Atlantic States Marine Fisheries Commission

American Lobster Management Board

August 2, 2022
10:45 a.m. – 12:30 p.m.
Hybrid Meeting

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1.	Welcome/Call to Order *(J. McNamee)*	10:45 a.m.
2.	Board Consent • Approval of Agenda • Approval of Proceedings from March 2022	10:45 a.m.
3.	Public Comment	10:50 a.m.
4.	Discuss Implications of Proposed Measures of Draft Addendum XXVII on Increasing Protection of Spawning Stock Biomass of the Gulf of Maine/ Georges Bank Stock *(J. McNamee)* **Possible Action**	11:00 a.m.
5.	Update from Work Group on Implementation of Addendum XXIX: *Electronic Vessel Tracking for Federal Permit Holders* (*C. Starks)*	11:45 a.m.
6.	Progress Update on Jonah Crab Benchmark Stock Assessment *(J. Kipp)*	12:00 p.m.
7.	Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting (Addenda XXI, XXII, and XVI Provisions) *(A. Murphy)*	12:10 p.m.
8.	Review and Populate Advisory Panel Membership (T. Berger) **Action**	12:20 p.m.
9.	Elect Vice-Chair *(J. McNamee)* **Action**	12:25 p.m.
10.	Other Business/Adjourn	12:30 p.m.

The meeting will be held at The Westin Crystal City (1800 Richmond Highway, Arlington, VA; 703.486.1111) and via webinar; click here for details

MEETING OVERVIEW

American Lobster Management Board
August 2, 2022
10:45 a.m. – 12:30 p.m.
Webinar

Chair: Dr. Jason McNamee (RI) Assumed Chairmanship: 02/22	Technical Committee Chair: Kathleen Reardon (ME)	Law Enforcement Committee Representative: Rob Beal
Vice Chair: VACANT	Advisory Panel Chair: Grant Moore (MA)	Previous Board Meeting: March 31, 2022
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NMFS, NEFMC (12 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceedings from March 31, 2022

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the agenda. Individuals that wish to speak at this time must sign-in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Discuss Implications of Proposed Measures of Draft Addendum XXVII on Increasing Protection of Spawning Stock Biomass of the Gulf of Maine/Georges Bank Stock (11:00-11:45 a.m.) Possible Action

Background

- Draft Addendum XXVII was initially initiated in 2017 to proactively increase protection of the GOM/GBK stock but stalled due to the prioritization of Atlantic right whale issues. After accepting the 2020 Benchmark Stock Assessment for American lobster, the Board reinitiated work on the draft addendum in February 2021, with a focus on developing a trigger mechanism that would automatically implement management measures to improve protection of the GOM/GBK spawning stock if the trigger is reached.
- The Board approved Draft Addendum XXVII for public comment in January 2022. The Addendum considers modifications to the management program with the goal of increasing protection of the GOM/GBK spawning stock. Two issues are included in the addendum. Issue 1 addresses the standardization of a subset of management measures within LCMAs and across the GOM/GBK stock. Issue 2 considers applying either a trigger mechanism or a predetermined schedule for implementing biological management measures that are expected to provide increased protection to the spawning stock biomass and increase the resiliency of the stock.

- Considering upcoming information on stock condition, the need for additional time for the Lobster Board to better understand current or new right whales rules that could benefit the resiliency of the lobster stock, and the importance of giving the states the opportunity to safely hold in-person scoping meetings with their lobster industry ahead of any Commission public hearing, the ISFMP Policy Board delayed further action on the Draft Addendum. Additionally, Board members have noted concerns regarding the potential implications of the management proposed measures in the Draft Addendum for international trade.

Presentations

- Implications of Draft Addendum XXVII for Public Comment by C. Starks

Board Actions for Consideration at the Meeting

- Determine next steps for development of Draft Addendum XXVII

5. Update from Work Group on Implementation of Addendum XXIX: *Electronic Vessel Tracking for Federal Permit* Holders (C. Starks) (11:45 a.m.-12:00 p.m.)

Background

- In March 2022, the Board approved Addendum XXIX to Amendment 3 to the Interstate Fishery Management Plan (FMP) for American Lobster and Addendum IV to the Jonah Crab FMP. The Addenda establish electronic tracking requirements for federally-permitted vessels in the American lobster and Jonah crab fisheries. The addenda address several challenges facing the fishery, including stock assessment limitations, protected species interactions, marine spatial planning efforts, and enforcement in federal waters.
- The Addenda require federally-permitted American lobster and Jonah crab vessels with commercial trap gear area permits for Lobster Conservation Management Areas (LCMAs) 1, 2, 3, 4, 5, and Outer Cape Cod to collect location data via an approved electronic tracking device.
- Since approval of the Addenda, Commission staff formed a Work Group comprised of state and federal partners to develop a request for quotes from vessel tracking device manufacturers.

Presentations

- Update on Implementation of Addendum XXIX by C. Starks

6. Progress Update on Jonah Crab Benchmark Stock Assessment (12:00-12:10p.m.)

Background

- Work on the first Jonah crab benchmark stock assessment was initiated in early 2022.
- A Data Workshop was held virtually on June 13-15, 2022.
- The assessment is scheduled for completion in the fall of 2023.

Presentations

- Progress Update on Jonah Crab Benchmark Stock Assessment by J. Kipp.

7. Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting (Addenda XXI, XXII, and XVI Provisions) (12:10-12:20 p.m.)

Background

- On July 11, 2022, NOAA fisheries released proposed rule 87 FR 41084. Based on the Atlantic States Marine Fisheries Commission's recommendations, NOAA Fisheries is proposing to establish individual and aggregate trap caps in Lobster Conservation Management Areas 2 and 3, and institute mandatory coastwide electronic harvester reporting for all Federal lobster vessels. The proposed ownership caps and trap cap reduction measures are intended to reduce fishing exploitation and latent effort in the trap fishery by scaling the fishery to the size of the Southern New England lobster stock. The proposed harvester reporting requirement is intended to improve the spatial resolution of harvester data, and improve and expand the collection of fishery effort data.
- This action is necessary to ensure fishery regulations for the lobster fishery in Federal waters remain compatible with the intent of the Commission's Interstate Fishery Management Plan for American Lobster and consistent with the Atlantic Coastal Fisheries Cooperative Management Act. **(Supplemental Materials)**.

Presentations

- Update on Federal Rulemaking to Implement Effort Control Measures and Harvester Reporting by A. Murphy

Board Actions for Consideration at the Meeting

- Consider whether the Commission should submit public comment on federal rulemaking

8. Review and Populate Advisory Panel Membership (12:20-12:25 p.m.) Action

Background

- Massachusetts has submitted two nominations to the Advisory Panel: Eric Lorentzen, a commercial harvester, and Todd Alger, recreational diver. Maine submitted a nomination for Chris Welch, a commercial trap fisherman (**Briefing Materials**).

Presentations

- Nominations by T. Berger

Board actions for consideration at this meeting

- Approve Advisory Panel Nominations

9. Elect Vice-Chair

10. Other Business/Adjourn

American Lobster and Jonah Crab TC Task List

Activity level: High

Committee Overlap Score: Medium

Committee Task List
Lobster TC • Annual state compliance reports are due August 1 • Fall 2022: Annual data update of lobster abundance indices *Jonah Crab TC* • Summer 2022: Continue development of benchmark assessment • Annual state compliance reports are due August 1 • Fall 2022: Development of methods for Jonah crab stock assessment

TC Members
American Lobster: Kathleen Reardon (ME, TC Chair), Joshua Carloni (NH), Jeff Kipp (ASMFC), Kim McKown (NY), Conor McManus (RI), Chad Power (NJ), Tracy Pugh (MA), Burton Shank (NOAA), Craig Weedon (MD), Somers Smott (VA), Renee St. Amand (CT)
Jonah Crab: Derek Perry (MA, TC Chair), Joshua Carloni (NH), Chad Power (NJ), Jeff Kipp (ASMFC), Conor McManus (RI), Allison Murphy (NOAA), Kathleen Reardon (ME), Chris Scott (NY), Burton Shank (NOAA), Somers Smott (VA), Corinne Truesdale (RI), Craig Weedon (MD)

Jonah Crab Stock Assessment Subcommittee (SAS) Members
Jonah Crab: Derek Perry (MA, TC Chair), Joshua Carloni (NH), Jeff Kipp (ASMFC), Kathleen Reardon (ME), Burton Shank (NOAA), Corinne Truesdale (RI), Jeremy Collie (URI)

Addendum XXVII PDT Members
American Lobster: Kathleen Reardon (ME), Joshua Carloni (NH), Robert Glenn (MA), Corinne Truesdale (RI), Allison Murphy (NOAA)

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

AMERICAN LOBSTER MANAGEMENT BOARD

Webinar
March 31, 2022

These minutes are draft and subject to approval by the American Lobster Management Board.
The Board will review the minutes during its next meeting.

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INDEX OF MOTIONS

1. **Approval of agenda** by consent (Page 1).

2. **Move to approve Proceedings of February 22, 2022** by consent **(**Page 1).

3. **Move to approve Option B: Implement electronic tracking requirements for federally-permitted lobster and Jonah crab vessels with commercial trap gear area permits, exempting Federal Area 5 Waiver permits from the vessel tracking requirement In Addendum XXIX. As a part of selecting Option B, have the Board commit to a multi-committee (Tracker subcommittee, Lobster Technical Committee, and Law Enforcement Committee) review of the vessel tracking program after two full years of implementation, including assessing the uses and the utility of the data to date** (Page 14). Motion by Dan McKiernan; second by Cheri Patterson. Motion carried (Page 27).

4. **Move that the Commission request that NOAA publish the final rule on vessel tracking by May 1, 2023, with an implementation date no later than December 15, 2023. States in conjunction with ASMFC staff will work in 2022 to develop an implementation plan, including a standard operating procedure and the request for quotes from vessel tracking companies. The results of this shall be reported back to the Board at a future meeting** (Page 27). Motion by Megan Ware; second by David Borden. Motion carried (Page 29).

5. **Move to approve Addendum XXIX to the Lobster FMP and Addendum IV to the Jonah Crab FMP, as amended today** (Page 29). Motion by Dan McKiernan; second by Cheri Patterson. Motion carried (Page 30).

6. **Move to adjourn** by consent (Page 30).

ATTENDANCE

Board Members

Megan Ware, ME, proxy for P. Keliher (AA)
Stephen Train, ME (GA)
Sen. Dave Miramant, ME (LA)
Cherie Patterson, NH (AA)
Ritchie White, NH (GA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)
Dan McKiernan, MA (AA)
Sarah Ferrara, MA, proxy for Rep. Peake (LA)
Jason McNamee, RI (AA)
David Borden, RI (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Colleen Bouffard, CT, proxy for J. Davis (AA)
Bill Hyatt, CT (GA)
Maureen Davidson, NY, proxy for J. Gilmore (AA)
Emerson Hasbrouck, NY (GA)
Joe Cimino, NJ (AA)
Peter Clarke, NJ, proxy for T. Fote (GA)
John Clark, DE (AA)
Roy Miller, DE (GA)
Craig Pugh, DE, proxy for Rep. Carson (LA)
Mike Luisi, MD, Administrative proxy
Pat Geer, VA, Administrative proxy
Jay Hermsen, NMFS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Kathleen Reardon, Technical Committee Chair
Rob Beal, Law Enforcement Representative

Staff

Bob Beal
Toni Kerns
Maya Drzewicki
Tina Berger
Emilie Franke
Jeff Kipp
Dustin Colson Leaning
Adam Lee
Mike Rinaldi
Julie Defilippi Simpson
Caitlin Starks

Guests

Doug Adamson
Max Appelman, NOAA
Pat Augustine, Coram, NY
Richard Balouskus, RI DEM
Joan Berko
Fred Bever, Maine Public
Kurt Blanchard, RI DEM
Gib Brogan, OCEANA
Beth Casoni, MLA
Bill Devoe, ME DMR
Marianne Ferguson, NOAA
Joe Fessenden, ACF
Erica Fuller, CLF
Sonny Gwin
Heidi Henninger
Matthew Heyl, NJ DEP
Jesse Hornstein, NYS
Pat Keliher, ME (AA)
Chip Lynch, NOAA
Rich Malinowski, NOAA
Gregory Mataronas
Eric Matzen, NOAA
Patrice McCarron, MLA
Conor McManus, RI DEM
Nichola Meserve, MA DMF
Jeffrey Nichols, ME DMR
Adam Nowalsky, Port Republic, NJ
Conor O'Donnell, NH FGD
Scott Olszewski, RI DEM
Chad Power, NJ DEP
Scott Schaffer, MA DMF
Somers Smott, VMRC
Lange Solberg
Renee St. Amand, CT DEEP
Brian Thibealt
Andrea Tomlinson
Kara Villone, NH FGD
Jessica Waller, ME DMR
Anna Webb, MA DMF
Craig Weedon, MD DNR
Erin Wilkinson, ME DMR
Renee Zobel, NH FGD

The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened via webinar; Thursday, March 31, 2022, and was called to order at 1:00 p.m. by Chair Jason McNamee.

CALL TO ORDER

CHAIR JASON McNAMEE: Welcome everybody to the American Lobster Management Board. We have a pretty focused agenda today, but why don't we jump right to it here. If you recall, we met on this topic. Actually, before I even start, I am going to apologize if my dogs start barking, I may have to mute for a minute and shoo them out of the room.

If I go silent all of a sudden that's probably what's going on, so preemptive apologies. We met on this topic about a month ago, and reviewed some questions, generated a few more questions and a little more work to kind of clean things up a little bit, elucidate things a little bit more, and here we are again to revisit the Tracker Addendum.

APPROVAL OF AGENDA

CHAIR McNAMEE: Let's get to it, and the first thing I will do is ask anyone for any edits, modifications, any changes at all to the agenda. Please raise your hand, so sorry. We will do sort of our normal strategy here of hand raising. After you raise your hand I will lower it for you, just so I can kind of keep track. Anyone interested in making any changes to the agenda, please raise your virtual hand.

Okay, I'm not seeing any hands. Can I have a motion from someone to approve the agenda as submitted? Okay, Cheri Patterson with the motion is there a second? I see Mike Luisi for the second. Are there any objections. Actually, Joe Cimino, I'm going to lower your hand. Are there any objections to the motion to approve the agenda as submitted?

All right, I'm not seeing any hands, so the agenda is approved.

APPROVAL OF PROCEEDINGS

CHAIR McNAMEE: Next, we will move to the proceedings from the last meeting. Those were published in the meeting materials. Does anyone have any edits, modifications, clarifications from the meeting proceedings? Please, raise your hand.

Okay, seeing no hands, can I have a motion to approve the proceedings? Motion by Steve Train, is there a second? Seconded by Cheri Patterson. Are there any objections to approving the proceedings as submitted, please raise your hand? Okay, I'm not seeing any hands, so the meeting minutes area approved. Great, that was quick, thanks everybody.

PUBLIC COMMENT

CHAIR McNAMEE: I want to take now a moment to allow for some public comment if anyone desires. Please keep in mind that this part of the public comment is for anything that is not on the agenda. If you wanted to introduce a new topic for us to take up at a subsequent meeting, now is the time for that. I will absolutely be allowing some public comment during the substance of the meeting, so there will be other opportunities. Anyone from the public wishing to make a comment on something that is not on the agenda, please raise your hand. Give it another minute, okay. Not seeing any hands, oh, I do have a hand, a couple hands. I jumped the gun a little bit. Okay, Brian Thibeault, please go ahead.

MR. BRIAN THIBEAULT: At this point in time your public comment, at this part of the meeting. Does it consist of an in favor or not in favor from the public, and justification for either one of those stances, or will that be later in the meeting?

CHAIR McNAMEE: Yes, thanks, Brian. That will be later, so this is just for items, if there was something that is not on today's agenda that you want the Board to consider. That is what this public comment is for, and then when we're talking about the Addendum itself, we'll have more public comment at that time.

MR. THIBEAULT: All right, Jason, appreciate that explanation, and carry on we'll be standing by. Thank you.

CHAIR McNAMEE: Okay, thanks, Brian. Next up I have Andrea Tomlinson, go ahead, Andrea.

MS. ANDREA TOMLINSON: Yes, hi, good afternoon, everyone. Andrea Tomlinson; I'm the former manager of New Hampshire Community Seafood, and I just wanted to let the management board know and Atlantic States Marine Fisheries Commission in general know that we are in the process of developing a New England Young Fishermen's Alliance.

We've been working on funding for that for about four years here, headquartered here in the seacoast of New Hampshire. The primary objectives right now are to develop a resourcing and networking organization of young fishermen and women between the ages of 18 and 45, and we've been funded by the USDA/AMS Program for three years, and we have a 3-year annual Deck Hand to Captain training program that we are starting to implement this year.

Six trainees, trained deckhands and sternmen in Southern Maine, New Hampshire and Northern Mass are eligible, and five-years minimum experience as a deck hand is required. I just wanted everyone to know that what I plan to do with this organization, the trainees as well, is to be a catalyst to renewing the interest of industry input in regulatory meetings such as these, Council meetings and where relevant New Hampshire Fish and Game meetings.

I just wanted everyone to be aware that we do have a legitimate organization in the process of being incorporated into a nonprofit, and we really look forward to joining the conversation, and getting young fishermen and women input. I understand from several regulators that there has been a big die-off in industry input and regulatory meetings, and I really look forward to catalyzing that interest among the young fishing industry.

CHAIR McNAMEE: Andrea, thank you so much, super interesting, really psyched to hear about that. If anyone that is listening has questions, perhaps we could have you leave some contact information with Caitlin Starks at the Commission, and she could connect them with you for information. Does that sound okay?

MS. TOMLINSON: Yes, Caitlin has actually got my e-mail. I did submit a number of questions that I thought would be of concern to the industry. Jason, if you don't mind, if I could just add one more thing. What I'm realizing is there is a lot of obviously malaise amongst veteran fishermen, where they feel as though industry input has not oftentimes been listened to. I feel that this particular issue of requiring EM on federally permitted boats does create, it kind of creates a conundrum.

I just want to synopsize that I think we could all be thinking of, as we start to get more young fishermen input in the industry is, and I'll just ask a question to the management board is, how does the management board plan on justifying and convincing the industry that this EM requirement would actually be a benefit to the management of the industry and not a form of over surveillance, which is obviously a concern amongst the industry in general? I would just like to pose that question, thank you.

CHAIR McNAMEE: Thanks, Andrea, and I'm sure that will come up during our discussion of the bulk of the agenda today, so thanks for that.

MS. TOMLINSON: Appreciate it.

CONSIDER AMERICAN LOBSTER ADDENDUM XXIX ON ELECTRONIC VESSEL TRACKING IN THE FEDERAL AMERICAN LOBSTER AND JONAH CRAB FISHERIES

CHAIR McNAMEE: All right, so I'm not seeing any other hands up, and so I think we can now jump to the main topic today, which is to consider American Lobster Addendum XXIX on Electronic Vessel

Tracking in the Federal American Lobster and Jonah Crab Fisheries. This is for final approval of the Addendum. Caitlin, I'm assuming that you have at least a brief little presentation for us, so I will pass the microphone over to you.

MS. CAITLIN STARKS: As our chair indicated, I'll be presenting quickly on Draft Addendum XXIX to Amendment 3 to the American Lobster Fishery Management Plan and Draft Addendum IV to the Jonah Crab Fishery Management Plan, which I will just be calling Draft Addendum XXIX for the rest of the presentation for simplicity. In this presentation I'm going to cover the background briefly on this action. The objective of the Addendum, review the action timeline, and then go into the details of the proposed options.

Following that I'll go over some responses to some frequently asked questions, and wrap up with the Board action for consideration and next steps. Very briefly, since this has come before the Board a few times before. The Board initiated Draft Addendum XXIX to consider vessel tracking requirements for federally permitted lobster and Jonah crab vessels in August of 2021.

Leading up to initiating the Addendum for a few years, the Board has recognized the need for high resolution spatial and temporal data to characterize effort in the federal lobster and Jonah crab fisheries to address a couple of critical issues that are affecting the fisheries. Specifically, the data are meant to be used to improve the stock assessments for lobster and Jonah crab, to help inform decision making to reduce fishery interaction with protected species, inform discussions related to marine spatial planning for other ocean uses like offshore wind development, and also to improve the efficiency of law enforcement efforts in the offshore area. The Board established this objective for the Addendum, which is to collect high resolution spatial and temporal data, to characterize effort in the federal American lobster and Jonah crab fisheries for management and enforcement needs.

This is the timeline of the Addendum's development. After it was initiated in August, 2021 the Board approved the Draft Addendum Document for public comment in December of 2021, and then the public comment period was held from December through January, 2022, during which we had six virtual public hearings.

In February, 2022, the Advisory Panel met to review the Addendum options, as well as the public comments, and provide advice to the management board, and then later that month in February, the Board met to review those public comments and Advisory Panel report, and at that February meeting the Board decided to postpone final action, in order to hammer out some more details and answer some questions about what implementing tracking requirements would involve and look like.

REVIEW MANAGEMENT OPTIONS AND FREQUENTLY ASKED QUESTIONS

MS. STARKS: That leads us to today, where the Board is considering final action on this Addendum. With that, I just want to go back over briefly the proposed management options, of which there are just two. Option A is status quo, or no additional requirement for electronic vessel tracking in the lobster and Jonah crab fisheries, and Option B is to implement electronic vessel tracking requirements for federally permitted lobster and Jonah crab vessels with commercial trap gear area permits.

Option B would require federal lobster and Jonah crab vessels that are issued commercial trap gear area permits to install an approved electronic tracking device, to collect and transmit spatial data, in order to participate in the trap gear fishery, and without an approved electronic tracking device federally permitted vessels would be prohibited from landing lobster or Jonah crab taken with trap gear.

Therefore, federal permit holders would be required to install an approved device before beginning a lobster or Jonah crab fishing trip with

trap gear. This option specifies that the device would be required to stay onboard the vessel and have power at all times when the vessel is in the water, unless the device is authorized to power down by the principal port state identified on the permit, which would be the state authority for that vessel.

Powering down could be authorized for reasons like the vessel needing to be hauled out for repairs, or if a device failure has been reported to the state authority for a few examples. Lastly, tampering with the tracking device or signal, including any activities that would affect the unit's ability to operate properly would be prohibited.

Option B as written proposes that the tracking requirements would apply to each of the federal permit categories listed in this table. These include all of the commercial trap gear area permits for Areas 1 through 5 and Outer Cape Cod, as well as the commercial trap gear Area 5 Waiver Permit, which allows the Area 5 permit holders to be exempt from more restrictive lobster trap gear specifications, and trap finding requirements, so that they can target black sea bass with un-baited traps. Just as another note, commercial trap gear Area 6 is excluded from the proposed electronic tracking requirements, because Area 6 is in state waters only. To clarify some more. The tracking requirements proposed under Option B would not apply to vessels that only have a state permit. It wouldn't apply to inactive federal permits that have been placed in confirmation of permit history status, and it would not apply to vessels that will not fish any trap gear during the fishing year.

Beyond those requirements, in Option B we also have information on how the program would be implemented, including minimum criteria that devices and vendors must meet, in order to be approved for use in the fishery. Descriptions of the administrative responsibilities and processes that would be needed at the Commission, state and federal levels, and also how data collected by the tracking devices would be processed, stored and provided to managers.

For the minimum criteria and specifications that must be met by the tracking devices and vendors for approval for use in the fishery, first the devices must collect location data at a rate of one ping per minute, for at least 90 percent of the fishing trip, and this is to allow for the differentiation of fishing activity from transiting, and allow estimation of number of individual trawls by looking at the vessel track.

The data for each ping must include the devices current date and time, it's latitude and longitude, and identifiers for both the device and the vessel. Devices must also meet minimum accuracy and precision requirements, as well as ruggedness specifications that are suitable for the marine environment.

Lastly, device vendors must provide sufficient customer service as described in the Addendum, and must maintain the confidentiality of any personally identifying information, and other protected data in accordance with federal law. The implementation and enforcement of these tracking requirements that are proposed will require some different administrative processes at a few levels, including the Commission, state management agencies and federal levels.

At the Commission level if this Addendum is approved, a work group would be formed that will be responsible for reviewing available technology and approving devices for use in the fishery, and the information that's collected by that work group will be made available to the states and industry, so they can choose appropriate tracking devices from the approved list.

Then at the state level, states will be responsible for certifying that approved devices are installed on all vessels in the applicable permit categories before the vessel goes on a fishing trip, using a standard affidavit. The state responsible for each permit holder again would be determined by the principal

port location that is declared on that federal permit. GARFO will be providing that information to the states so they can determine which permit holders they are responsible for.

The states would also be responsible for providing support to permit holders, to help them comply with the vessel tracking requirements, and they would be responsible for data validation and compliance monitoring, including contacting permit holders if there are data issues that need to be resolved, like incomplete tracking data or mismatches between vessel trip reports and associated vessel tracks. Then at the federal level GARFO again will be responsible for providing up to date information to the states on ownership of American lobster trap gear area permits, and they will also incorporate the federal lobster EVTR data into their quality assurance program. For data processes, Option B outlines that the tracking data from this program will be housed by ACCSP. Tracking vendors will send the vessel location data to ACCSP and GARFO will send EVTR data, and all of those data must be submitted in accordance with the ACCSP trip locations API specifications.

Then with these data, ACCSP will be able to match vessel traps with trip reports, and as always ACCSP will maintain the data confidentiality in accordance with state and federal laws. As per trip reports, the state and federal agencies will still be responsible for ensuring compliance with data reporting requirements, so GARFO will be responsible for the validation of EVTR data and the state management agencies will be responsible for validation of trip location data.

Then to wrap up, before the Board gets into its discussion today, I just wanted to go through some of the questions that came up during the public hearings and at the last Board meeting, and provide some answers to those. In the meeting materials there is a full FAQ document with more detailed responses and some more questions that I won't cover here. But I did want to highlight some of the important ones.

There were a lot of questions that came up about how many vessels tested the tracking devices, and what the failure rates of those devices were. Over the course of several projects, about 75 vessels tested cellular tracking devices in Maine, Massachusetts and Rhode Island. During the pilot projects there was only one report of a device that temporarily froze up and stopped working, but that problem resolved itself when the device was powered down and reset.

There were only a few other cases where devices stopped working, but that was because they were not properly hooked up to a power supply. Another question from the state perspective was about how states would be able to certify that vessels required to install tracking devices have done that, and the Addendum does provide information on this on Page 11.

But essentially the process that was recommended by the PDT was that the states would notify the appropriate permit holders of the requirement and the effective date, and would provide them with a standard affidavit, and the permit holders would then be required to return the signed affidavit to the state, to indicate either that they have installed an approved tracking device on their vessel, or that the harvester will not fish with trap gear for the duration of the fishing year.

Then once that affidavit is submitted, the permit holder will be allowed to fish, and when the states get that affidavit, they would then be able to verify that the device is transmitting data, and the state would also be able to send a notification to the harvester, to confirm that the device is functioning and they are getting the spatial data from their device.

The states also wanted to better understand how they would determine if a vessel is not required to have an electronic tracking device. For this purpose, GARFO will be sending the states the up-to-date information on American lobster trap gear

area permit ownership, and that will allow the states to identify the permit holders that are required to have trackers, and to complete the installation certification process that I just described. If a vessel that is required to have a tracking device or to report American lobster of Jonah crab landings with trap gear, but the state has not received a signed affidavit from that vessel, then the state will be able to identify an inconsistency with the Addendum requirement. ACCSP will also be comparing and matching the trip reports that come in, and the tracking data they receive on a routine basis, and they will generate reports on any non-matched trap and trip reports.

This will also allow the states to see if there are lobster pot trap landings that are not matched with a vessel track, and investigate whether that vessel has certified their tracking devise or not. Another question that was raised at the public hearings was about what harvesters would be responsible for if their device were to stop working.

In a situation where the harvester notices that their device isn't working, for example if it has an indicator light, and they notice it's not on, or there is some other way that they see that it's not working. The harvester must then contact their state authority to report the device issue, and each state will establish a standard procedure for harvesters to notify them of device failure, such as a dedicated phone line or text line.

In other cases the state might notify the harvester that they are not receiving data from their tracker, but in either case the harvester would be responsible for working with the device vendor to get their device repaired or replaced, and the states all agree that in the meantime the harvester would be allowed to continue fishing for up to two weeks, but if the tracker had not been repaired or replaced after that two weeks, then the harvester would need specific authorization from the state to land lobster or Jonah crab.

There have also been some questions and concerns about who will have access to vessel tracking data. Similar to other types of fishery and proprietary data, vessel tracking data will be confidential and protected under federal and state laws that prohibit the disclosure of confidential data. These are data that can lead to the identification of individual data contribution.

Only individuals who have been granted confidential access by state or federal agencies will be able to access this data, and this would be restricted to managers, ASMFC staff and law enforcement officials that have signed the relevant nondisclosure agreement and gotten that confidential access.

Then of course it will be possible for harvesters to be given access to their own vessel tracking data. Then to answer the question of how tracking data will be used by law enforcement. These tracking data will not be available to law enforcement in real time, in order to initiate an investigation. This is not going to be a situation where law enforcement will be able to view the current locations of vessels in real time on a map.

But law enforcement will be able to use the data after the fact to support their operations, investigations and prosecution efforts. The last question here that I want to go over is how tracking data would be able to be displayed or presented, while still following the confidentiality laws.

The answer is similar to with other fishery data, any tracking data summary would have to include data from at least three harvesters, three vessels, and three dealers, in order to be publicly displayed. In cases where there are not three of each of those, the data would not be made public. That goes for confidential data records will not be released by the Commission, states or federal agencies in response to information request or a FOIA request. With that, these are the next steps for the Board to consider today. If desired, the Board can consider final action on the Addenda, and if approved today the states could begin their rulemaking processes to implement the requirements of the Addendum.

The Commission would also move forward with forming the work group that would identify and approve vendors and tracking devices for use in the fishery, and then federal rulemaking would also begin, and the guidance from NOAA that we've received is that they expect to be able to implement the tracking requirements in time for the 2023 fishing year. That is the end of my presentation, and I am happy to take any questions.

CHAIR McNAMEE: Thank you so much, Caitlin. Nice synopsis there. One of the big items that was discussed at the last meeting was funding, and you know what options there might be for funding, you know the acquisition of the trackers and things of that nature. I was wondering if I could go to Bob Beal to potentially make a few comments about that topic.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Just real briefly. As everyone knows, the President signed a budget, I don't know two and a half, three weeks ago, and in that budget, there was 14 million dollars set aside for addressing lobster and whale interaction issues. That 14 million dollars can be used for three categories of work.

The first category is gear modification and marking, in response to the take reduction rules for North Atlantic right whales. The second category is what we're talking about today, which is electronic tracking. The third category is additional research to inform future take reduction plan decisions, so that is ropeless work, or something that may be of value as we move forward, and the Take Reduction Team and NOAA Fisheries address additional reductions that are needed for Atlantic right whales.

Of those three categories we've had some initial conversations with administrative commissioners and NOAA representatives, and the group clearly intends to set aside a portion of those 14 million dollars for electronic tracking devices. The current goal is to purchase all the devices that ate needed, and provide the first two years of service subscription, you know purchasing the subscription service for those trackers.

To be really blunt and direct. Congress has provided money that should support this initiative, and limit any expenses to the fishing industry. A pretty short answer, but happy to answer any questions, and I can fill out more details that people have. The bottom line is we are fortunate, and able to get money into this year's budget cycle. It looks like we can cover the expenses associated with this action.

CHAIR McNAMEE: Okay, thank you so much for that, Bob, super important and appreciate the info there. Here we are. Here is what I would like to do is I'm going to start with clarifying questions from the Board. Then once we get through, and I'm going to be really strict about just questions. If people start drifting over into comments, even though it goes against every fiber of my being, I will interject. I want to keep this moving along. I definitely don't want to go over an hour overtime like we did last time. We're going to get some questions answered, and then what I would like to do after I'm not seeing any more hands for questions is, I would like to get a motion on the board to kind of kick the discussion off.

Once we get the motion, then we'll get into the comment portion for the Board, then take some public comments once the Board comments kind of dry up. Depending on how things are looking, I'm going to ask that there be a time limit on the public comment. There are a lot of people on the call, just about 66 people.

We have two minutes each that puts us over time already. I'm going to start asking people to keep their comments to about two minutes. If we have time I will circle back if anybody didn't get to get all of the comments they wanted to make out. But I just want to be really clear up front I want to be fair, and allow everybody a chance.

Please start thinking about how to be concise and direct with your comments, so that we can give you a chance to speak, but not go way over our allotted time here. Okay, so with that let's start off with questions to either Bob or Caitlin from the Board, and I see Mike Luisi. Go ahead, Mike.

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MR MICHAEL LUISI: Yes, thank you, Mr. Chairman. My question is kind of in line with the question that you asked of Bob already. You know I certainly support the tracking initiative. I think the data will be incredibly useful down the road in the future. But I come from a state in Maryland, where we have a very limited number of individuals who are participating in this fishery, and the administrative side burden that accompanies this type of system moving forward, is something that I need to certainly consider.

Along the same lines that you already mentioned, and maybe this is a question for Bob. You know we met as a group of administrative folks from the states, and there was talk about maybe hiring someone, or having someone, whether it's at ASMFC or within one of the states that could assist with some of the administrative burden of implementation of this type of system.

