Atlantic States Marine Fisheries Commission

American Lobster Management Board

August 4, 2016
10:45 a.m. – 4:00 p.m.
Alexandria, 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.

1. Welcome/Call to Order *(D. Borden)* 10:45 a.m.

2. Board Consent 10:45 a.m.
   - Approval of Agenda
   - Approval of Proceedings from May 2016

3. Public Comment 10:50 a.m.

4. Update on Status of Federal Rulemaking for Lobster *(P. Burns)* 11:00 a.m.

5. Lobster Technical Committee Report on Southern New England 11:10 a.m.
   - Management Options to Achieve a 20-60% Increase in Egg Production In the Southern New England Lobster Stock *(B. Glenn)*

6. Lunch 11:50 a.m.

7. Discuss Management Options to be Included in Lobster Draft Addendum XXV *(D. Borden)* **Possible Action** 12:15 p.m.

8. Discuss Technical Committee Recommendation for and NOAA Letter on Increased Reporting in the Lobster Fishery *(D. Borden; P. Burns)* **Possible Action** 2:10 p.m.

9. Consider Jonah Crab Draft Addendum II for Public Comment (*M. Ware)* **Action** 2:40 p.m.

10. Consider Maine Conservation Equivalency Proposal for Exchange Trap Tags **Action** 3:15 p.m.
    - Review of Maine proposal (*P. Keliher)*
    - American Lobster Plan Review Team Report *(M. Ware)*
    - American Lobster Advisory Panel Report *(M. Ware)*
    - Law Enforcement Committee Report (*M. Robson)*
    - Consider approval of Maine's Conservation Equivalency Proposal

11. Update from the Offshore Lobster Law Enforcement Subcommittee *(M. Robson)* **Possible Action**	3:35 p.m.
12. Update on New England Fishery Management Council Omnibus Deep-Sea Coral Amendment *(M. Ware)*	3:45 p.m.
13. Update on State Implementation of the Jonah Crab FMP *(M. Ware)*	3:50 p.m.
14. Other Business/Adjourn	4:00 p.m.

MEETING OVERVIEW

American Lobster Management Board Meeting
Thursday, August 4, 2016
10:45 a.m. – 4:00 p.m.
Alexandria, Virginia

Chair: David Borden (RI) Assumed Chairmanship: 02/16	Technical Committee Chair: Bob Glenn (MA)	Law Enforcement Committee Representative: John Cornish (ME)
Vice Chair: Stephen Train (ME)	Advisory Panel Chair: Grant Moore (MA)	Previous Board Meeting: May 2, 2016
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 May 2016

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. Update on Status of Federal Rulemaking for Lobster (11:00-11:10 a.m.)

Background

- Addenda XXI and XXII allow fishermen in LCMAs 2 and 3 to accumulate traps over and above the active trap cap. The intention was to allow fishermen to maintain a profitable fishery as trap reductions take place.
- NOAA Fisheries has implemented trap transferability rules but has held off implementing trap banking until there is a clear picture of what action will take place in SNE.

Presentations

- Update on status of federal rulemaking by P. Burns

5. Lobster Technical Committee Report (11:10 a.m.- 11:50 a.m.)

Background

- At the May 2016 meeting, the Board requested the TC investigate management options which achieve a 20%-60% increase in egg production in SNE.
- The TC met via conference call on June 14th and June 30th to review analyses on egg production that may result from trap reductions and changes to the gauge size.

Presentations

- Technical Committee report by B. Glenn **(Briefing Materials)**

6. Lunch (11:50 a.m. -12:15 p.m.)

7. Lobster Draft Addendum XXV (12:15 - 2:10 p.m.) Possible Action

Background

- The 2015 Benchmark Stock Assessment found the SNE stock to be at record low abundance and experiencing recruitment failure.
- In May, the Board initiated Draft Addendum XXV to address stock declines in SNE by lowering fishing mortality and increasing egg production. The preliminary goal of the Board was to increase egg production by 20%-60%.
- The Board needs to finalize its goal for this addendum and provide guidance to the PDT on what management options should be included in the document.

Board actions for consideration at this meeting

- Finalize a goal for Addendum XXV.
- Identify management options to be included in document.

8. Discuss Potential Reporting Deficiencies in the Lobster Fishery (2:10 – 2:40 p.m.) Possible Action

Background

- Addendum X requires 100% mandatory dealer reporting and at least 10% active harvester reporting in the lobster fishery.
- In their January 19th memo to the Board, the TC highlighted that catch disposition in the federal SNE lobster fishery is poorly characterized.
- On February 26th, the Board sent a letter to NOAA Fisheries requesting 100% trip level reporting for all federally licensed lobster vessels. NOAA Fisheries responded on May 26th, encouraging the Board to address data gaps in an addendum. **(Briefing Materials)**

Presentations

- Discussion of reporting in the lobster fishery by D. Borden and P. Burns

Board actions for consideration at this meeting

- Consider changes to current reporting requirements.

9. Jonah Crab Draft Addendum II (2:40 p.m. – 3:15 p.m.) Action

Background

- Following final action on the FMP, Board members expressed concern about the equity of the current claw provision given claw fishermen in NY and ME are required to land whole crabs. NOAA Fisheries also stated it may prove challenging to implement the current claw provision due to National Standard 4.
- The Board initiated Addendum II to consider a coastwide standard for claw harvest in the Jonah crab fishery.
- The Plan Development Team met via conference call on June 21st to draft Addendum II.

Presentations

- Overview of the Draft Addendum II for public comment by M. Ware. **(Briefing Materials)**

Board actions for consideration at this meeting

- Approve Draft Addendum II for public comment.

10. Maine Conservation Equivalency Proposal (3:15 – 3:35 p.m.) Action

Background

- The Lobster FMP does not allow for the transfer of tags from one trap to another.
- In 2015, Maine conducted a one-year pilot project to examine the effectiveness of its lobster trap tag exchange program. Under the pilot project, harvesters were allowed to attach trap tags with hog rings as they move gear in and out of the water, eliminating the need for exchange tags.
- The elimination of exchange tags improved enforcement in the Maine lobster fishery. As a result, Maine submitted a request for conservation equivalency.

Presentations

- Review conservation equivalency proposal by P. Keliher. **(Briefing Materials)**
- Plan Review Team Report by M. Ware **(Supplemental Materials)**
- Advisory Panel Report by M. Ware **(Supplemental Materials)**
- Law Enforcement Committee Report by M. Robson. **(Briefing Materials)**

Board actions for consideration at this meeting

- Consider approval of Maine's Conservation Equivalency Proposal

11. Update on Lobster Law Enforcement Subcommittee (3:35-3:45 p.m.) Possible Action

Background

- The Lobster Law Enforcement Subcommittee met via conference call on July 8th to discuss initial steps to improve enforcement in the fishery.
- The subcommittee drafted a letter to the NOAA Office of Law Enforcement requesting the lobster fishery be considered an enforcement priority. **(Briefing Materials)**

Presentations

- Lobster Law Enforcement Subcommittee Report by M. Robson.

Board actions for consideration at this meeting

- Consider recommendation to Policy Board to send letter to NOAA Office of Law Enforcement

12. Update on NEFMC Omnibus Deep-Sea Coral Amendment (3:45 – 3:50 p.m.)

Background

- The NEFMC is currently drafting an Omnibus Deep-Sea Coral Amendment that may consider restrictions to lobster gear.
- Results from the offshore lobster and Jonah crab survey were presented to the NEFMC's Habitat PDT on July 28th. **(Briefing Materials)**

Presentations

- Update on NEFMC Omnibus Deep-Sea Coral Amendment by M. Ware

13. Update on State Implementation of the Interstate FMP for Jonah Crab (3:50 – 3:55 p.m.)
Background • States were required to implement provisions of the Jonah Crab FMP by June 1, 2016. • Three states are still working to implement Jonah crab regulations.
Presentations • Update on state implementation of the Jonah Crab FMP by M. Ware. **(Briefing Materials)**

14. Other Business/Adjourn

DRAFT PROCEEDINGS OF THE

ATLANTIC STATES MARINE FISHERIES COMMISSION

AMERICAN LOBSTER MANAGEMENT BOARD

The Westin Alexandria
Alexandria, Virginia
May 2, 2016

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

INDEX OF MOTIONS

9. **Move to have the Technical Committee respond to the following tasks** (Page 51):
   - **Synthesize current literature and studies which investigate the connectivity between the GOM/GBK stock and Canada**
   - **Plot changes in size distribution of egg-bearing females over time in the GOM/GBK stock**
   - **Describe changes in GOM ocean currents and how this could be affecting larval supply patterns**
   - **Investigate the stock-recruit relationship in the GOM/GBK stock**
   - **Review on-going research on GOM lobster in order to identify research holes and prioritize the importance of these data holes to effective management**
   - **Examine the competing biological management measures between Area 1, 3 and the Outer Cape Cod to look at the benefits of harmonizing these measures**
   - **Investigate and develop a Traffic Light Analysis as a potential control rule using average harvest and abundance values from the last 10 years as baselines. This approach will include using multiple indices such as the settlement and ventless trap surveys, trawl survey data, landing information and other indices as recommended by the TC.**

   Motion by Patrick Keliher; second by Ritchie White. Motion carried (Page 52)

10. **Main Motion: Move to adopt for Addendum 1 to the Jonah Crab FMP, Issue 1, Option A, 200 crabs per day, 500 crabs per trip; Issue 2, Option B, 200 crabs per trip** (Page 56). Motion by James Gilmore; second by Bill Adler. Motion substituted (Page 57).

11. **Move to substitute for Addendum 1 to the Jonah Crab FMP, Issue 1, Option B, 1,000 crabs per trip and Issue 2, Option D, 1,000 crabs per trip** (Page 57). Motion by Terry Stockwell; second by Roy Miller. Motion carried (Page 58).

12. **Main motion as substituted: Motion to adopt for Addendum 1 to the Jonah Crab FMP, Issue 1, Option B, 1,000 crabs per trip and Issue 2, Option D, 1,000 crabs per trip.** Motion carried (Page 58).

13. **Move to make the implementation date of January 1, 2017** (Page 58). Motion by Doug Grout; second by Terry Stockwell. Motion carried (Page 59).

14. **Move to approve Addendum 1 to the Jonah Crab FMP as amended today** (Page 59). Motion by Doug Grout; second by Emerson Hasbrouck. Motion carried (Page 60).

15. **Move to initiate an addendum to create a coastwide standard for claw landings in the Jonah crab fishery with options to: 1.) establish a requirement to allow only whole crabs be landed; 2.) establish a requirement to land only whole crabs, but allow a specified (volumetric) amount of detached claws per vessel per trip, which meet a minimum length of 2.5 inches. Proposed volumetric amounts may include the following: a single 5 gallon container, a bushel, or a standard fish tote; and 3.) allow the unlimited landing of detached claws, which meet a minimum length of 2.5 inches** (Page 61). Motion by Jim Gilmore; second by Mike Luisi. Motion adopted by consensus (Page 61).

16. **Move that the American Lobster Board recommend the ISFMP Policy Board send a letter to the President of the United States of America regarding the following** (Page 72):
    - **The preference of the Commission would be for the current NE Council coral management process to continue without Presidential use of the Antiquities Act to protect deep sea corals.**
    - **Should a President (CEQ) decide to designate a New England waters deep water Monument prior to the end of his Presidency, the Commission requests that any areas so designated be limited to the smallest area compatible with the proper care and management of the objects to be protected; as required by the Antiquities Act.**
    - **The area be limited to depths greater than approximately 900 meters, and encompass any or all of the region seaward of this line out to the EEZ. That only bottom tending fishing effort be prohibited in the area, and that all other mid water/surface fishing methods (recreational and commercial) be allowed to continue to use the area.**
    - **That the public and affected use groups be allowed to review and comment on any specific proposals prior to its implementation.**

    Motion by Eric Reid; second by Emerson Hasbrouck. Motion carried (Page 75).

17. **Motion to adjourn by Consent** (Page 78).

ATTENDANCE

Board Members

Pat Keliher, ME (AA)
Terry Stockwell, ME, Administrative proxy
Stephen Train, ME (GA)
Sen. Brian Langley, ME (LA)
Douglas Grout, NH (AA)
Dennis Abbott, NH, proxy for Sen. Watters (LA)
G. Ritchie White, NH (GA)
William Adler, MA (GA)
Rep. Sarah Peake, MA (LA)
Sarah Ferrara, MA, Legislative proxy
Dan McKiernan, MA, proxy for D. Pierce (AA)
Mark Gibson, RI, proxy for J. Coit (AA)
David Borden, RI (GA)
Eric Reid, RI, proxy for Sen. Sosnowski (LA)
Rep. Craig Miner, CT (LA)
David Simpson, CT (AA)
James Gilmore, NY (AA)
Emerson Hasbrouck, NY (GA)
Mike Falk, NY, proxy for Sen. Boyle (LA)
Adam Nowalsky, NJ, proxy for Asm. Andrzejczak (LA)
Tom Fote, NJ (GA)
Brandon Muffley, NJ, proxy for D. Chanda (AA)
Roy Miller, DE (GA)
John Clark, DE, proxy for D. Saveikis (AA)
Mike Luisi, MD, proxy for D. Blazer (AA)
Allison Murphy, NMFS

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

Ex-Officio Members

Bob Glenn, Technical Committee Chair
Edwin Gwin, Advisory Panel Chair, Jonah Crab
Jon Cornish, Law Enforcement Representative

Staff

Megan Ware
Toni Kerns
Robert Beal
Max Appelman
Mark Robson

Guests

Chip Lynch, NOAA
John Bullard, NOAA
Kelly Denit, NOAA
Peter Burns, NMFS
Mike Ruccio, NMFS
Derek Orner, NMFS
Jason McNamee, RI DEM
Mark Alexander, CT DEEP
Craig Wheedon, MD DNR
Marin Hawk, MSC
Jeff Deem, VMRC
Joe Cimino, VMRC
Beth Cason, MA Lobstermen's Assn.
John Godwin, Pt. Pleasant Beach, NJ
Greg DiDimenico, Garden State Seafood Assn.
Richard Allen, Little Bay Lobster, NH
Jeff Pierce, Alewife Harvesters, ME
Abden Simmons, Maine Elver Assn.
Arnold Leo, E. Hampton, NY

The American Lobster Management Board of the Atlantic States Marine Fisheries Commission convened in the Edison Ballroom of the Westin Hotel, Alexandria, Virginia, May 2, 2016, and was called to order at 9:02 o'clock a.m. by Chairman David Borden.

CALL TO ORDER

CHAIRMAN DAVID V. BORDEN: If everybody could take a seat we're going to start the Lobster Board meeting. My name is David Borden, and I'm the Lobster Board Chair.

APPROVAL OF AGENDA

CHAIRMAN BORDEN: The first order of business is approval of the agenda. I would just like to note a couple of changes that I've made in the agenda to try to expedite the discussions.

When we get to corals I want to deal with the New England Council coral issue and the monument issue at the same time. Those will both be under Item Number 10. Under Item Number 4, Emerson has asked for a short period of time; like a couple of minutes to show a video on Long Island Sound. I've agreed to do that.

Then once we finish all of the reports under Number 4, I'm going to make some just general comments from the perspective of the Chair on what I think we need to get done today in terms of accomplishing certain tasks. Then we'll move into the tabled motion. Let me ask; Terry Stockwell, you wanted to add an item to the agenda?

MR. TERRY STOCKWELL: Yes, first I want to announce to the board that my seat here at the table today is from the council only. I will be abstaining on all motions not related to the Jonah Crab action, and secondly under other business requests that the agency briefly update the board on 2016 SBRM.

CHAIRMAN BORDEN: Okay, any other items?

MR. THOMAS P. FOTE: Mr. Chairman, we lost a member that used to serve on this board for many years; Pat White, and Joe Graham passed away since out last meeting. I would like to get a moment of silence to basically represent two people that strongly were involved in the Commission. Pat White was very diligent and Joe was here forever, so if we could get a moment of silence in remembrance of them.

CHAIRMAN BORDEN: Yes, I fully concur. All right, any other items to add to the agenda? If not we'll take the items in the order in which they appeared.

APPROVAL OF PROCEEDINGS

CHAIRMAN BORDEN: In terms of the proceedings, we had audio problems at the last meeting so I only have partial proceedings. Are there any comments on those proceedings? Seeing no hands up, any objections; excuse me, Bill Adler.

MR. WILLIAM A. ADLER: Yes this is a minor thing, but on one of the motions, Page 8 the motion was tabled and in the other section it was postponed, in the Index of Motions Made. I don't know that that is any big deal at all, whether it is postponed or tabled; but they conflicted.

CHAIRMAN BORDEN: Okay thanks, Bill. Any other comments on the proceedings, if not any objections to adopting the partial proceedings as they were submitted? No objections.

PUBLIC COMMENT

CHAIRMAN BORDEN: In terms of public comments, we have four individuals that have signed up. This is for items which are not on the agenda; and I'll just read off the names and ask you to go up to the microphone down in the corner of the room there and address the board. Try to keep your comments fairly short. John Godwin.

MR. JOHN GODWIN: Thanks for having me. I'm here to submit some comments from Maine, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Maryland and Virginia. We're all seeing the same problem with the varying minimum sizes among states. In New Jersey we have a minimum size, 3 and 3/8s. We are purchasing the majority of our lobsters from Gulf of Maine; from Massachusetts dealers and Maine dealers.

We wind up with a small percentage of lobsters that fall below our gauge size. We're being cited and issued summons and warnings for these lobsters. I'm hoping that by submitting this public comment from dealers, restaurants, supermarkets and various organizations that we can get a little bit of help in solving this problem with the importation of Gulf of Maine lobsters into southern New England states that have a slightly larger size.

CHAIRMAN BORDEN: The next person I have on the agenda is Dick Allen.

MR. DICK ALLEN: My name is Dick Allen; I'm representing the Little Bay Lobster Company. I wanted to speak to you about V-Notch enforcement; it is not on the agenda but it is closely related to the topics you will be talking about in how to improve lobster management. We would suggest that improving the enforcement of the existing V-Notch laws would be a good first step. Before you take a lot of new actions there is one simple thing that you can do.

We understand from people in the industry that there is a wide variation in the degree of enforcement of the V-Notch laws in the different states. We would just think that the first thing you could do is tighten up on that; get all the states onboard enforcing the existing laws. You are trying to leave females in the water; it appears that a lot of them that shouldn't be coming out of the water because they're v-notched actually are. We would suggest that that would be a good thing for the commission to take a look at and try to solve.

CHAIRMAN BORDEN: The next person on the list is Beth Casoni.

MS. BETH CASONI: Good morning, thank you, Chairman. Regarding southern New England, at the LCMT Area 2 meeting it was discussed at length to have a further look at the entire inshore habitat and why settlement is not happening. We would encourage for that to happen not just in Area 2, but the entire southern New England stock.

Then regarding the dealer possession size, we support the comments given earlier and there are so many varying sizes on possession; and this is from the dealer's perspective. The gentleman that just gave comment sells a million pounds of lobsters, and we don't want to lose that infrastructure and that dealer in southern New England. The southern New England fishermen are already in a hard place; so we ask the commission to look at that further.

CHAIRMAN BORDEN: Then next person I have on the list, Greg DiDomenico.

MR. GREG DiDOMENICO: Greg DiDomenico; Garden State Seafood Association, thank you, Mr. Chairman, thank you board members. I'll be brief. I also would like to lend our association support to this dealer possession issue. It is a broad issue but it is also a specific issue that I understand has to be worked out within our own state; and we're working on that right now.

But it would be extremely helpful for the board to perhaps have some discussion, a broader discussion about this and perhaps take this up at a specific subcommittee or an advisory panel within the Atlantic States Marine Fisheries Commission. The issue from a broader perspective is that the type of importation that has been going on in our state for a very long

time, many businesses are dependent up it; many restaurants are dependent upon it.

That is why most people within the state that are involved in that business are supporting this effort. I just want to see if there is a way to urge the states to work together more cooperatively on this, and have a much broader conversation about how to make this work without having any conservation impacts to the lobster fishery.

CHAIRMAN BORDEN: John Godwin, you signed up twice. I assume you only want to speak once, is that correct?

MR. GODWIN: That's correct.

CHAIRMAN BORDEN: Just a couple of comments. This minimum size issue I know has come up very extensively in Massachusetts; and I might add Dan just to offer a couple of comments on how they've handled it. But I think the way for the board to handle this; some states have worked out ways of accommodating this type of a practice.

Maybe those states could provide information to New Jersey; in terms of the types of systems that have been set up. Actually, before I recognize Dan, Brandon, do you want to comment on this issue; since you are undoubtedly very involved in it?

MR. BRANDON MUFFLEY: I was actually going to see how you wanted to handle this. I have been speaking to a few other state directors. When we were in New Orleans this issue first kind of started to bubble up in New Jersey as something we wanted to look into addressing. I don't know if it is worth just me talking to some of the other state administrators on how other states, if there is any consistency among states and how we deal with this possession limited issue.

We've met with advisors and our marine fisheries council just actually last week on this issue, to see if we could come up with a resolution on it. I don't think we are quite there yet, so I would welcome more discussion; either from my state partners or here at the board level to see how best to handle.

MR. JAMES J. GILMORE: One other thing I think we could do, the LEC is meeting this week and there is probably, I know our state was involved; not in this particular one but a similar issue a year or so ago. It might be good to get some feedback from them and have some discussion or put on their agenda that they can give us some guidance on this. One of the complications is, is this is interstate commerce now it is not strictly state management; that does sort of muddy the waters a bit, so it would be good to get some advice from them.

CHAIRMAN BORDEN: Just to follow up on that. I like that suggestion, but to follow up on that. How many states in southern New England have an accommodation for this type of practice? Massachusetts does, but any other states that accommodate this type of thing, so you can ship in 3 and ¾ inch lobsters into a state where the landing and possession size on the water is 3 and 3/8? Do any of the other states have this?

MR. DAVID G. SIMPSON: Yes, we allow lobsters less than 3 and 3/8 to be handled in the state, shipped, transshipped, but not offered for sale.

CHAIRMAN BORDEN: Okay, thank you. Dan, do you want to comment on this?

MR. DANIEL McKIERNAN: In Massachusetts we have three different minimum sizes; because we sit at the convergence of the Gulf of Maine, Georges Bank, and southern New England areas. We have 3 and ¼ inch for Area 1, we have 3 and 3/8 for Outer Cape and Area 2, and we have 3 and 17/32 for our Area 3 fleet.

We've never increased our dealer minimum size or market minimum size above the 3 and 1/4, but we've also been fortunate to have some very, very stiff penalties that I believe it is around

$100.00 per undersized lobster. I think any state that might want to consider accommodating the commerce of these undersized lobsters should probably back that up with some stiffer penalties for any harvester that comes into that state with lobsters that may meet the market size, but would be unlawful per their permit requirements.

CHAIRMAN BORDEN: My suggestion here would be for the states that have an interest in this to talk to Brandon. I particularly request Dan to provide input on how you actually handle this issue in Massachusetts. As far as the suggestion to have the Enforcement Committee, I think that is a good suggestion; but I think it will be easier for enforcement to actually review something if you give them a full package of a proposal that they could review on what is entailed.

If New Jersey, for instance, wants to do that; I would suggest that they submit a proposal to Jon and the Enforcement Committee. Is there any objection to doing that? The other issue is, and I'll just touch on these briefly, is the issue of V-Notch enforcement. There are a number of proposals you're going to deal with today in terms of potentially standardizing regulations in some of the areas.

I think this is an issue that the Enforcement Committee can weigh in on and provide some input to that as the process moves along. The habitat suggestion that Beth made, this is an issue that has come up a number of times in Rhode Island, and Massachusetts there is a lot of concern in the inshore lobster industry about the degrading habitat in some of these estuaries. To me this is an issue that the Commission can get involved in, but I really think the states have got to take a predominant lead in it; particularly the water quality. People in the states should look at some of these issues. Is there any other discussion on any of those points?

NEXT STEPS FOR MANAGEMENT OF THE SNE AMERICAN LOBSTER STOCK

CHAIRMAN BORDEN: If not, we'll move along into Item Number 4. This issue just by background, we've had a whole series of technical reports on the status of the southern New England fishery. You're going to get another one today. I think Bob Glenn and the Technical Team have provided us with at least five reports, maybe more; related to that we're also going to get a report from Rhode Island.

We'll get a report from Megan that responds to a board request on Plan Development Team actions. We've got two reports from two lobster conservation management teams that are starting to formulate guidance on if we have to take an action on southern New England lobster. They are trying to prioritize what they think should be done. Then we've got the issue of Emerson's short video.

What I would like to do is to work through those different technical reports. My guess is that when we finish all those we'll probably take a five minute break; so everybody can get a cup of coffee and stretch their legs a little big. Then we'll move into the main item on this, which is to define whether or not we're going to do an addendum and what the goals and objectives for that addendum are. Let's start off with the first Technical Committee report; Bob Glenn.

TECHNICAL COMMITTEE REPORT

MR. BOB GLENN: One of the primary tasks given to the TC for this report was to look at the impacts of a gauge increase on the southern New England stock. To achieve this we used the simulation model that we used for the projections to analyze the effects of increasing minimum size. One thing to understand is that the impact on the stock from a gauge increase is highly sensitive to both the rate of growth and the rate of natural mortality; specifically on the unfished portion of the stock.

For this analysis to try to give you some insight as to how growth and natural mortality affects the impacts of a gauge increase, we used a range of growth rates and a range of natural mortality rates to look at that. To understand a little bit about that relationship, and given for a biomass to increase, you basically are looking at the number of animals at size, times their growth rate, less how many die from natural mortality.

That gives you kind of an idea in very simple terms of how the stock has the potential to increase under a gauge increase. An important point is that as M increases, and I'll show this in a little bit more detail in a minute. But as M increases the benefits of a size increase diminish, because increasing proportion of the stock dies before reaching minimum legal size.

Under real high M situations the benefit of a gauge increase is substantially less. Also the benefits of a size increase diminish under slower growth rates, because the longer it takes for a lobster to grow to minimum legal size, the more time M has to work on the stock. It is kind of balancing those two things out when you try to determine the overall impact. For this analysis, all the simulations assume a constant rate of exploitation based on the terminal year of the assessment.

What we're going to show you as how the gauge increase would impact the stock, assume that the exploitation rate does not increase or decrease. Then finally, all the simulations assume a constant rate of recruitment; and I just wanted to point out that this is a fairly tenuous assumption given the empirical trends in young of the year lobster settlement that we've witnessed in recent years. The three growth rates that we looked at were what we called the base case, and that was used in the last assessment. This was the fastest rate of growth used in the simulation, and it is based on historical tagging data. Some of the issues with this that give the TC heartburn is that it has an improbably fast rate of growth for small lobsters, and an improbably slow rate of growth for large lobsters; large female lobsters specifically.

We wanted to test that growth assumption a little bit and we used kind of an ad hoc best professional judgment method to come up with two additional growth estimates. The second one was what I would refer to as the intermediate growth model. This is based on the female molt probability that is calculated off the proportion of sublegal lobsters that are bearing eggs.

For this growth curve, the lower end of the growth curve was set to a 33 percent molt probability; which means that at a maximum the inter-molt duration for a female lobster was at a maximum three years, whereas in the base case that assumes that the maximum inter-molt duration for large lobsters is up to five years, which the TC just feels is pretty improbable; because we never observe large lobsters that are full of encrusting animals. Their shells don't look like they have been there for five years.

Then finally we used a slow growth model to kind of give some contrast. This assumes that all females reach sexual maturity by 75 millimeters carapace length; and in this case there is a max inter-molt duration of four years at 90 millimeters. This is just from females to the left and males to the right.

As you can see the three different growth trajectories and these are molt probabilities, so this is the annual probability that the lobster will molt. Basically what this shows in the bottom is carapace length. What it shows is that for animals that are small, like say 60 millimeters, your annual probability of molting is anywhere between 80 and 100 percent.

Then as lobsters grow, get bigger and bigger, as they get bigger their growth rate and their inter-molt duration slows. For natural mortality we basically took a broadcast approach and we looked at 11 values ranging from 0.15, which is

the assumed background rate of natural mortality up to an M of 0.4.

Based on the most recent stock assessment, looking at likelihood profiles, the TCs estimate of where natural mortality currently is is between 0.24 and 0.27. Again, I just wanted to note that as M increases the effectiveness of the gauge size change diminishes. This figure here, the three panels represent the three different growth rates that we use; the less the base case, the middle one the intermediate growth rate and then the one on the far right is the slow growth rate.

The X axis is the carapace length, and then the Y axis is the relative equilibrium biomass under current exploitation from the projection model. The dashed vertical line you can see is the 86 millimeters, which is the current minimum legal size in southern New England. Then you can see incrementally, depending on which rate of natural mortality and which growth you assume what the impact of minimum size increase is.

What we found is that increasing in minimum size resulted in increased stock biomass under all scenarios. Slowing the growth rate or increasing natural mortality resulted in smaller increases in biomass. The largest increase in the spawning stock biomass observed, was in scenarios with fast growth and low M; which is what we would expect. Under slow growth and moderate to high M, only minimal increases in spawning stock biomass were observed; even at very large size increases. In addition to looking at how gauge increase would impact the stock biomass, we also projected how it would affect the catch in the fishery. In this figure this represents for those same three rates of growth and the range of natural mortality values, the relative catch at current exploitation at size.

Again, the vertical line is current minimum legal size and this basically demonstrates, depending on what rate of M you choose and which growth rate you choose that at least for the five millimeter increase, long term you would not have a substantial or any reduction in catch; depending on the growth rate used.

Then as you get larger and larger, it is obvious that you see the catch decline. This graph goes all the way up to, I believe 108 millimeters. In this case you had a minimum size of 108 millimeters; you see that overall the yield to the fishery is substantially lower. The effect on catch of increasing the minimum size varied across those scenarios.

Under low natural mortality rates when M was less than 0.2 increasing the minimum size can increase total yield under the base case and the intermediate growth scenario. At the current rate of M, which we estimate at 0.275 in the last assessment, yield remains fairly stable with increases in the minimum size up to 90 millimeters.

Then finally, long term loss in yields were observed in all growth scenarios with increases greater than 90 millimeters and M equal to or greater than 0.275. I forgot to mention one thing about what each of those values represent. When we're talking about equilibrium, in the model in this particular case we're allowing the model to basically reach its long term equilibrium point; so that would be a case of about 20 years for it to reach that.

I'm going to show you in a second that there are definitely short term reductions in catch that result from increasing the minimum size. What this last figure represents is the equilibrium, so after 20 years at that size where the eventual yield would end up. We boil all that down and we use, to make it a little clearer to see, just using what we currently assume natural mortality rate to be of 0.275.

You look; the figure on the left is the relative equilibrium biomass for the three different growth scenarios. What you can see based on an M of 0.275 is that in all scenarios changes in

minimum size would increase stock biomass under all the given assumptions that I indicated at the beginning.

Similarly, if you look over at the equilibrium catch over the long term, is that you don't see much of a loss in total yield up to about 90 millimeters; but once you exceed 90 millimeters loss in yield does start to decline fairly substantially. That is also dependent on which growth rate is used.

For a scenario just to get everyone a sense on, depending on how you go about a gauge increase; whether you did it in small moderate increments, or in one big step. We looked at an analysis where we increased the current minimum size 3 and 3/8 up to 3 and 3/4 inches. One scenario was where we increased up that distance the whole 3/8 of an inch in one year. When we did that we would expect a 50 percent decline in catch in Year 1, but the equilibrium catch in this case would be achieved in Year 4. In this scenario we saw the most rapid increase in spawning stock biomass. The next scenario is increasing the 3/8 of an inch over a course of three years. In this case there was obviously a less severe drop in catch, and equilibrium was achieved in five years. We saw a moderate rate of increase in spawning stock biomass.

Then finally, if we increase the 3/8 of an inch over a longer period, six years, we see a very gradual decline in catch. It takes equilibrium is achieved in 8 years, however in this scenario we see the slowest rate of increasing spawning stock biomass. In conclusion on conclusions for the gauge size analysis, we found that an increase of 5 to 10 millimeters may result in increased spawning stock biomass after 20 years.

Short term changes in catch and biomass will be more dramatic but what will reach equilibrium over time. The benefit of a gauge increases are highly sensitive to growth rate and to natural mortality rate. It is also important to note that this analysis does not account for spatial variability in the size distribution of the stock.

As you all know, lobsters are not distributed evenly by size. Smaller lobsters tend to settle inshore and as a result the inshore fishery tends to work on a smaller size distribution than the offshore fishery does. We would expect that the effects of the gauge increase are likely to be more dramatic inshore than they would be offshore.

The assumption of constant recruitment we feel is highly optimistic and is not supported by the empirical trends that we see in young of the year settlement. The analysis also assumes that the exploitation rate stays constant, meaning that fishermen would not compensate for the gauge increase by increasing fishing effort.

If that were the case, if the exploitation rate were to increase then those projected benefits of a gauge increase would not be realized. If recruitment continues to decline, projected increases in spawning stock biomass due to increases in minimum size will not be realized. Finally, the TC cautions that large reductions in mortality are still required to stabilize the stock and the increase in the adult population is dependent on favorable environmental conditions.

We feel that changes in the minimum size must be combined with other management measures to realize substantial improvements to the stock. Mr. Chair; that is that portion, I don't know if you want me to continue with the rest of the report, or if you would like me to entertain questions about that analysis. It is your call.

CHAIRMAN BORDEN: I think we'll expedite the discussions if we just take questions on it section by section. I think it will be easier for you too, Bob. Everyone understands this is not the point where we're going to debate some of these. If you've got a question on the analysis ask a

question on the analysis, so any questions for Bob?

REPRESENTATIVE SARAH PEAKE: Thank you, Bob, for that portion of the report. I'm just curious as I look at the graph there analyzing the decline in catch, more severe if implemented over a shorter period of time. What kind of baseline survey has been done? Are the larger lobsters even there, or have environmental factors or other factors led to a mortality; so that we may see a sharper decline in catch than what is being anticipated? I guess I am curious what went into your analysis of how steep that slope is or not in the catch decline.

MR. GLENN: That analysis is based off taking the starting stock biomass from the last terminal year of the assessment, and then using a projection model including the rates of growth, the rates of natural mortality; and then the changes in the gauge sizes, and letting that run forward for 20 years, and then doing that multiple times.

Then looking at the distribution of that to see what the point estimate would be. Empirically we look at the size distribution of lobsters in southern New England. We do see larger lobsters offshore in the canyons. We do see some larger lobsters in the inshore portion as well, but obviously more offshore.

CHAIRMAN BORDEN: Any other questions? No hands up, go ahead, Bob. Oh, excuse me.

MR. MUFFLEY: I have two questions, one a simple one I guess. Was there any reason behind selecting 3 and 3/4 as the gauge size to go up to?

MR. GLENN: Yes, the 3 and 3/4 was when we looked at the – I'm going to pull up a figure, this figure here – actually I'm sorry we'll go with this one; 3 and 3/4 inches is, I believe it is about a 10 millimeter increase from the current size. What we saw there was that that would have a fairly substantial increase in the spawning stock biomass, but the equilibrium catch in total yield to the fishery in long term would stay fairly similar.

MR. MUFFLEY: Not specifically related to that but in thinking in terms of the projections that we looked at in February. I see here this shows that if we went up to 3 and 3/4 inches, which equates to about a 50 percent reduction in harvest, shows some pretty sizeable increases in SSB.

Under some of the forward projecting work, like I said presented in February, it showed we need a 70 to 80 percent reduction just to stabilize SSBs. Just wondering what the differences are between what the stock may respond to here versus under the forward projecting stuff from February.

MR. GLENN: Yes, in this analysis it is basically by increasing the minimum size you're changing the fished portion of the stock, so you get that immediate bump right out of the gate.

CHAIRMAN BORDEN: Anyone else? Doug.

MR. DOUGLAS E. GROUT: One of your concluding statements is; if recruitment continues to decline increases in SSB due to minimum size will not be realized. One of the things that struck me in the last assessment is that over the last 10 or 12 years we've seen a continual decline in recruitment to very low levels right now. Is there any indication that the environmental factors may change; that we may be getting more positive recruitment?

MR. GLENN: No, there isn't any evidence that I've seen to suggest that recruitment has improved in southern New England or that the environmental conditions have improved or are likely to improve.

MR. EMERSON C. HASBROUCK: My question was somewhat similar to Doug's, so part of my question has already been answered. But the

other part of my question is do we know anything about M and the natural mortality? Has that been increasing over the past few years? The reason I'm asking is that you qualified many of your statements with environmental conditions. Again, the question is, do we know if natural mortality has been increasing?

MR. GLENN: Yes, we do know that it has increased. Based on work that the TC did in the last assessment we shifted the natural mortality up to coincide with a large change in oceanographic conditions in southern New England that happened in the late 1990s. We had kind of a step increase where we went from 0.15, which is the assumed background natural mortality rate for lobsters.

Then starting in the late 1990s, based on empirical data on temperature anomalies, as well as looking at other things that occur like die-offs and increase in the rates of shell disease, there was a pretty clear break around 1998; where the conditions changed. Then from there we increased that up to 0.275 and then allowed the model to run at different scenarios, and then based on the maximum likelihood or the best fitting model essentially; we honed in at a rate of 0.275.

MR. WILLIAM A. ADLER: Following up a little bit on what Doug said. We did an awful lot down there to help the situation out by reducing the traps, increasing the gauge, putting a maximum size. Apparently that hasn't helped. Then I start to wonder about, in the computer models it helps if you go up in the gauge and everything else.

But I'm wondering if we're just going to have even more natural mortality. I presume your natural mortality has to do with shell disease and predation, because the warm water doesn't necessarily kill a lobster; they just leave town. They might be out somewhere else. But I just have questions as to ratcheting up the gauge more; we already did, nothing happened. I don't know how this is going to change, and this is the conundrum we're all in I'm sure.

CHAIRMAN BORDEN: Anyone else have a question on this section? If not, we're going to move on to the next section, Bob.

MR. GLENN: This is actually something that the TC put together that wasn't necessarily something that the board specifically requested, but something that we thought was important to kind of put the southern New England discussion into context. We conducted an analysis where we looked at the relative importance of M; natural mortality and fishing mortality on the southern New England spawning stock biomass.

In a nutshell what we found was that M has had a consistent impact on SSB within the two observed regimes. M was responsible for moving about 9 percent of the SSB between 1980 and 1997. Then after 1998, about 17 percent of the SSB that M removed. But looking at fishing mortality we found that currently fishing mortality is removing between 35 to 39 percent of the SSB, which is roughly twice what is being removed from M right now.

This suggests that even at elevated levels of M, management actions can still have positive effects on SSB. We just essentially wanted to put into context that fishing mortality still is a substantial source of the total mortality in southern New England. While M has increased and is an important factor, we can't underestimate the impact of continuing to fish on the stock.

We wanted to kind of add some. The original stock recruit relation that I showed the board last time around didn't include all the years going back in the time series. We probably should have, because I think looking back to the early 1980s kind of gives some additional context to what is going on in southern New England. What we've seen is that recruitment has plummeted over the past decade while SSB has remained

fairly constant. This suggests that there is some type of a depensatory mechanism that may be at play; in that recruitment appears to be decoupled from SSB.

The different possible causes of this are reduced mating success, lower survivorship of the early life history stages and increased predation. If we look at this stock recruit history, going back to the early 1980s you can see in the early 1980s we had similar levels of SSB as what we have right now; yet those early years were responsible for producing extreme high spawning stock biomass that occurred in the 1990s.

If you look at the top, the lighter line, the dashed gray line; you kind of see a regime there where there were probably positive environmental conditions where even at low spawning stock biomass, the stock was able to put out some fairly high recruitment levels. Then you see starting after the mid-nineties that relationship starts to change.

What we see there is even with very high spawning stock biomass, after about 1998 we start to produce fairly low levels of recruitment. Then after about 2003, for that given size of spawning stock biomass we see the recruitment level really start to plummet. Are there any questions about the last two parts?

CHAIRMAN BORDEN: Questions for Bob? I just offer a personal comment. This is kind of an amazing slide, I think; because you think about the environmental change that the lobster resource has been subjected to over the period of time. Essentially we've gone full circle through a period of very high abundance and very high recruitment.

Now we're back where you've still got kind of the same SSB in place, but the recruits have just fallen right out of it. One of my questions to you, Bob is that the assumption in most of the models is that natural mortality is estimated to be about 0.275 is that correct? If it goes higher than 0.275, what does that do to the projection?

MR. GLENN: I don't have the exact projections in front of me, but I know from studying them enough that if M goes much higher than 0.275 there is almost not scenarios by which stock biomass can be increased. It will just continue to decline.

CHAIRMAN BORDEN: Other questions? Any other questions, if not let's move on to the next segment please.

MR. GLENN: The board asked the TC to weigh in on the cost and benefits of standardizing regulations in southern New England. The TC came up with the list of benefits being that we felt this would decrease the competitive effects of disparate management measures along LCMAs.

As we all know, southern New England is carved up into four or five different LCMAs. We all know that the lobsters obviously don't know there is a boundary there, so if you have adjacent areas that have different minimum sizes, you have situations where one lobsterman is throwing over an animal and then one fishing adjacent to them in the next zone can then harvest them; and obviously that conservation isn't realized in that case. We also felt that it minimizes the impacts of management related to size selectivity on the population; that ensures lobsters are equally susceptible to fishing pressure regardless of where they are located in southern New England. It simplifies the current regulations leading to enhance enforcement and compliance.

It will certainly improve future analysis on stock conditions as scientists will be better able to estimate the effects of the fishery on the lobster population. But it does come with some cost. It ignores the existing population demographics, including spatial trends and size and sex. What I mentioned before, lobsters are not distributed

evenly across the inshore and offshore area by size; so if you standardize that you kind of create a situation where you can have haves and have not, because simply as lobsters grow up and get bigger they tend to move offshore.

It can also create inequities between LCMAs, some of which may be long term due to ontogenetic shifts in lobster habitat use, i.e. the movement of lobsters offshore from the coastal nursery areas as they get bigger. Portions of the fleet would have to make gear modifications, especially to their escape vents to standardize.

As the LCMAs are currently defined, standardizing regulations in southern New England would have impacts throughout Area 3, including the Gulf of Maine and Georges Bank. Should the board consider standardizing regulations, it may be necessary to separate the southern New England portion of Area 3 from GOM and Georges Bank.

Then a couple of additional consequences that we came up with was that increasing a minimum gauge size would disproportionately impact inshore fishermen who primarily rely on lobsters which have recently recruited to the fishery and contrast a decrease in the maximum size would primarily impact Area 3 fishermen; whose catch is comprised of larger lobsters.

Then one additional consequence is that standardizing the biological measures would eliminate the need for permit holders with multi LCMA trap allocations to declare which area or areas will be fished. Assuming a fisherman is not limited by his or her trap allocation; uniform regulation including trap caps would remove the necessity of the most restrictive rule.

This would benefit due permit holders, since they would have greater flexibility in where to fish, but it could be at a cost to a single area permit holder who may experience increased effort moving into the fishing grounds. Any questions on the cost benefit of standardizing regulations in southern New England?

CHAIRMAN BORDEN: Questions, Dan.

MR. McKIERNAN: Bob, thank you for your description of the problem of seeing six different zones within one stock unit. Did the TC also make note of what I would consider the very large overlap zone as another conundrum in addition to the movement? You've got that overlap zone between two and three. Was that noted at all?

MR. GLENN: I don't believe that we noted it in the report. We did discuss it at the meeting. Again that is even a more complex issue where you have an area that is shared by two areas with different rules; that kind of reinforces all the issues that we brought up.

CHAIRMAN BORDEN: Anyone else? Okay Bob, you're up again.

MR. GLENN: Okay, home stretch. Finally, the board had asked us the attainability of the current reference points. What we came up with is given that none of the projections which use the current natural mortality rate of 0.285 from the last assessment show the stock reaching an abundance of 22.5 million lobsters, which is the reference point. The TC feels it is very unlikely this reference point will be achieved under present environmental conditions.

CHAIRMAN BORDEN: Questions on this point? Okay no hands up.

MR. GLENN: Okay and then finally the board had tasked us with looking into the potential of conducting some inshore/offshore tagging studies; with specifically looking at the inshore and offshore connectivity of lobster stocks in southern New England. The TC felt that previous studies show strong evidence of a migration in which adult lobsters make directed seasonal

migrations offshore in the fall and return inshore in the spring.

Benefit from an additional tagging study may be minimal in increasing our knowledge on stock connectivity. However, the TC does know that there is a lack of information on growth and size specific natural mortality in the lobster fishery and believe that a tagging study would be useful to address these data gaps. It would also give us a more modern update on the connectivity.

I guess there is a potential that given the changing environmental conditions that stock connectivity could have changed, so a tagging study would also give us a chance to update that; because the last tagging data done that looked at that was done in the sixties and seventies. The TC provided information in the report on two additional tagging studies; one was a southern New England inshore/offshore connectivity and study that I put together that had a rough budget of about $250,000.00.

Then there is also a fair amount of information put in there from New Hampshire. Josh Carloni, as well as representatives from Maine, who are currently working on a tagging study in the Gulf of Maine; looking at Gulf of Maine and Georges Bank connectivity, and their current study I believe is requested, or is it funded for $107,000.00. But I think there was also a need to do some additional work with that as well; and that is all I have.

CHAIRMAN BORDEN: Any questions? Bill.

MR. ADLER: Bob, could you go back to the slide before, the 22. This was basically saying that the abundance is 22.5 million lobsters, okay. What was that figure back before the boom that came in the nineties? Where was that whole thing back then? Was it near 22 or way above or what?

MR. GLENN: What the 22.5 million lobsters represent is the reference point, the median level of abundance. At the last board meeting we presented several scenarios of changing the reference point, including taking out those boom years; and because that's a median not a mean, taking out those boom years has fairly small impact on lowering the reference point.

With the median any one given value, median being the middle value of the time series, it doesn't have that much impact. Any one value doesn't have that much impact on the median like a mean would. But in a nutshell what the TC is saying here is that at current rates of natural mortality, we don't feel that it is possible to reach that. There was no scenario that we ran that we were able to reach that under current environmental conditions.

MR. ADLER: Okay, I understand that. I guess where I was going to was back where we say how many lobsters there are there now, whatever that figure is, and forget the boom years and go back to when it was not the boom. I know somewhere in your paperwork you have what the stock size, I guess that's what I meant, the stock size was before the boom and the stock size now as best you can get. Are we back to where we were in the nineties or lower than where we were before the boom? Do you have that figure, roughly?

MR. GLENN: Yes, I do have it in front of me. I just don't have it in this presentation. I had it for the last presentation. But looking at it right here, we're currently below 10 million; we're around 8 million lobsters. That is the lowest point that we've seen in the time series.

MR. ADLER: Even back before the boom?

MR. GLENN: Even back before the boom.

CHAIRMAN BORDEN: Other questions; yes, John.

MR. JOHN CLARK: Thank you for the informative presentation, Bob. I was just curious. I know last

time you said that the offshore spawning, the eggs and juveniles would come inshore and tend to drift in a southwest direction. For the spawning stock at the southern part of the range, would it be fair given the poor environmental conditions and the poor recruitment to assume that they're really not contributing much at all to this stock right now?

Because their spawn would be likely drifting into really poor conditions as they head southwest, and if so would treating the entire southern New England area as a single unit. I am just curious as to whether way down at the southern end whether this spawning stock is almost like a dead end where juveniles end up there, grow there, but are not contributing to the stock.

MR. GLENN: Well, for that to be the case you would have to assume that those adult lobsters don't make annual spawning migrations into favorable areas. All the tagging studies that we've conducted historically show that egg bearing females in the springtime make migrations into favorable areas to hatch their eggs.

We don't specifically have any tagging studies from the far southern end of the range there to show that. But my assumption would be that it wouldn't make any sense evolutionarily for an animal to put that much energy into producing eggs, to not then migrate to put them somewhere. I think the TC would feel that the life history model would be that those animals make a migration to hatch their eggs in the appropriate place so that the larvae eventually will settle out in a favorable area.

MR. HASBROUCK: Bob, the slide that you have up now where the current natural mortality rate is 0.285. Earlier on in your presentation several minutes ago, and I don't recall if it was a slide that you had or if it was just a statement that you made; essentially that if M goes higher, I'm not sure what value you mentioned. But if M goes higher than a certain value then none of the scenarios that you ran are going to result in increasing spawning stock biomass. Do you recall what that number was? Was that 0.285? Was it some other number? Then I have a follow up, please.

MR. GLENN: Just to clarify the question. Do you mean at what point does it have to get to before there is nothing you can do to stop the decline, or do you want to know what value that is?

MR. HASBROUCK: Yes, as I said before, you made a statement or it was a statement made in one of your slides that if M increases above some level X; and I don't recall what you said X was, then none of the scenarios that you had are going to result in increasing spawning stock biomass. The first part of my question is what is that number? What is X , in that statement that you made?

MR. GLENN: Okay, I'm pulling up the stock projections that I presented last time, and if you just give me a second I can look at where that falls. Okay so according to the projection that I'm looking at right here, where we assume we're currently at 0.275. That is even more updated from the last assessment, and the last assessment was 0.285.

We did some additional likelihood profiles and we've narrowed it down to 0.275, where we currently are. Then if you look at the stock projections, when M gets to 0.325 the stock, even at the current constant rate of mortality the stock will decline; and then above that it really starts to decline, so 0.325 would be the value.

MR. HASBROUCK: Thank you, you've also answered my follow up as well, so thank you.

CHAIRMAN BORDEN: Any other questions for Bob, if not Bob, are you finished; that's it? Okay so the next presentation is by Jason and Jason, if you wouldn't mind I would like to handle it the same way. Go through each segment, we'll take

questions and then move on to the next one. Thank you.

MR. JASON McNAMEE: My name is Jason McNamee; I work for Rhode Island Marine Fisheries. Once the last stock assessment came out and there was sort of general understanding that some management would be needed for lobsters. Rhode Island wanted to help out and lend some support to the Technical Committee, so we started to develop what I'll refer to as a set of tools that we thought could be helpful to the Technical Committee.

This following presentation basically outlines the tools that we brought forward to the Technical Committee for their review. Bob already had a lot of things to discuss with you, so since I was going to be at this meeting anyways, talking with Megan, they asked that I at least cover this section for Bob; give him a little bit of a break. Again based on the last stock assessment it became apparent that we were going to need to start talking about management for the southern New England stock area.

What we did was we looked at the information that we had available and began to think about, well what are the areas where we can look at reductions and harvest reductions, and what are the tools that we have available to get at some various management goals? In addition to those very, sort of pragmatic analyses, we also looked at some spawner recruit information. This is some work that Mark Gibson from Rhode Island had been thinking about and working on for a long time, and so we thought this was a good opportunity to investigate that a little bit more. The presentation has basically three main categories. The first thing that we looked at was the relationship between traps fished and realized exploitation rates. Trap reductions is this kind of marquis management effort, in particular in Area 2. We wanted to begin to think about, well what does that mean by way of exploitation? Where might we end up once we get through these trap reductions?

We looked at the information that we had at hand to see if we could develop a relationship that could answer that question. We also looked at some technical measures to reduce F and preserve the remaining spawning stock biomass. Bob in his presentation talked about this a little bit. What we are going to show you is a more parsimonious analysis, a little simpler.

I think these types of simple approaches sometimes can lend some good context to the more complex modeling procedures. Then the final piece is this alternate stock recruit relationship information. I am going to start off with the effort control; this is the trap reduction stuff that is occurring in southern New England, at least in parts of southern New England.

The data used for this analysis was southern New England traps fished. This was taken directly from the stock assessment document. In our first cut at this analysis when we were bringing it forward to the Technical Committee, we didn't want to start to create datasets that hadn't been looked at by them before; so we tried to base all of these analyses off information that we know the Technical Committee was familiar with and had worked with in the past.

The time series of exploitation is taken directly from the stock assessment document for the southern New England area. Based on that information on numbers of traps versus the estimated exploitation rate in southern New England, what we did was we developed a model, basically a curve to fit the information that we had available. This model, it is a really simple model; it is a Michaelis-Menten function. This is something that is commonly used for enzymatic reactions, but it is just a standard model that describes a curve.

We fit this curve to the data using two techniques; we use sort of a standard statistical approach, maximum likelihood. Then just to give us some context as to whether we are getting

information that was similar, we tried a different approach; and we tried a Bayesian approach as well. Normally for such a simple model with only two parameters you don't need Bayesian techniques to get at that.

But the idea here was, besides the fact that Bayesian statistics are kind of neat, it was just to approach it from a different angle to see if we can come up with the same results. The Michaelis-Menten model has two parameters, and the parameters make sense; that is kind of why we picked this model to work with. Just not to ruin the surprise, but the model was fit; it successfully converged on a solution under both approaches. Here is a look at the result. The graph that you're looking at on the Y axis is exploitation rate.

Along the bottom are thousands of traps. Again, this is traps fished. That is taken directly from the stock assessment document information. I'll get to that discussion when I sum up this portion of the presentation. What you see, the dots are the traps fished in each year and the resulting exploitation rate that was estimated in that year, and the red line, the curve that is the predicted model fit to that data. On the right hand side what you see are the parameter estimates from that analysis. As I mentioned, we tried a different angle on this and we ran it through a Bayesian statistical technique, and the take home from this slide is that it looks exactly the same. The parameter estimates were, for all intents and purposes, exactly the same; small nuance differences, but not enough to impact the way the curve fit or looked.

How might you use this kind of information? What is its value? What you have now is a relationship between the traps that are being fished and a resulting exploitation rate from that number of traps. What you can do is follow your way down that curve, depending on what your goal is. Here what I've offered, you can kind of see it up there, so there are these gray almost like a target on there.

What that target is honing in on is where we believe we will be once the 50 percent trap reduction effort in Area 2 takes place. The numbers are up there under that second bullet, but the take-home point is you can draw a line on this curve and then track your way back to that exploitation rate to figure out where you're going to be.

Now if you have a goal in mind, you can see where on this curve you need to be to get to that goal. I think this is my final slide on this. Both the Technical Committee and the industry raised questions about this data source traps fished, and its usefulness for this analysis. The question came up; can we find alternate data that we think better represents what is going on? We don't necessarily think traps fished are the best data source to use.

That is fine. That is something that we can improve on in this analysis, but the underlying idea here is to develop this tool that we think is useful for, we're doing all of these trap reductions; is there a way to actually quantify what those trap reductions are doing? We've gotten a couple of ideas from the Technical Committee and the industry as to what sources of data we might also try, so we can move forward with that if warranted.

