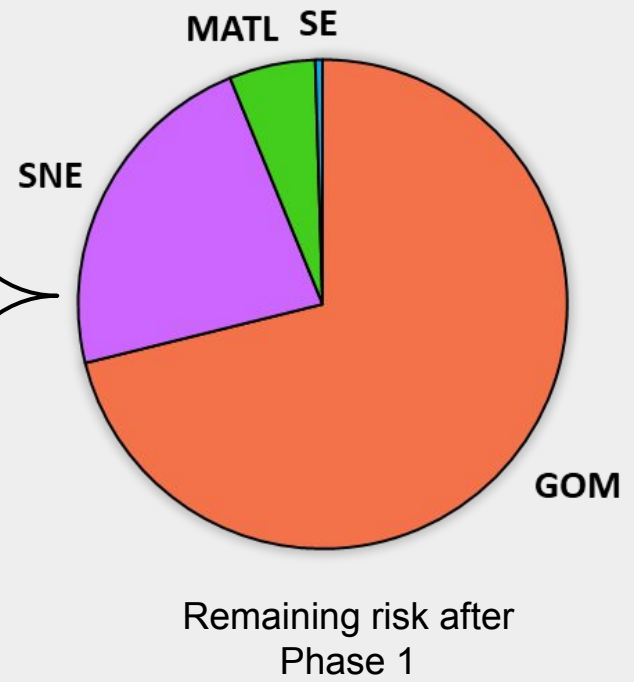
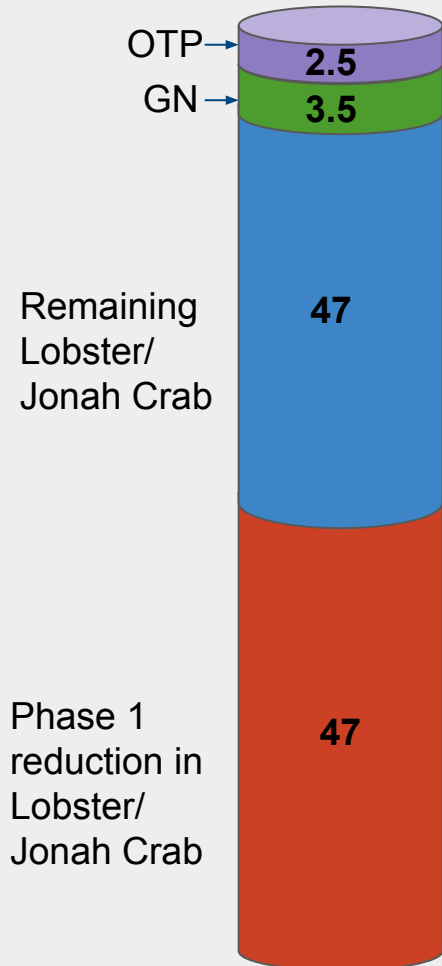
+ Search Reduction Menu Weak Rope Menu Closure Menu Combo Measures Coastwide Package Menu



Coastwide Distribution of Risk

- 100 Risk Points are assigned to Coastwide Risk
- After Phase 1 Measures, 53 Risk Points
- All Individual Menu Measures are Reported as Risk Reduction Points—Contribution to Coastwide Risk Reduction After Phase 1





Key Management Measures in the Menu that Decrease Risk

- **These measures are *NOT* proposals**
- Examples showing individual measures that provide particularly valuable risk reduction
- Analyses results are in high resolution with risk reduction values added on top of Phase 1 measures (unless otherwise noted)

Line Reduction: Trap Caps

Measure	Fishery	Region	Applied to ME Exempt Y/N	Risk Reduction Points
Trap Cap of 150 traps	Lobster	LMA1,2,2-3 overlap,OCC	Yes	25
Trap Cap (400 Traps / Permit)	Lobster	Northeast	Yes	17
Trap Cap (300 Traps / Permit)	Lobster	LMA 1, 2, 2-3, OCC	Yes	16
Trap Cap of 400 traps	Lobster	LMA 1	Yes	10
Reduce traps by 50% (225 traps/vessel)	All Trap/Pot	LMA 1	Yes	19

