

Atlantic States Marine Fisheries Commission

American Lobster Management Board

*February 6, 2018
9:30 a.m. – Noon
Arlington, Virginia*

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.

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|---|------------|
| 1. Welcome/Call to Order (<i>S. Train</i>) | 9:30 a.m. |
| 2. Board Consent | 9:30 a.m. |
| • Approval of Agenda | |
| • Approval of Proceedings from October 2017 | |
| 3. Public Comment | 9:35 a.m. |
| 4. American Lobster Addendum XXVI/Jonah Crab Addendum III for Final Approval Final Action | 9:45 a.m. |
| • Review Options and Public Comment Summary (<i>M. Ware</i>) | |
| • Reports from the Law Enforcement Committee and Advisory Panels (<i>M. Robson, E. Gwin</i>) | |
| • Consider Final Approval of Addendum XXVI/III | |
| 5. Southern New England (SNE) Workgroup Report on Goals and Objectives for SNE Lobster Stock (<i>M. Ware</i>) Possible Action | 10:55 a.m. |
| 6. Review and Consider Approval of 2020 American Lobster Stock Assessment and Peer Review Terms of Reference (<i>J. Kipp</i>) Action | 11:25 a.m. |
| 7. Elect Vice-Chair (<i>S. Train</i>) Action | 11:55 a.m. |
| 8. Other Business/Adjourn | 12:00 p.m. |

The meeting will be held at the Westin Crystal City, 1800 Jefferson Davis Highway Arlington, Virginia; 703.486.1111

MEETING OVERVIEW

American Lobster Management Board Meeting

February 6, 2018

9:30 a.m. – 12:00 p.m.

Arlington, Virginia

Chair: Stephen Train (ME) Assumed Chairmanship: 02/18	Technical Committee Chair: Kathleen Reardon (ME)	Law Enforcement Committee Representative: Rene Cloutier (ME)
Vice Chair: Vacant	Advisory Panel Chair: Grant Moore (MA - Lobster) Earl Gwin (MD – Jonah)	Previous Board Meeting: October 16, 2017
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 October 2017

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. American Lobster Draft Addendum XXVI/Jonah Crab Draft Addendum III (9:45 - 10:55 a.m.) Final Action

Background

- Draft Addendum XXVI/III seeks to improve harvester reporting and biological data collection in state and federal waters (**Briefing Materials**)
- Public comment was collected between November and January. Public hearings were conducted in ME, NH, MA, RI, CT, NY and NJ. (**Supplemental Materials**)
- The LEC reviewed the draft addendum on January 8 (**Briefing Materials**)
- The AP reviewed the draft addendum on January 17 (**Supplemental Materials**)

Presentations

- Review of management options and public comment by M. Ware
- LEC and AP reports by M. Robson and E. Gwin

Board actions for consideration at this meeting

- Select management alternatives and implementation date
- Approve final document

5. SNE Workgroup Report (10:55 – 11:25 a.m.) Possible Action**Background**

- At Annual Meeting, the Board tasked the SNE Workgroup with reviewing the goals and objectives by which the SNE stock is managed.
- The SNE Workgroup met via conference call on January 22.

Presentations

- SNE Workgroup report on goals and objectives by M. Ware (**Supplemental Materials**)

Board actions for consideration at this meeting

- Consider modifying the goals and objectives by which the SNE stock is managed

6. Terms of Reference for the 2020 American Lobster Stock Assessment (11:25 – 11:55 a.m.) Action**Background**

- The next American Lobster Benchmark Stock Assessment is scheduled for completion in 2020.
- The TC met in December 2017 to draft Terms of Reference for the assessment.

Presentations

- Presentation of Terms of Reference by J. Kipp

Board actions for consideration at this meeting

- Approve Terms of Reference for the 2020 Stock Assessment

7. Elect Vice-Chair (11:55 a.m. -12:00 p.m.) Action**Background**

- David Borden's chairmanship ended November 2017.
- Stephen Train is the new Chair, leaving the Vice-Chair seat vacant.

Board actions for consideration at this meeting

- Elect Vice-Chair

8. Other Business/Adjourn

American Lobster and Jonah Crab TC Task List

Activity level: High

Committee Overlap Score: Low

Committee Task List

Lobster TC

- Conduct analysis to evaluate results of changes to the lobster minimum and maximum gauge size for Addendum XXVII (aiming to be completed in spring 2018)
- 2020 Benchmark Stock Assessment
 - Initial data deadline and write-up of VTS protocol– April 2018
 - Data Workshop and associated webinars May 2018
- Annual state compliance reports are due August 1

Jonah Crab TC

- Annual state compliance reports are due August 1

TC Members

American Lobster: Kathleen Reardon (ME, TC Chair), Joshua Carloni (NH), Chad Power (NJ), Colleen Giannini (CT), Jeff Kipp (ASMFC), Kim McKown (NY), Conor McManus (RI), Tracy Pugh (MA), Burton Shank (NOAA), Megan Ware (ASMFC), Angel Willey (MD)

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), Burton Shank (NOAA), Jeffrey Shields (VA), Megan Ware (ASMFC), Craig Weedon (MD)

SAS Members

American Lobster: Kim McKown (NY, SAS Chair), Joshua Carloni (NH), Larry Jacobson (NOAA), Jeff Kipp (ASMFC), Conor McManus (RI), Tracy Pugh (MA), Kathleen Reardon (ME), Burton Shank (NOAA), Megan Ware (ASMFC)

Jonah Crab: None

**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
AMERICAN LOBSTER MANAGEMENT BOARD**

**The Marriott Norfolk Waterside
Norfolk, Virginia
October 16, 2017**

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

TABLE OF CONTENTS

Call to Order, Chairman David V. D. Borden 1

Approval of Agenda 1

Public Comment..... 1

Briefing on Potential NOAA Lawsuit 1

Southern New England Lobster Working Group..... 3
 Report on Future Management of the Stock 3

Lobster Draft Addendum XXVI/Jonah Crab III for Public Comment 8
 Technical Committee Report on Harvester Reporting and Biological Sampling 8
 Management Issues and Alternatives 15

State and Federal Inconsistencies in LCMA 4 Season Closure 21

Consider Approval of 2017 FMP Review and Compliance Reports 22
 American Lobster..... 22
 Jonah Crab 24

Other Business 25

Adjournment..... 27

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INDEX OF MOTIONS

1. **Approval of Agenda by Consent** (Page 1).
2. **Move to add sub option under issue 1, option c, to allow commercial harvesters with less than a 1,000 pounds of lobster landings in the previous year to report monthly summarized data instead of trip level data** (Page 19). Motion by Doug Grout; second by Pat Keliher. Motion carried (Page 20).
3. **Move to approve Lobster Draft Addendum XXVI/Jonah Crab Draft Addendum III for public comment as amended today** (Page 20). Motion by Pat Keliher; second by Dennis Abbott. Motion carried (Page 21).
4. **Tabled Motion from August 2017:**
Move to (1), allow LCMA 4 fishermen the ability to continue fishing fixed lobster gear for other legal species, such as Jonah crab, during the closed period and (2), exempt closed seasons from the most restrictive rule; as currently defined by the feds.

Motion to Substitute

Move to substitute to: (1) LCMA 4 states (New Jersey and New York) will work with representatives from NOAA Fisheries to develop conservation equivalent alternatives for the current LCMA 4 season closure. We request that the Technical Committee review the alternative management measures to assure that the conservation goals of Addendum XVII are met; and (2) The LCMA 4 seasonal closure relates only to LCMA 4. Permit holders with an LCMA 4 designation in another Lobster Management Area designation on their lobster permits would not have to similarly remove their lobster gear from the other designated management areas during the LCMA 4 closed season. This also applies to seasonal closures in other LCMAs (Page 21). Motion by Jim Gilmore; second by Tom Baum. Motion carried (Page 22).

Main Motion as Substituted:

1 – LCMA 4 States (New Jersey and New York) will work with representatives from NOAA Fisheries to develop conservation equivalent alternatives for the current LCMA 4 season closure. We request that the Technical Committee review the alternative management measures to assure that the conservation goals of Addendum XVII are met.

2 - The LCMA 4 seasonal closure relates only to LCMA 4. Permit holders with an LCMA 4 designation and another Lobster Management Area designation on their lobster permit would not have to similarly remove their lobster gear from the other designated management areas during the LCMA 4 closed season. This also applies to seasonal closures in other LCMAs.

5. **Move to approve the 2017 Lobster FMP Review, state compliance reports, and *de minimis* status for DE, MD, and VA** (Page 24). Motion by Doug Grout; second by Roy Miller. Motion carried (Page 24).
6. **Move to approve the 2017 Jonah Crab FMP Review, state compliance reports, and *de minimis* status for CT, DE, MD, and VA.** (Page 25). Motion by Mark Alexander; second by Jim Gilmore. Motion carried (Page 25).
7. **Motion to adjourn by Consent** (Page 27).

ATTENDANCE

Board Members

Pat Keliher, ME (AA)	Emerson Hasbrouck, NY (GA)
Sen. Brian Langley, ME (LA)	Sen. Phil Boyle, NY (LA)
Douglas Grout, NH (AA)	Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)	Tom Baum, NJ, proxy for L. Herrighty (AA)
G. Ritchie White, NH (GA)	Tom Fote, NJ (GA)
Raymond Kane, MA (GA)	Roy Miller, DE (GA)
Dan McKiernan, MA, proxy for D. Pierce (AA)	Craig Pugh, DE, proxy for Rep. Carson (LA)
Rep. Sarah Peake, MA (LA)	John Clark, DE, proxy for D. Saveikis (AA)
Jay McNamee, RI, proxy for J. Coit (AA)	Ed O'Brien, MD, proxy for Del. Stein (LA)
David Borden, RI (GA)	Rachel Dean, MD (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)	Mike Luisi, MD, proxy for D. Blazer (AA)
Sen. Craig Miner, CT (LA)	Joe Cimino, VA, proxy for J. Bull (AA)
Lance Stewart, CT (GA)	Peter Burns, NMFS
Mark Alexander, CT (AA)	
Jim Gilmore, NY (AA)	

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

Ex-Officio Members

Rene Cloutier, Law Enforcement Representative	Kathleen Reardon, Technical Committee Chair
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Staff

Robert Beal	Max Appelman
Toni Kerns	Megan Ware

Guests

Terry Stockwell, NEFMC

The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened in the Hampton Roads Ballroom V of the Marriott Waterside Hotel, Norfolk, Virginia, October 16, 2017, and was called to order at 10:20 o'clock a.m. by Chairman David V. Borden.

CALL TO ORDER

CHAIRMAN DAVID V. BORDEN: Welcome to the Lobster Board meeting, my name is David Borden; I'm the Chairman of the Board, at least for a short period of time.

APPROVAL OF AGENDA

CHAIRMAN BORDEN: We've distributed the agenda. I have a couple of changes to the agenda that have already been suggested. Pat Keliher requested some time under Other Business.

I would like to add an agenda item. I'm also going to comment on Other Business. But I would like to, unless I hear objections, add an item; which is to discuss the potential litigation involving NOAA, in regards to whales, add that after Public Comment. The reason I'm suggesting that we take that after Public Comment.

Some of the discussions on that may have a bearing on what we do on other agenda items; so I think it's important to just get a briefing on it. There won't be any action; it will just be a briefing. I'm going to ask Chip and John Bullard to come to the table please; if you would, to discuss that.

Do I have any other additions or deletions to the agenda as I just described? If not, we'll take that in that order.

PUBLIC COMMENT

CHAIRMAN BORDEN: Did anyone sign up for Public Comment? Nobody signed up. Is there anyone in the audience that would like to

comment on items that are not on the agenda? No hands up.

BRIEFING ON POTENTIAL NOAA LAW SUIT

CHAIRMAN BORDEN: Okay, so we're going to take the first item, which Chip, would you please characterize notice of litigation involving whales if you would, generally characterize it. I realize that the Agency hasn't really started to take action on it, so just to provide insight to the Board on how this might be handled by the Agency, and then I think John can follow you up with more specifics.

MR. CHIP LYNCH: Hey everybody, Chip Lynch; NOAA Office of General Counsel, and I'm out of the Northeast. We are in receipt of the letter David just mentioned. I am having trouble getting into the internet; so I don't have it right in front of me, but I think it is October 2, or something to that affect. We received a letter that informed us of a Notice of an Intention to Sue.

The letter is something that we are still digesting. We are reviewing it. I can tell you that the subject matter of the letter, Recent Right Whale Entanglements and Deaths, are things that we were already aware of. We were working on notwithstanding the letter. It is in a Notice of an Intention to Sue, it doesn't necessarily follow that there will be litigation after it. But it is going through the internal process as we speak.

CHAIRMAN BORDEN: Questions for Chip on the legal process? No hands up. John, do you want to talk a little bit about some of the policy issues?

MR. JOHN BULLARD: Sure, thank you, Mr. Chair. This has not been a good summer for North Atlantic Right Whales. As best we can tell, the current population stands at about 458. This summer we lost about 15; 12 of those were in Canada in the Gulf of St. Lawrence, 3 in the U.S. That is about 3 percent of the population. By anyone's definition that would be a crisis.

We declared a UME in the U.S. that is an unusual mortality event. We have reached out to Canada; and have a joint effort going on with Canada to both increase our understanding of causes and also what actions can be taken. Necropsies have been undertaken of most, I think about seven of the whales recovered in the Gulf of St. Lawrence, most of the deaths blunt trauma associated with ship strikes, some entangled by snow crab gear.

The Canadians have acted very quickly to establish speed restriction zones. They've enforced penalties on vessels exceeding the limits in those zones; including one of their Coast Guard vessels. They've also very quickly by our standards, imposed restrictions closing snow crab seasons. They are very aware that they don't have much time before their spring season.

We have made a couple of messages very clear to the Canadians. One is that this is a crisis. Second that we think it's best that we approach this jointly. We've explained that the way we have operated, we think successfully in the United States, is through the Take Reduction Team Process, where we work with industry and learn what science has to tell us; and then negotiate with industry what should be done.

I've explained to the Canadians that if two things happen, industry will step forward and make significant steps. The significant steps have been the removal of 30,000 linear miles of line from the paths of whales; and an increase from about 5,000 square miles to 25,000 square miles of protected areas. Those are significant achievements negotiated through the Take Reduction Team Process.

The two conditions that I've mentioned to the Canadians that need to be fulfilled are first a scientifically proven causal relationship between mortality of whales and behavior by industry; whether it's shipping industry or fishing industry. The second is a fair contribution by the industry.

I've said that that fair contribution needs to be determined whether it's fair in comparison of lobster industry versus shipping industry, or fair the U.S. industry versus Canadian industry. But if you can determine both of those things; that is a causal relationship and a fair contribution, it's my belief that industry will step up to the plate.

The forum in the United States is the Take Reduction Team. The Canadians realize that up until now there have been very few restrictions on Canadian industry; so that it would be very hard to go to the U.S. industry and ask for further, let's say contributions. But that is understandable, because it's only recently that the whales have moved north in search of food.

I think Mr. Chair that one thing I would say is this is a crisis. The steps that the industry is taking to date that I've just summarized if the world were fair, would have continued to lead to the slow population growth that we experienced over the last ten years, up until about three or four years ago. But over the last three, four, five years this population has unfortunately been in decline; and then we've had this disaster this past summer. I think, and I'll wrap it up; that Canada recognizes there is a crisis on its hand.

Canada is in the process of taking quick and commensurate actions. I think that more is going to be required of us as well; and that what form that will take I'm not sure. Whether it's removal of more vertical lines, or whether it will take the form of looking at the strength of the lines that are already in the water.

But I think the best way that worked for us is through the TRT process; relying on the wisdom of the industry. As this is the Lobster Board, I'm talking about the lobster industry. But I don't want to leave shipping out either. Unless there are questions, thank you, Mr. Chair.

CHAIRMAN BORDEN: Questions for John; anyone. Pat.

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MR. PATRICK C. KELIHER: Thank you, John. Can you just remind me? Has Canada reengaged with the disentanglement team? They obviously had a tragedy there with the loss of a fisherman trying to disentangle a whale. I know they suspended activities, as we did, for a time. But did they restart those activities?

MR. BULLARD: Yes. Joe Howlett was tragically lost successfully disentangling a whale in July; to my knowledge. They have restarted the disentanglement of all whales; except right whales. I don't believe they have restarted the right whale disentanglement.

I would also say that Minister Dominic LeBlanc, who is the Canadian Minister of Fisheries, is meeting with industry in Monkton, New Brunswick, November, 9, to engage with both their shipping industry and their fishing industry. I've spoken to him; and I know he takes a personal interest in this that is very strong. He is very aware of the need for quick action. I think they will be engaging with both the shipping and fishing industries very quickly.

CHAIRMAN BORDEN: Anyone else? No hands up, okay thank you very much, Gentlemen. We'll get back on the agenda.

SOUTHERN NEW ENGLAND LOBSTER WORKING GROUP

CHAIRMAN BORDEN: We're going to deal with the Southern New England Lobster Working Group recommendations or report in the document. As you recall at the last meeting the Board approved the measures; but in the final action did not approve the addendum. The Board basically formed a subcommittee, and you've got a whole series of recommendations, and we'll go through that in a systematic way. I would like Megan to introduce the issue, please.

REPORT ON FUTURE MANAGEMENT OF THE STOCK

MS. MEGAN WARE: As was mentioned at the August Board meeting, the Board did not approve Addendum XXV for management use; and instead the Board created a workgroup to discuss future management of the stock, particularly in light of climate change. That Work Group met via conference call on September 15. Members included Commissioners, TC members, federal representatives, and industry members.

Together the Work Group has recommended five things for Board consideration today; and I'll be going through those five recommendations. The first is to not reconsider Draft Addendum XXV. Based on the August Board meeting it is clear that there are disparate views on the Board regarding this Addendum. This was shown not only through the extensive voting, but also the comments that asked about the efficacy of the LCMT proposals and the need for action. We had some Commissioners who felt the addendum did not go far enough; while others thought the action was not needed. Given a two-thirds majority vote from the prevailing side is needed to reconsider the addendum, the Work Group did not feel that this was a viable option for the Board.

The second recommendation is to review the goals and objectives by which we manage the southern New England stock. There has been concern expressed that that southern New England stock may not be able to be rebuilt to historic levels. As a result the goals and objectives may no longer be applicable.

The Work Group is recommending that the Board task a subgroup to review these goals and objectives; and then report back to the Board at a future meeting. The third recommendation is to engage with the Commission's Climate Change Working Group. That workgroup is developing recommendations on ways to manage stocks

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that are either negatively or positively being impacted by warming waters.

The Work Group felt that this might be a good resource for the Board; particularly if there is potential to consider southern New England lobster as a case study. The fourth recommendation is to develop terms of reference for the 2020 stock assessment that specifically consider reference points and environmental drivers.

That new stock assessment does provide an opportunity for the Board to consider new reference points; and in developing terms of reference that tasks the TC to review these issues in the stock assessment process, and may help inform future management of the stock. Then the fifth recommendation is to reduce latent effort in Areas 4, 5, and 6.

Under Addendum XVIII, Areas 2 and 3 are going through a series of trap reductions to scale the size of the fishery to the size of the resource. Similar action was not taken in Areas 4, 5, and 6, resulting in a large amount of latent effort. Some states have over 60 percent latent effort. Reactivation of this latent effort would certainly negatively impact the stock.

The Work Group is recommending that the Board task LCMTs 4, 5, and 6 with developing strategies to reduce latent effort; and then those proposals would be presented to the Board at a future meeting. This strategy not only continues progress on this issue, but it also allows the Plan Development Team an opportunity to work on Addenda XXVI and XXVII, before another management document is initiated.

As a final note, I will say that the Work Group's discussion did focus on Board priorities. As I mentioned, the Board has initiated two other addenda; one to address harvester reporting, and we'll be talking about that later today, and then also an addendum to address resiliency in the Gulf of Maine stock.

Given there is a fixed amount of time for the Plan Development Team and the TC, it is important for the Board to prioritize these tasks. The Work Group felt that both ongoing addenda are extremely important to the Board; and noted that the southern New England stock comprises a very small portion of coastwide landings.

CHAIRMAN BORDEN: All right questions for Megan? Are there any questions on the report? Okay seeing no hands up, let me just offer a couple of suggestions here on process. I think the easiest issues for the Board to deal with in this order are Issue 2, 3, and 4. I think they are pretty straightforward, and then take up 1 and 5. The only reason I'm suggesting that I think the decisions flow better. Do I have any objections to taking those up in that order? No objections.

On Issue Number 2, review the goals and objectives. This comment was made by a number of individuals, and this came up at quite a few of the prior Board deliberations that there may be a disconnect between the current goals and objectives, and those that have been adopted. I just remind everybody that not only do we have kind of overarching goals and objectives; but a lot of times when we do an addendum we have goals and objectives that are specific to the addendum.

If we were to agree with this concept, then my view would be between now and the next meeting we would review all of the goals and objectives that are contained in the lobster document; and formalize a recommendation for Board consideration, which would basically be an action item at the winter meeting.

Now if it requires a revision to a document we could piggyback that on some subsequent addendum; so it wouldn't require an immediate increase in the workload of the staff. I would also repeat, because this is kind of an overarching comment, that the workload, since we've already committed to two what I view as

high priority addendums, Addendum XXVI and XXVII. This simply, between the PDT, the Technical people and the staff, we don't have the resources to do three addendums in the coming year.

To me it makes sense to kind of take a step back. I think this was one of the recommendations that our Commission Chairman made. Take a step back, look at the goals and objectives, and reformulate those and then bring them back to the Board. Does anyone object to that; would be the first question I would ask? If there are no hands up then what I would say is we'll figure out a process and a subcommittee to work on that. John, please.

MR. JOHN CLARK: Just quickly. I mean we just rejected an addenda; its goal was only to increase egg production by 5 percent. If we can't do that I mean is this just going to be going through an exercise to come up with more goals and objectives that this Board will have difficult passing? I mean it seems that if we can't even increase egg production by 5 percent, there is not a lot we can agree to do, other than what we've already got here.