These reduction calculations, once you can kind of hone in on that; you can combine them with other efforts. We don't have to put all of our eggs in one basket and try and go for a single approach to reducing or meeting the goals that we want to meet. We can combine them together. To kind of stick with this strategy, I'll stop here and take any questions you all might have on this part of the analysis.

CHAIRMAN BORDEN: Questions for Jason?

MR. DAVID G. SIMPSON: Thanks, Jay and thanks to your group for doing this work. I said to Dan before we started all of this that what the Technical Committee and you folks have done is

really helpful. It is really useful and helpful information. Could you put up the curves, one of the curves?

You've got a pretty good range in traps fished, but in the neighborhood of where we are now there is a great deal of variability above and below the predicted line. Is there any pattern over time of the points being above or below the line? In other words, you know we had similar numbers of traps probably today and recent years as we had in the eighties and then out to the right is more like the ramp up into the nineties. Is there a pattern within that period there?

MR. McNAMEE: I'll take a crack at an answer. I'm not sure that I completely understood your question, so re-ask if I don't get to what you were actually asking. Yes, it is interesting as you look at the pattern. I'll say the data is distributed pretty equally above and below the line, which is good for a model.

However, the variability, which is why we couldn't use a sort of standard linear regression or something like that on this data. The variance is not the same through time. I think it is more a matter of, as you look out towards those 800,000 traps; there are just not that many data points out there. It may in fact be that the variability is just as high down there, it is just that there is only a few of those really high years.

However, as you get now towards the 300,000 trap range you can see that variability in the data points on the graph expands a little bit. Then as you get further down it truncates a little bit, but not as much as it does way out at the higher end. There are definitely differences in the variability. One of the nice things about using a model is you can account for that variability; you know you can calculate standard errors or medians or whatever around the predicted value.

MR. SIMPSON: Yes, so the follow up. Between the 200 and 400,000 trap range. I think as I said, probably some of that data comes from the early eighties when the stock was higher than it is now. Some of it comes from recent years where the stock is lower than it was back then. I'm wondering if there is an influence of stock size on the relationship between exploitation rate and number of traps fished.

On one hand, what we observed is that the remaining traps being fished are placed where the remaining lobsters are. I am expecting that the exploitation rate would remain high until they fish out those areas and not randomly distributed effort. I just wondered if you noticed any kind of pattern in that regard, which would inform us even more than this curve; in terms of how much response we should expect to get from further trap reductions?

MR. McNAMEE: Yes. We didn't look at I guess a time series of information with regard to stock sizes, not something that we looked at, certainly could; so just add an additional column of data. But I think to get at maybe the root of your question. I think it is exactly why we see a curve and not, again a linear relationship between these two metrics. It is in fact because fishermen are good at what they do, and they kind of know where to go.

Attrition is probably occurring in the weaker areas or when the population is really high that kind of expanded area of suitable, but less suitable habitat. That should all be, it is not necessarily an element within this model. It is in fact why you model it with a curve and not with a linear relationship.

Because you know that there is going to be an area of traps that are out there where yes they will kind of shrink down to the most prime habitats where the animals are going to be all the time, but at some point you're going to hit that tipping point, and that is where all the action is in the curve.

MR. SIMPSON: The point is, the area of the curve that has the greatest shape is where we have no data, and so my concern is that it could be that the slope, the ascending arm coming out of the zero, zero; the point we haven't observed, fortunately but we know is accurate, could be much, much steeper. We could find that very, very few traps can still exert a very substantial amount of fishing mortality. That's my concern. Working within the range of observed data, you understand the variability; but as we start to talk about managing outside the range of our experience there is just a great deal of uncertainty.

MR. McNAMEE: Yes, I don't dispute; in fact this type of thinking is exactly why we ran it under two different approaches to see if we come up with a similar answer. I'll suggest that the data here does provide enough information to the model to tell it where to bend. As you look at this graph, it is pretty steep to the origin.

I think it is fairly conservative, in particular if you look where we start to run out of data. If you just used that kind of information you would have a much shallower curve, but this curve is pretty steep; so I guess my suggestion to you is the model with the data available had enough information under two different statistical techniques to come up with the same solution. Overall I think it is a fairly conservative model.

CHAIRMAN BORDEN: I've got Doug Grout and then Bill Adler.

MR. GROUT: Jason, can you tell us which one of those gray circles is the terminal year of the most recent stock assessments, i.e. where are we right now on this curve? It says the exploitation is at 0.27, but I can't quite figure out how many traps that relates to.

MR. McNAMEE: Yes, it's a good question. I probably should have identified that on here. I didn't. It is one of the, I don't know half dozen furthest to the left on the graph, so I'm just not sure which point it is.

MR. ADLER: Part of I think what Doug was getting at was what I was going to get at, like okay so at what level are we supposed to be at or could we be at? We've gone down, at least in Massachusetts from roughly 60,000 down to 22,000 roughly in trap reductions. It hasn't helped. The reduction is still going on.

I don't know at what level you would have to be at in trap numbers to maybe, and I just can't see that it is going to do anything. I did notice that in your report you said trap reductions can be used in combination with other measures. It is almost like, well they're doing the trap reductions, they've done the trap reductions, and they've done everything they can on trap reductions. I'm almost thinking that any further trap reductions are futile.

CHAIRMAN BORDEN: Anyone else on this segment? If not, Jason the next one.

MR. McNAMEE: All right, so the next set of analyses I think dovetail nicely with some of the information that Bob showed you in the beginning of his presentation. We also looked at size changes. In addition to the existing effort control plan, we wanted to look at, you know if you did that in combination with these other procedures what would that look like?

Again, what Bob showed was a much more complex modeling procedure. This is a much more parsimonious procedure. What we did was we grabbed bio-sample data, this is that sea sampling and port sampling information that we're collecting. I truncated it to the years of 2010 through 2012.

But the nice thing about using the bio-sample data, and Bob mentioned this in his discussion. They are not able to necessarily tease that apart in the more complex modeling procedure; but we know the stat areas that are inshore and the

ones that are offshore, so we can split that data out and look at it by inshore and offshore.

The final point here is we used all the information we could get our hands on. This was state collected data, federal data and also the Atlantic Offshore Lobstermen Association information that they've been collecting as well. What we did was we took all of that information and then generated length frequency distributions, which we then examined for different gauge changes; minimum increases, maximum decreases, things like that.

This is just a look at, I promised Megan I would keep it to 15 minutes and so I'll try to stick to my part at least, 15 minutes; meaning the questions add more time, nothing against you, Bob. This is a look at the inshore data. I'm just going to use that as an example. Pretty good sample size for the years that I examined, about 126,000 samples that were taken.

The distribution looks pretty nice; it is kind of what we believe to be the case. During the stock assessment this was kind of the information that was being used as well in a more complicated way. That is what it looks like, all of the data together. What we then did was to first take out everything that was under the minimum legal size for the inshore area. Then we began to more or less chop off the different bars on this chart.

What you can get from that information is the relative decrease, and you're making the assumption that this distribution represents the population that is being fished, and therefore if you take some of those off the table of what can be fished, you've now protected those animals. All of the things that Bob talked about earlier with deprecating them by natural mortality and all of these other things are very important.

This does not consider those things; it simply protects these animals and then calculates what that relative protection is. I've showed two different examples here of 1/32 gauge increase and then a second 1/32 gauge increase and I know that is probably hard to read; but the first one we calculated gets you about a 13 percent reduction in harvest and the second one gets you about a 25 percent decrease in harvest.

You can do it from the other end as well, again chopping off what is already protected by the existing minimum legal size. You can then begin to chop off things on the maximum size and that is what we've done here. There are three examples. You can see that you have to come in pretty far to get a lot of harvest protection on the maximum side, but the nice thing about the maximum gauge is that those animals are now protected in perpetuity, natural mortality and things of that nature notwithstanding.

Minimum size changes can be effective for harvest reductions and the potential for egg production, but they can be temporary in nature, so minimum sizes; eventually those animals are going to grow back into that fished population. If these are needed they should be done cautiously and in a phased approach.

Maximum size changes could have lasting protections, but you have to set them in a meaningful way. If you set it out so far that there is not even any animals there, it is not doing you any good. Including these measures with the existing trap reductions schedule could have meaningful impact on harvest reductions. Just a final thought here and then I'll pause for questions. I had available to me this, I guess historical dataset of bio-sample data; I would prefer that we use more contemporary data if you were to like this procedure and want it pursued further, and I'll stop there.

CHAIRMAN BORDEN: Questions on this. Anyone? I don't see any hands up, okay Jason you can move along.

MR. McNAMEE: Okay, the next piece of this. We did a little egg production analysis that we presented to the Technical Committee. What

I'm doing here is just giving you the concept that we originally worked with, but given some of the feedback from the Technical Committee, I've removed any of the numbers from this. But I'll flip through these quickly.

From that gauge change exercise you can examine the potential for egg production. You've protected a portion of the population; presumably some of them are females and presumably those females will produce eggs, so you can sort of do that very simplistic analysis and figure out the egg production from your newly protected animals.

There has been a lot of work done on the carapace length to fecundity relationships. We looked at the Estrella and Cadrin work from 1995, which was also used by the stock assessment. That is what we did our original analysis with, and you can apply this relationship to the females or the newly protected lobsters. Again, our analysis focused on the information in the bio-sample data.

The Technical Committee identified numerous areas where this analysis could be improved, for instance Tracy Pugh from Mass DMF was extremely helpful, gave us some really good feedback, such as adding in the maturity schedule; so all of these animals aren't 100 percent mature at these; depending on the size that you pick, and so she suggested we add that in.

Also to account for the fact that larger females do not produce eggs in each year, Bob gave some information during his presentation on that. We were making the assumption that they all produced eggs in that initial year of protection. They also suggested that it was important to account for the population dynamics of the strategy over time, so what about natural mortality in Year 2, Year 3, and Year 4.

All of these perfections to the original egg production analysis, we've been working on those since that meeting and have a little bit of information. I'm not going to get into the specifics, because it is not fair to present as the Technical Committee hasn't reviewed, it is certainly based on the feedback of the Technical Committee; but I guess in summation what we would like to do is have you allow us to bring this updated analysis to the Technical Committee for further review.

All three of the main ideas offered by the Technical Committee we've developed those into a more realistic egg production analysis. We have some initial results; again strictly looking at gauge changes. But what we found is that modest changes can result in significant egg production increases, even accounting for all of these things like natural mortality, fishing mortality as well and then running these analyses out for a couple of years. We came up with this value of a 40 percent increase in relative egg production. I'm calling it; I put in quotes "modest" meaning you don't have to do a million gauge increases to get to that number. You can get there with modest changes in the current regulations. What we're trying to do with this analysis is strike a balance between adding realism into this parsimonious analysis that we're doing, but not creating a new stock assessment.

That is for the next benchmark, and so we're not trying to recreate the wheel here; we're trying to use information available, add in needed complexity, but not go so far into the complex realm that we've created some sort of new stock assessment model. If the board wishes, the updated analysis can be brought to the Technical Committee for review. I can stop there or I've got two slides on stock recruit stuff, Dave if you want me just to flip through those real quick.

This stuff we offer, just by way of information, we don't know that it is very relevant to what you all need to discuss through the rest of today; but we thought you would find it interesting and it maybe is something that will pop back in your

head when we're listening to John Hare, I think that is tomorrow maybe, with some of that discussion.

We also did some spawner recruit relationship work. We ran two sets of analyses; we did a fine scale one based on Rhode Island specific data, Rhode Island trawl survey spawning stock biomass information and our settler index that is specific to Rhode Island. Then we looked at it on a broader scale as well, where we then broadened out to the assessment document and used information from that document.

What we did was we fit Ricker type stock recruit models, Beverton-Holt as well in a couple of instances. Basically standard stock recruit models, but we added in additional parameters for environmental and alternate covariates for the model. We also did an analysis, which I'm not going to talk about here, but it is in the report that you all have in your meeting information, looking at the statistical fit of various data lags.

We think this might be helpful information for the Technical Committee moving forward. Just a quick look at some output, I will orient you to this graph. I just will point out that Mark Gibson produced this graph and it is for me very impressive. He figured out how to do a 3D graph in Excel. I've not figured out how to do that so it is pretty neat stuff. Settler density is your Y axis on the left hand side there. Across the front of the graph on the X axis is the spawning stock biomass.

Again, this is Rhode Island specific data in this case. Then your Z axis, this is the one that is on your right, kind of going into the board there. That is the North Atlantic Oscillation Index. What you can see is the closest number to you is a negative value; it goes towards zero and then gets positive. This is an index of the North Atlantic Oscillation and Oceanographic System of high and low pressure oscillations in the North Atlantic.

Maybe a proxy, maybe a direct influence of stock dynamics; but what you can see here is when the NAO is in a negative phase, so this is the area of the graph closes to us, kind of coming out of the board, it is really flat, not a lot of response as spawning stock gets really high you don't get a lot of response and settlers really flat.

If you go into the board what you see is that curve gets really steep. What that corresponds with is that North Atlantic Oscillation as that gets positive you get a lot of contrast in your spawner recruit relationship. It becomes more of a relationship if you add in the NAO. That was just informational stuff for you. It is not necessary relevant to harvest reductions and egg production and things like that; but it is things that you can think about and ways that we can work with the Technical Committee when doing projections that can offer alternate projection scenarios, maybe something we could add into the next benchmark assessment as well.

It is important though to point out that you don't want to just kind of grab indices that have strong relationships; you want to make sure there is some causative agent there. You don't want to just look at spurious correlations, and so we're very cognizant of that. All right, I've got two discussion slides and then I can stop and take questions.

Just to sum up. There appears to be a reasonable relationship between traps fished and exploitation. I think that bodes well for trying to quantify what we're actually doing with our trap reduction efforts. You could use the model that we developed and projected trap reductions to quantify the effect of these trap reductions; and you can combine this information with anything else that you want to do to get an overall quantification of whatever management goals that you have.

It appears that minimum and maximum size changes can produce reductions in harvest and increase eggs produced significantly. The

spawner recruit work as I mentioned doesn't have an impact on the immediate work that you have to do today; but again we think it is useful work. It is interesting for sure, but we think it could have directed value and alternate projection information or estimation of biological reference points that are reflective of stock productivity rather than the kind of ad hoc, the medians and things that you're using now.

You use them because you don't have a good defined relationship. As noted, we've already improved the egg production analysis based on the feedback that we got from the Technical Committee. Just a final note, for all of this stuff for the Technical Committee to work as efficiently as possible; it is important to set some goals so they know what the goal is when they are kind of constructing these tools.

They can give you better information as to specific numbers. We've given you some concepts here, some tools. But once we have goals that are defined you can begin to use those tools for the specific purpose that you desire. Just a final note here, Rhode Island DEM is interested in working on this further with the Technical Committee.

We've done this, we have a technical representative on the Technical Committee; but we're in a period of transition with our staff. We think we've kind of ironed that out. We've got a young man working for us now that I think is going to be a really good fit for the Technical Committee. He will certainly be working, but we just wanted you to know that we're certainly interested in moving forward and continuing to work on this with your Technical Committee; and that's it for me.

CHAIRMAN BORDEN: Jason, when is the report going to be finalized? What is your estimate of a timeframe?

MR. McNAMEE: Could you ask that again, Dave?

CHAIRMAN BORDEN: When do you think the final report will be available for the TC to review?

MR. McNAMEE: Oh for the updated egg production analysis. I've got a draft of it from Conor McManus in my inbox right now, so relatively soon.

CHAIRMAN BORDEN: Thank you. Ritchie White.

MR. G. RITCHIE WHITE: Could you go back like five slides to the 40 percent egg production increase? Can you correlate the amount of reduction in fishing mortality it would take to create the 40 percent increase in egg production?

MR. McNAMEE: If the question is, can we do that the answer is yes; based on this analysis. This initial work was looking at differences in gauges, and so in the same way that we calculated just using the bio-sample data we could come up with calculations of harvest reductions, which we could translate based on some assumptions. But the answer is yes. I can't give you that number right now.

CHAIRMAN BORDEN: Any other questions? Steve.

MR. STEPHEN TRAIN: I'm just going around between this and the last presentation and I'm trying to figure out. We want to boost egg production, I get that. But we had fabulous egg production years ago and we still get that circle instead of the graph. Harvest rates, cutting back effort, we had great egg production but we've got no survivability. I guess what are we working towards by increasing the egg production if they're not going to survive anyway; should we be looking at something else here, another way to get these things up to Stage 5 or 6 or something?

MR. McNAMEE: I will answer your question in part. I think the larger question is a question for the board. But to answer your question, I guess

the underlying assumption, if you're looking at a goal of egg production, some value of egg production. What you are in essence saying is, while we understand that there are environmental drivers and we showed that there are certainly relationships between different environmental drivers and recruitment.

While we understand that we're in a regime right now where the environmental conditions are not conducive to a large recruitment event, the underlying theme of setting an egg production goal is to put eggs up in the water column at such a level that when the environmental conditions, if and when the environmental conditions do become conducive for recruitment; again you have the animals there to allow that recruitment event to take place.

It doesn't mean it is going to happen just because you pump a bunch of eggs up into the water column doesn't mean you are going to get animals on the other side. But you certainly can't if those eggs aren't there and conditions line up. That is kind of the very high level assumption of the goal I think, when you're setting an egg production type of a strategy.

CHAIRMAN BORDEN: Anyone else? Emerson.

MR. HASBROUCK: Thank you, Jason for your report and thank you to you and your team for putting this together. Could you go back to that interesting slide that you said Mark had created; the one with the NAO? Where on this plot are we currently and what direction is the NAO heading? Are we in the negative correlation or positive correlation?

MR. McNAMEE: Yes, great question. We are currently in a negative phase of the NAO; so we would be in that row that is kind of out towards us in that plot. That really flat section of it. One of the nice things about the NAO; while there is high inter annual variability in the NAO, there are predictive chunks of time when it goes into a negative phase, when it goes into a positive phase.

It doesn't mean that every year once you go into a positive phase is what would be deemed positive. But when you look at these graphs of the NAO over time, you can see there are these kinds of chunks; so it is somewhat predictive, which is the nice thing about it. It is one thing to develop a relationship, but if you can't sort of predict what is going to happen into the future it doesn't have a lot of value for projections and things like that.

The direct answer to your question is we are in a negative phase of the NAO. If it follows the same cycle that it has followed in the past we would suspect that in the next five years, seven years, we would be going into a positive phase. I am not an expert on the NAO; but that is my understanding of it; and so I think that directly answers your question.

REPRESENTATIVE CRAIG A. MINER: I was thinking along, I think the same lines that Steve was. I'm concerned about, I guess not moving in a direction where we leave more eggs in the water; but at the same time I'm concerned that there is such a significant gap between leaving those eggs and seeing positive outcome.

Is there a model that would show what would happen if the settlement improved by 10 percent of 20 percent or 30 percent? Do we begin to move toward a target that we want; because right now it seems like there is a gap between eggs and juvenile increases?

MR. McNAMEE: I am going to give a very brief answer and then pass it to Bob. But I think that is in fact exactly what Bob showed in his presentation are the effects. He showed scenarios where it was a constant recruitment, but that is the model you would use to kind of show different scenarios. What if recruitment improved, settlement improved? You could use

the model that Bob reported on to kind of do that. But I'll pass it over to Bob.

MR. GLENN: I don't really have a lot to add to what Jason said, but he is correct. We could use the stock projection model to look at that.

CHAIRMAN BORDEN: Craig, have you got a follow up?

REPRESENTATIVE MINER: Please. But it doesn't seem, based on what we've been seeing over the last couple years that any effort to maintain eggs in the water has created improvement in juvenile production.

MR. GLENN: Yes, under the current high rates of natural mortality environmental conditions that we have; that recruitment is being lost essentially. That egg production that we currently have isn't being realized. Then I show the stock recruit relationship. You can see where it seemed to have decoupled. There doesn't seem to be a strong relationship right now between the size of the SSB and the amount of recruitment that we're getting from it. That is what you would expect under that kind of a scenario. But as Jay indicated before, the strategy in this case is to, you have to maintain some type of a core biomass; because when or if the environmental conditions do change, if you don't have a sufficient enough stock of lobsters there you can't take advantage of the positive environmental conditions and have a recruitment event. If you continue to fish them down even lower, even if the conditions do get to be positive; you won't have sufficient stock there to take advantage of it.

CHAIRMAN BORDEN: Any other questions here? Bill.

MR. ADLER: Bob, if environmental conditions improve, what does that mean? Does it mean that the water cools down, the predators go away? What are we looking at when we say environmental conditions, if they improve? What would be the improvement? What would happen; if you have any idea?

MR. GLENN: What is causing current natural mortality is most likely a combination of environmental stress from high water temperatures, increases in predation, increases in disease and probably some changes in the reproductive behavior of lobsters in where they migrate and where they hatch their eggs, and then the overall settlement success.

When we talk about improved environmental conditions, it could be changes of any one of those things. It could mean a switch in the NAO, where we get into a positive phase where we tend to get cooler waters in southern New England. It could mean a reduction in the number of finfish predators would relax some of that natural mortality. It could be any of those things.

MR. ADLER: If I may. Yes that is what I was getting at. In other words, we've got to pull an iceberg down into the Buzzards Bay in cooler water; okay and we have to get the Black Sea Bass board to say yes, you can take more. That type of thing, which I suppose is unlikely. At least we know that we have the environmental conditions, if they improve; and what are they, what you just mentioned. We have to look to see, is there any chance that the environmental conditions will improve? Don't know, just leave it hanging.

CHAIRMAN BORDEN: All right I've got David Simpson and then Dan.

MR. SIMPSON: I apologize if I missed it. The relationship with the NAO is really interesting. Did you and I missed it, or could you speculate as to what about the positive phase might be conducive to better survival of recruits? My quick read online, the positive phase is actually associated with warmer temperatures in the eastern U.S.; but it also affects storm frequency

and position of the jet stream. I just wondered what you thought might be going on.

MR. GLENN: It's a great question. I could speculate right now, I won't. It could be a number of things. Temperature is not the only thing that the NAO is aliasing. In fact the way that I had been thinking about it is it also is a large driver of wind driven currents as well. There may be something with regard to transport of larvae and things like that. But as we know in biology and in oceanography, it is probably not just one thing that we can point our finger at. It is probably a mixture of these things, which is why our jobs are so hard.

MR. McKIERNAN: My question is for Bob. Bob, at the February meeting we looked at a rather large matrix of various statistics that describe the performance of the fishery and also of the stock. I think you had mentioned something about very weak year classes that have been detected by the section sample surveys.

I guess I would like if you could comment on what you perceive to be the weak year classes that are in the system now that we haven't even seen yet. When do we see these materialize? What signs should we be looking for over the next few years that this thing is going either off the cliff or maybe fortunately if things get better, for reasons that we have yet to understand?

MR. GLENN: As I mentioned in my presentation for those projections that the assumption was that there was constant recruitment at current levels. But the current recruitment in the model that we're seeing right now was based on moderate year classes that settled out in the early 2000s, and if I look at the longest time series of young-of-the-year settlement index; one that has been a pretty reliable indicator.

Looking at the Rhode Island young-of-the-year index, starting in 2007 and then getting progressively worse, especially around 2009 through current time, we've seen nine extremely low settlement events. If you lag how long it takes a lobster to reach the fishery from settlement, by say eight years. The first really bad settlement year being 2008 and lag that by eight years. That gets us to this year, 2016.

Then the really low, like it hit zero in 2011 and hovered around that value 2010 through 2012. We would expect to see those between roughly 2017 and 2020. The take-home message is that the assumption of constant recruitment is probably not a good one in that the empirical data that we have suggests that recruitment is likely to decline from the current levels, not to stay constant.

MR. McKIERNAN: David, to follow up to Bob. Bob, does that mean that if we watch the results this summer and the next couple years of the ventless trap work that we should see a substantial drop off in pre-recruits and recruits?

MR. GLENN: Yes, I would anticipate that in the next several years as these year classes get closer to the fishery, we should start to see the sublegal index for the ventless trap survey to decline pretty substantially.

MR. McKIERNAN: Your ventless trap surveys are pretty good at what ages, like five to seven? Are those the prime ages that you're detecting?

MR. GLENN: It is good at really detecting animals in the like 60 to 75 millimeter range, which we would say probably four or five years old.

MR. MUFFLEY: This is for Jason. You kind of touch upon it, I think you said it a few times in your presentation, it is at the end of your report which I'm interested in is sort of this interaction term, kind of evaluating different metrics; trap reduction, and a gauge size change and those types of things and calculating those things together to evaluate what they might do.

A couple questions to that. Have you evaluated that analysis yet? Have you done any sort of

examples in terms of what reductions might look like under different scenarios; and two, could we look at multiple variables within that? A gauge increase, an effort reduction and also a seasonal closure for example, and would we need to apply those then across the entire southern New England stock or do you think there is enough information to do those interaction term at an LMA level?

MR. McNAMEE: I'll unpack a couple of those. I think a couple are more, I think good questions, but more directed to the board. The interaction piece of it goes from my finfish background. I know you've experienced that as well, Brandon. I just wanted to be very clear. One of the things, there was a lot of interest from the industry as we were kind of moving along with our analyses.

I just wanted to be very clear that is not necessarily an additive relationship if you take 20 percent reduction over here and a 10 percent reduction over here; it doesn't equal 30 necessarily. I just wanted to be very clear about that. We've not taken that next step where we're kind of developing actual on-the-ground scenarios yet; because I think there is still a step that needs to be taken as far as setting the goal.

Then we can start to develop the different scenarios of getting to that goal. We've not done that part of it yet. But I just wanted to have that information out there up front that these things are more complex than just adding them together. That was the intent of that section. Sorry if I missed something else that you had asked.

MR. MUFFLEY: Just towards the end. I'm just wondering if you think we could apply something like this. Would it need to apply across the entire southern New England stock, or do you think you could evaluate that at an LMA level or not?

MR. McNAMEE: Okay, yes good question. At this point a lot of the analyses that we have done have been southern New England. Now we were able to kind of split it inshore and offshore. I think we could probably look at it LMA specifically as well, but every time you parse it the analysis gets weaker; because the sample size decreases.

I guess in a broad answer to your question. We've not looked at it LMA specifically. We looked at southern New England inshore/offshore, but southern New England. I think you could parse it up, but again if you think back to the finfish days, the more you kind of break the stuff down and make it more and more succinct as far as the space; you lose resolution in your data. Whether that means it can't be used, I won't say, but it definitely adds variability into the analysis. In some cases there might not be enough data, I'm not sure.

PLAN DEVELOPMENT TEAM REPORT

CHAIRMAN BORDEN: All right, I'm going to have to move on in the interest of time here. I'm going to take the next report, which is a Plan Development Team report; Megan.

MS. MEGAN WARE: Just to give some context to this presentation, the board asked the PDT in February to come up with some potential objectives and ways to achieve them for southern New England. I'm going to be going through those today. The goal here is really just to provide some ideas to the board, and giving you an idea of what it would take moving forward to achieve these different goals.

The PDT met via conference call March 23rd, and we discussed a range of management options that included increasing the spawning stock biomass through large reductions in harvest; to perpetuating the fishery at the potential expense of the stock. We also looked at the pros and cons of standardizing regulations, and I'll go through the different tools we use and kind of address those one by one.

One of the things that the PDT discussed really throughout the call was this conflict between increasing spawning stock biomass and perpetuating the fishery. I think that is also what the board has been kind of grappling with here. The first objective is to increase spawning stock biomass.

From the projections at the last board meeting that would require an 80 to 90 percent reduction in F. This would lead to loss of the southern New England lobster industry; including market space, infrastructure. We do have Jonah crab, so that might be able to minimize some of the economic impacts; but we really don't know the magnitude of what that could help with.

Benefits of this objective would include improved recruitment, higher stock abundance; and to achieve this we could use a moratorium, a quota, a very narrow slot limit, or a long targeted season closure. The second potential objective is to stabilize spawning stock biomass. This would require a 75 percent reduction in F; again according to those projections that we saw in February.

We would expect large economic and infrastructure losses similar to those that would be seen with the 80 to 90 percent reduction. The goal here or the benefit would be preventing further declines in abundance. We could achieve this through a quota, a gauge size change, targeted season closures, trip limits, lower trap limits or a combination of all these.

A lot of the tools you'll see are the same for each of the different objectives; it is just going to be the magnitude with which you change those that is going to influence your goal in the end. Our third objective is a 50 percent reduction in F, and this is kind of the in-the-middle objective I'll say that the PDT was striving for.

It would allow a portion of the fishery to remain, but we would still expect slow declines of the southern New England stock. There could be some biological benefits, such as a few years of improved recruitment or adult survival if environmental conditions are favorable. But we would expect to see continued declines.

Then we're looking at the same tools here; gauge size changes, season closures, area closures, quotas, trap reductions. The fourth objective is to optimize egg production and the PDT discussed, and I think this is in line with what the discussion has been so far today; is that while we can't really control many of the environmental factors that have contributed to the decline of the southern New England stock, it is possible to implement management measures that optimize the number of eggs in the water.

If the board were to choose this objective, the goal would be maximizing the probability of a successful recruitment event when there are favorable environmental conditions. Basically hedging your bets that when the water is cooler or there are less predators, we'll have a good recruitment year.

To do this we want to leave as many spawners and eggs in the water, so this would be both an increase in the minimum gauge size and a decrease in the maximum gauge size. The PDT just cautions, we don't want a male only fishery. That is not something that we're trying to achieve with this objective.

The fifth potential objective is to perpetuate the fishery. This is a socioeconomic objective, and the PDT felt that any reduction in F between 10 and 40 percent would fall under this. We would expect the stock to continue to decline, but we would be able to preserve the fishery until it is no longer economically viable.

Again, we're looking at trap reductions, gauge size changes, area closures and season closures. The sixth objective here is more of an educational objective, I'll say. It seeks to learn about the success or failures of different management measures as they pertain to the

southern New England stock; and really the lobster stock at large.

It can be combined with any percent reduction that the board might want to choose. How this would work is you would implement different management tools in different areas; and an area could be an LCMA, it could be a state, it could be a smaller sub-region, whatever the board wanted. You would try and measure the impact of that different management tool to see what happens.

For example, if one area were to implement a season closure you could measure the size and abundance of lobsters in that area, the percentage of shell disease, things like that to understand what impact that management measure had on the stock. Then you could apply those learning's to inform future management decisions and also decisions that may come for Gulf of Maine and Georges Bank.

The PDT did have several concerns about the cost, time, coordination, and monitoring that would all be involved in this. But I think in general on the theory level, we all agreed that if this could be implemented it would help improve the knowledge we have on the different tools we use. As I mentioned, we also looked at standardizing regulations in southern New England.

Just to give kind of the overarching view on this, the PDT felt that standard regulations would ease enforcement and reduce uncertainty in stock assessments. We did talk about the fact that LCMA 3 now is coastwide, and so we would have to deal with that either through splitting it, through a line or creating some sort of southern New England designation.

Then a lot of the times you'll see on the slides it says that the management tools should be used in combination with one another. I think the PDT wanted to make sure that the board doesn't hedge your bets on one management tool; that we use these in combination to try and obtain whatever goal the board has.

First is season closures, we have three different season closures right now in southern New England in LCMA 4, 5, and 6. The PDT felt that season closures are an effective tool to reduce F, and that closures would have the greatest benefit in June/July during the molt, or July/August when eggs are extruded. There is also the potential for staggered closures inshore and offshore, so that we could protect the lobsters as they migrate either inshore or offshore during the year. There is the potential for fishermen to recoup landings, and that would be by increasing their effort when they are allowed to fish. This is just something the PDT wanted to caution on. The next tool is trap reduction, this is the same graph, actually I stole it from Jason's presentation; but I wanted to give an idea of what one of these curves could look like. The PDT was a little concerned that the effectiveness of trap reductions to decrease F is limited and delayed; since the latent effort is removed first.

They highly suggested that this use be in combination with other management tools. They also wanted to highlight that trap reductions could impact the Jonah crab fishery now that we are managing those together. There is really a mixed crustacean fishery. In terms of minimum gauge sizes, we have two different gauge sizes.

The LCMA 3 gauge size is slightly larger. The benefit of increasing the minimum gauge size is that lobsters would be able to contribute to egg production before they are legally susceptible to harvest. But again the PDT did not feel this should be the sole management measure used, because then the fishery becomes dependent on new recruits, and if you have a poor recruitment year that will result in an unstable fishery.

Obviously as you increase the minimum gauge size you are going to increase discards; and this

will increase the stress that lobsters encounter either through handling, temperature fluctuations and things of that nature; and that the increase in minimum size would have a larger impact on the inshore fishery.

Looking at the other side here we have maximum gauge sizes, so again LCMA 3 has a larger maximum gauge size. The benefit here of decreasing the maximum gauge size is that lobsters are protected in perpetuity. If there was a uniform max size, this would address concerns about diminished conservation values as lobsters move from one jurisdiction to another.

They might be protected inshore and then they move offshore and they're susceptible to harvest. Again, we would see increase in discards and likely increases in stress. We would expect a decrease in maximum gauge size to negatively impact the offshore fishermen, and again this should not be the sole management measure used.

Finally we have V-notching. Right now LCMA 6 and state waters of LCMA 4 do not have a V-notch requirement. We do believe that V-notching protects spawners. But the PDT felt that this might not be the best tool to be using right now, since the effectiveness of V-notching really depends on substantial harvest and high rates of compliance.

If we're not seeing that high level of harvest, we might not see the benefits from V-notching in LCMA 6 and LCMA 4. The PDT also felt that they didn't want to create a de facto male only fishery; and again if the board wants to pursue this, it should be used with other tools. I'll take questions on the PDT report now. I still have LCMT reports to go through.

CHAIRMAN BORDEN: Questions for Megan?

MR. McKIERNAN: Megan, when the PDT talked about closed seasons, did they not link it to what was in the motion from last February's meeting, where we talked about the need for the closed season to enhance compliance and enforcement with trap tags?

MS. WARE: We didn't specifically talk about season closures in response to that motion. But that is something that we could do. I'm sure the PDT will be meeting.

CHAIRMAN BORDEN: Any other questions? I would just like to make an observation that one of the useful aspects of the PDT report is the fact that they are commenting on the fact that southern New England lobster fishery basically is in this transformation. Historically it was the lobster fishery with a bycatch of Jonah crabs; that's what it always was.

But now what you have, I mean the fishery right now, those two fisheries are worth about $36 million to all the states up and down the coast; if you combine the values of them. Now what you are seeing is a transition out of the lobster fishery by these same boats, they are all permitted, they use the same gear, they fish in a lot of the same grounds; and they are transitioning into a crab fishery.

And in fact if you look at a lot of the NOAA assessment information out of Woods Hole, what you find is that there is a pretty pronounced increase in the crab population in their database, and in fact the crab population is expanding eastward across Georges Bank to areas that traditionally were not fished.

What we're managing, I think what we're going to talk about managing here soon, is really a multispecies fishery. It is just transformed in the last 20 years is what's happened. But just keep that in mind; any other questions? If not I'll move along to the LCMT reports. We had two LCMTs, one was Area 3, and one was Area 2; both got together with the state staffs and at least initiated a process to try to start to formalize recommendations for the board. I think it is important to review these.

MS. WARE: I just want to highlight, I was not actually at these meetings; so I am just kind of consolidating from what the meeting minutes said. If board members who were there want to comment that is probably a great idea. But LCMT 2 met on April 6; there were 20 people in attendance, including seven members.

I think the purpose and goal of these meetings was really to allow the LCMTs to review the stock assessment and the TC reports to date; and then also trying to begin the discussion on future management and what they might like to see. The first thing that was discussed at the LCMT 2 meeting was mandatory reporting for all states.

This was tied to the February TC report that highlighted that there are data deficiencies in the lobster fishery, specifically for federal landings; and so they are suggesting mandatory reporting for all states. They submitted a letter on water quality and habitat, and I think Beth spoke to that a little bit earlier today.

That can be found in your supplemental materials. Given that they are currently going through a 50 percent reduction in traps, they are proposing that there be no minimum size increase or season closure in Area 2. I think some of this is tied to the fact that the current stock assessment does not take into account those trap reductions, yet they would like to see how those play out.

They did suggest or propose that there be a decrease to the maximum gauge size to five inches. However, this was not unanimous. They asked that the Lobster Board consider the southern New England stock as a mixed crustacean fishery. As an industry they said they would pursue funds for the tagging studies that Bob mentioned in his TC report. We also had LCMT 3 meet on April 8; there were nine people in attendance, six members. Then I also believe there were three e-mails from members who could not attend. What they're proposing is a six inch maximum gauge size; and this would be reduced by a fourth of an inch over three years. They are currently at 6 and 3/4 inches.

They felt that this was an appropriate maximum gauge size, given the fact that the lobster resource south of Hudson Canyon is significantly larger. This would be kind of a fair and appropriate maximum size for all of Area 3 in southern New England. Kind of piggy backing off of that there is a need to separate southern New England from Georges Bank, Gulf of Maine in Area 3; and that is something that they want to highlight to the board.

They are currently going through a 25 percent trap reduction, and they are proposing expedited and continued trap reduction schedule. I have it up here what they are proposing. In 2016 they would do the 5 percent that is required. In 2017 they would bump it up to 10 percent; in 2018 it would again be a 10 percent reduction.

Those three years would be their 25 percent reduction. In 2019 they would take a break, there would be no reductions; and then in 2020 and 2021 there would be two more 5 percent reductions. In the parentheses there I have the potential trap caps. They are proposing that the trap caps be reduced in those first three years, but that they not be reduced in the additional two years.

They submitted letters on trap haul validation systems and the need to improve enforcement offshore, especially if we continue with trap reductions; and they also submitted a letter on water quality. Both of those can be found in your meeting materials. Then they wanted to highlight that there is this issue of some fishermen who go crabbing in southern New England, but then lobster fishing in Georges Bank. We need to think about how changes to the minimum gauge size would affect these fishermen. Those are the LCMT reports.

CHAIRMAN BORDEN: Questions for Megan? Yes, Peter.

MR. PETER BURNS: Thank you, Megan for the report. I was just curious about the trap reductions that the LCMT 3 has offered up. I noticed that they wanted to separate southern New England from Georges Bank and the Gulf of Maine. Now would those extended trap reductions include the Georges Bank as well, or is this just for west of 70?

MS. WARE: I believe it is just for the southern New England portion of Area 3.

MR. BURNS: Okay, thanks.

CHAIRMAN BORDEN: Peter, if I can just follow up on that; since I attended the meeting. I think there is going to be more discussion. Let me rephrase this. If the board decides to move forward with an addendum, which I hope they do, and identifies a clear objective to this addendum; I think that is going to then force a lot more discussion on the part of the LCMTs, in terms of exactly what they want to do, how they want to do it, whether or not there needs to be like a permit endorsement.

So that everyone is clear here, we've got Area 3 boats that are authorized to fish on two different stocks; one is extraordinarily healthy, the other one is overfished. If we end up with differential regulations, we're going to need some mechanism just to keep those two separate. We have two sets of regulations on permit holders that theoretically can move back and forth.

Those types of issues are going to have to be developed. But all of that has to take place after we do what I think we should do; is move forward with an addendum and have some clear goals. Then they can get on with that; anyone else here? We'll move on. Last item under the reports is the video.

This was per the request of Emerson, so we'll do the video. I'll let him speak. Then what we're going to do, as I announced earlier we're going to take about a five or six minute break. Everyone can go get a cup of coffee, and then we're going to start with the major item of business.

DERELICT LOBSTER POT REMOVAL PROGRAM

MR. HASBROUCK: Thank you for accommodating my request. This is a short video on a derelict lobster pot removal program that we've been conducting in New York over the past five years or so. We've heard some discussion this morning about trap reduction. We may have fewer fishermen over the past 15 years fishing a fewer total number of pots; but what has happened with all those reduced numbers of pots?

There are still a lot of them in the water still fishing. These are derelict pots that we're removing. In the assessment information, at one point there were about 588,000 pots in southern New England, and now we're down to about 152,000 pots in 2013. What's happened to the approximately 400,000 pots? Where did they go?

Well, there aren't too many of them stacked up in people's backyards. I know a few were sold up in to New England, but not many. There are still a lot of them in the water. We've had this derelict lobster pot removal program. We've gotten funding through a couple of different sources. We've been funded a couple of times through the NOAA Marine Debris Program, and a couple of times through NFWF, the National Fish and Wildlife Foundation.

So far we've removed 15,000 pots out of Long Island Sound, the New York side of Long Island Sound. There are still an awful lot of pots out there. Those pots are still catching lobsters, and they're still contributing to mortality on the

resource. We're working with the few current remaining lobsterpot fishermen in New York.

We pay them to take us out, we quantify all of the gear, bring it back to shore. It gets crushed and put in a dumpster and brought to a metal recycler so that it gets recycled. All of the rope and warp and so forth go to another partner called Covanta Energy, and they turn it into energy and they incinerate it. It has been a successful program. We've developed a grappling system to grapple for this gear. We go out and boats can hold about 75 pots safely, so that is what we collect on a trip. We go out and get our 75 pots; usually by mid-afternoon.

This is just some visual about the gear that we're removing as its being removed. Then that is just from a few numbers of trips stockpiled in the parking lot there at a town marina; crushed and put in the dumpster. I just wanted to bring that to everybody's attention that there is still a lot of gear out there and it is still catching lobsters. Thank you.

CHAIRMAN BORDEN: Any questions for Emerson?

MR. McKIERNAN: Yes Emerson, is data being collected on the status of the ghost panel on each individual trap as it comes up?

MR. HASBROUCK: Yes, yes, and for a lot of the pots we've found that the escape panel is I'm going to say compromised; which means it is not doing what it was intended to do. That can be due to a couple of factors. One is the pots will settle down into the mud. The longer they're there the further they settle into the mud, and we're able to determine when we haul them back if the escape panel has been obstructed by mud. Also the following organisms that grow on them tend to keep those panels from opening up. Then some still have the hog rings intact.

CHAIRMAN BORDEN: Anyone else? No one, okay so let's take a break. We're going to reconvene at 11:30. Just so everyone knows for planning purposes, we're going to have lunch outside the door; take about a 20 minute break. Everybody can have lunch; we're going to pick up a little bit of time because we're already behind schedule.

(Whereupon a recess was taken.)

CHAIRMAN BORDEN: Everybody have a seat please. As I indicated before, I was going to make a couple of comments. I think where we are at this particular juncture, we've got fairly, I think, clear technical advice. We've had five different technical reports that have really laid out what the facts are on the issue.

I would just like to summarize a couple of things so that the record is clear. These are almost verbatim, so that nobody thinks I'm putting a spin on this. The Technical Committee had basically done projections that have indicated that we need an 80 to 90 percent reduction in F to increase the SSB.

They've also done projections that indicate you need a 75 percent reduction in F to stabilize the stock. The impacts of changes of that magnitude are basically a fishery closure. I don't think that we should necessarily sugarcoat those alternatives; for lack of a better characterization. Then we've had, and Bob Glenn pointed this out, there are certain assumptions about natural mortality that have been built into some of the analyses. If the natural mortality is assumed to be 0.275 and that increases, then basically what Bob said is you are not going to rebuild.

You are certainly not going to rebuild to the thresholds that we've adopted; or if you want to put that in a kinder manner you could say, it is highly unlikely, never say never, but it is highly unlikely you're going to rebuild. Then you look at the way the fishery in southern New England has developed. Historically 2/3, and I just point this out as an example, 2/3 of the fishery in southern New England was derived from Long

Island Sound. You can go back, David Simpson knows.

You can go back in time and look at the time series of data. New York and Connecticut landed 2/3 of the catch in the entire area. Given that fact and given the fact that the resource in that particular area is just a remnant of what it was; I think David at one of the previous meetings indicated that it was like less than 5 percent of historic rate in the area. It raises all these questions I think; about how much potential is there really to rebuild this stock? As far as the assessment, and this won't go on for real long but I think it is important for us to just be totally frank. As far as the assessment, my personal view is the assessment is the best assessment on lobsters that the commission has ever done. I take my hat off to all the technical people. But that doesn't mean it's perfect.

I would point out; I've gone back, gone through all the technical reports. The Technical Committee has been absolutely candid with us and pointed out that we're in this really awkward situation, where the scientific advice, the best scientific advice is being generated by the states in water depths less than 200 feet.

That is pretty much throughout the range of the resource. The fishery, unfortunately, takes place outside that zone. This isn't a criticism of anybody in the room. I'm just trying to point out we've got superb biological information inshore, and we've got this deficit of information offshore. In one of the Technical Committee reports, they went on to itemize the deficiencies.

There is no larval or settlement surveys in federal waters outside of 200 feet. There is no ventless trap survey; at least comprehensive trap survey outside of 200 feet. There is little information on growth and survival of lobsters in deep water. If you look at the modeling efforts that the Technical Committee have done; and they've really done, I think, superb work.

They are making assumptions about growth and mortality out in deep water. I'm not saying those assumptions are wrong, they may very well be correct. But they haven't been validated is the problem. I think there are, at least my own view, there are major kind of data deficiencies we've had; in terms of the environment we've had really well documented environmental change in the interior inside areas, particularly in Long Island Sound, Narragansett Bay and Buzzard's Bay.

Those are the area with the southern New England stock with the primary juvenile generators. As the TC has pointed out that is where the best habitat is; if you want to raise lobster that is where the best habitat is. Compounding all of this we've got this whole issue of climate change. There had been a whole series of model predictions that have come out here recently, talking about increases in water temperature three to five degrees in some of these areas.

Some of the predictions are most dire up in the Gulf of Maine. That is where the water temperature predictions are most pronounced. In terms of the data, the TC and the PET have identified about eight different data deficiencies that detract from their ability to do stock assessments. These are all easily fixable problems. I'm not going to itemize them in the interest of time.

But we've also had on a related front; the Technical Committee has identified nine different research needs. If we want to manage this resource we've got to get on with figuring out how to fund some of the research needs that they have identified. Bob and the TC put up a couple of examples on tagging studies, but there is a whole host of other studies that really need to be done if we want to fine tune this effort.

My conclusion, it's longwinded, but my conclusion from all of this is there are lots of problems. This is not a single problem. We've

clearly got an overfished stock, but there is no overfishing taking place in the stock. But we've got multiple problems that we actually need to fix. My view is that if we initiate an addendum, I think everybody should look at this as the first step. I think there are going to be other things that we're going to have to do as a commission to address this. One of the big dilemmas that I talked to Doug Grout about with this, and there are a number of, all the different council members can probably think of individual species here. But this is not a single event, and it is an event that a lot of different councils are starting to wrestle with.

You've got climate change. The environment is changing. Normally what we would do is we would sit in a room like this or at a council meeting, and we would say it is overfished; you get the technical people to do some projections and then we simply say, okay you've got ten years to implement those types of changes.

When we do that there is a cost. Everyone knows there is a cost to the industry; whether it is recreational or commercial. But there is also an expectation that we can generate benefits from it; that there is some benefit in the final analysis. All the technical reports that I have read on this basically indicate that there is no guarantee of a benefit.

I think the dilemma for the commission basically is, are we going to move forward and try to correct some of these deficiencies that have been noted and take steps; they may not go as far as everyone would like, but take steps to try to lay the framework for the lobster resource, should the environment change.

As Jason indicated before, the whole concept of that is to take steps that increase the likelihood that if the environment changes; maybe just maybe we get some decent recruitment out of it. But there is not guarantee with this. I think the first thing that we need to decide, I would like to just ask a question.

CONSIDER TABLED MOTION TO INITIATE ADDENDUM TO ADDRESS DECLINING STOCK CONDITIONS

CHAIRMAN BORDEN: Is there anyone in the room at the table that thinks that we don't need to do an addendum here? If you think we should just give up on the lobster resource, I think we should be blunt and say it on the record. Anybody just want to not do an addendum here? I just remind you that the subcommittee that included almost all of the states said you have to do something. They also gave the recommendation, don't shut the fishery down.

But there is a big expanse between those two perspectives. There is pretty much unanimous agreement we've got to do an addendum. Does anybody think the appropriate course of action here is to shut the industry down? As I said before, this is a $38 million industry. It is up and down the coast.

It is a multispecies industry. Does anybody think that is the appropriate course of action? Okay, so we're in the middle ground, gentlemen and ladies. We need to figure out a way forward. It sounds to me like we're committed to doing an addendum; so we don't need to debate that point. I think that the next step is to deal with the postponed motion.

On this, on the postponed motion just so everyone is clear. We postponed it; there were conditions that were built into the postponed motion. A number of those conditions have been met. A number of those conditions have not been met. This is not a typical situation where an issue is postponed. Some of the actions that were requested actually have already been acted on. For instance, sending a letter to NOAA asking for 100 percent VTR reporting; that is in progress. Peter told me before the meeting that we should have a response to that prior to our next meeting. I think the cleanest process here would be to put that motion back on the table and then my own

view would be, since we've already acted on some aspects of it simply table it; and then have a completely clean slate so that anyone at that point could make a motion on how to proceed.

Comments on that process, does anyone disagree with the process? **If not, could I have a motion to place the postponed motion on the table? Bill Adler and Steve Train; any objections to placing that motion on the table, it is done by consensus.** Is there any discussion on the postponed motion?

MR. ADLER: Yes, I'm in favor of moving it back up on the table; because it is now the commission's motion, it is not the person that made it. I believe that is the way it is. The format would be to bring it back up onto the table.

CHAIRMAN BORDEN: Okay, but I asked whether or not anyone objected to having the motion on the table. If there is no objection and the motion is on the table, you can debate the motion or modify the motion, substitute the motion; do whatever you choose to see fit. Are there any comments on the motion that is on the table?

MS. TONI KERNS: I think we just need to have that motion read so that it can be put up on the screen. Did you do a motion to bring this motion back to the table? **Okay, so moved to bring the postponed motion to the table, motion by Mr. Adler, seconded by.**

CHAIRMAN BORDEN: I was just trying to avoid a vote on it that's all. It was done without objection, put back on the table. This is a debatable motion, okay so that everyone is clear. You can act on it; you can make a motion to amend. You can make a motion to substitute. You can also table this motion if you want to move on to another motion. What is the preference of the committee?

MR. WHITE: I'm not quite sure where you're trying to go, Dave. Would you rather start a clean slate or would you rather try to work the motion that is now on the table?

CHAIRMAN BORDEN: My personal preference would be to table this motion, just table it not to a time certain, just table it and then we would end up with a completely clear slate; and at that point any member around the table could make a motion to set a goal, okay?

MR. WHITE: I'll make that motion, because I agree with you. I think trying to rework the motion that is there, we'll be here for days; so I think to start fresh. I will make a motion to table.

CHAIRMAN BORDEN: All right so the motion is by Ritchie White, seconded by Emerson Hasbrouck. The motion to table is non debatable. Are you ready for the question? Do you need a caucus on this, anyone? Okay so are you ready to vote? All in favor raise your right hand, please; 10 yeses, no votes, any no votes? Any nulls, any abstentions? **The motion to table passes**. One abstention; Terry Stockwell for the council. Tom, are you scratching the top of your head or you've got a question? Go ahead, please use your microphone.

MR. FOTE: I wasn't supporting the motion to be tabled personally because I'm saying we probably should have just voted this motion down and started with a new motion altogether. Are we going to bring this up? If you want to start off with a clean slate that would have been the easiest way of doing it. I'm a little confused why we're doing it this way.

CHAIRMAN BORDEN: Well, if I had asked our lead parliamentarian here, he probably would have said that there were a number of different ways that we could have handled it; and that was one of them. We've already taken an action on it; I think we need to move along. Megan is raising the question. Ritchie, was it your intent that this would be a motion to table indefinitely?

MR. WHITE: Correct.

CHAIRMAN BORDEN: Emerson, is that correct?

MR. HASBROUCK: Yes.

CHAIRMAN BORDEN: Okay so that is the intent, so the motion has been tabled indefinitely. Okay now anyone here has the opportunity to make a motion. Is there anyone around the table that wants to make a motion to define a goal for the addendum?

MR. McKIERNAN: I do have a motion and a lot of it comes out of what I thought was some of the findings that Jay had put up today, you know recognizing that there we are up against a lot in terms of the environmental and the economic factors. But I have a motion.

The board shall initiate an addendum to minimize stock declines by lowering fishing mortality and increasing egg production by a combination of changes to the minimum size, maximum size, closed seasons, closed areas, trap cuts and trap caps, standardizing regulations throughout the area and/or combinations of the above. Target egg production increase shall not be less than 40 percent above the level that would otherwise be produced with no additional management. Final regulations for this step shall be fully phased in within three years, no later than June 1, 2019.

CHAIRMAN BORDEN: All right so that is a motion, do I have a second; Mark Gibson. Discussion on the motion; Ritchie White.

MR. WHITE: My problem with this motion is it doesn't say anything about maintaining the fishery. I think that is the main drive. If we're not going to take the road of moratorium, which we have already by your poll said we were not going to take. Then the main drive of an addendum starts with maintaining some type of fishery at some level. I think that needs to be said in this addendum. Does a 40 percent increase in egg production allow for a fishery? I guess we don't know that yet. I would like to see, I don't have the wording that I would recommend, but the main drive I think is to have a fishery while still trying to allow an increase in stock abundance if environmental conditions allow.

CHAIRMAN BORDEN: Steve Train.

MR. TRAIN: While I'm going to support this motion, I still have trouble that I don't think we're going after the problem here. If you've got X settlement in X recruitment, they are both zero and you multiply it by 40 percent. Zero times 40 percent is zero. The problem seems to be getting that lobster from egg to Stage 5 or 6 or 7; and this won't do that. It is just like throwing more in on a wing and a prayer and hoping it works. I think we need to look at the problem and the solution, and not just keep crossing our fingers that cutting back the harvest is going to continue to help.

CHAIRMAN BORDEN: We've got Mark and then Tom Fote.

MR. MARK GIBSON: In my view increasing egg production, all else being equal, will give you more settlers. The survivorship between egg deposition and Stage 5 or 6s or whatever they're being called may have been reduced. But under reduced survival, if you're voting regulations in you still get more off the tail pipe. Not as many as we would have gotten when the survivorship was good.

But increasing egg production can't be bad relative to whatever conditions exist out there; unless there is some complicated compensatory mechanism that takes them away at even a faster rate than they're dying now. I think that eggs matter. We found that in our stock recruit analysis. Sometimes you have to peel away the veneer of other things that are hiding the stock recruit relationship, like shell disease or

oceanographic conditions or whatever the case may be. But eggs matter. I support the motion and that objective.

