



MARINE MAMMAL COMMISSION

11 October 2022

Mr. Michael Pentony, Regional Administrator
Greater Atlantic Regional Fisheries Office
National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930–2276

Dear Mr. Pentony:

On 9 September 2022, the National Marine Fisheries Service (NMFS) published a notice in the *Federal Register* (87 Fed. Reg. 55405) announcing its intent to prepare a draft environmental impact statement (DEIS) in accordance with the National Environmental Policy Act (NEPA) to assess potential modifications to the Atlantic Large Whale Take Reduction Plan (ALWTRP or the Plan). The Plan is designed to reduce mortality and serious injury (M&SI) of North Atlantic right whales (NARW or right whale), and other endangered whales, incidental to commercial trap/pot¹ and gillnet² fisheries along the U.S. East Coast to levels mandated by section 118(f) of the Marine Mammal Protection Act (MMPA). The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors, herein provides comments and recommendations about potential modifications to the Plan and the process being followed to develop those modifications.

The Commission, the scientific, conservation and fishing communities, state managers, and NMFS are all acutely aware of the crisis facing the NARW. The species is facing extinction in the foreseeable future due primarily to deaths resulting from entanglements in trap/pot and gillnet gear, but also vessel strikes and sub-lethal injuries that negatively affect the health and reproductive potential of female right whales.³ Entanglements primarily involve ropes used to connect traps/pots or gillnets to surface buoys. Those ropes are interchangeably referred to as ‘buoy’, ‘end’ or ‘vertical’ lines. In September 2021, following in part the advice of the Atlantic Large Whale Take Reduction Team (ALWTRT, or ‘the Team’), NMFS published regulations implementing amendments to the ALWTRP that established time-area closures, and mandating changes to the fishing gear and practices of the Northeast American Lobster and Jonah Crab Trap/Pot Fishery. The Commission has advised NMFS through its participation in the ALWTRT, conversations with agency leadership,

¹ The terms trap and pot are used in different fisheries and regions to refer to the same type of fishing gear – a cage made of some rigid material and netting, with a funnel-shaped entrance, that traps fish or crustaceans that enter to access bait. Several traps/pots strung together by a ‘bottom line’ are referred to as a ‘trawl’. A single trap/pot or trawl of traps/pots is dropped to the sea floor, and marked at the surface by one or more buoys attached to the trap/pot or to each end of a trawl by a rope that is typically referred to as a buoy, end, or vertical line.

² Gillnet gear consists of one or more gillnet panels strung together on or above the sea floor, and connected at each end to a surface buoy or buoys by a rope.

³ [4 May 2022 Commission letter](#) on the 5-year ESA NARW status review.

and letters,⁴ that the amended Plan and its phased-in implementation (the Conservation Framework) would be insufficient to meet the take reduction requirements of the MMPA or to reverse the population decline of right whales. Subsequent litigation confirmed that NMFS's revised ALWTRP and implementation schedule do not meet the requirements of the MMPA.

Currently, in response to challenges to NMFS's 2021 plan amendment, the U.S. District Court of the District of Columbia is considering appropriate remedies to correct the deficiencies in the Plan and violations of the MMPA and the Endangered Species Act. The MMPA requires that M&SI is reduced to a level below the population's potential biological removal level (PBR) within six months. However, in its 2021 Plan amendment and accompanying Biological Opinion, NMFS had laid out a 10-year plan to achieve this goal, which the court invalidated. Accordingly, the agency has directed the ALWTRT to develop a package of mitigation measures that, in conjunction with the 2021 amendments to the Plan, would be expected to reduce the risk of mortality and serious injury of right whales incidental to interactions with all U.S. East Coast fisheries by at least 90 percent. NMFS has calculated that an 89- to 93-percent reduction in risk⁵ should reduce M&SI to a level below the population's potential biological removal level (PBR), the immediate goal of the take reduction requirements in MMPA section 118. In addition to engaging in Team discussions and efforts to craft new sufficient measures, the Commission is taking this opportunity to provide advice to NMFS on the Plan amendment process and goals.

NMFS, the Commission, independent scientists, and a wide range of stakeholders have recognized that there are just two ways to reduce M&SI of large whales from entanglement in fishing gear. The first is to reduce the likelihood that whales will become entangled, and this can be achieved primarily by reducing the number of vertical lines in the whales' environment. The second is to reduce the likelihood that an entangled whale will die or be seriously injured. This can be achieved by increasing the chances that an entangled whale will be able to free itself from the entangling gear before it succumbs or is seriously injured. It has long been reasoned that the best way of doing this is by reducing the strength of the rope used for buoy lines. The Commission has argued that reducing the likelihood of entanglements occurring is a decidedly superior mitigation measure to merely trying to reduce the severity of entanglement injuries. Scientific research suggests that most right whales can free themselves from rope with a breaking strength of less than 1700 pounds (Knowlton et al. 2016). However, the use of so-called 'weak rope' is not a fully reliable method to ameliorate the risk of mortality and serious injury because 1) calves and juveniles, or malnourished smaller adults, are unlikely to be able to break free of the gear before suffering serious injury, 2) the manner and degree to which whales are entangled does not always allow whales to break the entangling gear, and 3) whales that do break free may suffer long term injuries significant