Line Reduction: One Endline

Measure	Fishery	Region	Applied to ME Exempt Y/N	Risk Reduction Points
Reduce 1 Endline All Fisheries Coastwide	All	Coastwide (State and Federal Waters)	Yes	22
Reduce 1 Endline, Coastwide Lobster	Lobster	Coastwide	Yes	20
One buoy line in non-exempt waters in GOM	All Trap/Pot	GOM	No	15
Remove 1 Endline	Lobster	LMA 1	Yes	14
One buoy line in non-exempt waters in SNE	All Trap/Pot	SNE	No	5
Remove 1 Endline	All	Coastwide (State Waters, NonExempt)	No	3

Line Reduction: General Reductions

Measure	Fishery	Region	Applied to ME Exempt Y/N	Risk Reduction Points
60% gear reduction in coastwide waters for all gear	All	Coastwide	Yes	30
50% Lobster & TrapPot gear removed from LMA1	All Trap/Pot	LMA 1	Yes	17
50% Gear Reduction	All	LMA 3	No	6
50% Gear Reduction	All Trap/Pot	-LMA2, LMA2/3 Overlap, LMA3 in SNE -StatArea 613	No	5
50% Gear Reduction	All Trap/Pot	LMA 3	No	5
40% Gear Reduction	All Trap/Pot	LMA 3	No	4
30% Gear Reduction	All Trap/Pot	LMA 3	No	3

Closures: Lines Relocated

Measure	Fishery	Region	Time Constraint	Applied to ME Exempt Y/N	Risk Reduction Points
Closure	Lobster	Maine Zone A	May - July	Yes	12
Closure	Lobster	Maine Zone G Outside of 8 Miles	Nov - Feb	No	9
Closure	Lobster	Mass LMA1: Restricted Area & StatArea 514	Dec - May	No	9
Closure	Lobster	SNE - LMA 3	Jan - May	No	8
Closure	Lobster	Maine LMA 1, 3 Miles - 40 Miles	July - Nov	No	8
Close Federal Waters Greater than 100m Depth	All	Federal Waters Deeper than 100 Meters	Year-Round	No	8
Closure	All	Stat Area 514 extended to Maine Zone F-G border	Dec - May	Yes	8
Expansion of MRA through hotspot in the Western Gulf of Maine	All Fisheries	MRA expanded north into the Western GOM	Dec-May	No	8
Close LMA 2 and the 2/3 overlap, expand into 537,526	All Fisheries	A2, 2/3 overlap 537, 526	Dec-May	No	8

Closures: Lines Removed

Measure	Fishery	Region	Time Constraint	Applied to ME Exempt Y/N	Risk Reduction Points
Remove all Gear from LMA 3 (or all ropeless)	All	LMA 3	Year-Round	No	11
100% Lines Out	OTP, Lobster	LMA1, Maine, Non-Exempt only	Oct - Jan	No	10
100% Lines Out	Lobster	GOM_GBK (Non-Exempt only)	May - Jun	No	7
100% Lines Out	OTP, Lobster	LMA 1, Massachusetts	Jan - May	No	5

Weak Line

Measure	Fishery	Region	Applied to ME Exempt Y/N	Risk Reduction Points
100% Weak Rope in Federal Waters out to 100m Depth	All	Coastwide Federal Waters to 100 Meters	No	10
50% Weak Rope	Lobster	LMA 1, 2, 2-3, OCC	Yes	8
Weak rope in top 75% of all trap/pot gear within 50 fa GOM-MAB	All Trap/Pot	Within 50 fathoms	Yes	8
50% Weak Rope	Lobster	LMA 3	No	7
75% Weak Rope to 50 fathoms in Federal Waters	All	Coastwide Federal Waters to 50 Fathoms	No	6
75% Weak Rope	All	Coastwide Waters to 12 nmi	Yes	6
Weak rope in top 50% of all trap/pot gear 50 to 100 fa, GOM-MAB	All Trap/Pot	50 to 100 fathoms	No	5



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Two Example Packages

NOT proposals; run in high resolution

Further modified two packages to illustrate how to build a package between the risk reduction range (88 to 93%)

Modified Draft Package 3

Elements of Caucus requests

- trap caps
- one buoy line
- soak time
- closures: modified from Packages 3 & 4
- weak rope

Draft Package #3: elements of caucus/team analysis requests, modified

Phase 1 for all trap/pot + trap caps + one buoy line + closures + weak rope

Closures:

1. Expand LMA 1 RA into February and LMA 3
 2. 514 Closure Dec - May from Package 4 Dec - May
 - Initial proposal was Jan-May
 3. Closure of Jeffreys Ledge from Package 4: Nov - Feb
 4. LMA 2, 2/3 overlap, and 3 closure in SNE, Dec - May
 - Assume lobster gear removed from LMA 2, all other areas/gear moves.
 5. Closure in Downeast Maine Zone A, June - July
(dropped August and May)
- Existing closures in black. New closures in package in pink.