CHAIRMAN BORDEN: I've got Tom Fote then David Simpson.

MR. FOTE: What I've been looking at is the number of lobstermen that have went out of the fishery. We have less boats than we had ten years ago. I don't have the figures on how many less traps we do. We talk about trap reduction, but we've done a trap reduction the last ten years that is dramatic in this industry.

I know we fish about a third of the boats that we worked ten years ago in New Jersey. I would like to get that as part of the fact that we look at what the states have done, what permits were available ten years ago, what people were fishing ten years ago, and what it was actually fishing now. I think we'll see a huge reduction in the number of traps out there and the number of boats out there and that consequence of that drop in fisheries; most of the species when we look at it, we don't have that affect.

Then we start reducing the boats and the traps; we've done all kinds of things to reduce boats and traps on paper, but I think there has been a dramatic reduction of the boats and traps that are fishing right now than there were even five years ago. We should look into that when we consider any of the moves we've done. That is part of the move that I'm looking at before I even start on this kind of an addendum.

CHAIRMAN BORDEN: I've got David Simpson, Peter Burns; Emerson, did you have your hand up?

MR. SIMPSON: My concern is with the target being egg production, increasing not less than 40 percent. My thought process driven by the information the TC has provided has been in terms of reducing exploitation. I don't know how those two relate necessarily. We have the projections that if we reduce the exploitation rate by 75 or 80 percent we can stabilize SSB.

I'm wondering why we aren't staying with some sort of SSB target increase. I'm also concerned that the focus exclusively on eggs sort of runs against the argument that we shouldn't promote a male only fishery. I can look ahead to the argument that would take advantage of that difference. It seems to me that has gotten us in trouble in the past with striped bass.

We suddenly, yes we used female SSB as the currency, but I didn't anticipate the conversation going toward males are expendable and females are all that matter. If I could have a little help with that why not let's just say SSB; because again maybe help from the Technical Committee, what is the difference if there is any?

MR. BURNS: This is a complicated problem and just looking at this motion here it makes me ask a lot of questions about where we're going to go. I think when we left in February we were in a conundrum about what the objective was. I think it is important for this board to move forward with some kind of measures that are going to address the stock situation in southern New England.

Amendment 3 sets forth our objectives there to protect the stock moving forward. I'm glad we're here debating this motion and looking at a way forward on this. But I think that we should make it clear that if we do decide to go in this direction that this is only a first step. I think the hard work would come in subsequent meetings when we really have to understand what a 40 percent increase in egg production is actually going to mean.

I think everything should be on the table in that respect, and I don't think that this would necessarily mean that the fishery wouldn't have to go through some significant reductions in fishing mortality to achieve these goals. We've heard it in the Technical Committee reports, and

all the other reports. The projections that the best way to increase egg production is through protecting your spawning stock biomass; which gets a little bit back to what Mr. Simpson just said.

Again, I think we need to take action here to really protect our stock and to move forward in a way that we can all agree on here. But I think that we should leave everything on the table here and perhaps not limit our options to just the management measures that are listed here on this motion; and expect to have to do some hard work coming forward when we get information from the Technical Committee and the PDT about how we're actually going to achieve these 40 percent egg increases.

MR. HASBROUCK: Well I certainly understand the intent of the motion, and realize that we need to start off some place here on this issue. I think we're setting ourselves up for failure here by saying that we're going to initiate an addendum to minimize stock declines by lower fishing mortality.

I think that no matter what we do here today or as we go forward, we're likely to see stock declines take place; or at least that was some of the message that I got from the presentations this morning. I think the results of the ventless trap surveys, if I recall the information this morning are that over the next six or seven years we're going to be seeing decreased spawning stock biomass or maybe it was decreased catches or both.

I also think that what is going on with the North Atlantic Oscillation is we're in a negative correlation there for at least a few more years. Because of that negative correlation we may not see things improve at all in the lobster biomass. Again, I understand the intent here, but I don't know that we can commit to minimize stock declines; because I think that is going to happen no matter what we do.

MR. McKIERNAN: Yes, to answer David Simpson's question, which I think went unanswered in the discussion. It is my view that decreasing fishing mortality, which is the first part of this, would inevitably leave more lobsters in the water. I'm suggesting that the focus of how many and what size lobsters we want to leave in the water should be dictated by a goal to increase the relative egg production by 40 percent; similar to what Jay showed in his analysis.

CHAIRMAN BORDEN: David I'll come back to you. I've got Mike and then Doug.

MR. MICHAEL LUISI: I'm completely supportive of the concept here and the direction that I think we all know we need to take regarding management of this southern New England stock. Where I'm uncomfortable, and it's been mentioned a couple times already, has to do with the 40 percent.

The reason why I'm uncomfortable about it is because I don't know what that translates to. Fishermen in my state, in talking with them, have told me that they're kind of dabbling on the line of what is economically viable for them to continue operating in this fishery. Having this 40 percent in this motion just makes me uncomfortable; not understanding what that will translate to as far as management action.

I would think that in this addendum there could be a couple different scenarios or a couple different options or alternatives that we can actually look at the analysis to determine what a 10, a 20, a 30, a 40, a 50 percent value would translate to as far as management action. I want to support the motion, but I just have this uncomfortableness with kind of boxing ourselves in at that 40 percent level without understanding what that means.

CHAIRMAN BORDEN: Mike, just a follow up on that thought. Let me just share. I've had like two or three discussions with people about this

general concept and this came up a couple of times. I think it is important for everybody to keep in mind that if, for instance this motion or some variation of it passes. It becomes a goal. It becomes the marching orders for the mechanisms within the commission to start to flesh out exactly what you want to see. In other words, this is just the first step. It would go to the PET.

Once it goes to the PET they will be analyzing in conjunction with the industry different alternatives to try to reach this objective. You'll get, I mean this is going to be a process that undoubtedly is going to go on for a couple of meetings. Every meeting you would get a report, basically to say we've analyzed this, this is what the impact is, this is what the industry and the LCMTs are recommending.

You would get kind of a combination of responses. One response would be from the industry. If you're going to take action to do this, we want you to use these mechanisms. Then what I would envision is, and then the PDT and the technical people would be analyzing it and presenting it back to the board. Eventually after you go through that type of process, we would be in a position to authorize something for public hearings.

MR. GROUT: In looking at this motion we start off by saying we want to minimize the stock declines by lower fishing mortality and increasing egg production; and it gives a variety of different management measures that we can potentially look at. But our target is 40 percent increase in egg production.

I would like to ask Bob Glenn, what do you think is going to be needed for a reduction in fishing mortality or a reduction in exploitation to attain a 40 percent increase in egg production along with maybe minimum size, and maximum size changes, et cetera? Do you have any kind of concept of what scale we're looking at here?

MR. GLENN: I don't have a great concept of the exact scale right now, but I'm doing a couple of back of the envelop calculations here. If we look at where SSB currently is, the spawning stock biomass is around 900. If you were to use that as a proxy for egg production, which as Dave Simpson pointed out, spawning stock biomass is probably a better metric to look at than egg production.

To get from 900 to increase that by 40 percent, you're looking at getting it to around 1,260. Then if I go to look into the projections to try to see what it would take to get it to a value of about 1,260; just give me a second. We're looking at an F reduction of somewhere on the order of 75 to 80 percent. But the tricky part about the motion, and this is something the TC would need some clarification on; is the 40 percent above the level that would otherwise be produced with no additional management.

If you look at the stock production projections, in the absence of any additional management; so we're at F of a considered 100 percent of what it currently has been, plus the existing natural mortality. We would expect the stock to decline extremely rapidly. It is that 40 percent above that level of doing nothing is kind of an ever decreasing moving target; so it is a little tricky.

MR. GROUT: Follow up, Mr. Chair. Clearly if we're looking at reductions in fishing mortality of that level, there is a question of, at least from my mind as to whether we're going to be as Ritchie White brought forward; are we trying to maintain the fishery here that way? This is clearly a decision that I don't think this commission has ever had to make before.

I commend the commission and the makers of the motion in putting this motion forward to try and do something, to try and help out in the hope that at some point we'll have some favorable recruitment conditions. I think as we already made the decision that we're not going

to do nothing; but we also don't' want to put in a complete moratorium.

This gets at the in-between. If this passes we're going to have to have the entire board work on some realistic goals of what we're trying to achieve here; other than just a 40 percent reduction. That is a good starting point, but I mean a 40 percent increase in egg production. But we also have to look at the aspects about what we're looking for in a fishery here.

MR. SIMPSON: I'm going to move to amend, to strike the sentence that begins with target egg production and insert instead target a 40 percent reduction in exploitation rate from the terminal year in the most recent assessment.

CHAIRMAN BORDEN: All right so we have a motion to amend; second on that? Is there a second? No second. Okay, let me just follow that up with a question. Do we have to – and this is to Bob Glenn – Bob, do we have the ability to determine exploitation rates on an LCMT basis?

MR. GLENN: No, we can only really with any reliability determine it for the whole southern New England stock. There are some sub areas where you might be able to do it, but you wouldn't be able to do it equally across all areas.

CHAIRMAN BORDEN: We can determine it for the stock as a whole, but not on the individual. I've got Pat Keliher and then John. The motion to amend died due to a lack of a second. Well, Megan is encouraging me to ask for another second. I asked twice whether or not we had a second and no one raised their hands. I am declaring that the motion dies due to a lack of a second.

MR. PATRICK C. KELIHER: I think based on what Dan said earlier, I think this is starting to go in the right direction. I'm not totally comfortable with it, but my feeling is that the PDT is now going to have a fair amount of flexibility in starting to develop this; and we're going to have many more options to start massaging this and improving upon the direction of this addendum.

MR. CLARK: I probably just misunderstood something before, but I thought with the 40 percent egg increase from Jay's analysis; that could be done through a modest change in the gauge size. Yet what Bob just said to increase the SSB 40 percent we would need to reduce F by 80 percent, which based on what the PDT said would pretty much end the fishery. I must have misunderstood something there, but I thought the increase in eggs from Jay's analysis would not require such a drastic reduction in F to get there.

CHAIRMAN BORDEN: Jason, do you want to come up to the microphone and respond to that please?

MR. McNAMEE: Sure. I think an important thing to consider when talking about this is; I'll just get right to your question. The updated analyses that we did, keep in mind that they're based on a carapace length to egg relationship; which is not linear, it is a curve. It is not a linear relationship, so what we found, just to cut right to the chase, and again I caution you that it was based on feedback from the Technical Committee; but we've not brought these analyses yet to the Technical Committee, because we just finished them up recently.

With a single 1/32 minimum size increase in the inshore area, we can get that 40 percent if not more increase in egg production; and it has to do with the relationship of what you're protecting, the lengths of those animals, the maturity schedule. There is a bunch of interactions that are occurring; but that is what we found in our updated analysis so far. I'm not disputing what the calculations that Bob just made, I'm just offering these are the analyses that we've conducted and what we found.

CHAIRMAN BORDEN: John, have you got a follow up?

MR. CLARK: Just to that 1/32 increase in the gauge size would not result in a reduction in F by 75 to 80 percent?

MR. McNAMEE: I can't take it that far, so I can't link it back. From our original analyses we found about a 13 percent reduction in harvest in the inshore area; but there is more math that needs to occur. Again, the only thing that we've looked at thus far is messing around with the gauge. There are other things we could look at and make assumptions and do calculations as well on egg production. It doesn't just have to be the minimum gauge; but that was the idea with this, I put it in quotations "modest" was just it didn't take a lot to get to that 40 percent increase.

CHAIRMAN BORDEN: I've got Mike.

MR. LUISI: Thank you, Mr. Chairman. I'll hold my comment at this point. I do have a question or I want to make a point at some time after we take action on this motion, thanks.

MR. WHITE: A question for Megan. How will the PDT be able to determine how much mortality decline could be accepted by the industry and still be viable; because this gives no direction as far as the amount of mortality decrease?

MS. WARE: I think moving forward what we would do, if this were to pass we would work with the TC, but I would work with the PDT to try and turn that into some sort of different options in terms of management. One thing that we are talking about or considered is meeting with the different LCMTs and they would come forward with their preferred option, I'll say, of how to achieve that. But I'm not sure it is the PDTs position to say what industry thinks is acceptable. I think that that is maybe something for the board to be considering. We would just provide the options.

CHAIRMAN BORDEN: All right, who else needs to speak on this; Mark Gibson?

MR. GIBSON: Since the boards concern and uncertainty about this 40 percent number, and I share some of that concern; because it is not completely clear how that target egg production increased maps back into the fishing mortality rate reductions. It seems to me that it is possible that if we're locked into that measure we could find ourselves in conflict with the other standards we have articulated here through your poll and in earlier meetings; that we weren't going to drive the range of this fishery into oblivion.

We also weren't going to do anything. We're trying to find a middle ground process. I would suggest to get more comfort with this motion, maybe we ought not to be holding ourselves to not less than 40 percent. Target could be 40 percent, but if those analyses, once the Technical Committee have looked at what Rhode Island has done, done their own updated calculations and reconciled the projections under F reduction versus the gauge increase effects.

We might be in a better position to know what that percentage egg production should be. I hear what the board is saying. I share some of those trepidations right now about not knowing how the numbers line up. I don't think I can amend my own motion, no one seconded, but that is what I would suggest that the not less than, so that 40 percent becomes a target that can flow out of the process that we're embarking on.

MR. ERIC REID: **I think I would like to make a motion to change the wording a little bit. In the first sentence where it says to minimize stock decline, I would like to insert long term; minimize long term stock decline. There is a lot of discussion about the dreaded 40 percent; reword that sentence to read, target increased egg production to be above the level that would otherwise be produced with no additional management.**

CHAIRMAN BORDEN: Do I have a second? Bob.

EXECUTIVE DIRECTOR ROBERT E. BEAL: Eric, we just had trouble hearing your second part of that. If you could repeat it that would be great, thanks.

MR. REID: I was having trouble thinking about it myself as well**. The second part would be to reword the 40 percent target; that sentence to read, target increased egg production to be above the level that would otherwise be produced with no further management action. I realize it generalizes the motion; there is no target for the TC and the PDT to shoot at.** But I think it would capture the intent of this discussion.

CHAIRMAN BORDEN: All right, do we have a second for the motion? Seconded by Mike, discussion on the motion to amend, any discussion on it? Peter.

MR. BURNS: I appreciate the effort to try to make this a little bit more clear, but I'm a little bit more concerned; because this really kind of really says that any slight increase in egg production we would be meeting the goal here. Frankly, I'm not even sure if the 40 percent really even goes far enough.

Because I think we really need to take some effort to protect the stock any way we can. I understand that there are economic implications with this. But I think that we have to be prepared to make some very, very difficult decisions about how fishing mortality needs to be reduced to make sure that the stock doesn't continue to decline at the rate that it is going right now; just food for thought.

MR. FOTE: My concern is when we were talking about moratoriums on winter flounder, when we were talking about moratoriums on weakfish, it left fishermen to fish for other species; to basically harvest other species to make up for the loss. When you look at lobstermen and lobstermen, there really is no other species to go to, maybe Jonah crabs. Then we start crashing that stock. It is not as cut and dried as it is when you look at whether it is summer flounder of black sea bass when you talk about lobsters. It sets up a whole different class of problems, and that is what I'm looking at, trying to figure out how we're going to do that. I mean it is easy to sit here and look at it and say, we should be doing this and that; but the industry is going down without us doing anything.

There are less people in the fishery, there are less boats functioning, there are less traps in the water; and the response is, like weakfish, the stocks don't increase. The stock assessment is not showing any better no matter what we do. I am hesitant to take actions when we basically five years from now we'll say, no we put everybody out of business and we're not seeing any increase in the stock.

CHAIRMAN BORDEN: Anyone else? Dennis and then Doug.

MR. DENNIS ABBOTT: The time is 12:25. I think we would work better on a full stomach and give people time to think about what we're doing here, and come back after lunch and see where we're going to go with this amended motion.

CHAIRMAN BORDEN: I was going to attempt to get through the motion to amend and then immediately break for lunch, but I'm not averse to that; Dennis.

MR. GROUT: And neither am I. I was going to express a concept here. While I understand some of the boards concern with setting a specific percentage increase target, typically when we do management actions we produce a range of alternatives. I personally am a little bit uncomfortable with something so open ended as above a level that would be produced with no additional management.

I mean that could be 1 percent. There may be, and it may also help our PDT and Technical Committee if we gave them a range of alternatives. Maybe this is something that we could discuss over lunch, as to what might be the appropriate range of alternatives to go with.

CHAIRMAN BORDEN: The Chairman just winked at me, so I am going to admit defeat and we're going to break for lunch for 15 minutes.

(Whereupon a recess was taken.)

CHAIRMAN BORDEN: (first few words not recorded) …one would be to limit the amount of debate on the motion to amend. We've had sufficient amount of time to actually discuss the pros and cons of the strategy and the language; so we vote it up or down. Then if we ended up with an amended motion or it fails, then there are some other people around the table that would like to offer additional motions.

That includes kind of minor things like adding the word southern New England to the main motion, so that it doesn't apply to the Gulf of Maine, and a few other things. On the concept, anyone here feel it is really important to add additional comments that have not been made yet on the motion to amend?

I would just as soon deal with that motion to amend, and then if someone else wants to make a motion to amend then they could do that. That way we won't have two motions to amend on the table, or a substitute motion; which is going to confuse things incredibly. Anyone else want to comment on this? Are you read for the question on the motion to amend? Do you need a caucus, anyone need a caucus?

Okay so all those in favor of the motion to amend raise your right hand. Five in favor, opposed, five opposed; we're making rapid progress. Bob, what time did you say the cocktail hour was tonight? We may have to have an attitude adjustment hour before we finish the meeting. Are there any abstentions, one abstention, and any null votes?

One null vote, so it is 5 to 5, motion fails. That motion is gone. Now you're back on the motion to amend. Does anyone care to make a motion to amend? Bob, on procedure?

EXECUTIVE DIRECTOR BEAL: Just a procedural question, Dave. I think you need to announce. I think your intent there was that the motion failed due to lack of majority, is that correct? I don't think you directly said that in the record.

CHAIRMAN BORDEN: Motion fails due to lack of majority. I look forward to the Roberts Rules of Order presentation. Okay, so I saw our distinguished chairman had his hand up. Now he's got his hand over his face. Doug, do you want to take a crack, or do you need another minute?

MR. GROUT: Okay I'm going to try this. It isn't completed yet, but I would like to make a motion to amend that in the first sentence we replace minimized stock declines with – I'll let Kirby catch up – replace minimized stock declines with address stock declines in southern New England.

Then after that similar to the original motion to amend, we're going to remove the sentence that says, target egg production increase will not be less than 40 percent above the level that would otherwise be produced with no additional management; and replace it with, develop a range of long term increases in target egg production between 20 and 60 percent above the level that would otherwise be produced with no additional management.

The intention here, Mr. Chairman, is to one, clarify that we're talking about southern New England. Get rid of the word minimize, and use the word address, and then to put in a range of long term increases in egg production that the PDT and the TC could analyze.

CHAIRMAN BORDEN: All right thanks, Doug. Is there a second; Pat Keliher second. Is there discussion on the motion?

MR. FOTE: Did I miss something in the stock assessment saying that New England is suffering poor recruitment for a couple years in a row? Why are we, basically northern range not doing anything or not part of this amendment? If we're looking at basically protecting all the stocks, shouldn't we protect all the stocks? Especially, they could get a jump on the problem we're having in southern New England if it looks like they're going the same way; so we're just kicking that can down the road for a couple of years. That is what it looks like it's doing to me.

MR. GIBSON: I appreciate all the efforts on this. I think this is an improvement. The board has, I think, clearly stated that we want to be centered in terms of the severity of the management response between a moratorium and not doing anything. I think this range now with that additional guidance, allows the PDT and the Technical Committee to see where the percentage ought to be in order for us to stay centered in terms of the management response. I think it's a helpful improvement. I don't know if the range is wide enough, but it is better than locking us in at a 40.

CHAIRMAN BORDEN: Anyone else? Mike.

MR. LUISI: I agree it is an improvement. I still have the same concerns I did earlier with the 40 percent, you know locking us in to a number. You know you asked the question early on, whether or not this board was interested in eliminating the fishery. It was clear that the answer was no, this board isn't interested in eliminating the fishery. But I think one thing that we're going to struggle with through this amendment or at this addendum are determining what is going to eliminate the industry; depending on what state the fishermen are from, what their business operations are. Fishermen in my state have told me that 20 percent cut back in catch; you might as well have a moratorium.

I think we're going to struggle with coming up with alternatives and the impacts of those alternatives are going to be felt differently throughout the range of this southern New England stock. Again, I'm going to support the amendment. I think it is an improvement, but I still have some concerns over the numbers being in there.

CHAIRMAN BORDEN: Anyone else? David.

MR. SIMPSON: Yes, I still have the same confusion that I need some help with; either from Megan or Bob. Is the term egg production in any of our Technical Committee advice; anything that has been peer reviewed and approved to put in front of the board for management decisions? An answer to that and then I have a follow up.

MR. GLENN: No, not in modern times. The last time we used egg production I believe was in the 2000 assessment.

MR. SIMPSON: Right, so we're using terminology here that nobody knows what it means. I can't support the motion, because I don't know what it means. A further concern is the end of that sentence; above the level that would otherwise be produced with no additional management.

Does that mean as we work on this over the next two years and the stock continues to fall, what it would have fallen to, or is it where we are now or at the last assessment? I'm sorry, but this feels like we're trying to say we're doing something without doing anything. I think we need something more clear, based on the stock assessments that the Technical Committee and the Peer Review Panel have put together for us.

CHAIRMAN BORDEN: Other comments on the motion to amend? Are you ready for the question? Need a caucus? Does anyone need a

caucus? Peter, you want to say something? Caucus, a couple minute caucus. Ritchie.

MR. WHITE: A question on timing, Mr. Chair. If we pass this and it goes to the PDT, when would we see a report back from the PDT? Would that be in August or would it be later than that?

CHAIRMAN BORDEN: August. I mean if, so everyone is clear, and Mike was the one that raised this before. If some variation of this motion passes, it would be our intent to try to conclude some of the egg analyses that are undergoing – Jason said he's already got a draft of that. Have the TC review some of that paper.

Have the PDT and the TC and the staff work to get comments on what this means. To go back to Mike's question, about actually what does it mean? What are the options and so forth, and all of that would be reported at the summer meeting. Then at that point I think, the board needs to look at that advice and decide whether or not it is adequate. In my own view this starts the process. Any other points before I call the question? This is on the motion to amend. All those in favor signify by raising your right hand; ten in favor, opposed – one opposed; any abstentions – one abstention, any null votes? The motion carries. We are back on the main motion as amended, any further discussion on this? David Simpson.

MR. SIMPSON: Sorry to be a nuisance, but isn't it in our rules that any management action we take be based on peer reviewed science, and that we have guidance on the science to support management actions? Because where I sit and based on what Bob Glenn just said, I don't see that what we're doing is in any way supported by the scientific advice we've been given.

CHAIRMAN BORDEN: I think I would defer to some of my, I mean Bob or Toni could probably answer this better than me. From my perspective, I think most of the time that either a commission or a council deals with that specific issue, they have a whole ranking of types of documents that they rely on in terms of giving technical advice.

One of the last items on that list is to have like a Technical Committee review the concepts and make sure that it is consistent with the program that it is being advanced for. I don't, and Bob correct me if I misspeak. There is no requirement to just use peer reviewed science. Is that correct?

EXECUTIVE DIRECTOR BEAL: Now that I've spilled everything around me I'll go ahead and answer. The guidance is really that the reference points and the foundation of the FMPs have to be based on peer reviewed science. But then, how do you achieve those reference points and all the analyses on different management measures and other techniques? Those usually are not peer reviewed.

They are run through the Technical Committee and others. I think this is in that gray area. The peer review clearly said southern New England needs some significant changes. How you achieve those changes I think, there is more latitude in that in the guidance documents from the commission. I'll go the other way, the guidance documents of the commission don't clearly say how you have to achieve the reference points, or what analyses you have to use to do that.

CHAIRMAN BORDEN: David, do you want a follow up on that?

MR. SPENCER: I do. The response from Bob Glenn was that the last time we used this terminology egg production was 15 years ago, 16 years ago. I don't think anyone around this table knows what this means; because it is not in any of the last two peer reviews, not in the last two stock assessments.

It is not in any of the advice or work that the Technical Committee or others have done up

until now; except for some work that got done to be presented at this meeting that has not been reviewed by the Technical Committee. I still view that this motion is out of order and inconsistent with commission policy.

CHAIRMAN BORDEN: Anyone else? Mark Gibson.

MR. GIBSON: I think I understand what Dave is saying, but I think he's referring to the egg per recruit standards we used to use. Eggs per recruit are very different than egg production. This is population egg production; which is in some way proportional to spawning stock biomass, and I'm sure the Technical Committee can figure that out. But if not, the old standards of production of eggs on a per recruit basis, which has fallen by the wayside – I agree with that. But I don't think that is what we're doing here. I think we're acknowledging that SSB matters, because it is what produces eggs.

CHAIRMAN BORDEN: All right, Bob.

MR. GLENN: To me, that kind of brings up an interesting question, because essentially to me it seems what we're really talking about here is SSB. I'm not really sure what the intent of changing the terminology to egg production is; because you can't achieve a 20 to 60 percent increase in egg production without increasing the SSB.

I think it leaves the TC in a little bit of an awkward spot as to understand. I mean we can do it. We can multiply the spawning stock biomass by the maturity curve and by the fecundity, and come up with total egg production, but it doesn't seem to relate back to any of the reference points or management.

CHAIRMAN BORDEN: Anyone else?

MR. GROUT: Well in response to what Bob said, when I made the motion to amend it was off of the original underlying motion that talked about egg production. The original maker of that underlying motion, I was wondering if they had that same concern that it should be SSB. The value that we're looking for is actually SSB.

If so, I can't make an amendment to my motion. Maybe the original maker of the motion or some of the people on the other side of the table that have concerns about using this currency of egg production, would you feel more comfortable with SSB? Would you want to make that amendment?

MR. SPENCER: Yes, I think that is where we're sort of misleading ourselves; because I'm just watching how the vote is going. I think the proponents of this motion are looking to take less extreme action on the fishery; yet if you substitute spawning stock biomass where it now says egg production, you're in the realm of 80 plus percent reduction in exploitation. I can't believe that that is what the people supporting this motion intend will happen.

I think we need to find the correct term, one that is in our stock assessments and our peer reviews, in all the technical work we asked the committee to do back in February; and substitute in a target reduction in exploitation rate or spawning stock biomass, but a term that is used in the advice we've been given. None of us know what this means. I think we're all interpreting it the way we want to. But just looking at the votes it is clear to me that people do not mean to increase SSB 20 to 60 percent.

MR. ADAM NOWALSKY: To build on that point. I had supported the last motion, but I've really got to think about that now; hearing the most recent comments that in order to increase, if I heard them correctly, in order to increase egg production we need to increase biomass. That was what I heard most recently, I believe. The PDT memo says that just to stabilize SSB would require a 75 percent reduction in harvest rate. If I put two and two together and I'm coming up with four, then to get any egg production, which

I think is the point Dave is getting to, egg production increase is required in SSB biomass increase, which requires according to the PDT a 75 percent reduction in harvest rate; if I've heard everything correctly and put it together in my head correctly. If I haven't, please correct me.

CHAIRMAN BORDEN: Anyone else around the table? Jason, I don't want to put you on the spot, but since your staff has been doing the egg production analyses, do you have any comments you want to make at this point?

MR. McNAMEE: I'll make one brief comment. The discussion that is happening right now between – so the comments that to increase egg production you have to increase SSB is absolutely correct – or protect SSB, I think the currency that you're using is just math. They are related to each other, so if you call it egg production or you call it SSB, it is just math that you're talking about.

I will say an attribute of egg production is it recognizes that all lobsters are not equal. Bigger lobsters produce more eggs. Smaller lobsters produce fewer eggs. For instance, in menhaden we use eggs instead of SSB. It is not something that doesn't occur in other fisheries, and the reason for that is bigger animals produce more eggs and you're just trying to recognize that.

The only other thing that changes in this discussion, depending on the currency is you can get a bigger number from egg production. That number that equates to that bigger number for SSB, it is just a smaller number. I guess you're all talking about the same thing and it is literally a currency change that is linked through a relationship; and it's just math.

MR. MUFFLEY: This is the question I had when we were going through the technical reports. If you kept all else equal, from my understanding, you need to take a 75 to 80 percent reduction to stabilize SSB. But I thought some of the technical analysis that the TC had done and that Rhode Island had done that shows some modest gauge size increases, does influence and increase SSB.

There is a difference, so if we do nothing and the only thing we're going to do is reduce harvest by some sort of scenario, and we do nothing else; no gauge size increase. Then we need a 75 percent reduction to do that. But if you do some management tools, a gauge size increase, a decrease, whatever maximum decrease. There are other avenues that don't require a 75 percent reduction. That is my take in the analysis.

MR. BORDEN: I'm got Ritchie White. Bob, do you want to respond to that?

MR. GLENN: I was just going to point out that that is absolutely correct. Any time you change the minimum or maximum size you're changing the exploitable stock. By increasing that you are going to increase SSB.

MR. WHITE: I still feel we're going about this backwards. We've said that we want to maintain a viable fishery, and then we go to trying to create measures that will help egg production spawning stock biomass, without knowing what a viable fishery is. Why aren't we starting with, what kind of fishing mortality reductions can industry stand and still be a viable fishery? Why aren't we starting there, and then okay that's what we can work with? That is the effort we can reduce; and then see what does that give us? It just feels like that we're doing these things; we have no idea whether any of them will come out with a viable fishery. I guess my question would be, who would we task and how would that unfold, for us to determine what a viable fishery would be. How much mortality reduction could they stand? Would that go to the PDT, go to the AP, Technical Committee? How would we determine that?

CHAIRMAN BORDEN: I'm not sure what the answer to that is. Maybe Megan or somebody else can offer thoughts.

MS. WARE: My thoughts if I was asked that question would be to go to the LCMTs and ask them what they could sustain as reductions in F; and then that would be your goal, basically. I don't know if that percentage would be equal among all of the LCMTs; so that is something that the board would have to consider. But that is how I would try and answer that question.

CHAIRMAN BORDEN: My suggestion here on a way forward is basically to curtail the discussion on it. We've had a good discussion. I think we should vote on this motion, but do it in the context that if this motion passes, then in fact at the next meeting we will get a whole series of reports.

We can get comments from the TC on it, we can get the analysis that Jason and his staff has been doing. We can get comments from the TC on whether or not they agree with or don't' agree with the Rhode Island analysis. Then lay all of that before us, and depending upon the results of that then if there is a necessity to revisit this motion, we go back and revisit it at that point.

But at least we do so; I mean there have been a lot of really good points that have been made around the table about what is known and what is not known. But there is also a lot of speculation that is going on around the table. I think the only way to move forward with this is take a step, but it is under the assumption that if in fact the motion passes, then we're going to revisit the whole issue at the summer meeting. Comments on that; any comments?

MR. ADLER: If this motion passes there is going to be a development of a draft addendum; first of all is that correct?

CHAIRMAN BORDEN: I don't think we're ready for that, Bill. I think we're at the stage where there is sufficient uncertainty here in terms of the terms, what it means and so forth. That we need to get more technical guidance, we need to see this Rhode Island analysis being completed; and then basically put it on the agenda.

Let everybody actually see what the analysis is at that point, what the actual egg production is that comes out of a few examples. I mean in the Rhode Island analysis, the initial analysis, I don't know whether this applies to the current analysis. But they had looked at a range of different options, not to advocate those options but to just use them as examples. I think that might be helpful in terms of answering some of the questions that have been raised.

MR. ADLER: In other words, if this passes we're not going to start drawing up an addendum yet; is that correct?

CHAIRMAN BORDEN: Correct. That would be my interpretation.

MR. ADLER: Okay, and so is there a charge to the committees you talked about to come back to us with whatever you just decided and then move on maybe? Is that the next step?

CHAIRMAN BORDEN: What I would say is, I'll reiterate what I said; basically that if this passes or some version of it passes, then because of all these uncertainties that have been legitimately raised that we analyze it, do our due diligence on the alternatives and then get reports on it.

Then basically decide, is this what we really want to do; and we do it from a factual basis. What that would mean is, to answer your question directly, Bill; was we're not going to start on the addendum between now and the summer meeting. What it would mean is that you do that after that point. It is going to take a couple more meetings to finalize this.

EXECUTIVE DIRECTOR BEAL: David, the wording of the motion is to initiate an addendum, but your interpretation of that is the initiation is actually the analysis and the work done by the PDT and TC to bring back to this board. It is not

drafting an addendum between now and August it is initiating the work of an addendum, and that is how you interpret that; is that correct?

CHAIRMAN BORDEN: Correct. Okay any other points? Are you ready for the question or do you need a caucus.

MR. LUISI: I have a quick question for you. Given the concern around the table surrounding this sentence that starts with develop. If someone were to make a motion to strike that sentence from this motion, because the issue had been amended before it is a different motion. It is a motion to strike a sentence rather than to change the wording. But would a two-thirds majority vote be needed in that case, in order to actually make that change? I'm considering that motion and I'm trying to figure out what would be required in order to strike that sentence.

CHAIRMAN BORDEN: Are you trying to reconsider a portion of a motion that has already passed or already been acted on?

MR. LUISI: Yes, I guess the intent would be the same that Eric's motion earlier that I seconded, I guess the intent is the same; so yes, I guess I am asking if we were to reconsider that it would require a two-thirds. I'm just kind of talking through it in my own head.

CHAIRMAN BORDEN: Bob, you want to provide some procedural guidance, please?

EXECUTIVE DIRECTOR BEAL: I'll try. I don't have the wording of the previous motion that failed in front of me, but it sounds like Mike is suggesting another motion to amend; which would be to strike the sentence that begins with, develop a range of long term increases. If I remember right, his previous motion had a few other ideas in it as well.

You get into a gray parliamentary area where you've got a multi-piece motion earlier that failed, and now it sounds like Mike may be considering a single-piece motion to amend, which is just striking one sentence. It probably would be fine if that is the will of the board just to do that through a regular motion to amend and not require a super majority.

CHAIRMAN BORDEN: Anyone further on this point? Is there any other action, anyone proposing anything different?

MR. NOWALSKY: I like in theory the idea of doing the analysis of what we're contemplating here would mean, and having that come back to us. I am somewhat troubled by the sense that the words on the board are, we are initiating an addendum. Then if the information, the analysis comes back to us and we don't like what we see, then we're going to un-initiate the addendum? I'm not very comfortable with that. I would be a lot more comfortable changing the wording of this from initiating an addendum to doing an analysis.

I would be curious, you know we had the question a couple a minutes ago and I got some nebulous response about how we're initiating an addendum, but only doing an analysis and might not go forward with the addendum. I would like to get some more clarity on that and then in consideration of possibly changing this, to having words to the effect that we're doing an analysis and not actually initiating an addendum at this point; if you could give that to me, please.

CHAIRMAN BORDEN: For the maker of the motion, and the seconder. Do you want to propose something different, given the comments here? What is your reaction? There is also the option to simply go with the way that I characterized it, in other words I think I was clear, I mean earlier in the meeting we agreed we were going to do an addendum. That is what we agreed to. There wasn't a vote on that. But people basically agreed to that.

MR. GROUT: Well the way I see this is we're initiating an addendum to address stock declines

in southern New England by lowering fishing mortality and increasing egg production. We are giving the PDT suggestions on a range of alternatives to include in there. Now if we come back and we want different range of alternatives to address the underlying problem, which is to address stock declines in southern New England.

We certainly have the ability as a board to ask for different ways to address that problem. But the initial problem is at the top sentence, and then the second sentence is one way of getting at it; and we're going to get the analysis. I don't see the way the Chairman has proposed that we're coming back with some analysis of how to address a problem in the first sentence is going to be locking us in to that way of addressing it.

We're going to take a look at the analysis, see if that is an appropriate way to address it, depending on what the PDT and the Technical Committee provides us. I think we should be initiating an addendum to address that problem. We've had a stock assessment that says there is a problem. We've had three meetings already. We've already asked the Technical Committee and PDT to do a variety of analysis that they've already brought back to us. I think it is time that we initiate an addendum to address the problem that is in the first sentence.

CHAIRMAN BORDEN: Adam, to your point. Would it make you more comfortable with the motion if in fact at the end of it we added some kind of sentence, and don't hang on every word. It is something to the effect of; the first phase of the process will be to analyze these options and report at the next meeting. Would that allay some of your concerns?

MR. NOWALSKY: Well I think the comments on the record here in the last couple minutes probably address it as best we can. If as Chairman you see fit, based on the comments here to encourage some change in words here – so what the public sees – and what we move forward with working off of. I would certainly support to that concern. But I think the important part is getting the comments on the record that we just did, about what our intent is and what our process is going to be going forward. I would defer to you whether that is sufficient or not in your eyes.

CHAIRMAN BORDEN: Let me just read this one more time. It is my intent that if this motion passes that this will be the first phase in the process and that analysis will be completed and the report provided to the board at the next meeting. All right, further discussion on this; are you ready for the question? You need a caucus**? If not, all those in favor of the motion raise your right hand; 10 in favor, opposed – 1 opposed, abstentions – 1 abstention, any null votes? The motion carries.**

GULF OF MAINE MANAGEMENT AND GEORGES BANK MANAGEMENT

CHAIRMAN BORDEN: Okay so the next item of business here is Pat Keliher had requested time before the board to discuss the issue of the Gulf of Maine management and Georges Bank management. Okay so Megan has raised the point about tasking the TC. Is there any objection to tasking the TC with reviewing this? Bob, are you objecting?

MR. GLENN: Well, I think we need clarification of exactly what the final product is supposed to be. Are we analyzing what the impact on the fishery is at 20, 30, 40, 50, 60 percent increments? Are we changing based on egg production or are we looking at how that relates to mortality? I'm a little unclear as to exactly what we're supposed to be analyzing.

CHAIRMAN BORDEN: The motion says target egg production. I would view that the first thing you're going to do is you are going to review the Rhode Island analysis, right? Then I think you would factor that into a range of options and basically bring back some alternatives and

characterize what you think the impacts are under a couple of different scenarios of that.

MR. GLENN: You want the Technical Committee to propose management measures to achieve those egg production changes?

CHAIRMAN BORDEN: No, I think it is similar to what Rhode Island has been doing. Rhode Island is not analyzing specific management measures, but they are looking at a couple of examples of the impacts. I think that would be helpful. It goes to a number of the questions that have been raised, Mike has raised questions about; what does a 1/32 inch increase do for this? What would a 2/32 inch increase do for this; those types of things?

MR. GLENN: My concern is that there is a myriad of possible different combinations of things. I think it would be helpful for the TC to have fairly specific guidance, so that we don't produce a lot of unpalatable options that folks wouldn't be interested in. We can stick with gauge increases if that is what the primary tool is going to be.

But I would think we would want to make sure that is what the board was interested in; as opposed to like in the beginning of that it says through maximum size, closed season, closed areas, trap caps. There is a whole huge suite in there. That would be a lot for the TC to analyze all those possible combinations and how they interact together. I am just a little apprehensive.

CHAIRMAN BORDEN: I'll kind of reiterate what I said before. I think a few examples; we don't want you to take the laundry list and go down and do every single one. But I think to the extent you can give us some examples of what this means; narrowly focused examples. Then the board at least can have some discussion about whether or not this is an appropriate objective for this action. Once we actually do that then we can start to flesh out the management measures.

I mean the whole context for this action has always been that we need a clear goal, okay, and I'm not sure we have it yet. We need a clear goal. Once you get a clear goal then you can basically start the process of working with the PDT, working with the LCMTs to flesh out which alternatives we're going to consider. At that point they get analyzed. Yes, Craig.

REPRESENTATIVE MINER: I am kind of perplexed at this point, because when I hear from folks that are charged with coming up with information that we're going to take out to the public and they're confused. Now I feel like I'm in good company. This is the first time in the time I've served on the ASMFC where I communicated with lobstermen prior to coming down here.

I sensed a real concern on their part about the resource, and that was pretty telling to me. I am pretty sure it was probably similar to a conversation you might have had with an Indian about bison a long time ago. There may not be any left. I am not a scientist. I couldn't tell you what this says.

But what I can tell you is when I have to go back and relate what this says to somebody that is in the industry, I can't imagine they are going to think I did my job. I don't know how we unwind this clock or if we can unwind this clock, but it just seems to me that it's got to be very direct. I don't know whether we should close the fishery.

I mean I listen to Ritchie White, and I would say to you, Ritchie that most of the lobstermen in Connecticut, their business is down now down to about 10 percent lobsters, 90 percent moving buoys, doing any number of other things; just so they can stay in the business. Now whether we can get an agreement between Rhode Island, New York and Connecticut about what all those lobstermen do, I don't know.

But what I do know is that they know where these lobsters are, and another year where they know where they are and we haven't done

anything there is going to be less of them the next time we go to talk about it; and that is my frustration. I don't know what to do, but I drove all the way down here because I thought we were going to do something. I respect the people that know a lot more about how to draft this than I do. If this was legislation I would know how to draft it. Sorry.

CHAIRMAN BORDEN: All right, are there any other motions to follow this one? If not, we're going to move on to the next agenda item. Pat Keliher.

MR. KELIHER: Obviously things in the Gulf of Maine are quite different than they are in southern New England. The intent of what I am going to bring forward today is to hopefully avoid the conversation that we just had for the last several hours in the future when we start to see changes in the Gulf of Maine. This is not to diminish the importance of the southern New England lobster fishery, but to put it in perspective. If you look at today's landings, Maine during the peak of the season catches the total amount of what is caught in southern New England in about 14 days. Our fishery is at an all-time high. We've been maintaining catches for the last four years over 120 million pounds. Ex-vessel value is now a half a billion dollars. What I am proposing to make for a motion is to start putting together plans now for what is inevitably going to be a changing lobster stock in the face of a changing environment.

Just as a reminder, the current FMP reference abundance is 35 million pounds. If we did not react to the change until we hit that 35 million pounds level, the state of Maine would have an economic disaster on our hands that would pale all other fisheries disasters that we have seen in the past.

We are seeing shell disease within our state fisheries, it remains prevalent, but luckily we are at a low level and it makes up less than 1 percent of the harvest. However, we do see – and this correlates exactly with what the conversations in southern New England – while we have a historically high spawning stock biomass we have now seen four out of five years in declining settlement within our state settlement surveys.

We for the first time have picked up that decline in eastern Maine in our ventless trap surveys. That is a continued indication that we are starting to see change. I am not by any means suggesting that the sky is falling yet, but with the lessons learned in southern New England, I believe now is the time to start preparing with having the best available information and the best thought out process by which we would adapt to those changes.

Anecdotally, fishermen up and down the coast are telling me on a daily basis that things are changing. This fishery is moving farther offshore, we were seeing earlier sheds, the water temperature issues continue to drive all of the changes that we're seeing within the Gulf of Maine with all of our fisheries; whether it is green crab infestation, sexually maturing lobsters at a smaller, younger age.

All of those pieces are kind of part of what lead me to be very concerned about what the future will be to this fishery within the Gulf of Maine. With that Mr. Chairman, I would like to make a motion, a tasking motion if you will; and I'm hesitant to do so after the last conversation and the workload that was just put onto the Technical Committee, because Bob is about ready to crawl under the table I think right now.

Megan, do you have a copy of that? I don't know if you could put it up. **I would like to make a motion to have the Technical Committee examine the following tasks. Synthesize current literature and studies which investigate the connectivity between the Gulf of Maine and Georges Bank stock and Canada.**

Plot changes in distribution of egg-bearing females over time in the Gulf of Maine and

Georges Bank stock. Understand changes in the Gulf of Maine ocean currents and how this could be affecting larval supply patterns. Investigate the stock-recruitment relationship in the Gulf of Maine and Georges Bank stocks.

Review ongoing research on Gulf of Maine lobster in order to identify research holes and prioritize the importance of these data holes to effect management. Examine the competing management measures between Area 1, 3 and the outer Cape Cod to look at the benefits of harmonizing these measures. And lastly, to investigate and develop a Traffic Light Analysis as a potential control rule using average harvest and abundance values from the last ten years as a baseline. This approach would include using multiple indices such as the settlement and ventless-trap surveys, trawl-survey data, landings information, and other indices as recommended by the TC. If I have a second, Mr. Chairman I would be happy to speak further on this.

CHAIRMAN BORDEN: Second by Ritchie White. Discussion, any discussion, no hands up. Tom, are you scratching your head again or is that a hand up?

MR. FOTE: I just wanted to support this motion. I think it is the right move to make and I really congratulate Maine for stepping forward.

CHAIRMAN BORDEN: Yes, I would also speak in favor of this. I think it's a good idea. I think the commission, given the experience in southern New England from the nineties; where we went from literally record abundance and catch rates that kind of rivaled some of the catch rates that Pat's fishermen are seeing.

We went from there in a very short period of time to the fishery had basically collapsed. I think it's important for the commission to do this. A lot of this will result, if you approve this, a lot of this will result in the design of research projects that have to be done to gain additional information on it.

MR. ABBOTT: What might be an appropriate timeline to gather all this information?

MR. KELIHER: I was thinking that preliminary information could start coming back at this winter meeting. I don't think, as I said earlier the sky is not falling. But I think starting to bring this information together now, especially some of the prioritization work that needs to be done; I think would benefit us in state in particular.

We're getting ready to hire on two new research scientists. I think it would also allow us to start as a commission, prioritize research work that is needed, and start looking for additional funding, and maybe even get the service to elevate this on their priority list.

CHAIRMAN BORDEN: Any other discussion on this? Any need for a caucus? No hands up, are you ready for the question? **All in favor signify by raising your right hand, 11 in favor; oppose, any opposed, any abstentions, 1 abstention, null votes – motion carries**. Okay next item on the – it is almost exhilarating to make this progress like this.

DRAFT ADDENDUM I TO THE JONAH CRAB FMP

CHAIRMAN BORDEN: The next item on the agenda is the Draft Addendum I to the Jonah Crab FMP, this is a final action. This deals with the issue of bycatch in two different categories, and Megan is going to give a short review and then we're going to get some comments from other individuals. Then there is a motion that's been prepared on the issue.

REVIEW OF OPTIONS

MS. WARE: Before we get started could I just ask Mark Robson and Mr. Gwin to come up, because they'll be helping me with this presentation. All right, good afternoon everyone. Just as a

reminder, as David said this is final action. This document went out for a public comment this spring, so I'll be going just quickly through the different options. I'll focus on the public comment and then we have an LEC and an AP report. Then we can open it up for discussion. Just an overview of my presentation today, first I'll go through the timeline of this addendum. I'll review the two issues; we'll go through public comment and then approve it. This addendum was initiated in November, after concern that the current bycatch limit is too low; that it doesn't include all participants in the fishery.

The board approved the document for public comment in February, and they also added a second issue to address bycatch by non-lobster trap gear. Public comment closed just a few weeks ago, and we are now here to consider final action. This is the regulation that is currently in the FMP. It says there are 200 crabs per calendar day, 500 crabs per trip, and incidental bycatch limit for non-trap gear. Again, those are those gillnetters, trawlers.

There were two concerns that have come up. The first is that the limit for non-trap gear does not include all participants; that we need to increase it so that those individuals can carry on business as usual. The second issue is that there is no limit right now for non-lobster trap gear; so those will be conch pots, fish pots, and this could lead to increased effort as well as trap proliferation since some of those fisheries do not actually have a trap limit like the lobster fishery does.

I am going to start with Issue 1 first, non-trap gear, just briefly go through the data then the options; I'll switch to Issue 2. This table here shows the landings by non-trap gear of Jonah crab from 2010 to 2014. Then it shows the percent of trips that were over the current limit. This was updated actually from the public comment that was received from the New England Council.

Originally we thought that there were 23 trips over the limit, but now it looks as though there have just been 8 trips over the limit between 2010 and 2014. Three trips landed over 900 crabs between May, 2013 and August, 2015. In total the landings from the non-trap gear is less than 1 percent of the fishery, but we can see we had a higher year in 2010; but since 2011 we've increased from roughly 3,000 pounds to 13,000 pounds in 2014.

There are three options for Issue 1; the first is status quo, so that would be preserving the 200 crab per day, 500 crabs per trip limit. Option B is to increase it to 1,000 crabs per trip limit; and this would be a trip of any length, and then Option C would be to remove the bycatch limit. Moving on to Issue 2; non-lobster traps.

This data is just again for review, it is from the BTR database. From May 1, 2013 through August 31, 2015, there were 194 trips that landed Jonah crab with non-lobster traps; 60 percent of these trips had 200 crabs or fewer, 20 percent of trips landed between 200 and 500 crabs, and 20 percent of trips landed more than 450 crabs.

We have four options here, and I just wanted to include the exact language of who this issue applies to. It applies to all trips by vessels hauling traps which do not have a valid lobster tag. I just wanted to be clear on that; because I'm not sure that that has been clear before. But Option 1 would be status quo, so there is no bycatch limit.

Right now these individuals are required to obtain an incidental permit from their jurisdiction, but they can land as many Jonah crab as they like, with as many traps as they like. Option B is a limit of 200 crabs per day, 500 crabs per trip for three days or longer. Option C is a limit of 200 crabs in the first 24 hours and then any trip longer than 24 hours they would have 1,000 crab limit. Then Option D is a limit of 1,000 crabs for a trip of any length.

PUBLIC COMMENT SUMMARY

MS. WARE: I'll move right on to public comment and then I'll take questions after that. We received 7 letters, 3 from individuals, and 4 from groups. Then we had 7 public hearings; they were held from Maine to Maryland, and roughly 55 people attended those public hearings in total. For Issue 1, non-trap gear the table here looks at who was in favor of which option for both public hearings and written comment.

You can see looking at the totals it is basically evenly split between the three options. What I'm going to do is just kind of go over the rationales that people had for the different options; since they were generally the same. For Option A, those who supported the current 200 crab per day, 500 crab limit; they generally felt that this was an adequate allowance and this would prevent non-trap fishermen from targeting Jonah crabs.

Those who supported the 1,000 crab limit felt that this was a slight increase. It would allow people to continue business as usual, but at least it created some sort of limit for this gear. Then those who supported Option C, which is no bycatch limit, felt that there really wasn't a need to limit such a small portion of the fishery; especially when lobster permit holders who are the major harvesters in this fishery aren't limited in the number of crabs that they are landing.

Those were kind of the general rationales behind each of the different options there. Moving on to Issue 2, we had two clear winners here; Option A and Option B. Those who supported no bycatch limit again felt that there was no need to limit such a small portion of the fishery. They didn't feel the stock was in jeopardy, so there was no need to be restrictive at this time.

Option B, those who supported the 200 and 500 crab limit felt that there was concern about trap proliferation from these gear types; that it was important to set a limit that would allow some catch, but would be sure to cap effort. Just some other comments we got on the document. We had one individual say that clarification is needed on whether the addendum applies to bycatch landings or a possession limit.

We had people say that the Jonah crab fishery should adopt LCMAs. There is continued confusion on the difference between Jonah crab and rock crab. We had some people say claw landings are an integral part of the fishery, and some say that a claw fishery would be a detriment to the stock. Then some people feel that the FMP should be paused until there is a completed stock assessment.

ADVISORY PANEL REPORT

MS. WARE: I am now going to turn it over to Mr. Gwin, who is the AP Chair for Jonah crab to give the AP report.

MR. EDWIN GWIN: Yes, well the AP decided or came to a consensus that it was probably good to have a thousand crab limit for everybody. That would allow an increase in the fishery, since the management plan is here to cap the fishery as it is; and that's with the participants. A thousand crab limit would still allow people that have landed Jonah crab to land them and still let an ex-vessel price of .85 to $1.00; still be able to sell them and make a profit out of it.

Also with the Large Whale Take Reduction Plan, if we increased any effort and let the non-lobster trap people have the permit to catch Jonah crab; this might put more buoy lines in the water. I think we all agree that we don't want no more buoy lines in the water. Are there any questions?

CHAIRMAN BORDEN: Any questions on this?

MR. McKIERNAN: Yes, Sonny, can you codify the position of the AP was to establish a thousand crab limit for those who do not have a lobster permit?

MR. GWIN: That's pretty much. If you don't have a lobster license it would be a thousand crab limit.

CHAIRMAN BORDEN: Any other questions on this? Bill.

MR. ADLER: Therefore, the AP on the non-trap fishery would support which option?

MR. GWIN: A thousand crab limit for everybody; for all trawlers, dredgers.

MR. ADLER: Per day?

MR. GWIN: Per trip.

MR. ADLER: Per trip and for the non-lobster trap a thousand again?

MR. GWIN: A thousand.

MR. ADLER: Not a thousand a day.

MR. GWIN: A thousand crabs per trip.

CHAIRMAN BORDEN: Both, so Bill, you're clear they're proposing same limit for both categories.

MR. GWIN: Exactly.

LAW ENFORCEMENT COMMITTEE REPORT

CHAIRMAN BORDEN: Okay any other questions? If not we're going to proceed with the Law Enforcement Committee report, Jon are you giving the report?

MR. JON CORNISH: Thank you, Chairman Borden. Good afternoon. The LEC met via teleconference March 11, 2016. This issue was discussed in depth. After reviewing the proposed bycatch options for the non-lobster trap harvest of Jonah crab, the LEC reiterates its previous positions and rationales for bycatch limits as prescribed in the memoranda of the American Lobster Board.

For Issue 1, the non-trap gear, the LEC supports Option A, status quo; 200 crabs per calendar day and up to 500 crabs per trip. For Issue 2, the non-lobster trap gear, the LEC supports Option B, 200 crabs per calendar day and up to 500 crabs per trip. Before the Jonah crabs were regulated there was no need to inspect bycatch as there were no restrictions in size or egg bearers.

Now restrictions will increase significantly. The time and effort required for law enforcement to inspect bycatch. In addition we are concerned with the larger bycatch allowances that could well increase the potential for gear conflicts and/or add additional trap lines into the coastal waters. We also want to promote uniformity between the non-lobster trap and the non-trap bycatch fisheries. In this case we feel they should both be 200 per day, 500 per trip. I'll take any questions you may have.

CONSIDER FINAL APPROVAL OF ADDENDUM I

CHAIRMAN BORDEN: Any questions for Jon?

MR. STOCKWELL: Not necessarily for Jon, but perhaps for Megan. I just note in the LEC report where we have Option A of the 200, 500. In her presentation Option A was no trip limit. Just when we go to put motions up on the board, we ought to be clear exactly what we're going to either move or substitute.