CHAIRMAN BORDEN: That's a point. But I just reiterate what I said before. I think the merit in this strategy of looking at everything in kind of a holistic way. This is something that the Commission Chairman has engaged all of us with; that we really need to take a step back.

Northern shrimp, southern New England lobsters, there are a whole number of stocks that we really have to come up with a different model on how we're going to manage these things; instead of just being in this kind of driven process, where we're just defining near term goals and objectives. I can see you shaking your head. This is a broader review is what it is. Let me ask the question again. Does anybody object to doing this or want to comment? Dan, you had your hand up.

MR. DANIEL MCKIERNAN: I just wanted to make an observation that when you talk about the holistic management. In some ways we need to play a little bit of catch up, because what has happened in the last five to ten years in southern New England is there has been a shift towards Jonah crabs.

The Jonah Crab Management Plan states that the directed fishery shall be executed or prosecuted by the lobster fleet. It's really time to sort of recognize that this is a fishery that is shifting onto those two species; and to come up with ways that we can tease out some of the data going forward.

But we need to recognize that. For reasons that I don't think were appropriate, we tend to treat these two species separately; yet if you're a fishermen fishing out of New Bedford, or some of the Rhode Island ports bringing in lobsters, chances are you're bringing in more income from Jonah crabs. It's time in these exercises to actually bring those together.

CHAIRMAN BORDEN: Let me ask the question again. Does anyone object to this task? If not, then I'll work with the staff. We'll pick out a small subcommittee to work on it. If you want to volunteer for that we love volunteers. You won't be shot if you step forward. There are a couple of hands up. But we'll work on that. We'll have subcommittee meetings, and we'll bring you a written recommendation. Ritchie.

MR. G. RITCHIE WHITE: My hand was not a volunteer.

CHAIRMAN BORDEN: No, I didn't think it was your hand. I thought it was Dennis's hand that went up.

MR. WHITE: I think it would be important in the subgroup to have Technical Committee representation. I think that there is going to be a need of an evolution within technical committees listening to what we just listened to. I saw in the Northern Shrimp Technical

Committee, reluctance to move away from the maintaining recovery and rebuilding.

I can see that it's hard for a technical committee to not have that as a goal. I think that the Technical Committee as well as the rest of us, I mean this is all new and we're coming into this. I think that they are a part of any of these discussions on any of these species I think is very important.

CHAIRMAN BORDEN: Anyone else to this point? Okay so we'll handle it in that manner; and what we'll do is we'll solicit. If somebody wants to participate in it we'll get, I like Ritchie's suggestion. We did that I would point out with the Georges Bank/Gulf of Maine Subcommittee. We did a combination of technical people.

It's really interesting to see the dynamics of putting some of the technical people right next to their bosses, and watching them disagree. We'll do that. We'll handle Number 2 in that manner, and we'll put this into a memo so everybody understands the exact process. Okay, Number 3 I think is fairly direct.

The Chair created this Climate Change Working Group. The group has been meeting, formalizing recommendations. We're all going to be briefed on those sorts of discussions as they go along. I'm not sure that we need any further action on it; other than to keep ourselves integrated into that process. Doug, do you want to speak to that?

MR. DOUGLAS E. GROUT: Yes, we have a document that we're going to give you an overview of at the Policy Board meeting; where we have a variety of recommendations, sort of a list of options that boards could use to adapt management, and also the science to changes in the resource due to environmental changes.

The intent is to give you sort of an overview of it, give you a chance to think about it, and then at the February Commission meeting, hopefully the Commission will adopt that as a policy

guidance that they can give to the boards to use, if they find their species being impacted by changing environmental conditions.

CHAIRMAN BORDEN: All right, any questions for Doug on his statement? This is ongoing and we'll have further discussion on it at the winter meeting; anything else on that issue? The next item is this issue of the terms of reference for the stock assessment. This is something we routinely do. There is nothing new here.

I spoke to Bob and Toni before the meeting. Basically, what they would propose on this is the staff will develop terms of reference for us to consider; and then circulate those to a broad group of the Board, and ask for comments. Everyone will be solicited, and then they will consolidate those comments and give us a presentation at the winter meeting.

Are there any objections to that? Okay, now we get on to the more difficult issues. Number one is the issue of not reconsidering. Since I chaired the subcommittee, I would just comment and this is repetitive, but one of the major issues that the subcommittee tried to grasp is the workload issue. If you look at what was contained in Addendum XXV, and where we end up.

In other words, if you compare full adoption of Addendum XXV, according to the measures that we approved, and not taking action on Addendum XXV. There are differences, but they're not significant differences. This was pointed out by a couple of Board members at the last meeting. John just offered a comment on the 5 percent.

In terms of Area 3, the proposal was basically to cut traps by continue the cut in traps. I would note, going back to the whale discussion that that has to be kind of a critical issue in our whale deliberations. If you cut traps, you're going to cut vertical lines. Last year, if you look at the compliance report, with the combined efforts of NOAA and the Commission, the

Board, we've eliminated 15,000 traps in Area 2 and 3.

That is a significant decline. That area, I would point out, contributes about 70 percent of the landings to the southern New England stock. In the area that most of the landings are coming from, there is this ongoing program that if you look at Area 3 from the start of the trap cuts until now, we'll end up with more than a 50 percent cut in traps in Area 2 that will be a 50 percent cut in traps.

The one downside of not taking action on Addendum XXV, related to Areas 4, 5, and 6. But they are really minor, and I don't mean this is a disparaging manner. They're really minor players, in terms of the stock. I would also emphasize that southern New England, if you look at just the lobster stock and what we manage collectively, the southern New England lobster stock right now contributes 2 percent, 2 to the landings that we manage. We all have to put that in context of workload and other things. Let me ask the question. Although I invested a lot and Megan invested a lot of personal time in getting that addendum to the state that it got.

I think it's a rational decision to just move away from it, and focus on Addendum XXVI and XXVII, which I view as higher priorities. But I am going to defer to the Board. If anybody disagrees, and they think we should reconsider that addendum, now is the time to speak. Is there anybody at the table that thinks we should reconsider the addendum? No hands up; anyone in the audience? No hands up.

Is there any further action that's required here? The addendum, we're just going to move away from it. Last item, part of the charge, and Megan spoke to this. Part of the charge going back to addendum XVIII was for Areas 4, 5, and 6 to eventually deal with the issue of latent effort and excess effort now. It was kind of in the context of right sizing the industry for the reduced size of the resource.

I think that was the language that we used in the addendum. The last time we discussed Addendum XXV, we heard a couple of suggestions. One I think was from a representative of Connecticut delegation, and another I think from the New York delegation that there was still a continuing need to reevaluate this, and possibly formalize some strategies for dealing with the issue.

My suggestion on how to deal with that is rather than do this from the top down, what I would propose is that we basically engage as the Working Group recommends, engage the LCMTs in those states to meet with their participants; and have them give us recommendations on how that should be done.

It's a charge that we have deferred action on for some time; it's probably overdue, and then report at the next meeting on what they think are appropriate strategies. If they do that then the Board would be in a position to decide whether or not they wanted to pursue some of those in a subsequent addendum.

But there wouldn't be any immediate action. This would be nothing more than a review by those states. Do you have a problem? Look at your latent problem. Talk to your industry, and come back to us with a range of alternatives that the Board could consider. Are there comments to that; any objections? Pete Burns.

MR. PETER BURNS: I think this is a good approach to allow 4, 5, and 6 to take a look at their latent effort and see what can be done to maybe tailor that down a little bit. We know that Area 2 and Area 3 have done a lot with trap reductions over the years; and they're still going through their scheduled trap reductions.

We at NOAA Fisheries are looking at the Addenda XXI and XXII trap cap reductions and things that could potentially help with reducing effort in the offshore fishery. But I was wondering if it might be worthwhile to really

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add Area 2 and Area 3 to this list. Even though we know that they've done some things already to reduce traps. If we're going to do a wholesale inventory of how many traps are out there and what the fishery should look like, it might be worthwhile. Even if this is just going to be a review to see what potential options might be available, whether it would be worthwhile to add Area 2 and 3 to the discussion. I think that might be a good way forward.

CHAIRMAN BORDEN: Comments on that any objections to that? No objections. I would also point out. If there are no objections to doing this, then it's basically a task for the states to work on with their LCMTs. I would also just point out, given the discussion we started out with today, by Chip and John on whales.

It might be a good idea for some of the other areas to engage with their LCMTs, and talk about ideas and strategies that could be used to reduce effort and reduce vertical lines in some of the other areas. I know some areas, for instance, and I'll use Massachusetts as the example, have basically banned vertical lines when the whales are there.

Some of the states have taken kind of extreme actions on this; but there may be other strategies that we could consider to accelerate that dialogue that will eventually end up with the TRT. Are there any comments on broadening this review? Does anyone think that's an inappropriate or an appropriate strategy? Doug, do you want to speak to this?

MR. GROUT: No, I would agree that I think we should broaden it, to try and get out ahead on this.

CHAIRMAN BORDEN: Okay, any objections to doing that? If not then all the areas have the same task then. We'll see where this goes when we get the reports by the areas. From my perspective the industry has been fairly creative, and willing to come up with useful

strategies. I think it's a good opportunity for us to listen to them again. Is there any further business on southern New England?

LOBSTER DRAFT ADDENDUM XXVI/JONAH CRAB III FOR PUBLIC COMMENT

CHAIRMAN BORDEN: The next issue is the data collection addendum, which is XXVI. This has been something that has been sorely needed. The technical people, the PDT members have pointed out to us repeatedly that there are deficiencies in the data collection program; and the Technical Committee has done, in my view, an excellent job of pointing those deficiencies out. The first thing I think we're going to hear here is a report by Megan, Kathleen first, and then we'll get into a discussion of the addendum. Kathleen.

TECHNICAL COMMITTEE REPORT ON HARVESTER REPORTING AND BIOLOGICAL SAMPLING

MS. KATHLEEN REARDON: For Addendum XXVI, the TC was given two tasks. The first task was to evaluate harvester reporting. As part of this task we were asked to assess if the current minimum 10 percent harvester reporting level is statistically valid. We looked at the benefits and potential improvement of precision, with higher percentage of reporting.

Then we make recommendations that could improve harvester reporting. For the second task we looked at fishery dependent bio sample collection efforts. We were asked to identify gaps in the current monitoring programs, and make recommendations to improve fishery dependent bio sampling.

Back in 2007, Addendum X determined the reporting requirements for the lobster fishery. Since 2008, all states collect 100 percent trip level data from dealers. For harvester reporting all states except Maine, require 100 percent reporting, while Maine has 10 percent coverage. In Maine the 10 percent random selection is stratified by lobster zone and license class, so it is not just a straight 10 percent of all

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licenses. License class is based on crew number and age; and tends to be a proxy for the size of business. The reports are submitted in paper form. The question of the 10 percent harvester reporting in Maine is important; because this fleet makes up the bulk of the U.S. lobster fishery, yet has the lowest percentage of reporting.

Maine harvests 80 percent of the total U.S. landings; with almost 6,000 commercial licenses, and more than 265,000 trips a year. Each year the Harvester Logbook Program selects 650 to 700 licenses to report; and the program enters about 30,000 records. There are a high proportion of licenses without landings, or latency in some license classes.

Back in 2007, to determine a minimum harvester reporting level, the TC used the available Connecticut 1997 logbook dataset as a proxy; because it provided 100 percent of the data on the state's fishery with reported landings and trap hauls. Connecticut had a much smaller fishery, with a couple hundred permits; while Maine's fishery was a couple thousand licenses.

The previous analyses bootstrap that Connecticut data at 2 percent increments to assess the coefficient of variance or CV, at different sampling levels to provide the curve shown. A CV is a measure of variability from the mean, and can be used to determine the precision of results. A lower CV means less variation and greater statistical confidence.

Using the Connecticut data, the TC recommended sampling at 30 percent in 2007 to achieve an estimated 20 percent CV; but the Board ultimately required a minimum 10 percent reporting level in Addendum X that could achieve an estimated 30 percent CV, with expectation that sometime in the future 100 percent reporting would be required.

Now, ten years later, we have available state data with 100 percent coverage. It provides a

useful check on the previous analysis and our current results. This figure shows the CVs for total annual landings by license at increasing levels of sampling from 2 to 50 percent for three states. The original 1997 Connecticut data in black, Massachusetts Area 1, 2015 data in blue, and Maine's 2015 data from the 100 percent dealer reporting dataset in red.

This is a useful figure to show how the difference in sample size can impact the CVs, where Connecticut has the highest CV with just over 400 license holders, and Maine has the lowest CV with nearly 6,000 license holders. Massachusetts falls in between. To assess the validity of Maine's 10 percent harvester logbook coverage, the TC looked at multiple effort metrics, including total annual trips, trap hauls, total soak nights, max traps, total annual landings, and average traps per day.

We calculated the CVs for all of these metrics across years from the 10 percent reporting in Maine; and found that the CVs tended to be low and stable across all six variables. The TC was surprised by how low these values were, with only 10 percent reporting. CV for landings was highest being just below 5 percent, with trap hauls and soak nights averaging around or under 4 percent.

The number of trips averaged around 3 percent. CVs for average number of traps and max number of traps were both below 3 percent, and declined across the time series. These low values provide evidence of precision in the dataset. When the metrics were calculated for each license type, the CVs were higher. But the three license classes that dominated the fishery, LC-1, LC-2, and LC-3, had the CVs at 10 percent or lower. The license types with higher CVs had fewer permit holders for a higher variability in fishing status. Overall this analysis suggests that 10 percent harvester reporting is producing a sufficiently precise representation of the Maine fishery.

To put these numbers into context of other states, we can look at the CVs calculated at different sampling levels for trap hauls, from Massachusetts in Area 1, in 2015 and Connecticut in 1997. The CV at 10 percent in Maine is less than both states at even 50 percent. This again is due to the large sample size and the scale of the Maine fishery.

Maine's 10 percent includes more licenses than most other state's active licenses. We further examined the accuracy and precision of the current harvester reporting, by comparing estimates of total landing, scaled up from harvester data to dealer landings. This assumes that the dealer data represents the true value in the population.

Using the harvester data, we calculated the total landings and 95 percent confidence intervals for each year, and plotted them against the total landings by years reported in the dealer data. Again, to the TCs surprise, the two datasets compare admirably well; most mean harvester-based landings estimates being at slightly at or slightly below the total dealer landings.

Harvester confidence intervals were about 10 percent of the mean estimate. Only in 2009 did that estimate for harvester landings not fall on the line with the confidence intervals. Also the other thing that was noted was that the harvester landings were able to track the increase from 2008 to 2015.

Next the TC evaluated potential benefits of increasing the percentage of harvester reporting in the Maine lobster fishery, particularly looking at the resulting CVs. TC examined the effect of increasing the percentage of harvester reporting from 10 percent through 50 percent in 10 percent intervals through bootstrapping the CVs for trap hauls from the Maine Harvester Logbook data.

Increasing sampling effort decreased trap haul CVs from around 3.5 percent at 10 percent

proportional reporting, to 1.2 percent at 50 percent proportional reporting. TC found consensus that with already low CVs at 10 percent, increasing reporting levels provides marginal benefit and a potential high cost with current paper logbook methods.

With marginal statistical benefit for increasing the reporting between 10 and 100 percent, the TC suggests that resources could be better spent developing approaches to electronic reporting that could make 100 percent coverage feasible and efficient, than by increasing the coverage using current methods.

The next question the TC tackled was if we could improve the sampling efficiency using the current expended resources. First we had to evaluate the appropriate stratification factors. We used generalized linear models to determine significant factors that explained deviance in the models, and found that license class and status were most important.

Surprisingly, zone or the spatial coverage across the state was relatively unimportant for explaining variance in metrics. One problem with harvester reporting stratified by license class is that many licenses are not actively fished in the given year; and thus a portion of the harvester reporting resources are being assigned to such latent licenses. Sampling of latent licenses occurs, because vessels are selected for reporting in the coming year based on the license type they purchased in the previous year, thus incurring a two-year lag between the basis for selection and actual reporting.

We looked at the patterns of latent licenses. We found that annually about 25 percent are latent and that is stable over time. But the status in the selection year cannot always predict the activity in the reporting year. A certain proportion of each license class and status change between active and latent between their selection and reporting year, and it was different for different license classes.

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I know you can't really read the axes on here. To give you an example, on average for LC-3 licenses, those are the biggest businesses that were latent in the selection year, 50 percent became active in their reporting year two years later. For LC-1, they had less than 25 percent activation; so it is different for different license classes.

With the knowledge of the important factors of license type and activity status, we can improve sampling efficiency and precision of the harvester reporting program in Maine with current resources, or can we do that? With the large number of latent permits being sampled, particularly for LC-1, we determined that efficiency in harvester reporting could be gained by taking a vessel's history of status, active or latent, into account when selecting vessels for coming years.

To address the different patterns within the stratification, using license class and status, we explored an optimal allocation approach rather than a proportional one. We created a function that balances the variability, the cost, and population size within each strata, and calculated an optimal allocation for each effort metric.

This could decrease the number of vessels required to report, but it would increase the amount of useful data from the active portion of the fishery. This is the allocation for each metric, with the average traps landings, max traps, total soak nights, trap hauls, and trips. Just following the trends in these figures, there was more allocation for the active LC-2 and LC-3.

We chose to focus on the metric of total annual trap hauls to optimize the allocation for the dataset. Using trap hauls as their optimizing metric, the optimal approach fine tunes the CVs from 10 to 50 percent, again with the marginal statistical benefit for increasing the reporting higher than 10 percent.

In discussion, the TC strongly supports the future goal of 100 percent harvester coverage through electronic reporting. A hundred percent harvester reporting could produce a more perfect dataset of actual trap hauls and a spatial extent of the fishery, to better answer the spatially specific management questions.

That said the current 10 percent reporting program is statistically valid for Maine; because of the large scale of the fishery. There is marginal benefit of increasing coverage between 10 and 100 percent, considering the size of the fleet and the high cost of submitting on paper reports in the associated data entry. Until electronic reporting is developed, the current proportional method can be fine tuned using an optimized sampling approach. This recommendation would focus the program on active permits; while still accounting for the unpredictable, latent effort to characterize the whole fishery. If adopted, optimized sampling levels should be revisited every three years, until 100 percent is achieved, because the CVs could be impacted by changes in operational fleet dynamics like trap hauls, population size within each strata, or generally the scale of the fishery.

Moving on to the second task, the TC evaluated the current fishery dependent bio sampling programs. Sources of these data are the state programs, NOAA Fisheries, including the standardized bycatch reduction methodology or SBRM, and the Commercial Fisheries Research Foundation or CFRF.

The TC depends on bio sampling data to provide sex ratios, and length compositions to characterize each area for the stock assessment. Fishery dependent programs can be port or sea sampling. Sea sampling is typically preferred, because it includes data on both the harvested and discarded portions of the catch; while port sampling often is the most feasible, because it is land based, but only

provides information about the harvested catch.

In the past the TC has applied a standard of requiring at least three samples from each statistical area, quarter and year to have adequate coverage. The problem is that historically regions of the lobster fishery have not achieved this minimum sampling standard, leading to gaps in the bio sample data, especially offshore, in southern New England, and in the winter months.

Past stock assessments have required gap filling or borrowing data from adjacent statistical areas, quarters, or years; increasing uncertainty in the models and results. Sea sampling is preferred, but as I said logistically difficult offshore and during the winter; and can be costly compared to port sampling.

The TC evaluated the available data in 2015, and '16. I have to apologize here. Some of the maps in your briefing materials are incorrect, and need to be revised. Megan tells me these will be corrected in the final meeting documents that will be posted online. But these maps are correct. This figure shows maps of the statistical areas where the stock assessment uses data.

Each window is a quarter from summer, fall, winter, and spring; and the white areas are ones where we have the standard three samples per statistical area and quarter in both of the past two years. The areas with color are where we are missing the standard three samples, and the color scale indicates the level of landings in thousands of pounds for each area.

Warmer colors are more landings that are unrepresented in the bio samples. As expected, the best available coverage comes with a combined port and sea sampling from all sources. The inshore areas are well covered by existing, mostly state programs. But there are a number of offshore and southern New England

statistical areas with data gaps; especially in the winter.

Because of the importance of characterizing the discarded portion of the catch, we also looked at the available sea sampling only data, and found the coverage decreases further in some offshore areas. In the past two years we actually had more sampling effort than available previously, because of NOAAs SBRM program increasing the priority to look at bycatch in the lobster fishery. They increased their number of trips, and the Commercial Fisheries Research Foundation, collaborating with fishermen to collect data. Both of these programs are highly dependent on funding, in such that the SBRM did a large amount of sampling in 2015, and almost none in 2016. Without these efforts the offshore areas have very little coverage, as you can see in the right figure. It's almost all colored.

Considering the importance of the lobster fishery in the U.S. and continued area-specific-management questions, the TC continues to advocate for a greater priority in fisheries dependent sampling funding, to achieve the minimum three samples for each statistical area and quarter per year, especially for landings of high landings to reduce uncertainty in the stock assessment. Sea sampling data is preferred, but port sampling is acceptable if nothing else is available.

We recommend that NOAA Fisheries implement a lobster bio sampling program that increases coverage offshore. This program should be independent of SBRM, stratified by statistical area, and coordinated with other state and federal programs to avoid overlap and increase efficiency. The TC also recommends reevaluation of these priorities within the assessment process, to accommodate changes in the fishery and landings patterns. Thank you, I welcome any questions.

CHAIRMAN BORDEN: Questions for Kathleen, any questions? Pat.

MR. KELIHER: In deference to my good friend, Dan McKiernan and the Commonwealth of Massachusetts, I just want to make sure it's clear that it looks like 10 percent is statistically viable. I am withholding my urge to jump up and start a wave around the room.

CHAIRMAN BORDEN: Dan, would you like to rise to the bait, or the fly I should say?

MR. McKIERNAN: If there is a hat I can eat, I guess I'll eat my hat. I would like to congratulate the state of Maine and the TC for a great presentation. One thing that does strike me though is maybe one of the reasons that the precision is as good as it is, maybe Maine's fishery is a little more homogeneous than maybe people had thought going in.

