Atlantic Large Whale Take Reduction Team Meeting
April 23-26, 2019 | Providence, Rhode Island

Key Outcomes Memorandum

I. Welcome, Introductions and Meeting Objectives

NOAA's National Marine Fisheries Service (NMFS) convened a meeting of the Atlantic Large Whale Take Reduction Team (ALWTRT, TRT or Team) from April 23-26, 2019, in Providence, Rhode Island. The goal of the meeting was to develop consensus recommendations on a suite of measures expected to achieve a 60-80% reduction in mortalities and serious injuries of North Atlantic right whales in Northeast trap/pot commercial fisheries. NMFS intends to use the Team's recommendations to guide rulemaking starting in May 2019.

The meeting began with a series of welcomes from regional and national Agency leadership: Donna Wieting, Director, Office of Protected Resources; Kim Damon-Randall, Assistant Regional Administrator, Greater Atlantic Regional Office (GARFO); and Mike Asaro, Marine Mammal and Sea Turtle Branch Chief, GARFO. Northeast Fisheries Science Center Director Jon Hare provided a welcome later on Day One, and Sam Rauch, NOAA Fisheries Deputy Assistant Administrator for Regulatory Programs, addressed the team on Day Three. Agency leadership remarks emphasized the following points:

- Appreciating the Team's commitment to work together to identify strategies for reducing risks to right whales
- Recognizing the challenge in identifying risk reduction measures that can enable right whales and fisheries to co-exist
- Reiterated the imperative for the Team and Agency to work with the best available science
- Emphasizing this meeting as the best opportunity for the Team to shape the Agency's approach through jointly developing consensus recommendations
- Underscoring the Agency's commitment to begin rulemaking immediately following the meeting

The meeting was facilitated by Scott McCreary (CONCUR, Inc.) and Bennett Brooks (Consensus Building Institute). Additional work group facilitation was provided by Cindy Cook with Adamant Accord and Keith Mattson with Accord Network 3.0.

II. Participation

The three-day meeting was attended by 44 members of the 59-person team. Participation by Team members from the Southeast was limited given that the agenda was focused around trap/pot fisheries in the northeast. Participating Team members (or their alternates) were:

Terry Alexander, Dave Borden, Peter Brodeur, Dwight Carver, Elizabeth Casoni, Alex Costidis, Jane Davenport, Cindy Driscoll, Bob Glenn, Caroline Good, Michael Greco, John Haviland, Dennis Heinemann, Chad Power, Kiley Dancy, Toni Kerns, Bob Kenney, Scott Kraus, Scott Landry, Kristy Long, Robert Martin, Charles Mayo, Patrice McCarron, Bill McLellan, Kristen Monsell, Grant Moore, Robert Nudd, Scott Olszewski, Cheri Patterson, Charlie Phillips, Kristan Porter, Nick Record, Meghan Rickard, Michael Sargent, Arthur Sawyer, Brian Sharp, Erin Summers, Todd Sutton, Sara Uhlemann, Colleen Weiler, Mason Weinrich, Dave Wiley, John Williams, Sharon Young and Barb Zoodsma. Other alternates in attendance included Amy Knowlton, Erin Burke, Tim Werner, Michael Moore, and Lori Caron.

In addition to Michael Asaro (GARFO Marine Mammal and Sea Turtle Branch Chief), Colleen Coogan (Atlantic Large Whale Take Reduction Team Coordinator), Sean Hayes (NMFS Northeast Fisheries Science Center (NEFSC) Protected Species Branch Chief), and NEFSC 's Burton Shank (lobster Research Fishery Biologist) provided extensive support for the Team, with S. Hayes and B. Shank leading risk reduction modeling discussions and efforts over the course of the meeting. Additional NOAA staff from headquarters, GARFO, the Southeast Regional Office and NEFSC attended all or part of the meeting to support modeling and Team deliberations.

Approximately 60 members of the public, state and federal agencies, and affiliated organizations were in attendance over the course of the meeting. Several media attended and recorded portions of the meeting.