⁴ Commission comment/recommendation letters: [19 February 2021](#) - Draft Biological Opinion regarding the impact of the American lobster and Jonah crab federal fisheries on the North Atlantic right whale; [1 March 2021](#) - proposed amendment to the Atlantic Large Whale Take Reduction Plan and draft Environmental Impact Assessment; [4 May 2022](#) - 5-year ESA NARW status review; [24 June 2022](#) - Follow-up to May 2022 ALWTRT meeting.

⁵ The range in the target value reflects different assumptions regarding the apportionment of fishery impacts on right whales between U.S. and Canadian fisheries. Of the right whales that are seriously injured or die due to entanglements in fishing gear, if the U.S. and Canadian fisheries are assumed to be equally responsible, then the risk reduction target is 93.6 percent. If Canadian fisheries are assumed to be responsible for 70 percent of the mortalities and serious injuries, the target has been calculated to be 89.4 percent. NMFS has settled on 90 percent as a nominal 'minimum' target.

enough to impair their health and reduce their ability to reproduce. Thus, the take-reduction strategy should be primarily focused on removing vertical lines from the right whales' environment. In the event that these fisheries continue to use vertical lines, fishermen must use 'weak rope' to at least reduce the potential for entanglements leading to death or serious injury of whales.

The ALWTRT is using a model, the 'decision-support tool' (DST) developed by the Northeast Fisheries Science Center, to quantify the potential entanglement risk associated with a fishery or set of fisheries operating in a specified manner, e.g., with given effort levels, and at specified places and times. A risk score is computed as the product of a measure of the likelihood of entanglement (a whale-line co-occurrence index) and a measure of the severity of injury likely to be experienced by an entangled whale (a line-strength index). The co-occurrence index, in turn, is computed as the product of the estimated densities of whales and vertical lines in a particular area. The risk units do not provide an estimate of the probability of entanglement or M&SI, rather the DST is used to estimate relative changes in the risk score that may result from regulatory measures that would alter the manner, effort level, location, and/or time that a fishery or group of fisheries operate. Prospective regulatory measures suggested by the Team are evaluated by NMFS using the DST for their risk-reduction potential, with the goal of developing a suite or package of measures that would achieve a minimum potential risk-reduction of 90 percent, relative to the baseline risk that existed before the 2021 ALWTRP amendments were implemented.⁶ The accuracy of DST risk-reduction estimates is unknown, which is due to uncertainty in underlying data on whale and vertical line densities in space and time and on the relationship between rope strength and injury severity, and the fact that the tool has not been validated. Therefore, the Commission recommends that NMFS err on the side of caution by adopting entanglement mitigation measures that should achieve a level of risk reduction that is substantially greater than 90 percent.

Unintended consequences

The effectiveness of any mitigation measure depends, in part, on how fishermen respond to its implementation. If erroneous assumptions have been made about those responses, they may prove to have over- or under-estimated the measure's effectiveness. For example:

1. One measure being considered by the Team would require fishermen to remove the line from one end of each trawl, thus ostensibly reducing the number of end lines used on trawls by 50 percent. An important and reasonable concern that fishermen have voiced is that this change would make their gear much more vulnerable to interactions with other gear. With only a single marker, other fishermen would not be able to tell in which direction or for how far a trawl might extend from that buoy, and therefore they would be less able to avoid over-laying or snagging the gear. It is reasonable to assume that the longer the trawl, the greater the likelihood of such interactions with other gear. Therefore, some trap/pot or gillnet fishermen, in an effort to minimize the risk of losing

⁶ Using the latest version of the DST, NMFS has calculated that the mitigation measures implemented in 2021 can be expected to provide a risk reduction of 46 percent, leaving at least an additional 44 percent risk reduction to be achieved by the Plan amendments currently under development, to reach the overall goal of at least a 90-percent risk reduction.

their gear or having it damaged, might respond by fishing shorter trawls. If those fishermen continued to fish the same number of traps/pots, they would need to increase the number of trawls and, concomitantly, the number of end lines. Thus, this alternative, which on its face seems as if it could achieve a 50-percent reduction in end lines, may, in practice, fall short of that mark, perhaps significantly so.⁷