I just wanted to get some feedback as to what's been discussed since that call, whether or not that is still in play, because it makes a difference for a state like Maryland, as to whether or not we can support this initiative moving forward, given the burden that it would put on our staff, with such a small number of individuals, and just lumping one more thing on top of a group of people that are already maxed out. Maybe that's a question for Bob.

CHAIR McNAMEE: Yes, thanks, Mike. Bob, maybe I'll give you first crack at it if you want.

EXECUTIVE DIRECTOR BEAL: Yes, happy to respond, Jay, if you would like me to. Yes, Mike, thanks for the question. I probably should have said this in my opening comments a moment ago. The short answer is yes, the idea of administrative support, especially through the smaller states, is still in play. A couple thoughts, one is defining smaller state. What states would need assistance that only have a handful of permit holders at the most, and both scenarios that you talked about, Mike, are still being discussed. One is hiring someone here at the Commission or a contractor, or something along those lines to help out those states, generally in the southern range of the species, or hiring someone within a state, and have that person help neighboring states out up and down the coast with the administrative burden. The reality is, with something like this there is usually a pull for the administrative burden early on, to get everyone set up and make sure the data is flowing correctly.

You know, just make sure that the devices are installed, and all the other pieces associated with getting this up and running. That's kind of a pulse of activity at the beginning. Then we kind of go into what I call care and feeding mode, and we'll have to see kind of what the administrative burden of that part of it will be.

But I think the idea is to find someone, either in the Commission or in a state for a couple years, most likely, to help out the states, and make sure everybody is up and running, because I think the burden will drop off pretty significantly, once everybody is kind of used to this, should the Board approve it, and we can go from there. But definitely still a viable option for consideration.

MR. LUISI: Yes, I appreciate that, Bob, and just a quick follow up, Mr. Chairman. Bob, so the funding for that would come from these 14 million dollars, and then once that's exhausted, we would have to come up with a new strategy at some point?

EXECUTIVE DIRECTOR BEAL: Yes, exactly. These 14 million dollars will come to ASMFC, or at least a portion of it will, through a five-year cooperative agreement, most likely. We'll be able to spend that

money over a five-year period. I'm not saying that money will last necessarily that long.

But it's not short-term money that we'll have to burn through in one fiscal year, or anything like that. If the states all agree and it works with NOAA Fisheries, we can spread that money out over a couple few years to help out the states with all the different categories that I mentioned earlier on.

MR. LUISI: Yes, okay, that's excellent and it helps me a lot in deciding whether or not to support the initiative, so thank you very much, Bob. Thanks, Mr. Chairman, I'm done.

CHAIR McNAMEE: Good discussion, thanks for that. Next up I have Ritchie White. Go ahead, Ritchie.

MR. G. RITCHIE WHITE: A question for Bob. As far as timing on receiving these funds, what's that look like? What would the process be for deciding that Atlantic states would be buying all the units for all the fishermen with two years of service? How is that decided, and what would that process be, and how long would that take? This feels like we keep getting more unanswered questions or difficult questions to rush this through, so I'm starting to have some concerns. But anyway, if you could take a shot at those, Bob.

CHAIR McNAMEE: Bob, would you like to respond.

EXECUTIVE DIRECTOR BEAL: Yes, thank you. A couple questions in there, Ritchie. One is the timeline. To preface all my answers here, we're still working through these details. The budget was just approved a couple weeks ago. We really haven't formalized a lot of these conversations, so we're working through this kind of real time here.

The likely beginning of a cooperative agreement would be July 1. That would be when we can start actually spending money and moving money to the states, if that is what the group decides to do. This will be kind of a group decision among everybody on this call, focusing on the administrative commissioners, because they have to be the ones moving money, and doing that sort of thing in state, but the collective agreement on how to use this money to get the most bang for the buck out of these dollars.

Most likely between now and July 1st, I think there would be a fair amount of work to do to come up with the agreement, and decide on some of the questions that you followed up with, Ritchie, such as. If the money comes to ASMFC, then what? Does ASMFC purchase all these actual units, or does the money get distributed out to the states proportionately, based on the number of active federal permit holders that they have?

Then the states are involved with purchasing the units, and it may not be one-size-fits-all. Maybe Maine, for example, since they're purchasing the most, would want money moved to them and they handle it, or not. You know I think it may be something different. A lot of those details still need to be worked out, but we can work on them.

Deciding who actually purchases a unit, I think is relatively easy. Deciding what unit are purchased, and what vendors are appropriate to provide the units to either the states or ASMFC then on to the harvesters. You know those are going to take a little bit longer. But I think we can figure it out by July 1st pretty easily, we just have to get some meetings together, and start talking about it. We just haven't had the money long enough to make a lot of decisions yet.

CHAIR McNAMEE: Thanks, Bob. Ritchie, with the response.

MR. WHITE: No, that's fine. Thank you, Bob.

CHAIR McNAMEE: Next up I have Steve Train. Go ahead, Steve.

MR. STEPHEN TRAIN: I don't know if this question is for Caitlin or Bob. Unlike Mike, we've got plenty of

lobster boats up here, and it's a huge part of the state. I've been talking to as many as I could since our last meeting. I'm not finding a lot of support for this at all. The biggest problems aren't putting the device aboard, it's what it is encompassing.

You know we use our boats to come and go from our islands. We use it to go grocery shopping. We use them to go visit friends down the coast, and this whole "Big Brother" concept when we're not fishing is bothering people. When we use them in state waters, now we're under another set of rules that the guys that don't have a federal permit aren't under. My question would be, is it possible to have this device only activate at the three-mile line, or only activate when the hydraulics are engaged and we're hauling? The law enforcement stated that it's important to know when the vessel is hauling and when it's not that would help. Well that certainly helps, because it would come on when it's hauling. But I can't get anyone to say yes, we need this, and I've had it aboard for two years. I'm one of the test boats. But I'm not getting a lot of support. Bob, is there any way or Caitlin, that we can get that to work there instead? It's not what we have in the Addendum.

CHAIR McNAMEE: I'll check in with Caitlin first, because this discussion has come up. Caitlin, did you want to respond to that first?

MS. STARKS: Sure, I can try, and then I may ask for backup. But my understanding is that because the Addendum did not go out to public comment with that concept, that at this point in time it would be difficult to change it so that it would only be activated at the three-mile line, or when the vessel is hauling.

MS. TONI KERNS: Jason, can I just go to a backup question as well? I'm not sure the devices are capable of, all of the devices we tested I am 99 percent sure are not capable of those types of triggers. Some of them may be, but I would ask Bill DeVoe that question that they would even be able to do that.

CHAIR McNAMEE: I don't see Bill, but Bill, if you're out there and want to unmute and speak to that, please feel free.

MR. WILLIAM DeVOE: Yes, thanks, this is Bill. Yes, Toni, I think you summed that up pretty well that we would really be limiting our device pool if we made that a stipulation that there had to be a hauler sensor, which is something that we haven't even tested with these devices at present.

Additionally, putting the technical burden of figuring out when it's outside the three nautical mile line, which you know from a technical perspective could be quite complex, because the three nautical mile line is not exactly a simple line or elsewhere. Yes, I mean I'm not going to say that it couldn't be done, but you are really suggesting a total reworking of the entire Addendum thus far.

CHAIR McNAMEE: Steve, okay with the response?

MR. TRAIN: Yes, I'm okay with the response, as far as the equipment isn't available, but what if the power source was required to be turned on? Is it just not going to work like that? You have a separate switch on it, you hit it when you hit the three-mile line, you had to have it on when you're hauling. It seems like it would solve a lot of the complaints, and if you didn't have it on when you're hauling, you're obviously in violation. But if it can't be done because it's not in there already, it's a moot question.

CHAIR McNAMEE: Okay, I think I'll let that hang for now, Steve, and looking for any other hands with questions from the Board. John Clark, go ahead.

MR. JOHN CLARK: If I missed it, I'm sorry. I didn't catch whether LCMA 5 Waiver Permits were going to be exempt from this, and also if there was any follow up from GARFO as to whether LCMA 5 might qualify for de minimis for this. Not saying that we pursue that, I was just curious as to whether a decision had been made on that.

CHAIR McNAMEE: Caitlin, do you want to respond to that one?

MS. STARKS: Sure, right now as we're in the permit categories that are included do include the Area 5 Waiver Permit, so it would be the Board's decision of whether to change that or not. I think because we took it out for public comment it could be removed, so I think that the Area 5 Waiver Permit category could be excluded, as you indicated. I would like to hear from GARFO, I guess on the entirety of Area 5, but we did take it out for public comment, so that we were looking at the broadest range and it could be narrowed if needed.

CHAIR McNAMEE: Anyone from GARFO wishing to jump into the fray here? Jay Hermsen, go ahead.

MR. JAY HERMSEN: On that, a decision has not been made at GARFO as to whether or not Area 5 would be given de minimis status.

MS. KERNS: Mr. Chair, I did talk to Mike Pentony yesterday afternoon about de minimis status in general, which is different than exempting an entire area. The likelihood of GARFO approving de minimis status for states would be highly unlikely. Obviously, it could go through rulemaking, comments could be made. But due to some of the National Standard 4 rules about treating individuals the same way, the likelihood of de minimis is very low of moving forward.

MR. CLARK: Hey Toni, I just wanted to follow up on that. Mike said last week that de minimis for a region, such as a LCMA would be different than de minimis for states, and that's the reason that they might be able to consider it. Once again, I am not saying we're pursuing it, it would just be interesting for the future also, to know whether an LCMA could get de minimis rather than states. I understand the states cannot get de minis.

MS. KERNS: John, I guess I was thrown by the terminology, I apologize. There is the possibility of just not approving the Addendum for a permit category, so it would just be not included. But otherwise, de minimis would be a no go.

CHAIR McNAMEE: Are you okay with that, John?

MR. CLARK: Yes, fine, thanks. I just, like I said, just wanted to get some clarification on it. Thank you.

CHAIR McNAMEE: Next up I have Roy Miller, go ahead, Roy.

MR. ROY W. MILLER: I was wondering if I could probe just a little more on the question that John Clark raised, with regard to Area 5 Waiver fisheries such as sea bass potters and that kind of thing. Are we going to reach some sort of decision whether they are in or whether they're out, concerning this particular Addendum requirements prior to someone putting up a motion, or is it your intention, Mr. Chair that we would look to someone making a motion or someone modifying a motion on the board to include a possible waiver for the LCMA Area 5 Waiver Permit holders?

CHAIR McNAMEE: I was anticipating getting a motion, which may or may not have something like that in it, and if it didn't that there would be an ability to modify potentially, to allow it. I thought it made sense to try to get a motion from which to work from. That was my intent there.

MR. MILLER: Okay, thanks, Mr. Chair.

CHAIR McNAMEE: Next up I had Dennis Abbott. Go ahead, Dennis.

MR. DENNIS ABBOTT: A question for Bob. He mentioned ASMFC being responsible for procuring trackers. What would be the contractual problems in selecting a sole source for trackers for all the states, and how would you determine which way to go, cheapest, best, you know there are a lot of factors that would go into awarding a contract in some manner? Again, we still continue to have questions raised and questions raised, which makes

it difficult for me to consider supporting this measure at this time.

CHAIR McNAMEE: Bob, did you want to respond?

EXECUTIVE DIRECTOR BEAL: Yes, I'll chime in, Mr. Chair, if that's all right. Yes, you know Dennis, the decision that ASMFC will purchase all of the trackers hasn't been made yet. You know both options of states getting the money and states working with their industry to buy trackers, and/or ASMFC buying the trackers. Both of those options are still in play and can be discussed.

One of the steps that's outlined in the FAQs is you know if the Board does approve this today, we would send out a request for information from companies that develop the trackers and have them describe a series of features of their trackers, including price and other things, that we better understand which company trackers, what they're all capable of, what the cost associated with them is.

Then I think, so it really wouldn't be a sole source decision, it would be based on a number of characteristics the decision would be made which trackers to purchase. It doesn't have to be a one-size-fits all, if State A liked trackers from one company, and State B liked trackers from another company that's fine.

Or if State A wanted to pick all trackers from one company, and State B wanted to give their harvesters a list of three different trackers and they could purchase any of them and get reimbursed, that's fine too. It doesn't have to be this one-size-fits all for everybody. You know there are certain characteristics of data streams and reliability and other things that we need to be assured of, but there likely will be multiple options for trackers that can be put on different boats. I hope that helps, Dennis.

CHAIR McNAMEE: Is that good, Dennis? Was that an adequate response to your question?

MR. ABBOTT: Yes, thank you, Mr. Chair, I thought I indicated yes.

CHAIR McNAMEE: All right, next up I have Joe Cimino. Go ahead, Joe.

MR. JOE CIMINIO: I hate to belabor the Area 5 Waiver. I guess my question would be, if they were included would they be eligible to be funded or reimbursed, since the money was for the lobster fishery, and we're talking about sea bass potters.

CHAIR McNAMEE: Caitlin, do you want to take a crack at that, or Toni or Bob if you're the better person to respond please just jump in.

MS. STARKS: I will defer to Bob or Toni.

MS. KERNS: Bob, you can go ahead. I mean it's highly likely that all pot fisheries will have to make changes to their regulations due to whale regulations. As everybody knows, the Mid-Atlantic gillnet fishery and the pot trap fisheries are undergoing the Take Reduction Team process right now. I don't know if it's specific to just the New England fisheries or not.

EXECUTIVE DIRECTOR BEAL: Is it okay if I chime in, Mr. Chair?

CHAIR McNAMEE: Yes, please, Bob, thank you.

EXECUTIVE DIRECTOR BEAL: I think the short answer is yes, those fisheries would be eligible for reimbursement for trackers expenses. You know the intent here, there is a lot of language in the Congressional budget about lobsters and Jonah crab, but overall, I think the intent is to better understand pot and trap fisheries that have the ability to catch lobster.

Some of these other Area 5 permit holders that had the waiver do catch lobsters. I don't see a problem with it. It's only a very small number of individuals, most likely, that would fall into that category, so my immediate answer would be yes, I think we can accommodate those permit holders as well.

CHAIR McNAMEE: We're still on questions, we are getting towards two o'clock, but I've got another question here from Dan McKiernan. Dan, go ahead.

MR. DANIEL McKIERNAN: I guess this is a question for Bob, just to clarify the response we gave to Dennis. Wouldn't it be a viable option for a state to take the list of approved vendors that will be produced by the Commission's subcommittee, and simply reimburse all participating vessels for say a common amount.

That if we were to study the cost for all of those in combination, and let's say you average them out and it comes to $1,200.00. We could grant each applicant, eligible participant a grant, so to speak of $1,200.00, and then they could go forward and purchase it on their own. Isn't that a viable option?

CHAIR McNAMEE: Bob, if you would like to respond, please do.

EXECUTIVE DIRECTOR BEAL: Yes, thanks. Yes, short answer is yes, Dan. If that's how a state chose to do it moving forward, taking the average cost, and reimbursing that amount to each of their active federal permit holders, that is a viable option, yes.

CHAIR McNAMEE: Dennis Abbott, I see your hand back up. Go ahead.

MR. ABBOTT: I forgot to get one other question in. A question for the federal agency. Where trackers are used in other fisheries, have they ever allowed trackers to be shut off at any time?

CHAIR McNAMEE: Go ahead, Jay, thank you.

MR. HERMSEN: In vessel monitoring they do allow power down if the vessel is out of commission, out of a fishery for an extended period. But with vessel monitoring it seems to be an active process. The unit is passively monitored, but a vessel does do declare, makes declaration, or if they're declaring out of the fishery for transiting between ports or something like that. There is an active element to it.

MR. ABBOTT: Follow up.

CHAIR McNAMEE: Yes, go ahead, Dennis.

MR. ABBOTT: Wouldn't it be possible that in the lobster fishery that we could allow such a situation to arise where a lobsterman could choose to have his tracker turned off?

MS. KERNS: Mr. Chair, if I could jump in. The vessel monitoring devices are very different than the cellular trackers. In some cases, the cellular tracker doesn't even have a power on/power off switch, Dennis. As Jay said, there is often a call-in requirement for VMS devices. Those devices are also connected to satellites, so they are constantly being monitored, whereas boats are not being monitored using the cellular trackers in a real time basis.

Like for VMS devices, if you go into a closed area enforcement is alerted, and then enforcement can alert the vessel; hey, you've gone into an area you're not supposed to be in. The devices work very differently. In some cases, you wouldn't be able to turn off your device, unless you disconnected the power system.

CHAIR McNAMEE: Okay, Dennis?

MR. ABBOTT: I guess I'll have to live with that, but it seems like a tracker could be designed with an off/on switch. It seems like they are just not trusting.

CHAIR McNAMEE: Senator Miramant, go ahead.

SENATOR DAVID MIRAMANT: Senator Miramant here, yes, unless the device is self-powered and required to be maintained and charged, it seems that just having a power on/off switch when it is wired into the boat would take care of that. Maybe a good option for private use. If they are not built with an on/off switch, you can certainly get around

that by having a power connection that is switchable.

CHAIR McNAMEE: any response, Toni or Caitlin to that?

MS. KERNS: I would defer to Bill, who is more familiar with a wider range of the devices. Like I said, I think some of the devices have on/off switches and other don't hat we tested.

CHAIR McNAMEE: Got you, Bill, do you want to jump in?

MR. DeVOE: Yes, I'm not sure that any of the devices that we tested had an on/off switch, per say. But certainly, if they lost power after a period of time they would no longer communicate. The challenge is that in doing that is that most of the devices that we tested have an internal back up battery that lasts anywhere from, depending on the device, a couple of days up to a year.

CHAIR McNAMEE: Okay, I'm not seeing any more hands for questions at this time, so as I requested, what I would like to do now is see if anybody on the Board would like to get us started with a motion, and I've got a hand raised by Dan McKiernan. Go ahead, Dan.

MR. McKIERNAN: I do have a motion, and I did submit it to Caitlin prior to the meeting, if she could put it up.

CHAIR McNAMEE: Can you see it yet, Dan?

MR. McKIERNAN: I do, yes. **My motion is to approve Option B, to implement electronic tracking requirements for federally permitted lobster and Jonah crab vessels, with commercial trap gear area permits, exempting Federal Area 5 Waiver Permits from the vessel tracking requirement in Addendum XXIX.**

As a part of selecting Option B, have the Board commit to a multi committee that is a combination of the Tracker Subcommittee, The Lobster Technical Committee, and the Law Enforcement Committee, to review of the vessel tracking program after two full years of implementation, including assessing the uses of the data to date. If I get a second, I would love to speak to it.

CHAIR McNAMEE: Okay, thank you, Dan, is there a second? Cheri Patterson, are you seconding the motion?

MS. CHERI PATTERSON: Yes, for the sake of starting off the conversation I'll be seconding the motion, thank you.

CHAIR McNAMEE: Okay, we've got a motion, it's been seconded. I will come back to the maker of the motion to give us some more comment on the motion. Go ahead, Dan, whenever you're ready.

MR. McKIERNAN: I just want to please or urge with my fellow Commissioners how important this is, and I want to speak to experiences that I've had, as a state official over the last decade. We pointed out a number of really difficult issues that have faced the lobster fishery. We have a Monument on southern Georges Bank and the Sea Mounts.

We almost had a Monument enacted on Cashes Ledge. We have wind development that is coming to the Gulf of Maine, no doubt in federal waters. We have a Large Whale Take Reduction Plan that is very clumsy, and is always begging for more accurate data. We have aquaculture siting challenges, including a proposed steelhead farm just south of the Isle of Shoals being considered.

I can't tell you how many times I've been in meetings where I've pleaded with everyone in the room that they can't go away from whatever datasets have been collected, and think they know anything about the lobster trap fishery, because the data collection is so poor. This is an opportunity to improve that on behalf of the lobster fishery.

I personally take it very seriously the sustainability of this fishery, and the frustration that I and others, including elected officials have felt about defending

the lobster fishery, and explaining its footprint, has been among the most challenging issues for me professionally. I've been in meetings with coastal zone management, our state department of energy.

I've been at meeting with BOEM, urging them to pump the breaks on any conclusions about this lobster fishery, until we get better data. I really want to credit the pilot study that was done by Bill DeVoe and his colleagues, and some of my staff at DMF, for finding an inexpensive alternative to VMS, to allow this to happen.

Also, the thing that strikes me is, we have developed this lobster fishery into a multi, or a very, we emphasize participation in this lobster fishery. We don't have fleets, managed fleets, we don't have corporate fleets, except for some in the offshore Area 3, I will grant that. But by and large, this fishery is made up of a bunch of very small operations, and it's really hard to bring the necessary clout to the table, when you don't have corporate fleets.

Fishermen don't have a lot of time; they don't have sometimes sufficient resources to attend meetings. This is going to allow state officials like myself and others, to really do what I think is needed for the lobster fishery, which is to defend the turf of the lobster fishery, and make sure that it doesn't get rolled by all the things I just mentioned, Monuments, wind development, the Large Whale Plan and aquaculture. This is really, really critical, and I urge my fellow Commissioners to approve this.

CHAIR McNAMEE: I will now go to the seconder of the motion. Cheri, do you wish to offer any comment before I go out to the rest of the Board?

MS. PATTERSON: No, I don't necessarily. I do understand Dan's thoughts on having to defend the lobster fishing industry's footprint in federal waters, and it's becoming more and more difficult for me also, both in the arena of the Atlantic Large Whale Take Reduction Plan as well as our future offshore wind issues. But also, I think that there needs to be some thought from the industry perspective. When they come to us and ask us about when rules are coming down, why is there no way for enforcement to occur in federal waters. Well, if there is no way for the enforcement to be able to determine where the fishing activity is occurring in a large portion of these offshore waters.

Then I'm not quite sure how we can address their concerns about enforcement out there, without some sort of manner to find where the fishing activity is occurring. Our future will be looking at offshore enforcement more closely, as we are able to obtain the machinery or the vessels or such to be able to get out there. I think that this is a way of also being able to stay ahead of that particular action also.

CHAIR McNAMEE: Okay, now I will go out to the rest of the Board. Please, raise your hand if you would like to make comment on the motion. I've got some hands raised; I'll go first to David Borden. Go ahead, David.

MR. DAVID V. BORDEN: I just want to make a couple of quick comments on the issue of the Area 5 Waiver, I support that in the motion. But I would ask my Mid-Atlantic colleagues to reflect on the fact that if the government is going to pay for this activity, the installation of the units, it may be real positive elements of that that could apply to the Area 5 fishermen.

In other words, those fishermen are still trying to deal with wind development and a whole host of other issues, where some decent spatial and temporal information would be really useful. Then the second comment I would make is on the review. I think that it's critical if we're going to approve this to include a review.

Kind of this language parrots to some extent a comment that I think Brian Thibeault from Point Judith made during one of the public hearings, that there should be a review of it after a couple of

years, to make sure it's being properly used for the intended purposes. The final point I would make is on the issue of enforcement.

One of the reasons that the Board go engaged in this entire exercise is because the Enforcement Committee over the past eight years has had numerous discussions about the need to improve offshore enforcement, and that has involved new vessels and the like. But one of the chief problems that they identified was the lack of good information on where the gear was set.

I think if you go back in the record, it was a unanimous agreement of the enforcement piece up and down the coast, that they thought that federal waters enforcement could be significantly improved if in fact there were tracking units on the vessel. Thank you.

CHAIR McNAMEE: Next up I have Ritchie White. Go ahead, Ritchie.

MR. WHITE: First, a question to the maker of the motion, and then a comment if I may. There is not an implementation date attached to this, Dan, and I wondered whether that is something that should be part of this. I know it may make a difference in my decision whether to support this or not. That would be the question, and then after the answer if I could make a couple of comments, thank you.

CHAIR McNAMEE: Dan, do you wish to respond?

MR. McKIERNAN: Yes, thanks for that. I thought that there could be a second motion, but if you would like we could try to incorporate it into the main motion. All I can say is that the way I see this transpiring is we would approve this, and we would then ask National Marine Fisheries Service to begin their rulemaking. We were going to give the National Marine Fisheries Service the time that they needed to complete their rulemaking. We were hoping that it could be done by May 1 of 2023. In my conversations with some of my fellow state directors and commissioners, there was a desire to then complete their state rulemaking on or about the same time or after, so that a state rule doesn't become incompatible with the federal rule. It was expected, and this was going to be in a second motion, Ritchie, to have this all implemented by the end of '23 by the individual states.

MR. WHITE: Okay, thank you, Dan. I guess my concern is that I'm certainly in favor of collecting this data; I think it's absolutely necessary. But I do have concerns about the unanswered questions, so the timing for me is important, because I would like to get answers. We were in a rush to meet this May 1st deadline to give the Feds a year, so May 1, 2023.

We got the answers to the questions last week, and we met with our fishermen Monday night. If now we are saying end of next year, then that would mean that we're not in a rush now, and if the Service takes a year, we could take another couple of months and delay this decision, and then get answers such as, how much money will be coming in, how are we going to use it. What is the impact to the fishermen from a financial standpoint?

I would think that we also should know from the industry that's going to produce this technology, and have something a little more definite than what we've received. I think that would help in all these decisions. I'm struggling with approving this now without more additional information. I'm going to want to hear more input as to the timing of this, and is it critical for us to pass this today, or can we wait and get more information?

CHAIR McNAMEE: On the timing, I would like to pass it over to Toni Kerns, if you would wish to speak to that.

MS. KERNS: Ritchie, I did talk with GARFO staff about timing several times, and Alli indicated to us that for NOAA to move forward they would need the Commission to pass the Addendum. In terms of this timing, it is essential to move forward today on

this, if that is the will of the Board, in order for them to get rulemaking done by next May.

CHAIR McNAMEE: I've got a stack of hands here. Ritchie, a quick follow up if you want, and then I've got a lot of other folks that want to speak.

MR. WHITE: Well, if there is going to be a motion to have implementation at the end of next year, then having this approved by the Feds the first of May would not be necessary, I guess. That's what I want to kind of understand. If we took another couple of months, and then approved it, and then the Feds took another couple of months, so it didn't get through their approval process until the first of July or something, then we still have plenty of time for the end of the year implementation.

MS. KERNS: I believe from what Alli had said on the call we did last time we are pushing the limits. Even waiting until now we were pushing the limits to get rulemaking completed by May. I'll let some of the states speak to their timing, but I do believe that some of the states need the federal rulemaking to occur before they can do their own state rulemaking. I don't know how much they need that federal rulemaking ahead of time or not.

CHAIR McNAMEE: It sounds like we have a motion in front of us. There is potentially a plan to follow up with a motion on the timing. Let's get a few more comments in here and see if we still like that plan, or we want to do something different. I apologize. I think I lost track of the order here, so I'm just going to go down my list. Sorry if you have had your hand up for a while. But first person I see is Megan Ware. Go ahead, Megan.

MS. MEGAN WARE: I'm going to speak in support of this motion today, and kind of align a lot of my comments with what Dan said earlier. But I think it's really clear that the lack of high-resolution spatial data is becoming a handicap to this fishery, in terms of conversations that are going to shape the future of this industry.

I think a really relevant and timely example of that are the ongoing Take Reduction Team discussions. Obviously, the New England states have been through Round 1 of that, and in the absence of tracking data the result we got was measures which are very broadly applied, and very large closures, including almost a thousand square mile closure in the offshore Gulf of Maine.

We know that more phases of action are coming, both in the New England region, as well as the Mid-Atlantic, and we saw just this week updated decision support tool model runs which are showing where remaining risk is along this coast. I'm very confident that if our underlying data on this fishery does not change, that we're going to have the same result moving forward, which means more large closures and also importantly, an inability to assess the economic impact of those closures.

I just don't see that as a winning combination for this industry. I do want to be clear that I don't think tracking data is going to prevent these closures, but it does give us the ability to refine them, and anything that we can do to be more targeted in our measures moving forward, I think is a benefit to this industry as a whole.

I also want to note that the need for this data is not new. We've just gotten to a point where that need is becoming more and more prominent. We've had topics such as the Monument discussion or the Council TC Coral Amendment, which all required fine spatial resolution data, which we did not have.

Quite frankly, we got lucky in those discussions, particularly that the Council accepted the limited economic data we had. I think it would be naïve to think that those conversations are not going to come up again, and that this industry is going to find itself in a similar predicament. In terms of the implementation deadline and timeline, to Ritchie's question. I'm fully prepared to make a motion on that should this first motion pass, with an implementation date of December 15th. I think

Ritchie, to your point, that that may provide additional time for our conversation. I actually think that that time is going to go very quickly.

There are things that NOAA is going to need for their rulemaking, including the Standard Operating Procedures, and potentially the list of tracking devices will then need the NOAA Rule, and then that can precipitate the state-only gang, and each of those processes is going to take a couple of months. I actually think that we don't have a ton of time to make this decision. I think it would be wise to make that decision today.

CHAIR McNAMEE: Next up I have Maureen Davidson. Go ahead, Maureen. Maureen, we're not hearing you if you are speaking, and I am noticing that your little phone icon has gone gray. I don't know what that means.

MS. KERNS: Jay, then it might be good to go to someone else while she gets here audio pin connected.

CHAIR McNAMEE: Okay, we'll get you fixed up, Maureen, and come back to you. Next up I have Mike Luisi. Go ahead, Mike.

MR. LUISI: Since the motion was made, I've been going back and forth with a few of my colleagues down here off of the Area 5 fishing area. I guess there is a little bit of confusion as to the exemption in this motion, and who it would apply to. I wondered if staff or you perhaps, could clarify exactly who would be required to have a tracker and who would be exempt.

If somebody has an Area 5 Waiver, but also has a lobster permit. There is just some confusion on behalf of the southern states, and I didn't have the answers for folks that were asking me questions, so I thought I would bring it up here for the record, to clarify who would be required and who would not.

CHAIR McNAMEE: Caitlin, do you want to speak to that?

MS. STARKS: Yes, sure, Mr. Chair. In this motion the only permit category that would be excluded is that federal Area 5 Waiver Permit category, and that is the one that allows folks to target black sea bass. I believe to get that federal Area 5 Waiver Permit you have to basically say you are not going to target lobster. If you were to have a different area federal permit, so if you had let's say an Area 5 permit and an Area 3 permit, you would still have to have the tracker, even if that was a federal Area 5 Waiver Permit. I hope that helps clarify.

MR. LUISI: Yes, it does. Thanks, Caitlin. I'm struggling a little bit with the concept that since the government is going to be paying for these trackers, and it seems as if there is going to be funding available on the administrative end. I'm wondering whether or not these Area 5 Waiver Permit holders should fall in line with everyone else. You know even though they are fishing for black sea bass and maybe catching some lobster, I just feel like the data, it's kind of free information that we can access. Not free in the sense that nobody is paying for it, but you know the states aren't going to have to pay for it. I'm struggling a little bit with the idea that there would be a group of individuals who would be exempt here, and I'm thinking that perhaps it might make more sense just to include everyone. By striking this exemption from this motion, I have to give it a little bit more thought, but that is kind of where I'm settling in on right now, thanks.

CHAIR McNAMEE: Maybe I'll offer a thought, and that is, and Caitlin can correct me if I'm off base here. It seems like this motion might maximizes the flexibility that you have. I don't think anything would stop one of these folks from getting a tracker if they wanted to. But I don't know if maybe the problem, then becomes with the funding source and eligibility for that. But I don't know if Caitlin, or maybe even Bob has a thought on that. But the concept is this would maximize the flexibility for those folks.

MS. STARKS: I can follow up, Mr. Chair.

CHAIR McNAMEE: Yes, please do.

MS. STARKS: Yes, I think you're correct that this motion would essentially say the folks with the Area 5 Waiver Permit do not have to have a vessel tracker, but they certainly could do that. My understanding is that there is a very small number of folks operating under that Area 5 Waiver Permit as is currently. It is a small group of folks that would be exempt and not have to have the trackers. I'm not sure, to Mike Luisi's point, it is kind of a minimal number that you're talking about here in the grand scheme of all of the other trap gear area permit owners.

MR. LUISI: That's very helpful. Thank you, Caitlin and thanks Jason, I appreciate that.

CHAIR McNAMEE: Next up is Steve Train. Go ahead, Steve.

MR. TRAIN: Maybe you knew this was coming, but I'm going to oppose this, and it's not because I don't understand it at all. I totally get everything Dan said and Megan said about the need. But it seems like all of that could be collected if the device was just effective outside the three-mile line. It doesn't seem that it's necessary to know when islanders are going to the doctors. It doesn't need to be on their boat then, doesn't need to be turned on.

The problem I've got with anything that comes top down that isn't supported by industry, is that it starts to build resentment and animosity. We've got, as Dan said earlier, 4 or 5 thousand small businesses. Most of the management practices we've put in have been bought into and are encouraged. I am not seeing support for this from industry, and as soon as you start to build that animosity, everything else about enforcement gets harder.

CHAIR McNAMEE: Next up I have Eric Reid, go ahead, Eric.

MR. ERIC REID: I agree with Mr. McKiernan and his rationale. It's already been proven that anecdotal information on fishing effort or location, when it comes to mitigation and compensation discussions, just doesn't cut it. They are all coming, we know it's coming. Offshore wind is coming. It's coming all the way down the coast, including in Area 5, or wherever else down the line you want to go, so a free tracker, I would be getting in line for that. But Mr. Train does make, that's a good comment, you know. These devices can start working when you go across the demarcation line. Of course, then it becomes a matter of cost. You know hooking it up to your hydraulics, now you're talking about exponentially higher costs.

