

Attachment

The below attachment provides responses and clarifications to some of the specific points raised in the August 30, 2019 letter from Ms. Patrice McCarron to Mr. Chris Oliver regarding Maine's lobster industry members of the Atlantic Large Whale Take Reduction Team (the Team) withdrawing their support for the near-consensus agreement reached during the April 2019 Team meeting.

Point raised:

“The MLA’s analysis found that gillnet and netting gear were the most prevalent gear (other than Canadian snow crab gear) and the Northeast lobster fishery (and the Maine lobster fishery in particular) were the least prevalent in right whale entanglements from known causes.”

Response:

While NMFS was unable to recreate the results presented in the letter, it appears that the MLA's analysis removes all cases in which there was no definitive assignment to a fishery or fishery type. Based on the right whale incidents data shared with the Team in March:

- 42 of 61 (69%) entanglement-related serious injuries, disentanglements, and mortalities between 2009 and 2018 would not be included in the MLA analysis because they do not identify the gear that caused the entanglement. These include:
 - 38 undetermined cases because no gear was present or retrieved
 - 4 cases with gear present that could not be identified.
- As discussed with the Team, NMFS applies a consistent standard in drawing gear analysis determinations. We require conclusive photo documentation and analysis of recovered gear, or fisherman interviews when possible. If we relaxed these standards to the same level MLA did in its analysis, additional cases consistent with lobster would have been indicated on the table.
- NMFS cannot ignore cases where the source of gear remains undetermined. Removing undetermined entanglement source cases over-emphasizes mortality sources that are easily identified (e.g., mesh, snow crab line) due to the more uniquely recognizable characteristics of the gear. Because it is not currently possible to determine the source of all entanglements, it is not possible to draw specific conclusions as to the prevalence of unique gear types involved in entanglements.
- However, per MLA's comments, the analysis in the Draft Environmental Impact Statement will remove the one positively identified gillnet case (E44-16) from the annual mortality estimate as the target. Additionally, NMFS will continue to explore additional methods to assign undetermined serious injuries and mortalities (mostly those with no gear present or retrieved) to a particular U.S. fishery class. Without an additional method, we rely heavily on the percent of endlines from each fishery.

Point raised:

“In its review of NMFS’ data, MLA noted two cases with substantive errors that led the TRT to conduct its work without an accurate understanding of the role of Northeast lobster fishery and other gears in right whale serious injury and mortality.”

Response:

E44-16: Sandy Hook, New Jersey in December of 2016 identified as incorrectly described in the Stock Assessment report (2018 Stock Assessment Report)¹. The NEFSC determinations in the 2018 Stock Assessment Report were published after review by experts from other regional science centers, and differences were reconciled. The determinations were also provided to the regional Scientific Review Group for review prior to publication of the Report. Final determinations and the associated serious injury and mortality values were assigned to the date of the first detection of the injury or mortality. Subsequent to publication, a slight error was identified in the table. Although the table in the report on page 24 identifies the gear as “. . . netting. . . full configuration unknown”, and as first seen in the U.S., the Gear Type column identifies the gear as “not retrieved” rather than noting that the gear type was discerned even though the gear was not retrieved. NMFS assured commenters that this error would be corrected in the table in the 2019 Stock Assessment Report.

Note that the “unknown” gear type indicated in the table in the Serious Injury report does not change the assigned value of 0.75 against the Potential Biological Removal (PBR) assessment for 2016 and would have no effect on the risk reduction target provided to the Team.

E22-14, a dead right whale floating anchored 36 miles offshore of Nantucket in September, 2014. NMFS identified this case as unknown U.S. line. The MLA letter cites Sharp et al. (2019)² as identifying the likely cause U.S. gillnet gear.

Only low resolution United States Coast Guard photos were available to assess this entanglement, showing line and buoy on the whale, as well as reflective ellipses on the whale’s side. These shapes were thought to be blisters by New England Aquarium staff who are responsible for health assessment photo analyses. Others, including the International Fund for Animal Welfare’s mortality assessment team, thought they might be float line buoys and evidence of gillnet gear.

Our team of gear experts carefully re-evaluated this case a number of times at your request, but they cannot conclude that there is enough information to state that gillnet gear was involved in the entanglement. Their observations include:

¹ Hayes, S.A., Josephson, E., Maze-Foley, K., Rosel, P.E. 2019. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2018. NOAA Technical Memorandum NMFS-NE: 258

² Sharp, S.M., McLellan, W.A., Rotstein, D.S., Costidis, A.M. and others (2019) Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018. *Diseases of Aquatic Organisms* 135:1-31. DOI: 10.3354/dao03376.