Draft Package #3: elements of caucus/team analysis requests, modified

Phase 1 for all trap/pot + trap caps + one buoy line + closures + weak rope

Line Reduction Measures:

1. Trap/pot
 - NE lobster trap caps (includes Maine Exempt) ~ 28% to 44% line reduction
 - LMA 1, LMA 2, LMA 2/3 overlap, OCC: 400
 - LMA 3: 1000
 - One buoy line in all NON-exempt waters for all Trap/Pot
2. Gillnet
 - Net caps (implementation of paneling up an issue) ~ 50% line reduction
 - GOM - 30
 - SNE - 60
 - Soak time limit for gillnet: 12 hrs in State waters, 3 days in Fed waters
 - One gillnet endline attached to the boat in MATL (tending, underestimate)

Draft Package #3: elements of caucus/team analysis requests, modified

Phase 1 for all trap/pot + trap caps + one buoy line + closures + weak rope

Weak Line Measures:

1. Trap/pot weak line:
 - Coast to 50 fa, GOM-MATL: weak in top 75%
 - 50 to 100 fa, GOM-MATL: weak in top 50%
 - No weak line outside of 100 fa (implementation concerns)
 - SE: 100% weak (Florida state 1,500)
2. Gillnet weak line:
 - Top 75% weak everywhere (minimum anchor weight modified to 16lbs)

Approximate Risk Reduction Points ~ 89%

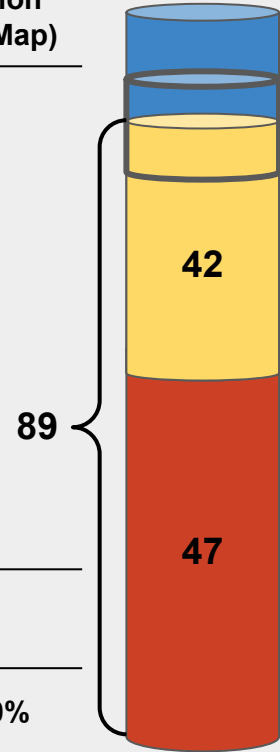
Package Measure Name: Draft Package 3 - Nov 14

Analyzing Packages with Different Whale Maps

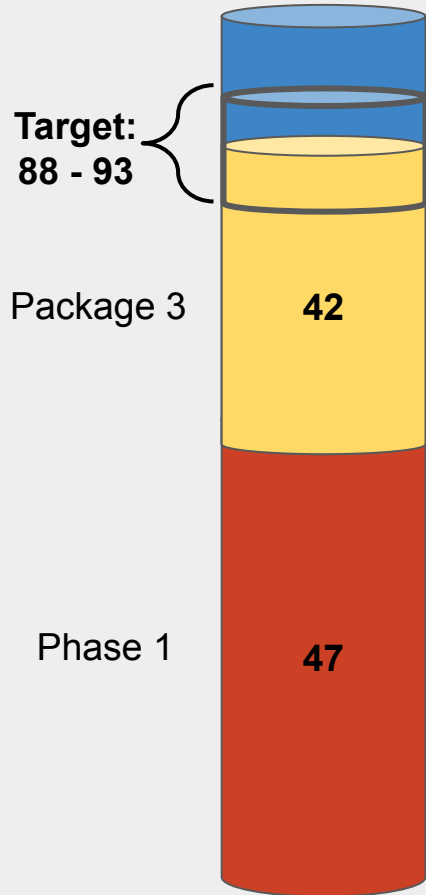
Whale Map	% Co-occurrence Reduction	%Δ Co-occurrence Reduction (vs. Base Whale Map)	% Risk Reduction	%Δ Risk Reduction (vs. Base Whale Map)
v10_0309	74%	-11%	81%	-8%
v11_0309	74%	-11%	81%	-8%
v12_0309	83%	-2%	87%	-2%
v10_0318	77%	-8%	84%	-5%
v11_0318	77%	-8%	84%	-5%
v12_0319	84%	-1%	88%	-1%
v10_1018	83%	-2%	89%	0%
v11_1018	82%	-3%	88%	-1%
Baseline (v12_1019)	85%	NA	89%	NA