III. PRESENTATIONS

The meeting included a handful of upfront presentations, with other background material covered in pre-meeting webinars. Presentations on Day One covered the following topics:

- ***Work Group Discussions***. C. Coogan provided a brief summary of the three Work Group webinars held in advance of the Team meeting: weak rope, closed area and gear-marking. The webinars were designed primarily to update Team members and interested members of the public on recent activities; no decisions were made at any Work Group webinar. Work Group materials can be found on the TRT website at: https://go.usa.gov/xymnM. C. Coogan also provided a brief update on the Atlantic State Marine Fisheries Commission discussions related to line reduction.

- ***State of Maine Vertical Line Testing***. E. Summers provided an update on the State of Maine's ongoing effort to test vertical line breaking strength. Key discussion points centered on the following: there is a relationship between line diameter and breaking strength; knots and splices weaken line and breaks will occur at these points; and where two different diameters of rope are knotted or spliced together, the rope will break on

the smaller diameter side. She also provided updates on recently conducted load testing, as well as a survey on rope type used (the online surveys show that 3/8" rope is the most widely used line diameter among New England fixed gear fishermen). Finally, E. Summers informed Team members that Maine's Division of Marine Fisheries in cooperation with Blue Water Concepts is developing a new time-tension line cutter prototype.

- ***Oceanographic Trends and Effects on Copepod and Right Whale Distribution*.** Nick Record provided an update on recent work using oceanographic current patterns in the Gulf of Maine (GOM) to predict potential impacts on copepod and, as a result, right whale distribution. According to N. Record's analysis, warming waters through the northeast channel in the eastern GOM have resulted in a decline in copepod abundance, which correlates with a decline in right whales; in the western GOM of Maine, trends are not as clear. More broadly, he suggested that further study of oceanography patterns may provide insight into right whale movement patterns.

- ***NARW entanglement deaths***. Sarah Sharp with International Fund for Animal Welfare presented updated results of necropsies on all North Atlantic right whale (NARW) deaths from 2003-2018. Her work detailed the cause of death, entanglement trends, type of gear and injury. Key points included the following: of the 44 necropsied right whales, 22 deaths were caused by entanglement and 16 by vessel strikes. Notably, of particular concern, of the 29 adult deaths, females were over-represented (18 total or 62% of all adult deaths); and entanglements have accounted for an increasingly larger percentage of human-caused mortality since 2010. S. Sharp also presented a series of slides and necropsy results detailing injury types to right whales.

- ***Whale Force Production and Line-Breaking Strength.*** B. McLellan presented an analysis that illustrates line-breaking strength arrayed by large whale strength and size class. The data, he suggested, supports work done by Amy Knowlton and demonstrates that the breaking strength of some lines currently in use in the New England fixed gear fisheries exceeds the whale force production of NARWs.

- ***NARW Population Assessment.*** NEFSC Director Jon Hare summarized the most recent data on the right whale population, reviewing abundance, mortality and serious injury data, calving rates and entanglement data. Key points highlighted in his overview (much of which was covered during a pre-meeting webinar):

    - Abundance peaked in 2010 and has been declining since then. The decline in females has been particularly problematic, with fewer than 100 adult females remaining.
    - Entanglement-driven mortality and serious injury (M&SI) cases have been steadily increasing over the past 15 years. Although seven calves were born in 2019, an improvement over zero calves born in 2018, this is only half the average number of calves since calving has been monitored. Non-lethal entanglements

are strongly implicated as one factor causing reduced fitness and associated low calving rates.
- Entanglement data suggests that 26% of right whales are entangled each year and 85% have been entangled at least once.

While J. Hare noted that the trends underscore the imperative for immediate action to reduce risk, he also suggested that the right whale rebound prior to 2010 suggests the population has the ability to recover if risks can be sufficiently reduced.

- ***Relative Risk Decision Support Tool.*** After a brief introduction of the Relative Risk Decision Support Tool by J. Hare, S. Hayes provided a more detailed overview of the tool, emphasizing the three main elements in the tool (whale density, gear type, and interaction severity), as well as walking the Team through preliminary risk reduction scores associated with several measures proposed by Team members at the October 2018 meeting. S. Hayes noted that the Tool is intended to be used in conjunction with, and not instead of, Team member expertise. He further emphasized that the tool is still being refined, and the Agency expects to continue to update and use the tool to compare any recommendations put forward by the Team.

