



The Commonwealth of Massachusetts

Division of Marine Fisheries

251 Causeway Street, Suite 400, Boston, MA 02114

p: (617) 626-1520 | f: (617) 626-1509

www.mass.gov/marinefisheries



CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor


KATHLEEN A. THEOHARIDES
Secretary

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DANIEL J. MCKIERNAN
Director

MEMORANDUM

TO: Marine Fisheries Advisory Commission

FROM: Daniel McKiernan, Director 

DATE: April 1, 2022

SUBJECT: **Decision to deny the request to fish on-demand lobster trawls during the seasonal trap gear closure in Massachusetts Bay**

This memorandum provides background and a detailed explanation as to why I decided to not issue a Letter of Authorization (LOA) for the Pioneers for a Thoughtful Co-existence (“Pioneers”) to deploy on-demand (“ropeless”) trap gear in state waters during the current February 1 – May 15 seasonal trap gear closure. I found the proposal: (1) lacked a study design that would meaningfully contribute to the further understanding the efficacy of ropeless fishing and addressing key research questions necessary to determining the commercial viability and broader development of this gear; (2) did not contribute to further reduce the risk of right whales becoming entangled in fixed fishing gear; and (3) did not address a significant lobster fishery management issue involving the state waters trap fishery.

The public meeting and comment period we held on this issue revealed much division among the industry and stakeholders. The concerns raised by many lobstermen about the utility, cost, and unintended consequences deserve to be investigated through more formal research and development than what was proposed by the Pioneers. DMF looks forward to contributing to those discussions with our NOAA Fisheries colleagues and the members of the Ropeless Consortium to devise future study designs that will address some of the unanswered critical questions.

General Background on Proposal and MFAC Role

In my view, the potential transition to ropeless fishing is one of the most challenging and controversial fisheries management issues of our time. The North Atlantic right whale is critically endangered and there is a need to reduce the anthropogenic risk of injury and mortality to these animals throughout its range. As fisheries managers, we must strategize how to further reduce entanglement risk to meet the mandates of the federal Marine Mammal Protection Act and the Endangered Species Act while also allowing the time-honored profitable and safe fishing practices that are the hallmarks of the inshore lobster fishery. This small boat, owner-operator industry is the dominant fishing activity along our working waterfronts.

The Pioneers for a Thoughtful Co-existence are a small group of commercial lobster fishermen hailing from ports along the Massachusetts' South Shore and Cape Cod. The Pioneers seek to develop and advance trap fishing gear that substantially reduces the risk of right whale entanglements to re-obtain access to seasonal fishing grounds and reduce the need for spatiotemporal closures. To this end, these individuals have a strong track record of collaborating with researchers on gear trials to enhance right whale conservation. This includes developing the "South Shore Sleeve" buoy line modification, as well as recent collaborations with the Northeast Fisheries Science Center to test the efficacy of deploying and retrieving ropeless gear. As a next step in their ropeless gear investigations, they sought an LOA to allow five fishermen to each deploy five 20 pot trawls within two defined areas of state waters during the state's February 1 – May 15 trap gear closure. The purpose of the proposed research plan was to work exclusively with acoustic releases and electronic gear marking and collect data on wintertime use, gear location awareness, and operational efficiency.

On January 12, DMF hosted a virtual public hearing on the proposal where we heard from various stakeholders with strong and divergent opinions on this project. Then on January 21, I discussed this proposal with you at your monthly business meeting. As I noted in my January 22, 2021 memorandum describing the challenges of ropeless fishing, LOAs and associated pilot programs are typically the origins of regulatory amendments and shifts in policies.

Under state law¹, the Commission has a clear role in creating future regulations governing lobster fishing in state waters, and as such, the Commission should give these programs substantial oversight and attention. Your active engagement on this issue is important, especially given the high stakes of this potential change to how the state's lobster fishery is conducted. I appreciated the comments you provided at the January 2022 MFAC business meeting and these comments were helpful in my decision-making process.