2. A mitigation measure called ‘trawling-up’ was included in the 2021 revisions of the Plan. Trawling-up involves fishermen stringing more traps/pots together on each trawl, thereby reducing the number of end lines that are needed. However, the effectiveness of this measure depends on whether the number of traps being fished remains constant. If trawling-up prompted fishermen to increase the number of traps and trawls they fished (i.e., latent effort was mobilized), then something less than the expected reduction in the number of end lines would result. In addition, as the length of a trawl increases, so does its weight, and, if not regulated, fishermen may choose to use stronger rope, which increases the likelihood of an entanglement leading to serious injury or death.
3. The Plan revisions implemented in 2021 also included time-area closures to restrict fishing at times when and in areas where there is a heightened risk of right whale entanglements. The number of lines typically fished during a specified period in a risk hotspot would be zero during the closure, thus reducing the risk immediately to zero. However, a well-known phenomenon associated with closures is that fishermen respond by relocating their effort to areas outside the closed area and sometimes engage in a practice called ‘fishing the line’. That is, fishermen may move just outside the closed area in order to reduce transit costs and with the expectation that fishing will be best in areas closest to the border (‘the line’). This can mean that fishing effort is concentrated around the margins of the closure, thereby preventing the expected risk reduction from being realized or even creating a new co-occurrence hotspot that elevates entanglement risk.

The Commission suggests that the Team and NMFS use two primary approaches to minimize the impact of unintended consequences that may undermine the effectiveness of risk reduction measures. The first (Mitigation Certainty) is to select measures that are most likely to achieve their expected benefit; in other words, those least susceptible to changes in fishing practices that would result in unintended consequences. The second (Integrated Mitigation) is to expand the scope of the measures or couple them with additional requirements that reduce the risk of unintended consequences.

⁷ For example, a fisherman fishing 30 15-trap trawls currently would normally be using 60 end lines. Under a one-end-line rule, that fisherman would be expected to use 30 end lines, a 50-percent line reduction. However, if the fisherman set the same number of traps, but chose to fish shorter trawls, say 45 10-trap trawls with one end line each, the reduction in the number of end lines would be just 25 percent. If the fisherman opted to shorten the trawl-length further (e.g., using trawls of seven traps or fewer), the measure could actually result in an increase in the number of end lines.

Mitigation Certainty

Section 118(f) of the MMPA requires that a “plan shall include measures the Secretary *expects* will reduce ... mortality and serious injury to a level below the potential biological removal level” (emphasis added). Although the Commission supports use of the DST as the best approach and best available science for evaluating *expected* risk reduction from specified mitigation measures, no measure, other than closing a fishery entirely, can be expected to achieve a given level of risk reduction *with certainty*. Whether a mitigation measure actually results in the expected reduction of M&SI of right whales will depend on a variety of factors.

The Team has discussed five basic approaches for removing or reducing the number of vertical lines: 1) capping the number of traps/pots that are fished, 2) trawling-up, 3) removing one end line from trawls, 4) closing areas with high levels of co-occurrence (risk ‘hotspots’) to all trap/pot and gillnet fishing, and 5) capping the number of end lines that can be used. The last two approaches are more certain to reduce the number of vertical lines, at least in areas and at times when entanglement risk is greatest. The first three approaches are more subject to unintended consequences that may diminish their effectiveness. In contrast, if federal or state fishing permits were to impose specific limits on the number of end lines that can be used, and the number of permits was capped, then, regardless of how fishermen configured their gear, the number of vertical lines present in U.S. waters capable of entangling right whales would not exceed the threshold that NMFS expects will achieve the take reduction goals of the MMPA. However, since entanglement risk is not uniform over time and space, capping the allowable number of vertical lines alone would not provide reasonable certainty that the MMPA’s requirement would be met — this measure would need to be coupled with time-area closures to ensure that line densities and associated entanglement risks in co-occurrence hotspots were at or near zero. Thus, the Commission recommends that, in designing a Plan to achieve the specified 90-percent risk-reduction target, the Team and NMFS focus on vertical-line caps and time-area closures to reduce the number of lines in the whales’ environment.

Integrated Mitigation

While uncertainty of achieving the specified risk-reduction target can be reduced by selecting those measures most likely to prove effective in eliminating entanglements and M&SI, no practicable measure can provide complete certainty.⁸ On the other hand, if the measures under consideration have the potential for unintended consequences, then those measures will need to be carefully designed and integrated with others to minimize such consequences. Currently, it appears that the ALWTRT and NMFS are primarily considering only the expected direct effects of proposed risk-reduction measures. For example, as discussed above, a possible unintended consequence associated with a ‘remove-one-end-line’ measure could be avoided by coupling it with a measure that would prohibit reducing trawl lengths. The problems associated with time-area closures (displacement of fishing effort and fishing-the-line practices) could be minimized by ensuring that all major risk hotspots are covered sufficiently by the closures, and/or coupling the closures with buffer zones

⁸ The complete closure of all trap/pot and gillnet fisheries within the range of NARWs would eliminate the risk of M&SI due to entanglement, but such an approach is not seen as economically or politically feasible.

where fishing effort is capped. Fishermen themselves are perhaps best situated to provide input on the potential for unintended consequences of proposed measures and how best to prevent them. The Commission recommends that NMFS and the ALWTRT explicitly consider the potential for unintended consequences of each proposed mitigation measure and, as appropriate, modify the measures or add supplemental measures to try to avoid unintended negative consequences.