  In addition to S. Hayes' overview of the model and key components (including a review of the line density data included in the model and a summary of the polling methods used to derive severity scores), Jason Roberts with Duke University reviewed the data used to map whale density throughout the northeast. B. Shank with the NEFSC provided additional insights throughout the meeting on the assumptions and approaches that underlie the tool's calculation of relative risk reduction.

Team members offered extensive comments and concerns on the tool and underlying datasets both immediately following the presentation and throughout the meeting. These comments are summarized in the Discussion section below.

Two additional brief presentations were provided later in the meeting by Team members/alternates in response to Team discussions: A. Knowlton presented additional information on the performance of 3/8th inch diameter and sleeves (relative to 1700-pound breaking strength), and Scott Landry shared a video and schematics to illustrate how whales can become quickly entangled in fishing gear.

IV. DISCUSSION TOPICS

Meeting discussions based on presentations, breakout groups and plenary sessions focused on a range of topics. Below is a synthesis of key themes raised during the course of the meeting.

- ***Conservation Target.*** The Team discussed the 60-80% conservation target identified by the Agency prior to the meeting. Though not initially on the agenda for discussion, time was set aside due to strong interest from some Team members.

Several Team members noted the importance of a target to guide Team deliberations - a specific request put forward at the October 2018 Team meeting - and they voiced appreciation for the Agency's definitive guidance in setting a clear target. That said, a number of Team member comments (primarily from industry and some state representatives) centered on concerns that the target was set too high as a result of Agency assumptions regarding allocation of U.S. and Canadian fisheries' respective responsibility for right whale mortalities. These commenters focused on the following points:

- ***Conservation target is based on outdated data*** (2012-2016) and should be updated using 2017 and, if possible, 2018 data. [Based on this request, the Agency conducted an updated analysis during the meeting using 2013-2017 M&SI data. Given that the 2018 M&SI data was not finalized, it was not included in the updated analysis. Depending on the apportionment of unassigned M&SI between the U.S. and Canada, the U.S. conservation target would range from 25% to 71% based on 2013-2017 data. If Potential Biological Removal (PBR) was apportioned according to GAMMS guidance (see https://go.usa.gov/xyMQc) that considers the length of time the whales spend in each country's waters, and depending on the apportionment of unassigned M&SI, then the U.S. conservation target would range from 43% to 79% based on 2013-2017 M&SI data. This analysis used the 0.9 PBR published in the 2017 SAR and did not consider an anticipated reduction in PBR due to reduced population size.

- ***Recent trends suggest an increase in Canadian-caused mortalities.*** Several participants suggested that a review of NMFS data demonstrates a clear shift from the U.S. to Canada causing the majority of the increased rate of takes post-2010. This shift away from the U.S., they said, should be reflected in a lower conservation target for U.S. fisheries. Others noted that as most entanglements are unobserved, gear is rarely retrieved, and the origin of the entanglement is not always known, it is not possible to conclude the location of entanglements and mortalities.

- ***Other comments and points of clarification*** included the following: (1) requesting clarity on Canada's equivalent reduction target; and (2) seeking clarity on U.S. fisheries' responsibility for addressing unseen mortalities.

Others on the Team - primarily from the academic/scientific caucus - supported the Agency's recommended range, suggesting the data did not support assigning a greater-than-50% target to Canadian fisheries. They noted, in particular, the high level of observer effort in Canada and identifiable snow crab gear versus the low probability of detecting entanglement deaths in U.S. waters (as well as evidence of past entanglements in U.S. gear) as a sound rationale for assigning at least 50% of the unattributed mortalities to U.S. fisheries.

The Agency reviewed the underlying rationale for the proposed 50/50 split, reiterating the analysis it outlined in an email distributed to the Team prior to the meeting. Agency staff further noted that the underlying uncertainty is explicitly acknowledged by its use of a range (60-80%) as a conservation target. Finally, Agency staff underscored their mandate to ensure that any measures put forward in a proposed rule adequately address the risks to right whales. As one Agency representative put it, if the Team were to opt for a lower than 60% conservation target and an analysis of the measures suggested the conservation benefit was insufficient to reverse the U.S. entanglement role in the right whale population's downtrend trend, the Team could "be back at the table."