Recent Research Activity into the Potential for Ropeless Technology

The research and development of ropeless fishing technology has been a multi-year ongoing initiative involving many scientific institutions, government agencies and gear manufacturers. In the past two years, DMF issued LOAs to the National Marine Fisheries Service Northeast Science Center gear team stationed in Woods Hole that named the commercial fishing vessels and captains participating the federally overseen gear testing trials. This allowed NOAA gear specialists to coordinate investigations into the efficacy of ropeless gear location and retrieval with members of the Massachusetts' lobster fishery during the open trap fishing season. The work had fishermen fish one end of a trawl with an on-demand system and another with a normal buoy line and the gear was then fished alongside other vessels fishing with traditional buoyed gear. This demonstrated the functionality of the on-demand systems and evidenced it could be successfully deployed, marked, re-located, and retrieved. The Pioneers were active industry participants in this research.

¹¹ G.L. c. 130, §§ 1B and 17A. The Commission is responsible for advising the DMF Director on the proper management and development of marine fisheries of the Commonwealth and is required to approve all regulations of DMF regarding the manner of taking fish, legal size limits, seasons and hours for taking fish, quantities of taking fish, and opening and closing of waters to fishing.

In 2021 DMF was awarded a grant by the National Fish and Wildlife Foundation (NFWF) to study the technological, operational, and economic challenges associated with ropeless fishing in New England. DMF hired the consultant services of Noah Oppenheim’s Homarus Strategies to conduct this study. Noah conducted research and interviewed stakeholders; this past October he hosted a two-day workshop with over 60 participants to facilitate discussions about the potential for ropeless fishing. The report was released today, April 1, and it is comprehensive and thought provoking. It helps us better understand the technical requirements of widespread deployment of ropeless technologies and better identify critical research needs and questions to define next steps for overcoming likely obstacles.

NOAA Fisheries has also worked to enhance the potential for more ropeless fishing activities through recent amendments to the Atlantic Large Whale Take Reduction Plan. Rather than having closures apply to lobster trap gear, they creatively prohibited the use of “persistent buoy lines”. This new management approach applies to both the new Southern New England and coastal Maine closure areas, as well as the longstanding Massachusetts Restricted Area (MRA). In implementing this change, NOAA Fisheries clearly stated a federal Exempted Fishing Permit (EFP) would be required of any federally permitted vessel fishing in MRA, and those permits would be issued only to vessels deploying on-demand buoy line retrieval systems to conduct research and enhance understanding of the technology in these applications. NOAA Fisheries is not allowing the deployment of lobster trawls without any buoy lines where “grappling” for the groundline would be the routine method of trap retrieval.

Massachusetts did not similarly amend the state regulations governing the state waters seasonal trap gear closure, which overlaps with the MRA in Cape Cod Bay and east of Cape Cod but also extends north to the New Hampshire border. As a result, state regulations continue to have the closure apply to all trap gear—not just persistent buoy lines—and we did not establish a specific process for researching on-demand systems. Rather, we are currently relying on existing authorities² to accommodate on-demand fishing on a case-by-case basis. In the future if there is a need for broadscale usage of ropeless fishing technologies in closed areas DMF will rely on formal rulemaking to adopt regulations.

The Pioneer’s Application

DMF staff worked with the Pioneers to develop a proposal format that addressed the specifics of their requested proposed activity. This included spelling out the details of who, what, where, when, a risk management plan, and the research objectives. While the Pioneers did a good job of describing the basic details of the proposed work and a risk management plan, their proposal lacked key details regarding an experimental design and data collection plan aimed at answering key questions about the efficacy of ropeless fishing. Additionally, federal and NGO gear

² G.L. c. 130, §17(3). Powers of the Director. “Investigate questions relating to fish and personally or by assistants, institute and conduct inquiries pertaining to such questions, and conduct such biological research and assist cities and towns in the development of shellfish conservation and management plans as will, in his opinion, tend to conserve, improve and increase the supply of fish in the coastal waters.”