It would seem to me that analyzing or figuring our whether or not it could activate when it crossed the demark, or start recording when it crosses the demark is a very reasonable request. I have a question about the motion itself, and I'll ask it to Mr. McKiernan. It says review the vessel tracking program after two full years, and there has been a discussion about implementation date.

Would that be two full fishing years? Does that work any better in this discussion? The last part of that sentence, including assessing the uses of the data. To me you can assess the uses all you want, but if the utility isn't there, what's the point? I would prefer that say, including assessing the uses and utility of the data to date. Those are my comments and thank you, Mr. Chairman.

CHAIR McNAMEE: Dan, do you want to respond to Eric's question?

MR. McKIERNAN: It would be my expectation that if this program kicked off universally by December 31, 2023, that we would be having this review after the 2024 calendar year were completed, the 2025 calendar year, and we would look at it in 2026. I think calendar year is more appropriate.

MR. REID: Okay, what about the uses of the data?

MR. McKIERNAN: You want more clarification on what each of these groups would be assessing its usefulness?

MR. REID: To me if you said including assessing the uses and utility of the data.

MR. McKIERNAN: I would take that as a friendly amendment.

MR. REID: Yes, okay. We collect a lot of data that we use, and don't know why we use some of it, and I won't mention any MRIP names or anything like that. But I would prefer to have the uses and the utility. Thank you.

MR. McKIERNAN: I meant that, so I would take that as a friendly amendment, if the Chairman would allow that.

CHAIR McNAMEE: Yes, and I think I need to check with the seconder as well. Does that modification sound okay to you, Cheri?

MS. PATTERSON: I'm fine with a friendly, thank you.

CHAIR McNAMEE: I see it appearing magically in front of us there. Thanks for that. It looks like we have Maureen back, so Maureen, go ahead.

MS. MAUREEN DAVIDSON: Thank you! I hit the wrong button and totally lost audio. I just sort of would like to get some reassurance that although LMA 6 is not identified in the motion, it will be exempt, and part of Option B to the Addendum. Is that a correct assumption for me?

CHAIR McNAMEE: Did you want to respond?

MS. STARKS: Me, Mr. Chair? This is Caitlin.

CHAIR McNAMEE: Yes, I thought that was a question to you.

MS. STARKS: Sorry, just clarifying. Yes, Area 6 is exempt from the requirement, and that is written in the Addendum.

CHAIR McNAMEE: Does that sound good, Maureen?

MS. DAVIDSON: Okay, yes, thank you.

CHAIR McNAMEE: Next up I have Roy Miller. Go ahead, Roy.

MR. MILLER: I'm struggling a little bit. I appreciate the maker and seconder of the motion including the federal 5 Waiver. But having said that, I'm thinking about what Mike Luisi has already said. I'm wondering how close we are, and this may be unanswerable, to having all the requirements of the Large Whale Take Reduction Act apply to gear in the Mid-Atlantic area, like gillnets and sea bass pots and so on.

If we're within a year or two of the full extent of those requirements reaching the Mid-Atlantic, then it seems that voluntarily having this tracking information would be useful. Making it strictly voluntary, I can't forget how many, if any, would purchase and install a tracker if they didn't have to. Some may, some probably wouldn't.

I'm struggling a bit as to whether the phrase, exempting Federal 5 Waiver permits should be struck or left in the motion. I could be persuaded either way. I'm wondering if anyone can help with a little more certainty, as to how soon measures like the Large Whale Take Reduction Act, all of those requirements are going to fall on those Mid-Atlantic fisheries that I already mentioned.

CHAIR McNAMEE: Maybe this is one for Toni. Did you want to speak to that question, Toni, at all?

MS. KERNS: Yes, Mr. Chairman, I can speak to it. The Take Reduction Team is meeting in the beginning of May to discuss different measures to address the gillnet and Mid-Atlantic pot trap fisheries. I am not sure what the implementation timeline will be for those types of measures. That is

rulemaking that NOAA would do, as the TRT comes up with measures for that area. But those discussions of measures will be happening this May.

CHAIR McNAMEE: Hopefully that is helpful, Roy. I'll keep going along here, and if you want to come back at that, please do. But next up I have Senator Miramant. Go ahead, Senator.

SENATOR MIRAMANT: I agree with Dan and others about the part that says we need the data, because we are choosing to defend the industry, because the measures taken so far seem like we have to do something, so we'll do this thing, even though we have no proof that it will save one whale or calf.

I don't like that approach, and I don't think that the industry should be resisting something that might prove that they are not part of the problem, which they know, and we know for the most part. I think they will embrace it. They are slow to embrace anything, so this doesn't surprise me.

However, Steve Train makes a good point that when you use your boat as your family car, you don't need to be tracked, and you don't need law enforcement on you when you're not working. I'm still going to support this motion, but that is where my reservation comes in. But I think we need the data to be able to keep defending the industry.

MS. STARKS: Mr. Chair, if I could follow up.

CHAIR McNAMEE: Sure could, go ahead.

MS. STARKS: I just want to clarify the point. It's been brought up at this meeting and during hearings about data being collected on harvesters when they're not fishing. I do understand the concern, I just want to make it clear that the data would not be accessible unless specifically requested.

From our discussions with the Law Enforcement Committee, it's not my understanding that they would be looking at everyone's data for every second that the trackers are on. When ACCSP gets the track data into their system, and they get the trip reports into their system, they can then look at those data to identify specifically when the fishing activity is occurring, and match that with a trip report, so that it is associated with a fishing trip.

The intent there is to have those data that are relevant to fishing easily accessible for management uses, and law enforcement could access those as well, but not to have all of their data from whenever else their vessel is running for anyone to look at. I do think you know those data would be stored.

They would be in the system if a law enforcement official had a reason to request them specifically, then they could probably get access to those. But it would have to go through the process of all of the nondisclosure agreements and confidentiality rules as well. I just wanted to kind of clarify how that process would work.

CHAIR McNAMEE: I thought maybe I would offer something as well, and that is I think the reason for the really rapid ping rate is, you know I think you can differentiate between when the boat is steaming and when actual fishing is occurring. I'm sure there is some potential there for conflating the two, but I think in general the tracks and the timing of those tracks. I think the data, you can audit it to understand when fishing is occurring and when it's not. There are techniques that can be used to better refine, and like Caitlin said, if it's not relevant anyways, that nobody would be looking at that data. Hopefully that discussion helps a little bit. I am not seeing any more hands from the Board for questions.

I do have at least one very patient hand that has been up here from the public, so I think I would like to transition now to some public comments. Again, before we get to the public comments, I just want to restate that I am going to try and keep these to about two minutes to start. I will come back around

if there is time, but I just ask folks to keep their comments concise at this point. Now is the time for members of the public to offer comment. The first hand I saw was from Brian Thibeault, so Brian, please go ahead.

MR. THIBEAULT: I'll try and get this all out in two minutes. I appreciate your patience. First, I wanted to kind of shift to the financial aspect, which I was happy to hear that that was a threat since the public hearings up and down the coast. But the numbers I hear, potentially with this administration we have 14 million allocated to the fisheries for TRT or whale management, perhaps implementation of this Addendum. I forget what the other scenario was.

When that money gets released and discussed in July, we still don't know how much this particular Addendum might procure from that amount. Quick math I've been doing while listening to the Board. With Mr. McKiernan's $1,200.00 potential stipend, yes, we know what I meant, I apologize.

The quick math that I did was that comes out to 4.32 million dollars. That would be to put a monitor and unknown amount of cellular activity with that. Jumping to the next quick bit. As far as using this data for ocean management. I think we have sadly overshot that, as far as wind and whale. We needed this database for the industry to have helped us a decade ago.

I'm not sure if working forward from that point will help or hurt us. Having a closed area and watching and participating in what will now, with this data, show up as an intensity spot on an intensity mat. I fear that it could bring closures more abundant, actually, once they see the intensity in areas that are caused by a closed area. Thank you, Mr. Chairman. If there is time, I certainly have another two minutes, and I appreciate your patience.

CHAIR McNAMEE: Thank you, Brian. All right that was great, next up I have Andrea Tomlinson. Go ahead, Andrea.

MS. TOMLINSON: I would just like to echo Mr. Train's sentiment. I can speak certainly for the New Hampshire federally permitted lobster industry. I know that this is not supported by the industry. Speaking with some of the young lobstermen, they are very confused whether EM also means VMS. That was one of the questions I directed towards Caitlin as well.

A lot of the younger fishermen are confused with whether the EM is also comparable with the vessel monitoring system, and you know just to reiterate the sentiment of the young fishermen. They are concerned with kind of redundant reporting. I understand what Megan Ware is saying, as far as management aspects and how this would support management. But from an industry perspective, I think a lot of fishermen in general are feeling that there is a sense of redundancy here, you know with requirements for landings reports, for your federal dealer's permit being very stringent, and then requiring EM as well. Just to wrap up, just echoing what Steve Train was saying. A lot of the younger fishermen are concerned with not being able to turn the electronic monitoring system off. I'll stop there, thank you.

CHAIR McNAMEE: I'm not sure, Caitlin if that is you controlling the timer there, but I want to treat everyone equally, and sort of run that. But Andrea did great and kept to the two minutes. Next up I have Beth Casoni. Go ahead, Beth.

MS. BETH CASONI: All right, thank you, Mr. Chair, and I would like to echo the previous speaker's comments. We did submit a letter of comment opposing this. Our federally permitted fishermen in Massachusetts I'll speak to, are under some of the most restrictive Right Whale regulations anywhere.

I've heard from our members in the industry that they feel the rate of a one-minute ping is excessive, and it should be comparable to the other fisheries that are out there under VMS and electronic

monitoring. You know listening to everyone today, we've dealt with the LNG Hub Line in Boston Harbor. We've mitigated it. You've gone through the pains of not having the spatial data, and we see the value in this.

But we really encourage the Board to be smart and surgical in this, and give consideration to the fishing industry that is being scrutinized every time they turn around. Steve Train had a great point. I know a lot of Maine lobstermen that use their vessels to go in between islands to visit friends, to go to Walmart.

You know there should be an off mechanism. They shouldn't have to be tracked while they are using it for their pleasure cruises. One of our members is down in South Carolina right now, and thinks he would be being tracked, because he's a federal permit holder. I really encourage the Board and the developers of these technologies to look at a mechanism that would allow for the fishermen to shut it off. If there is a concern about them shutting it off while they're fishing, their catch reports are a great way to cross-check their fishing effort. Thank you, Mr. Chairman.

CHAIR McNAMEE: Next up, I see Jay Hermsen, your hand is up. Feel free to unmute if you have something you wanted to offer.

MR. HERMSEN: Yes, Mr. Chair. I just wanted to ask if we were going to point out that Federal Counsel, Chip Lynch is on the line, to potentially shed more light on the implementation timeline issue.

CHAIR McNAMEE: Could you say that again, Jay. I'm sorry, I didn't process the question.

MR. HERMSEN: Sure, NOAA General Counsel, Chip Lynch is on the line, and can potentially shed more light on the implementation timeline issues that we were discussing earlier.

CHAIR McNAMEE: Oh, okay, thanks for that. Chip, maybe I'll come back to you. I've got one more public hand up, and then I will come to you, Chip, if you're okay with offering something there. Just bear with me for a minute. Also, I'll note, Dave Borden, your microphone is unmuted. I just wanted you to know that. Okay, the next hand I have is Greg Mataronas. Go ahead, Greg.

MR. GREGORY MATARONAS: Thank you for the opportunity to speak. I could be a proponent of this EM. However, it has to be done correctly. I know that we are in a time of heavy scrutiny with the whale issue, and that this could potentially help us. However, I really feel like that's a double-edged sword, in the fact that the way the TRT is going about reduction is through co-occurrence scores and risk reduction scores.

Essentially, the more effort that is shown in a specific area that overlaps with commonly used right whale habitat, the higher the score is, the higher the risk reduction percentage could be. Those areas are generally focused on to be removed. While in my mind heavy fished areas should be protected, so that we're allowed to continue to earn a living. The TRT process essentially does exactly the opposite.

I could get behind this, but we need to do that right, and make sure that we're protected during this. Maybe that's in the uses and utility of the data. Another question I have is, I still don't see an answer on what happens if I row out to my boat, it's 2:00 a.m. and the monitor does not work? I see that we can have up to two weeks, but that sort of speaks to having permission to do so.

But what happens if I need to go fishing, that is my only flat come day that week, and it's 2:00 a.m., so that needs to be resolved. My other question is, I gillnet eight months out of the year. I lobster for four months. Am I going to be required to be having this monitor on while I go out gillnetting, as well? This is really required only for lobster trap fishing, so just a couple questions. Thank you, Mr. Chair.

CHAIR McNAMEE: Thank you, Greg. Caitlin, I don't know if maybe you wanted to respond to the last

two questions that Greg had. I think there are answers to them. Are you able to, Caitlin?

MS. STARKS: Yes, thank you, Mr. Chair. To the first question, with regard to, okay now I might be mixing them up in which order they came as provider. But with regards to if you have to have the tracker on for the entirety of the year if you only are fishing for lobster for part of it.

I think the language in the Addendum that allows for power down of the device would potentially allow a harvester, who is done fishing for lobster with trap gear for the year, and is no longer going to do that to have their device powered down for the remainder of the year, if they get authorization from their state.

I do think that is possible with the language that is in the Addendum. Otherwise, without that authorization I think the requirement would be to have the tracker on the vessel and powered at all times throughout the course of a fishing year. Then, if you could remind me the first question.

CHAIR McNAMEE: Yes, Greg, do you want to go ahead and remind Caitlin what her first question was?

MR. MATRONAS: Yes, I had just spoken to what happens if the device is malfunctioning at 2:00 a.m. Suppose you get off the boat the previous day, or whenever, it's working fine. Then it doesn't power on when you go to fish the next day. What happens then?

MS. STARKS: Thank you for the reminder. In that situation, what all the states have discussed is that they will establish some method of notification where a fisherman would be able to either call or text, or send some kind of notification in at any time of day, and just say hey, my tracking device is not working and I'm going out fishing.

Then they would be able to continue fishing, you know just by sending in that notification. They don't have to actually talk to a state staffer. Even if it is two in the morning, as long as you can call in and leave a message or send a text, I think the states are all comfortable with that being enough, in order to allow you to continue fishing, and then when you get back from that trip, proceed with trying to get the tracker repaired or replaced.

CHAIR McNAMEE: Thanks for that Greg and Caitlin. Beth, I see your hand is back up. Do you have a follow up, no, okay? We did really good there, so I will go back around for another bite at the apple if anybody wants, and I see Brian Thibeault, your hand is up so please, go ahead.

MR. THIBEAULT: All right, we're going to try and save a few seconds with the unmute there. I see in the motion a two-year review. I'm going to use one of Greg's words that he used. I could be a proponent of this if done correctly. I've always been upset, been involved in fisheries management for as long as some of the directors have been here, and the Board members. I always hate to see a plan pushed forward because it has a date attached to it.

I would much, much rather see it implemented based on proper science, based on the proper usage and utility, more than it needs to be implemented just because of a date. With that being said, even if we did move to the next permit season, and continued a program where people were sampling it, you might get more positive results after that, because there will be more people paying attention to the small percentage of usages that are going on.

I just wanted to make that as a comment. The unknown footprint statement that was used by Mr. McKiernan, as far as stock assessments, et cetera, and the variabilities that are attributed to unknown effort. I believe all management measures are based on a maximum trap allocation, which has been captured with our trap reduction plans up and down the coast.

There is a data source that I can access right now that shows the maximum amount of traps allocated in certain LMAs based out of Rhode Island, I'm sure Maine has the same thing. I appreciate the time

again, I could be a proponent, just would like to see it done correctly. Thank you again for the second review, Mr. Chair.

CHAIR McNAMEE: Thank you, Brian. I've got another hand up, Lange Solberg, go ahead.

MR. LANGE SOLBERG: Thanks for entertaining my comment here. I just wanted to make a quick one. I'm with a vendor, Deck Hand Logbook. We have customers throughout the New England and Mid-Atlantic states, and we're always keen to listen to these conversations as a vendor stakeholder in these issues. We build a logbook platform that is GARFO approved. I just wanted to say that I do echo Steve Train and other's comments about concerns pertaining to vessel use that is of the non-fishing type.

We get a lot of feedback from our customers about similar concerns and privacy related issues, perceived or real. We're also hearing from our customers about, hearing concern about more and more hardware being required on the vessel to satisfy all of the different types of regulations, depending on the area and permit type, et cetera. Given that we're paying attention as a vendor to this, and we're trying to build a product and we have built a product that incorporates all sorts of different aspects of data collection into one solution.

I just wanted to iterate that you know the less hardware the better, and as we look at technical specs, as this gets fleshed out more and timelines. We would sure love to see flexibility and openness to the idea that, for example, a logbook solution could also double as a tracking solution, so long as it conforms to some of those ping rates and other parts of the tech specs. With that, that is my only comment. I appreciate the time, and over.

CHAIR McNAMEE: Thank you, Lange. Beth Casoni, I see your hand up again. Go ahead, Beth.

MS. CASONI: I just have one comment, and I meant to get this out last time. As offshore wind makes its turn into the Gulf of Maine in the near future, can the Board, should they vote to move forward with Addendum, could the Board please send a letter to BOEM, asking them to not delay, but encourage BOEM to use the data that will be made available, even if it's one year.

The one thing that was drastically missing, like Brian said from Rhode Island, drastically missing from the southern New England offshore wind lease areas, there was zero lobster data. Looking at the Gulf of Maine as it's the number one fishery, I would really like to see some of this data incorporated into any lease areas, call areas, before that train leaves the depot. Thank you.

CHAIR McNAMEE: Thanks for that, Beth, really good comments. We'll make sure we, I think it's implicit in the tail end of the motion there. But we've captured your comment, it's part of the record now, and I'm sure folks on the Board will remember that and make sure this data, if this passes, is in the mix. Thanks for that. I am now going to loop back to the Board.

Just one last pass to see if anyone has any remaining comments that they would like to make, and then I think what we'll do is take a three-minute caucus, and then I will call the vote. I'm looking for hands from Board members for any last comments, before we go into a caucus. Oh, I see Jay's hand again and I recall that I have completely forgot to go back to Chip. Chip, did you want to weigh in on the timeline issue that came up earlier?

MR. CHIP LYNCH: Thank you for recognizing me, Mr. Chair. I had what might be a legal perspective, and can answer some of the questions that I've heard from the Board. Briefly, if I can respond to the Area 5 Waiver Program, just for the Board's information. We have Area 5 permits that have been qualified in the usual course.

There is also a program wherein individuals can opt into the Area 5 Waiver Program, where they don't have to get trap tags, where they are subject to the

100/500 animal harvest limit. That is a subset of the Area 5 fishery. When the motion speaks to exempting Area 5 Waiver Permits, the motion would be recommending that a subset of the Area 5 Permits be exempted, not all of the Area 5 Permits be exempted.

I can understand the logic in that, because it's not a directed fishery in the Area 5 Waiver Program. I can also understand the logic of not recommending Area 5 in general, because it's de minimis. But just be aware that those are two very different recommendations. Of course, there is interest in information as it relates to whales, the vertical lines in the water, and there is also an interest as it relates to wind, and that is I think to Roy's point.

The TRT is meeting May 9, for sort of the Mid-Atlantic fisheries, gillnet fisheries. The idea is to have a rule in place by the end of 2023. We have a number of court cases that are being briefed right now, and are ready to pop. I don't know what the courts are going to rule in the not-too-distant future, and that may precipitate an advancement in what the Agency and the Take Reduction Team needs to do. Just be aware of that.

As far as some of the redundancy, and this gets into the timing issue. My understanding might have been different. I can tell you historically the Commission makes recommendations to NOAA, and NOAA has, because it's the federal rulemaking can be cumbersome. We always end up with a rule that follows the states.

It's never happened otherwise, I guess that doesn't say it couldn't, but it never has. The idea of having a rule in place in advance of the states in one year seems optimistic. But where there is a will there is a way. The redundancy issue with VMS, my understanding is that the federal rule would be something to the effect of all federal permit holders need to have a tracking system.

But to the extent that there already is a tracking system in place, or there is one that the states are doing. That would suffice. That's the way we thought the rule was going to potentially look, depending on the recommendation. That's some idea on timing, and some of the issues that we would be looking for and looking at from the federal government.

CHAIR McNAMEE: Thank you so much, Chip. Great info. Any hands from the Board either in follow up to Chip or otherwise? Not seeing any hands, so why don't we go into, let's do a three-minute caucus, and Caitlin if that's you with the timer, if you could get the timer going there. We'll come back, if you need more time, I'll look for your hand. But let's do three minutes, we'll come back and we will get to the vote on this motion. Three-minute caucus. Okay, that's the three minutes, does anybody need a little more time to caucus with their state? Please raise your hand if you do. Okay, not seeing any hands, so I'm assuming that folks are ready to vote. A question first to Toni. As this is final action, do you do a roll call vote, or can we still do the hand raising?

MS. KERNS: Jay, we can do the hand raising. This part isn't the final action, it's the approval of the final Addendum. But by default, because I read the names of the states of the hands that are up, it ends up being like a roll call. It's really the final approval of the document that we would need technically a roll call.

CHAIR McNAMEE: Great, and then just a note is that Eric Reid will be voting for Rhode Island. Okay, so with that, hopefully that was clear to everybody. We have a motion, it was made by Dan McKiernan, seconded by Cheri Patterson. All those in favor of the motion, please raise your hand.

MS. KERNS: Mr. Chairman, I'm sorry to do this to you, but you made a friendly amendment, so do you mind reading the motion?

CHAIR McNAMEE: Well sure, is it okay if I read it?

MS. KERNS: That would be great.

CHAIR McNAMEE: All right, to reread the motion due to the friendly amendment. Move to approve Option B: Implement electronic tracking requirements for federally-permitted lobster and Jonah crab vessels with commercial trap gear area permits, exempting Federal Area 5 Waiver Permits from the vessel tracking requirement In Addendum XXIX.

As a part of selecting Option B, have the Board commit to a multi-committee (Tracker Subcommittee, Lobster Technical Committee, and Law Enforcement Committee) review of the vessel tracking program after two full years of implementation, including assessing the uses and the utility of the data to date. The motion was made by Dan McKiernan and seconded by Cheri Patterson. Are we good to g now, Toni?

MS. KERNS: We are good to go now.

CHAIR McNAMEE: All those in favor of the motion, please raise your hand.

MS. KERNS: I'm going to let the hands settle for just a minute. I have Connecticut, New York, NOAA Fisheries, Massachusetts, Virginia, Rhode Island, New Jersey, Delaware, New Hampshire, Maryland, and Maine. Make sure I have everybody. I will put the hands down. I'm ready to go.

CHAIR McNAMEE: All those opposed to the motion, please raise your hand.

MS. KERNS: I have no hands up.
CHAIR McNAMEE: Okay, any abstentions?

MS. KERNS: I have no abstentions.

CHAIR McNAMEE: Finally, any null votes?

MS. KERNS: I have no null votes.

CHAIR McNAMEE: Great, so the motion passes. Thank you all very much for that.

MS. KERNS: Caitlin can give you the count.

MS. STARKS: That was 11 in favor.

CHAIR McNAMEE: Okay, the motion passes 11 in favor, no objections, no abstentions, no null votes. All right, so that dispenses with that motion. I'll now look to the Board to see if there is a follow up motion, and I see Megan Ware's hand. Go ahead, Megan.

MS. WARE: As I alluded, I have a motion on the implementation date that I think staff has. Great, I will read this into the record. **Move that we request that NOAA publish the final rule on vessel tracking by May 1, 2023, with an implementation date no later than December 15, 2023. States in conjunction with ASMFC staff will work in 2022 to develop an implementation plan, including a standard operating procedure and the request for quotes from vessel tracking companies. The results of this shall be reported back to the Board at a future meeting.**

CHAIR McNAMEE: Motion made by Megan Ware; I see a hand up. I should ask the question, is there a second? I see a hand up by David Borden. David Borden seconds the motion. Okay, Megan, do you wish to speak to your motion?

MS. WARE: Yes, that would be great. You know I think it's important to move efficiently on this implementation, but also balance that with a sense of practicality. What I want to avoid is setting an implementation date that we can't meet, or that is going to result in a really rushed, empty process that undermines the efforts we're trying to take.

As the motion alludes to, I think there are a couple steps that need to happen between now and then to kind of operationalize this. The Addendum talks about a standard operating procedure. We need to develop a list of approved tracking devices. I suspect there may need to be some work by ACCSP to accept and match tracking data. I know some states, including Maine, are likely going to explore hiring a staff to work on this.

Then I think most critically, we need NOAAs rule for the federal reporting requirement, EVTRs could be

in place. With all that in mind, I think this motion clearly states that the Board is hoping for NOAA to move efficiently on the rulemaking process. It also acknowledges the steps that need to be taken. Then it sets an implementation date of December 15, acknowledging that some states may need a bit of buffer time to get up and running. But nothing would prohibit a state from an earlier implementation date if that is what they desire.
CHAIR McNAMEE: Thank you, Megan. David Borden, do you wish to speak as the seconder?

MR. DAVID V. BORDEN: Yes, thank you, Mr. Chairman, it will be brief. Megan, I think said it well. But I would just like to emphasize that I think one of the things that is really important is this issue of standard operating procedures and guidelines. Since a lot of the decisions that will made build on the prior decision, that we need to get working on this.

Basically, have like a technical team start working through those technical issues, and resolve those as soon as possible. The last point I would emphasize. I think it's important to keep the Board apprised of developments on this issue. I think there should be like a report to the Board at every subsequent meeting on where this is. Thank you.

CHAIR McNAMEE: I have a request, and that is the word we, move that we. I am wondering if somebody would be willing to offer a friendly amendment to change the 'we' to the Commission. Megan, I see your hand up.

MS. WARE: I'm happy to make that change, and take that as a friendly.

CHAIR McNAMEE: David, is that okay with you?

MR. BORDEN: Yes.

CHAIR McNAMEE: Other Board members wishing to speak to the motion. Okay, Mike Luisi. Go ahead, Mike.

MR. LUISI: I just wonder, given that friendly. Since this is the Lobster Board and not the full Commission, if it would be better stated as Move that the Lobster Board request.

CHAIR McNAMEE: Okay.

MR. LUISI: If we're making a change there, I think that is more accurate. Just a suggestion.

MS. KERNS: Mr. Chair, typically when the Commission sends letters over to NOAA, in particular for documents that we approve, usually you send it on behalf of the Commission, but Bob, you can correct me.

CHAIR McNAMEE: Okay, so maybe we're okay with the modification that we've made. Thanks for bringing it up though, Mike, just to check. All right, I will go out for some quick comments from the audience, and I see Brian Thibeault's hand up, so go ahead, Brian.

MR. THIBEAULT: Thank you again, Mr. Chair. Just obviously, appreciate the Board hearing this whole topic out. I hope some weight went into it, into your thoughts. Through the whole public comment process in this, I listened to every state up and down the coast. Again, the financial aspect seems to be the biggest concern by fishermen. I request out of the Lobster and Jonah Board, and I know the Amendment can't get changed here, or that the motion. That this money needs to come through, needs to be enough of it, needs to be allocated to this project for the success rate of it, and would just like to have that in everybody's head as the Board is apprised of the progress into the future. I just feel that is a very important part of it. Again, up and down the coast that seemed to be one of the larger questions. Whether it's Mr. McKiernan's grant idea or any other part of the process, that just seemed to be very important.

If that money does get delayed, have respect please to the industry of that potential implementation date possibly gets moved back the same amount of duration that the money could get delayed. That's

it. Again, I appreciate the time to speak at the meeting, and have a good afternoon.

CHAIR McNAMEE: Thank you, Brian. Okay, not seeing any other hands from the public. I'm going to come back to the Board. Any remaining comments from the Board? No seeing any hands, so let's go ahead and caucus. Let's do, I think folks are okay here, so let's just do one minute.

I just want to make sure people have time to communicate, so a one-minute caucus, and we'll come back and take the vote. All right, does anybody need any more time, please raise your hand. Okay, not seeing any hands. I will call the question. All those in favor. Actually, Toni, is this another one where I should read it because of the friendly?

MS. KERNS: Yes, I think so. Sorry.

CHAIR McNAMEE: It's quite all right, I hope my dogs don't bark again. Move that the Commission request that NOAA publish the final rule on vessel tracking by May 1, 2023, with implementation no later than December 15, 2023. States in conjunction with ASMFC staff will work in 2022 to develop an implementation plan, including a standard operating procedure and the request for quotes from vessel tracking companies. The results of this shall be reported back to the Board at a future meeting. Motion by Megan Ware and seconded by David Borden. All those in favor of the motion please raise your hand.

MS. KERNS: Letting the hands settle. I have Maine, Maryland, Delaware, New Hampshire, New Jersey, Rhode Island, Virginia, Massachusetts, New York, and Connecticut. I will put the hands down.

CHAIR McNAMEE: Okay, all those opposed to the motion please raise your hand.

MS. KERNS: I have no hands.

CHAIR McNAMEE: Any abstentions?

MS. KERNS: NOAA Fisheries. I'll put the hands down.

CHAIR McNAMEE: Finally, any null votes?

MS. KERNS: I have no hands. Caitlin can give you the count.

MS. **STARKS: That was 10 in favor, 0 opposed, 1 abstention from NOAA Fisheries, and 0 null votes.**

CHAIR McNAMEE: All right, thank you for that, Caitlin. Okay, so we have a motion on the Addendum, and then a motion on the timeline. Caitlin, Toni, is there any other motions that need to be made for this action?

MS. STARKS: Yes, Mr. Chair, we will need a motion to approve the Addendum as amended today. I think I have a motion that Maya can put up as a standard.

CHAIR McNAMEE: **I'm already getting some interest here on the Board. Wait for that to pop up on the screen here. Looking for someone to make the motion to approve Addendum XXIX to the Lobster FMP and Addendum IV to the Jonah Crab FMP as amended today. Anyone wishing to make that motion please raise your hand. I've got hands already, and I saw Dan McKiernan's first. Thanks for that, Dan. Then anyone willing to second the motion. I see Cheri Patterson.**

MS. PATTERSON: Yes, thank you, I'll second the motion.

CHAIR McNAMEE: All right, so we have a motion, it's been seconded. Let's see, any comments from anyone on the motion? Joe Cimino, I see your hand is up. I don't know if that was for a second or a comment, oh there it goes. Dan or Cheri, did you want to make any comments? Maybe not, not hearing any. All right. I think we're okay to not caucus on this one. Why don't we go ahead and go right to the question? All those in favor of the motion please raise your hand.

MS. KERNS: I have Maine, Maryland, Delaware, New Hampshire, New Jersey, Rhode Island, Virginia, Massachusetts, NOAA Fisheries, New York and Connecticut. I'll put the hands down, I think that's the full Board.

CHAIR McNAMEE: To be sure, any objections to the motion? Not seeing any hands. Any abstentions? No seeing any hands, and any null votes. Not seeing any hands. **The motion passes. I think that one was 11 in favor, no objections, no abstentions, no null votes.** Thanks everybody. Now is that all of our business on the Addendum, Caitlin or Toni?

MS. STARKS: I think that is all, Mr. Chair.

CHAIR McNAMEE: All right, I've got a hand up. David Borden, go ahead, David.

MR. BORDEN: I'll make this really quick. When Bob Beal was discussing funding for this action, I think he used two years, and I know that the State Directors administrators are going to be considering whether or not it should be two years or more. I would encourage the state administrators to appropriate money to cover it for three years. Thank you.

CHAIR McNAMEE: Thank you for that advice, David, I appreciate it. Okay, is there any other business? That was our one action item for today, nothing else left on the agenda. Is there any other business that anyone would like to bring before the Board? Looking for a hand. Not seeing any. I think that does it. Thank you all very much for that. It took a while to get here, but I think that was a really important action today, so good work to the Board getting through that. Oh, I've got a hand up, go ahead, Dan.

MR. McKIERNAN: Jay, excellent job running the meeting today.

ADJOURNMENT

CHAIR McNAMEE: Thank you very much, Dan. I appreciate it. Do I have a motion to adjourn? I've got a hand up from Steve Train, is there a second? Hand up from Cheri Patterson. Any objections to adjourning the meeting? With that we will adjourn the meeting. Thank you everybody, have a good evening.

(Whereupon the meeting adjourned at 3:30 p.m. on March 31, 2022.)

Atlantic States Marine Fisheries Commission

DRAFT ADDENDUM XXVII TO AMENDMENT 3 TO THE AMERICAN LOBSTER FISHERY MANAGEMENT PLAN FOR PUBLIC COMMENT

Increasing Protection of Spawning Stock in the Gulf of Maine/Georges Bank

January 2022

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

American Lobster Draft Addendum XXVII for Public Comment

Public Comment Process and Proposed Timeline

In August 2017, the American Lobster Management Board (Board) initiated Draft Addendum XXVII to increase the resiliency of the Gulf of Maine/Georges Bank (GOM/GBK) stock. Work on this addendum was paused due to the prioritization of work on take reduction efforts for Atlantic right whales. The Board reinitiated work on Draft Addendum XXVII in February 2021, and has since revised the goal of the addendum to consider a trigger mechanism such that, upon reaching the trigger, measures would be automatically implemented to increase the overall protection of spawning stock biomass of the GOM/GBK stock. This management action was initially in response to signs of reduced settlement and the combining of the GOM and GBK stocks following the 2015 Stock Assessment, and more recently in response to a continuation of those trends observed in the 2020 Stock Assessment. This document presents background on the Atlantic States Marine Fisheries Commission's management of lobster, the addendum process and timeline, a statement of the problem, and management measures for public consideration and comment.