MS. WARE: I believe Option A for non-trap gear is the 200, 500. Then for Issue 2, it is Option A. The different options for those two issues, even though some of the options are the same they do not correlate to the same letter.

MR. STOCKWELL: I'm even more confused.

MS. WARE: How about I go to the very last slide, it is a summary slide; and this shows all the options here. You'll see that some of the options, like Option C for Issue 1 and Option A for Issue 2 are the same; but they are a different letter. Okay.

CHAIRMAN BORDEN: Terry.

MR. STOCKWELL: I'm all set, thanks, David.

MR. LUISI: Just to be clear, A in both cases is the status quo; correct in your summary slide?

MS. WARE: That is correct, yes. Just one comment to add on this last slide, one thing I wanted to add is throughout the public comments and the written comments, one of the patterns I've seen is that whatever option the board chooses or whatever option that public commenter's supported; they supported the same value for both non-trap gear and non-lobster trap gear, kind of citing ease of enforcement, ease of regulations. They are supporting the same bycatch limit for both non-trap and non-lobster trap gear.

CHAIRMAN BORDEN: Anyone else? Bill Adler.

MR. ADLER: I personally think, I actually support the 200, 500 for non-trap and the 200, 500 for non-lobster trap. The Law Enforcement Committee did make a comment on was if you give non-trap higher catches, like the scallopers or the draggers; that the gear conflict issue, they may really start to want to catch this more directed than others when they can catch that much.

To usually do that they will usually try to target where the crabs are, which is where the lobster traps are. I can see a gear conflict issue developing. I'm also concerned that with the higher limits there will be a more directed fishery by anybody, which once again means more traps perhaps going out if they're trapping them.

That is a problem with traps. If they do a directed fishery, I also don't think that the non-lobster trap fishermen need a thousand pounds in one trip. I don't think they could do it. That is why I sort of like the 200, 500 idea; and yes I do like the fact of having both the same rather than having a different rule for this one and a different rule for that one. That is my thoughts and concerns about this.

CHAIRMAN BORDEN: Anyone else? Jim.

MR. GILMORE: When you're ready would you like a motion, Mr. Chairman?

CHAIRMAN BORDEN: All right so Jim requested the floor to make a motion.

MR. GILMORE: Move to adopt under Issue 1 for the non-trap gear bycatch Option A; 200 crabs per day, and a 500 crab per trip limit. Under Issue 2, Option B; 200 crabs per days, and a 500 crab trip limit for Draft Addendum I to the Jonah Crab FMP.

CHAIRMAN BORDEN: Is there a second? Seconded by Bill Adler. Discussion.

MR. STOCKWELL: It is probably going to be no surprise that I have a little different opinion from my friend across the table here and sort of my comments are going to be just specific to non-trap landings. I came to this meeting prepared to either support Option B or C. After reviewing the meeting materials and further considering all the effort data the council staff mined from 2010 to 2015, which indicate the landings by non-trap permit holders constitute a fraction of 1 percent.

I am quite tempted to move Option C, the no landing limit, as I believe there is no evidence that provides a need for non-trap bycatch limit; when the vast majority of the trap fishery is not limited altogether. But with the absence of a Jonah crab assessment, and in support of the APs recommendation and my intent to freeze the footprint of the existing non-trap fishery; I'm going to move to substitute Option B, 1,000 pounds trip limit. If I get a second I'll provide further rationale.

CHAIRMAN BORDEN: I have a motion to substitute; seconded by Roy. We need to get the

motion. Terry, can you restate the motion slowly so we can get it up on the board?

MS. KERNS: It's just which issue.

MR. STOCKWELL: My motion is to substitute Option B for the non-trap fishery. I am not prepared to address non-lobster trap fishery, because it is not the council's responsibility. The motion is specific to the non-trap fishery.

MR. GROUT: Just to be clear, is this a motion to amend? Jim's motion combined Issue 1 and Issue 2. I know you're trying to substitute, but really you're amending the motion under Issue 1 to be an Option B.

CHAIRMAN BORDEN: Terry, would you like to change the language on that to motion amend?

MR. STOCKWELL: Sure, I'll jump in with both feet here. **No, a motion to substitute for both the non-trap and the non-lobster trap; Option B of 1,000 pounds, which is consistent with the APs recommendation.**

CHAIRMAN BORDEN: Roy, on that point.

MR. ROY W. MILLER: That was my original understanding and why I seconded it; that it would be a thousand crabs for each issue, thank you.

CHAIRMAN BORDEN: I just point out the speed of the deliberations here has been breathtaking, and probably caught some of you off guard.

MR. STOCKWELL: To the point I made earlier, I just was confused about the labeling of the motions in the non-lobster trap. It's a different option, but my intent is 1,000 crabs per non-trap and per non-lobster trap. It would be a motion to substitute for consistency.

MR. LUISI: I am going to support this option. I think that it provides, like Mr. Gwin told us from the AP. It puts a backstop there for catch for harvest, but it doesn't restrict. I don't think the intention was to ultimately restrict the current catch. If I'm thinking back to the slide that Megan presented on catch over 4 or 500 pounds.

There was a proportion of the fishery that currently exists that falls within the range that would be restricted under the 200 and 500 crab option. With that and knowing that while we're learning more about this stock, this puts a significant backstop in to keep fisheries that aren't using lobster traps from expanding to any degree. I'm going to support the motion.

CHAIRMAN BORDEN: Anyone else on the motion to substitute? Brandon and then Dan.

MR. MUFFLEY: I'm going to speak in opposition to the motion, particularly on Option A. We have a measure that's in place that covers 99 percent of the fishery over the last five years. We're making the exemption for not eight fishermen; we're talking about eight trips over the last five years that we're going to make an exemption for.

There are no other requirements. They don't need to land anything else with this. They can go out and target if they wanted to. We can call it a bycatch fishery, but they could in theory go out and target 500 crabs per day and I also agree with consistency between the two; but my main opposition is to the opposition to A. I think we have it covered already, and I don't see the need to make an exemption for eight trips.

CHAIRMAN BORDEN: All right next on the list I have Dan and then Doug; anyone else? Steve.

MR. McKIERNAN: I agree with Brandon's comments and I would also want to point out that in my opinion, I think that this is going to attract more trap fishing effort by those fishermen who don't already have a lobster permit. If this motion fails, I would be prepared to do a substitute motion as a compromise to create a 200 per day, 1,000 for a five day trip as a substitute.

MR. GROUT: I am tempted to support the motion to substitute. I am a little puzzled by the argument that we're going to be attracting fishermen into the crab fishery; where right now the trap fishery, the non-lobster trap fishery has no limit on it. From what I've read in the document, it doesn't appear that there has been an increase in their effort; the same way with the non-trap gear in Issue 1. It doesn't seem like there has been an increase in their effort. Why would putting a cap on it increase, tempt people to get into the fishery?

MR. TRAIN: I would say I oppose the substitute motion at this point, because of the potential effort increase. We have trouble with bycatch definition here. We seem to think if you catch something that is below a limit it is a bycatch, we don't care what else you're catching. I thought it was supposed to be a smaller portion of your total catch. I am worried about a directed fishery. It may only be eight or ten people at this point, but this would allow 200 people to direct on it up to 1,000; because it's a bycatch. I don't like the substitute motion for that reason.

MR. NOWALSKY: I might just ask staff to reflect that these are Jonah crab no Joan crabs in both motions.

CHAIRMAN BORDEN: All right, anyone else here? Are you ready to vote on the motion to substitute? I see no hands up. John, do you want to comment? Caucus; okay a two minute caucus, are you ready? **Ready for a vote, this is on the motion to substitute? All in favor on the motion to substitute raise your right hand. Seven in favor, opposed; 4 opposed, null votes or any abstentions; no null votes, no abstentions. The motion carries; the motion to substitute. Now the main motion as substituted, are you ready for the question?** All right is the motion clear?

MR. McKIERNAN: Will there be any discussion on this?

CHAIRMAN BORDEN: If you'd like to discuss it go ahead. I asked are you ready for the question and no one put their hands up. If you want to address the board, go ahead.

MR. McKIERNAN: I would like to, thanks. The rationale for a low trip limit, especially on the non-lobster trap fishery is to constrain the growth of a new trap sector. I don't think any of the agencies here at the table, at least I haven't heard plans to issue crab trap tags, crab trap limits, crab trap escape panels, crab trap escape fence.

There is a lot of work that is going to have to be done if we're all willing to open the door for 1,000 crabs a day fishery with things that look exactly like lobster traps. If you go down this road you better be prepared to do the work to manage this. Now in Maine, New Hampshire, and Massachusetts, to my knowledge you have to have a lobster permit to land a Jonah crab. There won't be any new trap fishing boats, effort and administration of that fishery. But everywhere else, you are going to have to take on this burden; so please keep that in mind.

CHAIRMAN BORDEN: Are there discussion? Any other discussion, are you ready for the question; need a caucus on this? Nobody seems to want to caucus on it**. All those in favor of the motion signify by raising your right hand. Keep your hands up; 9 in favor, no votes; 1 no vote, any abstentions, 2 no votes, any abstentions, any null votes? The motion carries. Yes, 2 nos.** Are there any other issues on this? We then I think need a motion to approve the addendum as modified today; correct, Toni?

MS. KERNS: You need an implementation date and then roll call for final action.

CHAIRMAN BORDEN: All right you hear Toni. Someone care to make that as a motion? Anyone? Doug.

MR. GROUT: I'll throw something out. Move an implementation date of January 1, 2017.

CHAIRMAN BORDEN: Okay is there a second to that? Seconded by Terry, discussion on the motion? Is there any discussion on the motion? I'm not going to call the question until we have it up on the board so everybody can read it; any discussion, no hands up. I can see some people on that side of the table twitching.

MR. SIMPSON: My question was, the suggestion was implement January 1, '17 and what this does is liberalizes the trip limits. Is there any issue with implementing sooner than January 1?

CHAIRMAN BORDEN: I don't think so. I think the states have flexibility to do that; and in fact I just point out that Megan per my request has been keeping like a running tally of which states are doing what on Jonah crabs, and then we periodically send it out. Some states are just feeding it into their internal regulatory process when it's convenient.

But everybody has got the same deadline. Any other questions, okay so you've got a motion on the board by Doug Grout, it's seconded by Terry Stockwell. Any further discussion on it, any need for a caucus? Seeing no hands up we're going to vote on it. **All those in favor signify by raising your right hand; I've got 10 in favor, no votes – 1 no vote, any null votes, any abstentions? The motion carries.**

I guess we have one more motion to do on this issue. We need a motion to approve the addendum as submitted today, and once we get that we'll have a discussion on it. Then we need a roll call vote; correct? All right, is there a motion?

MR. GROUT: Motion to approve Addendum I to the Jonah Crab FMP as amended today.

CHAIRMAN BORDEN: Second, seconded by Emerson, discussion, any discussion – no hands up? Are you ready for a vote; if you're ready for a vote, Toni or somebody going to call the roll, Megan? Bob.

EXECUTIVE DIRECTOR BEAL: If there is no objection you can do this through voice vote, but if you anticipate one vote or one state would object you probably need to go through the roll call. I'm not sure what your vibe is; but if you want to speed it up you can.

CHAIRMAN BORDEN: Anyone care to object to this? At least one person is going to object. We need to vote on it with a roll call.

MS. WARE: I'll just call the states. Maine.

MR. KELIHER: Yes.

MS. WARE: New Hampshire.

MR. GROUT: Yes.

MS. WARE: Massachusetts.

MR. McKIERNAN: No.

MS. WARE: Rhode Island.

MR. REID: Yes.

MS. WARE: Connecticut.

MR. SIMPSON: Yes.

MS. WARE: New York.

MR. GILMORE: Yes.

MS. WARE: New Jersey.

MR. MUFFLEY: Yes.

MS. WARE: Delaware.

MR. CLARK: Yes.

MS. WARE: Maryland.

MR. LUISI: Yes.

MS. WARE: Virginia.

MR. JOE CIMINO: Yes.

MS. WARE: NMFS.

NMFS: Yes.

MS. WARE: New England Council.

MR. STOCKWELL: Yes.

CHAIRMAN BORDEN: **The vote is 11 to 1; so it carries.** Any other business on this issue, yes, Mike.

MR. LUISI: I wonder if Megan could just take a second to clarify for the record the issue regarding the control date that was in the original FMP. We had fishermen that qualified; non-lobster trap fisherman that qualified under a control date to take part in this fishery. I just don't know how that control date now applies with the landings limits that we just voted on. Can you just clarify for the record?

MS. WARE: My understanding at this point now is that the control date is really going to be for the claw fishery, which we may be changing on the next agenda item. Right now that is what it applies to.

CHAIRMAN BORDEN: Any follow up on that by anybody? If not we're going to move on to the next item on the agenda.

DISCUSS A NEED TO CREATE COASTWIDE STANDARD FOR CLAW LANDINGS

CHAIRMAN BORDEN: Okay so the next item on the agenda is a need to discuss a coastwide standard for claws. In terms of this particular issue, in terms of the background, when we originally adopted the FMP we provided an exemption for New Jersey through Virginia.

Then subsequent to that the state of Maine and New York came forward and documented additional claw landings. I point out that we also had the New Hampshire Fish and Wildlife staff did an analysis of mortality in this regard. We've also received a letter from NOAA. With that as a little background I think what I would like to do is to take up the letter from NOAA. Alli, are you going to discuss this?

MS. ALLISON MURPHY: As you just said, following the February board meeting the Commission sent a letter to NOAA Fisheries, requesting preliminary guidance on allowing claw harvest in federal waters. Can you hear me better now? Following the February board meeting the Commission sent to NOAA Fisheries a letter requesting preliminary guidance on allowing claw harvest in federal waters.

We responded to that letter in late February, and that letter was included in the meeting materials. Just to summarize what we said in that letter. We have biological enforcement and legal concerns with the claw only fishery. With regard to the biological concerns, I spoke at the last meeting about that preliminary New Hampshire study; saying that we believe it would be difficult to justify a claw only fishery, given the levels of mortality seen in that preliminary study.

Our enforcement folks have also weighed in, indicating that a claw only fishery would complicate the effective enforcement of the minimum size standards. These comments I believe are in line with what the Law Enforcement Committee said during their comments on the original Jonah Crab FMP.

Finally, as you all know, any federal regulations issued for the Jonah crab fishery must be in compliance with the National Standards that are included in the Magnuson Act. It may be challenging for us to issue regulations that

include a claw only exemption based on the provisions that were in the original FMP; due to National Standard 4. With all that being said, we are definitely supportive of the Commission process and hope that an addendum is initiated that considers a wide range of alternatives on this issue.

CHAIRMAN BORDEN: Questions? Any questions for Alli? No hands up, okay thank you very much for the report. Okay so everyone is clear on this. Since we adopted the addendum and it did not restrict or constrain this particular activity; what we need to do here is basically promulgate an addendum, identify some options for the addendum, let it go to public hearing, and then bring it back at a future meeting. With that in mind, Jim Gilmore asked to address this. Jim.

MR. GILMORE: I think you covered most of the issues. The only think I'll add is during the public hearings for Addendum I, we cheated a little bit and we asked some of the guys about the claw fishery. I think it further emphasized how much we don't know about this fishery. For instance, there is some seasonality to it in New York; maybe only during the warmer months that they're actually harvesting claws.

There is also a gear component to it, some gillnet fishermen essentially have been certain times of the year; they are just taking the claws off of the nets. There is more to it than even we kind of understood. I think an addendum is appropriate, and I have a motion when you are ready, Mr. Chairman.

CHAIRMAN BORDEN: Any further discussion on this before we entertain a motion? If not, Jim, go ahead and make your motion, please.

MR. GILMORE: Are we going to do this live, or do you have this one written out for me? Are you ready, Kirby? Oh, there it is. I'll read it. **Move to initate an addendum to create a coastwide standard for claw landings in the Jonah crab fishery with options to one, establish a requirement to allow only whole crabs be landed.**

Two, establish a requirement to land only whole crabs, but allow a specified (volumetric) amount of detached claws per vessel trip which meet a minimum length of 2.5 inches. Proposed volumetric amounts may include the following: a single five gallon container, a bushel, or a standard fish tote. Three, allow the unlimited landing of detached claws, which meet a minimum length of 2.5 inches.

CHAIRMAN BORDEN: You have a motion on the table, is there a second to the motion; Mike second. Discussion. Any discussion? No hands up. Are you ready to vote on this? Jim, are you all set? Are you ready to vote on this? Keep in mind the only thing you're doing is you're authorizing the development of an addendum.

Any need for a caucus? Is there any objection to this motion? Does anyone object? **No objection, motion is adopted by consensus**.

UPDATE ON NEFMC DEEP SEA CORAL HABITAT AMENDMENT AND ASMFC SURVEY TO AREA 3 FISHERMEN

CHAIRMAN BORDEN: Okay so the next issue on the agenda is the ASMFC survey, Area 3 fishermen. Just as a little bit of background, the council is proceeding with a coral amendment.

As part of that effort they did a data analysis to look at impacts on certain user groups; one of which was the offshore lobster fishery. The result of that was that there was really very poor quality information in terms of landing levels in the area that might be affected. As a result of that the council staff in conjunction with the commission staff, Mass Marine Fisheries and others, put together a survey. I'm going to ask Megan to report on the survey.

MS. WARE: Just sort of a bit of brief background, but I'll go through it. On December 18, 2015, we

received a letter from the New England Council requesting data on the distribution of offshore lobster fishing effort; specifically around the canyons. This request was related to the Omnibus Deep Sea Coral Amendment; which looks to protect deep sea corals either through discreet settlements of broad regional areas.

How does this coral amendment relate to the Lobster Board? The amendment may restrict bottom tending gear, and it is currently unknown how the lobster industry is going to be impacted. Lobster is not managed by or is not under the auspice of the Magnuson-Stevens Act, but the councils do have the authority to protect deep sea corals from fishing gear.

The most recent advice from NOAA General Counsel suggests that the council can restrict lobster traps. Just to give an idea of the area we're talking about here. There outlined in black are the different canyons, also seamounts. Then there is a blue line you kind of see going down out to the EEZ. It might not be as clear on the screen here, but there are actually three different lines that go through the canyons.

They represent a 300 meters, 400 meters, or 500 meters; and those are the potential broad zones that are being considered. I am going to refer to the council's area of interest quite frequently in this presentation, when I say that I mean the highlighted areas here, so the areas that are boxed out that are generally seaward of that 300 meter mark.

As David mentioned, we were asked to provide data on the effort that is occurring out there; but unfortunately the data right now is just too coarse. It is reported by statistical area, so we can't say specifically what type of fishing is happening in different canyons or the revenue associated with different canyons.

The purpose of this survey was twofold. It was to obtain detailed information on fishing locations and revenue, and also to provide a picture of potential impacts to the lobster fishery should lobster traps be proposed as restricted gear. A summary of this survey is going to be presented to the council's PDT and/or Habitat Committee, whatever we feel is most appropriate in discussion with the council.

I am going to go through the survey responses; they are just the highlights of the survey. The entire report on the survey responses is included in your supplemental materials; but I thought these were kind of the most important points. We mailed out 97 surveys to active Area 3 fishermen, and 34 of those were returned within the five week period; with a response rate of 35 percent.

Of those 34 that were returned, 19 surveys represented vessels that fish traps in the area of interest. Most of these fishermen that are fishing in the canyons were coming from Mass and Rhode Island. We had one fisherman from New Hampshire. This graphic, shows the locations fished. We have the different statistical areas in purple.

A darker purple color means that more fishermen responded that they fish in that statistical area. Then we have the different canyons in shades of orange. A darker orange color means that more fishermen said they fish at that canyon or in and around that canyon. All six of the statistical areas that span the council's area of interest were fished in 2014 to 2015.

The majority of fishermen were fishing in Statistical Area 525, about 74 percent; and this one has the most number of canyons, so maybe that's not surprising. The second highest one was Statistical Area 526 at 63 percent, which has Veatch Canyon. That was the canyon that was most fished in this survey, 19 of the 21 canyons were fished by respondents; so as I just mentioned the most popular one was Veatch at 42 percent. This was followed by Hydrographer and Atlantis. Chebacco and Filebottom were the two canyons that were not reported as fished.

Another portion of our survey was to try and understand the depth at which fishermen are setting their traps. An open question in the survey is, what is your maximum depth fished. We got a range of answers from 220 to 549 meters, but it averaged out at 406 meters.

We also had questions that asked about fishermen's effort at different depth categories; and you can see those here ranging from less than 100 meters to greater than 400 meters. In general, most fishermen said that their highest percentage of traps allocated by depth was in that 200 to 300 meter range; and also 93 percent of the survey respondents said that they were fishing in that range.

We also asked about effort, so the trips that are being taken and the traps that are being hauled. This chart here is going to look at the average number of trips; the min, the max and the total, so it is not a depth category here. On average, fishermen who responded to the survey reported 30 trips per year to the area of interest.

However, there was a wide range from 15 to 49 trips reported. In total there were 570 trips in 2014 and 554 trips reported in 2015. The average number of traps hauled per trip in 2014 to 2015, and average of those two years was 1,779; but again there is a range from 1,100 to 2,600. Individual traps tended to be set at least twice in a single trip for 86 percent of the respondents.

One of the large sections of the survey was asking about revenue that is associated with both lobster and Jonah crab fishing in these canyons. On average 77 to 79 percent of an individual's lobster and Jonah crab revenue came from the area of interest. It shows that there is really a high dependence on these areas.

The average revenue per trip from lobster and Jonah crab was $32,000.00. We were also able to look at the amount of revenue that's coming from lobster as opposed to Jonah crab. Breaking down the revenue by species, 88 percent of fishermen reported higher revenue from lobster as opposed to Jonah crab.

For these individuals the value of lobster was on average six to eight times higher. The total lobster revenue was between roughly 12 million and 13 million in 2014 and 2015, and then the total Jonah crab revenue from the respondents was between 2.8 and 3.3 million per year. We were also able to break out revenue by depth; so we can see on average 97 percent of an individual's revenue came from traps that were fished between 0 and 400 meters.

The highest average revenue, about 33 percent, came from the 100 to 200 meter depth category. Then finally, we were able to break down revenue by canyon. What you have here in the blue bars is lobster revenue, and the red bars are Jonah crab revenue. The bars represent how often or the percentage of times that that specific canyon was named as a top contributor to either lobster or Jonah crab revenue.

The top three individual canyons that contributed most to fishermen's lobster revenue were Veatch, Lydonia, and Atlantis. Then for Jonah crab it was actually a seven-way tie; so seven canyons were named equally as often as top contributors to a fisherman's Jonah crab revenue. These included Alvin, Atlantis, Veatch, Hydrographer, Powell, Munson and Nygren Canyons. I'll take any questions, but I would like to thank Kelly Whitmore, Elizabeth Morrissey and Robert Glenn from Mass DMF for helping draft the survey, collect the responses and also analyze this. It would not have been possible without them.

CHAIRMAN BORDEN: Questions for Megan? Any questions? No questions that is a good sign. We're wearing them out.

MR. ADLER: First of all, I don't know if this is the place. In the comments that the council can manage lobster traps. Is this a change from

when, several years ago, we were dealing with Closed Area 2; where the mobile gear had agreed to something and the council was able to rectify or put in the rule book? Whether they did or not I don't remember. They were going to put it in, because they could.

But then they turned to us and they said, but we can't put a rule in to tell the lobstermen out there that they have to stick to their side of the bargain, which the lobstermen in Area 3 had agreed to. We at the ASMFC had to put an addendum, I believe it was an addendum, in place that basically put the lobstermen on the queue that yes, you've got this schedule, this schedule and the ground fishermen, the council's handling them or NMFS is handling their side.

But the point here was that they had come and said, well we can't control the lobster side of things, but we want you to; and we did, we passed it. The other question on this coral thing that you just presented showed out in Area 3, way out. But if this is passed by the council and National Marine Fisheries Service that they have these restrictions out there for the coral out there.

What is to prevent an expansion of those closures, if that is what they do, to other areas other than what they're looking at right now? I mean, in other words if they pass this way out there in the middle of I don't know where, but they pass it. Then all of a sudden, well we passed this rule that does some restriction, but let's look at these other areas and then they start bumping areas closer to shore.

I don't know what the answer to that is, except I get worried that we opened the door. I don't know, Mr. Chairman where I'm going with this; other than the fact that I just wanted to alert that one thing was managing lobster traps out there and did something change from the way we did it before. The second is more of a concern that could any development on the coral side develop into an expansion in federal? I guess that's where I am and I'll say amen.

CHAIRMAN BORDEN: Bill, we're going to get into the coral discussion next. You're raising all valid points. I'll just add my own two cents. The way I would characterize this, your recollection of history is correct. The way I would characterize it is, there has been an evolving position by NMFS from, no you can't regulate lobster pots and the lobster fishery to now they basically have issued a legal opinion that says that they can.

But there are certain linkages as part of that and conditions as part of that that they have to adhere to. I have not gotten personally a detailed briefing on that aspect of the issue, but there are others in the room that have; particularly the New England Council leadership. I think this is a case where, this is my understanding, where an argument can be made that lobster pots may have negative impacts in terms of corals; and if they do, then the council within its purview has the right to restrict the fishery. That does not mean the council has the right to regulate the fishery. In other words, they can look at specific closed areas and those types of regulations. That is different than minimum sizes and all the rest of it. We still retain the right to do that. I would point out; we work with NOAA as part of that. They are partners in that effort. They handle federal waters portion of it. I don't know whether any of the council members want to comment, Terry, on behalf of the council.

MR. STOCKWELL: I'm not going to add to Bill's comfort, but I am going to just follow up on your fairly complete summary. The NRCC, which is comprised of the New England, Mid-Atlantic and the Commission sought legal clarification for the management of corals; following the Mid-Atlantic's Coral Amendment and with the New England Coral Amendment coming up.

In the supplemental materials of the lobster board there is a significant amount of information that provided the context for this nexus. In order to move that ahead, our Lobster Board chairman was added to the council's Habitat Committee. The presentation that Megan just gave related to the deep sea canyons and the sea mounts is only part of what the council is contemplating for a future action.

There are some very large areas in the Gulf of Maine that are also being considered. We've got a long way to go between now and when we get close to finalizing on that. I guess the long and the short of it is, it is a partnership between the commission and the council as we move forward to protect corals; while still trying to incorporate the operational realities of the lobster fishery.

CHAIRMAN BORDEN: Any other comments on the survey itself? If not, I'm going to make a suggestion. The survey itself has not been distributed to the industry. My suggestion here is we take, say one month. We allow any of you that want to review the survey in more detail the opportunity to do that; and submit whatever written comments to Megan that you might want to do.

In addition to that I would suggest, and our association can probably help with this, we'll distribute copies, either us or ASMFC. We can take the list of permit holders and mail a copy of the survey out to all the permit holders and let them read it and review it. If they want to make comments in the same timeframe they can.

That way we'll have the benefit of everyone here reading all of the details, and allowing the industry to weigh in on the comments. Then when we formally submit whatever we submit to the council, we'll have the benefit of both perspectives. Does anybody object to doing that? No objections, okay so we'll handle that. Let me just say this; that if there is something that the staff views as being significantly flawed in this review, then I think we should have the right to put it on an agenda and bring it back before you. Any objection to that?

MS. KERNS: David, just for clarification purposes of what we give to the New England Council and when we give it to them. Would you want us to wait to provide any information to the councils Habitat Committee, PDT, or the full council until after you've received the full feedback from industry; at least one month from now if not before then? They have not indicated when their next meeting will be, but I do know that they want to start to incorporate feedback from the commission and these survey results into the documents that they begin to draft.

CHAIRMAN BORDEN: In my own case I wouldn't have any objection to giving them a draft copy of the report now, so they can consider the provisions. I still think we need to go through some kind of comment period here with the industry. That way we get the benefit of both. Now, in terms of – and Terry, please correct this – it is my understanding that the council is not going to have another Habitat Committee meeting for a couple of months; because the staff is dealing with other issues. I think we've got a little bit of time on this.

Okay, so with that as guidance we'll move on to the next issue which is corals; and we're back to Bill Adler. There are two aspects of the coral issue. Actually we had three items on the agenda that are related to this. I am just going to talk about the first one. I'm not going to be too long with this.

Council has this process, it's going on. Doug Grout and Terry got together and I think decided that it was appropriate for the Lobster Board Chair to serve on the committee, so I've been doing that. We've had one meeting. About two years ago or three years ago the council was well into their coral amendment, and for a whole variety of reasons decided to delay action on it, so they did that.

There is basically a draft document that has been prepared. Now what they've done, and Terry, please correct this if I misspeak. They've decided to prioritize this. One of the priorities that the council identified when they annually set their priorities; and they've started work on it, so there has been one meeting of the committee since I've been on it.

It is one of these cases where they've got to start the whole process over. They're going to look at goals and objectives and basic management frameworks to move forward. Although there is a draft document that document has not been reviewed by the council and there is no formal position on the part of the council; other than a few provisions that had been recommended by the committee.

This is essentially my point in this; this is essentially the start of the process. What I would envision doing in my capacity as Chair, I'll try to represent the interest of the board as well as I can. But I think it is going to be critical to pass some of the documents off to the board and eventually get one of the New England Council staff down here to brief the board in detail.

At the end of the period, we'll have a public hearing document is what we'll have. I think it is incumbent upon the commission to take a position on that and formulate whatever recommendations we want in that. I would also note that the Mid-Atlantic Council went through a similar process that I was not privy to, but about half the people around the table were part of that.

It has been a widely regarded output. There have been lots of complements. What I would envision that the New England Council is going to follow some of the format that the Mid-Atlantic Council, particularly when it comes time to doing workshops. I think when we get to the point where we hold workshops on this particular issue, I think we need to have representatives that represent our fisheries at those meetings.

I don't have much more to say. There are a number of people, Terry is a member of the committee, and Doug Grout is a member of the committee, Mark Gibson and Eric Reid. There are five of us, basically who are commissioners who are on the New England Council's committee. I can pretty much assure you that I may be the bashful sort, but none of these other individuals are. I'm sure that our interests will be well represented. Any questions on that? No questions.

OFFSHORE MONUMENTS PROPOSAL DISCUSSION AND BOARD RESPONSE

CHAIRMAN BORDEN: Okay so the other part of this is the monument issue.

I'm just going to provide a very brief introduction. Then I would like Doug to actually talk. This is kind of a parallel effort, and it deals with a lot of the same issues. And actually, maybe it would be better if I just let Doug do the intro on this. Doug, do you want to comment?

MR. GROUT: Sure, Dave. In your supplemental material there are a couple of memos, one from me regarding this issue and one from Chairman Borden. Last fall the Obama Administration announced that it was considering protecting waters off of the coast of New England through the Antiquities Act.

For those of you who are not familiar with this, this is essentially the act that helped establish a lot of national parks. The proposal specifically identified the New England Coral Canyons and Seamounts as a region, as well as originally there was a proposal to protect Cashes Ledge; but there were no details behind it, what kind of restrictions might occur nor were there any details about the boundaries of it.

Then on March 25, the White House Council on Environmental Quality announced that they were removing Cashes Ledge from

consideration; at least under this administration, for designation as a national monument. However, those areas southeast of Cape Cod were still going to be considered.

As I said, the Antiquities Act has been used to create national monuments on federal lands, and of course 3 to 200 miles is considered federal waters. It is supposed to be the areas that contain historical landmarks, prehistoric structures, and here is the part that applies to us or at least to the ocean here is; other objects of historic or scientific interest.

I think the main purpose behind considering these is to protect the deep sea corals. It is also supposed to be when they establish it; it is supposed to be the smallest area compatible with the proper care and management of the objects to be protected. Some of the critics of the Antiquities Act highlight that there are no requirements for an environmental review or public participation.

They also mention that they are vague on the size of the requirements or the criteria for establishing the monuments. Those who support it, using the Antiquities Act, state that it is important to expeditiously preserve resources for future generations. Because as we've seen from the survey that we just reviewed of the offshore lobster fishery.

We know there is significant lobster fishing effort going on in the offshore canyons. You saw that it's worth about $15 million a year for the combined lobster and Jonah crab landings. I am proposing that at least this board consider whether they want to take a position on this potential national monument proposal.

Now in the other document, I am going to turn it over to our chairman to explain some of the issues here. But if you do decide to take a stand here, we will then bring it to the full commission for consideration on Thursday at the Policy Board. It says in here the Executive Committee; that was only put in because we weren't sure when we were going to meet with the council on environmental quality. It may have occurred before our policy board meeting. We now know it is going to be after; so we will be coming to the full commission if you decide to take a position on this. For more details on this I am going to turn it back over to our chairman of the Lobster Board.

CHAIRMAN BORDEN: A couple of points. As Doug indicated, the Antiquities Act itself does not require public hearings and impact analyses; similar for instance to a Magnuson Act process, which has to go through great details on that. The last agenda item we just went through a report, which kind of details at least for a third of the industry, if not more, the importance of this area in terms of lobster fishing activity.

I would point out that in my memo to the board; every state represented around the table has some fishermen or interest in this issue. The two states with the predominant interest are obviously Massachusetts and Rhode Island, but states in northern New England, New Hampshire has a very pronounced interest in this issue.

The issue of where you would draw a line. I think everybody should think about this in the context that there is no guarantee that a monument is going to be created at all. As Doug identified, there is no proposal. You can't go someplace and pick up a proposal and say, this is what is being proposed.

In a normal regulatory format that all of us have kind of grown up with over the last few decades, we would have a proposal, we would take public comments; we would allow this body to debate the pros and cons of it; and then offer written comments on it. Notwithstanding the fact that that isn't a requirement of the Antiquities Act; we do have an opportunity on May 9, the Office of CEQ has been meeting with individuals who have an interest in this.

They've met with, I think the council representatives, and they've met with some of the states and some of the fishing interest in New England. We have a meeting with them, where we can go talk about the importance of the canyons to the offshore lobster fishery. Clearly we have that linkage with our charge.

But I would also point out that this is not a narrow issue. This issue has the potential to affect the squid fishing that takes place in proximity to the canyons. There is a whiting fishery. There are monk fish fisheries. If you look through, as I put in my memo to the board, there are a number of different fisheries that this commission does not regulate; but will be affected, depending upon where a line is drawn.

I really think we have a vested interest to try to flesh out a position on this. In the context of not testifying in favor or opposed to a monument, but more in the context of providing guidance to CEQ in the context of, if you are going to go forward with this, we recommend you look at certain ways of minimizing the impacts on some of the constituents that we all represent.

What I would like to do is take any comments that people want to offer. The basic question I think to the board is, do you want to try to finalize some kind of preliminary position on this? I use the word preliminary, because if for instance there is no action on this and a proposal comes out; then I think it is incumbent upon both the board and the commission to actually take a formal position based on whatever the written position is at that time. But in the meantime, I think we need to provide some guidance to office of CEQ on how this would be done to mitigate impacts. The last thing, I just saw Tom Fote's hand go up. Recreational fishermen could be affected by this. This is not just a commercial issue. Tom, on the issue of whether or not you think we should comment; and then Bill Adler.

MR. FOTE: When President Clinton proposed Hawaii to put the first monument there and closed millions of acres of commercial fishing, and recreational. The recreational community in Hawaii said, well it is not affecting us. I was one of the people yelling and screaming that no, you better watch out; this is going to affect you, and you shouldn't be supporting this.

You shouldn't support closing an area like that in the monuments. That is what happens to most of the monument areas, without the science to justify the closure. As you pointed out, there was no science. Came George W. Bush, and he expanded that and then it did affect them and they were already stuck in the battle of basically what to do on those areas.

The California coast, since I am involved in a lot of national issues because of my relationship with other organizations, I've been involved with this up and down both coasts and in Hawaii. It upsets me that we close areas and we put these monuments in without any justification of the science or any consequences; just arbitrarily somebody by executive order puts a position in and we're stuck with it.

I am looking at we should study this and if we decide that we should oppose it, we should oppose it; because I think we get ourselves sucked into saying, well we should just agree with it, they provide this. Then all of a sudden five years later another president can come in and change it altogether. Depending who they listen to, which they listen to other groups that are not involved in the fisheries, it affects both commercial and recreational fishermen.

We basically testified and sent our letters in regarding that; and the same way we're doing against the proposed sanctuary for Sandy Hook Bay in the areas. They just came and decided that. Because a guy from Heritage Foundation decided this was a good move. He has no idea of commercial or recreational fishing, but said it's a great idea.

I said do you know what the consequences are; he said well I don't care. I just thought it was a good idea; and so they're moving forward. We have to be careful. We're here to represent sustainable fisheries; that is what is in the charter, and everything that won't promote that that just arbitrarily shut down areas we should be opposing.

MR. ADLER: I do think we ought to put some type of a letter in or some kind of a response saying that you know you've got to look out for this you've got to look out for that. Then perhaps as Tom had brought up, if there is a proposal we put our position in or our thoughts in. Apparently they may not have listened to us, so then we oppose it.

My question is, if they do a monument, national monument, who puts the rules in on that or is it just yes, this is a monument; no rules, no changes? Does somebody get assigned; I don't know whether it's the National Marine Fisheries Service, to put in restrictions for the thing that was just declared a monument? I don't know. I also wanted to see, what other areas were submitted or are in there that; please have a national monument here. I'm thinking particularly of Stellwagen Bank Sanctuary, where we went around and around with putting restrictions in to that area for a research area to make it beautiful, so all the ships that sank there are all wonderful. I just was curious as to whether Stellwagen had put in something on this monument thing that; hey, consider us. That is one thing. The second thing is, yes we should comment and the third thing is who puts rules in once a national monument is declared?

CHAIRMAN BORDEN: Let me take those. In terms of rules my understanding, if anybody has a different view please offer it, my understanding is that as part of any declaration the Office of the President basically can specify what those rules are. It simply the Antiquities Act is an act, at least in my own view that has been used historically. It was originally adopted in 1906. It has been used to great effect, I think by both Republican administrations and Democratic administrations to create some of the greatest parks in the country.

But that said, in this particular case, we're now whatever it is 110 years past the implementation date of the original act; and times have changed. I mean there is a whole series of presidential executive orders from both democrats and republicans talking about the need to have due process, for instance.

None of that really is required here. The answer to one of your questions, Bill is the president can specify what the rules are, and they can be very restrictive. As Tom Fote pointed out, in some areas of the Hawaiian chain, I believe there are requirements to get a permit to sail through the area, with no commercial fishing and no recreational fishing.

I mean in my own case I view this as a serious issue. I think we should provide all the guidance we can provide to CEQ before they make their determination. It is extraordinarily, if you read through that document we put in the briefing material, there have been cases where the actions of a president have been overturned or modified by Congress, but they have been slim and few between.

I think now is our time to have some input to it. If in fact we get a written position, then I think we should just circulate it. Maybe Doug would put together a small committee to formalize a written recommendation for review by the rest of the commission, or whatever; handle it in a more formal manner than just doing it du jour at this point.

MR. ADLER: Is there a list of one's they're looking at? I know you just said that they turned down Cashes Ledge. Okay, but is there some list out there as to what they are considering?

CHAIRMAN BORDEN: They've got an area primarily focused around oceanographers and all the sea mounds that are under consideration. Originally Cashes Ledge was in the mix. Then you probably saw the press in New England that there had been meetings between CEQ staff and various fishing organizations, and that was off the table.

But I'm also privy to the fact that this decision isn't over until it's over. In other words the President has the right to make a determination at any point, sign a document and it's done. The fact that there was an initial recommendation to take Cashes off the list does not mean that it's off the list until it's over.

MR. ADLER: But is there a list?

CHAIRMAN BORDEN: No. It is pretty generic. There is no proposal. This is one of the biggest problems with this that in my own case I've been trying to deal with this at the association level. There is not a written proposal on this, so it is very difficult for all of us; regardless of our perspective, whether you like this or don't like this, to comment. You can't offer comments on how to mitigate this unless you know what the details are of the proposal. Sarah, do you want to speak?

REPRESENTATIVE PEAKE: I think that you paint an accurate portrayal of what the process or lack of a process is. There may be some restriction on the number of days prior to the end of an administration, after which the President cannot declare either an underwater valley or seamount or something inside of the continental United States a national monument. But it can pretty happen by the stroke of a pen. I agree, I think it behooves us to be as engaged as we can in the process. Doug, I would be happy to work with you on coming up with a proposal.

This is a very different process, this declaring of a national monument; very different and shortened and almost circumventing a public input process, very different from establishing well like the Stellwagen Bank National Marine Sanctuary, the Gerry Studds Sanctuary. Their fishing interests were highly negotiated by it. I believe it was created by an act of Congress as opposed to just an executive order of the President. I will say I know from my own legislative body that there is a push afoot, and of course the state legislature really has no say in this whatsoever.

We have no jurisdiction over it. However, state legislators along the coast do have a bully pulpit with which to weigh in. There is a concerted effort to get especially legislators that represent coastal communities to weigh in, in favor of the creation of this protection around, first it was the sea mounds and the canyons; now it is primarily just the canyons.

As an organization I think that we can certainly, at a minimum go back to our home states and for the legislative representatives, whether proxies who are here to reach out to our colleagues inside the state legislatures to say; hey, before you just sign on to some sort of group letter encouraging this, come talk to us. Let's see what the proposal is from the ASMFC. Then I think for this group to take a position is also critically important.

CHAIRMAN BORDEN: Just a follow up on that. I note that Beth Casoni and others in the audience have already submitted very detailed letters to the president on this. In Beth's case she was speaking on behalf of 10,000 lobstermen. I've got Pat Keliher. Anybody else; and then I am going to make a suggestion.

MR. KELIHER: I think the points have captured a lot of the process. The state of Maine has been very vocal on this particular issue. Governor LePage submitted a letter to the President, unanswered but submitted a letter. We participated at the listening session, if you will, in Providence, Rhode Island.

As a side note, Brown University pushed very hard, and I wanted to un-enroll my son from that school immediately based on some of the comments I heard from Brown University, but he wouldn't leave. The one thing that has not been talked about is the fact that the President also has created a National Ocean Council. He has completely gone around one of his own executive orders in doing so. He has been silent on that particular issue. We addressed that with CEQ at a meeting this winter. To your point, your very accurate point, it is not over until it's over. When CEQ told myself and some of my staff that Cashes was off the table, they used their words very carefully. It said, Cashes is off the table – for now, and they were focusing on the canyons and seamounts. I think it would behoove this body as a board and as a commission to take action and lay out a very carefully worded letter expressing our concerns; especially from a process relationship. This is for me very problematic that we could move down this road; create these large closures with zero input from the public and from the industry.

CHAIRMAN BORDEN: All right, let me just suggest this. Is there anyone around the table who disagrees with the comment that we should try to comment on this? There is no disagreement with that. Let me try to expedite this. Eric Reid and others have been working on a proposal, and Eric would like to expose the board to it and see whether or not you are receptive to it. I just introduce it by saying, it is a process suggestion.

What I mean by that. His suggestion is basically to create a line, and if, and this is a big if, if there is going to be a monument then deal with a monument from this line seaward and then allow the New England Council to proceed with their coral management process; which is a very public process with impact analysis and so forth, to flesh out the details inside. Eric, do you want to offer comments and then put your proposal on the table?

MR. REID: Are you putting up a chart on the board as well, or no? I'll do my rationale first and then I have the motion, you can start reading the motion, if you don't want to listen to me that's fine. Time is not something we have the luxury of, time is of the essence. The Antiquities Act could be used tonight, perhaps, if our President decided to do so. Two acts of Congress that are possibly in play on this issue, and we should prefer that the Magnuson-Stevens Act, the council process be used.

The reasoning for that in my opinion is that it is better informed on the issue, it is more experienced with corals and industry protection alike; and there was some mention of the award winning effort by the Mid-Atlantic in their coral action, which there are some people in this room were involved in that for sure.

Magnuson is much more open and public in its methodology, and it allows for input from all the stakeholders, and it requires NEPA review and guidelines; which the Antiquities Act does not do. There is a very real possibility that the Antiquities Act will be used, and it will trump all the aforementioned processes and the expertise.

With all that in mind, if the President, this President or future Presidents should chose to use the Antiquities Act, then we should be proactive and we should propose and present our stance on the issue of marine monuments in the Atlantic; and particularly the New England region to that office and its advisor, which is CEQ.

This is the chart that we drew, and if you don't like it I drew it, if you do like it, it took a village. Let's leave it at that. But basically, this was developed, first of all this is a publically seen option and it has been shown to CEQ and the President for use and their guidance. We don't know if there are any other ideas behind closed doors.

But that is all the more reason that this body should use the commission form and the path of the MSA into developing protection for industry and corals alike. The boundary before you is the only effort and option to date, given to the Executive Branch, which has been developed with considerable, and I mean considerable, input from fishermen; including offshore trawlers, lobster and crab fishermen, the red crab industry, bottom longliners, gillnetters, as well as scientific advice from a lot of sources and members of Congress. I would be happy to answer any questions, and if you want me to read the motion into the record I'll do that too.

CHAIRMAN BORDEN: If I understand the essence of the proposal, as I said before it is, have a line. If you're going to consider a monument you do it seaward of this line; and then anything shoal of that would be deferred to the New England Council process.

MR. REID: That would be my opinion. This does not mean that anything is going to go away today. What it means is we would prefer of course that MSA be allowed to run its course and not invoke the Antiquities Act. However, what we're proposing is that if in fact the Antiquities Act be used, it be used outside of the line that is on that chart; and allow the Magnuson-Stevens Act to take care of the much more technical and detailed activity following what the Mid-Atlantic did, the award winning effort in the Mid-Atlantic, to cover the rest. It's a combination and that line is to designate where one should be used and where another one should be used.

CHAIRMAN BORDEN: All right Eric, do you want to make a motion?

MR. REID: I'm ready. **Move that the Board endorse the following concepts and request that the ISFMP Policy Board consider the same. I don't know if we have to change that language from what Doug said or not. The preference of the commission would be for the current New England Council coral management process to continue without Presidential use of the Antiquities Act to protect deep sea corals.**

Should the President, advised by CEQ, insist upon designating a New England waters deepwater monument prior to the end of his Presidency, the Commission requests that any areas so designated be limited to the smallest area compatible with the proper care and management of the objects to be protected; as required by the Antiquities Act.

The area be limited to depths greater than approximately 900 meters and encompass any or all of the region seaward of this line out to the EEZ. That only bottom tending fishing effort be prohibited in the area, and that all other mid water and surface fishing methods, both recreational and commercial be allowed to continue to use the area; and that the public and affected user groups be allowed to review and comment on any specific proposal prior to its implementation. If I get a second I could talk about it forever.

CHAIRMAN BORDEN: All right, do we have a second on the motion? We've got a couple of hands up; Emerson. Eric, do you want to comment further on the motion?

MR. REID: I could talk about it all day. It is critical that we take a stand and we don't waste any time. It is a scary thing, the Antiquities Act. It has been amended by Congress a few times, but basically it is uncontestable. There was an earlier discussion about the income of 18 or 20 lobstermen that's it.

I mean a lobster business out in these areas, at least what we think these areas are, we're not really sure, is $38 million ex-vessel price, which is well over $100 million valuated industry. That is one fishery. There is a huge whiting fishery out there, there is butterfish there is squid. There is the red crab industry, who fishes deeper than anybody. That is $15 million ex-vessel and 150 people working in New Bedford; and that fishery

is MSC certified. I know it's late, but I can't stress the importance of taking a position on this anymore.

CHAIRMAN BORDEN: Eric, I just want to make sure that I understand the process here. If this motion were to be adopted, it is a recommendation to the policy board; if the policy board adopts it then the commission would send a letter to CEQ articulating this position. When the leadership of the commission goes and meets with CEQ on this, we'll verbalize whatever the position is. Is that correct?

MR. REID: As far as I understand, Mr. Chairman that is correct. To answer your question, CEQ is the Council on Environmental Quality, which is basically the advisor to the President in these kinds of actions. They have been to New England for at least five, more or less invitation only meetings to discuss this issue.

They have met in the White House with several other user groups. It is a listen only, and a few questions. This effort is to say, hey; we don't want you to use the Antiquities Act, but if you do, we feel that the combination of Antiquities Act seaward of this line, outside of the line and the Magnuson Act inshore of the line, is the best combination for the public.

CHAIRMAN BORDEN: Eric, the other question is, do you have any sense for how much of the corals will be protected by this line?

MR. REID: Of known corals, depending on which status that you look at, it is 60 to 80 percent of known corals outside of that line. When you consider what Magnuson Act will do. I can't really guess at it, but it will be 80 to 90 percent; depending on how Magnuson plays out.

CHAIRMAN BORDEN: Questions on the motion. I've got Toni and then Dennis.

MS. KERNS: I was just going to suggest that the language at the beginning of the motion reflect what the intent is to do and it is that the Lobster Board is requesting that the ISFMP Policy Board sent a letter to CEQ, so that is what you would be asking for; so it is just clear on the record of what we're asking the Policy Board to do. It is to CEQ that you want the letter to be sent to, correct? Who would the letter go to?

MR. REID: You would send it to the President.

MS. KERNS: Okay to draft a letter to the President then.

CHAIRMAN BORDEN: All right, Eric is that agreeable to you and the seconder? If it is then might I suggest you work with Kirby and add that language into it while I take a few comments? Any comments on this? Mark Gibson.

MR. GIBSON: A couple of comments. First I would suggest dropping the words prior to the end of his Presidency. I think that; well it implies that there is some legacy building issues to go on here, and I don't think that really belongs in a letter to the highest Chief Executive. That may be true, but I don't think we should be saying something like that. The second thing, the weaknesses that occurred to me, I don't object to the plan but the designation under a marine monument is protected over all extractive activities. What we're suggesting is that we can take care of the fishing part of it; ASMFC and the Council. That leaves us open to where proponents can marshal the argument that we're worried about more than fishing.

We're worried about mineral extraction, gas and oil, sand mining, whatever else might go on there. That is all out of our reach with the exception of consultations for essential fish habitat actions that might impact that. I just wanted to put that point out there and also suggest that we could be a little more respectful in that set of words there.

REPRESENTATIVE PEAKE: In that vein, I think it would be powerful for the motion to lead with the notion that the public and affected user groups should be allowed to review, you know we ask that they be allowed to review and comment on any specific proposal prior to its implementation.

I think a key element of what's missing here is the lack of public process; and therefore the lack of the ability for what will become a final order to be amended and negotiated, compromised over, and ultimately for the best solution to come out of the process. What we are looking for, even though there is no public process, we're going to send a letter and try to create a public process here. But I think asking not only that we, but the other affected user groups be allowed to review and comment is absolutely essential to what is going on here.

MR. ABBOTT: Just a question about this. I'm assuming that the Antiquities Act doesn't expire with Obama's administration in January. Is that not true?

CHAIRMAN BORDEN: Doug, you are shaking your head.

MR. GROUT: The Antiquities Act has been in place since 1906.

MR. ABBOTT: Again, my point would be then in the paragraph that says, should the President. It almost speaks about the existing President; should it not read should a President?

CHAIRMAN BORDEN: That's another perfection so we can avoid making motions and substitute motions. Eric.

MR. REID: Yes that is fine with me, and Sarah's request to put the last bullet at the top is fine with me as well. The way I wrote it originally was the President, current or future. But that is fine.

CHAIRMAN BORDEN: Does the seconder agree to that; yes.

MR. HASBROUCK: Yes that's fine with me.

CHAIRMAN BORDEN: If the staff could revise that motion accordingly. Other points on the motion, any other points? Yes, Pete Burns. Excuse me, Pete it is getting late.

MR. BURNS: You're doing a good job, Mr. Chairman, thank you. I just wanted to say for the record that NOAA Fisheries certainly appreciates and respects that the board wants to comment on this issue; but we're going to abstain from this, because the proposal comes from the Office of the President.

MR. STOCKWELL: I want to follow Pete in saying the New England Council is a quasi-federal agency and I will be abstaining from voting on this motion as well.

CHAIRMAN BORDEN: Anyone else on this? I'm going to take a few comments from the audience. Greg or anyone else in the audience wants to comment on this motion?

MS. CASONI: Thank you, Mr. Chairman; Beth Casoni. We support this effort by the Commission and we thank you in advance. We've been meeting with Congressional members and bringing this to their attention continually. It is of the upmost importance that this does not happen. I commend you for your efforts going forward, and if there is anything we can do as an organization, we're here to help.

MR. DiDOMENICO: Greg DiDomenico; Garden State Seafood Association. We support this approach completely and appreciate this body weighing in. I can tell you that having gone through this in the Mid-Atlantic, the important part, and I think Eric has characterized it well; that is if you don't do something there will be unintended consequences to this action, if it does in fact go as an antiquities designation that

will be irreversible. This is something that several fisheries will just no survive. Thank you very much.

MR. ARNOLD LEO: Yes, Arnold Leo; I represent the fishing industry of the town of East Hampton. I just want to put us on record as supporting this motion before you. I do think one word about the wording of the motion. In the paragraph that says should a President insist upon designating, I think insist is a little over the border. I think if it just says should a President designate a New England deepwater monument would suffice. Thanks.

CHAIRMAN BORDEN: Anyone else in the audience before I go back to the board? Dick Allen. Is there anyone else while Dick is going up there? Okay, no hands up.

MR. DICK ALLEN: I just want to speak on behalf of Little Bay Lobster Company and the Atlantic Red Crab Company that I think this is an excellent approach. I think it really satisfies everybody's interest that is not like you're just opposing it. It gives those who want to protect a huge area what they want, while it is still protecting the ability to do the process right as you go along. We would support this, thanks.

CHAIRMAN BORDEN: Back to the board. Any other perfections of the language? Are you ready for the question?

MR. WHITE: I guess I agree with Arnold on the "insist" is I think a little harsh. How about if we say, should a President decide to designate; as opposed to insist.

CHAIRMAN BORDEN: Okay so Eric and the seconder, you've got another perfection here.

MR. REID: I'm fine.

CHAIRMAN BORDEN: Emerson.

MR. HASBROUCK: Yes, I'm fine with that.

CHAIRMAN BORDEN: Any objections to the perfection; no objections. Ready for the vote? Do you need a caucus? No hands up. All those in favor signify by raising your right hand.

MS. KERNS: I hate to do this to you, Eric; but you've changed it a little bit here and there so I think we should read it into the record. I know that you've changed the language.

CHAIRMAN BORDEN: All right, so Eric would you read it one more time?

MS. KERNS: That is what Joe would tell us. That is what Joe would tell us.