- Low resolution images confirmed a relatively fresh carcass apparently anchored, suggesting the gear may be from U.S. waters. We could not confirm whether netting is present or that the oblong shapes are buoys:
 - While the reflective shapes may be similar to the impressions made by floatline buoys, the distance between each ellipse is much closer than is typical of offshore groundfish sink gillnets. Offshore sink gillnet buoys are generally spaced greater than 8 feet apart.
 - If the oblong shapes were part of a gillnet panel float line, the buoys on the whale above the water line would typically be either tightly wrapped around the whale, or draped and pulled down by gravity in a u shape, not in a sinusoidal shape observed in the low resolution photos.

Point raised:

“...the TRT deliberations were conducted without sufficient data from the agency to inform its efforts to select appropriate mitigation measures that address risk.”

Response:

NMFS has shared data extensively with the Team and others, making it publically available on our website. NMFS publishes Serious Injury and Mortality Determinations³ annually, following nationally developed protocols. We also provide the Team with annual entanglement reports⁴ summarizing known entanglement incidents and including detailed case reports. In March of 2018, we provided feasibility subgroups with the compiled right whale entanglement case reports from 2001-2015⁵ and presented about a dozen totes of gear retrieved from right whales to team members for inspection. Additionally, about a month before the April 2019 Team meeting, we shared a spreadsheet⁶ of right whale incidents, including serious injuries and mortalities, documented between 2000 and 2018.

Data limitation remains an ongoing challenge with regard to area and fishery assignment for entanglement events. As you are aware, gear is not recovered or documented in the vast majority of entanglement cases. Furthermore, even when gear is retrieved, we must consider the gear characteristics and unique features of each entanglement event, which may bias identification of the types of gear that are retrieved. Inadvertently, disentanglement efforts, which avert serious injuries but include removal of gear capable of causing them, can also contribute to the loss of gear. Nonetheless, all available data were

³ Henry, A.G., Cole, T.V.N., Garron, M., Ledwell, W., Morin, D., Reid, A. (2017) Serious injury and mortality determinations for baleen whale stocks along the Gulf of Mexico, United States East Coast, and Atlantic Canadian Provinces, 2011-2015. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document. 17-19; 57 p. Available from: <http://www.nefsc.noaa.gov/publications/>

⁴ Currently available on the NMFS Greater Atlantic Regional Fisheries Office website at: <https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/reports/index.html>

⁵ Currently available on the NMFS Greater Atlantic Regional Fisheries Office website at: https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/April%202018/rightwhale_entanglement_reports_2001_-_2015.pdf

⁶ Currently available on the NMFS Greater Atlantic Regional Fisheries Office website at: https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/trt/meetings/April%202019/2000-2018_right_whale_incident_data_3_19_19v.xlsx

brought forward for consideration by the Team to address options for mitigating risk of entanglement.

However, like you, we are frustrated by the data limitations. We will continue to consider whether unattributed serious injuries and mortalities (mostly those with no gear present or retrieved) can be assigned to a particular U.S. or Canadian fishery by using alternative analytical approaches to compare unknown cases to known incidents. If resulting analyses prove useful, we will include them within the DEIS.

Point raised:

The 60% conservation target is "...allocated solely to the Northeast lobster fishery..."

Response:

NMFS determined that a risk reduction of 60% to 80% is required to reduce the impacts of U.S. fisheries to below the PBR. Coastwide rulemaking for relatively data poor fisheries is expected to take three to four years. Because of the urgency of responding to the rapid decline in the right whale population and because the fishery source of serious injury and mortality to right whales cannot be determined in 69% of documented cases, NMFS is focusing its scope on the area and fishery that fishes the greatest number of endlines in the U.S. Atlantic: trap pot fisheries in New England. The 2017 endline estimates derived through a model created by Industrial Economics to support the Team efforts indicate that about 98% of fixed gear endlines within right whale habitats along the Atlantic coast are fished by the U.S. lobster fishery. However, as we have informed the Team, Mid-Atlantic and Southeast trap/pot fisheries and gillnet fisheries, will be addressed at the next Team meeting, anticipated in early 2021.