What strikes me is, while the analysis is great, what is missing is actually a summarization of effort. I think going forward; since the document has demonstrated that there is adequate precision in some of these parameters. It's time to present those parameters. I think all the states should probably be collecting and presenting more precise and comprehensive data on effort, active permits, traps fished and trap hauls; especially now that we're comfortable that Maine's data will actually be valid and statistically accurate. It's really good news.

CHAIRMAN BORDEN: Jay.

MR. JASON McNAMEE: I just wanted to complement the TC; this is a fantastic job, really thorough analysis. You guys did a bang up job. I have two questions for you. I just didn't see it in either of the report. You guys may have done this. You allude to the fact that a lot of those favorable statistical qualities from the Maine sampling program is due to that large sample size.

It usually is the key for good statistics. I wondered, and you sort of showed this. I hope

that sample size stays high forever, just to make sure that's clear. But I wondered; did you guys talk about maybe some criteria where if that sample size decreases, presumably the CVs would decay at some rate. Did you guys talk about some criteria of where that 10 percent might not be valid anymore, like what that sample size needs to stay at? Then I have a second question, Mr. Chair that is somewhat related, once Kathleen answers.

CHAIRMAN BORDEN: Kathleen, do you want to respond to that and then I'll come back to you, Jay for a second question.

MS. REARDON: Yes. The scale of the fishery is something that we discussed a lot. That was one of the reasons for the recommendation to revisit every three years; because of potential change of scale of the fishery, but also we noticed that there were dynamics between the license classes that were shifting over time, even over the period of time that we were evaluating. It is important to look at that over time.

CHAIRMAN BORDEN: Jason.

MR. McNAMEE: That makes a lot of sense. Then just to follow on. The CVs are small, but the fishery is big; and so I wondered if you also investigated, while it might be a small proportional change, did you guys investigate so if it was the high end of that 0.02. Is that a lot of landings to the point where it's impactful potentially to the stock assessment?

The CV represents the uncertainty, so if you were at the high end of that uncertainty, given the magnitude of the fishery, while the proportion is small the magnitude might be high. Is it high enough to have an impact to potentially stock assessment outputs and things like that?

MS. REARDON: I would point to the slide that compares the harvester landings expanded up to the dealer landings; in that it does represent,

if we consider the dealer landings as true, the harvester landings when you expand it and scale it up to the whole fishery, can represent the total.

I think every year except for one fell within the 95 percent confidence interval. I think that we feel pretty confident that especially looking at it that it was able to go with the increase of landings between 2008 and 2015. If it was able to track those increases, just with harvester reports, we feel confident that we would be able to track changes.

CHAIRMAN BORDEN: Are there any questions for Kathleen? Pat.

MR. KELIHER: Kathleen that was a great presentation, aside from my giddiness over the 10 percent. Jay, I'm not going to move for a 5 percent sample size. I do, Mr. Chairman, want to point out that the comment by the TC in regards to the cost benefit of going to 100 percent, and it's still their desire to go to 100 percent reporting.

But electronically is a really important one here, and one that the Board should not just glance over, because I think we have a situation here both from the science perspective, but also from an enforcement perspective that we shouldn't lose sight of. The idea of going in the direction of electronic reporting that can both be from a harvester perspective, a dealer perspective, and from an enforcement perspective, can't be lost. We need to, I think highlight that and have a much higher focus on those items. The paper, going to 100 percent for the state of Maine from a paper exercise was about a half a million dollars a year. Let's try to find a way to reinvest those types of dollars and move forward with a strong electronic component.

CHAIRMAN BORDEN: Is there anyone else? Ray.

MR. RAYMOND W. KANE: Thank you for the great TC report. I make reference to Pat's statement. That was going to be my question. Did the TC put a timeframe on electronic monitoring when they would like to see it, in fact, in play?

MS. REARDON: We did not put a timeline on it. I think we know that Maine is looking at electronic reporting; and the addendum also looks at electronic reporting and trying to push that. It's when it's feasible and can produce accurate reports, I think. But we do not have a timeline.

CHAIRMAN BORDEN: Jay and then Dan.

MR. McNAMEE: Just quick on the tail end of the presentation there. This is probably more of a comment than a question. But I noted in the TCs recommendations on that bio sampling. One of your recommendations was for NOAA to increase some of that sea sampling. I just wanted to make the comment. I think the other thing your presentation showed was the value of that industry collaborative information. That should be a part of that investigation.

I think that might be a cost effective way, maybe that can be expanded as well or in lieu of, probably not in lieu of, but as well. I just didn't want to lose that point. I think that CFRF industry collaborative collected information. Those guys are out there. If they're willing to collect information for us, we should take them up on that offer. I just wanted to make sure we didn't lose that point.

CHAIRMAN BORDEN: Kathleen, to that point.

MS. REARDON: I think that was actually something we looked over. We should have said make sure that there is funding for those industry collaborative efforts; because the data is definitely very useful, and it's collected in a cost efficient way.

MR. MCKIERNAN: I would like to again agree with Pat Keliher about the need to get to that next generation of technology, for purposes of collecting fishery data, and that would be a great outcome. My question to you is, if I were to ask for support to include in future plan review reports, effort statistics. Would it be later in the meeting when we're going to review that report, or would it be now?

MANAGEMENT ISSUES AND ALTERNATIVES

CHAIRMAN BORDEN: Later. Is there anyone else on this segment of the report? If not we're going to move on to Megan's report.

MS. WARE: I will be reporting on Lobster Draft Addendum XXVI, which is also Jonah Crab Draft Addendum III. This is the first change that I'm going to talk about today. This is now a joint addendum for both species. Given the Jonah Crab Fishery is jointly managed by the Lobster Board, and reporting requirements in the two fisheries do mirror one another, this addendum is proposing changes to the reporting and biological sampling requirements in both the lobster and Jonah crab fisheries. Setting the stage for this addendum, the problems we are trying to address are that current harvester reporting requirements do not provide the level of information needed to respond to outside management issues. While the lobster fishery continues to move offshore, and we have an expanding Jonah crab fishery in federal waters, the majority of our biological sampling is occurring inshore.

Our goals for this addendum are to utilize the latest technology to improve reporting, collect greater effort data, increase the spatial resolution of harvester reporting, and advance the collection of biological data offshore. As a reminder to our timeframe, the Board initiated this addendum in January, and then between February and October the Plan Development Team and the TC completed their components.

We are considering this for approval for public comment today. If it is approved, then our public comment period would be November through January, and the Board would take final action in February. Kathleen touched on this a little bit, but just a reminder of our current reporting requirements.

Under Addendum X it's a minimum of 10 percent harvester reporting, with the expectation of 100 percent reporting over time. Some of the data components that we collect in harvester reports are things like stat area, number of traps hauled, number of traps set, the pounds harvested, and then also the trip length.

There are also biological sampling requirements. Right now there is a sea and/or port sampling requirement. It is supposed to be weighted by area and season, to match the three-year average of commercial catch. However, this volume of sampling well exceeds current state budgets. This has not been something that the states have been achieving.

De minimis states are required to conduct one of the following surveys, either a trawl survey, a ventless trap survey, or a settlement survey. For Jonah crab, many of the requirements mirror those in the lobster fishery; and states were asked to extend their lobster sampling programs to Jonah crab.

Starting off with harvester reporting, there are three main issues that we've come across. I think the largest one is the lack of spatial information that is collected in the fishery. Right now we collect information by statistical area; however, this is too coarse to respond to many management actions, and an example would be the Council's Deep Sea Coral Amendment, which looked at very specific coral regions.

To estimate economic impacts for that coral amendment, information from harvester reports, surveys and industry interviews had to be pieced together to come up with some sort

of economic impact. Another challenge is that not all states are collecting information by LCMA. There can be multiple LCMAs in a single statistical area. It's not always simple to assign landings to a management area.

An example is Area 521 that spans Management Area's 1, 2, 3, and outer Cape Cod. The second deficiency is the lack of information that is being collected on the depth. This is an issue given many management actions, including that coral amendment, as well as the National Monument were considering various options based on depth zones. We did not really have the information on where the fishery is being prosecuted, to answer those questions. Then our third deficiency is not all harvesters are required to report. As Kathleen just talked about, Maine accounts for over 80 percent of lobster harvest; but only has 10 percent harvester reporting. This is largely due to the size of Maine's lobster fishery, which has more trips taken in the lobster fishery than all trips in most states fisheries. Then there is no reporting requirement for lobster, only federal permit holders. Those permit holders are not required to report through VTRs.

Looking at some of the biological sampling deficiencies, while our surveys span a broad length of the coast, most surveys are conducted within 12 miles of shore. This is of concern, given that the majority of landings in southern New England and an increasing portion in Gulf of Maine are coming from that offshore area.

As Kathleen just talked about, the TC has identified data gaps in the fishery by comparing that sea and port sampling effort to the magnitude of landings. The greatest data caps appear to be in Georges Bank and offshore Gulf of Maine, with some in southern New England. Before going through the management alternatives, I do want to note that the Atlantic Large Whale Take Reduction Team has been discussing deficiencies in the collection of fishing effort data.

That data goes into their co-occurrence model, which predicts where gear and whales overlap. That team is considering an annual recall survey; which would be sent to fishermen to collect additional effort data. Some of the information they're interested in collecting is the color of the buoy, the weight of the trap, number of traps per trawl, buoy configuration, buoy line diameter, the weight of anchor lines, and the color of the buoy underside.

This addendum does provide an opportunity to proactively address some of these data concerns. However, the PDT did feel that many of these data components are more specific than what is typically required in a trip level report. Another kind of confounding part of this is that many state level reports are used for multiple species.

We need to think about how those reports would be impacted for other species. I raise this to the Board, to note that there are management alternatives in this document which add some of these data components to trip reports. However, there is not an option which adds all of these data components to a trip report.

There is an ability to collaborate on this issue; and I think that collaboration potential increases with electronic reporting, so that is something that could be discussed down the road. We'll go into the management issues and alternatives. Our first issue asks what the percentage of harvester reporting should be in the lobster fishery.

Option A is status quo. We would maintain that minimum 10 percent reporting requirement, with the expectation of 100 percent reporting over time. States with a higher level of reporting would be required to maintain that higher percentage. Option B, states maintain their current reporting effort.

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If a state is at 100 percent reporting they maintain that percentage. If a state is at less than 100 percent reporting then they maintain that current level of effort; but distribute through an optimal allocation. That's what Kathleen was talking about in the TC report. There is an expectation of 100 percent reporting overtime through the use of electronic reporting for Option B. Then Option C is 100 percent harvester reporting, so all states are required to implement 100 percent reporting, and if a state is not at that percentage right now, it can be phased in over five years. The addendum does highly encourage electronic reporting; and this has been supported both by the PDT and the TC. Some advantages of electronic reporting are that it's a cost effective method to increase the reporting percentage, and it also provides flexibility to collect expanded data elements, and specifically here for that Take Reduction Team that could be important.

The addendum recommends that states use the SAFIS application eTrips or eTrips-Mobile. This can be implemented at little to no cost to states. It is approved by GARFO for EBTRs, and there is a well-established relationship between ACCSP and ASMFC. The addendum does allow states to use a different electronic reporting platform; but it must be API compatible, which basically means that the data can be consolidated with other sources.

If a state was interested in a different platform, then they would submit a proposal to the Board, demonstrating that that platform meets the reporting requirements in this addendum, and can accommodate the scale of the fishery. This is Issue 2, and it's asking what data components that we should be collecting in harvester reports.

Under Option A, it is status quo, so we would continue to collect information on things like the stat area, the number of traps hauled, the number of traps set, the pounds and the trip length. Under Option B we would expand those

data elements; so we would include depth, bait type, which will give us a bit of economic information on this fishery, and soak time.

I will note that states are collecting soak time information now, so Option B would codify that ongoing practice. The Option C specifically is asking about gear configuration elements. Again, this is addressing some of those Take Reduction Team data needs. We would add number of traps per trawl, and number of buoy lines.

I will note that Options B and C are not mutually exclusive, so the Board could choose to implement both Options B and C here. Then Issue 3 asks about the spatial resolution at which we collect data. There are five options here. Option A is status quo. We would continue to collect information by stat area.

Option B is stat area and LCMA. Option C is stat area and distance from shore, so this would provide landings based on inshore, nearshore, and offshore. We define that as 0 to 3 miles, 3 to 12 miles, and greater than 12 miles. Option D is 10 minute squares, and I'll show a figure of what that looks like.

It's going to be a much more specific grid on which we would report. This is our coastline here, and the black lines are the LCMAs. Then Option E is electronic tracking. This is saying that the Board is interested in pursuing electronic tracking. One of the challenges with electronic tracking is that the fishery does cover a wide geographic area, and it is conducted on a wide variety of boats with different capabilities.

We need to identify technologies that meet our data needs; but are also compatible with this range of boats and climates. The PDT did consider VMS; however the Law Enforcement Committee has noted that one of the most important features here is a fast ping rate, so that we can decipher between trap hauling and steaming. The VMS does not have this type of fast ping rate. Under Option E, the first step is a

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one-year pilot program to test electronic tracking devices in the fishery. We will put together a subcommittee comprised of LEC reps, industry members, and Commissioners to design and implement this pilot program. The success of the different technologies would be evaluated based on compliance, ability to determine trap hauling versus steaming, industry feedback, cost per fisherman, and LEC feedback.

Then after that one-year pilot program, the Board can choose to end the program and not pursue electronic tracking, extend the program to potentially test different devices, or pursue the implementation of tracking in the fishery. I will also note that Option E can be chosen with one of the options above. The Board could choose Option B and Option E as an example.

For biological sampling, we'll continue to maintain the requirement that non de minimis states complete either a trawl survey, a ventless trap survey, and/or a settlement survey. However, under this addendum we would set a minimum biological sampling threshold of ten sea or port samples in the lobster and Jonah crab fisheries.

This is hopefully a more realistic baseline for states. It's not representative of the population. If a state comprises more than 10 percent of coastwide landings in either the lobster or Jonah crab fishery, then they would be encouraged to conduct additional sampling trips. For example, if a state accounts for 20 percent of the lobster fishery, then they would conduct 20 sampling trips.

If a state is unable to complete those ten trips, they must notify the Board in the annual compliance report as to why that sampling was not conducted and then future sampling efforts. The final thing I'll note about the addendum here is that there is a much more extensive section that includes recommendations in federal waters.

There are three primary recommendations there. The first is to establish a harvester reporting requirement for lobster only federal permit holders. Again, there is no reporting requirement attached to a federal lobster permit. This could be impeding effective management; as it is unclear where lobster and Jonah crab are being caught, and with what effort.

This is recommending that there be a reporting requirement to the percentage approved by the Board in this addendum or higher in each statistical area. The second recommendation is for the creation of a fixed-gear VTR. Right now there is a single VTR form for all gear types; and that is limiting the amount of data that can be collected specific to fixed gears.

This would allow for greater data to be collected, and also clarify what is really being asked for each gear type. Then the third recommendation is implementation of a targeted lobster sampling program in federal waters. Again, we've seen increased harvest and effort offshore, and so based on the TC report there is a sampling program that is recommended in federal waters; and that is included in Appendix 3 of the Addendum. With that I will take any questions.

CHAIRMAN BORDEN: Questions for Megan. Before I take hands up, I just note that this is kind of the first time you've seen this addendum. There are requirements for states to take additional action, which are going to require more resources. I just urge everybody to factor that into your thinking.

I mean the paths forward from my perspective are, we take action today or amend this in some manner, take actions on it. If there is a desire on the part of the Board members to modify it, we could ask the PDT to modify it and bring it back at the next meeting. The third path forward is to modify it, and do a final approval at the winter meeting. First, let's start with questions. Dan.

MR. MCKIERNAN: Will the proposed reporting system allow the fishermen to delineate target species, for example Jonah versus lobster, even when the trap is the same? To follow on that question, will the reporting system allow a whelk trap or a fish pot to be separated from a lobster or Jonah trap?

CHAIRMAN BORDEN: Megan.

MS. WARE: The addendum does not require, or there is no question that asks, what your targeted species is at this point, as a data component, so we can add that if you're interested. In terms of the other, like a whelk trap, I think that might fall as to what your state's reporting requirements are for the whelk fishery. These would be specific to people with a lobster permit, so if a whelk fisherman had a lobster permit then I think they would be impacted by this, but otherwise not. But I'm not sure how your state permitting works.

CHAIRMAN BORDEN: Anyone else, questions? No hands up, so preference of the Board. Dan.

MR. MCKIERNAN: My question is to Pat Keliher. Given the Maine Fishermen's Forum is usually held at the beginning of March. Would it make sense to have the comment period take place in a window that includes the Forum; in terms of the timing of this?

MR. KELIHER: Megan, what was your window for a comment period?

MS. WARE: If this gets approved today than it would be November through January. I would present those comments at the February Board meeting.

MR. KELIHER: I think for this particular issue, if we were talking about trap reductions I would probably agree with that Dan, but I mean for this particular issue I think we would probably only hold a couple different meetings within the

state of Maine, and doing it in that timeframe works.

CHAIRMAN BORDEN: Toni.

MS. TONI KERNS: I was just going to say you can extend it for as long as you want, and have it open for as long as you want. But with Pat's answer it really doesn't matter.

CHAIRMAN BORDEN: Are there any other questions? Doug.

MR. GROUT: It's not a question. I just had a suggestion for another sub-option to consider whenever you're ready for it, Mr. Chair.

CHAIRMAN BORDEN: Go ahead, please.

MR. GROUT: One of the issues we've dealt with in New Hampshire, is we have a core level of full-time fishermen that are very active in this; and then we have a lot of part timers. We do have a hundred percent mandatory reporting of all our commercial and recreational harvesters. But we don't have it to the trip level, except for these full-time harvesters. The other ones are a monthly summarized reporting system. We're getting the landings but not the specific detail. What I would like to offer is a sub-option for consideration in this addendum. As a sub-option under Option C, if perchance we were to go down the road of 100 percent harvester reporting.

I would like to move to add a sub-option under Issue 1; Option C that would allow commercial harvesters with less than 1,000 pounds of landings in the previous year to report monthly summarized landing data instead of trip-level data. I did e-mail this to both Megan and Max, if they have access to their e-mail, if you would like me to read it again.

CHAIRMAN BORDEN: Do we have a second to the motion; seconded by Pat Keliher?

MR. GROUT: Just a follow up if I might Mr. Chair, is what we've found with going down this road is 31 percent of our licensed commercial harvesters report trip level data. That accounts for 94 percent of our total landings; this remaining 69 percent, which are these very part-time people that land less than a thousand pounds per year account for 6 percent of our landings. This has helped us manage, get very high resolution data, trip level data on the fishermen that account for 94 percent of our landings, and then we get the landings data on the remainder of them.

CHAIRMAN BORDEN: Questions or comments on the motion? Eric.

MR. ERIC REID: A thousand pounds of what?

MR. GROUT: Lobsters.

MR. REID: Okay, well it should probably say that because if it's a thousand pounds of everything, you might have a problem.

CHAIRMAN BORDEN: Are there any other comments on it? Dan.

MR. McKIERNAN: Doug, is it your assumption that that thousand pounds of lobsters represents all of the commercial activity of that permit holder, and that there isn't other data that you would want to be collecting on some of the other fishing activities?

MR. GROUT: Explain to me what you mean by other fishing activities, because if they're for example, people that are also gill netting for other species within our waters. That's covered under a different permit.

MR. McKIERNAN: If they're harvesting urchins or scallops, or I don't know the intricacies of your fleets and the levels of activity. But in Massachusetts we could have someone who is almost a full-time-commercial fisherman land less than a thousand pounds of lobsters; but we still want that data collection at trip level.

MR. GROUT: Again, if it goes to other species that's another, if they're federally permitted, clearly they are required to fill out their other species, like if they had a scallop permit they would be required to fish that. If they're fishing exclusively within state waters, we have a harvester report, so they would have to fill out that separately. We do have those covered, and we also have the ability to validate whether they have landed less than a hundred pounds in the previous year, by looking at the dealer data.

CHAIRMAN BORDEN: Pat.

MR. KELIHER: I certainly don't have a problem with adding this to the document. I bumped this off to staff real quick, just to try to get a quick read on it, and one of the comments I got back was that it may to be a two-year lag and not a one-year lag, but I think those are conversations we can have after we get into it. I also believe that the optimized approach may get to this within the document, as a way to look at it. But I do support it going into the document.

CHAIRMAN BORDEN: Any other discussion questions on it? Is there any objection to the motion? **No objection, the motion stands approved by unanimous consent. Okay anything else on this?** What is your preference? Do you want to have a motion to approve this for public hearing process as modified by the discussion today, or do we want to deal with it at the winter meeting? What is the preference? Pat.

MR. KELIHER: I would move, Mr. Chairman that we move to adopt the Lobster Draft Management Addendum III for public comment as amended.

CHAIRMAN BORDEN: **As modified by the discussion today.**

MR. KELIHER: **Correct.**

CHAIRMAN BORDEN: Dennis Abbot second, discussion. **Any objections to the motion, no objections the motion stands approved by unanimous consent.** Dan.

MR. McKIERNAN: Megan, my only request is when we publish the document, if you could make the comment period a couple of days after the MLA annual meeting. That would make my life a little easier. Their meeting is scheduled for the 19th to the 21st in January. If we could let that public comments go a little beyond that.

CHAIRMAN BORDEN: I think that's possible. We can include a notice right in there that in order to make your life easier we're going to extend the comment period. We've got a few more items on the agenda. That concludes this.

STATE AND FEDERAL INCONSISTENCIES IN LCMA 4 SEASON CLOSURE

CHAIRMAN BORDEN: Okay so the next item is Item 6, which is the issue of State and Federal Inconsistencies. We had a postponed motion that will go on the table.

Before I declare that on the table, what I would like to do is have Megan just remind us of where this has been. There have been discussions by some of the individuals around the table that have slightly different opinions on what to do. But I think they've crafted a substitute motion that we can deal with. Megan.

MS. WARE: Just a reminder, this is in regard to the Area 4 Season Closure. We had received a letter from New York and New Jersey, asking that the different regulations in state and federal waters be addressed; specifically the application of the most restrictive rule and the requirement that traps come out of the water in federal waters. This was the motion that was made at the August Board meeting, and then it was postponed. I think everyone has had a chance to discuss it, so I'll open up the floor for a substitute motion.