MR. REID: Yes, Joe. Is this language okay, before I read it? I'm not reading it again; we're good. **Move that the American Lobster Board recommend the ISFMP Policy Board send a letter to the President of the United States of America regarding the following: The preference of the Commission would be for the current New England Council coral management process to continue without Presidential use of the Antiquities Act to protect deep sea corals.**

Should a President, advised by CEQ, decide to designate a New England waters deepwater Monument prior to the end of his Presidency, the Commission requests that any areas so designated, be limited to the smallest area compatible with the proper care and management of the objects to be protected; as required by the Antiquities Act.

The area be limited to depths greater than approximately 900 meters and encompass any or all of the region seaward of this line out to the EEZ. That only bottom tending fishing effort be prohibited in the area and that all other mid water/surface fishing methods, recreational and commercial, be allowed to continue to use the area. That the public and affected user groups be allowed to review and comment on

any specific proposal prior to its implementation.

CHAIRMAN BORDEN: All right, are you ready for a vote on this**? If so, all those in favor raise your right hand; 9 in favor, opposed, any opposed, abstentions, 3 abstentions, any null votes? The motion passes.** Any other business on this agenda item?

MR. McKIERNAN: Other business?

OTHER BUSINESS

CHAIRMAN BORDEN: I'm going to go into other business, but I'm just saying any other business on this agenda item, no? Okay so I think we're to Other Business. Terry had asked for time under Other Business; is that correct?

MR. STOCKWELL: I'm going to defer to John Bullard or Pete or Chip for an update on the SBRM coverage for lobsters in New England.

SBRM COVERAGE FOR LOBSTERS IN NEW ENGLAND

MR. BURNS: Just a brief update. As most of you probably already know, the standardized bycatch reduction methodology is an omnibus amendment that applies to all of the New England Council's fishery management plans; and the intent of the amendment is to allocate observer coverage in order to get a better idea of bycatch. The sampling design includes all vessels that have a vessel trip report requirement. When this was rolled out last year to the lobster industry, it only captured only those federal lobster vessels that had a vessel trip report requirement. About 40 percent of the federal lobster fishery does not have one of those requirements, so there was a significant amount of sea days that were applied to the lobster fishery, but only to that sector of the industry that had the vessel and trip report requirements. There were some concerns by the industry about this that it didn't necessarily give a representative sample of what was happening in the lobster fishery with respect to bycatch.

We convened a workshop back in October, and we had staff from the Commission, from NOAA Fisheries, from the Northeast Fisheries Science Center and also from the states come together and talk a little bit about the program; and we came up with a methodology to be able to expand this sampling pool to all federal lobster vessels.

It seemed to be a decent way to go, but it turns out that in order to change the sampling design in the SBRM, there has to be a change to the amendment, and so there is a process that needs to take place in order to do that. Right now NOAA Fisheries is working with the councils, and I believe this issue is going to be raised at the Northeast Regional Coordinating Council very soon; and they will be discussing that.

Just the outcome for this year is that it is going to result in about 18 sea days now for the lobster fishery in New England, so it is a smaller amount of sea days that are going to be applied to just this subset of vessels that have a vessel trip report requirement and a federal lobster permit. Last year it was a significantly higher number of days.

But that was because it was keyed in with the groundfish requirements; and this year I think it hinges off of other fisheries, so the number of sea days in the interim is not expected to be that burdensome on the industry. Hopefully moving forward if something happens and it can be changed at the council, then the new expanded approach for the lobster fleet can be implemented possibly next year.

CHAIRMAN BORDEN: Terry, follow up?

MR. STOCKWELL: Yes, one bit of follow up is the NRCC meets next week in Portland, Maine.

CHAIRMAN BORDEN: All right any other questions on this issue? Any of the board members have – Toni.

MS. KERNS: Peter, then no sea days were allocated south of New England?

MR. BURNS: I'm not sure of that. But I do know that it was 18 days in the New England region.

MS. KERNS: Do you think they could let us know at the NRCC if there is any sea days allocated to south of New England for the offshore area?

MR. BURNS: We can certainly get that information for you, Toni.

CHAIRMAN BORDEN: Any other questions? Any other business to come before the Board, Dan.

MR. McKIERNAN: David, this has to do with an issue that already passed earlier today and has to be with the incidental bycatch that Steve Train raised; and he said we need a definition on incidental bycatch. My question to you is how can we get this defined in this Jonah Crab Plan going forward?

To me, incidental bycatch should be catch that doesn't exceed all the other catch that is on the boat, taken by the gear that the crabs were taken. I think we're fairly comfortable that a dragger taking Jonah crabs isn't dragging likely for Jonah crabs; it is a secondary species. But because we went with such a high limit, we need to define incidental bycatch; otherwise it is a thousand crab directed fishery. When can we get that accomplished? Can I get that onto this addendum that is going forward on claws?

CHAIRMAN BORDEN: I defer to the board, but have you got a specific proposal you want to put on the table?

MR. McKIERNAN: Yes, I would suggest that incidental bycatch is an amount of crabs that does not exceed the weight of all other species aboard, caught during the trip by the same gear that caught the Jonah crabs. You wouldn't want to get on a boat and find 1,500 pounds of herring and 1,000 Jonah crabs and call it bycatch. That is different gear. I see Officer Cornish is nodding his head.

CHAIRMAN BORDEN: Okay, so let me just ask the board, what is your preference on how to handle this? Dan is making a specific proposal. We can deal with it now; we can delay the addendum and deal with it at the next meeting. Let's see, this doesn't have to go before the Policy Board, so this is the only opportunity; correct, Doug? In other words, if we don't take action on it, either now or at some point in the future, it is not like there is the policy board. You could raise this at the Policy Board?

MR. GROUT: I'm not sure. I honestly, in one sense it sounded like you were trying to, this is an issue for the addendum that we just passed. That would require a new addendum. Now, were you talking about trying to attach it as another item onto the claw, any kind of claw addendum that we develop?

MR. McKIERNAN: I'm looking for options, because I think this is a serious hole in the plan that we've just approved. It didn't come to my attention, because I never dreamed it would be a 1,000 limit. When it was low as 200 there was no issue, but when you get to 1,000 for trap gear, then all of a sudden it has to be defined.

Steve Train pointed it out, Mike Luisi started asking questions about, well what is the eligibility for someone to take part in the Jonah trap fishery, and so clearly there is a loop hole here. I'm asking when we can do it. Maybe we do it at the next meeting. I just want to bring that up now.

CHAIRMAN BORDEN: Maybe we can get help from staff, but the way I would see it is you've got to start a new addendum, because we just approved that addendum. That is going to

require development of measures. I think you should bring it up, have it as an agenda item on the next meeting.

MS. WARE: In talking with Toni, I think we have two options. We could include it in the claw addendum that was just initiated if the board can come to a quick consensus on what they want. Something that has also been talked about is the possibility of a third addendum being initiated in August, to deal with another loop hole; and it could be included at that time and discussed in August. I think it is really up to the board.

CHAIRMAN BORDEN: What is the preference of the board on this? Does anyone have a preference? Mike, and then Terry.

MR. LUISI: I appreciate the need to define this incidental bycatch. I just don't think it fits in the claw amendment or the Claw Addendum. Maybe if we're going to have a loophole addendum, and that is what we're calling it; we can close a few loop holes. Personally I would prefer to do it that way and discuss it in August.

MR. STOCKWELL: Mike covered my thoughts. I do agree with Dan, I would second his motion when it comes up.

ADJOURNMENT

CHAIRMAN BORDEN: Any objection to doing that; any other business to come before the board? I know you have all had a wonderful time today. Okay without objection the meeting is adjourned.

(Whereupon the meeting was adjourned at 3:54 o'clock p.m. on May 2, 2016)

Atlantic States Marine Fisheries Commission

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MEMORANDUM

TO: American Lobster Management Board

FROM: American Lobster Technical Committee

DATE: July 15, 2016

SUBJECT: Evaluation of Management Tools to Increase Egg Production in SNE

At the May 2016 meeting, the Board requested the American Lobster Technical Committee (TC) conduct analysis on management strategies that may achieve a 20%-60% increase in egg production in the Southern New England (SNE) lobster stock. The TC investigated how trap reductions and changes to the gauge size may impact egg production. **Analysis on gauge size changes suggests that, both inshore and offshore, minimum gauge size changes result in larger increases in egg production than maximum gauge size changes over the same increment across all scenarios.** Analysis on trap reductions was problematic and there were multiple concerns regarding the underlying assumptions relating traps to exploitation rates. **While the results suggest that the current 25% reduction in traps may result in egg production increases up to 13.1%, other research suggests that the increase may be much less than this and concerns regarding this analysis prevent the TC from supporting the use of trap reductions as a means to increase egg production.** In particular, the analysis is predicated on the assumption that fishermen maintain a constant soak time when their trap allocation is reduced, an assumption that can be difficult to test and is not supported by empirical data. As a result, the TC cautions the Board in pursuing further trap reductions as a means to reduce exploitation or increase egg production.

Most importantly, the TC highlights that increases in egg production will benefit the stock only if environmental conditions are favorable for larval development and settlement. As mentioned in the April 2016 TC memo to the Lobster Board, recruitment appears to be decoupled from SSB (Figure 1). This could potentially be the result of reduced mating success, environmentally-mediated changes in survivorship, and/or increased predation (Figure 1). Prospective increases in egg production will only benefit the stock if recruitment rates remain constant or improve. As a result, this management strategy may not result in stock improvements if current environmental conditions persist. **The TC warns the Board that increasing egg production by 20% to 60% is unlikely to be sufficient to prevent further declines in the SNE lobster stock.** Projection analyses provided by the TC indicate that an 85% reduction in exploitation would be necessary to stabilize the stock

This report is split into three sections. The first section defines the various metrics the Board has used to describe population components in SNE. This is included to address questions raised by Board members at the May meeting regarding the difference between egg production

and spawning stock biomass. The second section describes expected increases in egg production from changes to the gauge size. The third section reviews analysis on trap reductions, concerns with the relationship between traps fished and exploitation, and potential increases in egg production which may result if soak time remains constant.

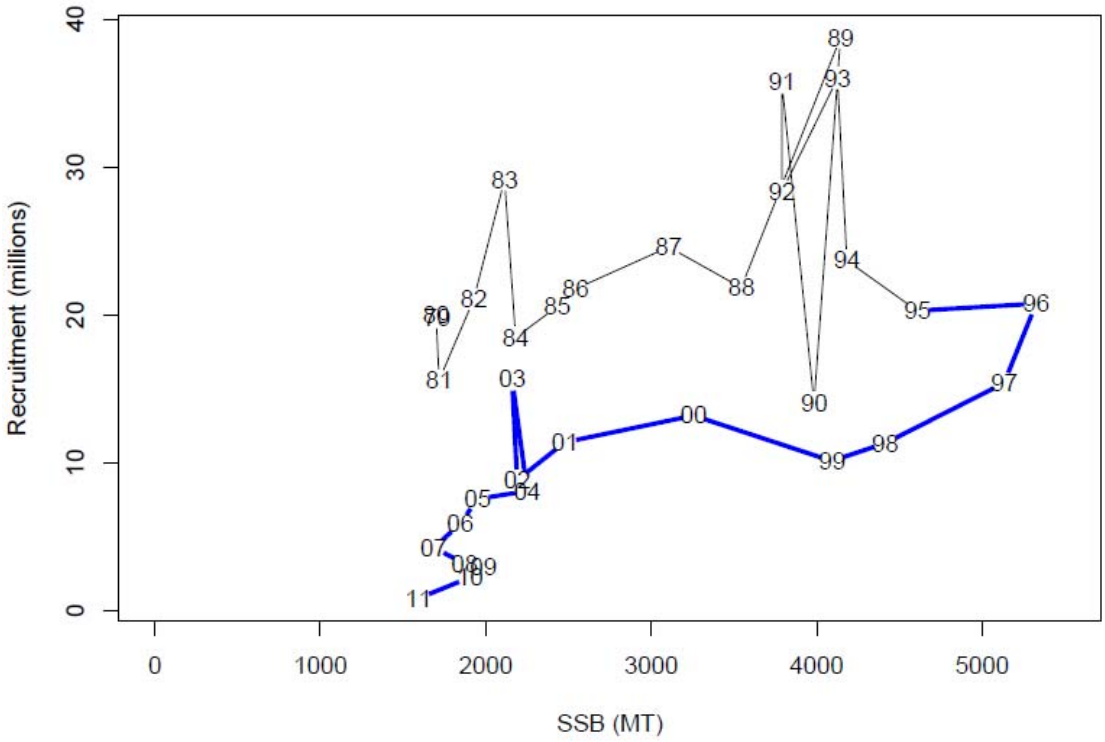


Figure 1. The relationship between model-based spawning stock biomass and recruits from 1979 to 2011. The blue line denotes the trajectory from 1995 – 2011 (recruiting to the model from 1998 to 2014).

1. Metrics To Describe Population Components

Over the past year, the TC has used several metrics to describe population conditions in the SNE stock and present simulation model results attempting to predict outcomes of various strategies. These metrics have included population size, reference abundance, spawning stock biomass (for just females, and for both sexes combined), and egg production. These terms are not interchangeable, and here we attempt to clarify the various metrics and terms used, how they are related, and propose clearer terminology moving forward.

Reproductive population: This is a newly proposed term to describe the number of mature females AND males within the population. Given uncertainties regarding male maturity and the

size at which they become reproductively active, the maturity ogive for females is applied to the males. As written, "reproductive population" would be the number of mature individuals within the population. Biomass estimates could also be applied, using the appropriate length-weight relationships, to generate a "reproductive biomass" estimate. These are the terms the TC will use moving forward, whenever analyses incorporate mature individuals of both sexes.

Population size: The number of individual lobsters (both sexes) in the population. The model used by the stock assessment currently includes all lobsters 53 mm carapace length (CL) and larger in the estimates of population size.

Reference abundance: The number of individual lobsters (both sexes) that are 78 mm CL and above present in the population at the beginning of the year (January 1), plus those lobsters that will molt into this size range during the year. This size range applies to both stocks (GOM and SNE). This is intended to represent the component of the population that is or will be available to the fishery within the year.

Spawning stock biomass ("SSB"): The total weight of sexually mature females in the population. On recent occasion, estimates of SSB presented to the Board have included both mature females and males, and this was clearly described in accompanying text. However, this may cause confusion as SSB typically refers specifically to females, and in the future will only be used when talking specifically about mature females. The calculation of SSB is based on applying the maturity ogives to the number of females in each length bin to generate the number of mature females at a given size. The length-weight relationship is then applied to the number of mature females within a size bin to calculate the weight of mature females in each size bin. The weights for each size bin are then summed to produce a total estimate of the weight of mature females present in the population, resulting in spawning stock biomass.

Egg production: The estimated number of eggs produced by the mature females in the population were calculated based on the maturity ogive, the probability at-length of carrying a clutch in a given year, and the fecundity-at-length, applied to the number of female lobsters in individual size bins. We used the same maturity ogive as the 2015 Stock Assessment. Probability at-length of carrying a clutch in a given year was based on the molt probability at-size curve that was calculated for the growth matrix, based on tagging data, for the 2015 Stock Assessment. On an annual basis, approximately half of the mature females < 120 mm CL should be carrying eggs (because of the trade-off between molting and spawning, females in this size range produce a clutch every other year). Thus, the estimate of total egg production is appropriately divided in half to represent this 2 year cycle of actual egg production. Note that there is some uncertainty as to how many females actually follow this 2 year cycle, as opposed to either annual egg production, or lengthier intervals between clutches.

Fecundity-at-length is based on the fecundity-at-length relationship published by Estrella and Cadrin (1995). Individual fecundity can be highly variable, and dependent not only on female size, but also potentially on female condition (health) and the quantity and/or quality of sperm received by the male. See details on egg production calculation in section 2.

In the past, the Board and the TC have moved away from using egg production to describe population conditions due in part to large mismatches in egg production at the recruit level (egg-per-recruit) and observed stock conditions (see Addendum VIII). Accurate estimates of egg production require assumptions regarding population stability that have proved troublesome in the past, and there is no new information to improve these estimates.

The TC would like to note that it is important to consider management measures that would protect mature individuals of both sexes. While males can and do mate with multiple females in a reproductive season, there is a large degree of uncertainty regarding their capacity to accomplish multiple matings, and how density and molt timing might impact this. Given the depleted condition of the SNE stock and uncertainties regarding reproduction, both males and females should be conserved in order to provide the best potential for egg production.

2. Potential Egg Production from Gauge Size Changes

The objective of this work was to quantify prospective American lobster (*Homarus americanus*) egg production increases for the Southern New England (SNE) stock if minimum and/or maximum carapace length regulations were to change. Gauge changes in theory would result in more fecund females remaining in the population longer and higher egg production than under the current regulations. Increasing egg production in SNE will enhance the potential for improved recruitment if environmental conditions become favorable.

Methods

The influence of gauge changes on egg production was estimated with a projection model. The projection model uses the University of Maine (UMaine) population model outputs, such as population abundance and size structure, for the SNE stock. The terminal year of the UMaine output and stock assessment (2013) is used to represent the current population structure. For further description of the UMaine model, please see the Atlantic States Marine Fisheries Commission Lobster Benchmark Stock Assessment Report (ASMFC, 2015).

The projection model carries forward the terminal year results of the UMaine model, allowing for investigation into how changes in lobster life history, fishing pressure, and/or population dynamics would influence the population structure in future years. Only females were included in this analysis as the desired units were egg production and management measures often affect females differently than males. Selectivity of lobsters to the fishing industry (via minimum and maximum gauge changes) was the only input that varied in this analysis, with all

other adjustable parameters held constant. Starting abundances at length and growth matrices were as described in the 2015 Assessment (ASMFC 2015). Fishing mortalities were estimated based on mean rates from 2008 to 2012, and described on a quarterly basis. Harvest rates from quarter one through four were 0.07, 0.42, 0.43, and 0.30, respectively. Future recruitment was also held constant, and was calculated as the average female recruit abundance from 2012 to 2014. Natural mortality was set as 0.285 for all size classes and held constant over time.

Egg production was calculated using probability of molting information and a length-based fecundity model. Probability of molting at a given size was used to infer what proportion of females at size would not have a clutch at a given time, assuming that in a given year a female lobster is either molting or carrying a clutch. Molting probabilities were the same as used in the 2015 Stock Assessment and derived from historic tag-recapture data from the SNE region only. Probability of molting (P_M) was described as a logistic function (Figure 2a) using carapace length (CL, mm):

$$P_M = \frac{1}{1 + e^{-4.186+0.0439*CL}}$$

However, it's assumed that all lobsters are molting at a minimum of once every 4 years (P_M=0.25). Thus, all probabilities less than 0.25 were set to this minimum (Figure 2a). Probability of carrying a clutch (P_C) was then calculated as the difference between one and the probability of molting (Figure 2b):

$$P_C = 1 - P_M$$

Fecundity at size (F_L) was modeled as a power function using carapace length (Figure 2c), derived from Estrella and Cadrin (1995):

$$F_L = (0.000497CL^{3.7580})1.01522$$

Egg production for the inshore and offshore contingents were calculated as:

$$EP_L = P_{C,L}\ x\ F_L\ x\ N_L$$

where EP_L is egg production at length, $P_{C,L}$ is the proportion of female lobsters carrying a clutch at the given size, F_L is the fecundity at length, and N_L is the number of females at size at the end of the second quarter (June). Given the abundances at size are in 5 mm bins, egg production estimates were averaged across the 5mm bin.

Egg production estimates from model projections are based on comparing different projection scenarios once the population has reached an equilibrium state, in this case after about 10 years (2025). We present results for equilibrium states because:

- The initial size compositions for projection runs are based on the size composition from the terminal year of the assessment model, which are notoriously unstable.
- Because lobsters grow slowly, it takes several years for changes in gauge size to take effect, particularly for larger lobsters.
- We wished to analyze separate scenarios for inshore and offshore SNE which have different legal sizes and fishing pressures, and length compositions for subsets of the stock are unknown.

Hereafter, egg production estimates are presented for the projection model results in year 2025, representing when the population has presumably reached equilibrium. These results should not be interpreted as needing 10 years for management measures to have an effect, though some management measures would require time for the benefits to be fully realized. The current min/max regulations inshore and offshore were also used to calculate baseline egg production for assessing increases in production relative to the status quo.

Both inshore and offshore analyses were tested by changing minimum and maximum gauges by 1mm units. The 1mm increment was chosen in an effort to provide changes relevant to industry units (just over a 1/32" gauge change) while also using units relevant and discernable in the projection model. Relative egg production increase was calculated by dividing the egg production of the population under new gauge changes by that under the current gauge sizes and subtracting by one. Values near zero indicate little or no change in egg production, while values greater than zero reflect relative egg production increases from the current conditions.

Results

Figures 3 and 4 represent resulting egg production increases inshore and offshore when adjusting the minimum or maximum gauge only and keeping the other gauge at the current size. At equilibrium and with the minimum gauge held constant at the current sizes, a max gauge size approaching 4 inches would be necessary to achieve a 20% or greater increase in egg production both inshore and offshore (Table 1). Holding the maximum gauge size constant, a minimum gauge size of 92mm (3 5/8") inshore and 95mm (3 ¾") offshore would result in a 20% increase in egg production. A 60% increase in egg production is obtainable when only changing the minimum gauge inshore or offshore, but is unobtainable when only adjusting the maximum gauge (Table 1).

Evaluating resulting egg production increases under the different combinations of gauge changes (Figures 5 and 6) also indicates that a given incremental change in gauge size is more effective for the minimum gauge than the maximum. Maximum gauge changes have minimal effect on egg production unless significant maximum size reductions are implemented. Combinations of gauge changes that result in 20% and 60% increases in egg production from Figures 5 and 6 are presented in Table 1. The wide range of maximum gauge changes with an

associated minimum gauge change (Table 2) highlights the impact of the minimum gauge relative to maximum gauges both inshore and offshore.

Efforts were also made to estimate potential egg production increases resulting from standard gauge sizes across SNE. There were several challenges to this analysis; namely that baseline egg production levels inshore and offshore differ due to the disparate gauge sizes and the geographic spread of females inshore versus offshore is unknown. As a result, only a range of potential egg production increases could be estimated. Two scenarios were considered: 89mm-140 mm (3.5”-5.5”) and 89mm-127mm (3.5”-5”). Under the first scenario, increases in egg production could range from 0.01% to 9%, depending on where the females primarily reside. In the second scenario, egg production could increase from 0.19% to 9%.

Limitations and Future Consideration

While these egg production estimates attempt to account for several important biological aspects of American lobster, there are a few assumptions and sources of uncertainty worth mentioning:

- Natural mortality is held constant for all size classes, where in reality natural mortality likely decreases with age and size. While there is currently no information regarding natural mortality specifically at larger sizes, the assumption of constant M may result in underestimating egg production, particularly for scenarios with maximum gauge changes.
- Current egg production conditions were based on regulations for inshore and offshore; however, current regulations vary by Lobster Management Area (LMA). Thus, egg production potential may vary within inshore and offshore regions from these estimates depending on the LMA of interest.

Additionally, projections should be interpreted in light of the model assumptions and aspects of lobster life history, data used for the UMaine model, and UMaine model output. Considerations include:

- Uncertainty associated with the model functions are not incorporated in the projections (i.e. mean model fits are used). Results are based on one set of functional forms used to describe lobster population dynamics.
- Uncertainty associated with the lack of data on the growth, reproduction, and natural mortality for the offshore lobster population.

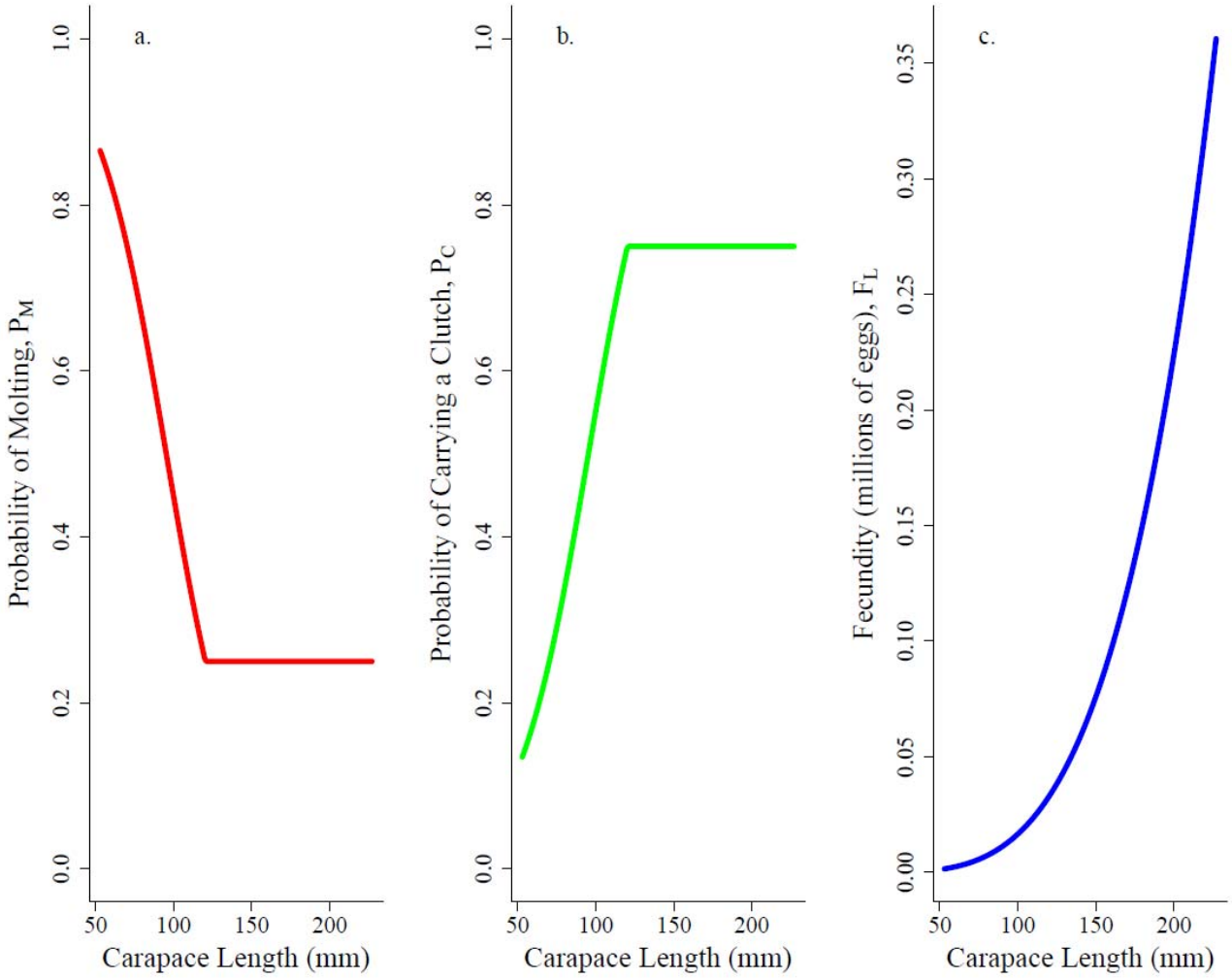


Figure 2. Probability of a female molting in a given year (a), probability of a female carrying a clutch in a given year (b), and fecundity (c) at given carapace lengths (mm). Multiple or ranges in sizes for a given maximum gauge indicate that all of the referenced sizes, accompanied by the corresponding minimum gauge size listed, result in the specified percent increase in egg production.

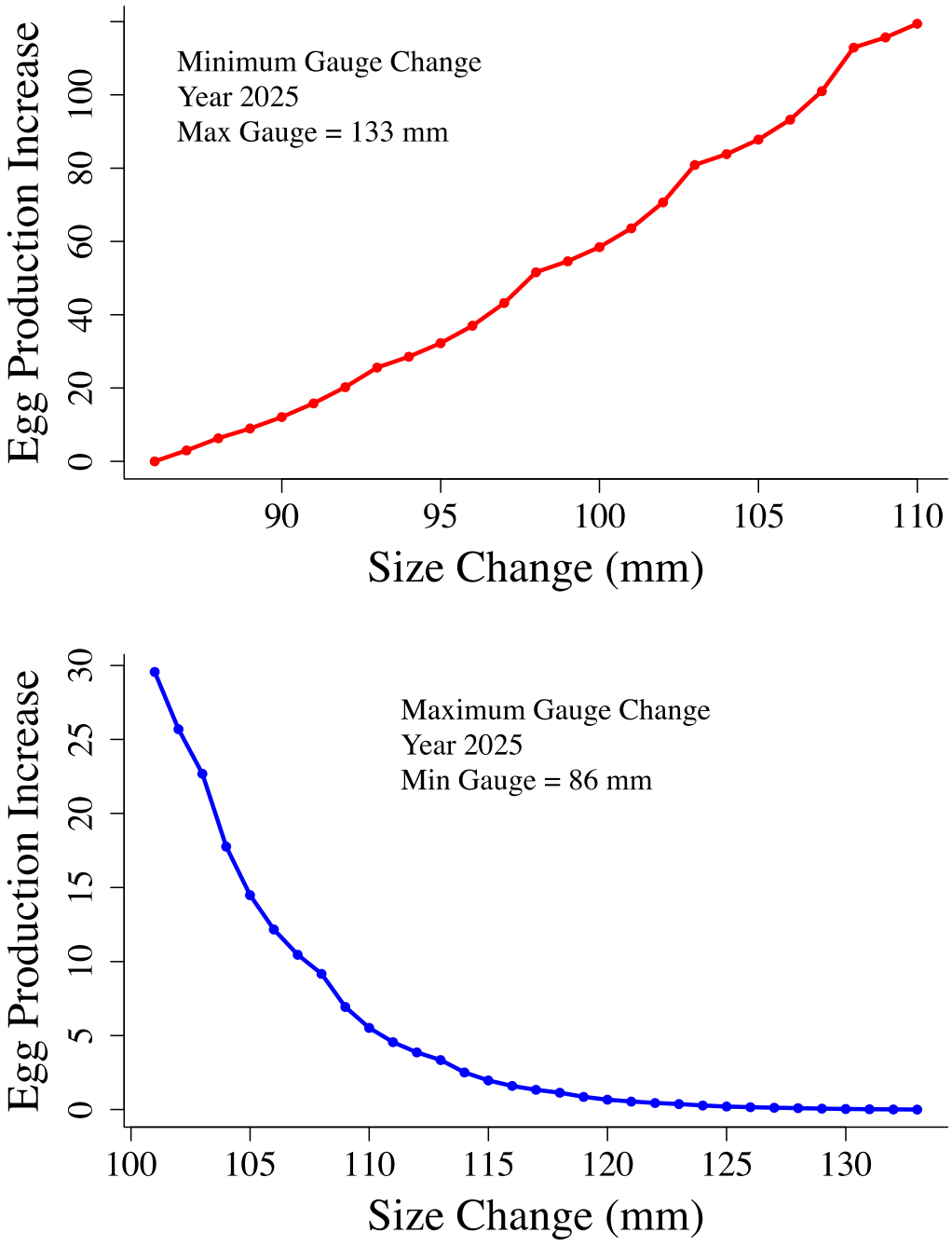


Figure 3. Inshore egg production percent increases from minimum (top, red) and maximum (bottom, blue) gauge changes. The current inshore gauge size is 86-133mm or 3 3/8”-5 ¼”.

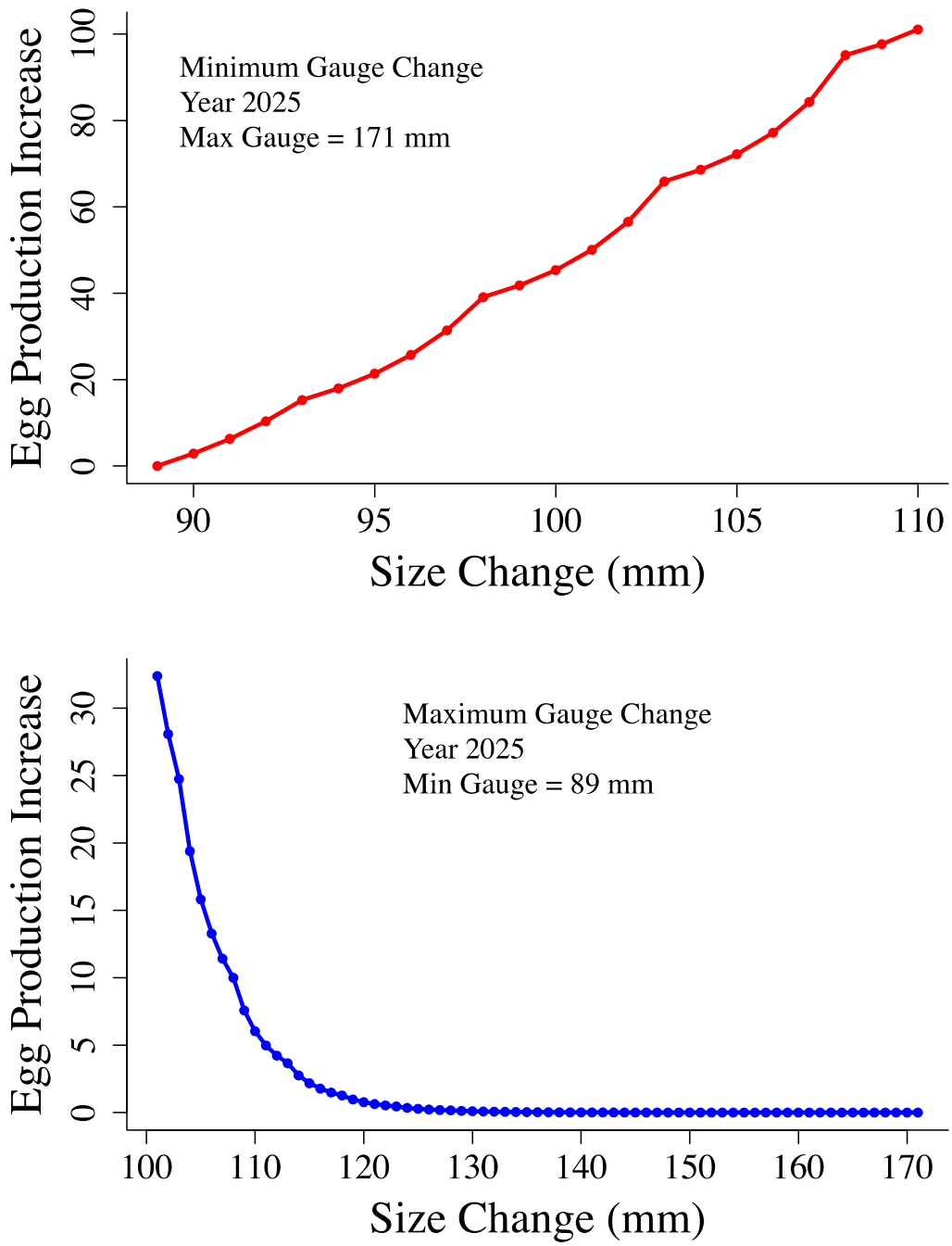


Figure 4. Offshore egg production percent increases from minimum (top, red) and maximum (bottom, blue) gauge changes. The current offshore gauge size is 89-171mm or 3 17/32”-6 ¾”.

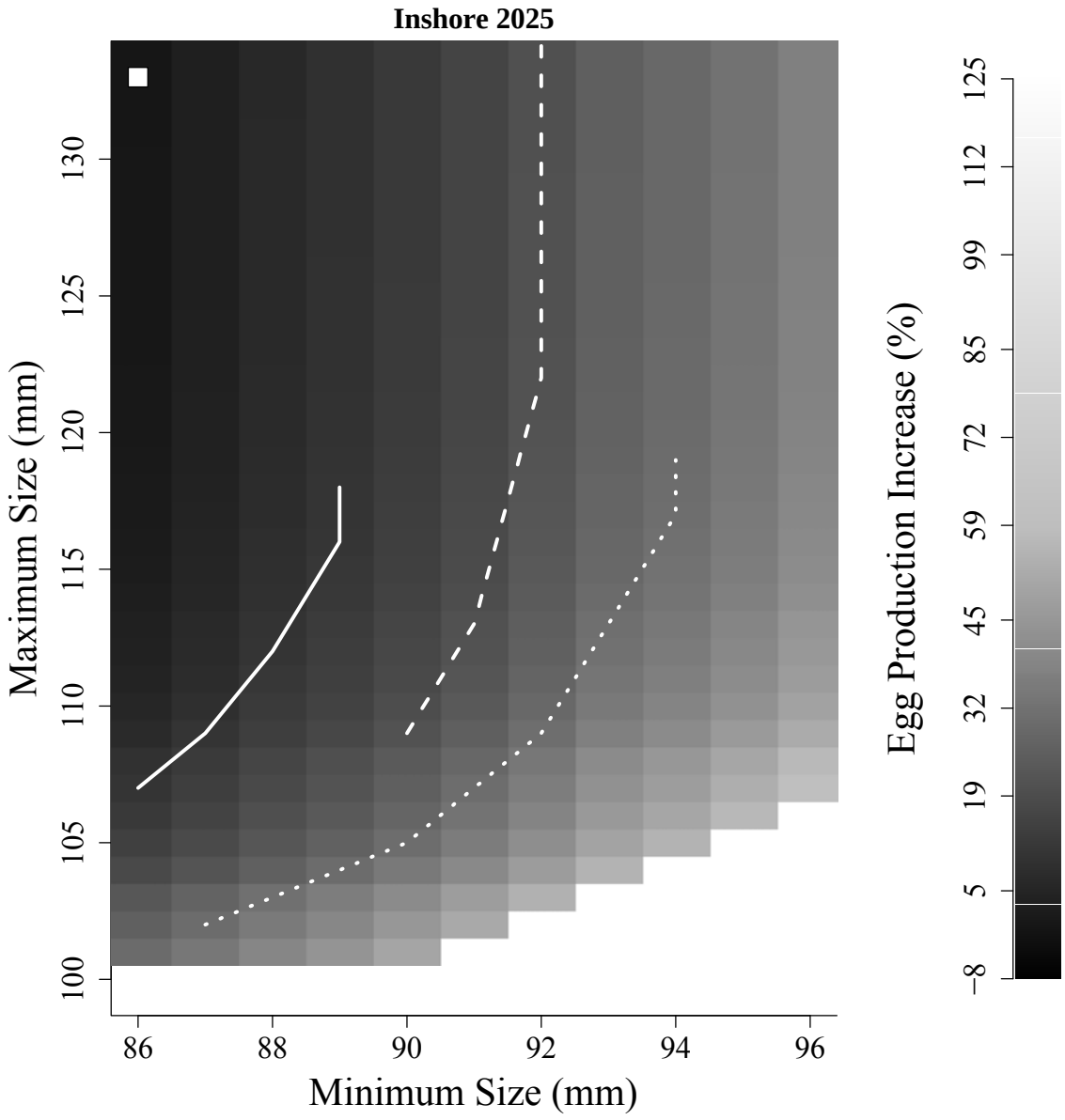


Figure 5. Inshore minimum/maximum gauge change scenarios and corresponding egg production changes from the current gauges (white boxes). Egg production is expressed as percent increases from the current conditions. Egg production increase contours for 10% (solid line), 20% (dashed line), and 30% (dotted line) are drawn for reference. Gauge change scenarios that would result a legal size range of 10mm or smaller (bottom right) are not presented, with space representing absent results and no increases in egg production. The current inshore gauge size is 86-133mm or 3 3/8”-5 ¼”.

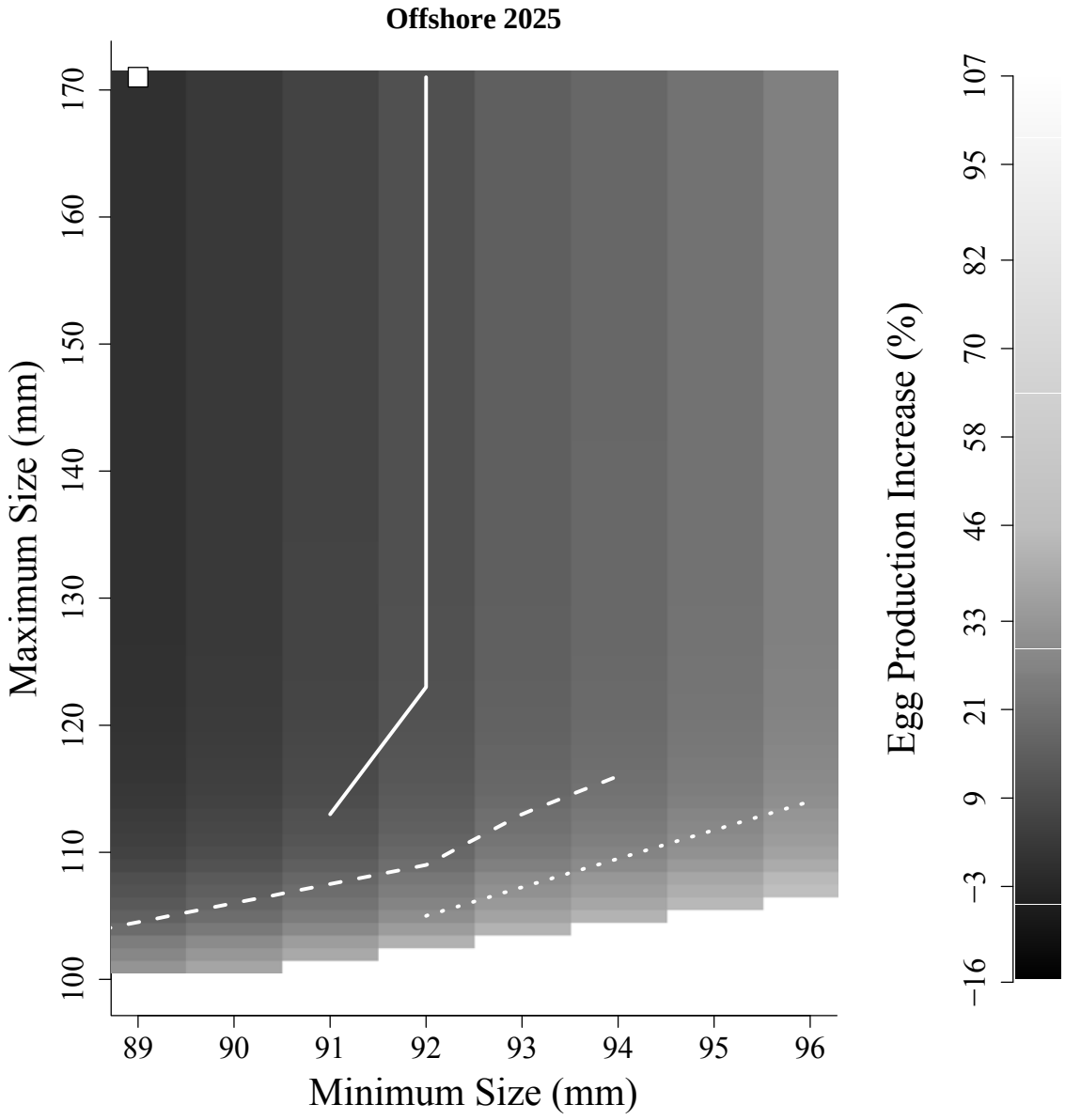


Figure 6. Offshore minimum/maximum gauge change scenarios and corresponding egg production changes from the current gauges (white boxes). Egg production is expressed as percent increases from the current conditions. Egg production increase contours for 10% (solid line), 20% (dashed line), and 30% (dotted line) are drawn for reference. Gauge change scenarios that would result a legal size range of 10mm or smaller (bottom right) are not presented, with space representing absent results and no increases in egg production. The current offshore gauge size is 89-171mm or 3 17/32”-6 ¾”.

Table 1. Gauge changes (in mm) for inshore/offshore under equilibrium projections that result in at least 20% and 60% increases in egg production when the other gauge is held at its current size (extracted from Figures 3 and 4). NA indicates that the target percent increase is not obtainable with one gauge constant and the other varied over the range assessed in this analysis. The current inshore gauge size is 86-133mm and the current offshore gauge size is 89-171mm.

Scenario	20%	60%
Inshore Minimum Change	92	101
Inshore Maximum Change	103	NA
Offshore Minimum Change	95	103
Offshore Maximum Change	103	NA

Table 2. Gauge changes (in mm) for inshore/offshore under equilibrium projections that result in a 20% and 60% increases in egg production. The current inshore gauge size is 86-133mm and the current offshore gauge size is 89-171mm.

	20% Egg Production Increase		60% Egg Production Increase	
Scenario	Minimum	Maximum	Minimum	Maximum
Inshore	90	109	96	107
	91	113	97	109
	92	122-171	99	115
			100	120, 121
Offshore	88	103	100	111
	92	109	102	119
	93	113		
	94	116, 117		

3. Potential Egg Production from Trap Reductions

The Lobster Technical Committee was tasked with providing advice on how the currently-planned trap reductions would affect the SNE lobster stock, particularly in regards to egg production.

The relationship between fishing effort and fishing mortality rate is extremely problematic, particularly for trap fisheries because multiple factors beside the number of registered traps affect catch and mortality rates, including latent effort, how often the traps are fished, trap soak times, the spatial distribution of the resource, and changing fleet characteristics.

Despite these caveats, we attempted to model the relationship between the number of actively fishing traps (AFT) and fishing mortality using data and exploitation estimates from the SNE stock assessment. We then estimated new exploitation rates, assuming a 25% reduction in traps from the terminal year and projected how these would change egg production relative to current exploitation.

All previous trap reduction programs utilized in the SNE lobster stock were aimed at reducing the total trap allocation for each fisherman (which included both active and latent pots). The analyses presented here use the number of actively fished traps as documented in the 2015 Stock Assessment in order to relate effort to resulting exploitation. This analysis makes the following assumptions;

1. **The 25% trap reduction will actually result in a 25% decrease in actively fished traps.**
2. **Other aspects tied to fishing effort (i.e. soak times, duration of fishing season, etc.) do not change as fishers compensate for the decrease in fished traps.**

A time series of AFT in the SNE stock area and corresponding exploitation rate (model-estimated SNE exploitation) from 1981-2013 were obtained from data presented in the latest (2015) Stock Assessment. The plot of fishing exploitation vs. total traps reveals two apparent regimes in this relationship (Figure 7). Exploitation is stable and high as effort increased from 1981 to 1998; however, as the fishery decreased and minimum legal sizes increased, the exploitation rates dropped to lower levels. Based on this, we examined two relationships between exploitation and numbers of traps; one using the entire time series (hereafter “all years”) and a second using only the years since 1999 (hereafter “recent years”).

Models fitted through these points using maximum likelihood estimation and assuming a Michaelis-Menten response function are very stable, presumably because the function is forced through the origin and there is little variation in exploitation at high trap values. To better examine the uncertainty in this relationship, we bootstrapped 1,000 models, with replacement, for both “all” and “recent” years and recorded the model-predicted exploitation rates at the

current trap levels and after the 25% trap reduction (Figures 8 and 9 respectively). Based on the data for all years, a 25% reduction in traps may reduce exploitation rates from 0.270 to 0.239 constituting an 11.6% reduction (95% CI: 6.5% -16.3%). Similarly, for data from recent years, the planned trap reduction may be expected to reduce exploitation rates from 0.207 to 0.176 or a 14.3% reduction (95% CI: 3.5% - 21.2%).

Population simulations were then run with the range of bootstrapped exploitation rates for both all years and recent years, and pre- and post-reduction, to get equilibrium female and male length compositions for pre- and post-reduction scenarios. We calculated egg production using the same egg production model detailed in Section 2 and compared egg production estimates for pre-reduction to post-reduction exploitation rates.

The population simulations under different exploitation rates suggest only small increases in the abundance of lobsters above legal size (Figure 10). With annual egg production rates applied to the female lobsters, egg production is projected to increase by 9.6% (95% CI: 4.5 – 13.0%) when exploitation curves are based on all years' data and 13.1 % (95% CI: 2.6 – 19.7%) when based on recent years' exploitation data (Figure 11). A critical assumption to these estimates is that soak time does not change as trap allocations are reduced. If fishermen do reduce their soak times (haul their remaining traps more frequently) to compensate for a reduction in traps, the expected increase in egg production would be reduced.

TC Concerns with Trap Reduction Analysis

Although these analyses accurately depict the observed relationship between active traps fished and exploitation in SNE, they are based on the explicit assumption that soak time is constant. This assumption is not valid. Empirical data presented in the 2015 ASMFC lobster stock assessment for MA and CT demonstrate substantial variability in soak time, particularly in recent years (Figure 12). The only true measure of effort in trap fisheries is the number of trap hauls (preferably standardized to soak time, Miller 1990). The total amount of effort exerted by an individual trap is directly proportional to how often it is hauled and the trap's efficiency at the point at which it was hauled (Miller 1990). Both of these factors are directly influenced by soak time. The shorter the average annual soak time the more often that trap is hauled during a year. Conversely, the longer the average annual soak time, the less often that trap is hauled during a year.

In addition to the frequency with which traps are hauled, a lobster trap's efficiency (number of lobsters it retains/number of lobster it encounters) typically reaches its maxima between 1 to 4 days in inshore areas (Thomas 1973, Fogarty & Borden 1980, Auster 1986, Estrella & McKiernan 1989) and 5 to 9 days in offshore areas (Skud 1979). Trap efficiency is further complicated by interactions with population density, trap saturation, interspecific competition, bait type and quantity, trap size, spacing (trap density), trap design, and water temperature (Miller 1990).

Furthermore, soak time is directly affected by fishing behavior which is influenced by fishing costs (bait and fuel), catch rates of lobsters, and the market price of lobsters (Miller 1990). Trap density experiments conducted off of Monhegan Island in the GOM demonstrated that a 67% reduction in active traps fished resulted in only a 16% reduction in catch when soak time was held constant (Wilson 2010). Additionally, soak time experiments conducted as part of this study suggest that at a 5 day soak time, lobster traps within the study area were operating 80% below their maximum efficiency (Wilson 2010). A trap reduction program in the Florida Keys spiny lobster fishery also had limited success in reducing fishing mortality. Specially, management measures which removed roughly 40% of the traps in the fishery (939,000 traps in 1991 to 568,000 traps in 1995) only reduced fishing mortality by 16% (Mueller et al., 1997). Both studies demonstrate an ability to maintain or increase catch rates in trap fisheries by hauling substantially less gear more often on shorter and substantially more efficient soaks. As a result, quantifying a standard unit of effort in trap fisheries is extremely complex and notoriously elusive. Additional information on the relationship between traps fished and exploitation can be found in Appendix 1 - November 2010 ASMFC Lobster Technical Committee Memo to the Lobster Board.

The relationship between traps fished and exploitation presented in this analysis may depict an unrealistically optimistic view of potential reductions in exploitation associated with lower numbers of traps fished. The traps currently fished in the SNE lobster fishery are nowhere near their saturation point and current average soak times in the SNE lobster fishery are well below maximum efficiency. This is supported by the observed substantial increases in CPUE in SNE that are concomitant with the observed declines in the number of active traps fished (Figure 13 a & b). This suggests that the bootstrapped estimates of the relationship between traps fished and exploitation with extremely steep slopes (those whose point of inflection falls to the left of the bootstrapped mean; Figures 8 and9) and long stable asymptotes are likely to be more realistic.

Conclusions

If the assumptions of this analysis are upheld (a critical and unlikely caveat) the best case scenario the TC would expect is a 14.3% reduction in exploitation with a corresponding 13.1% increase in egg production. When compared to the simulation analyses previously presented to the board, the TC would expect the SNE lobster population to continue to decline from its current levels. Additionally, the Lobster Technical Committee is very concerned that this analysis is simply a mathematical exercise that overlooks the many intervening factors described above. The TC is not able to predict fishermen behavior that would affect how often traps are hauled or how many allocated traps are actually deployed. However, it is highly likely that fishermen will respond to trap reductions by trying to maintain fishing effort by hauling the traps they do have more frequently, or in some areas (LMA2) by purchasing additional (mostly latent) trap allocation. This behavioral compensation would offset the intended effects of trap

reductions in relation to exploitation rates. As such, **the TC strongly cautions the Board against using these analyses to quantify or predict current or future reductions in exploitation related to trap reductions.**

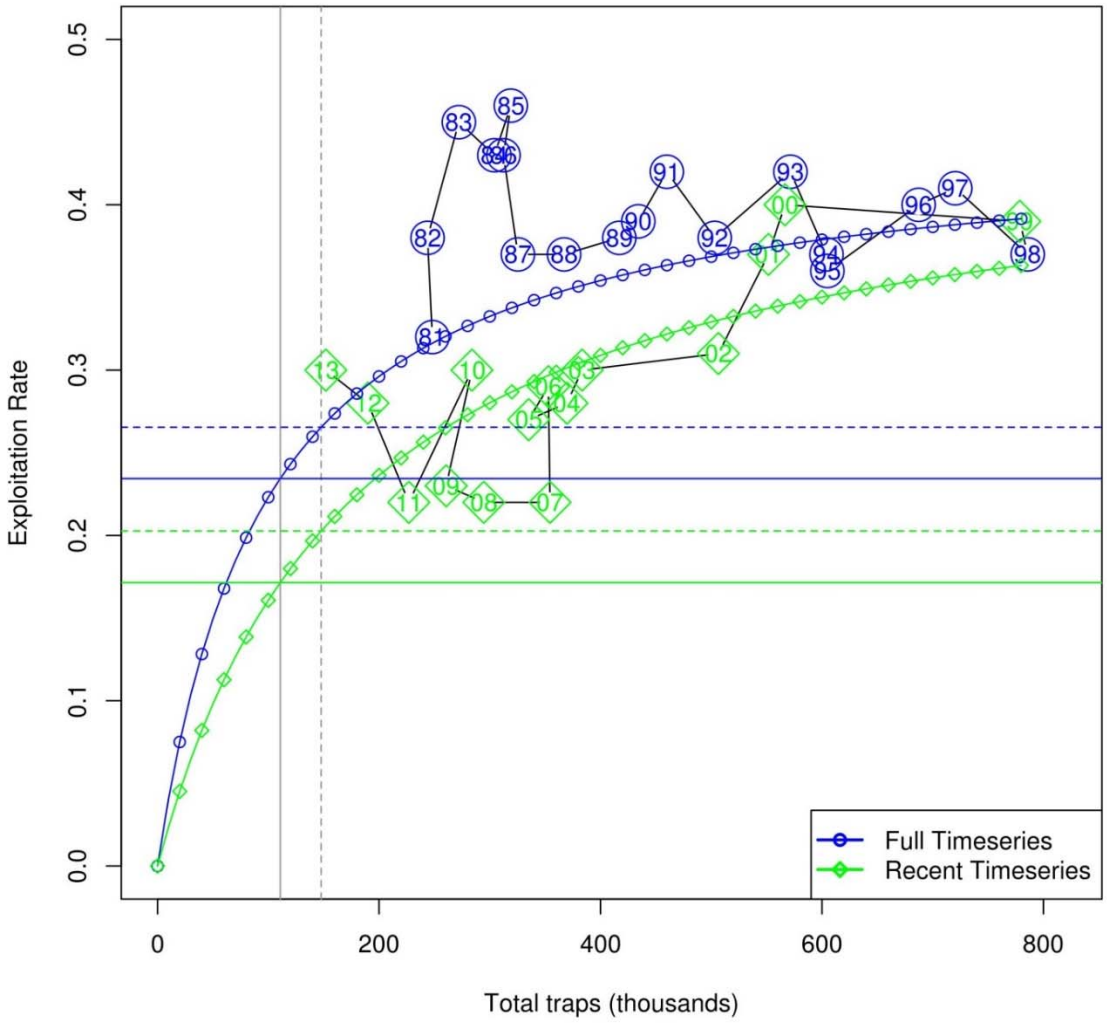


Figure 7**.** Plotted time series of total traps in the SNE fishery and exploitation rates from the assessment model. Numbers indicate the last two digits of the year. Early year's data and the fitted model for all years are plotted in blue with recent years data and model plotted in green. The vertical solid and dashed gray lines represent the post- and pre-trap reduction levels respectively. Horizontal lines represent estimated pre- and post-reduction exploitation rates (dashed and solid respectively) for all and recent years models (blue and green lines respectively).