The public is encouraged to submit comments regarding the proposed management options in this document at any time during the addendum process. The final date comments will be accepted is **Month, Day 2022 at 5:00 p.m**. **EST.** Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comments, please use the contact information below.

Mail: Caitlin Starks
Atlantic States Marine Fisheries Commission
1050 N. Highland St. Suite 200A-N
Arlington, VA 22201
Fax: (703) 842-0741

Email: comments@asmfc.org
(Subject line: Lobster Draft Addendum XXVII)

May – Dec 2021	Draft Addendum for Public Comment Developed
January 2022	Board Approved Draft Addendum for Public Comment
TBD	Public Comment Period Including Public Hearings
TBD	Board Reviews Public Comment, Selects Management Measures, Final Approval of Addendum XXVII
TBD	Implementation of Addendum XXVII Provisions

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American Lobster Draft Addendum XXVII for Public Comment

1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) has coordinated the interstate management of American lobster (*Homarus americanus)* from 0-3 miles offshore since 1996. American lobster is currently managed under Amendment 3 and Addenda I-XXVI to the Fishery Management Plan (FMP). Management authority in the Exclusive Economic Zone (EEZ) from 3-200 miles from shore lies with NOAA Fisheries. The management unit includes all coastal migratory stocks between Maine and Virginia. Within the management unit there are two lobster stocks and seven management areas. The Gulf of Maine/Georges Bank (GOM/GBK) stock (subject of this draft addendum) is primarily comprised of three Lobster Conservation Management Areas (LCMAs), including LCMA 1, 3, and Outer Cape Cod (OCC) (Figure 1). There are three states (Maine through Massachusetts) which regulate American lobster in states waters of the GOM/GBK stock; however, landings from the GOM/GBK stock occur from Rhode Island through New York and these states regulate the landings of lobster in state ports.

The Board initiated Draft Addendum XXVII as a proactive measure to protect the GOM/GBK spawning stock. Since the early 2000's, landings in the GOM/GBK stock have exponentially increased. In Maine alone, landings have increased three-fold from 57 million pounds in 2000 to a record high of 132 million pounds in 2016. Maine landings have declined slightly but were still near time-series highs at 101.8 million and 96.6 million in 2019 and 2020, respectively. However, since 2012, lobster settlement surveys throughout the GOM have generally been below the time series averages in all areas. These surveys, which measure trends in the abundance of newly-settled and juvenile lobster, can be used to track populations and forecast future landings. Consequently, persistent lower densities of settlement could foreshadow decline in recruitment and landings. In the most recent years of the time series, declines in recruit indices have already been observed.

Given the American lobster fishery is one of the largest and most valuable fisheries along the Atlantic coast, potential decreases in abundance and landings could result in vast economic and social consequences. In 2016, the at-the-dock value of the American lobster fishery peaked at $670.4 million dollars, representing the highest ex-vessel value of any species landed along the Atlantic coast that year. Ex-vessel value has since declined slightly but not proportionally to declines in landings. The vast majority of the overall landings value (>90%) comes from the GOM/GBK stock, and more specifically from the states of Maine through Rhode Island. As a result, the lobster fishery is an important source of jobs (catch, dock side commerce, tourism, etc.) and income for many New England coastal communities. The lack of other economic opportunities, both in terms of species to fish and employment outside the fishing industry, compounds the economic reliance of some coastal communities on GOM/GBK lobster – particularly in Maine.

Draft Addendum XXVII responds to signs of reduced settlement and the combination of the GOM and GBK stocks following the 2015 Stock Assessment and the continuation of reduced settlement observed in the 2020 Stock Assessment. The Board specified the following objective statement for Draft Addendum XXVII:

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***Given persistent low settlement indices and recent decreases in recruit indices, the addendum should consider a trigger mechanism such that, upon reaching the trigger, measures would be automatically implemented to increase the overall protection of spawning stock biomass of the GOM/GBK stock*.**

Draft Addendum XXVII considers implementing management measures—specifically gauge and vent sizes—that are expected to add an additional biological buffer through the protection of spawning stock biomass (SSB). The addendum also considers immediate action upon final approval to standardize some management measures within and across LCMAs in the GOM/GBK stock. The purpose of considering more consistency in measures is to resolve discrepancies between the regulations for state and federal permit-holders, to provide a consistent conservation strategy, and simplify enforcement across management areas and interstate commerce.

2.0 Overview

2.1 Statement of Problem

While 2016 landings in the GOM/GBK lobster fishery were the highest on record, settlement surveys over the past five years have consistently been below the 75th percentile of their time series, indicating neutral or poor conditions. Additionally, there is evidence of declines in recruit abundance in ventless trap survey and trawl surveys for the GOM/GBK stock since the most recent stock assessment. These declines could indicate future declines in recruitment and landings. Given the economic importance of the lobster fishery to many coastal communities in New England, especially in Maine, potential reductions in landings could have vast socioeconomic impacts. In addition, the 2015 Stock Assessment combined the GOM and GBK stocks into a single biological unit due to evidence of migration between the two regions. As a result, there are now varying management measures within a single biological stock. In response to these two issues, the Board initiated Draft Addendum XXVII to consider the standardization of management measures across LCMAs.

However, in 2021, the Board revised the focus of Addendum XXVII to prioritize increasing biological resiliency of the stock over standardization of management measures across LCMAs. Increased resiliency may be achieved without completely uniform management measures, so the main objective of the Addendum is to increase the overall protection of SSB while also considering management options that are more consistent than status quo. Increasing consistency across management areas may help to address some assessment and enforcement challenges, as well as concerns regarding the shipment and sale of lobsters across state lines.

2.2 Status of the GOM/GBK Fishery

The GOM/GBK fishery has experienced incredible growth over the last two decades. Throughout the 1980s, GOM/GBK landings averaged 35 million pounds, with 91% of landings coming from the GOM portion of the stock. In the 1990s, landings slightly increased to an average of 53 million pounds; however, landings started to rapidly increase in the mid-2000s. Over a one year span (2003-2004), landings increased by roughly 18 million pounds to 86 million pounds. This growth continued through the 2000s with 97 million pounds landed in

2009 and 113 million pounds landed in 2010. Landings continued to increase and peaked at 156 million pounds in 2016 (Figure 2).

In the peak year of 2016, Maine alone landed 132.7 million pounds, representing an ex-vessel value of over $541 million. The states of Maine through Rhode Island (the four states that account for the vast majority of harvest from the GOM/GBK stock), landed 158 million pounds in 2016, representing 99% of landings coastwide. Total ex-vessel value of the American lobster fishery in 2016 was $670.4 million, the highest value recorded for the fishery and the highest valued fishery along the Atlantic coast in 2016. While landings and ex-vessel value have both declined slightly from peak levels in 2016, they remain near all-time highs. Coastwide landings and ex-vessel value for 2017-2020 averaged 133.2 million pounds and $591.5 million, respectively.

2.3 Status of the GOM/GBK Stock

2.3.1 *2020 Stock Assessment*

Results of the 2020 Benchmark Stock Assessment indicate a dramatic overall increase in the abundance of lobsters in the GOM/GBK stock since the late 1980s. After 2008, the rate of increase accelerated, and the stock reached a record high abundance level in 2018. Based on a new analysis to identify shifts in the stock that may be attributed to changing environmental conditions and new baselines for stock productivity, the GOM/GBK stock shifted from a low abundance regime during the early 1980s through 1995 to a moderate abundance regime during 1996-2008, and shifted once again to a high abundance regime during 2009-2018 (Figure 3). Spawning stock abundance and recruitment in the terminal year of the assessment (2018) were near record highs. Exploitation (proportion of stock abundance removed by the fishery) declined in the late 1980s and has remained relatively stable since.

Based on the new abundance reference points adopted by the Board, the GOM/GBK stock is in favorable condition. The average abundance from 2016-2018 was 256 million lobsters, which is greater than the fishery/industry target of 212 million lobsters. The average exploitation from 2016-2018 was 0.459, below the exploitation target of 0.461. Therefore the GOM/GBK lobster stock is not depleted and overfishing is not occurring.

Stock indicators based on observed data were also used as an independent, model-free assessment of the lobster stocks. These indicators included exploitation rates as an indicator of mortality; young-of-year (YOY), fishery recruitment, SSB, and encounter rates as indicators of abundance, and total landings, effort, catch per unit effort, and monetary measures as fishery performance indicators. Additionally, annual days with average water temperatures >20°C at several temperature monitoring stations and the prevalence of epizootic shell disease in the population were added as indicators of environmental stress. The 20°C threshold is a well-documented threshold for physiological stress in lobsters. Epizootic shell disease is considered a physical manifestation of stress that can lead to mortality and sub-lethal health effects.

While the stock assessment model and model-free indicators supported a favorable picture of exploitable stock health during the recent 2020 Stock Assessment, the assessment conversely

noted YOY indices did not reflect favorable conditions in recent years and indicate potential for decline in recruitment to the exploitable stock in future years (Table 1). Specifically, YOY indices in two of five regions were below the 25th percentile of the time series (indicating negative conditions) in the terminal year of the assessment (2018) and when averaged over the last five years (2014-2018); the remaining three regions were below the 75th percentile (indicating neutral conditions).

Mortality indicators generally declined through time to their lowest levels in recent years. Fishery performance indicators were generally positive in recent years with several shifting into positive conditions around 2010. Stress indicators show relatively low stress, but indicate some increasingly stressful environmental conditions through time, particularly in the southwest portion of the stock.

As recommended in the 2020 stock assessment, a data update process will occur annually to update American lobster stock indicators, including YOY settlement indicators, trawl survey indicators, and ventless trap survey indices. The first annual data update was completed in 2021 and the results are provided in Appendix A.

2.3.2 *YOY Surveys*

Since the terminal year of the assessment (2018), YOY indices have continued to show unfavorable conditions in the GOM/GBK stock. There have been sustained low levels of settlement observed from 2012 through the assessment and in the time period since the assessment terminal year in 2018. In Maine, 2019 and 2020 YOY indices were below the 75th percentile of their time series throughout all statistical areas sampled. In New Hampshire, sustained low levels of settlement have been seen from 2012 through 2020. In Massachusetts, the 2019 index was below the 25th percentile of its time series and rebounded slightly in 2020, but remained well below the 75th percentile.

Sustained and unfavorable YOY indices are concerning as they could foreshadow poor future year classes in the lobster fishery. Lobster growth is partially temperature-dependent and it is expected that it takes seven to nine years for a lobster to reach commercial size. Thus, decreased abundance of YOY lobsters today could foreshadow decreased numbers of lobsters available to the fishery in the future. Given there have been eight consecutive years of low YOY indices in the GOM, this trend may soon be reflected in the GOM/GBK stock. What is more concerning is that declines in the Southern New England (SNE) stock, which is currently at record low abundance, began with declines in YOY indices. Specifically, SNE YOY indices began to decline in 1995, two years before landings peaked in 1997, and roughly five years before landings precipitously declined in the early 2000's.

There are several hypotheses as to why the YOY indices have been low and what this could mean for the future of the GOM/GBK stock. One hypothesis is that declines in the YOY indices are reflecting a true decline in the newly-settled portion of the stock, and are related to declining food resources (specifically zooplankton). Carloni et al. (2018) examined trends in lobster larvae to explore linkages between SSB and YOY abundance. The study found a

significant increasing trend in stage I larval abundance consistent with the increases in SSB in the GOM. Planktonic postlarvae on the other hand, had a declining trend in abundance similar to trends for YOY settlement throughout western GOM. The study also found significant correlations between lobster postlarvae and the copepod *C. finmarchicus*, but there were no relationships with other zooplankton. This suggests recruitment processes in the GOM could be linked to larval food supply.

Declines in the YOY indices could also be an artifact of the lobster population moving further offshore. Recent work suggests warming in the GOM on the scale of decades has expanded thermally suitable habitat areas and played a significant role in the increase of observed settlement into deeper areas, particularly in the Eastern Gulf of Maine (Goode et al. 2019), so lobster settlement may be diluted across a greater area. Given the YOY surveys typically occur inshore, the surveys may be unable to account for increased abundance of YOY lobsters farther offshore. In an effort to test this theory, the TC looked at potential increases in the habitat available for recruitment in the GOM/GBK stock due to warming waters. Specifically, the TC calculated the quantity of habitat by depth in the GOM. Results showed that incremental increases in depth result in incremental increases in recruitment habitat and small observed decreases in recruit densities in shallow waters; there is no evidence that incremental increases in depth result in exponential increases in available habitat. In order for the diffusion of YOY lobsters over a larger area to completely explain the observed decreases in the YOY indices, the habitat available to recruitment would have to more than double. This suggests dilution effects from increased habitat availability alone are not sufficient to explain decreases in the YOY indices, and there are likely other changes occurring in the system.

2.3.3 *Ventless Trap Surveys and Trawl Surveys*

While YOY surveys have detected declines in the number of newly settled lobsters, results of the ventless trap survey (VTS) and trawl surveys, which encounter larger sized lobsters just before they recruit to the fishery, have only exhibited evidence of potential decline in the most recent years and interpretation of these trends are complicated by sampling restrictions and limited surveys in 2020 resulting from the COVID-19 pandemic. VTS indices show declines since peaking in 2016, especially in the eastern regions. The ME/NH Fall Trawl Survey, which was the only trawl survey to sample in 2020, showed a decline in recruit lobster abundance, while 2019 indices for other trawl surveys remained at high levels and were above the previous year for spring surveys but consistently below the 2018 levels for the fall surveys.

It is important to continue to closely monitor these surveys as marked decreases in the VTS and/or trawl surveys would confirm the declines seen in the YOY surveys.

2.4 Economic Importance of the American Lobster Fishery

Much of the concern regarding the declines in the lobster indices result from the vast economic importance of the lobster fishery to much of the GOM. For the states of Maine through Massachusetts, lobster is one of the most valuable fisheries and the large majority of landings come from the GOM/GBK stock.

For Maine, American lobster is an essential economic driver for the coastal economy. Lobster annually represents more than 75% of Maine's marine resource landings by ex-vessel value (79% in 2020). The landings and value peaked in 2016 with more than 132 million pounds harvested and provided more than $540 million dollars in ex-vessel value[1]. The lobster harvester sector includes more than 5,770 license holders of which 4,200 are active license holders who complete more than 270,000 trips a year selling to 240 active lobster dealers (Maine DMR, unpublished data). The lobster distribution supply chain contributes an additional economic impact of $1 billion annually ("Lobster to Dollars", 2018). Not included in these numbers are the vessel crew members and other associated businesses (bait vessels and dealers, boat builders, trap builders, and marine supply stores) that are essential in delivering lobsters to consumers worldwide, supporting the industry, and driving Maine's coastal communities.

The American lobster fishery is the most valuable commercial fishery in New Hampshire with an ex-vessel value of over $35 million in 2019, the last year prior to the economic impacts of the COVID-19 pandemic, and over $25 million in 2020. The value of lobster landed accounted for over 94% of the value of all commercial species landed in New Hampshire. The lobster fishery in New Hampshire includes over 300 licensed commercial harvesters, over 200 of which are active, who sold to more than 30 licensed lobster dealers (Renee Zobel, personal communication). The importance of the economic impact of the lobster fishery to New Hampshire is also seen in the over 450 businesses licensed to sell lobster to consumers at the retail level.

For Massachusetts, American lobster is the second most valuable fishery in terms of overall landings value, and the most valuable of all fisheries conducted within Massachusetts state waters. The total estimated value for annual lobster landings in Massachusetts has been over $85 million per year on average for 2015-2019. On average, landings from the GOM/GB stock make up 93% of the total lobster landings for Massachusetts; 70% of this comes from LCMA 1, 14% from LCMA 3, and 8% from LCMA OCC (Massachusetts DMF, unpublished data).

Though the state is not directly situated on the GOM, a significant contingent of the Rhode Island commercial lobster fleet harvests lobsters in GOM/GBK. In 2019 and 2020, approximately 30% of Rhode Island's commercial landings (2019: 604,459 pounds, 2020: 497,705 pounds) came from statistical areas in GOM/GBK. The estimated ex-vessel value for lobsters from this stock was approximately $3.8 million in 2019 and $2.9 million in 2020.

2.5 Current Management Measures in the GOM/GBK Stock

Lobster are currently managed under Amendment 3, and its 26 addenda. One of the hallmarks of Amendment 3 was the creation of seven LCMAs along the coast. The GOM/GBK stock is primarily comprised of LCMAs 1 and OCC as well as the northern half of LCMA 3. Each management area has a unique set of management measures. Table 2 shows the current measures for each area. Because the GOM/GBK stock is now assessed as a single area the result

[1] https://www.maine.gov/dmr/commercial-fishing/landings/documents/lobster.table.pdf

is a diverse suite of regulations for each LCMA within a single stock unit, creating challenges for assessing the impacts of management measures within the stock. Specifically, the minimum gauge size (the smallest size lobster that can be legally harvested) in LCMA 1 is 3 ¼" while it is $3^{3}/_{8}$" in LCMA OCC and $3^{17}/_{32}$" in LCMA 3. Likewise, the maximum gauge size (the largest size lobster that can be legally harvested) differs among the three areas, with a 5" maximum gauge size in LCMA 1, a 6 ¾" maximum gauge size in LCMA 3 and for federal permit holders in LCMA OCC, and no maximum gauge size for state-only OCC permit holders. V-notch definitions are inconsistent where LCMA 1 implements a no tolerance for possession of any size v-notch or mutation and LCMA 3 defines a v-notch as greater than $^{1}/_{8}$" with or without setal hairs while OCC has different definitions for federal permits (similar to LCMA 3) state only permits (> ¼" without setal hairs). V-notch requirements are also inconsistent, with LCMA 1 requiring all egg-bearing lobsters to be V-notched, LCMA 3 only requiring V-notching above 42°30' line, and no requirement in OCC.

Several concerns have been noted regarding the current management measures beyond these disparities. At the current minimum sizes, growth overfishing is occurring in the LCMAs within the GOM/GBK stock. Growth overfishing refers to the harvest of lobsters at sizes smaller than the size where their collective biomass (and fishery yield) would be greatest, and when they have very large scope for additional growth. This is demonstrated by the potential increases in catch weight associated with increasing the minimum gauge size (see Appendix B). In LCMA 1, most of the catch consists of individuals within one molt of minimum legal size, which results in a much smaller yield-per-recruit (YPR) than could be achieved if lobsters were allowed to survive and grow to larger sizes before harvest. While the size distribution of the lobsters harvested lobsters in LCMA 3 is much broader than inshore (the fishery is less recruit-dependent) there is still considerable potential for additional growth, and delaying harvest could increase yield per recruit in this region as well. Another concern is the loss of conservation benefit of measures across LCMA lines due to inconsistent measures between areas. The 2015 assessment combined the GOM and GBK areas into one stock because the NEFSC trawl survey showed evidence of seasonal exchange and migration of lobsters between areas. Loss of conservation benefit occurs when lobsters are protected in one area but can be harvested in another when they cross the LCMA boundaries.

2.6 Biological Benefits of Modifying Gauge Sizes

Of the existing biological management measures for the lobster fishery, the minimum and maximum gauge sizes are most likely to have biological impacts on the GOM/GBK stock and fishery. Analyses were performed by the American Lobster Technical Committee to evaluate the impacts of alternate minimum and maximum sizes for the LCMAs within the stock. For LCMA 1, analysis involved updating existing simulation models with more recent data to estimate the impacts of specific minimum and maximum gauge size combinations on total weight of lobsters landed, number of lobsters landed, SSB and exploitation. A separate analysis for LCMA 3 was performed due to concerns that the offshore fishery in LCMA 3 is considerably different from the inshore (which tends to drive stock-wide modelling results). For OCC, simulations were run with both LCMA 1 and LCMA 3 parameters because it is considered a transitional area. The full report on these analyses is included in Appendix B.

Based on these analyses, several general assumptions can be made about potential changes to the minimum and maximum gauge sizes. Increasing the minimum legal gauge size in LCMA 1 is projected to result in large increases in SSB; while increasing the minimum gauge size for LCMA 3 and OCC is projected to result in much smaller increases in SSB relative to LCMA 1. This is primarily because of the significantly larger magnitude of the LCMA 1 fishery and that the current minimum legal size in LCMA is significantly below the size at maturity; meanwhile, the current minimum gauge sizes in LCMA 3 and OCC are much closer to the size at maturity and, additionally, landings from these areas account for only a small fraction of the fishery. Minimum sizes that approach or exceed the size at maturity produce increasing returns on SSB as this allows a much larger portion of the population to reproduce at least once. Therefore, increasing minimum legal size in LCMA 1 to $3^{15}/_{32}$" (88 mm) is projected to result in a near doubling of SSB. This would significantly increase egg production potential and may provide some buffer against the effects of future changes in productivity. At the same time, this change would be expected to produce only marginal decreases in the total number of lobsters landed but result in a net increase in YPR and total weight of catch.

Generally, decreasing maximum gauge sizes is projected to have larger effects for LCMA 3 both relative to increasing the minimum size in LCMA 3 and to changing the maximum sizes for the other LCMAs. However, relative to increasing the minimum size in LCMA 1, the positive impact to the overall stock projected to result from decreasing the maximum gauge sizes in LCMA 3 and OCC is significantly smaller.

2.7 Potential Benefits of Increasing Consistency of Measures

Beyond the biological concerns for the GOM/GBK lobster stock, the disparities in the current measures also create challenges for stock assessment, law enforcement, and commerce. Increasing consistency among the measures for the LCMAs within the stock could have benefits in each of these areas, which are described in the following sections.

2.7.1 Stock Boundaries

A complicating factor in the management of lobster is that the boundaries of the LCMAs do not align with the biological boundaries of the stocks (GOM/GBK vs. SNE). This is particularly challenging in LCMA 3 which spans both GOM/GBK and SNE. The intricacy of the stock boundaries is further complicated by the fact that many vessels fishing out of Rhode Island and Massachusetts, which are harvesting lobsters on Georges Bank, must travel through the SNE stock area to reach their port of landing. In addition, these vessels may be permitted to fish in multiple management areas, including areas that span both lobster stocks.

To date, no Commission addendum has included a recommendation that Federal permits delineate which stock a harvester in LCMA 3 is eligible to fish. In addition, management actions responding to the decline in the SNE stock have been applied throughout LCMA 3. In this case, management measures targeting the GOM/GBK stock would also be applied to all LCMA 3 harvesters regardless of location and stock fished.

2.7.2 Improve Enforcement

A potential advantage of more consistent management measures is the ability to improve enforcement throughout the stock. Currently, disparate management measures hinder the ability for law enforcement to enforce various regulations in the lobster fishery. For example, vessels landing in Massachusetts harvest lobsters from four LCMAs, each of which has a different set of minimum gauge sizes (ranging from 3 ¼" to 3 $^{17}/_{32}$") and maximum gauge sizes (ranging from 5" to no maximum gauge size). As a result, at dealers only the most liberal measure can be implemented as a strict possession limit. The Law Enforcement Committee has continually recommended the use of standardized management measures in the lobster fishery, as inconsistent regulations mean that the least restrictive regulations becomes the enforceable standard once product leaves the dock. In addition, regulatory inconsistencies decrease the likelihood of successful prosecution of violators.

2.7.3 Interstate Shipment of Lobsters

Increasing consistency in regulations may also address concerns regarding the sale and shipment of lobsters across state lines. With decreased landings in SNE and expanding markets for the GOM/GBK stock, there has been increased demand for the shipment of lobsters across state lines. This movement of lobster can be complicated by the fact that the gauge sizes differ across LCMAs, and many states implement the minimum and maximum gauge sizes as possession limits rather than landing limits per state regulation or law. This means the gauge sizes apply to anyone in the lobster supply chain, not just harvesters. While these strict regulations improve the enforcement of gauge sizes, it can complicate interstate shipment of lobsters, particularly given the minimum size in LCMA 1 is smaller than the other management areas. As a result, some dealers must sort lobster by size in order to ship product across state lines.

Moving toward more consistent minimum sizes within the inshore LCMAs would help alleviate this issue by easing the ability of states to participate in the GOM/GBK lobster supply chain. This would not only reduce the burden on dealers that sort product by size but also enhance the enforcement of gauge sizes in the fishery.

3.0 Proposed Management Options

The following management options consider modifications to the management program with the goal of increasing protection of the GOM/GBK spawning stock. The final management program selected will apply to LCMAs 1, 3, and OCC.

- Issue 1 addresses the standardization of a subset of management measures within LCMAs and across the GOM/GBK stock.
- Issue 2 considers applying either a trigger mechanism or a predetermined schedule for implementing biological management measures that are expected to provide increased protection to the SSB.

3.1 Issue 1: Measures to be standardized upon final approval of Addendum XXVII

This issue considers options to modify some management measures immediately upon final approval of the Addendum to achieve more consistency in measures within and across LCMAs.

One option proposes to modify some of the OCC measures to address differing regulations for state and federal permit holders. Specifically, for state-permitted fisherman in state waters there is no maximum gauge size and the V-notch definition is $^1/_4$" without setal hairs. For federal permit holders, the maximum gauge size is 6 $^3/_4$" and the V-notch definition is $^1/_8$" with or without setal hairs. The disparity between regulations for different harvesters within the same area creates challenges for enforcement.

Options are also proposed to standardize V-notch regulations across the LCMAs within the GOM/GBK stock, as well as regulations related to the issuance of tags for trap tag losses. Uniformity in these measures would benefit enforcement and apply a consistent conservation strategy across the stock unit.

Option A: Status Quo
This option would maintain the current management measures for each LCMA at final approval of the addendum.

Option B: Standardized measures to be implemented upon final approval of addendum
The Board may select more than one of the below options. The states would be required to implement the selected management measures for the fishing year specified by the Board at final approval of the addendum.

- **Sub-option B1**: Upon final approval of the addendum, implement standardized measures within an LCMA to the most conservative measure where there are inconsistencies between state and federal regulations within GOM/GBK stock LCMAs. This would result in the maximum gauge being standardized to 6-3/4" for state and federal permit holders, and the V-notch possession definition being standardized to $^1/_8$" with or without setal hairs in OCC. This means harvest is prohibited for a female lobster with a V-shaped notch greater than $^1/_8$".
- **Sub-option B2**: Upon final approval of the addendum, implement a standard V-notch requirement across all LCMAs in the GOM/GBK stock. This would result in mandatory V-notching for all eggers in LCMA 1, 3, and OCC.
- **Sub-option B3**: Upon final approval of the addendum, implement a standard V-notch possession definition of $^1/_8$" with or without setal hairs for LCMAs 1, 3, and OCC. Any jurisdiction could implement more conservative regulations.
- **Sub-option B4:** Upon final approval of the addendum, standardize regulations across LCMAs 1, 3, and OCC to limit the issuance of trap tags to equal the harvester trap tag allocation. This would mean no surplus trap tags would be automatically issued until trap losses occur and are documented.

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3.2 Issue 2: Implementing management measures to increase protection of SSB

The primary objective of this action is to increase the protection of SSB in the GOM/GBK stock. The proposed options consider changes to the minimum and maximum gauge sizes along with corresponding vent sizes for the LCMAs within the stock. The proposed measures are expected to 1) increase SSB, and 2) result in the minimum gauge size increasing to meet or exceed the size at 50% maturity (L50) for each LCMA (LCMA 1: eastern GOM L50 = 88 mm, western GOM L50 = 83 mm, LCMA 3: Georges Bank L50 = 91 mm). Appendix B includes a full technical report of analysis performed to project the impacts of various gauge size combinations on total weight of lobsters landed, number of lobsters landed, SSB and exploitation.

This issue proposes two approaches for implementing management changes to increase protection of SSB. One approach, which is applied in Options A through D, is to establish a trigger mechanism whereby pre-determined management changes would be triggered upon reaching a defined trigger level based on observed changes in recruit (71-80 mm carapace length) abundance indices. The proposed mechanism includes establishing up to two management triggers based on recruit conditions observed in three surveys that were used to inform the assessment model estimates of reference abundance and stock status for the GOM/GBK stock. These recruit indices include: 1) combined ME/NH and MA spring trawl survey index, 2) combined ME/NH and MA fall trawl survey index, and 3) model-based VTS index.

Each management trigger is defined by a certain level of decline in the indices from an established reference period. The reference value for each index is calculated as the average of the index values from 2016-2018. The percent declines in the indices are expected to approximate comparable declines in overall abundance of the stock, and relate to the abundance reference points established by the Board. The analyses conducted to develop the trigger mechanism and evaluate its performance in appropriately triggering management are described in detail in Appendix C. Figure 1 (top left panel) shows the calculated trigger index compared to the four proposed trigger levels in this document.

A second approach, which is applied in Option E, is to establish a pre-determined schedule for future changes to the management measures. This approach is proactive in nature and addresses the issue of growth overfishing by increasing the minimum legal size while the stock conditions are favorable.

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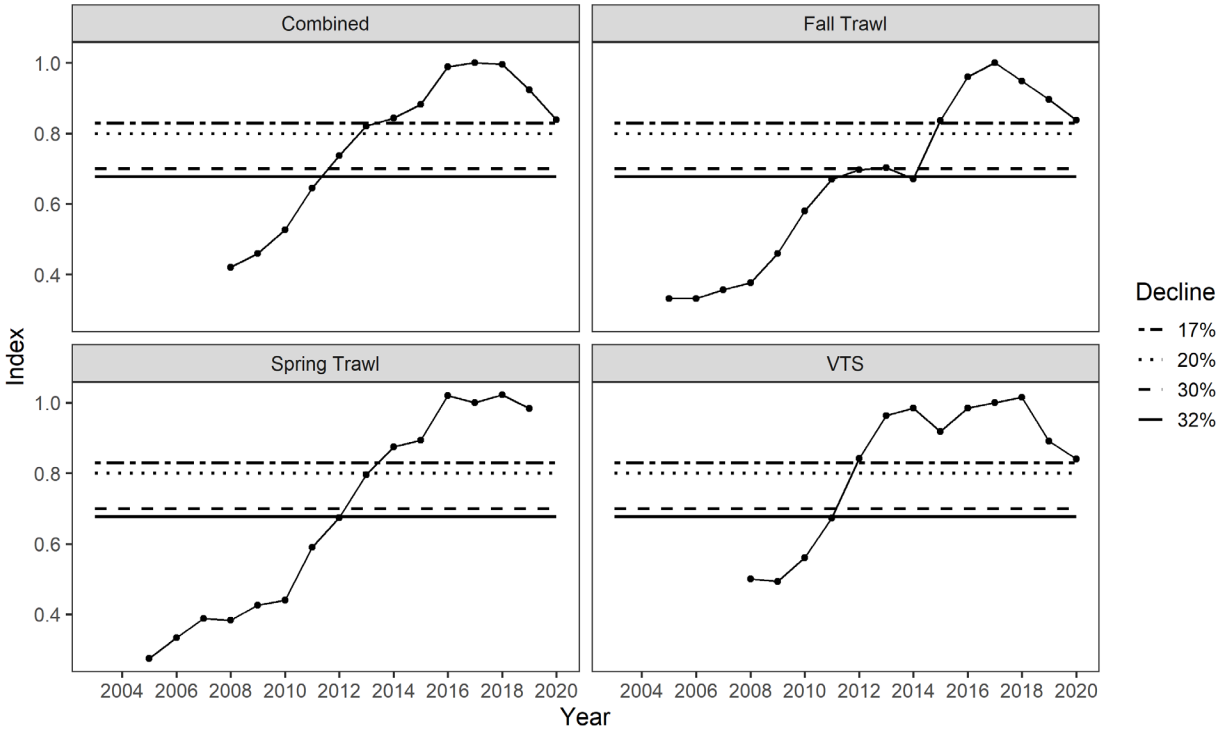
Figure 1. Scaled survey-specific indices and combined trigger index compared to proposed trigger levels. Top-left: combined trigger index which would be used to trigger changes in management measures. Top-right: moving three year average of fall trawl survey indices. Bottom-left: moving three year average of spring trawl survey indices. Bottom-right: moving three year average of VTS indices.



Option A: Status Quo
Under this option there would be no additional changes to the management measures for the LCMAs within the GOM/GBK stock beyond the option selected under Issue 1.

Option B: Gauge size changes triggered by 17% decline, and 32% decline in trigger index
This option would establish two triggers based on observed changes in indices of recruit abundance compared to the reference level of the trigger index. The first trigger point would be a change in the recruit abundance indices greater than or equal to a 17% decline from the reference abundance level (equal to the average of the index values from 2016-2018). Upon this trigger level being reached, the minimum gauge size for LCMA 1 would increase by $^{1}/_{16}$" from the current size (3¼") to $3^{5}/_{16}$" for the following fishing year. All other measures would remain status quo unless triggered by a change in recruit abundance indices. The second trigger point would be a change in the recruit abundance indices greater than or equal to a 32% decline from the reference abundance level. Upon this trigger level being reached, the minimum gauge size for LCMA 1 would increase again by $^{1}/_{16}$" from the $3^{5}/_{16}$" to $3^{3}/_{8}$" for the following fishing year, and the maximum gauge size in LCMA 3 and OCC would decrease to 6". The table below lists the management measures that would be automatically implemented when each trigger point is reached, with changes from the current measures in bold. The vent size in LCMA 1 would be adjusted once, corresponding with the final minimum gauge size

change associated with Trigger 2. The final gauge and vent size changes are expected to maintain similar retention rates of legal lobsters and protection of sub-legal sizes to the current gauge and vent sizes. The final vent size is also consistent with the current vent size used in SNE for the same minimum gauge size of $3\frac{3}{8}$".