The success of any take reduction measure will depend on how well it is designed, the likelihood that it could be undermined by unintended consequences, and the extent to which any deficiencies are identified and ameliorated through an integrated regulatory approach. Because fishermen's responses to take-reduction measures are influenced by a number of factors that determine their yield and profit, it may not be possible, in the absence of relevant research, to determine with certainty the effectiveness and impact of any given measure *a priori*. Therefore, the Commission recommends that NMFS monitor and evaluate the efficacy of any implemented measures and modify measures as need to achieve the requisite reduction in whale deaths and injuries.

'On-demand' Technology

Following the recent court ruling that NMFS's 10-year timeline does not satisfy the MMPA's mandate to reduce M&SI to a level less than PBR within six months of the take reduction plan's implementation, NMFS and the Team are focused on meeting this immediate goal. However, attaining that goal will be very difficult given the magnitude of adjustment that will have to be made by the East Coast trap/pot and gillnet fisheries. Regulations capable of achieving the 90-percent risk-reduction target and that can reduce M&SI of right whales due to entanglement to less than one per year are bound to have profound social and economic impacts fishermen and their communities. NMFS is working closely with gear developers and fishermen to develop 'on-demand' systems⁹ that will enable many trap/pot and gillnet fishermen to continue to fish when, where and how much they want to, while removing 'static' vertical lines¹⁰ from the environment. These on-demand systems have the potential to remove all static vertical lines and are the best long-term solution to the entanglement problem. They are expected to allow fisheries to continue more or less unimpeded while providing a high level of protection against whale entanglements and M&SI. NMFS's scientists, gear specialists and managers are working diligently to solve the entanglement problem and are to be commended for their efforts. Nonetheless, given the likely impacts of new, MMPA-compliant take-reduction measures on the affected fisheries, greater urgency needs to be given to developing and deploying on-demand gear. The Commission therefore recommends that NMFS substantially increase its investment in developing the virtual marking/visualization and interoperability system needed for the gear to work for everyone, educating fishermen on the anticipated

⁹ Trap/pot or gillnet gear that does not use a vertical line that remains in place while the gear "soaks", is referred to "ropeless", "buoyless", or "on-demand" gear.

¹⁰ Some on-demand systems do not use buoy lines at any time, while others use them just to retrieve gear from the sea floor. Currently, deployed trap/pot and gillnet gear typically is left in the water for several days, during which time buoy lines remain in the environment and represent an entanglement risk. These lines are referred to as 'static lines'. Some on-demand systems store the line at the ocean bottom, and it is released by the fisherman along with a flotation device at the time of retrieval using an acoustic trigger on site. With these on-demand systems, vertical lines are present in the water column for only a few minutes and only while being closely monitored by the fishermen, rather than for days.

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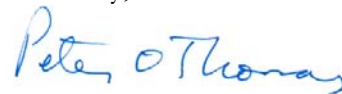
benefits, and conducting trials using on-demand systems with every major sector of the fisheries, with the goal of achieving adoption by large portions of at least the East Coast trap/pot fisheries as quickly as possible. NMFS should be doing everything it can to facilitate, encourage and incentivize the use of on-demand gear. Overcoming the widespread resistance among fishermen to the adoption of on-demand gear will require sufficient funding and a concerted effort by NMFS's fisheries technologists, social scientists, and outreach/education specialists to counter the factors that drive such resistance.

Transparency

NMFS recently reported that, following the Team's submission of recommended amendments for incorporation in the 2021 Plan, it had worked with the States and fisheries, including their representatives on the Team, to modify those recommendations. That was a reasonable approach for checking that implementation would meet the Plan's goals and be judged practicable by regulators, enforcement agencies, and fishermen. However, in proceeding in this way, NMFS did not inform the full Team of the actions it was taking, the content of discussions with the States and fisheries, or the changes made to the Team's recommendations as a result. The Commission recommends that, henceforth, if NMFS collaborates or consults in this way with outside individuals or entities (e.g., certain Team members, State agencies, or industry), it subsequently advise the full team concerning the basis for any modifications of the Team's recommended amendments.

We hope these comments and recommendations are helpful. Please contact me if you have questions.

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

cc: Janet Coit, Assistant Administrator for Fisheries
Kim Damon-Randal, Director, Office of Protected Resources
Dr. Shannon Bettridge, Marine Mammal and Sea Turtle Division Chief
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