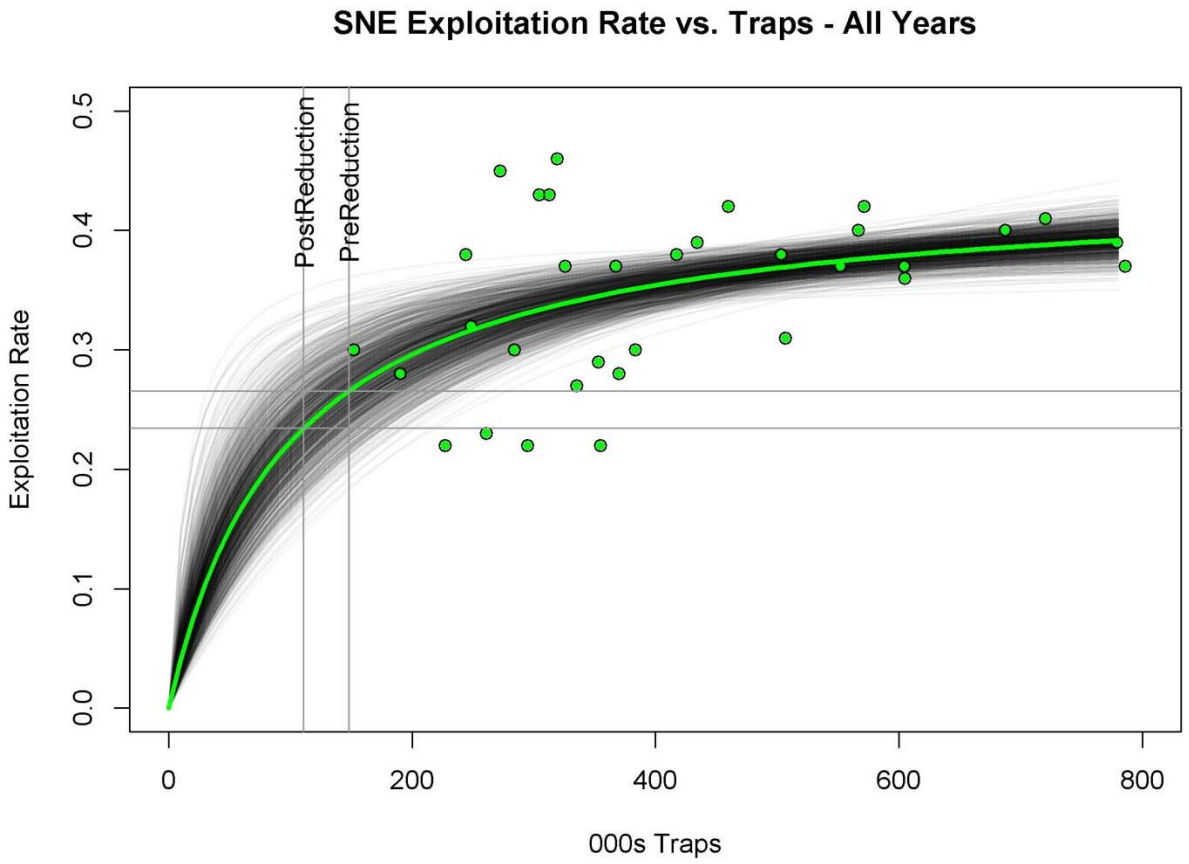


Figure 8**.** Relationship between effort and exploitation for all years with the model curve for the full data set (green line) and each of the 1,000 bootstrap models (gray lines).

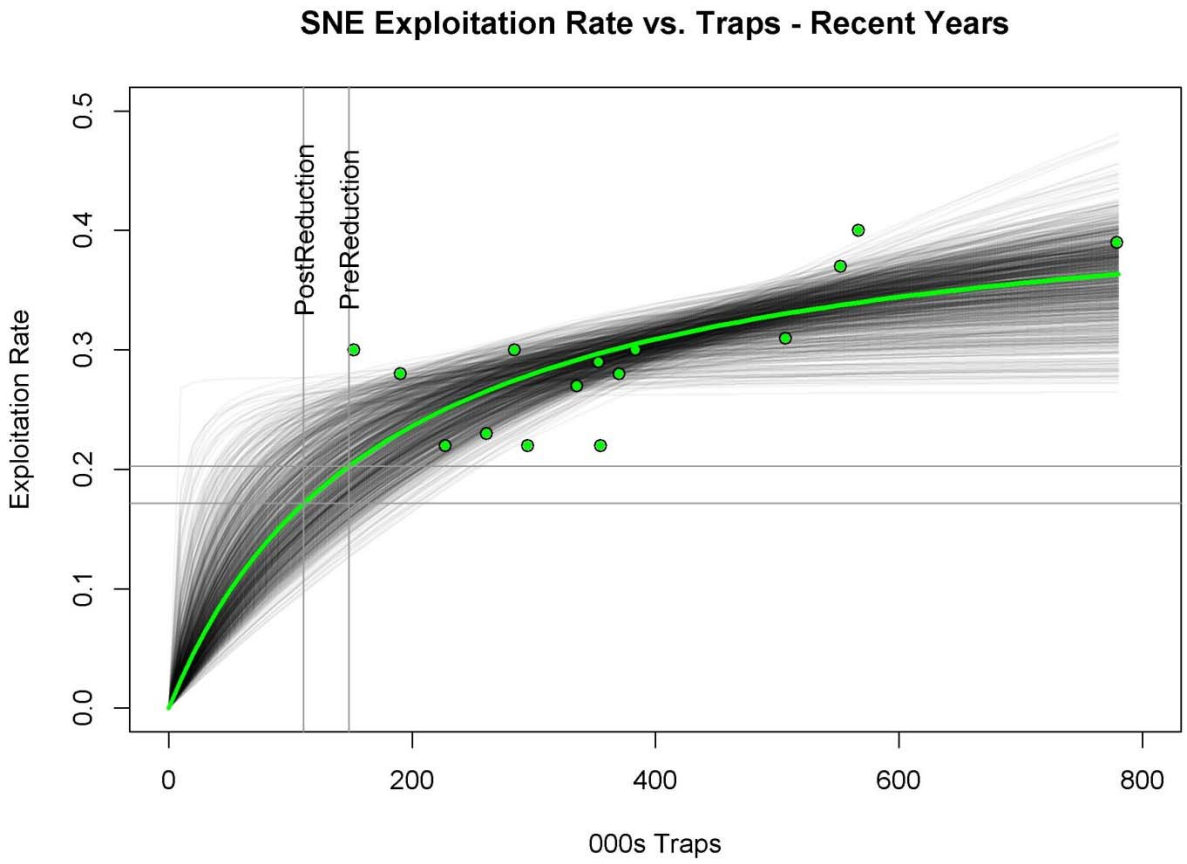


Figure 9. Relationship between effort and exploitation for recent years with the model curve for the recent data set (green line) and each of the 1,000 bootstrap models (gray lines).

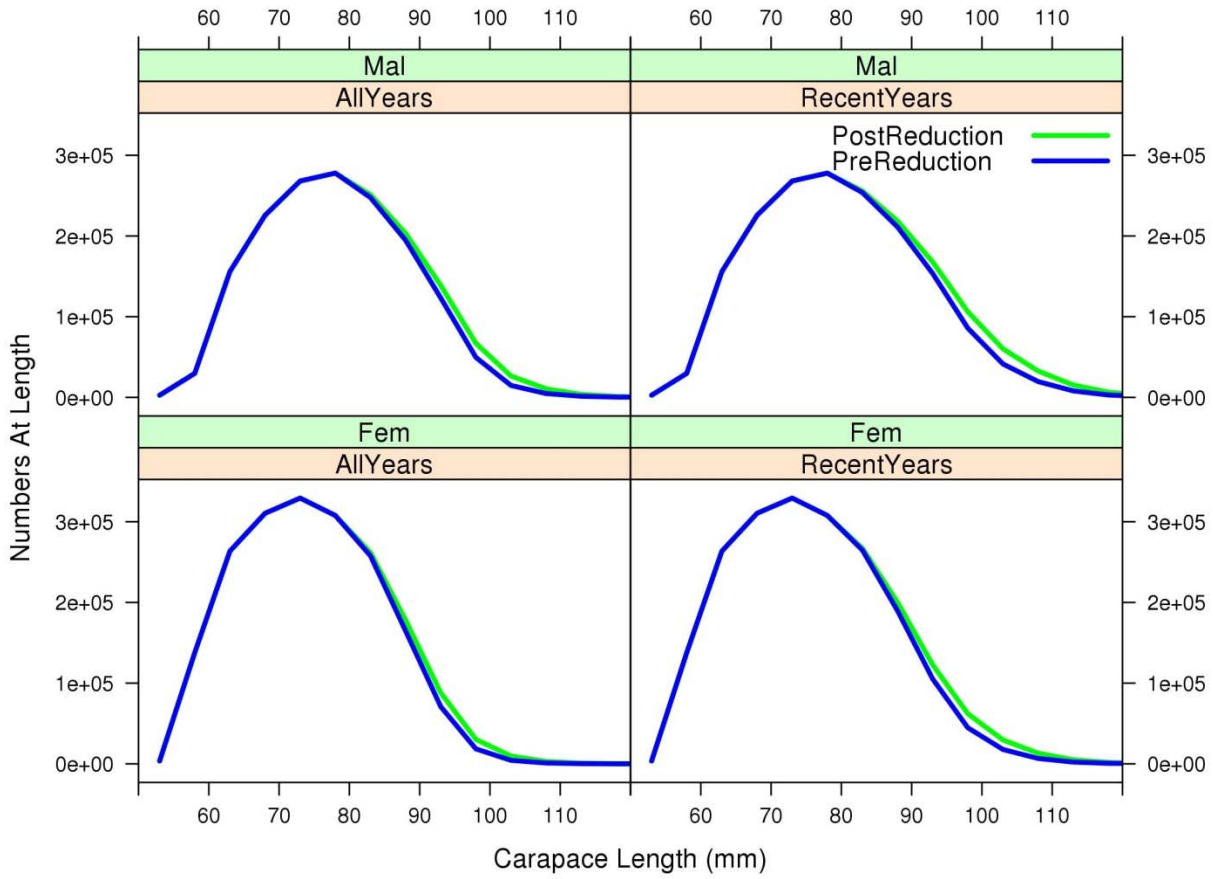


Figure 10. Mean numbers of lobsters at size for males (top) and females (bottom) from population simulations based on exploitation curves from all years (left) and recent years (right). Separate length compositions are shown for the pre-trap reduction (blue) and post-trap reduction (green) scenarios. Models assume basecase assessment model growth and natural mortality rates and continued current recruitment levels.

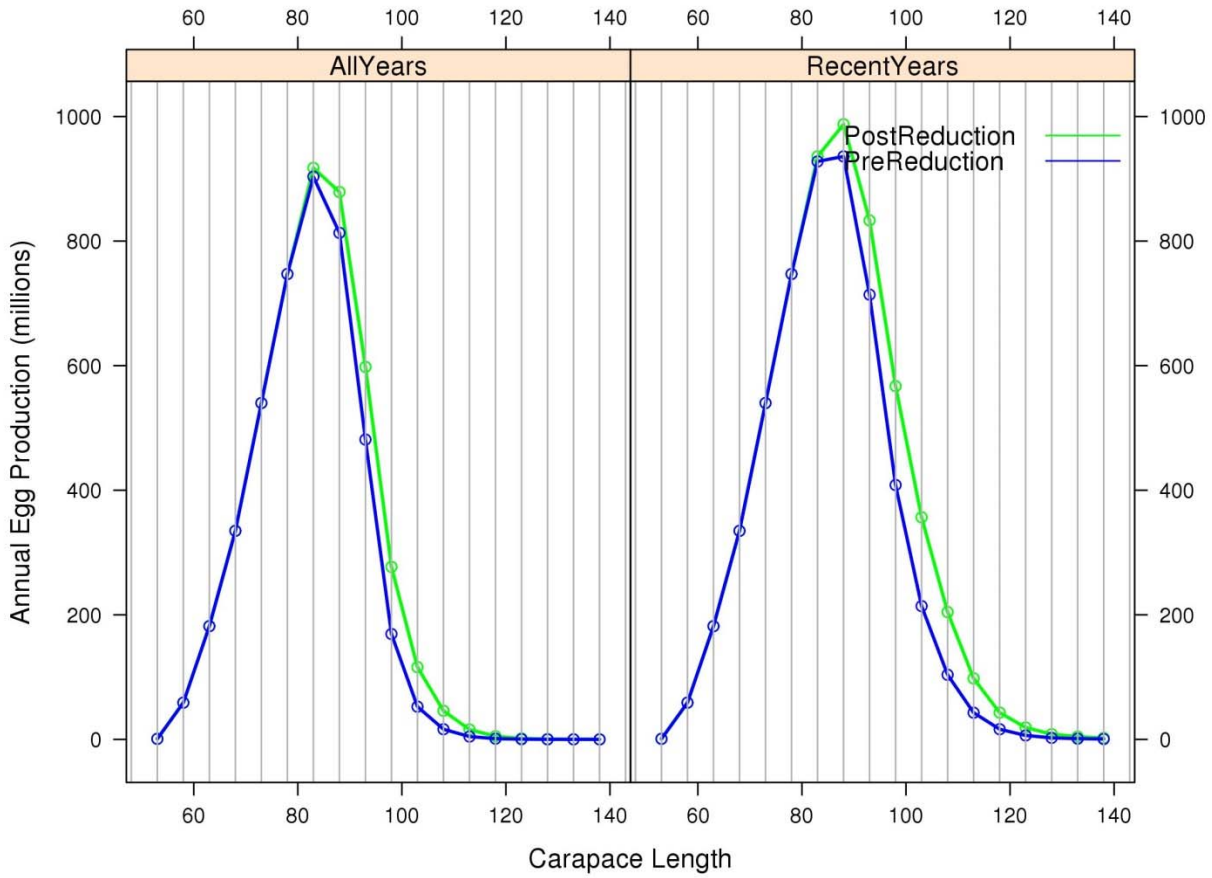


Figure 11. Egg production at-size based on the female numbers-at-size from Figure 4.

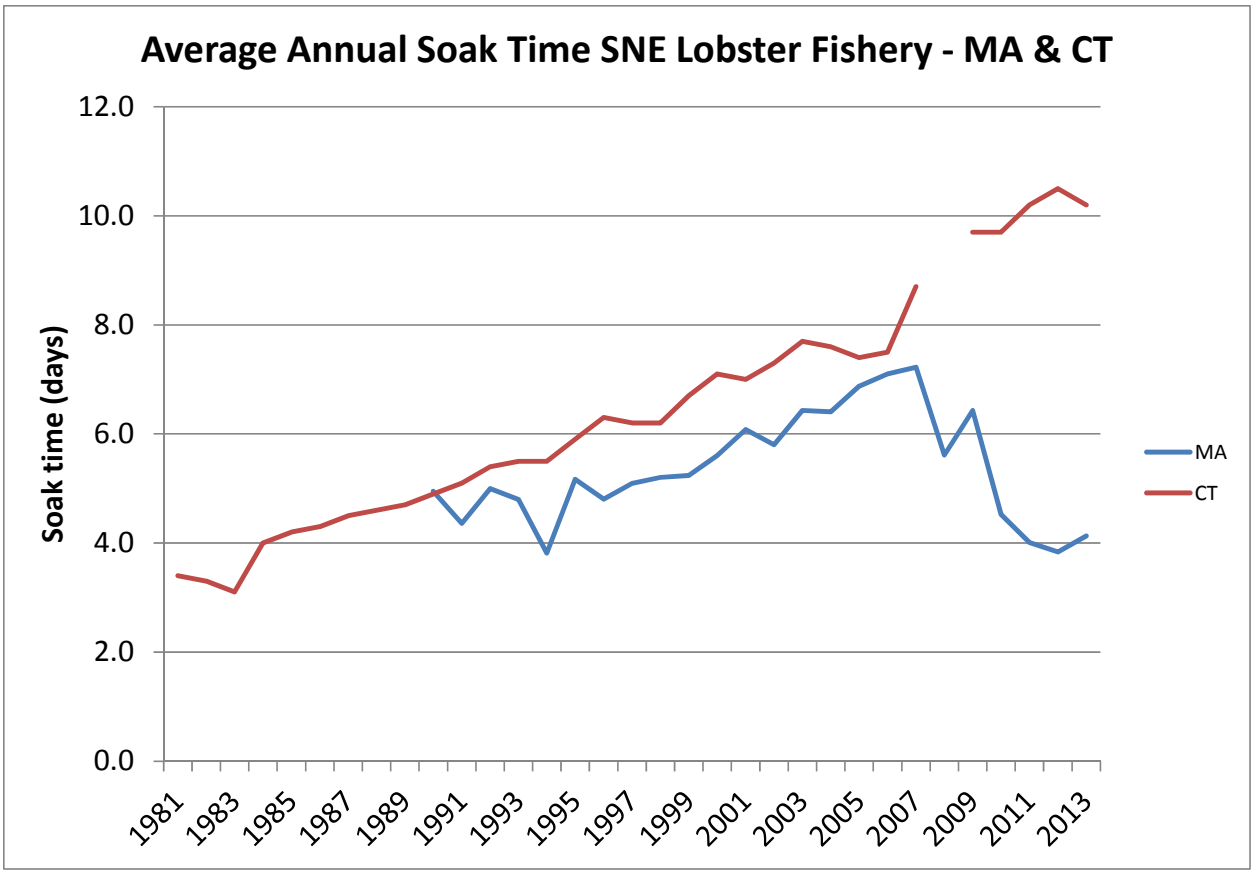
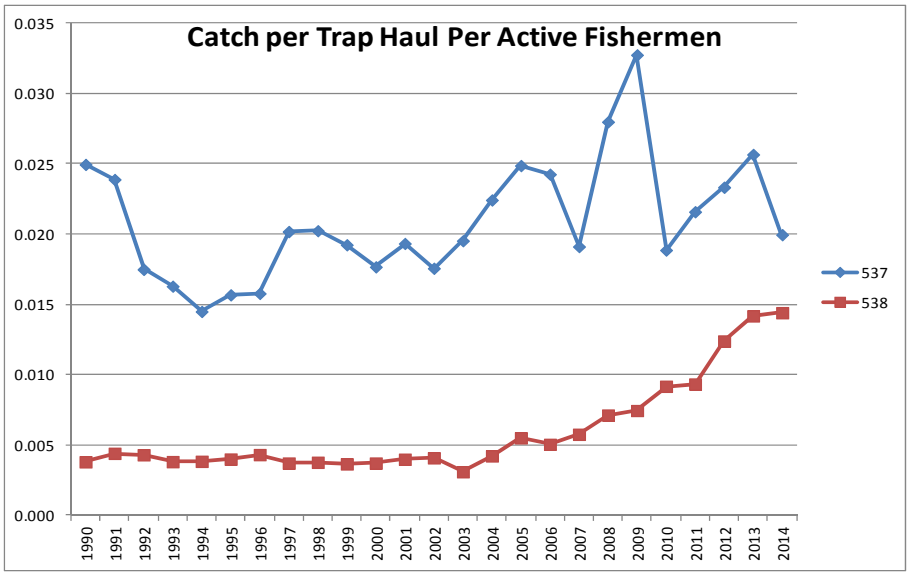
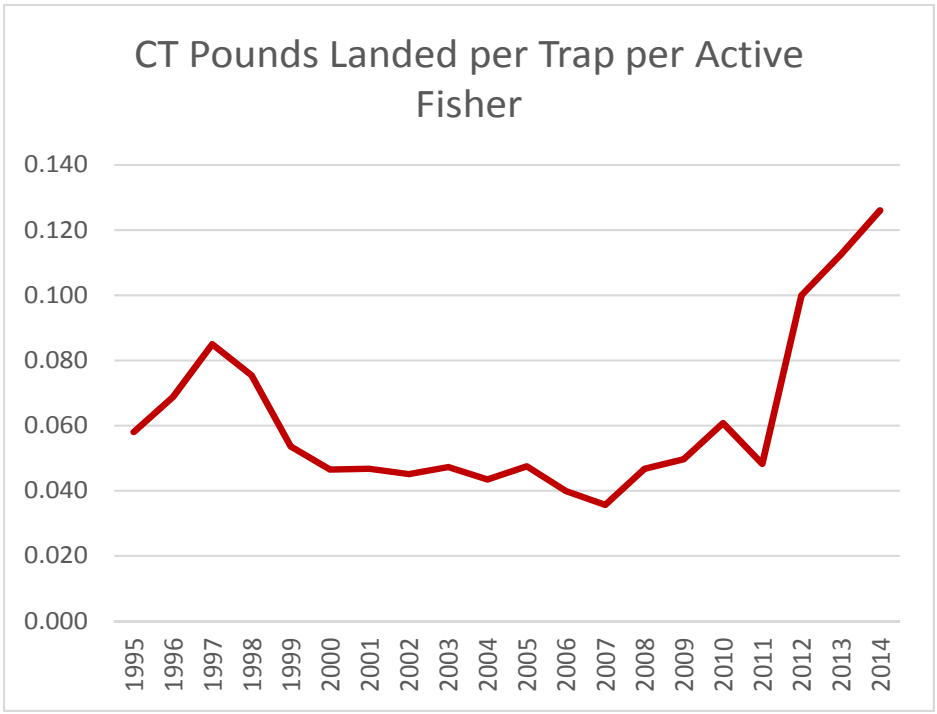


Figure 12. Annual mean soak time for SNE lobster fishery in CT (red) and MA (blue) from harvester reports 1981 to 2015.





Figures 13a and 13b. CPUE – Catch per trap haul per active fishermen in SNE – MA (a) and CT (b)

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Appendix 1

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MEMORANDUM

November 2, 2010

To: American Lobster Board

From: American Lobster Technical Committee

Re: Southern New England Exploitation Reduction Recommendations

At the Special July Board meeting the American Lobster Board (Board) tasked the Technical Committee (TC) with evaluating the impacts on Southern New England (SNE) landings by using a variety of management options:

- closed season by state, Lobster Conservation Management Area (LCMA), and time period [1-month intervals],
- closed areas evaluated by state, LCMA and/or statistical area,
- quota based output controls based on landings by state and LCMA,
- trap limits as an input control and determine percent landings reduction associated with levels of trap reductions,
- male only / v-notch program,
- modifications to the minimum and maximum gauge size.

In addition, the Board tasked the TC to evaluate scenarios relative to a 50 or 75% reduction in exploitation to the status quo. The TC has proceeded with the assumption that exploitation reductions are equivalent to an equal percentage in landing reductions for the base years of 2007-2009, as shown in table one. As presented in previous reports, the TC would like to remind the Board that only under favorable natural mortality conditions would deterministic projections result in the SNE stock rebuilding with the proposed exploitation reductions.

There is tremendous uncertainty in the effectiveness of any measure to reduce exploitation short of direct controls on landings. The TC is not able to quantitatively evaluate the impact of each management measure listed above. Regardless, the TC has provided the Board with advice on each measure relative to previous experience in other fisheries, information currently available to the TC from the SNE stock, and a biologically driven approach to provide the maximum benefit to the resource.

The Technical Committee recommends that the Board use a combination of a quota and season closure (June through September) to achieve a 75% reduction in exploitation. The incorporation of a limited closed season in concert with a quota would provide maximum biological benefit during molt, egg extrusion, and high environmental stress periods.

I. QUOTAS

The establishment of a SNE stock quota that is a 50 or 75% reduction from the previous three years' landings is the preferred option to provide maximum benefit to the SNE lobster stock. The TC recommends a quota be distributed for the SNE stock, based on the previous landing trends (Table 1). Furthermore, the TC feels that a quota combined with seasonal closure timed to avoid molting, egg extrusion, and high environmental stress periods from June through September, would provide maximum benefit to the stock. Table 2 and 3 show what the overall SNE quota would be for a 50 and 75% reduction, respectively, based on the average landings for 2007-2009.

It is possible to control the exploitation rate by directly controlling the amount of lobster taken through a quota. The quota could be adjusted to account for changes in the abundance of lobster if the stock begins to rebuild. Quota systems could be established for total and/or individual catch as these systems have different incentives for rate of catch. Quotas place a large administrative burden on resource agencies, and to be effective, require good monitoring and enforcement. Measurements of conservation benefits are generally pre-determined. A quota set lower than the historic catch, constitutes a direct reduction in exploitation. Distributional effects of quota management systems remain an important consideration and should be thoroughly investigated by the social and economic subcommittee.

Quota Management Systems (QMS) have been introduced in a variety of lobster fisheries worldwide. The offshore Canadian Lobster Fishery (LFA 41) established a total allowable catch (TAC) in 1985. Landings in this area have remained at or below the TAC level since introduction, and are remarkably stable when compared to adjacent inshore areas in Canada/US and offshore areas in the US (DFO 2009). Full Individual Transferable Quota (ITQ) systems have been established in New Zealand (1988) and Tasmania lobster fisheries (1998). After eight years of QMS in New Zealand, Annala (1996) reports that the biological status of the stock has improved, discards have been reduced, the stock assessment process/TAC setting has become more transparent and the economic performance of the fishery has improved. In Tasmania, initial results following establishment of a QMS indicate that fishing mortality has measurably declined and fishing effort has declined by nearly 30% (Ford 2001).

II. SEASON CLOSURES

In addition to a stock-wide quota, the TC recommends a seasonal closure during June through September to provide maximum benefit during molt, egg extrusion, and periods of high environmental stress. Extending the closure through September would include the entire high water temperature period. The TC recommends a seasonal closure as an effective way of implementing the QMA discussed above, not as a means of achieving a 50 or 75% reduction in exploitation because of the unknown compensatory ability of the fishery to shift exploitation to the open fishing season (i.e. recoupment).

In SNE, a closed season would have the greatest conservation benefit if it occurred during the molt (June-July and secondarily November-December), and/or just prior to the time most females extrude eggs (July-August) so as to allow more females to extrude eggs prior to being captured. Additionally, limiting fishing activity in late spring (April-June) would minimize premature egg loss for females carrying developing (brown/tan) eggs before their hatch (Appendix 2A). Extending a closure from June through September would protect the lobster stock during the entire high water temperature period (Figure 1), thereby preventing handling stress and mortality when water temperature are above 20°C, the threshold temperature causing immune, respiratory and cardiac trauma (Dove et al. 2005, Powers et al. 2004).

Currently, lobster landings occur in every month in all states and LCMAs, however they show a strong and consistent seasonal pattern (Figure 2 and Table 4). In 2007-2009, less than 5% of the total was landed per month in the first quarter of the year, while 3-14% (average 7.5%) was landed per month in the second and fourth quarters, and 8-27% (average 17%) was landed per month in the third quarter (Table 4). If fishing patterns do not change, a closure encompassing the third quarter (July-September) would reduce harvest by 50% (Table 5). Closing spring and fall months along with summer months would reduce harvest by 75%. However, there are many factors which would compel fishers to change their fishing patterns to accommodate a closed season by recouping lost harvest during the open season.

Closed seasons have been used to manage American lobster in Canadian waters for many years. The Canadian experience has shown that a short fishing season of several months duration can result in fishing mortality rates comparable to a completely open season because the fishery is able to recoup all of their catch during the months open to harvest. Recoupment can be 100% in areas where the lobster population is particularly stationary. For example, currently winter landings (January-March) in all areas average only 6% of the total; however, prohibiting harvest in preceding months may increase fishing effort as well as resource availability during this historically inactive season.

Economic implications of seasonal closures in Maine were evaluated by Cheng and Townsend (1993); they found that gross revenues would increase from extended seasonal closures (e.g. August to November) due to a redistribution of landings across seasons which evened out prices and strengthened markets. This analysis also showed that short (1-2 months) regional closures in peak months (August and/or September) increased the value of landings, but only by a small amount because landings increased immediately after the closures, seriously depressing prices in the late fall (October-December). Optimal readjustment of landings required moving landings from July through December into January through June. In other words, closures of at least an entire season (3-4 months) were required to stabilize the fishery from an economic standpoint.

Eliminating harvest during the molt and times of high water temperature may substantially reduce total mortality and aid in rebuilding the spawning stock by minimizing gear-induced immediate and delayed mortality as well as sublethal stress. In inshore areas of Southern New England late summer and fall (July-October) bottom water temperatures often exceed 20^{o}C, the physiological stress point for American lobster. Warm hypoxic waters are known to herd lobster into ‘islands’ of marginally sustainable habitat. During this time of year, repeated catch and

throwback into warm low-oxygen water can be at least stressful if not fatal, especially if major predators are actively feeding in the same area.

III. AREA CLOSURES

The TC does not recommend using area closures as the primary method of reducing exploitation. Levels of exploitation reduction, using landings as a proxy, can only be assigned Statistical Area scale or approximated to an LCMA with numerous assumptions (see notes in Table 7) Quantifying lobster concentrations on a smaller scale can only be done using patterns in randomized research trawl surveys or anecdotal information, with unacceptable levels of uncertainty associated with either approach. It is therefore impossible to assess what the impacts of smaller areal closures on the SNE stock as a whole. Implementing and enforcing smaller area closures would require restructuring reporting regulations to march closure boundaries. Additional measures would be needed to prevent effort from shifting from closed to open areas.

Analyses of existing closed reserves (Murawski et. al 2000) have shown that optimal closed-area boundaries should be placed so as to protect spawning concentrations and/or nursery areas. These areas have not been clearly identified in all SNE LCMAs and may be quite variable, both seasonally and regionally, due to changes in dispersion/migration of spawning adults and larval drift.

No-take zones and marine reserves have been instituted in areas inhabited by the Florida spiny lobster and the New Zealand spiny lobster (Babcock et. al 1999, Kelly et. al 2002, Cox and Hunt 2005). After several years of protection, lobster populations within these reserves have increased in average size, and therefore reproductive potential, and in some cases increased in overall density compared to abundance outside the reserve boundaries. However, these conservation benefits may be species-specific and depend upon behavior, migration patterns, and size of the reserve. The animal's need to migrate out of a closed area is a critical determinant of the effectiveness of an area closure. Existing spiny lobster reserves range from 350-3000 hectares or 90-777 sq. miles (Babcock et. al 1999, Cox and Hunt 2005). Area closures of this magnitude would be equivalent to a complete moratorium for those fishers whose grounds are closed, or trigger a large influx of effort into open areas. Either outcome would have a significant negative impact on the fishery without clear benefit to the resource.

Currently, the majority of landings in each LCMA are taken a single statistical area (SA) (Table 6 and 7). The exact locations of where fishing occurs are not recorded the landings database. The database only provides landing by statistical area. Closure at the statistical area or LCMA scale would either shut the fishery down or have little or no effect. The greatest poundage is taken in LCMA 3, 69% of which was taken in SA 537 in 2007-2009, followed by 20% taken in SA 616. Similarly, 79% of LCMA 2 landings were taken in SA 539, and 85% of LCMA 4 landings were taken in SA 612. All of LCMA 6 landings were taken in SA 611. Only the fishery in LCMA 5, which contributed 3% to 2007-2009 SNE landings, is dispersed widely enough that closure of one or two statistical areas would almost eliminate the fishery.

IV. TRAP LIMITS

The TC does not recommend the use of trap reductions alone as a mechanism to reduce exploitation because the recoupment potential for the industry to recover from trap reductions is considerable and poorly understood. There is a poorly understood non-linear relationship between the number of traps fished and landings, therefore we are unable to recommend the number of traps that would need to be removed from the SNE fishery to reduce exploitation by 50 or 75 %. However, it is the TC's belief that the current fishery needs be scaled to the size of the of the SNE stock, and that the total fishing capacity (both active and latent traps) of the SNE fishery severely limits the Boards ability to manage this fishery and to provide adequate conservation to the SNE stock.

If trap reductions were used as a management tool, the TC recommends the Board take an iterative approach, as the relationship between traps and landings in SNE is not known. To achieve a 50 or 75 % reduction in landings we would recommend a 75% reduction in actively fished traps from the 2005-2007 levels. The initial reduction would translate to overall SNE trap levels dropping from 221,000 to 55,000 traps. Additional reductions will likely be needed until the desired levels are achieved. It is important that latent, or unused trap allocations, are not part of the 75% reduction and would not re-enter the fishery unless the resource were to rebuild. We recommend proportional decreases in trap numbers throughout all of the LCMA's within SNE stock area. Trap reductions that do not achieve 50% or 75% reductions in landings could still enhance the benefits of other types of regulation changes.

The number of traps reported as actively fished has dropped by 56% from 2000 (573,931) through 2009 (251,542) (Figure 3). However, traps have not declined proportionally among SNE states. From information that is available, New York has seen the largest decline at 79%; followed by Connecticut, 54%; Massachusetts, 40%; and Rhode Island at 35%. The board should be cognizant that the observed reductions in the active number of traps fished are not always the result of a management measure and do not represent the large amount of latent traps that exist in each LCMA. There is no time series of trap use available for states south of New York.

Trap reductions are eventually expected to result in overall effort reductions, however the number of traps allowed in the fishery is a poor definition of effort. It is generally agreed that one unit of trap reduction will not equal one unit of effort reduction. The numbers of trap hauls, with knowledge of their respective soak times and location represents a more direct measure of effort. However it is difficult to predict how reductions in total traps will affect these other variables.

A recent example of this lack of direct relationship between traps and harvest is in the Florida spiny lobster fishery where traps were recently reduced by just over 40 % resulting in a 16% decline in fishing mortality (Muller et al 1997). Experimental (Wilson 2010) and theoretical (Fogarty and Addison 1997) results suggest that large trap reductions would be required to reduce fishing mortality in the American lobster fishery. This is due to both the excess of gear currently being fished and the ability of the fishing industry to adjust fishing practices.

Regional examples of recoupment of catch by the lobster industry with reduced numbers of traps and/or seasons include the Outer Cape Cod (OCC) LCMA, Monhegan Island Lobster

Conservation Area in Maine and the Southwest Nova Scotia fishery (Lobster Fishing Area 34). Following the implementation of the OCC trap allocation plan in 2004 there was 25.6% reduction in the number of active traps reported fished. Despite the decline in traps fished, the number of trap hauls has stayed remarkably stable at roughly 600,000 per year. This indicates that the fishery has maintained its effective level of effort by hauling traps more frequently and over a longer season to compensate for having fewer in number. The OCC LCMA reached the goal of a 20% reduction of active traps fished as intended in Addendum III. However, there has been no reduction in fishing mortality as intended by the trap reduction. In fact there is evidence that there has been a 40% increase in fishing mortality on the Georges Bank stock since 2002 in the OCC LCMA (ASMFC 2009, 2010).

The Monhegan Island Lobster Conservation Area (MILCA) is an approximately 30 nm^2 body of water surrounding Monhegan Island, located in the mid-coast Maine. Monhegan Island fishermen have observed a summer closed season since 1907. By statute, MILCA may have a maximum of 17 participants (there are currently 12). Recent legislative action expanded the open fishing to a maximum of 270 days starting no earlier than October 1, but reduced the maximum allowable traps from 600 to 475 (12 M.R.S. §6471). The final season length and trap numbers is at the discretion of Maine's Marine Resource Commissioner. In the past three fishing seasons the Commissioner has set the season length at 270 consecutive days starting October 1 with a maximum of 300 traps. MILCA participants have consistently caught 50% of their annual catch within the first seven weeks of the season. The median catch of MILCA participants exceeds the median catch in southern and mid-coast Maine, areas with a maximum of 800 or 600 traps and a year round fishery (C. Wilson, 2010, personal communication).

Finally, LFA 34 is the most productive lobster fishing area in Canada, accounting for 40% of Canadian landings and 23% of the combined US/CA lobster landings. LFA 34 has a six month open fishing season that opens the last Monday in November and ends May 31 the following year. There are 967 licenses with a maximum trap limit of 375 (an additional 25 traps tags are issued after April 1)(DFO 2006). Annual landings in the last ten years have averaged approximately 30 million pounds. During this period 50% of the annual catch is landed in the first 15-22 days (D. Pezzack ,2010, personal communication) with an average of 3.75 to 5.5 pounds per trap per day at the start of the season. Early season catch rates are approximately ten times those observed in SNE in recent years. When compared to the Maine fishery, LFA 34 has approximately 1/5 the fishermen and 1/10 the traps as Maine.

Although trap reductions may improve profists to some fishermen, they have the most immediate negative impact on those who are fishing all their gear in the most efficient means possible. Unintended negative impacts may also be felt by deck hands, whose services may no longer be required by captains pulling less gear. The perceived economic effects of trap reductions are open to wide debate and have been the topic of many past LCMT deliberations. Trap reductions coupled with a transferability system may improve profits to fishermen and would provide a mechanism for some fishers to survive a stock wide 75% reduction in the exploitation rate.

V. SIZE LIMITS

The TC does not recommend using additional gauge increases/decreases as the sole means to reduce exploitation in the SNE stock. The TC explored the development of a uniform size

window to balance restrictions that approximate equivalent reductions for areas that are dominated by smaller (inshore) and larger (offshore) lobster. However, at the size limits estimated (3 ½" - 3 ¾" or 3 ⅞" for a 50% reduction and 3 ½" - 3 ⅝" or 3 ¾" for a 75% reduction), the fishery would be targeting a very narrow gauge range, 1/4 - 3/8" to acheive a 50% reduction and 1/8-1/4" for a 75% reduction. This would result in extremely high discard rates (approximately 80 to 90 %; Table 8), causing increased stress on lobster due to trapping, handling, and temperature fluctuations and exposure to predation while being hauled to the surface.

Size limits can lead to increased egg production. The minimum gauge size can be set to achieve a desired level of egg production before lobsters are legally susceptible to harvest. SNE sea sampling data indicate approximately 27% of mature female lobster are egg bearing annually (Table 9). The TC does not recommend managing the fishery solely through minimum gauge restrictions because it does not reduce the fisheries' current reliance on newly recruited lobster. At high exploitation rates there would still be complete dependence on newly recruited lobster to sustain the resource and the fishery. Under this scenario annual fluctuations in recruitment can create an unstable fishery and recruitment shortfall, as has occurred in SNE.

In addition, minimum size limits can select for slower growing individuals and may cause evolutionary changes to the population (Conover and Munch, 2002; Williams and Shertzer, 2004). The areas of SNE that have had the greatest effort have the smallest sized lobster. In contrast, maximum size limits can provide protection against recruitment variation because large lobsters have proportionally more eggs which have a greater rate of survival. A pool of large lobster would provide a buffer against recruitment variations and dependence on first time spawners. Additionally, it will conserve the genes of fast growing individuals in the population.

The maximum gauge restriction raises a concern because it will have the biggest impact on offshore fishermen where there is a higher proportion of larger lobster. Lobster above the maximum size represent a permanent loss of yield to the fishery. In inshore areas, where exploitation rates are high, very few lobster live long enough to reach the current maximum size limit (5 1/4 inch). However, if fishing rates where reduced in high exploitation areas then more lobster may survive to the maximum size. Despite these concerns the fishery would benefit from increased egg production and protection from recruitment variation.

However, uniform minimum and maximum gauge sizes in all areas would be desirable to minimize stock assessment uncertainty and social, political, and enforcement problems. In addition, concerns have been raised about diminished conservation value of non-uniform size limits if there is movement of lobster between jurisdictions. However, a uniform gauge will have varying impacts due to differences in lobster size distribution among areas, which varies greatly among areas in SNE. This can be seen in the plot of sea and port samples by LCMA and NMFS statistical area (Figure 4 and Appendix 2B). This variation is due to the different LCMA gauge regulations, population characteristics, and sample size. In general, the size distributions of lobster in the inshore LCMAs (2, 4, and 6) are smaller than off shore (LCMA 3) (Figures 5 and 6). The one exception is lobster sampled in LCMA 5 whose size distribution is much larger than the distributions of the other inshore LCMAs and more similar to distributions seen offshore (Figures 5 and 6).

Due to this geographic variation in size distribution, changes in gauge size will affect LCMAs differently. Increases to the minimum gauge while holding the maximum size at 5 ¼" will largely affect the inshore fishery. Decreases in the maximum gauge will mainly affect the offshore fishery (Table 10). To develop a uniform minimum and maximum size limit that would reduce both the inshore and offshore landings by similar proportions, the minimum size limit inshore would need to increase and the maximum size limit offshore would need to decrease. Of the combinations examined in Table 2, a minimum size of 3 ½" and a maximum size between 3 ¾ and 3 ⅞would generally result in a 50% reduction of landings and a minimum size of 3 ½" and a maximum size between 3 ¾ and 3 ⅝ would generally result in a 75% reduction of landings.

The TC has serious concerns about the use of a minimum and maximum size limit as the sole means of achieving a reduction in exploitation.. At the size limits estimated above, the fishery would be fishing on a very narrow range of size, ¼ - ⅜" for 50% reduction and ⅛-¼" for a 75% reduction. This would result in extremely high discard rates, of approximately 80 to 90% (Table 8). This is an additional 13 to 24 % above the current discard rate. While these lobster would be protected from harvest, the high rate of discard would cause increased stress on lobster due to trapping, handling, and exposure to temperature fluctuations while being hauled to the surface. Lobster may also experience increased exposure to predators while being discarded. In addition, the efficiency of the fishery would decrease significantly since an increased percentage of the lobster caught would need to be discarded. It may be possible to modify trap gear to decrease the discard rate by increasing the vent size and decreasing the entrance size, but this would still affect the efficiency of the fishery. The TC does not recommend that changes to the minimum and maximum size limits be used as a primary management tool due to the concerns about the increased discard rate and decreased efficiency in the fishery. However, they feel that changes to the minimum and maximum size could have substantial benefit if used in a complimentary fashion with other management tools.

VI. MALE ONLY/V-NOTCH FISHERY

The TC does not recommend a management strategy that focuses solely on single sex harvest. This type of management would be precedent setting for American lobster and the TC can not predict the affect this management strategy would have on the reproductive dynamics of the SNE stock. There are several areas within SNE, where the sex ratio is already highly skewed toward females.

Male Only Fishery

The TC strongly cautions the Board about the use a of male-only harvest strategy. While it would likely cause a substantial reduction in catch (40 to 80%), this reduction would not be equitable among LCMA's and states, nor would it be equitable within LCMA's, states, and regions. This strategy would likely lead to increases in effort, and to changes in the distribution of fishing gear which would lead to gear conflicts. The impact of a highly female skewed sex ratio on American lobster populations is largely unknown, but could be damaging to the reproductive dynamics of the SNE stock.

American lobster are known to segregate by gender seasonally. In general, male lobster tend to be more resilient to changes in temperature and salinity and as a result are more likely to be found in shallow estuarine waters and tend to make smaller scale seasonal migrations. Female lobster are more likely to be found in deeper water where temperature and salinity are more stable. This phenomenon appears to be related to behavioral thermoregulation, whereby egg-bearing females undergo seasonal migrations along depth contours to maintain stable water temperature for developing embryos. As a result of these sex specific behavioral tendencies, the bathymetry and oceanographic conditions of a specific location have a large influence on the population demographics (density, gender, maturity status, molt stage) of the lobster living there. Ultimately it is these demographics which determine the composition of the catch in these areas.

The sex ratios of the commercial catch from 2007 and 2009 were examined spatially and temporally to determine the impact of a male-only harvest program on the SNE lobster fishery, and it's potential effectiveness as a management strategy. The percentage of the commercial catch comprised of females in the SNE stock varies substantially among seasons, among statistical areas, and even within statistical areas (Table 11). The shallower embayments tend to be closer to a 1:1 female to male sex ratio, or even slightly male dominated; the deeper portions of inshore waters and nearshore waters tend to be female dominated; and the SNE canyons tend to be male dominated. As a result the impact of a male-only harvest strategy on the Southern New England lobster fishery would be dramatically different among LCMA's, within segments of LCMA's, within segments of statistical areas, and within states. As expected, the reduction in catch would be most dramatic in areas with female dominated sex-ratios. For example a male only fishery would result on average in > 80% reduction in catch within statistical area 538, whereas it would result in only a 51% reduction in catch in central Long Island Sound. These differences in sex ratio within specific portions of LCMA's would likely cause some fishermen to move their gear into areas with higher proportions of males to obtain higher catch rates. Therefore it is not possible for the TC to accurately predict the overall impact of a male-only harvest strategy on the SNE stock, a specific LCMA, or even within a state.

The TC also has concern that a male-only harvest strategy will cause fishermen to increase their effective effort (trap hauls) to compensate for the loss of catch. This would cause increased pressure on the male portion of the stock, and would also cause increased stress to female lobster that will likely be caught and released multiple times in the process. The TC also anticipates that a male-only harvest strategy will substantially skew the sex-ratio toward females. This raises additional concern about potential problems with sperm limitation within the Southern New England stock. There is no concrete evidence of sperm limitation occurring in American lobster, however, male-only harvest strategies have been linked sperm limitation and disruption of the reproductive output of opilio crabs (Sainte-Marie et al 2008) and spiny king crabs (Sato *et al.* 2007).

V-Notch Fishery

The TC does not have any empirical evidence to support that a mandatory v-notch program or a mitigation style v-notch program would be successful at reducing the exploitation rate of the total SNE stock by 50 or 75%. The TC reiterates its concerns about a management strategy that focuses solely on females and cautions the Board about using a management strategy that requires the fishery to maintain substantial harvest rates to be successful.

It is difficult for the TC to provide meaningful advice relative to the effectiveness of a v-notch program without having specific details about the nature of any proposed program. Currently, the observed proportion of v-notched female lobster in the overall SNE catch is low. Those that are observed are the result of remnants of the North Cape Oil Spill Mitigation Program, the CT v-notch management initiative in 2008, as well as result of a small number of fishermen actively v-notching. The current observed rates of v-notching in the SNE stock do not reflect the results of any on-going management program.

A mandatory v-notch program would have the potential to substantially reduce exploitation on the female portion of the stock if there were good compliance with this management measure. In Maine, where v-notching has been a "management staple" since the late 1940's and the fishery has been extremely productive in the last decade, v-notching protects roughly 35% of the exploitable female population from harvest. The amount protected in the SNE fishery by this type of management program would depend on the exploitation rate, the rate of compliance, and the length of time a female would be protected by the v-notch definition used. Given the condition of the SNE fishery the TC warns that there would be substantial financial disincentive to participate in a mandatory v-notch program and that this management measure is difficult to enforce.

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Tables

Table 1. 2007-2009 Average State SNE Landings (Pounds) By Month

State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	%Total
Connecticut	26,446	9,946	9,511	18,335	32,943	60,792	133,432	90,873	24,353	7,427	16,789	36,869	467,714	9%
Massachusetts	20,375	13,165	21,326	35,550	54,358	78,795	146,226	151,753	120,858	96,033	55,594	33,431	827,465	15%
New York	26,647	7,313	10,329	25,018	54,613	94,751	196,153	171,495	106,399	65,008	43,790	31,547	833,062	15%
NJ-DE-MD-VA	19,658	12,215	14,059	45,132	79,463	111,265	123,702	105,959	82,176	88,608	64,349	45,107	791,693	14%
Rhode Island	64,302	28,975	31,619	64,956	171,720	317,532	503,107	441,070	336,239	281,536	194,301	115,556	2,550,912	47%
Grand Total	157,428	71,614	86,845	188,991	393,097	663,136	1,102,619	961,149	670,025	538,612	374,822	262,510	5,470,846	

Table 2. SNE Stock Quota by state based on a 50% reduction in the average landings from 2007-2009

State	Quota
Connecticut	233,857
Massachusetts	413,733
New York	416,531
NJ-DE-MD-VA	395,847
Rhode Island	1,275,456
Grand Total	2,735,423

Table 3. SNE Stock Quota by state based on a 75% reduction in the average landings from 2007-2009

State	Quota
Connecticut	116,928
Massachusetts	206,866
New York	208,266
NJ-DE-MD-VA	197,923
Rhode Island	637,728
Grand Total	1,367,712

Table 4. 2007-2009 Average SNE Landings (Percentage) By Month and LCMA

LMA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2	3.1%	1.4%	1.8%	3.4%	5.6%	13.3%	25.2%	18.1%	10.9%	7.3%	5.4%	4.6%	100%
3 & 5	2.0%	1.1%	1.5%	2.9%	7.5%	10.7%	14.5%	16.5%	15.5%	14.3%	9.0%	4.4%	100%
4	2.8%	1.5%	1.7%	5.9%	9.7%	14.2%	17.1%	14.7%	10.6%	8.9%	7.2%	5.7%	100%
6	4.6%	1.5%	1.5%	3.7%	7.5%	12.7%	27.2%	20.5%	7.8%	3.8%	3.8%	5.5%	100%
All of SNE	2.9%	1.3%	1.6%	3.5%	7.2%	12.1%	20.2%	17.6%	12.2%	9.8%	6.9%	4.8%	100%

Table 5. Percent of Annual Landings Occurring in Various Seasons by LCMA and for the Total Stock

LCMA	Jul-Sept	Jun- Sept	May-Sept	Jun-Oct	Jul-Nov
2	54%	67%	73%	75%	67%
6	56%	68%	76%	72%	63%
4	42%	57%	66%	66%	59%
3 & 5	46%	57%	65%	71%	70%
All of SNE	50%	62%	69%	72%	67%

Table 6. 2007-2009 Average Landings (pounds) by Statistical Area

Stat Area	Total Pound	%Total
537	1,655,963	30%
538	184,546	3%
539	1,171,210	21%
611	1,098,707	20%
612	431,461	8%
613	75,207	1%
614-615	118,222	2%
616-533	452,309	8%
621-622	123,879	2%
623	127,077	2%
624-633	32,266	1%
Total	5,470,846	100%

Table 7. 2007-2009 Average Landings (pounds) by LCMA

LCMA	Total Pounds	%Total
2	1,476,313	27%
3	2,237,475	41%
4	506,701	9%
5	165,912	3%
6	1,084,445	20%
Total	5,470,846	100%

Massachusetts:	Stat Area 538 and 539 landings were assigned to LMA 2; Stat Area 537 landings were assigned to LMA 3.
Rhode Island:	Landings from all stat areas were assigned to LMA based on annual tallies of license holders' known fishing practises and permit history.
Connecticut:	Stat Area 611 landings were assigned to LMA 6 except those from subarea 149 which were assigned to LMA 2.
New York:	Landings from all stat areas were assigned to LMA based on annual tallies of license holders' known fishing practises and permit history.
New Jersey:	Inshore Stat Area landingss were assigned to LMA 5 (614 & 615), LMA 4 (612 & 613), and LMA 6 (611); all other landings were assigned to LMA 3.
DE, MD, VA:	Compliance report total reported landings for 2008 and 2009 were apportioned to Stat Areas based on NMFS partial reporting; (2008: 42,960 lbs expanded to 52,570 lbs; 2009: 30,390 lbs expanded to 49,861 lbs). 2007 landings as reported in Assessment. Inshore Stat Area landingss were assigned to LMA 5 (614,615,621,625,631,635) or LMA 4 (612); all other landings were assigned to LMA 3.

Table 8. Percentage of catch discarded due to size limit changes, and percentage increase of discards over current levels.

	LCMA 2		LCMA 3		LCMA 6		SNE	
% Released at Current Slot Limit	70%	Addn'l bycatch above current levels	59%	Addn'l bycatch above current levels	76%	Addn'l bycatch above current levels	66%	Addn'l bycatch above current levels
% of total catch released at:								
Alternative Minimum Sizes (5-1/4" max)								
> 3-1/2" (88.9 - 133.4mm)	82%	12%	59%	0%	88%	12%	73%	7%
> 3-17/32" (89.7 - 133.4mm)	84%	14%	62%	3%	90%	14%	75%	9%
> 3-9/16" (90.5 - 133.4mm)	86%	16%	65%	5%	92%	16%	77%	11%
> 3-19/32" (91.3 - 133.4mm)	87%	17%	65%	6%	93%	17%	78%	12%
> 3-5/8" (92.1 - 133.4mm)	91%	21%	71%	11%	95%	19%	82%	16%
> 3-21/32" (92.9 - 133.4mm)	92%	23%	73%	14%	96%	20%	84%	18%
>3-3/4 (95.3 - 133.4 mm)	96%	26%	80%	21%	98%	23%	89%	23%
3-3/8 Minimum & Alternative Maximum								
> 3-3/8" - 4" (85.7 - 101.6mm)	71%	1%	42%	-17%	76%	0%	59%	-7%
> 3-3/8" - 3-5/8" (85.7 - 92.1mm)	79%	9%	66%	6%	81%	5%	73%	7%
> 3-3/8" - 3-17/32" (85.7 - 89.7mm)	86%	16%	74%	15%	86%	10%	80%	14%
> 3-3/8" - 3-1/2" (85.7 - 88.9mm)	88%	18%	77%	18%	88%	12%	83%	17%
> 3-3/8" - 3-15/32" (85.7 - 88.1mm)	91%	21%	80%	21%	90%	14%	85%	19%
> 3-3/8" - 3-7/16" (85.7 - 87.3mm)	94%	24%	85%	25%	93%	17%	89%	23%
3-1/2 Minimum & Alternative Maximum								
> 3-1/2" - 5" (88.9 - 127.0mm)	82%	12%	60%	0%	88%	12%	73%	7%
> 3-1/2" - 4" (88.9 - 101.6mm)	83%	13%	66%	7%	88%	13%	76%	10%
> 3-1/2" - 3-7/8" (88.9 - 98.4mm)	83%	13%	71%	12%	89%	13%	79%	13%
> 3-1/2" - 3-3/4" (88.9 - 96.8mm)	86%	16%	79%	20%	90%	14%	84%	17%
> 3-1/2" - 3-5/8" (88.9 - 92.1mm)	91%	21%	89%	30%	93%	17%	90%	24%
> 3-1/2" - 3-19/32" (88.9 - 91.3mm)	93%	23%	92%	32%	94%	19%	93%	26%

Table 9. 2007 - 2009 Percent of egg bearing females 1-5mm below legal size

State	2007	2008	2009	2007-2009 Average
CT	41.7%	29.3%	30.1%	33.2%
MA	31.5%	38.7%	33.8%	34.7%
NJ	NA	12.5%	13.2%	12.8%
NY	17.2%	13.2%	15.5%	15.3%
RI	32.8%	37.8%	42.5%	37.7%
Average SNE	30.8%	26.3%	27.0%	26.7%

Table 10. Percentage Reduction in Landings due to size limit changes (gray boxes indicate where there is a > 50% reductions and bolded boxes where there is > 75% reductions.