CHAIRMAN BORDEN: Jim.

MR. JAMES J. GILMORE: Are you clairvoyant? You knew it was coming to me? We've had some discussions with NOAA Fisheries, particularly Pete Burns. The first part of this motion actually is not allowed by the Service, so essentially we couldn't do that motion and still be consistent with what the Feds are doing.

However, with those discussions there are conservation equivalent measures that we consider for Area 4. To address that we're going to go outside of the meeting and have meetings with New Jersey and the Feds to come up with some of those measures, to try to address that first point. Then secondly, the second point is allowed under the federal rules; but we would have to do some regulatory changes. I think the solution we've come up with is a substitute motion, and Megan if you could put that up.

CHAIRMAN BORDEN: Before you do that Jim, let me declare that the motion is on the floor, and if someone would like to make a substitute motion, which Jim is going to make, you can do that.

MR. GILMORE: Do you want me to read it first and get a second? How do you want to do this?

CHAIRMAN BORDEN: Do you want to read the motion?

MR. GILMORE: Yes. Move to substitute (1) LCMA 4 states, New Jersey and New York will work with representatives from NOAA Fisheries, to develop conservation equivalent alternatives for the current LCMA 4 season closure. We request that the Technical Committee review the alternative management measures, to assure that the conservation goals of Addendum XVII are met; and (2) The LCMA 4 seasonal closure relates only to LCMA 4.

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Permit holders with an LCMA 4 designation in another lobster management area designation on their lobster permits would not have to similarly remove their lobster gear from the other designated management areas during the LCMA 4 closed season. This also applies to seasonal closures in other LCMAs.

CHAIRMAN BORDEN: All right we have a second, yes Tom; discussion, Jim, any further discussion?

MR. GILMORE: Just my favorite part of working with the Feds is brevity is never a solution to an addendum. But I think it fixes the problem on both issues, so I think we're fully supportive, the Feds are on board with it, and if Pete has anything else he wants to add I would appreciate it.

CHAIRMAN BORDEN: Tom, as a seconder, do you want to comment at all?

MR. TOM BAUM: No, I'll defer to Pete.

MR. BURNS: I appreciate the work of the staff with New York DEC and with New Jersey Fish and Game. We talked about this a little bit. I think that we can support certainly working with those states, and with the industry to come up with some conservationally equivalent alternatives to the Area 4 closure that might work a little bit more consistently across state and federal lines. Certainly the second part is a little bit more specific to the issue than the original motion was. I think we can certainly support that because the language is almost the same as what we have in our federal regulations.

CHAIRMAN BORDEN: Anyone else want to comment on the motion? Is there any objection to the motion? **No objections, the motion stands approved by unanimous consent; moving along, next item on the agenda.**

MR. ADAM NOWALSKY: Point of order.

CHAIRMAN BORDEN: Oh, we've got to vote on it finally. Thank you, Adam. Are you ready for the question? We need to vote on this as a final action, right? **We're voting on the main motion, which is on the board. The substitute has been approved. Is there any need for an actual vote? If not any objection to approving it by unanimous consent, no objections it stands approved.** Next item is Consider Approval of the 2017 FMP Review.

CONSIDER APPROVAL OF 2017 FMP REVIEW AND COMPLIANCE REPORTS

AMERICAN LOBSTER

MS. WARE: Today we have two FMP reviews. We have the Lobster FMP Review and then our first Jonah crab FMP review. We'll start with lobster. The graph on the screen is commercial landings. The lobster fishery has seen incredible expansion in landings over the last 40 years. In 2016 coastwide landings were 158 million pounds, which is the highest on record.

The largest contributors to the fishery are Maine in blue and Massachusetts in red, with 83 percent and 11 percent of landings respectively. Maine, New Hampshire, and Massachusetts all had record high landings in 2016. As a result, 98 percent of landings are coming from that Gulf of Maine/Georges Bank stock.

The ex-vessel value for lobster was 666.7 million, which again is another record for lobster. We are still under Amendment 3 and Addenda 1 through 24. Under Addendum XVIII, LCMAs 2 and 3 implemented trap reductions, and ahead of the 2017 fishing year both areas had a 5 percent trap reduction. That came out to 6,781 traps retired in Area 2, and 8,008 traps retired in Area 3.

Those numbers do include traps that were retired to that trap transfer conservation tax. There is a requirement for non de minimis

states to conduct surveys. Today I'll be showing the Maine/New Hampshire surveys and the Rhode Island surveys, just for some regional comparisons. But the other surveys are in the FMP review.

For the Maine/New Hampshire trawl survey, the spring abundance which is on top had an increase from 2015, while that fall survey abundance slightly decreased from 2015, but still well above the time series average. In contrast for the Rhode Island survey, all abundances were low. The fall sublegal abundance did show a slight increase in 2015 and 2016.

Next slide is the ventless trap survey, so again it will be Maine on the left and Rhode Island on the right. For Maine there were increases, the number of sublegal and legal lobsters caught in the 2016 ventless trap survey, as compared to 2015. In Rhode Island the CPUE of sublegal lobsters has increased since 2014, but that CPU of legal lobsters has remained fairly steady. Then this is the settlement surveys for the two states. In Maine the settlement surveys in 2016 continued to show low values in all statistical areas. Similarly in Rhode Island, those settlement survey indices were down from 2015. In terms of state compliance, all states are found to be in compliance with the biological management measures; however Rhode Island and Connecticut did not conduct any sea sampling per Addendum X.

States did note staffing and budget constraints. For de minimis status, it's defined as commercial landings in the two most recent years of data do not exceed an average of 40,000 pounds. We had requests from Delaware, Maryland, and Virginia; and all three states qualify. For PRT recommendations, the PRT recommends the Board approve de minimis status for those three states.

The PRT does note an increase in the number of enforcement concerns reported in state compliance reports, and recommends improved

enforcement, especially the at-sea enforcement of trap limits. The PRT recommends the Board investigate the best way to quantify effort in the lobster fishery.

There are several ways to measure effort. We can look at the number of permit holders, the number of trap allocations, number of trap hauls. Historically the Board has limited effort through trap allocations, but the effectiveness of trap allocations to reduce effort is confounded by their relationship to trap hauls, and the expansion of the Jonah crab fishery.

Finding a way to monitor the true level of effort in the fishery would provide the Board with much needed information. Then finally, the PRT recommends investigating the connectivity between the offshore portion of southern New England and Georges Bank. With that I will take any questions, and that is kind of the motion we would be looking for.

CHAIRMAN BORDEN: Questions. Emerson.

MR. EMERSON C. HASBROUCK: Thank you, Megan, for your presentation. I think there was a typo there, unless something is going on in Maine that we don't know about. I don't know why we would want to declare Maine de minimis in the lobster fishery.

MS. WARE: I was just making sure you were paying attention.

CHAIRMAN BORDEN: Pat seconded that motion. Okay, so any questions? No questions, does someone care to make this motion? I think we have to have an actual. Mark.

MR. MARK ALEXANDER: I would just like to amend this motion to include Connecticut as a de minimis state. In the compliance report it was an oversight on my part. I did not request that. Connecticut's three-year-average landings are an order of magnitude less than the 1 percent threshold. Even the highest year in the past three years is only about 0.3 percent.

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CHAIRMAN BORDEN: If you would like to make the motion and do that you're free to do that.

MR. ALEXANDER: I would like to make a motion. Sorry, Megan?

CHAIRMAN BORDEN: You're free to do that. To include a motion, in other words you're making the motion on the board which includes Connecticut.

MR. ALEXANDER: I'm making a motion to amend to include.

CHAIRMAN BORDEN: There is no motion on the table. If you want to make that as a motion and include Connecticut; in terms of de minimis, you can do that.

MS. WARE: I'll just jump in here. I think you mean for Jonah crab, which will be the next one. This is for lobster. No worries.

CHAIRMAN BORDEN: Does someone want to make this? I think we need an actual motion on this. Doug.

MR. GROUT: Move to approve the 2017 Lobster FMP Review State Compliance Reports and de minimis status for Delaware, Maryland, and Virginia.

CHAIRMAN BORDEN: Is there a second, seconded by Roy? Any discussion on this, is there any objection to the motion? **The motion stands approved by unanimous consent.** Megan.

JONAH CRAB FMP REVIEW

MS. WARE: We'll move right along to the Jonah Crab FMP Review. This is the first FMP review for the species. Again, similar graph here showing commercial landings, in 2016 there were 15 million pounds of Jonah crab that were landed along the coast, representing 11.9 million pounds in ex-vessel value.

The states with the two highest landings are Massachusetts in gray with 68 percent, and Rhode Island in yellow with 24 percent. In terms of status of the stock, the status of Jonah crab is relatively unknown, and no coastwide stock assessment has been conducted. The TC did meet via conference call to discuss what data elements would be needed to conduct a coastwide stock assessment.

They developed the following list of research topics. Information on growth rates, there has been some regional studies, but confirming that that is representative of the whole coast. Molt frequency and molt increment, again maturity in different regions, there have been some studies conducted, but not coastwide.

Size ratio of mating crabs and sperm limitations, mortality rates in the claw fishery; there has been an in-lab study, but confirming that those rates are still true in the field. Migration, there are several ongoing tagging studies. Hopefully we'll be able to check the box on that issue there; and then an estimate of natural mortality.

In terms of status of management, we are under the FMP, as well as Addendum I. I will note that Addendum II, the implementation date for that is January 1, 2018. That established the coastwide standard for claw harvest, as well as defined bycatch. Some states have implemented this, for those who haven't that is the deadline.

States were asked to extend their sampling programs to Jonah crab. I'll be showing the Maine surveys and the Massachusetts surveys; again just for some regional differences here. But the other state's information can be found in the FMP review. This is the Maine/New Hampshire trawl survey. Spring is on the top, and fall is on the bottom. The spring abundance indices have significantly increased since 2013. In the fall the abundance indices for Jonah crab were slightly less than 2015; but still well above the time series average.

Then this is the Massachusetts trawl survey; we have spring on the left and fall on the right. Similar story here, so there is an upward trend in relative abundance in both seasons; particularly in the spring survey since 2010. In terms of state compliance, most states are in compliance with the FMP and addenda.

Two states have not implemented Jonah crab regulations. New York has not implemented the full suite of management measures. They do currently prohibit the harvest of egg bearing females, and they have their recreational harvest limit of 50 crabs. The other provisions are expected in early 2018.

Then Delaware has not yet implemented Jonah crab regulations. Delaware delayed implementation in anticipation of changes to the lobster regulations through Addendum XXV. This is given the small size of their lobster and Jonah crab fishery, as well as it's a costly process. Now that we are not moving forward with Addendum XXV, Delaware has started the Jonah crab regulation process, and those are expected in 2018.

For de minimis status states qualify, if for the three preceding years their average commercial landings constitute less than 1 percent of that average coastwide commercial catch. Delaware, Maryland, and Virginia apply and meet the de minimis requirement. PRT recommends approving de minimis status for those three states.

The PRT recommends the TC discuss standard methods for reporting survey data. This includes a common unit of measure; as well as a standard definition of young of year. The PRT highlights the importance of all states implementing that 4.75 inch minimum carapace width; and the PRT recommends continued research so that a coastwide stock assessment can be completed in the future. With that I will take any questions.

CHAIRMAN BORDEN: Are there any questions for Megan? No hands up. Mark Alexander, I understand you want to make a motion.

MR. ALEXANDER: Where did you get that idea? Yes I would like to make a motion to amend just to add Connecticut to the list of de minimis states.

CHAIRMAN BORDEN: Mark, just the motion. You don't have to amend anything. It's not on the board.

MR. ALEXANDER: Okay.

CHAIRMAN BORDEN: You just make your motion and include Connecticut.

MR. ALEXANDER: I will make this motion here. I move to approve the 2017 Jonah Crab FMP Review State Compliance Reports, and de minimis status for Connecticut, Delaware, Maryland, and Virginia.

CHAIRMAN BORDEN: Jim Gilmore has seconded any discussion on this? Is there any objection to approving the motion by unanimous consent? **No objections; it stands approved.**

OTHER BUSINESS

CHAIRMAN BORDEN: Okay, so moving along to other business. We had two individuals that wanted to speak; I'm one of them. I'm going to take Pat Keliher. Is there anyone else that wants to? Dan, you'll go second. Okay Pat and then Dan.

MR. KELIHER: This Board and this Commission would be remiss if we did not recognize Terry Stockwell; and his retirement from the Maine Department of Marine Resources. Terry, sitting there all alone at the end of the table, outstanding in his field, has served the Department of Marine Resources as the External Affairs Director since 2005, and also as my designee to the New England Fisheries Management Council since 2006.

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He was hired as a Resource Management Coordinator, working on lobsters, as well as whale issues with the Atlantic Large Whale Take Reduction Team and the Harbor Porpoise Team as well. Terry served as Chair of many committees on the Council, as well as the Commission, and actually served as the Vice-Chair and Chair of the New England Fisheries Management Council.

Terry is well respected around this table, and within commercial fisheries up and down the coast within New England. Frankly, he's been a mentor to me; even as a member of my staff. I learned a tremendous amount from Terry; and I could turn him loose to come to these meetings without feeling like I had to worry about the direction that he was going to be moving the state of Maine in.

He certainly has been missed. Every time I go to a New England Council meeting I miss him greatly. But he certainly has been missed in my office; and I want to recognize him here today. I know the Executive Director has a little token of the Commission's appreciation. Terry, to avoid you having to carry something back to the state of Maine, I also have something in my office for you as well. It's not brown liquid, but it will hang on the wall and look good.

MR. TERRY STOCKWELL: That's a ploy to get me to come to Augusta.

CHAIRMAN BORDEN: Bob.

EXECUTIVE DIRECTOR ROBERT E. BEAL: I don't have a lot to add to what Pat said, from the Commission perspective, other than a big thank you for Terry for all the years of serving as proxy for George Lapointe before Pat Keliher and Pat over the 11 years. I think you have at least a total 11 years here sitting around this table. On behalf of the Commission thank you for that. I've got a Commissioner pin that I will bring down to you, and a letter of recognition of your

service on behalf of all the Commissioners, so thank you, Terry. (Applause)

CHAIRMAN BORDEN: Terry, do you want to say anything?

MR. STOCKWELL: Yes, thank you Mr. Chairman, I will be brief, because I don't want to stand in the way of everyone getting lunch. But it's with mixed emotions that I'm back here solely with one hat on. I've enjoyed working for the state of Maine, and working with all of you in this process, and many of you in both the New England and Mid-Atlantic Fishery Management Councils. With my sole hat on as a Council representative, I look forward to coming to these meetings again and continuing our collaborations and friendships, so thank you very much, Pat and Bob and the rest of the Commission family.

CHAIRMAN BORDEN: Thanks, Terry. Dan.

MR. MCKIERNAN: As I mentioned earlier, I would like to have the Board consider adding to the Annual Plan Review Team summaries of the status of the fishery some effort statistics, specifically number of active permits, number of traps fished, and number of trap hauls that states could submit. Right now Section 2.1 in the Plan Review talks about the commercial fishery status, but only landings are included.

I think it would be appropriate, in light of today's presentation from Maine that they now have a good handle and good statistical precision for some of these estimates, to bring those forward. I do that because I think it's important when you think about the weighted issues such as the herring fishery, the menhaden fishery, and the whale issues. I think it's necessary that we get a better handle on the performance of the fishery in its totality.

CHAIRMAN BORDEN: Comments on that suggestion, any objections? No objections so we'll do it. Does anyone else want to speak before I give you my concluding remarks? I

think this is my last meeting; I would point out as the Chair. I have served for two years. I would just like to say that it has been really delightful to serve as the Chair.

There have been a few times where I probably would have preferred being someplace else; but that goes with the turf. I think the Board, in my own view, has done a tremendous amount of work over the last two years. I would just like to just quickly summarize this. In terms of the Technical Committee and the PDT, they've produced no less than seven really first class documents on the status of the stock; and done analyses that have never been done before.

I think it was extraordinarily useful. They should be absolutely commended, and I hope Kathleen takes that message back to them. I'm sure there have been a whole host of hours where they've said, why are we doing this work, they don't pay any attention to all our suggestions? Well, we have paid attention to some of their suggestions; but not all.

I would note that in the past two years we completed a new stock assessment; and we're well on the way to doing another one. We adopted the first Jonah crab FMP; we've already amended it twice. If you look at the landings, the way the landings have gone up, we could not have acted in a more responsible manner.

We previously had been fully engaged with the coral process and the Monument process; and finally, I would note that we have two addendums that are in progress already, a data collection addendum, Addendum XXVI, and then the Gulf of Maine/Georges Bank Addendum to try to add resiliency to the stock. Both of those are extraordinarily important actions for the Board.

What I anticipate going forward is that you're going to have to keep up the pace. In terms of keeping up the pace, you're going to have to look at the next meeting, you're going to have

to deal with the terms of reference for the next stock assessment; and we'll need to continue to review those as needed. We'll need to finalize in the next couple of years Addendum XXVI and XXVII; possibly work on corals some more, and the Monument issue. Finally, given the discussion on whales, I anticipate that there is going to be some necessity for us to get engaged in activities to reduce vertical lines in the water, and address some of those concerns. My complements to all of you, I would particularly like to single out Megan, for all the work that she's done. The staff has really gone a great job, applause to Megan. (Applause)

ADJOURNMENT

CHAIRMAN BORDEN: Is there any other business to come before the Board? No other business, the meeting is adjourned.

(Whereupon the meeting adjourned at 12:25 o'clock p.m. on October 16, 2017)

Atlantic States Marine Fisheries Commission

**DRAFT ADDENDUM XXVI TO AMENDMENT 3 TO THE
AMERICAN LOBSTER FISHERY MANAGEMENT PLAN;
DRAFT ADDENDUM III TO THE JONAH CRAB FISHERY
MANAGEMENT PLAN FOR PUBLIC COMMENT**

Harvester Reporting and Biological Data Collection



Vision: Sustainably Managing Atlantic Coastal Fisheries

November 2017

Draft Document for Public Comment

Public Comment Process and Proposed Timeline

In January 2017, the American Lobster Management Board initiated an addendum to improve harvest reporting and biological data collection in the American lobster fishery. This draft Addendum seeks to utilize the latest technology to improve reporting, collect greater effort data, increase the spatial resolution of harvester reporting, and advance the collection of biological data offshore. This document presents background on the Atlantic States Marine Fisheries Commission, the addendum process and timeline, a statement of the problem, and management measures for public consideration and comment. Given the Jonah crab fishery is jointly managed by the Lobster Board and reporting requirements in the two fisheries mirror one another, this addendum proposes changes to the reporting and biological sampling requirements in both the lobster and Jonah crab fisheries.

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 **January 22, 2018 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: Megan Ware

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 XXVI)

<i>February-October 2017</i>	Draft Addendum for Public Comment Developed
<i>October 2017</i>	Board Reviews Draft and Makes Any Necessary Changes
<i>November 2017 – January 2018</i>	Public Comment Period Including Public Hearings
<i>February 2018</i>	Management Board Reviews Public Comment, Selection of Management Measures, Final Approval of Addendum XXVI
<i>TBD</i>	Implementation of Provisions in Addendum XXVI

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Executive Summary

Recent management action in the Northwest Atlantic, including the protection of deep sea corals, the declaration of a national monument, and the expansion of offshore wind projects, have highlighted deficiencies in the current lobster and Jonah crab reporting requirements. These include a lack of spatial resolution in harvester data and a significant number of fishermen who are not required to report. As a result, efforts to estimate the economic impacts of these various management actions on the lobster and Jonah crab fisheries have been hindered and states have been forced to piece together information from harvester reports, industry surveys, and fishermen interviews to gather the information needed. In addition, as the lobster and Jonah crab fisheries continue to expand offshore, there is a greater disconnect between where the fishery is being prosecuted and where biological sampling is occurring. More specifically, while most of the sampling occurs in state waters, an increasing volume of lobster and Jonah crab are being harvested in federal waters. The lack of biological information on the offshore portions of these species can impede effective management.

The Board initiated Lobster Draft Addendum XXVI/Jonah Crab Draft Addendum III to improve harvester reporting and biological data collection in state and federal waters. The goals of this addendum are to: 1) utilize the latest technology to improve reporting; 2) increase the spatial resolution of harvester data; 3) collect greater effort data; and 4) advance the collection of biological data offshore.

The Draft Addendum includes three issues. The first issue asks what percentage of harvesters should be required to report in the lobster and Jonah crab fisheries. The Addendum recommends, but does not require, the implementation of electronic reporting by the states as a cost-effective method to increase harvester reporting. The second issue asks whether the data elements currently collected should be expanded to collect a greater amount of information on the lobster and Jonah crab fisheries. The third issue asks how, and at what resolution, spatial information should be collected. In addition, the addendum provides several recommendations to NOAA Fisheries, including implementation of 100% federal harvester reporting, creation of a fixed-gear VTR form, and expansion of a biological sampling program offshore.

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Table of Contents

1.0 Introduction 1

2.0 Overview 2

2.1 Statement of Problem..... 2

2.2 History of Reporting Requirements 2

2.3 Current Reporting Requirements 2

 2.3.1 State Reporting Requirements 2

 2.3.2 Federal Reporting Requirements 4

2.5 Deficiencies with Current Harvester Reporting 5

 2.5.1 Spatial Resolution of Data..... 5

 2.5.2. Percentage of Harvester Reporting 6

2.6 Deficiencies in Current Biological Data Collection Programs 9

 2.6.1 External Biological Data Collection Programs..... 11

 2.6.2 Identification of Data Gaps In Offshore Sampling 12

2.7 Atlantic Large Whale Take Reduction Team 13

2.8 Reporting Work Group..... 13

2.9 Status of the Stocks 14

2.10 Status of Commercial Fishery 15

3.0 Management Options 16

3.1 Dealer and Harvester Reporting 16

3.2 Fishery Dependent Sampling 21

 3.2.1 Port Sampling 21

 3.2.2. Sea Sampling 21

3.3 Fishery Independent Sampling 22

4.0 Compliance 22

5.0 Recommendations for Actions in Federal Waters 22

6.0 References 23

Appendix 1: American Lobster Biological Stocks and LCMAs 24

Appendix 2: Maps of Trawl Surveys Conducted by Jurisdictions 25

Appendix 3: Offshore Biological Sampling Program for American Lobster 29

Appendix 4: 10 Minute Squares along the Atlantic Coast..... 32

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1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) has coordinated the interstate management of American lobster (*Homarus americanus*) and Jonah crab (*Cancer borealis*) from 0-3 miles offshore since 1996 and 2015, respectively. American lobster is currently managed under Amendment 3 and Addenda I-XXIV to the Fishery Management Plan (FMP). Jonah crab is managed under the Interstate Fishery Management Plan and Addenda I-II. Management authority in the Exclusive Economic Zone (EEZ) from 3-200 miles from shore lies with NOAA Fisheries. The management unit for both species includes all coastal migratory stocks between Maine and Virginia. There are ten states which regulate American lobster and Jonah crab in state waters and regulate the landings of lobster in state ports.