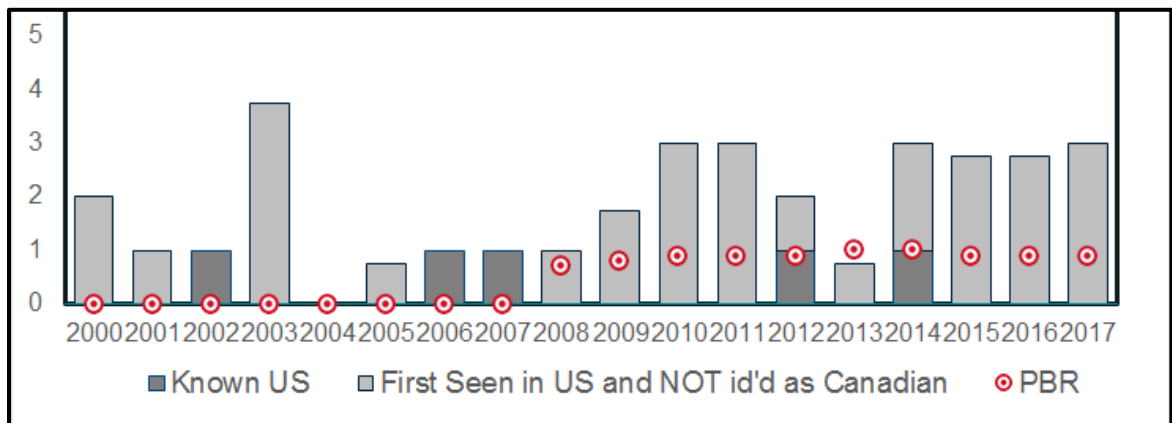
Point raised:

"NMFS' Stipulated 60% Risk Reduction Target is Inconsistent with its Own Data and was Imposed Without Consultation with the TRT."

Response:

The goal/target of the Take Reduction Team as prescribed by the Marine Mammal Protection Act, is to recommend measures to NMFS to reduce the impacts of U.S. fisheries to below PBR levels as prescribed by the Act. In developing serious injury and mortality estimates for use in Stock Assessment Reports and by the Team, NMFS attributes definitive source of serious injuries and mortalities only when gear is present and identified to a fishery source.

The challenge is to determine what percentage of the unknown sources come from U.S. vs. Canadian fisheries. As presented to the Team at the October 2018 meeting, there is only one year since 2010 (when the decline in the North Atlantic right whale population began) in which right whale entanglement serious injuries and mortalities first seen in U.S. waters or known to be caused by U.S. gear (graph below) was below PBR. In most years, entanglement-caused serious injuries and mortalities first seen in U.S. waters or identified as U.S. gear exceed PBR by two or three times, suggesting a 50 to 67 percent reduction would be needed to achieve PBR.



While serious injury and mortality calculations for 2018 are still being evaluated, this trend continues into 2018 when four right whales, three dead and one seriously injured, were first seen in U.S. waters. One of the dead whales was entangled in Canadian snow crab gear. The other three whales had no gear on them but show clear signs of line entanglement as the likely cause of death or injury.

At the October 2018 Team meeting, the Team specifically requested that NOAA provide a target level of risk reduction needed to get below PBR. On April 5, 2019, NMFS provided an email (subject: “Take Reduction Target”) to the Team members and included the methodology and rationale for the 60% risk reduction target. An exchange between you and the Regional Office was also shared with the Team.

In attempting to create a target risk reduction measure for the Team, NMFS considered how to assign a country of origin to these unknown sources. As previously explained, the alternative that NMFS selected divided unattributed serious injuries and mortalities between the U.S. and Canada equally. The result was a risk reduction target similar to that suggested by the graph above. While you and others proposed alternative apportionment of the unattributed cases, others on the Team supported NMFS’ recommended range. Specifically, they supported assigning 50% to Canadian fisheries noting the relatively high probability of detecting entanglements in Canada given the high survey effort and detectability of snow crab gear and low probability of detecting entanglements in U.S. waters.

The table below repeats that exercise, but removes the gillnet case (E44-16) from the average annual mortality estimates. For purposes of comparison across recent rolling five year averages, the table below considers two methods for assigning unattributed mortalities: (1) assigning them by first location observed (XU = first seen in U.S., XC = first seen in Canada) or (2) applying a 50/50 split. The resulting risk reduction calculated is within the range provided to the Team: 57% to 69%. These calculations do not include the upper bounds of that range, which considered unobserved serious injuries and mortalities. The similar results support the reasonableness of the approach brought to the Team.

Date range	5-year annual average	5-year annual average - without mesh	US	CN	Total not assigned but first seen in:		% Reduction needed	Total not assigned with 50:50 Split US:CN	% Reduction needed
					XU	XC			
2012-2016	5.15	4.8	0.4	0.6	3.8		57%	1.90	61%
					1.7	2.1			
2013-2017	5.55	5.4	0.2	1.2	4		64%	2.00	59%
					2.3	1.7			
2014-2018	6.55	6.4	0.2	1.4	4.8		69%	2.40	65%
					2.75	2.05			
2009-2018	4.975	4.725	0.2	0.7	3.825		63%	1.91	57%
					2.225	1.6			

Point raised:

“NMFS Used a “Decision Support Tool,” Still in Development and Not Peer-reviewed, as the Basis of the TRT’s Recommendations.”