- ***Decision Support Tool.*** Team members broadly supported the Agency's efforts to develop a relative risk decision support tool, as requested by the Team, to help it understand the potential for individual and collective conservation measures to reduce risk to right whales. In particular, they called out the excellent work undertaken by B. Shank and others. That said, Team members raised a number of concerns with the tool over the course of the meeting. The Team's top concerns centered on two particular elements of the tool: (1) the whale density data and (2) the severity index.

    - ***Whale density data.*** Team members across a range of perspectives voiced concerns that the whale density component lacks recent data that would suggest whale aggregations (and, therefore, risk) has shifted. These Team members voiced frustration that reliance on a model that does note include the most current data would risk the Team putting forward measures that either (1) neglected to put in place measures in areas where whales are at higher risk, or (2) placed an unnecessary burden on industry to make changes that would have no measurable conservation benefit. Area 537 (the fishing area south of Nantucket and Martha's Vineyard) was of particular concern to conservationists, as recent observations suggest that this area has a much higher density of whales and is fished with heavy gear by the offshore lobster fleet.

      Agency staff acknowledged the limitations of the current whale density data, but emphasized two points: (1) the tool is intended to support, not replace, Team deliberations, and they encouraged Team members to draw on additional information outside of the tool to inform its development of candidate measures, and (2) whale density data used in the model is to be updated this fall; hence, the Agency's analysis of any proposed rule and alternatives will be informed by these more current data.

    - ***Severity index.*** Team members across a range of perspectives voiced concerns that the Agency's strategy for developing a severity index - polling Team members and Agency staff for their perspectives on the relative severity of different gear types - lacked the necessary rigor and relied on Team members weighing in on areas beyond their expertise. Further, some Team members said,

given the tool's design, the severity index was at risk of either over- and/or under-emphasizing areas of conservation benefit (depending on the area). It also doesn't account for whale life history (adult female, juvenile, etc.). Team members broadly agreed that the severity index should be revisited and reconfirmed, though they had differing views on approach (e.g., re-polling the same cross section of stakeholders v. a more focused expert elicitation).

Agency staff presented an analysis suggesting that biases within the various caucuses likely had only a minor impact on the relative risk scores across caucuses. They also voiced support for Team members' interest in revisiting the severity index and will be developing a yet-to-be determined process to assess whether any changes to the index are needed. As well, any updated severity index, they noted, will be used to inform the Agency's analysis or a proposed rule.

Other concerns and recommendations related to the tool included the following:

- The lack of time before the meeting to review the model, understand its underlying assumptions and implications for risk reduction scores, assess the quality and utility of its output, and then use the model to thoughtfully assess the relative risk reduction potential of various candidate management measures.
- A strong call from some industry and state representatives that the Agency hold a second meeting in the near future to seek Team risk reduction recommendations. In the interim, they said, the Center could produce an updated model that states could use to explore potential measures with industry. Others disagreed, saying delay is not an option given the right whale's dire situation nor necessary given the Team's many previous conversations on potential options to reduce right whale M&SI. It was also noted that other take reduction teams put forward recommendations with much less available data.
- A broad-based recommendation that the tool be peer-reviewed prior to being used to analyze any proposed rule. [Agency staff noted their intention to submit the tool for review by the Center of Independent Experts (CIE)[1]. Team members expressed interest in reviewing and providing input into any Terms of Reference developed for the CIE.]
- A broad-based recommendation that the Agency/Team revisit the Team's recommendations if revisions to the model suggest: (1) a distinctly different understanding of relative risk, and (2) that measures proposed by the Team are likely to generate substantially different benefits than anticipated. Agency staff reiterated their commitment to do so.

A number of other specific suggestions and concerns related to the model were put forward for the Agency's consideration. These considerations (not discussed as

[1] Planning for CIE review in early November 2019 is underway.

consensus recommendations) include but are not limited to: rectifying discrepancies between buoy line data in the model and state data; assigning different weights to the model's data layers (gear v. whale density v. severity); incorporating opportunistic whale data (pre/post-2010) in the model; running sensitivity analyses on severity scores; focusing on end lines rather than traps (to generate a conservation benefit associated with trawling up); accounting for differing whale behavior - forage v. transit; and revising spatial aspects of the model to better correlate with management overlays.