322 CMR 7.01(7). Conditions. The Director may at any time, in his discretion, attach any written conditions or restrictions to the permit deemed necessary or appropriate for purposes of conservation and management or to protect the public health, welfare and safety.

researchers were named as collaborators in the application, but the nature of their involvement was not well described. Despite our back and forth with the Pioneers, the final proposal still lacked specifics regarding experimental design, documented plan of action to execute fishing practices in ways that would scientifically and systematically answer questions on the utility and efficacy of ropeless technology, or the use of onboard and independent observers.

The Ropeless Consortium, within the Woods Hole Oceanographic Institute (WHOI), consists of researchers dedicated to advancing the development of ropeless fishing and addressing the various practical concerns that exist. On January 14, 2022 the Ropeless Consortium published a status report³. In this report they demonstrate these on-demand devices have a successful track record for deploying, identifying, and retrieving the gear. However, the report also highlights there remain serious questions regarding scalability; cost; and the virtual marking, detection, and dissemination of gear locations across all fisheries operating in the area. With this in mind, they identify six critical questions that need to be further studied to properly assess the usefulness of this technology. These questions are:

1. Can on-demand systems meet the efficiency of current fishing operations?
2. Can electronic gear marking be used to avoid gear conflicts within and between fisheries?
3. Can on-demand systems meet and/or exceed safety of current practices
4. Can scalability result in affordability?
5. Can on-demand systems reduce gear loss?
6. Can through-hull transducers improve the time of retrieval

It is my opinion that the Pioneer's application does not meaningfully address any of these six questions with any specificity. The proposal also did not have a study design that meaningfully contributed to further understanding the efficacy of ropeless fishing, to reducing the risk of right whales becoming entangled in fixed fishing gear, or address a significant lobster fishery management questions involving the state waters trap fishery. The objectives of the proposal seemingly only aimed to further document what we already know—the gear can be successfully deployed, located and retrieved. The proposal was their attempt to allow the participants of “fish a portion (200 traps) of their 800 trap allowance with this novel gear.

To make a gear trial like the one the Pioneers proposed successful there should be an experimental design focused on answering critical questions about the usefulness of this technology at scale. For instance:

- Is Trap Tracker a suitable application for marking and disseminating the location of where ropeless gear is being fished? Using Trap Tracker, how close can strings of traps be fished next to other traps already deployed? How does this compare with the close proximity buoyed gear is fished now? How long does it take for Trap Tracker to update the cloud and make other fishers or enforcement aware of where the gear is? Is the lag between virtual gear marking and updating the cloud extended if not in cell phone range? If so, by how much?

³ https://ropeless.org/wp-content/uploads/sites/112/2022/01/01_14_22-On-Demand-status-report-1.pdf

- Is Trap Tracker a suitable application to alert mobile gear fishermen about the presence of the gear and avoid it? How close can mobile gear be fished next to ropeless gear using Trap Tracker? How does this compare to the proximity that mobile gear can be successfully fished to buoyed gear?

My aforementioned concerns about the need for an improved study design were probably not met by the applicants because their goal was primarily to gain access to fish in the closed area with ropeless gear. While the applicants have been collaborating with gear developers, they are primarily professional fishers, not gear technologists. I regret that there has not been a clearer delineation of what the objectives should be.

I do not believe the limited activity described in the proposal is scale-able to the larger fleet and to fishing that occurs in other seasons of the year. Choosing to conduct this activity in discrete areas where other trap gear is prohibited, and mobile gear typically does not operate will likely prevent gear conflicts. However, it does not help provide useful guidance about how these gears can co-exist. Similarly, allowing two fishermen to set up to five 20-trap trawls in the proposed research areas does not simulate trap gear densities that occur during the proposed lobster fishing season (mid-May through January). Therefore, it does not provide useful guidance regarding scalability.