The Board initiated this addendum to improve harvester reporting and biological data collection in state and federal waters. Through Lobster Addendum X (2007) and the Jonah Crab FMP, states are required to implement, at a minimum, 10% harvester reporting and 100% dealer reporting. In addition, states are required to complete fishery dependent and independent biological sampling, such as sea and/or port sampling. For lobster, states are also required to conduct a fishery-independent survey, such as an annual trawl survey, a ventless trap survey (VTS), or a settlement survey. *De minimis* states are exempt from the biological sampling requirements in the lobster and Jonah crab fisheries.

Recent management action has highlighted several deficiencies in the data collection requirements for lobster and Jonah crab. One of the foremost deficiencies is the lack of spatial information collected. While harvesters are required to report the statistical area in which they fish, this information is too coarse to respond to the increasing number of marine spatial planning efforts which require fine-scale data. Another concern is that not all fishermen are required to report landings to either the state or NOAA Fisheries. Currently, only 10% of lobster and crab permit holders in Maine are selected to submit landings reports each year and vessels which are only issued a federal lobster permit are exempt from Vessel Trip Reports (VTRs). Given that roughly 83% of lobster is landed in Maine and the fishery continues to move further offshore, the lack of harvester reporting in these areas results in data gaps in the fishery. Deficiencies in the collection of biological data were also highlighted in a January 2016 report by the American Lobster Technical Committee (TC) which noted that while inshore waters are adequately sampled, little biological sampling occurs offshore. This is a growing problem as, due to species shifts and a decline of the inshore population, an increasing percentage of lobster is being harvested from federal waters and the Jonah crab fishery is primarily conducted offshore.

This Addendum seeks to address these issues by improving the resolution and quality of data collected in the lobster and Jonah crab fisheries. The goals of this addendum are to: 1) utilize the latest technology to improve reporting; 2) collect greater effort data; 3) increase the spatial resolution of harvester reporting; and 4) advance the collection of biological data offshore.

2.0 Overview

2.1 Statement of Problem

Recent management action in the Northwest Atlantic, including the protection of deep sea corals, the declaration of a national monument, and the expansion of offshore wind, have highlighted the fact that current harvester reporting requirements do not provide the level of information needed to respond to management issues. Furthermore, while the lobster fishery continues to move further offshore and the Jonah crab fishery is primarily conducted in federal waters, the majority of biological data is collected inshore. This disconnect hinders effective management of the two species. The Board initiated this addendum to improve harvester reporting and biological data collection in state and federal waters. The management measures in this addendum are intended to utilize the latest technology to improve the spatial resolution of harvester data, increase the collection of fishery effort data, and promote the collection of biological data offshore.

2.2 History of Reporting Requirements

American lobster is currently managed under Amendment 3 and its subsequent addenda. Amendment 3, which was finalized in 1997, required states to, at a minimum, maintain their current reporting and data collection programs. At the time of implementation, the Atlantic Coastal Cooperative Statistics Program (ACCSP) was still being developed and data collection standards had not been completed for lobster. As a result, action to specify monitoring and reporting requirements was deferred until completion of a coastwide statistics program by ACCSP.

By 1999 data collection standards for ACCSP were nearly complete and Addendum I (1999) established data collection guidelines in the lobster fishery. Importantly, while it encouraged states to adopt monitoring and reporting standards, state agencies were not required to make any changes to their current reporting system. It wasn't until Addendum VIII (2006) that a consistent set of reporting requirements were implemented in the lobster fishery. Specifically, states were required to collect trip-level data from at least 10% of the lobster fishery. This included information on landings (i.e: catch in pounds) and effort (i.e: trap hauls, soak time, number of trips, total traps set, number of traps fished per trip). All dealers were required to report lobster landings, by weight, on a trip level basis. States were also required to implement fishery dependent data programs, such as sea sampling and port sampling, to collect information on lobster length, sex, and cull status.

2.3 Current Reporting Requirements

2.3.1 State Reporting Requirements

American Lobster

Addendum X (2007) outlines the current reporting requirements in the lobster fishery. These requirements build upon those established in Addendum VIII and ensure that the collection programs meet ACCSP standards. For catch reporting, Addendum X requires at least 10% harvester reporting, with the expectation of 100% harvester reporting over time, and 100% dealer reporting. All states have implemented 100% harvester reporting, with the exception of Maine which has 10% harvester reporting (Table 1). Harvester reports are required to include

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information such as vessel number, trip start date, statistical area, number of traps hauled, number of traps set, pounds of lobster harvested, and trip length. Dealer reports are required to include information on the species landed, the pounds harvested, the state and port of landing, market grade, and price per pound.

Addendum X also requires biological sampling from fishery independent and dependent sources. States are required to conduct sea sampling to characterize commercial catch and collect data on length, sex, v-notch, egg-bearing status, discards, cull status, and traps sampled. Port sampling is also required to collect information on length, sex, cull status, and market category. Sufficient sea sampling can replace port sampling. In addition, Addendum X requires states to implement fishery-independent sampling programs, with each state conducting either an annual trawl survey, a ventless trap survey (VTS), or a settlement survey. The VTS is designed to sample lobster habitats which may not be accessible to a trawl survey and provides information regarding the abundance of sub-legal lobsters (<53mm CL). Settlement surveys provide information on the youngest life stages of lobster (Stages IV and V). Several states carry out multiple fishery-independent sampling programs including Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut (Table 1). *De minimis* states (currently Delaware, Maryland, and Virginia) are not required to complete the biological sampling programs prescribed in Addendum X.

Table 1: Harvester reporting, dealer reporting, and biological data collection programs for American lobster. New Hampshire and New York’s trawl surveys are conducted in conjunction with Maine and Connecticut, respectively. *De minimis* states are not required to implement biological data collection programs.

	De Minimis Status in 2016	% Dealer Reporting	% Harvester Reporting	Sea Sampling	Port Sampling	Trawl Survey	Ventless Trap Survey	Settlement Survey
ME		100%	10%	✓		✓	✓	✓
NH		100%	100%	✓	✓	✓w/ ME	✓	✓
MA		100%	100%	✓		✓	✓	✓
RI		100%	100%	✓ (none in 2016)	✓	✓	✓	✓
CT		100%	100%	✓ (none in 2016)		✓		✓
NY		100%	100%	✓	✓	✓w/CT		
NJ		100%	100%	✓		✓		
DE	✓	100%	100%			✓		
MD	✓	100%	100%	✓		✓		
VA	✓	100%	100%					
NOAA Fisheries		100%	VTR if permitted for another species	✓	✓	✓	*	

*NOAA supports ventless trap surveys through grants.

Maine 10% Harvester Reporting

Maine currently requires 10% harvester reporting; however, this sampling is stratified by state fishing zone (Zones A through G) and license class (Table 2). More specifically, within each combination of zone and license class, a proportion of harvesters (i.e. 10%) are annually selected to complete trip reports. All Maine lobster license holders, except those chosen the previous year, are included in the annual random draw, including licenses that had no landings the previous year and permits that are required to submit VTRs. Those permit holders that are

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required to submit VTRs do not submit duplicate reports to the Maine harvester logbook, but continue to report only through the VTR process.

Table 2: Maine license classes in the lobster and crab fishery.

License Class	Abbreviation	Description
Class I	LC1	No crew
	LCO	No crew, permit holder over 70 years old
Class II	LC2	1 crew
	LC2O	1 crew, permit holder over 70 years old
Class III	LC3	2 crew
	LC3O	2 crew, permit holder over 70 years old
Student	LCS	Student license
<18 License	LCU	Commercial license for those under 18 years old
Tribal	various	Native American affiliation
Non-Commercial	LNC	Recreational permit
Non-resident	various	Not a resident of Maine

Jonah Crab

Under the Jonah Crab FMP, participation in the directed Jonah crab fishery is tied to a lobster permit. As a result, the FMP extends the reporting requirements in the lobster fishery to the Jonah crab fishery. This means that states are required to implement 100% mandatory dealer reporting and 100% harvester reporting; however, jurisdictions that currently require less than 100% of harvesters to report in the lobster fishery are required to maintain, at a minimum, their current programs and extend them to Jonah crab. Harvester reports must include a unique trip ID, vessel number, trip start date, NMFS statistical area, traps hauled, traps set, pounds landed, trip length, soak time, and target species. Dealer reports must include a unique trip ID, species landed, quantity landed, state and port of landing, market grade and category, areas fished, trip length, and price per pound.

In addition, the Jonah Crab FMP states that, at a minimum, state and federal agencies shall conduct port/sea sampling to collect information on carapace width, sex, discards, egg-bearing status, cull status, shell hardness, and crab parts, where possible. The FMP also encourages states to extend current fishery-independent lobster surveys to Jonah crab.

2.3.2 Federal Reporting Requirements

For many federally permitted fisheries, catch information (including species caught and discarded, gear quantity, fishing location, and depth) is collected on a trip-level basis through Vessel Trip Reports (VTRs). However, a federal lobster permit does not contain a federal reporting requirement. This means that if a vessel is issued a federal lobster permit and that vessel has no other federal permits, the vessel is not required to fill out a VTR. As a result, a portion of the lobster and Jonah crab fleet which fishes in federal waters is not required to submit a landings report. This portion varies spatially, with a smaller percentage reporting in nearshore waters of the Gulf of Maine (GOM) and a higher portion reporting in Southern New

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England (SNE) and the Mid-Atlantic. For example, only 10% of all Maine federal permit holders and 3% of the total Maine lobster fleet report through VTRs. In statistical area 514 (Massachusetts coast), 25% of permits report with VTRs. This percentage increases with distance from shore as roughly 63% of the lobster fleet which fishes in statistical area 537 (south of Cape Cod) reports through VTRs and 98% of the fleet in statistical area 515 (near Hague line) reports with VTRs. A high portion of vessels (95%) hailing from New Jersey through Virginia submit VTRs.

The NMFS Northeast Fisheries Science Center also conducts a bottom trawl survey which has collected data on lobster and Jonah crab abundance since the 1960's. The bottom trawl survey is conducted twice a year, in the spring and fall, and extends from the Scotian Shelf to Cape Hatteras, including the GOM and Georges Bank (GBK). The survey uses a random sampling design and stratifies the survey area by depth. Data from the bottom trawl survey has been consistently incorporated into the lobster stock assessments and provides important information regarding Jonah crab abundance offshore.

2.5 Deficiencies with Current Harvester Reporting

2.5.1 Spatial Resolution of Data

Recent management actions have highlighted serious data deficiencies in the lobster and Jonah crab fisheries. These deficiencies have hindered the ability to effectively manage the resource, respond to the growing use of marine spatial planning, and assess the status of the offshore populations.

One of the largest deficiencies is the lack of spatial information collected in the two fisheries. While harvester reports are required to indicate statistical area fished, information regarding Lobster Conservation Management Areas (LCMAs) (see Appendix 1) or depth are not consistently collected (Table 3). This can hinder lobster management as a single statistical area can span multiple LCMAs, each of which has a unique set of regulations. For example, statistical area 521 spans LCMAs 1, 2, 3, and Outer Cape Cod (OCC), each of which has a different combination of lobster gauge size requirements. Furthermore, the coarse resolution of data collected by statistical area makes it difficult to determine potential impacts to the fisheries from fine-scale marine spatial planning in the Northwest Atlantic. As an example, recent action to protect deep-sea corals in GBK and the GOM required information on the magnitude of lobster and Jonah crab fishing in specific areas in order to calculate potential economic impacts. Without this fine scale spatial information, impacts to the lobster and Jonah crab fisheries had to be estimated by piecing together information from harvester reports, industry surveys, and fishermen interviews. Moreover, as the ocean continues to be divided between user groups, the lack of spatial resolution in harvester data collected has impeded the ability to accurately assess impacts to the lobster and Jonah crab industries.

Another deficiency is the lack of data collected on the depth at which the lobster and Jonah crab fisheries takes place. Recent management actions, including the establishment of a national monument, have considered a series of options which differ by depth. Given that information regarding the depth of fishing activity is not consistently collected among the

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states (Table 3), it is challenging to respond to these management actions and illustrate potential economic consequences to the lobster fishery. This situation is made worse by the poor spatial resolution of the data.

Table 3: Data components collected in current harvester reports along the coast.

	Reports Submitted	Trip Length	# Of Crew	Traps Hauled	Active Traps Fished	Soak Time	Depth Fished	Stat Area	LCMA	Lat/Long	Distance from Shore	Port Landed	Pounds Landed	Disposition	Avg. Traps Per Trawl
ME	Monthly	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓		✓
NH	Monthly	✓		✓	✓	✓		✓				✓	✓		✓
MA	Monthly	✓	✓*	✓	✓	✓		✓	✓			✓	✓	✓	✓*
RI	Quarter	✓	✓	✓	✓	✓		✓	✓			✓	✓	✓	
CT	Monthly	✓	✓	✓	✓	✓		✓				✓	✓	✓	
NY	Monthly	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		
NJ	Monthly	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	
Federal VTR	Weekly or Monthly*	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓		✓

* Massachusetts collects information on number of crew and average number of traps per trawl through an annual recall survey.

2.5.2. Percentage of Harvester Reporting

In addition to the lack of spatial resolution of harvester data, not all harvesters are required to report. Addendum X requires a minimum of 10% harvester reporting in the lobster fishery and this baseline requirement is extended to the Jonah crab fishery. Importantly, the expectation at the time was that all states would eventually implement 100% harvester reporting. Currently, Maine is the only state which has not implemented 100% harvester reporting and this is largely due to the size of the fishery. For context, more trips are taken by Maine lobstermen each year than the combined number of trips taken for all species in the states of New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Delaware, South Carolina, and Georgia. As a result, expanding the Maine harvester reporting program to all lobster and Jonah crab fishermen could cost the state an additional \$500,000 a year, under current paper reporting methods. Furthermore, not all federally licensed lobstermen are required to submit harvester reports as those vessels which only have a lobster permit are not required to complete VTRs.

The lack of 100% harvester reporting in Maine and in federal waters means that assumptions must be made about the activity of the lobster and Jonah crab fisheries. While 100% dealer reporting along the coast provides information on the total amount of lobster and Jonah crab landed in each state, it is not always clear where these lobster and Jonah crab are caught and what level of effort is required to harvest them. Moreover, information regarding the effort and location of catch from those harvesters which do report must be assumed to be representative of the whole Maine and offshore fisheries. Given Maine accounts for over 80% of lobster landed in the U.S. and the offshore portion of the lobster fishery in SNE is becoming increasingly scrutinized as lobster abundance continues to decrease inshore, the scaling of a sub-sample of data to the whole fishery may be of concern.

In order to assess the effectiveness of the 10% harvester reporting requirement, the Board tasked the Technical Committee (TC) with determining a statistically valid sample of harvester

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reporting. A statistically precise sample of harvester reporting is needed to accurately scale up a subset of trip level reports to the full fishery. In their October 2017 report to the Board, the TC recommended 100% harvester reporting in the lobster and Jonah crab fisheries to accurately account for all trap hauls and the spatial extent of effort. Given the scale of the Maine fishery, the TC recommended that this 100% harvester reporting be achieved through electronic reporting, as this reduces the administrative burden on the state. In the interim, the TC did find that the current 10% harvester reporting in Maine is sufficiently precise, in large part due to the immense size of the Maine lobster fishery. Moreover, analysis showed that 10% harvester reporting results in a low coefficient of variation, a statistical measure of precision, for metrics such as trap hauls and landings (Figure 1). Furthermore, the scaling of landings reported by the sub-sample of harvesters to the entire Maine fishery fell within the 95% confidence interval of state-wide dealer landings. This suggests that 10% harvester reporting is a good representation of the whole Maine fishery.

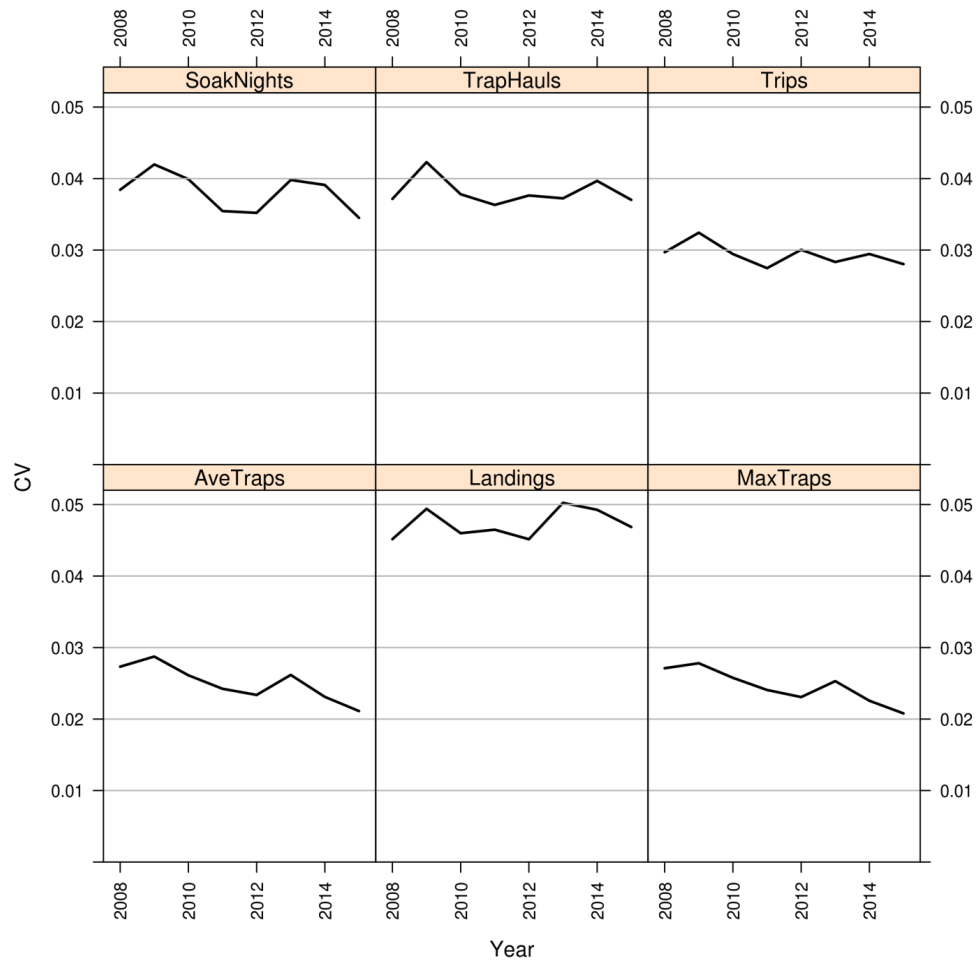


Figure 1: Calculated CVs from harvester data (pooled across license types), by year, for various reporting fields. For all metrics, the CVs are below 0.05 meaning the 10% reporting achieves CV's below 5% for all metrics considered.

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While the TC did conclude that 10% harvester reporting is sufficiently precise, improvements could be made under the current level of harvester reporting to increase the precision and tracking of harvester behavior. Through their analysis, the TC concluded that sampling efforts by states which do not require 100% harvester reporting are best served if they focus on those permit classes which contain a large number of vessels and have a higher variance in landings. This optimized sampling allocation, rather than a proportional sampling allocation, improves the statistical precision of the harvester reporting program while maintaining the current workload of the state. As an example, in Maine the TC found that latent licenses (those licenses with no landings reported for the year) are being oversampled, creating inefficiencies and a lower level of precision. By evaluating the number of vessels in a license class, the standard deviation of landings, and relative sampling costs, the TC found an optimal sampling approach would place greater sampling effort on active LC1, LC2, and LC3 permits and less effort would be allocated to latent and recreational permits (Table 4). A comparison of the CV's for Maine's current proportional and the optimal allocation is shown in Figure 2.

Table 4: A comparison of the current proportional 10% harvester reporting in Maine versus the optimal allocation of reporting recommended by the TC. Licenses for individuals 70 years and older were combined into one license type (LCO). Tribal and non-resident licenses were not included in the analysis due to the small number of these licenses.

Licenses Type and Status	Current Proportional Reporting		Optimal Allocation of Reporting		
	# Vessels	% of Licenses	Allocation %	# Vessels	% of Licenses
LC1 Active	41	9.2%	8.4%	44	9.87%
LC1 Latent	70	15.3%	4.0%	21	4.58%
LC2 Active	190	11.4%	36.4%	188	11.26%
LC2 Latent	20	13.0%	2.7%	14	9.09%
LC3 Active	100	8.2%	28.2%	146	11.97%
LC3 Latent	4	10.3%	1.8%	10	25.64%
LCO Active	30	8.1%	7.6%	40	10.75%
LCO Latent	14	8.3%	1.7%	9	5.36%
LCS Active	36	7.3%	5.0%	26	5.26%
LCS Latent	27	8.1%	2.5%	13	3.90%
LCU Active	3	9.7%	0.4%	3	9.68%
LCU Latent	1	7.7%	0.3%	2	15.38%
LNC	114	6.4%	1.0%	6	0.34%

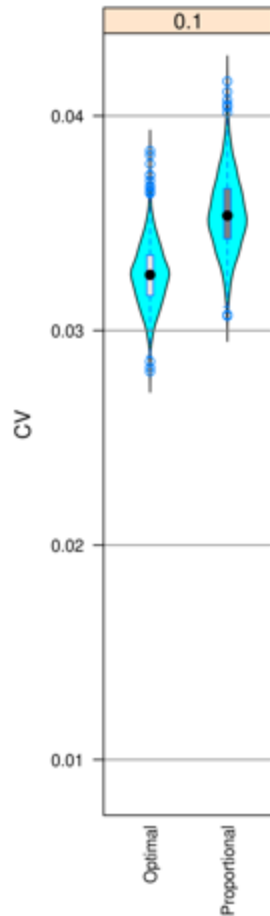


Figure 2: Comparison of CVs for trap hauls with optimal sampling (left side) vs. proportional sampling (right side) under 10% harvester reporting. The black dots represent the mean while the width and length of the shape represents the distribution of the data.