Range= -11% to -1%
Mean = -6%

Range= -8% to 0%
Mean = -4%



Regional Breakdown of Risk-Reduction for Modified Package 3



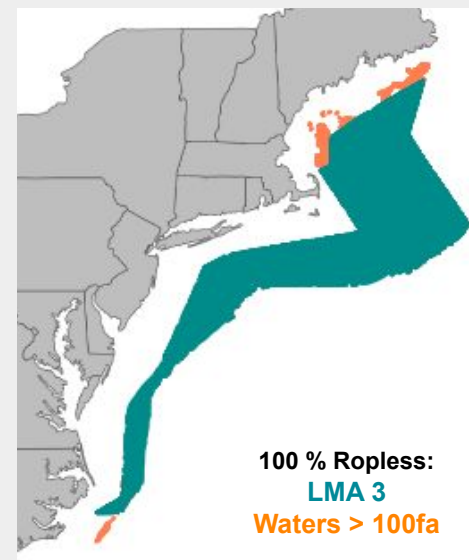
	Risk Reduction Points	Regional % Risk Reduction from Phase 1	Regional % Risk Reduction (with Phase 1)
GOM	31	50%	91%
SNE	10	38%	86%
MATL	0.6	0%	40%
SE	0.4	0%	66%
Coastwide	42	47%	89%

Modified Draft Package 5

Modifications to Gear Configuration and Reduction Measures of the Marine Mammal Commission Analysis Requests

Draft Package #5: Marine Mammal Commission Analysis Requests

1. 60% reduction in endlines coastwide, excluding exempt waters
2. 100% weak rope coastwide
3. 100% ropeless in LMA 3 & waters > 100fa
4. Package 1 time-area closures
 - a. Seasonal LMA closures (assumes lobster gear removed to shore, other gear can relocate)
5. Package 3 gear modifications
 - a. NE lobster trap caps (includes Maine Exempt) ~ 28% to 44% line reduction
 - b. One buoy line in all NON-exempt waters for all Trap/Pot
 - c. Net caps ~ 50% line reduction
 - d. Soak time limit for gillnet
 - e. One gillnet endline attached to the boat in MATL

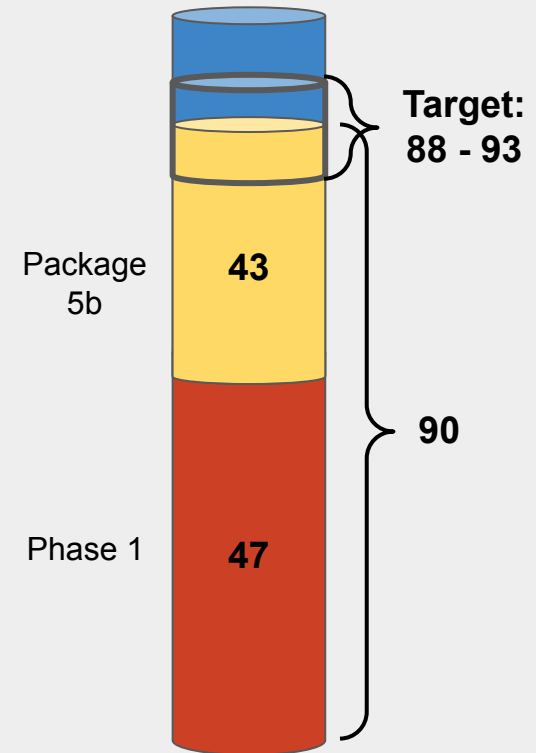


Area	Months Considered For Closures											
	J	F	M	A	M	J	J	A	S	O	N	D
LMA 1: MA, NH	■			■	■							
LMA 1: ME	■									■	■	■
LMA 2	■	■	■	■	■							■
Outer Cape	■	■	■	■	■							
SNE Restricted Area + 2/3 overlap	■	■	■	■	■							■
LMA 4 & 5	■	■	■	■								■