Option B	LCMA 1	LCMA 3	OCC
Trigger 1 (17% decline)	**Minimum gauge: 3 $\frac{5}{16}$" (84 mm)** Maximum gauge: status quo, 5" Vent size: status quo	Minimum gauge: status quo, 3 $\frac{17}{32}$" (90 mm) Maximum gauge: status quo, 6 ¾" (171 mm) Vent size: status quo	Minimum gauge: status quo, 3 $\frac{3}{8}$" (86 mm) Max: status quo, 6 ¾" (171 mm) Vent size: status quo
Trigger 2 (32% decline)	**Minimum gauge: 3 $\frac{3}{8}$" (86 mm)** Maximum gauge: status quo **Vent size: 2 x 5 $\frac{3}{4}$" rectangular; 2 $\frac{5}{8}$" circular**	Minimum gauge: status quo **Maximum gauge: 6"** Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6"** Vent size: status quo

The proposed increases to the minimum gauge sizes in LCMA 1 and OCC are expected to increase the proportion of the population protected from harvest by the fishery before being able to reproduce. The proposed decreases to the maximum gauge sizes in LCMA 3 and OCC are expected to enhance resiliency by placing forever protections on a small proportion of the population, including larger lobsters of both sexes.

Option C: Gauge size changes triggered by 20% decline, and 30% decline in trigger index
This option is identical to Option B above, with the exception of the trigger levels that would result in changes to the management measures. Under this option, the first trigger point would be a change in the recruit abundance indices greater than or equal to a 20% decline from the reference abundance level (equal to the average of the index values from 2016-2018), and the second trigger point would be a change in the recruit abundance indices greater than or equal to a 30% decline from the reference abundance level. The measures that would be implemented when each trigger level is reached are shown in the table below.

Option C	LCMA 1	LCMA 3	OCC
Trigger 1 (20% decline)	**Minimum gauge: 3 $\frac{5}{16}$" (84 mm)** Maximum gauge: status quo, 5" Vent size: status quo	Minimum gauge: status quo, 3 $\frac{17}{32}$" (90 mm) Maximum gauge: status quo, 6 ¾" (171 mm) Vent size: status quo	Minimum gauge: status quo, 3 $\frac{3}{8}$" (86 mm) Max: status quo, 6 ¾" (171 mm) Vent size: status quo

Trigger 2 (30% decline)	**Minimum gauge: 3 3/8" (86 mm)** Maximum gauge: status quo **Vent size: 2 x 5 3/4" rectangular; 2 5/8" circular**	Minimum gauge: status quo **Maximum gauge: 6"** Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6"** Vent size: status quo

Option D: Gradual change in gauge sizes triggered by 17% decline in trigger index
This option considers establishing a trigger level which, upon being reached, would initiate a series of gradual changes in gauge sizes for the LCMAs in the GOM/GBK stock. The minimum gauge size would change in increments of 1/16", and the maximum gauge size would change in increments of ¼". The first change would be triggered by a change in the recruit abundance indices greater than or equal to a 17% decline from the reference abundance level (equal to the average of the index values from 2016-2018). Following this initial change, incremental changes to the gauge sizes would occur every other year. The gauge size changes that would be implemented at each step, and the final gauge sizes that would be reached for each area are shown in the table below. The vent size in LCMA 1 would be adjusted once, corresponding with the final minimum gauge size change in year 5. The final gauge and vent size changes are expected to maintain similar retention rates of legal lobsters and protection of sub-legal sizes to the current gauge and vent sizes. The final vent size is also consistent with the current vent size used in SNE for the same minimum gauge size of 3 3/8".

Option D	LCMA 1	LCMA 3	OCC
Current Measures (Year 0)	Minimum gauge: 3 ¼" Maximum gauge: 5" Vent size: status quo	Minimum gauge: 3 17/32" Maximum gauge: 6 ¾" Vent size: status quo	Minimum gauge: 3 3/8" Maximum gauge: 6 ¾" Vent size: status quo
Trigger 1 (17% decline) (Year 1)	**Minimum gauge: 3 5/16" (84 mm)** Maximum gauge: status quo Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6 ½"** Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6 ½"** Vent size: status quo
Intermediate gauge sizes (Year 3)	**Minimum gauge: 3 3/8" (86 mm)** Maximum gauge: status quo Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6 ¼"** Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6 ¼"** Vent size: status quo
Final gauge and vent sizes (Year 5)	Minimum gauge: 3 3/8" Maximum gauge: status quo **Vent size: 2 x 5 3/4" rectangular; 2 5/8" circular**	Minimum gauge: status quo **Maximum gauge: 6"** Vent size: status quo	Minimum gauge: status quo **Maximum gauge: 6"** Vent size: status quo

Option E: Scheduled changes to minimum gauge size in LCMA 1
This option considers establishing a predetermined schedule for implementing gradual changes to the minimum gauge and vent size in LCMA 1 to increase the SSB (see table below for the proposed changes). The first step increases the minimum gauge size in LCMA 1 by $^{1}/_{16}$" to $3^{5}/_{16}$" for the 2023 fishing year. In the final year of adjustments, the minimum gauge size in LCMA 1 would be increased to $3\ ^{3}/_{8}$" for the 2025 fishing year. The vent size in LCMA 1 would also be adjusted once, at the same time the final gauge size is implemented in 2025. The final gauge and vent size changes are expected to maintain similar retention rates of legal lobsters and protection of sub-legal sizes to the current gauge and vent sizes.

Option E	LCMA 1	LCMA 3	OCC
2023 fishing year measures	**Min: $3\ ^{5}/_{16}$" (84 mm)** Max: status quo Vent size: status quo	Min: status quo Max: status quo	Min: status quo Max: status quo
2025 fishing year measures	**Min: 3-3/8 (86 mm)** Max: status quo **Vent size: 2 x $5\ ^{3}/_{4}$" rectangular; $2\ ^{5}/_{8}$" circular**	Min: status quo Max: status quo	Min: status quo Max: status quo

3.3 Implementation of Management Measures in LCMA 3
Although only a portion of LCMA 3 encompasses the GOM/GBK stock (see Section 2.8 Stock Boundaries for additional information), any measures selected by the Board pertaining to LCMA 3 would apply to all LCMA 3 permit holders, including those that fish in the SNE stock.

Given the objective of this addendum is specific to protecting the GOM/GBK spawning stock, new management measures must either apply to all LCMA 3 harvesters regardless of location and stock fished (and therefore also impact the SNE fishery) or new measures would have to be stock (and geographic area) specific in order to only affect the GOM/GBK fishery. For example, an LCMA 3 harvester seeking to continue fishing in GOM/GBK would either have to declare and be permitted to fish within the GOM/GBK stock area to be held accountable, or opt to not participate in the GOM/GBK fishery to avoid the more restrictive measures. Applying the selected measures to only the GOM/GBK portion of LCMA 3 would create a significant administrative burden to appropriately divide LCMA 3 in a way to minimize impacts and issue permits and enforce measures based on this division. In addition, dividing LCMA3 creates potential for confusion and noncompliance among LCMA 3 permit holders, particularly as there are other ongoing activities in this area affecting a permit holder's fishing plans, including closures for protected species, development of other ocean uses, and the overlap with the Jonah crab fishery. To date, there have been no Commission addenda that included a recommendation that Federal permits specify the stock area in which an LCMA 3 harvester is eligible to fish.

Applying the measures across the entire management area is consistent with previous changes to the management measures in LCMA 3. When several addenda implemented reductions in

fishing capacity (Addendum XVIII) and the Area 3 conservation tax (Addendum XIX) to address the declining condition of the SNE stock, the measures were also applied to the GOM/GBK portion of LCMA 3, which was not overfished nor experiencing overfishing. Though the impacts of the proposed measures on the SNE stock and fishery have not been analyzed, it is likely that the proposed changes would have only trivial negative impacts to catch and positive impacts to SSB considering the current depleted status of the stock.

4.0 Compliance

If the existing FMP is revised by approval of this draft addendum, the American Lobster Management Board will designate dates by which states will be required to implement the provisions included in the addendum. A final implementation schedule will be identified based on the management tools chosen.

5.0 Recommendations for Actions in Federal Waters

The management of American lobster in the EEZ is the responsibility of the Secretary of Commerce through the National Marine Fisheries Service. The Atlantic States Marine Fisheries Commission recommends that the federal government promulgate all necessary regulations in Section 3.0 to implement complementary measures to those approved in this addendum.

6.0 References

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7.0 Tables and Figures

Table 1. Existing LCMA specific management measures.

Mgmt. Measure	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	OCC
Min Gauge Size	3 1/4"	3 3/8"	3 17/32"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
Vent Rect.	1 15/16 x 5 3/4"	2 x 5 3/4"	2 1/16 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"	2 x 5 3/4"
Vent Cir.	2 7/16"	2 5/8"	2 11/16"	2 5/8"	2 5/8"	2 5/8"	2 5/8"
V-notch requirement	Mandatory for all eggers	Mandatory for all legal size eggers	Mandatory for all eggers above 42°30'	Mandatory for all eggers in federal waters. No V-notching in state waters.	Mandatory for all eggers	None	None
V-notch Definition[1] (possession)	Zero Tolerance	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	1/8" with or w/out setal hairs[1]	State Permitted fisherman in state waters 1/4" without setal hairs Federal Permit holders 1/8" with or w/out setal hairs[1]
Max. Gauge (male & female)	5"	5 ¼"	6 3/4"	5 ¼"	5 ¼"	5 ¼"	State Waters none Federal Waters 6 3/4"
Season Closure				April 30-May 31[2]	February 1-March 31[3]	Sept 8-Nov 28[4]	February 1-April 30

Table 2. GOM/GBK model-free indicators for the 2020 Stock Assessment. The left table shows the GOM spawning stock abundance, the right table shows GBK spawning stock abundance.

SPAWNING STOCK ABUNDANCE Mean weight (g) per tow of mature females						
Survey	NESFC		ME/NH		MA 514	
	fall	spring	fall	spring	fall	spring
1981	175.32	400.28			502.65	430.53
1982	39.45	113.58			626.48	151.21
1983	206.03	234.21			844.76	67.08
1984	234.64	443.81			593.77	126.47
1985	499.62	2771.23			919.56	93.81
1986	267.97	502.99			231.88	112.97
1987	85.35	497.40			194.34	148.62
1988	186.56	244.92			200.58	88.14
1989	325.69	247.15			293.61	230.26
1990	216.65	516.20			1048.72	241.94
1991	247.11	430.56			335.80	165.54
1992	193.95	453.31			512.83	212.89
1993	284.34	484.30			120.59	229.72
1994	430.32	720.67			783.17	285.01
1995	464.96	390.15			520.26	171.71
1996	734.25	872.53			569.39	156.53
1997	568.34	1083.76			235.18	114.78
1998	381.81	1182.44			282.79	170.21
1999	1444.07	807.41			365.53	282.12
2000	585.66	1281.05	4430.55		533.40	236.55
2001	511.25	1498.42	2446.85	690.89	165.74	235.85
2002	1789.42	2022.04	4638.64	1436.34	324.34	175.73
2003	985.93	2343.63	3949.63	1226.05	129.67	72.99
2004	685.89	2773.35	3610.67	907.07	120.27	259.35
2005	465.35	1670.29	4805.25	1990.08	248.23	489.12
2006	681.87	1810.96	3698.94	1327.93	240.27	410.97
2007	445.78	1536.47	3163.24	1437.85	176.95	139.94
2008	805.10	1894.91	4080.36	1107.00	559.70	300.35
2009	1787.92	1864.92	6906.45	1747.30	630.52	219.83
2010	2850.60	2476.79	5793.51	1886.61	1424.75	211.52
2011	2317.94	2089.39	6169.40	2013.80	1268.44	267.51
2012	3215.29	3516.38	4174.85	2287.55	889.87	124.81
2013	3299.56	2499.71	5363.14	2007.92	1135.54	300.86
2014	4979.28	3083.09	5891.58	3010.73	768.88	382.81
2015	3553.44	3665.39	8488.62	2233.05	1947.04	418.46
2016	3692.26	5142.42	7691.01	2613.49	3712.66	1119.26
2017	3274.69	6566.80	4629.68	2530.74	2309.44	564.30
2018	2093.20	3555.09	5242.34	2005.07	2782.55	550.68
2014-2018 mean	3518.57	4402.56	6388.65	2478.62	2304.11	607.10
25th	272.06	487.57	4015.00	1355.03	242.26	149.27
median	539.79	1389.74	4638.64	1938.34	526.83	224.78
75th	1789.05	2443.50	5842.54	2178.24	878.60	296.52

SPAWNING STOCK ABUNDANCE Mean weight (g) per tow of mature females		
Survey	NESFC	
	fall	spring
1981	707.14	69.71
1982	670.07	123.96
1983	643.84	152.05
1984	397.33	45.17
1985	504.87	39.00
1986	491.96	307.05
1987	537.31	113.27
1988	695.27	307.49
1989	933.18	161.43
1990	761.64	103.62
1991	848.03	164.32
1992	817.25	213.11
1993	626.81	126.03
1994	774.61	41.77
1995	939.85	71.74
1996	1051.09	482.61
1997	754.00	62.46
1998	993.56	64.67
1999	1363.68	395.66
2000	945.69	132.57
2001	1756.38	313.41
2002	2183.80	341.90
2003	1030.19	842.92
2004	1557.16	298.95
2005	1404.20	491.00
2006	2123.43	465.72
2007	1859.53	728.26
2008	3074.33	1827.61
2009	3703.99	1336.34
2010	2120.51	1126.52
2011	4681.76	1113.11
2012	2696.38	1510.08
2013	2530.26	1369.39
2014	3012.69	1833.98
2015	3743.71	1509.13
2016	3020.98	2138.96
2017	6627.18	3749.60
2018	9630.86	725.09
2014-2018 mean	5207.09	1991.35
25th	755.91	124.47
median	1040.64	310.45
75th	2443.64	1045.56

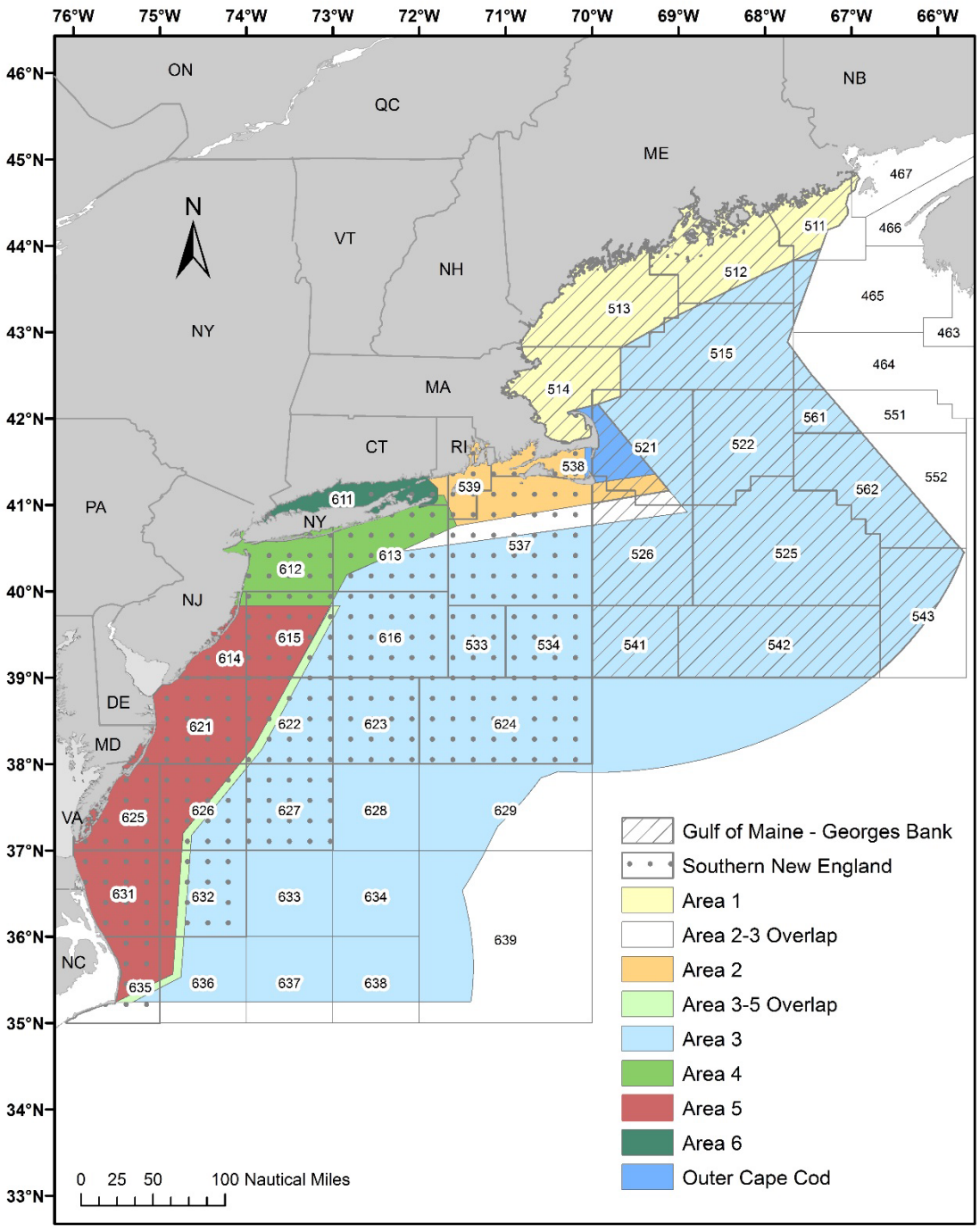

Figure 1. Lobster conservation management areas (LCMAs) in the American lobster fishery. LCMAs 1, 3, and OCC make of the majority of the GOM/GBK stock.

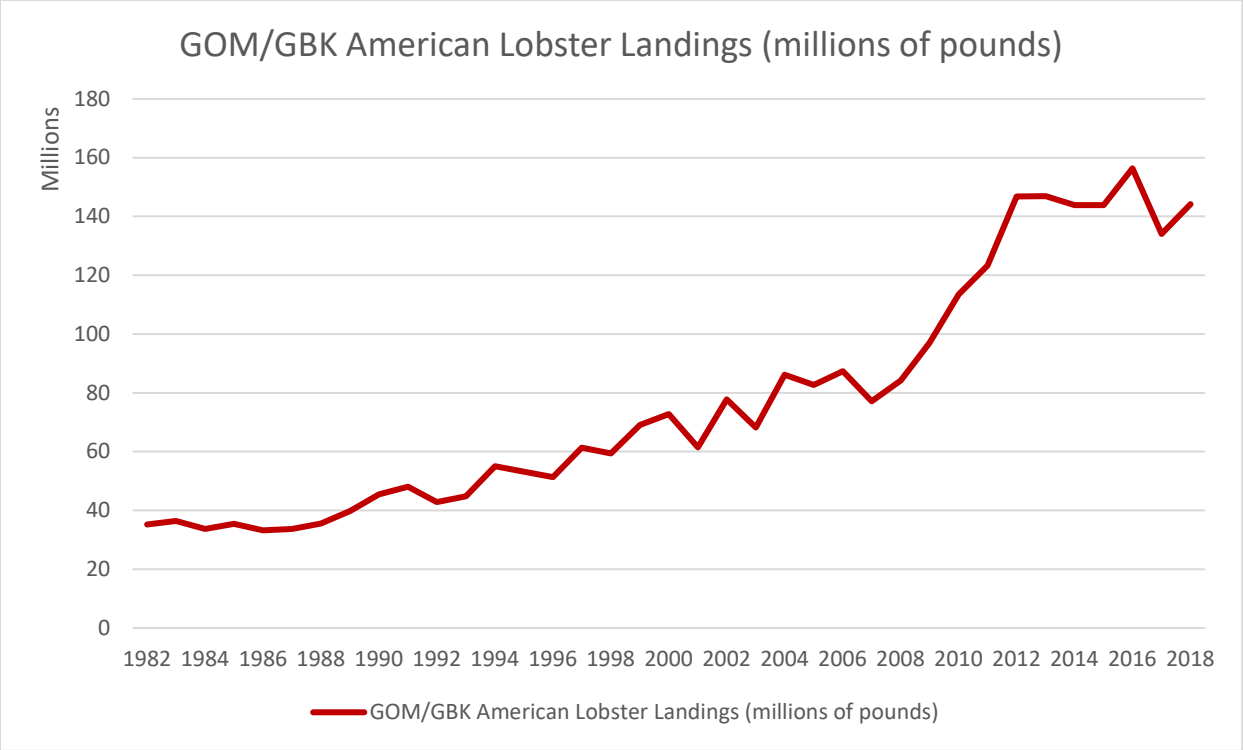

Figure 2. Landings in the GOM/GBK stock (1982-2018). Stock specific landings are updated during each benchmark stock assessment.

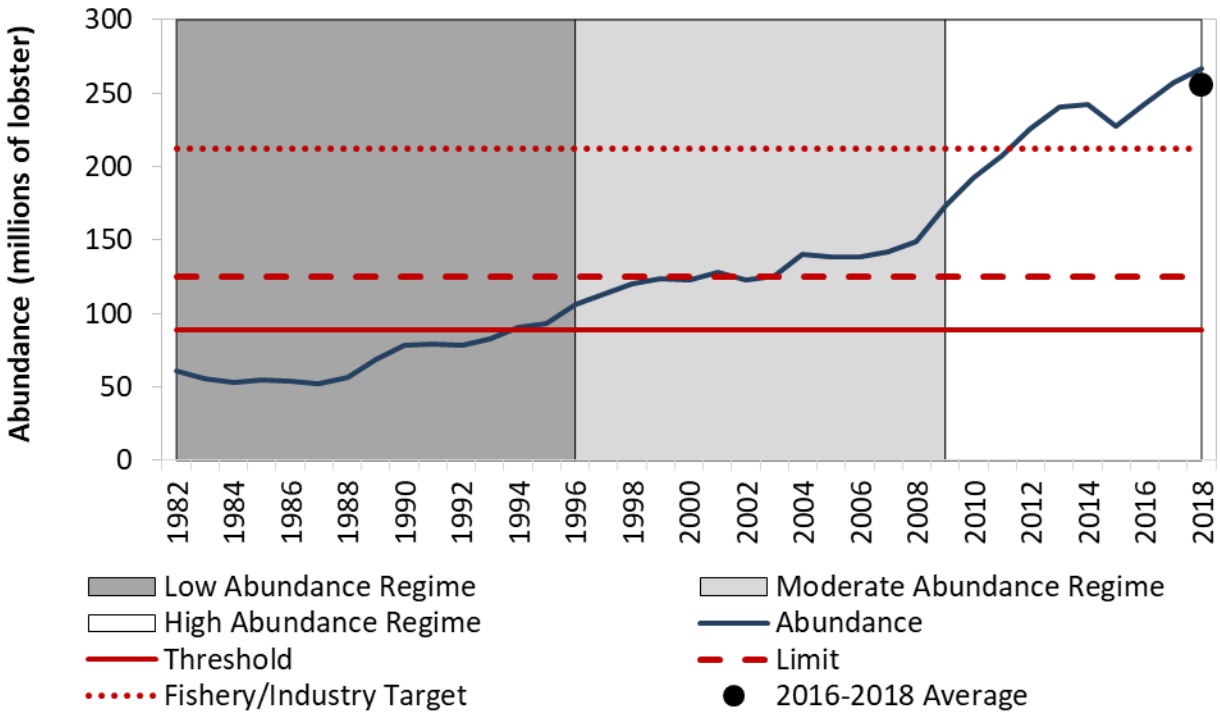

Figure 3. Stock abundance

Appendix A. 2021 Annual Data Update of American Lobster GOM/GBK Stock Indicators

Background

An annual Data Update process between American lobster stock assessments was recommended during the 2020 stock assessment to more closely monitor changes in stock abundance. The objective of this process is to present information—including any potentially concerning trends—that could support additional research or consideration of changes to management. Data sets recommended for this process were generally those that indicate exploitable lobster stock abundance conditions expected in subsequent years and include:

- YOY settlement indicators
- Trawl survey indicators, including recruit abundance (71-80 mm carapace length lobsters) and survey encounter rate
- Ventless trap survey sex-specific model-based abundance indices (53 mm+ carapace length lobsters)

For this first Data Update, data sets were updated with data since the stock assessment (i.e., 2019 and 2020). Indicator status (negative, neutral, or positive – see table below) was determined relative to the percentiles of the stock assessment time series (i.e., data set start year through 2018).

Indicator	< 25th percentile	Between 25th and 75th percentile	> 75th percentile
YOY settlement (larval or YOY)	Negative	Neutral	Positive
Trawl survey recruit abundance	Negative	Neutral	Positive
Trawl survey encounter rate	Negative	Neutral	Positive
Ventless trap survey abundance	Negative	Neutral	Positive

The five year means provided during the stock assessment (2014-2018) for terminal indicator status determinations were also updated with the new years of data. This treatment of data is consistent with the stock indicators provided during stock assessments (see Section 5 in the stock assessment report for more detail) with two important notes. First, the ventless trap survey abundance indices have not been presented as stock indicators in past assessments due to concerns that the short time series is not representative of the stock's productivity potential. These indices are included in this Data Update, along with the other data sets, specifically to show changes in stock conditions since the 2020 stock assessment. The Technical Committee recommended these indices be presented as indices by NOAA statistical area. Stratification of the ventless trap survey was designed around these statistical areas, unlike the trawl surveys, and these indices provide better spatial resolution to examine abundance trends within the stock boundary. The ventless trap survey index model developed during the stock assessment was structured to estimate stockwide indices and has not been evaluated for estimating indices by statistical area, so these indices are design-based calculations as opposed to model-based indices originally recommended for the Data Update process. Second, the covid-19 pandemic had substantial impacts on data collection in 2020 and many of the trawl surveys providing these data sets did not sample which impacts the updated five year means provided in the results. Below are the results of the data updates by sub-stock.

Results

Gulf of Maine (GOM)

- YOY conditions showed improvements, but were still not positive (Table 1 and Figure 1).

  - Updated five year means were all neutral, whereas two of five were negative during the stock assessment.
  - All 2019 and 2020 values were neutral except the MA 514 value in 2019 which was negative.
- Trawl survey recruit abundance indicators showed positive conditions similar to conditions during the stock assessment (Table 2 and Figure 2).
  - Five of six indicators were not available for 2020 due to covid-19 sampling restrictions.
  - Updated five year means were all positive, as they were during the stock assessment.
  - The only value available for 2020 (ME/NH Fall) was the first neutral annual value observed since 2015.
  - Fall indicators tended to show declining trends in the last few years of available data that were not apparent in spring indicators.
- Trawl survey encounter rates were similar to conditions during the stock assessment, but did show some deterioration from positive to neutral conditions (Table 3 and Figure 3).
  - Five of six indicators were not available for 2020 due to covid-19 sampling restrictions.
  - Three of six updated five year means were neutral, whereas only one was neutral during the stock assessment. All others were positive.
- Ventless trap survey indices showed abundance declining since the stock assessment (Table 4 and Figure 4).
  - Six of eight updated five year means were neutral, whereas only four of eight were neutral during the stock assessment. All others were positive.
  - The two positive updated five year means were for the two sexes in the northern-most statistical area (511). Despite the positive means, the 2020 values for both sexes showed strong declines to neutral conditions.
  - The female survey value in 2020 and the male value in 2019 and 2020 in the southern-most statistical area (514) were negative, the first negative values observed in the stock since 2014.

Georges Bank (GBK)

- Trawl survey recruit abundance indicators showed deteriorating conditions since the stock assessment (Table 5 and Figure 5).
  - No indicators were available for 2020 due to covid-19 sampling restrictions.
  - Updated means for one of the two indicators changed from neutral to negative. Both were neutral during the stock assessment.
  - These indicators tend to be noisier than some of the other abundance indicators, with high interannual variability and lack of discernible trends.
- Trawl survey encounter rates were positive and similar to conditions during the stock assessment (Table 6 and Figure 6).
  - No indicators were available for 2020 due to covid-19 sampling restrictions.
  - Updated means for both indicators were positive. This is unchanged from the stock assessment.

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Tables and Figures

Table 1. GOM abundance indicators: YOY indices.

YOUNG-OF-YEAR INDICES					
Survey	*ME*				*MA*
	511	*512*	*513 East*	*513 West*	*514*
1981					
1982					
1983					
1984					
1985					
1986					
1987					
1988					
1989			1.64		
1990			0.77		
1991			1.54		
1992			1.30		
1993			0.45		
1994			1.61		
1995		0.02	0.66		1.01
1996		0.05	0.47		0.00
1997		0.05	0.46		0.10
1998		0.00	0.14		0.03
1999		0.04	0.65		0.43
2000	0.00	0.10	0.13	0.17	0.07
2001	0.24	0.43	2.08	1.17	0.43
2002	0.13	0.29	1.38	0.85	1.00
2003	0.22	0.27	1.75	1.22	0.78
2004	0.18	0.36	1.75	0.67	1.13
2005	1.59	1.36	1.77	0.82	1.11
2006	0.58	1.13	0.84	0.82	0.46
2007	0.84	1.34	2.01	1.27	1.38
2008	0.42	0.83	1.08	0.97	0.33
2009	0.69	0.48	1.25	0.45	0.17
2010	0.28	0.72	0.80	0.47	0.50
2011	0.41	1.10	2.33	0.67	0.64
2012	0.53	0.73	1.06	0.22	0.09
2013	0.10	0.20	0.48	0.12	0.00
2014	0.16	0.43	0.83	0.33	0.11
2015	0.11	0.22	0.43	0.05	0.00
2016	0.13	0.21	0.47	0.12	0.08
2017	0.16	0.36	0.70	0.20	0.08
2018	0.27	0.32	0.71	0.20	0.03
2014-2018 mean	0.17	0.31	0.63	0.18	0.06
2019	0.42	0.61	1.03	0.35	0.06
2020	0.29	0.49	1.17	0.25	0.19
2016-2020 mean	0.25	0.40	0.82	0.23	0.09
25th	0.15	0.18	0.52	0.20	0.08
median	0.24	0.34	0.84	0.47	0.25
75th	0.48	0.72	1.59	0.84	0.67

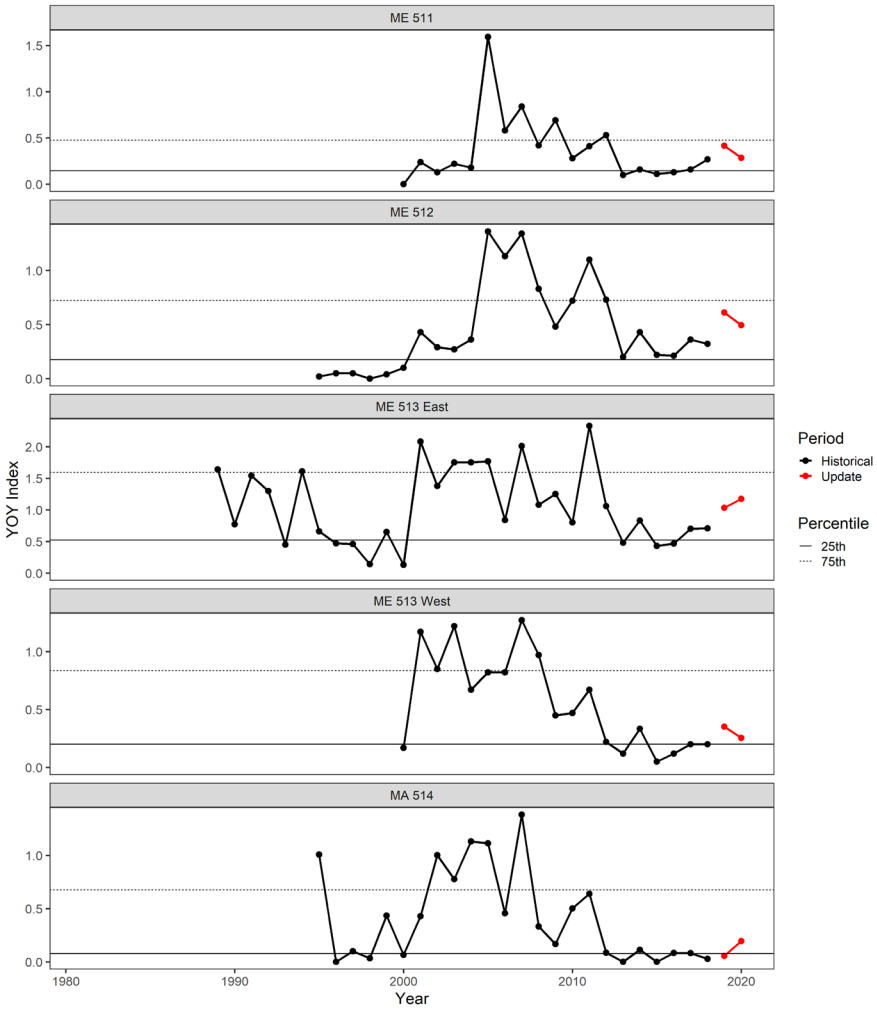

Figure 1. GOM abundance indicators: YOY indices.