2.6 Deficiencies in Current Biological Data Collection Programs

In a January 2016 report to the Board, the TC stated that while current biological collection programs are sufficient to characterize catch in states waters, the resolution of biological data is lacking in federal waters. Currently, states administer a suite of biological sampling programs (i.e. sea sampling, port sampling, VTS, larval surveys, trawl surveys) to assess the status of the lobster and Jonah crab stocks; however, much of this effort is contained to state waters or takes place in nearshore waters which are accessible via a day trip. Table 5 and Appendix 2 show the location and depth of trawl surveys and VTS used in the 2015 American Lobster Stock Assessment. While the surveys span a broad length of the coast, most state trawl surveys do not extend past the 12 mile territorial sea boundary. The deepest trawl survey is the NEFSC Bottom Trawl Survey which samples depths up to 365m. While NOAA Fisheries has an extensive fishery dependent observer program, the lobster and Jonah crab fisheries have not historically been considered a sampling priority.

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Table 5: Location and depth of trawl surveys and ventless trap surveys by jurisdiction.

		Location	Depth
Trawl Surveys	ME-NH Inshore Trawl Survey	Downeast Maine to New Hampshire	4 strata: 5-20 fathoms, 21-35 fathoms, 36-55 fathoms, > 56 fathoms out to the 12 mile territorial limit.
	MA Trawl Survey	Cape Ann to Buzzards Bay	6 strata: 0-30ft, 31-60ft, 61-90ft, 91-120ft, 121-180ft, 191ft-12 mile territorial boundary
	RI Trawl Survey	Narragansett Bay, Rhode Island Sound, Block Island Sound	6 strata; Narragansett Bay: 10-20ft, >20ft; RIS/BIS: 10-30ft, 30-60ft, 60-90ft, 90-120ft, >120ft
	CT-NY Trawl Survey	Groton, CT to Greenwich, CT in both CT and NY waters	4 strata: 0-9m, 9.1-18.2m, 18.3-27.3m, and 27.4+ m
	NJ Trawl Survey	Sandy Hook, NJ to Cape Hemlopen DE	18-90ft
	NEFSC Bottom Trawl Survey	Scotian Shelf to Cape Hatteras	7 strata: <9m, 9-18m, >18-27m, >27-55m, >55-110m, >110-185m, and >185-365m.
Ventless Trap Surveys	ME VTS	SAs 511, 512, 513 excluding estuaries of Kennebec and Penobscot Rivers	3 strata: 1-20m, 21-40m, 41-60m
	NH VTS	SA 513 excluding Great Bay, Piscataqua River, and Hampton Harbor	3 strata: 1-20m, 21-40m, 41-60m
	MA VTS	SA 514, 538 excluding the southwest corner of Cape Cod Bay, Vinyard Sound, and Nantucket Sound	3 strata: 1-20m, 21-40m, 41-60m
	RI VTS	539 state waters of Narragansett Bay and Block Island Sound	3 strata: 1-20m, 21-40m, 41-60m

The dearth of biological sampling offshore is a growing concern given the increasing portion of lobster which is being harvested outside of state waters. In 1998, 87% of lobster harvested in SNE were from the inshore portion of the stock; however, by 2011, a greater portion of lobster (55%) were harvested from the offshore portion of the stock than the inshore portion (Figure 3). A similar trend can be seen in the GOM where the percentage of trips occurring at distances greater than 3 miles from shore has increased from 13% in 2008 to 20% in 2015. This issue is

further compounded by the fact that the Jonah crab fishery is primarily conducted in federal waters.

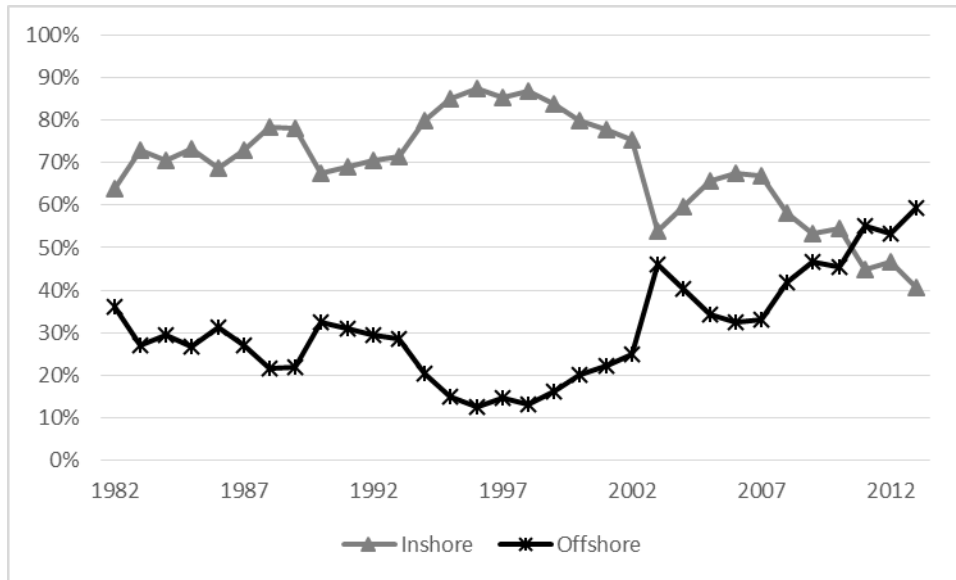


Figure 3: Percentage of landings in SNE occurring in the inshore and offshore fishery. The inshore fishery is defined as landings from statistical areas 538, 539, 611, 612, 613, 614, 621, 625, 631, and 635. The offshore fishery is defined as landings from statistical areas 533, 534, 537, 615, 616, 622, 623, 624, 626, 627, and 632.

2.6.1 External Biological Data Collection Programs

Given financial and geographic constraints on sampling conducted by states, external institutions have begun to implement their own fishery dependent sampling programs in order to collect greater information on the lobster and Jonah crab fisheries. One example of this is the Commercial Fisheries Research Foundation (CFRF), a non-profit foundation which conducts collaborative fisheries research projects. Established by commercial fishermen, CFRF collaborates with industry members to collect biological data and support fisheries research. One of the programs conducted by CFRF has been their On-Deck Data Program, through which participating commercial lobster and/or Jonah crab vessels conduct at-sea sampling during specific trips each month. The On-Deck Data application randomly selects trawls to sample throughout a trip and fishermen collect biological information on carapace length/width, sex, shell disease, presence of eggs, v-notching, shell hardness, and disposition. Participating vessels also deploy ventless traps which expand the spatial extent of the state’s ventless trap programs to areas further offshore. In addition, participating vessels collect Jonah crabs to determine maturity status. Currently, 17 vessels participate in the CFRF program. As of August 2017, 97,913 lobster and 39,493 Jonah crab have been sampled. Biological information collected from CFRF was incorporated into the 2015 American Lobster Stock Assessment.

The geographic range of the CFRF program stretches from New Hampshire to New Jersey. Table 6 shows specific statistical areas in which CFRF participating vessels sample as well as the

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magnitude of sampling in those areas. The largest amount of sampling occurs in statistical areas 537 and 539 (south of Cape Cod and Rhode Island) with additional sampling occurring in GBK (statistical areas 525 and 526) and offshore GOM (statistical areas 464 and 512). Limited levels of sampling occurs off of Long Island (statistical area 613) (Table 6).

Table 6: The geographic distribution of CFRF lobster and Jonah crab sampling, by statistical area, as of September 6, 2017. Data provided by CFRF.

Statistical Area	Commercial Lobster Sessions	Ventless Lobster Sessions	Lobsters Sampled	Commercial Jonah Crab Sessions	Ventless Jonah Crab Sessions	Jonah Crabs Sampled
464	38	5	3,939	11	1	951
465	10	9	1,552	4	0	129
512	40	27	5,179	10	0	440
515	15	21	1,306	4	0	128
522	1	0	83	0	0	0
525	113	24	3,483	64	16	5,323
526	48	21	2,970	19	16	2,005
537	335	342	17,954	86	64	7,729
539	739	1073	43,295	365	102	18,568
561	25	2	2,666	27	0	1,006
562	107	168	9,135	30	40	2,575
613	36	50	1,756	10	24	805
616	76	137	6,357	2	0	173
622	5	2	392	3	2	797
626	1	0	12	0	0	0

2.6.2 Identification of Data Gaps In Offshore Sampling

In order to provide guidance on where additional biological sampling efforts should be conducted in the lobster fishery, the TC reviewed the spatial distribution of various sampling efforts, including sea sampling, port sampling, and CFRF data programs, in relation to current landings. The TC set a baseline sampling threshold of 3 samples from each statistical area in each season. This threshold was identified as, for statistical areas which do not meet this baseline in the stock assessment, data is borrowed from other statistical areas. Results of the analysis showed that 13 statistical areas did not meet the 3-sample baseline in both 2015 and 2016, and an additional 17 statistical areas did not meet this sampling baseline in either 2015 or 2016 (see Appendix 3, Table 1). Many of these statistical areas are found in GBK and some are found in SNE. Statistical areas the TC noted as high priority for increased sampling (based on high landings and low sampling) included 522, 525, 526, 561, and 562 in GBK, and 616 in SNE. In addition, the TC’s analysis noted the variance in federal sampling through the Standardized Bycatch Reporting Methodology (SBRM) program from year to year as well as the critical role which CFRF plays in collecting biological samples. More specifically, the SBRM program assigned 619 sampling trips to the lobster fishery in 2015 but less than 50 sampling trips in 2016. Further, if the CFRF program did not exist, an additional 2.77 million pounds of lobster caught in GBK and SNE would not be sampled.

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2.7 Atlantic Large Whale Take Reduction Team

The Atlantic Large Whale Take Reduction Team (ALWTRT) was established in 1996 in order to reduce the risk of serious injury and death of large whales due to entanglement in commercial fishing gear. The Take Reduction Plan (TRP), which was first published in 1997, specifies gear modifications and restrictions, such as weak links, gear markings, and seasonal prohibitions on locations where traps can be set.

A critical component of the TRP is the co-occurrence model, which pairs information regarding the distribution of whales and commercial fishing gear to predict areas where whales may be prone to entanglement. In May 2016, a subset of the ALWTRT met to discuss deficiencies in the collection of fishing effort data as it pertains to the co-occurrence model. To this end, the ALWTRT identified specific data elements which would inform the co-occurrence model but are not consistently collected by the states and NMFS. These include information regarding the number of traps per trawl, number of vertical lines, length of vertical lines, rope gauge, weight of traps, and buoy configuration. In April 2017, the ALWTRT met to consider ways to collect fishery effort data independent of the states. An outcome of that meeting was the potential development and implementation of an annual recall survey which would be sent to fishermen to collect information regarding fishing activity and gear used per month. Currently, the ALWTRT is developing this annual survey; information being considered for collection in that survey include the color of the buoy line and buoy, the weight of each trap, the number of traps per trawl, the buoy configuration, the buoy line diameter, the weight of anchor lines, and general fishing areas. The survey is still under development and it is expected the survey would be implemented December 2018 or thereafter.

This addendum provides an opportunity to proactively address some of the data needs of the ALWTRT; however, much of the information requested by the ALWTRT is more specific than what is typically required in a harvester trip report. Furthermore, state trip reports are often used for multiple species, limiting the ability to specifically ask questions regarding lobster gear configurations. There may be an opportunity to collaborate on the collection of some data (i.e. traps per trawl, number of endlines), particularly if electronic reporting is pursued by the states.

2.8 Reporting Work Group

Recognizing the need to assess current data collection in the lobster and Jonah crab fisheries, the Board established a Reporting Work Group to discuss data deficiencies and ways to improve them. The Work Group, which met in September 2016, was comprised of state agency staff, TC members, Board members, federal representatives, ACCSP staff, and ASMFC staff. As a part of their discussion, the Work Group developed five goals for harvester reporting.

- 1) Improve the spatial resolution of harvester reporting
- 2) Utilize the latest technology to improve and increase reporting
- 3) Collect greater effort data in harvester reports
- 4) Define inshore vs. offshore areas in the lobster fishery
- 5) Proactively address data concerns of the ALWTRT

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In order to achieve these goals, the Work Group compiled a list of recommendations (Table 7). The recommendations were categorized as short-term (less than 1 year), intermediate (1-2 years), and long-term (greater than 2 years). The short-term recommendations sought to maximize commercial harvester reporting under the current framework and provide a uniform set of definitions for inshore vs. nearshore vs. offshore areas. The intermediate recommendations intended to build upon the existing reporting programs by requiring increased harvester reporting and the collection of additional data components. The long term recommendations sought to incorporate new technology into the lobster fishery in order to efficiently and effectively report landings, monitor compliance, and identify critical areas for the lobster fishery. These goals and recommendations provided a basis for the development of this addendum.

Table 7: Recommendations from the Lobster Reporting Work Group on ways to improve reporting in the lobster fishery.

Short Terms Recommendations
-Maximize ME's 10% harvester reporting by only including commercial license holders who have actively fished in the past two years
-Defined the inshore fishery as 0-3 miles, the nearshore fishery as 3-12 miles, and the offshore fishery as >12 miles
Intermediate Recommendations
- Require 100% active harvester reporting for all state and federally permitted lobster license holders; for resource limited jurisdictions unable to achieve 100% harvester reporting, at a minimum, states should require reporting from a statistically valid sample of harvester reporting
- Add the following data components to current harvester reporting coastwide: number of trap hauls, soak time, catch disposition, gear configuration, number of vertical lines, LCMA, depth
- Further delineate NMFS statistical areas on harvester trip reports
Long Term Recommendations
- Establish an electronic swipe-card system for harvester and dealer reports
- Incorporate VMS or another locator beacon to all lobster vessels
- Establish an electronic fixed-gear VTR for all federal permit holders

2.9 Status of the Stocks

American Lobster

The 2015 peer-reviewed stock assessment report indicated a mixed picture of the American lobster resource, with record high stock abundance throughout most of the GOM and GBK and record low abundance and recruitment in SNE.

The assessment found the GOM/GBK stock is not overfished and not experiencing overfishing. GOM and GBK were previously assessed as separate stock units; however, due to evidence of seasonal migrations by egg-bearing females between the two stocks, the areas were combined into one biological unit. While model results show a dramatic overall increase in stock abundance in the GOM/GBK, population indicators show young-of-year estimates are trending

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downward. This could indicate a potential decline in recruitment and landings in the coming years.

Conversely, the assessment found the SNE stock is severely depleted. Recruitment indices show the stock has continued to decline and is in recruitment failure. The inshore portion of the SNE stock is in particularly poor condition with surveys showing a contraction of the population. This decline could impact the offshore portion of the stock if it is dependent on recruitment from inshore areas.

Jonah Crab

Jonah crab are distributed in the waters of the Northwest Atlantic Ocean primarily from Newfoundland, Canada to Florida. The life cycle of Jonah crab is poorly described, and what is known is largely compiled from a patchwork of studies that have both targeted and incidentally documented the species. Female crab (and likely some males) are documented moving inshore during the late spring and summer. Motivations for this migration are unknown, but maturation, spawning, and molting have all been postulated. It is also widely accepted these migrating crab move back offshore in the fall and winter. Due to the lack of a widespread and well-developed aging method for crustaceans, the age, growth, and maturity of Jonah crab is poorly described. As a result, the status of the Jonah crab resource is relatively unknown and no range wide stock assessment has been conducted.

2.10 Status of Commercial Fishery

American Lobster

The American lobster fishery has seen incredible expansion in landings over the last 40 years, with coastwide landings rising from roughly 39 million pounds in 1981 to over 158 million pounds in 2016. Ex-vessel value in 2016 set a new record at over \$660 million. Much of this increase can be attributed to high landings in the GOM, and in particular, the state of Maine; since 1981, Maine lobster landings have risen over 500% from 22.6 million in 1981 to 131.9 million in 2016. In contrast, landings in states such as Connecticut and New York have dramatically decreased from their peak in the 1990s. In 1996, New York lobster landings were 9.4 million pounds but in 2016, only 218,354 pounds were landed in the state. A similar trend can be seen in Connecticut. These rapid decreases in landings are the result of several factors including warming waters, increased predation, and continued fishing pressure.

Jonah Crab

Historically, Jonah crab was taken as bycatch in the lobster fishery; however, in recent years a directed fishery has emerged causing landings to rapidly increase. Throughout the 1990's, landings fluctuated between approximately 2 and 3 million pounds and the overall value of the fishery was low. In the early 2000's landings began to increase with over 7 million pounds landed in 2005. By 2014, landings had almost tripled to 17 million pounds and a value of nearly \$13 million dollars. This rapid and recent increase in landings can be attributed to an increase in the price of other crab (such as Dungeness), creating a substitute market for Jonah crab, as well as a decrease in the abundance of lobsters in SNE, causing fishermen to supplement their income with Jonah crab. Today, Jonah crab and lobster are considered a mixed crustacean

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fishery in which fishermen can target lobster or crab at different times of the year based on slight gear modifications and small shifts in the areas in which the traps are fished. While the majority of Jonah crab is harvested as whole crabs, fishermen from numerous states, including Maine, New York, New Jersey, Delaware, Maryland and Virginia land claws.

3.0 Management Options

This section proposes to replace Section 4.1 of Addendum X to American Lobster Amendment 3 and Section 3.4.1 of the FMP for Jonah Crab. The intent of these management options is to improve harvester reporting and biological data collection.

3.1 Dealer and Harvester Reporting

The following outline the requirements for dealer reporting in the lobster and Jonah crab fisheries.

1. There is 100% mandatory dealer reporting. Dealer reports include: unique trip ID (link to harvester report), date, species, quantity (lbs), state and port of landing, areas fished (NMFS stat area), price per pound, and market grade and category.
2. There is a two-ticket system for dealer and harvester reports. This is used to provide verification between the two landings information. Harvesters report trip data and catch estimates (in pounds) and dealers report landing weights (in pounds).
3. Harvester and dealers are required to report standardized data elements for each trip on a monthly basis.
4. Permit holders are linked to federal vessel or individual permit/license level reporting for lobsters using ACCSP protocol (<http://www.accsp.org/cfstandards.htm>).
5. ACCSP stores lobster landings information.

3.1.1 Electronic Reporting

This document considers increases in the percent of active harvester reporting in the lobster and Jonah crab fisheries (see *Issue 1*). Given increases in harvester reporting under the current methodology (ie: paper reports) may result in large costs to some states, it is highly recommended that states implement electronic reporting. Electronic reporting represents a cost effect method to collect data as it reduces the need for staff to convert paper reports into an electronic format. Furthermore, electronic reporting provides the flexibility to collect expanded data elements. This could be particularly important given the ALWTRT is currently considering an annual survey to collect information on gear configurations and electronic reporting may provide an opportunity to streamline some of these data collection. At present, electronic reporting is not widely used throughout the lobster and Jonah crab fisheries. In Massachusetts, 24% of lobster-only permit holders (i.e. permit holders who do report through VTR) submit harvester reports electronically. In Rhode Island, 56% of state-only permit holders report electronically. No lobster fishermen in Maine, which has roughly 6,000 license holders, or Connecticut report electronically.

Should states implement electronic reporting, it is recommended that states use the SAFIS application eTrips, or eTrips Mobile, given this platform can be implemented at little to no cost to the states or fishermen, it is approved by GARFO as a platform to submit eVTRs, and there is

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a well-established working relationship between ASMFC and ACCSP. States may choose to use an electronic reporting platform other than eTrips; however, this platform must implement the ACCSP Data Standards and be compatible with the eTrips Application Programming Interface (eTrips API), in order for the data to be seamlessly consolidated with other sources.

States wishing to use a different platform may submit a proposal to the Board which outlines why the state is pursuing a different electronic reporting platform and demonstrates that the platform meets the reporting requirements of this Addendum. Furthermore, states must demonstrate that the alternative electronic reporting platform can accommodate the large scale of the lobster fleet. Proposals must be reviewed and approved by the Board.

Issue 1: Percent Harvester Reporting

This issues asks what the minimum percentage of harvester reporting should be in the lobster and Jonah crab fisheries. States are encouraged to use electronic reporting as a cost-effective method to increase harvester reporting. Section 3.1.1. outlines the requirements for electronic reporting. For this addendum, an active harvester is defined as an individual who landed lobster and/or Jonah, in any amount, during the past two calendar years

Option A: Minimum 10% Harvester Reporting (Status Quo)

Under this option, at least 10% of active commercial harvesters in the lobster and Jonah crab fisheries are required to report trip level landings, with the expectation of 100% harvester reporting over time. States which currently require greater than 10% harvester reporting are required to maintain that higher level of reporting.

Option B: Maintain Current Harvester Reporting Effort and Allocate Reporting Through an Optimal Approach

Under this option, states which currently have 100% harvester reporting are required to maintain this level of reporting. States which have less than 100% harvester reporting are required to maintain, at a minimum, their current effort associated with harvester reporting and distribute reporting across an optimal, rather than a proportional, allocation. For example, an optimal allocation scheme based on license class in Maine would use the percentages below. It is expected that states will work towards 100% harvester reporting over time through the use of electronic reporting.