Next steps:

- Team members are to provide to the Agency any additional specific concerns, suggestions or potential refinements related to the model
- Agency is to provide updated conservation target using 2017 data with an equivalent Canadian conservation target *(completed and shared at meeting)*
- Agency is to arrange for independent review of the tool and foster Team input into any Terms of Reference developed to support such a review.

- ***Risk Reduction Measures.*** Team members participated in plenary discussions and a series of breakout sessions - both within and across caucus - over the course of the meeting to develop and refine a wide range of individual risk reduction measures. Discussions were supported by use of the Relative Risk Reduction Decision Support Tool, which allowed Team members to gauge the anticipated benefits of different measures and packages being put forward by participants. Agency modelers were assigned to breakout groups to facilitate and help test the conservation benefits of potential risk reduction measures, and facilitators were provided to support discussions. The discussions drew both on conservation measures put forward at the October 2018 meeting, as well as new measures recommended by Team members during the meeting. New measures put forward were modeled in real-time or overnight to further support Team deliberations.

  Initial discussions and work with the model generated a number of broad observations that shaped subsequent deliberations. For one, Team members quickly learned that significant conservation measures would be needed to approach even the 60% low-end conservation target set by the Agency; as a result, Team members fairly quickly focused on measures likely to generate more significant risk reduction (e.g., significant vertical line reductions and wide adoption of weaker rope). There was also a recognition that conservation measures would need to be distributed throughout the region - both to ensure equity across states and the fishing industry and also to diversify risk (since whale behavior is seen as increasingly unpredictable and the risk reduction tool results are not precise). Finally, some made the case for focusing on measures that are resilient to changing oceanographic conditions and animal behavior (e.g., gear modifications as opposed to closures).

Below is a summary of key themes related to potential risk reduction measures discussed during the meeting.

- ***Weak rope.*** Team deliberations centered extensively on the relative strengths and limitations of different weak rope configurations, focusing in particular on replacing existing rope with sleeves, spliced or tapered line, toppers, and/or line capped at 1,700 lb breaking strength as alternative ways to minimize the likelihood of serious injury or mortality to right whales entangled in line. Fishing industry and state representatives generally supported a shift to weaker line, but pressed for flexibility in choosing options that could meet the intended goal (releasing the whale quickly, breaking at 1,700 pounds, leaving only a small amount of trailing rope) while still allowing lobstermen to fish in a safe and economically viable manner. Offshore lobstermen suggested the 1,700-pound breaking strength would work down to 50 fathoms but would not be a viable option at greater depths due to the heavier loads. Conservationists and a number of researchers stressed that weak rope measures are not alike in risk reduction, noting, for example, that rope of a similar size (e.g., 3/8-inch) can have very different breaking strengths based on rope design, materials and age and may not provide the expected conservation benefit. They further cautioned that ropes "weak enough" for adults still pose a serious risk to calves/juveniles, and noted that interactions with adults can lead to sub-lethal effects, such as contributing to increased calving intervals of adult females. And they underscored the importance of gear fixes that can reliably leave as little trailing line as possible to eliminate the potential of line impacting a whale's behavior or cutting into its body.

- ***Vertical line reductions.*** Given the magnitude of risk reduction required by NMFS, vertical line reductions were seen by Team members as an essential strategy for meeting the Agency's conservation target. Team members discussed a variety of methods for reducing vertical lines (e.g., trawling up requirements, endline caps, trap reductions, etc.), but Team members generally agreed that a one-size-fits-all-approach is likely to be operationally problematic and focused instead on identifying vertical line reduction targets for each jurisdiction and then leaving it up to states and industry to determine the most effective way to meet the target. Specific points raised in vertical line discussions included the following:

    - Limitations of trawling up requirements based on distance to shore (only seen as viable in some areas) plus concerns that longer trawls could lead to more serious injuries for juveniles and calves (given the greater weight of the trawls).
    - The potential to cap vertical lines through a tagging program as a strategy for more easily enforcing vertical line limits and addressing concerns related to latent effort.