Table 2. GOM abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)						
Abundance of lobsters 71 - 80 mm CL (sexes combined)						
Survey	*NEFSC*		*ME/NH*		*MA 514*	
	Spring	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*
1981	0.13	0.06			6.43	4.80
1982	0.29	0.42			2.77	3.89
1983	0.28	0.90			1.77	9.71
1984	0.20	0.31			2.17	6.13
1985	0.14	1.41			4.44	9.50
1986	0.27	1.29			2.99	3.83
1987	0.67	0.57			2.42	1.17
1988	0.67	1.21			2.50	4.14
1989	0.00	1.61			4.45	7.53
1990	0.27	1.76			6.12	15.36
1991	0.55	1.41			2.74	7.55
1992	0.50	1.37			4.32	9.01
1993	0.25	0.86			5.14	3.20
1994	0.15	2.75			7.54	13.87
1995	1.45	1.44			4.55	12.18
1996	0.76	4.59			3.11	11.96
1997	2.02	2.12			4.59	6.48
1998	1.59	2.16			4.52	7.54
1999	1.51	3.01			4.25	8.73
2000	4.64	3.01		24.09	4.25	8.89
2001	1.05	1.51	9.28	17.81	4.31	1.59
2002	1.08	1.91	22.00	22.41	3.41	5.00
2003	1.41	0.36	10.65	18.32	1.96	0.67
2004	0.84	2.26	7.55	12.29	2.47	1.30
2005	0.34	0.87	18.51	25.90	4.40	2.12
2006	2.17	1.27	18.07	18.30	6.09	5.29
2007	1.62	0.64	15.91	16.82	0.77	1.58
2008	0.99	2.41	17.88	31.61	2.54	6.14
2009	4.88	4.90	24.72	32.67	3.20	8.91
2010	2.98	4.53	17.66	37.35	2.20	9.53
2011	10.27	11.83	39.25	46.09	5.24	14.98
2012	11.25	6.74	36.55	37.12	3.03	11.35
2013	10.93	18.12	34.50	37.86	4.82	12.16
2014	11.66	21.54	50.79	41.95	3.35	7.05
2015	14.44	17.89	38.51	67.99	7.09	17.86
2016	13.25	22.54	50.83	60.07	13.58	17.41
2017	15.74		48.42	48.13	7.85	13.63
2018	14.15	15.87	42.77	55.84	5.25	25.62
2014-2018 mean	13.84	19.46	46.27	54.80	7.43	16.31
2019	16.69	7.62	46.37	50.85	10.78	14.61
2020				34.65		
2016-2020 mean	14.95	15.34	47.10	49.91	9.37	17.82
25th	0.30	1.21	17.72	20.36	2.75	4.30
median	1.07	1.76	23.36	32.67	4.28	7.55
75th	4.23	4.53	39.07	44.02	5.06	11.81

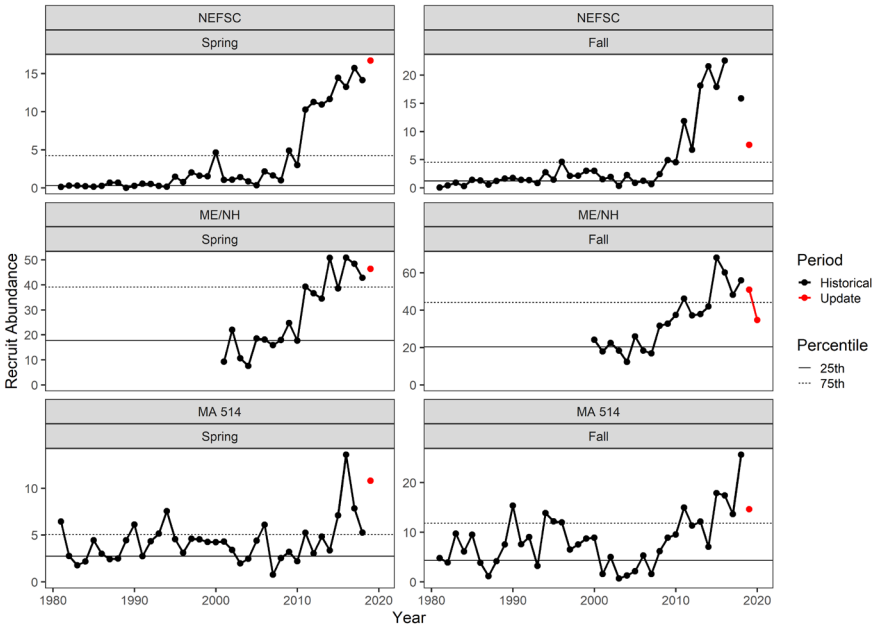

Figure 2. GOM abundance indicators: trawl survey recruit abundance.

Table 3. GOM abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE						
Proportion of postive tows						
Survey	*NEFSC*		*ME/NH*		*MA 514*	
	Spring	*Fall*	*Spring*	*Fall*	*Spring*	*Fall*
1981	0.44	0.25			0.86	0.73
1982	0.34	0.18			0.50	0.70
1983	0.26	0.33			0.76	0.76
1984	0.28	0.36			0.76	0.76
1985	0.38	0.49			0.71	0.67
1986	0.33	0.47			0.68	0.83
1987	0.43	0.24			0.85	0.54
1988	0.31	0.30			0.76	0.58
1989	0.19	0.35			0.78	0.95
1990	0.41	0.32			0.86	0.95
1991	0.42	0.32			0.87	0.94
1992	0.40	0.24			0.93	0.77
1993	0.41	0.39			0.97	0.82
1994	0.45	0.40			1.00	0.93
1995	0.41	0.37			0.93	0.93
1996	0.54	0.54			0.91	0.96
1997	0.64	0.35			0.93	0.86
1998	0.52	0.40			0.76	0.69
1999	0.51	0.42			0.73	0.91
2000	0.63	0.42		0.94	0.93	0.98
2001	0.57	0.40	0.88	0.86	0.93	0.72
2002	0.75	0.53	0.94	0.95	0.91	0.73
2003	0.69	0.44	0.92	0.85	0.82	0.55
2004	0.87	0.31	0.89	0.86	0.84	0.56
2005	0.77	0.36	0.95	0.91	0.95	0.67
2006	0.72	0.60	0.93	0.93	0.91	0.88
2007	0.72	0.43	0.97	0.85	0.51	0.54
2008	0.84	0.49	0.92	0.86	0.83	0.75
2009	0.82	0.63	0.98	0.92	0.89	0.87
2010	0.85	0.75	0.98	0.96	0.87	0.98
2011	0.83	0.74	0.99	0.96	0.89	0.85
2012	0.86	0.78	0.98	0.98	0.91	0.95
2013	0.87	0.73	1.00	0.93	0.96	0.96
2014	0.90	0.71	1.00	0.99	0.79	0.96
2015	0.93	0.69	1.00	0.96	0.98	0.95
2016	0.94	0.75	1.00	0.96	0.96	0.97
2017	0.86		0.99	0.94	0.84	0.98
2018	0.86	0.71	0.98	0.96	0.84	0.90
2014-2018 mean	0.90	0.72	0.99	0.96	0.88	0.95
2019	0.83	0.71	0.99	0.95	0.85	0.93
2020				0.96		
2016-2020 mean	0.87	0.72	0.99	0.95	0.87	0.94
25th	0.41	0.35	0.93	0.89	0.78	0.72
median	0.60	0.42	0.98	0.94	0.86	0.86
75th	0.84	0.60	0.99	0.96	0.93	0.95

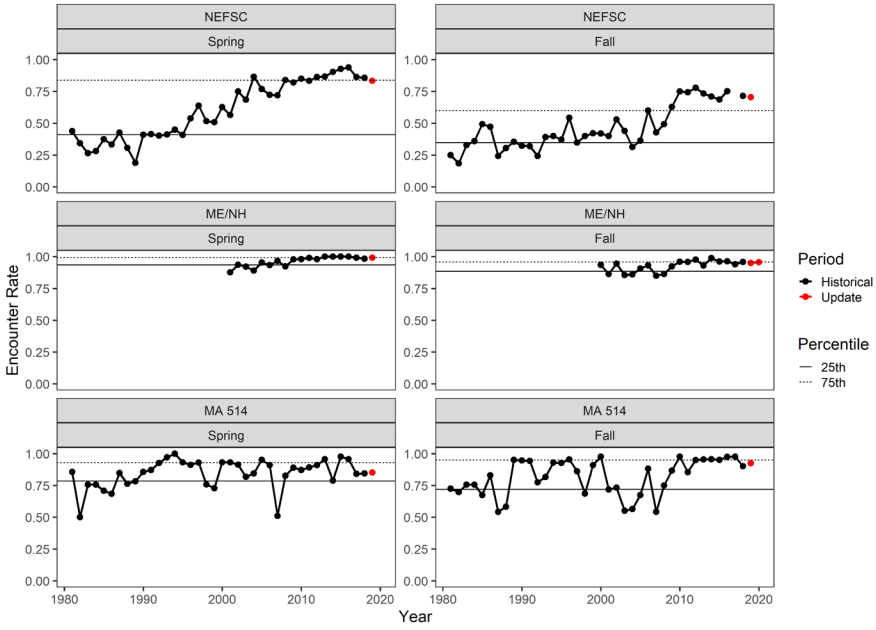

Figure 3. GOM abundance indicators: trawl survey encounter rate.

Table 4. GOM abundance indicators: ventless trap survey abundance.

VENTLESS TRAP ABUNDANCE								
Abundance of lobsters ≥ 53 mm CL								
Survey	511		512		513		514	
	Female	Male	Female	Male	Female	Male	Female	Male
1981								
1982								
1983								
1984								
1985								
1986								
1987								
1988								
1989								
1990								
1991								
1992								
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000								
2001								
2002								
2003								
2004								
2005								
2006	7.65	5.34	6.87	5.38	5.73	4.37	3.10	3.40
2007	5.06	3.91	3.95	3.83	5.82	4.35	1.85	1.84
2008	4.94	3.87	5.78	4.95	5.78	4.97	2.77	2.51
2009	3.60	2.65	6.31	5.35	6.89	5.53	2.72	2.66
2010	5.66	3.90	6.95	5.69	6.61	5.27	2.49	2.22
2011	8.70	6.52	11.10	8.48	7.32	5.60	3.47	2.60
2012	10.95	7.64	12.06	9.47	11.40	7.72	5.21	4.52
2013	11.14	7.95	11.87	8.64	9.36	6.49		
2014	10.38	6.63	11.92	8.04	7.74	4.96	3.15	2.35
2015	8.47	4.63	10.39	7.70	8.57	5.50	4.01	3.16
2016	14.59	9.15	14.34	10.75	10.78	7.56	4.79	3.56
2017	11.69	7.07	11.61	8.52	8.46	5.56	3.38	2.45
2018	15.10	9.43	11.26	8.23	9.57	6.37	3.47	2.43
2014-2018 mean	12.05	7.38	11.90	8.65	9.02	5.99	3.76	2.79
2019	12.93	8.27	8.23	5.96	8.59	5.20	2.85	1.93
2020	7.65	5.44	7.95	5.95	9.29	6.61	2.50	1.69
2016-2020 mean	12.39	7.87	10.68	7.88	9.34	6.26	3.40	2.41
25th	5.66	3.91	6.87	5.38	6.61	4.97	2.76	2.41
median	8.70	6.52	11.10	8.04	7.74	5.53	3.27	2.56
75th	11.14	7.64	11.87	8.52	9.36	6.37	3.61	3.22

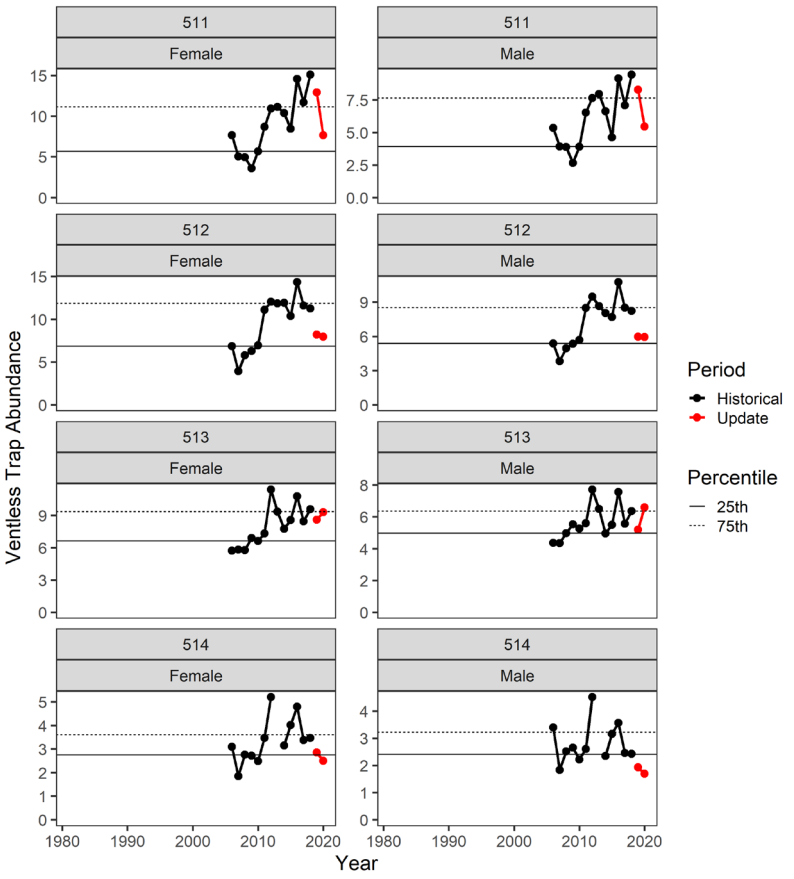

Figure 4. GOM abundance indicators: ventless trap survey abundance.

Table 5. GBK abundance indicators: trawl survey recruit abundance.

RECRUIT ABUNDANCE (SURVEY)		
Abundance of lobsters 71 - 80 mm CL (sexes combined)		
Survey	*NEFSC*	
	Spring	*Fall*
1981	0.08	0.28
1982	0.18	0.41
1983	0.16	0.33
1984	0.09	0.40
1985	0.19	0.26
1986	0.57	0.64
1987	0.43	0.54
1988	0.09	0.36
1989	0.04	0.23
1990	0.44	0.47
1991	0.08	0.34
1992	0.13	0.62
1993	0.50	0.22
1994	0.01	0.13
1995	0.03	0.14
1996	0.00	0.35
1997	0.06	0.90
1998	0.01	0.33
1999	0.07	0.29
2000	0.27	0.33
2001	0.47	0.45
2002	0.06	0.56
2003	0.29	0.16
2004	0.04	0.18
2005	0.09	0.13
2006	0.16	0.12
2007	0.03	0.23
2008	0.05	0.17
2009	0.30	0.33
2010	0.30	0.15
2011	0.09	0.35
2012	0.15	0.17
2013	0.14	0.24
2014	0.16	0.21
2015	0.06	0.44
2016	0.15	0.13
2017	0.35	
2018	0.04	0.22
2014-2018 mean	0.15	0.25
2019	0.16	0.13
2020		
2016-2020 mean	0.17	0.16

25th	0.06	0.18
median	0.11	0.29
75th	0.25	0.40

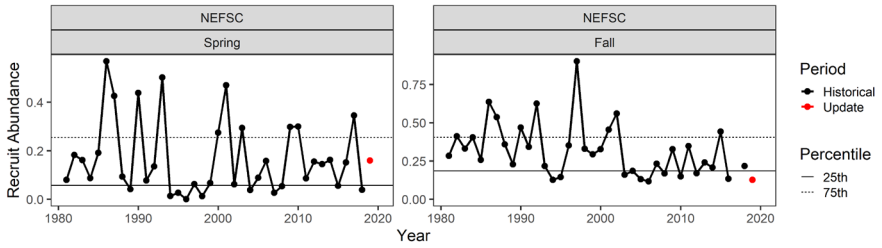

Figure 5. GBK abundance indicators: trawl survey recruit abundance.

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Table 6. GBK abundance indicators: trawl survey encounter rate.

SURVEY LOBSTER ENCOUNTER RATE		
Proportion of postive tows		
Survey	*NEFSC*	
	Spring	*Fall*
1981	0.23	0.52
1982	0.23	0.43
1983	0.18	0.38
1984	0.12	0.34
1985	0.19	0.35
1986	0.27	0.36
1987	0.18	0.35
1988	0.34	0.40
1989	0.14	0.38
1990	0.18	0.44
1991	0.19	0.45
1992	0.26	0.49
1993	0.22	0.36
1994	0.11	0.38
1995	0.14	0.42
1996	0.16	0.40
1997	0.10	0.48
1998	0.10	0.40
1999	0.16	0.58
2000	0.23	0.41
2001	0.23	0.49
2002	0.29	0.55
2003	0.27	0.44
2004	0.18	0.53
2005	0.16	0.58
2006	0.24	0.54
2007	0.26	0.46
2008	0.29	0.55
2009	0.34	0.54
2010	0.38	0.62
2011	0.30	0.69
2012	0.35	0.57
2013	0.33	0.65
2014	0.37	0.61
2015	0.27	0.59
2016	0.45	0.55
2017	0.40	
2018	0.29	0.59
2014-2018 mean	0.36	0.58
2019	0.36	0.57
2020		
2016-2020 mean	0.37	0.57

25th	0.18	0.40
median	0.23	0.48
75th	0.29	0.55

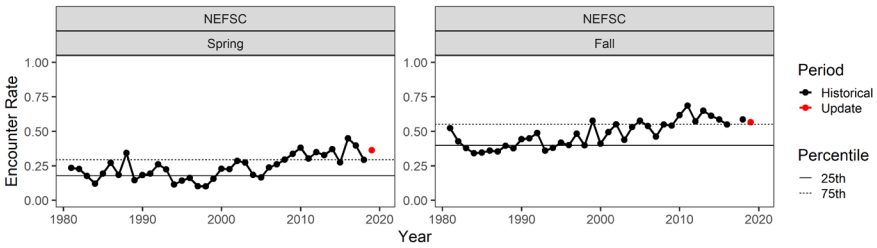

Figure 6. GBK abundance indicators: trawl survey encounter rate.

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Appendix B. Analysis of alternate minimum and maximum sizes as management options for Lobster Management Areas in the Gulf of Maine. Report to the ASFMC Lobster TC and PDT.

Burton Shank and Jeff Kipp

Sept. 9, 2021

The Lobster TC provided analysis to the ASFMC Lobster Board ahead of the Spring 2021 meeting with estimated outcomes to the Gulf of Maine / Georges Bank lobster fishery given the implementation of alternative management measures (min and max gauge size), including changes to total weight of lobsters landed, number of lobsters landed, Spawning Stock Biomass (SSB) and Exploitation. The analysis included an attempt to examine how fisheries in different LCMAs would be affected though the population simulation model was not re-parameterized for each LCMA. In discussions, we concluded that the simulations for LCMA1 were probably reasonably accurate because:

1. Many of the inputs for the simulations are taken from the 2020 stock assessment. Because the vast majority of the landings come from LCMA1, the stock assessment parameters are essentially already tuned to the parameters of the LCMA1 fishery.
2. LCMA1 is primarily a recruitment-based fishery in inshore or nearshore habitats and, therefore, likely to be representative of the full stock model.

However, there was concern that the offshore fishery in Lobster Management Area 3 was considerably different from the full stock model and, thus, may have inaccurate outcomes due to a mis-parameterized simulation model. The parameters for the Outer Cape Cod fishery are probably somewhere between LCMA1 and LCMA3 as it consists of both a resident lobster population and a seasonally-migrating population, moving between inshore and offshore habitats.

To address these differences between the LCMAs in population simulations, we performed the following:

1. For the LCMA1 simulations, we used the stock assessment parameters as the inputs.
2. For LCMA3 simulations, we attempted to manually tune the population simulation model to match the catch characteristics of the LCMA3 fishery, under the assumption that a simulation model that could reproduce the catch characteristics of the fishery may more accurately project changes in the fishery given changing management measures.
3. For the OCC simulations, we ran two sets of simulations, using the input parameters for both LCMA1 and LCMA3 under the assumption that this bounds the dynamics we might see in OCC.

For all simulations, populations were initiated with zero abundance and run for 50 years with constant recruitment to allow population abundances and length comps to reach equilibrium.

The equilibrium populations were then compared across the various legal selectivity scenarios to determine the effect of these different management alternatives.

For a simple, model-free analysis of the fishery catch composition for LCMA1 and LCMA3, we calculated the cumulative proportion of catch by weight at length by converting catch-at-size to weight-at-size and weighting for unequal sex ratios and seasonality of landings.

LCMA1 Simulations

The input parameters for the LCMA1 simulations were primarily drawn from the 2020 stock assessment. This includes the recruitment seasonality, length composition and sex ratio, growth model, gear, legal and conservation selectivities and mean estimated fishing mortality from the terminal years.

LCMA1 Results

The cumulative catch weight-by-length curve indicates that the mean size of lobsters landed in the LCMA1 fishery is within the smallest legal size bin (83-91mm, Figure 1). Nearly 90% of the catch are below 100mm CL and only about 2% of the catch are over 120mm CL. This supports the perspective that LCMA1 landings involve a narrow range of small lobster sizes and is primarily a recruitment-dependent fishery.

Increasing the minimum legal size is projected to decrease the total number of lobsters landed but result in a net increase in yield-per-recruit (YPR) and total weight of catch (Table 1 and 2). However, the magnitude of these changes are small enough that they may not be detectable in the actual fishery given inter-annual variations in recruitment and catch. Changing the maximum legal size is projected to have very little effect on either catch number or weight.

Note that these are purely yield-per-recruit simulations so recruitment subsidies from increased SSB are not assumed in the calculations of catch weight or number so, thus, probably represent a conservative, lower bound. A less conservative upper bound would be the product of change in YPR and the change in SSB.

Increasing the minimum legal size is projected to result in large increases in SSB (Table 3). Minimum legal sizes that approach or exceed the size of maturity produce increasing returns on SSB as this allows a much larger portion of the population to reproduce at least once. Thus, increasing minimum legal size to 88mm is projected to result in a near doubling in SSB. Increasing maximum size can result in a large decrease SSB, particularly as the minimum legal size increases and more of the population survives to reach the current maximum legal size.

Increasing legal size would result in moderate to large decreases in exploitation as more of the stock becomes protected (Table 4) with exploitation decreasing by nearly 30% at a minimum legal size of 88mm. As with catch weight and number, changing maximum legal size has little effect on exploitation rates as these sizes represent a very small portion of the LCMA1 population.

LCMA3 Simulations

We first analyzed the port and sea sampling data provided for the 2020 benchmark assessment but constrained to LCMA3 to estimate fishery characteristics, including catch size composition, catch sex ratio, and conservation selectivity (discarding due to egg-bearing or V-notch status).

We then specified the conservation selectivity from the biosamples and current legal selectivity appropriate for LCMA3 in the population simulation model and iteratively tuned the following parameters:

1. Fully-selected fishing mortality, assumed constant across seasons
2. Recruitment sex ratio
3. Recruitment size composition for each sex.

For a given tuning run, the population simulation model was provided an updated set of input parameters and projected forward 25 year to reach equilibrium. The resulting catch composition from the model run was then compared to the average catch composition from the last five years of the biosamples to determine accuracy of the simulation models. Comparisons were conducted both visually for obvious lack-of-fit and by correlating the simulated and observed catch compositions. Correlations were performed on both the catch proportions and logit-transformed catch proportions, the latter to place more emphasis on length compositions that occur in smaller proportions.

Once the model was tuned to perform as well as might be expected, given minor, seasonal lack-of-fit that could not be easily resolved, the simulation model was then run with the tuned parameters for all combinations of proposed minimum and maximum size limits. We then summarized the outputs from the different simulations as values relative to the current minimum and maximum size regulations in place for LCMA3.

Results

The cumulative catch weight-by-length curve indicates that 110 mm carapace length is the approximate mean size of lobsters landed in the LCMA3 fishery (Figure 1). However, the cumulative curve is nearly linear from 90mm through 130mm, indicating lobsters across this size range are about equally important to the landings of this fishery. Lobsters less than about 92mm constitute the lower 10% quantile of landings while lobsters greater than 136mm constitute the upper 10% quantile with lower and upper quartiles around 98mm and 123mm respectively. This suggests that LCMA3 landings include a broad range of lobster sizes, unlike typical inshore lobster fisheries that are primarily recruitment-driven.

The final tuned parameters included a quarterly fishing mortality of 0.1 (0.4 total annual mortality) and a 70:30 female to male recruitment sex ratio. The tuned recruit length compositions are bi-modal for both sexes, indicating recruitment to the fishery comes both from growth of smaller individual within the LCMA and immigration from outside the LCMA (Figure 2). With these compositions, about 80% of male recruitment and 30% of female

recruitment is attributed to growth with the remainder of new individuals coming from immigration from outside the LCMA.

Fitting the simulation length comps by manually tuning these parameters resulted in reasonably good fits to the observed length compositions (Figures 3, 4, and 5). Some lack-of-fit is still evident within seasons but this lack-of-fit is generally contrary to the lack-of-fit observed in other seasons, making it difficult to further improve the fit with just the parameters of interest. Correlations between observed and predicted compositions were 0.981 for simple proportions and 0.97 for logit-transformed proportions, suggesting both high and low proportion values for observed length comps are well matched by the simulation and we deemed this adequate to a basis to examine alternative management options.

Decreasing either the minimum or maximum legal size is projected to decrease total weight of catch (Table 5). However, contrary to the previous analysis for the full stock or inshore LCMA's, changes to the maximum size have much larger impacts on landings than changes to the minimum size, particularly once the maximum size drops to between 140 and 150mm. Decreasing the maximum size from 171mm to 127mm is projected to decreases landings by about 30% while decreasing the minimum size from 90mm to 83mm is only projected to decrease landings by a couple of percent.

Decreasing the minimum legal size is projected to marginally increase the number of lobsters being landed but decreasing the maximum size marginally to moderately decreases the number of lobsters landed, producing neutral effects for many of the management options explored here (Table 6).

Decreasing maximum legal size from current regulations is projected to increase SSB, possibly significantly, but decreasing minimum sizes would decrease SSB (Table 7). The greatest observed increase would be from holding the minimum size at current values but maximally decreasing maximum sizes, essentially narrowing the length range where lobsters are legal, which is estimated to result in a 64% increase in spawning stock. As above, changes to maximum size have bigger effects on SSB than changes to minimum sizes.

Decreasing maximum sizes would result in a decrease in exploitation but decreasing minimum sizes would increase exploitation (Table 8), countering each other and paralleling patterns observed for SSB. Because the calculation of exploitation is based on numbers of individuals rather than mass, decreasing minimum sizes have larger effects on exploitation than observed above for landings or SSB. Again, changes in exploitation increase rapidly with decreasing maximum sizes once the alternate maximum gauge size reaches a size that includes a significant portion of the catch for the LCMA.

OCC Simulations

Due to time and data constraints, we did not attempt to tune a simulation model for OCC. Rather, we assume that population dynamics and fishing mortality rates in OCC are bounded by

the conditions observed in the LCMA1 and LCMA3 fisheries. Thus, we ran simulations for OCC using the OCC legal size range with both the LCMA1 and LCMA3 parameterizations and present both sets of results with the understanding that results for OCC should fall between these extremes.

In general, outputs (catch weight, number, SSB and exploitation) show different responses for the LCMA1 than the LCMA3 parameterizations. LCMA1 parameterizations tend to produce simulations that are very sensitive to changes in minimum legal size but not maximum legal size, while simulations with LCMA3 parameterization only slightly sensitive to changes in minimum legal size but moderately to highly sensitive to changes in maximum legal size.

Total weight of landings is projected to be sensitive to changing minimum legal size with the LCMA1 parameterization but be insensitive with the LCMA3 parameterization (Table 9 A & B). With the LCMA1 parameterization, decreasing minimum size is projected to decrease landings by ~5% while increasing legal size to 88mm would increase landings by 8%. Conversely, landings weight is insensitive to changes in maximum legal size for the LCMA1 parameterization but sensitive to changes for the LCMA3 parameterization.

Total catch number simulations shows trend similar to catch weight with the LCMA1 parameterization being sensitive to changes in minimum size and the LCMA3 parameterization sensitive to changes in maximum size (Figure 10 A & B). The pattern otherwise holds that larger minimum legal sizes result in lower catch numbers.

For SSB, the LCMA1 parameterization is responsive to both changes in minimum and maximum legal size while the LCMA3 parameterization is more sensitive to changes in maximum size (Figure 11 A & B). For example, decreasing minimum legal size to 127mm would increase SSB by between 24% and 65% for the LCMA1 and LCMA3 parameterizations, respectively. The ranges of minimum size tested in simulations produce changes in SSB in the rage of -26% to +76% for the LCMA1 parameterization and -1% to +6.8% for the LCMA3 parameterization.

Decreasing minimum legal size produce increases moderate to small increases in exploitation (16% to 4% for LCMA1 and LCMA3 parameterizations, respectively, Figure 12 A & B). Either increasing minimum legal size or decreasing maximum legal size decrease serve to decrease exploitation with a maximum decrease of ~39% observed at the largest minimum and smallest maximum size and the LCMA3 parameterization.

Discussion

There is a stark difference in cumulative landings by size between LCMA1 and LCMA3. LCMA1 is clearly a recruitment-based fishery that would be highly sensitive to variations in recruitment. The LCMA3 fishery, in contrast, is fishing a broad range of lobster sizes, and therefore ages, and is thus somewhat buffered from interannual variation in recruitment dynamics.

The LCMA1 fishery is highly sensitive to changes in minimum legal size because of high exploitation rates on newly-recruited lobsters. The range of minimum sizes tested in

simulations encompasses size range that represents the majority of landings for the inshore / nearshore fishery. Thus, changes to minimum size would dramatically change the length composition of the catch. Increases in the minimum size will have temporarily but significantly depress landing in the years immediately after are implemented but the benefits to SSB would be similarly immediate. Increasing the minimum legal size can add to the resilience of the fishery by marginally increasing the spread of effort across multiple year classes and significantly increasing SSB and egg production which may buffer the effects in any future change in productivity.

Generally, decreasing maximum gauge sizes have larger effects for LCMA3 both relative to decreasing minimum sizes in LCMA3 or for changing maximum sizes for the other LCMAs. This matches the conclusions based on the cumulative catch curve (Figure 1) that showed that the LCMA3 fishery lands a much broader size range of individuals than the inshore LCMAs, with the upper portion of length compositions overlapping proposed alternative maximum sizes.

This analysis for LCMA3 matches previous analysis conducted for inshore LCMAs, finding that larger minimum legal sizes had positive effects across population parameters including higher catch weights, increased SSB and decreased exploitation. However, decreasing maximum legal sizes has mixed effects, decreasing immediate landings but increasing SSB, potentially by a larger margin. Because recruitment subsidies from increasing SSB are not included in this simulation, the net effect of these two opposing changes are uncertain. While decreasing maximum legal sizes would decrease immediate landings and make a larger portion of the population inaccessible to the fishery permanently (i.e. excluded lobsters won't grow into a legal size in the future), this increase in SSB may eventually produce a recruitment subsidy that could offset this loss of catch. The net effect would depend on multiple factors including the connectivity of the added SSB to larval settlement habitat and the migration patterns of these large females into adjacent habitats including inshore Gulf of Maine and international waters.

Finally, it is important to note the importance of large female lobsters that dominate the landings for much of LCMA3. This both highlights the partial dependence of this fishery on immigration from adjacent habitats and adds uncertainty to this analysis. The growth and molt cycling of such large females is poorly understood and are not particularly well informed in the current growth model. Thus, the tuned parameters may be biased by mis-specification of the growth model and results in this analysis may be sensitive to the growth model used in some cases. Interpretation of tuned parameters and confidence in the precise results of this analysis should be taken with some caution. However, the general patterns of changing catch, SSB and exploitation with changes in minimum and maximum legal sizes is consistent across this and previous analyses so may be treated with higher confidence.