Draft Document for Public Comment

Licenses Type and Status	Allocation %
LC1 Active	8.4%
LC1 Latent	4.0%
LC2 Active	36.4%
LC2 Latent	2.7%
LC3 Active	28.2%
LC3 Latent	1.8%
LCO Active	7.6%
LCO Latent	1.7%
LCS Active	5.0%
LCS Latent	2.5%
LCU Active	0.4%
LCU Latent	0.3%
LNC	1.0%

Option C: 100% Harvester Reporting

Sub-option 1: Under this option, 100% of active commercial harvesters in the lobster and Jonah crab fisheries are required to report trip level landings. States which currently require less than 100% active commercial harvest reporting may phase-in the higher level of reporting over 5 years, such that in year 1 there is a minimum requirement of 20% active commercial harvester reporting; in year 2 there is a minimum requirement of 40% active commercial harvester reporting; in year 3 there is a minimum requirement of 60% active commercial harvester reporting; in year 4 there is a minimum requirement of 80% active commercial harvester reporting; and in year 5 there is 100% active commercial harvester reporting.

Sub-option 2: Under this option, 100% of active commercial harvesters in the lobster and Jonah crab fisheries are required to report trip level landings; however, if a commercial harvester landed less than 1000 lbs of lobster and Jonah crab in the previous year, that individual can submit a monthly summary of landings data, rather than trip-level reports. States which currently require less than 100% active commercial harvest reporting may phase-in the higher level of reporting over 5 years, such that in year 1 there is a minimum requirement of 20% active commercial harvester reporting; in year 2 there is a minimum requirement of 40% active commercial harvester reporting; in year 3 there is a minimum requirement of 60% active commercial harvester reporting; in year 4 there is a minimum requirement of 80% active commercial harvester reporting; and in year 5 there is 100% active commercial harvester reporting.

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Issue 2: Harvester Reporting Data Components

This issue asks what data elements must be collected in harvester reports. Options B and C are not mutually exclusive, meaning the Board can chose Option B, Option C, or Options B and C.

Option A: Status Quo

Harvester trip-level reports must include: a unique trip ID (link to dealer report), vessel number, trip start date, location (NMFS Statistical Area), number of traps hauled, traps set, species, quantity (lbs), and trip length. Soak time is also required on Jonah crab harvester reports. For clarification, ‘traps set’ means the total number of traps that are in the water for a permit holder, including traps that were hauled and re-set as well as traps which are in the water but were not hauled.

Option B: Expanded Data Elements

In addition to the data components listed in Option A, trip-level harvester reports must include an expanded set of data elements. These include depth (most common depth fished at during trip), bait type, and soak time. States which conduct an annual recall survey in the lobster/Jonah crab fishery can collect information on bait type through this survey, instead of on trip-level reports. Currently, all states collect information regarding soak time so this option would codify this ongoing practice in the lobster fishery. Option B is not mutually exclusive from Option C, meaning the Board can implement both Options B and C.

Option C: Expanded Data Elements Regarding Gear Configuration

In addition to the data components listed in Option A, trip-level harvester reports must include an expanded set of data elements focused on gear configuration. These include number of traps per trawl (most common during trip), and number of buoy lines (total number of buoy lines in the water). The intent of this option is to proactively address some of the data needs of the ALWTRT. States which conduct an annual recall survey in the lobster/Jonah crab fishery can collect information on number of traps per trawl and number of buoy lines through this survey, instead of on trip-level reports. Option C is not mutually exclusive from Option B, meaning either or both Options B and C can be chosen.

Issue 3: Spatial Resolution of Harvester Data

This issue asks how, and at what resolution, spatial data in the lobster and Jonah crab fisheries should be collected. Currently, harvesters report by NMFS statistical area; however, this resolution is too coarse to respond to on-going marine spatial planning efforts including offshore wind projects and coral protection zones. Option E can be chosen in combination with Option A, B, C, or D. This allows for a specification of the spatial resolution of harvester reporting along with the development of an electronic tracking pilot program.

Option A: NMFS Stat Area (Status Quo)

Under this option, harvesters will continue to report their fishing location by NMFS statistical area on harvester reports.

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Option B: NMFS Stat Area and LCMA

Under this option, harvesters will report both the NMFS statistical area and LCMA in which they fish on harvester reports.

Option C: NFMS Stat Area and Distance from Shore

Under this option, harvesters will report both NMFS statistical area and distance from shore on harvester reports. Distance from shore will be categorized as 0-3 miles from shore, 3-12 miles from shore, or greater than 12 miles from shore. This option allows managers to separate landings between the inshore, nearshore, and offshore fisheries.

Option D: 10 Minute Squares

Under this option, harvesters will report their fishing location based on 10' squares which divide the North Atlantic coast. The intent of this option is to provide more fine-scale data on where the fishery is occurring. See Appendix 4 for a figure of 10 minute squares along the Atlantic coast.

Option E: Electronic Tracking

The intent of this option is to pursue electronic tracking in part, or all, of the lobster and Jonah crab fisheries. As a first step, a one year pilot program will be established to test electronic tracking devices on lobster and/or Jonah crab fishing vessels. Given the variety of vessels and the spatial distribution of the fishery (both in distance from shore and breadth along the coast), the pilot program will allow multiple tracking devices to be tested in various conditions to identify which device(s) are applicable to the lobster and Jonah crab fisheries.

To design and implement the pilot program, a Subcommittee of Board members, PDT members, industry, and law enforcement will be convened. Fishermen interested in participating in the program will be identified through state agencies and industry associations. Ideally, fishermen from different states, fishing grounds, and with varying boat sizes will participate in the pilot program. Multiple technologies can be tested when conducting the pilot program; however, the systems must have a fast ping rate (at least 1 ping every minute) and be a low cost to fishermen. In particular, the Subcommittee, during their review and consideration of various technologies, should analyze the costs associated with the electronic tracking systems. The PDT recommends that specific technologies be explored, including solar powered devices and tracking through the eTrips Mobile application, given that these are generally low cost technologies with fast ping rates.

Success of the tracking technology will be evaluated by looking at the ease of compliance (or non-compliance), ability to determine trap hauls from steaming, industry feedback, cost-per fisherman, and law enforcement feedback. Following the one year pilot program, results of the program (including successes, challenges, and participant perspectives) will be presented to the Board. At that time, the Board may decide, through Board action, to end the pilot program, extend the pilot program for another year, or consider adoption of electronic tracking devices in part, or all, of the lobster and Jonah crab fisheries. Should the Board consider adoption of

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electronic tracking in part, or all, of the fisheries, a second round of public comment will be held.

Option E can be chosen in combination with Options A, B, C, or D.

3.2 Fishery Dependent Sampling

Non *de minimis* states are required to conduct fishery dependent sampling in the lobster and Jonah crab fisheries. This sampling allows for the collection of biological data on the fisheries and the data is incorporated into stock assessment models. States are required to conduct, at a minimum, 10 sea and/or port sampling trips per year in the lobster/Jonah crab fishery. This minimum sampling requirement is meant to be a baseline and is not representative of the total populations. States which comprise greater than 10% of coastwide landings in either the lobster or Jonah crab fisheries should conduct additional sampling trips complementary to their level of harvest. For example, if a state comprises 20% of coastwide lobster landings, they should conduct 20 sea and/or port sampling trips per year in the lobster/Jonah crab fishery. Sufficient sea sampling can replace port sampling. If a state is unable to complete the required number of sampling trips in the lobster/Jonah crab fishery, they must notify the Board during Annual Compliance reports as to why the sampling trips were not completed and outline future efforts to conduct sampling trips.

3.2.1 Port Sampling

The following outlines the requirements of port sampling.

1. In order to characterize lobster commercial catch, the following data elements must be collected: length, sex, v-notched, egg bearing status, cull status. In addition, the following data elements are recommended for collection in the lobster fishery, but not required: tissue for genetic or toxicity analysis, stomach contents for food habit assessments, gonads for maturity schedule data.
2. In order to characterize Jonah crab commercial catch, the following data elements should be collected, where possible: carapace width, sex, discards, egg-bearing status, cull status, shell hardness, and whether landings are whole crabs or parts.
3. The number of port sampling trips, as well as the number of lobster/Jonah crab sampled, will be reported in Annual State Compliance Reports.

3.2.2. Sea Sampling

The following outlines the requirements of sea sampling.

1. In order to characterize lobster commercial catch, the following data elements must be collected: length, sex, v-notch, egg bearing status, cull status, fishing location, and total trawls or traps sampled. In addition, the following data elements are recommended for collection, but not required: tissue for genetic or toxicity analysis, stomach contents for food habit assessments, gonads for maturity schedule data.
2. In order to characterize Jonah crab commercial catch, the following data elements should be collected, where possible: carapace width, sex, discards, egg-bearing status, cull status, shell hardness, and whether landings are whole crabs or parts.

Draft Document for Public Comment

3. The number of sea sampling trips, as well as the number of lobster/Jonah crab sampled during sea sampling will be reported in Annual State Compliance Reports.

3.3 Fishery Independent Sampling

Non-de minimis states are required to conduct at least one of the following fishery dependent surveys each year in the lobster fishery: an annual trawl survey, a ventless trap survey, and/or a young-of-year survey. States should expand fishery-independent surveys to collect information on Jonah crab, including size distribution, sex composition, ovigerous condition, claw status, shell hardness, and location information.

4.0 Compliance

If the existing lobster and Jonah crab management plans are revised by approval of this draft addendum, the American Lobster Management Board will designate dates by which states will be required to implement 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 and Jonah crab 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. In addition, ASMFC recommends the following be adopted in federal waters:

- Establish a harvester reporting requirement for lobster-only federal permit holders – There is currently no federal permitting requirement attached to a federal lobster permit. One of the deficiencies identified in this Addendum is that not all lobster and Jonah crab harvesters are required to complete trip level reports. This impedes effective management of the stock as it is unclear where lobster and Jonah crab are being harvested and what effort is associated with the catch. As ASFMC works to improve harvester reporting and data collection, it is recommended that NOAA Fisheries establish a harvester reporting requirement for all federal lobster permit holders to the level approved by the Board or higher in this addendum. This percentage of federal harvester reporting should be achieved in all statistical areas, in particular those in the GOM where the number of federal lobster permit holders who do not report with VTRs is highest.
- Creation of a fixed gear VTR for federal permit holders – As identified by the Reporting Work Group, one of the major hurdles in federal lobster reporting is that a single VTR form is used by a wide variety of gear types. This limits the amount of information that can be collected and creates confusion on how specific data elements apply to the lobster fishery. ASMFC recommends that a fixed-gear VTR form be established to fulfill the data needs specific to these fisheries, including information on soak time, number of hauls, and total gear in water.
- Implementation of a targeted lobster sampling program in federal waters – As outlined in Section 2.6 of this Addendum, the biological sampling programs currently conducted in federal waters are insufficient to characterize commercial catch or understand the

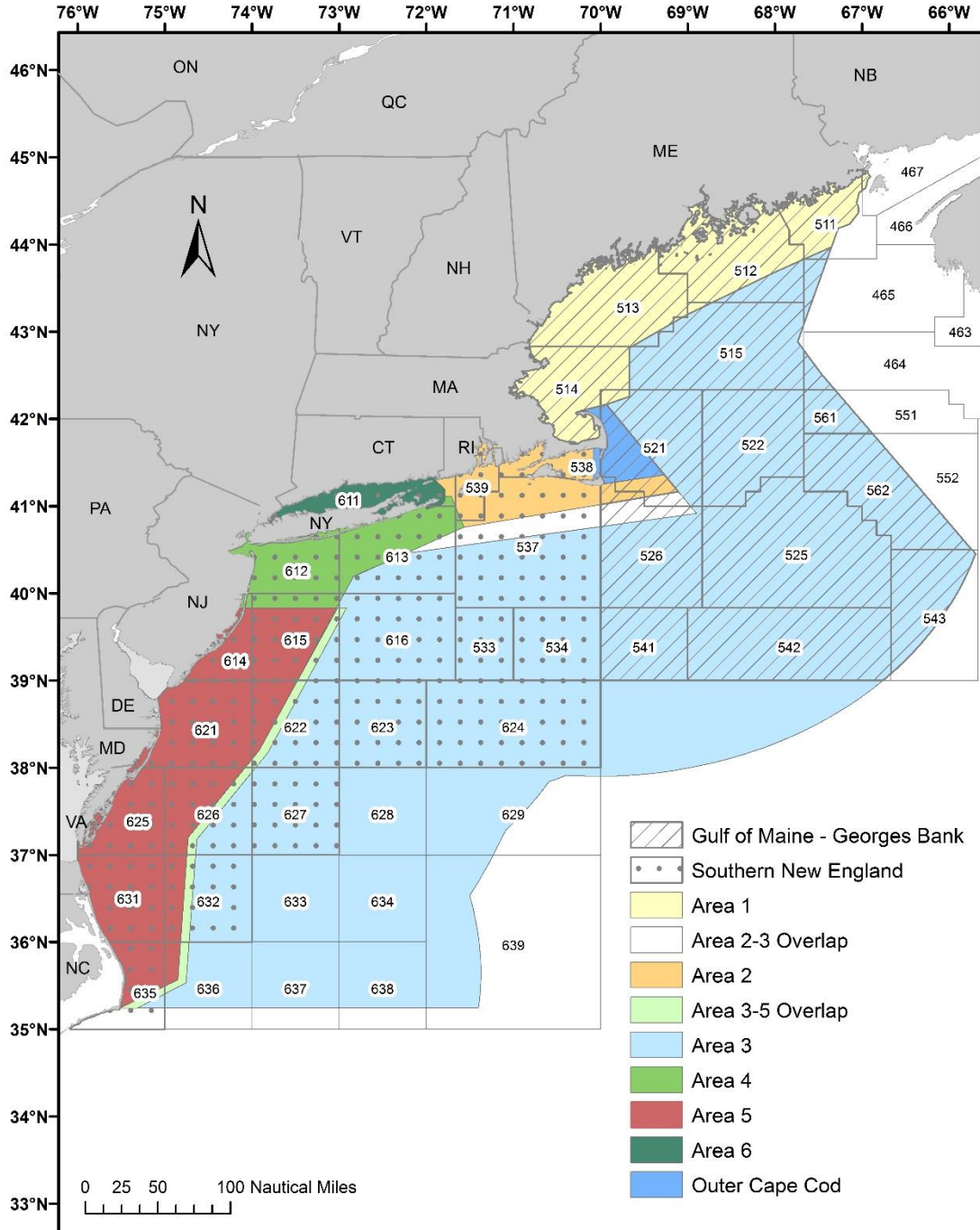
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biological conditions of the offshore stock. This is particularly concerning given an increasing portion of the lobster fishery is being executed in federal waters. ASMFC recommends NOAA Fisheries support a targeted biological sampling offshore program offshore. Appendix 3 outlines recommendations from the TC for a sampling program in offshore waters, including areas where future sampling efforts should be focused.

6.0 References

- Atlantic States Marine Fisheries Commission (ASMFC). 1997. Amendment 3 to the Interstate Fishery Management Plan for American Lobster.
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https://www.greateratlantic.fisheries.noaa.gov/protected/whaletrp/docs/2016%20Monitoring%20Subgroup%20Meeting/key_outcomes.pdf
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Appendix 1: American Lobster Biological Stocks and Lobster Conservation Management Areas.



Appendix 2: Maps of Trawl Surveys Conducted by Jurisdictions

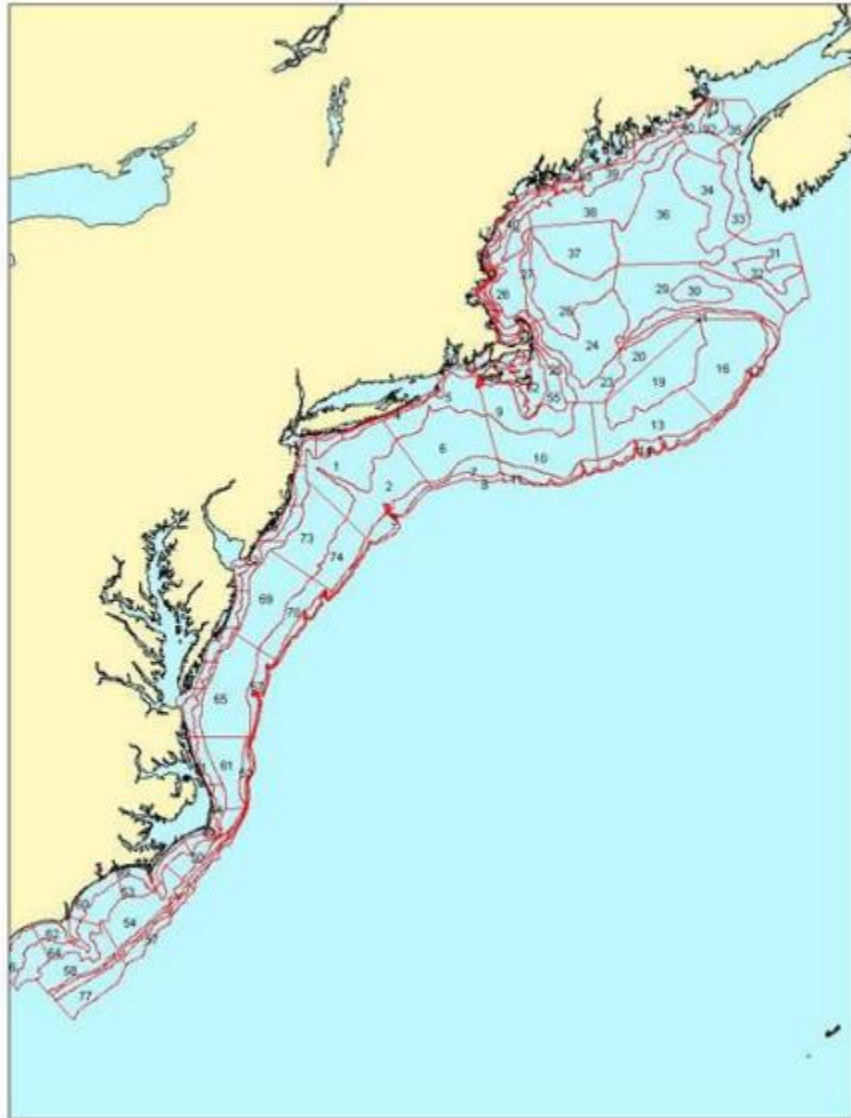


Figure 1: Map of area sampled by the NEFSC Bottom Trawl Survey. The survey is stratified by depth (<9m, 9-18m, >18-27m, >27-55m, >55-110m, >110-185m, >185-365m) and stations are randomly selected within each strata. (Source: NEFSC)

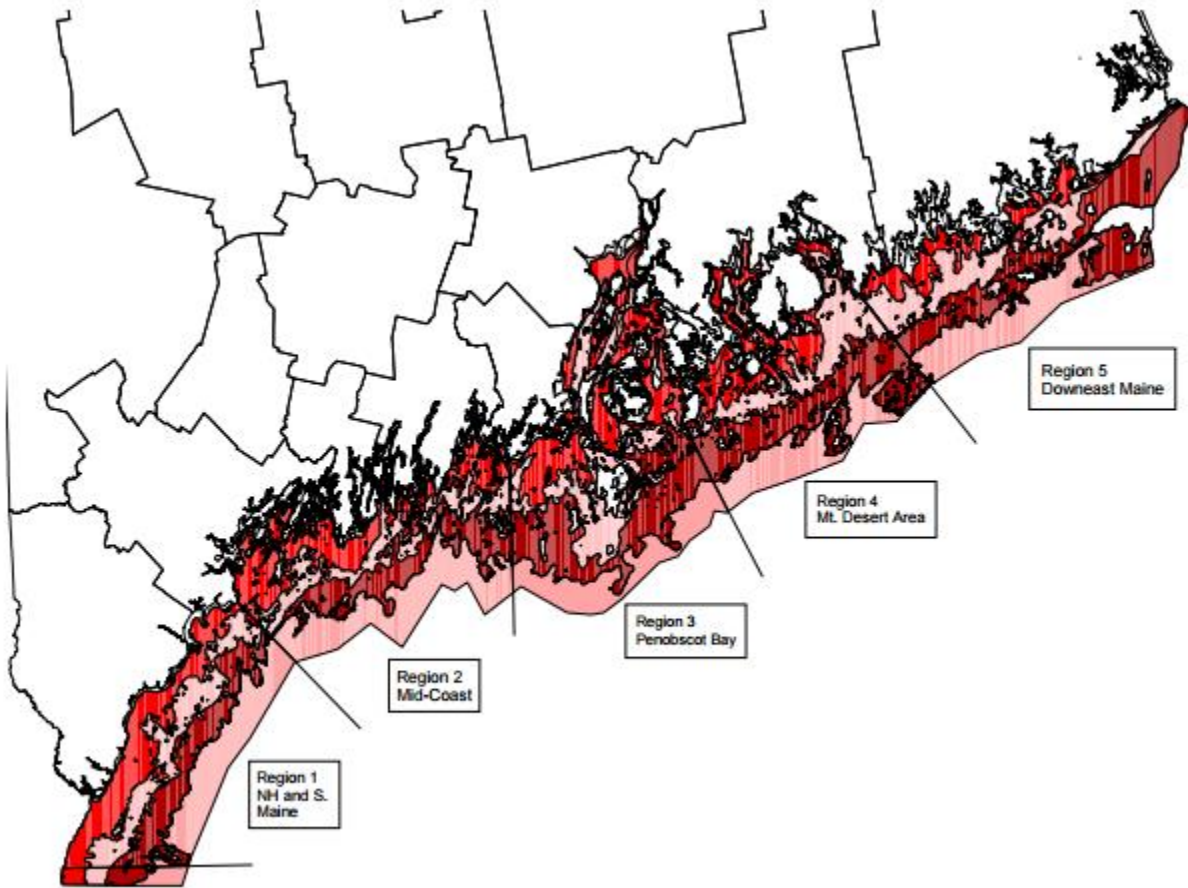


Figure 2: Map of area sampled by the Maine-New Hampshire Inshore Trawl Survey. The survey samples five regions and is stratified by four depth strata (5-20 fathoms, 21-35 fathoms, 36-55 fathoms, and greater than 56 fathoms to the 12 mile line). (Source: ME DMR)