Approximate Risk Reduction Points ~95

Draft Package #5b: Marine Mammal Commission Analysis Revised

1. ~~60% reduction in endlines coastwide, excluding exempt waters~~
2. 100% weak rope coastwide
3. 100% ropeless in LMA 3 & waters > 100fa
4. Package 1 time-area Closures
 - a. Seasonal LMA closures (assumes lobster gear removed to shore, other gear can relocate)
5. Package 3 gear modifications
 - a. NE lobster trap caps (includes Maine Exempt) ~ 28% to 44% line reduction
 - b. ~~One buoy line in all NON-exempt waters for all Trap/Pot~~
 - c. Net caps ~ 50% line reduction
 - d. Soak time limit for gillnet
 - e. One gillnet endline attached to the boat in MATL



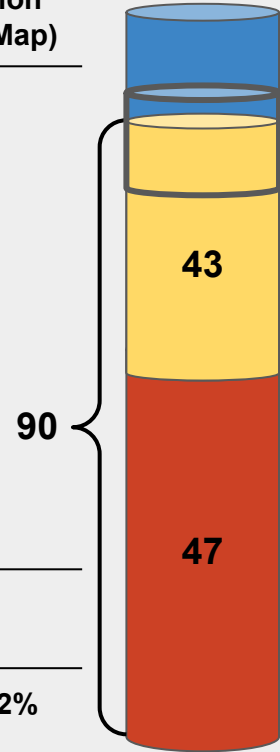
Approximate Risk Reduction Points ~ 90

Analyzing Packages with Different Whale Maps

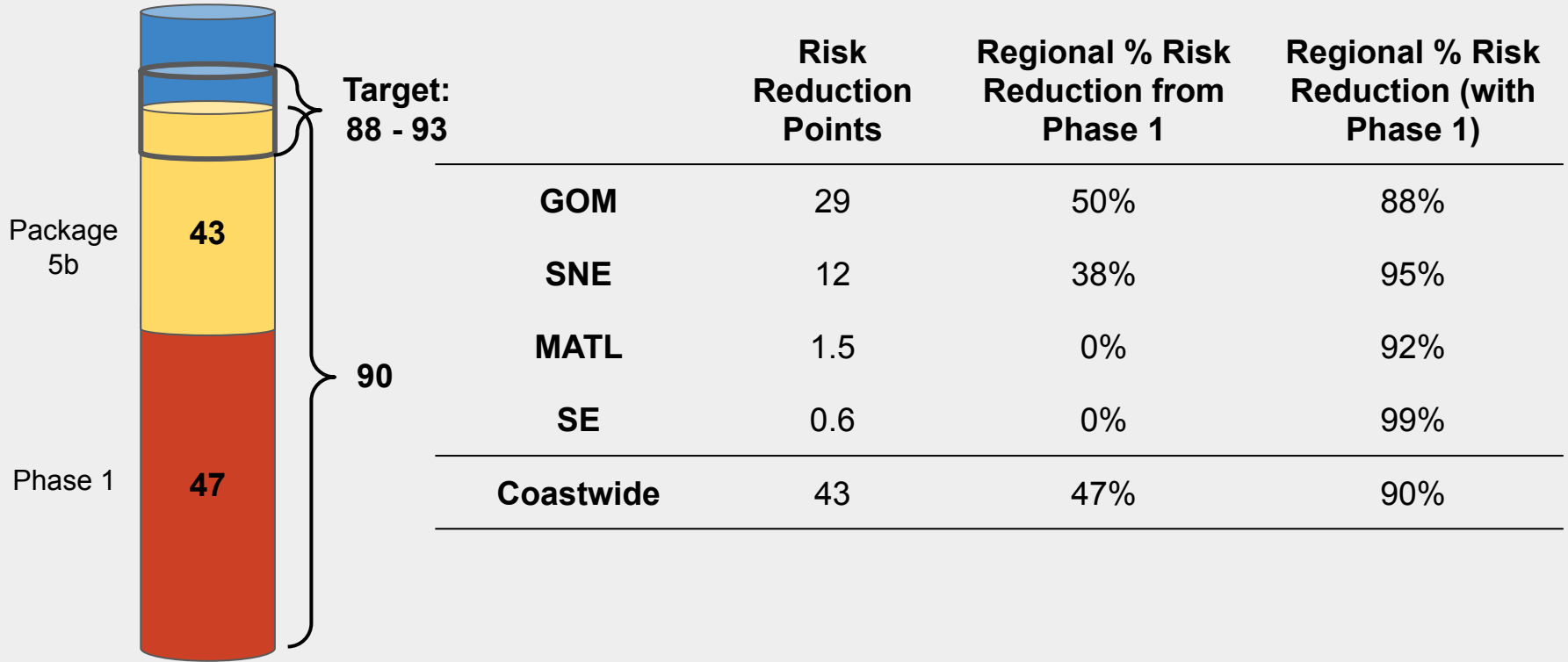
Whale Map	% Co-occurrence Reduction	%Δ Co-occurrence Reduction (vs. Base Whale Map)	% Risk Reduction	%Δ Risk Reduction (vs. Base Whale Map)
v10_0309	68%	-7%	83%	-7%
v11_0309	68%	-7%	83%	-7%
v12_0309	74%	-1%	87%	-3%
v10_0318	71%	-4%	86%	-4%
v11_0318	72%	-3%	87%	-3%
v12_0319	75%	0%	88%	-2%
v10_1018	75%	0%	90%	0%
v11_1018	79%	+4%	92%	+2%
Baseline (v12_1019)	75%	NA	90%	NA