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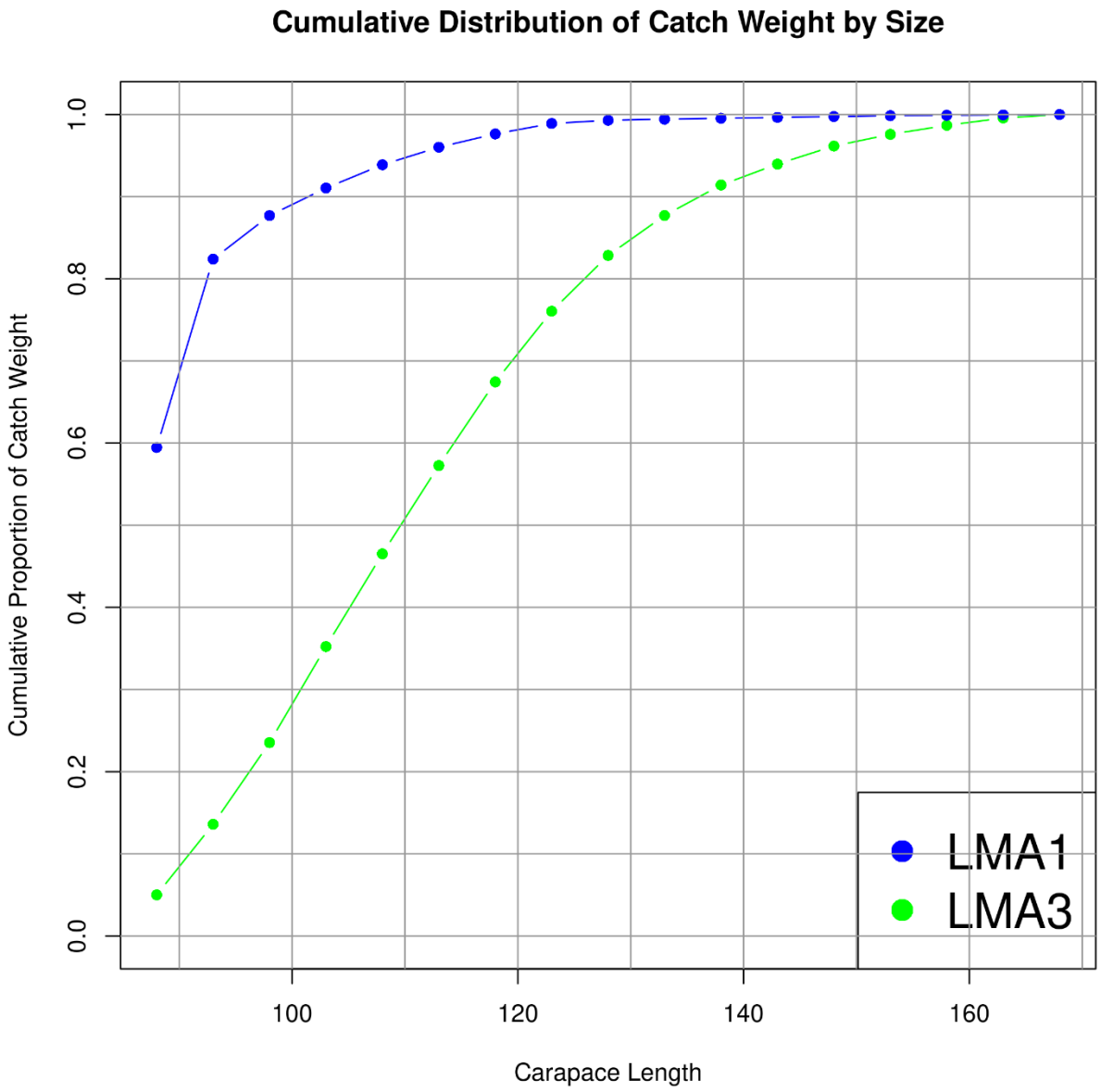

Figure 1. Cumulative proportion of catch weight by carapace length. To interpret, lobsters less than 90mm constitute approximately 8% of landings, while lobsters less than 130mm constitute approximately 85% of landings.

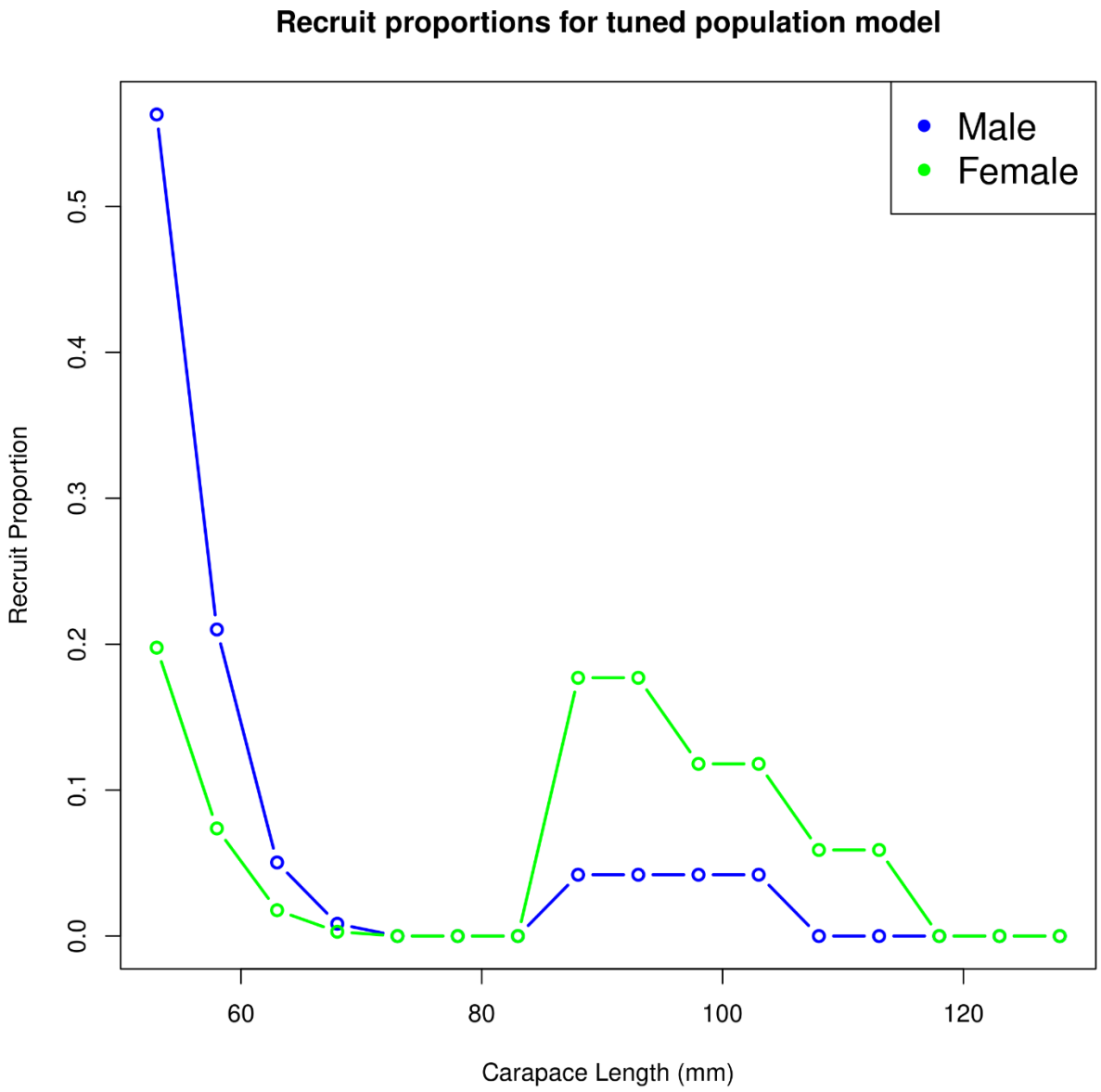

Figure 2. Tuned recruitment length compositions for the fitted model. The bi-modal length distribution suggests a combination of recruitment by growth (individuals <70mm) and migration (individuals >85 mm) with males primarily recruiting by growth and females primarily recruiting by migration as mature adults.

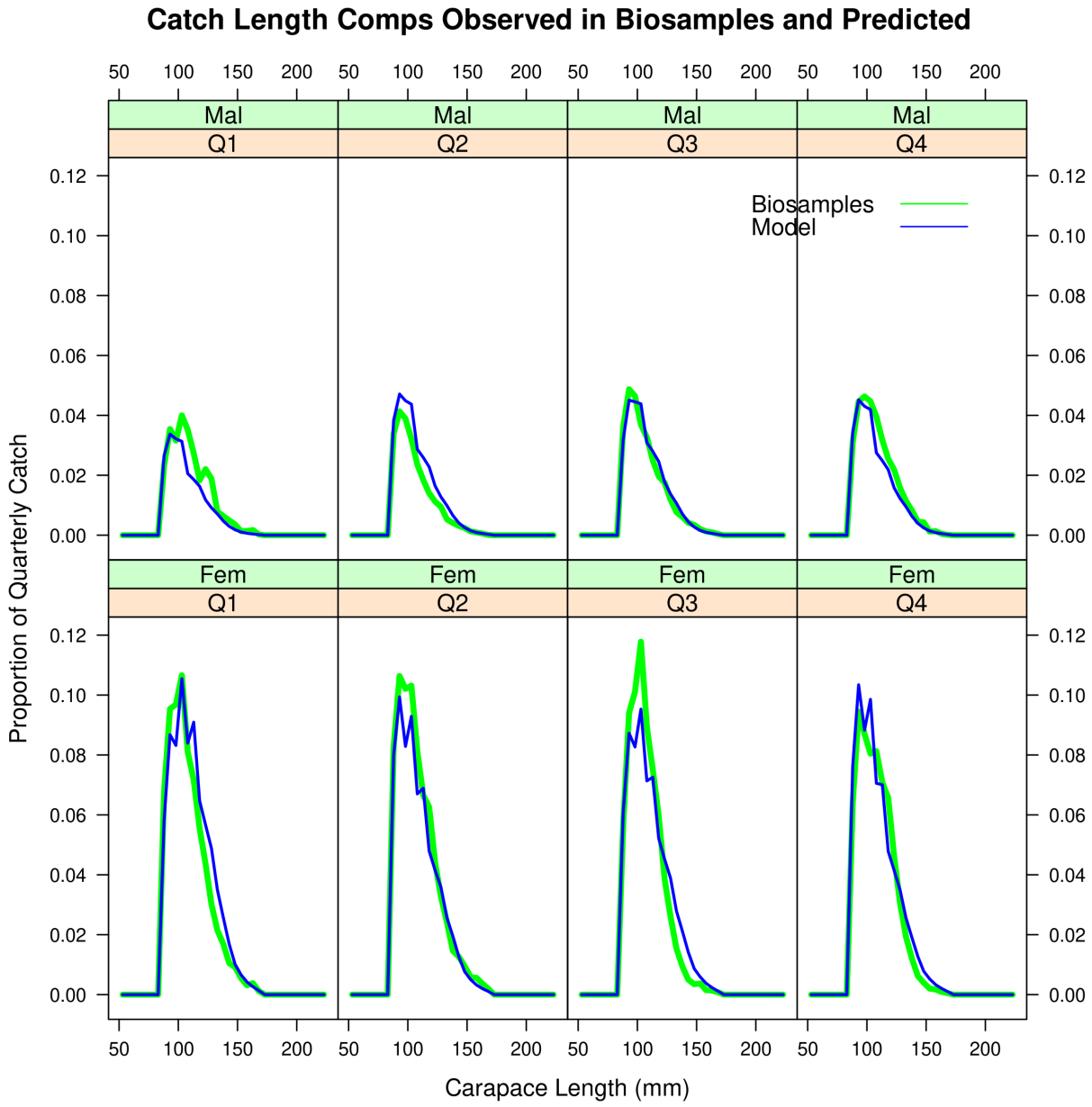

Figure 3. LCMA 3 catch length compositions by sex and quarter based on biosampling and from the tuned population model.

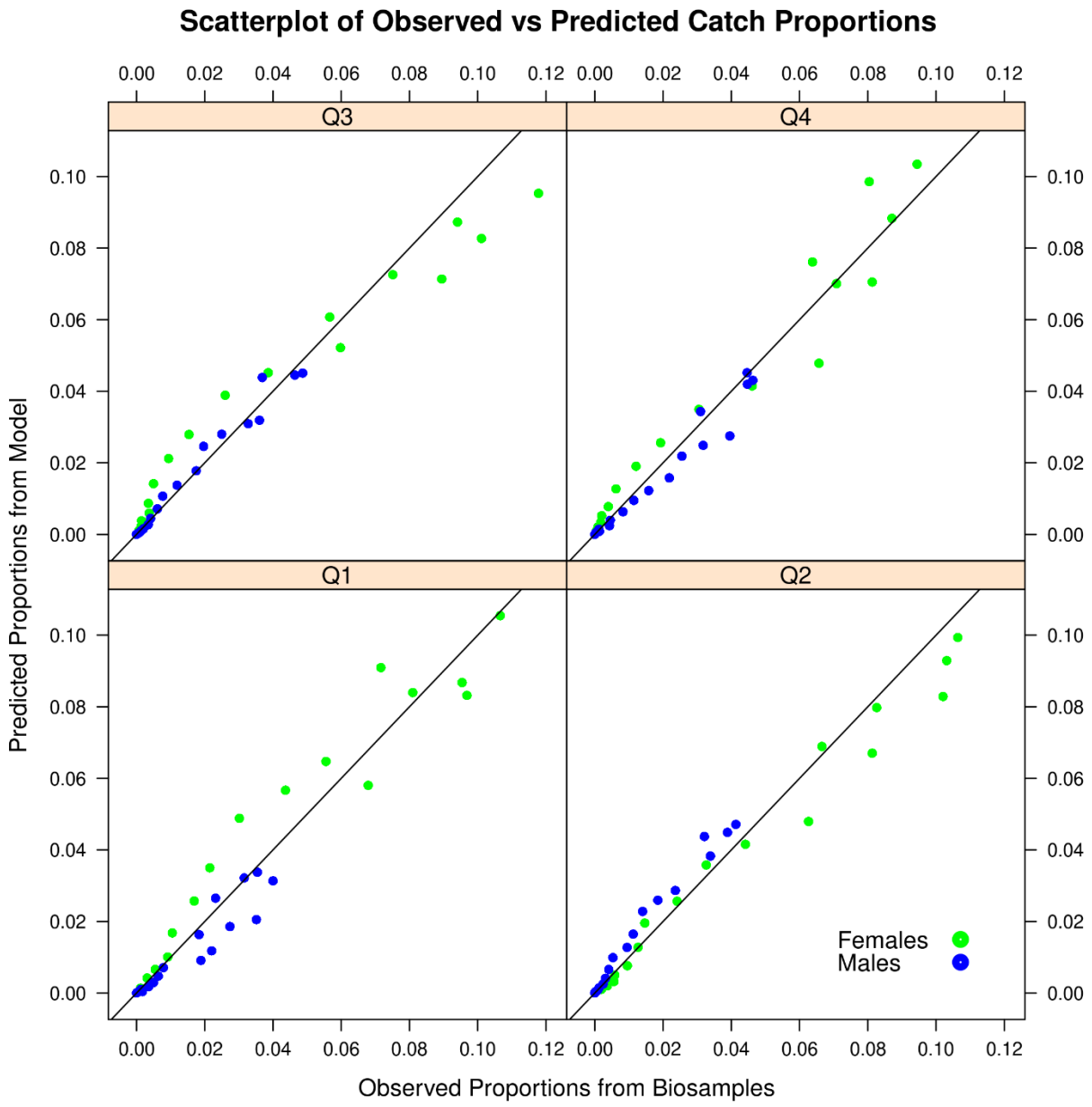

Figure 4. Relationship between length composition proportions observed in biosamples and predicted in the tuned population model by quarter and sex. The diagonal 1:1 line shows an ideal fit between the data sets.

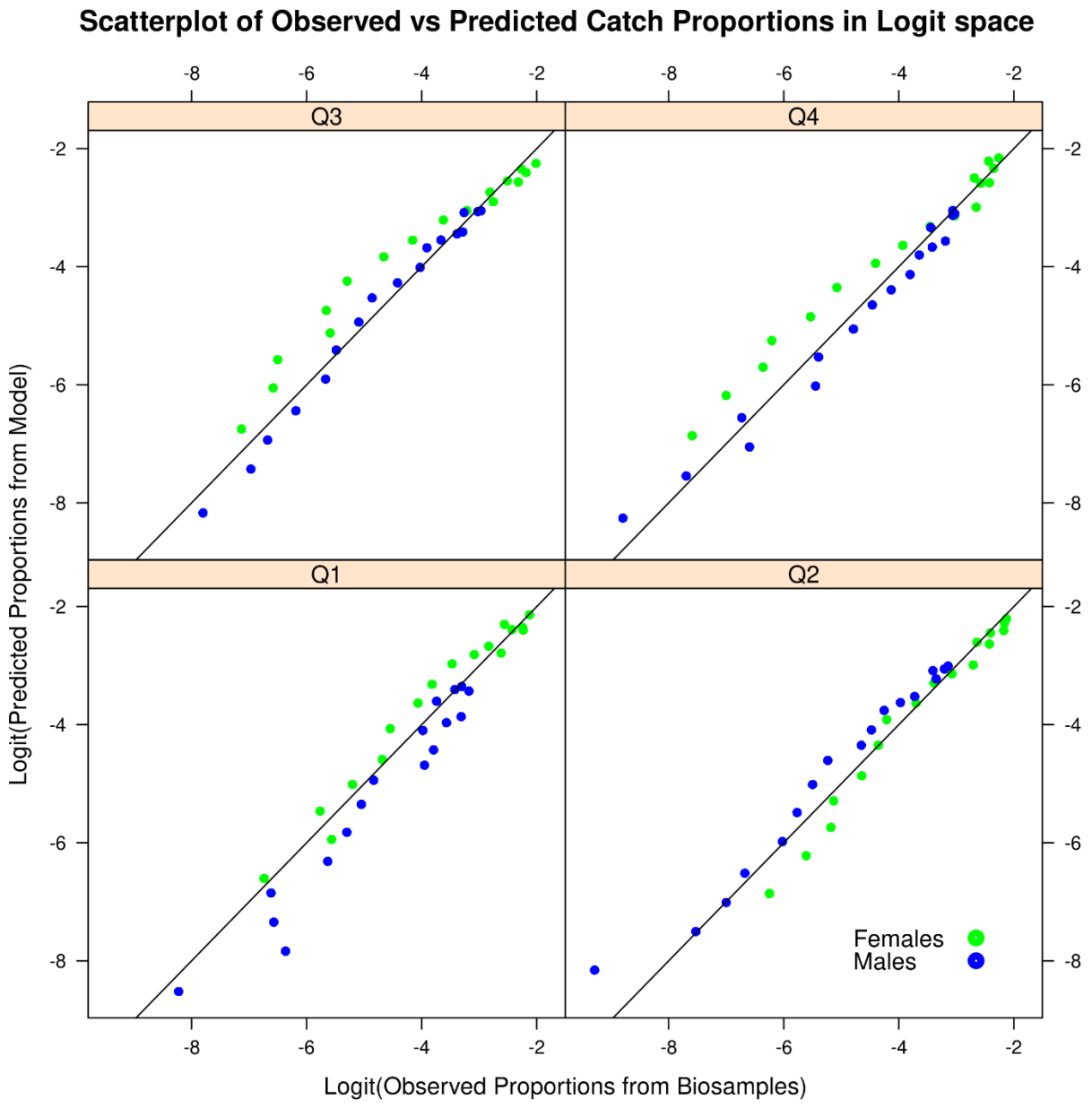

Figure 5. Relationship between length composition proportions observed in biosamples and predicted in the tuned population model by quarter and sex. Data points are logit-transformed to emphasize fit to lengths that occur in low proportions. The diagonal 1:1 line shows an ideal fit between the data sets.

Table 1. LCMA1 projected relative changes to Weight of Landings resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	0.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
3.31in / 84mm	3.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
3.38in / 86mm	5.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
3.47in / 88mm	13.00%	14.00%	14.00%	14.00%	14.00%	14.00%	14.00%
3.53in / 90mm	14.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
3.594in / 91mm	16.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%

Table 2. LCMA1 projected relative changes to Number of lobsters Landed resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	0.00%	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
3.31in / 84mm	-2.00%	-1.80%	-1.80%	-1.80%	-1.80%	-1.80%	-1.80%
3.38in / 86mm	-3.60%	-3.30%	-3.30%	-3.30%	-3.30%	-3.30%	-3.30%
3.47in / 88mm	-8.50%	-8.10%	-8.00%	-8.00%	-8.00%	-8.00%	-8.00%
3.53in / 90mm	-9.50%	-9.00%	-9.00%	-9.00%	-9.00%	-9.00%	-9.00%
3.594in / 91mm	-11.30%	-10.80%	-10.70%	-10.70%	-10.70%	-10.70%	-10.70%

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Table 3. LCMA1 projected relative changes to Spawning Stock Biomass resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	0.00%	-16.50%	-18.30%	-18.50%	-18.50%	-18.60%	-18.60%
3.31in / 84mm	19.00%	-1.40%	-3.60%	-3.80%	-3.90%	-3.90%	-3.90%
3.38in / 86mm	38.00%	13.90%	11.30%	11.00%	10.90%	10.90%	10.90%
3.47in / 88mm	98.00%	61.00%	56.90%	56.60%	56.50%	56.40%	56.40%
3.53in / 90mm	117.00%	75.80%	71.30%	70.90%	70.70%	70.70%	70.70%
3.594in / 91mm	151.00%	101.70%	96.40%	95.90%	95.70%	95.70%	95.60%

Table 4. LCMA1 projected relative changes to Exploitation resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	0.00%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%
3.31in / 84mm	-8.50%	-7.70%	-7.60%	-7.60%	-7.60%	-7.60%	-7.60%
3.38in / 86mm	-14.40%	-13.60%	-13.50%	-13.50%	-13.50%	-13.50%	-13.50%
3.47in / 88mm	-29.40%	-28.40%	-28.30%	-28.30%	-28.30%	-28.30%	-28.30%
3.53in / 90mm	-32.10%	-31.00%	-30.90%	-30.90%	-30.90%	-30.90%	-30.90%
3.594in / 91mm	-36.50%	-35.40%	-35.30%	-35.20%	-35.20%	-35.20%	-35.20%

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Table 5. LCMA3 projected relative changes to Weight of Landings resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-31.30%	-14.60%	-6.30%	-4.20%	-2.80%	-2.10%	-0.80%
3.31in / 84mm	-31.20%	-14.30%	-6.00%	-3.80%	-2.40%	-1.60%	-0.40%
3.38in / 86mm	-31.20%	-14.00%	-5.60%	-3.40%	-2.00%	-1.20%	0.00%
3.47in / 88mm	-31.10%	-13.60%	-5.00%	-2.70%	-1.30%	-0.50%	0.80%
3.53in / 90mm	-31.40%	-13.40%	-4.60%	-2.30%	-0.90%	0.00%	1.30%
3.594in / 91mm	-31.70%	-13.20%	-4.10%	-1.70%	-0.30%	0.60%	1.90%

Table 6. LCMA3 projected relative changes to Number of lobsters Landed resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-11.10%	-0.80%	3.20%	4.00%	4.50%	4.70%	5.00%
3.31in / 84mm	-12.20%	-1.70%	2.30%	3.20%	3.70%	3.90%	4.20%
3.38in / 86mm	-13.20%	-2.60%	1.50%	2.30%	2.80%	3.10%	3.40%
3.47in / 88mm	-15.20%	-4.20%	-0.10%	0.80%	1.30%	1.50%	1.80%
3.53in / 90mm	-17.10%	-5.90%	-1.70%	-0.80%	-0.30%	0.00%	0.30%
3.594in / 91mm	-19.50%	-7.90%	-3.60%	-2.60%	-2.10%	-1.90%	-1.50%

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Table 7. LCMA3 projected relative changes to Spawning Stock Biomass resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size	Maximum Gauge Size: 5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	56.00%	19.00%	3.00%	-1.50%	-3.80%	-5.20%	-6.90%
3.31in / 84mm	57.00%	20.00%	3.00%	-0.80%	-3.10%	-4.50%	-6.20%
3.38in / 86mm	59.00%	21.00%	4.00%	0.00%	-2.40%	-3.70%	-5.50%
3.47in / 88mm	61.00%	23.00%	6.00%	1.50%	-0.90%	-2.30%	-4.10%
3.53in / 90mm	64.00%	25.00%	8.00%	3.80%	1.40%	0.00%	-1.80%
3.594in / 91mm	69.00%	29.00%	11.00%	6.70%	4.20%	2.80%	1.00%

Table 8. LCMA3 projected relative changes to Exploitation resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell).

Minimum Gauge Size	Maximum Gauge Size: 5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-20.40%	-0.30%	8.40%	10.30%	11.40%	11.90%	12.50%
3.31in / 84mm	-22.30%	-2.40%	6.30%	8.10%	9.20%	9.70%	10.30%
3.38in / 86mm	-24.10%	-4.40%	4.10%	6.00%	7.00%	7.50%	8.10%
3.47in / 88mm	-27.40%	-8.10%	0.30%	2.20%	3.10%	3.70%	4.30%
3.53in / 90mm	-30.60%	-11.60%	-3.30%	-1.50%	-0.50%	0.00%	0.60%
3.594in / 91mm	-34.20%	-15.60%	-7.50%	-5.70%	-4.80%	-4.20%	-3.70%

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Table 9. OCC projected relative changes to Weight of Landings resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 paramerizations.

A.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-5.60%	-5.00%	-4.90%	-4.90%	-4.90%	-4.90%	-4.90%
3.31in / 84mm	-2.70%	-2.00%	-1.90%	-1.90%	-1.90%	-1.90%	-1.90%
3.38in / 86mm	-0.90%	-0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
3.47in / 88mm	6.60%	7.80%	8.00%	8.00%	8.00%	8.00%	8.00%
3.53in / 90mm	7.40%	8.80%	8.90%	8.90%	8.90%	8.90%	8.90%
3.594in / 91mm	9.30%	11.00%	11.20%	11.20%	11.20%	11.20%	11.20%

B.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-30.40%	-13.50%	-5.20%	-3.00%	-1.60%	-0.80%	0.00%
3.31in / 84mm	-30.30%	-13.20%	-4.80%	-2.60%	-1.20%	-0.40%	1.00%
3.38in / 86mm	-30.30%	-13.00%	-4.40%	-2.20%	-0.80%	0.00%	1.00%
3.47in / 88mm	-30.30%	-12.50%	-3.80%	-1.50%	-0.10%	0.70%	2.00%
3.53in / 90mm	-30.60%	-12.40%	-3.40%	-1.10%	0.40%	1.20%	3.00%
3.594in / 91mm	-30.90%	-12.10%	-2.90%	-0.50%	1.00%	1.90%	3.00%

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Table 10. OCC projected relative changes to Number of lobsters Landed resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 paramerizations.

A.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	3.40%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%
3.31in / 84mm	1.30%	1.60%	1.60%	1.60%	1.60%	1.60%	1.60%
3.38in / 86mm	-0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3.47in / 88mm	-5.40%	-4.90%	-4.90%	-4.90%	-4.90%	-4.90%	-4.90%
3.53in / 90mm	-6.40%	-5.90%	-5.90%	-5.90%	-5.90%	-5.90%	-5.90%
3.594in / 91mm	-8.30%	-7.70%	-7.70%	-7.70%	-7.70%	-7.70%	-7.70%

B.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-13.80%	-3.70%	0.10%	0.90%	1.40%	1.60%	1.90%
3.31in / 84mm	-14.80%	-4.60%	-0.70%	0.10%	0.60%	0.80%	1.10%
3.38in / 86mm	-15.80%	-5.50%	-1.50%	-0.70%	-0.20%	0.00%	0.30%
3.47in / 88mm	-17.70%	-7.10%	-3.10%	-2.20%	-1.70%	-1.50%	-1.20%
3.53in / 90mm	-19.60%	-8.70%	-4.60%	-3.70%	-3.20%	-3.00%	-2.70%
3.594in / 91mm	-21.90%	-10.70%	-6.40%	-5.50%	-5.00%	-4.80%	-4.50%

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Table 11. OCC projected relative changes to Spawning Stock Biomass resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 parameterizations.

A.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-9.80%	-24.70%	-26.40%	-26.50%	-26.60%	-26.60%	-26.60%
3.31in / 84mm	7.00%	-11.10%	-13.10%	-13.30%	-13.30%	-13.30%	-13.30%
3.38in / 86mm	24.30%	2.70%	0.30%	0.10%	0.00%	0.00%	0.00%
3.47in / 88mm	78.20%	45.10%	41.50%	41.20%	41.10%	41.00%	41.00%
3.53in / 90mm	95.50%	58.50%	54.40%	54.00%	53.90%	53.90%	53.90%
3.594in / 91mm	126.20%	81.80%	77.00%	76.60%	76.50%	76.40%	76.40%

B.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	63.00%	24.00%	7.00%	2.00%	-0.10%	-1.50%	-3.30%
3.31in / 84mm	64.00%	25.00%	7.00%	3.00%	0.60%	-0.70%	-2.60%
3.38in / 86mm	65.00%	26.00%	8.00%	4.00%	1.40%	0.00%	-1.80%
3.47in / 88mm	67.00%	27.00%	10.00%	5.00%	2.90%	1.50%	-0.30%
3.53in / 90mm	71.00%	30.00%	12.00%	8.00%	5.30%	3.90%	2.00%
3.594in / 91mm	75.00%	34.00%	15.00%	11.00%	8.30%	6.80%	4.90%

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Table 12. OCC projected relative changes to Exploitation resulting from alternative minimum and maximum options, relative to the current regulations (yellow cell), based on (A) LCMA1 or (B) LCMA3 paramerizations.

A.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	15.60%	16.50%	16.50%	16.50%	16.50%	16.50%	16.50%
3.31in / 84mm	5.80%	6.70%	6.80%	6.80%	6.80%	6.80%	6.80%
3.38in / 86mm	-1.10%	-0.10%	0.00%	0.00%	0.00%	0.00%	0.00%
3.47in / 88mm	-18.40%	-17.30%	-17.10%	-17.10%	-17.10%	-17.10%	-17.10%
3.53in / 90mm	-21.50%	-20.20%	-20.10%	-20.10%	-20.10%	-20.10%	-20.10%
3.594in / 91mm	-26.70%	-25.30%	-25.20%	-25.20%	-25.20%	-25.20%	-25.20%

B.

Minimum Gauge Size \ Maximum Gauge Size	5in / 127mm	5.5in / 140mm	6in / 152mm	6.25in / 159mm	6.5in / 165mm	6.75in / 171mm	None
3.25in / 83mm	-26.00%	-7.30%	0.80%	2.60%	3.60%	4.10%	4.60%
3.31in / 84mm	-27.70%	-9.20%	-1.20%	0.60%	1.50%	2.00%	2.60%
3.38in / 86mm	-29.40%	-11.10%	-3.20%	-1.40%	-0.50%	0.00%	0.60%
3.47in / 88mm	-32.50%	-14.50%	-6.70%	-5.00%	-4.10%	-3.60%	-3.00%
3.53in / 90mm	-35.40%	-17.70%	-10.00%	-8.40%	-7.50%	-7.00%	-6.50%
3.594in / 91mm	-38.80%	-21.50%	-13.90%	-12.30%	-11.40%	-10.90%	-10.40%

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Appendix C. Trigger Mechanism Analysis and Recommendation

Recruit (71-80 mm carapace length) indices are used as model-free indicators of recruitment to the lobster fishery in the following year. During the 2020 stock assessment, recruit indicators were found to be correlated with the stock assessment model estimates of reference abundance (78+ mm carapace length), providing a reliable means to track abundance changes and potential need for management response more frequently than through intermittent stock assessments. There are eight GOM/GBK stock recruit indicators updated for each assessment: spring and fall indices for each of the ME/NH, MA DMF, NEFSC GOM, and NEFSC GBK bottom trawl surveys. The NEFSC indicators in the GOM and GBK regions are considered to be indicators of offshore recruitment which differs from the GOM/GBK stock-wide recruitment dynamics. Therefore, the American Lobster Technical Committee (TC) recommended using only the inshore surveys (ME/NH and MA DMF) where the bulk of the population and fishery occur, which are assumed to be more representative of stock-wide recruitment. These trawl surveys employ similar methodologies and, along with selectivity and swept area calibration factors, can be combined into two indices, a spring index and a fall index. Additionally, the TC recommends using the standardized index from the Ventless Trap Survey as an indicator of recruitment during the summer.

To calculate a trigger index, each of the three individual indices were scaled to their 2017 reference levels so they are on the same scale. The one year lag expected between recruit indices and reference abundance due to growth results in 2017 recruit indices mapping to the terminal year reference abundance used in the 2020 stock assessment status determination (2018). The TC recommended linking the trigger index to the reference abundance in this way so the trigger index is an indication of proportional changes to the reference abundance since the 2020 stock assessment. Proportional changes in the trigger index are compared directly to proportional changes between the terminal year reference abundance and abundance reference points established in the assessment to provide an early indication of reference abundance falling below the reference points. Scaled indices were then averaged across surveys to generate a single trigger index. The final trigger index value represents proportional change from 2017 recruitment (and, therefore, expected proportional change from the reference abundance one year later in 2018 - the terminal year of the stock assessment). A value of one indicates no change, a value greater than one indicates an increase (e.g., 1.2 indicates a 20% increase), and a value less than one indicates a decrease (e.g., 0.8 indicates a 20% decrease).

During the 2020 stock assessment, the peer review panel supported using a smoothing algorithm, such as the running average used in past assessments, to determine stock status, but also recommended exploring alternatives (e.g., running median) to evaluate the robustness of status determinations. To evaluate performance of different methods for a trigger mechanism, akin to evaluating stock status in a stock assessment, a simulation analysis was conducted using the trigger index annual point value, three-year running average, and three-year running median to identify need for management action. For each method, all three individual indices were scaled to a 2017 reference level calculated with the same method used to calculate the

index. That is, the 2017 reference level was the 2017 point value for the annual index trigger method, the 2015-2017 average for the three-year running average trigger method, and the 2015-2017 running median for the three-year running median trigger method. The scaled individual and combined indices are compared to various trigger points related to assessment abundance reference points in Figure 1.