Alternative Minimum Sizes (5-1/4" max)	LCMA 2	LCMA 3	LCMA 4	LCMA 5	LCMA 6	SNE
> 3-1/2" (88.9 - 133.4mm)	-37.1%	-3.9%	-26.3%	-7.1%	-45.6%	-22.8%
> 3-17/32" (89.7 - 133.4mm)	-45.3%	-8.4%	-32.1%	-9.4%	-54.0%	-28.5%
> 3-9/16" (90.5 - 133.4mm)	-53.4%	-13.3%	-39.0%	-11.7%	-61.9%	-35.0%
> 3-19/32" (91.3 - 133.4mm)	-62.8%	-17.8%	-46.9%	-14.5%	-70.8%	-42.2%
> 3-5/8" (92.1 - 133.4mm)	-69.8%	-22.8%	-53.9%	-16.5%	**-75.0%**	-48.5%
> 3-21/32" (92.9 - 133.4mm)	**-75.1%**	-27.4%	-59.9%	-18.6%	**-79.4%**	-54.0%
>3-3/4 (95.3 - 133.4 mm)	**-88.0%**	-41.4%	**-75.7%**	-27.3%	**-90.4%**	-68.7%
3-3/8 Minimum & Alternative Maximum						
> 3-3/8" - 4" (85.7 - 101.6mm)	-1.9%	-26.2%	-5.7%	-55.3%	-2.1%	-11.1%
> 3-3/8" - 3-5/8" (85.7 - 92.1mm)	-30.2%	**-75.6%**	-46.1%	**-83.5%**	-25.0%	-51.1%
> 3-3/8" - 3-17/32" (85.7 - 89.7mm)	-54.7%	**-90.4%**	-67.9%	**-90.6%**	-46.0%	-71.3%
> 3-3/8" - 3-1/2" (85.7 - 88.9mm)	-62.9%	**-94.9%**	-73.7%	**-92.9%**	-54.4%	**-77.0%**
> 3-3/8" - 3-15/32" (85.7 - 88.1mm)	-70.3%	**-97.7%**	**-78.8%**	**-94.8%**	-63.4%	**-81.9%**
> 3-3/8" - 3-7/16" (85.7 - 87.3mm)	**-79.4%**	**-99.4%**	**-85.6%**	**-96.8%**	**-74.5%**	**-87.8%**
3-1/2 Minimum & Alternative Maximum						
> 3-1/2" - 5" (88.9 - 127.0mm)	-37.1%	-5.8%	-26.4%	-12.6%	-45.6%	-23.4%
> 3-1/2" - 4" (88.9 - 101.6mm)	-39.0%	-31.3%	-32.0%	-62.5%	-47.7%	-34.1%
> 3-1/2" - 3-7/8" (88.9 - 98.4mm)	-41.4%	-44.7%	-38.0%	-69.8%	-50.1%	-41.2%
> 3-1/2" - 3-3/4" (88.9 - 96.8mm)	-49.1%	-67.7%	-50.6%	**-79.8%**	-53.0%	-55.1%
> 3-1/2" - 3-5/8" (88.9 - 92.1mm)	-67.3%	**-80.8%**	-72.5%	**-90.7%**	-70.6%	-74.1%
> 3-1/2" - 3-19/32" (88.9 - 91.3mm)	**-74.4%**	**-86.1%**	**-79.4%**	**-92.7%**	**-76.7%**	**-80.6%**

Table 11. Percentage of the "marketable" comprised of female lobsters by statistical areas – 2007–2009; **a.)** SA 611 – LMA 6, **b.)**SA 538 – LMA 2, **c.)** SA 539 – LMA 2, **d.)** SA 537 – LMA 2 & 3, **e.)** SA 616 – LMA 3.

A. **Connecticut - Stat Area 611 - inshore**

% Female - marketable lobsters only			
	2007 - 2009 Average		
	EAST	CENTRAL	WEST
Jan	47%	38%	40%
Feb	64%		44%
Mar	71%		
Apr			
May		49%	33%
Jun	77%	40%	83%
Jul	73%	43%	52%
Aug	85%	72%	78%
Sep	79%	80%	45%
Oct	57%		
Nov	51%	71%	42%
Dec	44%	28%	18%

*box is gray where the sample size < 50

B. Massachusetts Stat Area 538 - inshore

% Female - marketable lobsters only			
	2007	2008	2009
May	77%	67%	82%
Jun	83%	83%	90%
Jul	73%	57%	77%
Aug	85%	72%	70%
Sep	83%	90%	
Oct	86%	93%	89%
Nov	86%	91%	93%

C. Rhode Island - Stat Area 539 - inshore

% Female - marketable lobsters only						
	2007		2008		2009	
	NARRAGANSETT BAY	RI SOUND	NARRAGANSETT BAY	RI SOUND	NARRAGANSETT BAY	RI SOUND
Jan	53%	55%	52%	76%	54%	74%
Feb	26%	55%	51%	59%	38%	93%
Mar	28%	57%	50%	39%	37%	71%
Apr	39%	47%	52%	72%	40%	48%
May	24%	38%	36%	88%	29%	61%
Jun	52%	58%	34%	59%	18%	37%
Jul	70%	65%	49%	41%	51%	42%
Aug	69%	67%	51%	81%	60%	51%
Sep	70%	69%	44%	84%	46%	88%
Oct	42%	74%	32%	88%	31%	85%
Nov	37%	88%	24%	92%	23%	85%
Dec	49%	80%	49%	84%	28%	88%

D. Rhode Island - Stat Area 537- offshore

% Female - marketable lobsters only			
	2007	**2008**	**2009**
Jan	27%	25%	18%
Feb	32%	32%	40%
Mar	28%	29%	27%
Apr	33%	39%	25%
May	32%	28%	25%
Jun	27%	23%	25%
Jul	21%	19%	27%
Aug	26%	27%	28%
Sep	42%	30%	37%
Oct	31%	40%	38%
Nov	53%	63%	39%
Dec	51%	41%	42%

E. Rhode Island - Stat Area 616- offshore

% Female - marketable lobsters only			
	2007	**2008**	**2009**
Jan		40%	24%
Feb		39%	20%
Mar		38%	33%
Apr		28%	39%
May		22%	34%
Jun	21%	16%	21%
Jul	22%	24%	17%
Aug	22%	34%	33%
Sep	45%	40%	36%
Oct	40%	31%	37%
Nov	39%	31%	38%
Dec	33%	32%	30%

Figures

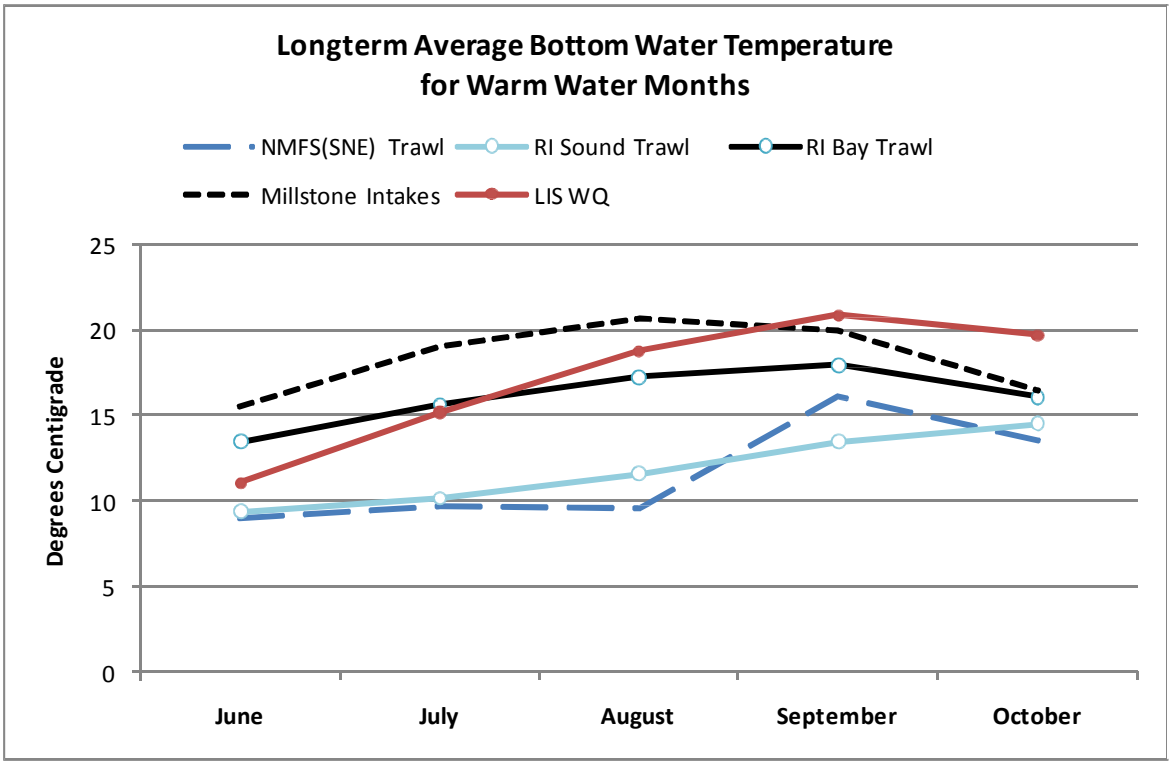

Figure 1. Longterm average bottom water temperature for warm water months. Average temperatures (°C) taken is four longterm monitoring programs: NMFS bottom trawl survey at SNE sites (1964-2009); RI Trawl Survey at RI Sound sites and Lower Narragansett Bay sites (1995-2009); Millstone Power Station intakes in eastern Long Island Sound (1976-2009); and CT DEP Long Island Sound (LIS) Water Quality (WQ) Survey (1991-2008).

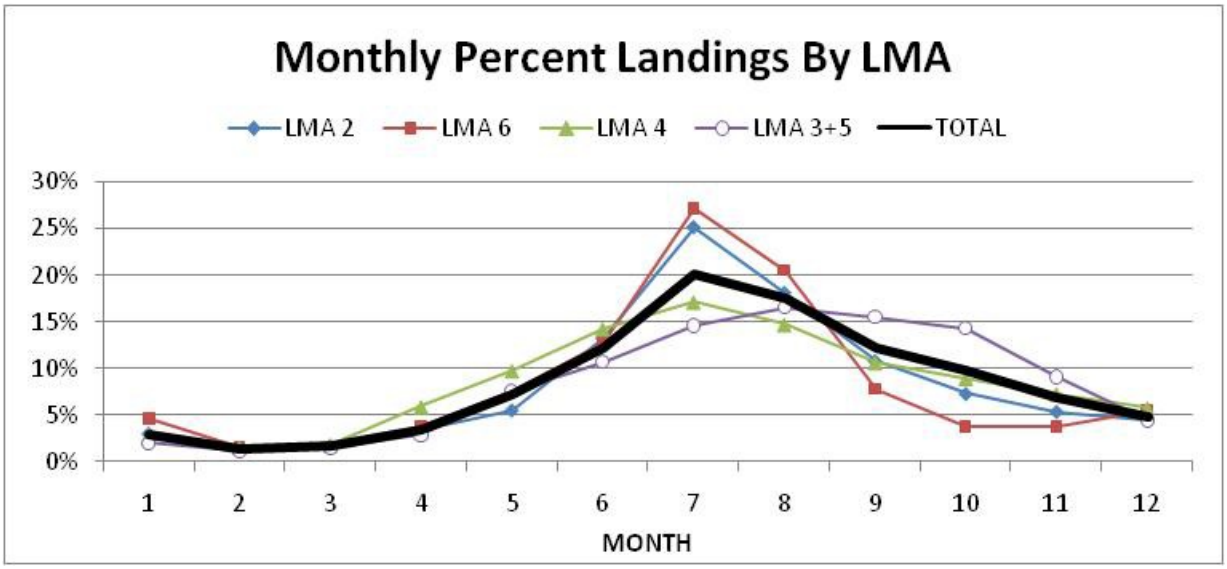

Figure 2. 2007-2009 Monthly Lobster Landings in SNE by LCMA.

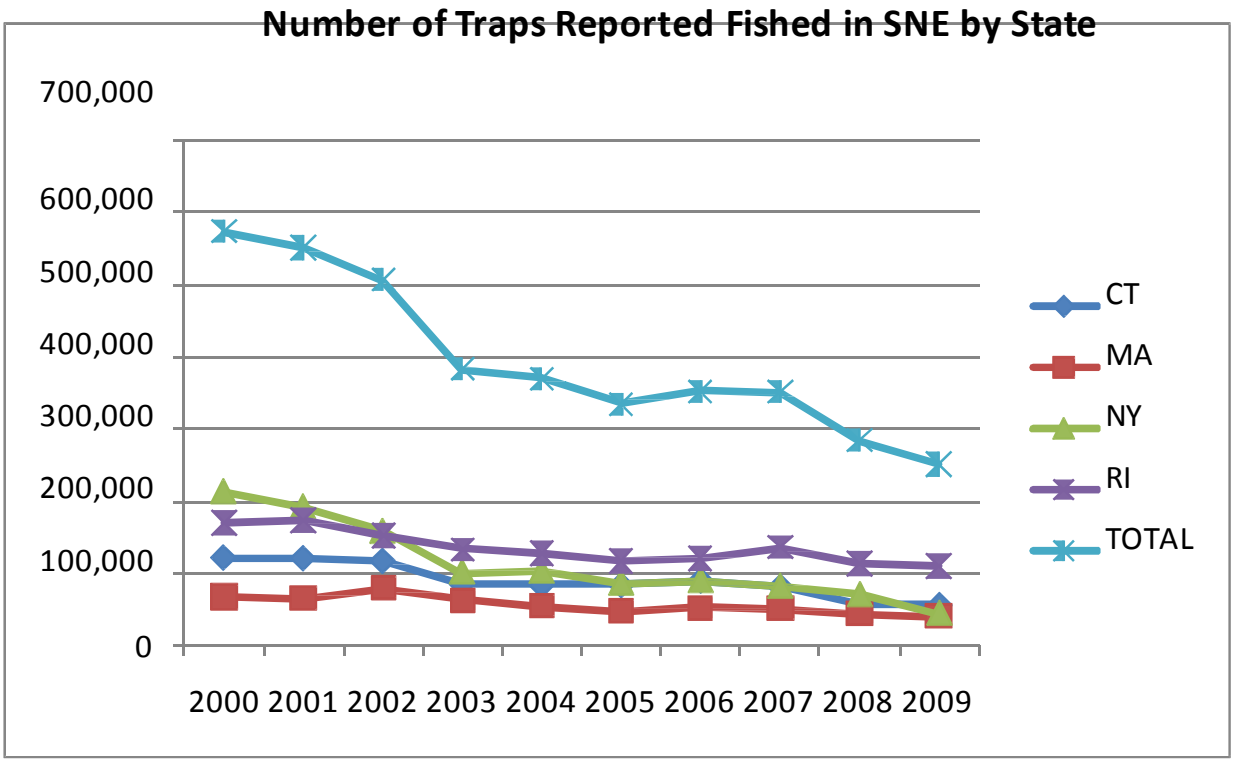

Figure 3. Number of traps reported fished from 2000-2009 by state in SNE (the 2009 number for CT was not available at the time of the report, the 2008 number was used as a proxy for 2009. This number will be updated when the 2009 number is available).

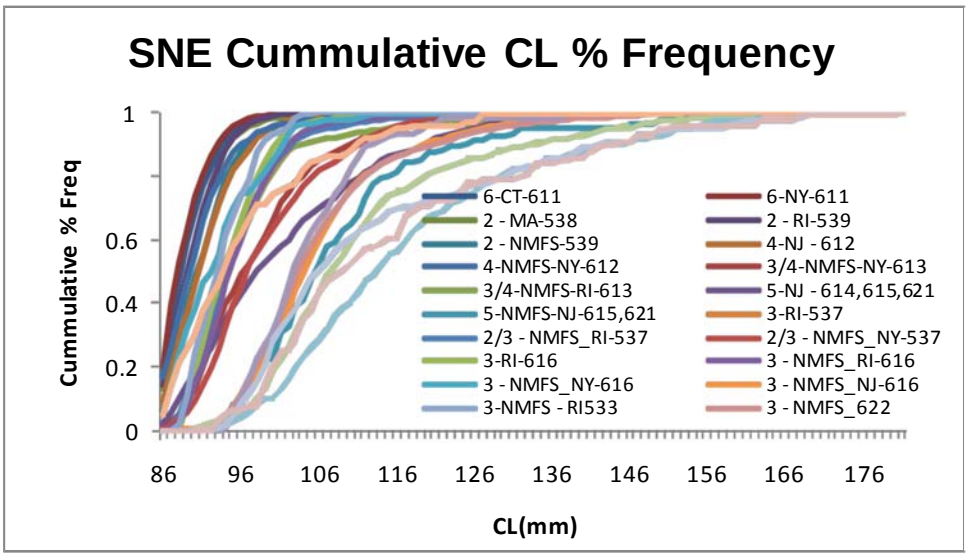

Figure 4. Cumulative % frequency of SNE sea and port samples by agency, LCMA and stat area

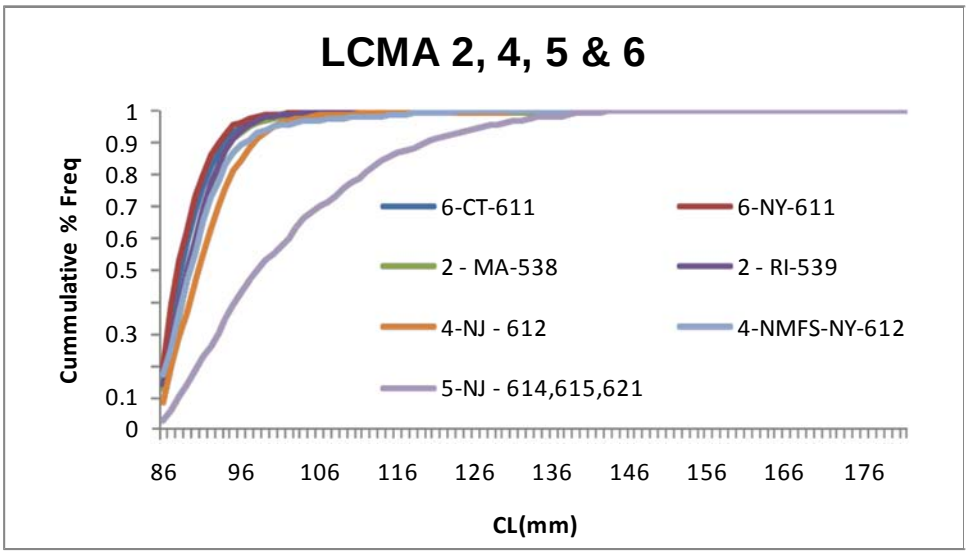

Figure 5. Inshore LCMA size distribution.

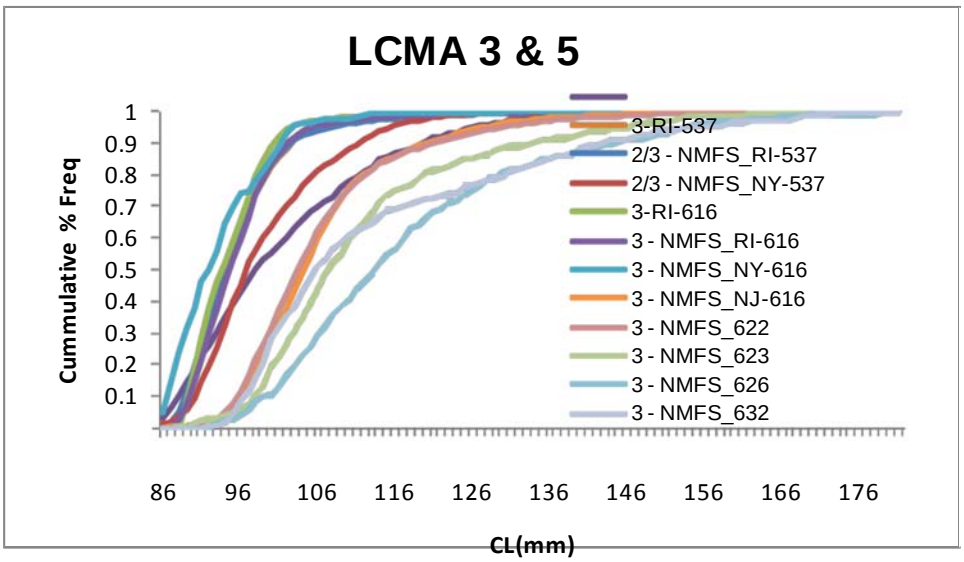

Figure 6. Offshore size distribution (LCMA 3 and 5)

Atlantic States Marine Fisheries Commission

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703.842.0740 • 703.842.0741 (fax) • www.asmfc.org

Douglas E. Grout (NH), Chair *James J. Gilmore, Jr., (NY), Vice-Chair* *Robert E. Beal, Executive Director*

Vision: Sustainably Managing Atlantic Coastal Fisheries

February 26, 2016

John Bullard, Regional Administrator
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, Massachusetts 01930

Dear Mr. Bullard,

On behalf of the American Lobster Management Board (Board), the Atlantic States Marine Fisheries Commission (Commission) is requesting NOAA Fisheries implement 100% trip level reporting for all federally licensed lobster vessels in order to increase data on catch composition and the location of lobster fishing effort in the EEZ.

At the November 2015 meeting, the Board tasked the American Lobster Technical Committee (TC) with re-evaluating the problem statement in *Section 2.1.3 Data Collection* in Addendum XVII (2012) to Amendment 3 to the Interstate Fishery Management Plan for American Lobster. The section focuses on deficiencies in landings, effort, and biological data which limit the effectiveness of assessment and management, particularly in Southern New England (SNE). Addendum XVII states that catch disposition in federal waters of the SNE lobster fishery is poorly characterized and harvester reporting systems as a whole do not have complete coverage of all vessels participating in the fishery.

In February 2016, the TC presented their evaluation of this issue and found many of the same data gaps still exist in the lobster fishery. Notably, the TC found the resolution of biological data throughout federal waters to be lacking, especially in comparison to state waters where ventless trap surveys are conducted. Additionally, the TC stated that catch disposition in federal waters of the SNE lobster fishery continues to be poorly characterized as there are mixed levels of reporting in the stock. Federally permitted lobster vessels who hail out of New Jersey, Delaware, Maryland, and Virginia are not required to submit harvest reports to NOAA Fisheries or their respective state programs. This is particularly concerning given the offshore portion of the SNE fishery is becoming increasingly scrutinized as lobster abundance inshore continues to decrease. Fishermen from New Hampshire through New York, as a requirement of their state permit, have 100% harvester reporting programs though logbook or VTR programs.

In order to improve the resolution of data in federal waters, the TC recommended in 2012, and again in 2016, that NOAA Fisheries implement 100% trip level reporting for all federally licensed vessels. The Commission is requesting NOAA Fisheries make this change to improve data on catch and the location of effort in the federal fishery. Given the offshore

portion of the SNE fishery supports many of the remaining pockets of lobster fishing effort, this action is necessary to support effective management.

The Commission asks NOAA Fisheries to implement 100% trip level reporting for all federally licensed vessels. The Commission remains dedicated to improving lobster management, and will be happy to assist NOAA Fisheries to implement this request. Please let me know if you need additional information from the Commission regarding this request.

Sincerely,

Robert E. Beal

cc: Tom Nies, Executive Director NEFMC
American Lobster Management Board

16-007

ATLANTIC OFFSHORE LOBSTERMEN'S ASSOCIATION

Grant Moore, President
exec@offshorelobster.org

David Borden, Executive Director
dborden@offshorelobster.org

June 28, 2016

Dave Gouveia
Marine Mammal and Sea Turtle Conservation Coordinator
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930

Dear Dave,

As representatives of the New England lobster fleet, we are writing to provide comments relevant to the ALWTRT Monitoring Work Group's efforts to improve fisheries and whale data components of the co-occurrence model. We agree there is a need for better data and understand that current data deficiencies leave both the industry and protected resources vulnerable. However, we have concerns with the Work Group's approach to date.

Primarily, we are concerned that the Protected Resources Division's approach may not fully consider existing and developing data collection initiatives, and lead to redundant or conflicting reporting requirements for fishermen. Specifically, we urge you to develop any new requirements in collaboration with GARFO and NEFSC's collaborative Fishery Dependent Data Committee, Fishery Dependent Data Collection Modernization Project, and the Atlantic Coastal Cooperative Statistics Program (ACCSP). We also believe that Protected Resources should continue to push for inclusion of more current and comprehensive data on whales. We are concerned that use of historic sightings alone will not adequately inform this issue.

The Fishery Dependent Data Collection Modernization Project has been described as a holistic review of data collection methods and systems across New England and the Mid-Atlantic regions, and is slated to implement revised data requirements in 2017. We believe that this effort, while federal in nature, is taking into consideration state partner input though the ASMFC process and ACCSP data warehouse. It seems terribly counterproductive to develop TRT specific data and permitting requirements insular to this broader NOAA/regional effort. We ask that your staff investigate the possibility of integrating with the Modernization Project and report your findings at the next TRT meeting.

Integration with the Modernization Project, which would include consideration of ACCSP programs, may be the best approach to ensure that industry can provide the required information without it being redundant, overly burdensome, or in conflict with other state and federal reporting. We are happy to consider additional reporting to better populate the co-occurrence model, but

additional requirements must be appropriate in scope and scale and preferably integrated with current permitting and reporting processes, rather than be yet another form to complete.

Please feel free to contact us to discuss further.

Sincerely,

David Borden, Executive Director
Atlantic Offshore Lobstermen's Association

Beth Casoni, Executive Director
Massachusetts Lobstermen's Association

Patrice McCarron, Executive Director
Maine Lobstermen's Association

CC:
Peter Burns, NOAA NMFS GARFO
John Bullard, NOAA NMFS GARFO
Tom Nies, NEFMC
Robert Beal, ASMFC
Mike Cahall, ACCSP

Atlantic States Marine Fisheries Commission

DRAFT ADDENDUM II TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR JONAH CRAB

Coastwide Standard for Claw Landings

Vision: Sustainably Managing Atlantic Coastal Fisheries

This draft document was developed for Management Board review and discussion at the August 2016 meeting week. This document is not intended to solicit public comment as part of the Commission/State formal public input process. However, comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting. Also, if approved, a public comment period will be established to solicit input on the issues contained in the document.

June 2016

Draft Document for Board Review. Not for Public Comment.

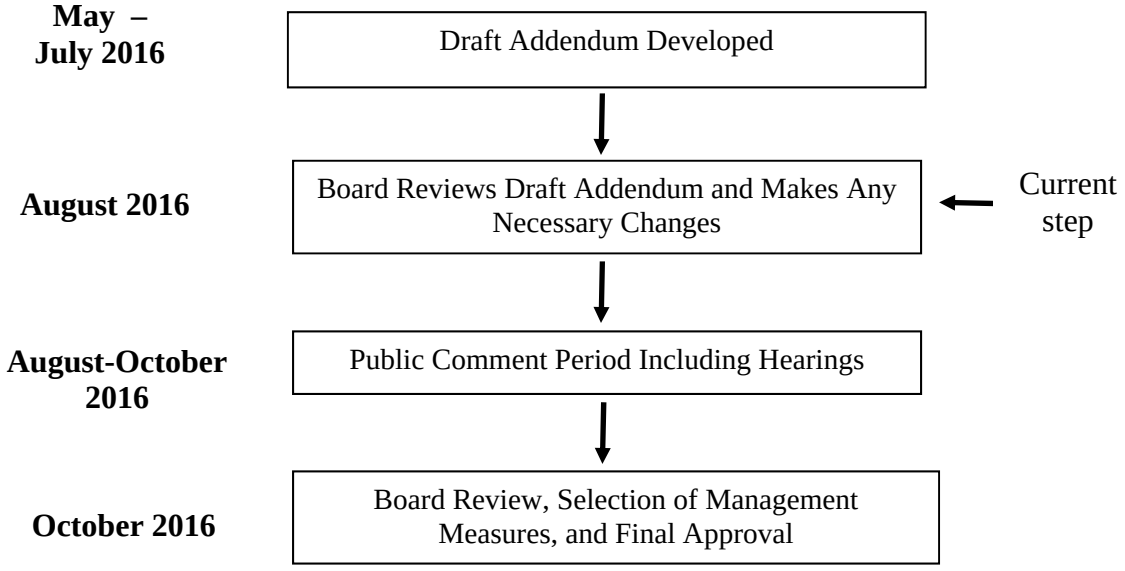
Public Comment Process and Proposed Timeline

At its May 2016 meeting, the American Lobster Management Board (Board) discussed concerns over the equity of the current claw provision in the Jonah Crab Fishery Management Plan (FMP). The Board initiated Draft Addendum II to consider establishing a coastwide standard for claw landings in the Jonah crab fishery.

The public is encouraged to submit comments regarding the proposed management options in this document at any time during the addendum process. The final date comments will be accepted is **Month Day 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: mware@asmfc.org
(Subject line: Jonah Crab Draft Addendum II)



1.0 Introduction

The Atlantic States Marine Fisheries Commission (ASMFC) coordinates the interstate management of Jonah crab (*Cancer borealis*) in state waters (from 0-3 miles offshore). ASMFC manages Jonah crab through an Interstate Fishery Management Plan (FMP), which was approved in August 2015 under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (1993). Management authority in the exclusive economic zone (EEZ), which extends from 3-200 miles offshore, lies with NOAA Fisheries. The management unit for Jonah crab includes the Atlantic states from Maine through Virginia. The biological range of the species is primarily from Newfoundland, Canada to Florida.

The American Lobster Management Board (Board) initiated Addendum II to the FMP to consider a coastwide standard for claw landings in the Jonah crab fishery. The FMP currently specifies a whole crab fishery with the exception of individuals from New Jersey, Delaware, Maryland and Virginia who can prove a history of claw landings before the June 2, 2015 control date. The FMP allows claw landings for these fishermen due to the historic practice of declawing Jonah crab in the Delmarva Peninsula. After final action was taken on the FMP, claw fishermen were identified in New York and Maine. In accordance with the FMP, these New York and Maine fishermen are required to land whole crabs.

Given concerns regarding the equity of the current claw provision (namely that some fishermen with a history of claw landings are allowed to continue this practice while others must land whole crabs) and the fact that the fishery is primarily executed in federal waters, the Board requested NOAA Fisheries provide regulatory guidance on the claw provision in the FMP. In a letter dated February 29, 2016, NOAA Fisheries highlighted potential challenges with implementing the current claw regulation since it does not provide equal opportunities to like participants across the fishery.

The purpose of this Draft Addendum is to consider modifications to the claw provision for Jonah crab. The Board is considering a range of options which would establish a coastwide standard for claw harvest in the Jonah crab fishery.

2.0 Overview

2.1 Statement of the Problem

The Jonah Crab FMP established a whole crab fishery with the exception of individuals from New Jersey, Delaware, Maryland, and Virginia, who can prove a history of claw landings before June 2, 2015. However, following approval of the FMP, claw fishermen from New York and Maine were identified. These individuals are currently only allowed to land whole crabs. Given concerns about the equity of the current claw provision, as well as potential challenges implementing the regulation in federal waters, the Board initiated this addendum to consider establishing a coastwide standard for claw harvest in the Jonah crab fishery.

2.2 Background

Jonah crab has long been considered a bycatch of the lobster industry; however, in recent years there has been an increase in targeted fishing pressure and demand for Jonah crab. Since the early 2000s, landings of Jonah crab have increased 650%, creating a mixed crustacean fishery that can target lobster or crab at different times of the year based on slight, legal gear modifications and small shifts in the areas in which traps are fished. This rapid increase in demand 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 Southern New England, causing fishermen to supplement their income with Jonah crab. As a result of this growing demand, ASMFC approved a FMP for Jonah crab to support the implementation of a unified coastal management program which promotes the conservation and full utilization of the Jonah crab resource.

Landings in the commercial fishery fluctuated between approximately 2 and 3 million pounds throughout the 1990's but steadily rose to over 17 million pounds in 2014. A similar increase occurred in the economic importance of the fishery as ex-vessel value rose from roughly $1.5 million in the 1990's to an estimated $13 million in 2014. Landings in 2014 predominately came from Massachusetts (70.4%), followed by Rhode Island (24.5%).

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. Jonah crab claws are relatively large and can be an inexpensive substitute for stone crab claws. As a result, they can provide an important source of income for fishermen. Claws can also be harvested for personal consumption; however, these landings are not well documented. Small boat fishermen, especially in the Mid-Atlantic, harvest Jonah crab claws because they do not have a seawater storage tank on board to store whole crabs. As a result, landing claws avoids economic inefficiencies for this small fleet.

<u>Jonah Crab Claw Landings</u>

Information on the magnitude of the Jonah crab claw fishery is limited. As a result, it is unclear how many fishermen are landing claws or the magnitude of pounds being harvested. The primary obstacle in obtaining this information is that trip level harvester reporting has not been required in all jurisdictions. Furthermore, prior to the implementation of the Jonah Crab FMP, many states did not require trip-level dealer reporting to delineate between whole crabs and claws.[1] As a result, data on Jonah crab claw fishery is incomplete. Refer to Appendix 1 for a summary of state reporting in the Jonah crab fishery prior to the implementation of the FMP.

[1] As a part of the Jonah Crab FMP, states were required to implement Jonah crab dealer reporting which specifies market grade by June 1, 2016.

Table 1 shows claw landings reported to the ACCSP Data Warehouse between 2010 and 2015. Total claw landings from 2010-2015 were just under 150,000 lbs; however, this is likely an underestimate given that Jonah crab dealer reporting has not always specified market grade and claws harvested for personal consumption are often not reported. Claws are primarily landed by pots and traps, with lobster pots accounting for 44% to 95% of the claw landings (a majority of pots and traps are not specified in the data reports so it is unclear what percentage of these landings are from lobster pots versus fish pots). Gill net and otter trawl fishermen comprise 2.7% of claw landings. When these gears encounter Jonah crab, fishermen harvest the claws because they are often forced to detach the claws in order to remove the crab from the net.

Table 1: Jonah crab claw landings from 2010-2015. (Source: ACCSP Data Warehouse.) The unspecified 'pots/traps' category could include lobster pots, fish pots, conch pots, and crab traps.

Year	Pots/traps (Type not specified)	Lobster Pot	Fish Pot	Gill Net	Otter Trawl	Total
Jonah Crab Claw Landings from 2010 – 2015 (lbs)	75,847	66,296	3,081	2,115	1,958	149,297
Percent of Total	50.8%	44.4%	2.1%	1.4%	1.35%	100%

While prior to the FMP Maryland did not require reporting to differentiate between claws and whole crabs, efforts were made to determine the grade of Jonah crab landings from trip level reports. ACCSP confidential dealer reports and state fishing report data were analyzed. Available fishermen were questioned and a Jonah Crab Advisory Panel member described the practices of the fleet over the time period. From these efforts, Maryland staff determined that between 2000 and 2015, only one fishing vessel predominately landed whole crabs while the remainder of the fleet (n=18) landed both claws and some whole crabs. The information also showed that the number of trips landing claws has increased from approximately 19 trips in 2011 to 70 trips in 2015. The amount of claws landed on these trip ranged from just a few pounds to a couple thousand pounds. These vessels used a variety of gears including lobster pots, conch pots, otter trawls, and gill nets.

Jonah Crab Claw Morphometric and Mortality Data

To date, the life cycle of Jonah crab is poorly understood. Several studies have recently been conducted to better understand the biology of this species. As part of a Saltonstall-Kennedy Grant awarded in 2015 to collect biological data on the Jonah crab fishery, the Massachusetts Division of Marine Fisheries measured the carapace width and claw length of several hundred Jonah crabs from Southern New England (inshore and

offshore) and Georges Bank. From this data, the relationship between carapace width and claw length was examined (Figure 1). The data suggests that, for a male crab whose carapace width meets the minimum size of 4.75" (120.65 mm), an expected claw length would be 2.47" (62.84mm).

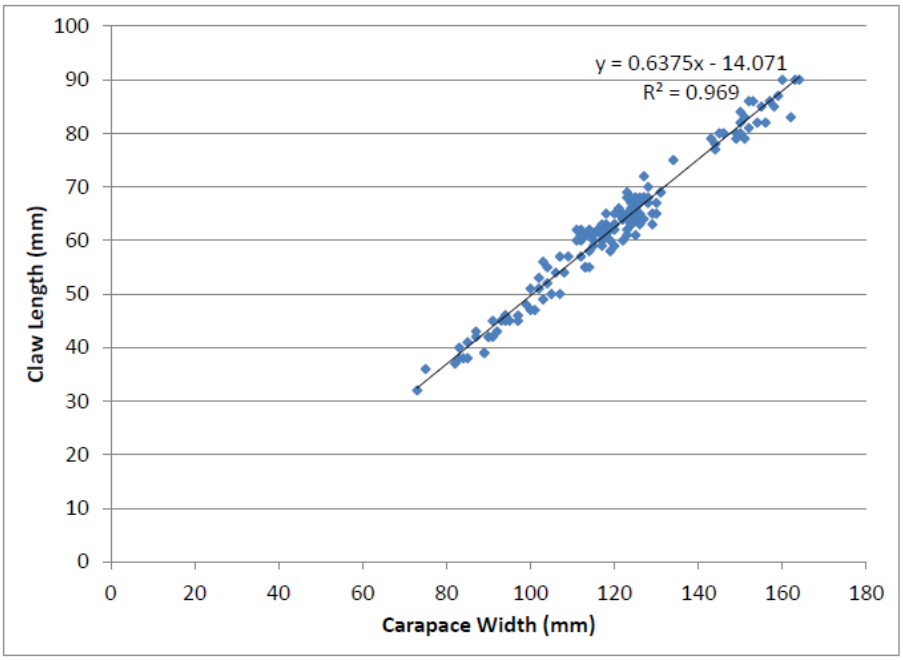


Figure 1: Linear regression between the carapace width and claw length of Jonah crabs (n=153). Measurements from regenerated claws were removed using a least square method. Regional differences in claw length may be masked since crabs from Southern New England and Georges Bank are presented together. (Source: MA DMF).

Preliminary data is also available from a small scale laboratory study which is investigating Jonah crab claw removal and its impacts on survivorship. The study, conducted by New Hampshire Fish & Game and the University of New Hampshire, looked at the biological implications of harvesting claws by subjecting crabs to one of three treatments: one claw removed, two claws removed, and no claws removed. Crabs (n=232) were monitored in seawater trays over a four week period and their activity levels and survival were evaluated. Preliminary results suggest that 19% of crabs died when no claws were removed, 56% of crabs died when one claw was removed, and 74% died when both claws were removed.

<u>Federal Adoption of the Jonah Crab FMP</u>

Given that the Jonah crab fishery is primarily executed in federal waters and there is a need for NOAA Fisheries to enact complementary measures in the EEZ, the Board sent a letter to NOAA Fisheries asking for preliminary guidance on the current claw provision. In a letter dated February 29, 2016, NOAA Fisheries responded to the Board's request, highlighting several concerns with a claw fishery in federal waters. Specifically, NOAA Fisheries reiterated the Law Enforcement Committee's position that a claw fishery could

"complicate effective enforcement of a minimum-size standard, and introduce an opportunity to move undersized crabs through the system".[2] Additionally, NOAA Fisheries stated that it "may prove challenging"[3] to implement the current claw provision due to Magnuson-Stevens Fishery Conservation and Management Act's National Standard 4, which requires that management measures "not discriminate between residents of different states"[4]. NOAA Fisheries noted their support of the Commission's public process, encouraging the Board to consider changes to the Jonah Crab FMP through an addendum which encompasses a range of alternatives and is released for public comment. Refer to Appendix 2 for a copy of the NOAA Fisheries letter received by ASMFC.

Given that the current claw provision does not provide the same fishery opportunities to like participants, the Board initiated this addendum to the Jonah Crab FMP to consider establishing a coastwide standard for claw harvest. The Draft Addendum considers a range of options including a strictly whole crab fishery and the allowance of claw harvest coastwide.

3.0 Management Program

This section proposes to replace "Crab Part Retention" in *Section 4.1* of the Jonah Crab FMP.

Option A: Status Quo
Under this option, only whole crabs may be retained and sold with the exception of individuals who can prove a history of claw landings before the June 2, 2015 control date in the states of New Jersey, Delaware, Maryland, and Virginia.

The PDT notes that if the Board pursues this option, it may be necessary to specify the size and volume of claws which may be harvested.

Option B: Coastwide Whole Crab Fishery
Under this option, only whole crabs may be retained and sold coastwide.

This option would eliminate the provision that those who can prove a history of claw landings before June 2, 2015 in the states of New Jersey, Delaware, Maryland, and Virginia can land detached claws.

Option C: Coastwide Whole Crab Fishery with Small Volumetric Claw Harvest
Under this option, the Jonah crab fishery would be primarily a whole crab fishery; however, there would be a 5 gallon coastwide tolerance of detached crab claws per vessel per trip which may be retained and sold. All harvested claws must meet a minimum length of 2.5". Two claws may be harvested from the same crab.

This option would eliminate the provision that those who can prove a history of claw landings before June 2, 2015 in the states of New Jersey, Delaware, Maryland, and Virginia can land detached claws.

[2] John Bullard to Robert Beal. 29 February 2016. Re: Jonah Crab Claw Fishery.
[3] John Bullard to Robert Beal. 29 February 2016.
[4] Ibid.

Option D: Claw Harvest Permitted Coastwide
Under this option, whole crabs which meet a minimum carapace length of 4.75" **and** detached claws which meet a minimum length of 2.5" may be retained and sold coastwide. Two claws may be harvested from the same crab. Bycatch limits will remain in effect per Addendum I such that a fisherman under the bycatch allowance may land up to 2,000 claws (1,000 whole crabs = 2,000 detached claws).

This option would eliminate the need for the provision that those who can prove a history of claw landings before June 2, 2015 in the states of New Jersey, Delaware, Maryland, and Virginia can land detached claws.

4.0 Compliance

If approved, states must implement the management measures in Addendum II by Month, 201X.

5.0 Recommendation for Federal Waters

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

6.0 Literature Cited

ASMFC, 2015. Interstate Fishery Management Plan for Jonah Crab. Atlantic States Marine Fisheries Commission, Arlington, VA. 73p.

Appendix 1: States Jonah crab reporting prior to implementation of the Jonah Crab FMP.

	NMFS	ME	NH	MA	RI	CT	NY	NJ	DE	MD	VA
Is it lawful for harvesters to land Jonah crabs and NOT report?	No for most federal permit holders. Yes for federal lobster-only permit holders and Jonah crab-only harvesters with no other federal permits	Yes	No	No	No	No	No	Yes, only if the vessel does not have a federal permit and is fishing state waters.	No	No	No
Trip-level harvester data collected delineates landings as whole crab vs. claw	No	No	No	No	No	No	No	No	No	No	Yes (though not always done in the past)
Trip-level dealer data is collected that would capture Jonah crab transactions	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes, through SAFIS for vessels with federal permit.	No	Yes	Only for federal water harvest that is sold to a federal dealer and can be tied back to a VTR
Trip-level dealer data delineates transactions as whole crab vs. claws	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No

Appendix 2

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930-2276

FEB 29 2016

Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St, Suite A-N Arlington, VA 22201

Dear Bob:

Thank you for your February 17, 2016, letter requesting preliminary guidance on the development of a claw-only Jonah crab fishery under the Interstate Fishery Management Plan for Jonah Crab. As your letter points out, I cannot provide definitive, final guidance on this issue because the Lobster Board continues to discussion revisions to claw-only measures and my staff have not yet completed the rulemaking process to implement the management measures recommended in the Jonah Crab Plan. I can provide guidance on preliminary conservation, enforcement and legal issues associated with a claw-only fishery.

As you noted, I urged the Lobster Board in my July 16, 2016 letter to develop a whole-crab fishery, as the Jonah Crab Plan did "not contain information on the post-release survivability of Jonah crab after one or both claws has been removed." My staff echoed this concern at the August 2016, Lobster Board meeting. Since that time, the University of New Hampshire and New Hampshire Fish and Game have undertaken a small scale laboratory study to evaluate the impacts of claw removal on the health and behavior of Jonah crabs. Preliminary results from these trials indicate high levels of mortality (approximately 50 percent for crabs with one claw removed and approximately 75 percent for crabs with both claws removed). Unless additional information becomes available indicating that post-claw removal survival is higher than this preliminary study suggests, I believe the Lobster Board would have a difficult time justifying that a claw-only fishery is a sustainable practice and is consistent with the Jonah Crab Plan goals and objectives.

As you noted, the Law Enforcement Committee previously weighed in on the option for a claw- only fishery, stating "Introducing an option to retain parts or remove claws will complicate effective enforcement of a minimum-size standard, and introduces an opportunity to move undersized crabs through the system. Adding an additional measurement standard for claws, such as a count-per-pound or something similar, will greatly complicate enforcement requirements to monitor and inspect fishing." Staff from NOAA's Office of Law Enforcement participated in that discussion and concurred with the Committee's recommendation. In addition, the Office of Law Enforcement has indicated that implementing multiple sets of requirements, such as whole and claw-only provisions, in a single management area complicates and weakens enforcement. This is why we have historically supported one set of regulations that can be applied consistently across jurisdictions and areas. I believe the Lobster Board should

discuss and closely evaluate the potential enforcement concerns associated with a claw-only fishery.

As you know, any regulation promulgated under the Atlantic Coastal Fisheries Cooperative Management Act must be in accordance with the Magnuson-Stevens Fishery Conservation and Management Act's National Standards. Your letter referenced National Standard 4, which states in part that "Conservation and management shall not discriminate between residents of different states…" During our rulemaking process, we would formally review whether the Commission- recommended Jonah crab measures comply with National Standard 4, including whether it is a conservation measure without discriminatory intent. It may prove challenging for us to implement the claw-only exemption, as constructed in the August 2015 Jonah Crab Plan because of National Standard 4. My recollection of the August claw-only discussion is that additional development of claw-only permitting requirements and management measures would be necessary prior to implementation. Once developed and recommended, these measures would be subject to a formal review under National Standard 4.

While I remain in favor of a whole-crab fishery, I am supportive of the Commission's public process. Changes to the Jonah Crab Plan should be considered by Lobster Board through an addendum that encompasses a range of alternatives and subsequently released for public comment.

Thank you for the opportunity to provide additional comments on this important issue. If you have any questions, please contact Allison Murphy at (978) 281-9122 or allison.murphy@noaa.gov.

Sincerely,

John K. Bullard
Regional Administrator

cc: David Borden, American Lobster Board Chairman
Megan Ware, ASMFC Fishery Management Plan Coordinator

STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
BUREAU OF MARINE PATROL
21 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0021

PAUL R. LEPAGE
GOVERNOR

PATRICK C. KELIHER
COMMISSIONER

June 8, 2016

Mr. David Borden
Chair, American Lobster Board
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200A-N
Arlington, VA 22201

RE: Request for Conservation Equivalency - Maine Lobster Trap Tag Pilot Project

Dear Mr. Borden:

In the Spring of 2015, the Maine Department of Marine Resources (DMR) was given approval by the Atlantic States Marine Fisheries Commission's Lobster Management Board to conduct a one year pilot project aimed at examining the efficiencies and effectiveness of its lobster trap tag exchange program. Because of the program's success, Maine DMR is requesting approval of a conservation equivalency to continue this program for the foreseeable future.

The specific purpose of this project was to consider enforcement issues relative to the elimination of Maine's traditional procedure for exchanging lobster trap tags. Under the pilot project, harvesters were allowed to bring traps back to shore, cut the existing tags from traps, and reattach those same tags by "hog ringing" the tag back into the new gear. This change eliminated the need for the harvester to return the cut tags and receive a corresponding number of new exchange tags. As a reminder, the current FMP does not allow for the transfer of tags from trap to trap. However, by allowing tags to be transferred, we have eliminated the issuance of 20,000 exchange tags. We firmly believe that this has removed illegal gear from the fishery.

The pilot project focused on identifying potential impacts on both compliance and enforceability of Maine's exchange tag program with these modifications. In conducting this assessment, Marine Patrol's Command Staff implemented a system to record gear inspection efforts, examine the nature of associated violations, and compared data against historical compliance rates based on years of expertise.

Over the course of the last year, Marine Patrol Officers hauled and inspected nearly 13,000 lobster traps while at sea. Officers also inspected thousands more traps at dockside locations and aboard commercial lobster fishing vessels. These inspections targeted specific areas of industry based on the expertise and knowledge of Marine Patrol. After close examination of the pilot project gear inspection efforts, we can confidently conclude that eliminating exchange tags has had a positive impact on the lobster trap limit compliance rate in Maine.

The second issue to consider, regarding the ASMFC pilot project, is enforceability. The prior system of issuing new exchange tags required Marine Patrol to accurately track the issuance of the additional 20,000 tags annually. A single, original allocation of trap tags is easily enforced, but the issuance of exchange tags introduced unnecessary complexity which some fishermen undoubtedly attempted to exploit. Achieving compliance with trap limits is inherently challenging, and only becoming more so with the potential for counterfeit tags, and with the ability of fishermen to deploy and retrieve sunken lobster trap trawls. Eliminating the need to also track exchange trap tags will help us to focus efforts appropriately toward our most serious concerns in this important fishery.

In closing we can confidently say the resulting evidence suggests that this program has enhanced both compliance and enforceability in Maine's lobster fishery. After inspecting thousands of lobster traps during the course of the last year, Marine Patrol is confident that this initiative removed illegal traps from the water. The trap gear inspected by Marine Patrol which contained tags secured with hog rings was negligible and not indicative of the historical allocations of exchange tags issued. This clearly suggests that the original exchange tag program was flawed. In moving forward, it only makes sense to utilize the results captured during the pilot project and permanently eliminate this unnecessary procedure.

Respectfully submitted,

Sent electronically

Patrick Keliher
Commissioner

cc American Lobster Board
Megan Ware, ASMFC

Atlantic States Marine Fisheries Commission

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

MEMORANDUM

July 11, 2016

To: **American Lobster Management Board**

From: **Law Enforcement Committee**

RE: **Maine Trap Tag Transferability Program**

At the May 2016 meeting of the Law Enforcement Committee (LEC) of the Atlantic States Marine Fisheries Commission (ASMFC), members heard a presentation and update on Maine's pilot trap tag transferability program. The following were in attendance:
LEC: Capt. Steve Anthony (NC); Deputy Chief Kurt Blanchard (RI); Deputy Chief Jon Cornish (ME); Lt. Mike Eastman (NH); Asst. Director Larry Furlong (PA); Special Agent-in-Charge Honora Gordon (USFWS); Capt. Jamie Green (VA); Wayne Hettenbach (USDOJ); Bob Hogan (NOAA GC); Capt. Tim Huss (NY); Capt. Rob Kersey (MD); Capt. Bob Lynn (GA); Capt. Doug Messeck (DE); Maj. Pat Moran (MA); Director Kyle Overturf (CT); Lt. Colby Schlaht (USCG); Capt. Rama Shuster (FL); Lt. Jason Snellbaker (NJ);
LEC ALTERNATES: Jeff Ray (NOAA OLE)
OTHER ATTENDEES: David Borden (RI); Rene Cloutier (ME); Pat Keliher (ME)
STAFF: Mark Robson; Megan Ware

During the meeting, representatives from Maine presented an update and summary information regarding their pilot trap tag transfer program that was implemented for the previous year. The LEC first heard about the pilot program during their October 2014 meeting. At that time the LEC was on record as being generally opposed to such transfer allowances, but was willing to assess the outcome of the Maine pilot program and determine if they could endorse such a system going forward.

During the review of the pilot program results at the May 2016 meeting, LEC members heard about the various advantages of the tag transfer system over the previous system of providing "exchange tags" to fishermen who bring traps back to shore and replace them with new gear. As reported by the Maine representatives, the tag transfer program has provided better accountability, allowed tags to be attached with secure hog rings, and continues to rely on extensive inspection of traps on the water and at the dock. Over a 12-month period, Maine Marine Patrol found that "…none of the very few untagged gear violations involved any evidence or indication that a trap limit violation existed." Maine Marine Patrol also believes eliminating production of over 20,000 exchange tags has helped alleviate existing problems of counterfeit tags, further improving accountability of tags and traps in the fishery.

LEC discussion centered on the fact that other states may have different requirements for issuing and replacing tags, and each state should be allowed the flexibility to utilize exchange-tags or to allow trap-to-trap transfer of original tags as they deem necessary. With that caveat, the LEC agreed by consensus to endorse the Maine tag transfer program.

Atlantic States Marine Fisheries Commission

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Douglas E. Grout (NH), Chair *James J. Gilmore, Jr., (NY), Vice-Chair* *Robert E. Beal, Executive Director*

Vision: Sustainably Managing Atlantic Coastal Fisheries

July 15, 2016

Jim Landon, Director
NOAA Office of Law Enforcement
1315 East-West Highway
Suite 3301
Silver Spring, Maryland 20910

Dear Mr. Landon,

On behalf of the American Lobster Management Board (Board) and the Law Enforcement Committee, the Atlantic States Marine Fisheries Commission (Commission) is requesting the NOAA Office of Law Enforcement make the American lobster fishery a higher priority for enforcement in the Northeast Division and a funding priority in Joint Enforcement Agreements (JEA).