Range= -7% to +4%
Mean = -2%

Range= -7% to +2%
Mean = -3%



Regional Breakdown of Risk-Reduction



Assessing the Value of the MRA Towards Phase 1 Risk Reduction

- In 2019 the team voted to include the MRA in risk reduction measures, which NMFS provided in the FEIS, along with the risk reduction without it
- The Issue: mortality and serious injury (M/SI) used to calculate our risk reduction needed to get below PBR represents post-MRA years (2016-2020)
 - While M/SI was likely lower in the MRA area, we still have to bring M/SI below PBR across all U.S. waters (requires an estimated 88-93%)
 - NMFS has to demonstrate that our next rule brings M/SI below PBR within 6 months
- We have had several requests to reconsider the value of the MRA, which was implemented in 2015 within the 2021 rule
- We are providing two estimates of the value of the MRA for the team to discuss

Assessing the Value of the MRA Towards Phase 1 Risk Reduction

- Data produced by MA DMF suggest a 20% increase in the percent of the whale population protected within Cape Cod Bay.
- We used 2014 fishing effort provided by Mass DMF to estimate the total fishing pressure inside the MRA during 2014 and added this to existing fishery input to the DST.
- The value of the MRA alone, absent Phase 1 measures, was about 14% of all risk on the East Coast. However, in the presence of Phase 1 measures, the value is less due to non-additive effects.

We analyzed the value of this area with the 2021 rule in two ways:

1. To look at total pre-2015 value, we analyzed the total risk reduction using pre-2015 fishing effort: 55%, an additional 8%
2. To look at increase in value after 2015, we analyzed the risk reduction using 20% of pre-2015 fishing effort: 49%, an additional 2%

Our mandate is to reduce M/SI to a level below PBR

Team discussion on analyses & where we are



Given all of this material – individual measures and permutations of packages:

- How has your thinking developed/changed?
- How has it informed your thinking about our pathways as a Team to achieve the risk reduction goal?
- Are there other specific measures / packages that any Team members want to add to the table at this point?

The Team is taking a stretch break!

Meeting will resume at 4:25 PM ET





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Plenary Discussion of the Charge & Outstanding Questions

Key considerations and questions from Team members around risk and evaluating measures



- In the Sept 2022 meeting and October cross-caucuses, frequently we heard questions from the Team about:
 - In addition to the risk reduction calculated by the DST, how to draw on other data or justifications?
 - How to consider measures that aren't easily quantified in the DST?

The DST is Built With the Best Available Information

- We are asking you to draft recommended modifications to the TRP using the DST to meet the MMPA's PBR standard, which currently requires fewer than approximately 0.7 M/SI per year
- This requires approximately 88 to 93% risk reduction from the pre-phase 1 baseline
- The Team can also provide a rationale with supporting information to supplement risk reduction estimates
- NMFS will carefully consider all of the best available information including any new information provided by the Team
- If the team does not recommend measures that get M/SI below PBR, NMFS will have to make up the difference
- If new information becomes available in the future (e.g., for EIS), we will use them in finalizing our measures