Effort reduction through trap allocation reductions was also discussed with mixed support:

- Concerns that trap reduction could inadvertently increase risk to right whales (e.g., increasing vertical lines in the water) as (a) some lobstermen might shift to fishing singles to save ground if they are forced to reduce their overall number of traps and (b) trawling up may lead to an increase in buoy line diameter.
- Recommendations that the risk reduction benefit calculations should take into account planned future risk-reducing actions already anticipated by various jurisdictions (e.g., planned trap reductions in various LMAs; 10% conservation tax, etc.)
- Suggestions that trap reduction measures are a complex and contentious form of fishery management that is better left to the ASMFC
- Trap reduction doesn't in itself equal line reduction

- ***Closures.*** Discussion of potential closures generated a wide range of views. Some Team members suggested closures as an effective and necessary way to protect right whales, particularly in high-risk areas. These Team members strongly pressed for closures in Area 537, in particular, given recent increases in right whale sightings in the waters south of Nantucket and Martha's Vineyard and the offshore lobster industry's use of heavier gear in that area. They also made the case to aim for spatially larger closures to minimize the potential for effort shift. Other Team members strongly opposed any closures, suggesting the anticipated benefits would be lower than expected given the likelihood that many fishermen would simply shift effort (and its associated risk) to other areas. Additionally, these same Team members voiced concerns that static closures are likely to be of limited benefit given the increasingly unpredictable whale behavior as a result of shifts in oceanographic patterns. Model runs of possible closures suggested only slight conservation benefits as seen in several examples below:
  - Area 537, November 1 - May 14: 3.48% reduction
  - Extend Mass Bay Closures north and west thru May 14: 7.14% reduction

  Additional runs of closed area alternatives proposed during the meeting showed similar limited risk reduction benefits until extended to entire lobster management areas and all months.

  Several team members objected to the conclusion that these closures would have minimal impact on risk reduction. They stated that the model used only sightings from the years 1998-2016 and that as a result, sightings data were biased toward data sets prior to the redistribution of right whales beginning in 2010. They noted that the model did not reflect the most recent data regarding right whale sightings, including the near-constant presence of right whales in

statistical area 537 over the past 3 years. Still, based on Team discussions and consideration of the approximate benefits associated with closures based on modeling results, the concept of closing areas as a strategy for reducing risk failed to garner broad-based support during the discussions.

- ***Buoyless fishing.*** Team members spent only limited time discussing buoyless fishing given NOAA Fisheries' statement early on that it did not see buoyless fishing (also referred to as ropeless fishing) as a viable near-term solution. A number of conservationists voiced frustration at this preemptive decision, stating that buoyless fishing is the only guaranteed way to protect right whales and they encouraged the Agency to take steps to foster the experimentation needed to make buoyless fishing viable. These Team members put forward several options in the small breakout group discussions as a way to build a "pathway" to ropeless fishing - requiring buoyless fishing in high-risk areas within five years, requiring it everywhere within ten years, pushing it as an alternative to closures and to weaker ropes below 50 fathoms in Area 537 - but the recommendations failed to gain broad support.

- ***Meeting MMPA requirement.*** Several Team members emphasized that the Agency's obligation in amending the Atlantic Large Whale Take Reduction Plan is to meet the MMPA requirement to reduce serious injuries and mortalities to below PBR. These members offered the view that the Agency must implement whatever additional measures are necessary to meet this obligation beyond any Team recommendations, taking into account the best available scientific information as of the time of the decision.

- ***Other Topics.*** Team discussions also generated a number of additional themes related to risk reduction measures. These included:

  - Broad-based interest in pressing Canada to commit to and quickly implement more extensive risk reduction measures to address its share of right whale mortality and serious injury, while taking steps to ensure new threats in U.S. waters (aquaculture, offshore wind energy development, etc.) don't further jeopardize right whale recovery.
  - Massachusetts Bay Restricted Area fishermen pushing to get "credit" for significant and sustained risk reduction measures (e.g., seasonal closures) already put in place over the last few years. Though generally supported as part of LMA1's risk reduction calculation, it was noted that the overall risk reduction to right whales would still need to hit the minimum 60% target set by the Agency.
  - Offshore lobster industry representatives calling for approval of its long-stalled trap cap reduction strategy proposal for LMA 3 (would reduce traps from 1,945 to 1,548; as approved by the ASMFC in 2013, complementary rulemaking for Federal waters has been initiated) given the conservation benefit to right whales.