The American lobster fishery has experienced immense growth over the last decade, with landings rising from roughly 87 million pounds in 2005 to just under 147 million pounds in 2015. The value of the fishery has also increased to over $617 million in 2015, making it one of the top three most valuable fisheries in the United States. At the same time the lobster fishery has grown, it has also moved farther offshore with a greater percentage of catch coming from federal waters.

Effort in the lobster fishery is primarily controlled through trap allocations which are tied to limited entry permits. Trap tags are used to identify legal gear as fishermen are restricted in where and how many traps they can set. As a result, the enforcement of legal tags and trap allocations is critically important to the sustainability of the lobster fishery. This is especially true in Southern New England, where fishermen are currently going through a series of trap reductions in order to scale the size of the fishery to the size of the resource. If these trap reductions cannot be enforced, the management measure will not be successful in removing latent effort from the fishery.

Enforcement of regulations in the offshore portion of the lobster fishery should scale with the threat and there is concern from the Board and industry that the incidence of non-compliance is growing. While the distance from shore and depth of water create unique challenges in monitoring the offshore lobster fishery, the Commission believes solutions exist to effectively enforce regulations throughout the management unit. As a result, the Commission is requesting that the NOAA Office of Law Enforcement make the American lobster fishery a higher priority for the Northeast Division, increasing the fiscal resources that are allocated to this iconic species. Furthermore, the Commission requests a larger portion of JEA funding be allocated to state law enforcement agencies whose activities support federal lobster regulations. This will allow states who already monitor and inspect lobster gear in state waters to expand these activities farther offshore.

The Commission remains dedicated to improving lobster management and ensuring the sustainability of the resource. Please let me know if you need additional information from the Commission regard this request.

Characterization of the offshore American lobster and Jonah crab trap fishery in Lobster Conservation Management Area 3 in and around the Southern New England and Georges Bank canyons

Kelly Whitmore[1], Elizabeth Morrissey[1], Megan Ware[2], and Robert Glenn[3]

Massachusetts Division of Marine Fisheries
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[2] *Atlantic State Marine Fisheries Commission*
1050 N. Highland Street, Suite 200A-N, Arlington, VA 22201

April 20, 2016
Updated July 5, 2016

Background

The Atlantic States Marine Fisheries (ASMFC) initiated a mail survey to collect information on the extent and value of the offshore American lobster and Jonah crab trap fishery occurring in and around the deep-water canyons in Southern New England (Lobster Conservation Management Area (LCMA) 3). The purpose of this survey was to characterize the canyon fishery, as current lobster and Jonah crab trip reports include data only to the broad level of NMFS statistical reporting area. Information on the distribution of effort, fishing patterns, and value of harvest in and around the canyons was requested by the New England Fishery Management Council (NEFMC) as they draft an Omnibus Deep-Sea Coral Amendment to modify several Fishery Management Plans. The Amendment may establish discrete deep-sea coral protective zones, as well as broad deep-sea coral regions along the edge of the continental shelf from the Alvin canyon to the Exclusive Economic Zone (i.e. Hague Line). A region identified as the 'NEFMC Area of Interest' encompasses 21 Southern New England/Georges Bank canyons (Figure 2). The NEFMC is expected to debate potential gear restrictions within the Area of Interest. As such, the comprehensive data collected through this survey provided an important context on the American lobster and Jonah crab trap fisheries occurring in this unique region of LCMA 3.

Methods

On February 23, 2016, a cover letter and survey (Appendix A) and self-addressed postage-paid return envelope were mailed to all 97 of the 2015 commercial lobster permit holders with a trap allocation in LCMA 3. Two reminder letters were sent in the weeks following the survey to encourage additional participation. The final response deadline was June 15, 2016. In general, the mail survey inquired about fishing locations, effort, and value of American lobster and Jonah crab landings within the NEFMC Area of Interest from 2014 to 2015. Fishermen were asked to specify the canyons, depths, and seasons they fished and how their effort and revenue were allocated across those variables. Nautical charts that identified the proposed NEFMC Area of Interest and the discrete canyons within it were included with the survey for clarification. Optional demographic data were collected at the end of the survey including vessel name, permit, and homeport, as well as comments about the survey or topic. The survey indicated that all confidential data would be protected and an individual's data would not be shared. Survey responses were categorized, summarized, and reported below. Most results are provided as the percentage of responses relevant to the statement being made "(X%)" out of the total number of survey responses obtained for that particular question "(n=X)".

Results

Survey Response

A total of 34 of the 97 surveys were returned within five weeks of the original mailing date, for an overall response rate of 35%. One additional survey was received during the reminder period; however it was not included in the analysis because data for that vessel had already been received in a previous survey.

Of the 34 completed surveys, 19 (56%) were applicable, meaning that individuals fished traps within the NEFMC Area of Interest in 2014-2015. Forty-four percent of returned surveys were either for vessels that did not fish in LCMA 3 (n=2), did not fish near the LCMA 3 canyons (n=11), or did not fish with traps (n=2) (Figure 1). Of the total potentially applicable survey pool, the response rate for those fishing traps within the Area of Interest was 23% (19 of 82).

Response rates were also categorized by trap allocation and by state on permit. This was possible because identifying information was provided by respondents for all but one (97%) of the 34 surveys. Of the 97 total permit holders, 56 had trap allocations exclusively in LCMA 3 (Figure 1). Excluding the anonymous survey, 43% of these individuals responded to the survey and 17 provided applicable surveys meaning that they fished traps within the NEFMC Area of Interest in 2014-2015. The other 29% (7) of individuals with an allocation only in LCMA 3 reported that they did not fish in the vicinity of the canyons in 2014-2015.

Forty-one of the 97 permit holders had allocations in more than one LCMA (LCMA 3 *and* LCMA 1, 2, 4, and/or 5) (Figure 1). Excluding the anonymous survey, 22% of those with mixed-area allocations responded to the survey, and only one survey was applicable. Eight were not applicable because four individuals did not fish in the vicinity of the canyons, two did not fish in LCMA 3, and two did not fish with traps (Figure 1).

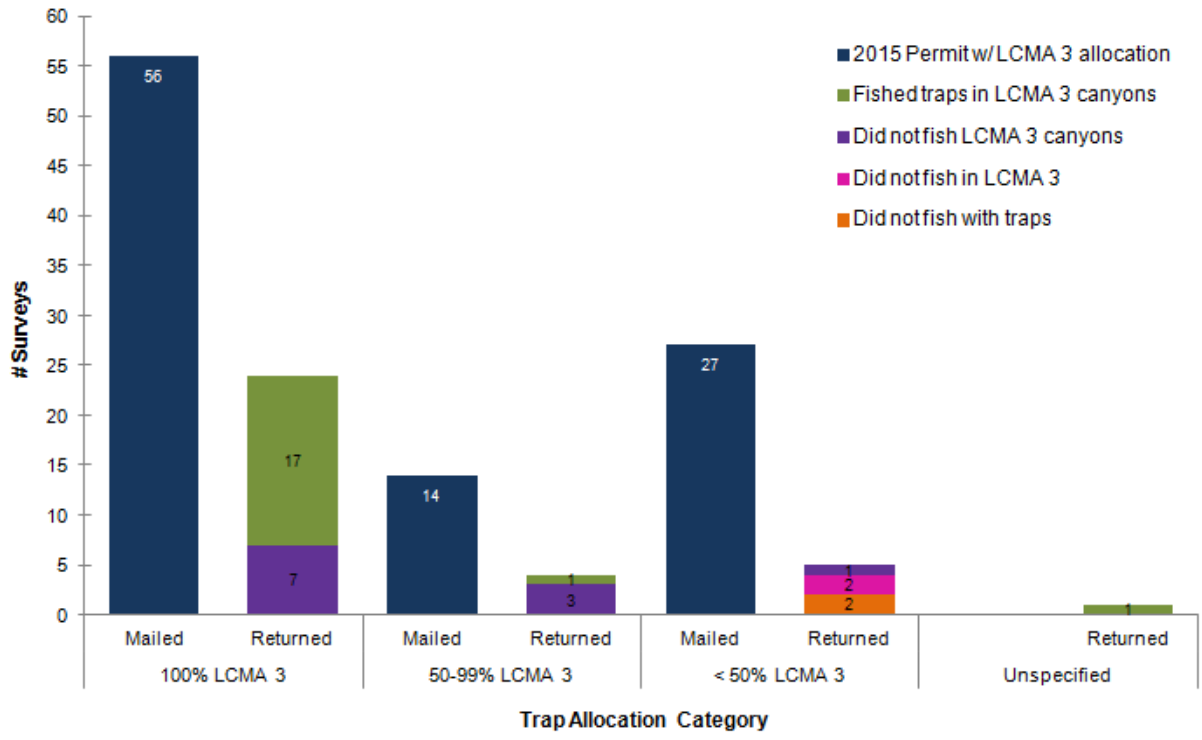

Figure 1. Number of surveys mailed to 2015 commercial lobster permit holders with LCMA 3 trap allocations and the number of surveys returned, categorized by each individual's trap allocation (%) in LCMA 3 (of their total allocation among LCMAs 1 to 5).

Response rates were favorable across states (by permit) (Table 1). The 19 total respondents that fished traps within the NEFMC Area of Interest for lobster and/or Jonah crab in 2014-2015 hailed from the states of Massachusetts, New Hampshire, or Rhode Island (Table 1). Each of these respondents provided detailed information on fishing practices and revenue generated from within the LCMA 3 canyons region.

Table 1. Survey response rates by state (from 2015 commercial lobster permit).

State	Surveys Mailed	Surveys Returned	Response Rate	Applicable Surveys
ME	8	2	25%	0
NH	12	4	33%	1
MA	36	11	31%	10
RI	28	14	50%	8
CT	1	0	0%	0
NY	4	1	25%	0
NJ	8	2	25%	0
Total	***97***	***34***	***35%***	***19***

Nearly all (95%) of those fishing within the Area of Interest indicated that they report trips and catches using the NMFS Fishing Vessel Trip Reports (VTR) (n=19). At the time of the survey, 79% of individuals fishing the Area of Interest were aware that the NEFMC was considering the development of an Amendment to several Fishery Management Plans to protect deep sea corals in the region.

Locations Fished

All six of the NMFS statistical reporting areas (SRA) that span the NEFMC Area of Interest, including SRA 525, 526, 534, 537, 541, and 562, were reported fished in 2014-2015 by survey respondents (Figure 2). A majority of fishermen (74%, n=19) fished in SRA 525, which encompassed the highest number of canyons (12 of 21 canyons), and SRA 526 (63%, n=19), which encompassed Veatch Canyon, the canyon fished by most respondents (see text below, and Figure 2). Fewer fishermen (16%) reported fishing in SRAs 534 and 541, the only statistical areas that do not overlap entire canyons (or canyon heads) (Figure 2). Fishermen often fished in more than one statistical area *per trip*; 68% reported this at least once in 2014-2015 (n=19). Additionally, differences in statistical areas fished by home port were noted. Vessels from

Massachusetts fished in all six statistical areas within the NEFMC Area of Interest, while those from Rhode Island fished in three (SRAs 525, 526 and 537), and New Hampshire in two (SRAs 525 and 526) (Figure 3).

All but two of the 21 canyons located within the NEFMC Area of Interest were fished in 2014-2015 by respondents (Figure 2 and Figure 4). Individual fishermen set traps in anywhere from two to ten discrete canyons (average 4.4 ± 0.5 SE canyons) in 2014-2015. Veatch canyon was fished by the most (42%) respondents, followed by Hydrographer (37%), Atlantis (32%), Alvin, Gilbert, Lydonia, Oceanographer (each 26%), and Clipper, Dogbody, Heel Tapper, Munson, Nygren, Powell, and Welker (each 21%). Fewer reported fishing Heezen, Nantucket, Shallop, Sharpshooter, and Unnamed canyons (each 16%) (Figure 2 and Figure 4). Chebacco and Filebottom canyons were the only canyons not fished by those who responded (Figure 2 and Figure 4). Most canyons were fished by several fishermen regardless of vessel origin. The only evident regional difference was that Rhode Island fishermen were less likely to transit to the canyons furthest east (Nygren, Unnamed, and Heezen) (Figure 4).

All fishermen reported fishing between canyons as well in and around them (n=19). A majority (84%) reported that they most often set traps both at the heads of canyons and between canyons, while the remaining 16% were split evenly as to whether they most often fish at the heads of the canyons, between canyons, or neither (i.e. set on a loran line).

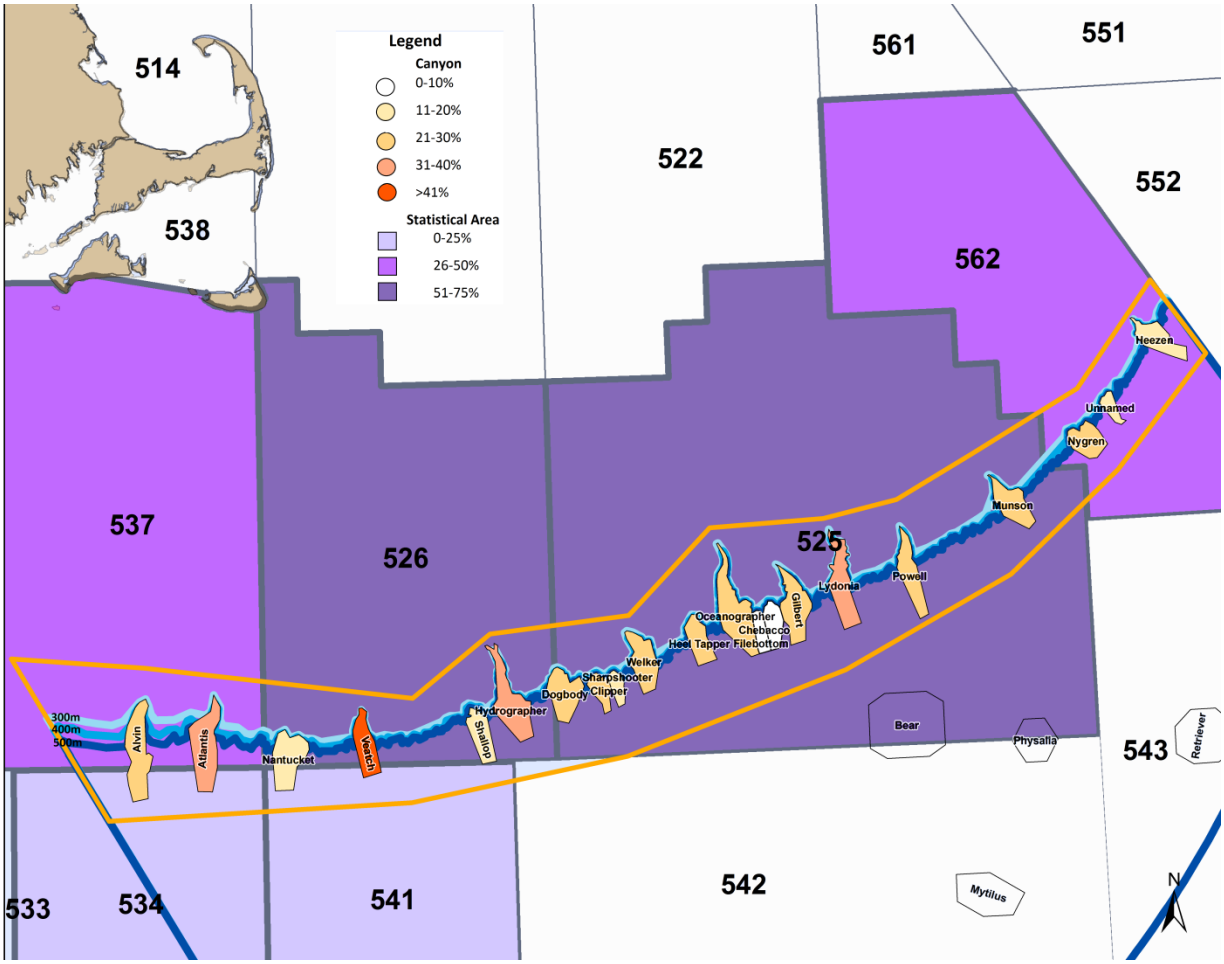

Figure 2. Comparative fishing effort by canyon and by NMFS statistical reporting area within the NEFMC Area of Interest (orange line) as the percentage of respondents citing the canyon(s) or statistical area(s) fished for lobster and/or Jonah crab in 2014-2015. For canyons, the darker the color orange, the more frequently the canyon was named. For statistical area, the darker the color purple, the more frequently the statistical area was named. Depth contours at 200 m, 400 m, and 500 m within the NEFMC Area of Interest are indicated in shades of blue.

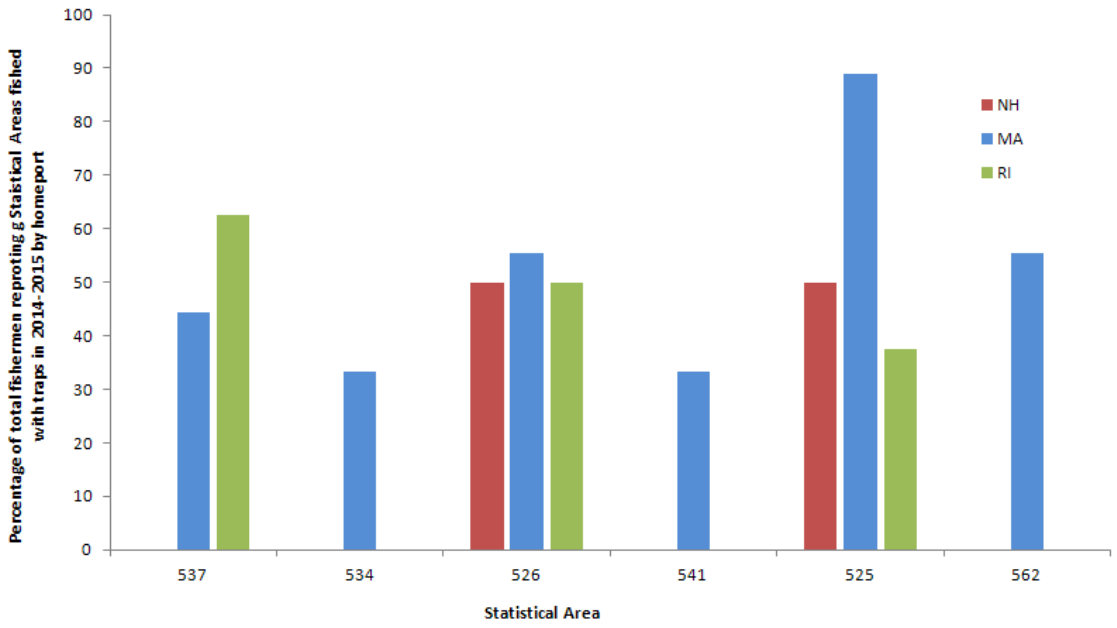

Figure 3. Percentage of fishermen reporting NMFS statistical area fished (within the NEFMC Area of Interest) in 2014-2015 by state/homeport. Statistical areas are listed in west to east orientation (L-R).

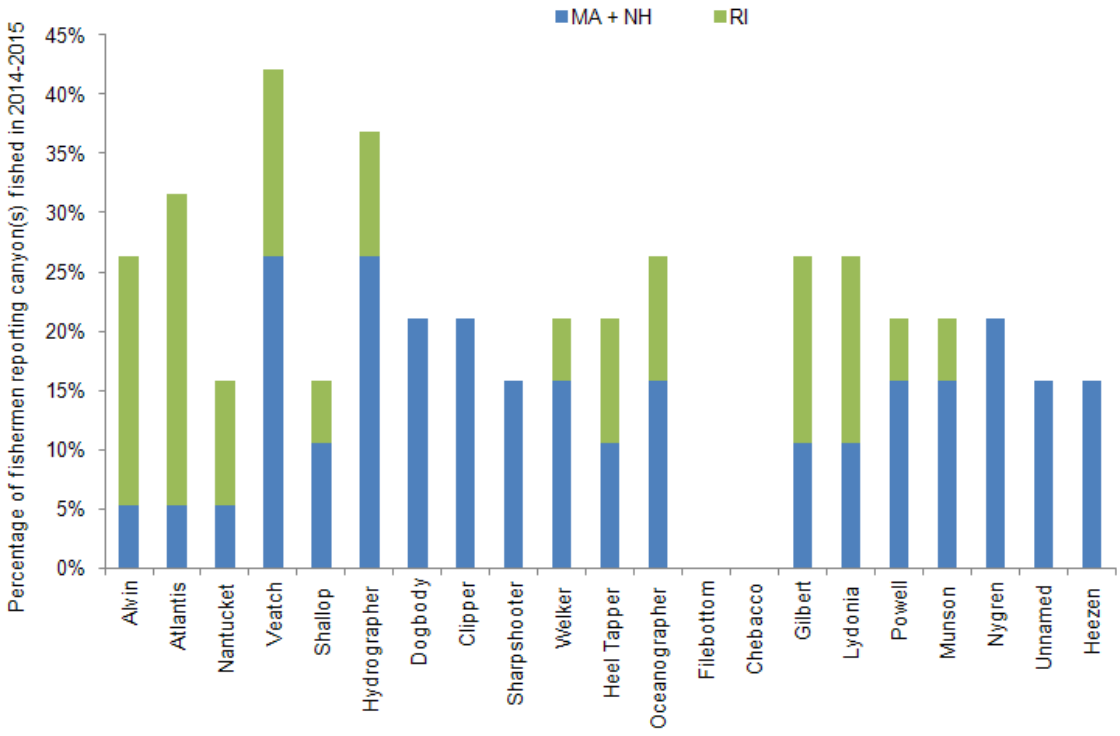

Figure 4. Percentage of fishermen reporting individual canyon(s) fished (within the NEFMC Area of Interest) in 2014-2015 by state/homeport. Massachusetts and New Hampshire fishermen were combined to preserve confidentiality (NH <3 respondents). Canyons are listed in west to east orientation (L-R).

Depth Fished

All canyon fishermen reported the maximum depth at which they fished traps (for lobster and/or Jonah crab) in 2014-2015. This was an open-ended response and consistently reported in fathoms, which were then converted to meters. Maximum depth fished per fisherman ranged from 220 to 549 meters (120 to 300 fathoms), with an average of 406 meters ± 22 SE (222 fathoms). Cumulatively, 100% of fishermen set their deepest traps in water 200+ meters deep, 76% in 300+ meters, and 48% 400+ meters of water (n=19) (Table 2). Of the 48% of fishermen with traps set in over 400 meters of water, 14% of them set traps deeper than 500 meters.

Nearly half of (47%) respondents fished traps in deepest waters across two or more seasons, with all seasons represented (n=19). Winter (January to March) was the season most commonly named for deep trap sets (74% of responses), followed by spring (April to June; 42%), and fall (September to December; 32%). Traps were least likely to be set in the deepest waters during the summer (July to August) (named in 11% of responses).

Fishermen also indicated how their trap distribution varied by depth within the NEFMC Area of Interest. On average, 96% of an individual's traps were fished in 0 to 400 meters (0 to 219 fathoms) (Table 2 and Figure 5). Of the five depth categories provided, the most traps (35%) were allocated to 200-300 meters (109-164 fathoms). Only 4% of an individual's traps were set deeper than 400 meters (Table 2). Although fewer traps were apportioned to this deepest stratum, over a quarter (27%) of fishermen reported fishing traps over 400 meters depth (Table 2), thus the overall total traps fished in this stratum may be considerable (n=15).

Fishermen reported variable fishing patterns when asked to explain (open-ended response) their trawl configurations by depth during a single trip, e.g. whether they fished a consistent depth along the shelf or if depth fished varied across canyons. A majority of fishermen (42%) described setting traps at both consistent and varied depths along the shelf and across canyons within a trip (n=19). Patterns were often broadly illustrated and changed with areas fished but area was not well specified. Several fishermen (21%) indicated that fishing patterns changed seasonally, and as a result were unable to specify practices made during a single trip. Another 26% of fishermen reported fishing a range of depths, but did not indicate within canyons or along the shelf. A small percentage (11%) reported fishing on specific depth contours, or on a

specific loran line across many depths (5%). As reported earlier, a majority of fishermen set traps both in and between canyons. Several comments indicated that individuals fish in proximity to each other, and that they maintain organization of trap sets in and around the canyons by working with each other's fishing patterns.

Table 2. Distribution of fishing effort and revenue in the NEFMC Area of Interest in 2014-2015 by depth category.

Depth category (meters)	Max. depth fished by % fishermen	Ave. % traps allocated by depth	% Fishermen fishing at depth	Ave % revenue by depth	% Fishermen with revenue at depth
<100	0	17	47	23	67
100-200	0	21	87	33	87
200-300	26	35	93	23	67
300-400	32	23	73	18	53
>400	42	4	27	3	13
n Respondents	19	15	15	15	15

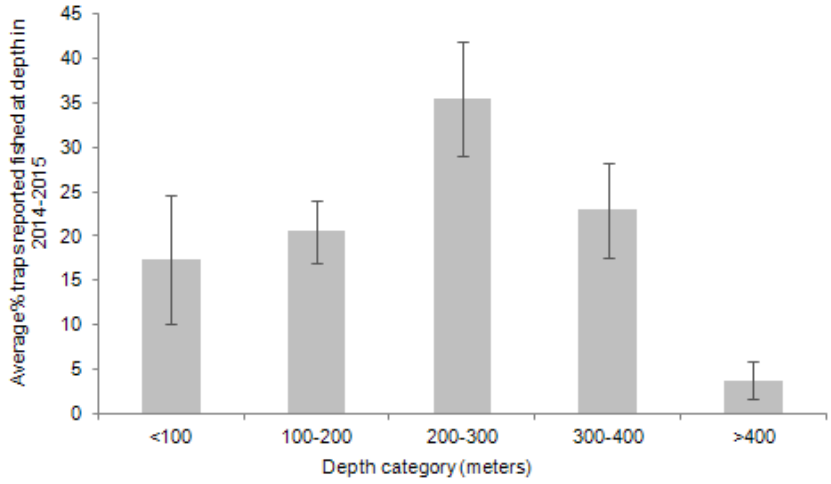

Figure 5. Average percentage of total traps fished per depth category per fisherman, within the Area of Interest in 2014-2015 (n = 15).

Effort

The average annual number of trips made by each fisherman to the NEFMC Area of Interest in 2014-2015 was 30 ± SE 1.3 (2014-2015 median = 29, n=19) with a fairly wide range of trips per year, from 15 to 49 (Table 3). Total number of trips to the Area of Interest in 2014-2015 for the 19 vessels was 1,124 (570 in 2014 and 554 in 2015).

Most (89%) fishermen reported that individual traps tended to be set more than once within a single trip, while two (11%) indicated traps were not re-hauled within trips (n=18). In 2014-2015, the average number of trap-hauls *per trip*, including re-hauls, was 1,779 ± SE 106 (median 1,614; range of 1,100 to 2,600 trap-hauls, n=18) which did not differ by homeport state (unpaired t-test p = 0.26) (Table 3). Note, that because of confidentiality concerns with less than three respondents, a comparison of the average trap-hauls per trip (or year) for those who do reset versus those who do not reset was not made. The *annual* average number of trap-hauls per vessel was roughly 53,000 in 2014 and 2015, with a total of over 950,000 trap-hauls per year for the 18 vessels combined (Table 3).

Most (74%) fishermen stated that there was no seasonal difference as to when they had the highest number of traps in the water in the NEFMC Area of Interest (n=19). Of the 26% whose trap totals varied by season, most reported setting the highest number of traps across several seasons. Trap totals were commonly higher in summer (July to September), followed by fall (October to December), and spring (January to March). No one reported having the highest number of traps in the water in winter (January to March), which is also when traps were reported to be set deepest.

These patterns of fishing effort are expected to persist, as the majority (74%) of fishermen did not expect their fishing effort in the NEFMC Area of Interest to change substantially over the next five years (n=19). Of the minority, 21% expected their fishing effort to increase substantially, and 5% expected it to decrease over the next five years.

Revenue

There was a high dependence on the NEFMC Area of Interest for revenue for all who fished within the Area. In 2014, 77% ± 5 SE (median = 82%, range 35-100%) of an individual's lobster and Jonah crab revenue came from the Area of Interest, and in 2015 that figure increased to 79% ± 5 SE (median = 85%, range 37-100%, n=18) (Table 3). The average combined revenue *per trip* from lobster and Jonah crab harvest within the NEFMC Area of Interest in 2014-2015 was $32,514 (median $31,841, n=19) with a range of $9,000 to $85,000 reported per trip per fisherman (Table 3). There was an overall 8%, or $2,595, increase in combined revenue per trip from years 2014 to 2015 (Table 3).

Revenues for 2014-2015 were described as typical (63%) or higher than normal (16%) for the majority of fishermen (n=19). Several (21%) stated they did not have a characteristic earning with which to compare. No one reported that revenues in 2014-2015 were below normal. Accordingly, revenues generated from lobster and Jonah crab catches in and around the canyons over the past five years have steadily increased (37%) or remained constant (32%) for most. Others noted that combined revenue changed without pattern (26%) over that time frame, or for one, steadily decreased (5%) (n=19).

When breaking down earnings within the NEFMC Area of Interest by fishery, 88% of fishermen reported higher revenue from lobster than from Jonah crab (n=17). For these individuals, the value of lobster was on average six (in 2014) to eight (in 2015) times higher than for Jonah crab. For the two vessels (12%) reporting higher Jonah crab revenue than lobster, Jonah crab value was about three times that of lobster in 2014 and 2015 (figures not disclosed, <3 respondents). The average *annual* revenue from **lobster** fishing in the NEFMC Area of Interest in 2014-2015 was $717,284 ± SE $106,491 (median $665,400, range $75,000 to $1.8 million, n=17). Annual earnings from lobster increased by an average of 10% or $66,370 from 2014 to 2015 (Table 3). Total lobster revenue from the NEFMC Area of Interest for the fourteen individuals who responded was $11.6 million in 2014 and $12.8 million in 2015 (Table 3).

The average *annual* revenue from **Jonah crab** fishing in the NEFMC Area of Interest in 2014-2015 was $182,784 ± SE $55,868 (median $97,000, range $0 to $825,000, n=17). Earnings from Jonah crab were highly variable among respondents but similar from year to year within respondents. Total average annual revenue from Jonah crab decreased by 15% or $28,360 from 2014 to 2015 (Table 3). Total Jonah crab revenue from the NEFMC Area of Interest for the 17 individuals who responded was $3.3 million in 2014 and $2.9 million in 2015 (Table 3).

Table 3. Effort and revenue statistics for lobster and Jonah crab fishing within the NEFMC Area of Interest in 2014 and 2015, reported by fishermen.

	Ave. trap-hauls per Trip (incl. re-hauls)	Total Number Trips to Area		Total trap-hauls per Year		% Revenue from Area of Interest		Per Trip Revenue (USD)		Annual Revenue (USD) Lobster		Annual Revenue (USD) Jonah Crab	
	2014-2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Average	1,779	30	29	53,668	52,853	77	79	$ 31,251	$ 33,846	$ 684,099	$ 750,469	$ 195,964	$ 167,605
SE	106	2.0	1.8	4,143	3,850	5.1	4.9	$ 3,549	$ 4,121	$ 99,733	$ 115,348	$ 63,418	$ 52,541
Median	1,614	28	30	53,125	51,911	82	85	$ 31,841	$ 31,650	$ 628,289	$ 734,468	$ 100,000	$ 94,830
Min	1,100	20	15	26,580	26,580	35	37	$ 10,000	$ 9,000	$ 120,000	$ 75,000	$ -	$ -
Max	2,600	49	45	82,500	85,800	100	100	$ 75,000	$ 85,000	$ 1,500,000	$ 1,800,000	$ 825,000	$ 650,000
# of Respondents	18	19	19	18	18	18	18	19	18	17	17	17	17
Sum of Reported		570	554	966,023	951,353					$11,629,691	$12,757,974	$ 3,328,664	$ 2,845,774

Fishermen also identified how revenue from lobster and Jonah crab varied by depth within the NEFMC Area of Interest. On average, 97% of an individual's revenue came from traps fished from 0 to 400 meters (0 to 219 fathoms; n=15) (Figure 6). Of the five depth categories provided, the highest average revenue (33% of total) came from 100-200 meters, which differed from where the most traps were allocated (200-300 meters) (Table 2, Figure 5, and Figure 6). On average, only 3% of an individual's revenue came from traps fished deeper than 400 meters (Table 2, Figure 6). Individual fishermen reported anywhere from one to four depth categories (average = 3 ± 0.3 SE) that contributed to their combined revenue (n=15). Overall, 87% of fisherman reported that revenue came from traps fished in the 100-200 meter range, and only 13% reported revenue coming from the deepest depth stratum (>400 meters) (Table 2).

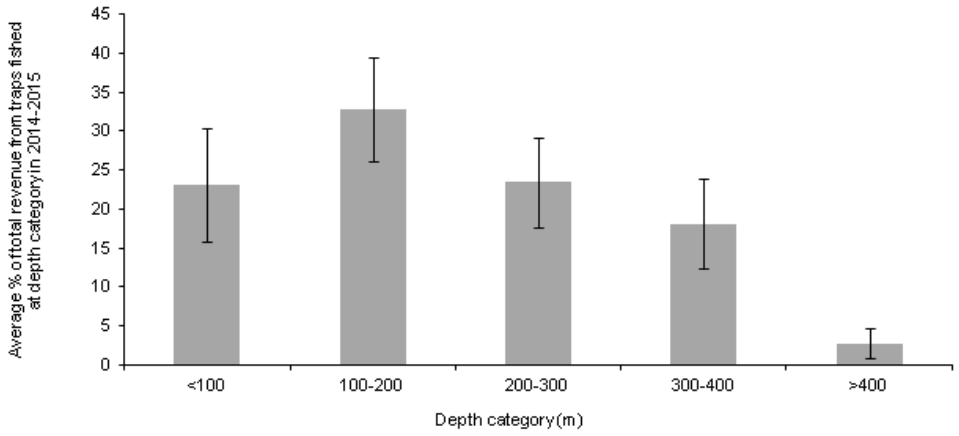

Figure 6. Average percentage of combined revenue from lobster and Jonah crab per depth category per fisherman, within the NEFMC Area of Interest in 2014-2015 (n = 15).

The top three individual canyons that contributed most to fishermen's **lobster** revenue from within the NEFMC Area of Interest were Veatch (35%), Lydonia (29%), and Atlantis (29%) canyons (n=17) (Figure 7 and Figure 8). For Jonah crab, seven individual canyons were named equally as top contributors to fishermen's **Jonah crab** revenue. These included Alvin, Atlantis, Veatch, Hydrographer, Powell, Munson, and Nygren canyons (n=16) (Figure 7 and Figure 9). The two vessels that reported greater revenue from Jonah crab than lobster named all canyons as most important to their combined revenues. For both lobster and Jonah crab, canyons distributed to the west and east were generally identified as important contributors more frequently than those centered in the NEFMC Area of Interest (Figure 7, Figure 8, and Figure 9).

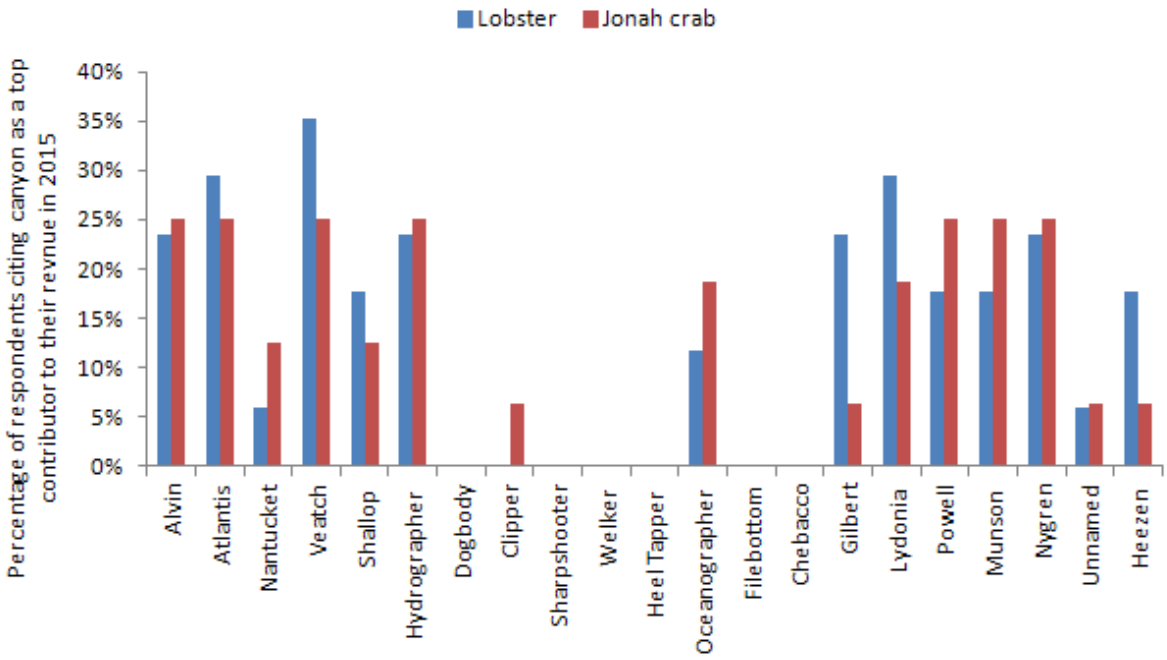

Figure 7. Importance of individual canyons as reported by the percentage of fishermen (lobster n=17; Jonah crab n=16) citing each of the top three that contributed most to their revenue from catches of lobster (blue) and Jonah crab (red) within the NEFMC Area of Interest in 2015. Canyons are listed in west to east orientation (L-R).

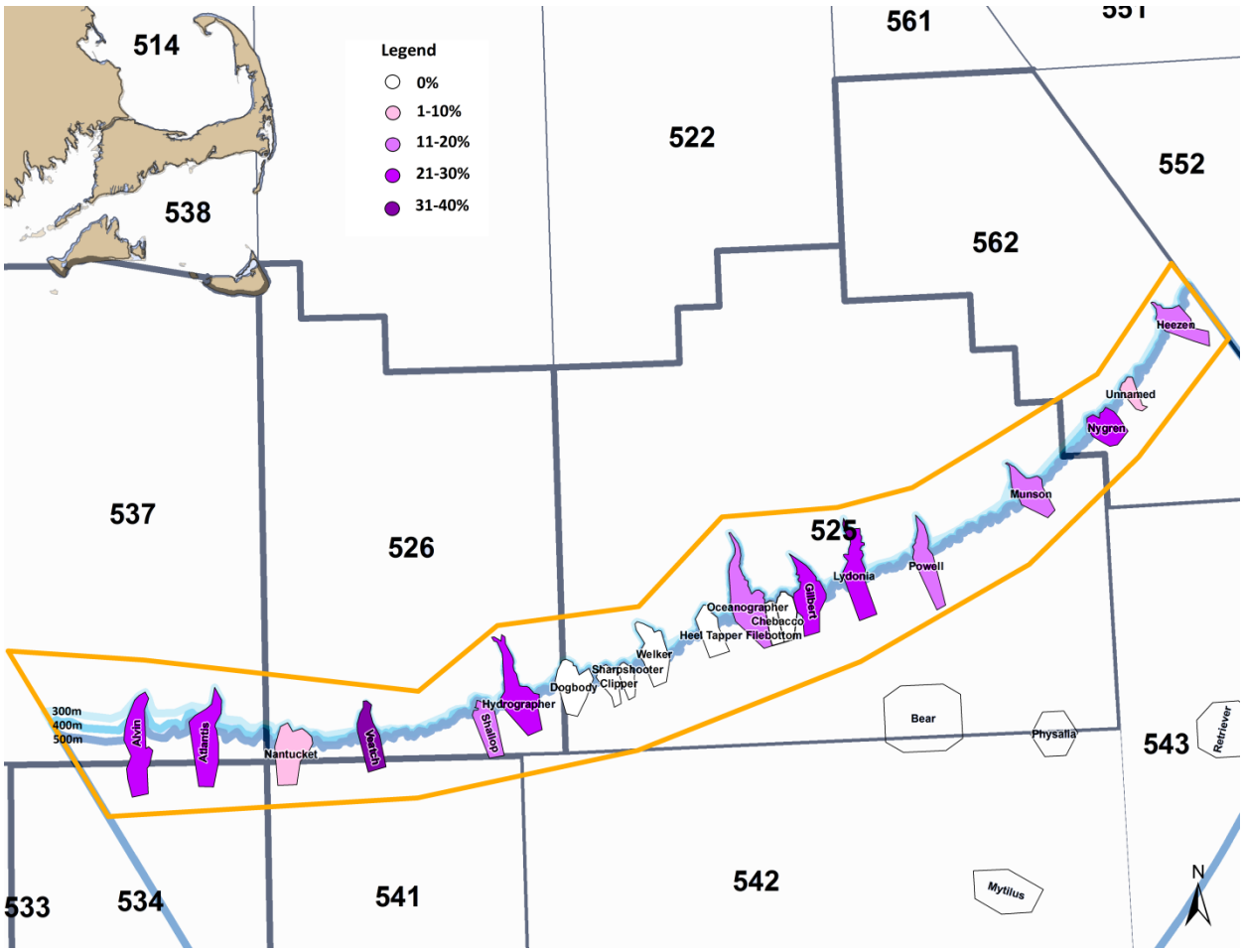

Figure 8. Importance of individual canyons to fishermen's revenue from **American lobster**, reported as the percentage of fishermen citing each as one of the top three that contributed most to their earnings from within the NEFMC Area of Interest in 2015. Canyons are listed in west to east orientation (L-R).

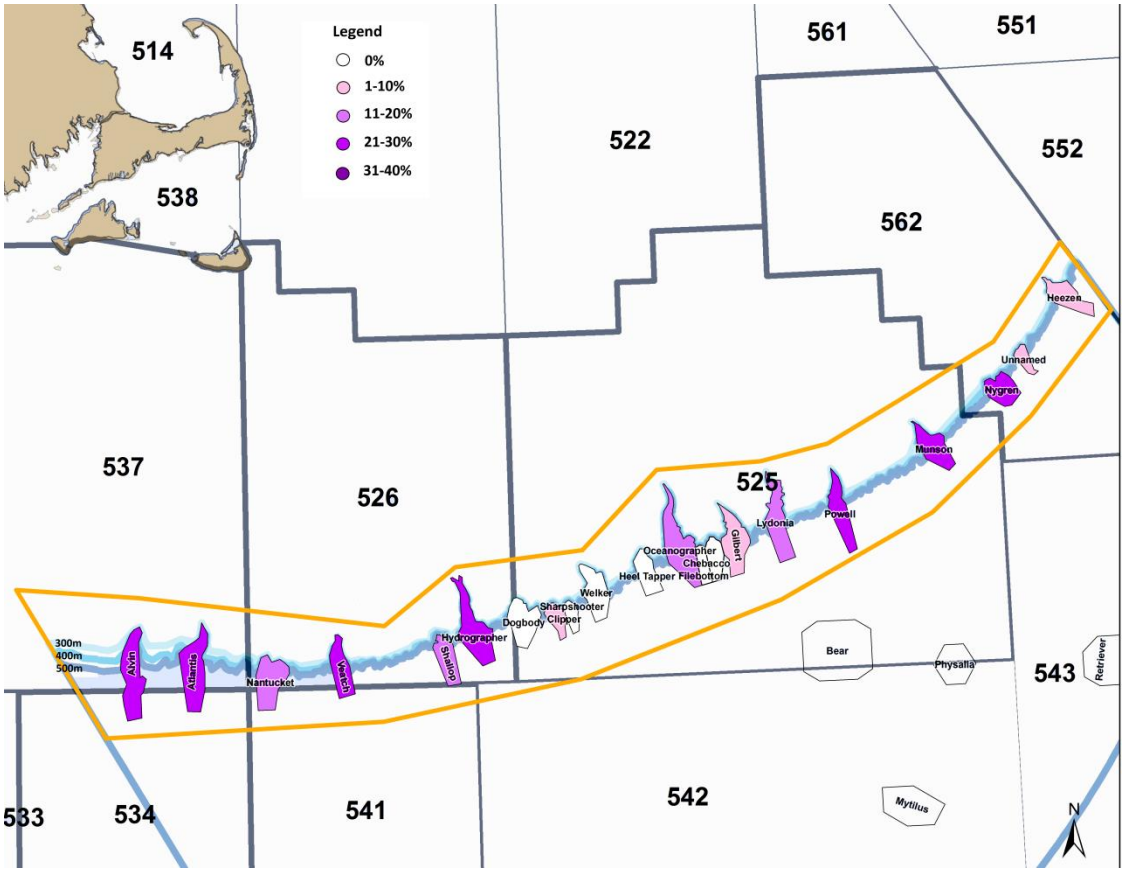

Figure 9. Importance of individual canyons to fishermen's revenue from **Jonah crab**, reported as the percentage of fishermen citing each as one of the top three that contributed most to their earnings from within the NEFMC Area of Interest in 2015. Canyons are listed in west to east orientation (L-R).

Conclusions

Nineteen lobstermen provided unique and comprehensive descriptions of lobster and Jonah crab trap fishing practices in and around the Georges Bank and Southern New England canyons within Lobster Conservation Management Area 3 (LCMA 3). Their contributions characterized individual canyons and depths fished, as well as revenues generated in each. The response rate of applicable surveys to total permits, excluding non-applicable surveys returned, was 23%. It is not known whether the data received represent most of the lobster and Jonah crab trap fishing effort within the NEFMC Area of Interest. However, analysis of trap allocations and response rates provides some insight into the importance of the Area of Interest for LCMA 3 fishermen. Of the original survey pool, the majority (58%) of the ninety-seven 2015 permit holders held trap

allocations exclusively in LCMA 3 (versus LCMA 3 *and* LCMA 1, 2, 4, and/or 5), meaning they were wholly dependent on LCMA 3. Comparatively, most (71%; 24 of 34) survey respondents held LCMA 3-only trap allocations. Over 70% of these individuals reported having fished the offshore canyons within the NEFMC Area of Interest in 2014-2015, suggesting this is a significant resource for fishermen in LCMA 3.

The self-reported survey data revealed that the fishery within the NEFMC Area of Interest occurs year-round, in and between at least 19 of the 21 canyons, from Alvin canyon in the west to Heezen canyon in the east. Characteristics of the fleet included high effort in terms of number of trips and traps hauled per trip, wide geographic spread of canyons that are most important to overall revenue, and a range of depths that are regularly fished. Depth of fishing in and around the canyons is best characterized as variable, with the highest portion of traps in less than 400 meters (219 fathoms) of water. However, this summation should be applied cautiously, as more than a quarter of respondents fished at least some traps in waters deeper than 400 meters. Seasonally, most traps were fished from spring to fall and were set at the deepest water depths in winter.

High earnings were a hallmark of this relatively small but active fleet. The reliance of the NEFMC Area of Interest on the fleet's bottom line was evident, as an average of 78% of an individual's total revenue came from the canyons area. Total combined value of lobster and Jonah crab landings from within the NEFMC Area of Interest for the nineteen respondents alone was $30.6 million from 2014 to 2015.

Data on canyon-area lobster and Jonah crab fishing are limited, as effort and catch data are collected for a subset of Area 3 vessels only, and fishing activity on a trip is represented spatially by a single latitude/longitude coordinate on vessel trip reports. In some cases, only the NMFS statistical area is reported, and each statistical area encompasses multiple canyons. Survey respondents' submission of highly detailed and sensitive information conveyed the importance of the NEFMC Area of Interest to individual businesses practices as well as to the Southern New England lobster industry as a whole.

Acknowledgments

The ASMFC would like to thank all survey participants for their willingness to contribute to the survey and for their submission of highly detailed fishing information.

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MEMORANDUM

TO: American Lobster Management Board

FROM: Megan Ware, FMP Coordinator

DATE: July 15, 2016

SUBJECT: Update on State Implementation of Jonah Crab FMP

The states of Maine through Virginia were required to implement provisions of the Jonah Crab Fishery Management Plan (FMP) by June 1, 2016. These include the commercial management measures outlined in *Section 4.1*, recreational management measures found in *Section 4.2*, and fishery independent sampling requirements described in *Section 3.4.1*. This memorandum serves as an update on the progress of state's implementation of these regulations. At the May meeting, the Lobster Board took final action on Addendum I and agreed to implement the 1,000 crab bycatch limit for non-trap gear and non-lobster trap gear by January 1, 2017. The Board also initiated Draft Addendum II to consider a coastwide standard for claw harvest in the Jonah crab fishery. The Board will consider approving this document for public comment in August.

Maine

Jonah crab regulations were reviewed by the DMR Advisory Council on March 1st and were implemented on March 7, 2016 (Chapter 25.45 Crab Fishing Limitations). The regulations are as follows:

- A lobster and crab license is required to participate in the directed trap fishery. All traps must conform to the specifications of the Lobster FMP.
- A prohibition on the retention of egg-bearing females in both the commercial and recreational fishery.
- Only whole crabs may be landed.
- 4 ¾ inch carapace width minimum size in the commercial fishery.
- Recreational limit of 50 crabs per day.
- It is unlawful to harvest crabs by drag in the EEZ unless the harvester holds a Dragged Crab Permit endorsement.

New Hampshire

Jonan crab regulations were adopted on October 21, 2015 (Fis 607.06). The following management measures are in effect and apply to both Jonah crab and rock crab:

- A lobster and crab license is required to participate in the directed trap fishery and recreational trap fishery. All traps must conform to the specifications of the Lobster FMP.
- A prohibition on the retention of egg-bearing females in both the commercial and recreational fishery.
- Only whole crabs may be landed.
- 4 ¾ inch carapace width minimum size in the commercial fishery.
- Recreational limit of 50 crabs per day.

Massachusetts

Jonah crab regulations were adopted on January 1, 2016 and the following management measures are in effect for all cancer crabs (including Jonah crabs and rock crabs):

- A lobster permit is required to fish for, retain, or land any edible crab. No person may set any trap that does not have a valid tag for the lobster fishery or any other permitted pot fishery. All traps used by persons fishing for any edible crabs must meet the specifications of the Lobster FMP.
- A prohibition on the retention of egg-bearing females in both the commercial and recreational fishery. Crabs from which eggs have been forcibly removed cannot be harvested.
- Only whole crabs may be landed.
- 4 ¾ inch carapace width minimum size in the commercial fishery.
- Recreational limit of 50 crabs per day.
- A state waters closed season from January 1 – April 30.

Rhode Island

Jonah crab regulations were implemented on May 11, 2016 (Part 5.5 Jonah Crab) and include the following provisions:

- Participation in the Jonah crab fishery is limited to those with a lobster trap allocation or those who can prove participation in the fishery prior to June 2, 2015. Proof of participation shall be documented by RI Harvester Logbooks or SAFIS Dealer Reports. There is no catch limit for those with a lobster trap allocation. Traps must meet the escape vent and size specifications of the Lobster FMP.
- A prohibition on the retention of egg-bearing females in the commercial fishery.
- Only whole crabs may be landed.
- 4 ¾ inch carapace width minimum size in the commercial fishery.
- 1,000 crab limit per vessel per day for gill nets, otter trawls, and non-lobster traps.
- Recreational limit of 50 crabs per day.

Connecticut

A Commissioner Declaration (16-01) addressing the requirements of the Jonah Crab FMP was signed on December 29, 2015 and came into effect on January 15, 2016. The following regulations apply to Jonah crab:

- A lobster license is required to participate in the trap fishery. All traps must meet the specifications of the Lobster FMP.
- A prohibition on the retention of egg-bearing females in both the commercial and recreational fishery. Crabs which have had eggs forcibly removed cannot be harvested.
- Only whole crabs may be landed.
- 4 ¾ inch carapace width minimum size in the commercial fishery.
- Recreational limit of 50 crabs per day.

New York

The full suite of management measures outlined in the Jonah Crab FMP have not been adopted; however, New York already prohibits the retention of egg-bearing females (Environmental Conservation Law Article 13 Section 13-0331 subsection 5) and has a recreational limit of 50 crabs per day (Environmental Conservation Law Article 13 Section 13-0331 subsection 1). It is expected that the remaining Jonah crab regulations will be implemented in the fall of 2016.

New Jersey

Final Jonah crab regulations were posted in the New Jersey Register on April 18, 2016 (N.J.A.C. 7:25-14.1, 14.9, 14.10, 14.11, 18.5, and 18.12). The following management measures are in effect:

- A New Jersey lobster pot permit is required to participate in the trap fishery. All traps must meet the specifications of the Lobster FMP
- A prohibition on the retention of egg-bearing females in both the commercial and recreational fishery.
- 4 ¾ inch carapace width minimum size in both the recreational and commercial fishery.
- Recreational limit of 50 crabs per day.

Delaware

Delaware has written the required Jonah crab regulations and has started the regulatory process under the Administrative Procedures Act. It is expected that regulations will be implemented by late 2016.

Maryland

Maryland's Jonah crab regulations are currently going through a legal and economic impact review. The final draft of the proposed regulations was printed in the Maryland Register on July 8th and public comments will be accepted through August 8, 2016. Pending the Secretary's endorsement, the regulations should be implemented on September 12, 2016.

Virginia

Jonah crab regulations in Virginia went into effect on June 1, 2016 (Chapter 4VAC20-1310). The following provisions were implemented.

- Participation in the directed Jonah crab fishery is limited to those individuals who have a legal federal lobster permit and at least one pound of documented landings of Jonah crab prior to June 2, 2015. These individuals are to obtain a Jonah Crab Limited Entry Fishery Permit. There is no landing limit for these fishermen.
- There is a no-cost Jonah crab incidental commercial permit for any harvester using gear or methods other than lobster traps in Virginia waters.
- A Limited Entry Jonah Crab Claw Fishery Permit is required to land Jonah crab claws. Permits are issued to a Virginia registered commercial fisherman who is a legal federal lobster permittee and who has at least one pound of documented claw landings prior to June 2, 2015.
- A prohibition on the retention of egg-bearing females in the commercial fishery.
- 4 ¾ inch carapace width minimum size in the commercial fishery.
- Recreational limit of 50 crabs per day.

Please contact Megan Ware, FMP Coordinator, with any questions regarding the implementation of the Jonah Crab Fishery Management Plan at mware@asmfc.org or 703-842-0740.