The application requested the opportunity to catch and sell lobsters at a time and from a place no other trap fishermen would have been allowed. While I do not know if this would have resulted in a windfall for the participants, issues of fairness and equity arise and many lobstermen on the outside looking in have raised concerns. Ideally, gear trials should include sufficient funding for the vessel, captain, and observers, and catch could be returned to the sea alive and be available to be caught when the area re-opens in May.

Additional Considerations

DMF has worked with the highly cooperative inshore lobster fleet to accomplish substantial entanglement risk reduction for the past 25 years. Estimates of the mortality and serious injury risk reduction since 2014 now exceed 90% compared to the 2014 baseline. (In 2015, the MA Restricted Area was closed for the first time and has been closed since and the state closure has been expanded north from Scituate to the New Hampshire border). This risk reduction is the highest of any jurisdiction in the geographic range of right whales and was accomplished primarily by the seasonal closures (original and expanded) and the adoption of low-breaking strength (1,700 lbs.) rope and approved contrivances. The affected lobstermen have largely modified their business plans and they have demonstrated widespread cooperation.

DMF has enjoyed unprecedented industry support when adopting these measures and many in the fleet have expressed a strong preference for conservation programs that are affordable and help maintain the traditions of lobstering that include co-existence with other fishing interests. In devising a management scheme to promote co-existence between endangered right whales and the maritime legacy industry of fishing, DMF has been fortunate to have the peak right whale abundance occur from February through mid-May in Massachusetts state waters. This time-period coincides the season of lowest lobster fishing effort and landings. To accomplish this enormous risk reduction and maintain a profitable commercial lobster fishery, we have not had

to require fishing practices be dramatically altered nor did we introduce or mandate sophisticated, expensive, and technologies that are still a work in progress.

Ropeless technology may find a niche in areas where current (and future) closures are economically impactful, and the technology solution is sufficiently affordable to spur investment. However, the inshore Massachusetts state waters fishery during late winter and early spring is not likely such a candidate. Long-term trends demonstrate that only about 1.5 % of the annual landings are derived from the months of February through April (Table 1). Only a small minority of lobstermen (including those who have sought this LOA) formerly fished all year long, and now their business plans have been modified by the late winter and early spring closure. Overall, the industry and the fleet can and has survived the closure as currently constituted.

Table 1. Massachusetts state waters lobster landings by month 2010 through 2019

Inshore Lobster Landings (Live Pounds) from Lobster Pots by Month and Year										
Month	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	80,899	85,842	80,460	103,693	70,446	62,611	102,848	71,027	110,612	79,721
2	23,391	27,409	39,623	18,454	30,482	3,948	23,150	20,199	46,793	29,959
3	26,061	38,188	31,394	15,425	27,217	11,596	38,886	17,945	22,854	38,402
4	142,006	104,095	71,331	102,892	77,378	66,127	81,273	74,535	79,886	88,114
5	269,662	244,448	255,406	288,917	329,849	305,584	268,646	282,462	243,296	215,000
6	514,140	538,756	1,223,360	586,599	576,423	548,147	986,889	532,206	512,478	476,997
7	1,199,258	1,315,399	1,742,340	1,686,975	1,099,706	1,817,183	2,044,016	1,683,095	1,623,293	1,609,090
8	1,382,980	1,577,889	1,617,056	2,030,338	1,687,346	1,998,596	2,359,051	2,493,194	2,348,667	2,076,751
9	1,389,108	1,438,104	1,187,635	1,594,513	1,891,035	1,874,477	1,705,059	1,933,717	2,259,944	2,058,897
10	1,339,395	1,528,350	1,084,269	1,619,664	1,969,468	1,858,700	1,914,735	1,853,778	2,049,134	1,909,499
11	1,064,901	1,041,196	886,810	915,770	1,267,068	1,145,354	1,250,379	1,001,181	1,025,207	1,093,044
12	282,294	320,472	373,966	335,988	470,237	432,318	350,752	382,406	404,288	439,331
Total	7,714,094	8,260,149	8,593,649	9,299,227	9,496,655	10,124,641	11,125,684	10,345,744	10,726,452	10,114,804