- Mixed views were expressed as to how to appropriately treat Maine exempted waters in calculations of risk reduction credit.
- A view was expressed that trap reductions do not correlate precisely with line reduction and another caution to "be careful about equivalencies".

Given the core objective of the meeting (risk reduction), the meeting agenda did not allocate time for Team discussion of gear marking or monitoring. C. Coogan informed the Team that these topics are to be discussed via webinar in the very near future[2].

V. CONSENSUS RECOMMENDATIONS

Based on discussions, the Team reached nearly unanimous support to move forward on a package of measures intended to achieve the 60% lower bound of the Agency's risk reduction target. The package, supported by all but one Team member, was grounded in two key principles: (1) each management area is to achieve at least a 60% risk reduction; and (2) each state is responsible for collaborating with its fishermen to refine the implementation approach.

Prior to the test for consensus, TRTs members offered a variety of final comments. Some Team members around the table reiterated lingering concerns. One was a misgiving that the risk reduction benefits are speculative and rely on an imprecise support tool. Another was that the potential for gear fixes and line reductions, if not implemented carefully, represent a steep economic hit to the fishing industry and coastal communities.

A State of Maine representative supported the recommendation, while noting that Maine will need to fully evaluate and ultimately approve and hammer out the details of any final rule or other action imposing measures with its fishermen.

Still, other Team members noted the unprecedented progress by the Team, and they underscored the important information- and perspective-sharing that shaped the Team's deliberations. Another member encouraged colleagues to "use this world class model, and not go chasing down rabbit holes" with concerns about secondary issues.

Overall, the package of recommended actions garnered broad support and was seen as representing important progress and appropriate steps to endorse. The final package of recommendations that the Team supported is provided on the next page.

The one Team member unable to support the recommendation cited two primary concerns: (1) a lack of confidence that the 60% risk reduction is sufficient; and (2) a concern that the proposed measures may not achieve the targeted reduction given the uncertainties in the model and the heavy reliance on projected benefits tied to weak rope modifications (given the lack of field testing).

[2] Webinar held June 3, 2019. Materials and a recording can be found here.

TEAM NEAR-CONSENSUS RECOMMENDATIONS

(Support to move forward with these measures: 44 out of 45 Team members)

General Recommendations

- Given the high variability around severity rankings included in the tool, re-do the poll using expert elicitation methods to converge on improved severity/risk reduction estimates
- Develop a monitoring plan, including whale and gear surveys, to monitor plan efficacy over time, as well as track implementation approaches and innovations.
- Revisit the need for weak links if weak lines are required.
- Put in place safety exemptions for young fishermen, nearshore fisheries, shallow waters, etc.

Specific Recommendations by Area

- For Maine, LMA1
  - 50% vertical line reduction
  - The top ¾ length of buoy lines (toppers) on all gear outside of 3 miles; expected to generate an 11.6% risk reduction
  - Assessment and monitoring should include assessment of unintended consequences; develop best practices to avoid issues such as increasing rope diameter/strength
- For Massachusetts, LMA1
  - 30% vertical line reduction (excluding the approximately 100 fishermen already closed out of the Massachusetts Bay Restricted Area); results in annual net risk reduction of roughly 25%.
  - Sleeves or their equivalent everywhere; expected to generate an 11% risk reduction
  - 24% credit for the previously implemented Massachusetts Bay closure
  - Note: Some source data for this calculation needs confirming
- For Rhode Island, LMA2
  - Endlines expected to be reduced by 18% in the next three years
  - Willing to use 1700lb sleeves or equivalent everywhere; expected to generate a 43% risk reduction or equivalent
  - Additionally, Rhode Island to trawl up from 20 to 30 pots in 2/3 overlap as a component of its 30% vertical line reduction
- For New Hampshire, LMA1 (aggregate risk reduction of 58.5%)
  - 30% VL reduction
  - 1700lb or sleeves or equivalent throughout fishery; expected to generate a 28-29% risk reduction
- For Offshore, LMA3
  - Fishermen in principle agree to reducing risk through a combination of vertical line reductions (already underway) and other measures; LMA3 responsible (like other LMAs) for meeting the 60% risk reduction goal
  - Ongoing Area 3 risk reduction of 18% anticipated due to already planned vertical line reductions from 2018-2020
  - Through 50 fathoms depth, fishermen agree to use 1700 lb breaking strength or equivalent
  - Five-year rapid research commitment to address lower rope weight breaking strength and other risk reduction measures
  - Work with industry to identify the specifics of risk reduction; present approaches to Team