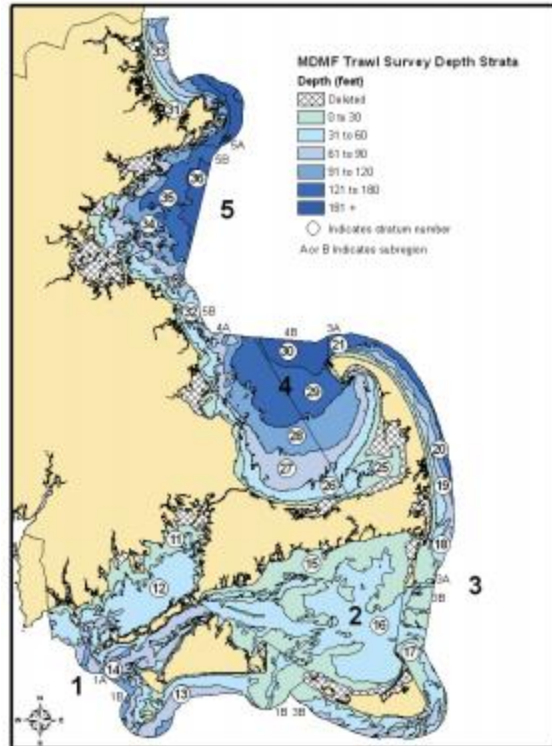


Figure 3: Location of the Massachusetts Trawl Survey. The survey is stratified based on five regions and six depth zones (0-30ft, 31-50ft, 61-90ft, 91-120ft, 121-180ft, >181ft out to 12 mile line). (Source: MA DMF)

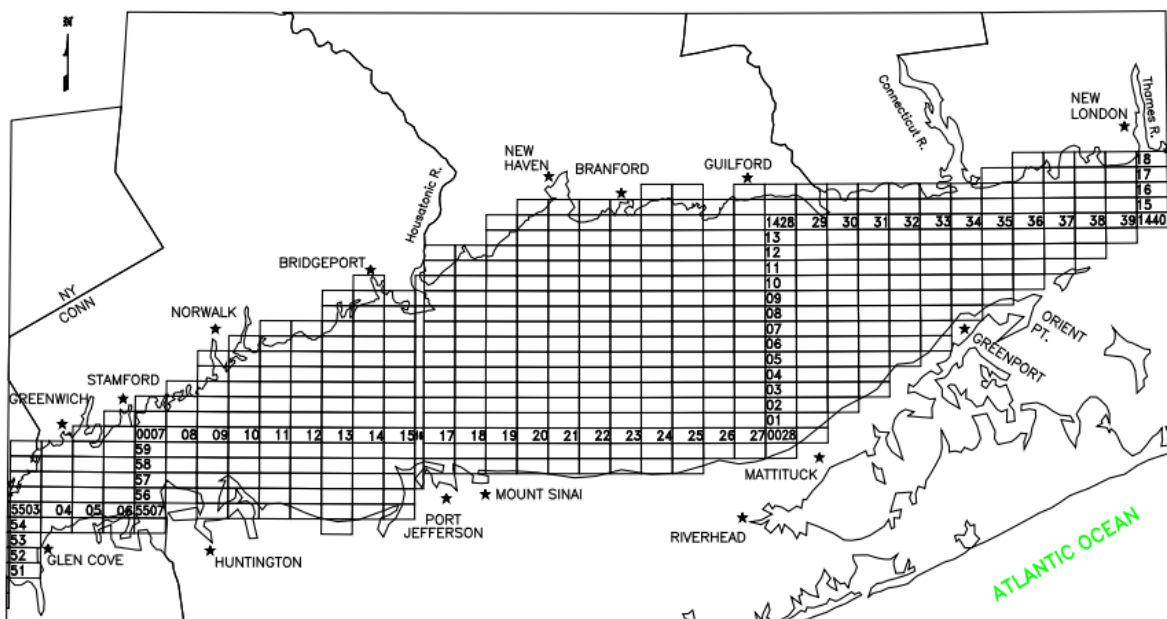


Figure 4: Connecticut – New York trawl survey grid. Each sampling site is 1x2 nautical miles with the first two digits representing the row number and the last two digits representing the column number. (Source: CT DEP)

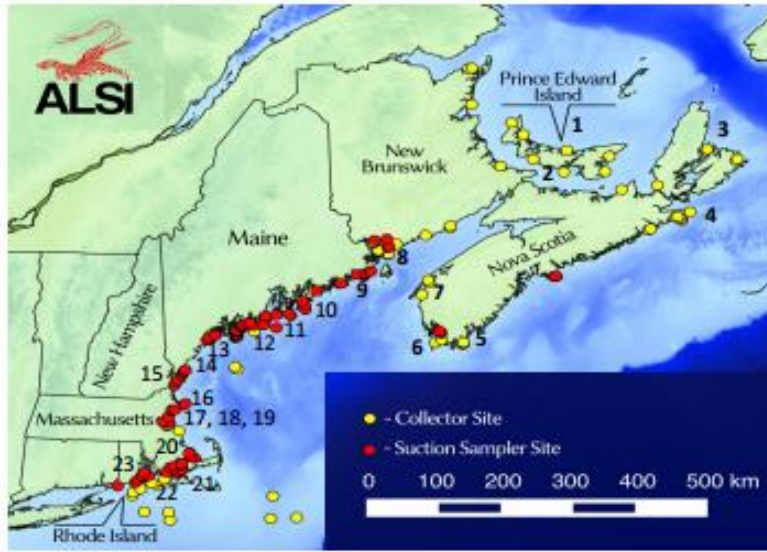


Figure 5: Locations sampled as a part of the 2015 American Lobster Settlement Index. Sites span New Brunswick, Canada down to Rhode Island. (Source: ALSI)

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Appendix 3: Offshore Biological Sampling Program for American Lobster

The following comprises excerpts of the TC's October 2017 report to the Board and highlights data needs in the offshore lobster fishery. It is intended to provide guidance on where data gaps exist and how they can be addressed.

Problem Statement: In recent years the lobster fishery has expanded offshore; however, limited biological sampling occurs in these areas. This impedes the effective assessment and management of these offshore lobster fisheries.

Sampling Program: The TC recommends a federal, targeted lobster biosampling program offshore. It is recommended that this program be independent of the Standardized Bycatch Reporting Methodology (SBRM) observer sampling to ensure adequate sampling of federally-permitted vessels. The sampling frame should include all federally-permitted vessels, not just vessels with VTR requirements and should, at a minimum, randomize vessel selection. The program should be stratified by statistical area. In statistical areas in overlapping waters, state and federal programs should coordinate to ensure complementary sampling programs and increased efficiency to meet the needs of the assessment.

Baseline Sampling Threshold: The TC recommends that offshore sampling programs collect the minimum number of samples needed to meet the assessment gap-filling threshold. More specifically, the TC recommends a baseline sampling threshold of 3 samples from each statistical area (with lobster landings) per quarter and year. Statistical areas with lobster landings will be identified from the last year of landings data in the most recent stock assessment. Given that the 3-samples per statistical area/quarter/year is a minimum threshold, sampling should appropriately increase in statistical areas with high lobster harvest.

Location of Sampling: The TC recommends offshore sampling programs in much of GBK and parts of SNE. Through analysis which assessed current sampling efforts by stat area, including port sampling, sea sampling, federal SBRM sampling, and CFRF sampling, the TC identified data gaps in the lobster fishery. Sampling holes were prioritized by the magnitude of landings from that statistical area. Table 1 illustrates the results of this analysis, with statistical areas ordered by landings. Statistical areas with the greatest need for increased sampling include 522, 525, 526, 561, 562, and 616. More specifically, four of these statistical areas (522, 525, 526, and 616) do not meet the minimum sampling threshold in three out of the four quarters.

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Table 1: Statistical areas by quarter which did not meet the minimum recommended threshold of 3-samples in 2015 and/or 2016. Samples include both port and sea sampling, as well as sampling by SBRM and CFRF. Statistical areas are ordered by magnitude of landings, with areas of high landings at the top of the table.

StatArea	Season	# Port and Sea Samples		# Years 3-Sample Threshold Not Met
		2015	2016	
525	4	9	2	1
525	3	7	2	1
562	1	1	3	1
526	4	21	2	1
522	2	1	0	2
522	3	20	0	1
522	1	1	0	2
616	3	5	1	1
561	4	14	1	1
525	1	3	1	1
561	2	2	5	1
515	4	5	2	1
623	3	0	0	2
515	3	2	3	1
521	1	0	0	2
612	1	4	2	1
465	2	4	0	1
537	1	0	1	2
526	2	5	2	1
616	4	8	1	1
611	2	1	6	1
623	4	0	0	2
623	2	0	0	2
465	3	0	0	2
616	1	2	0	2
526	1	7	1	1
538	4	0	0	2
611	1	0	0	2
538	1	0	0	2
611	4	0	1	2

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Type of Sampling: The TC recommends sea sampling as the preferred sampling method as it provides information on discarded lobsters in addition to landed lobsters, which are characterized by port sampling. Port sampling should be considered a secondary sampling method that is used during poor sampling conditions (i.e. winter) or if there is limited funding. Both sex and length data are of primary importance when conducting a sampling program as they are critical for characterizing sex ratios and size composition.

Revisiting of Sampling Priorities: Given the on-going shifts in effort in the lobster fishery, the TC recommends that an evaluation be conducted on a regular basis to determine where landings are occurring in the fishery and associated sampling holes. This evaluation should be conducted during each stock assessment (5 year basis). Intermittently, the success of sampling programs at achieving current goals can be assessed through annual compliance reports.

Appendix 4: Atlantic Coast with 10 Minute Square Grid

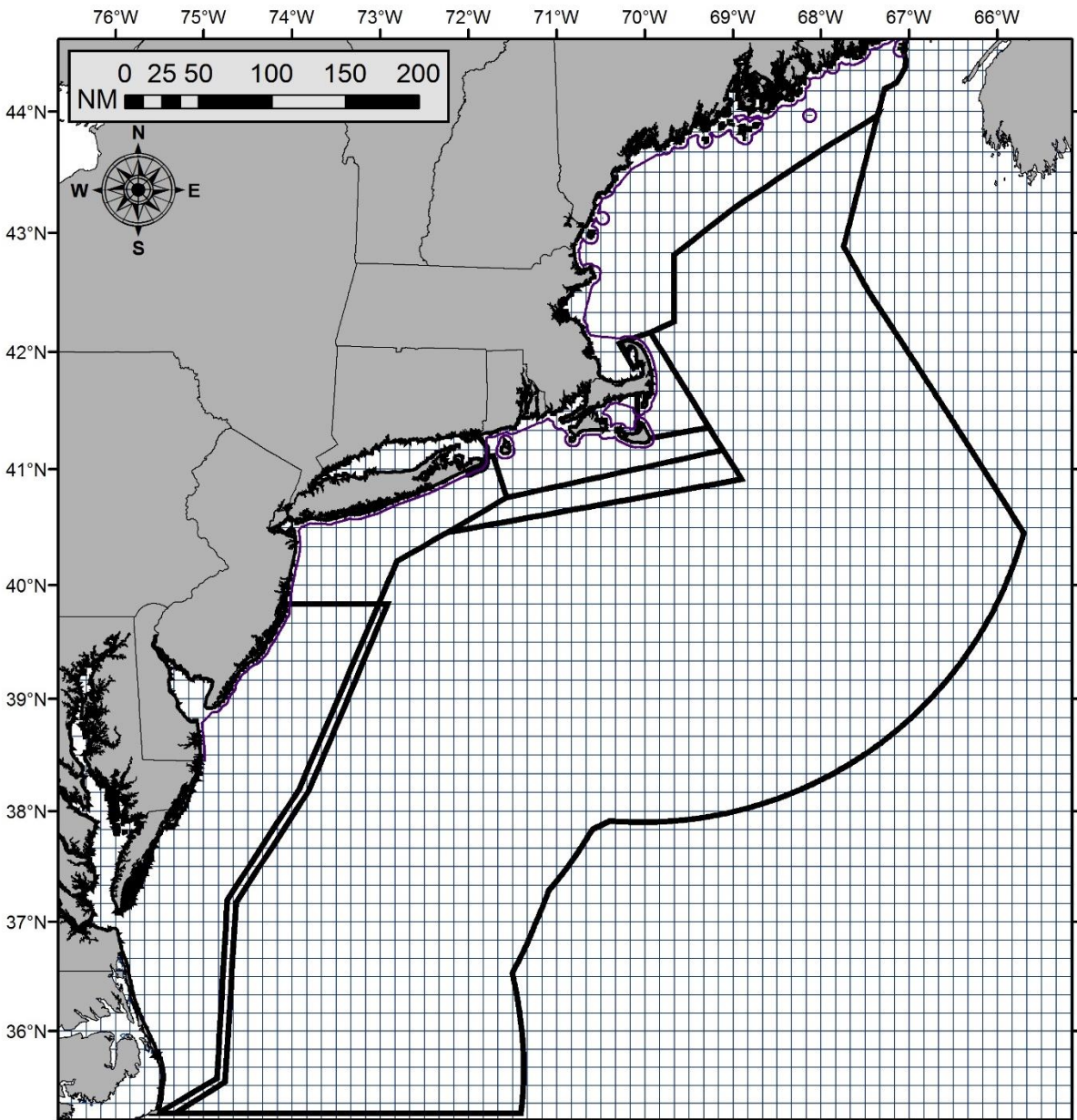


Figure 1: 10 minute squares along the Atlantic coast with outlines of the LCMAs.



Atlantic States Marine Fisheries Commission

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MEMORANDUM

January 10, 2018

To: American Lobster Management Board
From: Law Enforcement Committee
RE: Review of Reporting Options in Lobster Draft Addendum XXVI

The Law Enforcement Committee (LEC) of the Atlantic States Marine Fisheries Commission (ASMFC) reviewed harvester reporting provisions of American lobster Draft Addendum XXVII during a teleconference meeting on January 8, 2018.

The following were in attendance:

LEC: Capt. Steve Anthony (NC); Dep. Chief Kurt Blanchard (RI); Lt. Col. Larry Furlong (PA); Lt. Tom Gadowski (NY); Sgt. Greg Garner (SC); Wayne Hettenbach (USDOJ); Maj. Rob Kersey (MD); Capt. Bob Lynn (GA); Capt. Doug Messeck (DE); Katie Moore (USCG); Maj. Patrick Moran (MA); Lt. Patrick O'Shaughnessy (NOAA OLE SE Div); Col. Kyle Overturf (CT); Eric Provencher (NOAA OLE NE Div); Capt. Jason Snellbaker (NJ)
STAFF: Max Appelman; Mark Robson; Mike Schmidtke; Megan Ware

Megan Ware of ASMFC staff provided an overview of the relevant issues and the LEC provided the following comments:

The LEC did not have any specific recommendations for addressing the level of harvester reporting or the types of additional data that might be desirable or mandatory. The LEC supports efforts to collect as much data as possible, but offered the view that as reporting requirements become more complex with additional data needs, it would be unreasonable to expect strict enforcement of incomplete or incorrect reporting. Regulatory and enforcement standards for non-reporting are in place and effective.

The LEC supports the development and improvement of vessel tracking and statistical area reporting as a means to enhance enforcement and management of the lobster fishery as a whole. While the usefulness of additional data collection for enforcement purposes may vary from state to state, there may be ancillary utility in having additional information at hand such as water depths, bait types and gear soak times.

The LEC welcomes the opportunity to provide enforcement advice regarding the development of tracking and harvester reporting systems for the American lobster fishery.



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Vision: Sustainably Managing Atlantic Coastal Fisheries

January 18, 2018

To: American Lobster Management Board

From: American Lobster Stock Assessment Subcommittee

RE: Draft Terms of Reference for the 2020 American Lobster Benchmark Stock Assessment and Assessment Schedule

The next American lobster benchmark stock assessment is scheduled to be completed in the spring of 2020. The American Lobster Stock Assessment Subcommittee has recommended the Board consider the following terms of reference for the assessment and peer-review panel:

Terms of Reference for Stock Assessment Process:

1. Estimate catch and catch-at-length from all appropriate fishery dependent data sources including commercial and potential discard data.
 - a. Provide descriptions of each data source (e.g. geographic location, sampling methodology, variability, outliers). Discuss data strengths and weaknesses (e.g. temporal and spatial scale, gear selectivities, sample size) and their potential effects on the assessment.
 - b. Justify inclusion or elimination of each data source.
 - c. Explore improved methods for calculating catch-at-length matrix.
2. Present the abundance data being considered and/or used in the assessment (e.g. regional indices of abundance, recruitment, state-federal and other surveys, length data, etc.).
 - a. Characterize uncertainty in these sources of data.
 - b. Justify inclusion or elimination of each data source.
 - c. Describe calculation or standardization of abundance indices.
3. Evaluate new information on life history such as growth rates, size at maturation, natural mortality rate, and migrations.
4. Identify, describe, and, if possible, quantify environmental/climatic drivers.
5. Use length-based model(s) to estimate population parameters (e.g., effective exploitation rate, abundance) for each stock unit and analyze model performance.
 - a. Evaluate stability of model(s). Perform and present model diagnostics.
 - b. Perform sensitivity analyses to examine implications of important model assumptions, including but not limited to growth and natural mortality.
 - c. Explain model strengths and limitations.



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- d. Justify choice of CVs, effective sample sizes, or likelihood weighting schemes.
 - e. State assumptions made and explain the likely effects of assumption violations on synthesis of input data and model outputs.
 - f. Conduct projections assuming uncertainty in current and future conditions for all stocks. Compare projections retrospectively with updated data.
6. Update and develop simple, empirical, indicator-based trend analyses of reference abundance, effective exploitation, and develop environmental drivers for stock areas.
 7. Update the current exploitation and abundance reference points (i.e., targets and thresholds). Explore and, if possible, develop alternative reference points and reference periods that may account for changing productivity regimes due to environmental effects.
 8. Characterize uncertainty of model estimates, reference points, and stock status.
 9. Perform retrospective analyses, assess magnitude and direction of retrospective patterns detected, and discuss implications of any observed retrospective pattern for uncertainty in population parameters and reference points.
 10. Report stock status as related to overfishing and depleted reference points (both current and any alternative recommended reference points). Include simple description of the historical and current condition of the stock in layman's terms.
 11. Address and incorporate to the extent possible recommendations from the 2015 Benchmark Peer Review.
 12. Develop detailed short and long-term prioritized lists of recommendations for future research, data collection, and assessment methodology. Highlight improvements to be made by next benchmark review.
 13. Recommend timing of next benchmark assessment and intermediate updates, if necessary relative to biology and current management of the species.

Terms of Reference for External Peer Review:

1. Evaluate thoroughness of data collection and presentation and treatment of fishery-dependent and fishery-independent data in the assessment, including the following but not limited to:
 - a. Consideration of data strengths and weaknesses,
 - b. Justification for inclusion or elimination of available data sources,
 - c. Calculation of catch-at-length matrix,
 - d. Calculation and/or standardization of abundance indices.



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2. Evaluate the methods and models used to estimate population parameters and reference points for each stock unit, including but not limited to:
 - a. Use of available life history information to parameterize the model(s)
 - b. Model parameterization and specification (e.g. choice of CVs, effective sample sizes, likelihood weighting schemes, etc.).
 - c. The choice and justification of the preferred model. Was the most appropriate model used given available data and life history of the species?
3. Evaluate the identification and characterization of environmental/climatic drivers.
4. Evaluate the estimates of stock abundance and exploitation from the assessment for use in management. If necessary, specify alternative estimation methods.
5. Evaluate the methods used to characterize uncertainty in estimated parameters. Were the implications of uncertainty in technical conclusions clearly stated?
6. Evaluate the diagnostic analyses performed, including but not limited to:
 - a. Sensitivity analyses to determine model stability and potential consequences of major model assumptions
 - b. Retrospective analysis
7. Evaluate the preparation and interpretation of indicator-based analyses for stocks and sub-stock areas.
8. Evaluate the current and recommended reference points and the methods used to calculate/estimate them. Recommend stock status determination from the assessment or specify alternative methods.
9. Review the research, data collection, and assessment methodology recommendations provided by the Technical Committee and make any additional recommendations warranted. Clearly prioritize the activities needed to inform and maintain the current assessment, and provide recommendations to improve the reliability of future assessments.
10. Review the recommended timing of the next benchmark assessment relative to the life history and current management of the species.
11. Prepare a Peer Review Panel TOR and Advisory Report summarizing the Panel's evaluation of the stock assessment and addressing each Peer Review Term of Reference. Develop a list of tasks to be completed following the workshop. Complete and submit the Report within 4 weeks of workshop conclusion.



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2020 American Lobster Benchmark Stock Assessment Draft Schedule

Event/Product	Required Participants **	Date/Deadline †
Assessment Planning/TC Workshop	TC and SAS	November 2017
Terms of Reference presented to Lobster Management Board for approval	ASMFC Science Staff and Lobster Management Board	Winter Meeting 2018
Data Deadline*	TC	April 1, 2018
Pre-Researcher/Data Workshop Webinar***	TC and SAS	April 2018
Researcher/Data Workshop	TC and SAS	May 14-17, 2018
Post-Researcher/Data Workshop Webinar***	TC and SAS	July 2018
Pre-Data/Assessment Workshop Webinar***	SAS	November 2018
Data/Assessment Workshop	SAS	January 2019
Post-Data/Assessment Workshop Webinar***	SAS	February 2019
Pre-Assessment Workshop Webinar***	SAS	August 2019
Assessment Workshop	SAS	September 2019
Final Assessment Webinar***	SAS	November 2019
Webinar for TC review of draft assessment report	TC and SAS	February 2020
Peer Review Planning Webinar	SAS and Peer Review Panel	April 2020
Peer Review Workshop	Lead analysts, SAS Chair, TC Chair, Peer Review Panel	May 2020
Lobster Management Board Meeting to Review Assessment	SAS Chair, Peer Review Panel Chair, and Lobster Management Board	August 2020

*Data terminal year is 2018 (with the potential to add incomplete 2019 data). Data through 2017 will be provided ahead of the first workshop and 2018 (and potentially some 2019 data) will be provided when available in 2019.

***Webinars may be added or cancelled depending on needs

**ASMFC Science and ISFMP Staff participants during all

† Dates are tentative and subject to change without public notice