Key feasibility questions brought up by the Team



- Line caps
- Paneling up
- One end ropeless
- Buy Back
- Dynamic Management

Public Comment



Public comments welcome

- Share thoughts in chat or verbally
- To comment verbally, raise virtual “hand” or signal interest in chat
- Limit comments to 2 minutes; may need to adjust if many speakers
- Please keep all comments...
 - *on-point*
 - *respectful*
 - *focused on issues (not individuals)*
- Facilitators will intervene if ground rules are not honored; public member will be asked to leave the meeting

Wrap Up and Next Steps

Three more dates for this meeting:

- Day 2: Tuesday, November 15, 9 AM to 6 PM ET
- *No Meeting on Wednesday, November 16*
- Day 3: Thursday, November 17, 9 AM to 4 PM ET
- Day 4: Friday, November 18, 9 AM to 2:30 PM ET

Future meeting dates:

- Day 5: Thursday, December 1, 9 AM to 5 PM ET
- Day 6: Friday, December 2, 9 AM to 5 PM ET

Updated Decision Support Tool Peer Review with ASRG: December 12-14

- Monday, December 12, 10 AM to 5 PM ET
- Tuesday, December 13, 10 AM to 5 PM ET
- Wednesday, December 14, 9 AM to 12 PM ET

Trap/Pot Fisheries Landing Values by State (in 2021 U.S. dollars)

	2017	2018	2019	2020	2021
ME	\$481,922,567	\$526,576,394	\$518,543,222	\$429,049,612	\$722,824,257
NH	\$35,631,170	\$38,238,336	\$37,927,177	\$27,544,450	\$44,047,553
MA	\$94,317,054	\$102,031,570	\$103,304,304	\$88,672,657	\$120,752,483
RI	\$14,974,258	\$15,459,188	\$14,238,173	\$11,553,576	\$13,329,278
CT	\$1,263,702	\$1,107,567	\$1,497,034	\$1,354,681	\$1,468,626
NY	\$719,303	\$2,178,272	\$2,274,921	\$1,551,629	\$1,942,324
NJ	\$11,262,637	\$11,737,515	\$10,706,327	\$12,089,746	\$15,329,561
DE	\$6,654,416	\$6,991,832	\$8,014,968	\$7,708,445	\$7,490,915
MD	\$28,922,401	\$26,063,261	\$26,329,893	\$25,161,382	\$17,988,611
VA	\$28,953,638	\$23,715,065	\$33,897,188	\$29,940,939	\$35,796,986
NC	\$22,657,471	\$20,402,262	\$25,064,609	\$20,978,618	\$24,152,833
SC	\$6,032,225	\$5,558,895	\$5,814,875	\$6,044,350	\$6,349,800
GA	\$5,008,512	\$5,950,310	\$5,958,030	\$6,264,394	\$3,834,119
FL	\$9,118,474	\$9,000,600	\$8,815,567	\$9,157,104	\$10,769,786
Total	\$747,437,828	\$795,011,067	\$802,386,288	\$677,071,583	\$1,026,077,132

Data source: ACCSP data warehouse, all numbers are subject to change

Gillnet Fisheries Landing Values by State (in 2021 U.S. dollars)

	2017	2018	2019	2020	2021
ME	\$2,043,443	\$1,631,640	\$1,411,043	\$700,245	\$1,299,591
NH	\$1,025,877	\$1,092,065	\$1,233,237	\$879,790	\$868,400
MA	\$6,452,931	\$6,073,667	\$5,798,994	\$4,360,500	\$4,655,370
RI	\$2,704,191	\$2,692,177	\$3,142,905	\$2,899,734	\$2,129,266
CT	\$490,075	\$388,493	\$247,789	\$127,414	\$181,099
NY	\$2,367,032	\$994,582	\$1,033,096	\$1,063,840	\$887,528
NJ	\$3,073,223	\$2,502,561	\$2,487,947	\$1,916,548	\$2,623,217
DE	\$544,669	\$651,232	\$521,127	\$527,446	\$105,992
MD	\$4,969,454	\$4,213,261	\$3,591,416	\$2,648,526	\$1,991,444
VA	\$10,109,639	\$8,193,495	\$8,537,729	\$6,849,706	\$7,499,525
NC	\$12,177,500	\$9,994,189	\$10,301,277	\$10,466,829	\$12,475,632
Total	\$45,958,034	\$38,427,362	\$38,306,560	\$32,440,578	\$34,717,064

Data source: ACCSP data warehouse, all numbers are subject to change