Response:

The NMFS’ Northeast Fisheries Science Center (NEFSC) produced the Decision Support Tool at the unanimous request of the Team (October 2018 meeting) to provide a framework to compare risk reduction proposals toward achieving the target risk reduction. A key component of the tool’s risk measure, multiplying gear density by whale density in a given area and time, has undergone scientific peer review, previously supported Team efforts⁷, and has been applied to other fishery management efforts including those as published by Farmer et al. (2016)⁸ to assess risk of pot gear entanglements to North Atlantic right whales.

In developing the tool, the NEFSC recognized that there was greater variation in gear types, and some gear types are likely more dangerous to right whales. As such, a severity modifier was developed to account for the fact that different types of gear pose different levels of entanglement risk. For example, the model accounted for lighter gear in coastal Maine being less dangerous and assigns more risk to the very heavy gear used in the offshore fishery.

While the tool effectively supported the Team’s discussion and decision-making at the meeting, the NEFSC and partners continue to update and refine the tool so that it could be used to support Team efforts in the future, and could perhaps become an analytical tool beyond decision support. To this end, updates are underway to all three components: the endline model, which is informed by state and federal data, the right whale density model⁹ developed by Duke University, and the risk severity modifier, which will be informed by data collected by colleagues with Maine Department of Marine Resources, the New

⁷ See documentation and peer review of IEC Co-occurrence model found on the NMFS Greater Atlantic Regional Fisheries Office website: <https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/eis2013/>

⁸ Farmer, N.A., Gowan T.A., Powell, J.R., Zoodsma, B.J. (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. DOI: 10.1080/19425120.2016.1146181.

⁹ Roberts, J.J., Best, B.D., Mannocci, L., Fujioka, E., Halpin, P.N., Palka, D.L., Garrison, L.P., Mullin, K.D., Cole, T.V.N., Khan, C.B., McLellan, W.M., Pabst, D.A., Lockhart, G.G. (2016) Habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. *Scientific Reports*, 6: 22615. DOI: 10.1038/srep22615.

England Aquarium, and others. These efforts will be guided by expert feedback obtained through an independent peer review, scheduled with the Center for Independent Experts in November, 2019.

Point raised:

“NOAA Fisheries Asserted Pressure to Reach Consensus to Avert Threat of a Jeopardy Finding in Pending Biological Opinion.”

Response:

NMFS and the Team have experienced pressure to develop recommendations due explicitly to the decline in the right whale population that began in 2010. Starting in 2015, scientists began noticing indications of a decline. By 2017, that trend became clear when Pace et al. (2017)¹⁰ documented a decline in the right whale population beginning in 2010. That same year, the population suffered a further setback when 12 right whale mortalities were documented in Canadian waters and 5 in U.S. waters. These developments initiated a new urgency to act in order to maintain the recovery gains made over the previous decades. To address these needs, NMFS turned to the Team again in 2017 for recommendations and to encourage stakeholder input in decision making.

- Information was shared with the Team in a November 2017 teleconference to underscore the significant change in right whale status and need to consider modifications to the Atlantic Large Whale Take Reduction Plan (Plan). The Team was also provided with an overview of the recently concluded 5-years status review and was informed of the re-initiation of ESA section 7 consultation on various fisheries including lobster.
- Mike Pentony, Regional Administrator for NMFS’ Greater Atlantic Regional Fisheries Office, sent a leadership message to the Team in February 2018 detailing the creation of two subgroups to quickly investigate the feasibility of take reduction measures to inform an October 2018 Team meeting in recognition of the urgency of reducing human impacts on the population.
- We underscored the Agency’s responsibility for ensuring that takes in U.S. fisheries be reduced below PBR and our commitment to begin rulemaking immediately following the meeting. NOAA Fisheries strongly encouraged the Team to develop consensus recommendations because the Team meeting was the best opportunity for the Team to shape the Agency’s approach to risk reduction.
- During the April 2019 meeting, the Biological Opinion was not on the Agenda. We responded to a question from the MLA about the relationship of the Biological Opinion to the Plan. In response to that question, we clarified that the Biological Opinion would likely consider measures developed as part of the Plan.

¹⁰ Pace, R.M. III, Corkeron, P.J., Kraus, S.D. (2017). State-space mark-recapture estimates reveal a recent decline in abundance of North Atlantic right whales. *Ecology and Evolution*, 7: 8730–8741. DOI: 10.1002/ece3.3406.