The TC treated 0.68 (i.e., a 32% decline) as the trigger for action in the simulation analysis. This decline represents the proportional change between the terminal year stock assessment reference abundance level and the boundary between the high and moderate abundance regimes. Each individual index was projected from 2018 to 2025 following a steady decline that reflected a 32% decline from the observed 2017 index value in 2021. This projected trend is hypothetical to evaluate the performance of the three calculation methods being considered and does not necessarily reflect the true status or projection of the population. It was unclear what impacts the method used to calculate the starting point of the projected trend would have on performance of each trigger mechanism, so declines projected from the (1) 2017 point value, (2) 2015-2017 running average, and (3) 2015-2017 running median were evaluated in three separate scenarios. Indices were then sampled from these simulated trends with CVs equal to the average CV over the respective index's time series, assuming a lognormal error structure. These simulations only consider observation error and do not account for process error. Indices were scaled to their reference level as described above, averaged across surveys, and the combined trigger index was evaluated for whether or not it would trigger action ($\leq$0.68) in each year of the projection period. This was repeated 1,000 times for each scenario and action determinations were tallied by year for each of the methods.

Results show similar patterns between the scenarios using a simulated decline from the 2017 point value and from the 2015-2017 average (Table 1; Figures 2-3). The 2015-2017 running median was equal to the 2017 point value for all indices, so the results with a simulated decline from this value were identical to the 2017 point value scenario (Table 2; Figure 4). Incorrect action is triggered very infrequently (< 3% of the time) by the annual and running median methods in the first two years of the projection period and never by the running average method. On average, the annual and running median methods incorrectly triggered action about 9% of the time and about 15 times more frequently than the running average method the year before the decline reached the threshold (2020), but also correctly triggered action ≈38% of the time and roughly twice as frequently as the running average method in the year when the threshold was met (2021). The running average method then tended to perform as well as or better than the other methods from 2022-2025, albeit generally at smaller margins of difference, as all methods tended to perform relatively well in these later years when the decline is exacerbated. The delayed response of the running average method can be seen in Figures 5-7, where the median trigger index value across simulations tends to be slightly higher than the annual and running median methods. The variance in index values, however, is lower for the running average method resulting in more consistency across simulations in terms of guidance for management action, whereas the other methods result in mixed guidance for some of the more extreme simulations in more years than the running average method.

Based on these results, the trigger mechanisms using the annual point value and the running median may be considered precautionary methods that perform better for an immediate trigger, on average, but with more variable guidance than the running average method. The running average method may provide a less responsive trigger mechanism that is less likely to incorrectly trigger premature action, and performs well and more consistently after the initial risk of not triggering action when first needed.

The TC recommended the running average method for calculating the trigger index. The individual surveys display interannual variation that might be related to environmental impacts on catchability (for example), an issue that was identified in the stock assessment and is expected to continue to impact these indices index data sets into the future. This simulation analysis suggests the running average method is more robust to interannual variation than the other methods and therefore can be interpreted with higher confidence.

Table 1. Percentage of 1,000 simulated indices that triggered action for three simulated decline starting point scenarios, and the averages of these scenarios. The simulated stock was projected to decline 32% in 2021.

Simulated Decline Starting Point	Index Calculation Method	2018	2019	2020	2021	2022	2023	2024	2025
2017 Point Value	Annual	0%	2%	12%	50%	85%	97%	100%	100%
	Three-Year Running Average	0%	0%	1%	27%	86%	100%	100%	100%
	Three-Year Running Median	0%	2%	12%	44%	84%	98%	100%	100%
2015-2017 Average	Annual	0%	0%	3%	21%	59%	89%	99%	100%
	Three-Year Running Average	0%	0%	0%	3%	46%	95%	100%	100%
	Three-Year Running Median	0%	0%	3%	19%	60%	90%	99%	100%
2015-2017 Running Median	Annual	0%	2%	12%	50%	85%	97%	100%	100%
	Three-Year Running Average	0%	0%	1%	27%	86%	100%	100%	100%
	Three-Year Running Median	0%	2%	12%	44%	84%	98%	100%	100%
Average	**Annual**	**0%**	**2%**	**9%**	**40%**	**76%**	**94%**	**100%**	**100%**
	Three-Year Running Average	**0%**	**0%**	**1%**	**19%**	**73%**	**98%**	**100%**	**100%**
	Three-Year Running Median	**0%**	**1%**	**9%**	**36%**	**76%**	**95%**	**100%**	**100%**

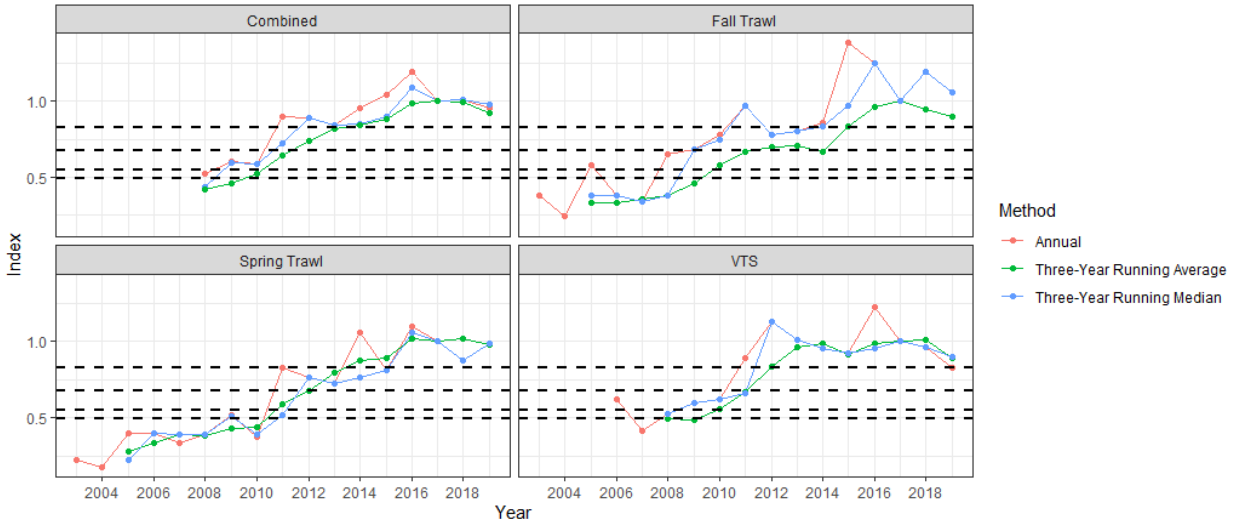

Figure 1. Scaled individual and combined indices using three calculation methods compared to four trigger levels (0.83 – Fishery/Industry Target, 0.68 – Moderate/High Abundance Regime Shift Level, 0.55 – Abundance Limit, 0.49 – Abundance Threshold) identified from potential reference abundance declines (dashed lines).

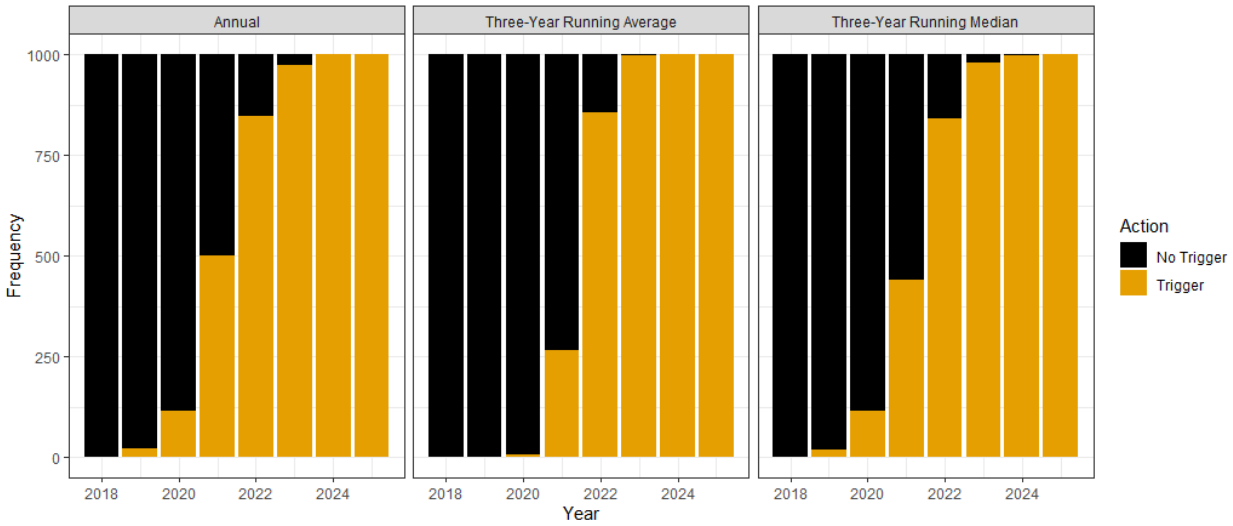

Figure 2. Annual action determinations by method from 1,000 simulated indices with the simulated population declining from the 2017 point value. The simulated stock was projected to decline 32% in 2021.

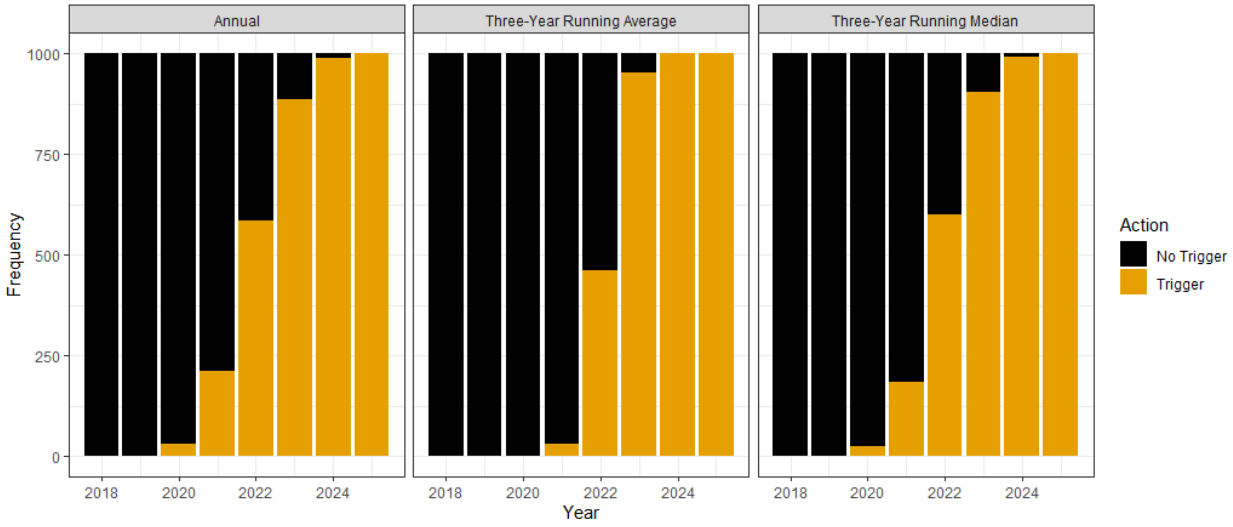

Figure 3. Annual action determinations by method from 1,000 simulated indices with the simulated population declining from the 2015-2017 average. The simulated stock was projected to decline 32% in 2021.

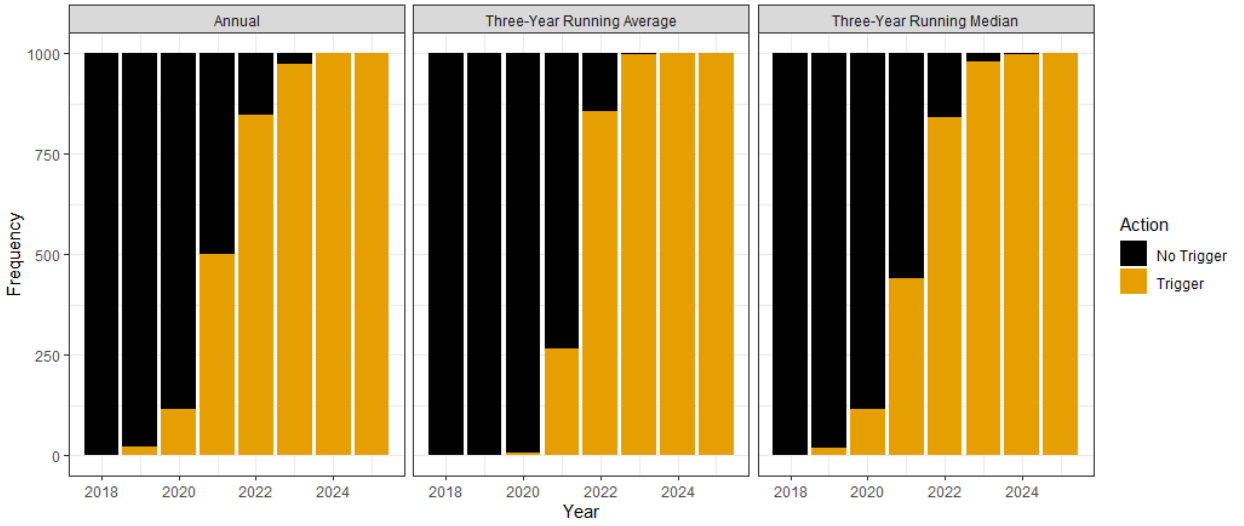

Figure 4. Annual action determinations by method from 1,000 simulated indices with the simulated population declining from the 2015-2017 median. The simulated stock was projected to decline 32% in 2021.

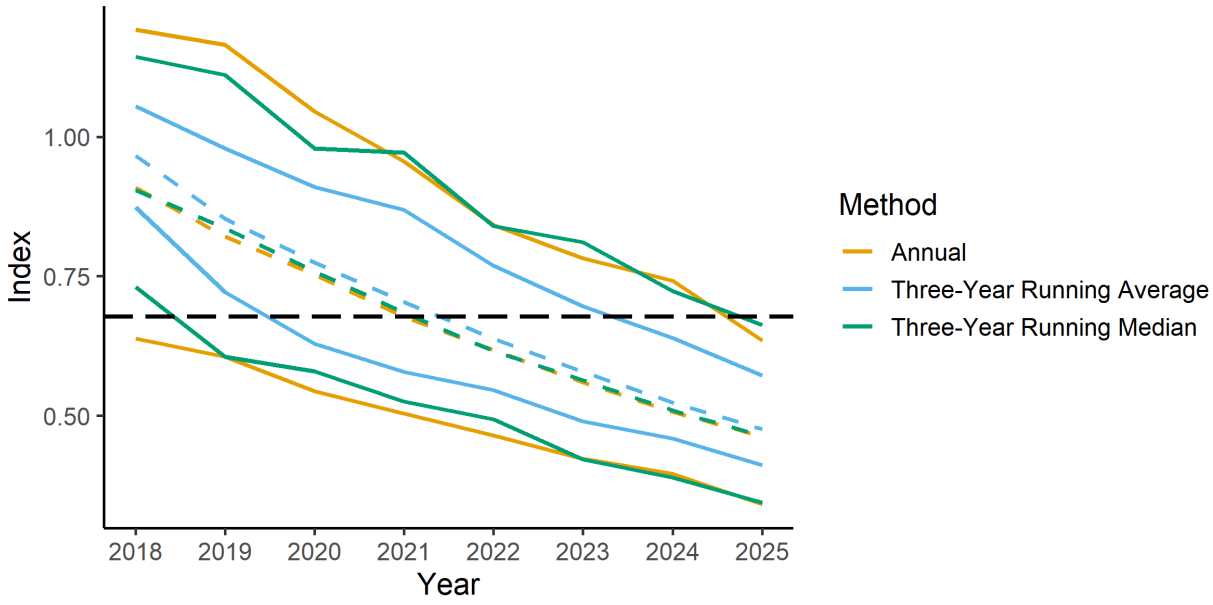

Figure 5. Distribution of index values by method from 1,000 simulations with the simulated population declining from the 2017 point value. The dashed colored lines are the median index values across simulations, the solid color lines are the minimum and maximum index values across simulations, and the dashed black line is the trigger level. The simulated stock was projected to decline 32% in 2021.

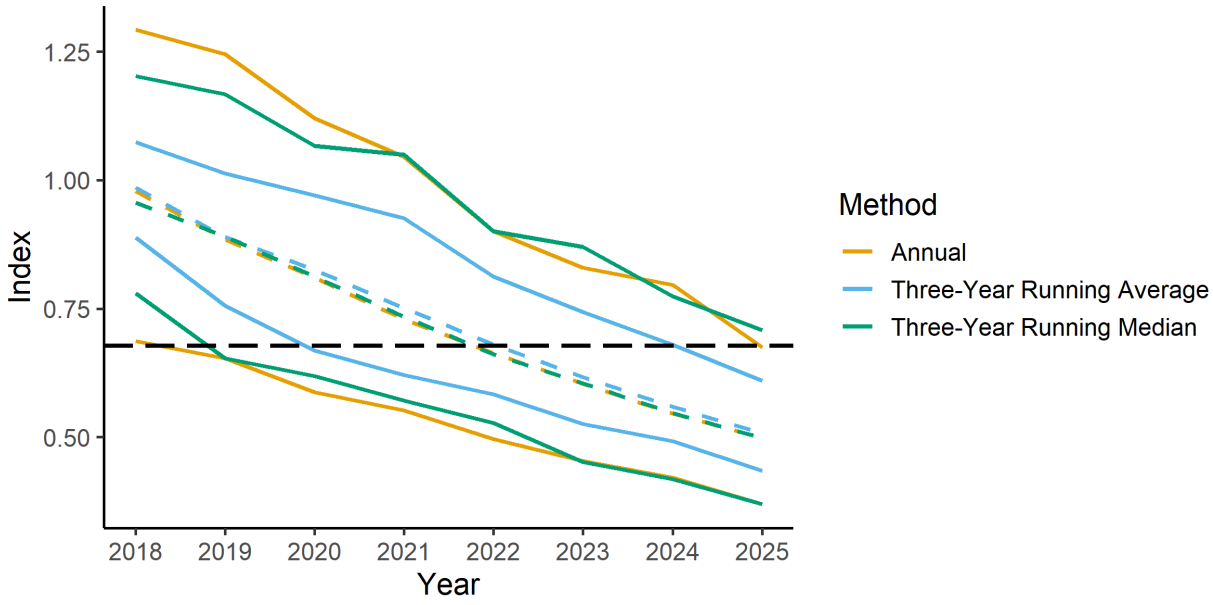

Figure 6. Distribution of index values by method from 1,000 simulations with the simulated population declining from the 2015-2017 running average. The dashed colored lines are the median index values across simulations, the solid color lines are the minimum and maximum index values across simulations, and the dashed black line is the trigger level. The simulated stock was projected to decline 32% in 2021.

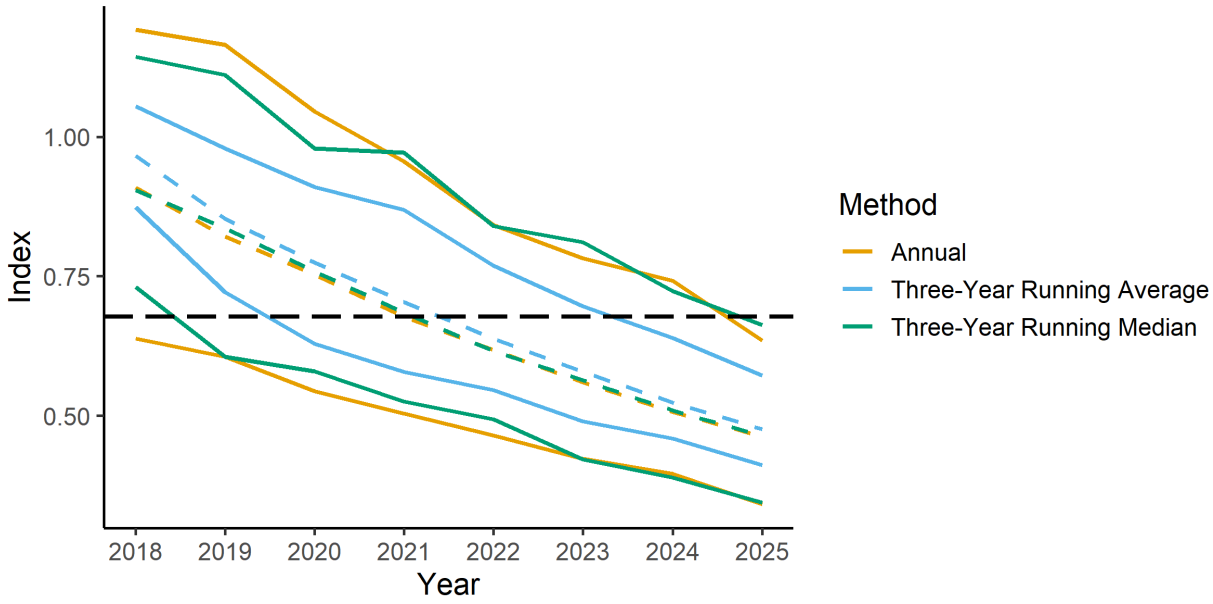

Figure 7. Distribution of index values by method from 1,000 simulations with the simulated population declining from the 2015-2017 running median. The dashed colored lines are the median index values across simulations, the solid color lines are the minimum and maximum index values across simulations, and the dashed black line is the trigger level. The simulated stock was projected to decline 32% in 2021.

Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

MEMORANDUM

July 18, 2022

To: **American Lobster Management Board**

From: **Tina Berger, Director of Communications**

RE: **Advisory Panel Nominations**

Please find attached new nominations to the American Lobster Advisory Panel – Chris Welch, a commercial trap fisherman from Maine; Todd Alger, a recreational diver from Massachusetts and Eric Lorentzen, a commercial inshore/offshore trap harvester from Massachusetts. Please review this nomination for action at the next Board meeting.

If you have any questions, please feel free to contact me at (703) 842-0749 or tberger@asmfc.org.

Enc.

cc: Caitlin Starks

Maine (4)
Jon Carter (comm/pot)
333 Main Street
Bar Harbor, ME 04609
Phone: (207)288-4528
CARTERLOB@GMAIL.COM
Appt. Confirmed: 5/30/96
Appt. Reconfirmed 7/26/00
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Confirmed Interest: 10/21

Christopher Welch
339 Alfred Road
Kennebunk, ME 04043
Phone: 207.205.2093
littleskeet@ymail.com

Eben Wilson (commercial inshore/offshore trap)
5 Lincoln Street
PO Bix 87
East Boothbay, ME 04544
207.380.6897
ebensail@gmail.com
Appt Confirmed 1/25/22

Jeff Putnam (commercial inshore - out to 20 miles - trap)
107 Littlefield Road
Chebeague Island, ME 04017
207.650.3327
Putnamjeff543@gmail.com
Appt Confirmed 1/25/22

New Hampshire (2)
Robert Nudd (comm/inshore pot)
531 Exeter Road
P.O. Box 219
Hampton, NH 03842
Phone (eve): (603)926-7573
LOBSTAMAN@MYFAIRPOINT.NET
Appt. Confirmed: 10/30/95
Appt. Reconfirmed 9/15/99
Appt. Reconfirmed 1/2/06
Appt Reconfirmed 5/10
Confirmed Interest: 9/21

James A. Willwerth (comm./trap)
10 Mill
Hampton Falls, NH 03844
Phone (day): (603) 765-5008
Phone (eve): (603) 926-3139
JAW080257@comcast.net
Appt Confirmed 10/22/12

Massachusetts (4)
Arthur Sawyer Jr. (comm pots)
368 Concord Street
Gloucester, MA 01930
Phone: (978)281-4736
FAX: (978)281-4736
sooky55@aol.com
Appt. Confirmed: 1/29/01
Appt. Reconfirmed 1/2/06; 5/10; 9/15; 8/18
Confirmed Interest: 9/21

Grant Moore (comm/offshore pot)
4 Gooseberry Farms Lane
Westport, MA 02790
Phone (day): 508.971.2190
Phone (eve): 508.636.6248
FAX: 508.636.5789
grantmoore55@gmail.com
Appt. Confirmed 11/2/15
Appt. Reconfirmed 8/18
Confirmed Interest: 9/21

Todd Alger (recreational diver)
7 Holly Street
Hingham, MA 02043
Phone: 339.236.0736
Todd.alger@gmail.com

Eric Lorentzen (comm/inshore/offshore pot)
173 Spring Street
Hull, MA 02045
Phone: 774.217.0501
ericreedlorentzen@gmail.com

Rhode Island (2)
Lanny Dellinger (comm./pot)
160 Snuffmill Road
Saunderstown, RI 02874
Phone (day): (401)932-5826
Phone (eve): (401)294-7352

lad0626@aol.com
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10

Vacancy (comm/offshore pot)

Connecticut (2)
John Whittaker (comm./pot)
37 Spring Street
Groton, CT 06340
Phone (day): (860)287-4384
Phone (eve): (860)536-7668
FAX: (860)536-7668
whittboat@comcast.net
Appt Confirmed 2/21/06
Appt Reconfirmed 5/10
Confirmed Interest: 9/21

Vacancy (comm pot)

New York (2)
George Doll (comm/inshore pot)
70 Seaview Avenue
Northport, New York 11768
Phone: (631)261-1407
FAX: (631)261-1407
Appt. Confirmed: 11/29/00
Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10

James Fox (comm/pot)
152 Highland Drive
Kings Park, NY 11754
Phone: (631)361-7995
jcfox22@verizon.net
Appt. Confirmed: 10/16/01
Appt. Reconfirmed 1/23/06
Appt Reconfirmed 5/10

New Jersey (2)
Jack Fullmer (rec)
443 Chesterfield-Arneytown Road
Allentown, NJ 08501
Phone: (609) 298 – 3182
JF2983182@MSN.COM
Appt Confirmed 2/21/06
Appt Reconfirmed 5/17/10
Confirmed Interest: 9/21

John Godwin (processor)
1 Saint Louis Avenue
Point Pleasant Beach, NJ 08742
Phone: 732.245.0148
FAX: 732.892.3928
JOHN@POINTLOBSTER.COM
Appt Confirmed 11/2/15

Maryland
Earl Gwin
10448 Azalea Road
Berlin, MD 21811
Phone: (401) 251-3709
Email: sonnygwin@verizon.net
Appt confirmed 11/1/15
Confirmed Interest: 9/21

ATLANTIC STATES MARINE FISHERIES COMMISSION

AUGUSTA RCVD '22FEB7

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Christopher Welch (your name) State: Maine

Name of Nominee: Christopher Welch

Address: 339 Alfred Rd

City, State, Zip: Kennebunk ME 04043

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 207-205-2093 Phone (evening): Same

FAX: _____ Email: littlesleet@ymail.com

. . . . . .

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. AMFSC Advisory Panel
   2. _____
   3. _____
   4. _____
2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no ✓
3. Is the nominee a member of any fishermen's organizations or clubs?

   yes ✓ no _____

   If "yes," please list them below by name.

Maine Lobstermans Assoc.

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

Lobster
tuna

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

Lobster
tuna
Halibut

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 18 years
2. Is the nominee employed only in commercial fishing? yes ✓ no
3. What is the predominant gear type used by the nominee? Lobster Gear
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? 50/50 inshore offshore, season dependent

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no _____

   If "no," please list other type(s)of business(es) and/occupation(s):

3. How many years has the nominee lived in the home port community? 33 years

   If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? _____ years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no _____

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes _____ no _____

   If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

I was contacted by Megan Ware about possibly joining this commision, board member for the MLA for 4 years participated in the Lobster ~~Fisheries~~ Leadership program

Nominee Signature: Chris Welch Date: 1-2-21

Name: Christopher Welch
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

State Director

State Legislator

Governor's Appointee

Signed on behalf of State Delegation

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Daniel McKiernan State: MA
(your name)

Name of Nominee: Todd Alger

Address: 7 Holly Street

City, State, Zip: Hingham, MA 02043

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 339-236-0736 Phone (evening): 339-236-0736

FAX: _____ Email: todd.alger@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. American lobster
   2. _____
   3. _____
   4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes_____ no X

3. Is the nominee a member of any fishermen's organizations or clubs?

yes X no_____

If "yes," please list them below by name.

South Shore Neptunes Dive Club _____ _____

_____ _____

_____ _____

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

lobster _____ _____

_____ _____

_____ _____

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

lobster _____ _____

_____ _____

_____ _____

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? _____ years

2. Is the nominee employed only in commercial fishing? yes_____ no_____

3. What is the predominant gear type used by the nominee?_____

4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)?_____

FOR CHARTER/HEADBOAT CAPTAINS:

1. How long has the nominee been employed in the charter/headboat business? _____ years

2. Is the nominee employed only in the charter/headboat industry? yes _____ no_____

   If "no," please list other type(s)of business(es) and/occupation(s):_____

   _____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

   _____

FOR RECREATIONAL FISHERMEN:

1. How long has the nominee engaged in recreational fishing? 24 years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no X

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS:

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

   _____

   _____

   _____

3. How many years has the nominee lived in the home port community? _____ years

If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES:

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management?
yes _____ no _____

If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

I have been a recreational lobster diver for over 20 years. I am a past president and past vice president of the South Shore Neptunes Dive club and currently on the Neptunes board of directors and multiple committees. I live in Hingham, MA. I dive for lobster from my kayak, which is registered with the Gloucester Harbormaster who rents me a space for my kayak at the Lanes Cove Kayak Rack. I also dive for lobster from power boats as far north as Nahant and as far south as Minot Light. I dive for lobster from shore in Cape Ann and at various sites on the south shore and north shore.

Nominee Signature: Todd Alger Date: 6/29/2022

Name: Todd Alger
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

Daniel J McKiernan
State Director

Sarah M. Peake
State Legislator

Raymond M. Kane
Governor's Appointee

ATLANTIC STATES MARINE FISHERIES COMMISSION

Advisory Panel Nomination Form

This form is designed to help nominate Advisors to the Commission's Species Advisory Panels. The information on the returned form will be provided to the Commission's relevant species management board or section. Please answer the questions in the categories (All Nominees, Commercial Fisherman, Charter/Headboat Captain, Recreational Fisherman, Dealer/Processor, or Other Interested Parties) that pertain to the nominee's experience. If the nominee fits into more than one category, answer the questions for all categories that fit the situation. **Also, please fill in the sections which pertain to All Nominees (pages 1 and 2). In addition, nominee signatures are required to verify the provided information (page 4), and Commissioner signatures are requested to verify Commissioner consensus (page 4). Please print and use a black pen.**

Form submitted by: Daniel Mckiernan (your name) State: MA

Name of Nominee: Eric Lorentzen

Address: 173 Spring Street

City, State, Zip: Hull, MA 02045

Please provide the appropriate numbers where the nominee can be reached:

Phone (day): 774-217-0501 Phone (evening): 774-217-0501

FAX: _____ Email: ericreedlorentzen@gmail.com

FOR ALL NOMINEES:

1. Please list, in order of preference, the Advisory Panel for which you are nominating the above person.
   1. American Lobster
   2. _____
   3. _____
   4. _____

2. Has the nominee been found in violation of criminal or civil federal fishery law or regulation or convicted of any felony or crime over the last three years?

   yes _____ no X

3. Is the nominee a member of any fishermen's organizations or clubs?

   yes X no _____

   If "yes," please list them below by name.

MA Lobstermens Assoc. | Madrios Duck Lobstermens Co-op
South Shore Lobstermens Assoc | MA Striped Bass Assoc.
Boston Harbor Assoc. | Stellwagen Bank Charter Boat Assoc.

4. What kinds (species) of fish and/or shellfish has the nominee fished for during the past year?

lobster
Jonah crab
menhaden

5. What kinds (species) of fish and/or shellfish has the nominee fished for in the past?

same as above plus
striped bass

FOR COMMERCIAL FISHERMEN:

1. How many years has the nominee been the commercial fishing business? 23 years
2. Is the nominee employed only in commercial fishing? yes ✓ no _____
3. What is the predominant gear type used by the nominee? lobster trap and purse seine
4. What is the predominant geographic area fished by the nominee (i.e., inshore, offshore)? Lobster: offshore + inshore, Purse seine: inshore

FOR CHARTER/HEADBOAT CAPTAINS: N/A

1. How long has the nominee been employed in the charter/headboat business? _____ years
2. Is the nominee employed only in the charter/headboat industry? yes _____ no _____

   If "no," please list other type(s)of business(es) and/occupation(s):_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

FOR RECREATIONAL FISHERMEN: N/A

1. How long has the nominee engaged in recreational fishing? _____ years

2. Is the nominee working, or has the nominee ever worked in any area related to the fishing industry? yes _____ no _____

   If "yes," please explain.

_____

_____

_____

FOR SEAFOOD PROCESSORS & DEALERS: N/A

1. How long has the nominee been employed in the business of seafood processing/dealing? _____years

2. Is the nominee employed only in the business of seafood processing/dealing?

   yes _____ no _____ If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

3. How many years has the nominee lived in the home port community? _____ years

   If less than five years, please indicate the nominee's previous home port community.

_____

FOR OTHER INTERESTED PARTIES: N/A

1. How long has the nominee been interested in fishing and/or fisheries management? _____ years

2. Is the nominee employed in the fishing business or the field of fisheries management? yes _____ no _____

   If "no," please list other type(s) of business(es) and/or occupation(s):

_____

_____

_____

FOR ALL NOMINEES:

In the space provided below, please provide the Commission with any additional information which you feel would assist us in making choosing new Advisors. You may use as many pages as needed.

Nominee Signature: _____ Date: 5-20-22

Name: Eric Lorentzen
(please print)

COMMISSIONERS SIGN-OFF (not required for non-traditional stakeholders)

Daniel J McKiernan
State Director

State Legislator

Governor's Appointee