Note: In its recommendation, the Team noted a discrepancy in risk reduction anticipated by using sleeves versus 1700 lb rope. Although the Team believes these conservation measures are equivalent, according to the tool, the sleeves are projected to provide a 43% reduction

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VI. PUBLIC COMMENT

Public comments were invited at the end of each meeting day. There were a number of commenters throughout the course of the four-day meeting. Comments centered on the following:

- Complementing the Agency on the rapid development of the Relative Risk Decision Support Tool, but expressing concerns about its limitations and cautioning against relying too heavily on the tool for decision-making. Others voiced concerns that the use of the not-yet-peer-reviewed Relative Risk Decision Support Tool runs the risk of harming vulnerable coastal communities highly dependent on lobster fishing while resulting in no measurable benefit to whales.
- Voicing concern that the suite of measures on which the team voted would not be sufficient to reach the need to avert jeopardy to the species. Several expressed frustration that the Agency took buoyless fishing out of consideration for this meeting at a time when right whale SI/M are above PBR, and urged the agency to actively support the development of ropeless fishing as a longer-term solution. Others noted that 1,700 lb rope still poses a threat to calves and juveniles.
- Encouraging the Agency to undertake extensive scoping sessions before formal rulemaking on any draft rule to ensure risk reduction measures are shaped by local needs and constraints given the potential for severe economic impacts.
- Voicing concern that trap reductions are likely to result in more end lines in the water as some fishermen, seeking to maximize catch, will cut up trawls.
- Encouraging the Agency to look at other gear types to reduce entanglement risk so the conservation burden isn't shouldered by just one sector.
- Suggesting that closures in Area 537 will only result in fishermen shifting their gear (and the associated risk) elsewhere, thereby failing to deliver a conservation benefit to right whales. The Team was urged to rely instead on gear modifications. Conversely, other public speakers endorsed closures in the area given the heavier gear used.
- Asking the Agency to quickly assess the extent to which the Team's recommendations, if adopted, are a sufficient basis for the agency to make a "no jeopardy" finding in an updated ESA Biological Opinion.
- Urging the Agency to take emergency actions to reduce right whale M&SI given it is behind in meeting its obligations under both the MMPA and the ESA.
- Other comments centered on a number of topics, including: (1) encouraging the Agency to consider a wide range of new technologies if vessel tracking is required; (2) bringing in other fishing interests not now at the table if buoyless fishing is seriously considered; (3) encouraging the Agency to give credit to Mass Bay Restricted Area fishermen who have already taken steps to reduce risk; (4) making sure that gear modifications considered as part of the TRT process don't result in unintended sub-lethal consequences to right whales; (5) emphasizing the importance of enforcement to Plan success; (6) pressing the agency to address risk from Canadian gear and offshore wind farms; and (7) informing the Team of consistent opportunistic right whale sightings, primarily in the Mt. Desert Rock area.

VI. NEXT STEPS

Based on the Team's discussions, Agency staff outlined the following next steps:

- The Agency will begin working on rule-making in May, with scoping meetings anticipated for summer 2019. The Agency will keep the Team apprised of progress.
- The Agency will be polling the Team shortly to schedule a webinar to discuss gear marking. [3]
- The Agency will review and update the Relative Risk Decision Support Tool based on Team member comment and recommendations. The Agency will provide an update to the Team and, as needed, seek additional review and input.
- The Agency is to reconvene the Team if its analysis of Team recommendations suggests a substantially different package of measures is needed to achieve the Agency-stipulated conservation target.
- The Agency anticipates holding an in-person meeting in 2020 to address risk reduction measures in other gear groups and for other marine mammals (e.g., humpback whales).

Additionally, S. McCreary and B. Brooks are to draft a Key Outcomes Memorandum (this document) summarizing key discussion points for review, revision and confirmation by Team members.

[3] Gear marking conference call held June 3, 2019.