Source: MA Harvester Reports & VTR's updated 02/02/2022

If the fundamental purpose of the request is to re-open the closed area to vessels affected by the closure, it is appropriate for the fishery managers to question whether the state waters winter/early spring fishery is a suitable location for pursuing a re-opening. The nearshore waters are cold at this time of year causing most lobsters to migrate to the deeper and warmer water in adjacent federal waters. Those lobsters remaining in state waters are subjected to the coldest temperatures of the year, resulting in reduced lobster metabolism and activity and associated catch rates. DMF has had substantial industry support in closing its inshore waters during this time period—when right whales are super abundant—largely because seasonal environmental factors are such that the closure occurs at a time of year when catch rates and fishing effort are low thereby minimizing the closure’s economic impact. This premise does not hold for offshore waters where bottom temperatures are warmer than inshore waters during late winter and early spring and lobster fishing activity is likely more active and profitable.

The heterogeneity of the inshore fisheries needs to be considered by fisheries managers when forecasting the utility of ropeless fishing. Unlike the fishery from 3-12 miles that is predominately larger vessels in the 32-46 foot range, the inshore (0-3 miles from shore) fishery features many smaller vessels that deploy single traps or very short trawls (e.g. 5 or less). These participants include the recreational lobster permit holders, the student commercial lobster permit

holders, and many small-scale commercial lobster permit holders who fish in open boats and cannot fish long strings of traps due to limited hauling power and inadequate deck space. Given the very high cost of ropeless fishing equipment (\$5,000 for acoustic trigger device for the vessel and \$4,000 per pop-up buoy), it is reasonable to forecast that ropeless fishing would be far less affordable—likely unaffordable—for smaller scale fishers. These small-scale operations would likely be eliminated from the fishery or forced to increase the scale of their operations if ropeless fishing were mandated. I have difficulty imagining a fishery management scheme in inshore state waters that treated permit holders differently based on vessel size. For example, larger vessels would be required to fish trawls and to deploy ropeless fishing technology while smaller vessels would be exempt and be allowed to deploy persistent buoy lines. If ropeless fishing could be adopted somewhere, it may be more suitable in a more offshore location (beyond 12 miles) where the fleet is more homogeneous and the number of buoy line release devices needed to operate a profitable business is lower.

Conclusions

In my view, a successful request for authorization to fish with ropeless gear would achieve one or more of the following criteria: (1) reduce entanglement risk to large whales; (2) solve an ongoing or imminent fisheries management problem or threat to the economic viability of the fishery; and (3) contribute significantly to knowledge base on ropeless fishing through structured scientific research. The request for an LOA from the Pioneers did not achieve any of these criteria.

I believe there is minimal need to make substantial investments to re-open this fishery during the closed fishing months if it cannot satisfy the needs of a broad range of participants and if doing so will not result in substantial quantitative information on the efficacy of ropeless fishing being collected. If we envision preserving a heterogeneous fleet, a ropeless mandate in state waters year-round is highly unlikely. Alternatively, if further risk reduction is mandated, I would seek input from the industry participants to decide how best to further reduce entanglement risk in Massachusetts state waters. To date and based on the written and oral comments we received from the informational meeting on January 12th, it appears the vast majority of the fleet prefers to use a combination of weak rope and seasonal closures over more technological solutions.

The development of this gear will truly be revolutionary if embraced and adopted fishery-wide. I am struck by the high level of advocacy for ropeless fishing among many of the conservation organizations and the low level of suitable funding to research and develop it. Adequate funding is needed to conduct proper research and development to determine the utility of ropeless technology for various locations, seasons, and fleet segments. Although I denied the current proposal from the Pioneers, I am willing to invest DMF's staff time to work cooperatively with industry, NGOs, NOAA Fisheries and other gear researchers to devise effective gear trials for more appropriate times and places. Through such collaboration, I am confident DMF can meaningfully contribute to investigating whether ropeless fishing is a means to mitigate entanglement risk to right whales during times or at locations where other more practical methods are not feasible.